DECISION DOCUMENT

Newtown Creek Bud Site - North Block
Brownfield Cleanup Program
Long Island City, Queens County
Site No. C241248
January 2022

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

DECLARATION STATEMENT - DECISION DOCUMENT

Newtown Creek Bud Site - North Block
Brownfield Cleanup Program
Long Island City, Queens County
Site No. C241248
January 2022

Statement of Purpose and Basis

This document presents the remedy for the Newtown Creek Bud Site - North Block 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 Newtown Creek Bud Site - North Block 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; 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

The existing on-site building(s) will be demolished and materials which can't be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy.

Excavation and off-site disposal of contaminant source areas, 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.

Excavation and removal of 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 (SCOs) will be excavated and transported off-site for disposal. Approximately 27,300 cubic yards of contaminated soil will be removed from the site.

3. Backfill

On-site soil which does not exceed either the above excavation criteria or the protection of groundwater SCOs for any constituent may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade 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. The site will be re-graded to accommodate installation of a cover system as described in remedy element 8.

4. Groundwater Dewatering and Treatment

Dewatering will be performed to facilitate the deeper source area excavation. Contaminated groundwater from dewatering operations will be treated as necessary prior to discharge to the municipal sewer system.

5. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat petroleum-related volatile organic compounds (VOCs) in groundwater in the southwestern portion of the site. The biological breakdown of contaminants through aerobic biodegradation will be enhanced by the placement of an oxygen release compound (ORC), or similar material into the subsurface. The method and depth of injection will be determined during the remedial design.

6. Soil Vapor Extraction (SVE)

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

The number of extraction wells and method of treatment will be determined during the remedial design.

7. Vapor Mitigation

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

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). 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.

9. Institutional Controls

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.

10. 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 9.
   - Engineering Controls: The cover system described in Paragraph 8, the SVE system discussed in Paragraph 6, and the Vapor Mitigation System discussed in Paragraph 7.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;

- descriptions of the provisions of the environmental easement including any land use and groundwater 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 8 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 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) 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; and
   - 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 treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.

Declaration

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

January 19, 2022

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

Newtown Creek Bud Site - North Block
Long Island City, Queens County
Site No. C241248
January 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=C241248

Queens Public Library at Hunters Point
47-40 Center Boulevard
Long Island City, NY 11101
Phone: (718) 990-4150

Queens Community Board District 2

43-22 50th Street, Suite 2B
Woodside, NY 11377
Phone: (718) 533-8773

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 2-10 54th Avenue in the Long Island City section of Queens, NY. The approximately 3-acre site is bounded to the north by 54th Avenue, followed by various shipping and storage warehouses; to the west by 2nd Street, followed by a construction site; to the south by the Newtown Creek Bud Site - South Block property, which comprises of foundation slabs of the former building occupied by Electro-Harmonix Corporation and the City Harvest shipping warehouse and office, and an asphalt-paved parking lot, followed by Newtown Creek; and to the east by van and bus rental facility, followed by an air conditioning supplies and parts warehouse.

Site Features:
The site is currently vacant and consists of an asphalt parking lot and the foundational slabs from the 2 former buildings.

Current Zoning and Land Use:
The site is currently zoned as R7-3 (residential) for medium-density apartment house districts with a C2-5 (commercial) overlay along 2nd Street, as part of the Special Southern Hunters Point District (SHP), which seeks to transform an underutilized waterfront area into a higher-density mixed use development with residential and retail uses, community facilities, a public park, and waterfront open space.

Past Use of the Site:
Historic records identified current and historical commercial, industrial and automobile-related uses on the site, including a sugar refinery, stone yard, lumber yard, beer distributer, and automobile repair facility with a garage and a gasoline tank.

Site Geology and Hydrology:
The site is approximately 6 to 7 feet above the North American Vertical Datum of 1988 (NAVD88), which is an approximation of mean sea level. Subsurface materials consist of historic fill (brown and/or black sand and silt with gravel, brick, concrete, and trace amounts of

asphalt, and brick) from the surface to a depth of 10 feet below ground surface (bgs). The fill material is generally underlain by native sand, silt, and clay.

