DECISION DOCUMENT

Sunset Industrial Park
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224148
June 2022

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

DECLARATION STATEMENT - DECISION DOCUMENT

Sunset Industrial Park
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224148
June 2022

Statement of Purpose and Basis

This document presents the remedy for the Sunset Industrial Park 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 Sunset Industrial Park 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:

- 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; and
- Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination

Excavation and off-site disposal of contaminated soil from the areas of concern (AOC) which exceed and protection of groundwater soil cleanup objectives (PGSCOs), as defined by 6 NYCRR Part 375-6.8 at depth to 8 feet below grade surface (bgs). Approximately 250 cubic yards of contaminated soil will be removed from the site.

3. Backfill

On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 4 to backfill the excavation and establish the designed grades at the site. 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 to allow for industrial use of the site in areas where the upper one feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one 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. Vapor Mitigation

Any on-site or proposed future buildings will be required to have a sub-slab depressurization system (SSDS), or other acceptable measures for occupied areas, to mitigate the migration of vapors into the building from the subsurface.

6. **In- Situ Groundwater Treatment**

In-situ Chemical oxidation (ISCO) will be implemented to treat petroleum related volatile organic compounds (VOCs) in the southeastern portion of the site beneath the SP-06 area of concern (AOC) to achieve the groundwater remedial action objectives. A chemical oxidant comprised of Oxygen Release Compound Advanced (ORCA) which is a calcium oxyhydroxide based material will be injected into the subsurface to destroy the contaminants in an approximately 1,000 square foot area located in the southeastern portion of the site where gasoline-related compounds were elevated in the groundwater. As part of this in situ application, the recently backfilled virgin 3/4-inch bluestone will be excavated from the SP-06 AOC to approximately six ft below land surface (bls) to reach the observed groundwater table. Once the groundwater table has been exposed, approximately 1,500 pounds of ORCA will be directly applied at a rate of 1.5 pounds per square foot to the open excavation and thoroughly mixed up to three feet into the groundwater table using an excavator.

After the injections, monitoring will be required within, and downgradient of, the treatment zone to determine the effectiveness of the remedy. Monitoring will be conducted at a minimum upgradient and downgradient for the detected contaminants and their degradation by-products.

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 industrial 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 NYCDOH; 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 7 above.

- Engineering Controls: The Cover System discussed in paragraph 4 and the Vapor Mitigation System 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;
- 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 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, 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 sub slab depressurization system 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 protective of public health and the environment.

June 2, 2022

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

Sunset Industrial Park
Brooklyn, Kings County
Site No. C224148
June 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 repositories:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C224148

Brooklyn Public Library - Park Slope Branch
431 6th Avenue
Brooklyn, NY 11215
Phone: (718) 832-1853

Brooklyn Community Board 7
4201 4th Avenue
Brooklyn, NY 11232
Phone: (718) 854-0003

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 0.94 acres site is located at 74 20th Street, Brooklyn, NY and is identified as Tax Block 638 and Lot 10 on the New York City Tax Map. The site is bounded by a lumber yard to the east; and industrial property to the west; 20th Street to the north; and 21st Street to the south. Further to the west is an area with numerous industrial, manufacturing, and commercial properties known as Sunset Industrial Park, before reaching the Gowanus Canal. Further east is Interstate 278 (the Brooklyn-Queens Expressway).

Site Features: All buildings on site were recently demolished as an interim remedial measure (IRM). Currently, the site is a vacant lot.

Current Zoning and Land Use: The current property zoning is M3-1 for Industrial and Manufacturing Use. M3 districts are designated for areas with heavy industries such as power plants, solid waste transfer facilities, recycling plants, and fuel supply depots. The area surrounding the site mainly consists of industrial and manufacturing buildings with a mix of commercial, vacant properties, and properties used for transportation/utilities. Interstate 278/BQE and the nearest residential and institutional uses (South Brooklyn Medical Associates) are approximately 500 feet west of the site. The Gowanus Canal is located approximately 400 feet to the southwest of the site.

