

Mr. Peter Ramanauskas  
U.S. Environmental Protection Agency Region 5  
77 West Jackson Boulevard LU-9J  
Chicago, Illinois 60604-3590

Arcadis of Michigan, LLC  
28550 Cabot Drive  
Suite 500  
Novi  
Michigan 48377  
Phone: 248 994 2240  
[www.arcadis.com](http://www.arcadis.com)

Date: July 21, 2022  
Our Ref: 30112891  
Subject: Former Fiero Property - Supplemental Site Investigation  
Scope of Work  
RACER Pontiac North Campus, Pontiac, Michigan

Dear Mr. Ramanauskas,

This scope of work (Scope) describes the methods and approach for an investigation to address current data gaps at the former Fiero portion of the Revitalizing Auto Communities Environmental Response Trust (RACER) Pontiac North Campus properties (Site) located in Pontiac, Michigan (**Figure 1**). This Scope was prepared in response to groundwater impacts at the Site boundary in excess of Michigan Department of Environment, Great Lakes, and Energy (EGLE) site-specific vapor intrusion (VI) criteria. Previous site investigation at the Fiero site identified a need to further characterize volatile organic compounds (primarily tetrachloroethene [PCE]) in source areas, as well as downgradient groundwater, to assist in development and evaluation of potential remedies (i.e., interim and/or final corrective measures). Details regarding current site conditions at the former Fiero Assembly and Powerhouse properties were provided on April 27, 2022, as the *DRAFT 2021-2022 Fiero Site Investigation Summary*.

The objectives of the additional work are as follows:

1. Further characterize and define the highest soil concentrations within the source areas (i.e., “hot spots” and not delineation to any specific criteria) initially identified during the 2021 site investigation to assist in development and evaluation of potential remedies (**Figure 1**).
2. Confirm the zone of groundwater impacts upgradient of the southwest property boundary, where the current conceptual site model suggests the PCE and trichloroethene (TCE) plume is relatively narrow, to define the treatment zone for a potential zero valent iron (ZVI) pilot study (**Figure 1**).

The proposed Scope includes utility locating, vertical aquifer profile borings (VAP), and soil borings. Additional work will provide a better understanding of source area impacts and groundwater contaminant distribution for potential remedial activities.

## SCOPE OF WORK

Specifics of the Scope are provided below. Proposed boring locations are shown on **Figure 1 and Figure 2**.

## Permitting/Notifications

Work on the former Fiero property will be coordinated with GFL, its current owner. All current proposed work is on GFL property, and no off-site permitting is required.

## Utility Locating

Prior to completing drilling activities, utility clearance will be performed using a minimum of three lines of evidence, which consists of contacting MISSDIG to clear public utilities, clearing using a hand auger to a depth of 5 feet below ground surface (bgs) and using Ground Penetrating Radar (GPR) and/or electromagnetic (EM) techniques to identify private lines.

## Source Characterization

Based on the previous groundwater and source area soil sample results, additional step out borings have been proposed to better define elevated detections found in three hot spots within the source area. The goal of the additional soil borings will be to better define source areas for potential remedies. The proposed supplemental source investigation will include the following:

- Up to 26 borings are included in the scope of work and are shown on **Figure 2**. Soil borings locations include step-out borings to further characterize and define the highest concentrations within the source areas and step-in borings to provide better resolution within the impacted areas.
- Each soil boring location will be advanced approximately 15 feet bgs or until the water table is identified. An Arcadis geologist will log each boring and each boring will be field screened with a photoionization detector (PID).
- At each soil boring, up to 5 soil samples will be collected from the surface to the water table. Soil samples will be collected near surface then at intervals through the soil boring (including the hand cleared portion of the boring). Final sample intervals will be determined in the field based on visual observations and PID field screening results.
- Samples will be submitted for analysis of volatile organic compounds (VOCs) via United States Environmental Protection Agency (USEPA) Method 8260. Soil samples from select step-out soil boring locations will be submitted on a rush 24-hour turnaround time to evaluate the need for additional step out borings. Concentrations around 5,000 micrograms per kilogram ( $\mu\text{g}/\text{Kg}$ ) will be used to indicate a potential step-out location. The goal of the additional sampling is to define the highest concentration areas for potential remedy. Synthetic precipitation leaching procedure (SPLP) data collected to date suggest a relatively high concentration of PCE ( $>9,000 \mu\text{g}/\text{kg}$ ) is required to leach to groundwater above the residential SSVIAC (130 micrograms per liter [ $\mu\text{g}/\text{L}$ ]). Additional SPLP sampling will be completed to refine this evaluation as outlined below.
  - At two soil boring locations from each source area hot spot, soil samples will be collected for SPLP analysis to better characterize leaching potential within each hot spot area. The request for SPLP analysis will specify detection limits of less than  $50 \mu\text{g}/\text{L}$ . Additional SPLP samples will be collected from borings / sample intervals co-located with the highest concentrations observed during the site investigation. Lower detection limits will be requested for the analysis; targeting  $40\text{-}50 \mu\text{g}/\text{L}$  for PCE.
  - At the same soil boring locations where the SPLP samples are collected, soil samples will be collected for waste characterization to allow for evaluation of excavation for PCE mass removal. Waste characterization samples will be submitted for laboratory analysis of full TCLP (VOCs, SVOCs, and metals including totals), PCBs, pesticides, and herbicides.

