



Memorandum

To: Christine Haag
From: John Feeney
Date: January 17, 2019
Subject: Proposed Scope of Work for Off-Site Vapor Intrusion Assessment
Quality Cleaners, 1226 11th Avenue, Grafton, WI
BRRTS #: 02-46-560212, FID #: 246166470

Site Background

The on-site building operated as a post office in the 1950s. Subsequently, a dry cleaner operated in the building from the 1960s until 2013, when, as part of a property transaction, a Phase II Environmental Site Assessment (ESA) conducted by Moraine Environmental identified PCE in soil and groundwater at the site. PCE was detected in soil under the floor slab at a concentration as high as 28,300 µg/kg. Moraine installed two NR 141 compliant monitoring wells to the east of the building and PCE was identified in the groundwater. In the most recent round of groundwater samples collected in 2016, PCE was at 15 µg/l in MW-1 (furthest from the building), and 85 µg/l in MW-2 (closer to the building). Groundwater flow is presumed to be to the east.

Sub-slab sampling in the on-site building and in the adjacent Leap Electric building to the north occurred in 2014. Results were above VRSLs in the on-site building and below VRSLs in Leap Electric. In 2015, a vapor mitigation system was installed in the on-site building. In June 2015, the responsible party passed away. Work at the site was discontinued by the estate (other than possibly mitigation system maintenance) after November 2016.

Refer to Attachment A for Site Maps and Soil and Groundwater Data Tables.

Purpose

The purpose of the proposed Off-site Vapor Intrusion Assessment (Assessment) is to determine the vapor intrusion risk to nearby commercial and residential buildings from PCE and TCE contamination in soil and groundwater originating at the Quality Cleaners site. The Assessment will include sub-slab, indoor air, and outdoor ambient air sampling. The following six (6) off-site properties have been identified for vapor sampling. See Figure 1:

1. Town of Grafton, 1102 Bridge Street
2. Seth's Antiques, 1233 12th Avenue
3. Ozslo Foods, Inc. (Slow Poke's Food), 1229-1231 12th Avenue
4. K&G Real Properties LLC, 1225-1227 12th Avenue
5. Photography by Michael, 1219 12th Avenue
6. Leap Electric, 1224 11th Avenue

All vapor sample collection procedures are to comply with the DNR guidance documents RR-800, and RR-986. Quality control measures must be employed to ensure the samples are representative of sub-surface vapor conditions. Summa canisters are to be used for the collection of gas samples from the indoor air, outdoor ambient air, and from the permanent sub-slab probes and analyzed with EPA method TO-15 for VOCs.

Work Scope

Work Item 1 – Request Site Access

Request access to the six (6) off-site properties listed above. The DNR has prepared documents requesting site access to collect vapor samples from the off-site properties. Responses are due on February 8, 2019.

Work Item 2 – Collect and Analyze Vapor Samples

Depending on the responses to site access, collect and submit for laboratory analysis, sub-slab, indoor air, outdoor ambient air samples as indicated below. Refer to Attachment B for the proposed vapor sampling locations.

A. Install sub-slab vapor probes and collect an initial round of sub-slab samples:

1. Town of Grafton, 1102 Bridge Street, two sub-slab vapor probes
2. Seth's Antiques, 1233 12th Avenue, two sub-slab vapor probes
3. Ozslo Foods, Inc. (Slow Poke's Food), 1229-1231 12th Avenue, one sub-slab vapor probe
4. K&G Real Properties LLC, 1225-1227 12th Avenue, one sub-slab vapor probe
5. Photography by Michael, 1219 12th Avenue, one sub-slab vapor probe
6. Leap Electric, 1224 11th Avenue (Note that this building may still have an existing probe from the 2014 sampling event.)

B. Collect indoor air samples in the second-floor residential spaces:

1. Ozslo Foods, Inc. (Slow Poke's Food), 1229-1231 12th Avenue
2. K&G Real Properties LLC, 1225-1227 12th Avenue
3. Photography by Michael, 1219 12th Avenue
4. Seth's Antiques, 1233 12th Avenue

C. Collect outdoor ambient air samples near the buildings with residential use:

1. Ozslo Foods, Inc. (Slow Poke's Food), 1229-1231 12th Avenue
2. K&G Real Properties LLC, 1225-1227 12th Avenue
3. Photography by Michael, 1219 12th Avenue
4. Seth's Antiques, 1233 12th Avenue

Provide documentation to the DNR that includes the laboratory reports with the analytical results, a map with the sampling locations, and a description of the sample collection methods. A vapor assessment report and data summary table are not being requested.

