Site Investigation Work Plan

BARREL PLATING SERVICES FMR
325-327 East Reservoir Avenue
Milwaukee, Wisconsin
BRRTS #02-41-594249

June 28, 2024 | Terracon Project No. 58247140

Prepared for:

327 E. Reservoir Condominium Association, Inc.
327 East Reservoir Avenue
Milwaukee, Wisconsin 53212

Terracon

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- Facilities
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June 28, 2024

Wisconsin Department of Natural Resources
1027 West St. Paul Avenue
Milwaukee, Wisconsin 53233

Attention: Linda Michalets
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Re: Site Investigation Work Plan
Barrel Plating Services Fmr
325-327 East Reservoir Avenue
Milwaukee, Wisconsin
WDNR BRRTS #02-41-594249
Terracon Project No. 58247140

Dear Ms. Michalets:

On behalf of 327 E. Reservoir Condominium Association, Inc., Terracon Consultants, Inc. (Terracon) is pleased to provide this *Site Investigation Work Plan* for the property located at 325-327 East Reservoir Avenue, in Milwaukee, Wisconsin (the site). This Work Plan describes activities that will be completed to further delineate soil impacts and to investigate the potential risk for vapor intrusion and groundwater impacts. We are not submitting a review fee for this Work Plan.

We appreciate the Department's assistance with this project. If you have questions or comments regarding this report or require additional information, please contact us at (414) 423-0255.

Sincerely,
Terracon Consultants, Inc

Rachel T. Slonac
Field Geologist

Blaine R. Schroyer, P.E.
Senior Principal/Office Manager

Copy to: Leslie Dixon, 327 E. Reservoir Condominium Association, Inc.

Table of Contents

1.0 INTRODUCTION 1
1.1 Site Location and Information 1
1.2 Site and Surrounding Area Description 2
2.0 BACKGROUND AND INVESTIGATION SCOPING 2
2.1 Site and Investigation History 2
2.2 Proximity to Other Contamination Sources 6
2.3 Emerging Contaminants Discussion 7
2.4 Potential Receptors 7
3.0 SITE INVESTIGATION ACTIVITIES 8
3.1 Health and Safety 8
3.2 Soil and Groundwater Sampling 9
3.2.1 Utility Clearance 9
3.2.2 Soil Boring and Sampling 9
3.2.3 Groundwater Monitoring Well Construction 10
3.2.4 Groundwater Sampling 10
3.3 Investigation-Derived Waste Management 11
3.4 Vapor Pathway Assessment 11
3.4.1 Indoor Air Sampling Procedures 12
3.4.2 Sub-Slab Vapor Sampling Procedures 12
3.5 Sample Analysis Plan 13
4.0 REPORTING 13
4.1 Sample Results Notifications 13
4.2 Supplemental Site Investigation Report 13
5.0 SCHEDULE 14
6.0 CERTIFICATIONS 15

Figures

1 Site Location Map
2 Site Map
3 Proposed Sample Location Map

SITE INVESTIGATION WORK PLAN
BARREL PLATING SERVICES FMR
MILWAUKEE, WISCONSIN
TERRACON PROJECT NO. 58247140
JUNE 28, 2024

1.0 INTRODUCTION

Terracon has prepared this *Site Investigation Work Plan* (Work Plan) on behalf of 327 E. Reservoir Condominium Association, Inc. (the client) to further delineate soil impacts and to investigate the potential risk for vapor intrusion and groundwater impacts at 325-327 East Reservoir Avenue in Milwaukee, Milwaukee County, Wisconsin (the site). The location of the site is shown on **Figure 1**.

In 1994, the Wisconsin Department of Natural Resources (WDNR) was notified of a hazardous substance discharge discovered by the Milwaukee Metropolitan Sewerage District (MMSD) during an investigation for the sewer system located near the site. At the time, the site was part of a larger property addressed as 301 E. Reservoir Avenue and owned by Barrel Plating Services, Inc. Following notification, WDNR opened an environmental repair program (ERP) case designated as Bureau of Remediation and Redevelopment Tracking System (BRRTS) case #02-41-000904 (Barrel Plating Service). Investigations conducted between 1998 and 2000 led to remedial activities in late 2000. The Barrel Plating Service case remains open.

In 2000, the Barrel Plating Service site was subdivided, and part of the property was redeveloped with a two-unit condominium building and tennis court addressed as 325-327 E. Reservoir Avenue. On March 20, 2024, WDNR opened a second ERP case (BRRTS #02-41-594249 – Barrel Plating Services Fmr) and issued a responsible party (RP) letter to 327 E. Reservoir Condominium Association, Inc. The letter requested that the RP hire a consultant to complete investigation. Terracon notified the WDNR on May 29, 2024, that we had been retained to continue the investigation.

1.1 Site Location and Information

Location Details
PLSS: SW ¼, NE ¼, Section 21, Township 7 North, Range 22 East, Milwaukee County
WTM Coordinates: X = 426091; Y= 4767318
Parcel ID: 3541941000
Area = 0.78 Acres

Responsible Party
327 E. Reservoir Condominium Association, Inc.
325-327 East Reservoir Avenue
Milwaukee, Wisconsin 53212
Attn: Leslie Dixon
LHDixon4@gmail.com

1.2 Site and Surrounding Area Description

The site is located in the City of Milwaukee, west of the Milwaukee River. The site is bounded by East Reservoir Avenue to the north and residential properties to the east, south, and west. The site is developed with an approximately 5,475-square-foot, two-residence condominium building and tennis court, constructed beginning in 2000. The site is currently owned by 327 E. Reservoir Condominium Association, Inc. Primary access is from East Reservoir Street on the north side of the building or by the private drive from North Hubbard Street to the west of the site. The site layout is shown on **Figure 2**.