Mr. Peter Ramanauskas  
United States Environmental Protection Agency  
July 21, 2022

## Vertical Aquifer Profile Investigation

- Proposed vertical aquifer profile (VAP) borings will be completed in a transect upgradient of the southwest property boundary, oriented generally perpendicular to groundwater flow (**Figure 1**). The VAP transect will be used to verify the horizontal and vertical extent of impacts in a narrow section of the groundwater plume prior to the proposed ZVI pilot study. The proposed VAP investigation would include the following:
  - At up to 4 locations, complete soil borings on 50-foot centers to approximately 40 feet bgs or until the basal clay unit is identified. Each soil boring will be logged by an Arcadis geologist and field screened with PID.
  - At each of the of the 4 locations, up to three groundwater samples will be collected at nominal 5-foot intervals through the saturated thickness of the sand unit.
    - Final VAP sampling intervals will be determined in the field and based on the observed water table and geology identified while drilling. Groundwater samples will be collected biased to more permeable zones.
    - Groundwater samples will be submitted to Merit Laboratories (Merit) for analysis of VOCs via USEPA Method 8260.

## Completion Reporting

The activities associated with this Scope will be integrated into the revised *2021-2022 Fiero Site Investigation Summary Report* and will include the following information:

- Brief description of the field activities performed
- Boring and Well Construction logs
- Analytical results

## Schedule

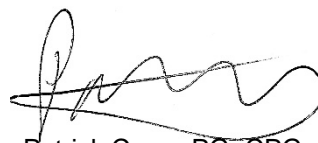
Subcontractor procurement for the investigation is in progress. The field activities will tentatively begin July 20, 2022 following GFL coordination and weather permitting. Most field activities are anticipated to be completed within 5 business days but may require an additional mobilization based on field progress and/or subcontractor availability.

Please let us know if you have additional questions or would like to discuss further.

Sincerely,  
Arcadis of Michigan, LLC



Tiffany A. Linder  
Certified Project Manager  
Email: [tiffany.linder@arcadis.com](mailto:tiffany.linder@arcadis.com)  
Direct Line: 810 225 1928  
CC. Mr. Dave Favero, RACER



Patrick Curry, PG, CPG  
Technical Expert  
Email: [patrick.curry@arcadis.com](mailto:patrick.curry@arcadis.com)  
Direct Line: 810 225 1926

