PREPARED BY
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Waukesha, WI 53188

July 22, 2022

Josie Schultz
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-672

Subject: **Further Site Investigation Work Plan**
Former Econo-Care Cleaners
1404 S. Webster Avenue
Green Bay, WI 54301
BRRTS# 02-05-514372

Dear Ms. Schultz:

EnviroForensics, LLC (EnviroForensics) is pleased present this Further Site Investigation (FSI) Work Plan to conduct further site investigation activities for Econo-Care Cleaners, formerly located at 1404 S. Webster Avenue in Green Bay, Wisconsin (Site). The Site layout and surrounding properties are depicted on **Figure 1**. The proposed investigation consists of the following tasks:

- Investigate the magnitude and extent of chlorinated volatile organic compound (CVOC) contamination in soil;
- Further delineate the horizontal and vertical extents of the CVOC plume in groundwater; and
- Collect hydrogeological and geotechnical data for purposes of risk assessment and remedial options evaluation.

FURTHER SITE INVESTIGATION ACTIVITIES

To accommodate our budget tracking and invoicing procedures, the overall FSI is designated as Phase 03, 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 allows us to fashion detailed invoices. The proposed work scope sub-phases are detailed in the following sections. Once this work scope is approved, a clean version will be sent to the WDNR.

Phase 03a: Access Coordination

EnviroForensics will consult with Village of Allouez officials for permission to install groundwater monitoring wells in right-of-way areas. Permit applications for street access and street excavation will be completed and submitted with the required fees. This sub-phase includes time to mobilize to the site and notify nearby property owners of planned work.

Phase 03b: Soil Investigation

Investigation activities conducted at the Site related to the leaking underground storage tank (LUST) case did not include analysis of CVOC impacts in soil apart from a single sample. To investigate the magnitude and extent of CVOC contamination, seven (7) soil borings (SB-1 through SB-7) will be advanced to the water table (approximately 20 feet below ground surface) using direct-push methods. The proposed boring locations are distributed across accessible areas around the Site building as shown on **Figure 2**, including near the sanitary and storm water laterals.

In accordance with safe work practices and as required by state law, EnviroForensics will contact Wisconsin 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. EnviroForensics will also contract with a private underground utility locating service to provide additional confidence regarding the position of potential underground hazards at the drilling locations. The private locating service will use geophysical and electromagnetic equipment to locate underground utilities across the entire Site. Utility information will be added to the Site plan and used to position investigative borings.

Soil cores will be continuously collected in 5-ft long by 1.5-inch diameter vinyl acetate plastic sample sleeves. Field screening at each 2-ft interval will be conducted using a photoionization detector (PID) meter, the results of which will be recorded. Soil lithology will be continuously described in accordance with the Unified Soil Classification System (USCS) and recorded on boring logs.

Up to three (3) soil samples will be collected from each soil boring for laboratory analysis. Sample depths will be based on soil lithology, physical observations, and PID readings. Samples will be collected in laboratory-supplied containers, labeled, logged on a chain-of-custody form, and submitted to a state-certified laboratory for analysis of volatile organic compounds (VOCs) by USEPA SW-846 Test Method 8260.

In addition, larger volume samples of soil will be collected during the installation of monitoring wells for geotechnical tests including bulk density, grain size distribution, and porosity. Two (2) samples are planned to characterize the reported sand and sandy clay lithologies encountered near the water table depth. These testing results will be used in groundwater flow calculations, risk assessment, and future remedial planning.

Phase 03c: Groundwater Investigation and Monitoring Well Installation

Direct-push borings will be performed initially at each six potential well locations to log soil lithology and screen for volatiles. Intervals with elevated PID levels will be sampled for laboratory analysis as described in Phase 03b. The borings will be advanced to 10 feet below the water table (approximately 30 feet bgs), or to 50 feet bgs for the piezometer boring. To delineate between the sewer line and MW-4- through 6, two (2) additional borings will be advanced between the site and monitoring wells in the Derby right-of-way.

