DECISION DOCUMENT

811-817 Lexington Avenue
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224308
February 2021

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

DECLARATION STATEMENT - DECISION DOCUMENT

811-817 Lexington Avenue
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224308
February 2021

Statement of Purpose and Basis

This document presents the remedy for the 811-817 Lexington 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 (the Department) for the 811-817 Lexington Avenue site and the public's input to the proposed remedy presented by the Department.

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, 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 gas 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, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction

2. Excavation

Excavation and off-site disposal of all soils which exceed restricted-residential SCOs, as defined by 6 NYCRR Part 375-6.8 in the upper 15 feet. If a Track 2 restricted residential cleanup is achieved, a cover system will not be a required element of the remedy.

Excavation and off-site disposal of contaminated soil source areas, including grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead; 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, to the extent feasible. Approximately 4,300 cubic yards of contaminated soil will be removed from the site.

3. Soil Vapor Extraction (SVE)

Based on the results of the Pre-Design Investigation, the Department and the New York State Department of Health (NYSDOH) will determine if an SVE system is needed to remove volatile organic compounds (VOCs) from the subsurface beyond the extent of the planned excavation. VOCs will be physically removed from the soil by applying a vacuum to the SVE wells. 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. Before implementing the SVE system, a pilot test may be necessary.

4. In-Situ Chemical Oxidation (ISCO) or Soil Vapor Extraction/Air Sparge System (SVE/AS)

Based on the results of the Pre-Design Investigation, the Department and NYSDOH will determine if a groundwater remedy is needed. The two possible groundwater remedies are listed below:

In-situ chemical oxidation may be implemented to treat VOCs in groundwater. A chemical oxidant would be injected into the subsurface to destroy the contaminants in the on-site groundwater via injection wells. The method and depth of injection will be determined during the remedial design.

Air sparging may be implemented to address the groundwater plume contaminated by volatile organic compounds (VOCs). VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. The injected air rising through the groundwater will volatilize and transfer the VOCs from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system designed to remove the injected air will be installed. The SVE system will apply a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells will be treated as necessary prior to being discharged to the atmosphere. The design criteria for this system will be

determined in consultation with the Department and NYSDOH.

5. Vapor Mitigation (Sub-Slab Depressurization System)
Any on-site buildings will be required to have a Sub-Slab Depressurization System (SSDS), or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

6. 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.

7. 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 6 above.

Engineering Controls: The Soil Vapor Extraction system discussed in Paragraph 3 above, Soil Vapor Extraction/Air Sparge system (SVE/AS) and In-Situ Chemical Oxidation discussed in Paragraph 4 above, and Sub Slab Depressurization System discussed in Paragraph 5, and the Site Cover system discussed in Paragraph 8 below, of this Decision Document.

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; which will include a provision to implement a Community Air Monitoring Plan (CAMP) for any future ground intrusive activity including utility work;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- descriptions of the provisions of the environmental easement including any land use and/or groundwater water use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any

areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)
- provisions for the management and inspection of the identified engineering control
- 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 soil, groundwater, and soil vapor to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:

- procedures for operating and maintaining the system(s); and
- compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

Contingent Remedy Elements
The intent of the remedy is to achieve Track 2 restricted residential use; therefore, no engineering control for soil is anticipated. In the event that Track 2 restricted residential use is not achieved, the following contingent remedial elements will be required, and the remedy will achieve a Track 4 restricted residential cleanup.

8. Cover System
A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). This soil cover 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.

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 protective of public health and the environment.

_February 2, 2021_____ _____

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

811-817 Lexington Avenue
Brooklyn, Kings County
Site No. C224308
January 2021

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), 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, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department 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

The Department 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 the Department 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=C224308

Brooklyn Community Board 3
1360 Fulton Street
Brooklyn, NY 11216
Phone: (718) 622-6601

Brooklyn Public Library, Macon Branch
361 Lewis Avenue
Brooklyn, NY 11233
Phone: (718) 573-5606

Receive Site Citizen Participation Information By Email

Please note that the Department'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

Site Location: The Site is located at 811-817 Lexington Avenue in the Bedford-Stuyvesant neighborhood in Brooklyn, New York and is identified as Block 1622, Lot 51 and Lot 56 (contiguous parcels). The Site's area is 15,500 square feet (0.35 acres). The site is bounded: to the north by several residential buildings and a community garden; to the east by a five-story building under construction; to the south by Lexington Avenue and to the west by a 2-story public facility.