Groundwater is present at depths of approximately 5 and 8 feet bgs, as measured from monitoring wells across the site. Groundwater flows in a south to southwesterly direction across the site towards Newtown Creek and the East River. Groundwater in this area of Queens is not used as a source of potable water.

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(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Applicant(s) does/do 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:

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

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. 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
dibenz[a,h]anthracene
fluoranthene
indeno(1,2,3-cd)pyrene
pyrene
arsenic
lead
mercury
dichlorodifluoromethane
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
naphthalene
barium
cadmium
perfluorooctane sulfonic acid
perfluorooctanoic acid
benzene, toluene, ethylbenzene and xylenes (BTEX)
isopropyl alcohol

The contaminant(s) 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.

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, and per- and polyfluoroalkyl substances (PFAS). Soil vapor was sampled for VOCs. Based on the investigations conducted to date, the primary contaminants of concern are VOCs, SVOCs, PCBs, and metals in soil; VOCs, SVOCs, and metals in groundwater; and VOCs in soil vapor.

Soil - VOCs were detected in exceedance of Restricted Residential Soil Cleanup Objectives (RRSCOs) in the southwest region of the site at 6-8 feet. These VOCs include 1,2,4-trimethylbenzene (max of 500 parts per million (ppm); RRSCO of 52 ppm), 1,3,5-trimethylbenzene (max of 140 ppm; RRSCO of 52 ppm). Several SVOCs were detected in exceedance of RRSCOs throughout the site at 0-13 feet. These SVOCs include acenaphthene (max of 210 ppm; RRSCO of 100 ppm), acenaphthylene (max of 340 ppm; RRSCO of 100 ppm), anthracene (max of 630 ppm; RRSCO of 100 ppm), benzo(a)anthracene (max of 430 ppm; RRSCO of 1 ppm), benzo(a)pyrene (max of 300 ppm; RRSCO of 1 ppm), benzo(b)fluoranthene (max of 240 ppm; RRSCO of 1 ppm), benzo(k)fluoranthene (max of 110 ppm; RRSCO of 3.9 ppm), chrysene (max of 400 ppm; RRSCO of 3.9 ppm), dibenz(a,h)anthracene (max of 36 ppm; RRSCO of 0.33 ppm), fluoranthene (max of 730 ppm; RRSCO of 100 ppm), fluorene (max of 710 parts per million ppm; RRSCO of 100 ppm), indeno(1,2,3-c,d)pyrene (max of 120 ppm; RRSCO of 0.5 ppm), naphthalene (max of 21,000 ppm; RRSCO of 100 ppm), phenanthrene (max of 2,000 ppm; RRSCO of 100 ppm),and pyrene (max of 1,100 ppm; RRSCO of 100 ppm). Several metals were detected in exceedance of RRSCOs throughout the site at 0-12 feet. These metals include arsenic (max of 352 ppm; RRSCO of 16 ppm), barium (max of 700 ppm; RRSCO of 400 ppm), cadmium (max of 10.1 ppm; RRSCO of 4.3 ppm), copper (max of 6,060 ppm; RRSCO of 270 ppm), cyanide (max of 35 ppm; RRSCO of 27 ppm), lead (max of 10,400 ppm; RRSCO of 400 ppm), manganese (max of 3,720 ppm; RRSCO of 2,000 ppm), and mercury (max

of 3.42 ppm; RRSCO of 0.81 ppm). Total PCBs were detected in exceedance of RRSCO at a maximum concentration 12.8 ppm (RRSCO of 1 ppm) throughout the site at a depth of 0-12 feet. PFAS were detected at trace concentrations below the restricted residential guidance values.