Work Item 3 – Perform Confirmation Vapor Sampling

If deemed necessary by the DNR, perform up to two additional vapor sampling rounds. Confirmation of sub-slab, indoor air, and outdoor ambient air sampling results from Work Item 2 may be necessary.

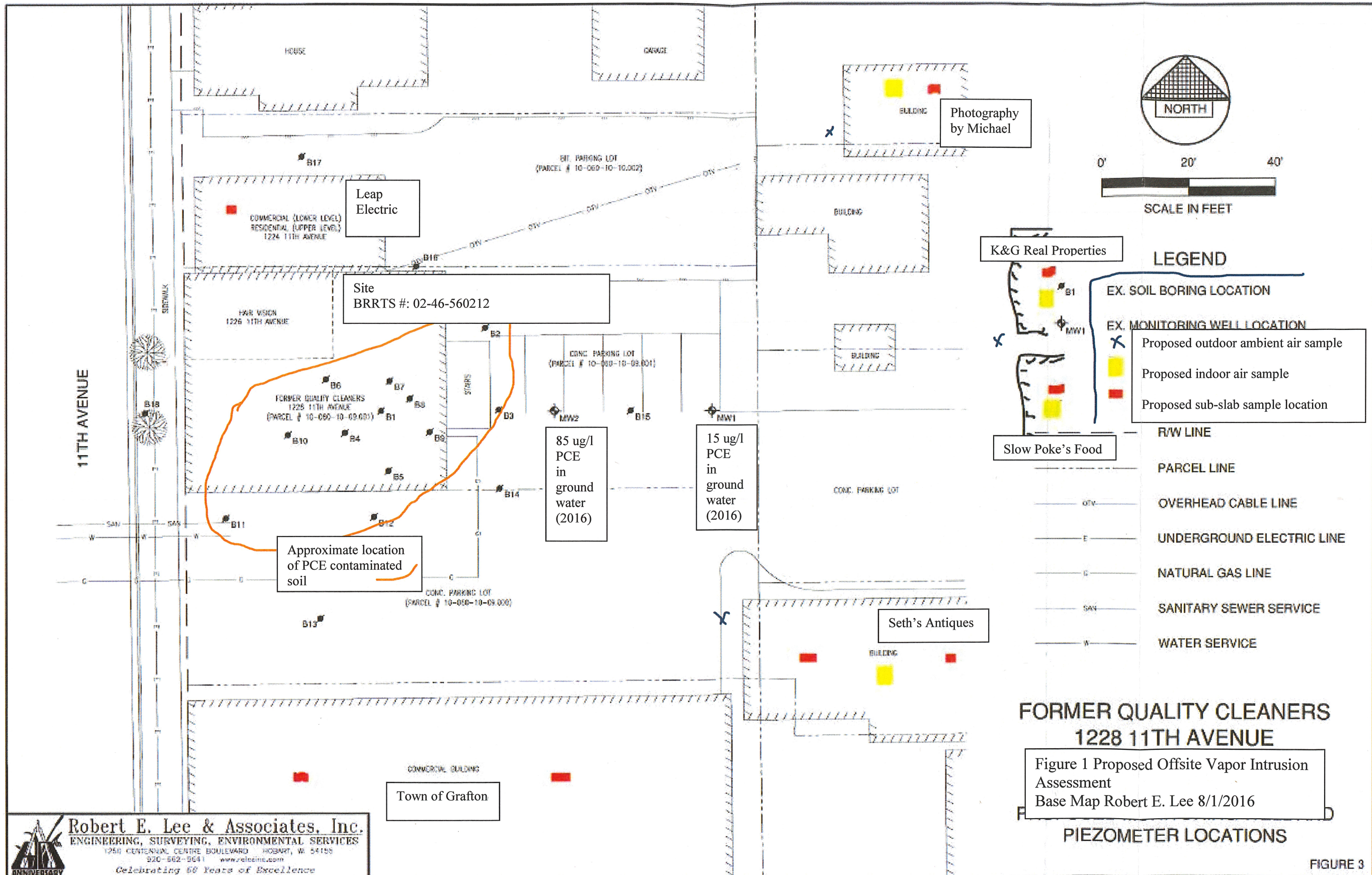
Provide documentation to the DNR that includes the laboratory reports with the analytical results, a map with the sampling locations, and a description of the sample collection methods. A vapor assessment report and data summary table are not being requested.

