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Our Company Commitment

Discussion of Remedial Action Plan

Clare Central Apartments - VPLE Site
1003-1033 W. Atkinson Avenue
Milwaukee, Wisconsin

Prepared for:

Mr. Adam McIlheran, WDNR
Mr. Michael Ellenbecker, WDNR
Mr. Donald P. Gallo, Axley

August 13, 2021

Site Investigation History

- 2006 Phase I – Identified Former Historic Manufacturing uses, off-site gas station and dry cleaning facilities.
- 2006 to 2018 –Site Investigation Activities were conducted by other consulting firms.
- July 2013 – Department of Health sampled ambient air within the apartments due to TCE concentrations in soil
- 2014-2015 – Sigma conducted additional Site Investigation work and SCS conducted sub slab vapor sampling the SSDS maintenance
- **2019- to Present – GZA conducted Site Investigation work**
  - Groundwater Monitoring Well Network Survey and sampling
  - Ambient Air Sampling within the buildings
  - Direct Contact Investigation within Alley
  - Sewer Vapor Sampling
  - Soil TCE TCLP Sampling for Haz Waste Determination
  - Preparation of Site Investigation Report (NR716) Submitted on March 29, 2021
  - Preparation of Remedial Action Options Report (NR722) Submitted on May 19, 2021

GEOTECHNICAL | ENVIRONMENTAL | ECOLOGICAL | WATER | CONSTRUCTION MANAGEMENT

On-site issues:

- TCE in subsurface
- Vapor intrusion
- Limited space for remediation
- Residential population of apartments and special access requirements

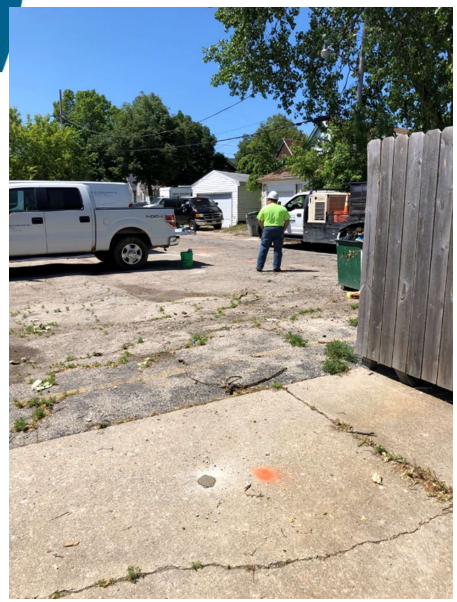
Site Conditions

Looking to the west along W. Atkinson Ave, limited work area for remediation and apartment access updates

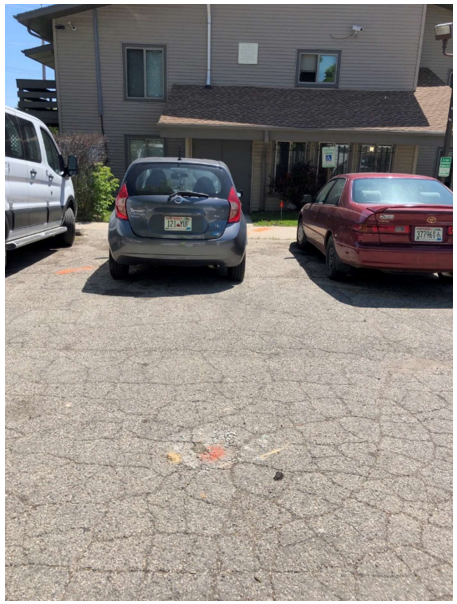
Looking to the south from W. Atkinson Ave, limited work area for remediation