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

Groundwater - Multiple VOCs and SVOCs were detected in exceedance of ambient water quality standard (AWQS) in monitoring wells throughout the site. VOCs were detected include benzene (max of 1.4 parts per billion (ppb); AWQS of 1 ppb), cymene (max of 23 ppb; AWQS of 5 ppb), and Freon (max of 25 ppb; AWQS of 5 ppb). These SVOCs included benzo(a)anthracene (max of 2.3 ppb; AWQS of 0.002 ppb), benzo(b)fluoranthene (max of 2.1 ppb; AWQS of 0.002 ppb), benzo(k)fluoranthene (max of 1.3 ppb; AWQS of 0.002 ppb), chrysene (max of 2.2 ppb; AWQS of 0.002 ppb), and indeno(1,2,3-c,d)pyrene (max of 1 ppb; AWQS of 0.002 ppb). Multiple metals were detected in exceedance of AWQS in filtered groundwater samples in monitoring wells throughout the site. These metals included iron (max of 124,000 ppb; AWQS of 300 ppb), magnesium (max of 335,000 ppb; AWQS of 35,000 ppb), manganese (max of 1,759 ppb; AWQS of 300 ppb), and sodium (max of 2,820,000 ppb; AWQS of 20,000 ppb). Total PCBs were detected in exceedance of AWQS at a maximum concentration 1.58 ppb (AWQSGV of 0.09 ppb) in a monitoring well in the northeastern portion of the site. Perfluorooctanesulfonic acid (PFOS) (max of 33.4 per per trillion (ppt)) and perfluorooctanoic acid (PFOA) (max of 78.4 ppt) were detected above NYSDOH maximum contaminant level (MCL, the drinking water standard) of 10 ppt each in monitoring wells throughout the site. No pesticides were found exceeding AWQS. There are no public supply wells within a half mile and there is a municipal prohibition for use of groundwater at this site.

Data does not indicate any off-site impacts in groundwater related to this site.

Soil Vapor - VOCs were detected in the soil vapor throughout the site. Most notably, dichlorodifluoromethane was detected at 14,900,000 microgram per cubic meter (ug/m3). Additionally petroleum-related VOCs were detected, including benzene (max of 151 ug/m3), toluene (max of 49.7 ug/m3), ethylbenzene (max of 447 ug/m3), m,p-xylenes (max of 235 ug/m3), o-xylenes (max of 84.7 ug/m3), n-heptane (max of 140 ug/m3), n-hexane (max of 46.9 ug/m3), 2-hexanone (max of 19.8 ug/m3), 4-ethyltoluene (max of 6.88 ug/m3), 2,2,4-trimethylpentane (max of 10.3 ug/m3), 1,3,5-trimethylbenzene (max of 6.93 ug/m3), 1,2,4-trimethylbenzene (max of 1,2,4-trimethylbenzene (31.5 ug/m3), cyclohexane (max of 7.19 ug/m3), isopropanol (max of 2,260 ug/m3), tert-butyl alcohol (max of 8.64 ug/m3), and 1,3-butadiene (max of 1.8 ug/m3).

Data does not indicate any 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.*

Since the site is fenced and covered by asphalt or concrete, people will not come into contact with contaminated soils unless they dig below the surface. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because there is no on-site building, 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 the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. In addition, sampling indicates soil vapor intrusion 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 contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

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

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

The selected remedy is referred to as the Excavation, Enhanced Bioremediation, and Soil Vapor Extraction, Vapor Mitigation remedy, and Cover System.

The elements of the selected remedy, as shown in Figures 2, 3, and 4 are as follows:

1. Remedial Design

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

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

The existing on-site building(s) will be demolished and materials which can't be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy.

Excavation and off-site disposal of contaminant source areas, 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.

Excavation and removal of 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 (SCOs) will be excavated and transported off-site for disposal. Approximately 27,300 cubic yards of contaminated soil will be removed from the site.

3. Backfill

On-site soil which does not exceed either the above excavation criteria or the protection of groundwater SCOs for any constituent may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade 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. The site will be re-graded to accommodate installation of a cover system as described in remedy element 8.

4. Groundwater Dewatering and Treatment

Dewatering will be performed to facilitate the deeper source area excavation. Contaminated groundwater from dewatering operations will be treated as necessary prior to discharge to the municipal sewer system.

5. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat petroleum-related volatile organic compounds (VOCs) in groundwater in the southwestern portion of the site. The biological breakdown of contaminants through aerobic biodegradation will be enhanced by the placement of an oxygen release compound (ORC), or similar material into the subsurface. The method and depth of injection will be determined during the remedial design.

