VIA CERTIFIED MAIL   7016 1970 0001 0402 7351

October 2, 2020

Paul Grittner
Hydrogeologist
Remediation and Redevelopment Bureau
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin 53212

Re: Response to WDNR's Correspondence dated September 9, 2020
Superior Health Linens / BRRTS #02-41-532649
5005 S. Packard Avenue
Cudahy, WI

Dear Mr. Grittner:

On behalf of D&C Partners, LLC (D&C Partners), St. John – Mittelhauser & Associates, Inc., a Terracon Company (SMA), has prepared the responses in this letter to address comments by the Wisconsin Department of Natural Resources (WDNR) in their letter dated September 9, 2020. Once we have satisfactorily addressed these WDNR comments, we anticipate preparing a Site Investigation / Remedial Action Options and Design Report Addendum (SI/RAODR Addendum) for the Superior Health Linens (Superior) site for submission to the WDNR.

The WDNR September 9, 2020 correspondence requested additional information related to the following five (5) areas of the SI/RAODR:

1. Groundwater Investigation;
2. Previous Request to Investigate Under the Building;
3. Vapor Assessment;
4. Proposed Capping Plan; and
5. Addressing the Vapor Intrusion Risk Within the On-Site Buildings.

Each of the five areas are presented below, including the WDNR's complete comment provided in the September 9, 2020 correspondence and SMA's response.

1. GROUNDWATER INVESTIGATION

WDNR's Comment
The DNR reviewed the response provided by SMA regarding groundwater contamination at the site and agrees that no further investigation is necessary. However, some changes to the groundwater figures are recommended so they display a more accurate interpretation of sample data. Figure 23 of the Report presents the results of a numerical model as the extent of groundwater contamination. The DNR does not generally accept modeling in lieu of sampling to complete a site investigation or impose restrictions on off-site property

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owners. Portraying the model results as the limits of a groundwater plume may be misleading to those reviewing the Figure if its meaning is not properly explained, especially as it indicates that samples were not collected from off-site.

The plume limits depicted on Figure 23 may overestimate of the extent of contamination. The estimated plume limits currently displayed are based on the assumption that groundwater flow direction and stratigraphy do not vary off-site, which may or may not be the case. The DNR recommends reevaluating now the plume limit is displayed on the figure using the analytical data and field measurements that are available. Displaying the groundwater plume to terminate without impacting an offsite property would be a reasonable interpretation. Analytical data confirmed that contaminant concentrations drop significantly away from source area (as indicated by samples collected from PZ-1 and MW-13) and that concentrations with the plume have general declined over time. The model data supports this interpretation by suggesting that any off-site impacts would be relatively limited in extent.

The area impacted by 1,4-dioxin in the deeper sand should be modified as well. Depicting the area impacted by 1,4-dioxin as a continuous plume would be a more accurate interpretation of the sampling data. It appears that MW-14 was also impacted by this compound and should be included within the plume limits.

SMA's Response
SMA concurs with the WDNR's assessment of the groundwater plume within the lower sand unit. An updated Figure 23, depicting the groundwater plume in the lower sand unit, is provided in Attachment A to this letter.

2. PREVIOUS REQUEST TO INVESTIGATE UNDER THE BUILDING

WDNR's Comment
the extent of soil contamination is generally defined by the considerable number of samples collected on the west side of the property near the source area and along the eastern portion of the property. The extent of soil contamination under the building can be estimated, but not exactly defined, by the available data. No further investigation under the building will be required if the extent of contamination depicted on Figure 20 of the Report is expanded to cover a wider area to be better representative of potential soil contamination. The relatively high concentrations of volatile organic compounds detected in the source area suggests that plume may extent further under the building than shown. Having a larger plume displayed will do better to notify those who excavate soil or build on the property that residual contamination needs to be considered when conducting these activities. You may otherwise provide a detailed explanation as to how the extent of soil contamination is displayed correctly, which the DNR will review, or collect soil samples from under the building to more accurately define where contamination remains.

SMA's Response
SMA is not aware of any site data (quantitative or qualitative) that suggests the presence of soil contamination under the building. However, SMA understands the WDNR's desire to increase the size of the area of potentially impacted soil depicted on Figure 20 to provide a more conservative notification to those who may excavate soil and/or build on the property in the future. Therefore, as suggested, Figure 20 has been revised to show an increased area of potentially impacted soil and is provided in Attachment A to this letter.

3. VAPOR ASSESSMENT

WDNR's Comment

Additional actions will be needed to address the potential risk for vapor intrusion at this site. Since the initial closure request was submitted for this project there has been an increased awareness that air space in sewer laterals may provide an effective conduit for vapor migration. This is a separate pathway from migration through utility backfill material, which was previously investigated. Waste material dumped in the sewer, or contaminated groundwater or soil gas that enters through breaks in the pipes, and does not get flushed out, can produce vapors within the pipe. These vapors can then migrate into on-site or off-site buildings. The DNR is therefore asking that this pathway be investigated by collecting air sample(s) from the sewer line(s) leaving the site. Collecting a sample from a trap within the building is the preferred method for assessing this pathway but collecting one from an on-site manhole would be the next best option. Alternatively, you could identify the locations of sewer lines under the building and compare their location to the extent of contamination to demonstrate that these do not intersect. Contaminant concentrations detected in sub-slab vapor samples were compared to vapor risk screening levels developed for a large industrial building. A large industrial building is defined by having large open interior spaces without enclosed areas that vapor can collect. Briefly describe the interior and use of the southern half of the building to ensure that these screening levels apply. A maintenance plan for the sub-slab vapor mitigation system was previously submitted to the DNR. The maintenance activities outlined in the plan should be conducted while the system is operating. The maintenance plan must now be reviewed for accuracy and updated as needed if the ongoing operation of the system will be required as a condition of closure. Ensure that photos of the system, site contacts, and other information provided in the plan reflect current conditions. A copy of the revised maintenance plan must be provided to the DNR for review.

SMA's Response

The Site was initially developed in 1976 with the construction of a 14,500 ft^2 double walled steel building with an open floor plan and 18-foot ceilings. The north west quarter of the building is utilized for tunnel washers and driers. The northeast corner of the facility is utilized for shipping and receiving. The southern half of the building is utilized for ironers and folders. Small load dryers are present along the south wall. Subsurface utilities (water, sewer, and gas) run along East Holmes Avenue, under the truck dock and enter the building along the northern end of the east wall.

Following development of the Site in 1976, two additions have been constructed. The first was in 1979 with the completion of a 7,200 ft^2 addition to the north side of the building. This addition is used for "small load" washers and a linen cleaning area. Utilities serving this addition run from the southeast corner of the addition and connect to the main lines within the truck dock area.

The second addition was in 2005 with the completion of a 10,500 ft^2 addition on the east side of the building. The addition included office space and a cart build production area. Subsurface utilities serving this portion of the building include water and sewer lines associated with employee bathrooms / breakrooms. The subsurface utilities run to the north and connect to the main lines within the truck dock area.

D&C Partners have owned the property since 1994 and have a thorough knowledge of the facility operation, floor plan, and history. Prior to ownership by D&C Partners, the property was owned by Wolf Cleaners. Neither Wolf Cleaners[1] or D&C Partners operated the facility as a drycleaner and therefore no chlorinated solvents have been discharged through the sewer system.

To verify that there are no sewer lines within the southwest portion of the building, D&C Partners conducted a visual inspection on September 17, 2020 for evidence of floor drains, traps/cleanouts, vents, etc. that would indicate the presence of a sewer line. The visual inspection confirmed the historical knowledge that there are no sewer lines or other subsurface utilities within the southwest corner of the building.

This inspection found that the closest sewer line identified is associated with the tunnel washers, located approximately 140 feet north of the source area (MW-2 / MW-12). The sewer lines do not intersect the impacted soil at the southwest portion of the facility. Therefore, no further investigation of the sewer lines is warranted. The general layout of the facility, including construction dates, facility layout, and location of utilities is provided on the updated Figures 4, 20, and 23 in Attachment A to this letter.

Based on the analytical results of the proposed subslab sampling (item #5 below), continued operation of the SSDS system may not be required. However, the Operation and Maintenance Plan (O&M Plan) has been recently updated by D&C Partners. A copy of the updated plan is provided in Attachment B.

4. PROPOSED CAPPING PLAN

WDNR's Comment
The construction of an impervious barrier has been proposed along the western side of the site to prevent exposure to residual contamination. To obtain closure, a cap must be maintained in areas where soil contaminant concentrations exceed the direct contact residual contaminant level at depths shallower than four feet. No additional capping is required to address groundwater contamination as the plume appears to be stable under current conditions. However, impervious surfaces currently in place over residual soil contamination will be required to be maintained as a condition of closure to ensure that groundwater will continue to improve. Before the DNR can concur with a capping plan the limits of contamination posing a direct contact risk needs to be identified to demonstrate that the cap will cover this area.

SMA's Response
SMA has reviewed the soil analytical results with respect to the Industrial Direct Contact RCLs. The review identified two soil borings within the source area at the southwest corner of the property where contaminants exceeding the Industrial Direct Contact RCL values are present within 4 feet of the surface. These soil borings include:

- TW-2 (0-2') for 1,2,4-trimethylbenzene; and
- HP-6 (2-3') for trichloroethene.

Figure 4 has been updated to include a comparison of all samples collected within 4 feet of the surface to the Industrial Direct Contact RCLs. An updated Figure 4 is provided in Attachment A to this letter.

[1] Key Engineering Group LTD., *Status Report Technical Assistance Request*, dated November 5, 2014.

As noted by the WDNR above, the engineered barrier must be maintained in areas where soil contaminant concentrations exceed the Industrial Direct Contact RCLs and not the Protection of Groundwater RCLs. Therefore, the engineered barrier proposed in the SI/RAODR has been modified as follows:

Superior Health Linens
The engineered barrier on Superior property will consist of the existing asphalt pavement located along the western wall of the building. The engineered barrier will commence at the southwest corner of the building and extend north a distance of approximately 30 feet, and from the west wall of the Superior Health Linens building and extend west to the property line.

Union Pacific Railroad Property
The engineered barrier on Union Pacific Railroad property will consist of an asphalt cap and will be a continuation of the engineered barrier on Superior Health Linens property, extending west to the railroad embankment. The overall measurements of the engineered barrier will be approximately 30 feet in length by 15 feet in width. To maintain surface water drainage, a 12 to 24-inch diameter culvert will be installed within the shallow ditch. The culvert will be sloped to the north to facilitate proper drainage. The ditch will then be filled to grade with road stone, compacted and topped with approximately 3 to 4 inches of asphalt. The asphalt cap will be graded to direct surface water flow north and into the ditch beyond the engineered barrier. All soil excavated during the installation of engineered barrier will be characterized and disposed of in accordance with WDNR regulations.

An updated Figure 25, identifying the location of the revised engineered barrier on both Superior Health Linens and Union Pacific right-of-way is provided in Attachment A to this letter.

5. ADDRESSING THE VAPOR INTRUSION RISK WITHIN THE ON-SITE BUILDING

WDNR's Comment
You must evaluate remedial options for reducing the risk of vapor intrusion at the on-site building to satisfy the requirement of Wis. Admin. Code § NR 726.05(8). The construction of an impervious barrier over residual soil contamination is not considered a remedial action as it does not reduce contaminant mass. The DNR requests you reevaluate potential remedial options to determine what could be a practicable means of reducing contamination impacting sub-slab vapors. A potential remedial action would not need to be selected based on its potential to improve groundwater quality (which is being addressed through natural attenuation) or remove a direct contact risk if there will be enough surface barriers to prevent exposure. The DNR must approve of the assessment and any actions taken before case closure can be considered. As part of the evaluation you may choose to reexamine contaminant concentrations in soil gas under the building to determine if a vapor intrusion risk is still present. Earlier sub-slab samples did not indicate an extensive area of impacted soil vapor was present, it may be reasonable to collect sub-slab vapor samples to determine if conditions have changed over time. If sampling does not indicate that vapor concentrations pose a significant risk the requirement to conduct a remedial action would no longer apply. The collection of sub-slab vapor samples using high purge volume sampling could be used for this purpose if collected far enough from the outer walls of the building so results are not influenced by outdoor air. You may consider collecting indoor air samples as you proposed, in addition to the sub-slab samples, to assess the current risk of vapor intrusion.

