

# ECS MIDWEST, LLC

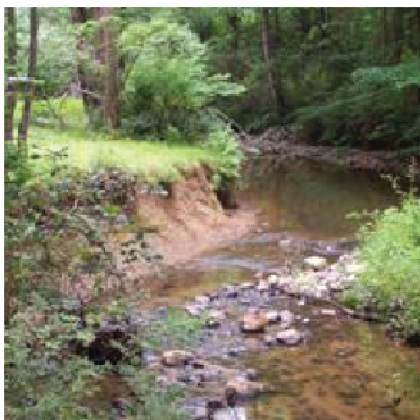
GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION MATERIALS • FACILITIES

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**Site Investigation Work Plan  
DNR BRRTS Activity #02-41-578508  
DNR FID #341283580**

**821 W Winnebago St  
Milwaukee, Wisconsin**

**ECS Project #16-11718**



ECS Midwest, LLC  
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January 13, 2017

Mr. Chue Yee Yang  
Environmental Program Assistance  
Remediation and Redevelopment  
Wisconsin Department of Natural Resources  
2300 N Martin Luther King Drive  
Milwaukee, Wisconsin 53212  
e-mail: [chueyee.yang@wisconsin.gov](mailto:chueyee.yang@wisconsin.gov)

ECS Project No. 16-11718

**Reference:** Site Investigation Work Plan – 821 W Winnebago Street, Milwaukee, Wisconsin (DNR BRRTs Activity #02-41-578508 / DNR FID #341283580)

Dear Mr. Yang:

Please find enclosed one hard copy and one electronic copy of the Site Investigation Work Plan completed by ECS Midwest, LLC for the above referenced property.

If you have any questions concerning the information contained in the attached document, please contact either of the undersigned at (847) 279-0366.

Sincerely,

**ECS MIDWEST, LLC**

Bridget Gibbons  
Project Manager

David T. Kwasiborski, CIAQM  
Principal Geologist

cc: Mr. Dan McCarthy, Brewery Project LLC

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**Site Background Information**

The subject property located at 821 W Winnebago St, Milwaukee, Milwaukee County, Wisconsin. The site is identified at the following: SE ¼ SW ¼ Sec 20 Tn 7N Range 22 E, and WTM Coordinates X: 43.04598, Y: -87.92120. The responsible party (RP) for the site is the following:

Brewery Project LLC  
Mr. Dan McCarthy  
710 N Plankinton Avenue, #1000  
Milwaukee, WI 52306  
(414) 274-2546  
dan.mccarthy@zilber.com

A site plan/topographic map showing the approximate site location is provided as Figure 1 and an Aerial Photograph is provided as Figure 2. The subject property is located at an elevation of approximately 637 feet and is generally level, with a sloping direction to the east. Bodies of water or wetlands are not located on the subject site. The subject property is identified as parcel number 3620571000. The approximately 1 acre subject property is currently undeveloped and is located in a residential/commercial area of Milwaukee.

ECS completed a Phase I Environmental Site Assessment for the subject property dated October 13, 2016. The Phase I Environmental Site Assessment identified the following recognized environmental conditions (RECs):

- Pabst Brewery East Parking Blk1, LT 1 Former, 845 W Winnebago Street, located immediately west of the site, was listed on the WI ERP and voluntary clean-up program databases for soil impacts associated with urban fill materials. After review of the information, given the fact that soils on the immediately adjacent up-gradient property are most likely similar to onsite soils, ECS identifies the listing for the western adjacent property as a recognized environmental condition.
- Frederick Lofts Proposed, 840 W Juneau Ave, located immediately west of the site, was listed on the WI SHWIMS database. No other information was available. Given the fact that the listing is still considered "open" and is located up-gradient of the subject property, ECS identifies the listing as a recognized environmental condition.
- According to the city directories reviewed, Winnebago Dry Cleaners and an auto repair facility were formerly located on the western end of the subject site. ECS identifies the historic onsite dry cleaners and auto repair facility as recognized environmental conditions.
- According to city directories, the eastern portion of the subject property was historically utilized as a junk yard. ECS identifies the historic onsite junk yard as a recognized environmental condition.
- According to aerial photographs, sanborn maps, and city directories reviewed, a gas station, with three underground gasoline storage tanks, was historically located immediately east of the subject property. ECS identifies the historic filling station as recognized environmental condition.

Based on the findings of the Phase I ESA, ECS conducted a Phase II Environmental Site Assessment for the subject site in November of 2014. The objective of the subsurface environmental assessment was to evaluate whether the identified RECs had environmentally impacted the Subject Property. The subsurface exploration consisted of the collection of ten soil samples, one groundwater sample, and two soil/gas samples for chemical analysis.