6. Soil Vapor Extraction (SVE)

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

The number of extraction wells and method of treatment will be determined during the remedial design.

7. Vapor Mitigation

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

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). 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.

9. Institutional Controls

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.

10. 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 9.
   - Engineering Controls: The cover system described in Paragraph 8, the SVE system discussed in Paragraph 6, and the Vapor Mitigation System discussed in Paragraph 7.

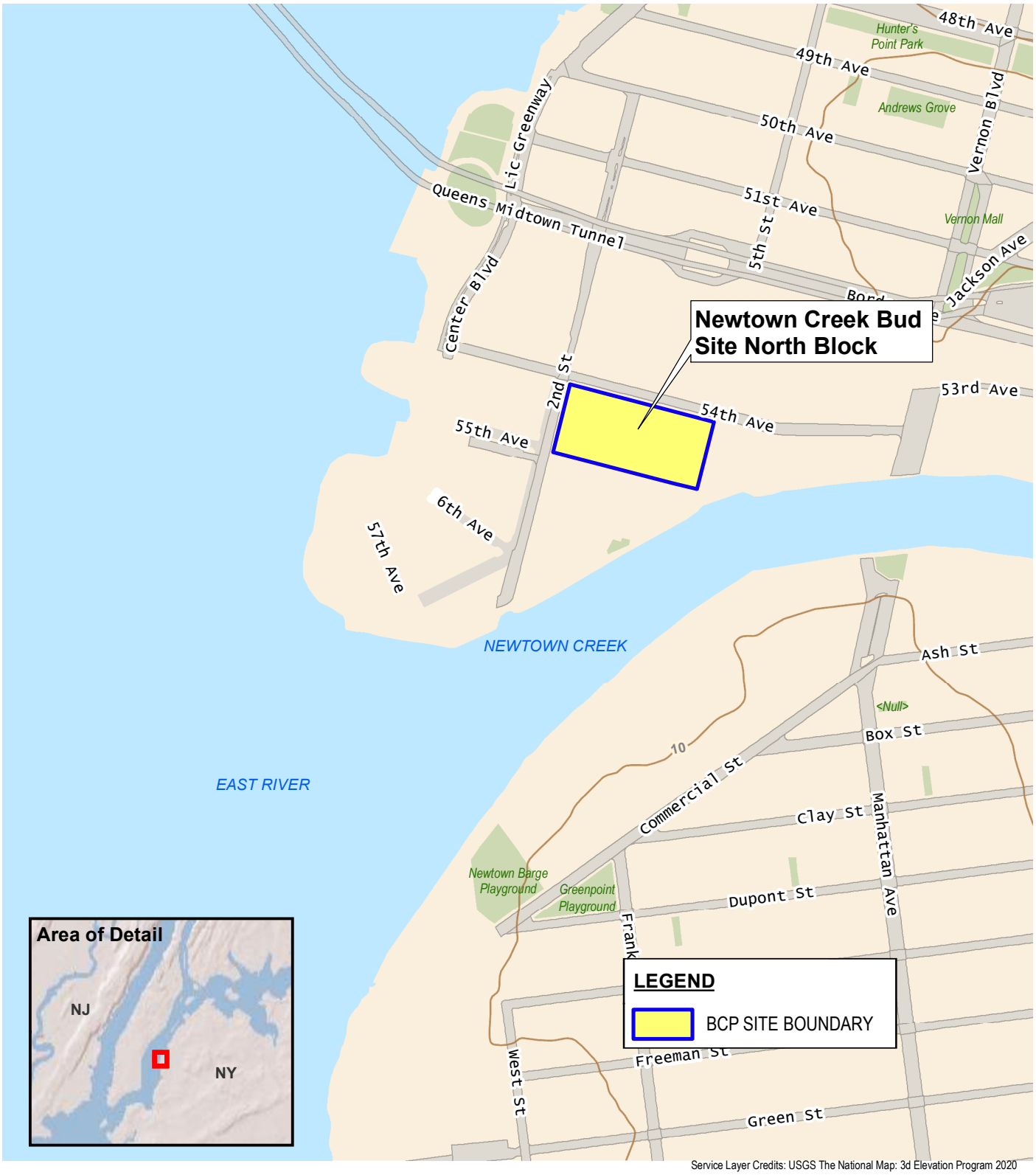
This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use and groundwater 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 8 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 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) 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; and
- 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 treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.



