

**666 GREENE AVENUE
BROOKLYN, NEW YORK**

**Remedial Action Work Plan
& STIP List (6/24/2016)**

NYC VCP Project Number 16CVCP084K

Prepared For:

Van Buren Greene, LLC
16 Court Street, Suite 800, Brooklyn, New York 11241
718-855-5620
michael@elhmgmt.com

Prepared By:

Ecosystems Strategies, Inc.
24 Davis Avenue, Poughkeepsie, New York 12603
845-452-1658
mail@ecosystemsstrategies.com

June 2016



Ecosystems Strategies, Inc.

24 Davis Avenue, Poughkeepsie, NY 12603

phone 845.452.1658 | fax 845.485.7083 | ecosystemsstrategies.com

June 24, 2016

New York City Office of Environmental Remediation
City Voluntary Cleanup Program
c/o Shaminder Chawla
100 Gold Street, 2nd Floor
New York, NY 10038

Re: VCP # 16CVCP084K
666 Greene Avenue, Brooklyn, New York
Remedial Action Work Plan (RAWP) Stipulation List

Dear Mr. Chawla:

Ecosystems Strategies, Inc. (ESI) hereby submits a Remedial Action Plan (RAWP) Stipulation List for the Site to the New York City Office of Environmental Remediation (OER) on behalf of Van Buren Greene, LLC. This letter serves as an addendum to the RAWP to stipulate additional content, requirements, and procedures that will be followed during the site remediation. The contents of this list are added to the RAWP and will supersede the content in the RAWP where there is a conflict in purpose or intent. The additional requirements/procedures include the following Stipulation List below:

1. The criterion attached in **Appendix 1** will be utilized if additional petroleum containing tank or vessel is identified during the remedial action or subsequent redevelopment excavation activities. All petroleum spills will be reported to the NYSDEC hotline as required by applicable laws and regulations. This contingency plan is designed for heating oil tanks and other small or moderately sized storage vessels. If larger tanks, such as gasoline storage tanks are identified, OER will be notified before this criterion is utilized.
2. A pre-construction meeting is required prior to start of remedial excavation work at the site. A pre-construction meeting will be held at the site and will be attended by OER, the developer or developer representative, the consultant, excavation/general contractor, and if applicable, the soil broker.
3. A Historic Fill Transfer and Disposal Notification Form to each disposal facility and a pre-approval letter from all disposal facilities will be provided to OER prior to any soil/fill material removal from the site. The Historic Fill Transfer and Disposal Notification Form template is attached in **Appendix 2**. Documentation specified in the RAWP - Appendix 3 - Section 1.6 "Materials Disposal Off-Site" will be provided to OER. If a different disposal facility for the soil/fill material is selected, OER will be notified immediately.

4. Signage for the project will include a sturdy placard mounted in a publically accessible right of way to building and other permits signage will consist of the NYC VCP Information Sheet (attached **Appendix 3**) announcing the remedial action. The Information sheet will be laminated and permanently affixed to the placard.
5. If the site contains hazardous waste that will be excavated and disposed of offsite, OER will work with the development team to seek an exemption for the property from the state Hazardous Waste Program Fee (\$130/ton) and Special Assessment on Hazardous Waste (up to \$27/ton). To qualify for an exemption, the site must be enrolled in the city Voluntary Cleanup Program; hazardous waste must result from remedial action set forth in a cleanup plan approved by OER; and OER must oversee the cleanup. It is the applicant's responsibility to notify the OER Project Manager, copying the supervising Project Manager and OER Deputy Director Shaminder Chawla, before hazardous waste is shipped from the site. Unless the Department of Environmental Conservation is notified before waste is shipped from the site, the project may not receive an exemption from the fee. This exemption does not cover, and the project remains responsible for, a Hazardous Waste Annual Report to be filed with DEC and Quarterly Returns for Special Assessments on Hazardous Waste to be filed with the state Department of Taxation and Finance. **Appendix 4** includes additional information about the exemption from the Hazardous Waste Program Fee and the Special Assessment on Hazardous Waste.
6. Collection and analysis of four end-point samples (and five hotspot endpoint samples) from the bottom of the excavation to evaluate the performance of the remedy with respect to attainment of Track 4 SCOs. A map indicating end-point sampling locations is attached in **Appendix 5**. Samples will be analyzed for contaminants of concern SVOCs and Metals.
7. OER requires parties seeking City Brownfield Incentive Grants to carry insurance. For a cleanup grant, both the excavator and the trucking firm(s) that handle removal of soil must carry or be covered under a commercial general liability (CGL) policy that provides \$1 million per claim in coverage. OER recommends that excavators and truckers also carry contractors pollution liability (CPL) coverage, also providing \$1 million per claim in coverage. The CGL policy, and the CPL policy if obtained, must name the City of New York, the NYC Economic Development Corporation, and Brownfield Redevelopment Solutions as additional insured. For an investigation grant, an environmental consultant must be a qualified vendor in the BIG program and carry \$1 million of professional liability (PL) coverage. A fact sheet regarding insurance is attached as **Appendix 6**.
8. Daily reports will be provided during active excavation work. If no work is performed for extended time period, daily report frequency will be reduced to weekly basis. Daily report template is attached in **Appendix 7**.

9. Monthly reports are required on the project's status and schedule to the OER project manager after the RAWP is approved/Decision Document issued and until the Remedial Action Report is received. It is ESI's responsibility to provide this report. If ESI is no longer retained for continuation of the project, ESI is required to notify OER about this. After excavation work is completed, monthly reports are still required and will be provided by the consultant or owner/developer for the duration of the construction period. Monthly report template is attached in **Appendix 8**.
10. Trucking log sheets will be utilized as trucks are transported from sites, and completed logs should be attached to the Remedial Action Report (RAR) as an appendix. The goal of this log is to clearly document the destination of material leaving the site, the parties responsible for its transfer, and other pertinent details. The trucking log template is provided in **Appendix 9**.
11. A 20-mil vapor barrier will be installed beneath the structure's slab and along foundation sidewalls. Manufacturer specifications for the product chosen for this project and PE/RA certified building plans with vapor barrier installation details will be submitted to OER prior to the Pre-Construction meeting and/or start of construction.

Sincerely,

ECOSYSTEMS STRATEGIES, INC.



Paul H. Ciminello
President

cc: Sarah Pong, NYCOER

Appendix 1
Generic Procedures for Management of Underground Storage Tanks
Identified under the NYC VCP

Prior to Tank removal, the following procedures should be followed:

- Remove all fluid to its lowest draw-off point.
- Drain and flush piping into the tank.
- Vacuum out the “tank bottom” consisting of water product and sludge.
- Dig down to the top of the tank and expose the upper half.
- Remove the fill tube and disconnect the fill, gauge, product, vent lines and pumps. Cap and plug open ends of lines.
- Temporarily plug all tank openings, complete the excavation, remove the tank and place it in a secure location.
- Render the tank safe and check the tank atmosphere to ensure that petroleum vapors have been satisfactorily purged from the tank.
- Clean tank or remove to storage yard for cleaning.
- If the tank is to be moved, it must be transported by licensed waste transporter. Plug and cap all holes prior to transport leaving a 1/8 inch vent hole located at the top of the tank during transport.
- After cleaning, the tank must be made acceptable for disposal at a scrap yard, cleaning the tanks interior with a high pressure rinse and cutting the tank in several pieces.

During the tank and pipe line removal, the following field observations should be made and recorded:

- A description and photographic documentation of the tank and pipe line condition (pitting, holes, staining, leak points, evidence of repairs, etc.).
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with a calibrated photoionization detector (PID).

Impacted Soil Excavation Methods

The excavation of the impacted soil will be performed following the removal of the existing tanks. Soil excavation will be performed in accordance with the procedures described under Section 5.5 of Draft DER-10 as follows:

- A description and photographic documentation of the excavation.
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with calibrated photoionization detector (PID).

Final excavation depth, length, and width will be determined in the field, and will depend on the horizontal and vertical extent of contaminated soils as identified through physical examination (PID response, odor, staining, etc.). Collection of verification samples will be performed to evaluate the success of the removal action as specified in this document.

The following procedure will be used for the excavation of impacted soil (as necessary and appropriate):

- Wear appropriate health and safety equipment as outlined in the Health and Safety Plan.

- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated.
- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile, or dispose of, separate from the impacted soil.
- If additional UST's are discovered, the NYSDEC will be notified and the best course of action to remove the structure should be determined in the field. This may involve the continued trenching around the perimeter to minimize its disturbance.
- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc.) an attempt will be made to remove it, to the extent not limited by the site boundaries or the bedrock surface. If possible, physically impacted soil will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separated dedicated plastic sheeting or live loaded into trucks from the disposal facility. Removal of the impacted soils will continue until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present.
- Excavated soils which are temporarily stockpiled on-site will be covered with tarp material while disposal options are determined. Tarp will be checked on a daily basis and replaced, repaired or adjusted as needed to provide full coverage. The sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property.

Once the site representative and regulatory personnel are satisfied with the removal effort, verification of confirmatory samples will be collected from the excavation in accordance with DER-10.

Appendix 2
Historic Fill Transfer and Disposal Notification Form

**Historic Fill & Soil Disposal Notification Form
New York City Office of Environmental Remediation**

Date:

To operators and representatives of disposal facilities and government regulators:

The New York City Office of Environmental Remediation (OER) operates several environmental remediation regulatory programs in New York City that manage light to moderately contaminated properties that are planned for redevelopment. These projects commonly involve the removal of historical fill and soil from properties for development and other purposes. As with any environmental regulatory program, lawful transport and disposal of historic fill and soil is mandatory. It is also our highest priority.

Disposal facilities, recycling facilities and clean fill facilities (collectively, “receiving facilities”) for historic fill and soil may be located in New York or neighboring states. Our research has indicated that a wide range of facility types and a complex set of regulatory requirements and obligations for a receiving facility operation exist within each jurisdiction. Receiving facilities are required to comply with applicable laws and regulations and may operate under state and local authority via permits, licenses, registrations, agreements and other legal instruments that dictate requirements for the material they can receive. Operating requirements may include adherence to applicable chemical standards, guidance levels, criteria, policy or other bases to determine the suitability for receipt of historical fill or soil at a receiving facility. Such requirements may also specify sample frequency, location, sampling method, chemical analytes, or analytical methods. Receiving facility soil/fill sampling requirements often differ from standard remedial investigation protocol performed in the original environmental study of the property.

Given the variability of data requirements for receiving facilities, the wide range of receiving facility types, and the complexity of regulatory requirements and obligations, OER is seeking to assist government regulators and facility operators and their technical representatives to achieve compliance with regulatory requirements for disposal of historic fill and soil at receiving facilities for projects we administer. Further, we seek to ensure that all of the data and information that is developed in OER’s regulatory programs (for instance, site environmental history and soil chemistry) is available to government regulators and to facility managers when making decisions on suitability for disposal to a receiving facility.

This document provides formal notification from OER of the availability of environmental information regarding the physical and chemical content of historical fill and soil that is proposed for transfer to a disposal, recycling or clean fill facility from a property located at:

666 Greene Avenue, Brooklyn, New York
OER Site # 16CVCP082K

The above referenced property has undergone regulated environmental investigation and is the subject of remedial action work plan under the authority of OER. All environmental data and information generated during this regulatory process is available online in OER’s Document Repository listed below. Be advised that many properties are also regulated under state environmental law, and additional data may be available from state agencies. OER reserves the right to share this information with applicable state regulators.

<http://www.nyc.gov/html/oer/html/document-repository/document-repository.shtml>

Note: when logged on to above URL, select the borough for the site (listed in the address above) and scroll through the list and select the address for the site (listed above). All documents are available in PDF format.

According to New York State DER-10 Technical Guidance for Site Investigation and Remediation, historical fill is non-indigenous fill material deposited on a property to raise its topographic elevation. The origin of historical fill is unknown but it is commonly known to contain ash from wood and coal combustion, slag, clinker, construction debris, dredge spoils, incinerator residue, and demolition debris. Historic fill is a regulated solid waste in the State of New York. Prior to making a determination regarding the suitability of historic fill and/or soil from this property for disposal at this receiving

facility, **we strongly recommend that you review all of the data and information available for this property in our Document Repository** listed above. The repository includes:

- A Phase 1 history of use of the property;
- A Remedial Investigation Report for the property which includes:
 - Boring logs that describe physical observations of the historical fill material made by a trained environmental professional;
 - Chemical data for grab samples of historical fill collected during the remedial investigation;
- A Remedial Action Work Plan for the property.

If you have any questions, please contact Horace Zhang at (212) 788-8484 or H Zhang@dep.nyc.gov for more information.

Appendix 3
NYC VCP Signage



NYC Voluntary Cleanup Program

**666 Greene Avenue
Site #: 16CVCP084K**

This property is enrolled in the New York City Voluntary Cleanup Program for environmental remediation. This is a voluntary program administered by the NYC Office of Environmental Remediation.

For more information,
log on to: www.nyc.gov/oer

Or scan with smart phone:



If you have questions or would like more information,
please contact:

Shaminder Chawla at (212) 442-3007
or email us at brownfields@cityhall.nyc.gov

Appendix 4
Hazardous Waste Exemptions Fact Sheet



**Exemptions from the state
Hazardous Waste Program
Fee & Special Assessment**

If your site is enrolled in the city Voluntary Cleanup Program (VCP) and contains hazardous waste that will be excavated and disposed of offsite, OER can work with your development team to exempt your property from the \$130/ton state Hazardous Waste Program Fee and the Special Assessment on Hazardous Waste.

Exemption from the Hazardous Waste Program Fee

To qualify for an exemption from the Hazardous Waste Program Fee:

1. A site must be enrolled in the city Voluntary Cleanup Program;
2. Hazardous waste must result from remedial action set forth in a cleanup plan approved by OER; and
3. OER must oversee the cleanup.

Process for obtaining a Hazardous Waste Program Fee exemption:

For each VCP site, OER will submit three certifications to the New York State Department of Environmental Conservation (DEC):

1. OER will prepare a Notice of Potential Generation of Hazardous Waste after a soil test shows a site contains hazardous waste. To prepare this Notice, you must provide your OER project manager with:

- the site's EPA generator ID number;
- the date of the soil test confirming hazardous waste;
- the quantity of hazardous waste, in tons, anticipated to be shipped; and
- the anticipated dates for the start and completion of remediation.

DEC must receive this form **before** hazardous waste is shipped from your site. Otherwise, your claim for an exemption may be denied.

2. After hazardous waste has been removed from the site, you must notify your OER project manager that removal is complete. OER will then distribute a Certification of Hazardous Waste Generation to your project team which, when filled out, documents how the hazardous waste was managed. Once completed, it must be signed by the generator (or site owner) and the site's Qualified Environmental Professional and returned to your OER project manager with a copy to Amanda Duchesne aduchesne@dep.nyc.gov and Michelle Sarro msarro@dep.nyc.gov.

**For further information,
please contact:**

Amanda Duchesne
Program Manager
(212) 341-2077

ADuchesne@dep.nyc.gov

or

Michelle Sarro
Attorney
(212) 341-2015

MSarro@dep.nyc.gov

Upon receipt of the Certification of Hazardous Waste Generation, OER will issue a **\$10/ton fee** for services to obtain the exemption from the state Hazardous Waste Program Fee.

3. OER will then issue a Certification of Remedial Action that Generated Hazardous Waste to DEC representing OER's approval of how a site managed its hazardous waste.

DEC will make its determination after receiving the last two certifications. OER will then notify the project of the exemption.

Exemption from the Special Assessment on Hazardous Waste

VCP sites are also eligible for an exemption from the Special Assessment on Hazardous Waste, which can cost projects up to \$27/ton.

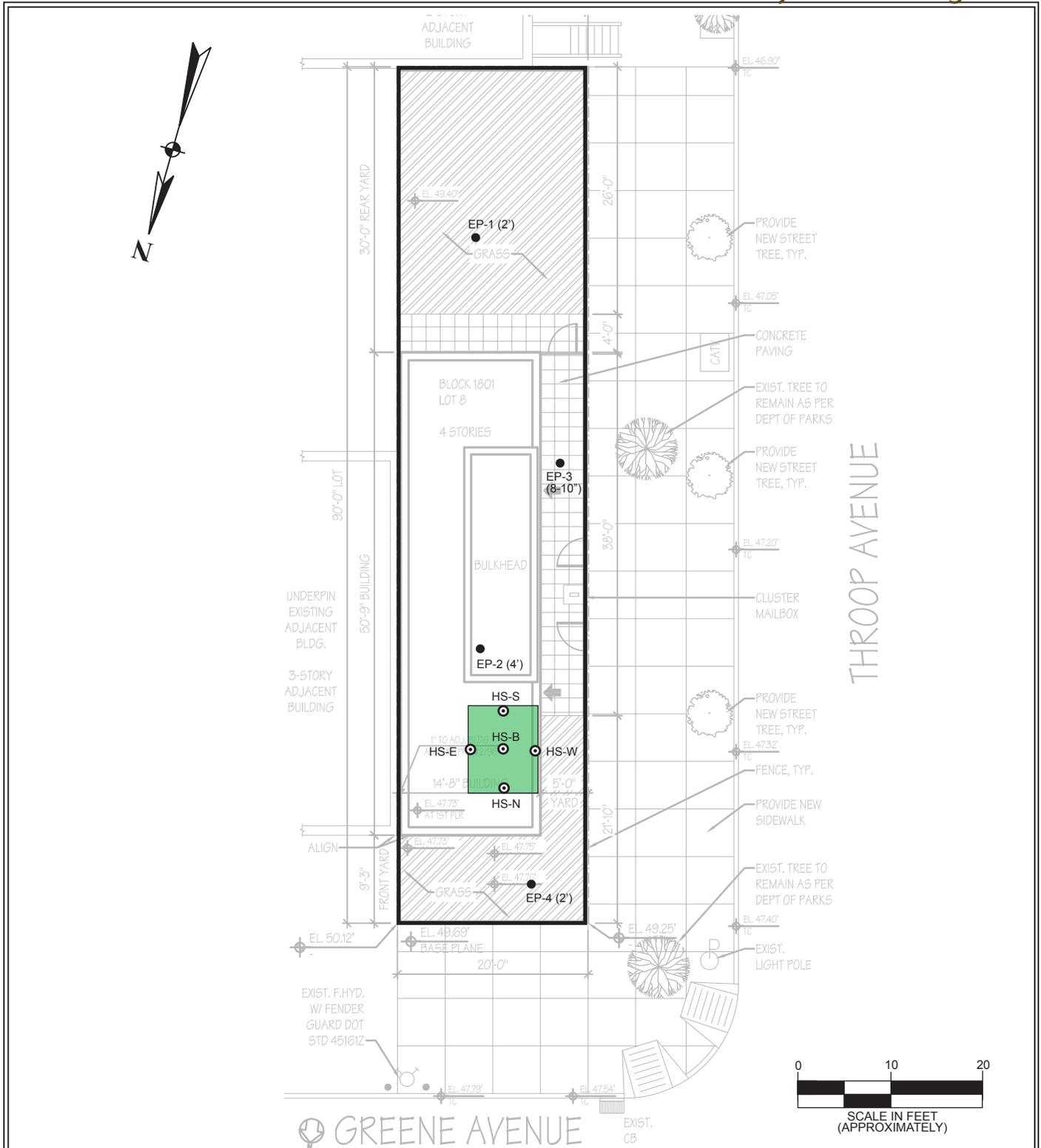
It is advised that you assert your interest in obtaining the Special Assessment exemption when you file a TP-550 Quarterly Return for Special Assessments on Hazardous Waste Generated in New York State form with the state Department of Taxation and Finance within 20 days of the end of the calendar quarter in which the waste was generated. In line item 3 on the form, indicate the number of tons of hazardous waste that were generated in New York State under an order of, or agreement or contract with, DEC. For access to the TP-550 form and further instructions see <http://www.tax.ny.gov/bus/haz/hzrdwste.htm>.

Ongoing Obligations

Regardless of the exemptions from the Hazardous Waste Program Fee and Special Assessment on Hazardous Waste, parties must:

- File a Hazardous Waste Annual Report with DEC by March 1 of each year if your site generated 15 tons or more of hazardous waste in the prior calendar year. For details, see <http://www.dec.ny.gov/chemical/8770.html>. To set forth the basis for an exemption from the Hazardous Waste Program Fee, put an X in the Exempt Remedial box in Box H of Section 1 of the Waste Generation and Management (GM) form and in the Comments Box (at the bottom of the form) include "New York City Voluntary Cleanup Program, VCP Site Number_____"; and
- File a TP-550 Quarterly Return for Special Assessments on Hazardous Waste Generated in New York State form with the state Department of Taxation and Finance within 20 days of the end of the calendar quarter in which the waste was generated. For access to the TP-550 form and further instructions see <http://www.tax.ny.gov/bus/haz/hzrdwste.htm>.

Appendix 5
End-Point Sampling Map



Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 9: End-point Sample Map

666 Greene Avenue
Borough of Brooklyn, New York

- Legend:
- subject property border
 - hot spot location
 - endpoint samples (depth)
 - hot spot endpoint samples

ESI File: EB15157B.40

June 2016

Scale as shown

Appendix 5

Appendix 6
BIG Program Insurance Fact Sheet



FACT SHEET – BIG PROGRAM INSURANCE REQUIREMENTS

Investigation Grants – for a developer or site owner to be eligible for a BIG investigation grant, its environmental consultant(s) must be:

- a Qualified Vendor in the BIG Program; and
- maintain Professional Liability (PL) insurance of \$1M per claim and annual aggregate.

Cleanup Grants – for a developer or site owner to be eligible for a BIG cleanup grant:

- Its general contractor or excavation/foundation contractor hired to perform remedial work must maintain Commercial General Liability (CGL) insurance of at least \$1M per occurrence and \$2M in the general aggregate. It is recommended that the general contractor or excavation/foundation contractor also maintain a Contractors Pollution Liability policy (CPL) of at least \$1M per occurrence.
- Its subcontractors who are hired by the general contractor etc. to perform remedial work at a site, including soil brokers and truckers, must also maintain a CGL policy in the amount and with the terms set forth above. It is recommended that subcontractors also maintain a CPL policy in the amount and with the terms set forth above.

The CGL policy, and the CPL policy if in force, must list the city, EDC and BRS as additional insureds, include completed operations coverage and be primary and non-contributory to any other insurance the additional insureds may have.

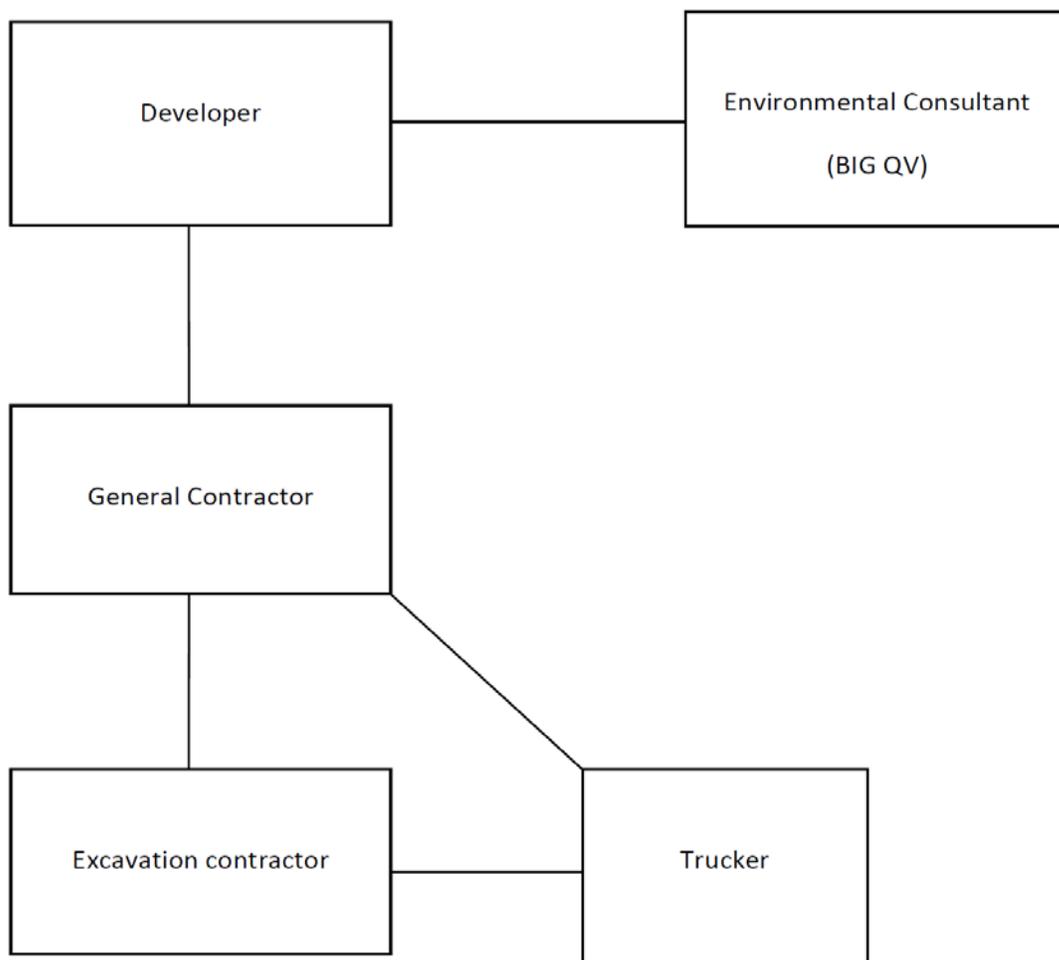
- Its environmental consultant(s) hired to oversee the cleanup must be:
 - a. a BIG Qualified Vendor; and
 - b. maintain Professional Liability (PL) insurance of \$1M per claim and annual aggregate.

