

DECISION DOCUMENT

Former Cascade Laundry
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224194
March 2016



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

DECLARATION STATEMENT - DECISION DOCUMENT

Former Cascade Laundry
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224194
March 2016

Statement of Purpose and Basis

This document presents the remedy for the Former Cascade Laundry 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 Former Cascade Laundry 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; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

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);
- soil exceeding the USEPA and 6 NYCRR Part 371 hazardous criteria for lead;
- removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination;
- non-aqueous phase liquids; and
- 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.

The site has been divided into two areas for soil excavation. The cleanup goal for the northwest corner of the site is Track 2, while the cleanup goal for the remainder of the site is Track 1. At a minimum, the site will meet the requirements of a Track 4 cleanup.

- All soil in the Track 1 area of the site which exceeds the unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal.
- All soil in the Track 2 area of the site which exceeds the restricted-residential SCOs, as defined by 6 NYCRR Part 375-6.8, in the upper 15 feet will be excavated and transported off-site for disposal. All soil in the Track 2 area which exceeds the protection of groundwater SCOs for applicable contaminants, as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal.

Approximately 23,000 cubic yards of contaminated soil will be removed from the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

Once excavation is complete, soil sampling will be conducted to determine if the on-site soils could be recontaminated by potential leaks from an underground storage tank located adjacent to the site. If recontamination is possible, measures will be implemented to protect the site from this potential off-site source.

3. Groundwater Dewatering and Treatment

Following excavation of the petroleum source areas, remaining free-phase petroleum (LNAPL) and contaminated groundwater will be pumped out of the excavation and transported off-site for disposal.

4. In-Situ Chemical Oxidation

In-situ chemical oxidation (ISCO) will be implemented to treat the petroleum-contaminated groundwater that remains after excavation, and removal of LNAPL and contaminated groundwater. A chemical oxidant will be applied into the bottom of the excavation to destroy the contaminants, which are located in the northwest section of the site. The treatment area is estimated at 2,200 square feet.

5. Vapor Intrusion Assessment

A post-remedial soil vapor intrusion evaluation will be completed prior to occupying any buildings developed on the site. The assessment will include a provision for implementing

actions recommended to address exposures related to soil vapor intrusion, if identified. If a sub-grade parking garage is constructed beneath the entire on-site future building(s), then the soil vapor intrusion pathway will be adequately addressed by the New York City Mechanical Code, which requires proper ventilation. If the soil vapor intrusion evaluation has not been completed at the time the Final Engineering Report is submitted, an environmental easement and Site Management Plan will be required to address the potential for soil vapor intrusion.

Contingent Remedial Elements

The intent of the remedy is to achieve Track 1 unrestricted use for a portion of the site; therefore no environmental easement or site management plan is anticipated for this portion of the site. In the event that Track 1 unrestricted use is not achieved, the following contingent remedial elements will be required and the remedy will need to achieve either a Track 2 restricted residential cleanup or a Track 4 restricted residential cleanup.

6. Cover System

For a Track 4 cleanup: a site cover will be required to allow for restricted residential use of the site. The cover will consist either of the structures such as buildings, pavement, and/or sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

7. Institutional Control

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

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- allow the use and development of the controlled property for restricted residential use, as defined by Part 375-1.8(g), although land use is subject to local zoning laws; 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 site cover contingency discussed in Paragraph 6 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;
- descriptions of the provisions of the environmental easement including any land use and/or groundwater restrictions;
- a provision for evaluation of the potential for soil vapor intrusion in future 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;
- monitoring for vapor intrusion for any future buildings developed 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.

