PREPARED BY
EnviroForensics, LLC
N16W23390 Stone Ridge Drive, Suite G
Waukesha, WI 53188

March 29, 2022

Josie Schultz
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-6727

Re: Further Site Investigation Work Plan
Former Troy Laundry & Cleaners
320 Pine Street, Sheboygan Falls, Wisconsin
BRRTS#: 02-60-385641

Dear Ms. Schultz:

EnviroForensics, LLC (EnviroForensics) is pleased to provide this Further Site Investigation (FSI) Work Plan (Work Plan) for the Former Troy Laundry & Cleaners facility located at 320 Pine Street in Sheboygan Falls, Wisconsin (Site). The Site layout is depicted on **Figure 1**. The Site investigation is being performed in accordance with Wisconsin Department of Natural Resources (WDNR) regulations and guidance regarding such investigations.

This Work Plan has been prepared in response to the WDNR letter dated June 10, 2021 which was issued following review of a case closure request for the Site. The letter, provided as **Attachment 1** for reference, details additional requirements for case closure.

SITE DESCRIPTION

The site is comprised of two (2) parcels with the addresses 320 and 326 Pine Street in Sheboygan Falls. The responsible party owns both parcels and it is treated as a single property which is referred to as "the Site" in this document. Originally there were two separate buildings at the site, one on each parcel. Both buildings were single story with full basements. At some point, an addition was constructed which joined the ground floor of the buildings; however, the two basements remain separated, with individual cobblestone and concrete block foundations. The basement slabs are entirely poured concrete with the exception of a small dirt floor area in the eastern (320 Pine Street) basement. The eastern basement extends under a portion of the parking lot. The site is further improved with a paved driveway and parking lot, and maintained lawn areas. The Site is bordered by Pine Street to the southeast, commercial buildings to the northeast and southwest, and a railroad right-of-way to the northwest.

An active dry cleaning operation occupied the Site from at least 1958 through 2008. Tetrachloroethene (PCE) was used as a solvent in the cleaning process. The dry cleaning operations and solvent storage occurred on the first floor of 320 Pine Street at the locations shown on **Figure 1**. The dry cleaning machine was located on the first floor of the building, over the full basement. No activities related to dry cleaning were performed in the basement, and it is unsuited for occupancy. After 2008 the building was used as a laundromat and a drop off location for clothes dry cleaned at an off-site facility. The drop-off location closed at the end of 2019. Currently, the 326 Pine Street building operates as an unstaffed, self-service laundromat and the other half of the building is vacant. The basement is used exclusively for storage and not suitable for occupancy.

FURTHER SITE INVESTIGATION ACTIVITIES

To accommodate our budget tracking and invoicing procedures, the FSI is designated as Phase 08, with the individual work elements designated as sub-phases. This tracking system allows us to effectively manage all work tasks to meet schedule and budget, and also allows us to fashion detailed invoices. EnviroForensics recommends the following FSI activities to address regulatory requirements and advance the Site toward closure:

- Source investigation, including soil and groundwater sampling in the basement of the Site building;
- Soil gas sampling
- Vapor intrusion sampling; and
- Additional groundwater monitoring.

The WDNR indicated that installation of a vapor mitigation system is needed due to contaminant exposure potential. Installation of a vapor mitigation system is not appropriate at this time for the following reasons:

- The building owner and laundromat customers spend no more than two hours per day in the building and are only in areas without potential for vapor intrusion. As such, the commercial exposure assumption of 8 hours per day, 40 hours per week is not valid in this case.
- Exceedances of regulatory standards were intermittent, with only one (1) vapor action level (VAL) exceedance in indoor air and one (1) vapor risk screening level (VRSL) exceedance in sub-slab vapor over several sampling events.

Instead, additional vapor intrusion sampling will be conducted in the building to monitor fluctuating concentrations from the historical release and further evaluate risk to current and future occupants.

The proposed work scope sub-phases are detailed in the following sections.

