

**372 LAFAYETTE STREET
(AKA 11 GREAT JONES STREET)
MANHATTAN, NEW YORK**

Remedial Action Work Plan

NYC VCP Number: 13CVCP073M

Prepared for:

Great Jones Lafayette LLC
372 Lafayette Street
Manhattan, New York

Prepared by:

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November 14, 2012

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

Re: 13CVCP073M
372 Lafayette Street
Remedial Action Work Plan (RAWP) Stipulation List Revised

Dear Mr. Chawla:

ESPL hereby submits a Remedial Action Work Plan (RAWP) Stipulation List for the subject site to the New York City Office of Environmental Remediation (NYCOER) on behalf of Great Jones Lafayette, 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

1. The criterion attached in **Addendum 1** will be utilized if 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. It is the responsibility of the project team to implement a Construction Health & Safety Plan (CHASP) in accordance with local, state, and federal laws and regulations. The CHASP is attached in **Addendum 2**.
3. Removal actions under this plan will be performed in conjunction with remedial end-point sampling. For assessment of attainment of Track 1 Unrestricted Use SCOs, the RI provided endpoint data meeting Unrestricted Use SCOs at 16-18 feet below grade across the Site. Three additional endpoint samples will be collected from the bottom of the final excavation and analyzed for the full list of VOCs, SVOCs, PCBs, Pesticides, and Metals to verify attainment of Track 1 Unrestricted Use SCOs. Endpoint sampling plan is attached as **Addendum 3**.

The following architectural and engineering plans signed and stamped by the PE/RA of record for the project are attached as **Addendum 4**: final cover slab design, excavation diagram for footings/development-related excavation, vapor barrier design, and sub-slab depressurization system design (cross-section and plan showing horizontal extent). VaporBlock Plus (20-mil thickness) vapor barrier product will be installed beneath the foundation slab and behind foundation sidewalls. Manufacturer's specifications are included in **Addendum 4**.

4. In the event that hazardous waste is identified during the remedial action or subsequent redevelopment excavation activities at this NYC VCP project, and removal and transportation of hazardous waste becomes necessary, the project may be subject to the New York State Department of Environmental Conservation's Special Assessment Tax (ECL 27-0923) and Hazardous Waste Regulatory Fees (ECL 72-00402). See DEC's website for more information: <http://www.dec.ny.gov/chemical/9099.html>.
5. A CD containing the final RAWP including this approved Stipulation List will be placed in the library that constitutes the primary public repository for project documents.
6. 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 **Addendum 5**) announcing the remedial action. The Information sheet will be laminated and permanently affixed to the placard.
7. Signed and stamped RAWP certification page is attached in **Addendum 6**.

Sincerely

Ray Kahn, P.E.

cc: H. Moore/ NYCOER/City Brownfield Cleanup Program

ADDENDUM 1

Generic Procedures for Management of Underground Storage Tanks Identified Under the NYC BCP

Addendum 1

Generic Procedures for Management of Underground Storage Tanks identified under the NYC BCP

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.

ADDENDUM 2

Construction Health & Safety Plan (CHASP)

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1.0 INTRODUCTION

This health and safety plan (HASP) describes the health and safety (HAS) guidelines developed for this site to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes. In accordance with the Occupational Safety and Health Administration (OSHA) at 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response Final Rule, this HASP addresses the potential and actual safety and health hazards relating to of each phase of site operations.

This site-specific HASP is based on the best available information to date. The HASP may be revised when new information on site conditions is received or identified.

ESPL and contractor employees may be exposed to risks from hazardous conditions related to activities at this site. ESPL's policy is to minimize the possibility of work-related injury through aware and qualified supervision, health and safety training, medical monitoring, and the use of appropriate personal protective equipment.

This site-specific Health and Safety Plan (HASP) applies to ESPL and contractor personnel where operations involve actual or potential exposure to safety or health hazards. This HASP describes emergency response procedures for actual and potential physical and chemical hazards that have been identified by ESPL. This HASP is also intended to inform and guide all personnel entering an exclusion zone. ESPL's sub-contractors are retained as independent contractors and, are responsible for ensuring the health and safety of their own employees.

ESPL may require that its personnel take certain precautions in accordance with this HASP, and ESPL requests that others protect their personnel in a manner that they deem necessary or sufficient.

1.1 Brief Description of Project

Remedial action at the site is proposed to consist of advancement of three (3) boreholes as identified in the Phase II Work Plan dated February 2012.

1.2 Site History

The subject area is situated in a Manufacturing Zoning District area of Manhattan (M1-5B). (See Appendix A, Fig. 1). The subject site is situated on the southwest corner of the intersection of Lafayette Street and Great Jones Street. According to the New York City Department of Finance, Office of the City Register Information System (ACRIS), the assessor's parcel number of the property is Block 530, Lots 13, in the Borough of Manhattan, New York.

The subject site consists of a one story building, approximately 25 by 100 feet that was used for the repair and maintenance of automobiles by Meineke Car Care Center. The lot is irregular shaped with a frontage of approximately 26 feet on Great Jones Street, approximately 35 feet in the rear of the lot and approximately 100 feet frontage on Lafayette Street. The subject site is currently vacant.

ESPL Environmental Consultants Corp. (ESPL) reviewed the Phase I Environmental Site Assessment (ESA) and the Phase II Limited Subsurface Site Assessment prepared by Land America Commercial Services (LAC) for the subject site.

A review of the Sanborn Maps, dated 1921 and 1950, indicated that the subject site, 11 Great Jones Street had been used as a gasoline station. The 1921 Sanborn Map indicated that two 550 gallon underground storage tanks (UST) were located on the southern portion of the subject site. The subject site was used as a car wash from 1969 through 1998 and from 1991 through 1996 as an automobile repair facility.

1.3 Synopsis of Remedial Actions

A contractor shall be retained to perform advancement of three (3) boreholes to obtaining soil and groundwater samples by this technique.

1.4 Site Operations to be performed

Geoprobe boring installation for soil and groundwater sampling.

2.0 ORGANIZATIONAL STRUCTURE

Principal in Charge: Ray Kahn (917-939-736 6)

Project Supervisor / Overall Project Manager: Margaret Tavares (646-772-8820)

Site Safety and Health Officer: Margaret Tavares , (646-772-8820)

Additional Site Personnel: Mir Fazlul Karim

<u>Title</u>	<u>Name</u>
Project Manager	Ray Kahn, P. E.
Field Supervisor	Margaret Tavares
Health and Safety Officer	Margaret Tavares, Mir Fazlul Karim
Administration / Clerical	Grace Cuevas
Chemical Analysis	By a New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP) certified laboratory

2.1 Roles and Responsibilities

The ESPL Project Supervisor is responsible for overall project administration and for supervising implementation of the HASP by ESPL personnel on site. All applicable OSHA health and safety (HAS) standards shall be applied. Each subcontractor (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute with regard to HAS or project activities, on-site personnel shall attempt to resolve the issue. If the issue cannot be resolved, in the work zone, then the project superintendent shall be consulted.

The ESPL Site Safety Officer is also responsible for coordinating HAS standards on-site. The Site Safety Officer will have met the emergency response and hazardous materials handling training requirements of OSHA 29 CFR Part 1910.120, completed supervisors training, and have appropriate experience pertinent to the on-site work. The Site Safety Officer is authorized to suspend site work based on safety concerns, and is responsible for:

1. Indoctrinating personnel with regard to all of the information in this HASP and any other safety requirements to be observed during site operations, including, but not limited to, decontamination procedures, designation of work zones and levels of protection, air monitoring, fit testing, and emergency procedures dealing with fire and medical situations;
2. Coordinating site safety decisions with the Project Supervisor and the Principal in Charge;
3. Maintaining the designation of exclusion, decontamination, and support zones on a daily basis;
4. Monitoring the condition and status of known on-site hazards, and maintenance and implementation of the air quality-monitoring program specified in this HASP;
5. Maintaining the Site Personnel log;
6. Maintaining records of safety problems encountered, corrective actions taken, and documentation of any chemical exposures or physical injuries. The Site Safety Officer will document these conditions in a bound notebook and maintain a copy of this log on-site; and
7. Periodic inspections of the site to determine the effectiveness of the HASP.

Any person who observes safety concerns or potential hazards that have not

been addressed in the daily safety meetings should immediately report observations/concerns to the ESPL Site Safety Officer or other appropriate key personnel.

3.0 HAZARD ASSESSMENT

This section identifies the activity-specific hazards associated with site operations and standard operating procedures (SOPs) that should be implemented to reduce the hazards; identifies general physical hazards that can be expected at most sites; and presents a summary of documented or potential chemical hazards at the site. Every effort must be made to reduce or eliminate these hazards. Those that cannot be eliminated must be guarded against by using engineering controls and/or personal protective equipment.

3.1 Activity-Specific Hazards and Standard Operating Procedures

In-situ Remediation:

Geoprobe borings.

Identification of the Hazards associated with each task:

Geoprobe Borings

Drilling operations may expose workers to rotating equipment, heavy moving objects and overhead hazards. Booms and derricks shall not be raised unless the area is clear of overhead hazards such as tree limbs and electrical power lines. Underground utilities may pose a hazard if encountered during drilling.

Mechanical System Construction:

Mechanical system construction will include piping and electrical construction that involves the use of standard tools and electrical equipment such as hammers, saws, power cutting tools, drills and other equipment. These types of tools shall be used in accordance with manufactures recommendations for specific hazards posed by each.

System Operation:

The operation of a system in a petroleum-contaminated site may require field visits and well monitoring operations such as depth to water measurements, depth to product measurements, air, soil and groundwater sample collection. The hazard associated with this task is the possible worker exposure to gasoline in liquid and vapor forms.

Required Hazard Controls or SOP:

1. Use tools in accordance with manufactures specifications.
2. Use ground fault circuit interrupters for all electrical work.
3. Avoid wearing loose clothing around rotating machinery associated with well drilling equipment.

4. Use OSHA compliant personal protective equipment.
5. Hand digging and site mark outs shall be performed prior to commencement of drilling operations to avoid underground utilities. Overhead inspections shall be performed prior to raising drill rig derricks and booms.

3.2 General Site Hazards

Applicable OSHA 29 CFR 1910.120(m) standards for illumination shall apply. Generally, all work at this site will be conducted during daylight hours. All electrical power must be connected to a ground fault circuit interrupter. All equipment that will enter excavations must be suitable and approved (i.e. intrinsically safe) for use in potentially explosive environments. Applicable OSHA 29 CFR 1926 Subpart K standards for use of electricity shall apply.

Work in which a worker could fall will be performed using appropriate ladders and/or protection (e.g. body harness and lifeline). All work at this site is expected to be conducted at the ground surface.

When the temperature is above 70°F and personnel are wearing protective clothing, a heat stress-monitoring program shall be implemented. Employees shall be allowed break periods and beverages as necessary. All personnel routinely working on site (including the support zone) shall be familiar with the symptoms, signs, and emergency care associated with heat stress, heat exhaustion, and heat stroke as discussed in Section 6 of this HASP.

Cold stress is a result of cold, wetness, and wind. A worker's susceptibility to cold stress can vary according to his/her physical fitness, degree of acclimatization to cold weather, age, and diet. A cold stress-monitoring program shall be implemented as appropriate. Employees shall have access to break periods, shelter, and beverages as necessary. All personnel routinely working on-site (including the support zone) shall be familiar with the symptoms, signs, and emergency care associated with cold stress, hypothermia, and frostbite as discussed in Section 6 of this HASP.

In accordance with 29 CFR 1910.151(c), all site related operations involving possible eye injury, (chemical splash, etc.), must have approved eye wash units readily available (in the Site Safety Officer's vehicle and in the job trailer). Protective eyewear shall be donned in Level D, when directed by the site safety officer. (The full-face APR required by Level C and the pressure demand self-contained breathing apparatus mask required by Level B serve as eye protection.)

Operations creating the potential for fire hazards shall be conducted in a manner that minimizes risk. Non-sparking tools and fire extinguishers shall be used or available as directed by the site safety officer when potentially

explosive atmospheres may be encountered. Ignition sources shall be removed from work areas. When necessary, explosion-proof instruments and/or bonding and grounding will be used to prevent fire or explosion.

Overhead and underground utilities shall be identified and/or inspected and appropriate safety precautions taken before conducting operations involving potential contact or interference.

3.3 Biological Hazards

Biological hazards can cause infection or disease in people, plants, animals, or microorganisms. These hazards are divided in to five categories: viral, rickettsial/chlamydia, bacterial, fungal, and parasitic.

Biological agents may be dispersed by wind or water. Many biological agents require a carrier (e.g. bees, ticks, snakes) to infect a host; therefore, controlling the agent may require controlling or avoiding the carrier. Contact with some biological agents may be avoided by using personal protective equipment similar to that used for chemical hazards.

4.0 TRAINING REQUIREMENTS

All personnel entering an exclusion zone or decontamination zone must have met training requirements for hazardous waste site operations and emergency response operations in accordance with OSHA 29 CFR 1910.120(e).

Documentation of personnel training is maintained on file, and each employee will have copies of his/her applicable 40-Hour OSHA Training, 8-Hour Refresher Training, and Supervisor Training certificates on-site (located in job trailer files). A summary of personnel training status and HAS training records is shown in Table 1-1. Each subcontractor working on the job must provide the site safety officer with training documentation for its personnel.

Notes:

- (1) Physicals will be completed before site work begins.
- (2) An 8-hour refresher course including respirator fit testing will be conducted before site work begins.
- (3) Union employees working in the exclusion zone will have 40-hours training. Additional workers, who meet all requirements specified in this plan, will be supplied by the local unions as needed.

5.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program and hazard assessment, OSHA 29 CFR 1910.120(.c) and (g), and 1910.132. Protective equipment shall be NIOSH-approved and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136.

The level of personnel protection for site activities described in the hazard assessment is as follows:

<u>Location</u>	<u>Job Function</u>	<u>Level of Protection</u>			
Exclusion Zone	D	A	B	C	D
	_____	A	B	C	D
	_____	A	B	C	D
	_____	A	B	C	D
Decontamination Zone	D	A	B	C	D
	_____	A	B	C	D
	_____	A	B	C	D
	_____	A	B	C	D

Specific protective equipment for each level of protection is as follows:

Level A	_____	Level B	_____
	_____		_____
	_____		_____
Level C	_____	Level D	<u>Hardhat and safety boots</u>
	_____		_____
	_____		_____
	_____		_____

List type of air-purifying canister to be used if required. _____

Other PPE not listed above:

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER.

A description of typical PPE for each protection level is as follows:

5.1 Level A Protection

1. PPE:

Supplied-air respirator approved by the Mine Safety and health Administration (MSHA) and NIOSH. Respirators may be:

- Positive-pressure SCBA; or
 - Positive-pressure airline respirator (with escape bottle for immediately Dangerous to Life and Health (IDLH) or potential for IDLH atmosphere).
- b. Fully encapsulating chemical-resistant suit.
 - c. Coveralls.
 - d. Cotton long underwear*.
 - e. Gloves (inner), chemical-resistant.
 - f. Boots, chemical-resistant, steel toe and shank. (Depending on suit construction, worn over or under suit boot.
 - g. Hard hat (under suit)*.
 - h. Disposable gloves and boot covers (worn over fully encapsulating suit).
 - i. Cooling unit *.
 - j. Two-way radio communications (inherently safe)*.

*Optional

2. Criteria for Selection:

Meeting any of these criteria warrants use of Level A protection:

- a. The chemical substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on:
 - Measures (or potential for) high concentration or atmospheric vapors, gases, or particulate, or
 - Site operations and work functions involve high potential for splash, immersion, or exposure to unexpected vapors, gases, or

particles of materials highly toxic to the skin.

- b. Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible.
- c. Operations must be conducted in confined, poorly ventilated areas until the absences of substances requiring Level A protection is determined.
- d. Direct readings on field Flame Ionization Detectors (FID) or photoionization Detectors (PID) and similar instruments indicate high levels of unidentified vapors and gases in the air.

3. Guidance on Selection

- a. Fully encapsulating suits are primarily designed to provide gas or vapor-tight barrier between the wearer and atmospheric conditions.

Therefore Level A is generally worn when high concentrations of airborne substances could severely affect the skin. Since Level A required the use of SCBA, the eyes and respiratory system are also more protected.

Until air surveillance data become available to assist in the selection of the appropriate level of protection, the use of Level A may have to be based on indirect evidence of the potential for atmospheric contamination or other means of skin contact with severe skin affecting substances.

Conditions that may require Level A protection include:

- Confined spaces: Enclosed, confined, or poorly ventilated areas are conducive to the build up of toxic vapors, gases, or particles. (Explosive or oxygen-deficient atmospheres are also more probable in confined spaces). Confined-space entry does not automatically warrant wearing Level A protection, but should serve as a cue to carefully consider and to justify a lower level of protection.
- Suspected / known highly toxic substances: Various substances that are highly toxic, especially skin absorption, for example, fuming corrosives, cyanide compounds, concentrated pesticides, Department of Transportation Poison "A" materials suspected carcinogens, and infectious may be known or suspected to be involved. Field instruments may not be available to detect or quantify air concentrations of these materials. Until these substances are identified and concentrations measured maximum protection may be necessary.
- Visible emissions: Visible air emissions from leaking containers or railroad / vehicular tank cars, as well smoke from chemical fires and

others indicate high potential for concentrations or substances that could be extreme respiratory or skin hazards.

- Job functions: Initial site entries are generally walk-through, in which instruments and visual observations are used to make a preliminary evaluation of the hazards.

In initial site entries, Level A should be worn when:

- There is a probability for exposure to high concentrations of vapors, gases, or particulates; and
- Substances are known or suspected of being extremely toxic directly to the skin or by being absorbed.

Subsequent entries are to conduct the many activities needed to reduce the environmental impact of the incident. Levels of protection for later operations are based not only on data obtained from the initial and subsequent environmental monitoring, but also on the probability of contamination and ease of decontamination.

Examples of situations where Level A has been worn are:

- Excavating of soil to sample buried drums suspected of containing high concentrations of dioxin;
- Entering a cloud of chlorine to repair a valve broken in a railroad accident;
- Handling and removing drums known to contain petroleum; and
- Responding to accidents involving cyanide, arsenic, and undiluted pesticides.

The fully encapsulating suit provides the highest degree of protection to skin, eyes, and respiratory system if the suit material resists chemicals during the time the suit is worn. While Level A provides maximum protection, all suit material may be rapidly permeated and degraded by certain chemicals from extremely high air concentrations, splashes, or an immersion of boots or gloves in concentrated liquids or sludges. These limitations should be recognized when specifying the type of fully encapsulating suit. Whenever possible, the suit material should be matched with the substance it is used to protect against.

5.2 Level B Protection

1. PPE:

- a. Positive-pressure SCBA (MSHA\NIOSH approved); or
- b. Positive-pressure air line respirator (with escape bottle for IDLH

potential for IDLH atmosphere) MSHA/NIOSH approved;

- c. Chemical resistant clothing (overalls and long-sleeved jacket; coveralls or hooded one-or two-piece chemical splash suit; disposable chemical-resistant, one-piece suits);
- d. Cotton long underwear*;
- e. Coveralls;
- f. Gloves (outer), chemical-resistant;
- g. Gloves (inner), chemical-resistant;
- h. Boots (inner), leather work shoe with steel toe and shank;
- i. Boots (outer), chemical-resistant, (disposable);
- j. Hard hat (face shield*);
- k. 2-way radio communication*; and
- l. Taping between suit and gloves; and suit and boots.

* Optional

2. Criteria for Selection

Any one of the following conditions warrants use of Level B Protection:

- a. The type and atmospheric concentration of toxic substances have been identified and require a high level of respiratory protection, but less skin protection than Level A. These atmospheres would be:
 - Have IDLH concentrations; or
 - Exceed limits of protection afforded by an air-purifying mask; or
 - Contain substances requiring air-supplied equipment, but substances and/or concentrations do not represent a serious skin hazard.
- b. The atmosphere contains less than 19.5% oxygen.
- c. Site operations make it highly unlikely that the work being done will generate high concentrations of vapors, gases or particulates, or

splashes of material that will affect the skin of personnel wearing Level B protection.

- d. Working in confined spaces.
- e. Total atmospheric concentrations, sustained in the breathing zone, of unidentified vapors or gases range from 5 ppm above background to 500 ppm above background as measured by direct reading instruments such as the ID or PID or similar instruments, but vapors and gases are not suspected of containing high levels of chemicals toxic to skin

3. Guidance on Selection Criteria:

Level B equipment provides a reasonable degree of protection against splashes and to lower air concentrations, but a somewhat lower level of protection to skin than Level A. The chemical-resistant clothing required in Level B is available in a wide variety of styles, materials, construction detail, permeability, etc. Taping joints between the gloves, boot and suit, and between the hood and respirator reduces the possibility for splash and vapor or gas penetration. These factors all affect the degree of protection afforded. Therefore the Safety Officer should select the most effective chemical-resistant clothing based on the known or anticipated hazards and/or job function.

Level B does provide a high level of protection to the respiratory tract. Generally, if SCBA is required, Level B clothing rather than a fully encapsulating suit (Level A) is selected based on needing less protection against known or anticipated substances affecting the skin. Level B skin protection is selected by:

- a. Comparing the concentrations of known or identified substances in air with skin toxicity data.
- b. Determining the presence of substances that are destructive to or readily absorbed through the skin by liquid splashes, unexpected high levels of gases, vapor or particulates, or other means of direct contact; and
- c. Assessing the effect of the substance (at its measure air concentrations or splash potential) on the small area of the head and neck left unprotected by chemical-resistant clothing.

For initial site entry at an open site, Level B protection should protect site personnel, providing the conditions described in selecting Level A are known or judged to be absent.

5.3 Level C Protection

1. PPE

- a. Full-face, air purifying, cartridge- or canister-equipped respirator (MSHA/NIOSH approved) with cartridges appropriate for the respiratory hazards;
- b. Chemical-resistant clothing (coveralls, hooded, one-or two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls;
- c. Coveralls;
- d. Cotton long underwear*;
- e. Gloves (outer), chemical resistant;
- f. Gloves (inner), chemical-resistant
- g. Boots (inner), leather work shoes with steel toes and shank;
- h. Boots (outer), chemical-resistant (disposable)*;
- i. Hard hat (face shield)*;
- j. Escape SCBA of at least 5 minute duration;
- k. 2-way radio communications (inherently safe)*; and
- l. Taping between suit and boots, and suit and gloves.

