Revised Remedial Action Plan

Former Shorewood Queensway Drycleaning Site

BRRTS # 02-41-552089

Project No.: 17-1124

February 11, 2019

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL

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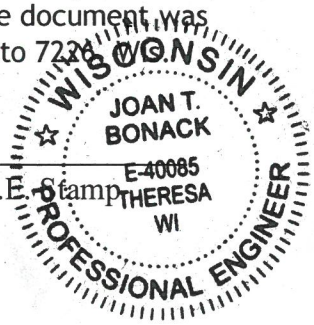
"I, Joan Bonack, herby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and 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 724, Wis. Adm. Code."

Joan T. Bonack, Project Manager E-40085

Signature, title and P.E. number

P.E. Stamp



I, Kendrick A. Ebbott, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), 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 754, Wis. Adm. Code.

Kendrick A. Ebbott

Signature

February 8, 2019

Date

1.0 INTRODUCTION

Fehr Graham sent a Remedial Action Plan dated July 2018 that presented information from additional soil, concrete, and groundwater samples retained at the Former Shorewood Cleaners BRRTS site (Property) located at 4300 North Oakland Avenue, Shorewood, Wisconsin. Appropriate Wisconsin Department of Natural Resources (WDNR) review fees were included with the submittal.

The July 2018 report summarized the site conditions and presented an approach for implementation of a remedial action that involves building demolition, source soil removal, backfill, and groundwater monitoring so that redevelopment of the Property can occur. Redevelopment will include the neighboring property to the east, at 1808 East Marion Street, which is also owned by the owner of Shorewood Queensway Cleaners. The structure at 1808 East Marion Street is residential with a basement and the surface grades are approximately three feet higher than the dry-cleaning Property.

The WDNR responded with a September 5, 2018 preliminary response letter and a formal letter dated November 12, 2018 requesting additional information on the plan.

1.1 Objective

The purpose of this submittal is to provide the requested additional information and present the updated Remedial Action Plan.

In addition, this submittal includes a request for concurrence with the proposed Contained-out Determination for excavated concrete, soil, and treated soil.

This document has been prepared by a licensed professional geologist with signature by a licensed professional engineer, as required under NR 712. The previously paid WDNR review fees should also cover the revisions to this plan.

To keep the submittal brief, previously presented information regarding the site conditions have only been briefly summarized. Please refer to the July 2018 report for further details on the site conditions.

1.2 Site Conditions : Geology and Hydrogeology

The Property is a former drycleaner that has been vacant since 2017. A site investigation has been completed that has defined the extent of contamination related to released tetrachloroethene (PCE). The PCE is present in soil, groundwater, and vapor beneath the Property and the neighboring property to the north. A vapor mitigation system operates to extract subslab vapor from beneath the south end of the basement of the neighboring structure to the north.

The site geology consists of a small amount of sand and gravel fill beneath the building and parking area to depths of approximately one foot below grade. There is also apparently a former basement or root cellar beneath the 25' x 40' northwest part of the building, based on borehole refusal at five feet in several interior borings, but there is no access to the basement; the interior floor of the building is solid at grade across the structure.

Native soil beneath fill at the Property consists of silt and clay to the evaluated depth of approximately 28 feet. The materials are dense with a low hydraulic conductivity and all nine of the site monitoring wells bail dry. No piezometers have been installed at the site, as the dense clay soil at depths of at least 28 feet has tested clean in several borings. As requested by the WDNR, installation of piezometers following removal of the most contaminated soil is proposed for completion.

The depth to bedrock is mapped as approximately 150 feet below grade and consists of the carbonates of the Devonian-age Milwaukee Formation.

The depth to water ranges from four to eight feet next to the building and groundwater flow is to the north/northeast.

1.3 Conceptual Model for Releases, Contaminants, and Receptors

Elevated levels of primarily PCE are present in soil, groundwater, and vapor on the Property. Some degradation products of PCE have been identified (trichloroethene (TCE), DCE), but in minimal concentrations, and PCE is the main contaminant of concern. The highest concentrations of drycleaning solvents are present in the saturated soil approximately eight to ten feet below grade beneath the building adjacent to the former drycleaning machine.

The conceptual model for contaminant releases at the site includes surface spills from historic drycleaning operations. From 1960 until 1986, when upgraded equipment and waste handling practices were implemented, releases occurred related to routine wet transfer machine operations, filter draining/disposal of filters, and legal discarding of wastewater via the floor drain or outside the rear door. These releases occurred primarily adjacent to the drycleaning machine but also may have occurred near the rear building doors, with runoff to the edge of the outside concrete or asphalt surfaces. The functioning building sanitary sewer lateral empties to the west into North Oakland Street, and investigation borings and vapor sampling have established that impacts adjacent to the lateral are present but minimal.

Migration of PCE in the subsurface has extended vertically downward to a depth of approximately 18 feet. Clean saturated soil samples from depths of 20 feet and below have been noted at several locations. Borings right at the drycleaning machine have not extended below approximately 15 feet intentionally for fear of providing a vertical migration pathway downward for contamination. After removal of the bulk of the contaminated soil via excavation, soil samples will be retained from the excavation base to evaluate the vertical extent of remaining saturated soil impacts. The WDNR has requested that piezometers be installed to depths of 30 feet below grade after the soil remedial action has been completed to document deeper groundwater chemistry.

Migration of contaminated groundwater has extended to the north in the direction of groundwater flow and extends beneath the alley north of the site and beneath the building of the adjacent property to the north (4312 to 4334 North Oakland Avenue). The building has an eight-foot deep basement, and soil and groundwater samples obtained from the basement indicate PCE contamination is present. Two active vapor mitigation systems are operating to capture vapors beneath the basement floor of 4312 to 4334 North Oakland Avenue to keep the subslab vapors from entering the structure.

Contamination also extends to the east onto the 1808 East Marion Street property and south of the building on the Shorewood Cleaners property at relatively low concentrations (typically less than 0.5 mg/kg).

Contaminant receptor risks include migration of contamination to groundwater and vapors. The site and all residences nearby are connected to municipal water which is obtained from surface water from Lake Michigan, so ingestion of contaminated groundwater is not a concern.

Vapor migration is being controlled beneath the adjacent neighboring property to the north via an operating vapor mitigation system, but a source remedial action should reduce future sub-building vapor contaminant concentrations. Post-remediation testing should be conducted to assess if the remedial action can eliminate the need for a vapor mitigation system beneath the building.

2.0 REMEDIATION APPROACH AND REGULATORY APPROVAL OF WASTES FOR DISPOSAL

2.1 Remediation Goals

The overall goals for remediation at the site will be the NR 140 groundwater standards (ES and PAL). Efforts will be made to significantly reduce the soil contaminant mass.

Cost-effective elimination of all contamination in soil to levels below the generic WDNR Residual Contaminant Levels (RCLs) will not be possible, regardless of the remediation method, as low levels of PCE are present off-site beneath Oakland Avenue.

Once the remedial action has eliminated most of the contamination and groundwater contaminant levels display stable or declining concentrations over time, it will be possible to obtain case closure. A Geographic Information System (GIS) listing for residual soil and groundwater contamination will be necessary for this site, as well as a Maintenance Plan requiring the upkeep of a remaining cap over residual soil containing concentrations of drycleaning chemicals above the leach to groundwater RCLs. Remaining groundwater and vapor contamination that extends to off-site properties and the adjacent streets will require notification to the property owner(s).

Operation and maintenance of the subslab vapor mitigation system beneath the neighboring building will likely continue to be necessary even after removal of most of the contaminant mass on the Property.

Any new construction on the Property will need to plan for proper management of excavated soil, likely with landfill disposal. In addition, any future Property structure will likely need a vapor mitigation or control system. Subsurface parking with exhaust ventilation will likely prove adequate to address the post-remediation chemical vapor control needs.

2.2 Contained Out Determination Request and Soil Disposal, Sampling, and Handling Procedures

Concurrence with this contained-out determination request is needed to obtain landfill approval so the project can proceed. In the July 2018 Fehr Graham report, a Hazardous Waste Determination Form 4400-319 was provided as an attachment. The form has been revised to reflect additional information and is attached to this report.

For simplicity in discussions, PCE is the only compound present in soil that has been identified at levels above threshold values that would make the soil characteristically hazardous. This discussion of soil threshold levels focuses on PCE contaminant levels as they relate to the cleanup project. However, we understand that if other chlorinated volatile organic compounds (CVOCs), such as TCE or vinyl chloride are identified in test results that exceed their respective TCLP or other threshold values, those results will also define whether the soil passes or fails the requirements for landfill acceptance.

Based on discussions with the long time former facility operator, Ms. Shirley Carlson, the releases of PCE at the site likely occurred between 1960 and 1986. Information has been

provided previously related to the changes in operations that occurred in 1986 that resulted in significantly less potential for continued releases of PCE.

Based on conversations with Mr. Michael Ellenbecker of the WDNR, because the dates of generation of the PCE in the soil predate the implementation of the Land Disposal Restrictions in November 1988, it is our understanding that those regulations will not apply for soil that is proposed for treatment, retesting, and then disposal at this site.

It is also likely the release of the majority of PCE at the site predates the effective date of November 19, 1980 for the listing of PCE as a hazardous waste. Regardless, the contaminated soil will still need to be treated to reduce the concentration of PCE in the soil prior to being allowed to be landfilled, as the concentration levels exceed characteristically hazardous criteria (greater than industrial direct contact levels for PCE of 153 mg/kg and/or fail the TCLP leach level of 0.7 mg/l).

During the remediation project, there are five materials planned for excavation and removal for the site.

1. Standard Demolition Building Debris (plaster, drywall, roofing, *etc*.)
2. Uncontaminated Concrete and Brick
3. Contaminated Concrete Flooring
4. Direct Haul Contaminated Soil
5. Treated Contaminated Soil

In summary, the discussion below supports the following framework for material handling and disposal, and WDNR approval of these plans is requested and necessary to obtain landfill approval.

- Concrete and brick from the building walls and footings on both parcels is expected to be clean and will be removed and recycled.
- Concrete flooring across the entire drycleaner building interior surface will be landfilled at a subtitle D facility.
- Soil with PCE below 14 mg/kg will be directly landfilled.
- Soil with PCE above 14 mg/kg will be treated, followed by retesting.
- Treated soil will be tested following treatment and will be acceptable for landfill disposal if levels pass the TCLP criteria of 0.7 mg/l for PCE.

The handling and justification for the five types of materials are described below:

2.2.1 Standard Demolition Debris and Uncontaminated Concrete Building Footings/Walls

Demolition of the structures at 4300 North Oakland Avenue and 1808 East Marion Street will be handled per standard demolition procedures with landfill disposal and off-site recycling of clean concrete and brick, if possible.

Asbestos and lead paint testing have been completed and asbestos-containing materials have been abated. There was no lead-based paint, brick, or concrete identified in testing of the structures, so these materials could be recycled instead of landfilled. Clean concrete will include all basement walls and floor of the 1808 East Marion Street residence and the vertical walls and footings of the former Shorewood Cleaners structure. Although not anticipated, if odors are noted when

excavating concrete footings or concrete from any portion of the former Shorewood Cleaners building, the material will be segregated and landfilled.

2.2.2 Contaminated Concrete Flooring

Based on existing test results from four concrete samples obtained across the interior building floor (Borings A, C, E, M, and Table 2), the concrete contains a maximum of 2.12 mg/kg PCE and the TCLP test results from all four samples indicate the levels of PCE are below the threshold value of 0.7 mg/l.

Based on the concentration of PCE in the concrete, under the contained out rule, the concrete meets criteria that allows disposal as a solid waste at a licensed facility.

