Prepared for:
Spic and Span, Inc

Submitted to:
Wisconsin Department of Natural Resources
Milwaukee, Wisconsin

Prepared by:
Ramboll Americas Engineering Solutions
Milwaukee, Wisconsin

Date:
January 2024

REMEDIAL DESIGN REPORT

FORMER SPIC AND SPAN FACILITY
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

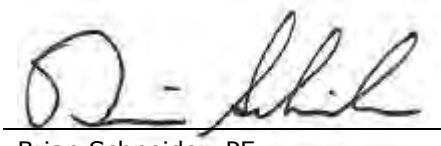
BRRTS NO. 02-41-585636
FID NO. 241040690

RAMBOLL

ENVIRONMENT
& HEALTH

CERTIFICATION

I, Brian Schneider, hereby certify that I am a professional engineer as that term is defined in NR 712.03(2), 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.



Brian Schneider, PE

January 18, 2024

Date

CONTENTS

Ramboll US Consulting, Inc.
234 West Florida Street
Fifth Floor
Milwaukee, WI 53204
USA
T +1 414 837 3607
F +1 414 837 3608
www.ramboll.com

TABLES

FIGURES

APPENDICES

1. INTRODUCTION

On behalf of Spic and Span, Inc. (Spic & Span) Ramboll Americas Engineering Solutions, Inc. (Ramboll) has prepared this Remedial Design Report (RDR) for the former Spic and Span facility located at 4301 North Richards Street, Milwaukee County, Wisconsin (the "Site"). The objective of this RDR is to document the design and implementation steps for the proposed remedial actions consisting of excavation of impacted soil, and installation and operation of a Sub-Slab Depressurization System (SSDS) to address volatile organic compounds (VOCs) identified in soil vapor beneath the former Spic and Span facility. This RDR has been prepared in accordance with NR 724.05 and NR 724.09 of the Wisconsin Administrative Code (WAC).

1.1 Site Location

The Site is located on a 4.5-acre parcel of property with an approximately 52,000 square foot building. The Site address is 4301 North Richards Street, Milwaukee, Wisconsin. The Site location is shown on Figure 1. The eastern quarter of the building is located in the City of Milwaukee and the remaining part of the building and property is located in the City of Glendale. The Site is bounded by an industrial/warehouse to the north, Richards Street and a warehouse to the east, industrial properties/ facilities to the south, and N. Lydell Street and industrial properties to the west. The Site layout is shown on Figure 2.

The Site is located in the northeast ¼ of the southeast ¼ of Section 5, Township 07N, Range 22E, Milwaukee County, Wisconsin at latitude 43.094856 and longitude -87.9082073. The parcel I.D. numbers are Glendale: 2331180000 and Milwaukee: 2420201000, and the WTM coordinates are: X Coordinate (WTM91): 690,239.9 and Y Coordinate (WTM91): 293,441.2.

1.2 Involved Parties

The parties involved in this project are listed below:

Regulatory Agency:	Wisconsin Department of Natural Resources Milwaukee Service Center 1027 W. Saint Paul Avenue Milwaukee, WI 53233 Contact: Linda Stanek, (414) 316-0208
Property Owner:	Robert Miller 108 West Miller Drive Mequon, WI 53092 (414) 378-5522
Consultant:	Ramboll Americas Engineering Solutions, Inc. 234 W. Florida Street, Fifth Floor Milwaukee, WI 53204 Contact: Brian Schneider, P.E. (262) 901-3507
Excavation Contractor:	North Shore Environmental, Inc. N117 W18493 Fulton Drive Germantown, WI 53022 Contact: Dave Johnson, (262) 255-4468

SSDS Contractor:	Lifetime Radon Solutions 805 Wells Street Delafield, WI 53018 Contact: Chad Rogness, (262) 955-5701
Laboratory:	Eurofins 180 Blue Ravine Road, Suite B Folsom, CA 95630 Contact: Jade White, (916) 201-2144

1.3 Site Background

The Site is located at 4301 North Richards Street, Milwaukee, Wisconsin. The Site contains a one-story vacant industrial building and is located in an industrial/warehouse district as shown in Figure 1. The Site was undeveloped up to circa 1951 when the current building was constructed by Square D. The Site was occupied by Spic and Span and operated as a drycleaning facility primarily for industrial uniforms from 1961 to 2017. Tetrachloroethylene (PCE) use began in 1985 and continued until 1999 when all of the equipment was removed except for one small 35-pound machine that was used for occasional small jobs until 2018. PCE use was limited to one section of the building known as the Dry-Cleaning Room as shown in Figure 2. PCE was not used outside of this room. Floor drains located throughout the building were plugged with concrete when the building was occupied by Spic and Span in 1961 and remain plugged today. There is no record of a PCE spill on site.

Previous environmental-related activities associated with historical operations at the facility have included the following:

- In December of 1987, a site assessment was performed for a 5,000-gallon waste solvent tank located on the west side of the building as shown on Figure 2. An investigation was conducted to evaluate potential soil and groundwater contamination associated with the waste solvent tank. Soil borings were completed, and monitoring wells installed. The contaminants identified from the investigation included vinyl chloride which is a breakdown product of PCE that extended eastward under the building. Based on the results, the incident was closed in 2019 with an engineered cap over the former tank area and a notification of the potential for soil and groundwater impacts was provided to the property owner to the north (closed Environmental Repair Program [ERP] Site Bureau for Remediation and Redevelopment Tracking System [BRRTS] # 02-41-000033).
- In December of 2012, two underground storage tanks (one 8,000-gallon diesel fuel underground storage tank [UST] and one 6,000-gallon fuel oil UST) were removed from the south side of the building. A site assessment was completed at the time of the UST removal. Petroleum contaminants were detected in laboratory results but were below regulatory standards. The incident was closed by the Department of Commerce with no further action required (closed leaking underground storage tank [LUST] Site BRRTS # 03-41-559767).

The current investigations have focused on chlorinated VOC (CVOC) impacts in soil and groundwater, and also soil vapor. The investigations started with vapor sampling performed by GRAEF in October of 2019 and that work expanded to soil and groundwater investigations. Ramboll began work on the project in July of 2022.

In July 2023 Ramboll submitted a Site Investigation and Remedial Action Options Report (SI/RAOR), and subsequently responded to additional information requests from the Wisconsin Department of

Natural Resources (WDNR). In a letter dated November 28, 2023, the WDNR approved the SI/RAOR with limited comments.

The soil impacts are summarized on Figures 3a through 3c. These figures are broken down by five foot intervals as requested by the WDNR and show contaminant levels as order of magnitude concentrations rather than as RCLs so as to inform the remedial design that is focused on the potential for vapor intrusion. Based on the extent of the soil impacts at the site, the total mass of PCE and trichloroethylene (TCE) is estimated to be approximately 57 kilograms (kg) and 3 kg, respectively (see Table 1). The sub-slab vapor impacts are summarized on Figure 4. Groundwater impacts are limited in magnitude and extent to small area within the zone of soil and soil vapor impacts. Based on this, Figures 3 and 4 outline the target area for remedial actions.

In the November 28, 2023 letter, the WDNR stated that the soil and groundwater investigations are complete and that the conceptual remedial actions proposed are adequate to address the Site conditions. Soil and/or groundwater remediation is not required to address potential soil and/or groundwater RCL exceedances. The remedial actions are intended to address the potential for soil vapor intrusion and include the following:

- Excavation of the sub-slab soils to approximately nine feet below ground surface with engineering controls;
- Installation and activation of a SSDS to mitigate the potential for vapor intrusion; and
- Completion of SSDS commissioning activities to verify the effectiveness of the SSDS.

The proposed remedial action in the SI/RAOR recommended only excavation with potential activation of an SSDS in the event that sub-slab vapor sampling continued to indicate VOC concentrations above the sub-slab Vapor Risk Screening Levels (VRSLs). Based on discussions with the WDNR and comments in the Approval Letter, the SSDS will be installed and activated immediately after excavation is complete and the concrete is cured.

Due to the limited depth of the proposed excavations, the WDNR requested an evaluation of the efficacy of using a chemical oxidant on the bottom surface of the excavations to further degrade remaining CVOCs. This is not considered feasible for the following reasons:

- Chemical oxidation is most effective below the water table and the excavations will be above the water table, except for temporary perched conditions;
- Oxygen demand in the fill and native soils would consume much of the oxidant; and
- The oxidant would only be effective to the depth at which it can be mixed into the soil – this depth would be very limited given that the intention is to excavate soils to the maximum feasible depth and mixing of oxidant below this depth would be very limited.

Also, as requested notes regarding the potential for off-site impacts to the north are provided on Figures 2, 3a and 3b1.

1.4 Submittal Purpose and Contents

The purpose of this submittal is to document the proposed remedial design and request WDNR approval of the remedial action completion criteria. This report includes a summary of the Site conditions that was presented in detail in the SI/RAOR, a description of the remedial objectives and the design of the remedial action.

1.5 Site Regulatory Status

The site is regulated by the WDNR under BRRTS# 02-41-585636 and FID# 241040690. A waste evaluation was completed, and the soils proposed for excavation were determined to be non-hazardous. The Flow Chart and Form 4430-019 is included in Appendix D.

1.6 Remedial Approach, Objectives, and Completion Criteria

The objective of the proposed remedial approach is to minimize vapor intrusion to indoor air. Remediation of the soil regulatory Residual Contaminant Levels is not an objective as detailed in the SI/RAOR. The remedial actions proposed to meet this objective are as follows:

- Removing chlorinated volatile organic compound (CVOC) mass by excavating source area impacted soils to the extent practicable within the physical constraints associated with excavation in the interior of the building;
- Controlling and removal of CVOC vapor by high-volume venting as soils are exposed during excavation;
- Installing subsurface vapor retarders/barriers within the excavation and at the slab level consisting of compacted clay, plastic vapor retarders and new concrete;
- Sealing joints in the existing concrete slab to minimize the migration of remaining CVOC vapor into the indoor air space; and
- Installing and operating a sub-slab depressurization system to create zones of negative pressure under the building slab to prevent migration of remaining CVOC vapor into indoor air space and to remove residual CVOCs from the subsurface.

The following criteria are proposed for determining that the remedial action is complete:

- Complete the proposed excavation activities to remove contaminant mass;
- Complete installation of clay liners, vapor barriers, new concrete slabs, and floor seals;
- Demonstrate pressure field extension to the limits shown on SSDS-1 in Appendix C for two test events completed within two weeks of concrete curing; and
- After successful completion of the two pressure field extension tests, complete passive sampling for five sampling points with an average concentration of < 95% of the WDNR Vapor Action Level (VAL) with no single sample with a concentration more than 1.5 times the VAL (see Section 6.1 for additional detail).

The rationale for these criteria, and specifically the recommendation for the passive sampling results, is that in the short term there may be residual contaminants within the building interior resulting from the removal of the concrete cap and disturbance of the underlying soils that could initially lead to elevated vapor concentrations in some areas. However, potential elevated concentrations in the short-term would overstate the long-term risk for the following reasons.

- Based on the calculations provided in Table 1, the excavation activities will remove approximately 40% of the contaminant mass. The remaining mass is estimated to be less than 5% of the mass required to meet the conditions of the United States Environmental Protection Agency (USEPA)/WDNR risk screening model even under the extremely conservative assumption that 100% of the remaining contaminant would be lost to the indoor space (see Table 2).

- The SSDS will initially remove an estimated 1% of the remaining contaminant mass per week of operation and continue to remove mass throughout its operational life.
- The SSDS will also create a negative pressure gradient that will further reduce the migration of any remaining contaminants into the building.
- As the remaining contaminant mass is reduced either through diffusion into and removal from the building through ventilation and direct removal via the SSDS, and as migration is inhibited by the vapor barriers and the negative pressures created in the sub-slab by the SSDS, the rate of diffusion will decrease, and the potential concentrations of indoor air contaminants will also decrease.
- The proposed use of the building for warehouse involves continuous movement and an elevated VAL in one location would not be reflective of the overall exposure to a worker over the course of a day.

These criteria will also facilitate completion of the remedial action and transfer of ownership and building occupancy. As noted in Section 3.10, a third Pressure Field Extension test will be conducted six months after system start up and adjustments made to the system operation, if indicated.

2. EXCAVATION DESIGN

2.1 Excavation Preparation

Prior to excavation a private utility locate service will locate underground utilities. The excavation areas will be marked on the concrete floor as shown on EXC. 1 subject to adjustments for utilities; however, these adjustments are expected to be minimal given that the utilities have been previously located. Bearing walls and columns will be identified and setbacks marked.

In areas of bearing wall and column footings, the excavation will be sloped no steeper than 1.5 to 1 from the base of the footing. The excavation walls may be steeper in other locations.

Equipment will be brought into the building through the access doors on the south side of the building. Ventilation fans will be set up and prepared for operation throughout the excavation and backfilling activities.

2.2 Excavation Areas, Depths, Volumes and Methods

The proposed excavation areas and depths are shown in Appendix A and the estimated contaminant mass removal is provided in Table 1. The soils will be transported to a Waste Management or GFL Environmental facility. Details on the permitting for the disposal are included in Section 5 and Appendix D. The total volume of contaminated soils to be excavated is estimated to be approximately 1,050 cubic yards (see Table 1).

The excavations will extend to a depth of up to 9 feet, if feasible, based on the limitations of the equipment that can be used with the interior ceiling clearance and limitations presented by the columns, footings and walls. The actual depth of the sanitary sewer line may limit the depth of excavation in this area. A fourth vapor extraction sump can be installed in this area as a precaution in the event that this depth is limited when the actual depth of the sewer line is verified during initial excavations (see Section 4). Depth may also be limited in this location pending the results of a Toxic

Characteristic Leaching Procedure (TCLP) analysis of a sample collected from a depth of 6' to 7' in the vicinity of SB #5. Additional details are provided on EXC. 1.

Excavated soils will be loaded at the point of excavation into a skid steer or smaller equipment, taken to the loading area and the south side of the building and placed in a dump truck for transportation to a landfill.

2.3 Vapor Management During Construction

The recently installed unit heater that provides 0.97 Air Exchanges per Hour (AEH) will operate throughout the duration of the remediation. This will bring approximately 6,000 cubic feet per minute (cfm) of fresh air into the eastern portion of the building, where the excavation work will occur. In addition, blowers will be used to evacuate air from the areas of the excavations and remove equipment exhaust. As shown in Table 6, the highest observed sub-slab concentrations of PCE and TCE were 81,000 micrograms per cubic meter (µg/m^3) and 2,700 µg/m^3 , respectively. The Occupational Safety and Health Administration (OSHA) 8-hour Total Weight Average (TWA) for PCE and TCE are 170,000 and 2,700 µg/m^3. Based on this and the amount of fresh air that will be brought into the building during remediation, it is not anticipated that PCE and TCE vapors will be present above the OSHA standards during remediation. As a precaution, a 10.6 eV photoionization detector (PID) will be used to monitor the excavation activities and the interior workspace. PCE and TCE can be detected by this instrument. The action level is a PID reading of 5.0 IU. Details regarding the monitoring and response are included in the Site Health and Safety Plan.

2.4 Backfill

Backfill will consist of compacted clay from the base of the excavation to approximately two feet below the estimated base of the concrete slab. Sand backfill will be used above the clay to the base of the slab. Excavation above utilities will be backfilled with a one-foot layer of low permeability flowable fill followed by sand backfill. Details regarding the backfill are presented in Appendix A.

2.5 Concrete Slab and Vapor Barrier

In areas where the concrete slab will be removed it will be replaced with a new concrete slab equal to or greater than the thickness of the existing concrete slab. The joints between the old and new concrete will be sealed with a flowable joint sealer to minimize leakage at the seams. In the former Dry-Cleaning Room, the entire slab will be removed and a vapor barrier with a permeance value of 1.5 x 10^{-10} m^2/s or less for PCE and TCE will be installed and sealed to the footing or wall around the entire perimeter of the excavation using CVOC low permeance mastic prior to placement of the new concrete floor.

Joints, penetrations and cracks will be sealed within an area that extends approximately 10 feet beyond the estimated extent of the sub-slab vapor exceedances using the flowable joint sealer or the low permeance mastic. Joint, penetration and crack sealing will be completed after placement of the concrete slab.

The vapor barrier shall be installed by the excavation contractor. The concrete slab and joint/penetration sealing will be completed by others.

2.6 Well Abandonment

Prior to or concurrent with the excavation work a well drilling contractor will abandon monitoring wells MW-2 through MW-6. MW-1 and piezometer 1 (PZ-1) will be abandoned during excavation.

