



**CONESTOGA-ROVERS  
& ASSOCIATES**

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## MEMORANDUM

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TO: Peter Ramanauskas/USEPA

REF. NO.: 017322

CC: Dave Favero/RACER

FROM: Thomas Kinney/mc/36

DATE: June 19, 2014

RE: **USEPA Comments and Responses**  
**PCC-Validation Site**  
**Pontiac, Michigan**

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As there have been several questions, comments and requests for information from you in relation to the PCC-Validation site over the last couple of weeks, we thought it was best to consolidate those questions, comments, and requests and provide responses via this document.

### **NREPA SECTION 324.20120e(3)(a-h) GSI EVALUATION:**

As identified in the draft Current Conditions Report (CCR) and Supplemental CCR, groundwater to surface water interface (GSI) pathway was evaluated for the Site and the conclusion was reached that the GSI pathway is not a condition which requires mitigation or further response action. At the request of the USEPA, an evaluation of the pathway per Michigan's Natural Resources and Environmental Protection Act (NREPA) Section 324.20120e(3)(a-h) was conducted and further establishes that it is not a relevant pathway. NREPA was amended in 2012 by Act 190, which identified multiple lines of evaluation for determination of the relevance of the GSI pathway. Per the amended statute, the GSI pathway is considered a relevant pathway when a remedial investigation or application of best professional judgment leads to the conclusion that a hazardous substance in groundwater is reasonably expected to vent to surface water in concentrations that exceed the generic GSI criteria. The only VOC impacted groundwater above generic GSI criteria at Validation is at well MW74-08 (located 100 feet south of the storm sewer to be bulkheaded). The extent of all VOC groundwater impacts at the Site have been evaluated and been shown to be limited and not directly intersecting a surface water body because perimeter wells do not exceed GSI criteria. Additionally, proposed bulkheading of the storm sewer near the LNAPL area will reduce the potential migration of any VOC-impacted groundwater in that area through the storm sewers. Therefore, it is reasonable to conclude that the impacted groundwater (and/or LNAPL) is defined (on-Site) and will not vent to surface water bodies (such as Crystal Lake located approximately a half mile west of the Site) at concentrations above generic GSI criteria. In addition, groundwater at and in the vicinity of PCC-Validation is intermittent (i.e., discontinuous), and unlikely connected to groundwater that may be venting to Crystal Lake. The multiple lines of evidence which support a

conclusion that the GSI pathway is not relevant directly reflect the factors to be considered to determine GSI pathway relevancy as specified in NREPA section 324.20120e:

- 324.20120e(3)(a) which states that there must be a hydraulic connection between groundwater and the surface water in question. Crystal Lake has been identified as the nearest down-gradient surface water resource, but the presence of a direct hydraulic connection from the Site to Crystal Lake is unlikely (due to distance, discontinuous nature of impacted groundwater, etc.).
- 324.20120e(3)(b) which identifies proximity of source areas to surface water as a relevant factor to be considered. Crystal Lake is located approximately a half mile west of the Site.
- 324.20120e(3)(c) which specifies the receiving surface water in question must be a water of the state per Part 31. Crystal Lake is acknowledged as a surface water of the state; however, per Part 31 of NREPA surface water does not include water in enclosed sewers or water in sub-grade utility runs, utility lines and/or permeable fill in and around them (features which are acknowledged to exist between the MW74-08 area and Crystal Lake).
- 324.20120e(3)(d) which identifies the direction of groundwater movement as a factor to be considered. The groundwater flow direction is to the north/northwest.
- 324.20120e(3)(e) states that the presence of artificial structures be taken into account. Artificial structures such as storm sewers and their bedding materials are present in the area and therefore could provide preferential pathways for groundwater movement to surface water. However, there is no basis to believe such a preferential path would be present following the bulkheading in the LNAPL area. Upon completion of the bulkheading, there will be no storm sewers that ultimately vent to a surface water body that are also present within impacted areas where LNAPL or VOCs are present in groundwater above generic GSI criteria. Therefore, storm sewers will not provide opportunities for direct transport of substances from the MW74-08 area to surface water and the GSI pathway in regard to the storm sewers is not complete. Bedding materials for the storm sewer could also serve as an indirect artificial preferential transport pathway, but these materials (like the sewer itself) would be subject to groundwater input throughout their entire reach, not just the MW74-08 area.
- 324.20120e(3)(f) which identifies the mass of hazardous substances present at the facility that may affect groundwater as a factor to be considered. Only a limited and finite mass of hazardous substance are present at the facility because the remaining mass of hazardous substances at the Site is limited to the non-migrating LNAPL area and the relatively dilute dissolved phase VOCs. Because the source of the release has been terminated, concentrations within the remaining mass would only be expected to decrease over time due to hydrodynamic dispersion alone should a gradient from new water input to the area result in transport of the hazardous substances.
- 324.20120e(3)(g) which identifies facility specific documentation of natural attenuation as a factor to be considered. Natural attenuation of residual hazardous substances at the source area has not been evaluated; however, VOC concentrations have decreased over time and natural bio/geo chemical activity that likely is present would only serve to further reduce the concentrations of the residual hazardous substances.
- 324.20120e(3)(h) which discusses the structural integrity of the storm sewer in the area of a contaminant plume. The bulkheading of the storm sewer will serve to prohibit direct entry of substances at that section of

