ADDENDUM No. 1

RFP No. 984

Allen Creek Railroad Berm Opening Engineering and Assistance

Due: October 17, 2016 by 2:00 P.M.

The following adjustments shall be made to the Request for Proposal for Allen Creek Railroad Berm Opening Engineering and Assistance RFP No. 984 on which proposals will be received on/or before October 17, 2016 by 2:00 P.M.

The information contained herein shall take precedence over the original documents and all previous addenda (if any), and is appended thereto. **This Addendum includes 33 pages.**

Offeror is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum will be considered nonconforming.

The following forms provided within the RFP Document must be included in submitted proposal:

- **City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**
- **City of Ann Arbor Living Wage Ordinance Declaration of Compliance**
- **Vendor Conflict of Interest Disclosure Form**

Proposals that fail to provide these completed forms listed above upon proposal opening may be deemed non-responsive and may not be considered for award.

I. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in its review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here

Question 1 Whether any of the firms that have been involved in prior related work, restricted from providing a proposal for this job?
Answer 1 No.

Question 2 Will the Broadway Bridge Geotechnical information be made available online?
Answer 2 The Contamination Assessment Report for the Broadway Bridges Reconstruction Project that is directly related to the Allen Creek Railroad Berm Opening Project is attached to this addendum.

Question 3 Are any record drawings for the existing relief sewer or the Allen Creek outflow, which can be made available online?

Answer 3 The as-built drawings for the Allen Creek relief sewers are available for review, but we cannot post them online. Please contact Anne Warrow at awarrow@a2gov.org to set up an appointment to review these drawings.

Question 4 Are there any other known utilities in the corridor, other than the sewers and fiber optic?

Answer 4 The City is only aware of the storm sewers and fiber optic present within the vicinity of the Allen Creek Railroad Berm Opening Project. It is expected that the selected engineering firm will gather and review any additional information pertaining to existing public and private utilities

Question 5 Does the proposal have a page limit?

Answer 5 Yes, proposals should not be more than 50 sheets (100 sides), not including required attachments and resumes.

Question 6 Who maintains the City's stormwater model?

Answer 6 The City maintains the calibrated InfoSWMM stormwater hydraulic model. It is expected that the selected firm will work with City's personnel to gain access to the model and produce the necessary accurate and defendable hydrographs and all other related information.

Question 7 While the feasibility study identified a preferred alternative, will other alternatives be considered during the design phase?

Answer 7 At this time, the City has elected to move towards completing a detailed design of the preferred alternative identified in the feasibility study. If during the design phase, it becomes clear that a different alternative needs to be further explored this would be acceptable as time permits.

The selected firm is expected to analyze alternatives to pedestrian access paths; temporary shoo-fly rail alignment; proposed berm opening structures (stormwater culvert and pedestrian opening); storm water discharge culvert to the river; the Depot Street Relief Storm Sewer; any necessary retaining or flood walls.

It is expected that the selected firm shall also perform a complete alternative analysis as it relates to the applicable environmental requirements including: the National Environmental Policy Act (42 U.S.C. 4332); the Council on Environmental Quality's regulations implementing NEPA (40 CFR part 1500 et seq.); and FRA's "Procedures for Considering Environmental Impacts" (45 FR 40854, June 16, 1980, as revised May 26, 1999, 64 FR 28545).

Question 8 What environmental information or data will be made available?

Answer 8 The Contamination Assessment Report for the Broadway Bridges Reconstruction Project that is directly related to the Allen Creek Railroad Berm Opening Project is included in this Addendum. In addition, a document summarizing environmental information known about the DTE site is also included in this Addendum.

Question 9 Will the sign-in sheet for this meeting be made available?

Answer 9 Yes, it is included in this Addendum.

Question 10 Is there a specific reason why Consultants shall propose a minimum of three different types of wall systems to be used on this project?

Answer 10 The City acknowledges that different retaining wall systems may be used and/or required in different locations or situations (temporary vs. permanent) of the project. An effort will be made to consult the various property owners, whose property may be impacted by the retaining wall. The selection criteria shall be based on aesthetics, constructability, and/or cost as appropriate.

Question 11 Several of the tasks outlined in the RFP are very detailed, how specific should the fee quotation be?

Answer 11 The fee quotation shall relate directing to the task outlined in the Consultants proposed work plan. The proposed work plan can split the tasks outlined in the RFP or can add to them as the Consultants deems necessary.

II. PRE-PROPOSAL MEETING NOTES AND SIGN-IN SHEET

The Pre-Proposal Meeting Notes and sign-in sheet are attached.

Respondents are responsible for any conclusions that they may draw from the information contained in the Addendum.

Preferred Alternative

The Preferred Alternative is based on Alternative 3, with minor changes to reflect specific concerns conveyed to City staff by the MDOT Office of Rail. This alternative was selected for the following reasons:

- Alternative 3 addresses the need to provide pedestrian access under the railroad to the DTE Gas property (only Alternatives 3 and 4 addressed this need).
- Alternative 3 is less expensive than Alternative 4.
- Alternative 3 (with modifications discussed below) has received positive feedback from the MDOT Office of Rail.

Figure 14 illustrates the ***Preferred Alternative***. The physical location of the culverts is the same as shown in Alternative 3, although the sidewalk configuration has been changed to address MDOT concerns about minimizing the length of sidewalk within the railroad right-of-way. This results in the need for property/easement acquisition to establish a pedestrian link to Main Street or near the Main/Depot intersection.

The proposed culvert/viaduct location cannot be moved further north, as doing so would shorten the sidewalk and make it difficult to accommodate ADA-required slopes without installing switchbacks. Furthermore, it would complicate the shoo-fly construction and potentially create a conflict between the shoo-fly alignment and the structural supports for the Ann Arbor Railroad bridge near the dam.

As the pedestrian/bicycle pathway needs to be protected against inundation during extreme flow events, a flood protection wall should be constructed along the pathway and should be set to one foot above the 1% storm headwater. Due to the topography in the project area, it would be more ideal to construct the pathway to N. Main (N. Main connection alignment as shown in Figure 14). Under this scenario, it would be less expensive to protect the pathway against flooding, as the west portion of the pathway would be elevated above the floodplain elevation. The Depot Street connection alignment is problematic, as the existing grades in this area are lower and would require flood protection walls along the entire alignment. This would probably create a conflict with desired parking and vehicle access needs.

Pedestrian access across the First Martin property is not shown, as it is yet unclear how the alignment of the pedestrian path will be finalized. This will depend on design-phase negotiations with the impacted property owners. The proposed cross section for the ***Preferred Alternative*** is depicted in Figure 15, which is essentially a mirror image of the Alternative 3 cross section.

Figure 16 illustrates the potential shoo-fly alignments necessary to accommodate the Preferred Alternative. The varied alignments are based on differing design speeds and will be subject to final MDOT approval. As stated in the description of Alternatives 3 and 4, the shoo-fly would likely require the construction of a temporary bridge near the Allen Creek outlet. This bridge could be constructed so as to accommodate a future pedestrian crossing over the Allen Creek outlet, immediately outside the railroad right-of-way. The cost estimate includes the consideration for the temporary bridge, but does not include any future retrofits necessary to accommodate pedestrians over the Allen Creek outlet.

The ***Preferred Alternative*** cost estimate is included in Appendix G. The estimate is similar to that of Alternative 3, with additional cost items related to potential property acquisition costs (buyout of parking spaces to accommodate pedestrian/bicycle pathway), additional costs to remove the piers for the old (abandoned) railroad and additional right-of-way fencing to meet MDOT feedback.

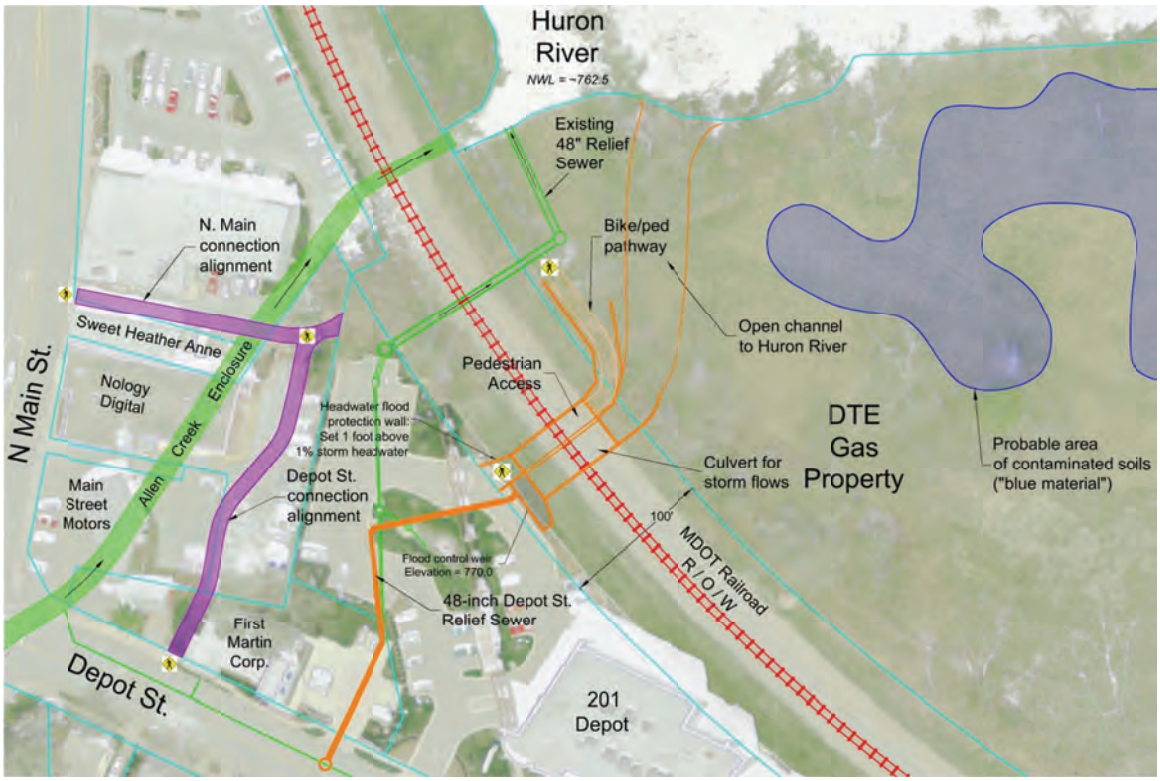

Figure 14
Preferred Alternative

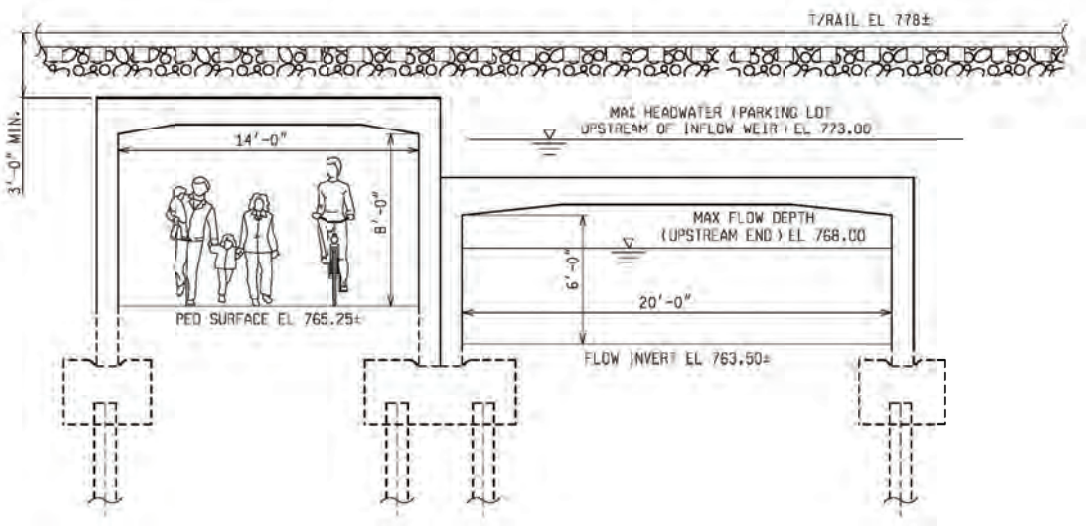

Figure 15
Preferred Alternative – Culvert Cross Section

Response Activities Plan for Sediment, Near Shore Soil, and Upland Source Area Remedial Actions

Former Broadway Street Manufactured Gas Plant
Ann Arbor, Michigan
EM&R No. 8.5.4

February 2012

Response Activities Plan for Sediment, Near Shore Soil, and Upland Source Area Remedial Actions

Former Broadway Street Manufactured Gas Plant
Ann Arbor, Michigan

EM&R No. 8.5.4

February 2012

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Executive Summary

The Ann Arbor Gas Company and the Washtenaw Gas Company, predecessors of Michigan Consolidated Gas Company (MichCon), operated a manufactured gas plant (MGP) in Ann Arbor, Michigan along the southern bank of the Huron River, west of Broadway Street (Broadway Site). Coke oven gas and/or carbureted water gas were produced at the Broadway Site from approximately 1900 until the 1940s. In the 1950s the Broadway Site MGP operations were dismantled and the site was converted into a MichCon Service Center in the 1960s. Service center operations were discontinued in 2008 and the main service center building was deconstructed in late 2009/early 2010.

