Robert E. Lee & Associates, Inc.
Engineering • Surveying • Environmental Services
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WI DNR - GREEN BAY

October 11, 2017

Mr. Tauren Beggs
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
2984 Shawano Avenue
Green Bay, WI 54313-6727

RE: *Additional Information for Proposed Site Investigation*, Jagemann Plating Company, 1324 South 26th Street, Manitowoc, WI 54220; BRRTS #02-36-555544

Dear Mr. Beggs:

On behalf of Jagemann Plating Company., Robert E. Lee and Associates, Inc., (REL) is providing a response to your e-mail, dated May 24, 2017, regarding the Site Investigation Update Report (dated April 24, 2017) for Jagemann Plating Company, 1324 South 26th Street, Manitowoc, Wisconsin (the Site). The e-mail provides comments/questions regarding our proposed site investigation. The Wisconsin Department of Natural Resources (the Department) comments/questions are listed below in bold italics and REL's response is listed beneath.

1. ***The dates on page 4 of the report should be 2016, not 2017, correct? Please provide the revised page of the report. Sending it via email to me is sufficient.***

   The dates on Page 4 of the report have been revised to the correct year of 2016. The revised Page 4 is included in Attachment A.

2. ***For sampling existing wells, MW-4 and PZ-4 should be added for RCRA metal analysis.***

   Monitoring Well MW-4 and piezometer PZ-4 have been sampled for RCRA metals on up to four occasions between 2011 and 2014. MW-4 has only had a detection of arsenic in excess of the Chapter NR 140 Preventive Action Limit (PAL), and arsenic was not detected above laboratory detection limits in the well during the most recent sampling event in 2013. PZ-4 has only had detections of arsenic, lead, and silver in excess of the Chapter NR 140 PAL. During the most recent sampling of PZ-4 in 2014, the only metal detected in the groundwater sample was a concentration lead, which was in excess of the PAL.

   Given the lack of detection of the eight RCRA metals in Monitoring Wells MW-4 and Piezometer PZ-4 historically, REL proposes to only analyze for those metals most recently detected in the monitoring points. Thus, we recommend one additional round of groundwater sampling be completed at Monitoring Well MW-4 for dissolved arsenic and at Piezometer PZ-4 for dissolved lead. Subsequent groundwater sampling at Monitoring Well MW-4 and Piezometer PZ-4 will be re-evaluated, based upon the laboratory results.

3. ***A vapor mitigation system was installed. Documentation of the communication testing, vapor mitigation system information, location of the system, etc., needs to be submitted.***

A vapor sub-slab depressurization system (SSDS) was installed by Radon Abatement on October 21, 2015 to mitigate vapors intruding into the administrative offices area of the building from beneath the foundation. A *SSD Vapor Extraction Final Report* (dated November 4, 2015), prepared by Radon Abatement, documenting the system installation is included in Attachment B.

4. ***From Kristen Dufresne's letter for notice to proceed with the site investigation work plan, dated October 28, 2014, where was the location of the piping run/former pipe break located? Has this area been fully defined for cadmium and chromium contamination?***

The source of the chromium contamination at the Site is from a leak in a chromium line beneath the floor of the building in the production area. The chromium tank drained into the pit located in the Maintenance Room. The chromium was pumped back into the tank, the plumbing was inspected, and the broken pipe was discovered and repaired. The chromium that was not recovered and re-used was treated in the on-site wastewater treatment system. A sump (Sump 1) was installed in the pit to capture any remaining chromium released by the pipe break. The sump is pumped directly to the wastewater treatment system. The location of the chromium tank, the pit in the Maintenance Room, Sump 1, and on-site wastewater treatment system are shown in Figure 2, included in Attachment C.