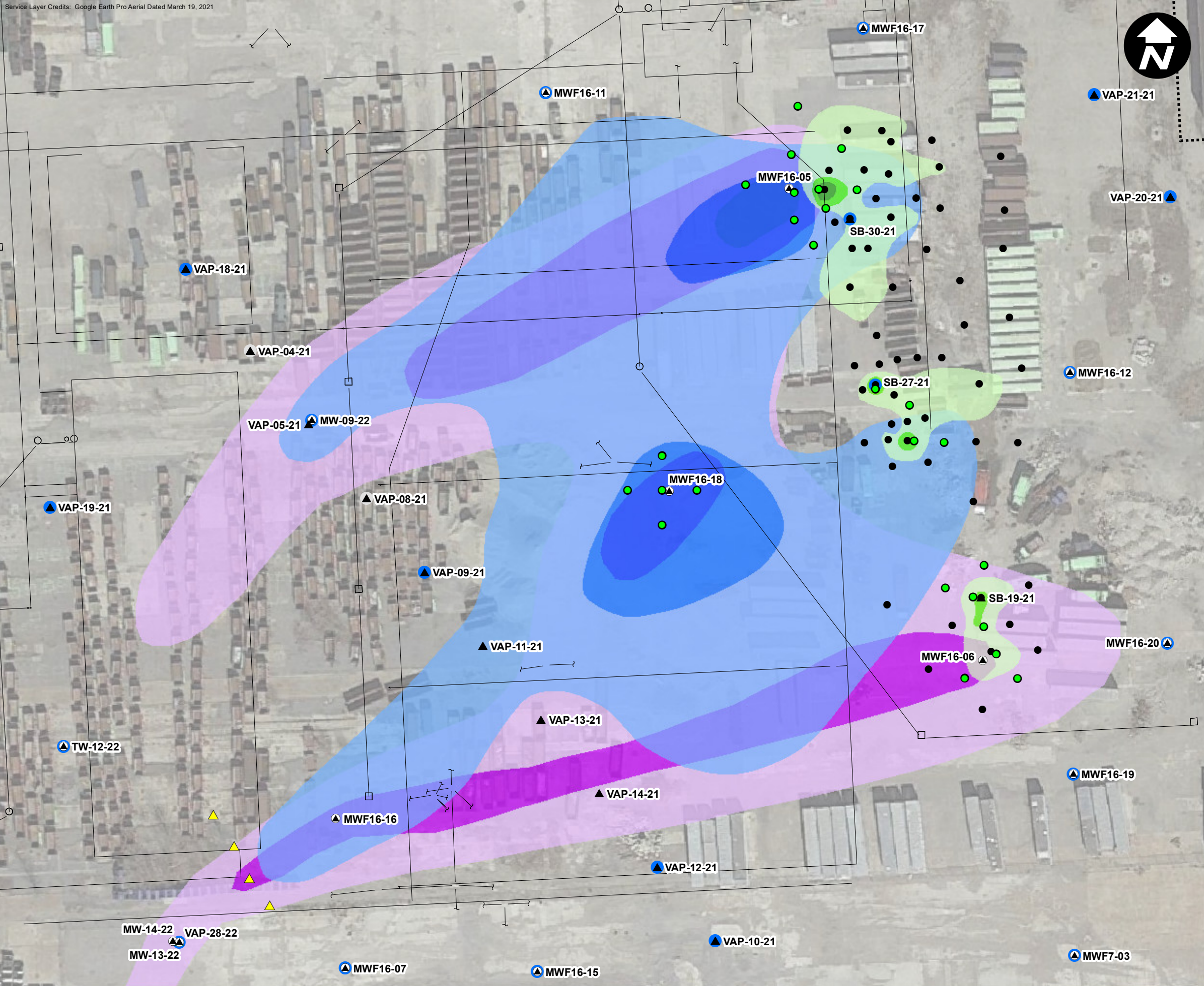
Mr. Peter Ramanauskas  
United States Environmental Protection Agency  
July 21, 2022

**Enclosures:**

**Figures**

- Figure 1. Fiero Proposed Supplemental Site Investigation Boring Locations
- Figure 2. Proposed Source Area Soil Borings

CITY: LANSING DIV: ENV DB: D.AKENS PIC: S.INSALACO PM: B.SAUNDERS TM: L.CRISP TR: PROJECT NUMBER: 30075936.0005 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Int D:\GIS\Project Files\MotorsLiqudation\Company\PontiacNorthCampus\Documents\Former\_Fiero\_Property\SiteInvestigation\_2022\01\_ProposedSuppBoring.mxd PLOTTED: 7/7/2022 9:42:49 AM BY: TYABROUGH



**LEGEND**

- PROPOSED SOIL BORING
- EXISTING SOIL BORING LOCATION
- ▲ PROPOSED VAP BORING
- ▲ MONITORING WELL
- ▲ VERTICAL AQUIFER PROFILE (VAP, ARCADIS OCTOBER)
- ▲ VERTICAL AQUIFER PROFILE (VAP, ARCADIS FEBRUARY 2022)
- LOCATION DOES NOT EXCEED RESIDENTIAL FIERO SSVIAC BASEMENT - FOR TCE (8.1 µg/L), OR PCE (130 µg/L)
- UNABLE TO COLLECT GW SAMPLES
- ..... PROPOSED OR EXISTING BUILDING
- PROPOSED OR EXISTING UTILITY
- ▭ CURRENT OR FORMER RACER PROPERTY