Site Features: The site consists of two adjacent lots occupied by a split-level one- and two-story vacant industrial building and asphalt-paved parking lot, located on two adjoining rectangular-shaped parcels totaling approximately 0.35-acres in size.

Current Zoning and Land Use: The site is currently inactive. The property is located in a mixed multi-family residential and commercial neighborhood that is zoned R6B (General Residence District). The surrounding parcels are currently used for a combination of residential, public facility, community garden, church and utility rights-of-way. The proposed future use of the site will consist of a new 4-story affordable-housing residential building totaling 61 residential units.

Past Use of the Site: The existing split-level building on Lot 51 has been used for various manufacturing and commercial purposes since its construction between 1908 and 1924. A commercial garage which operated between at least 1928 and 1940; a trucking company a laundry facility identified in 1949; and various commercial/ light industrial companies between at least 1949 and 1997. According to a 1932 Sanborn map, a gasoline tank was present on the southern portion of this lot.

Lot 56 was previously improved with a 3-story commercial/industrial building constructed sometime between 1908 and 1924. Uses of the building included metal stamping operations in 1934; dyeing and finishing operations between at least 1940 and 1960; ribbon dyeing in 1960; and a manufacturing facility in 1960. The former on-site building was razed sometime between

1966 and 1976 and the lot was converted into the existing asphalt paved parking lot.

Site Geology and Hydrogeology: Geology of the site consists of urban fill (with debris and cinders) to depths ranging from 10 to 13 feet, underlain by native materials (silty sands and sands, with variable amounts of silt and gravel), to a depth of 40 feet below ground surface (bgs). Fill was identified in test pits beneath the building slab. Bedrock was not encountered during any investigation activities, which extended to a maximum depth of approximately 61 feet. Depth to groundwater ranges from approximately 41 to 44 feet. The direction of groundwater flow is southeast.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department 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, alternatives that restrict 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) were 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 Volunteer does not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement actions are 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

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. The Department 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 contaminants of concern identified at this site are:

benzo(a)anthracene	cadmium
benzo(a)pyrene	mercury
benzo(b)fluoranthene	chromium
tetrachloroethene (PCE)	manganese
trichloroethene (TCE)	nickel

1,2,4-trimethylbenzene xylene (mixed)
lead

The contaminants of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion

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.

There were no IRMs performed at this site during the RI.

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: Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Groundwater was also analyzed for emerging contaminants. Soil vapor was analyzed for VOCs only. Based upon the subsurface investigations conducted to date, the primary contaminants of concern for the site are chlorinated volatile organic compounds (CVOCs), including trichloroethylene (TCE) and tetrachloroethylene (PCE).

Soil: VOCs were not found above the Restricted Residential Soil Cleanup Objective (RRSCO) and or protection of groundwater SCOs. Total SVOCs were detected at concentrations ranging from approximately 24 parts per million (ppm) to 54 ppm. SVOCs were found across the site, with benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and chrysene (4.09, 3.32, 3.0 and 4.23 ppm respectively) above the RRSCOs of 1 ppm each. Metals reported include 550 ppm lead (RRSCO is 400 ppm), 10.2 ppm cadmium (RRSCO is 4.3 ppm) and 13 ppm mercury (RRSCO is 0.81 ppm). Data does not indicate any off-site impacts in soil related to this site.

Groundwater: Elevated levels of PCE and TCE were found in all wells at concentrations exceeding the applicable Ambient Water Quality Standards (AWQS), with PCE ranging from 11 to 22 parts per billion, or ppb (AWQS 5 ppb), and TCE ranging from 11 to 23 ppb (AWQS 5 ppb). SVOC contamination is limited to 2,4-dinitrotoluene at 12.5 ppb (AWQS is 5 ppb), bis(2-ethylhexyl) phthalate at 12.8 ppb (AWQS is 5 ppb). Multiple metals were reported in all groundwater samples, with elevated levels of dissolved metals chromium at 3,590 ppb (AWS is 50 ppb), cobalt at 11.4 ppb (AWQS is 5 ppb), and nickel at 213 ppb (AWQS is 100 ppb).

