CONESTOGA-ROVERS & ASSOCIATES

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MEMORANDUM

TO: Michael Berkoff, USEPA

REF. NO.: 056393-08

FROM: Greg Carli/Leah Pabst/cs/15

DATE: July 13, 2012

C.C.: 12th Street Landfill Technical Team:
Richard Gay, Weyerhaeuser; Kristi Zakrzewski, MDEQ;
John Bradley, MDEQ; Jeff Keiser, CH2MHill;
Scott Hutsell, CH2MHill

US EPA RECORDS CENTER REGION 5
468818

RE: **April 2012 Quarterly Groundwater Sampling Results**
12th Street Landfill-Operable Unit No. 4-Allied Paper/Portage Creek/Kalamazoo River Superfund Site, Otsego Township, Michigan

This memorandum has been prepared by Conestoga-Rovers & Associates (CRA) to summarize the results of the April 2012 quarterly groundwater sampling event, performed at the 12th Street Landfill, Operable Unit No. 4 - Allied Paper/Portage Creek/Kalamazoo River Superfund Site, located in Otsego Township, Michigan between April 23, 2012 and April 26, 2012.

The April 2012 sampling event was the second quarterly sampling event performed as part of the Operation, Maintenance, and Monitoring (OM&M) activities at the Site. The most recent sampling event prior to this was the February 2012 semi-annual event.

A total of 15 groundwater monitoring wells (MW-101S, MW-101D, MW-102S, MW-102D, MW-103D, MW-104S, MW-104D, MW-105S, MW-105D, MW-106S, MW-106D, MW-107S, MW-108S, MW-108D, and MW-109D) were installed in February 2011, at varying depths, around the perimeter of the landfill to complete the OM&M monitoring well network. The locations of the monitoring wells are shown on Figure 1. Prior to the April 2012 sampling event, CRA collected static water levels for 2 weeks from each well and the river staff gauge, as required by the OM&M Plan (May 2011). Monitoring well construction details and groundwater elevations from the water level collection event are presented in Table 1. Figure 2 presents the shallow groundwater elevation contours, and Figure 3 presents the deep groundwater elevation contours, both from the pre-sampling water level event on April 23, 2012.

During the April 2012 groundwater sampling event, samples were collected from each monitoring well in the monitoring well network. Field measurements of pH, oxidation-reduction potential (ORP), dissolved oxygen (DO), conductivity (mS/cm), temperature (Deg C), and turbidity (NTU) were collected. Samples were collected using low flow sampling and submitted for laboratory analysis of target compound list (TCL) volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and metals consisting of magnesium, mercury, and sodium. The April 2012 analytical results were compared to Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria, identified by Michigan Department of Environmental Quality (MDEQ)