3. SSDS DESIGN AND INSTALLATION

3.1 Pressure Field Extension (PFE) Testing Results PFE Testing Summary and Basis for Design

This section presents the design of the SSDS to provide negative pressure in the sections of the building interior with VOC vapors above the small commercial Vapor Risk Screening Levels (VRSLs) that are outside the areas of excavation. The extraction sump locations will be the same locations used for the Pilot/Pressure Extension Test as shown on sheet SSDS-1 in Appendix B and shall achieve sub-slab vapor extension similar to the extension demonstrated in the Pilot/Pressure Extension Test.

On November 13, 2023, Lifetime Radon Solutions completed pressure field extension (PFE) testing from three Applied Vacuum Points (AVPs) shown in Figure 5 and in Appendix B. Multiple sub-slab vapor monitoring points were installed approximately five feet apart and in the cardinal directions surrounding each AVP with the objective of measuring a vacuum radius of influence to a minimum of -0.004 inches of water column (w.c.). Vacuum was measured at each monitoring point using UEI Test Instruments EM 152 Dual Differential Digital Manometer.

Based on the measured vacuum at the monitoring points surrounding AVP1 through AVP3, specific results and recommendations for each of the three areas tested are as follows:

- **AVP1** — This AVP was located in the room west of the former drycleaning room and excavation area and is not proposed for excavation. The test was conducted at 8.5 inches vacuum and 40 CFM. The vacuum from this point extended beyond the limits of observed sub-slab vapor exceedances in the room and generally to the edges of the room area and demonstrated that the shallow zone beneath the slab can be depressurized from the one extraction point test location.
- **AVP2** — This AVP was located east and south of the proposed excavation area and positioned to capture residual sub-slab contaminants remaining after excavation on the south edge of the contaminant plume. The test was conducted at 8.8 inches vacuum and 38 CFM. Pressure extensions was limited to the north but that there was good coverage to the south, east and west. Based on this, the sub-slab depressurization sump for the proposed system will be kept in the same location as the test sump but the excavation will be extended to the south (see Section 2).
- **AVP3** — This AVP was located east of the proposed excavations and positioned to capture residual sub-slab contaminants remaining after excavation on the east edge of the contaminant plume. The test was conducted at 9.0 inches vacuum and 30 CFM. The test results showed vacuum influence extending to the north and south and well into the proposed excavation area to the west. The measured vacuum did not extend as far to the east but was sufficient to cover the observed sub-slab impacts. Overall, the pressure extension test indicated that there was sufficient coverage to the east and west and that coverage was more than needed to the north and south.

The results of the PFE testing indicate that a sub-slab depressurization system using three sumps as shown in Figure 5 when combined with the proposed excavation will adequately cover the area of sub-slab vapor impacts outside the area of excavation. The recommended blower should be able to move 300 CFM at -8” W.C. This size blower would also allow capacity for one to two more similar vapor points.

The contractor shall be responsible for achieving the sub-slab vapor extension similar to the extension demonstrated in the Pilot/Pressure Extension Test. The materials and equipment described below are

provided for general reference only and the contractor may choose different materials and equipment if appropriate to meet the design goals.

3.2 SSDS Vapor Extraction Sumps

Each SSDS vapor extraction sump will be designed by the SSDS contractor and generally be constructed using a 2-inch diameter Schedule 40 polyvinyl chloride (PVC) slotted well screen (0.040-inch slot) that extends from the base of the existing concrete slab to a depth of approximately 12-inches into the subbase material. The Schedule 40 PVC screen installed in each sump will be backfilled with pea gravel to minimize air entrance losses into the PVC screen. The sumps will be excavated to a depth of approximately 1.25 feet below of the bottom of the concrete slab to facilitate installation of the slotted PVC screen.

Depending on the excavation depths that can be achieved (see Section 2), an additional sump may be added above the utility trench as shown on SSDS-1.

3.3 Air Conveyance Piping

Two-inch diameter Schedule 40 PVC piping will be installed to connect the sumps to the 2-inch diameter Schedule 40 PVC riser pipes at the nearest column or wall as shown on sheet SSDS-1 in Appendix C. The 2-inch diameter PVC air conveyance riser will be connected to the steel columns or to the wall using Unistrut supports and pipe clamps. A 2-inch Schedule 40 PVC pipe will extend vertically up the column or wall to a height where it will be connected to a 3 to 4-inch diameter Schedule 40 PVC header pipes that are supported by the building trusses and routed to the vacuum blower. The vertical length of the 2-inch PVC air conveyance pipe located adjacent to the column or wall at each SSDS sump will be protected using prefabricated metal pipe guards. The vertical air conveyance pipe associated with each SSDS sump will contain a ball valve for air flow control at each sump, a magnehelic gauge, and a sample port for air flow measurements. These elements are further described in Section 3.8.

3.4 Blower Requirements

Based on the results of the Pilot/Pressure Extension Test, an OBAR GBR89 HA fan by LRS will be used that can generate 300 CFM at –8” W.C. This fan has an adjustable motor that can provide a range of operating points and can accommodate additional vapor sumps if needed. The data sheet for this blower is provide in Appendix C.

3.5 Electrical Connection and Controls

The blower will be connected to the closest available power panel with a 15-amp service. A single power switch will be provided on the inside wall next to the blower. An alarm will be provided that is triggered if the blower stops running.

3.6 Air Discharge Stack and Estimated Emissions

The air discharge stack will be a 4-inch diameter Schedule 40 CPVC exiting the blower on the north side of the building as shown in Appendix C. The stack will extend to approximately 3 feet above the roof line. The code requirement is one foot above the roof line.

Air emissions are estimated to be less than 0.02 pounds per day, well below the 5.7 pound per hour limit in NR 406 and 407. Construction details of the SSDS air discharge stack are contained in the design drawings, provided as Appendix C.

3.7 SSDS Piping Appurtenances and Monitoring Equipment

A magnehelic gauge capable of measuring vacuum in the range of 0 to 20 inches of water will be installed at each air conveyance pipe riser section at a location of approximately 4 feet above the floor. This gauge will be used to monitor the vacuum at each extraction sump during system operation. A ball valve will also be installed at each riser pipe to allow for adjustment of air flow and vacuum at each SSD sump. In order to protect the PVC riser piping, one pipe guard will be installed and fixed to the building column or wall at approximately 4 feet above the floor (just below the valve and gauge). The SSDS will be inspected annually, which is further detailed in Section 3.9.

3.8 Slab Joint and Penetration Sealing

The joints between the existing concrete slab and new slab over the SSDS laterals and areas around the sumps will be sealed as described in Section 2.4

3.9 SSDS Startup, Acceptance and Performance Monitoring

System startup activities will be performed two weeks after completion of the concrete slab repair to allow adequate time for concrete curing. Pressure field extension testing will be conducted around each of the three sub-slab depressurization monitoring points described in Exhibit 1 in Appendix B. Adjustments will be made to the blower and valves at each of the SSDS risers until the observed areas of negative pressure of -0.005 inches or less of W.C. are obtained that are roughly equivalent to or exceed the areas observed in the pilot test described in Section 2.

The timing of the performance monitoring tasks is as follows:

- The first PFE test will be conducted prior to excavation and backfilling to serve as the baseline. The results of this test are included in Appendix A.
- The second PFE test will be completed two weeks after concrete placement just prior to the passive sampling.
- The third will be conducted no less than six months after the first round subject to potential gaps in monitoring points due to occupant materials and equipment.

The performance monitoring parameters for each of the system components is described in Exhibit 1 below.

Exhibit 1
Startup and Performance Monitoring Parameters

System Component	Monitoring Point	Vacuum (inches W.C.)	Flow (CFM)
SSDS-1 Sub Slab	Pilot Points listed in Appendix C for AVP1 plus SSV #5, #6, and #14	X	
SSDS-1 Riser Pipe	Gauge on riser pipe (see Sheet SSDS-1 in Appendix C)	X	X
SSDS-2 Sub Slab	Pilot Points listed in Appendix C for AVP1 plus SSV #9, and #10	X	

SSDS-2 Riser Pipe	Gauge on riser pipe (see Sheet SSDS-1 in Appendix C)	X	X
SSDS-3 Sub Slab	Pilot Points listed in Appendix C for AVP1 plus SSV #15	X	
SSDS-3 Riser Pipe	Gauge on riser pipe (see Sheet SSDS-1 in Appendix C)	X	X
Blower	Discharge pipe (see Sheet M-1 in Appendix C)		X

3.10 SSDS Monitoring, Inspection and Maintenance

Annual inspection will be completed by the building owner or tenant that includes the following items:

- Observing vacuum gauges on risers at each of the SSDSs to verify vacuum is being maintained;
- Check for damage to pipe network;
- Observe the blower for the presence of unusual noise or vibrations;
- Inspect the blower for leaks or any signs of overheating;
- Check for obstructions to blower outlet; and
- Inspect concrete floor for cracks that could serve as advection pathways for PCE and TCE.

The system will include an alarm that will be triggered if the SSDS blower stops running. The owner of the building will be provided with instructions on the steps to take in the event of an alarm that include the following:

- Verify the blowers on the unit heaters are operating and continue operating until SSDS blower is operating again; and
- Contact Lifetime Radon Solutions or other experienced mechanical contractor to inspect and adjust/repair equipment.

Observations and records of maintenance activities completed will be recorded in a field logbook to be stored in a secure location near the blower. An Operations and Maintenance Plan is attached in Appendix E.

4. PERMITS AND HAZARDOUS WASTE DETERMINIATION

4.1 Local Construction Permits

An electrical permit for the SSDS blower and a concrete permit will be required from the City of Glendale.

4.2 Air Permits

As noted in Section 3.7, the estimated air emissions for the SSDS are well below the air construction or operating permit limits under WAC NR 406 (Construction Permits) and NR 407 (Operation Permits).

4.3 Soil Disposal Approval

The soil is approved for disposal at Waste Management Orchard Ridge facility. The soils in the area in the vicinity of SB-5 have not been tested for TCLP. These soils will be sampled and tested for TCLP when the concrete slab is removed, and if the analysis results are less than the TCLP limits, this soil will be added to the profile and disposed at the landfill.

5. SCHEDULE

Ramboll has developed a schedule for implementation of the remedial activities. The schedule is subject to WDNR approval of this Remedial Design Report. The proposed schedule is included in Appendix F.

6. DOCUMENTATION OF REMEDIAL ACTION COMPLETION

6.1 Post Remedial Passive Sampling

A five-day duration passive sampling test will be conducted using the five locations shown on Figure 6. Passive samplers will be provided and analyzed by Eurofins for the five sample points plus one trip and one duplicate. The sampling media is selected for detection of PCE, TCE, 1,1-dichloroethylene (1,1-DCE) and 1,2-dichloroethene (1,2-DCE). Normal operating conditions will be maintained in the building throughout the duration of the test. Samples will be collected in general accordance with ASTM D6306-17.

6.2 Post-Remedial Construction Documentation Report

An excavation and system construction documentation report will be prepared and submitted to the WDNR at the end of the first six weeks of SSDS operation to summarize and detail the excavation activities and system construction/installation of the SSDS. This report will include a discussion of the four completion criteria:

- Complete the proposed excavation activities to remove contaminant mass;
- Complete installation of clay liners, vapor barriers, new concrete slabs, and floor seals;
- Demonstrate pressure field extension to the limits shown on SSDS-1 in Appendix C (two rounds); and
- Complete passive sampling for five sampling points with an average concentration of < 90% of the WDNR VAL with no single sample with a concentration more than 1.5 times the VAL (see Section 6.1).

The report will also include a request for a letter from the WDNR confirming completion of the remedial action, if indicated.

7. REFERENCES

Wisconsin Department of Natural Resources. *Addressing Vapor Intrusion at Remediation and Redevelopment Sites in Wisconsin Wis. Stat. ch 292; Wis. Admin. Code ch. NR 700.* January 2018

United States Environmental Protection Agency. *Engineering Issue: Indoor Air Vapor Intrusion Mitigation Approaches.* EPA/600/R-08-115. October, 2008

United States Environmental Protection Agency. *Is investigation-derived waste containing PCE generated from soil beneath a former dry-cleaner business a listed hazardous waste?* 2016 *https://www.epa.gov/hw/frequent-questions-about-hazardous-waste-identification#pce*>

Wisconsin Department of Natural Resources. *Guidance for Hazardous Waste Remediation RR-705* September, 2021

ASTM International. *Standard Guide for Placement and Use of Diffusive Samplers for Gaseous Pollutants in Indoor Air D6306-17.* October 2017

TABLES

Table 1
Contaminant Mass Calculations
NR 724 Site Remedial Design Report
4301 North Richards Street, Milwaukee, WI

PCE and TCE Mass Calculation Based on Soil Sampling Data

Density of Soil 1,750 kg/m^3

Depth Interval	PCE Area	PCE Volume	PCE Ave. Conc.	PCE Mass[2]	TCE Area	TCE Volume	TCE Ave. Conc.	TCE Mass[2]
ft.	ft^2	m^3	mg/kg	mg	ft^2	m^3	mg/kg	mg
0.5'-5'[1]	12,640	1,610	0.5	1,408,491	211	27	0.5	23,512
0.5'-5'[1]	608	77	17.5	18,620,000	729	93	5.0	812,334
Total				**20,028,491**				**835,846**
5'-10'	7,172	1,015	0.5	887,983	3,310	468	0.5	409,819
5'-10'	4,384	620	5.0	5,427,940	3,341	473	2.0	1,654,630
5'-10'	2,532	358	20.0	12,539,730	N.A.	N.A.	N.A.	0
Total				**18,855,653**				**2,064,450**
10'-15'	10,981	1,554	0.5	1,359,585	2,009	284	0.5	248,739
10'-15'	1,146	162	5.0	1,418,891	N.A.	N.A.	N.A.	0
10'-15'	1,569	222	40.0	15,540,945	N.A.	N.A.	N.A.	0
Total				**18,319,421**				**248,739**
	Total Mass PCE (mg)			**57,203,566**	**Total Mass TCE (mg)**			**3,149,035**

Depth Interval	PCE Area	PCE Volume	PCE Ave. Conc.	PCE Mass[1]	TCE Area	TCE Volume	TCE Ave. Conc.	TCE Mass[1]
ft.	ft^2	m^3	mg/kg	mg	ft^2	m^3	mg/kg	mg
15'-20'	2,089	296	0.5	258,644	353	50	0.5	43,706
Total				**258,644**				**43,706**

This volume is not considered in the analysis due to its depth and the mass is less than or equal to 1% of total.

Soil Excavation Volumes and Estimated PCE and TCE Mass Removal

Excavation Areas	Depth Interval	PCE Area	PCE Volume	PCE Ave. Conc.	PCE Mass[2]	Excavation Area	TCE Area	TCE Volume	TCE Ave. Conc.	TCE Mass[2]
	ft.	ft^2	m^3	mg/kg	mg		ft^2	m^3	mg/kg	mg
B, C, D	0.5'-5'[1]	3175	404	0.5	353,794	A	4	1	0.5	446
A	0.5'-5'[1]	324	41	17.5	9,922,500	A	320	41	5.0	356,580
	Total				**10,276,294**					**357,026**
A, B, C, D	5'-9'	70	8	0.5	6,934	A, B, C, D	475	54	0.5	47,049
A, B, C, D	5'-9'	604	68	2.0	239,305	A, B, C	2015	228	2.0	798,343
A, B, C	5'-9'	2640	299	20.0	10,459,680		N.A.	N.A.	N.A.	0
	Total				**10,705,918**					**845,392**
	10'-15'	0.5	-	-	-		0.5	-	-	-
	10'-15'	5	-	-	-		N.A.	N.A.	N.A.	0
	10'-15'	40	-	-	-		N.A.	N.A.	N.A.	0
	Total Vol. Exc.[3]		821		-					-
			Total Mass PCE (mg)		**20,982,213**			**Total Mass TCE (mg)**		**1,202,417**
			Mass Redcution PCE		**37%**			**Mass Reduction TCE**		**38%**

Combined with the intensive venting during excavation,
it is estimated that 40% to 50% of the PCE and TCE will be eliminated as a source of potential indoor vapors.
However, given that the excavated soils come from the shallow zones, these soils are estimated to
represent the bulk of the PCE and TCE mass that is contributing to the sub-slab vapor exceedances.
Additionally, the migration of the remaining deeper soils will be inhibited by the various soil gas retarders installed after excavation.

Notes:

1 The thickness of the concrete is assumed to be 0.5 feet.

2 The in-place unit weight of the soil is assumed to be 1,750 kg/m3 for a moist clay with gravel which is equivalent to approximatley 110 lb/cf.