March 31, 2016



Date

James B. Harrington, PE, Director
Remedial Bureau A

DECISION DOCUMENT

Former Cascade Laundry
Brooklyn, Kings County
Site No. C224194
March 2016

SECTION 1: SUMMARY AND PURPOSE

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

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

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

SECTION 2: CITIZEN PARTICIPATION

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

Marcy Library
617 DeKalb Avenue at Nostrand Avenue
Brooklyn, NY 11216
Phone: (718) 935-0032

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

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, Voluntary 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 in an urban area at 553 Marcy Avenue in Brooklyn, Kings County. It is identified on New York City tax maps as Block 1747, Lot 1. The site is bordered by Stockton Street on the north, Marcy Avenue on the west and Myrtle Avenue on the south.

Site Features: The site is about 2.1 acres in size and is currently vacant. The site previously included several attached industrial buildings which were demolished for redevelopment in 2015 and 2016. The remainder of the site is paved parking.

Current Zoning and Land Use: Part of the site is zoned as residential with commercial retail businesses on the ground floor (R7D residential with a C2-4 commercial overlay), while the remainder of the site has residential zoning (R6A). The site is currently vacant and the on-site buildings have been demolished. The surrounding area includes multi-family residential buildings, schools, churches and retail stores.

Past Use of the Site: Commercial and residential development at the site began prior to 1887. Cascade Laundry, a commercial laundry, began operating on part of the site prior to 1918 and expanded onto the other parts of the site over the succeeding decades before closing in 2010. Other past uses of the site include various retail stores, an oil paint factory, a carpet cleaning facility, a bakery, an upholstery factory, a furniture manufacturer, and a chemical factory. At some point in their history, Cascade Laundry used tetrachloroethene (PCE) in their operations, as evidenced by PCE-contaminated soil. Petroleum contamination was also detected in the on-site soil, likely from leaking underground storage tanks. The top 4-8 feet of soil beneath the site is historic fill, which contains semi-volatile organic compounds (SVOCs), metals and pesticides.

Site Geology and Hydrogeology: Subsurface soils at the site consist of historic fill materials to a depth of about 4 to 8 feet below grade. Silty sand and gravel is present immediately below this layer. The elevation of the property is about 30 feet above mean sea level and the land within the immediate area slopes gradually from southeast to northwest.

Groundwater at the site is present at a depth of about 25 feet below grade. The groundwater flow direction is northwest.

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:

- groundwater
- soil
- soil vapor
- 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:

tetrachloroethene (PCE)	xylene (mixed)
1,3,5-trimethylbenzene	methylene chloride
lead	naphthalene
chrysene	trichloroethene (TCE)
1,2,4-trimethylbenzene	benzene
ethylbenzene	toluene

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

- groundwater
- soil

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(s) has/have been completed at this site based on conditions observed during the RI.

Interim Remedial Measure - Soil Excavation

An Interim Remedial Measure was completed in January 2016 and included excavating soil to a depth of seven feet to install a concrete pad. About 80 cubic yards of soil were excavated from a 10-foot by 10-foot area. Semi-volatile organic compounds, metals, pesticides and one

polychlorinated biphenyl (PCB) were detected in the endpoint samples at levels exceeding unrestricted use soil cleanup objectives.

6.3: Summary of Environmental Assessment

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

Nature and Extent of Contamination:

Based on investigations conducted to date, the primary contaminants of concern for the site include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. Review of on-site data indicates that the on-site contamination does not impact off-site properties or receptors.

Soil - The VOCs in the soil include petroleum compounds and chlorinated solvents. Petroleum compounds exceeding unrestricted use soil cleanup objectives include 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, xylene, methylene chloride and naphthalene. For example, 1,2,4-trimethylbenzene, was detected at 38 parts-per-million (ppm), exceeding the unrestricted use soil cleanup objective of 3.6 ppm. Tetrachloroethene (PCE), a chlorinated solvent, was found in the soil at 48 ppm, exceeding the unrestricted use soil cleanup objective of 1.3 ppm.

