



May 15, 2018

Mr. Mike Slenska
Beazer East, Inc.
c/o Three Rivers Management, Inc.
1910 Cochran Road
Manor Oak One, Suite 200
Pittsburg, PA 15220

Subject: Review of Work Plan - Supplemental Site Investigation

Former Koppers Tar Plant and Wabash Alloys Site
9100 South 5th Avenue, Oak Creek, WI 53154
FID #: 241379050; BRRTS #: 02-41-553761
Connell VPLE BRRTS #: 06-41-560068
Beazer VPLE BRRTS #: 06-41-561509

City of Oak Creek Utility Corridor Lot 1
9170 South 5th Avenue, Oak Creek, WI 53154
FID #: 341074470; BRRTS #: 02-41-561425
Beazer VPLE BRRTS #: 06-41-561426

Dear Mr. Slenska:

The Wisconsin Department of Natural Resources (DNR) has reviewed the submittal, *Work Plan, Supplemental Site Investigation, Former Koppers Tar Plant And Wabash Alloys Site, Oak Creek, WI* (Report), dated August 30, 2017, prepared by Tetra Tech, Inc. (Tetra Tech) on behalf of Beazer East, Inc. (Beazer). The purpose of the Report is to address additional site investigation activities identified in the DNR's letter to you, dated July 14, 2017. The Report was reviewed for compliance with Wis. Admin. Code § NR 716.09.

The proposed work plan includes the following:

- A. Installation of additional soil borings to confirm the vertical extent of potentially mobile tar at selected locations.
- B. Installation of an additional monitoring well in the City of Oak Creek utility corridor.
- C. Conducting test pit sampling to determine the waste characteristics of soil containing observed tar.

Pre-Sampling Activities

The locations of buried utilities near the proposed soil borings, monitoring well, and test pits will be identified. The monitoring well within the utility corridor will be located within 3 feet of the large diameter storm sewer marking, as the intent is to collect groundwater samples and water level data from within the trench of the buried utility. The sampling locations and procedures will be discussed and approved by the City of Oak Creek Water & Sewer Utility Department prior to conducting any work along the utilities.

Work Plan Outline and Details

A. Tar Delineation Probes/Boreholes

Several dense non-aqueous phase liquid (DNAPL) source areas require further definition. The following areas identified for further DNAPL assessment are located in the vicinity of shallow borings:

- B-32, B-35, and B-36
- B-81, MW-122 and SB-713 near the former Tar Barrel Platform
- B-74 and B-05 near the former naphthalene ASTs
- B-92 near the former Pitch Bay
- In the area of separate DNAPL accumulation defined by SB-724

To address the source areas, seven soil borings are proposed to be installed at the locations shown on Figure 2: Proposed Tar Observation Borehole, to confirm the vertical extent of potentially mobile tar. One soil boring will be located in each of the following areas:

- B-32
- B-36
- B-81, MW-122 and SB-713
- B-74 and B-05
- B-92
- SB-724
- MW-123

The tar delineation will be performed using visual observation, and soil samples will be collected using a Geoprobe direct push soil core sampler. Borings below any existing concrete slab will be completed through a hole cored into the concrete. Continuous soil samples will be collected to a depth of 25 feet below ground surface (bgs) or to the base of observed tar, whichever is greater. Observations of staining and odor will be noted. Soil samples will be screened for the presence of ionizable VOCs at 2-foot intervals using a photoionization detector (PID) equipped with 10.6 eV lamp. The DNR soil boring log information forms, with tar observation notes, will be completed for each boring.

B. Utility Corridor Monitoring Well Installation and Sampling

The downgradient extent of groundwater contamination within the utility corridor has not been defined. In the DNR's July 14, 2017, letter and during our August 17, 2017, meeting, there was a discussion that MW-134 is coincident with a significant hydraulic sink. Beazer indicated that this is based on a comparison of water elevation in MW-134 and downhill monitoring well MW-118. It was discussed that MW-134 is completed within the larger diameter storm sewer line backfill and MW-118 is completed outside the utility corridor. To properly evaluate comparative groundwater elevations, a new well, MW-136, is proposed to be installed adjacent to MW-118, but within the storm sewer line backfill as shown in Figure 3: Proposed Monitoring Well Location.