Soil Borings B-1 through B-8 and monitoring Wells MW-1 through MW-4, completed during 2010, were advanced inside the Site building through the floor of the production area and outside of the building to investigate in the area of the chromium piping run/former pipe break. Subsequent Soil Borings PZ-4, MW-5, MW-6, and B-9 through B-16 and monitoring points TW-1 PZ-3, PZ-4, PZ-13, PZ-16, MW-5 through MW-8, MW-14, MW-15, and MW-17 were advanced to further define the extent of the contaminant plume at the Site. Based on the soil and groundwater sampling results, REL has stated it believes that extent of contamination at the Site has been largely defined, including the cadmium and chromium contamination in the area of the former pipe break. Additional investigation (i.e., drilling through the building floor) in this area is prohibited due to the amount of mechanical equipment present and the associated underground utilities are poorly documented, since this is the oldest part of the Site building. The locations of mechanical equipment are shown on Figure 2. It should be noted that even though there are open spaces near the machines, these machines areas also have space used by additional supporting equipment such as storage racks, rectifiers, filters, etc., that are not easily (if ever) moved.

5. ***I agree with the additional soil and monitoring well locations upgradient of MW-15. There is a hotspot location at MW-14, which needs further investigation surrounding that location. There should be soil and groundwater locations to the north/northwest and west of MW-14 within the building to define degree and extent (such as the***

attached PDF). The need for additional investigation around this area was also outlined in the site investigation work plan notice to proceed letter, dated October 28, 2014.

Additional investigation (i.e., drilling through the building floor) within the production/manufacturing area is prohibited due to the amount of mechanical equipment, machine support equipment, and lack of documentation of associated underground utilities since this is the oldest part of the Site building. REL recommends that any additional investigation the Department would require to the north/northwest of B-12/MW-14 be on the exterior of the Site building. Thus, the nearest locations would be at the west and north property boundaries, which is greater than 100 to 200 feet from the location of B-12/MW-14.

Given that the north/northwest directions from B-12/MW-14 is considered hydraulically upgradient, the significant distance to the nearest potential locations outside of the Site building that borings/monitoring wells may be installed, and the impermeable clay soils at the Site are minimizing the contaminant migration, REL does not believe it is technically feasible to further investigate updgradient of B-12/MW-14.

6. ***What is the reasoning behind doing soil gas sampling instead of sub-slab sampling? DNR recommends sub-slab instead of soil gas sampling where possible.***

Soil gas sampling on the adjacent property at 1332 South 26th Street was proposed because preliminary considerations to gain access to the interior of the building did not appear promising. However, after further consideration, REL believes that sub-slab vapor sampling is the best method of investigating the vapor pathway at the neighboring building.

To initiate the vapor investigation at the adjacent property, REL will contact the property owner by letter for consent to complete a building survey to determine distribution and locations for sub-slab sampling within the building; and to conduct vapor and indoor air sampling. Based on the building's size, it is anticipated that a minimum of 2 sub-slab samples paired with indoor air samples may be recommended. Final recommendations for sub-slab vapor and indoor air sampling will be presented to the WDNR after REL gains access the building.

To minimize air exchange at the edges of the building foundation, actual sampling locations will be selected to be as close as possible to the center of slab and at least 5 feet or more from the edge of the slab to the extent practicable. The nature of any floor covering will be considered in selecting the sub-slab sample locations. Locations will be selected to avoid any damage to installed floor coverings.

7. ***Vapor mitigation systems are interim actions and should not be considered as remediation systems. Source control remedies need to be evaluated for sites with vapors above vapor risk screening levels (VRSLs) and/or vapor action levels (VALs) in***

order to reduce or eliminate the vapor intrusion pathway, so this will have to eventually be evaluated for this site per NR 722.

An evaluation of remedial action options in accordance with Chapter NR 722, Wisconsin Administrative Code will be completed once the site investigation is complete.

We trust this information meets your needs. If you have any questions, please feel free to contact REL at (920) 662-9641.

Sincerely,

ROBERT E. LEE & ASSOCIATES, INC.

Nicole L. LaPlant
Senior Project Geologist

Bruce D. Meissner, P.G., V.P.
Environmental Compliance Manager

NLL/BDM/LAR

ENC.