Looking to the west along alley, catch basin located at end of alley

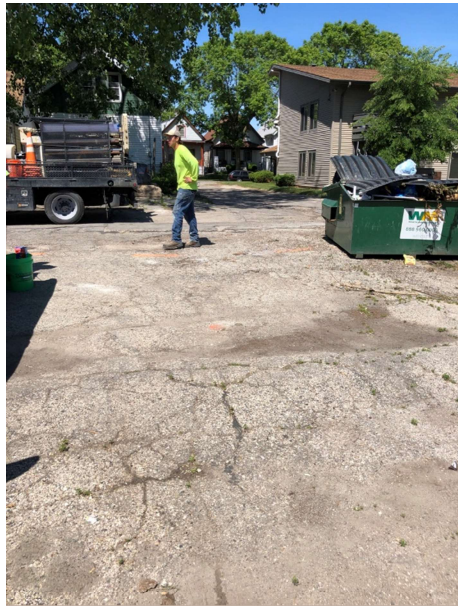
Site Conditions



Looking to the south along alley, limited remedial work area

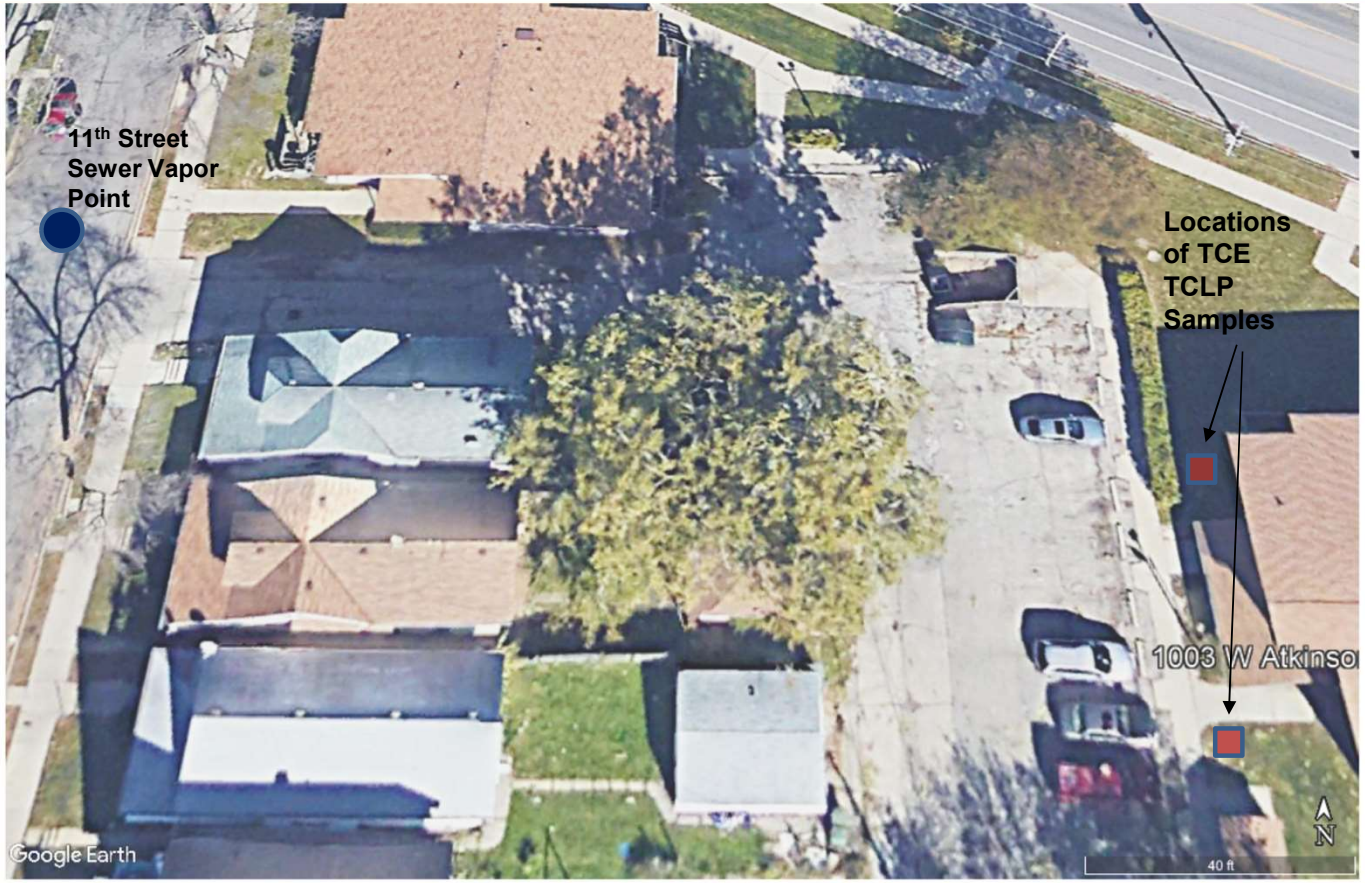


Looking to the east within alley and proposed remedial area



