THE SMITH RESTAURANT BUILDING

ONONDAGA COUNTY

SYRACUSE, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C734148

Prepared for:
Smith Building, LLC
225 Wilkinson Street
Syracuse, New York 13204

Prepared by:
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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 2021

CERTIFICATION STATEMENT

I Albert G. Lyons, Jr. 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).

074710	December 29, 2021	
NYS Professional Engineer #	Date	Signature / Stamp

List of Acronyms

ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulation
COC	Certificate of Completion
CP	Commissioner Policy
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
EWP	Excavation Work Plan
GHG	Greenhouse Gas
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OSHA	Occupational Safety and Health Administration
P.E.	Professional Engineer
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RI/FS	Remedial Investigation/Feasibility Study
RP	Remedial Party
RSO	Remedial System Optimization
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SSD	Sub-slab Depressurization
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
UST	Underground Storage Tank
VIMS	Vapor Intrusion Mitigation System

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ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification: BCP Site #C734148
The Smith Restaurant Building
500 Erie Boulevard East, Syracuse, New York

Institutional Controls:

1. The property may be used for: residential, restricted residential, commercial, and industrial use;
2. All ECs must be operated and maintained as specified in this SMP;
3. All ECs must be inspected at a frequency and in a manner defined in the SMP;
4. The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Onondaga Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
5. Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
6. Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
7. All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
8. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
9. Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
10. Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
11. The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 13, and any potential impacts that are identified must be monitored or mitigated;
12. Vegetable gardens and farming on the site are prohibited; and
13. An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

Engineering Controls:

1. Cover System: A cover system has been installed over exterior portions of the Site. The cover consists of two feet of clean soil in landscaped areas and a hardscape (asphalt pavement, concrete sidewalks, and concrete floor slab).
2. Vapor Intrusion Mitigation System: An active system has been installed to mitigate vapor intrusion. The system in the eastern (6-story) section, including the partial basement, is a conventional sub-slab depressurization system, while the system in the western (3-story) section is designed to evacuate crawlspace air from beneath the wooden sleeper floor system.

Action	Frequency
Inspections:	
1. Cover inspection	Annually
2. Vapor Intrusion Mitigation System	Monthly / Annually
Monitoring:	
Not Applicable (N/A)	N/A
Maintenance:	
1. Cover System	As needed
2. Vapor Intrusion Mitigation System	As needed
Reporting:	
1. Periodic Review Report	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Smith Restaurant Building site located in the City of Syracuse, New York (hereinafter referred to as the "Site"). The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP, Site No. C734148, which is administered by New York State Department of Environmental Conservation (NYSDEC or Department).

Smith Building, LLC entered into a Brownfield Cleanup Agreement (BCA) on June 9, 2020 with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this site is provided in Figures 1 and 2, respectively. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix A.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Onondaga County Clerk, requires compliance with this SMP and all ECs and ICs placed on the site.

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. 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.

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, 6 NYCRR Part 375 and the BCA (Index #C734148-06-20; Site #C734148) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Appendix B of this SMP.

This SMP was prepared by Asbestos & Environmental Consulting Corporation and Lakeside Engineering, P.C., on behalf of Smith Building, LLC, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 3,2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. The NYSDEC can also make changes to the SMP or request revisions from the remedial party. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shutdown of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the site, the NYSDEC project manager will provide a notice of any approved changes to the SMP and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

1. 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6 NYCRR Part 375 and/or Environmental Conservation Law.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.
4. 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, and likewise, any action to be taken to mitigate the damage or defect.
5. Notice within 48 hours of any non-routine maintenance activities.
6. 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.
7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting 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:

8. 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/Remedial Party has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP.
9. 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 to the NYSDEC.

Table 1 on the following page includes contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix B.

(continued on next page)

Table 1: Notifications*

Title / Position	Contact Information	Required Notification**
NYSDEC Project Manager NYSDEC Regional HW Engineer	Gary Priscott, P.G. (315) 426-7524 gary.priscott@dec.ny.gov	All Notifications
NYSDEC Site Control	Kelly Lewandowski, P.E. (518) 402-9547 kelly.lewandowski@dec.ny.gov	Notifications 1 and 8
NYSDOH Project Manager	Stephanie Selmer (518) 402-7860 stephanie.selmer@health.ny.gov	Notifications 4, 6, and 7

** Note: Notifications are subject to change and will be updated as necessary.*
*** Note: Numbers in this column reference the numbered bullets in the notification list in this section.*

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in the City of Syracuse], Onondaga County, New York and is identified as Section 103 Block 13 and Lot 01 on the City of Syracuse Tax Map (see Figure 1). The site is an approximately 0.334-acre area and is bounded by Erie Boulevard East to the north, East Water Street to the south, the Interstate 81/690 corridor to the east, and North Townsend Street to the west. The boundaries of the site are more fully described in Appendix A –Environmental Easement. The owner of the site parcel at the time of issuance of this SMP is Smith Building, LLC.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following:

The existing building, which encompasses the majority of the Site, is comprised of two contiguous parts (totaling approximately 31,196 square feet):

- a three-story, timber framed (with exterior brick mass walls) section
- a six-story, steel framed (with concrete mass walls) section

In addition, two asphalt parking lots are located on the Site:

- a 2,000 square foot alcove to the north of the building with access from Erie Boulevard East
- a 4,500 square foot lot in the eastern section of the Site with access from East Water Street

The Site is zoned Central Business District – Office and Service District Restricted (CBD-OSR) and will be utilized for commercial uses on the first floor and residential use on the upper floors. The properties adjoining the Site and in the neighborhood surrounding the Site primarily include:

- North: Erie Boulevard and the Interstate 81/690 corridor
- East: Interstate 81/690 corridor
- Southeast: Gravel parking lot
- South: Abandoned parcel (recently demolished building)
- Southwest: Goodyear Tire Center (including auto repair)
- West: M&T Bank

2.2.2 Geology

According to New York State Geological Survey, the bedrock in the area of the Site is shale and dolostone (on border of Syracuse & Vernon Formation – Upper Silurian in age).

According to the USDA online soil survey database, the soil at the Site is considered 'Urban Land'. The term 'Urban Land' indicates that a significant portion of the Site is covered by impervious surface (i.e., buildings, pavement), or that soil has been significantly altered by past development activities. The characterization of Site soils as 'Urban Land' is not unexpected given the urban history of the Site and vicinity.

The subsurface soil conditions were typified by the presence of mostly brown, light brown, and brownish-gray sandy fill material of varying grain size / thickness, up to depths of approximately 5-6 feet below ground surface (bgs) in the north lot and 8-12 feet bgs in the east lot. In the north lot, a native light brown and brownish-gray fine gravel and sand of varying grain size / thickness was present from approximately 5-10 feet bgs Discrete areas of silty-sand and trace clay components with slightly-reddish coloration were observed at depths generally greater than 10-12 feet below ground surface (till material).

Drilling (Geoprobe) refusal (assumed to be bedrock or a similarly restrictive layer) ranged from 20 to 24 feet bgs at seven of the eight boring locations. Refusal was encountered at 13 feet bgs at the remaining location (assumed to be related to a former building foundation).

A geologic cross section is shown in Figure 3. Site specific boring logs are provided in Appendix C.

2.2.3 Hydrogeology

Due to the orientation and size of the Site, location of the Site in relation to other infrastructure (buildings, paved roadways and parking lots, and municipal stormwater sewer system drains), the orientation of the monitoring wells, and the general flatness of the groundwater elevation measurements collected across the Site (see below), a specific groundwater flow direction could not be inferred. Although shallow groundwater flow direction is likely influenced by utility corridors and the trenching/filling of the Old Erie Canal (existing Erie Boulevard) and is difficult to discern from data available at the site-scale, generalized regional groundwater flow in the broader area of the Site was inferred to be toward the west-southwest based on a *Tunnel Feasibility Study* (prepared by Parsons Corporation and AKRF, Inc., October 2016) that is not related to the subject project (see figure below).

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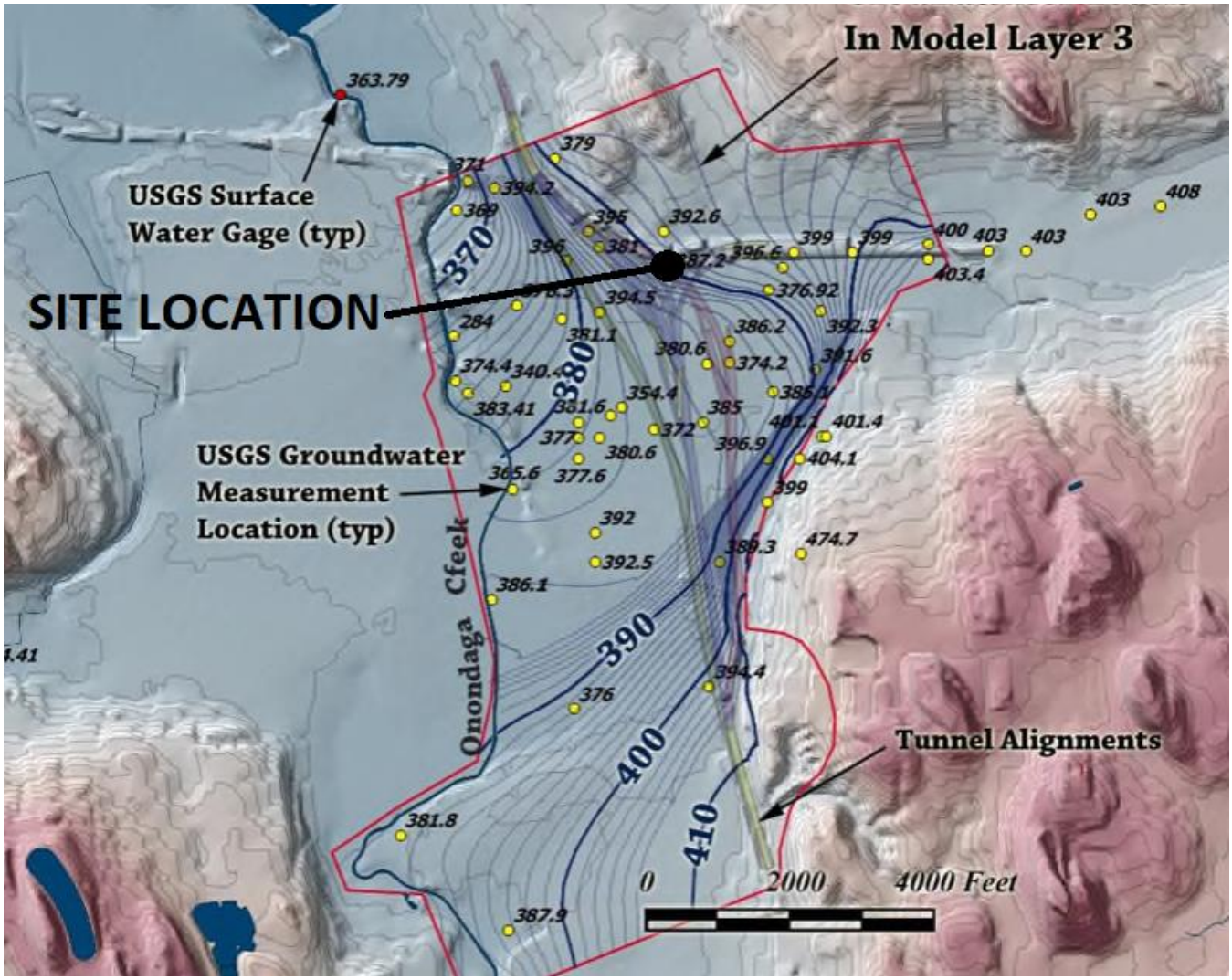
Figure 4 – Regional Groundwater Flow



As the Site is situated in a dense urban environment, there are no surface waters or wetlands on or in the vicinity of the Site.

There are no public or private wells at the Site or neighboring properties. The area is supplied with municipal potable water.

The groundwater monitoring wells installed during previous investigations were abandoned (in accordance with NYSDEC Commissioner's Policy (CP) #43), except for well MW-09, which is located in the basement in the northeastern corner of the building.

A groundwater elevation map is shown in Figure 5. Groundwater elevation data is provided in Table 2.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References. Sample locations are shown on Figure 2.

2.3.1 Past Uses and Ownership

The Site has historically been a restaurant supply company since at least 1946, when it was purchased by the current owner. Prior to (and in some cases, during) the current use, portions of the subject site had been used as a restaurant, laundry and cleaners facility, gasoline filling station, used car lot, mattress factory, toy warehouse, and other various industrial uses.

Prior to 1967, the Site was Owned by Smith Restaurant Supply Co. and Penfield Manufacturing. In 1967, the Site was combined into one property owned by Smith Restaurant Supply Co. From that time until 2019, the Site was owned by Smith Restaurant Supply Co. and/or its affiliates (the Serling's and Kupperman's). Smith Building, LLC (the BCP Volunteer) purchased the Site in 2019.

2.3.2 Prior Environmental Reports

Several investigations and reports have been compiled respective to the Site. These reports, along with summaries, are listed below:

- *Hazardous Materials Pre-Renovation Survey, Prepared by AECC, June 2019*

  A Hazardous Materials Pre-Renovation Survey was completed by AECC in June 2019, in accordance with applicable Federal and State (NYSDOL Code Ruel 56) regulations. The scope of the survey included asbestos-containing building materials, lead-based paint, PCBs in caulk, and an inventory of miscellaneous / hazardous wastes. Several asbestos-containing building materials, lead-based paints, and PCB caulks were identified. The presence of asbestos debris required a subsequent asbestos contamination assessment, which revealed that asbestos fibers were limited to the visual debris field.

- *Phase I Environmental Site Assessment Report, prepared by EA Engineering P.C., July 2019*

  The Site supports a historical factory building which was constructed in 1853. A restaurant supply company and storage space has occupied the building since at least 1963. Prior to (and in some cases, during) the current use, portions of the building have been used as a restaurant, laundry and cleaner facility, gasoline filling station, used car lot, mattress factory, toy warehouse, and other various commercial and industrial uses. The eastern portion of the original building was demolished during the construction of the Interstate 81/690 corridor. The Site's existing eastern parking lot is located within the footprint of the demolished section of the building. The former Erie Canal was located along the northern property border of the Site (it was subsequently filled to create Erie Boulevard).

  Specific uses that appear to have led to contamination at the Site include:

  - A gasoline filling station was located on the northern portion of the subject site as shown in historical Sanborn Maps (1951 map) and recorded in city directory records (listed as Lent Edgar H Gas Station in 1939). The gasoline filling station, which included three USTs, was constructed by 1939 and closed between 1951 and 1953.

  - Patrick's 2-Hour Cleaning and Laundry was located in the one-story extension building on the northeast portion of the Site and operated at least between 1949 and 1955 based on city directory records.

- *Phase II Environmental Site Assessment for Smith Restaurant Supply Building, prepared by EA Engineering P.C. (and Its Affiliate EA Science & Technology), November 2019*

  A Phase II ESA was performed to investigate the nature and extent of potential contamination associated with the environmental concerns identified during the Phase I ESA. The scope of the Phase II ESA included a geophysical (ground-penetrating radar) survey, the advancement of 8 borings to a depth of approximately 20 feet, installation of temporary groundwater monitoring wells within each of the borings, the installation of two sub-slab vapor points in the northeast basement (area of former laundry), and the installation of an exterior soil vapor point in the northern parking lot (area of historic USTs). Note that it was later determined that two of the eight borings/wells installed during the 2019 Phase II ESA (SB/TW-04 and SB/TW-05) were actually located off-site. The Phase II ESA did not include testing for PCBs, pesticides, or PFAS since these contaminants were not expected to be of primary concern. The Phase II ESA concluded that the primary contaminants of concern were:

  - Soils: Polycyclic Aromatic Hydrocarbons (PAHs) and lead. In addition, gasoline range organics (GRO), diesel range organics (DRO), and oil range organics (ORO).
  - Groundwater: Chlorinated solvents (chloroform and tetrachloroethene) and lead
  - Soil Vapor: Chlorinated solvents (chloroform, tetrachloroethene,, trichloroethene, etc.) and petroleum (benzene, ethylbenzene, naphthalene, etc.)

  Within soils, the following contaminants were detected above Restricted Residential Soil Cleanup Objectives (SCOs):

  - Individual PAHs (Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, etc.) exceeded their respective SCOs by a factor of approximately 2 in the south-central and northwestern portion of the Site, and by a factor of approximately 10 - 20 in the north-central portion of the Site.
  - Lead exceeded its respective SCO by a factor of approximately 1.2 - 7 in the northern portion of the Site.
  - Also of note, DRO and/or ORO were detected in soils across the Site; and staining, odors, and GRO were detected in the north-central portion of the Site. Note that GRO, DRO, and ORO do not have applicable standards / SCOs, but their presence may be indicative of weathered / degraded petroleum contamination.

  Within groundwater, the following contaminants were detected above applicable groundwater standards:

  - Chloroform (10-11 ppb) exceeded the groundwater standard of 7 ppb in the central and northwestern portions of the Site
  - Tetrachloroethene (7.6-9.6 ppb) exceeded the groundwater standard of 5 ppb in the east-central and south-central portions of the Site
  - Lead (110 ppb) exceeded the groundwater standard of 25 ppb in one sample from the northwest corner of the Site.

Soil vapor and sub-slab vapor sampling were limited to the north-central and northeastern portions of the Site. Within sub-slab vapor, the following contaminants were detected above applicable NYSDOH matrix values that require mitigation (regardless of indoor air concentrations, which were not sampled:

- Trichloroethene (70 - 350 ug/m^3)
- Tetrachloroethene (7,400 ug/m^3)

The contamination of the soil, groundwater, and soil vapor testing corresponded to the locations of historical gasoline USTs in the northern portion of the Site, historical drycleaning operations in the central portion of the Site, and typical urban fill used throughout the Site.

- *Remedial Investigation Report, prepared by AECC, October 2020*

Based on the results of the Phase II ESA, the Site was accepted into the BCP program. As part of the BCP, a Remedial Investigation was conducted to supplement the information gathered during the Phase II ESA. To that end, the 6 previous on-site boring locations advanced during the Phase II ESA were "re-drilled", and two additional boring locations were installed within the interior of the building. Groundwater monitoring wells were installed in each of the borings. Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, and polyfluoroalkyl substances (PFAS). Soil vapor was analyzed for VOCs.

The RI concluded:

Soil

The primary contaminants of concern detected in surface, near-surface and subsurface soil included SVOCs and metals; they are listed here and compared to their respective restricted residential SCOs (RRSCOs).

SVOCs in soil that are considered the primary contaminants of concern are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene with maximum concentrations of 41 parts per million (ppm), 33 ppm, 37 ppm, and 18 ppm, respectively. The RRSCOs for these are: 1 ppm for benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene, and 0.5 ppm for indeno(1,2,3-cd)pyrene. SVOC concentrations greater than RRSCOs were more prevalent in the north and central area of the site and maximum concentrations for the SVOCs all occurred at depths greater than four ft bgs. Metals in soil that are considered the primary contaminants of concern are arsenic and lead with maximum concentrations of 275 ppm and 2,850 ppm, respectively. RRSCOs for these are: 16 ppm for arsenic, and 400 ppm for lead. Arsenic was detected at concentrations above RRSCOs at nearly all sample locations, but only in surface or near surface soils. Lead was detected at concentrations above RRSCOs at two locations in the north area of the site. Samples with lead greater than RRSCOs were from one soil sample collected immediately beneath the asphalt pavement and two soil samples collected from 1 to 4 ft bgs.

Although, no VOCs were detected in soils at concentrations exceeding RRSCOs, in one subsurface sample collected from beneath the northeast corner of the building, tetrachloroethene (PCE) and trichloroethene (TCE) were detected at 3.5 ppm and 0.96 ppm, respectively. These concentrations exceed the unrestricted SCOs and protection of groundwater SCOs of 1.3 ppm for PCE and 0.47 ppm for TCE.

Groundwater

Although not considered site-related, the contaminants with the highest frequency of detections in groundwater include the metals, aluminum, iron, and sodium. Maximum concentrations of aluminum, iron, and sodium in groundwater on site are 8,800 parts per billion (ppb), 12,800 ppb, and 3,210,000 ppb, respectively. The groundwater standard for these are: 100 ppb for aluminum, 300 ppb for iron, and 20,000 ppb for sodium. The metals were detected above groundwater standards in nearly all groundwater samples. Presence of the metals may not be an indication of site-related activities, but rather an impairment caused by other nearby past industrial activities and from halite brine that exists within the aquifers of the Onondaga Trough south of Onondaga Lake.

Lead is potentially a site-related metal contaminant that was detected in one groundwater sample at a concentration exceeding the groundwater standard for lead of 25 ppb. The result for lead at this single exceedance was 110 ppb.

PCE, a site-related VOC, was detected in one groundwater sample at a concentration exceeding the groundwater standard for PCE of 5 ppb. The result for PCE at this single exceedance was 7.6 ppb.

For PFAS, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were reported at concentrations of up to 3.9 and 3.3 parts per trillion (ppt), respectively, below the 10 ppt maximum contaminant level for drinking water for each. No other individual PFAS exceeded the 100 ppt screening level. The total concentration of PFAS, including PFOA and PFOS, were reported at concentrations of up to 28.33 ppt, below the 500 ppt screening level for total PFAS in groundwater.

Soil Vapor

VOCs present at elevated concentrations in sub-slab soil vapor samples included cis-1,2-dichloroethene (cis-1,2-DCE), PCE, and TCE with maximum concentrations of 54 micrograms per cubic meter (µg/m3), 7,400 µg/m3, and 350 µg/m3, respectively. Sub-slab vapor samples were collected in the northeast area of the building close to where the former dry-cleaning business operated. The NYSDOH soil vapor intrusion guidance recommends mitigation of a building when concentrations of PCE in a sub-slab vapor sample exceeds 1,000 µg/m3 and when TCE in a sub-slab vapor sample exceeds 60 µg/m3. A soil vapor sample collected outside the building footprint but close to the sub-slab sample locations showed a significant decline in concentrations for these VOCs. The soil vapor results showed no detection of cis-1,2-DCE, 12 µg/m3 of PCE, and 2.4 µg/m3 of TCE.

The RI results did not indicate the need for investigation off-site for soil, groundwater, and soil vapor.

- *Preliminary Draft Site Management Plan, prepared by AECC, November 2021*

  AECC prepared and submitted a Preliminary Draft Site Management Plan (SMP) to NYSDEC Project Manager, Mr. Gary Priscott. Mr. Priscott subsequently provided informal comments to AECC. Soon thereafter, the Applicant changed consultants (from AECC to NEU-VELLE, LLC). The AECC Preliminary Draft SMP serves as the basis for NEU-VELLE's adaptation of the SMP.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated November 2020 are as follows:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

Based on a comparative analysis, a remedial alternative consisting of a Cover System, Site Management Plan, and Vapor Mitigation System was selected as the preferred remedial alternative for the site.

2.5 Remaining Contamination

The site contains residual contamination of subsurface soils, groundwater and soil vapor. Surface soils sampled during the RI have either been removed to accommodate installation of cover systems or buried under other surface treatments such as paving or landscaping. The following subsections describe the nature of the remaining contamination and its extent.

2.5.1 Soil

During the Remedial Investigation, it was determined that soils on the site, on a site-wide basis, contained contamination that exceeds unrestricted SCOs. Classes of compounds included chlorinated VOCs, PAHs, organochlorine pesticides and metals. Specifically:

- Specific chlorinated VOCs which exceed the unrestricted SCOs are tetrachloroethene, and trichloroethene. This contamination appears to be restricted to soils located beneath the existing building.
- PAH contamination is found sitewide and includes a variety of compounds including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, dibenzofuran, indeno(1,2,3-c,d)pyrene, and phenanthrene. There are no identifiable areas that would be considered source or high concentration zones on the site.

- Organochlorine pesticides were found in the northern and eastern courtyards and consisted of DDT, DDD, and DDE. In the eastern courtyard this contamination is limited to the western third of this area.
- Metals contamination exists site-wide and includes arsenic, barium, copper, lead, mercury, nickel, selenium and zinc. As with PAHs, there are no discernable source or high concentration areas on the site.

No subsequent soil sampling occurred after the completion of remedial actions. Tables 3 and Figure 6 summarize the pre-remedial exceedances in site soils. Figures 9 and 10 show the estimated extents of subsurface soil contamination before the completion of remedial actions.

The depth of contamination varies across the site and ranges from 1-2 feet below existing grade depending on the type of cover system in place (soil, pavement, landscaping). The starting point of contamination is indicated by the presence of an orange polypropylene demarcation fabric (WinFab 3150). This demarcation barrier is present over the entire exterior of the Site. Contamination generally continues to the water table which is 11-13 feet below ground surface.

All utility services to the property have been replaced as part of the project. All utility trenches were lined with demarcation barrier and backfilled with approved clean soils/materials.

2.5.2 Groundwater

During the Remedial Investigation, it was determined that site groundwater is contaminated with VOCs and metals. VOCs detected in groundwater above TOGS concentrations were chloroform and tetrachloroethene. Metals included aluminum, iron, lead, magnesium, manganese, selenium and sodium. No subsequent groundwater sampling occurred after the completion of remedial actions. Table 4 and Figure 7 summarize the pre-remedial exceedances in groundwater at the site. Figure 11 shows the estimated extent of groundwater contamination on the site before the completion of the remedial actions.

2.5.3 Soil Vapor

Soil vapor and sub-slab vapor were investigated during the Phase II ESA. The investigation was limited to the north-central and northeastern portions of the Site. The following contaminants were detected above applicable NYSDOH matrix values that require mitigation regardless of indoor air concentrations (indoor air was not sampled):

- Trichloroethene (70 - 350 ug/m^3)
- Tetrachloroethene (7,400 ug/m^3)

In addition, the Phase II ESA concluded:

> *Several compounds including but not limited to benzene, chloroform, xylenes, trichloroethene (TCE), tetrachloroethene (PCE), and cis-1,2-Dichloroethene (DCE) were detected in soil vapor samples. There are currently no SCGs for evaluating soil vapor analytical concentrations in New York. The results are typically used to characterize the nature and extent of potential impacts and provide a determination on whether the soil vapor medium is impacted at significant enough concentrations to present a risk for vapor intrusion. In lieu of SCGs, soil vapor results were compared to the EPA Indoor Air Regional Screening Levels [RSLs] for residential and commercial/industrial use. Screening values for soil vapor were calculated using the methodology specified in the EPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (EPA 2015) by dividing EPA Indoor Air Regional Screening Levels by an attenuation factor of 0.03. Several chlorinated compounds*

exceeded the calculated soil vapor screening levels including TCE, PCE, chloroform, and 1,1,2-trichloroethane. Generally, concentrations of chlorinated compounds were higher in the sub-slab samples, compared to the soil vapor sample collected outside the building. The VOCs 1,2,4-trimethylbenzene, benzene, and ethylbenzene were observed above the RSLs in the soil vapor sample SV-1. Other petroleum compounds were detected in that sample as well. Petroleum-related compounds were observed at generally higher concentrations in the subsurface outside the building footprint, compared to those beneath the basement slab.

No subsequent soil vapor sampling occurred after the completion of remedial actions. The analytical data from the pre-remedial soil vapor sampling is summarized in Table 5 and the locations of the exceedances are shown on Figure 8. Figure 12 shows the estimated extent of pre-remedial soil vapor contamination.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC project manager.

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix D) 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 IC/ECs required by the site remedy, as determined by the NYSDEC project manager.

3.2 Institutional Controls

A series of ICs is required by the [Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the site to restricted residential, commercial, and industrial uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 13. These ICs are:

- The property may be used for: restricted residential, commercial, and industrial use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP;

- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Onondaga Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
- Groundwater and other environmental or public health 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 as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 13, and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the site are prohibited; and
- An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

3.3 Engineering Controls

3.3.1 Cover

Exposure to remaining contamination at the site is prevented by a cover system placed over the site. This cover system is comprised of a minimum of 24 inches of clean soil or, impervious surfaces such as asphalt pavement, concrete-covered sidewalks, and concrete building slabs. Figure 14 presents the location of the cover system and applicable demarcation layers. The Excavation Work Plan (EWP) provided in Appendix D outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site and provided in Appendices E and F, respectively. Any disturbance of the site's cover system must be overseen by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.

3.3.2 Vapor Intrusion Mitigation System

An active Vapor Intrusion Mitigation System (VIMS) has been installed to mitigate vapor intrusion. The system in the eastern (6-story) section is a conventional sub-slab depressurization system, while the system in the western (3-story) section is designed to evacuate crawlspace air from beneath the wooden sleeper floor system.

A description of the conventional sub-slab depressurization system is as follows:

- Designed to maintain an adequate negative pressure beneath the slab of the 6-story portion of the building (including the partial basement).
- Manometers have been installed to monitor pressure status.
- Alarms were installed to monitor fan operational status.
- Two suction points were installed (one in the partial basement, one in the ground floor slab).
- The two suction points are combined into one vertical riser that discharges to the roof of the 6-story section of the building.
- A continuously-operating fan is mounted on at the top of each riser.

A description of the VIMS system in the areas of the wooden sleeper floors are as follows:

- Designed to maintain an adequate negative pressure beneath the wooden sleeper floor of the 3-story portion of the building (and one-story bump-out in the northwestern corner of the building).
- Manometers have been installed to monitor pressure status.
- Alarms were installed to monitor fan operational status.
- Suction is distributed through several horizontal perforated pipes beneath the sleeper floor.
- The horizontal pipes are combined into one of three vertical riser that discharges to the roof of the building (two to the 3-story roof, one to the 6-story roof).
- A continuously-operating fan is mounted on at the top of each riser.

The system was activated on December 8, 2021.

Procedures for operating and maintaining the Vapor Intrusion Mitigation System are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). As-built drawings, signed and sealed by a PE who is licensed and registered in New York State, are included in Appendix I – Operations and Maintenance Manual. Figure 14 shows the location of the ECs for the site.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when 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 6.4 of NYSDEC DER-10. Unless waived by the NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the site. Confirmation samples require Category B deliverables and a Data Usability Summary Report (DUSR).

The remedial party will also conduct any needed site restoration activities, such as asphalt patching and decommissioning treatment system equipment. In addition, the remedial party will conduct any necessary restoration of vegetation coverage and will comply with NYSDEC regulations and guidance. Also, the remedial party will ensure that no ongoing erosion is occurring on the site.

3.3.3.1 - Cover

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity.

3.3.3.2 - Vapor Intrusion Mitigation System (VIMS)

The active VIMS system will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH project managers. If monitoring data indicates that the VIMS system may no longer be required, a proposal to discontinue the VIMS system will be submitted by the remedial party to the NYSDEC and NYSDOH project managers.

4.0 MONITORING PLAN

4.1 General

This Monitoring Plan, consisting of Sections 4.2, 4.3 and 4.4, describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring Plan may only be revised with the approval of the NYSDEC project manager.

This Monitoring Plan describes the methods to be used for evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.

To adequately address these issues, this Monitoring Plan provides information on:

- Information on all designed monitoring systems; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site-Wide Inspection

Site-wide inspections will be performed annually. These periodic inspections must be conducted when the ground surface is visible (i.e. no snow cover). Site-wide inspections will be performed by a qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix H – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, 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; and
- If site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the

event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.3 Vapor Intrusion Mitigation System Monitoring

Monitoring of the Vapor Intrusion Mitigation System will be performed on a routine basis, as identified in Table 6 Remedial System Monitoring Requirements and Schedule (see below). The monitoring of remedial systems must be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager. A visual inspection of the complete system will be conducted during each monitoring event. Unscheduled inspections and/or sampling may take place when a suspected failure of the Vapor Intrusion Mitigation System has been reported or an emergency occurs that is deemed likely to affect the operation of the system. The Vapor Intrusion Mitigation System components to be monitored include, but are not limited to, the components included in Table 6 below.

Table 6: VIMS Monitoring Requirements and Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
Manometer	Pressure Differential	Negative Pressure	Monthly
Mitigation Fans	Visual - Operation	Operational / Inoperable	Monthly
Alarm	Visual - Function	Pass/Fail	Monthly
Slab Penetrations	Visual - Integrity	Good Condition	Yearly
Piping (where accessible)	Visual - Integrity	Good Condition	Yearly

A complete list of components to be inspected is provided in the Inspection Checklist, provided in Appendix H - Site Management Forms. If any equipment readings are not within their specified operation range, any equipment is observed to be malfunctioning or the system is not performing within specifications; maintenance and repair, as per the Operation and Maintenance Plan, is required immediately.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This Operation and Maintenance Plan provides a brief description of the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the site. This Operation and Maintenance Plan:

- Includes the procedures necessary to allow individuals unfamiliar with the site to operate and maintain the Vapor Intrusion Mitigation System (VIMS);
- Will be updated periodically to reflect changes in site conditions or the manner in which the VIMS is operated and maintained.

Further detail regarding the Operation and Maintenance of the VIMS is provided in Appendix I - Operation and Maintenance Manual. A copy of this Operation and Maintenance Manual, along with the complete SMP, is to be maintained at the site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of this SMP.

5.2 Vapor Intrusion Mitigation System Performance Criteria

Since the VIMS is designed to operate continuously, the performance criteria are limited to the following items:

- The VIMS should always be operational; and
- The VIMS components (i.e., piping, fans, exhaust configurations, etc.) should remain intact as designed.

5.3 Operation and Maintenance of Vapor Intrusion Mitigation System

The following sections provide a description of the operations and maintenance of the Vapor Intrusion Mitigation System. Cut-sheets and as-built drawings for the Vapor Intrusion Mitigation System are provided in Appendix I - Operations and Maintenance Manual.

5.3.1 System Start-Up and Testing

In the eastern portion of the building where the conventional sub-slab depressurization system was installed, pressure field differential (sub-slab air communication testing) was performed. The purpose of the assessment was to gather information to verify that sub-slab air beneath the building slab was being drawn by the system.

After verifying negative pressure in the field differential tests, the installer performed a pre start-up inspection. This inspection consisted of checking for sub-slab to indoor air short-circuits by utilizing smoke tubes and verification of proper negative pressure differential.

Post start-up indoor air sampling was performed to demonstrate that the system is effective at mitigating sub-slab / sub-floor vapor from entering the interior of the building. The results demonstrate the system is effective. See Table 7, below, for a summary of indoor air sampling results. Note that the table is limited to compounds that were either:

- detected in indoor air samples;
- detected in previously collected sub-slab samples above applicable NYSDOH matrix values that require mitigation regardless of indoor air concentrations (see Section 2.5.3); or
- detected in soil vapor at concentrations which exceed EPA Indoor Air Regional Screening Levels for residential use (see Section 2.5.3)

(continued on next page)

Table 7: Summary of Indoor Air Sampling Results

Volatiles (TO15) By TO15	CAS	IA-1-017 Basement 12/19/2021	IA-2-115 Ground Fl 12/19/2021	IA-3-102 Ground Fl 12/19/2021	IA-4-112 Ground Fl 12/19/2021	IA-E Ambient 12/19/2021	DOH Air Guidance Value^
1,2,4-Trimethylbenzene	95-63-6	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Acetone	67-64-1	**56.3**	**21.6**	**37.7**	**16.3**	**5.58**	NGV
Benzene	71-43-2	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Carbon Tetrachloride	56-23-5	**0.42**	**0.37**	**0.39**	**0.41**	**0.36**	NGV
Chloroform	67-66-3	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Cis-1,2-Dichloroethene	156-59-2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	NGV
Dichlorodifluoromethane	75-71-8	**1.99**	**1.96**	**2.01**	**2.06**	**2.04**	NGV
Ethanol	64-17-5	**9.09**	**4.71**	**13.6**	**21.5**	**3.11**	NGV
Ethyl acetate	141-78-6	**5.29**	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Ethylbenzene	100-41-4	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Hexane	110-54-3	**1.19**	< 1.00	**1.1**	< 1.00	< 1.00	NGV
Isopropylalcohol	67-63-0	**22.2**	**7.12**	**5.48**	**4.47**	**1.45**	NGV
Methylene Chloride	75-09-2	**3.92**	< 3.00	< 3.00	< 3.00	< 3.00	60
Methyl Ethyl Ketone	78-93-3	**2.74**	**1.96**	**3.51**	**9.4**	< 1.00	NGV
m,p-Xylene	179601-23-1	< 1.00	< 1.00	**1.5**	**2.18**	< 1.00	NGV
o-Xylene	95-47-6	< 1.00	< 1.00	< 1.00	**1.38**	< 1.00	NGV
Tetrachloroethene	127-18-4	**0.65**	**0.41**	**0.81**	**0.37**	**0.31**	30
Tetrahydrofuran	109-99-9	**7.37**	**6.34**	**3.33**	**2.09**	< 1.00	NGV
Toluene	108-88-3	**1.69**	**1.73**	**1.09**	< 1.00	< 1.00	NGV
Trichloroethene	79-01-6	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	2
Vinyl Chloride	75-01-4	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	NGV

Notes:

All units reported in ug/m^3

***Bold** = Compound detected*

NGV = No Guidance Value

^ = Values from October 2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in New York State.

Of the eight listed contaminants within the NYSDOH decision matrices, all were either not detected or detected at concentrations below the lowest concentration listed for indoor air within the matrices, except for methylene chloride and carbon tetrachloride. However, these two compounds were not deemed to be contaminants of concern during the 2019 Phase II ESA (i.e. – did not exceeded EPA Indoor Air Regional Screening Levels for residential use, see Section 2.5.3). Furthermore:

- Carbon tetrachloride was detected at similar concentrations in outdoor (ambient) air
- Methylene chloride was only detected in the partial basement indoor air sample. The basement will not be occupied and will be inaccessible to residents.

The pre start-up inspections described above will be conducted if, in the course of the Vapor Intrusion Mitigation System lifetime, the system goes down or significant changes are made to the system and the system must be restarted.

5.3.2 Routine System Operation and Maintenance

All fans will be kept in continuous operation and must restart automatically in event of power loss. Operational monitoring requirements are detailed in Table 6, above.

The system does not require routine maintenance.

A copy of the Operations and Maintenance Manual specific to the Vapor Intrusion Mitigation System is provided in Appendix I, which provides further detail on the above.

5.3.3 Non-Routine Operation and Maintenance

In the event of unusual fan noise, failure to start, physical damage or repeated circuit breaker trip, the affected fan will be turned off for service or replacement. Any changes in the structure, HVAC systems, slab conditions, etc. will require re-evaluation of the VIMS.

5.3.4 System Monitoring Devices and Alarms

The VIMS is equipped with a mechanical indicator (manometer) on each vertical pipe run that displays the negative pressure differential. Each vertical pipe run also has a warning device (audible alarm) to indicate that the system is not operating properly (i.e. - fan failure). In the event that the alarm is activated, applicable maintenance and repairs will be conducted as specified in the Operation and Maintenance Plan, and the affected portion of the VIMS will be restarted. Operational problems will be noted in the Periodic Review Report.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

Due to the Site location (not within a flood plain), Site features (flat, majority covered by hardscape with limited landscaped areas), municipal utilities (including storm sewer), and connection to an urban electrical grid, it has been determined that the site and engineering controls are not disproportionately vulnerable to severe storms/weather events and associated flooding.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

The quantification of the following green remediation items, in relation to the implementation and operation and maintenance of the selected remedy, are provided below:

- Cover System --- The cover system eliminates waste generation and accumulation at disposal facilities and emissions associated with transport and disposal.
- Waste Generation --- The remedial system does not generate waste.
- Energy usage --- Energy usage is limited to the operation of a limited number of Vapor Intrusion Mitigation System fans.
- Emissions --- Emissions are limited to Vapor Intrusion Mitigation System exhaust.
- Water usage --- The remedial system does not use water.
- Land and/or ecosystems --- Being in an urban downtown district, no land or ecosystems are negatively impacted by the remedial remedy.

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC project manager or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study will focus on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in Appendix H. These forms are subject to NYSDEC revision. All site management inspection, maintenance, and monitoring events will be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 7 and summarized in the Periodic Review Report.

Table 8: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Cover Inspection Form	Annually, or after severe weather conditions that may affect ECs or monitoring devices
VIMS Inspection Form	Monthly**
Periodic Review Report	Annually, or as otherwise determined by the NYSDEC

* *The frequency of events will be conducted as specified until otherwise approved by the NYSDEC project manager.*

** *Inspection forms will only be submitted to the NYSDEC when corrective measures are required. Otherwise, they will be included within the Periodic Review Report for the period in which they have been conducted.*

All monitoring/inspection reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Copies of all field forms completed;
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the NYSDEC project manager beginning sixteen (16) months after the Certificate of Completion or equivalent document (ex - Satisfactory Completion Letter) is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually to the NYSDEC project manager or at another frequency as may be required by the NYSDEC project manager. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix A - Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be 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 site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific Remedial Action Work Plan (RAWP), ROD or Decision Document;
    - The operation and the effectiveness of the cover and VIMS systems, 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;
    - An evaluation of trends in contaminant levels in the affected media to determine if the remedy continues to be effective in achieving remedial goals as specified by the RAWP, ROD or Decision Document; and
    - The overall performance and effectiveness of the remedy.
- A performance summary for the Vapor Intrusion Mitigation System at the site during the calendar year, including information such as:
    - The number of days the system operated for the reporting period;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A description of the resolution of performance problems;
    - Trends in equipment failure;

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a qualified environmental professional as defined in 6 NYCRR Part 375 or Professional Engineer licensed to practice and registered in New York State (depending on the engineering system) will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

"*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;*
- *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;*
- *Use of the site is compliant with the environmental easement;*
- *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 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/Remedial Party or Owner's/Remedial Party's Designated Site Representative]"*

The following Professional Engineering certification will also be added to the certification:

> *"I certify that the New York State Education Department has granted a Certificate of Authorization to provide Professional Engineering services to the firm that prepared this Periodic Review Report."*

Since the NYSDEC has determined that the Site does not represent a significant threat to public health or the environment, but contaminants in groundwater exceed drinking water standards, the following will also be included for both IC/EC and IC scenarios listed above:

- *No new information has come to my attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and*

Every five years, the following certification will be added:

- *The assumptions made in the qualitative exposure assessment remain valid.*

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

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager. The Periodic Review Report may also need to be submitted in hard-copy format if requested by the NYSDEC project manager.

7.3 Corrective Measures Work 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 or failure to conduct site management activities, a Corrective Measures Work Plan will be submitted to the NYSDEC project manager 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 Work Plan until it has been approved by the NYSDEC project manager.

