



January 29, 2018

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

**Re: Remedial Action Plan  
Former Barb and Ron's Cleaners  
1700 Lawe Street  
Appleton, Wisconsin 54915  
BRRTS#: 02-45-297744**

Dear Ms. Borski:

EnviroForensics, LLC (EnviroForensics) is pleased to submit this Remedial Action Plan (RAP) for the former Barb and Ron's Cleaners facility located at 1700 South Lawe Street in Appleton, Wisconsin. One hardcopy of the Report is enclosed and an electronic copy has been uploaded to the RR Program's FTP site. The Report has been prepared in accordance with the requirements of Wisconsin Administrative Code (WAC) Chapter NR 724. The intention is to implement the plan as soon as feasible and work is anticipated to begin in April 2018.

Sincerely,  
**EnviroForensics, LLC**

Robert Hoverman, PG  
*Senior Project Manager*

Andrew Horwath, PE  
*Technical Group Manager*



January 29, 2018

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

**Subject: Remedial Action Plan  
Former Barb and Ron's Cleaners  
1700 South Lawe Street  
Appleton, Wisconsin 54915  
BRRTS#: 02-45-297744  
EnviroForensics Project# 6403**

Dear Ms. Borski,

EnviroForensics, LLC. (EnviroForensics) is pleased to provide this Remedial Actions Plan (RAP) for the former Barb and Ron's Cleaners facility located at 1700 South Lawe Street, Appleton, Wisconsin (Site). The purpose of this RAP is to describe the remedial actions that will be performed to address the environmental impacts on the Site.

Site Details: Former Barb and Ron's Cleaners  
1700 South Lawe Street  
Appleton, WI 54915  
BRRTS# 02-45-297744

Geographic Location: Latitude: 44.2460991  
Longitude: -88.3956729

PLSS: SE ¼ of the SE ¼ of Section 35, Township 21 N, Range 17E

Site Owner: Ron Van Asten  
W459 Cindy Ann Lane  
Kaukauna, WI 54130

Responsible Party: Former Barb and Ron's Cleaners  
Ron Van Asten  
W459 Cindy Ann Lane  
Kaukauna, WI 54130  
rvanasten@new.rr.com

*Document: 6403-0317*  
EnviroForensics, LLC.  
N16 W23390 Stoneridge Drive, Suite G, Waukesha, WI 53188  
Phone: 262-290-4001 • Fax: 262-510-0460



Consultant: EnviroForensics, LLC  
Robert Hoverman, Senior Project Manager  
N16 W23390 Stone Ridge Drive, Suite G, Waukesha, WI 53188  
262-290-4001  
[rhoverman@enviroforensics.com](mailto:rhoverman@enviroforensics.com)

## **BACKGROUND**

The former Barb and Ron's Cleaners facility is located at 1700 South Lawe Street, Appleton, Outagamie County, Wisconsin (Site). The Site originally consisted of asphalt parking lot and an approximately 2,490 square foot commercial building which housed the dry cleaning operations. The building has since been demolished with the concrete slab and footer left in place. The adjacent land uses include residential, commercial, and undeveloped properties. A Site Plan showing adjacent properties is depicted on **Figure 1**. The chemicals of concern for the investigation are the dry cleaning solvent tetrachloroethene (PCE) and its associated breakdown products.

Two forms of remedial actions were previously approved by the WDNR and implemented by previous Site consultants: in-situ treatment with sodium permanganate and soil excavation. The in-situ treatment did not adequately address contamination and was discontinued in favor of soil excavation and disposal. As shown on **Figure 2** and **Attachment 1**, the excavation performed in 2003 by Northern Environmental was limited to source area outside of the former building footprint. A follow up evaluation of remedial options was developed in 2010 to address the remaining source area. The two (2) options considered at that time included partial soil excavation, leaving the building intact, and demolition of the Site building with complete source area removal. Since the Site building has been demolished, soil removal from beneath would provide the most direct path to closure.

## **REMEDICATION ACTIVITIES**

### **Purpose**

The remaining soil source area is under the Site building in the vicinity of the former dry cleaning machine. Direct-contact exposure to soil is currently prevented by surface cover materials (i.e. asphalt, concrete and building foundation). To prevent high concentrations of volatile organic compounds (VOCs) in soil to continuously impact shallow groundwater, remedial actions are recommended for the soil source area.