CC/ENC: Mr. Mike Jagemann, Jagemann Plating Company

A

ATTACHMENT A

SITE INVESTIGATION REPORT – PAGE 4 REVISION

METHODS OF INVESTIGATION

Summary of Investigative Activities

November 8 and 9, 2016 — Four soil borings (B-13, and B-15 through B-17) were advanced by Intertek, using a truck mounted drill rig equipped with hollow stem augers (HSAs) to further define the extent of soil contamination. Borings B-13, and B-15 through B-17 were completed on the adjacent 1332 South 26th Street property to assess soil and groundwater quality up gradient of the Site. In addition, one soil boring (B-14) was advanced by Geiss Soil and Samples, LLC for the purpose of installing a monitoring well in the location of temporary monitoring well TW-1. Soil samples collected from 2.5 to 4.5 fbg and above the apparent water table from borings B-13 and B-16, were submitted under chain-of-custody protocol to Synergy Environmental Lab (Synergy) (WDNR Certification #445037560) for laboratory analysis of VOCs and RCRA metals. Soil samples were not obtained from borings B-14, B-15, and B-17 due to their close proximity to other borings. Following completion of soil sampling, borings B-14, B-15 and B-17 were converted to Monitoring Wells MW-14, MW-15 and MW-17, respectively. Borings B-13 and B-16 were converted to piezometers PZ-13 and PZ-16, respectively. Temporary monitoring well TW-1 was also abandoned on this day.

November 28, 2016 — REL developed the three newly installed monitoring wells and two newly installed piezometers. In addition, REL surveyed the monitoring well and piezometer vertical elevations of the ground surface and riser according to mean sea level (msl).

December 9, 2016 — REL collected a round of groundwater levels and attempted to sample the newly installed monitoring wells and piezometers, as well as, select site wells. Due to the cold weather, sampling could not be completed via low flow method as the pump and tubing continued to freeze up. Sampling was discontinued.

December 29 and 30, 2016 — REL collected a round of groundwater levels and sampled the newly installed monitoring wells and piezometers. In addition, groundwater samples were also obtained from existing Monitoring Wells MW-1, MW-2, MW-3, MW-5, MW-7, and MW-8, and piezometer PZ-3. The groundwater samples were submitted to Synergy for laboratory analysis of VOCs and RCRA metals.

B

ATTACHMENT B

VAPOR MITIGATION SYSTEM DOCUMENTATION

12221 West Rockne Avenue Hales Corners Wisconsin 53130 414-546-3691
radabt1@wi.rr.com

SSD VAPOR EXTRACTION FINAL REPORT

110415

JAGEMANN PLATING COMPANY
MICHAEL J. JAGEMANN
1324 South 26th Street
Manitowoc, WI 54220
P: 920-682-6883 ext.132
mjagemann@jagemannplating.com

REPRESENTATIVE
Kevin R. Eibenholzl
Senior Environmental Scientist
ROBERT E. LEE & ASSOCIATES, INC
1250 Centennial Centre Boulevard
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P: 920-662-9641 C: 920-227-7570
keibenholzl@releeinc.com

SITE HISTORY

Evaluations and reports were made available through Kevin Eibenholzl and Michael Jagemann. They were reviewed prior to our evaluation and were beneficial toward the final stages of evaluation, testing and SSD vapor extraction system installation. Our company representatives gained access to the building for the initial evaluation on the 13th of June 2015.

The east basement of the administrative offices of the commercial building was fully accessed for analysis. This is the vapor intrusion area of concern.

After a careful evaluation, assessment, communication testing was completed on 3oth of September 2015.

The pre-SSD diagnostic evaluation findings are attached and marked Attachment "A".

OVERVIEW

The projects objective was to remediate, through sub-slab depressurization vapor extraction, the identified vapors and gases from the subsoil beneath the administrative offices. The entire installation that was conducted on the 21st of October 2015 follows working protocol and standards set by the USEPA and AARST Standards Consortium. Reference the ANSI/AARST RMS-LB2014 GPF. The installed system emphasizes safety, system quality and effectiveness. This SSD vapor extraction remediation incorporates one commercial grade mitigation suction fan. There is one extraction point that accommodates the necessary depressurization needed for vapor extraction.

SSD VAPOR EXTRACTION SYSTEM

1. Sealing was conducted on all floor penetrations and cracks that may have had an effect on the integrity and efficiency of the remediation system. There were several areas that will need to be addressed with sealant and hydraulic cement. This included the sealing of the sump crock in the utility room of the basement at the south exterior wall. A durable custom cut cover was applied to the crock and it was sealed with silicone for easy access of the sump crock and sump pump. There was a screw out 4 ½ inch access port installed in the crock cover for crock and pump monitoring.