Based on these results, all concrete flooring from the building, estimated at 151 tons, will be landfilled at a licensed subtitle D facility.

2.2.3 Direct Haul Contaminated Soil

Existing soil chemistry results from more than 130 soil samples have been reviewed, including six TCLP extraction soil samples. At the suggestion of the WDNR, efforts were made to reinterpret the information into Decision Units as part of this assessment, to identify segregated areas for remediation purposes. However, because soil sampling was conducted in several phases with the intention to define the horizontal and vertical extent of contamination and not define the potential contaminant treatment zones, the number of sample results from potential various decision units do not have statistically adequate representation to prove useful for Decision Unit calculations. As a result, a traditional evaluation of the soil results and treatment plan is been proposed.

The default criteria for soil that can be directly landfilled is 20 times the TCLP threshold value for PCE of 0.7 mg/l or 14 mg/kg. TCLP results from the site soil indicates concentrations greater than 14 mg/kg can be present and not leach above the 0.7 mg/l threshold value, (concentrations of PCE of 27.3 mg/kg and 46.1 mg/kg passed the 0.7 mg/l threshold value – Table 2).

However, for the sake of simplicity, the default level of 14 mg/kg will be used to define which soil can be directly excavated and landfilled at a subtitle D facility.

Using this criteria, an estimated 1380 tons of soil from the areas shown on Table 1, Figure 3, and Figures 4B to 4E will be landfilled at a subtitle D facility.

2.2.4 Treated Contaminated Soil

Soil containing more than 14 mg/kg PCE will be treated on site with Fenton's Reagent and BAM ®. Mixing will be conducted in-situ using a backhoe with sprayed-on liquid chemical application of the Fenton's reagent solutions. Following the addition of Fenton's, a strong oxidizer, solid BAM ® will be mixed with the soil using the backhoe bucket until the soil has been thoroughly blended and has the consistency of thick oatmeal.

Upon mixing, the treated soil will be excavated and stored in eight 30-cubic yard drop boxes on the Property, likely along the 1808 East Marion Street parcel. The boxes will be lined with plastic, and upon filling, will be covered with plastic. Each

box will be labeled as containing hazardous waste, and warning signs will be posted on the Property. Temporary snow fencing or an equivalent barrier will be placed around the property to keep the public protected.

Sampling of the treated soil will be completed using the Incremental Sampling Methodology, as requested by WDNR. Using this process, three grab samples of soil will be retained from the approximately one cubic yard backhoe bucket as the mixed soil is being placed into each 30 cubic yard drop box. The incremental samples will be placed in a large stainless-steel mixing bowl until the 30 cubic yard box has been filled. For practical purposes, soil from every third backhoe bucket load will be sampled. An estimated 30 bucket-loads are expected to be needed to fill each 30-cubic yard box, and an estimated 30 soil sample intervals will be retained of the mixed and treated soil for each 30 cubic yard box.

After sampling, the incremental sample treated soil material will be thoroughly mixed in the bowl. Two representative samples will be retained for laboratory analysis of TCLP CVOCs from each 30 cubic yard box. TCLP analysis requires 48 to 72 hours for processing before results are available.

Interpretation of the analytical results will be performed by comparison to the federal hazardous waste threshold criteria. Upon receipt of the analytical results, if the average of the two TCLP soil results from each 30 cubic yard box indicates the treated soil passes the TCLP leach values for VOCs, (notably the 0.7 mg/l PCE threshold value), the material will be considered to have been shown to pass the contained-out threshold criteria, and the treated soil is no longer hazardous. It can then be can be landfilled at a subtitle D facility.

If the average of the two samples from each 30 cubic yard box of treated soil fail to meet the TCLP criteria, additional chemical and mixing will be completed. An empty 30 cubic yard drop box will be used to partially empty the soil from the box that failed the TCLP criteria and additional BAM ® will be added to the soil for further mixing. The soil will then be resampled using the same procedures as previously identified with 30 incremental samples retained using the backhoe from soil across the 30 cubic yards of remixed soil. Two lab samples will be submitted, and the average will be used to determine if the soil displays concentrations that support a "contained-out" determination of no longer being hazardous.

If advantageous from a scheduling standpoint, we expect deeper soil from approximately nine to 18 feet below grade may be mixed in the excavation and left in the excavation instead of placed into drop boxes. It will depend on the timing for the overall project and how quickly the initial treated soil can be tested and removed from the eight 30-cubic yard drop boxes.

If soil is mixed and left in the hole, it will be sampled with the same procedure as mixed soil that is removed from the excavation into drop boxes, with approximately 30 incremental samples retained from the backhoe bucket per every 30 cubic yards of material, and two laboratory samples will be submitted for TCLP VOC analysis per every 30 cubic yards of soil that has been treated.

For example, approximately 134 cubic yards of soil from nine to 14 feet below grade is proposed for mixing (Table 1). Approximately 134 incremental samples will

be obtained of this mixed material and the sample locations will be segregated in the field by location based on the excavation dimensions. If the mixed zone is five feet thick, an area roughly ten feet by 16 feet contains a 30 cubic yard increment of soil, and the 30 incremental samples of treated soil from that part of the excavation will generate two laboratory TCLP soil samples for analysis. Upon receipt of test results, the samples from various parts of the excavation will be either hauled to the landfill, or retreated, based on the average of the two samples from each treated interval.

Using this procedure, an estimated 416 cubic yards of soil from the areas shown in Figures 4B to 4E will be treated, tested, and landfilled at a subtitle D facility.

3.0 REMEDIAL ACTION PLAN

The following remedial action plan is proposed and needs WDNR approval to proceed. The plan is laid out on a task by task basis, with additional details provided per WDNR request.

3.1 Task 1: Injection Permit, Local Permit, Landfill Approval, Project Set Up

Once the WDNR indicates the proposed approach has been approved, we can begin lining up other approvals and permits, including the following:

- WDNR WPDES Permit / Injection Permit
- Village of Shorewood Approval
- Neighboring Property Owner Access / Approval
- Landfill Approval
- Utility Approval

Details follow:

3.1.1 WDNR WPDES Permit / Injection Permit

The WDNR WPDES permit/injection permit will be obtained from Mr. Binyoti Amungwafor of the WDNR. The permit is a requirement because the plan for soil handling involves application of chemicals to the contaminated soil. Mixing of chemicals in soil is considered injection that requires a permit.

The permit application materials will be filled out and submitted and the separate $700 WDNR permit review fee will be submitted with the application. It is expected the permit can be issued within a few weeks of the request.

3.1.2 Village of Shorewood Approval

The Village of Shorewood has indicated they need to be kept informed of the project status and planned activities. Likely requirements include:

- Presentation to the Design Review Board to inform them of the plans. The Village will require specific restoration requirements, such as vegetative cover versus gravel.
- Demolition permit, with 10-day notification to the WDNR, per state requirements. Utility disconnections will be part of the demolition process and will be completed per code requirements. Lead and asbestos surveys have been completed. Abatement of asbestos has been addressed and no lead-based paint was identified in either structure.
- Handouts describing the project will be prepared so the Village can answer questions from neighbors.
- Preparation of a Health and Safety Plan documenting any emergency processes and procedures. The plan will be provided to the Village Fire and Police Departments, so everyone is aware of the nature of the chemical treatment process and physical/chemical hazards at the site. The plan will include erection of a fence or other physical barriers, as needed, for protection of the public.

3.1.3 Neighboring Property Owner Access/Approval

Access has already been negotiated with the neighboring property owner to the north at 4312 to 4334 North Oakland Avenue. The agreement will need to be broadened to include excavation and restoration activities and likely placement of a 30 cubic yard roll off box on the corner of their property, if needed. Further discussions will be held with the owner of the 4312 to 4334 North Oakland Avenue and their legal representative.

Restoration will include replacement of the existing private storm sewer catch basin that runs to the north beneath the alley immediately east of the building. We propose to remove the soil and catch basin and replace it with a new catch basin structure, and the Village of Shorewood has indicated that line is not municipally owned. If possible, the existing catch-basin will merely be reused, but we expect replacement will likely be needed due to the difficulty associated with removal of the catch-basin without damaging it.

3.1.4 Landfill Approval

All soil removed from the site will be hauled to a licensed subtitle D facility in Wisconsin for disposal. Landfill approval will be obtained prior to excavation and the landfill will need WDNR concurrence that the soil can be accepted under the proposed disposal criteria and contained-out determination in this report.

3.1.5 Electric Pole and Overhead Utilities

WEPCO has been contacted regarding the electric pole on the northeast corner of the Shorewood Cleaners property. The pole has electric and utility lines and a private light mounted on it. When the plans are approved by the WDNR, WEPCO will be contacted to further discuss best management practices for excavation near this pole. We expect to leave the pole in place, with supports as necessary, as the pole is beyond the proposed excavation boundary. However, power and other utilities on the pole may need to be temporarily rerouted. Further discussions with the utility can clarify specifics once the project moves forward.

3.2 Task 2: Excavation and Soil Treatment

After obtaining permits, the following activities will be completed (see Table 1, and Figures 3 and 4A to 4E).

- Utility Shutoff and Support of Power Pole
- Erection of fencing
- Building demolition of 4300 North Oakland Avenue to grade
- Building demolition of 1808 East Marion Street with backfilling of the basement with clean, imported fill to grade
- Disposal and recycling of demolition materials (clean brick and concrete) from both structures
- Landfill disposal of an estimated 151 tons of contaminated concrete consisting of the entire floor of the Shorewood Cleaners property
- Landfill disposal of an estimated 1380 tons of direct haul soil from the Shorewood Cleaners Property and alley to the north

- Excavation and treatment of an estimated 416 cubic yards (936 tons) of soil (Treated Soil) using Fenton's Reagent and BAM ® (a carbon-based amendment) from the Shorewood Cleaners property and the alley to the north
- Temporary storage of Treated Soil, on-site in eight 30 cubic yard lined drop boxes
- Potential temporary storage of Treated Soil in-situ after mixing in place in the base of the proposed 14 to 18 feet deep excavation
- Laboratory testing of Treated Soil using the Incremental Sampling Method from the backhoe bucket
- If needed, retreatment with additional BAM ® by partially emptying the drop boxes into other drop boxes, then adding more BAM ®, with mixing using the backhoe bucket. Additional laboratory testing of the retreated soil will be completed using the same incremental sampling methods as noted above
- Upon receipt of laboratory reports documenting the disposal criteria have been met, removal and disposal of Treated Soil at the licensed subtitle D landfill

Water in the excavation will be minimized to the extent possible. The site will be graded to slope away from the open excavation to the extent possible, minimizing surface water flow into the open hole.

The soils consist of tight clay and we do not anticipate infiltration of groundwater into the excavation to any appreciable amount. We also plan to have clean, imported backfill ready for placement in the excavation upon reaching the final excavation depth. If there are small quantities of water in the excavation base, the use of 3-inch clear stone in the excavation base can accommodate some minor amounts of water.

A contingency for handling of water has been researched, and if necessary due to rainfall or inflow, accumulated water in the excavation will be removed via pump or suction truck to a tanker truck or a rented 18,000 gallon frac tank. Testing of water will be necessary to assess disposal or pretreatment requirements. While the (MMSD) can accept the water discharges via a nearby sanitary sewer manhole, there may be a need for carbon pre-treatment before disposal. Rented carbon vessels, pumps, and a second storage tank will be arranged, if needed, to treat water for MMSD disposal.

Alternatively, it may be easier and more cost effective to hire an off-site private treatment company to remove, haul, and treat the water at their location prior to permitted disposal at their facility. The selected option will depend on the quantity of water present and the water chemistry.