In response to WDNR requirements for remediating the source area of subsurface impacts, EnviroForensics will implement the following activities:

- Excavate source area soil impacted with PCE;



- Backfill with clean soil and clay infiltration cap with vegetation at surface;
- Re-install one (1) source area monitoring well; and
- Perform groundwater sampling to monitor dissolved PCE concentrations.

The locations and depths of each excavation area are shown on **Figure 2**.

### **Pre-Excavation Groundwater Sampling**

One (1) round of groundwater monitoring was conducted at select monitoring wells to establish baseline conditions in advance of groundwater remediation activities. Activities performed during the monitoring event included groundwater elevation measurements and groundwater sample collection from six (6) water table monitoring wells (MW800, MW1100, MW1300, MW1600, MW2300, and MW4100). The locations of the monitoring wells are depicted on **Figure 1**.

Monitoring well caps were 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 was measured to the nearest 0.01 foot using an electronic water level indicator. Groundwater purging and sampling was conducted using new disposable bailers. Each well was purged of three (3) well volumes or until dry and allowed to recharge for approximately 24-hours. Groundwater elevation measurements and purge amounts were recorded on Groundwater Field Sampling Forms. Groundwater samples were collected from each well and piezometer in new laboratory-supplied containers with hydrochloric acid as a preservative.

One duplicate sample was collected during the monitoring event, and one (1) trip blank sample was analyzed per sample cooler for quality assurance/ quality control (QA/QC) purposes. Samples were transmitted to a state-certified laboratory and analyzed for VOCs according to U.S. Environmental Protection Agency (EPA) SW-846 Method 8260.

Investigation-derived media (IDM), including purge water and decontamination fluids, were containerized in 55-gallon drum(s). One (1) sample was collected from the drum for characterization and profiling purposes. EnviroForensics anticipates the IDM will be characterized as non-hazardous waste. A licensed contractor will be retained to remove drums on a semi-annual basis for off-Site disposal.

EnviroForensics will tabulate and evaluate the groundwater analytical data and prepare a water table contour map. Sample results will be included in the Remedial Action Report.

## **Excavation**

The primary remediation objectives are to remove source area material that continually supports dissolved phase impacts and reduce groundwater concentrations near the source area in groundwater. To access the source area material for excavation, the Site building, concrete slab and foundation need to be removed. The Site building was previously demolished however, the concrete slab and foundation left in place as a protective cap. Upon completion of the building slab and foundation demolition, soil excavation will begin.

Excavation would be completed under the entire building footprint. The excavation area will encompass the majority of the VOC impacts in the vadose zone. The excavation under the building will be advanced to a minimum of 6 feet below ground surface (bgs) in areas of lower concentrations, and up to 10 feet bgs (or depth to groundwater) in areas with higher concentrations. This will ensure that worker exposure will not occur during potential future construction activities. The extent of soil impacts and excavation dimensions are depicted on **Figure 2**.

The excavated soil will be transported off-site for disposal at a permitted facility. Approximately 445 tons of non-hazardous soil and 75 tons of hazardous soil will be removed. Excavated hazardous soil will be directly loaded into dump trucks and transported for disposal at US Ecology in Belleville, Michigan. Excavated non-hazardous soil will be loaded and transported for disposal at Valley Trail Landfill in Berlin, Wisconsin.

Confirmation samples will be collected from the excavation within the building footprint. Two (2) samples will be collected from each sidewall, and two (2) samples will be collected from the floor of the excavation near boring locations B3700 and B4100. Soil samples will be transmitted to a state-certified laboratory and analyzed for VOCs according to U.S. EPA SW-846 Method 8260.

The excavation will be backfilled with clean compactable soil, capped with 2 feet of clay to inhibit surface water from entering the excavation, and topped with 0.5-1 foot of seeded topsoil to prevent erosion. The soil and clay will be installed in 2 foot lifts and compacted.

## **Monitoring Well Installation, Development, and Sampling**

Once excavation activities have been completed, one (1) water table monitoring well will be re-installed near MW4100. The well will be installed in accordance with the requirements of Wisconsin Administrative Code (WAC) Chapter NR 141. Well materials will be 2-inch diameter polyvinyl chloride (PVC). Expandable locking caps and keyed alike locks will be placed on the well. Surface completions will consist of flush-mount well vaults set in concrete. The new monitoring well 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 groundwater monitoring report.



