NYSDEC BROWNFIELD CLEANUP PROGRAM
REMEDIAL INVESTIGATION WORK PLAN

STANDARD GAGE & COAL STORAGE SITE
NYSDEC SITE #TBD
58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK

PREPARED FOR:

The Scenic Hudson Land Trust, Inc.
One Civic Center Plaza, Suite 200
Poughkeepsie, New York 12601
Phone: 845-473-4440 – Fax: 845-473-2648

PREPARED BY:

PVE Engineering
48 Springside Avenue
Poughkeepsie, New York 12603
Phone: 845-454-2544 – Fax: 845-454-2655

June 24, 2020
PVE File #560532

12.0 CERTIFICATION

I, Christopher Brown, P.G., certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Christopher Brown, P.G.

6.24.20
Date

TABLE OF CONTENTS

TABLE OF CONTENTS

FIGURES

TABLES

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

The Standard Gage and Coal Storage Brownfield Cleanup Program site (the "BCP Site") consists of two (2) tax parcels totaling 2.466 acres located at 58 Parker Avenue (Tax Parcel #131300-6162-62-148369-0000) and 164 Garden Street (Tax Parcel #131300-6162-54-177385-0000) in the City of Poughkeepsie, Dutchess County, New York (Figures 1 & 2).

The planned redevelopment of the BCP Site will entail an adaptive reuse and re-development of the BCP Site and its on-site structures to the extent feasible. However, based on the final remedial investigation and hot spots of soil and/or groundwater contamination, portions of the on-site structures may or may not be permanently demolished.

Preliminary design of the 58 Parker Avenue Parcel includes:

- 30,000 sq. ft. of Scenic Hudson office space (could be less depending on layout);
- 5,000 sq. ft. Parks Maintenance/shop space;
- 10,000 sq. ft. core + shell, ready for fit-up for specified community use;
- Outdoor spaces focus on connecting public / staff experience to the Fall Kill Creek Walkway, Dutchess Rail Trail, CSX Rail Spur; &
- Parking lot rehabilitation for staff/public use.

Preliminary design of the 164 Garden Street Parcel includes a new compatible use to compliment the new Scenic Hudson office on the Parker Avenue Parcel, such as a bike shop, café, or possible brewery to be identified. The BCP Site is split between two (2) zoning districts – the 58 Parker Avenue Parcel is zoned in the G-CM (Gateway Commercial Mixed-Use) district and the 164 Garden Street Parcel is zoned in the G-OM (Gateway Office Manufacturing) district. Both districts are consistent with the proposed use, since each district permits office space, community squares, greenways, and recreational uses.

The purpose of this Remedial Investigation Work Plan (RIWP) is to characterize and delineate contamination originating from the past operation of the BCP Site as identified during previous investigations. An evaluation of remedial alternatives will be based upon data generated during the Remedial Investigation (RI).

2.0 SITE HISTORY AND DESCRIPTION

2.1 Site Description and Surrounding Land Use

The site is located at 58 Parker Avenue and 164 Garden Street, City of Poughkeepsie, Dutchess County, New York.

The surrounding property uses around the Parker Avenue Parcel include:

- to the North/Northwest, a vacant commercial property
- to the North, a state park
- to the North/Northeast, a junkyard
- to the East, a vacant CSX property
- to the Southeast, an industrial site, a storage facility, and a parking lot
- to the East/South, a parking lot
- to the South, a single-family residence and two vacant residential properties
- to the West, a single-family residence and a two-family residence

The surrounding property uses at the Garden Street Parcel include:

- to the North, a junkyard and a storage facility
- to the Northeast, a storage facility
- to the East, a mini-mart
- to the Southeast, a storage facility
- to the South, a vacant industrial property

The BCP Site located at 58 Parker Avenue contains dilapidated and abandoned, former manufacturing facility (2-3 stories) and various out-buildings. The BCP Site located at 164 Garden Street contains a single-story vacant commercial structure and paved parking area.

2.2 Topography, Geology, and Hydrogeology

The average elevation of the BCP Site is 165 feet above mean seal level (ASL). Topography of the 58 Parker Avenue portion of the BCP Site slopes downward from north to south; topography of the 164 Garden Street parcel gently slopes downward from north to south/southeast.

According to bedrock geology maps from the New York State Museum and as described in the 1998 Poughkeepsie Master Plan, bedrock in the City of Poughkeepsie is composed primarily of shale and less permeable greywacke (Lower Hudson Bedrock Sheet). The City's southeastern corner is partially underlain by limestone and dolostone, which are typically more permeable and therefore more susceptible to groundwater contamination from surface water runoff. The bedrock in the area of this Site is Taconic Melange, which is relatively unaltered to moderately metamorphosed autochthonous clastic sedimentary rocks or a jumbled mix of sandstone blocks in a matrix of mud (Budnik, Walker, & Menking, 2010).

2.3 Site History

The earliest available record depicting the subject property, the 1913 Sanborn Map, depicts the Anchor Bolt & Nut Company, a manufacturer of Farming Tools, Bolts and Nuts on the 58 Parker Avenue property. A 1-story coal shed was adjoined to a blacksmith shop in the east/central portion of the same parcel at this time. To the east of this blacksmith, was a 1-story unlabeled structure and a 1-story paint shop. The central 2-story structure is labeled "Iron Working 1st" and "Wood Working 2nd" (Mill Construction). The structure is depicted as heated via steam, from fuel, coal and waste. A structure labeled "lumber shed" is located on the west portion of the Parcel. A railroad spur is depicted entering the Parcel from the east and terminating at the northern edge of the 2-story manufacturing structure.

At 164 Garden Street, a 2-story structure labeled R.B. Kelley & Son Coal Elevator is depicted on the 1913 Sanborn Map. A railroad spur is depicted entering the lot from the southeast and terminating at the coal elevator. Two (2) 1-story structures are depicted southeast of the main structure labeled as office and scales.

In 1936, Brookside Avenue was constructed along the southern boundary of 58 Parker Avenue. Additionally, one (1) large structure is depicted in a similar location to the present day vacant industrial structure on this Parcel. Structures are also depicted on 164 Garden Street parcel in 1936, but aerial photos from the timeframe were unclear. As of the 1940 aerial photos, a structure is more clearly depicted in the center of the subject property and additional structures are depicted along the northern portion of the lot along Parker Avenue.

By 1950, a factory labeled Standard Gage Co. Inc. is depicted on the 58 Parker Avenue parcel Sanborn Map, which included multiple 1- to 2-story structures labeled vault, carpenter shop, plating, heat treating and "STGE" for storage. Two (2) coal storage sheds are depicted along the northeastern portion of the lot. The northern portion of the structure, presumably an addition to the 2-story manufacturing structure, is shown be 3-stories. A parking lot is depicted in the northeastern corner. Standard Gage Co., Inc. operated on this parcel (which historically had the address of 70 Parker Avenue) for more than 50 years until approximately 2001 and is likely to be the source of most of the contamination on this Parcel. The company was a RCRA generator of ignitable waste, corrosive waste, halogenated solvents, wastewater treatment sludge from electroplating operations, spent cyanide, plating bath residues, spent stripping and cleaning bath solutions, quenching bath residues, quenching wastewater treatment sludges and soluble cyanide salts.

According to a site visit between PVE representatives and the former Plant Manager of the Standard Gage facility, an area directly south of the former heat-treating room was an earthen alleyway at the time Standard Gage operated on the Parcel. The Plant Manager indicated that spent cyanide was disposed of onto the ground, in this former alley. Additionally, this Plant Manger identified the location of a former floor drain, which was subsequently plugged with concrete in the southeastern corner of a storage room (north of transformer room), into which spent solvents were discharged.

In 1950, the 164 Garden Street parcel was still being operated as a coal storage facility, which included four (4) structures labeled "STGE" (2-story), "ACNRS" (1-story), "OFF.", and

"SCALES" (1-story) in the northern corner of the lot according to the applicable Sanborn Map. Three (3) 34' coal silos were still located in the center of the property. A coal elevator remained on the west portion of the property. However, the former office and scale structures along the eastern boundary were no longer present as of 1950. In 1970, the coal elevator operations appear to have ceased according to Sanborn Maps, and a structure, similar in size and footprint to the present-day structure appears on the applicable map. TEK Bearing Co, Inc. appears to have been the operator of this structure on the 164 Garden Street parcel from 1970 to 1980 during ownership of the Parcel by Mayhill Corp. From approximately 1980 through 2014, Harmon and Castella Printing was operating in the bearing warehouse structure. By 1984, all of the former coal related structures had been removed on the 164 Garden Street parcel except the bearing warehouse building. In 2010, this property was shared by two (2) companies, Harmon and Castella Printing and Castle HRS Drawn Carriage SVC. The structure is currently vacant.

The 164 Garden Street parcel has a spill history associated with the former USTs further described in Section 2.4.1 below.

2.4 Previous Investigations

Relevant reports are summarized below in chronological order. These reports are attached in Appendix D.

2.4.1 Tank Closure Site Assessment and Spill Closure Report, *Ecosystem Strategies, Inc., July 30, 2008*

Ecosystem Strategies, Inc. (ESI) prepared a Tank Closure Site Assessment and Spill File Closure Report, dated July 30, 2008, for the portion of the BCP Site located at 164 Garden Street in accordance with standard industry practices and NYSDEC protocols. Two (2) 1,000-gallon heating oil underground storage tanks (USTs) and one (1) 550-gallon UST were uncovered and removed from the subsurface. During their removal, minor petroleum contaminated soil (PCS) was observed in each excavation and pitting was observed in the 1,000-gallon USTs. NYSDEC Spill #0804049 was issued in response to these field observations on July 8, 2008. Approximately 16-tons of PCS was excavated and disposed of off-site; post-excavation soil samples were collected from each excavation; benzo(a)pyrene was detected at a concentration exceeding TAGM 4046 recommended soil cleanup objectives (SCOs). ESI indicated this compound was likely related to fill materials identified during tank removal and not related to petroleum impacts. ESI concluded their report by requesting no further action or remediation and that the NYSDEC Spill file be closed. Subsequently, NYSDEC Spill #0804049 was closed on July 31, 2008.

2.4.2 Phase I Environmental Site Assessment, *Environmental Affiliates, Inc., November 11, 2019*

Environmental Affiliates, Inc. (EAI) completed a Phase I Environmental Site Assessment (ESA), dated November 11, 2019, for the portion of the BCP Site located at 164 Garden Street in accordance with ASTM E-1527-13, for the purpose of identifying recognized environmental conditions (RECs) with respect to the range of contaminants within the scope of the Comprehensive

Environmental Response, Compensation, and Liability Act (CERCLA) and petroleum products on the subject property. While no RECs were identified in association with the subject property, EAI did recommend that on-site USTs located at the 164 Garden Street parcel be registered with the NYSDEC and tank tightness tests be performed.