2. The drop pit was developed in the educational centre section of the basement adjacent to the central north wall.

   The drop pipe was secured to the drop pit and north basement wall, before it exited to the central north exterior wall.

3. Exterior ventilation piping was interconnected from the said drop point and internal ventilation pipe extract concentrated product with the remediation suction fan.

4. The vapor extraction fan was applied to the north exterior wall.

5. The exterior exhaust pipe was carried vertical twelve inches above the eave of the roof. A goose neck fitting was applied to the top of the exhaust to direct the abated vapors to the north-east for safety.

The fan is very quiet, water hard, durable and has a good longevity record. They are manufactures by Spruce Environmental of Massachusetts. The extraction fans have limited five year warranties and utilize approximately $123.00 of electrical energy per year. The fan is has an 83 watt motor. The fan was sized for the vapor extraction following the final stages of installation. Efficiency, effectiveness as well as the manufacturer's suggested recommendations guided the final remediation fan choice.

An anti-freezing (Fan Guard) appliance was applied above and below the fan for longevity of the fan.

6. A fail safe "U" tube manometer monitor was applied to the system at the main vertical riser of ventilation pipe in the basement. This is for the convenience of the buildings occupants to monitor function and fan failure.

7. An electrical disconnect was attached to the ventilation fan. The owner's State licensed electrician gained electrical power from a code compliant source.

8. The system was tested for efficiency of depressurization on the 4th of November 2015. The results indicate full sub-slab depressurization. The results are attached and marked Attachment "B".

9. If any other post testing of internal product is required by any governmental office, it will be at a separate bid by our company, based on the requirement set by the agency.

10. Note: A company maintenance program is strongly suggested and made available through the company. This would be separately contracted.

TOTAL COST OF ALL THE WORK NECESSARY TO THIS PROJECT

Six thousand, nine-hundred and seventy dollars. ($6,970.00).

Down payment and diagnostic payment $4,060.00

Balance due and owing as of 110415 $2,910.00

Invoice attached for your attention, Attachment "B"

Thank you for utilizing our environmental services.

Respectfully submitted by:

Thomas J. Heine and Erik V. Heine
Radon Abatement owners and representatives

ATTACHMENT "A" 093014

Jagemann Plating Co. 1324 S. 26th Street;
Manitowoc, WI 54220
Michael Jageman Ex VP 920-682-6883
O Temp 52F ExBP 16.427 IBP 8.632 Internal MMR 0.000
LL Education Centre; Storage; SM office; Utility RM
Micromanometer readings were in inches of water column; Infitec DM1 readings 5hpvac VE 1

VPP A PreMMR	0.001	PoMMR -0.536
VPP B PreMMR	0.003	PoMMR -1.461 SSD
VPP C PreMMR	0.007	PoMMR -0.034
VPP D PreMMR	0.001	PoMMR -0.209
VPP E PreMMR	0.003	PoMMR -0.407
VPP F PreMMR	0.000	PoMMR -0.243
VPP G PreMMR	0.001	PoMMR -0.009
SUMP PreMMR	0.023	PoMMR -0.156

Note: The sump crock was a poor suction point and cannot be considered for utilization as an extraction point.

ATTACHMENT "B" 100415
FINAL DEPRESSURIZATION TESTING
Post-SSD Vapor extraction installed 102115

Jagemann Plating Co. 1324 S. 26th Street;
Manitowoc, WI 54220
Michael Jageman Ex VP 920-682-6883
Temp 47F ExBP 12.231 INT BP 9.847
LL Education Centre; Storage; SM office; Utility RM
Micromanometer readings were in inches of water column; Infitec DM1 readings