the storm sewer. The integrity of other sections of the storm sewer has not been evaluated, but due to factors such as described above there is little potential for significant input of substances into the storm sewer from the MW74-08 area regardless of the integrity of the rest of the storm sewer.

Per 324.20120e(3)(a-h), based upon investigation and professional judgment, no hazardous substances will vent to surface water at concentrations exceeding GSI values; therefore, the GSI pathway is not relevant.

**USEPA Comment:**

*Sorry for all the Friday emails, but the quiet here has allowed me to dedicate some time to the Validation site and CA750. I was exchanging a few messages with Deb Mackenzie-Taylor regarding determining site-specific background for groundwater metals and she indicated that background wells would be required for such a determination. That doesn't seem to be how it was done for Validation. Has RACER done groundwater metals background determination work for MDEQ at other Michigan sites?*

**Response:**

There was no attempt to establish background groundwater concentration in accordance with MDEQ requirements. Per Section 3.1 of the EI CA750, the purpose of the Site-specific groundwater calculations were intended to be considered as a line of evidence to assess the likelihood of native or background metal concentrations in groundwater and not as screening criteria. The metals in groundwater were screened against MDEQ Part 201 criteria.

**USEPA Comment:**

*Can you have CRA transmit the boring logs for MW92S/I-13 and MW93-13? I didn't see these included in either the CA725 or CA750 reports.*

**Response:**

The boring logs for MW92S/I-13 and MW93-13 were included in Appendix B of the addendum to the EI CA750. Additionally, they are attached to this response for your use.

**USEPA Comment:**

*Also, for the purposes of the CA750, how would you demonstrate that there is vertical definition on the VOC plumes? Can CRA construct geologic cross sections for the wells in the areas of the VOC plumes (i.e. NW corner area and the area around MW74-08 and MW91-12) that would show that impacts are limited to the shallow aquifers in those areas?*

**Response:**

The northern VOC impacts are limited to an upper saturated unit, which consists of fill material and interbedded saturated sand seams/silt/clay from approximately 5-17 feet below ground surface (ft bgs). Boring logs from MW02-07, TMW-01S/I, TMW-02S/I and TMW-03I, TMW-4I, MW80-12, MW81-12, MW92S/I-13 and MW93I-13 show the upper saturated unit. Beneath the upper saturated unit, at least five feet of unsaturated stiff clay is encountered to a maximum depth of approximately 30 feet bgs. As identified in boring log MW79-12 (up gradient to MW02-07), a

saturated sand unit is encountered below the clay at approximately 25-35 ft bgs. The groundwater samples from this lower sand unit (collected from MW79-12) were not impacted. This lower sand unit appears to dive (or disappear altogether) to the north and was not encountered at MW02-07 or any of the off-Site wells/borings. Therefore, it is not anticipated the VOC impacts to the north extend vertically beyond the upper saturated unit.

The southern VOC impacts are limited to an upper saturated unit which consists of fill material and an approximately 5-10 foot thick sandy saturated unit. Boring logs from MW37-12, MW69-08, MW74-08, MW86-12, MW84-12, MW88-12 and MW91-12 show the upper saturated unit. Beneath the upper saturated unit, at least five feet of unsaturated stiff clay is encountered to a maximum depth of approximately 30 feet bgs. There appears to be a deeper sand unit beneath the clay; however, there is no indication the lower sand unit is impacted from downgradient monitoring wells installed in the deeper unit (MW88-12 or MW37-07). Therefore, it is not anticipated the VOC impacts to the south extend vertically beyond the upper saturated unit. Preliminary, hand drawn updated geologic cross section A-A' from the CA725 that cuts through the two plumes and a preliminary, hand drawn cross section through MW74-08 are attached and show the impacts are limited to the shallow saturated sandy soils in the two areas. If these cross-sections are useful they can be formalized and finalized for submittal.