2.4.3 Phase I Environmental Site Assessment, *PVE Engineering, January 16, 2020*

PVE completed a Phase I ESA, dated January 16, 2020, in accordance with ASTM E-1527-13, for the purpose of identifying RECs with respect to the range of contaminants within the scope of the CERCLA and petroleum products on the subject property. The following RECs were identified:

1. As indicated in Section 3.3 (Hazardous Waste Generation), Section 6.4 (Fire Insurance Maps), and Section 6.7 (Summary of General Property Use and History), of the report, the historic use of 58 Parker Avenue as the Standard Gage factory, and other manufacturing operations is considered a REC. Hazardous wastes are known to have been generated at the site, including the following: ignitable waste, corrosive waste, halogenated solvents, wastewater treatment sludge from electroplating operations, spent cyanide, plating bath residues, spent stripping and cleaning bath solutions, quenching bath residues, quenching wastewater treatment sludges and soluble cyanide salts. This property received a violation for the handling of these wastes while the plant was in operation. The mishandling or release of chemicals such as these have the potential to contaminate soil and/or groundwater and ultimately soil vapor quality at the subject property, creating a potential vapor intrusion condition.

2. As indicated in Section 6.6 (Other Records and Interviews) of the report, the subject property located at 58 Parker Avenue was associated with a 10,000-gallon UST located in the northern parking area. According to the former Plant Manager, Steve Forschler, this UST was removed, and no indication of contaminated soil was present at the time of tank closure. However, based on the lack of tank closure documentation or post-excavation soil sampling results, PVE considers this former UST to represent a REC.

3. As indicated in Section 6.4 (Fire Insurance Maps), Section 6.5 (City Directories) and Section 6.7 (Summary of General Property Use and History), of the report, the historic use of 164 Garden Street as a coal distributor (R.B. Kelley & Son) and Bearing manufacturer is considered a REC. The mishandling or release of chemicals such as these have the potential to contaminate soil and/or groundwater and ultimately soil vapor quality at the subject property, creating a potential vapor intrusion condition.

4. As indicated in Section 3.6 (Petroleum and Hazardous Materials Releases), of the report, the adjoining property to the east at 154 Garden Street is associated with an open Spill file (#1810705). The spill was reported on December 20, 2018; soil samples collected from three (3) soil borings contained elevated concentrations of toluene. Reportedly, no non-aqueous phase liquid (NAPL) or groundwater were encountered. A spill closure report was submitted to the NYSDEC on July 9, 2019. No additional information was provided, and the Spill file remains open and PVE considers this site to represent a REC.

5. As indicated in Section 6.4 (Fire Insurance Maps), of the report, the historic use of adjoining and nearby properties as railroads yards, industrial facilities, junkyards, auto facilities, coal manufacturing and storage, and parking lots/garages is considered a REC. The mishandling or release of chemicals such as these have the potential to contaminate soil and/or groundwater and ultimately soil vapor quality at the subject property, creating a potential vapor intrusion condition.

2.4.4 Phase II Environmental Site Assessment, *PVE Engineering, April 9, 2020*

PVE performed a Phase II ESA of the BCP Site located at 58 Parker Avenue and 164 Garden Street in addition to a vacant parking lot located north of 58 Parker Avenue and off-site impacts to the south of 58 Parker Avenue.

Scope

A total of twenty-one (21) soil borings were completed via Geoprobe™ and/or conventional drilling rig fitted with hollow-stem augers; sixteen (16) borings were installed within the 58 Parker Avenue parcel, four (4) borings within the 164 Garden Street parcel. One (1) boring was completed within the vacant parking parcel north of 58 Parker Avenue, which is not a portion of the BCP Site. Soil borings were installed to a maximum depth of 12-feet, to groundwater, or to refusal, whichever was encountered first. Soil samples were selected in the field biased to obvious field indications of contamination, above the water table (if encountered) or above suspected bedrock. Soil samples were collected, containerized in laboratory provided glassware and submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory to be analyzed for some or all of the following: NYSDEC Commissioner's Policy-51 (CP-51) and Target Compound List (TCL) Volatile Organic Compounds (VOCs); CP-51 Semi-Volatile Organic Compounds (SVOCs); Target Analyte List (TAL) Metals including hexavalent chromium and cyanide; and Polychlorinated Biphenyls (PCBs) via their respective United States Environmental Protection Agency (USEPA) methods.

Groundwater was encountered in unconsolidated soils in six (6) of the twenty-one (21) soil borings at varying depths ranging from 7.0 to 11.0-feet below ground surface (bgs). Two (2) of the twenty-one (21) soil borings, both located within the 164 Garden Street parcel, were completed as temporary monitoring wells constructed with 1-inch diameter Schedule-40 PVC slotted and riser piping. Refusal, presumably due to bedrock, was encountered in twelve (12) of the twenty-one (21) soil borings at varying depths from 1.5 to 13.5-feet bgs. A total of ten (10) conventional monitoring wells consisting of 2-inch diameter Schedule-40 PVC slotted and riser piping were installed via CME drilling rig. Eight (8) of these locations, all of which were located within the boundary of the parcel at 58 Parker Avenue, were completed in bedrock; the remaining two (2) monitoring wells were completed in unconsolidated sediments at the 164 Garden Street parcel. Each conventional monitoring well was backfilled with clean sand around the anulus of the screened interval. A bentonite seal was installed from the top of the screened interval to a depth approximately 1 foot below ground surface, and the well was completed with a flush-to-grade curb-box set in concrete.

Monitoring wells were developed at the time of drilling by surging and pumping each well to remove drilling fluids and sediment from the well and filter pack. 24-hours after development, each monitoring well was sampled following USEPA low-flow (minimal drawdown) sampling procedures using a peristaltic pump and dedicated tubing once physical parameters had stabilized (temperature, pH, ORP, turbidity and conductivity). Groundwater samples were dispensed into laboratory provided glassware and submitted to a NYSDOH ELAP-certified laboratory to be analyzed for some or all of the following: CP-51 & TCL VOCs; CP-51 SVOCs; PCBs; and TAL Metals (total and dissolved) including hexavalent chromium and cyanide.

A total of fourteen (14) sub-slab vapor sample implants were installed and sampled; twelve (12) implants were installed within the 58 Parker Avenue structure and the remaining two (2) were installed in the 164 Garden Street parcel. Additionally, a total of three (3) radon samples were collected from breathing height within the 164 Garden Street structure over a 48-hour period in accordance with USEPA's recognized Standards of Practice outlined in American National Standards Institute/American Association of Radon Scientists and Technologists (ANSI/AARST's) Protocol for Conducting Radon and Radon Decay Product Measurements in Schools and Large Buildings.

Analytical Results

58 Parker Avenue Parcel

Soil Results Exceeding Applicable SCOs:

SVOCs exceeding Commercial Soil Cleanup Objective (CSCO) as defined in 6 NYCRR Part 375:

- Benzo(A)Pyrene in five borings between 1.2 and 18 mg/kg exceeded the CSCO of 1 mg/kg to depths of up to 1-9 ftbgs.
- Dibenz(A,H)Anthracene in three borings between .57 and 3.3 mg/kg exceeded the CSCO of .56 mg/kg to depths of up to 1-9 ftbgs.
- Benzo(A)Anthracene in one boring at 20 mg/kg exceeded the CSCO of 5.6 mg/kg to depths of up to 1-3 ftbgs.
- Benzo(B)Fluoranthene in one boring at 15 mg/kg exceeded the CSCO of 5.6 mg/kg to depths of up to 1-3 ftbgs.
- Indeno(1,2,3-C,D)Pyrene in one boring at 13 mg/kg the CSCO of 5.6 to depths of up to 1-3 ftbgs.

SVOCs exceeding Industrial Soil Cleanup Objective (ISCO) as defined in 6 NYCRR Part 375:

- Benzo(A)Pyrene at 1.2 to 2.7 mg/kg exceeded the ISCO of 1.1 mg/kg to depth of up to 1-9 ft bgs.
- Benzo(A)Anthracene at 20 mg/kg exceeded the ISCO of 11 mg/kg to depths of up to 1-3 ft bgs.
- Benzo(B)Fluoranthene: 15 mg/kg exceeded the ISCO of 11 mg/kg to depths of up to 1-3 ft bgs.

- Dibenz(A,H)Anthracene: 3.3 mg/kg exceeded the ISCO of 1.1 mg/kg to depths of up to 1-9 ft bgs.
- Indeno(1,2,3-C,D)Pyrene: 13 mg/kg exceeded the ISCO of 11 mg/kg to depths of up to 1-3ftbgs.

PCBs exceeding CSCO included:

- PCB-1254 (Aroclor 1254) in one boring at 2.65 mg/kg exceeded the CSCO of 1 mg/kg.

Groundwater Exceeding Applicable Groundwater Quality Standards:

VOCs exceeding Class GA Groundwater Quality Standards (GQS) as defined in 6 NYCRR Part 700-705:

- Trichloroethylene (TCE) from 7.6 to 38 ug/l exceeded the GA GQS of 5 ug/l.

Metals exceeding Class GA GQS included:

- Chromium, Total from .141 to .511 mg/l exceeded the GA GQS of 0.05 mg/l.
- Manganese at .433 to 4.35 mg/l exceeded the GA GQS of .3 mg/l.
- Sodium at 97.6 to 127 mg/l exceeded the GA GQS of 30 mg/l.
- Iron at .489 to 29.2 mg/l exceeded the GA GQS of .3 mg/l.
- Selenium at 19.6 mg/l exceeded the GA GQS of 10 mg/l.

Soil Vapor Requiring Mitigation:

VOCs exceeding Decision Matrices established in NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006 and subsequent 2017 amendments) included:

- 1,2-Dichloroethylene at 250 to 1700 ug/m3 exceeded the NYSDOH Decision Matrices of >60 ug/m3.
- Tetrachloroethylene (PCE) at 4,300 ug/m3 exceeded the NYSDOH Decision Matrices of >1,000 ug/m3.
- Trichloroethylene (TCE) at 200 to 2100 ug/m3 exceeded the NYSDOH Decision Matrices of >60 ug/m3.

164 Garden Street Parcel

Soil Results Exceeding Applicable SCOs:

Metals exceeding CSCO included:

- Lead in one boring at 1750 mg/kg exceeded the CSCO of 1,000 mg/kg to depths of up to 9-11 ft bgs.

