

**REMOVAL PROGRAM
AFTER ACTION REPORT
FOR THE
PROVIDENCE BARREL SITE
SMITHFIELD, PROVIDENCE COUNTY, RHODE ISLAND
24 AUGUST 2021 THROUGH 2 AUGUST 2024**

Prepared For:

U.S. Environmental Protection Agency
Region I
Emergency Planning and Response Branch
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Boston, Massachusetts 02109-3912

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1.0 INTRODUCTION

The following report, entitled *Removal Program After Action Report for the Providence Barrel Site, Smithfield, Providence County, Rhode Island, 24 August 2021 through 2 August 2024*, is a chronological summary of the response actions taken by the U.S. Environmental Protection Agency (EPA), Region I, Emergency Planning and Response Branch (EPRB). The report details the situation as it developed, actions taken, and resources committed.

Site activities included: mobilizing personnel and equipment; removing vegetation and debris from the work areas; demolishing the existing concrete slab/former building foundation; establishing work areas (exclusion zone, contamination reduction zone, support zone, etc.); conducting test-pit excavations to confirm the extent of contamination; excavating contaminated soil from the slab area and the southeast corner of the Site; conducting perimeter air monitoring for particulates and volatile organic compounds (VOCs); collecting post-excavation samples and performing headspace screening on samples; excavating additional soil as needed based on screening results; collecting confirmatory post-excavation soil samples for laboratory VOC analysis; backfilling excavated areas with clean soil; arranging and conducting transport and disposal (T&D) of contaminated soils; conducting site restoration; designing sub-slab depressurization systems for individual homes as necessary; repairing cracks, utility openings, joints, etc. in the residential foundations and installing concrete floors in impacted residences as needed; installing sub-slab depressurization systems in impacted residences as necessary; repairing response-related damage; and demobilizing personnel, materials, and equipment.

2.0 SITE CONDITIONS AND BACKGROUND

2.1 Site Location and Description

The Providence Barrel Site is located at 7 Oak Street in Smithfield, Providence County, Rhode Island at 41° 52' 33.4" north latitude and 71° 30' 11.2" west longitude (see Appendix A, Figure 1) [1]. The site is an approximately 0.89-acre parcel that is bordered to the north and west by residential properties; to the east by Oak Street and residential properties; and to the south by residential and industrial properties. The property is currently vacant, containing a former building foundation in the northwest corner of the Site (see Appendix A, Figure 2) [2].

2.2 Site History/Previous Actions

The Site was vacant/unused prior to 1950. A single-story structure was located in the northeastern portion of the property from 1950 to 1984, when it was demolished by the Town of Smithfield. A soda bottling company operated at the property prior to 1972. From 1972 through 1979, Providence Barrel, a barrel storage and reclamation facility, operated on the property. From 1985 through 1986, the property was used by Gilbert Electric Company for storage of old gasoline pumps and assorted equipment. The property currently consists of a vacant lot, containing the remains of a supported slab foundation of the building constructed in 1950, which is owned by the Oak Street Realty Trust, who obtained the property on 2 December 1996.

In 2008, EPA conducted a Time-Critical Removal Action at the Site. The purpose of conducting the removal action was to reduce the potential for exposure to VOC- and lead-contaminated soil at the site, and to address lead contamination in soil at several residential properties in close proximity to the site. The removal action was conducted in coordination with the Rhode Island

Department of Environmental Management (RIDEM). RIDEM assisted with the application of soil standards and indoor air guidance values, provided site background information, obtained property access, supported community outreach efforts, and contributed to press releases [3, 5].

In 2013, GZA GeoEnvironmental, Inc. (GZA) completed a Site Investigation Report on behalf of RIDEM. Investigation activities included subsurface soil sampling, groundwater sampling, and soil gas sampling (see Appendix A, Figure 3A) [4].

On 10 April 2020, RIDEM requested that EPA initiate a Site Inspection and Removal Action for the removal of an unknown source area of VOCs as well as other hazardous materials that were presenting an imminent hazard at the Former Providence Barrel Site in Smithfield, RI.

On 17 November 2020, EPA and Superfund Technical Assessment and Response Team (START) personnel mobilized to the site to conduct soil gas sampling as part of a Preliminary Assessment/Site Investigation (PA/SI). START personnel advanced 30 soil gas borings that were screened for VOCs using a photoionization detector (PID). In addition, based on VOC screening results, 14 soil gas samples (including one field duplicate) were collected in summa canisters for VOC analysis (see Appendix A, Figure 4A). Analytical results indicated up to 1,200 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) of trichloroethene (TCE) and up to 19,000 $\mu\text{g}/\text{m}^3$ of tetrachloroethene (PCE) in SG-18 [6].

In December 2020, EPA and START personnel mobilized to the site to conduct additional PA/SI soil gas sampling and to advance borings for subsurface soil sampling (see Appendix A, Figures 4B and 5A, respectively). Analytical results of soil gas sampling indicated TCE up to 46 $\mu\text{g}/\text{m}^3$ and PCE up to 31,000 $\mu\text{g}/\text{m}^3$. Soil results indicated no concentrations of VOCs above the EPA Removal Management Levels (RMLs) [6].

In April 2021, EPA, START, and EPA New England Regional Laboratory (NERL) personnel mobilized to the Site to conduct subsurface soil sampling under the PA/SI. The NERL Geoprobe team advanced borings to a maximum depth of 20 feet below ground surface (bgs). START personnel then classified and sampled each core and submitted methanol-preserved samples to the NERL Mobile Laboratory for VOC field screening (see Appendix A, Figure 5B). A total of 172 samples, including nine duplicates, were collected from 13 borings. In addition, a subset of 17 samples were submitted to NERL for confirmatory VOC and/or polycyclic aromatic hydrocarbon (PAH) analyses. PCE was detected at a maximum concentration of 73,000 $\mu\text{g}/\text{kg}$, and TCE was detected at a maximum concentration of 980 $\mu\text{g}/\text{kg}$, both in sample SB-24M, collected from the debris layer of the 0- to 4-foot core. Boring location SB-24 contained a significant layer of debris, and high PID readings were observed. Further investigation of the location yielded a drum lid, yellow-stained soil, and debris (rubber tire, leather boot, glass, etc.) [6].

3.0 SUMMARY OF FEDERAL RESPONSE ACTIONS

3.1 Organization of the Response

ORGANIZATION OF THE RESPONSE		
Organization	Representatives	Responsibilities
U.S. Environmental Protection Agency (EPA) Emergency Planning and Response Branch (EPRB) 5 Post Office Square, Suite 100 Boston, Massachusetts 02109-3912 (617) 918-1252	Alex Sherrin Keith Paciga Ila White	EPA On-Scene Coordinators (OSCs) responsible for the initiation, oversight, and completion of all removal activities. The OSC coordinated with State and local officials.
Weston Solutions, Inc. (Weston) Superfund Technical Assessment and Response Team (START) 101 Billerica Ave, Bldg 5, Ste 103 N. Billerica, Massachusetts 01862 (978) 552-2100	Bill Mahany Chris Dupree Tyler Evans Paul Callahan Gabriel Yerdon Mark Hall	START Site Personnel that provided the OSC with technical assistance, site documentation, site health and safety monitoring, air monitoring, and draft and final report preparation.
Environmental Restoration, LLC (ER LLC) Emergency Rapid Response Services (ERRS) contractor 6940 Commercial Drive Morrow, GA 30260 (770) 961-9272	Andrew Grimmke	Response Manager (RM) for the ERRS contractor that performed removal activities. The RM was responsible for oversight and organization of mobilization, demobilization, and waste removal activities.

3.2 Mobilization and Site Preparation

The site-specific removal health and safety plan (HASP) was reviewed and signed by all personnel before any work commenced. In addition, emergency telephone numbers and directions to the hospital were posted and work zones were delineated. All activities were performed in appropriate personal protective equipment (PPE) in accordance with the HASP. The HASP was prepared by START personnel as a separate document, entitled *Health and Safety Plan for the Providence Barrel Site, Smithfield, Providence County, Rhode Island*. On 24 August 2021, the mobilization and staging of Emergency Rapid Response Services (ERRS) equipment was initiated.

Site preparation activities conducted by ERRS personnel consisted of the following: mobilizing personnel and equipment; removing vegetation and debris from the work areas; demolishing the existing concrete slab/former building foundation; establishing work areas (exclusion zone, contamination reduction zone, support zone, etc.); and conducting test-pit excavations to confirm the extent of contamination.

3.3 Chronology of Removal Activities

Week of 2 July 2021

On 2 July 2021, EPA Enforcement and Compliance Assistance Division Director Karen McGuire signed the Action Memorandum for Superfund and Emergency Management Division (SEMD) Director Bryan Olson.

Week of 26 July 2021

On 29 July 2021, a site walk was conducted with the following personnel:

- EPA On-Scene Coordinator Alex Sherrin
- ERRS contractor Environmental Restoration, LLC (ER LLC) Response Manager (RM) Andrew Grimmke
- RIDEM engineer Kirsten Bailey
- START Site Leader (SL) Chris Dupree

Week of 23 August 2021

Personnel on site:

On-Scene Coordinator (OSC) – EPA	Alex Sherrin
EPA Personnel	Lina Takahashi
Community Involvement Coordinator (CIC) – EPA	Brenda Escobar
Superfund Technical Assessment and Response Team (START) – Weston Solutions, Inc. (Weston)	Bill Mahany Chris Dupree Tyler Evans Bonnie Mace
Response Manager (RM) – Environmental Restoration, LLC (ER LLC)	Andrew Grimmke
Crew – ER LLC	2 operators 1 laborer

Equipment on site:

Type	Quantity
Office/Storage Container	1
Excavator	1
Jack Hammer Attachment (Excavator)	1
Skid Steer	2
Brush Hog Attachment (Skid Steer)	1
Water Trailer	1
Generator	1
Portable Toilet	1
Hand Wash Station	1

Activities for the week included:

- Mobilizing crew and equipment.
- Reviewing and signing the site HASP.
- Reviewing COVID-19 safety protocols and recommendations.
- Removing brush, vegetation, and debris from the work areas.
- Conducting monitoring well decommissioning, including removing steel outer casing, PVC inner screen and risers, and backfilling vacated holes with slurry mixture.

- Installing temporary fencing around the Site perimeter to restrict access to the Site.
- Installing silt sock around the Site perimeter to minimize erosion impact.
- Conducting test-pit excavation to collect soil samples for disposal analysis.
- Installing stone in the southern Site entrance for use as a tire wash/check station.
- Conducting photodocumentation of Site activities and features (conducted throughout the removal action).

Key Dates:

On 24 August 2021, EPA, ERRS, and START personnel mobilized to the Site to begin removal activities.

On 25 through 27 August 2021, three START personnel and EPA Community Involvement Coordinator (CIC) Brenda Escobar were on site to conduct residential indoor air and sub-slab soil gas sampling at nearby residences as part of the PA/SI (see Appendix A, Figure 6A; and Appendix B, Tables 1A through 3A).

Throughout the removal action, Site personnel conducted photodocumentation of Site conditions (see Appendix C, Photodocumentation Log).

Week of 30 August 2021

Personnel on site:

OSC – EPA	Alex Sherrin
START - Weston	Chris Dupree
RM – ER LLC	Andrew Grimmke
Crew – ER LLC	2 operators 1 laborer

Equipment on site:

Type	Quantity
Office/Storage Container	1
Excavator	1
Jack Hammer Attachment (Excavator)	1
Skid Steer	2
<i>Brush Hog Attachment (Skid Steer)</i>	<i>0 (demobilized)</i>
Water Trailer	1
Generator	1
Portable Toilet	1
Hand Wash Station	1

Activities for the week included:

- Removing and breaking the existing former building foundation.
- Screening broken concrete from soil.
- Conducting perimeter air monitoring for particulates and VOCs.
- Delineating work areas and work zones.

Key Dates:

On 31 August and 1 September 2021, START and EPA personnel conducted residential indoor air and sub-slab soil gas sampling at a nearby residences as part of the PA/SI (see Appendix A, Figure 6A; and Appendix B, Table 4A).

Week of 7 September 2021

Personnel on site:

OSC – EPA	Alex Sherrin Lina Takahashi
START - Weston	Chris Dupree
RM – ER LLC	Andrew Grimmke
Crew – ER LLC	2 operators 1 laborer

Equipment on site: Same as previous week.

Activities for the week included:

- Conducting perimeter air monitoring for particulates and VOCs.
- Conducting VOC screening of broken concrete to verify that there is no contamination in the construction debris.
- Excavating contaminated soil from the southwestern corner of the Site, and from the former building foundation area.
- Collecting post-excavation samples and conducting headspace field screening for VOCs.
- Conducting test-pit excavations beyond the extent of current excavations to determine if further excavation is necessary.

Key Dates:

On 7 and 8 September 2021, START and EPA personnel conducted residential indoor air and sub-slab soil gas sampling at a nearby residences as part of the PA/SI (see Appendix A, Figure 6A; and Appendix B, Table 5A).

On 9 September 2021, during excavation in the slab area (former building foundation), personnel uncovered black- and gray-stained soil with a strong petroleum odor in the northeast wall of the excavation. The excavation was expanded to remove the stained soil.

Week of 13 September 2021

Personnel on site:

OSC – EPA	Alex Sherrin Lina Takahashi
START - Weston	Chris Dupree
RM – ER LLC	Andrew Grimmke
Crew – ER LLC	2 operators 1 laborer

Equipment on site: Same as previous week.

Activities for the week included:

- Conducting perimeter air monitoring for particulates and VOCs.
- Collecting post-excavation samples for confirmatory VOC laboratory analysis.
- Conducting test-pit excavations beyond the extent of current excavations to determine if further excavation is necessary.
- Excavating the surface soil (up to 12 inches) of soil from the southern portion of the Site and the north side of the southern excavation to remove debris and potential contamination.
- Backfilling slab excavation area with broken concrete and clean soil from the 0- to 2-foot interval of the excavation.
- Backfilling excavations with clean fill material from Material Sand & Stone Corporation (Greenville, RI).
- Compacting backfill material in stages and after each delivered load.
- Demobilizing personnel and equipment from the Site.

Key Dates:

On 13 September 2021, START collected post-excavation samples from the floors and walls of the completed excavations for confirmatory post-excavation analysis at NERL (see Appendix A, Figure 5C).

On 16 September 2021, personnel completed excavation and backfill activities, and demobilized from the Site to await disposal arrangement for the staged contaminated soil.

Week of 4 October 2021

Personnel on site:

OSC – EPA	Alex Sherrin
START - Weston	Paul Callahan Gabriel Yerdon
RM – ER LLC	Andrew Grimmke
Crew – ER LLC	2 operators 1 laborer

Equipment on site:

Type	Quantity
Office/Storage Container	1
Excavator	1
Skid Steer	1
Water Trailer	1
Generator	1
Portable Toilet	1
Hand Wash Station	1

Activities for the week included:

- Mobilizing equipment and personnel.
- Loading contaminated soil into trucks for transportation to the disposal facility.
- Conducting site restoration activities, including spreading topsoil and wildflower seed.
- Demobilizing personnel, equipment, and materials.

Key Dates:

On 4 October 2021, EPA, START, and ERRS personnel remobilized to the Site for T&D Loadout (see Appendix D, Waste Disposal Summary Tables).

On 4 and 5 October 2021, START and EPA personnel conducted residential indoor air and sub-slab soil gas sampling at a nearby residences as part of the PA/SI (see Appendix A, Figure 6A).

Between 5 and 7 October 2021, a total of 21 trucks were loaded with contaminated soil and debris for transportation to the disposal facility.

On 8 October 2021, Site activities were completed, including site restoration. All personnel, equipment, and materials were demobilized from the site.

Week of 21 February 2022

On 23 and 24 February 2022, START and EPA personnel conducted residential indoor air and sub-slab soil gas sampling at nearby residences. Sampling was conducted to determine if the excavation of contaminated soil from the Site had impacted, either positively or negatively, the PCE and TCE concentrations in sub-slab soil gas and indoor air (see Appendix A, Figure 6B; and Appendix B, Tables 1B and 5B).

Week of 28 February 2022

On 1 and 2 March 2022, START and EPA personnel conducted residential indoor air and sub-slab soil gas sampling at nearby residences. Sampling was conducted to determine if the excavation of contaminated soil from the Site had impacted, either positively or negatively, the PCE and TCE concentrations in sub-slab soil gas and indoor air (see Appendix A, Figure 6B; and Appendix B, Tables 2B and 3B).

Week of 14 March 2022

On 17 and 18 March 2022, START and EPA personnel conducted residential indoor air and sub-slab soil gas sampling at a nearby residence. Sampling was conducted to determine if the excavation of contaminated soil from the Site had impacted, either positively or negatively, the PCE and TCE concentrations in sub-slab soil gas and indoor air (see Appendix A, Figure 6B; and Appendix B, Table 4B).

Week of 9 May 2022

On 11 and 12 May 2022, EPA OSC Paciga and four START personnel mobilized to the Site to conduct soil gas sampling and groundwater sampling.

Personnel conducted groundwater redevelopment prior to sampling groundwater monitoring wells. Nine groundwater samples were collected, including one duplicate sample, from remaining/existing groundwater wells on the Site property and adjacent properties (see Appendix A, Figure 3B).

Personnel also advanced Geoprobe Post-Run Tubing (PRT) tooling at 38 locations on the Site to conduct Soil Gas field screening with a MultiRAE PID. A total of 25 soil gas samples, including one duplicate, were collected in Summa cannisters for laboratory VOC analysis (see Appendix A, Figure 4C).

Week of 18 September 2022

On 22 September 2022, EPA and RIDEM personnel conducted a meeting regarding the elevated PCE and TCE concentrations in the indoor air at five residential properties in the vicinity of the 7 Oak Street property. EPA management approved the installation of Vapor Mitigation Systems (VMS) at the five residential properties to address the potential vapor intrusion issue at the residences (PS02-PS04, PS06-PS08, PS10-PS12, PS14-PS16, and PS18-PS20).

Week of 19 December 2022

Personnel on site:

OSC – EPA	Keith Paciga
START - Weston	Chris Dupree
RM – ER LLC	Ryan Anello

Equipment on site:

Type	Quantity
Pickup Truck	1

Activities for the week included:

- Mobilizing personnel to conduct site walk at the five residential properties on Oak Street.

Key Dates:

On 20 December 2022, EPA, START, and ERRS conducted a site walk to prepare for the upcoming VMS installation for five residential properties.

Week of 20 March 2023

Personnel on site:

OSC – EPA	Alex Sherrin Keith Paciga
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	Cayla Baugh
START - Weston	Mark Hall Tyler Evans
RM – ER LLC	Chris May
ER LLC Subcontractor – Alpine Environmental	2 VMS Installation Techs
ER LLC Subcontractor – Structural Engineer	Paul Aldinger

Equipment on site:

Type	Quantity
Pickup Truck	1

Activities for the week included:

- Mobilizing equipment and personnel.
- Patching any visible cracks or holes in the walls and floors in the basements of residential properties PS02-04, PS14-16, and PS18-20.
- Installing a VMS at property PS02-PS04.
- Installing a VMS at property PS14-PS16.
- Installing a VMS at property PS18-PS20.
- Inspecting the basement of property PS10-PS12 to evaluate the potential structural impact of the soil excavation conducted by the property owners.
- Collecting soil samples from the excavated basement soil, staged in the backyard of property PS10-12.

Key Dates:

Between January and March 2023, the property owners of property PS10-12 removed a substantial amount of soil (approximately 6 inches) from the dirt floor basement of the residence. The property owners had previously been informed that the Removal Action activities would include installing a concrete slab in the basement, and the ERRS contractor would obtain an on-site storage unit and assist in emptying the basement. In the intervening months (January through March), the property owners proceeded to remove the contents of the basement, staging as much as possible on the front porch or in the backyard shed, until a storage unit could be obtained and delivered. The property owners then removed several inches of soil from the dirt floor, without consultation of the EPA or a structural engineer, in order to have a level surface. The soil was staged on tarps in the backyard of the property by the property owners. Due to the amount of soil removed, the foundation of the building was compromised, and ERRS obtained a structural engineer to consult on possible solutions.

On 21 through 23 March 2023, Alpine Environmental (Alpine) installed VMS at three of the five residential properties impacted by vapor intrusion (see Appendix E).

On 21 March 2023, START personnel collected soil samples from the excavated basement soil from property PS10-PS12. Samples were collected for VOCs, semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, and metals analyses. All samples were delivered to EPA NERL for analysis.

On 23 March 2023, EPA, START, ERRS, and the ERRS Structural Engineering (SE) subcontractor, Paul Aldinger, inspected the basement area of property PS10-PS12 to evaluate the potential structural impact of the soil excavation conducted by the property owners. Significant issues were observed along the northern and western foundation walls of the building. According to the SE, a further 12 inches (one foot) of soil would need to be removed, and then a 15-inch concrete slab/footing poured to stabilize and support the structure.

Week of 17 July 2023

Personnel on site:

OSC – EPA	Keith Paciga
ERRS – ER LLC	Chris May
ER LLC Subcontractor – RP Engineering, Inc	Richard Pastore
Concrete Subcontractor – Legendary Concrete	2 Laborers
Town Building and Zoning Official	Christopher McWhite

Activities for the week included:

- Pouring concrete footings on the north, east, and south walls of the residence on property PS10-PS12.
- Hiring a structural engineer through ERRS after the fieldstone foundation wall collapsed.
- Evaluating the foundation wall.
- Developing a new design plan based on the collapsed wall.

Key Dates:

On 17 July 2023, Legendary Concrete conducted work as a subcontractor to Alpine (VMS contractor). Legendary Concrete completed the concrete repair of the building foundation footings of property PS10-PS12, abiding by the structural engineering design (see Appendix E).

On 18 July 2023, EPA and Town Building and Zoning Official Christopher McWhite observed construction on the Site.

Week of 7 August 2023

Personnel on site:

OSC – EPA	Ila White
RM – ER LLC	Chris May Timothy Jones
ER LLC Subcontractor – Alpine Environmental	2 VMS Installation Techs

Activities for the week included:

- Mobilizing equipment and personnel.
- Patching any visible cracks or holes in the walls and floors in the basements of residential property PS06-PS08.
- Installing a VMS at property PS06-PS08.

Key Dates:

On 10 and 11 August 2023, Alpine Environmental (Alpine) installed a VMS at one of the five residential properties impacted by vapor intrusion (see Appendix E).

Week of 14 August 2023

Personnel on site:

OSC – EPA	Ila White
RM – ER LLC	Timothy Jones
ER LLC Subcontractor – Alpine Environmental	1 Electrician

Activities for the week included:

- Connecting electrical power to the VMS at property PS06-PS08.

Week of 28 August 2023

Personnel on site:

OSC – EPA	Keith Paciga
RM – ER LLC	Timothy Jones

Key Dates:

Between 18 July and 28 August 2023, a portion of the western foundation wall of property PS10-PS12 partially collapsed. A structural engineer was mobilized to the Site to observe the collapsed area, and determined that the home was safe for residency. An Engineering plan was developed to address the collapsed area.

On 29 and 30 August 2023, ERRS personnel were on site to seal the opening in the collapsed asphalt adjacent to the failing basement/foundation wall on property PS10-PS12. The structural engineer was contacted to revise design plans for the repair of the foundation walls based on the ongoing structural issues.

Week of 4 September 2023

Personnel on site:

OSC – EPA	Ila White
START - Weston	Christine Dupree Tara LePage

Activities for the week included:

- Mobilizing equipment and personnel.
- Conducted indoor air, sub-slab soil gas, and VMS effluent sampling at properties PS04, PS06-PS08, PS14-PS16, and PS18-PS20.

Key Dates:

On 7 and 8 September 2023, EPA OSC Ila White and two START personnel were on site to conduct residential indoor air, sub-slab soil gas, and VMS effluent sampling to determine the efficacy of the installed systems (see Appendix A, Figure 6B; and Appendix B, Tables 1C, and 3C through 5C).

Week of 25 September 2023

Personnel on site:

RM – ER LLC	Chris May
ERRS – ER LLC	4 laborers

Activities for the week included:

- Removing Transite siding from property PS10-PS12.

Key Dates:

On 25 through 28 September 2023, the subcontractor made necessary repairs to heavy equipment slated to be utilized the following week at the Site.

On 29 September 2023, asbestos-certified laborers from ER removed a small portion of Transite (asbestos) siding from property PS10-PS12. Transite was placed into drums to await disposal.

Week of 2 October 2023

Personnel on site:

OSC – EPA	Keith Paciga
ER LLC Subcontractor – RP Engineering, Inc	Richard Pastore
ERRS – ER LLC	1 Foreman
ER LLC Subcontractor – RPA Services, LLC	4 personnel

Equipment on site:

Type	Quantity
Portable toilets	2

Activities for the week included:

- Removing a portion of soil on the exterior portion of the home.
- Staging removed soil on the Providence Barrel source property.
- Removing the large fieldstone of the west foundation wall.
- Installing additional support structures to the home.
- Covering soil staging area and the hole on the side of the house.
- Disconnecting waterline at property PS10-PS12.
- Installing a temporary water line to the house.