AKRF
440 Park Avenue South, New York, NY 10016

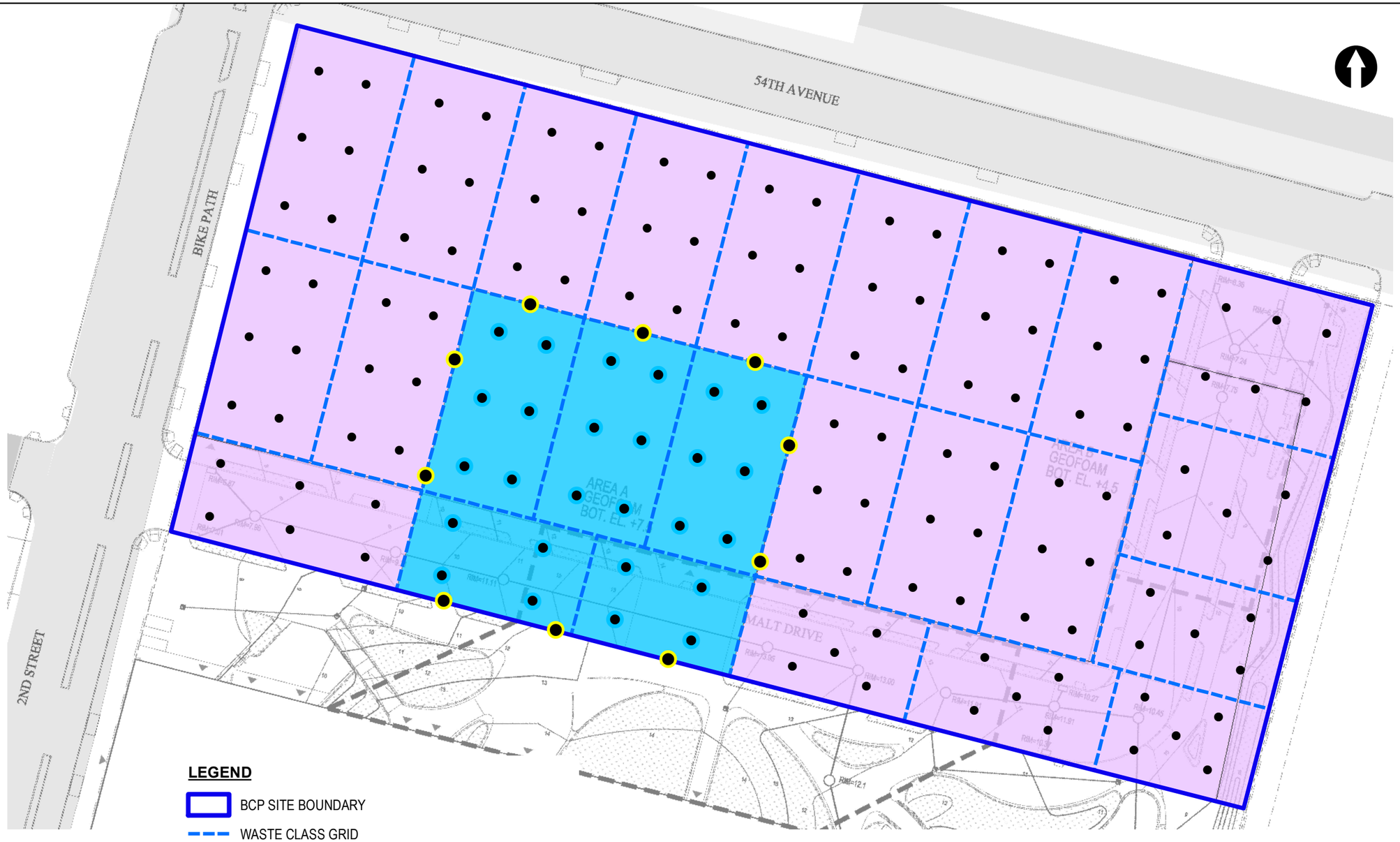
Newtown Creek Bud Site - North Block
2-21 Malt Drive - Long Island City, New York