SM&A
ST. JOHN - MITTELHAUSER & ASSOCIATES
A Terracon COMPANY

SMA's Response

The WDNR has expressed concerns regarding the high purge volume sub-slab sampling conducted in February 2013. According to the WDNR's publication RR-800 *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin*, each sampling point should be constructed at least 25 to 50 feet from outside walls to prevent influence of outside air. However, a review of the high purge volume subslab sampling points completed by Sigma indicates sample SSV-2 was completed approximately 14 feet from the southern exterior wall of the building and samples SSV-5 and SSV-4 were completed approximately 15 feet from the western exterior wall of the facility.

Based on this, WDNR suggests completing a second high purge volume sub-slab test in conjunction with the collection of indoor air samples to: 1) allow comparison to the analytical results of the February 2013 sampling event, 2) determine if conditions have changed over time, and 3) assess the current vapor intrusion risk.

SMA understands that if the analytical results of the subslab soil gas and indoor air samples meet the Vapor Risk Screening Levels (VRSL) and Vapor Action Levels (VAL) for large commercial industrial buildings, then the WDNR will consider the vapor intrusion pathway addressed and no further evaluation of a remedial technology to reduce the contaminant mass at the site is required. SMA will prepare and submit a sampling plan to the WDNR to complete a high purge volume, sub-slab sampling test. The conceptual location of the proposed high purge volume sampling point located a minimum of 50 feet from an exterior wall is shown on Figure 25. Once WDNR has agreed with this conceptual approach the scope of work and sampling plan will be submitted to the WDNR under separate cover.

We hope that this email addresses the concerns and comments you had relating to the SI/RAODR. Should you have any questions, or require additional information, please feel free to contact me at (815) 255-8300.

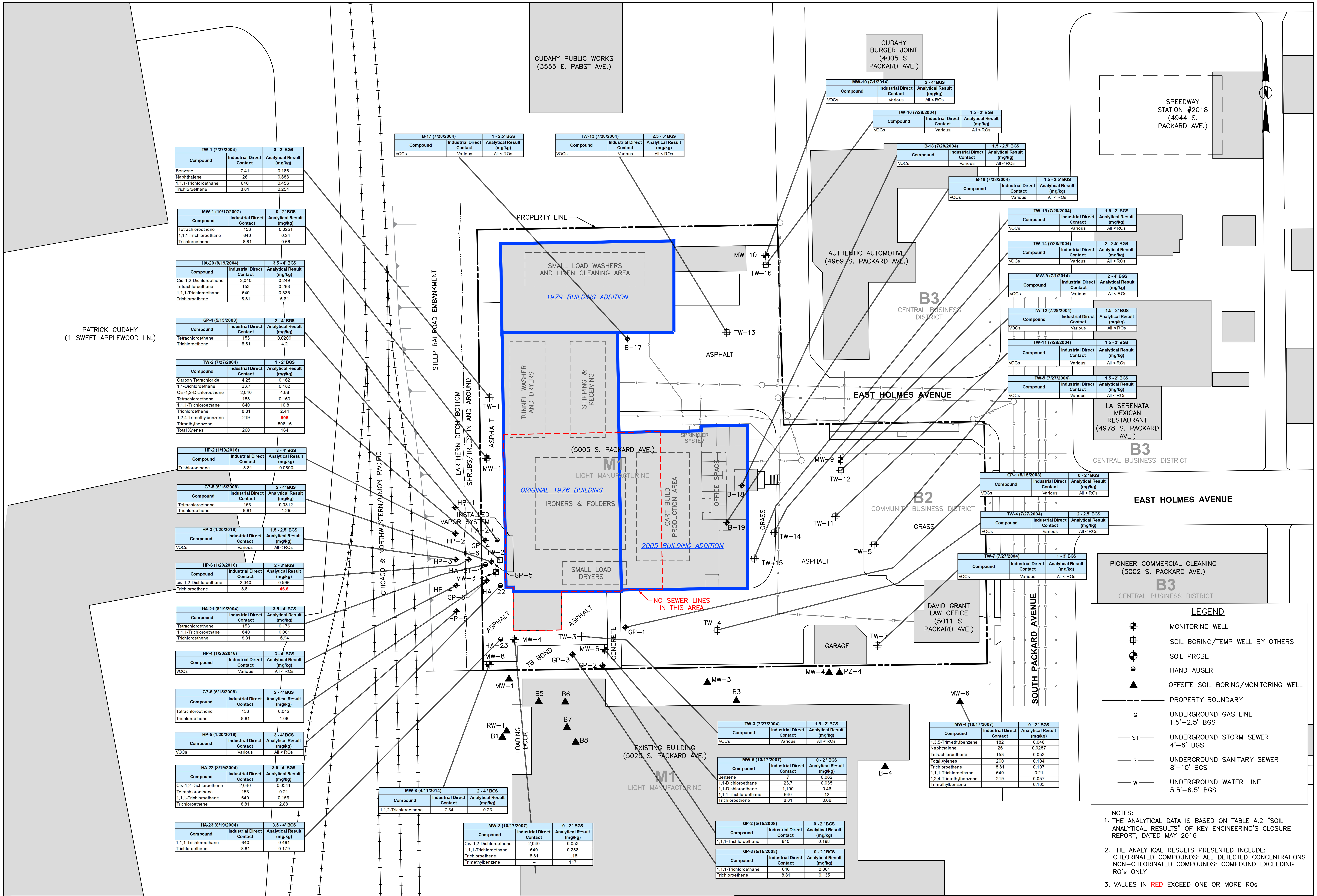
Sincerely,

Steven Swenson, P.G., CHMM
Senior Geologist
St. John – Mittelhauser & Associates, Inc., a Terracon Company

Attachments: Attachment A: Figures
Attachment B: Updated SSDS O&M Plan

cc: Jim Baumgartner, D&C Partners
Bill Nicklas, D&C Partners
M. Andrew Skwierawski, Davis & Kuelthau, s.c.
Nick Swartz, Superior Health Linens
Kevin Peterburs, Union Pacific Railroad

ATTACHMENT A



TW-1 (7/27/2004)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Benzene	7.41	0.166
Naphthalene	26	0.883
1,1,1-Trichloroethane	640	0.456
Trichloroethene	8.81	0.254

MW-1 (10/17/2007)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.0251
1,1,1-Trichloroethane	640	0.24
Trichloroethene	8.81	0.66

HA-20 (8/19/2004)		3.5 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2,040	0.249
Tetrachloroethene	153	0.268
1,1,1-Trichloroethane	640	0.335
Trichloroethene	8.81	5.81

GP-4 (5/15/2008)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.0209
Trichloroethene	8.81	4.2

TW-2 (7/27/2004)		1 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Carbon Tetrachloride	4.25	0.162
1,1-Dichloroethane	23.7	0.182
Cis-1,2-Dichloroethene	2,040	4.88
Tetrachloroethene	153	0.163
1,1,1-Trichloroethane	640	10.8
Trichloroethene	8.81	2.44
1,2,4-Trimethylbenzene	219	505
Trimethylbenzene	--	506.16
Total Xylenes	260	164

HP-2 (1/19/2016)		3 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Trichloroethene	8.81	0.0690

GP-5 (5/15/2008)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.0312
Trichloroethene	8.81	1.29

HP-3 (1/20/2016)		1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

HP-6 (1/20/2016)		2 - 3' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
cis-1,2-Dichloroethene	2,040	0.596
Trichloroethene	8.81	46.6

HA-21 (8/19/2004)		3.5 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.176
1,1,1-Trichloroethane	640	0.081
Trichloroethene	8.81	6.94

HP-4 (1/20/2016)		3 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

GP-6 (5/15/2008)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.042
Trichloroethene	8.81	1.08

HP-5 (1/20/2016)		3 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

HA-22 (8/19/2004)		3.5 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2,040	0.0341
Tetrachloroethene	153	0.21
1,1,1-Trichloroethane	640	0.156
Trichloroethene	8.81	2.88

HA-23 (8/19/2004)		3.5 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	0.491
Trichloroethene	8.81	0.179

B-17 (7/28/2004)		1 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-13 (7/28/2004)		2.5 - 3' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

MW-10 (7/1/2014)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-16 (7/28/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

B-18 (7/28/2004)		1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

B-19 (7/28/2004)		1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-15 (7/28/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-14 (7/28/2004)		2 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

MW-9 (7/1/2014)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-12 (7/28/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-11 (7/28/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-5 (7/27/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

GP-1 (5/15/2008)		0 - 2 ' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-4 (7/27/2004)		2 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-7 (7/27/2004)		1 - 3' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-3 (7/27/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

MW-5 (10/17/2007)		0 - 2 ' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Benzene	7	0.062
1,1-Dichloroethane	23.7	0.035
1,1-Dichloroethene	1,190	0.46
1,1,1-Trichloroethane	640	12
Trichloroethene	8.81	0.06

GP-2 (5/15/2008)		0 - 2 ' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	0.198

GP-3 (5/15/2008)		0 - 2 ' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	0.061
Trichloroethene	8.81	0.135

MW-4 (10/17/2007)		0 - 2 ' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,3,5-Trimethylbenzene	182	0.048
Naphthalene	26	0.0287
Tetrachloroethene	153	0.052
Total Xylenes	260	0.104
Trichloroethene	8.81	0.107
1,1,1-Trichloroethane	640	0.21
1,2,4-Trimethylbenzene	219	0.057
Trimethylbenzene	--	0.105

MW-8 (4/11/2014)		2 - 4 ' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,1,2-Trichloroethane	7.34	0.23

MW-3 (10/17/2007)		0 - 2 ' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2,040	0.053
1,1,1-Trichloroethane	640	0.288
Trichloroethene	8.81	1.18
Trimethylbenzene	--	117

LEGEND

- MONITORING WELL
- SOIL BORING/TEMP WELL BY OTHERS
- SOIL PROBE
- HAND AUGER
- OFFSITE SOIL BORING/MONITORING WELL
- PROPERTY BOUNDARY
- G — UNDERGROUND GAS LINE 1.5'–2.5' BGS
- ST — UNDERGROUND STORM SEWER 4'–6' BGS
- S — UNDERGROUND SANITARY SEWER 8'–10' BGS
- W — UNDERGROUND WATER LINE 5.5'–6.5' BGS

NOTES:

1. THE ANALYTICAL DATA IS BASED ON TABLE A.2 "SOIL ANALYTICAL RESULTS" OF KEY ENGINEERING'S CLOSURE REPORT, DATED MAY 2016
2. THE ANALYTICAL RESULTS PRESENTED INCLUDE: CHLORINATED COMPOUNDS: ALL DETECTED CONCENTRATIONS NON-CHLORINATED COMPOUNDS: COMPOUND EXCEEDING RO's ONLY
3. VALUES IN RED EXCEED ONE OR MORE ROs

CHECK BY:	SRS
DRAWN BY:	OS
DATE:	9–29–20
SCALE:	AS SHOWN
CAD NO.:	15011.01C21
PRJ NO.:	15–15011

SM&A
ST. JOHN-MITTELHAUSER & ASSOCIATES
A Terracon COMPANY

HISTORICAL SOIL ANALYTICAL RESULTS (SHALLOW <5' BGS)