The new well, MW-136, will be installed and developed in accordance with Wis. Admin. § NR 141. The monitoring well is proposed to be constructed within the interval of 15 to 20 feet bgs. It will be constructed of 2-inch nominal diameter, threaded schedule 40 PVC well casing and stainless steel screen.

A groundwater sample will be collected from MW-136 a minimum of one week after the development. The groundwater sample will be submitted for laboratory analyses of volatile organic compounds (VOCs) by EPA Method 8260B and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D.

Depth to groundwater measurements will be collected from all site wells to provide an assessment of the groundwater gradients and flow direction in the utility corridor. An electronic water level meter will be used to measure the water levels in the monitoring wells to the nearest 0.01 foot.

C. Waste Characterization Assessment

To determine the waste characteristics of soil containing tar, soil samples will be collected from five representative test pit locations as shown on Figure 4: Proposed Waste Characterization Test Pit Location. The test pits were located in representative areas of observed tar, while avoiding wetlands, concrete slabs and areas of proposed PCBs excavations. Each test pit will be excavated to a depth of 12 feet. Excavated soil will be placed in temporary stockpiles on the liner adjacent to each test pit. For each stockpile, the containerized soil will be briefly mixed with a hand trowel and a representative soil sample will be collected for laboratory analyses. After sampling has been completed, the soil from each stockpile will be placed back into the originating test pit and compacted with an excavator.

The soil samples submitted to the lab will be analyzed for the following parameters:

- TCLP VOCs - 1311/8260B
- Total VOCs - 8260B
- Total SVOCs - 8270C
- TCLP Pesticides - 8081
- TCLP Herbicides - 8151
- TCLP Metals/Mercury - 6010B/7470A
- Reactive Sulfide
- Reactive Cyanide
- Corrosivity (pH)
- Ignitability (flash)
- PCBs - 8082
- TOC - 9060 or SM5310B

DNR Comments

With respect to the submitted Report and on-going communications related to the remedial options being proposed, the DNR provides the following comments:

1. Off-Site Investigation

- a. The DNR considers the monitoring well installation and sampling in the utility corridor to be part of the off-site investigation. The DNR concurs with this proposed work item, summarized as Item B above.
- b. The Site Investigation Report, dated January 13, 2014, identified off-site impacts to the north and south of the Beazer site. Contamination is present below and north of Depot Road, on the north side of the Beazer site. Contamination is also present within the utility trench and south, on the Dupont property. Further delineation is needed to define the impacts north of the Beazer site and on the

Dupont property. Wis. Admin. Code § NR 716.11(4) requires the field investigation to extend beyond the property boundaries as necessary to fully define the extent of the contamination.

2. Remedial Action Options Analysis

- a. The DNR considers the tar delineation work, summarized above as Item A, to support the remedial action options analysis, per Wis. Admin. Code § NR 722. The following comments are provided related to this delineation:
 - i. Additional borings at B-32 and B-36 are needed to define the extent of the DNAPL/tar accumulation. These borings are between accumulations and were not advanced deep enough to define the vertical extent.
 - ii. Move the boring proposed in the areas of B-74 & B-05 closer to B-74, because B-74 has the greatest DNAPL/tar thickness, but the vertical extent has not been determined.
 - iii. A deeper boring at B-38 is needed to define the vertical extent of DNAPL/tar accumulation.
- b. The waste characterization assessment, summarized in Item C above, supports the evaluation of remedial options. The following comment is related to this assessment:
 - i. Regarding the test pits, the soil mixing should occur at depths of 2-12 feet bgs, and not at all depths, since most of the PCB contamination at the site occurs at or above 2 feet bgs.

Please revise your work plan to incorporate the above comments and any requests made during the meeting held at the Wisconsin Department of Justice in Madison on May 15, 2018.