Past Use of the Site: Historic Sanborn fire insurance maps depicted development at the site as early as 1906 as a cedar mill/cigar box manufacturing facility containing a sawmill and an independent electric plant. By 1922, the facility appeared to be part of a printing ink manufacturing facility. During operation as a paint manufacturing facility, the site was reported to produce waste from the cleaning of paint mixing vats with xylene. The facility was assigned a United States Environmental Protection Agency (USEPA) Handler ID of NYD091590471. The Environmental Data Resources (EDR) database report contained information about the site's regulatory status including types of waste generated, which include unknown solvent mixtures, xylenes, benzenes, phthalates, phenyl mercury acetate, 2-propanone, 2-butanone, n-butyl alcohol,

and various paint sludges and waste waters. A 1984 Consent Decree obtained from the USEPA indicated that the Debevoise Company, a former owner and operator of the site, had violated record keeping, waste storage, and closure requirements of RCRA. A RCRA Site Closure Plan for Debevoise Paint was prepared dated 1985, with detailed procedures concerning the waste removal, cleanup, and decontamination activities required to decommission the facility, and included a soil sampling plan to satisfy the Consent Decree requirements. No additional information indicating that the closure plan had been or had not been completed was identified.

Site Geology & Hydrogeology: The site surface is relatively flat with a land surface elevation 5-10 feet above mean sea level. Based on the investigations completed on-site to date, the shallow deposits at the site are typical of urban fill material. The depth to the bottom of the urban fill layer extends to between two and ten ft below land surface (bls) across the Site. This urban fill material overlies deeper native deposits primarily consisting of sand and silt with some clay deposits encountered. Bedrock was not encountered during the remedial investigation. Groundwater was encountered at depths ranging from about 5.12 to 6.38 feet below ground surface (bgs) at the site and groundwater generally flows to the southwest towards the Gowanus Canal/Gowanus Bay.

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 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
- 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 are:

1,2,4-trimethylbenzene	isopropyl benzene
barium	m-xylene
benzene	o-xylene–
benzo(a)anthracene	lead
arsenic	acetone
mercury	tetrachloroethene (PCE)
ethylbenzene	trichloroethene (TCE)
xylene (mixed)	

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

- soil
- groundwater
- 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.

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

Remedial Excavation:

An IRM is currently being implemented to address xylene contamination and other site-related contaminants of concern within the former RCRA hazardous waste storage area of concern (AOC). The approved IRM includes:

- Cleaning and removal of former hazardous material process piping and stained masonry interior building walls;
- Demolition of on-site buildings and below-grade foundation elements to facilitate removal of soil contamination and to complete the remedial investigation of the site;
- Removal of any potential remaining underground storage tanks (USTs) or grossly impacted materials if encountered during demolition of foundation elements; and,
- Excavation of xylene-contaminated soil and on-site storm drain in the former hazardous waste storage AOC to prevent impacts to human health or the environment.

Soils within and near the former hazardous waste storage area was excavated to six feet below grade surface for the entire hot spot and disposed offsite. One underground storage tank (UST) was emptied, removed and properly disposed of off-site. In addition, all post excavation confirmation samples have met the lower of the protection of groundwater soil clean up objectives (PGSCOs) and/or industrial use soil cleanup objectives (ISCOs). The excavated areas were backfilled with clean fill/soil meeting the ISCOs.

The IRM will be completed and documented in the Final Engineering Report.

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.

Nature and Extent of Contamination:

A site wide and off-site investigation were conducted to delineate contamination in soil, groundwater, and 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. Soil vapor was analyzed for VOCs and mercury vapor. Based on the results of the investigation, the primary contaminants of concern at the site are metals, petroleum related VOCs and SVOCs in soil, petroleum-related VOCs in groundwater, and petroleum related VOCs and chlorinated VOCs in soil vapor. Results are summarized below:

Soil:

Several petroleum related VOCs were detected at concentrations that exceed their applicable protection of groundwater soil cleanup objectives (PGSCOs) and/or industrial use soil cleanup objectives (IUSCOs) including: 1,2,4-trimethylbenzene up to 390 parts per million (ppm) (PGSCO is 3.6 ppm) and xylene up to 2,000 ppm (PGSCO is 1.6 ppm). Several SVOCs were detected at concentrations that exceed their respective PGSCOs and/or IUSCOs, including benzo(a)anthracene up to 38 ppm (PGSCO is 1 ppm), benzo(a)pyrene up to 38 ppm (IUSCO is 1.1 ppm), benzo(b)fluoranthene up to 47 ppm (IUSCO is 11 ppm), and indeno(1,2,3-c,d)pyrene up to 20 ppm (IUSCO is 11 ppm). Several metals were detected at concentrations that exceed their respective PGSCOs and/or IUSCOs, including arsenic up to 63 ppm (PGSCO is 16 ppm) and mercury up to 26.6. ppm (PGSCO is 0.73 ppm).