3.3 Task 3: Chemical Treatment of the Excavation Base, Backfill, and Replacement Well Installation

Upon completion of the excavation, the following will be completed:

- Placement of 12 cubic yards of BAM within soil from the bottom foot of the deepest part of the excavation, with treatment directed on soil beneath the north wall of the excavation adjacent to the neighboring building. The BAM will be briefly incorporated into the base soils using the backhoe bucket to facilitate contact with the soil, then tamped into place
- Obtain an estimated 35 soil samples from the excavation perimeter to document remaining chemistry results. Wall soil sample depths will typically include two intervals, one from the top four feet of soil, to assess potential future direct

contact risks and disposal needs during redevelopment, and deeper intervals from the excavation base
- Backfill the excavation to grade using imported bank run sand and gravel compacted in one foot lifts. The base of the excavation will receive a minimum of one foot of 3-inch clear stone
- The surficial six inches of all site disturbed areas will be backfilled with soil. A vegetative cover, likely grass, will be planted, with the specific blend as specified by the Village of Shorewood
- Restoration of monitoring wells MW-3 and MW-5 with wells MW-3R and MW-5R in the excavation backfill. Well screened intervals will extend from approximately 3 to 13 feet below grade at each location
- Installation of two piezometers (PZ-10 and PZ-11) with screened intervals from 25 to 30 feet below grade at locations adjacent to wells MW-3R and MW-5R
- Except for the excavation proposed on the 4312 parcel to the north, no resurfacing with concrete or asphalt will be performed. The 4312 property to the north will be restored to current conditions, with installation of concrete, asphalt, and a replacement storm sewer catch basin

3.4 Task 4: Semi-Annual Groundwater Monitoring and Vapor Assessments

After the excavation, the following field sampling activities will be completed:
- Installation of the replacement wells and piezometers, as noted under Task 3
- Well development and surveying
- Groundwater sampling from all nine monitoring wells and the two new piezometers; Sampling will be completed one month after the excavation has been completed, and every six months thereafter for an estimated four events post-excavation. Sampling will be completed using individually dedicated bailers and nylon rope
- Analysis of groundwater for VOCs, and on two events, methane, ethane, and ethene.
- Field monitoring for D.O., ORP, pH, and conductivity
- Field monitoring of the subslab vapor systems and subfloor chemistry beneath the adjacent building to the north at 4312 to 4316 North Oakland Avenue; Monitoring will include use of a field PID to monitor the ambient and subslab concentration of VOCs in the air
- Laboratory sampling of the indoor and subslab vapor of the 4312 and 4316 building basements on two sample events. Samples will be obtained once the groundwater chemistry results demonstrate that the project is on track for closure. Vapor analytical results are expected to be necessary to evaluate whether the subslab venting system will require continued operation following case closure

3.5 Task 5: Reporting

After the excavation, the following reports are anticipated:

- Completion of a remedial action documentation report after receipt of the initial post-excavation groundwater chemistry results. The report will document the remaining soil chemistry results, proper disposal of the contaminated materials,

and the restoration of the site. The report will be sent to the WDNR and the neighboring property owner to the north.

- After each of the proposed four groundwater sample events, the data will be tabulated and plotted. A brief email transmittal communicating the findings will be provided to the WDNR. Results will also be provided to the neighboring property to the north to keep residents and property owners aware of the situation on their property.

3.6 Task 6: Case Closure Request

Upon obtaining results that warrant closure, a case closure request will be prepared. The report will include information required by the WDNR to be filed for the property and it is expected a soil and groundwater GIS packet will be part of the closure submittal.

The closure will also include notifications to off-site properties that have been affected by the contamination and will include a Maintenance Plan that will include requirements for maintenance of the existing subslab vapor mitigation system within the 4312 and 4316 building basements.

Submittal of the Closure Report and GIS packet requires payment to the DNR of $1,700 in fees

This plan for remediation and closure assumes restoration, but not redevelopment. Plans for redevelopment on the Property will likely require further excavation with proper handling of removed soil. Any structure built on the Property will likely require installation of a vapor mitigation system.

3.7 Task 7: Well Abandonment

Upon obtaining case closure, the WDNR will require that the existing monitoring wells be properly abandoned per NR141 code requirements and proper documentation be provided of the abandonment.

Tables

TABLE 1 Remedial Excavation Soil Volume

Updated Feb 7 2019

Remedial Excavation, Monitoring, Closure Actions
Shorewood Queensway Cleaners, 4300 N. Oakland Avenue, Shorewood, WI
Assumptions: Dig to approximately 1,000 ug/kg PCE Soil RCL.
Treated Soil Limits see 2018 06 06 Treat Soil Vol Sheet
Assume No Dig 1808 Marion St; No Dig S of Bldg, Limited dig W of Bldg
Assume use Imported Fill to backfill basement of Marion Street. Do not regrade or redistribute site soil. Keep existing surface grades

		Excavation and Disposal Quantities				Surface : Concrete and Asphalt				SOIL					COMMENTS
Area	Description	Length N/ S	Width E / W	Depth	Volume Dig	Quantity Conc / Asph		How Handle Conc / Asph		Thickness Soil direct LF	Soil LF	Soil Direct LF	Soil Treat then LF	TOTAL SOIL	
					CY	CY	ton				CY	Ton	Ton	Ton	
Area 1 : Treated Soil Footprint Under and N of Building															
Building Footprint	Entire Floor and Pad to East					76	151	Conc landfill							See "concrete quantity" sheet
Building Footprint	Footings and subfloors						235	Conc recycle							See "concrete quantity" sheet
Treated Soil															
Around DCM	A, B, SB5, C, GP1	29	7	0.5 to 5'	34								51	51	
Around MW-3	SB3, I, J	16	7	0.5 to 5'	19								28	28	
Off-Site North	SB-11 / MW-5	9	7	5 to 9'	9								14	14	
N of DCM	F, SB4, GP1	14	19	5 to 9'	39								59	59	
DCM	A, I	7	26	5 to 9'	27								40	40	
S of DCM	M, C, B, SB5, SB3	30	21	5 to 9'	93								140	140	
West Under Basement	Assumed - no samples	27	7	9 to 14'	35								53	53	
Large Box under Bldg	M, C, B, SB5, A, F, GP1	50	10	9 to 14'	93								139	139	
Outside East	J	4	9	9 to 14'	7								10	10	
Under Bldg	M	11	9	14 to 18	15								22	22	
Under Bldg	A, B, SB5, GP1	5	8	14 to 18	6								9	9	
Outside East	J	19	14	14 to 18	39								59	59	
Boring F, SB-4, from depth 14 to 18'	Soil 5' to 14' treated, top soil and deep soil dig to remove more mass	12	12	0.5 to 5', 14 to 18'	45	0.0	0	Inc Above		8.5	45	68		68	
West under Basement	Soil above T3 and below T3	25	10	5 to 9' and 14 to 18'	74	0.0	0	Inc Above		8	74	111		111	
W of T3	Under Basement	5	25	5 to 14'	37	0.0	0	Inc Above		8	37	56		56	
N of Boring I to PL, NE Corner outside Bldg	1/2 soil treated, other half direct LF	8	22	0.5 to 15	47	0	0	Inc Above		14.5	47	71		71	cut in half because half area is treated soil
	1/2 soil treated, other half direct LF	8	22	9 to 15	20	0	0	Inc Above		6	20	29		29	cut in half because half area is treated soil
Under Bldg, Bore C, M	Shallow soil LF above 5'	18	18	0.5 to 5'	54	0	0	Inc Above		4.5	54	81		81	
S of SB-9 & M to Bldg Corner	all soil to LF to 12'	10	33	0 to 12	70	0	0	Inc Above		11.5	70	105		105	
SW Corner of treated soil area, no borings	Square up treated area dimensions	21	12	0.5 to 12	107	0	0	Inc Above		11.5	107	161		161	
TOTAL Area 1 : Direct Haul around and Under Treated Soil Footprint					**871**							**682**	**624**	**1306**	
Area 2 - W of Treated Area Under Bldg															
N Under Basement by Neighbor 4312	basement to 5', dig to 12'	27	4	5 to 12	28			Inc Above		7	28	42		42	
W under basement to H	basement to 5', dig to 12'	34	17	5 to 12	150			Inc Above		7	150	225		225	
Under bldg: H to N midpoint	contam 0.5 to 12'	7	20	0 to 12	60			Inc Above		11.5	60	89		89	
TOTAL Area 2 - W of Treated Area Under Bldg					**237**							**356**	**0**	**356**	
Area 3 - W of Building to Oakland															
W Bldg Util to Oklnd, HA1, 2, 6	All LF to 8'	5	35	0.5 to 8	49	3.2	6.5	Asph		7.5	49	73		73	
W Bldg by GP-3	All LF to 5'	15	12	0.5 to 5	30	3.3	6.7	Asph		4.5	30	45		45	
TOTAL Area 3 - W of Building to Oakland					**79**							**118**	**0**	**118**	
Area 4 - S of Building to Marion															
TOTAL Area 4 - S of Building to Marion					**0**						**0**	**0**		**0**	
Area 5 - E of Building to 1808 Marion House															
TOTAL Area 5 - E of Building to 1808 Marion House					**0**						**0**	**0**		**0**	
Area 6 - 1808 Marion															
TOTAL Area 6 - 1808 Marion					**0**						**0**	**0**		**0**	
Area 7 - Off Site Alley to North															
Treated Soil SB-11 / MW-5	Treat 5 to 9', soil above and below to 14' LF	15	5	0 to 14	39	1.4	2.8	Asph Recycle		9.5	39	58		58	Removed T2 Soil from thickness
West to Bldg Basement Wall	All LF to 9' (base of Basement)	15	7	0 to 9	35	1.9	3.9	Conc Recycle		9	35	53		53	see "Concrete Quantity" sheet
East of Treated, Boring K	All LF to 9'	15	15	0 to 9	75	4.2	8.3	Asph Recycle		9	75	113		113	
TOTAL Area 7 - Off Site Alley to North					**149**						**149**	**223**		**223**	
TOTAL MATERIAL HANDLED FOR ENVIRONMENTAL ISSUES					**1336**	**90**	**414**				**149**	**1380**	**624**	**2315**	
					2003	Asphalt Rcycl	57					Final Weight	**936**	Tons	

Total Conc as Haz		0	Ton
Total Conc landfill		151	Ton
Total Conc / Asph clean		235	Ton
Total Soil Treat		624	Ton
Treat Soil Final Weight (water, BAM)	50%	936	ton
Total Soil Direct LF		1380	Ton
Total Soil to LF		2315	Ton
Total Soil Excvn		2939	Ton