**USEPA Comment:**

*With respect to the wells proposed for abandonment, I would propose that you keep MW10-07 and MW21-07 as they are perimeter wells along the side of the facility adjacent to a residential community. Propose keeping MW79-12 as an upgradient "boundary" well for the organic contamination in the area.*

**Response:**

Per your request, the three wells will not be abandoned as identified in the updated Figure 1. Upon approval, the indicated remaining monitoring wells will be abandoned.

**USEPA Comment:**

*Regarding MW79-12, what would you suggest for a better indicator of water quality upgradient of the TCE area? Do we need a new well closer in to MW02-07?*

**Response:**

Based on the concentration of TCE at MW2-07 (most recent round was the latest in a decreasing TCE trend), we don't believe a monitoring point is necessary upgradient of MW2-07 (latest round of monitoring detected TCE below drinking water criteria). No shallow water bearing unit(s) were encountered at MW79-12, which indicates the shallow saturated fill and/or native sand that is being monitored by MW2-07 is limited in nature and does not extend significantly upgradient. Therefore, even though we do not believe upgradient monitoring is necessary. We propose to monitor MW79-12 (located less than 100 feet upgradient of MW2-07) if you require an upgradient monitoring point.

**USEPA Comment:**

*Also, referring to the 3<sup>rd</sup> bullet of the November 2013 abandonment plan which discusses wells retained to document the southern VOC plume is stable and not migrating, what about over to the east? The CA750 report uses TMW81-08 as a location in that direction, but I'm guessing that well no longer exists.*

**Response:**

Similar to our response associated with MW2-07, we do not believe an upgradient monitoring point is necessary. However, we could add MW48-07 as an upgradient monitoring point. It is screened at a similar interval as MW74-08 and MW91-12.

**USEPA Comment:**

*Curious to know if RACER ever made the LNAPL decision making process final with MDEQ? Or is that still a work in progress?*

**Response:**

There are no current plans to try to finalize the LANPL Decision Tree process with MDEQ. RACER considers the LNAPL Decision Tree as a working draft document and process that is subject being updated as application and experience shows it is necessary.

**USEPA Comment:**

*Also, any updates on scheduling of sewer bulkheading?*

**Response:**

Per previous communications, bulkheading is scheduled to start on June 30, 2014.

**Miscellaneous:**

In addition, please note that per previous communications, the well survey in the area proximate to the Site is in progress and will be provided to you when it is completed, which is targeted for mid-July.



# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GM VALIDATION CENTER

PROJECT NUMBER: 17322

CLIENT: ENCORE

LOCATION: PONTIAC, MICHIGAN

HOLE DESIGNATION: MW92I-13

DATE COMPLETED: January 24, 2013

DRILLING METHOD: GEOPROBE

FIELD PERSONNEL: E. MICKELSON

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	HAND AUGERED		CONCRETE					0.0
4			BENTONITE CHIPS	1HA				0.0
6	CL-SILTY CLAY, trace fine sand and fine gravel, firm, low plasticity, orangish brown, moist	5.00	2" PVC WELL CASING					0.0
8	- few fine sand, gray at 8.0ft BGS	8.20	8" BOREHOLE	2GP		100		19.9
10	ML-SILT, trace clay, trace fine sand, compact, dark brown to brown, wet	10.00						1.5
12	- strong odor, black staining at 9.1ft BGS							1.0
14	- silty clay, very moist at 9.7ft BGS							0.6
16	SM-SILTY SAND, compact, gray, wet	12.40		3GP		100		0.5
18	- silty clay seam from 11.4 to 11.6ft BGS							
20	SP-SAND, trace silt and fine gravel, compact, fine grained, gray, wet	14.00	2" PVC WELL SCREEN					
22	- with fine gravel at 13.6ft BGS		SAND PACK	4GP		100		
24	CL-SILTY CLAY, few fine sand, trace fine gravel, soft, moderate plasticity, gray, very moist							
26	END OF BOREHOLE @ 20.0ft BGS	20.00						
28								
30								
32								
34								

