DECISION DOCUMENT

585 Union Street
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224329
November 2022

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

DECLARATION STATEMENT - DECISION DOCUMENT

585 Union Street
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224329
November 2022

Statement of Purpose and Basis

This document presents the remedy for the 585 Union Street 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 585 Union Street 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, 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;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and

- 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 contaminant source areas, including

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soils which exceed the protection of groundwater soil cleanup objectives (PGSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

All soils in the upper two feet which exceed the restricted residential soil cleanup objectives (RRSCOs) will be excavated and transported off-site for disposal. In addition, petroleum source material associated with NYSDEC Spill 2009932 down to approximately 10 feet below the water table, where petroleum-related VOCs exceeded protection of groundwater soil cleanup objectives (PGSCOs) and/or RRSCOs, will be excavated and taken off-site for proper disposal.

Approximately 16,700 tons of contaminated soil will be removed from the 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 DEC, submit the sample results and, and in consultation with DEC, 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) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

4. 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.

5. Groundwater Extraction & Treatment

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

Monitoring will be required downgradient of the treatment zone. Pre- and post-dewatering monitoring will be conducted for VOCs at two monitoring wells downgradient of the treatment zone.

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, NYCDOH; 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 Cover System discussed in paragraph 4, the Groundwater Extraction and Treatment discussed in paragraph 5 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- description of the provisions of the environmental easement including any land use, and groundwater 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 4 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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.

November 14, 2022

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

585 Union Street
Brooklyn, Kings County
Site No. C224329
November 2022

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, 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.

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 repository:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C224329

Brooklyn Public Library-Pacific Branch
25 Fourth Avenue at Pacific Street
Brooklyn, NY 11217
Phone: (718)-638-1531

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

Location: The 33,550 square foot site is located in the Gowanus neighborhood of Brooklyn, NY and is identified as Tax Block 433, Lot 28. The site was formerly comprised of two separate tax lots (Lot 28 and Lot 46) but was recently merged into a single tax lot.

Site Features: All buildings on site were recently demolished and currently, the site is a vacant fenced lot.

Current Zoning and Land Use: The Site was rezoned to M1-4/R7A designation; the M1-4 is a light manufacturing district where manufacturing, commercial and community facilities are permitted and the R7A is a contextual residential district. The surrounding parcels are used for a combination of residential, commercial, and light industrial/manufacturing purposes.

Past Use of the Site: Historic Sanborn Fire Insurance maps indicate that as early as 1889, former lot 28 was used as a timber yard and former lot 46 contained a single building used as a paint shop. The 1938 map depicts water distilling on former lot 46, and former lot 28 was improved with the current warehouse structure which was utilized by the NY Fire Department as an automobile repair garage and by the Telegraph Department for storage. By 1950, former lot 28 was used by the NY Fire Department Telegraph Bureau, and by 1982, the South Brooklyn Casket Company occupied the entire site.

Site Geology and Hydrogeology: The site-specific geology observed during the advancement of soil borings indicates fill material to 5 feet below grade surface (ft bgs) across most of the site. to 10 ft bgs predominantly on the southern portion of the site, and to 15 ft bgs in the east, central and south-central portions of the site. The fill material is described as brown to dark brown medium to coarse sand with gravel, rock and anthropogenic materials consisting of concrete and brick fragments, coal, cinders, pieces of glass, tile, ceramics and/or wood. The soil identified beneath the fill material is generally described as brown to red brown and/or light grey fine to coarse sand with some gravel, rock fragments, silt and clay with organics in some borings to depths of 15 to 20 fbg. Bedrock was not encountered during the remedial investigation.

Groundwater was encountered at depths ranging between approximately 9 and 13 ft bgs and flows in a west- southwest direction beneath the site towards the Gowanus Canal, which is located approximately 530 feet from the site.