Work Item 4 – Abandon the Sub-Slab Vapor Sampling Probes

Following direction from the DNR, abandon the sub-slab vapor probes properly using acceptable techniques identified in RR-986.

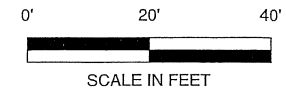
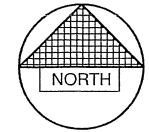
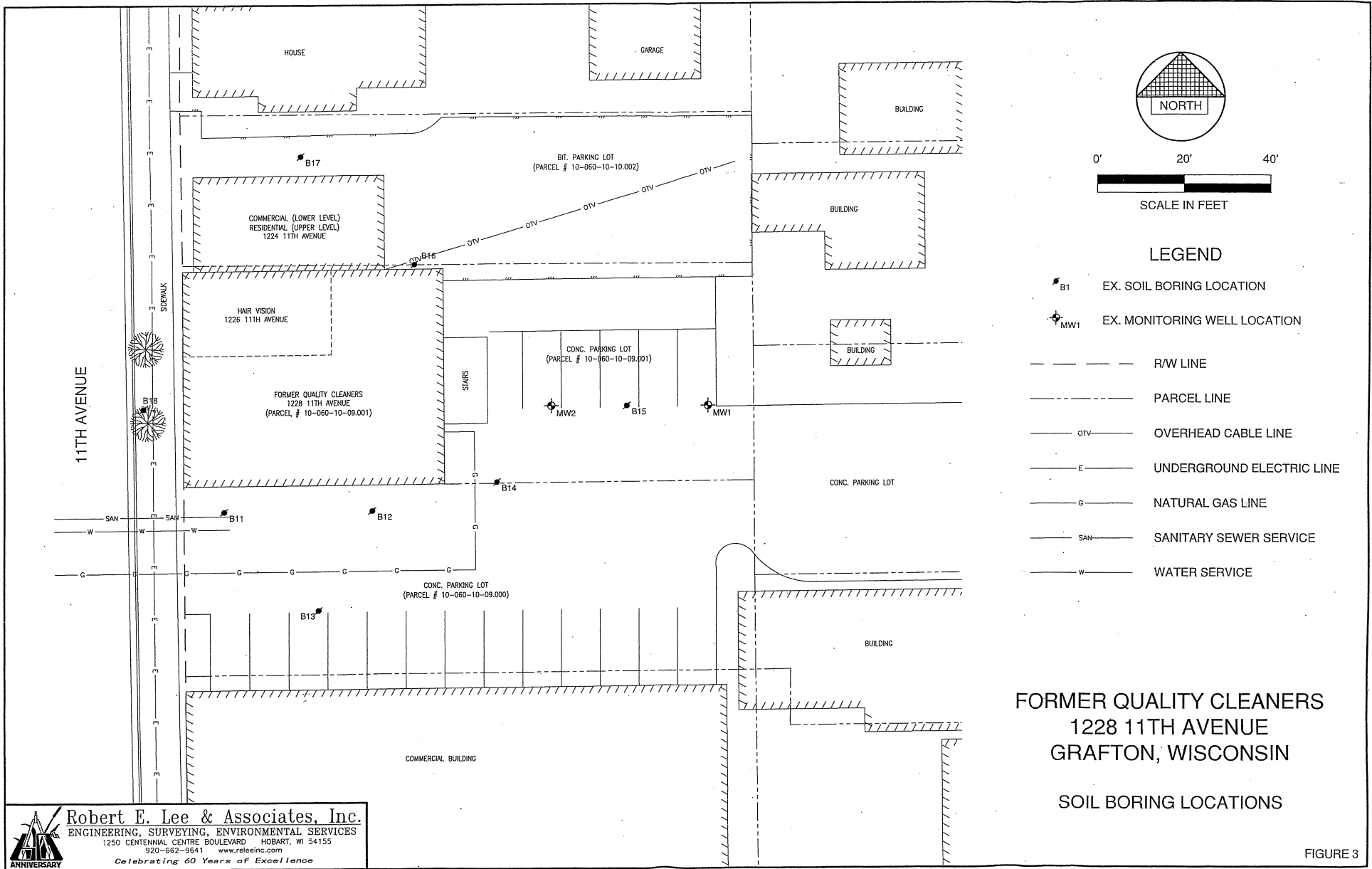
Next Steps