During drilling, the stratigraphy of the site was defined to a depth of approximately 16 feet, the depth of the deepest soil boring. Topsoil and gravel fill extended from the surface to approximately 6 inches below ground surface (bgs). This surface material was generally underlain by silty sand and urban fill (sand, gravel, brick, concrete, etc.) which extended to an average depth of 5 feet bgs. This silty sand and urban fill was generally underlain by clayey silt which extended to an average depth of 7 to 8 feet bgs. This sand was underlain by silty/sandy clay which extended to an average depth of 12 feet bgs. This silty/sandy clay was generally underlain by silty sand which extended to an average depth of 16 feet bgs, the depth of the deepest soil boring. Groundwater was encountered within the sand layer at soil boring B-1 at a depth of approximately 6-7 feet below ground surface. Please note that groundwater was not encountered at the remainder of the soil borings.

The results of the soil analyses are summarized in Tables 1 through 3. The following list identifies the analytical parameters and the respective number of locations in which detected concentrations exceeded applicable soil, groundwater and/or soil/gas RCLs at the subject property:

**Soil Exceedances:**

The results of the soil analysis were compared to the WDNR Direct Contact Residual Contaminant Levels (DC-RCLs) and RCL Protective of Groundwater, as cited in NR 720, Wis. Adm. Code (Remediation and Redevelopment Program Tables), based upon a non-industrial property classification.

**VOCs:** As indicated in Table 1, benzene was detected at one boring at a concentration exceeding the RCL Protective of Groundwater.

**Benzene** was detected at soil boring B-1 (2-4) at a concentration of 15 µg/kg. This detected concentration was found to exceed the RCL Protective of Groundwater of 5.1 µg/kg.

**PNAs:** As indicated in Table 2, PNAs were detected at the following soil borings at concentrations exceeding RCLs.

**Benzo[a]anthracene** was detected at soil borings B-1 (2-4), B-7 (3-5), B-8 (2-4), and B-9 (3-5) at respective concentrations of 340 µg/kg, 590 µg/kg, 510 µg/kg, and 970 µg/kg. These detected concentrations were found to exceed the DC-RCL of 147 µg/kg.

**Benzo[a]pyrene** was detected at soil borings B-1 (2-4), B-5 (3-5), B-7 (3-5), B-8 (2-4), B-9 (3-5), and B-10 (2-4) at respective concentrations of 380 µg/kg, 34 µg/kg, 540 µg/kg, 490 µg/kg, 900 µg/kg, and 36 µg/kg. These detected concentrations were found to exceed the DC-RCL of 15 µg/kg. In addition, the detected

concentrations at soil borings B-7, B-8, and B-9 were found to exceed the RCL Protective of Groundwater.

**Benzo[b]fluoranthene** was detected at soil borings B-1 (2-4), B-7 (3-5), B-8 (2-4), and B-9 (3-5) at respective concentrations of 720 µg/kg, 750 µg/kg, 630 µg/kg, and 1400 µg/kg. These detected concentrations were found to exceed the DC-RCL of 148 µg/kg and the RCL Protective of Groundwater of 479.3 µg/kg.

**Chrysene** was detected at soil borings B-1 (2-4), B-7 (3-5), B-8 (2-4), and B-9 (3-5) at respective concentrations of 390 µg/kg, 610 µg/kg, 520 µg/kg, and 980 µg/kg. These detected concentrations were found to exceed the RCL Protective of Groundwater of 144.6 µg/kg.

**Dibenz(a,h)anthracene** was detected at soil borings B-1 (2-4), B-7 (3-5), B-8 (2-4), and B-9 (3-5) at respective concentrations of 39 µg/kg, 75 µg/kg, 75 µg/kg, and 81 µg/kg. These detected concentrations were found to exceed the DC-RCL of 15 µg/kg.

**Ideno[1,2,3-cd]pyrene** was detected at soil borings B-7 (3-5), B-8 (2-4), and B-9 (3-5) at respective concentrations of 220 µg/kg, 210 µg/kg, and 250 µg/kg. These detected concentrations were found to exceed the DC-RCL of 148 µg/kg.

**RCRA Metals:** As indicated in Table 3, RCRA Metals were detected at the following soil borings at concentrations exceeding RCLs.

