

Thompson, Matthew A - DNR

From: Matthew Michalski <mmichalski@reiengineering.com>
Sent: Friday, July 9, 2021 2:35 PM
To: Thompson, Matthew A - DNR
Cc: Brian Bailey
Subject: Vapor Analytical Results - Fong Family, LLC (BRRS# 02-37-587441)
Attachments: 9640a-B.1.b Detailed Site Map.pdf; 9640a-Vapor Analytical Results.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Mr. Thompson,

On June 29, 2021, REI Engineering, Inc. (REI) personnel installed two (2) sub-slab vapor ports at the Fong Family, LLC site in Wausau, WI. Sub-slab vapor samples were collected from both ports following installation and one (1) sewer gas sample was collected from the sanitary sewer system for the structure. Attached are and updated site map depicting the sub-slab vapor and sewer gas sample locations and the tables summarizing the vapor analytical results. These results are being submitted per the June 25, 2021 Site Investigation Report Review e-mail. Please let me know if you have any questions or need any additional information.

Thank you,

Matthew Michalski

Matthew Michalski, P.G. – Hydrogeologist






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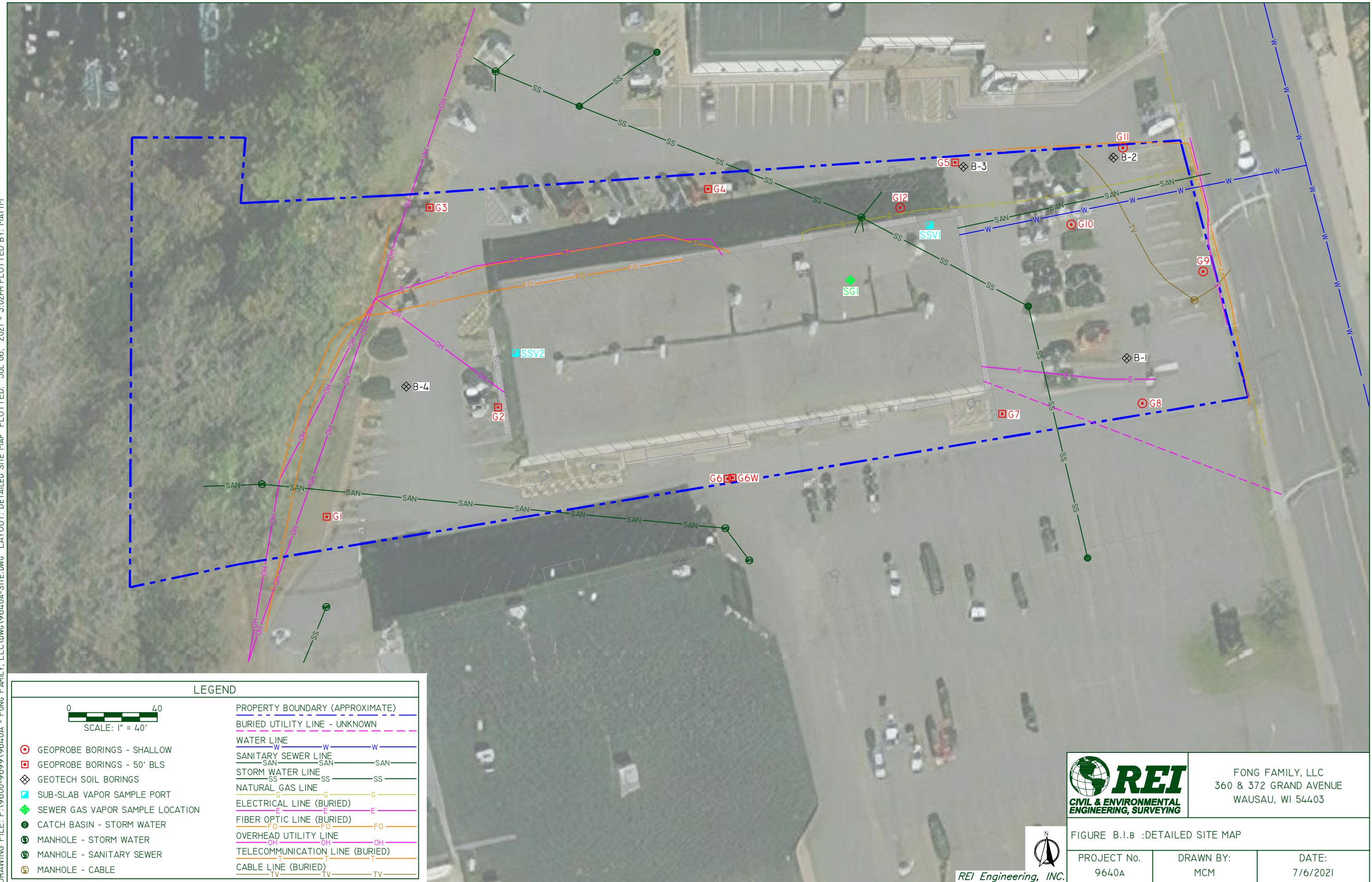
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DRAWING FILE: P:\9600-9699\9640A - FONG FAMILY, LLC\DWG\9640A-SITE.DWG LAYOUT: DETAILED SITE MAP PLOTTED: JUL 06, 2021 - 3:02PM PLOTTED BY: MATTM