For the emerging contaminants, 1,4-dioxane was not found in any samples. The highest PFOA and PFOS concentrations detected were 109 and 26.6 parts per trillion (ppt) compared to their maximum contamination level (MCL) of 10 parts per trillion (ppt). Data does not indicate any off-site impacts in groundwater related to this site.

Soil Vapor: Nine soil vapor samples were collected and analyzed during the RI. Contamination by chlorinated VOCs (CVOCs), primarily PCE and TCE, was documented throughout the site. The highest levels of TCE were reported at 11,000 micrograms per cubic meter (ug/m3) below the northern part of existing building (SV-07). PCE was reported at 1,200 ug/m3 at SV-09. Soil vapor impacts are evident across the site but the highest concentrations were detected beneath Lot 51.

High levels of petroleum VOCs were reported on Lot 51, including total xylenes at 1,910 ug/m3, p-ethyltoluene at 720 ug/m3, and 1,2,4-trimethylbenzene at 510 ug/m3. Data indicates there are off-site impacts in soil vapor related to this 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.*

Direct contact with contaminants that may be present in the soil is unlikely because the site is covered with a vacant building and asphalt paved parking lot. People are not drinking the contaminated groundwater because the area is served by a public water supply that is 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 onsite development. The potential also exists for soil vapor intrusion in buildings offsite.

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 if detected during pre-design investigation.

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 remedy is a Track 2: Restricted Residential with site specific soil cleanup objectives remedy.

The selected remedy is referred to as the Excavation, Soil and Groundwater Source Remediation, and Sub-Slab Depressurization System (SSDS) remedy.

The elements of the selected remedy, as shown in Figure 2 and 3 are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, 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 gas 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, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction

2. Excavation

Excavation and off-site disposal of all soils which exceed restricted-residential SCOs, as defined by 6 NYCRR Part 375-6.8 in the upper 15 feet. If a Track 2 restricted residential cleanup is achieved, a cover system will not be a required element of the remedy.

Excavation and off-site disposal of contaminated soil source areas, including grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead; 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, to the extent feasible. Approximately 4,300 cubic yards of contaminated soil will be removed from the site.

3. Soil Vapor Extraction (SVE)

Based on the results of the Pre-Design Investigation, the Department and the New York State Department of Health (NYSDOH) will determine if an SVE system is needed to remove volatile organic compounds (VOCs) from the subsurface beyond the extent of the planned excavation. VOCs will be physically removed from the soil by applying a vacuum to the SVE wells. 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. Before implementing the SVE system, a pilot test may be necessary.

4. In-Situ Chemical Oxidation (ISCO) or Soil Vapor Extraction/Air Sparge System (SVE/AS)

Based on the results of the Pre-Design Investigation, the Department and NYSDOH will determine if a groundwater remedy is needed. The two possible groundwater remedies are listed below:

In-situ chemical oxidation may be implemented to treat VOCs in groundwater. A chemical

oxidant would be injected into the subsurface to destroy the contaminants in the on-site groundwater via injection wells. The method and depth of injection will be determined during the remedial design.

Air sparging may be implemented to address the groundwater plume contaminated by volatile organic compounds (VOCs). VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. The injected air rising through the groundwater will volatilize and transfer the VOCs from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system designed to remove the injected air will be installed. The SVE system will apply a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells will be treated as necessary prior to being discharged to the atmosphere. The design criteria for this system will be determined in consultation with the Department and NYSDOH.

5. Vapor Mitigation (Sub-Slab Depressurization System)

Any on-site buildings will be required to have a Sub-Slab Depressurization System (SSDS), or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

6. 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 NYCMHDOH; and
- require compliance with the Department approved Site Management Plan.

7. 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 6 above.

Engineering Controls: The Soil Vapor Extraction system discussed in Paragraph 3 above, Soil Vapor Extraction/Air Sparge system (SVE/AS) and In-Situ Chemical Oxidation discussed in Paragraph 4 above, and Sub Slab Depressurization System discussed in Paragraph 5, and the Site

Cover system discussed in Paragraph 8 below, of this Decision Document.

