

DECISION DOCUMENT

Former Strauss Auto
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224189
May 2015



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

DECLARATION STATEMENT - DECISION DOCUMENT

Former Strauss Auto
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224189
May 2015

Statement of Purpose and Basis

This document presents the remedy for the Former Strauss Auto 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 Strauss Auto 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

Implement a remedial design program 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

As part of the remediation, the slab and parking area of the former on-site building will be removed

for off-site disposal. All on-site soil, to a maximum depth of 15 feet, which exceeds unrestricted use soil cleanup objectives (SCOs) as defined by 6 NYCRR Part 375-6.8 (approximately 10,500 cubic yards), will be excavated and transported off-site for disposal. "Endpoint" samples will be collected after the initial excavation to evaluate the performance of the remedy with respect to the remedial action objectives for soil and sources of soil vapor. If the excavation is not able to achieve the unrestricted use SCOs, then a Track 2 restricted-residential remedy will be pursued.

On-site soil which does not exceed unrestricted use SCOs may be used to backfill the excavation to the extent that a sufficient volume of on-site soil is available and to establish the designed grades at the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) may also be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

3. ERD/ISCR

Enhanced reductive dechlorination (ERD) combined with in-situ chemical reduction (ISCR) will be implemented to treat VOC contaminants in groundwater and saturated soil. Emulsified vegetable oil and particles of zero valent iron (ZVI) will be injected into the subsurface via temporary injection points to directly destroy VOCs and stimulate additional microbial degradation. Post-remedial groundwater samples will be collected and analyzed to evaluate the performance of the technology with respect to attainment of groundwater standards. To satisfy the Track 1 remedial requirements for groundwater, at a minimum there must be a bulk reduction in groundwater contamination to asymptotic levels.

4. Vapor Intrusion Evaluation

As part of the Track 1 remedy, a soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

5. The intent of the remedy is to achieve a Track 1 unrestricted use, therefore, no Environmental Easement (EE) or Site Management Plan (SMP) is anticipated. If the soil vapor intrusion (SVI) evaluation has not been completed prior to completion of the Final Engineering Report, then an SMP and EE will be required to address the SVI evaluation and implement actions, as needed; if a mitigation action is needed, a Track 1 cleanup can only be achieved if the mitigation system can be shut down within 5 years of the date of the Certificate of Completion.

If a sub-grade parking garage is constructed beneath the entire on-site future building, then the soil vapor remedial action objectives will be achieved with the New York City Mechanical Code, which requires proper ventilation.

If no EE or SMP is needed to achieve soil, groundwater, or soil vapor RAOs, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOH code, which prohibits potable use of groundwater without prior approval.

In the event that Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required and the remedy will achieve a Track 2 restricted-residential cleanup.

Contingent Remedial Elements

6. Institutional Control

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

- a. requires 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);
- b. allows the use and development of the controlled property for residential, restricted-residential, commercial, and industrial uses, as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- c. restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- d. requires compliance with the Department-approved Site Management Plan.

7. Site Management Plan

A Site Management Plan 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 4, above.

This plan includes, but may not be limited to:

- i. an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
 - ii. descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
 - iii. provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
 - iv. provisions for the management and inspection of the identified engineering controls;
 - v. maintaining site access controls and Department notification; and
 - vi. 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 for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above
 - a schedule of monitoring and frequency of submittals to the Department.

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.

May 7, 2015



Date

Robert J. Cozy, Director
Remedial Bureau B

DECISION DOCUMENT

Former Strauss Auto
Brooklyn, Kings County
Site No. C224189
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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 repository:

Park Slope Library
431 6th Avenue at 9th Street
Brooklyn, NY 11215
Phone: 718-832-1853

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 Former Strauss Auto site is located in an urban area at 521-539 4th Avenue in the Park Slope neighborhood of Brooklyn. The 18,200 square foot property is bounded by 14th Street to the north, 4th Avenue to the west, and 15th Street to the south. Multi-family residences are located to the east and an elementary school (PS 124) sits directly across 14th Street to the north. A subway line runs down 4th Avenue, a major commercial thoroughfare.

Site Features: The site is currently vacant. A 14,640 square foot one-story automotive garage and attached sales building with partial basement previously occupied the site. The building included a vehicle service area, retail and stock areas, and administrative offices. An asphalt and concrete-paved parking lot was located on the western side of the property. The building was vacant from approximately June 2012 onward and was demolished in December 2014. The site is at an elevation of about 55 feet above sea level, and the site and the surrounding area slope toward the Gowanus Canal, which is approximately 2,500 feet northwest of the site.

Current Zoning and Land Use: The site is zoned R8A residential with a C2-4 commercial overlay.

Past Use of the Site: The site originally had two churches on it. Building records indicate the most recent structures were completed in 1944 with additions and/or alterations completed in 1946 and 1947. Automotive sales operations took place there since at least 1944. Automotive service operations started sometime between 1951 and 1965. Records indicate the most recent owner of the property, Strauss Auto Center, occupied the site from at least 1983 until 2012.