If, in the alternative, the developer hires its environmental consultant to perform the cleanup, the environmental consultant must maintain CGL insurance in the amount and with the terms set forth above. It is recommended that the environmental consultant also maintain CPL coverage in the amount and with the terms set forth in the first two bulleted items listed above.

A schematic presenting the contractual relationships described above appears on page 2. Parties who must be named as Additional Insureds on Cleanup Grant insurance policies (CGL and CPL) are presented on page 3.

Example of Contractual Relationships for Cleanup Work

The Office of Environmental Remediation’s Voluntary Cleanup Plan program requires applicants to identify the parties who are engaged in active remediation of their sites including: the General Contractor hired to remediate and/or the excavation contractor hired to excavate soil from the site and the trucking firm(s) that remove soil from the site for disposal at approved facilit(ies).



The chart above shows contractual relationships that typically exist for projects that are enrolled in the Voluntary Cleanup Program.

BIG Program Additional Insureds

The full names and addresses of the additional insureds required under the Required CGL Policy and recommended CPL Policy are as follows:

“City and its officials and employees”

New York City Mayor’s Office of Environmental Remediation
253 Broadway, 14th Floor
New York, NY 10007

“NYC EDC and its officials and employees”

New York City Economic Development Corporation
110 William Street
New York, NY 10038

“BIG Grant Administrator and its officials and employees”

Brownfield Redevelopment Solutions, Inc.
739 Stokes Road, Units A & B
Medford, NJ 08055

Appendix 7
Daily Report Template

Generic Template for Daily Status Report

Instructions

The Daily Status Report submitted to OER should adhere to the following conventions:

- Remove this cover sheet prior to editing.
- Remove all the **red text** and replace with site-specific information.
- Submit the final version as a Word or PDF file.

Daily Status Reports

Daily status reports providing a general summary of activities for each day of *active remedial work* will be emailed to the OER Project Manager by the end of the following day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

DAILY STATUS REPORT

Prepared By: Enter Your Name Here

WEATHER	Snow	Rain	Overcast	Partly Cloudy	X	Bright Sun
TEMP.	< 32	32-50	50-70	X	70-85	>85

VCP Project No.:	16CVCP000M	E-Number Project No.:	16EHAN000M	Date:	01/01/2016
Project Name:	Name or Address				

Consultant: Person(s) Name and Company Name	Safety Officer: Person(s) Name and Company Name
--	--

General Contractor: Person(s) Name and Company Name	Site Manager/ Supervisor: Person(s) Name and Company Name
--	--

Work Activities Performed (Since Last Report):
Provide details about the work activities performed.

Working In Grid #: A1, B1, C1

Samples Collected (Since Last Report):
No samples collected or provide details

Air Monitoring (Since Last Report):
No air monitoring performed or provide details
Prestart Conditions – PID = 0.0 ppm, Dust = 0.000
High Conditions – PID = 0.0 ppm, Dust = 0.000

Problems Encountered:
No problems encountered or provide details

Planned Activities for the Next Day/ Week:
Provide details about the work activities planned for the next day/ week.

Example:

Facility # Name/ Location Type of Waste Solid <u>Or</u> Liquid	Facility # Name Location Type of Waste Solid <u>Or</u> Liquid		##### ABC Facility New York, NY petroleum soils Solid							
	Trucks	Cu. Yds. <u>Or</u> Gallons	Trucks	Cu. Yds.						
Today									5	120
Total									25	600

NYC Clean Soil Bank		Receiving Facility: Name/ Address (Approved by OER)			
Tracking No.:	16CCSB000				
Today	Trucks 5	Cu. Yds. 25	Total	Trucks 120	Cu. Yds. 600

Site Grid Map
Insert the site grid map here

Photo Log

Photo 1 – provide a caption	Insert Photo Here – Photo of the entire site
Photo 2 – provide a caption	Insert Photo Here – Photo of the work activities performed
Photo 3 – provide a caption	Insert Photo Here – Photo of the work activities performed

Appendix 8
Monthly Report Template

WEEKLY / MONTHLY STATUS REPORT

Prepared By: Enter Your Name Here

VCP Project No.:	16CVCP000M	E-Number Project No.:	16EHAN000M	Date:	01/01/2016
------------------	------------	-----------------------	------------	-------	------------

Project Name:	Name or Address
Project Updates (Since Last Report): Provide details about the work activities performed.	
Problems Encountered: No problems encountered or provide details	
Planned Activities for the Next three months: Provide details about the future work activities.	

Photo Log

Photo 1 – provide a caption

Insert Photo Here – Photo of the entire site

Photo 2 – provide a caption

Insert Photo Here – Photo of the work activities performed

Photo 3 – provide a caption

Insert Photo Here – Photo of the work activities performed

Appendix 9
Soil Disposal and Trucking Log Sheet

**666 GREENE AVENUE
BROOKLYN, NEW YORK**

Remedial Action Work Plan

NYC VCP Project Number 16CVCP084K

Prepared For:

Van Buren Greene, LLC
16 Court Street, Suite 800, Brooklyn, New York 11241
718-855-5620
michael@elhmgmt.com

Prepared By:

Ecosystems Strategies, Inc.
24 Davis Avenue, Poughkeepsie, New York 12603
845-452-1658
mail@ecosystemsstrategies.com

June 2016

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Appendix E: Sustainability Statement

Appendix F: Soil/Materials Management Plan

Appendix G: Construction Health and Safety Plan

LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C&D	Construction and Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering Controls and Institutional Controls
ELAP	Environmental Laboratory Accreditation Program
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IRM	Interim Remedial Measure
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYS DEC	New York State Department of Environmental Conservation
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYC VCP	New York City Voluntary Cleanup Program
NYCRR	New York Codes Rules and Regulations
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation

Acronym	Definition
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
USGS	United States Geological Survey
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VOC	Volatile Organic Compound

CERTIFICATION

I, Philip Bell, am currently a registered professional engineer licensed by the State of New York. I performed professional engineering services and had primary direct responsibility for designing the remedial program for the 666 Greene Avenue site, site number 16CVCP084K. I certify to the following:

- I have reviewed this document and the Stipulation List, to which my signature and seal are affixed.
- Engineering Controls developed for this remedial action were designed by me or a person under my direct supervision and designed to achieve the goals established in this Remedial Action Work Plan for this site.
- The Engineering Controls to be constructed during this remedial action are accurately reflected in the text and drawings of the Remedial Action Work Plan and are of sufficient detail to enable proper construction.
- This Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Philip Bell
Name

Name

081943
PE License Number

PE License Number

Philip Bell
Signature

Signature

6/21/16
Date

Date



I, Paul H. Ciminello, am a qualified Environmental Professional. I will have primary direct responsibility for implementation of the remedial program for the 666 Greene Avenue site, site number 16CVCP084K. I certify to the following:

- This Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Paul H. Ciminello
QEP Name

QEP Name

Paul H. Ciminello
QEP Signature

QEP Signature

6/21/2016
Date

Date



EXECUTIVE SUMMARY

Van Buren Greene, LLC is working with the NYC Office of Environmental Remediation (OER) in the New York City Voluntary Cleanup Program to investigate and remediate a 1,800-square foot site located at 666 Greene Avenue in Brooklyn, New York. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

Site Location and Background

The Site is located at 666 Greene Avenue in the Bedford-Stuyvesant section in Brooklyn, New York and is identified as Block 1801 and Lot 8 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 1,800-square feet and is bounded by Greene Avenue to the north, a 4-story multi-family residential structure to the south, a 4-story multi-family residential structure to the east, and Throop Avenue to the west. A map showing the site boundary is provided in Figure 2. Currently, the Site is vacant and contains unmaintained land.

Summary of Redevelopment Plan

The proposed future use of the Site will consist of a 4-story multi-family residential structure. The proposed development project consists of constructing a new 4-story, multi-family residential building with a crawlspace basement. The building will contain two residential units occupying all aboveground floors. The footprint of the building will cover approximately 744 square feet and occupy approximately 41% of the Site. The remainder of the Site will consist of: a 270 square foot (15% of the entire lot) concrete patio area, and approximately 770 square feet (44 % of the entire lot) of grass yards. The gross building square footage is 2,967 square feet with 2,232 square feet for residential use.

Excavation for construction of the crawlspace basement level is estimated to extend approximately 4 feet below surface grade (bsg) and covers the entire footprint of the building. Approximately 150 cubic yards of soils are expected to be removed from the basement

excavation, with an additional 30 cubic yards from the hotspot at SB-1 (located beneath the location of the proposed structure). Approximately 100 cubic yards will require excavation from the landscaped areas at the Site; however, these soils may be used to backfill the hotspot excavation. The estimated total quantity of soil to be excavated is 280 cubic yards; however, only approximately 250 cubic yards are planned for removal. This lowest depth of excavation at the Site will not extend below the water table, which is known to be greater than 40 feet bsg.

Layout of the proposed site development is presented in Figure 3. The current zoning designation is R6B for residential use. The proposed use is consistent with existing zoning for the property. The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

Summary of Surrounding Property

Adjoining properties to the north, east, and south contain multi-family residential structures. The adjoining structure to the west contains a mixed-use residential and commercial building with a grocery store on the first floor. The surrounding neighborhood consists primarily of residential and/or mixed-use residential and commercial structures. A day care facility, the “Glorious & Gifted Early Childhood Learning Center”, is located approximately 250 feet to the south of the Site. No other sensitive receptors such as schools, hospitals, or daycare facilities were identified within a 500-foot radius of the Site.

Figure 4 shows the surrounding land usage.

Summary of Past Site Uses and Areas of Concern

Based on a review of a Phase I Environmental Site Assessment (Phase I ESA) conducted by Impact Environmental (Impact) in January 2007, and available online New York City Assessor’s Office records, the following Site history was established. The Site was historically developed with residential structures from as early as 1888 until sometime between 1932 and 1951 when the Site was converted for use as an automotive repair shop. The Site has been vacant since circa 1998-1999.

The AOCs identified for this site include:

1. Known presence of poor quality urban fill materials with elevated SVOCs and metals
2. Potential impacts from a historical on-site automotive repair shop

Summary of Work Performed under the Remedial Investigation

The following work was performed as part of the Phase II subsurface investigation by Impact in April 2009 and the Remedial Investigation (RI) by ESI in May 2016

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
1. In 2009, installed four soil borings across the entire project Site and collected ten soil samples and in 2016, installed two soil borings and collected four soil samples for chemical analysis from the soil borings to evaluate soil quality;
2. Due to the depth of groundwater, no groundwater wells were installed during the 2016 RI; and
3. In 2016, installed three soil vapor probes at the Site and collected three samples for chemical analysis.

Summary of Findings of Remedial Investigation

1. Elevation of the property is approximately 55 feet.
2. Depth to groundwater at the Site is known to be greater than 40 feet bsg.
3. Groundwater flow beneath the Site is not known but is likely to be in an overall southerly direction, towards Jamaica Bay.
4. Bedrock was not encountered to a maximum depth of 40 feet during environmental investigations at the Site.
5. The stratigraphy of the site, from the surface down, consists of up to 8 feet of urban fill materials (variable texture silty sands with brick, glass, concrete, masonry, and rock inclusions) underlain by clays and sands to a maximum depth of 40 feet.
6. Soil/fill samples collected during the 2009 Phase II and 2016 RI were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives and Restricted Residential Soil Cleanup Objectives (SCOs) as presented in 6NYCRR Part 375-6.8 and CP51. Soil/fill samples collected showed trace concentrations of volatile organic compounds (VOCs), but none detected above Unrestricted Use SCOs. Several semi-volatile organic compounds (SVOCs) consisting of the Polycyclic Aromatic Hydrocarbons (PAH)

benz(a)anthracene (max of 1.9 ppm), dibenzo(a,h)anthracene (max of 0.37 ppm), and indeno(1,2,3-cd)pyrene (max of 0.81 ppm) were detected above Restricted Residential Use SCOs in one shallow sample. Three pesticides including 4,4'-DDD (0.0153 ppm); 4,4'-DDT (max of 0.0793 ppm) and dieldrin (max of 0.0077 ppm) were detected exceeding Unrestricted Use SCOs in shallow soil samples. PCB-1260 was detected at 0.13 ppm in one shallow sample, above its Unrestricted Use SCO. Several metals were detected above Unrestricted Use SCOs throughout the site with arsenic (max of 24.6 ppm), lead (max of 801 ppm), and mercury (max of 4.43 ppm) exceeding Restricted Residential SCOs in a deeper hotspot at SB-1 (2009 location).

7. Soil vapor samples collected during the 2016 RI were compared to compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State Department of Health Final Guidance for Evaluating Soil Vapor Intrusion dated October 2006. Soil vapor samples showed low levels of petroleum related and chlorinated VOCs. The max total concentration of petroleum-related VOCs (BTEX) was 20.8 $\mu\text{g}/\text{m}^3$. Highest concentrations were detected for 2-Butanone at 350 $\mu\text{g}/\text{m}^3$. Chlorinated VOCs tetrachloroethylene (PCE); 1,1,1-trichloroethane, carbon tetrachloride and trichloroethene (TCE) were not detected in any of the soil vapor samples.
8. Due to groundwater depth of more than 30 feet, groundwater sampling was deferred to soil and soil vapor sampling. Based upon results of soil and soil vapor sampling, groundwater investigation is waived.

Summary of the Remedial Action

The preferred remedy for the site is Alternative 2, a Track 4 Site Specific SCOs remedy. The Alternative 2 remedy will remove all soil/fill exceeding Track 4 Site-Specific SCOs throughout the Site, which will be confirmed with post-excavation sampling. Engineering and Institutional Controls are required for soil management for a Track 4 cleanup. A composite cover consisting of the concrete building slabs, concrete entryways and patios, and 2 feet of clean soil in the landscaped area covering the entire site, and a vapor barrier would be installed as part of standard building development to address soil intrusion. Use restrictions will be imposed on the site and Deed Restrictions would be imposed on this property.

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Establishment of Track 4 Site-Specific Soil Cleanup Objectives (SCOs).
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility(s). A Waste Characterization Report documenting sample procedures, location, analytical results shall be submitted to NYCOER prior to start of remedial action.
6. Excavation and removal of soil/fill exceeding Track 4 Site-Specific SCOs. The area beneath the proposed building will be excavated to 4 feet (for installation of a crawlspace basement), the area beneath a proposed concrete patio will be excavated to at least 8-10 inches, and areas beneath proposed grass yards will be excavated to 2 feet. A hotspot located at SB-1 will also be excavated to a depth of 12 feet. The total volume of anticipated soil excavation is 280 cubic yards, with 250 cubic yards planned for removal.
7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.

8. Management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
9. Removal of all underground storage tanks that are encountered during soil/fill removal actions. Registration of tanks and reporting of any petroleum spills associated with UST's and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
10. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities.
11. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
12. Demarcation of residual soil/fill in landscaped areas.
13. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
14. Construction of an engineered composite cover consisting of a 6-inch concrete building slab with an 8-inch clean granular sub-base beneath all building areas, 4-inch poured concrete on a 6-inch sub-base in sidewalk and patio areas, and two feet of clean soil in all open space and landscaped areas to prevent human exposure to residual soil/fill remaining at the Site.
15. Installation of a vapor barrier system consisting of vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the building. The vapor barrier system will consist of a of a minimum 20-mil vapor barrier with the selected manufacturer/model provided to OER in the Stipulation Letter. All welds, seams and penetrations will be properly sealed to prevent preferential pathways for vapor migration. The vapor barrier system is an Engineering Control for the remedial action. The remedial engineer will certify in the RAR that the vapor barrier system was designed and properly installed to mitigate soil vapor migration into the building.

16. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
17. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
18. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP, and describes all Engineering and Institutional Controls to be implemented at the Site.
19. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans maintenance and inspection of Engineering and Institutional Controls and reporting at a specified frequency.
20. Recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and Institutional Controls and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

COMMUNITY PROTECTION STATEMENT

The NYC Office of Environmental Remediation (OER) provides governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan (“cleanup plan”) describes the findings of prior environmental studies, shows the location of identified contamination at the site, and describes the plans to clean up the site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities and also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

Project Information:

- Site Address: 666 Greene Avenue, Brooklyn NY
- NYC Voluntary Cleanup Program Project Number: 16CVCP084K

Project Contacts:

- OER Project Manager: Sarah Pong, 212-788-8841
- Site Project Manager: Paul H. Ciminello, 845-452-1658
- Site Safety Officer: Paul H. Ciminello, 845-452-1658
- Online Document Repository:
<http://www.nyc.gov/html/oer/html/repository/RBrooklyn.shtml>

Remedial Investigation and Cleanup Plan: Under the oversight of the NYC OER, a thorough study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils, groundwater and soil vapor, and to identify contaminant sources present on the property. The cleanup plan has been designed to address all contaminant sources that have been identified during the study of this property.

Identification of Sensitive Land Uses: Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

Qualitative Human Health Exposure Assessment: An important part of the cleanup planning for the Site is a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this cleanup plan.

Health and Safety Plan: This cleanup plan includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-Site workers. The elements of this RAWP are in compliance with applicable safety requirements of the United States Occupational Safety and Health Administration (OSHA). This RAWP includes many protective elements including those discussed below.

Site Safety Coordinator: This project has a designated Site safety coordinator to implement the CHASP. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is identified at the beginning of this Community Protection Statement.

Worker Training: Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

Community Air Monitoring Plan: Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with a detailed plan called the Community Air Monitoring Plan or CAMP. Results will be regularly reported to the NYC Office of

Environmental Remediation. This cleanup plan also has a plan to address any unforeseen problems that might occur during the cleanup (called a ‘Contingency Plan’).

Odor, Dust and Noise Control: This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and include steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with applicable NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager or NYC Office of Environmental Remediation Project Manager listed on the first page of this Community Protection Statement document.

Quality Assurance: This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be summarized in the final report, called the Remedial Action Report. This report will be submitted to the NYC Office of Environmental Remediation and will be thoroughly reviewed.

Stormwater Management: To limit the potential for soil erosion and discharge, this cleanup plan has provisions for stormwater management. The main elements of the stormwater management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

Hours of Operation: The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation will conform to requirements of the NYC Department of Buildings.

Signage: While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the NYC Voluntary Cleanup Program and provides project contact names and numbers, and a link to the document repository where project documents can be viewed.

Complaint Management: The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager or the NYC Office of Environmental Remediation Project Manager listed on the first page of this Community Protection Statement document, or call 311 and mention the Site is in the NYC Voluntary Cleanup Program.

Utility Mark Outs: To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC Department of Buildings regulations.

Soil and Liquid Disposal: All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations, and required permits will be obtained.

Soil Chemical Testing and Screening: All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

Stockpile Management: Soil stockpiles will be kept covered with tarps to prevent dust, odor and erosion. Stockpiles will be frequently inspected. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed, to protect storm water catch basins and other discharge points.

Trucks and Covers: Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with applicable laws and regulations.

Imported Material: All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on the Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

Equipment Decontamination: All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

Housekeeping: Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

Truck Routing: Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

Final Report: The results of all cleanup work will be fully documented in a final report (called the Remedial Action Report) that will be available for public review online. A link to the online document repository and the public library with Internet access nearest the Site are listed on the first page of this Community Protection Statement document

Long-Term Site Management: If long-term protection is needed after the cleanup is complete, the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Office of Environmental Remediation. Requirements that the property owner must comply with are defined either in the property's deed. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

REMEDIAL ACTION WORK PLAN

1.0 PROJECT BACKGROUND

Van Buren Greene, LLC is working with the NYC Office of Environmental Remediation (OER) in the New York City Voluntary Cleanup Program to investigate and remediate a property located at 666 Greene Avenue in the Bedford-Stuyvesant section of Brooklyn, New York (the “Site”). A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, and complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 Site Location and Background

The Site is located at 666 Greene Avenue in the Bedford-Stuyvesant section in Brooklyn, New York and is identified as Block 1801 and Lot 8 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 1,800-square feet and is bounded by Greene Avenue to the north, a 4-story multi-family residential structure to the south, a 4-story multi-family residential structure to the east, and Throop Avenue to the west. A map showing the site boundary is provided in Figure 2. Currently, the Site is vacant and contains unmaintained land.

1.2 Redevelopment Plan

The proposed future use of the Site will consist of a 4-story multi-family residential structure. The proposed development project consists of constructing a new 4-story, multi-family residential building with a crawlspace basement. The building will contain two residential units occupying all aboveground floors. The footprint of the building will cover approximately 744 square feet and occupy approximately 41% of the Site. The remainder of the Site will consist of: a 270 square foot (15% of the entire lot) concrete patio area, and approximately 770 square feet

(44 % of the entire lot) of grass yards. The gross building square footage is 2,967 square feet with 2,232 square feet for residential use.

Excavation for construction of the crawlspace basement level is estimated to extend approximately 4 feet bsg and cover the entire footprint of the building. Approximately 150 cubic yards of soils are expected to be removed from the basement excavation, with an additional 30 cubic yards from the hotspot at SB-1 (located beneath the location of the proposed structure). Approximately 100 cubic yards will require excavation from the landscaped areas at the Site; however, these soils may be used to backfill the hotspot excavation. The estimated total quantity of soil to be excavated is 280 cubic yards; however, only approximately 250 cubic yards are planned for removal. This lowest depth of excavation at the Site will not extend below the water table, which is known to be at least 40 feet bsg.

Layout of the proposed site development is presented in Figure 3. The current zoning designation is R6B for residential use. The proposed use is consistent with existing zoning for the property. The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

1.3 Description of Surrounding Property

Adjoining properties to the north, east, and south contain multi-family residential structures. The adjoining structure to the west contains a mixed-use residential and commercial building with a grocery store on the first floor. The surrounding neighborhood consists primarily of residential and/or mixed-use residential and commercial structures. A day care facility, the “Glorious & Gifted Early Childhood Learning Center”, is located approximately 250 feet to the south of the Site. No other sensitive receptors such as schools, hospitals, or daycare facilities were identified within a 500-foot radius of the Site.

Figure 4 shows the surrounding land usage.

1.4 Summary of Past Site Uses and Areas of Concern

Based on a review of a Phase I Environmental Site Assessment (Phase I ESA) conducted by Impact Environmental (Impact) in January 2007, and available online New York City Assessor’s Office records, the following Site history was established. The Site was historically developed with residential structures from as early as 1888 until sometime between 1932 and 1951 when

the Site was converted for use as an automotive repair shop. The Site has been vacant since circa 1998-1999.

The AOCs identified for this site include:

1. Known presence of poor quality urban fill materials with elevated SVOCs and metals
2. Potential impacts from a historical on-site automotive repair shop

1.5 Summary of Work Performed under the Remedial Investigation

The following work was performed as part of the Phase II subsurface investigation by Impact in April 2009 and the Remedial Investigation (RI) by ESI in May 2016

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. In 2009, installed four soil borings across the entire project Site and collected ten soil samples and in 2016, installed two soil borings and collected four soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Due to the depth of groundwater, no groundwater wells were installed during the 2016 RI; and
4. In 2016, installed three soil vapor probes at the Site and collected three samples for chemical analysis.