MichCon has performed several environmental investigations and response activities at the Broadway Street Site since 1985. The most current data show that constituents of concern remain in soil and groundwater on the upland portion of the site at concentrations above Michigan Part 201 generic residential and/or nonresidential cleanup criteria. On behalf of MichCon, TRC Environmental Corporation (TRC) (formerly RMT, Inc.) performed sediment investigations in the Huron River adjacent to the former MichCon MGP facility located on the Broadway Site in April 2011 with follow-up sediment sampling, sheen evaluation, surface water sampling, sediment metals bioavailability evaluation and sediment toxicity testing in September/October 2011. The results of these Huron River sediment investigations were summarized by TRC in the *Preliminary Design Studies Report and Conceptual Remedy for Sediment* (PDS Report) and submitted to the Michigan Department of Environmental Quality (MDEQ) in November 2011. The results show that:

- Polynuclear aromatic hydrocarbons (PAHs) are present in sediment at upstream background samples and at locations adjacent to the site at concentrations that exceed the probable effect concentrations (PECs). Total PAH concentrations peak at near-shore areas in the vicinity of former MGP operations where non-aqueous-phase liquid (NAPL) sheens are observed when the sediment is disturbed;
- The horizontal extent of tarry sediments or sediment that produces a NAPL sheen when disturbed is generally limited to within 15 feet of the southern Huron River bank and extends approximately 850 feet along the southern Huron River shoreline adjacent to the Broadway Site;
- The vertical extent of affected sediment is generally limited to within the top foot to 2 feet of sediment. NAPL sheen generation (in shake tests samples) was not observed below 3 feet below the top of the sediment and slight odors were not noted below 4.25 feet below the top of the sediment;

- There is very little spontaneous, rapid ebullition from sediment; gas and NAPL sheen is produced from sediment mostly during poke tests, or when the sediment is otherwise disturbed;
- Total PAH concentrations in sediment decrease toward the center of the channel and are generally below the PEC within 15 horizontal feet from the southern Huron River bank;
- Sediment toxicity testing performed on sediment samples collected just outside the area of sediment that yields a NAPL sheen when disturbed yielded survival rates that are not significantly different from the laboratory control and a background sampling location. Therefore, sediment from areas outside the area of sediment that yields a NAPL sheen when disturbed is not toxic;
- Some metals are also present in sediment along the southern Huron River. However, simultaneously extracted metals (SEM)|acid volatile sulfide (AVS) evaluations indicate there is low bioavailability of metals in samples collected outside the area of sediment that yields a NAPL sheen when disturbed; and
- PAHs are not present in surface water at concentrations that pose a risk to human health or the environment.

Utilizing the bulk sediment sampling results, the sediment toxicity testing results and the SEM|AVS evaluation results, TRC refined the site Screening Level Human Health and Ecological Risk Assessment. Site sediment and surface water concentrations do not contribute estimated risk to site-specific human health receptors above the MDEQ target risk of 1E-05 or a target hazard quotient (HQ) of 1.0. As such, no remedial goal options (RGOs) were developed based on site-specific human health exposures. For the ecological risk assessment ecological sediment benthic RGOs were calculated for total PAHs and total lead of 111 milligrams per kilogram (mg/kg) and 330 mg/kg, respectively.

MichCon used the extent of sediment that yields sheen when disturbed in conjunction with the total PAH and total lead RGOs to define the extent of shallow Huron River sediment located adjacent to the Broadway Site requiring remediation. Based upon site conditions, MichCon has selected a remedial action to address the affected sediment located within the Huron River adjacent to the Broadway Site that includes:

- Excavation and proper off-site disposal of upland and river bank soil that are affected with potential source area concentrations of PAHs and/or NAPL and/or other site constituents of concern (COCs) that represent a potential future source to the Huron River;
- Excavation and proper off-site disposal of sediment that yields sheen when disturbed and/or that exhibits total PAHs and/or total lead at concentrations that exceed their ecological RGOs. The area of sediment to be removed is from an approximately 15 foot wide by 1,000 foot long section starting on the southern bank of the Huron River at

approximately the Broadway Street Bridge to the northwest along the Broadway Site Huron River front; and

- The installation of a NAPL trapping cap and collection system after the affected bank soil and sediment is removed. The NAPL trapping cap and collection system will be emplaced over the area of formerly affected sediment that generated sheen (removed via excavation) as an additional protective barrier to prevent any potential future NAPL/sheen migration to the Huron River.

MichCon is submitting this Response Activities Plan (ResAP) in accordance with Section 20114b of Part 201[1] for Department review and approval of the proposed near-shore soil excavation, and sediment remediation activities, including the NAPL trapping cap design. This ResAP documents the proposed tasks that will be implemented at the Broadway Site to satisfy the cleanup criteria for soil and sediment established under the Part 201 Rules (R299.5720 through R299.5730) for the near-shore unsaturated soil located on a portion of the former MGP property and near-shore sediment in the Huron River between the Argo Dam and the Broadway Bridge. In addition, this ResAP includes MichCon's plan to remove source material from upland areas on the Broadway Site.

[1] Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

Section 1
Introduction

The Ann Arbor Gas Company and the Washtenaw Gas Company, predecessors of Michigan Consolidated Gas Company (MichCon), operated a manufactured gas plant (MGP) in Ann Arbor, Michigan along the southern bank of the Huron River, west of Broadway Street (Broadway Site). Coke oven gas and/or carbureted water gas were produced at the Broadway Site from approximately 1900 until the 1940s. In the 1950s the Broadway Site MGP operations were dismantled and the site was converted into a MichCon Service Center in the 1960s. Service center operations were discontinued in 2008 and the main service center building was deconstructed in late 2009/early 2010.

1.1 Location

The Broadway Site is located in the E 1/2 of the SE 1/4 of Section 20, T2S, R6E in the City of Ann Arbor, Washtenaw County, Michigan along the southern bank of the Huron River, west of Broadway Street (Figure 1). The Broadway Site encompasses approximately 14 acres along the Huron River near the intersection of Depot Street and Broadway Street. A fence divides the Broadway Site into two areas consisting of the Western Parcel and Eastern Parcel. The Western Parcel is generally grassy and undeveloped, and the Eastern Parcel is generally paved and was, until recently, used for the service center and dispatching operations.

The Broadway Site is currently zoned for industrial use, and the surrounding area is of mixed use. The Huron River bounds the Broadway Site to the north northeast, an Amtrak railway station is located south southwest of the Broadway Site, and Broadway Street is located to the east. Beyond Broadway Street is a city park, and the nearest residence is approximately 0.2 miles to the southwest of the Broadway Site. Site features (including approximate locations of historic structures) and monitoring well locations are shown on Figure 2.

The street address for the site is:

Former MichCon Broadway Street MGP
841 Broadway Street
Ann Arbor, Michigan 48105

The facility contact for the Broadway Site is:

DTE Energy
Attn: Shayne Wiesemann
One Energy Plaza, 655 G.O.
Detroit, MI 48226

1.2 Overview of Past and Current Use of Properties, and Hazardous Substances

The Ann Arbor Gas Company and the Washtenaw Gas Company, predecessors of MichCon, operated an MGP in Ann Arbor, Michigan in Ann Arbor, Michigan along the southern bank of the Huron River, west of Broadway Street. Coke oven gas and/or carbureted water gas were produced at the Broadway Street MGP from approximately 1900 until the 1940s. In the 1950s, the Broadway Site MGP operations ceased, and in the 1960s the site was converted into a MichCon Service Center. Service center operations were discontinued in 2008. In 2009/2010, the service center building was deconstructed by MichCon. Two garage structures remain in the corner of the former parking lot on the Eastern Parcel. The site is currently inactive and unoccupied. Approximate locations of the garage buildings and former MGP structures are shown on Figure 2.

Investigations performed to date at the Broadway Site have found the following constituents present within the upland soil, and/or groundwater and/or the sediment at the site that are likely or potentially associated with the former Broadway Site and/or is some cases in the sediment may be from urban/industrial runoff/discharges to the Huron River up-flow from the Broadway Site:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) (associated with petroleum releases);
- Total polynuclear aromatic hydrocarbons (PAHs) (associated with MGP tar and/or petroleum releases);
- Metals (arsenic, chromium, copper, lead, mercury, selenium, silver, thallium, and vanadium) (some of these metals (*e.g.*, arsenic) may be from natural background);
- Ammonia; and
- Available cyanide.

1.3 Evidence Property is a "Facility"

Based on the definition in Part 201, Section 324.20101(1)(r), the property addressed in this Response Activities Plan (ResAP) is a facility based on the presence of constituents of concern (COCs) in soil and/or groundwater and/or sediment in the Huron River adjacent to the site above the relevant generic residential cleanup criteria in accordance with Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended.

