



May 9, 2019

Ms. Jennifer Borski
Wisconsin Department of Natural Resources
625 E. County Road Y, Suite 700
Oshkosh, WI 54901

**Subject: Additional Site Investigation Work Plan
Former Barb and Ron's Cleaners
1700 Lawe Street
Appleton, Wisconsin 54915
WDNR BRRTS#: 02-45-297744**

Dear Ms. Borski,

EnviroForensics, LLC is pleased to provide this Additional Site Investigation Work Plan for Barb and Ron's Cleaners (Site) located at 1700 South Lawe Street, Appleton, Wisconsin. The site investigation is ongoing as required by the Wisconsin Department of Natural Resources (WDNR) per NR 716 of the Wisconsin Administrative Code (WAC). The additional investigations are being proposed to address the additional investigations requested in the *Response to Site Investigation Summary and Remedial Action Report* letter dated April 16, 2019 from the Wisconsin Department of Natural Resources.

ADDITIONAL INVESTIGATIONS

Sanitary Utility Vapor Sampling

The City of Appleton utility department was contacted on April 15, 2019 and confirmed the construction of the sanitary and storm utility lines. The sanitary lateral extending from the Site is constructed of 6" polyvinyl chloride (PVC) and was sealed and capped at the sanitary main. The main is also constructed of PVC and is approximately 8 feet below the ground surface near the Site and runs north and south beneath South Lawe Street.

A sanitary sewer vapor sample will be collected from two (2) manholes located within South Lawe St. The first manhole is located to the south west of MW2100/B2100, and the second is located to the south of MW1700/B1700. Sanitary vapor samples will be collected via methods

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described in the *Sewers and Utility Tunnels as Preferential Pathways for Volatile Organic Compounds Migration into Buildings: Risk Factors and Investigation Protocol*, Environmental Security Technology Certification Program (ESTCP) Project ER-201505 dated November 2018. Samples will be collected approximately 1 foot above the water level within the sewer pipe. Ambient air will be purged from the sampling tubing and a shut in test will be conducted to ensure the integrity of the sample train. Following purging, a laboratory provided 1-liter batch certified vacuum canister will be connected to the end of the probe assembly and a sample will be collected from each sampling location. Once the negative pressure reading on the sampling canister indicated that a sufficient volume of sample is collected, the canister valve will be closed and disconnected from the sample tubing. Utility vapor samples will be submitted to a laboratory for analysis of volatile organic compounds (VOCs) according to EPA Method TO-15.

Sub-Surface Investigations

Soil Investigation

EnviroForensics will advance three (3) hand auger borings (Labeled “A”, “B”, and “C”, on **Figure 1**) within Lawe Street. The locations were specifically chosen by the WDNR to delineate residual soil impacts within South Lawe Street. A right-of-way permit will be prepared for the drilling activities.

In accordance with safe work practices and as required by Wisconsin State Law, EnviroForensics will contact Digger’s Hotline subsurface utility protection service at least 72-hours prior to the anticipated onset of subsurface work at the Site. As a result, subsurface utilities and structures owned or managed by member companies and municipalities will be located by an independent contractor service. Additionally, EnviroForensics will also contract with a private underground utility locating service to provide added confidence regarding the position of potential underground hazards at the Site. The private locating service will use geophysical and/or electromagnetic equipment, as appropriate; to assist in clearing each planned boring location prior to sampling activities.

At the completion of the utility locate, to the three (3) hand auger borings will be advanced at locations within the utility corridor as depicted on **Figure 1**. Soil will be continuously sampled and logged during boring activities. Field screening at each 2-foot interval will be conducted using a photoionization detector (PID), the results of which will be recorded. Soil lithology will be described in accordance with the Unified Soil Classification System (USCS) and recorded on soil boring logs. Once soil sampling is completed, boreholes will be backfilled with hydrated bentonite chips and topped off with concrete to match the existing surface.



As requested by the WDNR, soil samples will be collected at depth intervals 0-2 and 6-8 feet below ground surface. A total of six (6) samples will be analyzed for VOCs according to U.S. EPA Method 8260.

Monitoring Well Installation

As requested by the WDNR, groundwater will be re-investigated at the former SB-5 location and near the soil source. One (1) temporary well will be installed near SB-5 and one (1) piezometer will be installed near the soil source to fulfill WDNR requests regarding delineation of groundwater contamination. A temporary well rather than a grab-groundwater is proposed due to the slow groundwater recharge rate observed at the Site. The location of the temporary well and piezometer are depicted on **Figure 1**.

One (1) temporary monitoring well will be installed near the previous investigation location SB-5. The temporary well will be installed using 3.25 inch outer diameter drill rods to allow for sufficient filter pack material and reduce the amount of soil cuttings. The well will consist of a 1-inch diameter PVC well screen and riser. The well screen will be installed to intersect the soil/groundwater interface. Based on previous observations of depth to groundwater, the well is expected to be screened from roughly 4-14 feet below ground surface. This will result in a shortened filter pack seal and annular space seal. Therefore, sand pack materials will be placed from the bottom of the screen up to 6-inches above the well screen. The filter pack seal will consist of 6-inches of fine sand placed on top of the filter pack and hydrated bentonite granules will be used to seal the remaining annular space to just below ground surface.