* Optional

2. Criteria for Selection

Meeting all of these criteria permits use of Level C protection:

- a. Measured air concentrations of Identified substances will be reduced by the respirator to, at, or below the substance's Threshold Limit Value (TLV) or appropriate occupational exposure limit and the concentration is within the service limit of the canister.
- b. Atmospheric contaminate concentrations do not exceed IDLH levels.
- c. Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of the skin left unprotected by chemical-resistant clothing.

- d. Job functions do not require SCBA;
- e. Total readings register between background and 5 ppm above background as measured by instruments such as the FID or PID.
- f. Oxygen concentration is not less than 19.5% by volume.
- g. Air will be monitored continuously.

3. Guidance on Selection Criteria

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing air-purifying devices. The air-purifying device must be a full-face mask (MSHA/NIOSH approved) equipped with a cartridge suspended from the chin or on a harness. Cartridges must be able to remove the substances encountered.

A full-face air purifying mask can be used only if:

- a. Oxygen content of the atmosphere is at least 19.5% by volume;
- b. Substance(s) is identified and its concentration(s) measured;
- c. Substance(s) has adequate warning properties;
- d. Individual passes a qualitative fit-test for the mask; and
- e. Appropriate cartridge is used, and its service limits concentration is not exceeded.

An air-monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators (Level C). Continual surveillance using direct reading instruments and air sampling is needed to detect any changes in air quality necessitating a higher level of respiratory protection. Total unidentified vapor/gas concentrations exceeding 5 ppm above background required Level B.

5.4 Level D Protection

1. PPE

- a. Coveralls, chemical-resistant;
- b. Gloves (outer), chemical resistant;
- c. Gloves (inner), chemical-resistant*;
- d. Boots (inner), leather work shoes with steel toes and shank;
- e. Boots (outer), chemical-resistant (disposable)*;
- f. Hard hat;
- g. Face shield*;
- h. Safety glasses with side shields or chemical splash goggles*; and
- i. Taping between suit and boots, and suit and gloves.

* Optional

2. Criteria for Selection

- a. No atmospheric contamination is present.
- b. Direct reading instruments do not indicate any readings above background.
- c. Job functions have been determined not to require respirator protection.

3. Guidance on Selection Criteria

Level C protection is distinguished from Level D protection in the requirement for respiratory protection. Level D is used for non-intrusive activities or intrusive activities with continuous air monitoring. It can be worn only in areas where there is no possibility of contact with contamination.

6.0 TEMPERATURE EXTREMES

6.1 Heat Stress

Site personnel who wear protective clothing allow body heat to be accumulated with an elevation of the body temperature. Heat cramps, heat exhaustion, and heat stroke can be experienced, which, if not remedied, can threaten life or health. Therefore an American Red Cross Standard First Aid book or equivalent will be maintained on site at all time so that the SO and site personnel will be able to recognize symptoms of heat emergencies and be capable of controlling the problem. When protective clothing is worn, especially Levels A and B, the suggested guidelines for ambient temperature and maximum wearing time per excursion are:

Ambient Temperature (F)	Max. Wearing Time per Excursion (min)
Above 90	15
85 to 90	30
80 to 85	60
70 to 80	90
60 to 70	120
50 to 60	180

One method of measuring the effectiveness of employees' rest-recovery regime is by monitoring the heart rate. The Brouha guideline is one such method.

- During a three minute period, count the pulse rate for at least 30 seconds of the first minute, the last 30 seconds of the second minute, and the last 30 seconds of the third minute.
- Double the count.

If the recover pulse rate during the last thirty seconds of the first minute is at 110 beats/minute or less and the deceleration between the first, second, and third minutes is at least 10 beats/minute, the work-recovery regime is acceptable. If the employee's rate is above that specified, a longer rest period is required, accompanied by an increased intake of fluids.

In the case of heat cramps or heat exhaustion, "pediolite" or its equivalent is suggested as part of the treatment regime. The reason for this type of liquid refreshment is that such beverages will return much needed electrolytes to the system. Without these electrolytes, body systems cannot function properly, thereby increasing the represented health hazard. Also in the more extreme instances, inundation with cool water is recommended to lower the

body temperature as rapidly as possible.

This liquid refreshment will be stored in a cooler at the edge of the decontamination zone in plastic squeeze bottles. The plastic bottle will be marked with the individual's names. Disposable cups with lids and straws may be used in place of the squeeze bottles. Prior to drinking within the decontamination zone, the project personnel shall follow the following decontamination procedures:

- A. Personnel shall wash and rinse their outer gloves and remove them.
- B. Personnel shall remove their hard hats and respirators and place on table.
- C. Personnel shall remove their inner gloves and place them on table.
- D. Personnel shall wash and rinse their face and hands.
- E. Personnel shall carefully remove their personal bottle or cup from the cooler to ensure that their outer clothes do not touch any bottle, cups, etc.
- F. The used bottle or cups will not be returned to the cooler, but will be placed in a receptacle or container to be cleaned or disposed of.
- G. Personnel shall replace their respirators, hard hats gloves and tape gloves prior to re-entering the hazardous zone.

When personnel are working in situations where the ambient temperatures and humidity are high—and especially in situations where protection Levels A, B, and C are required the must:

- Assure that all employees drink plenty of fluids ("Pediolite or its equivalent);
- Assure that frequent breaks are scheduled so overheating does not occur; and,
- Revise work schedules, when necessary, to take advantage of the cooler parts of the day (i.e., 5:00 a.m. to 1:00 p.m., and 6:00 p.m. to nightfall).

6.2 Cold Stress

Whole-body protection shall be provided to all site personnel that have prolonged exposure to cold air. The right kind of protective clothing shall be provided to site personnel to prevent cold stress. The following dry clothing

shall be provided by the Contractor as deemed necessary by the SO:

- Appropriate underclothing (wool or other);
- Outer coats that repel wind and moisture;
- Face, head, and ear coverings;
- Extra pair of socks;
- Insulated safety boots; and
- Glove liners (wool) or wind-and water repellent gloves.

The SO will use the equivalent chill temperature when determining the combined cooling effect of wind and low temperatures on exposed skin or when determining clothing insulation requirements.

Site personnel working continuously in the cold are required to warm themselves on a regular basis. Warm, sweet drinks will also be provided to site personnel to prevent dehydration. The SO will follow the work practices and recommendations for cold stress threshold limit values as stated by the 1991-1992 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices by the American Conference of Governmental Industrial Hygienists or equivalent cold stress prevention methods.

7.0 MEDICAL MONITORING REQUIREMENTS

All personnel and visitors entering an exclusion zone or decontamination zone must have completed appropriate medical monitoring requirements required under OSHA 29 CFR 1910.120(f). Medical monitoring enables a physician to monitor each employee's health and physical condition, fitness to wear respiratory protective equipment, and fitness to carry out on-site tasks.

If there are additional medical monitoring requirements for a site, evidence of compliance must be included. Documentation of ESPL personnel medical monitoring is maintained on file and summarized in Table 1-1. Subcontractors working on the job must provide the site safety officer with documentation on their medical monitoring programs.

7.1 Fit-Testing Requirements

All personnel and visitors entering an exclusion zone or decontamination zone using a negative pressure air purifying respirator (APR) must have successfully passed a qualitative respirator fit-test in accordance with OSHA 29 CFR 1910.134 or the American National Standards Institute.

Documenting fit-testing is the responsibility of each subcontractor. Documentation of ESPL personnel fit-testing is maintained on file and summarized in Table 1-1.

8.0 AIR MONITORING

According to 29 CFR 1910.120(h) air shall be monitored to identify and quantify levels of airborne hazardous substances and health hazards, and to determine the appropriate level of worker protection.

Air may be monitored for oxygen content, explosive levels (LEL), quantitative and qualitative toxic gas levels. Portable gas monitors will be used based on the hazard assessment. This section describes the type, purpose and method of air monitoring to be used on site.

8.1 Routine Air Monitoring Requirements

Type of Air Monitor to be used
MSA Four GAS Meter

Purpose
To monitor oxygen content, explosive levels (LEL), quantitative and qualitative toxic gas levels.

Method (continuous or periodic)
Continuous

Method of Maintenance and Calibration
Annual Calibration by Manufacture

Maintenance and Calibration Log
Date of Last Maintenance

Date of Last Calibration

Air will be monitored when any of the following conditions apply within the exclusion zone:

- Initial site entry;
- A potential IDLH condition or flammable atmosphere has developed;
- Work begins on another portion of the site;
- Contaminants, other than those previously identified, have been discovered;
- Each time a different task or activity is initiated; or
- During trenching and/or excavation work.

All air monitoring data will be documented in a site log book by the Site Safety Officer. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications.

Below are guidelines for actions to be taken based on routine air monitoring within the exclusion zone if the hazard assessment warrants. These are:

Oxygen readings between 19.5% and 25%: continue.
Oxygen readings <19.5%: SCBA required, CGI not reliable.
Oxygen readings >25%: exit.
CGI readings of <10% LEL: continue
CGI readings of 10 to 20% LEL: proceed with caution
CGI readings >20% LEL: exit.

OVA/Microtip readings for VOCs sustained between background and 5 ppm over site specific background in breathing zone:

Continue OVA/Microtip readings for VOCs sustained between 5 and 10 ppm over site-specific background in breathing zone: Level C PPE. (See Note)

OVA/Microtip readings for VOCs >10 ppm over site-specific background in breathing zone: Level B PPE.

Note: To ensure readings are not generated by methane, screen vapors with a PID. If the PID reading is less than 5 ppm continue work (assume vapors are methane). If PID readings are over 5 ppm allow the work zone to vent. If PID and OVA reading continue to persist over 5 ppm screen the area with compound specific detector tubes for vinyl chloride and benzene. If these compounds are not present then level C can be worn.

9.0 SITE CONTROL AND STANDARD OPERATING PROCEDURES

9.1 Work Zones

The primary purpose for site controls is to establish the perimeter of a hazardous area, to reduce migration of contaminants into clean areas, and to prevent access or exposure to hazardous materials by unauthorized persons. The Project Superintendent shall designate an exclusion zone, a decontamination zone, and a support zone. These zones will float (move around the site) depending on the tasks being performed on any given day. The Site Safety Officer will outline these locations during the daily site safety meetings. This information shall be recorded by the Site Safety Officer in the site log.

Tasks requiring the OSHA 40-hour Hazardous Waste Operations and Emergency Response Operations training are carried out in the exclusion zone. The exclusion zone will be defined by the Site Safety Officer but will typically be a 50-foot area around work activities.

Protective equipment shall be removed within the decontamination zone. Disposable protective equipment shall be stored in receptacles staged in the decontamination zone, and non-disposable equipment will be decontaminated according to the procedures outlined in Section 10.0. All personnel and equipment will exit the exclusion zone through the decontamination zone. If, during certain steps of the work, a decontamination trailer is provided, first aid equipment, an eye wash unit, and drinking water shall be kept in the decontamination trailer.

The support zone will be used for the office trailers, for vehicle parking, daily safety meetings, and supply storage. Eating, drinking, and smoking are permitted only in the support zone. When a decontamination trailer is not provided, the eye wash unit, first aid equipment, and drinking water shall be kept at the command post. Gross decontamination (as determined by the site Health and Safety Officer) will be conducted in the exclusion zone, all other decontamination will be performed in the decontamination trailer. This HASP, HASP attachments, a site map indicating the three work zones, and a telephone will be kept in a designated office trailer. An eyewash and fire extinguisher shall be kept in the decontamination trailer or the command post.

9.2 General Field Safety and Standard Operating Procedures

ESPL's policy is to control hazards for all site areas by limiting entrance to exclusion zones to essential personnel, and by implementing the following:

- Non-essential (as judged by the Site Safety Officer) personnel and unauthorized persons will not enter the exclusion or decontamination zone.

- Before entering the exclusion or decontamination zones, all personnel must be familiar with emergency response procedures (Section 11.0), site safety locations, first aid and communication equipment, and the locations of the map to the hospital and the list of emergency telephone numbers.
- Before entering the exclusion or decontamination zones, all personnel must be familiar with emergency response procedures (Section 11.0), site safety locations, first aid and communication equipment, and the locations of the map to the hospital and the list of emergency telephone numbers.
- The buddy system will be used at all times by field personnel in the exclusion zone; no one is to perform work within the exclusion zone alone. When in Level D or C, visual contact or radio contact shall be maintained at all times. In Level A or B, visual contact shall be maintained at all times, and radio contact shall be maintained with the decontamination and/or support zone.
- Contact with contaminated and potentially contaminated surfaces should be avoided. Walk around (not through) puddles and discolored surfaces. Do not kneel on the ground or set equipment on the ground. Protect equipment from contamination.
- All personnel exiting the exclusion zone must exercise the decontamination procedures described in Section 11.0 of this HASP.
- Beards or other facial hair that interferes with respirator fit will preclude admission to the exclusion zone. Contact lenses shall not be worn in the exclusion or decontamination zones, or if the worker may be expected to enter these zones under routine or emergency situations.
- Eating, drinking, or smoking is permitted only in designated areas in the support zone.
- Each worker must be supplied with and maintain his/her own personal protective equipment.

Note: These policies will be enforced by the ESPL Site Safety Officer with the delegated power of the Principal in Charge.

10.0 DECONTAMINATION PROCEDURES

The standard level D decontamination protocol shall be used in the decontamination zone.

All equipment and PPE exiting the exclusion zone must be decontaminated or properly discarded upon exit. All personnel must enter and exit the exclusion zone through the decontamination area. Due to the nature of the site work, the exclusion and decontamination zones may change. Plastic bags containing personal protective clothing and equipment will be placed in designated receptacles.

All boots and other potentially contaminated garments that have come in contact with the MSW will be cleaned in wash tubs with detergent/water solution and rinsed with water and must remain on site at all times. The wash water, rinse water, and residues will be collected and properly stored until sampling results are received and the final method of disposal can be determined. Disposable PPE, including spent respirator cartridges and canisters, will be properly bagged and disposed of. All contaminated boots, clothing, and equipment (e.g. leather boots, equipment carrying straps) that cannot be decontaminated will be disposed of with the disposable garments or left on site in the decontamination trailer.

Heavy equipment will be decontaminated on a pad constructed of concrete or plastic sheeting that will allow water and residues to be collected in a trench. The decontamination water and residues will be drummed, sealed, and properly stored on-site to await proper disposal. The pad will serve a dual purpose, for decontamination, and to stop equipment leaving the site from tracking materials off site.

The **minimum** measures for Level B doffing and decontamination are:

- Deposit equipment used on site on plastic drop cloths;
- Scrub outer boots and gloves with a water and detergent solution and rinse off;
- Remove outer boots and outer gloves. Discard disposable outer garments in receptacle provided;
- Remove SCBA and face piece and place on rack provided;
- Remove tyvek/outer garment and place in receptacle provided;
- Remove inner gloves and deposit in receptacle provided; and
- Shower/wash face and hands.

The **minimum** measures for Level C doffing and decontamination are:

- Deposit equipment used on site on plastic drop cloths;
- Scrub outer boots and gloves (if worn) with a water and detergent solution and rinse off;
- Remove outer boots and outer gloves. Discard disposable outer garments in receptacle provided;
- Remove tyvek/outer garment and place in receptacle provided;
- Remove first pair of inner gloves;
- Remove respirator (using "clean" inner gloves) and place on rack provided;
- Remove last pair of inner gloves and deposit in receptacle provided; and,
- Shower/wash face and hands

The second to last item to be removed should be the APR, and the last item to be removed should be the last of several pairs of surgical gloves. Wearing several pairs of inner gloves permits layers to be removed as needed during various stages of the doffing procedure, and if the APR inadvertently becomes contaminated, inner gloves guard against bare hands contacting the APR.

11.0 CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN

Site personnel must be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

Emergency telephone numbers and a map to the hospital will be posted in the command post. Site personnel should be familiar with the emergency procedures, and the locations of site safety, first aid, and communication equipment.

11.1 Emergency Equipment On-Site / Site Communications

Type	Location
Private Telephones:	Site personnel
Two-Way Radios:	Site personnel, if required
Emergency Alarms	On-site vehicle horns
First Aid Kits:	On-site
Fire Extinguisher:	On-site
*Horns: Air horns will be supplied to personnel at the discretion of the Project Superintendent or Site Safety Officer.	

11.2 Emergency Telephone Numbers and Hospital Information

Police	911
Fire and Ambulance	911
Local Hospital(Beth Israel Medical Center)	(212) 420-2000
Local Health Department	(212) 865-1951
NYS Health Department	(518) 458-6309
National Response Center	(800) 424-8802
Poison Control	(800) 282-3171
Chemical Emergency Advice	(800) 424-9300
NYSDEC	(718) 482-4634
ESPL Environmental	(212) 330-7501

11.3 Personnel Responsibilities During an Emergency

The **Project Superintendent** is primarily responsible for responding to and correcting emergency situations. However, in the absence of the Project Superintendent, the **Safety Officer** shall act as the Project Superintendent's on-site designee, and perform the following tasks:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, total evacuation and securing of the site, or upgrading or downgrading the level of protective clothing and respiratory protection;
- Ensure that appropriate federal, state, and local agencies are informed, and emergency response plans are coordinated; In the event of fire or explosion, the local fire department should be summoned immediately. If toxic materials are released to the air, the local authorities should be informed in order to assess the need for evacuation;
- Ensure appropriate decontamination, treatment, or testing for exposed or injured personnel;
- Determine the cause of the incident and make recommendations to prevent recurrence; and,
- Ensure that all required reports have been prepared.

The emergency coordinators for this work are:

Project Superintendent	-	<u>Margaret Tavares (646-772-8820)</u>
Site Safety Officer	-	<u>Margaret Tavares (646-772-8820)</u>

11.4 Medical Emergencies

Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. First aid should be administered while awaiting an ambulance or paramedics.

11.5 Fire or Explosion

In the event of a fire or explosion, the local fire department should be summoned immediately. The Project Superintendent or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site. If it is safe to do so, site personnel may:

- Use fire fighting equipment available on site; or,
- Remove or isolate flammable or other hazardous materials that may contribute to the fire.

11.6 Evacuation Routes

Evacuation routes established by work area locations for this site will be highlighted on a site map and periodically reviewed during the daily safety meetings. As the work areas change, the evacuation route and map will be altered accordingly, and the new route will be reviewed during the daily safety meetings.

Under extreme emergency conditions, evacuation should be conducted immediately, without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/or by verbal/radio communication. When evacuating the site, personnel shall follow these instructions:

- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation through the decontamination corridor is not possible, site personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.
- The Project Superintendent or Site Safety Officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/or exclusion zone

entry/exit log.

- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

11.7 Spill Control Procedures

In the event of a leak or a release, site personnel will:

- Inform their supervisor immediately;
- Locate the source of the spillage and stop the flow if it can be done safely; and,
- Begin containment and recovery of the spilled materials.

Equipment on-site shall be sufficient to handle any spills. Equipment shall be diked and containerized appropriately. Field monitoring equipment and spill control equipment are shown in Table 11-1.

11.8 Vapor Release Plan

The site work will be suspended if air monitoring at the site perimeter shows air contaminants above acceptable concentrations. Off-site readings will be taken within 20 feet of the nearest residential or commercial property. If efforts to mitigate the emission source are unsuccessful for 30 minutes then the ESPL Site Safety Officer will:

- contact the local police,
- continue to monitor air every 30 minutes, 20 feet from the closest off-site property. If two successive readings are within acceptable levels, off-site air monitoring, would be halted.

All property line and off-site air monitoring locations and results associated with vapor releases shall be recorded in the site safety log book.

11.9 Communication Procedures

Type of communication to be used:
(i.e. cellular phone, Two-way radio, etc.)

Cell phones

12.0 CONFINED SPACE

On January 14, 1993, OSHA published its Final Rule on permit required confined spaces for General Industry at 29CFR 1910.146 et seq., with an implementation date of April 15, 1993. The rule specifically excludes agriculture, construction, or shipyard employment, but prudence requires that this HASP cover confined space entry and the OSHA rule will be followed. OSHA defines confined space as:

1. is large enough and so configured that an employee can bodily enter and perform assigned work;
2. has limited or restricted areas for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited entry); and
3. is not designed for continuous employee occupancy.

OSHA further requires that an "entry supervisor" (the site safety officer) decides at the time of entry whether the space is permit required or non-permit required space. Once designated the site safety officer will monitor the space two hours prior to entry and continuously during work to ensure that the atmosphere is not hazardous. OSHA defines as hazardous atmosphere as:

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower explosive limit (LEL);
2. Airborne combustible dust at a concentration that meets or exceeds its LEL;
NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.
3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of this part and which could result in employee exposure in excess of its dose or permissible exposure limit;
5. Any other atmospheric condition that is immediately dangerous to life or health.

The space is non-permit required if none of the above defined hazardous conditions are present. OSHA requires an attendant (e.g., an individual stationed outside one or more spaces who monitors the entrants and who performs air monitoring of the

space(s) be assigned for each space. The attendant is not allowed to perform any rescue duties but simply must communicate with the entrant and call for coordinates rescue procedures if required.

12.1 Confined Space Entry Procedure

Confined space entry that will require a permit may be required during construction at the site. If the Site Safety Officer determines that an excavation meets the definition of a confined space then natural or mechanical ventilation will be employed to ensure that the space meets the requirements of non-permit required confined space. The Site Safety Officer will perform continuous air monitoring one hour before and during entry work to ensure that the space remains non-permit required.

A confined space entry permit must be filled out and signed by the Site Safety Officer. By signing this, the supervisor certifies that the space does not contain a hazardous atmosphere, and that the atmosphere will be monitored.

A confined space entry permit form is located in New York State Department of Labor, Employer Guide and Model (Permit Required Confined Space Entry Plan (29 CFR Part 1910.146) located at the end of this section or at the ESPL office. This permit will be modified by the Site Safety Officer for different confined spaces.

Blowers will be utilized to ventilate the space.

When workers are in the excavation, the space must be continuously monitored for the hazardous atmosphere parameters using appropriate instrumentation. The Site Safety Officer or delegee must log the meter readings every 30 minutes while the confined space is occupied.