**Arsenic** was detected at soil borings B-1 (2-4), B-2 (3-5), B-3 (3-5), B-4 (2-4), B-5 (3-5), B-6 (2-4), B-7 (3-5), B-8 (2-4), B-9 (3-5), and B-10 (2-4) at respective concentrations of 5.8 mg/kg, 1.5 mg/kg, 1.7 mg/kg, 1.8 mg/kg, 2.9 mg/kg, 2.0 mg/kg, 5.5 mg/kg, 2.0 mg/kg, 1.3 mg/kg, and 3.0 mg/kg. These detected concentrations were found to exceed the DC-RCL of 0.613 mg/kg and the RCL Protective of Groundwater of 0.584 mg/kg.

**Barium** was detected at soil boring B-8 (2-4) at a concentration of 180 mg/kg. The detected concentration was found to exceed the RCL Protective of Groundwater of 165 mg/kg.

**Cadmium** was detected at soil boring B-1 (2-4) at a concentration of 4.9 mg/kg. The detected concentration was found to exceed the RCL Protective of Groundwater of 0.752 mg/kg.

**Lead** was detected at soil borings B-1 (2-4), B-5 (3-5), B-7 (3-5), B-8 (2-4), B-9 (3-5), and B-10 (2-4) at respective concentrations of 740 mg/kg, 50 mg/kg, 270 mg/kg, 120 mg/kg, 64 mg/kg, and 81 mg/kg. These detected concentrations were found to exceed the DC-RCL of 400 mg/kg and the RCL Protective of Groundwater of 27 mg/kg.

**Selenium** was detected at soil borings B-1 (2-4), B-2 (3-5), B-3 (3-5), B-5 (3-5), and B-7 (3-5) at respective concentrations of 0.78 mg/kg, 0.69 mg/kg, 0.83 mg/kg, 0.94 mg/kg, and 0.60 mg/kg. These detected concentrations were found to exceed the RCL Protective of Groundwater of 0.52 mg/kg.

**Mercury** was detected at soil borings B-1 (2-4) and B-7 (3-5) at respective concentrations of 0.84 mg/kg and 0.68 mg/kg. These detected concentrations were found to exceed the RCL Protective of Groundwater of 0.208 mg/kg.

**pH** levels at borings B-1, B-2, B-4, B-6, B-7, B-9, and B-10 were found to be within an acceptable range.

**Soil/Gas Exceedances:**

The results of the soil/gas sampling were compared to the Soil/Gas VALs for small commercial properties, as identified in WI Vapor Quick Look-Table/USEPA RSLs.

- **VOCs:** As indicated in Table 4, the following VOC was detected at a concentration exceeding the indoor air VAL.

**Benzene** was detected at soil boring B-7 at a concentration of 20 µg/m<sup>3</sup>. This detected concentration was found to exceed the VCL of 16 µg/m<sup>3</sup>.

**Groundwater Exceedances:**

The results were compared to the WDNR Enforcement Standards, NR 140, Wis. Adm. Code.

- **VOCs:** As indicated in Table 5, VOCs were not detected at concentrations exceeding Enforcement Standards.
- **PNAs:** As indicated in Table 6, the following PNAs were detected at concentrations exceeding the Enforcement Standards.

**Benzo[a]pyrene** was detected at boring B-1 at a concentration of 0.35 µg/l. This detected concentration was found to exceed the Enforcement Standard of 0.2 mg/l.

**Benzo[b]fluoranthene** was detected at boring B-1 at a concentration of 0.46 µg/l. This detected concentration was found to exceed the Enforcement Standard of 0.2 mg/l.

**Chrysene** was detected at boring B-1 at a concentration of 0.44 µg/l. This detected concentration was found to exceed the Enforcement Standard of 0.2 mg/l.

- **RCRA Metals:** As indicated in Table 7, the following RCRA Metals were detected at concentrations exceeding WDNR Enforcement Standards:

**Cadmium** was detected at boring B-1 at a concentration of 5.2 µg/l. This detected concentration was found to exceed the Enforcement Standard of 5 mg/l.

**Lead** was detected at boring B-1 at a concentration of 81 µg/l. This detected concentration was found to exceed the Enforcement Standard of 15 mg/l.



## **OBJECTIVES AND SCOPE OF WORK**

To further evaluate subsurface conditions beneath the subject site for vertical and horizontal delineation and to pursue agency closure, ECS recommends that an additional focused subsurface investigation be performed. To meet this objective, ECS proposes the following tasks:

- Task 1: Pre-field Activities
- Task 2: Soil, Soil/Gas, & Groundwater Sampling
- Task 3: Soil, Soil/Gas, & Groundwater Analysis
- Task 4: Data Evaluation and Report Preparation
- Task 5: Project Management

Detailed descriptions of each task are presented in the following sections. Please note that the Site Investigation will be conducted in general accordance with the requirements in the NR 700 Wis. Adm. Code rule series and will adhere to current WDNR technical guidance documents.