**CONCENTRATION OF TETRACHLOROETHYLENE IN SOIL**

- 1,000 - 5,000 µg/kg
- 5,000 - 10,000 µg/kg
- 10,000 µg/kg

**CONCENTRATION OF TRICHLOROETHYLENE IN GROUNDWATER**

- 8.1 - 20 µg/L
- 20 - 35 µg/L
- >35 µg/L

**CONCENTRATION OF TETRACHLOROETHYLENE IN GROUNDWATER**

- 130 - 500 µg/L
- >500 µg/L

**NOTES:**

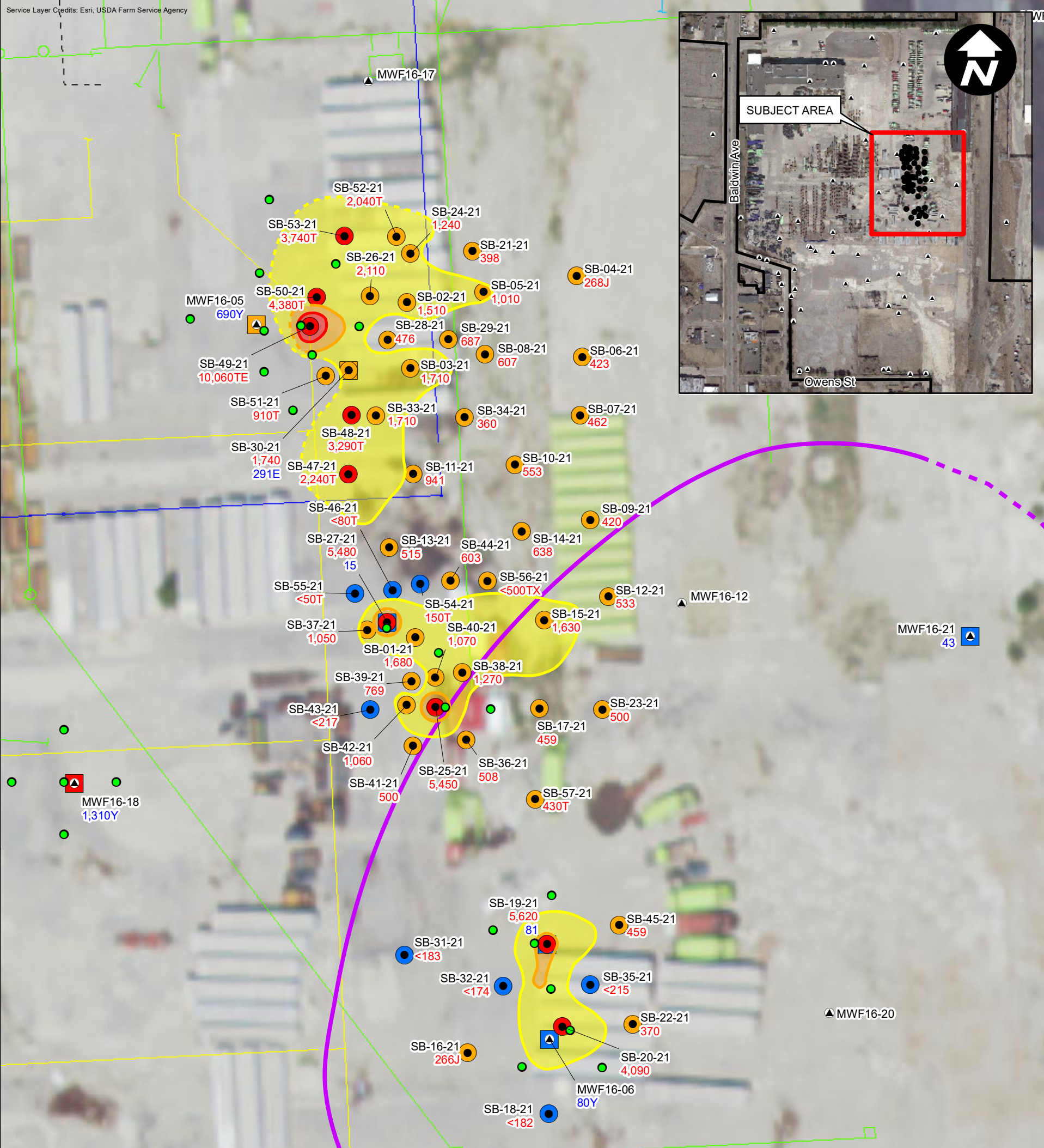
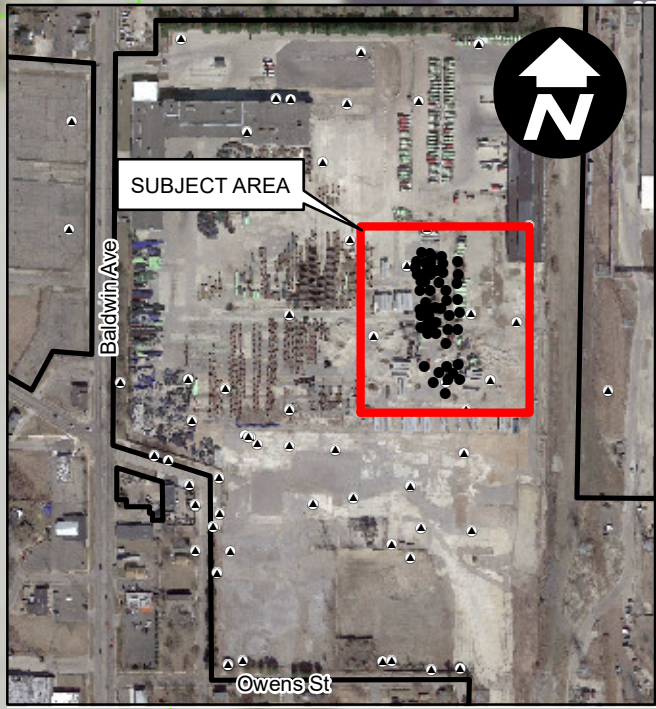
1. ALL CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER LITER (µg/L)
2. < - NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT
3. E - CONCENTRATION EXCEEDS CALIBRATION RANGE
4. SSVIAC - SITE SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA
5. U - COMPOUND WAS ANALYZED BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
6. Y - ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATION
7. CONCENTRATION SHOWN REPRESENTS THE MOST RECENT MONITORING WELL SAMPLE OR THE MAXIMUM VALUE DETECTED AT VERTICAL AQUIFER PROFILE BORINGS.
8. CRITERIA FROM DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY (EGLE) DEVELOPED SITE-SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA FOR THE FORMER FIERO ASSEMBLY, APRIL

