DECISION DOCUMENT

Jackson Heights Shopping Center
Brownfield Cleanup Program
Jackson Heights, Queens County
Site No. C241176
March 2019

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

DECLARATION STATEMENT - DECISION DOCUMENT

Jackson Heights Shopping Center
Brownfield Cleanup Program
Jackson Heights, Queens County
Site No. C241176
March 2019

Statement of Purpose and Basis

This document presents the remedy for the Jackson Heights Shopping Center 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 Jackson Heights Shopping Center 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.

- 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. Cover System:

A site cover currently exists in areas not occupied by buildings and will be maintained to allow for commercial use of the site. Any site redevelopment will maintain the existing site cover. The site cover may include paved surface parking areas, sidewalks or soil where the upper one foot of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for commercial use. 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).

3. In-Situ Chemical Oxidation:

In-situ chemical oxidation (ISCO) will be implemented to treat PCE and its degradation product in soil and groundwater. A chemical oxidant (potassium permanganate (KMnO4) or equivalent) will be injected into the subsurface to destroy the contaminants in an approximately 1,300 square foot area where chlorinated solvents compounds were elevated in the soil and in groundwater. Most of the injection area located in the western portion of the site behind the dry cleaner and portion of the Dentist's office. Approximately one fourth of the injection points will be located within the basement of the dry cleaner and Dentist's office.

This will be accomplished by injecting a 5% by weight potassium permanganate (KMnO4) solution or equivalent via temporary injection points in areas surrounding the contaminated soil borings and groundwater monitoring wells. An estimated 20 injection points will be completed with reagent being applied at depths of 6 to 23 feet bgs. Each injection point is estimated to receive approximately 188 gallons of reagent for an approximate total of 3,775 gallons. One injection event will be conducted at the site executed over a one-week period. Additional injection events will be completed, as necessary.

Please refer to Figure 3 for a proposed injection location map.

4. 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 commercial uses, as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- require compliance with the Department approved Site Management Plan.

5. 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 4 above.

Engineering Controls: The Site Cover discussed in Paragraph 2, above and Sub Slab Depressurization System discussed in Section 6.2 of this Decision Document.

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; which will include a provision to implement a Community Air Monitoring Plan (CAMP) for any future ground intrusive activity including utility work;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings 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 control
- 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 soil and 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 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, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:

- procedures for operating and maintaining the system(s); and
- compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.
- providing the Department access to the site and O&M records.

The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

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 8, 2019

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

Jackson Heights Shopping Center
Jackson Heights, Queens County
Site No. C241176
March 2019

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:

Office of State Assemblyman Michael DenDekker
75-35 31st Ave, Suite 206B (2nd Floor)
East Elmhurst, NY 11370
Phone: 718-457-0384

Langston Hughes Queens Library
Attn: Andrew P. Jackson
100-01 Northern Boulevard
Corona, NY 11368
Phone: 718-651-1100

Queens Community Board 3
Attn: Mr. Stephen Kulhanek
82-11 37th Avenue
Suite 606
Jackson Heights, NY 11372
Phone: 718-458-2707

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The site is located on the north side of 31st Avenue, between 75th and 77th Streets within a mixed commercial and residential area of Queens County (Block 1124, Lot 1).

Site Features: The 1.2-acre site is currently developed with one large contiguous "L-shaped" retail building, mostly occupied by various commercial offices and retail tenants including a dry cleaner. The site is located within a larger 5.8-acre parcel known as the Jackson Heights Shopping Center. On-site operations consist of typical commercial, retail, dry cleaning and maintenance activities.

Current Zoning and Land Use: The site is currently active and zoned primarily as residential R4 with commercial overlay Cl-2. The surrounding parcels are currently used for a combination of commercial, residential and utility right-of-ways. The nearest residential area located just across the 75th Street and approximately 200 feet west of the site. The intended use post-remediation is to remain Commercial.

Past Use of the Site: According to available historical sources, the site was undeveloped from 1898 until 1941; developed with residential apartments between 1941 and 1954, and; commercial development appears to have occurred in the late fifties to early sixties. The subject site has housed a dry cleaning business from as early as 1979 to present day.

