From: Welch, Tim <Tim.Welch@terracon.com>
Sent: Thursday, May 13, 2021 3:20 PM
To: Schultz, Josie M - DNR
Cc: qefli neziri; Buc, Edmund A
Subject: #02-05-217270 OHM-Green Bay
Attachments: Martinizing SSDS & SSI Work Plan_05132021.pdf

Hi Josie,
The Work Plan for the OHM-Green Bay site is attached for Department review/approval.
Innovative Properties retained SWAT Environmental for SSDS modifications. Terracon will schedule SWAT for SSDS modifications presented in the Work Plan, and let you know when scheduled.
In the interim, please let us know if the SSDS modifications are adequate.
Please call with questions, and let me know if the Work Plan needs to be uploaded to WDNR portal.
Regards,

Timothy P. Welch, P.G.
Senior Project Manager I Environmental Services

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May 13, 2021

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

Attention: Ms. Josie Schultz

Telephone: (414) 263-8541
E-mail: josie.schultz@wisconsin.gov

RE: **SSDS Modifications & Supplemental Site Investigation Work Plan**
Martinizing Dry Cleaners and Laundry Services
1233 Military Avenue
Green Bay, Wisconsin
BRRTS #02-05-217270
Terracon Project No. 58217038

Dear Ms. Schultz:

On behalf of Innovative Properties Group LLC (Innovative Properties), Terracon Consultants, Inc. (Terracon) has prepared this *Sub-Slab Depressurization System (SSDS) Modifications & Supplemental Site Investigation Work Plan* (Work Plan) for the Martinizing Dry Cleaners and Laundry Services property located at 1233 Military Avenue, Green Bay, Wisconsin. This Work Plan is presented to address the Wisconsin Department of Natural Resources (WDNR) comments regarding the SSDS, subsurface investigation, and reporting at the property. A brief project background and proposed scope of services are provided in the following sections.

1.0 PROJECT BACKGROUND AND SITE INFORMATION

The site is located at 1233 Military Avenue in the City of Green Bay, Brown County, Wisconsin. The following information was presented in the GEI Consultants (GEI) June 30, 2020, *Documentation Report-Sub-Slab Vapor Mitigation System and Groundwater Sampling*. "There are five tenant spaces in the retail building. The largest tenant space located on the north end of the building is occupied by Jim's Music and consists of a retail sales area and a lesson area on the ground floor, and equipment storage and repair in the north basement (the south basement is unoccupied). The tenant space adjacent (south) to the lesson area is the One-Hour Marinizing dry cleaners. South of the dry cleaners is an unoccupied space, formerly Williams Tae Kwan Do. The final tenant space at the south end of the building is occupied by Edward Jones". A site diagram is attached (Figure 1).

"A release of dry-cleaning solvents occurred in, or prior to, 1999, and reportedly originated from the One-Hour Martinizing tenant space. Groundwater monitoring from 1999 through 2014 indicated groundwater quality has generally improved although monitoring wells located along the east side of the building (Monitoring Wells 1, 3, and 6) still show chlorinated solvents at concentrations exceeding groundwater quality standards".

"In response to environmental monitoring completed in July 2015, the Wisconsin Department of Natural Resources (WDNR) notified Innovative Properties, in a letter dated September 9, 2019, of their responsibilities, as the current owner, to mitigate environmental conditions and subsequently requested indoor ambient air sampling and sub-slab vapor sampling be completed. Ambient air samples along with sub-slab vapor samples were collected on March 4, 2020. Results indicated PCE concentrations at concentrations exceeding vapor screening levels".

In response to the sub-slab vapor results, an SSDS was installed to mitigate vapor intrusion in May 2020 (Figure 2-attached). The SSDS was constructed with horizontal vent piping, as it was stated groundwater was shallow beneath the basement floor slabs. The blower on the SSDS ceased operation in June 2020. The following work was performed after SSDS installation:

- Pressure field extension (PFE) probes, consisting of sub-slab vapor monitoring point installation, to measure vacuum readings;
- Ambient air samples were collected in May 2020 from the occupied tenant spaces. The ambient air samples were collected in summa cannisters, calibrated for 8-hour sample collection, and submitted for volatile organic compound (VOC) laboratory analysis using United States Environmental Protection Agency (USEPA) Method TO-15; and
- Groundwater samples were collected from eight (8) groundwater monitoring wells in April 2020, and submitted for USEPA Method 8260 VOC laboratory analysis. Two wells, MW-4 and MW-7, were not sampled.