1.4 Purpose and Scope: Criteria Category Plan Satisfies

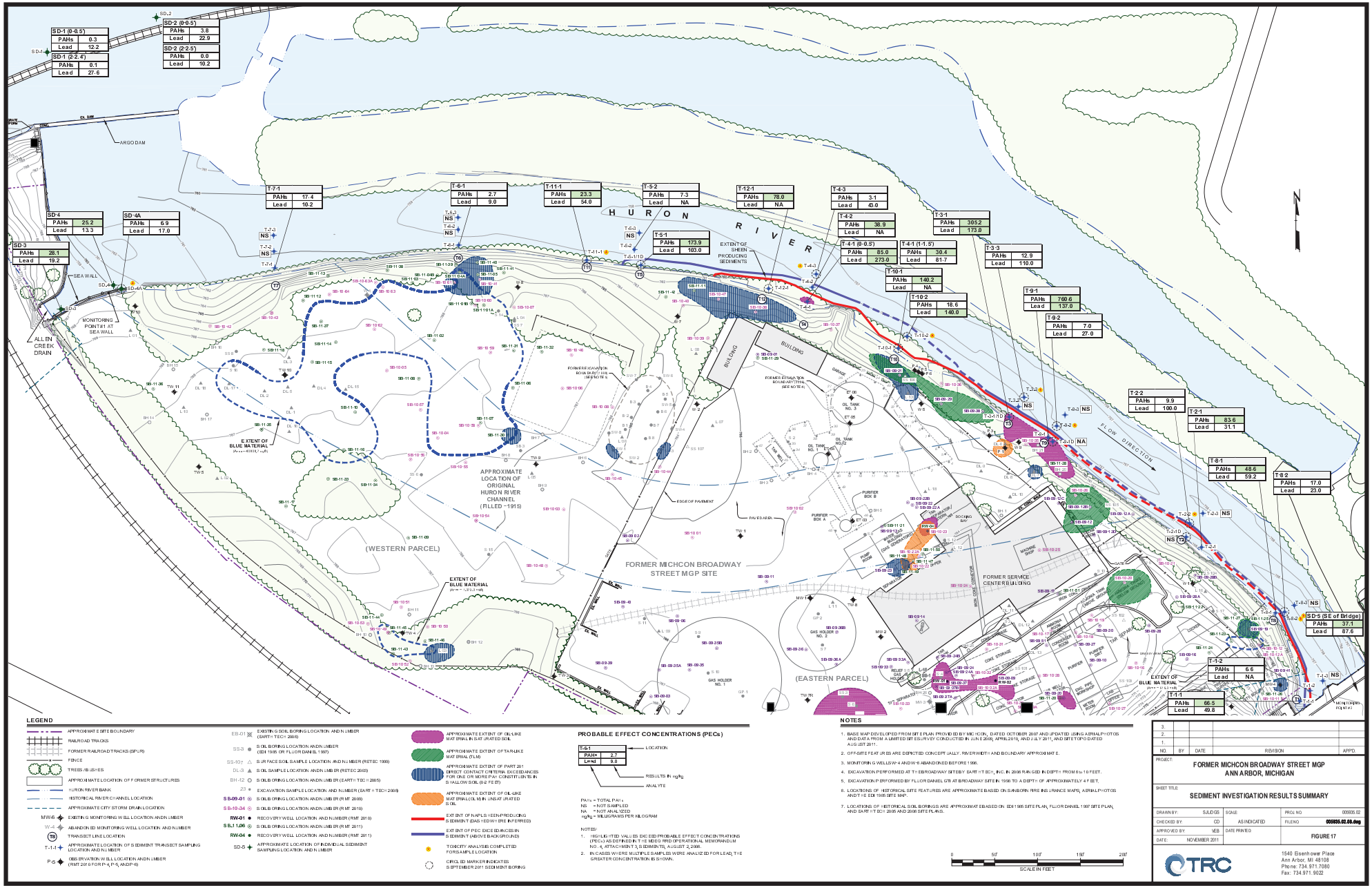
The purpose of this ResAP is to document all remaining tasks that are necessary and that will be implemented at the Broadway Site to satisfy the cleanup criteria for soil and sediment established under the Part 201 Rules (R299.5720 through R299.5730) for the near-shore unsaturated soil located on a portion of the former MGP property and near-shore sediment in

the Huron River between the Argo Dam and the Broadway Bridge. In addition, this report includes MichCon's plan to remove source material from upland areas on the Broadway Site. The scope of this report includes the following:

- Screening and comparison of sediment data with applicable current MDEQ screening criteria and, for a limited number of COCs, risk-based criteria developed for the site;
- Screening and comparison of on-site soil applicable current Part 201 nonresidential cleanup criteria;
- Propose remedy to address COCs in sediment and near-shore unsaturated soil;
- Scope of upland source material removal;
- Document that the proposed remedial actions for near-shore soil and sediment shall satisfy the cleanup criteria for residential use of soil and sediment; and
- Document the implementation details and schedule for the selected remedies.

1.5 Contiguous Facilities

Allen Creek Drain is a contiguous "facility" with the Broadway Site (Part 201 site ID 81000094). The drain is located adjacent to the northeast corner of the Broadway site and flows directly into the Huron River on the upstream end of the site (Figure 2). This report documents that the Allen Creek is a source of organic COCs in sediment upstream of the Broadway Site.



LEGEND

- APPROXIMATE SITE BOUNDARY
- RAILROAD TRACKS
- FORMER RAILROAD TRACKS (SPUR)
- FENCE
- TREES / BUSHES
- APPROXIMATE LOCATION OF FORMER STRUCTURES
- HURON RIVER BANK
- HISTORICAL RIVER CHANNEL LOCATION
- APPROXIMATE CITY STORM DRAIN LOCATION
- MW-6 EXISTING MONITORING WELL LOCATION AND NUMBER
- W-4 ABANDONED MONITORING WELL LOCATION AND NUMBER
- T6 TRANSECT LINE LOCATION
- T-1-1 APPROXIMATE LOCATION OF SEDIMENT TRANSECT SAMPLING LOCATION AND NUMBER
- P-5 OBSERVATION WELL LOCATION AND NUMBER (RMT 2010 FOR P-4, P-5, AND P-6)
- EB-01 EXISTING SOIL BORING LOCATION AND NUMBER (EARTH TECH 2005)
- SB-3 SOIL BORING LOCATION AND NUMBER (EDI 1995 OR FLUOR DANIEL 1997)
- SS-107 SURFACE SOIL SAMPLE LOCATION AND NUMBER (RETEC 1999)
- DL-3 SOIL SAMPLE LOCATION AND NUMBER (RETEC 2000)
- BH-12 SOIL BORING LOCATION AND NUMBER (EARTH TECH 2005)
- 23 EXCAVATION SAMPLE LOCATION AND NUMBER (EARTH TECH 2005)
- SB-09-01 SOIL BORING LOCATION AND NUMBER (RMT 2009)
- SB-10-34 SOIL BORING LOCATION AND NUMBER (RMT 2010)
- RW-01 RECOVERY WELL LOCATION AND NUMBER (RMT 2010)
- SB-1 (JR) SOIL BORING LOCATION AND NUMBER (RMT 2011)
- RW-04 RECOVERY WELL LOCATION AND NUMBER (RMT 2011)
- SD-5 APPROXIMATE LOCATION OF INDIVIDUAL SEDIMENT SAMPLING LOCATION AND NUMBER
- APPROXIMATE EXTENT OF OIL-LIKE MATERIAL IN SATURATED SOIL
- APPROXIMATE EXTENT OF TAR-LIKE MATERIAL (TLM)
- APPROXIMATE EXTENT OF PART 201 DIRECT CONTACT CRITERIA EXCEEDANCES FOR ONE OR MORE PAH CONSTITUENTS IN SHALLOW SOIL (0-2 FEET)
- APPROXIMATE EXTENT OF OIL-LIKE MATERIAL (OLM) IN UNSATURATED SOIL
- EXTENT OF NAPLS-IEEN-PRODUCING SEDIMENT (DASHED WHERE INFERRED)
- EXTENT OF PEC EXCEEDANCES IN SEDIMENT (ABOVE BACKGROUND)
- TOXICITY ANALYSIS COMPLETED FOR SAMPLE LOCATION
- CIRCLED MARKER INDICATES SEPTEMBER 2011 SEDIMENT BORING

PROBABLE EFFECT CONCENTRATIONS (PECs)

T-5-1 — LOCATION
PAH 2.7 — RESULTS IN mg/kg
Lead 9.0 — ANALYTE

PAHs = TOTAL PAHs
NS = NOT SAMPLED
NA = NOT ANALYZED
mg/kg = MILLIGRAMS PER KILOGRAM

NOTES:
1. HIGHLIGHTED VALUES EXCEED PROBABLE EFFECT CONCENTRATIONS (PECs) AS DEFINED IN THE MDEQ RRD OPERATIONAL MEMORANDUM NO. 4, ATTACHMENT 3, SUBMITTED, AUGUST 2, 2006.
2. IN CASES WHERE MULTIPLE SAMPLES WERE ANALYZED FOR LEAD, THE GREATER CONCENTRATION IS SHOWN.

NOTES

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY MICHCON, DATED OCTOBER 2007 AND UPDATED USING AERIAL PHOTOS AND DATA FROM A LIMITED SITE SURVEY CONDUCTED IN JUN E 2009, APRIL 2010, AND JULY 2011, AND SITE TOPO DATED AUGUST 2011.
2. OFF-SITE FEATURES ARE DEPICTED CONCEPTUALLY. RIVER WIDTH AND BOUNDARY APPROXIMATE.
3. MONITORING WELLS W-4 AND W-5 ABANDONED BEFORE 1995.
4. EXCAVATION PERFORMED AT THE BROADWAY SITE BY EARTH TECH, INC. IN 2006 RANGED IN DEPTH FROM 6 to 10 FEET.
5. EXCAVATION PERFORMED BY FLUOR DANIEL GTI AT BROADWAY SITE IN 1996 TO A DEPTH OF APPROXIMATELY 4 FEET.
6. LOCATIONS OF HISTORICAL SITE FEATURES ARE APPROXIMATE BASED ON SANBORN FIRE INSURANCE MAPS, AERIAL PHOTOS AND THE EDI 1995 SITE MAP.
7. LOCATIONS OF HISTORICAL SOIL BORINGS ARE APPROXIMATE BASED ON EDI 1995 SITE PLAN, FLUOR DANIEL 1997 SITE PLAN, AND EARTH TECH 2005 AND 2006 SITE PLANS.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT:
FORMER MICHCON BROADWAY STREET MGP
ANN ARBOR, MICHIGAN

SHEET TITLE:
SEDIMENT INVESTIGATION RESULTS SUMMARY

DRAWN BY:	SJL/DGS	SCALE:	AS INDICATED
CHECKED BY:	CD	FILE NO:	005935.02.08.dwg
APPROVED BY:	MEB	DATE PRINTED:	
DATE:	NOVEMBER 2011		

FIGURE 17

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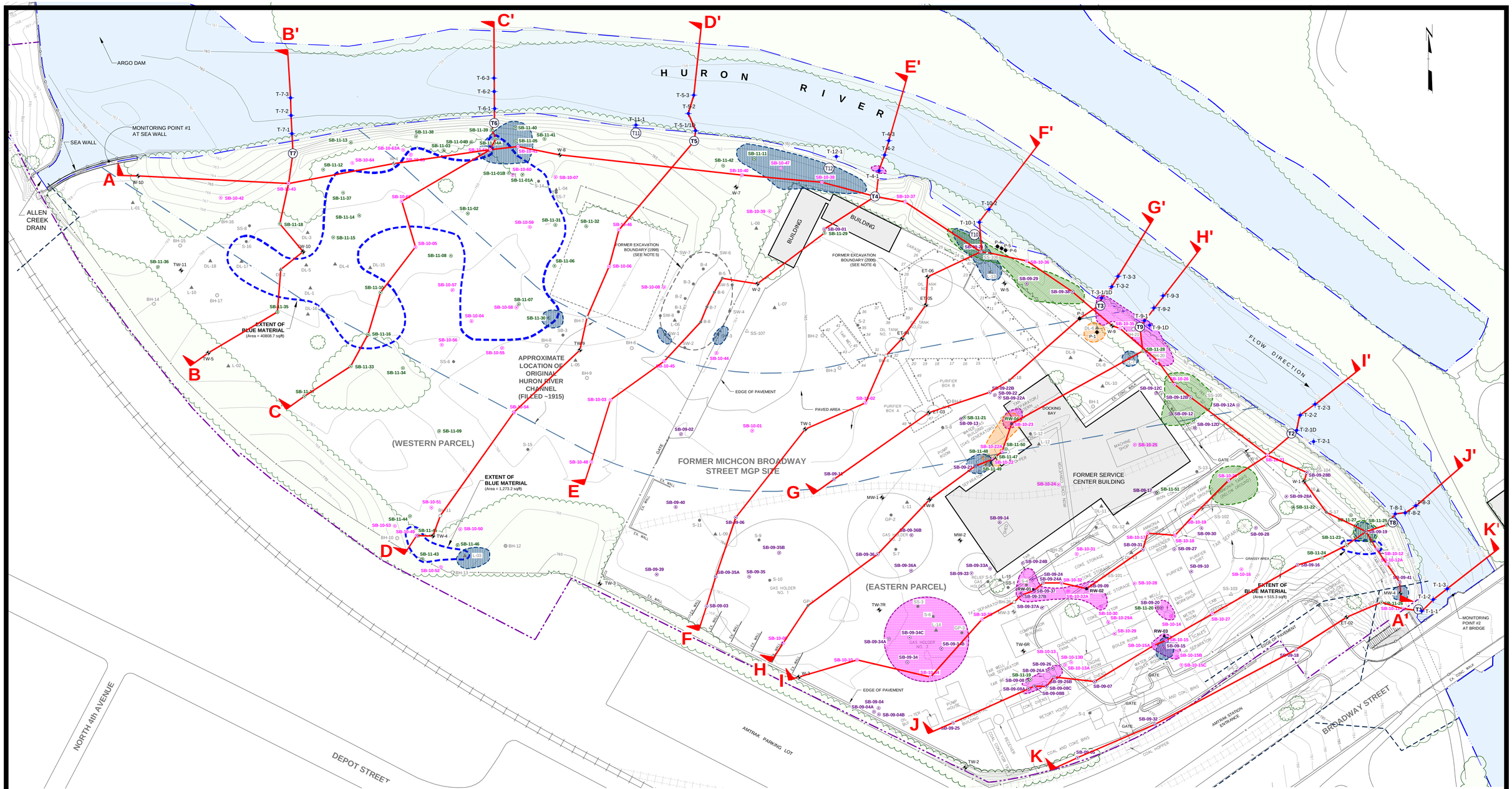