According to the Milwaukee County GIS and Land Information's "Parcels with Property Information", the site is zoned as mixed use and described as residential. The properties adjacent to the west are also zoned as mixed use. The properties to the northeast and north are zoned as planned development and industrial. The topography in the immediate of the site is generally flat with a steep downward slope south of the tennis court and southeast of the retaining wall near the eastern side of the site.

2.0 BACKGROUND AND INVESTIGATION SCOPING

2.1 Site and Investigation History

No documented site investigation or interim activities occurred since the WDNR notified the property owner, Barrel Plating Services, Inc. of their responsibility as the RP in 1994. However, from 1998 through 1999, on behalf of Cornerstone Property Development LLC (Cornerstone), The Sigma Group (Sigma) performed environmental assessments as part of pre-acquisition due diligence. In 1999, Barrel Plating Services, Inc. ceased electroplating activities and Cornerstone assumed ownership of the property. Sigma submitted a draft status report to the WDNR on behalf of Cornerstone dated November 23, 1999, which included soil analytical data tables and figures depicting the site layout and soil impacts. Sigma submitted 28 soil samples collected from eight hand augers and 19 geoprobe borings for laboratory analysis of cyanide, pH, zinc (Zn), volatile organic compounds (VOCs), and resource conservation and recovery act (RCRA) metals. Soil analytical results indicated detections of several analytes in excess of their respective NR 720, Wisconsin Administrative Code (WAC) residual contaminant levels (RCLs).

Several RCRA metals and VOCs, including trichloroethene (TCE), cis- and trans-1,2-dichloroethene (DCE), and vinyl chloride, were detected in soil.

Select soil samples were analyzed using the toxicity characteristic leaching procedure (TCLP). Cadmium (Cd) was detected at a concentration indicative of hazardous waste in one shallow (0-4 feet below ground surface [bgs]) soil sample.

The majority of the impacted soils were located near the former plating area (depicted on **Figure 2**) in the northwest portion of the current 325-327 E. Reservoir Avenue property and the northeast portion of the current 301 E. Reservoir Avenue property (located adjacent to the northeast boundary of the site). Sigma documented detections at varying depths from the surface to 20 feet bgs.

In January 2000, Scott Enterprises collected and submitted two soil samples from the plating area to evaluate the soil for waste disposal. Sample #3 North, located in the north section of the plating area, contained TCLP Cd at a concentration exceeding its hazardous waste regulatory limit and cyanide above the allowable limit for landfills.

On March 30, 2000, ARCADIS Geraghty & Miller (ARCADIS) was retained by Cornerstone for further site investigation activities and to develop a remedial action plan for the site. ARCADIS's "Supplemental Remedial Investigation and Work Plan for Impacted Soils" dated August 11, 2000, summarizes the previous site investigation activities, the additional site investigation activities conducted by ARCADIS, and the soil remedial actions which ARCADIS developed for the site. ARCADIS advanced 17 geoprobe borings (16 of which were located within the footprint of the current tennis court and one was located just east of the current tennis court) and submitted 31 select soil samples for laboratory analysis of VOCs, RCRA metals, and TCLP for VOCs and RCRA metals, as needed.

RCRA metals were detected in each of the 31 samples submitted for laboratory analysis. ARCADIS determined the arsenic (As) concentrations detected in the soil samples were a result of natural conditions as As is not normally utilized at plating facilities and the concentrations detected remained within the range of naturally occurring concentrations of As. Concentrations of Cd exceeded its industrial and non-industrial, direct-contact RCLs in soil samples AG-1 (0 to 4') and AG-15 (0 to 4') and only its non-industrial RCL in soil samples AG-4 (0 to 4'), AG-4 (4 to 6'), AG-6 (0 to 4'), AG-16 (0 to 4'), and AG-16 (4 to 8'). Concentrations of total chromium (Cr) exceeded the hexavalent Cr non-industrial and industrial, direct-contact RCLs and the trivalent Cr non-industrial, direct-contact RCL in soil sample AG-16 (4 to 8'). The majority of the other soil samples contained chromium at or above the non-industrial, direct-contact RCL for hexavalent Cr. At soil sample AG-10 (0 to 4'), the lead (Pb) concentration exceeded its industrial, direct-contact RCL. Several other sample locations contained Pb above the non-industrial, direct-contact RCL.

In the 31 soil samples submitted for laboratory analysis of VOCs, TCE was the main analyte of concern. ARCADIS also noted that tetrachloroethene (PCE), cis-1,2-DCE, and trans-1,2-DCE were detected at elevated concentrations.

Areas of the northwest portion of the site within the footprint of the current tennis court were defined as characteristically hazardous waste based on concentrations of Cr and Cd. TCLP Cr exceeded the federal TCLP regulatory limit at borings AG-15 and AG-16. TCLP Cd concentrations exceeded the federal TCLP regulatory limit in soil samples AG-1 (0 to 4), AG-4 (0 to 4), AG-4 (4 to 6), AG-6 (0 to 4), and AG-15 (0-4). TCLP TCE was detected in the shallow interval in one soil sample (AG-1 [0 to 4]) located in the northern portion of the property, within the characteristically hazardous waste area.

ARCADIS proposed remedial actions for the former Barrel Plating site including treatment of characteristically hazardous waste soil, removal and disposal of impacted soils from 0 to 4 feet bgs, and the construction of a tennis court over the site to serve as an engineered barrier over the remaining impacted soils. In October 2000, soil remediation activities were conducted as documented in Arcadis's "Soil Remediation Report, Former Barrel Plating Facility-Plating Area" dated July 31, 2002. Approximately 700 tons of characteristically hazardous soils were treated and disposed. Approximately 1,200 tons of non-hazardous impacted soil were removed and disposed. The northwest portion of the current 325-327 E. Reservoir Avenue property was backfilled and capped with the tennis court.