We appreciate the efforts you are taking to investigate and restore the environment at this site. If you have any questions regarding this letter, please contact me at 414.263.8639 or at eric.amadi@wisconsin.gov

Sincerely,

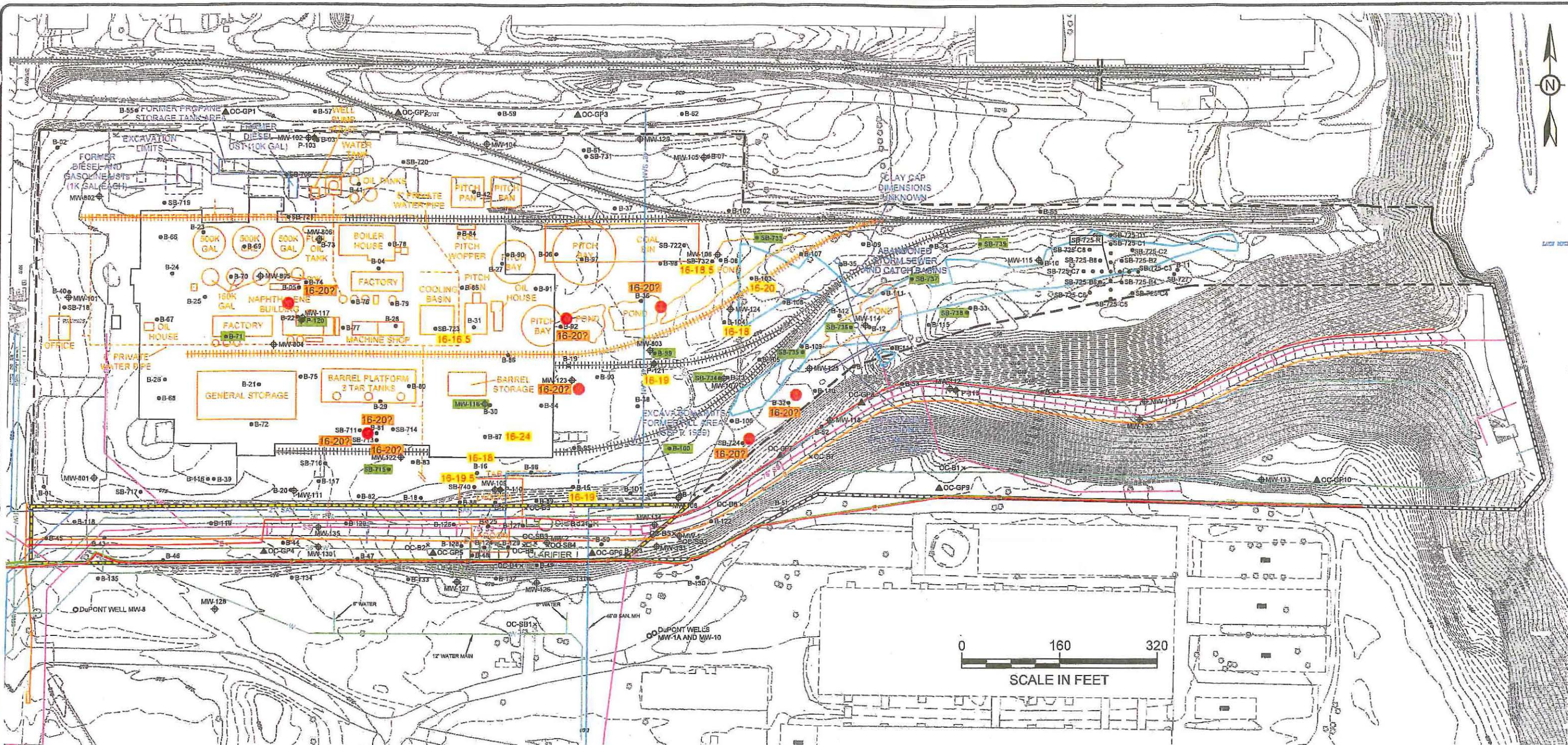
Michelle K. Norman on behalf of

Eric Amadi - Hydrogeologist
Remediation & Redevelopment Program
SER - Milwaukee Service Center

Attachments:

- Figure 2: Proposed Tar Observation Borehole, prepared by Tetra Tech, dated 8/30/2017.
- Figure 3: Proposed Monitoring Well Location, prepared by Tetra Tech, dated 8/30/2017.
- Figure 4: Proposed Waste Characterization Test Pit Location, prepared by Tetra Tech, dated 8/30/2017.

cc: Mike Noel - Tetra Tech (electronic)
Julie Zimdars - NRT (electronic)
Larry Haskins - City of Oak Creek (electronic)
SER Case File #: FID #: 241379050; BRRTS #: 02-41-553761 / 06-41-560068 & 06-41-561509
SER Case File #: FID #: 341074470; BRRTS #: 02-41-561425 / 06-41-561426.