3 The volume proposed to be excavated is 821 m^3 or 1,073 CY.

RAMBOLL

Table 2
PCE and TCE Vapor Risk Analysis and Emissions Estimate
NR 724 Site Remedial Design Report
Post-Excavation
4301 North Richards Street, Milwaukee, WI

POST-EXCAVATION VAPOR INTRUSION RISK ANALYSIS

Summary: The post-excavation concentrations of PCE and TCE in the remaining soils are estimated to be approxiamltey 5% of the levels necessary to fullfill the EPA/WDNR modelling exposrue assumptions.

Contaminant Screening Levels				Remediation Worker Safety		
Chemical	Indoor Air VAL[2] µg/m^3	Sub-Slab Vapor VRSL[3] Industrial µg/m^3	Sub-Slab Vapor VRSL[3] Small Commercial µg/m^3	OSHA 8-hr. TWA[4,5,6] ppm	OSHA 8-hr. TWA[4,5,6] µg/m^3	Maximum Observed Sub-Slab Concentration (Pre-Remediation) µg/m^3
PCE	180	18,000	5,800	25	170,000	81,000
TCE	9	880	290	25	54,000	2,700

Estimated Total Mass of PCE and TCE (mg) Remaining After Excavation	**PCE (mg)**	**TCE (mg)**
	31,487,500	1,732,500

Risk Analysis										
Control Volume			Interior Workspace	100% PCE Mass in Workspace[7]	100% TCE Mass in Workspace[7]		Days to Complete Removal of PCE[9,10]	Estimated Exposure to PCE as Fraction of	Days to Complete Removal of TCE[9,10]	Estimated Exposure to TCE as Fraction of
Length (ft)	Width (ft)	Height (ft)	Control Volume (m^3)	µg/m^3	µg/m^3	Air Exchanges/hr[8]	at VAL 180 µg/m^3	Exposure Assumed in Model[11]	at VAL 9 µg/m^3	Exposure Assumed in Model[11]
180	150	15	11461.5	2,747,241	151,158	1	636	**7%**	716	**8%**

Notes:

1 This risk analysis is based on the sampling data summarized in Combined SI/RAOR to estimate the mass of PCE and TCE and a minimal volume of air movement and exchange.
2 WDNR Vapor Action Level.
3 WDNR Vapor Risk Screening Level.
4 CAL/OSHA 8-hr. (Time Weighted Average) TWA for for PCE is 25 ppm or 170 mg/m ^{3} or 169.5 ug/L
5 CAL/OSHA 8-hr. (Time Weighted Average) TWA for for TCE is 25 ppm or 135 mg/m ^{3} or 268.5 ug/L
6 TWA is the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week for 48 weeks per year for 45 years which shall not be exceeded.
The 8-hour TWA PEL is the level of exposure established as the highest level of exposure an employee may be exposed to without incurring the risk of adverse health effects.
7 This represents the entire mass of PCE or TCE from below grade transferred into a portion of the workspace that is 180' x 150' x 15' (control volume) with no loss to the surrounding space.
8 The Air Exchanges per Hour were calculated by the Spic and Span mechanical engineer to be 0.97.
9 The calculation is based on the assumption that PCE and TCE vapors move into the Interior Workspace by advection and diffusion through the floor slab, accumulate to the level of the Indoor VAL, and then the control volume of air removed and replaced with clean air. This takes place once per hour. Although the actual process would be continuous, this is a reasonable means of illustrating the significance of the contaminant mass limitation.
10 The model assumes that 100% of the PCE and TCE mass is lost through the vapor phase into the building and that none of the PCE and TCE is retained in the soil. This assumption would also inlcude that there is no vapor migration below the surface to the building exterior and/or degradation by natural processes. These are highly conservative assumptions, making the modeled exposure highly conservative. Considering this, the safety factors relative to the Indoor Air VALs are estimated to be well over 20x.
11 The exposure period assumed in the EPA/WDNR model is 25 years.

POST-EXCAVATION SSDS EMISSIONS

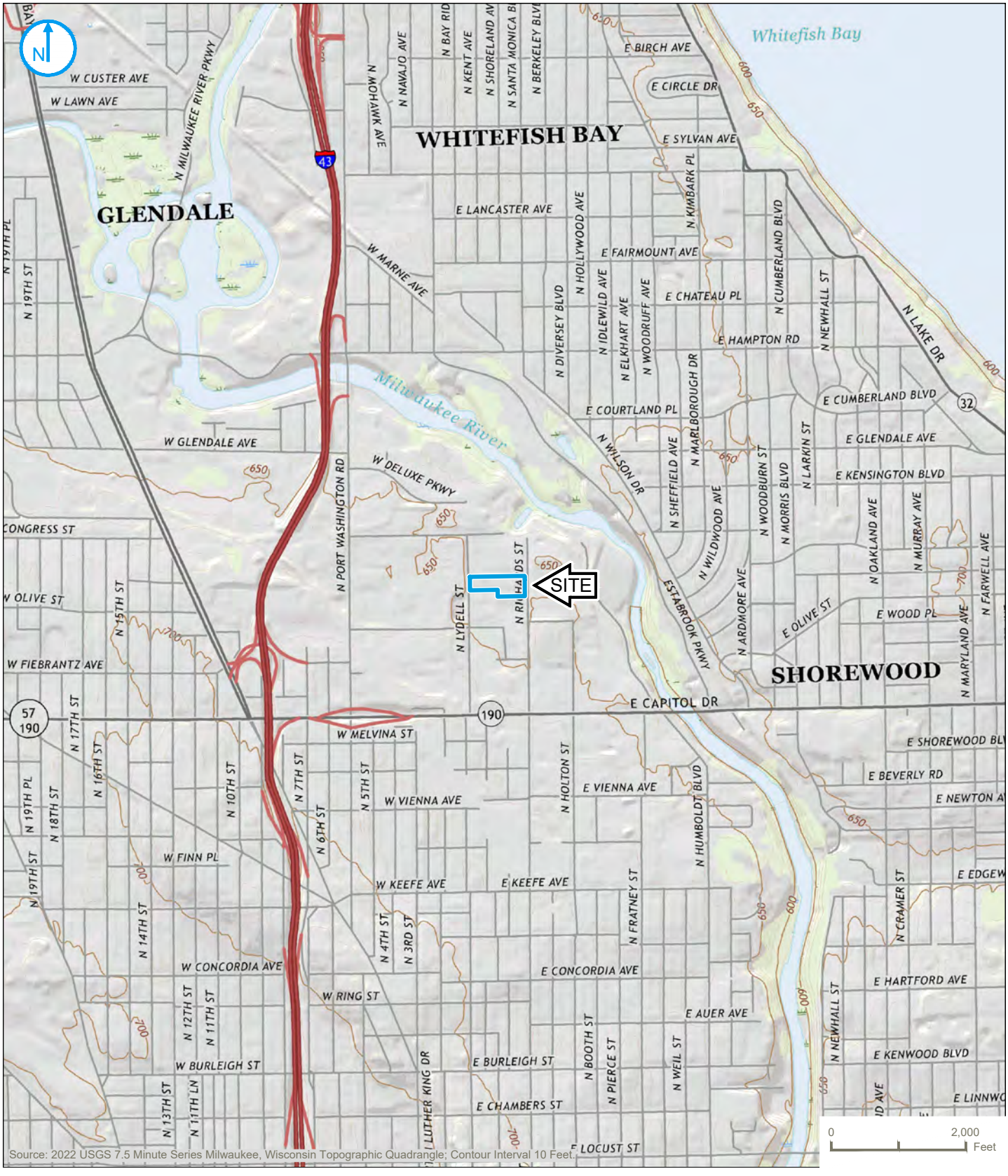
Summary: The initial discharge rate is estimated to be less than 50 grams per day or less than 0.02 pounds per day.

Initial Removal Rate with Blower Venting 200 CFM When the blower is activated it will remove the vapors that have accumlated below the slab.	Removal Rate CFM[1]	m^3/day	Ave. Sub-Slab Conc. PCE[2] mg/m^3	Removal Rate PCE mg/day	% of total/day	Ave. Conc. TCE[2] mg/m^3	Removal Rate TCE mg/day	% of total/day
	200	8159	6	48,952	0.2%	0.75	6,119	0.4%

Notes:

1 The blower operation range is anticipoated to be 200 to 300 CFM.
2 Estimate based on observed sub-slab vapor concentrations prior to excavation. This concentration could be lower after excavation and will decrease over time.

FIGURES



C:\Users\hjward\OneDrive - Ramboll\Desktop\1940105445_Spic & Span\Design\01_Site Location Map.dwg DESIGNER: HJWARD DATED: 11/22/2023 PROJECT: 1940105445

Map Scale: 1:24,000 | Map Center: 43.0945, -87.9085

SITE LOCATION MAP

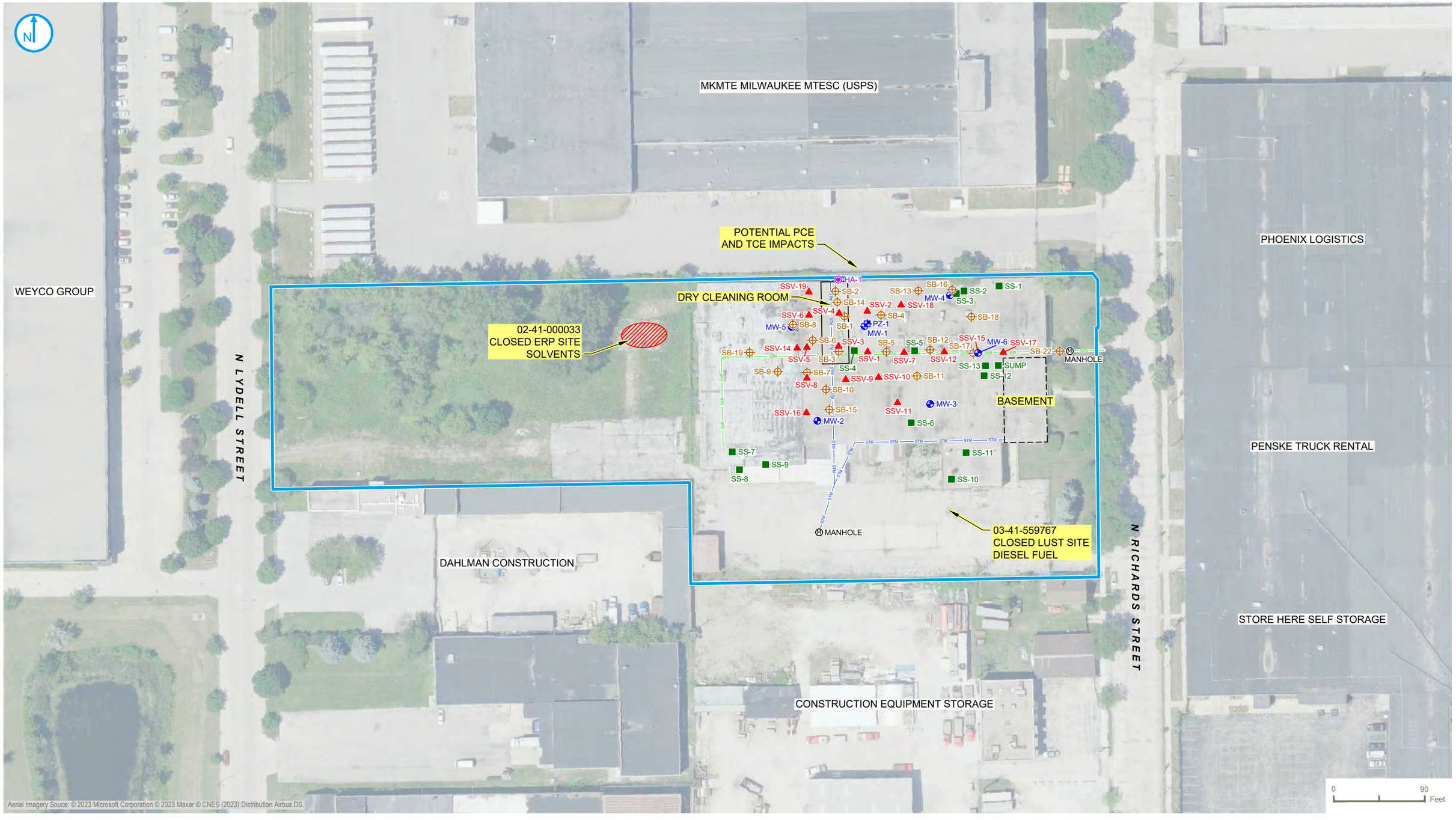
FIGURE 1

KEY MAP

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY
RAMBOLL

L:\Loop Project Files_CAD\1940\1940105445_Spic & Span\Design\02_Site Layout.dwg



PROJECT: 1940105445 DATED: 12/29/2023 DESIGNER: HJWARD

- PROPERTY BOUNDARY (APPROXIMATE)
- MONITORING WELL
- SEWER SAMPLE
- SOIL BORING
- SUB SLAB VAPOR POINT
- HAND AUGER BORING
- PIEZOMETER
- MANHOLE
- SANITARY SEWER
- STORM SEWER

SITE LAYOUT

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

ESTIMATED EXTENT OF OFF-SITE PCE IMPACTS.

N

NORTH BUILDING WALL

NORTH PROPERTY LINE AND FENCE

EST. DEPTH 8'-10' BELOW FINISH FLOOR

PARTIAL HEIGHT DIVIDING WALL, ROOM OPEN TO FULL CEILING HEIGHT

DRY CLEANING ROOM

SUMP VAPOR SAMPLE 0.0PPM

WATER SAMPLE COLLECTED FROM SUMP: PCE, TCE AND CIS1,2 DCE ALL LESS THAN ES

SUMP PUMP

OFFICE SPACE

SANITARY MANHOLE VAPOR SAMPLE POINT LOCATED APPROXIMATELY 25' EAST OF BUILDING EAST WALL AND APPROXIMATELY 60' EAST OF SB-17 (SEE FIGURE 1A)

EST. DEPTH 9'-11' BELOW FINISH FLOOR

EST. DEPTH 7'-9" BELOW FINISH FLOOR

EST. DEPTH 8'-9' BELOW FINISHED FLOOR

EST. DEPTH 18'-20' BELOW FINISH FLOOR

FIRST FLOOR ELEVATION 67.0

SB #22
LOCATED APPROXIMATELY 15' EAST OF BUILDING EAST WALL AND APPROXIMATELY 70' EAST OF SB-17 (SEE FIGURE 1A)

STORM MANHOLE VAPOR SAMPLE POINT LOCATED APPROXIMATELY 80' SOUTH AND 30' WEST OF BASE OF STAIRS AND APPROXIMATELY 50' NORTH OF PROPERTY LINE (SEE FIGURE 1A)

0 25 Feet

- MONITORING WELL
- SEWER SAMPLE
- SOIL BORING
- SUB SLAB VAPOR POINT
- HAND AUGER BORING
- PIEZOMETER

- PCE > 10 mg/kg
- 1 mg/kg < PCE < 10 mg/kg
- ND < PCE < 1 mg/kg
- 1 mg/kg < TCE < 10 mg/kg
- ND < TCE < 1 mg/kg