REGISTERED COMPANY FOR ISO 9001 ENGINEERING DESIGN

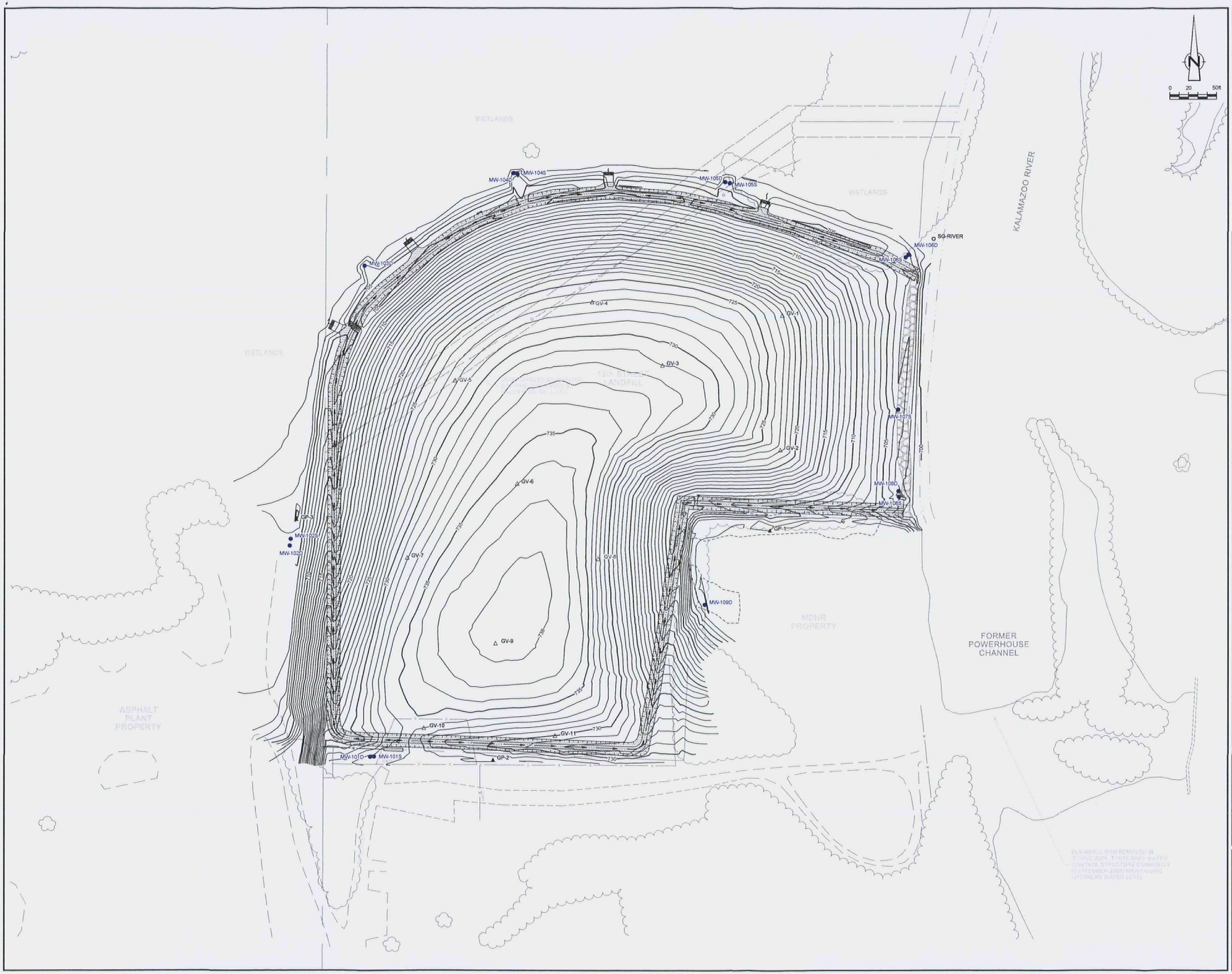
Remediation and Redevelopment Division (RRD) Op Memo No. 1, updated March 25, 2011, pursuant to 1994 PA 451, as amended. The April 2012 analytical results and field parameters are presented in Table 2.

The analytical results of the April 2012 sampling event yielded only mercury exceeding the Part 201 Cleanup Criteria and Part 213 Risk-Based Criteria at two monitoring wells. The two exceedences observed were for the groundwater surface water interface (GSI) criteria. The analytical results for metals exceeding GSI criteria from previous sampling events performed in April 2011, October 2011, and February 2012 are shown on Figure 4 in addition to the April 2012 exceedences. Figure 4 also includes total PCB detections from all four sampling events.

The following summarizes the April 2012 analytical results:

- VOC parameters were non-detect.
- Mercury is detected in various April 2012 samples. Two mercury detections exceeded the GSI criteria of 0.00147 µg/L at MW-101D and 0.00141 MW-108S.
- PCBs parameters were non-detect.
- Cyanides were non-detect.

Quarterly and semi-annual groundwater monitoring will continue at the Site as described in the OM&M Plan, submitted to United States Environmental Protection Agency (USEPA) on May 9, 2011 and revised on April 18, 2012. The next sampling event is scheduled to occur in July 2012 and will consist of a semi-annual event as outlined in the OM&M Plan [i.e., TCL VOCs, SVOCs, PCBs, total analyte list (TAL) metals, and polychlorinated dibenzodioxins/polychlorinated dibenzofurans (PCDD/PCDF)].



