TETRA TECH

September 3, 2020

Eric Amadi - Hydrogeologist
Remediation & Redevelopment Program – SER/Milwaukee
Wisconsin Department of Natural Resources
Southeast Region Headquarters
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, WI 53212-0436

Re: Response to August 3, 2020 Review of Updated Site Investigation Figures

Former Koppers Tar Plant and Wabash Alloys Site
9100 South 5th Avenue, Oak Creek, WI 53154
FID #: 241379050; BRRTS #: 02-41-553761
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
VPLE BRRTS #: 06-41-561426

Dear Mr. Amadi:

The purpose of this letter with attachment is to provide a complete and comprehensive response to comments contained in your August 3, 2020 letter with attachment addressed to Mike Bollinger regarding the Wisconsin Department of Natural Resources (DNR) preliminary review of Beazer's updated site investigation figures. In order to most efficiently and accurately respond to the various points made in your August 3, 2020 letter with attachment, we have: (1) restated below excerpts from the August 3 letter followed by Beazer's response in italics; and (2) enclosed with this letter an attachment that includes revised figures and each of your screenshot comments followed by our response.

- Comment:
  The Wisconsin Department of Natural Resources (DNR) has completed a preliminary review of Beazer's updated site investigation figures as received on June 11, 2020. The DNR has identified numerous instances where it appears site data has not been accurately depicted on the figures. A full review of all information has not been completed by the DNR, as multiple issues need to be addressed. The DNR is requesting that Beazer revise the figures and reevaluate the information collected to date to ensure that it is presented accurately prior to the DNR continuing its review of the data.

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Response:
We have reviewed the DNR's comment letter attachment that includes comments or questions pertaining to selected figure screenshots. We have prepared a response to each screenshot/comment in the attachment to this response letter. In our estimation, many of the DNR comments/questions pertain more to a difference in interpretation of the underlying site data than the accurate depiction of that data; so in our responses we provide the basis of our interpretation. We believe our responses show that the site data has been accurately depicted in the figures, and in those cases we provide context for that determination. In cases where we agree with the DNR that the figures should be amended, revised figures are provided in the attachment. However, the revised figures do not substantially change the depiction of the nature and extent of contamination.

- Comment:
  The DNR has provided the attached document to provide examples of the following issues:

  Tar identified in boring logs has not been accurately and/or consistently identified in the tar observation figures, isoconcentration maps, and cross-section figures.

  Response:
  The protocol established early on in this project (through approved work plans, site investigation reports, and technical meetings with the DNR), has been to separate potentially mobile tar from immobile tar, such as inert hardened tar. Pursuant to this protocol, only potentially mobile tar is denoted on figures as "Tar" – while observations of hardened tar pieces, fragments, or chards noted in boring logs were not to be indicated as 'tar' on figures. As examples, pieces of hardened tar are observed at borings B-51 (7-8.5') and B-117 (5-8'). Following our protocol, these observations of hardened tar pieces were not labeled as "Tar" on the figures. In our work plans, reports and meetings, the word "tar" in isolation always means potentially mobile tar. Utilizing this protocol we believe tar identified in the boring logs has been accurately and consistently identified in the tar observation figures.

  As described in the January 13, 2014 Site Investiagtion Report, if a sample location/interval had an observation of tar but no analytical data, a value representative of the tar based on other analytical results from that interval was incorporated into the contouring. For total BTEXTM an assigned value of 1,000 µg/kg was used for the 0-4' interval and 10,000 µg/kg for all other intervals. For total PAH an assigned value of 1,000 mg/kg was used for the 0-4' interval, 10,000 mg/kg for the 4-8' and 8-12' intervals, and 500 mg/kg for the 12-16' and 16-20' intervals.

  Using an analytical result or an assigned value of less than 10,000 ug/kg results in areas of observed tar that do not appear as "red" in the contour maps. However, we have revised the figures to include the observed "TAR" label even if the contouring used an actual analytical result in the contouring program.

- Comment:
  The degree and extent of impacts in multiple locations is not adequately defined to meet the requirements for VPLE, to move forward with the selection of a remedial alternative, or to

complete a remedial design. In many instances, there are several hundred feet between data points which will make development of an acceptable remedial design challenging, especially with respect to estimating quantities and costs. It is possible that other lines of evidence could be presented in these areas to provide adequate information to move forward without additional site characterization information obtained through further sampling. The DNR requests that Beazer evaluate the information available in the identified areas and provide evidence, if available, to better define the conditions in the identified data gap areas. In the areas where direct observation, sample analysis results, or other lines of evidence are not available to support the delineation of the extent of impacts, additional data collection may be recommended as remedial design activities.

Response:
We believe the degree and extent of impacts is adequately defined to move forward with the selection of a remedial alternative as demonstrated by the Remedial Action Options Report that was prepared for this project in 2014. Depending on the selected remedial alternative, supplemental information needed to complete the remedial design would be collected as part of pre-design investigation activities. This is consistent with the approach being taken by Connell for the PCB-impacted portion of the Site. Connell's March 13, 2020 Addendum to Remedial Action Options Report (RAOR) and Pre-Design Sampling Work Plan proposes additional soil sampling to refine the cap extent and excavation areas shown in the Remedial Design Report..

The DNR commented on several figures noting where additional information is requested to fill identified data gaps in the horizontal and/or vertical extent of tar. Specific responses to each of the screenshot comments are provided in the attachment to this letter. One of the lines of evidence we offer –in response to DNR's data gap concerns includes considering the three-dimensional perspective of existing data. Comparing data from intervals above and/or below the interval commented on puts the sampling interval into geospatial context and informs the interpretation.

- Comment:
  Several locations have been identified as having high levels of contamination that appear to be independent of adjacent areas of impacts. Provide conceptual site model type information to explain the origins and justify the separation of these high concentration areas.

  Response:
  In our attached comments we provide conceptual site model type information and other lines of evidence to explain why some areas of contamination are presented as separate or isolated including:
  - *Location of former tar structures and features.*
  - *Three-dimensional perspective of existing data. Comparing data from intervals above and/or below the interval commented on puts the sampling interval into geospatial context and informs the interpretation.*
  - *Anthropomorphic redistribution of contaminants, in particular along the utility corridor, where excavation and backfilling activities associated with utility installations through contaminated areas occurred intermittently over many years.*
  - *Topographic influence on potential contaminant movement (e.g., spills don't flow uphill)*

In one instance (Figure B1 BTEXTM (0-4')) we agreed with an alternative interpretation and connected two adjacent areas of impact. The revised figure is included in the package of attached figures.

- Comment:
  Please update the figures to address these issues or provide information to describe why revisions are not required. Also, conduct a detailed review of the information previously provided to identify any other areas that warrant revision. DNR's review was not all inclusive as it appears that further review should be completed by Beazer to address inconsistencies in data interpretation prior to the DNR completing its review. Providing this information will assist the DNR in review and approval of the site investigation and remedial action plan. Going forward, naphthalene must be considered as a primary contaminant of concern and incorporated within the evaluation of remedial options.

  Response:
  A further review was completed of borehole logs, tar observation maps and BTEXTM and PAH contour maps. Where appropriate, updated figures are provided in the attachment. In our view, the DNR's opinion as to the existence of inconsistencies in data interpretation are not so much an inconsistency, but more so alternative interpretations on which reasonable minds might disagree. To that end, explanations are provided describing how figures were prepared which hopefully helps to explain and clarify the rationale for how certain figures are presented.

  It's not clear to Beazer what was intended by or what changes could be made to address the DNR's statement regarding naphthalene being considered as a primary constituent of concern going forward. Naphthalene has always been considered a primary constituent of concern by Beazer, and naphthalene is the primary constituent driving the total PAH values at this Site. In particular, Beazer directs DNR to the 2014 Remedial Action Options Report, which identified naphthalene as a specific PAH constituent of potential concern (COPC)[1].. Beazer does not believe that it is necessary to treat naphthalene any differently in the future.

- Comment:
  Once Beazer's review of the data is completed, resubmit the figures and provide a summary of any changes made to the revised documents. In addition, in areas identified as not having adequate direct evidence of the nature and extent of impacts, provide other lines of evidence to support the extent of contamination defined on the figures, with supplemental text as necessary.

  Response:
  Updated figures are attached. Any figure changes made are explained in the attached response to DNR Review of Beazer Figures (July 31, 2020).

[1] Constituents of potential concern (COPCs) associated with the former coal tar plant include benzene, ethylbenzene, xylene, trimethylbenzenes (BTEXTM) and polyaromatic hydrocarbons (PAHs)… The protection of groundwater RCL in vadose zone soils is exceeded for PAH compounds (benzo(a)pyrene primarily and naphthalene in limited areas). Remedial Action Options Report, Section 2.4, (December 2014).

In light of the technical nature of the Comments and Responses, and taking note of the DNR's statement that its review was not all-inclusive and requested Beazer's clarification prior to completion of such review, Beazer proposes that the technical representatives of the DNR and Beazer meet to go over our response to comments and further address any questions you may have.

Sincerely,
Tetra Tech, Inc.

Vice President, Principal Hydrogeologist

Attachments: Response to DNR Review of Beazer Figures (July 31, 2020)
Revised Figures Package

cc: Mike Bollinger, Beazer
Mike Slenska, Beazer

Comment:

FORMER KOPPERS TAR PLANT AND WABASH ALLOYS SITE OBSERVED TAR (0-4' BGS) OAK CREEK, WISCONSIN TETRA TECH 3	Figure 3: Observed Tar (0-4' BGS), 06/04/20 Figure B1: Total BTEXTM Soil Concentrations – 0-4' BGS Figure B10: Total PAH Soil Concentrations – 0-4' BGS The 2014 SI Report includes boring logs for B-08-11 and B-13-11. Tar is noted at both locations at 2 feet. Identify these sampling locations on the figures and highlight them as containing tar.

Response: *B-08-11 and B-13-11 (installed by Tetra Tech in 2011 to collect 0-2' soil samples) are at the same locations as B-08 and B-13 (installed in 2010 by RMT) and includes notations of tar.*

Revised Figure 3 (0-4')
B-13-11 tar observation at 2' added

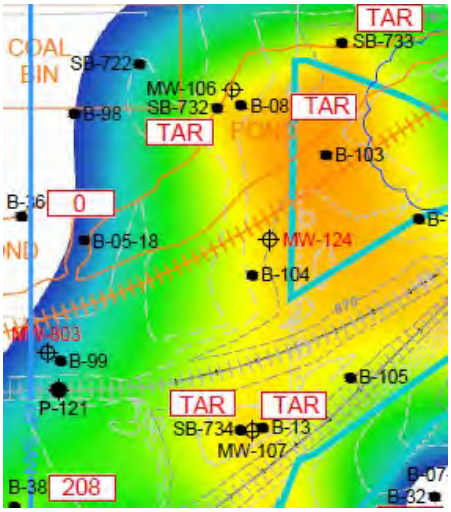


Figure B1 (0-4')

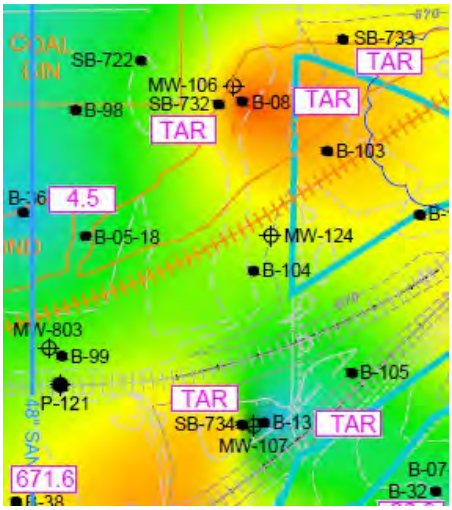
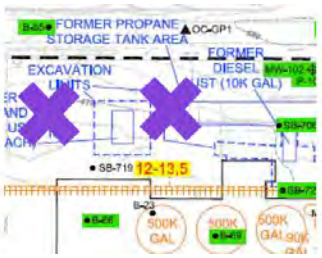


Figure B10 (0-4')

Comment:



From Figure 6: Observed Tar (12-16' BGS), 06/04/20

Describe how the tar extent is defined northwest, north, and northeast of SB-719. The closest tar observation points in these directions appear to be more than 100 feet from SB-719.

Response: *No tar was observed above this interval (0-12') and there are no tar plant related structures to the north of this borehole. Samples to the north of SB-719 would encounter clean backfill related to a former post-tar plant UST that was removed along with contaminated soil.*

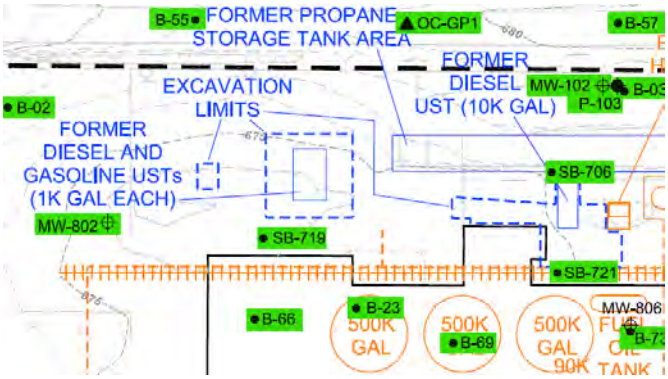


Figure 5 (8-12')

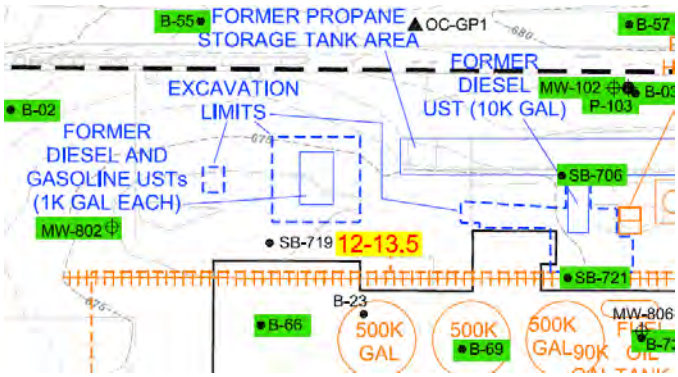
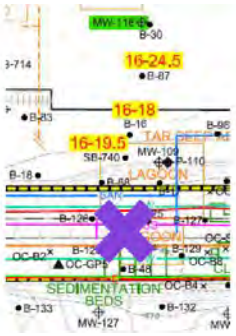


Figure 6 (12-16')

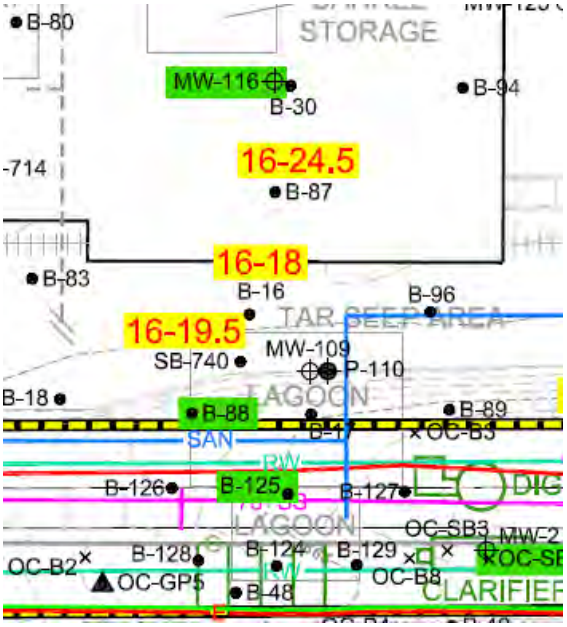
Comment:



From Figure 7: Observed Tar (16-20' BGS), 06/04/20

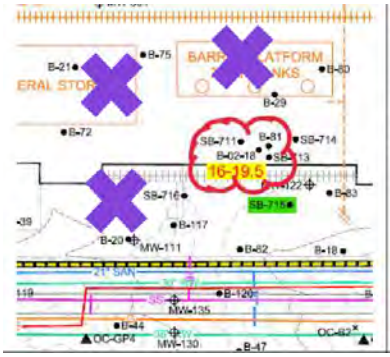
Describe how the tar extent is defined south of the B-87/B-16/SB-740 area in the utility trench at the 16-20 foot depth.

Response: *Borings B-88 and B-125 show no observed tar in the 16-20' interval to the south of the B-87/B-16/SB-740 area in the utility trench area. Figure 7 has been revised by shading B-88 and B-125 green indicating no observed tar.*



Revised Figure 7 (16-20')

Comment:



From Figure 7: Observed Tar (16-20' BGS), 06/04/20

Describe how the tar extent is defined southwest, west, northwest, and north of the tar observed at B-02-18. The closest tar observation points in these directions appear to be more than 100 feet from B-02-18.

Response: *Figure 6: Observed Tar (12-16' BGS) shows borings to the southwest (SB-716), west (B-72), northwest (B-75) and northeast (B-80) where no tar was observed. The observations at the shallower interval (12-16') inform the interpretation of the observations in the deeper interval (16-20'). Because there was no tar observed at the 12-16' interval at those borehole locations, it can be extrapolated that there is no tar present in the 16-20' interval at those same borehole locations.*

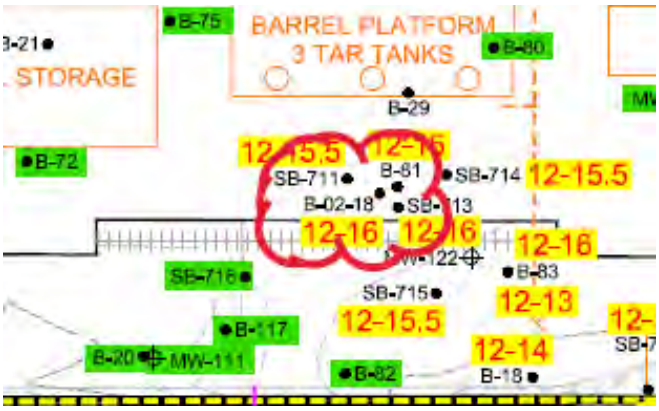


Figure 6 (12-16')

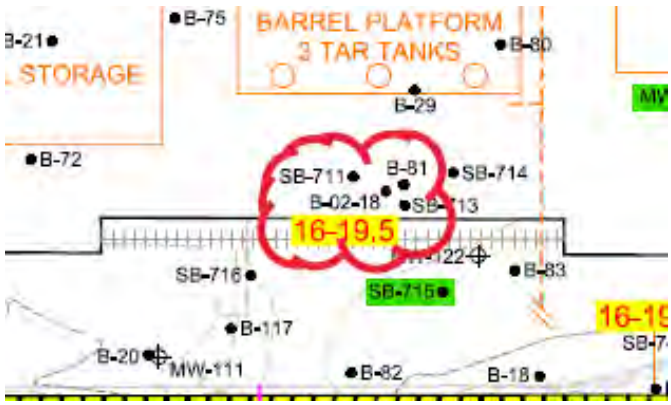
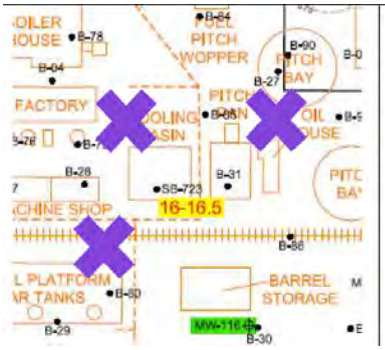


Figure 7 (16-20')

Comment:



From Figure 7: Observed Tar (16-20' BGS), 06/04/20

Describe how the tar extent is defined southwest, northwest, north, and northeast of the tar observed at SB-723. The closest tar observation points in these directions appear to be more than 100 feet from SB-723.