Terracon summarizes the following GEI conclusions and recommendations:

- Install a replacement blower for the four (4) extraction points along the exterior wall of the east building;
- Collect vacuum readings from all sub-slab points on a monthly basis for six (6) months;
- Inspect the SSDS, and collect vacuum and photoionization readings from the SSDS monthly;
- Collect groundwater samples on an annual basis for USEPA Method 8260 analysis;
- Replace groundwater monitoring well MW-7 (direct-push temporary well) with a 2-inch, Wisconsin Administrative Code (WAC) NR 141-compliant groundwater monitoring well;
- Collect groundwater samples from the two sumps (S-1 and S-2). Sump water analyte and method were not provided, but is expected to be USEPA Method 8260 VOCs;
- Complete an audit of the existing dry-cleaning operation; and
- Complete a vapor survey of the utility laterals of the property.

On August 6, 2020 the WDNR responded electronically with the following:

"I've performed a review of the interim action report, and have a few comments/edits. I've noted that you will be submitting an addendum to the report once the blower system is installed. When this addendum is submitted, please also include the following edits to the report:

- Table 2 (page 10) needs the VRSLs and VALs added to the table, along with all compounds that were detected
- Table 3 (page 11) needs the PAL values added to the table
- Maps should include utilities, site/parcel boundaries, and include a scale.
- OM&M plan to be included.

Comments:

1. Are there PFE ports in Edward Jones? If not, port(s) will need to be installed for vacuum readings.
2. Future vapor sampling should only analyze for contaminants of concerns (CVOCs)
3. DNR agrees that MW-4 and MW-7 should be replaced with NR 141 compliant monitoring wells.
4. DNR recommends natural attenuation parameters be analyzed next round of groundwater sampling.
5. DNR agrees that groundwater samples should be obtained from basement sumps – this data should be submitted to the DNR immediately in order to review with the wastewater program and City of Green Bay.
6. Include past groundwater and soil sampling results in future report tables".

On October 26, 2020, the WDNR responded to GEIs *Documentation Report-Sub-Slab Vapor Mitigation System and Groundwater Sampling*. The following is a summary of the letter:

- Interim Action Design Concerns- Eleven (11) deviations from American Nation Standards Institute & American Association of Radon Scientists and Technologists (ANSI/AARST) standards were listed as potentially not met;
- Commissioning Requirements- Along with the listed ANSI/AARST standards not met, the SSDS has not been properly commissioned to verify the effectiveness of the mitigation. Proper PFE has not been performed to ensure good communication and vapor capture beneath the slab;
- Long-Term Operation, Monitoring, and Maintenance-A long term operation, monitoring, and maintenance (OM&M) plan is required for each system that specifies the conditions that must be maintained and monitored for continued long term protection from vapor intrusion; and
- Timeline- 1) The new blower fan should be installed, and VMS inspected, by November 6, 2020. Additional commissioning of the system, including PFE testing, fan vacuum readings, and smoke/tracer testing should be performed during this time, 2) Plumbing should be corrected (i.e., removal of vent from sanitary lateral), VMS be brought up to

ANSI/AARST standards, and recommended tracer testing be performed to ensure no short-circuiting is occurring, by November 30, 2020, 3) Indoor air sampling, as part of the commissioning process and performance verification, should be completed concurrent with PFE measurements, or within two weeks, and results provided to the DNR within 10 days, and 4) Documentation and/or addendum to vapor mitigation system construction documentation should be submitted to the WDNR by December 30, 2020.

On March 20, 2021, Terracon and SWAT Environmental (SWAT), a certified ANSI/AARST local radon abatement contractor, met with Ms. Josie Schulz from the WDNR, to inspect the SSDS, address the noted WDNR deviations, and provide a cost estimate to construct/commission the SSDS in accordance with ANSI/AARST standards

2.0 SCOPE OF SERVICES

Terracon proposes the following scope of services to address the WDNR's comments.