Key Dates:

On 2 through 4 October 2023, the ERRS masonry subcontractor began work on the Site and removed a large portion of soil on the exterior location of the home which was then staged on the Providence Barrel source property. Large fieldstones on the west foundation wall were removed and left on the source property line as approved by the Town of Smithfield. Additional support structures were added to the home.

On 5 October 2023, the soil staging area and hole on the site of the house were covered with plywood, poly, etc. to prevent waterflow into the basement over the weekend. The waterline was disconnected, and a temporary line was set up for the tenants.

Week of 9 October 2023

Personnel on site:

OSC – EPA	Keith Paciga
RM – ER LLC	Timothy Jones
ER LLC Subcontractor – RPA Services, LLC	4 personnel

Activities for the week included:

- Pouring a footing and foundation wall at property PS10-PS12.

Week of 16 October 2023

Personnel on site:

OSC – EPA	Keith Paciga
RM – ER LLC	Timothy Jones
ER LLC Subcontractor – RPA Services, LLC	6 personnel

Activities for the week included:

- Conducting property restoration at property PS10-PS12, including replacing the water line, installing cinder block walls in the basement/foundation, and replacing the basement windows.

Week of 23 October 2023

Personnel on site:

OSC – EPA	Keith Paciga
ERRS – ER LLC	1 Foreman
ER LLC Subcontractor – RPA Services, LLC	4 personnel

Activities for the week included:

- Paving the side parking area of property PS10-PS12.

Key Dates:

On 26 October 2023, asphalt paving was completed at property PS10-PS12.

Week of 6 November 2023

Personnel on site:

OSC – EPA	Keith Paciga
START - Weston	Christine Dupree
ERRS – ER LLC	1 Foreman
ER LLC Subcontractor – Alpine Environmental	4 Personnel

Equipment on site:

Type	Quantity
Portable toilets	2
Weston Van	1
Weston Pick-Up Truck	1

Activities for the week included:

- Mobilizing equipment and personnel.
- Pouring concrete slab in the basement of property PS10-PS12.

Key Dates:

On 8 November 2023, the residential carbon monoxide (CO) detector in the basement area of property PS10-PS12 began alarming during gravel compaction in preparation for concrete slab installation/pouring. The detector was subsequently removed by the concrete subcontractor. Afterwards, the first floor CO detector also alarmed, and work was stopped. It was determined that the use of the gas-powered plate compactor had caused the elevated CO levels.

On 9 November 2023, START member Dupree mobilized to the Site at the request of OSC Paciga to conduct air monitoring with a MultiRAE unit to monitor the CO levels in the basement during continued activities. The MultiRAE indicated high concentrations of CO within 5 minutes of the gas-powered plate compactor being turned on. The concrete workers departed the Site to obtain

fuel for the compactor while the basement was allowed to clear. When the workers returned, they informed START and ERRS personnel that their manager had determined to discontinue gravel compaction, since there was sufficient rebar installed. After additional discussions with ERRS RM May and OSC Paciga, the concrete workers completed installation of rebar in the basement, and no further compaction was conducted with the gas-powered plate compactor.

On 10 November 2023, ERRS and their concrete subcontractor poured cement in the basement of property PS10-PS12.

Week of 13 November 2023

Personnel on site:

OSC – EPA	Keith Paciga
START - Weston	Christine Dupree
ERRS – ER LLC	1 Foreman
ER LLC Subcontractor – Alpine Environmental	1 VMS Installation Tech

Equipment on site:

Type	Quantity
Portable toilets	2

Activities for the week included:

- Installing a VMS at property PS10-PS12.

Key Dates:

On 14 November 2023, Alpine installed the last VMS at property PS10-PS12.

Week of 20 November 2023

Personnel on site:

ERRS – ER LLC	1 Laborer
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Equipment on site:

Type	Quantity
Portable toilets	2

Key Dates:

On 21 November 2023, an ERRS laborer was on site to mark for DigSafe utility services.

Week of 27 November 2023

Personnel on site:

OSC – EPA	Keith Paciga
RM – ER LLC	Blake MacKinney
ERRS – ER LLC	1 Operator 1 Foreman

Equipment on site:

Type	Quantity
Portable toilets	2

Activities for the week included:

- Conducting T&D of the soil pile from property PS10-PS12.
- Conducting T&D of asbestos siding from property PS10-PS12, contained in drums for disposal.
- Conducting Site restoration.
- Demobilizing equipment and materials.

Key Dates:

On 27 November 2023, the soil removed from the basement of property PS10-PS12 prior to and during the installation of the VMS was transported off site for disposal.

On 29 November 2023, four drums containing asbestos siding were transported off site for disposal.

Week of 4 December 2023

Personnel on site:

START - Weston	Christine Dupree Tara LePage Bill Mahany
----------------	--

Equipment on site:

Type	Quantity
Portable toilets	2
Weston Van	1

Activities for the week included:

- Mobilizing equipment and personnel.
- Collecting indoor air, sub-slab soil gas, and VMS effluent samples.

Key Dates:

On 5 December 2023, two START personnel were on site to deploy residential indoor air sampling canisters. On 6 December 2023, two START personnel returned to the Site to collect the previously-deployed indoor air samples, and conduct sub-slab soil gas and VMS effluent sampling to determine the efficacy of the installed system (see Appendix A, Figure 6C and Appendix B, Table 2C).

Week of 11 March 2024

Personnel on site:

RM – ER LLC	Chris May
-------------	-----------

Key Dates:

On 12 March 2024, ERRS RM May was on site to meet with a roofing contractor to discuss the replacement of the former Transite ACM siding that was removed from property PS10-PS12.

Week of 6 May 2024

Personnel on site:

ERRS – ER LLC	1 Foreman
---------------	-----------

Activities for the week included:

- Mobilizing equipment and personnel.
- Installing replacement siding at property PS10-PS-12.

Key Dates:

On 9 May 2024, an ERRS Foreman and ERRS subcontractor were on site to replace the removed siding at property PS10-PS12.

Week of 24 June 2024

Personnel on site:

RM – ER LLC	Josue Vega Santos
-------------	-------------------

Activities for the week included:

- Mobilizing equipment and personnel.
- Repairing the exterior bulkhead of property PS10-PS12.

Key Dates:

On 26 June 2024, was on site to repair the exterior basement bulkhead at property PS10-PS12.

Week of 22 July 2024

Personnel on site:

RM – ER LLC	Josue Vega Santos
ERRS – ER LLC	1 Laborer

Activities for the week included:

- Mobilizing equipment and personnel.
- Replacing the basement door at property PS10-PS12.

Key Dates:

On 23 July 2024, ERRS was on site to replace the basement door at property PS10-PS12.

Week of 29 July 2024

Personnel on site:

RM – ER LLC	Chris May
ERRS – ER LLC	1 Laborer

Key Dates:

On 2 August 2024, ERRS was on site to repair an electrical issue at one of the residential properties.

4.0 ESTIMATED COSTS OF THE REMOVAL ACTION

EPA resources committed under this Removal Action are summarized below:

Cost Category	Ceiling	Costs Incurred	Remainder
Regional Removal Allowance Costs			
ERRS Contractor	\$1,410,000	\$430,000	\$980,000
Interagency Agreement	\$0	\$0	\$
Other Extramural Costs Not Funded from the Regional Allowance			
START Contractor	\$192,000	\$191,000	\$ 1,000
Extramural Subtotal	\$1,602,000	\$621,000	\$ 981,000
Extramural Contingency	\$151,400	(\$8,000)	\$ 151,400
Total Removal Project Costs	\$1,753,400	\$	\$1,753,400

This accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

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- [22] U.S. Environmental Protection Agency. 14 December 2023. LSASD. Laboratory Report. Project No. 23120006. Providence Barrel – Smithfield, RI. Air Toxics by GC/MS.

Appendices

Appendix A

Figures

- Figure 1 – Site Location Map
- Figure 2 – Site Diagram
- Figure 3A – 2011 Groundwater Sampling Results/ Contamination Distribution Plan – Figure 3, GZA GeoEnvironmental, Inc.
- Figure 3B – Groundwater Sample Location and Results Map, May 2022
- Figure 4A – Soil Gas Sample Location and Results Map, November 2020
- Figure 4B – Soil Gas Sample Location and Results Map, December 2020
- Figure 4C – Soil Gas Sample Location and Results Map, May 2022
- Figure 5A – Soil Boring Sample Location and Results Map, December 2020
- Figure 5B – Soil Boring Sample Location and Results Map, April 2021
- Figure 5C – Post-Excavation PCE Results (Soil), September 2021
- Figure 6A – Residential Sample Results Map, August - October 2021
- Figure 6B – Residential Sample Results Map, February - March 2022
- Figure 6C – Post-Vapor Mitigation System, Residential Sample Results Map, September - December 2023

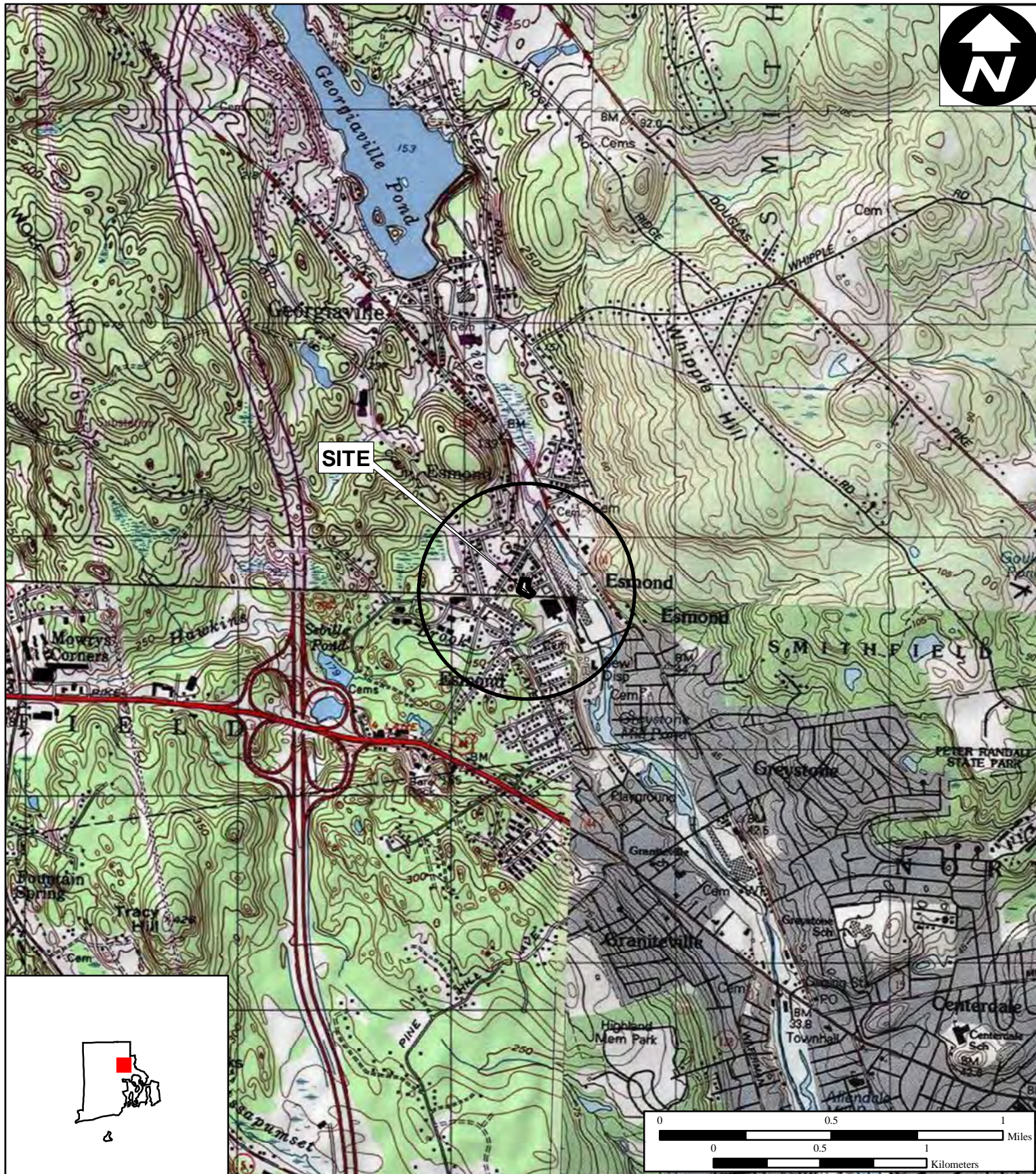


Figure 1

Site Location Map

**Providence Barrel Site
7 Oak Street
Smithfield, Rhode Island**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001**

AD Number: TOFP-01-21-07-0002
Created by: C. Dupree
Created on: 20 November 2020
Modified by: B. Mace
Modified on: 2 December 2021

Data Sources:

Topos: MicroPath/USGS/USA Topo Maps
Quadrangle Name: Providence, RI
All other data: START





Figure 2

Site Diagram

**Providence Barrel Site
7 Oak Street
Smithfield, Rhode Island**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001
AD Number: TOFP-01-21-07-0002
Created by: C. Dupree
Created on: 6 November 2020
Modified by: B. Mace
Modified on: 2 December 2021**

LEGEND

- ☐ Site
- ☒ Former Building Foundation (Slab)



0 50 100



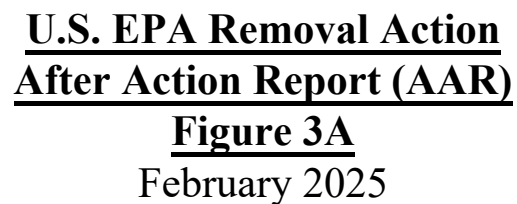
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Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
AEX, GeoEye, Getmapping, Aerogrid, IGP
Topos: USA TopoMaps
All other data: START



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS,
USDA, USGS, AeroGRID, IGN, and the GIS User Community



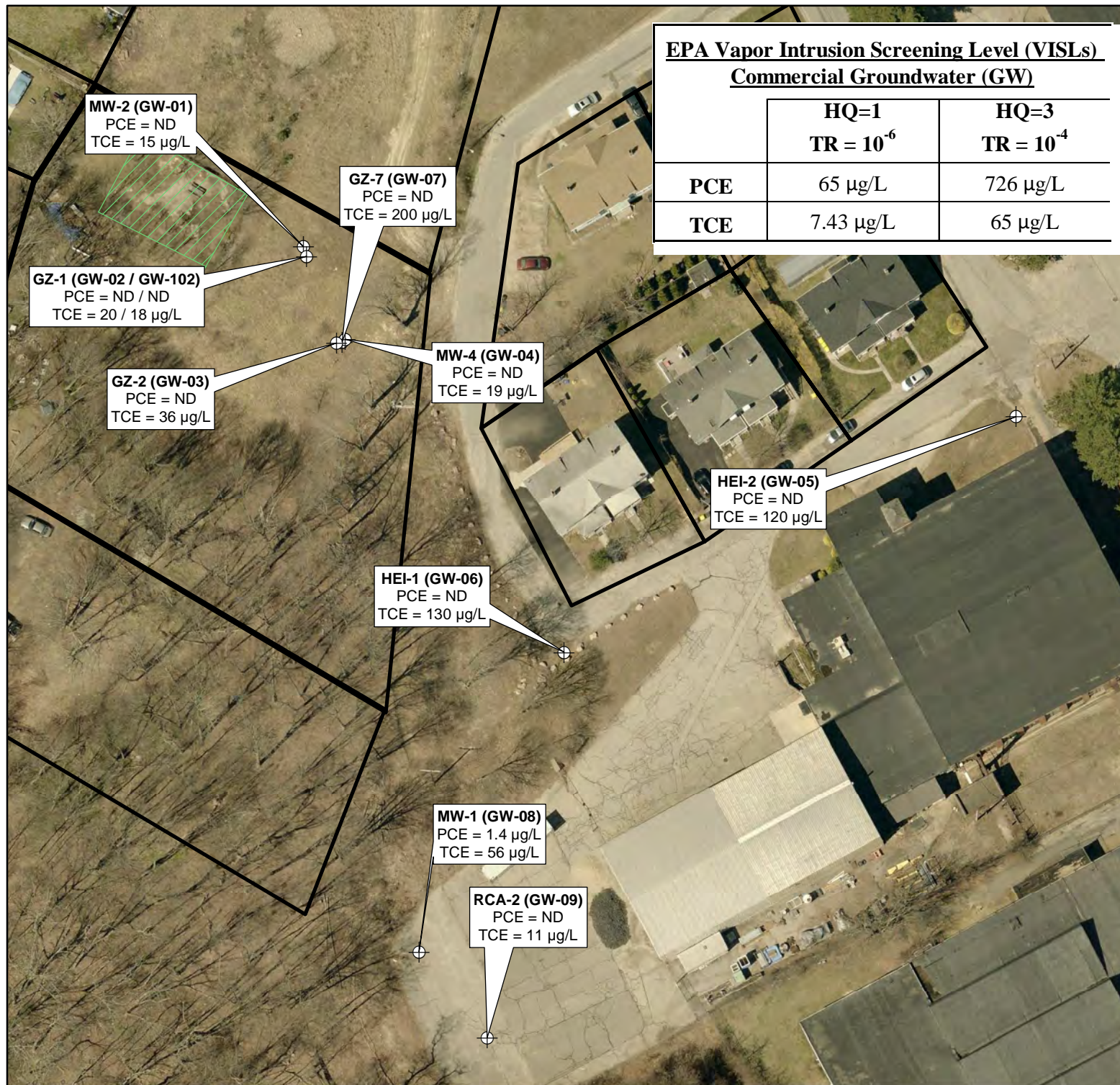


Figure 3B

**Groundwater Sample Location
and Results Map**
May 2022

**Providence Barrel
Oak Street
Smithfield, Rhode Island**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001
AD Number: TOFP-01-21-07-0002
Created by: C. Dupree
Created on: 6 November 2020
Modified by: C. Dupree
Modified on: 13 February 2025**

LEGEND

- Property Boundaries
- Former Building Foundation (Slab)
- Groundwater Sample Location

PCE = Tetrachloroethylene
TCE = Trichloroethylene
ND = Not Detected
µg/L = Micrograms per Liter
HQ = Hazard Quotient
TR = Target Risk



0 25 50 75
Feet

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
AEX, GeoEye, Getmapping, Aerogrid, IGP
Topos: USA TopoMaps
All other data: START



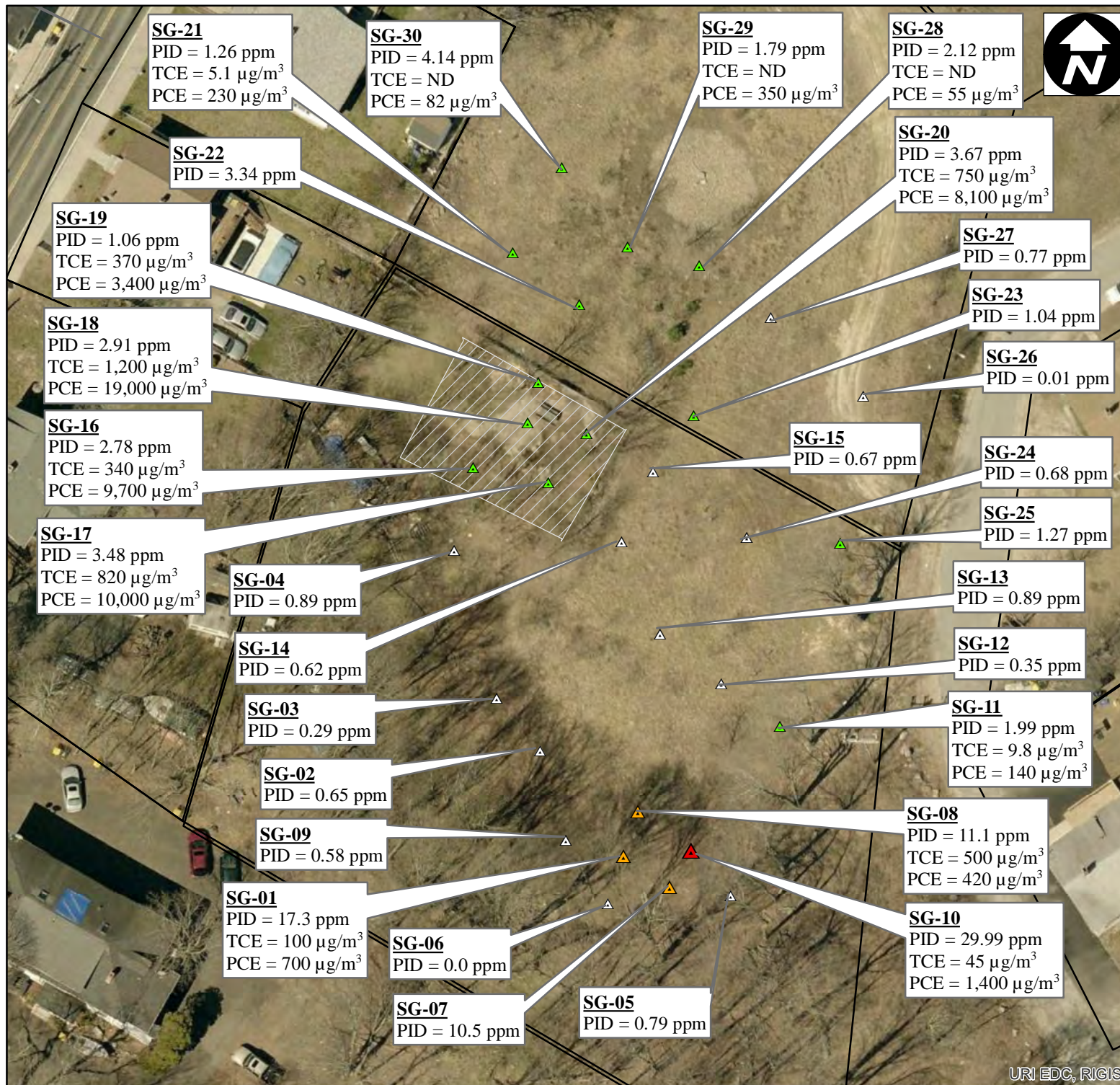


Figure 4A
Soil Gas Sample Location and Results Map
November 2020
Providence Barrel
Oak Street
Smithfield, Rhode Island

EPA Region I
Superfund Technical Assessment and Response Team (START) V
Contract No. 68HE0120D0001
AD Number: TOFP-01-21-07-0002
Created by: C. Dupree
Created on: 6 November 2020
Modified by: C. Dupree
Modified on: 14 February 2025

LEGEND

\triangle < 1 ppm
 \triangle < 5 ppm
 \triangle > 10 ppm
 \triangle > 20 ppm
 □ Property Boundaries
 ▨ Former Building Foundation (Slab)

PID = Photoionization detector
 ppm = parts per million
 ND = Not Detected
 TCE = Trichloroethylene
 PCE = Tetrachloroethylene
 $\mu\text{g}/\text{m}^3$ = Micrograms per cubic meter
 EPA Vapor Intrusion Screening Level (VISL) for Soil Gas, PCE = 4,170 $\mu\text{g}/\text{m}^3$
 TCE = 209 $\mu\text{g}/\text{m}^3$

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
 AEX, GeoEye, Getmapping, Aerogrid, IGP
 Topos: USA TopoMaps
 All other data: START