8.0 REFERENCES

A listing of all site-specific reports utilized for preparation of the SMP is provided below:

- 6 NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.
- NYSDEC DER-10 – “Technical Guidance for Site Investigation and Remediation”.
- NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).
- Hazardous Materials Pre-Renovation Survey, Prepared by AECC, June 2019
- Phase I Environmental Site Assessment Report, prepared by EA Engineering P.C., July 2019
- Phase II Environmental Site Assessment for Smith Restaurant Supply Building, prepared by EA Engineering P.C. (and Its Affiliate EA Science & Technology), November 2019
- Remedial Investigation Report, prepared by AECC, October 2020
- Remedial Action Work Plan, prepared by AECC, November 2020
- Preliminary Draft Site Management Plan, prepared by AECC, November 2021

Tables

Table 2 Groundwater Elevations Smith Building July 30, 2020	
Monitoring Well ID (Location)	**Relative Groundwater Elevation**
MW-01 (East Lot)	85.85
MW-02 (East Lot)	85.22
MW-03 (East Lot)	85.26
MW-06 (North Lot)	85.38
MW-07 (North Lot)	85.25
MW-08 (North Lot)	83.32
MW-09 (Inside - Basement)	79.78
MW-10 (Inside – First Floor)	No groundwater present within well (dry)

TABLE 3

Summary of Analytical Data - Subsurface Soils Exceedances

Site Management Plan

The Smith Restaurant Building, City of Syracuse, Onondaga County, New York

Analyte	CAS Number	Units	Unrestricted Use SCO	Restricted Residential Use SCO	SB-01 (1-4) 7/13/20	SB-01 (4-7) 7/13/20	SB-02 (1-3) 7/13/20	SB-02 (3-7) 7/13/20	SB-03 (1-4) 7/13/20	SB-03 (15-18) 7/13/20	SB-06 (1-4) 7/14/20	SB-06 (10-13) 7/14/20	SB-07 (1-4) 7/14/20	SB-07 (5-8) 7/14/20	SB-08 (1-4) 7/14/20	SB-08 (10-12) 7/14/20	SB-D2 (SB-08 10-12) 7/14/20	SB-09 (3-7) 7/15/20	SB-10 (3-6.75) 7/15/20	SB-D3 (SB-10 3-6.75) 7/15/20	SB-10 (12-14) 7/15/20
					SB-01 (1-4) 9/24/19	SB-01 (4-7) 9/24/19	SB-02/FD-01 (1-3) 9/24/19	SB-02 (3-7) 9/24/19	SB-03 (1-4) 9/24/19	SB-03 (15-18) 9/24/19	SB-06 (1-4) 9/25/19	SB-06 (10-13) 9/25/19	SB-07 (1-4) 9/25/19	SB-07 (5-8) 9/25/19	SB-08/FD-02 (1-4) 9/25/19	SB-08 (10-12) 9/25/19					
Volatile Organic Compounds																					
Tetrachloroethene	127-18-4	ug/Kg	1300	19000	ND	ND	ND	ND	16	ND	ND	1 J	ND	ND	ND	120	NA	**3500**	23	6.0 J	NA
Trichloroethene	79-01-6	ug/Kg	470	21000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	**960**	ND	ND	NA
Semivolatile Organic Compounds																					
Benzo[a]anthracene	56-55-3	ug/Kg	1000	1000	ND	ND	300	63 J	430	ND	**1600 J**	99 J	**18000**	300 J	**3400 J**	**11000**	NA	ND	**30000**	**41000**	**11000**
Benzo[a]pyrene	50-32-8	ug/Kg	1000	1000	ND	ND	290	61 J	420	ND	**1600 J**	76 J	**18000**	280 J	**3300 J**	**11000**	NA	ND	**22000 Jv**	**33000 Jv**	**8800**
Benzo[b]fluoranthene	205-99-2	ug/Kg	1000	1000	ND	ND	320	75 J	510	ND	**2100**	96 J	**21000**	320 J	**4200 J**	**11000**	NA	ND	**25000 Jv**	**37000 Jv**	**9100**
Benzo[k]fluoranthene	207-08-9	ug/Kg	800	3900	ND	ND	140 J	32 J	230	ND	760 J	43 J	**8900**	180 J	**1700 J**	**6400**	NA	ND	**12000 Jv**	**19000 Jv**	**5900**
Chrysene	218-01-9	ug/Kg	1000	3900	ND	ND	300	61 J	450	ND	**1600 J**	87 J	**17000**	340 J	**2900 J**	**11000**	NA	ND	**24000**	**33000**	**9000**
Dibenz(a,h)anthracene	53-70-3	ug/Kg	330[e]	330[e]	ND	ND	ND	ND	100 J	ND	ND	ND	ND	ND	ND	ND	NA	ND	**3700 J**	**4900**	**1700 J**
Dibenzofuran	132-64-9	ug/Kg	7000	59000	ND	ND	ND	ND	ND	ND	ND	ND	1800 J	ND	ND	2300	NA	ND	**8200**	**8600**	1600 J
Indeno[1,2,3-cd]pyrene	193-39-5	ug/Kg	500	500	ND	ND	170 J	42 J	270 J	ND	**1300 J**	64 J	**11000**	220 J	**2000 J**	**4700**	NA	ND	**12000 Jv**	**18000 Jv**	**4300**
Phenanthrene	85-01-8	ug/Kg	100000	100000	ND	ND	110 J	ND	400	ND	970 J	95 J	30000	530 J	3600 J	31000	NA	ND	95000	**120000**	25000
Organochlorine Pesticides																					
4,4'-DDD	72-54-8	ug/Kg	3.3[e]	13000	ND	ND	0.89 J J+	ND	ND	ND	2.9 J	ND	ND	ND	~~38~~ R	ND	ND	ND	~~7.5~~ J R	NA	ND
4,4'-DDE	72-55-9	ug/Kg	3.3[e]	8900	0.68 J J+	ND	0.70 J	0.62 J	0.63 J J+	0.65 J J+	ND	3.1 J	0.71 J J+	ND	**6.1 J J+**	ND	ND	0.68 J	**4.1 J J-**	NA	ND
4,4'-DDT	50-29-3	ug/Kg	3.3[e]	7900	ND	ND	0.97 J J+	0.91 J J+	ND	ND	**4.8 J J+**	**5.4 J J+**	ND	0.81 J	**14 J J+**	ND	ND	ND	**18 J JN**	NA	**14 J JN**
Metals																					
Arsenic	7440-38-2	mg/Kg	13	16	9.9	9.3	3.7	4.5	2.9	3.8	11.9	5.5	9.9	9.0	7.5	**14.5**	NA	9.3	7.9	9.8	5.1
Barium	7440-39-3	mg/Kg	350	400	95.5	84.0	78.7	86.0 J	77.7	87.1	**372**	52.5	115 J	48.9	104	126	NA	42.9 F1 ^ J+	96.4 ^ J+	95.9 ^ J+	44.0 ^ J+
Copper	7440-50-8	mg/Kg	50	270	28.4	33.1	18.4	14.7	13.6	18.6	**332**	29.5	**115 J**	36.3	55.0	**531**	NA	16.6	**299 Jv**	**177 Jv**	31.7
Lead	7439-92-1	mg/Kg	63	400	16.2	17.6	20.4 J	13.7	17.2	5.1	**2850**	23.7	**504**	38.5	**362 J**	**490**	NA	7.1	**1080 Jv**	**252 Jv**	**82.1**
Nickel	7440-02-0	mg/Kg	30	310	**37.1**	22.2	24.2	26.2	23.5	13.8	**35.5**	19.8	28.2	26.0	27.9	**44.8**	NA	21.6	27.1	28.1	22.5
Selenium	7782-49-2	mg/Kg	3.9	180	1.2 J	0.83 J	ND	ND	0.95 J	ND	ND	1.0 J	ND	0.66 J	0.51 J	1.4 J	NA	0.93 J	**5.1**	**4.5 J**	1.2 J
Zinc	7440-66-6	mg/Kg	109	10000	100	47.6	70.2 J	60.5 J	69.8	25.7	**326**	43.3	**184**	55.1	**148**	**344**	NA	24.8 F1 J-	**132 J-**	108 J-	40.3 J-
Mercury																					
Mercury	7439-97-6	mg/Kg	0.18	0.81	**0.18**	0.036	0.049	0.040	**0.18**	0.017 J	**0.43**	0.041	**0.72**	0.031	**0.31**	**0.37**	NA	0.015 J	0.17	0.13	0.029

ND - Not Detected at the reporting limit (or MDL or EDL, if shown)

SCO - Soil Cleanup Objective per 6 NYCRR 375, Tables 375-6.8(a) and (b), or screening value per October 2020 "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs"

GWS - Groundwater effluent (Class GA) guidance value or standard per NYSDEC Technical and Operational Guidance Series (1.1.1), or screening value per October 2020 "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs"

NS - No SCO or GWS for this compound

NA - Sample not analyzed for this compound

Pink - *Data obtained from 2019 Phase II ESA prepared by EA Engineering, P.C.*

Thick-Lined Box + Bold - *Compound concentration exceeds the Unrestricted Use SCO or the applicable GWS guidance value*

Box + Bold + Shading - *Compound concentration exceeds the Restricted Residential Use SCO or the applicable GWS standard value*

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value

Jv - Analyte is present, but reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method (Qualifier added by Data Validator)

J- - Analyte is present. Reported value may be biased low and associated with a higher level of uncertainty than is normally expected with the analytical method.

J+ - Analyte is present. Reported value may be biased high and associated with a higher level of uncertainty than is normally expected with the analytical method.

N - Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.

^ - Instrument related QC is outside acceptance limits.

TABLE 4

Summary of Analytical Data - Groundwater

Site Management Plan

The Smith Restaurant Building, City of Syracuse, Onondaga County, New York

Analyte	CAS Number	Units	GWS	MW-01 7/17/2020	MW-02 7/17/2020	MW-03 7/17/2020	MW-06 7/17/2020	MW-07 7/17/2020	MW-08 7/17/2020	MW-09 7/17/2020	MW-D4 (MW-09) 7/17/2020
				TW-01 9/26/2019	TW-02 9/26/2020	TW-03 9/26/2020	TW-06 9/26/2020	TW-07 9/26/2019			
Volatile Organic Compounds											
Chloroform	67-66-3	ug/L	7	ND	1.8	1.4	**9.3**	**11**	ND	ND	ND
Tetrachloroethene	127-18-4	ug/L	5	ND	0.45 J	**7.6**	ND	ND	ND	2.7	2.6
Metals											
Aluminum	7429-90-5	mg/L	0.1	**6.8**	**0.4**	**0.11**	**8.8**	**0.56**	0.067 J B	ND	0.069 J B
Iron	7439-89-6	mg/L	0.3	**8.3**	**0.45**	0.14	**12.8**	**0.64**	**0.33 B**	ND	ND
Lead	7439-92-1	mg/L	0.025	0.0054 J	ND	ND	**0.110**	ND	ND	ND	ND
Magnesium	7439-95-4	mg/L	35	**71.9**	**57.5**	**39.9**	**41.2**	15.4	**162**	**113**	**109**
Manganese	7439-96-5	mg/L	0.3	**0.35**	0.041	0.025	**0.3**	0.015	**0.31 B**	0.20 B	0.19 B
Selenium	7782-49-2	mg/L	0.01	**0.039**	**0.013 J**	ND	ND	ND	ND	ND	ND
Sodium	7440-23-5	mg/L	20	**508**	**567**	**1080**	**190**	**191**	**2770 B**	**3210 B**	**3160 B**

ND - Not Detected at the reporting limit (or MDL or EDL, if shown)

GWS - Groundwater effluent (Class GA) guidance value or standard per NYSDEC Technical and Operational Guidance Series (1.1.1), or screening value per October 2020 "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs"

NS - No SCO or GWS for this compound

NG - No groundwater guidance value for this compound

Pink - *Data obtained from 2019 Phase II ESA prepared by EA Engineering, P.C.*

Thick-Lined Box + Bold - *Compound concentration exceeds the Unrestricted Use SCO or the applicable GWS guidance value*

Box + Bold + Shading - *Compound concentration exceeds the Restricted Residential Use SCO or the applicable GWS standard value*

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value

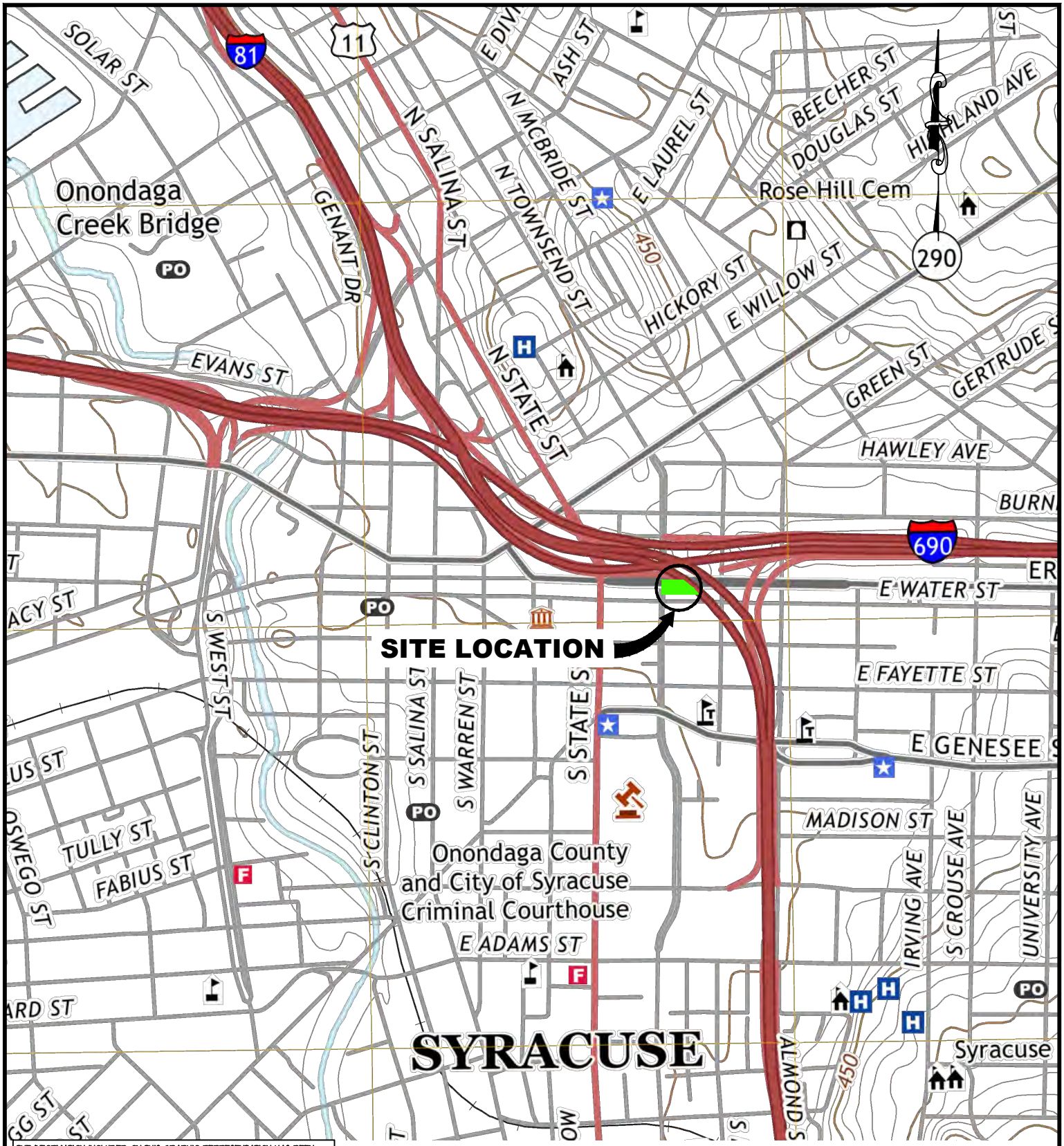
B - Analyte also detected in blank

Table 5 Soil Vapor Exceedances Site Management Plan Smith Building		
Compound	**SSG-01 9/26/2019**	**SSG-02 9/27/2019**
cis-1,2-Dichloroethene	34	54
Tetrachloroethene (PERC)	7,400	520
Trichloroethene (TCE)	350	70

Table Notes:
All units are in ug/m^3 (micrograms per cubic meter)

Although indoor air samples were not collected as part of the Phase II ESA, when evaluating the concentrations of sub-slab PERC and TCE, the NYSDOH matrices soil dictate that mitigation measures be implemented, regardless of indoor air concentrations.

Figures



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SOURCE: USGS SYRACUSE WEST QUADRANGLE, 7.5 SERIES. SYRACUSE WEST, NY 2019

0 1,000' 2,000'

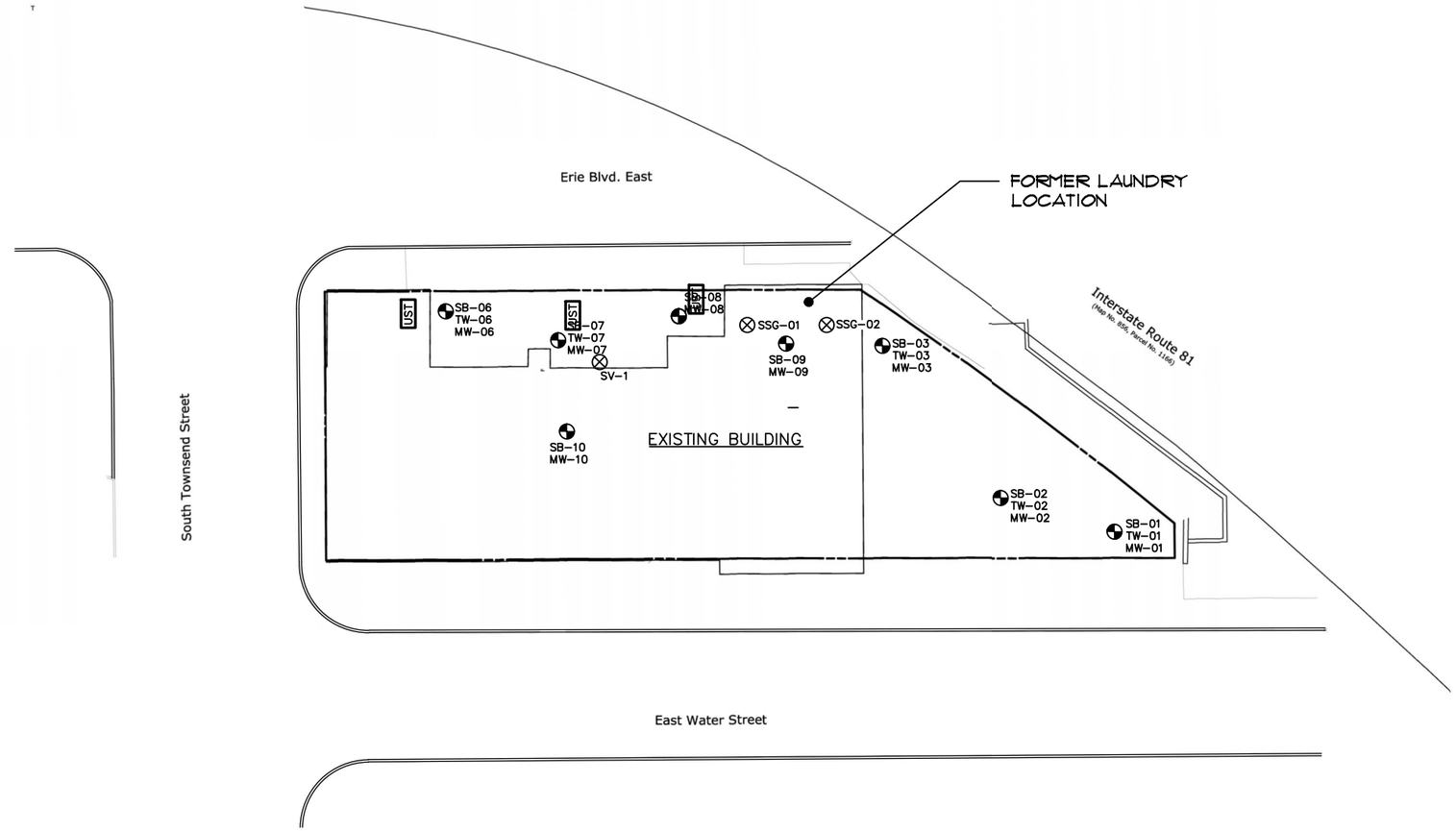
AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

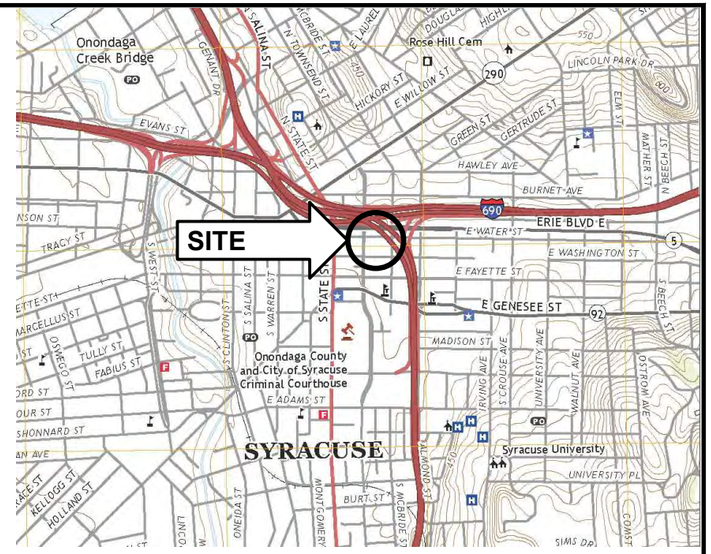
PROJECT NO.	20-032
DRAWN:	FEB 2020
DRAWN BY:	NP
CHECKED BY:	RM

SITE LOCATION PLAN

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
1





SITE LOCATION

LEGEND:

- APPROXIMATE PROPERTY LINE
- BORING / WELL LOCATION
- SOIL VAPOR POINT LOCATION
- UST — APPROXIMATE LOCATION OF HISTORIC UST (REMOVED)

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN DATED JULY 2019 .
2. ALL LOCATIONS ARE APPROXIMATE.

0 — 32'6"' — 75'

GRAPHIC SCALE

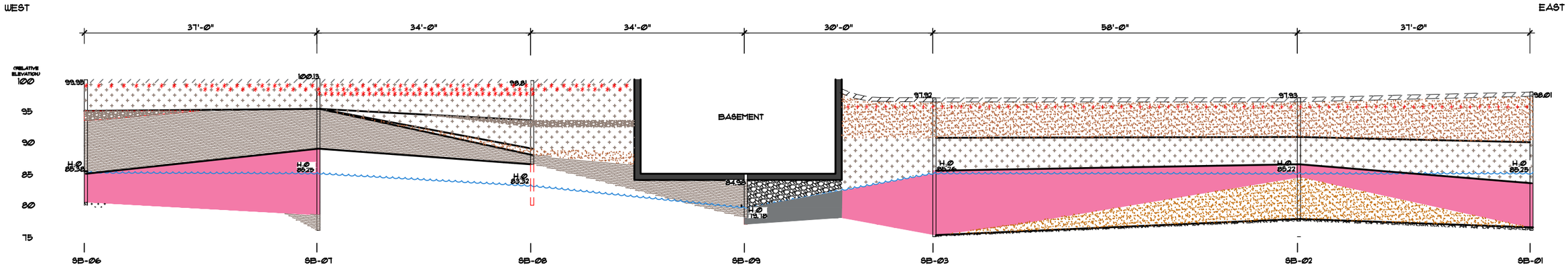
AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24
DRAWN: SEPT. 2020
DRAWN BY: NP
CHECKED BY: RM

Site and Sample Location Plan

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
2



LEGEND:

- ASPHALT / CONCRETE
- FINE SAND AND SILT (BROWN)
- SILT (RED OR REDDISH-BROWN)
- GRAVEL / ROCK FRAGMENTS
- MEDIUM-COARSE SAND (BROWN TO BROWNISH-GRAY), SOMETIMES W/TRACE GRAVEL
- MIX OF FINE GRAVEL, SAND (VARYING GRAIN SIZE), AND (SOMETIMES) SILT (GRAYISH-BROWN)
- ******* TRACE BRICK
- FINE GRAVEL / STONE (LIGHT GRAY) WITH SOME SAND (BROWN)
- SILTY-CLAY (GRAY)
- BUILDING FOUNDATION
- OBSERVED WATER LEVEL

AECC
ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24

DRAWN: SEPT. 2020

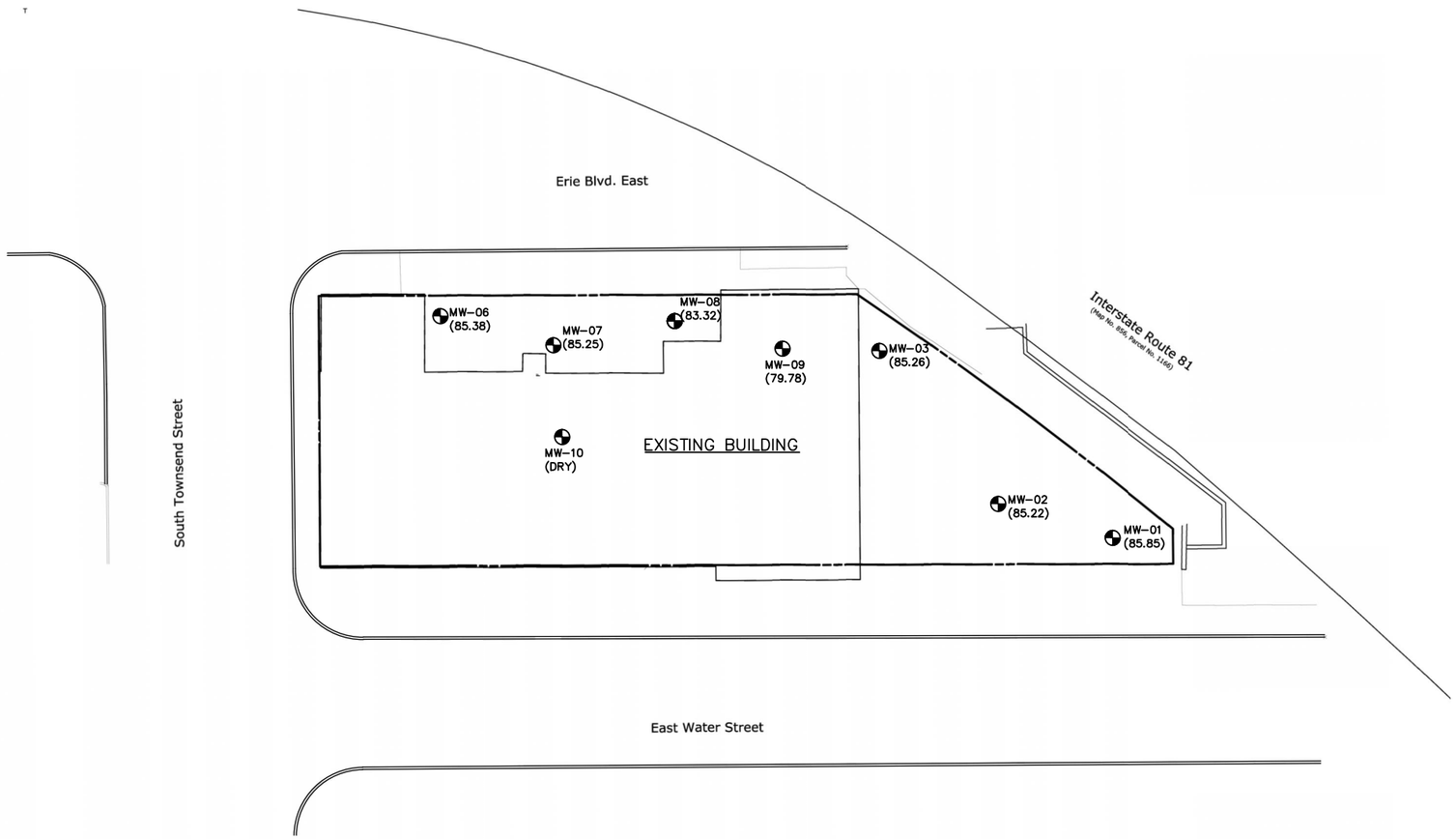
DRAWN BY: NP/DB

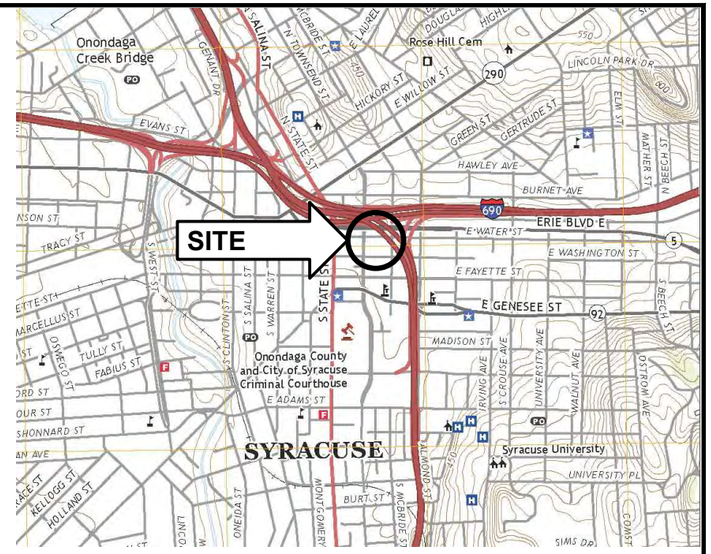
CHECKED BY: RM

Geological Cross-section

Smith Resturant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
3





SITE LOCATION

LEGEND:

APPROXIMATE PROPERTY LINE

BORING / WELL LOCATION
(RELATIVE GROUNDWATER DEPTH)

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN DATED JULY 2019 .
2. ALL LOCATIONS ARE APPROXIMATE.
3. RELATIVE DEPTH TO GROUNDWATER MEASURED JULY 30, 2020

0 32'6"' 75'

GRAPHIC SCALE

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24

DRAWN: AUG. 2020

DRAWN BY: NP

CHECKED BY: RM

Relative Groundwater Elevation Plan

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE

5

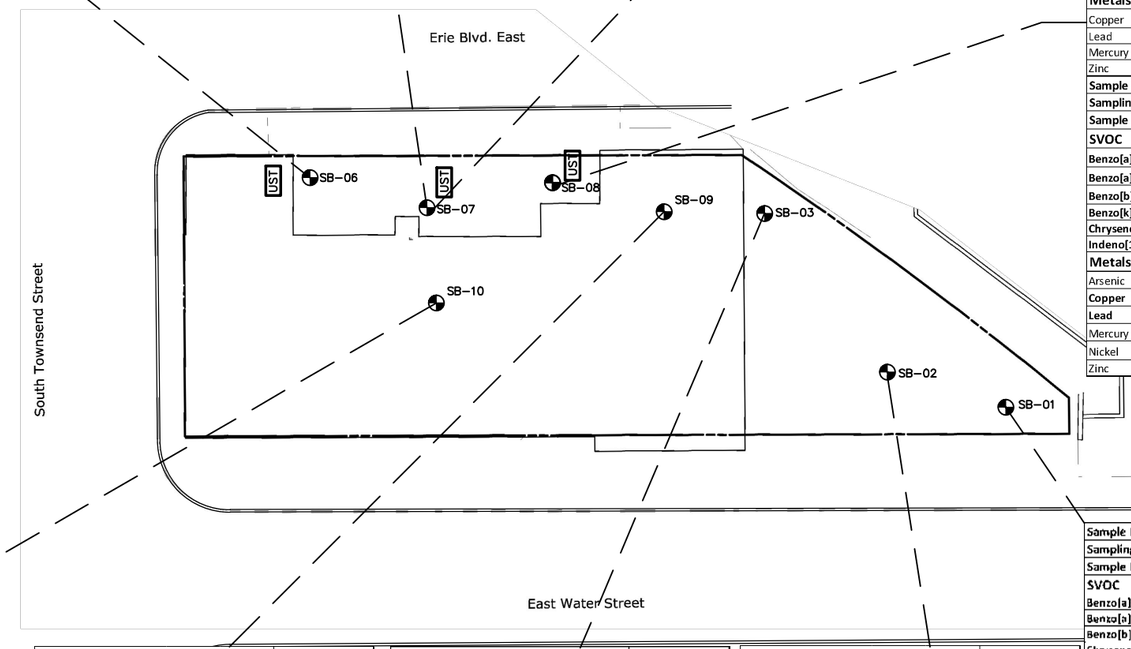
Sample ID / Location			SB-06-SS
Sampling Date			07/08/20
Sample Depth			0.5 - 1'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	3000
Benzo[a]pyrene	1000	1000	3600
Benzo[b]fluoranthene	1000	1000	4300
Benzo[k]fluoranthene	800	3900	2000
Chrysene	1000	3900	3000
Dibenz(a,h)anthracene	330[e]	330[e]	800 J
Indeno[1,2,3-cd]pyrene	500	500	2500
Pesticides	SCO	RRSCO	CONC (ug/Kg)
4,4'-DDD	3.3[c]	13000	12 J J+
Metals	SCO	RRSCO	CONC (mg/Kg)
Copper	50	270	79.1 Jv
Lead	63	400	125 Jv
Nickel	30	310	48.3 J-
Zinc	109	10000	154 Jv
Sample ID / Location			SB-06
Sampling Date - SVOC & Metals			09/25/19
Sampling Date - Pesticides			07/14/20
Sample Depth			1 - 4'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	1600 J
Benzo[a]pyrene	1000	1000	1600 J
Benzo[b]fluoranthene	1000	1000	2100
Chrysene	1000	3900	1600 J
Indeno[1,2,3-cd]pyrene	500	500	1300 J
Phenanthrene	100000	100000	970 J
Pesticides	SCO	RRSCO	CONC (ug/Kg)
4,4'-DDT	3.3[c]	7900	4.8 J J+
Metals	SCO	RRSCO	CONC (mg/Kg)
Barium	350	400	372
Copper	50	270	332
Lead	63	400	2850
Mercury	0.18	0.81	0.43
Nickel	30	310	35.5
Zinc	109	10000	326
Sample ID / Location			SB-06
Sampling Date - Pesticides			07/14/20
Sample Depth			10 - 13'
Pesticides	SCO	RRSCO	CONC (ug/Kg)
4,4'-DDT	3.3[c]	7900	5.4 J J+

Sample ID / Location			SB-10
Sampling Date			07/15/20
Sample Depth			3 - 6.75'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	41000
Benzo[a]pyrene	1000	1000	33000 Jv
Benzo[b]fluoranthene	1000	1000	37000 Jv
Benzo[g,h,i]perylene	100000	100000	20000 Jv
Benzo[k]fluoranthene	800	3900	19000 Jv
Chrysene	1000	3900	33000
Dibenz(a,h)anthracene	330[e]	330[e]	4900
Dibenzofuran	7000	59000	8600
Indeno[1,2,3-cd]pyrene	500	500	18000 Jv
Phenanthrene	100000	100000	120000
Pesticides	SCO	RRSCO	CONC (ug/Kg)
4,4'-DDD	3.3[c]	13000	~~7.5~~ J R
4,4'-DDE	3.3[c]	8900	4.1 J J-
4,4'-DDT	3.3[c]	7900	18 J JN
Metals	SCO	RRSCO	CONC (mg/Kg)
Copper	50	270	299 Jv
Lead	63	400	1080 Jv
Selenium	3.9	180	5.1
Zinc	109	10000	132 J-
Sample ID / Location			SB-10
Sampling Date			07/15/20
Sample Depth			12 - 14'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	11000
Benzo[a]pyrene	1000	1000	8800
Benzo[b]fluoranthene	1000	1000	9100
Benzo[k]fluoranthene	800	3900	5900
Chrysene	1000	3900	9000
Dibenz(a,h)anthracene	330[e]	330[e]	1700 J
Indeno[1,2,3-cd]pyrene	500	500	4300
Pesticides	SCO	RRSCO	CONC (ug/Kg)
4,4'-DDT	3.3[c]	7900	14 J JN
Metals	SCO	RRSCO	CONC (mg/Kg)
Lead	63	400	82.1

Sample ID / Location			SB-07-SS
Sampling Date			07/08/20
Sample Depth			0.5 - 1'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	17000 J
Benzo[a]pyrene	1000	1000	20000 J
Benzo[b]fluoranthene	1000	1000	21000 J
Benzo[k]fluoranthene	800	3900	8800 J
Chrysene	1000	3900	15000 J
Indeno[1,2,3-cd]pyrene	500	500	10000 J
Pesticides	SCO	RRSCO	CONC (ug/Kg)
4,4'-DDD	3.3[c]	13000	15 J J-
4,4'-DDT	3.3[c]	7900	37 J J+
Metals	SCO	RRSCO	CONC (mg/Kg)
Arsenic	13	16	25.3
Barium	350	400	1300 ^ Jv
Copper	50	270	226 Jv
Lead	63	400	468 Jv
Mercury	0.18	0.81	0.22
Nickel	30	310	37.0 J-
Zinc	109	10000	389 Jv

Sample ID / Location			SB-07
Sampling Date			09/25/19
Sample Depth			1 - 4'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	18000
Benzo[a]pyrene	1000	1000	18000
Benzo[b]fluoranthene	1000	1000	21000
Benzo[k]fluoranthene	800	3900	8900
Chrysene	1000	3900	17000
Indeno[1,2,3-cd]pyrene	500	500	11000
Metals	SCO	RRSCO	CONC (mg/Kg)
Lead	63	400	504
Mercury	0.18	0.81	0.72
Zinc	109	10000	184

Sample ID / Location			SB-08-SS
Sampling Date			07/08/20
Sample Depth			0.5 - 1'
Metals	SCO	RRSCO	CONC (mg/Kg)
Arsenic	13	16	32.7
Lead	63	400	133 Jv
Mercury	0.18	0.81	0.23
Sample ID / Location			SB-08
Sampling Date - SVOC & Metals			09/25/19
Sampling Date - Pesticides			07/14/20
Sample Depth			1 - 4'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	3400 J
Benzo[a]pyrene	1000	1000	3300 J
Benzo[b]fluoranthene	1000	1000	4200 J
Benzo[k]fluoranthene	800	3900	1700 J
Chrysene	1000	3900	2900 J
Indeno[1,2,3-cd]pyrene	500	500	2000 J
Pesticides	SCO	RRSCO	CONC (ug/Kg)
4,4'-DDD	3.3[c]	13000	38 R
4,4'-DDE	3.3[c]	8900	6.1 J J+
4,4'-DDT	3.3[c]	7900	14 J J+
Metals	SCO	RRSCO	CONC (mg/Kg)
Copper	50	270	55.0
Lead	63	400	362 J
Mercury	0.18	0.81	0.31
Zinc	109	10000	148
Sample ID / Location			SB-08
Sampling Date			09/25/19
Sample Depth			10 - 12'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	11000
Benzo[a]pyrene	1000	1000	11000
Benzo[b]fluoranthene	1000	1000	11000
Benzo[k]fluoranthene	800	3900	6400
Chrysene	1000	3900	11000
Indeno[1,2,3-cd]pyrene	500	500	4700
Metals	SCO	RRSCO	CONC (mg/Kg)
Arsenic	13	16	14.5
Copper	50	270	531
Lead	63	400	490
Mercury	0.18	0.81	0.37
Nickel	30	310	44.8
Zinc	109	10000	344



Sample ID / Location			SB-09
Sampling Date			07/15/20
Sample Depth			3 - 7'
VOC	SCO	RRSCO	CONC (ug/Kg)
Tetrachloroethene (PERC)	1300	19000	3500
Trichloroethene (TCE)	470	21000	960

Sample ID / Location			SB-03-SS
Sampling Date			07/08/20
Sample Depth			0.5 - 1'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	2000
Benzo[a]pyrene	1000	1000	1700 J
Benzo[b]fluoranthene	1000	1000	1800 J
Benzo[k]fluoranthene	800	3900	950 J
Chrysene	1000	3900	1700 J
Pesticides	SCO	RRSCO	CONC (ug/Kg)
4,4'-DDT	3.3[c]	7900	9.7 J J+
Metals	SCO	RRSCO	CONC (mg/Kg)
Arsenic	13	16	17.1
Copper	50	270	98.4 Jv
Lead	63	400	182 Jv
Zinc	109	10000	148 Jv
Sample ID / Location			SB-03
Sampling Date			09/24/19
Sample Depth			1 - 4'
Metals	SCO	RRSCO	CONC (mg/Kg)
Mercury	0.18	0.81	0.18

Sample ID / Location			SB-02-SS
Sampling Date			07/08/20
Sample Depth			0.5 - 1'
Metals	SCO	RRSCO	CONC (mg/Kg)
Arsenic	13	16	48.1
Copper	50	270	80.7 Jv
Lead	63	400	188 Jv
Selenium	3.9	180	4.9

Sample ID / Location			SB-01-SS
Sampling Date			07/08/20
Sample Depth			0.5 - 1'
SVOC	SCO	RRSCO	CONC (ug/Kg)
Benzo[a]anthracene	1000	1000	1000 J+
Benzo[a]pyrene	1000	1000	1200 J+
Benzo[b]fluoranthene	1000	1000	1500
Chrysene	1000	3900	1100 J+
Indeno[1,2,3-cd]pyrene	500	500	1000
Metals	SCO	RRSCO	CONC (mg/Kg)
Arsenic	13	16	275
Copper	50	270	121 Jv
Lead	63	400	329 Jv
Mercury	0.18	0.81	0.54
Selenium	3.9	180	9.2
Zinc	109	10000	156 Jv
Sample ID / Location			SB-01
Sampling Date			09/24/19
Sample Depth			1 - 4'
Metals	SCO	RRSCO	CONC (mg/Kg)
Mercury	0.18	0.81	0.18
Nickel	30	310	37.1

LEGEND:

APPROXIMATE PROPERTY LINE

SB-# SOIL BORING LOCATION AND ID

UST APPROXIMATE LOCATION OF HISTORIC UST

TABLE NOTES:

SCO - NYSDEC UNRESTRICTED USE SOIL CLEANUP OBJECTIVE

RRSCO - NYSDEC RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVE

J - ESTIMATED VALUE (THE CONCENTRATION IS GREATER THAN THE METHOD DETECTION LIMIT, BUT BELOW THE QUANTITATION LIMIT)

BOLD - CONCENTRATION EXCEEDS APPLICABLE RRSCO VALUE

Jv - ANALYTE IS PRESENT, BUT REPORTED VALUE MAY BE ASSOCIATED WITH A HIGHER LEVEL OF UNCERTAINTY THAT IS NORMALLY EXPECTED WITH THE ANALYTICAL METHOD (QUALIFIER ADDED BY DATA VALIDATOR

J- - ANALYTE IS PRESENT. REPORTED VALUE MAY BE BIASED LOW AND ASSOCIATED WITH A HIGHER LEVEL OF UNCERTAINTY THAN IS NORMALLY EXPECTED WITH THE ANALYTICAL METHOD.

J+ - ANALYTE IS PRESENT.REPORTED VALUE MAY BE BIASED HIGH AND ASSOCIATED WITH A HIGHER LEVEL OF UNCERTAINTY THAN IS NORMALLY EXPECTED WITH THE ANALYTICAL METHOD.

R - UNRELIABLE RESULT; DATA IS REJECTED OR UNUSABLE. ANALYTE MAY OR MAY NOT BE PRESENT IN THE SAMPLE. SUPPORTING DATA OR INFORMATION IS NECESSARY TO CONFIRM THE RESULT.

N - TENTATIVE IDENTIFICATION. ANALYTE IS CONSIDERED PRESENT. SPECIAL METHODS MAY BE NEEDED TO CONFIRM ITS PRESENCE OR ABSENCE DURING FUTURE SAMPLING EFFORTS

NOTES / DISCLAIMERS:

1. APPROXIMATE PROPERTY LINE BASED ON PROVIDED PROPERTY SURVEY (C.T. MALE ASSOCIATES, JUNE 2019)
2. ALL LOCATIONS ARE APPROXIMATE.

0 37'-6" 75'

GRAPHIC SCALE

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24
DRAWN: AUG. 2020
DRAWN BY: NP
CHECKED BY: RM

Summary of Analytical Exceedances In Soil

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE 6

Sample ID / Location		TW/MW-06
Sampling Date		09/26/19
VOC	AWQS (ug/L)	CONC (ug/L)
Chloroform	7	**9.3**
Metals	AWQS (mg/L)	CONC (mg/L)
Aluminum	0.1	**8.8**
Iron	0.3	**12.8**
Lead	0.025	**0.110**
Magnesium	35	**41.2**
Manganese	0.3	**0.3**
Sodium	20	**190**

Sample ID / Location		TW/MW-07
Sampling Date		09/26/19
VOC	AWQS (ug/L)	CONC (ug/L)
Chloroform	7	**11**
Metals	AWQS (mg/L)	CONC (mg/L)
Aluminum	0.1	**0.56**
Iron	0.3	**0.64**
Sodium	20	**191**

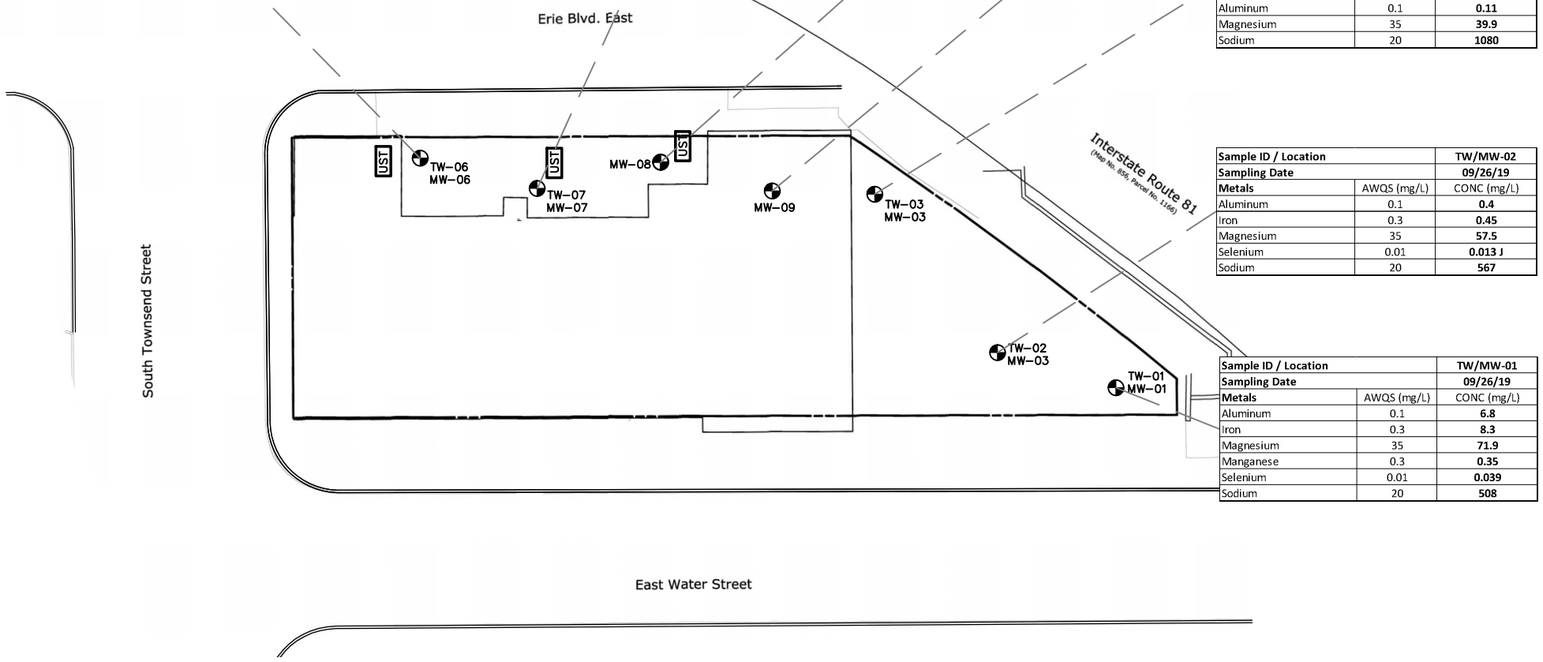
Sample ID / Location		MW-08
Sampling Date		07/17/20
Metals	AWQS (mg/L)	CONC (mg/L)
Iron	0.3	**0.33 B**
Magnesium	35	**162**
Manganese	0.3	**0.31 B**
Sodium	20	**2770 B**

Sample ID / Location		MW-09 / MW-D4
Sampling Date		07/17/20
Metals	AWQS (mg/L)	CONC (mg/L)
Magnesium	35	**113 / 109**
Sodium	20	**3210 B / 3160 B**

Sample ID / Location		TW/MW-03
Sampling Date		09/26/19
VOC	AWQS (ug/L)	CONC (ug/L)
Tetrachloroethene	5	**7.6**
Metals	AWQS (mg/L)	CONC (mg/L)
Aluminum	0.1	**0.11**
Magnesium	35	**39.9**
Sodium	20	**1080**

Sample ID / Location		TW/MW-02
Sampling Date		09/26/19
Metals	AWQS (mg/L)	CONC (mg/L)
Aluminum	0.1	**0.4**
Iron	0.3	**0.45**
Magnesium	35	**57.5**
Selenium	0.01	**0.013 J**
Sodium	20	**567**

Sample ID / Location		TW/MW-01
Sampling Date		09/26/19
Metals	AWQS (mg/L)	CONC (mg/L)
Aluminum	0.1	**6.8**
Iron	0.3	**8.3**
Magnesium	35	**71.9**
Manganese	0.3	**0.35**
Selenium	0.01	**0.039**
Sodium	20	**508**



LEGEND:

APPROXIMATE PROPERTY LINE

TW/MW-# GROUNDWATER MONITORING WELL LOCATION AND ID

UST APPROXIMATE LOCATION OF HISTORIC UST

TABLE NOTES:

AWQS - NYSDEC AMBIENT WATER QUALITY STANDARD OR GUIDANCE VALUE

J-ESTIMATED VALUE (THE CONCENTRATION IS GREATER THAN THE METHOD DETECTION LIMIT, BUT BELOW THE QUANTITATION LIMIT)

B- COMPOUND WAS FOUND IN THE BLANK SAMPLE

NOTES / DISCLAIMERS:

1. APPROXIMATE PROPERTY LINE BASED ON PROVIDED PROPERTY SURVEY (C.T. MALE ASSOCIATES, JUNE 2019)
2. ALL LOCATIONS ARE APPROXIMATE.