Once groundwater is encountered, a temporary well consisting of 1-inch diameter ID, 0.010-inch slotted PVC well screen, with PVC riser extending to the ground surface, will be placed in the borehole. Groundwater samples will then be collected using a check valve with new dedicated polyethylene tubing. Groundwater samples will be analyzed in the field in real time using a Defiant Technologies Frog 4000 (Frog). The Frog will be used to quickly and cost-effectively analyze the groundwater, identify detections and direct well locations Duplicate samples will be submitted to a State-certified laboratory for confirmation analysis from borings not converted to permanent monitoring wells.

Groundwater samples will be transferred directly into laboratory-provided containers containing hydrochloric acid preservatives 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 VOCs according to U.S. EPA SW Method 8260. The soil will be screened during each boring as described above. If elevated PID readings are found using, a sample will be collected and analyzed for VOC analysis. The temporary wells will be removed immediately after sample collection and the boreholes will be abandoned in accordance with WDNR regulations.

Six (6) water table monitoring wells designated MW-1 through MW-6 were previously installed as part of the LUST case investigation. The CVOC plume is not defined by the existing well network. EnviroForensics will direct the installation of additional groundwater borings and monitoring wells to further investigate the downgradient and vertical extent of CVOC impacts in groundwater.

One (1) piezometer will be nested with MW-1 and designated MW-1d to investigate the vertical extent of impacts one the Site. Four (4) additional monitoring wells designated MW-7 through MW-10 will be installed in right-of-way areas in the downgradient direction at select locations based on real time groundwater screening with the Frog unit as shown on **Figure 2**. The borings will then be over-drilled using a 4.25-inch inner diameter hollow-stem auger (HSA) to facilitate well installation. Soil cuttings will be staged in a roll-off container pending characterization for off-site disposal.

Wells will be constructed of 2-inch diameter ID, 0.010-inch slotted PVC well screen, with PVC riser extending to the ground surface. Piezometer MW-1d will be screened from approximately 45 to 50 feet bgs; each downgradient water table wells will be constructed with a 10-feet long screens that intersect the water table. Sand pack materials will be placed from the bottom of the screen up to two feet above the well screen. A bentonite seal will extend from the top of the sand pack to approximately 1 foot below ground surface. Expandable locking caps and locks will be placed on each well. Traffic-rated flush-mount well boxes set in concrete will be installed to protect the wells.

Upon completion of the installation of the new monitoring wells, a licensed surveyor will record the elevation and location of each monitoring well by standard surveying methods. A vertical elevation survey will be conducted to establish the elevation of each monitoring relative to above mean sea level (amsl). The horizontal and vertical grid coordinates of each monitoring well will be recorded to within 0.5 foot and 0.01 foot, respectively. Horizontal coordinates will be referenced to the State Plane Coordinate System.

Phase 03d: Well Development

The newly installed piezometer and monitoring wells will be developed in accordance with the procedures and requirements detailed in WAC Chapter NR 141. The wells will be surged with a surge block and pumped during the development process to remove fines from the sand pack until the water runs clear or 10 well volumes are removed. If the monitoring well(s) can be purged dry, the well(s) will be surged and then slowly purged dry using a disposable bailer(s). Non-dedicated development equipment will be decontaminated between each monitoring well. Development water will be temporarily stored in 300-gallon totes.

Phase 03e: Slug Testing

Slug testing will be performed to determine the hydraulic conductivity (K) of the shallow water-bearing interval(s). Rising head slug tests will be performed in four (4) monitoring wells and the average K value will be used for flow velocity calculations. Water in the wells will be displaced

using a solid, 3-feet long PVC rod (slug). A transducer deployed near the bottom of the well will record the change in water level over time as recovery occurs. The raw data will be reduced in a spreadsheet program, and analysis will be completed utilizing AQTESOLV software. The analysis reports will be provided in a future comprehensive investigation report.

Phase 03f: Groundwater Monitoring

EnviroForensics proposes to conduct four (4) groundwater monitoring events that include depth to water measurements and sample collection from all monitoring wells to track contaminant trends and comply with WDNR investigation requirements. Once the new monitoring wells proposed under Phase 03c are installed, the monitoring network will consist of 11 water table wells and one (1) piezometer.