1.6 Summary of Findings of Remedial Investigation

A remedial investigation was performed and the results are documented in a companion document called “Remedial Investigation Report, 666 Greene Avenue”, dated June 2016 (RIR).

1. Elevation of the property is approximately 55 feet.
2. Depth to groundwater at the Site is known to be greater than 40 feet bsg.
3. Groundwater flow beneath the Site is not known but is likely to be in an overall southerly direction, towards Jamaica Bay.

4. Bedrock was not encountered to a maximum depth of 8 feet during the RI and was not encountered to a maximum depth of 40 feet during previous environmental investigations at the Site.
5. The stratigraphy of the site, from the surface down, consists of up to 8 feet of urban fill materials (variable texture silty sands with brick, glass, concrete, masonry, and rock inclusions) underlain by clays and sands to a maximum depth of 40 feet.
6. Soil/fill samples collected during the 2009 Phase II and 2016 RI were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives and Restricted Residential Soil Cleanup Objectives (SCOs) as presented in 6NYCRR Part 375-6.8 and CP51. Soil/fill samples collected showed trace concentrations of volatile organic compounds (VOCs), but none detected above Unrestricted Use SCOs. Several semi-volatile organic compounds (SVOCs) consisting of the Polycyclic Aromatic Hydrocarbons (PAH) benz(a)anthracene (max of 1.9 ppm), dibenzo(a,h)anthracene (max of 0.37 ppm), and indeno(1,2,3-cd)pyrene (max of 0.81 ppm) were detected above Restricted Residential Use SCOs in one shallow sample. Three pesticides including 4,4'-DDD (0.0153 ppm); 4,4'-DDT (max of 0.0793 ppm) and dieldrin (max of 0.0077 ppm) were detected exceeding Unrestricted Use SCOs in shallow soil samples. PCB-1260 was detected at 0.13 ppm in one shallow sample, above its Unrestricted Use SCO. Several metals were detected above Unrestricted Use SCOs throughout the site with arsenic (max of 24.6 ppm), lead (max of 801 ppm), and mercury (max of 4.43 ppm) exceeding Restricted Residential SCOs in a deeper hotspot at SB-1 (2009 location).
7. Soil vapor samples collected during the 2016 RI were compared to compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State Department of Health Final Guidance for Evaluating Soil Vapor Intrusion dated October 2006. Soil vapor samples showed low levels of petroleum related and chlorinated VOCs. The max total concentration of petroleum-related VOCs (BTEX) was 20.8 $\mu\text{g}/\text{m}^3$. Highest concentrations were detected for 2-Butanone at 350 $\mu\text{g}/\text{m}^3$. Chlorinated VOCs tetrachloroethylene (PCE); 1,1,1-trichloroethane, carbon tetrachloride and trichloroethene (TCE) were not detected in any of the soil vapor samples.

8. Due to groundwater depth of more than 30 feet, groundwater sampling was deferred to soil and soil vapor sampling. Based upon results of soil and soil vapor sampling, groundwater investigation is waived.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAWP, disposal of significant amounts of hazardous waste is not suspected at this site.

2.0 REMEDIAL ACTION OBJECTIVES

Based on the results of the RI, the following Remedial Action Objectives (RAOs) have been identified for this Site:

Soil

- Prevent direct contact with contaminated soil.
- Prevent exposure to contaminants volatilizing from contaminated soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Groundwater

Groundwater is more than 30 feet deep. Groundwater was not encountered during investigation.

Soil Vapor

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.

3.0 REMEDIAL ALTERNATIVES ANALYSIS

The goal of the remedy selection process is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of applicable standards, criteria and guidance values (SCGs). Remedial alternatives are then developed and evaluated based on the following ten criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community acceptance;
- Land use; and
- Sustainability.

As required, a Track 1 Unrestricted Use scenario is evaluated for the remedial action. The following is a detailed description of the alternatives analyzed to address impacted media at the Site:

Alternative 1:

- Selection of NYSDEC 6NYCRR Part 375 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
- Removal of all soil/fill exceeding Track 1 Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs have been achieved with post-excavation endpoint sampling. If soil/fill containing analytes at concentrations above Unrestricted Use SCOs is still present at the base of the excavation after removal of all soil required for construction of the new building's cellar level is complete, additional

excavation would be performed to ensure complete removal of soil/ fill that does not meet Track 1 Unrestricted Use SCOs.

- No Engineering or Institutional Controls are required for a Track 1 cleanup. As part of development, a vapor barrier would be installed to prevent potential exposures from soil vapor in the future.
- As part of development, a composite cover would be placed over the entire Site.

Alternative 2:

- Establishment of Site-Specific (Track 4) SCOs.
- Removal of all soil/fill exceeding Track 4 Site-Specific SCOs and confirmation that Track 4 Site-Specific SCOs have been achieved with post-excavation end point sampling. Based on the results of the Remedial Investigation, it is expected that this alternative would be achieved by excavating a hotspot in the building footprint to a depth of about 10 feet. For development purposes, the soils beneath the proposed structure will be excavated to 4 feet for a crawlspace basement with a portion of the Site (proposed to contain a concrete patio) excavated to at least 8-10 inches. If soil/fill containing analytes at concentrations above Track 4 SCOs is still present at the base of the excavation, additional excavation would be performed to ensure complete removal of soil that does not meet Track 4 Site-Specific SCOs.
- Placement of a composite cover system over the entire Site to prevent exposure to remaining soil/fill. The engineered composite cover will consist of a 6-inch thick concrete slab beneath the building, a 4-inch thick concrete cover in the entryway and patio, and 2 feet of clean soil in the landscaped areas.
- Installation of a vapor barrier system beneath the building slab and along foundation side walls to prevent potential exposures from soil vapor in the future.
- Establishment of use restrictions including prohibitions of restricted Site uses, such as farming or vegetable gardening, to prevent future exposure pathways; and prohibition of a higher level of land use without OER approval.
- Establishment of an approved Site Management Plan (SMP) to ensure long-term management of these Engineering and Institutional Controls including the performance of periodic inspections and certification that the controls are performing as they were

intended. The SMP will note that the property owner and property owner's successors and assigns must comply with the approved SMP.

- Placement of a deed notice to record the ECs/ICs on the deed to ensure that future owners of the Site continue to comply with the SMP, as required.

3.1 Threshold Criteria

Protection of Public Health and the Environment

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of Engineering Controls or Institutional Controls. Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 would be protective of human health and the environment by removing all soil/fill exceeding Track 1 Unrestricted Use SCOs and groundwater protection standards, thus eliminating potential for direct contact with contaminated soil/fill once construction is complete and eliminating the risk of contaminants leaching into groundwater.

Alternative 2 would achieve comparable protections of human health and the environment by excavation and removal of most of the historic fill at the Site and by ensuring that remaining soil/fill on-Site meets Track 4 Site-Specific SCOs, as well as by placement of Institutional and Engineering Controls, including a composite cover system. The composite cover system would prevent direct contact with any remaining on-Site soil/fill. Implementing Institutional Controls including a Site Management Plan and instituting a deed notice on the property would ensure that the composite cover system remains intact and protective of public health. Establishment of Track 4 Site-Specific SCOs would minimize the risk of contamination leaching into groundwater.

For both Alternatives, potential exposure to contaminated soils or groundwater during construction would be minimized by implementing a Construction Health and Safety Plan, an approved Soil/Materials Management Plan, and Community Air Monitoring Plan (CAMP). Potential contact with contaminated groundwater would be prevented as its use is prohibited by city laws and regulations. Potential future migration of off-Site soil vapors into the new building

would be prevented by installing a vapor barrier below the building slab and outside foundations walls below grade.

3.2 Balancing Criteria

Compliance with Standards, Criteria and Guidance (SCGs)

This evaluation criterion assesses the ability of the alternative to achieve applicable standards, criteria and guidance.

Alternative 1 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to achieve Track 1 Unrestricted Use SCOs and Protection of Groundwater SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a vapor barrier system below the new building's basement slab and continuing the vapor barrier outside of subgrade foundation walls, as part of development.

Alternative 2 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to meet Track 4 Site-Specific SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a vapor barrier system below the new building's basement slab and continuing the vapor barrier outside of subgrade foundation walls. A Site Management Plan would ensure that these controls remained protective for the long term. Health and safety measures contained in the CHASP and Community Air Monitoring Plan (CAMP) will be implemented during Site redevelopment under this RAWP.

For both Alternatives, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be in compliance with applicable SCGs. These measures will protect on-site workers and the surrounding community from exposure to Site-related contaminants.

Short-Term Effectiveness and Impacts

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives are evaluated with respect to their short term effects during the remedial action on public health and the environment during implementation of the remedial action, including protection of the community, protection of onsite workers and environmental impacts.

Both Alternative 1 and 2 have similar short-term effectiveness during their implementation, as each requires excavation of historic fill material. Both alternatives would result in short-term dust generation impacts associated with excavation, handling, load out of materials, and truck traffic. Short-term impacts could potentially be higher for Alternative 1 since excavation of greater amounts of historical fill material would take place. However, focused attention to means and methods during a Track 1 removal action, including community air monitoring and appropriate truck routing, would minimize the overall impact of these activities.

An additional short-term adverse impact and risks to the community associated with both remedial alternatives is increased truck traffic. Approximately 15, 25-ton capacity truck trips would be necessary to transport fill and soil excavated during Site development. Truck traffic will be routed on the most direct course using major thoroughfares where possible and flag persons will be used to protect pedestrians at Site entrances and exits.

The potential adverse impact to the community, workers and the environment for both alternatives will be minimized through implementation of control plans including a Construction Health and Safety Plan, a Community Air Monitoring Plan (CAMP) and a Soil/Materials Management Plan (SMMP), during all on-Site soil disturbance activities and would minimize the release of contaminants into the environment. Both alternatives provide short-term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site contaminants. Construction workers operating under appropriate management procedures and a Construction Health and Safety Plan (CHASP) would be protected from on-Site contaminants by wearing personal protective equipment consistent with the documented risks within the respective work zones.

Long-term Effectiveness and Permanence

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of Engineering Controls/Institutional Controls (ECs/ICs) that may be used to manage contaminant residuals that remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of ECs.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill above Track 1 Unrestricted Use SCOs. Removal of on-Site contaminant sources will also prevent potential future groundwater contamination.

Alternative 2 would provide long-term effectiveness by removing most on-Site contamination and attaining Track 4 Site-Specific SCOs; installing a composite cover system across the Site; maintaining use restrictions; establishing an SMP to ensure long-term management of ICs and ECs; and instituting a restrictive declaration to memorialize these controls for the long term. The SMP would ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and restrictions continue to be in place and are functioning as they were intended, assuring that protections designed into the remedy continue to provide the required level of protection.

Both alternatives would result in removal of soil contamination exceeding the SCOs providing the highest level, most effective and permanent remedy over the long-term with respect to a remedy for contaminated soil, which would eliminate any migration to groundwater. Potential sources of soil vapor and groundwater contamination would also be eliminated as part of the remedy.

Reduction of toxicity, mobility, or volume of contaminated material

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

Alternative 1 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing all soil in excess of Track 1 Unrestricted Use SCOs.

Alternative 2 would remove most of the historic fill at the Site, and all remaining on-Site soil/fill beneath the new building will meet Track 4 Site-Specific SCOs.

Alternative 1 would remove a greater total mass of contaminants from the Site. The removal of soil to 4 feet for the new development in both scenarios would lessen the difference in contaminant mass removal between these two alternatives.

Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The techniques, materials and equipment to implement both Alternatives 1 and 2 are readily available and have been proven to be effective in remediating the contaminants present on the Site. They use standard equipment and technologies that are well established in the industry. The reliability of each remedy is also high. There are no special difficulties associated with any of the activities proposed.

Cost Effectiveness

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

Since historic fill at the Site was found to extend to a depth of up to 6 feet below grade during the RI (and to a depth of up to 10 feet during previous Site investigations), and the new building requires excavation of only 45% of the Site to a depth of 4 feet, the costs associated with both Alternative 1 and Alternative 2 will likely not be comparable. Costs associated with Alternative 1 would likely be higher than Alternative 2 as additional soils would be required to be excavated from landscaped and front concrete covered setback areas to achieve Track 1 Unrestricted Use SCOs. Additional costs would include installation of additional shoring/underpinning, disposal of additional soil, and import of clean soil for backfill. However, long-term costs for Alternative 2 could potentially be higher than Alternative 1 based on implementation of a Site Management Plan as part of Alternative 2.

The remedial plan would couple the remedial action with the redevelopment of the Site, lowering total costs. The remedial plan will also consider the selection of the most appropriate disposal facilities to reduce transportation and disposal costs during cleanup and redevelopment of the Site.

Community Acceptance

This evaluation criterion addresses community opinion and support for the remedial action. Observations here will be supplemented by public comment received on the RAWP.

This RAWP will be subject to a public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedy. This public comment will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in Appendix D. Observations here will be supplemented by public comment received on the RAWP. Under both alternatives, the overall goals of the remedial program, to protect public health and the environment and eliminate potential contaminant exposures, have been broadly supported by citizens in NYC communities.

Land Use

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS Department of State's Brownfield Opportunity Areas (BOA) pursuant to section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the site.

The current, intended, and reasonably anticipated future land use of the Site and its surroundings are compatible with the selected remedy of soil remediation. The proposed future use of the Site includes a four-story affordable housing structure to provide 2 dwelling units. Following remediation, the Site will meet either Track 1 Unrestricted Use or Track 4 Site-Specific SCOs,

both of which are protective of public health and the environment for its planned residential use. The proposed use is compliant with the property's zoning and is consistent with recent development patterns. The areas surrounding the site is urban and consists of predominantly residential and mixed-use residential and commercial buildings in zoning districts designated for commercial and residential uses. The development would remediate a vacant contaminated lot and provide a modern residential building. The proposed development would clean up the property and make it safer, create new employment opportunities, living space for affordable housing and associated societal benefits to the community, and other economic benefits from land revitalization.

Temporary short-term project impacts are being mitigated through site management controls and truck traffic controls during remediation activities. Following remediation, the Site will meet either Track 1 Unrestricted Use SCOs or Track 4 Site-Specific SCOs, both of which are protective of public health and the environmental for its planned use.

The Site is not in close proximity to important cultural resources, including federal or state historic or heritage sites or Native American religious sites, natural resources, waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species. The Site is located in an urban area and not in proximity to fish or wildlife and neither alternative would result in any potential exposure pathways of contaminant migration affecting fish or wildlife. The remedial action is also protective of groundwater natural resources. The Site does not lie in a Federal Emergency Management Agency (FEMA)-designated flood plain. Both alternatives are equally protective of natural resources and cultural resources. Improvements in the current environmental condition of the property achieved by both alternatives considered in this plan are consistent with the City's goals for cleanup of contaminated land.

Sustainability of the Remedial Action

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in PlaNYC: A Greener, Greater New York. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency;

and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

While Alternative 2 would potentially result in lower energy usage based on reducing the volume of material transported off-Site, both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. The remedial plan for either alternative would take into consideration the shortest trucking routes during off-Site disposal of historic fill and other soils, which would reduce greenhouse gas emissions and conserve energy used to fuel trucks. The New York City Clean Soil Bank program is available for reuse of any clean native soils under either alternative. A complete list of green remedial activities considered as part of the NYC VCP is included in a Sustainability Statement.

SELECTION OF THE PREFERRED REMEDY

The preferred remedy for the site is Alternative 2, a Track 4 Site-Specific SCOs remedy.

The Alternative 2 remedy will remove all soil/fill exceeding Track 4 Site-Specific SCOs throughout the Site, which will be confirmed with post-excavation sampling. If soil/fill containing analytes at concentrations above Track 4 Site-Specific SCOs is still present at the base or walls of the excavation after removal of all soil required for construction of the new building's cellar level and slab are complete, additional excavation would be performed to ensure complete removal of soil/ fill that does not meet Track 4 Site-Specific SCOs.

Engineering and Institutional Controls are required for soil management for a Track 4 cleanup. A composite cover consisting of the concrete building slab, concrete entryways and patio, and 2 feet of clean soil in the landscaped area covering the entire site, and a vapor barrier membrane would be installed as part of standard building development and are not considered part of the remedy.

Use restrictions will be imposed on the site (including prohibitions on any use higher than Restricted Residential, e.g. the use of groundwater from the Site; prohibitions of restricted Site uses, such as farming or vegetable gardening, to prevent future exposure pathways; and prohibition of a higher level of land use without NYSDEC approval). The property would receive a Covenants of Restrictions with the county clerk memorializing institutional controls.

4.0 REMEDIAL ACTION

4.1 Summary of Preferred Remedial Action

The preferred remedial action alternative is Alternative 2, the Track 4 remedial action. The preferred remedial action achieves protection of public health and the environment for the intended use of the property. The preferred remedial action will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Establishment of Track 4 Site-Specific Soil Cleanup Objectives (SCOs).
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility(s). A Waste Characterization Report documenting sample procedures, location, analytical results shall be submitted to NYCOER prior to start of remedial action.
6. Excavation and removal of soil/fill exceeding Track 4 Site-Specific SCOs. The area beneath the proposed building will be excavated to 4 feet (for installation of a crawlspace basement), the area beneath a proposed concrete patio will be excavated to at least 8-10 inches, and areas beneath proposed grass yards will be excavated to 2 feet. A hotspot located at SB-1 (within the proposed building footprint) will be excavated an additional 8 feet to a total depth of 12 feet. The total volume of anticipated soil excavation is 280 cubic yards, with 250 cubic yards planned for removal.

7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
8. Management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
9. Removal of all underground storage tanks that are encountered during soil/fill removal actions. Registration of tanks and reporting of any petroleum spills associated with UST's and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
10. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities.
11. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
12. Demarcation of residual soil/fill in landscaped areas.
13. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
14. Construction of an engineered composite cover consisting of a 6-inch concrete building slab with an 8-inch clean granular sub-base beneath all building areas, 4-inch poured concrete on a 6-inch sub-base in sidewalk and patio areas, and two feet of clean soil in all open space and landscaped areas to prevent human exposure to residual soil/fill remaining at the Site.
15. Installation of a vapor barrier system consisting of vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the building. The vapor barrier system will consist of a of a minimum 20-mil vapor barrier with the selected manufacturer/model provided to OER in the Stipulation Letter. All welds, seams and penetrations will be properly sealed to prevent preferential pathways for vapor migration. The vapor barrier system is an Engineering Control for the remedial

action. The remedial engineer will certify in the RAR that the vapor barrier system was designed and properly installed to mitigate soil vapor migration into the building.

16. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
17. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
18. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP, and describes all Engineering and Institutional Controls to be implemented at the Site.
19. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.
20. Recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and Institutional Controls and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

4.2 Soil Cleanup Objectives and Soil/ Fill Management

The following Track 4 Site-Specific SCOs will be utilized for this project:

<u>Contaminant</u>	<u>Site-Specific SCOs</u>
Total SVOCs	100 ppm
Lead	1,000 ppm
Mercury	2.0 ppm
Arsenic	23 ppm

Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in Appendix F. Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by GPS or surveyed. This information will be provided in the Remedial Action Report.

Soil/Fill Excavation and Removal

Areas of the site planned to contain open space will be excavated to a depth of 2 feet below sidewalk grade. The area immediately beneath the proposed building will be excavated to 4 feet for installation of a crawlspace basement, and a portion of the footprint will be excavated an additional 8 feet for removal of hotspot SB-1 soils. Areas below a planned concrete patio will be excavated to at least 8-10 inches. The location of planned excavations is shown in Figure 6. The estimated total quantity of soil/fill expected to be excavated is 280 cubic yards; however, approximately 30 cubic yards from the open space/patio excavations may be re-used as backfill. The total quantity of soil to be removed (estimated to be 250 cubic yards) could potentially increase if additional soils require removal for construction/grading reasons.

For each disposal facility to be used in the remedial action, a letter from the developer/QEP to the receiving facility requesting approval for disposal and a letter back to the developer/QEP providing approval for disposal will be submitted to OER prior to any transport and disposal of soil at a facility.

Disposal facilities will be reported to OER when they are identified and prior to the start of remedial action.

End-Point Sampling

End-point samples will be analyzed for compounds and elements as described below utilizing the following methodology:

- Volatile organic compounds by EPA Method 8260;
- Semi-volatile organic compounds by EPA Method 8270;
- Target Analyte List metals; and
- Pesticides/PCBs by EPA Method 8081/8082.

New York State ELAP certified labs will be used for all end-point sample analyses. Labs performing end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all end-point sample results and will include all data including non-detects and applicable standards and/or guidance values.

Confirmation End-point Sampling

Removal actions for development purposes under this plan will be performed in conjunction with confirmation end-point soil sampling. Confirmation samples will be collected from the base of the excavation at locations shown on Figure 9. To evaluate attainment of Track 4 Site-Specific SCOs, analytes will include those for which SCOs have been developed, including SVOCs and metals, according to analytical methods described above. If Track 1 Unrestricted Use SCOs are pursued, samples will be analyzed for VOCs, SVOCs, pesticides, PCBs and metals according to analytical methods described above.

Hotspot End-point Sampling

End-point samples will be collected from the sidewalls and base of excavation at the hotspot location identified in the Remedial Investigation, according to the procedure listed below. Hotspots include SB-1 (10') for mercury and arsenic. End-point samples will be analyzed for SCO trigger parameters.

For any hotspots identified during this remedial program, including any hotspots identified during the remedial action, hotspot removal actions will be performed to ensure that hotspots are fully removed and end-point samples will be collected at the following frequency:

1. For excavations less than 20 feet in total perimeter, at least one bottom sample and one sidewall sample biased in the direction of surface runoff.
2. For excavations 20 to 300 feet in perimeter:
 - For surface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
 - For subsurface removals, one sample from each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.

3. For sampling of volatile organics, bottom samples should be taken within 24 hours of excavation, and should be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours should be taken at six to twelve inches.
4. For contaminated soil removal, post remediation soil samples for laboratory analysis should be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to bullets 1-3 above.

Post-remediation end-point sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples should be biased toward locations and depths of the highest expected contamination.

If either LNAPL and/or DNAPL are detected, appropriate samples will be collected for characterization and “finger print analysis” and required regulatory reporting (i.e. spills hotline) will be performed.

Quality Assurance/Quality Control

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

One duplicate sample for every 20 samples collected will be submitted to the approved laboratory for analysis of the same parameters.

Collected endpoint samples will be appropriately packaged, placed in coolers and transferred under proper Chain of Custody to the analytical laboratory. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or “cold-packs” to maintain a temperature of 4°C.

Dedicated disposable sampling materials will be used for the collection endpoint samples, eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1

for every eight samples collected. Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil
- Rinse with tap water
- Wash with Alconox® detergent solution and scrub
- Rinse with tap water
- Rinse with distilled or deionized water

Trip blanks will be used whenever samples are transported to the laboratory for analysis of VOCs. Trip blanks will not be used for samples to be analyzed for metals, SVOCs or pesticides.

Import of Soils

Import of soils onto the property will be performed in conformance with the Soil/Materials Management Plan in Appendix F. Imported soil will meet the lower of:

- Track 2 Restricted Residential Use SCOs, and
- Groundwater Protection Standards in Part 375-6.8.

The estimated quantity of soil to be imported onto the Site for backfill and cover soil is 100 cubic yards. This quantity could potentially increase if additional soils (beyond the estimated 250 cubic yards) require removal for construction/grading reasons. Areas that will require backfill are indicated in Figure 8 and include the landscaped yards and the hotspot at SB-1.

Reuse of Onsite Soils

Reuse of onsite soils already onsite will be performed in conformance with the Soil/Materials Management Plan in Appendix F. The estimated quantity of soil to be reused on this project is 30 cubic yards. Reuse soils, if any, will meet the SCOs established for this project. A map of soil backfill placement locations is shown in Figure 8.

4.3 Engineering Controls

Engineering Controls will be employed in the remedial action to address residual contamination remaining at the site. The Site has two primary Engineering Control Systems. These are:

1. Composite Cover System
2. Soil Vapor Barrier System

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. This composite cover system will be comprised of 6 inches of reinforced concrete slab underlain by 8 inches of clean sub-base material in building areas; 4 inches of poured concrete on a 6 inch sub-base in sidewalk and patio areas, and 2 feet of clean soil in open space areas.