Response: *Figure 6: Observed Tar (12-16' BGS) shows borings to the southwest (B-80), northwest (B-79, B-04, B-78), north (B-85, B-84), northeast (B-90), and southeast (B-86) where no tar was observed. The observations at the shallower interval (12-16') inform the interpretation of the observations in the deeper interval (16-20'). Because there was no tar observed at the 12-16' interval at those borehole locations, it can be extrapolated that there is no tar present in the 16-20' interval at those same borehole locations.*

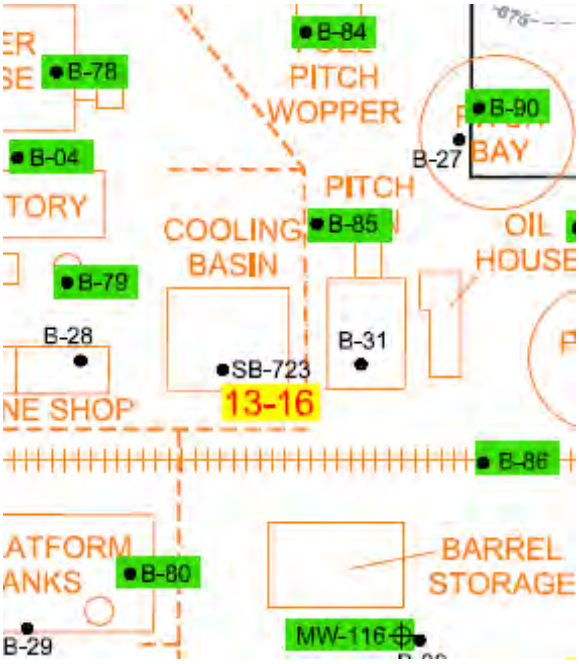


Figure 6 (12-16')

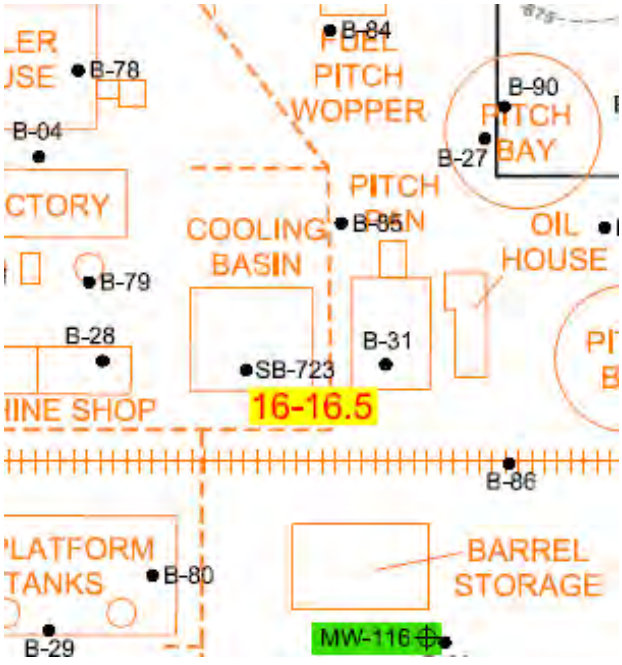


Figure 7 (16-20')

Comment:

From Figure 7: Observed Tar (16-20' BGS), 06/04/20

Describe how the vertical extent of tar is defined at B-96. Tar is noted as being observed on the boring log from 5-15 feet, and the boring ends at 15 feet. Surrounding tar depths range from 18-24.5 feet.

Response: *Figure 6: Observed Tar (12-16' BGS) shows other surrounding borings with tar depths of 12.5' (P-110) and 13' (B-94). If an active remedy were to be implemented for the 16-20' interval, additional pre-design investigation could be used to refine the delineation.*

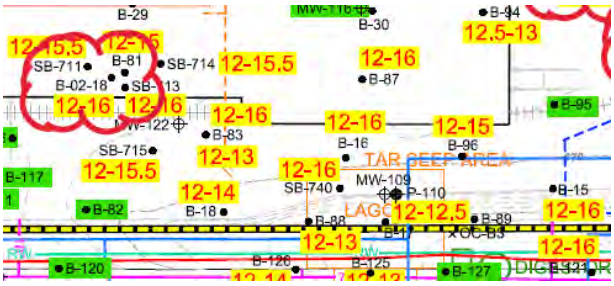


Figure 6 (12-16')

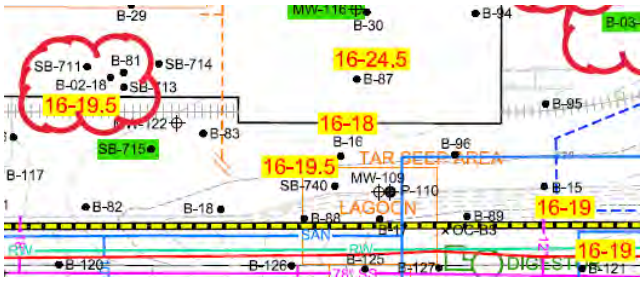


Figure 7 (16-20')

Comment:

From Figure 7: Observed Tar (16-20' BGS), 06/04/20

Describe how the tar extent is defined west, northwest and north of the tar observed at SB-722. The closest tar observation points in these directions appear to be more than 100 feet from SB-722.

Response: *There was no tar observed at boring SB-722, so we presume you meant boring SB-732. Observed Tar (12-16' BGS) shows borings to the west (B-98), northwest (SB-722) and north (B-102) where no tar was observed. The observations at the shallower interval (12-16') inform the interpretation of the observations in the deeper interval (16-20') Because there was no tar observed at the 12-16' interval at those borehole locations, it can be extrapolated that there is no tar present in the 16-20' interval at those same borehole locations.*

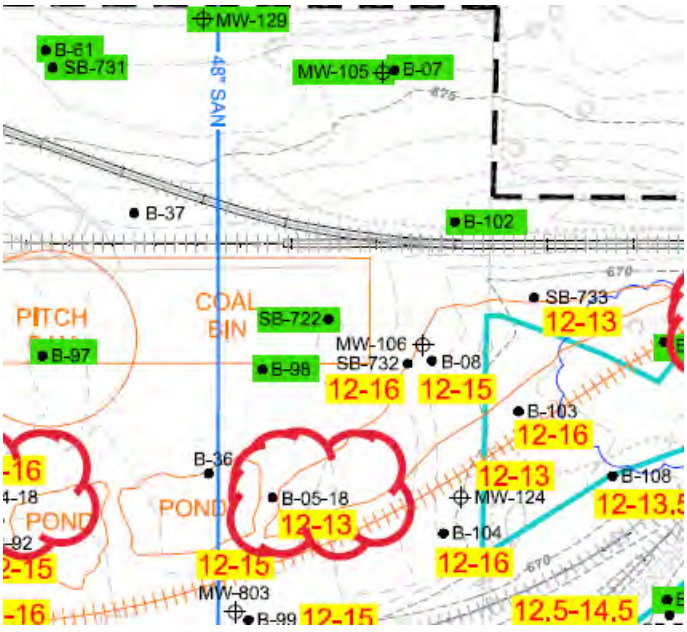


Figure 6 (12-16')

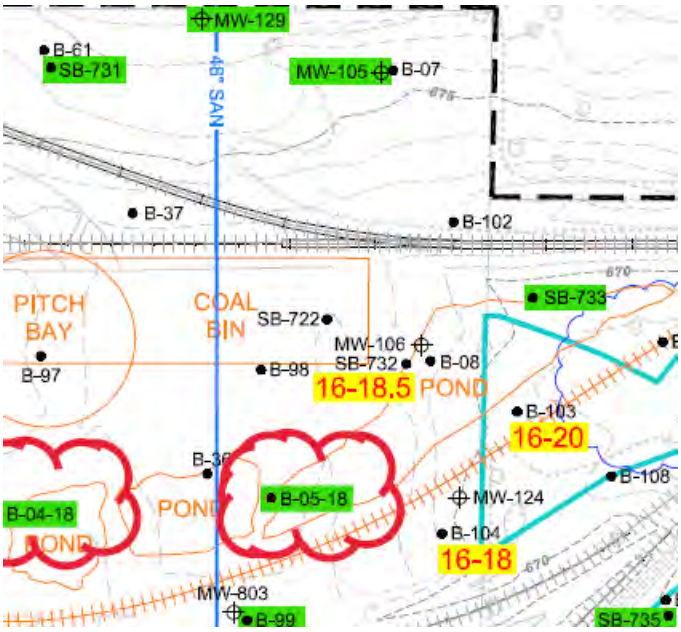
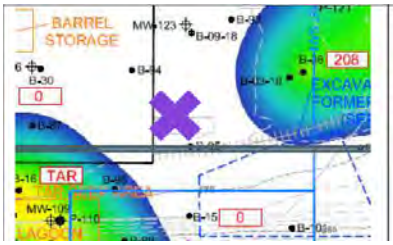


Figure 7 (16-20')

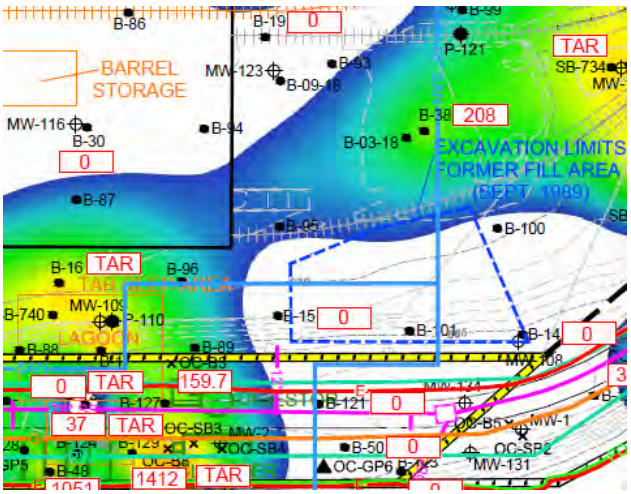
Comment:



From Figure B1: Total BTEXTM Soil Concentrations – 0-4' BGS

Discuss if these two areas should be connected, since no tar observation and/or sampling locations are present in the 0-4 foot interval.

Response: *The non-detections at B-15, B-30 and B-19 in the 0-4' interval influenced the contouring. The boring log for B-95 does note a petroleum odor and a PID reading of 19.6 at a depth of 2' and these areas are connected in the underlying interval (4-8'). A revised Figure B1 connecting these two areas is provided as an attachment.*



Revised Figure B1 (0-4')

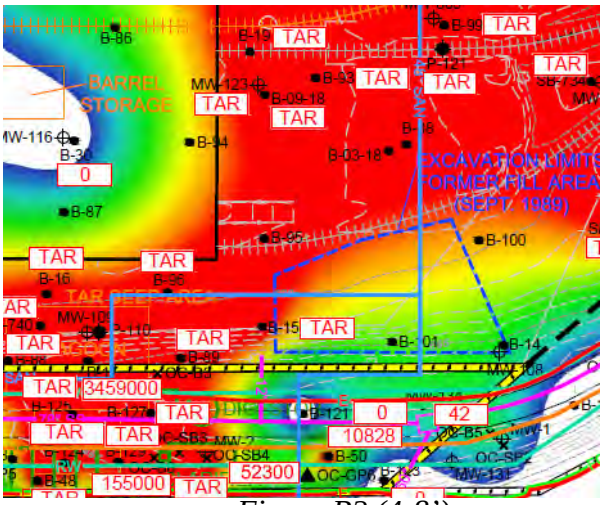
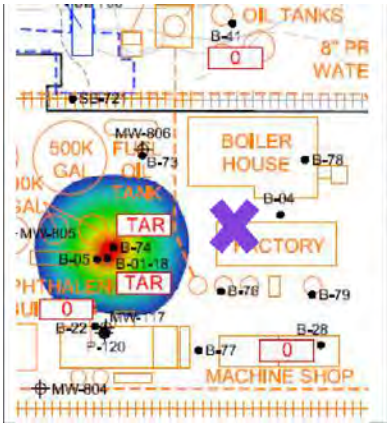


Figure B2 (4-8')

Comment:



From Figure B2: Total BTEXTM Soil Concentrations – 4-8' BGS

Discuss the sharp definition around B-74 and the separation from B-04. B-04 was shown on Figure B1 as having contamination in the 0-4 foot interval. Since no tar observation and/or sampling locations are present in the 4-8 foot interval between B-74 and B-04, describe what is separating the contamination at B-04 from the B-74 area.

Response: *B-04 is isolated from the B-74 area in the 0-4' interval with the non-detection at B-05 (adjacent to B-74). B-04 is also isolated from the B-74 area in the 8-12' interval with the non-detection at B-04. The data above and below the 4-8' interval support the isolation of these two areas.*

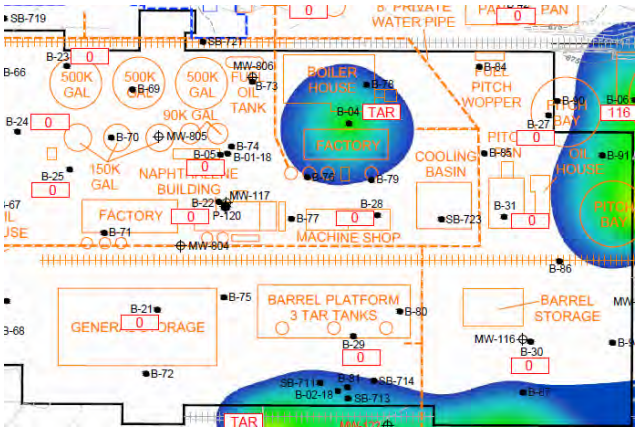


Figure B1 (0-4')

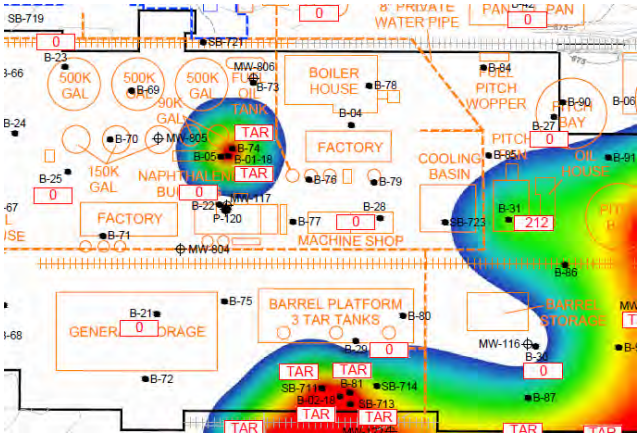


Figure B-2 (4-8')

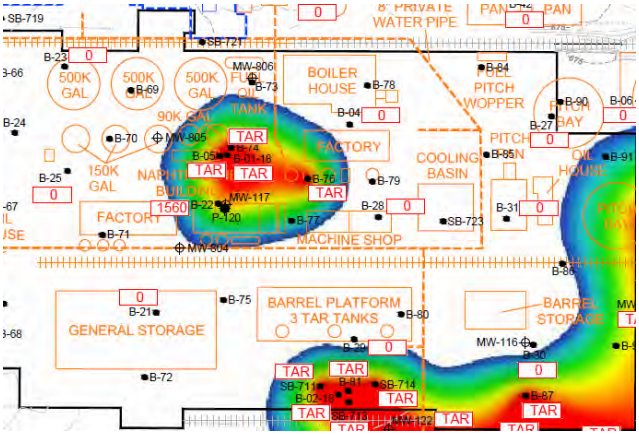
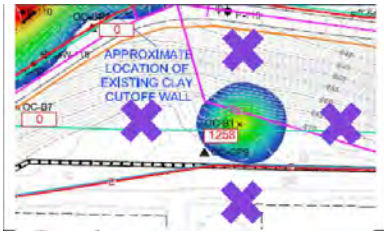


Figure B3 (8-12')

Comment:



From Figure B2: Total BTEXTM Soil Concentrations – 4-8' BGS

Discuss the sharp definition around OC-B1 and the lateral extent of contamination in all directions. The closest tar observation and/or sampling locations are to the west and northwest and appear to be more than 100 feet from OC-B1.

Response: *This boring is at the top of a 20-30' slope and on the property line with the former DuPont site. The borehole log shows fill and bricks and refusal at 12 feet. This contamination did not migrate from the tar plant and is most likely associated with the DuPont site.*

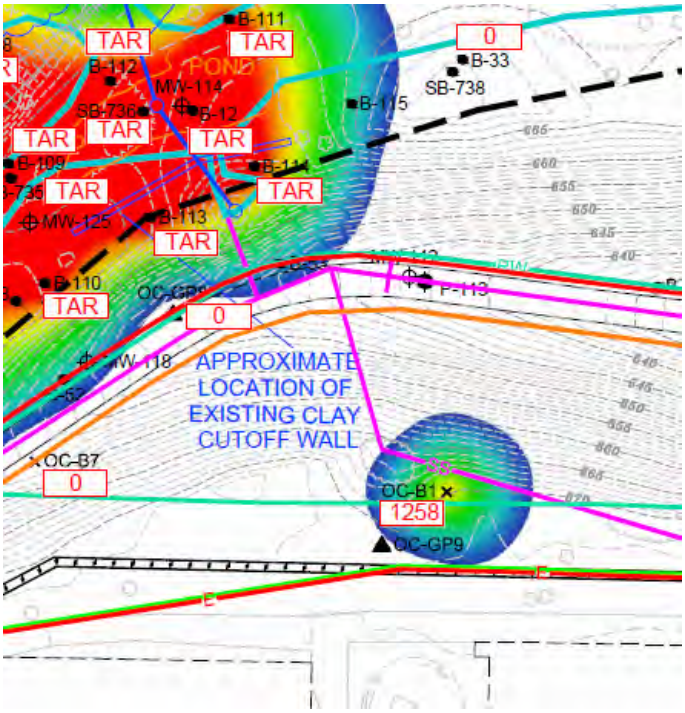
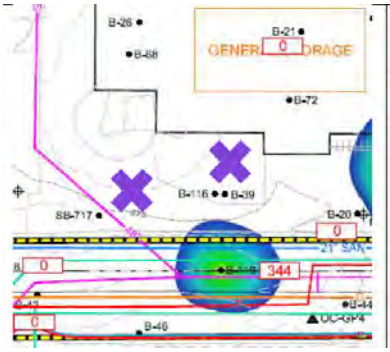


Figure B-2 (4-8')

Comment:



From Figure B2: Total BTEXTM Soil Concentrations – 4-8' BGS

Discuss the extent of contamination northwest and north of B-119. The closest sampling point in these directions is B-21, which appears to be more than 200 feet from B-119.

Response: *The results from the 0-4' interval support the isolation of this area of relatively low contaminant levels. This isolated area is likely related to excavation and backfilling activities associated with utility installations along the utility corridor that redistributed contaminants from elsewhere along the line.*

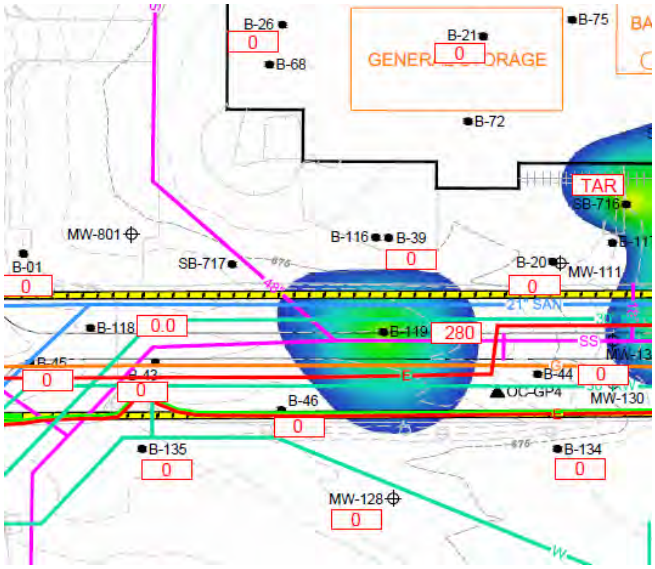


Figure B1 (0-4')

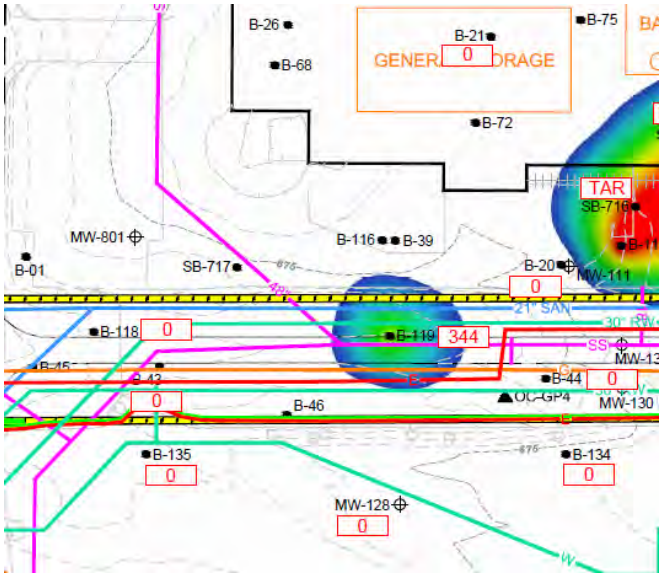
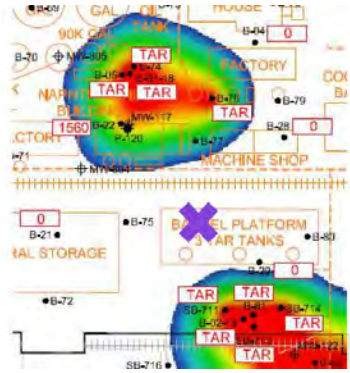


Figure B-2 (4-8')

Comment:



From Figure B3: Total BTEXTM Soil Concentrations – 8-12' BGS

Discuss if these two areas should be connected, since no tar observation and/or sampling locations are present in the 8-12 foot interval.