At the base of the excavation, seven confirmation soil samples were collected. The confirmation soil samples were analyzed for VOCs and RCRA 8 metals with select treated soil samples analyzed for TCLP Cd, Cr, and TCE. The confirmation samples taken from the base of the excavation contained Cd up to 220 milligrams per kilogram (mg/kg) at 10 feet bgs in sample AGMX-6 and TCLP Cd up to 0.006 milligrams per liter (mg/L) at 4 feet bgs in sample AGMX-1, which was well below the 1 mg/L TCLP regulatory level to meet the definition of characteristically hazardous waste. Cr was detected at concentrations up to 2,360 mg/kg at 10 feet bgs in sample AGMX-6 and TCLP Cr up to 4.35 mg/L at 4 feet bgs in sample AGMX-1, which is below the TCLP regulatory level of 5 mg/L. Pb was detected at concentrations up to 138 mg/kg at 4 feet bgs in sample AGMX-1 and TCLP Pb up to 2.86 mg/L at 15 feet bgs in sample AGMX-3, which is below the TCLP regulatory level of 5 mg/L. TCE was detected in each of the confirmation samples at concentrations up to 32,000 micrograms per kilogram (µg/kg) at 10 feet bgs in sample AGMX-6. TCLP TCE was only analyzed in two of the samples taken from the base of the excavation and was detected to concentrations up to 52.2 micrograms per liter (µg/L) at 4 feet bgs in sample AGMX-1, which is below the TCLP regulatory level of 500 µg/L.

Residual contamination remains in the soil beneath the base of the excavation and has yet to be vertically delineated. The Sigma and ARCADIS soil borings were advanced to a maximum depth of 20 feet bgs. The available soil data from the Sigma investigation in the excavation area from 4 to 20 feet bgs includes detections of TCE up to 27,000 µg/kg at 6 to 8 feet bgs at boring GP-8; PCE up to 810 µg/kg and VC up to 1,400 µg/kg at 18-20 feet bgs at boring GP-8; cis-1,2-DCE up to 15,000 µg/kg, trans-1,2-DCE up to 6,800 µg/kg, and Pb up to 1,100 mg/kg at 10 to 14 feet bgs at boring GP-9; and Cd up to 59 mg/kg and Cr up to 10,676 at 2 to 4 feet bgs in boring HB-4. ARCADIS soil data from 4 to 20 feet bgs in the excavation area includes cis-1,2-DCE up to 7,300 µg/kg at 10 to 12 feet bgs at boring AG-

10, trans-1,2-DCE up to 4,000 µg/kg at 8 to 12 feet bgs at boring aG-11, TCE up to 21,000 µg/kg at 4 to 6 feet bgs at boring AG-15, Cd up to 290 mg/kg at 4 to 6 ft bgs at boring AG-4, Cr up to 18,000 mg/kg at 4 to 8 feet bgs at boring AG-16, and Pb up to 370 mg/kg at 6 to 8 feet bgs at boring AG-1. Groundwater was not assessed during the 1999 site investigation or the 2000 remedial activities.

A March 20, 2024 DNR letter indicates that as the current property owner, Ms. Leslie Dixon (327 E Reservoir Condominium Association, Inc.) is responsible for the contamination at the 325-327 E. Reservoir Avenue property (BRRTS #02-41-594249, opened March 18, 2024). The letter notes that the contamination originated from 301 E. Reservoir Avenue which has a separate responsible party (BRRTS #02-41-000904). The WDNR states that the main contaminants of concern, RCRA metals and VOCs, have yet to be laterally and vertically defined in the soil and groundwater and there has been no vapor investigation. The WDNR also notes special vapor intrusion concern due to detections of TCE at the site due to its potential to impact human health at relatively low concentrations in the air and the risk of vapor intrusion into utility lines and buildings.

SET Engineering LLC (SET) completed a Phase I Environmental Site Assessment (ESA) dated April 24, 2024 to assess the property on behalf of Atlantic Acquisitions LLC. SET did not determine any recognized environmental conditions at the site during their assessment other than the open ERP case at the site. SET noted the presence of several ERP cases surrounding the site and state that fill material from the closed Hubbard St Apartments ERP case (BRRTS #02-41-533351) likely extends onto the site. Information regarding the BRRTS cases identified within 500 feet of the site are discussed in Section 2.2. SET's assessment also did not identify obvious evidence of a business environmental risk. However, SET determined the historical presence of TCE and lack of vapor investigation to be a vapor encroachment condition.

The following summary of site use history is derived from a review of historical aerial photos from the SET Phase I ESA:

Date	Activity/Status
1937-200	The site appears to be developed with industrial buildings with no major changes observed until 2000.
2000	The site has been redeveloped with the current residential building.
2005-2020	The building on the west side of the site has been razed and replaced by a tennis court.
2020-2024	The site appears similar to present day.

Proximity to Other Contamination Sources

The Wisconsin Remediation and Redevelopment Database (WRRD) was accessed for information on nearby contaminated properties. Four open cases and six closed cases were identified within 500 feet of the site are listed in the database. Property details and relevant information are presented in the table below.

Site Name	BRRTS#	Direction	Distance (feet)	Status	Notes
Barrel Plating Service	02-41-000904	West	0 (immediately adjacent to the site)	Open	Former electroplating facility associated with Pb, Cd, PAH, PCE, and TCE soil contamination. As associated with this site is likely the result of naturally occurring local conditions.
NW Corner E Reservoir Ave and N Buffum St	02-41-340990	North	<100 (opposite of the E. Reservoir Avenue right of way)	Open	Historical storage of several apparent gasoline tanks and residual soil contamination from two UST releases. The west parcel of the site was historically used for various industrial purposes which may have included the use of petroleum products, solvents, adhesives, etc. Substances of concern include chlorinated VOCs (CVOCs), Pb, PAH, PCE, and TCE
301 E Brown (SE CNR of N Hubbard & E Brown)	03-41-373872	Northwest	400	Open	Leaking UST (LUST) case associated with CVOCs including TCE, Pb, PAH, and petroleum.
1937 N Hubbard St	02-41-373881	Northwest	500	Open	Soil contamination related to the presence of historic fill material and USTs. Substances of concern included PAHs, VOCs, and metals
Hubbard St Apartments	02-41-533351	Southwest	0 (immediately adjacent to the site)	Closed	Closed ERP case associated with the presence of As, CVOCs, Cr, diesel fuel, Pb, PCB, PAH, PCE, and TCE
Weyco Group Inc	03-41-100655	Northwest	200	Closed	Closed LUST case associated with a release of petroleum.
Weyenberg	03-41-	Northwest	250	Closed	Closed LUST case associated

