SITE MANAGEMENT PLAN

295 LOCUST AVENUE
TAX MAP PARCEL NO 2-2598-46
(INCLUDES EAST 140 STREET, PARCEL NO. 2-2598-74/86)
NYSDEC SITE NO. C203053
BRONX, NEW YORK

Prepared for:

295 Locust Associates LLC
1250 Waters Place, PH-1
Bronx, New York 10461

and

Mr. Randy Whitcher
NYSDEC
Div. of Env. Remediation
625 Broadway, 11th Floor
Albany, New York 12233-7014

John Nehila, Esq.
NYSDEC
Office of General Counsel
1 Hunters Point Plaza, 47-40 21st St.
Long Island City, New York 11101

Ms. Krista Anders
Bureau of Environmental Exposure
NYS Department of Health
Flanagan Square, 547 River Street
Troy, New York 12180-2216

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TechSolutions Engineering, P.C
52 Oceanview Boulevard
Manorville, New York 11949
Phone: (914) 319-9375

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CERTIFICATION

I, Daniel J. Smith, P.E. certify that I am currently a NYS registered professional engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10)

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1.0 INTRODUCTION AND BACKGROUND INFORMATION

The subject property is located at 295 Locust Avenue, between East 139th Street and East 140th Street, in Bronx, New York. On or about May 23, 2012, the 295 Locust Avenue site was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) as Site No. C203053-05-12. The applicant, 295 Locust Associates LLC, is participating in the BCP as a Volunteer as defined in Environmental Conservation Law (ECL) 27-1405(1)(b). The subject property includes a 10,000 square foot parking lot located between 140 East Street and 141 East Street, northeast of the 295 Locust Avenue parcel.

This Site Management Plan (SMP) is required as an element of the remedial program at 295 Locust Avenue (hereinafter referred to as the "Site") under the New York State (NYS) BCP administered by the NYSDEC. The Site is being remediated in accordance with Brownfield Cleanup Agreement (BCA) Index # C203053-05-12, Site # C203053, which was executed on June 4, 2012. In addition, the Site lies within a larger site being addressed by Consolidated Edison of New York, Inc. (Con Edison). The Con Edison site, referred to as the East 138th Street Works Site, contains manufactured gas plant (MGP)-related constituents and is being addressed under a Voluntary Cleanup Agreement (VCA) administered by NYSDEC (NYSDEC Site # V00551).

1.1 General Information

295 Locust Associates, LLC entered into a BCA with the NYSDEC to remediate an approximate 70,000 square foot property located in Bronx, New York. This BCA required the Remedial Party, 295 Locust Associates LLC, to investigate and remediate contaminated media at the Site. A figure showing the Site location and boundaries of this Site is provided in ***Figure 1*** (Figure 1 only shows the BCP Site). In addition, the SMP includes the 10,000 square foot parking lot; together the BCP Site and the parking lot comprise the subject property addressed in this SMP. The boundaries of the subject property are more fully described in the metes and bounds site description that is part of the Environmental Easement.

After completion of the remedial work described in the Remedial Action Work Plan (RAWP), dated April 2013 some contamination will be left in the subsurface at this site,

which is hereafter referred to as "remaining contamination." This SMP was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by TechSolutions Engineering, P.C. (TechSolutions), on behalf of 295 Locust Associates LLC, in general accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, as amended through September 2014, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement for the site.

Documents pertaining to the Site are available to the public at the following repository:

Mott Haven Library
321 East 140th Street
Bronx, New York 10454

1.2 Purpose

The Site will contain contamination left after completion of the remedial action. Engineering Controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Bronx County Clerk, will require compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the site after completion of the remedial action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a

Monitoring Plan for implementation of Site Monitoring; and, (3) an Operation Maintenance & Monitoring (OM&M) Plan for future operation of the existing sub-slab depressurization system (SSDS).

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375, as well as the BCA and Voluntary Cleanup Agreement for the site, and thereby subject to applicable penalties.

1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager if applicable. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.4 Background Information

Under the BCA, the Volunteer has undertaken certain environmental actions, including the implementation of an *in-situ* chemical oxidation (ISCO) remediation program and installation of a sub-slab depressurization system (SSDS) to mitigate/prevent contaminated soil vapor migration into structures. The Remedial Action Work Plan (RAWP) outlines the remediation work completed and underway. The Soil Vapor Intrusion (SVI) Mitigation OM&M Plan outlines the design, installation, and operation of the SSDS.

Under the VCA, Con Edison has completed a Remedial Investigation Report for the Site (URS, 2012); however, Con Edison has not implemented any interim remedial activities nor has it prepared a RAWP for the Site. Although not anticipated, if future remedial activities conducted by Con Edison require ongoing OM&M that differs from that described in this SMP, then the SMP will require an amendment or revision.

1.5 Site Location and Description

The Site is located in an industrial area of the Port Morris section of the Bronx and designated as Block 2598, Lot 46, Lot 74 and Lot 86 on the Tax Map of the City of New York for the Borough and County of the Bronx. The Site is currently operated as a

warehousing/distribution center and comprises a one-square city block portion of the former East 138th Street Works Site and a 10,000 square foot rectangular lot between East 140th Street and East 141st Street. ***Figure 1*** shows the warehouse building that presently occupies the Site and the approximate locations of the MGP structures formerly located on it.

The Site presently consists of a multi-story warehouse building with a footprint of approximately 70,000 square feet (sf). Based on record drawings of the warehouse building, it was constructed with a one-foot thick reinforced concrete structural slab supported by a system of pile caps and concrete grade beams. The floor of the warehouse building is situated approximately five feet above the grade of the adjacent street. Ten loading docks leading to exterior rollup doors are present on the southeastern portion of the warehouse building along Locust Avenue. Another loading dock and rollup door opens to East 140th Street. Office space is located in a mezzanine area above the loading docks. The SVI system blowers and main valve manifolds are located in the mezzanine area. The exterior walls of the warehouse building are constructed of concrete and sheet metal.

The building contains storage racks and aisles configured to support automated operation of warehousing functions. The majority of the concrete slab along the perimeter of the building is underlain by a storm water detention system and sprinkler system recharge trough. The storm water detention system is a water-tight concrete trough that is generally three to four feet deep by six feet wide and collects storm water from the roof via drain pipes which run through the interior perimeter wall of the building. The storm water detention system is reportedly connected to the municipal sewer system at the northern and western corners of the building along Rose Feiss Boulevard (Roux, May 2009). The building's sprinkler system recharge is located along the southeastern portion of the building parallel to East 139th Street, and is constructed of two parallel and water-tight concrete troughs. All SVI extraction well points were installed along the central portions of the building in the vicinity of support columns that serve as a means of conveyance for the SVI system piping.

Floor drains within the building connect to the sanitary sewer. There is a small maintenance storage room in the southern portion of the warehouse.

The parking lot between East 140th Street and East 141st Street is undeveloped and asphalt paved.

A dry cleaning facility (Modern Tech Dry Cleaners) is located at 874 East 139th Street across the street and to the south of the Site.

1.6 Site History

The following information regarding the historical operations conducted on the Site is derived from the Phase II Environmental Site Assessment that was prepared by Roux Associates, Inc. (Roux, June 2009) for Locust East 140th Street L.P., a former owner of the Property, and the East 138th Street Works Site Manufactured Gas Plant History Report that was prepared by GEI Consultants, Inc., for Con Edison in connection with the VCA (GEI, January 2003).

1.6.1 Site Ownership

Based on the above-referenced reports and the information derived from the New York City Department of Finance's Automated City Register Information System, the former owners of record of the Property include:

- 6/22/2011 to present — 295 Locust Associates LLC
- 5/23/2004 to 6/22/2011 — Locust East 140th Street L.P.
- 12/21/2001 to 5/23/2004 — NYC Industrial Development Agency
- 6/29/1999 to 12/21/2001 — Locust East 140th Street L.P.
- 4/5/1996 to 6/29/1999 — 275 – 295 Locust Ave Realty Corp.
- 1/10/1996 to 4/5/1996 — Port Morris Development Corp
- 10/27/1986 to 1/10/1996 — Sycamore Hill Corp.
- 6/20/1984 to 10/27/1986 — Manhattan Beer Distributors, Inc.,
- 9/3/1963 to 6/20/1984 — B.I.M. Realty Company
- 7/11/1963 to 9/3/1963 — Astra Garage Corp.
- 10/25/1954 to 7/11/1963 — Universal Builders Supply Co., Inc.
- 2/1/1952 to 10/25/1954 — Julia S. O'Callaghan
- 12/21/1946 to 2/1/1952 — Burndy Engineering Co., Inc.
- 6/4/1946 to 12/21/1946 — 485 E. 133rd St. Corp.
- Prior to 12/21/1946 — Con Edison as successor to Central Union Gas Co.

1.6.2 Past Site Operations

The following is a summary of historic site operations. The earliest noted development on the Site was two residences shown on the 1891 Sanborn fire insurance map. By 1908, a portion of the Site was developed with several MGP features including a 2,630,000 cubic foot (cf) gas holder, a water gas purifier house, an oxide storage area, a pit, and a scrubber house used as part of Central Union Gas Company's (a Con Edison predecessor) East 138th Street Works. ***Figure 1*** indicates the approximate locations of the former MGP structures on the Site overlain on the current site layout. The East 138th Street Works was reportedly constructed between 1869 and 1879 and initially produced oven gas using the coal carbonization process. In 1892, the East 138th Street Works was expanded by the addition of Lowe carbureted water gas sets. Wastes generated by the coal carbonization and CWG processes include coal tar, spent lime and other scrubber materials.

By the 1930s, it appears the MGP facility was decommissioned and aboveground structures were removed. Historical Sanborn fire insurance maps no longer indicated the presence of an MGP facility. Following decommissioning, the northern portion of the Site was developed with a truck storage yard with refueling facilities, including a motor fueling station with storage tanks, until the 1990s. The approximate location of the former fueling station is shown on ***Figure 1***. The southeastern portion of the Site contained three adjoining warehouse-style buildings occupied throughout the 1900s by a variety of facilities, including: a motor freight facility, a lumber storage facility, an iron clamp storage facility, a building supplies facility, a refrigerator warehouse, a woodworking facility, a metal storage facility, a tire storage facility, and a furniture manufacturing facility (GEI, January 2003). Construction of the existing warehouse building at the Site began in 2000, with demolition of the previous buildings, and was completed in 2002.

1.7 Previous Investigations and Environmental Studies

Several investigations have previously been conducted for the Site and surrounding area including:

- *Subsurface Investigation Report for 901-093 East 140th Street, Bronx, New York, NYSDEC BCP Site No. C203053*, Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., January 2015;
- *Design Summary Report, Soil Vapor Intrusion Mitigation System*, TechSolutions Engineering, P.C. for Sustainable Development, LLC, February 2012;
- *Remedial Investigation of the 295 Locust Avenue (Block 2598 / Lot 46) Portion of the East 138th Street Works Former MGP Site, Site # V00551, Bronx, New York*, URS Corporation (URS) for Consolidated Edison of New York, Inc., April 2012;

- *Phase II Environmental Site Assessment: 295 Locust Avenue (Former Distribution Center) and 901-903 East 140th Street (Former Parking Lot) Bronx, New York*, Roux Associates, Inc. for Locust East 140th L.P, June, 2009;

- *Phase I Environmental Site Assessment: 295 Locust Avenue (Former Distribution Center) and 901-903 East 140th Street (Former Parking Lot) Bronx, New York* Roux for Locust East 140th L.P., May, 2009;

- *Indoor Air Sampling Summary Letter Report – Murray Feiss Import Corp., Bronx, NY*, Environ International Corp., April, 2004;

- *Environmental Review of Murray Feiss Import Corp., Bronx, NY*, Environ International Corp, March, 2004;

- *Manufactured Gas Plant History: East 138th Street Works and East 137th Street Station, Bronx, NY*, GEI Consultants, Inc. for Con Edison, January, 2003; and,

- *Phase I Environmental Site Assessment (ESA) – Murray Feiss Distribution Center 275-295 Locust Avenue – Bronx, NY*, prepared by Environmental Planning & Management, Inc., November 1998.

This SMP relies on the summary of the above documents as presented in the URS Remedial Investigation (RI) Report and the Roux Phase I ESA. The following is a brief summary of historic environmental site studies that have formed the basis for environmental remediation of the site.

1.7.1 Phase I ESA's and Screening Studies (1989-2004)

The Phase I ESA for the Site prepared by Environmental Planning & Management, dated November 10, 1998, indicated the presence of petroleum-related contamination in soil and groundwater discovered during the in-place closure of fifteen (15) on-site 550-gallon diesel/gasoline underground storage tanks (USTs) (NYSDEC Spill No. 9005051) related to the former filling station. The USTs were removed in 1995, along with 50 cubic yards (cy) of petroleum-contaminated soil. Following completion of the UST removal and soil excavation and disposal, the NYSDEC issued a closure letter on November 16, 1995. The approximate location of the USTs is shown on ***Figure 1*** as the former refueling station.

The Environmental Review of the Murray Feiss Import Corporation prepared by Environ International Corporation (Environ), dated March 2004, identified that the subsurface at the Site is contaminated due to the presence of the former MGP operations, on-site contamination documented during removal of USTs, and potential for impacts from off-site industrial properties within the surrounding area. The subsequent Indoor Air Sampling Report prepared by Environ, dated April 2004, indicates that while two petroleum-related compounds exceeded the highest published background level in indoor air at the Site, these levels were below the permissible exposure limits (PELs) established by the Occupational Safety and Health Administration (OSHA). Environ concluded the concentrations did not pose a concern to human health.

1.7.2 Expanded Site Investigations (2009)

A Phase I ESA was conducted by Roux in 2009. Based on information gathered as a result of the Phase I ESA, Roux identified the following recognized environmental conditions (RECs) in connection with the Site:

- The presence of petroleum-related soil and groundwater contamination as documented in 1995 during a previously completed subsurface investigation following removal of fifteen USTs from the Site (see ***Figure 1***);
- The material threat of contamination posed by the former East 138th Street Works former MGP;
- Documentation that USTs may still be present beneath the Former Parking Lot, as indicated in historical Sanborn fire insurance maps.

Although not defined as RECs, Roux also identified a list of potential environmental concerns that could potentially impact subsurface conditions at the Site:

- Other nearby off-site industrial facilities and facilities with USTs with documented releases and impacts to groundwater may have impacted subsurface conditions at the Site. These releases may have migrated beneath the Site and included a dry cleaning facility located at 874 East 139th Street.
- An active NYSDEC spill incident pertaining to the Site identified as "Murray Feiss/Former Hertz Rental," listed under NYSDEC Spill No. 0650009. The spill pertains to a Con Edison report concerning the presence of a "light fuel oil" within some of their manholes located on Locust Avenue. Reportedly, the spill was associated with Con Edison or MGP operations.
- An unrelated former MGP, located northeast of the Site immediately across Locust Avenue along the East River was identified as the Pintsch Gas Facility. This facility was not owned or operated by Con Edison or its predecessor companies, but based on an available Sanborn map appears related to the former New York Central and Harlem River Rail Road Company. It contained numerous oil tanks that supplied purified naphtha necessary for the Pintsch Gas Process. Contamination concerns similar to coal gas MGP sites are often present at Pintsch Gas Process sites.

The Phase II ESA fieldwork performed by Roux was conducted in April 2009. Work completed as part of the Phase II ESA included the installation of ten soil borings to depths of 10 to 20 feet bgs, five of which were converted to monitoring wells, and the collection of ten soil samples, five groundwater samples, four sub-slab vapor samples, four indoor air ambient samples, and one outdoor air sample. Analytical results indicated the following:

Soil

The only VOC detected in soil at a concentration exceeding its respective Part 375 commercial or industrial use soil cleanup objective (SCO) was tetrachloroethene (PCE) in one sample (MWRX-2 at a depth of 7-8 feet). PCE is used extensively in the dry-cleaning industry as well as a solvent in various manufacturing operations and may have been related to the neighboring dry cleaner site operations.

Semi-volatile organic compounds (SVOCs), predominantly polycyclic aromatic hydrocarbons (PAHs), were detected in several soil samples at concentrations exceeding Part 375 commercial or industrial SCOs. Cyanide was detected above the commercial SCO in one soil sample (SBRX-1). No coal tar was detected in any soil borings.

Groundwater

Groundwater samples from all five of the monitoring wells installed as part of the Phase II ESA were found to contain two or more VOCs at concentrations that exceeded Class GA water quality criteria obtained from Division Technical and Operational Guidance Series 1.1.1 (TOGS)[1] including PCE and its degradation products (trichloroethene [TCE], cis-1,2-dichloroethene [DCE], 1,1-DCE, vinyl chloride), and petroleum-related compounds (benzene, toluene, ethylbenzene, xylenes, isopropylbenzene, and methyl-tert butyl ether [MTBE]) (Roux, 2009). The highest concentrations of VOCs (including PCE at 39,000 µg/L) were detected in the southern portion of the Site in groundwater monitoring well MWRX-2, closest to the dry cleaners located across East 139th Street.

SVOCs exceeded groundwater standards in four of the five monitoring wells, the majority of which were low-level PAH exceedances in MWRX-5 located in the Former Parking Lot (situated northeast across East 140th Street and not part of the former MGP Site). Naphthalene, acenaphthalene, and/or phenol exceeded standards in three of the four monitoring wells within and adjacent to the Site.

Sub-Slab Vapor and Ambient Air

Concentrations of VOCs were detected in all sub-slab vapor samples. Roux concluded that the indoor air VOC concentrations were significantly lower than the VOC concentrations in the sub-slab samples; therefore, the sub-slab VOC concentrations were not impacting indoor air quality.

[1] *NYSDEC TOGS versions are as follows: originally dated October 1993, revised June 1998, errata January 1999, and amended April 2000.*

1.7.3 Remedial Investigation (2012)

In April 2012, URS issued a RI report that focused on the Site. The RI Report summarized work completed historically by others and also included supplemental studies completed by URS in the spring and summer of 2011 for Con Edison who is the responsible party for the former MGP operations areas of the site.

Soil:

There were numerous exceedances of NYSDEC 6 NYCRR Part 275 Unrestricted Use SCOs in the RI soil samples. It is important to note that that Unrestricted Use SCOs are being discussed herein only as a conservative point of reference. Nothing in this SMP is intended to imply that Unrestricted Use SCOs are or are not the only use criteria that are applicable as cleanup criteria at the Site. Other restricted criteria (i.e., less conservative cleanup objectives) may also be directly applicable depending upon multiple factors related to future site use, deed restrictions, institutional controls, etc.

Most contaminant exceedances were located in the western portion of the Site although detections were also noted elsewhere. The primary VOC detections included benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds and chlorinated hydrocarbons. Chlorinated hydrocarbons are not known MGP feed stocks or residuals and are not typically associated with former MGP sites. Historical research of site uses has also not revealed any use of chlorinated hydrocarbons during other site operations at the Site.

Maximum concentrations of CVOCs exceeding unrestricted use criteria historically included (note: these are pre-remediation concentrations at the time of investigation and not representative of remaining contamination):

- PCE (77 mg/kg in SBMF-04 45.5-46"), TCE (8.6 mg/kg in SBMF-23 3.5-4.5);
- 1,2-Dichloroethane (0.51 mg/kg in SBMF-09 40.5-41.5");
- *cis*-1,2-DCE (70 mg/kg in SBMF-23 3.5-4.5");
- *trans*-1,2-DCE (0.91 mg/kg in SBMF-23 3.5-4.5); and,
- Vinyl chloride (1.2 mg/kg in SBMF-23 14.2-15").

The CVOCs are likely attributable to off-site discharges associated with the neighboring dry cleaning establishment and/or other off-site industrial facilities where PCE is/was used. The other CVOCs are daughter products of PCE and likely formed through reductive dechlorination. In general, CVOCs were detected most frequently and at the highest concentrations along East 139th Street closer to the mid-block, and within the former gas holder #4, and the western side of the Site.

Although the Volunteer has focused on CVOC impacts, it was not possible to selectively design a cost-effective remedy and SVI mitigation system that addresses CVOCs without consideration of non-chlorinated VOCs and MGP related contaminants of concern. Therefore, the nature and extent of non-chlorinated VOCs in soil was also considered as part of remedy (ISCO) and SVI mitigation (SSDS) implementation. Maximum concentrations of BTEX compounds exceeding unrestricted use SCOs (note: pre-remediation concentrations) included:

- Benzene (630 mg/kg in SBMF-04 45.5-46");
- Ethylbenzene (260 mg/kg in SBMF-01 9-10");
- Toluene (1,200 mg/kg in SBMF-04 45.5-46"); and,
- Xylenes (1,900 mg/kg in SBMF-13 5-6").

The BTEX compounds were more widespread than the CVOCs, with the highest concentrations generally reported within and near the former gas holder #4 at deeper depths where non-aqueous phase liquid (NAPL) was observed. Lower concentrations were generally reported at shallower depths across the entire Site.

There were numerous exceedances in RI soil samples for SVOCs, especially PAHs, as compared to unrestricted use criteria in the western portion of the Site and in some areas within the former MGP structures at various depths. In general, there were fewer or no SVOC exceedances in the eastern portion of the Site. Polychlorinated biphenyls (PCBs) were not detected above unrestricted use SCOs.

Groundwater:

Groundwater results during the site RI exceeded NYSDEC TOGS No. 1.1.1 Class GA groundwater criteria. Groundwater contamination in the overburden prior to remediation was characterized as a generally diffuse plume spread across the Site and present along the side-gradient and downgradient edges of the site.

The majority of VOCs detected in the RI groundwater samples exceeding Class GA Groundwater Quality Standards (Class GA GWQSs) and at the highest concentrations occurred along East 139th Street, Rose Feiss Blvd, and the mid-block to Rose Feiss Blvd section of East 140th Street. Analytes exceeding TOGS included CVOCs (PCE and its degradation products TCE, cis-1,2-DCE, 1,1-DCE, and vinyl chloride), BTEX compounds (total BTEX maximum 34,300 ug/L in MWMF-04), MTBE (maximum 110 ug/L in MWMF-05), and isopropylbenzene (maximum 250 ug/L in MWMF-08). Lower levels of BTEX compounds and isopropylbenzene exceeding Class GA GWQSs were detected in groundwater samples from the eastern portion of the Site.

The highest concentration of PCE (22,000 ug/L) was detected in (Roux) MWRX-02, nearest to the dry cleaners operating across East 139th Street. PCE degradation products were detected at their greatest concentrations in MWRX-02 (TCE maximum 3,800 ug/L, cis-1,2-DCE maximum 37,000 ug/L, vinyl chloride maximum 6,900 ug/L) and adjacent monitoring well MWMF-04.

SVOCs, including 1,1'-biphenyl (maximum 29 ug/L in MWMF-04), methylphenol isomers (maximum 400 ug/L 2,4-dimethylphenol in MWMF-04), and MGP-related contaminants naphthalene (maximum 9,300 ug/L in MWMF-08), acenaphthalene (maximum 140 ug/L in MWMF-05), and phenol (maximum 130 ug/L in MWMF-04), were detected above Class GA GWQSs across all but the southeastern portion of the Site. The greatest concentrations of SVOCs, naphthalene in particular, were detected in monitoring wells east, north and south of former gas holder #4.