0 37'–6" 75'

GRAPHIC SCALE

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24
DRAWN: AUG. 2020
DRAWN BY: NP
CHECKED BY: RM

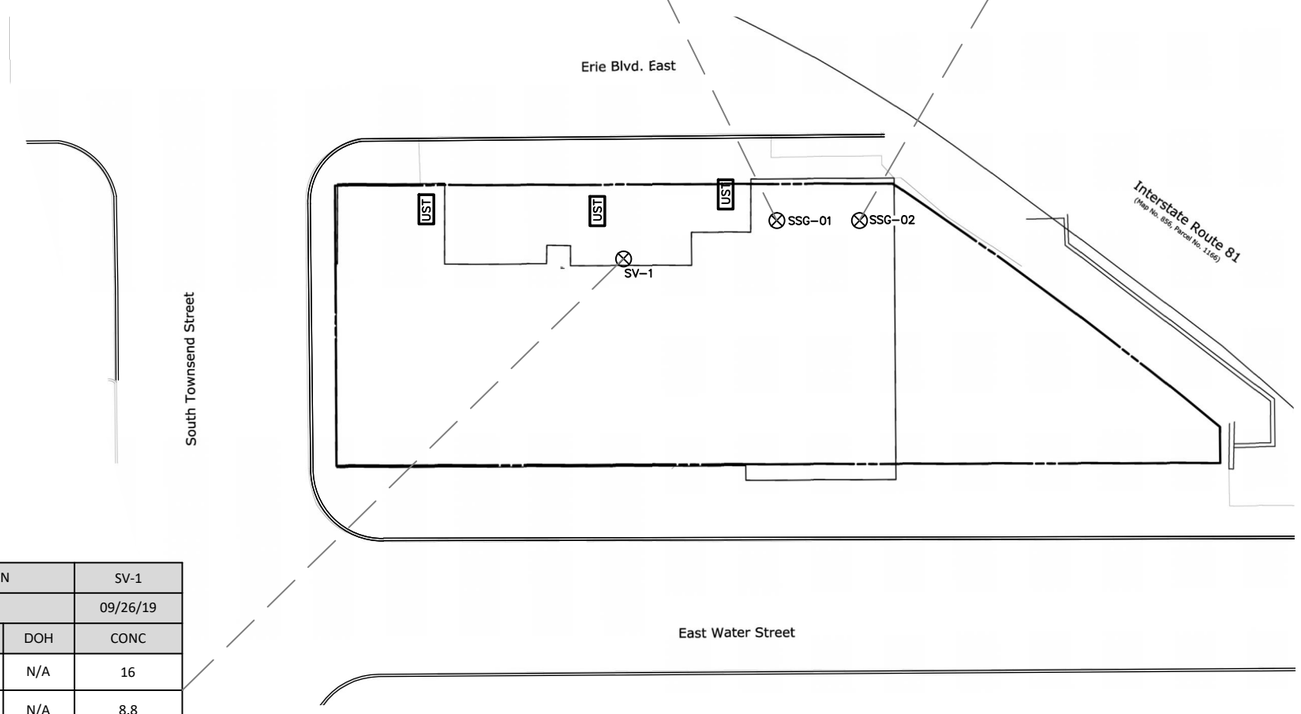
Summary of Analytical Exceedances In Groundwater

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
7

SAMPLE ID / LOCATION		SSG-01
SAMPLING DATE		09/26/19
VOC	DOH	CONC
cis-1,2 Dichloroethene	**6**	**34**
Tetrachloroethene (PCE / PERC)	**100**	**7,400**
Trichloroethene (TCE)	**6**	**350**
Chloroform	N/A	54

SAMPLE ID / LOCATION		SSG-02
SAMPLING DATE		09/27/19
VOC	DOH	CONC
cis-1,2 Dichloroethene	**6**	**54**
Tetrachloroethene (PCE / PERC)	**100**	**520**
Trichloroethene (TCE)	**6**	**70**
Chloroform	N/A	8.3



SAMPLE ID / LOCATION		SV-1
SAMPLING DATE		09/26/19
VOC	DOH	CONC
Benzene	N/A	16
Chloroform	N/A	8.8
Ethylbenzene	N/A	54
Naphthalene	N/A	3.2
Trichloroethene (TLE)	N/A	2.4 J
1,2,4 - Trimethylbenzene	N/A	11

LEGEND:

- APPROXIMATE PROPERTY LINE
- SSG-# — SUB-SLAB SOIL GAS SAMPLE LOCATION AND ID
- UST — APPROXIMATE LOCATION OF HISTORIC UST (REMOVED)

TABLE NOTES:

ALL SOIL GAS / VAPOR VALUES ARE REPORTED IN MICROGRAMS PER CUBIC METER (ug/m^3)

DOH - NOTE THAT SUB-SLAB SOIL GAS CONCENTRATION AT WHICH MITIGATION MAY BE DEPENDENT ON MEASURED CONCENTRATION OF INDOOR VAPORS.

BOLD - CONCENTRATION EXCEEDS APPLICABLE DOH VALUE

NOTES / DISCLAIMERS:

1. APPROXIMATE PROPERTY LINE BASED ON PROVIDED PROPERTY SURVEY (C.T. MALE ASSOCIATES, JUNE 2019)
2. ALL LOCATIONS ARE APPROXIMATE.
3. THE NYSDOH ONLY MAINTAINS STANDARDS FOR A LIMITED NUMBER OF COMPOUNDS

0 — 37'–6" — 75'

GRAPHIC SCALE

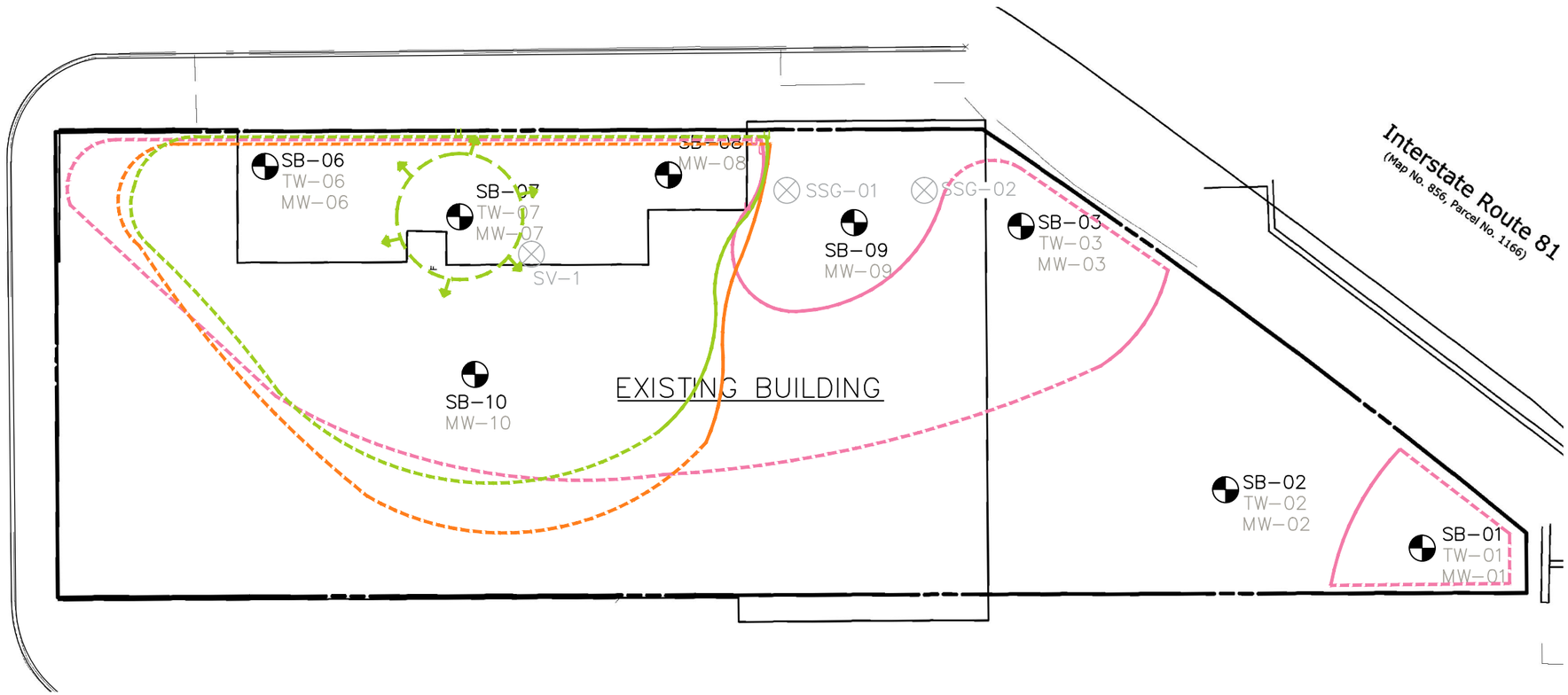
AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24
DRAWN: AUG. 2020
DRAWN BY: NP
CHECKED BY: RM

Summary of Analytical Exceedances In Soil Vapor

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
8



LEGEND:

- APPROXIMATE PROPERTY LINE
- BORING / SAMPLE LOCATION
- SB–## MW–## GRAY POINTS WITH NOTATION NOT SAMPLED.
- SOIL VAPOR POINT LOCATION
- ESTIMATED EXTENTS OF VOC (TCE, PERC) CONTAMINATION
- ESTIMATED EXTENTS OF VOC (CHLOROFORM) CONTAMINATION
- ESTIMATED EXTENTS OF SVOC (PAH) CONTAMINATION
- ESTIMATED EXTENTS OF PESTICIDE CONTAMINATION
- ESTIMATED EXTENTS OF METALS CONTAMINATION
- NOTE: IF CONTAMINANT GROUP IS NOT DEPICTED, IT DOES NOT EXCEED APPLICABLE SCO

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN DATED JULY 2019 .
2. WHERE DASHED, CONTAMINANT PLUMES EXTEND AN UNKNOWN DISTANCE
3. ALL LOCATIONS ARE APPROXIMATE.

0 20' 40'

GRAPHIC SCALE

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24

DRAWN: SEPT. 2020

DRAWN BY: NP

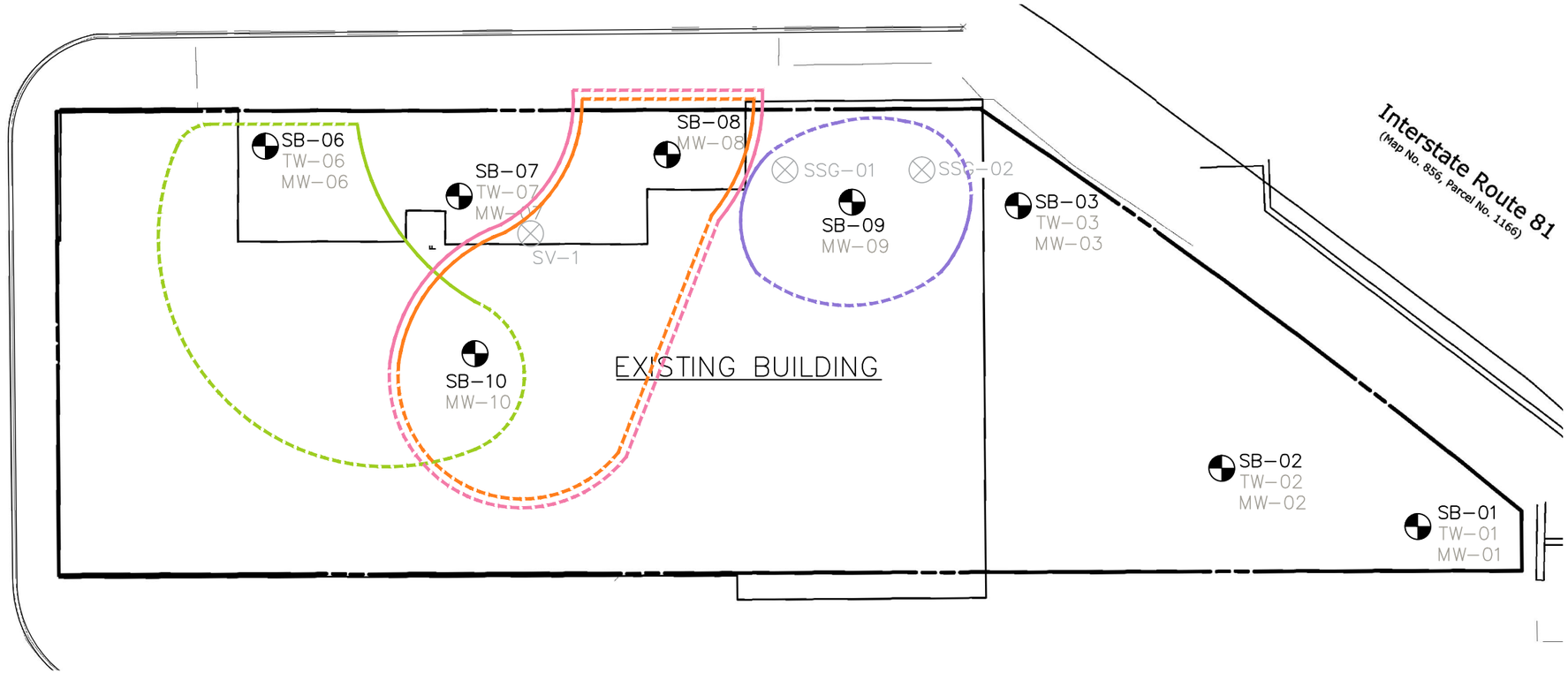
CHECKED BY: RM

Extents of Shallow SubSurface Soil Contamination in Excess of Unrestricted SCOs

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE

9



LEGEND:

- APPROXIMATE PROPERTY LINE
- BORING / SAMPLE LOCATION
- SB–## MW–## GRAY POINTS WITH NOTATION NOT SAMPLED.
- SOIL VAPOR POINT LOCATION
- ESTIMATED EXTENTS OF VOC (TCE, PERC) CONTAMINATION
- ESTIMATED EXTENTS OF VOC (CHLOROFORM) CONTAMINATION
- ESTIMATED EXTENTS OF SVOC (PAH) CONTAMINATION
- ESTIMATED EXTENTS OF PESTICIDE CONTAMINATION
- ESTIMATED EXTENTS OF METALS CONTAMINATION
- NOTE: IF CONTAMINANT GROUP IS NOT DEPICTED, IT DOES NOT EXCEED APPLICABLE SCO

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN DATED JULY 2019 .
2. WHERE DASHED, CONTAMINANT PLUMES EXTEND AN UNKNOWN DISTANCE
3. ALL LOCATIONS ARE APPROXIMATE.

0 20' 40'

GRAPHIC SCALE

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24

DRAWN: SEPT. 2020

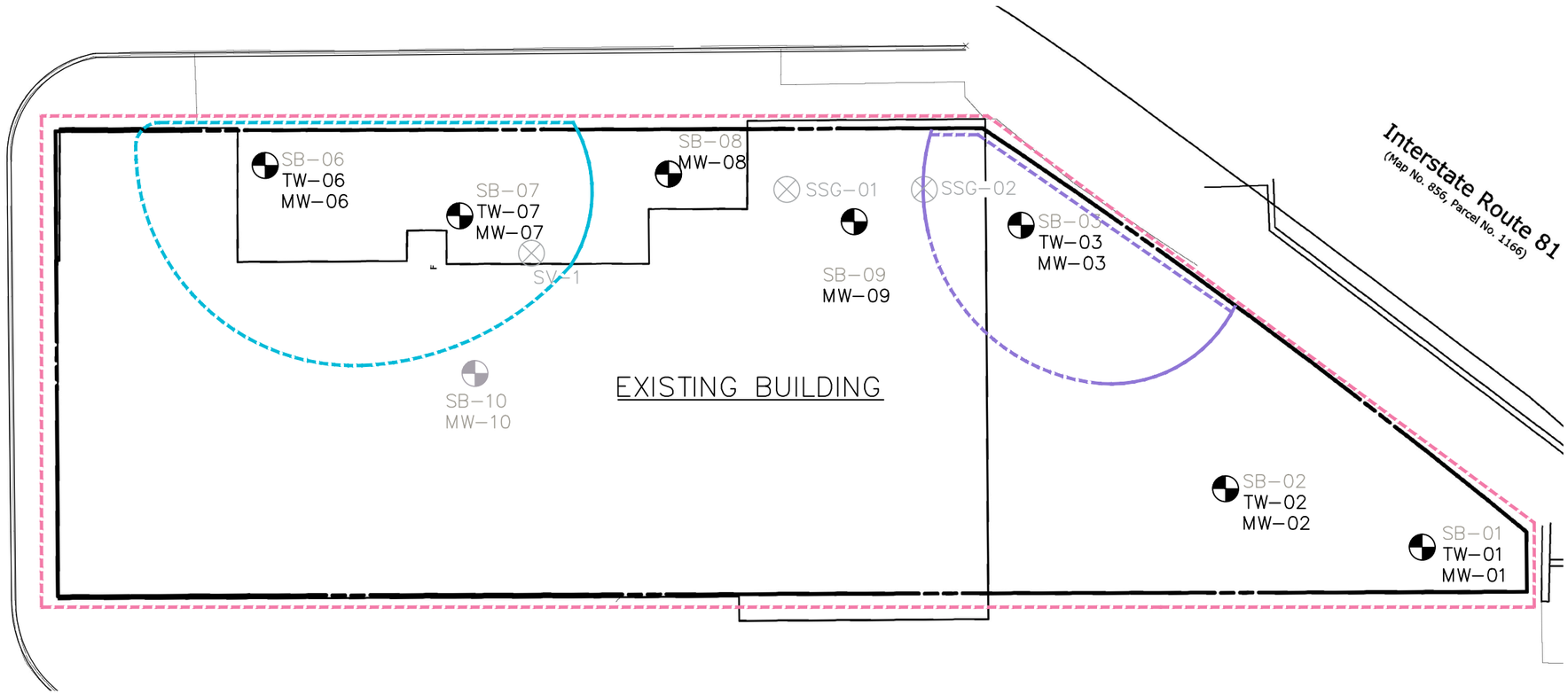
DRAWN BY: NP

CHECKED BY: RM

Extents of Deep SubSurface Contamination in Excess of Unrestricted SCOs

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
10



LEGEND:

- APPROXIMATE PROPERTY LINE
- BORING / SAMPLE LOCATION
- SB–## MW–## GRAY POINTS WITH NOTATION NOT SAMPLED.
- SOIL VAPOR POINT LOCATION
- ESTIMATED EXTENTS OF VOC (TCE) CONTAMINATION
- ESTIMATED EXTENTS OF VOC (CHLOROFORM) CONTAMINATION
- ESTIMATED EXTENTS OF SVOC (PAH) CONTAMINATION
- ESTIMATED EXTENTS OF PESTICIDE CONTAMINATION
- ESTIMATED EXTENTS OF METALS CONTAMINATION

NOTE: IF CONTAMINANT GROUP IS NOT DEPICTED, IT DOES NOT EXCEED APPLICABLE TOGS 1.1.1 STANDARD

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN DATED JULY 2019 .
2. WHERE DASHED, CONTAMINANT PLUMES EXTEND AN UNKNOWN DISTANCE
3. ALL LOCATIONS ARE APPROXIMATE.

0 20' 40'

GRAPHIC SCALE

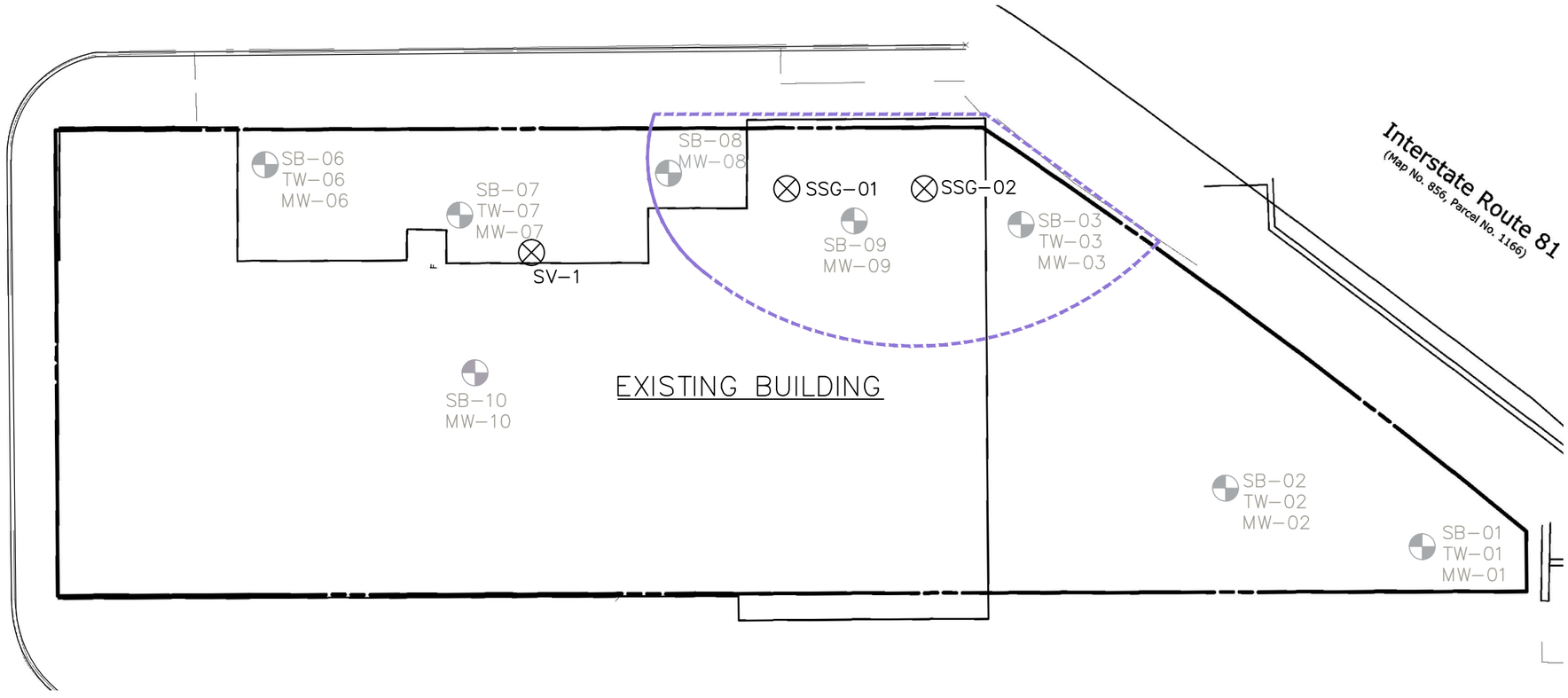
AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24
DRAWN: SEPT. 2020
DRAWN BY: NP
CHECKED BY: RM

Extents of Groundwater Contamination in Excess of TOGS 1.1.1 Standards

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
11



LEGEND:

- APPROXIMATE PROPERTY LINE
- BORING / SAMPLE LOCATION
- SB–## MW–## GRAY POINTS WITH NOTATION NOT SAMPLED.
- SOIL VAPOR POINT LOCATION
- ESTIMATED EXTENTS OF VOC (DCE, TCE, AND PERC) CONTAMINATION

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN DATED JULY 2019 .
2. WHERE DASHED, CONTAMINANT PLUMES EXTEND AN UNKNOWN DISTANCE
3. ALL LOCATIONS ARE APPROXIMATE.

0 20' 40'

GRAPHIC SCALE

AECC
ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.20-032-24

DRAWN: SEPT. 2020

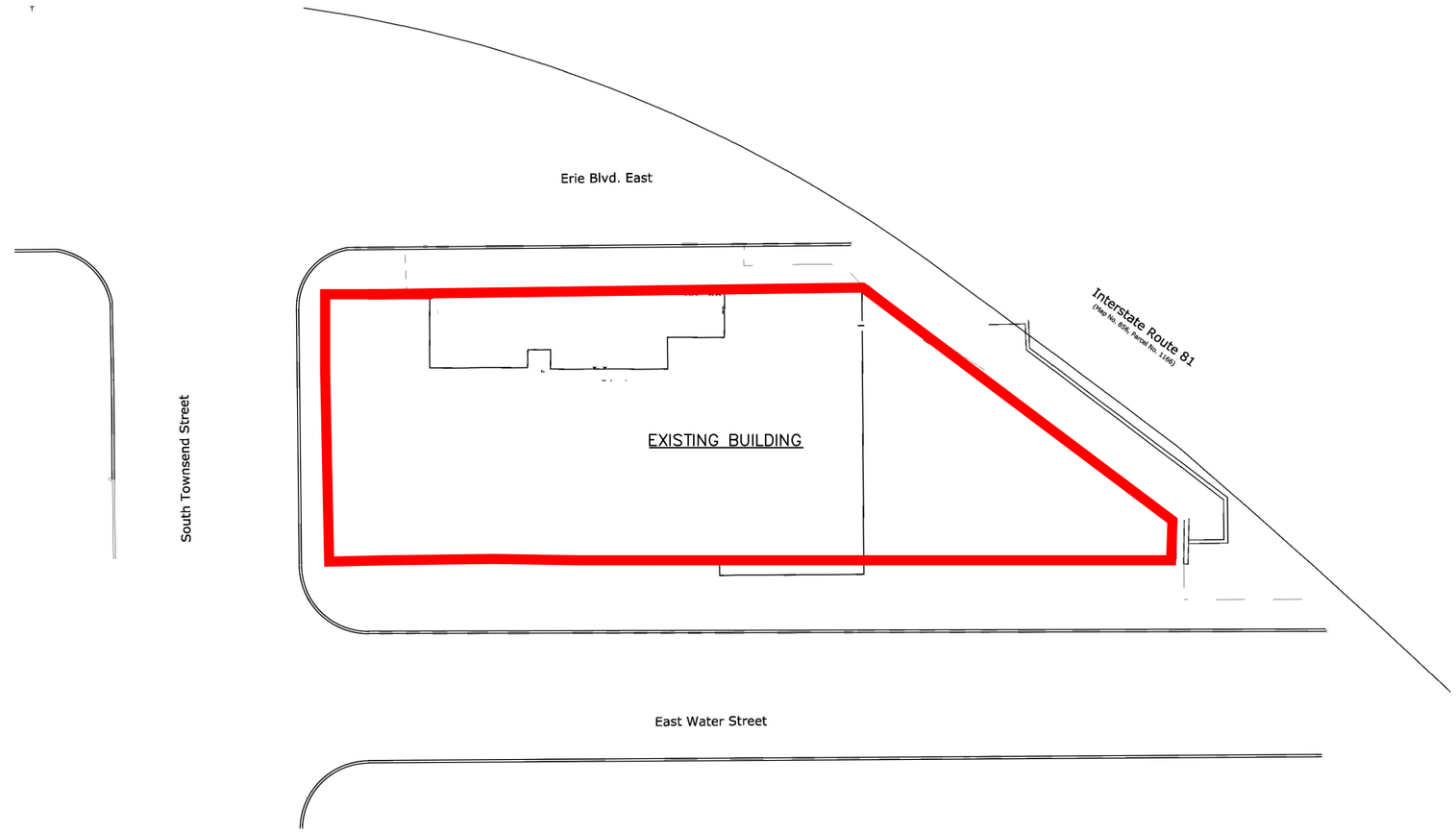
DRAWN BY: NP

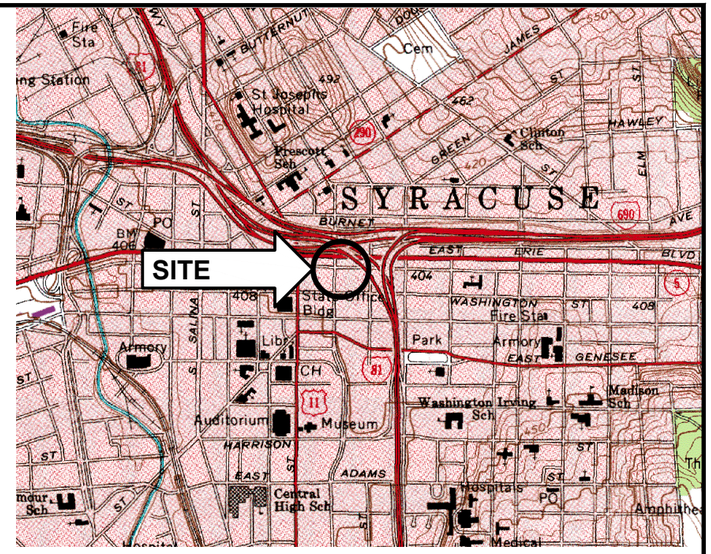
CHECKED BY: RM

Extents of Soil Vapor Contamination in Excess of NYSDOH Standards

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE 12





SITE LOCATION

LEGEND:

- APPROXIMATE PROPERTY LINE
- BORING / WELL LOCATION
- SOIL VAPOR POINT LOCATION
- IC Boundary

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN DATED JULY 2019 .
2. ALL LOCATIONS ARE APPROXIMATE.

0 32'6"' 75'

GRAPHIC SCALE

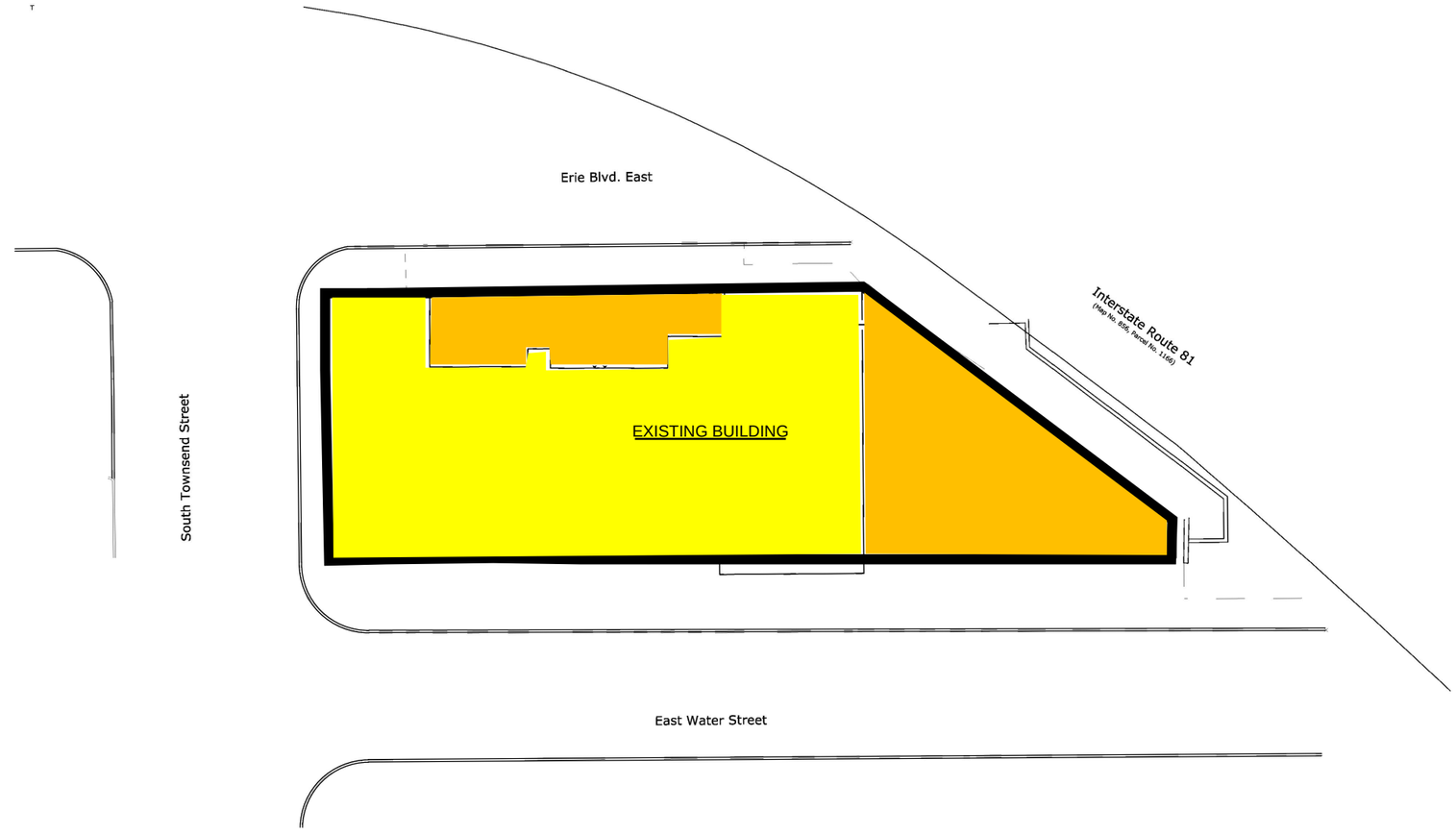
AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

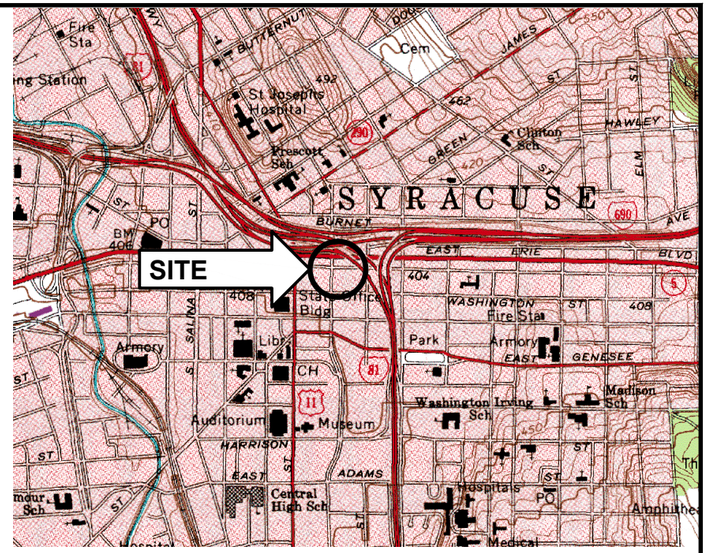
PROJECT NO. 20-032
DRAWN: FEB. 2020
DRAWN BY: NP
CHECKED BY: RW

Institutional Controls Boundaries

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
13





SITE LOCATION

LEGEND:

- APPROXIMATE PROPERTY LINE
- BORING / WELL LOCATION
- SOIL VAPOR POINT LOCATION
- Site Boundary

VIMS Extent

Cover System Extent

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN DATED JULY 2019 .
2. ALL LOCATIONS ARE APPROXIMATE.

0 32'6"' 75'

GRAPHIC SCALE

AECC
ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO. 20-032
DRAWN: FEB. 2020
DRAWN BY: NP
CHECKED BY: RW

Engineering Controls Locations

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
14

Appendix A

Environmental Easement

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this _____day of _____, 20__, between Owner, Smith Building, LLC, having an office at 225 Wilkinson Street, Syracuse, New York 13204 (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 500 Erie Boulevard East in the City of Syracuse, County of Onondaga and State of New York, known and designated on the tax map of the County Clerk of Onondaga as tax map parcel number: Section 103. Block 13 Lot 01, being the same as that property conveyed to Grantor by deed dated November 11, 2019 and recorded in the Onondaga County Clerk's Office in Instrument No. 2019-00044966. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.334 +/- acres, and is hereinafter more fully described in the Land Title Survey dated June 13, 2019 and last revised June 17, 2021 prepared by David M. Sliski, L.L.S. of C.T. Male Associates, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C734148-06-20, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Onondaga County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an

interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C734148
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Smith Building, LLC:

By: _____

Print Name: _____

Title:_____ Date:_____

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the _____ day of _____, in the year 20 __, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting by and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the _____ day of _____, in the year 20__, before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

SCHEDULE "A" PROPERTY DESCRIPTION

The Smith Restaurant Building
BCP Site No. C734148
Environmental Easement Description

All that tract or parcel of land situate in the City of Syracuse, County of Onondaga and State of New York, being part of City Block 49 and part of the former Erie Canal lands and being more particularly described as follows:

Beginning at a point in the northerly line of East Water Street at the intersection with the easterly line of South Townsend Street;

thence N.00°21'30"E., along the said easterly line of South Townsend Street; a distance of 73.80 feet to a point in the southerly line of Erie Boulevard East;

thence S.89°30'50"E., along the said southerly line of Erie Boulevard East, a distance of 147.08 feet to a point in the westerly line of Interstate Route 81;

thence southerly along the westerly line of Interstate Route 81, along a curve to the right having a radius of 1091.57 feet, length of 107.53 feet and chord of S.52°47'00"E., 107.48 feet to a point;

thence S.00°21'00"W., a distance of 9.52 feet to a point in the said northerly line of East Water Street;

thence N.89°30'50"W., along said northerly line of East Water Street, a distance of 233.08 feet to the point of beginning.

Containing approximately 0.334 acres more or less.

Appendix B

List of Site Contacts

LIST OF SITE CONTACTS

Name	**Contact Information**
Site Owner – Smith Building, LLC Matthew Paulus	(315) 416-9566 matthew@paulusdevelopment.com
Engineer of Record – NEU-VELLE, LLC Albert G. Lyons, Jr., P.E Richard McKenna	 (585) 797-6316; al@neu-velle.com (315) 432-9400; rmckenna@aeccgroup.com
NYSDEC Project Manager **NYSDEC Regional HW Engineer** Gary Priscott, P.G.	(315) 426-7524 gary.priscott@dec.ny.gov
NYSDEC Site Control Kelly Lewandowski, P.E.	(518) 402-9547 kelly.lewandowski@dec.ny.gov
NYSDOH Project Manager Stephanie Selmer	(518) 402-7860 stephanie.selmer@health.ny.gov

Appendix C

Boring Logs

AECC ENVIRONMENTAL CONSULTING

Soil Boring Log

Project #/Name:	20-032 / Smith Supply Building
Client:	Paulus Development
Site Location:	500 Erie Boulevard East, Syracuse, NY 13202
Boring Location:	Eastern Lot - East Corner, Coordinates TBD
Drilling Contractor:	NYEG
Drilling Method:	Direct-Push Geoprobe (Remote-Operated Drill Rig)
Sample Type(s):	5' Macrocore Disposable Liners
Monitoring Well	*Temporary/Permanent:* Perm (via HSA) *Diameter:* 2"
	Screened Interval: 9' 8.25" to 19' 8.25" *Riser Height:* 9' 8.25"

BORING ID: SB-01

Sheet:	1 of 1
Logged By:	DB
Boring Diameter:	2"
Rel Ground Elev:	98.04
Boring Depth:	15' / 20'*
DTW (Top of Riser)	11.99'
Date:	07/13/20
Time Start:	0838
Time Finish:	0928

Depth (ft)	GW Depth (ft)	Blow Count (per 6 inches)	Recovery (ft)	PID Response (ppmv)	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and geologic unit (if known)	Lab Sample ID (Depth)
1				0.0	~6" of Asphalt and concrete was previously removed by excavator on 7/8/2020 0 - 1' - Dark brown, coarse SAND and fine gravel, some red brick, dry	Sample **SS-01** (including **MS/MSD**)
2			3.75	0.0	1 - 3.75' - Brown, SILTY-FINE SAND, dry	Sample **SB-01 (1-4)**
3				0.0		
4						
5						
6				0.0	5 - 6' - Brown, medium-fine SAND, some coarse sand, some fine gravel, dry 6 - 8' - Brown, fine SAND, trace silt, moist	Sample **SB-01 (4-7)**
7			4.25	0.0		
8					8 - 9.25' - Brown, medium-coarse SAND, dry	
9				0.0		
10					10 - 12' - Brown w/some tan/gray, medium-coarse SAND, dry	
11				0.0		
12	▼		4.75		12 - 14.75' - Slight reddish-brown, SILT, wet	
13				0.0		
14						
15					*Direct-Push Geoprobe and Macrocore Sampling terminated at 15' bgs	
16					Hollow-Stem Auger (HSA) to 20' bgs occurred to allow for installation of groundwater monitoring well	
17						
18						
19						
20						

NOTES: No odors observed

bgs = below ground surface
▼ = observed water level

These soil boring logs were prepared in conjunction with an environmental investigation. The data represented shall not be used for any other purpose (ex - geotechnical assessment, etc.).

AECC ENVIRONMENTAL CONSULTING

Soil Boring Log

Project #/Name:	20-032 / Smith Supply Building
Client:	Paulus Development
Site Location:	500 Erie Boulevard East, Syracuse, NY 13202
Boring Location:	Eastern Lot - Center, Coordinates TBD
Drilling Contractor:	NYEG
Drilling Method:	Direct-Push Geoprobe (Remote-Operated Drill Rig)
Sample Type(s):	5' Macrocore Disposable Liners
Monitoring Well	*Temporary/Permanent:* Perm (via HSA) *Diameter:* 2"
	Screened Interval: 9' 3.75" to 19' 3.75" *Riser Height:* 9 '3.75"

BORING ID: SB-02

Sheet:	1 of 1
Logged By:	DB
Boring Diameter:	2"
Rel Ground Elev:	97.93
Boring Depth:	15' / 20'*
DTW (Top of Riser)	12.25'
Date:	07/13/20
Time Start:	0930
Time Finish:	1008

Depth (ft)	GW Depth (ft)	Blow Count (per 6 inches)	Recovery (ft)	PID Response (ppmv)	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and geologic unit (if known)	Lab Sample ID (Depth)
1				0.0	~6" of Asphalt and concrete was previously removed by excavator on 7/8/2020 0 - 1' - Dark brown, medium-coarse SAND and coars sand, some fine gravel, trace red brick, dry	Sample **SS-02**
2			3	0.0	1 - 1.25' - Black, coarse SAND, dry 1.25 - 3' - Light brown, medium-fine SAND, dry	Sample **SB-02 (1-3)**
3						
4						
5						
6				0.0	5 - 5.75' - Brown with dark brown, coarse SAND, some medium sand, dry	Sample **SB-02 (3-7)**
7			3.25		5.75 - 7' - Light brown, fine SAND, moist 7 - 8.25' - Light brown, medium-coarse SAND, trace fine gravel, dry	
8				0.0		
9						
10						
11				0.0	10 - 11.75' - Brown with some tan/gray, medium-coarse SAND, dry	
12	▼		3	0.0	11.75 - 13' - Slight reddish-brown, SILT, trace clay, wet	
13						
14						
15						
16					*Direct-Push Geoprobe and Macrocore Sampling terminated at 15' bgs 4" Direct-Push GeoProbe attempted but refusal at 16' bgs (for installation of groundwater monitoring well) Hollow-Stem Auger (HSA) to 20' bgs occurred to allow for installation of groundwater monitoring well	
17						
18						
19						
20						

NOTES: No odors observed

bgs = below ground surface
▼ = observed water level

These soil boring logs were prepared in conjunction with an environmental investigation. The data represented shall not be used for any other purpose (ex - geotechnical assessment, etc.).