SUPERIOR HEALTH LINENS
5005 SOUTH PACKARD AVENUE
CUDAHY, WISCONSIN

FIGURE
4

TW-1 (7/27/2004)				0 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	640	0.1402	0.456
1,2,4-Trichlorobenzene	98.7	22	0.408	0.4760
1,2,3-Trichlorobenzene	818	62.6	--	0.1470
Benzene	7.41	1.49	0.0051	0.166
Naphthalene	26	5.15	0.6582	0.883
Trichloroethene	8.81	1.26	0.0036	0.254

MW-1 (10/17/2007)				0 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Tetrachloroethene	153	30.7	0.0045	0.0251
1,1,1-Trichloroethane	640	640	0.1402	0.24
Trichloroethene	8.81	1.26	0.0036	0.66

HA-20 (8/19/2004)				3.5 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2040	156	0.0412	0.249
Tetrachloroethene	153	30.7	0.0045	0.268
1,1,1-Trichloroethane	640	640	0.1402	0.335
Trichloroethene	8.81	1.26	0.0036	5.81

TW-2 (7/27/2004)				1 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	640	0.1402	10.8
1,1-Dichloroethane	23.7	4.72	0.4834	0.182
1,2,4-Trichlorobenzene	98.7	22	0.408	0.0816
1,2,4-Trimethylbenzene	219	89.8	--	505
1,2,3-Trichlorobenzene	818	62.6	--	0.0758
Carbon Tetrachloride	4.25	0.845	0.0039	0.162
Cis-1,2-Dichloroethene	2040	156	0.0412	4.88
Ethylbenzene	37	7.47	1.57	12.6
Naphthalaene	26	5.15	0.6587	0.919
Tetrachloroethene	153	30.7	0.0045	0.163
Total Xylenes	260	260	3.96	164
Trichloroethene	8.81	1.26	0.0036	2.44
Trimethylbenzene	--	–	1.3821	506.16

HP-1 (1/19/2016)				2.5 - 3.5' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2040	156	0.0412	0.0724
Trichloroethene	8.81	1.26	0.0036	1.47

GP-4 (5/15/2008)				2 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Tetrachloroethene	153	30.7	0.0045	0.0209
Trichloroethene	8.81	1.26	0.0036	4.2

HP-2 (1/19/2016)				3 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Trichloroethene	8.81	1.26	0.0036	0.069

GP-5 (5/15/2008)				2 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Tetrachloroethene	153	30.7	0.0045	0.0312
Trichloroethene	8.81	1.26	0.0036	1.29

HP-3 (1/20/2016)				1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

HP-6 (1/20/2016)				2 - 3' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
cis-1,2-Dichloroethene	2040	156	0.0412	0.596
Trichloroethene	8.81	1.26	0.0036	46.6

HA-21 (8/19/2004)				3.5 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Tetrachloroethene	153	30.7	0.0045	0.176
1,1,1-Trichloroethane	640	640	0.1402	0.081
Trichloroethene	8.81	1.26	0.0036	6.94

MW-3 (10/17/2007)				0 - 2 ' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2040	156	0.0412	0.053
1,1,1-Trichloroethane	640	640	0.1402	0.288
Trichloroethene	8.81	1.26	0.0036	1.18
Trimethylbenzene	--	--	1.3821	117

HP-4 (1/20/2016)				3 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

HP-5 (1/20/2016)				3 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

GP-6 (5/15/2008)				2 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Tetrachloroethene	153	30.7	0.0045	0.042
Trichloroethene	8.81	1.26	0.0036	1.08

HA-22 (8/19/2004)				3.5 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2040	156	0.0412	0.0341
Tetrachloroethene	153	30.7	0.0045	0.21
1,1,1-Trichloroethane	640	640	0.1402	0.156
Trichloroethene	8.81	1.26	0.0036	2.88

HA-23 (8/19/2004)				3.5 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	640	0.1402	0.491
Trichloroethene	8.81	1.26	0.0036	0.179

B-17 (7/28/2004)				1 - 2.5' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

TW-13 (7/28/2004)				2.5 - 3' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

MW-10 (7/1/2014)				2 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

TW-16 (7/28/2004)				1.5 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

B-18 (7/28/2004)				1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

B-19 (7/28/2004)				1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

TW-15 (7/28/2004)				1.5 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

TW-14 (7/28/2004)				2 - 2.5' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

MW-9 (7/1/2014)				2 - 4' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

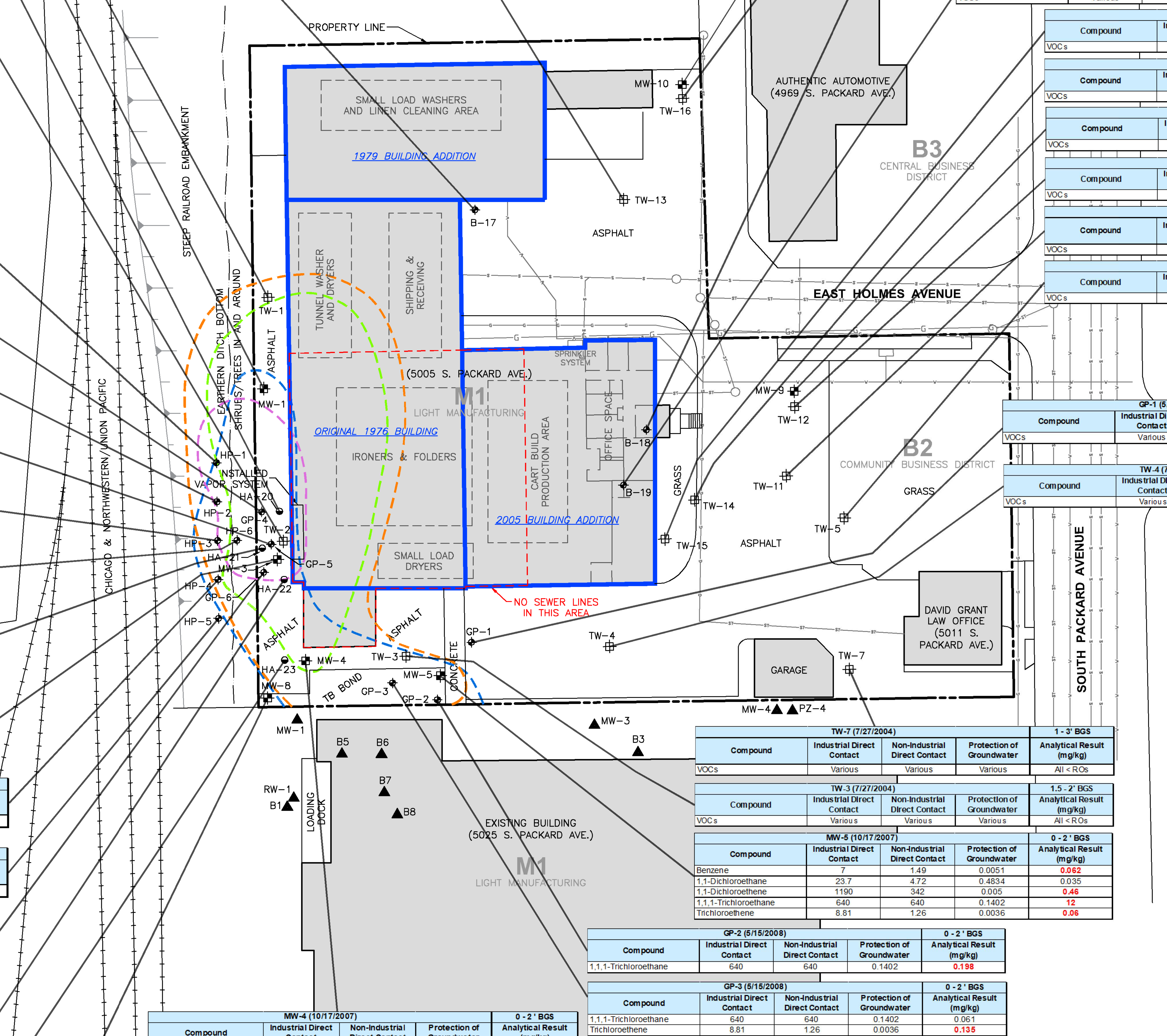
TW-12 (7/28/2004)				1.5 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

TW-11 (7/28/2004)				1.5 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

TW-5 (7/27/2004)				1.5 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

GP-1 (5/15/2008)				0 - 2 ' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

TW-4 (7/27/2004)				2 - 2.5' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs



TW-7 (7/27/2004)				1 - 3' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

TW-3 (7/27/2004)				1.5 - 2' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
VOCs	Various	Various	Various	All < ROs

MW-5 (10/17/2007)				0 - 2 ' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
Benzene	7	1.49	0.0051	0.062
1,1-Dichloroethane	23.7	4.72	0.4834	0.035
1,1-Dichloroethene	1190	342	0.005	0.46
1,1,1-Trichloroethane	640	640	0.1402	12
Trichloroethene	8.81	1.26	0.0036	0.06

GP-2 (5/15/2008)				0 - 2 ' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	640	0.1402	0.198

GP-3 (5/15/2008)				0 - 2 ' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	640	0.1402	0.061
Trichloroethene	8.81	1.26	0.0036	0.135

MW-4 (10/17/2007)				0 - 2 ' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	640	0.1402	0.21
Tetrachloroethene	153	30.7	0.0045	0.052
Trichloroethene	8.81	1.26	0.0036	0.107

MW-8 (4/11/2014)				2 - 4 ' BGS
Compound	Industrial Direct Contact	Non-Industrial Direct Contact	Protection of Groundwater	Analytical Result (mg/kg)
1,1,2-Trichloroethane	7.34	1.48	0.0032	0.23

LEGEND

- MONITORING WELL
- SOIL BORING/TEMP WELL BY OTHERS
- SOIL PROBE
- HAND AUGER
- OFFSITE SOIL BORING/MONITORING WELL
- PROPERTY BOUNDARY
- G — UNDERGROUND GAS LINE 1.5'–2.5' BGS
- ST — UNDERGROUND STORM SEWER 4'–6' BGS
- S — UNDERGROUND SANITARY SEWER 8'–10' BGS
- W — UNDERGROUND WATER LINE 5.5'–6.5' BGS

POTENTIAL EXTENT OF CONTAMINANTS EXCEEDING PROTECTION OF GROUNDWATER RCLs

- TCE
- PCE
- 1,1,1–TCA
- CIS–1,2–DCE

NOTES:

1. THE ANALYTICAL DATA IS BASED ON TABLE A.2 "SOIL ANALYTICAL RESULTS" OF KEY ENGINEERING'S CLOSURE REPORT, DATED MAY 2016
2. THE ANALYTICAL RESULTS PRESENTED INCLUDE: CHLORINATED COMPOUNDS: ALL DETECTED CONCENTRATIONS NON–CHLORINATED COMPOUNDS: COMPOUND EXCEEDING RO's ONLY
3. VALUES IN RED EXCEED ONE OR MORE ROs