SOIL ISOCONCENTRATION MAP (0-5 FT BGS) - PCE AND TCE

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 3a

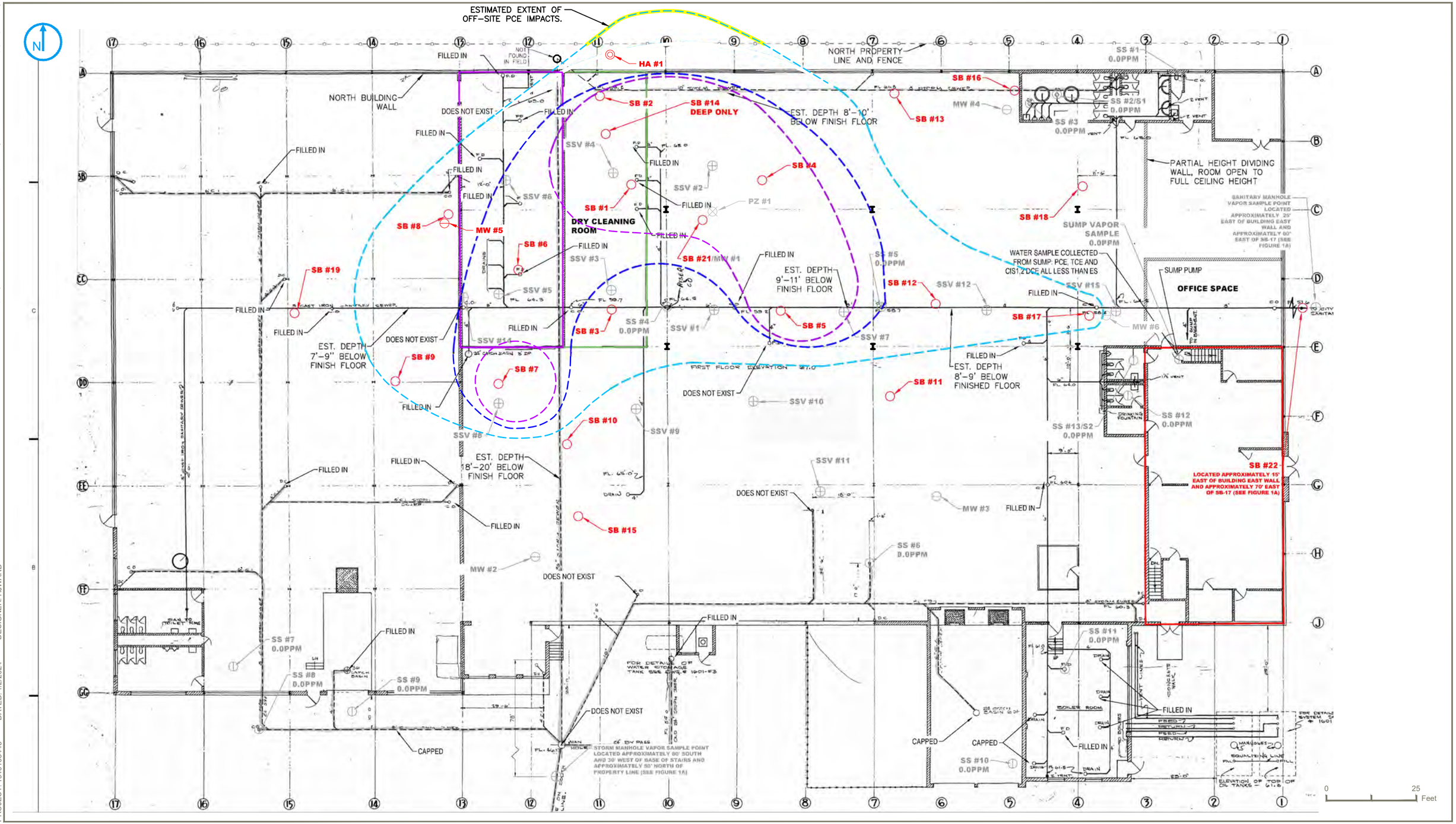
RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1940105445 DATED: 1/2/2024 DESIGNER: HJWARD

L:\Loop Project Files_CAD\1941940\105445_Spic & Span\Design\03b1_Soil Isoconcentration Map (5-10) PCE.dwg

PROJECT: 1940105445 DATED: 1/2/2024 DESIGNER: HJWARD



- MONITORING WELL
- SEWER SAMPLE
- SOIL BORING
- SUB SLAB VAPOR POINT
- HAND AUGER BORING
- PIEZOMETER

- PCE > 10 mg/kg
- 1 mg/kg < PCE < 10 mg/kg
- ND < PCE < 1 mg/kg

SOIL ISOCONCENTRATION MAP (5-10 FT BGS) - PCE

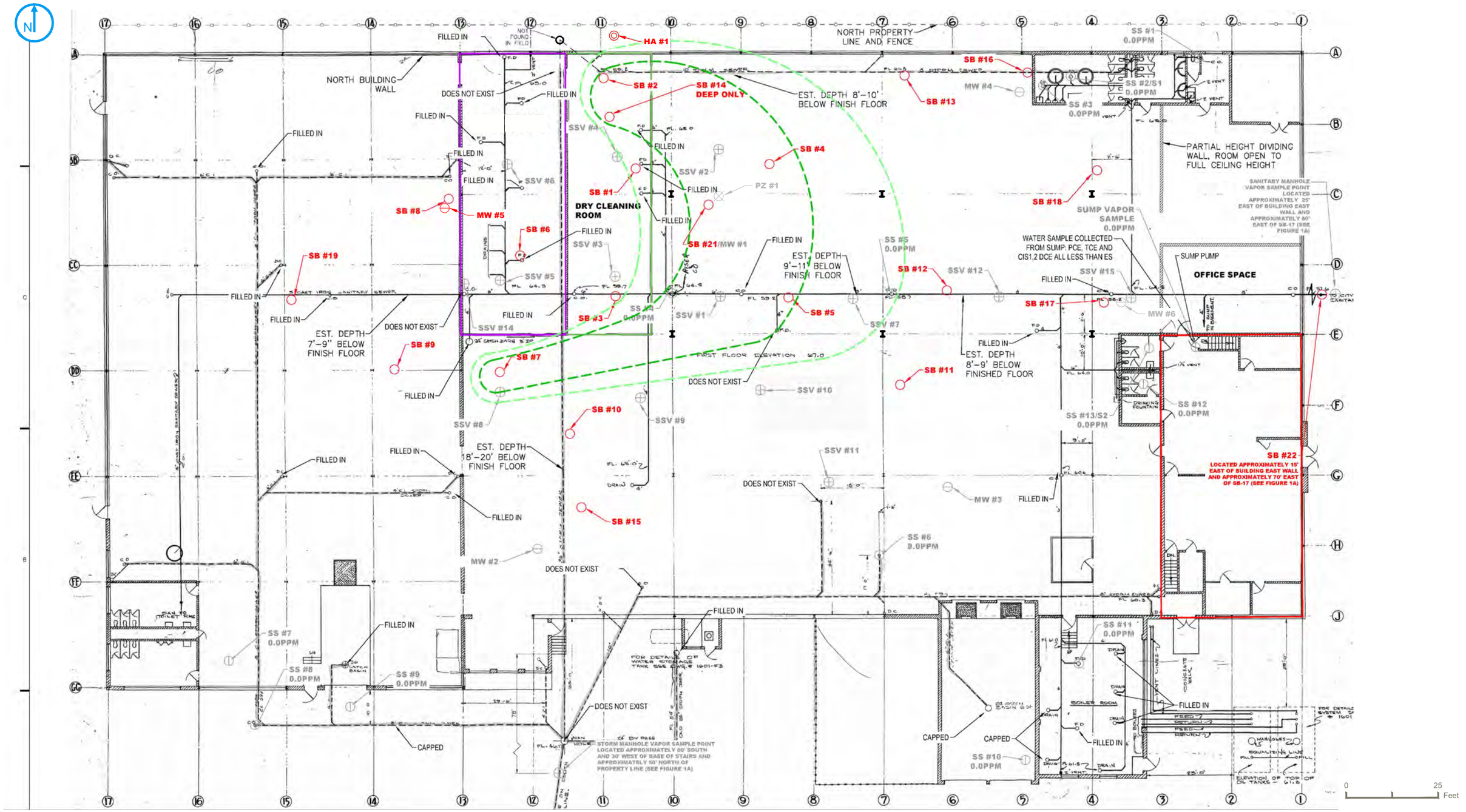
SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 3b1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY
RAMBOLL

L:\Loop Project Files_CAD\1941\1940105445_Spic & Span\Design\03b2_Soil Isoconcentration Map (5-10) TCE.dwg

PROJECT: 1940105445 DATED: 1/2/2024 DESIGNER: HJWARD



- MONITORING WELL
- SEWER SAMPLE
- SOIL BORING
- SUB SLAB VAPOR POINT
- HAND AUGER BORING
- PIEZOMETER
- 1 mg/kg < TCE < 10 mg/kg
- ND < TCE < 1 mg/kg

SOIL ISOCONCENTRATION MAP (5-10 FT BGS) - TCE

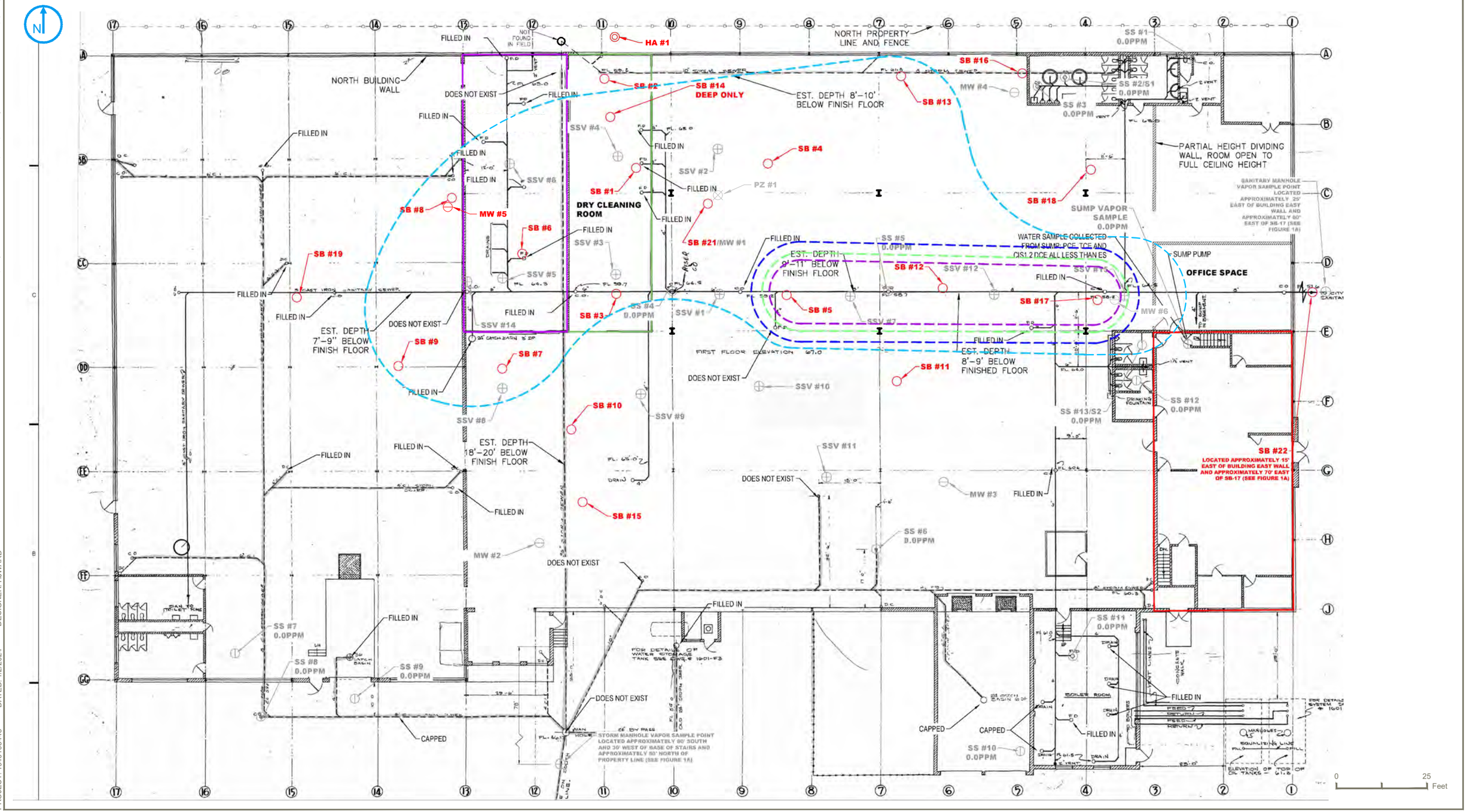
SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 3b2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

L:\Loop Project Files_CAD\1941940\1056445_Spic & Span\Design\03c_Soil Isoconcentration Map (10-15).dwg

PROJECT: 1940105445 DATED: 1/2/2024 DESIGNER: HJWARD



- MONITORING WELL
- SEWER SAMPLE
- SOIL BORING
- SUB SLAB VAPOR POINT
- HAND AUGER BORING
- PIEZOMETER

- PCE > 10 mg/kg
- 1 mg/kg < PCE < 10 mg/kg
- ND < PCE < 1 mg/kg
- 1 mg/kg < TCE < 10 mg/kg
- ND < TCE < 1 mg/kg

SOIL ISOCONCENTRATION MAP (10-15 FT BGS) - PCE AND TCE

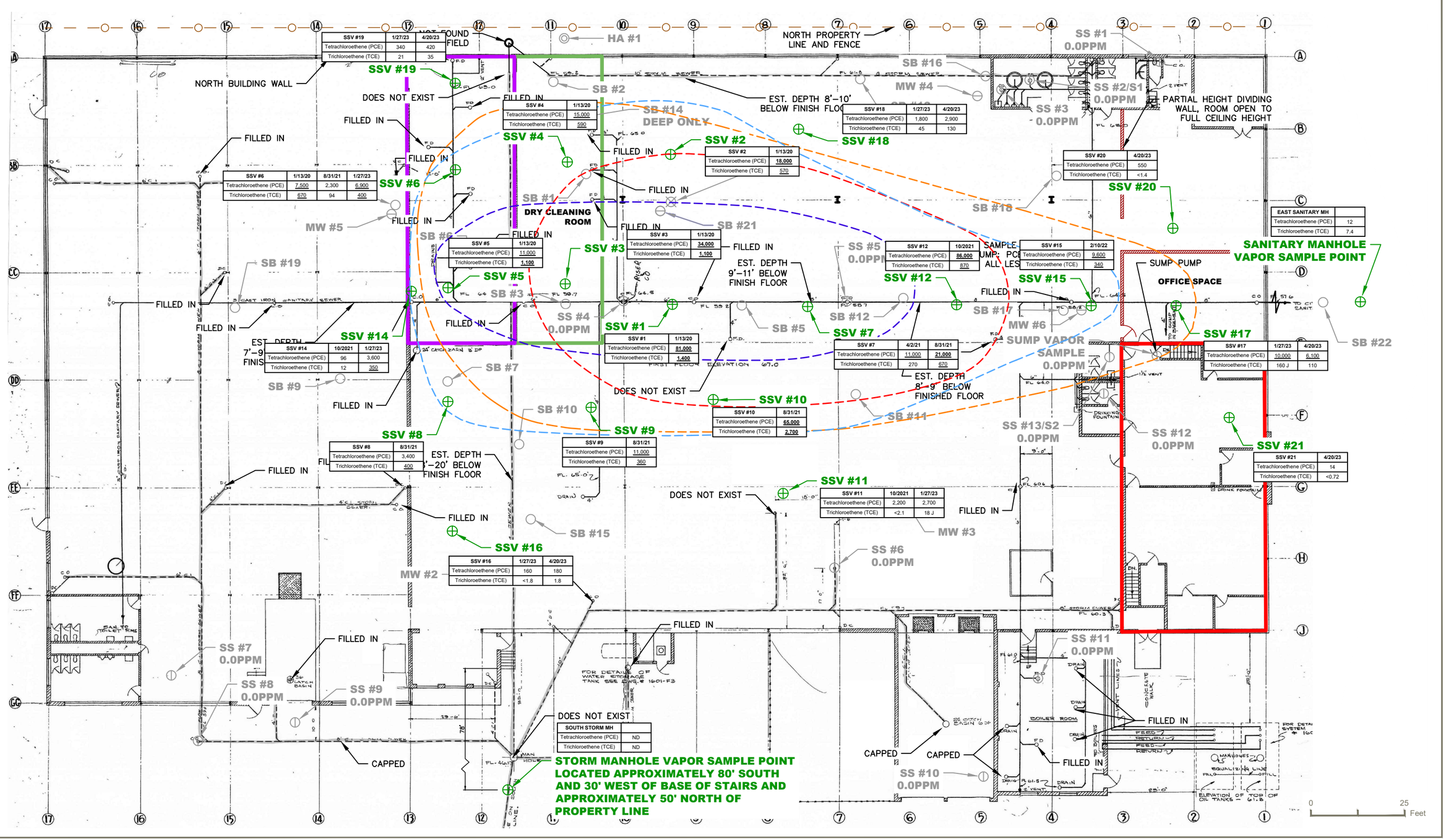
SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 3c

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

L:\Loop Project Files_CAD\1940\1940105445_Spic & Span\Design\04_Soil Vapor Isocon Map (PCE and TCE).dwg

PROJECT: 1940105445 DATED: 1/2/2024 DESIGNER: HJWARD



- MONITORING WELL
- SEWER SAMPLE
- SOIL BORING
- SUB SLAB VAPOR POINT
- HAND AUGER BORING
- EXCEEDS LARGE COMMERCIAL SUB-SLAB VRSL FOR PCE
- EXCEEDS SMALL COMMERCIAL SUB-SLAB VRSL FOR PCE
- EXCEEDS LARGE COMMERCIAL SUB-SLAB VRSL FOR TCE
- EXCEEDS SMALL COMMERCIAL SUB-SLAB VRSL FOR TCE

NOTES:
ALL CONCENTRATIONS IN µg/m³.
ND = NOT DETECTED.
J = ESTIMATED CONCENTRATION.
UNDERLINED = CONCENTRATION EXCEEDS THE SMALL COMMERCIAL SUB-SLAB VAPOR VRSL (5,800 µg/m³ PCE AND 180 µg/m³ TCE)
BOLD = CONCENTRATION EXCEEDS THE LARGE COMMERCIAL SUB-SLAB VAPOR VRSL (18,000 µg/m³ PCE AND 880 µg/m³ TCE)
CVOC compounds other than PCE and TCE were not detected at significant concentrations.