AECC ENVIRONMENTAL CONSULTING

Soil Boring Log

Project #/Name:	20-032 / Smith Supply Building
Client:	Paulus Development
Site Location:	500 Erie Boulevard East, Syracuse, NY 13202
Boring Location:	Eastern Lot - NW Corner, Coordinates TBD
Drilling Contractor:	NYEG
Drilling Method:	Direct-Push Geoprobe (Remote-Operated Drill Rig)
Sample Type(s):	5' Macrocore Disposable Liners
Monitoring Well	*Temporary/Permanent:* Perm (via Geoprobe) *Diameter:* 2"
	Screened Interval: 10' to 20' *Riser Height:* 10'

BORING ID:

SB-03

Sheet:	1 of 1
Logged By:	DB
Boring Diameter:	2"
Rel Ground Elev:	97.92
Boring Depth:	20'
DTW (Top of Riser)	12.36'
Date:	07/13/20
Time Start:	1010
Time Finish:	1055

Depth (ft)	GW Depth (ft)	Blow Count (per 6 inches)	Recovery (ft)	PID Response (ppmv)	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and geologic unit (if known)	Lab Sample ID (Depth)
1				0.0	~6" of Asphalt and concrete was previously removed by excavator on 7/8/2020 0 - 0.75' - Brown with some gray, coarse SAND, trace red brick, dry	Sample **SS-03**
2			3.25	0.0	0.75 - 3.25' - Brown, fine SAND and silt, dry	Sample **SB-03 (1-4)**
3						
4						
5						
6				0.0	5 - 5.75' - Brown, medium SAND, some coarse sand, dry	
7			3.5	0.0	5.75 - 7.25' - Light brown, fine SAND and silt, moist	
8					7.25 - 8.5' - Light brown with some gray, medium-coarse SAND and coarse sand, trace fine gravel, dry	
9						
10						
11				0.0	10 - 10.75' - Light brown, medium-fine SAND, some coarse sand, moist	
12			3	0.0	10.75 - 11.75' - Light brown with some gray, medium-coarse SAND and coarse sand, trace fine gravel, dry 11.75 - 12.5' - Light brown, medium SAND and coarse sand, moist	
13	▼				12.5 - 13' - Reddish-brown, fine SAND, trace clay, wet	
14						
15						
16				0.0	15 - 15.75' - Brown with gray, coarse SAND, some fine gravel, wet	
17			4.75	0.0	15.75 - 17.25' - Reddish-brown with gray, fine SAND, wet 17.25 - 18.75' - Reddish-brown with gray, SILTY CLAY, wet	Sample **SB-03 (15-18)**
18				0.0		
19					18.75 - 19.75' - Reddish-brown with gray, medium SAND, trace silt, wet Stone fragment at bottom of macrocore liner	
20					Boring terminated at 20' bgs	

NOTES: No odors observed

bgs = below ground surface
▼ = observed water level

These soil boring logs were prepared in conjunction with an environmental investigation. The data represented shall not be used for any other purpose (ex - geotechnical assessment, etc.).

AECC ENVIRONMENTAL CONSULTING

Soil Boring Log

Project #/Name:	20-032 / Smith Supply Building
Client:	Paulus Development
Site Location:	500 Erie Boulevard East, Syracuse, NY 13202
Boring Location:	Northern Lot - West End, Coordinates TBD
Drilling Contractor:	NYEG
Drilling Method:	Direct-Push Geoprobe (Remote-Operated Drill Rig)
Sample Type(s):	5' Macrocore Disposable Liners
Monitoring Well	*Temporary/Permanent:* Perm (via HSA) *Diameter:* 2"
	Screened Interval: 9' 8.5" to 19' 8.5" *Riser Height:* 9' 8.5"

BORING ID:

SB-06

Sheet:	1 of 1
Logged By:	DB
Boring Diameter:	2"
Rel Ground Elev:	99.95
Boring Depth:	12.25' / 20'*
DTW (Top of Riser)	14.35'

Date:	07/14/20
Time Start:	1120
Time Finish:	1200

Depth (ft)	GW Depth (ft)	Blow Count (per 6 inches)	Recovery (ft)	PID Response (ppmv)	**MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and geologic unit (if known)**	Lab Sample ID (Depth)
1				0.0	~4-6" of Asphalt was previously removed by excavator on 7/8/2020	Sample **SS-06** and **SS-D1**
				0.0	0 - 1.25' - Dark brown, coarse SAND, some fine gravel, trace red brick, dry	
2			2.5	0.0	1.25 - 2.5' - Brown, medium-coarse SAND, some fine sand, trace silt, trace fine gravel, dry	Sample **SB-06 (1-4)**
3						
4						
5				0.0	5 - 6.75' - Light gray/white, STONE and gravel, some brown sand, dry	
6				0.0		
7			1.75			
8						
9						
10	▼			0.0	10 - 11.5' - Grayish-brown, SANDY-SILT, some coarse sand, wet	Sample **SB-06 (10-13)**
11			1.5			
12						
13					*Refusal at 12.25' bgs using Direct-Push Geoprobe	
14					Hollow-Stem Auger (HSA) to 20' bgs successfully occurred to allow for installation of groundwater monitoring well	
15						
16						
17						
18						
19						
20						

NOTES: No odors observed

bgs = below ground surface
▼ = observed water level

These soil boring logs were prepared in conjunction with an environmental investigation. The data represented shall not be used for any other purpose (ex - geotechnical assessment, etc.).

AECC ENVIRONMENTAL CONSULTING

Soil Boring Log

Project #/Name:	20-032 / Smith Supply Building
Client:	Paulus Development
Site Location:	500 Erie Boulevard East, Syracuse, NY 13202
Boring Location:	Northern Lot - Center, Coordinates TBD
Drilling Contractor:	NYEG
Drilling Method:	Direct-Push Geoprobe (Remote-Operated Drill Rig)
Sample Type(s):	5' Macrocore Disposable Liners
Monitoring Well	*Temporary/Permanent:* Perm (via HSA) *Diameter:* 2"
	Screened Interval: 9' 4" to 19' 4" *Riser Height:* 9' 4"

BORING ID:

SB-07

Sheet:	1 of 1
Logged By:	DB
Boring Diameter:	2"
Rel Ground Elev:	100.13
Boring Depth:	10' / 20'*
DTW (Top of Riser)	14.37'
Date:	07/14/20
Time Start:	1050
Time Finish:	1118

Depth (ft)	GW Depth (ft)	Blow Count (per 6 inches)	Recovery (ft)	PID Response (ppmv)	**MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and geologic unit (if known)**	Lab Sample ID (Depth)
1				0.0	~4-6" of Asphalt was previously removed by excavator on 7/8/2020 0 - 1.75' - Brown, medium SAND, some coarse sand, trace silt, moist	Sample **SS-07**
2			1.75	0.0		Sample **SB-07 (1-4)**
3						
4						
5					5 - 5.25' Brown, medium SAND, some coarse sand, trace silt, moist (appears to be slough from above)	
6				0.0	5.25 - 6' - Light brown, medium-fine SAND, dry	
7			3.5	0.0	6 - 8.5' - Light brown, medium-fine SAND, some medium sand, moist	Sample **SB-07 (5-8)**
8				0.0		
9						
10					*Direct-Push Geoprobe and Macrocore Sampling terminated at 10' bgs	
11					Hollow-Stem Auger (HSA) to 20' bgs occurred to allow for installation of groundwater monitoring well	
12						
13						
14						
15						
16						
17						
18						
19						
20						

NOTES: No odors observed

bgs = below ground surface
▼ = observed water level

These soil boring logs were prepared in conjunction with an environmental investigation. The data represented shall not be used for any other purpose (ex - geotechnical assessment, etc.).

AECC ENVIRONMENTAL CONSULTING

Soil Boring Log

Project #/Name:	20-032 / Smith Supply Building
Client:	Paulus Development
Site Location:	500 Erie Boulevard East, Syracuse, NY 13202
Boring Location:	Northern Lot - East End, Coordinates TBD
Drilling Contractor:	NYEG
Drilling Method:	Direct-Push Geoprobe (Remote-Operated Drill Rig)
Sample Type(s):	5' Macrocore Disposable Liners
Monitoring Well	*Temporary/Permanent:* Perm (via HSA) *Diameter:* 2"
	Screened Interval: 9' 3" to 19' 3" *Riser Height:* 9' 3"

BORING ID:

SB-08

Sheet:	1 of 1
Logged By:	DB
Boring Diameter:	2"
Rel Ground Elev:	99.81
Boring Depth:	15' / 20'*
DTW (Top of Riser)	17.92'
Date:	07/14/20
Time Start:	1005
Time Finish:	1048

Depth (ft)	GW Depth (ft)	Blow Count (per 6 inches)	Recovery (ft)	PID Response (ppmv)	**MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and geologic unit (if known)**	Lab Sample ID (Depth)
1				0.0	~4-6" of Asphalt was previously removed by excavator on 7/8/2020 0 - 0.5' - Gray, coarse SAND, some fine gravel	Sample **SS-08**
2			2	0.0	0.5 - 1' - Red, BRICK 1 - 2' - Gray with some brown, medium SAND and coarse sand, trace fine gravel, moist	Sample **SB-08 (1-4)**
3						
4						
5						
6				0.0	Poor Recovery 5 - 5.75' - Brownish-gray, coarse SAND and medium sand, moist	
7			1.25		5.75 - 6.25' - Gray, STONE/ROCK, some coarse sand, dry	
8						
9						
10						
11	▼			0.0	10 - 10.25' - Brown, coarse SAND, some medium sand, trace fine gravel, trace stone fragments, moist 10.25 - 10.5' - Brown, medium SAND, trace silt, moist	Samples **SB-08 (10-12)** and **SB-D2**
12			2.5	0.0	10.5 - 11.5' - Brown, medium SAND, some fine sand, trace silt, wet 11.5 - 12.5' - Brown with some light gray, medium-coarse SAND, trace fine gravel, wet	
13						
14						
15						
16					*Direct-Push Geoprobe and Macrocore Sampling terminated at 15' bgs Hollow-Stem Auger (HSA) to 20' bgs occurred to allow for installation of groundwater monitoring well	
17						
18						
19						
20						

bgs = below ground surface
▼ = observed water level

NOTES: No odors observed

These soil boring logs were prepared in conjunction with an environmental investigation. The data represented shall not be used for any other purpose (ex - geotechnical assessment, etc.).

AECC ENVIRONMENTAL CONSULTING

Soil Boring Log

Project #/Name:	20-032 / Smith Supply Building
Client:	Paulus Development
Site Location:	500 Erie Boulevard East, Syracuse, NY 13202
Boring Location:	Basement (NE Corner of Building)
Drilling Contractor:	NYEG
Drilling Method:	Direct-Push Geoprobe (Dollyl Rig)
Sample Type(s):	3' Macrocore Disposable Liners
Monitoring Well	*Temporary/Permanent:* Perm (via Geoprobe) *Diameter:* 1"
	Screened Interval: 2.27' to 7.27' *Riser Height:* 2.27'&

BORING ID: SB-09

Sheet:	1 of 1
Logged By:	DB
Boring Diameter:	2"
Rel Ground Elev:	84.98
Boring Depth:	~8' bgs
DTW (Top of Riser)	5.93'&
Date:	07/15/20
Time Start:	1050
Time Finish:	1150

Depth (ft)	GW Depth (ft)	Blow Count (per 6 inches)	Recovery (ft)	PID Response (ppmv)	**MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and geologic unit (if known)**	Lab Sample ID (Depth)
1			1.75	0.0*	6" Concrete slab core-drilled and removed 0 - 1.75' - Gray, coarse SAND, some fine gravel, dry	
2				0.0		
3						
4			2.5	0.0	3 - 5' - Gray, coarse SAND, some fine gravel, dry	Sample **SB-09 (3-7)** (including **MS/MSD**)
5				0.0	5 - 5.5' - Gray, coarse SAND and fine gravel, moist	
6						
7	▼		3^	0.0	6 - 7.25' - Gray, medium SAND, some silt, wet 7.25 - 8' - Gray, SILTY-CLAY, wet	
8				0.0		
9					Refusal at ~8' bgs	
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

bgs = below ground surface
▼ = observed water level

NOTES: No odors observed
* - 'Headspace' reading once concrete slab removed
^ - Excess recovery attributable to 'slough' (borehole collapsing in on itself during boring process)
& - Top of riser is 0.74' above the concrete slab

AECC ENVIRONMENTAL CONSULTING

Soil Boring Log

Project #/Name:	20-032 / Smith Supply Building
Client:	Paulus Development
Site Location:	500 Erie Boulevard East, Syracuse, NY 13202
Boring Location:	First Floor - Center of Building
Drilling Contractor:	NYEG
Drilling Method:	Direct-Push Geoprobe (Remote-Operated Drill Rig)
Sample Type(s):	5' Macrocore Disposable Liners
Monitoring Well	*Temporary/Permanent:* Temp; *Diameter:* 1"; *Screened Interval:* 8.97' to 13.97'; *Riser Height:* 8.97'

BORING ID: SB-10

Sheet:	1 of 1
Logged By:	DB
Boring Diameter:	2"
Rel Ground Elev:	
Boring Depth:	~15' bgs
DTW (Top of Riser)	Dry
Date:	07/15/20
Time Start:	1240
Time Finish:	1400

Depth (ft)	GW Depth (ft)	Blow Count (per 6 inches)	Recovery (ft)	PID Response (ppmv)	**MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and geologic unit (if known)**	Lab Sample ID (Depth)
1–3			1		2 layers of 3" wooden flooring with ~6" space between saw-cut / drilled and removed 0 - 1' - Dark gray with some black and brown, coarse SAND and fine gravel, dry	
3–6			1		3 - 4' - Dark brown, medium-coarse SAND, some fine gravel, dry **very little resistance encountered from ~4-5' bgs	Sample **SB-10 (3-6.75)** and **SB-D3**
6–9			3		6 - 6.75' - Dark brown, medium-coarse SAND, some fine gravel, dry 6.75 - 9' - Light brown, SILT and fine sand, moist	
9–12			0.75		9 - 9.75' - Light brown, medium-coarse SAND, some fine sand, dry ***thin layer of wetness observed at 9.25' bgs	
12–15			2.75		12 - 14.75' - Gray, coarse SAND and fine gravel, moist	Sample **SB-10 (12-14)**
15–20					Boring terminated at 15' bgs	

NOTES: No odors observed

bgs = below ground surface
▼ = observed water level

These soil boring logs were prepared in conjunction with an environmental investigation. The data represented shall not be used for any other purpose (ex - geotechnical assessment, etc.).

Appendix D

Excavation Work Plan

APPENDIX D – EXCAVATION WORK PLAN

D-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination or breach or alter the site's cover system, the site owner or their representative will notify the NYSDEC contacts listed in the table below. The table below includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix B.

TITLE / NAME	CONTACT INFORMATION
NYSDEC Project Manager **NYSDEC Regional HW Engineer** Gary Priscott, P.G.	(315) 426-7524 gary.priscott@dec.ny.gov
NYSDEC Site Control Kelly Lewandowski, P.E.	(518) 402-9547 kelly.lewandowski@dec.ny.gov
NYSDOH Project Manager Stephanie Selmer	(518) 402-7860 stephanie.selmer@health.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.
** Note: Numbers in this column reference the numbered bullets in the notification list in this section.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated, any modifications of truck routes, and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly 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;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix E of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with the required request to import form and all supporting documentation including, but not limited to, chemical testing results.

The NYSDEC project manager will review the notification and may impose additional requirements for the excavation that are not listed in this EWP.

APPENDIX D – EXCAVATION WORK PLAN

D-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed during all excavations into known or potentially contaminated material (remaining contamination) or a breach of the cover system. A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will perform the screening. Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections D-6 and D-7 of this Appendix.

D-3 SOIL STAGING 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 waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each 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 the NYSDEC.

D-4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. 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. A site utility stakeout will be completed for all utilities prior to any ground intrusive activities at the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. 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 off-site in an appropriate manner.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

APPENDIX D – EXCAVATION WORK PLAN

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. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials. Material accumulated from the street cleaning and egress cleaning activities will be disposed off-site at a permitted landfill facility in accordance with all applicable local, State, and Federal regulations.

D-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 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. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks loaded with site materials will exit the vicinity of the site using only approved truck routes which take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

D-6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed off-site in a permitted facility in accordance with all local, State and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC project manager. Unregulated off-site management of materials from this site will not occur without formal NYSDEC project manager approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, (e.g. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility) Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include, but will not be limited to: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled consistent with 6 NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6 NYCRR Subpart 360-15 registered or permitted facility).

APPENDIX D – EXCAVATION WORK PLAN

D-7 MATERIALS REUSE ON-SITE

The qualified environmental professional as defined in 6 NYCRR part 375 will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material (i.e. contaminated) does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Proposed materials for reuse on-site must be sampled for full suite analytical parameters including per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency. The analytical results of soil/fill material testing must meet the site use criteria presented in NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for all constituents listed, and the NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances [October 2020 or date of current version, whichever is later] guidance values. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Soil/fill material for reuse on-site will be segregated and staged as described in Sections D-2 and D-3 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC project manager. Stockpile locations will be based on the location of site excavation activities and proximity to nearby site features. Material reuse on-site will comply with requirements of NYSDEC DER-10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

D-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed off-site at a permitted facility 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, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

D-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Decision Document. The existing cover system is comprised of a minimum of 24 inches of clean soil, or hardscape materials such as asphalt pavement, concrete sidewalks, concrete building slabs, etc. The demarcation layer, consisting of orange geotextile or equivalent material will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt),

this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

D-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional, as defined in 6 NYCRR Part 375, and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review. A copy of the form is presented in Appendix J of the SMP.

Material from industrial sites, spill sites, other environmental remediation sites, or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and DER-10 Appendix 5 for Restricted Residential Use. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are the Restricted Residential Use RSCO listed in the table presented in 6 NYCRR 375-6.8(b). Soils that meet 'general' fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC project manager. Soil material will be sampled for the full suite of analytical parameters, including PFAS and 1, 4-dioxane. 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 and covered to prevent dust releases.

D-11 STORMWATER POLLUTION PREVENTION

Since the construction will not exceed 1 acre in size, a Storm Water Pollution Prevention Plan (SWPPP) that conforms to the requirements of NYSDEC Division of Water guidelines and NYS regulations in not necessary. However, the following "Best Management Practices" will be observed when appropriate:

Barriers and hay bale checks will be installed 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 the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

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.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. 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.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

APPENDIX D – EXCAVATION WORK PLAN

D-12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition. The NYSDEC project manager will be promptly notified of the discovery.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes [TAL metals, TCL volatiles and semi-volatiles (including 1,4-dioxane), TCL pesticides and PCBs, and PFAS], unless the site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone within two hours to NYSDEC's Project Manager. 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.

D-13 COMMUNITY AIR MONITORING PLAN

Prior to commencing excavation activities, the site Community Air Monitoring Plan provided in Appendix E The CAMP includes:

- Details of the perimeter air monitoring program;
- Action levels to be used;
- Air monitoring methods;
- Analytes measured and instrumentation to be used;
- A figure of the location(s) of all air monitoring instrumentation.

A figure showing the location of air sampling stations based on generally prevailing wind conditions is shown as an attachment to the CAMP. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

D-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors on-site and off-site. Specific odor control methods to be used on a routine basis will include covering odorous soils with polyethylene sheeting or similar tarp/cover material. 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. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles;

(b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

D-15 DUST CONTROL PLAN

Particulate monitoring must be conducted according to the Community Air Monitoring Plan (CAMP) provided in Appendix J. If particulate levels at the site exceed the thresholds listed in the CAMP or if airborne dust is observed on the site or leaving the site, the dust suppression techniques listed below will be employed. The remedial party will also take measures listed below to prevent dust production on the site.

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved using a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

D-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

Appendix E

Health and Safety Plan

HEALTH AND SAFETY PLAN

Site Management Plan
The Smith Restaurant Building
City of Syracuse, New York

EMERGENCY CONTACT NUMBERS	
Emergency Response Number	911
Poison Control Center	(800) 222-1222
State Police (North Syracuse)	(315) 455-2826
NEAREST HOSPITAL	
St. Joseph's Hospital 301 Prospect Avenue Syracuse, New York 13203	(315) 448-5111

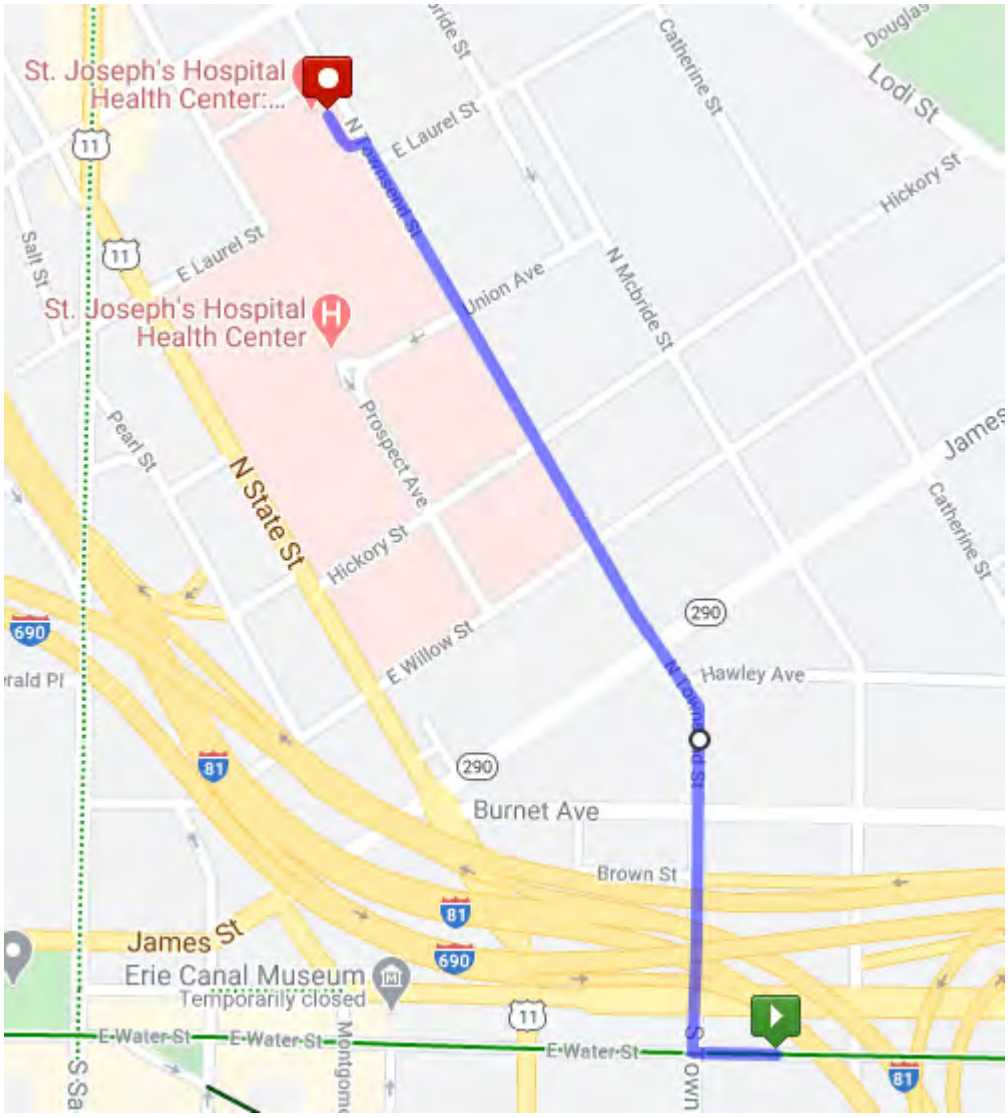
OWNER		
Smith Building, LLC (315) 481-1552	Owner Representative	Matthew Paulus: (315) 416-9566 (cell)
ENVIRONMENTAL CONSULTANT		
NEU-VELLE, LLC (585) 797-6316	Engineer-of-Record	Albert G. Lyons, Jr., P.E.
	Project Manager	Richard McKenna

December 2021

REVISION #	DATE	SUMMARY OF REVISION

Directions to Nearest Hospital (St. Joseph's Hospital; Distance ~0.6 miles; Time ~4 minutes)

1. Travel west on East Water Street
2. Right onto South Townsend Street (road becomes North Townsend Street after crossing Erie Boulevard)
3. In approximately 0.4 mile, continue straight on North Townsend Street. **DO NOT TURN LEFT ON UNION AVENUE TO MAIN HOSPITAL FACILITY**.
4. Approximately 0.1 mile after Union Avenue, St. Joseph's Hospital Emergency Room will be on left



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ATTACHMENTS

1.0 INTRODUCTION

A Brownfield Cleanup Program site investigation is being performed at the Site (See Figure 1) as a result of the detection of petroleum compounds, chlorinated solvents, metals, and pesticides in Site soils, groundwater, and soil vapor.

This project-specific Health and Safety Plan (HASP) sets forth requirements for maintaining the health and safety of workers at the Site. This HASP addresses general health and safety issues related to the presence of specific chemical and physical hazards that may be encountered during performance of the work activities at the Site. Contractors and Subcontractors are required to prepare and maintain their own project-specific HASP that incorporates the minimum requirements of this HASP.

An Emergency Response Plan is included at the end of this Plan, which presents the procedures to be followed in the event of an emergency situation.

2.0 GENERAL DEFINITIONS

The following definitions shall apply to and are used throughout the HASP:

Contamination Reduction Zone – Area between the Exclusion Zone and Support Zone that provides a transition between contaminated and clean areas. Decontamination stations are located in this zone.

Contractor – Any contractor responsible for performing work that will disturb contaminated Site soils or involve management of other contaminated waste streams such as decontamination residues.

Environmental Consultant – A consultant to the Owner that will specialize in the environmental aspects of the project, namely preparation and implementation of the Remedial Investigation Work Plan, collection of soil samples, collection of groundwater samples, oversight of contractor activities, and decontamination of equipment at the end of the project.

Exclusion Zone – Any portion of the Site where hazardous substances are present, or may reasonably be suspected to be present, in the air, water, or soil.

HSO – The Health & Safety Officer is a qualified professional designated by the Consultant who is responsible for the execution and maintenance of the HASP.

Monitoring – The use of field instrumentation to measure the levels of contaminants. Monitoring will be conducted, if deemed necessary (i.e., excessive airborne dust and particulates), to evaluate potential exposures to chemical and physical hazards.

On-site personnel – All consultant, contractor, and subcontractor personnel working at the Site.

PPE – Personal Protective Equipment; clothing / gear worn by personnel within the work area that is designed to reduce exposure to chemical and / or physical hazards.

Project – All on-site work performed at the Site involving potentially contaminated soil disturbance (i.e., investigations and potential interim remedial measures).

Site – The subject property where the disturbance of potentially contaminated soil may occur.

Subcontractor – All subcontractors to the Contractor hired to work on this project.

Support Zone – The remainder of the Site outside of the Contamination Reduction Zone and Exclusion Zone. Support equipment is located in this zone.

Visitor – All other personnel, excluding the on-site personnel.

3.0 RESPONSIBILITIES

Implementation of the HASP will be accomplished through an integrated team effort. The following key personnel will be involved with this project:

OWNER		
Smith Building, LLC (315) 481-1552	Owner Representative	Matthew Paulus: (315) 416-9566 (cell)
ENVIRONMENTAL CONSULTANTS		
NEU-VELLE, LLC (585) 797-6316	Engineer-of-Record	Albert G. Lyons, Jr., P.E.
	Project Manager	Richard McKenna
SITE CONTRACTOR		
TBD	HSO	TBD
	Supervisor	TBD
	Operator	TBD
GOVERNMENTAL AGENCIES		
NYS Department of Environmental Conservation (NYSDEC) (315) 426-7524		Gary Priscott
NYS Department of Health (NYSDOH) (518) 402-7860		Stephanie Selmer
Onondaga County Health Department (315) 435-3252		TBD

This HASP will be periodically reviewed by all parties during the project to verify that it is in accordance with the operations conducted at the Site. Changes in Site conditions or changes in the work tasks at the Site will necessitate a review and modification of the HASP. The Contractor's HSO shall contact the Environmental Consultant if site conditions change that warrant modifications to the HASP, and vise versa. Changes, modifications, and amendments to the HASP will be made in the form of addenda, and will be attached to the HASP.

All parties to the project will perform their duties in a manner consistent with generally accepted practices, and will be responsible for the following (of their own employees) during the project:

- Verification that medical examinations and training requirements for all personnel are current
- Reviewing the HASP with all on-site personnel
- Implementation and maintenance of the HASP
- Providing all on-site personnel with proper PPE
- Compliance with applicable state and federal health and safety standards

The HSO for this project is designated with the following responsibilities:

- Maintain a daily log book for recording all significant health and safety activities
- Have authority to suspend work due to health or safety-related concerns
- Provide on-site technical assistance and conduct health and safety briefings at the Site

- Verify that first aid kits, eye wash kits, and fire extinguishers are at the Site
- Verify that on-site personnel have received the necessary training and physical examinations
- Verify that on-site personnel have been provided with and are using the required PPE
- Review of the adequacy of the HASP and amend the HASP as necessary during the project
- Prepare addenda to the HASP and maintain required documents for recordkeeping purposes

4.0 SITE HAZARDS EVALUATION

4.1 CHEMICAL HAZARDS

The Site soils and groundwater have been sampled and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, herbicides, and perfluorinated compounds (PFCs), and asbestos. In addition, soil vapor has been sampled and analyzed for VOCs; and suspect asbestos-containing building materials (ACBMs) and lead-based paints (LBPs) have been sampled and analyzed. The associated laboratory analysis and on-site observations revealed that the following chemicals / materials of concern exist at the Site:

Soil / Groundwater

- Petroleum compounds (VOCs and SVOCs)
- Chlorinated solvents (primarily Tetrachloroethene [PCE, Perc], Trichloroethene [TCE], and chloroform)
- Metals (primarily arsenic and lead)
- Pesticides (primarily DDT and DDD)

Building Components and Miscellaneous Materials

- Asbestos (limited areas)
- Lead-Based Paint
- PCB-containing caulks (2 areas, low concentrations [~1 ppm])
- Miscellaneous materials (fluorescent light tubes/ballasts, automotive products, etc.)

Applicable fact sheets and Safety Data Sheets are presented in Appendix A. For details regarding hazardous building components, refer to the Hazardous Materials Survey provided under separate cover.

Except for possible lead-based paints, concentrations of identified contaminants are not above the threshold for hazardous (TSCA) waste.

The contaminants at the Site may enter the human body in a variety of ways. The chemical routes of exposure anticipated from the remedial activities at this Site include:

Absorption - Dermal (skin) contact with impacted soil on-site resulting in absorption of chemicals of concern through the skin and into the blood stream. Proper use of PPE as specified later in this Plan will minimize risks of exposure at the Site.

Ingestion - Chemicals / materials of concern can come in direct contact with the mouth from soil or other contaminated areas (PPE, skin, tools, etc.) and enter the bloodstream through the stomach lining. Proper care in handling PPE and tools, refraining from eating and drinking at the Site, and frequent hand washing with soap and water will minimize risks of exposure.

Inhalation – Volatile vapors and/or contaminants attached to dust and particulates can be entrained by wind and become airborne across the Site and be subsequently inhaled through the nose and / or mouth. This exposure route is the most likely way for worker exposure to occur. The Contractor shall employ methods that minimize the creation of dust and utilize dust suppression techniques to minimize

dust and particulates. Respirators with appropriate organic cartridges should be available to on-site workers in case volatile compounds become a nuisance or health hazard. The Contractor is responsible for any personal air monitoring of employees, as deemed necessary.

4.2 PHYSICAL HAZARDS

Based upon the anticipated field activities, the following potential hazardous conditions may exist:

- The use of typical mechanical equipment such as drill rigs and sampling vehicles can create a potential for crushing and pinching hazards due to movement and positioning of the equipment, movement of lever arms and hydraulics, and entanglement of clothing and appendages in exposed drives and tracks. Mechanical equipment can also create a potential for impact of steel tools, masts, and cables should equipment rigging fail, or other structural failures occur during hydraulic equipment operation. Heavy equipment work must be conducted only by trained, experienced personnel. If possible, personnel must remain outside the turning radius of large, moving equipment. At a minimum, personnel must maintain visual contact with the equipment operator. When not operational, equipment must be set and locked so that it cannot be activated, released, dropped, etc. The mechanical equipment stated above represents typical equipment that is ordinarily used during this scope of work, but is not meant to be an all-inclusive list. Similar precautions should be used around other mechanical equipment deployed to the Site that is not listed above.

- The contractor is responsible for ensuring compliance with OSHA's construction standard for excavations (29 CFR 1926 Subpart P), and for designating the Competent Person responsible for selecting and implementing the appropriate protective system(s), assuring appropriate means of access and egress for excavations greater than four (4) feet in depth, and for ensuring that potential atmospheric and physical hazards associated with any excavation / trenching activities are completed in accordance with Subpart P and other applicable OSHA Standards as applicable.

- Work around large equipment often creates excessive noise. Noise can cause workers to be startled, annoyed, or distracted; cause pain, physical damage to the ear, and temporary and / or permanent hearing loss; and can interfere with communication. If workers are subjected to noise exceeding an 8-hour time-weighted average sound level of 85 dBA, hearing protection will be required with an appropriate noise reduction rating to comply with 29 CFR 1910.95 and to reduce noise levels below levels of concern.

- Personnel may be injured during physical lifting and handling of heavy equipment, construction materials, or containers.

- Personnel may encounter slip, trip, and fall hazards associated with excavations, manways, and construction debris and materials. Precautionary measures should be taken by identifying and removing slip, trip, and fall hazards prior to commencing work. In the event slip, trip, and fall hazards cannot be removed or minimized, site workers will be shown the location of the physical hazard and be asked to avoid it during work activities.

- The potential for fire and / or explosion emergencies is always present on the Site. Field vehicles will be equipped with a fire extinguisher. Employees must be trained in the proper use of fire suppression equipment. However, large fires that cannot be controlled with a fire extinguisher shall be handled by professionals. The proper authorities shall be notified in these instances.

- Persons working outdoors in temperatures at or below freezing may be subject to frostbite. Extreme cold for a short time may cause injury to exposed body surfaces or result in a profound generalized cooling which can cause death. Areas of the body such as fingers, toes, and ears, are the most susceptible to cold stress. Ambient air temperature and wind velocity are two factors which influence the development of a cold weather injury. Local injury resulting from exposure to cold temperatures is known as "frostbite." There are several degrees of damage in which frostbite of the extremities can be categorized, as follows:
    - Frost nip or incipient frostbite is characterized by sudden bleaching or whitening of the skin.
    - Superficial frostbite occurs when the skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
    - Deep frostbite is characterized by tissues that are cold, pale, and solid; this is an extremely serious injury.

- Heat stress is another potential hazard condition that may arise. Heat stress can result from a number of contributing factors, including environmental conditions, clothing, and workload as well as the physical condition of the individual. Since heat stress is one of the most common injuries / symptoms associated with outdoor work conducted with direct solar load, and, in particular, because wearing PPE can increase the risk of developing heat stress, workers must be capable of recognizing the signs and symptoms of heat-related illnesses. Signs and symptoms of heat-related illnesses which all on-site personnel should be aware, include the following:
    - Heat rash may result from continuous exposure to heat or humid air.
    - Heat cramps are caused by heavy sweating and may include muscle spasms and pain in the hands, feet, and abdomen.
    - Heat exhaustion is indicated by pale, cool, and moist skin; heavy sweating; dizziness; nausea; and fainting.
    - Heat stroke is indicated by red, hot, and unusually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; rapid pulse; and coma. Immediate action must be taken to cool the body before serious injury or death occurs.

- Overhead and underground utilities exist within the Work Area, which may expose workers to electrocution hazards, explosive hazards, and volatile vapors. A utility location report is provided in Attachment B.

5.0 PERSONAL PROTECTIVE EQUIPMENT

Personnel will be required to wear Level D and Modified Level D PPE ensembles, at a minimum. The following PPE ensembles shall be worn by on-site personnel for the following tasks:

Level D Protection, as listed below, shall be worn by on-site personnel at all times when tasks are performed which DO NOT INVOLVE dermal exposure, or contact with chemical hazards:

- Standard outer garments (i.e. long pants and long-sleeve shirt)
- Durable leather steel-toed work boots
- Rubber boots worn over work boots
- Durable leather gloves
- Eye protection
- Hard hat
- Hearing protection

Modified Level D Protection, as listed below, shall be worn by on-site personnel at all times when tasks are performed which involve dermal exposure or contact with chemical hazards and/or during excavation/handling of soils or groundwater deemed hazardous waste (not currently anticipated for this project):

- Disposable coveralls worn over standard outer garments. Personnel will frequently verify the integrity of their coveralls by checking for holes or tears.
- Durable leather steel-toed work boots
- Disposable nitrile gloves. Personnel will frequently verify the integrity of their gloves by checking for holes or tears.
- Rubber boots worn over work boots
- Eye protection
- Hard hat
- Hearing protection

Respirator use is not anticipated on this project, except during abatement of asbestos and lead-based paint. In order to obtain certification, abatement workers are trained in the use of respirators on an annual basis in accordance with their employers respirator safety program. Therefore, this HASP will not cover respirator use for abatement workers.

If respiratory protection becomes necessary for other activities, a determination shall be made regarding each person's physical ability to wear a respirator. Consequently, persons required to wear respirators must provide the Contractor's HSO with current documentation (not older than 6 months) regarding their physical condition and ability to wear a respirator, as certified by a qualified physician. Failure to provide current, complete respirator certification documentation will be sufficient grounds to preclude personnel from conducting work activities where respiratory protection is required.

6.0 PERSONNEL TRAINING

Note that this HASP does not cover training requirements for the handling of asbestos or lead-based paint, as training for these hazards are incorporated under separate programs governed by the USEPA, NYSDOH, and NYSDOL.

6.1 REQUIREMENTS AND RESPONSIBILITIES

All on-site personnel and visitors will be trained commensurate with their job responsibilities and in accordance with Occupational Safety and Health Administration (OSHA) training and medical surveillance requirements as specified in 29 CFR 1910.120. The Contractor is responsible for providing such training prior to personnel being allowed to engage in activities that could expose them to health and safety hazards. The HSO has the responsibility to assure that this training is provided for the site-conditions and such training is updated, as needed. The HSO and Contractor's on-site Supervisor will be trained in basic first aid, and at least one of these individuals will be present during each work shift while personnel are at the Site.

6.2 SITE ORIENTATION MEETING

The Contractor will be responsible for notifying all on-site personnel of required attendance at a site orientation meeting, which will be organized by the Contractor's HSO. Any subcontractor personnel will also be required to attend the site orientation meeting as well as any other periodic health and safety meeting specified by the HSO. Personnel attending the site orientation meeting are to sign a Site

Orientation Meeting Attendance Acknowledgment Form. The following is a listing of general site orientation training topics:

- Names and responsibilities of key personnel
- Safe work practices
- Personal protective equipment
- Chemical and physical hazards
- Site equipment Medical surveillance
- Site hazards
- Site control measures
- Decontamination procedures
- Standard operating procedures
- Emergency response plan

6.3 DOCUMENTATION / RECORDKEEPING

OSHA regulations require medical surveillance in the form of annual medical examinations for certain types of work involving exposure to hazardous or toxic substances. All on-site personnel, visitors, and subcontractors are required to have documented proof on file of OSHA training and medical surveillance requirements as specified in 29 CFR 1910.120 to demonstrate compliance with the training requirements specified in this Section. The HSO is responsible to check all personnel to ensure training is kept current during the project.

7.0 MEDICAL CLEARANCE

Medical clearance refers to OSHA requirements for annual physical reports performed by a licensed physician, which document a worker's physical ability to perform specific job duties. Medical clearance is not required for on-site personnel or visitors at the Site, except for OSHA medical surveillance requirements for workers within the Exclusion Zone or Contamination Reduction Zone.

8.0 STANDARD OPERATING PROCEDURES

Potential chemical and physical hazards exist at the Site. This Section presents Standard Operating Procedures (SOPs) that will be followed during the project. Specific precautions to avoid the potential hazards for each task are presented herein.

8.1 GENERAL SOPS

Workers shall adhere to the established SOP for their respective specialties. Work at the Site will be conducted according to established procedures and guidelines for the safety and health of all involved. General SOPs at the Site include the following:

- All questions should be referred to the Contractor's HSO or Project Manager.
- All on-site personnel will be trained and briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
- Inspections of the Site will be conducted to ensure compliance with the HASP, and if any change in operation occurs, the HASP will be modified to reflect any change.
- Be observant of not only one's own immediate surrounding but also that of others.
- On-site personnel in the work zone will act as safety backup to each other, and on-site personnel outside the work zone will provide emergency assistance when necessary.
- Use extra precautions when working near heavy equipment.

- Communications using hand signals or other means will be maintained between on-site personnel, the HSO, and the Project Manager at all times.
- Breaks should be planned to prevent heat, cold, stresses, accidents, and fatigue.
- Work areas for various operational activities will be established.
- Strict pedestrian and vehicular traffic control will be maintained on-site.
- Entrance / exit locations and emergency escape routes will be designated and delineated.
- On-site personnel and equipment in each Work Area will be minimized to maintain effective Site operations.
- Required PPE ensembles must be worn by all on-site personnel entering work areas designated for wearing PPE. At minimum, hard hat, safety glasses, steel-toe boots, durable leather gloves, and hearing protection will be worn on the project Site.
- Work Areas and decontamination procedures will be established based on expected Site conditions.
- Plan work procedures and decontamination areas to minimize contamination exposure.
- Contaminated equipment shall not be placed on unprotected surfaces.
- Procedures for leaving a Work Area will be planned prior to entering the Site.
- All electrical equipment (power tools, extension cords, instruments, etc.) will conform to 29 CFR 1926.400 Subpart K.
- Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) will be in accordance with OSHA 29 CFR 1926.150 Subpart F.
- Workers shall not enter areas containing asbestos debris, or handle/disturb asbestos-containing materials
- Workers shall not handle/disturb known or potential lead-based paints

Violation of these SOPs may result in immediate dismissal from the Site.

8.2 SITE CONTROL MEASURES

Site control measures will minimize potential contamination of on-site personnel, protect the public from potential on-site hazards, and prevent vandalism of equipment and materials. Site control measures also enhance response in emergency situation. For this project, the primary site control measure will be a temporary fence or other barrier installed along the Site boundary for the duration of the project.

Areas where intrusive work will occur will be routinely divided into three distinct areas: an Exclusion Zone, a Contamination Reduction Zone (CRZ), and a Support Zone.

Exclusion Zone

The Exclusion Zone will be designated as the area where the highest potential for exposure by dermal or inhalation routes exists. The Exclusion Zone coincides with areas being excavated. PPE is required and a daily log will be kept of all personnel entering this zone.
The Exclusion Zone for work areas will be demarcated with barrier tape. Approval for entry into the Exclusion Zone will require compliance with OSHA training and medical surveillance requirements (29 CFR 1910.120). Subcontractor and vendor equipment will not be permitted to enter the Exclusion Zone without prior authorization and will be subject to Site decontamination procedures. All personnel and equipment shall be decontaminated when leaving the Exclusion Zone. No eating, drinking, or smoking will be permitted in the Exclusion Zone.

Contamination Reduction Zone (CRZ)

The Contractor will establish the CRZ in an area between the Exclusion Zone and Support Zone. Approval for entry into the CRZ will require compliance with OSHA training and medical surveillance requirements (29 CFR 1910.120). Access to the Exclusion Zone will be through the CRZ. The CRZ will be designated as the area immediately adjacent to and surrounding the Exclusion Zone. The probability of dermal and inhalation exposure is lower in the CRZ than in the Exclusion Zone. The CRZ includes facilities for personnel and equipment decontamination. PPE worn in the Exclusion Zone may not be worn outside the CRZ, except during emergencies. No eating, drinking, or smoking will be permitted in the CRZ.

Support Zone

The Support Zone includes all areas outside the CRZ and Loading Zone. The exposure potential in the Support Zone is minimal. The Support Zone provides a changing area for personnel entering the CRZ and Exclusion Zone, as well as an area for the storage of clean equipment and materials. Protective clothing worn in the Exclusion Zone will not be allowed to be worn in the Support Zone, except in emergencies. It is the responsibility of the Project Manager to control access to the Site and to assure proper security. Any evidence of unauthorized entry will be noted in the daily log.

Under no circumstances will the general public be permitted to access the work area. All preapproved visitors will be briefed on the HASP, and shall sign the Daily Site Sign-In / Sign-Out Log. Pre-approved visitors will be permitted in the immediate area of active operations only with approval from the Contractor's HSO or Project Manager. All personal vehicles are restricted to the Support Zone.