Response: *The non-detectable results in the 0-4' and 4-8' intervals at borings B-21, B-22, B-28, B-29, and B-30 support the interpretation that these areas are separate.*

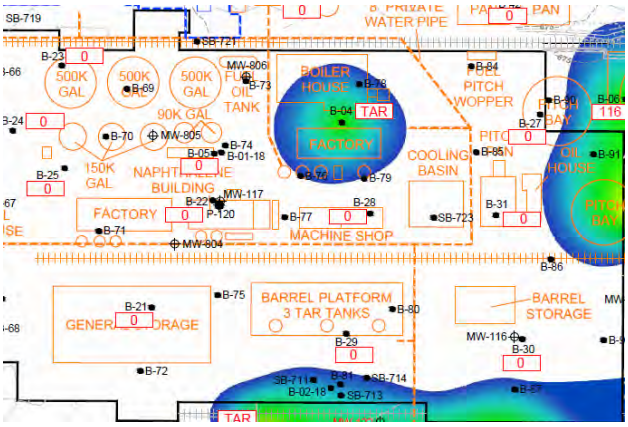


Figure B1 (0-4')

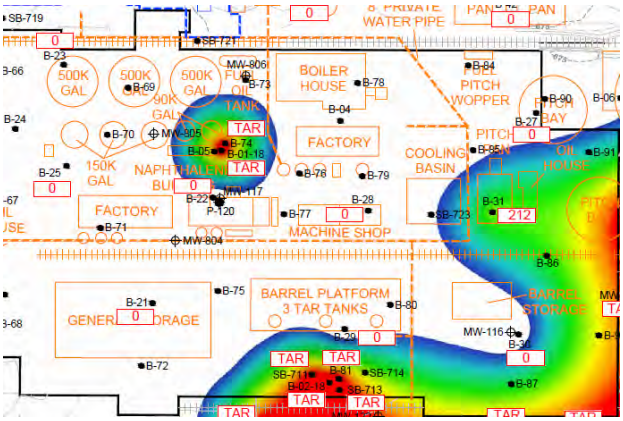


Figure B2 (4-8')

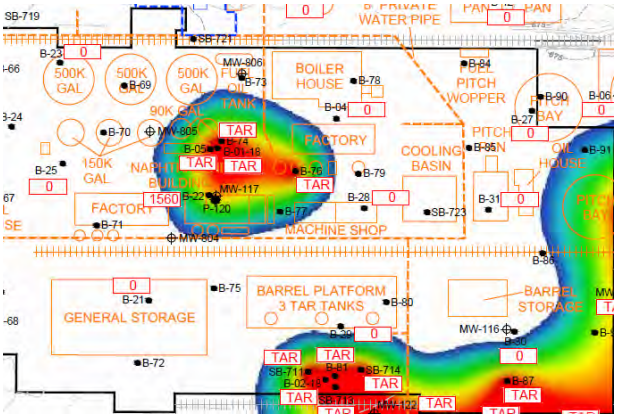
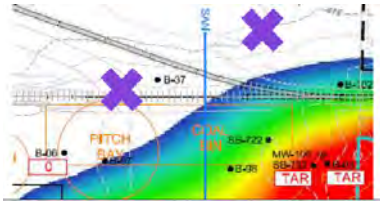


Figure B3 (8-12')

Comment:



From Figure B3: Total BTEXTM Soil Concentrations – 8-12' BGS

Discuss how the extent of contamination is defined to the northwest and north of SB-722. The closest sampling locations appear to be almost 300 feet from SB-722.

Response: *There were no former tar plant structures in this area. There were no shallow (0-4') contaminants detected in samples in this area. Groundwater testing to date at wells MW-104, MW-105 and MW-129 in this area has indicated no detectable contaminants.*

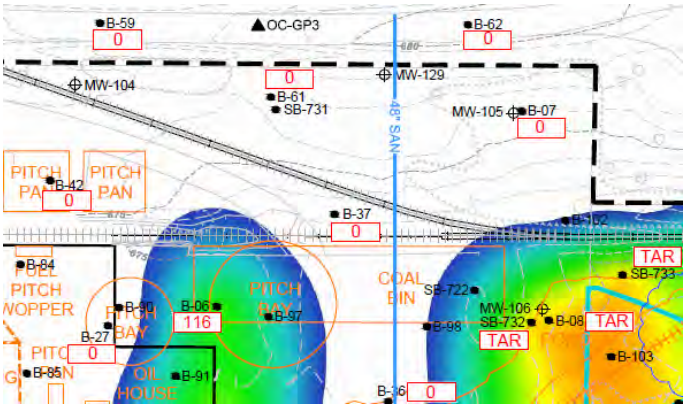


Figure B1 (0-4 ')

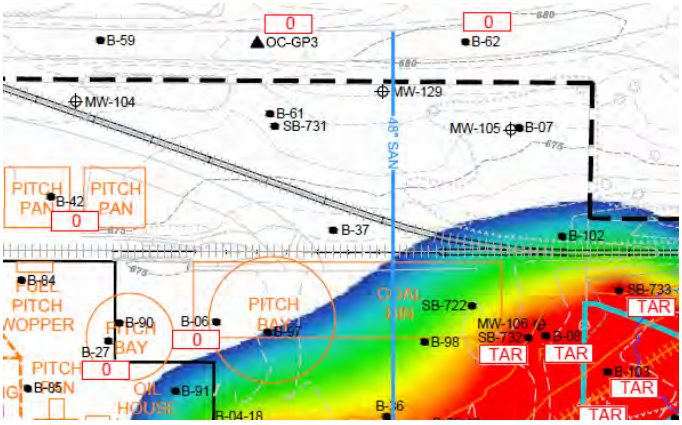


Figure B3 (8-12')

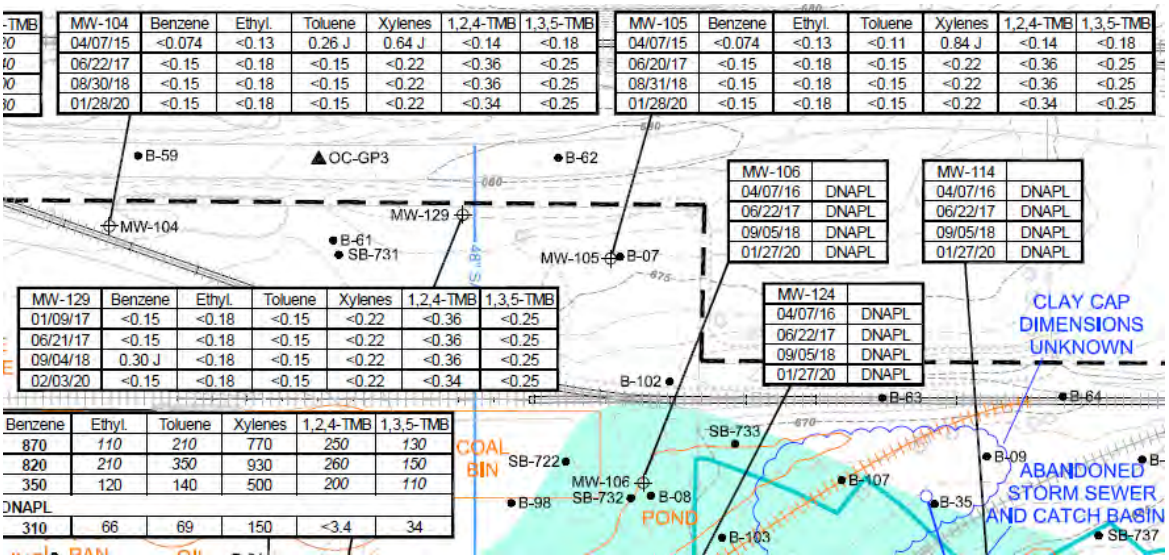
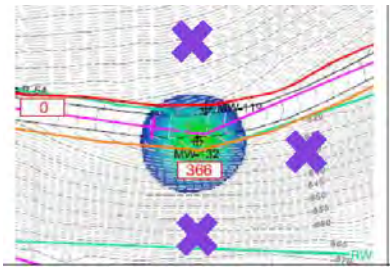


Figure B10 Shallow Groundwater BTEXTM Concentrations

Comment:



From Figure B3: Total BTEXTM Soil Concentrations – 8-12' BGS

Discuss how the extent of contamination is defined to the north, east, and south of MW-132.

Response: *There were no contaminants detected in soil uphill at B-33 or B-54. Groundwater testing at wells MW-112 or MW-132 has indicated no detectable contaminants except for sporadic low-level detections that have not been present in the last two or three sampling events. This isolated area is likely related to excavation and backfilling activities associated with utility installations along the utility corridor that redistributed contaminants from elsewhere along the line.*

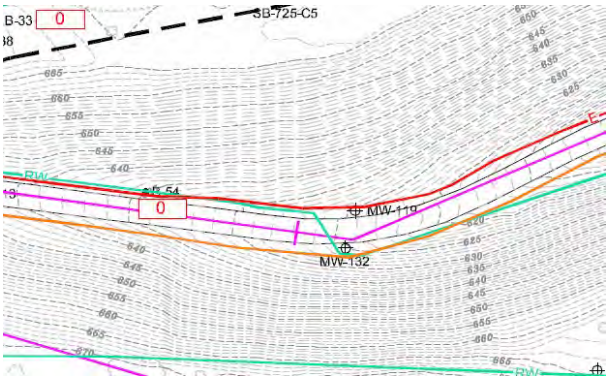


Figure B1 (0-4')

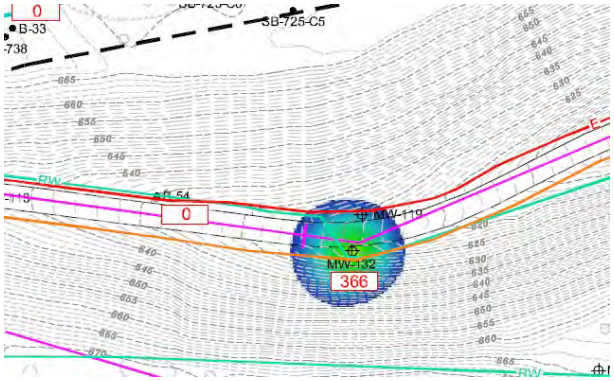
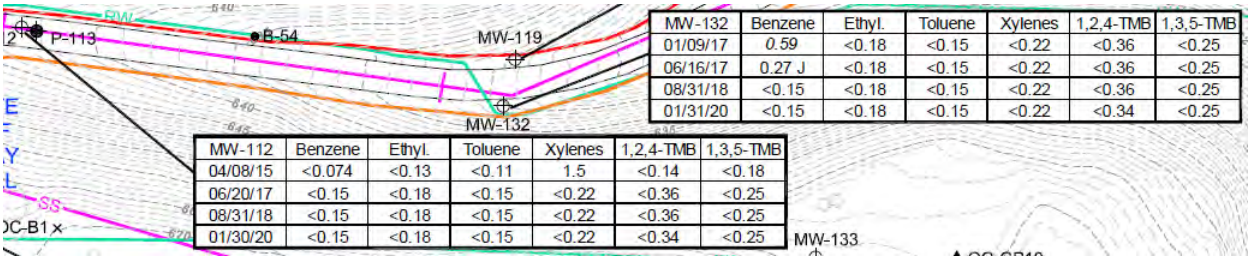


Figure B3 8-12')

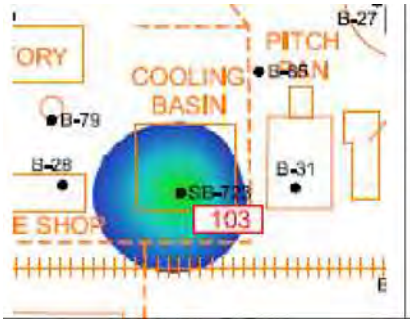


MW-112	Benzene	Ethyl.	Toluene	Xylenes	1,2,4-TMB	1,3,5-TMB
04/08/15	<0.074	<0.13	<0.11	1.5	<0.14	<0.18
06/20/17	<0.15	<0.18	<0.15	<0.22	<0.36	<0.25
08/31/18	<0.15	<0.18	<0.15	<0.22	<0.36	<0.25
01/30/20	<0.15	<0.18	<0.15	<0.22	<0.34	<0.25

MW-132	Benzene	Ethyl.	Toluene	Xylenes	1,2,4-TMB	1,3,5-TMB
01/09/17	*0.59*	<0.18	<0.15	<0.22	<0.36	<0.25
06/16/17	0.27 J	<0.18	<0.15	<0.22	<0.36	<0.25
08/31/18	<0.15	<0.18	<0.15	<0.22	<0.36	<0.25
01/31/20	<0.15	<0.18	<0.15	<0.22	<0.34	<0.25

Figure B10 Shallow Groundwater BTEXTM Concentrations

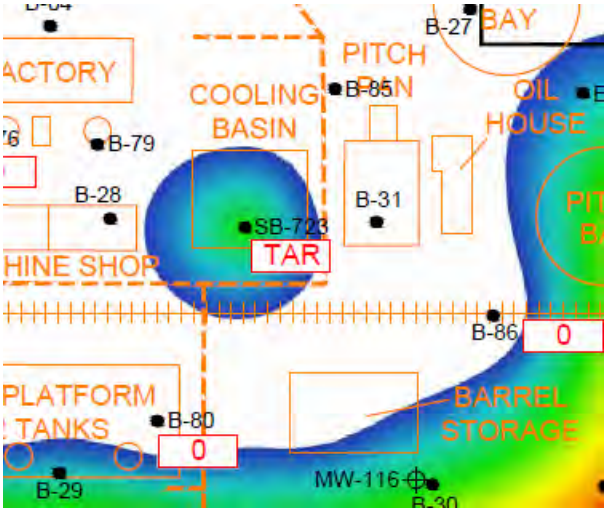
Comment:



From Figure B4: Total BTEXTM Soil Concentrations – 12-16' BGS

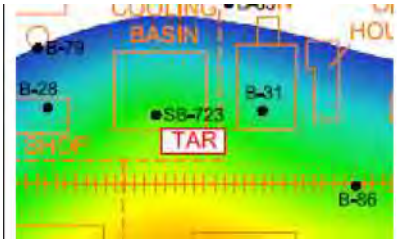
The boring log for SB-723 indicates thick tar from 12.9-16.5 ft. Explain the reason that no tar is labelled or "red" color used to approximate the soil concentration at SB-723 from 12-16 ft bgs.

Response: *Where analytical data was available for samples at a specific interval, those values were used in the contouring. The total BTEXTM concentration for SB-723 at the 12-16' interval was 103 ug/kg. The figure was changed to add the "TAR" observation.*



Revised Figure B4 (8-12')

Comment:

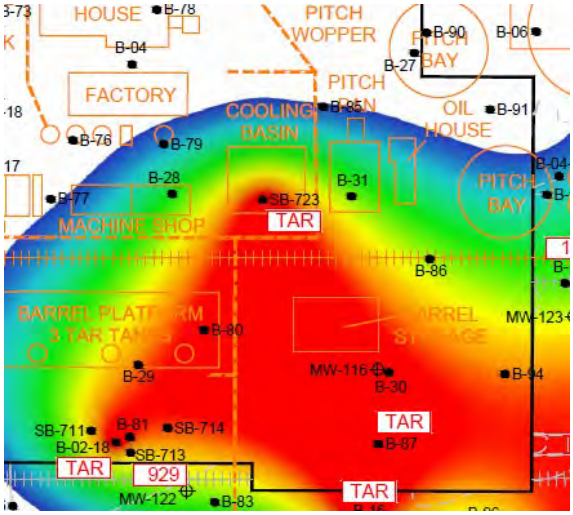


From Figure B5: Total BTEXTM Soil Concentrations – 16-20' BGS

The boring log for SB-723 indicates thick tar from 12.9-16.5 ft. Explain the reason "red" is not indicated at SB-723 to approximate the soil concentration of the identified tar.

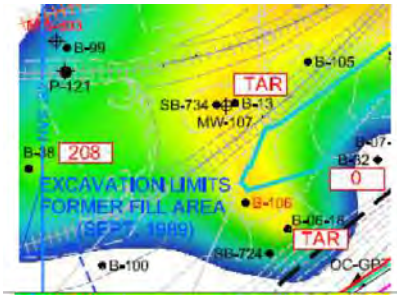
Response: *As described in the January 13, 2014 Site Investiagtion Report, if a sample location/interval had an observation of tar but no analytical data, a value representative of the tar based on other analytical results from that interval was incorporated into the contouring; for total BTEXTM: 1,000 µg/kg for the 0-4' interval and 10,000 µg/kg for all other intervals and for total PAH: 1,000 mg/kg for the 0-4' interval and 10,000 mg/kg for the 4-8' and 8-12' interval and 500 mg/kg for the 12-16' and 16-20' intervals.*

An incorrect assigned value was used for the tar observation at SB-723. The assigned value was corrected, and the figure has been revised.



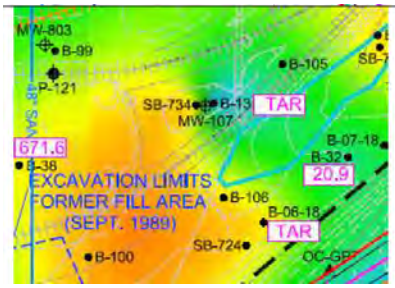
Revised Figure B5 (16-20')

Comment:



From Figure B1: Total BTEXTM Soil Concentrations – 0-4' BGS

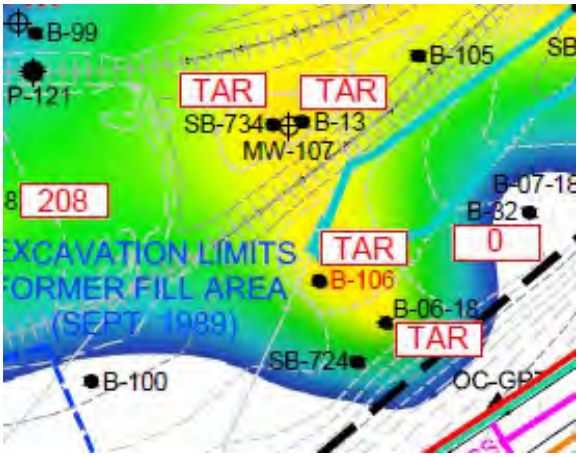
Boring log for SB-734 indicates hardened tar and/or thick tar from 1-10 ft. Explain the reason that no tar is labelled on this figure.



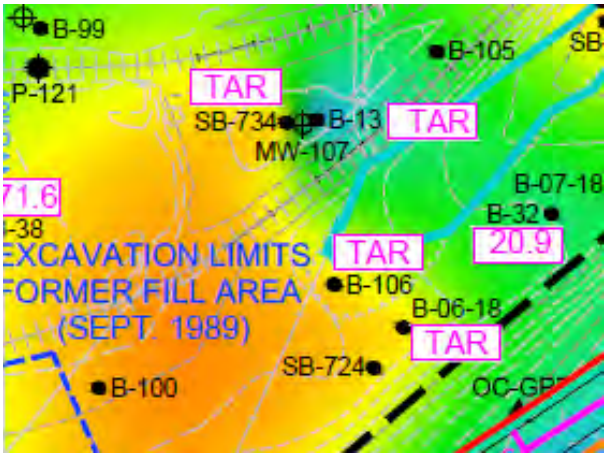
From Figure B1: Total PAH Soil Concentrations – 0-4' BGS

Boring log for SB-734 indicates hardened tar and/or thick tar from 1-10 ft. Explain the reason that no tar is labelled on this figure.