### **Task 1: Pre-field Activities**

Pre-field activities will include preparation of a site-specific health and safety plan (HSP) and utility clearances as summarized below.

**Health & Safety Plan Preparation.** In accordance with OSHA, ECS will prepare a site-specific Health and Safety Plan (HSP) before beginning fieldwork. This HSP will describe possible hazards and the procedures to be followed to safeguard worker (ECS and ECS' sub-contractor's) health and safety during field activities at the subject site. ECS will review HSP procedures with all subcontract personnel before fieldwork begins.

**Utility Clearance.** As required by state and local regulations, ECS's drilling subcontractor will also contact a public utility location service to clear public utility lines at the subject site prior to the start of fieldwork. However, please note that in most cases, municipal and utility representatives will not locate utilities that are located on private property. Therefore, ECS will also engage a private utility locator to identify potential on-site utilities to reduce the potential of encountering utilities during drilling activities.

### **Task 2: Soil, Soil/Gas, and Groundwater Sampling**

To delineate the extent of impacts at the site, borings will be advanced to a depth of approximately 15-20 feet below ground surface (bgs), groundwater, or refusal – whatever is shallower. Up to two soil samples from each of the soil borings will also be submitted for analysis. A figure identifying the locations of the proposed soil borings is attached.

ECS also proposes to convert three of the soil borings into monitoring wells installed to a depth of approximately 20 feet bgs. The monitoring wells will be used to collect groundwater samples, to measure groundwater gradient/flow direction and for hydraulic testing. The monitoring wells will be constructed using a 2 inch diameter, (schedule 40) polyvinyl chloride (PVC) casing consisting of a 10 foot length of factory-slotted well screen with a 10 foot length of blank riser. Following drilling and soil sampling, the well screen and riser will be placed into the open borehole and a sand filter pack will be placed in the annulus surrounding the well casing. This sand pack

will be placed to a depth of approximately 2 feet above the well screen. The remainder of the borehole will be backfilled with a well seal consisting of bentonite clay and/or grout. The wells will then be completed at ground surface using a flush-mount well box.

Soil cuttings will be placed in 55-gallon drums and staged on-site pending off-site disposal.

**Soil/Gas Air Sample Collection.** ECS also proposes to install two temporary soil/gas monitoring locations and collect two soil/gas air samples directly from on-site shallow soils. The soil/gas samples will be collected from a depth between 3 feet bgs and groundwater. Sampling and testing will be conducted in general accordance with the U.S. Environmental Protection Agency (USEPA) recommendations. Please note that the soil/gas samples will be installed in the location of the proposed on-site building.

**Sample Handling.** Following sample collection, the soil, soil/gas, and groundwater samples will be placed in clean jars/vials supplied by the analytical laboratory. The sample jars/vials will be filled as completely as possible to minimize headspace; the jars/vials will then be labeled and placed in a chilled cooler for transport to the analytical laboratory. Standard chain of custody protocols will be maintained throughout the sample handling process.

**Lithologic Description.** Soil samples will be logged continuously from ground surface to the bottom of each boring for lithologic description. An experienced ECS geologist or engineer will document the subsurface conditions (soil type, PID measurements, the presence of staining, odors and groundwater levels, etc.) in each boring.

**Equipment Decontamination.** Prior to use at each boring, all downhole sampling equipment will be cleaned using an Alconox® wash and rinse with potable water.

**Monitoring Well Development.** Each of the monitoring wells will be developed to remove sediment and to improve hydraulic communication with the surrounding aquifer. Well development procedures will consist of use of a 'surge' tool to flush sediment from the sand filter pack and removal of approximately three to five well casing volumes of groundwater.

**Elevation Survey.** Following installation, each monitoring well will be surveyed for vertical control to an accuracy of 0.01 foot by an experienced technician using a tripod-mounted level. ECS will establish a site datum, and the top of the well casings will be measured to determine the relative elevation of each well.

**Water Level Measurement.** Prior to collecting the groundwater samples, stabilized ground water levels will be measured in each of the wells within an accuracy of 0.01 foot. The water level data and the results of the well elevation survey will be used to calculate the groundwater gradient and lateral flow direction at the subject property.

**Groundwater Sampling.** Groundwater samples will be collected from each monitoring well using WDNR-approved protocols. ECS will endeavor to remove three well casing volumes of water prior to sampling, and if bailed dry, the well(s) will be allowed to recharge prior to collection of groundwater samples.

Following collection, the groundwater samples will be placed in clean, laboratory-supplied vials or bottles, labeled and placed in a chilled cooler pending delivery to the analytical laboratory. Appropriate chain-of-custody protocols will be maintained throughout the sample-handling process.