Various underground storage tanks, sumps, floor drains, and pits are present from when the site was used for automotive service operations, and the site was listed as a generator of tetrachloroethene waste from 1995 to 2002.

Site Geology and Hydrogeology: Soil beneath the site consists of historic fill material, including predominately fine to coarse sand with varied amounts of brick fragments, gravel, milled and crushed asphalt, and ash. The fill extends to depths of up to 11 feet below ground surface. Historic fill is underlain primarily by glacial till, which in turn is underlain by a thick clay layer found at depths ranging between 40 and 60 feet below ground level. Bedrock was not encountered during investigations of the site, but the depth to bedrock in the vicinity of the site is reportedly 200 feet below ground level. The depth to groundwater across the site ranged from 31.5 to 37.7 feet and the groundwater flows to the north-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, an alternative which allows for unrestricted use of the site was evaluated.

A comparison of the results of the Remedial Investigation (RI) against unrestricted use standards, criteria and guidance values (SCGs) for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Volunteer does not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement actions are necessary.

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 is/are:

TETRACHLOROETHYLENE (PCE)	COPPER
TRICHLOROETHENE (TCE)	MERCURY
BENZO(A)PYRENE	ZINC
LEAD	

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

- 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.

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

6.3: Summary of Environmental Assessment

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

Nature and Extent of Contamination:

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and PCB/pesticides. Based on investigations conducted to date, the primary contaminants of concern include tetrachloroethylene (PCE) and associated breakdown products in the groundwater and polycyclic aromatic hydrocarbons (PAHs) and metals in soil.

Soil: VOCs were not found in soil samples at concentrations above the Unrestricted Use Soil Cleanup Objectives (UUSCOs). Concentrations of PAHs in excess of the UUSCOs were detected in a layer of historic fill beneath the site. The maximum concentration of benzo(a)pyrene, a representative PAH found at the site, was 47.8 parts per million (ppm). Lead (maximum concentration 840 ppm), copper (57.2 ppm), mercury (2.77 ppm), and zinc (209 ppm) were also found above the UUSCOs. The historic fill layer is up to 11 feet thick beneath the site. Data does not indicate any off-site impacts in soil related to this site.

Groundwater: PCE and its associated degradation products were found in groundwater at the upgradient (east) end of the site in single and double digit concentrations, moderately exceeding groundwater standards of 5 parts per billion (ppb). Groundwater samples from the downgradient end of the site, along 4th Avenue, were higher, with a maximum PCE concentration of 2,200 ppb in a monitoring well located less than five feet outside of the footprint of the former building.

Soil Vapor and Indoor Air: PCE (maximum concentration 3,400 micrograms per cubic centimeter) and trichloroethylene (TCE, 180 micrograms per cubic centimeter) were found in sub-slab soil vapor samples. Indoor air was not sampled as the buildings were vacant and have subsequently been demolished.

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 contaminated groundwater because the area is served by a public water supply that is not affected by site-related contamination. Since the site is fenced and covered by asphalt or concrete, people are not expected to come into contact with site-related soil and groundwater contamination unless they dig below the surface. 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 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 redevelopment and occupancy. An evaluation is needed to determine whether soil vapor intrusion is a concern for any 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

- 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 1: Conditional Track 1 remedy.

The selected remedy is referred to as the soil excavation and in-situ groundwater treatment remedy.

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

1. Remedial Design

Implement a remedial design program 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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2. Excavation

As part of the remediation, the slab and parking area of the former on-site building will be removed for off-site disposal. All on-site soil, to a maximum depth of 15 feet, which exceeds unrestricted use soil cleanup objectives (SCOs) as defined by 6 NYCRR Part 375-6.8 (approximately 10,500 cubic yards), will be excavated and transported off-site for disposal. "Endpoint" samples will be collected after the initial excavation to evaluate the performance of the remedy with respect to the remedial action objectives for soil and sources of soil vapor. If the excavation is not able to achieve the unrestricted use SCOs, then a Track 2 restricted-residential remedy will be pursued.

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5. The intent of the remedy is to achieve a Track 1 unrestricted use, therefore, no Environmental Easement (EE) or Site Management Plan (SMP) is anticipated. If the soil vapor intrusion (SVI) evaluation has not been completed prior to completion of the Final Engineering Report, then an SMP and EE will be required to address the SVI evaluation and implement actions, as needed; if a mitigation action is needed, a Track 1 cleanup can only be achieved if the mitigation system can be shut down within 5 years of the date of the Certificate of Completion.

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If no EE or SMP is needed to achieve soil, groundwater, or soil vapor RAOs, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOH code, which prohibits potable use of groundwater without prior approval.

In the event that Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required and the remedy will achieve a Track 2 restricted-residential cleanup.

Contingent Remedial Elements

6. Institutional Control

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

- a. requires 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);
- b. allows the use and development of the controlled property for residential, restricted-residential, commercial, and industrial uses, as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
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- d. requires compliance with the Department-approved Site Management Plan.