Response: *The "TAR" observation label was added to SB-734 on Figures B1 and B10.*

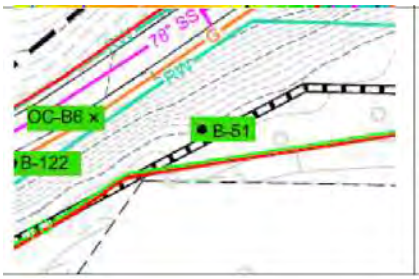


Revised Figure B1 (0-4')



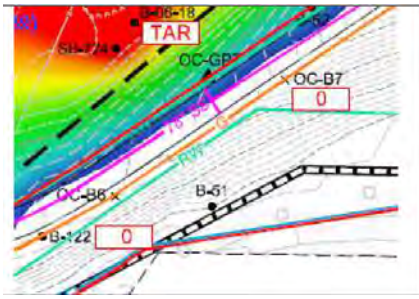
Revised Figure B10 (0-4')

Comments:



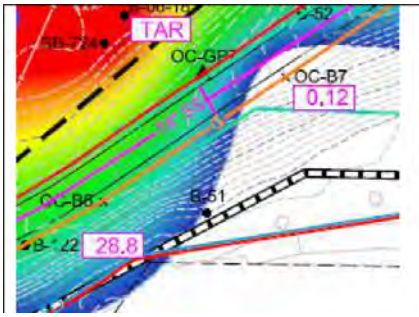
From Figure 4: Observed Tar (4-8' BGS)
Figure 5: Observed Tar (8-12' BGS)

Boring log for B-51 indicates hardened tar from 7-8.5 ft. Explain the reason that no tar is identified on these figures.



From Figure B2: Total BTEXTM Soil Concentrations – 4-8 ft BGS
Figure B3: Total BTEXTM Soil Concentrations – 8-12 ft BGS

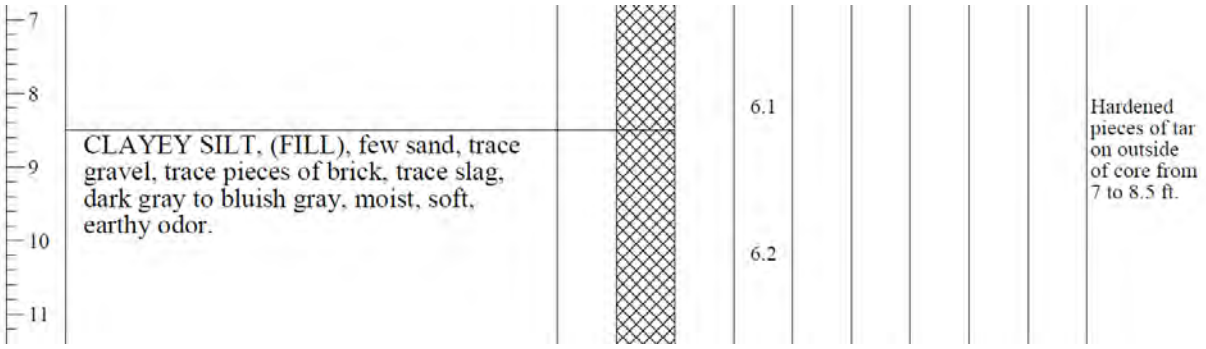
Boring log for B-51 indicates hardened tar from 7-8.5 ft. Explain the reason that no tar is identified on these figures.



From Figure B11: Total PAH Soil Concentrations – 4-8 ft BGS
Figure B12: Total PAH Soil Concentrations – 8-12 ft BGS

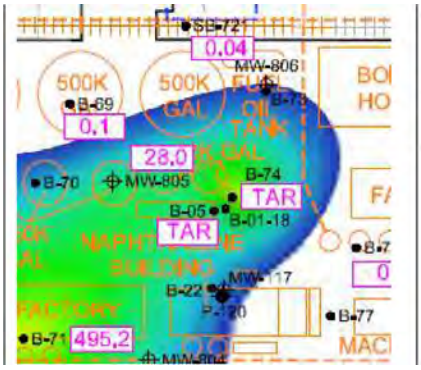
Boring log for B-51 indicates hardened tar from 7-8.5 ft. Explain the reason that no tar is identified on these figures.

Response: *The tar represented on the figures refers to potentially mobile tar which follows the protocol we established early on in this project and continue to use. Fragments or chards of inert hardened tar, which are not potentially mobile, are not included. Following our protocol, this was not labeled as tar on the figures.*



Borehole Log B-51

Comment:

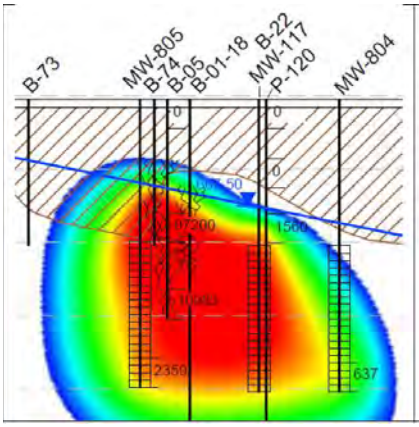


From Figure B13: Total PAH Soil Concentrations – 12-16 ft BGS

Boring log for B-74 indicates thick tar from 5-15 ft. Explain the reason "red" is not indicated at B-74 to approximate the soil concentration of the identified tar.

Response: *As described in the January 13, 2014 Site Investiagtion Report, if a sample location/interval had an observation of tar but no analytical data, a value representative of the tar based on other analytical results from that interval was incorporated into the contouring; for total BTEXTM: 1,000 µg/kg for the 0-4' interval and 10,000 µg/kg for all other intervals and for total PAH: 1,000 mg/kg for the 0-4' interval and 10,000 mg/kg for the 4-8' and 8-12' interval and 500 mg/kg for the 12-16' and 16-20' intervals. For the total PAH for 12-16' interval a value of 500 ug/kg was assigned.*

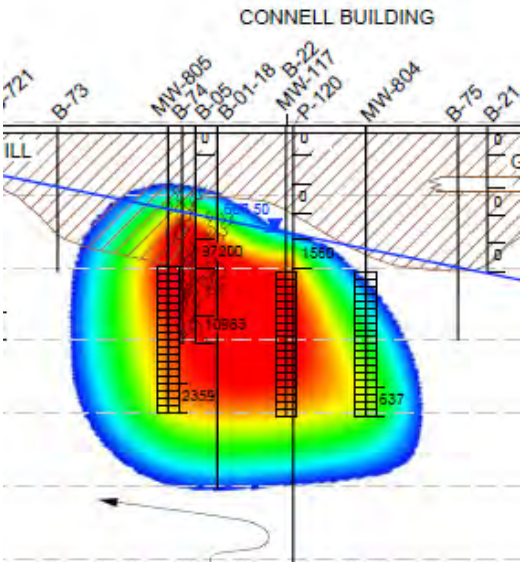
Comment:



From Figure B6: Geologic Cross-Section A-A' – BTEXTM

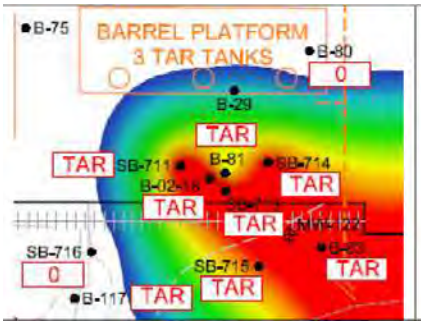
Boring log for B-74 indicates thick tar from 5-15 ft. The depth of this boring on the cross-section appears to end at 10 feet bgs. Confirm if the depth of this boring should be extended to 15 feet bgs, as indicated in the boring log.

Response: *The figure was corrected to show the borehole depth and observed tar extending to 15' instead of 10'.*



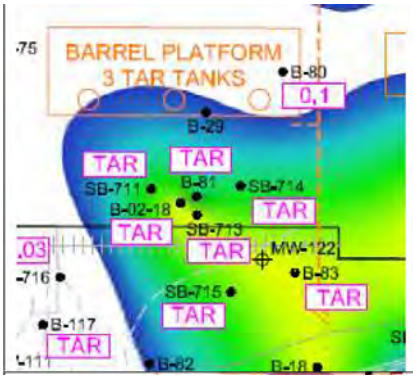
Revised Figure B6 Cross-Section AA'

Comments:



From Figure B4: Total BTEXTM Soil Concentrations – 12-16 ft BGS

Boring log for B-81 indicates thick tar from 5-15 ft. Explain the reason "red" is not indicated at B-81 to approximate the soil concentration of the identified tar.

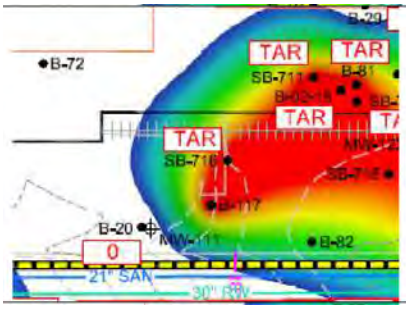


From Figure B13: Total PAH Soil Concentrations – 12-16 ft BGS

Boring log for B-81 indicates thick tar from 5-15 ft. Explain the reason "red" is not indicated at B-81 to approximate the soil concentration of the identified tar.

Response: *If there was a sample analyzed for the interval, that value was used in the contouring. The total BTEXTM concentration for B-81 at the 12-16' interval (Figure B4) was 486 ug/kg. The total PAH concentration for B-81 at the 12-16' interval (Figure B13) was 26.7 ug/kg.*

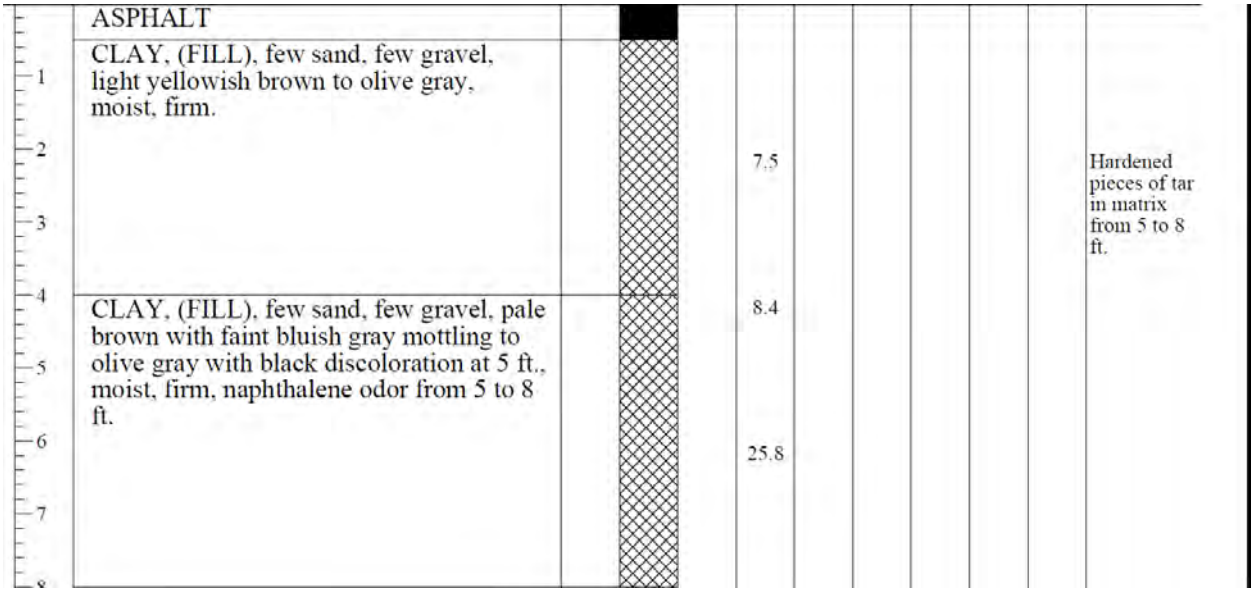
Comment:



From Figure B2: Total BTEXTM Soil Concentrations – 4-8 ft BGS
Figure B11: Total PAH Soil Concentrations – 4-8 ft BGS

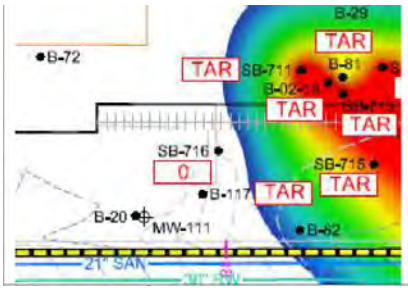
Boring log for B-117 indicates hardened tar from 5-8 ft. Explain the reason that no tar is labelled on these figures at B-117.

Response: *The tar represented on the figures refers to potentially mobile tar which follows the protocol we established early on in this project and continue to use. Fragments or chards of inert hardened tar, which are not potentially mobile, are not included. Following our protocol, this was not labeled as tar on these figures.*



Borehole log B-117

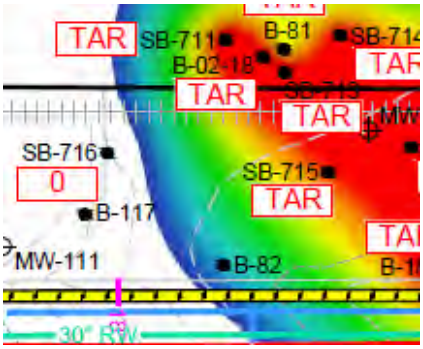
Comment:



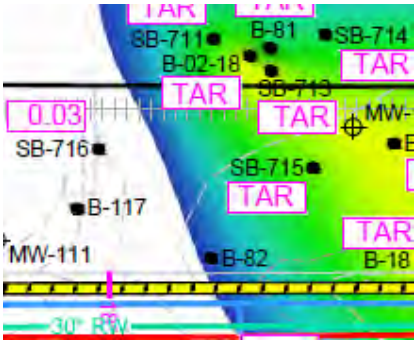
From Figure B4: Total BTEXTM Soil Concentrations – 12-16 ft BGS
Figure B13: Total PAH Soil Concentrations – 12-16 ft BGS

Boring log for B-117 indicates hardened tar from 5-8 ft. Explain the reason that tar is labelled, without the area being "red" on these figures at B-117.

Response: *There were no detectable BTEXTM or PAH compounds at B-117 at the 12-16' interval. Figures B4 and B13 were corrected by removing the "TAR" observation.*

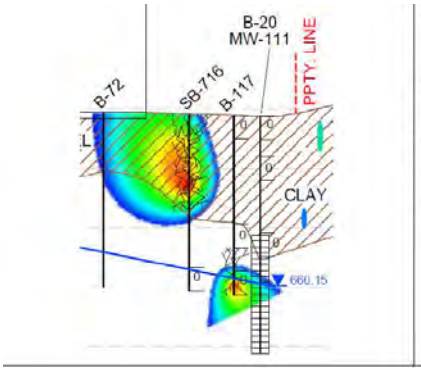


Revised Figure B4 (12-16')



Revised Figure B-13 (12-16')

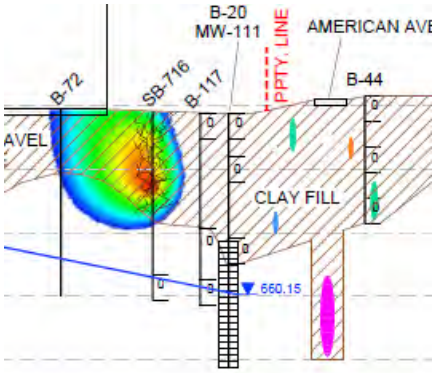
Comment:



From Figure B6: Geologic Cross-Section A-A' – BTEXTM

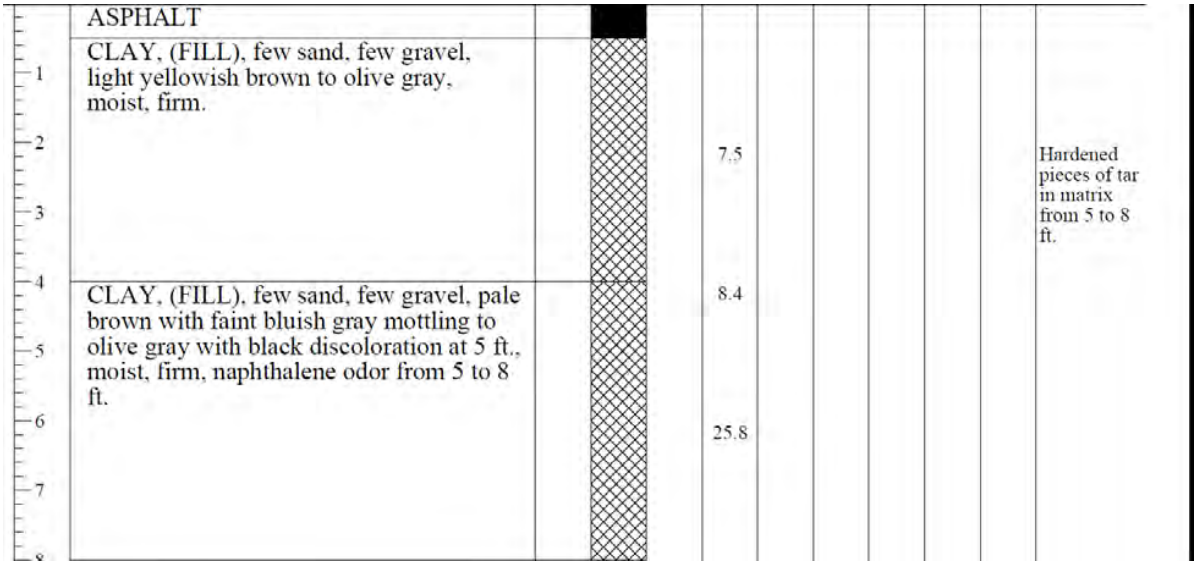
Boring log for B-117 indicates hardened tar from 5-8 ft, however the cross-section shows the tar as being deeper, from approximately 12-15 feet. Discuss if the tar at B-117 should be illustrated as being located at a shallower depth and if the impacted tar area should be connected to the tar shown in SB-716.

Response: *The depiction of tar at 12-15' at B-117 was an error and Figure B6 has been corrected.*

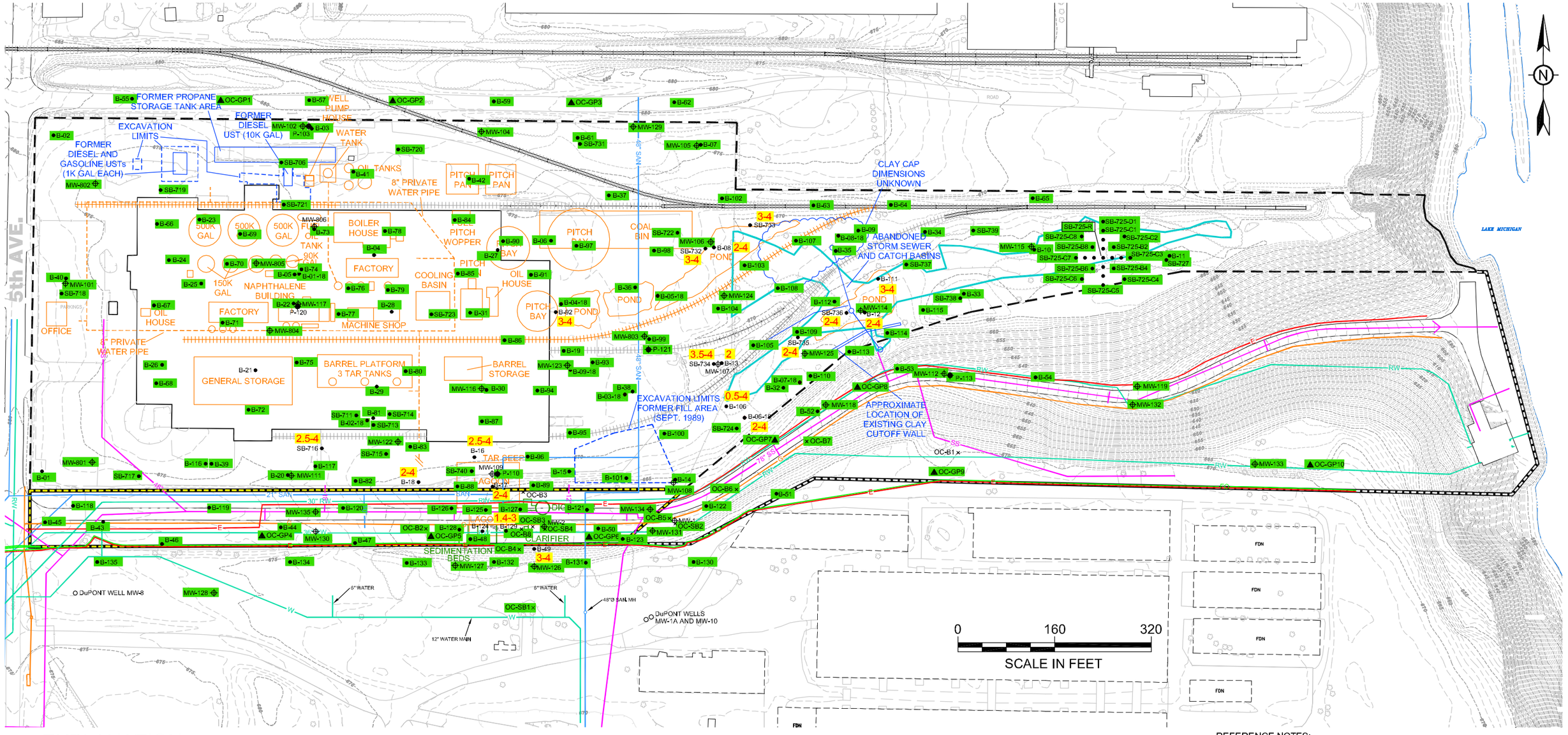


Revised Figure B6 Cross-Section AA'

The tar represented on the figures refers to potentially mobile tar which follows the protocol we established early on in this project and continue to use. Fragments or chards of inert hardened tar, which are not potentially mobile, are not included. Following our protocol, the hardened pieces of tar from 5-8' was not labeled as tar on this figure.