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-trimethylbenzene up to 5.7 parts per billion (ppb) (AWQS is 5.1 ppb), ethylbenzene up to 110 ppb (AWQS is 5 ppb), isopropylbenzene up to 8.7 ppb (AWQS is 5 ppb), m, p-xylene up to 450 ppb (AWQS is 5 ppb), xylene (total) up to 140 ppb (AWQS is 5 ppb). SVOCs such as benzo(a)anthracene was detected in on-site groundwater at a maximum concentration of 0.63 (AWQS is 0.002 ppb). Perfluorooctanoic Acid (PFOA) was detected in groundwater samples at a maximum concentration of 198 parts per trillion, or 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 15.7 ppt (MCL is 10 ppt). 1,4-dioxane was not detected in groundwater samples.

Additionally, two off-site groundwater sample was collected from the downgradient monitoring well located on the southern side of the parking lot adjoining the site. PFOA was detected in off-site groundwater samples at a maximum concentration of 289 ppt (MCL is 10 ppt). PFOS was not detected in off-site groundwater samples. Additionally, no other site related contaminants were detected in off-site groundwater samples.

Based on the on-site and off-site groundwater sampling results, data does not indicate any off-site impacts in groundwater requiring remediation related to the site.

Soil Vapor:

PCE was detected in seven soil vapor samples at a maximum concentration of 4.3 micrograms per cubic meter ($\mu g/m^3$) and trichloroethene (TCE) was detected in one soil vapor sample at a concentration of 0.73 $\mu g/m^3$. Petroleum-related VOCs such as benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in soil vapor ranging from 26.5 $\mu g/m^3$ to 1,299 $\mu g/m^3$.

Based on the soil vapor sampling results, data does not indicate any 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.*

People will not come into contact with contaminated soil or groundwater unless they dig below the ground surface. People are not drinking 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 is not a current concern. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion in any future on-site development. 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.

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 Industrial Use remedy.

The selected remedy is referred to as the Excavation, Cover System, Vapor Mitigation remedy, and Groundwater Treatment 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:

- 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; and
- Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination

Excavation and off-site disposal of contaminated soil from the areas of concern (AOC) which exceed and protection of groundwater soil cleanup objectives (PGSCOs), as defined by 6 NYCRR Part 375-6.8 at depth to 8 feet below grade surface (bgs). Approximately 250 cubic yards of contaminated soil will be removed from the site.

3. Backfill

On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 4 to backfill the excavation and establish the designed grades at the site. 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 to allow for industrial use of the site in areas where the upper one feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one 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. Vapor Mitigation

Any on-site or proposed future buildings will be required to have a sub-slab depressurization system (SSDS), or other acceptable measures for occupied areas, to mitigate the migration of vapors into the building from the subsurface.

6. **In- Situ Groundwater Treatment**

In-situ Chemical oxidation (ISCO) will be implemented to treat petroleum related volatile organic compounds (VOCs) in the southeastern portion of the site beneath the SP-06 area of concern (AOC) to achieve the groundwater remedial action objectives. A chemical oxidant comprised of Oxygen Release Compound Advanced (ORCA) which is a calcium oxyhydroxide based material will be injected into the subsurface to destroy the contaminants in an approximately 1,000 square foot area located in the southeastern portion of the site where gasoline-related compounds were elevated in the groundwater. As part of this in situ application, the recently backfilled virgin 3/4-inch bluestone will be excavated from the SP-06 AOC to approximately six ft below land surface (bls) to reach the observed groundwater table. Once the groundwater table has been exposed, approximately 1,500 pounds of ORCA will be directly applied at a rate of 1.5 pounds per square foot to the open excavation and thoroughly mixed up to three feet into the groundwater table using an excavator.

After the injections, monitoring will be required within, and downgradient of, the treatment zone to determine the effectiveness of the remedy. Monitoring will be conducted at a minimum upgradient and downgradient for the detected contaminants and their degradation by-products.

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 industrial 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 NYCDOH; 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 7 above.

- Engineering Controls: The Cover System discussed in paragraph 4 and the Vapor Mitigation System 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;
- 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 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, 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 sub slab depressurization system 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.