Figure 7 shows the location of and typical design each cover type built at the Site.

The composite cover system will be a permanent engineering control. The system will be inspected and its performance certified at specified intervals as required by this RAWP and the Site Management Plan. A Soil and Materials Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual soil/fill is disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the Site Management Plan in the Remedial Action Report.

Vapor Barrier System

Migration of soil vapor from onsite or offsite sources into the building will be mitigated with a combination of building slab and vapor barrier. The vapor barrier will consist of a minimum 20 mil thick vapor barrier product below the slab throughout the full building area. All welds, seams and penetrations will be properly sealed to prevent preferential pathways for vapor migration.

The vapor barrier will extend throughout the area occupied by the footprint of the new building and up the foundation sidewalls and will be installed in accordance with manufacturer specifications. The extent of the proposed vapor barrier is provided in Figure 10.

Specific plan views and product specification sheets for the vapor barrier system will be provided to OER for review and approval at a later date. The Remedial Action Report will include as-built drawings and diagrams; manufacturer documentation; and photographs. The Remedial Action Report will include a PE-certified letter (on company letterhead) from the

primary contractor responsible for installation oversight and field inspections and a copy of the manufacturer's certificate of warranty.

The Vapor Barrier System is a permanent engineering control and will be inspected and its performance certified at specified intervals as required by this RAWP and the Site Management Plan. A Soil and Materials Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying vapor barrier system is disturbed after the remedial action is complete. Maintenance of these systems will be described in the Site Management Plan in the Remedial Action Report.

4.4 Institutional Controls

A series of Institutional Controls (IC's) are required under this Remedial Action to assure permanent protection of public health by elimination of exposure to residual materials. These IC's define the program to operate, maintain, inspect and certify the performance of Engineering Controls and Institutional Controls on this property. Institutional Controls would be implemented in accordance with a Site Management Plan included in the final Remedial Action Report (RAR). Institutional Controls for this remedial action are:

- Recording of an OER-approved Declaration of Covenant and Restrictions (DCR) with the City Register or county clerk, as appropriate. The DCR will include a description of all ECs and ICs, will summarize the requirements of the SMP, and will note that the property owner and property owner's successors and assigns must comply with the DCR and the approved SMP. The recorded DCR will be submitted in the Remedial Action Report. The DCR will be recorded prior to OER issuance of the Notice of Completion;
- Submittal of a SMP in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, inspection, and certification of ECs and IC's. SMP will require that the property owner and property owner's successors and assigns will submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter the Site in order to evaluate the continued maintenance of any controls. This certification shall be submitted at a

frequency to be determined by OER in the SMP and will comply with RCNY §43-1407(1)(3).

- Vegetable gardens and farming on the Site are prohibited in contact with residual soil materials;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in an approved SMP;
- The Site will be used for residential use and will not be used for a higher level of use without prior approval by OER.

4.5 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the Remedial Action Report and issuance of the Notice of Completion (NOC) for the Remedial Action. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by this RAWP. The Site Management Plan is submitted as part of the RAR but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by OER. The property owner is responsible to ensure that all Site Management responsibilities defined in the Site Management Plan are implemented.

The SMP will provide a detailed description of the procedures required to manage residual soil/fill left in place following completion of the remedial action in accordance with the Voluntary Cleanup Agreement with OER. This includes a plan for: (1) implementation of EC's and ICs; (2) operation and maintenance of EC's; (3) inspection and certification of IC's and EC's.

Site management activities and EC/IC certification will be scheduled by OER on a periodic basis to be established in the RAR and the SMP and will be subject to review and modification by OER. The Site Management Plan will be based on a calendar year and certification reports will be due for submission to OER by July 30 of the year following the reporting period.

4.6 Qualitative Human Health Exposure Assessment

The objective of the qualitative exposure assessment is to identify potential receptors and pathways for human exposure to the contaminants of concern (COC) that are present at, or migrating from, the Site. The identification of exposure pathways describes the route that the COC takes to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur.

Data and information reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA) for this project. As part of the VCP process, a QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Site's exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk under current and future conditions by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This QHHEA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

Known and Potential Contaminant Sources

Based on the results of the RIR, the contaminants of concern are:

Soil: Elevated concentrations of three SVOCs, benzo(a)anthracene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene exceeded Restricted Residential Use SCOs.

Metals including mercury, lead, and arsenic were detected above Restricted Residential Use SCOs in one deep sample.

Groundwater: Groundwater was not encountered during the RI and is known to be greater than 40 feet below street grade.

Soil Vapor: Low levels of petroleum-related VOCs in soil vapor were detected at the Site with no chlorinated VOCs detected in soil vapor.

Nature, Extent, Fate and Transport of Contaminants

Soil: Elevated SVOCs are present in shallow soils (0-2') at the Site. These contaminants are not likely to migrate vertically. These compounds have the potential to migrate into the air as dust

during soil disturbance associated with demolition and construction activities. Elevated metals were detected in one deep sample (hotspot at SB-1).

Groundwater: Groundwater was not encountered during the RI and is not expected to be encountered during Site development activities.

Soil Vapor: No significant impacts to soil vapor have been documented at the Site.

Receptor Populations

On-Site Receptors: The site is currently vacant and undeveloped and access to the Site is restricted by an 8 foot high, chained and locked, perimeter fence. Onsite receptors are limited to trespassers, site representatives and visitors granted access to the property. During construction, potential on-site receptors include construction workers, site representatives, and visitors. Under proposed future conditions, potential on-site receptors include adult and child building residents, workers and visitors.

Off-Site Receptors: Potential off-site receptors within a 500 foot radius of the Site include adult and child residents; commercial and construction workers; pedestrians; and trespassers based on the following land uses within 500 feet of the Site:

1. Commercial Businesses – existing and future
2. Residential Buildings – existing and future
3. Building Construction/ Renovation – existing and future
4. Pedestrians, Trespassers, Cyclists – existing and future
5. Schools/Day cares – existing and future

Specifically, the “Glorious & Gifted Early Childhood Learning Center” is located approximately 250 feet to the south of the Site.

Potential Routes of Exposure

Three potential primary routes exist by which chemicals can enter the body: ingestion, inhalation, and dermal absorption. Exposure can occur based on the following potential media:

- Ingestion of groundwater or fill/ soil;
- Inhalation of vapors or particulates; and
- Dermal absorption of groundwater or fill/ soil.

Potential Exposure Points

Current Conditions: The site is currently uncapped. Potential exposures to exposed fill include ingestion, inhalation of particulates, and dermal absorption. Groundwater is not exposed at the site. The site is served by the public water supply and groundwater is not used at the site for potable supply and there is no potential for exposure. Because the site is currently undeveloped, there is no potential for soil vapor to accumulate on site.

Construction/ Remediation Conditions: During the remedial action, onsite workers will come into direct contact with surface and subsurface soils as a result of on-Site construction and excavation activities. On-Site construction workers potentially could ingest, inhale or have dermal contact with exposed impacted soil and fill. Similarly, off-Site receptors could be exposed to dust and vapors from on-Site activities. Due to the depth of groundwater, direct contact with groundwater is not expected. During construction, on-Site and off-Site exposures to contaminated dust from on-Site will be addressed through the Soil/Materials Management Plan, dust controls, and through the implementation of the Community Air-Monitoring Program and a Construction Health and Safety Plan.

Proposed Future Conditions: Under future remediated conditions, all soils in excess of Track 4 SCOs will be removed. The site will be fully capped, preventing potential direct exposure to soil and groundwater remaining in place, and engineering controls (vapor barrier) will prevent any potential exposure due to inhalation by preventing soil vapor intrusion. The site is served by the public water supply, and groundwater is not used at the site. There are no plausible off-site pathways for oral, inhalation, or dermal exposure to contaminants derived from the site.

Overall Human Health Exposure Assessment

There are potential complete exposure pathways for the current site condition. There are potential complete exposure pathways that require mitigation during implementation of the remedy. There are no complete exposure pathways under future conditions after the site is developed. This assessment takes into consideration the reasonably anticipated use of the site, which includes a residential structure, site-wide composite cover, and a subsurface vapor barrier system for the building. Under current conditions, on-Site exposure pathways exist for those with access to the Site and trespassers. During remedial construction, on-Site and off-Site exposures to contaminated dust from historic fill material will be addressed through dust

controls, and through the implementation of the Community Air Monitoring Program, the Soil/Materials Management Plan, and a Construction Health and Safety Plan. Potential post-construction use of groundwater is not considered an option because groundwater in this area of New York City is not used as a potable water source. There are no surface waters in close proximity to the Site that could be impacted or threatened.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 Project Organization and Oversight

Principal personnel who will participate in the remedial action include the Professional Engineer (PE), Philip Bell, and the Qualified Environmental Professional (QEP), Paul H. Ciminello.

5.2 Site Security

Site access will be controlled through gated entrances to the fenced property.

5.3 Work Hours

The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. The hours of operation will be conveyed to OER during the pre-construction meeting.

5.4 Construction Health and Safety Plan

The Health and Safety Plan is included in Appendix G. The Site Safety Coordinator will be Paul H. Ciminello. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, such as 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and will comply with all requirements of 29 CFR 1910.120. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed

include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the CHASP. That document will define the specific project contacts for use in case of emergency.

5.5 Community Air Monitoring Plan

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence. Exceedances of action levels observed during performance of the Community Air Monitoring Plan (CAMP) will be reported to the OER Project Manager and included in the Daily Report.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate

surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shut down.

All 15-minute readings must be recorded and be available for OER personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m³) greater than background (upwind perimeter) for the 15-minute period or if airborne dust

is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m³ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m³ above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m³ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for OER personnel to review.

5.6 Agency Approvals

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by OER does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

5.7 Site Preparation

Pre-Construction Meeting

OER will be invited to attend the pre-construction meeting at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a

minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed in compliance with applicable laws and regulations including NYC Building Code to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Mark-Out Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-Site and off-Site structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

Dewatering

Dewatering is not anticipated during remediation and construction. If groundwater is encountered during excavation activities, the water will be disposed into the New York City combined sanitary/storm sewer system. A permit to discharge will be obtained from the New York City Department of Environmental Protection (NYCDEP). As part of the permit to discharge, the location of discharge will be based on the Site-Specific requirements of the DEP. The need for pretreatment will be determined by DEP's requirements for the discharge permit. If pretreatment is required by the DEP, it will be performed in accordance with the requirements of the DEP.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations.

Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Such actions may include use of cleaned asphalt or concrete pads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit.

Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

Truck Inspection Station

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and clean water will be utilized for the removal of soil from vehicles and equipment, as necessary.

Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, Van Buren Greene, LLC will undertake the following steps for site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to OER at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYS DEC within 2 hours of identification and consistent with State regulations. Emergency and spill conditions will also be reported to OER. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged off site to adjacent properties, property owners and OER will be notified and corrective measure plan designed to remove and clean dislocated material will be submitted to OER and implemented following approval by OER and granting of site access by the property owner. Impacted offsite areas may require characterization based on site conditions, at the discretion of OER. If onsite petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYS DEC's spill hotline at DEC 800-457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYS DEC.

Storm Response Reporting

A site inspection report will be submitted to OER at the completion of site inspection. An inspection report established by OER is available on OER's website (www.nyc.gov/oer) and will be used for this purpose. Site conditions will be compared to the inventory of site conditions and

material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the OER project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number. Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of onsite or offsite exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYS DEC; description of corrective actions; schedule for corrective actions. This report should be completed and submitted to OER project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.8 Traffic Control

Drivers of trucks leaving the Site with soil/fill will be instructed to proceed without stopping in the vicinity of the Site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the site is to drive on Greene Avenue, Marcus Garvey Boulevard, Lexington Avenue, Franklin Avenue, Atlantic Avenue, Vanderbilt Avenue, Prospect Place, Warren Street, 4th Avenue, and 16th Street to reach I-278 west.

5.9 Demobilization

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (e.g., soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

5.10 Reporting and Record Keeping

Daily reports

Daily reports providing a general summary of activities for each day of active remedial work will be emailed to the OER Project Manager by the end of the following business day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of excavation and other remedial work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP results noting all excursions. CAMP data may be reported;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

Record Keeping and Photo Documentation

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project and will be available for inspection by OER staff. Representative photographs will be taken of the Site prior to any remedial activities and during

major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RAR in digital format (i.e. jpeg files).

5.11 Complaint Management

All complaints from citizens will be promptly reported to OER. Complaints will be addressed and outcomes will also be reported to OER in daily reports. Notices to OER will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

5.12 Deviations From The Remedial Action Work Plan

All changes to the RAWP will be reported to, and approved by, the OER Project Manager and will be documented in daily reports and reported in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from OER noting the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and
- Determination with basis that the remedial action with the deviation(s) is protective of public health and the environment.

6.0 REMEDIAL ACTION REPORT

A Remedial Action Report (RAR) will be submitted to OER following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The RAR will include:

- Information required by this RAWP;
- Text description with thorough detail of all engineering and institutional controls (if Track 1 remedial action is not achieved)
- As-built drawings for all constructed remedial elements;
- Manifests for all soil or fill disposal;
- Photographic documentation of remedial work performed under this remedy;
- Site Management Plan (if Track 1 remedial action is not achieved);
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;
- Tabular summary of all end point sampling results (including all soil test results from the remedial investigation for soil that will remain on site) and all soil/fill waste characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all soil or fill material removed from the Site including a map showing the location of these excavations and hotspots, tanks or other contaminant source areas;
- Full accounting of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material;

- Account of the origin and required chemical quality testing for material imported onto the Site;
- Recorded Declaration of Covenants and Restrictions;
- The RAWP and Remedial Investigation Report will be included as appendices to the RAR;
- Reports and supporting material will be submitted in digital form and final PDF's will include bookmarks for each appendix; and,
- The following certification:

Remedial Action Report Certification

I, Philip Bell, am currently a registered professional engineer licensed by the State of New York. I performed professional engineering services and had primary direct responsibility for implementation of the remedial program for the 666 Greene Avenue site, site number 16CVCP084K. I certify to the following:

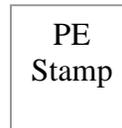
- I have reviewed this document, to which my signature and seal are affixed.
- Engineering Controls implemented during this remedial action were designed by me or a person under my direct supervision and achieve the goals established in the Remedial Action Work Plan for this site.
- The Engineering Controls constructed during this remedial action were professionally observed by me or by a person under my direct supervision and (1) are consistent with the Engineering Control design established in the Remedial action Work Plan and (2) are accurately reflected in the text and drawings for as-built design reported in this Remedial Action Report.
- The OER-approved Remedial Action Work Plan dated [date] and Stipulations in a letter dated [date] were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

Name

PE License Number

Signature

Date



I, Paul H. Ciminello, am a Qualified Environmental Professional. I had primary direct responsibility for implementation of the remedial program for the 666 Greene Avenue site, site number 16CVCP084K. I certify to the following:

- The OER-approved Remedial Action Work Plan dated August 15, 2012 and Stipulations in a letter dated September 10, 2014 were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

QEP Name

QEP Signature

Date

7.0 SCHEDULE

The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 15 month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAWP	0	0
Fact Sheet 2 announcing start of remedy	1	1
Mobilization	1	1
Remedial Excavation	2-4	3
Cover Soils Importation	30-32	3
Record Declaration of Covenants and Restrictions	35	1
Submit Remedial Action Report	33-36	3



APPENDIX A

Figures

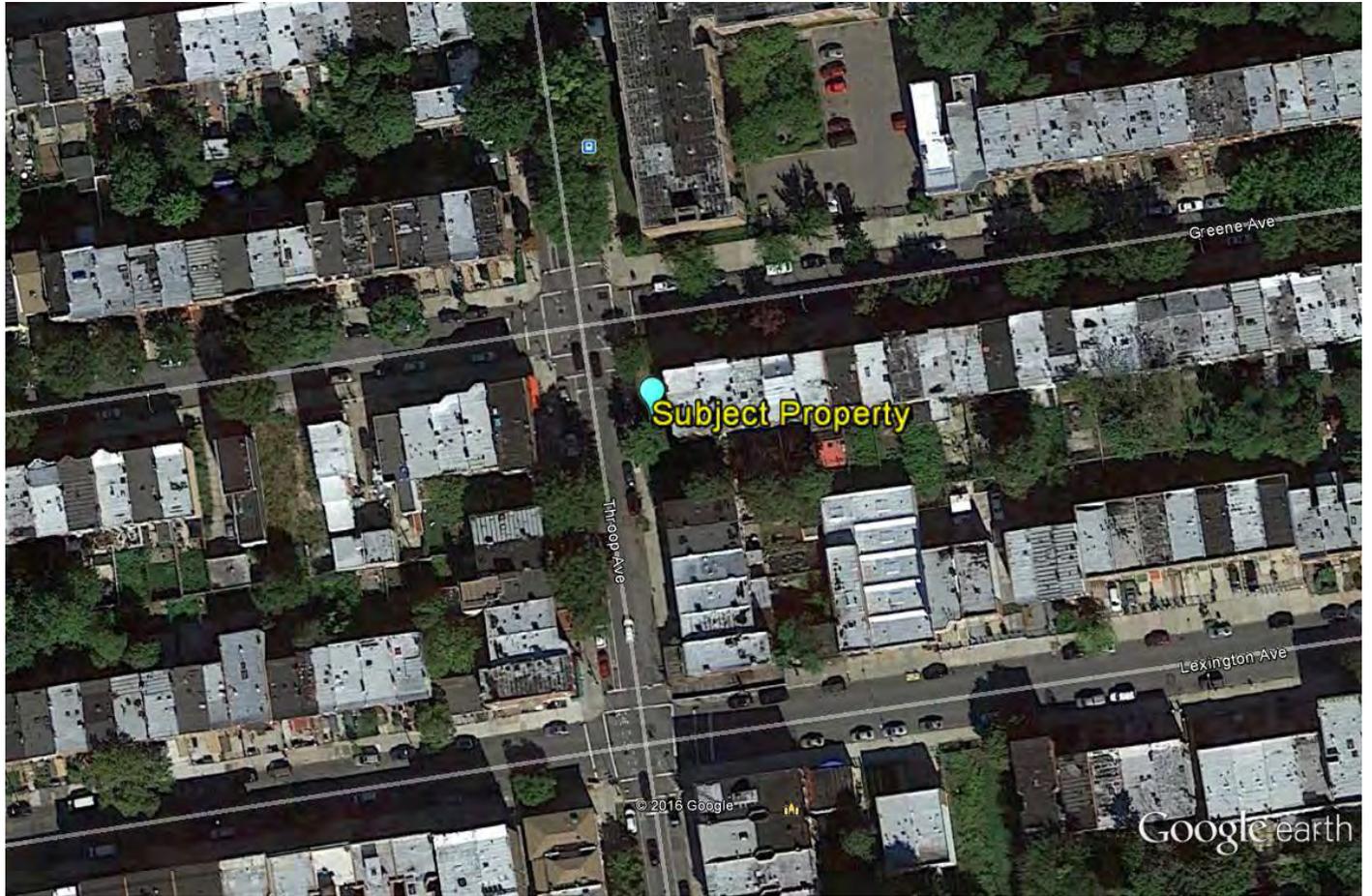


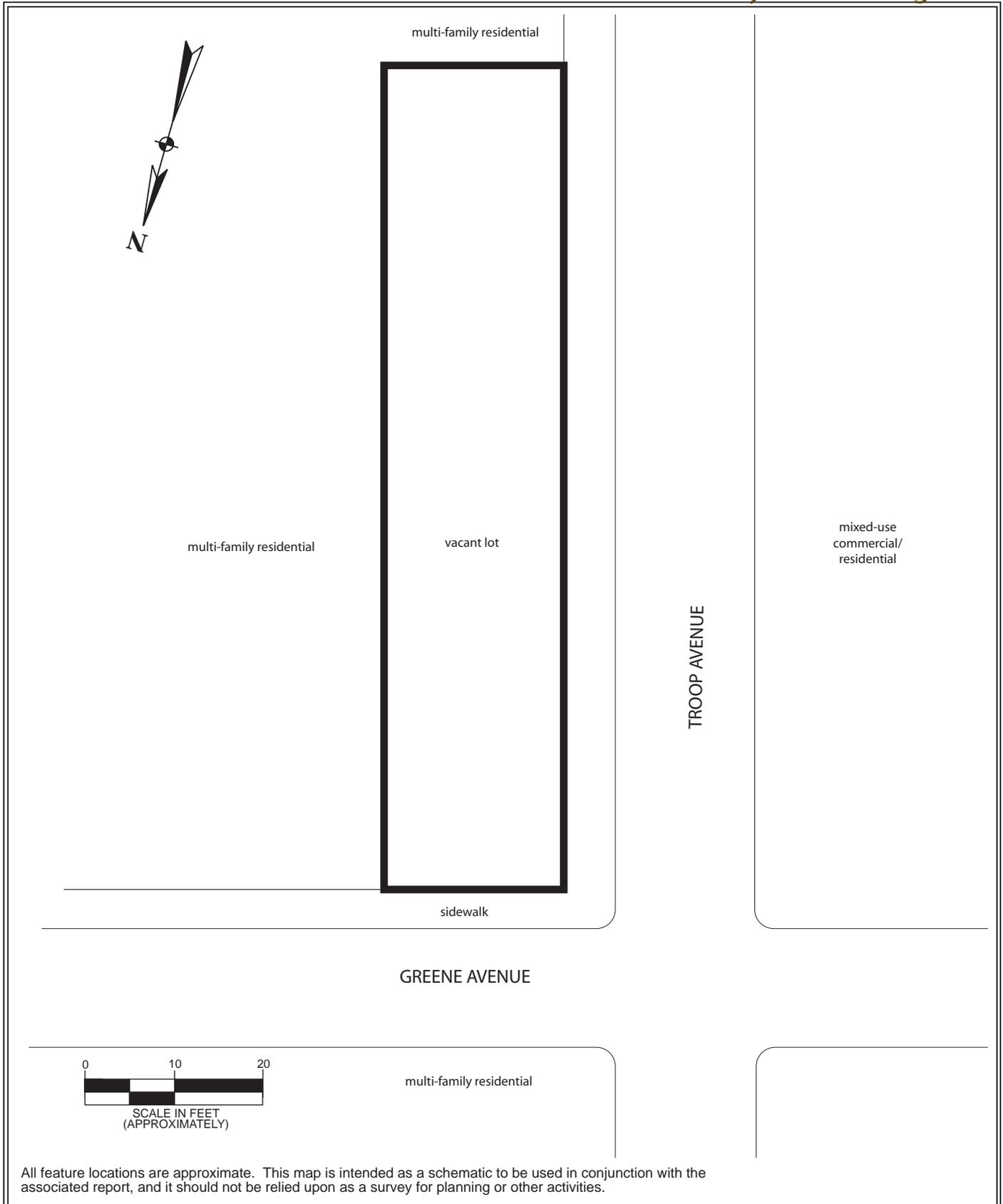
Figure 1: Site Location Map
666 Greene Avenue
Borough of Brooklyn, New York



ESI File: EB15157B.40

June 2016

Appendix A



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 2: Selected Site Features Map

666 Greene Avenue
Borough of Brooklyn, New York

Legend:

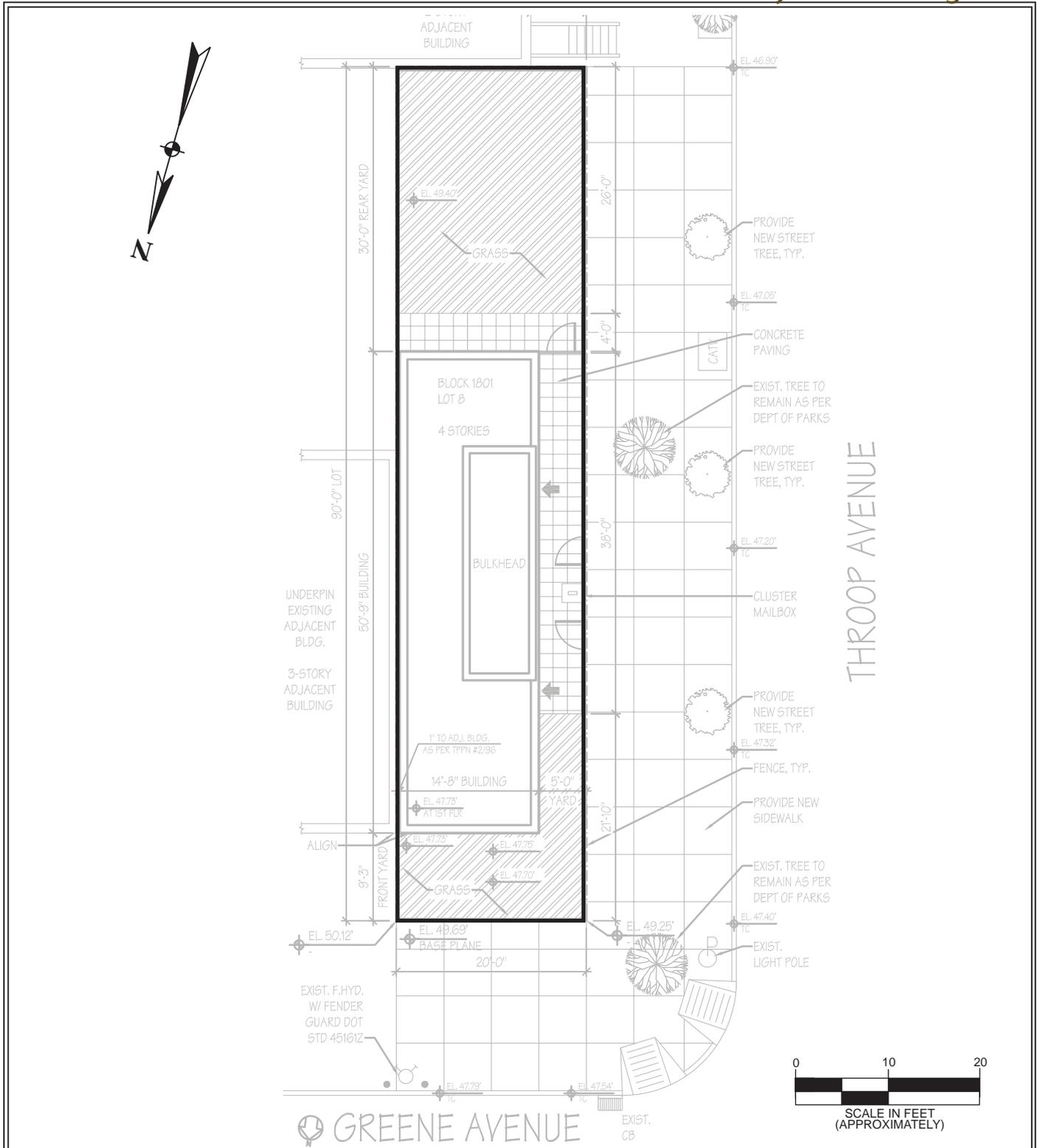
 subject property border

ESI File: EB15157B.40

June 2016

Scale as shown

Appendix A



Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

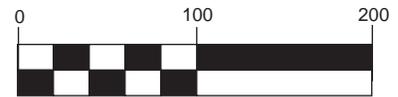
<p>Figure 3: Proposed Development Plan</p> <p>666 Greene Avenue Borough of Brooklyn, New York</p>	<p>Legend:</p> <p> subject property border</p>	<p>ESI File: EB15157B.40</p>
		<p>June 2016</p>
		<p>Scale as shown</p>
		<p>Appendix A</p>



Legend:



Subject Property



SCALE IN FEET
(APPROXIMATELY)

Source Map provided by <http://www.oasisnyc.net/map.aspx>.