Boring Log B-117



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

2-4 OBSERVED TAR (0-4' BGS)

B-31 NO OBSERVED TAR

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
OBSERVED TAR (0-4' BGS)

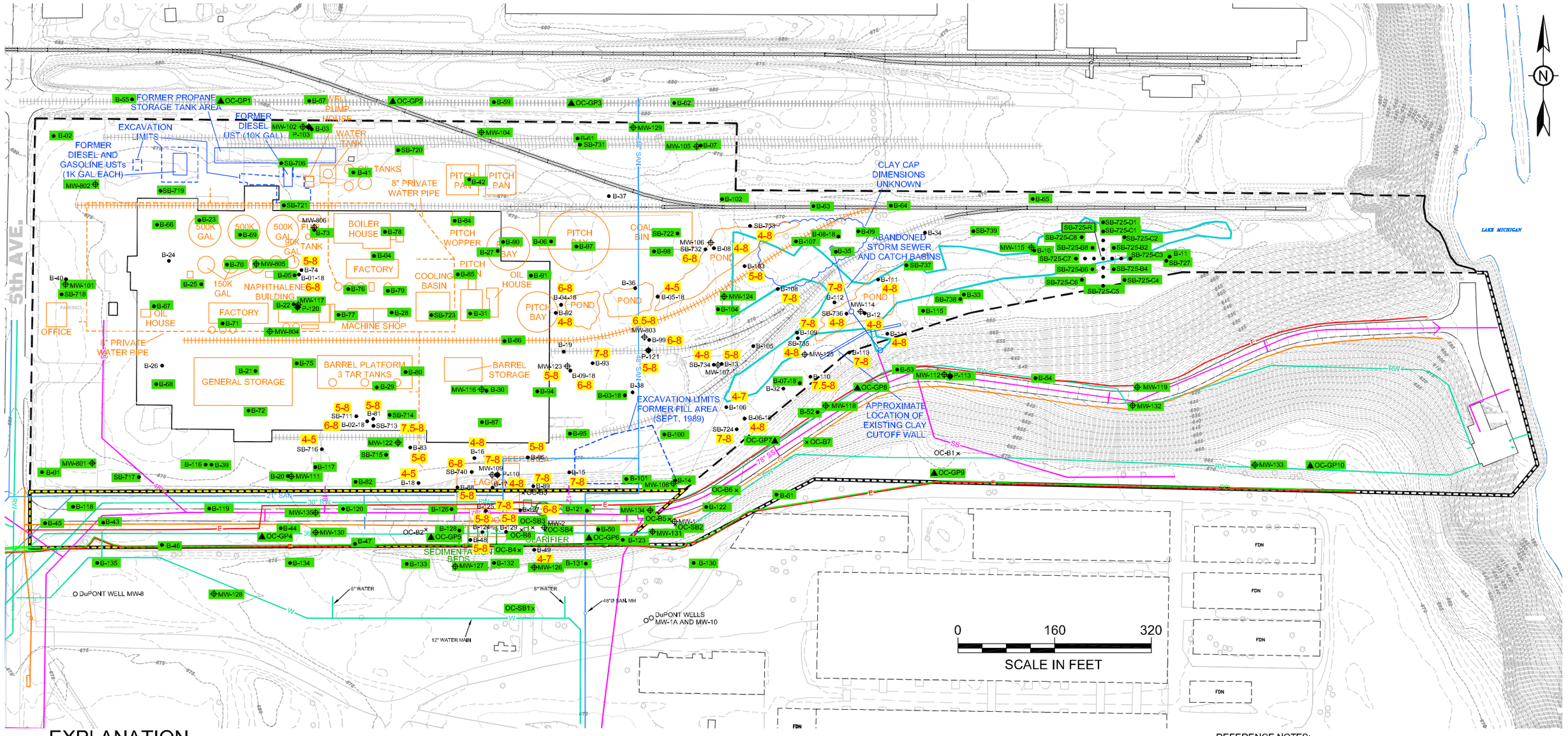
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: 3

S:\CAD\BEAZER\WABASH\AUGUST 2020\FIGURE 3 TAR 0-4 FEET 8-31-20.DWG



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

4-8 OBSERVED TAR (4-8' BGS)

B-31 NO OBSERVED TAR

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
OBSERVED TAR (4-8' BGS)

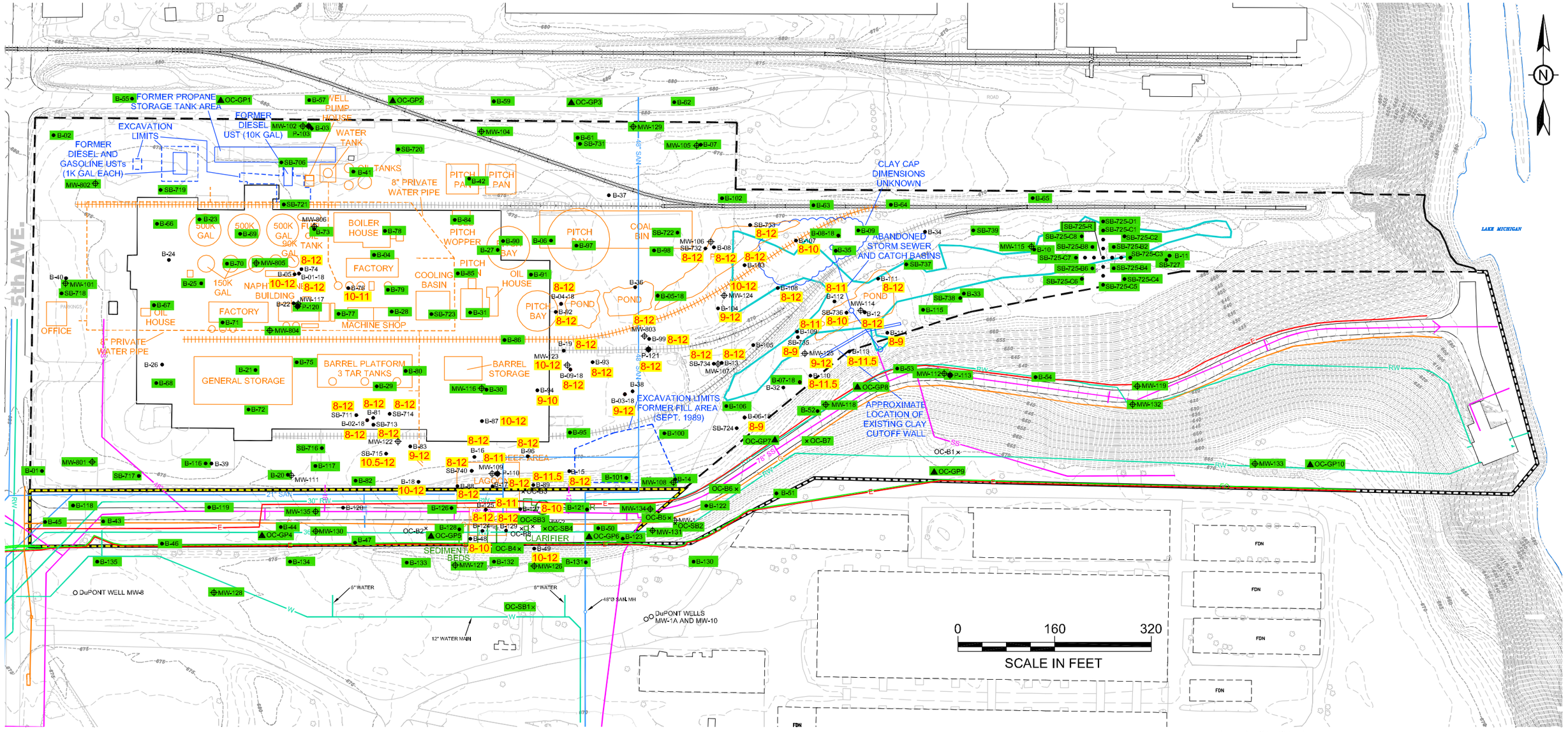
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: 4

S:\CAD\BEAZER\WABASH\AUGUST 2020\FIGURE 4 TAR 4-8 FEET 8-31-20.DWG



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

8-12 OBSERVED TAR (8-12' BGS)

B-04 NO OBSERVED TAR

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
OBSERVED TAR (8-12' BGS)

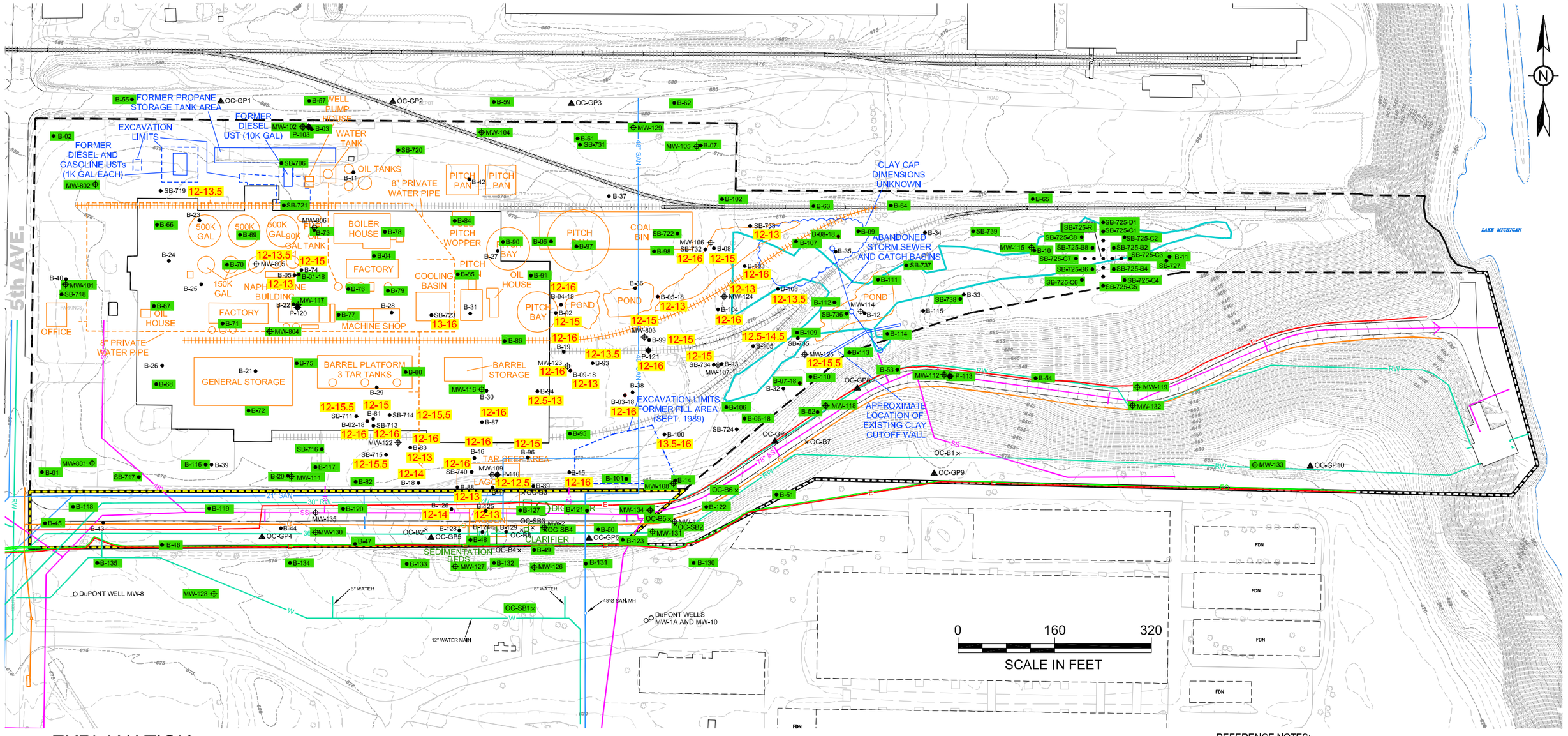
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: 5

S:\CAD\BEAZER\WABASH\AUGUST 2020\FIGURE 5_TAR 8-12 FEET_8-31-20.DWG



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

12-13 OBSERVED TAR (12-16' BGS) B-86 NO OBSERVED TAR

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
OBSERVED TAR (12-16' BGS)

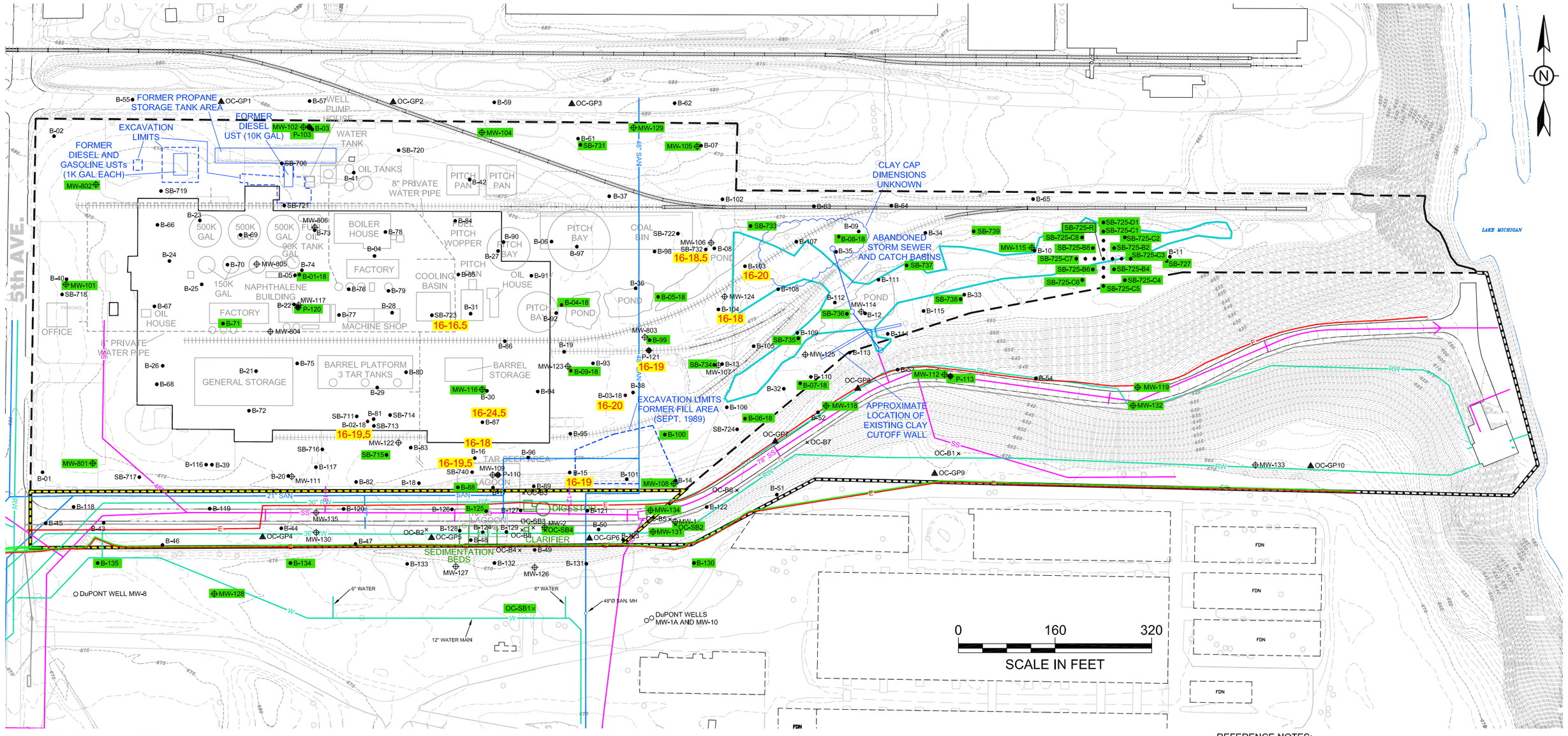
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: 6

S:\CAD\BEAZER\WABASH\AUGUST 2020\FIGURE 6 TAR 12-16 FEET 8-31-20.DWG



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) ⊕B-71 NO OBSERVED TAR

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
OBSERVED TAR (16-20' BGS)

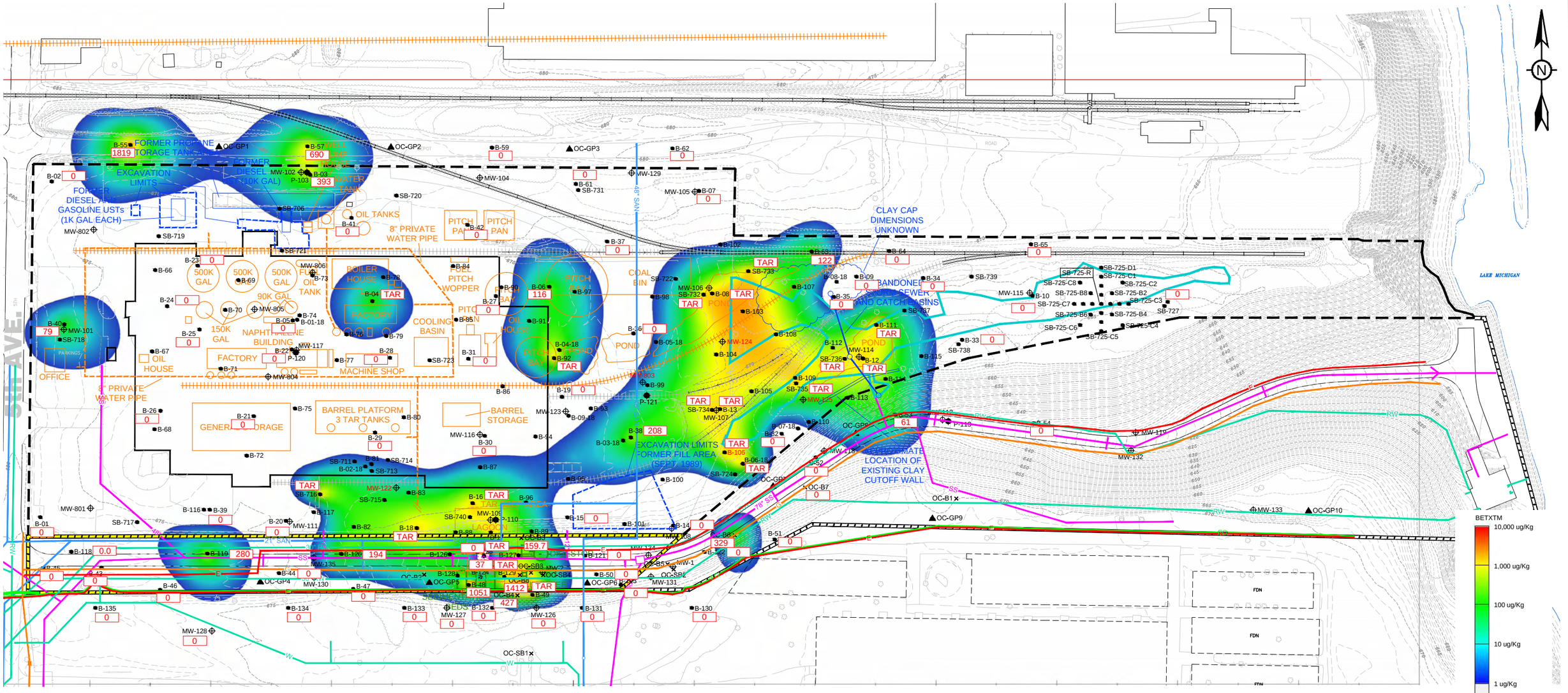
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: 7