SOIL VAPOR ISOCONCENTRATION MAP - PCE AND TCE

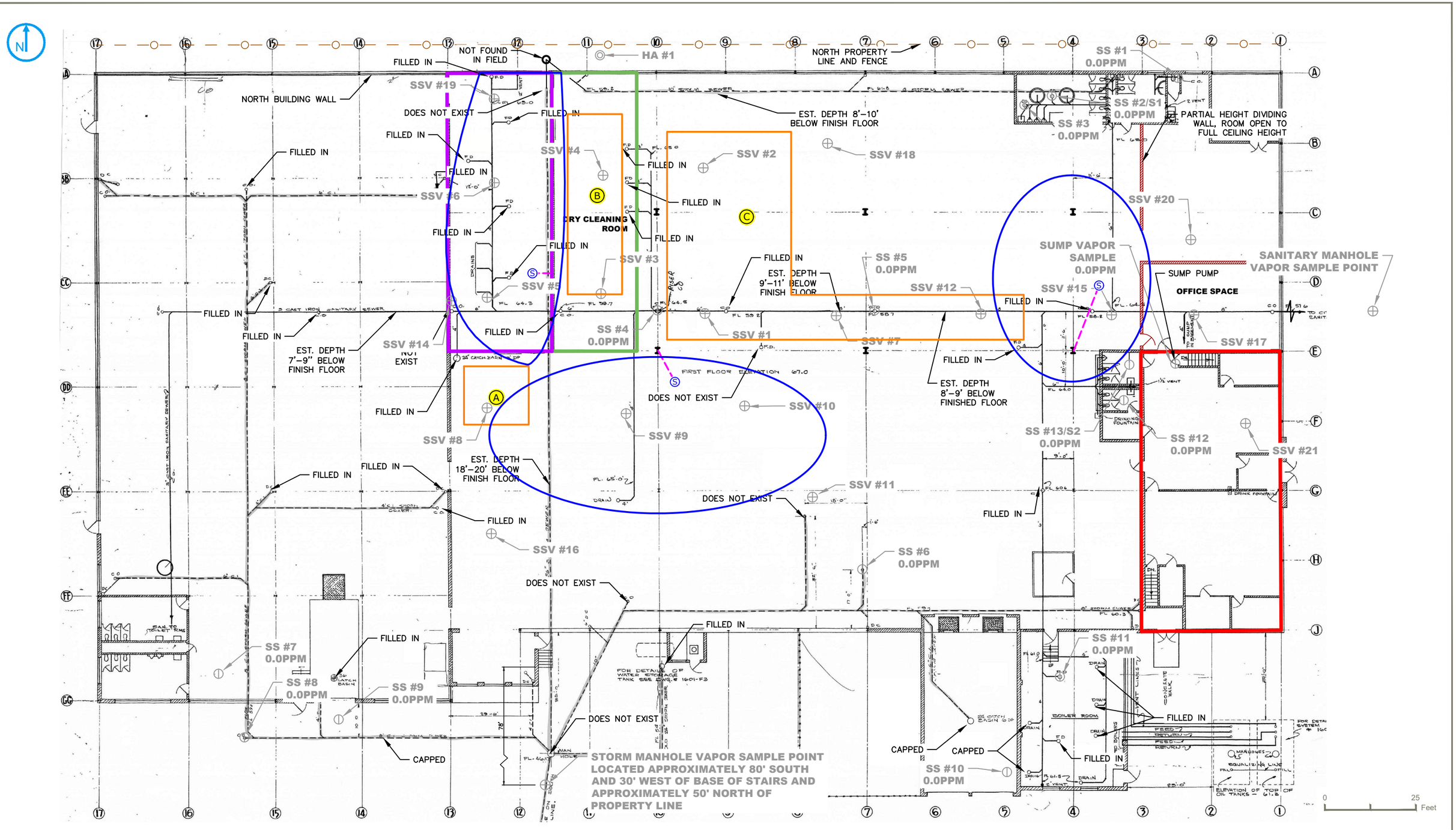
SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 4

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

L:\Loop Project Files_CAD\1941\1940105445_Spic & Span\Design\05_Proposed Locations and Limits.dwg

PROJECT: 1940105445 DATED: 1/2/2024 DESIGNER: HJWARD



- SEWER SAMPLE
- SUB SLAB VAPOR POINT
- HAND AUGER BORING
- PROPOSED SUB-SLAB DEPRESSURIZATION SUMP
- SUB-SLAB DEPRESSURIZATION PIPING
- VACUUM TEST RADIUS (LESS THAN - 0.004 INCHES WATER PRESSURE)
- PROPOSED EXCAVATION AREA

PRESSURE EXTENSION TESTING RESULTS, PROPOSED SSDS EXTRACTION SUMP LOCATIONS, AND PROPOSED EXCAVATION LIMITS

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 5

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

L:\Loop Project Files_CAD\1940105445_Spic & Span\Design\06_Post-Remedial Passive Vapor Sample Locations.dwg

PROJECT: 1940105445 DATED: 1/2/2024 DESIGNER: HJWARD

NOT FOUND IN FIELD
FILLED IN
HA #1
NORTH PROPERTY LINE AND FENCE
SS #1 0.0PPM
SS #2/S1 0.0PPM
SS #3 0.0PPM
PARTIAL HEIGHT DIVIDING WALL, ROOM OPEN TO FULL CEILING HEIGHT
SSV #19
DOES NOT EXIST
NORTH BUILDING WALL
EST. DEPTH 8'–10' BELOW FINISH FLOOR
SSV #18
SSV #4
SSV #2
SSV #6
PS-3
DRY CLEANING ROOM
PS-2
PS-1
SSV #20
SSV #3
SSV #5
SS #5 0.0PPM
EST. DEPTH 9'–11' BELOW FINISH FLOOR
SUMP VAPOR SAMPLE 0.0PPM
SANITARY MANHOLE VAPOR SAMPLE POINT
SUMP PUMP
OFFICE SPACE
SSV #15
SSV #12
SSV #14
SS #4 0.0PPM
SSV #1
SSV #7
SSV #17
EST. DEPTH 7'–9" BELOW FINISH FLOOR
NOT EXIST
FIRST FLOOR ELEVATION 67.0
DOES NOT EXIST
SSV #10
EST. DEPTH 8'–9' BELOW FINISHED FLOOR
SSV #8
SSV #9
SS #13/S2 0.0PPM
SS #12 0.0PPM
SSV #21
PS-4
PS-5
EST. DEPTH 18'–20' BELOW FINISH FLOOR
SSV #11
DOES NOT EXIST
SSV #16
SS #6 0.0PPM
DOES NOT EXIST
SS #7 0.0PPM
SS #8 0.0PPM
SS #9 0.0PPM
SS #11 0.0PPM
CAPPED
CAPPED
CAPPED
SS #10 0.0PPM
STORM MANHOLE VAPOR SAMPLE POINT LOCATED APPROXIMATELY 80' SOUTH AND 30' WEST OF BASE OF STAIRS AND APPROXIMATELY 50' NORTH OF PROPERTY LINE

0 25 Feet

- SEWER SAMPLE
- SUB SLAB VAPOR POINT
- HAND AUGER BORING
- PROPOSED SUB-SLAB DEPRESSURIZATION SUMP
- SUB-SLAB DEPRESSURIZATION PIPING
- PROPOSED EXCAVATION AREA
- PROPOSED POST-REMEDIAL PASSIVE VAPOR SAMPLE LOCATION

POST-REMEDIAL PASSIVE VAPOR SAMPLE LOCATIONS

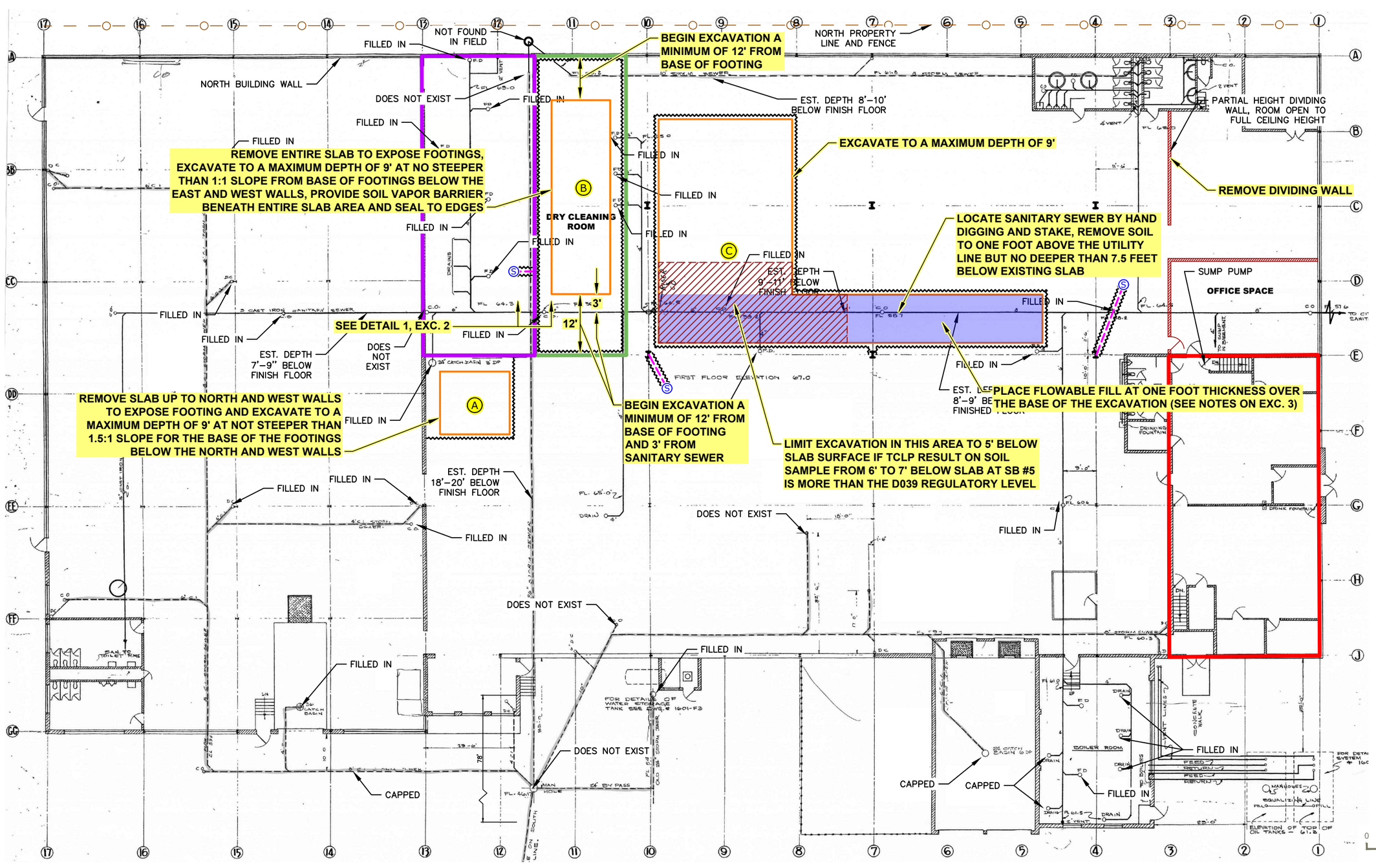
SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 6

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

APPENDIX A

EXCAVATON DRAWINGS AND NOTES



- PROPOSED SUB-SLAB DEPRESSURIZATION SUMP
- SUB-SLAB DEPRESSURIZATION PIPING
- CONCRETE SAWING
- PROPOSED EXCAVATION AREA
- FLOWABLE FILL

Notes:

1. Perform work in accordance with the Remedial Design Report.
2. All excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations. Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations.
3. Assume an average depth of 9', and a total of 1,600 tons of soil and 100 cubic yards of concrete for excavations.
4. Contractor shall remove and dispose of concrete.
5. Excavaton contractor shall sawcut and remove concrete for sub-slab depressurization trenches. Trench locations shall be marked by others.

PROPOSED EXCAVATION AND NOTES

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

EXC. 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY
RAMBOLL

L:\Loop Project Files_CAD\1940105445_Spic & Span\Design\EXC01_Proposed Excavation and Notes.dwg
PROJECT: 1940105445 DATED: 1/3/2024 DESIGNER: HJWARD

PART 1 - GENERAL

1.1 SUMMARY
- A. Products supplied under this section:
  1. Soil gas retarder and accessories for installation under concrete slabs.

1.2 REFERENCES
- A. American Society for Testing and Materials (ASTM):
  1. ASTM E1745-17 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
  2. ASTM E1643-18a Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- B. Technical Reference - American Concrete Institute (ACI):
  1. ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
  2. ACI 302.1R-15 Guide to Concrete Floor and Slab Construction.

1.3 SUBMITTALS
- A. Quality control/assurance:
  1. Summary of test results per paragraph 9.3 of ASTM E1745.
  2. Summary of independent testing documenting permeation testing for hydrocarbons and chlorinated solvents.
  3. Manufacturer's samples and literature.
  4. Manufacturer's installation instructions for placement, seaming, penetration prevention and repair, perimeter seal, and any additional procedures to account for vapor intrusion.
  5. All mandatory ASTM E1745 testing must be performed on a single production roll per ASTM E1745 Section 8.1.
  6. Contact vapor barrier manufacturer to schedule a pre-construction meeting and to coordinate a review, in-person or digital, of the vapor barrier installation.
  7. Soil gas retarder manufacturer must warrant in writing (a) will meet or exceed its published product literature for a period not less than two (2) years from the Date of Installation; (b) compliance with the designated ASTM E1745 classification for the Life of the Building, and (c) no manufacturing defects in the product for, at least, the Life of the Building.

PART 2 - PRODUCTS

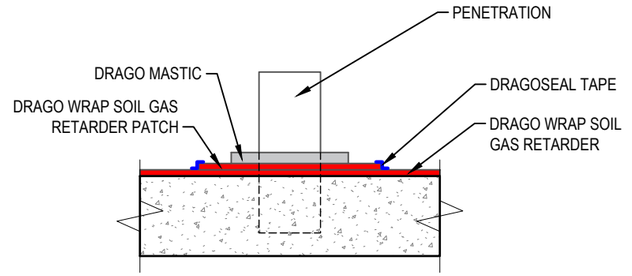
2.1 MATERIALS
- A. Vapor intrusion products:
  1. Drago Wrap Soil Gas Retarder by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.

2.2 ACCESSORIES
- A. Seams:
  1. DragoSeal Tape by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.
- B. Sealing Penetrations of Soil Gas Retarder:
  1. DragoSeal Tape by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.
  2. Drago Mastic by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.
  3. Drago Sealant by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.
  4. Drago Sealant Form by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.
- C. Perimeter/edge seal:
  1. DragoTack Tape by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.

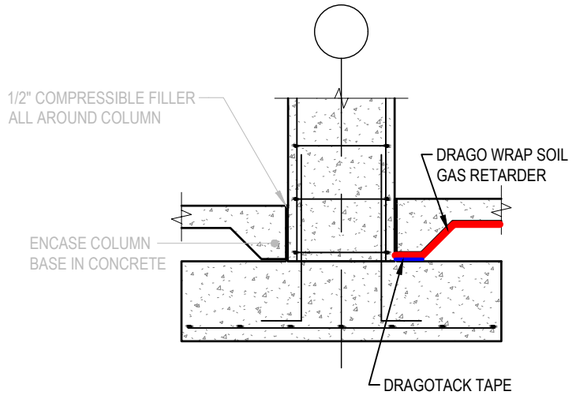
PART 3 - EXECUTION

3.1 PREPARATION
- A. Ensure that subsoil is approved by Architect or Geotechnical Engineer.
  1. Level and compact base material.