**Hydraulic Testing.** ECS proposes to perform hydraulic testing on one monitoring well to measure the in-situ hydraulic conductivity that underlies the subject property. The well which produces the most groundwater will be selected for the hydraulic conductivity testing.

ECS will use the Bouwer and Rice Graphical Method or similar method to determine the hydraulic conductivity of the underlying water-bearing sediments. The test parameters, field measurements, Bouwer and Rice (line-fitting) plots and head verses time graphs generated during the test runs will be included as an attachment to a future technical submittal.

**Task 3: Soil, Soil/Gas, and Groundwater Analysis**

ECS proposes that soil, groundwater, and soil/gas samples will be analyzed for the following:

<b>Number of Samples (Locations)</b>	<b>Analytical Parameters</b>
<b>Soil</b>	
3 (S-1 – S-3)	Benzene, PNAs, Pb, As
4 (S-4 – S-7)	PNAs, Pb, As
4 (Deep)*	VOCs, RCRA Metals and PNAs
<b>Soil/Gas</b>	
2	VOCs
<b>Groundwater</b>	
3	VOCs, RCRA Metals and PNAs

\* - Deep soil samples will be collected from the boring locations which show the greatest potential for shallow impacts (visual, olfactory, PID readings)  
 VOCs/benzene – Volatile Organic Compounds via Method 5035/8260 (soil and GW), USEPA TO-15 (air)  
 PNAs – Polynuclear Aromatic Hydrocarbons via Method 8270  
 RCRA Metals/lead/arsenic – Via Method 6020

The soil, soil/gas, and groundwater analysis will be performed by a Wisconsin Department of Natural Resources accredited analytical laboratory; the analyses will be performed on a standard laboratory turnaround basis.

**Task 4: Data Evaluation and Report Preparation**

ECS will compare the soil data to the WDNR Direct Contact Residual Contaminant Levels (DC-RCLs) and RCL Protective of Groundwater, as cited in NR 720, Wis. Adm. Code (Remediation and Redevelopment Program Tables), based upon a non-industrial property classification; ECS will compare the groundwater data to the WDNR Enforcement Standards, NR 140, Wis. Adm. Code and the soil/gas data to the Soil/Gas VALs for small commercial properties, as identified in WI Vapor Quick Look-Table/USEPA RSLs. These comparisons will be used to gauge the relative severity of chemical impacts.

Following receipt of the laboratory data, ECS will prepare a Site Investigation Report, presenting the results of the current and previous assessments at the subject site, which will be completed in accordance with NR 715 and will be prepared under the guidance of a Professional Engineer registered in Wisconsin.

**SCHEDULE**

Fieldwork can be scheduled following receipt of approval of this Work Plan from the WDNR. We anticipate that the fieldwork can be completed in approximately three days. The Site Investigation Report will be provided within 60 days following receipt of laboratory data. This schedule is largely dependent on subcontractor participation. This schedule also assumes that ECS will have timely access to the Site and that the work will not be delayed by inclement weather.