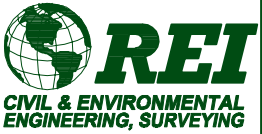


LEGEND



- GEOPROBE BORINGS - SHALLOW
- GEOPROBE BORINGS - 50' BLS
- ◇ GEOTECH SOIL BORINGS
- ▣ SUB-SLAB VAPOR SAMPLE PORT
- ◆ SEWER GAS VAPOR SAMPLE LOCATION
- CATCH BASIN - STORM WATER
- Ⓜ MANHOLE - STORM WATER
- Ⓜ MANHOLE - SANITARY SEWER
- Ⓜ MANHOLE - CABLE

- PROPERTY BOUNDARY (APPROXIMATE)
- BURIED UTILITY LINE - UNKNOWN
- WATER LINE
- SANITARY SEWER LINE
- STORM WATER LINE
- NATURAL GAS LINE
- ELECTRICAL LINE (BURIED)
- FIBER OPTIC LINE (BURIED)
- OVERHEAD UTILITY LINE
- TELECOMMUNICATION LINE (BURIED)
- CABLE LINE (BURIED)



FONG FAMILY, LLC
360 & 372 GRAND AVENUE
WAUSAU, WI 54403

FIGURE B.1.B :DETAILED SITE MAP

PROJECT No.
9640A

DRAWN BY:
MCM

DATE:
7/6/2021

REI Engineering, INC.

Table A.4.a
Vapor Analytical Results - Sub-Slab
Fong Family, LLC
360 & 372 Grand Ave
Wausau, WI 54403
BRRTS# 02-37-587441