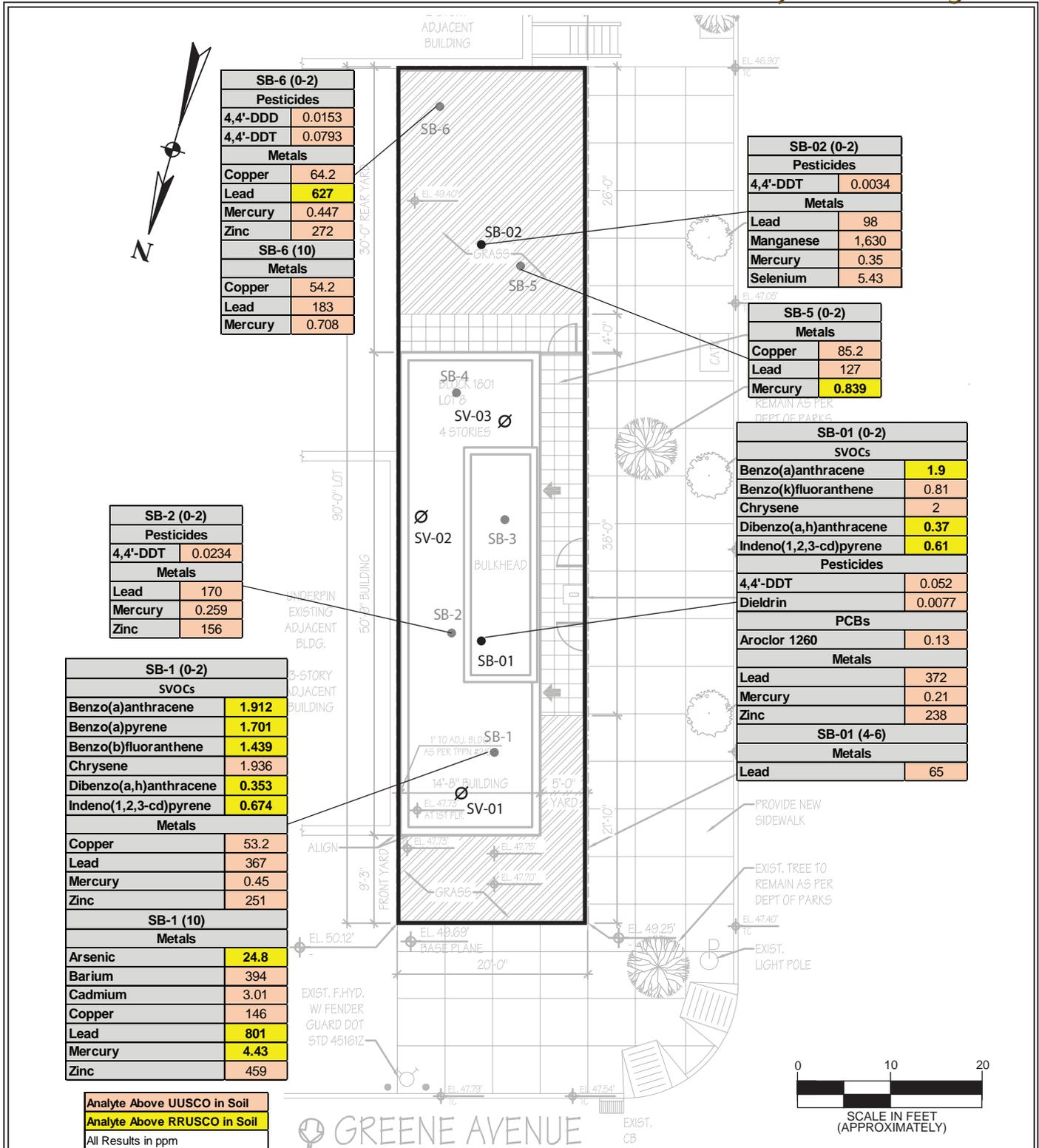
Figure 4: Surrounding Land Use Map

666 Greene Avenue
Borough of Brooklyn, New York

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June 2016

Appendix A

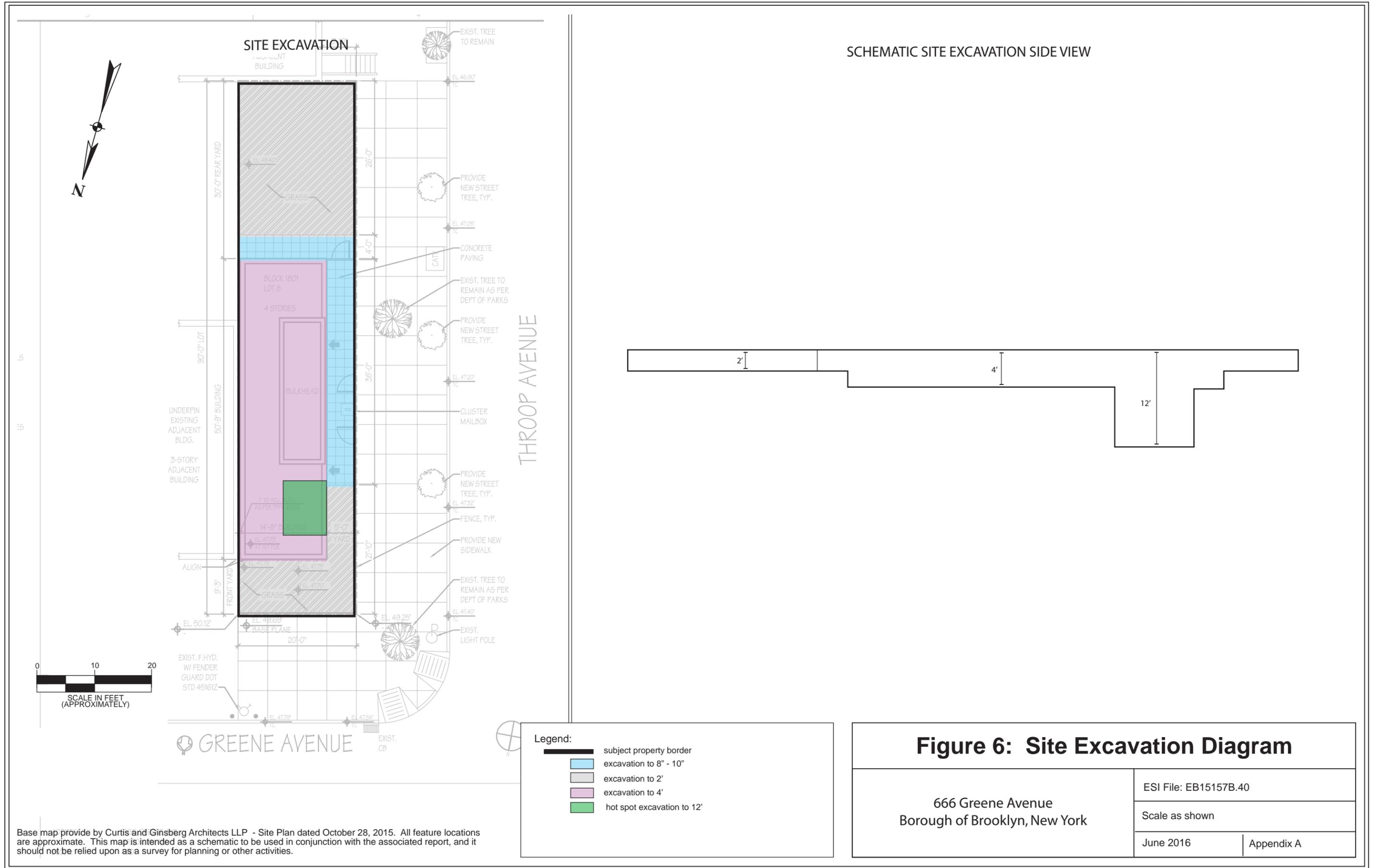


Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 5: Exceedances in Soil Map

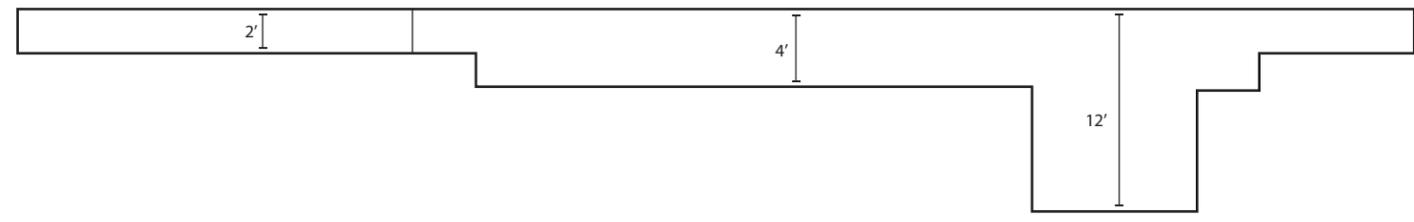
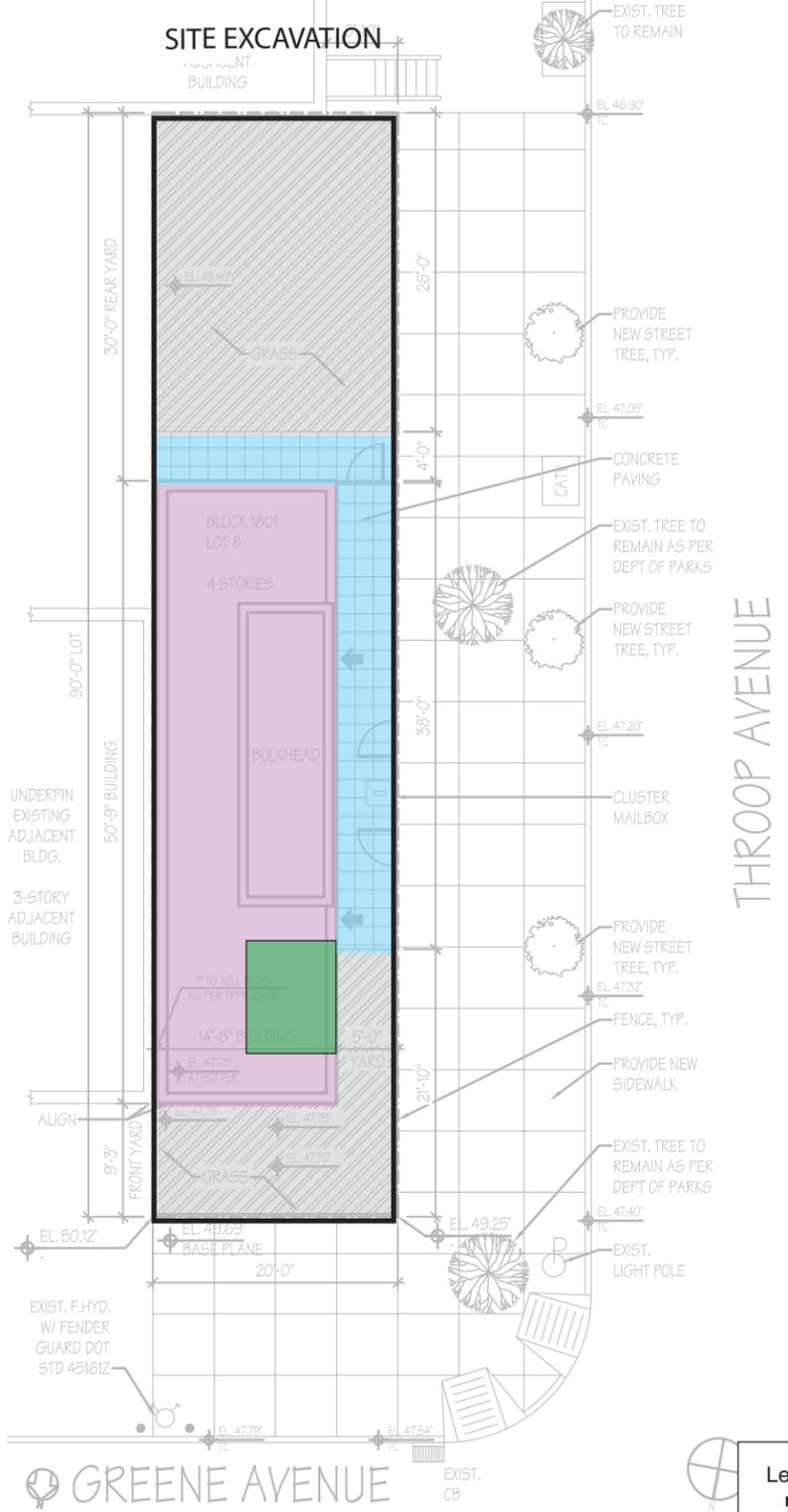
666 Greene Avenue
Borough of Brooklyn, New York

ESI File: EB15157B.40
June 2016
Scale as shown
Appendix A



SITE EXCAVATION

SCHEMATIC SITE EXCAVATION SIDE VIEW



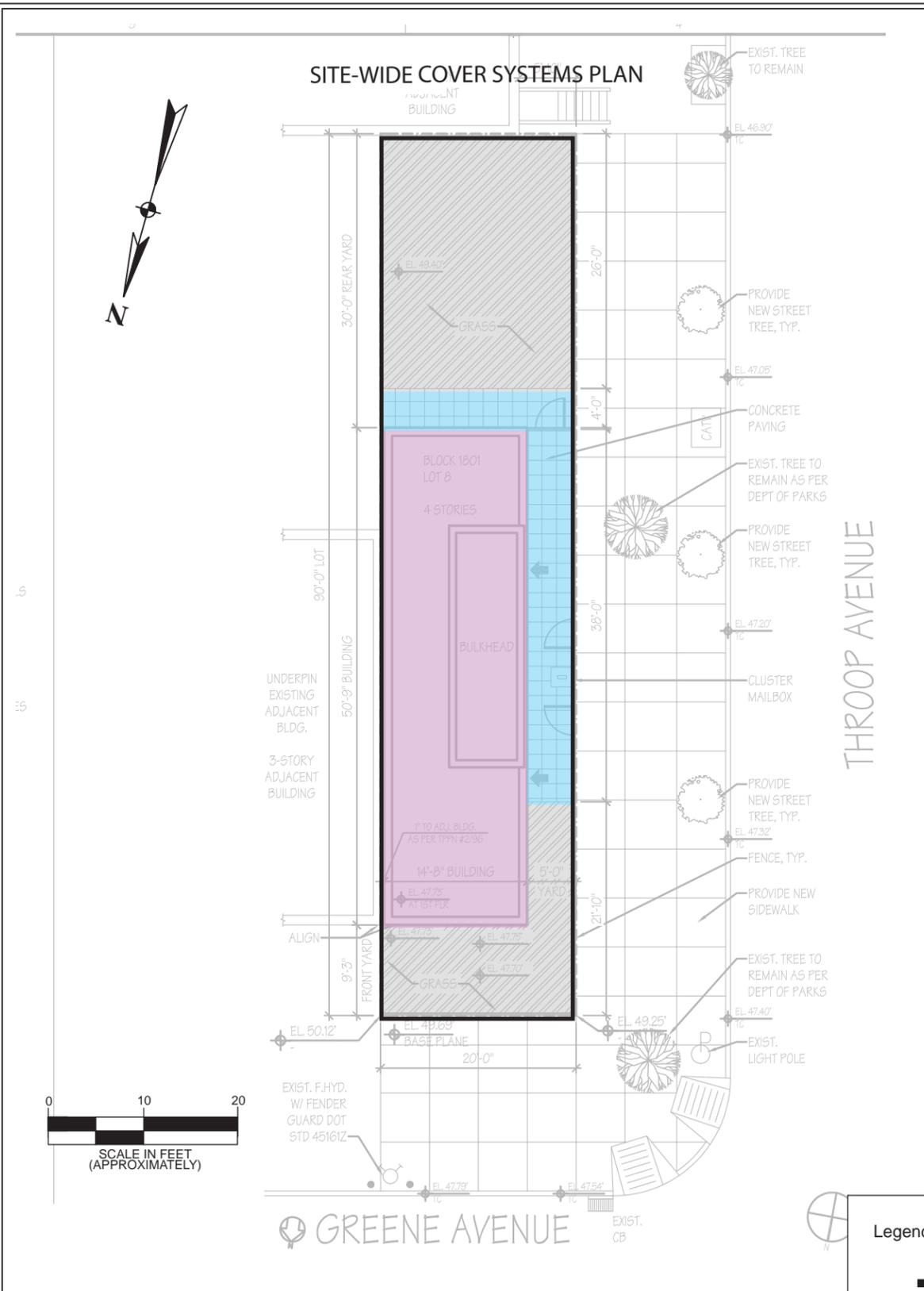
Legend:

- subject property border
- excavation to 8" - 10"
- excavation to 2'
- excavation to 4'
- hot spot excavation to 12'

Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

SITE-WIDE COVER SYSTEMS PLAN

SCHEMATIC SITE -WIDE COVER SYSTEM SIDE VIEW



THROOP AVENUE

GREENE AVENUE

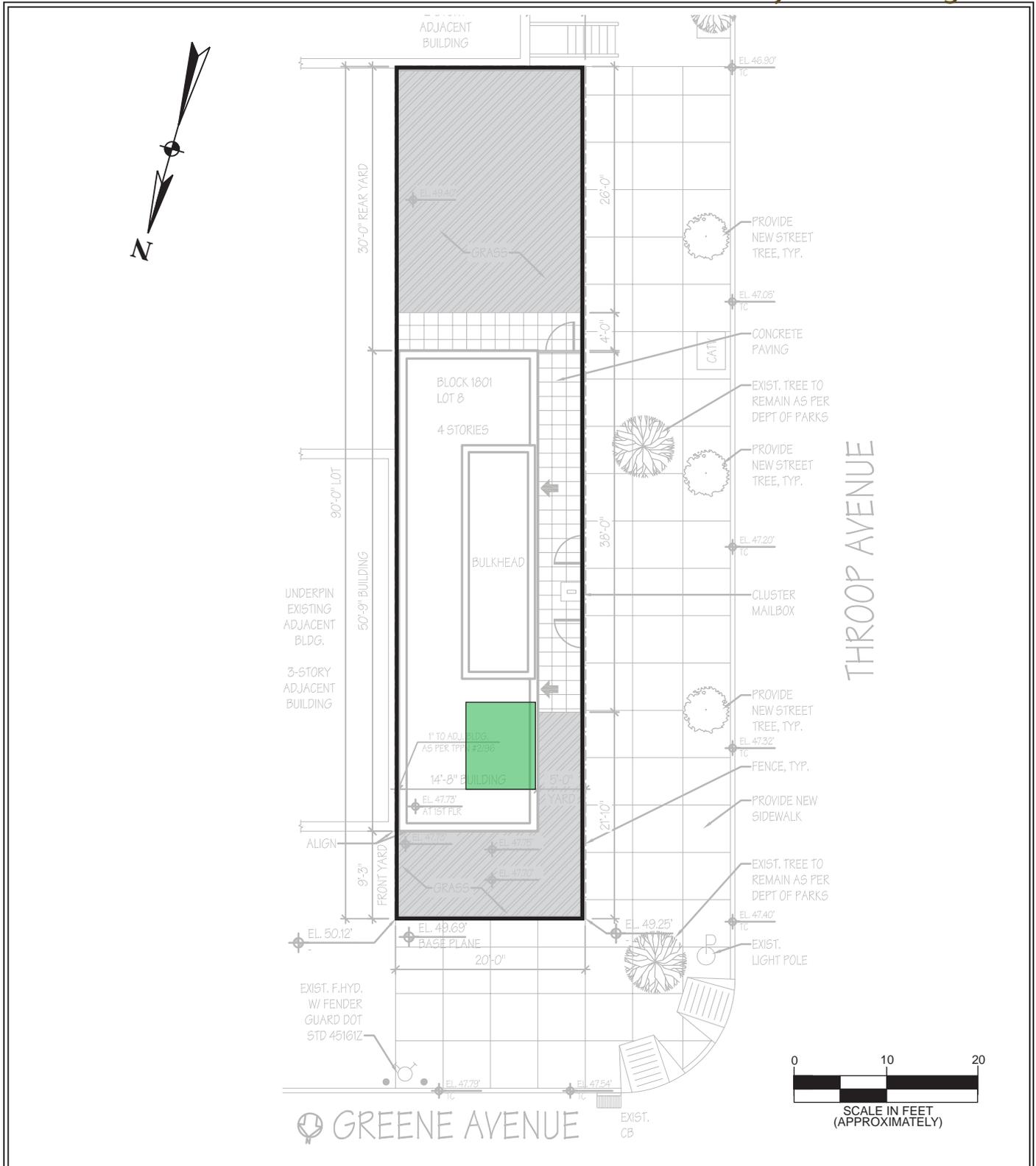
Legend:

- subject property border
- 4" poured concrete
- 6" reinforced concrete slab
- 2' clean fill