Results from this scope of work will be reviewed by the DNR to determine the necessity of further work to address off-site vapor impacts.



Attachment A

Site detail map, soil and groundwater tables



LEGEND

- B1 EX. SOIL BORING LOCATION
- MW1 EX. MONITORING WELL LOCATION
- R/W LINE
- PARCEL LINE
- OVERHEAD CABLE LINE
- UNDERGROUND ELECTRIC LINE
- NATURAL GAS LINE
- SANITARY SEWER SERVICE
- WATER SERVICE

**FORMER QUALITY CLEANERS
1228 11TH AVENUE
GRAFTON, WISCONSIN**

SOIL BORING LOCATIONS

FIGURE 3

Robert E. Lee & Associates, Inc.
 ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
 1250 CENTENNIAL CENTRE BOULEVARD HOBART, WI 54155
 920-682-9641 www.releeinc.com
 Celebrating 60 Years of Excellence

File: R:\5600\5630\5630001.dwg SITE PLAN.dwg
 Plot Date: Jun 17, 2016 - 9:24am

Table 1: VOC Soil Analytical Results Summary
Former Quality Cleaners; Grafton, Wisconsin

Sample ID and Depth	Date Sampled	Relevant and Significant VOC Analytical Results (ug/kg)																			
		Benzene	Bromobenzene	Bromodichloromethane	Bromoform	tert-Butylbenzene	sec-Butylbenzene	n-Butylbenzene	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	2-Chlorotoluene	4-Chlorotoluene	1,2-Dibromo-3-chloropropane	Dibromochloromethane	1,4-Dichlorobenzene	1,3-Dichlorobenzene	1,2-Dichlorobenzene	Dichlorodifluoromethane
Non-Industrial Direct Contact RCL		1,490	354,000	390	23,600	183,000	145,000	108,000	854	392,000	---	423	171,000	907,000	253,000	8	7,600	3,480	297,000	376,000	135,000
Groundwater Pathway RCL		5.1	---	0.3	2.3	---	---	---	3.9	135.8	226.6	3.3	15.5	---	---	0.2	32	144	1,152.8	1,168	3,086.3
B-1 (2')	2/21/2013	<250	<250	<250	<259	<250	<250	<404	<250	<250	<250	<250	<250	<250	<250	<82.3	<250	<250	<250	<444	<250
B-2 (6')	2/21/2013	<25	<25	<25	<25.9	<25	<25	<40.4	<25	<25	<25	<25	<25	<25	<25	<82.3	<25	<25	<25	<44.4	<25
B-3 (5')	2/21/2013	<25	<25	<25	<25.9	<25	<25	<40.4	<25	<25	<25	<25	<25	<25	<25	<82.3	<25	<25	<25	<44.4	<25
B-11 (1-3')	4/26/2016	<16	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43
B-12 (2-4')	4/26/2016	16.3 J	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43
B-13 (1-3')	4/26/2016	<16	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43
B-14 (2-4')	4/26/2016	<16	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43
B-14 (4-6')	4/26/2016	<16	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43
B-15 (2-4')	4/26/2016	<16	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43
B-16 (2-4')	4/26/2016	<16	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43
B-17 (2-4')	4/26/2016	26.1 J	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43
B-18 (2-4')	4/26/2016	<16	<39	<15	<23	<35	<36	<86	<21	<39	<45	<26	<250	<29	<32	<78	<31	<30	<30	<39	<43