If a hazardous atmosphere is detected, employees must leave confined space until monitoring shows that there is no atmosphere hazard. Engineering controls will be used to dissipate the atmosphere if it does not dissipate naturally.

13.0 DAILY SAFETY MEETINGS

Safety or pre-entry meetings will be held each day before work begins, to ensure that all on-site personnel understand site conditions and operating procedures, and to address safety questions and concerns. The Site Safety Officer or the Project Superintendent will lead the meetings. All personnel trained and prepared to enter exclusion and decontamination zones will attend the meetings.

The site safety officer shall maintain a log of each meeting.

14.0 WORK PLAN

14.1 Work Tasks, Objectives and Methods for Implementation

(Describe specifically who will be working on tasks to be performed and their functions)

Margaret Tavares, overall site supervisor to coordinate all field activities related to environmental investigations.

Margaret Tavares, site health and safety officer to coordinate and ensure compliance to all site-specific safety plans.

Location of Exclusion, Decontamination and Support Zones. (Include a location drawing if necessary)

14.2 Clean Up / Decontamination Activities and Procedures

(Describe specifically who will be working on tasks to be performed and their functions)

Field Supervisor _____

14.3 Informational Programs

To ensure that employees, contractors, and subcontractors (or their representatives) are aware of this plan all persons engaged in operations at this site must sign the Site Personnel Form indicating that they are familiar with this Site Health and Safety Plan prior to commencing operations.

Site Personnel Log

I have reviewed and am familiar with the Site Health and Safety Plan for the following site:

**Great Jones Lafayette LLC
372 Lafayette Street
Manhattan , New York**

Name	Company or Affiliation	Date	Remarks

14.4 Medical Surveillance Program

Refer to Section 7.0

14.5 Personnel Requirements

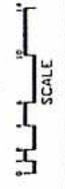
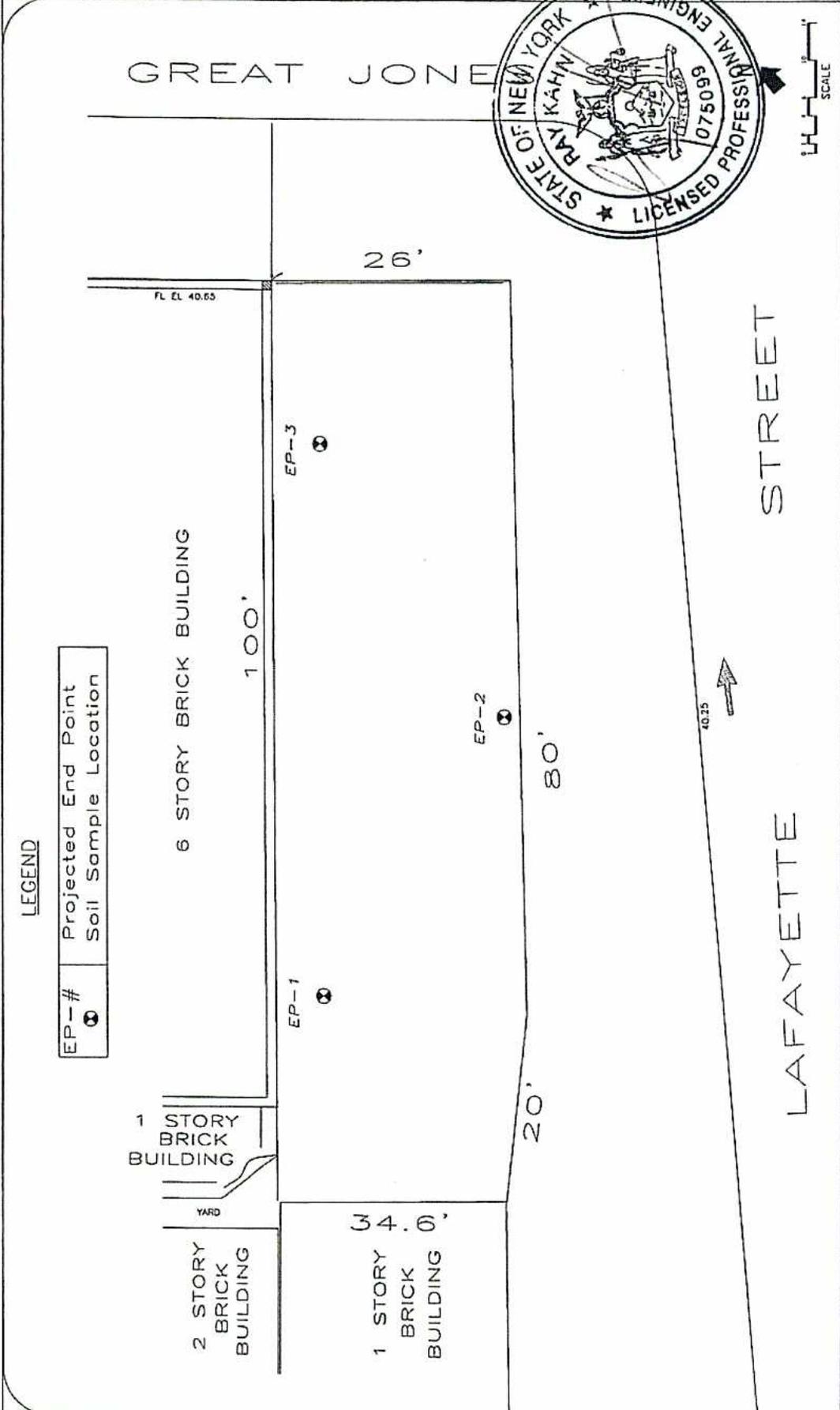
Refer to Section 2.0

14.6 - Training Implementation

Refer to Section 4.0

ADDENDUM 3

Endpoint Sampling Plan



SHEET #: Fig 4

Scale: N.T.S.

Project #: 21217-3

Sheet Title: Fig 4 Map of End-Point Sample Location

Environmental Consultants

Drawn By: R.L.

Date: 10/12/2012

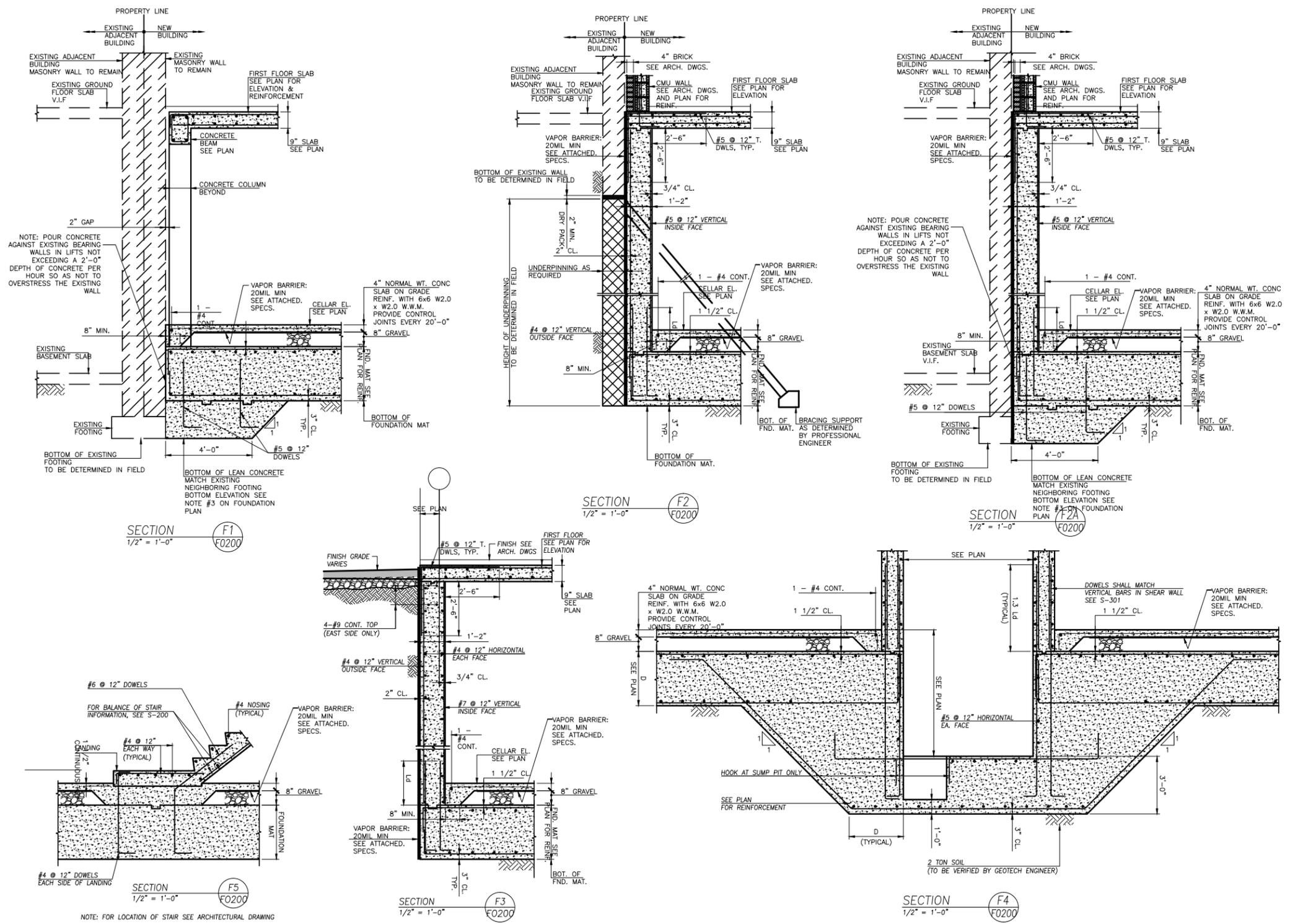
Client & Location: 11 Great Jones, LLC.
732 Lafayette Street, NY NY

ESPL

Environmental Consultants Corp.
Address: 2 West 32nd Street NY 10001
Tel: 212-363-6391 Fax: 212-330-7505
Email: mail@espl.com www.espl.com

ADDENDUM 4

Vapor Barrier & Sub-Slab Depressurization System Plans



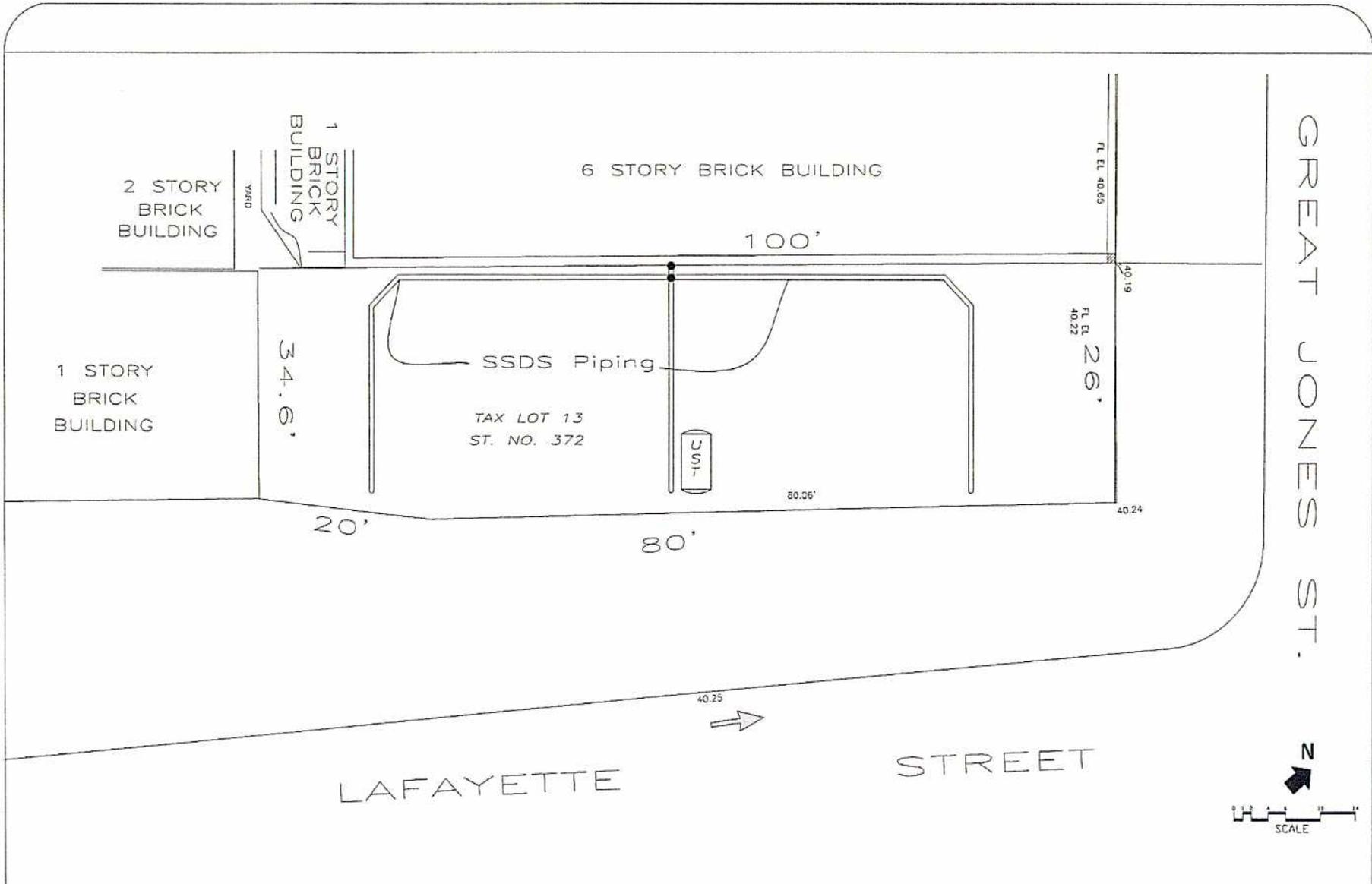
ESPL Environmental Consultants Corp.
 Address: 2 West 32nd Street NY 10001
 Tel: 212-363-ESPL FAX: 212-330-7505
 Email: mail@espl.com www.espl.com

Sheet Title: Fig 6 Vapor Barrier/Waterproofing Membrane Diagram Revised
 Client & Location: 11 Great Jones, LLC.
 732 Lafayette Street, NY NY

Project #: 212117-3
 Date: 11/16/2012

Scale: N.T.S.
 Drawn By: R.L.

SHEET #: Fig 6



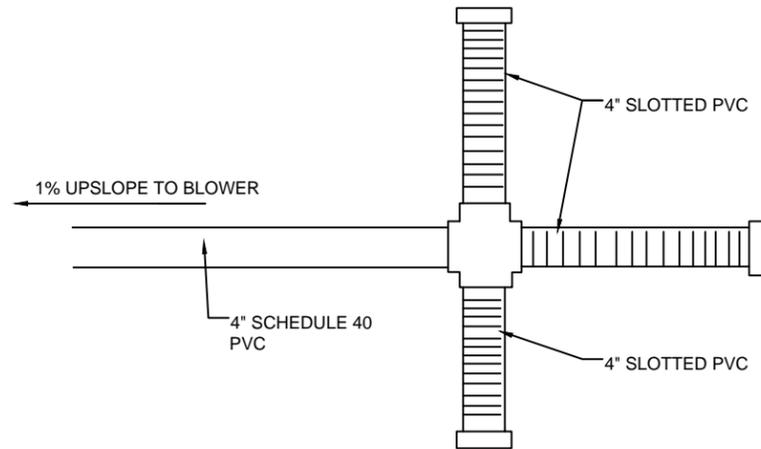
ESPL Environmental Consultants Corp.
 Address: 2 West 32nd Street NY 10001
 Tel: 212-363-ESPL FAX: 212-330-7505
 Email: mail@espl.com www.espl.com

Sheet Title: Fig 7 Sub-slab Depressurization System Diagram
 Client & Location: 11 Greal Jones, LLC.
 732 Lafayette Street, NY NY

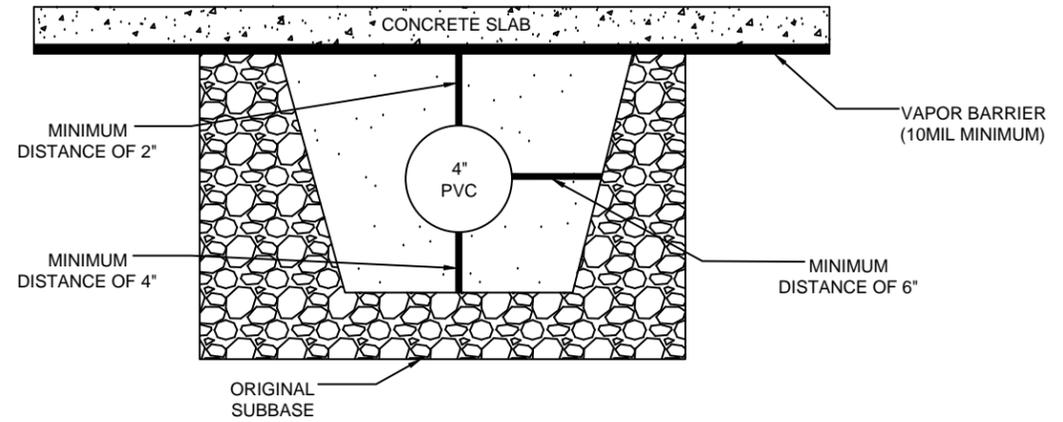
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 Date: 10/12/2012

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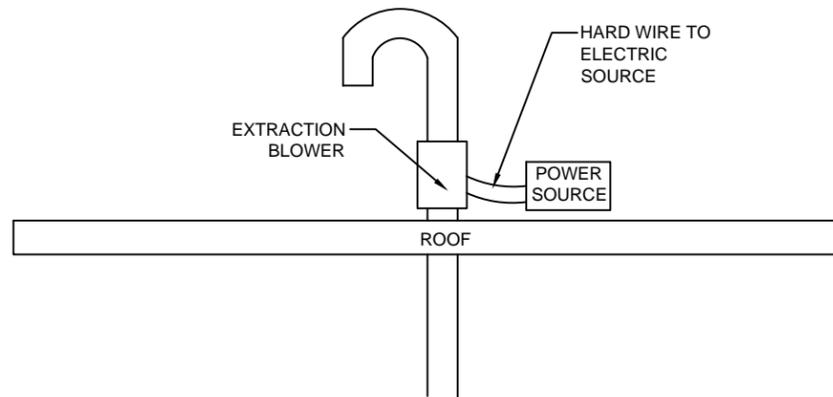
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DETAIL 1- EXTRACTION POINT



DETAIL 2-BELOW GROUND PIPING DETAIL



DETAIL 3-ROOF TOP DETAIL

ESPL Environmental Consultants Corp.
 Address: 2 West 32nd Street NY 10001
 Tel: 212-363-ESPL FAX: 212-330-7505
 Email: mail@espl.com www.espl.com

Sheet Title: Fig 8 Sub-Slab Depressurization system Details Revised

Project #: 212117-3

Scale: N.T.S

Sheet #: Fig 8

Client & Location: Great Jones Lafayette Ave. NY NY

Date: 11/16/2012

Drawn By: RL

UNDER-SLAB GAS BARRIER / VAPOR RETARDER (Class A)

PART 1 – GENERAL

1.1 SUMMARY

- A. Products Supplied Under This Section
 - 1. Gas Barrier / Vapor Retarder, Seam Tape, and Pipe Boots

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM E 1745 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil Or Granular Fill Under Concrete Slabs
 - 2. ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
 - 3. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
 - 4. ASTM E 1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs
 - 5. ASTM D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting
- B. Radon Diffusion Coefficient K124/02/95
- C. American Concrete Institute (ACI)
 - 1. ACI 302.1R-6 & 7 Section 3.2.3 Vapor Retarder

1.3 SUBMITTALS

- A. Testing/Specifications
 - 1. Laboratory test results showing compliance with ASTM & ACI Standards.
 - 2. Manufacturer's samples, literature.
 - 3. Manufacturer's installation instructions for placement and seaming.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Provide a Gas Barrier / Vapor Retarder that meets the following:

1. ASTM E-1745 Standard for Plastic Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
 - a) Must meet all Class "A" criteria.
2. ASTM D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting
 - a) Methane Permeance:
 $1.7 \times 10^{-10} \text{ m}^2/\text{d}\cdot\text{atm}$ or $0.32 \text{ GTR ml}/\text{m}^2\cdot\text{D}\cdot\text{ATM}$
3. K124/02/95 Radon Diffusion Coefficient: $< 1.1 \times 10^{-13} \text{ m}^2/\text{s}$
 - VaporBlock® Plus™ 20 by Raven Industries – 800-635-3456

Other Manufacturer accepted meeting the above specification:

- CETCO Liquid Boot Company - 714-384-0111

2.2 ACCESSORIES

A. Seam Tape

1. VaporBond Plus Tape by Raven Industries, 800-635-3456 or other 4" wide gas barrier tape approved by the gas barrier / vapor retarder manufacturer.
2. VaporBoot Tape by Raven Industries, 800-635-3456 or other 2" wide stretchable butyl rubber tape.
3. Butyl Seal Tape by Raven Industries, 800-635-3456 or other 2" wide double-sided reinforced butyl rubber seaming tape.

B. Pipe Boots

1. Raven VaporBoot Plus pipe boots or other manufacturer's supplied pipe boot system.

PART 3 – EXECUTION

3.1 PREPARATION

A. Ensure that subsoil is approved by architect

1. Level and tamp or roll aggregate, sand or tamped earth base.

3.2 INSTALLATION

A. Install Gas Barrier / Vapor Retarder:

1. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643. (Instructions on architectural or structural drawings should be reviewed and followed.)