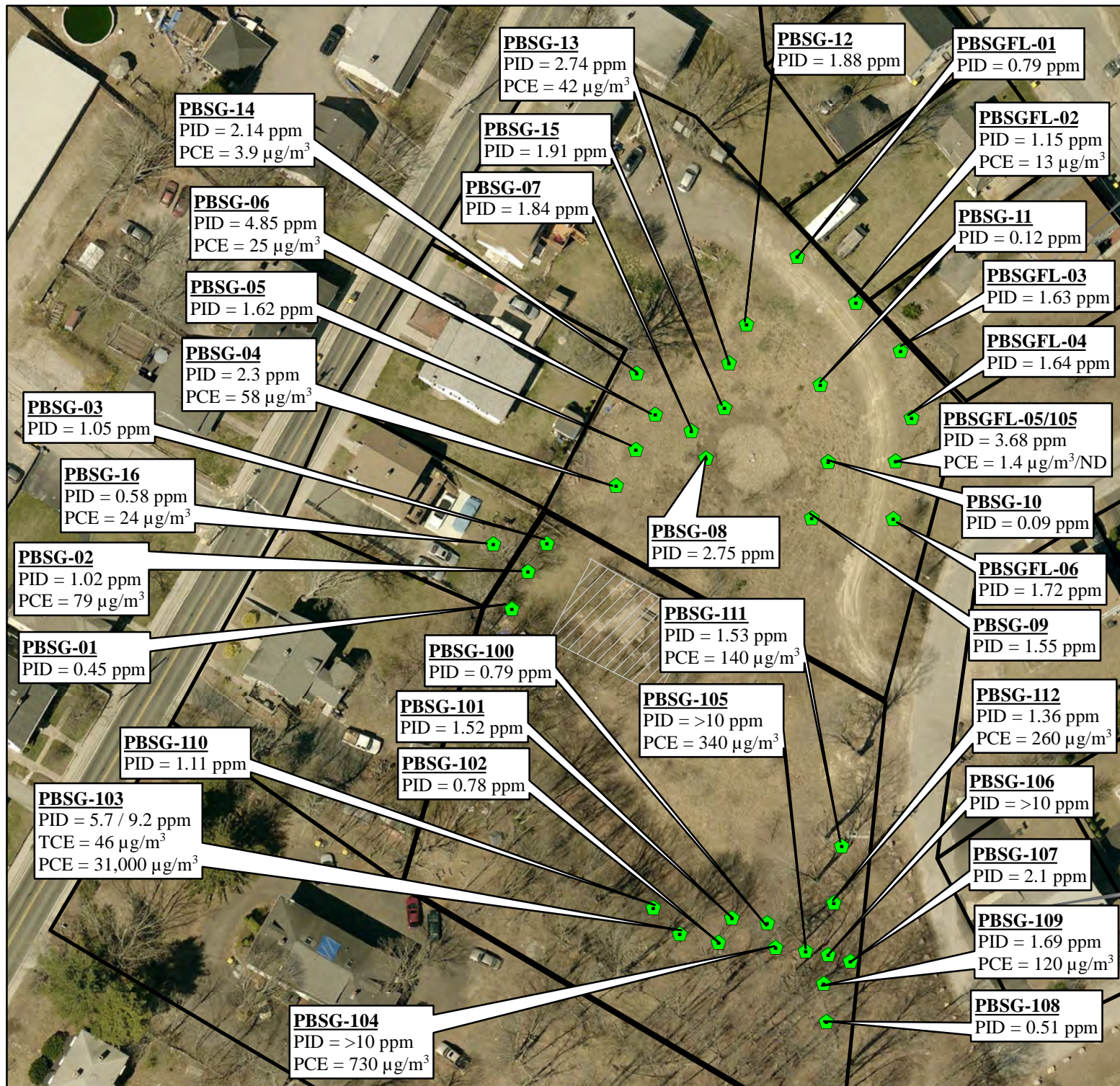


Figure 4B
Soil Gas Sample Location and Results Map
December 2020
 Providence Barrel
 Oak Street
 Smithfield, Rhode Island

EPA Region I
 Superfund Technical Assessment and Response Team (START) V
 Contract No. 68HE0120D0001
 AD Number: TOFP-01-21-07-002
 Created by: C. Dupree
 Created on: 6 November 2020
 Modified by: C. Dupree
 Modified on: 14 February 2025

LEGEND

- Soil Gas Sample
- Site Boundary
- Former Building Foundation (Slab)

PID = Photoionization detector
 ppm = parts per million
 > = greater than
 TCE = Trichloroethylene
 PCE = Tetrachloroethylene
 $\mu\text{g}/\text{m}^3$ = Micrograms per cubic meter
 EPA Vapor Intrusion Screening Level (VISL)
 for Soil Gas, PCE = $4,170 \mu\text{g}/\text{m}^3$
 TCE = $209 \mu\text{g}/\text{m}^3$



0 25 50
 Feet

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
 AEX, GeoEye, Getmapping, Aerogrid, IGP
 Topos: USA TopoMaps
 All other data: START



EPA Vapor Intrusion Screening Level (VISLs)				
NEAR-SOURCE SOIL GAS (NSSG)	Residential - NSSG		Commercial - NSSG	
	HQ=1 TR = 10 ⁻⁶	HQ=3 TR = 10 ⁻⁴	HQ=1 TR = 10 ⁻⁶	HQ=3 TR = 10 ⁻⁴
PCE	360 µg/m ³	4,170 µg/m ³	1,570 µg/m ³	17,500 µg/m ³
TCE	15.9 µg/m ³	209 µg/m ³	99.8 µg/m ³	876 µg/m ³

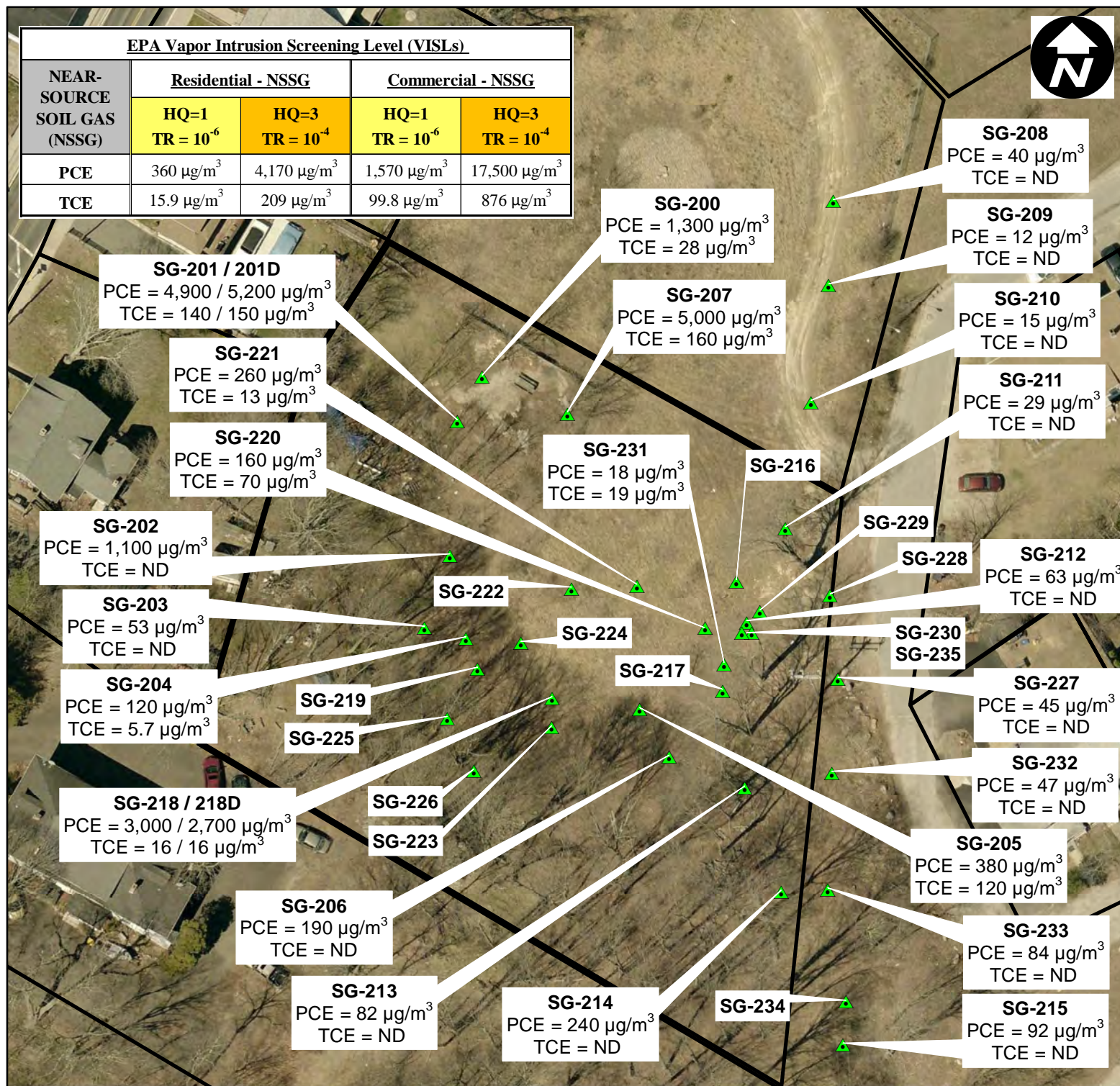


Figure 4C

**Soil Gas Sample Location
and Results Map
May 2022**

Providence Barrel
Oak Street
Smithfield, Rhode Island

EPA Region I
Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001
AD Number: TOFP-01-20-07-0048
Created by: C. Dupree
Created on: 6 November 2020
Modified by: C. Dupree
Modified on: 13 February 2025

LEGEND

▲ May_2022_Sampling-LAB

□ Property Boundaries

PCE = Tetrachloroethylene
TCE = Trichloroethylene
ND = Not Detected
µg/m³ = Micrograms per cubic meter
HQ = Hazard Quotient
TR = Target Risk

0 25 50 75
Feet

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
AEX, GeoEye, Getmapping, Aerogrid, IGP
Topos: USA TopoMaps
All other data: START



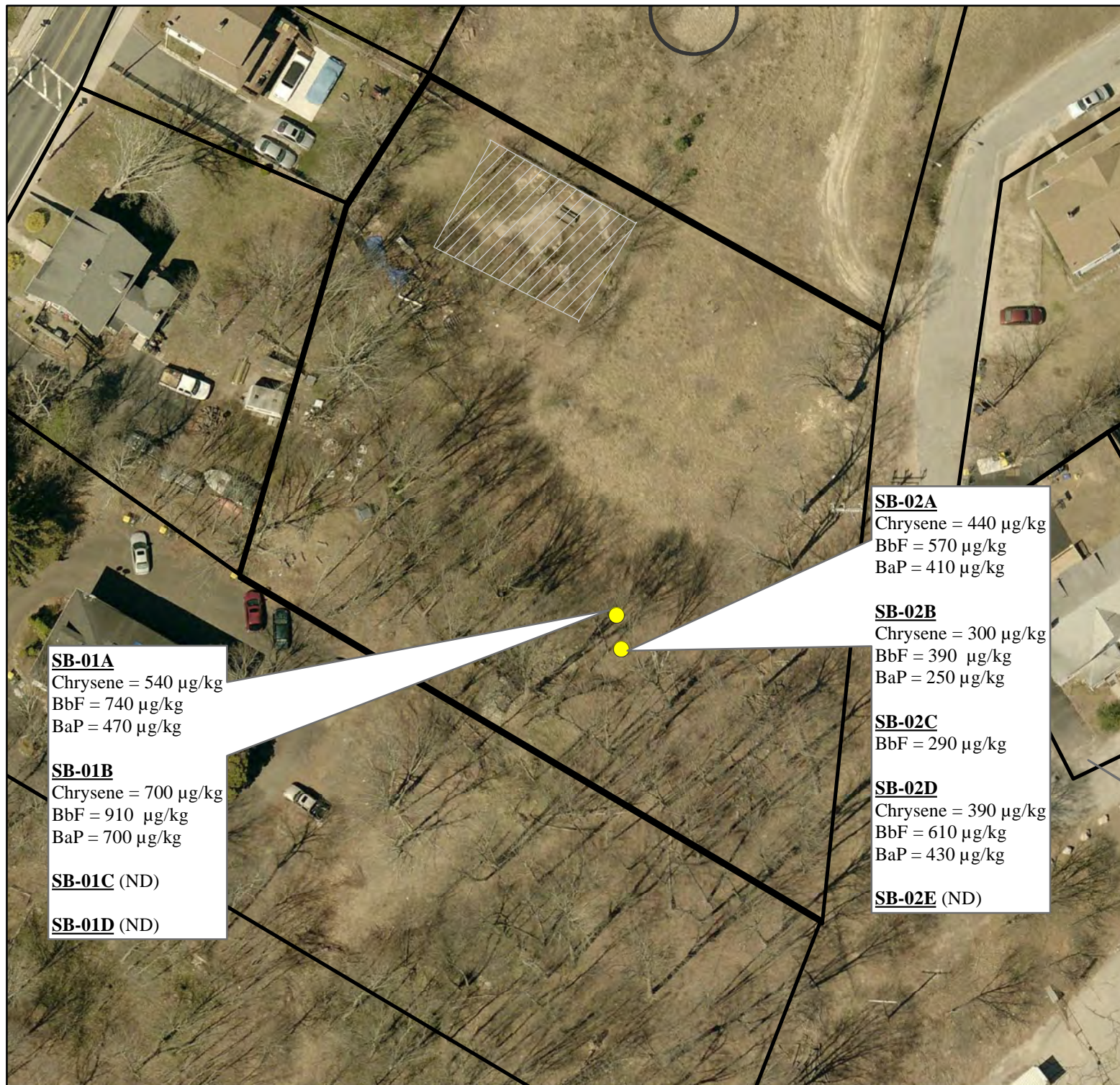


Figure 5A
Soil Boring Sample Location and
Results Map
December 2020

Providence Barrel
Oak Street
Smithfield, Rhode Island

EPA Region I
Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001
AD Number: TOFP-01-21-07-0002
Created by: C. Dupree
Created on: 6 November 2020
Modified by: C. Dupree
Modified on: 15 February 2025

LEGEND

- Soil Sample
- Property Boundaries
- Former Building Foundation (Slab)

BbF = Benzo(b)fluoranthene
BaP = Benzo(a)pyrene
µg/kg = Micrograms per kilogram
ND = Not detected



0 25 50
Feet

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
AEX, GeoEye, Getmapping, Aerogrid, IGP
Topos: USA TopoMaps
All other data: START



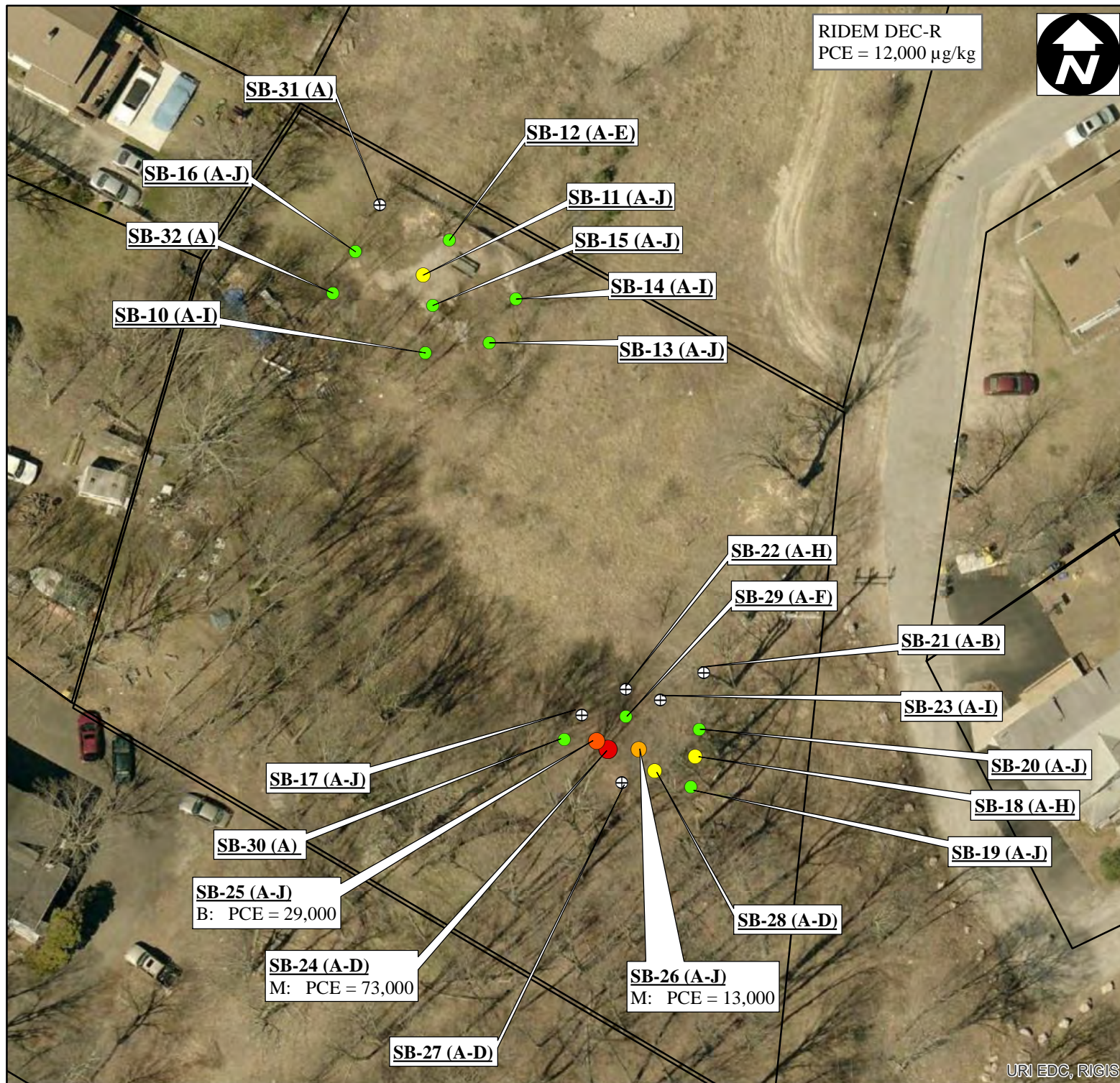


Figure 5B
Soil Boring Sample Location and
Results Map
April 2021

Providence Barrel
 Oak Street
 Smithfield, Rhode Island

EPA Region I
 Superfund Technical Assessment and
 Response Team (START) V
 Contract No. 68HE0120D0001
 AD Number: TOFP-01-21-07-0002
 Created by: C. Dupree
 Created on: 6 November 2020
 Modified by: C. Dupree
 Modified on: 15 February 2025

LEGEND

- ⊕ Not Detected
- PCE < 1,000 µg/kg
- PCE < 5,000 µg/kg
- PCE < 25,000 µg/kg
- PCE < 50,000 µg/kg
- PCE > 50,000 µg/kg
- Property Boundary

A-I, T-Z = Sample sub-location duplicate (interval).
 Intervals are only shown if a result was greater than the RIDEM DEC-R
 All results are in micrograms per kilogram (µg/kg).
 PCE = Tetrachloroethylene
 RIDEM = Rhode Island Department of Environmental Management
 DEC-R = Direct Exposure Criteria for Residential Soil

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP
 Topos: USA TopoMaps
 All other data: START



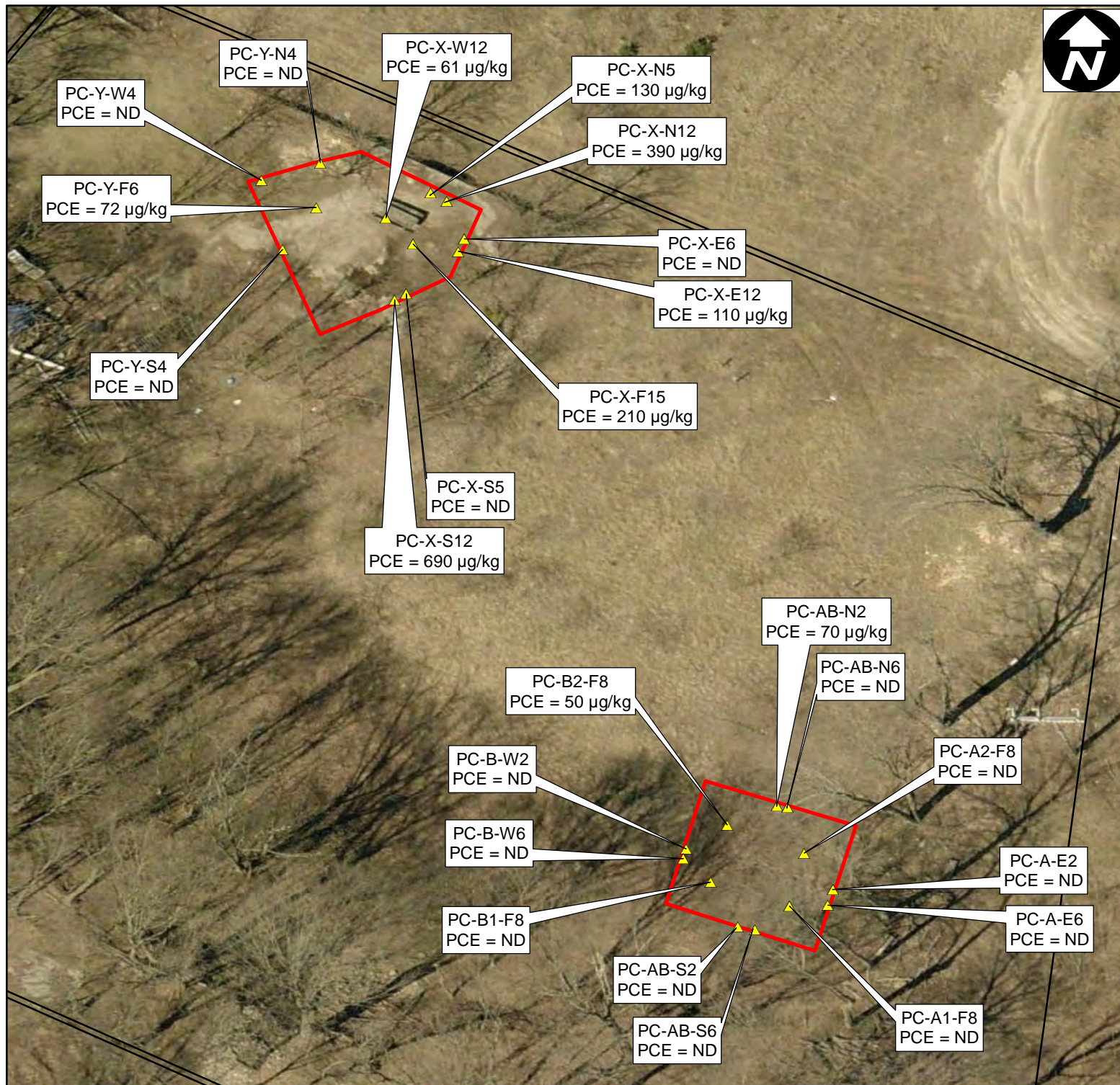


Figure 5C

**Post-Excavation
PCE Results (Soil)
September 2021**

**Providence Barrel
Smithfield, Rhode Island**

**EPA Region I
Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001
AD Number: TOFP-01-20-07-0048
Created by: C. Dupree
Created on: 6 November 2020
Modified by: C. Dupree
Modified on: 10 February 2025**

LEGEND

- ▲ Post-Excavation Composite Soil Sample
- Excavation Boundary
- Property Boundaries

PCE = Tetrachloroethylene
µg/kg = micrograms per kilogram
ND = Not detected
PC-X-F15 = Post Excavation Confirmatory sample, Grid (X, Y, A, B), Location (East, West, North, or South Wall, or Floor), and sample depth

EPA Removal Management Level (RML) for PCE in Residential Soil = 240,000 µg/kg

Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for Residential Soil (DEC-R) = 12,000 µg/kg

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP Topos: USA TopoMaps
All other data: START



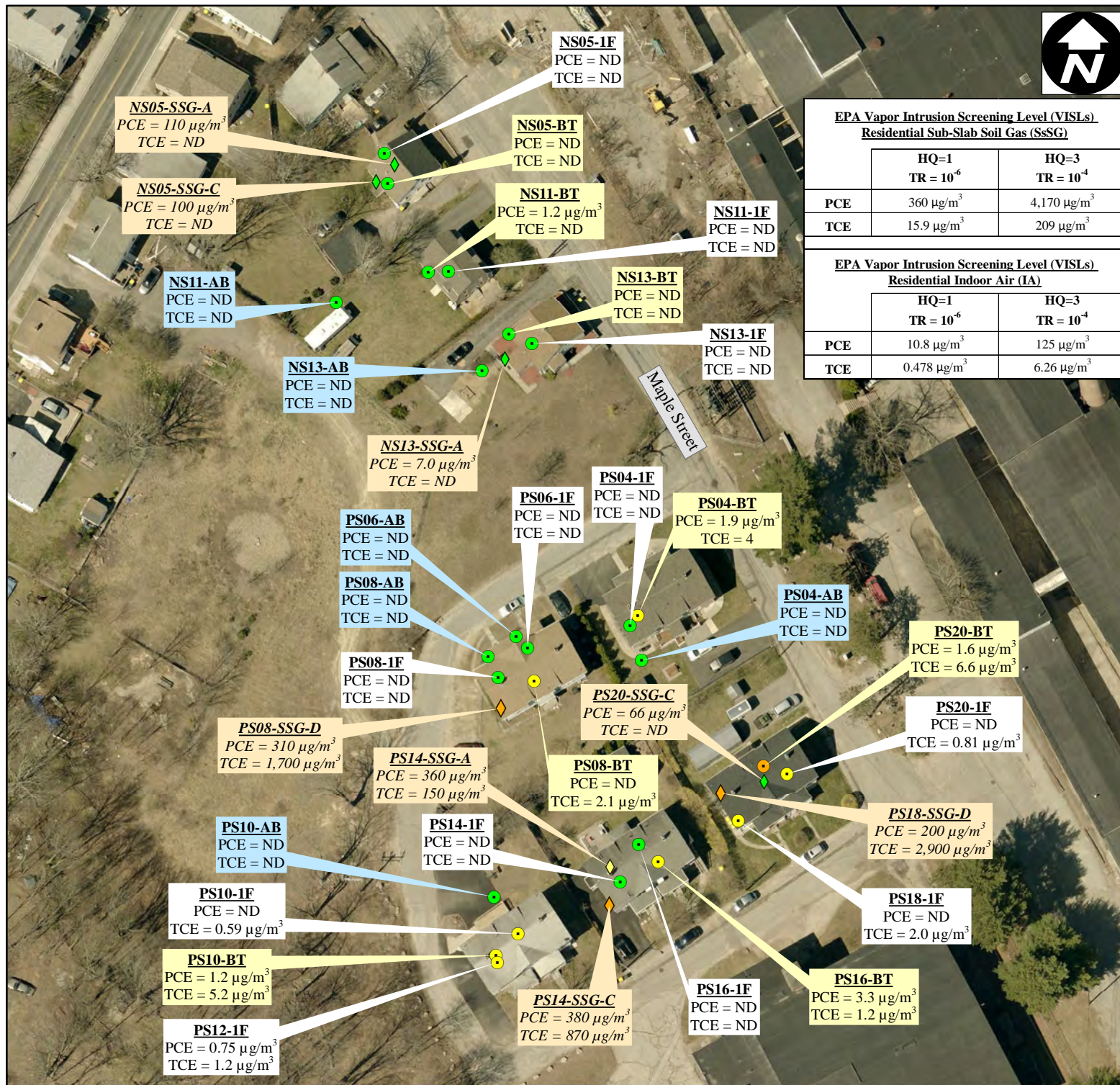


Figure 6A

Residential Sample Results Map
August - October 2021

Providence Barrel
Smithfield, Rhode Island

EPA Region I

Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001

AD Number: TOFP-01-21-07-0002

Created by: C. Dupree

Created on: 6 November 2020

Modified by: C. Dupree

Modified on: 20 February 2025

LEGEND

- ⊙ Residential Indoor Air/Ambient
- ◆ Residential Sub-Slab Soil Gas
- PCE and TCE Result below
VISL HQ=1/TR= 10^{-6}
- PCE and/or TCE Result above
VISL HQ=1/TR= 10^{-6}
- PCE and/or TCE Result above
VISL HQ=3/TR= 10^{-4}
- Property Boundaries