SCALE IN FEET

0 20 40 80

CHECK BY:	SRS
DRAWN BY:	OS
DATE:	9–29–20
SCALE:	AS SHOWN
CAD NO.:	15011.01C14[2]
PRJ NO.:	15–15011

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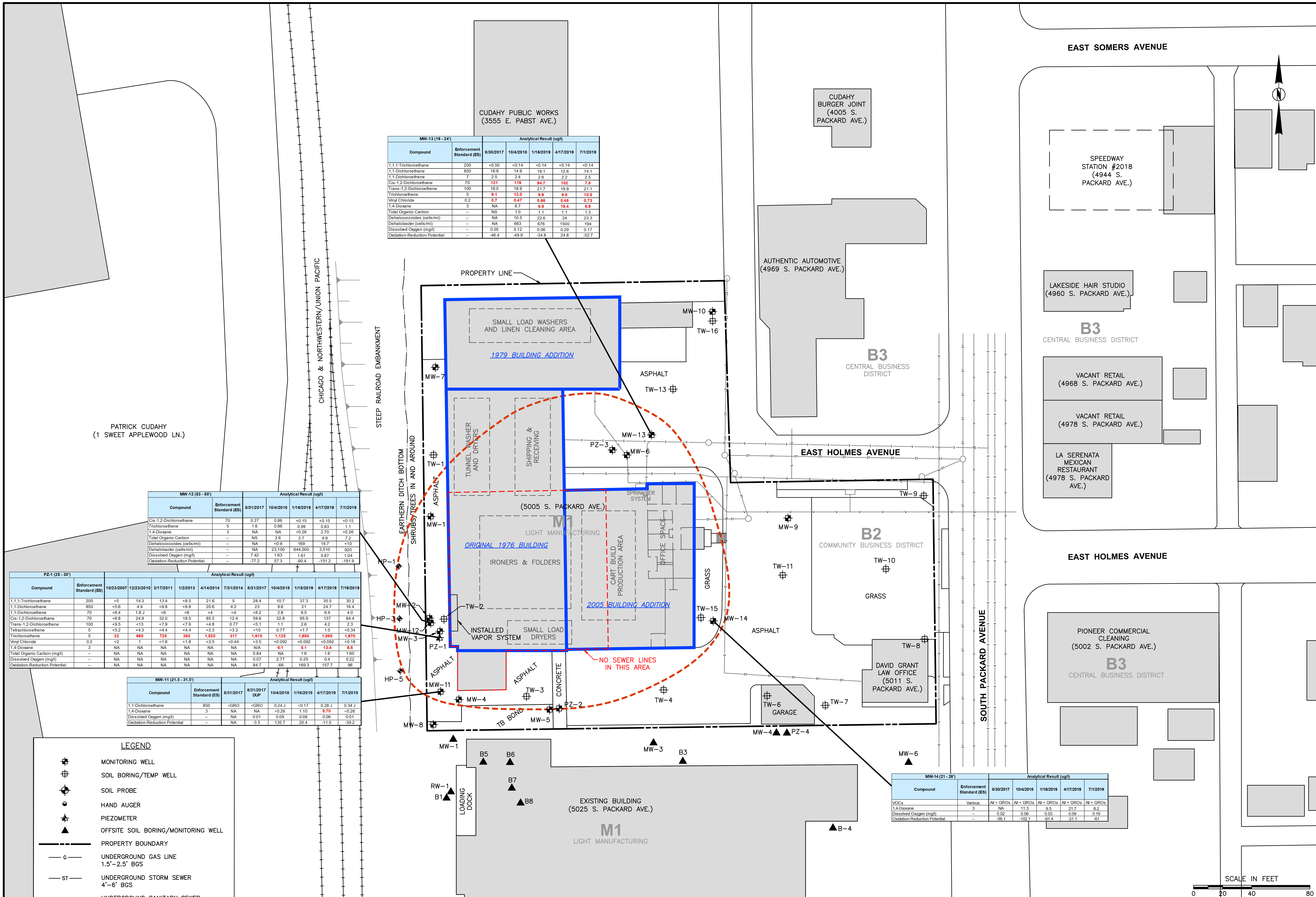
A Terracon COMPANY

POTENTIAL EXTENT OF SOILS EXCEEDING PROTECTION OF GROUNDWATER RCLs

SUPERIOR HEALTH LINENS
5005 SOUTH PACKARD AVENUE
CUDAHY, WISCONSIN

FIGURE 20



MW-13 (19 - 24')		Analytical Result (ug/l)				
Compound	Enforcement Standard (ES)	8/30/2017	10/4/2018	1/16/2019	4/17/2019	7/1/2019
1,1,1-Trichloroethane	200	<0.50	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethane	850	16.8	14.9	16.1	12.6	14.1
1,1-Dichloroethene	7	2.5	2.4	2.6	2.2	2.5
Cis-1,2-Dichloroethane	70	121	119	94.7	102	7.8
Trans-1,2-Dichloroethene	100	16.5	18.9	21.7	19.9	21.1
Trichloroethene	5	9.1	12.0	9.9	9.8	10.5
Vinyl Chloride	0.2	0.7	0.47	0.66	0.48	0.73
1,4-Dioxane	3	NA	6.7	6.9	19.4	6.9
Total Organic Carbon	--	NS	1.0	1.1	1.1	1.3
Dehalococcoides (cells/ml)	--	NA	10.5	22.6	24	23.3
Dehalobacter (cells/ml)	--	NA	663	676	1500	194
Dissolved Oxygen (mg/l)	--	0.05	0.12	0.06	0.29	0.17
Oxidation-Reduction Potential	--	-46.4	-49.9	-34.8	24.8	-52.7

MW-12 (53 - 58')		Analytical Result (ug/l)				
Compound	Enforcement Standard (ES)	8/31/2017	10/4/2018	1/16/2019	4/17/2019	7/1/2019
Cis-1,2-Dichloroethane	70	0.27	0.86	<0.15	<0.15	<0.15
Trichloroethene	5	1.6	0.86	0.99	0.83	1.1
1,4-Dioxane	3	NA	NA	<0.26	2.70	<0.26
Total Organic Carbon	--	NS	2.6	2.7	4.9	7.2
Dehalococcoides (cells/ml)	--	NA	<0.9	169	14.7	<10
Dehalobacter (cells/ml)	--	NA	23,100	644,000	3,510	920
Dissolved Oxygen (mg/l)	--	7.42	1.63	1.61	0.87	1.04
Oxidation-Reduction Potential	--	-77.2	57.3	-90.4	-151.2	-191.9

PZ-1 (25 - 30')		Analytical Result (ug/l)										
Compound	Enforcement Standard (ES)	10/23/2007	12/23/2010	3/17/2011	1/2/2013	4/14/2014	7/31/2014	8/31/2017	10/4/2018	1/15/2019	4/17/2019	7/19/2019
1,1,1-Trichloroethane	200	<5	14.3	13.4	<8.5	21.6	5	28.4	10.7	37.3	35.5	30.2
1,1-Dichloroethane	850	<5.6	4.9	<9.8	<9.8	20.6	4.2	23	9.6	21	24.7	16.4
1,1-Dichloroethene	70	<6.4	1.8 J	<6	<6	<4	<4	<8.2	2.8	6.5	6.9	4.0
Cis-1,2-Dichloroethane	70	<6.8	24.9	32.0	18.5	85.5	12.4	59.6	32.8	95.9	137	84.4
Trans-1,2-Dichloroethene	100	<9.5	<13	<7.9	<7.9	<4.8	0.77	<5.1	1.1	2.6	4.2	2.3
Tetrachloroethene	5	<5.2	<4.3	<4.4	<4.4	<3.3	<3.3	<10	0.77	<1.7	1.0	<0.34
Trichloroethene	5	32	660	720	380	1,520	317	1,610	1,120	1,650	1,850	1,670
Vinyl Chloride	0.2	<2	1	<1.8	<1.8	<3.5	<0.44	<3.5	<0.092	<0.092	<0.092	<0.18
1,4-Dioxane	3	NA	NA	NA	NA	NA	NA	N/A	6.1	8.1	13.4	6.5
Total Organic Carbon (mg/l)	--	NA	NA	NA	NA	NA	NA	0.84	NA	1.6	1.6	1.60
Dissolved Oxygen (mg/l)	--	NA	NA	NA	NA	NA	NA	0.07	2.77	0.25	0.4	0.22
Oxidation-Reduction Potential	--	NA	NA	NA	NA	NA	NA	84.7	-66	169.3	157.7	96

MW-11 (21.5 - 31.5')		Analytical Result (ug/l)					
Compound	Enforcement Standard (ES)	8/31/2017	8/31/2017 DUP	10/4/2018	1/16/2019	4/17/2019	7/1/2019
1,1-Dichloroethane	850	<GRO	<GRO	0.24 J	<0.17	0.28 J	0.34 J
1,4-Dioxane	3	NA	NA	<0.26	1.10	8.70	<0.26
Dissolved Oxygen (mg/l)	--	NA	0.01	0.09	0.08	0.06	0.01
Oxidation-Reduction Potential	--	NA	-3.5	135.7	20.4	-11.0	-39.2

MW-14 (21 - 26')		Analytical Result (ug/l)				
Compound	Enforcement Standard (ES)	8/30/2017	10/4/2018	1/16/2019	4/17/2019	7/1/2019
VOCs	Various	All < GROs	All < GROs	All < GROs	All < GROs	All < GROs
1,4-Dioxane	3	NA	11.3	9.5	21.7	8.2
Dissolved Oxygen (mg/l)	--	0.02	0.06	0.03	0.09	0.19
Oxidation-Reduction Potential	--	-56.1	-102.1	-61.4	-21.1	-61

NOTES:
1. THE ANALYTICAL RESULTS PRESENTED INCLUDE:
CHLORINATED COMPOUNDS: ALL DETECTED CONCENTRATIONS
NON-CHLORINATED COMPOUNDS: COMPOUND EXCEEDING RO's ONLY
2. VALUES IN RED EXCEED ONE OR MORE ROs

CHECK BY:	SRS
DRAWN BY:	OS
DATE:	9-28-20
SCALE:	AS SHOWN
CAD NO.:	15011.01C17[2C]
PRJ NO.:	15-15011

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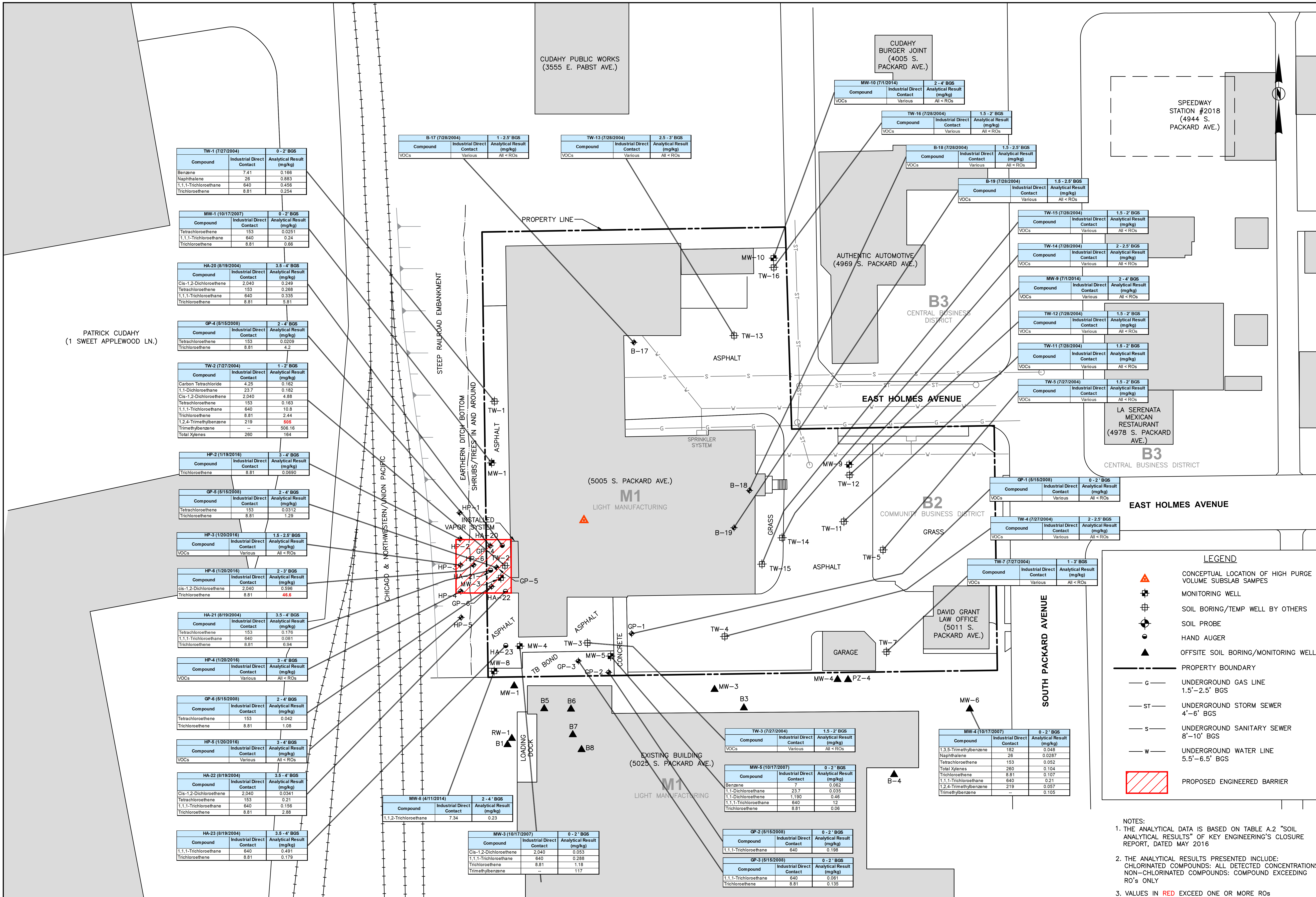
ST. JOHN-MITTELHAUSER & ASSOCIATES
A Terracon COMPANY