8.3 COMMUNICATION PROCEDURES

Personnel in the Exclusion Zone will remain within sight of other project personnel. The commonly used international hand and arm signals are listed below, and will be used when necessary:

Signal	**Meaning**
Right hand thumbs up	OK, I'm All Right
Right hand thumbs down	No, Negative
Rotating both hands at sides	Situation Under Control
Rotating both hands above head	Need Assistance
Hand gripping throat	Out of Air, Cannot Breathe
Both hands placed on hips	Leave Area Immediately
Rotating both hands at knees	Situation Grave, Evacuate Immediately
Both hands placed on top of head	Returning to Support Zone

8.4 DECONTAMINATION PROCEDURES

On-site personnel performing remediation tasks under the Modified Level D PPE ensemble will perform decontamination operations in accordance with the following steps:

- Remove re-usable boot covers, or discard disposable boot covers.
- Remove coveralls first (if applicable), then remove nitrile gloves and place in the disposal container staged in the CRZ. All disposable PPE (gloves, coveralls), rags, cloths, etc. will be containerized separately from general refuse, and disposed of in accordance with the applicable regulations.
- Remove and discard inner gloves.
- Proceed to the Support Zone bringing decontaminated tools and sampling containers.
- Wash hands, face, and other exposed skin with soap and water. Shower and shampoo as soon as possible at the end of the work day, before any social activities.
- Place non-disposable coveralls in plastic bags prior to leaving the Site and prior to entering any vehicle.
- Launder non-disposable clothing worn in Exclusion Zone prior to reuse, separately from other laundry items. Impermeable items such as vinyl boots do not need to be laundered prior to reuse; however, they should either be kept in the CRZ or placed in a sealed container prior to leaving the CRZ.

8.5 PERIODIC HEALTH AND SAFETY MEETINGS

The HSO will conduct weekly health and safety meetings. These meetings will be a review of existing protocols as well as a means to update personnel on new Site conditions. The meetings will also provide an opportunity for on-site personnel to discuss health and safety concerns. Topics for discussion may include, but are not limited to, the following:

- Review of the type and frequency of environmental and personal monitoring
- Task-specific levels of protection and anticipated potential for upgrading
- Review of existing and new health and safety issues
- Review of emergency procedures

9.0 ACCIDENT AND EMERGENCY RESPONSE PLAN

This Section includes procedures and methods of evaluating and addressing medical, fire, and other emergency situations which may occur at the Site. In any unknown situation, always assume the worst conditions and plan responses accordingly. All emergency situations require concise and timely actions conducted in a manner that minimizes the health and safety risks to on-site personnel and to the public. All on-site personnel shall be familiar with the Emergency Response Plan.

9.1 RESPONSIBILITIES

The Contractor's HSO has the responsibility for directing response activities in the event of an emergency or accident, and will be responsible for the following:

- Assess the situation
- Determine required response measures
- Notify appropriate response teams
- Direct on-site personnel during the emergency

The Contractor's HSO will coordinate the response activities of on-site personnel with those of public agencies. A list of agencies to be contacted and who may, depending on the nature of the situation, assume authority for emergency response is presented in Section 9.6. This table includes names and telephone numbers of local hospitals, ambulance service, fire and police departments, and other applicable agencies. The HSO will notify emergency response agencies and establish emergency procedures prior to commencing remedial activities at the Site.

9.2 EMERGENCY PROCEDURES

Due to the nature of the tasks to be conducted at the Site, the emergency situations that may occur are most likely limited to personnel accidents (i.e., slip, trip, and fall accidents; equipment related accidents, etc.) requiring first aid. The following procedures shall be followed in the event of an emergency:

- On-site personnel shall report all accidents and unusual events to the HSO.
- The HSO will assess the situation. If off-site assistance and medical treatment is required, the HSO will designate a person to call the proper authorities.
- First-aid or other applicable treatment will be provided by properly trained individuals.

The HSO will inform the Owner of the injury/accident, and an Accident Report Form detailing the causes and consequences of the injury/accident will be submitted to the Project Manager within 48 hours of the incident. The Accident Report Form shall include:

- Names and social security numbers of accident victims and witnesses
- Date and time of accident
- Location, cause, and duration of accident
- A description of corrective actions implemented
- Off-site persons and agencies notified and time of arrival at the Site.

Personnel shall make all reasonable attempts to conduct themselves in a calm manner in the event of an accident.

9.3 ACCIDENT AND INJURIES

Every accident is a unique event that must be dealt with by trained personnel working in a calm, controlled manner. In the event of an accident, the prime consideration is to provide the appropriate initial response to assist those in jeopardy without placing additional personnel at unnecessary risk. Several types of emergencies are outlined in the following subsections. These are not intended to cover all emergency situations.

If a person working on the Site is physically injured, basic first-aid procedures will be followed. Depending on the severity of the injury, outside medical assistance may be sought. If the person can be moved, the person will be taken outside of the Work Area, PPE will be removed, and first aid administered. If necessary, transportation to a medical facility will be provided. If the person can only be moved by emergency medical personnel, the HSO will decide what type of PPE (if any) will be required to be worn by emergency personnel.

If the injury to on-site personnel involves chemical exposure, the following first aid procedures will be initiated as soon as possible:

Eye Exposure - If solid or liquid gets into the eyes, wash eyes immediately at the emergency eyewash station using water and lifting the lower and upper lids occasionally. This emergency eyewash station shall be a portable station provided by the Contractor and set up within the CRZ. If an acute exposure is identified, then obtain medical attention immediately. Otherwise, consultation with a doctor shall be discretionary based on the severity of the incident.

Skin Exposure - If solid or liquid gets on the skin causing irritation or pain, wash skin immediately at the emergency eyewash station using water. If an acute exposure is identified, then obtain medical attention immediately. Otherwise, consultation with a doctor shall be discretionary based on the severity of the incident.

Inhalation – In the rare event that a person inhales large amounts of organic vapor or dust, and is overcome, move the person to fresh air at once. Obtain medical attention immediately. If breathing has stopped, appropriately trained personnel and/or medical personnel should perform cardiopulmonary resuscitation. Keep the affected person warm and at rest.

Ingestion - If solid or liquid is swallowed, medical attention must be obtained immediately and the Poison Control Center consulted.

9.4 FIRE

On-site personnel will be knowledgeable in fire-extinguishing techniques. They will be instructed in proper use and maintenance of the fire extinguishers supplied at the work areas. Fire extinguishers should be used only for small fires which are in the early stages of development. Where the fire cannot be controlled through extinguisher use, the area should be evacuated immediately, and the local fire department should be called to extinguish the fire. Fire extinguishers shall be provided by the Contractor.

9.5 EMERGENCY EVACUATION

In extraordinary circumstances, emergency evacuation of the Site may be necessary. On-site personnel will be notified of the need to evacuate verbally or by signaling with an air horn or similar signaling device. If the situation is deemed an emergency, personnel will be instructed to leave the Site immediately, using the closest available evacuation route; otherwise, personnel will be expected to go through normal decontamination procedures before leaving the Site.

In either case, personnel will be instructed to meet at a central location to be determined by the HSO prior to the start of Work. A head count will be made to ensure that all personnel are safe and accounted for.

The HSO will contact appropriate response agencies, as warranted. Motorized equipment / machinery will be shut off before the Site is evacuated.

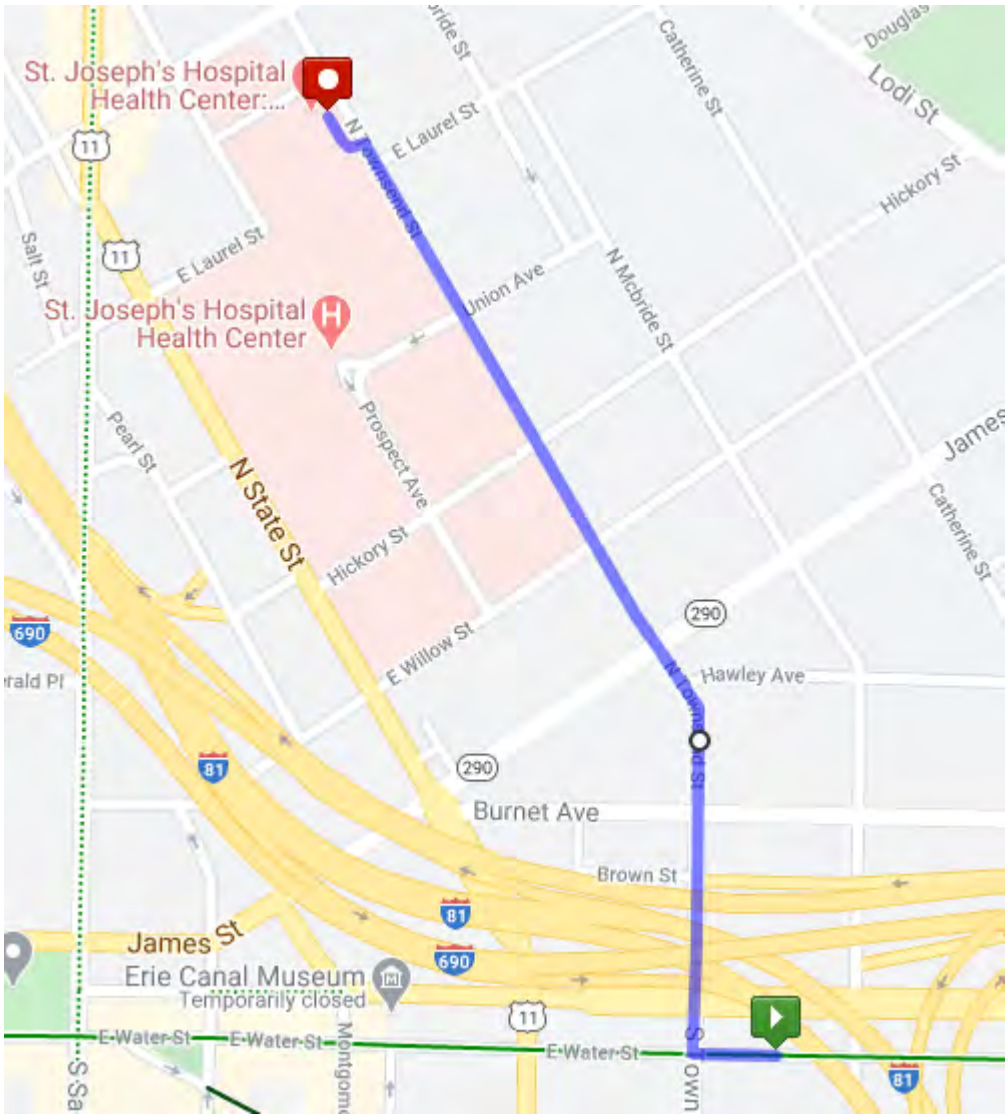
9.6 EMERGENCY RESPONSE AND AREA HOSPITALS

In case of emergency, call 911 or the appropriate individual authority:

EMERGENCY CONTACT NUMBERS	
Nearest Hospital	St. Joseph's Hospital 301 Prospect Avenue Syracuse, New York 13203
Emergency Response Number	911
Poison Control Center	(800) 222-1222
State Police (North Syracuse)	(315) 455 2826

Directions to Nearest Hospital (St. Joseph's Hospital; Distance ~0.6 miles; Time ~4 minutes)

5. Travel west on East Water Street
6. Right onto South Townsend Street (road becomes North Townsend Street after crossing Erie Boulevard)
7. In approximately 0.4 mile, continue straight on North Townsend Street. **DO NOT TURN LEFT ON UNION AVENUE TO MAIN HOSPITAL FACILITY**.
8. Approximately 0.1 mile after Union Avenue, St. Joseph's Hospital Emergency Room will be on left



ATTACHMENT A

Fact Sheets and Safety Data Sheets

Benzene - ToxFAQs™

CAS # 71-43-2

This fact sheet answers the most frequently asked health questions (FAQs) about benzene. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHTLIGHTS: Benzene is a widely used chemical formed from both natural processes and human activities. Breathing benzene can cause drowsiness, dizziness, and unconsciousness; long-term benzene exposure causes effects on the bone marrow and can cause anemia and leukemia. Benzene has been found in at least 1,000 of the 1,684 National Priority List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is benzene?

Benzene is a colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities.

Benzene is widely used in the United States; it ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals which are used to make plastics, resins, and nylon and other synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs, and pesticides. Natural sources of benzene include emissions from volcanoes and forest fires. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke.

What happens to benzene when it enters the environment?

- Industrial processes are the main source of benzene in the environment.
- Benzene can pass into the air from water and soil.
- It reacts with other chemicals in the air and breaks down within a few days.
- Benzene in the air can attach to rain or snow and be carried back down to the ground.
- It breaks down more slowly in water and soil, and can pass through the soil into underground water.
- Benzene does not build up in plants or animals.

How might I be exposed to benzene?

- Outdoor air contains low levels of benzene from tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions.
- Vapors (or gases) from products that contain benzene, such as glues, paints, furniture wax, and detergents, can also be a source of exposure.
- Air around hazardous waste sites or gas stations will contain higher levels of benzene.
- Working in industries that make or use benzene.

How can benzene affect my health?

Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death.

The major effect of benzene from long-term exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries, but we do not know for certain that benzene caused the effects. It is not known whether benzene will affect fertility in men.

Benzene

CAS # 71-43-2

How likely is benzene to cause cancer?

Long-term exposure to high levels of benzene in the air can cause leukemia, particularly acute myelogenous leukemia, often referred to as AML. This is a cancer of the bloodforming organs. The Department of Health and Human Services (DHHS) has determined that benzene is a known carcinogen. The International Agency for Research on Cancer (IARC) and the EPA have determined that benzene is carcinogenic to humans.

How can benzene affect children?

Children can be affected by benzene exposure in the same ways as adults. It is not known if children are more susceptible to benzene poisoning than adults.

Benzene can pass from the mother's blood to a fetus. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

How can families reduce the risks of exposure to benzene?

Benzene exposure can be reduced by limiting contact with gasoline and cigarette smoke. Families are encouraged not to smoke in their house, in enclosed environments, or near their children.

Is there a medical test to determine whether I've been exposed to benzene?

Several tests can show if you have been exposed to benzene. There is a test for measuring benzene in the breath; this test must be done shortly after exposure. Benzene can also be measured in the blood; however, since benzene disappears rapidly from the blood, this test is only useful for recent exposures.

In the body, benzene is converted to products called metabolites. Certain metabolites can be measured in the urine. The metabolite S-phenylmercapturic acid in urine is a sensitive indicator of benzene exposure. However, this test must be done shortly after exposure and is not a reliable indicator of how much benzene you have been exposed to, since the metabolites may be present in urine from other sources.

Has the federal government made recommendations to protect human health?

The EPA has set the maximum permissible level of benzene in drinking water at 5 parts benzene per billion parts of water (5 ppb).

The Occupational Safety and Health Administration (OSHA) has set limits of 1 part benzene per million parts of workplace air (1 ppm) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR) 2007. Toxicological Profile for Benzene (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Chloroform - ToxFAQs™

CAS # 67-66-3

This fact sheet answers the most frequently asked health questions (FAQs) about chloroform. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to chloroform can occur when breathing contaminated air or when drinking or touching the substance or water containing it. Breathing chloroform can cause dizziness, fatigue, and headaches. Breathing chloroform or ingesting chloroform over long periods of time may damage your liver and kidneys. It can cause sores if large amounts touch your skin. This substance has been found in at least 717 of the 1,430 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is chloroform?

(Pronounced klôr′ə-fôrm′)

Chloroform is a colorless liquid with a pleasant, nonirritating odor and a slightly sweet taste. It will burn only when it reaches very high temperatures.

In the past, chloroform was used as an inhaled anesthetic during surgery, but it isn't used that way today. Today, chloroform is used to make other chemicals and can also be formed in small amounts when chlorine is added to water.

Other names for chloroform are trichloromethane and methyl trichloride.

What happens to chloroform when it enters the environment?

- Chloroform evaporates easily into the air.
- Most of the chloroform in air breaks down eventually, but it is a slow process.
- The breakdown products in air include phosgene and hydrogen chloride, which are both toxic.
- It doesn't stick to soil very well and can travel through soil to groundwater.
- Chloroform dissolves easily in water and some of it may break down to other chemicals.
- Chloroform lasts a long time in groundwater.
- Chloroform doesn't appear to build up in great amounts in plants and animals.

How might I be exposed to chloroform?

- Drinking water or beverages made using water containing chloroform.
- Breathing indoor or outdoor air containing it, especially in the workplace.
- Eating food that contains it.
- Skin contact with chloroform or water that contains it, such as in swimming pools.

How can chloroform affect my health?

Breathing about 900 parts of chloroform per million parts air (900 ppm) for a short time can cause dizziness, fatigue, and headache. Breathing air, eating food, or drinking water containing high levels of chloroform for long periods of time may damage your liver and kidneys. Large amounts of chloroform can cause sores when chloroform touches your skin.

It isn't known whether chloroform causes reproductive effects or birth defects in people.

Animal studies have shown that miscarriages occurred in rats and mice that breathed air containing 30 to 300 ppm chloroform during pregnancy and also in rats that ate chloroform during pregnancy. Offspring of rats and mice that breathed chloroform during pregnancy had birth defects. Abnormal sperm were found in mice that breathed air containing 400 ppm chloroform for a few days.

Chloroform

CAS # 67-66-3

How likely is chloroform to cause cancer?

The Department of Health and Human Services (DHHS) has determined that chloroform may reasonably be anticipated to be a carcinogen.

Rats and mice that ate food or drank water with chloroform developed cancer of the liver and kidneys.

Is there a medical test to show whether I've been exposed to chloroform?

Although the amounts of chloroform in the air that you exhale and in blood, urine, and body tissues can be measured, there is no reliable test to determine how much chloroform you have been exposed to or whether you will experience any harmful effects.

The measurement of chloroform in body fluids and tissues may help to determine if you have come into contact with large amounts of chloroform, but these tests are useful for only a short time after you are exposed. Chloroform in your body might also indicate that you have come into contact with other chemicals.

Has the federal government made recommendations to protect human health?

The current EPA drinking water limit for total trihalomethanes, a class of chemicals that includes chloroform, is 80 micrograms per liter of water (80µg/L).

The EPA requires that spills or accidental releases of 10 pounds or more of chloroform into the environment be reported to the EPA.

The Occupational Safety and Health Administration (OSHA) has set the maximum allowable concentration of chloroform in workroom air during an 8-hour workday in a 40-hour workweek at 50 ppm.

Glossary

Carcinogenicity: A substance with the ability to cause cancer.

CAS: Chemical Abstracts Service.

Ingesting: Taking food or drink into your body.

Microgram (µg): One millionth of a gram.

Miscarriage: Pregnancy loss.

ppm: Parts per million.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Toxicological Profile for Chloroform. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

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Lead - ToxFAQs™

What is lead?

Lead is a naturally occurring metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment, including air, water and soil. Lead can exist in many different chemical forms.

Lead is used in the production of batteries, ammunition, and metal products (solder and pipes). Because of health concerns, use of lead in paints, ceramic products, caulking, and pipe solder has been dramatically reduced. The use of lead as an additive to automobile gasoline was banned in 1996 in the United States.

What happens to lead in the environment?

- Lead is an element and, therefore, it does not break down.
- When lead is released to the air, it may be transported long distances before it deposits onto the ground.
- Once deposited, lead often adheres to soil particles.
- Lead in soil can be transported into groundwater, but the amount of lead that moves into groundwater will depend on the chemical form of lead and soil type.

How can I be exposed to lead?

- Eating food or drinking water that contains lead. Water pipes in some older homes may contain lead solder which can leach into the water.
- Spending time in areas where lead-based paints have been used and are deteriorating. Deteriorating lead paint can form lead dust which can be ingested.
- Spending time in areas where the soil is contaminated with lead.
- Working in a job where lead is used or participating in certain hobbies in which lead is used, such as making stained glass.
- Using health-care products or folk remedies that contain lead.

Lead can affect almost every organ and system in your body

How can lead affect my health?

The effects of lead are the same whether it enters the body through inhalation or ingestion. Lead can affect almost every organ and system in your body. The nervous system is the main target for lead toxicity in adults and children. Long-term exposure can result in decreased learning, memory, and attention and weakness in fingers, wrists, or ankles. Lead exposure can cause anemia and damage to kidneys. It can also cause increases in blood pressure, particularly in middle-aged and older individuals. Exposure to high lead levels can severely damage the brain and kidneys and can cause death. In pregnant women, exposure to high levels of lead may cause a miscarriage. High-level exposure in men can damage reproductive organs.

Lead

How can lead affect children?

Children are more vulnerable to lead poisoning than adults because their nervous system is still developing. Children can be exposed to lead in their environment and prior to birth from lead in their mother's body. At lower levels of exposure, lead can decrease mental development, with effects on learning, intelligence and behavior. Physical growth may also be decreased. A child who swallows large amounts of lead may develop anemia, severe stomachache, muscle weakness, and brain damage. Exposure to lead during pregnancy can result in premature births. Some effects of lead may persist into adulthood.

Can lead cause cancer?

There have been several agencies and organizations both in the United States and internationally that have reviewed studies and made an assessment about whether lead can cause cancer.

- The Department of Health and Human Services (HHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens
- The U.S. Environmental Protection Agency (EPA) has classified lead as a probable human carcinogen.
- The International Agency for Research on Cancer (IARC) has determined that inorganic lead is probably carcinogenic to humans, and that there is insufficient information to determine whether organic lead compounds will cause cancer in humans.

Can I get a medical test to check for lead?

A blood test is available to measure the amount of lead in your blood. Blood tests are commonly used to screen children for lead poisoning. Your doctor can draw blood samples and send them to appropriate laboratories for analysis.

How can I protect my family from lead exposure?

- Avoid exposure to sources of lead.
- Do not allow children to chew or mouth surfaces that may have been painted with lead-based paint.
- If your home contains lead-based paint or you live in an area contaminated with lead, wash children's hands and faces often to remove lead dusts and soil, and regularly clean the house of dust and tracked in soil.

Want more information?

Go to ATSDR's Toxicological Profile for Lead

CDC Lead Poisoning Prevention Program https://www.cdc.gov/nceh/lead/default.htm

Environmental Protection Agency https://www.epa.gov/lead/protect-your-family-exposures-lead

Call **CDC-INFO** at 1-800-232-4636, or submit your question online at https://wwwn.cdc.gov/dcs/ContactUs/Form

Go to ATSDR's Toxic Substances Portal: http://www.atsdr.cdc.gov/substances/index.asp

If you have any more questions or concerns, you can also find & contact your ATSDR Regional Representative at http://www.atsdr.cdc.gov/DRO/dro_org.html

Tetrachloroethylene - ToxFAQs™

CAS # 127-18-4

This fact sheet answers the most frequently asked health questions (FAQs) about tetrachloroethylene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Tetrachloroethylene is a manufactured chemical used for dry cleaning and metal degreasing and in the aerospace industry. Exposure to very high concentrations of tetrachloroethylene can cause dizziness headaches, sleepiness, incoordination confusion, nausea, unconsciousness, and even death. Tetrachloroethylene has been found in at least 949 of the 1,854 National Priorities List sites identified by U.S. Environmental Protection Agency (EPA).

What is tetrachloroethylene?

Tetrachloroethylene is a nonflammable colorless liquid. Other names for tetrachloroethylene include perchloroethylene, PCE, perc, tetrachloroethene, and perchlor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part in 1 million parts of air (1 ppm) or more.

Tetrachloroethylene is used as a dry cleaning agent and metal degreasing solvent. It is also used as a starting material (building block) for making other chemicals and is used in some consumer products.

What happens to tetrachloroethylene when it enters the environment?

- Tetrachloroethylene can be released into air, water, and soil at places where it is produced or used.
- Tetrachloroethylene breaks down very slowly in the air and so it can be transported long distances in the air. Half of the amount in the air will degrade in approximately 100 days.
- Tetrachloroethylene evaporates quickly from water into air. It is generally slow to break down in water.
- Tetrachloroethylene may evaporate quickly from shallow soils or may filter through the soil and into the groundwater below. It is generally slow to break down in soil.

How might I be exposed to tetrachloroethylene?

- When you bring clothes from the dry cleaners, they will release small amounts of tetrachloroethylene into the air.
- When you drink water containing tetrachloroethylene, you are exposed to it. You might also be exposed to tetrachloroethylene that is released into the air during showering and bathing.
- People residing near contaminated sites or dry cleaning locations may be exposed to higher levels than the general population.
- People working in the dry cleaning industries or using metal degreasing products may be exposed to elevated levels of tetrachloroethylene.

How can tetrachloroethylene affect my health?

Breathing high levels of tetrachloroethylene for a brief period may cause dizziness or drowsiness, headache, and incoordination; higher levels may cause unconsciousness and even death.

Exposure for longer periods to low levels of tetrachloroethylene may cause changes in mood, memory, attention, reaction time, and vision.

Studies in animals exposed to tetrachloroethylene have shown liver and kidney effects, and changes in brain chemistry, but we do not know what these findings mean for humans.

Tetrachloroethylene

CAS # 127-18-4

How likely is tetrachloroethylene to cause cancer?

Studies in humans suggest that exposure to tetrachloroethylene might lead to a higher risk of getting bladder cancer, multiple myeloma, or non-Hodgkin's lymphoma.

In animals, tetrachloroethylene has been shown to cause cancers of the liver, kidney, and blood system.

The Department of Health and Human Services (DHHS) considers tetrachloroethylene to be reasonably anticipated to be a human carcinogen. EPA considers tetrachloroethylene likely to be carcinogenic to humans by all routes of exposure. The International Agency for Research on Cancer (IARC) considers tetrachloroethylene probably carcinogenic to humans.

How can tetrachloroethylene affect children?

It is not known whether children are more susceptible than adults to the effects of tetrachloroethylene.

A few studies in humans have suggested that exposure to tetrachloroethylene increased the numbers of babies with birth defects, but these studies were not large enough to clearly answer the question. Studies in animals exposed by inhalation or stomach tube have not shown clear evidence of specific birth defects.

How can families reduce the risk of exposure to tetrachloroethylene?

- Tetrachloroethylene has been found in low levels in some food. You can minimize the risk of your family's exposure by peeling and thoroughly washing fruits and vegetables before cooking.
- Use bottled water if you have concerns about the presence of tetrachloroethylene in your tap water. You may also contact local drinking water authorities and follow their advice.
- Prevent children from playing in dirt or eating dirt if you live near a waste site that has tetrachloroethylene.
- Tetrachloroethylene is widely used as a scouring solvent that removes oils from fabrics, as a carrier solvent, as a fabric finish or water repellant, and as a metal degreaser/cleaner. Follow instructions on product labels to minimize exposure to tetrachloroethylene.

Is there a medical test to determine whether I've been exposed to tetrachloroethylene?

Tetrachloroethylene and its breakdown products (metabolites) can be measured in blood and urine. However, the detection of tetrachloroethylene or its metabolites cannot predict the kind of health effects that might develop from that exposure. Because tetrachloroethylene and its metabolites leave the body fairly rapidly, the tests need to be conducted within days after exposure.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set an 8-hour time weighted average permissible exposure limit of 100 ppm, an acceptable ceiling exposure limit of 200 ppm, and a maximum peak of 300 ppm (not to be exceeded for more than 5 minutes of any 3-hour period).

The National Institute for Occupational Safety and Health (NIOSH) recommends that workplace exposure to tetrachloroethylene be minimized due to concerns about its carcinogenicity.

Reference

This ToxFAQs™ information is taken from the 2019 Toxicological Profile for Tetrachloroethylene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ on the web: www.atsdr.cdc.gov/ToxFAQs

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Trichloroethylene - ToxFAQs™

CAS # 79-01-6

This fact sheet answers the most frequently asked health questions (FAQs) about trichloroethylene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Trichloroethylene is used as a solvent for cleaning metal parts. Exposure to very high concentrations of trichloroethylene can cause dizziness headaches, sleepiness, incoordination, confusion, nausea, unconsciousness, and even death. Trichloroethylene has been found in at least 1,051 of the 1,854 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is trichloroethylene?

Trichloroethylene is a colorless, volatile liquid. Liquid trichloroethylene evaporates quickly into the air. It is nonflammable and has a sweet odor.

The two major uses of trichloroethylene are as a solvent to remove grease from metal parts and as a chemical that is used to make other chemicals, especially the refrigerant, HFC-134a.

What happens to trichloroethylene when it enters the environment?

- Trichloroethylene can be released to air, water, and soil at places where it is produced or used.
- Trichloroethylene is broken down quickly in air.
- Trichloroethylene breaks down very slowly in soil and water and is removed mostly through evaporation to air.
- It is expected to remain in groundwater for long time since it is not able to evaporate.
- Trichloroethylene does not build up significantly in plants or animals.

How might I be exposed to trichloroethylene?

- Breathing trichloroethylene in contaminated air.
- Drinking contaminated water.
- Workers at facilities using this substance for metal degreasing are exposed to higher levels of trichloroethylene.
- If you live near such a facility or near a hazardous waste site containing trichloroethylene, you may also have higher exposure to this substance.

How can trichloroethylene affect my health?

Trichloroethylene was once used as an anesthetic for surgery. Exposure to moderate amounts of trichloroethylene may cause headaches, dizziness, and sleepiness; large amounts may cause coma and even death. Eating or breathing high levels of trichloroethylene may damage some of the nerves in the face. Exposure to high levels can also result in changes in the rhythm of the heartbeat, liver damage, and evidence of kidney damage. Skin contact with concentrated solutions of trichloroethylene can cause skin rashes. There is some evidence exposure to trichloroethylene in the work place may cause scleroderma (a systemic autoimmune disease) in some people. Some men occupationally-exposed to trichloroethylene and other chemicals showed decreases in sex drive, sperm quality, and reproductive hormone levels.

How likely is trichloroethylene to cause cancer?

There is strong evidence that trichloroethylene can cause kidney cancer in people and some evidence for trichloroethylene-induced liver cancer and malignant lymphoma. Lifetime exposure to trichloroethylene resulted in increased liver cancer in mice and increased kidney cancer and testicular cancer in rats.

The Department of Health and Human Services (DHHS) considers trichloroethylene to be a known human carcinogen. The International Agency for Research on Cancer (IARC) classified trichloroethylene as carcinogenic to humans. The EPA has characterized trichloroethylene as carcinogenic to humans by all routes of exposure.

Trichloroethylene

CAS # 79-01-6

How can trichloroethylene affect children?

It is not known whether children are more susceptible than adults to the effects of trichloroethylene.

Some human studies indicate that trichloroethylene may cause developmental effects such as spontaneous abortion, congenital heart defects, central nervous system defects, and small birth weight. However, these people were exposed to other chemicals as well.

In some animal studies, exposure to trichloroethylene during development caused decreases in body weight, increases in heart defects, changes to the developing nervous system, and effects on the immune system.

How can families reduce the risk of exposure to trichloroethylene?

- Avoid drinking water from sources that are known to be contaminated with trichloroethylene. Use bottled water if you have concerns about the presence of chemicals in your tap water. You may also contact local drinking water authorities and follow their advice.
- Prevent children from playing in dirt or eating dirt if you live near a waste site that has trichloroethylene.
- Trichloroethylene is used in many industrial products. Follow instructions on product labels to minimize exposure to trichloroethylene.

Is there a medical test to determine whether I've been exposed to trichloroethylene?

Trichloroethylene and its breakdown products (metabolites) can be measured in blood and urine. However, the detection of trichloroethylene or its metabolites cannot predict the kind of health effects that might develop from that exposure. Because trichloroethylene and its metabolites leave the body fairly rapidly, the tests need to be conducted within days after exposure.

Has the federal government made recommendations to protect human health?

The EPA set a maximum contaminant goal (MCL) of 0.005 milligrams per liter (mg/L; 5 ppb) as a national primary drinking standard for trichloroethylene.

The Occupational Safety and Health Administration (OSHA) set a permissible exposure limit (PEL) of 100 ppm for trichloroethylene in air averaged over an 8-hour work day, an acceptable ceiling concentration of 200 ppm provided the 8 hour PEL is not exceeded, and an acceptable maximum peak of 300 ppm for a maximum duration of 5 minutes in any 2 hours.

The National Institute for Occupational Safety and Health (NIOSH) considers trichloroethylene to be a potential occupational carcinogen and established a recommended exposure limit (REL) of 2 ppm (as a 60-minute ceiling) during its use as an anesthetic agent and 25 ppm (as a 10-hour TWA) during all other exposures.

Reference

This ToxFAQs™ information is taken from the 2019 Toxicological Profile for Trichloroethylene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

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DDT, DDE, and DDD - ToxFAQs™

CAS # 50-29-3, 72-55-9, 72-54-8

This fact sheet answers the most frequently asked health questions (FAQs) about DDT, DDE, and DDD. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to DDT, DDE, and DDD occurs mostly from eating foods containing small amounts of these compounds, particularly meat, fish and poultry. High levels of DDT can affect the nervous system causing excitability, tremors and seizures. In women, DDE can cause a reduction in the duration of lactation and an increased chance of having a premature baby. DDT, DDE, and DDD have been found in at least 442 of the 1,613 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What are DDT, DDE, and DDD?

DDT (dichlorodiphenyltrichloroethane) is a pesticide once widely used to control insects in agriculture and insects that carry diseases such as malaria. DDT is a white, crystalline solid with no odor or taste. Its use in the U.S. was banned in 1972 because of damage to wildlife, but is still used in some countries.

DDE (dichlorodiphenyldichloroethylene) and DDD (dichlorodiphenyldichloroethane) are chemicals similar to DDT that contaminate commercial DDT preparations. DDE has no commercial use. DDD was also used to kill pests, but its use has also been banned. One form of DDD has been used medically to treat cancer of the adrenal gland.

What happens to DDT, DDE, and DDD when they enter the environment?

- DDT entered the environment when it was used as a pesticide; it still enters the environment due to current use in other countries.
- DDE enters the environment as contaminant or breakdown product of DDT; DDD also enters the environment as a breakdown product of DDT.
- DDT, DDE, and DDD in air are rapidly broken down by sunlight. Half of what's in air breaks down within 2 days.
- They stick strongly to soil; most DDT in soil is broken down slowly to DDE and DDD by microorganisms; half the DDT in soil will break down in 2–15 years, depending on the type of soil.
- Only a small amount will go through the soil into groundwater; they do not dissolve easily in water.
- DDT, and especially DDE, build up in plants and in fatty tissues of fish, birds, and other animals.

How might I be exposed to DDT, DDE, and DDD?

- Eating contaminated foods, such as root and leafy vegetables, fatty meat, fish, and poultry, but levels are very low.
- Eating contaminated imported foods from countries that still allow the use of DDT to control pests.
- Breathing contaminated air or drinking contaminated water near waste sites and landfills that may contain higher levels of these chemicals.
- Infants fed on breast milk from mothers who have been exposed.
- Breathing or swallowing soil particles near waste sites or landfills that contain these chemicals.

How can DDT, DDE, and DDD affect my health?

DDT affects the nervous system. People who accidentally swallowed large amounts of DDT became excitable and had tremors and seizures. These effects went away after the exposure stopped. No effects were seen in people who took small daily doses of DDT by capsule for 18 months. A study in humans showed that women who had high amounts of a form of DDE in their breast milk were unable to breast feed their babies for as long as women who had little DDE in the breast milk. Another study in humans showed that women who had high amounts of DDE in the blood had an increased chance of having premature babies. In animals, short-term exposure to large amounts of DDT in food affected the nervous system, while long-term exposure to smaller amounts affected the liver. Also in animals, short-term oral exposure to small amounts of DDT or its breakdown products may also have harmful effects on reproduction.

Agency for Toxic Substances and Disease Registry
Division of Toxicology and Human Health Sciences

ATSDR

CS265956-A

DDT, DDE, and DDD - ToxFAQs™

CAS # 50-29-3, 72-55-9, 72-54-8

How likely are DDT, DDE, and DDD to cause cancer?

Studies in DDT-exposed workers did not show increases in cancer. Studies in animals given DDT with the food have shown that DDT can cause liver cancer.

The Department of Health and Human Services (DHHS) determined that DDT may reasonable be anticipated to be a human carcinogen.

The International Agency for Research on Cancer (IARC) determined that DDT may possibly cause cancer in humans. The EPA determined that DDT, DDE, and DDD are probable human carcinogens.

How can DDT, DDE, and DDD affect children?

There are no studies on the health effects of children exposed to DDT, DDE, or DDD. We can assume that children exposed to large amounts of DDT will have health effects similar to the effects seen in adults. However, we do not know whether children differ from adults in their susceptibility to these substances.

There is no evidence that DDT, DDE, or DDD cause birth defects in people. A study showed that teenage boys whose mothers had higher DDE amounts in the blood when they were pregnant were taller than those whose mothers had lower DDE levels. However, a different study found the opposite in preteen girls. The reason for the discrepancy between these studies is unknown.

Studies in rats have shown that DDT and DDE can mimic the action of natural hormones and in this way affect the development of the reproductive and nervous systems. Puberty was delayed in male rats given high amounts of DDE as juveniles. This could possibly happen in humans.

A study in mice showed that exposure to DDT during the first weeks of life may cause neurobehavioral problems later in life.

How can families reduce the risk of exposure to DDT,DDE, and DDE?

- Most families will be exposed to DDT by eating food or drinking liquids contaminated with small amounts of DDT.
- Cooking will reduce the amount of DDT in fish.
- Washing fruit and vegetables will remove most DDT from their surface.
- Follow health advisories that tell you about consumption of fish and wildlife caught in contaminated areas.

Is there a medical test to show whether I've been exposed to DDT, DDE, and DDD?

Laboratory tests can detect DDT, DDE, and DDD in fat, blood, urine, semen, and breast milk. These tests may show low, moderate, or excessive exposure to these compounds, but cannot tell the exact amount you were exposed to, or whether you will experience adverse effects. These tests are not routinely available at the doctor's office because they require special equipment.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) sets a limit of 1 milligram of DDT per cubic meter of air (1 mg/m^3) in the workplace for an 8-hour shift, 40-hour workweek.

The Food and Drug Administration (FDA) has set limits for DDT, DDE, and DDD in foodstuff at or above which the agency will take legal action to remove the products from the market.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2002. Toxicological Profile for DDT/DDE/DDD (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

NAPHTHALENE
CAS # 91-20-3

1-METHYLNAPHTHALENE
CAS # 90-12-0

2-METHYLNAPHTHALENE
CAS # 91-57-6

Division of Toxicology ToxFAQs™ **August 2005**

This fact sheet answers the most frequently asked health questions (FAQs) about naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because these substances may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to naphthalene, 1-methylnaphthalene, or 2-methylnaphthalene happens mostly from breathing air contaminated from the burning of wood, tobacco, or fossil fuels, industrial discharges, or moth repellents. Exposure to large amounts of naphthalene may damage or destroy some of your red blood cells. Naphthalene has caused cancer in animals. Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene have been found in at least 687, 36, and 412, respectively, of the 1,662 National Priority List sites identified by the Environmental Protection Agency (EPA).

What are naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene?

Naphthalene is a white solid that evaporates easily. Fuels such as petroleum and coal contain naphthalene. It is also called white tar, and tar camphor, and has been used in mothballs and moth flakes. Burning tobacco or wood produces naphthalene. It has a strong, but not unpleasant smell. The major commercial use of naphthalene is in the manufacture of polyvinyl chloride (PVC) plastics. Its major consumer use is in moth repellents and toilet deodorant blocks.

1-Methylnaphthalene and 2-methylnaphthalene are naphthalene-related compounds. 1-Methylnaphthalene is a clear liquid and 2-methylnaphthalene is a solid; both can be smelled in air and in water at very low concentrations.

1-Methylnaphthalene and 2-methylnaphthalene are used to make other chemicals such as dyes and resins. 2-Methylnaphthalene is also used to make vitamin K.

What happens to naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene when they enter the environment?

❏ Naphthalene enters the environment from industrial and domestic sources, and from accidental spills.

❏ Naphthalene can dissolve in water to a limited degree and may be present in drinking water from wells close to hazardous waste sites and landfills.

❏ Naphthalene can become weakly attached to soil or pass through soil into underground water.

❏ In air, moisture and sunlight break it down within 1 day. In water, bacteria break it down or it evaporates into the air.

❏ Naphthalene does not accumulate in the flesh of animals or fish that you might eat.

❏ 1-Methylnaphthalene and 2-methylnaphthalene are expected to act like naphthalene in air, water, or soil because they have similar chemical and physical properties.

How might I be exposed to naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene?

❏ Breathing low levels in outdoor air.

❏ Breathing air contaminated from industrial discharges or smoke from burning wood, tobacco, or fossil fuels.

❏ Using or making moth repellents, coal tar products, dyes or inks could expose you to these chemicals in the air.

❏ Drinking water from contaminated wells.

❏ Touching fabrics that are treated with moth repellents containing naphthalene.

❏ Exposure to naphthalene, 1-methylnaphthalene and 2-methylnaphthalene from eating foods or drinking beverages is unlikely.

How can naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene affect my health?

Exposure to large amounts of naphthalene may damage or destroy some of your red blood cells. This could cause you to have too few red blood cells until your body replaces the destroyed cells. This condition is called hemolytic anemia. Some symptoms of hemolytic anemia are fatigue, lack of appetite, restlessness, and pale skin. Exposure to large amounts of naphthalene may also cause nausea, vomiting, diarrhea, blood in the urine, and a yellow color to the skin. Animals sometimes develop cloudiness in their eyes after swallowing high amounts of naphthalene. It is not clear whether this also develops in people. Rats and mice that breathed naphthalene vapors daily for a lifetime developed irritation and inflammation of their nose and lungs. It is unclear if naphthalene

causes reproductive effects in animals; most evidence says it does not.

There are no studies of humans exposed to 1-methylnaphthalene or 2-methylnaphthalene.

Mice fed food containing 1-methylnaphthalene and 2-methylnaphthalene for most of their lives had part of their lungs filled with an abnormal material.

How likely are naphthalene, 1-methylnaphthalene, or 2-methylnaphthalene to cause cancer?

There is no direct evidence in humans that naphthalene, 1-methylnaphthalene, or 2-methylnaphthalene cause cancer. However, cancer from naphthalene exposure has been seen in animal studies. Some female mice that breathed naphthalene vapors daily for a lifetime developed lung tumors. Some male and female rats exposed to naphthalene in a similar manner also developed nose tumors.

Based on the results from animal studies, the Department of Health and Humans Services (DHHS) concluded that naphthalene is reasonably anticipated to be a human carcinogen. The International Agency for Research on Cancer (IARC) concluded that naphthalene is possibly carcinogenic to humans. The EPA determined that naphthalene is a possible human carcinogen (Group C) and that the data are inadequate to assess the human carcinogenic potential of 2-methylnaphthalene.

How can naphthalene, 1-methylnaphthalene, or 2-methylnaphthalene affect children?

Hospitals have reported many cases of hemolytic anemia in children, including newborns and infants, who either ate naphthalene mothballs or deodorants cakes or who were in close contact with clothing or blankets stored in naphthalene mothballs. Naphthalene can move from a pregnant woman's blood to the unborn baby's blood. Naphthalene has been detected in some samples of breast milk from the general U.S. population, but not at levels that are expected to be of concern.

There is no information on whether naphthalene has affected development in humans. No developmental abnormalities were observed in the offspring from rats, mice, and rabbits fed naphthalene during pregnancy.

We do not have any information on possible health effects of 1-methylnaphthalene or 2-methylnaphthalene on children.

How can families reduce the risks of exposure to naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene?

❏ Families can reduce the risks of exposure to naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene by avoiding smoking tobacco, generating smoke during cooking, or using fireplaces or heating appliances in the their homes.

❏ If families use naphthalene-containing moth repellents, the material should be enclosed in containers that prevent vapors from escaping, and kept out of the reach from children.

❏ Blankets and clothing stored with naphthalene moth repellents should be aired outdoors to remove naphthalene odors and washed before they are used.

❏ Families should inform themselves of the contents of air deodorizers that are used in their homes and refrain from using deodorizers with naphthalene.

Is there a medical test to determine whether I've been exposed to naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene?

Tests are available that measure levels of these chemicals and their breakdown products in samples of urine, feces, blood, maternal milk, or body fat. These tests are not routinely available in a doctor's office because they require special equipment, but samples can be sent to special testing laboratories. These tests cannot determine exactly how much naphthalene, 1-methylnaphthalene, or 2-methylnaphthalene you were exposed to or predict whether harmful effects will occur. If the samples are collected within a day or two of exposure, then the tests can show if you were exposed to a large or small amount of naphthalene, 1-methylnaphthalene, or 2-methylnaphthalene.

Has the federal government made recommendations to protect human health?

The EPA recommends that children not drink water with over 0.5 parts per million (0.5 ppm) naphthalene for more than 10 days or over 0.4 ppm for any longer than 7 years. Adults should not drink water with more than 1 ppm for more than 7 years. For water consumed over a lifetime (70 years), the EPA suggests that it contain no more than 0.1 ppm naphthalene.