Well caps will be removed at least 15 minutes prior to 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 prior to sample collection activities.

EnviroForensics anticipates groundwater purging and sampling using standard low-flow methods. If low-flow methods are not suitable due to limited recharge rates, purging and sampling will be completed using new, disposable bailers. Field parameters including pH, specific conductivity, temperature, oxidation-reduction potential (ORP), and dissolved oxygen (DO) will be measured during purging and recorded on a field sampling form. Wells that purge dry will be allowed to recharge for a minimum of four (4) hours prior to sample collection.

Groundwater samples will be transferred directly into laboratory-provided containers containing 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 VOCs according to U.S. EPA SW Method 8260. 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. Purge water will be temporarily stored in 300-gallon totes. Three (3) wells will be selected for analysis of additional geochemical/natural attenuation parameters. It is anticipated one well will be on-Site, a second from the 1324 Webster Street property, and the third from the new downgradient locations. The geochemical parameters will include methane, ethane, and ethene, nitrate, nitrite, sulfate, anions, total and dissolved iron, dissolved nitrate/nitrite, and total organic carbon, and during the first event dehalococcoides bacteria population and species.

Phase 03g: Data Evaluation and Reporting

The soil sample and groundwater monitoring data will be evaluated and summarized with comparison to regulatory standards as laboratory results are received. A conceptual site model (CSM), tables, and figures will be developed and incorporated into update report and outline any investigation tasks if needed.

Phase 03h: Investigation-Derived Media Management

Investigation-derived media (IDM) will consist of soil cuttings and groundwater generated during well development and purging prior to sample collection. Soil cuttings will be placed in a roll-of container. Two (2) composite soil samples will be collected for profiling. Groundwater will be staged in 300-gallon plastic totes. Samples will be collected directly from the totes for characterization and profiling. Based on the concentrations of contaminants detected in previous soil and monitoring well samples, EnviroForensics anticipates that all IDM will be characterized as non-hazardous. The cost estimate does not include disposal of any hazardous waste. A licensed contractor will be retained to transfer the IDM off-site for proper disposal.

Phase 03i: Project Management

Project management tasks will include budget management and tracking; management of project execution, personnel and scheduling; and meetings and conference calls with regulators and other stakeholders. Project management costs included in this Work Scope assume an FSI duration of 15 months.