Figure 7: Site-Wide Cover System Plan

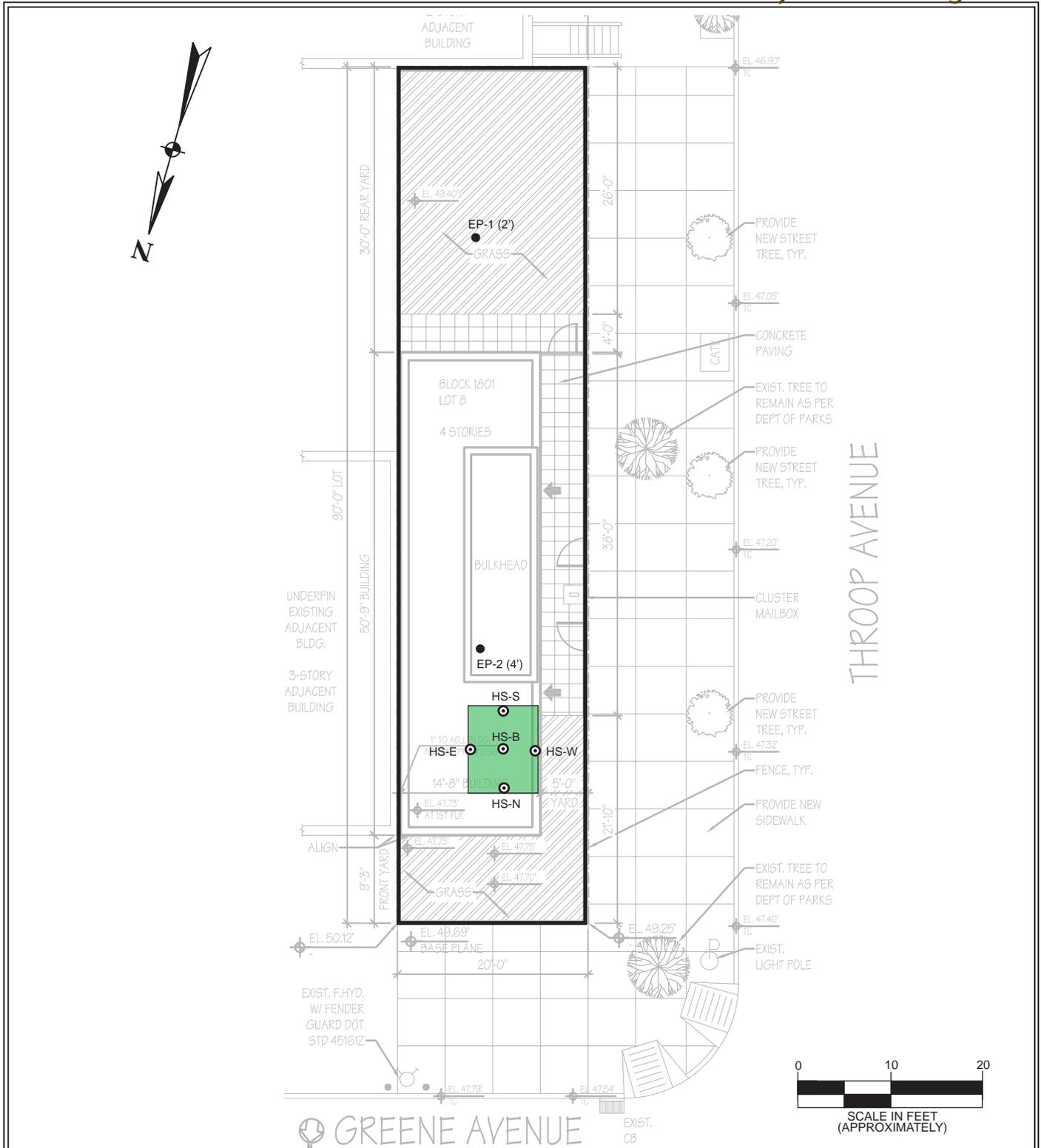
666 Greene Avenue Borough of Brooklyn, New York	ESI File: EB15157B.40
Scale as shown	
June 2016	Appendix A

Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.



Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

<p>Figure 8: Site Backfill Location Diagram</p> <p>666 Greene Avenue Borough of Brooklyn, New York</p>	<p>Legend:</p> <ul style="list-style-type: none"> subject property border 2' clean fill hot spot to 12' to be backfilled from on-site source 	<p>ESI File: EB15157B.40</p>
		<p>June 2016</p>
		<p>Scale as shown</p>
		<p>Appendix A</p>



Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 9: End-point Sample Map

666 Greene Avenue
Borough of Brooklyn, New York

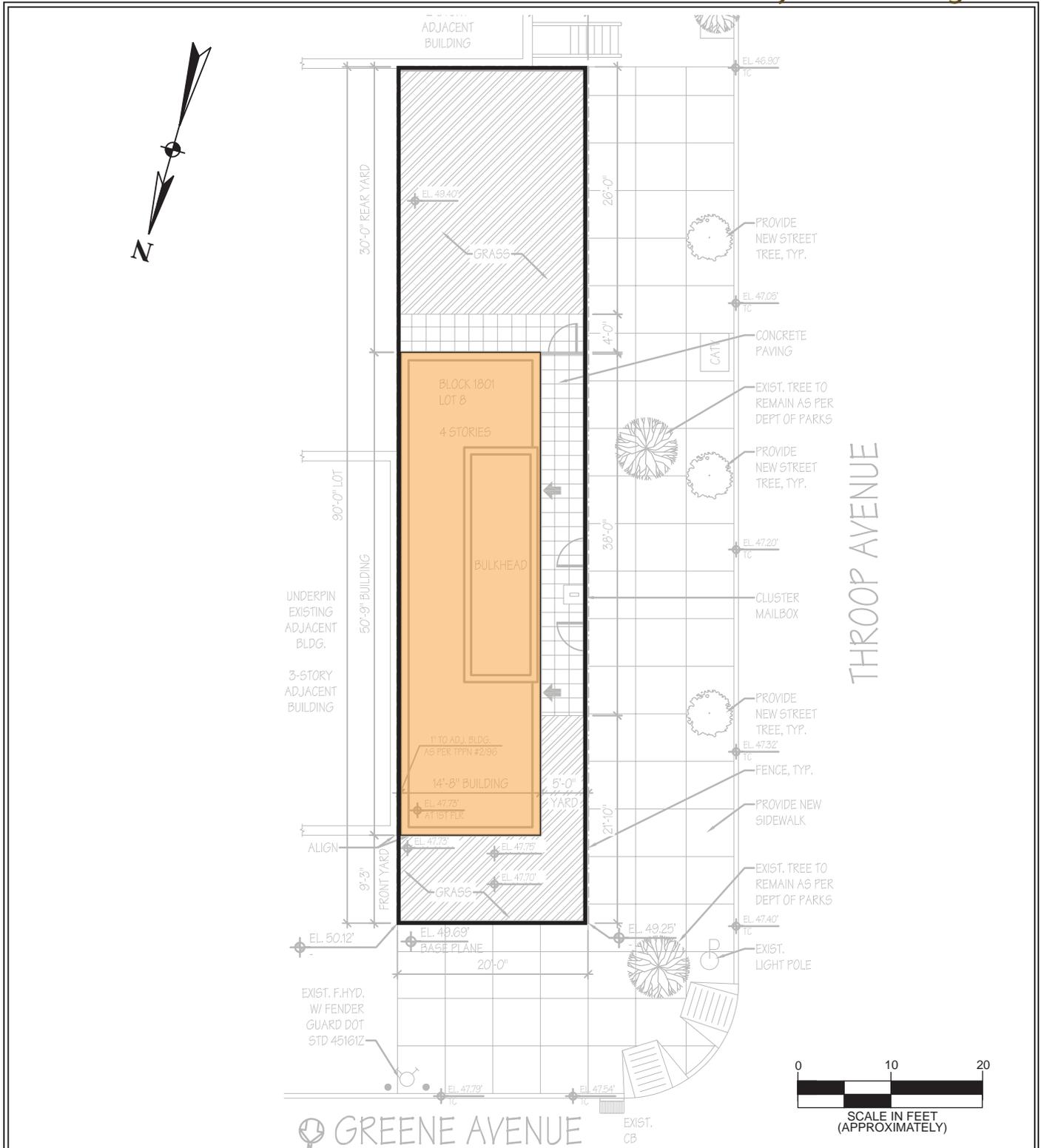
- Legend:**
- subject property border
 - hot spot location
 - end-point samples (depth)
 - hot spot endpoint samples

ESI File: EB15157B.40

June 2016

Scale as shown

Appendix A



Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 10: Vapor Barrier Plan

666 Greene Avenue
Borough of Brooklyn, New York

- Legend:
- subject property border
 - location of vapor barrier

ESI File: EB15157B.40

June 2016

Scale as shown

Appendix A



APPENDIX B

Tables

Table 1: VOCs in Soils

All data in mg/Kg (ppm)		Sample ID	SB-01 0-2		SB-01 4-6		SB-02 0-2		SB-02 4-6	
U= Not Detected ≥ indicated value		Sample Date	(2016-05-10)		(2016-05-10)		(2016-05-10)		(2016-05-10)	
Data above SCOs shown in Bold		Dilution Factor	1		1		1		1	
VOCs, 8260	UUSCO	RRUSCO	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1,1,2-Tetrachloroethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,1,1-Trichloroethane	0.68	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,1,2,2-Tetrachloroethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,1,2-Trichloroethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,1-Dichloroethane	0.27	26	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,1-Dichloroethylene (1,1-DCE)	0.33	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2,3-Trichlorobenzene	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2,3-Trichloropropane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2,4-Trichlorobenzene	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2,4-Trimethylbenzene	3.6	52	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2-Dibromo-3-chloropropane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2-Dibromoethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2-Dichlorobenzene	1.1	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2-Dichloroethane	0.2	31	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,2-Dichloropropane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,3,5-Trimethylbenzene	8.4	52	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,3-Dichlorobenzene	2.4	49	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,4-Dichlorobenzene	1.8	13	0.0023	U	0.0021	U	0.0022	U	0.0028	U
1,4-Dioxane	0.1	13	0.047	U	0.043	U	0.044	U	0.056	U
2-Butanone (MEK)	0.12	100	0.0029	J	0.0021	U	0.0022	U	0.0028	U
2-Hexanone	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
4-Methyl-2-pentanone	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Acetone	0.05	100	0.021	J	0.0043	U	0.0044	U	0.0074	J
Acrolein	NA	NA	0.0047	U	0.0043	U	0.0044	U	0.0056	U
Acrylonitrile	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Benzene	0.06	48	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Bromochloromethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Bromodichloromethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Bromoform	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Bromomethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Carbon disulfide	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Carbon tetrachloride	0.76	24	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Chlorobenzene	1.1	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Chloroethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Chloroform	0.37	49	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Chloromethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
cis-1,2-Dichloroethylene (cis-DCE)	0.25	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
cis-1,3-Dichloropropylene	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Cyclohexane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Dibromochloromethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Dibromomethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Dichlorodifluoromethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Ethyl Benzene	1	41	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Hexachlorobutadiene	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Isopropylbenzene	2.3	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Methyl acetate	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Methyl tert-butyl ether (MTBE)	0.93	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Methylcyclohexane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Methylene chloride	0.05	500	0.0047	U	0.0043	U	0.0044	U	0.0056	U
n-Butylbenzene	12	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
n-Propylbenzene	3.9	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
o-Xylene	0.26	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
p- & m- Xylenes	0.26	100	0.0047	U	0.0043	U	0.0044	U	0.0056	U
p-Isopropyltoluene	10	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
sec-Butylbenzene	11	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Styrene	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
tert-Butyl alcohol (TBA)	NA	NA	0.0047	U	0.0043	U	0.0044	U	0.0056	U
tert-Butylbenzene	5.9	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Tetrachloroethylene (PCE)	1.3	19	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Toluene	0.7	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
trans-1,2-Dichloroethylene (trans-DCE)	0.19	100	0.0023	U	0.0021	U	0.0022	U	0.0028	U
trans-1,3-Dichloropropylene	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Trichloroethylene (TCE)	0.47	21	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Trichlorofluoromethane	NA	NA	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Vinyl chloride (VC)	0.02	0.9	0.0023	U	0.0021	U	0.0022	U	0.0028	U
Xylenes, Total	0.26	100	0.007	U	0.0064	U	0.0066	U	0.0085	U
Total VOCs	NA	NA	0.0239		0		0		0.0074	

Analyte Detected

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
 Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 2: SVOCs in Soils

All data in mg/Kg (ppm)												
U= Not Detected ≥ indicated value												
Data above SCOs shown in Bold												
SVOCs, 8270	UUSCO	RRUSCO	Sample ID		SB-01 0-2		SB-01 4-6		SB-02 0-2		SB-02 4-6	
			Sample Date		(2016-05-10)		(2016-05-10)		(2016-05-10)		(2016-05-10)	
			Dilution Factor		5		2		2		2	
			Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1'-Biphenyl	NA	NA	0.084	JD	0.048	U	0.047	U	0.047	U	0.047	U
1,2,4,5-Tetrachlorobenzene	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
1,2,4-Trichlorobenzene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
1,2-Dichlorobenzene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
1,2-Diphenylhydrazine (Azobenzene)	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
1,3-Dichlorobenzene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
1,4-Dichlorobenzene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
2,3,4,6-Tetrachlorophenol	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
2,4,5-Trichlorophenol	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
2,4,6-Trichlorophenol	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
2,4-Dichlorophenol	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
2,4-Dimethylphenol	NA	NA	0.062	JD	0.048	U	0.047	U	0.047	U	0.047	U
2,4-Dinitrophenol	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
2,4-Dinitrotoluene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
2,6-Dinitrotoluene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
2-Chloronaphthalene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
2-Chlorophenol	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
2-Methylnaphthalene	NA	NA	0.45	D	0.048	U	0.047	U	0.047	U	0.047	U
2-Methylphenol	0.33	100	0.057	JD	0.048	U	0.047	U	0.047	U	0.047	U
2-Nitroaniline	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
2-Nitrophenol	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
3- & 4-Methylphenols	0.33	100	0.12	D	0.048	U	0.047	U	0.047	U	0.047	U
3,3'-Dichlorobenzidine	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
3-Nitroaniline	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
4,6-Dinitro-2-methylphenol	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
4-Bromophenyl phenyl ether	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
4-Chloro-3-methylphenol	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
4-Chloroaniline	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
4-Chlorophenyl phenyl ether	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
4-Nitroaniline	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
4-Nitrophenol	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
Acenaphthene	20	100	0.49	D	0.048	U	0.066	JD	0.047	U	0.047	U
Acenaphthylene	100	100	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Acetophenone	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Aniline	NA	NA	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Anthracene	100	100	0.89	D	0.048	U	0.13	D	0.047	U	0.047	U
Atrazine	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Benzaldehyde	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Benzidine	NA	NA	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Benzo(a)anthracene	1	1	1.9	D	0.065	JD	0.31	D	0.047	U	0.047	U
Benzo(a)pyrene	1	1	0.72	D	0.048	U	0.28	D	0.047	U	0.047	U
Benzo(b)fluoranthene	1	1	0.58	D	0.048	U	0.14	D	0.047	U	0.047	U
Benzo(g,h,i)perylene	100	100	0.57	D	0.048	U	0.17	D	0.047	U	0.047	U
Benzo(k)fluoranthene	0.8	3.9	0.81	D	0.048	U	0.21	D	0.047	U	0.047	U
Benzoic acid	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Benzyl alcohol	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Benzyl butyl phthalate	NA	NA	1.48	D	0.048	U	0.71	D	0.047	U	0.047	U
Bis(2-chloroethoxy)methane	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Bis(2-chloroethyl)ether	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Bis(2-chloroisopropyl)ether	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Bis(2-ethylhexyl)phthalate	NA	NA	1.83	D	0.048	U	0.34	D	0.047	U	0.047	U
Caprolactam	NA	NA	0.096	U	0.095	U	0.094	U	0.093	U	0.093	U
Carbazole	NA	NA	1.01	D	0.048	U	0.059	JD	0.047	U	0.047	U
Chrysene	1	3.9	2	D	0.062	JD	0.29	D	0.047	U	0.047	U
Dibenzo(a,h)anthracene	0.33	0.33	0.37	D	0.048	U	0.075	JD	0.047	U	0.047	U
Dibenzofuran	NA	NA	0.47	D	0.048	U	0.047	U	0.047	U	0.047	U
Diethyl phthalate	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Dimethyl phthalate	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Di-n-butyl phthalate	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Di-n-octyl phthalate	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Fluoranthene	100	100	4.68	D	0.14	D	0.65	D	0.047	U	0.047	U
Fluorene	30	100	0.58	D	0.048	U	0.047	U	0.047	U	0.047	U
Hexachlorobenzene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Hexachlorobutadiene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Hexachlorocyclopentadiene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Hexachloroethane	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.61	D	0.048	U	0.17	D	0.047	U	0.047	U
Isophorone	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Naphthalene	12	100	1.16	D	0.048	U	0.047	U	0.047	U	0.047	U
Nitrobenzene	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
N-Nitrosodimethylamine	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
N-nitroso-di-n-propylamine	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
N-Nitrosodiphenylamine	NA	NA	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Pentachlorophenol	0.8	6.7	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Phenanthrene	100	100	4.72	D	0.1	D	0.52	D	0.047	U	0.047	U
Phenol	0.33	100	0.048	U	0.048	U	0.047	U	0.047	U	0.047	U
Pyrene	100	100	4.78	D	0.1	D	0.51	D	0.047	U	0.047	U
Total SVOCs	NA	NA	30.423		0.467		4.63		0		0	

Analyte Detected
 Analyte Above UUSCO
 Analyte Above RRUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
 Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 3: Pesticides and PCBs in Soils

All data in mg/Kg (ppm) U= Not Detected ≥ indicated value Data above SCOs shown in Bold			Sample ID		SB-01 0-2		SB-01 4-6		SB-02 0-2		SB-02 4-6	
			Sample Date		(2016-05-10)		(2016-05-10)		(2016-05-10)		(2016-05-10)	
			Dilution Factor		5		5		5		5	
Pesticides, 8081	UUSCO	RRUSCO	<i>Result</i>	<i>Qualifier</i>	<i>Result</i>	<i>Qualifier</i>	<i>Result</i>	<i>Qualifier</i>	<i>Result</i>	<i>Qualifier</i>	<i>Result</i>	<i>Qualifier</i>
4,4'-DDD	0.0033	13	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
4,4'-DDE	0.0033	8.9	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
4,4'-DDT	0.0033	7.9	0.052	D	0.0019	U	0.0034	D	0.0033	D		
Aldrin	0.005	0.097	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
alpha-BHC	0.02	0.48	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
alpha-Chlordane	0.094	4.2	0.0019	U	0.0019	U	0.0019	U	0.0096	D		
beta-BHC	0.036	0.36	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
Chlordane (total)	NA	NA	0.14	D	0.075	U	0.074	U	0.13	D		
delta-BHC	0.04	100	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
Dieldrin	0.005	0.2	0.0077	D	0.0019	U	0.0019	U	0.0019	D		
Endosulfan I	2.4	24	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
Endosulfan II	2.4	24	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
Endosulfan sulfate	2.4	24	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
Endrin	0.014	11	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
Endrin aldehyde	NA	NA	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
Endrin ketone	NA	NA	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
gamma-BHC (Lindane)	0.1	1.3	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
gamma-Chlordane	NA	0.54	0.0063	D	0.0019	U	0.0019	U	0.0057	D		
Heptachlor	0.042	2.1	0.0019	U	0.0019	U	0.0019	U	0.0026	D		
Heptachlor Epoxide	NA	0.077	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U
Methoxychlor	NA	100	0.0095	U	0.0094	U	0.0093	U	0.0092	U		
Toxaphene	NA	NA	0.096	U	0.095	U	0.094	U	0.094	U		

			Sample ID		SB-01 0-2		SB-01 4-6		SB-02 0-2		SB-02 4-6	
			Sample Date		(2016-05-10)		(2016-05-10)		(2016-05-10)		(2016-05-10)	
			Dilution Factor		1		1		1		1	
PCBs, 8082	UUSCO	RRUSCO	<i>Result</i>	<i>Qualifier</i>	<i>Result</i>	<i>Qualifier</i>	<i>Result</i>	<i>Qualifier</i>	<i>Result</i>	<i>Qualifier</i>	<i>Result</i>	<i>Qualifier</i>
Aroclor 1016	0.1	1.00	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
Aroclor 1221	0.1	1.00	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
Aroclor 1232	0.1	1.00	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
Aroclor 1242	0.1	1.00	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
Aroclor 1248	0.1	1.00	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
Aroclor 1254	0.1	1.00	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
Aroclor 1260	0.1	1.00	0.13		0.019	U	0.019	U	0.019	U	0.019	U
Aroclor, Total	0.1	1.00	0.13		0.019	U	0.019	U	0.019	U	0.019	U

Analyte Detected
Analyte Above UUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
 Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4: TAL Metals in Soils

All data in mg/Kg (ppm) U= Not Detected ≥ indicated value Data above SCOs shown in Bold		Sample ID		SB-01 0-2		SB-01 4-6		SB-02 0-2		SB-02 4-6	
		Sample Date		(2016-05-10)		(2016-05-10)		(2016-05-10)		(2016-05-10)	
		Dilution Factor		1		1		1		1	
Metals, 6010 and 7473	UUSCO	RRUSCO	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	
Aluminum	NA	NA	7,900		13,400		12,000		13,500		
Antimony	NA	NA	0.58	U	0.57	U	0.56	U	0.56	U	
Arsenic	13	16	4.63		3.25		4.69		4.14		
Barium	350	400	186		51.1		104		50.8		
Beryllium	7.2	72	0.24		0.42		0.43		0.41		
Cadmium	2.5	4.3	0.55		0.34	U	0.34	U	0.34	U	
Calcium	NA	NA	47,800		1,300		9,570		3,440		
Chromium	30	180	22.4		19.3		19.2		23.2		
Cobalt	NA	NA	6.07		7.91		8.95		9		
Copper	50	270	41.6		14.3		27.9		19.7		
Iron	NA	NA	17,000		21,100		44,600	E	26,600		
Lead	63	400	372		65		98		13.3		
Magnesium	NA	NA	4,990		2,490		2,630		2,810		
Manganese	1,600	2,000	282		411		1,630	E	623		
Mercury	0.18	0.81	0.21		0.042		0.35		0.034	U	
Nickel	30	310	14.4		20.9		16.6		19.3		
Potassium	NA	NA	900		776		990		985		
Selenium	3.9	180	1.15	U	2.43		5.43		3.14		
Silver	2	180	0.58	U	0.57	U	0.56	U	0.56	U	
Sodium	NA	NA	329		76.9		164		130		
Thallium	NA	NA	1.15	U	1.14	U	1.13	U	1.12	U	
Vanadium	NA	NA	25.2		27.9		29.9		37.1		
Zinc	109	10,000	238		30.6		76.9		39.7		

Analyte Detected
 Analyte Above UUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
 Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 5: VOCs in Soil Vapor