Looking to the west within alley and proposed remedial area

Site Conditions

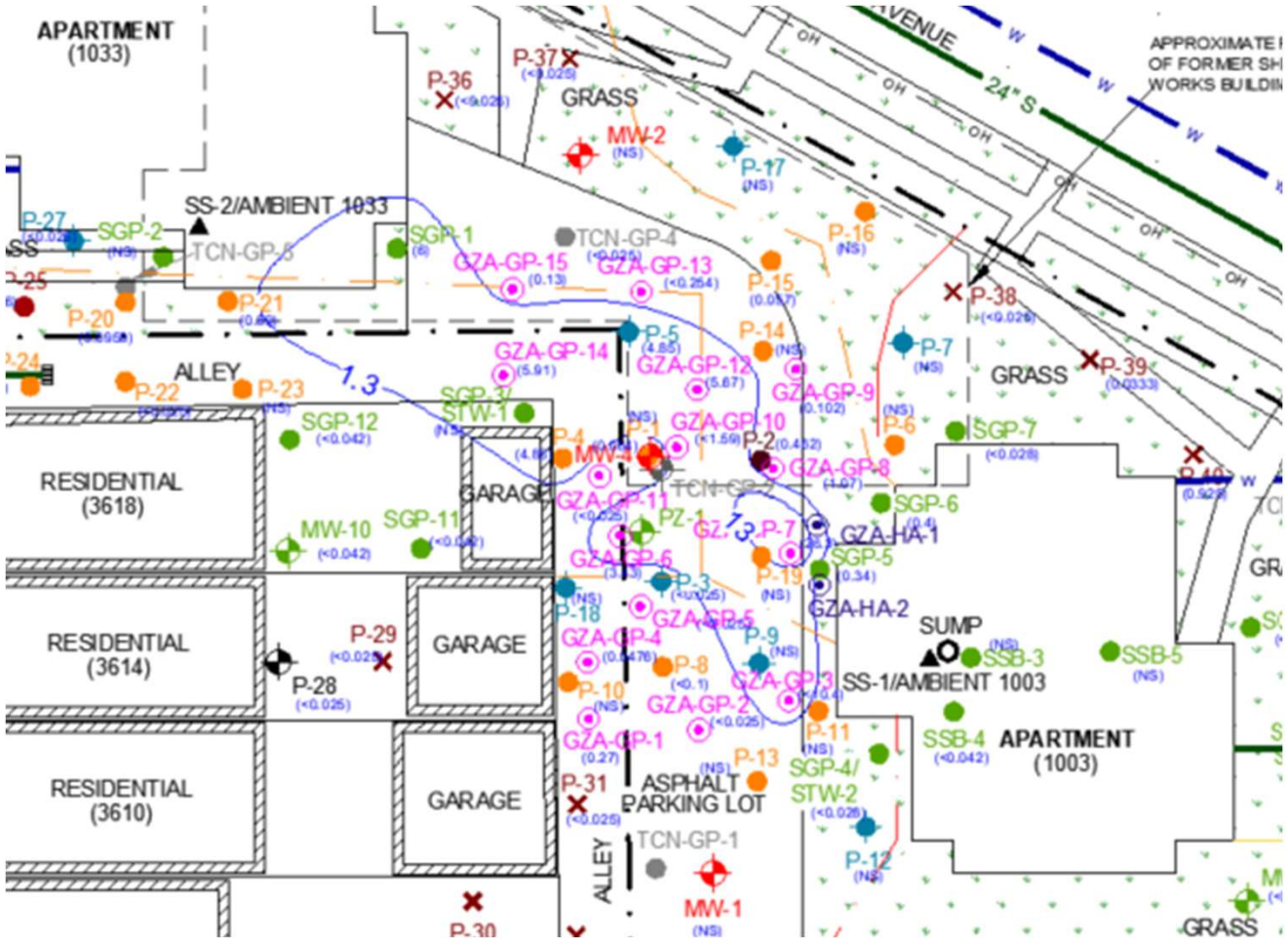


Summary of Findings To-Date

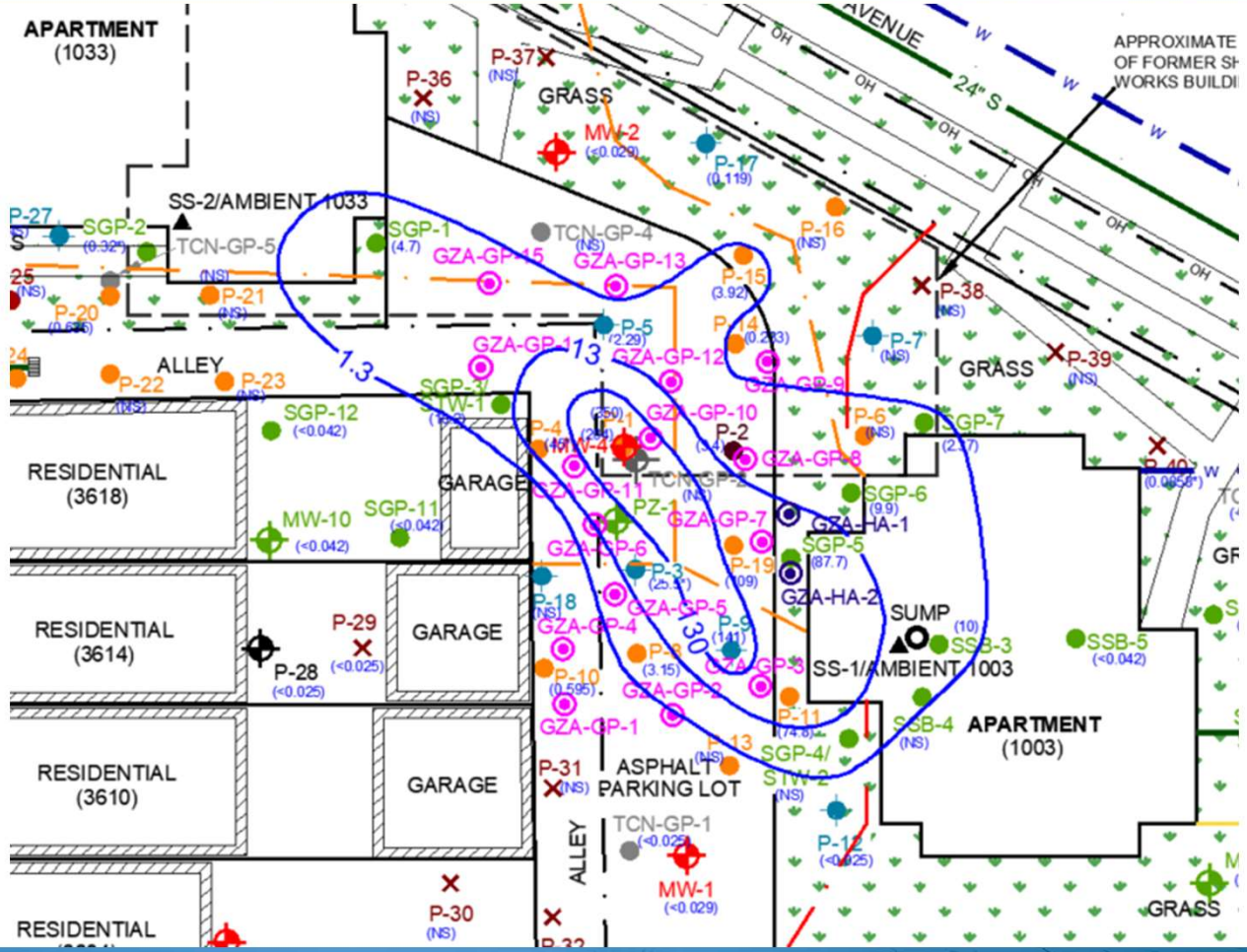
Soil Results

- REC identified former use of site as wire factory and auto repair
  - Documented use of TCE as a solvent degreaser
- GZA estimated that approximately 130 lbs of TCE was released to soil
- Soil and groundwater delineation completed in accordance with NR 716
- Highest concentrations between 4 and 12 feet, exceed TCE "contained-out" value of 8.8 mg/kg
- No exceedance of TCE TCLP