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; which will include a provision to implement a Community Air Monitoring Plan (CAMP) for any future ground intrusive activity including utility work;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- descriptions of the provisions of the environmental easement including any land use and/or groundwater water use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)
- provisions for the management and inspection of the identified engineering control
- 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 soil, groundwater, and soil vapor to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:

- procedures for operating and maintaining the system(s); and
- compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

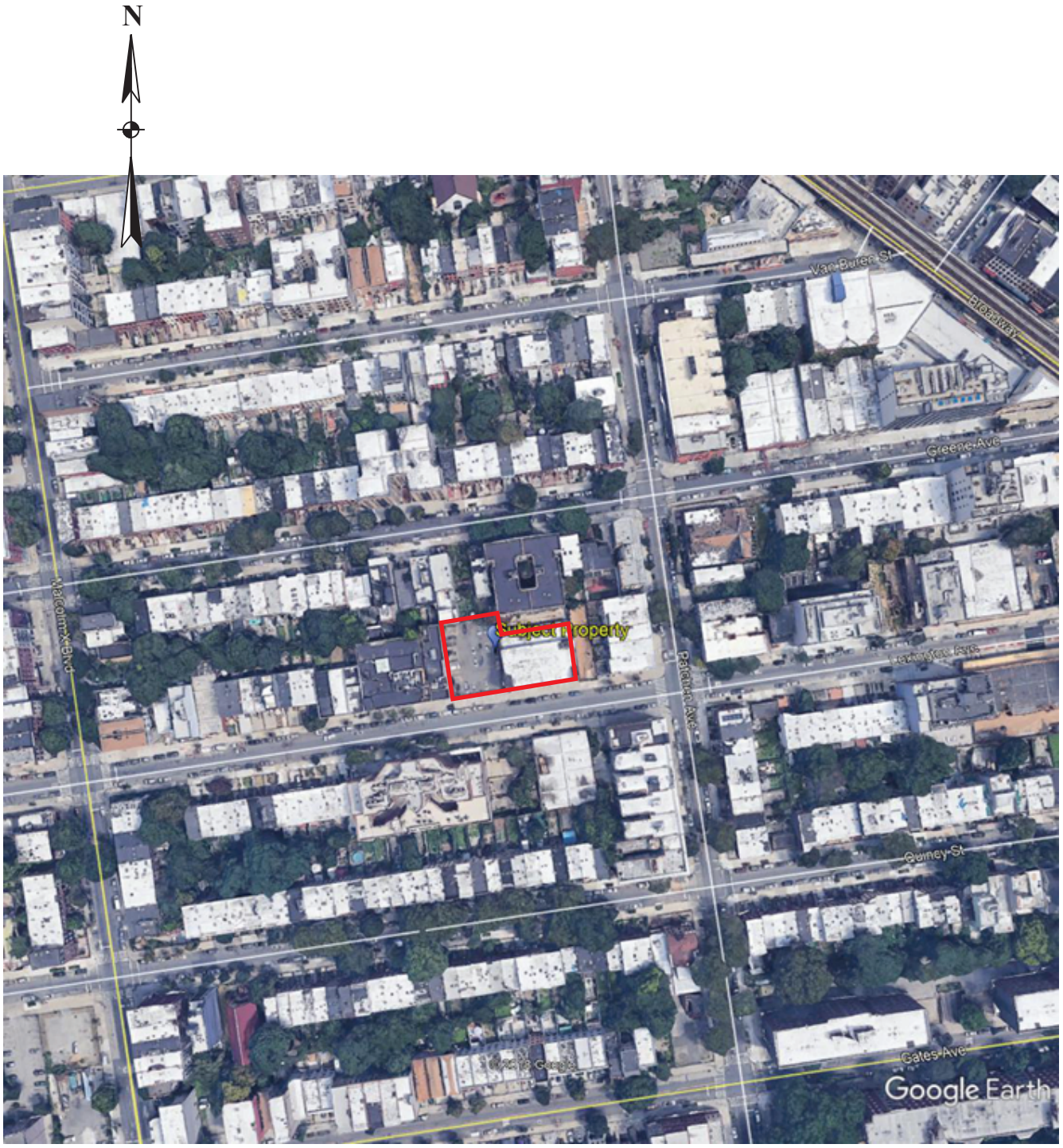
Contingent Remedy Elements

The intent of the remedy is to achieve Track 2 restricted residential use; therefore, no engineering control for soil is anticipated. In the event that Track 2 restricted residential use is not achieved, the following contingent remedial elements will be required, and the remedy will achieve a Track 4 restricted residential cleanup.