Site Geology and Hydrogeology: The underlying subsurface consists predominantly of tan/brown fine to medium sand with fill (cobbles and brick) from the ground surface to approximately 14.5 feet bgs. From 14.5 to 27 feet bgs, the subsurface consists predominantly of grey fine sand with layers of clay.

Groundwater exists between 8.0 and 12.5 feet below ground surface and flows generally to the north-northeast.

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 commercial use (which allows for industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

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

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Participant. The Applicant has an obligation to address on-site and off-site contamination. 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:

1,2-dichloroethene	vinyl chloride
tetrachloroethene (PCE)	naphthalene
trichloroethene (TCE)	

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

- groundwater
- soil
- soil vapor intrusion
- indoor air

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.

Sub Slab Depressurization System

The objective of the IRM was to mitigate the soil vapor as a source of contamination at the Site. The Sub Slab Depressurization System (SSDS) was designed to extract the soil gas/soil vapor containing volatile organic compounds (VOCs) from beneath the concrete slab of the on-site building.

Five SSDSs were installed with a total of 18 suction points. The post-system installation indoor air sampling was completed after 30 days of system operation. Indoor/ambient air sampling was completed on May 2 and May 3, 2017. Indoor air samples were collected from both the basement and first floor levels prior to system installation.

In addition, SSDS emissions sampling was conducted during the indoor/ambient air sampling. Five samples were collected (one from each central riser of each of the five systems) from the sampling port on each riser with a 1-liter Summa canister and analyzed for VOCs. Two ambient air samples were also collected. These samples were also analyzed for VOCs.

The indoor air sampling results collected in May 2017 (30 days after SSDS commissioning) showed a decrease in contaminant levels at each sampling location as compared to the July 2016 indoor air sampling results. Therefore, the SSDSs are operating effectively. A Construction Completion Report (CCR) for Interim Remedial Measure dated May 2018 has approved by the Department.

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:

Remedial investigations have detected contamination in environmental media, including:

Soil: Contamination detected in soil includes perchloroethylene (PCE, a chemical often used in the dry cleaning industry) as high as 26 parts per million (ppm) in shallow soil (6 - 6.5 feet below grade); trichloroethylene (TCE, often a breakdown product of PCE) at 7.35 ppm; cis 1,2-dichloroethene (DCE, another breakdown product of PCE) at 589 ppm, and; vinyl chloride (VC, another breakdown product of PCE) at 32 ppm detected within comparatively at deeper depths. Contamination was found mostly (14.5 - 15 feet below grade) concentrated within a small area behind the dry cleaner. Data does not indicate any off-site impacts in soil related to this site.

Groundwater: During the August 2018 sampling round, contaminants in groundwater were mostly detected in only one monitoring well. Contaminants of concern include PCE at a level of

17.3 parts per billion (ppb); TCE at 77.2 ppb; DCE at over 1,300 ppb and VC at 356 ppb. Data does not indicate any off-site impacts in groundwater related to this site.

Soil Vapor and Indoor Air: During July 2016, fourteen indoor air, fourteen sub-slab soil vapor samples, and two ambient air samples were collected. Indoor air samples were collected from the first floor and from the basement. Initially, the contaminants of concern, chlorinated solvents and its breakdown products, were detected in soil vapor, sub-slab vapor and in indoor air at elevated concentrations. PCE concentrations in sub slab vapor ranged from 3.1 to 726 micrograms per cubic meter ($\mu g/m^3$).

During April 2017, sub slab depressurization systems (SSDSs) were installed, as an Interim Remedial Measure (IRM), to address the soil vapor intrusion. January 2018 post-installation sampling revealed that PCE concentrations were below the NYSDOH Guideline values of 30 $\mu g/m^3$, except one sample of PCE detected at 159 $\mu g/m^3$. Other degradation products, including TCE, cis-1,2-DCE, VC and methylene chloride, were documented as either non-detect or below the NYSDOH Guidance values. At the same time (January 2018) the PCE concentration in the basement samples were below the NYSDOH Guidance values of 30 $\mu g/m^3$. August 2018 off-site soil vapor data beneath the sidewalk across 75th Street revealed that the contaminant of concern (PCE) was present at very low concentrations (PCE 6.6 $\mu g/m^3$). 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*.