Source Investigation

The potential for a source of release in the basement will be evaluated by collecting shallow soil samples from the area of the basement with an unfinished floor (depicted on **Figure 2**). Four (4) samples designated HA-1 through HA-4 will be collected using hand methods. The soil samples will be collected from a depth just above the water table which is anticipated to be within 2 feet of the basement floor surface.

A new monitoring well designated MW-6 will be installed in the unfinished basement floor area. The purpose of MW-6 is to evaluate groundwater conditions beneath the building, between upgradient well MW-5 and downgradient well MW-4. The well will consist of a 1-inch diameter, 10-foot long pre-pack screen installed by direct-push methods. The screened interval depth of MW-6 is anticipated to be 2-12 feet below the basement floor surface. A surface completion consisting of a flush-mount well vault will be added for protection. The new monitoring well will be developed by surging and pumping. The top of casing elevation will be estimated relative to MW-4 using a laser level.

Soil Gas Sampling

Soil gas samples will be collected from permanent sampling points SG-1 and SG-2, shown on **Figure 1**, to evaluate current concentrations. The potential for ambient air to enter the sample through leaks in the sampling train or the sampling point annular seal can dilute the sample and lead to underestimation of concentration in the sample. To ensure that soil gas samples are representative of subsurface vapor conditions, leak testing using helium as a tracer gas and negative pressure testing will be performed prior to sample collection. The soil gas sample will then be collected in a batch-certified clean 1-liter vacuum canister, regulated to withdraw a sample at no more than 200 milliliters per minute (mL/min).
The soil gas samples will be submitted to an environmental laboratory under chain-of-custody for analysis of PCE and its degradation compounds according to EPA Test Method TO-15. The analytical results of the samples will be compared to previous results and current VRSLs.

Vapor Intrusion Monitoring

As described above, vapor intrusion monitoring will be conducted instead of vapor mitigation. Vapor intrusion monitoring will consist of paired indoor air and sub-slab vapor sampling in the 320 Pine Street basement. One (1) sampling event is planned at this time. All VI assessment activities will be conducted in accordance with WDNR guidance, including Publication RR-800: *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin*.

Floor Sealing

The unfinished dirt portion of the basement will be temporarily sealed with RadonAway 12 mil vapor barrier including tape specified by the manufacturer for proper installation. The edges will be mechanically sealed to the surrounding concrete floor surface using caulk and fasteners. The objective of this task is to rule out the unfinished floor as the source of the intermittent indoor detections.

Indoor Air Sampling

One (1) indoor air sample "IA-B-2" will be collected from the 320 Pine Street basement. Additionally, one (1) outdoor air sample will be collected from the upwind side of the building to assess background conditions. Samples will be collected in individually certified 6-liter vacuum canisters positioned 3-5 feet above the floor. Sample collection will occur over an 8-hour period. The air samples will be submitted to a laboratory under chain-of-custody for analysis of the contaminants of concern according to EPA Test Method TO-15. The analytical results of the air samples will be compared to WDNR Vapor Action Levels (VALs).

Sub-Slab Vapor Sampling

Sub-slab vapor samples will be collected from permanent Vapor Pin® sampling ports designated SSV-1 through SSV-3 which were previously installed in the basement slab of the building at the locations depicted on **Figure 1**. To ensure that the sub-slab vapor samples are representative of subsurface conditions, water dam leak testing will be performed at the sample port. The integrity of the sample tubing and fittings will be verified prior to sampling collection by conducting a negative pressure test.

The vapor samples will be collected through dedicated Teflon-lined polyethylene tubing connected to the sampling port. A graduated syringe will be utilized to purge ambient air from the tubing prior to initiating sample collection. Vapor beneath the concrete slab will then be drawn into a 1-liter vacuum canister fitted with a laboratory supplied regulator that limits the flow rate to approximately 200 milliliters per minute (mL/min).

Following the completion of sampling activities, the sub-slab vapor sample canisters will be submitted to an environmental laboratory for analysis of analysis of the contaminants of concern via EPA Test Method TO-15. The analytical results of the sub-slab vapor samples will be compared to WDNR vapor risk screening levels (VRSLs).