Key:
 VOC = Volatile Organic Compounds
 J = Analyte detected between the Laboratory Limit of Detection and Laboratory Limit of Quantitation
 ug/kg = Micrograms per kilogram
 mg/kg = Milligrams per kilogram
 --- = Not included on WDNr's RR Program RCL Spreadsheet (December 2015)
 5.5 = Individual Direct Contact Residual Contamination Level (RCL) Exceeded
 3.3 = Groundwater Pathway RCL Exceeded
 * = Cumulative Direct Contact Exceeded for Multiple Contaminants at Sample Location
 -- = Not Analyzed

Note:
 1. Table includes only samples collected outside of the Site building. Samples collected from beneath the building slab are not included on this table.

Table 1: VOC Soil Analytical Results Summary
Former Quality Cleaners; Grafton, Wisconsin

Sample ID and Depth	Date Sampled	Relevant and Significant VOC Analytical Results (ug/kg)																
		1,2-Dichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	2,2-Dichloropropane	1,3-Dichloropropane	Diisopropyl ether	1,2-Dibromoethane (EDB)	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	p-Isopropyltoluene	Methyl-tert-butyl ether (MTBE)	Methylene Chloride	Napthalene
Non-Industrial Direct Contact RCL		608	4,720	342,000	156,000	1,560,000	1,330	191,000	1,490,000	2,260,000	47	7,470	1,510	268,000	162,000	59,400	60,700	5,150
Groundwater Pathway RCL		2.8	483.4	5	41.2	62.6	3.3	—	—	—	0.0282	1,570	—	—	—	27	2.6	658.12
B-1 (2')	2/21/2013	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<264	<250	<250	<250	<250	<250
B-2 (6')	2/21/2013	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<26.4	<25	<25	<25	<25	<25
B-3 (5')	2/21/2013	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<26.4	<25	<25	<25	<25	<25
B-11 (1-3')	4/26/2016	<30	<25	<29	<21	<24	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87
B-12 (2-4')	4/26/2016	<30	<25	<29	960	54 J	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87
B-13 (1-3')	4/26/2016	<30	<25	<29	<21	<24	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87
B-14 (2-4')	4/26/2016	<30	<25	<29	<21	<24	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87
B-14 (4-6')	4/26/2016	<30	<25	<29	<21	<24	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87
B-15 (2-4')	4/26/2016	<30	<25	<29	<21	<24	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87
B-16 (2-4')	4/26/2016	<30	<25	<29	<21	<24	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87
B-17 (2-4')	4/26/2016	<30	<25	<29	<21	<24	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87
B-18 (2-4')	4/26/2016	<30	<25	<29	<21	<24	<25	<100	<31	<12	<35	<27	<110	<37	<56	<25	<220	<87

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Former Quality Cleaners; Grafton, Wisconsin

Sample ID and Depth	Date Sampled	Relevant and Significant VOC Analytical Results (ug/kg)														
		n-Propylbenzene	1,1,2,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,2,4-Trichlorobenzene	1,2,3-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene (TCE)	Trichlorofluoromethane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl Chloride	Xylenes
Non-Industrial Direct Contact RCL		---	753	2,590	30,700	818,000	22,000	640,000	---	1,480	1,260	1,230,000	89,800	182,000	67	260,000
Groundwater Pathway RCL		---	0.2	53.4	4.5	1,107	408	---	140.2	3.2	3.6	---	1,382 (combined)	0.1	3,960	
B-1 (2')	2/21/2013	<250	<250	<250	68,700	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<750
B-2 (6')	2/21/2013	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<75
B-3 (5')	2/21/2013	<25	<25	<25	63 J	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<75
B-11 (1-3')	4/26/2016	<35	<13	<29	65 J	<31	<85	<120	<40	<33	<42	<60	<78	<89	<10	<99
B-12 (2-4')	4/26/2016	<35	<13	<29	119 J	<31	<85	<120	<40	<33	54 J	<60	<78	<89	<10	<99
B-13 (1-3')	4/26/2016	<35	<13	<29	<54	<31	<85	<120	<40	<33	<42	<60	<78	<89	<10	<99
B-14 (2-4')	4/26/2016	<35	<13	<29	<54	<31	<85	<120	<40	<33	<42	<60	<78	<89	<10	<99
B-14 (4-6')	4/26/2016	<35	<13	<29	66 J	<31	<85	<120	<40	<33	<42	<60	<78	<89	<10	<99
B-15 (2-4')	4/26/2016	<35	<13	<29	<54	<31	<85	<120	<40	<33	<42	<60	<78	<89	<10	<99
B-16 (2-4')	4/26/2016	<35	<13	<29	<54	<31	<85	<120	<40	<33	<42	<60	<78	<89	<10	<99
B-17 (2-4')	4/26/2016	<35	<13	<29	<54	110	<85	<120	<40	<33	<42	<60	<78	<89	<10	148 J
B-18 (2-4')	4/26/2016	<35	<13	<29	<54	<31	<85	<120	<40	<33	<42	<60	<78	<89	<10	<99