Two initial rounds of groundwater samples will be collected from the new monitoring well and concurrently with the five (5) existing wells sampled prior to excavation activities. During all groundwater monitoring events, samples will be collected and analyzed for VOCs according to U.S. EPA SW-846 Method 8260. In addition, samples will be collected from the six (6) monitoring wells for analysis of natural attenuation indicator parameters: ethene, ethane, methane, nitrate, nitrite, sulfate, chloride, total iron, total manganese and total organic carbon. Groundwater sampling and IDM management will be implemented as described in the previous section.

EnviroForensics will tabulate and evaluate the groundwater analytical data, and prepare water table contour maps. Results will be evaluated and compared to previous concentration trends to determine the need for groundwater treatment.

### **Conclusion**

By removing attainable source area soil impacts and providing a protective cap, case closure could be achieved with minimal follow up monitoring given the overall low contaminant levels at the Site. However, if elevated groundwater VOC concentrations continue and/or groundwater natural attenuation parameters indicate unfavorable conditions for natural groundwater attenuation by the second groundwater monitoring event, EnviroForensics will evaluate a chemical additive(s) to promote the breakdown of VOCs in groundwater. If injections are needed, EnviroForensics will prepare required injection permitting documents prior to any injection activities. If groundwater treatment does not appear necessary, a brief results submittal will be provided indicating that residual groundwater impacts will be closed using monitored natural attenuation.



**Certifications**

In accordance with NR 712, Wisconsin Administrative Code, the aforementioned activities and subsequent reporting will be overseen and reviewed by a professional geologist and/or professional engineer as required.

I, Andrew Horwath, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all 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, title and P.E. Number	_____ P.E. Stamp
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I, Robert 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.

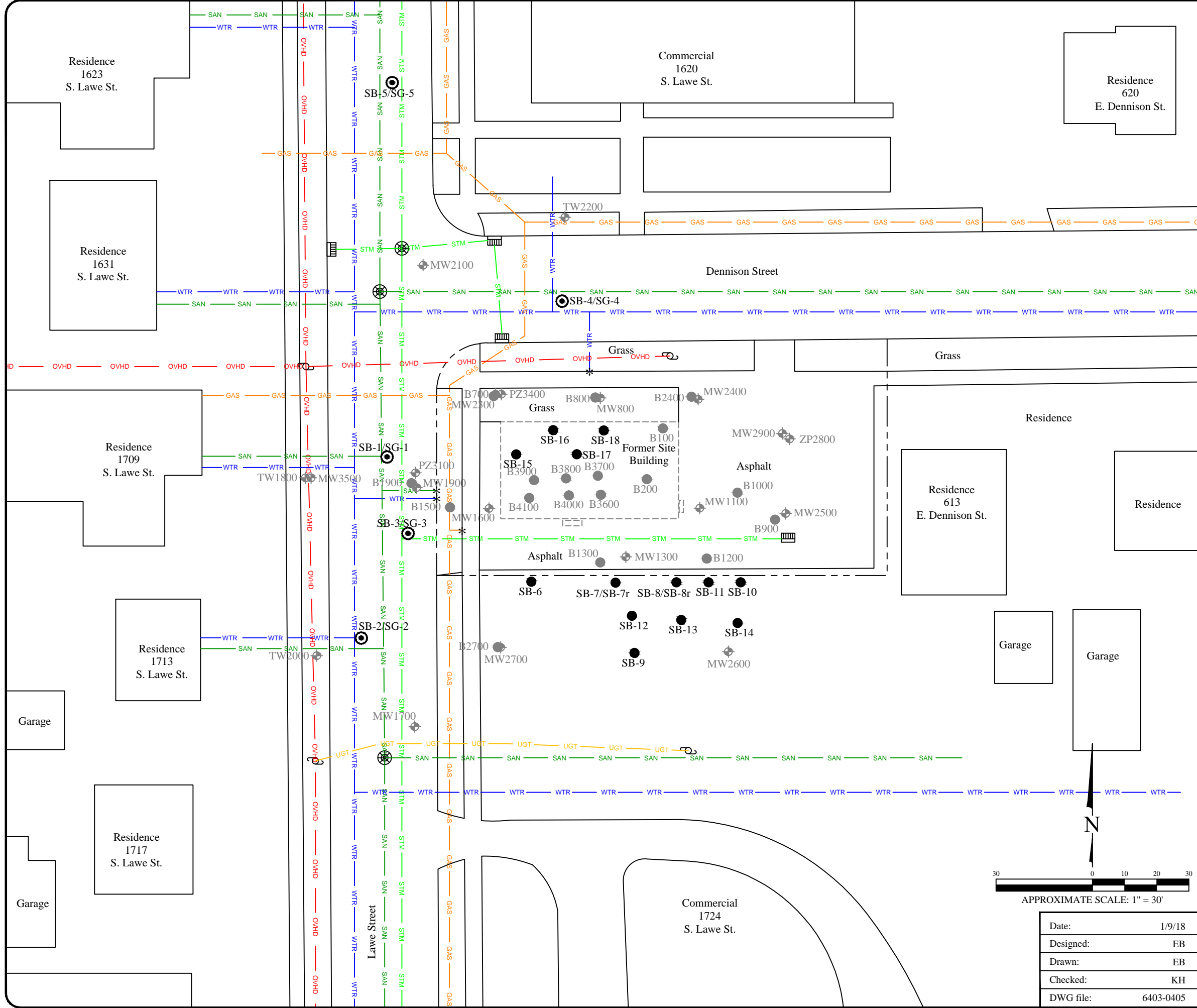
_____ Signature and title	1/29/2018 Date
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**Figures:**