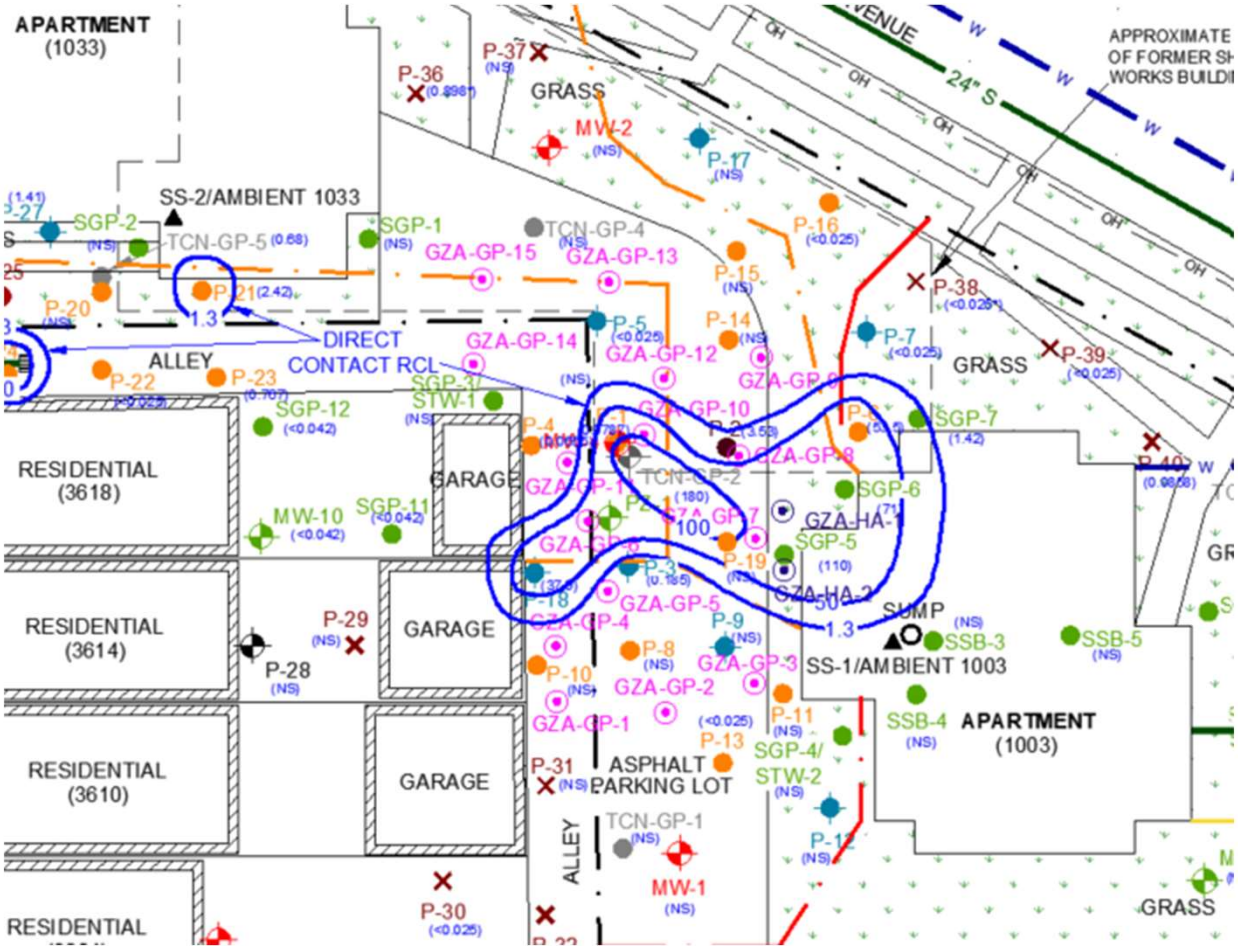
Soil TCE Distribution
0-4 Feet



Soil TCE Distribution
4-8 Feet



Soil TCE Distribution
8-12 Feet

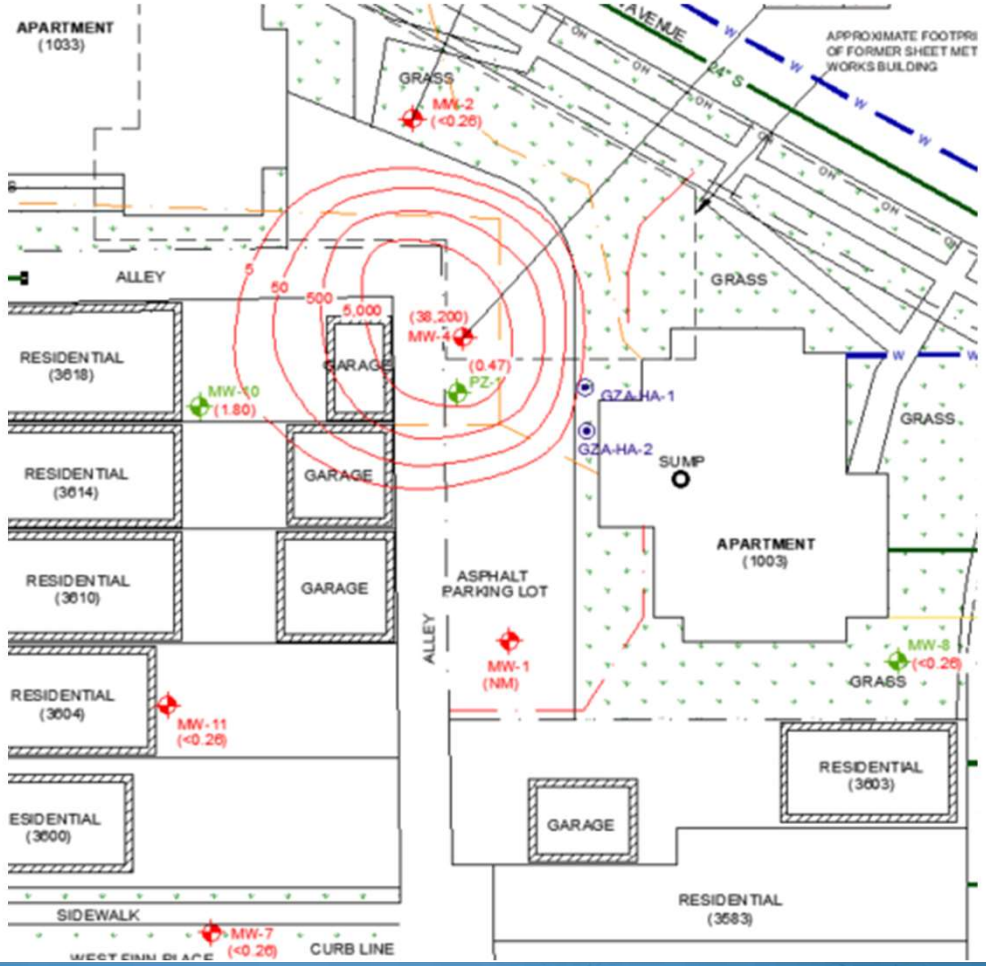


Summary of Findings To-Date

Groundwater Results

- Groundwater Monitoring Well Network Sampled by GZA on March 21, 2019
  - Results of TCE remain consisted to previous sampling events with MW-4 within the alley way having the highest concentration of TCE at 30,000 ug/L
- Subsurface Conditions are not favorable to natural attenuation based on the geochemical parameters recorded for the groundwater.
  - Positive oxidation reduction potential and low dissolved oxygen.
- The mass of TCE released to the soils (0 to 12 ft bgs) is estimated at 130 lbs, with over 90% of that remaining in soils. TCE is not partitioning to groundwater.

Groundwater VOC



Remedial Action Objective

- Complete remedial actions that supplement the effectiveness of the existing sub-slab depressurization system in Building 1003 and 1033 by interrupting the vapor migration pathway and being protective of direct contact exposure