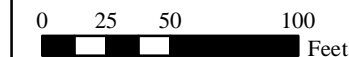
Ambient 24-hour Outdoor Sample Result

First Floor 24-hour Indoor Air Sample Result

Basement 24-hour Indoor Air Sample Result

Grab Sub-Slab Soil Gas Sample Result

PCE = Tetrachloroethylene
TCE = Trichloroethylene
 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
ND = Not detected
HQ = Hazard Quotient
TR = Target Risk



Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
AEX, GeoEye, Getmapping, Aerogrid, IGP
Topos: USA TopoMaps
All other data: START





Figure 6B

Residential Sample Results Map
February - March 2022

Providence Barrel
Smithfield, Rhode Island

EPA Region I
Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001
AD Number: TOFP-01-21-07-0002
Created by: C. Dupree
Created on: 6 November 2020
Modified by: C. Dupree
Modified on: 10 February 2025

LEGEND

- Residential Indoor Air/Ambient
- ◆ Residential Sub-Slab Soil Gas
- PCE and TCE Result below
VISL HQ=1/TR=10⁻⁶
- PCE and/or TCE Result above
VISL HQ=1/TR=10⁻⁶
- PCE and/or TCE Result above
VISL HQ=3/TR=10⁻⁴
- Property Boundaries

Ambient 24-hour Outdoor Sample Result

First Floor 24-hour Indoor Air Sample Result

Basement 24-hour Indoor Air Sample Result

Grab Sub-Slab Soil Gas Sample Result

PCE = Tetrachloroethylene
TCE = Trichloroethylene
 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
ND = Not detected
HQ = Hazard Quotient
TR = Target Risk

0 25 50 100
Feet

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
AEX, GeoEye, Getmapping, Aerogrid, IGP
Topos: USA TopoMaps
All other data: START



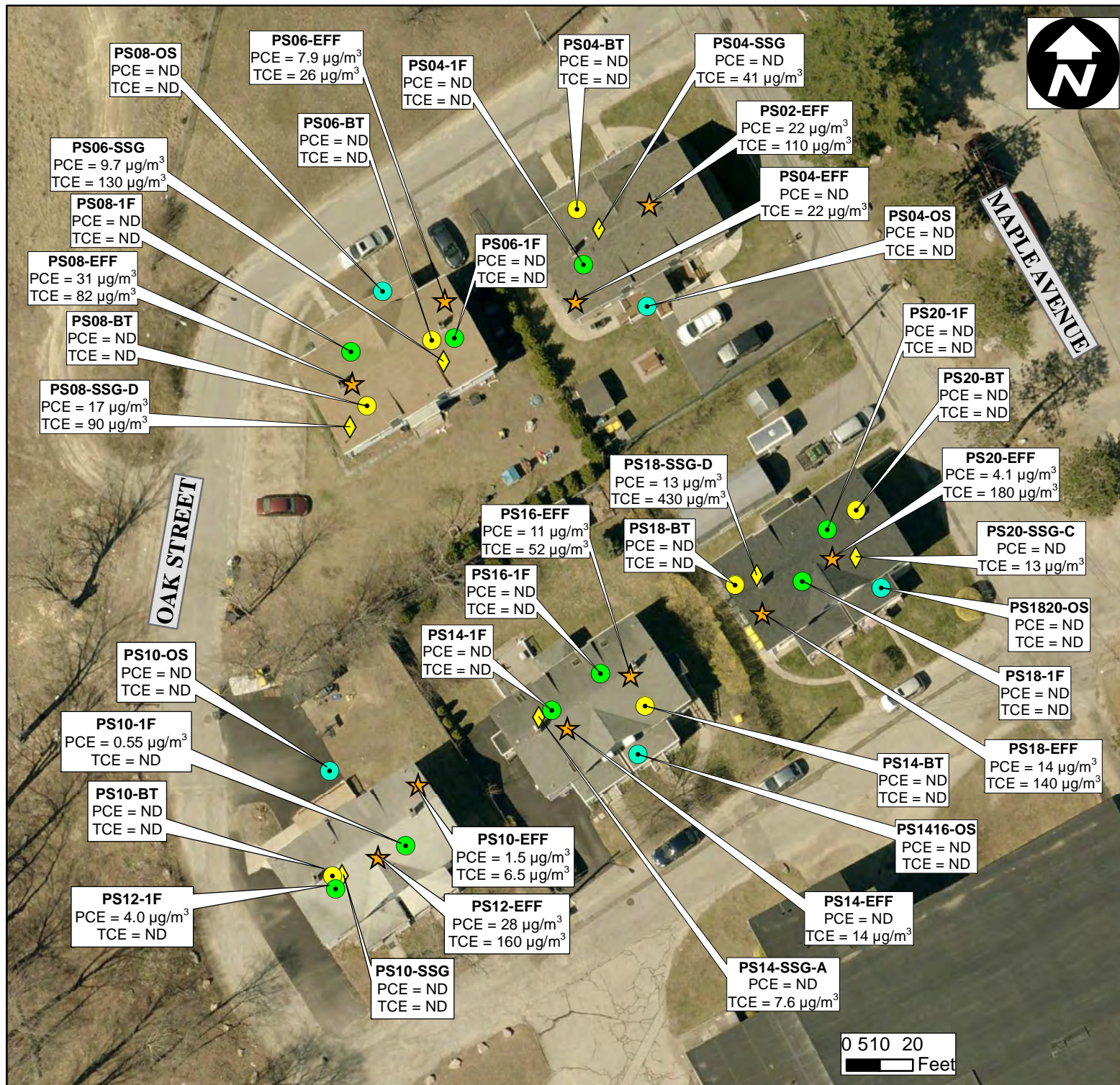


Figure 6C
Post-Vapor Mitigation System
Residential Sample Results Map
September - December 2023

Providence Barrel
Oak Street
Smithfield, Rhode Island

EPA Region I
Superfund Technical Assessment and
Response Team (START) V
Contract No. 68HE0120D0001
AD Number: TOFP-01-21-07-0002
Created by: C. Dupree
Created on: 20 September 2023
Modified by: C. Dupree
Modified on: 12 February 2025

LEGEND

- First Floor, 24hr Sample (1F)
- Basement, 24hr Sample (BT)
- Outside Ambient, 24hr Sample (OS)
- ★ Effluent Sample (EFF)
- ◆ Sub-Slab Soil Gas Sample (SSG)

PCE = Tetrachloroethylene
TCE = Trichloroethylene
ND = Not detected
ug/m³ = micrograms per cubic meter

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS
AEX, GeoEye, Getmapping, Aerogrid, IGP
Topos: USA TopoMaps
All other data: START



Appendix B

Photodocumentation Log

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of the southern portion of the Site and staged equipment. Photograph taken facing southwest.



SCENE: View of the former building foundation in the northwest corner of the Site. Photograph taken facing west.

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of the southeast corner of the Site, and blocks placed around remaining groundwater monitoring wells for protection. Photograph taken facing south.



SCENE: View of groundwater monitoring well decommissioning in the southeast portion of the Site. Photograph taken facing south.

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of concrete demolition and removal of the former building foundation. Photograph taken facing north.



SCENE: View of excavation activities in the former building foundation area. Photograph taken facing northwest.

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of the excavation in the southeast corner of the Site. Photograph taken facing southeast.



SCENE: View of the 0- to 6-inch excavation (scraping) along the southern Site border. Photograph taken facing south.

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of the southeastern portion of the Site at the completion of excavation. Photograph taken facing southeast.



SCENE: SCENE: View of the southeastern portion of the Site at the completion of excavation. Photograph taken facing southeast.

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of the southeastern portion of the Site at the completion of backfill activities. Photograph taken facing south.



SCENE: View of the western portion of the Site at the completion of backfill activities. Photograph taken facing southwest.

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of disposal load-out activities. Photograph taken facing south.



SCENE: View of the eastern portion of the Site, from the northern property border. Photograph taken facing south.

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of the southeastern portion of the Site at the completion of removal activities, including remaining monitoring wells. Photograph taken facing south.



SCENE: View of the northwest portion of the Site (former building foundation area) at the completion of removal activities. Photograph taken facing west.

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island



SCENE: View of western facing basement wall of property PS06 during Vapor Mitigation Systems (VMS) effluent sampling for the post-VMS indoor air sampling event. Photograph taken facing west.

DATE: 8 September 2023

PHOTOGRAPHER: T. LePage

TIME: 0953 hours

CAMERA: Apple iPhone 13



SCENE: View of sub-slab soil sampling in the basement of property PS04 during the post-VMS indoor air sampling event. Photograph taken facing west.

DATE: 8 September 2023

PHOTOGRAPHER: T. LePage

TIME: 1013 hours

CAMERA: Apple iPhone 13

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island

TOP



SCENE: View of the further deterioration of the basement wall of property PS10-PS12.

DATE: 29 August 2023

PHOTOGRAPHER: EPA OSC

TIME: 1227 hours

CAMERA: Apple iPhone XR

TOP



SCENE: View of the exterior of property PS10-PS12, at the location of the basement wall deterioration.

DATE: 3 October 2023

PHOTOGRAPHER: EPA OSC

TIME: 0842 hours

CAMERA: Apple iPhone XR

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island

TOP



SCENE: View of the further deterioration of the basement wall of property PS10-PS12.

DATE: 3 October 2023

PHOTOGRAPHER: EPA OSC

TIME: 0952 hours

CAMERA: Apple iPhone XR

TOP



SCENE: View of the removed basement and foundation wall of property PS10-PS12, excavated for replacement. Photograph taken facing south-southwest.

DATE: 4 October 2023

PHOTOGRAPHER: EPA OSC

TIME: 1433 hours

CAMERA: Apple iPhone XR

PHOTODOCUMENTATION LOG
Providence Barrel Site • Smithfield, Rhode Island

TOP



SCENE: View of the exterior bulkhead door of property PS10-PS12, with damaged Transite (asbestos) siding. Photograph taken facing north.

DATE: 7 November 2023

PHOTOGRAPHER: EPA OSC

TIME: 1357 hours

CAMERA: Apple iPhone XR

TOP



SCENE: View of the basement of property PS10-PS12, with concrete floor, footer, and foundation/wall installed.

DATE: 7 November 2023

PHOTOGRAPHER: EPA OSC

TIME: 1357 hours

CAMERA: Apple iPhone XR

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TABLE 1A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PROPERTY PS18-PS20
AUGUST 2021

PROPERTY LOCATION:				PS18-PS20			PS10-PS12	
SAMPLE TYPE:				INDOOR AIR SAMPLES			OUTDOOR AMBIENT	
LABORATORY NUMBER:				AB94284	AB94285	AB94286	AB94280	
SAMPLE LOCATION:				PS18-1F	PS20-BT	PS20-1F	PS12-AB	
SAMPLE NUMBER:				S50048RI-0270	S50048RI-0271	S50048RI-0272	S50048RI-0266	
CANISTER NO.				20846	6569	15052	13499	
SAMPLE DATE:				8/26/2021	8/26/2021	8/26/2021	8/26/2021	
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, Basement	24-hour, First Floor	24-hour, Outside Ambient for PS10-PS20
VOLATILE ORGANIC COMPOUNDS (VOCs)				μg/m ³			μg/m ³	
Dichlorodifluoromethane	104	NC	313	NC	2.6	5.0	2.6	2.4
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND
Trichlorofluoromethane	NL		NL		2.2	12.00	2.6	1.2
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND
Methylene Chloride	101	C	1,880	NC	0.87	4.0	0.73	ND
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC	12.00	16.00	5.5	2.5
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND
Hexane	730	NC	2,190	NC	2.3	3.5	2.2	3.6
Chloroform	0.122	C	12.2	C	7.5	3.2	2.9	ND
1,2-Dichloroethane	0.108	C	10.8	C	1.1	1.2	1.1	ND
1,1,1-Trichloroethane	5,210	NC	15,600	NC	ND	1.4	ND	ND
Benzene	0.36	C	36	C	1.7	2.5	1.9	1.8
Carbon Tetrachloride	0.468	C	46.8	C	2.6	1.2	0.88	ND
Cyclohexane	6,260	NC	18,800	NC	0.65	1.0	0.48	ND
Trichloroethylene (TCE)	0.478	C	6.26	NC	2.0	6.6	0.81	ND
Heptane	417	NC	1,250	NC	1.3	1.8	1.1	2.9
Methyl Isobutyl Ketone (MIBK)	3,130	NC	9,390	NC	0.57	0.93	0.57	ND
Toluene	5,210	NC	15,600	NC	7.9	29.0	9.7	6.8
2-Hexanone	31.300	NC	93.90	NC	0.49	0.46	0.53	ND
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	1.6	ND	ND
Ethylbenzene	1.12	C	112	C	1.9	5.0	2.6	1.8
m/p-Xylenes	104	NC	313	NC	6.0	15.0	8.0	6.3
Styrene	1,040	NC	3,130	NC	3.4	45.0	15.0	ND
o-Xylene	104	NC	313	NC	2.0	4.8	3.5	2.2
4-Ethyltoluene	NL		NL		0.93	1.8	0.88	1.1
1,3,5-Trimethylbenzene	62.6	NC	188	NC	ND	0.87	ND	ND
1,2,4-Trimethylbenzene	62.6	NC	188	NC	1.2	2.7	1.4	1.1
Inventory Items of Concern				Adhesives, paints, mid-temp reducer (toluenes, xylenes, acetates, ketones).	Gun cleaners, adhesives, lubricants, lighter fluid, starter fluids, sealants.		Outdoor Ambient air, applicable to PS18-PS20.	

TABLE 1A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PROPERTY PS18-PS20
AUGUST 2021

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES			
LABORATORY NUMBER:			AB94299	AB94300		
SAMPLE LOCATION:			PS18-SSG-D	PS20-SSG-C		
SAMPLE NUMBER:			S50048RI-0285	S50048RI-0286		
CANISTER NO.			3656	6548		
SAMPLE DATE:			8/26/2021	8/26/2021		
			Basement, Soil Gas	Basement, Soil Gas		
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴				
VOLATILE ORGANIC COMPOUNDS (VOCs)	µg/m³	µg/m³	µg/m³	µg/m³		
Vinyl Chloride	5.59	559	ND	ND		
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND		
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND		
cis-1,2-Dichloroethylene	NL	NL	ND	ND		
Trichloroethylene (TCE)	15.9	209	2,900	ND		
Toluene	174,000	521,000	ND	9.2		
Tetrachloroethylene (PCE)	360	4,170	200	66		
Basement Walls:			Concrete Block/sheet wall			
Basement Floor:			Concrete			

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 21080081 and 21080082, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS ["non-detect" values]

Vinyl Chloride = 0.13 µg/m³
1,1-DCE = 0.20 µg/m³
T-1,2-DCE = 0.20 µg/m³
C-1,2-DCE = 0.20 µg/m³
TCE = 0.27 µg/m³
PCE = 0.34 µg/m³

NOTES:

- 1) µg/m³ = micrograms per cubic meter
- 2) All Results were reported in µg/m³.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

- 5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 7) RIA = Residential Target Indoor Air Concentration.
- 8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 9) RSsSG = Residential Target Sub-slab Soil Gas Concentration.
- 10) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 11) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 12) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 13) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 14) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 1B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PROPERTY PS18-PS20
FEBRUARY 2022

PROPERTY LOCATION:				PS18-PS20							
SAMPLE TYPE:				INDOOR AIR						OUTDOOR AMBIENT	
LABORATORY NUMBER:				AB97524	AB97525	AB97526	AB97527	AB97528			
SAMPLE LOCATION:				PS18-1F	PS18-BT	PS20-BT	PS20-1F	PS20-OS			
SAMPLE NUMBER:				S50048RI-0308	S50048RI-0309	S50048RI-0310	S50048RI-0311	S50048RI-0312			
CANISTER NO.				12570	15053	6581	4742	6548			
SAMPLE DATE:				2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022			
		EPA RIA VISLs	EPA RIA VISLs								
COMPOUND		HQ = 1/TR = 10 ⁻⁶	HQ = 3/TR = 10 ⁻⁴	24-hour, First Floor		24-hour, Basement		24-hour, First Floor			
				Duplicate				Ambient			
VOLATILE ORGANIC COMPOUNDS (VOCs)				µg/m ³		µg/m ³		µg/m ³			
Dichlorodifluoromethane	104	NC	313	NC	2.4	2.7	2.8	2.5	2.4		
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND	ND		
Trichlorofluoromethane	NL		NL		1.3	2.0	2.7	2.1	1.2		
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND	ND		
Methylene Chloride	101	C	1,880	NC	0.38	0.87	ND	0.80	0.28		
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND	ND		
Methyl Ethyl Ketone	5,210	NC	15,600	NC	4.0	23	12	9.2	0.27		
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND	ND		
Hexane	730	NC	2,190	NC	0.39	0.77	ND	0.67	0.32		
Chloroform	0.122	C	12.2	C	1.5	0.73	ND	1.3	ND		
Benzene	0.36	C	36	C	0.54	0.42	ND	0.93	0.42		
Carbon Tetrachloride	0.468	C	46.8	C	0.69	ND	ND	0.76	ND		
Trichloroethylene (TCE)	0.478	C	6.26	NC	1.2	9.4	12	4.7	ND		
Toluene	5,210	NC	15,600	NC	1.4	3.2	6.9	4.7	0.45		
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	0.95	ND	0.54	ND		
Ethylbenzene	1.12	C	112	C	ND	0.87	ND	0.69	ND		
m/p-Xylenes	104	NC	313	NC	0.78	2.8	3.0	2.4	ND		
Styrene	1,040	NC	3,130	NC	ND	1.2	ND	13	ND		
o-Xylene	104	NC	313	NC	ND	0.69	ND	0.69	ND		
4-Ethyltoluene	NL		NL		ND	0.49	ND	ND	ND		
1,2,4-Trimethylbenzene	62.6	NC	188	NC	ND	0.64	ND	ND	ND		
Inventory Items of Concern				Adhesives, paints, mid-temp reducer (toluenes, xylenes, acetates, ketones); Duplex basement with PS20.			Gun cleaners, adhesives, lubricants, lighter fluid, starter fluids, sealants; Duplex basement with PS18.				

TABLE 1B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PROPERTY PS18-PS20
FEBRUARY 2022

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES			
LABORATORY NUMBER:			AB97531		AB97532	
SAMPLE LOCATION:			PS18-SSG		PS20-SSG	
SAMPLE NUMBER:			S50048RI-0315		S50048RI-0316	
CANISTER NO.			22693		12563	
SAMPLE DATE:			2/24/2022		2/24/2022	
			Basement, Soil Gas		Basement, Soil Gas	
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴				
VOLATILE ORGANIC COMPOUNDS (VOCs) $\mu\text{g}/\text{m}^3$			$\mu\text{g}/\text{m}^3$		$\mu\text{g}/\text{m}^3$	
Vinyl Chloride	5.59	559	ND		ND	
1,1-Dichloroethylene (DCE)	6,950	20,900	ND		ND	
trans-1,2-Dichloroethylene	1,390	4,170	ND		ND	
cis-1,2-Dichloroethylene	NL	NL	ND		ND	
1,1,1-Trichloroethane	174,000	521,000	ND		14	
Trichloroethylene (TCE)	15.9	209	4,200		2,100	
Tetrachloroethylene (PCE)	360	4,170	330		130	
Sub-Slab Pressure Differential (inches of Water column)			-0.0044		-0.0096	
Basement Walls:			Concrete Block/sheet wall			
Basement Floor:			Concrete			

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 22020043 and 22020044, Air Toxics by GC/MS

NOTES:

- 1) $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
- 2) All Results were reported in $\mu\text{g}/\text{m}^3$.
- 3) ND = Not Detected.
- 4) NL = Not Listed.
- 5) VMS = Vapor Mitigation System.

COPC METHOD DETECTION LIMITS [*"non-detect" values*]

Vinyl Chloride = 0.13 $\mu\text{g}/\text{m}^3$
1,1-DCE = 0.20 $\mu\text{g}/\text{m}^3$
T-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
C-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
TCE = 0.27 $\mu\text{g}/\text{m}^3$
PCE = 0.34 $\mu\text{g}/\text{m}^3$

- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 7) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 8) RIA = Residential Target Indoor Air Concentration.
- 9) C/N/C = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 10) RSsSG = Residential Target Sub-slab Soil Gas Concentration. NOT applicable to VMS Effluent samples.
- 11) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 12) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 13) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 14) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 15) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 1C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PROPERTY PS18-PS20
SEPTEMBER 2023

PROPERTY LOCATION:					PS18-PS20				
SAMPLE TYPE:					INDOOR AIR				OUTDOOR AMBIENT
LABORATORY NUMBER:					AC08850	AC08851	AC08852	AC08853	AC08854
SAMPLE LOCATION:					PS18-1FBR	PS18-BT	PS20-1FKT	PS20-BT	PS1820-OS
SAMPLE NUMBER:					S50098RI-0104	S50098RI-0105	S50098RI-0106	S50098RI-0107	S50098RI-0108
CANISTER NO.					12563	22697	15057	22686	14891
SAMPLE DATE:					9/8/2023	9/8/2023	9/8/2023	9/8/2023	9/8/2023
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, Basement	24-hour, First Floor	24-hour, Basement	24-hour, Outside Ambient
VOLATILE ORGANIC COMPOUNDS (VOCs)				µg/m ³	µg/m ³				µg/m ³
Dichlorodifluoromethane	104	NC	313	NC	2.7	ND	ND	3.6	2.4
MethylChloride (chloromethane)	93.9	NC	282	NC	2.9	ND	ND	2.4	ND
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND	ND
Trichlorofluoromethane	NL		NL		ND	5.7	2.1	7.2	ND
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC	5.7	18	7.0	24	2.3
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND	ND
Hexane	730	NC	2,190	NC	2.0	3.9	1.7	3.1	ND
Tetrahydrofuran	2,090	NC	6,260		2.3	11	1.7	6.8	ND
1,2-Dichloroethane	0.108	C	10.8	C	ND	2.6	ND	ND	ND
Benzene	0.36	C	36	C	0.90	1.5	1.1	1.5	ND
Cyclohexane	6,260	NC	18,800	NC	ND	ND	11	0.89	ND
Trichloroethylene (TCE)	0.478	C	6.26	NC	ND	ND	ND	ND	ND
Toluene	5,210	NC	15,600	NC	5.9	15	10	17	ND
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	ND	ND	ND	ND
Ethylbenzene	1.12	C	112	C	ND	3.0	ND	3.0	ND
m/p-Xylenes	104	NC	313	NC	ND	9.4	ND	11	ND
Styrene	1,040	NC	3,130	NC	4.3	16	12	23	ND
o-Xylene	104	NC	313	NC	ND	2.8	ND	3.5	ND
1,2,4-Trimethylbenzene	62.6	NC	188	NC	ND	2.1	ND	1.9	ND
Inventory Items of Concern					None Observed.				