SVOCs, metals and pesticides were detected in the subsurface soils. Nearly all of these contaminants were detected near the surface in the historic fill layer, and likely arrived at the site with the deposition of the historic fill material. However, chrysene, an SVOC, was detected beneath the historic fill at 3.1 ppm, exceeding the unrestricted soil cleanup objective of 1 ppm. Lead was detected in the soil at a maximum level of 3,770 ppm, which may classify the soil as hazardous waste.

Groundwater - The VOCs in the groundwater also consist of petroleum compounds and chlorinated solvents. A viscous petroleum product -- likely fuel oil -- was found in one monitoring well, indicated a layer of free petroleum product floating on the groundwater. PCE was detected in several wells at levels exceeding its New York State groundwater standard; however, the highest PCE concentrations were detected upgradient of any known on-site source area and at the upgradient edge of the site. Several pesticides were detected at concentrations above groundwater standards.

Soil Vapor and Sub-Slab Vapor - Several VOCs, including PCE, were detected in soil vapor and sub-slab vapor samples collected on-site, most of which were not detected in the soil and groundwater. However, PCE was detected in the on-site soil and groundwater. PCE and TCE were detected in sub-slab and soil vapor samples at maximum concentrations of 453 micrograms per cubic meter and 25.8 micrograms per cubic meter, respectively. One soil vapor sample had

detections of benzene, toluene, ethylbenzene and xylene (BTEX) totaling 1,466 micrograms per cubic meter.

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 are not drinking the contaminated groundwater because the area is served by a public water supply that obtains water from a different source not affected by this contamination. People who enter the site may come into contact with contaminants in soil. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying 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 are no occupied on-site buildings, 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 and or occupancy. 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 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 combination of Track 1 (unrestricted use) and Track 2 (restricted use with generic soil cleanup objectives).

The selected remedy is referred to as the Excavation, Dewatering and Chemical Oxidation 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;
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vapor intrusion pathway will be adequately addressed by the New York City Mechanical Code, which requires proper ventilation. If the soil vapor intrusion evaluation has not been completed at the time the Final Engineering Report is submitted, an environmental easement and Site Management Plan will be required to address the potential for soil vapor intrusion.

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- require compliance with the Department-approved Site Management Plan.