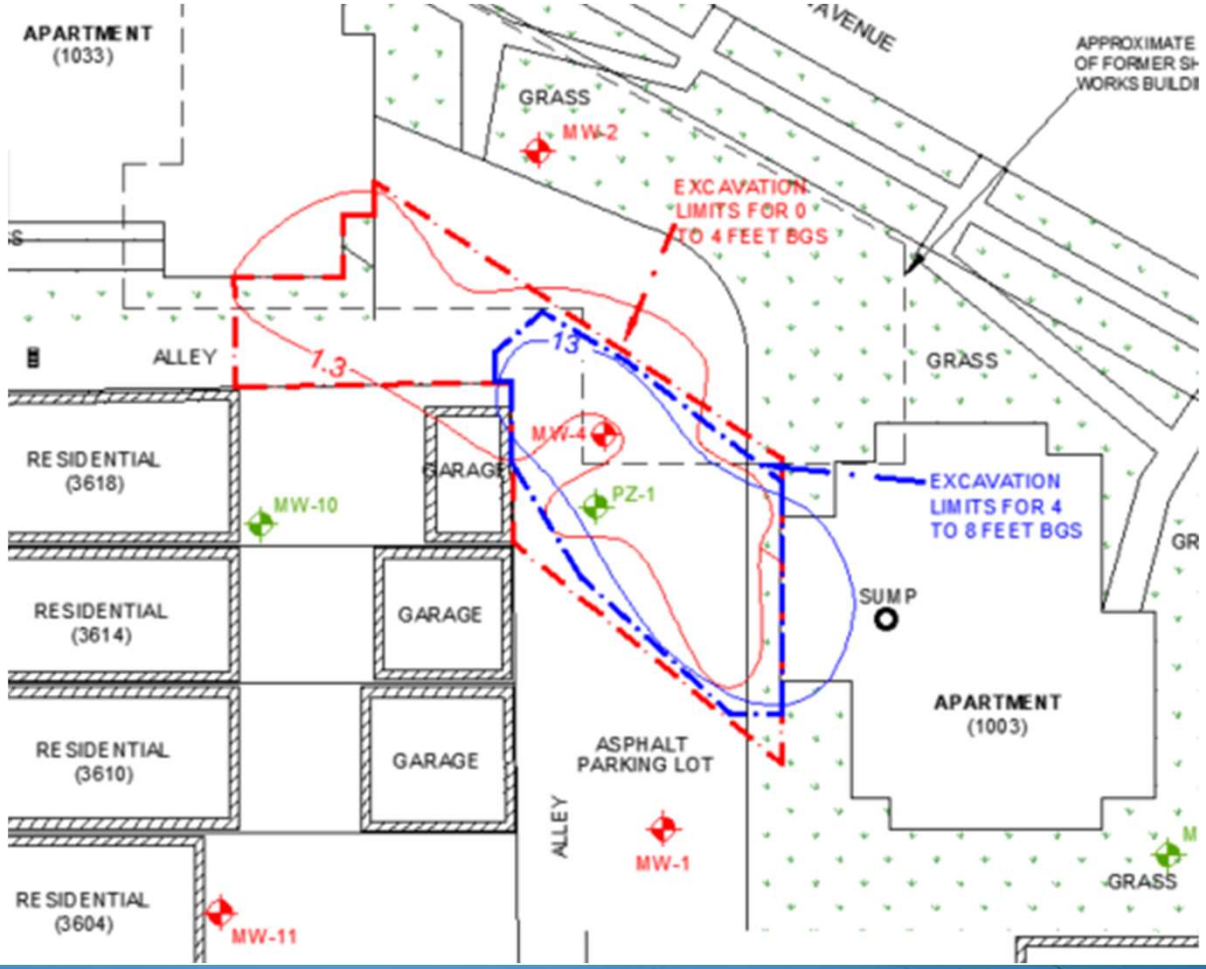
Selected Remedial Action

- Soil excavation between Building 1003 and 1033 to remove chlorinated hydrocarbon soil mass in the upper 4 feet of the soil column
- Installation of a venting system to supplement the sub-slab depressurization system by providing a venting system for soil vapor outside the buildings to be vented to the atmosphere prior to entry into Buildings 1003 and 1033.

Remediation Challenges

- The Site is used as apartments for residence with disabilities that require **easy access** to the buildings
- **Extended disruption** of the site will cause hardship to the living conditions
- Soil excavation will remove the parking lot between the buildings and street parking and access will need to be coordinated
- **Site is small** and in a residential area with limited area for storage, stockpiling, or staging of equipment
- **Impacted soil beneath** Buildings 1003 and 1033 as identified during the site investigation
- **Soil concentrations exceed** the TCE direct contact RCL of 1.3 mg/kg and one limited area of soils that exceed the "Contained-Out" health standard of 8.8 mg/kg
- **Safety concerns** associated with the neighborhood and excavating in confined residential areas