- A. Unroll VaporBlock Plus with the longest dimension parallel with the direction of the pour and pull open all folds to full width.
- B. Lap VaporBlock Plus over footings and seal to the vertical foundation walls with 2-Sided Raven Butyl Seal tape.
- C. Overlap joints a minimum of 12 inches and seal in-between overlap with 2-Sided Raven Butyl Seal tape then center the Raven VaporBond Plus Tape or other 4" wide gas barrier tape approved by gas barrier / vapor retarder manufacturer over the seal overlap.
- D. Seal around sewer pipes, support columns or any other penetration with Raven VaporBoot Plus pipe boots or at minimum a combination of VaporBlock Plus and VaporBond Plus Tape or VaporBoot Tape, creating a monolithic membrane between the surface of the slab and moisture sources below as well as at the slab perimeter.
- E. When VaporBlock Plus gas barrier is used as a part of an active control system for radon gas and other VOCs, a ventilation system will be required. When installed as a passive system it is still recommended to include a ventilation system that could be converted to an active system later.
- F. Repair damaged areas by cutting patches of VaporBlock Plus, overlapping damaged area 12 inches and taping all four sides with VaporBond Plus Tape or other 4" wide gas barrier tape approved by vapor retarder / gas barrier manufacturer.

NOTE: See manufacturers full-length VaporBlock Plus Installation Guidelines located at www.ravenefd.com for complete details.

VaporBlock® Plus™

UNDERSLAB VAPOR RETARDER / GAS BARRIER

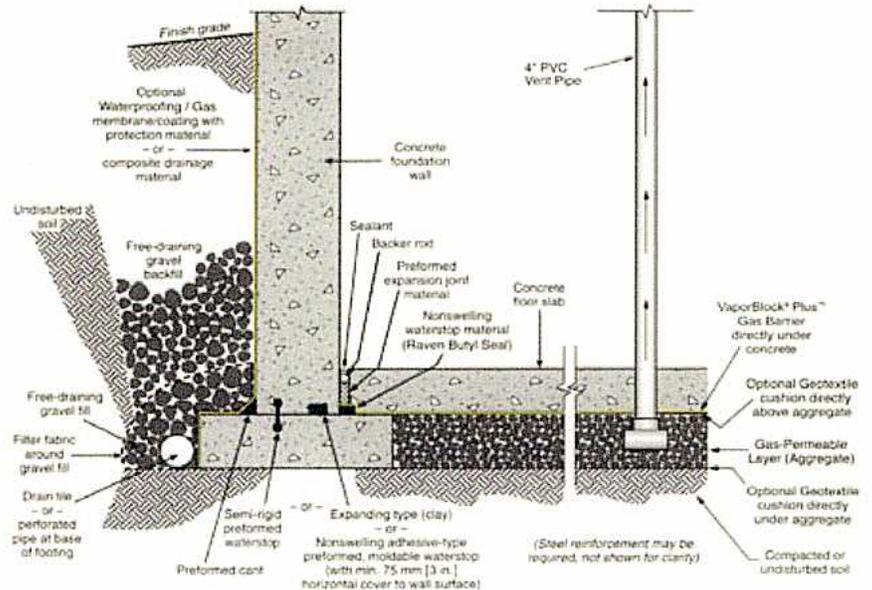
INSTALLATION GUIDELINES

Please Note: Read these instructions thoroughly before installation to ensure proper use of VaporBlock® Plus™. ASTM E 1465, ASTM E 2121 and, ASTM E 1643 also provide valuable information regarding the installation of vapor / gas barriers. When installing this product, contractors shall conform to all applicable local, state and federal regulations and laws pertaining to residential and commercial building construction.

- When VaporBlock Plus gas barrier is used as part of an active control system for radon or other gas, a ventilation system will be required.
- If designed as a passive system, it is recommended to install a ventilation system that could be converted to an active system if needed.

Materials List:

- VaporBlock® Plus™ Vapor / Gas Barrier
- VaporBond Plus 4" Foil Seaming Tape
- Butyl Seal 2-Sided Tape
- VaporBoot Plus Pipe Boots 12/Box (recommended)
- VaporBoot Tape (optional)



Elements of a moisture/gas-resistant floor system. General illustration only.
(Note: This example shows multiple options for waterstop placement.)

VAPORBLOCK® PLUS™ PLACEMENT

- 1.1. Level and tamp or roll granular base as specified. A base for a gas-reduction system may require a 4" to 6" gas permeable layer of clean coarse aggregate as specified by your architectural or structural drawings after installation of the recommended gas collection system. In this situation, a cushion layer consisting of a non-woven geotextile fabric placed directly under VaporBlock® Plus™ will help protect the barrier from damage due to possible sharp coarse aggregate.
- 1.2. Unroll VaporBlock Plus running the longest dimension parallel with the direction of the pour and pull open all folds to full width. (Fig. 1)
- 1.3. Lap VaporBlock Plus over the footings and seal with Raven Butyl Seal tape at the footing-wall connection. Prime concrete surfaces and assure they are dry and clean prior to applying Raven Butyl Seal Tape. Apply even and firm pressure with a rubber roller. Overlap joints a minimum of 6" and seal overlap with Raven VaporBond Tape. When used as a gas

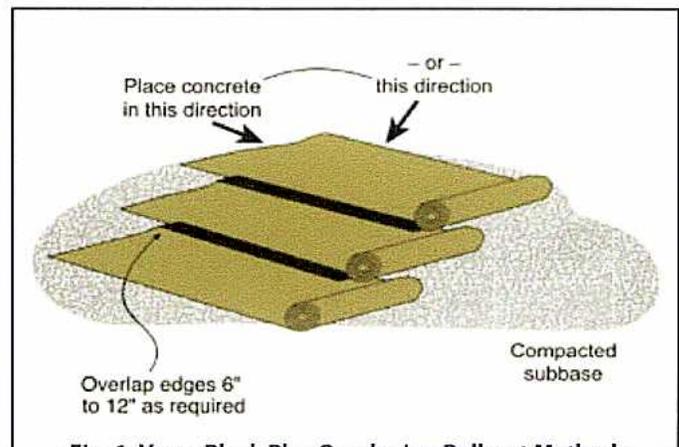


Fig. 1: VaporBlock Plus Overlapping Roll-out Method

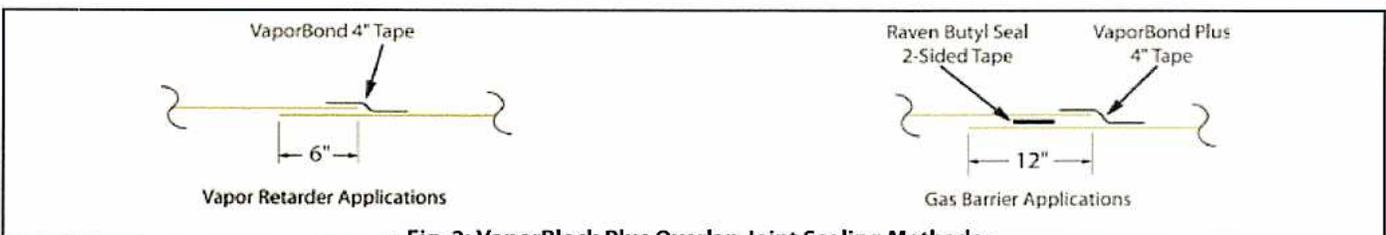


Fig. 2: VaporBlock Plus Overlap Joint Sealing Methods

Top original diagram and figure #1 were reprinted with permission by the Portland Cement Association. Reference: Kanare, Howard M., Concrete Floors and Moisture, EB119, Portland Cement Association, Skokie, Illinois, and National Ready Mixed Concrete Association, Silver Spring, Maryland, USA, 2008, 178 pages.

SINGLE PENETRATION PIPE BOOT INSTALLATION

barrier, overlap joints a minimum of 12" and seal in-between overlap with 2-sided Raven Butyl Seal Tape. Then seal with VaporBond Plus Tape centered on the overlap seam. (Fig. 2)

- 1.4. Seal around all plumbing, conduit, support columns or other penetrations that come through the **VaporBlock Plus** membrane. Pipes four inches or smaller can be sealed with Raven VaporBoot Plus preformed pipe boots. VaporBoot Plus preformed pipe boots are formed in steps for 1", 2", 3" and 4" PVC pipe or IPS size and are sold in units of 12 per box (Fig. 3 & 5).

Pipe boots may also be fabricated from excess **VaporBlock Plus** membrane (Fig. 4 & 6) and sealed with VaporBoot Tape or VaporBond Plus Tape (sold separately).

Reminder Note: All holes or penetrations through the membrane will need a patch cut to a minimum of 12" from the opening in all directions.

To fabricate pipe boots from **VaporBlock Plus** excess material (see Fig. 4 & 6 for A-F):

- A) Cut a square large enough to overlap 12" in all directions.
- B) Mark where to cut opening on the center of the square and cut four to eight slices about 3/8" less than the diameter of the pipe.
- C) Force the square over the pipe leaving the tightly stretched cut area around the bottom of the pipe with approximately a 1/2" of the boot material running vertically up the pipe. *(no more than a 1/2" of stretched boot material is recommended)*
- D) Once boot is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in between the two layers. Secure boot down firmly over the membrane taking care not to have any large folds or creases.
- E) Use VaporBoot Tape or VaporBond Plus Tape to secure the boot to the pipe.

VaporBoot Tape (option) – fold tape in half lengthwise, remove half of the release liner and wrap around the pipe allowing 1" extra for overlap sealing. Peel off the second half of the release liner and work the tape outward gradually forming a complete seal.

VaporBond Plus Tape (option) - Tape completely around pipe overlapping the to get a tight seal against the pipe.
- F) Complete the process by taping over the boot perimeter edge with VaporBond Plus Tape to create a monolithic membrane between the surface of the slab and gas/moisture sources below and at the slab perimeter. (Fig. 4 & 6)

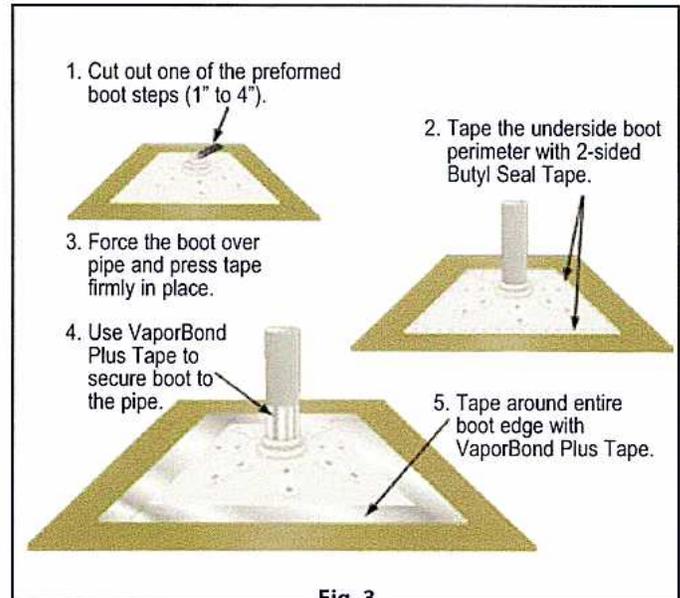


Fig. 3

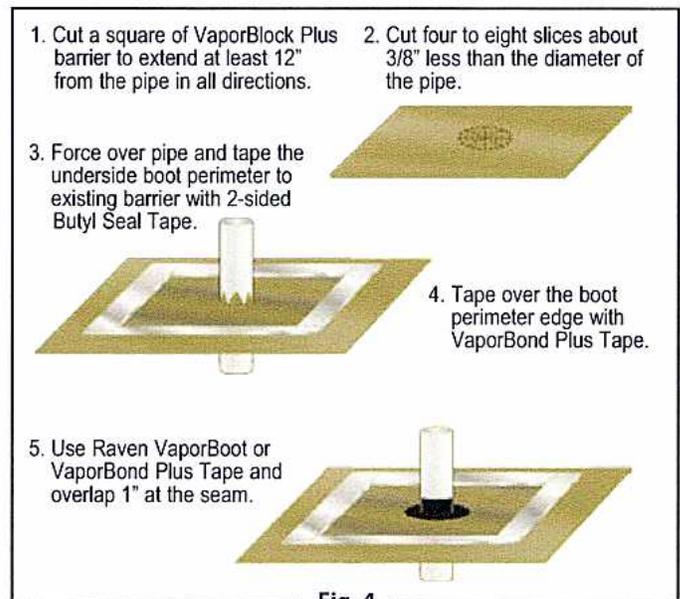


Fig. 4

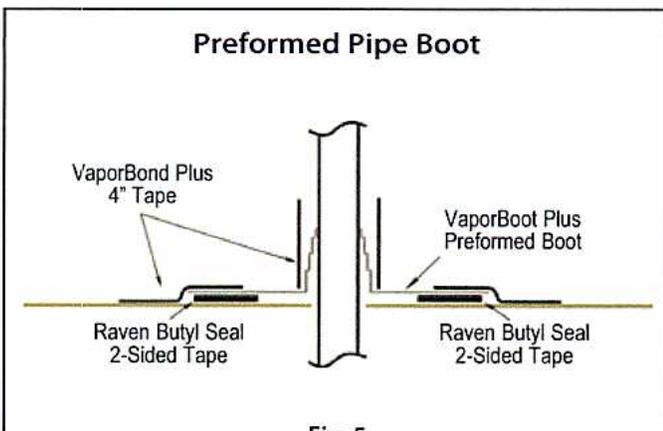


Fig. 5

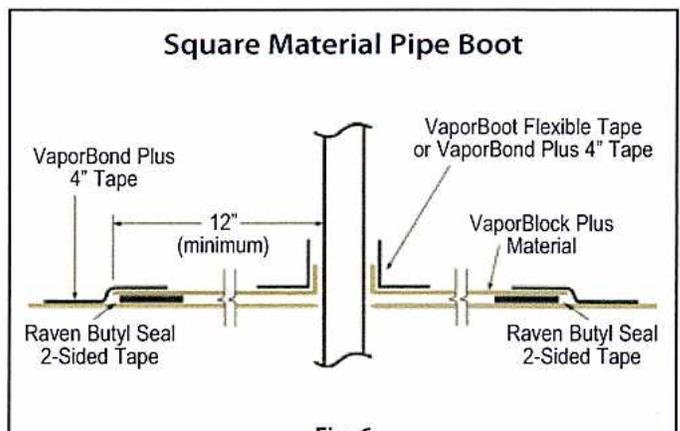


Fig. 6

MULTIPLE PENETRATION PIPE BOOT INSTALLATION

1.5. For side-by-side multiple penetrations;

- A) Cut a patch large enough to overlap 12" in all directions (Fig. 7) of penetrations.
- B) Mark where to cut openings and cut four to eight slices about 3/8" less than the diameter of the penetration for each.
- C) Slide patch material over penetration to achieve a tight fit.
- D) Once patch is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in-between the two layers. (Fig. 8)
- E) After applying Raven Butyl Seal Tape between the patch and membrane, tape around each of the penetrations and the patch with VaporBond Plus 4" foil tape. (Fig. 9) For additional protection apply an acceptable polyurethane elastomeric sealant around the penetrations. (Fig. 10)

1.6. Holes or openings through **VaporBlock Plus** are to be repaired by cutting a piece of **VaporBlock Plus** 12" larger in all directions from the opening. Seal the patch to the barrier with 2-sided Raven Butyl Seal Tape and seal the edges of the patch with VaporBond Plus Tape.

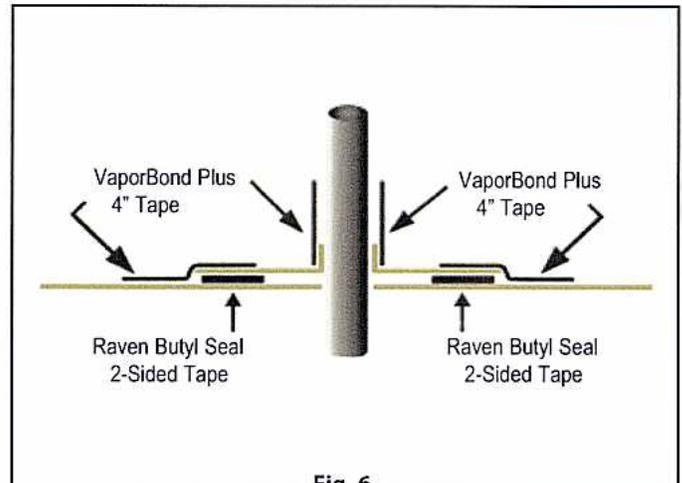


Fig. 6

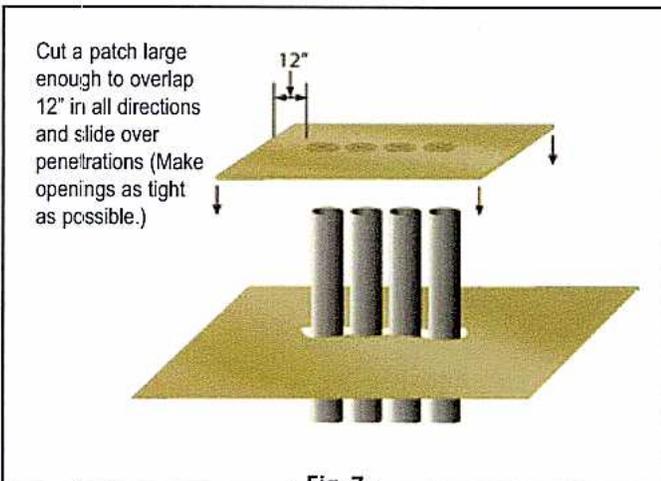


Fig. 7

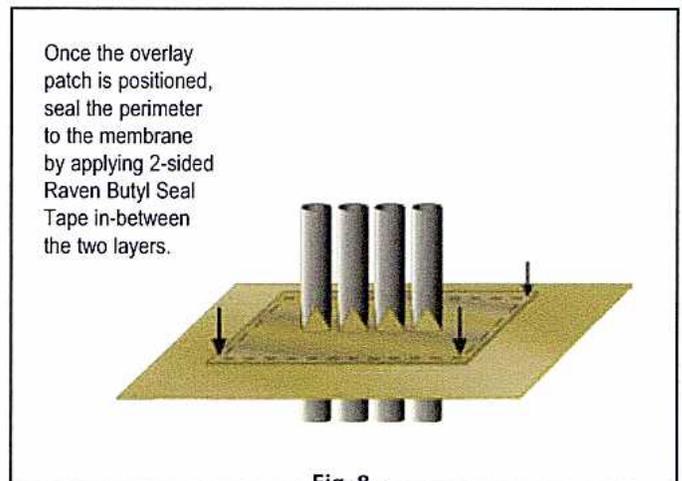


Fig. 8

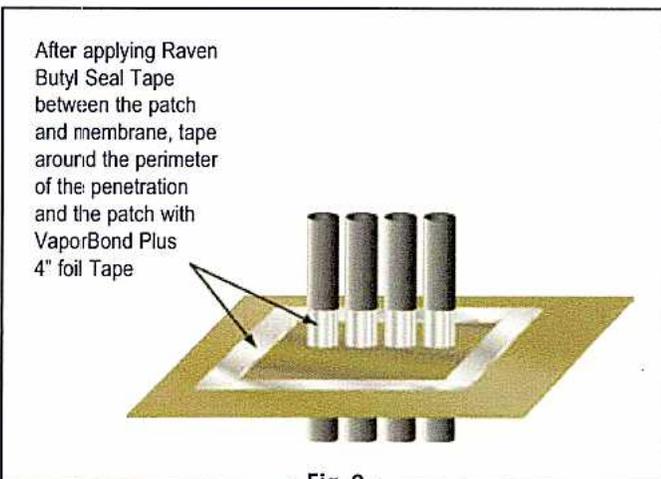


Fig. 9

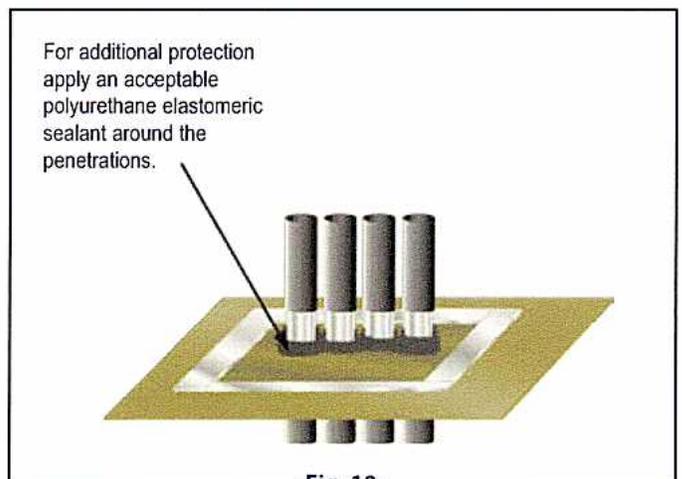


Fig. 10

VAPORBLOCK® PLUS™ PROTECTION

- 2.1. When installing reinforcing steel and utilities, in addition to the placement of concrete, take precaution to protect **VaporBlock Plus**. Carelessness during installation can damage the most puncture-resistant membrane. Sheets of plywood cushioned with geotextile fabric temporarily placed on **VaporBlock Plus** provide for additional protection in high traffic areas including concrete buggies.
- 2.2. Use only brick-type or chair-type reinforcing bar supports to protect **VaporBlock Plus** from puncture.
- 2.3. Avoid driving stakes through **VaporBlock Plus**. If this cannot be avoided, each individual hole must be repaired per section 1.6.
- 2.4. If a cushion or blotter layer is required in the design between **VaporBlock Plus** and the slab, additional care should be given if sharp crushed rock is used. Washed rock will provide less chance of damage during placement. Care must be taken to protect blotter layer from precipitation before concrete is placed.



Note: To the best of our knowledge, these are typical installation procedures and are intended as guidelines only. Architectural or structural drawings must be reviewed and followed as well on a project basis. NO WARRANTIES ARE MADE AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS OR GUIDELINES REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and we disclaim all liability for resulting loss or damage.

RAVEN
INDUSTRIES

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Toll Free: 800-635-3456



ISO 9001:2000
CERTIFIED MANAGEMENT SYSTEM

www.vaporblockplus.com

6/09 EFD 1127

ADDENDUM 5

Signage



NYC Brownfield Cleanup Program

This property is enrolled in the New York City Brownfield 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



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

Shaminder Chawla at (212) 788-8841
or email us at brownfields@cityhall.nyc.gov

372 Lafayette Street Site
Site #: 13CVCP073M

ADDENDUM 6

**Signed & Stamped
RAWP Certification**

CERTIFICATION

I, Ray Kahn, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 372 Lafayette Street Site 13CVCP073M.

I certify that 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.