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 (or an alternative) that restrict(s) 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/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 has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

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
- indoor air
- sub-slab vapor
- 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 contaminant(s) of concern identified at this site is/are:

benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(k)fluoranthene
chrysene
indeno(1,2,3-cd) pyrene
barium
lead
mercury
arsenic
1,2,4,5-tetra methylbenzene
1,4 -dioxane
benzene
isopropyl benzene
n-propyl benzene
chloroform
carbon tetrachloride
methylene chloride
sec-butylbenzene
toluene
pfoa
pfos
m/p xylene

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

- soil
- groundwater

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.

A site wide investigation was conducted to delineate contamination in soil, groundwater, and sub-slab soil vapor. Soil and groundwater samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, the emerging contaminants per-and polyfluoroalkyl substances (PFAS) and 1,4 dioxane. Sub-slab soil vapor was analyzed for VOCs. Based on the results of the investigation, the primary contaminants of concern at the site are metals, petroleum related VOCs and SVOCs in soil, and petroleum-related VOCs in groundwater. Results are summarized below:

Soil: Contaminants were compared against the restricted residential soil cleanup objectives (RRSCOs) and/or the protection of groundwater SCOs (PGSCOs) for those compounds found in on-site groundwater. VOCs and SVOCs were detected at concentrations that exceed their applicable PGSCOs including total xylenes up to 1.7 parts per million (ppm) (PGSCO is 1.6 ppm) and benzo(k)fluoranthene up to 15 parts per million (ppm) (PGSCO is 1.7 ppm). For SVOCs, benzo(a)anthracene was detected up to 38 ppm (RRSCO is 1 ppm), benzo(a)pyrene up to 73 ppm (RRSCO is 1 ppm), benzo(b)fluoranthene up to 48 ppm (RRSCO is 1 ppm), benzo(k)fluoranthene up to 15 ppm (RRSCO is 3.9 ppm), chrysene up to 34 ppm (RRSCO is 3.9 ppm), indeno(1,2,3-cd) pyrene up to 46 ppm (RRSCO is 0.5 ppm). For metals, barium was detected up to 461 ppm (RRSCO is 400 ppm), mercury up to 28 ppm (RRSCO is 0.81 ppm), and arsenic up to 34.2 ppm (RRSCO is 16 ppm). The emerging contaminants Per- and Polyfluoroalkyl Substances (PFAS), which includes Perfluorooctane sulfonate (PFOS) and Perfluorooctanoic acid (PFOA), were not detected above the Unrestricted Use (UU) SCOs, RRSCOs and PGSCOs in the soil samples. Additionally, 1,4-Dioxane was not detected in the soil samples above the Unrestricted Use (UU) SCOs, RRSCOs and PGSCOs in the soil samples.

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

Groundwater: Several petroleum related VOCs were detected in on-site groundwater at levels exceeding their respective ambient water quality standards (AWQS), including: 1,2,4,5-tetra methylbenzene up to 33 parts per billion (ppb)(AWQS is 5 ppb), benzene up to 17 ppb (AWQS is 1 ppb), p/m xylene up to 14 ppb (AWQS is 5 ppb), isopropylbenzene up to 84 ppb (AWQS is 5 ppb), sec-butylbenzene up to 7.4 ppb (AWQS is 5 ppb), and n-propylbenzene up to 84 ppb (AWQS is 5 ppb). SVOCs such as benzo(a)anthracene was detected in on-site groundwater at a maximum

concentration of 0.17 ppb (AWQS is 0.002 ppb), benzo(b)fluoranthene up to 0.13 ppb (AWQS is 0.002 ppb), benzo(k)fluoranthene up to 0.14 ppb ((AWQS is 0.002) and indeno (1,2,3-cd) pyrene up to 0.12 (AWQS is 0.002). Perfluorooctanoic acid (PFOA) was detected in groundwater samples at a maximum concentration of 81.6 parts per trillion (ppt) compared to the maximum contaminant level (MCL) (drinking water standard) of 10 ppt and perfluorooctanesulfonic acid (PFOS) was detected in groundwater samples at a maximum concentration of 26.4 ppt (MCL is 10 ppt). 1,4 - dioxane was also detected in groundwater samples at a maximum concentration of 3.68 ppb (AWQS is 1 ppb).