8. Site Management Plan

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

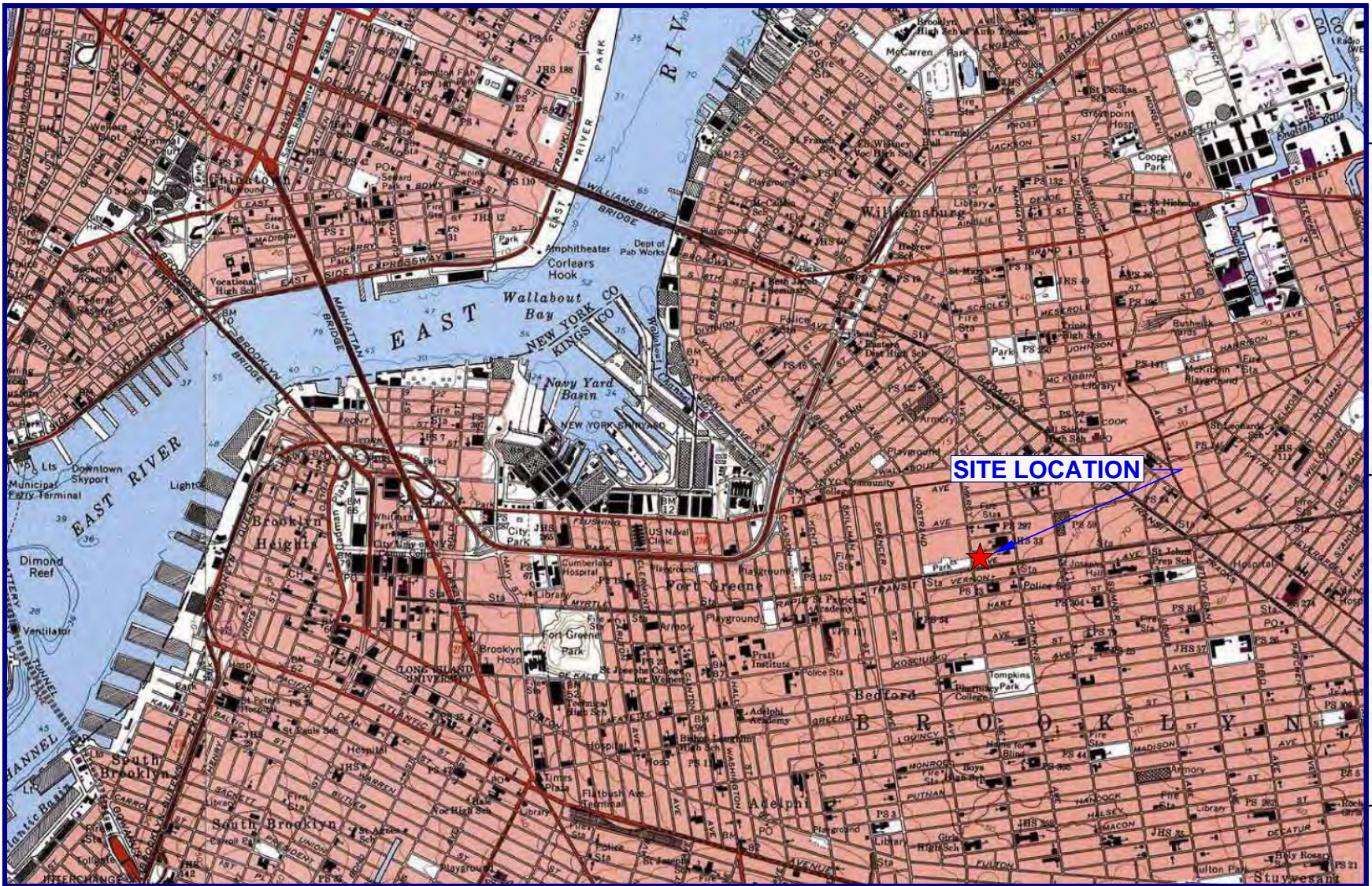
- a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 7 above.

Engineering Controls: The site cover contingency discussed in Paragraph 6 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;
 - descriptions of the provisions of the environmental easement including any land use and/or groundwater restrictions;
 - a provision for evaluation of the potential for soil vapor intrusion in future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
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40°43.000' N