Soil Vapor:

Soil vapor sample results indicated a mixture of MGP- and petroleum-related compounds, and CVOCs. MGP-related compounds include benzene, trimethylbenzene isomers, indane, endene, naphthalene, and thiopene. Petroleum-related compounds include: benzene, toluene, ethylbenzene, xylenes, cyclohexane, isopropylbenzene, isooctane, n-heptane, n-hexane, and MTBE. CVOCs include PCE and its degradation products (TCE, cis-1,2-DCE, 1,1-DCE, and vinyl chloride).

Soil vapor sample locations during the RI (note: these data are pre-remediation data and may not be representative of current site conditions) included the following:

- Sample SVMF-01 was collected from within former gas holder #4;
- Samples SVMF-02 and SVMF-03 were collected from just outside the gas holder;
- Sample SVMF-04 was collected within the former purifying house;
- Sample SVMF-05 was collected in the eastern portion of the site; and,
- Sample SVMF-06 was collected in the vicinity of the former MGP scrubber house.

The ambient air sample contained relatively low concentrations of VOCs (total VOCs of 53 µg/m3) including a mixture of compounds associated with both MGP and petroleum sites. The highest concentrations of VOCs were detected in sample SVMF-04 (total VOCs 1,897,931 µg/m^3), which included high concentration of pentane and cyclohexane isomers, and PCE degradation products (*cis*- 1,2-DCE and vinyl chloride). High concentrations of VOCs were detected in sample SVMF-06 (total VOCs 569,542 µg/m^3), the majority of which was comprised of pentane isomers. Total VOC concentrations were similar in samples in SVMF-02 (total VOCs 221,541 µg/m^3), and SVMF-03 (total VOCs 160,503 µg/m^3), and included high concentrations of pentane isomers in addition to

lower concentrations of PCE and its degradation products (TCE, cis-1,2- DCE, and vinyl chloride). SVMF-01 had a similar total VOCs concentration (203,221 µg/m^3); however, the highest concentrations detected included PCE and its degradation products and relatively low levels of BTEX and MTBE (no pentane and/or hexane isomers detected). The lowest concentration of VOCs was detected in SVMF-05 (total VOCs 981 µg/m^3) consisting of low levels of all VOCs.

RI sub-slab soil vapor analytical results were compared to guidance values presented in the Soil Vapor/Indoor Air Decision Matrices provided in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006 (NYSDOH SVI Guidance) with updates provided in 2008 to include additional VOCs to the Decision Matrices as follows:

- Air Matrix 1: TCE, carbon tetrachloride, vinyl chloride
- Air Matrix 2: PCE, 1,1,1-trichloroethene, 1,1-DCE, cis-1,2-DCE.

The levels of chlorinated compounds detected in soil vapor samples during the RI were at levels above the NYSDOH SVI Guidance recommended action level to mitigate. Some of the RI conclusions noted by URS were inconsistent with the former conclusion of Roux in the Phase II ESA completed in 2009.

1.7.4 Supplemental Soil Investigation – Parking Lot (2015)

Langan Engineering and Environmental (Langan) conducted a limited Phase II investigation in the parking lot area northeast of East 140th Street. Langan conducted the investigation on January 5, 2015, which consisted of drilling four soil borings and collecting one sample from each boring for VOC and SVOC analysis using EPA Methods 8260 and 8270. The following is a summary of the results:

- The sample with the highest SVOC concentrations (Sample EB-3) contained only three parameters at concentrations exceeding restricted commercial or industrial SCOs based on Protection of Public Health: 6.4 mg/kg of benzo(a)pyrene, 7.5 mg/kg of benzo(b)fluoranthene, and 0.96 mg/kg of dibenzo(a,h)anthracene. No other SVOCs or VOCs exceeded the restricted commercial or industrial SCOs (based on Protection of Public Health) in this sample.
- Only one other sample contained a SVOC exceeding the restricted commercial or industrial SCOs based on Protection of Public Health: Sample EB-1 contained benzo(a)pyrene at 1.4 mg/kg. No other SVOCs or VOCs were detected at concentrations exceeding this SCO category.

The detections of VOCs and SVOCs are in the same area as, and consistent with, those previously reported in the RI. Potential exposures to the soil underlying the parking lot are controlled by the soil cover system (i.e., aggregate base course and overlying asphaltic parking lot) and soil management procedures set forth in this SMP. No further

investigation or remediation related to the presence of VOCs or SVOCs in the parking lot area is warranted at this time.

1.8 Post-Remediation Site Conditions

The previous sections document site conditions based upon the remedial investigations completed at the site. However, groundwater remediation and SVI mitigation activities have been completed since the remedial data were collected. The ISCO remedy implemented by the Volunteer resulted in significant contaminant mass reduction but did not achieve numerical cleanup objectives. However, the residual contamination mass is being addressed through engineering and institutional controls together with this NYSDEC-approved SMP.

Figure 3 indicates the areas of remaining soil contamination and contaminant concentrations based upon the most recent data collected by the responsible party for MGP impacts in 2011. ***Figure 4*** indicates areas of remaining groundwater impacts based upon the January 28, 2015, final groundwater sampling event following remedy implementation by the Volunteer.

1.8.1 Soil Contamination Remaining

Based upon the soil investigation completed by the parties responsible for remediation of MGP impacts in 2011 (URS, 2011), the following is a conservative estimate of residual soil impacts at the site.

- Most contaminant exceedances were located in the western portion of the Site although detections were also noted elsewhere (see Figure 3). The primary VOC detections included BTEX compounds associated with former MGP operations and chlorinated VOCs. Chlorinated VOCs are not known MGP feed stocks or residuals and are not typically associated with former MGP sites. Similarly, the BTEX contamination does not appear to be associated with dry cleaning or solvent operations. Historical research of site uses has not revealed any use of chlorinated VOC during operations at the Site.
- Maximum concentrations of chlorinated VOCs (exceeding unrestricted use criteria included:
  - PCE (77 mg/kg in SBMF-04 45.5-46");
  - TCE (8.6 mg/kg in SBMF-23 3.5-4.5");
  - 1,2-Dichloroethane (0.51 mg/kg in SBMF-09 40.5-41.5");
  - cis-1,2-Dichloroethene (70 mg/kg in SBMF-23 3.5-4.5");
  - trans-1,2-Dichloroethene (0.91 mg/kg in SBMF-23 3.5-4.5); and,
  - Vinyl chloride (1.2 mg/kg in SBMF-23 14.2-15").

The chlorinated VOCs are likely attributable to off-site discharges associated with the neighboring dry cleaning establishment and/or other off-site industrial facilities where PCE is / was used. The other chlorinated VOCs are daughter products of PCE and likely formed through reductive dechlorination. In general, chlorinated VOCs were detected most frequently and at the highest concentrations along East 139th Street closer to the mid-block, and within the former gas holder #4, and the western side of the Site.

Maximum concentrations of BTEX compounds exceeding unrestricted use criteria included:

- Benzene (630 mg/kg in SBMF-04 45.5-46“);
- Ethylbenzene (260 mg/kg in SBMF-01 9-10“);
- Toluene (1,200 mg/kg in SBMF-04 45.5-46“); and,
- Xylenes (1,900 mg/kg in SBMF-13 5-6“).

The BTEX compounds were more widespread than the chlorinated VOCs, with the highest concentrations generally reported within and near the former gas holder #4 at deeper depths where non-aqueous phase liquid (NAPL) was observed. Lower concentrations were generally reported at shallower depths across the entire Site and are likely associated with a regional issue that is outside the scope of the Volunteer’s remediation obligations.

There were numerous exceedances in remedial investigation (RI) soil samples for SVOCs, especially PAHs, as compared to unrestricted use soil cleanup objectives (SCOs) in the western portion of the Site and in some areas within the former MGP structures at various depths. In general, there were fewer or no SVOC exceedances in the eastern portion of the Site (see ***Figure 3***). Polychlorinated biphenyls (PCBs) were not detected above unrestricted use SCOs.

Soil contamination underlying the building was not remediated due to the presence of the buildings and critical infrastructure, and will be addressed by a soil capping system. Since contaminated soil and associated soil vapor remains beneath the site after completion of the remedial action, Engineering Controls and Institutional Controls (ECs/ICs) are required to protect human health and the environment. These ECs/ICs are described in the Final Engineering Report. Long-term management of these EC/ICs and residual contamination will be performed under the SMP as approved by the NYSDEC.

1.8.2 Groundwater Contamination Remaining

Although the ISCO treatment substantially decreased the concentration of the primary chlorinated VOCs, it did not decrease the concentration below applicable standards, criteria and guidelines (SCGs) in every monitoring well.

Maximum concentrations of chlorinated VOCs exceeding applicable SGCs include:

- PCE (4,940 µg/l in MWRX-2);
- TCE (5,530 µg/l in MWRX-2);
- cis-1,2-Dichloroethene (40,100 µg/l in MWRX-2); and,
- Vinyl chloride (8,280 µg/l in MWRX-2).

Maximum concentrations of BTEX compounds exceeding applicable SGCs are:

- Benzene (6,320 µg/l IW-2);
- Ethylbenzene (1840 µg/l in IW-2);
- Toluene (11,000 µg/l in IW-2); and,
- Xylenes (5,560 µg/l in IW-2).

The NYSDEC's Remediation Program Regulations related to groundwater protection and control measures describe how to manage sites affected by contaminated groundwater migrating onto a subject property (6 NYCCR Part 375-1.8(d)). Based on the regulations and data, the Volunteer is not responsible for the chlorinated VOC contamination migrating onto the Facility from the dry cleaning facility. The regulations specify the requirements for managing sites where there are both off-site and on-site sources of groundwater contamination:

- Identify a remedy for the site which includes removal, containment or treatment of the on-site sources contributing to the groundwater contamination; and
- Include in the remedy actions which eliminate or mitigate on-site environmental or public health exposures, to the extent feasible, resulting from any off-site contamination entering the site.

Although the Remediation Program Regulations do not necessarily require the Volunteer to remediate the chlorinated VOCS, the Volunteer has made a good faith effort by substantially reducing the contaminant mass and installing and operating a sub-slab depressurization system (SSDS). Therefore, the Volunteer has met the intent of the NYSDEC Remediation Program Regulations by protecting public health exposures to the extent feasible resulting from contamination.

2.0 SUMMARY OF REMEDIAL ACTIONS

The portion of the Site with CVOCs is being remediated in accordance with the NYSDEC-approved RAWP, dated April 2013. The following is a summary of the remedial actions performed at the site to date.

2.1 Groundwater Remedy (ISCO)

ISCO was selected as the remedial approach for the Site. ISCO is a presumptive remedy consistent with DER-15 and is being implemented to address the contaminants of concern at the Site to meet remedial action objectives (RAOs) under the restrictions and limitations that must be considered by the Volunteer, as well as the complexities related to the presence of MGP-related contaminants, which are being addressed by Con Edison under the VCA.

The ISCO approach implemented at the Site is presented in ***Figure 2*** and described below.

2.1.1 Area of Implementation and Injection Wells

The area of elevated CVOC concentrations was located near the southwest quadrant of the building near the intersection of Walnut Street and East 139th Street with the highest concentrations located along East 139th Street directly across from the neighboring dry cleaner facility (the apparent source). This area of concern also has elevated BTEX concentrations and SVOCs associated with former on-site MGP operations (this portion of the plume is the responsibility of Con Edison).

The remedy was implemented via installation of new oxidant and activator injection wells along the exterior sidewalk in the area of the site which exhibits the highest concentration of CVOCs. The general layout of the oxidant injection well system is provided in ***Figure 2***.

2.1.2 Oxidant Selection and Injection Events

A preliminary evaluation of possible oxidizers was competed as part of this RAWP and it was determined that persulfate oxidation was the most appropriate method of ISCO because:

- Persulfate could remediate both the CVOCs that were the focus of this RAWP as well as the petroleum hydrocarbons present in the same location of the CVOCs in groundwater;
- Other oxidants were eliminated from consideration because they were either not effective for all contaminants of concern (e.g., permanganate) or considered potentially a safety issue (e.g., hydrogen peroxide) given the fact that

contamination is underlying a building and the highly exothermic reaction is a serious safety concern – especially if there is any free phase LNAPL present in pockets from former site operations;

- Persulfate could be activated by a variety of methods, including chelated-iron activation that was implemented for the Site; and,

- Persulfate was commercially available and there were numerous vendors that had a proven track record of successful site implementation with mixed contaminants present at the site.

Post injection monitoring was performed after the pilot test injections.

2.1.3 Pilot Testing

Upon completion of soil oxidant demand and buffering capacity tests, final dosing/volume estimates were developed to determine the volume of persulfate, the type of activator to be used for chelated-iron activation, and the dosing/volume of activator needed for full-scale remediation.

Given the combination of both CVOCs and non-chlorinated petroleum hydrocarbons, the variability of soil characteristics due to the nature of fill in the area, and the complexity of oxidant delivery via exterior wells only, a site-specific pilot test was completed. The pilot test included oxidant and activator injections into two of the proposed vertical wells along East 139th Street. Injection rates were generally maintained to less than 2 gpm in order to prevent "daylighting" of oxidants and activator solutions. Following the pilot test injections, several rounds of groundwater sampling were conducted to evaluate injection effectiveness. In addition, field parameters, such as dissolved oxygen, temperature, pH, water levels, and oxidation-reduction potential, were recorded both during and following injections.

2.1.4 Full-Scale Design and Groundwater Remediation

A total of 15 injection wells were installed, 9 along East 139 th Street and 6 along Rose Feiss Blvd. The targeted treatment zone was approximately 10 feet thick, from approximately 5 to 15 feet below ground surface. The dosing of oxidant for full-scale injection was based on treatability testing and the successful pilot test. Based upon the size of the treatment area, approximately 49,940 pounds of Klozur® sodium persulfate and 4,070 pounds of Fe–EDTA activator were injected between September 26 and November 5, 2014.

Including the pilot test monitoring, a total of five post-injection monitoring events involving 6 to 8 groundwater monitoring wells have been performed (June 12, 2014; July 23, 2014; August 21, 2014; December 17, 2014; and January 28, 2015. The groundwater samples are analyzed for VOCs using US EPA Method 8260.

The following is a summary of the post-injection, remedial effectiveness monitoring data.

PCE was the primary chlorinated VOC of concern since it was the dry cleaner-related solvent that was the focus of the remedial effort. The percent reduction of PCE is summarized below:

Table 1
Percent PCE Reduction
Pre-Injection (May 5, 2014) vs. Post-Injection (January 28, 2015)

Well No.	MWRX-02	MWMF-03	MWMF-04	MWMF-08	IW-2*	IW-7*
Pre-Injection (µg/l)	34,700	0.93	636	ND	222	168
Post-Injection (µg/L)	4,940	ND	ND	ND	161	ND
% Reduction	86%	100%	100%	NA	27%	100%

**Note: The most recent post-injection monitoring event for IW-2 and IW-7 was performed on August 21, 2014.*

The data provided above show a general reduction in the PCE concentration for all the wells monitored. For the well with the highest concentration, MWRX-2, the concentration decrease has shown almost an order of magnitude decrease in PCE concentrations. An increase in the concentrations of PCE daughter products (most notably TCE, c1,2-DCE and vinyl chloride) as oxidation proceeds. The only well where this increase was evident was MWRX-02. In all other wells, both PCE and PCE daughter products had significant reductions in concentrations as is discussed further below.

- **MWRX-2**: Total VOCs increased by 5% but PCE was reduced 86% with corresponding increases in TCE, c1,2-DCE, and vinyl chloride. This was the only monitoring location where there was not a significant reduction in total VOCs. It is likely that the relatively lower percent reduction in contaminants of concern at MWRX-02 is due to the presence of MGP-related impacts since this location is immediately adjacent to the former gas holder at the site. In addition, this location is upgradient of the property and directly downgradient from the off-site dry cleaner which is the apparent source of chlorinated VOCs. As a result, the Volunteer has remediated this location to the extent practicable within its control given MGP-impacts in the area and the proximity to the apparent off-site source of chlorinated VOCs. Residual impacts in this area are to be addressed through engineering controls and implementation of a SMP as addressed later in this report.
- **MWMF-3**: There was greater than 95% reduction in all chlorinated VOC concentrations at this location. Total VOCs were reduced by about 51% in this area but, most importantly, all levels of contaminants except for benzene (7.6 µg/l present compared to standard of 2 µg/l) are within regulatory standards.
- **MWMF-4**: PCE concentrations, as well as primary daughter product concentrations, at this location were reduced greater than 99%. Total VOCs were reduced about 48%, indicating that the majority of residual impacts are either secondary degradation products or MGP-related impacts to be addressed by others.
- **MWMF-5:** May 2014 baseline data were not available for this well; therefore, post-injection data were compared to historic data collected by URS to evaluate performance. In general the distribution of contaminants is consistent with the

ISCO being effective. There were significant reductions near MWMF-5 (about 75% total VOC reductions). Most importantly, the key contaminants of concern, including BTEX, had significant reductions: benzene decreased from 5,900 µg/l to 112 µg/l; ethylbenzene from 2,200 µg/l to 51.4 µg/l, and xylenes from 1,300 µg/l to non-detectable levels. Chlorinated compounds are not a concern at this location.

- **MWMF-6**: In general, all residual concentrations at MWMF-06 were relatively low. BTEX concentrations were reduced significantly (benzene decreased from 110 ug/l in the URS data to 15.7 ug/l in the January 2015 data). All chlorinated VOC concentrations were at or near NYSDEC regulatory standards and guidelines.
- **MWMF-8:** Chlorinated VOCS are not a significant concern at this location. Only c1,2-DCE was present at any significant levels in the baseline data and it was reduced approximately 15% during injections. Similarly, vinyl chloride was reduced by about 11%. PCE and TCE were below detection limits at the onset of remediation. This area is evident of a more degraded chlorinated VOC plume locally and may be related to the relatively high petroleum compounds which would have lead to anaerobic cometabolic degradation of the PCE and TCE. BTEX was reduced at percentages ranging from 29% for benzene to 64-66% for toluene and xylenes.

2.1.4 Supplemental/Provisional Groundwater Remediation

If future groundwater monitoring shows a significant increase in CVOCs (compared to the most recent sampling event on January 28, 2015), then an additional *in situ* injection event will be conducted in the general area of the affected wells. It is anticipated that the extent of treatment will be similar in scope as the 2014 pilot test injection events. A supplemental injection plan will be submitted to the NYSDEC for review. It is possible that an alternative injection program will be proposed; however, changes in the injection program must be approved by the NYSDEC. One round of groundwater monitoring will be conducted following the supplemental injection and the data will be provided with a recommendation for future monitoring, if any, to NYSDEC. Any supplemental groundwater monitoring deemed necessary will be coordinated with, and approved by, NYSDEC.

2.2 Soil Remedy (Soil Cover System)

In addition to active groundwater remediation via ISCO, a soil remedy consisting of maintaining the existing soil cover (and the soil cover on the adjacent parking lot) has also been employed and will be coupled with ICs outlined in this SMP.

Soil impacts (both MGP and non-MGP contaminants) are present under the existing building. In order to achieve the Soil RAOs for Public Health Protection, two objectives must be met:

- Prevent ingestion/direct contact with contaminated soil; and,

- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

In addition, MGP contaminants are present under the East 140th Street parking lot. In order to achieve the Soil RAOs for Public Health Protection in this area, the following objective must be met:

- Prevent ingestion/direct contact with contaminated soil;

Maintenance of the existing soil cover system meets both of these objectives when implemented in coordination with continued operation of the existing SSDS soil vapor mitigation remedy and adherence to the SMP. The soil cover system is discussed in ***Section 3.3*** of this SMP.

2.3 Soil Vapor Remedy (Sub-Slab Depressurization System)

The Volunteer installed the SSDS in July 2012 to meet SVI mitigation requirements in accordance with the BCA. The continued operation of the SSDS system in accordance with the approved SVI OM&M Plan (TechSolutions, July 2012) is required to meet the Soil Vapor RAOs established for the project. The NYSDEC and NYSDOH approved SVI OM&M Plan and SVI Mitigation design drawings for the SSDS installed at the Site are incorporated in this SMP by reference. The SSDS is described in ***Section 3.4*** of this SMP.

3.0 ENGINEERING AND INSTITUTIONAL CONTROLS PLAN

3.1 General Information

Since remaining contamination in the form of contaminated soil, soil vapor, and groundwater exists beneath the site, ECs/ICs are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site.

3.2 Overview of EC/ICs

This section of the SMP provides the following:

- A description of all EC/ICs on the site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of an Excavation Work Plan (EWP) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

3.3 Engineering Control #1 (Soil Cover/Cap)

Exposure to remaining contamination in soil/fill at the site is prevented by the soil cover EC. Specifically, the soil cover system remedy includes the following:

- The existing concrete floor of the building is utilized as the soil remedy cover. The entire floor of the building is concrete (approximately 10-inch thick based on reviewing Sites and observations during the SSDS installation). The existing concrete floor is relatively new and in excellent condition. Expansion joints are not cracking or loose and provide an excellent seal between individual concrete pours. There are no basements. When coupled with the exterior concrete sidewalk system, 100% of the site area is covered with concrete, precluding ingestion or direct contact with contaminated soils;
- The existing concrete floor also provides an excellent vapor barrier on its own; however, the concrete floor system is augmented with a SSDS vapor mitigation system which maintains a pressure differential so that inhalation of, or exposure from, contaminants volatilizing from soil is not a completed exposure pathway.

- An asphalt cover currently exists at the parking lot across the street at East 140th Street. The pavement is in excellent condition. The asphalt cover in this area must be maintained in a similar as the concrete cover.

- The concrete and asphalt cover system will be inspected at least annually to ensure that there are no breaches or repairs warranted in order to meet RAOs. Any repairs determined to be needed will be made as soon as practicable in coordination with NYSDEC.

- Soil removed from the site must be managed in accordance with the applicable provisions of the EWP.

The details of the existing concrete design were included in the NYSDEC-Approved SSDS design drawing package which is incorporated into this SMP by reference (TechSolutions, July 2012).

Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in ***Section 4*** of this SMP.

3.3.1 Excavation Work Plan (EWP)

An EWP outlining the procedures required to be implemented if any underlying remaining contamination is disturbed in the event the cover system is breached, penetrated, or temporarily removed prior to any future excavation at the site is provided in Appendix A.

The potential exists that, during construction, demolition, or utility repair work on the site, soil that is suspected of containing remaining contamination. Any excavation at the site that could potentially disturb soil with remaining contamination must be conducted in accordance with the EWP in Appendix A.

All work conducted pursuant to the EWP must also be conducted in accordance with the procedures set forth in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. The HASP must be prepared in current compliance with DER-10, and 29 Code of Federal Regulations (CFR) 1910, 29 CFR 1926, and other applicable federal, state, and local regulations.

Based on future changes to state and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work in areas of remaining contamination will be performed in compliance with the EWP, HASP, and CAMP, and will be included in the inspection and certification reports submitted under this SMP (Section 5). Areas outside the areas of Remaining Contamination and Discovered Contamination do not need to comply with the EWP, HASP, and CAMP. In other words, only areas with known or suspected contamination need to comply with these various work plans.

The site owner and associated parties preparing the remedial documents submitted to the state, and parties performing this work, are responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of any removed and contaminated media, control of storm water runoff from excavated areas, and for structures that may be affected by excavations (such as building foundations and railroad embankments). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

3.4 Engineering Control #2 (Sub-Slab Depressurization System)

The SSDS installed to mitigate soil vapor intrusion is described in ***Section 2.3***. This system will be continually operated as an EC in conjunction with the soil cover EC until its cessation is authorized by NYSDEC and NYSDOH. The following is a detailed description of the SSDS as installed. Complete design drawings are provided in ***Appendix B***.