Concrete LF 118
Conc Recycle 239

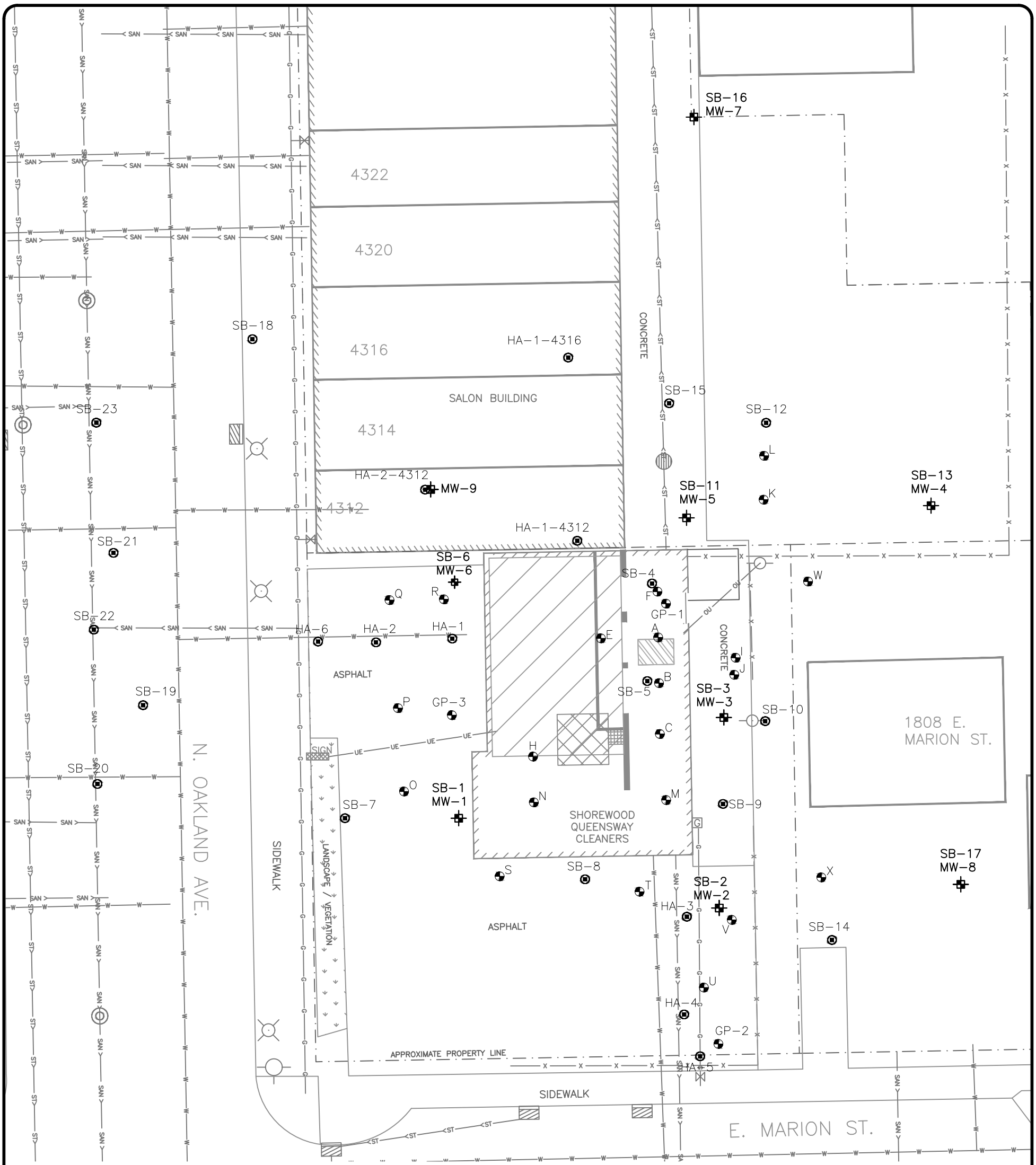
Table 2
Soil Analytical Results: Total and TCLP Values for VOCs
Shorewood Queensway Cleaners
4300 N. Oakland Ave., Shorewood, WI 53211
BRRTS# 02-41-552089

						PRE-EXCAVATION RESULTS FROM BORINGS									
Sample ID		Hazardous Characteristic TCLP Regulatory Level (ug/l)	Land Disposal Restriction Level = sum of PCE + TCE + VC (ug/kg)	Contained Out Values (Ind Direct Contact Levels) (ug/kg)	Non-Ind Direct Contact Level (ug/kg)	A		B	C		E	H	J	M	
Date						1/16/18		1/16/18	1/15/18		1/16/18	1/16/18	1/15/18	1/15/18	
Depth						0-0.5'	2-3'	2-3'	0-0.5'	8-9'	0-0.5'	8-9'	7'	0-0.5'	5-6'
Description						CONC.	CLAY	CLAY	CONC.	CLAY	CONC.	CLAY	CLAY	CONC.	CLAY
DEPTH to Seasonal Low Water Table (ft BGS)						7'	7'	7'	7'	7'	7'	7'	7'	7'	7'
Saturated (S) or Unsaturated (U)						U	U	U	U	S	U	S	S	U	U
PID Reading						--	27.2	19.1	--	2.4	--	0.0	2.2	--	20.3
Notes															
						Landfill	Treat	Treat	Landfill	Treat	Landfill	Landfill	Landfill	Landfill	Treat
TOTAL Tetrachloroethene (PCE)	ug/kg		**60,000**	153,000	**33,000**	542	**45,800**	**69,900**	517	**46,100**	2,120	5,160	27,300	402	**81,000**
TCLP Tetrachloroethene (PCE)	(ug/L)	**700**				13	**770**	**1,100**	5.9 J	140	29	39	520	<5.0	**850**
TOTAL Trichloroethene (TCE)	ug/kg			8810	1,300	<25.0	<200	<250	<25.0	<200	<25.0	129	<132	<25.0	<500
TCLP Trichloroethene (TCE)	(ug/L)	500				<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	3.6 J	<3.3	<3.3	<6.6
TOTAL Vinyl Chloride	ug/kg			2080	67	<25.0	<200	<250	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<500
TCLP Vinyl Chloride	(ug/L)	200				<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<3.5
TCLP Benzene	(ug/L)	500				<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
TCLP Carbon Tetrachloride	(ug/L)	500				<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
TCLP Chlorobenzene	(ug/L)	100,000				<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
TCLP Chloroform	(ug/L)	6,000				<25	<25	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<50
TCLP 1,2-Dichloroethane	(ug/L)	500				<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<3.4
TCLP 1,1-Dichloroethene	(ug/L)	700				<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<8.2
TCLP 2-Butanone (MEK)	(ug/L)	200,000				<30	<30	<30	<30	<30	47 J	<30	<30	<30	<60

Exceedance Highlights:
BOLD Red font indicates individual or cumulative DC RCL
B1: Cumulative exceedance (HI > 1), eventhough no
Italic Red font indicates GW RCL Exceedance per DNR

Notes:
BOLD = Exceeds Regulatory Levels
NS = No standard established
-- = Not analyzed for parameter
NR = Not Reported
RCL = Residual Contaminant Level
DC = Direct Contact
Landfill = Can landfill directly upon excavation
Treat = Requires treatment and retesting prior to landfill disposal

Figures



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- FORMER DRY CLEANING MACHINE
- BASEMENT
- FENCE LINE
- UTILITY VALVE (GAS / WATER)
- LIGHT POLE
- POWER POLE
- FIRE HYDRANT
- GAS METER
- MANHOLE
- CATCH BASIN

N W E S

20 0 20

GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

SHOREWOOD QUEENSWAY CLEANERS
(BAYSIDE MANAGEMENT LLC)
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

DRWN: MKH DATE: 03/01/17 APPD: KE

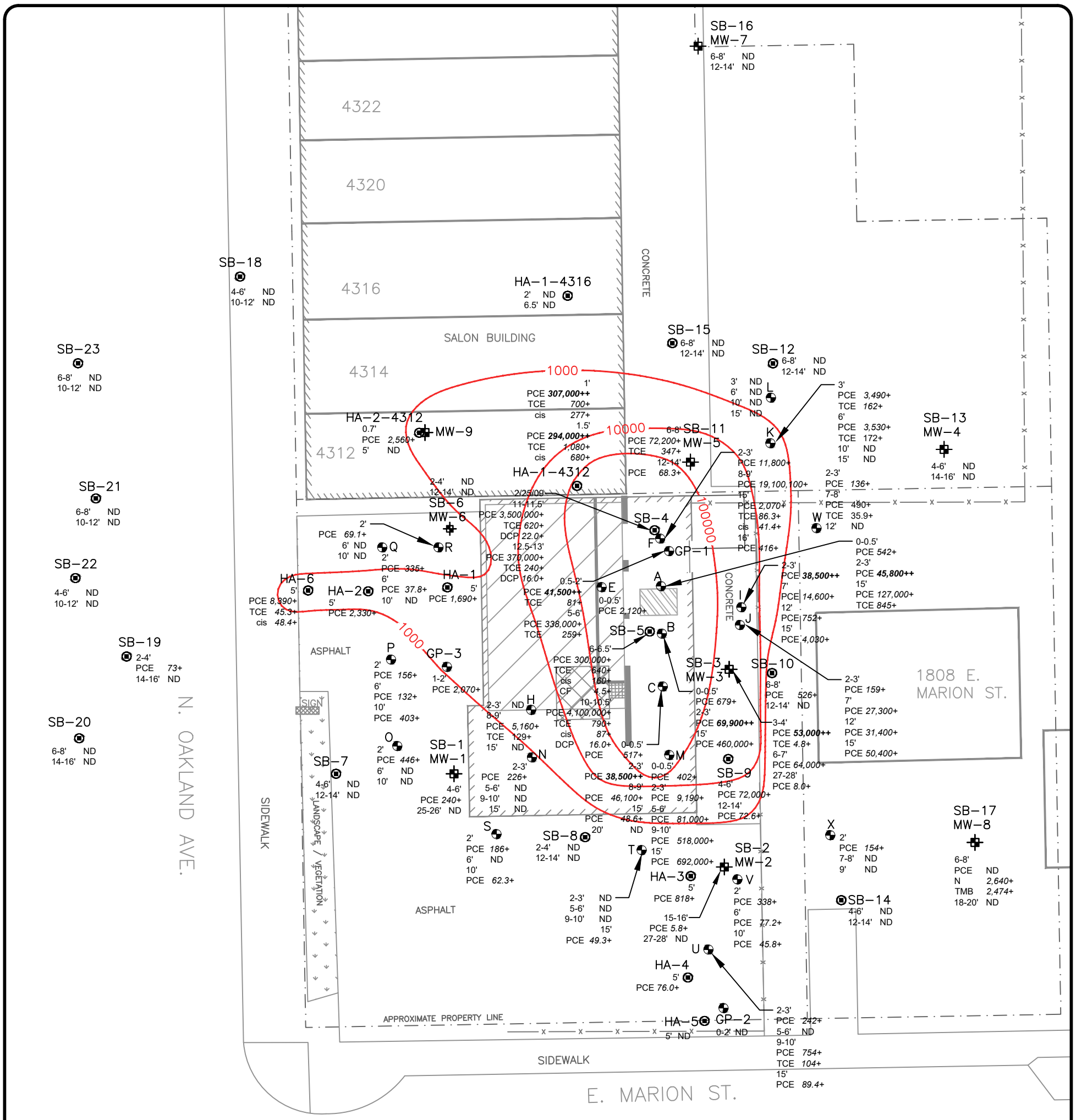
TITLE:

SITE LAYOUT

BRRTS: 02-41-552089
JOB NO.: 17-1124
PLOT DATE: 2/7/19

FIGURE: 1

G:\C3D\17\17-1124\Exhibits\17-1124_BASE MAP.dwg, SITE LAYOUT



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- FENCE LINE
- ESTIMATED EXTENT OF PCE CONTAMINTATED SOIL
- FORMER DRY CLEANING MACHINE
- BASEMENT
- BOILER ROOM
- SMOKE STACK

0–1' SAMPLE DEPTH

PCE TETRACHLOROETHENE (ug/kg)

TCE TRICHLOROETHENE (ug/kg)

cis cis–1,2–DICHLOROETHENE (ug/kg)

DCP 1,2–DICHLOROPROPANE (ug/kg)

CF CHLOROFORM (ug/kg)

ND NO DETECT

ITALICS+ EXCEEDS GROUNDWATER PATHWAY RCL

BOLD++ EXCEEDS NON-INDUSTRIAL DIRECT CONTACT (0-4') RCL

ITALICS/BOLD++ EXCEEDS BOTH GW & DIRECT CONTACT RCL

N W E S

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GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL
ILLINOIS IOWA WISCONSIN