BCP SITE LOCATION

DATE
8/25/2021

PROJECT NO.
200112

FIGURE
1



LEGEND

- BCP SITE BOUNDARY
- WASTE CLASS GRID
- REMEDIAL EXCAVATION TO 2 FEET BELOW GROUNDWATER (APPROX. 50 FEET BY 75 FEET UP TO 11 FEET) FOR HOTSPOT REMOVAL SOURCE AREA
- REMEDIAL EXCAVATION TO APPROXIMATELY 2 FEET BELOW EXISTING GRADE
- BOTTOM DOCUMENTATION SAMPLE AREA SOURCE REMOVAL
- SIDEWALL DOCUMENTATION SAMPLE AREA SOURCE REMOVAL
- CONFIMATORY DOCUMENTATION SAMPLE LOCATION

0 25 50 100

SCALE IN FEET

Map Source:
NYCDCP (NYC Dept. of City Planning) GIS database

AKRF
440 Park Avenue South, New York, NY 10016

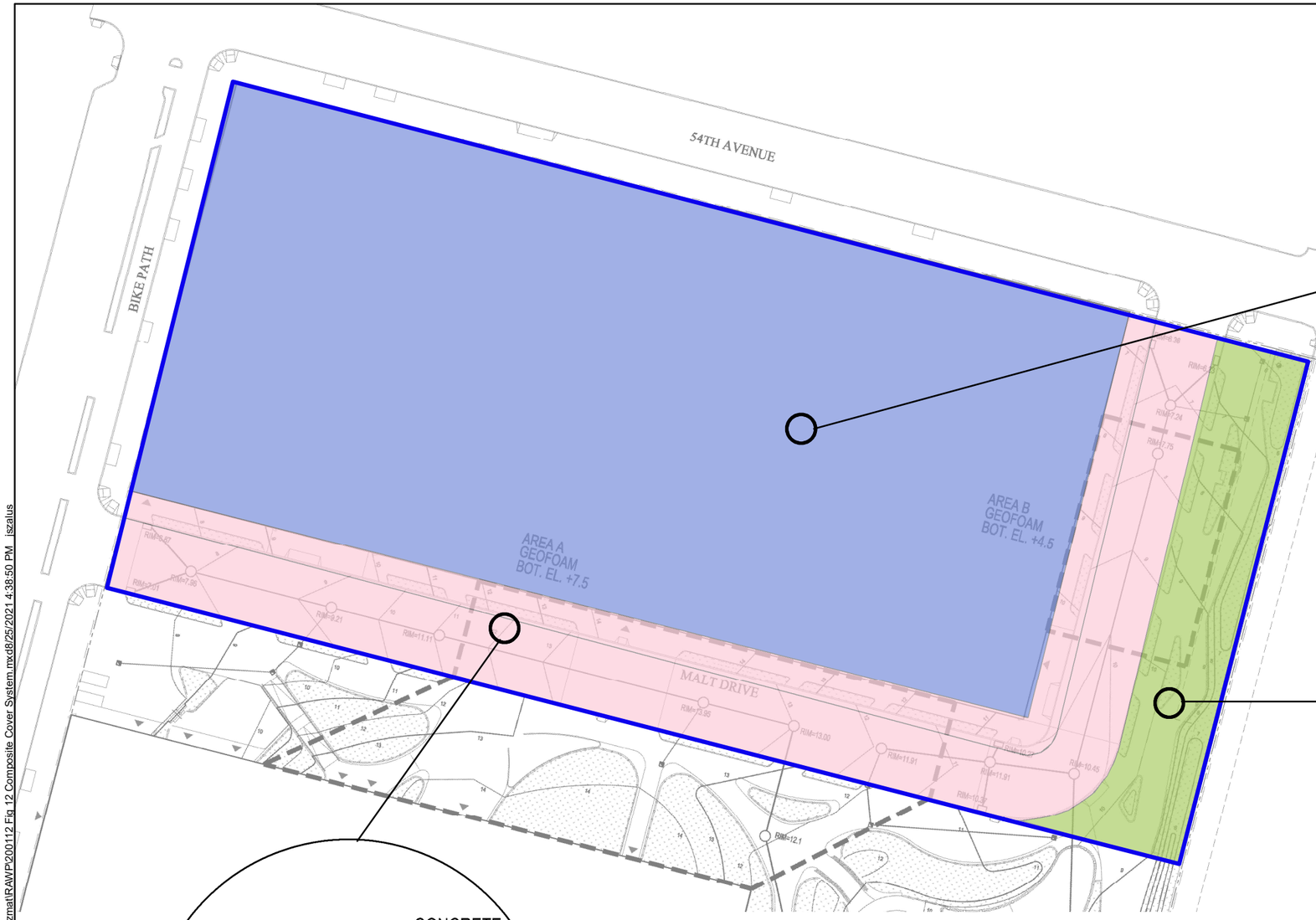
Newtown Creek Bud Site - North Block
2-10 54th Avenue - Long Island City, New York