Data does not indicate any offsite impacts in groundwater related to the site.

Sub slab vapor and Indoor Air: Five sub-slab and indoor air sample were collected beneath the former one-story building identified carbon tetrachloride at 0.32 micrograms per cubic meter (ug/m3) in the sub-slab and 0.47 ug/m3 in the indoor air as well as methylene chloride at 13 ug/m3 in the sub-slab and 10 ug/m3 in the indoor air.
Data does not indicate any off-site impacts in soil vapor relate to the site.

Soil Vapor: Petroleum related constituents such as toluene was detected in the soil vapor at a max concentration of 3,300 ug/m3. This appears to be originating from an off-site source.

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.*

Access is restricted by a fence. However, people who enter the site may come into contact with site-related soil and groundwater contamination if they dig below the ground surface (concrete foundation slab). Contaminated groundwater at the site is not used for drinking and the site and surrounding areas are 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. Because the site is vacant, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its current condition. However, the potential exists for indoor air impacts in future buildings on-site. Environmental sampling indicates soil vapor intrusion from site contamination is not a 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 remedy.

The selected remedy is referred to as the Soil Excavation, Cover System, Groundwater Extraction & Treatment and Backfill remedy.

The elements of the selected remedy, as shown in Figure 2, 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;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- 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 contaminant source areas, including

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soils which exceed the protection of groundwater soil cleanup objectives (PGSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

All soils in the upper two feet which exceed the restricted residential soil cleanup objectives (RRSCOs) will be excavated and transported off-site for disposal. In addition, petroleum source material associated with NYSDEC Spill 2009932 down to approximately 10 feet below the water table, where petroleum-related VOCs exceeded protection of groundwater soil cleanup objectives (PGSCOs) and/or RRSCOs, will be excavated and taken off-site for proper disposal.

Approximately 16,700 tons of contaminated soil will be removed from the 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 DEC, submit the sample results and, and in consultation with DEC, 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) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

4. 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.

5. Groundwater Extraction & Treatment

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

Monitoring will be required downgradient of the treatment zone. Pre- and post-dewatering monitoring will be conducted for VOCs at two monitoring wells downgradient of the treatment zone.

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 NYCDOH; 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.