LEGEND

- APPROXIMATE SITE BOUNDARY
- RAILROAD TRACKS
- FORMER RAILROAD TRACKS (SPUR)
- FENCE
- TREES / BUSHES
- APPROXIMATE LOCATION OF FORMER STRUCTURES
- HURON RIVER BANK
- HISTORICAL RIVER CHANNEL LOCATION
- MW-6 — EXISTING MONITORING WELL LOCATION AND NUMBER
- W-4 — ABANDONED MONITORING WELL LOCATION AND NUMBER
- APPROXIMATE CITY STORM DRAIN LOCATION
- T8 — TRANSECT LINE LOCATION
- T-1-1 — APPROXIMATE LOCATION OF SEDIMENT TRANSECT SAMPLING LOCATION AND NUMBER
- P-5 — OBSERVATION WELL LOCATION AND NUMBER (RMT 2010 FOR P-4, P-5, AND P-6)
- EB-01 — EXISTING SOIL BORING LOCATION AND NUMBER (EARTH TECH 2006)
- SS-3 — SOIL BORING LOCATION AND NUMBER (EDI 1985 OR FLUOR DANIEL 1997)
- SS-107 — SURFACE SOIL SAMPLE LOCATION AND NUMBER (RETEC 1999)
- DL-3 — SOIL SAMPLE LOCATION AND NUMBER (RETEC 2003)
- BH-12 — SOIL BORING LOCATION AND NUMBER (EARTH TECH 2005)
- 23 — EXCAVATION SAMPLE LOCATION AND NUMBER (EARTH TECH 2006)
- SB-09-01 — SOIL BORING LOCATION AND NUMBER (RMT 2009)
- SB-10-34 — SOIL BORING LOCATION AND NUMBER (RMT 2010)
- RW-01 — RECOVERY WELL LOCATION AND NUMBER (RMT 2010)
- SB-11-06 — SOIL BORING LOCATION AND NUMBER (RMT 2011)
- RW-04 — RECOVERY WELL LOCATION AND NUMBER (RMT 2011)
- APPROXIMATE EXTENT OF OIL-LIKE MATERIAL IN SATURATED SOIL
- APPROXIMATE EXTENT OF TAR-LIKE MATERIAL (TLM)
- APPROXIMATE EXTENT OF PART 201 DIRECT CONTACT CRITERIA EXCEEDANCES FOR ONE OR MORE PAH CONSTITUENTS IN SHALLOW SOIL (0-2 FEET)
- APPROXIMATE EXTENT OF OIL-LIKE MATERIAL (OLM) IN UNSATURATED SOIL
- A A' — CROSS SECTION LOCATOR

NOTES

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY MICHCON, DATED OCTOBER 2007 AND UPDATED USING AERIAL PHOTOS AND DATA FROM A LIMITED SITE SURVEY CONDUCTED IN JUNE 2009, APRIL 2010, AND JULY 2011, AND SITE TOPO DATED AUGUST 2011.
2. OFF-SITE FEATURES ARE DEPICTED CONCEPTUALLY. RIVER WIDTH AND BOUNDARY APPROXIMATE.
3. MONITORING WELLS W-4 AND W-6 ABANDONED BEFORE 1996.
4. EXCAVATION PERFORMED AT THE BROADWAY SITE BY EARTH TECH, INC. IN 2006 RANGED IN DEPTH FROM 6 to 10 FEET.
5. EXCAVATION PERFORMED BY FLUOR DANIEL GTI AT BROADWAY SITE IN 1998 TO A DEPTH OF APPROXIMATELY 4 FEET.
6. LOCATIONS OF HISTORICAL SITE FEATURES ARE APPROXIMATE BASED ON SANBORN FIRE INSURANCE MAPS, AERIAL PHOTOS AND THE EDI 1985 SITE MAP.
7. LOCATIONS OF HISTORICAL SOIL BORINGS ARE APPROXIMATE BASED ON EDI 1985 SITE PLAN, FLUOR DANIEL 1997 SITE PLAN, AND EARTH TECH 2005 AND 2006 SITE PLANS.

0 50' 100' 150' 200'
SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
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PROJECT:
FORMER MICHCON BROADWAY STREET MGP
ANN ARBOR, MICHIGAN

SHEET TITLE:
CROSS-SECTION LOCATOR MAP

DRAWN BY:	SJL/DGS	SCALE:	PROJ. NO. 005935.02
CHECKED BY:	SBH	AS INDICATED	FILE NO. 005935.02.XS LOC.dwg
APPROVED BY:	VEB	DATE PRINTED:	FIGURE 4
DATE:	NOVEMBER 2011		

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PLOT DATA
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Drawing Number: 4 of 4 Sheets
Drawing Plot Scale: 0.368883

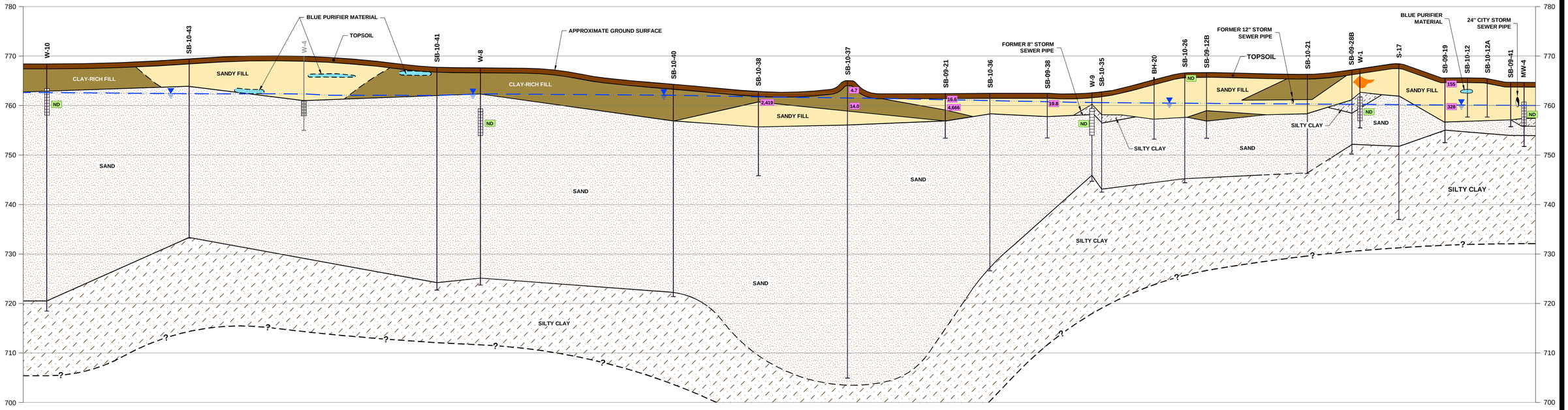
Plot Date: 2 Jan Mo
Plot Time: 8:31 AM
Plot Time: November 23, 2011

Attached Xref's: Contours Surveyed Aug2011; bm021411-Updated 8/2011
Attached Image: FIGDA XS Locator Map
Layout:

GENERALIZED GEOLOGIC CROSS SECTION A - A'

A
West

A'
East



VERTICAL SCALE
0
10'
20'

HORIZONTAL SCALE
0
50'
100'

LEGEND

- ASPHALT
- TOPSOIL
- SANDY FILL
- CLAY - RICH FILL
- SILTY CLAY
- SAND (SOME AREAS CONTAIN GRAVEL)
- DEMOLITION DEBRIS
- CONCRETE / BRICK
- BLUE PURIFIER MATERIAL
- STRATIGRAPHIC BOUNDARY BASED ON NEAREST SOIL BORING OR MONITORING WELL
- APPROXIMATE GROUNDWATER ELEVATION
- SB-09-31 SOIL BORING LOCATION AND NUMBER
- WELL SCREEN
- WELL SCREEN (ABANDONED WELL)
- OIL-LIKE MATERIAL (OLM)
- 0.4 TOTAL PAH CONCENTRATION IN GROUNDWATER (mg/L)
- 7.9 TOTAL PAH CONCENTRATION IN SOIL (mg/kg)
- 17.4 TOTAL PAH CONCENTRATION IN SEDIMENT (mg/kg)
- ND PAH CONCENTRATIONS ARE NON-DETECT

NOTES

1. GROUND SURFACE AND STRATIGRAPHIC CONTACTS ARE APPROXIMATE AND EXTRAPOLATED FROM NEAREST SOIL BORING DATA.
2. APPROXIMATE AVERAGE GROUNDWATER ELEVATION BASED ON DATA COLLECTED DURING THE NOVEMBER 2010 AND APRIL 2011 SEMI-ANNUAL MONITORING EVENTS, AND 2009-2011 SOIL INVESTIGATION ACTIVITIES.

NO.	BY	DATE	REVISION	APPD.
3.				
2.				
1.				