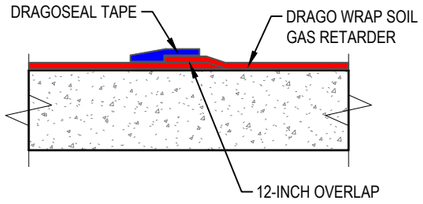
3.2 INSTALLATION
- A. Install vapor barrier in accordance ASTM E1643 and manufacturer's instructions.
  1. Unroll Drago Wrap with the longest dimension parallel with the direction of the concrete placement and face laps away from the expected direction of the placement whenever possible. Drago Wrap must be installed with the gray side facing the subgrade.
  2. Extend Drago Wrap to the perimeter of the slab. If practicable, terminate it at the top of the slab, or terminate at impediments such as dowels, waterstops, or any other site condition requiring early termination of the vapor barrier. Consult the structural engineer and environmental engineer of record before proceeding. At the point of termination, seal Drago Wrap to the foundation wall or grade beam.
  3. Seal Drago Wrap along its terminating edge to the entire perimeter wall or footing/grade beam with double sided DragoTack Tape per manufacturer's instructions. Ensure the concrete is clean and dry prior to adhering tape. If a mechanical seal is needed, fasten a termination bar over the top of the Drago Wrap inline with the DragoTack Tape. Note - if sealing to the footing, the footing should receive a hand float finish to allow for maximum adhesion.
  4. Overlap joints a minimum of 12 inches and seal with DragoSeal Tape.
  5. Apply DragoSeal Tape to a clean and dry Drago Wrap.
  6. Seal all penetrations per manufacturer's instructions.
  7. For interior forming applications, avoid the use of non-permanent stakes driven through vapor barrier.
  8. If non-permanent stakes must be driven through Drago Wrap, repair per manufacturer's instructions.
  9. Use reinforcing bar supports with base sections that eliminate or minimize the potential for puncture of Drago Wrap.
  10. Repair damaged areas by cutting patches of Drago Wrap, overlapping damaged area a minimum of 6 inches, and taping all sides with DragoSeal Tape.



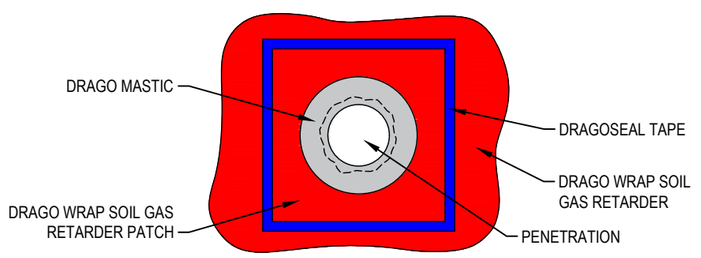
PROFILE



1 DETAIL
NOT TO SCALE



2 OVERLAP DETAIL (TYPICAL)
NOT TO SCALE



PLAN

3 PENETRATION DETAIL (TYPICAL)
NOT TO SCALE

Note:
1. Vapor Barrier to be installed in Area B (Dry Cleaning Room) only.

SOIL GAS RETARDER DETAILS

EXC. 2

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY
RAMBOLL

BACKFILLING AND COMPACTION

Part 1 - GENERAL

1.1 SUMMARY

A. Provide compacted backfill in the areas shown on EXC. 1.

1.2 SUBMITTALS

A. Clay source test data.
B. Sand test data.
C. Compaction testing results.

Part 2 - PRODUCTS

2.1 CLAY BACKFILL

All clay backfill shall meet the following specifications:

A. A minimum of 50% by weight passing the 200 sieve.
B. An average liquid limit of 25 or greater with no values less than 20.
C. An average plasticity index of 12 or greater with no values less than 10.
D. Clod size shall be no greater than 4 inches.

2.2 SAND BACKFILL

All sand backfill shall meet the following specifications:

A. Consist of virgin materials of either sand-sized particles or sand-sized particles mixed with gravel, crushed gravel, or crushed stone. Do not use crushed concrete or reclaimed asphalt.
B. Gradation requirements (Type A or Type B acceptable):

For the entire sample, conform to the following gradation limits:

PERCENT PASSING BY WEIGHT		
SIEVE	TYPE A	TYPE B
3-inch	100	100
No. 4	25-100	25-100

For the portion of the sample passing the No. 4 sieve, conform to the following gradation limits:

PERCENT PASSING BY WEIGHT		
SIEVE	TYPE A	TYPE B
No. 4	100	100
No. 40	0-75	--
No. 100	0-15	--
No. 200	0-8.0	0-15.0

C. An average liquid limit less than or equal to 25. Plasticity index less than or equal to 6.
D. Gradation test data per ASTM D6913/D6913M - Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis 2017 shall be provided to the Engineer prior to initiation of work.

Part 3 - EXECUTION

3.1 PLACEMENT

The backfill shall be constructed in the following manner:

A. Place backfill in continuous horizontal layers no more than 8 inches thick before compaction.
B. Fill shall be placed within an allowable range from 2% below to 4% above the optimum moisture content per ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)) 2012 (Reapproved 2021). Where required to obtain the optimum moisture content, the Contractor shall add, at their expense, sufficient water during compaction to assure the specified maximum density of the fill. If, due to rain or other causes, the material exceeds the optimum moisture content, it shall be allowed to dry, assisted if necessary, before resuming filling or compaction efforts.
C. Compact each layer, before placing the next layer, using portable mechanical or pneumatic tampers (rammers) for clay backfill and portable mechanical or pneumatic vibratory plate compactors for sand backfill.
D. A sufficient number of passes of the compaction equipment shall be made over each lift to ensure complete remolding of the clay backfill or complete vibratory compaction of the sand backfill.

3.2 POST COMPACTION QUALITY CONTROL TESTING

A. Standard Proctor test data per ASTM D698 for clay backfill and sand backfill shall be provided to the Engineer prior to initiation of work.
B. Clay and sand backfill shall be compacted to 95 percent of the maximum dry density as determined by the Standard Proctor Compaction Test - ASTM D698.
C. Quality control tests shall be performed for each lift. Tests shall rotate between the construction areas to provide test frequency that is proportional to the construction area.
D. Fill placed at densities lower than the specified minimum density or at moisture contents outside the specified acceptable range or otherwise not conforming to the requirements of the specifications shall be reworked to meet the requirement or removed and replaced by acceptable fill at the Contractor's expense.

FLOWABLE FILL

Part 1 - GENERAL

1.1 SUMMARY

A. Furnish and place flowable fill as shown on EXC. 1.

1.2 SUBMITTALS

A. Mix design.
B. Penetrometer test results.

Part 2 - PRODUCTS

2.1 MATERIALS

A. Conventional flowable fill is a mixture of portland cement, fly ash, fine aggregate, admixture and water. Flowable fill contains a low cementitious content for reduced strength development.

Part 3 - EXECUTION

3.1 PRODUCTION AND PLACING

Deliver flowable fill using concrete construction equipment. Place flowable fill by chute, pumping or other methods approved by the Engineer. Tremie flowable fill through water.

3.2 CONSTRUCTION REQUIREMENTS

A. Use straps, soil anchors or other approved means of restraint to ensure correct alignment when flowable fill is used as backfill for pipe or where flotation or misalignment may occur.
B. Protect flowable fill from freezing for a period of 36 hours after placement.
C. Place flowable fill to the designated fill line without vibration or other means of compaction.
D. Do not place flowable fill during inclement weather, e.g. rain or ambient temperatures below 40ºF.
E. Take all necessary precautions to prevent any damages caused by the hydraulic pressure of the fill during placement prior to hardening.
F. Provide the means to confine the material within the designated space.

3.3 ACCEPTANCE

A. Leave the fill undisturbed until the material obtains sufficient strength. Sufficient strength is 35 psi penetration resistance as measured using a hand held penetrometer in accordance with ASTM C-403. Provide a hand held penetrometer to measure the penetration resistance of the hardened flowable fill.

FLOOR DRAINS AND MONITORING WELLS

Part 1 - GENERAL

1.1 SUMMARY

A. Abandon monitoring well MW-1 and piezometer PZ-1.
B. Abandon floor drains encountered during excavation.

1.2 SUBMITTALS

A. Well abandonment forms in accordance with Wisconsin Administrative Code NR 141.

Part 2 - PRODUCTS

2.1 NOT USED

Part 3 - EXECUTION

3.1 WELL ABANDONMENT

A. Monitoring wells shall be abandoned in accordance with WAC NR 141.25.

3.2 FLOOR DRAINS

A. Floor drains that are encountered during excavation shall be cut and sealed with grout.

EXCAVATION AND BACKFILLING NOTES

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

EXC. 3

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY
RAMBOLL

APPENDIX B

PRESSURE FIELD EXTENTION PILOT TEST

4301 North Richards Street in Milwaukee WI
Spic N Span Pre-Mitigation PFET
11-13-23

Produced by: Chad Rogness
C.O.O. Lifetime Radon Solutions Inc.
chad@lifetimeradon.com

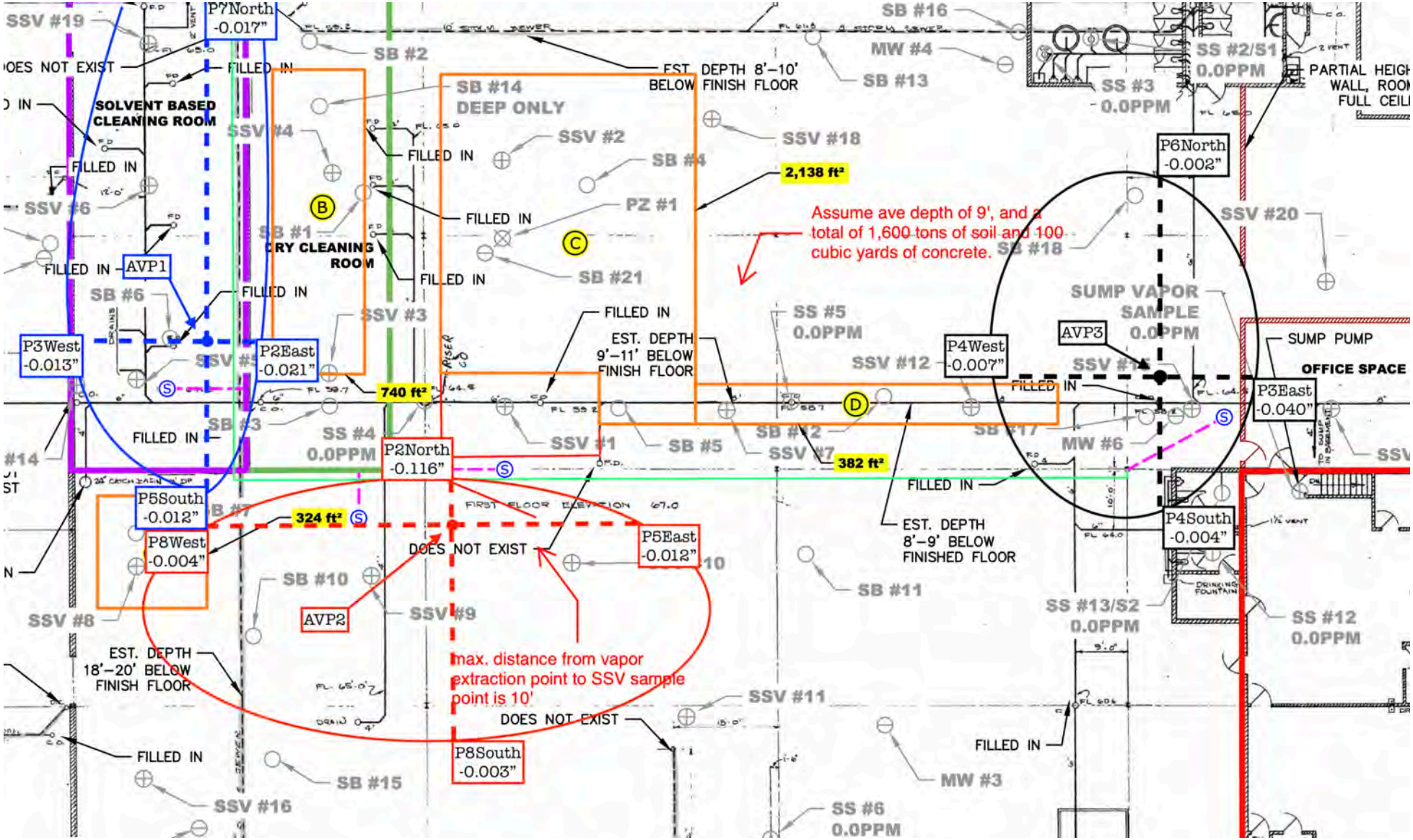
On November 13th, 2023, Lifetime Radon Solutions Inc. (LRS) was contracted to perform pressure field extension testing (PFET) at the former Spic N Span located at 4301 North Richards Street in Milwaukee Wisconsin. The intent of performing these tests was to gather understanding of how much a negative pressure could travel through the sub slab material and how many cubic feet per minute (CFM) of soil gases would would be removed at that negative pressure. This not only gave a better understanding of how the system design would contain and mitigate the contaminants but how to size the blower for the system as designed. The PFET suggested several different soil types/densities beneath the slab and that the extension was not uniform in all directions. However, it did seem to confirm the system as designed would accomplish the task at hand. A VOC mitigation fan the can move about 300 CFM at 8 inches of negative pressure should suffice. The OBAR GBR89 HA is the fan recommended by LRS. This fan has a tunable motor that can operate below or above the requirements listed above. The OBAR GBR89 HA will also be able to accommodate several more collection points of similar sub-slab soil conditions.

The chart below plots the pressure differential in the sub slab at intervals of 5 feet away from the Applied Vacuum Point (AVP). This information was then plotted on a diagram of the interior of the building allowing LRS to show the expected area of influence from each location when applying the pressure and soil gas flow rate described above.

Applied Vacuum Point	Pilot Point	Distance	Pressure
AVP1	P1North	5ft	-0.149”
AVP1	P2North	10ft	-0.065”
AVP1	P3North	15ft	-0.059”
AVP1	P4North	20ft	-0.052”
AVP1	P5North	25ft	-0.041”
AVP1	P6North	30ft	-0.022”
AVP1	P7North	35ft	-0.017”
AVP1	P8North	40ft	0.000”
AVP1	P1South	5ft	-0.165”