One (1) permanent piezometer will be installed south of MW-1400R. The piezometer will be installed using 3.25 inch outer diameter percussive drill rods. The piezometer will be constructed with 1-inch diameter PVC riser and screen sections. The piezometer will be installed to a total depth of 30 feet below grade with a 5 foot screen and double cased with PVC to 25 feet below ground surface.

The temporary well and piezometer will be installed in accordance with the requirements of WAC Chapter NR 141. With the exception of the diameters of the temporary wells in ratio to the diameter of the drill rods. As such, EnviroForensics is requesting an exemption to requirements outlined in WAC Chapter **NR 141.19**. By allowing this exemption, the wells can be installed in a timely manner and minimize the amount of waste soil cuttings generated by drilling methods. Low flow methods of sampling are possible in a 1-inch diameter well that allows for both the collection of a representative sample and minimizing the disturbance to the substrate during sampling.



Expandable locking caps and keyed alike locks will be placed on each well. Surface completions will consist of flush-mount well vaults set in concrete. The new monitoring wells will be developed according to the procedures described in WAC Chapter NR 141. Monitoring well construction and development information will be recorded on WDNR Forms 4400-133A/B and submitted with the subsequent data package to the WDNR.

Long-term Groundwater Monitoring Plan (“LTMP”)

To evaluate the effectiveness of the remedial action excavation and capping performed in 2018 and verify groundwater plume stability and verify natural attenuation as an appropriate remedy for residual contamination the following details our proposed long-term groundwater monitoring plan (“LTMP”) per Wis. Admin. Code § NR 714.17(2).

Two (2) rounds of sample were conducted in the past year since the remedial activities. EnviroForensics is proposing an additional two (2) rounds of semi-annual groundwater monitoring to evaluate the groundwater conditions and evaluate natural attenuation. The sampling events will take place once the new wells area installed.

The monitoring events will take place after the temporary well and piezometer have been installed. The first round of sampling will consist of continued sampling of the select set of wells (MW800, MW1100, MW1300, MW1600, MW2300, and MW4100) established in the Remedial Action Plan with the addition to the new temporary well and piezometer. The second event will include sampling the entire well network available (i.e. all wells not damaged or abandoned) including the temporary well and piezometer. However, if the groundwater results from the temporary well are below the WDNR groundwater enforcement standard, the temporary well will be abandoned and not resampled. The second round of sampling will occur from the entire monitoring well network at the site prior to initiating closure procedures.

Monitoring well caps will be removed at least 15 minutes prior to collecting water level measurements to allow groundwater in the monitoring wells to equilibrate with atmospheric pressure. The depth to water in each well will be measured to the nearest 0.01 foot using an electronic water level indicator and recorded in the field notebook or sampling form.

Based on previous experience at the Site, low-flow sampling methods are not suitable due to limited recharge rates. Therefore, purging and sampling will be completed using new, disposable bailers. The piezometers, however, will be sampled using low-flow methods unless drawdown occurs at rates greater than 0.3 feet. Field parameters including pH, specific conductivity, temperature, oxidation reduction potential (ORP), and dissolved oxygen (DO) will be measured during purging and recorded on a sampling form to assess natural attenuation conditions. The wells will be purged dry and allowed to recharge for at least four (4) hours.



One (1) duplicate sample and one (1) equipment blank will be collected for every 10 or fewer investigative samples, and one (1) trip blank sample will be analyzed per sample cooler for quality assurance/quality control (QA/QC) purposes. The groundwater samples will be transmitted to a state-certified laboratory and analyzed for VOCs according to U.S. EPA Method 8260. Additionally, monitoring wells MW1300, MW2300, and MW4100R will be sampled for analysis of natural attenuation indicator parameters: nitrate, sulfate, and total iron. The data from each of the monitoring events will be provided semi-annually and within 30 days of completing each event.

Investigation Derived Media

Investigation-derived media generated during the investigation activities will include soil cuttings and groundwater. The soil produced during hand auger borings and monitoring well installation will be directly hauled to an approved landfill. The groundwater produced during development and sampling will be contained in labeled US Department of Transportation (DOT) 17H-rated drums, or equivalent, and staged onsite. A licensed subcontractor will properly manage and dispose of the water generated during the groundwater monitoring events.

Schedule

The scheduling of subsurface investigation activities will begin on May 23 pending a City of Appleton a right of way permit. At the completion of these investigation activities, the data will be provided the WDNR.

If you have any questions regarding the scope of work for this investigation, please do not hesitate to call us at (262) 290-4001.

Sincerely,

EnviroForensics, LLC

A handwritten signature in black ink, appearing to read "Kyle Heimstead".