## **Attachment 1**

### **Figures**



**Site Topography Map**

Hyatt Place of Milwaukee

ECS Project 16:11650





Approximate Site Borders

30 m  
100 ft

© Mapbox © OpenStreetMap Improve this map © DigitalGlobe



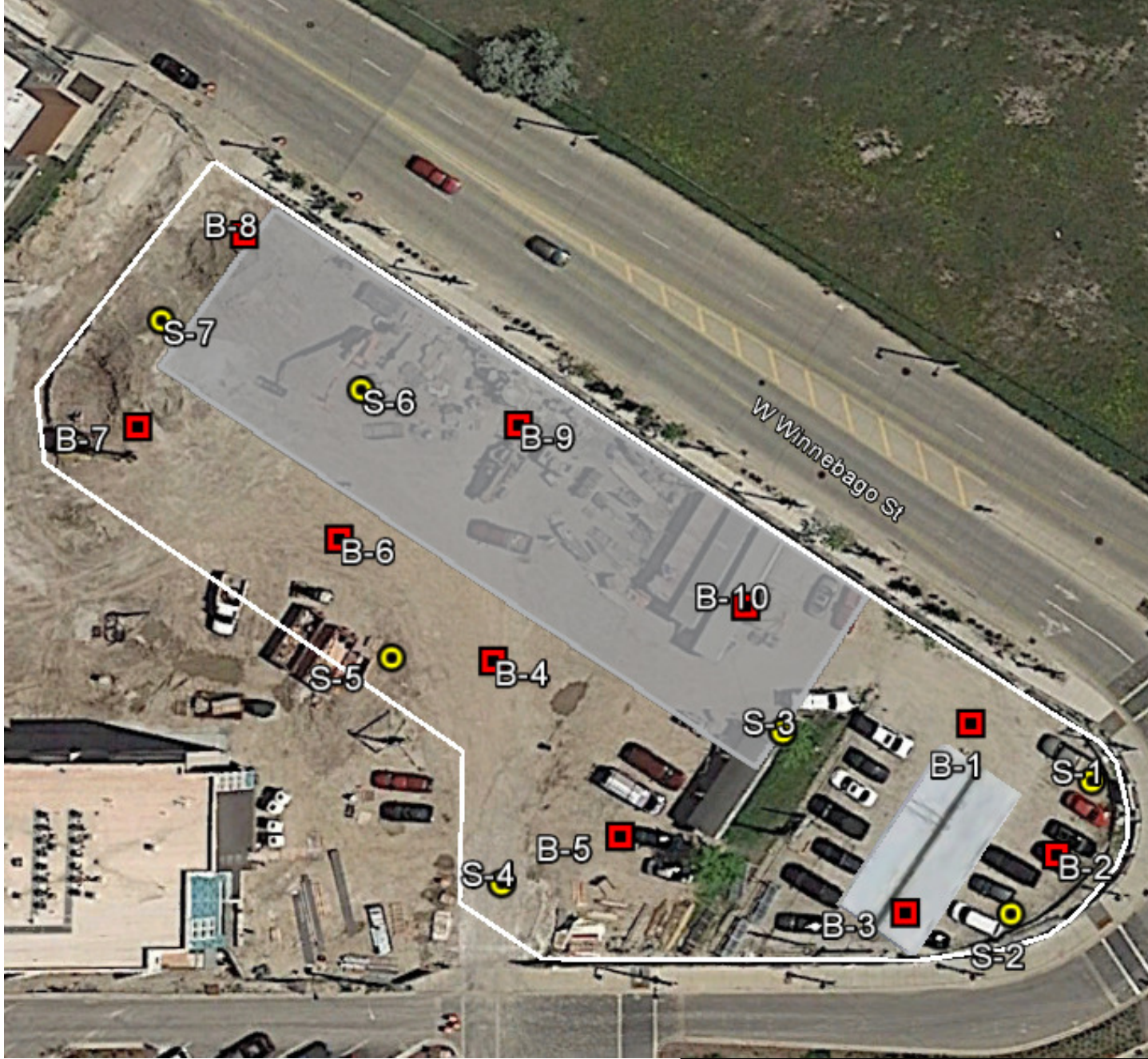
### Site Aerial Map

Hyatt Place of Milwaukee



ECS Project 16:11650





- Proposed boring locations
- December 2016 Phase II boring locations
- Proposed building location



**Boring Location Plan**  
**Aerial Photography**  
 Source: Google Earth



**821 W Winnebago St**  
**Milwaukee, WI**



## **Attachment 2**

### **Tables**

**Table 1. Summary of Soil Sample Analyses for Volatile Organic Compounds (µg/kg)  
 (detections only)**

Analyte	Direct Contact RCL	RCL Protective of Groundwater	Sample Location and Depth (ft)									
			B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10
			2-4	3-5	3-5	2-4	3-5	2-4	3-5	2-4	3-5	2-4
Benzene*	1,490	5.1	15	<10	<9.8	<9.3	<9.5	<10	<8.9	<13	<9.5	<8.6
Ethylbenzene	7,470	1,570	15	<13	<12	<12	<12	<13	<11	<17	<12	<11
Toluene	8,180	1,107.2	26	<10	<9.9	<9.4	<9.5	<10	<8.9	<13	<9.6	<8.7
Xylenes, Total	260,000	3,960	69	<15	<15	<14	<14	<15	<13	<20	<14	<13

Concentrations in excess of RCLs are shaded yellow

Exceeded RCLs are shaded green

VOCs via USEPA Method SW8260B/5035

\* - Laboratory detection limit exceeds RCL

RCLs - NR 720, Wis. Adm. Code (RR's spreadsheet tables)