Groundwater Exceeding Applicable Groundwater Quality Standards:

VOCs exceeding Class GA GQS included:

- 1,2,4-Trimethylbenzene at 50 ug/l exceeded the GA GQS of 5 ug/l.
- 1,3,5-Trimethylbenzene (Mesitylene) at 5.4 ug/l exceeded the GA GQS of 5 ug/l.
- Benzene at 11 ug/l exceeded the GA GQS of 1 ug/l.
- Ethylbenzene at 95 ug/l exceeded the GA GQS of 5 ug/l.
- Isopropylbenzene (Cumene) at 24 ug/l exceeded the GA GQS of 5 ug/l.
- M-P-Xylene at 30 ug/l exceeded the GA GQS of 5ug/l.
- Naphthalene at 180 ug/l exceeded the GA GQS of 10 ug/l.
- N-Butylbenzene at 6.4 ug/l exceeded the GA GQS of 5 ug/l.
- N-Propylbenzene at 36 ug/l exceeded the GA GQS of 5 ug/l.
- Sec-Butylbenzene at 10 ug/l exceeded the GA GQS of 5 ug/l.
- Xylenes at 33 ug/l exceeded the GA GQS of 5 ug/l.

Radon Potentially Requiring Mitigation:

Three (3) radon samples were collected from the breathing height within the structure located at the Garden Street Parcel over a 48-hour period and submitted to EMSL Analytical Inc. for analysis and comparison to the USEPA's recognized Standards of Practice outlined in American National Standards Institute/American Association of Radon Scientists and Technologists (ANSI/AARST's) Protocol for Conducting Radon and Radon Decay Product Measurements in Schools and Large Buildings. All three radon samples exceeded the recommended mitigation level of 4 pCi/L; in sample #1 (9.8 pCi/L), sample #2 (11.3 pCi/L) and sample (13.6 pCi/L).

2.4.5 Pre-Demolition PCB Report/Pre-Demolition LBP Report/Pre-Demolition Survey for ACM, *Quality Environmental Solutions & Technologies, Inc., January-February 2020*

Quality Environmental Solutions & Technologies, Inc. (QuES&T) completed surveys of the current structures located at the BCP site for the presence of PCBs, lead based paint (LBP) and asbestos containing materials (ACM) in building materials. The following was concluded:

58 Parker Avenue:

- Pre-Demolition PCB Report, *January 29, 2020*
  - Three (3) bulk PCB samples were collected from caulking material observed throughout the on-site structures. The bulk samples were submitted to a NYSDOH ELAP certified laboratory for analysis of PCBs; no PCBs were detected in any of the three (3) bulk samples analyzed.
- Pre-Demolition XRF Lead Survey, *February 3, 2020*
  - A total of ninety-eight (98) samples of painted surfaces throughout the on-site structures were analyzed by a certified technician utilizing X-Ray Fluorescence Technology (XRF). LBP was identified within the interior and along the exteriors of on-site structures. Specific locations and concentrations can be found in the appended survey (Appendix D).
- Hazard Evaluation Universal/Hazard/Regulated Wastes, *February 3, 2020*
  - PCB Survey: Suspected PCB-containing items include fluorescent bulbs and thermostats observed throughout the on-site structures.

  - Hazardous Waste/Materials Survey: Corrosive/Non-corrosive solutions were observed within on-site structures.
  - Universal/Miscellaneous Waste Materials Survey: Approximately four hundred thirty (430) fluorescent tubes/bulbs were observed throughout the on-site structures.
  - Miscellaneous Environmental Issues: One (1) hydraulic-oil operated elevator was observed within the main structure; the oils may contain PCBs.
- Pre-Demolition Survey for ACM, *February 3, 2020*
  - Three-hundred eighty-nine (389) samples/layers of installed and accessible suspect ACMs were analyzed by a NYSDOH ELAP certified laboratory. ACM was confirmed to be present within the interior and along the exteriors of on-site structures. Specific locations and conditions of materials can be found in the appended survey (Appendix D).

164 Garden Street:

- Pre-Demolition PCB Report, *January 29, 2020*
  - Two (2) bulk PCB samples were collected from caulking material observed throughout the on-site structures. The bulk samples were submitted to a NYSDOH ELAP certified laboratory for analysis of PCBs; no PCBs were detected in any of the three (3) bulk samples analyzed.
- Pre-Demolition XRF Lead Survey, *February 3, 2020*
  - A total of twenty-three (23) samples of painted surfaces throughout the on-site structures were analyzed by a certified technician utilizing X-Ray Fluorescence Technology (XRF). No LBP was identified within or along the exterior of the on-site structure.
- Hazard Evaluation Universal/Hazard/Regulated Wastes, *February 3, 2020*
  - PCB Survey: Suspected PCB-containing items include fluorescent bulbs and thermostat observed within the on-site structure.
  - Hazardous Waste/Materials Survey: Miscellaneous cleaning chemicals were observed within the on-site structure.
  - Universal/Miscellaneous Waste Materials Survey: Approximately one hundred forty-four (144) fluorescent tubes/bulbs were observed throughout the on-site structure.
- Pre-Demolition Survey for ACM, *February 3, 2020*
  - One hundred and ninety-five (195) samples/layers of installed and accessible suspect ACMs were analyzed by a NYSDOH ELAP certified laboratory. ACM was confirmed to be present within the interior and along the exterior of on-site structure. Specific locations and conditions of materials can be found in the appended survey (Appendix D).

2.5 Areas of Concern (AOC)

Based on the findings and conclusions of the previous environmental investigations, the following AOCs have been established (Figure 7).

AOC – 1 Floor Drains (58 Parker Avenue)
AOC – 2 Coal Elevator and Coal Storage (164 Garden Street)

AOC – 3 Petroleum Storage Tanks (164 Garden Street)
AOC – 4 Shallow Soil (Site-Wide)
AOC – 5 Soil Vapor (58 Parker Avenue)
AOC – 6 Groundwater Quality (Site-Wide)
AOC – 7 Hazardous Building Materials & Mold (Both Parcels)

The following is a brief description of the findings in each AOC.

AOC – 1 Floor Drains (58 Parker Avenue -)

As indicated in the 2019 PVE Phase I ESA, a total of seven (7) floor drains were observed throughout the structures located within the 58 Parker Avenue parcel; however, PVE cannot rule out the presence of additional floor drains hidden beneath debris or fill. Specifically, one (1) of the floor drains located in the southeast corner of the woodshop was historically utilized for the discharge of spent solvents utilized during manufacturing. As indicated in the 2020 PVE Phase II ESA, elevated concentrations of chlorinated VOCs were detected in the soil, groundwater, and soil vapor in the vicinity of this drain. AOC-1 is depicted in Figure 7.

AOC – 2 Coal Elevator and Coal Storage (164 Garden Street -)

As indicated in the 2019 PVE Phase I ESA, historic Sanborn Maps and aerial photographs a coal elevator and storage silos were depicted on the 164 Garden Street parcel between 1913 and 1955. Coal fragments and coal ash were observed in one (1) of the four (4) soil borings completed within this parcel. AOC – 2 is depicted in Figure 7.

AOC – 3 Petroleum Storage Tanks (164 Garden Street -)

As indicated in the 2019 PVE Phase I ESA, two (2) 1,000-gallon steel USTs and one (1) 550-gallon steel UST were formerly located along the southern and southwestern portion of the structure located at 164 Garden Street. These USTs were decommissioned and removed in 2008. During their closure/removal PCS was encountered in each excavation; Spill #0804049 was issued by the NYSDEC in response to the release. A total of 16-tons of PCS were excavated and disposed of off-site and the Spill file was subsequently closed on July 31, 2008. One (1) 1,000-gallon UST and one 500-gallon UST were subsequently installed each excavation for storage of heating fuel. As reported in the PVE 2020 Phase II ESA, PCS and contaminants in groundwater identified adjacent to the current 500-gallon UST. AOC – 3 is depicted in Figure 7.

AOC – 4 Shallow Soil (Site-Wide)

As indicated in the 2020 PVE Phase II ESA, fill consisting of crushed brick, coal and coal ash was observed in eight (8) of the twenty-one (21) soil borings in shallow soils, 0 to 2 feet bgs. AOC – 4 is depicted in Figure 7.

AOC – 5 Soil Vapor (58 Parker Avenue -)

As indicated in the 2020 PVE Phase II ESA, a total of fourteen (14 soil vapor samples have been collected throughout the BCP Site: twelve (12) from within the 58 Parker Avenue parcel and two (2) from within the 164 Garden Street parcel. Samples collected from within the 164 Garden Street parcel did not contain VOCs at concentrations requiring mitigation, in accordance with NYSDOH guidance. However, VOCs were detected in those samples collected from 58 Parker Avenue requiring mitigation. Solvents historically used within the 58 Parker Avenue parcel during industrial operation appear to have impacted local soil, groundwater, and soil vapor quality. AOC – 5 is depicted in Figure 7.

AOC – 6 Groundwater Quality (Site-Wide)

As indicated in the 2020 PVE Phase II ESA, a total of ten (10) conventional 2-inch diameter groundwater monitoring wells and two (2) temporary 1-inch diameter groundwater monitoring wells were installed through the BCP Site. One (1) groundwater sample collected from a temporary well located at 164 Garden Street contained petroleum related compounds at concentrations exceeding Class GA GQS. Additionally, one (1) of the conventional wells located within the 164 Garden Street Parcel contained metals at concentrations exceeding Class GA GQS. All but one (1) of the conventional wells installed and sampled within the 58 Parker Avenue parcel contained one (1) or more metals at concentrations exceeding Class GA GQS. Six (6) of the ten (10) conventional wells located at, or down-gradient of, the on-site industrial structure contained chlorinated VOCs at concentrations exceeding Class GA GQS. AOC – 6 is depicted in Figure 7.

AOC – 7 Hazardous Building Materials & Mold (Both Parcels)

As indicated in QuES&T's 2020 pre-demolition surveys, LBP, ACM, and universal wastes have been identified throughout the interior and exterior of the on-site structures. The LBP surfaces identified were in poor condition in some locations. Friable ACM was observed throughout the 58 Parker Avenue parcel structures. The conditions of ACM ranged from significantly damaged to good. AOC – 8 is depicted in Figure 7.

3.0 PURPOSE

A Remedial Investigation is planned to completely characterize the BCP Site, assist in the design of site remediation, and support planned development in accordance with the requirements of the BCP and DER-10. Specific tasks include the following:

- Geophysical survey to identify the location of buried infrastructure and utilities;
- Soil borings for collection and analysis of soil samples; &
- Installation of groundwater monitoring wells in overburden for collection and analysis of groundwater samples;
    - Top-of-casing elevations at groundwater monitoring wells will surveyed by a New York State-Licensed Surveyor in order to generate a groundwater contour map and determine direction of groundwater flow.