0 70 140  
SCALE IN FEET

RACER TRUST  
PONTIAC NORTH CAMPUS  
PONTIAC, MICHIGAN

**FIERO PROPOSED SUPPLEMENTAL SITE INVESTIGATION BORING LOCATIONS**

**ARCADIS** | FIGURE 1

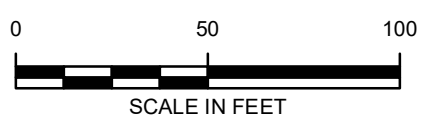


**LEGEND**

- PROPOSED SOIL BORING
  - SOIL BORING
  - ▲ MONITORING WELL
  - EXTENT OF PCE SOURCE AREA "PERCHED" GROUNDWATER
- CONCENTRATION OF TETRACHLOROETHYLENE IN SOIL**
- <220 µg/kg
  - 220 - 2,200 µg/kg
  - 2,200 - 22,000 µg/kg
- CONCENTRATION OF TETRACHLOROETHYLENE IN GROUNDWATER**
- <130 µg/L
  - 130 - 1,300 µg/L
  - 1,300 - 13,000 µg/L
- CONCENTRATION OF TETRACHLOROETHYLENE IN SOIL**
- 1,000 - 5,000 µg/kg
  - 5,000 - 10,000 µg/kg
  - 10,000 µg/kg
- PROPOSED OR EXISTING UTILITY**
- WATER
  - GAS/FUEL
  - UNKNOWN UTILITY
  - STORM SEWER
  - SANITARY SEWER

**NOTES:**

1. SOIL CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER KILOGRAM (µg/kg) AND DISPLAYED IN RED
2. GROUNDWATER CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER LITER (µg/L) AND DISPLAYED IN BLUE
3. NONRESIDENTIAL FIERO SSVIAC >50K SLAB-ON-GRADE FOR TETRACHLOROETHENE - 220 µg/kg
4. RESIDENTIAL FIERO SSVIAC BASEMENT FOR TETRACHLOROETHENE - 130 µg/L
5. HIGHEST CONCENTRATIONS FOR EACH BORING ARE SHOWN ON FIGURE
6. < - NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT
7. SSVIAC - SITE SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA
8. E - CONCENTRATION EXCEEDS CALIBRATION RANGE
9. J - ESTIMATED VALUE LESS THAN THE REPORTING LIMIT, BUT GREATER THAN THE METHOD DETECTION LIMIT
10. T - NO CORRECTION FOR TOTAL SOLIDS
11. X - ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE
12. Y - ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATION
13. CRITERIA FROM DEPARTMENT OF ENVIRONMENT GREAT LAKES AND ENERGY (EGLE) DEVELOPED SITE-SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA FOR THE FORMER FIERO ASSEMBLY, APRIL 21, 2020



RACER TRUST  
PONTIAC NORTH CAMPUS  
PONTIAC, MICHIGAN

**PROPOSED SOURCE AREA SOIL BORINGS**