## WELL DETAILS

Screened interval:  
12.00 to 17.00ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Seal:

1.00 to 11.00ft BGS

Material: BENTONITE CHIPS

Sand Pack:

11.00 to 20.00ft BGS

Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 17322-WIN.GPJ CRA CORP.GDT 8/6/13



# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GM VALIDATION CENTER

PROJECT NUMBER: 17322

CLIENT: ENCORE

LOCATION: PONTIAC, MICHIGAN

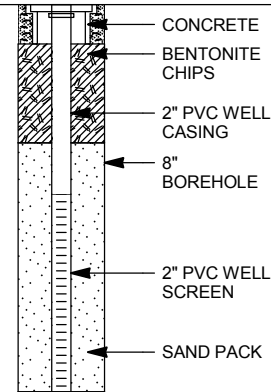
HOLE DESIGNATION: MW92S-13

DATE COMPLETED: January 24, 2013

DRILLING METHOD: GEOPROBE

FIELD PERSONNEL: E. MICKELSON

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE			
				NUMBER	INTERVAL	REC (%)	'N' VALUE
2	HAND AUGERED						
4							
6	CL-SILTY CLAY, trace fine sand and fine gravel, firm, low plasticity, orangish brown, moist	5.00					
8	- few fine sand, gray at 8.0ft BGS	8.20					
10	ML-SILT, trace clay, trace fine sand, compact, dark brown to brown, wet	9.80					
	- strong odor, black staining at 9.1ft BGS						
	- silty clay, very moist at 9.7ft BGS						
	END OF BOREHOLE @ 9.8ft BGS						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							



#### WELL DETAILS

Screened interval:

4.80 to 9.80ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Seal:

1.00 to 3.50ft BGS

Material: BENTONITE CHIPS

Sand Pack:

3.50 to 9.80ft BGS

Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GM VALIDATION CENTER

PROJECT NUMBER: 17322

CLIENT: ENCORE

LOCATION: PONTIAC, MICHIGAN

HOLE DESIGNATION: MW93I-13

DATE COMPLETED: July 26, 2013

DRILLING METHOD: GEOPROBE

FIELD PERSONNEL: S. KIPPEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	FILL, gravelly sand		CONCRETE	1GP		95		
4	SP-SAND (FILL), few gravel, trace clay, compact, fine grained, poorly graded, brown, moist	4.00	BENTONITE CHIPS					2.4
6	- porcelain pieces at 6.8ft BGS		2" PVC WELL CASING					
8	BRICK, cobble, reddish brown, black staining on bottom	7.40 7.70	8" BOREHOLE	2GP		80		1.3
10	CL-SANDY CLAY, few gravel, stiff, low plasticity, brown, moist							2.2
12	SM-SILTY SAND, compact, fine grained, poorly graded, light brown, moist	10.00 10.60		3GP		80		2.8
14	SP-GRAVELLY SAND, trace silt, compact, fine grained, poorly graded, brown, wet							3.6
16			2" PVC WELL SCREEN					
18	ML-SANDY SILT, compact, fine grained, poorly graded, brown, wet	17.20	SAND PACK	4GP		75		4.0
20	- 1" sand lens, trace fine gravel at 19.0ft BGS							4.6
22	SP-SAND, with fine gravel, compact, fine grained, poorly graded, brown, wet	20.00 20.30 21.00		5GP		20		N/A
24	CL-SILTY CLAY, trace gravel, stiff, low plasticity, brown, moist							N/A
26	- REFUSAL at 21.0ft BGS							
28	END OF BOREHOLE @ 21.0ft BGS							
30								
32								
34								

## WELL DETAILS

Screened interval:

12.00 to 17.00ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Seal:

1.50 to 10.00ft BGS

Material: BENTONITE CHIPS

Sand Pack:

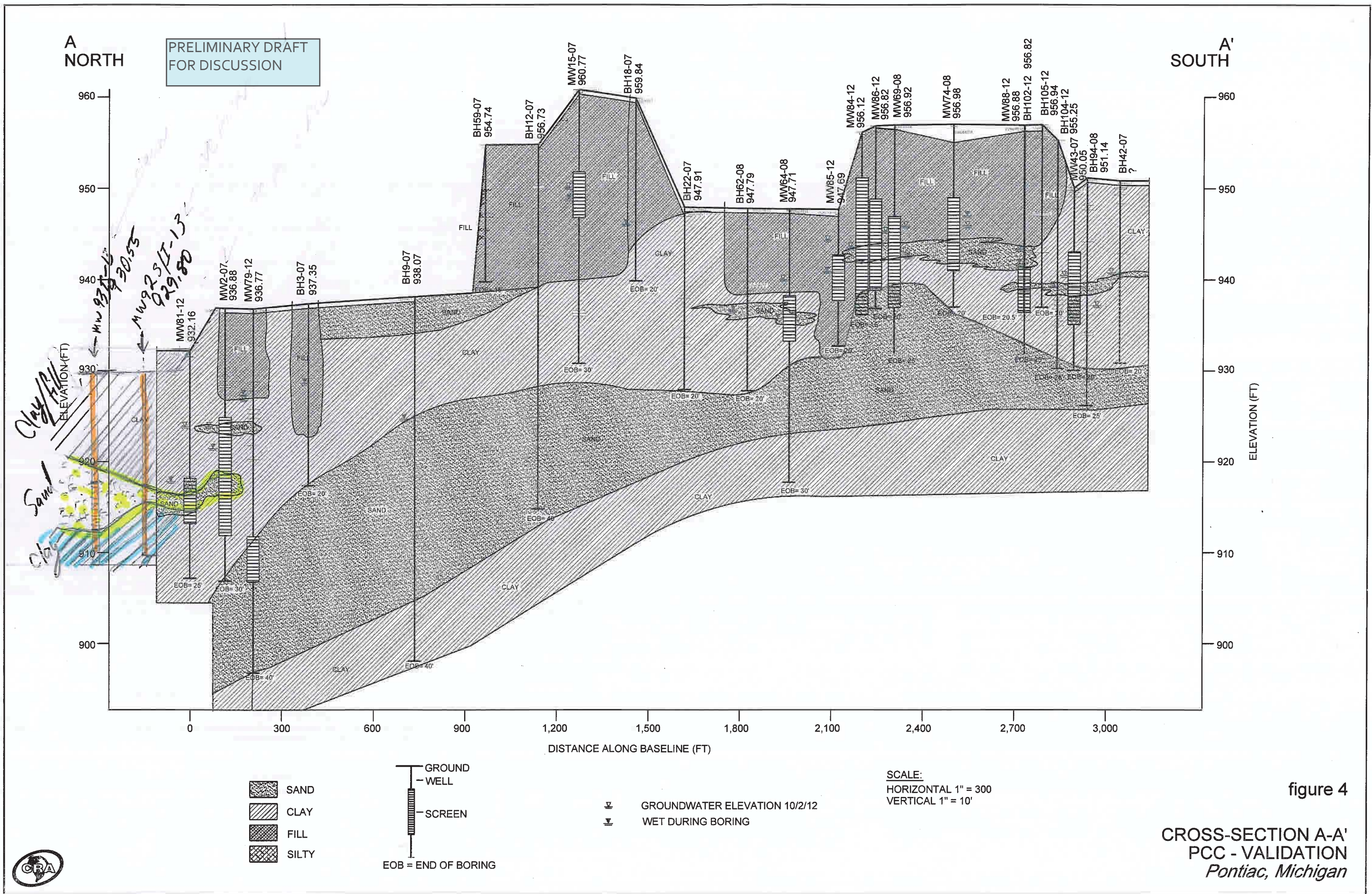
10.00 to 17.30ft BGS

Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE  
WATER FOUND ∇

OVERBURDEN LOG 17322-WIN.GPJ CRA CORP.GDT 8/6/13









CONESTOGA-ROVERS & ASSOCIATES

PROJECT No.:

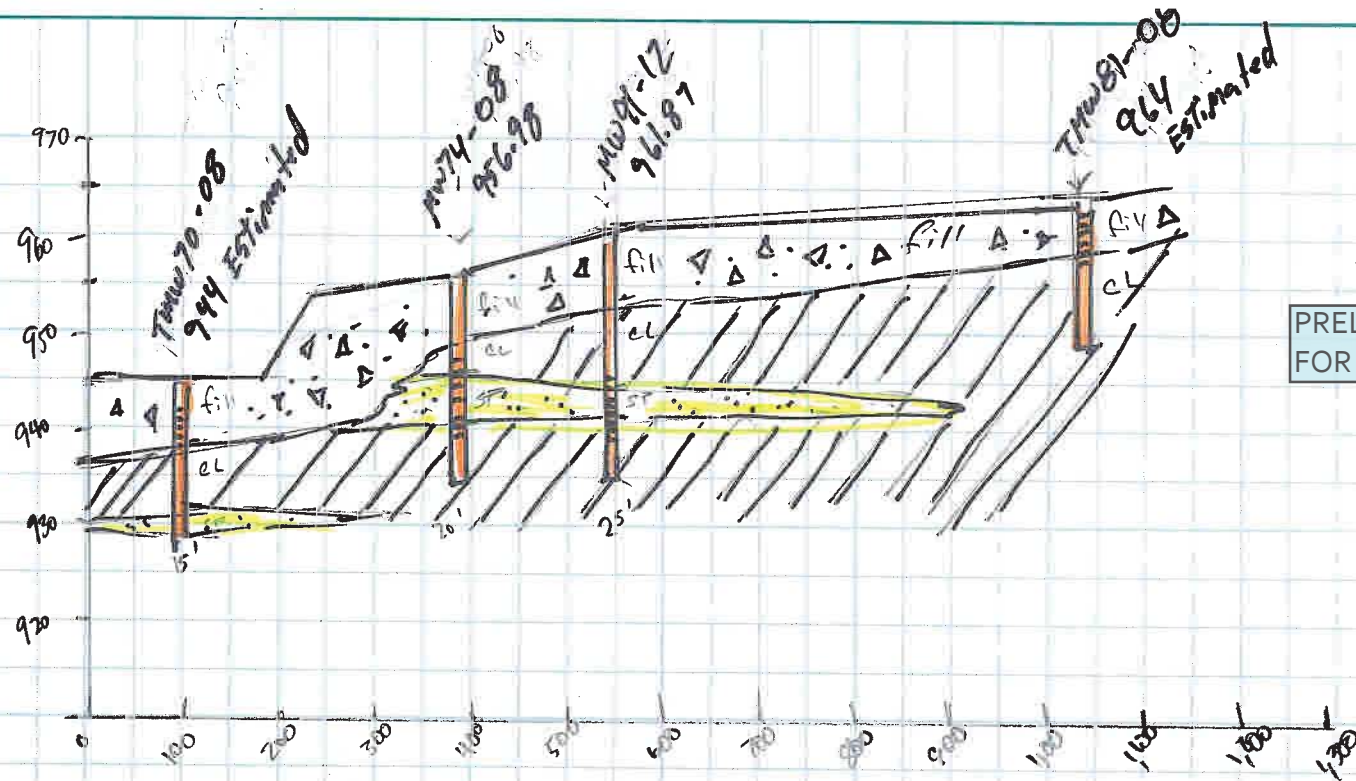
PROJECT NAME:

DATE:

DESIGNED BY:

CHECKED BY:

PAGE OF



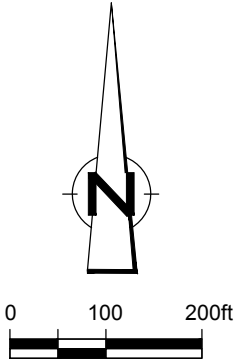
Horizontal 1" = 200'  
Vertical 1" = 20'

PRELIMINARY DRAFT  
FOR DISCUSSION





No	Revision	Date	Initial



LEGEND

- MW28-07 COMPLETED MONITORING WELL LOCATION
- APPROXIMATE SITE BOUNDARY
- EXISTING STRUCTURE
- FORMER SITE STRUCTURE
- M.H. MANHOLE
- C.B. CATCH BASIN
- 945 GROUNDWATER CONTOUR
- IDENTIFIES EXTENT OF ON-SITE AND OFF-SITE EXCEEDANCES
- PROPOSED MONITORING WELL LOCATION TO ABANDON
- PROPOSED MONITORING WELL LOCATION TO USE IN SAMPLING PLAN AND/OR LNAPL MONITORING

NOTE: GROUNDWATER CONTOURS REPRESENT UPPER WATER BEARING UNIT, BASED ON WELLS MEASURED OCTOBER, 2012

DRAFT

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.



Approved

DRAWING STATUS

Status	Date	Initial

PROPOSED WELLS FOR MONITORING AND/OR ABANDONMENT

PCC-VALIDATION

PONTIAC, MICHIGAN



CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager: T.K.	Reviewed By: M.C.	Date: MAY 2014
Scale: 1:200	Project N°: 017322-T02	Report N°: PRES010
		Drawing N°: 1