Groundwater Monitoring

Additional groundwater monitoring will be performed to evaluate groundwater flow direction and current contaminant concentrations. One (1) monitoring event will be completed,

consisting of depth to water measurements and sample collection from all wells MW-1 through MW-5 shown on **Figure 1** plus proposed well MW-6. The monitoring event will be performed within one month of the installation of MW-6.

Well caps will be removed at least 15 minutes before collecting water level measurements to allow groundwater in the monitoring well to equilibrate with the atmospheric pressure. The depth to water in each well will be measured to the nearest 0.01 of a foot using an electronic sounding device and recorded on sampling forms before sample collection activities.

Purging and sampling will use standard low flow (minimal drawdown) groundwater sampling procedures. During sampling, a multi-parameter water quality meter will measure temperature, pH, oxidation-reduction potential (ORP), specific conductance, and dissolved oxygen to verify stabilization before groundwater sample collection. Field personnel will record the data collected during the sampling activities on a field sampling form.

Groundwater samples will be transferred directly into laboratory-provided containers containing a hydrochloric acid preservative and placed into a cooler with ice. Samples will be submitted under appropriate chain-of-custody procedures to a state-certified laboratory for analysis of volatile organic compounds (VOCs) according to EPA Test Method 8260B. For quality assurance/quality control (QA/QC) purposes, duplicate and equipment blank samples will be collected at a frequency of one (1) sample per ten (10) investigative samples during each monitoring event.

Investigation-Derived Media Management

Investigation-derived media (IDM) will consist of soil from investigative borings and monitoring well installation, and groundwater from well development and sampling. The IDM generated by these activities will be placed in steel 55 gallon drums and staged at a location preferred by the Site owner. Based on the concentrations of COCs detected in samples to date, EnviroForensics anticipates all IDM will be characterized as non-hazardous. A licensed contractor will be retained to remove the drums from the Site for proper disposal.

Data Evaluation and Results Notifications

EnviroForensics will evaluate the data collected during the FSI to identify any data gaps. Depending on the results, potential additional investigation tasks may include:

- Sewer vapor sampling, including from building clean outs or vent stacks.
- Soil sampling along the sewer lateral between the Site building and Pine Street.
- Additional groundwater and/or vapor intrusion monitoring.

If additional investigation or vapor mitigation activities are warranted, EnviroForensics will prepare and submit a supplemental work scope for approval. If the nature and extent of subsurface impacts appear to be fully delineated, EnviroForensics will work with the WDNR to determine what and if any additional steps are required based on the FSI data. A cost estimate for preparation of a formal report will be submitted separately once determined.

Sample results notifications will be prepared and submitted to the building owner and WDNR within 10 days of receiving of the laboratory analytical reports, as required.

SCHEDULE

Field tasks will be completed in three mobilization as follows:

Mobilization 1	Perform the source investigation, including soil sampling and well installation and development. Also install the temporary vapor barrier in the basement.
Mobilization 2	Perform the groundwater monitoring event, soil gas sampling, and vapor intrusion monitoring.
Mobilization 3	IDM Management

EnviroForensics will request a standard turn-around-time of two weeks for all laboratory analyses. Data evaluation will be ongoing during the FSI. Sample results notifications will be submitted to the property owner and WDNR within 10 days of receiving the laboratory reports, as required. EnviroForensics anticipates that the activities described in this Work Scope can be completed within four (4) months of approval.

We appreciate the opportunity to work with you on this project. If you have any questions regarding this plan, please do not hesitate to call us at (262) 290-4001.