ESTIMATED EXTENT OF GROUNDWATER IMPACTS IN 30-FOOT SAND

SUPERIOR HEALTH LINENS
5005 SOUTH PACKARD AVENUE
CUDAHY, WISCONSIN

FIGURE
23



TW-1 (7/27/2004)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Benzene	7.41	0.166
Naphthalene	26	0.883
1,1,1-Trichloroethane	640	0.456
Trichloroethene	8.81	0.254

MW-1 (10/17/2007)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.0251
1,1,1-Trichloroethane	640	0.24
Trichloroethene	8.81	0.66

HA-20 (8/19/2004)		3.5 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2,040	0.249
Tetrachloroethene	153	0.268
1,1,1-Trichloroethane	640	0.335
Trichloroethene	8.81	5.81

GP-4 (5/15/2008)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.0209
Trichloroethene	8.81	4.2

TW-2 (7/27/2004)		1 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Carbon Tetrachloride	4.25	0.162
1,1-Dichloroethane	23.7	0.182
Cis-1,2-Dichloroethene	2,040	4.88
Tetrachloroethene	153	0.163
1,1,1-Trichloroethane	640	10.8
Trichloroethene	8.81	2.44
1,2,4-Trimethylbenzene	219	505
Trimethylbenzene	--	506.16
Total Xylenes	260	164

HP-2 (1/19/2016)		3 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Trichloroethene	8.81	0.0690

GP-5 (5/15/2008)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.0312
Trichloroethene	8.81	1.29

HP-3 (1/20/2016)		1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

HP-6 (1/20/2016)		2 - 3' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
cis-1,2-Dichloroethene	2,040	0.596
Trichloroethene	8.81	46.6

HA-21 (8/19/2004)		3.5 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.176
1,1,1-Trichloroethane	640	0.081
Trichloroethene	8.81	6.94

HP-4 (1/20/2016)		3 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

GP-6 (5/15/2008)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Tetrachloroethene	153	0.042
Trichloroethene	8.81	1.08

HP-5 (1/20/2016)		3 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

HA-22 (8/19/2004)		3.5 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2,040	0.0341
Tetrachloroethene	153	0.21
1,1,1-Trichloroethane	640	0.156
Trichloroethene	8.81	2.88

HA-23 (8/19/2004)		3.5 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	0.491
Trichloroethene	8.81	0.179

B-17 (7/28/2004)		1 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-13 (7/28/2004)		2.5 - 3' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

MW-10 (7/1/2014)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-16 (7/28/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

B-18 (7/28/2004)		1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

B-19 (7/28/2004)		1.5 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-15 (7/28/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-14 (7/28/2004)		2 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

MW-9 (7/1/2014)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-12 (7/28/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-11 (7/28/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-5 (7/27/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

GP-1 (5/15/2008)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-4 (7/27/2004)		2 - 2.5' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-7 (7/27/2004)		1 - 3' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

TW-3 (7/27/2004)		1.5 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
VOCs	Various	All < ROs

MW-5 (10/17/2007)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Benzene	7	0.062
1,1-Dichloroethane	23.7	0.035
1,1-Dichloroethene	1,190	0.46
1,1,1-Trichloroethane	640	12
Trichloroethene	8.81	0.06

GP-2 (5/15/2008)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	0.198

GP-3 (5/15/2008)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,1,1-Trichloroethane	640	0.061
Trichloroethene	8.81	0.135

MW-8 (4/11/2014)		2 - 4' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,1,2-Trichloroethane	7.34	0.23

MW-3 (10/17/2007)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
Cis-1,2-Dichloroethene	2,040	0.053
1,1,1-Trichloroethane	640	0.288
Trichloroethene	8.81	1.18
Trimethylbenzene	--	117

MW-4 (10/17/2007)		0 - 2' BGS
Compound	Industrial Direct Contact	Analytical Result (mg/kg)
1,3,5-Trimethylbenzene	182	0.048
Naphthalene	26	0.0287
Tetrachloroethene	153	0.052
Total Xylenes	260	0.104
Trichloroethene	8.81	0.107
1,1,1-Trichloroethane	640	0.21
1,2,4-Trimethylbenzene	219	0.057
Trimethylbenzene	--	0.105

LEGEND

- CONCEPTUAL LOCATION OF HIGH PURGE VOLUME SUBSLAB SAMPES
- MONITORING WELL
- SOIL BORING/TEMP WELL BY OTHERS
- SOIL PROBE
- HAND AUGER
- OFFSITE SOIL BORING/MONITORING WELL
- PROPERTY BOUNDARY
- G — UNDERGROUND GAS LINE 1.5'–2.5' BGS
- ST — UNDERGROUND STORM SEWER 4'–6' BGS
- S — UNDERGROUND SANITARY SEWER 8'–10' BGS
- W — UNDERGROUND WATER LINE 5.5'–6.5' BGS
- PROPOSED ENGINEERED BARRIER

NOTES:

1. THE ANALYTICAL DATA IS BASED ON TABLE A.2 "SOIL ANALYTICAL RESULTS" OF KEY ENGINEERING'S CLOSURE REPORT, DATED MAY 2016
2. THE ANALYTICAL RESULTS PRESENTED INCLUDE: CHLORINATED COMPOUNDS: ALL DETECTED CONCENTRATIONS NON-CHLORINATED COMPOUNDS: COMPOUND EXCEEDING RO's ONLY
3. VALUES IN RED EXCEED ONE OR MORE ROs

CHECK BY:	SRS
DRAWN BY:	OS
DATE:	9-29-20
SCALE:	AS SHOWN
CAD NO.:	15011.01C20
PRJ NO.:	15-15011

SM&A
ST. JOHN-MITTELHAUSER & ASSOCIATES
A Terracon COMPANY

PROPOSED ENGINEERED BARRIER OVER SAMPLES EXCEEDING INDUSTRIAL DIRECT CONTACT RCLs

SUPERIOR HEALTH LINENS
5005 SOUTH PACKARD AVENUE
CUDAHY, WISCONSIN

FIGURE
25

ST. JOHN - MITTELHAUSER & ASSOCIATES
A Terracon COMPANY

ATTACHMENT B

Sub-Slab Depressurization System (SSDS)
Operations & Maintenance Plan

1. VMS Description, Purpose and Location

Location

Superior Health Linens (SHL), 5005 South Packard Avenue, Cudahy Wisconsin
FID #241780880
BRTTS #02-41-532649

Date of Maintenance Plan

February 1, 2015

September 30, 2020

System Description

This document is the design and maintenance plan for an active sub-slab depressurization system (SSDS) commonly known as a Vapor Mitigation System (VMS) at the above referenced property in accordance with the requirements of S. NR 724.13 (2) Wisconsin Administrative Code. The SSDS is located in the southwest corner of the plant as shown by the System Location Diagram on page 4. The SSDS is a very simple, yet very effective system for removing harmful vapors from beneath the plant floor and was designed to remove possible vapors from the primary soil contaminants defined below. The system utilizes an industrial fan to create negative sub slab pressure to draw contaminated vapors out and exhaust them to the exterior of the building (see VMS Diagram on page 3).

Primary Soil Contaminants

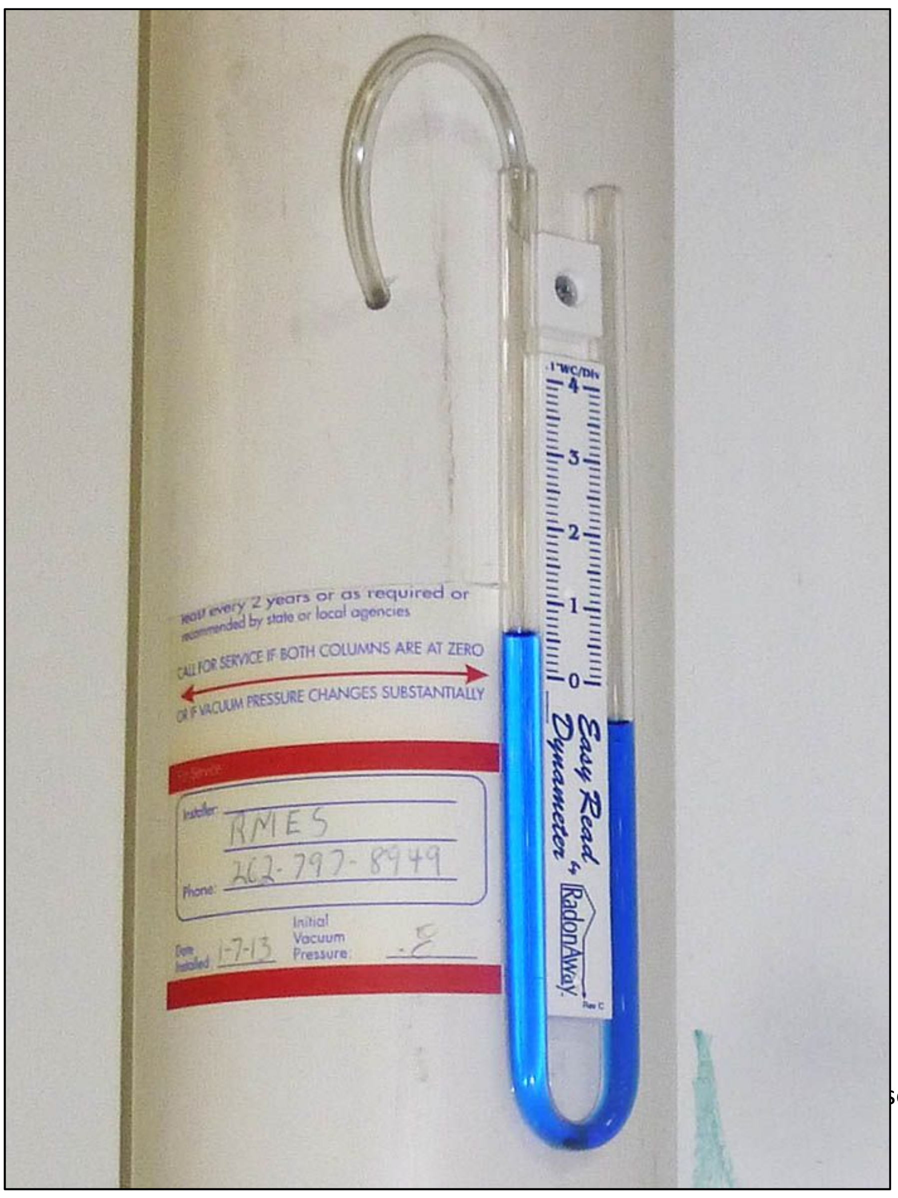
The primary contaminants in the soil are CVOC's, more specifically, Trichloroethene (TCE) and 1,1,1-Trichloroenthene (TCA). Breakdown products of TCE, cis-1-2 TCE has also been found in several soil samples.