PROJECT:
FORMER MICHCON BROADWAY STREET MGP
ANN ARBOR, MICHIGAN

SHEET TITLE:
GENERALIZED GEOLOGIC CROSS SECTION A - A'

DRAWN BY:	SJL/DGS	SCALE:	PROJ. NO. 005935.02
CHECKED BY:	SBH	AS INDICATED	FILE NO. 005935.00.XS A-K.dwg
APPROVED BY:	VEB	DATE PRINTED:	FIGURE 5
DATE:	NOVEMBER 2011		

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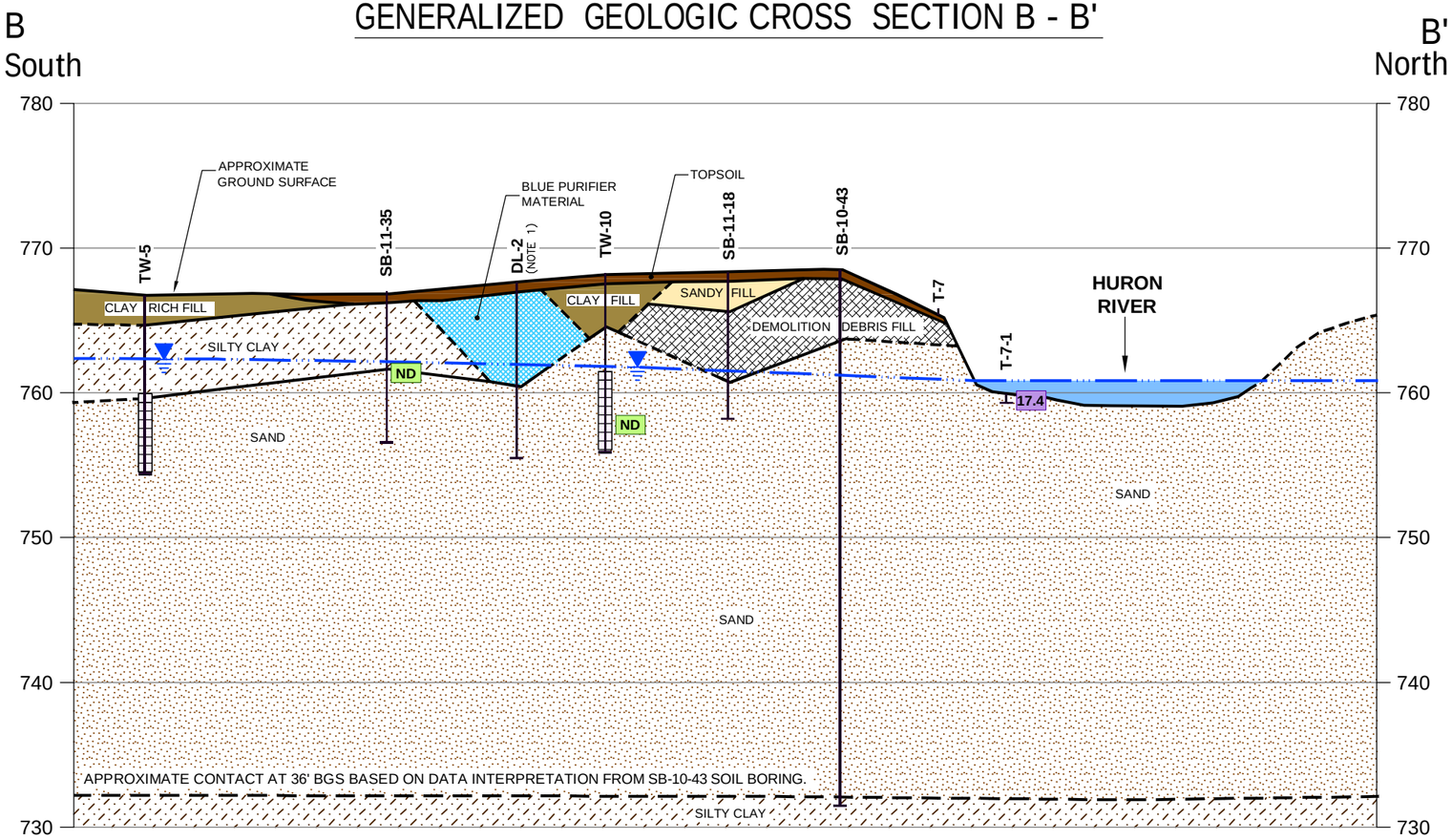
PLOT_DATA
Drawing Name: x:_TRC\Michcon-Broadway\005935\GDP\05 REPORT\005935.00.XS A-K.dwg
Drawing User: EMAM
Drawing Plot Scale: 0.024348

Dwg Size: 0.66 Mb
Plot Date: November 22, 2011
Plot Time: 8:59:59 AM

Attached Xref:
Attached Image:
Layout:
P0005-XSEC A-A

GENERALIZED GEOLOGIC CROSS SECTION B - B'



LEGEND

- ASPHALT
- TOPSOIL
- SANDY FILL
- CLAY - RICH FILL
- SILTY CLAY
- SAND (SOME AREAS CONTAIN GRAVEL)
- DEMOLITION DEBRIS FILL
- CONCRETE / BRICK
- BLUE PURIFIER MATERIAL
- TAR-LIKE MATERIAL
- STRATIGRAPHIC BOUNDARY BASED ON NEAREST SOIL BORING OR MONITORING WELL (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER ELEVATION
- SB-09-31 — SOIL BORING LOCATION AND NUMBER
- WELL SCREEN
- WELL SCREEN (ABANDONED WELL)
- OIL-LIKE MATERIAL (OLM)
- 0.4 — TOTAL PAH CONCENTRATION IN GROUNDWATER (mg/L)
- 7.9 — TOTAL PAH CONCENTRATION IN SOIL (mg/kg)
- 17.4 — TOTAL PAH CONCENTRATION IN SEDIMENT (mg/kg)
- ND — PAH CONCENTRATIONS ARE NON-DETECT

NOTES

1. GROUND SURFACE AND STRATIGRAPHIC CONTACT ELEVATIONS ARE APPROXIMATE AND EXTRAPOLATED FROM NEAREST SOIL BORING DATA.
2. APPROXIMATE AVERAGE GROUNDWATER ELEVATION BASED ON DATA COLLECTED DURING THE NOVEMBER 2010 AND APRIL 2011 SEMI-ANNUAL MONITORING EVENTS, AND 2009-2011 SOIL INVESTIGATION ACTIVITIES.

PROJECT:
FORMER MICHCON BROADWAY STREET MGP
ANN ARBOR, MICHIGAN

TITLE:
GENERALIZED GEOLOGICAL
CROSS-SECTION B-B'

DRAWN BY:	DGS	SCALE:	PROJ. NO. 005935.02
CHECKED BY:	JAB	AS INDICATED	FILE NO. 005935.00.XS A-K.dwg
APPROVED BY:	VEB	DATE PRINTED:	FIGURE 6
DATE:	NOVEMBER 2011		

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Table A1
Summary of Detected Volatile Organic Compounds in Soil
2009-2011 Remedial Investigation - Former MichCon Broadway Street MGP
Ann Arbor, Michigan

Analyte		Benzene	Ethyl-benzene	Toluene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Xylenes, Total
Non-Residential DWP Criteria		100	1,500	16,000	2,100	1,800	5,600
GSI Protection Criteria		38,000(1,2)	6,400(2)	5,400	10,300(2)	1,100	14,600(2)
Groundwater Contact Protection Criteria		2.2E+05	1.4E+05	2.5E+05	1.1E+05	94,000	1.5E+05
Non-Residential Direct Contact Criteria		4.0E+05	1.4E+05	2.5E+05	1.1E+05	94,000	1.5E+05
Non-Residential SVIIC		8,400	1.4E+05	2.5E+05	1.1E+05	94,000	1.5E+05
Non-Residential Ambient Air Infinite Source VSIC		45,000	2.4E+06	3.3E+06	2.5E+07	1.9E+07	5.4E+07
Units		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
SB-10-04 (2.5-4')	03/09/2010	<57	<57	<110	<110	<110	<167
SB-10-05 (0-2')	03/09/2010	<44	<44	<87	<87	<87	<131
SB-10-05 (3.5-5.5')	03/09/2010	<94	<94	<190	<190	<190	<284
SB-10-06 (0.5-2')	03/09/2010	<42	<42	<84	<84	<84	<126
SB-10-06 (5-7')	03/09/2010	<42	<42	<84	<84	<84	<126
SB-10-16 (0-2')	03/10/2010	<44	<44	<89	<89	<89	<133
SB-10-16 (6-8')	03/10/2010	<55	<55	<110	<110	<110	<165
SB-10-18 (0-2')	03/10/2010	<41	<41	<82	<82	<82	<123
SB-10-18 (3-5')	03/10/2010	<39	<39	<78	<78	<78	<117
SB-10-19 (0-2')	03/10/2010	<45	<45	<90	<90	<90	<135
SB-10-19 (3-5')	03/10/2010	**820**	**88**	<100	<100	<100	<151
SB-10-24 (6-8')	03/11/2010	<44	<44	<88	<88	<88	<132
SB-10-25 (0.5-2')	03/11/2010	<54	<54	<110	<110	<110	<164
SB-10-25 (7-9')	03/11/2010	<42	<42	<83	<83	<83	<125
SB-10-26 (0-2')	03/11/2010	<46	<46	<91	<91	<91	<137
SB-10-37 (0-2')	03/15/2010	<46	<46	<91	<91	<91	<137
SB-10-37 (4-6')	03/15/2010	<36	<36	<72	<72	<72	<108
SB-10-38 (1-2')	03/17/2010	**71**	<54	**130**	<110	<110	**257**
SB-10-39 (0-2')	03/16/2010	<42	<42	<84	<84	<84	<126
SB-10-42 (0-2')	03/17/2010	<51	<51	<100	<100	<100	<151
SB-10-42 (3-5')	03/17/2010	<42	<42	<83	<83	<83	<125
SB-11-25 (0-2')	04/20/2011	<130	<130	<67	<67	<197	<130
SB-11-28 (0-2')	04/20/2011	**110**	<100	**130**	<52	**350**	**330**

Non-Residential Drinking Water Protection (DWP) Criteria, Groundwater Surface Water Interface (GSI) Protection Criteria, Groundwater Contact Protection, Non-Residential Direct Contact Criteria Criteria, Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC), and Non-Residential Ambient Air Infinite Source Volatile Soil Inhalation Criteria (VSIC) from Part 201 Generic Cleanup Criteria, March 25, 2011.
µg/kg = micrograms per kilogram
bold font denotes concentrations detected above laboratory reporting limits
Denotes concentrations above one or more criteria
1) Criterion is not protective for surface water used as a drinking water source as described in footnote {X} of Michigan Department of Environmental Quality (MDEQ) Op Memo 1 Part 201, Attachment 1.
2) Criterion shown is based on the preliminary site-specific water quality-based effluent limits provided by the MDEQ in a letter dated 7/1/2010 and were calculated in accordance with MDEQ RD Op Memo No. 1, Attachment 9 (March 2005).

Table A2
Summary of Detected Semivolatile Organic Compounds in Soil
2009-2011 Remedial Investigation - Former MichCon Broadway Street MGP
Ann Arbor, Michigan