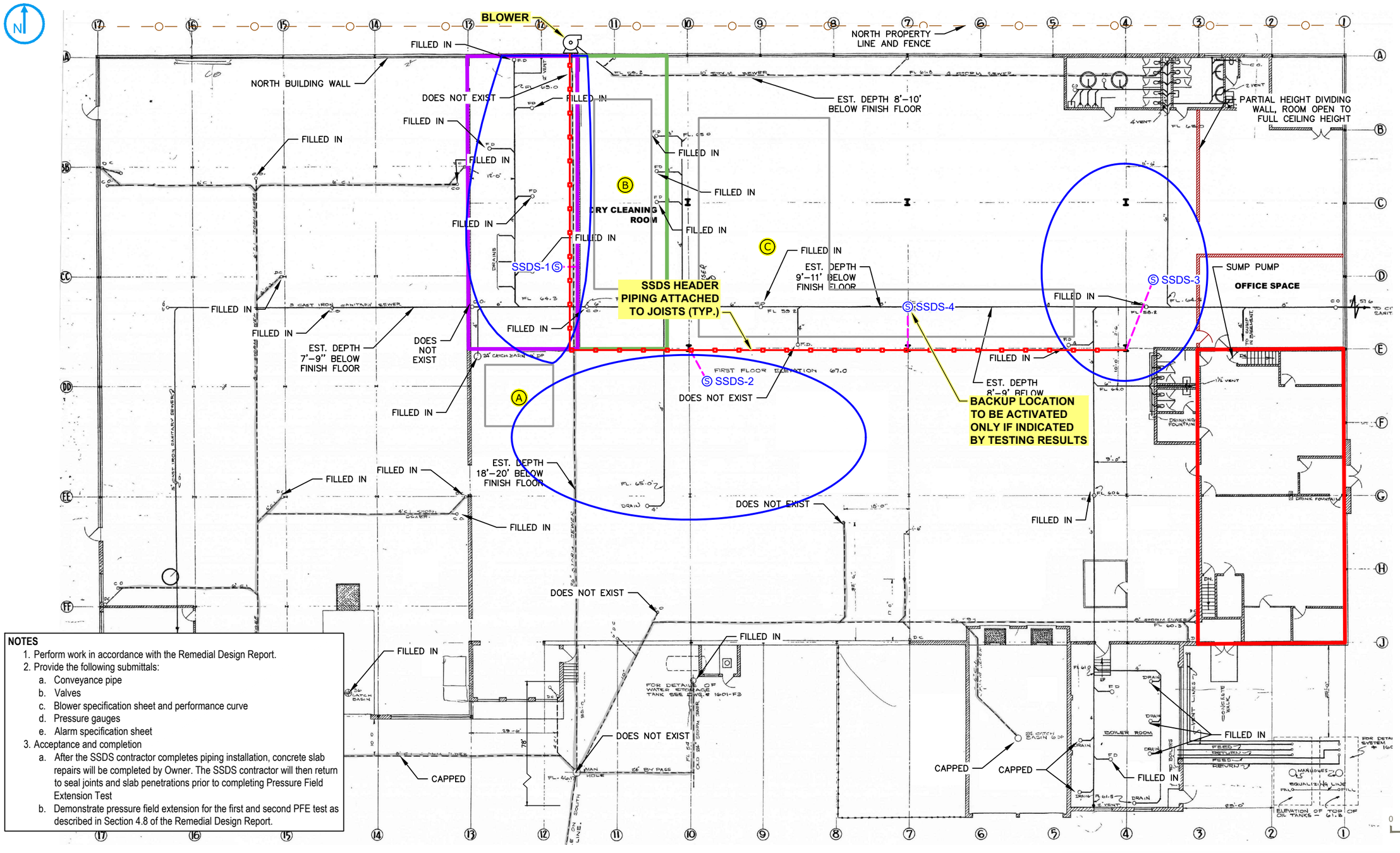
Applied Vacuum Point	Pilot Point	Distance	Pressure
AVP1	P2South	10ft	-0.055”
AVP1	P3South	15ft	-0.035”
AVP1	P4South	20ft	-0.023”
AVP1	P5South	25ft	-0.012”
AVP1	P6South	30ft	0.000”
AVP1	P1East	5ft	-0.150”
AVP1	P2East	10ft	-0.021”
AVP1	P3East	15ft	0.000”
AVP1	P1West	5ft	-0.138”
AVP1	P2West	10ft	-0.030”
AVP1	P3West	15ft	-0.013”
AVP1	P4West	20ft	0.000”
AVP2	P1North	5ft	-0.087”
AVP2	P2North	10ft	-0.116”
AVP2	P3North	15ft	0.000"
AVP2	P1South	5ft	-0.260”
AVP2	P2South	10ft	-0.130”
AVP2	P3South	15ft	-0.071”
AVP2	P4South	20ft	-0.052”
AVP2	P5South	25ft	-0.049”
AVP2	P6South	30ft	-0.044”
AVP2	P7South	35ft	-0.011”
AVP2	P8South	40ft	-0.003”
AVP2	P1East	5ft	-0.138"
AVP2	P2East	10ft	-0.083”
AVP2	P3East	15ft	-0.050”
AVP2	P4East	20ft	-0.024”
AVP2	P5East	25ft	-0.012”
AVP2	P6East	30ft	0.000”
AVP2	P1West	5ft	-0.304”

Applied Vacuum Point	Pilot Point	Distance	Pressure
AVP2	P2West	10ft	-0.103”
AVP2	P3West	15ft	-0.057”
AVP2	P4West	20ft	-0.041”
AVP2	P5West	25ft	-0.026”
AVP2	P6West	30ft	-0.015”
AVP2	P7West	35ft	-0.015”
AVP2	P8West	40ft	-0.004”
AVP3	P1North	5ft	-0.198”
AVP3	P2North	10ft	-0.095”
AVP3	P3North	15ft	-0.061”
AVP3	P4North	20ft	-0.045”
AVP3	P5North	25ft	-0.012”
AVP3	P6North	30ft	-0.002”
AVP3	P1South	5ft	-0.019”
AVP3	P2South	10ft	-0.012”
AVP3	P3South	15ft	-0.009”
AVP3	P4South	20ft	-0.004”
AVP3	P1East	5ft	-0.198"
AVP3	P2East	10ft	-0.040”
AVP3	P3East	15ft	0.000”
AVP3	P1West	5ft	-0.002”
AVP3	P2West	10ft	-0.026”
AVP3	P3West	15ft	-0.016”
AVP3	P4West	20ft	-0.007”
AVP3	P5West	25ft	0.000”


P7North
-0.017"
SSV #19
SB #2
SB #16
MW #4
SB #13
EST. DEPTH 8'–10'
BELOW FINISH FLOOR
SS #2/S1
0.0PPM
SS #3
0.0PPM
SOLVENT BASED
CLEANING ROOM
SB #14
DEEP ONLY
SSV #4
SSV #2
SSV #18
SB #4
2,138 ft²
PZ #1
P6North
-0.002"
SSV #6
SB #1
DRY CLEANING
ROOM
SB #21
Assume ave depth of 9', and a
total of 1,600 tons of soil and 100
cubic yards of concrete.
SB #18
SSV #20
AVP1
SB #6
SSV #3
SS #5
0.0PPM
SUMP VAPOR
SAMPLE
0.0PPM
P3West
-0.013"
P2East
-0.021"
740 ft²
EST. DEPTH
9'–11' BELOW
FINISH FLOOR
P4West
-0.007"
AVP3
SSV #12
SUMP PUMP
OFFICE SPACE
P3East
-0.040"
SB #3
SS #4
0.0PPM
P2North
-0.116"
SSV #1
SB #5
SB #12
SSV #7
382 ft²
MW #6
P5South
-0.012"
324 ft²
FIRST FLOOR ELEVATION 67.0
P8West
-0.004"
DOES NOT EXIST
P5East
-0.012"
EST. DEPTH
8'–9' BELOW
FINISHED FLOOR
P4South
-0.004"
SB #10
SB #11
SSV #8
SSV #9
AVP2
SS #13/S2
0.0PPM
SS #12
0.0PPM
max. distance from vapor
extraction point to SSV sample
point is 10'
EST. DEPTH
18'–20' BELOW
FINISH FLOOR
SSV #11
DOES NOT EXIST
P8South
-0.003"
MW #3
SB #15
SSV #16
SS #6
0.0PPM

APPENDIX C

SUB-SLAB DEPRESSURIZATION SYSTEM DRAWINGS AND NOTES



NOTES

1. Perform work in accordance with the Remedial Design Report.
2. Provide the following submittals:
   a. Conveyance pipe
   b. Valves
   c. Blower specification sheet and performance curve
   d. Pressure gauges
   e. Alarm specification sheet
3. Acceptance and completion
   a. After the SSDS contractor completes piping installation, concrete slab repairs will be completed by Owner. The SSDS contractor will then return to seal joints and slab penetrations prior to completing Pressure Field Extension Test
   b. Demonstrate pressure field extension for the first and second PFE test as described in Section 4.8 of the Remedial Design Report.

Ⓢ PROPOSED SUB-SLAB DEPRESSURIZATION SUMP

SUB-SLAB DEPRESSURIZATION PIPING

VACUUM TEST RADIUS (LESS THAN - 0.004 INCHES WATER PRESSURE)

SSDS HEADER PIPING

BLOWER

SUB-SLAB DEPRESSURIZATION SYSTEM (SSDS) PLAN

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

SSDS 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY
RAMBOLL

PROJECT: 1940105445 DATED: 1/2/2024 DESIGNER: HJWARD

APPENDIX D

WASTE DETERMINATION

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
Spic and Span, Inc.	Brian Schneider
Address	**Address**
4301 North Richards Street	234 W. Florida Street
City, State and ZIP Code	**City, State and ZIP Code**
Milwaukee, WI	Milwaukee, WI 53204
Telephone Number	**Telephone Number**
414-378-5522	414-837-3607

Site Information

Site Name	Other name(s) site is known by
Spic and Span, Inc.	N. A.
Address	**County**
4301 North Richards Street	Milwaukee

Located in the City, Town or Village ZIP Code

Milwaukee, WI

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)

☐ Yes ☐ No ☐ None Found ☐ None Available

The owner did not have knowledge of a spill and did not have sufficient knowledge of the source and the before use concentration to determine if the F002 or U210 hazardous waste listing applies. Records on composition of the chemicals are not available.

Characteristic Hazardous Waste Determination

Identified location(s)

PCE and TCE contaminated soil is located as summarized in the Site Investigation and Remedial Action Options Report dated July 2023.

Testing results

Media containing hazardous constituents above health-based criteria are considered to contain hazardous waste and the EPA set contaminant concentration thresholds above which a media would be considered to contain a hazardous waste. These “Contained Out Limits” are 153 mg/kg for PCE, and 8.8 mg/kg for TCE. All the soil samples collected were below these limits.

Laboratory TCLP analyses completed on samples from SB-7 and SB-12 reported concentrations of <0.010 mg/L and 0.030 mg/L for PCE, respectively, which are below the D039 (Tetrachloroethene) hazardous waste threshold of 0.7 mg/L. The highest detected TCE concentration was less than 20 times the D040 (Trichloroethylene) TCLP regulatory level and per EPA guidance, does not need to be tested for TCLP. Significant concentrations of other VOC compounds were not detected. The laboratory analytical report is included in Appendix D.

Certification

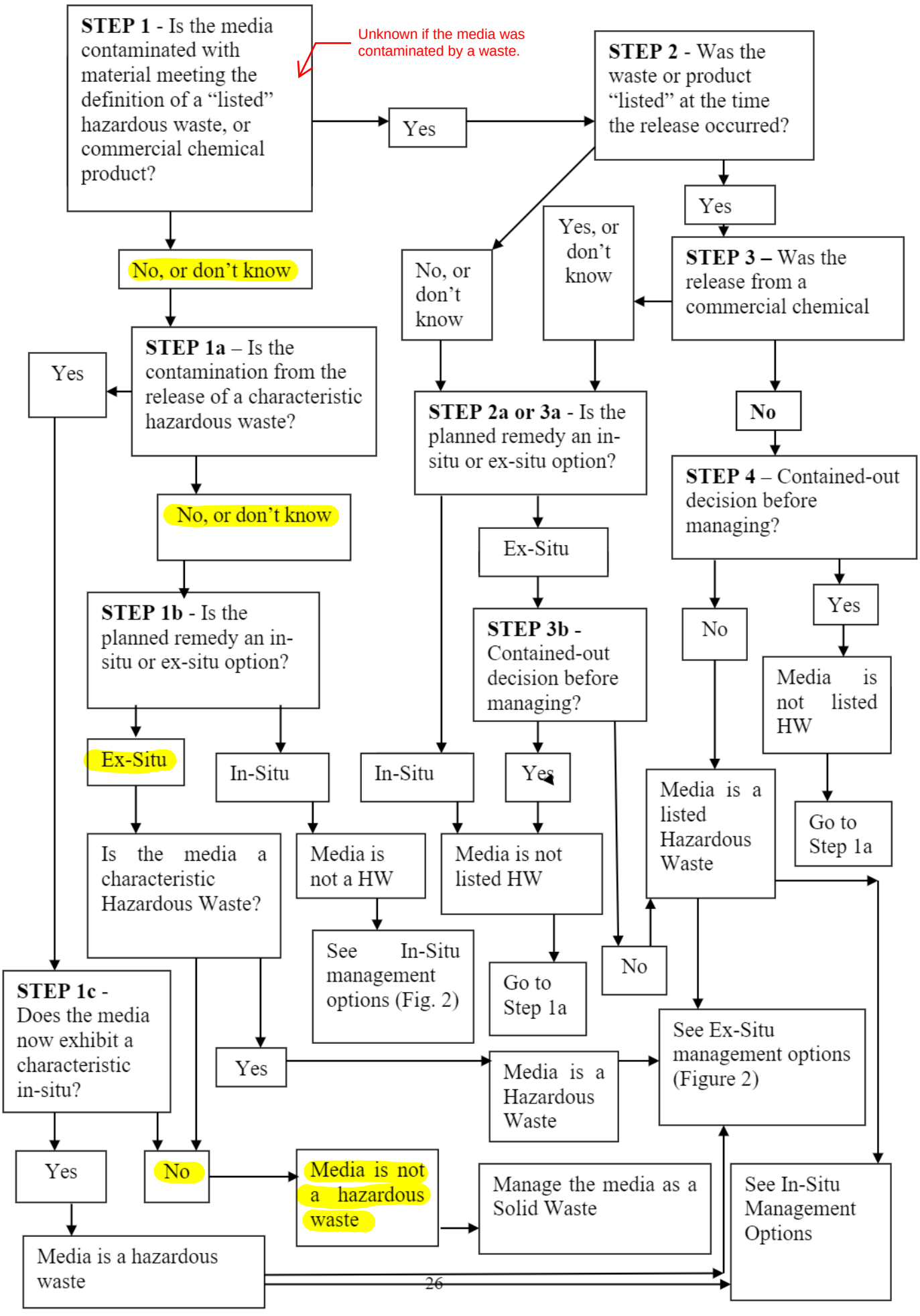
I certify that the information documented above in the "Information reviewed to make a hazardous waste determination" section was developed and used as part of a good faith effort to make a hazardous waste determination. Reasonable diligence was used in collecting the information, evaluating the information, 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

Signature

Date

FIGURE 1


STEP 1 - Is the media contaminated with material meeting the definition of a "listed" hazardous waste, or commercial chemical product?
Unknown if the media was contaminated by a waste.
Yes
STEP 2 - Was the waste or product "listed" at the time the release occurred?
Yes
STEP 3 – Was the release from a commercial chemical
Yes, or don't know
No, or don't know
No, or don't know
STEP 1a – Is the contamination from the release of a characteristic hazardous waste?
Yes
STEP 2a or 3a - Is the planned remedy an in-situ or ex-situ option?
No
STEP 4 – Contained-out decision before managing?
No, or don't know
Ex-Situ
Yes
STEP 1b - Is the planned remedy an in-situ or ex-situ option?
STEP 3b - Contained-out decision before managing?
No
Media is not listed HW
Ex-Situ
In-Situ
In-Situ
Yes
Media is a listed Hazardous Waste
Go to Step 1a
Is the media a characteristic Hazardous Waste?
Media is not a HW
Media is not listed HW
See In-Situ management options (Fig. 2)
Go to Step 1a
No
STEP 1c - Does the media now exhibit a characteristic in-situ?
Yes
See Ex-Situ management options (Figure 2)
Media is a Hazardous Waste
Yes
No
Media is not a hazardous waste
Manage the media as a Solid Waste
See In-Situ Management Options
Media is a hazardous waste

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Kyle Heimstead
Ramboll US Corporation
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 7/18/2023 1:41:14 PM

JOB DESCRIPTION

Spic and Span 1690027851

JOB NUMBER

500-236356-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

myEOL

Eurofins Chicago

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization

Generated
7/18/2023 1:41:14 PM

Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660

Table of Contents

Case Narrative

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

Job ID: 500-236356-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-236356-1

Receipt
The samples were received on 7/11/2023 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.5º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

Client Sample ID: SB #7 (4-6) TCLP — Lab Sample ID: 500-236356-1

No Detections.