DC RCLs based upon a Non-Industrial property setting

**Table 2. Summary of Soil Sample Analyses for Polynuclear Aromatic Hydrocarbons (µg/kg)  
(detections only)**

Analyte	Direct Contact RCL	RCL Protective of Groundwater	Sample Location and Depth (ft)									
			B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10
			2-4	3-5	3-5	2-4	3-5	2-4	3-5	2-4	3-5	2-4
1-Methylnaphthalene	15,600	NRO	67	<9.5	<9.0	<9.1	<9.0	<9.1	38	24	24	<8.6
2-Methylnaphthalene	229,000	NRO	90	<7.2	<6.8	<6.9	<6.8	<9.9	50	27	21	<6.5
Acenaphthylene	NRO	NRO	61	<5.1	<4.9	<4.9	<4.8	<4.9	29	36	92	5.6
Acenaphthene	3,440,000	NRO	17	<7	<6.6	<6.7	<6.6	<6.7	95	59	100	<6.4
Anthracene	17,200,000	196,949.2	100	<6.5	<6.2	<6.3	<6.1	<6.2	250	180	320	5.9
Benzo[a]anthracene	147	NRO	340	<5.3	<5.0	5.0	31	<5.0	590	510	970	28
Benzo[a]pyrene	15	470	380	<7.6	<7.1	11	34	<7.2	540	490	900	36
Benzo[b]fluoranthene	148	479.3	720	<8.4	<7.9	12	44	<8.1	750	630	1400	52
Benzo[g,h,i]perylene	NRO	NRO	180	<13	<12	<12	25	<12	230	210	240	35
Benzo[k]fluoranthene	1,480	NRO	250	<11	<11	<11	14	<11	320	290	500	17
Chrysene	14,800	144.6	390	<11	<10	<10	39	<10	610	520	980	35
Dibenz(a,h)anthracene	15	NRO	39	<7.5	<7.1	<7.2	12	<7.2	75	75	81	13
Fluoranthene	2,290,000	88,877.8	690	<7.2	<6.8	8.5	78	<6.9	1200	1100	1700	46
Fluorene	2,290,000	14,829.9	19	<5.5	<5.2	<5.3	<5.2	<5.3	74	63	82	5.0
Indeno[1,2,3-cd]pyrene	148	NRO	130	<10	<9.5	<9.7	24	<9.7	220	210	250	29
Naphthalene	5,150	658.2	65	<6.0	<5.7	<5.8	<5.6	<5.8	51	21	20	5.4
Phenanthrene	NRO	NRO	350	<5.4	<5.1	<5.2	28	<5.2	1100	660	1200	16
Pyrene	1,720,000	54,545.50	810	<7.8	<7.3	<7.4	52	7.8	1100	870	1700	42

Concentrations in excess of RCLs are shaded yellow

Exceeded RCLs are shaded green

NRO – No Remediation Objective Listed

SVOCs via USEPA Method 8270c

RCLs - NR 720, Wis. Adm. Code (RR's spreadsheet tables)

DC RCLs based upon a Non-Industrial property setting

**Table 3. Summary of Soil Sample Analyses for RCRA Metals and pH (mg/kg, unitless)  
 (detections only)**

Analyte	Direct Contact RCL	RCL Protective of Groundwater	Sample Location and Depth (ft)									
			B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10
			2-4	3-5	3-5	2-4	3-5	2-4	3-5	2-4	3-5	2-4
Arsenic	<b>0.613</b>	<b>0.584</b>	<b>5.8</b>	<b>1.5</b>	<b>1.7</b>	<b>1.8</b>	<b>2.9</b>	<b>2.0</b>	<b>5.5</b>	<b>2.0</b>	<b>1.3</b>	<b>3.0</b>
Barium	15,300	<b>165</b>	120	32	22	23	50	33	100	<b>180</b>	77	62
Cadmium	70	<b>0.752</b>	<b>4.9</b>	0.28	0.21	0.20	0.24	0.20	0.70	0.29	0.33	0.27
Chromium	100,000	360,000	11	14	11	9.0	15	13	17	5.9	5.6	18
Lead	<b>400</b>	<b>27</b>	<b>740</b>	6.4	6.9	6.0	<b>50</b>	7.1	<b>270</b>	<b>120</b>	<b>64</b>	<b>81</b>
Selenium*	391	<b>0.52</b>	<b>0.78</b>	<b>0.69</b>	<b>0.83</b>	0.49	<b>0.94</b>	<0.52	<b>0.60</b>	<0.58	<0.47	<0.50
Silver	391	0.8491	0.15	<0.12	<0.10	<0.12	<0.12	<0.12	<0.12	<0.14	<0.11	<0.12
Mercury	3.13	<b>0.208</b>	<b>0.84</b>	0.015	0.012	0.015	0.17	0.015	<b>0.68</b>	0.094	0.11	0.16
pH	NRO	NRO	9.2	9.2	8.7	10	8.8	9.6	9.1	9.0	9.9	9.5

Concentrations in excess of RCLs are shaded yellow

Exceeded RCLs are shaded green

NRO – No Remediation Objective Listed

Metals via USEPA Method 6010B or 7471A

\* - Laboratory detection limit exceeds RCL

RCLs - NR 720, Wis. Adm. Code (RR's spreadsheet tables)