2.1 Sub-Slab Depressurization System Modifications

SWAT provided a proposal to perform adjustments/repairs to the SSDS, which included the following tasks:

- "Relocate all basement fans to the building exterior. This will include adding three new vent lines to the exterior of the building so each system has its own fan.
- Rebuild vent lines to eliminate water traps. If water traps are unavoidable, install measures to ensure moisture does not build up in the system.
- Remove vent line tied into sewer vent. Repair sewer vent pipe. Install new dedicated vent lines for sub-slab systems.
- Ensure sump lids are sealed properly and include 4" mechanical access, viewing ports, and trapped drains to each lid.
- Assure the vent stack is at least 10' above grade and away from re-entrainment points.
- Install manometer differential pressure gauge on the systems to serve as an indicator of system operation and to measure system pressure.
- Address exposed channel drain to ensure it retains its waterproofing properties.

Innovative Properties retained SWAT, and will implement the proposed work upon WDNR approval. Terracon personnel will do a post-modification inspection with SWAT to document SSDS modifications for incorporation into the OM&M plan.

2.2 Health and Safety Plan

Terracon is committed to the safety of all its employees. As such, and in accordance with our Incident and Injury Free® safety goals, Terracon will review and (if needed) update the existing safety plan to be used by our personnel during field services. Prior to commencement of on-site activities, Terracon will hold a brief health and safety meeting to review health and safety needs for this specific project. At this time, we anticipate performing fieldwork in a United States Environmental Protection Agency (USEPA) Level D work uniform consisting of hard hats, safety glasses, protective gloves, and steel-toed boots. It may become necessary to upgrade this level of protection, at additional cost, during sampling activities in the event that we encounter petroleum or chemical constituents in soils or groundwater that present an increased risk for personal exposure. In addition, Terracon retains the right to stop work without penalty at any time Terracon believes it is in the best interests of Terracon's employees or subcontractors to do so in order to reduce the risk of exposure to the coronavirus. Innovative Properties agrees it will respond quickly to all requests for information made by Terracon related to Terracon's pre-task planning and risk assessment processes. Innovative Properties acknowledges its responsibility for notifying Terracon of any circumstances that present a risk of exposure to the coronavirus or individuals who have tested positive for COVID-19 or are self-quarantining due to exhibiting symptoms associated with the coronavirus.

2.3 Locate Utilities in Work Area

In an effort to locate utilities in the work area, Terracon will review any site plans provided to us and will contact Diggers Hotline. To the extent practicable, the locations and depths of the various utilities will be identified to avoid damage to such utilities. A private utility locator will be contracted to locate private, on-site utilities not marked by Diggers Hotline. The proposed boring locations may be modified based upon the presence of utilities, or if access is otherwise restricted.

2.4 Soil Sampling

Terracon proposes to advance two (2) soil borings to facilitate collection of additional soil and groundwater samples. The borings will be advanced using a drill rig capable of collecting soil samples using direct-push methods as well as turning hollow-stem augers. The borings will be advanced adjacent to groundwater monitoring wells MW-4 and MW-7. Both soil borings (MW-4R and MW-7R) will be advanced to a maximum depth of 25 feet below ground surface (bgs). The proposed boring locations are depicted in the attached Figure 1; however, the locations may be modified based upon the presence of utilities or if access is otherwise restricted.

Soil samples will be collected continuously to the terminus of each boring. Soil characteristics (e.g. texture, color) and any unusual odors or discoloration will be noted on each soil boring log.

A photoionization detector (PID) will be used to field screen soil samples for volatile organic compound (VOC) vapors. Up to two soil samples will be collected from borings MW-4R and MW-7R. One soil sample will be selected for analysis from the upper four feet, and a second sample will be collected from below four feet. Both samples will be collected from depths with the highest PID readings. Or, if PID readings are not elevated, the deeper soil sample will be collected from immediately above the apparent soil/groundwater interface, and the shallow soil sample will be collected from 3 to 4 feet bgs, unless other indications of impacts suggest another sample depth. The soil samples will be collected in laboratory-supplied containers, placed in an ice chest to cool to approximately 4 degrees Celsius (°C), and transferred under chain-of-custody protocol (COC) to a Wisconsin-certified laboratory for analysis of VOCs by USEPA 8260.