Sincerely,
EnviroForensics LLC

Rob Hoverman, LPG
Regional Director

Brian Kappen, PG
Project Manager

Copy: Leah Ziemba, Michael Best & Friedrich LLP
Marilyn Berlin

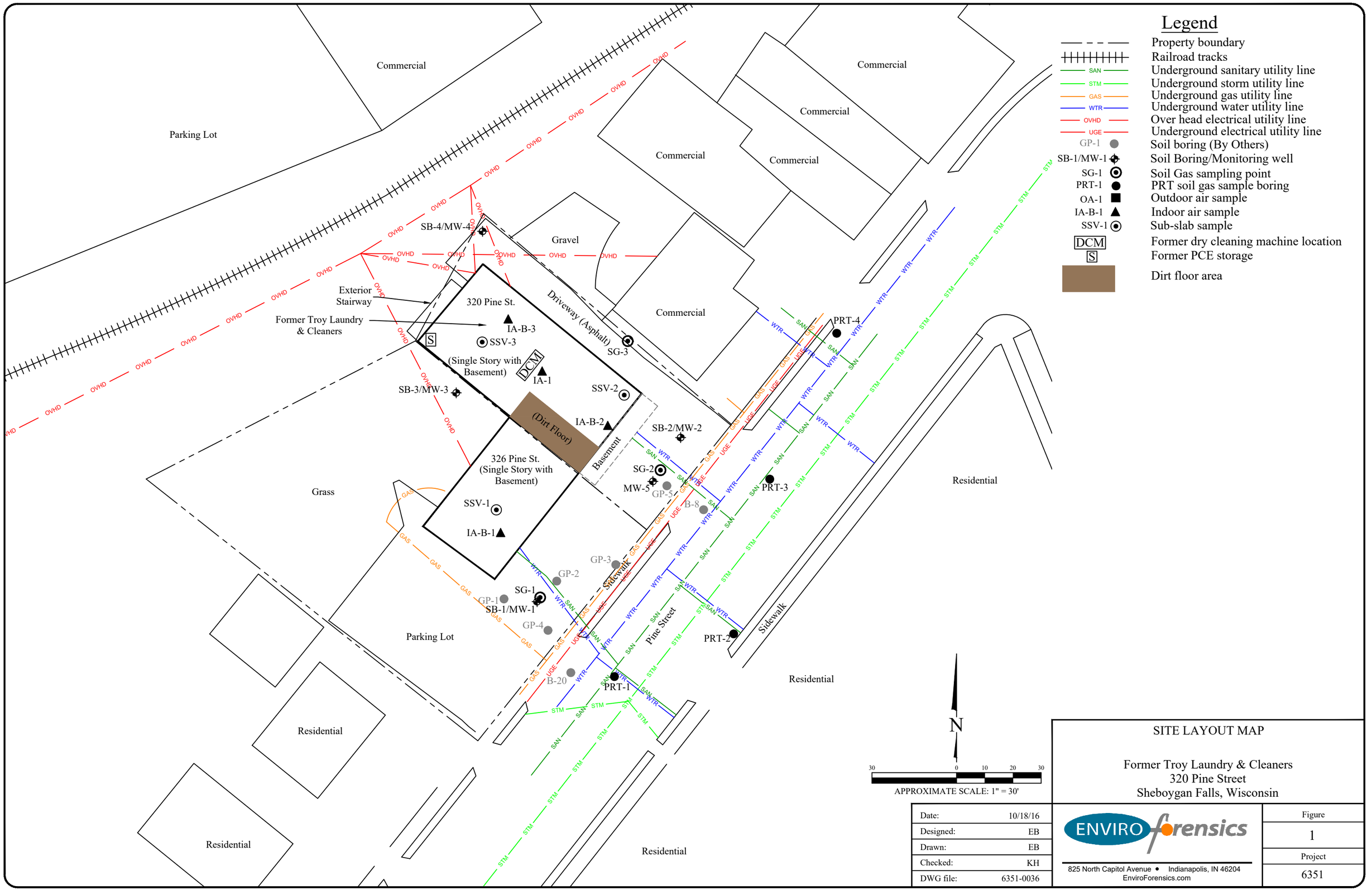
List of Attachments:

Figure 1: Site Layout Map

Figure 2: Source Investigation Locations

Attachment 1: June 10, 2021 WDNR Letter

FIGURES



Legend

- Property boundary
- Railroad tracks
- SAN — Underground sanitary utility line
- STM — Underground storm utility line
- GAS — Underground gas utility line
- WTR — Underground water utility line
- OVHD — Over head electrical utility line
- UGE — Underground electrical utility line
- GP-1 — Soil boring (By Others)
- SB-1/MW-1 — Soil Boring/Monitoring well
- SG-1 — Soil Gas sampling point
- PRT-1 — PRT soil gas sample boring
- OA-1 — Outdoor air sample
- IA-B-1 — Indoor air sample
- SSV-1 — Sub-slab sample
- DCM — Former dry cleaning machine location
- S — Former PCE storage
- Dirt floor area