Nº	Revision	Date	Initial

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING EDGE OF WATER
- EXISTING TREES AND/OR BRUSH
- 718 — FINAL ELEVATION CONTOURS
- ROAD/DRAINAGE SWALE
- △ GV-1 — GAS VENT LOCATION
- ● MW-106S — MONITORING WELL LOCATION
- ▲ GP-1 — GAS PROBE LOCATION

SCALE VERIFICATION

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

Approved

DRAWING STATUS

Status	Date	Initial

12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

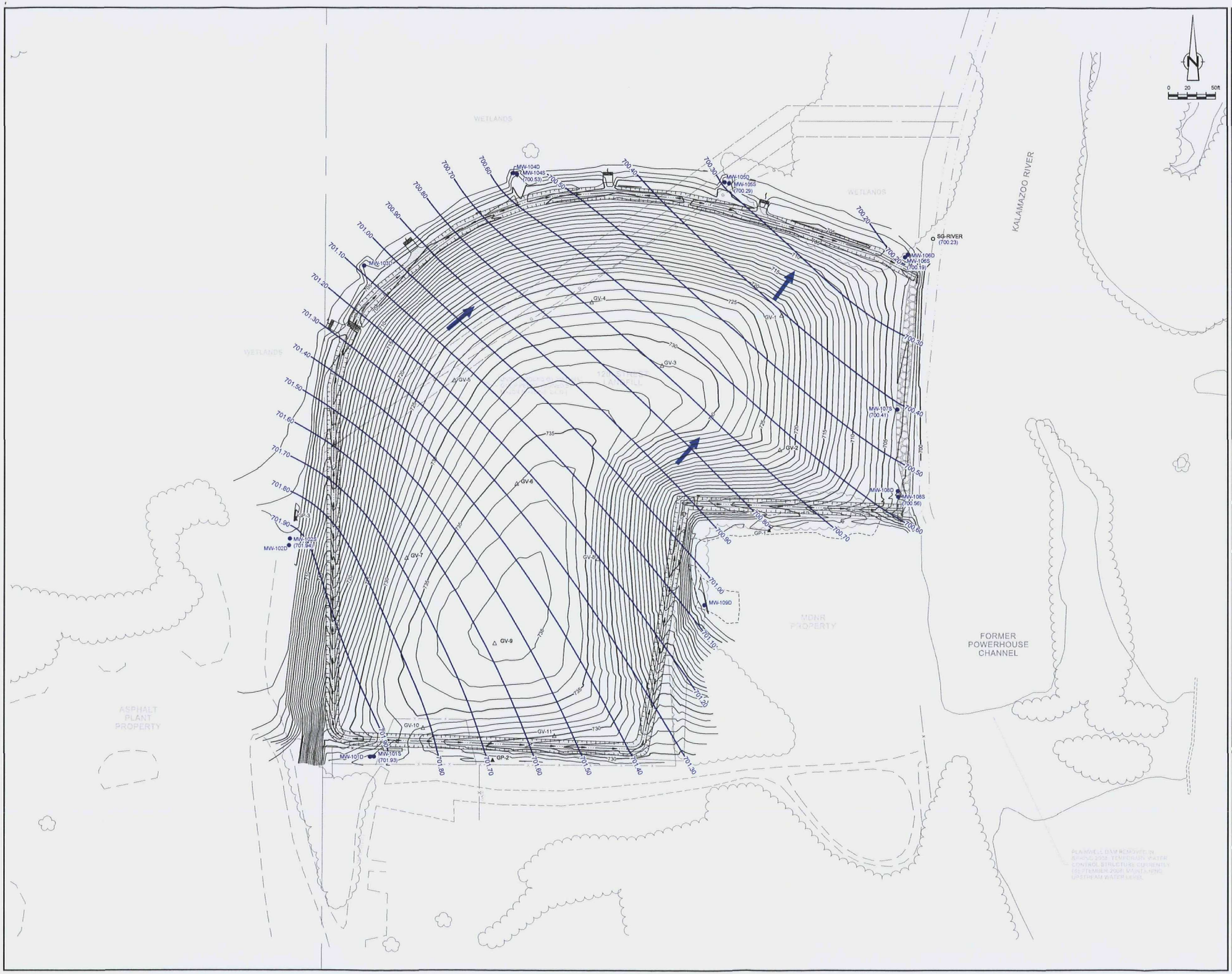
MONITORING WELL LOCATIONS

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE ADAPTED FROM PREVIOUS RMT DESIGN

Project Manager:	Reviewed By:	Date:	
G. CARLI	R. HOEKSTRA	JUNE 2012	
Scale: AS SHOWN	Project Nº: 56393-08	Report Nº: MEMO015	Drawing Nº: figure 1

56393-08(MEMO015)GN-WA001 JUN 21/2012



NO	Revision	Date	Initial

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
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- EXISTING TREES AND/OR BRUSH
- 718 — FINAL ELEVATION CONTOURS
- ROAD/DRAINAGE SWALE
- △ GV-1 — GAS VENT LOCATION
- ● MW-106S — MONITORING WELL LOCATION
- ▲ GP-1 — GAS PROBE LOCATION
- 700.50 — GROUNDWATER ELEVATION CONTOUR
- (700.48) — GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION

SCALE VERIFICATION

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

Approved

DRAWING STATUS

Status	Date	Initial

12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

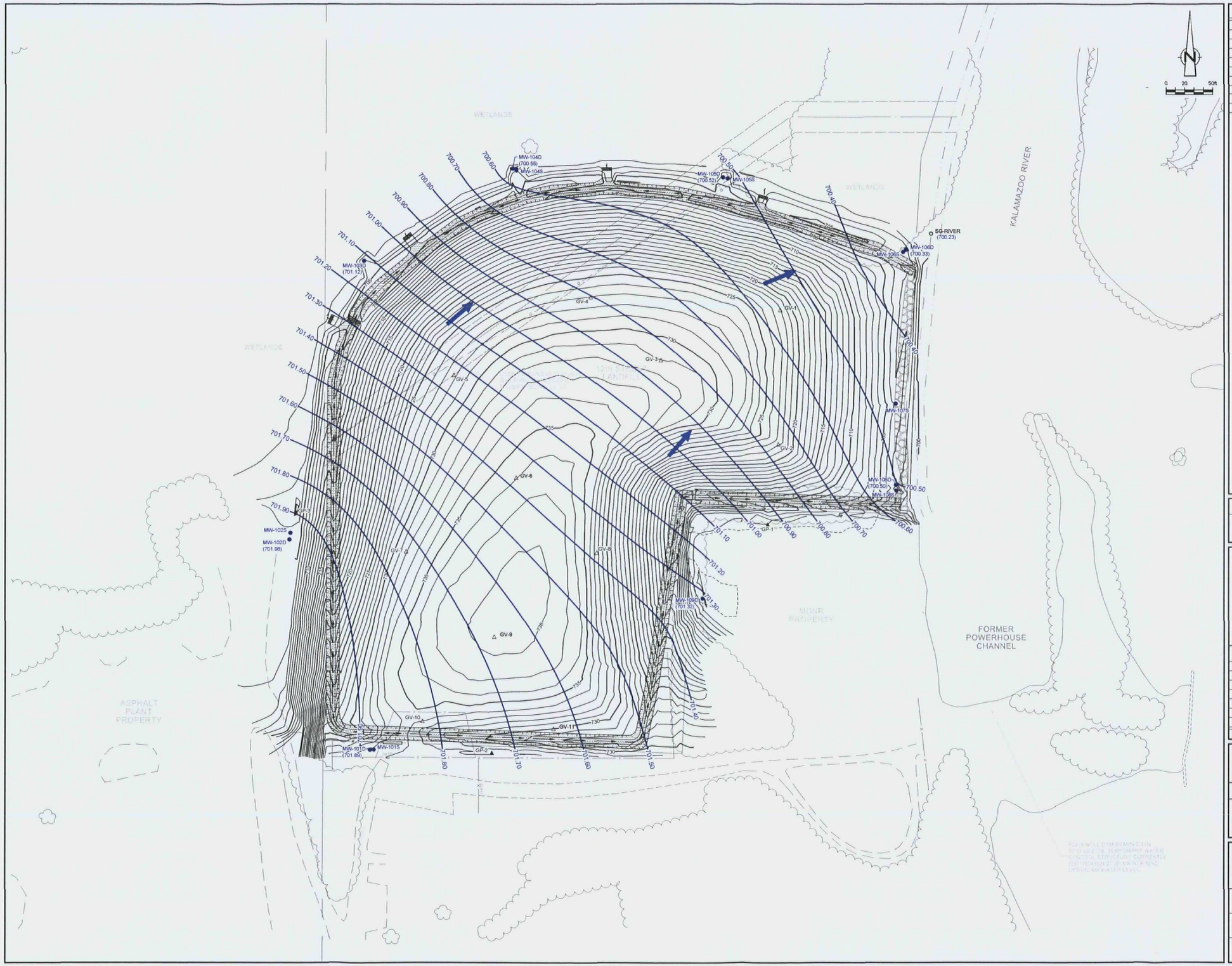
GROUNDWATER ELEVATION CONTOURS
SHALLOW - APRIL 23, 2012

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE ADAPTED FROM PREVIOUS RMT DESIGN

Project Manager:	Reviewed By:	Date:	
G. CARLI	R. HOEKSTRA	JUNE 2012	
Scale: AS SHOWN	Project N°: 56393-08	Report N°: MEMO015	Drawing N°: figure 2

56393-08(MEMO015)GN-WA002 JUL 11/2012



Nº	Revision	Date	Initial

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
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- EXISTING TREES AND/OR BRUSH
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- △ GV-1 — GAS VENT LOCATION
- ● MW-106S — MONITORING WELL LOCATION
- ▲ GP-1 — GAS PROBE LOCATION
- 700.40 — GROUNDWATER ELEVATION CONTOUR
- (700.33) — GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION

SCALE VERIFICATION