2. VMS Design

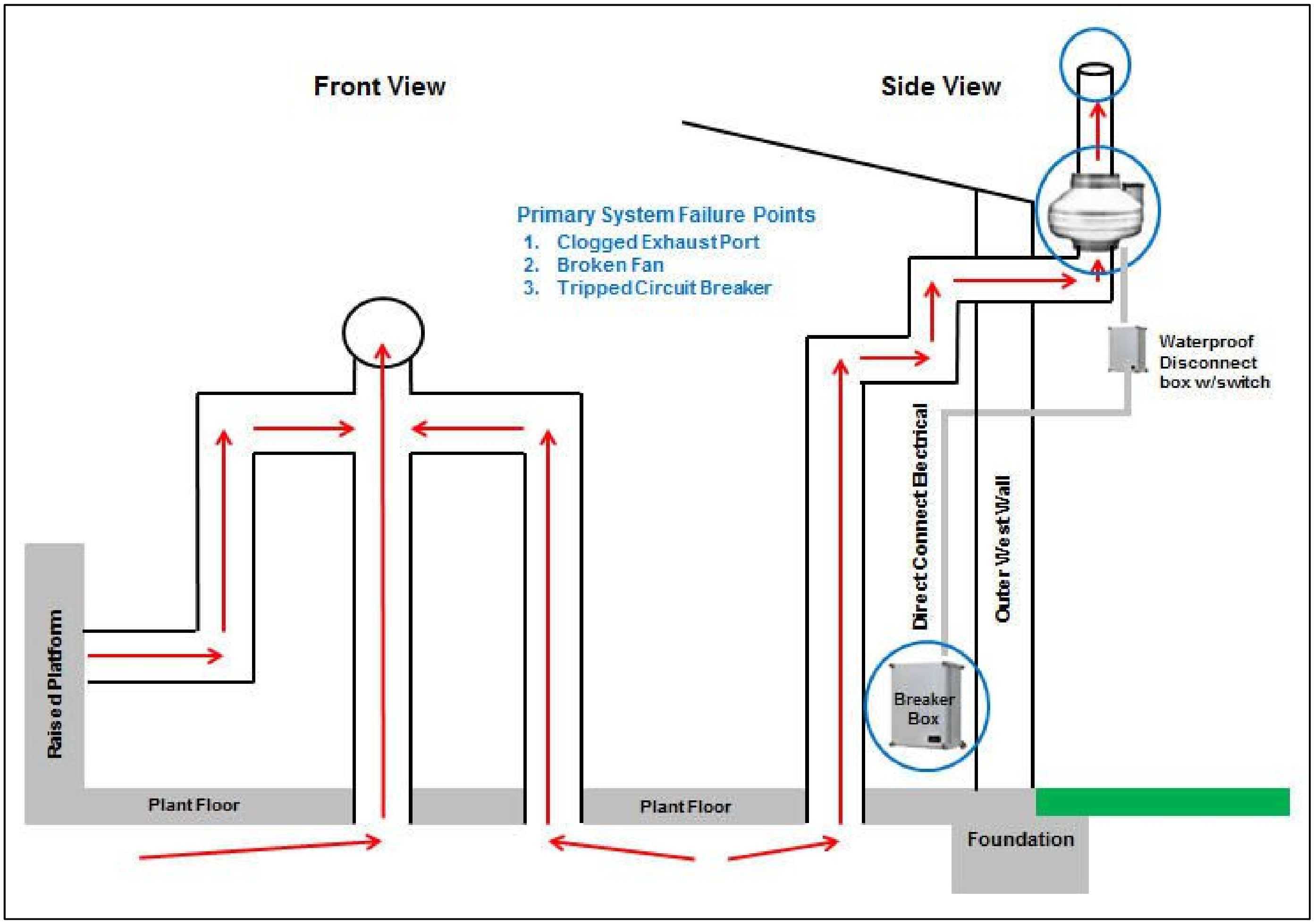
Construction Specifications

The Vapor Mitigation System is located in the southwest corner of the building (see VMS Location Diagram on page 4). Three 5" sub slab draw-points were bored through the interior cement floor of the building to expose sub-soil materials. These draw-points are placed as follows - one through the wall of the raised platform area, and two through the floor adjacent to the west factory wall, approximately 12" – 15" from the wall/foundation. The entire system is constructed of 4" Schedule 40 PVC material. The draw-points are connected by 4" risers that run vertical to a 4" manifold located on top of a ledge aproximately 7' off the floor. Another vertical riser runs from a central point in the manifold up approximately 3 feet and out through the sheet metal west wall to the exterior of the building. On the exterior of the building the vertical riser continues to a height of approximately 17'. The Vapor Mitigation System is powered by a UL listed RadonAway RP265 fan (see Specification Sheet on page 9). A 45 degree 6" PVC angle is attached to the top of the fan to point the exhaust up and away from the building (see photos 1 – 6 on pages 5 - 9). **Note – the louvers to the left of the of the vertical exhaust riser shown on photo 5, page 9 are exhaust louvers/fans.** Power to the fan is supplied by a separate 20 amp circuit that is hard-wired to a weatherproof disconnect box/switch. An Easy Read Dynameter Manometer is installed on one of the draw point risers to measure sub-slab vacuum pressure (see below). The VMS is currently at .6WC on 4" pipe, which equate to about 290cfm**.** The concrete floor is in good sound condition. All cracks or gaps in the concrete floor that may affect the efficiency of the system or cause back drafting were filled.

Post VMS testing completed by Key Engineering and RMES shows excellent sub-slab communication. The "area of influence" of the system is approximately +3,500 sq. ft. or 35' to 40' from each draw point (see attached APPENDIX A).



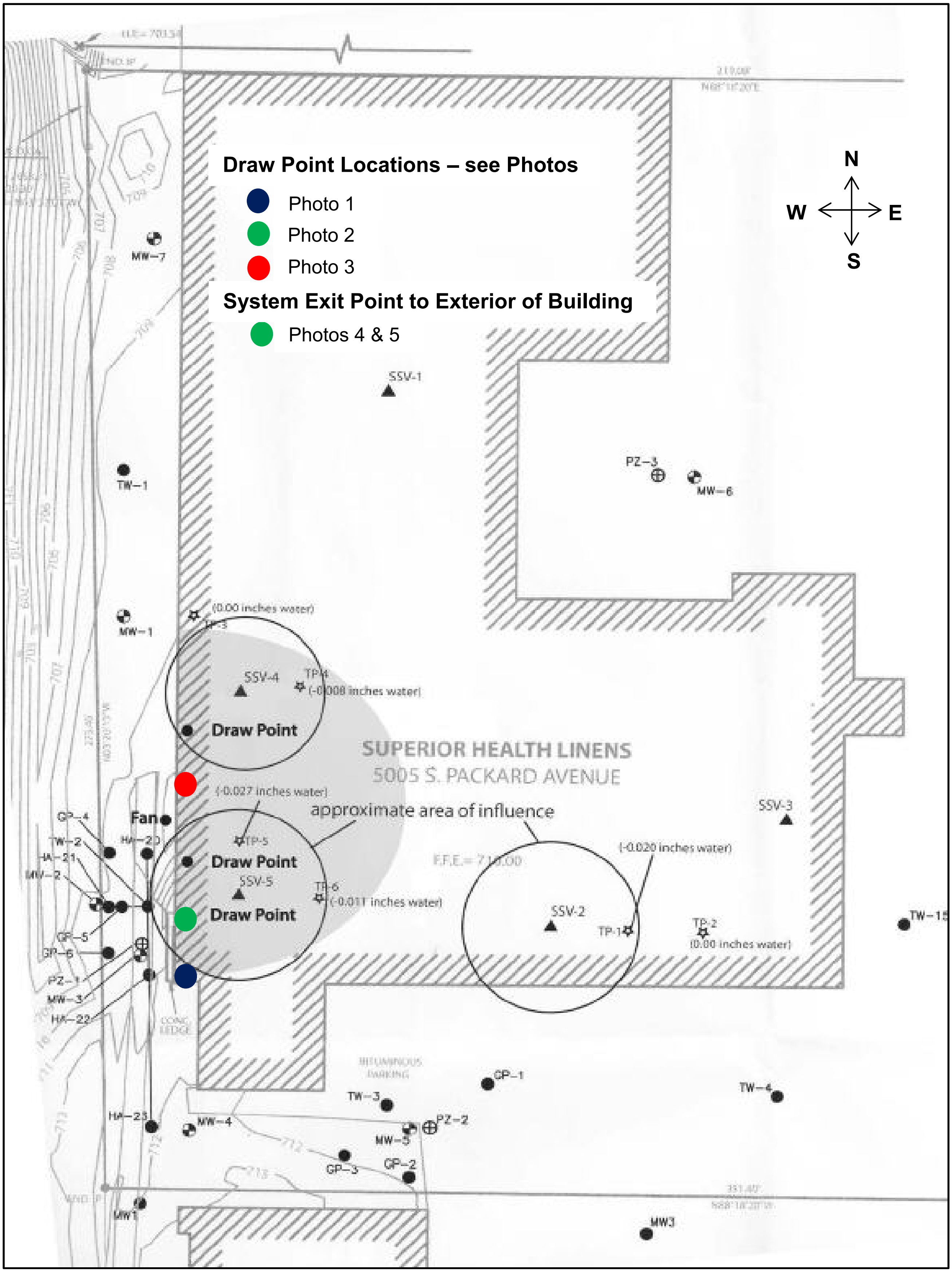
VMS Design Diagram



Failure/Monitoring Points

There are three primary potential areas where system failure can occur noted by the blue circles in the above VMS Design Diagram. 1) The external exhaust port could become clogged by debris; 2) The system fan could fail; 3) The circuit breaker could be tripped for some reason.