N

LEGEND

SITE BOUNDARY

30 0 30'

Title:

SITE MAP

SUNSET INDUSTRIAL PARK
BLOCK 638, LOT 10, NYSDEC BCP SITE C224148

Prepared for:

SIP HOLDINGS VENTURE, LLC

ROUX

Compiled by: L.C.	Date: 03/10/22
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: L.C.	Project: 3165.0006J000
File: 3165.0006J101.4v2.mxd	

FIGURE 1

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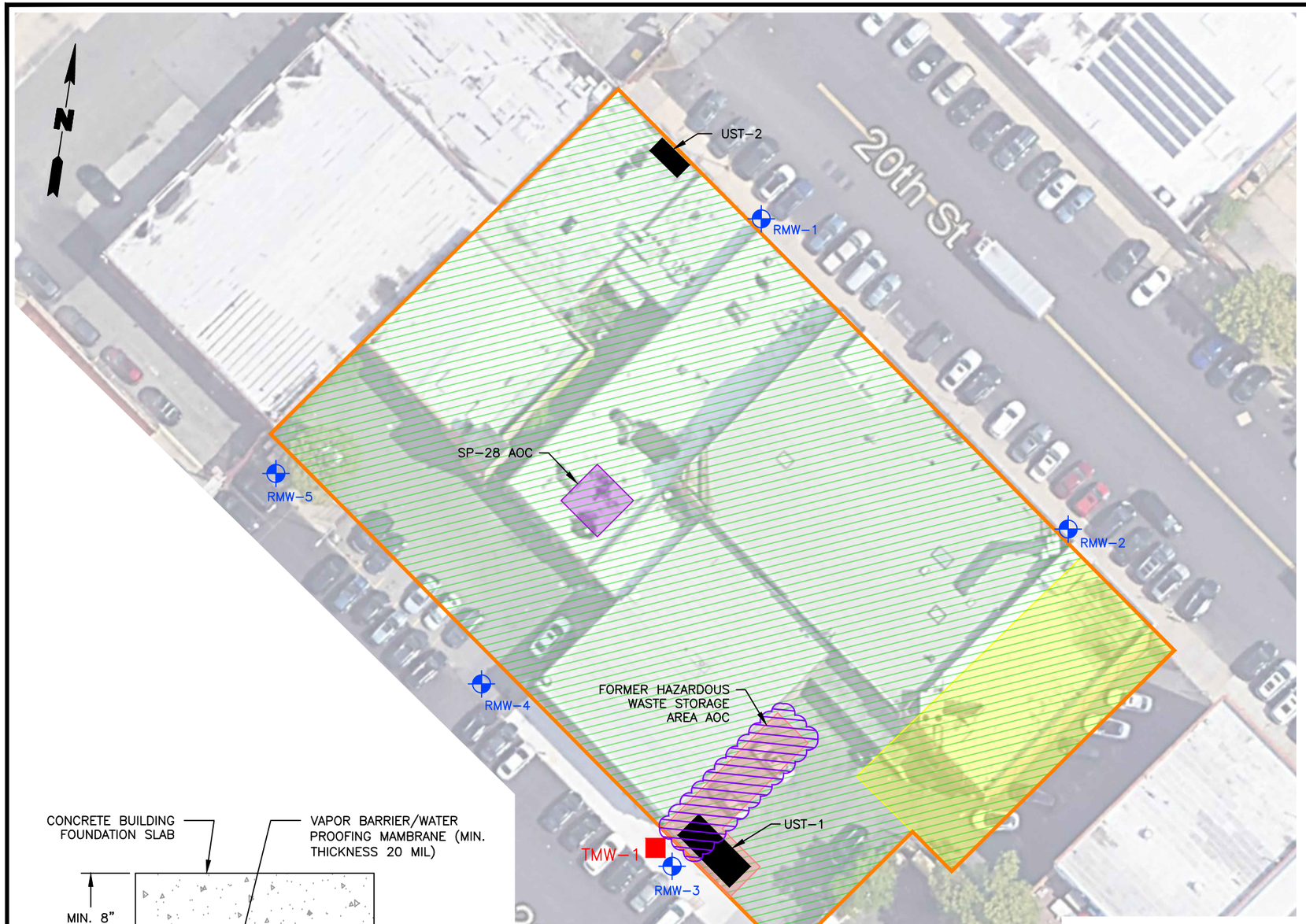
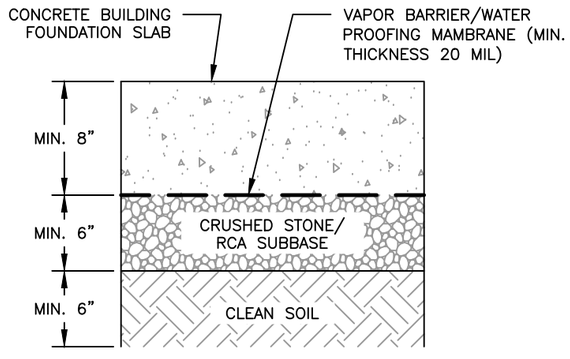