ASSUMPTIONS AND LIMITATIONS

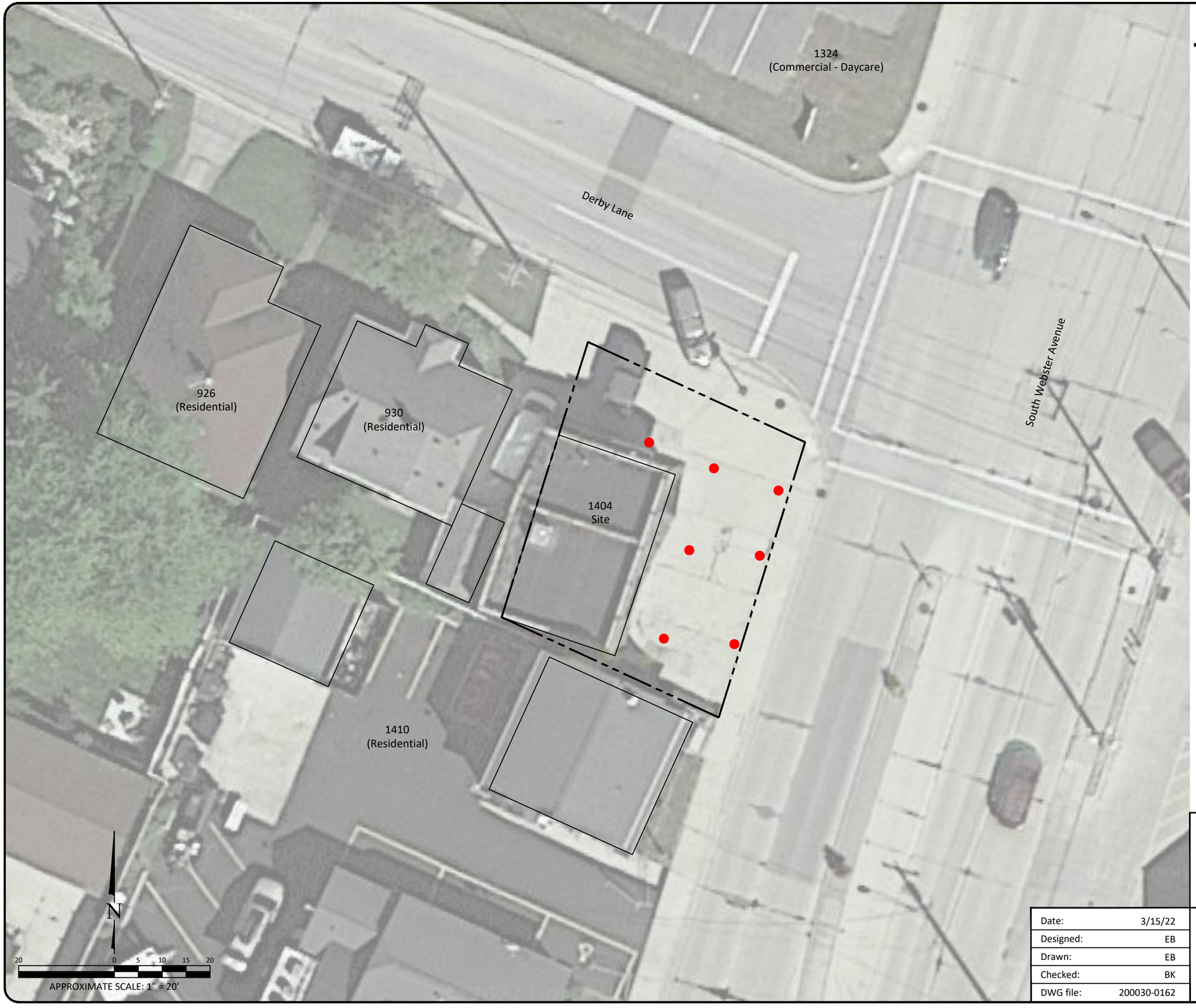
There are inherent limitations in the evaluation of subsurface conditions and that certain conditions may not be detected. Thus, this investigation cannot provide a guarantee that all possible on-site contamination will be discovered. The proposed cost assumes that permission will be granted by all property owners and/or tenants to conduct investigation activities; that normal conditions will be encountered; and that any delays, obstructions, or other limitations outside the control of EnviroForensics may result in additional cost to the Project. This proposal assumes that the three locations can be sampled during one mobilization event. No other sampling will be performed beyond what is described herein. In the event of these conditions, EnviroForensics will notify you for approval.

If you have any questions or require additional information, please do not hesitate to contact me at (262) 510-0612.

Sincerely,
EnviroForensics, LLC

Rob Hoverman, PG
Senior Project Manager
rhoverman@enviroforensics.com

Attachments:
Figure 1 – Proposed Soil Boring and Sample Locations
Figure 2 – Groundwater Delineation Locations



Legend

Property boundary

Proposed soil boring locations (approximate)