DC RCLs based upon a Non-Industrial property setting

**Table 4. Summary of Soil/Gas Sample Analyses for Volatile Organic Compounds ( $\mu\text{g}/\text{m}^3$ ) - (detections only)**

Analyte*	Indoor Air VAL	Sample ID	
		SB-3	SB-7
1-Butanol	NRO	1.4	8.4
2-Butanone (MEK)	NRO	13	39
4-Bromofluorobenzene (Surr)	NRO	93	94
Acetone	140,000	91	600
Benzene	16	15	20
Carbon disulfide	3,100	4.1	24
Dichlorodifluoromethane	440	2.7	2.6
Ethylbenzene	49	5.3	10
Isopropylbenzene	NRO	ND	1.5
Methylene Chloride	2,600	6.8	7.0
Styrene	4,400	ND	1.10
Tetrachloroethene	180	3.1	ND
Toluene	22,000	28	40
Trichloroethene	8.8	ND	1.5
Trichlorofluoromethane	NRO	2	5.8
Xylenes, Total	440	16	32

Concentrations in excess of VAL are shaded yellow

Exceeded VALs are shaded green

Indoor Air VAL - Small Commercial - WI Vapor Quick Look-Table/USEPA RSLs

NRO – No Remedial Objective Listed

Air Analysis via USEPA Method TO-15

**Table 5. Summary of Groundwater Sample Analyses for Volatile Organic Compounds (µg/l)**

Analyte	Enforcement Standard	Sample Location
		B-1
1,1,1-Trichloroethane	200	<0.38
1,1,2-Trichloroethane	5	<0.35
1,1-Dichloroethane	850	<0.41
1,1-Dichloroethene	7	<0.39
1,2-Dichloropropane	5	<0.43
Benzene	5	<0.15
Bromodichloromethane	0.6	<0.37
Bromoform	4.4	<0.48
Carbon tetrachloride	5	<0.38
Chlorobenzene	NRO	<0.39
Chloroform	6	<0.37
cis-1,2-Dichloroethene	70	<0.41
Dibromochloromethane	60	<0.49
Ethylbenzene	700	<0.18
Methyl tert-butyl ether	60	<0.39
Methylene Chloride	5	<1.6
Styrene	100	<0.39
Tetrachloroethene	5	1.1
Toluene	800	<0.15
trans-1,2-Dichloroethene	100	<0.35
Trichloroethene	5	<0.16
Vinyl chloride <sup>1</sup>	0.2	<0.20
Xylenes, Total	2000	0.81

Concentrations in excess of ES are shaded yellow

Exceeded ESs are shaded green

NRO – No Remediation Objective

ES - NR 120, Wis. Adm. Code (groundwater enforcement standards)

VOCs via USEPA Method SW8260B/5035



**Table 6. Summary of Groundwater Sample Analyses for Polynuclear Aromatic Hydrocarbons (µg/l)**

Analyte	Enforcement Standard	Sample Location
		B-1
Acenaphthylene	NRO	<0.20
Anthracene	3000	<0.25
Benzo[a]anthracene	NRO	0.38
Benzo[a]pyrene	<b>0.2</b>	<b>0.35</b>
Benzo[b]fluoranthene	<b>0.2</b>	<b>0.46</b>
Benzo[g,h,i]perylene	NRO	<0.28
Benzo[k]fluoranthene	NRO	0.19
Chrysene	<b>0.2</b>	<b>0.44</b>
Dibenz(a,h)anthracene	NRO	0.055
Fluoranthene	400	0.87
Fluorene	400	<0.18
Indeno[1,2,3-cd]pyrene	NRO	0.20
Naphthalene	100	<0.23
Phenanthrene	NRO	0.60
Pyrene	250	0.76

Concentrations in excess of ES are shaded yellow

Exceeded ESs are shaded green

NRO – No Remediation Objective

ES - NR 120, Wis. Adm. Code (groundwater enforcement standards)

PNAs via USEPA Method 8270c

**Table 7. Summary of Groundwater  
 Sample Analyses for RCRA Metals (µg/l)**

Analyte	Enforcement Standard	Sample Location
		B-1
Arsenic	10	6.3
Barium	2,000	160
Cadmium	<b>5</b>	<b>5.2</b>
Chromium	100	19
Lead	<b>15</b>	<b>81</b>
Selenium	50	5.7
Silver	50	<1.3
Mercury	2	<0.11

Concentrations in excess of ES are shaded yellow

Exceeded ESs are shaded green

NRO – No Remediation Objective

ES - NR 120, Wis. Adm. Code (gw enforcement standards)

Metals via USEPA Method 6010b