- Figure 1 – Site Plan
- Figure 2 – Soil Analytical Results Map with Proposed Excavation Extent

**Attachments:**

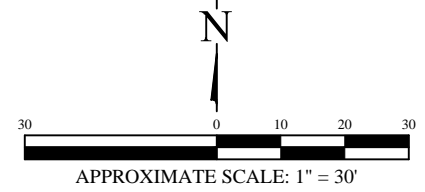
- Attachment 1 – Northern Environmental Figure



### Legend

- Property boundary
- GAS Underground gas utility line
- WTR Underground water utility line
- SAN Underground sanitary utility line
- UGT Underground telephone line
- STM Underground storm utility line
- OVHD Over head electrical utility line
- UGE Underground electrical utility line
- Utility Pole
- Catch Basin
- Manhole
- MW1100 Monitoring well location (By Others)
- B100 Soil boring location (By Others)
- SB-1 Soil boring location
- SG-1 Soil gas sample

Note:  
1. \* = utilities abandoned during building demolition



### SITE PLAN

Former Barb and Ron's Cleaners  
1700 South Lawe Street  
Appleton, Wisconsin

Date: 1/9/18 Designed: EB Drawn: EB Checked: KH DWG file: 6403-0405	<p>825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com</p>
Figure 1 Project 6403	