All data in $\mu\text{g}/\text{m}^3$ U= Not Detected \geq indicated value Data above AGVs shown in Bold	Sample ID	SV-01		SV-02		SV-03	
	Sample Date	(2016-05-10)		(2016-05-10)		(2016-05-10)	
	Dilution Factor	24.83		16.8		2.083	
VOCs, TO-15		Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1,1,2-Tetrachloroethane		17	U	12	U	1.4	U
1,1,1-Trichloroethane		14	U	9.2	U	1.1	U
1,1,2-Tetrachloroethane		17	U	12	U	1.4	U
1,1,2-Trichloro-1,2,2-trifluoroethane		19	U	13	U	1.6	U
1,1,2-Trichloroethane		14	U	9.2	U	1.1	U
1,1-Dichloroethane		10	U	6.8	U	0.84	U
1,1-Dichloroethene		9.8	U	6.7	U	0.83	U
1,2,4-Trichlorobenzene		18	U	12	U	1.5	U
1,2,4-Trimethylbenzene		12	U	8.3	U	1.7	D
1,2-Dibromoethane		19	U	13	U	1.6	U
1,2-Dichlorobenzene		15	U	10	U	1.3	U
1,2-Dichloroethane		10	U	6.8	U	0.84	U
1,2-Dichloropropane		11	U	7.8	U	0.96	U
1,2-Dichlorotetrafluoroethane		17	U	12	U	9.2	D
1,3,5-Trimethylbenzene		12	U	8.3	U	1	U
1,3-Butadiene		16	U	11	U	1.4	U
1,3-Dichlorobenzene		15	U	10	U	1.3	U
1,3-Dichloropropane		11	U	7.8	U	0.96	U
1,4-Dichlorobenzene		15	U	10	U	1.3	U
1,4-Dioxane		18	U	12	U	1.5	U
2-Butanone		350	D	230	D	40	D
2-Hexanone		39	D	25	D	4.8	D
3-Chloropropene		39	U	26	U	13	D
4-Methyl-2-pentanone		10	U	6.9	U	2	D
Acetone		48	D	64	D	28	D
Acrylonitrile		5.4	U	3.6	U	0.45	U
Benzene		7.9	U	5.4	U	2.6	D
Benzyl chloride		13	U	8.7	U	6	D
Bromodichloromethane		17	U	11	U	4.7	D
Bromoform		26	U	17	U	2.2	U
Bromomethane		9.6	U	6.5	U	0.81	U
Carbon disulfide		7.7	U	5.2	U	0.91	D
Carbon tetrachloride		3.9	U	2.6	U	0.33	U
Chlorobenzene		11	U	7.7	U	0.96	U
Chloroethane		6.6	U	4.4	U	0.55	U
Chloroform		12	U	8.2	U	1	U
Chloromethane		5.1	U	3.5	U	2.9	D
cis-1,2-Dichloroethene		9.8	U	6.7	U	0.83	U
cis-1,3-Dichloropropene		11	U	7.6	U	0.95	U
Cyclohexane		8.5	U	5.8	U	2.7	D
Dibromochloromethane		21	U	14	U	1.8	U
Dichlorodifluoromethane		12	U	8.3	U	6.5	D
Ethyl Acetate		18	U	12	U	1.5	U
Ethylbenzene		11	U	7.3	U	1.5	D
Hexachlorobutadiene		26	U	18	U	2.2	U
Isopropanol		12	U	8.3	U	2.6	D
Methyl Methacrylate		10	U	6.9	U	0.85	U
Methyl tert butyl ether		9	U	6.1	U	0.75	U
Methylene chloride		17	U	110	D	12	D
n-Heptane		10	U	6.9	U	4.9	D
n-Hexane		26	D	79	D	17	D
o-Xylene		11	U	7.3	U	1.8	D
p/m-Xylene		22	U	15	U	4.9	D
p-Ethyltoluene		12	U	8.3	U	1.8	D
Propylene		34	D	23	D	9.3	D
Styrene		11	U	7.2	U	0.89	U
Tetrachloroethene		4.2	U	2.8	U	0.35	U
Tetrahydrofuran		15	U	9.9	U	2.2	D
Toluene		12	D	6.3	U	10	D
trans-1,2-Dichloroethene		9.8	U	6.7	U	0.83	U
trans-1,3-Dichloropropene		11	U	7.6	U	0.95	U
Trichloroethene		3.3	U	2.3	U	0.28	U
Trichlorofluoromethane		14	U	9.4	U	5.1	D
Vinyl acetate		8.7	U	5.9	U	6.6	D
Vinyl bromide		11	U	7.3	U	0.91	U
Vinyl chloride		6.3	U	4.3	U	0.53	U

Detected concentrations

Notes: NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank

Laboratory Analysis Data Summary Table [Soil]
666 Greene Avenue, Brooklyn New York

Parameter Name	Parameter ID	SB-1	SB-1	SB-1	SB-2	SB-3	SB-3	SB-4	SB-5	SB-6	SB-6	NYSDEC Background Levels	NYSDEC TAGM #4046 Recommended Soil Cleanup Objectives
		0-2'	10'	40'	0-2'	0-2'	10'	0-2'	0-2'	0-2'	10'		
Sample ID	Unit	ug/Kg	ug/kg										
1,1,1,2-Tetrachloroethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,1,1-Trichloroethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	800
1,1,2,2-Tetrachloroethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	600
1,1,2-Trichloroethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,1,2 Trichloro-1,2,2 Trifluoroethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	6,000
1-1- Biphenyl	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,1-Dichloroethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	200
1,1-Dichloroethene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	400
1,1-Dichloropropene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,2,3-Trichlorobenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,2,3-Trichloropropane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	400
1,2,4,5-Tetramethylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,2,4-Trichlorobenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	3,400
1,2,4-Trimethylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	10,000
1,2-Dibromo-3-Chloropropane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,2-Dibromoethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,2-Dichlorobenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	7,900
1,2-Dichloroethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	100
1,2-Dichloropropane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,3,5-Trimethylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	3,300
1,3-Dichlorobenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	1,600
1,3-Dichloropropane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	300
1,3-Dichloropropene(cis and trans)	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
1,4-Dichlorobenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	8,500
1,4-Dioxane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
2,2-Dichloropropane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
2-Butanone (MEK)	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	300
2-Chlorotoluene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
2-Hexanone	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
4-Chlorotoluene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
4-Methyl-2-Pentanone	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	1,000
Acetone	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	200
Acrolein	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Acrylonitrile	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Benzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	60
Benzidine	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Benzoic Acid	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	2,700
Bromobenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Bromochloromethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Bromodichloromethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Bromoform	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Bromomethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Carbon Disulfide	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	2,700
Carbon Tetrachloride	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	600
Chlorobenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	1,700
Chlorodibromomethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Chloroethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	1,900
Chloroform	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	300
Chloromethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
cis-1,2-Dichloroethene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
cis-1,3-Dichloropropene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Dibromomethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Dibromochloromethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Dichlorodifluoromethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Ethylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	5,500
Hexachlorobenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	410
Isopropylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	2,300
Methyl Acetate	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Methyl Isobutyl Ketone (MIBK)	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Methylene Chloride	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	100
Methyl Tert-Butyl Ether (MTBE)	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	120
Naphthalene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
n-Butylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	10,000
n-Propylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	3,700
p-Diethylbenzenen	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
p-Ethyltoluene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
p-Isopropyltoluene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	10,000
sec-Butylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	10,000
Styrene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
tert-Butylbenzene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	10,000
Tertiary Butyl Alcohol (TBA)	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Tetrachloroethene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	1,400
Toluene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	1,500
Total Xylenes	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	1,200

Laboratory Analysis Data Summary Table [Soil]
666 Greene Avenue, Brooklyn New York

Parameter Name	Parameter ID	SB-1	SB-1	SB-1	SB-2	SB-3	SB-3	SB-4	SB-5	SB-6	SB-6	NYSDEC Background Levels	NYSDEC TAGM #4046 Recommended Soil Cleanup Objectives
		0-2'	10'	40'	0-2'	0-2'	10'	0-2'	0-2'	0-2'	10'		
Sample ID	Unit	ug/Kg	ug/kg										
trans-1,2-Dichloroethene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	300
trans-1,3-Dichloropropene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Trichloroethene	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	700
Trichlorofluoromethane	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Vinyl Acetate	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA
Vinyl Chloride	VOC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	200
1,2-Diphenylhydrazine	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
2,4,5-Trichlorophenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	100
2,4,6-Trichlorophenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
2,4-Dichlorophenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	400
2,4-Dimethylphenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
2,4-Dinitrophenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	200 or MDL
2,4-Dinitrotoluene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
2,6-Dinitrotoluene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	1,000
2-Chloronaphthalene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
2-Chlorophenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	900
2-Methylnaphthalene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	36,400
2-Methylphenol (o-Cresol)	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	100 or MDL
2-Nitroaniline	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	430 or MDL
2-Nitrophenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	330 or MDL
3,3-Dichlorobenzidine	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
3-Nitroaniline	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	500 or MDL
4,6-Dinitro-2-methylphenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
4-Bromophenyl-phenyl ether	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
4-Chloro-3-methylphenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	240 or MDL
4-Chloroaniline	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	220 or MDL
4-Chlorophenyl phenyl ether	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
4-Methylphenol (p-Cresol)	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	900
4-Nitroaniline	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
4-Nitrophenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	100 or MDL
Acenaphthene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	50,000
Acenaphthylene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	41,000
Acetophenone	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Aniline	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	100
Anthracene	SVOC	561	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	50,000
Atrazine	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Benzaldehyde	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Benzo-a-Anthracene	SVOC	1912	<330	<330	<330	<330	<330	<330	<330	573	<330	NA	224 or MDL
Benzo-a-Pyrene	SVOC	1701	<330	<330	<330	<330	<330	<330	<330	504	<330	NA	61 or MDL
Benzo-b-Fluoranthene	SVOC	1439	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	1,100
Benzo-k-Fluoranthene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	1,100
Benzo-g,h,i-Perylene	SVOC	735	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	50,000
Benzyl Alcohol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Bis(2-Chloroethoxy)methane	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Bis(2-Chloroethyl)ether	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Bis(2-Chloroisopropyl)ether	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Bis(2-Ethylhexyl)Phthalate	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	50,000
Butylbenzylphthalate	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	50,000
Caprolactam	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Carbazole	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Chrysene	SVOC	1936	<330	<330	<330	<330	<330	<330	<330	625	<330	NA	400
Dibenzofuran	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	6,200
Dibenzo-a,h-Anthracene	SVOC	353	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	14 or MDL
Diethyl Phthalate	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	7,100
Dimethyl Phthalate	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	2,000
Di-n-Butyl Phthalate	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	9,100
Dinitrotoluene(2,4-/2,6-)	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Di-n-Octyl Phthalate	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	50,000
Fluoranthene	SVOC	3751	<330	<330	<330	<330	<330	<330	<330	1345	<330	NA	50,000
Fluorene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	50,000
Hexachlorobenzene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	410
Hexachlorocyclopentadiene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Hexachlorobutadiene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Hexachloroethane	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Indeno(1,2,3-c,d)Pyrene	SVOC	674	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	3,200
Isophorone	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	4,400
m-Cresol(s)	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Naphthalene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	13,000
Nitrobenzene	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	200 or MDL
N-Nitrosodimethylamine	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
N-Nitroso-di-n-Propylamine	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
N-Nitrosodiphenylamine	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Pentachlorophenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	1,000 or MDL
Phenanthrene	SVOC	1754	<330	<330	<330	<330	<330	<330	<330	1047	<330	NA	50,000
Phenol	SVOC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	NA	30 or MDL
Pyrene	SVOC	3131	<330	<330	<330	<330	<330	<330	<330	1036	<330	NA	50,000

Laboratory Analysis Data Summary Table [Soil]
666 Greene Avenue, Brooklyn New York

Parameter Name	Parameter ID	SB-1	SB-1	SB-1	SB-2	SB-3	SB-3	SB-4	SB-5	SB-6	SB-6	NYSDEC Background Levels	NYSDEC TAGM #4046 Recommended Soil Cleanup Objectives	
		0-2'	10'	40'	0-2'	0-2'	10'	0-2'	0-2'	0-2'	10'			
Sample ID	Unit	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/kg	ug/kg	
4,4-DDD	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	15.3	<2	2,900
4,4-DDE	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	2,100
4,4-DDT	PESTICIDE	<2	<2	<2	23.4	<2	<2	<2	<2	79.3	<2		NA	2,100
Aldrin	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	41
alpha-BHC	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	110
Aroclor 1016	PCB	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		NA	NA
Aroclor 1221	PCB	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		NA	NA
Aroclor 1232	PCB	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		NA	NA
Aroclor 1242	PCB	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		NA	NA
Aroclor 1248	PCB	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		NA	NA
Aroclor 1254	PCB	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		NA	NA
Aroclor 1260	PCB	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		NA	NA
beta-BHC	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	200
Chlordane	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	540
delta-BHC	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	300
Dieldrin	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	44
Endosulfan	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	NA
Endosulfan I	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	900
Endosulfan II	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	900
Endosulfan Sulfate	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	1,000
Endrin	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	100
Endrin Aldehyde	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	NA
Endrin Ketone	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	NA
gamma-BHC (Lindane)	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	60
Heptachlor	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	100
Heptachlor Epoxide	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	20
Methoxychlor	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	***
Mitotane	PESTICIDE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		NA	NA
Parathion	PESTICIDE	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30		NA	1,200
Polychlorinated Biphenyls (PCBs)	PESTICIDE	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		NA	1,000-10,000
Toxaphene	PESTICIDE	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100		NA	NA
Unit		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/kg	mg/kg	
Aluminum, Al	METAL	8591	8709	3744	10560	9308	18452	11367	661	8073	6402	33,000	SB	
Antimony, Sb	METAL	1.68	1.56	<0.1	0.744	0.228	1.02	<0.1	<0.1	3.72	1.14	NA	SB	
Arsenic, As	METAL	3.32	24.8	1.12	2.7	0.654	3.3	1.29	2.74	4.77	5.17	3.0-12	7.5 or SB	
Barium, Ba	METAL	222	394	23.4	102	62.5	42.5	44.1	93.5	207	207	15-600	300 or SB	
Beryllium, Be	METAL	0.371	0.365	0.192	0.462	0.392	0.453	0.48	0.37	0.37	0.4	0-1.75	.16 or SB	
Cadmium, Cd	METAL	1.41	3.01	0.515	1.34	1.02	1.28	0.95	0.58	1.93	0.54	0.1-1	1 or SB	
Calcium, Ca	METAL	18511	29600	1635	6728	1436	882	1894	3179	29969	13386	130-35,000	SB	
Chromium, Cr	METAL	19.1	18.7	9.41	18.7	16.7	21.2	16.5	14.5	18.2	11.7	1.5-40	10 or SB	
Cobalt, Co	METAL	6.57	5.4	3.53	7.09	7.1	8.91	7.27	5.61	5.34	6.68	2.5-60	30 or SB	
Copper, Cu	METAL	53.2	146	9.65	36.5	17.4	17.1	12.8	85.2	64.2	54.2	1.0-50	25 or SB	
Iron, Fe	METAL	15413	19140	9103	16630	18362	23513	17262	10133	16921	9252	2,000-550,000	2,000 or SB	
Lead, Pb	METAL	367	801	6.54	170	4.97	12.6	12.1	127	627	183	4.0-61 or 200-500	SB	
Magnesium, Mg	METAL	3112	3892	1428	2384	2113	2483	2059	1175	4174	835	100-5,000	SB	
Manganese, Mn	METAL	320	300	242	401	514	248	450	200	348	145	50-5,000	SB	
Mercury, Hg	METAL	0.45	4.43	<0.1	0.259	<0.1	<0.1	<0.1	0.839	0.447	0.708	0.001-0.2	.1 or SB	
Nickel, Ni	METAL	14.6	25.3	10.9	15.9	21.6	14.9	15.8	13.8	15.2	14.4	0.5-25	13 or SB	
Potassium, K	METAL	1165	1250	606	948	883	1040	813	668	1268	718	8,500-43,000	SB	
Selenium, Se	METAL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1-3.9	2 or SB	
Silver, Ag	METAL	<0.1	0.186	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.35	0.22	NA	SB	
Sodium, Na	METAL	204	333	90.6	132	102	67.5	180	246	1018	644	6,000-8,000	SB	
Thallium, Tl	METAL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.19	<0.1	NA	SB	
Vanadium, V	METAL	26.1	25	12.7	26.4	28.3	40.6	27.2	31.2	23.7	21.2	1-300	150 or SB	
Zinc, Zn	METAL	251	459	23.7	156	28.7	40.1	32.6	57.3	272	84	9.0-50	20 or SB	

ug/kg = micrograms per kilogram (ppb)
mg/kg = milligrams per kilogram (ppm)
ug/L = micrograms per liter
mg/L = milligrams per liter

APPENDIX C
PROPOSED DEVELOPMENT PLANS

APPENDIX D

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and Van Buren Greene, LLC have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Voluntary Cleanup Program. This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC VCP, Van Buren Greene, LLC will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site. Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the NYC Office of Environmental Remediation (OER) until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, Sarah Pong, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841.

Project Contact List: OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List includes owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at brownfields@cityhall.nyc.gov.

Repositories: A document repository is maintained online. Internet access to view OER’s document repositories is available at public libraries. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. The library nearest the Site is:

Brooklyn Public Library, Macon Branch	Mon	10:00am - 8:00pm
361 Lewis Avenue	Tue	10:00am - 8:00pm
Brooklyn NY 11233	Wed	10:00am - 8:00pm
718-573-5606	Thu	10:00am - 6:00pm
	Fri	10:00am - 5:00pm
	Sat	1:00pm - 5:00pm

Digital Documentation: NYC OER requires the use of digital documents in our repository as a means of minimizing paper use while also increasing convenience in access and ease of use.

Issues of Public Concern: Van Buren Greene, LLC is required to identify whether there are specific issues of concern to stakeholders proximate to the project site. Such issues include but are not limited to interests of Environmental Justice communities. No issues of public concern have been identified.

Public Notice and Public Comment: Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be reviewed and approved by OER prior to distribution and mailed by Van Buren Greene, LLC. Public comment is solicited in public notices for all work plans developed under the NYC Voluntary Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

Citizen Participation Milestones: Public notice and public comment activities occur at several steps during a typical NYC VCP project.

These steps include:

- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan:** Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.
- **Public Notice announcing the approval of the RAWP and the start of remediation:** Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.
- **Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion:** Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the completion of remediation, providing a list of all Institutional and Engineering Controls implemented for to the Site and announcing the issuance of the Notice of Completion.

APPENDIX E

SUSTAINABILITY STATEMENT

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

Reuse of Clean, Recyclable Materials and Reduced Consumption of Non-Renewable Resources: Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction. To the extent feasible, concrete aggregate, stone and masonry derived from the Site, or imported from local sources, will be used as backfill for remedial excavations. An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the RAR.

Reduced Energy Consumption and Promotion of Greater Energy Efficiency: Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings. Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the Remedial Action Report (RAR). Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

Conversion to Clean Fuels: Use of clean fuel improves NYC's air quality by reducing harmful emissions. Natural gas will be utilized for fuel in the new building.

An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RAR.

Recontamination Control: Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site. Recontamination controls for the Site include the installation of a composite cover system and building vapor barrier. An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in

square feet. An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

Stormwater Retention: Stormwater retention improves water quality by lowering the rate of combined stormwater and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters. Approximately 45% of the site is proposed to contain grass yards. An estimate of the enhanced stormwater retention capability of the redevelopment project will be included in the RAR.

Linkage with Green Building: Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use. The number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the RAR. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

Paperless Voluntary Cleanup Program: Van Buren Greene, LLC is participating in OER's Paperless Voluntary Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

Low-Energy Project Management Program: Van Buren Greene, LLC is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

Trees and Plantings: Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance. Two existing trees are planned to remain at the Site, and three new trees are planned to be planted in the adjoining sidewalk along Throop Avenue. An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

APPENDIX F

SOIL/MATERIALS MANAGEMENT PLAN

1.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the final remedial report. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of final signoff by OER.

1.2 Stockpile Methods

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

1.3 Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 Materials Excavation, Load-Out, and Departure

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

1.5 Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are described in the remedial report. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 Materials Disposal Off-Site

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Van Buren Greene, LLC to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York City under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Van Buren Greene, LLC. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the final remedial report.

The Remedial Action Report will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the final remedial report.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be

reported in the final remedial report. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the final remedial report. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be made for approval by OER with an associated plan compliant with 6NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by site uses and that the material complies with receipt requirements for recycling under 6NYCRR Part 360. This material will be appropriately handled on-Site to prevent mixing with impacted material.

1.7 Materials Reuse On-Site

Soil and fill that is derived from the property that meets the Soil Cleanup Objectives (SCOs) established in this plan may be reused on-Site. The SCOs for on-Site reuse are listed in Section 4.2 of this cleanup plan. 'Reuse on-Site' means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on land with comparable levels of contaminants in soil/fill material, compliant with applicable laws and regulations, and addressed pursuant to the NYC VCP agreement subject to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this remedial plan are followed. The expected location for placement of reused material is shown in Section 4.2.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 Demarcation

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer.

A description or map of the approximate depth of the demarcation layer will be provided in the SMP; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan.

1.9 Import of Backfill Soil From Off-Site Sources

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. Imported soils will not exceed groundwater protection standards established in Part 375. Imported soils for Track 1 remedial action projects will not exceed Track 1 SCOs.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

- All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this remedial plan. The final remedial report will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.
- All material will be subject to source screening and chemical testing.
- Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:
 - Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
 - The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
 - Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the final remedial report. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

1.10 Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the

New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

1.11 Stormwater Pollution Prevention

Applicable laws and regulations pertaining to stormwater pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this remedial plan (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.12 Contingency Plan for Unknown Contamination Sources

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings will be included in the daily report. If previously unidentified contaminant sources are

found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

1.13 Odor, Dust, and Nuisance Control

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying this remedial plan.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all

dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying this remedial plan.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided during Site clearing and grubbing and during the remedial program, as necessary, to prevent nuisances.

APPENDIX G
CONSTRUCTION HEALTH AND SAFETY PLAN

CONSTRUCTION HEALTH AND SAFETY PLAN

FOR

SITE REMEDIATION

(INCORPORATING COMMUNITY HEALTH AND SAFETY PLAN)

666 Greene Avenue

Brooklyn, New York

June 2016

ESI File: EB15157B.40

Prepared By:



Ecosystems Strategies, Inc.

24 Davis Avenue, Poughkeepsie, NY 12603

phone 845.452.1658 | fax 845.485.7083 | ecosystemsstrategies.com

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1.0 INTRODUCTION

1.1 Purpose

This Construction Health and Safety Plan for Site Remediation (CHASP) has been developed to provide the requirements and general procedures to be followed by Ecosystems Strategies, Inc. (ESI) and on-site subcontractors while performing investigative services at the property located at 666 Greene Avenue in Brooklyn, New York.

This CHASP incorporates policies, guidelines and procedures that have the objective of protecting the public health of the community during the performance of fieldwork activities, and therefore serves as a Community Health and Safety Plan. The objectives of the CHASP are met by establishing guidelines to minimize community exposure to hazards during fieldwork, and by planning for and responding to emergencies affecting the public adjacent to the site.

This CHASP describes the responsibilities, training requirements, protective equipment and standard operating procedures to be utilized by all personnel while on the Site. All on-site personnel and visitors shall follow the guidelines, rules, and procedures contained in this safety plan. The Project Manager or Site Health and Safety Officer (SHSO) may impose any other procedures or prohibitions believed to be necessary for safe operations. This CHASP incorporates by reference the applicable Occupational Safety and Health Administration (OSHA) requirements in 29 CFR 1910 and 29 CFR 1926.

The requirements and guidelines in this CHASP are based on a review of available information and evaluation of potential on-site hazards. This CHASP will be discussed with Site personnel and will be available on-site for review while work is underway. On-site personnel will report to the Site Health and Safety Officer (SHSO) in matters of health and safety. The on-site project supervisor(s) are responsible for enforcement and implementation of this CHASP, which is applicable to all field personnel, including contractors and subcontractors.

This CHASP is specifically intended for the conduct of activities within the defined scope of work in specified areas of the Site. Changes in site conditions and future actions that may be conducted at the Site may necessitate the modification of the requirements of the CHASP. Although this CHASP can be made available to interested persons for informational purposes, ESI has no responsibility over the interpretations or activities of any other persons or entities other than employees of ESI or ESI's subcontractors.

1.2 Site Location and Description

The Site as defined in this CHASP is the property located at 666 Greene Avenue, Borough of Brooklyn, New York City, New York.

1.3 Work Activities

Environmental remediation activities are detailed in the Remedial Action Work Plan (RAWP), dated June 2016. The specific tasks detailed in the RAWP are wholly incorporated by reference into this CHASP. The RAWP describes the tasks required to remediate documented soil contamination at the Site.

The Remedial Investigation Report prepared for the Site documented the presence of poor-quality urban fill and contaminated soils containing elevated concentrations of SVOCs and metals. Proposed remedial actions consist of the removal of fill and contaminated soil from the Site.

2.0 HEALTH AND SAFETY HAZARDS

2.1 Hazard Overview for On-Site Personnel

The potential exists for the presence of elevated levels of organic compounds and metals in on-site soils. The possibility exists for on-site personnel to have contact with contaminated soils during site remediation work. Contact with contaminated substances may present a skin contact, inhalation and/or ingestion hazard. These potential hazards are addressed in Sections 3.0 through 11.0, below.

2.2 Potential Hazards to the Public from Fieldwork Activities

The potential exists for the public to be exposed to contaminated soils, which may present a skin contact, inhalation and/or ingestion hazard. Additional potential hazards to the public that are associated with fieldwork activities include mechanical/physical hazards, traffic hazards from fieldwork vehicles, and noise impacts associated with operation of mechanical equipment.