SHOREWOOD QUEENSWAY CLEANERS
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

DRWN: MKH DATE: 03/01/17 APPD: KE

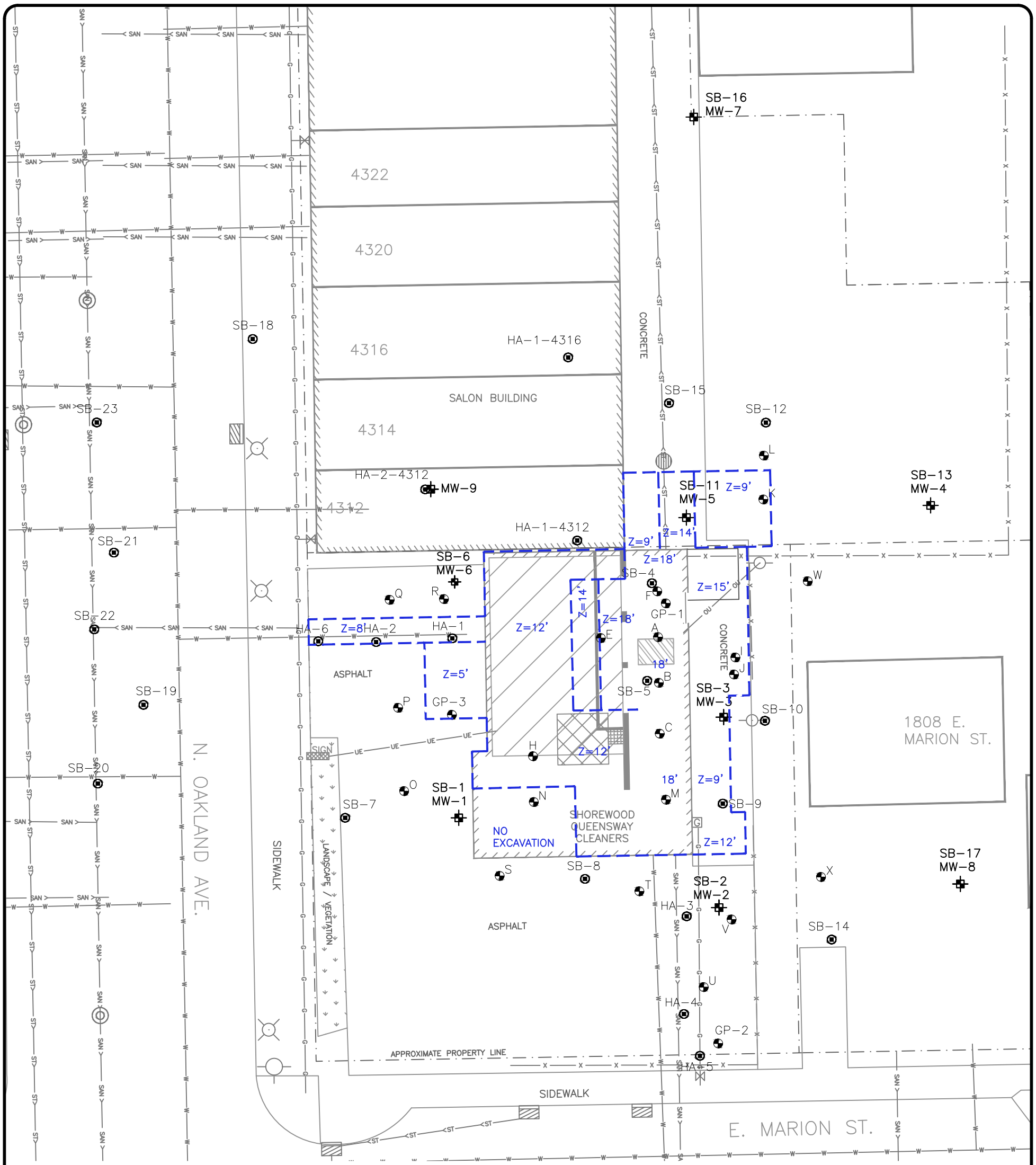
TITLE:

SITE SOIL CHEMISTRY

BRRTS: 02–41–552089
JOB NO.: 17–1124
PLOT DATE: 2/7/19

FIGURE: 2

G:\C3D\17\17–1124\Exhibits\17–1124_BASE MAP.dwg, SITE SOIL CHEM–ALL_NDs



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- Z=9' PROPOSED EXCAVATION BOUNDARY & DEPTH
- FORMER DRY CLEANING MACHINE
- BASEMENT
- FENCE LINE
- UTILITY VALVE (GAS / WATER)
- LIGHT POLE
- POWER POLE
- FIRE HYDRANT
- GAS METER
- MANHOLE
- CATCH BASIN

N W E S

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GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

SHOREWOOD QUEENSWAY CLEANERS
(BAYSIDE MANAGEMENT LLC)
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

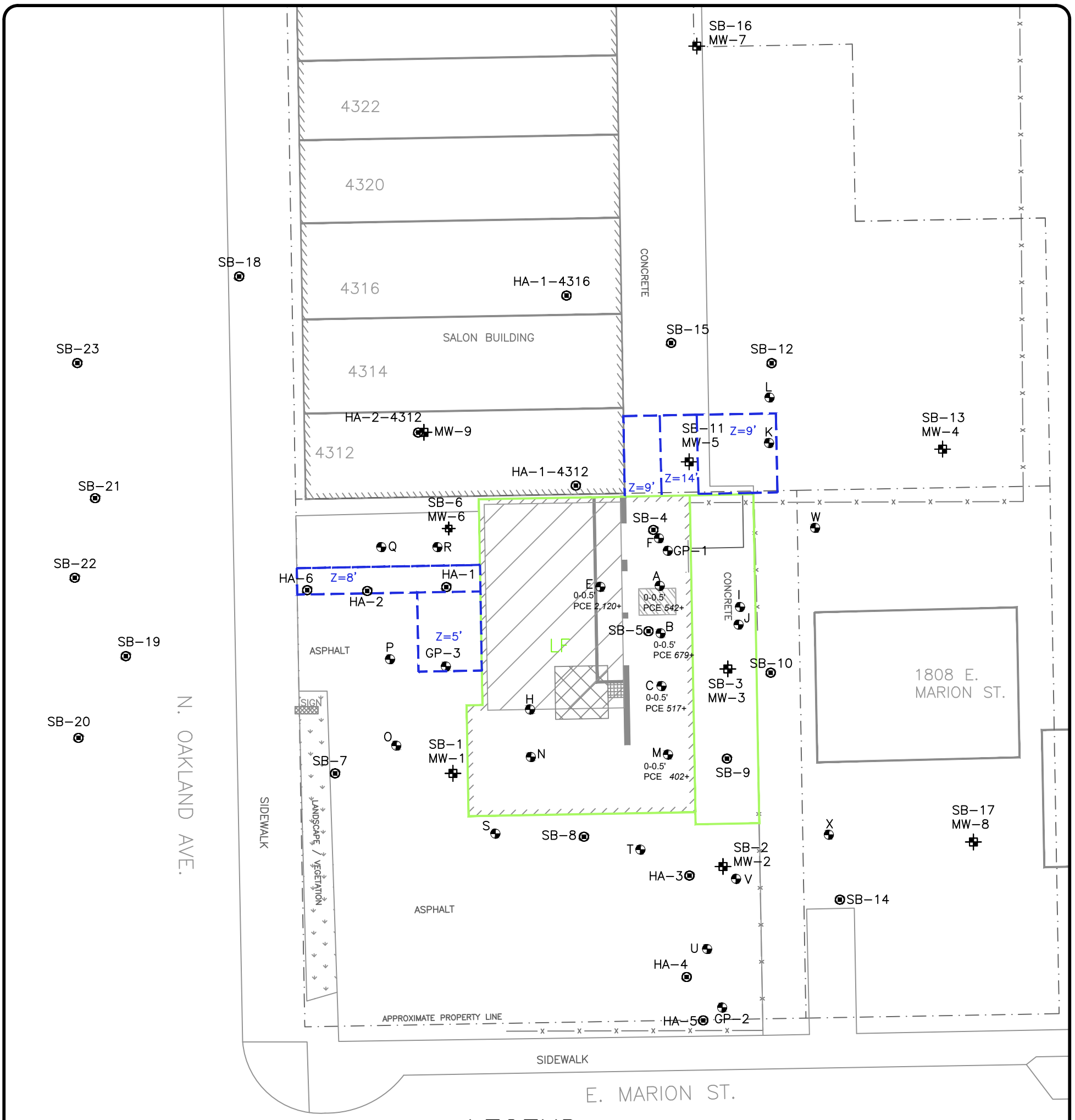
DRWN: MKH DATE: 03/01/17 APPD: KE

TITLE: EXCAVATION BOUNDARIES & DEPTHS

BRRTS: 02–41–552089
JOB NO.: 17–1124
PLOT DATE: 2/7/19

FIGURE: 3

G:\C3D\17\17-1124\Exhibits\17-1124_BASE MAP.dwg, F3 DIG BNDRY-DPTH



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- —x— FENCE LINE
- LF — CONCRETE TO BE LANDFILLED UPON REMOVAL
- Z=9' — EXCAVATION LIMITS BEYOND BUILDING FOOTPRINT: CONCRETE/ASPHALT TO BE RECYCLED
- FORMER DRY CLEANING MACHINE
- BASEMENT
- BOILER ROOM
- SMOKE STACK

0–1' SAMPLE DEPTH

PCE TETRACHLOROETHENE (ug/kg)

TCE TRICHLOROETHENE (ug/kg)

cis cis–1,2–DICHLOROETHENE (ug/kg)

DCP 1,2–DICHLOROPROPANE (ug/kg)

CF CHLOROFORM (ug/kg)

ND NO DETECT

ITALICS+ EXCEEDS GROUNDWATER PATHWAY RCL

BOLD++ EXCEEDS NON-INDUSTRIAL DIRECT CONTACT (0-4') RCL

ITALICS/BOLD++ EXCEEDS BOTH GW & DIRECT CONTACT RCL

NOTE: ALL SAMPLES ARE PULVERIZED CONCRETE AND ALL PASSED TCLP CRITERIA (NON–HAZARDOUS)