Based on the historical use of the BCP Site and previously summarized results, PVE has developed a scope of work to further investigate surface and subsurface conditions. This Work Plan details specific tasks that will facilitate BCP Site characterization and ensure compliance with the NYSDEC BCP requirements. Specifically, when used in concert with results of previous investigations, the findings of the remedial investigation will be used to:

- Describe the amount, concentration, persistence, mobility, form (e.g., solid, liquid), and other significant characteristics of the contamination present (nature of contamination).
- Define hydrogeological factors (e.g., depth to saturated zone, hydrologic gradients [if practical], proximity to a drinking water aquifer).
- Further define the lateral and vertical extent of fill material and characterize the chemical composition of the fill.
- Delineate lateral and vertical extent of site-related contaminants.
- If applicable, define the extent to which the contaminants of concern have potential to migrate, and whether potential future migration may pose a threat to human health or the environment.
- Determine the extent to which contaminant levels pose an unacceptable risk to public health and the environment.
- Provide sufficient information to allow for the identification of potentially feasible remedial alternatives.
- Develop Remedial Action Objectives (RAOs) for the Site based on the contaminant characterization results, exposure pathways, and risk evaluation data. Based on our knowledge of potential Site issues, the RAOs for the Site may require implementation of remedial actions designed to remove or cover impacted soil/fill material.

3.1 Conceptual Site Model

Based on historical information, the BCP Site has been the location of industrial activities since the early 1900's. Such activities generated wastes which contained heavy metals and VOCs that resulted in contamination of soils, groundwater and soil vapor. Demolition of former structures

through the years and use of construction and demolition debris as fill has impacted shallow soil quality (0 to 2-feet below surface grade). Additionally, the historic releases, and potentially present, from on-site USTs have impacted subsurface soils and groundwater quality.

Contaminants released into the on-site floor drains are expected to be present at greatest concentrations within subsurface soil (below 2 feet), groundwater and soil vapor.

Soil borings completed and reported within the 2020 Phase II ESA encountered refusal on rock at depths ranging from 1.5 to 13.5-feet bgs at the 58 Parker Avenue parcel; bedrock was not encountered in soil borings at the 164 Garden Street parcel. Groundwater was encountered in unconsolidated sediments within the 164 Garden Street parcel at depths ranging from 10 to 11-feet below surface grade at time of drilling (static at an average of 8.5 feet) and within bedrock fractures at the 58 Parker Avenue parcel ranging in depth from 4.5 to 18 feet bgs at time of drilling (static at an average of 8.64 feet). Groundwater flow in unconsolidated sediments is presumed to be from northwest to southeast; groundwater flow in bedrock fractures is presumed to flow from west to east.

4.0 REMEDIAL INVESTIGATION SCOPE OF WORK

The following AOCs will be evaluated during the RI and addressed in this Section of the RIWP:

AOC – 1 Floor Drains (58 Parker Avenue)
AOC – 2 Coal Elevator and Storage (164 Garden Street)
AOC – 3 Petroleum Storage Tanks (164 Garden Street)
AOC – 4 Shallow Soil (Site-Wide)
AOC – 5 Soil Vapor (58 Parker Avenue)
AOC – 6 Groundwater Quality (Site-Wide)
AOC – 7 Hazardous Building Materials & Mold (Both Parcels)

Remedial Investigation sampling will focus on delineating the extent of contaminants that have been demonstrated to be present to properly design future remedial alternatives. Sample locations have also been selected to screen for contamination in areas that have not been previously investigated, or where a contaminant source is suspected but previous sampling has been insufficient to conclusively establish the presence or absence of contamination, or distribution. In this sense, the Remedial Investigation Scope is presented to provide sufficient detail to develop data to satisfy overall project objectives, but flexibility to adjust for field conditions and observations.

The Sample Summary Table (Table 1) provides the location and depth of each sample, the laboratory analyses and laboratory method number planned for each sample, and the rationale for collecting each sample.

All RI field work will be conducted in accordance with the Quality Assurance Project Plan (QAPP), provided in Appendix A, and the Health and Safety Plan (HASP), provided in Appendix B. Community air monitoring will be conducted in accordance with the Appendix 1A of DER-10.

Sampling methods for soil and groundwater are discussed below. More detailed field practices for subsurface characterization and collection of soil and groundwater samples are provided in the appended Standard Operating Procedures (Appendix E).

4.1 Mobilization and Utilities Investigation

Prior to initiating any field activities, PVE will notify NYSDEC personnel of the anticipated field schedule. A draft schedule is presented in Section 11.0.

A geophysical survey will be performed prior to initiating the soil sampling program and monitoring well installation. The geophysical survey will employ ground-penetrating radar (GPR) and magnetic/electromagnetic equipment to locate anomalies that could be representative of buried infrastructure, such as fuel storage tanks, sewer lines, drain pipes, utilities, and other such conduits that could provide potential pathways for contaminant movement, or obstructions to be avoided (including active utilities) when selecting boring locations.

4.2 Soil Borings

A total of sixteen (16) soil borings are proposed across the BCP Site to characterize soil and to collect soil samples for laboratory analysis (See Figure 8A & 8B). Borings will be advanced using direct-push drilling methods. Soil borings will be sampled continuously from ground surface to a maximum depth of 15-feet below ground surface (bgs), or to refusal, whichever is encountered first. If shallow refusal is encountered, up to three (3) attempts will be made to complete the boring to the target depth. At each boring location, field personnel will document subsurface conditions, including headspace screening soil samples for VOCs using a photoionization detector (PID). The project geologist will keep a detailed log of each core: Lithology, grain size, stratigraphic changes, color, and occurrence of groundwater will be recorded. Observations will be made describing the presence of potential contamination in the soil samples based on odor, visual observations, or PID readings.

Up to three (3) discrete/grab soil samples will be collected from each soil boring. With the exception of samples collected from surface (0-2-inches) and shallow intervals (2-24-inches), the third interval selected for laboratory analysis will be determined based on information generated during previous investigations, field observations including visual and olfactory indications of contamination as well as direct instrument readings and/or the soil/groundwater interface. Soil samples will be screened for VOCs using a PID. Each discrete/grab soil sample interval will be transferred directly from the macrocore acetate liner into a laboratory-provided container. See Appendix A for more information related to sampling procedures and approved sample containers.

Sample selection may also be based on the AOC being investigated; for example, samples where surface disposal is suspected will be shallower than those samples collected to evaluate subsurface contamination such as leakage from a former tank system.

Soil samples will be analyzed for some or all of the following parameters, as specified in Table 1:

- Target Compound List (TCL) VOCs by USEPA Method 8260c;
- TCL SVOCs by USEPA Method 8270D;
- Target Analyte List (TAL) Metals by USEPA Method 6010C & 7471;
    - Including cyanide and hexavalent chromium.
- TCL PCBs by USEPA Method 8082A;
- TCL Pesticides by USEPA Method 8081B;
- TCL Herbicides by USEPA Method 8051A;
- Emerging Contaminants: 1,4-Dioxane & Per- & Polyfluoroalkyl Substances (PFAS) by USEPA Method 8270D SIM & 537.1M.

Samples collected and analyzed for emerging contaminants will be done so in accordance with NYSDEC *Guidelines for Sampling and Analysis of PFAS*, dated January 2020. All samples will be analyzed by a New York State Department of Health NYSDOH ELAP-certified laboratory providing Analytical Services Protocol (ASP) Category B deliverables. Field duplicates and matrix spike/matrix spike duplicates (MS/MSD) will be collected for quality control/quality assurance (QA/QC) purposes and analyzed for sample parameters described above, in accordance

with Table 1. In addition, aqueous equipment field blanks will be collected in the field and laboratory-supplied aqueous trip blanks will accompany the sample shipment (trip blanks analyzed for VOCs only). QA/QC blanks and duplicates will be completed at a frequency of one per every 20 samples, as required in DER-10. QA/QC blanks and duplicates are included in Table 1.

Upon completion of drilling, each boring will be filled to within 12-inches of ground surface with either the drill cuttings or a cement/bentonite grout mixture (if grossly contaminated media is identified). Soil borings filled with soil cuttings will be backfilled to ground surface using drilling sand, if necessary. The borings will be patched with the appropriate surface materials (e.g., asphalt or concrete patch), depending on the location.

4.2.1 AOC – 1 Floor Drains (58 Parker Avenue - Interior)

Three (3) of the sixteen (16) proposed soil borings will be advanced to a maximum depth of 15-feet below surface grade in the vicinity of the floor drains observed within the 58 Parker Avenue parcel structures. These borings will further delineate impacts to soil quality from the release of spent solvents into floor drains.

4.2.2 AOC – 2 Coal Elevator and Storage (164 Garden Street - Exterior)

One (1) of the sixteen (16) proposed soil borings will be advanced to a maximum depth of 15-feet below surface grade in the vicinity of the historic coal elevator and storage areas. These borings will identify potential impacts to soil quality from coal handling activities.

4.2.3 AOC – 3 Petroleum Storage Tanks (164 Garden Street - Exterior)

No additional soil borings are proposed in the vicinity of the USTs located adjacent to the structure located within the 164 Garden Street parcel.

4.2.4 AOC – 4 Shallow Soil (Site-Wide)

Soil samples will be collected from all sixteen (16) of the proposed soil borings from 0-2-inches bgs (surface soils) and 2-24-inches bgs (shallow soils). These samples will identify potential impacts to surface and shallow soil quality from historic site operations.

4.2.5 AOC – 5 Soil Vapor (58 Parker Avenue - Interior)

No additional soil vapor samples are proposed at this time. As indicated in the 2020 PVE Phase II ESA, a total of fourteen (14) soil vapor samples have been collected throughout the BCP Site. Impacts to soil vapor quality requiring mitigation were observed in multiple soil vapor samples collected from within the structures located at the 58 Parker Avenue parcel; the soil vapor samples results from the 164 Garden Street parcel indicate that parcel does not require mitigation. PVE believes a representative frequency of soil vapor samples have been collected and analyzed to-date to effectively design a vapor mitigation system which would be a component of a Department-approved Remedial Action Plan.