Site Name	BRRTS#	Direction	Distance (feet)	Status	Notes
Shoe	000813				with a release of petroleum.
In Place Machining Co	03-41-111492	North	250	Closed	Closed LUST case associated with a release of petroleum.
Milwaukee Cty Retaining Wall Excavation	02-41-231111	Southwest	300	Closed	Closed ERP case associated with the presence of petroleum.
Trostel Tannery	02-41-000035	Southeast	400	Closed	Closed ERP case associated with the operations of the former leather tannery at the site. Substances of concern included Cr, Pb, and sulfates.

2.2 Emerging Contaminants Discussion

Terracon reviewed the site investigation results and site history to evaluate the potential presence of emerging contaminants. The former UST at the former Barrel Plating facility is likely not associated with emerging contaminants such as per- and polyfluorinated alkyl substances (PFAS) or 1,4-dioxane. However, the historical site use as an electroplating facility may indicate a potential for PFAS use. Soil results from the previous investigations indicated the presence of PCE and TCE in the soil. 1,1,1-Trichloroethane (TCA), which can be associated with 1,4-dioxane, was detected in eight of the Sigma soil samples and six of the ARCADIS soil samples at concentrations up to 820 µg/kg. Based on the available information, emerging contaminants may be present at the site and have been included in the investigation proposed in this work plan. The proposed VOC analysis for this phase of investigation will include 1,1,1-TCA, and the results will be used to assess the potential presence of 1,4-dioxane.

2.3 Potential Receptors

Buried utilities including water, sewer, natural gas, and electrical lines are present on the site and in the surrounding rights-of-way. It is possible that utility lines and/or corridors are affected and represent a potential receptor. The locations of utilities will be evaluated.

The WDNR's Well Driller Viewer (https://dnrmaps.wi.gov/H5/?viewer=Well_Driller_Viewer) maintained by the WDNR was accessed to search for potable water wells within 1,200 feet of the site. The WDNR identified one construction well record located approximately 450 feet to the east of the site (8MQ121). The well was constructed in 1937 with a steel casing down to approximately 729 feet bgs within layers of limestone, shale, and sandstone bedrock. It is unknown if this well is still in service due to its age. Based on the depth at which it was

constructed and since the area is likely serviced by city water, the location of this well does not represent a potential exposure pathway.

There are no sensitive species, habitats, or ecosystems at or surrounding the site. Likewise, there are no wetlands, surface water, or outstanding resource waters.

The site is developed with a condominium building, landscaping, a tennis court, and a paved drive. While landscaping is present, gardens or other activities indicative of exposure to soil at the site were not observed. The former excavation was filled with clean fill and capped with a tennis court. Most of the site is protected with either pavement, landscaping/vegetated topsoil, or a building foundation. Current site use does not suggest direct-contact is an ongoing exposure pathway.

TCE was previously detected in soil beneath the tennis court at concentrations that were determined to be characteristically hazardous. However, the upper four feet of the most heavily TCE-impacted soil was excavated and capped with a tennis court as an engineered barrier. The potential for vapor intrusion will be further investigated as described herein.

3.0 SITE INVESTIGATION ACTIVITIES

Based on the WDNR's March 20, 2024 letter, Terracon has prepared the following scope of work to further assess the soil and groundwater conditions and evaluate the vapor pathway at the site. The results from the implementation of this work plan will be shared with the WDNR to make recommendations moving forward.

3.1 Health and Safety

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 prepare a 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 currently unknown petroleum or chemical constituents in soils or groundwater that present an increased risk for personal exposure.

3.2 Soil and Groundwater Sampling

3.2.1 Utility Clearance

To locate utilities in the work area, Terracon has contacted Diggers Hotline. To the extent practicable, the locations and depths of the various utilities will be identified to avoid damage to such utilities. In addition, we will attempt to locate private utilities located on the site. The proposed boring locations may be modified based upon the presence of utilities, or if access is otherwise restricted. The utility information will be used to update the site diagram and evaluate potential migration pathways.

3.2.2 Soil Boring and Sampling

Terracon will advance three soil borings (P-1 through P-3) to collect soil samples for laboratory analysis. The proposed boring locations are depicted on **Figure 3**; however, the locations may be modified based upon the presence of utilities or if access is otherwise restricted. Soil boring P-1 will be advanced in the northwest portion of the site in the area of the former excavation to delineate impacts at the base of the excavation. Soil borings P-2 and P-3 will be advanced in the southwest and south-central portions of the site to laterally delineate contamination. The eastern portion of the site is closed off by a welded fence, hence a drill rig will be unable to access this area without significant effort. Boring P-2 is proposed to be advanced as near to the fence as possible.

The July 31, 2002 remedial action documentation report (RADR) notes that the site is located approximately 200 feet northwest of and 50 feet higher in elevation than the Milwaukee River, and hence, they anticipated the groundwater table to be at least 40 to 50 feet below ground surface. Soil borings P-1 through P-3 will be advanced to a depth of approximately 10 feet below the apparent groundwater surface (which is anticipated to be deeper than 30 feet bgs), or to refusal, whichever is shallower. Soil samples will be collected continuously to the boring terminus. All non-dedicated sampling equipment and field instruments will be decontaminated after each sample is collected using a non-phosphate soap wash followed by a potable water rinse. 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 VOC vapors. Results of the soil borings including stratigraphy and field screening will be summarized on boring logs. Locations of borings will be measured relative to existing site features but will not be surveyed. A global positioning system (GPS) will be used to obtain coordinates for the boing locations.