The Occupational Safety and Health Administration (OSHA) set a limit of 10 ppm for the level of naphthalene in workplace air during an 8-hour workday, 40-hour workweek. The National Institute for Occupational Safety and Health (NIOSH) considers more than 500 ppm of naphthalene in air to be immediately dangerous to life or health. This is the exposure level of a chemical that is likely to impair a worker's ability to leave a contaminate area and therefore, results in permanent health problems or death.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2005. Toxicological Profile for Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Polycyclic Aromatic Hydrocarbons (PAHs) - ToxFAQs™

This fact sheet answers the most frequently asked health questions (FAQs) about polycyclic aromatic hydrocarbons (PAHs). For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to polycyclic aromatic hydrocarbons usually occurs by breathing air contaminated by wild fires or coal tar, or by eating foods that have been grilled. PAHs have been found in at least 600 of the 1,430 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What are polycyclic aromatic hydrocarbons?

(Pronounced pŏl′ĭ-sī′klĭk ăr′ə-măt′ĭk hī′drə-kar′bənz)

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

What happens to PAHs when they enter the environment?

- PAHs enter the air mostly as releases from volcanoes, forest fires, burning coal, and automobile exhaust.
- PAHs can occur in air attached to dust particles.
- Some PAH particles can readily evaporate into the air from soil or surface waters.
- PAHs can break down by reacting with sunlight and other chemicals in the air, over a period of days to weeks.
- PAHs enter water through discharges from industrial and wastewater treatment plants.
- Most PAHs do not dissolve easily in water. They stick to solid particles and settle to the bottoms of lakes or rivers.
- Microorganisms can break down PAHs in soil or water after a period of weeks to months.
- In soils, PAHs are most likely to stick tightly to particles; certain PAHs move through soil to contaminate underground water.
- PAH contents of plants and animals may be much higher than PAH contents of soil or water in which they live.

How might I be exposed to PAHs?

- Breathing air containing PAHs in the workplace of coking, coal-tar, and asphalt production plants; smokehouses; and municipal trash incineration facilities.
- Breathing air containing PAHs from cigarette smoke, wood smoke, vehicle exhausts, asphalt roads, or agricultural burn smoke.
- Coming in contact with air, water, or soil near hazardous waste sites.
- Eating grilled or charred meats; contaminated cereals, flour, bread, vegetables, fruits, meats; and processed or pickled foods.
- Drinking contaminated water or cow's milk.
- Nursing infants of mothers living near hazardous waste sites may be exposed to PAHs through their mother's milk.

Polycyclic Aromatic Hydrocarbons

How can PAHs affect my health?

Mice that were fed high levels of one PAH during pregnancy had difficulty reproducing and so did their offspring. These offspring also had higher rates of birth defects and lower body weights. It is not known whether these effects occur in people.

Animal studies have also shown that PAHs can cause harmful effects on the skin, body fluids, and ability to fight disease after both short- and long-term exposure. But these effects have not been seen in people.

How likely are PAHs to cause cancer?

The Department of Health and Human Services (DHHS) has determined that some PAHs may reasonably be expected to be carcinogens.

Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to their skin (skin cancer).

Is there a medical test to show whether I've been exposed to PAHs?

In the body, PAHs are changed into chemicals that can attach to substances within the body. There are special tests that can detect PAHs attached to these substances in body tissues or blood. However, these tests cannot tell whether any health effects will occur or find out the extent or source of your exposure to the PAHs. The tests aren't usually available in your doctor's office because special equipment is needed to conduct them.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set a limit of 0.2 milligrams of PAHs per cubic meter of air (0.2 mg/m^3). The OSHA Permissible Exposure Limit (PEL) for mineral oil mist that contains PAHs is 5 mg/m^3 averaged over an 8-hour exposure period.

The National Institute for Occupational Safety and Health (NIOSH) recommends that the average workplace air levels for coal tar products not exceed 0.1 mg/m^3 for a 10-hour workday, within a 40-hour workweek. There are other limits for workplace exposure for things that contain PAHs, such as coal, coal tar, and mineral oil.

Glossary

Carcinogen: A substance that can cause cancer.

Ingest: Take food or drink into your body.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for polycyclic aromatic hydrocarbons. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636.

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

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ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

AUTOMOTIVE GASOLINE
CAS # 8006-61-9

Agency for Toxic Substances and Disease Registry ToxFAQs **September 1996**

This fact sheet answers the most frequently asked health questions (FAQs) about automobile gasoline. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to automotive gasoline most likely occurs from breathing its vapor at a service station while filling a car's fuel tank. At high levels, automotive gasoline is irritating to the lungs when breathed in and irritating to the lining of the stomach when swallowed. Exposure to high levels may also cause harmful effects to the nervous system. Automotive gasoline has been found in at least 23 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is automotive gasoline?

(Pronounced ô′tə-mō′tĭv găs′ə-lēn′)

The gasoline discussed in this fact sheet is automotive used as a fuel for engines in cars. Gasoline is a colorless, pale brown, or pink liquid, and is very flammable.

Gasoline is a manufactured mixture that does not exist naturally in the environment. Gasoline is produced from petroleum in the refining process.

Typically, gasoline contains more than 150 chemicals, including small amounts of benzene, toluene, xylene, and sometimes lead. How the gasoline is made determines which chemicals are present in the gasoline mixture and how much of each is present. The actual composition varies with the source of the crude petroleum, the manufacturer, and the time of year.

What happens to automotive gasoline when it enters the environment?

- Small amounts of the chemicals present in gasoline evaporate into the air when you fill the gas tank in your car or when gasoline is accidentally spilled onto surfaces and soils or into surface waters.
- Other chemicals in gasoline dissolve in water after spills to surface waters or underground storage tank leaks into the groundwater.
- In surface releases, most chemicals in gasoline will probably evaporate; others may dissolve and be carried away by water; a few will probably stick to soil.
- The chemicals that evaporate are broken down by sunlight and other chemicals in the air.
- The chemicals that dissolve in water also break down quickly by natural processes.

How might I be exposed to automotive gasoline?

- Breathing vapors at a service station when filling the car's fuel tank is the most likely way to be exposed.
- Working at a service station.
- Using equipment that runs on gasoline, such as a lawn mower.
- Drinking contaminated water.
- Being close to a spot where gasoline has spilled or leaked into the soil.

How can automotive gasoline affect my health?

Many of the harmful effects seen after exposure to gasoline are due to the individual chemicals in the gasoline mix-

ture, such as benzene and lead. Inhaling or swallowing large amounts of gasoline can cause death.

Inhaling high concentrations of gasoline is irritating to the lungs when breathed in and irritating to the lining of the stomach when swallowed. Gasoline is also a skin irritant. Breathing in high levels of gasoline for short periods or swallowing large amounts of gasoline may also cause harmful effects on the nervous system.

Serious nervous system effects include coma and the inability to breathe, while less serious effects include dizziness and headaches.

There is not enough information available to determine if gasoline causes birth defects or affects reproduction.

How likely is automotive gasoline to cause cancer?

The Department of Health and Human Services (DHHS) and the International Agency for Research on Cancer (IARC) have not classified automotive gasoline for carcinogenicity. Automotive gasoline is currently undergoing review by the EPA for cancer classification.

Some laboratory animals that breathed high concentrations of unleaded gasoline vapors continuously for 2 years developed liver and kidney tumors. However, there is no evidence that exposure to gasoline causes cancer in humans.

Is there a medical test to show whether I've been exposed to automotive gasoline?

Laboratory tests are available that can measure elevated blood or urine levels of lead (as an indication of exposure to leaded gasoline only), benzene, or other substances that may result from exposure to gasoline or other sources. These methods are sensitive enough to measure background levels and levels where health effects may occur. These tests aren't available in most doctors' offices, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The EPA has established many regulations to control air pollution. These are designed to protect the public from the possible harmful health effects of gasoline.

The American Conference of Governmental Industrial Hygienists (ACGIH) set a maximum level of 890 milligrams of gasoline per cubic meter of air (890 mg/m^3) for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: Ability to cause cancer.

CAS: Chemical Abstracts Service.

Crude petroleum: Petroleum that has not been processed.

Dissolve: To disappear gradually.

Evaporate: To change into a vapor or a gas.

Irritant: A substance that causes an abnormal reaction.

Mixture: A combination of two or more components.

Refining process: The process by which petroleum is purified to form gasoline.

Tumor: An abnormal mass of tissue.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for automotive gasoline. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

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AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

FUEL OILS

CAS # 8008-20-6, 70892-10-3, 68476-30-2, 68476-34-6, 68476-31-3

This fact sheet answers the most frequently asked health questions (FAQs) about fuel oils. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Fuel oils are liquid mixtures produced from petroleum, and their use mostly involves burning them as fuels. Drinking or breathing fuel oils may cause nausea or nervous system effects. However, exposure under normal use conditions is not likely to be harmful. Fuel oils have been found in at least 26 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What are fuel oils?

(Pronounced fyo͞o′əl oilz)

Fuel oils are a variety of yellowish to light brown liquid mixtures that come from crude petroleum. Some chemicals found in fuel oils may evaporate easily, while others may more easily dissolve in water.

Fuel oils are produced by different petroleum refining processes, depending on their intended uses. Fuel oils may be used as fuel for engines, lamps, heaters, furnaces, and stoves, or as solvents.

Some commonly found fuel oils include kerosene, diesel fuel, jet fuel, range oil, and home heating oil. These fuel oils differ from one another by their hydrocarbon compositions, boiling point ranges, chemical additives, and uses.

What happens to fuel oils when they enter the environment?

- Some chemicals found in fuel oils may evaporate into the air from open containers or contaminated soil or water.
- Some chemicals found in fuel oils may dissolve in water after spills to surface waters or leaks from underground storage tanks.
- Some chemicals found in fuel oils may stick to particles in water, which will eventually cause them to settle to the bottom sediment.
- Some of the chemicals found in fuel oils may be broken down slowly in air, water, and soil by sunlight or small organisms.
- Some of the chemicals found in fuel oils may build up significantly in plants and animals.

How might I be exposed to fuel oils?

- Using a home kerosene heater or stove, or using fuel oils at work.
- Breathing air in home or building basements that has been contaminated with fuel oil vapors entering from the soil.
- Drinking or swimming in water that has been contaminated with fuel oils from a spill or a leaking underground storage tank.
- Touching soil contaminated with fuel oils.
- Using fuel oils to wash paint or grease from skin or equipment.

How can fuel oils affect my health?

Little information is available about the health effects that may be caused by fuel oils. People who use kerosene

stoves for cooking do not seem to have any health problems related to their exposure.

Breathing some fuel oils for short periods may cause nausea, eye irritation, increased blood pressure, headache, lightheadedness, loss of appetite, poor coordination, and difficulty concentrating. Breathing diesel fuel vapors for long periods may cause kidney damage and lower your blood's ability to clot.

Drinking small amounts of kerosene may cause vomiting, diarrhea, coughing, stomach swelling and cramps, drowsiness, restlessness, painful breathing, irritability, and unconsciousness. Drinking large amounts of kerosene may cause convulsions, coma, or death. Skin contact with kerosene for short periods may cause itchy, red, sore, or peeling skin.

How likely are fuel oils to cause cancer?

The International Agency for Research on Cancer (IARC) has determined that some fuel oils (heavy) may possibly cause cancer in humans, but for other fuel oils (light) there is not enough information to make a determination. IARC has also determined that occupational exposures to fuel oils during petroleum refining are probably carcinogenic in humans.

Some studies with mice have suggested that repeated contact with fuel oils may cause liver or skin cancer. However, other mouse studies have found this not to be the case. No studies are available in other animals or in people on the carcinogenic effects of fuel oils.

Is there a medical test to show whether I've been exposed to fuel oils?

There is no medical test that shows if you have been exposed to fuel oils. Tests are available to determine if some of the chemicals commonly found in fuel oils are in your blood. However, the presence of these chemicals in blood may not necessarily mean that you have been exposed to fuel oils.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) and the Air Force Office of Safety and Health (AFOSH) have set a permissible exposure level (PEL) of 400 parts of petroleum distillates per million parts of air (400 ppm) for an 8-hour workday, 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) recommends that average workplace air levels not exceed 350 milligrams of petroleum distillates per cubic meter of air (350 mg/m^3) for a 40-hour workweek.

The Department of Transportation (DOT) lists fuel oils as hazardous materials and, therefore, regulates their transportation.

Glossary

Carcinogenic: Able to cause cancer.

CAS: Chemical Abstracts Service.

Evaporate: To change into a vapor or a gas.

Hydrocarbon: Any compound made up of hydrogen and carbon.

Milligram (mg): One thousandth of a gram.

ppm: Parts per million.

Sediment: Mud and debris that have settled to the bottom of a body of water.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for fuel oils. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone:1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Ethylbenzene- ToxFAQs™

CAS # 100-41-4

This fact sheet answers the most frequently asked health questions (FAQs) about ethylbenzene. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Ethylbenzene is a colorless liquid found in a number of products including gasoline and paints. Breathing very high levels can cause dizziness and throat and eye irritation. Breathing lower levels has resulted in hearing effects and kidney damage in animals. Ethylbenzene has been found in at least 829 of 1,699 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is ethylbenzene?

Ethylbenzene is a colorless, flammable liquid that smells like gasoline.

It is naturally found in coal tar and petroleum and is also found in manufactured products such as inks, pesticides, and paints.

Ethylbenzene is used primarily to make another chemical, styrene. Other uses include as a solvent, in fuels, and to make other chemicals.

What happens to ethylbenzene when it enters the environment?

- Ethylbenzene moves easily into the air from water and soil.
- It takes about 3 days for ethylbenzene to be broken down in air into other chemicals.
- In surface water, ethylbenzene breaks down by reacting with other chemicals found naturally in water.
- Ethylbenzene can move through soil into groundwater.
- In soil, it is broken down by bacteria.

How might I be exposed to ethylbenzene?

- If you live in a city or near many factories or heavily traveled highways, you may be exposed to ethylbenzene in air.
- Releases of ethylbenzene into the air occur from burning oil, gas, and coal and from industries using ethylbenzene.
- Ethylbenzene is not often found in drinking water. Higher levels may be found in residential drinking water wells near landfills, waste sites, or leaking underground fuel storage tanks.
- Exposure can occur if you work in an industry where ethylbenzene is used or made.
- Exposure can occur if you use products containing it, such as gasoline, carpet glues, varnishes, and paints.

How can ethylbenzene affect my health?

Exposure to high levels of ethylbenzene in air for short periods can cause eye and throat irritation. Exposure to higher levels can result in dizziness.

Irreversible damage to the inner ear and hearing has been observed in animals exposed to relatively low concentrations of ethylbenzene for several days to weeks.

Exposure to relatively low concentrations of ethylbenzene in air for several months to years causes kidney damage in animals.

How likely is ethylbenzene to cause cancer?

The International Agency for Research on Cancer (IARC) has determined that ethylbenzene is a possible human carcinogen.

Ethylbenzene

CAS # 100-41-4

How does ethylbenzene affect children?

There are no studies evaluating the effects of ethylbenzene exposure on children or immature animals. It is likely that children would have the same health effects as adults. We do not know whether children would be more sensitive than adults to the effects of ethylbenzene.

We do not know if ethylbenzene will cause birth defects in humans. Minor birth defects and low birth weight have occurred in newborn animals whose mothers were exposed to ethylbenzene in air during pregnancy.

How can families reduce the risk of exposure to ethylbenzene?

- Use adequate ventilation to reduce exposure to ethylbenzene vapors from consumer products such as gasoline, pesticides, varnishes and paints, and newly installed carpeting.
- Sometimes older children sniff household chemicals, including ethylbenzene, in an attempt to get high. Talk with your children about the dangers of sniffing chemicals.
- Household chemicals should be stored out of reach of children to prevent accidental poisoning. Always store household chemicals in their original containers; never store them in containers that children would find attractive to eat or drink from, such as old soda bottles. Gasoline should be stored in a gasoline can with a locked cap.

Is there a medical test to show whether I've been exposed to ethylbenzene?

Ethylbenzene is found in the blood, urine, breath, and some body tissues of exposed people. The most common way to test for ethylbenzene is in the urine. This test measures substances formed by the breakdown of ethylbenzene. Because these substances leave the body very quickly, this test needs to be done within a few hours after exposure occurs.

These tests can show you were exposed to ethylbenzene, but cannot predict the kind of health effects that might occur.

Has the federal government made recommendations to protect human health?

The EPA has determined that exposure to ethylbenzene in drinking water at concentrations of 30 mg/L for 1 day or 3 mg/L for 10 days is not expected to cause any adverse effects in a child.

The EPA has determined that lifetime exposure to 0.7 mg/L ethylbenzene is not expected to cause any adverse effects.

The Occupational Health and Safety Administration (OSHA) has limited workers' exposure to an average of 100 ppm for an 8-hour workday, 40-hour workweek.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2010. Toxicological Profile for Ethylbenzene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

TOTAL PETROLEUM HYDROCARBONS (TPH)

Agency for Toxic Substances and Disease Registry ToxFAQs **August 1999**

This fact sheet answers the most frequently asked health questions (FAQs) about total petroleum hydrocarbons (TPH). For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: TPH is a mixture of many different compounds. Everyone is exposed to TPH from many sources, including gasoline pumps, spilled oil on pavement, and chemicals used at home or work. Some TPH compounds can affect your nervous system, causing headaches and dizziness. TPH has been found in at least 23 of the 1,467 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What are total petroleum hydrocarbons?

(Pronounced tōt′l pə-trō′lē-əm hī′drə-kär′bənz)

Total petroleum hydrocarbons (TPH) is a term used to describe a large family of several hundred chemical compounds that originally come from crude oil. Crude oil is used to make petroleum products, which can contaminate the environment. Because there are so many different chemicals in crude oil and in other petroleum products, it is not practical to measure each one separately. However, it is useful to measure the total amount of TPH at a site.

TPH is a mixture of chemicals, but they are all made mainly from hydrogen and carbon, called hydrocarbons. Scientists divide TPH into groups of petroleum hydrocarbons that act alike in soil or water. These groups are called petroleum hydrocarbon fractions. Each fraction contains many individual chemicals.

Some chemicals that may be found in TPH are hexane, jet fuels, mineral oils, benzene, toluene, xylenes, naphthalene, and fluorene, as well as other petroleum products and gasoline components. However, it is likely that samples of TPH will contain only some, or a mixture, of these chemicals.

What happens to TPH when it enters the environment?

- TPH may enter the environment through accidents, from industrial releases, or as byproducts from commercial or private uses.
- TPH may be released directly into water through spills or leaks.
- Some TPH fractions will float on the water and form surface films.
- Other TPH fractions will sink to the bottom sediments.
- Bacteria and microorganisms in the water may break down some of the TPH fractions.
- Some TPH fractions will move into the soil where they may stay for a long time.

How might I be exposed to TPH?

- Everyone is exposed to TPH from many sources.
- Breathing air at gasoline stations, using chemicals at home or work, or using certain pesticides.
- Drinking water contaminated with TPH.
- Working in occupations that use petroleum products.
- Living in an area near a spill or leak of petroleum products.
- Touching soil contaminated with TPH.

ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html

How can TPH affect my health?

Some of the TPH compounds can affect your central nervous system. One compound can cause headaches and dizziness at high levels in the air. Another compound can cause a nerve disorder called "peripheral neuropathy," consisting of numbness in the feet and legs. Other TPH compounds can cause effects on the blood, immune system, lungs, skin, and eyes.

Animal studies have shown effects on the lungs, central nervous system, liver, and kidney from exposure to TPH compounds. Some TPH compounds have also been shown to affect reproduction and the developing fetus in animals.

How likely is TPH to cause cancer?

The International Agency for Research on Cancer (IARC) has determined that one TPH compound (benzene) is carcinogenic to humans. IARC has determined that other TPH compounds (benzo[a]pyrene and gasoline) are probably and possibly carcinogenic to humans. Most of the other TPH compounds are considered not to be classifiable by IARC.

Is there a medical test to show whether I've been exposed to TPH?

There is no medical test that shows if you have been exposed to TPH. However, there are methods to determine if you have been exposed to some TPH compounds. Exposure to kerosene can be determined by its smell on the breath or clothing. Benzene can be measured in exhaled air and a breakdown product of benzene can be measured in urine. Other TPH compounds can be measured in blood, urine, breath, and some body tissues.

Has the federal government made recommendations to protect human health?

There are no regulations or advisories specific to TPH. The following are recommendations for some of the TPH fractions and compounds:

The EPA requires that spills or accidental releases into the environment of 10 pounds or more of benzene be reported to the EPA.

The Occupational Safety and Health Administration has set an exposure limit of 500 parts of petroleum distillates per million parts of air (500 ppm) for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: Ability to cause cancer.

CAS: Chemical Abstracts Service.

Immune system: Body organs and cells that fight disease.

Pesticides: Chemicals used to kill pests.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological profile for total petroleum hydrocarbons (TPH). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATTACHMENT B

Utility Location Report

NYLD **Infrastructure**

NEW YORK LEAK DETECTION, INC.
PO Box 269, Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Date(s) on site: 10/11/19

Technician: Sonny Kentile **Other Technicians on site:**

Customer: Paulus Development

Site Address: Smith Restaurant Supply Building Site -- 500 Erie Blvd East Syracuse, NY

Contact Person: John Sheffield **Phone:** 315-559-4034

Scope of Work: Utility Location Services – locate potential utilities and UST. Less than 1 acre. Area is asphalt & concrete. Active retail site, former foundry.

Type of Service: *mark all that apply*

- ☐ *Leak Detection*
- ☐ *Comprehensive Leak Survey*
- ☐ *Pressurized Pipe Inspection*
- ☐ *Infrastructure Assessment*
- ☒ *Utility Location/GPR*
- ☐ *Utility Mapping/AutoCAD*
- ☐ *EM Survey*
- ☐ *Video Inspection*
- ☐ *Valve Exercising*

Type of Equipment Used: *mark all that apply*

- ☐ *Profiler EMP 400*
- ☒ *RD8000 Pipe & Cable Locator*
- ☐ *MetroTech vLocPro2*
- ☐ *LC2500 Leak Correlator*
- ☒ *Noggin 250 MHz*
- ☐ *PosiTector UTG G3*
- ☐ *S-30 Surveyor*
- ☐ *Noggin 500 MHz*
- ☐ *Video Inspection Camera*
- ☐ *Sonde / Locatable Rodder*
- ☐ *Conquest 1000 MHz*
- ☐ *Helium # Bottles*
- ☐ *Leica Robotic Total Station*
- ☐ *Leica RTK GPS*
- ☐ *JD7 Investigator*
- ☐ *Valve Maintenance Trailer*
- ☐ *Thermal Imaging Camera*
- ☐ *ZCorr Data Loggers*

Marking Used: *mark all that apply*

- ☒ *Paint*
- ☒ *Flags*
- ☐ *Chalk/Marker*
- ☐ *Tape*
- ☐ *Updated Onsite Mapping*
- ☐ *Other _____*

NYLD Infrastructure

NEW YORK LEAK DETECTION, INC.
PO Box 269, Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Site Access/Safety Training: N/A **Expiration Date:** N/A

Ground Cover/Weather Conditions: Asphalt & Concrete / 50's & Sunny

Instructions from Onsite Contact: We are investigating to see if there are any possible sources of contamination throughout the property. Clear all utilities and search for UST's throughout areas specified (see provided mapping and overview below).

Information Transfer:

☒ *Information relayed on site to:*

John Sheffield

In addition to this field report, mark all that apply:

☐ *Hand drawn sketch*
☐ *Maps updated onsite*
☐ *Photographs*
☐ *Surveyed by others*
☐ *Surveyed and AutoCAD Mapping by NYLD*

Notes/Testing Results:

A visual inspection was performed in the area of concern to assess for utility structures. Utilizing the RD8000 in conductive, inductive, and power/radio modes, located and marked out utilities as shown in the area below. Sonde/Locatable Rodder was used within applicable utilities. Additional confirmation performed with the Noggin using the 250 and/or 500 MHz antenna. GPR signal reception varies depending upon soil conditions. Therefore, it is utilized in combination with various other geophysical tools for the most accurate verification of known/unknown utilities and/or structures.

Utilities were painted in appropriate color, marked with flags and depths provided where possible.

Vehicle congestion as well as dumpster and pallet locations in the side parking area severely restricted scanning abilities. Noted in google overview.

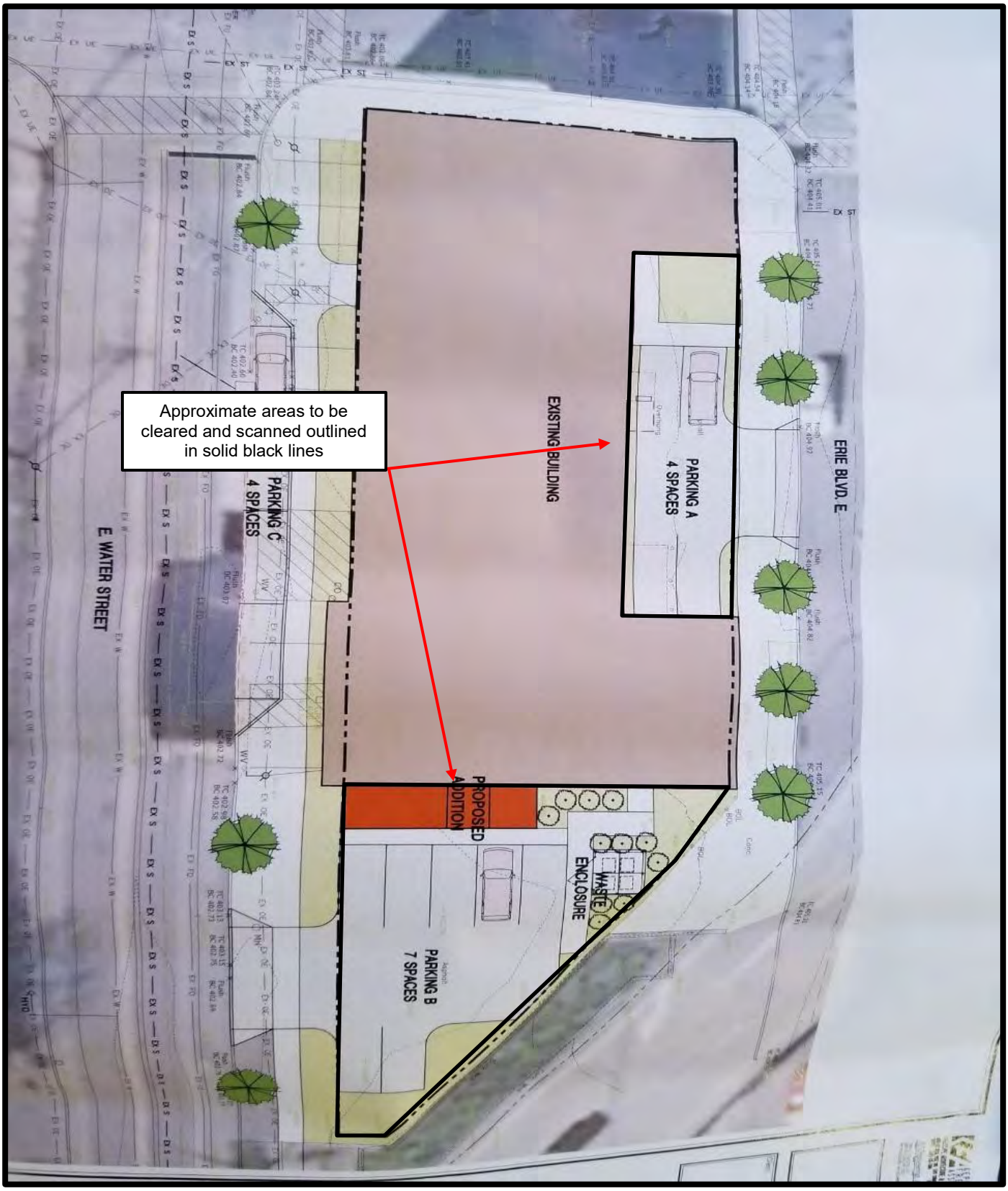
This report is back up to information relayed and marked on site at time of service. It is for informational purposes only.

NYLD **Infrastructure**

NEW YORK LEAK DETECTION, INC.
PO Box 269, Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Provided Mapping



NYLD Infrastructure

NEW YORK LEAK DETECTION, INC.
PO Box 269, Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Key

Blue	Water
Red	Power
Orange	Communications
Yellow	Gas/Flammable Fuel
White	Unknown
Green	Storm/Sanitary

NYLD **Infrastructure**

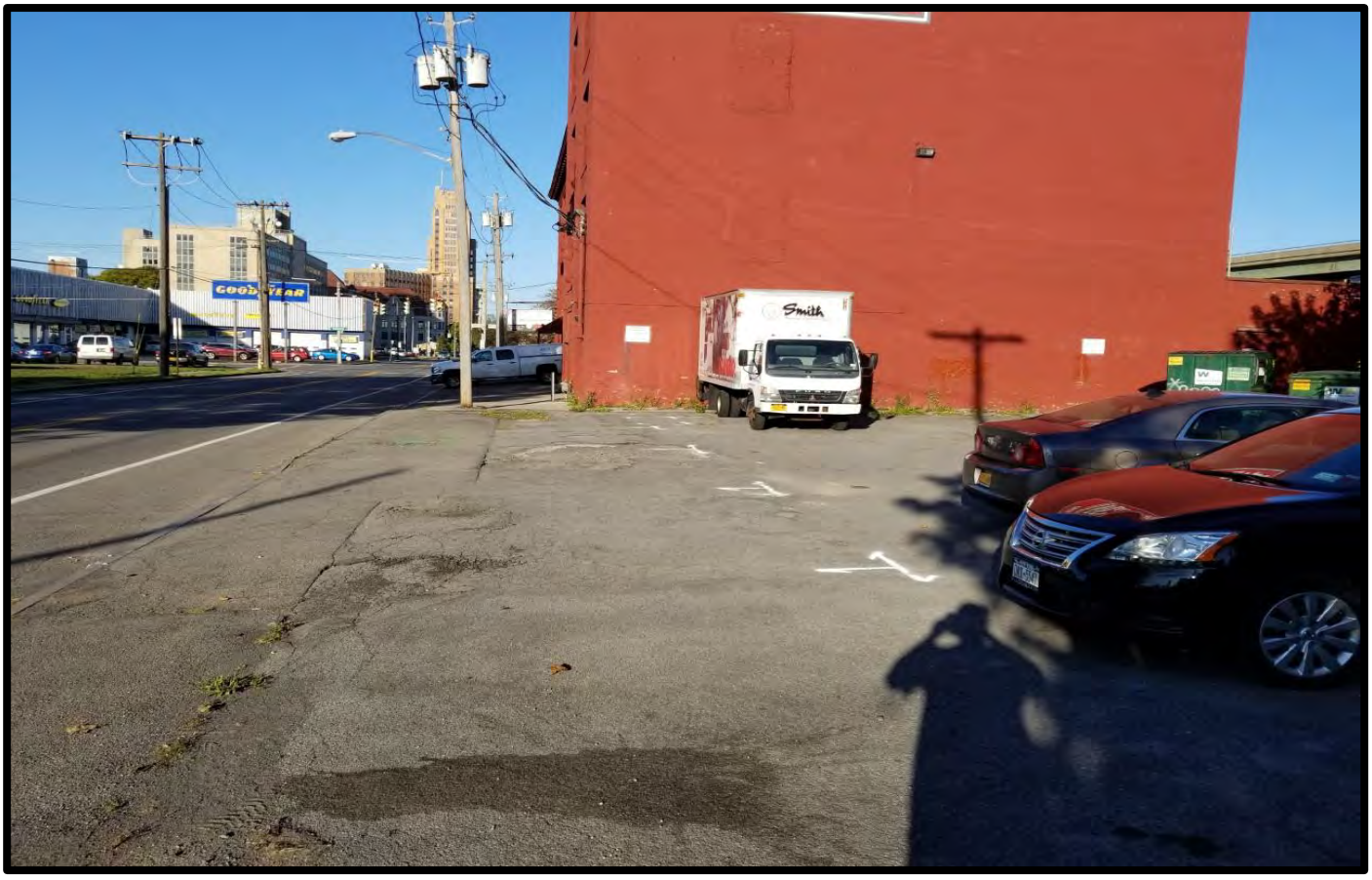
NEW YORK LEAK DETECTION, INC.
PO Box 269, Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

NYLD **Infrastructure**

NEW YORK LEAK DETECTION, INC.
PO Box 269, Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location



NYLD Infrastructure

NEW YORK LEAK DETECTION, INC.
PO Box 269, Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Subsurface Limitations

Utility locating is the art and science of using non-intrusive methods to search for, find and mark out buried, unseen conduits or other objects. There are innumerable variables involved in locating underground utilities, such as topography, size and complexity of job site, depth and proximity of buried utilities, above ground obstructions, short turnaround schedules, changes in the scope of work, lack of (or outdated) blueprints and adverse weather conditions.

New York Leak Detection, Inc. (NYLD) has made a substantial financial investment in crossover technologies and training to meet our clients' needs when locating and mapping utilities. However, due to unpredictable factors that may affect the results, NYLD makes no guarantee, expressed or implied, with respect to the completeness or accuracy of the information provided. Any use or reliance on the information or opinion is at the risk of the user and NYLD shall not be liable for any damage or injury arising out of the use or misuse of the information provided.

NYLD strives to provide the highest quality utility location services possible with the technical expertise of our field specialists and state-of-the-art equipment used. Every effort is made to provide our clients with the most accurate information possible without adverse consequences.

NYLD makes no guarantee that all subsurface utilities and obstructions will be detected. GPR signal penetration might not be sufficient to detect all utilities. NYLD is not responsible for detecting subsurface utilities and obstructions that normally cannot be detected by the methods employed or that cannot be detected because of site conditions. NYLD is not responsible for maintaining mark-outs after leaving the work area. Mark-outs made in inclement weather and in high traffic areas may not last. Surveyor assumes responsibility of picking up data on site.

Appendix F

Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

Site Management Plan
The Smith Restaurant Building
City of Syracuse, New York

November 2021

TABLE OF CONTENTS

FIGURES

1.0 INTRODUCTION

A Community Air Monitoring Plan (CAMP) requires real-time observation / monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites.

The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and / or work shutdown.

2.0 APPLICABILITY

Continuous monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) will be required for all ground intrusive activities, including but not limited to, soil excavation, handling, and trenching.

CAMP monitoring is not required when using hand tools for shallow / surface soil activities, provided that activities do not occur during extremely dry or windy conditions to minimize any off-site migration of contaminated soil particles.

CAMP monitoring will not be required for an area after a demarcation barrier is placed over the area and secured, unless further intrusive activities occur that penetrate the barrier.

3.0 GENERAL SITE CONDITIONS

The prevailing wind generally blows from west to east. However, monitoring locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least one downwind monitoring station. The attached Figure 1 illustrates the likely location of monitoring stations associated with the site.

At this time, the primary chemicals of concern include the following:

- Gasoline-related compounds
- Diesel-related compounds
- Oil-related compounds
- Metals (primarily Lead)
- Chlorinated solvents
- Pesticides (primarily DDT and DDD)

4.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

VOCs will be monitored at the downwind perimeter of the immediate work area (i.e. – exclusion zone) on a continuous basis. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring of VOCs will be performed using a photo-ionization detector (PID), which will be calibrated daily. The PID will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below:

Asbestos & Environmental Consulting Corp. ~ 6308 Fly Road, East Syracuse, New York 13057 (315) 432-9400, (315) 432-9405 Fax

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level half the distance to the nearest potential receptor or residential / commercial structure (but not less than 20 feet), is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shut down.

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

5.0 PARTICULATE MONITORING, RESPONSE LEVELS, AND ACTIONS

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the work area or exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using a DUSTTRAK™ Aerosol Monitor Model 8520 (or similar). The device will be capable of measuring particulate matter less than 10 micrometers in size (PM-10), integrating over a period of 15 minutes for comparison to the airborne particulate action level, and equipped with an audible alarm to indicate exceedance of the following action levels:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level, and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and an evaluation of activities will be initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

In addition, fugitive dust migration will be visually assessed during all work activities.

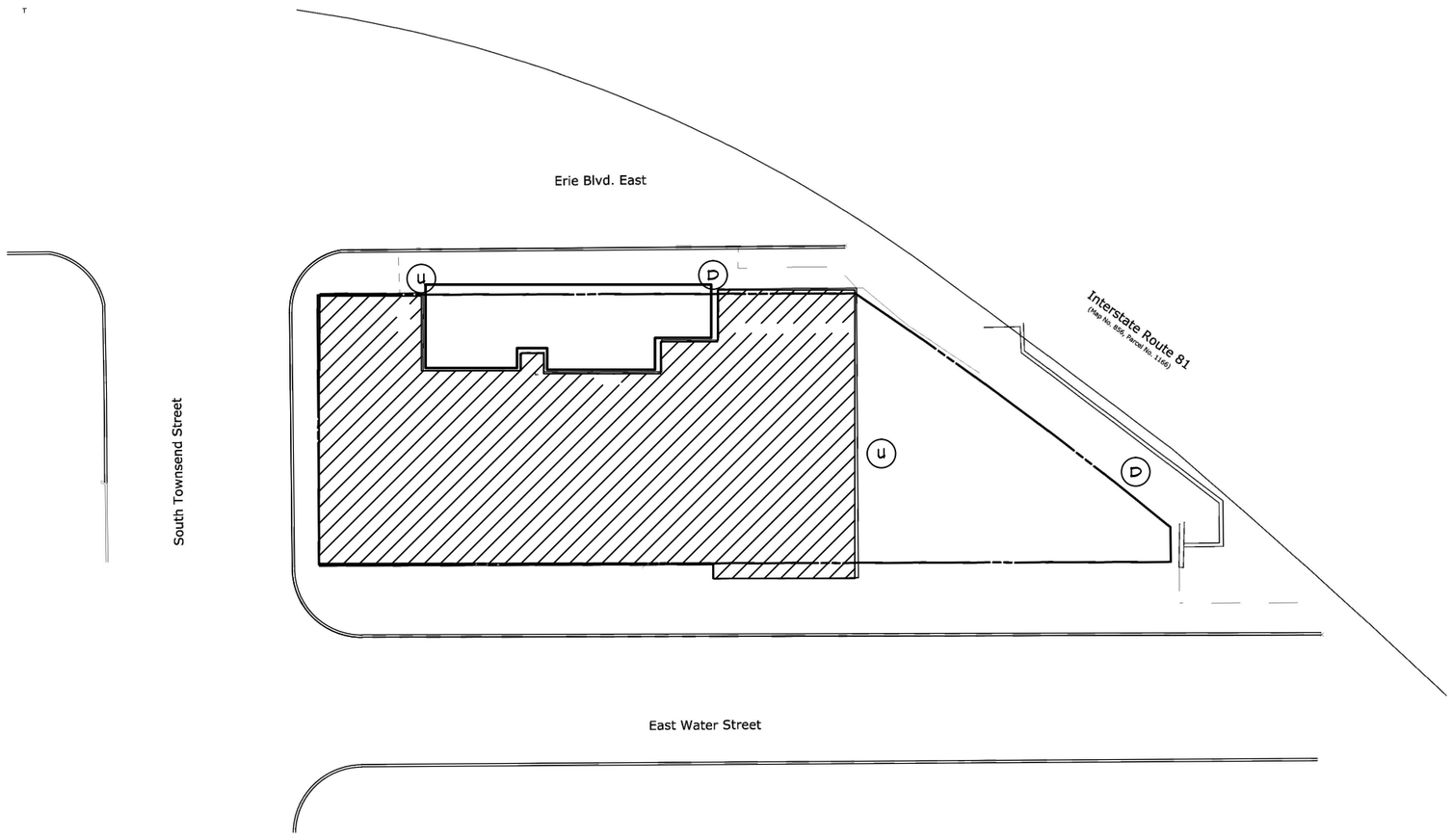
All readings will be recorded and be available for NYSDEC and NYSDOH review.

6.0 MONITORING DURING NON-INTRUSIVE ACTIVITIES

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of groundwater samples from monitoring wells. Periodic monitoring during groundwater sample collection will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap, monitoring during well baling/purging, and taking a reading prior to leaving a sample location.

Asbestos & Environmental Consulting Corp. ~ 6308 Fly Road, East Syracuse, New York 13057 (315) 432-9400, (315) 432-9405 Fax

Figures



LEGEND:

- APPROXIMATE PROPERTY LINE / BROWNFIELD AREA EXTENT
- APPROXIMATE BUILDING FOOTPRINT
- APPROXIMATE / EXAMPLE WORK AREA BOUNDARY
- (u) EXAMPLE UPWIND MONITORING LOCATION
- (D) EXAMPLE DOWNWIND MONITORING LOCATION

NOTES:

1. PROPERTY LINE AND BUILDING PER ENGINEERING DOCUMENT PG 47 SITE PLAN, DATED JULY 2019 .
2. ALL LOCATIONS ARE APPROXIMATE.
3. MONITORING LOCATIONS SHOWN ARE INTENDED FOR EXAMPLE PURPOSES ONLY. ACTUAL MONITORING LOCATIONS WILL BE DETERMINED BY THE AIR SAMPLING TECHNICIAN AT THE TIME OF WORK ACTIVITIES AND BE INFLUENCED BY WORK AREA LAYOUT, WIND DIRECTION, BUILDING STRUCTURES WITH POTENTIAL TO INFLUENCE AIR FLOW, ACCESSIBILITY, AND WITH CONSIDERATION FOR TRAFFIC RELATED DUST, THE SAFETY OF ON-SITE PERSONNEL AND THE PUBLIC. THE EXAMPLE MONITORING LOCATIONS DEPICTED ASSUME WESTERLY WINDS.
4. ONE DOWNWIND MONITORING STATION PER ACTIVE WORK AREA IS EXPECTED TO BE ADEQUATE, BASED ON THE SIZE OF THE SITE AND ANTICIPATED WORK AREAS.

0 — 32'6"' — 75'

GRAPHIC SCALE

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO. 20-032
DRAWN: JUNE 2020
DRAWN BY: DB
CHECKED BY: RDM

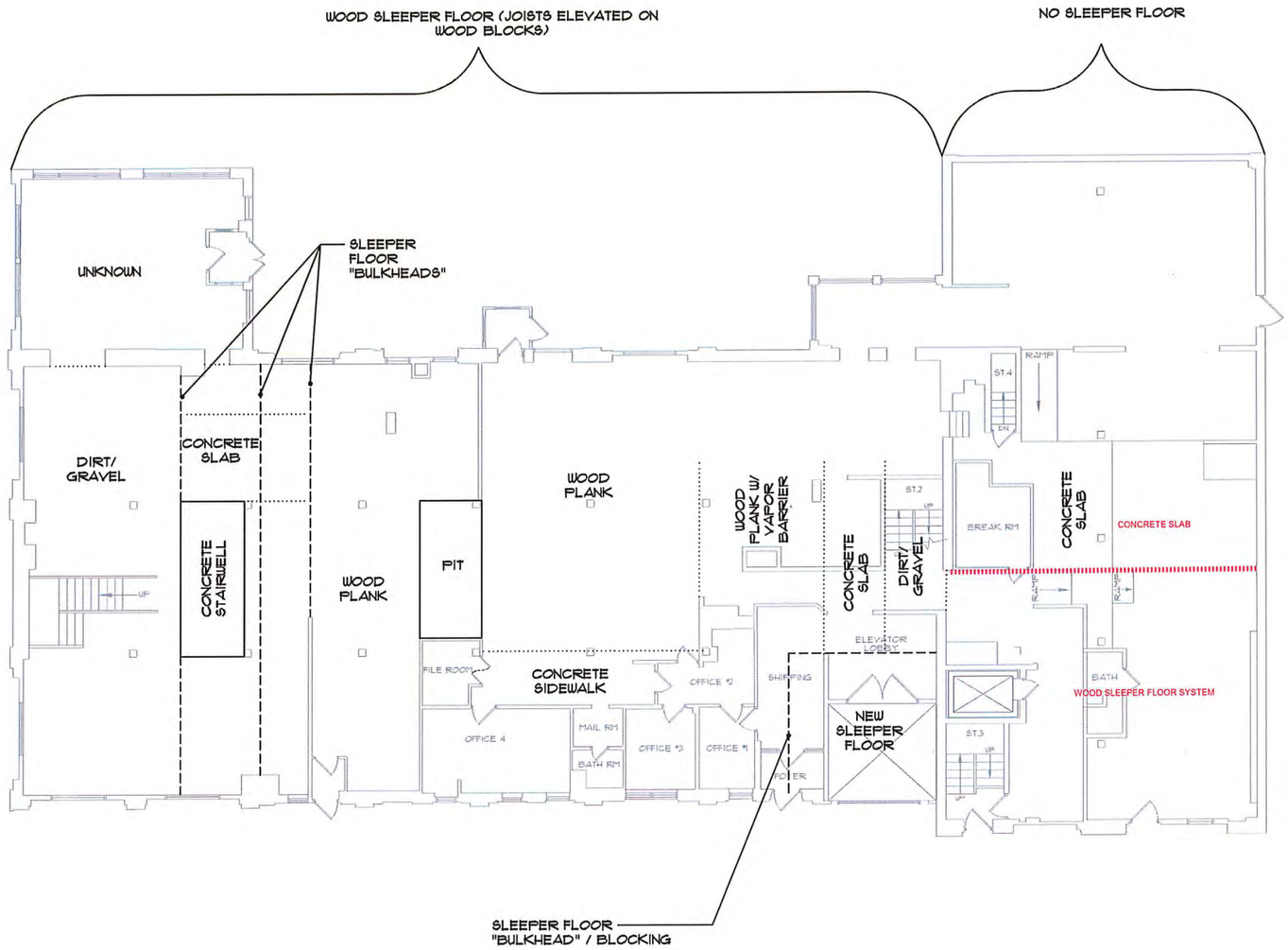
Example Air Monitoring Locations

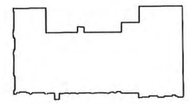
The Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York 13202

FIGURE
CAMP-1

Appendix G

VIMS As-Built Drawings





KEY PLAN

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NOTE: NOT ALL AREAS OF SUB FLOOR WERE VISIBLE AT TIME OF INSPECTION

VAPOR SYSTEM MITIGATION SYSTEM NOTES.