4.4 Monitoring Wells

Based on the previous 2020 PVE Phase II ESA completed at the BCP Site, refusal was encountered at depths ranging from 1.5 to 13.5 feet bgs at the 58 Parker Avenue parcel. Refusal was not encountered at the 164 Garden Street parcel. We assume refusal was encountered at, or close to, a depth equivalent to the top of bedrock. Groundwater was encountered in unconsolidated sediments within the 164 Garden Street parcel at depths ranging from 10 to 11-feet below surface grade ATD (static at an average of 8.5 feet) and within bedrock fractures at the 58 Parker Avenue parcel ranging in depth from 4.5 to 18 feet bgs ATD (static at an average of 8.64 feet). Monitoring Wells will only be installed in unconsolidated sediments where groundwater is encountered; monitoring wells will be constructed of 2-inch ID, Schedule 40 PVC with a 0.020-inch slotted screen and solid riser. The borehole annulus of the wells will be filled with silica sand to a height of 2-feet above the top of the screen to form a filter pack. Bentonite will be placed above the filter pack to form a 2-foot seal. The remainder of the borehole annulus will be filled with a bentonite-cement grout, or drill cuttings (if not grossly contaminated) and native materials. Wells will be covered with either flush-to-grade curb boxes or appropriately sized steel standpipe with locking cap, depending on the location, will be completed in a concrete pad.

Each monitoring well will be developed in order to remove fine-grained sediment from the well and filter pack using a submersible pump. Water sample collection will be completed via USEPA low-flow (minimal-drawdown) sampling techniques, with dedicated tubing. Additionally, six (6) of the existing conventional wells installed during the 2020 PVE Phase II ESA will be re-sampled for analytes described below. Prior to sample collection, depth to groundwater will be measured to the nearest 0.01-foot and recorded for each well. The wells will be purged until temperature, pH, and conductivity have stabilized.

The top-of-casing elevation will be surveyed to the nearest 0.01 foot by a NYS-licensed surveyor. Depth-to-water measurements recorded prior to sample collection will be used to calculate groundwater gradients and develop a groundwater contour map.

Groundwater samples will be analyzed for the following:

- TCL VOCs by USEPA Method 8260C;
- TCL SVOCs by USEPA Method 8270D;
- TAL Metals by USEPA Method 6010C & 7471;
    - Including cyanide and hexavalent chromium;
    - Field filtered and totals;
- TCL PCBs by USEPA Method 8082A;
- TCL Pesticides by USEPA Method 8081B;
- TCL Herbicides by USEPA Method 8051A; &
- Emerging Contaminants: 1,4-Dioxane & PFAS by USEPA Method 8270D SIM & 537.1M.

All samples will be analyzed by a NYSDOH ELAP-certified laboratory providing Category B deliverables for the analyses listed above. Aqueous equipment field blanks will be collected for

QA/QC purposes and analyzed for all sample parameters in accordance with Table 1. Laboratory-supplied aqueous trip blanks will accompany the sample shipment (trip blanks analyzed for VOCs only).

4.4.1 AOC – 6 Groundwater Quality (Site-Wide)

Four (4) new groundwater monitoring wells will be installed and sampled throughout the subject property (including within other AOCs) in addition to the sampling of six (6) existing wells. Proposed sampling locations are depicted on Figure 8A & 8B. New monitoring well locations will be biased to areas, and down-gradient of areas, of suspected contamination from past site uses, USTs, floor drains or other poor housekeeping observations.

4.5 AOC – 7 Hazardous Building Materials & Mold (Interior & Exterior)

Surveys of building materials for the presence of LBP and ACM have already been completed. The Volunteer is planning to complete portions of LBP and ACM abatement during implementation of this RIWP.

4.6 Investigation-Derived Waste Management

Investigation derived wastes (IDW) will be minimized by returning excess soil from soil borings to the original boring unless grossly contaminated, in accordance with DER-10(3.3)(e), which also prescribes the following: Purge-water from monitoring wells will be containerized until the analytical results are obtained; the water will be properly disposed of based on laboratory results. If field evidence of gross contamination is identified, soil cuttings, decontamination wastewater and groundwater will be drummed containerized and staged near the point of generation and will be properly disposed of based on laboratory results. If free of visible contamination, disposable personal protective equipment (PPE), sampling supplies and disposables will be placed in heavy-duty plastic bags and disposed of properly as general refuse.

In any instance during the performance of this RI, all IDW will be managed in accordance with procedures and methods outlined in DER-10 Section 3.3e.

4.7 Data Review

All samples undergoing laboratory analysis will be subject to a third-party data review process in accordance with the QAPP, to ensure the usability of the data collected. Data usability summary reports documenting any issues with QA/QC will be prepared and included in the RI Report.

5.0 Fish and Wildlife Resources Impact Analysis (FWRIA)

The purpose of the FWRIA Part 1 is to identify actual or potential impacts to fish and wildlife resources from site contaminants of ecological concern. PVE will prepare the Resource Characterization (Part 1) in accordance with DER-10 Section 3.10.1. If required, based on the Part 1, a FWRIA Part 2 (Ecological Impact Assessment) using the scope of work for gathering the necessary data to perform the evaluations identified in DER-10 subsection 3.10.2.

6.0 Previously Undiscovered Conditions

Borings proposed in the RI scope are anticipated to identify and delineate contaminants in areas where data are insufficient to properly design future remedial alternatives. If previously undiscovered conditions are identified during completion of the RI scope, additional RI tasks will be proposed as an addendum to this Work Plan and carried out in accordance with the standard operating procedures contained herein.

7.0 QUALITIATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

A qualitative human health exposure assessment will be conducted to determine if the presence and concentrations of chemicals in the environmental media at the BCP Site pose potential human health concerns. The assessment will encompass both on-Site and off-Site risks with the results of the exposure analysis used as one of the criteria to determine the most appropriate future actions at the Site. These may range from no further action, to additional data collection, to quantitative health risk assessment and the establishment of action levels. The assessment will begin with the construction of a conceptual Site model, a graphic illustration that outlines chemical source areas, possible chemical release mechanisms, environmental media that currently show or may show in the future the presence of chemicals, possible exposure pathways, possible points of exposure for human receptors, possible exposure routes, and possible human receptors. The conceptual model will be based on current Site conditions and surrounding land use as well as the planned future Site and surrounding land uses.

For environmental media that may be of concern, qualitative evaluations will be made for the four (4) components that typically comprise a health risk assessment: data evaluation; exposure assessment; toxicity assessment; and risk characterization/uncertainty analysis. In the data evaluation, chemical concentrations in the various media will be compared to appropriate NYSDEC standards and criteria (e.g., NYSDEC Soil Cleanup Objective and Cleanup Levels, Water Quality Standards, etc.). Chemicals detected in concentrations greater than these standards and criteria will be identified as chemicals of potential concern. In the exposure assessment, an evaluation will be made of the likelihood and magnitude of exposure to the chemicals of potential concern in environmental media of concern. This will involve outlining possible exposure routes and plausible exposure times, frequencies, and durations. In the toxicity assessment, the toxicity of the chemicals of concern will be outlined. This will include identifying known or suspected carcinogens and/or the target organ/system of concern for noncarcinogenic effects. In the risk characterization, information from the three components will be integrated, to estimate the likelihood and magnitude of possible health risks.

8.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

See Appendix A – Quality Assurance Project Plan for additional details.

8.1 Analytical Methods

All samples collected during the BCP RI will be analyzed using EPA-approved analytical methods that follow the most recent edition of the EPA's "Test Methods for Evaluating Solid Waste" (SW-846), Methods for Chemical Analysis of Water and Wastes" (EPA 600/4-79-020), and Standard Methods for Examination of Water and Wastewater" (prepared and published jointly by the American Public Health Association, American Waterworks Association and Water Pollution Control Federation).

8.2 Laboratory

The subcontracted laboratory will be certified by the New York State Department of Health to perform Contract Laboratory Program (CLP) analysis on all media to be sampled during this investigation. The laboratory will perform the sample analysis in accordance with the most recent NYSDEC ASP.

8.3 Data Submittal

Analytical data will be submitted in complete ASP Category B data packs. Procedures for chain of custody, laboratory instrumentation calibration, laboratory analyses, reporting of data, internal quality control, and corrective actions shall be followed as per SW-846 and as per the laboratory's Quality Assurance Plan. Where appropriate, trip blanks, field blanks, field duplicates, and matrix spike, matrix spike duplicate shall be performed at a rate of 5% and will be used to assess the quality of the data. The laboratory's in-house QA/QC limits will be utilized whenever they are more stringent than those suggested by the EPA methods.

8.4 Data Usability Summary Report

The data package will be sent to a qualified, independent, data validation specialist for evaluation of the accuracy and precision of the analytical results. A Data Usability Summary Report (DUSR) will be prepared for the RI data sets to describe the compliance of the analyses with the analytical method protocols detailed in the NYSDEC ASP. The DUSR will provide a determination of whether the data meets the project-specific criteria for data quality and data use. The validation effort will be completed in accordance with NYSDEC Division of Environmental Remediation DUSR guidelines.

9.0 HEALTH AND SAFETY

Field tasks will be performed using industry standard health and safety procedures. A site-specific HASP has been prepared for use by the field team during all field activities. This plan details known and potential hazards of the Site and field tasks as well as air monitoring and emergency procedures. The HASP is presented in Appendix B.

Fact sheets documenting the goals and progress of the project will be prepared at key milestones of the project and distributed to those on the project mailing list. The distribution list is included in the Citizens Participation Plan which is provided in Appendix C**.**

9.1 Community Air Monitoring

Where ground intrusive operations are planned, community air monitoring will be performed to protect the downwind community. A PVE representative will continually monitor the breathing zone in the vicinity of the immediate work area using PID instrumentation capable of measuring total volatile organic compounds in air at concentrations as low as 1 part per million (PPM). The air in the work zone also will be continually monitored for dust generation through the use of a pDR 1500 hand-held meter or comparable model. If sustained VOC measurements 5 ppm above the background for the 15 minute average, or dust generation is observed at 100 micrograms per cubic meter greater than the background (upwind perimeter) then the intrusive work will be temporarily halted, dust suppression techniques will be implemented and more rigorous monitoring of VOCs and dust will be conducted in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP). A copy of the CAMP is provided in Appendix F.

10.0 REPORTING

10.1 Remedial Investigation Report

Upon completion of field activities and receipt of laboratory results, PVE will prepare a Remedial Investigation Report (RIR) that will summarize the findings and compare the analytical results to appropriate NYSDEC and NYSDOH standards, objectives and guidelines in conformance with DER-10 requirements. The data will be summarized in tables and figures, and sample locations will be depicted on sample location maps with corresponding sample numbers and depths.

The report will include ASP Category B laboratory data packages for all samples, soil boring logs, well construction diagrams, well development and purge logs, sample location maps, and groundwater contour maps derived from depth to water measurements.