3.4.1 Basis for SSDS Design

The SVI mitigation system was designed as a SSDS to prevent vapors related to historic site activities from entering the facility. The contaminants of concern are primarily CVOCs and former MGP related chemicals, such as BTEX, pentane, and hexane-based compounds. The soil gas data indicate that the highest VOC levels are located underlying the warehouse section of the facility near the center and western sides of the Site. No significant contamination was detected on the eastern side of the Site at levels warranting SVI mitigation. As a result, the SVI mitigation design focused on the central and western portions of the facility.

Given the fact that the Site is located close to surface waters, includes stormwater and fire water troughs around much of the perimeter, and is built on piles with a very shallow water table (as shallow as 5 feet below grade at some portions of the Site), there were limited options for installation of a SVI mitigation system. The building design is unique in that it contains underground vaults for storage of stormwater and/or fire water along the East 139th Street, East 140th Street, and Rose Feiss Boulevard sides of the building which prevents SSDS extraction well installation within approximately 20 to 40 feet of the exterior walls on the north, south, and west sides of the property (see ***Sheet 2 of Appendix B***). Trenching in the slab was restricted to limited areas along the building centerline where columns leading to the roof are present and where grade beams would not be intersected in order to preserve the structural integrity of the floor slab which is supported by piles.

With this information and these technical design constraints, it was determined that the most effective SSDS design would encompass a series of SSDS extraction wells placed along the centerline of the building immediately adjacent to the roof columns and pile

caps. Five (5) SVI mitigation extraction wells (SVI-1 through SVI-5) were installed as indicated in ***Sheet 2 of Appendix B***. Assuming an effective radius of influence (ROI) of approximately 75 feet (common for SVI systems with similar geology), this array of SVI mitigation wells was intended to cover over 90% of the area of concern and reduce sub-slab pressure by creating a vacuum that limits migration of contaminated vapors into the structure. Subsequent post-installation monitoring to date has verified the design assumptions and supported a minimum 75-foot effective ROI. The intent of the SSDS system was solely to create a pressure differential between the subsurface and the interior of the building.

All elements of the design were completed in general accordance with the requirements of the New York State Department of Health (NYSDOH) "*Guidance for Evaluating Soil Vapor Intrusion in the State of New York*", October 2006 (as amended).

3.4.2 SVI Well Design

Five (5) SVI extraction wells were installed to create sub-slab depressurization. The well locations are indicated in ***Sheet 2 of Appendix B*** and the details including screened intervals and piping to bring the wells to the surface at each location are indicated in ***Sheet 3 of Appendix B***. The screened interval design was critical in this project given that the depth to water is very shallow (typically between 10 and 12 feet below grade under the building and only about 4 to 5 feet below grade along the building exterior) and the pile caps and grade beams extend between two and three feet below the finished floor slab. Therefore, it was necessary to screen the SVI mitigation wells (SVI-1 through SVI-5) from approximately 3 feet to 8 feet below grade to ensure the full ROI can be realized without short-circuiting created by pile caps or the elevated water table.

SVI mitigation wells were located approximately 50 feet apart as indicated on ***Sheet 2 of Appendix B***. This design provided a substantial overlap in coverage area along the center of the building and in the areas where soil gas readings have indicated the highest levels of impact. This design also minimized trenching as the wells are all located within 10 feet of the columns leading to the roof which was used for supporting manifold piping. Each SVI mitigation well was designed to run approximately 50 cubic feet per minute (cfm) and in actuality higher flows may be obtained as head losses in the manifold system have been minimized through short piping runs and increasing pipe diameter as the extracted vapors flow toward the SVI system blowers. SVI mitigation wells were constructed as 3-inch diameter stainless steel wells.

3.4.3 Vapor Monitoring Probes:

The existing vapor monitoring probe network was incorporated into the design of the SVI system. However, review of construction logs for the existing vapor probe design indicated that the depth was not appropriate for proper SVI mitigation system monitoring

(i.e., it did not extend below the grade beam depth). Therefore, the design included modification of four (4) of the seven (7) existing vapor monitoring probes to extend the depth to below the grade beams. The remaining existing vapor monitoring probes remained in place to assist in evaluating actual vacuum response as a function of depth and the absence or presence of grade beams near monitoring probe locations. The locations of the vapor monitoring probes are indicated in ***Sheet 2 of Appendix B*** and the screen and construction details are provided in ***Sheet 3 of Appendix B***. The upgraded vapor monitoring probe locations were selected to ensure monitoring in the following areas:

- One (1) probe in an area that should definitely be under strong vacuum influence in close location to multiple SVI mitigations wells (SVFM-02);
- One (1) probe in an area along the periphery of the ROI of the SVI wells and within an area where elevated soil gas concentrations have been noted by others (SVFM-06);
- One (1) probe along the edge of the SSDS in an area where the anticipated ROI may be minimal to help evaluate system effectiveness and determine the actual ROI under operating conditions. This probe location also serves as confirmation of protection of the loading dock areas along Locust Avenue (SVFM-05); and,
- One (1) probe located in an area anticipated to be outside/at the extreme periphery of the ROI to see if better than anticipated performance is occurring and to evaluate the protectiveness of the system in the corners of the building furthest from SVI mitigation wells (SVFM-01).

In addition, existing vapor monitoring probes SVFM-3, SVFM-4, and H-AA-01 remain for monitoring. H-AA-01 serves as an indicator of ambient conditions.

3.4.4 Interior and Ceiling Manifold System:

As indicated in ***Sheet 3 of Appendix B***, the piping extending from the wells is 3-inch diameter steel and is notched into the existing floor slab rather than a classical trench design. This was implemented to minimize cuts all the way through the finished floor and to eliminate any intersections with grade beams or other structural elements. The 3-inch steel piping from the extraction well points transitions to 4-inch steel piping as it emerges from the floor. A ball valve is provided at each SVI well location to allow flow and vacuum regulation so that the system can be optimized during operation as necessary. It should be noted that the original design indicated a transition to PVC piping after the manifold from each well reached a height of 20 feet above the finished floor to balance costs with protection of equipment. Two changes to the original design were made during installation to accommodate requests from the City of New York Fire Marshal and to comply with local building codes. Steel piping was continued up the center support columns until 25 feet above the finished floor rather than 20 feet to protect it from accidental damage related to warehouse operations (i.e., forklifts, etc.), and

chlorinated PVC (CPVC) piping was used in lieu of PVC piping throughout the design due to its higher melt point and better structural properties. These changes have no impact on the design intent or operation of the SVI mitigation system.

Individual laterals from each of the five (5) SVI mitigation wells are individually run as 6-inch diameter CPVC lines to dedicated blower systems (i.e., "homerun" piping with one blower for each SVI) which are installed on the mezzanine at the east end of the building along Locust Avenue. The ceiling manifold plan is provided in ***Sheet 4 of B***. This design allows great operational flexibility and also ensures that in the event of one blower failure, the majority of the building will still be under the influence of the other blower systems to provide an added measure of protection to site occupants. In addition, the effective ROI was improved due to the additional blower capacity at each SVI well. The roof plan (***Sheet 5 of Appendix B***) indicates the approximate location of the new blower systems. The complete piping systems are depicted in the piping and instrumentation diagram (***Sheet 6 of Appendix B***).

3.4.5 Blower Systems and Rooftop Piping

The effluent lines from the blower systems were manifolded into a common 8-inch diameter effluent line that exits the exterior wall along Locust Avenue, approximately ten (10) feet below the roof line. The discharge piping then runs along the exterior side of the wall up to the roof where it terminates approximately five (5) feet above the roof line. All piping and wall penetrations were installed by licensed contractors and the exterior wall repair was completed in accordance with architect and wall material manufacturer recommendations to ensure a liquid tight seal.

The five (5) blowers (B-1 through B-5 corresponding to SVI-1 through SVI-5, respectively) were installed on the mezzanine along the Locust Avenue wall (see ***Sheet 4 of Appendix B***). Five, Radonaway RP380 Blower systems (B-1 through B-5) were utilized. The design installation details for the blower systems and the piping and controls necessary are indicated on ***Sheet 3*** and ***Sheet 6 of Appendix B***, respectively. However, a field change was required during installation to eliminate the run indicator panel. Alternatively, biweekly inspections will need to be completed to document that the system is running. Each of the five blowers is powered by a 120VAC, 60Hz receptacle within several feet of the blower. The receptacles were installed in accordance with New York City Codes. Operation of the blower systems is described in **Appendix C**.

As indicated on ***Sheet 6 of Appendix B***, emissions controls systems including the installation of two, 55-gallon drum type, vapor granular activated carbon vessels piped in series can be added if necessary based upon OM&M data review. Vessels can be provided for series installation so that once breakthrough is detected in the lead vessel, arrangements for GAC replacement can be made before breakthrough in the lag vessel. As of the preparation of this SMP, GAC treatment has not been deemed necessary.

The 8-inch discharge piping exits the exterior wall at Locust Avenue and then extends to the roof top. The discharge piping extends approximately five (5) feet above the roofline and was placed away from any fresh air intakes for the building. A rain cap was fitted on the discharge. Since piping leaves the interior of the building and then runs along the exterior, there is the potential for condensate buildup. Low point vents for condensate removal as appropriate can be fitted into the system

3.4.6 Operation and Maintenance of the SSDS

Procedures for operating and maintaining the SSDS system are documented in the SVI OM&M Plan (TechSolutions, July 2012; under separate cover).

3.5 Criteria for Completion of Remediation

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

3.5.1 Composite Cover System

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity, as specified in Section 3.7.

3.5.2 Sub-slab Depressurization System (SSDS)

The active SSD system will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicate that the SSD system is no longer required, a proposal to discontinue the SSD system will be submitted by the property owner to the NYSDEC and NYSDOH.

3.5.3 Groundwater Monitoring

The Volunteer will conduct groundwater monitoring for the ISCO remedy as stated in Section 4.

Groundwater monitoring related to the MGP site will be addressed in the Remedial Action Work Plan to be developed by Con Edison in accordance with the VCA.

3.6 Institutional Controls

A series of ICs is required by the RAWP to: (1) implement, maintain, and monitor ECs; (2) prevent future exposure to remaining contamination by controlling disturbances of

the subsurface contamination; and, (3) limit the use and development of the site to uses consistent with the Environmental Easement. Adherence to these ICs is required by the Environmental Easement and will be implemented under this SMP. These ICs are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs on the Site must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater, soil, and VI monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site management must be reported at the frequency and in a manner defined in this SMP;

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The Site has a series of ICs in the form of site restrictions. Adherence to these ICs is required by the Environmental Easement. Site restrictions that apply to the Site are:

- The property may only be used as Commercial Use as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial Use as described in 6 NYCRR Part 375-1.8(g)(2)(iv) provided that the long-term ICs and ECs included in this SMP are employed;
- The property may not be used for a higher level of use, such as Unrestricted Use, Residential Use, or Restricted Residential Use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contamination material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area noted on ***Figure 1***, and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the property are prohibited;
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; 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. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued

maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

3.6.1 Excavation Work Plan

The site will be remediated for Commercial Use as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial Use as described in 6 NYCRR Part 375-1.8(g)(2)(iv). Any future intrusive work that will penetrate the soil cover or cap, or encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover system, will be performed in compliance with the EWP in ***Appendix A***.

3.6.2 Soil Vapor Intrusion Evaluation

If any disturbance to the existing SSDS is planned, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval to address the planned disturbance and any corrective measures needed to ensure continued SVI mitigation. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion (including but not limited to repair and/or replacement of the existing SSDS) will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data, if collected as part of the Work Plan, will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the departments, along with a recommendation for follow-up action, such as mitigation. SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

3.7 Inspections and Notifications

3.7.1 Inspections

Inspections of all remedial components installed at the site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the environmental easement;

- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (***Section 4***). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (***Section 5***).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event, or at the first reasonable opportunity, to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

3.7.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 7-day advance notice of any proposed ground-intrusive activities pursuant to the EWP.
- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC (e.g., the SSDS) and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser

has been provided with a copy of the BCA, the VCA, and all approved work plans and reports, including this SMP; and,

- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

3.8 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions. The following procedures are to be followed in the event of an emergency.

3.8.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to Sustainable Development, Inc. These emergency contact lists must be maintained in an easily accessible location at the site.

Table 2
Emergency Contact Numbers

Medical, Fire, and Police:		911
One Call Center:		(800) 272-4480 (3 business day notice required for utility markout)
Poison Control Center:		(800) 222-1222
Pollution Toxic Chemical Oil Spills:		(800) 424-8802
NYSDEC Spills Hotline		(800) 457-7362

Table 3
Project Contact Numbers

Sustainable Development, Inc. (Al Nesheiwat)	(914) 220-2404
295 Locust Associates LLC Joe Kelleher	(718) 518-8600

* Note: Contact numbers subject to change and should be updated as necessary

3.8.2 Map and Directions to Nearest Health Facility

This information is to be provided in the HASP to be developed by the Owner or their representatives.

3.8.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 1). The list will also posted prominently at the site and made readily available to all personnel at all times. The specific HASP and Contingency Plan response procedures are to be developed by the Owner and their representatives.

4.0 SITE MONITORING PLAN

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. Monitoring of other ECs is described in the SVI Mitigation System OM&M Plan under separate cover (incorporated herein by reference). This Monitoring Plan may only be revised with the approval of NYSDEC.

4.1 Purpose and Schedule

This Monitoring Plan section of this SMP describe the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the remedial performance criteria.
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

There are three major components of the Monitoring Plan: (1) Soil Vapor Mitigation System Monitoring; (2) Groundwater Monitoring; and, (3) Monitoring of ECs. In general, monitoring documents provide information on the following:

- Sampling locations, protocol, and frequency;
- Information on designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

The following is a summary of the proposed monitoring schedule for the first three years. The frequency thereafter will be determined in coordination with NYSDEC. Trends in contaminant levels in air, soil, and/or groundwater in the affected areas, will be

evaluated to determine if the remedy continues to be effective in achieving remedial goals.

Table 4
Monitoring / Inspection Schedule

Monitoring Program	Frequency*	Matrix / Parameters	Analysis
SVI Mitigation System	Semi-Annual Monitoring Year 1 with Annual Monitoring Years 2 and 3	Mechanical parameters, sub-slab vapor concentrations and IAQ Concentrations	VOCs Only
EC Monitoring	Annually years 1, 2, 3	Site inspection of soil cover system	Visual
Media Monitoring for CVOC Constituents: Groundwater	Annually until termination approved by NYSDEC	MWRX-02, MWMF-04, MWMF-08	VOCs Only
Media Monitoring for MGP Constituents: Groundwater	To be determined by Con Edison	Select wells to be determined by Con Edison	To be determined by Con Edison

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

4.2 SVI Mitigation System Monitoring

The SVI Mitigation system monitoring requirements are outlined in the NYSDEC-approved SVI OM&M Plan (under separate cover).

4.3 EC Monitoring: Cover System

The soil cover system will be inspected at least annually to ensure that there are no breaches or repairs warranted in order to meet RAOs. Any repairs determined to be needed will be made as soon as practicable in coordination with NYSDEC.

4.4 Media Monitoring Program

4.4.1 Groundwater Monitoring

The Volunteer will implement a Post-injection Monitoring Plan, as required by the RAWP and this SMP, to evaluate the performance of the ISCO remedy. The plan will be provided to the NYSDEC for review and approval before its implementation.

In addition, Con Edison will prepare a monitoring plan(s), in accordance with the VCA, for review and approval by NYSDEC.

At a minimum, the monitoring plans performed by the Volunteer and Con Edison will include the following:

- A discussion of well placement criteria;
- Provide a figure showing the monitoring well array and specific wells to be sampled;
- Depth and units screened (include cross-section);
- Baseline water levels and flow pattern;
- Baseline post-remedial groundwater quality conditions;
- Table of wells to be sampled and analytes to be tested;
- Description of monitoring frequency and duration;
- HASP; and,
- Monitoring well construction details.

If necessary, the SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

4.4.2 Sampling Protocol

Sampling protocol will be provided in future monitoring plans consisting of the Post-injection Monitoring Plan to be prepared by the Volunteer and groundwater monitoring anticipated to be conducted by Con Edison as part of future remedial actions.

4.4.3 Monitoring Well Repairs, Replacement and Decommissioning

Monitoring well repairs, replacement, and decommissioning will be described in future monitoring plans by the Volunteer and Con Edison (see Section 4.4.2 above).

In the interim, the NYSDEC will be notified prior to any repair or decommissioning of existing monitoring wells. Well decommissioning without replacement will be performed only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

4.5 Site-Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, the Inspection Form provided in ***Appendix D*** will be completed.

4.6 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site as part of future monitoring plans to be submitted to NYSDEC for review and approval. Main Components of the QAPP will include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
    - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
    - Sample holding times will be in accordance with the NYSDEC ASP requirements.
    - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
    - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
    - That the laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules; and,
- Corrective Action Measures.

4.7 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 Site Inspections

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3, Monitoring Plan, and Section 4, Operation and Maintenance Plan, of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any treatment system component has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the Inspection Form included in ***Appendix D***.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items;
- The site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP for the ISCO system, the SVI OM&M Plan and any future RAWP related to the MGP contamination under the VCA.

5.2 Certification of Engineering and Institutional Controls

After the last inspection of the reporting period, the Volunteer will retain a qualified environmental professional or Professional Engineer licensed to practice in New York State to prepare the following certification:

For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this site is substantially unchanged from the date the control was put in place, or last approved by the Department;
- Nothing significant has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing significant has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Reasonable access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document (certified by owner / operator / Volunteer – not PE);
- Use of the site is compliant with the environmental easement (certified by owner / operator / Volunteer – not PE);
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in general accordance with the requirements of the site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative].

The signed certification will be included in the Periodic Review Report.

5.3 Periodic Review Report

A Periodic Review Report will be submitted to the Department every fifth year, beginning fifteen months after the environmental easement is recorded. The report will be prepared in general accordance with NYSDEC DER-10 and submitted within 30 days of the end of each certification period unless an extension is approved by NYSDEC. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.
- A performance summary for all treatment systems at the site during each calendar year, including information such as:
    - The number of days the system was run for the reporting period;
    - The average, high, and low flows per day;
    - The contaminant mass removed;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A description of the resolution of performance problems;

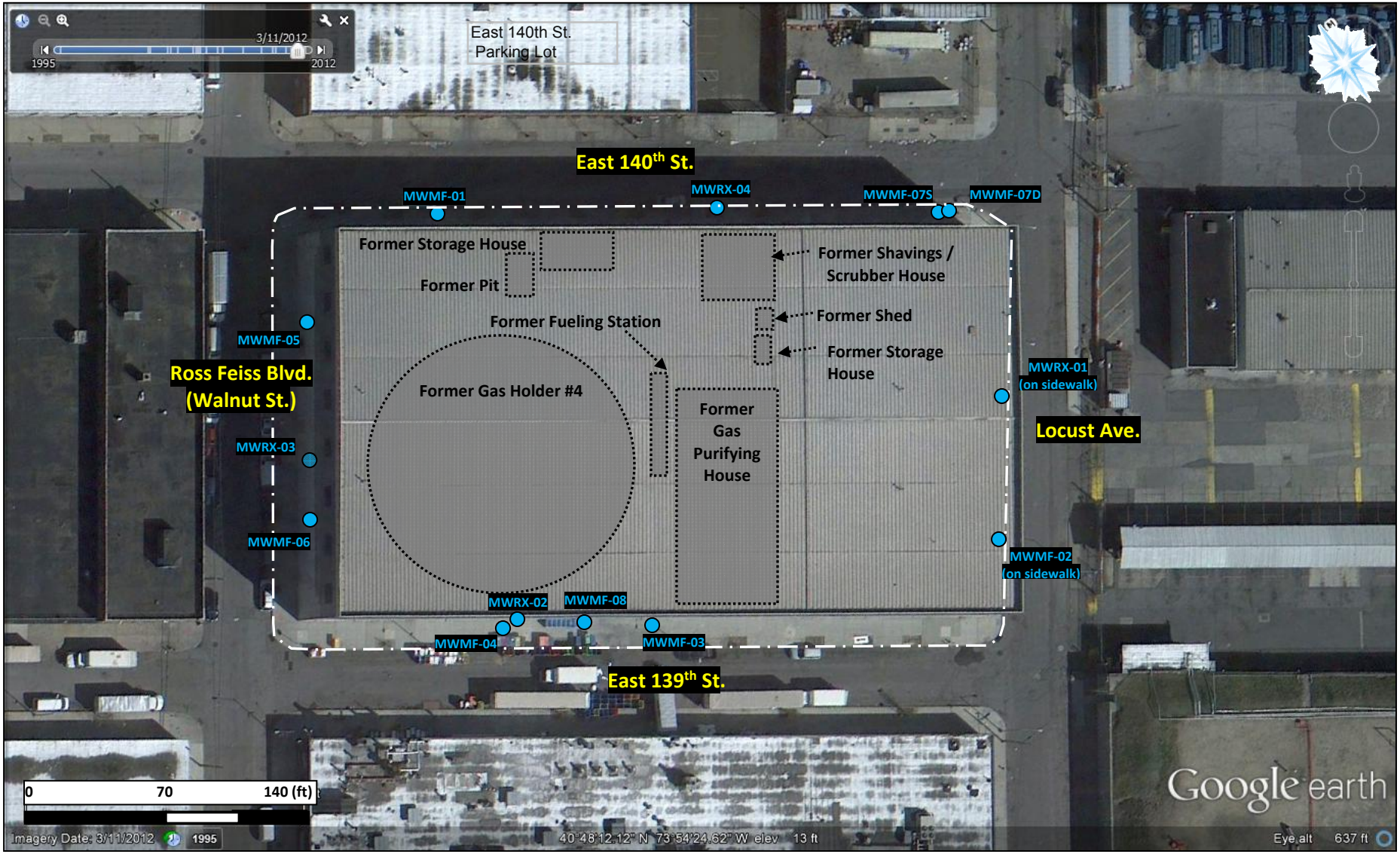
- A summary of the performance, effluent and/or effectiveness monitoring; and,
- Comments, conclusions, and recommendations based on data evaluation.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the site is located, and in electronic format to NYSDEC Central Office, Regional Office, and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

FIGURES



Existing GW Monitoring Well

Former MGP Infrastructure (some may remain below grade)

Figure 1
Site Plan
295 Locust Avenue, Bronx, NY

(Basemap: Google Earth 2012 Image)