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

Approved

DRAWING STATUS

Status	Date	Initial

12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

GROUNDWATER ELEVATION CONTOURS
DEEP - APRIL 23, 2012

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE ADAPTED FROM PREVIOUS RMT DESIGN

Project Manager:	Reviewed By:	Date:	
G. CARLI	R. HOEKSTRA	JUNE 2012	
Scale:	Project Nº:	Report Nº:	Drawing Nº:
AS SHOWN	56393-08	MEMO015	figure 3

56393-08(MEMO015)GN-WA003 JUL 11/2012

MW-103D	4/7/2011 ug/L	10/26/2011 ug/L	2/7/2012 ug/L	4/25/2012 ug/L
Inorganics				
Arsenic	0.50 U	-	0.17 J/0.17 J/0.17 J/0.17 J	-
Cyanide (total)	-	9 J	10 U/10 U/10 U/10 U	10 U
Mercury	0.20 U	0.001 U	0.001 U/0.001 U/0.00054 J/0.00076 J	0.00075 J
PCBs				
Total PCBs	ND	ND	ND/ND/ND/ND	ND

MW-104D	4/7/2011 ug/L	10/26/2011 ug/L	2/7/2012 ug/L	4/25/2012 ug/L
Inorganics				
Arsenic	0.28 J	-	0.23 J/0.23 J	-
Cyanide (total)	-	10 U	10 U/10 U	10 U/10 U
Mercury	0.20 U	0.001 U	0.001 U/0.00053 J	0.00061 J/0.00064 J
PCBs				
Total PCBs	ND	ND	ND/ND	ND/ND