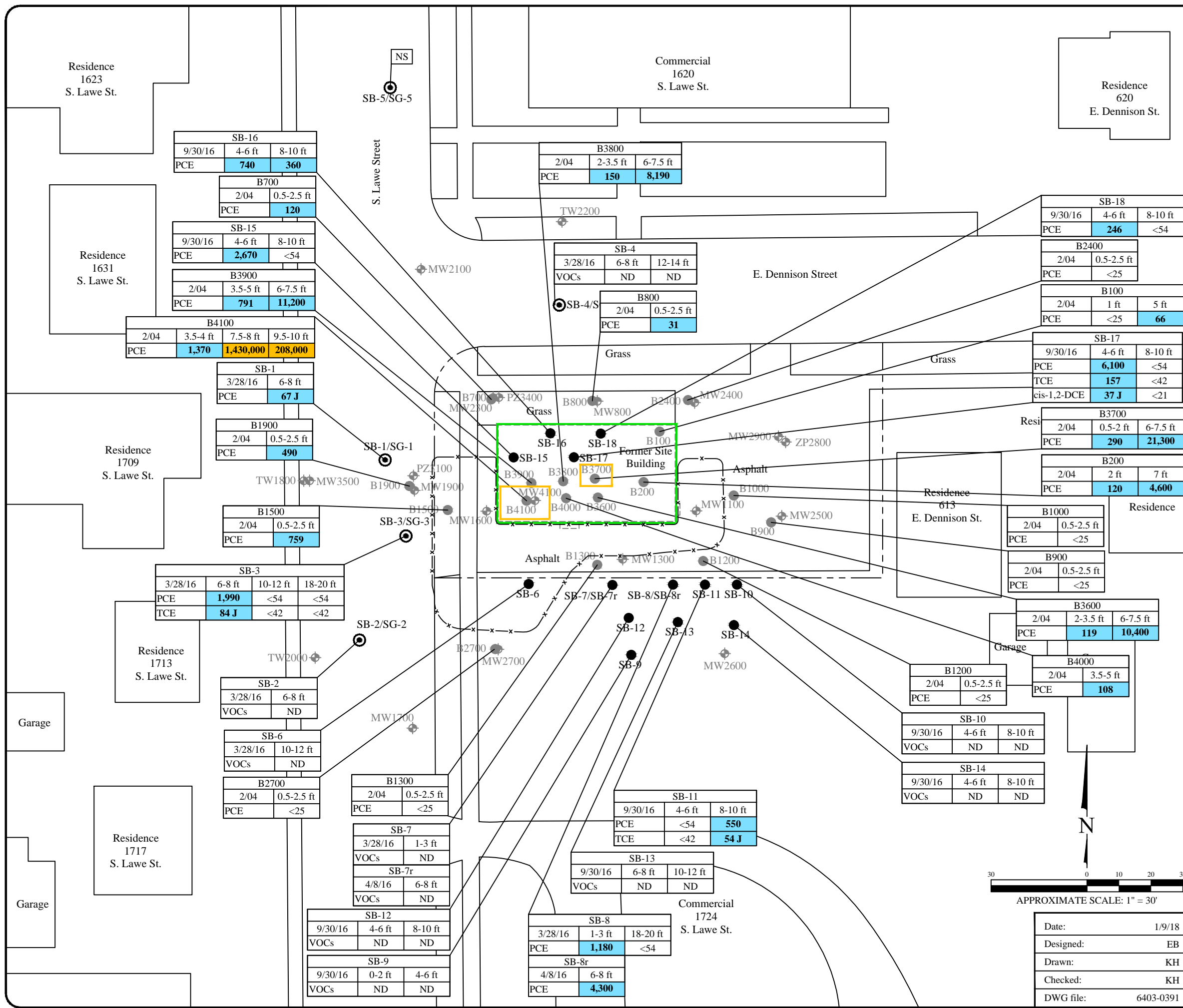
# Legend

- Property boundary
- MW1100 Monitoring well location (By Others)
- B100 Soil boring location (By Others)
- SB-1 Soil boring location
- SG-1 Soil gas sample

Analyte	Soil to Groundwater Residual Contaminant Level	Non-Industrial Residual Contaminant Level	Industrial Residual Contaminant Level
PCE	<b>4.5</b>	<b>30,700</b>	<b>153,000</b>
TCE	<b>3.6</b>	<b>1,260</b>	<b>8,810</b>
cis-1,2-DCE	<b>41.2</b>	<b>156,000</b>	<b>2,040,000</b>


- Proposed excavation area to 6 feet bgs
- Proposed excavation area to 10 feet bgs
- Extent of 2003 excavation

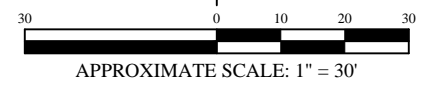
- Note:
- Bolded and blue shaded values exceed the Soil to Groundwater Residual Contaminant Level
  - Bolded values are above detection limits
  - J = Analyte concentration less than laboratory detection limits
  - Samples analyzed using EPA SW-846 Method 8260
  - All results reported in units of micrograms per kilogram (µg/kg)
  - PCE = Tetrachloroethene
  - TCE = Trichloroethene
  - cis-1,2-DCE = Cis-1,2-Dichloroethene
  - ND = Not detected
  - VOCs = Volatile Organic Compounds
  - NS = No Sample
  - bgs = Below Ground Surface