8. Cover System

A site cover will be required to allow for restricted residential use of the site in areas where the

upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). This soil cover 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.



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 1: Site Location Map

811-817 Lexington Avenue
Borough of Brooklyn, New York

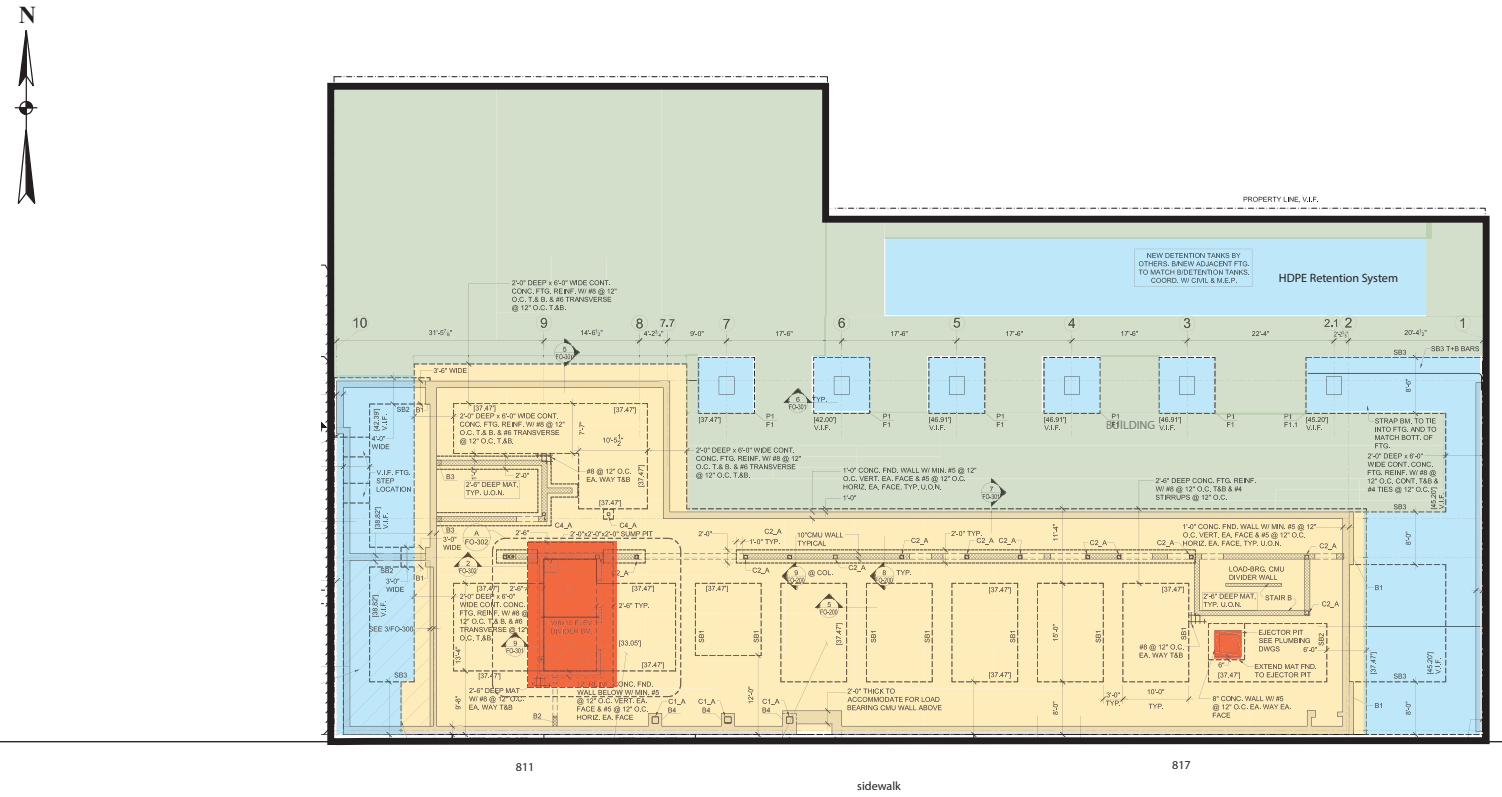
Legend:

subject property border

File No: IB19062.40

January 2021

Figures



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0 10 20
SCALE IN FEET (APPROXIMATELY)