Note: Boring locations will be finalized after utility clearance activities

PROPOSED SOIL BORING AND SAMPLING LOCATIONS

1404 South Webster Avenue
Green Bay, Wisconsin

Date:	3/15/22
Designed:	EB
Drawn:	EB
Checked:	BK
DWG file:	200030-0162

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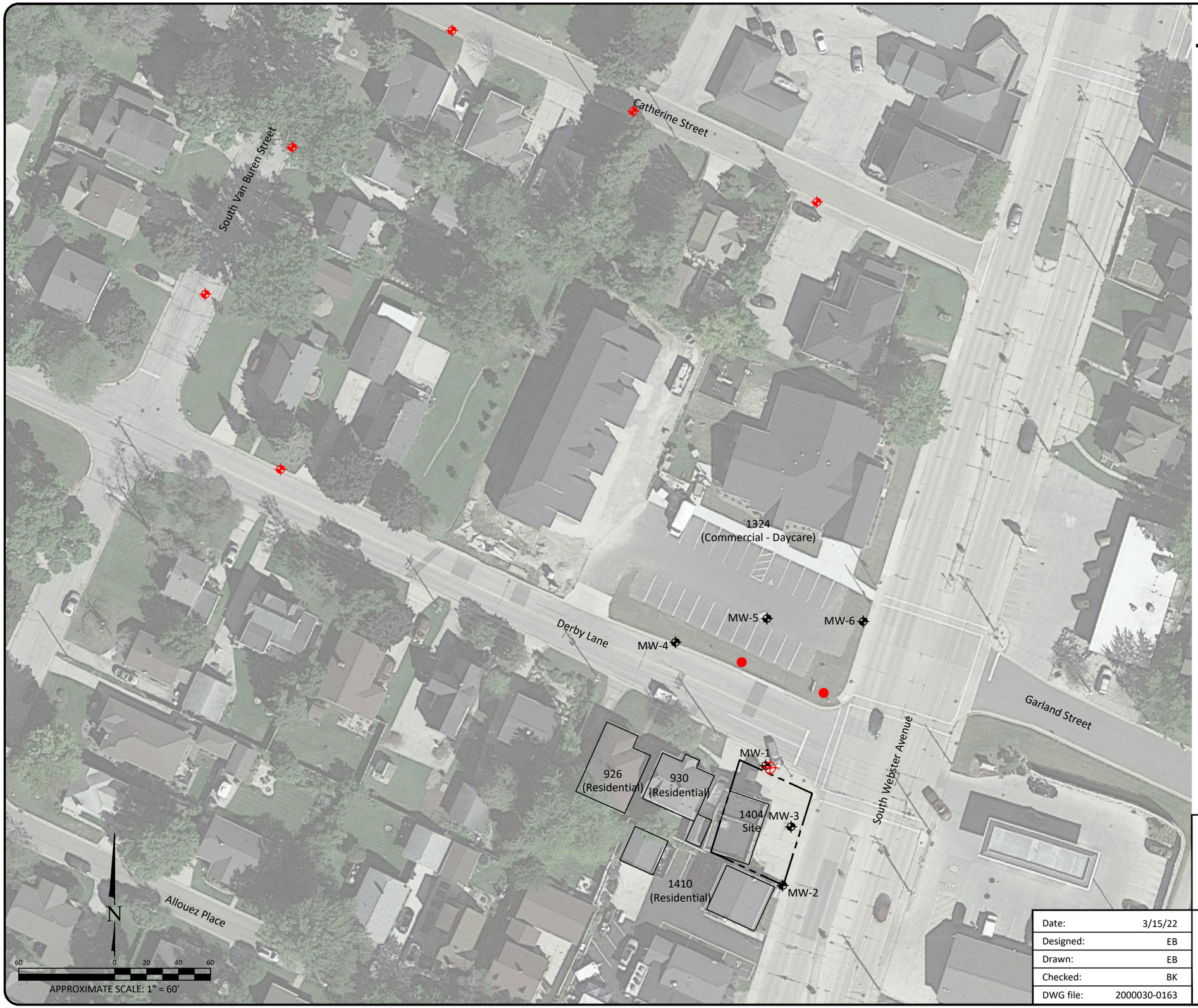
825 North Capitol Avenue • Indianapolis, IN 46204
EnviroForensics.com

Figure
1
Project
200030



Legend

- Property boundary
- MW-1 Monitoring Well (By Others)
- Boring and potential monitoring well
- Proposed piezometer location
- Proposed boring location

Note: Proposed well locations are approximate. Final locations will depend on permit requirements and utility clearance

GROUNDWATER DELINEATION LOCATIONS

1404 South Webster Avenue
Green Bay, Wisconsin

Date:	3/15/22
Designed:	EB
Drawn:	EB
Checked:	BK
DWG file:	2000030-0163

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Figure
2

Project
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