MW-104S	4/7/2011 ug/L	10/26/2011 ug/L	2/7/2012 ug/L	4/25/2012 ug/L
Inorganics				
Arsenic	0.43 J	-	0.21 J/0.21 J	-
Cyanide (total)	-	10 U	10 U/10 U	4 J
Mercury	0.20 U	0.001 U	0.001 U/0.00067 J	0.00073 J
PCBs				
Total PCBs	ND	ND	ND/ND	ND

MW-105D	4/7/2011 ug/L	10/26/2011 ug/L	2/7/2012 ug/L	4/25/2012 ug/L
Inorganics				
Arsenic	0.50 U	-	0.21 J/0.21 J	-
Cyanide (total)	-	4 J	10 U/10 U	10 U
Mercury	0.20 U	0.001 U	0.001 U/0.00053 J	0.00088 J
PCBs				
Total PCBs	ND	ND	ND/ND	ND

MW-105S	4/7/2011 ug/L	10/26/2011 ug/L	2/7/2012 ug/L	4/25/2012 ug/L
Inorganics				
Arsenic	0.25 J	-	0.14 J/0.14 J	-
Cyanide (total)	-	10 U	10 U/10 U	10 U
Mercury	0.20 U	0.001 U	0.001 U/0.00058 J	0.00047 J
PCBs				
Total PCBs	ND	ND	ND/ND	ND

MW-106D	4/7/2011 ug/L	10/26/2011 ug/L	2/7/2012 ug/L	4/26/2012 ug/L
Inorganics				
Arsenic	0.09 J	-	0.24 J/0.24 J	-
Cyanide (total)	-	10 U	10 U/10 U	10 U
Mercury	0.20 U	0.001 U	0.001 U/0.00053 J	0.0012
PCBs				
Total PCBs	0.0083 J	0.01 J	ND/ND	0.0098 J

MW-106S	4/7/2011 ug/L	10/26/2011 ug/L	2/7/2012 ug/L	4/26/2012 ug/L
Inorganics				
Arsenic	15.3	-	5.77/5.77	-
Cyanide (total)	-	6 J	10 U/10 U	10 U
Mercury	0.20 U	0.0203	0.00447 U/0.00447	0.00119
PCBs				
Total PCBs	ND	ND	ND/ND	ND

MW-107S	4/7/2011 ug/L	10/27/2011 ug/L	2/8/2012 ug/L	4/26/2012 ug/L
Inorganics				
Arsenic	0.48 J	-	1.81/1.81	-
Cyanide (total)	-	10 U	10 U/10 U	10 U
Mercury	0.20 U	0.001 U	0.001 U/0.00057 J	0.00065 J
PCBs				
Total PCBs	ND	ND	ND/ND	ND

MW-108S	4/7/2011 ug/L	10/27/2011 ug/L	2/8/2012 ug/L	4/26/2012 ug/L
Inorganics				
Arsenic	0.30 J	-	0.53/0.53	-
Cyanide (total)	-	10 U	10 U/10 U	10 U
Mercury	0.20 U	0.00112 U	0.001 U/0.00085 J	0.00141
PCBs				
Total PCBs	0.0056 J	ND	ND/ND	ND

MW-108D	4/7/2011 ug/L	10/27/2011 ug/L	2/8/2012 ug/L	4/26/2012 ug/L
Inorganics				
Arsenic	0.52	-	1.31/1.31	-
Cyanide (total)	-	10 U	4 J/4 J	10 U
Mercury	0.20 U	0.001 U	0.001 U/0.0007 J	0.00079 J
PCBs				
Total PCBs	ND	ND	ND/ND	ND

MW-102S	4/8/2011 ug/L	10/25/2011 ug/L	2/6/2012 ug/L	4/25/2012 ug/L
Inorganics				
Arsenic	0.44 J	-	0.50 U/0.16 J	-
Cyanide (total)	-	6 J/5 J	10 U/10 U	10 U
Mercury	0.20 U	0.00119 U/0.0012 U	0.00111 U/0.00111	0.00074 J
PCBs				
Total PCBs	ND	ND/ND	ND/ND	ND