Analyte		Acenaphthene	Acenaph-thylene	Anthracene	Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-flouranthene	Benzo(g,h,i)-perylene	Benzo(k)-flouranthene	Chrysene
Non-Residential DWP Criteria		8.8E+05	17,000	41,000	NC	NC	NC	NC	NC	NC
GSI Protection Criteria		46,300[2]	NC	NC	NC	NC	NC	NC	NC	NC
Groundwater Contact Protection Criteria		9.7E+05	4.4E+05	41,000	NC	NC	NC	NC	NC	NC
Non-Residential Direct Contact Criteria		1.3E+08	5.2E+06	7.3E+08	80,000	8,000	80,000	7.0E+06	8.0E+05	8.0E+06
Non-Residential SVIIC		3.5E+08	3.0E+06	1.0E+09	NLV	NLV	NC	NLV	NLV	NC
Non-Residential Ambient Air Infinite Source VSIC		9.7E+07	2.7E+06	1.6E+09	NLV	NLV	NC	NLV	NLV	NC
Units		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
SB-09-40 (0-2')	12/04/2009	<330	**640**	**440**	**1,100**	**1,100**	**1,600**	**360**	**460**	**1,000**
SB-09-40 (3-5')	12/04/2009	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-03 (0-2')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-03 (2-4')	03/09/2010	<330	**2,400**	**1,600**	**4,400**	**3,300**	**3,700**	**2,000**	**1,700**	**4,300**
SB-10-04 (0-2')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-04 (2.5-4')	03/09/2010	<330	**5,100**	**13,000**	**26,000**	**21,000**	**30,000**	**5,300**	**8,500**	**28,000**
SB-10-05 (0-2')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-05 (3.5-5.5')	03/09/2010	<330	**990**	**680**	**1,800**	**3,100**	**3,900**	**1,300**	**950**	**2,000**
SB-10-06 (0.5-2')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-06 (5-7')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-11 (0-2')	03/10/2010	<330	<330	**500**	**930**	**840**	**940**	**510**	**350**	**900**
SB-10-11 (3-5')	03/10/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-16 (0-2')	03/10/2010	<330	<330	<330	**440**	**400**	**480**	<330	<330	**510**
SB-10-16 (6-8')	03/10/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-18 (0-2')	03/10/2010	<330	<330	<330	<330	<330	**420**	<330	<330	**340**
SB-10-18 (3-5')	03/10/2010	**510**	**3,100**	**5,800**	**6,000**	**4,600**	**6,100**	**1,300**	**1,600**	**4,900**
SB-10-19 (0-2')	03/10/2010	<330	<330	**600**	**1,500**	**1,200**	**1,500**	**770**	**620**	**1,500**
SB-10-19 (3-5')	03/10/2010	<330	**640**	**590**	**1,600**	**1,700**	**2,500**	**910**	**550**	**1,400**
SB-10-24 (6-8')	03/11/2010	<330	<330	<330	**340**	**490**	**520**	**430**	<330	**400**
SB-10-25 (0.5-2')	03/11/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-25 (7-9')	03/11/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-26 (0-2')	03/11/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-37 (0-2')	03/15/2010	<330	<330	<330	**520**	**480**	**600**	<330	<330	**500**
SB-10-37 (4-6')	03/15/2010	<330	**490**	<330	**1,300**	**1,500**	**2,000**	**1,000**	**450**	**1,300**
SB-10-38 (1-2')	03/17/2010	**12,000**	**89,000**	**130,000**	**120,000**	**130,000**	**140,000**	**49,000**	**33,000**	**130,000**
SB-10-39 (0-2')	03/16/2010	<330	<330	<330	**480**	**490**	**620**	<330	<330	**540**
SB-10-42 (0-2')	03/17/2010	<330	<330	<330	**440**	**580**	**690**	<330	<330	**520**
SB-10-42 (3-5')	03/17/2010	<330	<330	**700**	**1,300**	**1,200**	**2,000**	**470**	**700**	**1,800**
SB-10-44 (0-2')	10/06/2010	<1700	<1700	<1700	<1700	<1700	**1,800**	<1700	<1700	<1700
SB-10-45 (0-2')	10/06/2010	**500**	**500**	**700**	**1,800**	**1,800**	**2,200**	**1,000**	**760**	**1,900**
SB-10-47 (0-2')	10/06/2010	<1700	<1700	**3,600**	**8,400**	**8,700**	**10,000**	**4,900**	**3,400**	**9,000**
SB-10-50 (0-2')	10/06/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-50 (3.5-5.5')	10/06/2010	<330	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-55 (0-2')	10/07/2010	<330	<330	<330	**940**	**1,100**	**1,400**	**540**	**530**	**1,000**
SB-10-55 (2.5-4.5')	10/07/2010	<330	**830**	**890**	**3,000**	**3,300**	**4,300**	**1,900**	**1,300**	**3,200**
SB-10-56 (0-2')	10/07/2010	<330	<330	<330	**350**	**400**	**460**	<330	<330	<360
SB-10-56 (3-5')	10/07/2010	<330	**360**	**350**	**1,200**	**1,300**	**1,500**	**760**	**660**	**1,400**

Non-Residential Drinking Water Protection (DWP) Criteria, Groundwater Surface Water Interface (GSI) Protection Criteria, Groundwater Contact Protection Criteria, Non-Residential Direct Contact Criteria, Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC), and Non-Residential Ambient Air Infinite Source Volatile Soil Inhalation Criteria (VSIC) from Part 201 Generic Cleanup Criteria, March 25, 2011.

µg/kg = micrograms per kilogram

NC = No Criteria; NLV = Not Likely to Volatilize

bold font denotes concentrations detected above laboratory reporting limits

Denotes concentrations above one or more criteria

1) Elevated laboratory reporting limit above one or more criteria.

2) Criterion shown is based on the preliminary site-specific water quality-based effluent limits provided by the MDEQ in a letter dated 7/1/2010 and were calculated in accordance with MDEQ RD Op Memo No. 1, Attachment 9 (March 2005).

Table A2
Summary of Detected Semivolatile Organic Compounds in Soil
2009-2011 Remedial Investigation - Former MichCon Broadway Street MGP
Ann Arbor, Michigan

Analyte		Dibenzo(a,h)-anthracene	Fluoranthene	Fluorene	Indeno-(1,2,3-cd)-pyrene	2-Methyl-naphthalene	Naphthalene	Phenanthrene	Pyrene
Non-Residential DWP Criteria		NC	7.3E+05	8.9E+05	NC	1.7E+05	1.0E+05	1.6E+05	4.8E+05
GSI Protection Criteria		NC	96,200[2]	97,100[2]	NC	75,100[2]	13,300[2]	20,700[2]	NC
Groundwater Contact Protection Criteria		NC	7.3E+05	8.9E+05	NC	5.5E+06	2.1E+06	1.1E+06	4.8E+05
Non-Residential Direct Contact Criteria		8,000	1.3E+08	8.7E+07	80,000	2.6E+07	5.2E+07	5.2E+06	8.4E+07
Non-Residential SVIIC		NLV	1.0E+09	1.0E+09	NLV	4.9E+06	4.7E+05	5.1E+06	1.0E+09
Non-Residential Ambient Air Infinite Source VSIC		NLV	8.9E+08	1.5E+08	NLV	1.8E+06	3.5E+05	1.9E+05	7.8E+08
Units		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
SB-09-40 (0-2')	12/04/2009	<330	**2,800**	<330	**360**	<330	**450**	**1,000**	**1,700**
SB-09-40 (3-5')	12/04/2009	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-03 (0-2')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-03 (2-4')	03/09/2010	**1,000**	**5,700**	**540**	**2,000**	**460**	**860**	**3,700**	**8,100**
SB-10-04 (0-2')	03/09/2010	<330	<330	<330	<330	<330	**1,900**	<330	<330
SB-10-04 (2.5-4')	03/09/2010	**2,800**	**59,000**	**2,900**	**6,300**	**1,100**	**2,800**	**61,000**	**57,000**
SB-10-05 (0-2')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-05 (3.5-5.5')	03/09/2010	**340**	**2,800**	<330	**1,400**	**530**	**3,300**	**2,400**	**3,100**
SB-10-06 (0.5-2')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-06 (5-7')	03/09/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-11 (0-2')	03/10/2010	<330	**1,900**	<330	**470**	<330	<330	**1,300**	**1,900**
SB-10-11 (3-5')	03/10/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-16 (0-2')	03/10/2010	<330	**880**	<330	<330	<330	<330	**340**	**800**
SB-10-16 (6-8')	03/10/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-18 (0-2')	03/10/2010	<330	**560**	<330	<330	<330	<330	<330	**610**
SB-10-18 (3-5')	03/10/2010	**440**	**16,000**	**2,600**	**1,700**	**900**	**910**	**19,000**	**15,000**
SB-10-19 (0-2')	03/10/2010	<330	**3,000**	<330	**730**	<330	<330	**1,800**	**2,900**
SB-10-19 (3-5')	03/10/2010	<330	**2,700**	<330	**990**	<330	<330	**1,200**	**3,100**
SB-10-24 (6-8')	03/11/2010	<330	**520**	<330	**370**	<330	<330	<330	**590**
SB-10-25 (0.5-2')	03/11/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-25 (7-9')	03/11/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-26 (0-2')	03/11/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-37 (0-2')	03/15/2010	<330	**980**	<330	<330	<330	<330	**610**	**1,000**
SB-10-37 (4-6')	03/15/2010	<330	**1,900**	<330	**1,100**	<330	<330	**710**	**2,200**
SB-10-38 (1-2')	03/17/2010	**11,000**	**420,000**	**91,000**	**52,000**	**30,000**	**62,000**	**480,000**	**470,000**
SB-10-39 (0-2')	03/16/2010	<330	**1,100**	<330	<330	<330	<330	**890**	**1,000**
SB-10-42 (0-2')	03/17/2010	<330	**810**	<330	<330	<330	<330	**420**	**840**
SB-10-42 (3-5')	03/17/2010	<330	**3,100**	<330	**530**	<330	**680**	**2,400**	**2,600**
SB-10-44 (0-2')	10/06/2010	<1700	**3,200**	<1700	<1700	<1700	<1700	<1700	**2,700**
SB-10-45 (0-2')	10/06/2010	<330	**3,400**	<330	**1,300**	<330	<330	**2,300**	**3,500**
SB-10-47 (0-2')	10/06/2010	<1700	**18,000**	<1700	**6,400**	<1700	<1700	**14,000**	**17,000**
SB-10-50 (0-2')	10/06/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-50 (3.5-5.5')	10/06/2010	<330	<330	<330	<330	<330	<330	<330	<330
SB-10-55 (0-2')	10/07/2010	<330	**1,700**	<330	**760**	<330	<330	**720**	**1,600**
SB-10-55 (2.5-4.5')	10/07/2010	**460**	**5,500**	**480**	**2,400**	**340**	**790**	**4,100**	**5,000**
SB-10-56 (0-2')	10/07/2010	<330	**640**	<330	**330**	<330	<330	<330	**590**
SB-10-56 (3-5')	10/07/2010	<330	**2,200**	<330	**960**	<330	**410**	**1,200**	**2,300**

Non-Residential Drinking Water Protection (DWP) Criteria, Groundwater Surface Water Interface (GSI) Protection Criteria, Groundwater Contact Protection Criteria, Non-Residential Direct Contact Criteria,
Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC), and Non-Residential Ambient Air Infinite Source Volatile Soil Inhalation Criteria (VSIC) from Part 201 Generic Cleanup Criteria, March 25, 2011.

µg/kg = micrograms per kilogram

NC = No Criteria; NLV = Not Likely to Volatilize

bold font denotes concentrations detected above laboratory reporting limits

Denotes concentrations above one or more criteria

1) Elevated laboratory reporting limit above one or more criteria.

2) Criterion shown is based on the preliminary site-specific water quality-based effluent limits provided by the MDEQ in a letter dated 7/1/2010 and were calculated in accordance with MDEQ RD Op Memo No. 1, Attachment 9 (March 2005).

Table A3
Summary of Metals and Inorganic Compounds in Soil
2009-2011 Remedial Investigation - Former MichCon Broadway Street MGP
Ann Arbor, Michigan