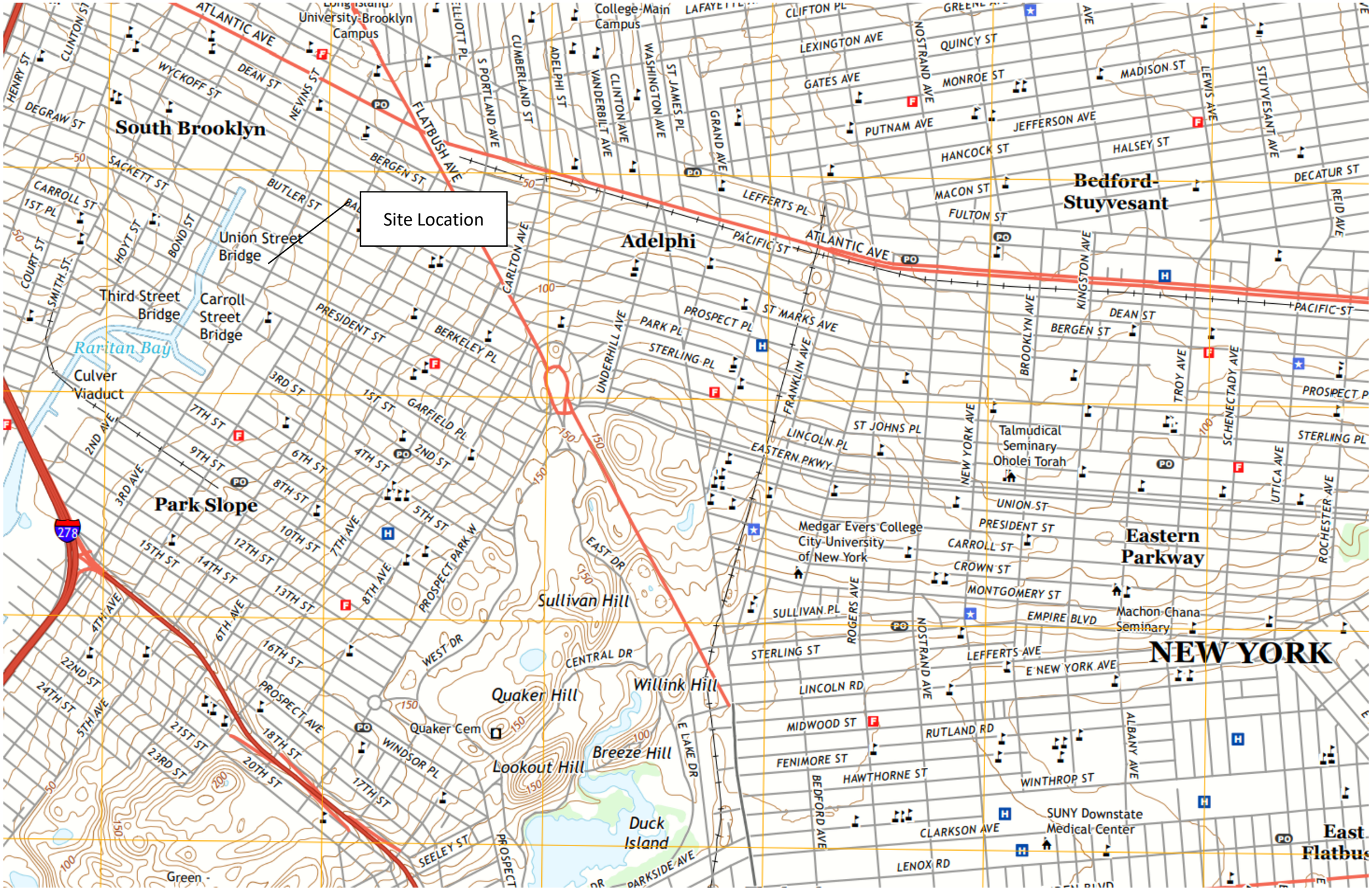
- Engineering Controls: The Cover System discussed in paragraph 4, the Groundwater Extraction and Treatment discussed in paragraph 5 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- description of the provisions of the environmental easement including any land use, and groundwater 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 4 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.



NOTES:

Source Map - USGS Brooklyn, NY Quadrangle dated 2019

SITE LOCATION MAP

585 Union Street
Brooklyn, NY
Block 433, Lot 28

Figure 1

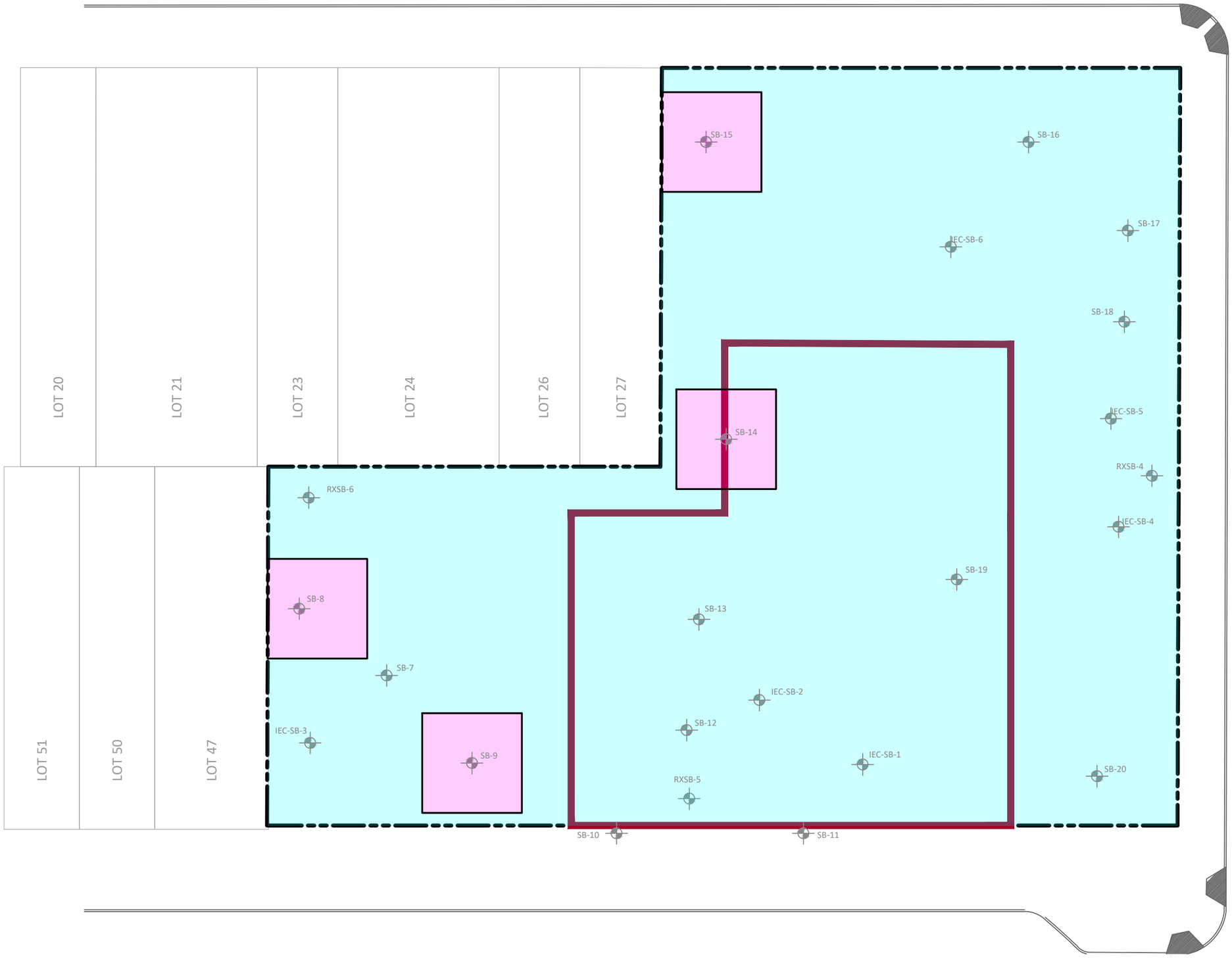
Project #:	14729
Drawn By:	JDF
Checked By:	KK
Date:	7/1/2022
Revisions	

N

Not to scale

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

1000 PAGE AVENUE
LYNDHURST, NEW JERSEY 07071



NOTES:

1. FOUNDATION UNERLAY BASED ON "FOUNDATION PLAN" DRAWING NO. FO-099.00, DATED 07/30/2021, UPDATED 05/18/2022.

N E S W

0 25' 50'

LEGEND

- EXCAVATION FOOTPRINT TO 2 FBG FOR TRACK 4 REMEDIATION
- HOTSPOT SOURCE EXCAVATION TO DEPTHS RANGING FROM 8 FBG UP TO 15 FBG
- PETROLEUM-RELATED SOURCE AREA EXCAVATION TO 10 FBG
- SOIL BORING LOCATION

TRACK 4 CLEANUP PLAN

585 UNION STREET
BROOKLYN, NY
BLOCK 433, LOT 28

SHEET NO.
Figure 2

PROJECT NO.	14729
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	09/01/2022
SCALE:	1" = 25'

REVISIONS

IMPACT ENVIRONMENTAL
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