For soil borings P-1 through P-3, two soil samples will be collected from each of the soil borings. One soil sample will be selected for analysis from the upper 4 feet, and a second sample will be collected from below 4 feet. Soil 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 water table, and the shallow soil sample will be collected from below the topsoil or surficial material, unless other indications of impacts

suggest another sample. 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 (COC) protocol to a Wisconsin-certified laboratory for analysis of cadmium, total chromium, and lead by USEPA Method 6010, VOCs by USEPA Method 8260B, and polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270. Additional soil sample aliquots will be containerized for potential PFAS analysis pending the results of the groundwater analysis.

3.2.3 Groundwater Monitoring Well Construction, Development, and Surveying

Terracon proposes the installation of three NR 141, WAC-compliant groundwater monitoring wells (MW-1 through MW-3) at soil boring locations P-1 through P-3, respectively. These groundwater monitoring wells will be installed to investigate the potential for groundwater contamination. The groundwater table was not encountered during the prior investigations due to the depth of the borings advanced. The proposed monitoring well locations are depicted on **Figure 3**.

Each monitoring well will be installed using a hollow-stem auger drill rig, in conformance with NR 141, WAC. Because soil samples will be collected at groundwater monitoring well locations MW-1 through MW-3, the boreholes for the monitoring wells will be blind-drilled, and soil samples will not be collected for logging or laboratory analysis. The soil cutting from each groundwater monitoring well installation will be collected and stored in 55-gallon steel drums and labeled. Groundwater depth varies and the final well depth will be determined at the time of the soil borings advancement. For the purpose of this proposal, it is assumed that each well will be constructed to a depth of 45 feet bgs. The monitoring wells will be constructed to a depth of approximately 10 feet below the top of the water table with a 15-foot length of 2-inch diameter, 0.010-inch slotted, polyvinyl chloride (PVC) well screen connected to a solid PVC riser pipe. A sand filter pack will be placed around the screen to a depth of approximately 2 feet above the top of the screen. The remainder of the borehole will be filled with bentonite to near the ground surface. A steel, bolt-down flush-mount well protector will be installed in concrete at the ground surface. The groundwater monitoring well will be capped with an expandible cap along with a lock.

Following installation, the well will be developed with disposable bailers and/or pumps in accordance with NR 141, WAC. Purged groundwater will be collected and stored in a 55-gallon steel drum and labeled. The elevation of the top of each riser pipe will be surveyed relative to a national geodetic survey datum, so that the groundwater static water level elevations can be calculated.

3.2.4 Groundwater Sampling

Groundwater monitoring activities, consisting of a depth to water measurement and groundwater sample collection, will be performed approximately one week after well development. One monitoring event is initially proposed. The well cap will be removed at

least 15 minutes prior to collecting the water level measurement to allow groundwater in the monitoring well to equilibrate with the atmospheric pressure. The depth to water in the well will be measured to the nearest 0.01-foot using an electronic meter and recorded on field sampling forms prior to sample collection activities.

After static groundwater level measurements are completed, at least four well casing volumes will be purged prior to sample collection, unless the wells bail dry. Groundwater samples will be collected from the monitoring wells using clean, disposable bailers.

Terracon will obtain natural attenuation parameters from the monitoring well network. 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 that will be lowered into each well. One reading will be taken after purging the well. The meter will be lowered into each well until stable readings are observed for each of the parameters.

The groundwater sample 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 of field-filtered cadmium, total chromium, and lead using USEPA method 6010; PFAS by USEPA method 537.1M; and VOCs using USEPA method 8260. One field reagent blank (FRB-1) will be collected and submitted for PFAS laboratory analysis. At the laboratory, a sample bottle will be filled with reagent water and preservatives, sealed, and shipped along with the sample bottles. At the site, the reserved reagent water will be poured into a clean, disposable bailer, and then poured into an empty, unpreserved sample bottle and sealed. A trip blank will also be submitted for VOC laboratory analysis.

3.3 Investigation-Derived Waste Management

Investigation-derived waste (IDW) will consist of soil from boring and monitoring well installation and groundwater from well development and sampling. The IDW generated by these activities will be placed in steel 55-gallon drums and staged at a location preferred by the site owner. Based on the anticipated depth to groundwater, Terracon anticipates all IDW will be characterized as non-hazardous. However, given the high concentrations that previously required pre-treatment of characteristically hazardous soils at this site, we will collect a representative sample of the soil for potential laboratory analysis for parameters required by the disposal facility. The sample will not be analyzed unless the landfill requires the additional analytical data. A licensed contractor will be retained to remove the drums from the site for proper disposal. This proposal assumes that 13 drums will be used during the implementation of this work plan.

3.4 Vapor Pathway Assessment

The vapor pathway has not been investigated. Terracon proposes to assess the potential for vapor intrusion in the onsite building by installing three sub-slab vapor sampling points (SS-

1 through SS-3), and collecting samples paired with passive indoor air sampling as described below. This strategy is in accordance with the WDNR document "Addressing Vapor Intrusion at Remediation & Development Sites in Wisconsin". Indoor? Air samples will be collected from the basement (325-B and 327-B) of each unit. One sample of outdoor air will be collected on the tennis court (OA), near the former excavation and the site of the former Barrel Plating Services ERP case, to evaluate potential contaminants near the former contaminant source area. The approximate excavation area is depicted on **Figure 2**. Proposed sub-slab vapor and air sampling locations are depicted on **Figure 3**.