2.5 Groundwater Monitoring Well Installation, Development, and Surveying

Upon completion of soil sampling, two groundwater monitoring wells (MW-4R and MW-7R) will be constructed to replace MW-4 and MW-7, respectively. The groundwater monitoring wells will be installed to a depth of approximately 25 feet bgs using hollow-stem augers per NR 141, WAC. The shallow monitoring wells will be constructed by attaching a 10-foot length of 2-inch-diameter, 0.010-inch slotted, polyvinyl chloride (PVC) well screen to a solid PVC riser pipe. A sand filter pack will be placed around the screen to a depth of approximately one foot above the top of the screen. The remainder of the borehole will be filled with bentonite to near the ground surface. Flush mount well protectors will be installed at each location. Groundwater monitoring wells MW-4 and MW-7 will be abandoned per NR 141, WAC.

Following installation, the wells will be developed with disposable bailers per NR 141, WAC. The groundwater monitoring wells will be surveyed relative to a national geodetic survey datum, so groundwater flow direction can be determined from static water level measurements.

2.6 Groundwater Monitoring Well Sampling

Not sooner than one week following well development, groundwater samples will be collected from the 7 groundwater monitoring wells (MW-1 through MW-7R) and three (3) piezometers (PZ-1, PZ-2, and PZ-6). Prior to sampling, the monitoring wells' expandable caps will be opened, and groundwater elevations allowed to equilibrate prior to measuring static water levels with a decontaminated electronic water level indicator. The groundwater samples will be collected using low-flow sampling methods to reduce the potential for sample turbidity. Terracon personnel will purge the wells prior to sampling using a low-flow pump and dedicated tubing. Natural attenuation field parameters such as dissolved oxygen (DO), oxidation-reduction potential (ORP), specific conductance, pH, and temperature will be measured using a water quality meter with a flow-through cell until stable readings are observed for each of the parameters. Generally, a goal of 3 consecutive readings within 10% taken a minimum of 5 minutes apart during purging is indicative

that groundwater in the well has stabilized. Upon stabilization, a groundwater sample will be collected from the monitoring wells and piezometers.

The groundwater samples from groundwater monitoring wells MW-1 through MW-7R will be submitted for laboratory analysis of VOCs by USEPA Method 8260, total organic carbon (TOC) by EPA Method 5310C, and methane, ethane, and ethene (MEE) by EPA Method 8015. Groundwater samples from the piezometers will be submitted for laboratory analysis of VOCs only. The groundwater samples will be collected in laboratory-supplied containers, placed in an ice chest to cool to approximately 4°C, and transferred under COC protocol to a Wisconsin-certified laboratory for analysis. A trip blank and duplicate sample will also be submitted for VOC laboratory analysis.

2.7 Investigation Derived Waste Disposal

All investigation-derived wastes (IDW), soil cuttings and development water, will be containerized in labeled 55-gallon drums for temporary storage on site. Upon receipt of the analytical results, Terracon will arrange for the appropriate disposal of the IDW generated during well construction.

2.8 Sump Sampling

Water samples will be collected from the two sumps (S-1 and S-2) with a peristaltic pump and dedicated tubing, placed in laboratory-supplied containers in an ice chest to cool to approximately 4°C, and transferred under COC protocol to a Wisconsin-certified laboratory for laboratory analysis of VOCs by USEPA Method 8260.

2.9 Ambient Air Sampling and SSDS Commissioning Requirements

It is understood that the USEPA collected two ambient air samples from the basement on March 9 -10, 2021. The samples were collected from the northeastern corner of the basement, and north corner of Jim's Music. Terracon proposes to collect two ambient air samples from the same locations approximately 1 month after the SSDS is operational to evaluate system effectiveness. Ambient air samples will be collected using laboratory-prepared 6-liter Summa canisters with a flow regulator calibrated for 8-hour sample collection. The ambient air samples will be submitted under COC protocol to Pace for analysis of PCE, TCE, trans-DCE, cis-DCE, and VC using USEPA Method TO-15.