SEE DRAWING # VIMS-004

GENERAL CONSTRUCTION NOTES (BY OTHERS)

SEE DRAWING # VIMS-004

STATE OF NEW YORK ALBERT G. LYONS JR. LICENSED PROFESSIONAL ENGINEER 074710

VIP
ARCHITECTURE
ONE WEBSTERS LANDING
SYRACUSE, NEW YORK 13202
315.471.5338

AECC
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

IPD
ENGINEERING

Smith Restaurant Supply

PAULUS DEVELOPMENT
500 ERIE BLVD E,
SYRACUSE, NY 13021

STATE OF NEW YORK ROBERT GEORGE HANDEL LICENSED PROFESSIONAL ENGINEER 078435

100% CONSTRUCTION SET

MK	DATE	DESCRIPTION
		SHEET ISSUES

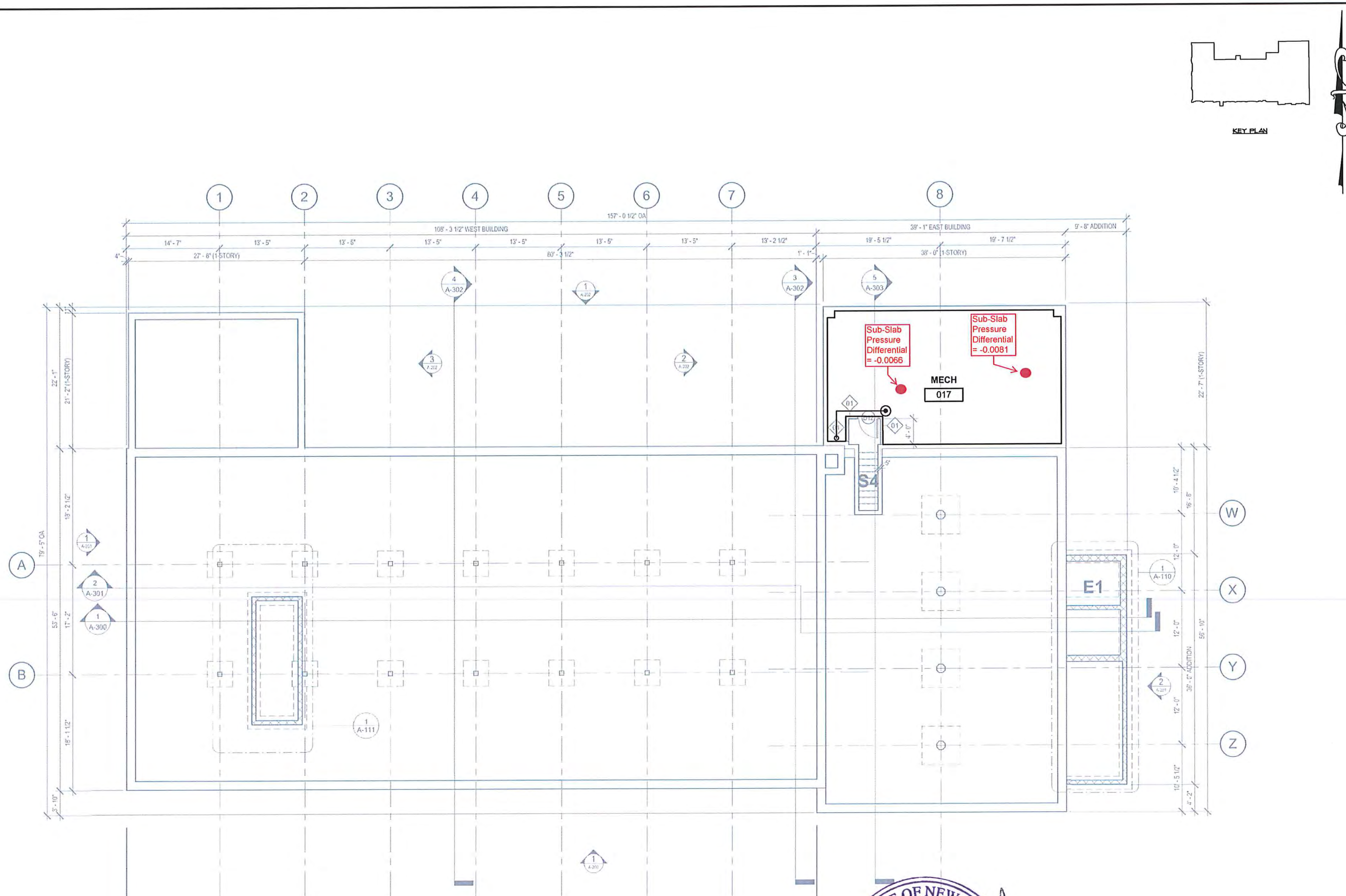
VIP PROJECT NO.	19-2516
FILE NAME	20-032-19 VIMS - 001
DRAWN BY	NP
CHECKED BY	RM

ASBUILT - 12/24/21

First Floor Existing Flooring Systems

SHEET NUMBER

VIMS - 001



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STATE OF NEW YORK · ALBERT G. LYONS · LICENSED PROFESSIONAL ENGINEER · 074710

VAPOR SYSTEM MITIGATION SYSTEM NOTES

SEE DRAWING # VIMS-004

GENERAL CONSTRUCTION NOTES (BY OTHERS)

SEE DRAWING # VIMS-004

LEGEND:

◉ SUB-SLAB VAPOR POINT

—— SOLID PVC

VIP ARCHITECTURE

ONE WEBSTERS LANDING
SYRACUSE, NEW YORK 13202
315.471.5338

AECC
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

IPD ENGINEERING

Smith Restaurant Supply

PAULUS DEVELOPMENT
500 ERIE BLVD E,
SYRACUSE, NY 13021

STATE OF NEW YORK · ROBERT GEORGE HAHN · LICENSED PROFESSIONAL ENGINEER · 079435

100% CONSTRUCTION SET

MK	DATE	DESCRIPTION
--	----	----------------

SHEET ISSUES

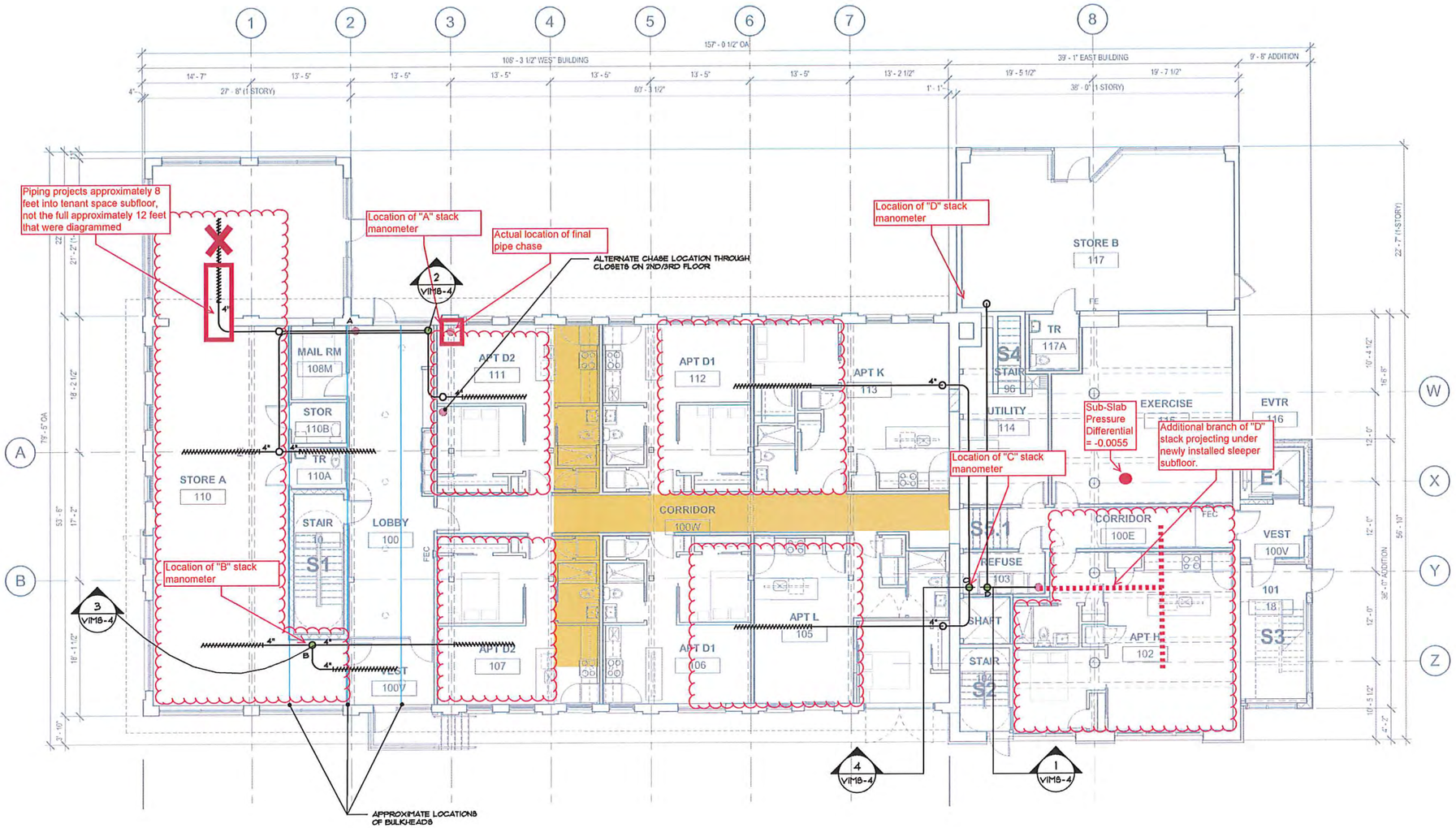
VIP PROJECT NO.	19-2516
FILE NAME	20-032-19 VIMS - 002
DRAWN BY	NP
CHECKED BY	RM

ASBUILT - 11/25/21

VIMS PIPING DIAGRAM BASEMENT LEVEL

SHEET NUMBER

VIMS - 002



KEY PLAN

= AREA OF SMOKE TEST

NOTE: PIPING DIAGRAM REPRESENTS THE CAVITY BENEATH THE WOOD SLEEPER FLOOR SYSTEM.

VAPOR SYSTEM MITIGATION SYSTEM NOTES:

SEE DRAWING # VIMS-004

GENERAL CONSTRUCTION NOTES (BY OTHERS)

SEE DRAWING # VIMS-004

LEGEND:

- ALTERNATE CHASE LOCATIONS
- EXISTING UTILITY TRENCH (TO BE BACKFILLED W/CONCRETE)
- VALVE BOXES/MANOMETERS, STACKS GOING TO THE ROOF
- PERFORATED PVC
- SOLID PVC
- PIPE UP/CHASE

STATE OF NEW YORK ALBERT G. LYONS JR. LICENSED PROFESSIONAL ENGINEER 074710

VIP ARCHITECTURE
ONE WEBSTERS LANDING
SYRACUSE, NEW YORK 13202
315.471.5338

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

IPD ENGINEERING

Smith Restaurant Supply

PAULUS DEVELOPMENT
500 ERIE BLVD E,
SYRACUSE, NY 13021

STATE OF NEW YORK ROBERT GEORGE MARINO 079435 LICENSED PROFESSIONAL ENGINEER

100% CONSTRUCTION SET

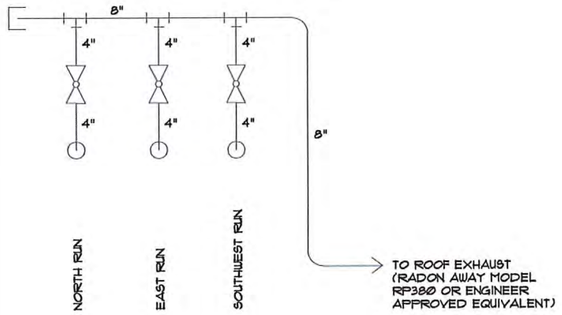
MK	DATE	DESCRIPTION
		SHEET ISSUES
VIP PROJECT NO.		19-2516
FILE NAME		20-032-19 VIMS - 003
DRAWN BY		NP
CHECKED BY		RM

ASBUILT - 12/24/21

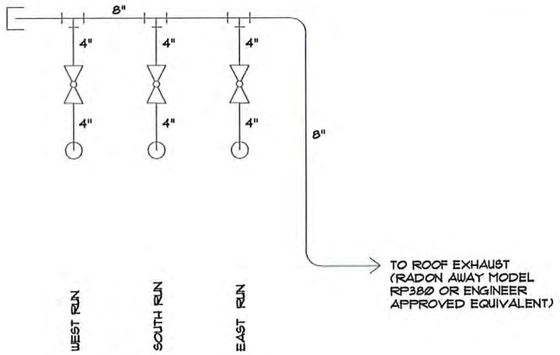
VIMS PIPING DIAGRAM FIRST FLOOR LEVEL

SHEET NUMBER

VIMS - 003



2 VIMS-004 Valve Box "A" Detail
Not to Scale



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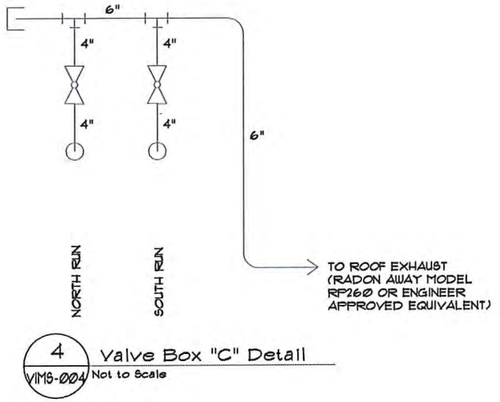

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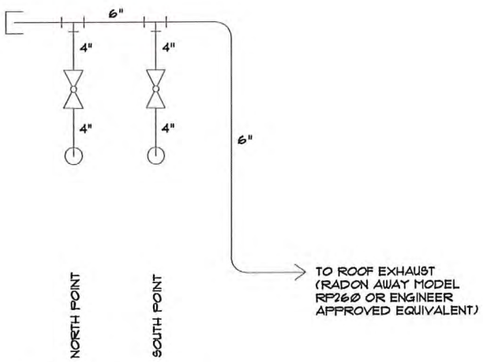

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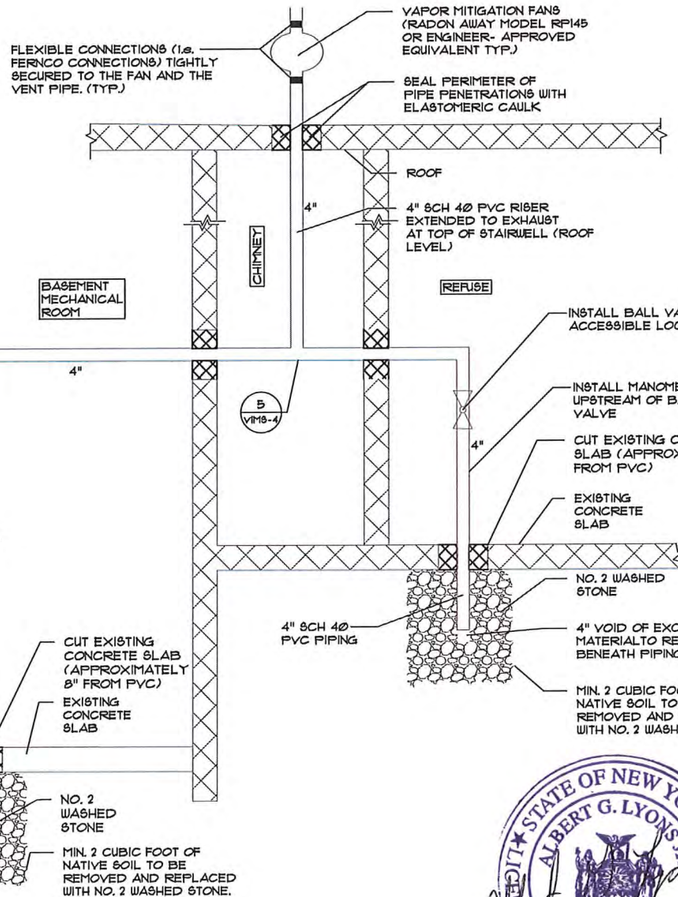
Not to Scale



1 VIMS-004 Extraction Point Detail
Not to Scale

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VAPOR SYSTEM MITIGATION SYSTEM NOTES

1. THE MITIGATION SYSTEM INSTALLATION CONTRACTOR ('CONTRACTOR') ASSUMES THE RESPONSIBILITY FOR THE MEANS AND METHODS, COORDINATION, SUPERVISION, AND MANAGEMENT UTILIZED TO COMPLETE THE PROJECT IN A TIMELY, PROFESSIONAL, LEGAL, AND SAFE MANNER.
2. THE CONTRACTOR SHALL COORDINATE/SCHEDULE ALL WORK WITH THE CONSTRUCTION MANAGER AND ENVIRONMENTAL CONSULTANT.
3. THE CONTRACTOR SHALL PROVIDE THEIR EMPLOYEES WITH ADEQUATE PERSONAL PROTECTIVE EQUIPMENT AT ALL TIMES WHEN PERFORMING WORK ON THIS PROJECT.
4. THE CONTRACTOR ACKNOWLEDGES THAT PORTIONS OF THE BUILDING MAY BE OCCUPIED BY OTHER TRADES DURING SYSTEM INSTALLATION ACTIVITIES. THE CONTRACTOR SHALL COORDINATE PHASING/SEQUENCING OF WORK WITH THE CONSTRUCTION MANAGER.
5. ALL COMPONENTS OF VAPOR MITIGATION SYSTEMS INSTALLED SHALL BE IN COMPLIANCE WITH APPLICABLE MECHANICAL, ELECTRICAL, BUILDING, PLUMBING, ENERGY AND FIRE PREVENTION CODES, STANDARDS, AND REGULATIONS OF THE LOCAL JURISDICTION.
6. THE CONTRACTOR SHALL PROTECT ALL EXISTING ARCHITECTURAL FINISHES, MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS, AND OTHER BUILDING AND SITE FEATURES THAT ARE NOT TO BE IMPACTED BY THE SYSTEM INSTALLATION. SHOULD DAMAGE OCCUR, THE CONTRACTOR SHALL BE LIABLE FOR THE COSTS ASSOCIATED WITH THEIR REPAIR, RESTORATION, AND/OR REPLACEMENT.
7. TO ENHANCE PRESSURE FIELD EXTENSION AND IMPROVE OVERALL SYSTEM PERFORMANCE, TWO CUBIC FEET OF SUB-SLAB MATERIAL SHALL BE REMOVED FROM BELOW AND AROUND EACH SUCTION / EXTRACTION POINT PIPE. THE EXCAVATION SHALL BE BACKFILLED WITH WASHED NO. 2 CRUSHED STONE, WHILE LEAVING A 4" VOID DIRECTLY BELOW THE END OF THE SUCTION PIPING TO PREVENT BLOCKAGE OF AIR FLOW INTO THE BOTTOM OF SUCTION / EXTRACTION POINT PIPES. THE VERTICAL PIPES SHALL BE SUPPORTED AND SECURED IN A PERMANENT MANNER THAT PREVENTS THEIR DOWNWARD MOVEMENT TO THE BOTTOM OF SUCTION PITS.
8. SUCTION / EXTRACTION POINT, VERTICAL RISER, AND MANIFOLD PIPING SHALL BE RIGID 4" AND 6" DIAMETER SCHEDULE 40 PVC.
9. AIR INTAKE PIPING IN THE SUB-FLOOR CAVITIES SHALL BE OPEN-ENDED 4" PERFORATED PVC PIPING. 4" Corrugated subfloor pipe utilized to be into rigid vertical pipe stacks.
10. IN ORDER TO REDUCE DRAG WITHIN THE SYSTEM, USE THE LONGEST FEASIBLE LENGTHS OF PVC PIPING IN LIEU OF SEVERAL SHORTER LENGTHS JOINED TOGETHER. JOINED ENDS SHALL BE FREE OF BURRS.
11. THE SLAB PENETRATION SHALL BE REPAIRED AND SEALED TO THE OUTSIDE OF THE PVC RISER PIPE WITH NON-SHRINK GROUT.
12. ALL PIPE JOINTS AND CONNECTIONS SHALL BE SEALED PERMANENTLY, WITH THE EXCEPTION OF THE AREA OF INSTALLATION OF THE FANS.
13. FOAM OR FIBERGLASS INSULATION SHALL BE INSTALLED ON THE FOLLOWING PIPE SECTIONS SO THAT CONDENSATION ON THE PIPE'S EXTERIOR DOES NOT DRIP AND DAMAGE OTHER BUILDING COMPONENTS AND/OR CONDENSATION INSIDE THE PIPE DOES NOT FREEZE AND CREATE A BLOCKAGE IN THE EXHAUST: 1) SUB-FLOOR PIPING OVER WOOD SLABS, 2) ABOVE-FLOOR PIPING WITHIN THE INTERIOR OF THE BUILDING, AND 3) EXTERIOR PIPING.
14. SUPPORTS FOR SYSTEM PIPING SHALL BE INSTALLED AT LEAST EVERY 6 FEET ON HORIZONTAL RUNS (NOT APPLICABLE TO SUB-FLOOR RUNS). VERTICAL RUNS SHALL BE SECURED ABOVE OR BELOW THE POINTS OF PENETRATION THROUGH FLOORS, CEILINGS, AND ROOFS, AND AT LEAST EVERY 8 FEET ON RUNS THAT DO NOT PENETRATE FLOORS, CEILINGS, OR ROOFS.
15. HORIZONTAL RUNS IN RADON SYSTEM PIPING SHALL BE SLOPED TO PROMOTE DRAINAGE OF WATER FROM RAIN OR CONDENSATION DOWNWARD INTO THE SOIL BENEATH THE SLEEPER FLOORING SYSTEM / SLAB.
16. TO REDUCE THE RISK OF VENT STACK BLOCKAGE DUE TO HEAVY SNOWFALL AND TO REDUCE THE RISK OF RE-ENTRAINMENT OF VOLATILE VAPORS INTO THE LIVING SPACES OF THE BUILDING, THE DISCHARGE FROM VENT STACK PIPES SHALL EXTEND VERTICAL AND UPWARD A MINIMUM OF 5 FEET ABOVE THE SURFACE OF THE ROOF. THE DISCHARGE / EXHAUST POINT(S) SHALL ALSO BE 10 FEET OR MORE AWAY FROM ANY WINDOW, DOOR, AIR INTAKES, OR OTHER OPENING INTO CONDITIONED / OCCUPIED BUILDING SPACE.
17. IN ORDER TO MINIMIZE VISUAL IMPACT, THE VENT STACK PIPE ABOVE THE ROOFLINE SHALL BE BLACK- OR GRAY-COLORED PVC.
18. VAPOR MITIGATION FANS SHALL BE INSTALLED EITHER OUTSIDE OF THE BUILDING, OR INSIDE OF THE BUILDING BUT OUTSIDE OF OCCUPIABLE SPACE AND ABOVE THE CONDITIONED SPACES OF THE BUILDING. THIS LOCATION IS NECESSARY TO MINIMIZE THE RISK OF VAPOR ENTRY INTO LIVING SPACES WHICH COULD RESULT FROM LEAKS IN FAN HOUSINGS OR IN VENT STACK PIPING ABOVE THE FAN. FANS MOUNTED ON THE EXTERIOR OF BUILDINGS MUST BE RATED FOR OUTDOOR USE OR INSTALLED IN A WEATHER-PROOF PROTECTIVE HOUSING.
19. VAPOR MITIGATION FANS SHALL BE MOUNTED AND SECURED IN A MANNER THAT MINIMIZES TRANSFER OF VIBRATION TO THE SYSTEM PIPING OR STRUCTURAL FRAMING OF THE BUILDING.
20. MITIGATION FANS SHALL BE RADONAWAY MODEL RP145 AND RP380 SERIES FAN(S), OR ENGINEER-APPROVED EQUIVALENT. FANS SHALL BE MOUNTED VERTICALLY PLUMB AND LEVEL WITH OUTLET POINTED UP. FANS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. RP 260
21. TO FACILITATE MAINTENANCE AND FUTURE REPLACEMENT, VAPOR MITIGATION FANS SHALL BE INSTALLED IN THE VENT PIPE USING REMOVABLE COUPLINGS OR FLEXIBLE CONNECTIONS (I.E. FERNCO CONNECTIONS, OR SIMILAR) THAT CAN BE TIGHTLY SECURED TO BOTH THE FAN AND THE VENT PIPE. OTHER FITTINGS / CONNECTIONS SHALL BE PERMANENTLY CEMENTED / SEALED. Flexible pipe couplings were utilized to secure the pipe and fan.
22. EACH VERTICAL RISER SHALL BE EQUIPPED WITH A MANOMETER (RADONAWAY EASYREAD, OR SIMILAR) OR OTHER SUITABLE SYSTEM MONITOR THAT IS LOCATED IN A READILY VISIBLE LOCATION TO ALLOW FOR ROUTINE VERIFICATION OF SYSTEM OPERATIONS. THE MANOMETER SHALL BE SIMPLE TO READ OR INTERPRET AND BE LOCATED WHERE IT CAN BE EASILY SEEN.
23. A SYSTEM DESCRIPTION LABEL SHALL BE PLACED ON EACH VERTICAL RISER IN A PROMINENT AND READILY VISIBLE LOCATION. THE LABEL SHALL READ 'VAPOR MITIGATION SYSTEM' ALONG WITH THE APPLICABLE ZONE ('EAST SUBFLOOR', 'WEST SUBFLOOR', OR SUBSLAB').
24. A VALVE DESCRIPTION LABEL SHALL BE PLACED NEAR EACH VALVE IN A PROMINENT AND READILY VISIBLE LOCATION. THE LABEL SHALL INDICATE THE ASSOCIATED PIPE RUN (SOUTHWEST RUN, WEST RUN, EAST CORRIDOR RUN, SOUTHEAST RUN, WEST RUN, NORTHWEST RUN, EAST RUN). BALL VALVES NOT INSTALLED PRIOR TO AIR MONITOR TESTING
25. VAPOR MITIGATION SYSTEM CONTRACTOR SHALL PROVIDE AN EXTRA MITIGATION FAN UNIT OF THE SAME TYPE AND MODEL AS THOSE INSTALLED TO THE OWNER TO SERVE AS A BACKUP IN THE EVENT OF FAN FAILURE.
26. SEAL ALL SLEEPER FLOOR SYSTEM PENETRATIONS USING FIRE-RETARDANT EXPANDABLE FOAM, NON-SHRINK GROUT, FIRE-RETARDANT CAULK, OR SIMILAR PRODUCT.
27. IN ORDER TO MINIMIZE DRAG, CONTRACTOR SHALL INSTALL PIPING IN SUCH A MANNER AS TO MINIMIZE THE NUMBER OF BENDS. SWEEP ELBOWS AND TURNS ARE REQUIRED IN LIEU OF ANGLED TURNS.
28. COORDINATE VALVE BOX CONSTRUCTION WITH GENERAL CONTRACTOR.

GENERAL CONSTRUCTION NOTES (BY OTHERS)

1. THE FORMER COAL PIT SHALL BE FILLED WITH SAND, ¾ GRAVEL, OR SIMILAR INERT MATERIAL TO REDUCE THE VOID SPACE WITHIN THE PIT.
2. CUT THROUGH EXISTING BLOCKING/BULKHEADS AS NECESSARY TO INSTALL SYSTEM PIPING. SEALING OF CUTS IS NOT NECESSARY IN BLOCKING/BULKHEADS BETWEEN DIFFERENT AREAS OF THE SLEEPER FLOOR SYSTEM.
3. NEW SLEEPER FLOORS SHALL BE INSTALLED SO AS NOT TO CREATE ADDITIONAL BULKHEADS THAT WILL HINDER OR PREVENT UNIMPEDED AIRFLOW THROUGHOUT THE SUBFLOOR CAVITY.
4. PROVIDE/INSTALL AND SEAL BLOCKING/BULKHEADS WHERE NECESSARY TO PREVENT TRANSMISSION OF AIR BETWEEN THE SUBFLOOR CAVITY BENEATH THE SLEEPER FLOOR SYSTEM AND AREAS ADJACENT TO THE SLEEPER FLOOR SYSTEM.
5. IN ORDER TO REDUCE AIR PENETRATION FROM THE OCCUPIED AREAS TO THE SUBFLOOR CAVITY, POLYETHYLENE SHEETING (MINIMUM 6 MIL) OR SIMILAR VAPOR BARRIER SHALL BE INSTALLED OVER THE WOOD SLEEPER FLOOR SYSTEM BEFORE INSTALLATION OF FINISHED FLOORING.
6. SEAL ALL SLEEPER FLOOR SYSTEM PENETRATIONS USING FIRE-RETARDANT EXPANDABLE FOAM, NON-SHRINK GROUT, FIRE-RETARDANT CAULK, OR SIMILAR PRODUCT.

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STATE OF NEW YORK
ROBERT GEORGE FANNON
079435
LICENSED PROFESSIONAL ENGINEER

100% CONSTRUCTION SET

MK	DATE	DESCRIPTION
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SHEET ISSUES	
VIP PROJECT NO.	19-2516
FILE NAME	20-032-19 VIMS - 004
DRAWN BY	NP
CHECKED BY	RM

ASBUILT - 12/24/21

VIMS DETAILS

SHEET NUMBER

VIMS - 004

Appendix H

Site Management Forms

ANNUAL / SEVERE CONDITION SITE INSPECTION FORM

Site Name: The Smith Restaurant Building
Address: 500 Erie Boulevard East
Syracuse, New York
Tax ID: 103-13-01.0
Area: 0.334± acres
NYSDEC Site #: C734148

Inspection Date: _____

Weather During Inspection:
Temperature: _____°F
Conditions: _____

Description of Engineering Control(s) to be Inspected:

Cover System: Hybrid system consisting of either a 2-foot soil cover over an orange demarcation barrier or hardscape surfaces (concrete sidewalks, asphalt parking, etc.) over an orange demarcation barrier.

Conditions:
Describe deficiencies/remedies in the Comments section, and mark up Site Plan on Page 2 as needed

- ☐ Walk and inspect the perimeter of the Site, including the areas outside the fenced area
- ☐ Walk and inspect the cover system within the fenced area

1.	Has there been a change in use of the Site?	Y	N
2.	Has any material been removed?	Y	N
3.	Has anything been constructed on the Site?	Y	N
4.	Are there any signs of significant settlement or deterioration of the cover?	Y	N
5.	Are there any signs of erosion?	Y	N
6.	Is the cover material being tracked onto adjacent sidewalks/streets by vehicular traffic?	Y	N
7.	Has the cover material sloughed onto adjacent sidewalks or parking lots?	Y	N
8.	Are there any signs of intrusive activities (drilling, excavation, etc.)?	Y	N
9.	Are there signs that snow plowing has altered the surface of the cover?	Y	N
10.	Is the perimeter fence damaged?	Y	N
11.	Is the demarcation barrier visible in any locations?	Y	N
12.	Is any staining of the cover material visible (vehicle leaks, etc.)?	Y	N
13.	Are the flush-mounted protective casings of the 6 monitoring wells damaged or compromised?	Y	N
14.	Are the covers of the 6 monitoring wells damaged or compromised?	Y	N
15.	Have previous recommended remedies/repairs been implemented?	N/A Y	N

Comments:
If an inspection identifies damage to the cover or wells, it shall be reported to the NYSDEC by noon the following business day (if an emergency) or within 5 business days (if a non-emergency)

Attachments:
Photographs: Y N
Other (Describe): Y N

Name of Inspector (Print): _____

_____ _____
Signature of Inspector (Environmental Professional) Date

ANNUAL / SEVERE CONDITION SITE INSPECTION FORM

Appendix I

VIMS OM&M Manual

Vapor Intrusion Mitigation System (VIMS) Operation, Maintenance, & Monitoring Plan

For:

Smith Building, LLC
225 Wilkinson Street
Syracuse, New York 13204

Site:

Smith Restaurant Building
500 Erie Boulevard East
Syracuse, New York
NYSDEC Site #C734148

December 2021

Prepared by:

NEU-VELLE LLC

1667 Lake Avenue
Building 59, Suite 101
Rochester, New York 14615

Table of Contents

Section 1

NEU-VELLE LLC

Introduction

1.0 INTRODUCTION

This Operation, Maintenance & Monitoring (OM&M) plan was prepared for a Vapor Intrusion Mitigation Migration System (VIMS) installed to mitigate soil vapor intrusion at the Smith Restaurant Building (the site) located at 500 Erie Boulevard East in Syracuse, New York.

1.1 Purpose

Volatile organic compounds (VOCs) are present in soil vapor beneath and exterior to the building slab / foundation. The system is intended to mitigate the potential for intrusion of soil vapor through the building floor and into indoor air.

Installation of the VIMS was completed, and demonstration of the systems effectiveness was confirmed, in December 2021. Ongoing system operation, maintenance and monitoring and periodic certification of continuing system function and related administrative controls will be performed in accordance with this plan.

1.2 Background Information

Smith Building, LLC entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on June 9, 2020, to investigate and remediate a 0.334 acres property located in the City of Syracuse, New York. The property was remediated to restricted residential use and will be used for 38 one-bedroom affordable apartments and ground-level commercial spaces.

The site is located in the County of Onondaga, New York and is identified as a portion of Block 13 and Lot 01 on the City of Syracuse Tax Map #103. The site is situated on an approximately 0.334-acre parcel bounded by Erie Boulevard to the north, East Water Street to the south, the Interstate 81 corridor to the east, and South Townsend Street to the west (Figure 1).

The Site has historically been a restaurant supply company since at least 1946, when it was

purchased by the current owner. Prior to (and in some cases, during) the current use, portions of the subject site had been used as a restaurant, laundry and cleaners' facility, gasoline filling station, used car lot, mattress factory, toy warehouse, and other various industrial uses.

Prior to 1967, the Site was Owned by Smith Restaurant Supply Co. and Penfield Manufacturing. In 1967, the Site was combined into one property owned by Smith Restaurant Supply Co. From that time until 2019, the Site was owned by Smith Restaurant Supply Co. and/or its affiliates (the Serling's and Kupperman's). Smith Building, LLC (the BCP Volunteer) purchased the Site in 2019.

During the Remedial Investigation, contaminants were identified in sub-slab soil vapor beneath a portion of the building. Although the NYSDOH does not have standards or guidance values for soil vapor, the decision matrices within Section 3.4 of the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006 and May 2017 modification) were used as a guidance tool for determination of elevated concentrations of contaminants. The NYSDOH decision matrices revealed that tetrachloroethene (520-7,400 ug/m3) and trichloroethene (70-350 ug/m3) would require mitigation, regardless of any associated indoor air concentrations (indoor air was tested as part of the Phase II ESA or Remedial Investigation). The area where these compounds were found on the site is the northeast corner of the building. No subsequent soil vapor sampling occurred after the completion of remedial actions.

Therefore, the VIMS system was installed and will remain in operation until written approval is granted by the NYSDEC and the NYSDOH project managers. In the event that future monitoring data indicates that the VIMS system may no longer be required, a proposal to discontinue the VIMS system will be submitted by the remedial party to the NYSDEC and NYSDOH project managers.

Section 2

NEU-VELLE LLC

Vapor Intrusion Mitigation System

2.0 VAPOR INTRUSION MITIGATION SYSTEM

An active Vapor Intrusion Mitigation System (VIMS) has been installed to mitigate vapor intrusion. The system in the eastern (6-story) section is a conventional sub-slab depressurization system, while the system in the western (3-story) section is designed to evacuate crawlspace air from beneath the wooden sleeper floor system.

2.1 Sub-Slab Depressurization System Description

A description of the conventional sub-slab depressurization system portion of the VIMS system is as follows:

- Designed to maintain an adequate negative pressure beneath the concrete slab of the 6-story portion of the building (including the partial basement).
- Manometers have been installed to monitor pressure status.
- Audible alarms were installed to monitor fan operational status.
- One sub-slab suction point was installed (in the partial basement).
- The suction point is combined with one of the crawlspace evacuation system runs into one vertical riser that discharges to the roof of the 6-story section of the building.
- A continuously operating fan (RadonAway RP260) is mounted on at the top of the riser.

2.2 Crawlspace Evacuation System Description

A description of the crawlspace evacuation portion of the VIMS system (in the areas of the wooden sleeper floors) is as follows:

- Designed to maintain an adequate negative pressure beneath the wooden sleeper floor of the 3-story portion of the building (and one-story bump-out in the northwestern corner of the building).
- Manometers have been installed to monitor pressure status.
- Audible alarms were installed to monitor fan operational status.
- Suction is distributed through several horizontal perforated pipes beneath the sleeper floor.

- The horizontal pipes are combined into one of three vertical riser that discharges to the roof of the building (two to the 3-story roof, one to the 6-story roof).
- A continuously operating fan (RadonAway RP260) is mounted on at the top of each riser.
- Polyethylene sheeting has been installed between the structural sleeper floor and finished floor system.
- Penetrations have been sealed with expandable foam or other appropriate sealant.

The system was activated on December 8, 2021.

Section 3

NEU-VELLE LLC

Startup and Initial Testing

3.0 STARTUP AND INTITIAL TESTING

In the eastern portion of the building where the "conventional" sub-slab depressurization system was installed, pressure field differential (sub-slab air communication testing) was performed. The purpose of the assessment was to gather information to verify that sub-slab air beneath the target portion of the building slab was being drawn by the system.

After obtaining positive pressure field differential results, the installer performed a pre-start-up inspection. This inspection consisted of checking for sub-slab to indoor air short-circuits by utilizing smoke tubes and verification of proper negative pressure differential.

Post start-up indoor air sampling was performed to demonstrate that the system is effective at mitigating sub-slab vapor. The results that demonstrate the system is effective at mitigating soil vapor intrusion. See Table 1, below, for a summary of indoor air sampling results (table is limited to compounds detected in soil vapor or sub-slab vapor during the Phase II ESA).

(continued on following page)

Table 1: Summary of Indoor Air Sampling Results

Volatiles (TO15) By TO15	CAS	IA-1-017 Basement 12/19/2021	IA-2-115 Ground Fl 12/19/2021	IA-3-102 Ground Fl 12/19/2021	IA-4-112 Ground Fl 12/19/2021	NYSDOH Air Guidance Value^
1,2,4-Trimethylbenzene	95-63-6	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Acetone	67-64-1	**56.3**	**21.6**	**37.7**	**16.3**	NGV
Benzene	71-43-2	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Carbon Tetrachloride	56-23-5	**0.42**	**0.37**	**0.39**	**0.41**	NGV
Chloroform	67-66-3	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Cis-1,2-Dichloroethene	156-59-2	< 0.20	< 0.20	< 0.20	< 0.20	NGV
Dichlorodifluoromethane	75-71-8	**1.99**	**1.96**	**2.01**	**2.06**	NGV
Ethanol	64-17-5	**9.09**	**4.71**	**13.6**	**21.5**	NGV
Ethyl acetate	141-78-6	**5.29**	< 1.00	< 1.00	< 1.00	NGV
Ethylbenzene	100-41-4	< 1.00	< 1.00	< 1.00	< 1.00	NGV
Hexane	110-54-3	**1.19**	< 1.00	**1.1**	< 1.00	NGV
Isopropylalcohol	67-63-0	**22.2**	**7.12**	**5.48**	**4.47**	NGV
Methylene Chloride	75-09-2	**3.92**	< 3.00	< 3.00	< 3.00	60
Methyl Ethyl Ketone	78-93-3	**2.74**	**1.96**	**3.51**	**9.4**	NGV
o-Xylene	95-47-6	< 1.00	< 1.00	< 1.00	**1.38**	NGV
Tetrachloroethene	127-18-4	**0.65**	**0.41**	**0.81**	**0.37**	30
Tetrahydrofuran	109-99-9	**7.37**	**6.34**	**3.33**	**2.09**	NGV
Toluene	108-88-3	**1.69**	**1.73**	**1.09**	< 1.00	NGV
Trichloroethene	79-01-6	< 0.20	< 0.20	< 0.20	< 0.20	2

Notes:

All units reported in ug/m^3

***Bold** = Compound detected*

NGV = No Guidance Value

^ = Indoor air guidance value from October 2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in New York State.

The pre-start-up system testing described above will be conducted if, in the course of the Vapor Intrusion Mitigation System lifetime, the system goes down or significant changes are made to the system and the system must be restarted.

Section 4

NEU-VELLE LLC

Operation, Maintenance, & Monitoring

4.0 OPERATION, MAINTENANCE, & MONITORING

The goal of the OM&M is to ensure that the Vapor Intrusion Mitigation System is operating continuously and providing effective vacuum coverage to minimize the potential for vapor intrusion. Minimum requirements for OM&M activities are provided in the following subsections.

4.1 System Monitoring

Monitoring of the Vapor Intrusion Mitigation System will be performed on a routine basis, as identified in the Table below. The monitoring must be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer who is licensed and registered in New York State, or a qualified person who directly reports to a Professional Engineer who is licensed and registered in New York State. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager. A visual inspection of the complete system will be conducted during each monitoring event. Unscheduled inspections and/or sampling may take place when a suspected failure of the Vapor Intrusion Mitigation System has been reported or an emergency occurs that is deemed likely to affect the operation of the system. The Vapor Intrusion Mitigation System components to be monitored include, but are not limited to, the components included in the Table below.

VIMS Monitoring Requirements and Schedule

System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
Manometer	Pressure Differential	Negative Pressure	Monthly
Mitigation Fans	Visual - Operation	Operational / Inoperable	Monthly
Alarm	Visual - Function	Pass/Fail	Monthly
Slab Penetrations	Visual - Integrity	Good Condition	Yearly
Piping (where accessible)	Visual - Integrity	Good Condition	Yearly

A complete list of components to be inspected is provided in the Inspection Checklist, provided in Appendix B. If any equipment readings are not within their specified operation range, any equipment is observed to be malfunctioning or the system is not performing within specifications; maintenance and repair, as per the Operation and Maintenance Plan, is required immediately.

4.2 Maintenance

The need for preventative maintenance will depend upon the life expectancy and warranty for the specific part as well as visual observations over time. The need for repairs and/or adjustments will depend upon the observation of system operation compared to observation obtained when system operations were initiated.

Non-routine maintenance may be required during the long-term operation of the VIMS system. Examples of situations requiring maintenance include the following:

1. The need to replace a fan;
2. The building's owners or occupants report that the periodic visual vacuum device monitoring indicates the system is not operating properly;
3. The system becomes damaged; or
4. The affected area and/or surrounding area of the building have undergone renovations or changes of use that may reduce the effectiveness of the system.

Activities conducted during non-routine maintenance will vary depending upon which of these situations was the reason for the maintenance. In general, non-routine maintenance activities may include examining the building for structural or HVAC system changes, or other changes that may affect the performance of the system. The non-routine maintenance may also include examining the operation of the visual vacuum device and the vent fan, or the extent of sub-slab depressurization. Repairs or adjustments should be made to the system as appropriate. If necessary, the system should be redesigned and restarted. A copy of the Operations and Maintenance Manual specific to the Vapor Intrusion Mitigation System is provided in Appendix C. In the event of unusual fan noise, failure to start, physical damage or repeated circuit breaker trip, the affected fan will be turned off for service or replacement. Any changes in the structure, HVAC systems, slab conditions, etc. will require re-evaluation of the system.