Sub-slab vapor samples will be collected immediately following the completion of the indoor air sampling to provide a comparison of sub-slab vapor and indoor air data. A sump, which reportedly rarely fills, was noted to be present in the wine cellar located in the northeast portion of the onsite building. Terracon will visually inspect and document potential utility corridors or other trenches through which vapor could migrate into the building. Sub-slab vapor sampling point SS-1 will be installed in the northeast portion of the building in the wine cellar of the 327 E. Reservoir Avenue condominium unit. Sub-slab vapor sampling point SS-2 will be installed on the northwest side of the 325 E. Reservoir Avenue unit basement, closest to the former excavation area. Sub-slab vapor sampling point SS-3 will be installed in the southeast portion of the basement used as the garage of the 327 E. Reservoir Avenue unit, above which is living quarters.

3.4.1 Indoor Air Sampling Procedures

Terracon proposes to collect passive air samples using absorbent sampling devices sourced from an accredited laboratory. The sampling devices will be suspended in the breathing zone approximately 3 to 5 feet above the floor, in accordance with the laboratory's specified procedure, between June 21 and June 28, 2024 (approximately 7 days). The passive air samples will be submitted under COC protocol to the laboratory for analysis of VOCs using Method TO-17.

3.4.2 Sub-Slab Vapor Sampling Procedures

Sub-slab vapor sample points will consist of a pre-fabricated Vapor Pin™ leak-tight insert, installed in accordance with Terracon's and Cox Colvin standard operating procedures. A 5/8-inch diameter drill bit will be advanced completely through the concrete slab and into the substrate below the concrete. The Vapor Pin™ insert will be subsequently hammered into the concrete borehole.

The integrity of the vapor monitoring points will be evaluated prior to sampling by conducting a leak test using either the helium shroud or water dam method. The vapor monitoring point will then be connected to a laboratory-prepared 6-liter vacuum canister with a flow regulator calibrated for 30-minute collection. Prior to sample collection, a shut-in test will be performed to confirm there are no leaks in the sample train. When the shut-in test is passed, the valve on the canister will be opened to collect the vapor sample. The

sub-slab vapor points will be removed, and the concrete borehole will be sealed with hydraulic cement after sample collection. The vapor samples will be submitted to a laboratory for analysis of VOCs according to the USEPA Method TO-15.

3.5 Sample Analysis Plan

A summary of the proposed sampling/analysis strategy is presented below:

Sample Locations	Matrix/Analyses	No. Of Samples	Lab Method
P-1 through P-3	Soil Samples, Shallow and Deep: VOCs, Cd, total Cr, Pb, PAHs, and PFAS (on hold)	6	8260, 6010, 8270, and 537.1M
MW-1 through MW-3	Groundwater Samples: VOCs, Cd, total Cr, Pb, and PFAS	3	8260, 6010, and 537.1M
FRB-1	Water: PFAS	1	537.1M
325-B, 327-B, and OA	Indoor and Outdoor Air Samples: VOCs	3	TO-17
SS-1 through SS-3	Sub-Slab Vapor Samples: VOCs	3	TO-15

4.0 REPORTING

4.1 Sample Results Notifications

In accordance with WDNR regulations, Terracon will report property-specific sampling results to the site owner and the WDNR within 10 business days of receiving the laboratory reports. The notification will consist of a brief letter, data summary table, sketch of sample locations, and a copy of the laboratory reports. The final notification will be mailed or emailed to the property owner and uploaded to the Remediation and Redevelopment Program submittal portal.

4.2 Supplemental Site Investigation Report

A supplemental site investigation (SSI) report will be prepared to summarize the findings and recommendations. The SSI report will include the following:

- Documentation of field activities;
- Soil boring, monitoring well, and vapor sampling location map;
- Soil boring logs;

- Well construction, development, groundwater sampling, and vapor sampling forms,
- Analytical laboratory results;
- Data evaluation and presentation of pertinent findings; and
- Recommendations concerning further action, if necessary.

5.0 SCHEDULE

Terracon anticipates the following schedule:

- June 2024 – Preparation and submittal of a SIWP;
- June and July 2024 – Implementation of the SIWP; and
- September 2024 – Preparation and submittal of a SSI report.

If additional work is needed to define the extent of the contamination and/or investigation the vapor intrusion pathway, the additional work scope will be discussed with the WDNR prior to preparation of the next phase of work.

6.0 CERTIFICATIONS

I, Lucas P. Chabela, P.G., hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