						Collected By-->	
						REI Engineering, Inc.	
						Sample Address-->	
						360 & 372 Grand Ave	
						Sample Location-->	
						SSV1	SSV2
						Sample Date-->	
						6/29/2021	6/29/2021
						Exposure Scenario-->	
						SC	SC
TO-15 VOC's (µg/m³)	CAS Number	carcinogen	Sub-Slab VRSL				
			Residential [R] (AF = 0.03)	Small Commercial [SC] (AF = 0.03)	Large Commercial/ Industrial [LC/I] (AF = 0.01)		
Acetone	67-64-1	n	1,070,000	4,500,000	13,500,000	178	114
Benzene	71-43-2	c	120	524	1,570	4.0	3.2
Benzyl chloride	100-44-7	c	19.1	83.4	250	<1.4	<1.4
Bromodichloromethane	75-27-4	c	25.3	110	331	<0.36	<0.37
Bromoform	75-25-2	c	851	3,720	11,100	<2.5	<2.6
Bromomethane	74-83-9	n	174	730	2,190	<0.23	<0.24
1,3-Butadiene	106-99-0	c	31.2	136	409	<0.18	<0.19
2-Butanone [Methyl Ethyl Ketone] (MEK)	78-93-3	n	174,000	730,000	2,190,000	30.6	13.6
Carbon disulfide	75-15-0	c	24,300	102,000	307,000	<0.20	<0.20
Carbon tetrachloride	56-23-5	c	156	681	2,040	<0.43	<0.44
Chlorobenzene	108-90-7	c	1,740	7,300	21,900	<0.24	<0.24
Chloroethane [Ethyl Chloride]	75-00-3	n	348,000	1,460,000	4,380,000	<0.34	<0.35
Chloroform	67-66-3	c	40.7	178	533	<0.28	<0.29
Chloromethane	74-87-3	n	3,130	13,100	39,400	<0.13	<0.13
Cyclohexane	110-82-7	n	209,000	876,000	2,630,000	8.7	6.5
Dibromochloromethane	124-48-1	--	--	--	--	<0.78	<0.81
1,2-Dibromoethane (EDB)	106-93-4	c	1.56	6.81	20	<0.46	<0.47
1,2-Dichlorobenzene	95-50-1	n	6,950	29,200	87,600	<0.62	<0.64
1,3-Dichlorobenzene	541-73-1	--	--	--	--	<0.77	<0.80
1,4-Dichlorobenzene	106-46-7	c	85.1	372	1,110	<1.3	<1.4
Dichlorodifluoromethane	75-71-8	n	3,480	14,600	43,800	1,090	2,640
1,1-Dichloroethane	75-34-3	c	585	2,560	7,670	<0.25	<0.26
1,2-Dichloroethane	107-06-2	c	36.0	157	472	<0.26	<0.31
1,1-Dichloroethene	75-35-4	n	6,950	29,200	87,600	<0.21	<0.22
cis-1,2-Dichloroethene	156-59-2	--	--	--	--	<0.30	<0.31
trans-1,2-Dichloroethene	156-60-5	c	1,390	5,840	17,500	<0.26	<0.27
1,2-Dichloropropane	78-87-5	n	139	584	1,750	<0.41	<0.43
cis-1,3-Dichloropropene	10061-01-5	--	--	--	--	<0.39	<0.40
trans-1,3-Dichloropropene	10061-02-6	--	--	--	--	<0.83	<0.86
Dichlorotetrafluoroethane	76-14-2	--	--	--	--	<0.31	<0.32
Ethanol	64-17-5	--	--	--	--	164	116
Ethyl acetate	141-78-6	n	2,430	10,200	30,700	3.2	<0.21
Ethylbenzene	100-41-4	c	374	1,640	4,910	13.1	11.1
4-Ethyltoluene	622-96-8	--	--	--	--	7.9	8.6
n-Heptane	142-82-5	n	13,900	58,400	175,000	10.1	7.3
Hexachloro-1,3-butadiene	87-68-3	c	42.5	186	557	<1.9	<1.9
n-Hexane	110-54-3	n	24,300	102,000	307,000	12.8	6.6
2-Hexanone	591-78-6	n	1,040	4,380	13,100	<0.67	<0.70
Methylene Chloride	75-09-2	n	20,900	87,600	263,000	<0.90	0.94
4-Methyl-2-pentanone (MIBK)	108-11-2	n	104,000	438,000	1,310,000	7.8	<0.51
Methyl-tert-butyl ether (MTBE)	1634-04-4	c	3,600	15,700	47,200	6.7	<0.20
Naphthalene	91-20-3	n	27.5	120	361	5.3	15.2
2-Propanol [Isopropanol]	67-63-0	n	6,950	29,200	87,600	18.5	45.9
Propylene [Propene]	115-07-1	n	104,000	438,000	1,310,000	<0.20	<0.21
Styrene	100-42-5	n	34,800	146,000	438,000	7.3	4.9
1,1,2,2-Tetrachloroethane	79-34-5	c	16.1	70.5	211	<0.57	<0.59
Tetrachloroethene (PCE)	127-18-4	n	1,390	5,840	17,500	78.0	13.8
Tetrahydrofuran	109-99-9	n	69,500	292,000	876,000	<0.27	<0.28
Toluene	108-88-3	n	174,000	730,000	2,190,000	36.1	25.6
1,2,4-Trichlorobenzene	120-82-1	n	69.5	292	876	<7.4	<7.7
1,1,1-Trichloroethane	71-55-6	n	174,000	730,000	2,190,000	4.3	<0.29
1,1,2-Trichloroethane	79-00-5	n	6.95	29.2	87.6	<0.30	<0.31
Trichloroethene (TCE)	79-01-6	n	69.5	292	876	<0.30	<0.31
Trichlorofluoromethane	75-69-4	n	--	--	--	74.0	51.7
1,1,2-Trichlorotrifluoroethane	76-13-1	n	174,000	730,000	2,190,000	<0.44	<0.46
1,2,4-Trimethylbenzene (TMB)	95-63-6	n	2,090	8,760	26,300	24.1	28.0
1,3,5-Trimethylbenzene (TMB)	108-67-8	c	2,090	8,760	26,300	8.0	9.0
Vinyl acetate	108-05-4	n	6,950	29,200	87,600	<0.32	<0.33
Vinyl chloride	75-01-4	n	55.9	929	2,790	<0.13	<0.14
Xylene, m,p-	1330-20-7	n	3,480	14,600	43,800	49.2	46.2
Xylene, o-						19.2	18.8