Ray Kahn

Name

0750991

NYS PE License Number

Ray Kahn

Signature

08/14/2012

Date



REMEDIAL ACTION WORK PLAN

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- Figure 6 - Vapor barrier/waterproofing membrane diagrams
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- Table 10 Analytical results for soil vapor
- Table 11 List of proposed SCOs
- Quantities and disposal facilities for material removed from the site

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- Appendix 1 - Citizen Participation Plan
- Appendix 2 - Sustainability Statement
- Appendix 3 - Soil/Materials Management Plan
- Appendix 4 - Construction Health and Safety Plan
- Appendix 5 - Proposed Development Plans
- Appendix 6 - Previous Environmental Investigations and Reports
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- Appendix 8 - Sample Hazardous or Non-Hazardous Soil Disposal Manifest
- Appendix 9 - Design Diagrams and Specifications for Vapor Barrier/Waterproofing Membrane and sub-slab depressurization system

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/Demolition
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering and Institutional Controls
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
VCA	Voluntary Cleanup Agreement
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYC VCP	New York City Voluntary Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
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
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
SVOC	Semi-Volatile Organic Compound
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CERTIFICATION

I, Ray Kahn, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 372 Lafayette Street Site 13CVCP073M.

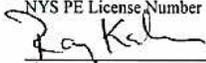
I certify that this Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site 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.

Ray Kahn

Name

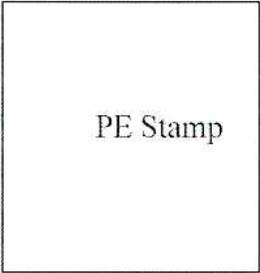
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NYS PE License Number


Signature

08/14/2012

Date



EXECUTIVE SUMMARY

Great Jones Lafayette LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 3,035-square foot site located at 372 Lafayette Street, in Manhattan, 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 Current Usage

The Site is located at 372 Lafayette Street in the NoHo section of Manhattan, New York and is identified as Block 530 and Lot 13 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 3,035-square feet and is bounded by Great Jones Street to the north, an automobile repair facility and gasoline station to the south, Lafayette Street to the east, and a multiple-story residential building with ground-floor retail to the west. A map of the site boundary is shown in Figure 1. Currently, the Site is a vacant building that was used for the repair and maintenance of automobiles by Meineke Car Care Center and contains a one story building, approximately 25 feet by 100 feet.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a six-story residential building with the first floor used for retail and a cellar used for retail, mechanical and storage. Layout of the proposed site development is presented in Figure 2.1 and Figure 2.2. The property is located in a Manufacturing Zoning District (M1-5B), but a zoning variance was adopted by the Board of Standards and Appeals on April 17, 2007, printed in Bulletin No. 16, Vol. 92 so that the proposed development would be consistent with zoning for the property.

The existing one story building will be demolished and a six story building with cellar is to be constructed with retail and 8 residential units. The cellar will be approximately 13.5 feet below grade and the overall building height will be approximately 82 feet. The proposed development will cover the entire footprint of the site. The proposed cellar will be used to house

the building's utilities, storage and retail space. The proposed redevelopment plans are included in Figure 2.1 and 2.2. The excavation of the site is required in order to create the cellar area. The excavation is not anticipated to go below the water table, since the water table is approximately 40-41 feet below grade.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

Summary of the Remedy

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 (CPP);
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds;
3. Establish Track 1, Unrestricted Use Soil Cleanup Objectives (SCOs);
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas;
5. Excavation and removal of soil/fill exceeding Track 1 Unrestricted Use SCOs. Appropriate segregation of excavated media onsite if necessary;
6. Removal of underground storage tanks and closure of petroleum spills (if encountered) in compliance with applicable local, State and Federal laws and regulations;

7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID;
8. 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;
9. Collection and analysis of end-point samples to determine whether Track 1 Unrestricted Use SCOs are achieved;
10. Demarcation of residual soil/fill;
11. Installation of a vapor barrier system beneath the building slab;
12. Installation and operation of a passive sub-slab depressurization system;
13. Construction and maintenance of an engineered composite cover across the entire site as part of construction to prevent human exposure to residual soil/fill remaining under the Site;
14. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
15. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations;
16. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations;
17. Submission of a RAR that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP;

18. If Track 1 Unrestricted Use SCOs are not achieved, submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual historic fill, including plans for inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency; and

19. If Track 1 Unrestricted Use SCOs are not achieved, recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and a requirement that management of these controls must be in compliance with an approved SMP; and Institutional Controls including prohibition of the following: (1) vegetable gardening and farming; (2) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (3) higher level of land usage without OER-approval.

COMMUNITY PROTECTION STATEMENT

The Office of Environmental Remediation created the New York City Voluntary Cleanup Program (NYC VCP) to provide governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan (“cleanup plan”) describes the findings of prior environmental studies that show the location of 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. This cleanup plan 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.

Remedial Investigation and Cleanup Plan. Under the NYC VCP, a thorough cleanup 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 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 the performance of 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 Health and Safety Plan that is designed to protect community residents and on-Site workers. The elements of this plan are in compliance with safety requirements of the United States Occupational Safety and Health Administration. This plan includes many protective elements including those discussed below.

Site Safety Coordinator. This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is Ebrahim Safa and can be reached at (718) 476-3004.

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 includes 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 NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager Noam Shemel at (212) 631-0203 or NYC Office of Environmental Remediation Project Manager Ms. Hannah Moore at 212-442-6372.

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.

Storm-Water Management. To limit the potential for soil erosion and discharge, this cleanup plan has provisions for storm-water management. The main elements of the storm water 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 are 7:00 AM to 6:00 PM Monday through Friday.

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, provides project contact names and numbers, and locations of 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 Noam Shemel at (212) 631-0203, the NYC Office of Environmental Remediation Project Manager Ms. Hannah Moore at 212-442-6372, 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, odors 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 all 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-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 a Remedial Action Report) that will be available for you to review in the public document repositories located at New York Public Library – Mulberry Street Branch (10 Jersey Street, New York, NY).

Long-Term Site Management. To provide long-term protection 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 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 SITE BACKGROUND

Great Jones Lafayette LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 372 Lafayette Street (AKA 11 Great Jones Street) in the NoHo section of Manhattan, 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, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 SITE LOCATION AND CURRENT USAGE

The Site is located at 372 Lafayette Street in the NoHo section of Manhattan, New York and is identified as Block 530 and Lot 13 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 3,035-square feet and is bounded by Great Jones Street to the north, an automobile repair facility and gasoline station to the south, Lafayette Street to the east, and a multiple-story residential building with ground-floor retail to the west. A map of the site boundary is shown in Figure 1. Currently, the Site is a vacant building that was used for the repair and maintenance of automobiles by Meineke Car Care Center and contains a one story building, approximately 25 feet by 100 feet.

1.2 PROPOSED REDEVELOPMENT PLAN

The proposed future use of the Site will consist of a six-story residential building with the first floor used for retail and a cellar used for retail, mechanical and storage. Layout of the proposed site development is presented in Figure 2.1 and 2.2. The property is located in a Manufacturing Zoning District (M1-5B), but a zoning variance was adopted by the Board of

Standards and Appeals on April 17, 2007, printed in Bulletin No. 16, Vol. 92 so that the proposed development would be consistent with zoning for the property.

The proposed structure complies with all requirements for setbacks, rear yard, and side yard. The building will also have a full sprinkler system and comply with all requirements of the New York City Fire Department (FDNY) and the New York City Department of Buildings (NYCDOB). The proposed cellar will be used to house the building's utilities, storage and retail space. The usage of the floors is as follows:

FLOOR	USAGE	GROSS FA
Cellar	Retail	1,805
	Mechanical and Storage	1,191
1 st Floor	Retail	2,221
	Residential Unit	684
2 nd – 4 th Floor	Residential Units	2,920 per floor
5 th Floor	Residential Units	2,915
6 th Floor	Residential Units	1,503

The existing one story building will be demolished and a six story building with cellar is to be constructed with retail and 8 residential units. The cellar will be approximately 13.5 feet below grade and the overall building height will be approximately 82 feet. The proposed development will cover the entire footprint of the site. The proposed redevelopment plans are included in Figure 2.1 and 2.2. Excavation of the site to a depth of approximately 16 feet bgs is required in order to create the cellar area. The excavation is not anticipated to go below the water table, since the water table is approximately 40-41 feet below grade.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The surrounding properties are residential, retail and commercial use. The buildings range from 1 to 6 stories in height and there are several parking garages and sites that are under construction in the area. The zoning of the surrounding area is indicated as R7-2, C6-2 and M1-5B. There are no schools, day care facilities or hospitals within a 500 foot radius.

Figure 3 shows the surrounding land usage.

1.4 REMEDIAL INVESTIGATION

A remedial investigation was performed and the results are documented in a companion document called “*Remedial Investigation Report, 372 Lafayette Street (AKA 11 Great Jones Street)*”, dated May 2012 (RIR).

Summary of Past Uses of Site and Areas of Concern

Based on the Phase I ESA, the Site was developed prior to 1895 for residential use with a ground-level store. From at least 1921 to 1950, the southeastern portion of the Site was used as a gasoline station with two associated 550-gallon buried gasoline tanks. The Site was redeveloped with the existing 1-story commercial building circa 1969 for use as a car wash and was also used for auto repair starting around 1991. The AOCs identified for this site include:

1. Partially Exposed UST Area – A UST (500-1,000 gallon assumed capacity) was identified during geotechnical test pits and is currently partially exposed.
2. UST/Fill Port Area – Two areas of the subject site were identified as possible UST areas. The Sanborn maps depicted a UST in the southwest corner of the site. Due to the presence of three abandoned fill ports located on the sidewalk of Lafayette Street, the Phase I also indicated a potential UST in the east side of the building.
3. Lift/Bay Area – Two bays facing the Lafayette Street utilized surface mounted lifts for automobile repairs.
4. Floor Drain Area – A portion of the floor slab of the Great Jones side of the building was covered with a steel plate. Apparently the plate was covering a pit that was used

for draining the bay area. The pit bottom was solid and there was no obvious drain outlet.

5. Historic Fill – historic fill was identified to approximately 8 to 12 feet bgs.

Summary of the Work Performed under the Remedial Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 3 soil borings across the entire project Site, and collected seven soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed two groundwater monitoring wells throughout the Site to establish groundwater flow and collected three groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed three soil vapor probes around Site perimeter and collected three samples for chemical analysis.

Summary of Environmental Findings

1. Elevation of the property ranges from 40 to 41 feet.
2. Depth to groundwater ranges from 40 to 41 feet at the Site.
3. Groundwater flow is generally from east to west beneath the Site.
4. Depth to bedrock is not determined at this Site.
5. The stratigraphy of the site, from the surface down, consists of 8 to 12 feet of heterogeneous urban fill mixed with fine to coarse silty sand underlain by light brown sand.
6. Soil/fill samples collected during the RI showed no VOCs, PCBs, or pesticides at detectable concentrations. Four SVOCs were detected slightly above Unrestricted and Restricted Residential SCOs in one sample collected from the geotechnical test pit near the exposed UST. These SVOCs were all PAH compounds (benzo(a)anthracene, benzo(a)pyrene, benzo(a)fluoranthene and chrysene) and their concentrations and distributions indicate that they are associated with historic fill material observed in

shallow soil. Five metals exceeded UUSCOs in shallow soil samples, and of these metals, copper (max of 798 ppm), mercury (max of 1 ppm), and lead (max of 781 ppm) also exceeded their respective RRSCOs. No SVOCs or Metals were detected above UUSCOs within the deeper soil samples collected below the historic fill material. Overall, the findings were consistent with observations for other historical fill sites.

7. Groundwater samples collected during the RI showed no VOCs, SVOCs, PCBs, or pesticides at detectable concentrations. Dissolved metals including manganese, sodium, iron and lead (at 0.043 ppb) were identified above NYSDEC Part 703.5 Groundwater Quality Standards (GQS). Metals findings in groundwater are indicative of regional groundwater impacts, rather than migration of metals from on-Site historic fill material. The RI indicates that groundwater is not impacted by site conditions and did not reveal any sources of contaminants onsite.
8. Soil vapor samples collected during the RI showed petroleum and chlorinated VOCs at generally low concentrations. PCE was identified in all samples at a maximum concentration of 41.8 ug/m³, TCE was also identified in one sample at a concentration of 3.1 ug/m³. These results for TCE and PCE are below the monitoring level ranges of the State DOH soil vapor guidance matrix. Neither PCE nor TCE were detected within any of the soil or groundwater samples collected at the Site, and these low levels suggest an offsite origin.

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

Groundwater

- Prevent direct exposure to contaminated groundwater.

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). A remedy is then developed based on the following nine 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 of the remedy

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. As required, a minimum of two remedial alternatives (including a Track 1 scenario) are evaluated, as follows:

- Alternative 1 involves
 - Removal of all soil/ fill exceeding Track 1 Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs has been achieved with post-excavation endpoint sampling. Based on the results of the remedial investigation, it is expected that this alternative would require excavation to a depth of approximately 8-12 feet to remove all historic fill at the Site. Excavation for development purposes would take place to a depth of approximately 16 feet. If soil/ fill containing analytes at concentrations above Track 1 Unrestricted Use

SCOs is still present at the base of the excavation after removal of all soil required for construction of the new building is complete, additional excavation will be performed to ensure complete removal of soil that does not meet Track 1 Unrestricted Use SCOs.

- Although engineering or institutional controls are not required in a Track 1 cleanup, a vapor barrier and a passive sub-slab depressurization system (SSDS) will be installed beneath the basement foundation of the new building as part of construction to prevent exposures from off-Site soil vapor.
- Alternative 2 involves
 - Removal of all soil/ fill exceeding Track 4 Site-Specific SCOs and confirmation that Track 4 has been achieved with post-excavation endpoint sampling. Excavation for development purposes would take place to a depth of approximately 16 feet. If soil/ fill containing SVOCs or metals at concentrations above Track 4 Site-Specific SCOs is still present at the base of the excavation after removal of all soil required for construction of the new building is complete, additional excavation will be performed to ensure complete removal of soil that does not meet Track 4 Site-Specific SCOs.
 - Placement of a final cover over the entire site to eliminate exposure to remaining soil/fill;
 - Placement of a soil vapor barrier beneath the building slab and along foundation side walls and a passive sub-slab depressurization system beneath the foundation to the presence of off-site impacts to soil vapor;
 - Establishment of use restrictions including prohibitions on the use of groundwater from the site and prohibitions on sensitive site uses, such as farming or vegetable gardening, to eliminate future exposure pathways.
 - Establishment of an approved Site Management Plan 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; and

- Placement of a deed notice to memorialize the remedial action and the Engineering and Institutional Controls to ensure that future owners of the site continue to maintain these controls 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 the historic fill at the Site, thus eliminating potential for direct contact with contaminated soil/ fill once construction is complete and eliminating the risk of contamination leaching into groundwater. Potential exposure to contaminated soils during construction would be minimized by implementing an approved Soil and Materials Management Plan and Community Air Monitoring Plan (CAMP). There is minimal potential for contact with contaminated groundwater as it is neither used nor anticipated to be encountered during construction/ the remedial action. Potential migration of soil vapors into the new building would be prevented by installing a vapor barrier and passive SSDS as part of new construction.

Alternative 2 would achieve comparable protections of human health and the environment since soil to a depth of 16 feet will be removed for purposes of construction 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 deed notice and a site management plan would ensure that the composite cover system remains intact and protective. Establishment of Track 4 Site-Specific SCOs would minimize the risk of contamination leaching into groundwater. Potential exposure to contaminated soils during construction would be minimized by implementing an approved

Soil and Materials Management Plan and Community Air Monitoring Plan (CAMP). Potential contact with contaminated groundwater would be eliminated as it would be prohibited by the deed notice, and it is not anticipated to be encountered during construction. Potential migration of soil vapors into the new building would be prevented by installing a vapor barrier and passive SSDS as part of new construction.

3.2. BALANCING CRITERIA

Compliance with Standards, Criteria and Guidance (SCGs)

Alternative 1 would address the chemical-specific SCGs for soil through removal to Track 1 Unrestricted Use SCOs. Alternative 2 would address the chemical-specific SCGs for soil through removal of soil to meet Track 4 Site-Specific SCOs. Under both alternatives, SCGs for soil vapor would be achieved by installing a vapor barrier and passive sub-slab depressurization system under the proposed building as part of construction. Compliance with groundwater SCGs will not be affected by the remedial action, as the metals that were identified are not believed to be associated with an on-Site source. All potential sources for groundwater contamination will be removed as part of the remedial action.

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 effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both Track 1 and Track 4 alternatives have similar-short term effectiveness during their respective implementations, as each requires excavation of historic fill material. Short term impacts are likely to be higher for the Track 1 alternative due to excavation of greater amounts of historical fill material. However, focused attention to means and methods during the remedial action during a Track 1 removal action, including community air monitoring and appropriate

truck routing, would minimize or negate the overall impact of these activities and any differences between these alternatives.

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 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 Engineering Controls.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill.

Alternative 2 would provide long-term effectiveness by removing most on-site contamination and attaining Track 4 Site-Specific SCOs, establishing a composite cover system across the Site, establishing use restrictions, establishing a Site Management Plan to ensure long-term management of Institutional Controls (ICs) and Engineering Controls (ECs), and placing a deed restriction to memorialize these controls for the long term. Establishment of an SMP and a deed restriction will ensure that this protection remains effective for the long-term. The SMP will ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and use restrictions continue to be in place and are functioning as they were intended assuring that protections designed into the remedy will provide continued high level of protection in perpetuity.

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 meeting Track 1 Unrestricted Use SCOs. Alternative 2 would permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil to a minimum depth of 16 feet bgs, and any remaining soil/fill would meet Track 4 Site-Specific SCOs. Alternative 1 would eliminate a greater total mass of contaminants on Site.

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.

Both alternatives will utilize standard methods that are commonly available and routinely applied by the industry. They use standard materials and services that are well established technology. 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.

Initial costs associated with the Track 1 alternative may be higher than the Track 4 alternative based on soil volume. However, long-term costs higher for Alternative 2 than Alternative 1 based on implementation of a Site Management Plan and placement of a deed restriction as part of Alternative 2. In both cases, appropriate public health and environmental protections are achieved.

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.

Based on the overall goals of the remedial program and initial observations by the project team, both of the alternatives for the Site would be acceptable to the community. This RAWP will be subject to and undergo public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedial action. This public comment will be considered by OER prior to approval of this plan.

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 proposed redevelopment of the Site is compatible with its current zoning. Both alternatives provide comprehensive protection of public health and the environment for reasonably foreseeable uses of the Site, including restricted residential uses.

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.

4.0 REMEDIAL ACTION

4.1 SUMMARY OF PREFERRED REMEDIAL ACTION

The preferred remedial action alternative is the Track 1 Alternative. The preferred remedial action alternative achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative 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 (CPP);
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds;
3. Establish Track 1, Unrestricted Use Soil Cleanup Objectives (SCOs);
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas;
5. Excavation and removal of soil/fill exceeding Track 1 Unrestricted Use SCOs. Appropriate segregation of excavated media onsite if necessary;
6. Removal of underground storage tanks and closure of petroleum spills (if encountered) in compliance with applicable local, State and Federal laws and regulations;
7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID;
8. 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;

9. Collection and analysis of end-point samples to determine whether Track 1 Unrestricted Use SCOs are achieved;
10. Demarcation of residual soil/fill;
11. Installation of a vapor barrier system beneath the building slab;
12. Installation and operation of a passive sub-slab depressurization system;
13. Construction and maintenance of an engineered composite cover across the entire site as part of construction to prevent human exposure to residual soil/fill remaining under the Site;
14. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
15. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations;
16. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations;
17. Submission of a RAR that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP;
18. If Track 1 Unrestricted Use SCOs are not achieved, submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual historic fill, including plans for inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency; and

19. If Track 1 Unrestricted Use SCOs are not achieved, recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and a requirement that management of these controls must be in compliance with an approved SMP; and Institutional Controls including prohibition of the following: (1) vegetable gardening and farming; (2) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (3) higher level of land usage without OER-approval.

4.2 SOIL CLEANUP OBJECTIVES AND SOIL/FILL MANAGEMENT

Track 1 Soil Cleanup Objectives (SCOs) are proposed for this project. If Track 1 is not achieved, the following Track 4 Site-Specific SCOs will be used:

<u>Contaminant</u>	<u>Track 4 SCOs</u>
Total SVOCs	250 ppm
Lead	1000 ppm
Mercury	1.5 ppm
Copper	750 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 D**. The entire Site will be excavated to a depth of approximately 16 feet to install the new buildings' foundations and cellars.

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.

Estimated Soil/Fill Removal Quantities

The total quantity of soil/fill expected to be excavated and disposed off-Site is 2,400 tons.

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

End-Point Sampling

Removal actions under this plan will be performed in conjunction with remedial end-point sampling. For assessment of attainment of Track 1 Unrestricted Use SCOs, the RI provided endpoint data meeting Unrestricted Use SCOs at 16-18 feet below grade across the Site. End-point sampling frequency will consist of two (2) bottom samples collected from the excavation. To evaluate attainment of Track 1 Unrestricted Use SCOs, endpoint samples will be analyzed for the full list of VOCs, SVOCs, PCBs, Pesticides, and Metals. Bottom samples will be taken within 24 hours of excavation, and will be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours will be taken at six to twelve inches.

If hotspots are identified during the remedial action or construction, hotspot removal actions under this plan will be performed in conjunction with remedial end-point sampling. Remedial end-point sampling frequency will consist of the following:

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 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.

New York State ELAP certified labs will be used for all end-point sample analyses. Labs for 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. End-point samples will be analyzed for trigger analytes (those for which SCO exceedance is identified) utilizing the following methodology:

Soil analytical methods will include:

- 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.

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.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. 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-paks” 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 withalconox® detergent solution and scrub
- Rinse with tap water
- Rinse with distilled or deionized water

Prepare field blanks by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. 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. One blind duplicate sample will be prepared and submitted for analysis every 20 samples.

Import and Reuse of Soils

Import of soils onto the property and reuse of soils already onsite will be performed in conformance with the Soil/Materials Management Plan in Appendix 3. The estimated quantity of soil to be imported into the Site for backfill and cover soil is 0 tons. The estimated quantity of onsite soil/fill expected to be reused/relocated on Site is 0 tons.