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* = Cumulative Direct Contact Exceeded for Multiple Contaminants at Sample Location
NA = Not Analyzed

Note:
1. Table includes only samples collected outside of the Site building. Samples collected from beneath the building slab are not included on this table.

**TABLE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY
FORMER QUALITY CLEANERS, GRAFTON, WI**

	NR 140 ES	NR 140 PAL	MW-1			MW-2		
			3/25/2013*	4/9/2014	4/26/2016	3/25/2013*	4/9/2014	4/26/2016
VOCS (µg/l)								
Benzene	5	0.5	<0.41	<0.24	<0.44	<8.2	<0.24	<0.44
Bromobenzene	NE	NE	<0.82	<0.32	<0.48	<16.4	<0.32	<0.48
Bromodichloromethane	0.6	0.06	<0.56	<0.37	<0.46	<11.2	<0.37	<0.46
Bromoform	4.4	0.44	<0.94	<0.35	<0.46	<18.8	<0.35	<0.46
tert-Butylbenzene	NE	NE	<0.97	<0.36	<1.1	<19.4	<0.36	<1.1
sec-Butylbenzene	NE	NE	<0.83	<0.33	<1.2	<17.8	<0.33	<1.2
n-Butylbenzene	NE	NE	<0.93	<0.35	<1	<18.6	<0.35	<1
Carbon tetrachloride	5	0.5	<0.49	<0.33	<0.51	<9.8	<0.33	<0.51
Chlorobenzene	NE	NE	<0.41	<0.24	<0.46	<8.2	<0.24	<0.46
Chloroethane	400	80	<0.97	<0.63	<0.65	<19.4	<0.63	<0.65
Chloroform	6	0.6	<1.3	<0.28	<0.43	<26.0	<0.28	<0.43
Chloromethane	30	3	<0.24	<0.81	10.8	<4.8	<0.81	<1.9
2-Chlorotoluene	NE	NE	<0.85	<0.21	<0.4	<17.0	<0.21	<0.4
4-Chlorotoluene	NE	NE	<0.74	<0.21	<0.63	<14.8	<0.21	<0.63
1,2-Dibromo-3-chloropropane	0.2	0.02	<1.7	<0.88	<1.4	<33.6	<0.88	<1.4
Dibromochloromethane	60	6	<0.81	<0.22	<0.45	<16.2	<0.22	<0.45
1,4-Dichlorobenzene	75	15	<0.95	<0.3	<0.49	<19.0	<0.3	<0.49
1,3-Dichlorobenzene	600	120	<0.87	<0.28	<0.52	<17.4	<0.28	<0.52
1,2-Dichlorobenzene	600	60	<0.83	<0.36	<0.46	<16.6	<0.36	<0.46
Dichlorodifluoromethane	1000	200	<0.99	<0.44	<0.87	<19.8	1.23 J	<0.87
1,2-Dichloroethane	5	0.5	<0.36	<0.41	<0.48	<7.2	<0.41	<0.48
1,1-Dichloroethane	850	85	<0.99	<0.3	<1.1	<15.0	<0.3	<1.1
1,1-Dichloroethene	7	0.7	<0.75	<0.4	<0.65	<11.4	<0.4	<0.65
cis-1,2-Dichloroethene	70	7	<0.83	<0.38	<0.45	<16.6	<0.38	<0.45
trans-1,2-Dichloroethene	100	20	<0.89	<0.35	<0.54	<17.8	<0.35	<0.54
1,2-Dichloropropane	5	0.5	<0.49	<0.32	<0.43	<9.8	<0.32	<0.43