Analyte		Arsenic	Copper	Lead	Selenium	Silver	Thallium	Vanadium	Cyanide, available	Cyanide, available-SPLP	Nitrogen, ammonia
Non-Residential DWP Criteria		4,600	5.8E+06	7.0E+05	4,000	13,000	2,300	9.9E+05	4,000	NC	NC
GSI Protection Criteria		3.1E+05[1,2]	5.7E+05[3]	4.2E+08[1,3]	9,600[2]	550[2]	4,200[1]	1.9E+05	41,000[2]	NC	8.3E+05[2,4]
Groundwater Contact Protection Criteria		2.0E+06	1.0E+09	NC	7.8E+07	2.0E+08	1.5E+07	1.0E+09	2.5E+05	NC	NC
Non-Residential Direct Contact Criteria		37,000	7.3E+07	9.0E+05	9.6E+06	9.0E+06	1.3E+05	5.5E+06	2.5E+05	NC	NC
Statewide Default Background Levels		5,800	32,000	21,000	410	1,000	NC	NC	390 (total)	NC	NC
Units		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/L	µg/kg
SB-10-03 (0-2')	03/09/2010	**3,900**	**16,000**	**20,000**	<200	**340**	<500	**18,000**	**310**	NA	**155,000**
SB-10-03 (2-4')	03/09/2010	**10,000**	**81,000**	**240,000**	**260**	**1,100**	<500	**21,000**	**2,500**	NA	**118,000**
SB-10-04 (0-2')	03/09/2010	**2,400**	**10,000**	**28,000**	<200	<100	<500	**17,000**	**480**	NA	**99,400**
SB-10-04 (2.5-4')	03/09/2010	**25,000**	**31,000**	**120,000**	**1,200**	**640**	<500	**21,000**	**30,000**	NA	**527,000**
SB-10-05 (0-2')	03/09/2010	**2,400**	**10,000**	**21,000**	<200	<100	<500	**16,000**	**140**	NA	**101,000**
SB-10-05 (3.5-5.5')	03/09/2010	**11,000**	**300,000**	**750,000**	**460**	**210**	<500	**8,800**	**1,100**	NA	**33,700**
SB-10-06 (0.5-2')	03/09/2010	**2,700**	**11,000**	**21,000**	<200	<100	<490	**18,000**	**790**	NA	**57,000**
SB-10-06 (5-7')	03/09/2010	**5,500**	**6,600**	**5,000**	**230**	**1,200**	<490	**4,100**	**3,300**	NA	**136,000**
SB-10-16 (0-2')	03/10/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**60,700**
SB-10-16 (6-8')	03/10/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,590**
SB-10-17 (0-2')	03/11/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**16,800**
SB-10-17 (3-5')	03/11/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**57,700**
SB-10-18 (0-2')	03/10/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**32,100**
SB-10-18 (3-5')	03/10/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**77,100**
SB-10-19 (0-2')	03/10/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**58,200**
SB-10-19 (3-5')	03/10/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**331,000**
SB-10-20 (2.5-4')	03/11/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**23,200**
SB-10-20 (6-8')	03/11/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**235,000**
SB-10-24 (6-8')	03/11/2010	**7,300**	**13,000**	**18,000**	**360**	**650**	<500	**13,000**	NA	NA	**292,000**
SB-10-25 (0.5-2')	03/11/2010	**2,300**	**6,800**	**3,100**	<200	**240**	<500	**9,000**	<42	NA	**3,330**
SB-10-25 (7-9')	03/11/2010	**13,000**	**5,900**	**2,500**	<200	**1,700**	<500	**8,400**	**160**	NA	**95,300**
SB-10-26 (0-2')	03/11/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	**13,100**
SB-10-37 (0-2')	03/15/2010	**4,500**	**21,000**	**41,000**	<200	**780**	<490	**16,000**	**110**	NA	**31,300**
SB-10-37 (4-6')	03/15/2010	**4,100**	**18,000**	**20,000**	<200	**420**	<490	**25,000**	**80**	NA	**22,700**
SB-10-38 (1-2')	03/17/2010	**6,300**	**34,000**	**98,000**	**310**	<100	<500	**15,000**	**440**	NA	**140,000**
SB-10-39 (0-2')	03/16/2010	**3,200**	**12,000**	**27,000**	<200	<99	<500	**15,000**	**660**	NA	**173,000**
SB-10-42 (0-2')	03/17/2010	**3,800**	**12,000**	**17,000**	<200	<100	<490	**13,000**	**550**	NA	**74,300**
SB-10-42 (3-5')	03/17/2010	**11,000**	**34,000**	**27,000**	<200	<100	<490	**20,000**	**420**	NA	**60,600**
SB-10-45 (0-2')	10/06/2010	NA	NA	NA	NA	NA	NA	NA	**240**	NA	NA
SB-10-46 (0-2')	10/06/2010	NA	NA	NA	NA	NA	NA	NA	**90**	NA	NA
SB-10-46 (5.25-7.25')	10/06/2010	NA	NA	NA	NA	NA	NA	NA	**230**	NA	NA
SB-10-48 (0-2')	10/06/2010	NA	NA	NA	NA	NA	NA	NA	**110**	NA	NA

Non-Residential Drinking Water Protection (DWP) Criteria, Groundwater Surface Water Interface (GSI) Protection Criteria, Groundwater Contact Protection Criteria, and Non-Residential Direct Contact Criteria from Michigan Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, March 25, 2011.

Background as defined in R299.5701(b), may be substituted if higher than the calculated clean up criterion for all listed.

µg/kg = micrograms per kilogram

NC = No Criteria; NA = Parameter Not Analyzed

bold font denotes concentrations detected above laboratory reporting limits

Denotes concentrations above one or more criteria and statewide default background levels

1) Criterion is not protective for surface water used as a drinking water source as described in footnote {X} of Michigan Department of Environmental Quality (MDEQ) Op Memo 1 Part 201, Attachment 1.

2) Criterion shown is based on the preliminary site-specific water quality-based effluent limits provided by the MDEQ in a letter dated 7/1/2010 and were calculated in accordance with MDEQ RD Op Memo No. 1, Attachment 9 (March 2005). For available cyanide, the geometric mean of leachate-based reduction multiplier was used.

3) Criterion dependent on pH and hardness; Criterion shown is based on the preliminary site-specific water quality-based effluent limits provided by the MDEQ in a letter dated 7/1/10 and RD Op Memo No. 1, Attachment 9

4) Generic ammonia criteria based on warm surface water as described in footnote {CC} of MDEQ Op Memo 1 Part 201.

Table A3
Summary of Metals and Inorganic Compounds in Soil
2009-2011 Remedial Investigation - Former MichCon Broadway Street MGP
Ann Arbor, Michigan

Analyte		Arsenic	Copper	Lead	Selenium	Silver	Thallium	Vanadium	Cyanide, available	Cyanide, available-SPLP	Nitrogen, ammonia
Non-Residential DWP Criteria		4,600	5.8E+06	7.0E+05	4,000	13,000	2,300	9.9E+05	4,000	NC	NC
GSI Protection Criteria		3.1E+05[1,2]	5.7E+05[3]	4.2E+08[1,3]	9,600[2]	550[2]	4,200[1]	1.9E+05	41,000[2]	NC	8.3E+05[2,4]
Groundwater Contact Protection Criteria		2.0E+06	1.0E+09	NC	7.8E+07	2.0E+08	1.5E+07	1.0E+09	2.5E+05	NC	NC
Non-Residential Direct Contact Criteria		37,000	7.3E+07	9.0E+05	9.6E+06	9.0E+06	1.3E+05	5.5E+06	2.5E+05	NC	NC
Statewide Default Background Levels		5,800	32,000	21,000	410	1,000	NC	NC	390 (total)	NC	NC
Units		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/L	µg/kg
SB-11-09 (5.5-6.5')	01/26/2011	NA	NA	NA	NA	NA	NA	NA	**230**	NA	NA
SB-11-10 (3-5')	01/26/2011	NA	NA	NA	NA	NA	NA	NA	**36,000**	NA	NA
SB-11-12 (6.5-7.5')	01/27/2011	NA	NA	NA	NA	NA	NA	NA	**360**	NA	NA
SB-11-13 (0-1')	01/27/2011	NA	NA	NA	NA	NA	NA	NA	**370**	NA	NA
SB-11-17 (3-5')	01/27/2011	NA	NA	NA	NA	NA	NA	NA	**99**	NA	NA
SB-11-18 (5-7')	01/27/2011	NA	NA	NA	NA	NA	NA	NA	**800**	NA	NA
SB-11-19 (6-8')	01/27/2011	NA	NA	NA	NA	NA	NA	NA	**5,600**	<2.0	NA
SB-11-20 (7.5-8.5')	01/27/2011	NA	NA	NA	NA	NA	NA	NA	**13,000**	**5.5**	NA
SB-11-21 (7-9')	01/27/2011	NA	NA	NA	NA	NA	NA	NA	**4,600**	<2.0	NA
SB-11-22 (8-10')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	**454,000**
SB-11-24 (11-13')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**110**	NA	**100,000**
SB-11-25 (0-2')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**2,800**	NA	NA
SB-11-27 (4-6')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	**95,000**
SB-11-28 (0-2')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**320**	NA	NA
SB-11-29 (5-7')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**110**	<2.0	NA
SB-11-30 (2-4')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**9,000**	**8.6**	NA
SB-11-31 (4-6')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**180,000**	**46**	NA
SB-11-33 (4-6')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**350**	NA	NA
SB-11-34 (4-6')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**1,100**	NA	NA
SB-11-35 (4-6')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**210**	NA	NA
SB-11-36 (4-6')	04/21/2011	NA	NA	NA	NA	NA	NA	NA	**180**	NA	NA
SB-11-38 (0-1')	04/21/2011	NA	NA	NA	NA	NA	NA	NA	**61**	NA	NA
SB-11-39 (0-1')	04/21/2011	NA	NA	NA	NA	NA	NA	NA	**250**	NA	NA
SB-11-45 (2-4')	04/21/2011	NA	NA	NA	NA	NA	NA	NA	**1,100**	**20**	NA
SB-11-51 (7-9')	04/20/2011	NA	NA	NA	NA	NA	NA	NA	**180**	**2.7**	NA

Non-Residential Drinking Water Protection (DWP) Criteria, Groundwater Surface Water Interface (GSI) Protection Criteria, Groundwater Contact Protection Criteria, and Non-Residential Direct Contact Criteria from Michigan Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, March 25, 2011.

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For available cyanide, the geometric mean of leachate-based reduction multiplier was used.

3) Criterion dependent on pH and hardness; Criterion shown is based on the preliminary site-specific water quality-based effluent limits provided by the MDEQ in a letter dated 7/1/10 and RD Op Memo No. 1, Attachment 9

4) Generic ammonia criteria based on warm surface water as described in footnote {CC} of MDEQ Op Memo 1 Part 201.

Pre-Proposal Meeting Notes
for
RFP #984 - Allen Creek Railroad Berm Opening Engineering and Assistance

PROJECT DESCRIPTION

The City of Ann Arbor is requesting proposals from a professional civil engineering firm(s) to provide engineering design and assistance with preparing the necessary grant applications and all supporting documentation for the Allen Creek Railroad Berm Opening Project.

ITEMS TO DISCUSS

1. All attendees are asked to sign the Meeting Sign-In Sheet. Minutes of this meeting and list of attendees will be provided via formal Addendum and posted on BidNet. In addition, responses to questions brought up today or written questions submitted by email will also be provided via formal Addendum. This addendum is expected on or around October 12th. Your firm should receive notification of the Addendum being issued in the same manner you received notification of this RFP being published

2. Schedule

Activity/Event	**Anticipated Date**
Pre-Proposal Meeting	October 4, 2016
Written Question Deadline	October 7, 2016
Proposal Due Date	October 17, 2016
Interview Consultants	October 31 – November 4, 2016
Consultant Selection/Negotiate Final Professional Services Agreement (PSA)	November 2016
Expected City Council Authorization of PSA	December 2016
PSA Execution, Award and Notice to Proceed	January 2017

3. Brief overview of the Scope including a summary of the findings of the *Allen Creek Berm: Feasibility of Flood Reduction and Pedestrian Options, dated December 16, 2013* and the FEMA Grant – Jerry Hancock

4. Questions

Question 1 Whether any of the firms that have been involved in prior related work, restricted from providing a proposal for this job?

Answer 1 No.

Question 2 While the feasibility study identified a preferred alternative, will other alternatives be considered during the design phase?

Answer 2 At this time, the City has elected to move towards the preferred alternative identified in the feasibility study. If during the design phase, it becomes clear that a different alternative needs to be further explored this would be acceptable as time permits.

Question 3 What environmental information or data will be made available?

Answer 3 The Contamination Assessment Report for the Broadway Bridges Reconstruction Project that is directly related to the Allen Creek Railroad Berm Opening Project is included in Addendum #1. In addition, a document summarizing environmental information known about the DTE site is also included in Addendum #1.

Question 4 Will the sign-in sheet for this meeting be made available?

Answer 4 Yes, it is attached to this document and will be included in Addendum #1.

Question 5 Is there a specific reason why Consultants shall propose a minimum of three different types of wall systems to be used on this project?

Answer 5 The City acknowledges that different retaining wall systems may be used and/or required in different locations or situations (temporary vs. permanent) of the project. An effort will be made to consult the various property owners, whose property may be impacted by the retaining wall. The selection criteria shall be based on aesthetics, constructability, and/or cost as appropriate.