TABLE 1C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PROPERTY PS18-PS20
SEPTEMBER 2023

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES				
LABORATORY NUMBER:			AC08832	AC08834	AC08833	AC08835	AC08836
SAMPLE LOCATION:			S50098RI-0119	S50098RI-0121	S50098RI-0120	S50098RI-0122	S50098RI-0123
SAMPLE NUMBER:			PS18-SSG	PS18-EFF	PS20-SSG	PS20-EFF	PS20-EFD
CANISTER NO.			22153	5790	15054	13483	12569
SAMPLE DATE:			9/8/2023	9/8/2023	9/8/2023	9/8/2023	9/8/2023
	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴	Basement, Soil Gas	VMS Effluent	Basement, Soil Gas	VMS Effluent	VMS Effluent
COMPOUND							Duplicate
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/m ³			µg/m ³				
Vinyl Chloride	5.59	559	ND	ND	ND	ND	ND
Trichlorofluoromethane	NL	NL	ND	ND	5.7	5.1	5.3
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	174,000	521,000	2.5	3.4	5.3	4.5	4.4
cis-1,2-Dichloroethylene	NL	NL	ND	ND	ND	ND	ND
Tetrahydrofuran	69,500	209,000	ND	4.4	ND	2.6	2.6
Benzene	12	1,200	ND	4.3	ND	15	5.4
Trichloroethylene (TCE)	15.9	209	430	140	13	180	170
Toluene	174,000	521,000	ND	4.4	6.3	5.1	5.0
Tetrachloroethylene (PCE)	360	4,170	13	14	ND	20	22
Styrene	34,800	104,000	ND	ND	3.5	4.1	3.7
Sub-Slab Pressure Differential (inches of Water column)			-0.074	-4.26	-0.287	-4.272	
Basement Walls:			Fieldstone				
Basement Floor:			Concrete				

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 23090013 and 23090015, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS [non-detect values]

Vinyl Chloride = 0.13 µg/m³
1,1-DCE = 0.20 µg/m³
T-1,2-DCE = 0.20 µg/m³
C-1,2-DCE = 0.20 µg/m³
TCE = 0.27 µg/m³
PCE = 0.34 µg/m³

NOTES:

- 1) µg/m³ = micrograms per cubic meter
- 2) All Results were reported in µg/m³.
- 3) ND = Not Detected.
- 4) NL = Not Listed.
- 5) VMS = Vapor Mitigation System.

- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 7) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 8) RIA = Residential Target Indoor Air Concentration.
- 9) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 10) RSsSG = Residential Target Sub-slab Soil Gas Concentration. NOT applicable to VMS Effluent samples.
- 11) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 12) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 13) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 14) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 15) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 2A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS10-PS12
AUGUST 2021

PROPERTY LOCATION:				PS10-PS12				
SAMPLE TYPE:				INDOOR AIR SAMPLES				OUTDOOR AMBIENT
LABORATORY NUMBER:				AB94277	AB94278	AB94292	AB94279	AB94280
SAMPLE LOCATION:				PS10-1F	PS10-BT	PS10-BU	PS12-1F	PS12-AB
SAMPLE NUMBER:				S50048RI-0263	S50048RI-0264	S50048RI-0278	S50048RI-0265	S50048RI-0266
CANISTER NO.				6555	4742	15059	13486	13499
SAMPLE DATE:				8/26/2021	8/26/2021	8/26/2021	8/26/2021	8/26/2021
		EPA RIA VISLs		EPA RIA VISLs				
		HQ = 1/TR = 10 ⁻⁶		HQ = 3/TR = 10 ⁻⁴				
COMPOUND				24-hour, First Floor	24-hour, Basement	Duplicate of PS10-BT	24-hour, First Floor	24-hour, Outside
VOLATILE ORGANIC COMPOUNDS (VOCs) $\mu\text{g}/\text{m}^3$				$\mu\text{g}/\text{m}^3$				$\mu\text{g}/\text{m}^3$
Dichlorodifluoromethane	104	NC	313	NC	2.3	2.3	2.3	2.4
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND
1,3-Butadiene	0.0936	C	6.26	NC	0.46	ND	ND	ND
Trichlorofluoromethane	NL		NL		1.2	1.3	1.3	1.5
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND
Methylene Chloride	101	C	1,880	NC	0.49	0.90	0.80	0.56
Trichlorofluoroethane	5,210	NC	15,600	NC	ND	ND	ND	0.77
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC	5.2	7.9	7.8	6.7
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND
Hexane	730	NC	2,190	NC	2.1	2.0	1.9	1.7
Chloroform	0.122	C	12.2	C	3.0	1.8	1.8	3.3
Tetrahydrofuran	2,090	NC	6,260		ND	ND	ND	2.5
1,2-Dichloroethane	0.108	C	10.8	C	ND	0.57	0.57	6.6
Benzene	0.36	C	36	C	5.0	2.5	2.6	3.0
Carbon Tetrachloride	0.468	C	46.8	C	ND	ND	ND	0.57
Cyclohexane	6,260	NC	18,800	NC	0.45	0.65	0.65	0.45
Trichloroethylene (TCE)	0.478	C	6.26	NC	0.59	5.2	4.9	1.2
Heptane	417	NC	1,250	NC	1.0	0.94	0.90	1.0
Methyl Isobutyl Ketone (MIBK)	3,130	NC	9,390	NC	ND	ND	ND	0.53
Toluene	5,210	NC	15,600	NC	8.2	8.6	9.1	9.9
2-Hexanone	31.300	NC	93.90	NC	ND	ND	ND	0.82
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	1.2	1.2	0.75
Chlorobenzene	52.1	NC	156	NC	0.55	0.69	0.69	0.78
Ethylbenzene	1.12	C	112	C	2.1	2.0	2.0	2.2
m/p-Xylenes	104	NC	313	NC	6.1	4.9	4.8	5.0
Styrene	1,040	NC	3,130	NC	3.2	7.9	8.0	3.5
o-Xylene	104	NC	313	NC	2.6	2.0	2.0	2.0
4-Ethyltoluene	NL		NL		1.2	1.4	ND	0.98
1,3,5-Trimethylbenzene	62.6	NC	188	NC	ND	0.54	0.59	0.44
1,2,4-Trimethylbenzene	62.6	NC	188	NC	1.9	0.49	1.8	1.6
Inventory Items of Concern				Shared basement; One box of various chemicals found in the basement.				

TABLE 2A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS10-PS12
AUGUST 2021

SAMPLE TYPE:	SUB-SLAB SOIL GAS SAMPLES
LABORATORY NUMBER: SAMPLE LOCATION: SAMPLE NUMBER: CANISTER NO. SAMPLE DATE:	No Sub-slab Soil Gas Samples Collected (No installed ports/ mostly dirt floor)
Basement Walls:	
Basement Floor:	

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSAD). Project Report No.s 21080081 Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS [*"non-detect" values*]

Vinyl Chloride = 0.13 µg/m³
1,1-DCE = 0.20 µg/m³
T-1,2-DCE = 0.20 µg/m³
C-1,2-DCE = 0.20 µg/m³
TCE = 0.27 µg/m³
PCE = 0.34 µg/m³

NOTES:

- 1) µg/m³ = micrograms per cubic meter
- 2) All Results were reported in µg/m³.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

- 5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 7) RIA = Residential Target Indoor Air Concentration.
- 8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 9) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 10) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 11) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 12) Contaminants of potential concern (COPC) are highlighted in BLUE.

TABLE 2B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS10-PS12
MARCH 2022

PROPERTY LOCATION:				PS10			PS12	PS10-PS12	
SAMPLE TYPE:				INDOOR AIR			INDOOR AIR	OUTDOOR AMBIENT	
LABORATORY NUMBER:				AB97551	AB97552	AB97553	AB97555	AB97554	
SAMPLE LOCATION:				PS10-1F	PS10-BT	PS10-BTDUP	PS12-1F	PS10-OS	
SAMPLE NUMBER:				S50048RI-0317	S50048RI-0318	S50048RI-0319	S50048RI-0321	S50048RI-0320	
CANISTER NO.				6547	22682	14894	13483	14891	
SAMPLE DATE:				3/2/2022	3/2/2022	3/2/2022	3/2/2022	3/2/2022	
	EPA RIA VISLs	EPA RIA VISLs		24-hour, First Floor	24-hour, Basement	24-hour, Basement	24-hour, First Floor	24-hour, Outside	
COMPOUND	HQ = 1/TR = 10 ⁻⁶	HQ = 3/TR = 10 ⁻⁴				Duplicate		Ambient for PS10-PS12	
VOLATILE ORGANIC COMPOUNDS (VOCs) $\mu\text{g/l}$				$\mu\text{g/m}^3$			$\mu\text{g/m}^3$	$\mu\text{g/m}^3$	
Dichlorodifluoromethane	104	NC	313	NC	2.3	2.5	2.6	ND	2.4
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND	ND
Trichlorofluoromethane	NL		NL		1.2	1.2	1.2	ND	1.1
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND	ND
Methylene Chloride	101	C	1,880	NC	ND	ND	ND	ND	0.31
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	5,210	NC	15,600	NC	1.6	1.5	1.4	2.5	1.1
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND	ND
Hexane	730	NC	2,190	NC	ND	ND	0.39	ND	0.32
Chloroform	0.122	C	12.2	C	0.88	ND	ND	3.5	ND
Benzene	0.36	C	36	C	ND	ND	0.38	ND	0.48
Trichloroethylene (TCE)	0.478	C	6.26	NC	7.1	13	14	ND	ND
Toluene	5,210	NC	15,600	NC	6.7	7.4	7.8	94	0.68
Tetrachloroethylene (PCE)	10.8	C	125	NC	200	280	270	8,800	1.6
Ethylbenzene	1.12	C	112	C	ND	ND	0.61	10	ND
m/p-Xylenes	104	NC	313	NC	1.6	1.5	1.7	32	ND
Styrene	1,040	NC	3,130	NC	0.85	0.94	0.98	3.9	ND
o-Xylene	104	NC	313	NC	ND	ND	0.52	11	ND
4-Ethyltoluene	NL		NL		ND	ND	ND	3.1	ND
1,2,4-Trimethylbenzene	62.6	NC	188	NC	ND	ND	ND	4.2	ND
Inventory Items of Concern				Shared basement; One box of various chemicals found in the basement.					

TABLE 2B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS10-PS12
MARCH 2022

SAMPLE TYPE:	SUB-SLAB SOIL GAS SAMPLES	SUB-SLAB SOIL GAS SAMPLES
LABORATORY NUMBER: SAMPLE LOCATION: SAMPLE NUMBER: CANISTER NO. SAMPLE DATE:	No Sub-slab Soil Gas Samples Collected (No installed ports/ mostly dirt floor)	No Sub-slab Soil Gas Samples Collected (No installed ports/ mostly dirt floor)
Basement Walls:	Dirt/Concrete	Fieldstone
Basement Floor:	Fieldstone	Dirt/Concrete

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 22030004 Air Toxics by GC/MS

NOTES:

- 1) $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
- 2) All Results were reported in $\mu\text{g}/\text{m}^3$.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10^{-6} (TR = 10^{-6}).

6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10^{-4} (TR = 10^{-4}).

7) RIA = Residential Target Indoor Air Concentration.

8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.

9) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10^{-6}).

10) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10^{-4}).

11) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.

12) Contaminants of potential concern (COPC) are highlighted in BLUE.

COPC METHOD DETECTION LIMITS [*"non-detect" values*]

Vinyl Chloride = $0.13 \mu\text{g}/\text{m}^3$

1,1-DCE = $0.20 \mu\text{g}/\text{m}^3$

T-1,2-DCE = $0.20 \mu\text{g}/\text{m}^3$

C-1,2-DCE = $0.20 \mu\text{g}/\text{m}^3$

TCE = $0.27 \mu\text{g}/\text{m}^3$

PCE = $0.34 \mu\text{g}/\text{m}^3$

TABLE 2C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS10-PS12
DECEMBER 2023

PROPERTY LOCATION:				PS10-PS12					
SAMPLE TYPE:				INDOOR AIR				OUTDOOR AMBIENT	
LABORATORY NUMBER:				AC10692	AC10693	AC10694	AC10695	AC10696	
SAMPLE LOCATION:				PS12-1F	PS10-1F	PS10-BT	PS10-BTD	PS10-OS	
SAMPLE NUMBER:				S50098RI-0124	S50098RI-0125	S50098RI-0126	S50098RI-0127	S50098RI-0128	
CANISTER NO.				14896	3656	6581	20841	13490	
SAMPLE DATE:				12/6/2023	12/6/2023	12/6/2023	12/6/2023	12/6/2023	
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, First Floor	24-hour, Basement	24-hour, Basement	24-hour, Outside
				Duplicate				Ambient	
VOLATILE ORGANIC COMPOUNDS (VOCs)				µg/m ³				µg/m ³	
Dichlorodifluoromethane	104	NC	313	NC	2.4	2.1	2.2	2.1	ND
MethylChloride (chloromethane)	93.9	NC	282	NC	ND	ND	ND	ND	1.1
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND	ND
Trichlorofluoromethane	NL		NL		ND	0.93	1.1	1.0	1.1
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND	ND
Methylene Chloride	101	C	1,880	NC	ND	ND	0.36	ND	ND
Trichlorofluoroethane	5,210	NC	15,600	NC	ND	0.55	0.62	ND	ND
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC	3.6	11	17	22	0.64
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND	ND
Hexane	730	NC	2,190	NC	ND	0.40	0.43	0.74	0.35
Chloroform	0.122	C	12.2	C	6.8	3.4	0.83	0.47	ND
Tetrahydrofuran	2,090	NC	6,260		5.5	27	52	51	ND
Benzene	0.36	C	36	C	0.79	0.66	0.68	0.71	0.64
Carbon Tetrachloride	0.468	C	46.8	C	ND	0.49	ND	ND	ND
Cyclohexane	6,260	NC	18,800	NC	ND	ND	0.28	0.30	ND
Trichloroethylene (TCE)	0.478	C	6.26	NC	ND	ND	ND	ND	ND
Heptane	417	NC	1,250	NC	ND	ND	ND	0.68	ND
Toluene	5,210	NC	15,600	NC	3.1	1.2	1.2	1.8	0.87
Tetrachloroethylene (PCE)	10.8	C	125	NC	40	0.55	ND	ND	ND
Ethylbenzene	1.12	C	112	C	1.1	0.42	0.46	0.55	ND
m/p-Xylenes	104	NC	313	NC	3.2	0.90	1.0	1.4	ND
Styrene	1,040	NC	3,130	NC	ND	1.3	1.7	1.6	ND
o-Xylene	104	NC	313	NC	1.0	0.37	0.37	0.56	ND
1,2,4-Trimethylbenzene	62.6	NC	188	NC	ND	0.36	0.38	0.46	ND
Inventory Items of Concern				None observed.					

TABLE 2C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS10-PS12
DECEMBER 2023

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES				
LABORATORY NUMBER:			AC10688	AC10689	AC10690	AC10691	
SAMPLE LOCATION:			PS10-SSG	PS10-EFF	PS12EFF	PS10-SSGD	
SAMPLE NUMBER:			S50098RI-0129	S50098RI-0130	S50098RI-0131	S50098RI-0132	
CANISTER NO.			15061	20860	20849	13487	
SAMPLE DATE:			12/6/2023	12/6/2023	12/6/2023	12/6/2023	
			Soil Gas	VMS Effluent	VMS Effluent	Soil Gas	
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴					
VOLATILE ORGANIC COMPOUNDS (VOCs) $\mu\text{g}/\text{m}^3$			$\mu\text{g}/\text{m}^3$				
MethylChloride (chloromethane)	3,130	9,390	ND	0.66	ND	ND	
Vinyl Chloride	5.59	559	ND	ND	ND	ND	
Trichlorofluoromethane	NL	NL	1.0	0.94	ND	1.0	
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND	ND	ND	
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND	ND	ND	
Methyl Ethyl Ketone (2-Butanone)	174,000	521,000	3.5	5.0	5.6	2.9	
cis-1,2-Dichloroethylene	NL	NL	ND	ND	ND	ND	
Hexane	24,300	73,000	0.53	0.68	ND	ND	
Tetrahydrofuran	69,500	209,000	17	11	17	17	
Benzene	12	1,200	0.35	0.68	ND	ND	
Trichloroethylene (TCE)	15.9	209	ND	6.5	160	ND	
Toluene	174,000	521,000	0.60	0.58	ND	0.62	
Tetrachloroethylene (PCE)	360	4,170	ND	1.5	28	ND	
Ethylbenzene	37.4	3,740	0.53	ND	8.8	ND	
4-Ethyltoluene	NL	NL	ND	ND	13	ND	
1,3,5-Trimethylbenzene	2,090	6,260	ND	ND	24	ND	
1,2,4-Trimethylbenzene	2,090	6,260	0.72	ND	ND	ND	
Sub-Slab Pressure Differential (inches of Water column)			-0.326	-2.251	-1.694	-0.326	
Basement Walls:			Fieldstone/Concrete.				
Basement Floor:			Concrete				

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LASD). Project Report No.s 23120006 and 23120007, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS ["non-detect" values]

Vinyl Chloride = 0.13 $\mu\text{g}/\text{m}^3$
1,1-DCE = 0.20 $\mu\text{g}/\text{m}^3$
T-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
C-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
TCE = 0.27 $\mu\text{g}/\text{m}^3$
PCE = 0.34 $\mu\text{g}/\text{m}^3$

NOTES:

- 1) $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
- 2) All Results were reported in $\mu\text{g}/\text{m}^3$.
- 3) ND = Not Detected.
- 4) NL = Not Listed.
- 5) VMS = Vapor Mitigation System.

- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 7) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 8) RIA = Residential Target Indoor Air Concentration.
- 9) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 10) RSsSG = Residential Target Sub-slab Soil Gas Concentration. NOT applicable to VMS Effluent samples.
- 11) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 12) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 13) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 14) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 15) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 3A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS14-PS16
AUGUST 2021

PROPERTY LOCATION:				PS14-PS16			PS10/PS12
SAMPLE TYPE:				INDOOR AIR SAMPLES			OUTDOOR AMBIENT
LABORATORY NUMBER:				AB94281	AB94282	AB94283	AB94280
SAMPLE LOCATION:				PS14-1F	PS16-BT	PS16-1F	PS12-AB
SAMPLE NUMBER:				S50048RI-0267	S50048RI-0268	S50048RI-0269	S50048RI-0266
CANISTER NO.				6553	20858	22690	13499
SAMPLE DATE:				8/26/2021	8/26/2021	8/26/2021	8/26/2021
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴	24-hour, First Floor	24-hour, Basement	24-hour, First Floor	24-hour, Outside Ambient for PS10-PS20
VOLATILE ORGANIC COMPOUNDS (VOCs)				μg/m ³			μg/m ³
Dichlorodifluoromethane	104	NC	313	NC	2.5	5.0	5.2
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND
Chloroethane	4,170	NC	12,500	NC	ND	ND	ND
Trichlorofluoromethane	NL		NL		2.5	12.00	12.00
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND
Methyl tert-butyl ether (MTBE)	11	C	1,080	C	ND	ND	ND
Methylene Chloride	101	C	1,880	NC	0.31	0.38	0.42
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC	2.5	11.00	4.0
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND
Hexane	730	NC	2,190	NC	1.2	1.4	1.2
Chloroform	0.122	C	12.2	C	1.4	1.4	2.0
Tetrahydrofuran	2,090	NC	6,260		ND	ND	ND
1,2-Dichloroethane	0.108	C	10.8	C	ND	0.65	ND
Benzene	0.36	C	36	C	1.1	1.1	1.4
Trichloroethylene (TCE)	0.478	C	6.26	NC	ND	1.2	ND
Heptane	417	NC	1,250	NC	0.90	1.1	0.70
Methyl Isobutyl Ketone (MIBK)	3,130	NC	9,390	NC	ND	0.41	ND
Toluene	5,210	NC	15,600	NC	6.2	91.0	6.0
2-Hexanone	31.300	NC	93.90	NC	ND	0.65	0.70
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	3.3	ND
Ethylbenzene	1.12	C	112	C	1.0	4.2	1.0
m/p-Xylenes	104	NC	313	NC	3.4	14.0	2.9
Styrene	1,040	NC	3,130	NC	0.77	1.0	1.0
o-Xylene	104	NC	313	NC	1.2	2.0	1.3
4-Ethyltoluene	NL		NL		0.49	ND	ND
1,2,4-Trimethylbenzene	62.6	NC	188	NC	0.79	ND	ND
Inventory Items of Concern				Mechanics Machine Works (Machine Tool Repair & Rebuilding Specialist)			Outdoor Ambient air, applicable to PS14-PS16.

TABLE 3A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS14-PS16
AUGUST 2021

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES			
LABORATORY NUMBER:			AB94296	AB94297	AB94298	
SAMPLE LOCATION:			PS14-SSG-A	PS14-SSG-C	PS14-SSG-Z	
SAMPLE NUMBER:			S50048RI-0282	S50048RI-0283	S50048RI-0284	
CANISTER NO.			5786	5682	14899	
SAMPLE DATE:			8/26/2021	8/26/2021	8/26/2021	
			Basement, Soil Gas North Wall	Basement, Soil Gas South Wall	Duplicate of PS14-SSG-C	
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴				
VOLATILE ORGANIC COMPOUNDS (VOCs) $\mu\text{g}/\text{m}^3$			$\mu\text{g}/\text{m}^3$			
Vinyl Chloride	5.59	559	ND	ND	ND	
Trichlorofluoromethane	NL	NL	ND	ND	ND	
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND	ND	
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND	ND	
cis-1,2-Dichloroethylene	NL	NL	ND	ND	ND	
Chloroform	4.07	407	11.00	14.00	12.00	
1,1,1-Trichloroethane	174,000	521,000	16	46	44	
Trichloroethylene (TCE)	15.9	209	150	870	700	
Tetrachloroethylene (PCE)	360	4,170	360	380	370	
Basement Walls:			Fieldstone			
Basement Floor:			Concrete - shared basement			

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSAD). Project Report No.s 21080081 and 21080082, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS ["non-detect" values]

Vinyl Chloride = 0.13 $\mu\text{g}/\text{m}^3$
1,1-DCE = 0.20 $\mu\text{g}/\text{m}^3$
T-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
C-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
TCE = 0.27 $\mu\text{g}/\text{m}^3$
PCE = 0.34 $\mu\text{g}/\text{m}^3$

NOTES:

- 1) $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
- 2) All Results were reported in $\mu\text{g}/\text{m}^3$.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

- 5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 7) RIA = Residential Target Indoor Air Concentration.
- 8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 9) RSsSG = Residential Target Sub-slab Soil Gas Concentration.
- 10) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 11) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 12) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 13) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 14) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 3B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS14-PS16
MARCH 2022

PROPERTY LOCATION:				PS14-PS16				
SAMPLE TYPE:				INDOOR AIR			OUTDOOR AMBIENT	
LABORATORY NUMBER:				AB97556	AB97557	AB97559	AB97558	
SAMPLE LOCATION:				PS14-1F	PS14-BT	PS16-1F	PS14-OS	
SAMPLE NUMBER:				S50048RI-0322	S50048RI-0323	S50048RI-0325	S50048RI-0324	
CANISTER NO.				6568	22686	6461	6460	
SAMPLE DATE:				3/2/2022	3/2/2022	3/2/2022	3/2/2022	
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, Basement	24-hour, First Floor	24-hour, Outside Ambient for PS14-PS16
VOLATILE ORGANIC COMPOUNDS (VOCs) µg				µg/m ³			µg/m ³	
Dichlorodifluoromethane	104	NC	313	NC	2.5	2.4	2.3	2.5
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND
Trichlorofluoromethane	NL		NL		1.4	1.5	ND	1.1
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND
Methylene Chloride	101	C	1,880	NC	0.35	ND	ND	0.31
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND
Methyl Ethyl Ketone	5,210	NC	15,600	NC	1.7	3.6	1.8	0.35
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND
Hexane	730	NC	2,190	NC	0.42	ND	ND	0.32
Chloroform	0.122	C	12.2	C	3.1	ND	2.2	ND
Benzene	0.36	C	36	C	0.48	ND	ND	0.42
Carbon Tetrachloride	0.468	C	46.8	C	0.57	ND	ND	ND
Trichloroethylene (TCE)	0.478	C	6.26	NC	1.1	5.5	ND	ND
Toluene	5,210	NC	15,600	NC	6.7	27	1.7	0.45
Tetrachloroethylene (PCE)	10.8	C	125	NC	0.68	1.8	8.1	ND
Ethylbenzene	1.12	C	112	C	ND	0.78	ND	ND
m/p-Xylenes	104	NC	313	NC	0.87	2.8	ND	ND
Inventory Items of Concern				Shared basement with PS14; Mechanics Machine Works (Machine Tool Repair & Rebuilding Specialist)				