N W E S

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GRAPHIC SCALE IN FEET

G:\C3D\17\17–1124\Exhibits\17–1124_BASE MAP.dwg, PROP CONC DISP–SOIL CHEM

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL
ILLINOIS IOWA WISCONSIN

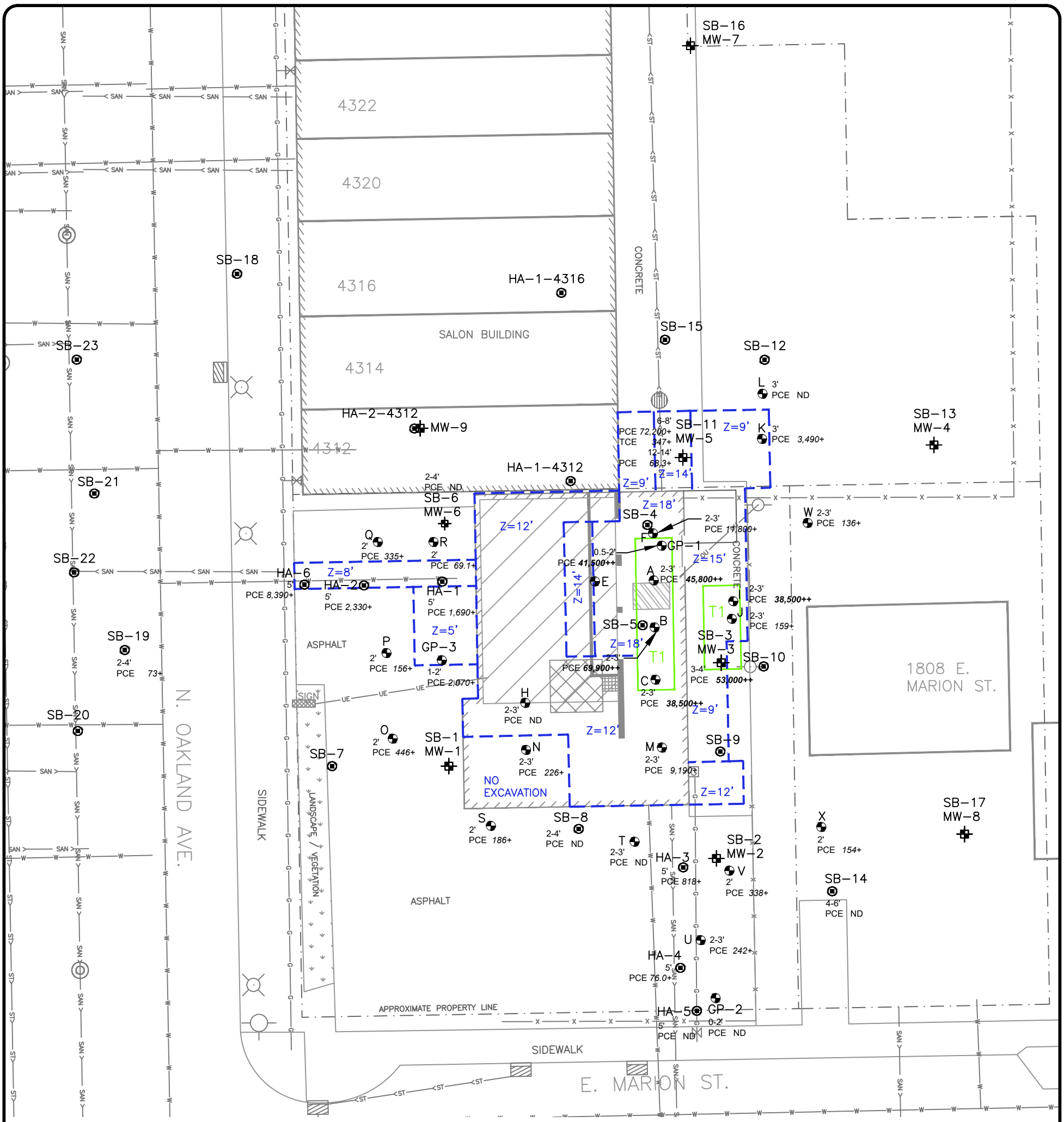
SHOREWOOD QUEENSWAY CLEANERS
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

DRWN: MKH DATE: 03/01/17 APPD: KE

TITLE:
PROPOSED CONCRETE DISPOSAL & CHEMISTRY

BRRTS: 02–41–552089
JOB NO.: 17–1124
PLOT DATE: 10/23/18

FIGURE:
4A



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- —x— FENCE LINE
- T1 — 0.5–5' PROPOSED TREATED SOIL EXCAVATION LIMIT
- Z=9' — PROPOSED EXCAVATION BOUNDARY & DEPTH
- FORMER DRY CLEANING MACHINE
- BASEMENT
- BOILER ROOM
- SMOKE STACK

0–1' SAMPLE DEPTH

PCE TETRACHLOROETHENE (ug/kg)

ND NO DETECT

ITALICS+ EXCEEDS GROUNDWATER PATHWAY RCL

BOLD++ EXCEEDS NON-INDUSTRIAL DIRECT CONTACT (0-4') RCL

ITALICS/BOLD++ EXCEEDS BOTH GW & DIRECT CONTACT RCL

N W E S

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GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

SHOREWOOD QUEENSWAY CLEANERS
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

DRWN: MKH DATE: 03/01/17 APPD: KE

TITLE: PROPOSED EXCAVATION & TREATED SOIL BOUNDARY w/ SOIL CHEMISTRY 0.5–5'

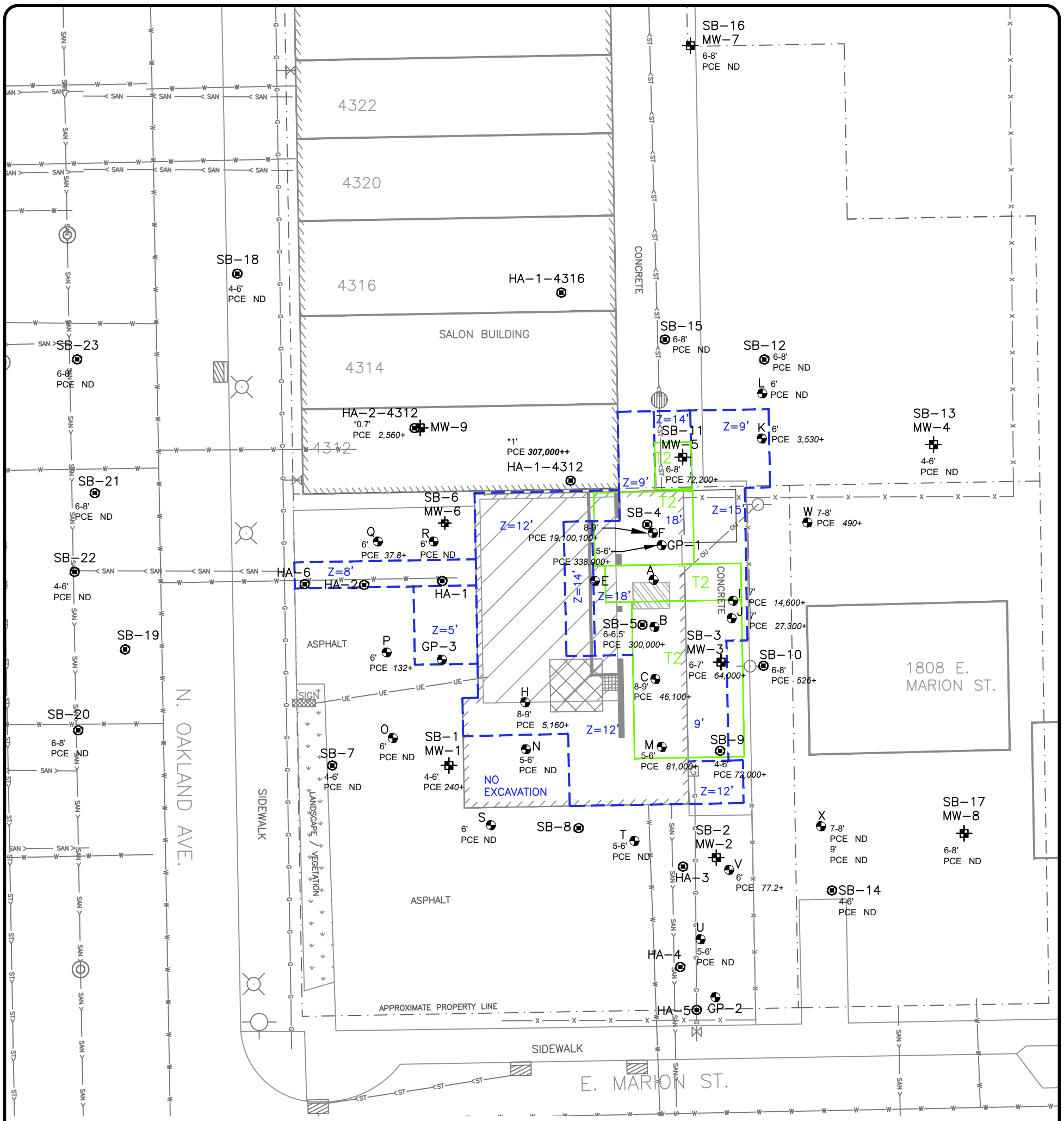
BRRTS: 02–41–552089

JOB NO.: 17–1124

PLOT DATE: 2/7/19

FIGURE: 4B

G:\C3D\17\17–1124\Exhibits\17–1124_BASE MAP.dwg, PROP DIG–TRTD SOIL BNDRY 0.5–5



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- FENCE LINE
- T2 — 5–9' PROPOSED TREATED SOIL EXCAVATION LIMIT
- Z=9' — PROPOSED EXCAVATION BOUNDARY & DEPTH
- FORMER DRY CLEANING MACHINE
- BASEMENT
- BOILER ROOM
- SMOKE STACK

0–1' SAMPLE DEPTH

PCE TETRACHLOROETHENE (ug/kg)

ND NO DETECT

ITALICS+	EXCEEDS GROUNDWATER PATHWAY RCL
BOLD++	EXCEEDS NON-INDUSTRIAL DIRECT CONTACT (0-4') RCL
ITALICS/BOLD++	EXCEEDS BOTH GW & DIRECT CONTACT RCL
*1.5'	BASEMENT SAMPLES, DEPTH BELOW GRADE IS 8' PLUS SHOWN DEPTH

N W E S

20 0 20

GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

SHOREWOOD QUEENSWAY CLEANERS
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

DRWN: MKH DATE: 03/01/17 APPD: KE

TITLE: PROPOSED EXCAVATION & TREATED SOIL BOUNDARY w/ SOIL CHEMISTRY 5–9'