VMS Location Diagram



Revised 09-30-2020

Photo 1

Photo 2

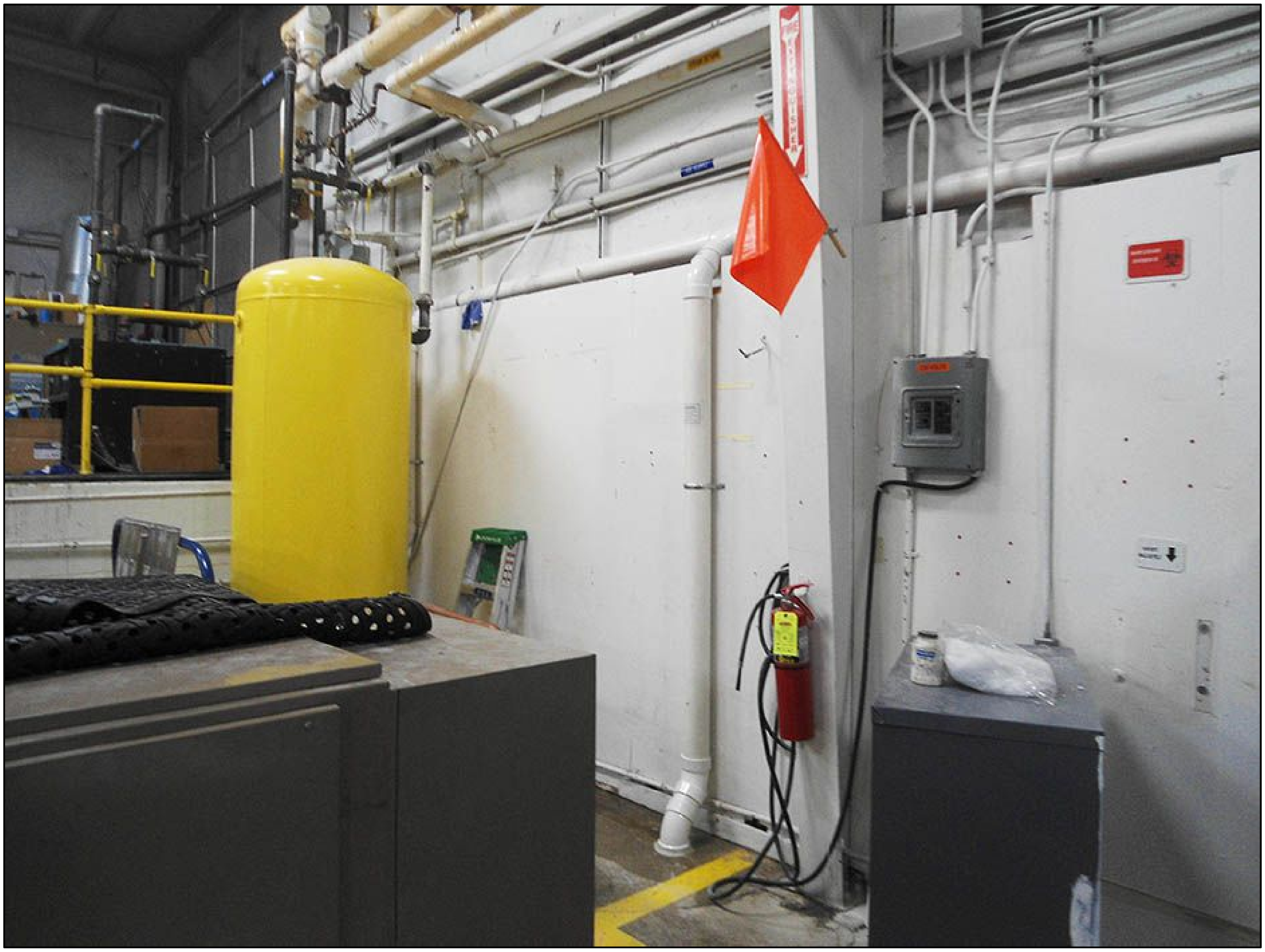


Photo 3

Photo 4

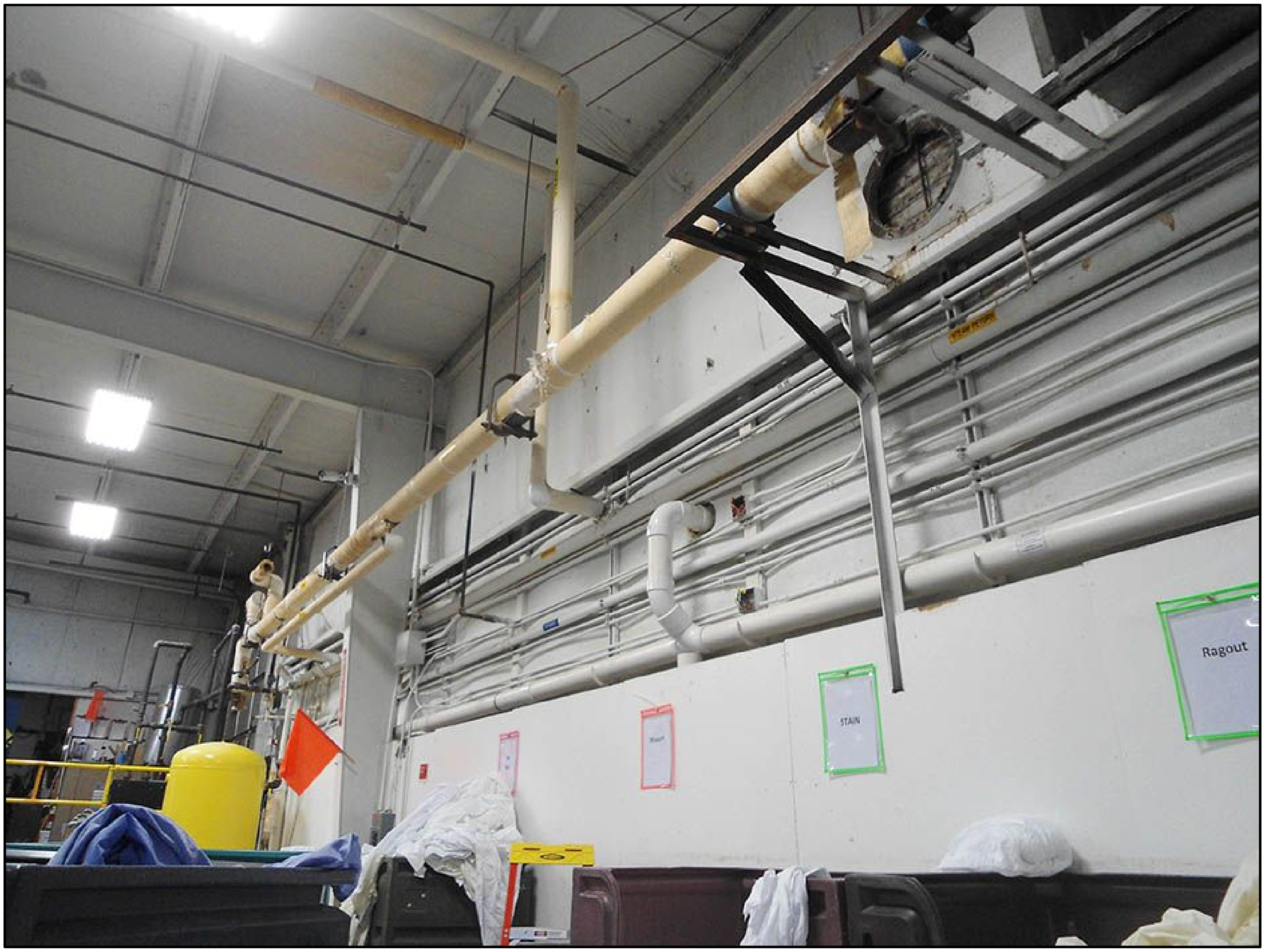


Photo 5

Note: louvers shown to the left of the vertical riser are exhaust louvers/fans

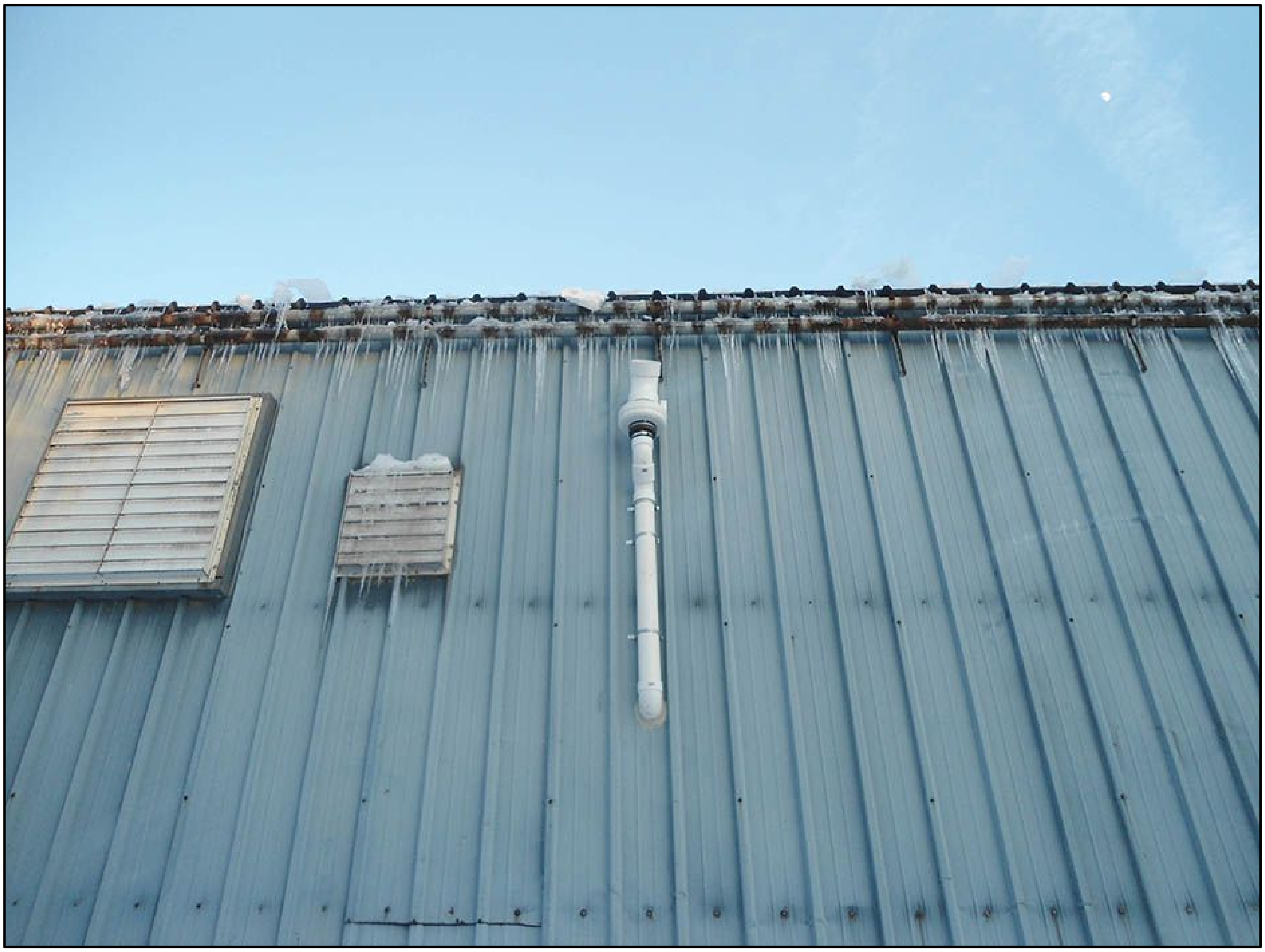
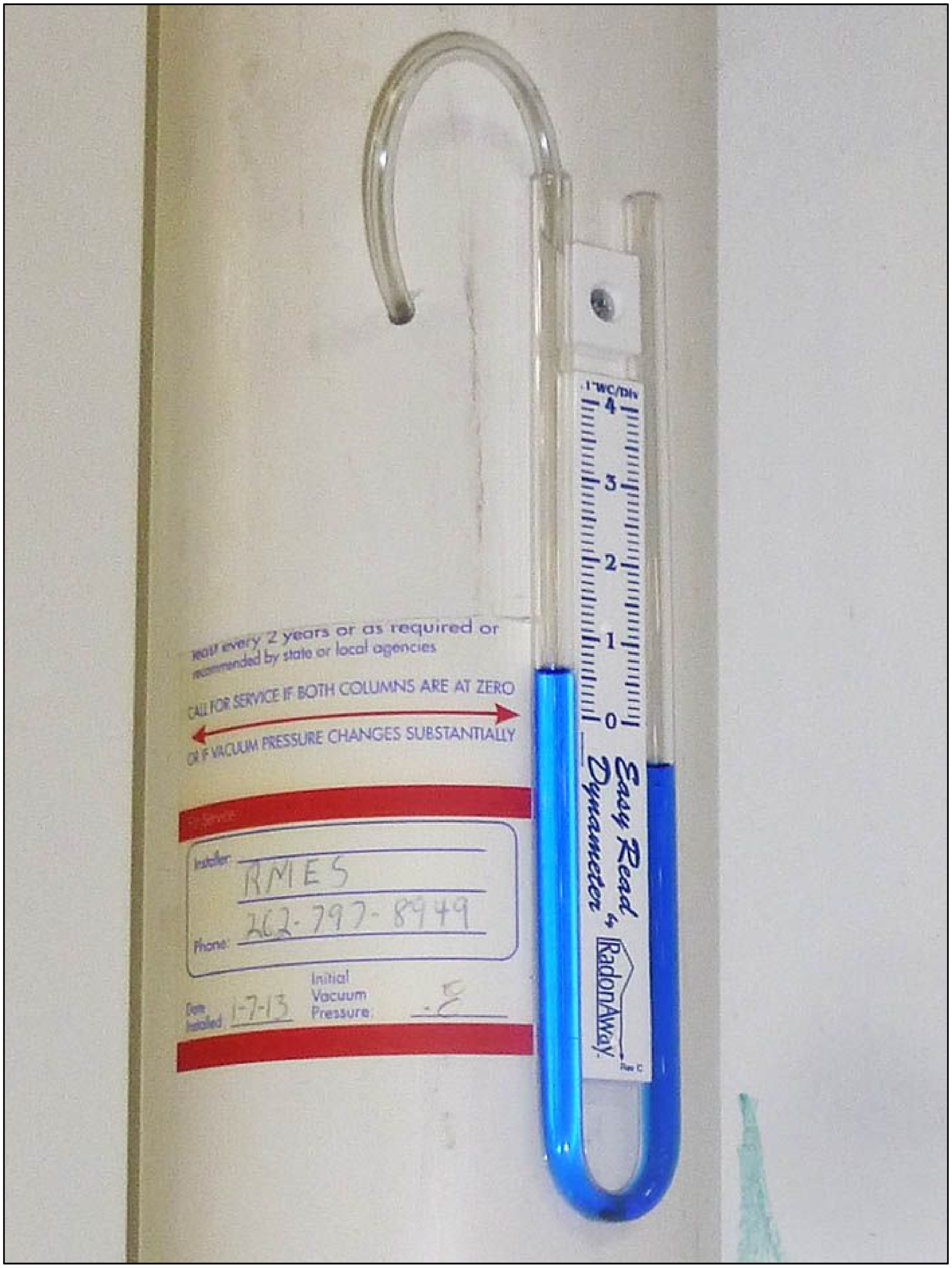