TABLE 3B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS14-PS16
MARCH 2022

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES			
LABORATORY NUMBER: SAMPLE LOCATION: SAMPLE NUMBER: CANISTER NO. SAMPLE DATE:			AB9763	AB9764	AB9765	
			PS14-SSG-A	PS14-SSG-ADUP	PS14-SSG-C	
			S50048RI-0329	S50048RI-0330	S50048RI-0331	
			12568	14895	6583	
			3/2/2022	3/2/2022	3/2/2022	
COMPOUND	EPA RSsSG VISL	EPA RSsSG VISL	Basement, Soil Gas	Basement, Soil Gas	Basement, Soil Gas	
	HQ = 1/TR = 10 ⁻⁶	HQ = 3/TR = 10 ⁻⁴				
VOLATILE ORGANIC COMPOUNDS (VOCs)			µg/m ³			
Vinyl Chloride	5.59	559	ND	ND	ND	
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND	ND	
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND	ND	
cis-1,2-Dichloroethylene	NL	NL	ND	ND	ND	
Chloroform	4.07	407	6.0	5.0	ND	
1,1,1-Trichloroethane	174,000	521,000	10.0	9.0	34	
Trichloroethylene (TCE)	15.9	209	70.0	57	750	
Tetrachloroethylene (PCE)	360	4,170	200	160	240	
Sub-Slab Pressure Differential (inches of Water column)			-0.004			-0.003
Basement Walls:			Fieldstone			
Basement Floor:			Concrete			

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 22030004 and 22030005, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS ["non-detect"]

Vinyl Chloride = 0.13 µg/m³
1,1-DCE = 0.20 µg/m³
T-1,2-DCE = 0.20 µg/m³
C-1,2-DCE = 0.20 µg/m³
TCE = 0.27 µg/m³
PCE = 0.34 µg/m³

NOTES:

- 1) µg/m³ = micrograms per cubic meter
- 2) All Results were reported in µg/m³.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

- 5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 7) RIA = Residential Target Indoor Air Concentration.
- 8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 9) RSsSG = Residential Target Sub-slab Soil Gas Concentration.
- 10) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 11) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 12) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 13) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 14) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 3C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS14-PS16
SEPTEMBER 2023

PROPERTY LOCATION:				PS14-PS16			
SAMPLE TYPE:				INDOOR AIR			OUTDOOR AMBIENT
LABORATORY NUMBER:				AC08846	AC08847	AC08848	AC08849
SAMPLE LOCATION:				PS14-KT**	PS14-BT	PS16-1FKT	PS1416-OS
SAMPLE NUMBER:				S50098RI-0100	S50098RI-0101	S50098RI-0102	S50098RI-0103
CANISTER NO.				15051	3048	13484	15059
SAMPLE DATE:				9/8/2023	9/8/2023	9/8/2023	9/8/2023
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴	24-hour, First Floor	24-hour, Basement	24-hour, First Floor	24-hour, Outside Ambient
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/m ³				µg/m ³			µg/m ³
Dichlorodifluoromethane	104	NC	313 NC	ND	4.6	5.2	2.7
MethylChloride (chloromethane)	93.9	NC	282 NC	ND	2.1	ND	ND
Vinyl Chloride	0.168	C	16.8 C	ND	ND	ND	ND
Trichlorofluoromethane	NL		NL	ND	8.7	13	ND
1,1-Dichloroethylene (DCE)	209	NC	626 NC	ND	ND	ND	ND
trans-1,2-Dichloroethylene	41.7	NC	125 NC	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600 NC	ND	7.8	3.4	2.4
cis-1,2-Dichloroethylene	NL		NL	ND	ND	ND	ND
Trichloroethylene (TCE)	0.478	C	6.26 NC	ND	ND	ND	ND
Toluene	5,210	NC	15,600 NC	ND	3.6	ND	1.6
Tetrachloroethylene (PCE)	10.8	C	125 NC	ND	ND	ND	ND
Inventory Items of Concern				None observed.			

TABLE 3C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS14-PS16
SEPTEMBER 2023

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES			
LABORATORY NUMBER:			AC08829	AC08831	AC08830	
SAMPLE LOCATION:			PS14-SSG-A	PS14-EFF	PS16-EFF	
SAMPLE NUMBER:			S50098RI-0116	S50098RI-0118	S50098RI-0117	
CANISTER NO.			20849	14896	13490	
SAMPLE DATE:			9/8/2023	9/8/2023	9/8/2023	
			Basement, Soil Gas	VMS Effluent	VMS Effluent	
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴				
VOLATILE ORGANIC COMPOUNDS (VOCs) $\mu\text{g}/\text{m}^3$			$\mu\text{g}/\text{m}^3$			
Dichlorodifluoromethane	3,480	10,400	ND	ND	5.1	
Vinyl Chloride	5.59	559	ND	ND	ND	
Trichlorofluoromethane	NL	NL	6.9	5.3	9.2	
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND	ND	
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND	ND	
Methyl Ethyl Ketone (2-Butanone)	174,000	521,000	ND	7.4	6.4	
cis-1,2-Dichloroethylene	NL	NL	ND	ND	ND	
Benzene	12	1,200	ND	22	5.6	
Cyclohexane	209,000	626,000	3.5	ND	5.4	
Trichloroethylene (TCE)	15.9	209	7.6	14	52	
Toluene	174,000	521,000	ND	ND	2.6	
Tetrachloroethylene (PCE)	360	4,170	ND	ND	11	
Sub-Slab Pressure Differential (inches of Water column)			-0.048	-3.129	-3.045	
Basement Walls:			Fieldstone			
Basement Floor:			Concrete			

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 23090013 and 23090015, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS ["non-detect" values]

Vinyl Chloride = 0.13 $\mu\text{g}/\text{m}^3$
1,1-DCE = 0.20 $\mu\text{g}/\text{m}^3$
T-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
C-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
TCE = 0.27 $\mu\text{g}/\text{m}^3$
PCE = 0.34 $\mu\text{g}/\text{m}^3$

NOTES:

- 1) $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
- 2) All Results were reported in $\mu\text{g}/\text{m}^3$.
- 3) ND = Not Detected.
- 4) NL = Not Listed.
- 5) VMS = Vapor Mitigation System.

- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 7) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 8) RIA = Residential Target Indoor Air Concentration.
- 9) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 10) RSsSG = Residential Target Sub-slab Soil Gas Concentration. NOT applicable to VMS Effluent samples.
- 11) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 12) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 13) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 14) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 15) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

** Flow controller malfunction; minimal air collection.

TABLE 4A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS06-PS08
AUGUST 2021

PROPERTY LOCATION:				PS06-PS08						
SAMPLE TYPE:				INDOOR AIR SAMPLES						OUTDOOR AMBIENT
LABORATORY NUMBER: SAMPLE LOCATION: SAMPLE NUMBER: CANISTER NO. SAMPLE DATE:				AB94293 PS06-1F S50048RI-0279 22686 8/26/2021 24-hour, First Floor	AB94294 PS06-1G S50048RI-0280 20841 8/26/2021 Duplicate of PS06-1F	AB94295 PS06-AB S50048RI-0281 13489 8/26/2021 24-hour, Outside Ambient for PS06	AB94369 PS08-1F S50048RI-0290 15057 8/31/2021 24-hour, First Floor	AB94370 PS08-BT S50048RI-0291 20589 8/31/2021 24-hour, Basement	AB94371 PS08-BD S50048RI-0292 20847 8/31/2021 24-hour, Basement Duplicate of PS08-BT	AB94372 PS08-AB S50048RI-0293 22684 8/31/2021 24-hour, Outside Ambient for PS08
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶	EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴								
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/m ³				µg/m ³						µg/m ³
Dichlorodifluoromethane	104	NC	313	NC	2.2	2.1	2.3	2.0	2.1	2.1
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NL		NL		1.3	1.3	1.3	1.5	1.5	1.3
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND	ND	ND
Methylene Chloride	101	C	1,880	NC	3.8	ND	ND	0.66	ND	ND
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC	2.5	2.3	1.8	3.5	2.6	2.7
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND	ND	ND
Hexane	730	NC	2,190	NC	0.70	0.63	0.74	1.8	0.99	0.95
Chloroform	0.122	C	12.2	C	1.4	1.6	ND	4.1	1.2	1.1
1,2-Dichloroethane	0.108	C	10.8	C	0.49	ND	ND	ND	0.57	0.53
Benzene	0.36	C	36	C	0.73	0.67	0.57	0.70	ND	0.73
Trichloroethylene (TCE)	0.478	C	6.26	NC	ND	ND	ND	ND	2.1	2.0
Heptane	417	NC	1,250	NC	0.49	ND	0.45	0.57	0.61	0.57
Methyl Isobutyl Ketone (MIBK)	3,130	NC	9,390	NC	ND	ND	ND	0.57	ND	ND
Toluene	5,210	NC	15,600	NC	2.6	2.5	2.0	6.2	3.4	3.2
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	ND	ND	ND	ND	ND
Ethylbenzene	1.12	C	112	C	ND	ND	ND	1.2	0.56	0.52
m/p-Xylenes	104	NC	313	NC	0.91	0.91	ND	3.2	1.7	1.7
Styrene	1,040	NC	3,130	NC	0.51	ND	ND	0.77	0.72	0.64
o-Xylene	104	NC	313	NC	ND	ND	ND	1.3	0.65	0.65
4-Ethyltoluene	NL		NL		ND	ND	ND	0.83	0.54	ND
1,2,4-Trimethylbenzene	62.6	NC	188	NC	ND	ND	ND	ND	0.74	0.74
Inventory Items of Concern				None Observed.						

TABLE 4A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS06-PS08
AUGUST 2021

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES						
LABORATORY NUMBER: SAMPLE LOCATION: SAMPLE NUMBER: CANISTER NO. SAMPLE DATE:			Shared Basement with PS08. PS06 does not have basement access.			AB94373 PS08-SSG-D S50048RI-0294 22153 9/1/2021 Basement, Soil Gas	AB94374 PS08-SSG-E S50048RI-0295 14892 9/1/2021 Duplicate of PS08-SSG-D	Two additional soil gas ports were inaccessible by START and not sampled.	
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴							
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/m ³						µg/m ³			
Vinyl Chloride	5.59	559				ND	ND		
1,1-Dichloroethylene (DCE)	6,950	20,900				ND	ND		
trans-1,2-Dichloroethylene	1,390	4,170				ND	ND		
cis-1,2-Dichloroethylene	NL	NL				ND	ND		
Chloroform	4.07	407				13	29		
Trichloroethylene (TCE)	15.9	209				550	1,700		
Tetrachloroethylene (PCE)	360	4,170				140	310		
Basement Walls:			Fieldstone						
Basement Floor:			Concrete						

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 21080081 and 21090003, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS ["non-detect" values]

- Vinyl Chloride = 0.13 µg/m³
- 1,1-DCE = 0.20 µg/m³
- T-1,2-DCE = 0.20 µg/m³
- C-1,2-DCE = 0.20 µg/m³
- TCE = 0.27 µg/m³
- PCE = 0.34 µg/m³

NOTES:

- 1) µg/m³ = micrograms per cubic meter
- 2) All Results were reported in µg/m³.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

- 5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 7) RIA = Residential Target Indoor Air Concentration.
- 8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 9) RSsSG = Residential Target Sub-slab Soil Gas Concentration.
- 10) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 11) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 12) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 13) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 14) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 4B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS06-PS08
MARCH 2022

PROPERTY LOCATION:					PS06-PS08				
SAMPLE TYPE:					INDOOR AIR				OUTDOOR AMBIENT
LABORATORY NUMBER:					AB97677	AB97678	AB97680	AB97681	AB97679
SAMPLE LOCATION:					PS06-1F	PS06-BT	PS08-1F	PS08-BT	PS06-OS
SAMPLE NUMBER:					S50048RI-0337	S50048RI-0338	S50048RI-0340	S50048RI-0341	S50048RI-0339
CANISTER NO.					12570	15051	4742	15056	15050
SAMPLE DATE:					3/18/2022	3/18/2022	3/18/2022	3/18/2022	3/18/2022
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, Basement	24-hour, First Floor	24-hour, Basement	24-hour, Outside Ambient
VOLATILE ORGANIC COMPOUNDS (VOCs)					µg/m ³				µg/m ³
Dichlorodifluoromethane	104	NC	313	NC	2.2	2.4	2.3	2.5	2.5
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND	ND
Trichlorofluoromethane	NL		NL		1.5	1.3	1.3	1.4	1.3
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND	ND
Methylene Chloride	101	C	1,880	NC	0.52	0.42	0.52	0.42	0.42
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	5,210	NC	15,600	NC	3.8	1.5	3.1	1.4	1.0
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND	ND
Hexane	730	NC	2,190	NC	2.7	0.77	1.6	0.77	0.70
Chloroform	0.122	C	12.2	C	7.6	1.5	26	1.5	ND
1,2-Dichloroethane	0.108	C	10.8	C	0.49	ND	1.1	ND	ND
Benzene	0.36	C	36	C	1.6	0.61	0.73	0.57	0.61
Carbon Tetrachloride	0.468	C	46.8	C	ND	ND	0.82	0.50	ND
Cyclohexane	6,260	NC	18,800	NC	0.72	ND	ND	ND	ND
Bromodichloromethane	0.0759	C	7.59	C	ND	ND	1.3	ND	
Trichloroethylene (TCE)	0.478	C	6.26	NC	ND	4.4	ND	1.8	ND
Methyl Isobutyl Ketone	3,130	NC	9,390	NC	0.41	ND	ND	ND	ND
Toluene	5,210	NC	15,600	NC	3.0	1.7	2.4	1.7	1.3
2-Hexanone	31.3	NC	93.9	NC	ND	ND	0.33	ND	ND
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	ND	ND	ND	ND
Ethylbenzene	1.12	C	112	C	2.1	0.75	0.39	ND	ND
m/p-Xylenes	104	NC	313	NC	7.5	1.2	0.95	1.1	0.78
Styrene	1,040	NC	3,130	NC	0.68	0.43	0.55	0.47	0.51
o-Xylene	104	NC	313	NC	2.1	ND	0.39	0.39	ND
4-Ethyltoluene	NL		NL		ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	62.6	NC	188	NC	0.54	ND	ND	ND	ND
Inventory Items of Concern					Shared basement with PS08; General paints and handyman materials in hallway and basement.				

TABLE 4B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS06-PS08
MARCH 2022

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES				
LABORATORY NUMBER:			AB97687	AB97684	AB97685	AB97686	
SAMPLE LOCATION:			PS06-SSG-D	PS08-SSG-A	PS08-SSG-B	PS08-SSG-BD	
SAMPLE NUMBER:			S50048RI-0348	S50048RI-0344	S50048RI-0346	S50048RI-0347	
CANISTER NO.			22680	22684	12566	3656	
SAMPLE DATE:			3/18/2022	3/18/2022	3/18/2022	3/18/2022	
			Basement, Soil Gas	Basement, Soil Gas	Basement, Soil Gas	Basement, Soil Gas	
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴				Duplicate	
VOLATILE ORGANIC COMPOUNDS (VOCs) $\mu\text{g}/\text{m}^3$			$\mu\text{g}/\text{m}^3$				
Vinyl Chloride	5.59	559	ND	ND	ND	ND	
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND	ND	ND	
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND	ND	ND	
cis-1,2-Dichloroethylene	NL	NL	ND	ND	ND	ND	
Chloroform	4.07	407	30	19	8.6	9.0	
Trichloroethylene (TCE)	15.9	209	4,000	1,700	480	660	
Tetrachloroethylene (PCE)	360	4,170	160	190	150	160	
Sub-Slab Pressure Differential (inches of Water column)			+0.004	0	0	0	
Basement Walls:			Fieldstone				
Basement Floor:			Concrete				

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 22030019 and 22030020, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS [*non-detect*]

Vinyl Chloride = 0.13 $\mu\text{g}/\text{m}^3$
1,1-DCE = 0.20 $\mu\text{g}/\text{m}^3$
T-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
C-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
TCE = 0.27 $\mu\text{g}/\text{m}^3$
PCE = 0.34 $\mu\text{g}/\text{m}^3$

NOTES:

- 1) $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
- 2) All Results were reported in $\mu\text{g}/\text{m}^3$.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

- 5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 7) RIA = Residential Target Indoor Air Concentration.
- 8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 9) RSsSG = Residential Target Sub-slab Soil Gas Concentration.
- 10) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 11) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 12) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 13) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 14) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 4C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS06-PS08
SEPTEMBER 2023

PROPERTY LOCATION:				PS06-PS08						
SAMPLE TYPE:				INDOOR AIR						OUTDOOR AMBIENT
LABORATORY NUMBER:				AC08840	AC08841	AC08842	AC08843	AC08844	AC08845	
SAMPLE LOCATION:				PS06-1FKT	PS06-BT	PS08-1FLR	PS08-BT	PS06-BTD	PS68-OS	
SAMPLE NUMBER:				S50098RI-0094	S50098RI-0095	S50098RI-0096	S50098RI-0097	S50098RI-0098	S50098RI-0099	
CANISTER NO.				1560	15061	6581	1586	22681	1576	
SAMPLE DATE:				9/8/2023	9/8/2023	9/8/2023	9/8/2023	9/8/2023	9/8/2023	
COMPOUND		EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, Basement	24-hour, First Floor	24-hour, Basement	24-hour, Outside Ambient
VOLATILE ORGANIC COMPOUNDS (VOCs)				µg/m ³					µg/m ³	
Dichlorodifluoromethane	104	NC	313	NC	2.4	2.2	25	ND	2.4	2.1
MethylChloride (chloromethane)	93.9	NC	282	NC	ND	ND	2.2	ND	ND	ND
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC	4.5	4.7	2.9	1.8	3.9	2.6
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND	ND	ND	ND
Chloroform	0.122	C	12.2	C	ND	1.6	ND	ND	3.0	ND
Tetrahydrofuran	2,090	NC	6,260		ND	3.4	ND	1.4	ND	ND
1,2-Dichloroethane	0.108	C	10.8	C	ND	ND	2.6	ND	ND	ND
Trichloroethylene (TCE)	0.478	C	6.26	NC	ND	ND	ND	ND	ND	ND
Toluene	5,210	NC	15,600	NC	1.5	1.9	1.8	ND	1.7	1.3
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	ND	ND	ND	ND	ND
Inventory Items of Concern				None observed.						

TABLE 4C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS06-PS08
SEPTEMBER 2023

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES					
LABORATORY NUMBER:			AC08825	AC08826	AC08827	AC08828		
SAMPLE LOCATION:			PS06-SSG	PS06-EFF	PS08-SSG	PS08-EFF		
SAMPLE NUMBER:			S50098RI-0112	S50098RI-0113	S50098RI-0114	S50098RI-0115		
CANISTER NO.			15055	20856	14892	15047		
SAMPLE DATE:			9/8/2023	9/8/2023	9/8/2023	9/8/2023		
			Basement, Soil Gas	VMS Effluent	Basement, Soil Gas	VMS Effluent		
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴						
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/m ³			µg/m ³					
Vinyl Chloride	5.59	559	ND	ND	ND	ND		
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND	ND	ND		
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND	ND	ND		
Methyl Ethyl Ketone (2-Butanone)	174,000	521,000	ND	4.8	ND	3.6		
cis-1,2-Dichloroethylene	NL	NL	ND	ND	ND	ND		
Tetrahydrofuran	69,500	209,000	ND	5.2	ND	4.1		
Benzene	12	1,200	ND	5.8	ND	ND		
Trichloroethylene (TCE)	15.9	209	130	26	90	82		
Tetrachloroethylene (PCE)	360	4,170	9.7	7.9	17	31		
Sub-Slab Pressure Differential (inches of Water column)			-0.019	-4.485	-0.117	-4.442		
Basement Walls:			Fieldstone					
Basement Floor:			Concrete					

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 23090013 and 23090015, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS [“non-detect” values]

Vinyl Chloride = 0.13 µg/m³
1,1-DCE = 0.20 µg/m³
T-1,2-DCE = 0.20 µg/m³
C-1,2-DCE = 0.20 µg/m³
TCE = 0.27 µg/m³
PCE = 0.34 µg/m³

NOTES:

- 1) µg/m³ = micrograms per cubic meter
2) All Results were reported in µg/m³.
3) ND = Not Detected.
4) NL = Not Listed.
5) VMS = Vapor Mitigation System.

- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
7) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
8) RIA = Residential Target Indoor Air Concentration.
9) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
10) RSsSG = Residential Target Sub-slab Soil Gas Concentration. NOT applicable to VMS Effluent samples.
11) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
12) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
13) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
14) Contaminants of potential concern (COPC) are highlighted in BLUE.
15) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 5A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS02-PS04
SEPTEMBER 2021

PROPERTY LOCATION:					PS02-PS04				
SAMPLE TYPE:					INDOOR AIR SAMPLES				OUTDOOR AMBIENT
LABORATORY NUMBER:					No samples collected - No access from resident	AB94592	AB94593	AB94594	AB94595
SAMPLE LOCATION:						PS04-1F	PS04-BT	PS04-BU	PS04-AB
SAMPLE NUMBER:						S50048RI-0296	S50048RI-0297	S50048RI-0298	S50048RI-0299
CANISTER NO.						13483	5810	15057	13490
SAMPLE DATE:						9/7/2021	9/7/2021	9/7/2021	9/7/2021
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, Basement	Duplicate of PS04-BT		24-hour, Outside Ambient for PS04
VOLATILE ORGANIC COMPOUNDS (VOCs)					µg/m ³				µg/m ³
Dichlorodifluoromethane	104	NC	313	NC		2.1	2.7	2.6	2.2
Vinyl Chloride	0.168	C	16.8	C		ND	ND	ND	ND
1,3-Butadiene	0.0936	C	6.26	NC		ND	ND	ND	ND
Trichlorofluoromethane	NL		NL			1.2	1.5	1.7	1.2
1,1-Dichloroethylene (DCE)	209	NC	626	NC		ND	ND	ND	ND
trans-1,2-Dichloroethylene	41.7	NC	125	NC		ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC		3.0	7.9	7.5	1.0
cis-1,2-Dichloroethylene	NL		NL			ND	ND	ND	ND
Hexane	730	NC	2,190	NC		0.70	1.2	1.4	0.81
Chloroform	0.122	C	12.2	C		2.5	5.5	5.7	ND
1,2-Dichloroethane	0.108	C	10.8	C		ND	1.1	1.1	ND
Benzene	0.36	C	36	C		0.73	0.87	0.93	0.61
Carbon Tetrachloride	0.468	C	46.8	C		ND	0.71	0.63	ND
Cyclohexane	6,260	NC	18,800	NC		ND	ND	0.31	ND
Trichloroethylene (TCE)	0.478	C	6.26	NC		ND	4.0	3.9	ND
Heptane	417	NC	1,250	NC		0.41	0.50	0.49	0.49
Methyl Isobutyl Ketone (MIBK)	3,130	NC	9,390	NC		ND	0.41	0.45	ND
Toluene	5,210	NC	15,600	NC		3.5	12	13	2.0
2-Hexanone	31.300	NC	93.90	NC		ND	0.50	0.61	ND
Tetrachloroethylene (PCE)	10.8	C	125	NC		ND	1.9	1.9	ND
Ethylbenzene	1.12	C	112	C		0.52	2.4	2.3	ND
m/p-Xylenes	104	NC	313	NC		1.6	7.6	7.7	0.95
Styrene	1,040	NC	3,130	NC		0.43	1.8	2.0	ND
o-Xylene	104	NC	313	NC		0.91	3.0	3.1	ND
4-Ethyltoluene	NL		NL			ND	10.00	11.00	ND
1,3,5-Trimethylbenzene	62.6	NC	188	NC		ND	3.8	3.6	ND
1,2,4-Trimethylbenzene	62.6	NC	188	NC		0.59	12.00	3.0	ND
Inventory Items of Concern						No chemicals of concern observed by START.			

TABLE 5A
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS02-PS04
SEPTEMBER 2021

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES
LABORATORY NUMBER:			No Sub-slab Soil Gas Samples Collected (No installed ports)
SAMPLE LOCATION:			
SAMPLE NUMBER:			
CANISTER NO.			
SAMPLE DATE:			
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴	
Basement Walls:			Fieldstone
Basement Floor:			Concrete (installed between 2008-2021)

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 21090014, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS [*"non-detect" values*]

Vinyl Chloride = 0.13 µg/m³
1,1-DCE = 0.20 µg/m³
T-1,2-DCE = 0.20 µg/m³
C-1,2-DCE = 0.20 µg/m³
TCE = 0.27 µg/m³
PCE = 0.34 µg/m³

NOTES:

- 1) µg/m³ = micrograms per cubic meter
- 2) All Results were reported in µg/m³.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

- 5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 7) RIA = Residential Target Indoor Air Concentration.
- 8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 9) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 10) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 11) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 12) Contaminants of potential concern (COPC) are highlighted in BLUE.