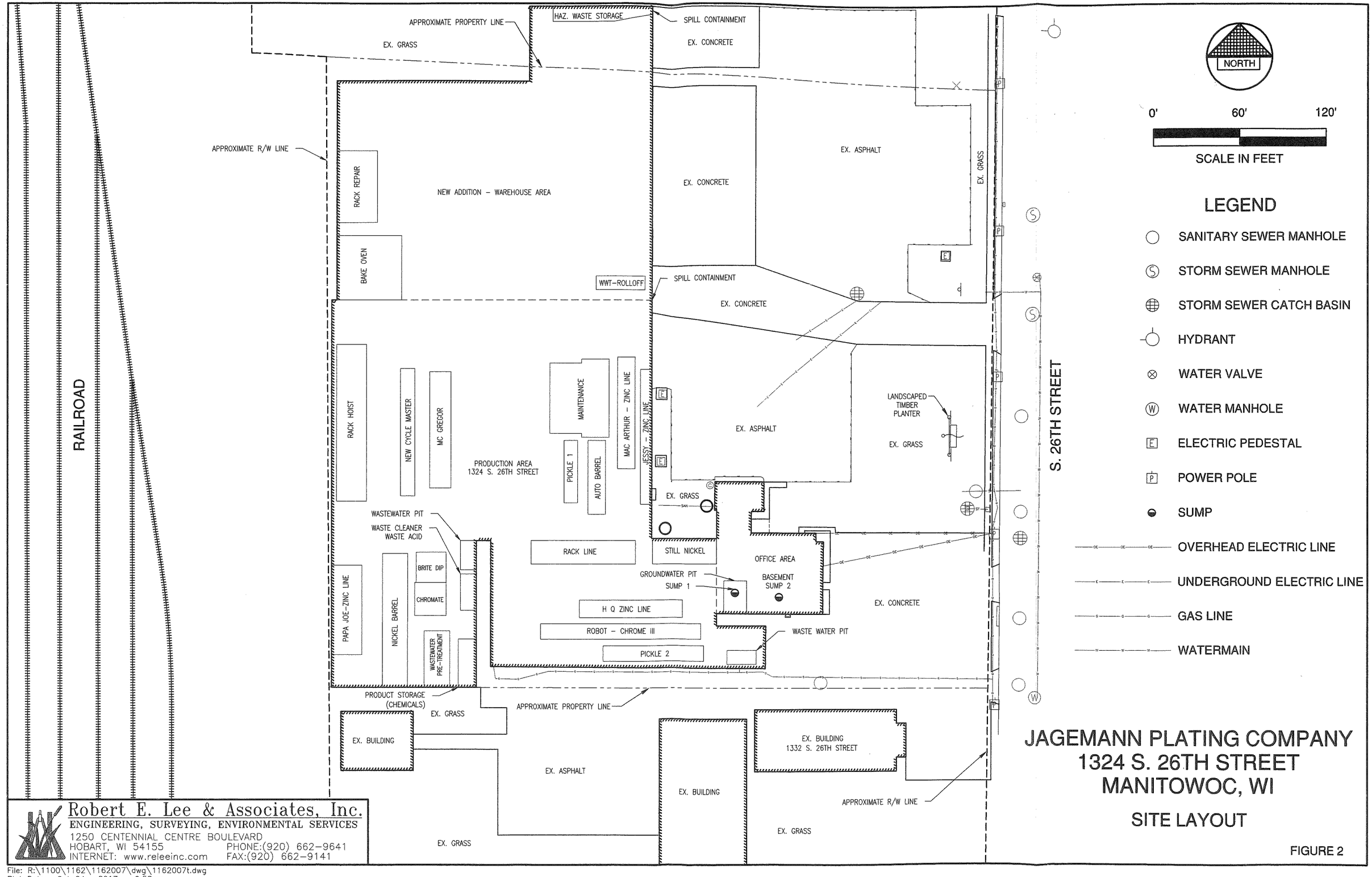
VPP A MMR -0.631
VPP B MMR -1.421 SSD DROP POINT
VPP C MMR -0.136
VPP D MMR -0.289
VPP E MMR -0.601
VPP F MMR -0.246
VPP G MMR -0.024
SUMP MMR -0.234

The entire sub-slab appears to be efficiently depressurized and ventilating

C

ATTACHMENT C

SITE FIGURE



JAGEMANN PLATING COMPANY
1324 S. 26TH STREET
MANITOWOC, WI

SITE LAYOUT

FIGURE 2

Robert E. Lee & Associates, Inc.
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
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