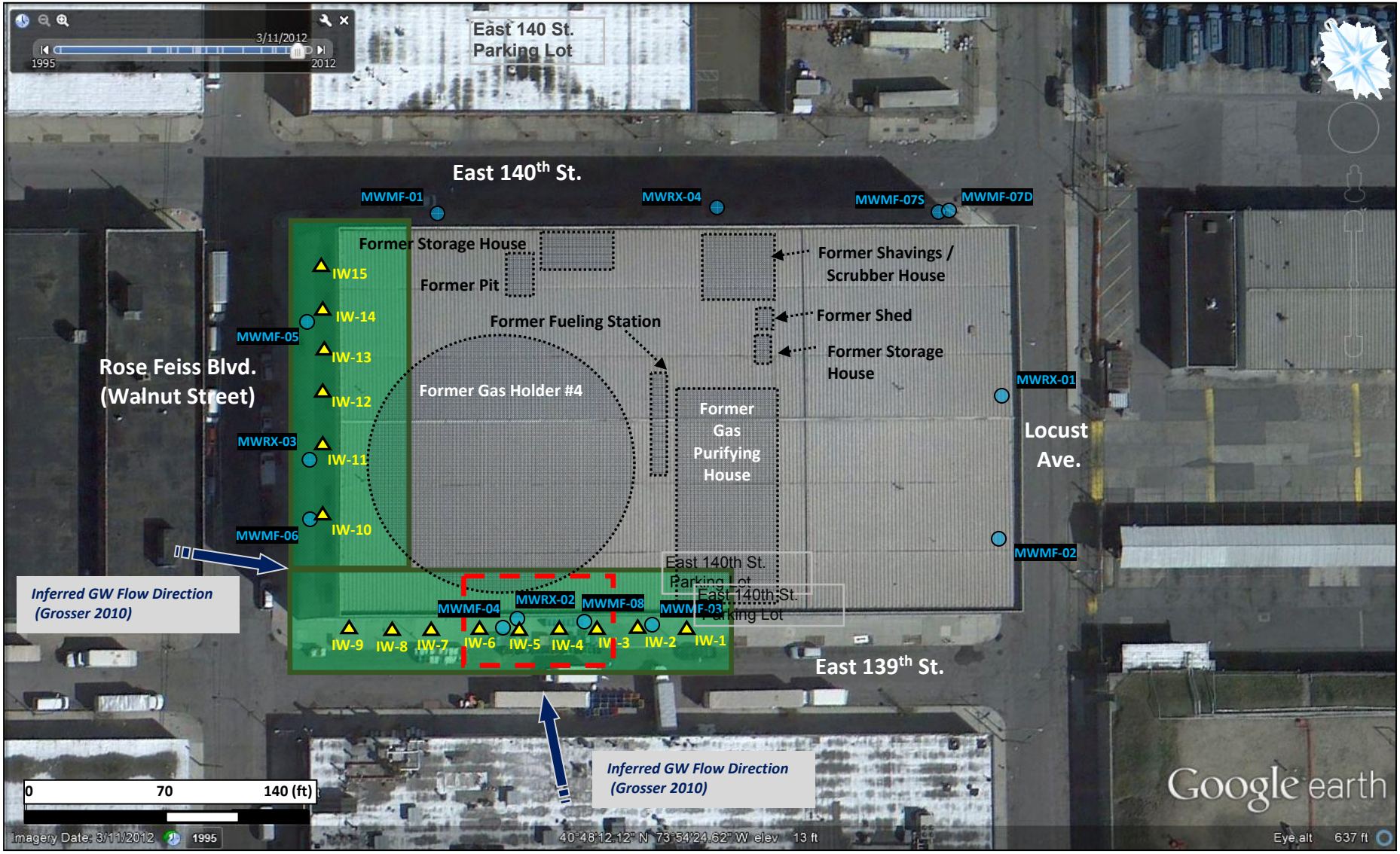


Figure 2
ISCO Injection Locations for Soil & Groundwater Remedy

(Basemap: Google Earth 2012 Image with overlays from reports completed by others)

SBMF-23 (3.5'-4.5')	4/11
VOCs:	
1,2-Dichloroethene (cis)	70
1,2-Dichloroethene (trans)	0.91
Acetone	0.091
Tetrachloroethene	19
Trichloroethene	8.6
Vinyl chloride	0.071
Xylene (total)	1.0

SBMF-23 (14.2'-15')	4/11
VOCs:	
1,2-Dichloroethene (cis)	24
1,2-Dichloroethene (trans)	0.41
Benzene	6.7
Ethylbenzene	20
Tetrachloroethene	5.3
Toluene	15
Trichloroethene	0.65
Vinyl chloride	1.2
Xylene (total)	66

SBMF-19 (45'-46')	4/11
VOCs:	
1,2-Dichloroethene (cis)	1.4
Benzene	63
Ethylbenzene	16
Tetrachloroethene	3.5
Toluene	86
Trichloroethene	0.63
Xylene (total)	120

SBMF-20 (4'-4.5')	4/11
VOCs:	
1,2-Dichloroethene (cis)	36
Tetrachloroethene	7.9
Trichloroethene	0.94

SBMF-20 (10'-10.5')	4/11
VOCs:	
Xylene (total)	0.27

SBMF-09 (9.5'-10')	4/11
VOCs:	
Benzene	0.083
Ethylbenzene	1.9
Xylene (total)	3.1

SBMF-09 (40.5'-41.5')	4/11
VOCs:	
1,2-Dichloroethane	0.51
1,2-Dichloroethene (cis)	3.3
Benzene	25
Ethylbenzene	39
Toluene	76
Vinyl chloride	0.12
Xylene (total)	110

MWMF-01 (19'-20')	3/11
VOCs:	
Benzene	0.38

SBMF-13 (5'-6')	4/11
VOCs:	
1,2-Dichloroethene (cis)	9.8
Benzene	62
Toluene	890
Xylene (total)	1900

SBMF-09 (41.5'-42.2')	4/11
VOCs:	
Benzene	0.57
Ethylbenzene	6.3
Toluene	8
Xylene (total)	24

SBMF-09 (44.5'-45')	4/11
VOCs:	
Benzene	1.5
Toluene	2.9
Xylene (total)	5.2

SBMF-13 (10.5'-11.2')	4/11
VOCs:	
Benzene	0.066
Ethylbenzene	1.5
Vinyl chloride	0.10
Xylene (total)	5.6

SBMF-18 (4.5'-5')	3/11
VOCs:	
Acetone	0.086

SBMF-18 (11.2'-11.8')	4/11
VOCs:	
Benzene	0.26
Ethylbenzene	1.5
Vinyl chloride	0.070
Xylene (total)	0.32

SBMF-18 (29'-30')	4/11
VOCs:	
Benzene	0.26

SBMF-13 (32'-33')	4/11
VOCs:	
Benzene	1.1

SBMF-18 (44.5'-45')	4/11
VOCs:	
1,2-Dichloroethene (cis)	5.1
Benzene	29
Ethylbenzene	7.8
Tetrachloroethene	7.1
Toluene	26
Trichloroethene	0.62
Vinyl chloride	0.18
Xylene (total)	37

SBMF-18 (45'-46')	4/11
VOCs:	
1,2-Dichloroethene (cis)	0.58
Benzene	0.90
Xylene (total)	0.64

SBMF-12 (4.5'-5')	3/11
VOCs:	
Acetone	0.19

SBMF-12 (8.3'-9.1')	4/11
VOCs:	
1,2-Dichloroethene (cis)	18
1,2-Dichloroethene (trans)	0.80
Benzene	0.35
Tetrachloroethene	1.9
Xylene (total)	0.88

MWMF-07S (4.5'-5.5')	3/11
VOCs:	
Ethylbenzene	1.9
Xylene (total)	0.88

SBMF-12 (10.5'-11.5')	4/11
VOCs:	
Vinyl chloride	0.059

SBMF-12 (29.5'-30')	4/11
VOCs:	
Benzene	3.5

SBMF-14 (4.5'-5')	3/11
VOCs:	
Acetone	0.078

SBMF-14 (13.2'-14')	4/11
VOCs:	
Benzene	2.5
Ethylbenzene	93
Xylene (total)	21

MWMF-05 (5'-5.5')	3/11
VOCs:	
Vinyl chloride	0.045

MWMF-05 (11'-12')	3/11
VOCs:	
Benzene	1.2
Ethylbenzene	1.6
Xylene (total)	1.6

MWMF-05 (19.5'-20')	3/11
VOCs:	
Benzene	0.20

SBMF-10 (10'-11')	4/11
VOCs:	
1,2-Dichloroethene (cis)	1.6
Benzene	0.096
Vinyl chloride	0.20
Xylene (total)	0.49

SBMF-10 (17.6'-18')	4/11
VOCs:	
Xylene (total)	1.8

SBMF-15 (9'-9.5')	4/11
VOCs:	
Benzene	0.22
Xylene (total)	0.78

SBMF-15 (14.2'-14.8')	4/11
VOCs:	
Benzene	1.2
Ethylbenzene	6.0
Xylene (total)	32

SBMF-16 (4.5'-5')	3/11
VOCs:	
1,2-Dichloroethene (cis)	2.1

SBMF-16 (10.5'-11.5')	4/11
VOCs:	
Benzene	3.1
Xylene (total)	2.5

SBMF-16 (34.8'-35.3')	4/11
VOCs:	
Benzene	0.25
Ethylbenzene	2.4
Xylene (total)	3.6

SBMF-16 (36.5'-37')	4/11
VOCs:	
Benzene	0.12
Ethylbenzene	1.5
Xylene (total)	2.7

SBMF-21 (36.4'-37')	4/11
VOCs:	
1,2-Dichloroethene (cis)	0.69
Benzene	4.2
Ethylbenzene	7.9
Toluene	22
Xylene (total)	62

SBMF-08 (19'-20')	3/11
VOCs:	
Benzene	0.26

SBMF-07 (12.5'-13')	3/11
VOCs:	
Benzene	0.083

MWMF-02 (3'-3.5')	3/11
VOCs:	
Acetone	0.074

SBMF-01 (9'-10')	4/11
VOCs:	
1,2-Dichloroethane	0.40
1,2-Dichloroethene (cis)	3.1
Acetone	1.7
Benzene	15
Ethylbenzene	260
Toluene	15
Xylene (total)	1200

MWMF-04 (10'-11')	3/11
VOCs:	
1,2-Dichloroethene (cis)	3.3
Vinyl chloride	0.45

MWMF-04 (28.2'-29')	3/11
VOCs:	
1,2-Dichloroethene (cis)	0.30
Benzene	1.1
Ethylbenzene	19
Toluene	1.9
Xylene (total)	24

SBMF-04 (3.2'-3.8')	3/11
VOCs:	
1,2-Dichloroethene (cis)	2.1

SBMF-04 (15'-16')	4/11
VOCs:	
1,2-Dichloroethene (cis)	1.8
Benzene	0.41
Vinyl chloride	0.69
Xylene (total)	0.77

SBMF-04 (45.5'-46')	4/11
VOCs:	
1,2-Dichloroethene (cis)	1.7
Benzene	630
Ethylbenzene	140
Tetrachloroethene	77
Toluene	1200
Trichloroethene	0.90
Xylene (total)	1200

MWMF-08 (3'-3.5')	3/11
VOCs:	
Xylene (total)	0.45

MWMF-08 (5.5'-6')	3/11
VOCs:	
Ethylbenzene	2.0
Xylene (total)	4.6

MWMF-08 (9'-10')	3/11
VOCs:	
Ethylbenzene	76
Toluene	2.1
Xylene (total)	150

MWMF-03 (4.5'-5')	3/11
VOCs:	
Benzene	2.3
Ethylbenzene	17
Toluene	0.89
Xylene (total)	12

SBMF-06 (18.2'-19')	3/11
VOCs:	
Benzene	0.068
Xylene (total)	0.47

Rose Feiss Blvd

E 140th St

E 139th St

Locust Ave

SBMF-03

MWMF-07D

FORMER FUELING STATION

SBMF-11

SBMF-22

SBMF-02

SBMF-17

MWMF-06

SBMF-05

Legend

- Not Sampled
- No Compounds Exceed Criteria
- One Or More Compounds Exceed Criteria

Location ID | Depth Interval | Sample Date

MWMF-07S (4.5'-5.5') |3/11

VOCs:
Ethylbenzene | 1.9
Xylene (total) | 0.88

Compound | Concentration (mg/kg)

NOTE:
REPRINTED FROM URS RI REPORT WITHOUT CHANGE EXCEPT FOR FIGURE NUMBER

NOTE:
6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use.

100 0 100 Feet

295 LOCUST AVENUE
REMEDIAL INVESTIGATION
SOIL ANALYTICAL RESULTS
UNRESTRICTED USE CRITERIA
VOCS

conEdison URS

FIGURE 3A

J:\11175538.00000\DB\GIS\Maps\295 Locust Ave RI Report\4-1 Soil Analytical Results - Unrestricted Use - VOCs.mxd 7/5/2011 MDL

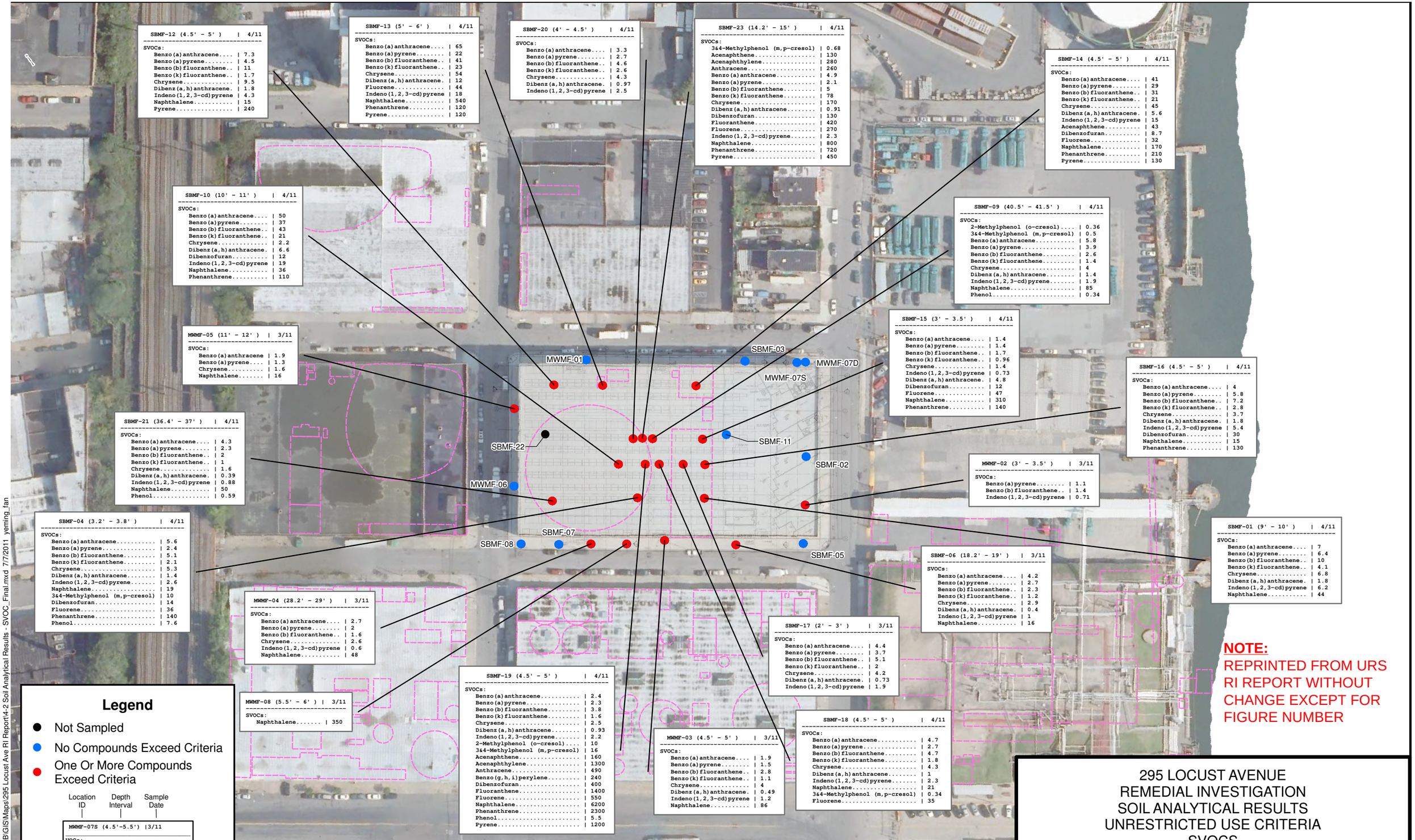

SBMF-12 (4.5' - 5') | 4/11
SVOCs:
Benzo(a)anthracene.... | 7.3
Benzo(a)pyrene..... | 4.5
Benzo(b)fluoranthene.. | 11
Benzo(k)fluoranthene.. | 1.7
Chrysene..... | 9.5
Dibenz(a,h)anthracene. | 1.8
Indeno(1,2,3-cd)pyrene | 4.3
Naphthalene..... | 15
Pyrene..... | 240
SBMF-13 (5' - 6') | 4/11
SVOCs:
Benzo(a)anthracene.... | 65
Benzo(a)pyrene..... | 22
Benzo(b)fluoranthene.. | 41
Benzo(k)fluoranthene.. | 23
Chrysene..... | 54
Dibenz(a,h)anthracene. | 12
Fluorene..... | 44
Indeno(1,2,3-cd)pyrene | 18
Naphthalene..... | 540
Phenanthrene..... | 120
Pyrene..... | 120
SBMF-20 (4' - 4.5') | 4/11
SVOCs:
Benzo(a)anthracene.... | 3.3
Benzo(a)pyrene..... | 2.7
Benzo(b)fluoranthene.. | 4.6
Benzo(k)fluoranthene.. | 2.6
Chrysene..... | 4.3
Dibenz(a,h)anthracene. | 0.97
Indeno(1,2,3-cd)pyrene | 2.5
SBMF-23 (14.2' - 15') | 4/11
SVOCs:
3&4-Methylphenol (m,p-cresol) | 0.68
Acenaphthene..... | 130
Acenaphthylene..... | 280
Anthracene..... | 260
Benzo(a)anthracene..... | 4.9
Benzo(a)pyrene..... | 2.1
Benzo(b)fluoranthene..... | 5
Benzo(k)fluoranthene..... | 78
Chrysene..... | 170
Dibenz(a,h)anthracene..... | 0.91
Dibenzofuran..... | 130
Fluoranthene..... | 420
Fluorene..... | 270
Indeno(1,2,3-cd)pyrene..... | 2.3
Naphthalene..... | 800
Phenanthrene..... | 720
Pyrene..... | 450
SBMF-14 (4.5' - 5') | 4/11
SVOCs:
Benzo(a)anthracene.... | 41
Benzo(a)pyrene..... | 29
Benzo(b)fluoranthene.. | 31
Benzo(k)fluoranthene.. | 21
Chrysene..... | 45
Dibenz(a,h)anthracene. | 5.6
Indeno(1,2,3-cd)pyrene | 15
Acenaphthene..... | 43
Dibenzofuran..... | 8.7
Fluorene..... | 32
Naphthalene..... | 170
Phenanthrene..... | 210
Pyrene..... | 130
SBMF-10 (10' - 11') | 4/11
SVOCs:
Benzo(a)anthracene.... | 50
Benzo(a)pyrene..... | 37
Benzo(b)fluoranthene.. | 43
Benzo(k)fluoranthene.. | 21
Chrysene..... | 2.2
Dibenz(a,h)anthracene. | 6.6
Dibenzofuran..... | 12
Indeno(1,2,3-cd)pyrene | 19
Naphthalene..... | 36
Phenanthrene..... | 110
SBMF-09 (40.5' - 41.5') | 4/11
SVOCs:
2-Methylphenol (o-cresol).... | 0.36
3&4-Methylphenol (m,p-cresol) | 0.5
Benzo(a)anthracene..... | 5.8
Benzo(a)pyrene..... | 3.9
Benzo(b)fluoranthene..... | 2.6
Benzo(k)fluoranthene..... | 1.4
Chrysene..... | 4
Dibenz(a,h)anthracene..... | 1.4
Indeno(1,2,3-cd)pyrene..... | 1.9
Naphthalene..... | 85
Phenol..... | 0.34
MWMF-05 (11' - 12') | 3/11
SVOCs:
Benzo(a)anthracene | 1.9
Benzo(a)pyrene.... | 1.3
Chrysene..... | 1.6
Naphthalene..... | 16
SBMF-15 (3' - 3.5') | 4/11
SVOCs:
Benzo(a)anthracene.... | 1.4
Benzo(a)pyrene..... | 1.4
Benzo(b)fluoranthene.. | 1.7
Benzo(k)fluoranthene.. | 0.96
Chrysene..... | 1.4
Indeno(1,2,3-cd)pyrene | 0.73
Dibenz(a,h)anthracene. | 4.8
Dibenzofuran..... | 12
Fluorene..... | 47
Naphthalene..... | 310
Phenanthrene..... | 140
SBMF-16 (4.5' - 5') | 4/11
SVOCs:
Benzo(a)anthracene.... | 4
Benzo(a)pyrene..... | 5.8
Benzo(b)fluoranthene.. | 7.2
Benzo(k)fluoranthene.. | 2.8
Chrysene..... | 3.7
Dibenz(a,h)anthracene. | 1.8
Indeno(1,2,3-cd)pyrene | 5.4
Dibenzofuran..... | 30
Naphthalene..... | 15
Phenanthrene..... | 130
SBMF-21 (36.4' - 37') | 4/11
SVOCs:
Benzo(a)anthracene.... | 4.3
Benzo(a)pyrene..... | 2.3
Benzo(b)fluoranthene.. | 2
Benzo(k)fluoranthene.. | 1
Chrysene..... | 1.6
Dibenz(a,h)anthracene. | 0.39
Indeno(1,2,3-cd)pyrene | 0.88
Naphthalene..... | 50
Phenol..... | 0.59
MWMF-02 (3' - 3.5') | 3/11
SVOCs:
Benzo(a)pyrene..... | 1.1
Benzo(b)fluoranthene.. | 1.4
Indeno(1,2,3-cd)pyrene | 0.71
SBMF-04 (3.2' - 3.8') | 4/11
SVOCs:
Benzo(a)anthracene..... | 5.6
Benzo(a)pyrene..... | 2.4
Benzo(b)fluoranthene..... | 5.1
Benzo(k)fluoranthene..... | 2.1
Chrysene..... | 5.3
Dibenz(a,h)anthracene..... | 1.4
Indeno(1,2,3-cd)pyrene..... | 2.6
Naphthalene..... | 19
3&4-Methylphenol (m,p-cresol) | 10
Dibenzofuran..... | 14
Fluorene..... | 36
Phenanthrene..... | 140
Phenol..... | 7.6
SBMF-01 (9' - 10') | 4/11
SVOCs:
Benzo(a)anthracene.... | 7
Benzo(a)pyrene..... | 6.4
Benzo(b)fluoranthene.. | 10
Benzo(k)fluoranthene.. | 4.1
Chrysene..... | 6.8
Dibenz(a,h)anthracene. | 1.8
Indeno(1,2,3-cd)pyrene | 6.2
Naphthalene..... | 44
SBMF-06 (18.2' - 19') | 3/11
SVOCs:
Benzo(a)anthracene.... | 4.2
Benzo(a)pyrene..... | 2.7
Benzo(b)fluoranthene.. | 2.3
Benzo(k)fluoranthene.. | 1.2
Chrysene..... | 2.9
Dibenz(a,h)anthracene. | 0.4
Indeno(1,2,3-cd)pyrene | 1
Naphthalene..... | 16
MWMF-04 (28.2' - 29') | 3/11
SVOCs:
Benzo(a)anthracene.... | 2.7
Benzo(a)pyrene..... | 2
Benzo(b)fluoranthene.. | 1.6
Chrysene..... | 2.6
Indeno(1,2,3-cd)pyrene | 0.6
Naphthalene..... | 48
SBMF-17 (2' - 3') | 3/11
SVOCs:
Benzo(a)anthracene.... | 4.4
Benzo(a)pyrene..... | 3.7
Benzo(b)fluoranthene.. | 5.1
Benzo(k)fluoranthene.. | 2
Chrysene..... | 4.2
Dibenz(a,h)anthracene. | 0.73
Indeno(1,2,3-cd)pyrene | 1.9
MWMF-08 (5.5' - 6') | 3/11
SVOCs:
Naphthalene..... | 350
SBMF-19 (4.5' - 5') | 4/11
SVOCs:
Benzo(a)anthracene..... | 2.4
Benzo(a)pyrene..... | 2.3
Benzo(b)fluoranthene..... | 3.8
Benzo(k)fluoranthene..... | 1.6
Chrysene..... | 2.5
Dibenz(a,h)anthracene..... | 0.93
Indeno(1,2,3-cd)pyrene..... | 2.2
2-Methylphenol (o-cresol).... | 10
3&4-Methylphenol (m,p-cresol) | 16
Acenaphthene..... | 160
Acenaphthylene..... | 1300
Anthracene..... | 490
Benzo(g,h,i)perylene..... | 240
Dibenzofuran..... | 400
Fluoranthene..... | 1400
Fluorene..... | 550
Naphthalene..... | 6200
Phenanthrene..... | 2300
Phenol..... | 5.5
Pyrene..... | 1200
MWMF-03 (4.5' - 5') | 3/11
SVOCs:
Benzo(a)anthracene.... | 1.9
Benzo(a)pyrene..... | 1.5
Benzo(b)fluoranthene.. | 2.8
Benzo(k)fluoranthene.. | 1.1
Chrysene..... | 4
Dibenz(a,h)anthracene. | 0.49
Indeno(1,2,3-cd)pyrene | 1.2
Naphthalene..... | 86
SBMF-18 (4.5' - 5') | 4/11
SVOCs:
Benzo(a)anthracene..... | 4.7
Benzo(a)pyrene..... | 2.7
Benzo(b)fluoranthene..... | 4.7
Benzo(k)fluoranthene..... | 1.8
Chrysene..... | 4.3
Dibenz(a,h)anthracene..... | 1
Indeno(1,2,3-cd)pyrene..... | 2.3
Naphthalene..... | 21
3&4-Methylphenol (m,p-cresol) | 0.34
Fluorene..... | 35
MWMF-01
SBMF-03
MWMF-07D
MWMF-07S
SBMF-22
SBMF-11
SBMF-02
MWMF-06
SBMF-07
SBMF-08
SBMF-05
Legend
Not Sampled
No Compounds Exceed Criteria
One Or More Compounds Exceed Criteria
Location ID
Depth Interval
Sample Date
MWMF-07S (4.5'-5.5') |3/11
VOCs:
Ethylbenzene | 1.9
Xylene (total) | 0.88
Compound
Concentration (mg/kg)
NOTE:
REPRINTED FROM URS RI REPORT WITHOUT CHANGE EXCEPT FOR FIGURE NUMBER
NOTE:
6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use.
100
0
100 Feet
295 LOCUST AVENUE
REMEDIAL INVESTIGATION
SOIL ANALYTICAL RESULTS
UNRESTRICTED USE CRITERIA
SVOCS
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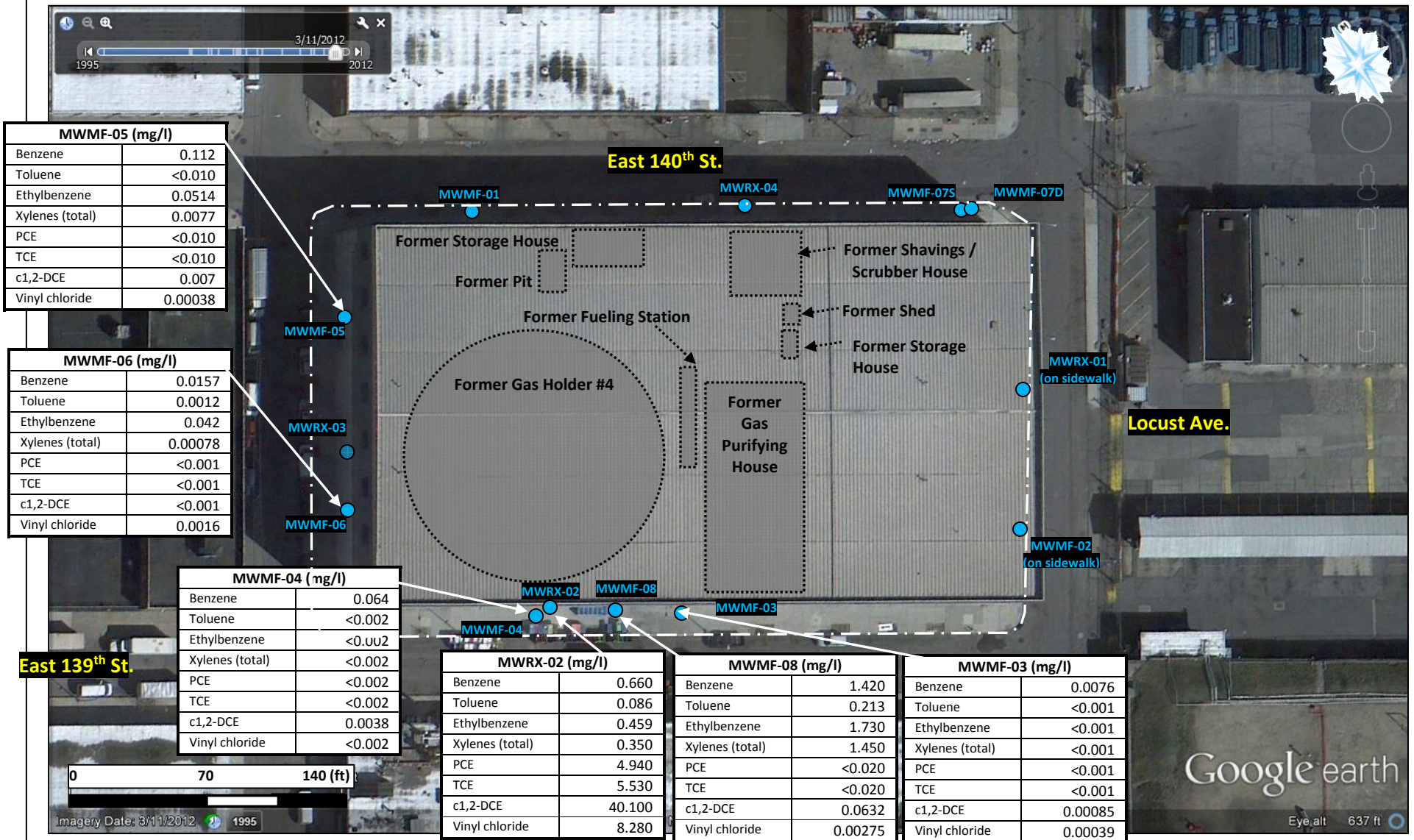
FIGURE 3B
J:\11175538.00000\DB\GIS\Maps\295 Locust Ave RI Report\4-2 Soil Analytical Results - SVOC_Final.mxd 7/7/2011 yeming_fan