4.3 Contact Information

In the occurrence of changes that would require routine or non-routine maintenance as described above, the owner or tenants of the facility should contact the following individuals:

VIMS Consultant:

NEU-VELLE, LLC
1667 Lake Avenue
Building 59, Suite 101
Rochester, New York 14615

VIMS System Owner: Matthew Paulus
Smith Building, LLC
225 Wilkinson Street
Syracuse, New York 13204
(315) 416-9566

VIMS Installation Contractor:
Rich & Gardner Construction Company
206 Plum Street
Syracuse, New York 13204
(315) 474-1900

Section 5

NEU-VELLE LLC

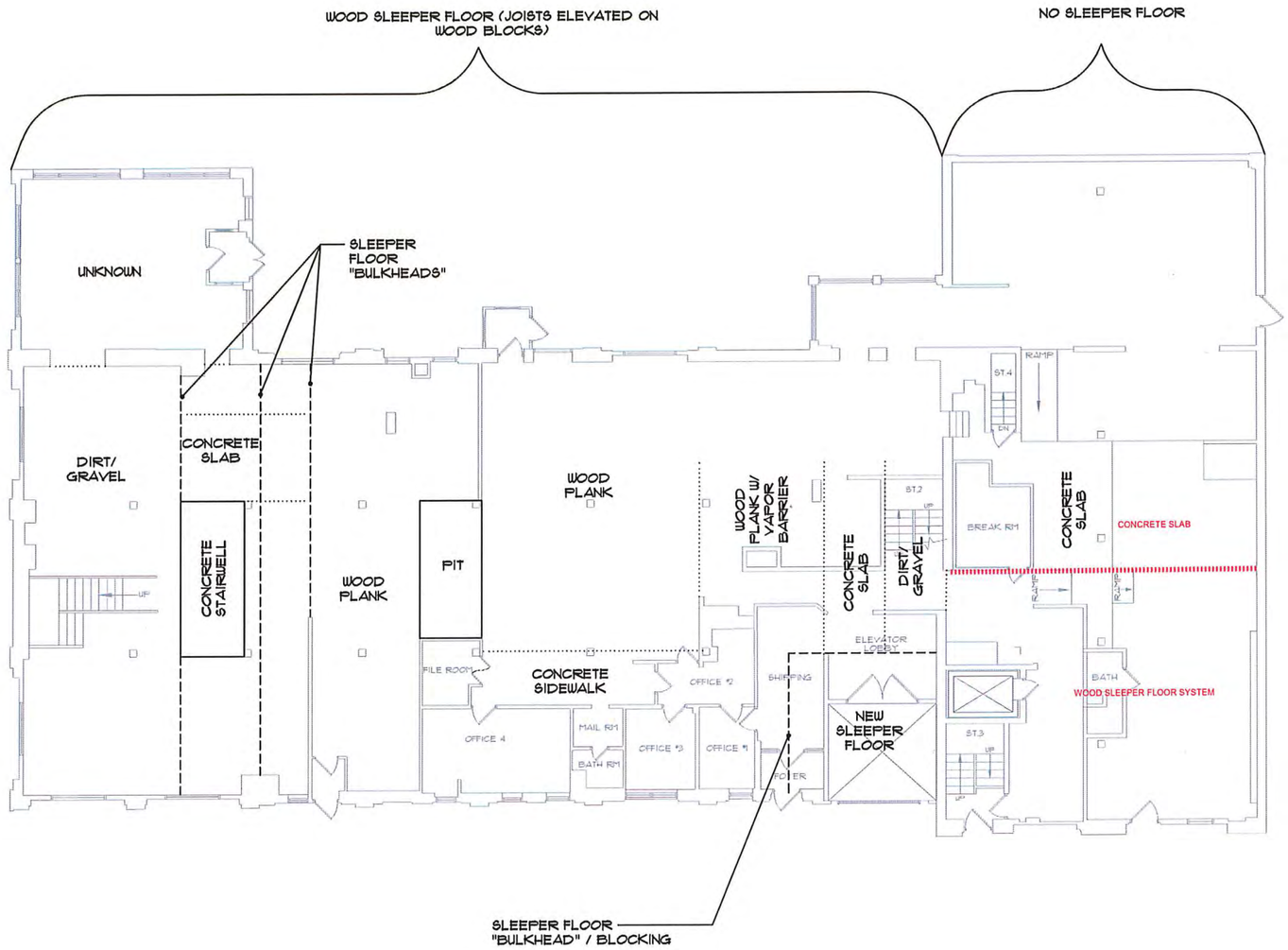
System Shutdown

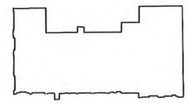
5.0 SYSTEM SHUTDOWN

Operation of the VIMS system will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH project managers. If monitoring data indicates that the VIMS system may no longer be required, a proposal to discontinue the VIMS system will be submitted by the remedial party to the NYSDEC and NYSDOH project managers.

Drawings

NEU-VELLE LLC





KEY PLAN

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NOTE: NOT ALL AREAS OF SUB FLOOR WERE VISIBLE AT TIME OF INSPECTION

VAPOR SYSTEM MITIGATION SYSTEM NOTES.

SEE DRAWING # VIMS-004

GENERAL CONSTRUCTION NOTES (BY OTHERS)

SEE DRAWING # VIMS-004

STATE OF NEW YORK ALBERT G. LYONS JR. LICENSED PROFESSIONAL ENGINEER 074710

VIP
ARCHITECTURE
ONE WEBSTERS LANDING
SYRACUSE, NEW YORK 13202
315.471.5338

AECC
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

IPD
ENGINEERING

Smith Restaurant Supply

PAULUS DEVELOPMENT
500 ERIE BLVD E,
SYRACUSE, NY 13021

STATE OF NEW YORK ROBERT GEORGE HANDEL LICENSED PROFESSIONAL ENGINEER 078435

100% CONSTRUCTION SET

MK	DATE	DESCRIPTION
		SHEET ISSUES

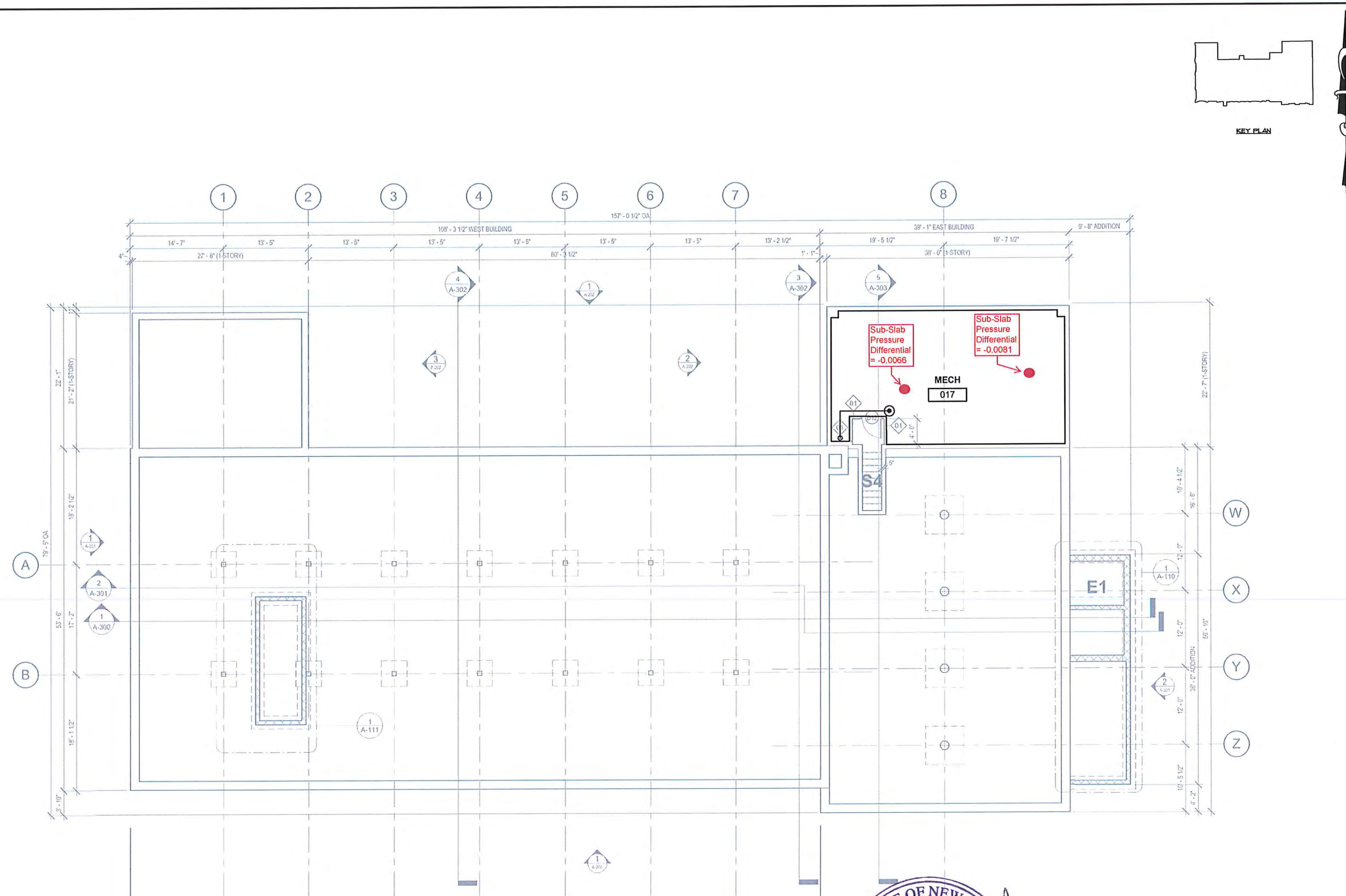
VIP PROJECT NO.	19-2516
FILE NAME	20-032-19 VIMS - 001
DRAWN BY	NP
CHECKED BY	RM

ASBUILT - 12/24/21

First Floor Existing Flooring Systems

SHEET NUMBER

VIMS - 001



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STATE OF NEW YORK — ALBERT G. LYONS — LICENSED PROFESSIONAL ENGINEER — 074710

VAPOR SYSTEM MITIGATION SYSTEM NOTES

SEE DRAWING • VIMS-004

GENERAL CONSTRUCTION NOTES (BY OTHERS)

SEE DRAWING • VIMS-004

LEGEND:

◉ SUB-SLAB VAPOR POINT

—— SOLID PVC

VIP ARCHITECTURE

ONE WEBSTERS LANDING
SYRACUSE, NEW YORK 13202
315.471.5338

AECC
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

IPD ENGINEERING

Smith Restaurant Supply

PAULUS DEVELOPMENT
500 ERIE BLVD E,
SYRACUSE, NY 13021

STATE OF NEW YORK — ROBERT GEORGE HAHN — LICENSED PROFESSIONAL ENGINEER — 079435

100% CONSTRUCTION SET

MK	DATE	DESCRIPTION
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SHEET ISSUES

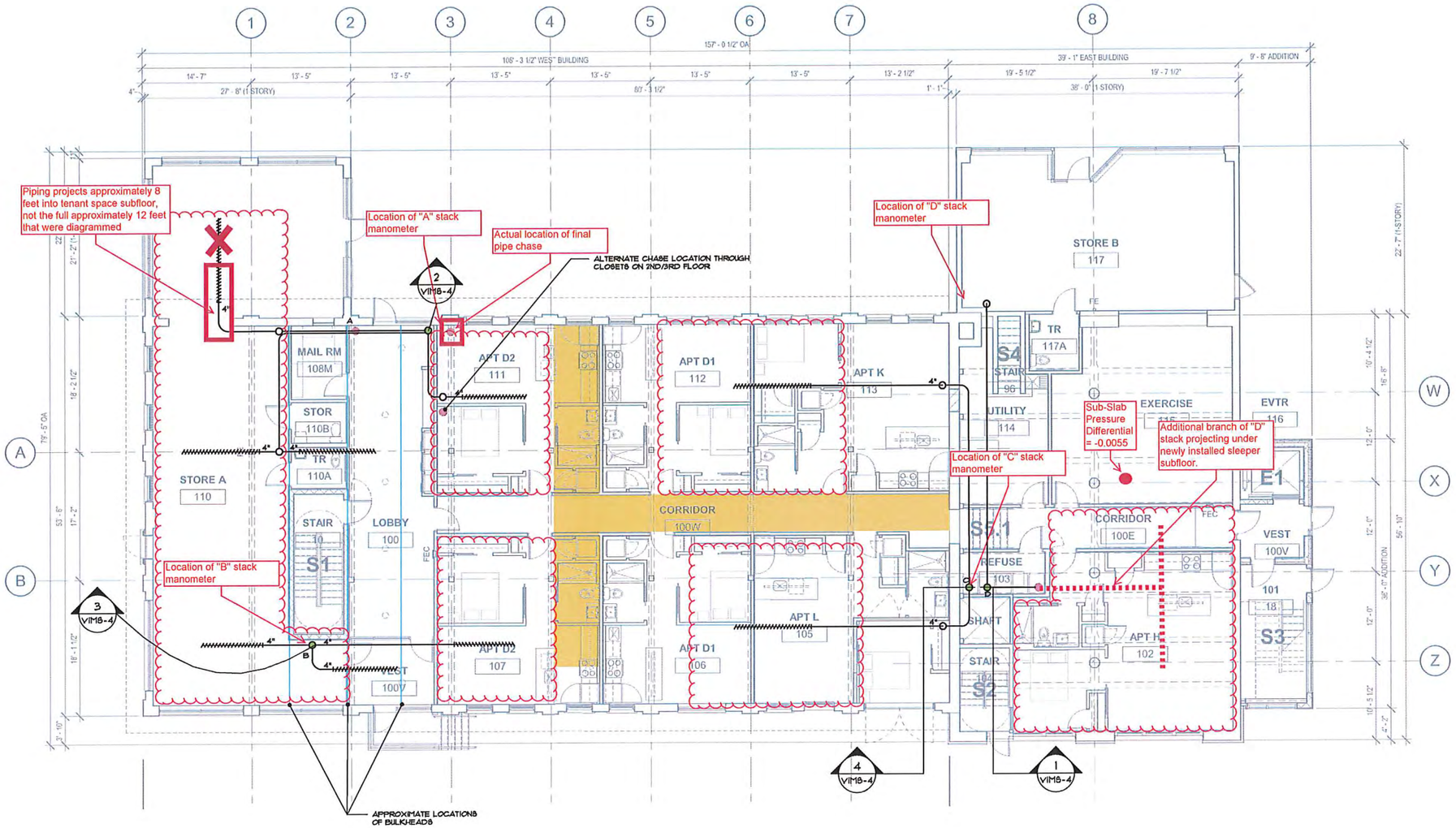
VIP PROJECT NO.	19-2516
FILE NAME	20-032-19 VIMS - 002
DRAWN BY	NP
CHECKED BY	RM

ASBUILT - 11/25/21

VIMS PIPING DIAGRAM BASEMENT LEVEL

SHEET NUMBER

VIMS - 002



KEY PLAN

= AREA OF SMOKE TEST

NOTE: PIPING DIAGRAM REPRESENTS THE CAVITY BENEATH THE WOOD SLEEPER FLOOR SYSTEM.

VAPOR SYSTEM MITIGATION SYSTEM NOTES:

SEE DRAWING # VIMS-004

GENERAL CONSTRUCTION NOTES (BY OTHERS)

SEE DRAWING # VIMS-004

LEGEND:

- ALTERNATE CHASE LOCATIONS
- EXISTING UTILITY TRENCH (TO BE BACKFILLED W/CONCRETE)
- VALVE BOXES/MANOMETERS, STACKS GOING TO THE ROOF
- PERFORATED PVC
- SOLID PVC
- PIPE UP/CHASE

STATE OF NEW YORK ALBERT G. LYONS JR. LICENSED PROFESSIONAL ENGINEER 074710

VIP ARCHITECTURE
ONE WEBSTERS LANDING
SYRACUSE, NEW YORK 13202
315.471.5338

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Asbestos & Environmental Consulting Corporation
6308 Fly Road
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IPD ENGINEERING

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500 ERIE BLVD E,
SYRACUSE, NY 13021

STATE OF NEW YORK ROBERT GEORGE MARINO 079435 LICENSED PROFESSIONAL ENGINEER

100% CONSTRUCTION SET

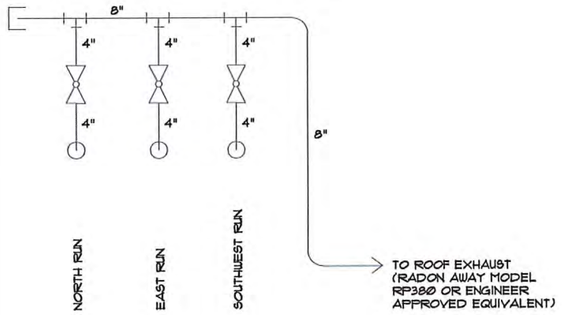
MK	DATE	DESCRIPTION
		SHEET ISSUES
VIP PROJECT NO.		19-2516
FILE NAME		20-032-19 VIMS - 003
DRAWN BY		NP
CHECKED BY		RM

ASBUILT - 12/24/21

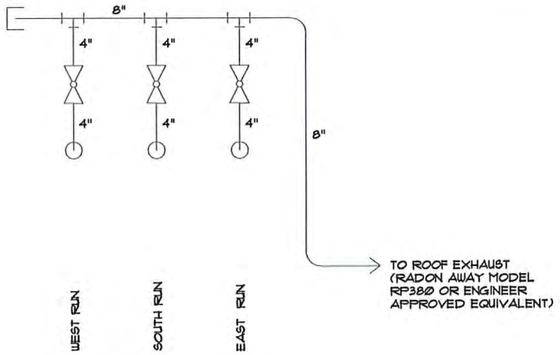
VIMS PIPING DIAGRAM FIRST FLOOR LEVEL

SHEET NUMBER

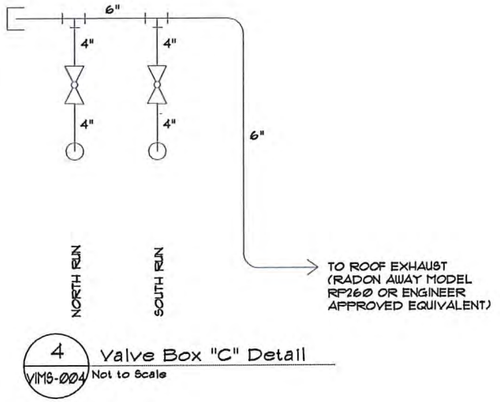
VIMS - 003



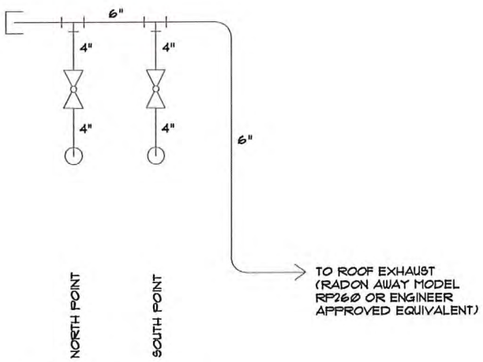
2 VIMS-004 Valve Box "A" Detail
Not to Scale



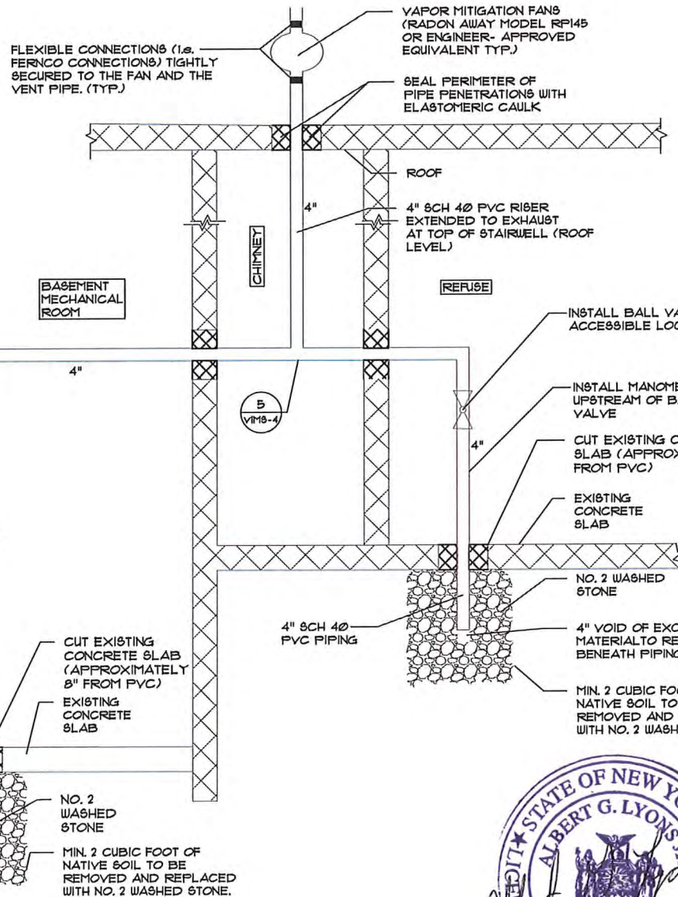
3 VIMS-004 Valve Box "B" Detail
Not to Scale



4 VIMS-004 Valve Box "C" Detail
Not to Scale



5 VIMS-004 Valve Box "D" Detail
Not to Scale



1 VIMS-004 Extraction Point Detail
Not to Scale

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VAPOR SYSTEM MITIGATION SYSTEM NOTES

1. THE MITIGATION SYSTEM INSTALLATION CONTRACTOR ('CONTRACTOR') ASSUMES THE RESPONSIBILITY FOR THE MEANS AND METHODS, COORDINATION, SUPERVISION, AND MANAGEMENT UTILIZED TO COMPLETE THE PROJECT IN A TIMELY, PROFESSIONAL, LEGAL, AND SAFE MANNER.
2. THE CONTRACTOR SHALL COORDINATE/SCHEDULE ALL WORK WITH THE CONSTRUCTION MANAGER AND ENVIRONMENTAL CONSULTANT.
3. THE CONTRACTOR SHALL PROVIDE THEIR EMPLOYEES WITH ADEQUATE PERSONAL PROTECTIVE EQUIPMENT AT ALL TIMES WHEN PERFORMING WORK ON THIS PROJECT.
4. THE CONTRACTOR ACKNOWLEDGES THAT PORTIONS OF THE BUILDING MAY BE OCCUPIED BY OTHER TRADES DURING SYSTEM INSTALLATION ACTIVITIES. THE CONTRACTOR SHALL COORDINATE PHASING/SEQUENCING OF WORK WITH THE CONSTRUCTION MANAGER.
5. ALL COMPONENTS OF VAPOR MITIGATION SYSTEMS INSTALLED SHALL BE IN COMPLIANCE WITH APPLICABLE MECHANICAL, ELECTRICAL, BUILDING, PLUMBING, ENERGY AND FIRE PREVENTION CODES, STANDARDS, AND REGULATIONS OF THE LOCAL JURISDICTION.
6. THE CONTRACTOR SHALL PROTECT ALL EXISTING ARCHITECTURAL FINISHES, MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS, AND OTHER BUILDING AND SITE FEATURES THAT ARE NOT TO BE IMPACTED BY THE SYSTEM INSTALLATION. SHOULD DAMAGE OCCUR, THE CONTRACTOR SHALL BE LIABLE FOR THE COSTS ASSOCIATED WITH THEIR REPAIR, RESTORATION, AND/OR REPLACEMENT.
7. TO ENHANCE PRESSURE FIELD EXTENSION AND IMPROVE OVERALL SYSTEM PERFORMANCE, TWO CUBIC FEET OF SUB-SLAB MATERIAL SHALL BE REMOVED FROM BELOW AND AROUND EACH SUCTION / EXTRACTION POINT PIPE. THE EXCAVATION SHALL BE BACKFILLED WITH WASHED NO. 2 CRUSHED STONE, WHILE LEAVING A 4" VOID DIRECTLY BELOW THE END OF THE SUCTION PIPING TO PREVENT BLOCKAGE OF AIR FLOW INTO THE BOTTOM OF SUCTION / EXTRACTION POINT PIPES. THE VERTICAL PIPES SHALL BE SUPPORTED AND SECURED IN A PERMANENT MANNER THAT PREVENTS THEIR DOWNWARD MOVEMENT TO THE BOTTOM OF SUCTION PITS.
8. SUCTION / EXTRACTION POINT, VERTICAL RISER, AND MANIFOLD PIPING SHALL BE RIGID 4" AND 6" DIAMETER SCHEDULE 40 PVC.
9. AIR INTAKE PIPING IN THE SUB-FLOOR CAVITIES SHALL BE OPEN-ENDED 4" PERFORATED PVC PIPING. 4" Corrugated subfloor pipe utilized to be into rigid vertical pipe stacks.
10. IN ORDER TO REDUCE DRAG WITHIN THE SYSTEM, USE THE LONGEST FEASIBLE LENGTHS OF PVC PIPING IN LIEU OF SEVERAL SHORTER LENGTHS JOINED TOGETHER. JOINED ENDS SHALL BE FREE OF BURRS.
11. THE SLAB PENETRATION SHALL BE REPAIRED AND SEALED TO THE OUTSIDE OF THE PVC RISER PIPE WITH NON-SHRINK GROUT.
12. ALL PIPE JOINTS AND CONNECTIONS SHALL BE SEALED PERMANENTLY, WITH THE EXCEPTION OF THE AREA OF INSTALLATION OF THE FANS.
13. FOAM OR FIBERGLASS INSULATION SHALL BE INSTALLED ON THE FOLLOWING PIPE SECTIONS SO THAT CONDENSATION ON THE PIPE'S EXTERIOR DOES NOT DRIP AND DAMAGE OTHER BUILDING COMPONENTS AND/OR CONDENSATION INSIDE THE PIPE DOES NOT FREEZE AND CREATE A BLOCKAGE IN THE EXHAUST: 1) SUB-FLOOR PIPING OVER WOOD SLABS, 2) ABOVE-FLOOR PIPING WITHIN THE INTERIOR OF THE BUILDING, AND 3) EXTERIOR PIPING.
14. SUPPORTS FOR SYSTEM PIPING SHALL BE INSTALLED AT LEAST EVERY 6 FEET ON HORIZONTAL RUNS (NOT APPLICABLE TO SUB-FLOOR RUNS). VERTICAL RUNS SHALL BE SECURED ABOVE OR BELOW THE POINTS OF PENETRATION THROUGH FLOORS, CEILINGS, AND ROOFS, AND AT LEAST EVERY 8 FEET ON RUNS THAT DO NOT PENETRATE FLOORS, CEILINGS, OR ROOFS.
15. HORIZONTAL RUNS IN RADON SYSTEM PIPING SHALL BE SLOPED TO PROMOTE DRAINAGE OF WATER FROM RAIN OR CONDENSATION DOWNWARD INTO THE SOIL BENEATH THE SLEEPER FLOORING SYSTEM / SLAB.
16. TO REDUCE THE RISK OF VENT STACK BLOCKAGE DUE TO HEAVY SNOWFALL AND TO REDUCE THE RISK OF RE-ENTRAINMENT OF VOLATILE VAPORS INTO THE LIVING SPACES OF THE BUILDING, THE DISCHARGE FROM VENT STACK PIPES SHALL EXTEND VERTICAL AND UPWARD A MINIMUM OF 5 FEET ABOVE THE SURFACE OF THE ROOF. THE DISCHARGE / EXHAUST POINT(S) SHALL ALSO BE 10 FEET OR MORE AWAY FROM ANY WINDOW, DOOR, AIR INTAKES, OR OTHER OPENING INTO CONDITIONED / OCCUPIED BUILDING SPACE.
17. IN ORDER TO MINIMIZE VISUAL IMPACT, THE VENT STACK PIPE ABOVE THE ROOFLINE SHALL BE BLACK- OR GRAY-COLORED PVC.
18. VAPOR MITIGATION FANS SHALL BE INSTALLED EITHER OUTSIDE OF THE BUILDING, OR INSIDE OF THE BUILDING BUT OUTSIDE OF OCCUPIABLE SPACE AND ABOVE THE CONDITIONED SPACES OF THE BUILDING. THIS LOCATION IS NECESSARY TO MINIMIZE THE RISK OF VAPOR ENTRY INTO LIVING SPACES WHICH COULD RESULT FROM LEAKS IN FAN HOUSINGS OR IN VENT STACK PIPING ABOVE THE FAN. FANS MOUNTED ON THE EXTERIOR OF BUILDINGS MUST BE RATED FOR OUTDOOR USE OR INSTALLED IN A WEATHER-PROOF PROTECTIVE HOUSING.
19. VAPOR MITIGATION FANS SHALL BE MOUNTED AND SECURED IN A MANNER THAT MINIMIZES TRANSFER OF VIBRATION TO THE SYSTEM PIPING OR STRUCTURAL FRAMING OF THE BUILDING.
20. MITIGATION FANS SHALL BE RADONAWAY MODEL RP145 AND RP380 SERIES FAN(S), OR ENGINEER-APPROVED EQUIVALENT. FANS SHALL BE MOUNTED VERTICALLY PLUMB AND LEVEL WITH OUTLET POINTED UP. FANS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. RP 260
21. TO FACILITATE MAINTENANCE AND FUTURE REPLACEMENT, VAPOR MITIGATION FANS SHALL BE INSTALLED IN THE VENT PIPE USING REMOVABLE COUPLINGS OR FLEXIBLE CONNECTIONS (I.E. FERNCO CONNECTIONS, OR SIMILAR) THAT CAN BE TIGHTLY SECURED TO BOTH THE FAN AND THE VENT PIPE. OTHER FITTINGS / CONNECTIONS SHALL BE PERMANENTLY CEMENTED / SEALED. Flexible pipe couplings were utilized to secure the pipe and fan.
22. EACH VERTICAL RISER SHALL BE EQUIPPED WITH A MANOMETER (RADONAWAY EASYREAD, OR SIMILAR) OR OTHER SUITABLE SYSTEM MONITOR THAT IS LOCATED IN A READILY VISIBLE LOCATION TO ALLOW FOR ROUTINE VERIFICATION OF SYSTEM OPERATIONS. THE MANOMETER SHALL BE SIMPLE TO READ OR INTERPRET AND BE LOCATED WHERE IT CAN BE EASILY SEEN.
23. A SYSTEM DESCRIPTION LABEL SHALL BE PLACED ON EACH VERTICAL RISER IN A PROMINENT AND READILY VISIBLE LOCATION. THE LABEL SHALL READ 'VAPOR MITIGATION SYSTEM' ALONG WITH THE APPLICABLE ZONE ('EAST SUBFLOOR', 'WEST SUBFLOOR', OR SUBSLAB').
24. A VALVE DESCRIPTION LABEL SHALL BE PLACED NEAR EACH VALVE IN A PROMINENT AND READILY VISIBLE LOCATION. THE LABEL SHALL INDICATE THE ASSOCIATED PIPE RUN (SOUTHWEST RUN, WEST RUN, EAST CORRIDOR RUN, SOUTHEAST RUN, WEST RUN, NORTHWEST RUN, EAST RUN). BALL VALVES NOT INSTALLED PRIOR TO AIR MONITOR TESTING
25. VAPOR MITIGATION SYSTEM CONTRACTOR SHALL PROVIDE AN EXTRA MITIGATION FAN UNIT OF THE SAME TYPE AND MODEL AS THOSE INSTALLED TO THE OWNER TO SERVE AS A BACKUP IN THE EVENT OF FAN FAILURE.
26. SEAL ALL SLEEPER FLOOR SYSTEM PENETRATIONS USING FIRE-RETARDANT EXPANDABLE FOAM, NON-SHRINK GROUT, FIRE-RETARDANT CAULK, OR SIMILAR PRODUCT.
27. IN ORDER TO MINIMIZE DRAG, CONTRACTOR SHALL INSTALL PIPING IN SUCH A MANNER AS TO MINIMIZE THE NUMBER OF BENDS. SWEEP ELBOWS AND TURNS ARE REQUIRED IN LIEU OF ANGLED TURNS.
28. COORDINATE VALVE BOX CONSTRUCTION WITH GENERAL CONTRACTOR.

GENERAL CONSTRUCTION NOTES (BY OTHERS)

1. THE FORMER COAL PIT SHALL BE FILLED WITH SAND, ¾ GRAVEL, OR SIMILAR INERT MATERIAL TO REDUCE THE VOID SPACE WITHIN THE PIT.
2. CUT THROUGH EXISTING BLOCKING/BULKHEADS AS NECESSARY TO INSTALL SYSTEM PIPING. SEALING OF CUTS IS NOT NECESSARY IN BLOCKING/BULKHEADS BETWEEN DIFFERENT AREAS OF THE SLEEPER FLOOR SYSTEM.
3. NEW SLEEPER FLOORS SHALL BE INSTALLED SO AS NOT TO CREATE ADDITIONAL BULKHEADS THAT WILL HINDER OR PREVENT UNIMPEDED AIRFLOW THROUGHOUT THE SUBFLOOR CAVITY.
4. PROVIDE/INSTALL AND SEAL BLOCKING/BULKHEADS WHERE NECESSARY TO PREVENT TRANSMISSION OF AIR BETWEEN THE SUBFLOOR CAVITY BENEATH THE SLEEPER FLOOR SYSTEM AND AREAS ADJACENT TO THE SLEEPER FLOOR SYSTEM.
5. IN ORDER TO REDUCE AIR PENETRATION FROM THE OCCUPIED AREAS TO THE SUBFLOOR CAVITY, POLYETHYLENE SHEETING (MINIMUM 6 MIL) OR SIMILAR VAPOR BARRIER SHALL BE INSTALLED OVER THE WOOD SLEEPER FLOOR SYSTEM BEFORE INSTALLATION OF FINISHED FLOORING.
6. SEAL ALL SLEEPER FLOOR SYSTEM PENETRATIONS USING FIRE-RETARDANT EXPANDABLE FOAM, NON-SHRINK GROUT, FIRE-RETARDANT CAULK, OR SIMILAR PRODUCT.

STATE OF NEW YORK
ALBERT G. LYONS JR.
074710
LICENSED PROFESSIONAL ENGINEER

VIP ARCHITECTURE
ONE WEBSTERS LANDING
SYRACUSE, NEW YORK 13202
315.471.5338

AECC
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6308 Fly Road
East Syracuse, NY 13057

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Smith Restaurant Supply

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500 ERIE BLVD E,
SYRACUSE, NY 13021

STATE OF NEW YORK
ROBERT GEORGE FANNON
079435
LICENSED PROFESSIONAL ENGINEER

100% CONSTRUCTION SET

MK	DATE	DESCRIPTION
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SHEET ISSUES	
VIP PROJECT NO.	19-2516
FILE NAME	20-032-19 VIMS - 004
DRAWN BY	NP
CHECKED BY	RM

ASBUILT - 12/24/21

VIMS DETAILS

SHEET NUMBER

VIMS - 004

Appendix A

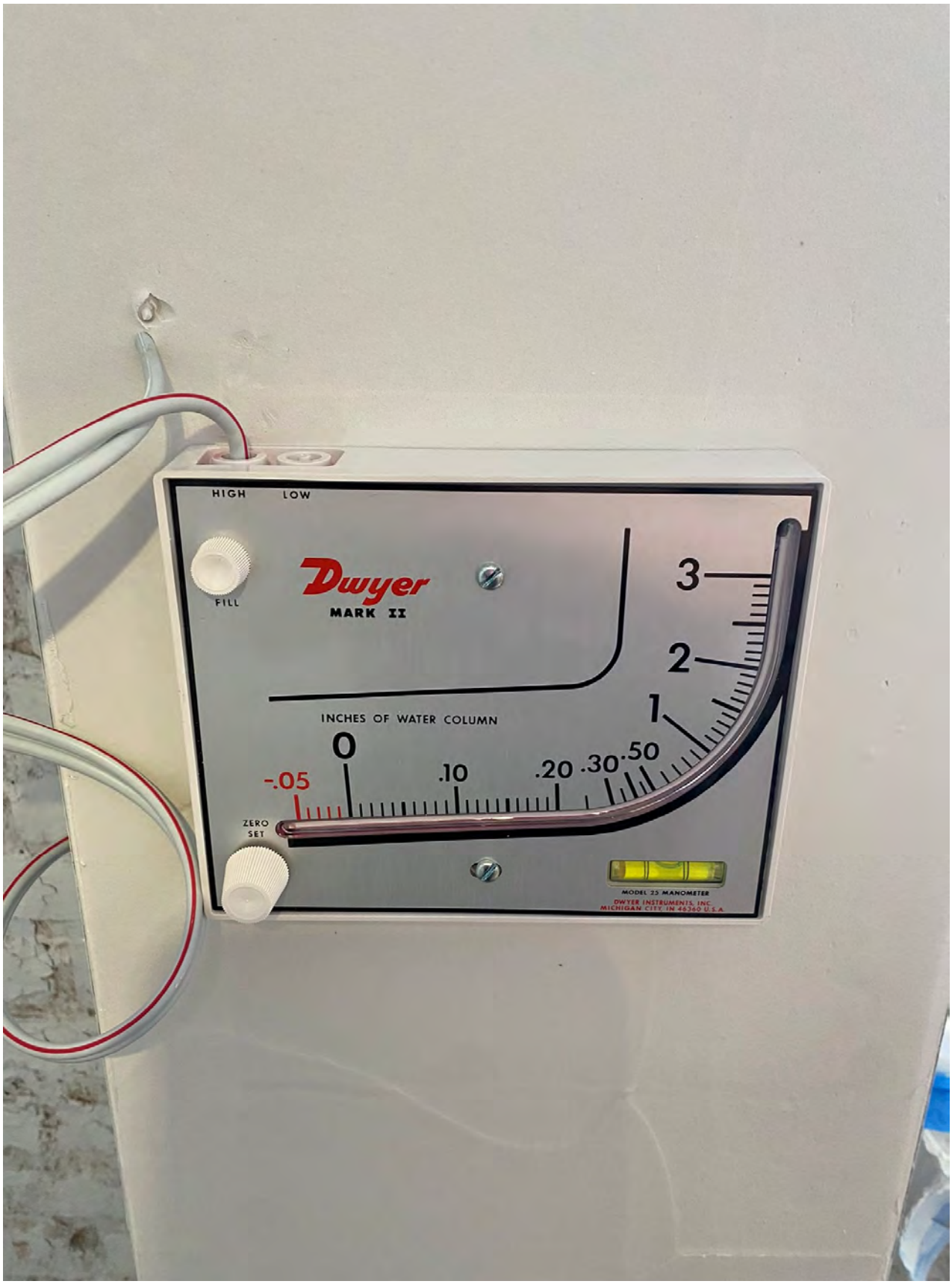
NEU-VELLE LLC

VIMS Photographs


Conforms to
UL STD. 507
Certified to
CAN/CSA STD.
C22.2 No.113
Intertek
77728
RP260
28462
DOM: Oct/21
S/N: 114654
INSP: 3


GOODYEAR
CINTAS


LOUISVILLE


HIGH
LOW
FILL
Dwyer
MARK II
INCHES OF WATER COLUMN
-.05
0
.10
.20
.30
.50
1
2
3
ZERO SET
MODEL 25 MANOMETER
DWYER INSTRUMENTS, INC.
MICHIGAN CITY, IN 46360 U.S.A.

Appendix B

NEU-VELLE LLC

Monitoring Forms

Smith Building (BCP# C734148) Date:

VIMS Monthly Monitoring Report Inspector:

System Component	Monitoring Parameter	Operating Range	Run	Notes
Manometer	Pressure Differential	Negative Pressure	A	
			B	
			C	
			D	
Mitigation Fans	Visual - Operation	Operational / Inoperable	A	
			B	
			C	
			D	
Alarm	Audible - Function	Pass/Fail	A	
			B	
			C	
			D	

Actions performed during the past month:

Recommendations:

Smith Building (BCP# C734148) Date:

VIMS Annual Monitoring Report Inspector:

System Component	Monitoring Parameter	Operating Range	Run	Notes
Piping (where accessible)	Visual - Integrity	Good Condition	A	
			B	
			C	
			D	
Slab Penetrations	Visual - Integrity	Good Condition	017	
			100	
			100E	
			100V	
			100W	
			102	
			103	
			105	
			106	
			107	
			108M	
			109	
			110	
			110A	
			110B	
			111	
			112	
			113	
			114	
			115	

Actions performed during the past year:

Recommendations:

Appendix C

NEU-VELLE LLC

Operation and Maintenance Manual

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.

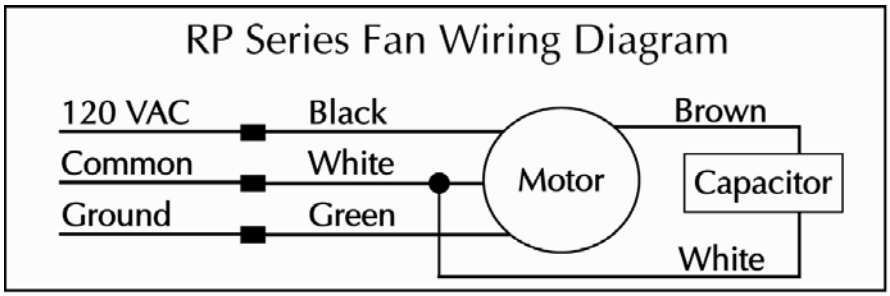
   c) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire rated construction.

   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

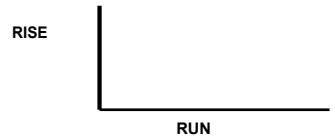
The RP Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the RP Series Fan best suited 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.

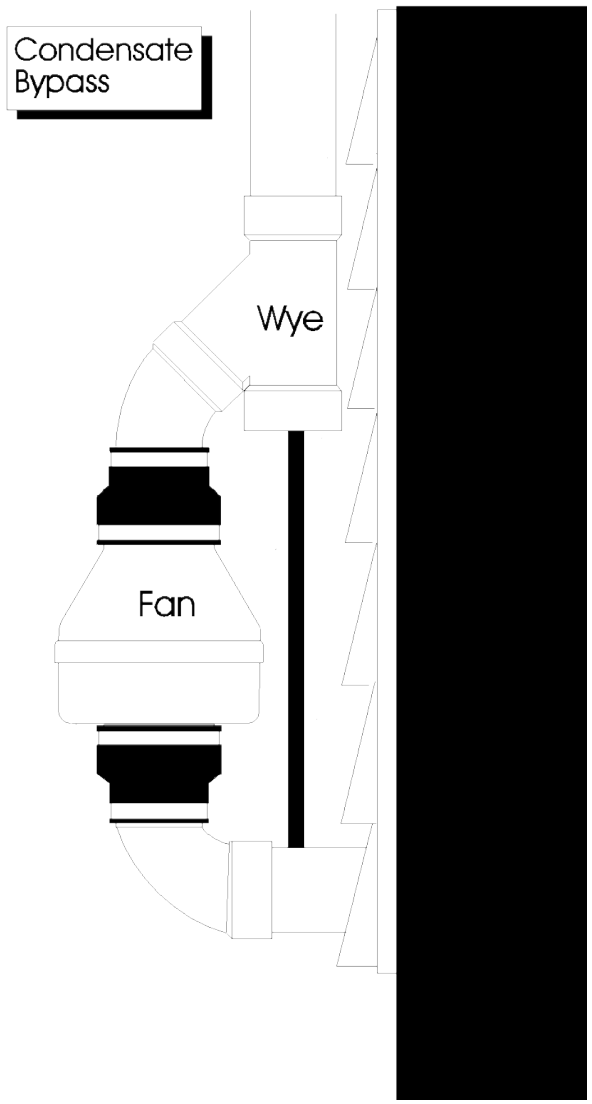
For RP Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

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

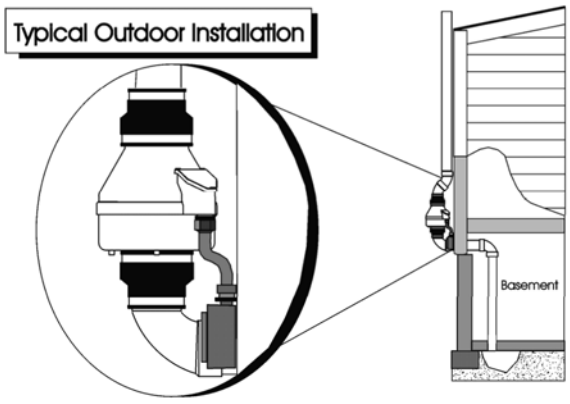
The RP Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Fire Protection Association's (NFPA)"National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes. All wiring must 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.

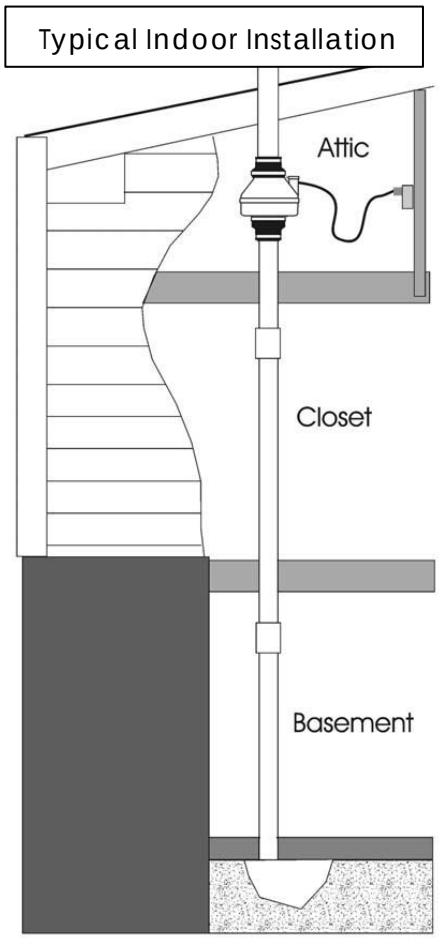
2.0 INSTALLATION

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

ENERGY STAR RP140 & RP260 Only

TESTED/CERTIFIED 2100 HVI Home Ventilating Institute

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 J

Request to Import / Reuse Fill Material Form

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e). Use of this form is not a substitute for reading the applicable Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that would pass a size 80 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

_____ _____

Signature Date

_____

Print Name

_____

Firm

Revised August 2014