EXPLANATION

- ⊕ MW-101 WATER TABLE WELL
- P-103 NESTED PIEZOMETER
- ⊙ B-01 SOIL BORING
- × OC-SB1 SOIL BORING (CITY OF OAK CREEK)
- ▲ OC-GP1 GEOPROBE (CITY OF OAK CREEK)
- APPROXIMATE WABASH PARCEL BOUNDARY (VPLE 06-41-560068)
- - - APPROXIMATE CITY PARCEL BOUNDARY (VPLE # TBD)

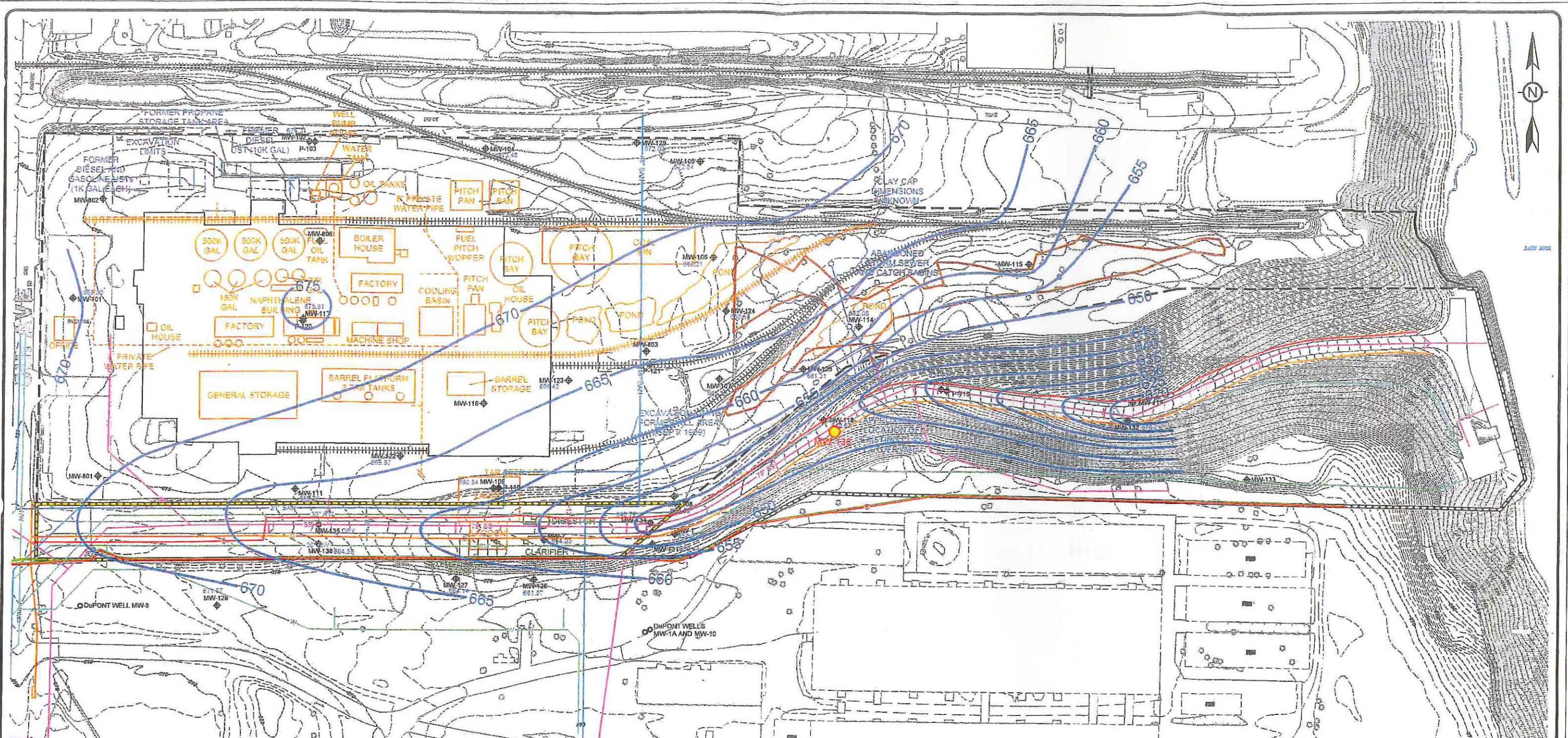
- ○ FORMER TAR PLANT STRUCTURES
- ○ PAST REMEDIAL ACTIVITIES
- ○ FORMER WASTEWATER TREATMENT PLANT STRUCTURES
- APPROXIMATE WETLAND BOUNDARY
- APPROXIMATE CITY UTILITY CORRIDOR PROPERTY BOUNDARY

- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

- 16-20 OBSERVED TAR (16-20' BGS)
- 16-20? POSSIBLE TAR
- PROPOSED TAR OBSERVATION BOREHOLE
- SB-71 NO OBSERVED TAR

- REFERENCE NOTES:**
- EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
 - FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
 - FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
 - FORMER WASTEWATER TREATMENT PLANT STRUCTURES FROM HARTMAN-STRESS, INC. - FILE NO. 72051-C-303, 12/1/1971.

TITLE: FORMER KOPPERS TAR PLANT AND WABASH ALLOYS SITE OBSERVED TAR (16-20' BGS)		
LOCATION: OAK CREEK, WISCONSIN		
	CHECKED: MRN	FIGURE: 2
	DRAFTED: HJW	
	PROJECT: 117-2201323	
	DATE: 8/30/17	



EXPLANATION

- ⊕ MW-101 WATER TABLE WELL
- P-103 NESTED PIEZOMETER
- - - APPROXIMATE WABASH PARCEL BOUNDARY (VPLE 06-41-560068)
- - - APPROXIMATE CITY PARCEL BOUNDARY (VPLE # TBD)
- 669.86 WATER TABLE ELEVATION
- 658 — WATER TABLE CONTOUR
- MW-136 PROPOSED MONITORING WELL

- ○ FORMER TAR PLANT STRUCTURES
- ○ PAST REMEDIAL ACTIVITIES
- ○ FORMER WASTEWATER TREATMENT PLANT STRUCTURES
- APPROXIMATE WETLAND BOUNDARY
- - - APPROXIMATE CITY UTILITY CORRIDOR PROPERTY BOUNDARY

- E — ELECTRICAL
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- FO — FIBER OPTIC