People will not come into contact with contaminated soil since the site is covered with buildings, concrete, and pavement, unless they dig below the ground surface. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil), may move into 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. Actions have been taken to address exposures associated with soil vapor intrusion in the on-site building. Environmental 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 ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

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

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

The selected remedy is referred to as the Cover System and In-Situ 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;
- 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.

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In-situ chemical oxidation (ISCO) will be implemented to treat PCE and its degradation product in soil and groundwater. A chemical oxidant (potassium permanganate (KMnO4) or equivalent) will be injected into the subsurface to destroy the contaminants in an approximately 1,300 square foot area where chlorinated solvents compounds were elevated in the soil and in groundwater. Most of the injection area located in the western portion of the site behind the dry cleaner and portion of the Dentist's office. Approximately one fourth of the injection points will be located within the basement of the dry cleaner and Dentist's office.

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Please refer to Figure 3 for a proposed injection location map.

4. 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 commercial uses, as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- require compliance with the Department approved Site Management Plan.

5. 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 4 above.

Engineering Controls: The Site Cover discussed in Paragraph 2, above and Sub Slab Depressurization System discussed in Section 6.2 of this Decision Document.

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; which will include a provision to implement a Community Air Monitoring Plan (CAMP) for any future ground intrusive activity including utility work;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings 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 control
- 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 soil and 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 buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

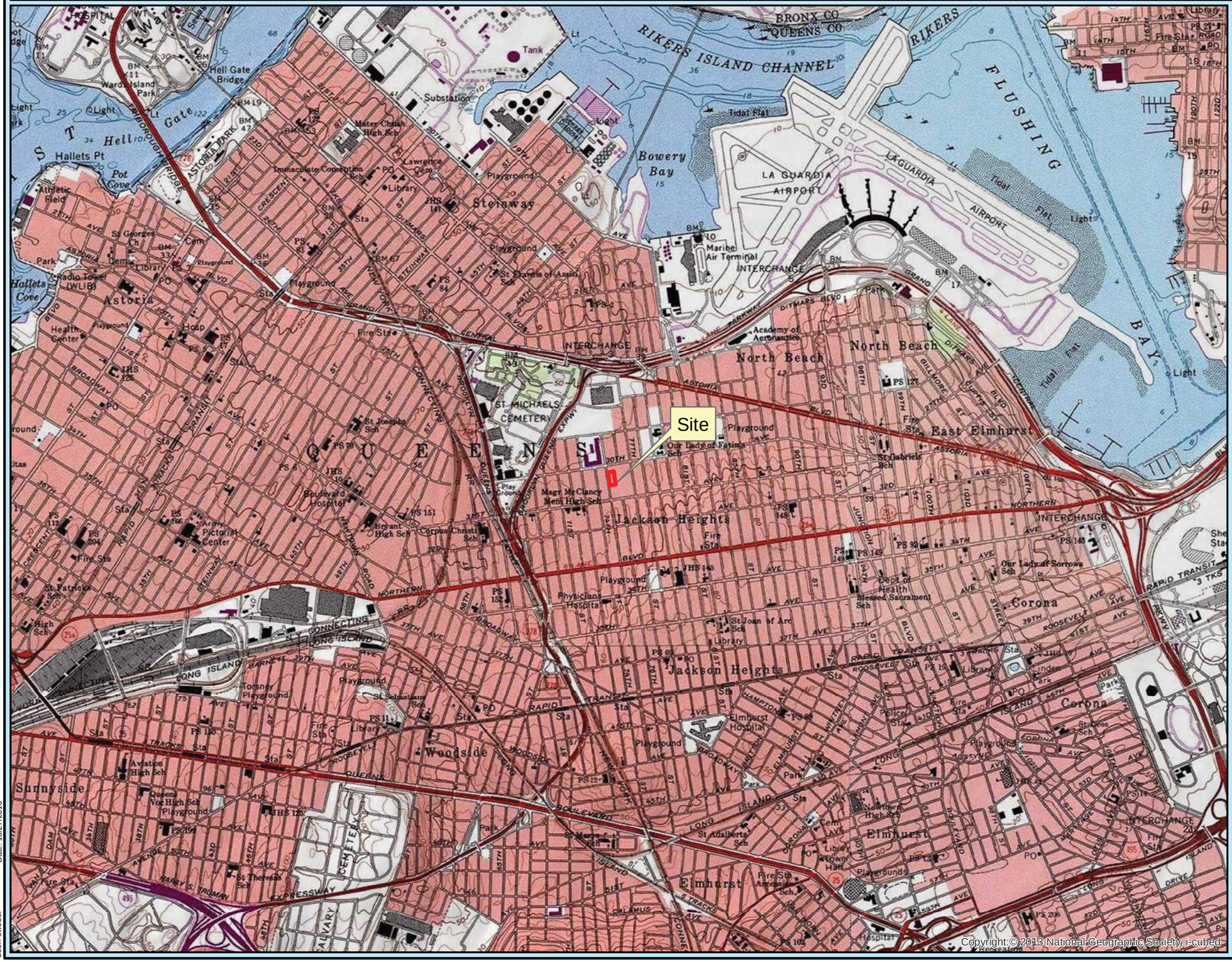
c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:

- procedures for operating and maintaining the system(s); and
- compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.
- providing the Department access to the site and O&M records.

The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Jackson Heights Shopping Center

Borough of Queens, NY



JACKSON HEIGHTS SHOPPING CENTER

75-07 31ST AVENUE
JACKSON HEIGHTS, NEW YORK,11370

FIGURE 1
SITE LOCATION MAP

Legend

Site

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet
Projection: Transverse Mercator
False Easting: 492,125.0000
False Northing: 0.0000
Central Meridian: -74.5000
Scale Factor: 0.9999
Latitude Of Origin: 38.8333
Units: Foot US

0 1,000 2,000 4,000
Feet

PSG Engineering, DPC

611 Industrial Way West
Eatontown, NJ 07724
Certificate of Authorization No. 24GA27989800

Tel.: 732.380.1700
Fax.:732.380.1701
www.partneresi.com

Sources: NJDEP and NJGIN GIS Data; and ESRI GIS-Online USA Topo Maps, 2013	DRAWN BY BPT	SCALE 1in=2,0000ft
Job No: 02790100000 File Name: 02790100000 Fig 2 Topo Map		DATE 10/20/2016

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User: eweber
Date: 10/27/2016

Jackson Heights Shopping Center

Borough of Queens, NY

JACKSON HEIGHTS SHOPPING CENTER

75-07 31ST AVENUE
JACKSON HEIGHTS, NEW YORK 11370

FIGURE 2
COMPOSITE COVER SYSTEM MAP

Legend

- BCP Site Boundary
- Property Boundary
- Concrete
- Building Conrete Slab
- Asphalt

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

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0 20 40 80
Feet

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Fax.:732.380.1701
www.partneresi.com

Sources: NJDEP and NJGIN GIS Data;	DRAWN BY ALH	SCALE 1 in = 40 ft
Job No: 00254100000 File Name: 00254100000 Fig 12 Composite Cover Sys tem		DATE 01/05/2018

File: \\pac.local\root\Solutions\Jobs\Muss Development LLC\00254100000\GIS\00254100000 Fig X Composite Cover Location Map.mxd
User: alhassler
Date: 1/5/2018

Jackson Heights Shopping Center — Borough of Queens, NY

JACKSON HEIGHTS SHOPPING CENTER

75-07 31ST AVENUE
JACKSON HEIGHTS, NEW YORK,11370

FIGURE 3
PROPOSED INJECTION LOCATION MAP

Legend

- Site Boundary
- Tenant Spaces
- Soil Borings - February 2015
- Soil Borings - March 2015
- Soil Borings - July/August 2016
- Telephone Utility
- Sewer Utility
- Electric Utility
- Water Utility
- Gas Utility
- Soil Boring - August 2018
- Injection Area

Contaminant Plume

- PCE & TCE
- PCE, TCE & VC
- Proposed Injection Location

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet
Projection: Transverse Mercator
False Easting: 492,125.0000
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0 5 10 20
Feet