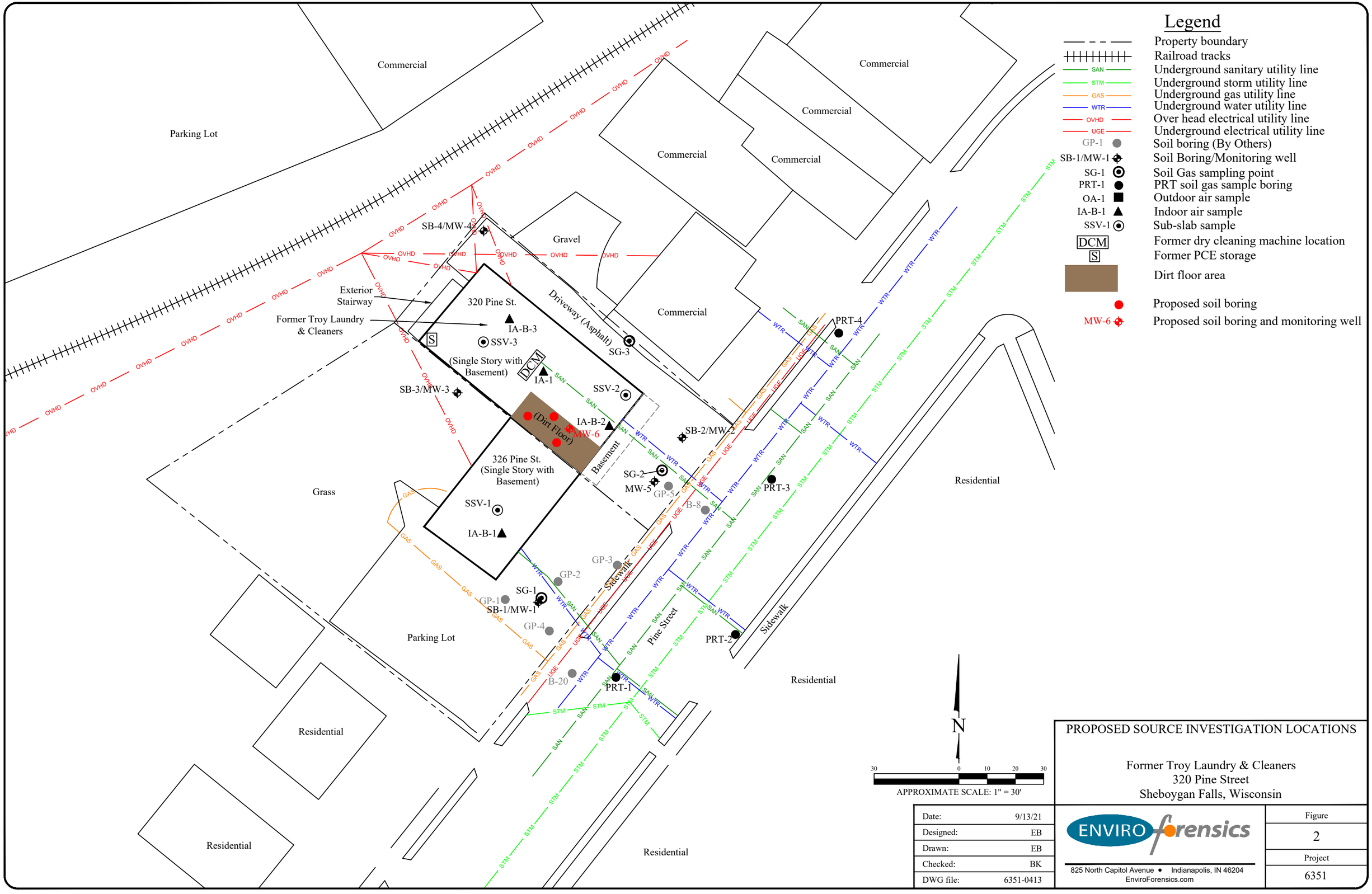
SITE LAYOUT MAP

Former Troy Laundry & Cleaners
320 Pine Street
Sheboygan Falls, Wisconsin

Date:	10/18/16
Designed:	EB
Drawn:	EB
Checked:	KH
DWG file:	6351-0036

ENVIRO forensics
825 North Capitol Avenue • Indianapolis, IN 46204
EnviroForensics.com