40°42.000' N

40°41.000' N

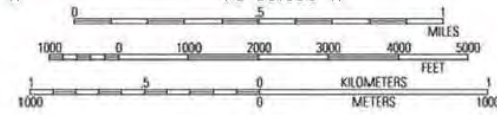
74°00.000' W

73°59.000' W

73°58.000' W

73°57.000' W

WGS84 73°56.000' W



USGS Brooklyn Quadrangle 1995, Contour Interval = 10 feet

EBC
 ENVIRONMENTAL BUSINESS CONSULTANTS
 1808 MIDDLE COUNTRY ROAD, RIDGE, NY 11961

Phone 631.504.6000
 Fax 631.924.2780

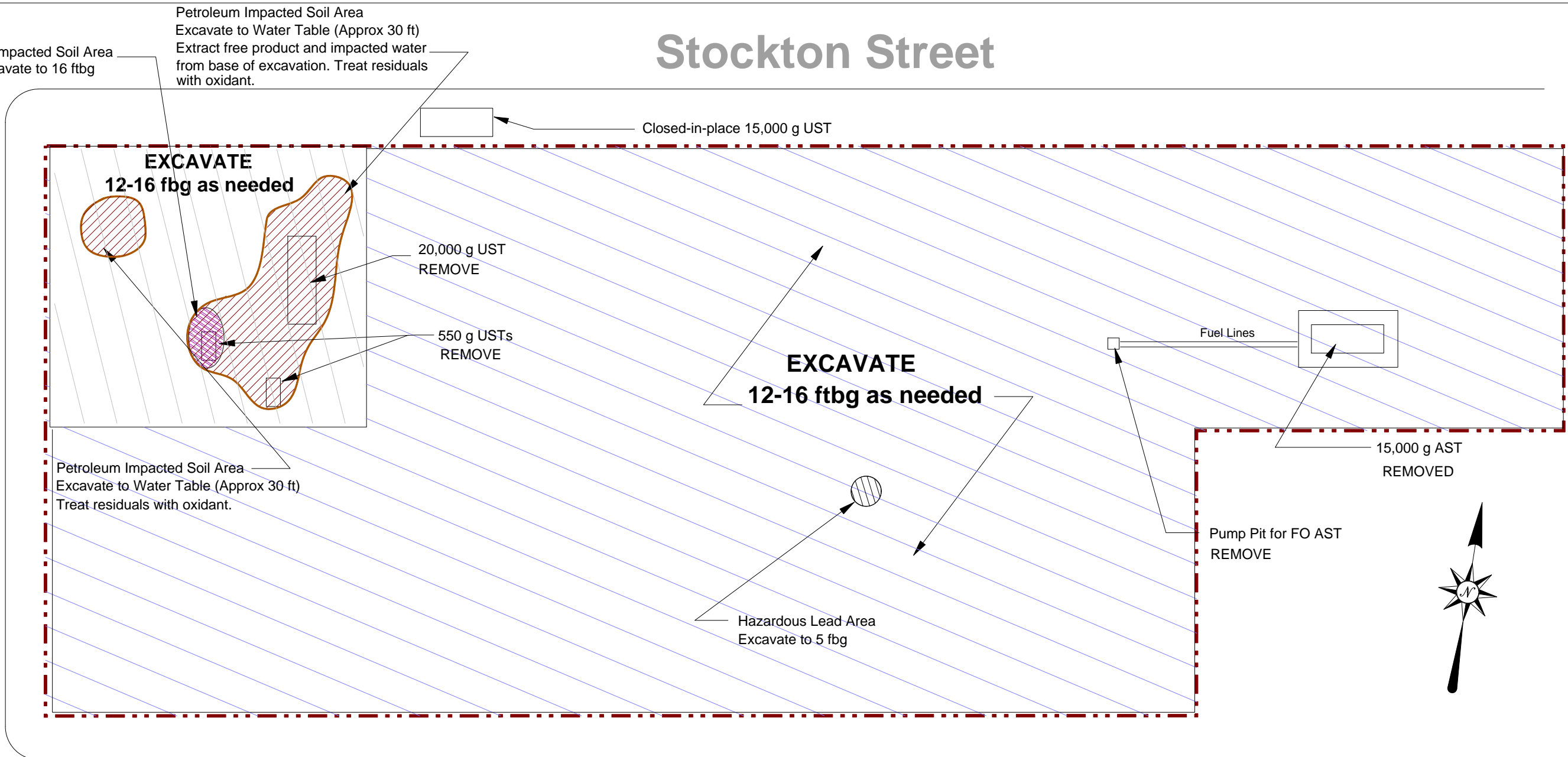
FORMER CASCADE LAUNDRY
 835 MYRTLE AVENUE, BROOKLYN, NY

FIGURE 1 SITE LOCATION MAP

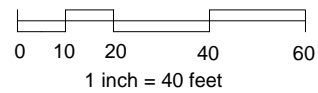
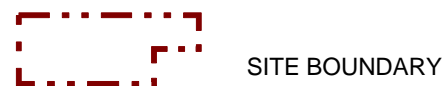
Stockton Street

Marcy Avenue

Myrtle Avenue



Key



ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD, RIDGE, NY 11961

Phone 631.504.6000
Fax 631.924.2780

FORMER CASCADE LAUNDRY
835 MYRTLE AVENUE, BROOKLYN, NY

FIGURE 2

EXCAVATION PLAN