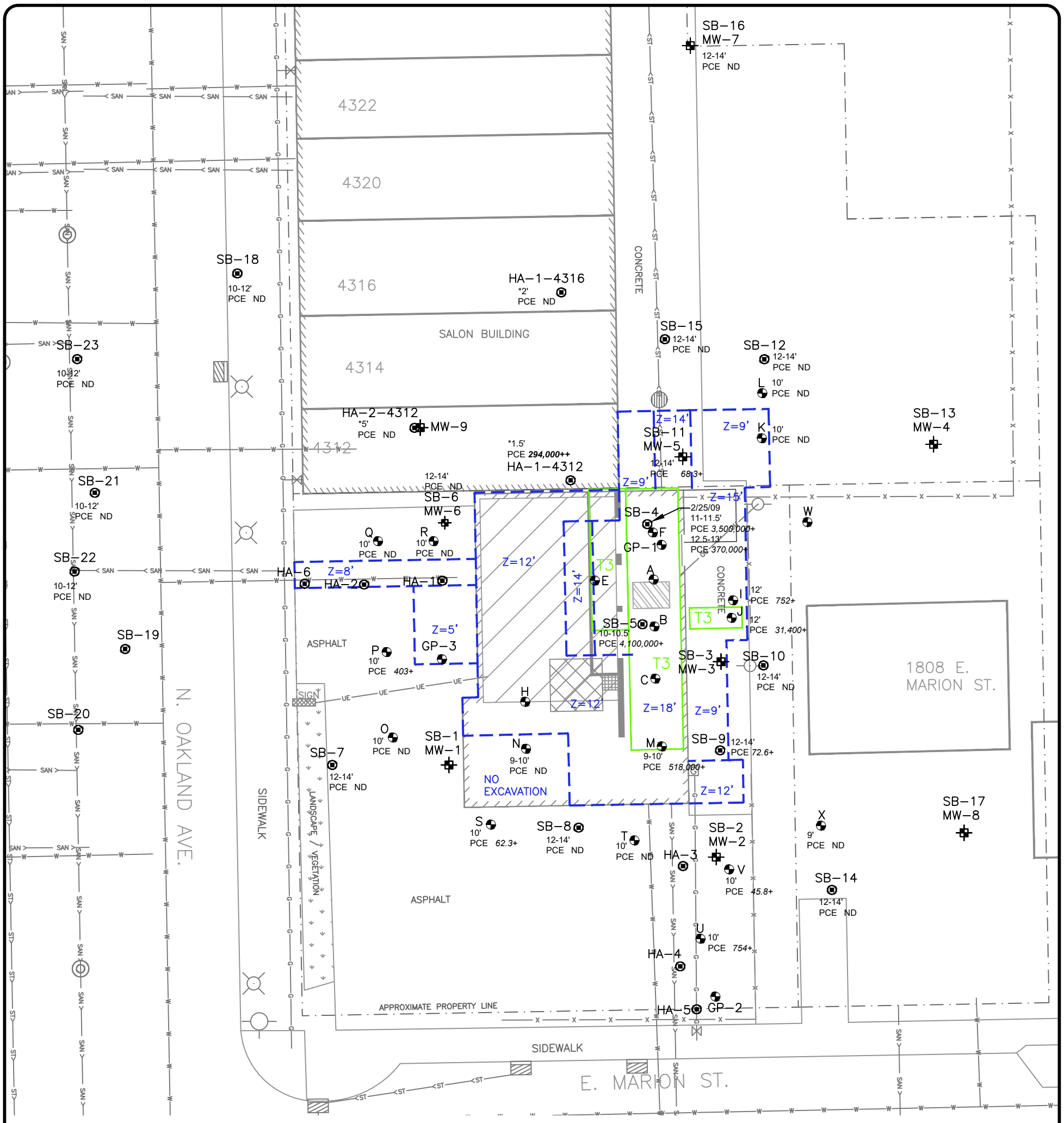
BRRTS: 02–41–552089

JOB NO.: 17–1124

PLOT DATE: 2/7/19

FIGURE: 4C

G:\C3D\17\17–1124\Exhibits\17–1124_BASE MAP.dwg, PROP DIG–TRTD SOIL BNDRY 5–9



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- FENCE LINE
- T3 — 9–14' PROPOSED TREATED SOIL EXCAVATION LIMIT
- Z=9' — PROPOSED EXCAVATION BOUNDARY & DEPTH
- FORMER DRY CLEANING MACHINE
- BASEMENT
- BOILER ROOM
- SMOKE STACK

0–1' SAMPLE DEPTH

PCE TETRACHLOROETHENE (ug/kg)

ND NO DETECT

ITALICS+	EXCEEDS GROUNDWATER PATHWAY RCL
BOLD++	EXCEEDS NON-INDUSTRIAL DIRECT CONTACT (0-4') RCL
ITALICS/BOLD++	EXCEEDS BOTH GW & DIRECT CONTACT RCL
*1.5'	BASEMENT SAMPLES, DEPTH BELOW GRADE IS 8' PLUS SHOWN DEPTH

N W E S

20 0 20

GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

SHOREWOOD QUEENSWAY CLEANERS
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

DRWN: MKH DATE: 03/01/17 APPD: KE

TITLE: PROPOSED EXCAVATION & TREATED SOIL BOUNDARY w/ SOIL CHEMISTRY 9–14'

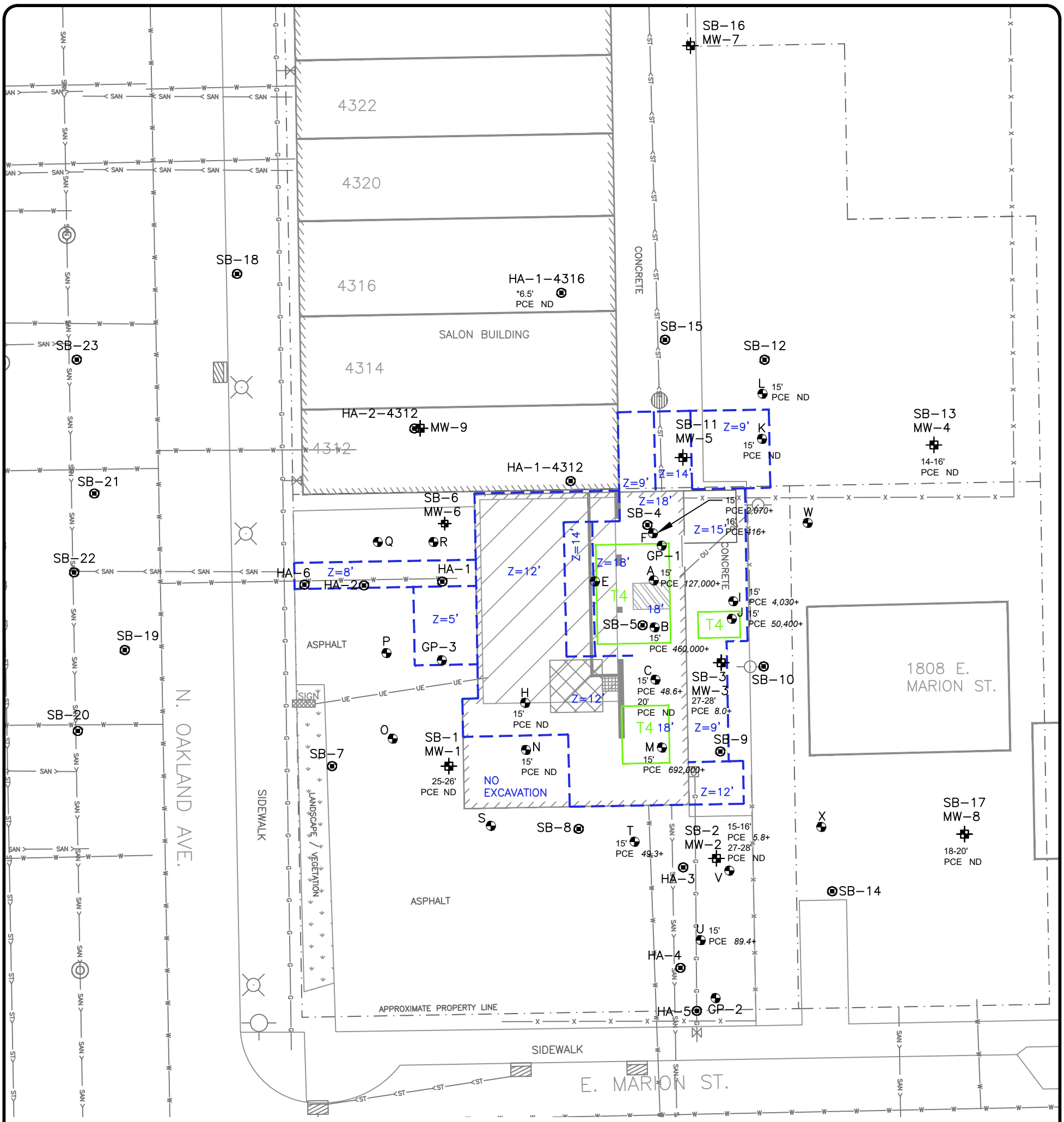
BRRTS: 02–41–552089

JOB NO.: 17–1124

PLOT DATE: 2/7/19

FIGURE: 4D

G:\C3D\17\17–1124\Exhibits\17–1124_BASE MAP.dwg, PROP DIG–TRTD SOIL BNDRY 9–14



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- FENCE LINE
- T4 — 14–18' PROPOSED TREATED SOIL EXCAVATION LIMIT
- Z=9' — PROPOSED EXCAVATION BOUNDARY & DEPTH
- FORMER DRY CLEANING MACHINE
- BASEMENT
- BOILER ROOM
- SMOKE STACK

0–1' SAMPLE DEPTH

PCE TETRACHLOROETHENE (ug/kg)

ND NO DETECT

ITALICS+ EXCEEDS GROUNDWATER PATHWAY RCL

BOLD++ EXCEEDS NON-INDUSTRIAL DIRECT CONTACT (0-4') RCL

ITALICS/BOLD++ EXCEEDS BOTH GW & DIRECT CONTACT RCL

*1.5' BASEMENT SAMPLES, DEPTH BELOW GRADE IS 8' PLUS SHOWN DEPTH

N W E S

20 0 20

GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

SHOREWOOD QUEENSWAY CLEANERS
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

DRWN: MKH DATE: 03/01/17 APPD: KE

TITLE: PROPOSED EXCAVATION & TREATED SOIL BOUNDARY w/ SOIL CHEMISTRY 14–18'

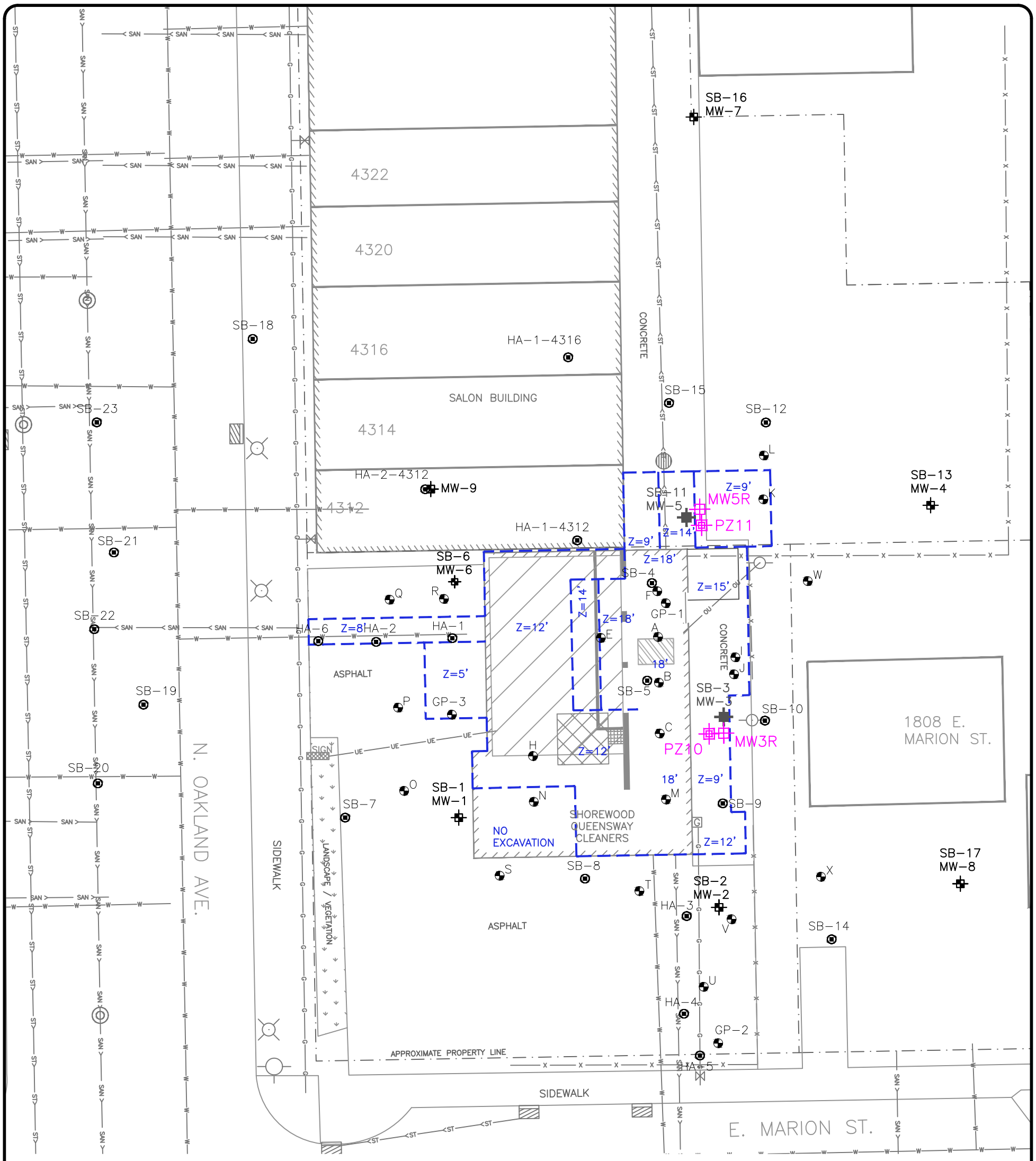
BRRTS: 02–41–552089

JOB NO.: 17–1124

PLOT DATE: 2/7/19

FIGURE: 4E

G:\C3D\17\17–1124\Exhibits\17–1124_BASE MAP.dwg, PROP DIG–TRTD SOIL BNDRY 14–18



LEGEND

- SOIL BORING (ENVIROFORENSICS)
- MONITORING WELL / SOIL BORING (ENVIROFORENSICS)
- SOIL BORING (ALPHA TERRA ~ FEHR GRAHAM)
- ABANDONED MONITORING WELL
- PROPOSED MONITORING WELL
- PROPOSED PIEZOMETER
- Z=9' PROPOSED EXCAVATION BOUNDARY & DEPTH
- FORMER DRY CLEANING MACHINE
- UTILITY VALVE (GAS / WATER)
- LIGHT POLE
- POWER POLE
- FIRE HYDRANT
- GAS METER
- MANHOLE
- CATCH BASIN
- BASEMENT
- FENCELINE