2009-13	6/28/2024
Signature and P.G. number	Date

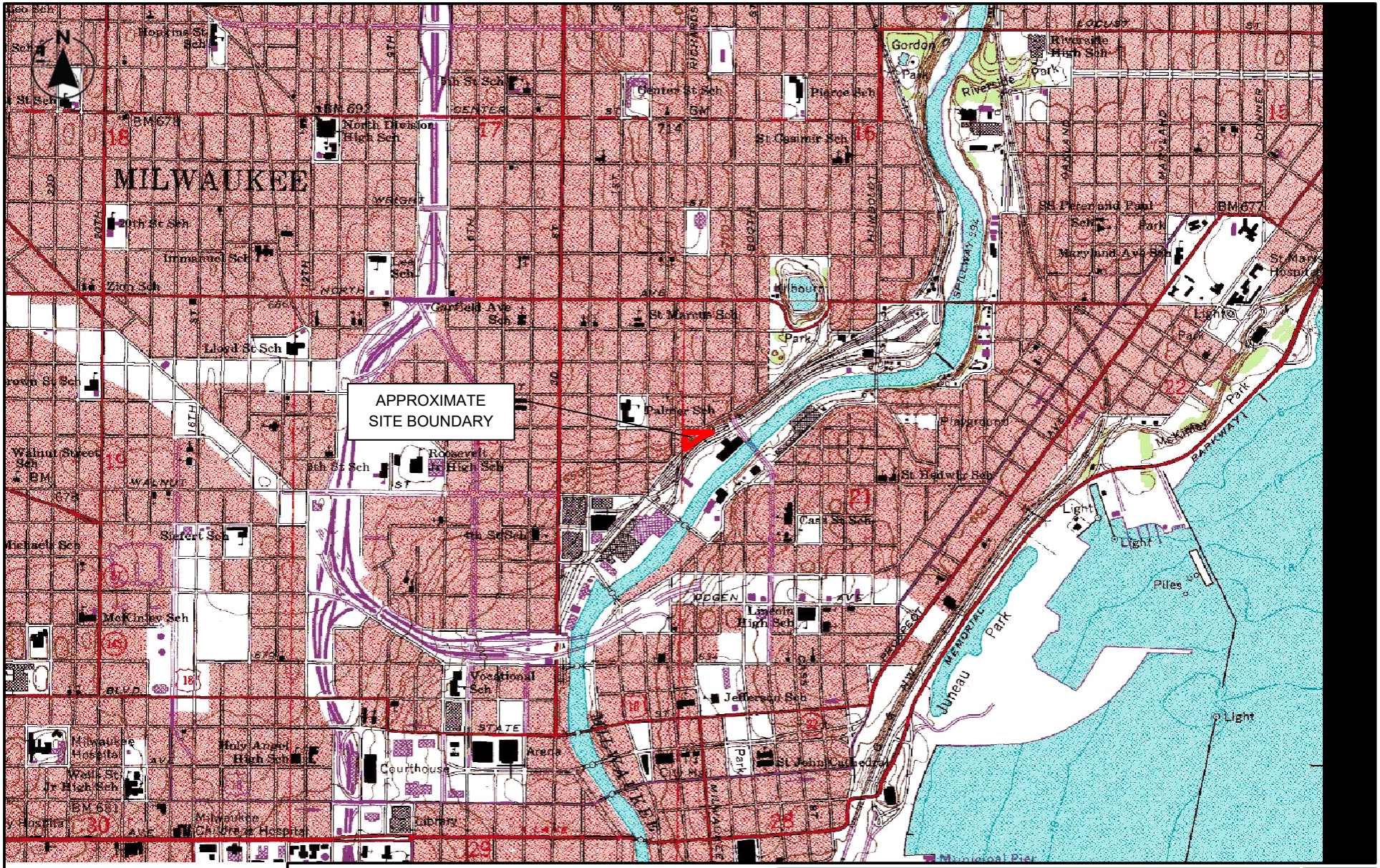
Project Geologist
Title

I, Blaine R. Schroyer, P.E., hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

E-31505
Signature and P.E. number

Senior Principal/Office Manager
Title

Figures



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY QUADRANGLES INCLUDE: MILWAUKEE, WI (1/1/1971).

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	RTS
Drawn by:	RTS
Checked by:	BRS
Approved by:	BRS