MWMF-05 (mg/l)	
Benzene	0.112
Toluene	<0.010
Ethylbenzene	0.0514
Xylenes (total)	0.0077
PCE	<0.010
TCE	<0.010
c1,2-DCE	0.007
Vinyl chloride	0.00038

MWMF-06 (mg/l)	
Benzene	0.0157
Toluene	0.0012
Ethylbenzene	0.042
Xylenes (total)	0.00078
PCE	<0.001
TCE	<0.001
c1,2-DCE	<0.001
Vinyl chloride	0.0016

MWMF-04 (mg/l)	
Benzene	0.064
Toluene	<0.002
Ethylbenzene	<0.002
Xylenes (total)	<0.002
PCE	<0.002
TCE	<0.002
c1,2-DCE	0.0038
Vinyl chloride	<0.002

MWRX-02 (mg/l)	
Benzene	0.660
Toluene	0.086
Ethylbenzene	0.459
Xylenes (total)	0.350
PCE	4.940
TCE	5.530
c1,2-DCE	40.100
Vinyl chloride	8.280

MWMF-08 (mg/l)	
Benzene	1.420
Toluene	0.213
Ethylbenzene	1.730
Xylenes (total)	1.450
PCE	<0.020
TCE	<0.020
c1,2-DCE	0.0632
Vinyl chloride	0.00275

MWMF-03 (mg/l)	
Benzene	0.0076
Toluene	<0.001
Ethylbenzene	<0.001
Xylenes (total)	<0.001
PCE	<0.001
TCE	<0.001
c1,2-DCE	0.00085
Vinyl chloride	0.00039

Existing GW Monitoring Well

Former MGP Infrastructure (some may remain below grade)

NOTES

1. Data presented is a summary of contaminants.
2. See analytical reports for a complete listing of all parameters.
3. Only wells included in remediation monitoring program

Figure 4

Groundwater Contamination Remaining at the Site (January 28, 2015)

295 Locust Avenue, Bronx, NY

(Basemap: Google Earth 2012 Image)

Appendix A

Excavation Plan

EXCAVATION WORK PLAN

INTRODUCTION

This Excavation Work Plan (EWP) has been prepared as an appendix to the Site Management Plan (SMP) for the 295 Locust Associates LLC property in Bronx, New York (hereinafter referred to as the "Site"). Detailed discussions of the Site and the need for this EWP are provided in the SMP.

The EWP must be implemented in all instances where excavation is to occur in areas with Remaining Contamination, as described in the SMP. The EWP is not required if soil that meets the commercial and industrial soil cleanup objectives (SCOs) is disturbed (however, if removed from the site, this soil must be managed in accordance with Section A-4 and A-5 of this EWP). If there is uncertainty with respect to whether contamination may contain chemicals of concern above SCOs because there is a lack of data, then, the disturbed soil should be assumed to be, and managed as, Remaining Contamination.

In addition, this EWP does not apply to any excavation or other subsurface remediation activity that occurs as part of the on-going remediation under the existing Voluntary Cleanup Agreement, managed by Consolidated Edison of New York, Inc., or the existing Brownfield Cleanup Agreement, managed by 295 Locust Associates LLC.

A-1 NOTIFICATION

The site owner or their representative will notify the New York State Department of Environmental Conservation (NYSDEC), in writing, at least 7 business days in advance of any activity that is anticipated to disturb Remaining Contamination. However, if the activity is unanticipated or the Remaining Contamination is discovered contemporaneously with another unplanned activity, the site owner or their representative will notify NYSDEC in writing, within 7 business days of encountering the Remaining Contamination.

Currently, this notification will be made to:

Mr. Randy Whitcher
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, NY 12233-7015
Phone: (518) 402-9662
EMAIL: randy.whitcher@dec.ny.gov

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed, and any work that may impact an engineering control.
- A summary of environmental conditions anticipated in the work area(s), including the nature and concentrations of chemicals of concern, potential presence of contaminated media, and plans for any pre-construction sampling.
- A schedule for the work, detailing the start and completion of all intrusive work.
- A summary of the applicable components of this EWP including the Community Air Monitoring Plan (simple excavations may only require compliance with a portion of the EWP).
- If deemed necessary for the work activity, a copy of the Community Air Monitoring Plan. If a Community Air Monitoring Plan is deemed not to be necessary, then the rationale for this decision must be included with the notification.
- A statement that the work will be performed in compliance with this EWP, the SMP, and 29 Code of Federal Regulations (CFR) 1910.120.
- Identification of sources of any anticipated backfill, along with certification from the fill site owner or operator that the material is not from an industrial source and there is no knowledge or evidence of chemical contamination.
- If the soil cover system is to be disturbed, a description of the repair or replacement of the soil cover system. The soil cover system is described in the SMP.

A-2 SOIL SCREENING METHODS

A qualified environmental professional will perform visual, olfactory, and instrument-based soil screening during all activities covered by this EWP.

Excavated soils will be segregated based on previous environmental data and screening results into (1) material that requires offsite disposal (known Remaining Contamination areas), (2) material that requires testing (potentially Remaining Contamination areas), or (3) material that can be reused at the site (areas outside of [1] and [2] because soil is not suspected or known to contain chemical constituents above the relevant SCOs).

A-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface water receptors, and other discharge points. When not being accessed, the stockpiles will be kept covered with appropriately anchored tarps and will be routinely inspected (at a minimum once each week) and after every storm event. Damaged tarp covers will be promptly replaced. Alternatively, soil can be containerized in a vessel, such as a roll-off box, that should remain covered when not in use.

A-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work covered by this plan and the excavation and load-out of all excavated material.

The owner of the property and its contractors, consultants, and agents are solely responsible for safe execution of all invasive and other work performed under the EWP.

The site owner, the site owner's contractor, or the qualified environmental professional will investigate the presence of utilities prior to any excavation activities. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

If it is determined by the qualified environmental professional that trucks may potentially contact soil considered Remaining Contamination, a truck wash will be operated onsite. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of offsite in an appropriate manner in compliance with applicable local, state, and federal laws and regulations.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities.

A-5 MATERIALS TRANSPORT OFF-SITE

All transport of contaminated soil will be performed by licensed haulers in accordance with appropriate local, state, and federal regulations, including 6 New York Code of Rules and Regulations (NYCRR) Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. If loads contain wet material capable of producing free liquid, truck liners will be used. Loaded vehicles leaving the site will be manifested and placarded in accordance with appropriate federal, state, and local requirements including New York State Department of Transportation (NYSDOT) requirements. If required, soil and waste management and transportation shall be performed in accordance with the federal Resource Conservation and Recovery Act and associated NYSDEC regulations pertaining to hazardous waste manifests.

A-6 MATERIALS DISPOSAL OFF-SITE

Soil/fill/solid waste excavated and removed from the site that is deemed to contain chemicals of concern above the unrestricted SCOs will be treated as contaminated and regulated material. As appropriate, this material will be transported and disposed of in accordance with all local, state (including 6 NYCRR Part 360 for media regulated as a non-hazardous waste and 6 NYCRR Part 370 to 376 for media regulated as a hazardous waste), and federal regulations.

Actual disposal quantities and associated documentation will be reported to the NYSDEC as part of the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading, and facility receipts.

A-7 FLUIDS MANAGEMENT

All liquids to be removed from the site, including excavation dewatering, leaching pit and cesspool dewatering, and groundwater monitoring well purge and development waters (if applicable), will be handled, transported, and disposed of in accordance with applicable local, state, and federal regulations. Dewatering, purge, and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site, unless prior written approval is received from NYSDEC. Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, stream, or river) may be performed under a SPDES permit.

A-8 BACKFILL FROM OFF-SITE SOURCES

All imported soils used to backfill areas managed under this EWP will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d), as follows:

The backfill brought to the site for use as a cover will be comprised of soil or other unregulated material as set forth in 6 NYCRR Part 360. The imported soil will not exceed the applicable SCOs for the use of the site, as set forth in 6 NYCRR Part 375-6.8(b). For each source of backfill that is imported to the site, one of the following will be completed prior to importing the backfill:

1. Documentation will be provided to NYSDEC as to the source of the material and the consistency of the material in accordance with the exemption for not chemical testing listed in DER-10, Section 5.4(e)(5); or
2. Chemical testing will be completed in accordance with Table 5.4(e)10 of DER-10.

In the event that laboratory analytical testing is conducted, the results for each new source of fill must meet the values provided in Appendix 5 of DER-10 for commercial or industrial use.

Materials proposed for import onto the site, will be approved by a qualified environmental professional, and will be in compliance with provisions in this EWP and the SMP prior to receipt at the site. Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials.

A-9 STORM WATER POLLUTION PREVENTION

All work at the site shall comply with the requirements of New York State Standards and Specifications for Erosion and Sediment Control, August 2005 (or recent revision). At a minimum, barriers, hay bale checks, and other erosion control measures will be installed around the perimeter of the excavation and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. For larger excavations, procedures for storm water pollution prevention should be specified, including a storm water pollution prevention plan (SWPPP).[2]

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

A-10 CONTINGENCY PLAN FOR SOIL SUSPECTED OF CONTAINING CONTAMINATION

If soil suspected of containing Remaining Contamination is identified during any type of subsurface activity not being conducted in accordance with this EWP, the activity will be suspended until the soil is characterized.

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[2] Under the SPDES General Permit for Storm Water Discharges from Construction Activities Permit No. GP-0-10-001, a storm water pollution prevention plan (SWPPP) that conforms to the requirements of NYSDEC Division of Water guidelines and NYS regulation is required for soil disturbance areas that total 1 acre in size, or greater.

The soil characterization will involve collecting samples to determine if the material warrants management as a waste. Initially, chemical analysis will be performed for a full list of analytes (i.e., Target Analyte List [TAL] metals; Target Compound List [TCL] volatiles and semi-volatiles, TCL pesticides, and TCL polychlorinated biphenyls [PCBs]), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling. The characterization data will be compared to the relevant SCOs to evaluate whether the soil meets the definition of Remaining Contamination. The sampling and analytical methods presented in *DER-10 - Technical Guidance for Site Investigation and Remediation* must be followed during the characterization process. Alternatively, the soil can be assumed to contain Remaining Contamination and the work can proceed following this EWP.

Identification of unknown or unexpected contaminated media identified either by visual observation, instrument screening, or chemical analysis, during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. In addition, the exposed Remaining Contamination will be securely covered, and the notification process outlined in Section A-1 will be implemented. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report prepared pursuant to the SMP.

A-11 SOIL CONFIRMATION SAMPLING

Confirmation soil samples following the excavation are only necessary if the soil surrounding the excavated area is proposed to be free of Remaining Contamination. If this is not the case, then the soil cover system will be repaired or replaced without collecting soil confirmation samples.

In the event soil confirmation samples are deemed necessary, the confirmation samples will be collected following the guidance provided in Section 5.4(b)(5) of DER-10. The analytical parameters will be limited to those chemicals that exceeded the commercial and industrial SCOs. If the analytical data for the confirmation samples are below the commercial and industrial SCOs, the excavated area will be backfilled in accordance with Section A-7. If the data indicate residual chemical concentrations above the commercial and industrial SCOs, then additional soil will be excavated from the impacted area and the area re-sampled. This process will be repeated until the SCOs are achieved. Analytical data submitted to the NYSDEC will be managed in accordance with the NYSDEC's Electronic Data Deliverable Manual (version 3, January 11, 2013 or, if superseded, the most recent version of this document). At a minimum, this guidance requires data to be formatted to NYSDEC specifications, sample locations be located by survey, GPS, or other approved method, and specific sample identification nomenclature.

A-12 COMMUNITY AIR MONITORING PLAN

A CAMP will be implemented during all management activities associated with Remaining Contamination, as appropriate. The plan will follow the guidance provided in Appendix 1A of *DER-10 - Technical Guidance for Site Investigation and Remediation*, Generic Community Air Monitoring Plan.

A-13 ODOR CONTROL PLAN

In the event that odors are observed, an odor control plan, which is designed to control emissions of nuisance odors both onsite (if there are tenants on the property) and offsite, will be implemented. Specific odor control methods to be used will include dust suppression, foam application, or other appropriate method. If nuisance odors are identified at the site boundary or if odor complaints are received, 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.

A-14 DUST CONTROL PLAN

If the implementation of this EWP is deemed to have the potential to generate visible dust which could migrate outside the work area, a dust suppression plan that addresses dust management during invasive onsite work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a pump capable of spraying water directly onto off-road areas including excavations and stockpiles.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

A-15 OTHER NUISANCES

The contractor shall utilize best work practices in order to minimize other nuisances, including noise. The contractor will ensure compliance with local ordinances, scheduling restrictions (limits on daily work duration, working weekends and holidays, etc.), and noise control ordinances, during any remedial work.

Appendix B

Sub-Slab Depressurization System (SSDS) Design Drawings

SITE PLAN W/ FORMER INFRASTRUCTURE

0 40 80

SCALE FEET

LOCATION MAP
BRONX, NY (NTS)

FORMER MGP INFRASTRUCTURE LOCATION (APPROX.)

MONITORING WELL

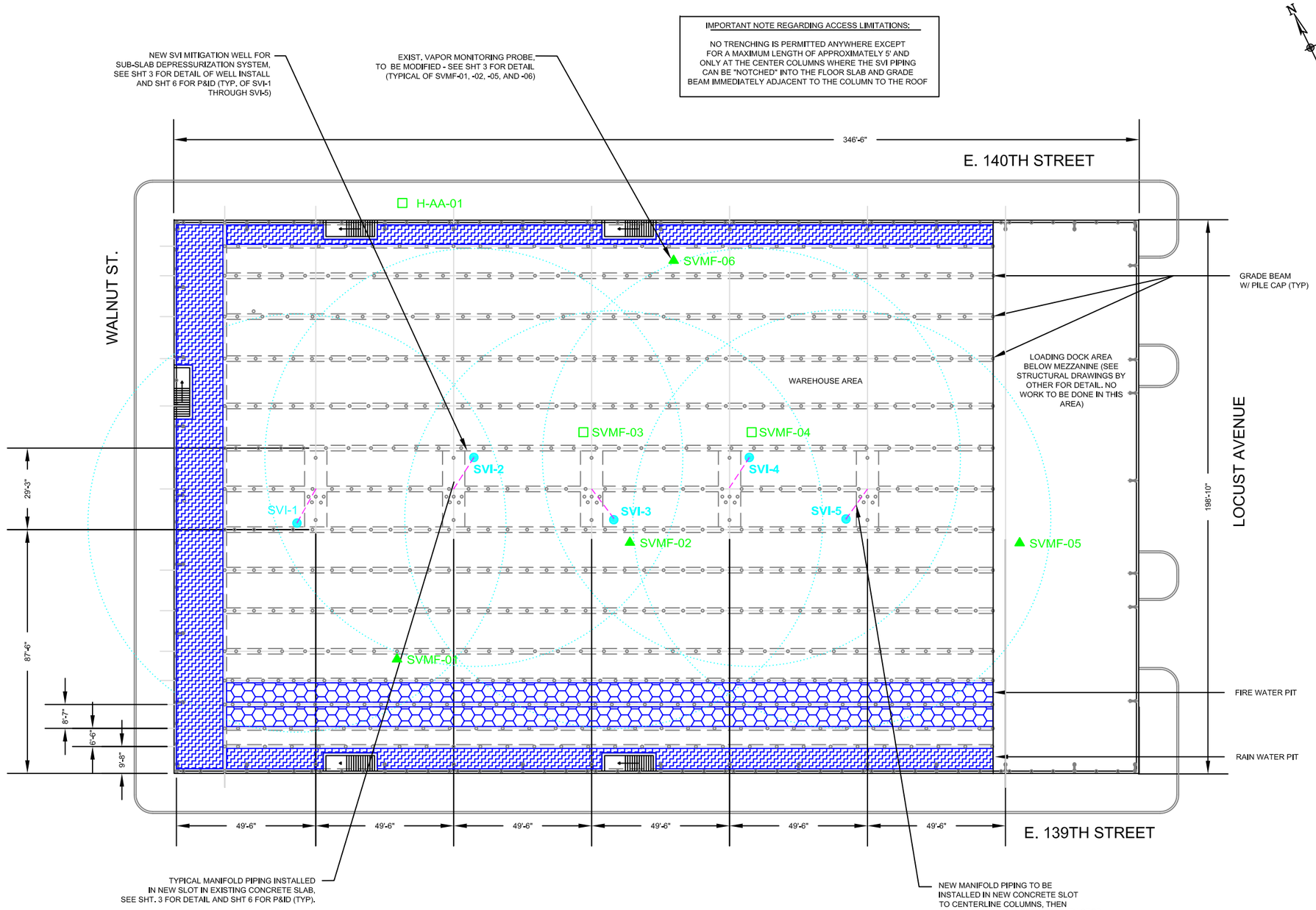
3.0 GW ELEV. CONTOUR (APPROX. FT AMSL, 5/4/2011 URS)

INFERRED GW FLOW DIRECTION

TechSolutions Engineering, P.C.
52 Oceanview Boulevard
Manorville, New York 11949
Ph: 914-319-9375
Email: techsolnpc@gmail.com

SITE PLAN

LOCATION:		DESIGN:
STREET ADDRESS CITY, STATE		DJS
PROJECT NO / FILE SUSDEV1201.01 SHEET 1 - SITE PLAN	DRAWING DATE: 02/19/12	REV. NO.:	FIGURE: **1**



SVI MITIGATION INSTALLATION PLAN

0 40 80

SCALE FEET

IMPORTANT NOTE REGARDING ACCESS LIMITATIONS:

NO DISRUPTION OF CONCRETE, TRENCHING, PUNCTURES OR ANY OTHER ACTIVITIES ARE PERMITTED IN THE SLAB OVERLYING THE RAIN WATER AND / OR FIRE WATER BASINS. IN ADDITION, NO TRENCHING IS ALLOWED MORE THAN APPROXIMATELY 5' FROM CENTERLINE COLUMNS. THEREFORE IT IS NOT POSSIBLE TO INSTALL SUB-SLAB DEPRESSURIZATION WELLS ALONG THE 139TH STREET, 140TH STREET OR ROSE FEISS BOULEVARD AREAS.