Question 6 Several of the tasks outlined in the RFP are very detailed, how specific should the fee quotation be?

Answer 6 The fee quotation shall relate directing to the task outlined in the Consultants proposed work plan. The proposed work plan can split the tasks outlined in the RFP or can add to them as the Consultants deems necessary.

5. Washtenaw County Parks & Recreation Commission - Peter Sanderson

A brief overview of the Bandemer Tunnel, which is a similar project, was presented by Peter Sanderson of Washtenaw County Parks and Recreation. An RFP for the detailed design for this project may be issued by Washtenaw County later this year.

PRE-PROPOSAL MEETING SIGN-IN SHEET

PROJECT: RFP #984 - Allen Creek Railroad Berm Opening Engineering and Assistance FILE #: 2016-032
Date: October 4, 2016

PLEASE PRINT (All information needs to be filled in to receive meeting minutes)

NAME	REPRESENTING	MAILING ADDRESS	TELEPHONE	EMAIL
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Patti McCall	Tetra Tech	Ann Arbor, MI	Office 734-272-4069	patti.mccall@tetratech.com
Jeremy Hedden	Bergman	Lansing , MI	Office 517-272-9835	jhedden@bergmannpc.com
Beth Taylor	CTI and Associates	28001 Cabot Drive Novi, MI 48377	Mobile 313-258-0181	btaylor@cticompanies.com
Anne Warrow	City of Ann Arbor	301 E. Huron St. Ann Arbor, MI 48107	Office: 734-794-6410 ext. 43639	awarrow@a2gov.org
Jerry Hancock	City of Ann Arbor	301 E. Huron St. Ann Arbor, MI 48107	Office: 734-794-6430 ex. 43709	Jhancock@a2gov.org
Chris Carson	City of Ann Arbor	301 E. Huron St. Ann Arbor, MI 48107	Office: 734-794-6410 ext. 43631	ccarson@a2gov.org
Peter Sanderson	Washtenaw County Parks and Recreation Commission	2230 Platt Road Ann Arbor, MI 48107	Office: 734-971-6336 ext. 332	sandersonp@ewashtenaw.org

Information To Build On
Engineering • Consulting • Testing

28-August-2003

Mr. Mike Nearing
City of Ann Arbor
Public Services Department
100 N 5th Ave
Ann Arbor MI 48104-1478

Re: Contamination Assessment Report
Broadway Bridges Reconstruction Project
15201 Eleven Mile Road
Ann Arbor, Washtenaw County, Michigan
PSI Project No. 166-3G024

Dear Mr. Nearing:

In accordance with your approval of PSI proposal no. 166-3G0127, revision 1, Professional Service Industries, Inc. (PSI) has performed environmental drilling and sampling at the above referenced property. PSI developed the scope of services presented below based solely upon information provided by the client in describing the subject property. Authorization to perform the assessment was given by Mr. Mike Nearing of the City of Ann Arbor.

The general scope of the assessment consisted of the following: direct-push hydraulic hammer drilling, soil and groundwater sample collection, field-screening, laboratory analysis of selected samples, data analysis and interpretation, and report preparation.

A PSI field supervisor conducted sampling operations, and field personnel were OSHA trained in accordance with 29 CFR 1910.120. Equipment decontamination, sample collection, field documentation, sample custody and laboratory analyses were in general accordance with methods prescribed by the US Environmental Protection Agency (USEPA) or the Michigan Department of Environmental Quality (DEQ).

Seven soil borings were completed, as compared with the proposed number of eight. The number of soil borings was reduced due to the inaccessibility of some areas of the subject site. A total of nine soil samples and two groundwater samples were retained for laboratory analysis. Two methanol preservative field blanks accompanied the sample coolers. Samples were submitted via overnight courier, under chain of custody control, to TestAmerica, Inc. in Dayton, Ohio, for chemical analysis. The specific scope of the assessment is described below.

1. Soil samples were selected for laboratory analysis based on field screening results including headspace screening, visual observations, or evident odors.

2. Laboratory analysis of samples included the following:
   - Volatile organic compounds (VOCs) by method 8260.

Field quality control samples, with the exception of methanol blanks water trip blanks, were not collected and analyzed as part of the project, limiting the data validation process, and therefore, the data provided are considered sufficient for preliminary evaluation purposes only.

Media sampling and analysis may result in development of information that may place an obligation upon the site owner or operator to provide reporting to a regulatory agency or other third party. PSI will not provide reporting to regulatory agencies or other third parties unless the owner expressly requests such reporting to be performed.

The information collected in the assessment is sufficient to indicate, with respect to the environmental condition investigated at the property, that a release of hazardous substances or petroleum products has impacted the subject site. Field-screening indications of soil contamination were noted during the assessment. Results of the sampling and analysis program at the site identified concentrations of VOCs in soil and groundwater in excess of the laboratory method detection limits.

Field activities were conducted on 8-August-2003 and 12-August-2003, under the supervision of Mr. Nick George, REPA, project specialist for PSI. Figure 1 presents the location of the soil borings. Tables 1 and 2 present a summary of the analytical results. The laboratory certificates of analysis are presented in their entirety in attachment 1. Soil boring logs are presented in attachment 2.

Based on the limited investigation conducted, PSI offers the following:

GROUNDWATER

- VOCs were detected at concentrations exceeding the Michigan Department of Environmental Quality's (DEQ's) Generic Cleanup Criteria and Screening Levels (criteria) for drinking water and groundwater-surfacewater interface criteria in the groundwater samples collected from borings B4 and B-5. Groundwater was only encountered in sufficient quantities for sampling in these two borings.

SOIL

- VOCs were not detected in the soil samples from borings B-1, B-4, B-6, and B-7.
- VOCs were detected in the soil sample from boring B-3 (5-7 feet below ground surface), but at concentrations below the DEQ's Generic Cleanup Criteria and Screening Levels (criteria).
- VOCs were detected at concentrations exceeding the drinking water protection and groundwater-surfacewater interface protection criteria in the soil samples from borings B-3 (14-16 feet below ground surface) and B-5 (both samples).
- One VOC (1,2,4-trimethylbenzene) was detected at a concentration slightly less than the soil saturation (C_{SAT}) screening criteria in the soil sample from boring B-2.

An exceedance of C_{SAT} indicates that contaminants may be present in free phase within the soil matrix. Soil concentrations greater than C_{SAT} may indicate concerns relative to physical hazards, such as corrosivity and flammability, contact-site toxicity, aesthetic impacts, and/or ecological impacts, that were not incorporated into the development of the DEQ's soil Generic Cleanup Criteria and Screening Levels. Although the 1,2,4-trimethylbenzene concentration reported for the sample from boring B-2, being 100,000 µg/kg (micrograms per kilogram, approximately equivalent to parts per billion) was less than the 1,2,4-trimethylbenzene C_{SAT} concentration of 110,000 µg/kg, it is close enough to be of concern. Higher concentrations of 1,2,4-trimethylbenzene are possible in the area.

Based on the methodologies described in this report, this assessment has provided sufficient information to confirm for the recognized environmental condition assessed, the presence of hazardous substances or petroleum products in environmental media.

Based on the limited sampling conducted, portions of the subject site may be considered to have "*facility*" status under Part 201 of the Michigan Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended.

Based on the findings of this limited assessment, PSI recommends the following:

- Due to the exceedance of groundwater criteria, PSI recommends that groundwater encountered in the area be treated as contaminated unless otherwise characterized to be unimpacted. If groundwater is pumped during subsurface activities, it may require treatment prior to discharge or disposal, and permits may be required. The concentrations of contaminants detected in groundwater do not indicate that exposure to groundwater via direct contact or inhalation poses a risk to site workers. Care should be exercised when pumping groundwater in nearby unimpacted areas to ensure that contaminated water is not drawn into those areas, thereby causing exacerbation of the contamination.
- Due to the exceedance of soil criteria, PSI recommends that soil excavated during construction be re-used in the area from which it was excavated if possible. If soil from areas near borings identified as having exceedances of criteria is to be disposed of off-site, it should be characterized and properly transported and disposed off at a licensed treatment or disposal facility. Additionally, contaminated soil should not be moved to other areas of the subject property unless that area is similarly contaminated. Exposed contaminated soil should be securely covered in some fashion to avoid wind or rain erosion and runoff.

The highest concentrations of contaminants were detected in the sample from soil boring B-2 (6-8 feet below ground surface). If subsurface activities occur in this area, precautions should be taken to limit worker exposure via direct contact with soil or inhalation of vapors. Particular care should be exercised in this area to ensure that wind, water, or vehicles do not cause exacerbation (spread) of the contamination while soil is exposed.

CONCLUSIONS

The highest levels of contamination were identified within the area identified to PSI as "Area A." Outside of Area A, some contamination was identified in borings B-3, B-4, and B-5, but the concentrations were significantly lower (as much as two orders of magnitude lower) than those found in Area A. The soil samples from the most northerly borings (B-6 and B-7) and B-1 had no detectable contamination.

The concentrations of contaminants detected (with the possible exception of Area A), are not expected to have any significant effect on the proposed high density polyethylene (HDPE) water pipe. The release that has affected Area A is believed to be an old release, and is therefore either in a steady state (no further expansion), or is shrinking due to natural attenuation processes such as volatilization, biodegradation, etc. In addition, groundwater was not encountered in Area A (and was only encountered in two the seven soil boring advanced throughout the project area). The lack of groundwater in Area A and its discontinuous occurrence elsewhere further suggests a very low potential for contaminant migration.

Based on the scope of service provided, there is no reason to believe that further migration of contaminants will occur under the conditions prevailing at the site, or that the proposed HDPE pipe will be adversely affected by the contamination identified in Area A.

WARRANTY

PSI warrants that the findings and conclusions reported herein were conducted in general accordance with PSI proposal no. 166-3G0127, revision 1. However, these findings and conclusions contain all of the limitations inherent in these methodologies, some of which are more specifically set forth below.

The assessment has been developed to provide the client with information regarding apparent indications of recognized environmental conditions relating to the subject property. It is necessarily limited to the conditions observed and to the information available at the time of the work. The assessment and conclusions presented herein were based upon the subjective evaluation of limited data. They may not represent all conditions at the subject site as they reflect the information gathered from specific locations. PSI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted environmental investigation methodology and only for the site described in this report.

Due to the limited nature of the work, there is a possibility that there may exist conditions that could not be identified within the scope of the assessment or which were not apparent at the time of report preparation. It is also possible that the testing methods employed at the time of the report may later be superseded by other methods. The description, type, and composition of what are commonly referred to as "hazardous materials or conditions" can also change over time. PSI does not accept responsibility for changes in the state of the art, nor for changes in the scope of various lists of hazardous materials or conditions. PSI believes that the findings and conclusions

provided in this report are reasonable. However, no other warranties are implied or expressed.

USE BY THIRD PARTIES

This report was prepared pursuant to the contract PSI has with the client. That contractual relationship included an exchange of information about the subject site that was unique and between PSI and its client and serves as the basis upon which this report was prepared. Because of the importance of the communication between PSI and its client, reliance or any use of this report by anyone other than the client, for whom it was prepared, is prohibited and therefore not foreseeable to PSI.

Reliance or use by any such third party without explicit authorization in the report does not make said third party a third party beneficiary to PSI's contract with the client. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at third party's risk. For the same reasons, no warranties or representations, expressed or implied in this report, are made to any such third party.

Third party reliance letters may be issued on request and payment of the, then current fee for such letters. All third parties relying on PSI's reports, by such reliance, agree to be bound by the proposal and PSI's general conditions. No reliance by any party is permitted without such agreement, regardless of the content of the reliance letter itself.

Thank you for choosing PSI as your consultant for this project. If you have any questions, or if we can be of additional service, please call us at 248.373.1970.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Nick G. George, REPA
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Enclosures