S:\CAD\BEAZER\WABASH\AUGUST 2020\FIGURE 7 TAR 16-20 FEET 8-31-20.DWG



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

393 — TOTAL BTEXTM CONCENTRATION (ug/Kg) AT 0-4' BELOW GROUND SURFACE

TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX

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

0 160 320

SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL BTEXTM SOIL CONCENTRATIONS - 0-4 FEET BGS

LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN	FIGURE:
DRAFTED	EBD/CMP	B1
PROJECT	117-2201449	
DATE	08/31/20	

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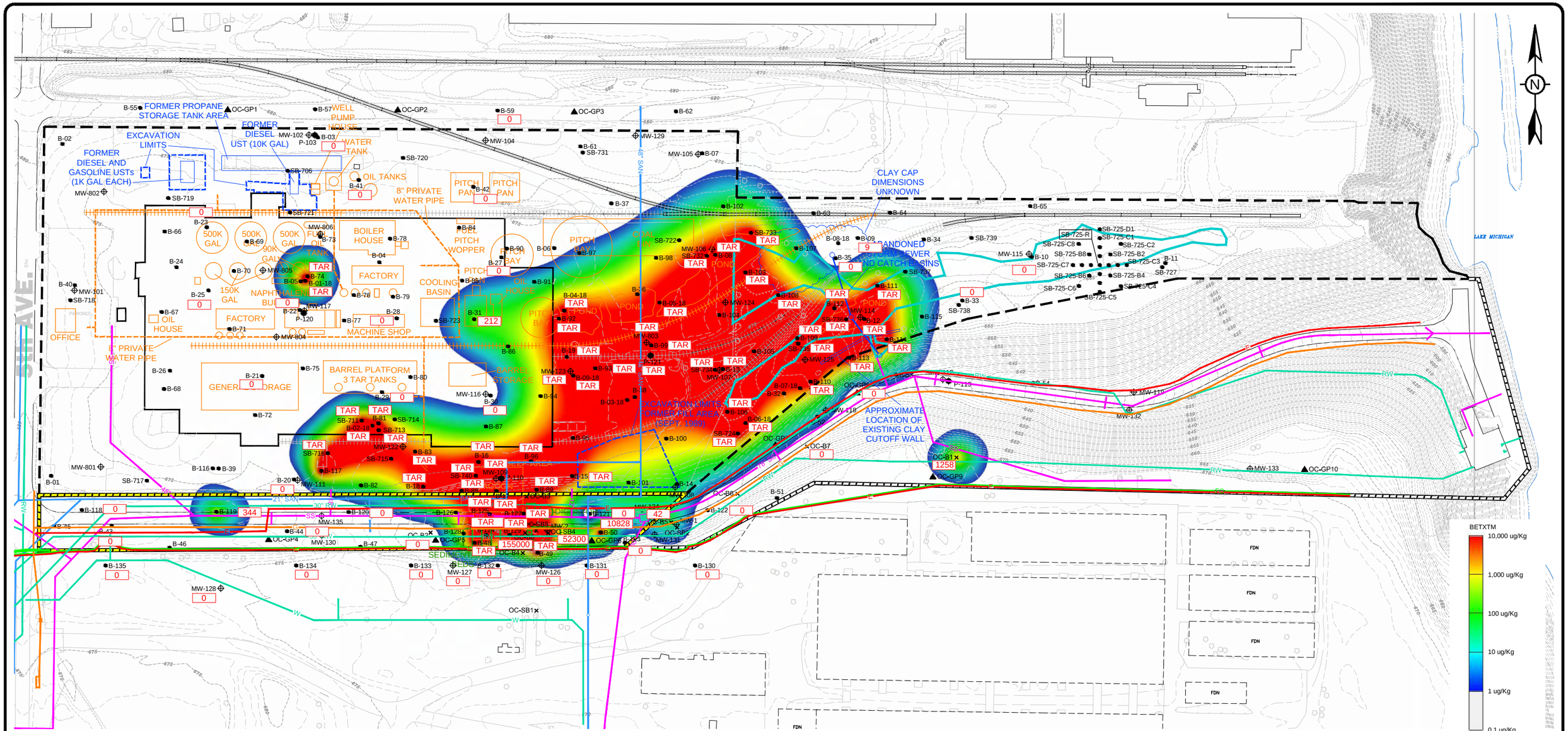


EXPLANATION

- 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
- 73 — TOTAL BTEXTM CONCENTRATION (ug/Kg) AT 4-8' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX
- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

0 160 320
SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL BTEXTM SOIL CONCENTRATIONS - 4-8 FEET BGS

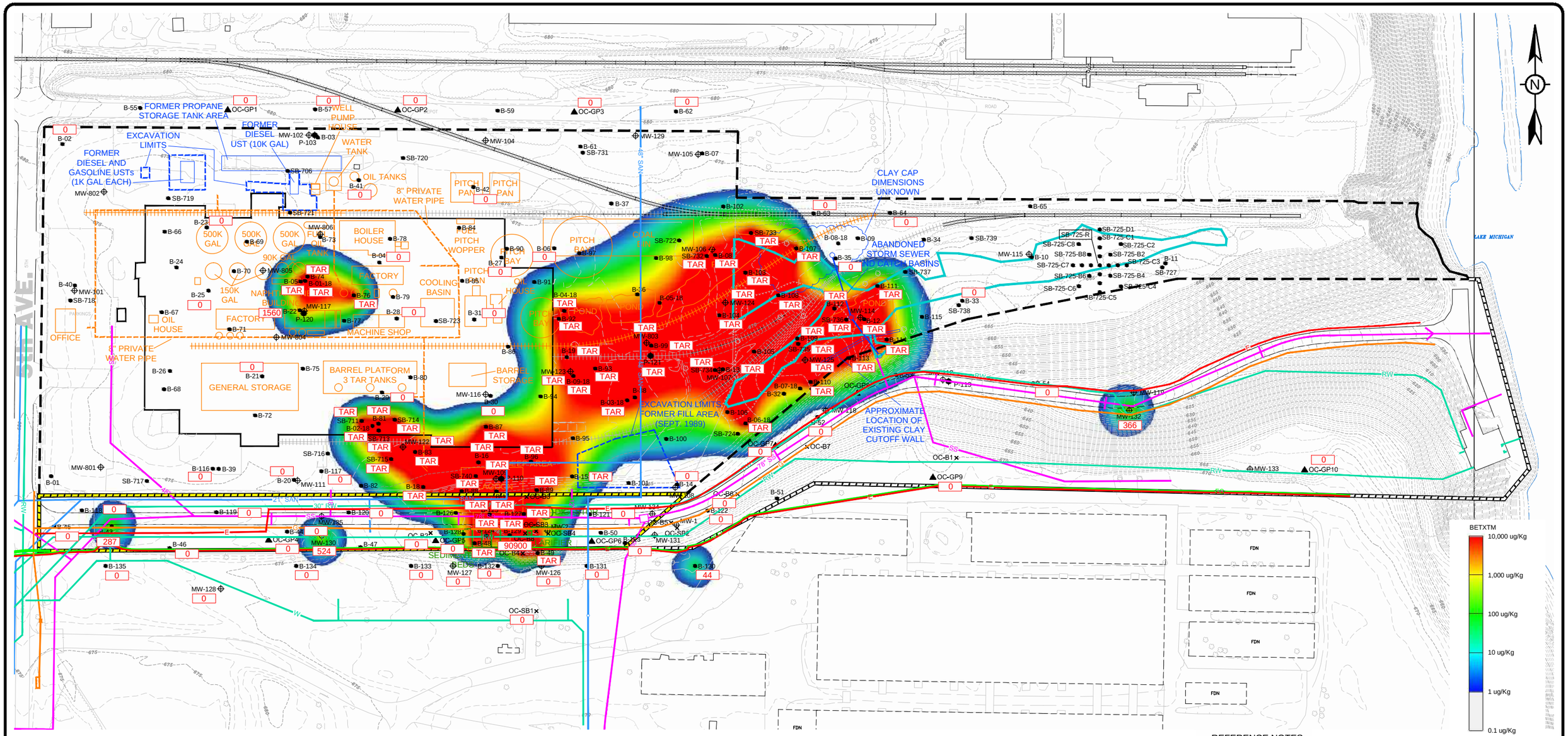
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	EBD/CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: B2

S:\CAD\BEAZER\WABASH\AUGUST 2020\4-8 BETXTM 8-31-20.DWG



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
- 1560 — TOTAL BTEXTM CONCENTRATION (ug/Kg) AT 8-12' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX
- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

0 160 320
SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL BTEXTM SOIL CONCENTRATIONS - 8-12 FEET BGS

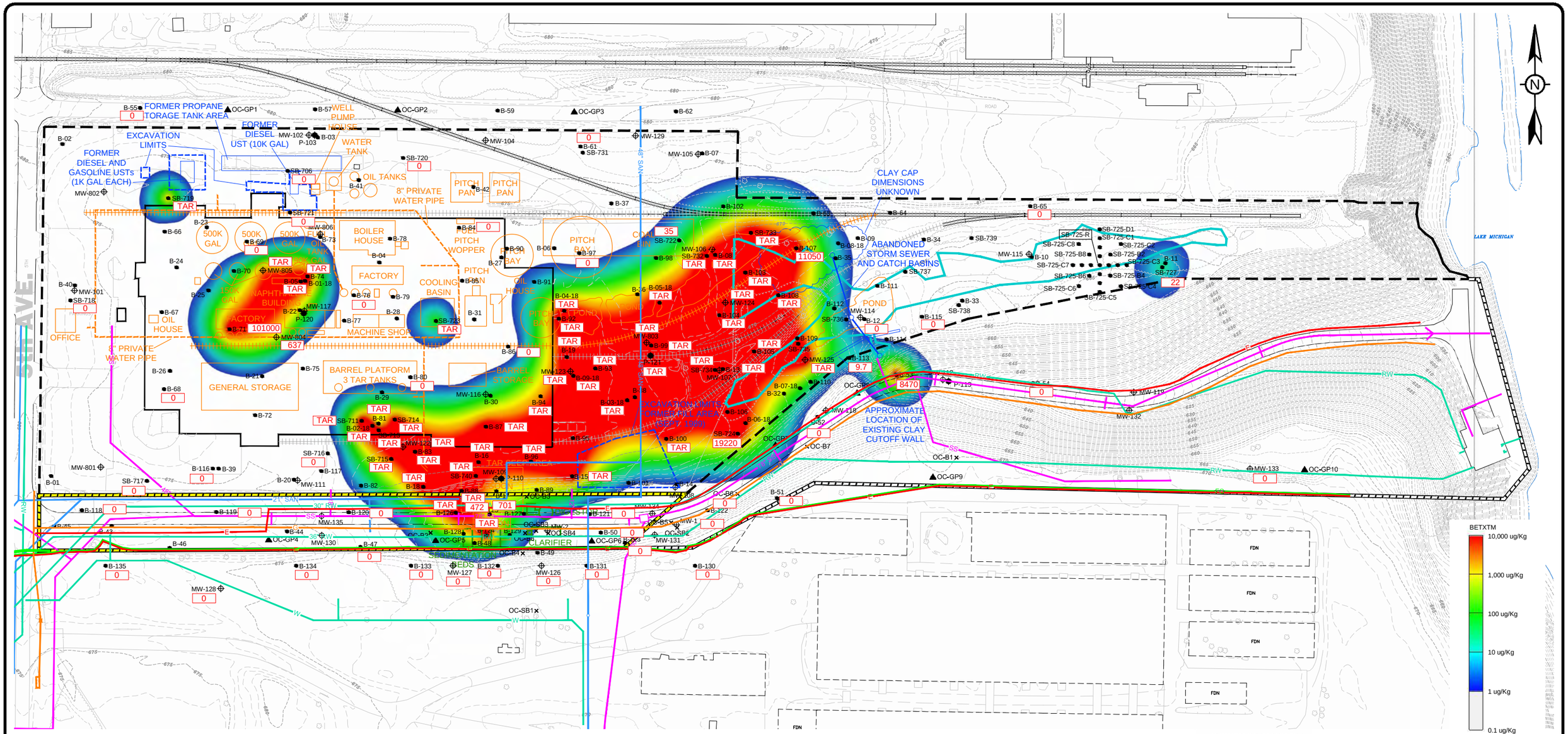
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	EBD/CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: B3

S:\CAD\BEAZER\WABASH\AUGUST 2020\8-12 BETXTM_8-31-20.DWG



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
- 637 — TOTAL BTEXTM CONCENTRATION (ug/Kg) AT 12-16' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX
- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

0 160 320
SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL BTEXTM SOIL CONCENTRATIONS - 12-16 FEET BGS

LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	EBD/CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: B4

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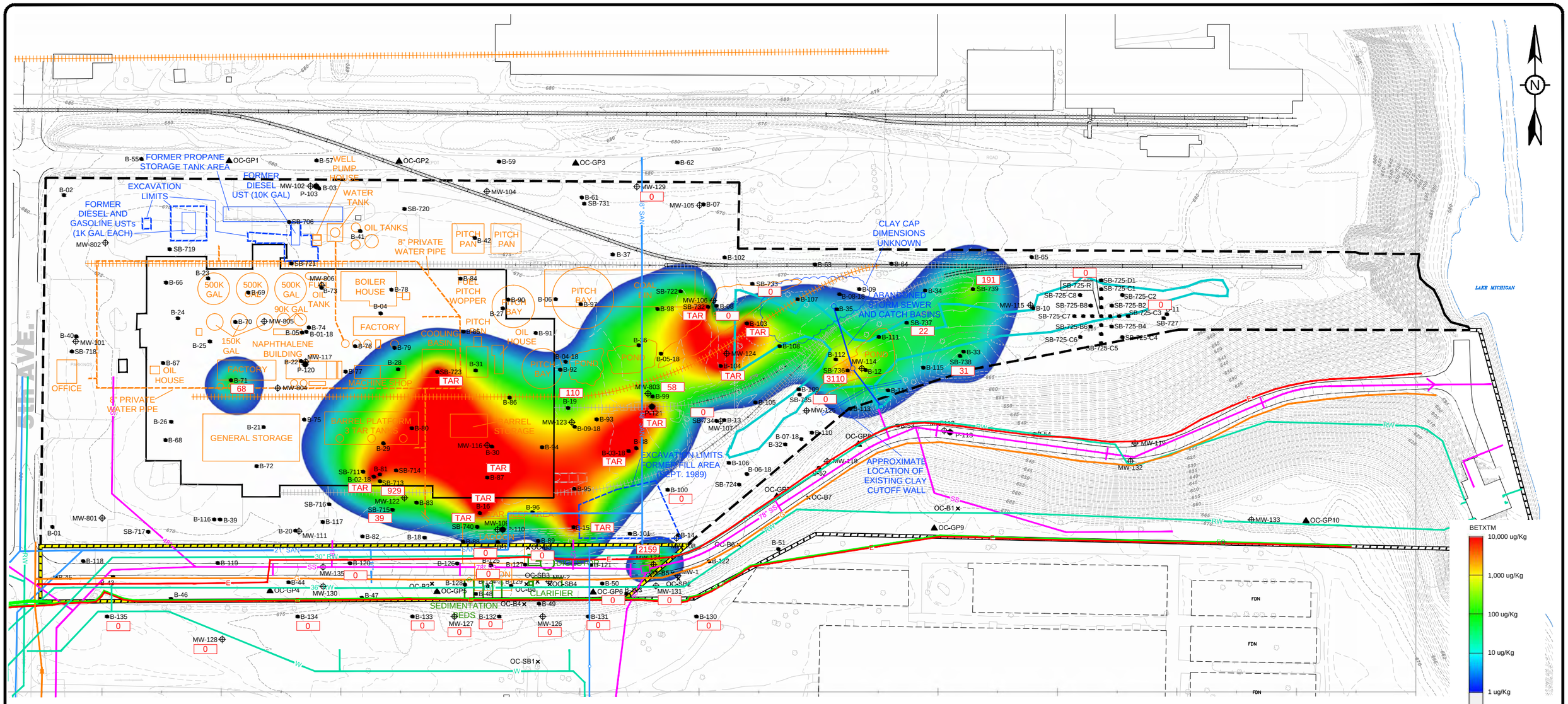

EXPLANATION

- 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

- 929 — TOTAL BTEXTM CONCENTRATION (ug/Kg) AT 16-20' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX

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

0 160 320
SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL BTEXTM SOIL CONCENTRATIONS - 16-20 FEET BGS

LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN	FIGURE:
DRAFTED	EBD/CMP	B5
PROJECT	117-2201449	
DATE	08/31/20	

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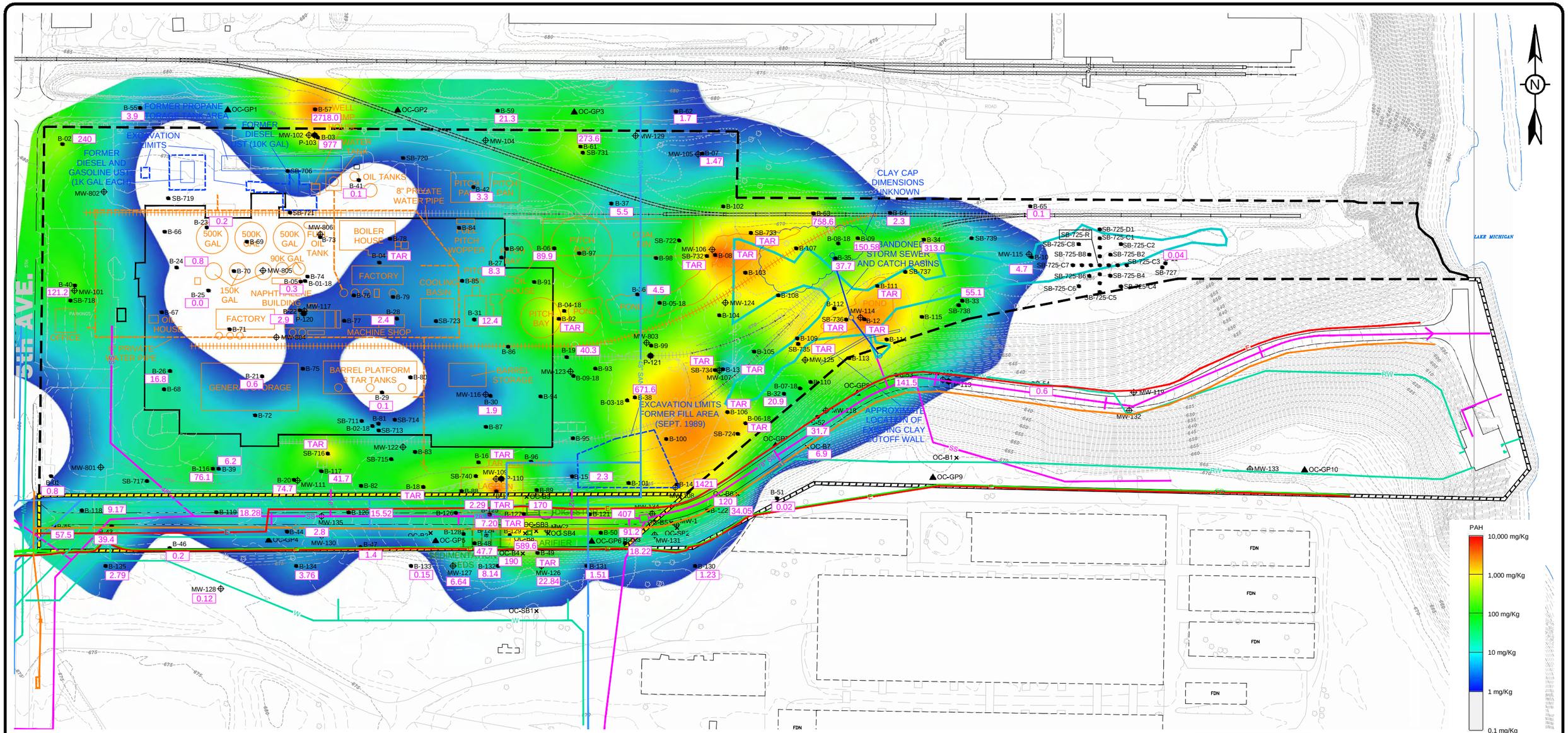

EXPLANATION

- 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
- 120.3 — TOTAL PAH CONCENTRATION (mg/Kg) AT 0-4' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX
- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

0 160 320
SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL PAH SOIL CONCENTRATIONS - 0-4 FEET BGS

LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN	FIGURE:
DRAFTED	EBD/CMP	B10
PROJECT	117-2201449	
DATE	08/31/20	

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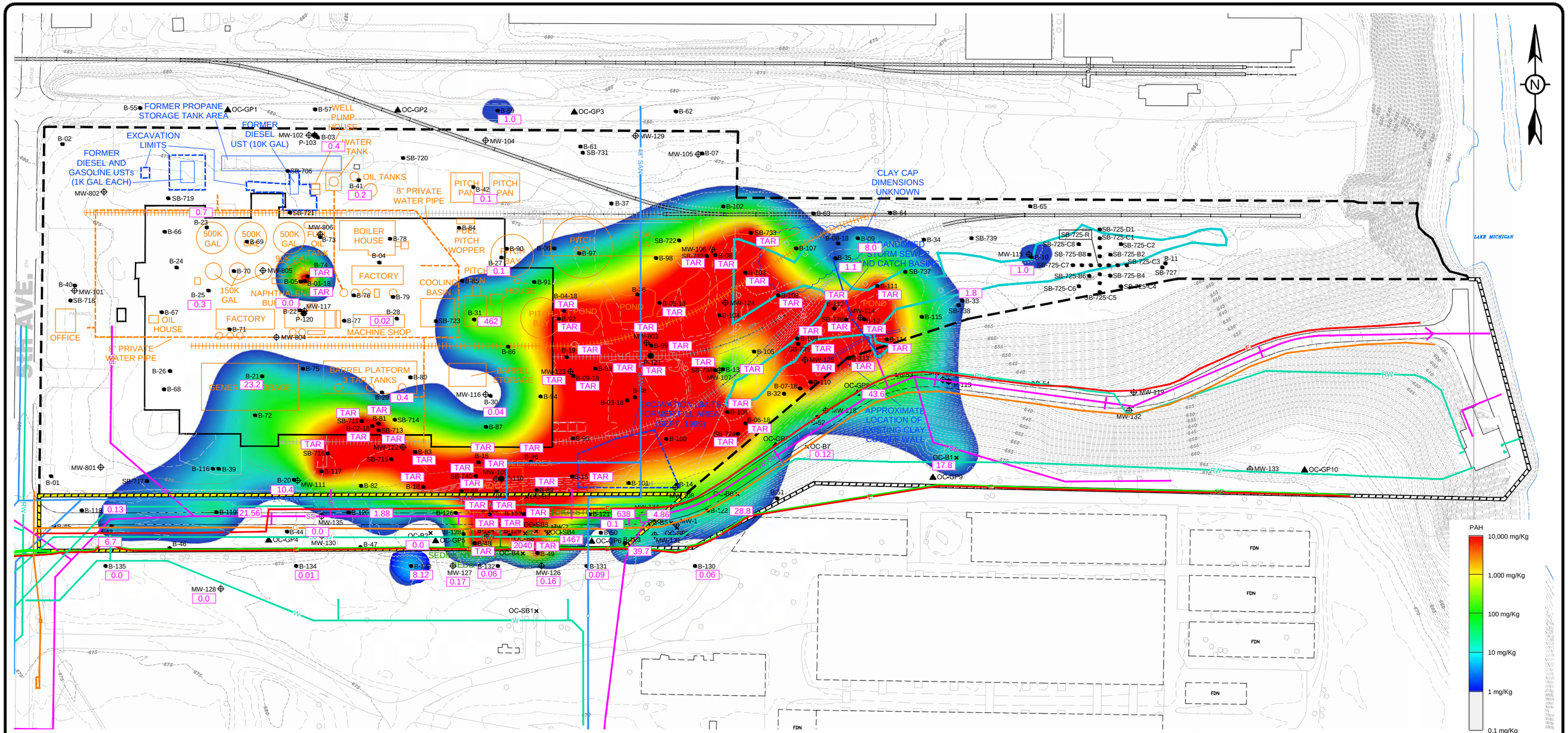


EXPLANATION

- 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
- 1359 — TOTAL PAH CONCENTRATION (mg/Kg) AT 4-8' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX
- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

0 160 320

SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL PAH SOIL CONCENTRATIONS - 4-8 FEET BGS

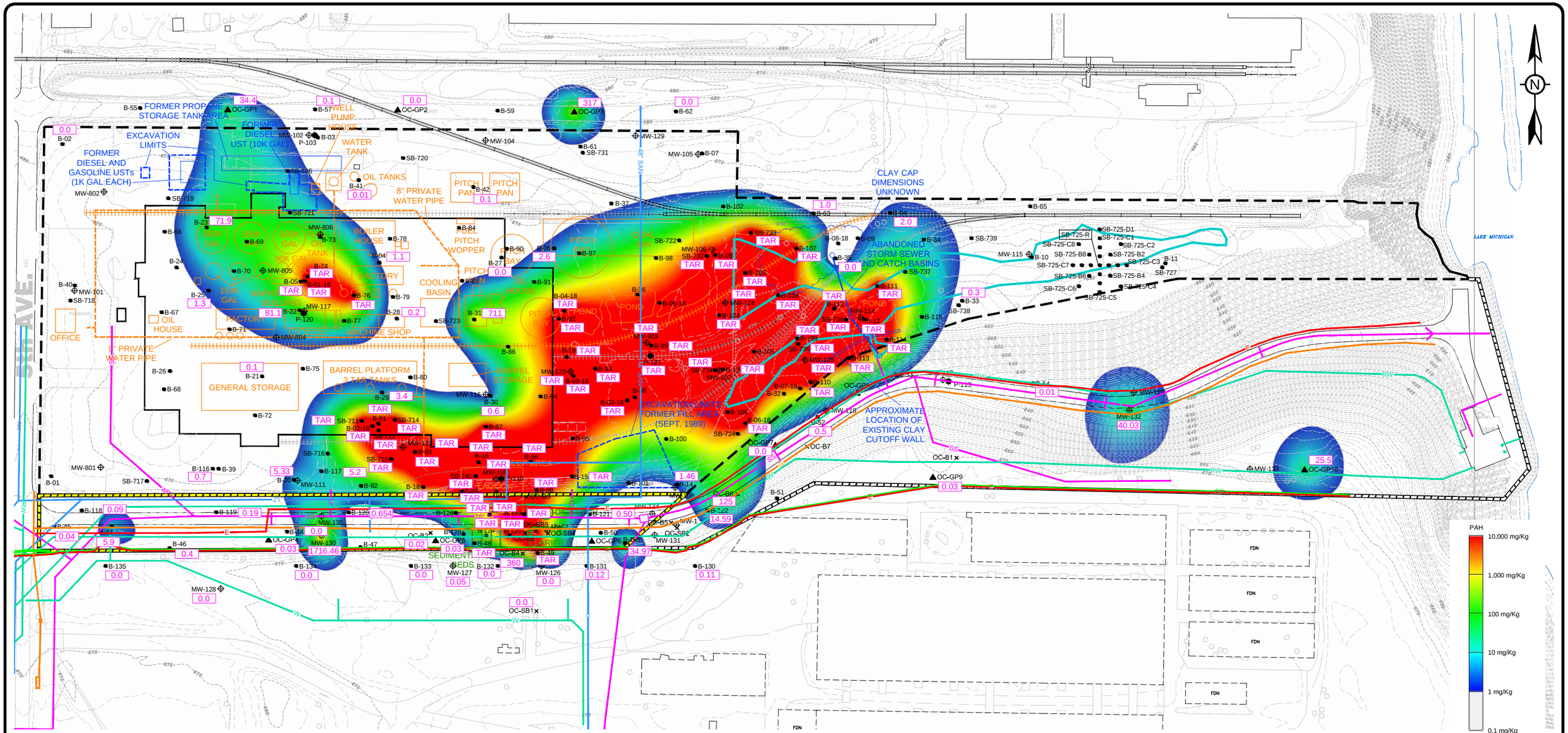
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	EBD/CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: B11

S:\CAD\BEAZER\WABASH\AUGUST 2020\4-8 PAH_8-31-20.DWG



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
- 39.3 — TOTAL PAH CONCENTRATION (mg/Kg) AT 8-12' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX
- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

0 160 320
SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL PAH SOIL CONCENTRATIONS - 8-12 FEET BGS

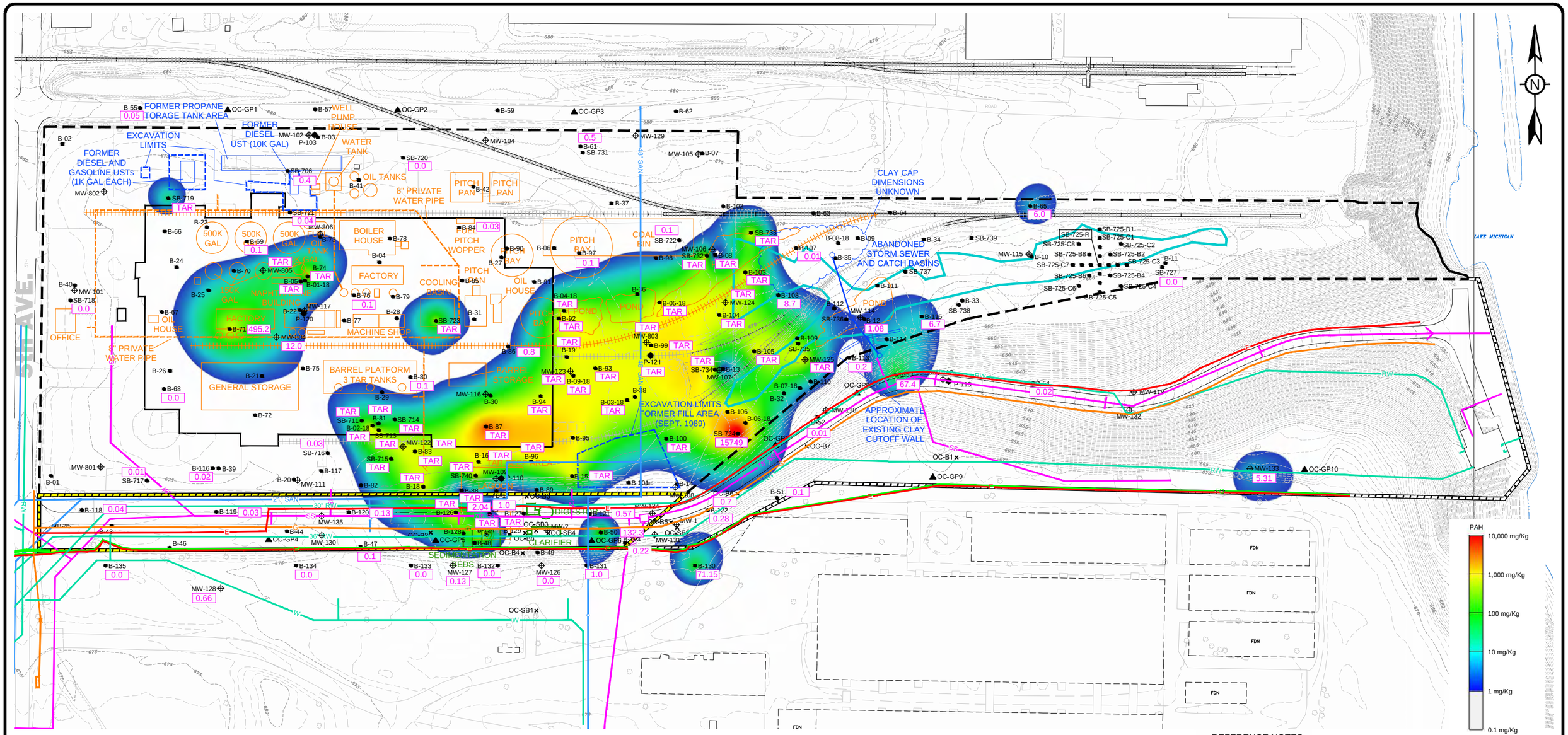
LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	EBD/CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: B12

S:\CAD\BEAZER\WABASH\AUGUST 2020\8-12 PAH_8-31-20.DWG



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
- 54.5 — TOTAL PAH CONCENTRATION (mg/Kg) AT 12-16' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX
- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

0 160 320
SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL PAH SOIL CONCENTRATIONS - 12-16 FEET BGS

LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN	FIGURE:
DRAFTED	EBD/CMP	B13
PROJECT	117-2201449	
DATE	08/31/20	

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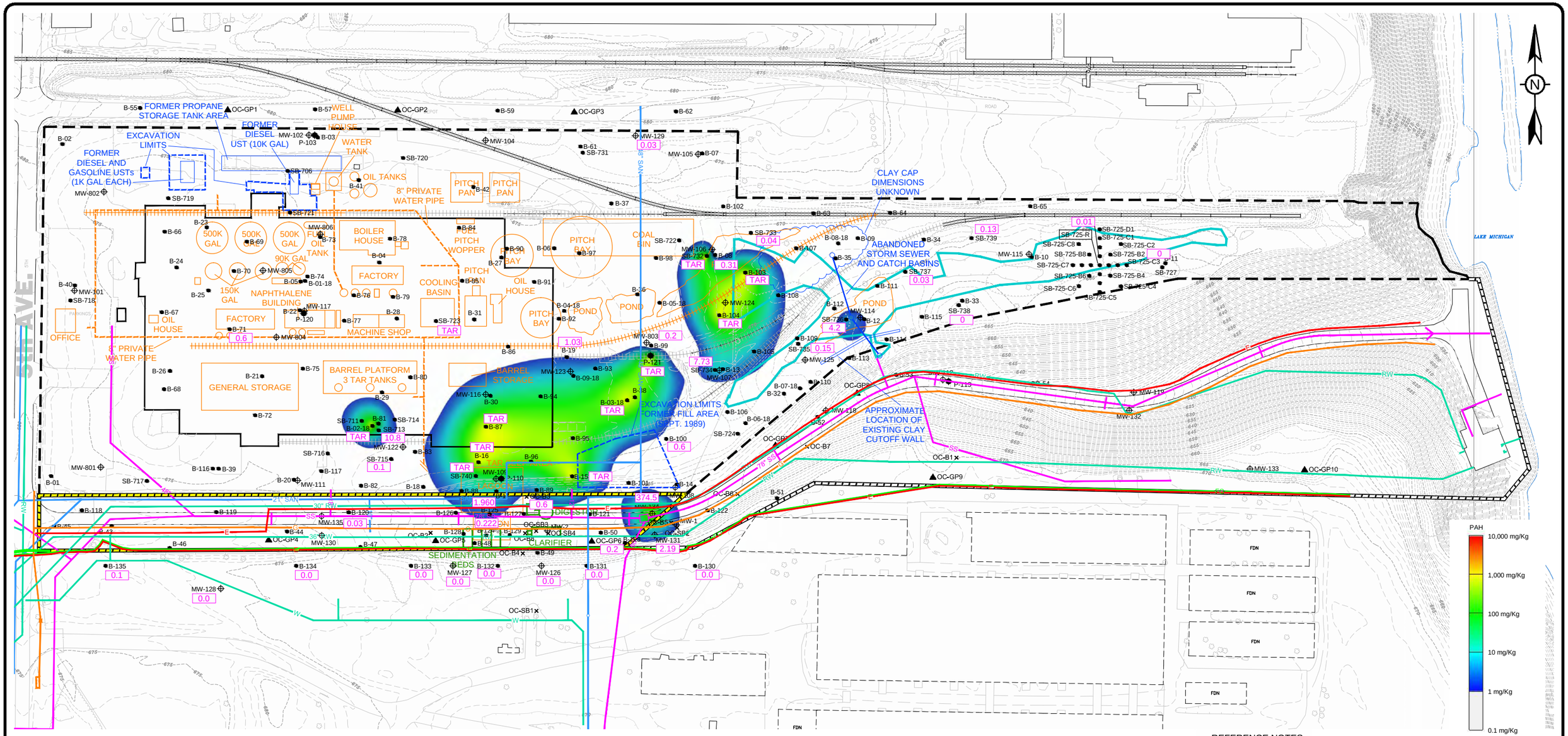

EXPLANATION

- 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
- 337 — TOTAL PAH CONCENTRATION (mg/Kg) AT 16-20' BELOW GROUND SURFACE
- TAR — TAR OBSERVED IN CLAY FRACTURES OR MATRIX
- E — ELECTRICAL
- G — NATURAL GAS
- RW — RAW WATER
- SAN — SANITARY
- SS — STORM SEWER
- FO — FIBER OPTIC

0 160 320

SCALE IN FEET

REFERENCE NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES FROM LAND INFORMATION SERVICES, INC. - ENVIRONMENTAL SURVEY, 12/21/2001.
2. FORMER TAR PLANT STRUCTURES FROM THE SANBORN LIBRARY - EDR INQUIRY 2284158.1s, ©1950.
3. FORMER POND AND LAGOON LOCATIONS FROM 1937-1968 AERIAL PHOTOGRAPHY - COMPILED BY AERO-DATA CORPORATION, APRIL 2013.
4. 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
TOTAL PAH SOIL CONCENTRATIONS - 16-20 FEET BGS

LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	EBD/CMP
PROJECT	117-2201449
DATE	08/31/20

FIGURE: B14

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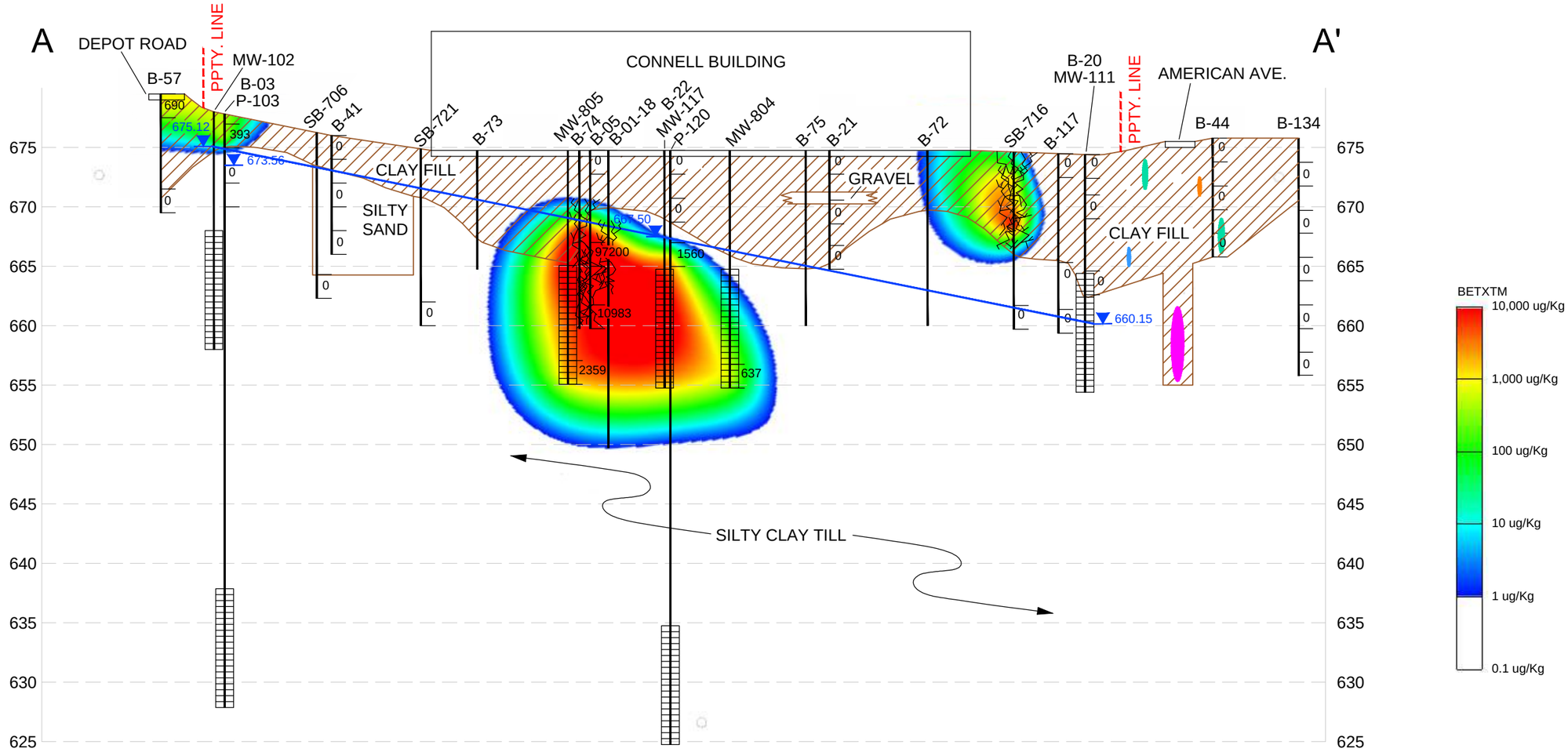
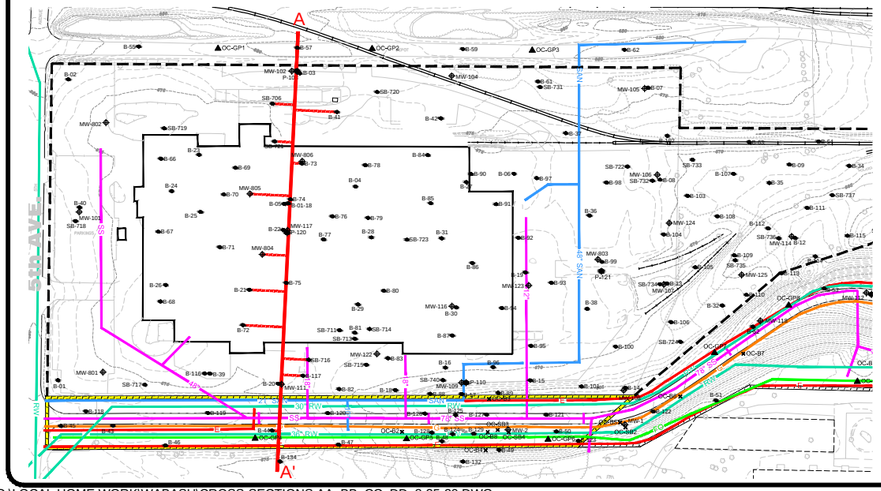