4.3 ENGINEERING CONTROLS

Engineering controls are not required for this Track 1 cleanup. However, as part of construction the following elements are being built to provide protections against soil vapor from surrounding properties: composite cover system, vapor barrier, and passive sub-slab depressurization system.

If Track 1 is not achieved, these three elements will constitute engineering controls that will be employed in the remedial action to address residual contamination remaining at the site.

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. The entire property will be covered by an engineered permanent cover system comprised of a 3-foot concrete-building slab beneath the proposed building.

The composite cover system is a permanent engineering control for the Site.

Vapor Barrier

Migration of soil vapor will be mitigated with a combination of building slab, vapor barrier, and passive sub-slab depressurization system.

A high density polyethylene vapor barrier liner (HPDE) will be installed over the SSDS prior to pouring the building's concrete slab. The vapor barrier will consist of a 20 mil HDPE geomembrane liner. The vapor barrier will extend throughout the area occupied by the footprint of the new building which is to be constructed at the Site.

The Remedial Closure Report will include photographs (maximum of two photos per page) of the installation process, PE certified letter (on company letterhead) from primary contractor responsible for installation oversight and field inspections, and a copy of the manufacturers certificate of warranty.

Passive Sub-slab depressurization

Migration of soil vapor will be mitigated with the construction of a passive sub-slab depressurization system.

Sub-slab depressurization will be accomplished by installing strategically located, sub-slab collection points consisting of slotted Schedule 40 PVC pipe surrounded by a highly porous medium (i.e., gravel). Each collection point will be connected to solid Schedule 40 PVC which will be routed at a positive pitch through the sub-slab medium to vertical risers. Once the building slab is poured and building structure is in place, piping (material consistent with local building code) will be routed vertically through the interior of the building and terminating just

above the building roof. Each rooftop pipe terminus will act as the system discharge points, and all discharge points will be properly located to prevent re-entrainment of vapors into roof-mounted air intakes or other building openings.

4.4 INSTITUTIONAL CONTROLS

Institutional Controls (IC) are not required for this Track 1 remedial action. If Track 1 is not achieved, ICs will be incorporated in this remedial action to manage residual soil/fill and other media and render the Site protective of public health and the environment. Institutional Controls are listed below. Long-term employment of EC/ICs will be established in a Declaration of Covenant and Restrictions (DCR) assigned to the property by the title holder and will be implemented under a site-specific Site Management Plan (SMP) that will be included in the RAR.

If Track 1 is not achieved, 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 Site Management Plan, 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 Site Management Plan in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of ECs. 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 annually and will comply with RCNY §43-1407(l)(3).

- Vegetable gardens and farming on the Site are prohibited;
- 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 and retail use and will not be used for a higher level of use without prior approval by OER.

4.5 SITE MANAGEMENT PLAN

A Site Management Plan (SMP) will be implemented under this Remedial Action if Track 1 Unrestricted Use SCOs are not achieved. 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 the DCR and 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 DCR and 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) implementation of monitoring programs; (3) operation and maintenance of EC's; (4) inspection and certification of EC's; and (5) reporting.

Site management activities, reporting, and EC/IC certification will be scheduled on an periodic basis to be established in 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 March 31 of the year following the reporting period.

4.6 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

Investigations reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). The objective of the qualitative exposure assessment is to identify potential receptors 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.

Investigations reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). 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 by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This EA 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 Sources

Historic fill material is present at the Site from grade to approximately 8 feet below grade. Based on the results of the RIR, the contaminants of concern found are:

Soil

- Metals, including arsenic, copper, lead, mercury and zinc, exceeding Track 2 Restricted Residential SCOs; and
- PAHs exceeding Track 2 Restricted Residential SCOs.

Groundwater

- Metals exceeding GQS.

Soil vapor

- Chlorinated VOCs detected at low concentrations.

Nature, Extent, Fate and Transport of Contaminants

SVOCs and metals are present in the historic fill materials throughout the Site. The metal contaminants that were found in on-Site filtered groundwater are linked with regional impacts, rather than an onsite source.

The chlorinated VOCs that were identified in soil gas at low concentrations at the Site were not found in any on-Site soil or groundwater sample.

Receptor Populations

On-Site Receptors – The Site is currently vacant with a one-story building, and access to the Site is restricted. Therefore, the only potential on-Site receptors are Site Representatives and trespassers. During redevelopment of the Site, the on-Site potential receptors will include construction workers, site representatives, and visitors. Once the Site is redeveloped, the on-Site potential sensitive receptors will include adult and child building residents, visitors, and workers.

Off-Site Receptors - Potential off-Site receptors within a 0.25-mile radius of the Site include: adult and child residents, and commercial and construction workers, pedestrians, trespassers, and cyclists, based on the following:

1. Commercial Businesses (up to 0.25 mile) – existing and future
2. Residential Buildings (up to 0.25 mile) – existing and future
3. Building Construction/Renovation (up to 0.25 mile) – existing and future
4. Pedestrians, Trespassers, Cyclists (up to .25 mile) – existing and future
5. Schools (up to .25 mile) – existing and future

Potential Points of Exposure

Existing

The Site is vacant and capped with a building slab, limiting exposure to soil/ fill at the site. Groundwater is not exposed at the Site, and because the Site is served by the public water supply, groundwater is not used at the Site. Soil gas could intrude into and accumulate in existing building.

Construction/ Remediation Activities

Once redevelopment activities begin, construction workers will come into direct contact with surface and subsurface soils as a result of on-Site construction/excavation activities. Similarly, off-Site receptors could be exposed to dust from onsite activities. During construction, on-Site and off-Site exposures to contaminated dust from on-Site will be addressed through dust controls, and through the implementation of the Community Air Monitoring Plan and a Construction Health and Safety Plan. Groundwater is not anticipated to be encountered, and there will be no structures on site where soil vapor could accumulate.

Proposed Future Conditions

Once the remedial actions and redevelopment of the Site has been completed, there will be no potential on-Site or off-Site exposure pathways. Not only will historic fill be removed, but the Site will also be fully capped with the concrete building slab, which will prevent contact with any residual soils. Any exposures to vapors from off-site sources will be prevented by installation of a vapor barrier and building slab.

Potential Routes of Exposure

An exposure route is the mechanism by which a receptor comes into contact with a chemical. Three potential primary routes exist by which chemicals can enter the body:

- Ingestion of water, fill or soil;
- Inhalation of vapors and particulates; and
- Dermal contact with water, fill, or soil.

Overall Human Health Exposure Assessment

Based upon this analysis, complete on-site exposure pathways appear to be present only during the current unremediated phase and the remedial action phase. Under current conditions, on-Site exposure pathways are minimized by preventing access to the Site. During the remedial action, on-site exposure pathways will be eliminated by preventing access to the Site, through implementation of soil/materials management, stormwater pollution prevention, dust controls, employment of a community air monitoring plan, and implementation of a Construction Health and Safety Plan. After the remedial action is complete, there will be no remaining exposure pathways. The vapor barrier, SSDS and long-term site management will interrupt any remaining

exposure pathways. Continued protection after the remedial action will be achieved by the implementation of site management including periodic inspection and certification of the performance of remedial controls.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 PROJECT ORGANIZATION AND OVERSIGHT

Principal personnel who will participate in the remedial action include Noam Shemel, administrator. The Professional Engineer (PE) for this project is Ray Kahn.

5.2 SITE SECURITY

Site access will be controlled by a fence, which will surround the property.

5.3 WORK HOURS

The hours for operation of remedial construction will be from 7:00 AM to 6:00 PM. These hours conform to the New York City Department of Buildings construction code requirements.

5.4 CONSTRUCTION HEALTH AND SAFETY PLAN

The Health and Safety Plan is included in Appendix 4. The Site Safety Coordinator will be Ebrahim Safa. 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, including 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 be required to sign an HASP acknowledgment. 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 HASP. 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 baling/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. Exceedences 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 shutdown.

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/m^3) 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 $150 \text{ mcg}/\text{m}^3$ 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 $150 \text{ mcg}/\text{m}^3$ 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 $150 \text{ mcg}/\text{m}^3$ 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 to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Markout 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.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations. The location of proposed equipment and material staging areas, truck inspection station, stockpile areas, and other pertinent remedial management features is shown in Figure 5.

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 roads 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 NYC VCP 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 potable water will be utilized for the removal of soil from vehicles and equipment, as necessary.

5.8 TRAFFIC CONTROL

Drivers of trucks leaving the NYC VCP 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 make a left onto Great Jones Street, then a left onto Broadway, right onto Broome Street and a left to Watts Street take the ramp to the Holland.

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 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.

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 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 that the remedial action with the deviation(s) is protective of public health and the environment.

5.13 DATA USABILITY SUMMARY REPORT

The primary objective of a Data Usability Summary Report (DUSR) is to determine whether or not data meets the site specific criteria for data quality and data use. The DUSR provides an evaluation of analytical data without third party data validation. The DUSR for post-remedial samples collected during implementation of this RAWP will be included in the Remedial Action Report (RAR).

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;
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy;
- Site Management Plan;
- 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 and all material characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action and DUSR;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas;
- Account 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.
- Reports and supporting material will be submitted in digital form.

Remedial Action Report Certification

The following certification will appear in front of the Executive Summary of the Remedial Action Report. The certification will include the following statements:

I, Ray Kahn, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the 372 Lafayette Street Site Site number.

I certify that the OER-approved Remedial Action Work Plan dated month day year and Stipulations in a letter dated month day, year; if any 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.

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 4 month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
Mobilization	6-8	0.5
Remedial Excavation	7-9	3
Demobilization	11-14	.5
Record Declaration of Covenants and Restrictions	12-15	3
Submit Remedial Action Report	16-20	4

APPENDIX 1

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and Great Jones Lafayette 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, Great Jones Lafayette 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, Hannah Moore, 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 in the nearest public library that maintains evening and weekend hours. 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. Great Jones Lafayette LLC will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

Repository Name: New York Public Library

Repository Address: 10 Jersey Street, NY, NY

Repository Telephone Number: (212) 966-3424

Repository Hours of Operation: Monday and Tuesday: 12-7 pm

Tuesday and Thursday: 10-6 pm

Friday and Saturday: 10-5 pm

Sunday: Closed

Digital Documentation. NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease of use.

The major issues of concern to the public will be potential impacts of nuisance odors and dust during the disturbance of historic fill soils at the Site. This work will be performed in accordance with procedures which will be specified under a detailed Remedial Program which considers and takes preventive measures for exposures to future residents of the property and those on adjacent properties during construction. Detailed plans to monitor the potential for exposure including a Construction Health and Safety Plan and a Community Air Monitoring Plan are required components of the remedial program. Implementation of these plans will be under the direct oversight of the New York City Department of Environmental Remediation (NYCOER).

These plans will specify the following worker and community health and safety activities during remedial activity at the Site:

- On-Site air monitoring for worker protection,
- Perimeter air monitoring for community protection.

The Health and Safety Plan and the Community Air Monitoring Plan prepared as part of the Remedial Action Work Plan will be available for public review at the document repository.

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 prepared by Great Jones Lafayette LLC, reviewed and approved by OER prior to distribution and mailed by Great Jones Lafayette 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. See flow chart on the following page, which identifies when during the NYC VCP public notices are issued: 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.

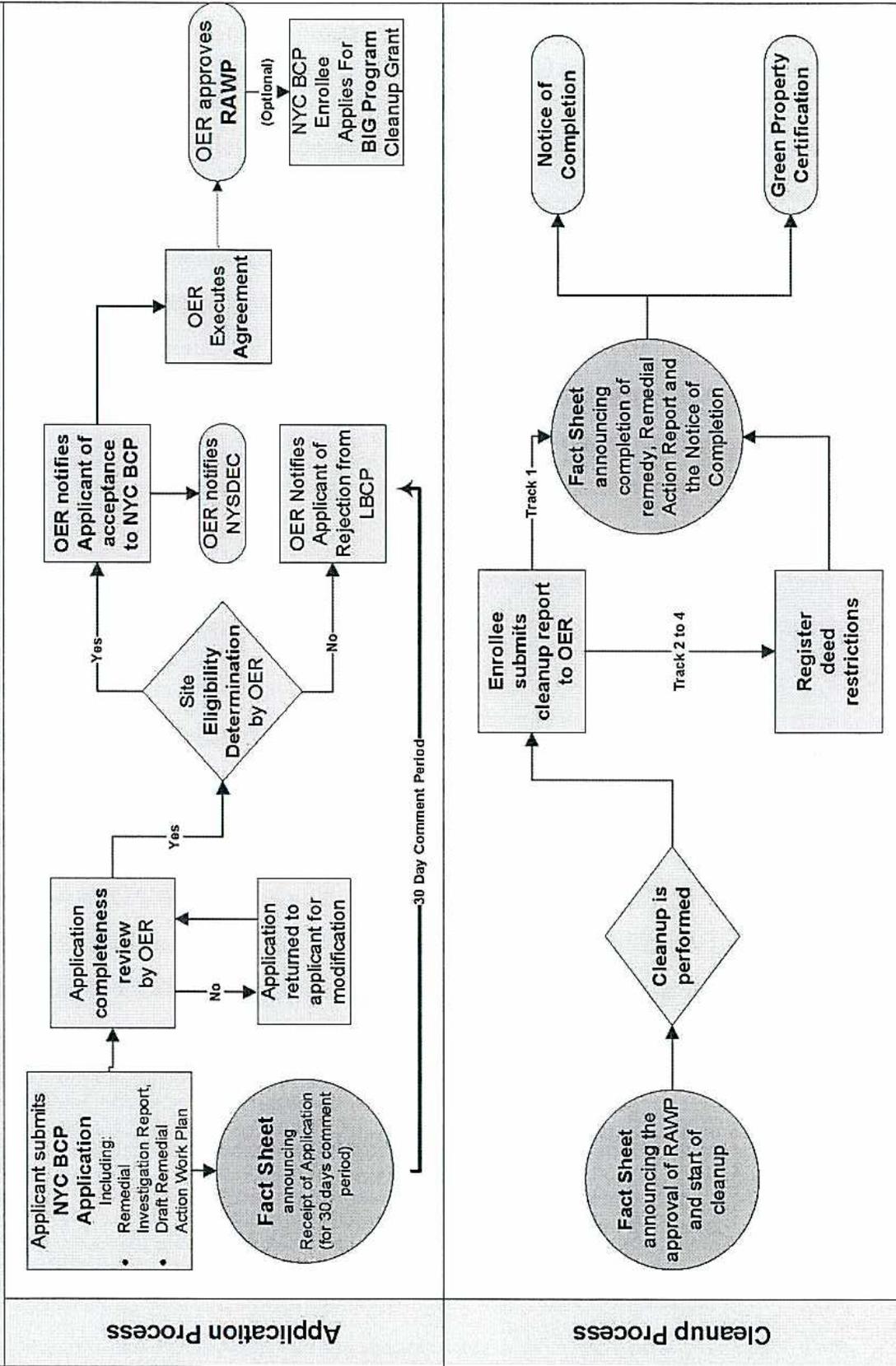
- **Public Notice announcing the approval of the RAWP and the start of remediation**

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.

Flow Chart For NYC Brownfield Cleanup Program (NYC BCP)



APPENDIX 2

SUSTAINABILITY STATEMENT

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

Reuse of Clean, Recyclable Materials. Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction.

This project intends to use recycled concrete aggregate wherever possible in grading and backfilling the site.

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.

Reduce Consumption of Virgin and Non-Renewable Resources. Reduced consumption of virgin and non-renewable resources lowers the overall environmental impact of the project on the region by conserving these resources.

The project will reduce the consumption of virgin materials by substituting recycled concrete aggregate for mined gravel and/or sand backfill whenever possible.

An estimate of the quantity (in tons) of virgin and non-renewable resources, the use of which will be avoided 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.

Recycled concrete materials and other backfill materials will be locally sourced reducing the energy consumption associated with transporting these materials to the Site.

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.

The propose development will be connecting to the natural gas lines as their source of fuel for heating and general use.

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.

The development of the site will include passive sub slab depressurization system to vent any potential vapors that may accumulate in the soil as well as a vapor barrier system beneath the foundation slab.

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

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. Great Jones Lafayette 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. Great Jones Lafayette 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.

APPENDIX 3

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 RAR. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Completion.

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 to make a left onto Great Jones Street, then a left onto Broadway, right onto Broome Street and a left to Watts Street take the ramp to the Holland. 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 Enrollee 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 Manhattan, New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. 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 RAR.

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 RAR.

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 RAR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RAR. 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 established in this plan may be reused on-Site. The soil cleanup objectives for on-Site reuse are listed in Table 11. '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 comparable soil/fill material, 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 RAWP are followed.

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.

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 RAWP. The RAR 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.

Source Screening and 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 RAR. 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 STORM-WATER POLLUTION PREVENTION

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAWP (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

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 the Remedial Action Report.

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 the Remedial Action Report.

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 4
HEALTH AND SAFETY PLAN

Appendix 8

**Sample Hazardous or
Non-Hazardous Soil
Disposal Manifest**

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number		2. Page 1 of		3. Emergency Response Phone		4. Manifest Tracking Number			
		5. Generator's Name and Mailing Address						Generator's Site Address (if different than mailing address)			
Generator's Phone:											
6. Transporter 1 Company Name						U.S. EPA ID Number					
7. Transporter 2 Company Name						U.S. EPA ID Number					
8. Designated Facility Name and Site Address						U.S. EPA ID Number					
Facility's Phone:											
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))					10. Containers		11. Total	12. Unit	13. Waste Codes	
						No.	Type	Quantity	Wt./Vol.		
	1.										
	2.										
	3.										
	4.										
14. Special Handling Instructions and Additional Information											
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.											
Generator's/Offeror's Printed/Typed Name						Signature			Month	Day	Year
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____											
17. Transporter Acknowledgment of Receipt of Materials											
Transporter 1 Printed/Typed Name						Signature			Month	Day	Year
Transporter 2 Printed/Typed Name						Signature			Month	Day	Year
18. Discrepancy											
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection											
						Manifest Reference Number:					
18b. Alternate Facility (or Generator)						U.S. EPA ID Number					
Facility's Phone:											
18c. Signature of Alternate Facility (or Generator)						Signature			Month	Day	Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)											
1.			2.			3.			4.		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a											
Printed/Typed Name						Signature			Month	Day	Year

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of
3. Generator's Name and Mailing Address				
4. Generator's Phone ()				
5. Transporter 1 Company Name	6. US EPA ID Number	A. State Transporter's ID		
		B. Transporter 1 Phone		
7. Transporter 2 Company Name	8. US EPA ID Number	C. State Transporter's ID		
		D. Transporter 2 Phone		
9. Designated Facility Name and Site Address	10. US EPA ID Number	E. State Facility's ID		
		F. Facility's Phone		
11. WASTE DESCRIPTION		12. Containers	13. Total Quantity	14. Unit
		No.		WT/Vol.
a.				
b.				
c.				
d.				
G. Additional Descriptions for Materials Listed Above		H. Handling Codes for Wastes Listed Above		
15. Special Handling Instructions and Additional Information				
16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.				
Printed/Typed Name		Signature	Date	
			Month	Day Year
17. Transporter 1 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature	Date	
			Month	Day Year
18. Transporter 2 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature	Date	
			Month	Day Year
19. Discrepancy Indication Space				
20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.				
Printed/Typed Name		Signature	Date	
			Month	Day Year

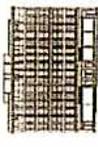
NON-HAZARDOUS WASTE

GENERATOR

TRANSPORTER

FACILITY

Figures



27 LAFAYETTE STREET
NEW YORK, NY 10012

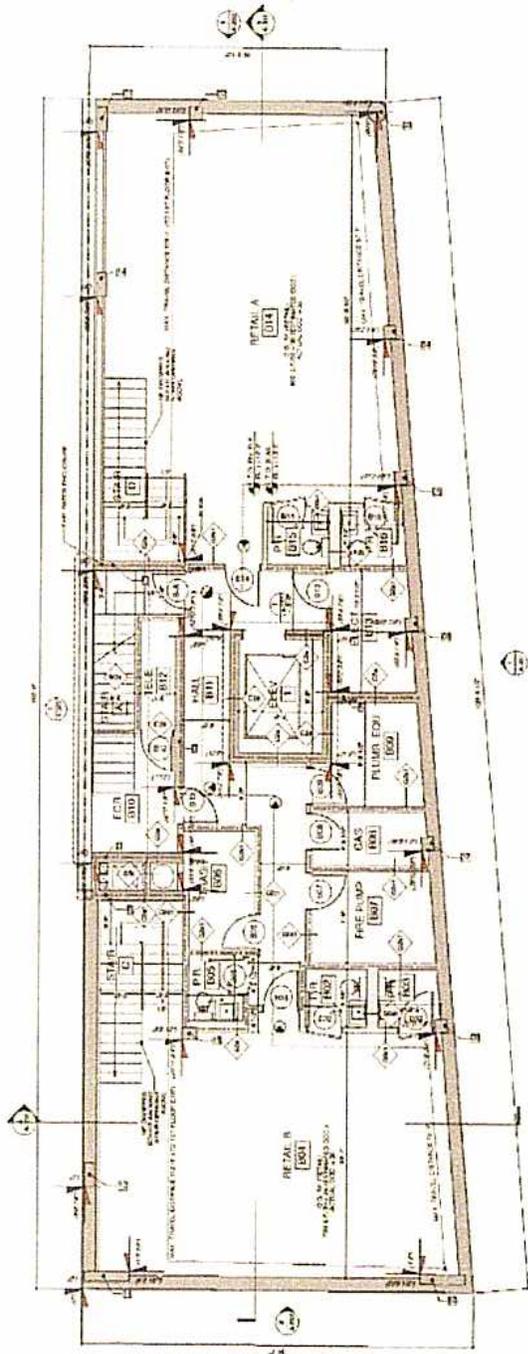
DATE: 01/11/12
SCALE: 1/4" = 1'-0"



CELLAR PLAN

DATE: 01/11/12
SCALE: 1/4" = 1'-0"

© 01/11/12



CELLAR PLAN
SCALE: 1/4" = 1'-0"