REVISION 1:
1. MODIFIED VAPOR MONITORING POINT LOCATIONS TO INCORPORATE EXISTING PROBES INTO DESIGN.
2. MODIFIED TRENCH LAYOUT TO INDICATE STRAIGHT RUN FROM SVI WELL TO COLUMN BEFORE RISER TO ROOF.

LEGEND

- SVI-7 — NEW SVI EXTRACTION WELL AND PIPING W/ APPROXIMATE RADIUS OF INFLUENCE
- SVFM-01 ▲ — EXIST VAPOR MONITORING POINT TO BE MODIFIED TO ECTEND BELOW GRADE BEAM
- SVFM-01 □ — EXIST VAPOR MONITORING POINT
- APPROX. GRADE BEAM LOCATION W/ PILE CAP (SEE STRUCTURAL DWGS BY OTHERS FOR EXACT LOCATIONS)
- RAIN WATER STORAGE PIT BELOW FINISHED FLOOR SLAB
- FIRE WATER STORAGE PIT BELOW FINISHED FLOOR SLAB

GENERAL NOTES

1. CONTRACTOR TO VERIFY LOCATIONS OF SUBSURFACE UTILITIES AND STRUCTURES PRIOR TO WORK. NEW SVI WELLS AND ASSOCIATED TRENCHING MAY NEED TO BE RELOCATED AS NEC. TO AVOID SUBSURFACE UTILITIES / STRUCTURES. DO NOT RELOCATE WITHOUT PRIOR APPROVAL OF ENGINEER. LOCATIONS OF STRUCTURAL COMPONENTS SHOWN ARE APPROXIMATE ONLY - REFER TO STRUCTURAL DRAWINGS S-1A AND S-1B, AND RELATED SECTIONS ON S-2 AND S-101 FOR DETAILED DIMENSIONS AND NECESSARY CLEARANCES FOR SVI SYSTEM INSTALLATION.

2. ALL WORK TO BE COORDINATED WITH TENANT / OWNER BEFORE START OF WORK. AREAS TO REMAIN ACCESSIBLE AT ALL TIMES INCLUDE SVI WELL LOCATIONS AND SOIL VAPOR MONITORING PROBE LOCATIONS.

3. CONTRACTOR IS RESPONSIBLE FOR PROCURING ALL PERMITS REQUIRED FOR COMPLETION OF THE WORK, INCLUDING BUT NOT LIMITED TO NYC CONSTRUCTION PERMITS, WELL PERMITS, ROAD OPENING PERMITS, ELECTRICAL PERMITS, FIRE PERMITS, ETC.

4. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH APPLICABLE BUILDING CODES AND REGULATIONS.

5. ALL WASTES GENERATED TO BE PROPERLY MANAGED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

6. ALL WORK TO BE FINISHED AT GRADE IS TO BE FLUSH MOUNTED UNLESS SPECIFIED OTHERWISE. CONTRACTOR IS RESPONSIBLE FOR ENSURING LIQUID TIGHT SEALS AND ABSENCE OF UNEVEN SURFACES THAT COULD POSE A TRIP OR FALL HAZARD.

7. ALL WORK TO BE COORDINATED WITH NYSDEC AND NYSDOH, AS WELL AS NYC ENVIRONMENTAL AGENCIES, TO ENSURE REGULATORY APPROVALS. WHETHER EXPRESSLY INDICATED ON DESIGN DRAWINGS OR NOT, CONTRACTOR IS RESPONSIBLE FOR COMPLETION OF WORK IN CONFORMANCE WITH NYSDOH "GUIDANCE FOR EVALUATING SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK," OCTOBER 2006, AS AMENDED.

8. STRUCTURAL DETAILS INDICATED IN THIS DESIGN PACKAGE WERE REPRODUCED FROM DRAWINGS PREPARED BY OTHERS AND WERE INCLUDED HEREIN SOLELY AS A POINT OF REFERENCE FOR NEW SUB-SLAB DEPRESSURIZATION / SVI MITIGATION SYSTEM COMPONENTS. TECHSOLUTIONS ENGINEERING, P.C. HAS NOT PERFORMED ANY STRUCTURAL ANALYSES, NOR IS RESPONSIBLE FOR ANY STRUCTURAL OR GEOTECHNICAL ASPECTS OF THE DESIGN. CONTRACTOR IS FULLY RESPONSIBLE FOR VERIFICATION OF ACTUALSTRUCTURAL COMPONENTS AND SUBSURFACE UTILITY LOCATIONS AND AVOIDANCE OF SAME.

9. THE SVI MITIGATION SYSTEM DESIGN PRESENTED HEREIN WAS BASED UPON ENVIRONMENTAL DATA INCLUDING BUT NOT LIMITED TO SOIL, GROUNDWATER, SOIL VAPOR, AND INDOOR AIR QUALITY DATA, COLLECTED BY OTHERS AS WELL AS LIMITATIONS FOR ACCESS IMPOSED BY THE CLIENT. TECHSOLUTIONS ENGINEERING, P.C. IS NOT RESPONSIBLE IN ANY WAY FOR ERRORS OR OMISSIONS RELATED TO DATA COLLECTED BY AND / OR PROVIDED BY OTHERS. IF DATA COLLECTED BY AND / OR PROVIDED BY OTHERS IS IN ERROR, MODIFICATIONS TO THE DESIGN HEREIN MAY BE NECESSARY TO MEET THE DESIGN INTENT.

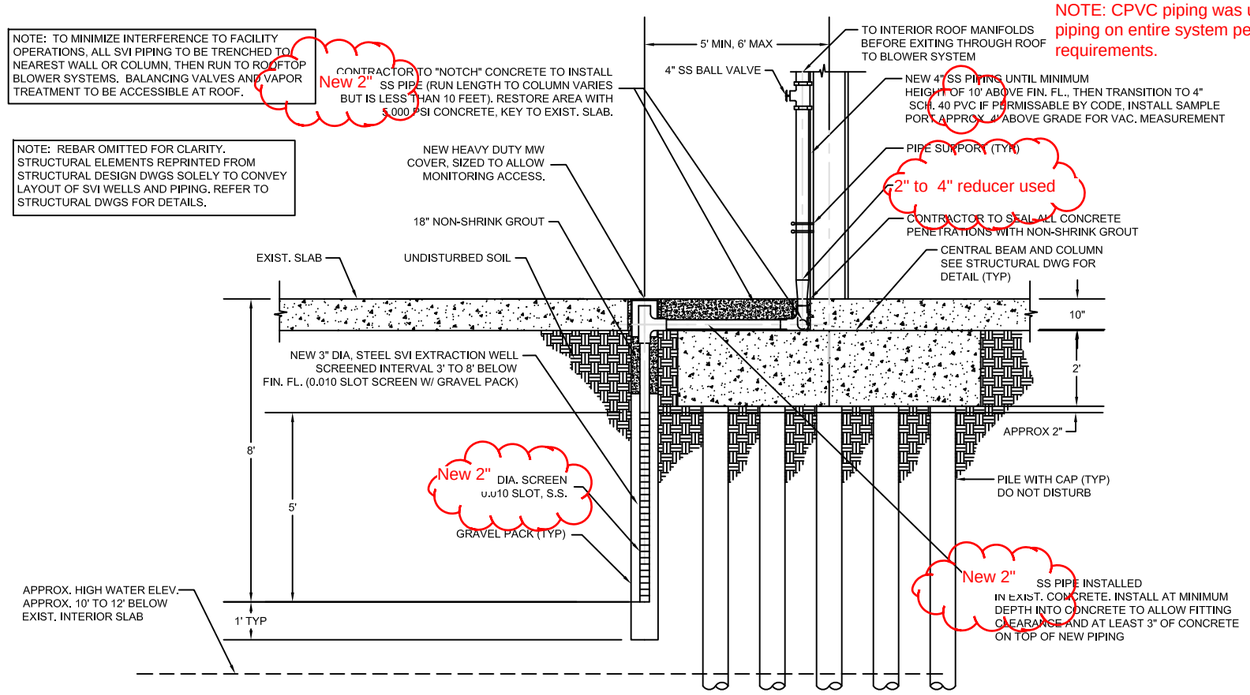
10. THIS DESIGN HAS BEEN DEVELOPED FOR THE SOLE USE OF TECHSOLUTIONS ENGINEERING, P.C.'S CLIENT AND MAY NOT BE RELIED UPON BY OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF TECHSOLUTIONS ENGINEERING, P.C. AND ITS CLIENT.

TechSolutions Engineering, P.C.
52 Oceanview Boulevard
Manorville, New York 11949
Ph: 914-319-9375
Email: techsolnpc@gmail.com

SVI MITIGATION INSTALLATION PLAN

LOCATION:		DESIGN:
295 LOCUST AVENUE BRONX, NEW YORK		DJS
PROJECT NO / FILE: SUSDEV1201.01 Sht 2 - SVI Mitigation Plan	DRAWING DATE: 03/03/12	REV. NO.: 1
		FIGURE: 2

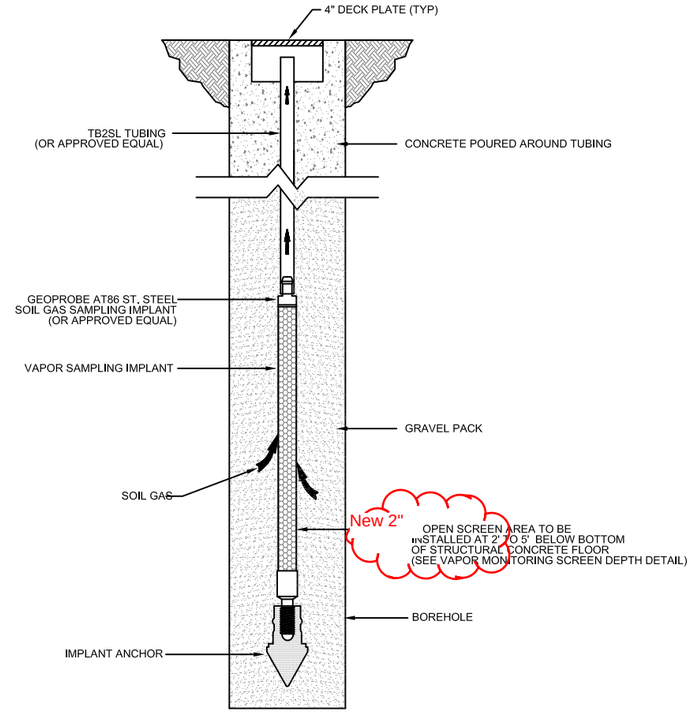
NOTE: CPVC piping was used instead of PCV piping on entire system per NYC Fire Marshal requirements.



SVI EXTRACTION WELL AND PIPING DETAIL
(TYPICAL FOR ALL SVI WELLS)

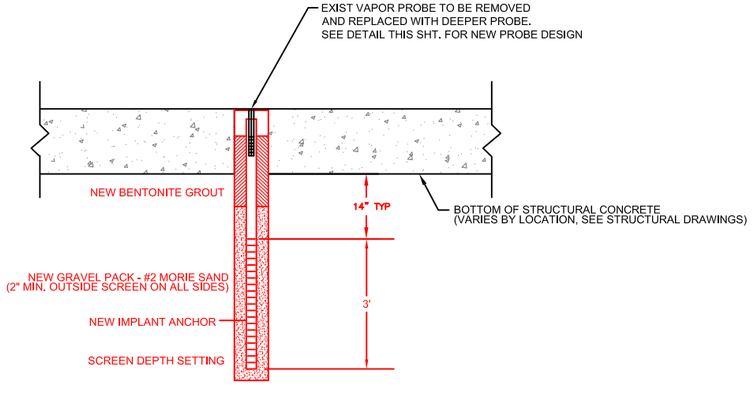
0 4 8

SCALE FEET



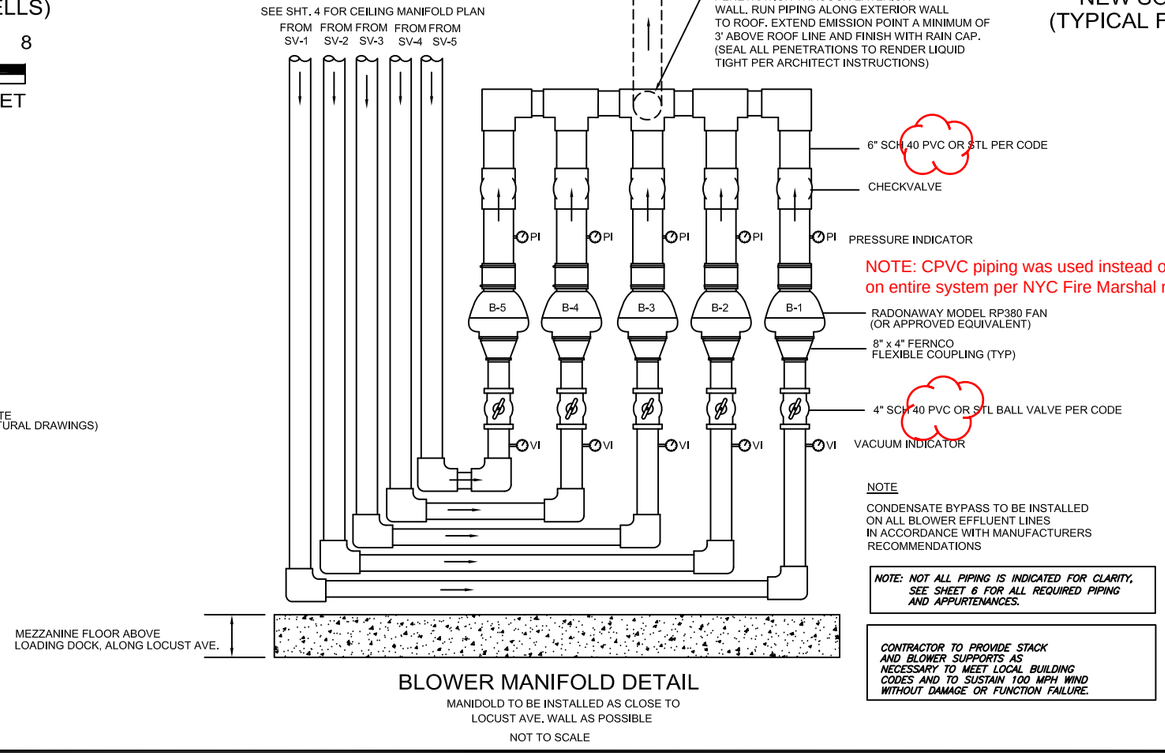
NEW SOIL VAPOR MONITORING POINT DETAIL
(TYPICAL FOR MODIFIED SVFM-01, -02, -05, AND -06)

NOT TO SCALE



VAPOR MONITORING POINT MODIFICATION DETAIL
(TYPICAL FOR SVMF-01, -02, -05, AND -06)

NOT TO SCALE



NOTE: CPVC piping was used instead of PCV piping on entire system per NYC Fire Marshal requirements.

NOTE

CONDENSATE BYPASS TO BE INSTALLED ON ALL BLOWER EFFLUENT LINES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS

NOTE: NOT ALL PIPING IS INDICATED FOR CLARITY, SEE SHEET 6 FOR ALL REQUIRED PIPING AND APPURTENANCES.

CONTRACTOR TO PROVIDE STACK AND BLOWER SUPPORTS AS NECESSARY TO MEET LOCAL BUILDING CODES AND TO SUSTAIN 100 MPH WIND WITHOUT DAMAGE OR FUNCTION FAILURE.

BLOWER MANIFOLD DETAIL

MANIDOLD TO BE INSTALLED AS CLOSE TO LOCUST AVE. WALL AS POSSIBLE

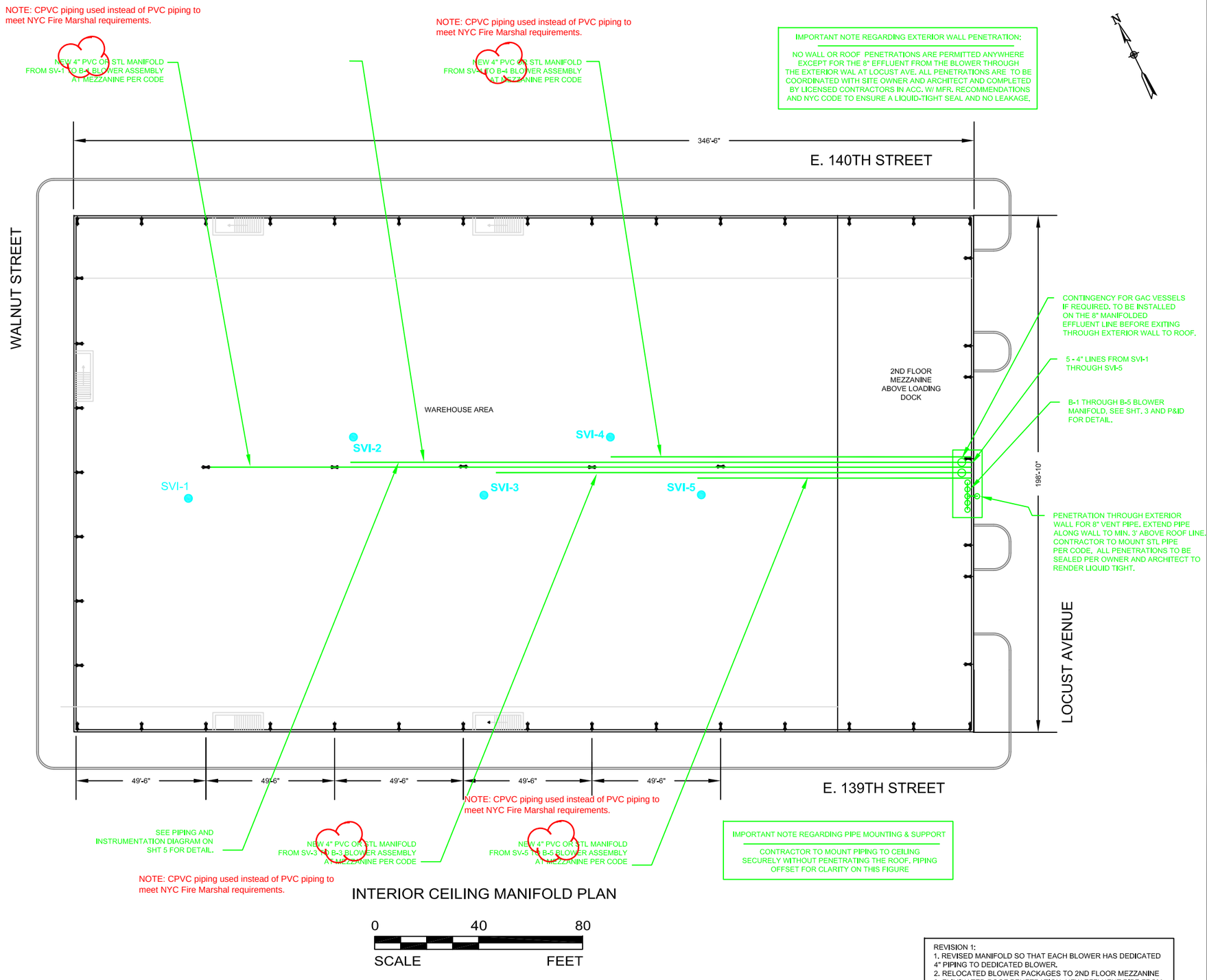
NOT TO SCALE

REVISION 1:
1. ADDED BLOWER FOR EACH SVI WELL (TOT. 5)
2. REVISED BLOWER DETAIL TO SHOW NEW MANIFOLD FOR 5 BLOWERS ON MEZZANINE
3. MODIFIED VAPOR PROBE DETAIL TO SHOW RETROFIT OF EXISTING VAPOR PROBES.

TechSolutions Engineering, P.C.
52 Oceanview Boulevard
Manorville, New York 11949
Ph: 914-319-9375
Email: techsolnpc@gmail.com

SVI MITIGATION WELL AND PIPING DETAILS / SECTIONS

LOCATION:		DESIGN:
295 LOCUST AVE. BRONX, NEW YORK		DJS
PROJECT NO / FILE: SUSDEV1201.01 Sht 3 - SVI Detail	DRAWING DATE: 03/04/12	REV. NO.: 1	FIGURE: 3



LEGEND

SVI-3 — NEW SVI EXTRACTION WELL & PIPING IN FIN. FL. (at grade level - shown for perspective only)

NEW SVI PIPING MANIFOLD ON CEILING (INSTALL INSIDE PRIOR TO ROOF PENETRATION WHERE SHOWN. SEE o&id FOR DETAIL)

GENERAL NOTES

1. CONTRACTOR TO VERIFY LOCATIONS OF ROOF SUPPORTS BEFORE WORK. NEW CEILING MANIFOLDS MAY NEED TO BE RELOCATED AS NEC. TO AVOID ELECTRICAL FIXTURES, LIGHTING AND STRUCTURES. DO NOT RELOCATE WITHOUT PRIOR APPROVAL OF ENGINEER. LOCATIONS OF STRUCTURAL COMPONENTS (I.E., COLUMN CENTERLINES AND LOCATIONS) SHOWN ARE APPROXIMATE ONLY - REFER TO STRUCTURAL AND ARCHITECTURAL DRAWINGS BY OTHERS FOR DETAILED DIMENSIONS AND NECESSARY CLEARANCES FOR SVI SYSTEM INSTALLATION.

2. ALL WORK TO BE COORDINATED WITH TENANT / OWNER BEFORE START OF WORK. AREAS TO REMAIN ACCESSIBLE AT ALL TIMES INCLUDE SVI WELL LOCATIONS, BLOWER SYSTEMS ON ROOF, AND SOIL VAPOR MONITORING PROBE LOCATIONS.