Terracon was concerned about performing additional PFE testing in the basement based on shallow groundwater beneath the slab, and requested options to perform SSDS commissioning from the WDNR. In an April 1, 2021 electronic mail, the WDNR stated that because the basement mitigation is venting sumps, PFE testing isn't required. Therefore, in conjunction with the ambient

air sampling, Terracon personnel will collect manometer readings and other SSDS operational data to confirm the systems are operational.

2.10 Long-Term Operation, Monitoring, and Maintenance Plan

Terracon was concerned about performing additional PFE testing in the basement based on shallow groundwater beneath the slab, and requested options to perform commissioning from the WDNR. In an April 1, 2021 electronic mail, the WDNR stated that because the basement mitigation is venting sumps, PFE testing isn't required.

A long-term operation, monitoring, and maintenance (OM&M) plan is required for each system that specifies the conditions that must be maintained and monitored for continued long term protection from vapor intrusion. Terracon will work with SWAT to prepare an OM&M plan and inspection log as presented in the WDNR's *Maintenance Plans for Vapor Mitigation Systems/Vapor Intrusion Response Actions/Vapor Barriers* (RR-981).

2.11 Preparation of SSDS Modifications and Supplemental Site Investigation Report

Terracon will prepare a SSDS Modifications Documentation and Supplemental Site Investigation Report, that will include the following:

- Photodocumentation of SSDS repairs/upgrades;
- OM&M plan with Inspection Log (Form 4400-305) for each system;
- Documentation of field activities;
- Sample location map;
- Soil boring logs, groundwater monitoring well construction and development forms;
- Analytical laboratory results;
- Historical data tables with relevant standards; and
- Figures as requested by the WDNR.

2.12 Schedule

We anticipate SWAT can perform SSDS repairs within 2 weeks of the WDNR's approval of the Work Plan, contingent upon their schedule. Ambient air sampling will be performed approximately 1 month after the SSDS is operational. Supplemental site investigation can proceed within 3 weeks after WDNR approval of the Work Plan, contingent upon driller schedule and weather. The SSDS and SSI report can be completed within 3 weeks after receipt of the ambient air analytical results.

If you have any questions or comments regarding this Work Plan or require additional information, please contact us at (414) 423-0255.

Sincerely,

Timothy P. Welch, P.G.
Senior Project Manager

Edmund A. Buc, P.E., CHMM
Department Manager

Attachments - Figure 1- Monitoring Well Location Diagram
Figure 2-Sub-Slab Vapor Mitigation System Diagram

Copy to: Mr. Qefli Neziri-Innovative Properties Group LLC

EAB/TPW:tpw: /\\58217038\Project Documents\Work Plan\SSDS & SSI Work Plan _05132021.docx