Figure	1
Project	6351



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- OA-1 — Outdoor air sample
- IA-B-1 — Indoor air sample
- SSV-1 — Sub-slab sample
- DCM — Former dry cleaning machine location
- S — Former PCE storage
- Dirt floor area
- Proposed soil boring
- MW-6 — Proposed soil boring and monitoring well

N

30 0 10 20 30

APPROXIMATE SCALE: 1" = 30'

PROPOSED SOURCE INVESTIGATION LOCATIONS

Former Troy Laundry & Cleaners
320 Pine Street
Sheboygan Falls, Wisconsin

Date:	9/13/21
Designed:	EB
Drawn:	EB
Checked:	BK
DWG file:	6351-0413

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825 North Capitol Avenue • Indianapolis, IN 46204
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Figure 2

Project 6351

ATTACHMENT 1

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
2984 Shawano Avenue
Green Bay WI 54313-6727

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

June 10, 2021

MARILYN BERLIN
W2626 MILEY RD
SHEBOYGAN FALLS WI 53085

Subject: Case Closure under Wis. Admin. Code ch. NR 726 Not Recommended
Troy Laundry & Cleaners, 320 Pine Street, Sheboygan Falls, Wisconsin
DNR BRRTS Activity # 02-60-385641, FID #: 460007900

Dear Ms. Berlin:

On May 6, 2021, Wisconsin Department of Natural Resources (DNR) reviewed the closure request for the case identified above. As you are aware, DNR reviews environmental remediation cases for compliance with applicable laws, including Wis. Stat. ch. 292 and Wis. Admin. Code chs. NR 700 – 754 and whether any further threat to public health, safety or welfare or the environment exists at the site or facility, per Wis. Admin. Code § NR 726.13 (2) (b). As discussed with your consultant on May 26, 2021, case closure is not recommended because additional legal requirements must be met. The purpose of this letter is to inform you of the remaining requirements for obtaining closure. We request that within 60 days of this letter, you provide us with the information requested or your written response regarding the necessary work and a schedule for completion of this work.

Additional Requirements Needed for Case Closure Under Wis. Admin. Code ch. NR 726
As noted above, additional work is necessary to meet the requirements for case closure. The degree and extent of contamination has not been defined in all media, all exposure pathways have not been adequately assessed, an interim action is required to address the completed Vapor Intrusion (VI) pathway and the reporting requirements of § NR 716.15(1) have not been met. As described below, further work is required in accordance with Wis. Stat. ch. 292 and Wis. Admin. Code chs. NR 700 – 754.

Need to Define the Degree and Extent of Contamination
Additional groundwater, soil, and vapor sampling is needed to define the degree and extent of contamination per Wis. Admin. Code § NR 716.11.

Need to Complete a Sanitary Sewer Vapor Investigation
Additional site investigation, per Wis. Admin. Code § NR 716.11 (5), is needed to determine whether the sanitary sewer that services the site is acting as a preferential pathway for vapors to migrate. If vapor migration is confirmed within the sanitary sewer, document all source control actions taken under Wis. Admin. Code § NR 726.05 (8) to assess/mitigate this pathway.

To investigate the sanitary sewer, DNR recommends referencing the Department of Defense (DoD)

Security Technology Certification Program (ESTCP) Study, along with DNR's recently published *Guidance for Documenting the Investigation of Human-Made Preferential Pathways Including Utility Corridors*; RR-649.