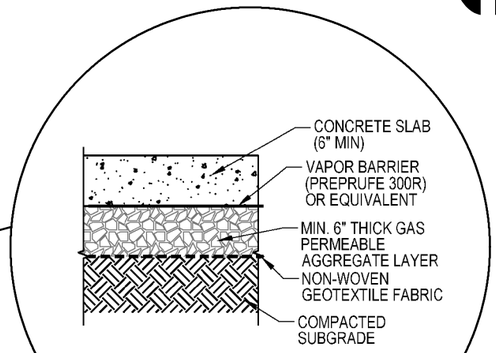
PROPOSED REMEDIAL EXCAVATION AND DOCUMENTATION SAMPLE LOCATION PLAN

DATE
8/25/2021

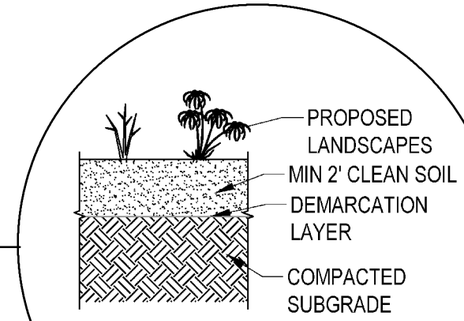
PROJECT NO.
200112

FIGURE
2

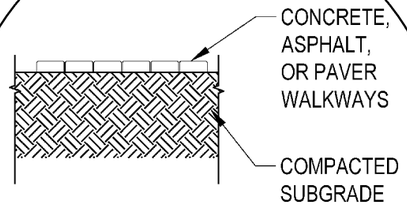




BUILDING SITE COVER (TYP.)
N.T.S.



LANDSCAPED AREA WITH 2' CLEAN FILL BUFFER (TYP.)
N.T.S.



CONCRETE OR ASPHALT PAVERS (TYP.)
N.T.S.