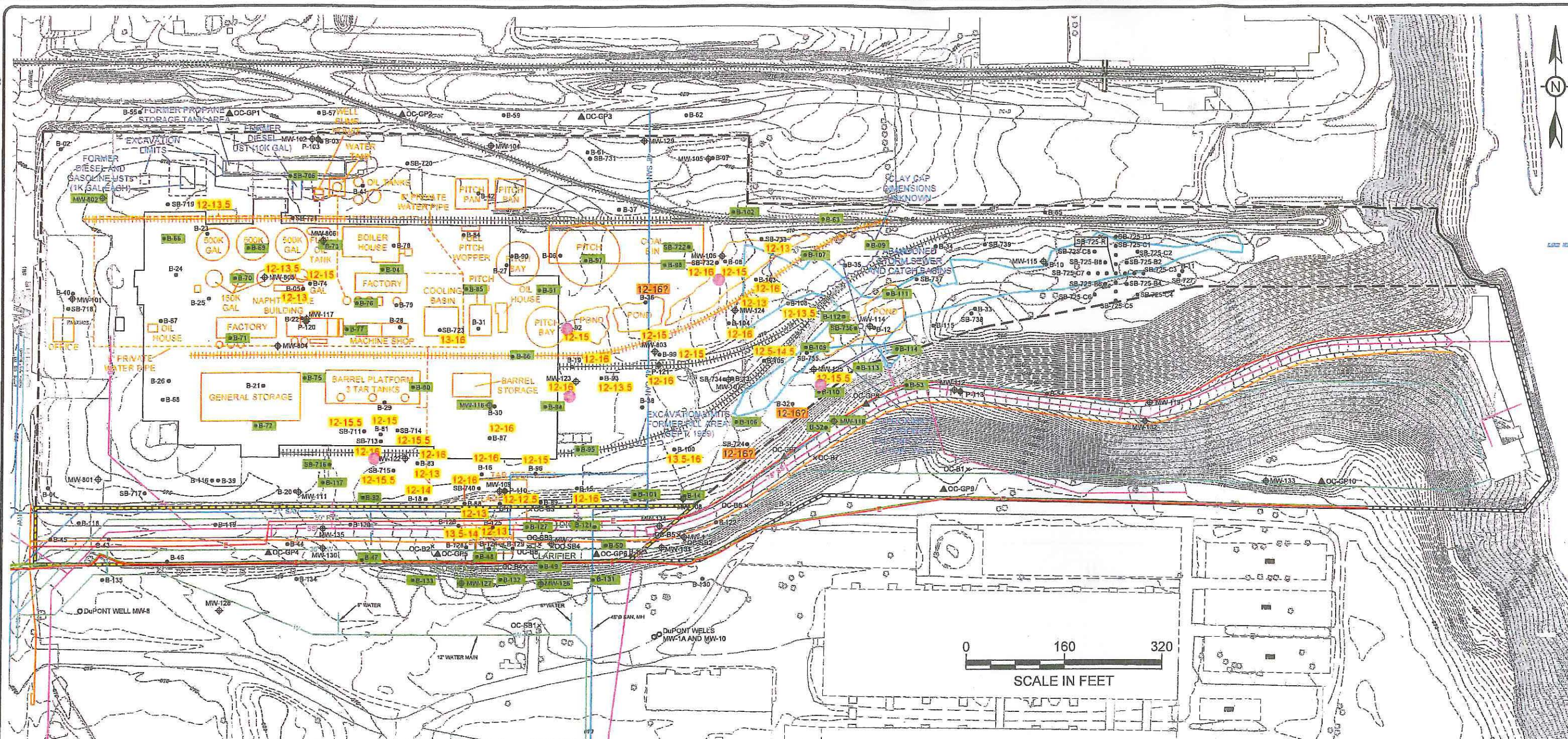
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 - FORMER WASTEWATER TREATMENT PLANT STRUCTURES FROM HARTMAN-STRASS, INC. - FILE NO. 72051-C-303, 12/1/1971.

TITLE: FORMER KOPPERS TAR PLANT AND WABASH ALLOYS SITE SHALLOW GROUNDWATER FLOW MAP (JUNE 15, 2017)

LOCATION: OAK CREEK, WISCONSIN



	CHECKED	MRN	FIGURE: 3
	DRAFTED	HJW	
	PROJECT	117-2201372	
	DATE	8/30/17	



EXPLANATION

- ⊕ MW-101 WATER TABLE WELL
- P-103 NESTED PIEZOMETER
- ⊙ B-01 SOIL BORING
- × OC-SB1 SOIL BORING (CITY OF OAK CREEK)
- ▲ OC-GP1 GEOPROBE (CITY OF OAK CREEK)
- APPROXIMATE WABASH PARCEL BOUNDARY (VPLE 06-41-560068)
- - - APPROXIMATE CITY PARCEL BOUNDARY (VPLE # TBD)

- ○ ○ FORMER TAR PLANT STRUCTURES
- □ □ PAST REMEDIAL ACTIVITIES
- ○ ○ FORMER WASTEWATER TREATMENT PLANT STRUCTURES
- APPROXIMATE WETLAND BOUNDARY
- APPROXIMATE CITY UTILITY CORRIDOR PROPERTY BOUNDARY
- 12-13 OBSERVED TAR (12-16' BGS)
- 12-16? POSSIBLE TAR
- B-86 NO OBSERVED TAR

- E ELECTRICAL
- G NATURAL GAS
- RW RAW WATER
- SAN SANITARY
- SS STORM SEWER
- FO FIBER OPTIC

● PROPOSED WASTE CHARACTERIZATION TEST PIT LOCATION

- REFERENCE NOTES:**
- EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
 - FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
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TITLE: FORMER KOPPERS TAR PLANT AND WABASH ALLOYS SITE OBSERVED TAR (12-16' BGS)			
LOCATION: OAK CREEK, WISCONSIN			
	CHECKED	MRN	FIGURE: 4
	DRAFTED	HJW	
	PROJECT	117-2201323	
	DATE	8/30/17	