Need to Conduct Additional Groundwater Monitoring

Additional groundwater monitoring is needed to establish compliance with the closure criteria of Wis. Admin. Code § NR 726.05 (6). If monitored natural attenuation is to be used as a remedial action, additional groundwater data must be collected from MW-4, at a minimum, to demonstrate that vinyl chloride within this well is stable or decreasing, and the contaminant plume is not migrating off-site. Several monitoring wells have not been sampled since 2018; DNR highly recommends additional data be collected from these wells to ensure groundwater contamination remains stable or has begun to decrease. Based on the results of additional sampling, further investigation may be necessary to comply with the requirements of Wis. Admin. Code § NR 726.05 (6).

Need Additional Source Area Investigation

Additional site investigation, per Wis. Admin. Code § NR 716.11 (5) (e), is needed to determine the degree and extent of soil contamination. The source of contamination in soil has not been identified. Vapor concentrations within the on-site building indicate the soils of the unfinished (dirt) floor of the basement and other potential source areas should be investigated. It is also recommended that a monitoring well, and piezometer (if feasible), be installed in the dirt floor area beneath the building. Based on results, additional investigation may be needed.

Need to Install a Vapor Mitigation System

Vapors beneath the slab of 320 Pine Street detected concentrations of CVOCs greater than the small commercial Vapor Risk Screening Levels (VRSLs) and concentrations detected in a basement indoor air sample greater than small commercial Vapor Action Levels (VALs). A vapor mitigation system is required to be installed to address vapor intrusion in compliance with Wis. Admin Code §§ NR 708.11 (1) (b) and 708.11 (2) (d). As part of the system design and installation, the unfinished (dirt) floor within the basement will need to be sealed. This system will require commissioning, a long-term Operation, Maintenance and Monitoring (OM&M) plan and documentation submittal, which is outlined in DNR guidance document RR-800.

Schedule

Within 60 days of the date of this letter, respond in writing with a schedule of your plans to meet these requirements.

Additional Investigation – NR 716.11

Following submission of the work plan, the additional site investigation must be started within the timeframe provided under law. The timeframe varies depending on whether you are requesting the department's fee-based review of the work plan. If you do not request a fee-based review of the work plan, you must initiate the field investigation within 90 days of submitting the work plan, and you may proceed with the field investigation upon department notification to proceed; however, if the department has not responded within 30 days from submittal of the work plan, you may then proceed with the field investigation. If a fee and request for department review of the work plan is submitted, the field

investigation must begin within 60 days after receiving department approval.

Site Investigation Report - NR 716.15
Within 60 days of completion of the field investigation and receipt of the laboratory data, the law requires you to submit a Site Investigation Report (SIR) to the department. Also, as part of the SIR, you must include any interim action report, i.e. vapor mitigation system documentation, that may be required under Wis. Admin. Code § NR 708.15.

Until requirements are met, your site will remain "open" and you are required to submit semi-annual progress reports, per Wis. Admin. Code § NR 700.11. You are also responsible for any operation and maintenance activities required under Wis. Admin. Code § NR 724.13. Once the additional work has been completed, documentation should be submitted to the DNR to demonstrate that the applicable requirements have been met, per the timelines above.

Case closure can be reconsidered by the DNR once the additional work has been completed and documentation has been received.

Conclusion
If you have any questions regarding the information in this letter or would like to schedule a meeting to discuss this case, please contact the DNR project manager, Josie Schultz at 920-366-5685 or Josie.Schultz@wisconsin.gov. For more information on the closure reconsideration process, please see DNR publication, RR-102, "Wis. Admin. Code ch. NR 726 Case Closure Reconsideration Process" by visiting dnr.wi.gov, search: RR-102, for more information.

The DNR appreciates your efforts to restore the environment at this site.

Sincerely,

Roxanne N. Chronert
Team Supervisor, Northeast Region
Remediation & Redevelopment Program

cc: Marilyn Berlin, Responsible Party (tberlin@woodenwashtub.net)
Rob Hoverman, Enviroforensics, LLC (rhoverman@enviroforensics.com)
Brian Kappen, Enviroforensics, LLC (bkappen@enviroforensics.com)