LEGEND

- BCP SITE BOUNDARY
- BUILDING SLAB
- LANDSCAPED AREAS
- ROADWAY, WALKWAYS, AND SIDEWALKS

0 30 60 120
SCALE IN FEET

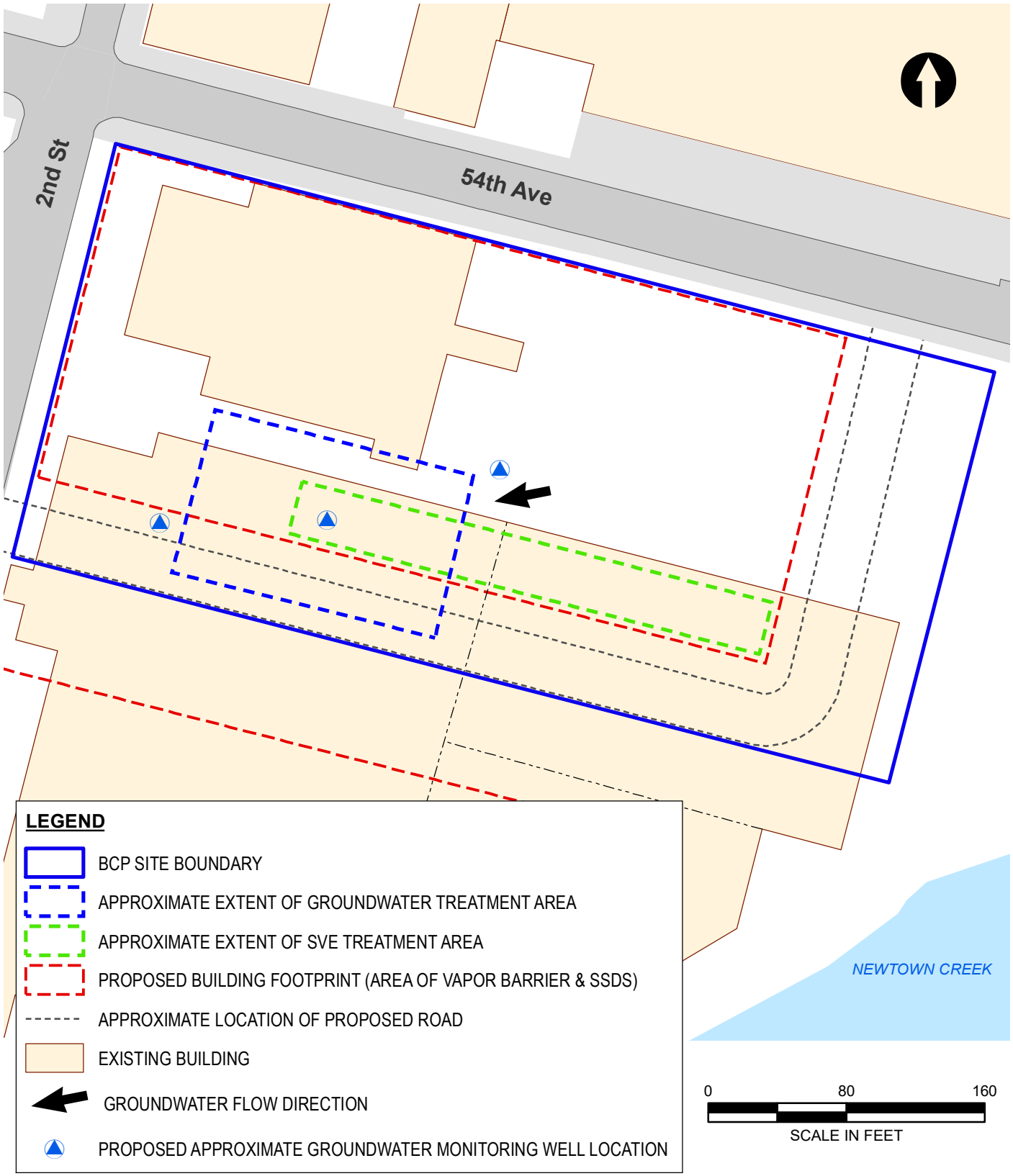
Map Source:
C-104.00 Bud Site Geofoam Plan and Details
SLCE Archietects, LLP, June 2021

AKRF
440 Park Avenue South, New York, NY 10016

Newtown Creek Bud Site - North Block
2-10 54th Avenue - Long Island City, New York

COMPOSITE COVER SYSTEMN

DATE
8/25/2021
PROJECT NO.
200112
FIGURE
3



Map Source:
NYCDCP (NYC Dept. of City Planning) GIS database

AKRF
440 Park Avenue South, New York, NY 10016

Newtown Creek Bud Site - North Block
2-10 54th Avenue - Long Island City, New York

REMEDIAL TREATMENT AREAS

DATE
8/25/2021

PROJECT NO.
200112

FIGURE
4