TABLE 5B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS02-PS04
FEBRUARY 2022

PROPERTY LOCATION:				PS04			
SAMPLE TYPE:				INDOOR AIR			OUTDOOR AMBIENT
LABORATORY NUMBER: SAMPLE LOCATION: SAMPLE NUMBER: CANISTER NO. SAMPLE DATE:				AB97520 PS04-1F S50048RI-0304 12566 2/24/2022	AB97521 PS04-BT S50048RI-0305 20858 2/24/2022	AB97522 PS04-BTDUP S50048RI-0306 5791 2/24/2022	AB97523 PS04-OS S50048RI-0307 3656 2/24/2022
COMPOUND	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶	EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, Basement	24-hour, Basement Duplicate	24-hour, Outside Ambient
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/n				µg/m ³			µg/m ³
Dichlorodifluoromethane	104 NC	313 NC		2.4	2.4	2.4	2.5
Vinyl Chloride	0.168 C	16.8 C		ND	ND	ND	ND
Trichlorofluoromethane	NL	NL		1.1	1.2	1.2	1.1
1,1-Dichloroethylene (DCE)	209 NC	626 NC		ND	ND	ND	ND
Methylene Chloride	101 C	1,880 NC		8.6	64	68	ND
trans-1,2-Dichloroethylene	41.7 NC	125 NC		ND	ND	ND	ND
Methyl Ethyl Ketone	5,210 NC	15,600 NC		10	81	63	0.47
cis-1,2-Dichloroethylene	NL	NL		ND	ND	ND	ND
Hexane	730 NC	2,190 NC		ND	0.35	ND	ND
Chloroform	0.122 C	12.2 C		0.73	0.64	0.59	ND
Benzene	0.36 C	36 C		0.45	0.42	0.42	0.38
Trichloroethylene (TCE)	0.478 C	6.26 NC		ND	3.4	3.3	ND
Toluene	5,210 NC	15,600 NC		17	210	220	0.53
Tetrachloroethylene (PCE)	10.8 C	125 NC		ND	ND	ND	ND
Ethylbenzene	1.12 C	112 C		ND	0.74	0.74	ND
m/p-Xylenes	104 NC	313 NC		ND	2.1	2.1	ND
o-Xylene	104 NC	313 NC		ND	0.74	0.69	ND
Inventory Items of Concern				No chemicals of concern observed by START.			

TABLE 5B
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS02-PS04
FEBRUARY 2022

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES			
LABORATORY NUMBER:			AB97529	AB97530		
SAMPLE LOCATION:			PS04-SSG	PS04-SSGDUP		
SAMPLE NUMBER:			S50048RI-0313	S50048RI-0314		
CANISTER NO.			6553	22695		
SAMPLE DATE:			2/24/2022	2/24/2022		
			Basement, Soil Gas	Basement, Soil Gas		
				Duplicate		
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴				
VOLATILE ORGANIC COMPOUNDS (VOCs)			µg/m ³			
Vinyl Chloride	5.59	559	ND	ND		
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND		
Methylene Chloride	3,380	62,600	20	16		
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND		
cis-1,2-Dichloroethylene	NL	NL	ND	ND		
Chloroform	4.07	407	20	20		
Trichloroethylene (TCE)	15.9	209	840	1,500		
Toluene	174,000	521,000	15	6.4		
2-Hexanone	1,040	3,130	11	12		
Tetrachloroethylene (PCE)	360	4,170	77	83		
Sub-Slab Pressure Differential (inches of Water column)			-0.0044	-0.0044		
Basement Walls:			Fieldstone			
Basement Floor:			Concrete			

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 22020043 and 22020044, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS ["non-detect" values]

Vinyl Chloride = 0.13 µg/m³
1,1-DCE = 0.20 µg/m³
T-1,2-DCE = 0.20 µg/m³
C-1,2-DCE = 0.20 µg/m³
TCE = 0.27 µg/m³
PCE = 0.34 µg/m³

NOTES:

- 1) µg/m³ = micrograms per cubic meter
- 2) All Results were reported in µg/m³.
- 3) ND = Not Detected.
- 4) NL = Not Listed.

- 5) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 7) RIA = Residential Target Indoor Air Concentration.
- 8) C/NC = Cancer or Non-Cancer toxicity basis of the Target RIA, if designated.
- 9) RSsSG = Residential Target Sub-slab Soil Gas Concentration. NOT applicable to VMS Effluent samples.
- 10) Bolded results highlighted in YELLOW exceed the applicable EPA VISLs (HQ = 1, TR = 10⁻⁶).
- 11) Bolded results highlighted in ORANGE exceed the applicable EPA VISLs (HQ = 3, TR = 10⁻⁴).
- 12) An analyte is only shown in the table above if it was detected in at least one sample OR if it is a contaminant of potential concern (COPC). Non-COPC analytes that were not detected in any samples are not shown.
- 13) Contaminants of potential concern (COPC) are highlighted in BLUE.
- 14) A negative (-) sub-slab pressure differential (Pdiff) indicates a higher (positive) pressure in the indoor air; therefore flow would move from indoor air down through the slab. Conversely, a positive (+) sub-slab Pdiff indicates that sub-slab vapors would be drawn into the building, from the higher pressure below the slab into the lower-pressure indoor air.

TABLE 5C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS02-PS04
SEPTEMBER 2023

PROPERTY LOCATION:				PS02-PS04			
SAMPLE TYPE:				INDOOR AIR			OUTDOOR AMBIENT
LABORATORY NUMBER:				AC08837	AC08838		PS04-OS S50098RI-0093 14895 9/8/2023 24-hour, Outside Ambient
SAMPLE LOCATION:				PS04-1FLR	PS04-BT		
SAMPLE NUMBER:				S50098RI-0091	S50098RI-0092		
CANISTER NO.				6460	6583		
SAMPLE DATE:				9/8/2023	9/8/2023		
	EPA RIA VISLs HQ = 1/TR = 10 ⁻⁶		EPA RIA VISLs HQ = 3/TR = 10 ⁻⁴		24-hour, First Floor	24-hour, Basement	
COMPOUND							
VOLATILE ORGANIC COMPOUNDS (VOCs) µg/m ³				µg/m ³			µg/m ³
Dichlorodifluoromethane	104	NC	313	NC	ND	ND	3.5
Vinyl Chloride	0.168	C	16.8	C	ND	ND	ND
1,1-Dichloroethylene (DCE)	209	NC	626	NC	ND	ND	ND
trans-1,2-Dichloroethylene	41.7	NC	125	NC	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5,210	NC	15,600	NC	4.9	22	2.4
cis-1,2-Dichloroethylene	NL		NL		ND	ND	ND
Tetrahydrofuran	2,090	NC	6,260		ND	24	ND
Cyclohexane	6,260	NC	18,800	NC	4.0	ND	ND
Trichloroethylene (TCE)	0.478	C	6.26	NC	ND	ND	ND
Toluene	5,210	NC	15,600	NC	ND	4.6	ND
Tetrachloroethylene (PCE)	10.8	C	125	NC	ND	ND	ND
Inventory Items of Concern					None observed.		

TABLE 5C
SUMMARY OF AMBIENT AIR, INDOOR AIR, AND SOIL GAS SAMPLE RESULTS
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND
PS02-PS04
SEPTEMBER 2023

SAMPLE TYPE:			SUB-SLAB SOIL GAS SAMPLES			
LABORATORY NUMBER:			AC08822	AC08823	AC08824	* Property PS02 not accessible; only effluent port sampled
SAMPLE LOCATION:			PS04-SSG	PS04-EFF	PS02-EFF*	
SAMPLE NUMBER:			S50098RI-0109	S50098RI-0110	S50098RI-0111	
CANISTER NO.			15048	14893	14894	
SAMPLE DATE:			9/8/2023	9/8/2023	9/8/2023	
			Basement, Soil Gas	VMS Effluent	VMS Effluent	
COMPOUND	EPA RSsSG VISL HQ = 1/TR = 10 ⁻⁶	EPA RSsSG VISL HQ = 3/TR = 10 ⁻⁴				
VOLATILE ORGANIC COMPOUNDS (VOCs) $\mu\text{g}/\text{m}^3$			$\mu\text{g}/\text{m}^3$			
Vinyl Chloride	5.59	559	ND	ND	ND	
1,1-Dichloroethylene (DCE)	6,950	20,900	ND	ND	ND	
trans-1,2-Dichloroethylene	1,390	4,170	ND	ND	ND	
Methyl Ethyl Ketone (2-Butanone)	174,000	521,000	3.3	3.5	8.7	
cis-1,2-Dichloroethylene	NL	NL	ND	ND	ND	
Hexane	24,300	73,000	2.9	ND	ND	
Tetrahydrofuran	69,500	209,000	20	5.8	12	
Benzene	12	1,200	ND	12	ND	
Trichloroethylene (TCE)	15.9	209	41	22	110	
Toluene	174,000	521,000	5.7	ND	3.1	
Tetrachloroethylene (PCE)	360	4,170	ND	ND	22	
Chlorobenzene	1,740	5,210	ND	ND	ND	
Sub-Slab Pressure Differential (inches of Water column)			-0.065	-4.165	-4.082	
Basement Walls:			Fieldstone			
Basement Floor:			Concrete			

ANALYTICAL METHODS

Samples analyzed by U.S. EPA New England Regional Laboratory (NERL) Laboratory Services and Applied Science Division (NERL/LSASD). Project Report No.s 23090013 and 23090015, Air Toxics by GC/MS

COPC METHOD DETECTION LIMITS ["non-detect" values]

Vinyl Chloride = 0.13 $\mu\text{g}/\text{m}^3$
 1,1-DCE = 0.20 $\mu\text{g}/\text{m}^3$
 T-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
 C-1,2-DCE = 0.20 $\mu\text{g}/\text{m}^3$
 TCE = 0.27 $\mu\text{g}/\text{m}^3$
 PCE = 0.34 $\mu\text{g}/\text{m}^3$

NOTES:

- 1) $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
- 2) All Results were reported in $\mu\text{g}/\text{m}^3$.
- 3) ND = Not Detected.
- 4) NL = Not Listed.
- 5) VMS = Vapor Mitigation System.

- 6) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 1 (HQ = 1), Target Risk = 10⁻⁶ (TR = 10⁻⁶).
- 7) EPA VISLs = EPA Vapor Intrusion Screening Levels, Hazard Quotient = 3 (HQ = 3), Target Risk = 10⁻⁴ (TR = 10⁻⁴).
- 8) RIA = Residential Target Indoor Air Concentration.
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Appendix D

Waste Disposal Summary Tables

**HAZARDOUS WASTE DISPOSAL SUMMARY
PROVIDENCE BARREL
NORTH SMITHFIELD, RHODE ISLAND
29 NOVEMBER 2023**

Date	Proper Shipping Name	Manifest Number	Volume or Quantity		Container Type/No.		Transporter	Disposal Facility
11/29/2023	NA2122, Asbestos, 9, III	009290	250	P	4	CF	Red Technologies, LLC	Minerva Enterprises, LLC 8955 Minerva Road Southeast Waynesburg, OH 44688

NA = North America
No. = Number
OH = Ohio

PG = Packing Group
P = Pounds
CF = Fiber or plastic boxes, cartons, cases

WASTE DISPOSAL SUMMARY TABLE
NON-HAZARDOUS WASTE
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND

Disposal Facility:		Clean Earth of Connecticut 58 North Washington Street Plainville, CT 06062		
Description of Materials:		Connecticut Regulated Waste Solid Soil Contaminated with Petroleum Hydrocarbons Profile No. 214071913		
Date	Manifest No.	Transport Company	Truck Plate No.	Weight (tons)
10/5/2021	1862364	SRS National	37871A	24.55
10/5/2021	1862365	Drock	27263A	22.14
10/5/2021	1862366	SRS National	46698A	21.68
10/5/2021	1862367	SRS National	38005A	22.91
10/5/2021	1862368	Drock	23022A	21.21
10/5/2021	1862369	Drock	23022A	23.16
10/5/2021	1862370	SRS National	38005A	24.66
10/5/2021	1862371	Drock	27263A	26.03
10/5/2021	1862372	SRS National	37871A	25.54
10/5/2021	1862373	SRS National	46698A	24.59
10/5/2021	1862374	Drock	58269A	24.86
10/6/2021	1862375	Drock	27263A	23.83
10/6/2021	1862376	SRS National	37871A	24.96
10/6/2021	1862377	SRS National	46698A	23.77
10/6/2021	1862378	SRS National	38005A	23.05
10/6/2021	1862379	Drock	27263A	24.25
10/6/2021	1862380	SRS National	37871A	29.42
10/6/2021	1862381	SRS National	46698A	24.92
10/6/2021	1862382	SRS National	38005A	24.16
10/7/2021	1862383	SRS National	38005A	23.38
10/7/2021	1862384	SRS National	46698A	18.65
TOTAL				501.72

WASTE DISPOSAL SUMMARY TABLE
NON-HAZARDOUS WASTE
PROVIDENCE BARREL SITE
SMITHFIELD, RHODE ISLAND

Disposal Facility:		Clean Earth of New Jersey 105-115 Jacobus Avenue Kearny, NJ 07032		
Description of Materials:		NA3077, Hazardous Waste, solid, n.o.s. (Lead), 9, PG-III, RQ(D008) ERG#171. 2330828628 - Basement D008 Lead Soil - Haz		
Date	Manifest No.	Transport Company	Truck Plate No.	Weight (tons)
11/28/2023	018019098FLE	IWT Transport, Inc.	--	22.60
11/28/2023	018019097FLE	IWT Transport, Inc.	--	21.02
TOTAL				43.62

Source Facility:		Clean Earth of New Jersey 105-115 Jacobus Avenue Kearny, NJ 07032		
Disposal Facility:		Fairless Landfill 1000 New Ford Mill Road Morrisville, PA 19067		
Description of Materials:		Stabilized Waste, Profile No. 034830		
Date	Manifest No.	Transport Company	Truck /Trailer No.	Weight (tons)
11/29/2023	13105963	Dirt Doctor	AX614G, #106	23.31
11/29/2023	13105964	J&G Cruz	AY81BV/#7	22.40
11/29/2023	13105965	J&G Cruz	AX680Y/#3	25.89
11/29/2023	13105966	J&G Cruz	AY816C/#6	22.40
11/29/2023	13105967	J&G Cruz	AY946K/#11	22.40
11/29/2023	13105968	J&G Cruz	AY86BG/#10	22.48
11/29/2023	13105969	J&G Cruz	AY947K/#12	22.24
TOTAL				161.12

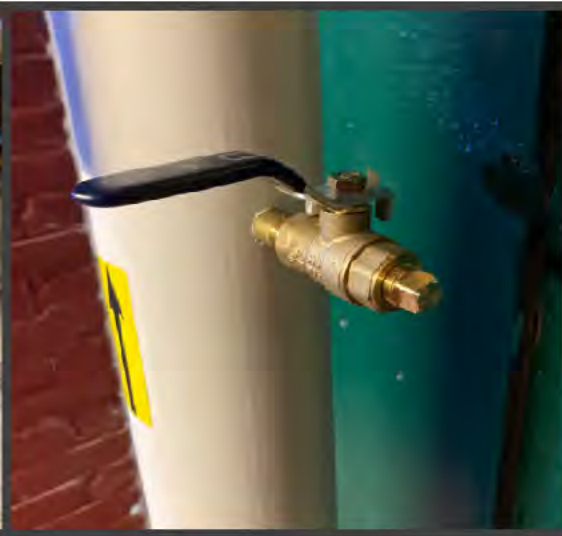
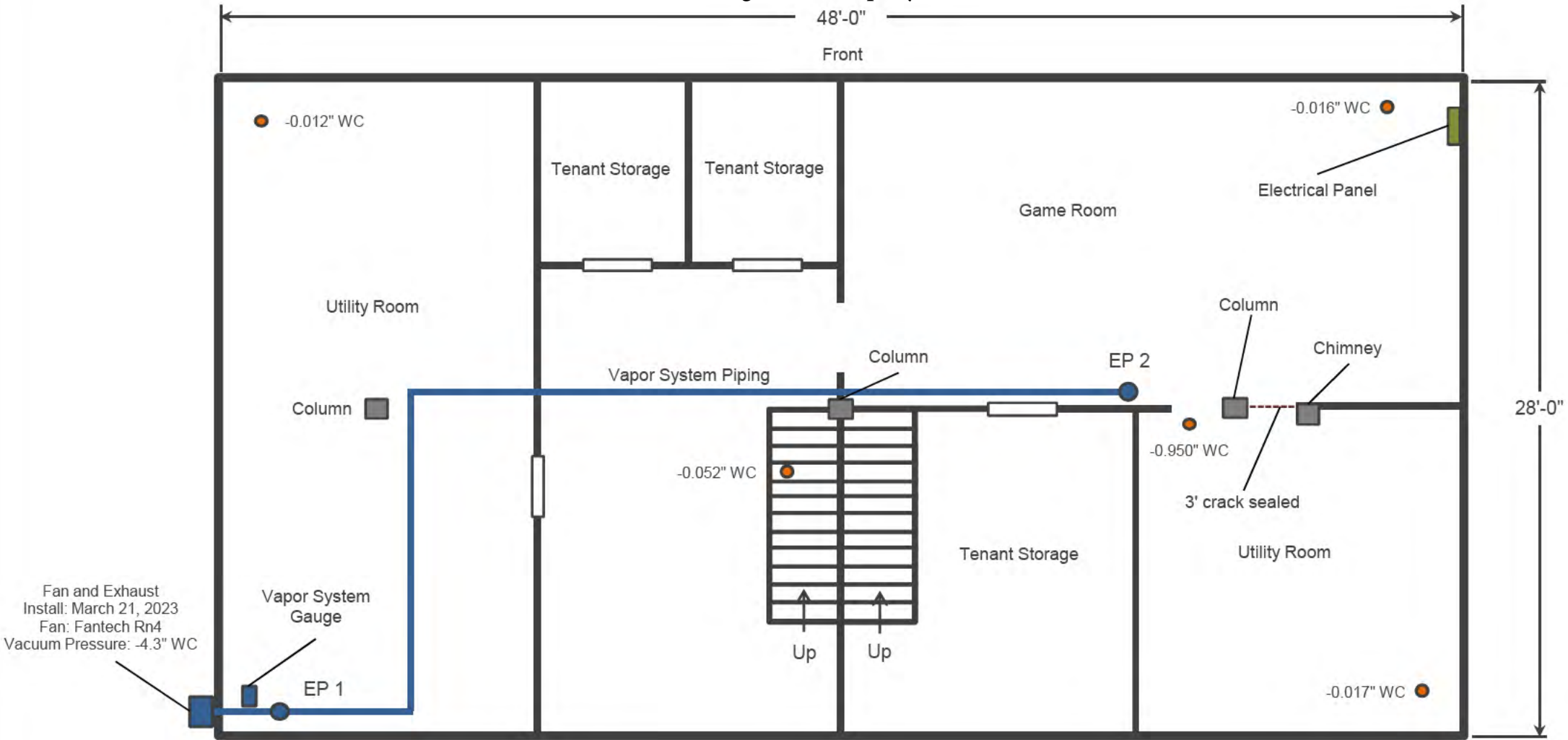
CT = Connecticut
 NJ = New Jersey
 PA = Pennsylvania
 NA = North America

n.o.s. = not otherwise specified
 PG = Packing Group
 RQ = Reportable Quantity
 ERG = Emergency Response Guide

Appendix E

Engineering Drawings and As-Built Diagrams

As-Built Diagram for Property PS02-PS04



Fan and Exhaust

Extraction Point (EP 1)

System Gauge

Sample Port

Extraction Point (EP 2)

Fan and Exhaust



DATE:
March 2023

Smithfield, RI

DESCRIPTION	DATE
Final	March 29, 2023

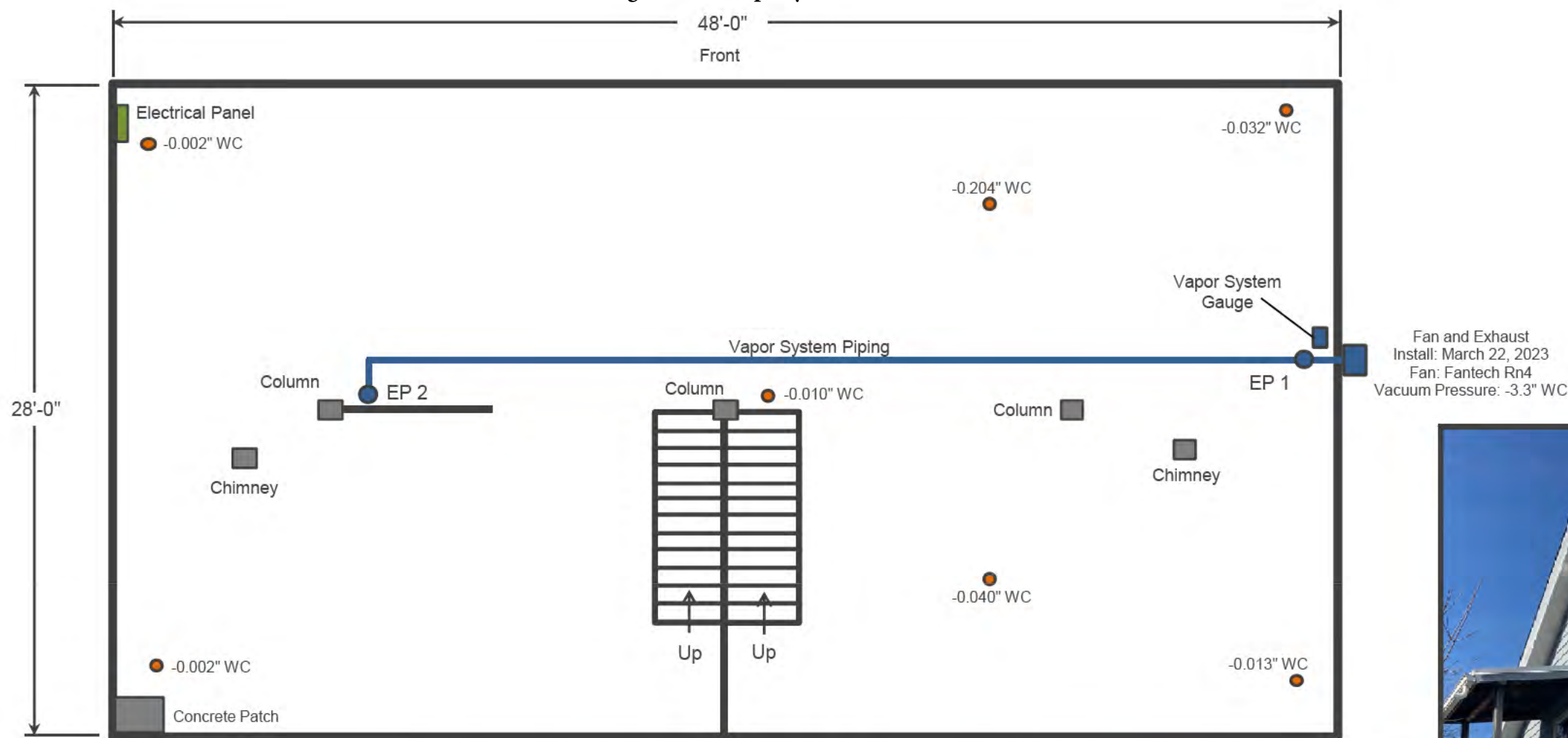
PROJECT NO. 23-29206-R

SHEET NO.