N

NOT TO SCALE

LEGEND

MW-2 MONITORING WELL LOCATION

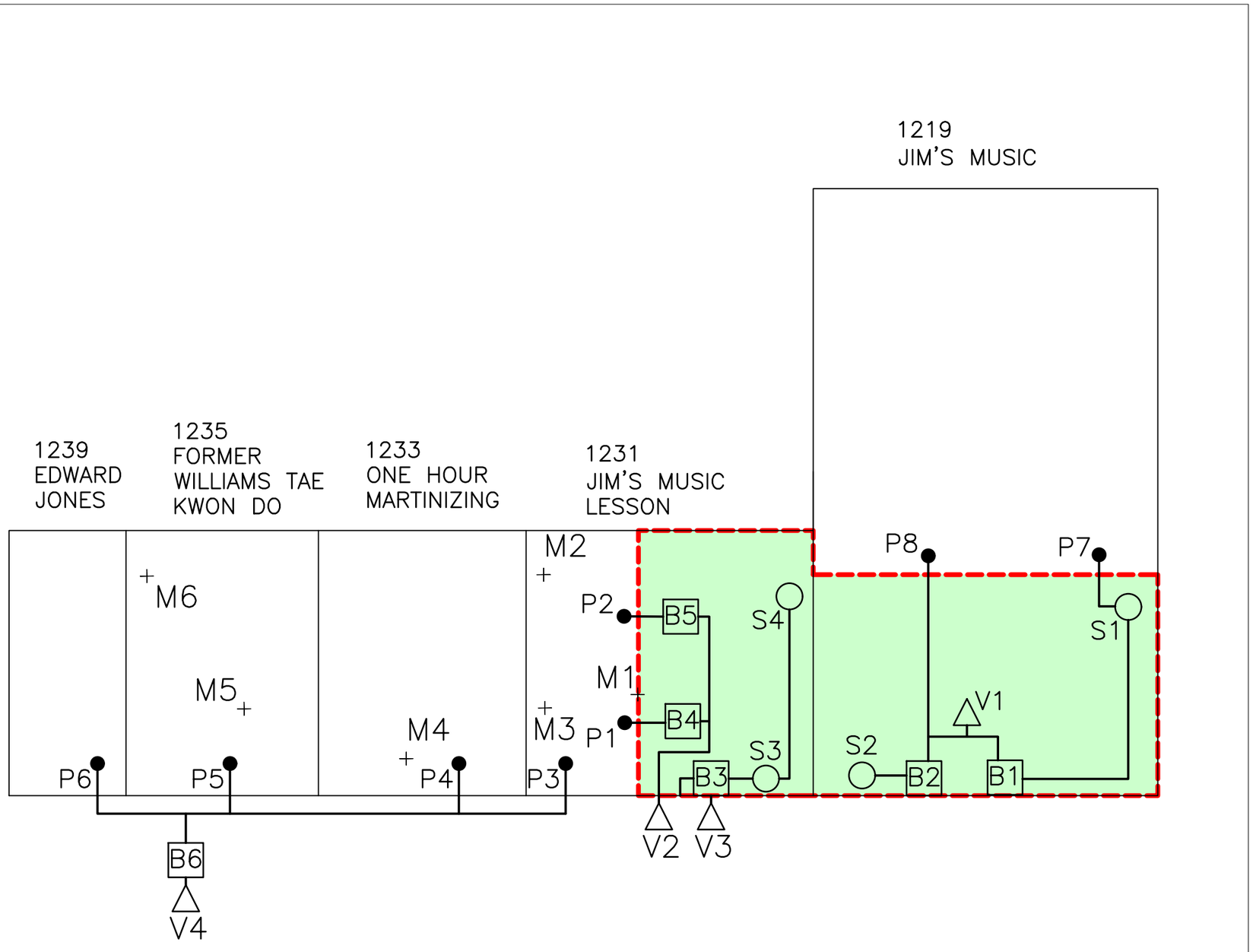
PZ-2 PIEZOMETER LOCATION

NOTE: BASE MAP FROM GOOGLE EARTH DATED JUNE, 2020.

MW-4R Proposed Replacement Groundwater Monitoring Well

SUB-SLAB VAPOR MITIGATION SYSTEM INNOVATIVE PROPERTIES GREEN BAY, WI	GEI Consultants	MONITORING WELL LOCATION DIAGRAM
	Project: 2002226	JUNE 2020 FIG-1

\\grb1v-fs01\ J:\2020\2002226-Innovative Properties\Fig 1-Monitoring Well Locations.dwg - 6/25/2020



NOT TO SCALE

LEGEND

- S1 ○ SUBGRADE SUMP
- B1 □ VACUUM BLOWER
- V1 △ DISCHARGE VENT
- P1 ● VAPOR EXTRACTION POINT
- M1 + SUB–SLAB VACUUM MONITORING PIN
- BASEMENT AREA

SUB-SLAB VAPOR MITIGATION SYSTEM INNOVATIVE PROPERTIES GREEN BAY, WI	GEI Consultants Project: 2002226	SUB-SLAB VAPOR MITIGATION SYSTEM DIAGRAM JUNE 2020 FIG-2

\\grb1v-fs01\ J:\2020\2002226-Innovative Properties\Fig 1-Monitoring Well Locations.dwg - 6/25/2020