PERMISSIBLE LOADS AT FLOOR LEVEL

ROOM NO.	TYPE OF FLOORING	FINISH	MAX. ALLOWABLE LOAD (PSF)
1001	CONCRETE	AS FURNISHED	125
1002	CONCRETE	AS FURNISHED	125
1003	CONCRETE	AS FURNISHED	125
1004	CONCRETE	AS FURNISHED	125
1005	CONCRETE	AS FURNISHED	125
1006	CONCRETE	AS FURNISHED	125
1007	CONCRETE	AS FURNISHED	125
1008	CONCRETE	AS FURNISHED	125
1009	CONCRETE	AS FURNISHED	125
1010	CONCRETE	AS FURNISHED	125
1011	CONCRETE	AS FURNISHED	125
1012	CONCRETE	AS FURNISHED	125
1013	CONCRETE	AS FURNISHED	125
1014	CONCRETE	AS FURNISHED	125
1015	CONCRETE	AS FURNISHED	125
1016	CONCRETE	AS FURNISHED	125
1017	CONCRETE	AS FURNISHED	125
1018	CONCRETE	AS FURNISHED	125
1019	CONCRETE	AS FURNISHED	125
1020	CONCRETE	AS FURNISHED	125
1021	CONCRETE	AS FURNISHED	125
1022	CONCRETE	AS FURNISHED	125
1023	CONCRETE	AS FURNISHED	125
1024	CONCRETE	AS FURNISHED	125
1025	CONCRETE	AS FURNISHED	125

NO.	REVISION	DATE
1	ISSUED FOR PERMITTING	01/11/12
2	ISSUED FOR PERMITTING	01/11/12
3	ISSUED FOR PERMITTING	01/11/12
4	ISSUED FOR PERMITTING	01/11/12
5	ISSUED FOR PERMITTING	01/11/12
6	ISSUED FOR PERMITTING	01/11/12
7	ISSUED FOR PERMITTING	01/11/12
8	ISSUED FOR PERMITTING	01/11/12
9	ISSUED FOR PERMITTING	01/11/12
10	ISSUED FOR PERMITTING	01/11/12
11	ISSUED FOR PERMITTING	01/11/12
12	ISSUED FOR PERMITTING	01/11/12
13	ISSUED FOR PERMITTING	01/11/12
14	ISSUED FOR PERMITTING	01/11/12
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16	ISSUED FOR PERMITTING	01/11/12
17	ISSUED FOR PERMITTING	01/11/12
18	ISSUED FOR PERMITTING	01/11/12
19	ISSUED FOR PERMITTING	01/11/12
20	ISSUED FOR PERMITTING	01/11/12
21	ISSUED FOR PERMITTING	01/11/12
22	ISSUED FOR PERMITTING	01/11/12
23	ISSUED FOR PERMITTING	01/11/12
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25	ISSUED FOR PERMITTING	01/11/12
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35	ISSUED FOR PERMITTING	01/11/12
36	ISSUED FOR PERMITTING	01/11/12
37	ISSUED FOR PERMITTING	01/11/12
38	ISSUED FOR PERMITTING	01/11/12
39	ISSUED FOR PERMITTING	01/11/12
40	ISSUED FOR PERMITTING	01/11/12
41	ISSUED FOR PERMITTING	01/11/12
42	ISSUED FOR PERMITTING	01/11/12
43	ISSUED FOR PERMITTING	01/11/12
44	ISSUED FOR PERMITTING	01/11/12
45	ISSUED FOR PERMITTING	01/11/12
46	ISSUED FOR PERMITTING	01/11/12
47	ISSUED FOR PERMITTING	01/11/12
48	ISSUED FOR PERMITTING	01/11/12
49	ISSUED FOR PERMITTING	01/11/12
50	ISSUED FOR PERMITTING	01/11/12

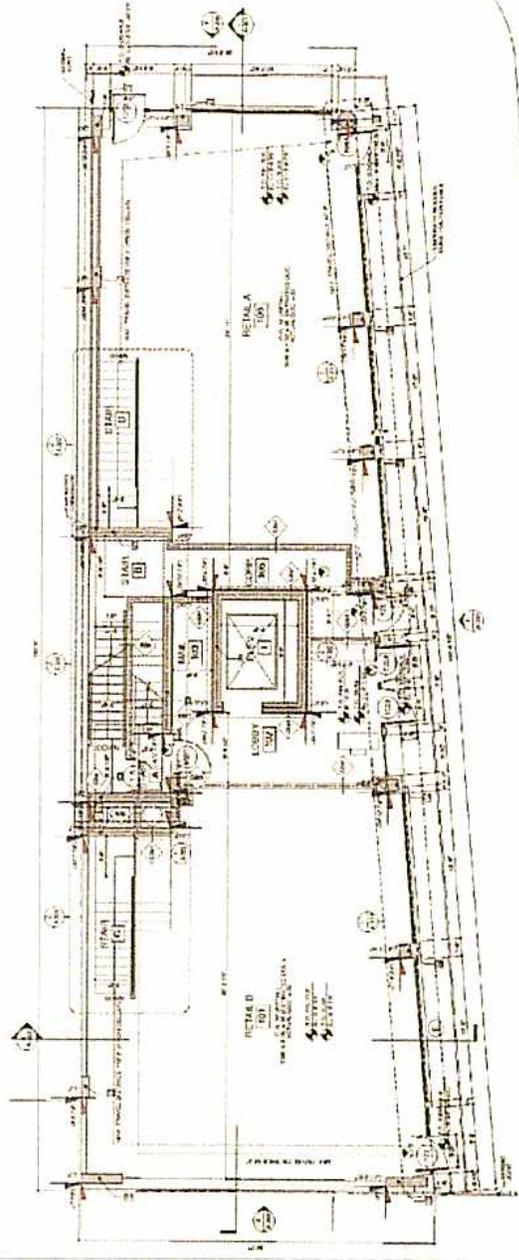
Figure 2.1

Sheet Title: Site Re-Development Plan	Project #: 2181173	Scale: N.T.S.
Client & Location: 11 Great Jones, LLC 738 Lafayette Street, NY NY	Date: May 1, 2012	Drawn By: MGT

ESPL Environmental Consultants Corp.
 Address: 2 West 35th Street
 NY 10001 Tel: 212-363-6599
 Email: info@espl.com www.espl.com

NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10

NO. 1
NO. 2
NO. 3
NO. 4
NO. 5
NO. 6
NO. 7
NO. 8
NO. 9
NO. 10



GROUND FLOOR PLAN
RETAIL & LOBBY
DATE: MAY 1, 2012
SCALE: AS SHOWN

NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10

GROUND FLOOR PLAN
DATE: MAY 1, 2012
SCALE: AS SHOWN
A-101.00
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Figure 2.2

Sheet Title: Site Re-Development Plan	Project #: 2181173	Scale: N.T.S.
Client & Location: 11 Great Jones, LLC 738 Lafayette Street, NY NY	Date: May 1, 2012	Drawn by: MGT

ESPL Environmental Consultants Corp.
 Address: 2 West 38th Street
 NY 10001 Tel: 212-363-ESPL
 Email: mail@espl.com www.espl.com

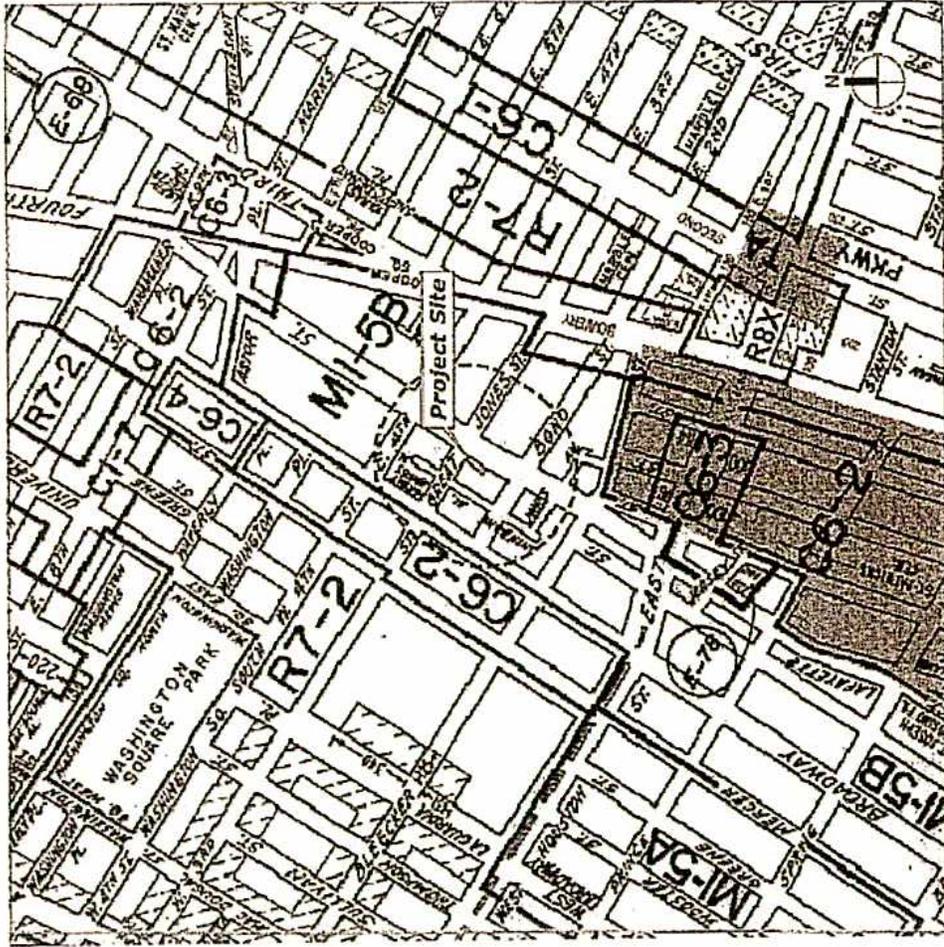


Figure 3

<p>ESPL Environmental Consultants Corp. Address: 2 West 39th Street NY 10001 Tel: 212-363-6594 Email: info@espl.com www.espl.com</p>	<p>Sheet Title: Surrounding Land Usage Map</p>	<p>Project #: R18117-3</p>	<p>Scale: N.T.S.</p>
<p>Client & Location: 11 Great Jones, LLC 738 Lafayette Street, NY NY</p>	<p>Date: May 1, 2012</p>	<p>Drawn By: MGT</p>	

LEGEND

EP-2



Projected End Point
Soil Sample Location

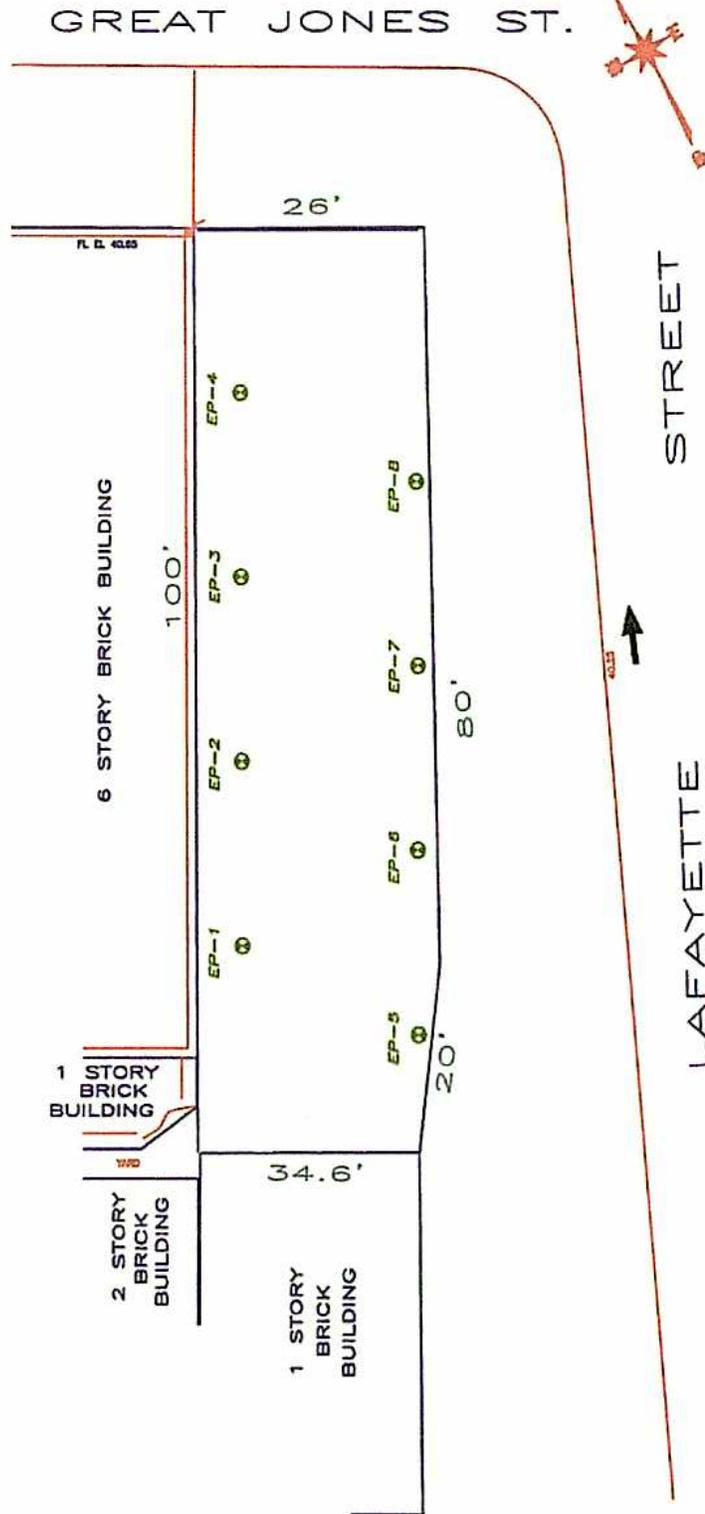
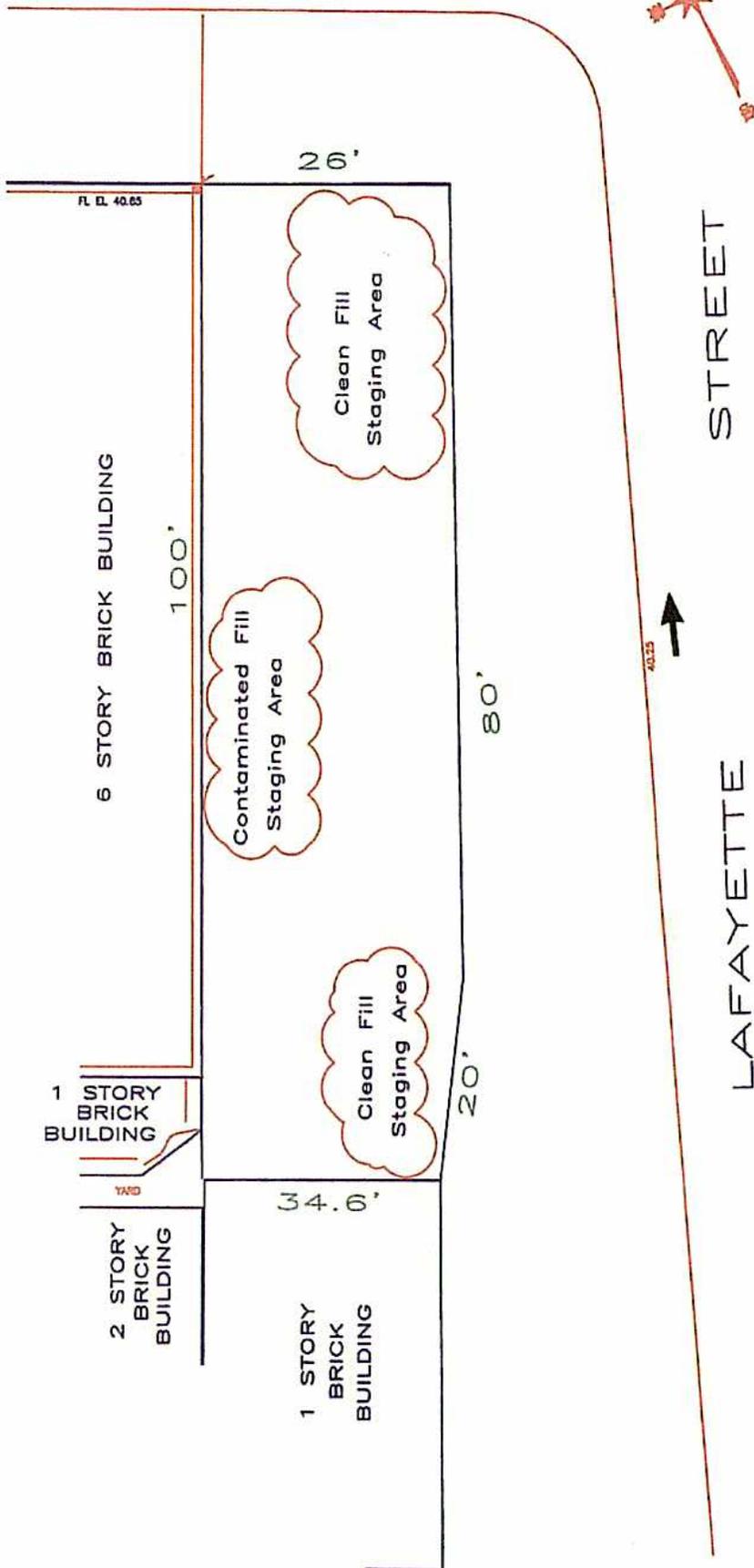


Figure 4

ESPL Environmental Consultants Corp. Address: 2 West 36th Street NY 10001 Tel: 212-363-ESPL Email: mol@espl.com www.espl.com	Sheet Title: Fig 4 Map of End-Point Sample Location	Project #: 212117-3	Scale: N.T.S.
	Client & Location: 11 Great Jones, LLC 732 Lafayette Street, NY, NY	Date: May 1, 2012	Drawn By: MGT

GREAT JONES ST.



STREET

LAFAYETTE

Figure 5

Scale: N.T.S.
 Drawn By: MGT

Project #: 212117-3
 Date: July 6, 2012

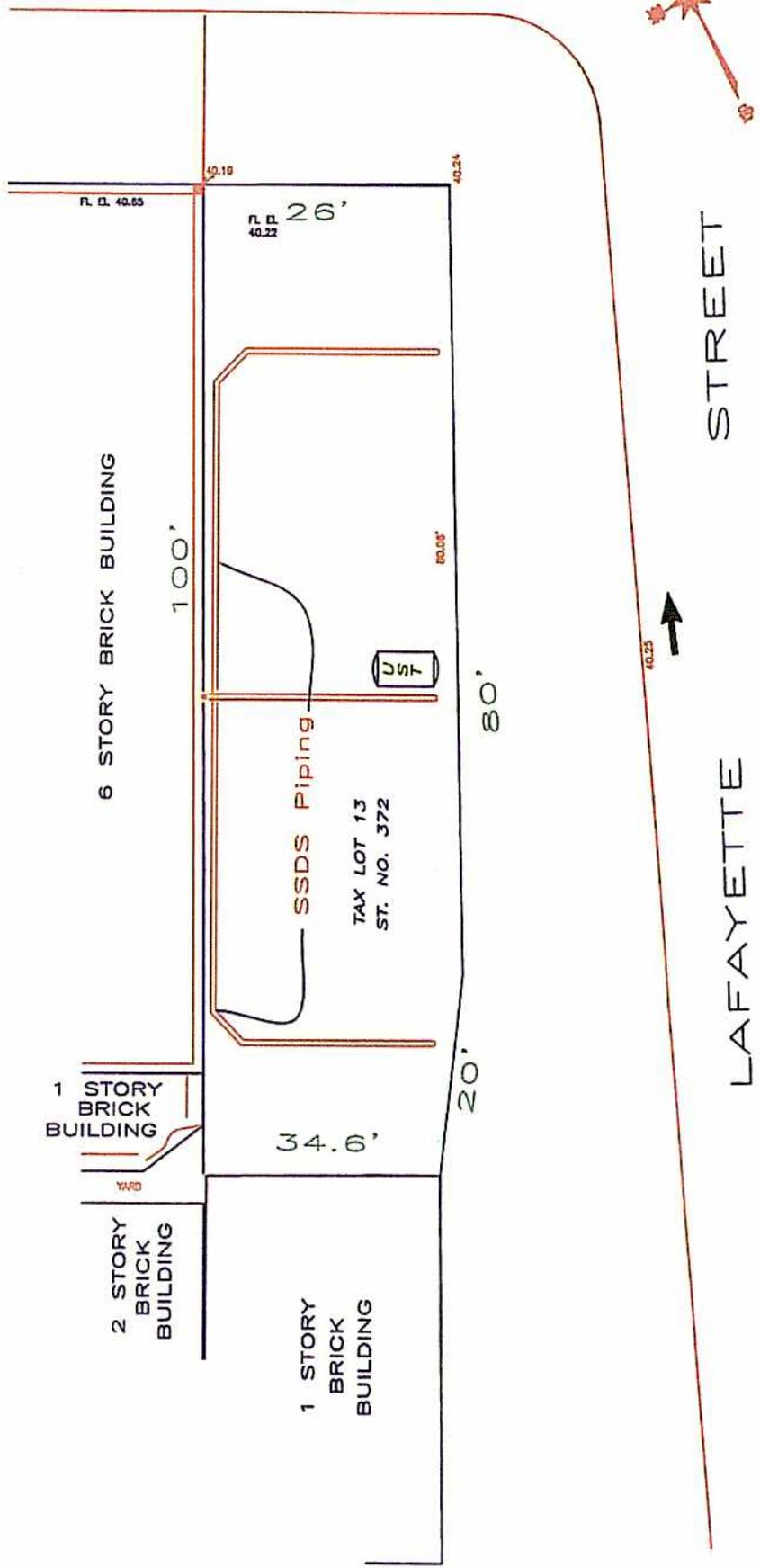
Sheet Title: Fig 5 Site Excavation & Fill Placement Location
 Client & Location: 11 Great Jones, LLC
 732 Lafayette Street, NY NY

ESPL Environmental Consultants Corp.
 Address: 2 West 32nd Street
 NY 10001 Tel: 212-563-6374
 Email: info@espl.com www.espl.com



ESPL Environmental Consultants Corp. Address: 2 West 32nd Street NY 10001 Tel: 212-363-6594 Email: mail@espl.com www.espl.com	Sheet Title: Fig 6 Vapor Barrier/Waterproofing Membrane Diagram	Project #: 812117-3	Scale: N.T.S.	Figure 6
	Client & Location: 11 Great Jones, LLC 732 Lafayette Street, NY NY	Date: July 27, 2012	Drawn By: MGT	

GREAT JONES ST.