2,2-Dichloropropane	NE	NE	<0.62	<0.36	<3.1	<12.4	<0.36	<3.1
1,3-Dichloropropane	0.4	0.04	<0.61	<0.33	<0.42	<12.2	<0.33	<0.42
Di-isopropyl ether	NE	NE	<0.76	<0.23	<0.44	<15.2	<0.23	<0.44
1,2-Dibromoethane (EDB)	0.05	0.005	<0.56	<0.44	<0.63	---	<0.44	<0.63
Ethylbenzene	700	140	<0.54	<0.55	<0.71	<10.8	<0.55	<0.71
Hexachlorobutadiene	NE	NE	<0.67	<1.5	<2.2	<13.4	<1.5	<2.2
Isopropylbenzene	NE	NE	<0.59	<0.3	<0.82	<11.8	<0.3	<0.82
p-Isopropyltoluene	NE	NE	<0.67	<0.31	<1.1	<13.4	<0.31	<1.1
Methylene Chloride	5	0.5	<0.43	<0.5	<1.3	<8.6	<0.5	<1.3
Methyl-tert-butyl ether (MTBE)	60	12	<0.61	<0.23	<1.1	<12.2	<0.23	<1.1
Naphthalene	100	10	<0.89	<1.7	<1.6	<17.8	<1.7	<1.6
n-Propylbenzene	NE	NE	<0.81	<0.25	<0.77	<16.2	<0.25	<0.77
1,1,2,2-Tetrachloroethane	0.2	0.02	<0.20	<0.45	<0.52	<4.0	<0.45	<0.52
1,1,1,2-Tetrachloroethane	70	7	<0.92	<0.33	<0.48	<18.4	<0.33	<0.48
Tetrachloroethene (PCE)	5	0.5	32.9	61	15.3	896	550	85
Toluene	800	160	0.67 J	<0.69	<0.44	<13.4	<0.69	<0.44
1,2,4-Trichlorobenzene	70	14	<0.97	<0.98	<1.7	<19.4	<0.98	<1.7
1,2,3-Trichlorobenzene	NE	NE	<0.74	<1.8	<2.7	<14.8	<1.8	<2.7
1,1,1-Trichloroethane	200	40	<0.90	<0.33	<0.84	<18	<0.33	<0.84
1,1,2-Trichloroethane	5	0.5	<0.42	<0.34	<0.48	<8.4	<0.34	<0.48
Trichloroethene (TCE)	5	0.5	<0.48	<0.33	<0.47	<9.6	0.39 J	<0.47
Trichlorofluoromethane	NE	NE	<0.79	<0.71	<0.87	<15.8	<0.71	<0.87
Trimethylbenzenes	480	96	<1.8	<3.6	<3.1	<3.6	<3.6	<3.1
Vinyl chloride	0.2	0.02	<0.18	<0.18	<0.17	<3.6	<0.18	<0.17
Xylene	2000	400	<2.63	<1.32	<3.1	<36	<1.32	<3.1
Geochemical Parameters								
Temperature (°C)	NE	NE	---	7.48	8.71	---	7.99	9.46
Conductivity (µS/cm)	NE	NE	---	4648	949	---	1473	635
DO (mg/L)	NE	NE	---	7.32	3.19	---	8.61	2.65
ORP (mV)	NE	NE	---	85.1	145.8	---	83.6	142.1
pH (su)	NE	NE	---	6.44	6.7	---	6.72	6.92

Key:

µg/L = Micrograms per liter

J = Analyte detected between laboratory limit of detection and limit of quantitation.

--- = Samples were collected by Moraine Environmental, Inc.

NE = Not Analyzed

10 = Exceeds Chapter NR 140 Preventive Action Limit (PAL)

100 = Exceeds Chapter NR 140 Enforcement Standard (ES)