Kyle Heimstead
Project Manager

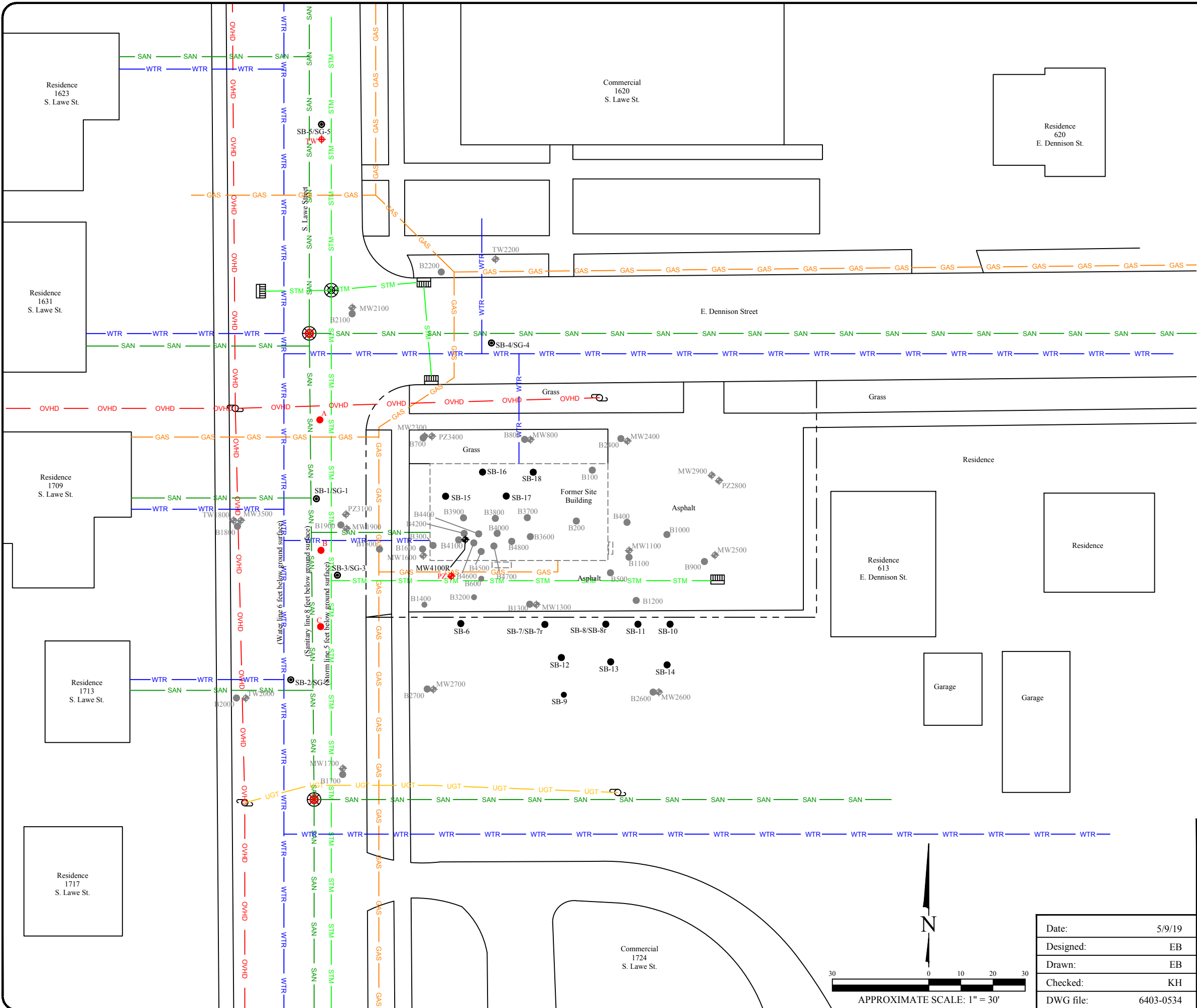
Rob Hoverman, PG
Wisconsin Regional Director

Hydrogeologist

"I, Rob Hoverman, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Signature and Title Date

Wisconsin Regional Director 5.9.19



Legend

- Property boundary
- GAS Underground gas utility line
- WTR Underground water utility line
- SAN Underground sanitary utility line
- STM Underground storm utility line
- OVHD Over head electrical utility line
- B100 Soil boring location (By Others)
- MW1100 Monitoring well location (By Others)
- SB-1 Soil boring location
- MW4100R Monitoring well location
- SG-1 Soil Gas sample location
- Proposed soil boring location
- PZ Proposed piezometer location
- TW Proposed temporary well location
- Proposed sewer vapor sample

Notes:
 1. MW4100 was abandoned during 2018 excavation and replaced by EnviroForensics with MW4100R

ADDITIONAL SITE INVESTIGATION LOCATION MAP
 Former Barb and Ron's Cleaners
 1700 South Lawe Street
 Appleton, Wisconsin

Date:	5/9/19
Designed:	EB
Drawn:	EB
Checked:	KH
DWG file:	6403-0534

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Figure	1
Project	6403