Project No.	58247140
Scale:	1"=2,000'
File Name:	FIG. 1
Date:	6/10/2024

Terracon
4900 S Pennsylvania Ave, Ste 100
Cudahy, WI 53110-1347

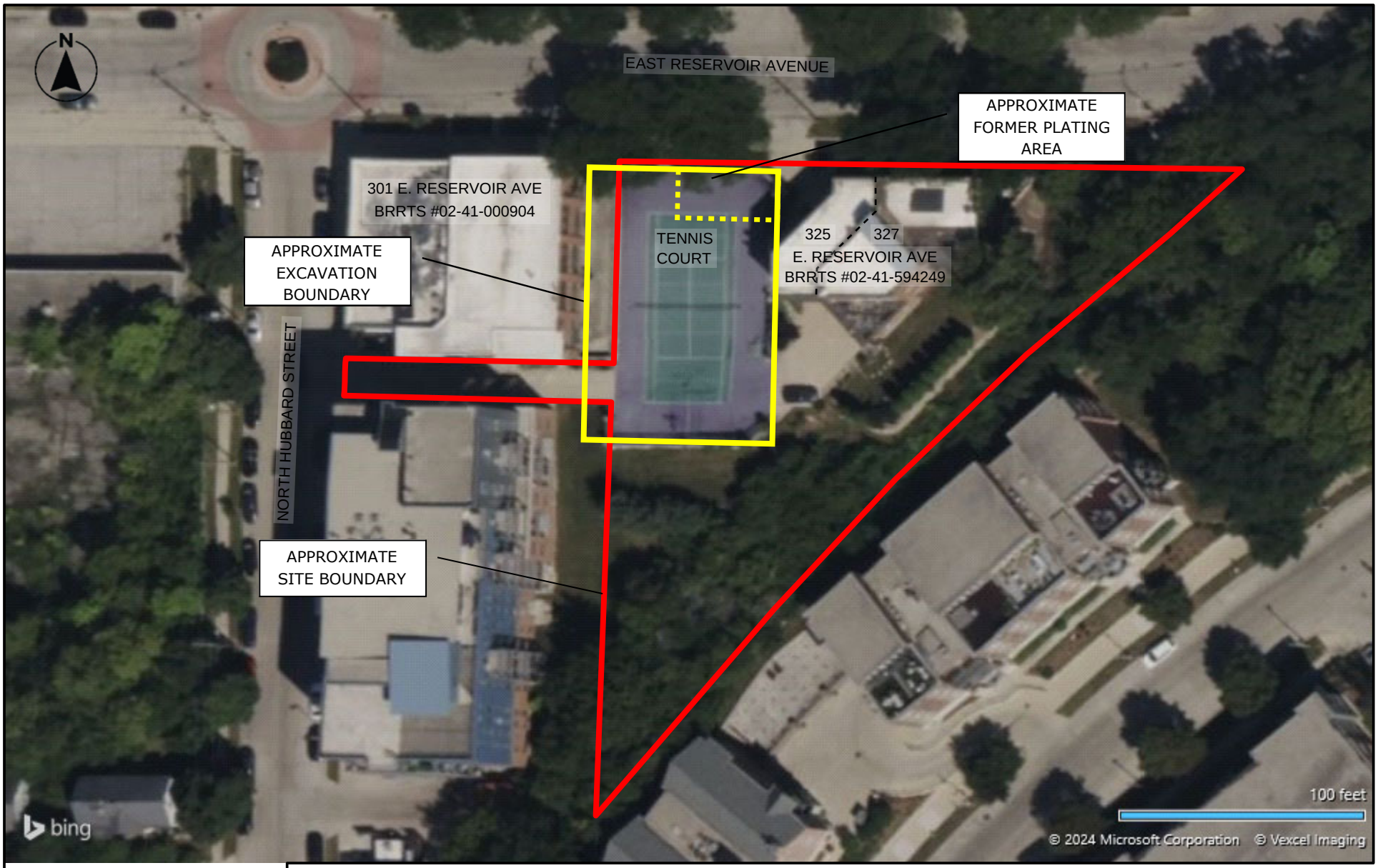
SITE LOCATION MAP

BARREL PLATING SERVICES FMR

325-**327 East Reservoir Avenue**
Milwaukee, WI

FIGURE

1



AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

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Checked by:	BRS
Approved by:	BRS

Project No.	58247140
Scale:	AS SHOWN
File Name:	FIG. 2
Date:	6/10/2024

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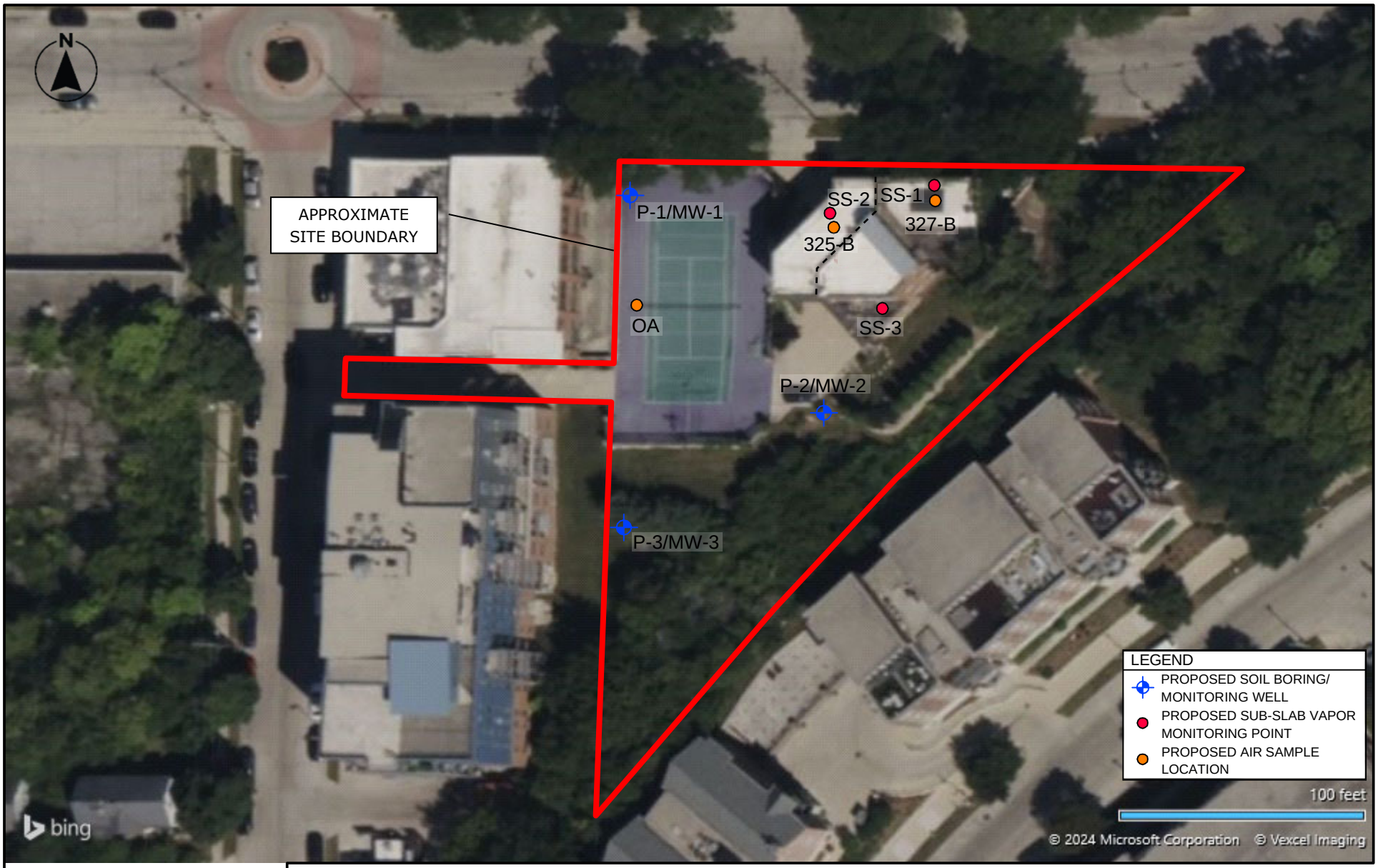
SITE MAP

BARREL PLATING SERVICES FMR
325-**327 East Reservoir Avenue**
Milwaukee, WI

FIGURE
2



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Project Manager:	RTS
Drawn by:	RTS
Checked by:	BRS
Approved by:	BRS

Project No.	58247140
Scale:	AS SHOWN
File Name:	FIG. 3
Date:	6/10/2024

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4900 S Pennsylvania Ave, Ste 100
Cudahy, WI 53110-1347

PROPOSED SAMPLE LOCATION MAP

BARREL PLATING SERVICES FMR

325-**327 East Reservoir Avenue**
Milwaukee, WI

FIGURE

3