V - 1a

SHEET TITLE	VAPOR MITIGATION SYSTEM-As Built		
DRAWN BY	PS	CHECKED BY	MS

As-Built Diagram for Property PS14-PS16



DATE:
March 2023

Smithfield, RI

Final
March 29, 2023

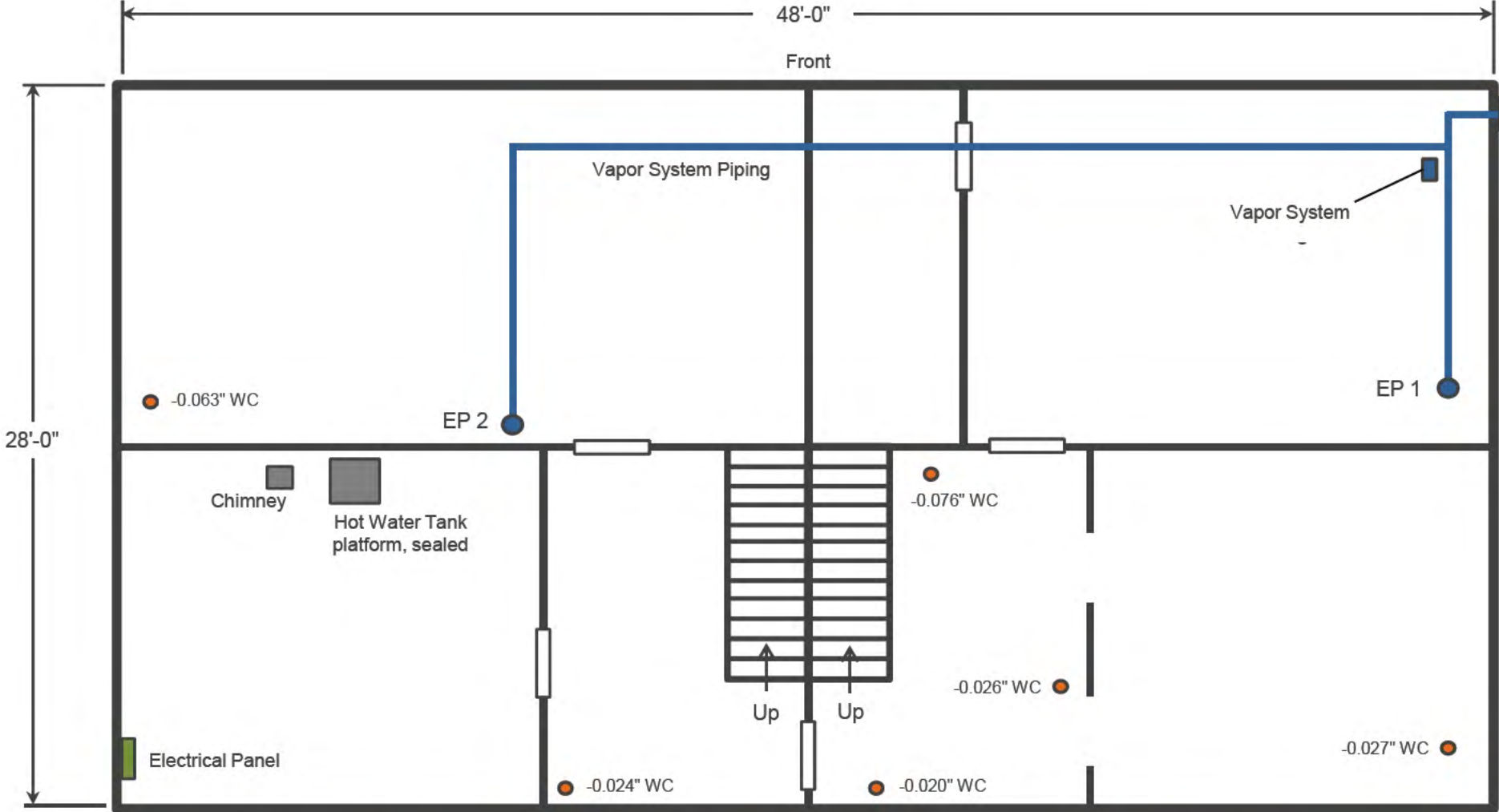
PROJECT NO. 23-29206-R

SHEET NO.

V - 1b

SHEET TITLE	VAPOR MITIGATION SYSTEM- As-built		
DRAWN BY	PS	CHECKED BY	MS

As-Built Diagram for Property PS18-PS20



Fan and Exhaust
Install: March 23, 2023
Fan: Fantech Rn4
Vacuum Pressure: -4.5" WC



Fan and Exhaust



System Gauge



Extraction Point (EP 2)



Extraction Point (EP 1)



DATE:
March 2023

mit fi d, RI

DESCRIPTION	Final	DATE
	March 29,	23

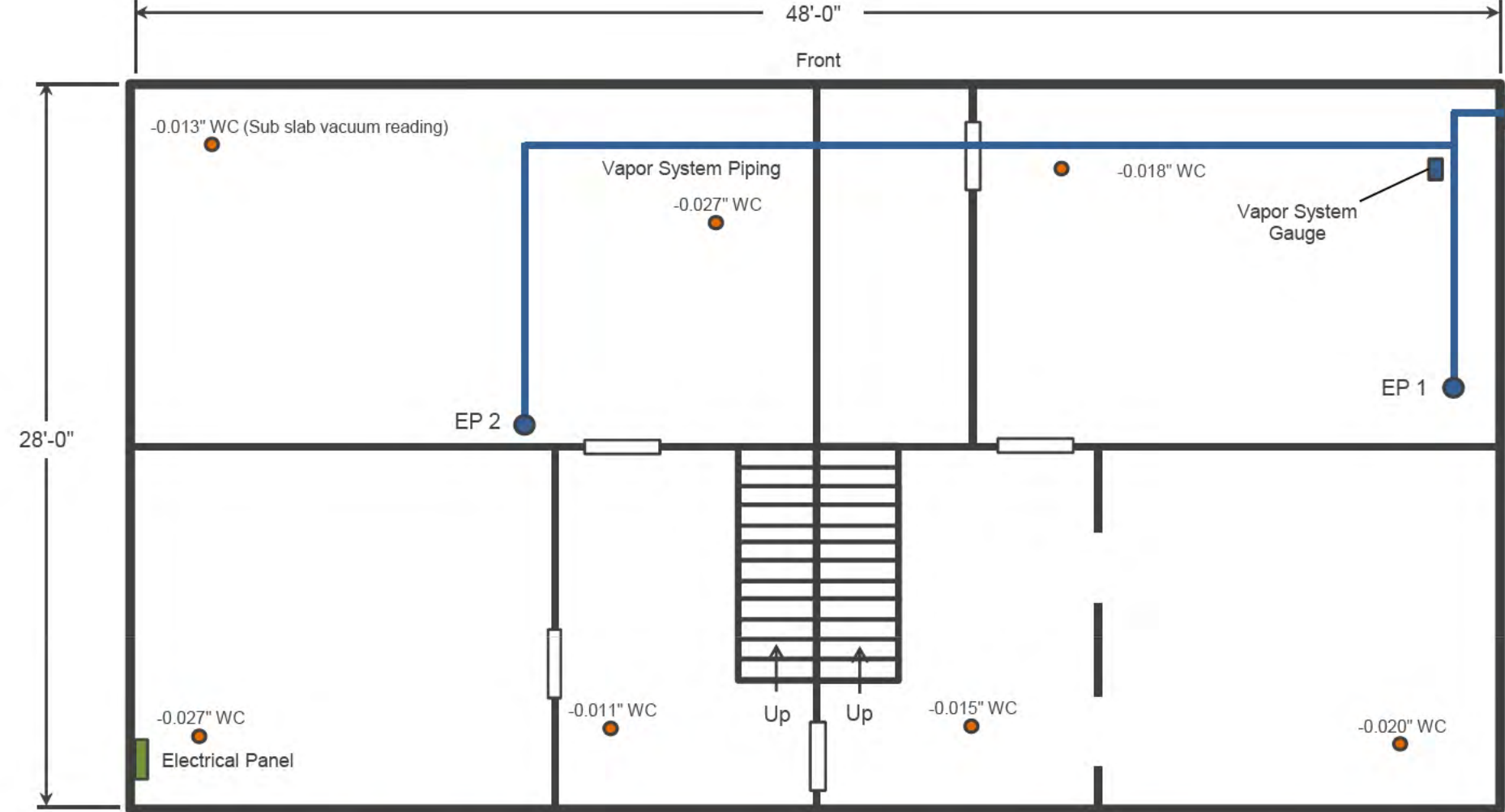
PROJECT NO. 23-29206-R

SHEET NO.

V - 1c

SHEET TITLE	VAPOR MITIGATION SYSTEM - As-built		
DRAWN BY	PS	CHECKED BY	MS

As-Built Diagram for Property PS06-PS08



Fan and Exhaust
Install:
Fan: Fantech Rn4
Fan Operating Pressure: 4.5 " WC



DATE:
August 2023

Smithfield, RI

DESCRIPTION	DATE
Final	August 11, 2023

PROJECT NO. 23-29206-R

SHEET NO.

V - 1d



Fan and Exhaust



System Gauge



Extraction Point (EP 2)



Extraction Point (EP 1)



Fan and Exhaust

SHEET TITLE		VAPOR MITIGATION SYSTEM - As-built	
DRAWN BY	PS	CHECKED BY	MS

As-Built Diagram for Property PS10-PS12



Fan and Exhaust



Extraction Point - EP 1



System Gauge and EP 2



DATE:
Nov. 2023

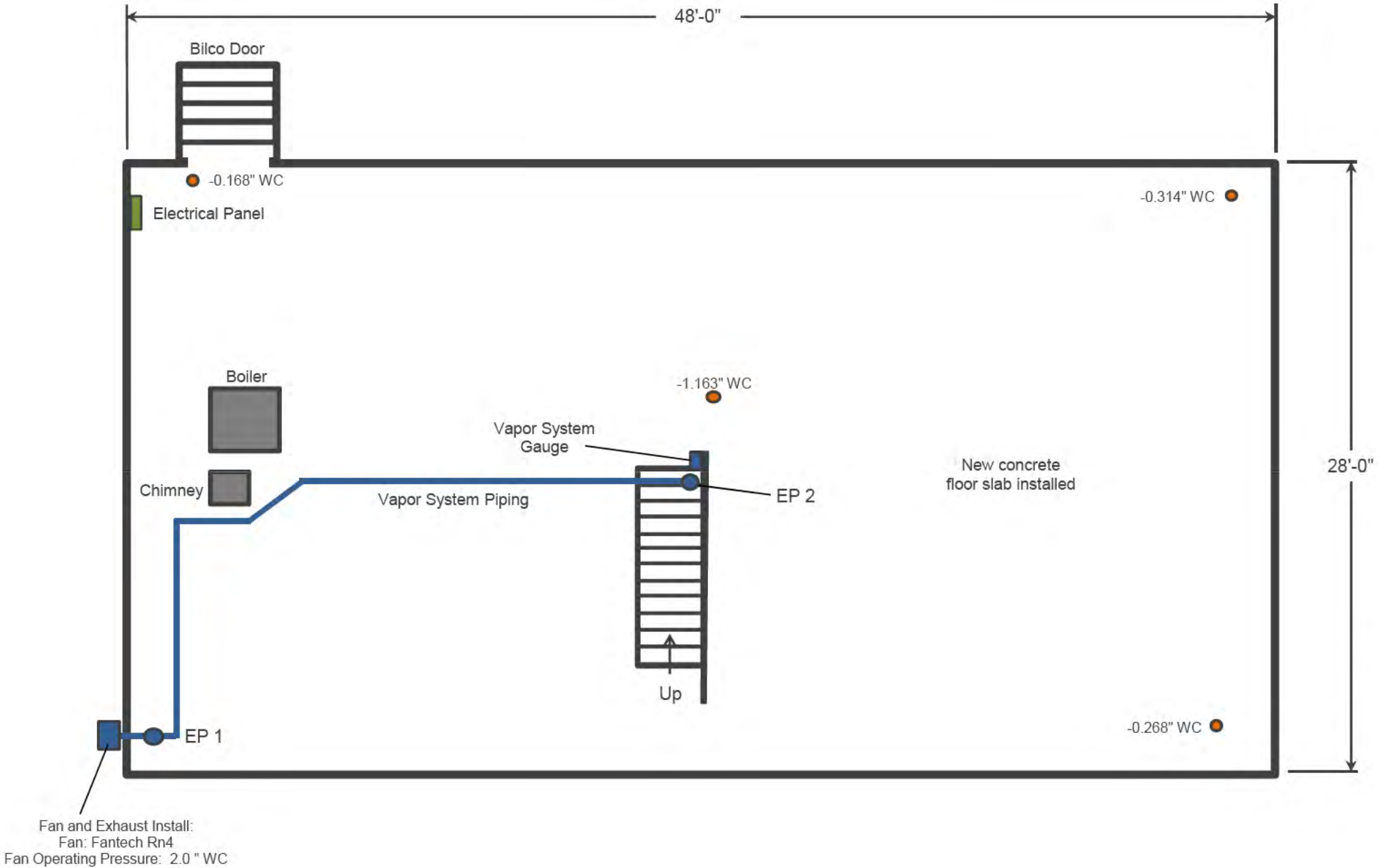
Smithfield, RI

DESCRIPTION	DATE
Final	November 15, 2023

PROJECT NO. 23-29206-R

SHEET NO.

V - 1e



Notes

A. General

1. All structural work shall conform to the requirements of the current Rhode Island Residential Building Code.
2. Verify and coordinate all new and existing dimensions related to this project.
3. The building structure was designed to resist loads in the completed condition of the project. During construction the contractor is responsible to verify the capacity of the partially completed structure to resist loads due to temporary conditions, construction equipment, stored materials, shoring, etc.
4. Elevations shown refer to project elevations.

B. Foundations

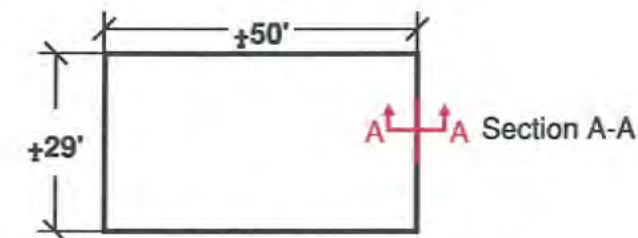
1. Geotechnical information for this project is from Environmental Restoration, Inc.
2. Provide temporary or permanent supports, weather shoring, sheeting, or bracing, so that no horizontal movement or vertical settlement occurs to existing structures, or utilities adjacent to the work.
3. Bottom 3 inches of excavations shall be finished by hand shovel or smooth-edged excavator bucket. Final subgrades shall be firm and free of loose and/or disturbed material.
4. Carry out continuous control of surface and subsurface water during construction such that foundation work is done in dry and on undisturbed material.
5. Backfill under any portion of the structure shall be compacted in 6" lifts to a minimum of 95 percent of the maximum dry density as determined by ASTM D-1557.
6. No foundation concrete shall be placed in water or on frozen subgrade material.
7. Protect in-place foundations and slabs from frost penetration until the project is completed. Remove frozen subgrade materials and replace with granular fill as necessary prior to placing new fill material and/or placing foundation units.
8. Sheeting, shoring and bracing for the lateral support of excavation shall remain in place until all permanent structural systems below ground level are complete.
9. Where suitable bearing material is not encountered at the specified bottom of foundation elevation, overexcavate to suitable material and place lean concrete to the specified bottom of foundation elevation.

C. Concrete

1. Concrete work shall conform to "Building Code Requirements for Structural Concrete" (ACI 318-14), and "Specifications for Structural Concrete" (ACI 301-05).
2. Concrete shall be controlled concrete, proportioned, mixed, and placed in the presence of a representative of an approved testing agency.
3. Unless noted otherwise, concrete shall have a minimum 28-day compressive strength and be of 4000 PSI at 28 days.
4. Construction joints shown on drawing are mandatory. Omissions, additions, or changes shall not be made except with the submittal of a written request together with drawings of the proposed joint locations for approval of the architect.
5. Size of concrete placements, unless noted shall be no longer than 30 feet.
6. Minimum of 72 hours shall elapse between adjacent concrete placements.
7. Allow adequate time for concrete to cure and dry to properly apply all finishes directly adhered to finished concrete surfaces.

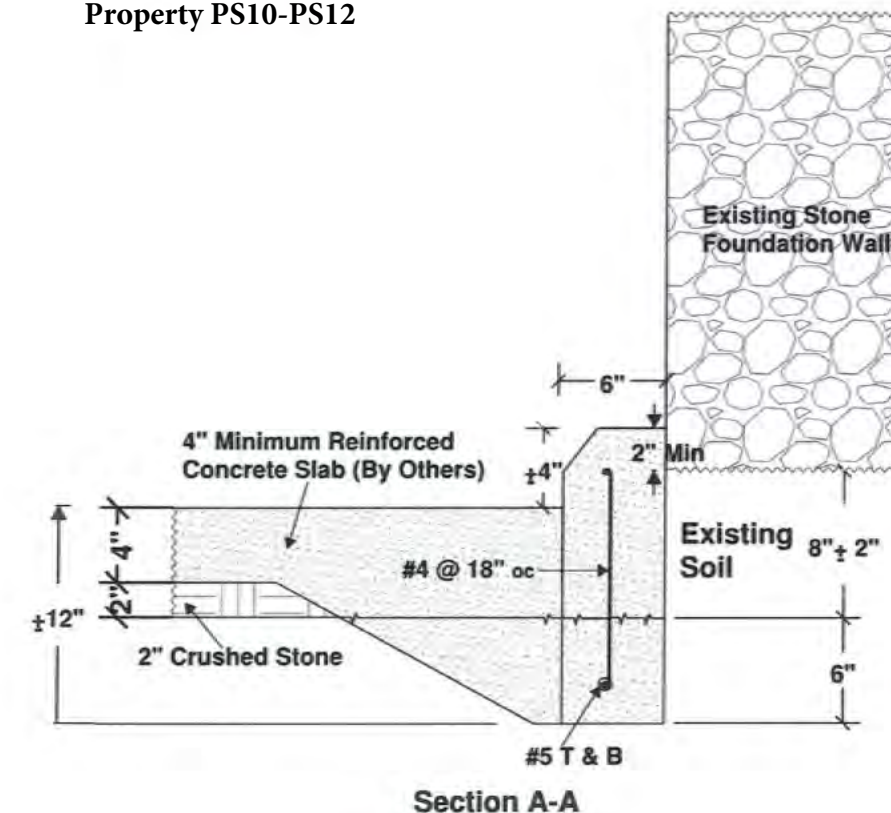
D. Reinforcement

1. "Building Code Requirements for Reinforced Concrete" (ACI 318-14), "ACI Detailing Manual - 2004" (SP-66); "CRSI Manual of Standard Practice, 28th Edition" (2009) and "Structural Welding Code - Reinforcing Steel" (AWS D1.4-11).
2. Steel reinforcement, unless noted otherwise, shall conform to ASTM A615 Grade 60 (Yield Stress 60,000 PSI)
3. Where reinforcement is required in section, reinforcement is considered typical wherever the section applies.
4. Where continuous reinforcement is called for, it shall be extended continuously around corners and lapped at necessary splices or hooked at discontinuous ends.
5. Laps shall be Class B tension lap splices, unless noted otherwise.
6. Minimum concrete protective covering for reinforcement, unless noted otherwise, shall be 3".
7. Reinforcement shall be continuous through construction joints.
8. Provide the necessary accessories to hold reinforcement securely in position.

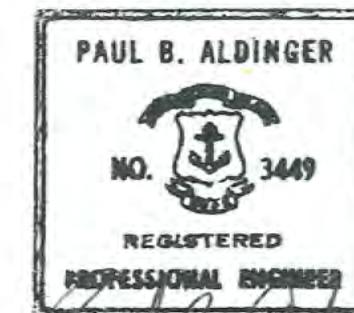
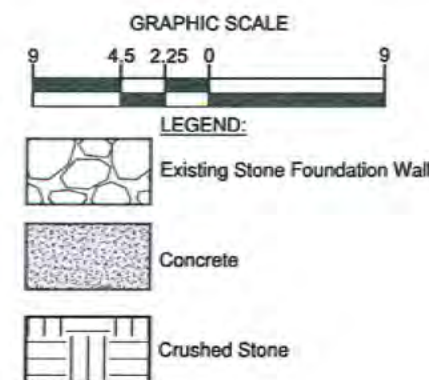


Layout of Basement of
Residence
Not to Scale

Property PS10-PS12



Section A-A



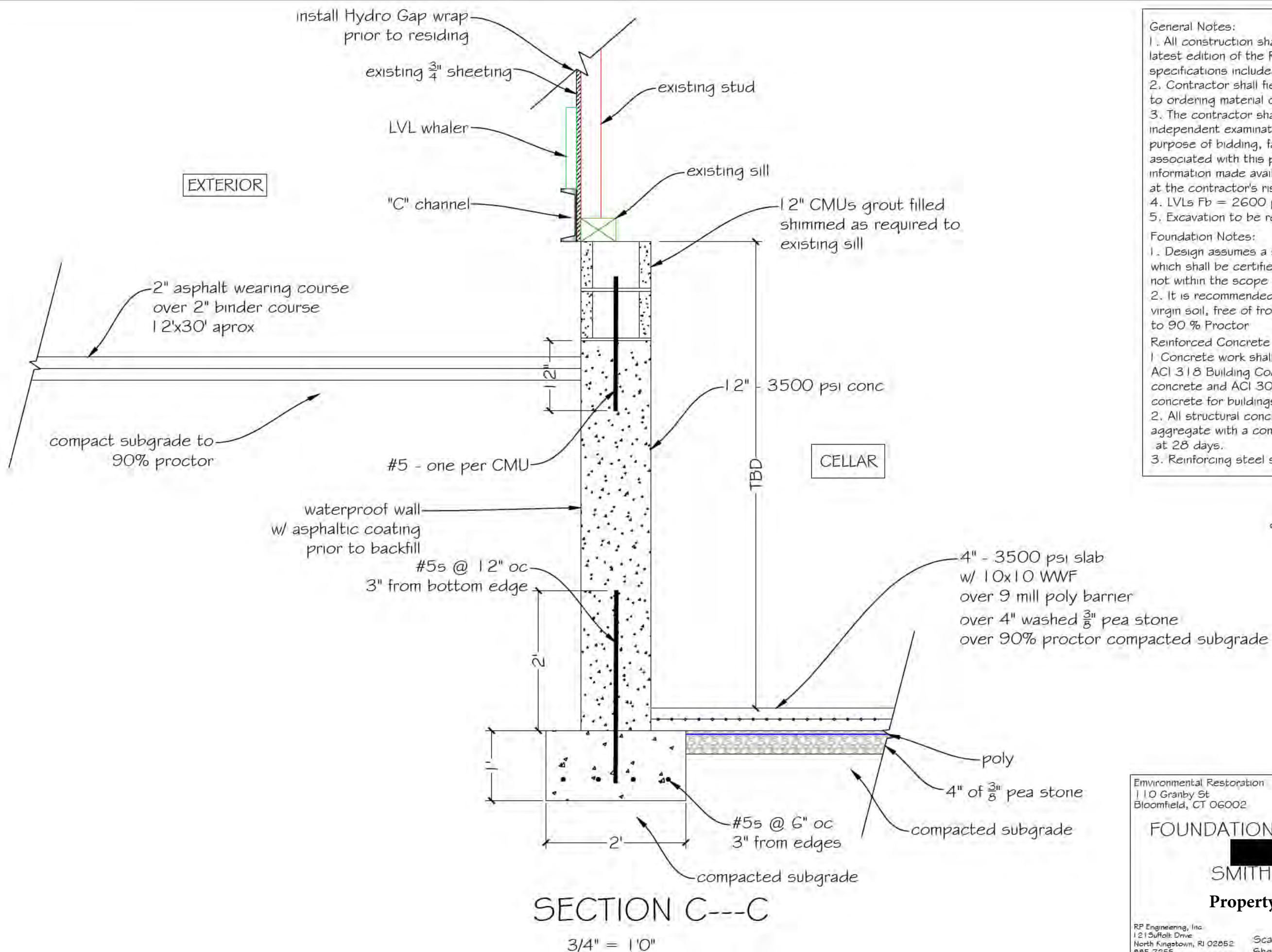
Paul B. Aldinger
&
Associates, Inc.
Geotechnical Engineering
and Hydrogeology
860A Waterman Avenue, Suite 9
East Providence, RI 02914
Phone: (401) 435-5570 Fax: (401) 435-5569

Smithfield, Rhode Island

PROPOSED FOUNDATION
STUB WALL SUPPORT

PBA JOB NO.: 23006
DATE: APRIL 27, 2023
SCALE: 1" = 8"
DRAWN BY: JC
DESIGNED BY:
CHECKED BY: PBA

Figure No: 1



General Notes:

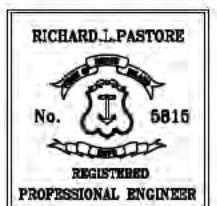
1. All construction shall be in accordance with the latest edition of the RI Building Code and the specifications included herein
2. Contractor shall field verify all dimensions prior to ordering material or starting work.
3. The contractor shall conduct his own independent examination of site conditions for the purpose of bidding, fabrication and construction associated with this project. Any reliance upon information made available by the engineer shall be at the contractor's risk.
4. LVLs Fb = 2600 psi, E= 2X10E
5. Excavation to be refilled in 12" compacted lifts.

Foundation Notes:

1. Design assumes a soil bearing capacity of 2000psf which shall be certified by Owner or their agent and is not within the scope of work for RP Engineering, Inc.
2. It is recommended that footings bear on undisturbed virgin soil, free of frost, mud or ice which has been compacted to 90 % Proctor

Reinforced Concrete Notes:

1. Concrete work shall be in accordance with ACI 318 Building Code requirements for reinforced concrete and ACI 301 specifications for structural concrete for buildings.
2. All structural concrete shall be of normal weight aggregate with a compressive strength of 3500psi at 28 days.
3. Reinforcing steel shall conform to ASTM A-615, Grade 60.



Environmental Restoration
110 Granby St
Bloomfield, CT 06002

Plat/Lot:

REVISIONS
9/6/23

FOUNDATION REPLACEMENT

SMITHFIELD, RI

Property PS10-PS12

RP Engineering, Inc.
121 Suffolk Drive
North Kingstown, RI 02852
885-7255

Scale - As Shown
Sheet -

8/31/23