The findings and conclusions of the RIR will form the basis for developing a Remedial Action Work Plan (RAWP).

11.0 SCHEDULE

We anticipate implementation of this Remedial Investigation Work Plan to be conducted according to the following approximate schedule (pending Department-approval and satisfaction of required public comment periods):

Remedial Investigation	Estimated Start	Estimated Completion
Mobilization	October 2020	October 2020
Soil Borings	October 2020	November 2020
Monitoring Well Installation	October 2020	November 2020
Monitoring Well Development/Sampling	November 2020	November 2020
Preliminary Data Evaluation	November 2020	January 2021
Final Data Review/Develop DUSR	December 2020	February 2021
Remedial Investigation Report, Alternatives Analysis, & Remedial Action Work Plan	December 2020	March 2021

12.0 CERTIFICATION

I, Christopher Brown, P.G., certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

_____ _____

Christopher Brown, P.G. Date

13.0 REFERENCES

DER-10 / Technical Guidance for Site Investigation and Remediation, DEC Program Policy; Issued May 3, 2010.

DER-23 / Citizen Participation Handbook for Remedial Programs, DEC Program Policy; Issued January 21, 2010.

Brownfield Cleanup Program Guide; Issued May 2004.

6 NYCRR Part 375 Environmental Remediation Programs; Guidelines for Sampling and Analysis of PFAS; issued January 2020.

6 NYCRR Part 375 Environmental Remediation Programs; Effective December 14, 2006.

New York State Department of Health Summary of Indoor and Outdoor Levels of Volatile Organic Compounds from Fuel Oil Heated Homes in New York State, 1997-2003.

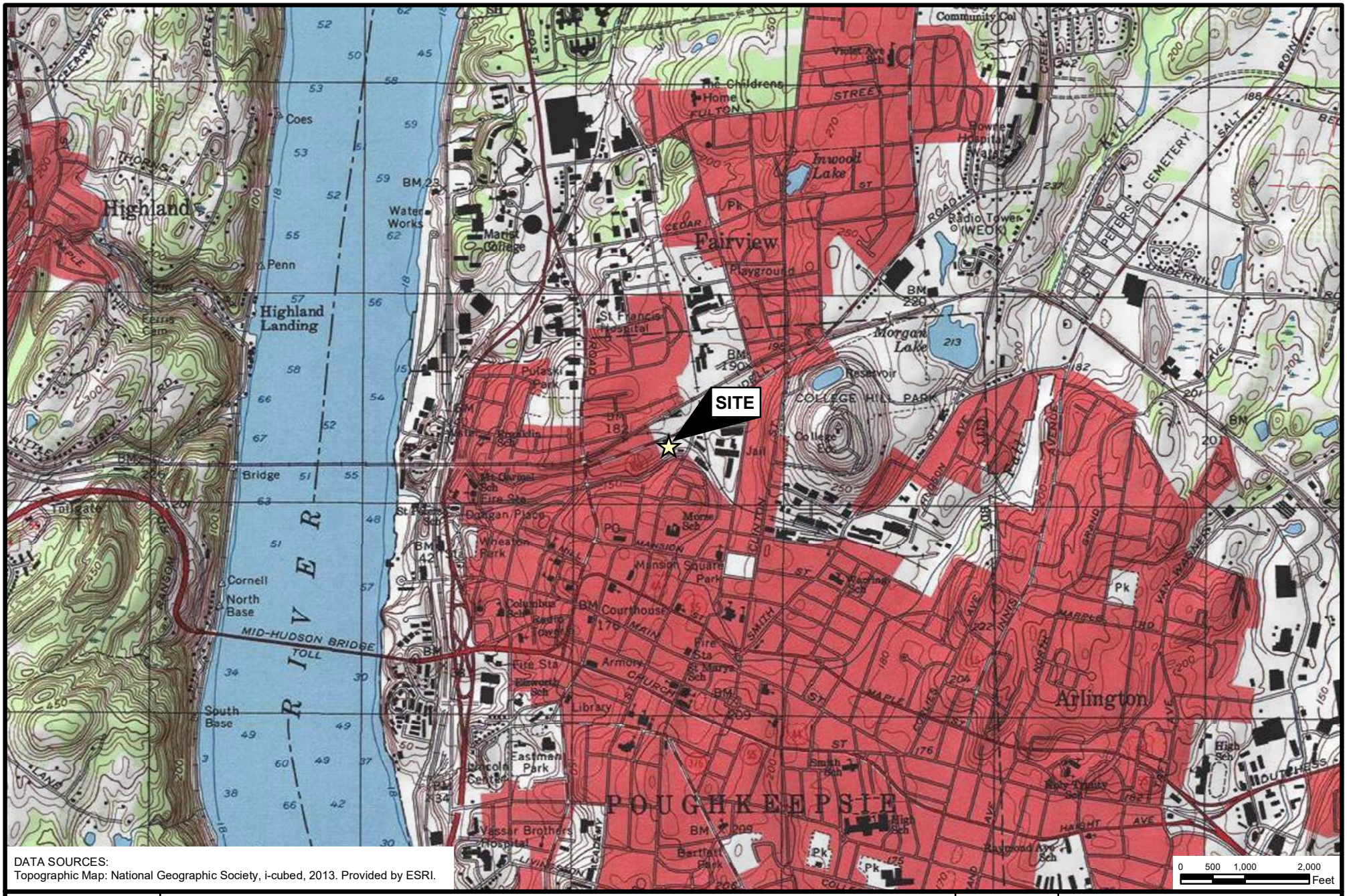
New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York; Issued October 2006 & subsequent amendments.

New York State Department of Labor Article 32 – Licensing of Mold Inspection, Assessment and Remediation Specialists and Minimum Work Standards; issued 2015.

New York Division of Water Technical and Operations Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

New York State Department of Environmental Conservation, Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Program, January 2020.

Figure 1



DATA SOURCES:
Topographic Map: National Geographic Society, i-cubed, 2013. Provided by ESRI.

PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

SITE LOCATION MAP

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

PROJECT NO. 560532	**FIGURE 1**
	DATE: 1/27/2020
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE

Figure 2

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image: NYS ITS GIS Program Office, 2016.

PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

SELECTED SITE FEATURES

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND
TAX PARCEL OUTLINE

PROJECT NO. 560532

FIGURE 2

DATE: 06/03/2020

SCALE: AS INDICATED | DATUM: NAD83

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

Figure 3

DATA SOURCES:
Parcel / BCP, Building Area: Survey provided by Scenic Hudson, 3/31/2020.

PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

BCP BOUNDARY

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND
- BCP BOUNDARY
- BUILDING AREA

PROJECT NO. 560532

DRAFT FIGURE

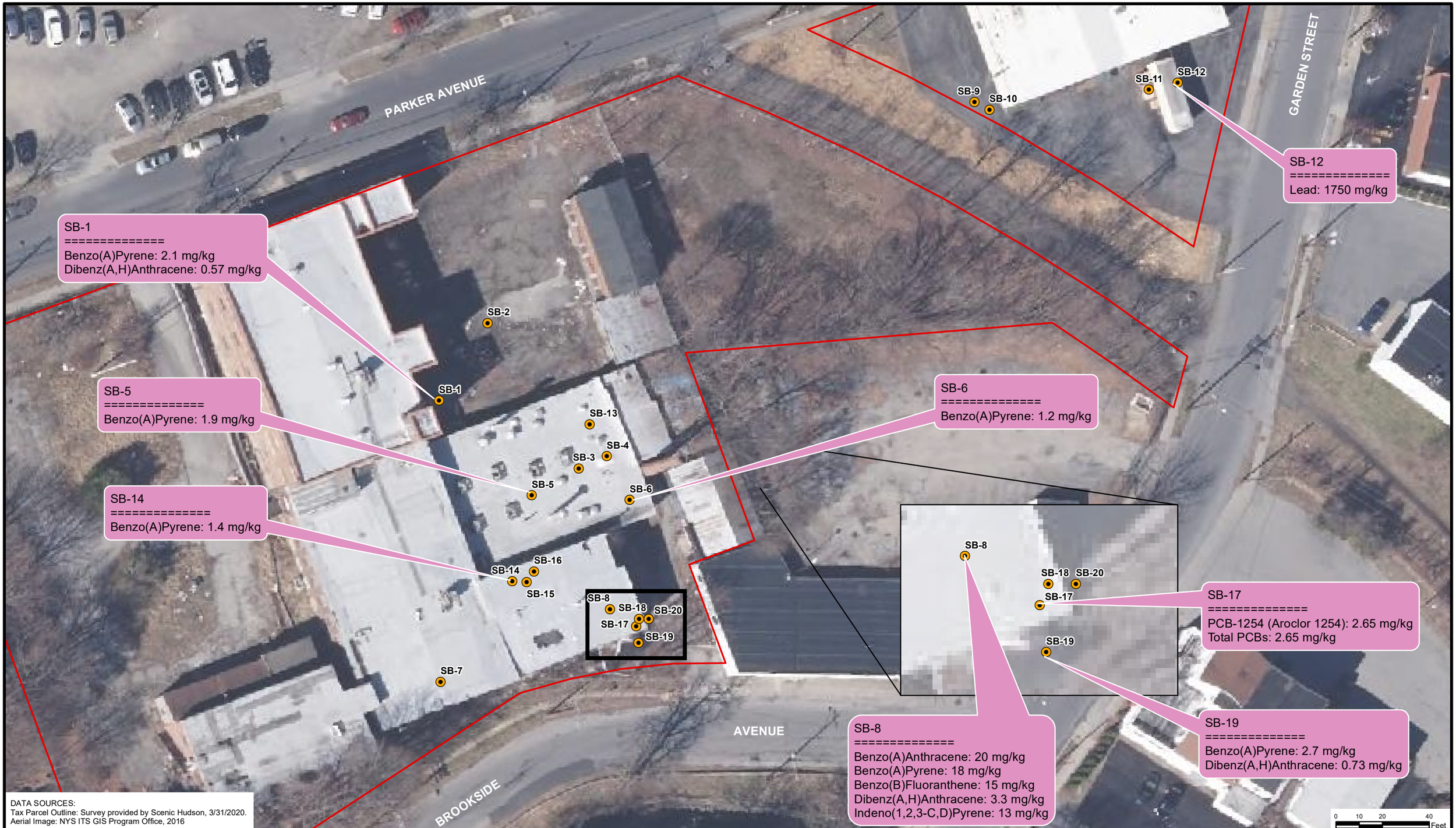
DATE: 06/03/2020

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

Figure 4



DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image: NYS ITS GIS Program Office, 2016

PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

SOIL SAMPLES EXCEEDING CSCOs - 6 NYCRR PART 375

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND
TAX PARCEL OUTLINE
SOIL BORING

PROJECT NO. 560532	**FIGURE 4**
	DATE: 06/03/2020
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE

Figure 5

PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

GROUNDWATER SAMPLES EXCEEDING CLASS GA GQS - 6 NYCRR PART 700-705

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND
TAX PARCEL OUTLINE
MONITORING WELL

PROJECT NO. 560532

FIGURE 5

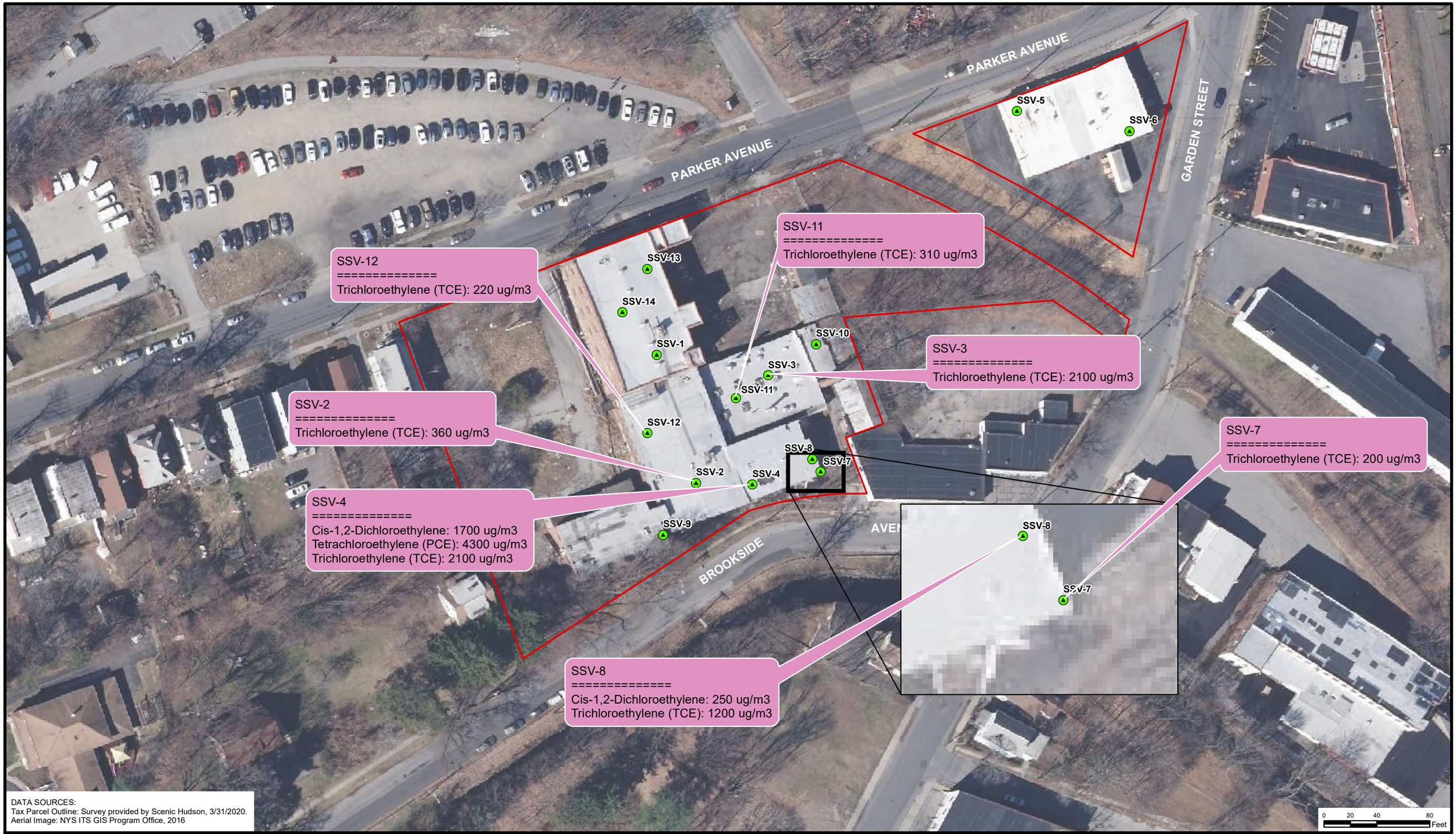
DATE: 06/03/2020

SCALE: AS INDICATED | DATUM: NAD83

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

Figure 6



PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

SOIL VAPOR SAMPLES REQUIRING MITIGATION - NYSDOH DECISION MATRICES

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND
- TAX PARCEL OUTLINE
- SOIL VAPOR

PROJECT NO. 560532

FIGURE 6

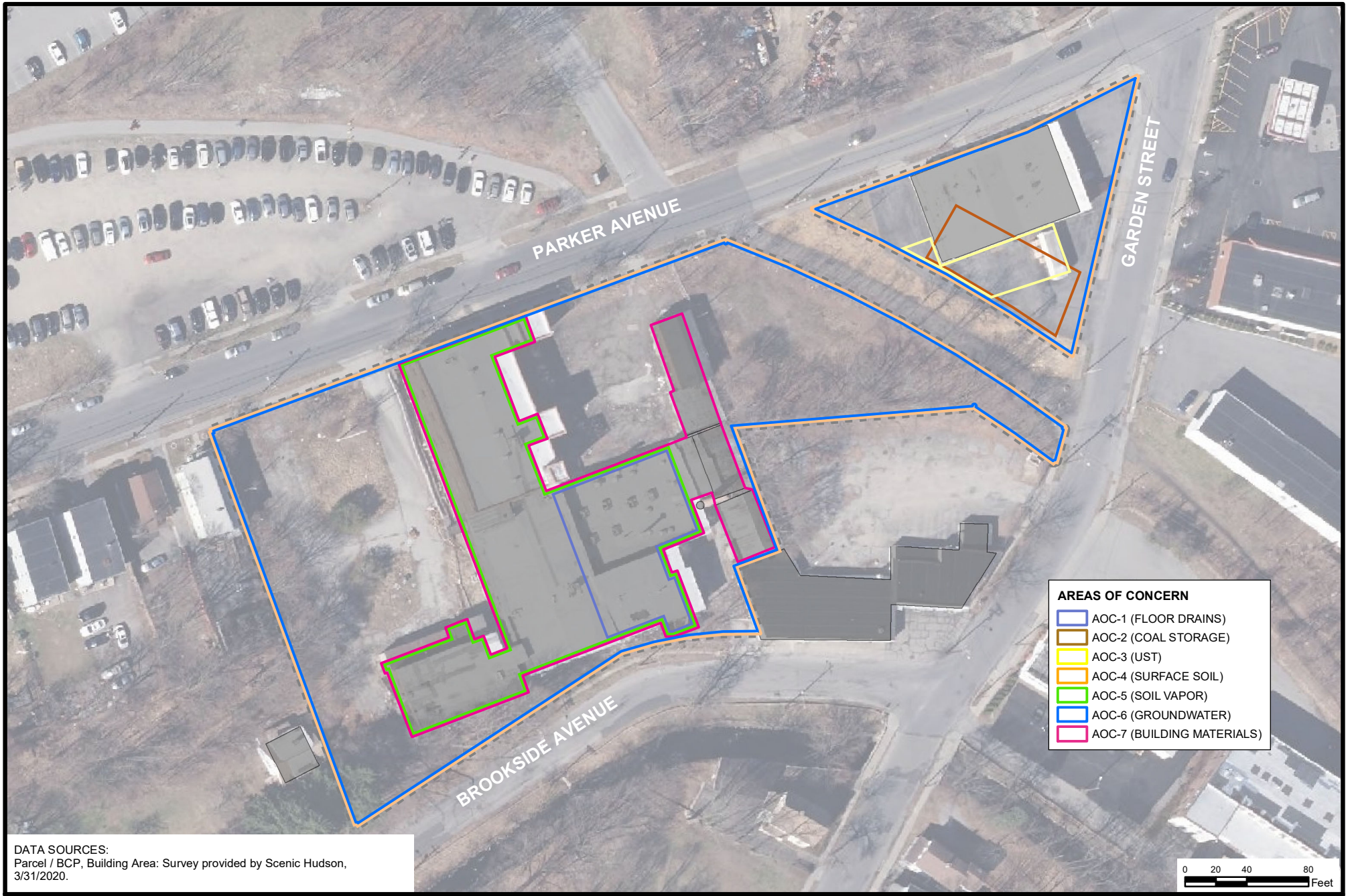
DATE: 06/03/2020

SCALE: AS INDICATED | DATUM: NAD83

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

Figure 7



DATA SOURCES:
Parcel / BCP, Building Area: Survey provided by Scenic Hudson, 3/31/2020.

PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

AREAS OF CONCERN

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND
BUILDING
PARCEL / BCP

PROJECT NO. 560532

DRAFT FIGURE

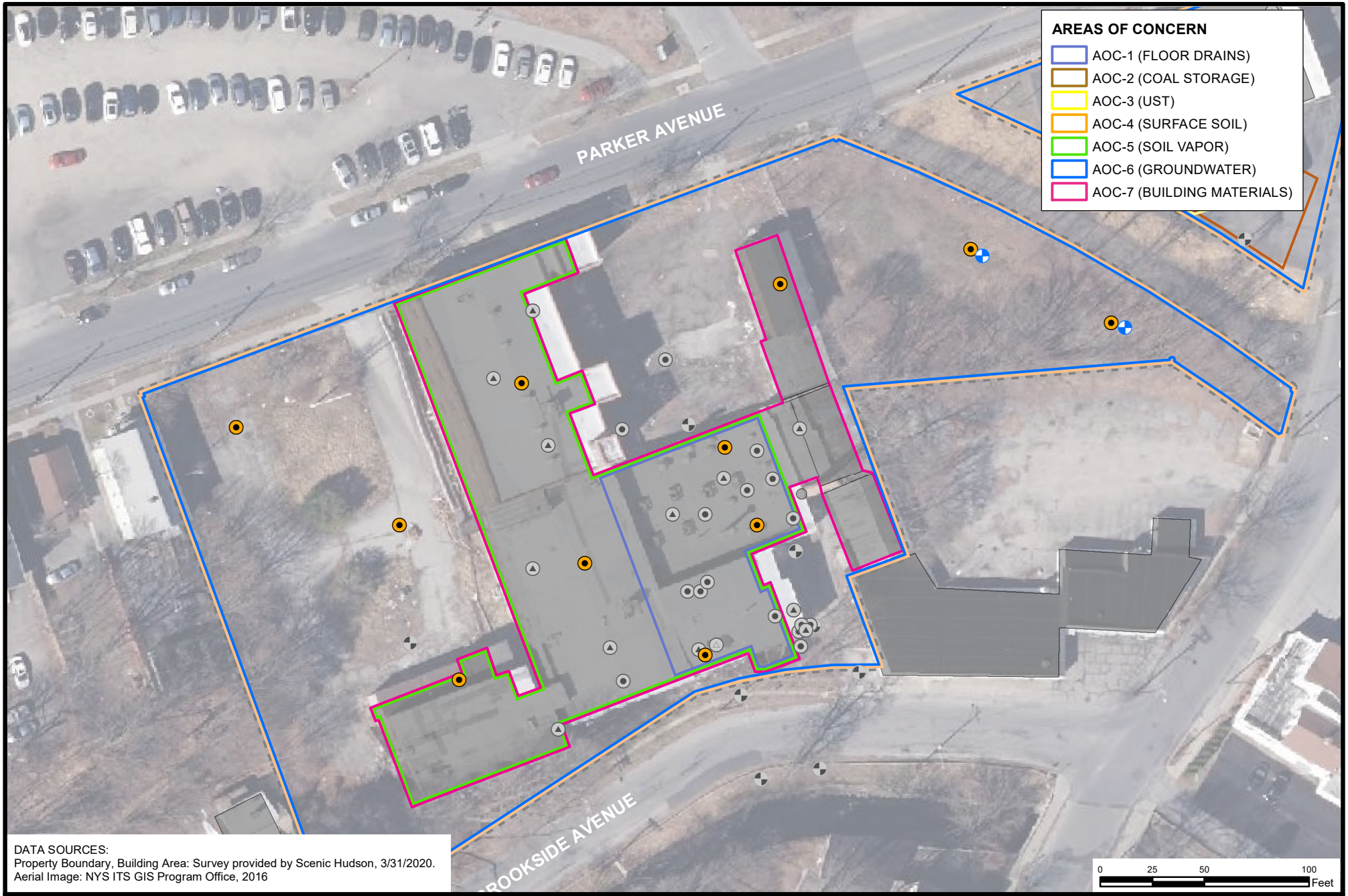
DATE: 06/03/2020

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

Figure 8A



PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

PROPOSED SAMPLE LOCATIONS

58 PARKER AVENUE
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND

- PROPOSED WELL LOCATIONS
- PROPOSED SOIL SAMPLE LOCATIONS
- BUILDING
- PARCEL / BCP
- AMBIENT INDOOR
- MONITORING WELL
- SOIL BORING
- SOIL VAPOR
- RADON

PROJECT NO. 560532

FIGURE 8A

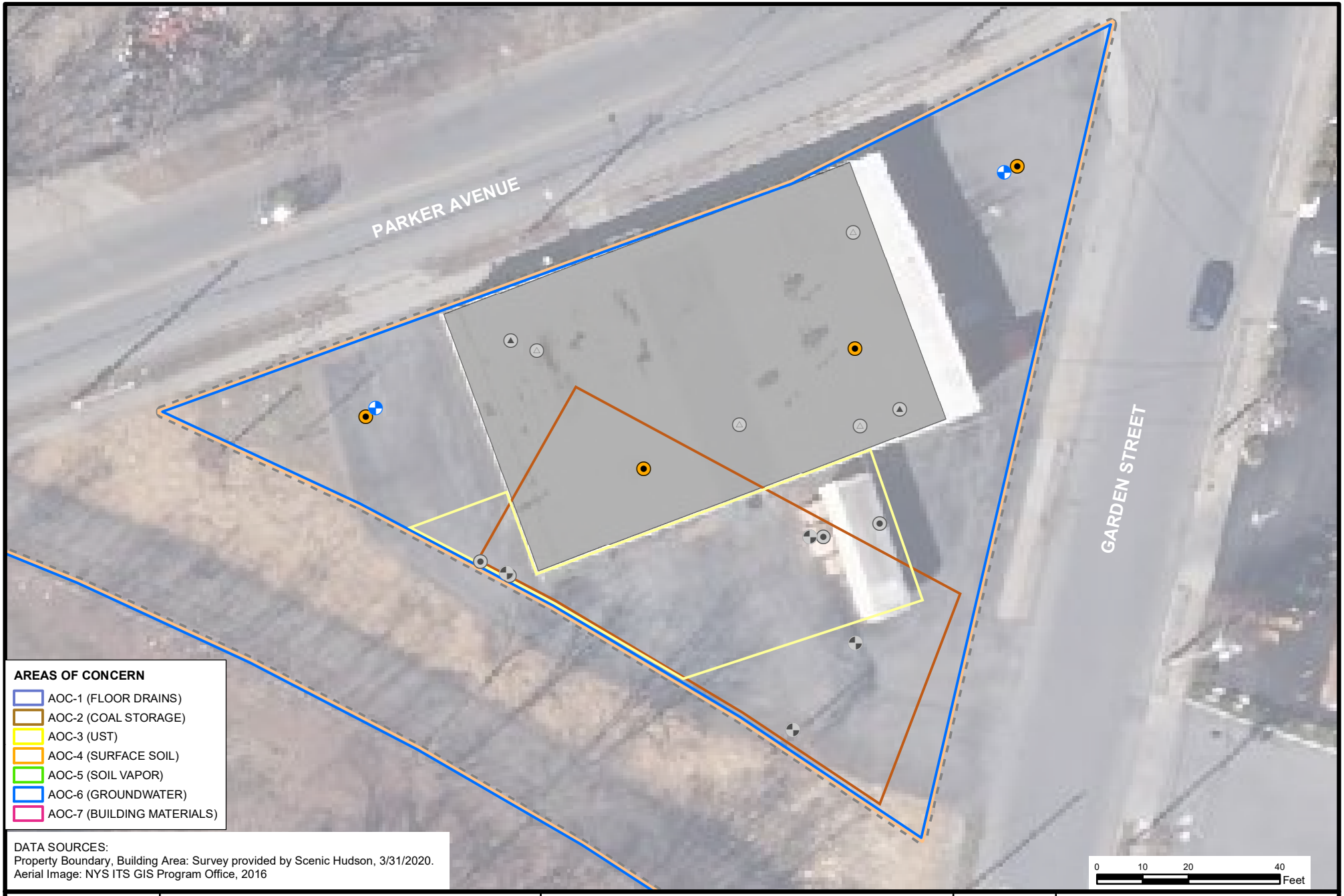
DATE: 06/03/2020

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

Figure 8B



PVE
48 Springside Avenue
Poughkeepsie, NY 12603
Office: 845.454.2544
Fax: 845.454.2655

PROPOSED SAMPLE LOCATIONS

164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND

- PROPOSED WELL LOCATIONS
- PROPOSED SOIL SAMPLE LOCATIONS
- BUILDING
- PARCEL / BCP
- AMBIENT INDOOR
- MONITORING WELL
- SOIL BORING
- SOIL VAPOR
- RADON

PROJECT NO. 560532	**FIGURE 8B**
	DATE: 06/03/2020
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE

Table 1

Table 1 - RIWP Sample Summary Table
Standard Gage & Coal Storage Site - 58 Parker Avenue & 164 Garden Street, NY
NYSDEC BCP Site #TBD
PVE File #560532

Location	Matrix	Sample Depth	TO-15 VOCs	TCL VOCs	TCL SVOCs	TAL Metals	TCL Pesticides/Herbicid	TCL PCBs	Emerging Contaminants	QA/QC			Number of Samples per Location	Rationale for Sampling
										MS/MSD	Field Duplicate	Field Blank		
SB-22	SO	0-2"		1	1	1	1	1					1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1	1				1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-23	SO	0-2"		1	1	1	1	1					1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1	1				1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-24	SO	0-2"		1	1	1	1	1	1				1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-25	SO	0-2"		1	1	1	1	1					1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1	1				1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-26	SO	0-2"		1	1	1	1	1					1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1	1				1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-27	SO	0-12"		1	1	1	1	1	1				1	Identify contaminants in surface soils.
		12-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Based on visual/PID observations. Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-28	SO	0-12"		1	1	1	1	1	1				1	Identify contaminants in surface soils.
		12-24"		1	1	1	1	1		1			2	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1			1	1	3	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-29	SO	0-12"		1	1	1	1	1					1	Identify contaminants in surface soils.
		12-24"		1	1	1	1	1	1				1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Based on visual/PID observations. Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-30	SO	0-12"		1	1	1	1	1	1				1	Identify contaminants in surface soils.
		12-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Based on visual/PID observations. Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-31	SO	0-12"		1	1	1	1	1					1	Identify contaminants in surface soils.
		12-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1	1				1	Based on visual/PID observations. Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-32	SO	0-2"		1	1	1	1	1					1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1	1				1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-33	SO	0-12"		1	1	1	1	1					1	Identify contaminants in surface soils.
		12-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1	1				1	Based on visual/PID observations. Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-34	SO	0-2"		1	1	1	1	1	1				1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-35	SO	0-2"		1	1	1	1	1	1				1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1		1			2	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1			1	1	3	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-36	SO	0-2"		1	1	1	1	1					1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1	1				1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1					1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
SB-37	SO	0-2"		1	1	1	1	1					1	Identify contaminants in surface soils.
		2-24"		1	1	1	1	1					1	Identify contaminants in shallow soils.
		TBD		1	1	1	1	1	1				1	Identify contaminants in deeper soils and/or the soil/groundwater interface.
MW-2	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
MW-3	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
MW-5	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
MW-6	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
MW-7	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
MW-8	GW	TBD		1	1	1	1	1	1	1	1	1	4	Identify contaminants in groundwater.
MW-11	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
MW-12	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
MW-13	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
MW-14	GW	TBD		1	1	1	1	1	1				1	Identify contaminants in groundwater.
												Total Soil Samples (including QA/QC)	**54**	
												Total Groundwater Samples (including QA/QC)	**13**	

NOTES:
QA/QC: Consist of Field Duplicate, Matrix Spike/Matrix Spike Duplicate and Field Blank.
MS/MSD: Matrix Spike/Matrix Spike Duplicate. To be analyzed for full list of analytes as parent sample.
Field Duplicate: To be analyzed for full list of parameters as parent sample.
Field Blank: To be analyzed for full list of parameters as parent sample.
Emerging Contaminants: 1,4-Dioxane and Per- & Polyfluoroalkyl Substances (PFAS).
One trip blank will be analyzed per shipment for Part TCL VOCs only.
Sample depths described above are not final. Final sample collection depths will be based upon findings in the field.
SO: Soil
GW: Groundwater