Client Sample ID: SB #12 (5-7) TCLP — Lab Sample ID: 500-236356-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.030		0.020	0.010	mg/L	20		8260D	TCLP

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CHI
1311	TCLP Extraction	SW846	EET CHI
5030B	Purge and Trap	SW846	EET CHI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-236356-1	SB #7 (4-6) TCLP	Solid	07/10/23 10:15	07/11/23 10:00
500-236356-2	SB #12 (5-7) TCLP	Solid	07/10/23 11:10	07/11/23 10:00

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

Client Sample ID: SB #7 (4-6) TCLP

Date Collected: 07/10/23 10:15
Date Received: 07/11/23 10:00

Lab Sample ID: 500-236356-1

Matrix: Solid

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.010		0.020	0.010	mg/L			07/14/23 17:28	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*		*07/14/23 17:28*	*20*
Toluene-d8 (Surr)	*90*		*75 - 120*		*07/14/23 17:28*	*20*
4-Bromofluorobenzene (Surr)	*110*		*72 - 124*		*07/14/23 17:28*	*20*
Dibromofluoromethane (Surr)	*104*		*75 - 120*		*07/14/23 17:28*	*20*

Client Sample Results

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

Client Sample ID: SB #12 (5-7) TCLP

Date Collected: 07/10/23 11:10
Date Received: 07/11/23 10:00

Lab Sample ID: 500-236356-2

Matrix: Solid

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	0.030		0.020	0.010	mg/L			07/14/23 17:53	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*07/14/23 17:53*	*20*
Toluene-d8 (Surr)	*90*		*75 - 120*		*07/14/23 17:53*	*20*
4-Bromofluorobenzene (Surr)	*105*		*72 - 124*		*07/14/23 17:53*	*20*
Dibromofluoromethane (Surr)	*101*		*75 - 120*		*07/14/23 17:53*	*20*

Definitions/Glossary

Client: Ramboll US Corporation
Job ID: 500-236356-1
Project/Site: Spic and Span 1690027851

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

GC/MS VOA

Leach Batch: 722899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-236356-1	SB #7 (4-6) TCLP	TCLP	Solid	1311	
500-236356-2	SB #12 (5-7) TCLP	TCLP	Solid	1311	
LB 500-722899/1-A	Method Blank	TCLP	Solid	1311	
LCS 500-722899/11-A	Lab Control Sample	TCLP	Solid	1311	

Analysis Batch: 723042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-236356-1	SB #7 (4-6) TCLP	TCLP	Solid	8260D	722899
500-236356-2	SB #12 (5-7) TCLP	TCLP	Solid	8260D	722899
LB 500-722899/1-A	Method Blank	TCLP	Solid	8260D	722899
MB 500-723042/6	Method Blank	Total/NA	Solid	8260D	
LCS 500-723042/4	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 723274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-723274/6	Method Blank	Total/NA	Solid	8260D	
LCS 500-722899/11-A	Lab Control Sample	TCLP	Solid	8260D	722899

Surrogate Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
LCS 500-723042/4	Lab Control Sample	94	94	108	95
MB 500-723042/6	Method Blank	95	92	109	100
MB 500-723274/6	Method Blank	90	95	106	94

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
500-236356-1	SB #7 (4-6) TCLP	104	90	110	104
500-236356-2	SB #12 (5-7) TCLP	101	90	105	101
LB 500-722899/1-A	Method Blank	106	90	107	104
LCS 500-722899/11-A	Lab Control Sample	107	91	97	107

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 500-723042/6
Matrix: Solid
Analysis Batch: 723042

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.00050		0.0010	0.00050	mg/L			07/14/23 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*07/14/23 10:37*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*07/14/23 10:37*	*1*
4-Bromofluorobenzene (Surr)	*109*		*72 - 124*		*07/14/23 10:37*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 120*		*07/14/23 10:37*	*1*

Lab Sample ID: LCS 500-723042/4
Matrix: Solid
Analysis Batch: 723042

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Tetrachloroethene			0.0500	0.0413		mg/L		83	70 - 128		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*
Toluene-d8 (Surr)	*94*		*75 - 120*
4-Bromofluorobenzene (Surr)	*108*		*72 - 124*
Dibromofluoromethane (Surr)	*95*		*75 - 120*

Lab Sample ID: MB 500-723274/6
Matrix: Solid
Analysis Batch: 723274

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.00050		0.0010	0.00050	mg/L			07/17/23 11:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*75 - 126*		*07/17/23 11:00*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*07/17/23 11:00*	*1*
4-Bromofluorobenzene (Surr)	*106*		*72 - 124*		*07/17/23 11:00*	*1*
Dibromofluoromethane (Surr)	*94*		*75 - 120*		*07/17/23 11:00*	*1*

Lab Sample ID: LB 500-722899/1-A
Matrix: Solid
Analysis Batch: 723042

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.010		0.020	0.010	mg/L			07/14/23 18:17	20

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 126*		*07/14/23 18:17*	*20*
Toluene-d8 (Surr)	*90*		*75 - 120*		*07/14/23 18:17*	*20*
4-Bromofluorobenzene (Surr)	*107*		*72 - 124*		*07/14/23 18:17*	*20*
Dibromofluoromethane (Surr)	*104*		*75 - 120*		*07/14/23 18:17*	*20*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 500-722899/11-A
Matrix: Solid
Analysis Batch: 723274

Client Sample ID: Lab Control Sample
Prep Type: TCLP

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Tetrachloroethene			1.00	0.987		mg/L		99	70 - 128		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 126*
Toluene-d8 (Surr)	*91*		*75 - 120*
4-Bromofluorobenzene (Surr)	*97*		*72 - 124*
Dibromofluoromethane (Surr)	*107*		*75 - 120*

Lab Chronicle

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-236356-1

Client Sample ID: SB #7 (4-6) TCLP

Lab Sample ID: 500-236356-1

Date Collected: 07/10/23 10:15

Matrix: Solid

Date Received: 07/11/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			722899	LM	EET CHI	07/13/23 08:31
TCLP	Analysis	8260D		20	723042	W1T	EET CHI	07/14/23 17:28

Client Sample ID: SB #12 (5-7) TCLP

Lab Sample ID: 500-236356-2

Date Collected: 07/10/23 11:10

Matrix: Solid

Date Received: 07/11/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			722899	LM	EET CHI	07/13/23 08:31
TCLP	Analysis	8260D		20	723042	W1T	EET CHI	07/14/23 17:53

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Ramboll US Corporation
Job ID: 500-236356-1
Project/Site: Spic and Span 1690027851

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23

Eurofins Chicago
2417 Bond Street
University Park IL 60484
Phone 708-534-5200 Fax 708-534 5211

Chain of Custody Record

eurofins

Client Information	Sampler: Kyle Schaefer	Lab PM: Fredrick Sandie	Carrier Tracking No(s): Dropped at TA Brookfield	COC No: 500-114146-47093 1
Client Contact: Kyle Heimstead, Brian Schneider	Phone: 262-271-8624	E-Mail: Sandra Fredrick@et eurofinsus com	State of Origin: WI	Page: Page 1 of 1
Company: Ramboll US Corporation	PWSID			Job #: 500-236356
Address: 234 W Florida Street Fifth Floor	Due Date Requested			
City: Milwaukee	TAT Requested (days): Standard			
State Zip: WI 53204	Compliance Project: Δ Yes Δ No			
Phone	PO #: 1690027851			
Email: kheimstead@ramboll com, Bschneider@ramboll.com cc. Kyle.Schaefer@ramboll.com	WO #			
Project Name: Spic and Span 1690027851	Project #: 50021029			
Site: Spic and Span	SSOW#			

500-236356 COC

Analysis Requested

Preservation Codes
A HCL, B NaOH, C Zn Acetate, D - Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y [illegible]zma, Z other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	TCLP PCE	Total Number of containers	Special Instructions/Note
	Preservation Code:				X	X	N	X	
1 SB #7 (4-6) TCLP	7-10-23	1015	G	Soil	N	N	X		
2 SB #12 (5-7) TCLP	7-10-23	1110	G	Soil	N	N	X		
	WJ 7-10-23								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I II III IV Other (specify)

Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by: Kyle Schaefer	7-10-23 1301	Ramboll	Received by:	7-10-23 1301	Eurofins
Relinquished by: EE	7.10.23 1700	Eurofins	Received by:	7/11/23 1000	BETA
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 2.6→3.5


ORIGIN ID:RRLA (262) 202-5955
IAN EVANS
EUROFINS TESTAMERICA
4125 N 124TH ST.
SUITE F (REAR)
BROOKFIELD, WI 53005
UNITED STATES US

SHIP DATE: 10JUL23
ACTWGT: 57 40 LB
CAD: 0269688/CAFE3709

BILL RECIPIENT

TO SAMPLE RECEIPT
EUROFINS
2417 BOND ST.

UNIVERSITY PARK IL 60484

500-236356 Waybi

(262) 202-5955 REF
INV:
PO: DEPT:

FedEx Express

TRK# 0201 6578 9770 8490

TUE - 11 JUL 10:30A
PRIORITY OVERNIGHT

79 JOTA

60484
IL-US ORD

Login Sample Receipt Checklist

Client: Ramboll US Corporation

Job Number: 500-236356-1

Login Number: 236356
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX E

OPERATIONS AND MAINTENANCE PLAN

RAMBOLL

ENVIRONMENT
& HEALTH

January 2024
Former Spic and Span, Inc
4301 North Richards Street, Milwaukee, Wisconsin
BRRTS No. 02-41-585636

Introduction

This Operation, Maintenance, and Monitoring (OM&M) Plan has been prepared for the sub-slab vapor mitigation system installed at the former Spic and Span facility located at 4301 North Richards Street in Milwaukee, Wisconsin. The facility location is shown in the Figure 1 of the Remedial Design Report.

Description of Contamination

Tetrachloroethylene (PCE) and trichloroethylene (TCE) were detected in sub-slab vapors at concentrations above Wisconsin Department of Natural Resources' (WDNR) Large and Small Commercial/Industrial Vapor Risk Screening Levels (VRSLs) in the area shown on Figure 4 of the Remedial Design Report.

Description of the SSDS

The Sub-Slab Depressurization System (SSDS) has been designed to address sub-slab PCE and TCE vapors remaining after excavation. The system consists of three to four vapor extraction points as shown on SSDS-1 of the Remedial Design Report. The four sumps are connected to an aboveground piping network that is secured to the building structure, and the piping is manifolded together at a SSDS header pipe to route extracted vapors to a single vacuum extraction blower located on the north wall of the building.

System Inspection

The SSDS is to be monitored annually. Items to be monitored and inspected include the following:

- Observing vacuum gauges on risers at each of the SSDSs to verify vacuum is being maintained;
- Check for damage to pipe network;
- Observe the blower for the presence of unusual noise or vibrations;
- Inspect the blower for leaks or any signs of overheating;
- Check for obstructions to blower outlet; and
- Inspect concrete floor for cracks that could serve as advection pathways for PCE and TCE.

A reading of "no vacuum" at any SSDS extraction point indicates that the SSDS is not functioning as designed and reveals a problem to be corrected during or following the inspection. Routine monitoring shall also include an evaluation of any significant changes to the building that have the potential to impact the functionality of the SSDS (i.e., floor condition or changes that require modification to the overhead SSDS piping system).

Routine Maintenance Activities

Routine inspection and maintenance of the SSDS is to be performed on a periodic basis, concurrently with the operations monitoring activities. Observations and records of maintenance activities completed

shall be recorded in a field logbook to be stored in a secure location below the blower on the north interior wall of the building.

SSDS Blower

The SSDS blower shall be inspected and maintenance activities performed in accordance with this OM&M Plan and the recommendations of the blower manufacturer. The following tasks shall be completed during each inspection:

- Check the SSDS blower motor lubricant. The motor shafts will also be inspected for proper bearing operation and/or signs of wear.
- Observe the blower for the presence of unusual noise or vibrations.
- Inspect the blower motor for oil leaks or any signs of overheating.
- Inspect the blower filter for dirt build-up and change, as necessary.
- Check and/or drain the condensate in the in the sump of the discharge stack and empty, as necessary.

Concrete Floor

The integrity of the concrete floor, patches and the concrete sealing material needs to be maintained during SSDS operation. The condition of concrete floor shall be documented in the field logbook during the annual inspections. If problems are noted during the inspections or at any other time of the year, repairs shall be scheduled as soon as practical. Discontinuities in the floor seal can be repaired by reapplying the sealing material. Repairs to the SSDS must be conducted by a contractor with experience in applying floor sealings/coatings.

System Alarm

The system will include an alarm that will be triggered if the SSDS blower stops running. The owner of the building will be provided with instructions on the steps to take in the event of an alarm that include the following:

- Check the SSDS blower to verify that it is not operating inspect for physical impediments to operation;
- Check circuit breaker;
- Verify the blowers on the unit heaters are operating and continue operating until SSDS blower is operating again; and
- Contact Lifetime Radon Solutions or other experienced mechanical contractor to inspect and adjust/repair equipment.

Prohibition of Activities and Notification of WDNR Prior to Actions Affecting SSDS Operation

The following activities are prohibited on any portion of the SSDS or associated portions of the building, unless prior written approval has been obtained from the WDNR: 1) removal of the existing SSDS; 2) replacement of any part of the SSDS; 3) removing or replacing any part of the concrete floor slab; 4) changing the use or occupancy of the property to a residential exposure setting, which may include certain uses, such as single or multiple family residences, a school, day care, senior center, hospital, or

similar residential exposure settings; or 5) changing the construction of a building that has a vapor mitigation system in place.

If removal, replacement, or other changes to the SSDS are considered, the property owner will contact the WDNR at least 45 days before taking such an action, to determine whether further action may be necessary to protect human health, safety, or welfare or the environment, in accordance with Wisconsin Administrative Code (WAC) NR 727.07.

Amendment or Withdrawal of Maintenance Plan

This OM&M Plan can be amended or withdrawn by the property owner and its successors with the written approval of the WDNR.

Contacts

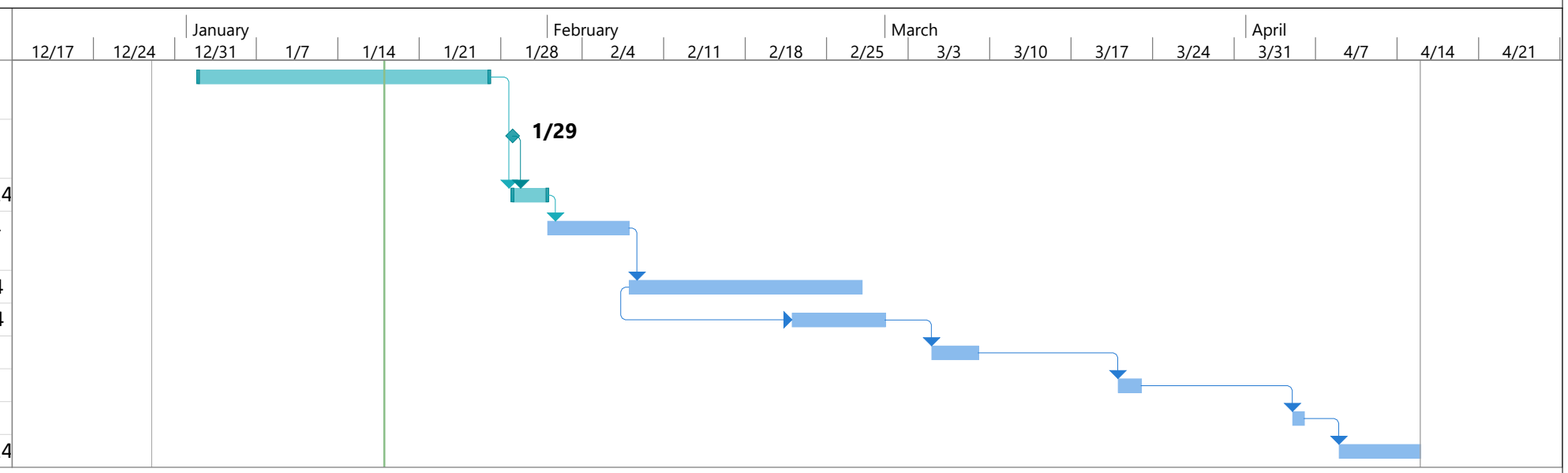
Responsible Party:	Robert Miller 108 West Miller Drive Mequon, WI 53092 (414) 378-5522
Responsible Party's Environmental Consultant:	Ramboll Americas Engineering Solutions, Inc. Brian Schneider, PE 234 W. Florida Street, Fifth Floor Milwaukee, WI 53204 262-901-3507
Property Owner:	Robert Miller 108 West Miller Drive Mequon, WI 53092 (414) 378-5522
Lessee:	To be determined
Mechanical Contractor:	Lifetime Radon Solutions 805 Wells Street Delafield, WI 53018 Contact: Chad Rogness, (262) 955-5701
WDNR Project Manager:	Wisconsin Department of Natural Resources Milwaukee Service Center 1027 W. Saint Paul Avenue Milwaukee, WI 53233 Contact: Linda Stanek, (414) 316-0208

APPENDIX F

SCHEDULE

Remedial Action Schedule
Spic and Span, Inc.
4301 North Richards Street
Milwaukee, WI

ID	Task Name	Duration	Start	Finish
1	Contracts between Owner and subcontractors	19 days	Tue 1/2/24	Fri 1/26/24
2	WDNR Approval of Work Plan Critical Elements	0 days	Mon 1/29/24	Mon 1/29/24
3	Utility Locate and work layout	3 days	Mon 1/29/24	Wed 1/31/24
4	Mobilization, Concrete Cutting and Removal	5 days	Thu 2/1/24	Wed 2/7/24
5	Excavation and Backfilling	14 days	Thu 2/8/24	Tue 2/27/24
6	SSDS Installation	6 days	Thu 2/22/24	Thu 2/29/24
7	Concrete Repair	4 days	Tue 3/5/24	Fri 3/8/24
8	SSDS Start up and PFET #1	2 days	Thu 3/21/24	Fri 3/22/24
9	PFET #2	1 day	Fri 4/5/24	Fri 4/5/24
10	Passive Air Sampling	5 days	Tue 4/9/24	Mon 4/15/24



Project: Schedule
Date: Thu 1/18/24

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	