Proposed Excavation Limits



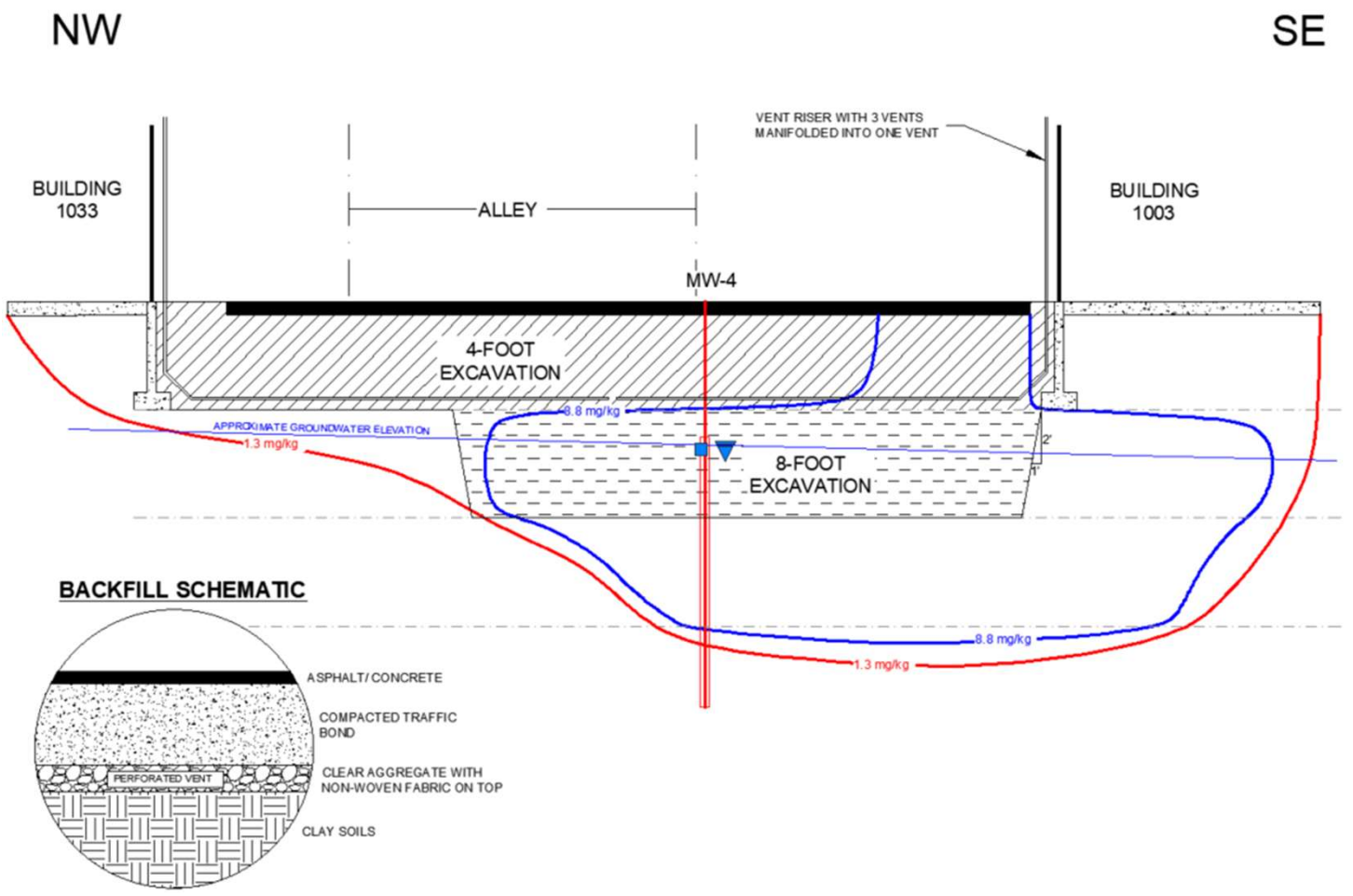
Proposed Excavation Implementation

- **Excavate soils** in area between Building 1003 and 1033 and in the alley to a depth of 4 feet bgs
- Soil excavation close to the foundation, does not require excavation below the building foundations and allows for installation of a passive venting system outside the buildings
- Eliminates construction services and equipment for sloping and shoring for excavations greater than 4 feet deep
- **Direct load soils** with concentrations less than 8.8 mg/kg for transportation to licensed landfill
- **Construct "container"** within excavation for placement of soils requiring treatment
- **Aerate and till soils** to break up soils and increase volatilization of contaminants
- **Sample soils** to demonstrate compliance with 8.8 mg/kg health standard followed by off-site transportation and disposal
- **Install vent piping** at base of excavation in a clear stone backfill layer and connect to manifold and vertical riser adjacent to Buildings 1003 and 1033
- **Backfill** above clear stone with compacted traffic bond and replace surface materials (asphalt, concrete, grass).

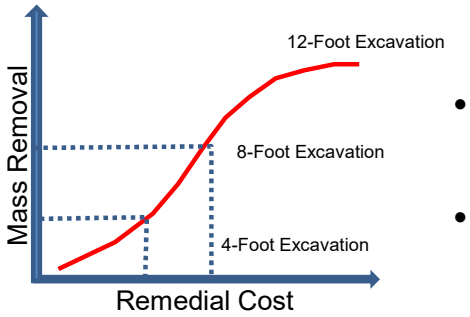
Hazardous Waste Determination

- Release date and material released is unknown. The soil contamination is the result of a previous operator other than the current owner. Operations of the previous owner ceased between 1976 and 1980
- No records exist regarding the possible cause of the release or material released therefore, based on generator knowledge it is assumed that the soils are not a listed hazardous waste
- Soil samples were collected from the highest soil concentrations to determine if the soils exhibit characteristics of a hazardous waste. The TCLP-VOC soil sample results are less than the TCLP regulatory limits therefore the soils are not a characteristic hazardous waste
- The "contained-out" health standard concentration for TCE is 8.8 mg/kg
- Based on the results of the hazardous waste determination the soils only need to be treated to reduce the concentration below 8.8 mg/kg prior to disposal at a Subtitle D Landfill in southeast Wisconsin

Proposed Excavation Cross-Section



8-Foot Excavation Evaluation



0-4' = 8 lbs TCE
4-8' = 96 lbs TCE
8-12 = 48 lbs TCE
Total = 152 lbs TCE

- Additional soil mass removal in the western half of the excavation area
- **Residual soil concentrations >8.8 mg/kg beneath Building 1003**
- **Soil concentrations require additional excavation and treatment prior to off-site disposal**
- Requires excavating below the building foundation depth for Building 1003 and will require sloping of soils beneath the footing
- Backfill of excavation from 4 to 8 feet with "self-compacting" aggregate will create void spaces and will create ponded water in contact with the building foundations
- **Require removal of monitoring well MW-4; there is not a suitable location for re-installation of his well due to backfilled excavation**

Estimated 70 lbs (~50%) of TCE will be left in place adjacent to or beneath Building 1003

Proposed Next Steps & Schedule

- Submit Remedial Design Report with soil excavation details for WDNR approval by August 20, 2021
- Obtain approval of the hazardous waste determination for the site based on the soil sampling completed by September 10, 2021
- Obtain approval for the disposal of treated soils at a Subtitle D Landfill in Southeast Wisconsin by September 10, 2021
- Coordinate implementation of remedial activities between August 20 and September 13, 2021
- Begin implementation of the remedial excavation activities on September 13, 2021
- Complete implementation of remedial activities by October 11, 2021