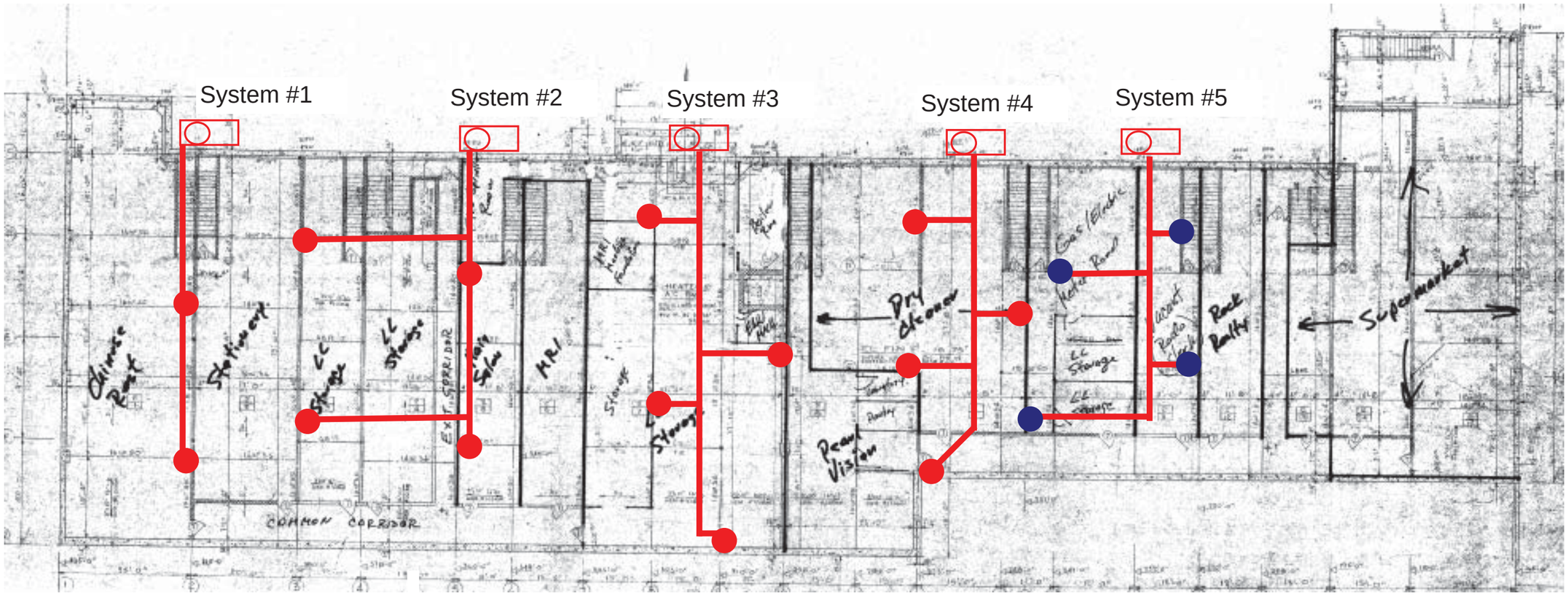
PSG Engineering, DPC

611 Industrial Way West
Eatontown, NJ 07724
Certificate of Authorization No. 24GA27989800

Tel.: 732.380.1700
Fax.:732.380.1701
www.partneresi.com

Sources: NYS GIS Data;	DRAWN BY BPT	SCALE 1 in = 10 ft
Job No: 00254100000 File Name: 00254100000 Fig 15 Injection Location Map		DATE 10/26/2018

File: \\pac.localroot\Solutions\Jobs\Muss Development LLC\00254100000\GIS\00254100000 Fig X Injection Location Map.mxd
User: bkohley
Date: 10/26/2018



2" Suction Point
3" Suction Point
Overhead Conveyance Pipe
Mitigation Blower

25 ft

OBAR Systems Inc. 2696 Rt. 23 South Newfoundland, NJ 07435 OBAR SYSTEMS, INC.	Mitigation Specialist Gunnar Barr NJDEP MIS 10056	SITE ADDRESS: Jackson Heights Shopping Center 75-11 31st Ave, East Elmhurst, New York	SHEET NAME: Vapor Intrusion Mitigation System Design Drawing	DATE: 11/23/2016	DRAWING NO: 1 of 1 Figure 4