EXPLANATION:

- SCREENED INTERVAL
- 765.12 WATER TABLE ELEVATION
- PROPERTY LINE
- OBSERVED TAR

- ELECTRICAL
- NATURAL GAS
- RAW WATER
- SANITARY
- STORM SEWER
- FIBER OPTIC

0 80 160

HORIZONTAL SCALE IN FEET
8x VERTICAL EXAGGERATION

TITLE: FORMER KOPPERS TAR PLANT AND WABASH ALLOYS SITE
GEOLOGIC CROSS-SECTION A-A' - BETXTM

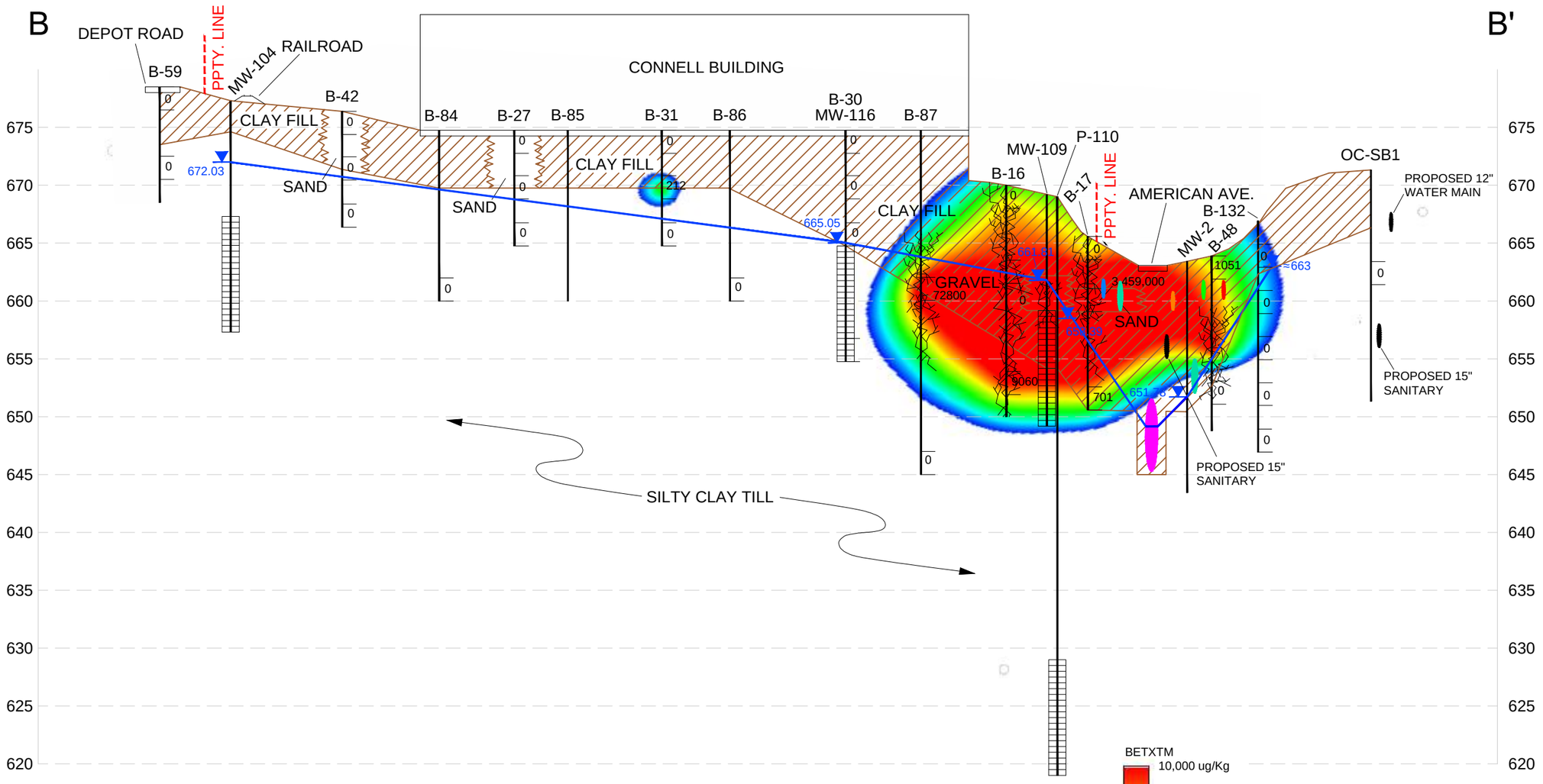
LOCATION: OAK CREEK, WISCONSIN

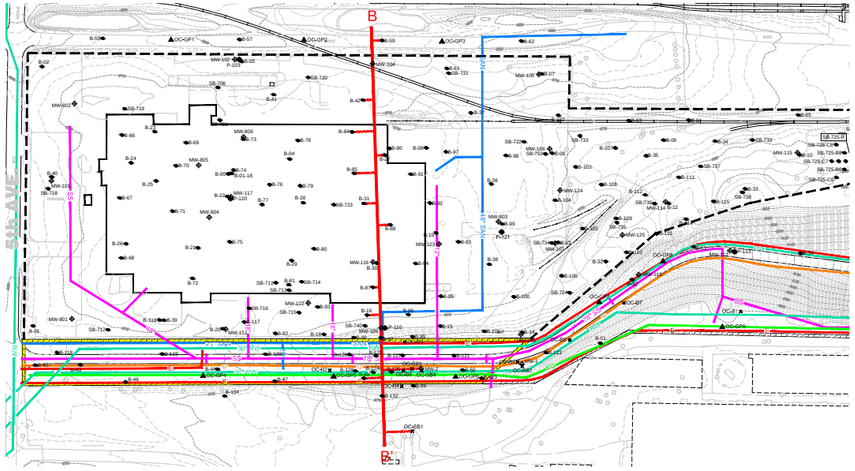
TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	8/25/20

FIGURE: B6

C:\LOCAL HOME WORK\WABASH\CROSS-SECTIONS AA_BB_CC_DD 8-25-20.DWG





EXPLANATION:

- SCREENED INTERVAL
- 765.12 WATER TABLE ELEVATION
- PROPERTY LINE
- OBSERVED TAR

- ELECTRICAL
- NATURAL GAS
- RAW WATER
- SANITARY
- STORM SEWER
- FIBER OPTIC

BETXTM

- 10,000 ug/Kg
- 1,000 ug/Kg
- 100 ug/Kg
- 10 ug/Kg
- 1 ug/Kg
- 0.1 ug/Kg

0 80 160

HORIZONTAL SCALE IN FEET
8x VERTICAL EXAGGERATION

TITLE: FORMER KOPPERS TAR PLANT AND WABASH ALLOYS SITE
GEOLOGIC CROSS-SECTION B-B' - BETXTM

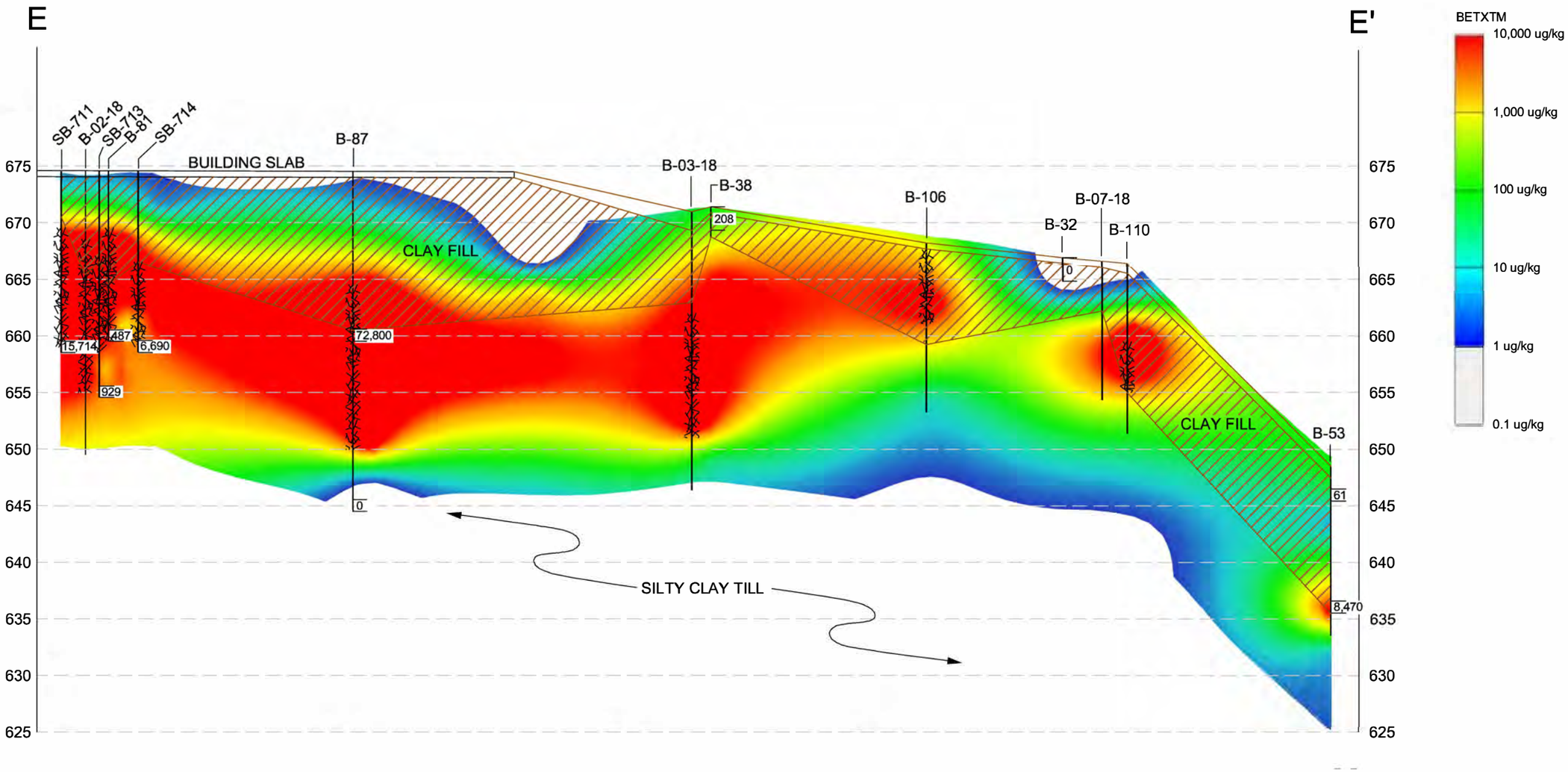
LOCATION: OAK CREEK, WISCONSIN

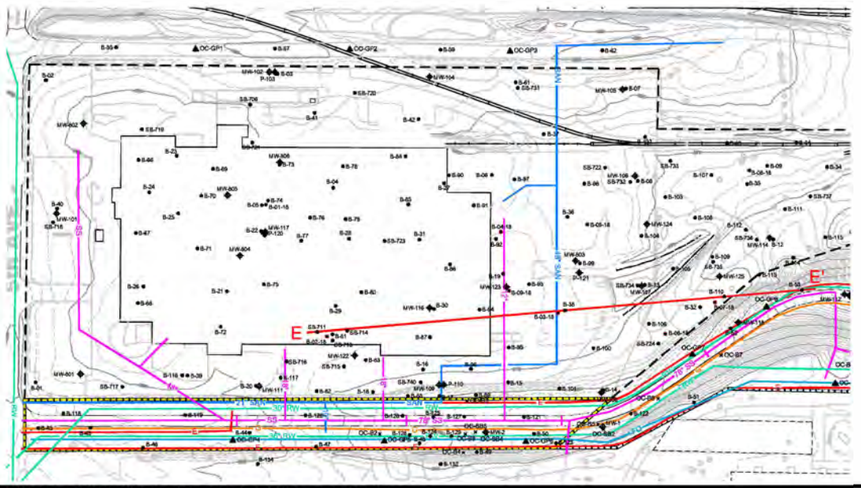
TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	6/3/20

FIGURE: B7

C:\LOCAL HOME WORK\WABASH\CROSS-SECTIONS AA_BB_CC_DD_6-4-20.DWG





EXPLANATION:

- SCREENED INTERVAL
- 765.12 ▼ WATER TABLE ELEVATION
- OBSERVED TAR
- ELECTRICAL
- NATURAL GAS
- RAW WATER
- SANITARY
- STORM SEWER
- FIBER OPTIC

0 80 160

HORIZONTAL SCALE IN FEET
8x VERTICAL EXAGGERATION

TITLE: FORMER KOPPERS TAR PLANT AND WABASH ALLOYS SITE
GEOLOGIC CROSS-SECTION E-E' - BETXTM

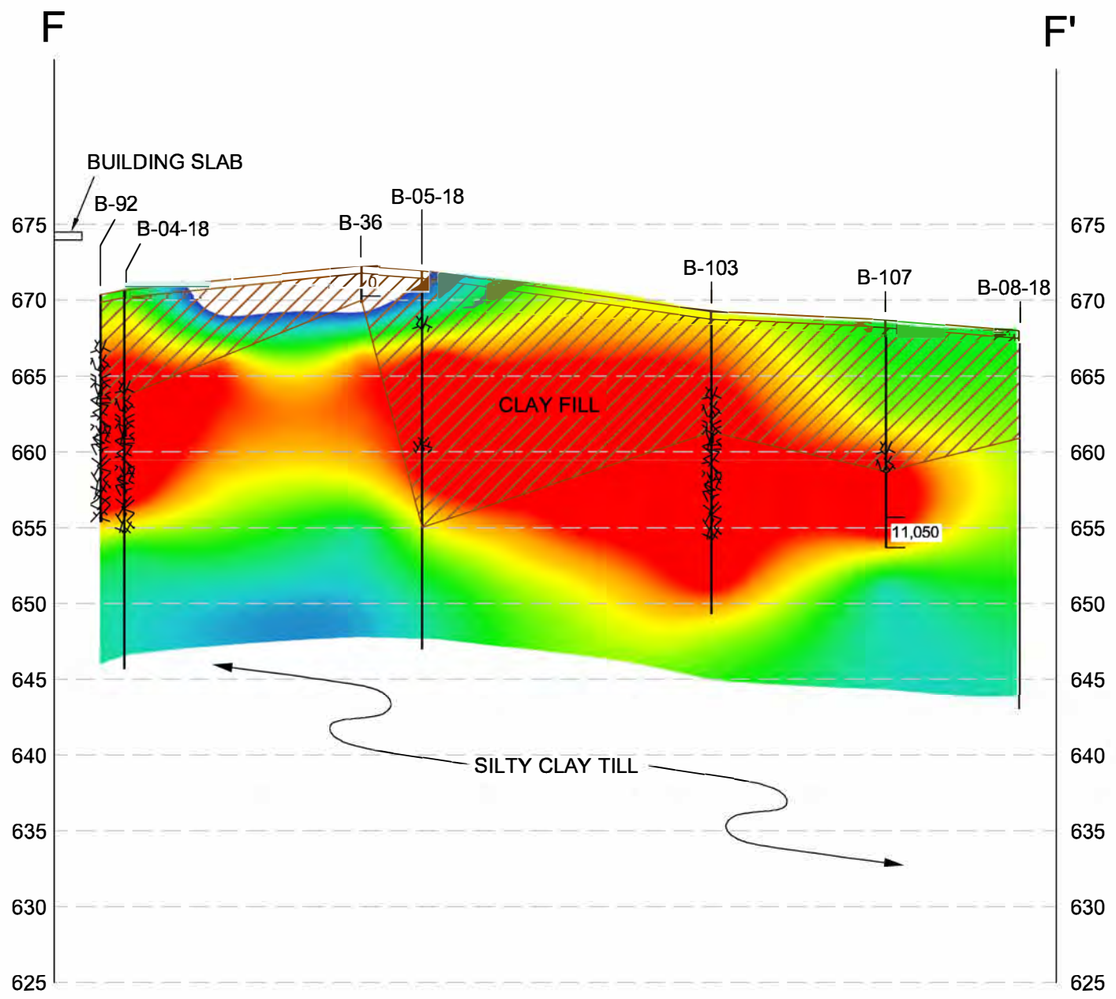
LOCATION: OAK CREEK, WISCONSIN

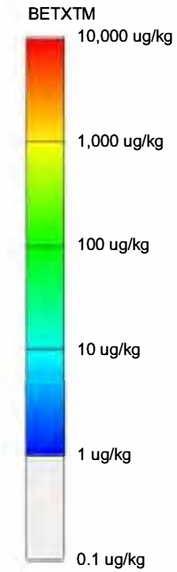
TETRA TECH

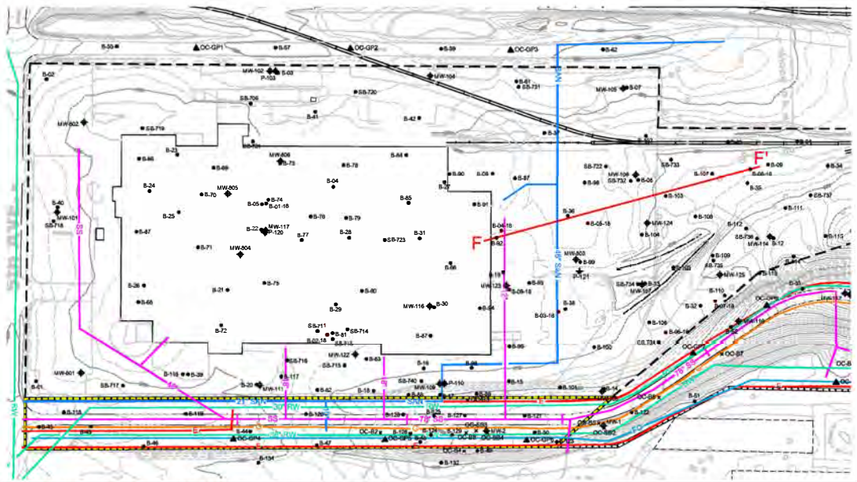
CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	06/04/20

FIGURE: EE

C:\LOCAL HOME WORK\WABASH\CROSS-SECTIONS EE_6-4-20.DWG







EXPLANATION:

- SCREENED INTERVAL
- 765.12 ▼ WATER TABLE ELEVATION
- OBSERVED TAR
- ELECTRICAL
- NATURAL GAS
- RAW WATER
- SANITARY
- STORM SEWER
- FIBER OPTIC

0 80 160

HORIZONTAL SCALE IN FEET
8x VERTICAL EXAGGERATION

TITLE: FORMER KOPPERS TAR PLANT AND WABASH ALLOYS SITE
GEOLOGIC CROSS-SECTION F-F' - BETXTM

LOCATION: OAK CREEK, WISCONSIN

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-2201449
DATE	06/04/20

FIGURE: FF

C:\LOCAL HOME WORK\WABASH\CROSS-SECTIONS FF 6-4-20.DWG