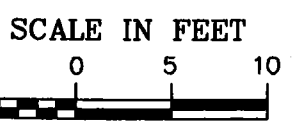
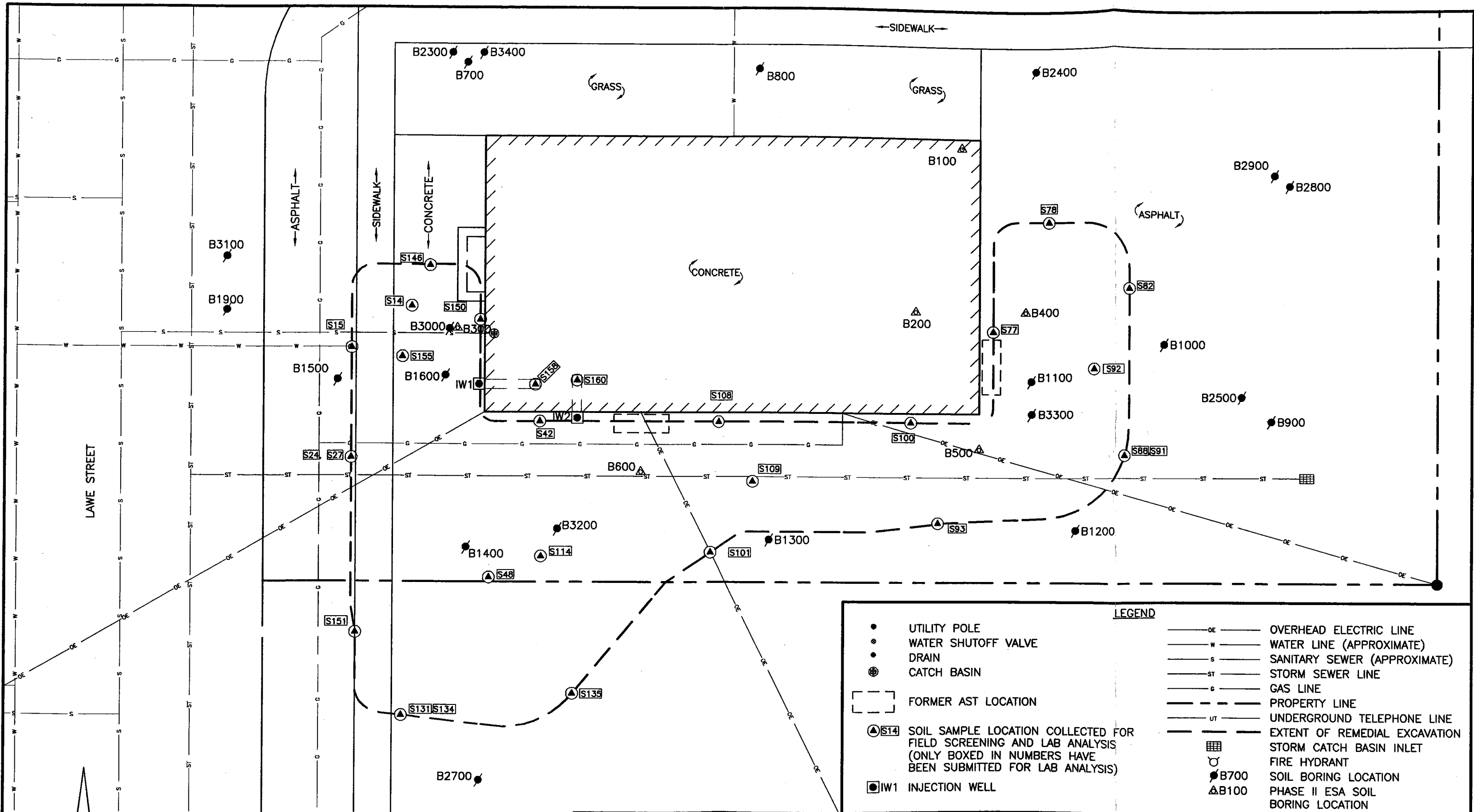
### SOIL ANALYTICAL RESULTS MAP WITH PROPOSED EXCAVATION EXTENT

Former Barb and Ron's Cleaners  
1700 South Lawe Street  
Appleton, Wisconsin

Date:	1/9/18	 825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com	Figure
Designed:	EB		2
Drawn:	KH		Project
Checked:	KH		6403
DWG file:	6403-0391		



Date:	1/9/18
Designed:	EB
Drawn:	KH
Checked:	KH
DWG file:	6403-0391



**Northern Environmental** SM  
 Hydrologists • Engineers • Geologists  
 954 Circle Drive, Green Bay, Wisconsin  
 Phone: 800-854-0606 Fax 920-592-8444  
 Website: www.northernenvironmental.com

WISCONSIN ▲ MICHIGAN ▲ ILLINOIS ▲ IOWA

CREATION DATE: 12/30/03  
 DRAWN BY: KRE  
 REVISION DATE: 01/08/04

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**LABORATORY ANALYZED SOIL SAMPLE LOCATIONS**

**BARB AND RON'S CLEANERS**  
 APPLETON, WISCONSIN

PROJECT NUMBER: BRC03-0407-1405

FIGURE 4