STREET

LAFAYETTE

Figure 7

Sheet Title: Fig 7 Sub-slab Depressurization System Diagram	Project #: E12117-3	Scale: N.T.S.
Client & Location: 11 Great Jones, LLC 732 Lafayette Street, NY NY	Date: July 1, 2012	Drawn By: MGT

ESPL Environmental Consultants Corp.
 Address: 2 West 35th Street
 NY 10001 Tel: 212-363-6594
 Email: moll@espl.com www.espl.com

Tables

TABLE 1
372 Lafayette Avenue, NY, NY,
Volatile Organic Compounds Analysis (VOC)
Soil Samples

Sample ID	Date Collected	Matrix	EPA Methodology	Date Analyzed	Parameter/Units	EPB-1 (D)		EPW-2 (D)		Track 1 Unrestricted Use Part 375- 6.8(a)	Track 2 Restricted Use
						Soil	8260	Soil	8260		
CAS #						ug/kg		ug/kg			
						Results	RL	Results	RL		
sec-Butylbenzene	135-98-8									11,000	100,000
Styrene	100-42-5										
tert-Butylbenzene	98-06-6									5,900	100,000
Tetrachloroethene	127-18-4									1,300	5,500
Tetrahydrofuran (THF)	109-99-9										
Toluene	108-88-3									700	100,000
Total Xylenes	1330-20-7										
trans-1,2-Dichloroethene	156-60-5										100,000
trans-1,3-Dichloropropene	10061-02-6										
trans-1,4-dichloro-2-butene	110-57-6										
Trichloroethene	79-01-6									470	10,000
Trichlorofluoromethane	75-69-4										
Trichlorotrifluoroethane	76-13-1										
Vinyl chloride	75-01-4									20	210

EPB-1 (D) Sample ID (Depth)
 Values Exceed NYSDEC levels
 ND Not Detected
 BDL Below Detection Level

TABLE 2
372 Lafayette Avenue, NY, NY,
Semi-Volatile Organic Compounds Analysis (SVOC)
Soil Samples

Sample ID	Date Collected	Matrix	EPA Methodology	Date Analyzed	Parameter/Units	EPB-1 (D)		EPW-2 (D)		Track 1 Unrestrict ed Use Part 375- 6.8(a)	Track 2 Restricted Use
						Soil	Soil	Soil	Soil		
						CAS #	8270	8270			
							ug/kg	ug/kg			
						Results	RL	Results	RL		
1,2,4,5-Tetrachlorobenzene						95-94-3					
1,2,4-Trichlorobenzene						120-82-1					
1,2-Dichlorobenzene						95-50-1					
1,3-Dichlorobenzene						541-73-1					
1,4-Dichlorobenzene						106-46-7					
2,4,5-Trichlorophenol						95-95-4					
2,4,6-Trichlorophenol						88-06-2					
2,4-Dichlorophenol						120-83-2					
2,4-Dimethylphenol						105-67-9					
2,4-Dinitrophenol						51-28-5					
2,4-Dinitrotoluene						121-14-2					
2,6-Dinitrotoluene						606-20-2					
2-Chloronaphthalene						91-58-7					
2-Chlorophenol						95-57-8					
2-Methylnaphthalene						91-57-6					
2-Methylphenol (o-cresol)						95-48-7					
2-Nitroaniline						88-74-4					
2-Nitrophenol						88-75-5					
3&4-Methylphenol (m&p-cresol)											
3,3'-Dichlorobenzidine						91-94-1					
3-Nitroaniline						99-09-2					
4,6-Dinitro-2-methylphenol						534-52-1					
4-Bromophenyl phenyl ether						101-55-3					
4-Chloro-3-methylphenol						59-50-7					
4-Chloroaniline						106-47-8					
4-Chlorophenyl phenyl ether						7005-72-3					
4-Nitroaniline						100-01-6					
4-Nitrophenol						100-02-7					
Acenaphthene						83-32-9				20,000	100,000
Acenaphthylene						208-96-8				100,000	100,000
Acetophenone						98-86-2					
Aniline						62-53-3					
Anthracene						120-12-7				100,000	100,000
Azobenzene						103-33-3					
Benz(a)anthracene						56-55-3				1,000	1,000
Benzidine						92-87-5					
Benzo(a)pyrene						50-32-8				1,000	1,000
Benzo(b)fluoranthene						205-99-2				1,000	1,000
Benzo(ghi)perylene						191-24-2				100,000	100,000
Benzo(k)fluoranthene						207-08-9				800	1,000
Benzoic acid						65-85-0					
Benzyl butyl phthalate						85-68-7					
Bis(2-chloroethoxy)methane						111-91-1					
Bis(2-chloroethyl)ether						111-44-4					
Bis(2-chloroisopropyl)ether						39638-32-9					
Bis(2-ethylhexyl)phthalate						117-81-7					
Carbazole						86-74-8					
Chrysene						218-01-9				1,000	1,000
Dibenz(a,h)anthracene						53-70-3				330	330
Dibenzofuran						132-64-9					
Diethyl phthalate						84-66-2					
Dimethylphthalate						131-11-3					
Di-n-butylphthalate						84-74-2					
Di-n-octylphthalate						117-84-0					
Fluoranthene						206-44-0				100,000	100,000
Fluorene						86-73-7				30,000	100,000
Hexachlorobenzene						118-74-1					

TABLE 2
 372 Lafayette Avenue, NY, NY,
 Semi-Volatile Organic Compounds Analysis (SVOC)
 Soil Samples

Sample ID	Date Collected	Matrix	EPA Methodology	Date Analyzed	Parameter/Units	EPB-1 (D)		EPW-2 (D)		Track 1 Unrestrict ed Use Part 375- 6.8(a)	Track 2 Restricted Use
						Soil	Soil	Soil	Soil		
CAS #						8270	8270	8270	8270		
						ug/kg	ug/kg	ug/kg	ug/kg		
						Results	RL	Results	RL		
Hexachlorobutadiene	87-68-3										
Hexachlorocyclopentadiene	77-47-4										
Hexachloroethane	67-72-1										
Indeno(1,2,3-cd)pyrene	193-39-5									500	500
Isophorone	78-59-1										
Naphthalene	91-20-3									12,000	100,000
Nitrobenzene	98-95-3										
N-Nitrosodimethylamine	62-75-9										
N-Nitrosodi-n-propylamine	621-64-7										
N-Nitrosodiphenylamine	86-30-6										
Pentachloronitrobenzene	608-93-5										
Pentachlorophenol	87-86-5									800	2,400
Phenanthrene	85-01-8									100,000	100,000
Phenol	108-95-2									330	100,000
Pyrene	129-00-0									100,000	100,000
Pyridine	110-86-1										

EPB-1 (D) Sample ID (Depth)
 Values Exceed NYSDEC levels
 ND Not Detected

TABLE 3
 372 Lafayette Avenue, NY, NY,
 Polychlorinated Biphenyls Analysis (PCBs)
 Soil Samples

Sample ID	CAS #	EPB-1 (D)		EPW-2 (D)		Track 1 Unrestrict ed Use Part 375- 6.8(a)	Track 2 Restricted Use
		Results	RL	Results	RL		
Date Collected							
Matrix		Soil		Soil			
EPA Methodology		8082		8082			
Date Analyzed							
Parameter/Units		ug/kg		ug/kg			
		Results	RL	Results	RL		
PCB-1016	12674-11-2					100	1,000
PCB-1221	11104-28-2					100	1,000
PCB-1232	11141-16-5					100	1,000
PCB-1242	53469-21-9					100	1,000
PCB-1248	12672-29-6					100	1,000
PCB-1254	11097-69-1					100	1,000
PCB-1260	11096-82-5					100	1,000
PCB-1262	37324-23-5					100	1000
PCB-1268	11100-14-4					100	1000

EPB-1 (D) Sample ID (Depth)
 Values Exceed NYSDEC levels
 ND Not Detected
 BDL Below Detection Level

TABLE 4
372 Lafayette Avenue, NY, NY,
Metals Analysis
Soil Samples

Sample ID	CAS #	EPB-1 (D)		EPW-2 (D)		Track 1 Unrestricted Use Part 375- 6.8(a)	Track 2 Restricted Use
Date Collected							
Matrix		Soil		Soil			
EPA Methodology		6010-7471		6010-7471			
Date Analyzed**							
Parameter/Units		mg/Kg		mg/Kg			
		Results	RL	Results	RL		
Aluminum	7429-90-5						
Antimony	7440-36-0						
Arsenic	7440-38-2					13	16
Barium	7440-39-3					350	350
Beryllium	7440-41-7					7.2	14
Cadmium	7440-43-9					2.5	2.5
Calcium	7440-70-2						
Chromium	7440-47-3						
Cobalt	7440-48-4						
Copper	7440-50-8					50	270
Iron	7439-89-6						
Lead	7439-92-1					63	400
Magnesium	7439-95-4						
Manganese	7439-96-5					1,600	2,000
Mercury	7439-97-6					0.18	0.81
Nickel	7440-02-0					30	140
Potassium	7440-09-7						
Selenium	7782-49-2					4	36
Silver	7440-22-4					2	36
Sodium	7440-23-5						
Thallium	7440-28-0						
Vanadium	7440-62-2						
Zinc	7440-66-6					109	2,200

EPB-1 (D) Sample ID (Depth)
 Values Exceed NYSDEC levels
 ND Not Detected
 BDL Below Detection Level

TABLE 5
 372 Lafayette Avenue, NY, NY,
 Volatile Organic Compounds Analysis (VOC)
 Groundwater Samples

Sample ID	Date Collected	Matrix	EPA Methodology	Date Analyzed	Parameter/Units	MW-1		MW-2		MW-3		Blank Field		Blank Trip		TAGM /TOGS GW
						GW	8260	GW	8260	GW	8260	GW	8260	GW	8260	
		CAS #	ug/L		ug/L		ug/L		ug/L		ug/L					
Results	RL		Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL		
sec-Butylbenzene	135-98-8															5
Styrene	100-42-5															5
tert-Butylbenzene	98-06-6															5
Tetrachloroethene	127-18-4															5
Tetrahydrofuran (THF)	109-99-9															50
Toluene	108-88-3															5
Total Xylenes	1330-20-7															5
trans-1,2-Dichloroethene	156-60-5															5
trans-1,3-Dichloropropene	10061-02-6															
trans-1,4-dichloro-2-butene	110-57-6															5
Trichloroethene	79-01-6															5
Trichlorofluoromethane	75-69-4															5
Trichlorotrifluoroethane	76-13-1															5
Vinyl chloride	75-01-4															2

 Values Exceed NYSDEC levels
 ND Not Detected
 BDL Below Detection Level

TABLE 6
372 Lafayette Avenue, NY, NY,
Semi-Volatile Organic Compounds Analysis (SVOC)
Groundwater Samples

Sample ID	CAS #	MW-1		MW-2		MW-3		TAGM /TOGS GW
Date Collected								
Matrix		GW		GW		GW		
EPA Methodology		8270		8270		8270		
Date Analyzed								
Parameter/Units		ug/L		ug/L		ug/L		
		Results	RL	Results	RL	Results	RL	
1,2,4-Trichlorobenzene	95-94-3							
1,2-Dichlorobenzene	120-82-1							4.7
1,3-Dichlorobenzene	95-50-1							5
1,4-Dichlorobenzene	541-73-1							5
2,4,5-Trichlorophenol	106-46-7							1
2,4,6-Trichlorophenol	95-95-4							1
2,4-Dichlorophenol	88-06-2							1
2,4-Dimethylphenol	120-83-2							5
2,4-Dinitrophenol	105-67-9							5
2,4-Dinitrotoluene	51-28-5							5
2,6-Dinitrotoluene	121-14-2							5
2-Chloronaphthalene	606-20-2							10
2-Chlorophenol	91-58-7							1
2-Methylnaphthalene	95-57-8							
2-Methylphenol (o-cresol)	91-57-6							5
2-Nitroaniline	95-48-7							5
2-Nitrophenol	88-74-4							5
3&4-Methylphenol (m&p-cresol)	88-75-5							
3,3'-Dichlorobenzidine								5
3-Nitroaniline	91-94-1							5
4,6-Dinitro-2-methylphenol	99-09-2							1
4-Bromophenyl phenyl ether	534-52-1							
4-Chloro-3-methylphenol	101-55-3							5
4-Chloroaniline	59-50-7							5
4-Chlorophenyl phenyl ether	106-47-8							
4-Nitroaniline	7005-72-3							5
4-Nitrophenol	100-01-6							1
Acetophenone	100-02-7							
Aniline	83-32-9							5
Anthracene	208-96-8							50
Azobenzene	98-86-2							5
Benzidine	62-53-3							5
Benzoic acid	120-12-7							
Benzyl butyl phthalate	103-33-3							50
Bis(2-chloroethoxy)methane	56-55-3							5
Bis(2-chloroethyl)ether	92-87-5							1
Bis(2-chloroisopropyl)ether	50-32-8							
Carbazole	205-99-2							
Dibenzofuran	191-24-2							5
Diethyl phthalate	207-08-9							50
Dimethylphthalate	65-85-0							50
Di-n-butylphthalate	85-68-7							50
Di-n-octylphthalate	111-91-1							50
Fluoranthene	111-44-4							50
Fluorene	39638-32-9							50
Hexachlorobutadiene	117-81-7							0.5
Hexachlorocyclopentadiene	86-74-8							5
Isophorone	218-01-9							50
Naphthalene	53-70-3							10
Nitrobenzene	132-64-9							5
N-Nitrosodimethylamine	84-66-2							
N-Nitrosodi-n-propylamine	131-11-3							
N-Nitrosodiphenylamine	84-74-2							50
Phenol	117-84-0							1
Pyrene	206-44-0							50
Pyridine	86-73-7							50

 Values Exceed NYSDEC levels
 ND Not Detected
 BDL Below Detection Level

TABLE 7
372 Lafayette Avenue, NY, NY,
Polychlorinated Biphenyls Analysis (PCBs)
Groundwater Samples

Sample ID	CAS #	MW-1		MW-2		MW-3		TAGM /TOGS GW
		GW	GW	GW	GW	GW	GW	
Date Collected								
Matrix		8082	8082	8082	8082	8082	8082	
EPA Methodology								
Date Analyzed								
Parameter/Units		mg/L		mg/L		mg/L		
		Results	RL	Results	RL	Results	RL	
PCB-1016	12674-11-2							0.09
PCB-1221	11104-28-2							0.09
PCB-1232	11141-16-5							0.09
PCB-1242	53469-21-9							0.09
PCB-1248	12672-29-6							0.09
PCB-1254	11097-69-1							0.09
PCB-1260	11096-82-5							0.09
PCB-1262	37324-23-5							0.09
PCB-1268	11100-14-4							0.09

 Values Exceed NYSDEC levels
 ND Not Detected
 BDL Below Detection Level

TABLE 8
372 Lafayette Avenue, NY, NY,
Metals Analysis
Groundwater Samples

Sample ID	CAS #	MW-1		MW-2		MW-3		TAGM /TOGS GW
		GW		GW		GW		
Date Collected		6010-7010-7470		6010-7010-7470		6010-7010-7470		
Matrix								
EPA Methodology								
Date Analyzed**								
Parameter/Units		mg/L		mg/L		mg/L		
		Results	RL	Results	RL	Results	RL	
Aluminum	7429-90-5							0.1
Aluminum (Dissolved)								0.1
Antimony	7440-36-0							0.003
Antimony (Dissolved)								0.003
Arsenic	7440-38-2							0.025
Arsenic (Dissolved)								0.025
Barium	7440-39-3							1
Barium (Dissolved)								1
Beryllium	7440-41-7							0.003
Beryllium (Dissolved)								0.003
Cadmium	7440-43-9							0.005
Cadmium (Dissolved)								0.005
Calcium	7440-70-2							
Calcium (Dissolved)								
Chromium	7440-47-3							0.05
Chromium (Dissolved)								0.05
Cobalt	7440-48-4							
Cobalt (Dissolved)								
Copper	7440-50-8							0.2
Copper (Dissolved)								0.2
Iron	7439-89-6							0.3
Iron (Dissolved)								0.3
Lead	7439-92-1							0.025
Lead (Dissolved)								0.025
Magnesium	7439-95-4							35
Magnesium (Dissolved)								35
Manganese	7439-96-5							0.3
Manganese (Dissolved)								0.3
Mercury	7439-97-6							0.0007
Mercury (Dissolved)								0.0007
Nickel	7440-02-0							0.1
Nickel (Dissolved)								0.1
Potassium	7440-09-7							
Potassium (Dissolved)								
Selenium	7782-49-2							0.01
Selenium (Dissolved)								0.01
Silver	7440-22-4							0.05
Silver (Dissolved)								0.05
Sodium	7440-23-5							20
Sodium (Dissolved)								20
Thallium	7440-28-0							0.0005
Thallium (Dissolved)								0.0005
Vanadium	7440-62-2							
Vanadium (Dissolved)								
Zinc	7440-66-6							5
Zinc (Dissolved)								5

█ Values Exceed NYSDEC levels

ND Not Detected

BDL Below Detection Level

TABLE 9
372 Lafayette Avenue, NY, NY,
Metals Analysis
Groundwater Samples

Sample ID	MW-1	MW-2	MW-3	TAGM /TOGS GW
Date Collected				
Matrix	GW	GW	GW	
EPA Methodology	6010-7010-7470	6010-7010-7470	6010-7010-7470	
Date Analyzed**				
Parameter/Units	mg/L	mg/L	mg/L	
	Results	Results	Results	
Aluminum				0.1
Aluminum (Dissolved)				0.1
Arsenic				0.025
Arsenic (Dissolved)				0.025
Barium				1
Barium (Dissolved)				1
Beryllium				0.003
Chromium				0.05
Chromium (Dissolved)				0.05
Copper				0.2
Copper (Dissolved)				0.2
Iron				0.3
Iron (Dissolved)				0.3
Lead				0.025
Lead (Dissolved)				0.025
Magnesium				35
Magnesium (Dissolved)				35
Manganese				0.3
Manganese (Dissolved)				0.3
Mercury				0.0007
Mercury (Dissolved)				0.0007
Nickel				0.1
Nickel (Dissolved)				0.1
Sodium				20
Sodium (Dissolved)				20

TABLE 10
372 Lafayette Avenue, NY, NY,
Volatile Organic Compounds (VOC) - Air Analysis
Soil Vapor Samples

Sample ID	SV-1	SV-2	SV-3	NYSDOH Guidance Values
Date Collected				
Matrix	Air	Air	Air	
EPA Methodology	TO-15	TO-15	TO-15	
Date Analyzed**				
Parameter/Units	ug/m3	ug/m3	ug/m3	
	Results	Results	Results	
1,1,1,2-Tetrachloroethane				-
1,1,1-Trichloroethane				-
1,1,2,2-Tetrachloroethane				-
1,1,2-Trichloroethane				-
1,1-Dichloroethane				-
1,1-Dichloroethene				-
1,2,4-Trichlorobenzene				-
1,2,4-Trimethylbenzene				-
1,2-Dibromoethane(EDB)				-
1,2-Dichlorobenzene				-
1,2-Dichloroethane				-
1,2-dichloropropane				-
1,2-Dichlorotetrafluoroethane				-
1,3,5-Trimethylbenzene				-
1,3-Butadiene				-
1,3-Dichlorobenzene				-
1,4-Dichlorobenzene				-
1,4-Dioxane				-
2-Hexanone(MBK)				-
4-Ethyltoluene				-
4-Isopropyltoluene				-
4-Methyl-2-pentanone(MIBK)				-
Acetone				-
Acrylonitrile				-
Benzene				-
Benzyl chloride				-
Bromodichloromethane				-
Bromoform				-
Bromomethane				-
Carbon Disulfide				-
Carbon Tetrachloride				-
Chlorobenzene				-
Chloroethane				-
Chloroform				-
Chloromethane				-
Cis-1,2-Dichloroethene				-
cis-1,3-Dichloropropene				-
Cyclohexane				-
Dibromochloromethane				-
Dichlorodifluoromethane				-
Ethanol				-
Ethyl acetate				-
Ethylbenzene				-
Heptane				-
Hexachlorobutadiene				-
Hexane				-

█ Values Exceed NYSDEC Levels

ND Not Detected

BDL Below Detection Level

TABLE 10 Continued
 372 Lafayette Avenue, NY, NY,
 Volatile Organic Compounds (VOC) - Air Analysis
 Soil Vapor Samples

Sample ID	SV-1	SV-2	SV-3	NYSDOH Guidance Values
Date Collected				
Matrix	Air	Air	Air	
EPA Methodology	TO-15	TO-15	TO-15	
Date Analyzed**				
Parameter/Units	ug/m3 Results	ug/m3 Results	ug/m3 Results	
Isopropylalcohol				-
Isopropylbenzene				-
m,p-Xylene				-
Methyl Ethyl Ketone				-
Methyl tert-butyl ether(MTBE)				-
Methylene Chloride				60
n-Butylbenzene				-
o-Xylene				-
Propylene				-
sec-Butylbenzene				-
Styrene				-
Tetrachloroethene				100
Tetrahydrofuran				-
Toluene				-
Trans-1,2-Dichloroethene				-
trans-1,3-Dichloropropene				-
Trichloroethene				5
Trichlorofluoromethane				-
Trichlorotrifluoroethane				-
Vinyl Chloride				-

 Values Exceed NYSDEC Levels
 ND Not Detected
 BDL Below Detection Level

Soil Cleanup Objectives and Soil/Fill Management

Track 1 Soil Cleanup Objectives (SCOs) are proposed for this project.

If Track 1 is not achieved, the following Track 4 Site-Specific SCOs will be used:

<u>Contaminant</u>	<u>Track 4 SCOs</u>
Total SVOCs	250 ppm
Lead	1000 ppm
Mercury	1.5 ppm
Copper	750 ppm