3. CONTRACTOR IS RESPONSIBLE FOR PROCURING ALL PERMITS REQUIRED FOR COMPLETION OF THE WORK, INCLUDING BUT NOT LIMITED TO NYC CONSTRUCTION PERMITS, WELL PERMITS, ROAD OPENING PERMITS, ELECTRICAL PERMITS, FIRE PERMITS, ROOF REPAIR PERMITS, ETC.

4. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH APPLICABLE BUILDING CODES AND REGULATIONS.

5. ALL WASTES GENERATED TO BE PROPERLY MANAGED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

6. ALL WORK TO BE FINISHED AT ROOF AND CEILING IS TO BE COMPLETED IN STRICT ACCORDANCE WITH ROOF MANUFACTURER AND ARCHITECT RECOMMENDATIONS TO ENSURE THAT ROOF INTEGRITY IS NOT IMPACTED. ONLY THE ROOF PENETRATIONS SHOWN ON THESE DRAWINGS ARE PERMITTED AND THOSE PENETRATIONS MUST BE MADE PER ARCHITECT AND ROOF MANUFACTURER RECOMMENDATIONS TO ENSURE A LIQUID TIGHT SEAL.

7. ALL WORK TO BE COORDINATED WITH NYSDEC AND NYSDOH, AS WELL AS NYC ENVIRONMENTAL AGENCIES, TO ENSURE REGULATORY APPROVALS. WHETHER EXPRESSLY INDICATED ON DESIGN DRAWINGS OR NOT, CONTRACTOR IS RESPONSIBLE FOR COMPLETION OF WORK IN CONFORMANCE WITH NYSDOH "GUIDANCE FOR EVALUATING SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK," OCTOBER 2006, AS AMENDED.

8. STRUCTURAL AND ARCHITECTURAL DETAILS INDICATED IN THIS DESIGN PACKAGE WERE REPRODUCED FROM DRAWINGS PREPARED BY OTHERS AND WERE INCLUDED HEREIN SOLELY AS A POINT OF REFERENCE FOR NEW SUB-SLAB DEPRESSURIZATION / SVI MITIGATION SYSTEM COMPONENTS. TECHSOLUTIONS ENGINEERING, P.C. HAS NOT PERFORMED ANY STRUCTURAL ANALYSES, NOR IS RESPONSIBLE FOR ANY STRUCTURAL OR GEOTECHNICAL ASPECTS OF THE DESIGN. CONTRACTOR IS FULLY RESPONSIBLE FOR VERIFICATION OF ACTUAL STRUCTURAL COMPONENTS AND SUBSURFACE UTILITY LOCATIONS AND AVOIDANCE OF SAME.

9. THE SVI MITIGATION SYSTEM DESIGN PRESENTED HEREIN WAS BASED UPON ENVIRONMENTAL DATA INCLUDING BUT NOT LIMITED TO SOIL, GROUNDWATER, SOIL VAPOR, AND INDOOR AIR QUALITY DATA, COLLECTED BY OTHERS AS WELL AS LIMITATIONS FOR ACCESS IMPOSED BY THE CLIENT. TECHSOLUTIONS ENGINEERING, P.C. IS NOT RESPONSIBLE IN ANY WAY FOR ERRORS OR OMISSIONS RELATED TO DATA COLLECTED BY AND / OR PROVIDED BY OTHERS. IF DATA COLLECTED BY AND / OR PROVIDED BY OTHERS IS IN ERROR, MODIFICATIONS TO THE DESIGN HEREIN MAY BE NECESSARY TO MEET THE DESIGN INTENT.

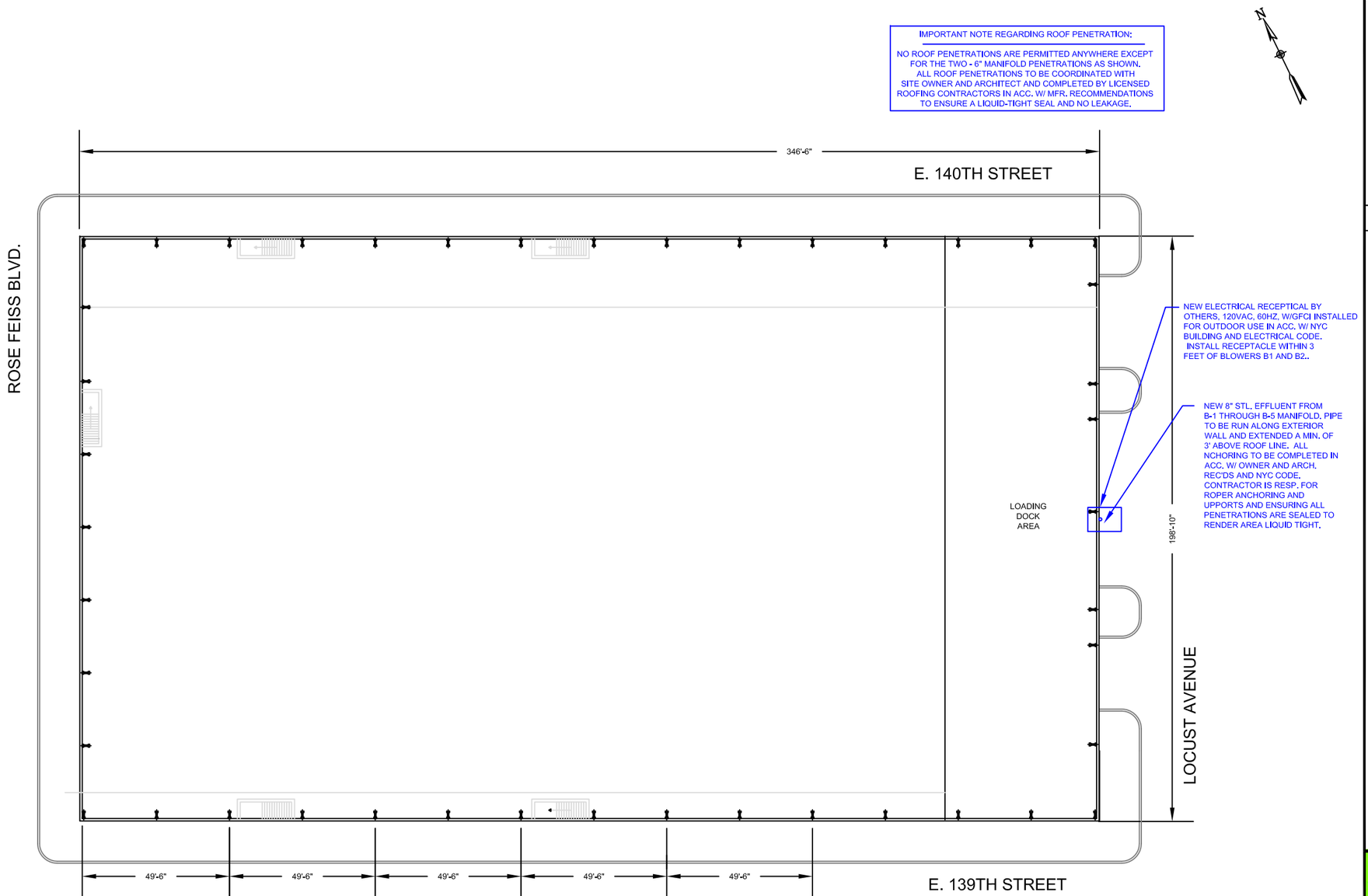
10. THIS DESIGN HAS BEEN DEVELOPED FOR THE SOLE USE OF TECHSOLUTIONS ENGINEERING, P.C.'S CLIENT AND MAY NOT BE RELIED UPON BY OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF TECHSOLUTIONS ENGINEERING, P.C. AND ITS CLIENT.

REVISION 1:
1. REVISED MANIFOLD SO THAT EACH BLOWER HAS DEDICATED 4" PIPING TO DEDICATED BLOWER.
2. RELOCATED BLOWER PACKAGES TO 2ND FLOOR MEZZANINE
3. ELIMINATED ROOF PENETRATION. NEW EFFLUENT PIPE FROM BLOWER TO ROOF TO EXIT THROUGH LOCUST EXTERIOR WALL.
4. MODIFIED PIPING TO STL. AS REQD TO MEET NYC CODE.

TechSolutions Engineering, P.C.
52 Oceanview Boulevard
Manorville, New York 11949
Ph: 914-319-9375
Email: techsolnpc@gmail.com

CEILING MANIFOLD PLAN

LOCATION:			DESIGN:
295 LOCUST AVENUE BRONX, NEW YORK			DJS
PROJECT NO / FILE	DRAWING DATE:	REV. NO.:	FIGURE:
SUSDEV1201.01 Sht 4 - Ceiling Manifold Plan	03/04/12	1	4



ROOFING PLAN - NEW SVI COMPONENTS

0 40 80

SCALE FEET

REVISION 1:
1. RELOCATED BLOWERS B-1 THROUGH B-5 TO 2ND FLOOR MEZZANINE.
2. ELIMINATED ALL ROOF PENETRATIONS AND REMOVED ALL EQUIPMENT FROM ROOF.
3. ADDED EXTERIOR WALL PENETRATION AND PIPING ALONG LOCUST AVE.
4. REFERENCED NYC BUILDING CODE REQT.

LEGEND

NEWMANIFOLD FROM B-1 THROUGH B-5 TO ROOF, ADJUST AS NECESSARY BASED UPON STRUCTURAL SUPPORTS FOR ROOF (BY OTHERS).

GENERAL NOTES

1. CONTRACTOR TO VERIFY LOCATIONS OF ROOF SUPPORTS BEFORE WORK, NEW CEILING MANIFOLDS MAY NEED TO BE RELOCATED AS NEC. TO AVOID ELECTRICAL FIXTURES, LIGHTING AND STRUCTURES. DO NOT RELOCATE WITHOUT PRIOR APPROVAL OF ENGINEER. LOCATIONS OF STRUCTURAL COMPONENTS (I.E., COLUMN CENTERLINES AND LOCATIONS) SHOWN ARE APPROXIMATE ONLY - REFER TO STRUCTURAL AND ARCHITECTURAL DRAWINGS BY OTHERS FOR DETAILED DIMENSIONS AND NECESSARY CLEARANCES FOR SVI SYSTEM INSTALLATION.

2. ALL WORK TO BE COORDINATED WITH TENANT / OWNER BEFORE START OF WORK. AREAS TO REMAIN ACCESSIBLE AT ALL TIMES INCLUDE SVI WELL LOCATIONS, BLOWER SYSTEMS ON ROOF, AND SOIL VAPOR MONITORING PROBE LOCATIONS.

3. CONTRACTOR IS RESPONSIBLE FOR PROCURING ALL PERMITS REQUIRED FOR COMPLETION OF THE WORK, INCLUDING BUT NOT LIMITED TO NYC CONSTRUCTION PERMITS, WELL PERMITS, ROAD OPENING PERMITS, ELECTRICAL PERMITS, FIRE PERMITS, ROOF REPAIR PERMITS, ETC.

4. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH APPLICABLE BUILDING CODES AND REGULATIONS. ELECTRICAL RECEPTACLE INSTALLATION ON ROOF AND BLOWER ELECTRICAL CONNECTIONS BY OTHERS.

5. ALL WASTES GENERATED TO BE PROPERLY MANAGED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

6. ALL WORK TO BE FINISHED AT ROOF AND CEILING IS TO BE COMPLETED IN STRICT ACCORDANCE WITH ROOF MANUFACTURER AND ARCHITECT RECOMMENDATIONS TO ENSURE THAT ROOF INTEGRITY IS NOT IMPACTED. ONLY THE ROOF PENETRATIONS SHOWN ON THESE DRAWINGS ARE PERMITTED AND THOSE PENETRATIONS MUST BE MADE PER ARCHITECT AND ROOF MANUFACTURER RECOMMENDATIONS TO ENSURE A LIQUID TIGHT SEAL.

7. ALL WORK TO BE COORDINATED WITH NYSDEC AND NYSDOH, AS WELL AS NYC ENVIRONMENTAL AGENCIES, TO ENSURE REGULATORY APPROVALS. WHETHER EXPRESSLY INDICATED ON DESIGN DRAWINGS OR NOT, CONTRACTOR IS RESPONSIBLE FOR COMPLETION OF WORK IN CONFORMANCE WITH NYSDOH "GUIDANCE FOR EVALUATING SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK," OCTOBER 2006, AS AMENDED.

8. STRUCTURAL AND ARCHITECTURAL DETAILS INDICATED IN THIS DESIGN PACKAGE WERE REPRODUCED FROM DRAWINGS PREPARED BY OTHERS AND WERE INCLUDED HEREIN SOLELY AS A POINT OF REFERENCE FOR NEW SUB-SLAB DEPRESSURIZATION / SVI MITIGATION SYSTEM COMPONENTS. TECHSOLUTIONS ENGINEERING, P.C. HAS NOT PERFORMED ANY STRUCTURAL ANALYSES, NOR IS RESPONSIBLE FOR ANY STRUCTURAL OR GEOTECHNICAL ASPECTS OF THE DESIGN. CONTRACTOR IS FULLY RESPONSIBLE FOR VERIFICATION OF ACTUAL STRUCTURAL COMPONENTS AND SUBSURFACE UTILITY LOCATIONS AND AVOIDANCE OF SAME.

9. THE SVI MITIGATION SYSTEM DESIGN PRESENTED HEREIN WAS BASED UPON ENVIRONMENTAL DATA INCLUDING BUT NOT LIMITED TO SOIL, GROUNDWATER, SOIL VAPOR, AND INDOOR AIR QUALITY DATA, COLLECTED BY OTHERS AS WELL AS LIMITATIONS FOR ACCESS IMPOSED BY THE CLIENT. TECHSOLUTIONS ENGINEERING, P.C. IS NOT RESPONSIBLE IN ANY WAY FOR ERRORS OR OMISSIONS RELATED TO DATA COLLECTED BY AND / OR PROVIDED BY OTHERS. IF DATA COLLECTED BY AND / OR PROVIDED BY OTHERS IS IN ERROR, MODIFICATIONS TO THE DESIGN HEREIN MAY BE NECESSARY TO MEET THE DESIGN INTENT.

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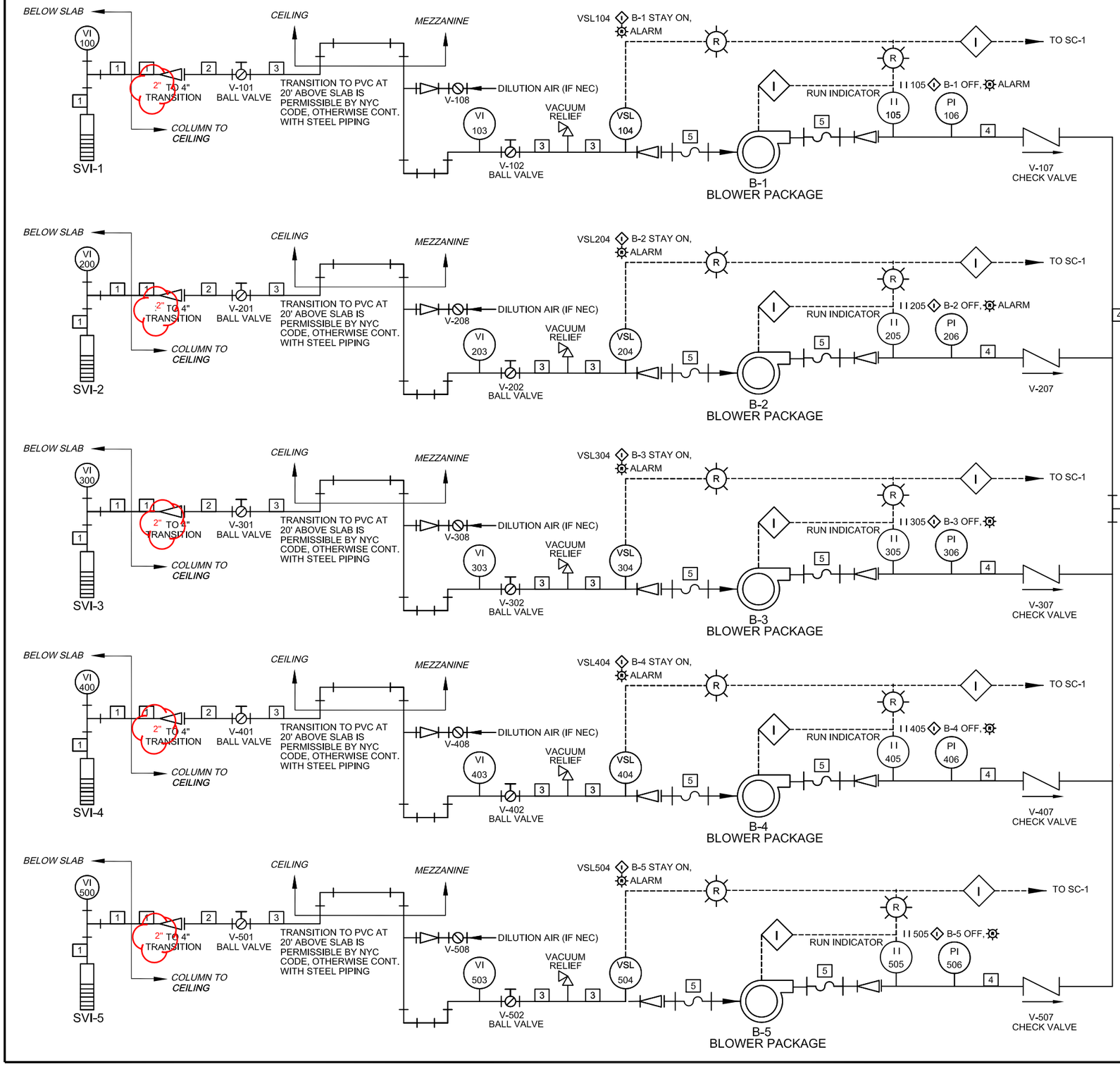
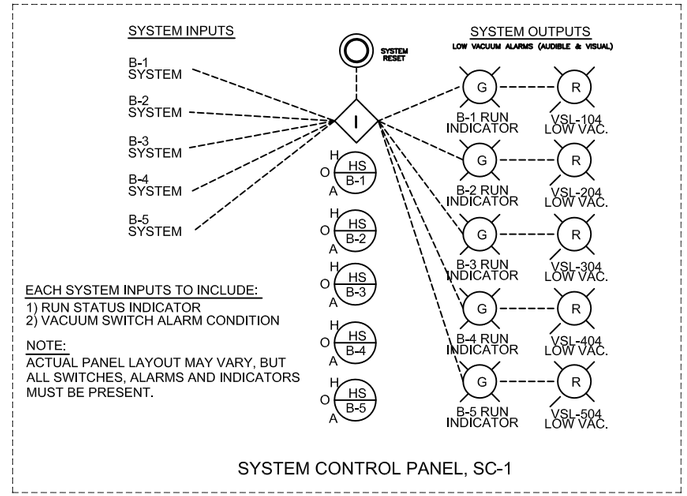
TechSolutions Engineering, P.C.
52 Oceanview Boulevard
Manorville, New York 11949
Ph: 914-319-9375
Email: techsolnpc@gmail.com

ROOFING PLAN NEW SVI COMPONENTS

LOCATION:		DESIGN:
295 LOCUST AVENUE BRONX, NEW YORK		DJS
PROJECT NO / FILE: SUSDEV1201.01 Sht 4 - Ceiling Manifold Plan	DRAWING DATE: 03/04/12	REV. NO.: 1
		FIGURE: 5



GAC system not installed.



EACH SYSTEM INPUTS TO INCLUDE:
1) RUN STATUS INDICATOR
2) VACUUM SWITCH ALARM CONDITION

NOTE:
ACTUAL PANEL LAYOUT MAY VARY, BUT ALL SWITCHES, ALARMS AND INDICATORS MUST BE PRESENT.

SYSTEM CONTROL PANEL, SC-1

PIPING SCHEDULE

TAG #	DESCRIPTION	DIA	MATL
1	VENT SCREEN	2"	S.S. WELL
2	SINGLE WELL VENT PIPE / MANIFOLDS	4"	SS
3	SINGLE WELL VENT PIPE / MANIFOLDS	4"	SS / PVC
4	MULTI-WELL VENT PIPE / MANIFOLDS	6"	SS / PVC
5	FLEX HOSE	VARIES	VARIES

CPVC piping used instead of PVD piping per NYC Fire Marshal requirement

EQUIPMENT SCHEDULE

TAG #	DESCRIPTION	MFR.	MODEL	COMMENTS / NOTES
B1 - B5	SVI BLOWER (5 TOT.)	RADONAWAY	RP380	268 CFM @ 1.0"WC, 165 CFM@ 1.5" WC 35 CFM @ 2.0 IN H2O, 115VAC, SINGLE PH
VI	VACUUM INDICATOR	DWYER OR EQ.	2003	0 TO 3.0 IN. W.C., 0.1 INCREMENTS
PI	PRESSURE INDICAT.	DWYER OR EQ.	SGD-D0222N-PY	0 TO 15 PSI, GLYCERIN FILLED
GAC1,2	VAP. PHASE CARBON	CARBTROL	VAPOR DRUM	APPROX 55 GAL DRUM, OR EQUAL

IMPORTANT ELECTRICAL NOTE:

ALL ELECTRICAL CONNECTIONS TO BE DESIGNED AND INSTALLED BY OTHERS IN ACCORDANCE WITH NYC ELECTRICAL AND BUILDING CODES. IT SHOULD BE ASSUMED THAT VAPORS FROM THE SUBSURFACE MAY BE EXPLOSIVE AND AS SUCH EXPLOSION PROOF MATERIALS AND ELECTRICAL CONNECTIONS ARE RECOMMENDED

TechSolutions Engineering, P.C.
52 Oceanview Boulevard
Manorville, New York 11949
Ph: 914-319-9375

Email: techsolnpc@gmail.com

PIPING & INSTRUMENTATION DIAGRAM & CONTROLS

LOCATION:		DESIGN:
295 LOCUST AVE. BRONX, NEW YORK		DJS
PROJECT NO / FILE: SUSDEV1201.01 SHT 6 - P&ID	DRAWING DATE: 03/11/12	REV. NO.: 1
		FIGURE: 6

Appendix C

Blower System Documentation and Operating Manual

RadonAway™
The world's leading radon fan manufacturer

RP Series

Radon Mitigation Fan

All RadonAway™ fans are specifically designed for radon mitigation. RP Series Fans provide superb performance, run ultra-quiet and are attractive. They are ideal for most sub-slab radon mitigation systems.