LEGEND

- SITE BOUNDARY
- LOCATION OF PROPOSED POST–REMEDIATION PERMANENT MONITORING WELL
- LOCATION OF PROPOSED TEMPORARY GROUNDWATER MONITORING WELL INSTALLED DURING CONSTRUCTION DOWNGRADIENT FROM GROUNDWATER TREATMENT AREA
- LIMITS OF SOIL HOT SPOT EXCAVATION TO 6 FT BLS COMPLETED AS PART OF APPROVED IRM/RIWP
- PROPOSED LIMITS OF SOIL HOT SPOT EXCAVATION TO APPROXIMATELY 8 FT BLS
- OCCUPIED AREA OF PROPOSED REDEVELOPMENT AND LOCATION OF SSDS
- EXTENT OF SITE COVER SYSTEM
- APPROXIMATE AREA OF IN SITU GROUNDWATER TREATMENT IMPLEMENTATION
- UST–1 — APPROXIMATE 2,500–GALLON UST FOUND 1 FT BLS ON FEBRUARY 26, 2022 AND REMOVED DURING IRM
- UST–2 — APPROXIMATE 550–GALLON UST FOUND 1 FT BLS ON APRIL 12, 2022 AND REMOVED DURING IRM

ISCOs	PART 375 INDUSTRIAL SOIL CLEANUP OBJECTIVES
PGWSCOs	PART 375 PROTECTION OF GROUNDWATER SOIL CLEANUP OBJECTIVES
AOC	AREA OF CONCERN
FT BLS	FEET BELOW LAND SURFACE
RCA	RECYCLED CONCRETE AGGREGATE
SSDS	SUB–SLAB DEPRESSURIZATION SYSTEM
BUD	BENEFICIAL USE DETERMINATION
IRM/RIWP	INTERIM REMEDIAL MEASURE/REMEDIAL INVESTIGATION WORK PLAN
UST	UNDERGROUND STORAGE TANK
NYSDEC	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION



PROPOSED SITE COVER SYSTEM:
SLAB ON GRADE BUILDING FOUNDATION

NOT TO SCALE

NOTES

1. SSDS PIPING WILL BE INSTALLED IN THE MIDDLE OF A GAS PERMEABLE LAYER IMMEDIATELY BENEATH THE BUILDING FOUNDATION SLAB AND VAPOR BARRIER SYSTEM. PIPING NETWORK LAYOUT INCLUDED AS SEPARATE DRAWING IN APPENDIX I.
2. BACKFILL FOR THE SITE WILL MEET THE LOWER OF PART 375 ISCOs OR PGWSCOs (WITH THE EXCEPTION OF GRANULAR FILL MATERIALS WITH LESS THAN 10 PERCENT PASSING THROUGH A NO. 80 SIEVE). FILL MATERIALS WITH LESS THAN 10 PERCENT PASSING THROUGH THE NO. 80 SIEVE (I.E., STONE, GRAVEL, ETC.) DO NOT REQUIRE SAMPLING.
3. SITE–SPECIFIC BUD FOR GENERATION, CRUSHING, AND BACKFILL OF DEMOLITION DEBRIS WAS APPROVED BY NYSDEC ON MARCH 10, 2022. RCA SHALL BE USED ONLY A MINIMUM OF 3 FEET ABOVE THE WATER TABLE
4. A TOTAL OF 471 TONS OF HAZARDOUS SOIL WAS REMOVED AS PART OF THE FORMER HAZARDOUS WASTE STORAGE AREA AOC EXCAVATION

40' 0 40'

Title:

REMEDIAL ALTERNATIVE 2: TRACK 4 INDUSTRIAL USE CLEANUP

74 20TH STREET
BROOKLYN, NEW YORK

Prepared for:

SIP HOLDINGS VENTURE, LLC

ROUX

Compiled by: L.C.	Date: 01JUN22	PLATE
Prepared by: B.H.C.	Scale: AS SHOWN	1
Project Mgr: L.C.	Project: 3615.0006J000	
File: 3165.0006JMISC.01.DWG		

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