7. Site Management Plan

A Site Management Plan 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 4, above.

This plan includes, but may not be limited to:

- i. an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- ii. descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
- iii. provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures

related to soil vapor intrusion;

iv. provisions for the management and inspection of the identified engineering controls;

v. maintaining site access controls and Department notification; and

vi. 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 for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above
- a schedule of monitoring and frequency of submittals to the Department.

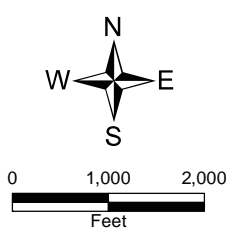
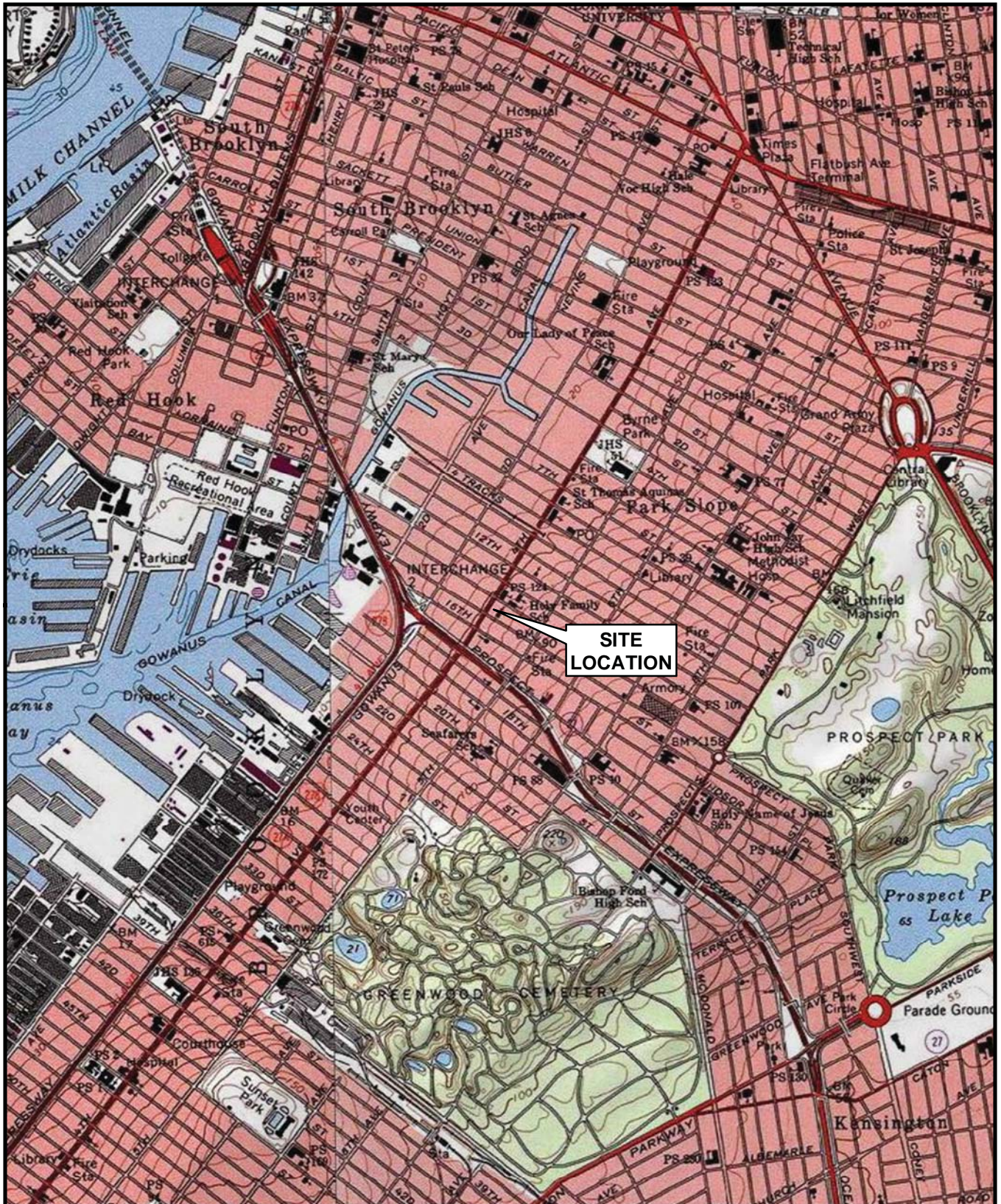


Figure 1
 Site Location Map
 Former Strauss Auto
 Brooklyn, Kings County
 Site No. C224189



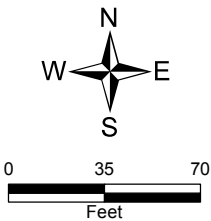


Figure 2
Site Map
Former Strauss Auto
Brooklyn, Kings County
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