Features

- Energy efficient
- Ultra-quiet operation
- Meets all electrical code requirements
- Water-hardened motorized impeller
- Seams sealed to inhibit radon leakage
  (RP140 & RP145 double snap sealed)
- RP140 and RP260 Energy Star® Rated
- ETL Listed - for indoor or outdoor use
- Thermally protected motor
- Rated for commercial and residential use

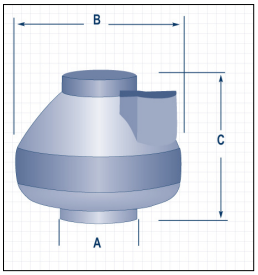
MODEL	P/N	FAN DUCT DIAMETER	WATTS	MAX. PRESSURE"WC	TYPICAL CFM vs. STATIC PRESSURE WC				
					0"	.5"	1.0"	1.5"	2.0"
RP140*	23029-1	4"	15-21	0.8	135	70	-	-	-
RP145	23030-1	4"	41-72	2.1	166	126	82	41	3
RP260*	23032-1	6"	50-75	1.6	272	176	89	13	-
RP265	23033-1	6"	91-129	2.3	334	247	176	116	52
RP380*	28208	8"	95-152	2.3	497	353	220	130	38

*Energy Star® Rated

Made in USA with US and imported parts

ETL Listed

All RadonAway inline radon fans are covered by our 5-year, hassle-free warranty



Model	A	B	C
RP140	4.5"	9.7"	8.5"
RP145	4.5"	9.7"	8.5"
RP260	6"	11.75"	8.6"
RP265	6"	11.75"	8.6"
RP380	8"	13.41"	10.53"

For Further Information Contact

9/12
P/N 02008

RadonAway®

The World's Leading
Radon Fan Manufacturer



RP Series

Installation & Operating Instructions

RadonAway
3 Saber Way | Ward Hill, MA 01835
www.radonaway.com

P/N IN020-REV P 02/15

RadonAway Ward Hill, MA.

Series Fan Installation & Operating Instructions

Please Read and Save These Instructions.

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

1. **WARNING!** WARNING! For General Ventilating Use Only. Do Not Use to Exhaust Hazardous, Corrosive or Explosive Materials, Gases or Vapors. See Vapor Intrusion Application Note #AN001 for important information on VI applications. RadonAway.com/vapor-intrusion
2. **WARNING!** NOTE: Fan is suitable for use with solid state speed controls however use of speed controls is not generally recommended.
3. **WARNING!** Check voltage at the fan to insure it corresponds with nameplate.
4. **WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
5. **NOTICE!** There are no user serviceable parts located inside the fan unit.
   Do NOT attempt to open. Return unit to the factory for service.
6. **WARNING!** Do not leave fan unit installed on system piping without electrical power for more than 48 hours. Fan failure could result from this non-operational storage.
7. **WARNING!** TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

   a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.

   b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

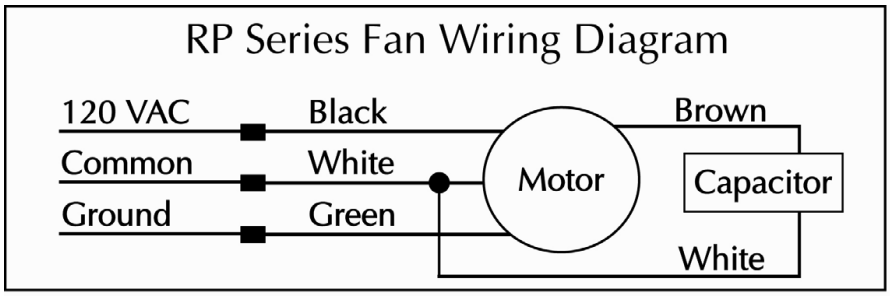
   c) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire rated construction.

   d) Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturers guideline and safety standards such as those published by the National Fire Protection Association, and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.

   e) When cutting or drilling into a wall or ceiling, do not damage electrical wiring and other hidden utilities.

   f) Ducted fans must always be vented to outdoors.

   g) If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application and be connected to a GFCI (Ground Fault Circuit Interrupter) - protected branch circuit.



RP Series

RP140	**p/n 23029-1**
RP145	**p/n 23030-1**
RP260	**p/n 23032-1**
RP265	**p/n 23033-1**
RP380	**p/n 28208**

1.0 SYSTEM DESIGN CONSIDERATIONS

1.1. INTRODUCTION

The RP Series Radon Fans are intended for use by trained, professional, certified/licensed Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of an RP Series Fan. This instruction should be considered as a supplement to EPA/radon industry standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

1.2. FAN SEALING

The RP Series Fans are factory sealed, no additional caulk or other materials are required to inhibit air leakage.

1.3. ENVIRONMENTALS

The RP Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

1.4. ACOUSTICS

The RP Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

(To ensure quiet operation of ENERGY STAR qualified in-line and remote fans, each fan shall be installed using sound attenuation techniques appropriate for the installation. For bathroom and general ventilation applications, at least 8 feet of insulated flexible duct shall be installed between the exhaust or supply grille(s) and the fan). RP Series fans are not suitable for kitchen range hood remote ventilation applications.

1.5. GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the RP Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

1.6. SLAB COVERAGE

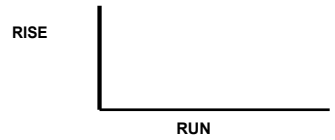
The RP Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the RP Series Fan best suited for the sub-slab material can improve the slab coverage. The RP140/145/155 are best suited for general purpose use. The RP260 can be used where additional airflow is required and the RP265/380 is best suited for large slab, high airflow applications. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

1.7. CONDENSATION & DRAINAGE

Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The RP Series Fan **MUST** be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The RP Series Fans are **NOT** suitable for underground burial.

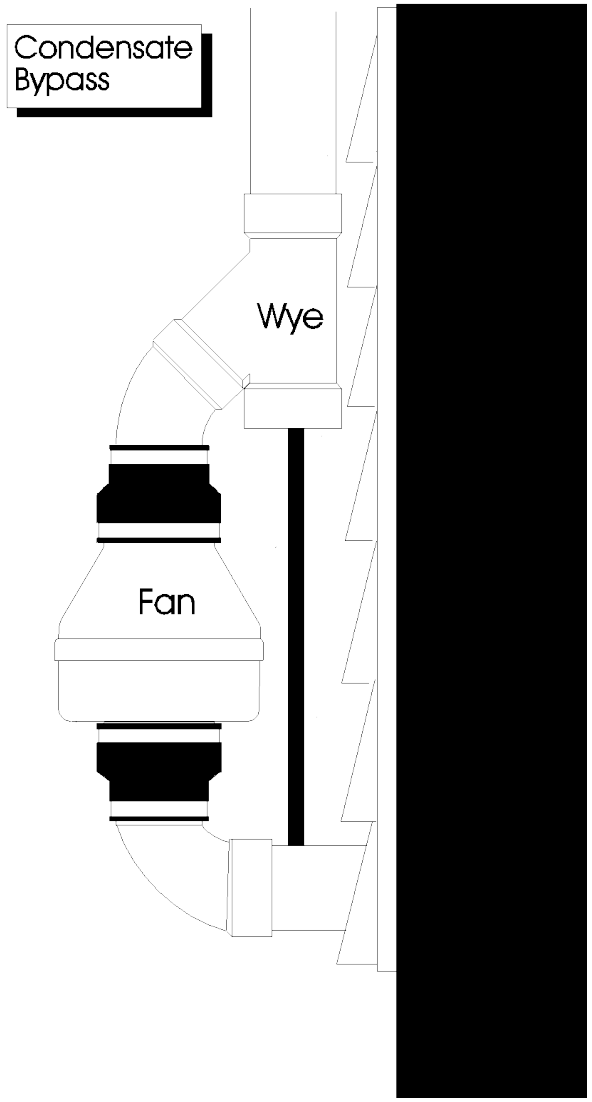
For RP Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

Pipe Dia.	Minimum Rise per Ft of Run*				
	@25 CFM	@50 CFM	@100 CFM	@200 CFM	@300 CFM
6"	-	3/16	1/4	3/8	3/4
4"	1/8	1/4	3/8	2 3/8	-
3"	1/4	3/8	1 1/2	-	-



*Typical RP1xx/2xx Series Fan operational flow rate is 25 - 90 CFM 0n 3" and 4" pipe. (For more precision, determine flow rate by measuring Static Pressure, in WC, and correlate pressure to flow in the performance chart in the addendum.)

Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.



The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

1.8. SYSTEM MONITOR & LABEL

A System Monitor, such as a manometer (P/N 50017) or audible alarm (P/N 28001-2) is required to notify the occupants of a fan system malfunction. A System Label (provided with Manometer P/N 50017) with instructions for contacting the installing contractor for service and also identifying the necessity for regular radon tests to be conducted by the building occupants, must be conspicuously placed where the occupants frequent and can see the label.

1.9. VENTILATION

If used as a ventilation Fan any type of ducting is acceptable, however, flexible nonmetallic ducting is recommended for easy installation and quieter operation. Insulated flexible ducting is highly recommended in cold climates to prevent the warm bathroom air from forming condensation in the ducting where it is exposed to colder attic air. The outlet of the fan should always be ducted to the outside. Avoid venting the outlet of the fan directly into an attic area. The excess moisture from the bathroom can cause damage to building structure and any items stored in the attic. Multiple venting points may be connected together using a "T" or "Y" fitting. Ideally Duct should be arranged such that equal duct lengths are used between intake and "T" or "Y" fitting, this will result in equal flow rates in each intake branch. If adjustable intake grilles are used on multi-intake systems then the opening on each grill should be equal in order to minimize noise and resistance. Straight smooth runs of rigid metal ducting will present the least resistance and maximize system performance. The Equivalent Length of Rigid Metal Ducting resulting in .2" WC pressure loss for each Fan Model is provided in the specification section of these Instructions. Flexible ducting, if used, must always be as close to being fully extended as possible. Formed rigid metal duct elbows will present the least resistance and maximize system performance, recommended bend radius of elbow is at least 1.5 x duct diameter.

RP Series fans are not suitable for kitchen range hood remote ventilation applications. For quietest performance, the fan should be mounted further away from the inlet duct, near the outside vent. A minimum distance of 8 feet is recommended between the fan or T/Y of a multi-intake system and intake grille(s).

Backdraft dampers allow airflow in only one direction preventing cold/hot drafts from entering the vented area and minimize possible condensation and icing within the system while the fan is not operating. Backdraft dampers are highly recommended at each intake grille for bathroom ventilation in all cold climate installations. Installation instructions are included with Spruce back draft dampers.

1.10. ELECTRICAL WIRING

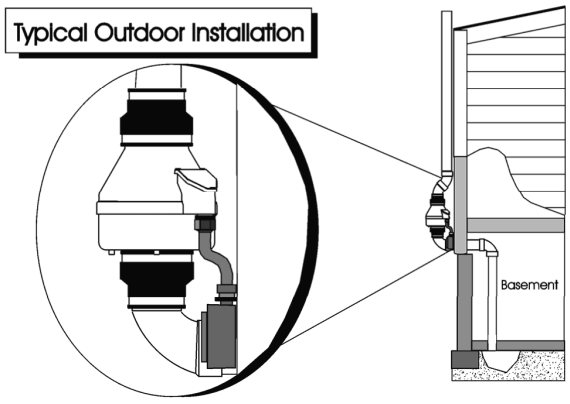
The RP Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Fire Protection Association's (NFPA)"National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes. All wiring must be performed by a qualified and licensed electrician. Outdoor installations require the use of a U.L. listed watertight conduit. Ensure that all exterior electrical boxes are outdoor rated and properly sealed to prevent water penetration into the box. A means, such as a weep hole, is recommended to drain the box.

1.11. SPEED CONTROLS

The RP Series Fans are rated for use with electronic speed controls, however, they are generally not recommended. If used, the recommended speed control is Pass & Seymour Solid State Speed Control Cat. No. 94601-I.

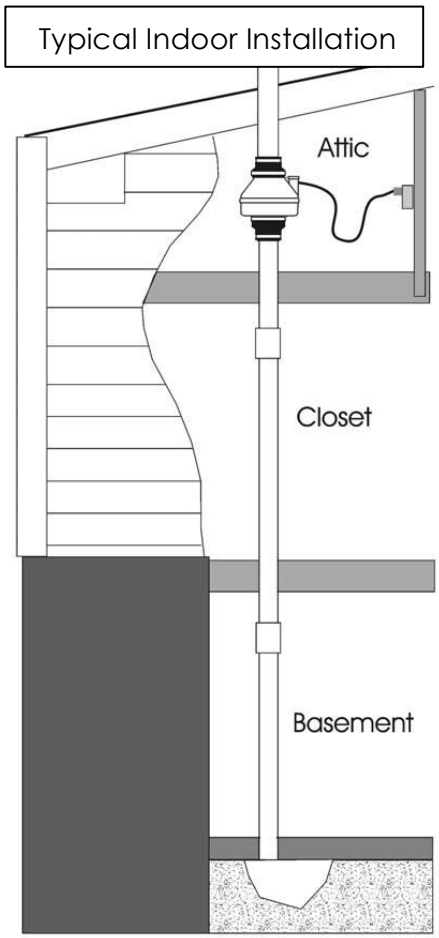
2.0 INSTALLATION

The RP Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The RP Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket



2.1 MOUNTING

Mount the RP Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.



2.2 MOUNTING BRACKET (optional)

The RP Series Fan may be optionally secured with the RadonAway P/N 25007 (25033 for RP385) mounting bracket. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation. As the fan is typically outside of the building thermal boundary, and is venting to the outside, installation of insulation around the fan is not required.

2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections (See Section 1.10). Note that the fan is not intended for connection to rigid metal conduit.

Fan Wire	Connection
Green	Ground
Black	AC Hot
White	AC Common

2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

2.6 OPERATION CHECKS & ANNUAL SYSTEM MAINTENANCE

_____ **Verify** all connections are tight and **leak-free**.

_____ **Insure** the RP Series Fan and all ducting is secure and vibration-free.

_____**Verify** system vacuum pressure with manometer. **Insure** vacuum pressure is within normal operating range and **less than** the maximum recommended operating pressure.

(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)
(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)
See Product Specifications. If this is exceeded, increase the number of suction points.

_____ **Verify Radon levels by testing to EPA protocol.**

RP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the RP Series Fan:

Typical CFM Vs Static Pressure "WC									
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
RP140	135	103	70	14	-	-	-	-	-
RP145	166	146	126	104	82	61	41	21	3
RP260	272	220	176	138	103	57	13	-	-
RP265	334	291	247	210	176	142	116	87	52
RP380*	497	401	353	281	220	176	130	80	38

* Tested with 6" inlet and discharge pipe.

Power Consumption 120 VAC, 60Hz 1.5 Amp Maximum		Maximum Recommended Operating Pressure* (Sea Level Operation)**	
RP140	17 - 21 watts	RP140	0.8" W.C.
RP145	41 - 72 watts	RP145	1.7" W.C.
RP260	52 - 72 watts	RP260	1.5" W.C.
RP265	91 - 129 watts	RP265	2.2" W.C.
RP380	95 - 152 watts	RP380	2.0" W.C.

**Reduce by 10% for High Temperature Operation*
***Reduce by 4% per 1000 feet of altitude*

	Size	Weight	Inlet/Outlet	L.2
RP140	8.5H" x 9.7" Dia.	5.5 lbs.	4.5" OD (4.0" PVC Sched 40 size compatible)	25
RP145	8.5H" x 9.7" Dia.	5.5 lbs.	4.5" OD (4.0" PVC Sched 40 size compatible)	15
RP260	8.6H" x 11.75" Dia.	5.5 lbs.	6.0" OD	48
RP265	8.6H" x 11.75" Dia.	6.5 lbs.	6.0" OD	30
RP380	10.53H" x 13.41" Dia.	11.5 lbs.	8.0" OD	57

L.2 = Estimated Equivalent Length of Rigid Metal Ducting resulting in .2in WC pressure loss for Duct Size listed. Longer Equivalent Lengths can be accommodated at Flows Lower than that at .2in WC pressure loss (see CFM Vs Static Pressure "WC Table).

Recommended ducting: 3" or 4" RP1xx/2xx, 6" RP380, Schedule 20/40 PVC Pipe

Mounting: If used for Ventilation use 4", 6" or 8" Rigid or Flexible Ducting

Mount on the duct pipe or with optional mounting bracket.

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

Continuous Duty

Class F Insulation [RP140 Class B]

Class B Insulation

Thermally Protected

3000 RPM

Rated for Indoor or Outdoor Use

LISTED
Electric Fan

Intertek
77728

Conforms to
UL STD. 507

Certified to
CAN/CSA STD.
C22.2 No.113

RP140 &
RP260 Only

IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GP/XP/XR/RP Series Fan for shipping damage within 15 days of receipt. Notify **RadonAway of any damages immediately**. RadonAway is not responsible for damages incurred during shipping. However, for your benefit, RadonAway does insure shipments.

There are no user serviceable parts inside the fan. **Do not attempt to open.** Return unit to factory for service.

Install the GP/XP/XR/RP Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.

Provide a copy of this instruction or comparable radon system and testing information to the building occupants after completing system installation.

WARRANTY

Subject to any applicable consumer protection legislation, RadonAway warrants that the GPX01/XP/XR/RP Series Fan (the "Fan") will be free from defects in materials and workmanship for a period of 90 days from the date of purchase (the "Warranty Term").

RadonAway will replace any Fan which fails due to defects in materials or workmanship. The Fan must be returned (at Owner's cost) to the RadonAway factory. Any Fan returned to the factory will be discarded unless the Owner provides specific instructions along with the Fan when it is returned regardless of whether or not the Fan is actually replaced under this warranty. Proof of purchase must be supplied upon request for service under this Warranty.

This Warranty is contingent on installation of the Fan in accordance with the instructions provided. This Warranty does not apply where any repairs or alterations have been made or attempted by others, or if the unit has been abused or misused. Warranty does not cover damage in shipment unless the damage is due to the negligence of RadonAway.

5 YEAR EXTENDED WARRANTY WITH PROFESSIONAL INSTALLATION.

RadonAway will extend the Warranty Term of the fan to 5 years from date of manufacture if the Fan is installed in a professionally designed and professionally installed radon system or installed as a replacement fan in a professionally designed and professionally installed radon system. Proof of purchase and/or proof of professional installation may be required for service under this warranty. Outside the Continental United States and Canada the extended Warranty Term is limited to one (1) year from the date of manufacture.

RadonAway is not responsible for installation, removal or delivery costs associated with this Warranty.

EXCEPT AS STATED ABOVE, THE GPx01/XP/XR/RP SERIES FANS ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL RADONAWAY BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR RELATING TO, THE FAN OR THE PERFORMANCE THEREOF. RADONAWAY'S AGGREGATE LIABILITY HEREUNDER SHALL NOT IN ANY EVENT EXCEED THE AMOUNT OF THE PURCHASE PRICE OF SAID PRODUCT. THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY SHALL BE THE REPAIR OR REPLACEMENT OF THE PRODUCT, TO THE EXTENT THE SAME DOES NOT MEET WITH RADONAWAY'S WARRANTY AS PROVIDED ABOVE.

For service under this Warranty, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. No returns can be accepted without an RMA. If factory return is required, the customer assumes all shipping cost to and from factory.

RadonAway
3 Saber Way
Ward Hill, MA 01835
TEL. (978) 521-3703
FAX (978) 521-3964

Record the following information for your records:

Serial No._____
Purchase Date_____

Appendix D

Site Management Plan Annual Reporting Form

295 Locust Associates LLC
Bronx, New York

New York State Department of Environmental Conservation

After Conducting an Annual Inspection, a Certified Copy of this Form must be mailed to:

Mr. Randy Whitcher
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, NY 12233-7015
Phone: (518) 402-9662
EMAIL: randy.whitcher@dec.ny.gov

Property Address:_____

Inspector:_____ Affiliation:_____

Inspector Address:_____

Inspector Email Address:_____

Phone Number:_____ Date:_____

Arrival Time:_____ Departure Time:_____

Weather Conditions:_____

Section 1 – Contaminated Soil Identification

1. During the past year, was soil excavated in an area designated or suspected to have Remaining Contamination, as defined in the SMP?
   Yes ☐ No ☐

   If yes, describe nature of contamination: _____
   _____

   Attach description of waste characterization sampling and data, if any.

2. If the answer to the above questions is yes, please provide the following information:
   - Was NYSDEC notified: Yes ☐ No ☐
     If yes, please provide date: _____
   - Was soil characterized as a non-hazardous waste? Yes ☐ No ☐
     hazardous waste? Yes ☐ No ☐
   - Provide dates of excavation: _____

- Provide volume of excavated soil: _____
- Attach figure showing excavation location and verification sample locations?
- Attach post-excavation verification data and locations?
  Note: A site-specific Health & Safety Plan is required if any contaminated soil is excavated.

Section 2 - Vapor Mitigation System

3. Subslab depressurization system inspection:
   - Fan(s) is operating? Yes ☐ No ☐
   - Manometer(s) is recording pressure differential? Yes ☐ No ☐
   - Pressure differential is negative? Yes ☐ No ☐
     - Provide manometer reading #1_____
     - Provide manometer reading #2_____
     - Provide manometer reading #3_____
     - Provide manometer reading #4_____
     - Provide manometer reading #5_____
     - Provide manometer reading #6_____
   - Are system drains operating properly Yes ☐ No ☐
   - Is exhaust stack(s) functioning properly and free of holes or other damage?
     Yes ☐ No ☐

   - Was a system repair(s) made during reporting year? Yes ☐ No ☐
     If yes, please describe
     repair(s):_____
     _____
     _____
     _____

     Repair(s) date:_____

- Is any type of corrective action deemed necessary to repair the subslab depressurization system? Yes ☐ No ☐
  If yes, please describe the corrective action:_____
  _____
  _____
  _____

  Note: the NYSDEC must be notified when the corrective action is completed.

4. Vapor barrier inspection:
   - Did any vapor barrier breaches (holes or cracks) occur during the reporting year?
     Yes ☐ No ☐

     If yes, please describe the repair(s):_____
     _____
     _____
     _____

     Repair(s) Date:_____

5. Building floor slab and parking lot inspection:
   - Were any repair(s) made to the building floor slab or parking lot during the reporting year?
     Yes ☐ No ☐
   - If yes, please describe the repair(s):_____
     _____
     _____
     _____
     Repair(s) date:_____
   - Are there any visible cracks, fissures, or other damages to the building floor slab, or foundation that could enable vapor from under the building to seep into the building? Yes ☐ No ☐
   - If yes, please describe the corrective action to be taken:_____
     _____
     _____
     _____

   - Is the East 140th Street parking lot in place and covering accessible soil?
     Yes ☐ No ☐
   - If no, please describe the corrective action to be taken:_____
     _____
     _____
     _____

     Note: the NYSDEC must be notified when the corrective action is completed.

Section 3 – Institutional and Engineering Controls

6. Is groundwater at the property being extracted for uses other than monitoring or remediation? Yes ☐ No ☐
   If yes, notify NYSDEC immediately.

7. An institutional control is recorded on the property deed that prohibits:
   a. Vegetable gardens and farming;
   b. Residential land use; and,
   c. Groundwater use without treatment for its intended use.
      - Is the property being used for vegetable gardens or farming?
      Yes ☐ No ☐

      - Is the property being used for residential purposes?
      Yes ☐ No ☐

      If the answer to either of the above questions is yes, notify NYSDEC immediately.

      - Is the groundwater underlying the property used for any purpose other than monitoring or remediation? Yes ☐ No ☐

   If yes, please describe the condition and response, if a response is warranted:_____
   _____
   _____
   _____

Section 4 - Certification

For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction.
- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department.
- Nothing has occurred that would impair the ability of the control to protect the public health and environment.
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control.
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control.

- Use of the site is compliant with the environmental easement.
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program.

- I am a qualified environmental professional as defined by 6 NYCRR Part 375-1.2(ak).

The information presented in this report is accurate and complete.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] (and if the site consists of multiple properties): [I have been authorized and designated by all site owners to sign this certification] for the site.

NAME: _____

SIGNATURE: _____