Notes:

Indoor Air Standards based on US EPA Vapor Intrusion Screening Levels online calculator.

VRSL Calculated on Date: 7/9/2021

AF = Attenuation Factor

VAL = Vapor Action Level

VRSL = Vapor Risk Screening Level

< = Concentration Below Laboratory Detection Limit

- = Not Sampled/Collected

-- = No Standard/Not Applicable

^J = Estimated concentration at or above the Limit of Detection (LOD) and below the Limit of Quantitation (LOQ)

c = carcinogen

n = non-carcinogen

Target Risk for Carcinogens = 1.00E-05

Target Hazard Quotient for Non-Carcinogens = 1

<i>Italics</i>	= Exceeds US EPA Residential VRSL
Bold	= Exceeds US EPA Small Commercial VRSL
<u>Underlined</u>	= Exceeds US EPA Large Commercial/Industrial VRSL

Table A.4.b
 Vapor Analytical Results - Sewer Gas
 Fong Family, LLC
 360 & 372 Grand Ave
 Wausau, WI 54403
 BRRTS# 02-37-587441

<i>Collected By--></i>						REI Engineering, Inc.
<i>Sample Address--></i>						360 & 372 Grand Ave
<i>Sample Location--></i>						SG1
<i>Sample Date--></i>						6/29/2021
<i>Exposure Scenario--></i>						SC
TO-15 VOC's (µg/m ³)	CAS Number	carcinogen	Sub-Slab VRSL			
			Residential [R] (AF = 0.03)	Small Commercial [SC] (AF = 0.03)	Large Commercial/ Industrial [LC/I] (AF = 0.01)	
cis-1,2-Dichloroethene	156-59-2	--	--	--	--	<0.30
trans-1,2-Dichloroethene	156-60-5	c	1,390	5,840	17,500	<0.26
Tetrachloroethene (PCE)	127-18-4	n	1,390	5,840	17,500	1.4
Trichloroethene (TCE)	79-01-6	n	69.5	292	876	<0.30
Vinyl chloride	75-01-4	n	55.9	929	2,790	0.13

Notes:

Indoor Air Standards based on US EPA Vapor Intrusion Screening Levels online calculator.

VRSL Calculated on Date: 7/9/2021

AF = Attenuation Factor

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^J = Estimated concentration at or above the Limit of Detection (LOD) and below the Limit of Quantitation (LOQ)

c = carcinogen

n = non-carcinogen

Target Risk for Carcinogens = 1.00E-05

Target Hazard Quotient for Non-Carcinogens = 1

<i>Italics</i>	= Exceeds US EPA Residential VRSL
Bold	= Exceeds US EPA Small Commercial VRSL
<u>Underlined</u>	= Exceeds US EPA Large Commercial/Industrial VRSL