N W E S

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GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

SHOREWOOD QUEENSWAY CLEANERS
(BAYSIDE MANAGEMENT LLC)
4300 N. OAKLAND AVE.
SHOREWOOD, WI 53211

DRWN: MKH DATE: 03/01/17 APPD: KE

TITLE:

POST EXCAVATION

BRRTS: 02–41–552089
JOB NO.: 17–1124
PLOT DATE: 2/7/19

FIGURE: 5

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Attachment A

State of Wisconsin
Department of Natural Resources

Remediation Site Hazardous Waste Determination

Form 4430-019 (R 4/03)

Notice: This voluntary form is intended as an aid for use by Generators and Responsible Parties in determining whether *contaminated soil or groundwater and wastes* encountered or generated during the remediation of contaminated sites in Wisconsin are or would be listed or characteristic hazardous wastes subject to regulation under ch. 291, Wis. Stats. and chs. NR 600 to 690, Wis. Adm. Code. There are no penalties for failure to provide information requested. Personally identifiable information collected will be used for program management. Wisconsin's Open Records law requires the Department to provide this information upon request [ss. 19.31 - 19.69, Wis. Stats.].

Listing determinations are often particularly difficult in the remedial context because the listings are generally identified by the sources of the hazardous wastes rather than the concentrations of various hazardous constituents. Therefore, analytical testing alone, without information on a waste's source, will not generally produce information that will conclusively indicate whether a given waste is a listed hazardous waste. Generators and Responsible Parties should use available site information such as material safety data sheets (MSDS's), manifests, vouchers, bills of lading, sales and inventory records, accident reports, spill reports, inspection reports, and other available information. It may also be necessary to conduct interviews of current or former personnel who would have knowledge of the processes and hazardous materials used including waste handling or past spills in an effort to ascertain the sources of wastes or contaminants.

Where a person makes a good faith effort to determine if a material is a listed hazardous waste but cannot make such a determination because documentation regarding a source of contamination, contaminant, or waste is unavailable or inconclusive, EPA has stated that one may assume the source, contaminant or waste is not listed hazardous waste and, therefore, provided the material in question does not exhibit a characteristic of hazardous waste, RCRA requirements do not apply.

Generator Information

Generator's Name	Preparer's Name
4300 Oakland, LLC, Attn Tom Schafer	Kendrick Ebbott
Address 2551 North Wahl Avenue	**Address** 909 N 8th Street, Suite 101
City, State and ZIP Code Milwaukee, WI 53211	City, State and ZIP Code Sheboygan, WI 53081
Telephone Number 414 840-6667	Telephone Number 920 453-0700

Site Information

Site Name	Other name(s) site is known by
Former Shorewood Queensway Cleaners	4300 Oakland LLC
Address 4300 Oakland Avenue	County Milwaukee

Located in the City, Town or Village ZIP Code
Village of Shorewood, 53211

Hazardous Waste Determination Information Reviewed

Listed Hazardous Waste Determination

Manifests reviewed ☐ Yes ☐ No ☐ None Found ☒ None Available	Vouchers reviewed ☐ Yes ☐ No ☐ None Found ☒ None Available
Bills of lading reviewed ☐ Yes ☐ No ☐ None Found ☒ None Available	Sales and inventory records reviewed ☐ Yes ☐ No ☐ None Found ☒ None Available
Material safety data sheets ☐ Yes ☐ No ☐ None Found ☒ None Available	Accident reports reviewed ☐ Yes ☐ No ☐ None Found ☒ None Available
Spill reports reviewed ☐ Yes ☐ No ☐ None Found ☒ None Available	Inspection reports reviewed ☐ Yes ☐ No ☐ None Found ☒ None Available
DNR's case files reviewed ☐ Yes ☐ No ☐ None Found ☒ None Available	Interviewed current and/or former employees who are likely to know about the use and/or disposal of the chemical or waste of concern (not just managers). ☒ Yes ☐ No ☐ None Found ☐ None Available

Hazardous Waste Determination Information Reviewed (continued)

Other information considered (provide description) X | Yes ☐ No ☐ None Found ☐ None Available

Site is a former drycleaning business in operation from the 1960's through 2017. Former owner / operator reports the use of tetrachloroethene (PCE) as the drycleaning solvent since the beginning of operations. Initial machines were wet transfer style, which resulted in releases of PCE to the indoor concrete floor. In the 1980's shifted to dry transfer machines, with overfill containment, so much improved frequency of incidental releases around the machine.

Former owner / operator Shirley Carlson reports that the site commenced operations in 1960 by another owner / operator. She and her husband acquired the business in 1977, and the building and land in 1983. In 1986 her husband signed up to handle wastes with Safety Kleen, and they acquired a new, better machine that reclaimed solvent. From 1986 on there were significantly fewer releases of PCE. Ms. Carlson closed the business in 2017, and sold the property. Based on this information, I am confident the high level contaminated soil present beneath the building had an origin date prior to the November 1988 date when Federal Regulations restricted disposal of drycleaning solvent and waste under the Land Disposal Restriction requirements. As a result, restrictions on disposal imposed by the LDRs should not apply to disposal of excavated soil, or soil with higher levels of PCE contamination that is treated in-situ and then excavated and discarded.

Characteristic Hazardous Waste Determination

Identified location(s)	Testing results
Borings and Depths A 0-0.5' Concrete A 2-3' B 2-3' C 0-0.5' Concrete C 8-9' E 0-0.5' Concrete H 8-9' J 7' M 0-0.5' Concrete M 5-6'	BORING DEPTH AND MATERIAL Total PCE (mg/kg); TCLP PCE (ug/l) Plan for Handling: LF=Landfill, Treat = Chemically Treat, retest, then landfill if meets criteria A 0-0.5' Concrete, 0.542 mg/kg; 13 ug/l LF A 2-3' Soil 45.8 mg/kg; 770 ug/l Treat, then LF B 2-3' Soil 69.9 mg/kg; 1,100 ug/l Treat, Then LF C 0-0.5' Concrete 0.517 mg/kg; 5.9 ug/l LF C 8-9' Soil 46.1 mg/kg; 140 ug/l Treat, then LF E 0-0.5' Concrete 2.12 mg/kg; 29 ug/l LF H 8-9' Soil 5.16 mg/kg; 39 ug/l LF J 7' Soil 27.3 mg/kg; 520 ug/l Treat, then LF M 0-0.5' Concrete 0.402 mg/kg; <5.0 ug/l LF M 5-6' Soil 81.0 mg/kg; 850 ug/l Treat, Then LF

Certification

I certify that the information documented above in the "Information reviewed to make a hazardous waste determination" section was developed and used as part of a good faith effort to make a hazardous waste determination. Reasonable diligence was used in collecting the information, evaluating the information, and using the compiled information. I certify that this document is true and correct to the best of my knowledge, and that I have authority to make this certification.

Name and Title Kendrick Ebbott, P.G., Branch Manager

Signature Kendrick Ebbott Date Feb 8, 2019

Table 2
Soil Analytical Results: Total and TCLP Values for VOCs
Shorewood Queensway Cleaners
4300 N. Oakland Ave., Shorewood, WI 53211
BRRTS# 02-41-552089

						PRE-EXCAVATION RESULTS FROM BORINGS									
Sample ID		Hazardous Characteristic TCLP Regulatory Level (ug/l)	Land Disposal Restriction Level = sum of PCE + TCE + VC (ug/kg)	Contained Out Values (Ind Direct Contact Levels) (ug/kg)	Non-Ind Direct Contact Level (ug/kg)	A		B	C		E	H	J	M	
Date						1/16/18		1/16/18	1/15/18		1/16/18	1/16/18	1/15/18	1/15/18	
Depth						0-0.5'	2-3'	2-3'	0-0.5'	8-9'	0-0.5'	8-9'	7'	0-0.5'	5-6'
Description						CONC.	CLAY	CLAY	CONC.	CLAY	CONC.	CLAY	CLAY	CONC.	CLAY
DEPTH to Seasonal Low Water Table (ft BGS)						7'	7'	7'	7'	7'	7'	7'	7'	7'	7'
Saturated (S) or Unsaturated (U)						U	U	U	U	S	U	S	S	U	U
PID Reading						--	27.2	19.1	--	2.4	--	0.0	2.2	--	20.3
Notes															
						Landfill	Treat	Treat	Landfill	Treat	Landfill	Landfill	Landfill	Landfill	Treat
TOTAL Tetrachloroethene (PCE)	ug/kg		**60,000**	153,000	**33,000**	542	**45,800**	**69,900**	517	**46,100**	2,120	5,160	27,300	402	**81,000**
TCLP Tetrachloroethene (PCE)	(ug/L)	**700**				13	**770**	**1,100**	5.9 J	140	29	39	520	<5.0	**850**
TOTAL Trichloroethene (TCE)	ug/kg			8810	1,300	<25.0	<200	<250	<25.0	<200	<25.0	129	<132	<25.0	<500
TCLP Trichloroethene (TCE)	(ug/L)	500				<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	3.6 J	<3.3	<3.3	<6.6
TOTAL Vinyl Chloride	ug/kg			2080	67	<25.0	<200	<250	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<500
TCLP Vinyl Chloride	(ug/L)	200				<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<3.5
TCLP Benzene	(ug/L)	500				<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
TCLP Carbon Tetrachloride	(ug/L)	500				<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
TCLP Chlorobenzene	(ug/L)	100,000				<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
TCLP Chloroform	(ug/L)	6,000				<25	<25	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<50
TCLP 1,2-Dichloroethane	(ug/L)	500				<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<3.4
TCLP 1,1-Dichloroethene	(ug/L)	700				<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<8.2
TCLP 2-Butanone (MEK)	(ug/L)	200,000				<30	<30	<30	<30	<30	47 J	<30	<30	<30	<60

Exceedance Highlights:
BOLD Red font indicates individual or cumulative DC RCL
B1: Cumulative exceedance (HI > 1), eventhough no
Italic Red font indicates GW RCL Exceedance per DNR

Notes:
BOLD = Exceeds Regulatory Levels
NS = No standard established
-- = Not analyzed for parameter
NR = Not Reported
RCL = Residual Contaminant Level
DC = Direct Contact
Landfill = Can landfill directly upon excavation
Treat = Requires treatment and retesting prior to landfill disposal