Impacts to public health and safety are expected to be limited to hazards that could directly affect on-site visitors and/or trespassers. These effects will be mitigated through site access and control measures (see Section 6.0, below). Specific actions taken to protect the public health (presented in Sections 3.0 through 11, below) are anticipated to minimize any potential off-site impacts from contaminant migration, noise and traffic hazards.

3.0 PERSONAL PROTECTIVE EQUIPMENT

The levels of protection identified for the services specified in the RAWP represent a best estimate of exposure potential and protective equipment needed for that exposure. Determination of levels was based on data provided by previous studies of the Site and information reviewed on current and past Site usage. The SHSO may recommend revisions to these levels based on an assessment of actual exposures and may at any time require Site workers, supervisors and/or visitors to use specific safety equipment.

The level of protective clothing and equipment selected for this project is Level D. Level D PPE provides minimal skin protection and no respiratory protection, and is used when the atmosphere contains no known hazard, oxygen concentrations are not less than 19.5%, and work activities exclude splashes, immersion or the potential for unexpected inhalation or contact with hazardous levels of chemicals. Workers will wear Level D protective clothing including, but not limited to, a hard hat, steel-toed boots, nitrile gloves (when handling soils and/or groundwater), hearing protection (foam ear plugs or ear muffs, as required), and safety goggles (in areas of exposed groundwater and when decontaminating equipment). Personal protective equipment (PPE) will be worn at all times, as designated by this CHASP.

Disposable gloves will be changed immediately following the handling of contaminated soils, water, or equipment. Tyvek suits will be worn during activities likely to excessively expose work clothing to contaminated dust or soil (chemically-resistant over garments will be required in situations where exposures could lead to penetration of clothing and direct dermal contact by contaminants).

The requirement for the use of PPE by official on-site visitors shall be determined by the SHSO, based on the most restrictive PPE requirement for a particular Work Zones (see Section 6 for Work Zone definitions). All on-site visitors shall, at a minimum, be required to wear an approved hardhat and be provided with appropriate hearing protection as necessary.

The need for an upgrade in PPE will be determined based upon encountered Site conditions, including measurements taken in the breathing zone of the work area using a photo-ionization detector (PID). An upgrade to a higher level of protection (Level C) will begin when specific action levels are reached (see Section 5.0, below), or as otherwise required by the SHSO. Level C PPE includes a full-face or half-mask air-purifying respirator (NIOSH approved for the compound[s] of concern), hooded chemical-resistant clothing, outer and inner chemical-resistant gloves, and (as needed) coveralls, outer boots/boot covers, escape mask, and face shield. Level C PPE may be used only when: oxygen concentrations are not less than 19.5%; contaminant contact will not adversely affect any exposed skin; types of air contaminants have been identified, concentrations measured, and a cartridge or canister is available that can remove the contaminant; atmospheric contaminant concentrations do not exceed immediately dangerous to life or health (IDLH) levels; and job functions do not require self-contained breathing apparatus (SCBAs). The need for Level B or Level A PPE is not anticipated for the planned remedial activities at this Site.

If any equipment fails and/or any employee experiences a failure or other alteration of their protective equipment that may affect its protective ability, that person will immediately leave the work area. The Project Manager and the SHSO will be notified and, after reviewing the situation, determine the effect of the failure on the continuation of on-going operations. If the failure affects the safety of personnel, the work site, or the surrounding environment, personnel will be evacuated until appropriate corrective actions have been taken.

4.0 CONTAMINANT CONTROL

Precautions will be taken during dry weather (e.g., wetting or covering exposed soils) to avoid generating and breathing dust-generated from soils. A PID (or equivalent equipment) will be used to monitor potential contaminant levels. Response to the monitoring will be in accordance with the action levels provided in Section 5.0.

5.0 MONITORING AND ACTION LEVELS

Concentrations of petroleum compounds in the air are expected to be below the OSHA Permissible Exposure Limits (PELs). Air monitoring will be conducted for VOCs and dust according to the NYSDOH Generic Community Air Monitoring Plan (CAMP). Monitoring will be conducted at all times that fieldwork activities which are likely to generate emissions are occurring. PID and dust readings consistently in excess of CAMP limits will be used as an indication of the need to initiate personnel monitoring, increase worker protective measures, and/or modify or cease on-site operations in order to mitigate off-site community exposure.

PID readings that consistently exceed background in the breathing zone (during any of the proposed tasks) will necessitate moving away from the source or implementing a higher PPE level.

6.0 SITE CONTROL/WORK ZONES

Site control procedures will be established to reduce the possibility of worker/visitor contact with compounds present in the soil, to protect the public in the area surrounding the Site and to limit access to the Site to only those persons required to be in the work zone. Notices will be placed near the Site warning the public not to enter fieldwork areas and directing visitors to report to the Project Manager or SHSO. Measures will be taken to limit the entry of unauthorized personnel into the specific areas of field activity and to safely direct and control all vehicular traffic in and near the Site (e.g., placement of traffic cones and warning tape).

The following Work Zone will be established:

Exclusion Zone (“Hot Zone”) - The exclusion zone will be that area immediately surrounding the work being performed for remediation purposes (i.e. the area where contaminated media are being handled). It is anticipated that much of the work will be accomplished with heavy equipment in the exclusion zone. Only individuals with appropriate PPE and training are allowed into this zone. It is the responsibility of the Site Health and Safety Officer to prevent unauthorized personnel from entering the exclusion zone. When necessary, such as in high traffic areas, the exclusion zone will be delineated with barricade tape, cones and/or barricades.

Decontamination Area - A decontamination area for personnel and equipment is not anticipated being required during completion of the RAWP; however, care will be taken to remove gloves, excess soil from boots, and soiled clothing (if necessary) before entering the Intermediate Zone.

Contamination Reduction Zone and Support Zone - Not anticipated being required during the completion of the RAWP.

Intermediate Zone (Decontamination Zone) - The intermediate zone, also known as the decontamination zone, is where patient decontamination should take place, if necessary. A degree of contamination still is found in this zone; thus, some PPE is required, although it is usually of a lesser degree than that required for the hot zone.

Command Zone - The command zone is located outside the decontamination zone. All exposed individuals and equipment from the “hot zone” and decontamination zone should be decontaminated before entering the command zone. Access to all zones must be controlled. Keeping the media and onlookers well away from the Site is critical and will be the responsibility of both the SSHO and the Project Manager, and other Site personnel as appropriate.

7.0 NOISE CONTROL

All fieldwork activities will be conducted in a manner designed to reduce unnecessary noise generation, and to minimize the potential for both on-site and off-site harmful noise levels. The Project Manager and SHSO will establish noise reduction procedures (as appropriate to the Site and the work) to meet these requirements.

8.0 PERSONNEL TRAINING

Work zones that will accomplish the general objective stated above will be established by the Project Manager and the SHSO. Site access will be monitored by the SHSO, who will maintain a log-in sheet for

personnel that will include, at the minimum, personnel on the Site, their arrival and departure times and their destination on the Site. All workers will be properly trained in accordance with OSHA requirements (29 CFR 1910). Personnel exiting the work zone(s) will be decontaminated prior to exiting the Site.

Site-specific training will be provided to each employee. Personnel will be briefed by the SHSO as to the potential hazards to be encountered. Topics will include:

- Availability of this CHASP;
- General site hazards and specific hazards in the work areas, including those attributable to known or suspected on-site contaminants;
- Selection, use, testing, and care of the body, eye, hand, and foot protection being worn, with the limitations of each;
- Decontamination procedures for personnel, their personal protective equipment, and other equipment used on the Site;
- Emergency response procedures and requirements;
- Emergency alarm systems and other forms of notification, and evacuation routes to be followed; and,
- Methods to obtain emergency assistance and medical attention.

9.0 DECONTAMINATION

The SHSO will establish a decontamination system and decontamination procedures (appropriate to the Site and the work) that will prevent potentially hazardous materials from leaving the Site. Trucks will be brushed to remove materials adhering to their surfaces. Sampling equipment will be segregated and, after decontamination, stored separately from splash protection equipment. Decontaminated or clean sampling equipment not in use will be covered with plastic and stored in a designated storage area in the work zone.

10.0 EMERGENCY RESPONSE

10.1 Notification of Site Emergencies

In the event of an emergency, the SHSO will be immediately notified of the nature and extent of the emergency (the names and contact information for key site safety and management personnel, as well as other site safety contact telephone numbers, shall be posted at the Site).

Table 1 in this CHASP contains Emergency Response Telephone Numbers, and immediately following is a map detailing the directions to the nearest hospital emergency room. This information will be maintained at the work Site by the SHSO. The location of the nearest telephone will be determined prior to the initiation of on-site activities. In addition to any permanent phone lines, a cellular phone will be in the possession of the SHSO, or an authorized designee, at all times.

10.2 Responsibilities

Prior to the initiation of on-site work activities, the SHSO will:

- Notify individuals, authorities and/or health care facilities of the potentially hazardous activities and potential wastes that may develop as a result of the remedial activities.
- Confirm that first aid supplies and a fire extinguisher are available on-site.
- Have a working knowledge of safety equipment available.
- Confirm that a map detailing the most direct route to the hospital is prominently posted with the emergency telephone numbers.

The SHSO will be responsible for directing notification, response and follow-up actions and for contacting outside response personnel (ambulance, fire department, or others). In the case of an evacuation, the SHSO will account for personnel. A log of individuals entering and leaving the Site will be kept so that everyone can be accounted for in an emergency.

Upon notification of an exposure incident, the SHSO will contact the appropriate emergency response personnel for recommended medical diagnosis and, if necessary, treatment. The SHSO will determine whether and at what levels exposure actually occurred, the cause of such exposure, and the means to prevent similar incidents from occurring.

10.3 Accidents and Injuries

In the event of an accident or injury, measures will be taken to assist those who have been injured or exposed and to protect others from hazards. If an individual is transported to a hospital or doctor, a copy of the CHASP will accompany the individual.

The SHSO will be notified and will respond according to the severity of the incident. The SHSO will perform an investigation of the incident and prepare a signed and dated report documenting the investigation. An exposure-incident report will also be completed by the SHSO and the exposed individual. The form will be filed with the employee's medical and safety records to serve as documentation of the incident and the actions taken.

10.4 Communication

No special hand signals will be utilized within the work zone. Field personnel will utilize standard hand signals during the operation of heavy equipment.

10.5 Safe Refuge

Vehicles and on-site structures will serve as the immediate place of refuge in the event of an emergency. If evacuation from the area is necessary, project vehicles will be used to transport on-site personnel to safety.

10.6 Site Security and Control

Site security and control during emergencies, accidents and incidents will be monitored by the SHSO. The SHSO is responsible for limiting access to the Site to authorized personnel and for oversight of reaction activities.

10.7 Emergency Evacuation

In case of an emergency, personnel will evacuate to the safe refuge identified by the SHSO, both for their personal safety and to prevent the hampering of response/rescue efforts.

10.8 Resuming Work

A determination that it is safe to return to work will be made by the SHSO and/or any personnel assisting in the emergency, e.g., fire department, police department, utility company, etc. No personnel will be allowed to return to the work areas until a full determination has been made by the above-identified personnel that all field activities can continue unobstructed. Such a determination will depend upon the nature of the emergency (e.g., downed power lines -- removal of all lines from the property; fire -- extinguished fire; injury -- safe transport of the injured party to a medical facility with either assurance of acceptable medical care present or completion of medical care; etc.). Before on-site work is resumed following an emergency, necessary emergency equipment will be recharged, refilled or replaced. Government agencies will be notified as appropriate. An Incident Report Form will be filed.

10.9 Fire Fighting Procedures

A fire extinguisher will be available in the work zone during on-site activities. This extinguisher is intended for small fires. When a fire cannot be controlled with the extinguisher, the area will be evacuated immediately. The SHSO will be responsible for directing notification, response and follow-up actions and for contacting ambulance and fire department personnel.

10.10 Emergency Decontamination Procedure

The extent of emergency decontamination depends on the severity of the injury or illness and the nature of the contamination. Whenever possible, minimum decontamination will consist of washing, rinsing and/or removal of contaminated outer clothing and equipment. If time does not permit decontamination, the person will be given first aid treatment and then wrapped in plastic or a blanket prior to transport.

10.11 Emergency Equipment

The following on-site equipment for safety and emergency response will be maintained in the on-site vehicle of the SHSO:

- Fire extinguisher;
- First-aid kit; and,
- Extra copy of this Health and Safety Plan.

11.0 SPECIAL PRECAUTIONS AND PROCEDURES

The activities associated with this remediation may involve potential risks of exposure to both chemical and physical hazards. The potential for chemical exposure to hazardous or regulated substances will be significantly reduced through the use of monitoring, personal protective clothing, engineering controls, and implementation of safe work practices.

11.1 Heat/Cold Stress

Training in prevention of heat/cold stress will be provided as part of the site-specific training. The timing of this project is such that heat/cold stress may pose a threat to the health and safety of personnel. Work/rest regimens will be employed, as necessary, so that personnel do not suffer adverse effects from heat/cold stress. Special clothing and appropriate diet and fluid intake regimens will be recommended to personnel to further reduce this temperature-related hazard. Rest periods will be recommended in the event of high/low temperatures and/or humidity to counter the negative effects of heat/cold stress.

11.2 Heavy Equipment

Working in the vicinity of heavy equipment is the primary safety hazard at the Site. Physical hazards in working near heavy construction equipment include the following: overhead hazards, slips/trip/falls, hand and foot injuries, moving part hazards, improper lifting/back injuries and noise. All workers will be properly trained in accordance with OSHA requirements (29 CFR 1910). No workers will be permitted within any excavated areas without proper personal protective equipment (PPE), including, as warranted, any necessary Level C equipment (e.g., respirators and protective suits). Air monitoring in excavation areas will be conducted for VOCs in accordance with Section 5.0.

11.3 Additional Safety Practices

The following are important safety precautions which will be enforced during the remedial activities:

- Medicine and alcohol can aggravate the effect of exposure to certain compounds. Controlled substances and alcoholic beverages will not be consumed during remedial activities. Consumption of prescribed drugs will only be at the discretion of a physician familiar with the person's work.
- Eating, drinking, chewing gum or tobacco, smoking, or other practices that increase the probability of hand-to-mouth transfer and ingestion of material is prohibited except in areas designated by the SHSO.
- Contact with potentially contaminated surfaces will be avoided whenever possible. Workers will not unnecessarily walk through puddles, mud or other discolored surfaces; kneel on the ground; or lean, sit, or place equipment on drums, containers, vehicles, or the ground.
- Personnel and equipment in the work areas will be minimized, consistent with effective site operations.
- Unsafe equipment left unattended will be identified by a "DANGER, DO NOT OPERATE" tag.
- Work areas for various operational activities will be established.

11.4 Daily Log Contents

The SHSO will establish a system appropriate to the Site, the work and the work zones that will record, at a minimum, the following information:

- Personnel on the Site, their arrival and departure times and their destination on the Site.
- Incidents and unusual activities that occur on the Site such as, but not limited to, accidents, spills,

breaches of security, injuries, equipment failures and weather-related problems.

- Changes to the CHASP.
- Daily information generated such as: changes to work and health and safety plans; work accomplished and the current Site status; and monitoring results.

12.0 TABLE AND FIGURES

Table 1: Emergency Contact Information

Emergency Agencies	Phone Numbers
<u>EMERGENCY</u>	911
NYC Health + Hospitals Woodhull 760 Broadway Brooklyn, NY 11206	(718) 963-8000 or 911
NYC Police Department 263 Tompkins Ave Brooklyn, NY 11216	(718) 636-6611 or 911
NYC Fire Department	911
City Hall	(212) 788-3000
Main Water and Sewer	(212) 315-2101
Site Health and Safety Officer, Paul Ciminello, ESI	(845) 452-1658
Remedial Engineer, Jolanda G. Jansen, PE	(845) 505-0324
Construction Manager	TBD



Figure 1: Directions to Hospital (approximately 10 minutes travel time)

666 Greene Ave

Brooklyn, NY 11221

- ↑ 1. Head east on Greene Ave toward Marcus Garvey Blvd/Sumner Ave 0.3 mi

- ↶ 2. Turn left at the 2nd cross street onto Lewis Ave 0.6 mi

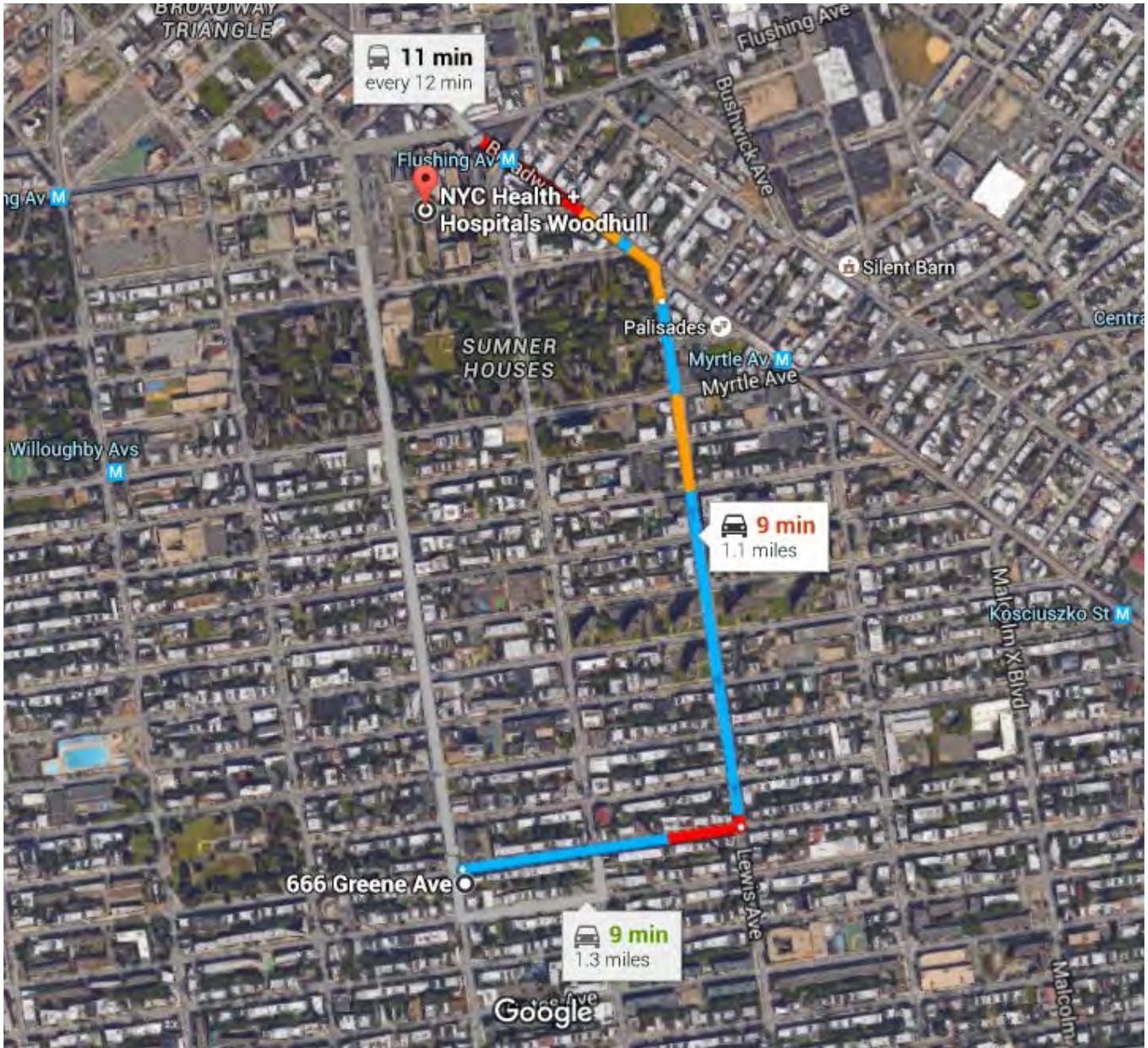
- ↶ 3. Turn left onto Broadway 0.3 mi

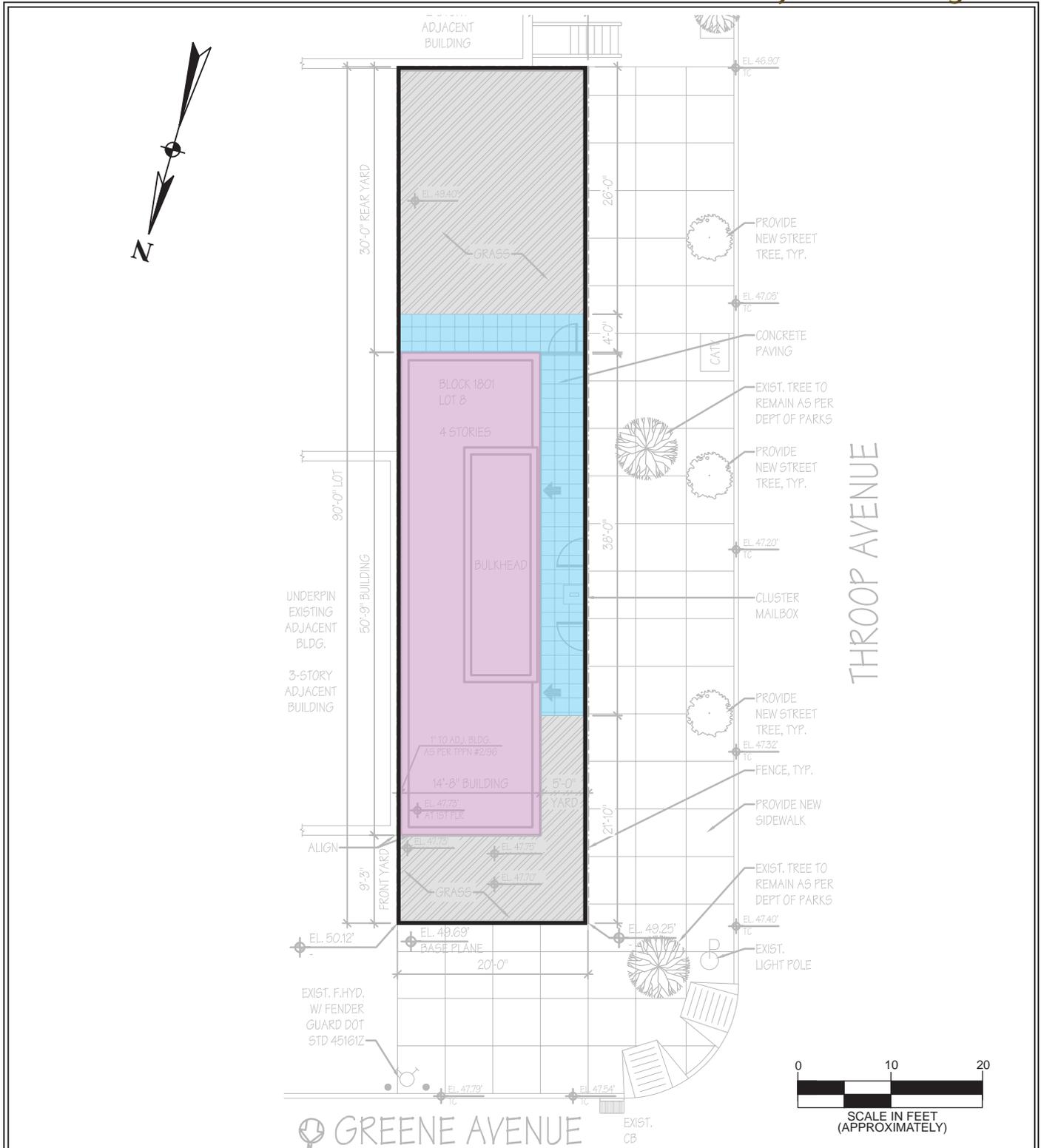
NYC Health + Hospitals Woodhull

760 Broadway, Brooklyn, NY 11206

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Figure 2: Map to Hospital (overview)





Base map provide by Curtis and Ginsberg Architects LLP - Site Plan dated October 28, 2015. All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

<p>Site Excavation Diagram</p> <p>666 Greene Avenue Borough of Brooklyn, New York</p>	<p>Legend:</p> <ul style="list-style-type: none"> subject property border excavation to 8" - 10" excavation to 2' excavation to 4' 	<p>ESI File: EB15157B.40</p>
		<p>June 2016</p>
		<p>Scale as shown</p>
		<p>Attachment</p>