All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Legend:
- subject property border
- excavate to maximum depth of approx. 17' bsg
- excavate to maximum depth of approx. 15' bsg
- excavate to maximum depth of approx. 19' bsg
- excavate to maximum depth of 3' bsg

Figure 2: Soil Excavation Plan

811-817 Lexington Avenue
Borough of Brooklyn, New York

File: IB19062.40
Scale as shown
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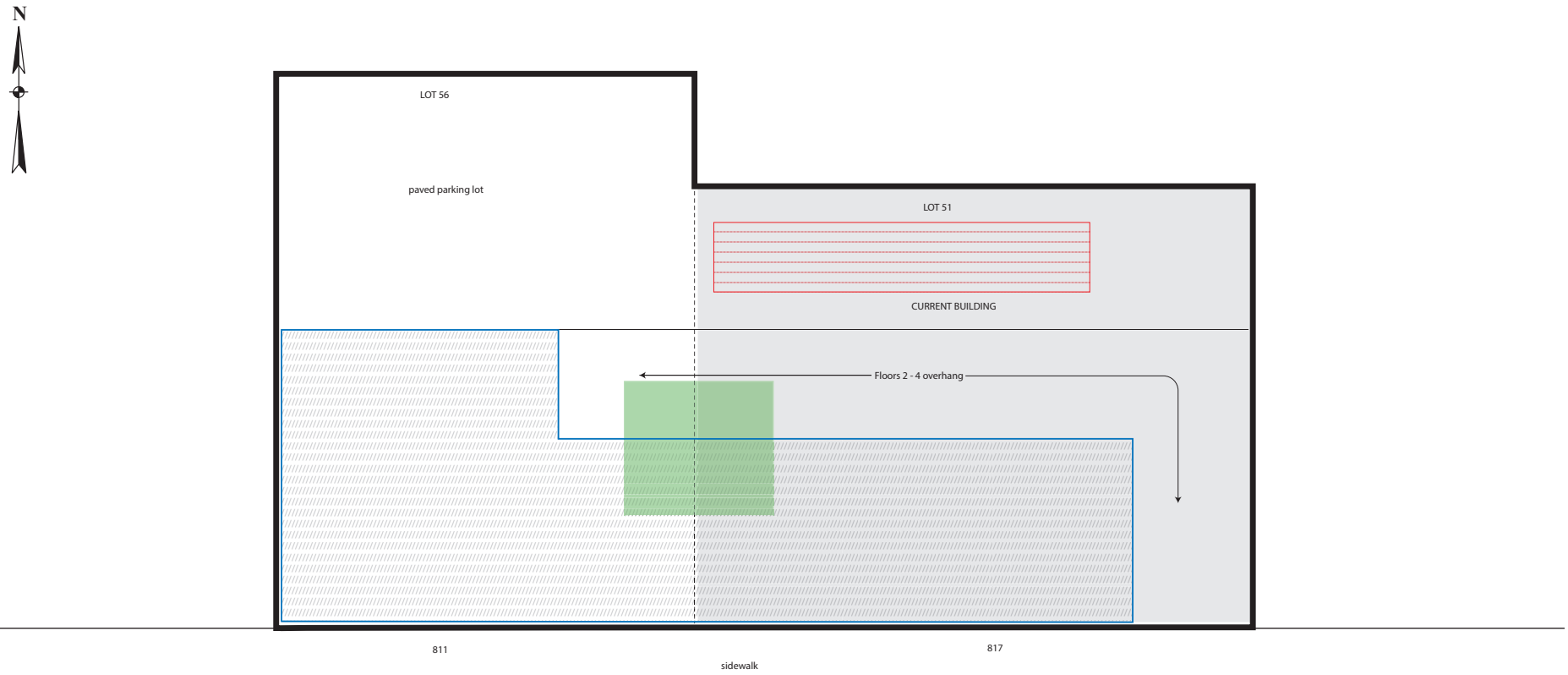

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Legend:
- subject property border
- proposed building footprint
- lot line
- location of proposed ISCO treatment
- location of proposed SVES
- area subject to sub slab depressurization

All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 3: Proposed Remedial Actions

811-817 Lexington Avenue
Borough of Brooklyn, New York

File: IB19062.40

Scale as shown

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