Photo 6

Manometer Installed on draw tube 3 as shown in Photo 3



3. VMS Maintenance

Required Maintenance of the VMS Fan/Blower

According to the manufacturer of the fan, there is no periodic maintenance required. The fan is an industrial model designed for exterior use. The motor is thermally protected. The fan body seams are sealed to inhibit vapor leaks and water intrusion, and the fan utilizes a water-hardened motorized impeller (see Fan Specification Sheet on page 12). The remaining elements of the system (PVC piping & electrical system) also do not require periodic maintenance.

Required Floor Maintenance

During the quarterly inspection of the system, the plant floor in the “area of influence”, defined as 35’ to 40’ from the draw points, must also be inspected to make sure old and new cracks are sealed. Maintenance of the cracks will be logged on the SHL VMS Inspection Log Sheet shown below.

Reassess the VMS System Due to Changes in the Use of the Space

Vapor intrusion tests of the facility were done using both high and low volume testing methods throughout the plant. These tests were performed during February, the coldest month of the year in Wisconsin when the plant was completely closed up and the HVAC systems were operating (plant overhead door are open during the spring, summer and fall). In the high volume test, negligible CVOC were detected at each of the test points. In the low volume test, one of the test points in the southwest corner of the plant registered CVOC slightly higher than WDNR guidelines which is what precipitated installing a VMS. Based on these facts, we feel strongly that changes in use of the facility space would not require a reassessment of vapor intrusion or the Vapor Mitigation System.

System Changes/Removal

In case of the need for system removal or replacement, a written request to and a formal written approval document from the WDNR would be required prior to system removal. If removal or replacement is approved the sub-slab vapor will need to be reassessed and sub-slab vapor testing will be required.

Note: All maintenance and changes to the SHL Vapor Mitigation System will be logged in the Inspection and Maintenance Log, WDNR Form 4400-305

Fan Specification Sheet

RadonAway™

The world's leading radon fan manufacturer

RP Series

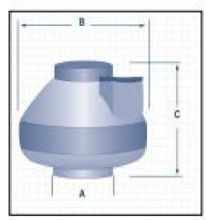
Radon Mitigation Fan

All RadonAway™ fans are specifically designed for radon mitigation. RP Series Fans provide superb performance, run ultra-quiet and are attractive. They are ideal for most sub-slab radon mitigation systems.

Features

- Energy efficient
- Ultra-quiet operation
- Meets all electrical code requirements
- Water-hardened motorized impeller
- Seams sealed to inhibit radon leakage (RP140 & RP145 double snap sealed)
- RP140 and RP260 Energy Star® Rated
- ETL Listed - for indoor or outdoor use
- Thermally protected motor
- Rated for commercial and residential use

MODEL	P/N	FAN DUCT DIAMETER	WATTS	MAX. PRESSURE"WC	TYPICAL CFM vs. STATIC PRESSURE WC				
					0"	.5"	1.0"	1.5"	2.0"
RP140*	23029-1	4"	15-21	0.8	135	70	-	-	-
RP145	23030-1	4"	41-72	2.1	166	126	82	41	3
RP260*	23032-1	6"	50-75	1.6	272	176	89	13	-
RP265	23033-1	6"	91-129	2.3	334	247	176	116	52
RP380*	28208	8"	95-152	2.3	497	353	220	130	38



Model	A	B	C
RP140	4.5"	9.7"	8.5"
RP145	4.5"	9.7"	8.5"
RP260	6"	11.75"	8.6"
RP265	6"	11.75"	8.6"
RP380	8"	13.41"	10.53"

*Energy Star® Rated

Made in USA with US and imported parts

ETL Listed

All RadonAway inline radon fans are covered by our 5-year, hassle-free warranty

For Further Information Contact

9/12
P/N 02008

Revised 09-30-2020

4. System & Plant Floor Inspection

The Vapor Mitigation System installed at 5005 South Packard Avenue is a very simple system. The only mechanical part of the system is the fan that draws air from the sub slab entry points shown in the VMS Design Diagram (page 3), System Location Diagram (page 4) and Photos 1, 2, & 3 (pages 5 – 7). Verification of an active and working system is also very easy and straightforward. In addition to making sure the VMS is operating properly, the plant floor will also be inspected to make sure that existing cracks and any new cracks are sealed properly. Cracks in the floor could reduce the effectiveness of the VMS.

System Operation Verification

Step 1 – Inspect the plant floor in the "area of influence" (35' to 40' from each of the draw points for unsealed cracks. If cracks are found, seal them with a high grade silicon sealer.

Step 2 - Inspect the Manometer to verify the system is maintaining negative sub slab pressure to .6 WC as shown on page 2. **If negative pressure is maintained, the system is operating properly.**

Step 3 (if required) - If the Manometer does not show negative sub slab pressure of 0.6 WC check to make sure the tube running into the draw stack is not plugged. If plugged, clean out the tube and reinstall it into the draw stack. If negative pressure is maintained, the system is operating properly. If there is not negative pressure move on to step number 4.

Step 4 (if required) - Check to make sure there is power to the fan by checking the circuit breaker. The fan is hard-wired directly to the fan and is on its own circuit. If the breaker is tripped, reset the breaker and make sure the system is operating properly by checking the Manometer for negative sub slab pressure. If the breaker immediately trips again, check the electrical circuit for a faulty breaker or possible short in the system. Once the electrical problem has been isolated and repaired, check the operation of the system by checking the Manometer for negative sub slab pressure.

Step 5 (if required) - If the breaker is not tripped check the operation of the fan located on the exterior of the building (see photo 5 on page 9). If the fan is not operating properly check to make sure the cutoff switch on the waterproof box is in the "ON" position. If there is power to the fan then the issue is with the fan. Replace the fan with one of similar specification shown on page 12.

Step 6 (if required) - If the fan is operating properly then inspect the vent stack to make sure nothing has blocked or prevented the sub slab air from being evacuated.

Inspection Frequency

The operation of the Vapor Mitigation System will be checked quarterly at the beginning of the month (March 1st, June 1st, September 1st, and December 1st) by the maintenance staff employed by Superior Health Linens (SHL).

An annual visual inspection of the system will also be performed. All areas of the system including the concrete floor, sub-slab entry points, riser pipe joints and piping will be inspected for cracking, defect or general deterioration.

Should any obvious damage to the system be observed during inspection and/or if the system is no longer functioning, repair of the damaged components must be completed immediately.

An inspection log listing key inspection items such as inspector, date, items inspected, state of the system, parts replaced, repairs needed and when follow up was completed must be filled out during each inspection and maintained on-site and available for viewing by all interested parties. If any problem(s) with the system is identified in 2 or more successive inspections SHL maintenance personnel will notify the current owners of the property (William Nicklas & James Baumgartner) at that time. The owners will in turn notify the Remediation & Redevelopment Program Case Manager at the Wisconsin Department of Natural Resources (WDNR). The form used will be the WDNR Inspection and Maintenance Log – Form 4400-305.

5. Notifications

Where changes in land or property use or system changes are required to be reported, include contact names, phone numbers and email addresses for the DNR/agency with administrative authority

Paul Grittner
Remediation & Redevelopment Program Case Manager
Wisconsin Department of Natural Resources
2300 N. Drive Martin Luther King Drive
Milwaukee, WI 53212-3128
Phone: (414) 405-0764

6. Contacts

Site Owner:	D & C Partners, LLP William J. Nicklas James S. Baumgartner Partners W223 N7858 Cherry Hill Road Sussex, WI 53089
Building Lessee:	Superior Health Linens, Inc. Nick Swartz General Manager 5005 South Packard Ave. Cudahy, WI 53110
Consultant:	St. John - Mittelhauser & Associates Ronald B. St. John, PHG, CPG Principal Hydrogeologist Steven R. Swenson, P.G., CHMM Senior Geologist 1401 Branding Ave, Suite 315 Downers Grove, IL 60515
Regulatory Authority:	Paul Grittner Hydrogeologist - Remediation and Redevelopment Bureau Wisconsin Department of Natural Resources 2300 N. Drive Martin Luther King Drive Milwaukee, WI 53212-3128 Phone: (414) 405-0764

APPENDIX A

POST VMS INSTALLATION TESTING

On Sunday, May, 17 2015 RMES, certified specialists in vapor elimination services in conjunction with Key Engineering Group conducted sub-slab vacuum pressure tests to determine the effectiveness of the VMS installed at 5005 South Packard Ave, Cudahy Wisconsin, and to establish the "area of influence" of the system.

<u>**Summary**</u>

As noted in the Operations & Maintenance document, the system uses 3 sub-slab draw points that are connected to a manifold that exhausts to the west exterior of the building. The exhaust fan is generating 0.6WC on 4" pipe which equates to about 290cfm and provides a negative vacuum pressure "area of influence" of +3,500 sq. ft. The tests were conducted using an Alnor^{tm} Micromanometer that measures down to 0.001 WC.

All of the vacuum pressure tests register negative sub-slab pressure – no positive pressure was recorded.

The first series of tests were done at approximately 35' to 40' away from each of the draw points to establish the maximum range of effectiveness of the system. Subsequent tests were done at various locations closer to each of the draw points.

The following diagram shows the location of each of the sub-slab vacuum tests along with the corresponding pressure reading. A photo of the pressure reading for each test location is also included.