MW-102D	4/8/2011 ug/L	10/25/2011 ug/L	2/6/2012 ug/L	4/25/2012 ug/L
Inorganics				
Arsenic	0.44 J/0.18 J	-	0.50 U/0.21 J	-
Cyanide (total)	-	9 J	10 U/10 U	10 U
Mercury	0.20 U/0.20 U	0.001 U	0.001 U/0.00096 J	0.00084 J
PCBs				
Total PCBs	ND/ND	ND	ND/ND	ND

MW-101D	4/6/2011 ug/L	10/25/2011 ug/L	2/6/2012 ug/L	4/27/2012 ug/L
Inorganics				
Arsenic	1.10	-	0.50 U/0.19 J	-
Cyanide (total)	-	10 U	10 U/10 U	10 U
Mercury	0.20 U	0.00113 U	0.00157 U/0.00157	0.00147
PCBs				
Total PCBs	ND	ND	ND/ND	ND

MW-101S	4/6/2011 ug/L	10/25/2011 ug/L	2/6/2012 ug/L	4/27/2012 ug/L
Inorganics				
Arsenic	0.25 J/0.19 J	-	0.50 U/0.15 J	-
Cyanide (total)	-	10 U	10 U/10 U	10 U
Mercury	0.20 U/0.20 U	0.001 U	0.00327 U/0.00327	0.00129
PCBs				
Total PCBs	ND/ND	ND	ND/ND	ND

MW-109D	4/6/2011 ug/L	10/27/2011 ug/L	2/6/2012 ug/L	4/26/2012 ug/L
Inorganics				
Arsenic	0.16 J	-	0.50 U/0.13 J	-
Cyanide (total)	-	10 U	10 U/10 U	10 U
Mercury	0.20 U	0.001 U	0.001 U/0.00081 J	0.00085 J
PCBs				
Total PCBs	ND	ND	ND/ND	ND

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING EDGE OF WATER
- EXISTING TREES AND/OR BRUSH
- 718 — FINAL ELEVATION CONTOURS
- ROAD/DRAINAGE SWALE
- △ GV-1 — GAS VENT LOCATION
- ● MW-106S — MONITORING WELL LOCATION
- ▲ GP-1 — GAS PROBE LOCATION
- ug/L — MICROGRAMS PER LITRE
- U — NOT PRESENT AT OR ABOVE THE ASSOCIATED VALUE
- J — ESTIMATED CONCENTRATION
- 10 U/10 U — PARENT/DUPLICATE SAMPLE RESULT
- RESULT EXCEEDS GSI CRITERIA

MW-106D	4/7/2011 ug/L	10/26/2011 ug/L	2/7/2012 ug/L
Inorganics			
Arsenic	0.09 J	-	0.24 J
Cyanide (total)	-	10 U	10 U
Mercury	0.20 U	0.001 U	0.00053 J
PCBs			
Total PCBs	0.0083 J	0.01 J	ND

SAMPLE LOCATION
SAMPLE DATE
RESULT UNIT
RESULT (ug/L)
PARAMETER

	Groundwater Surface Water Interface
Inorganics (ug/L)	
Arsenic	10
Cyanide (total)	5.2
Mercury	0.0013
PCBs (ug/L)	
Total PCBs	0.2

NOTE
MICHIGAN ACT 451, PART 201 CLEANUP CRITERIA AND PART 213 RISK-BASED SCREENING LEVELS: RESIDENTIAL AND NON-RESIDENTIAL GENERIC CLEANUP CRITERIA [1].

(1) CLEANUP CRITERIA IDENTIFIED BY MDEQ RRD OP MEMO NO. 1, UPDATED 3/25/2011, PURSUANT TO 1994 PA 451 AS AMENDED.

SCALE VERIFICATION

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

12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

POST REMEDIAL ACTION GROUNDWATER ANALYTICAL DATA

CONESTOGA-ROVERS & ASSOCIATES

Source Reference: BASE ADAPTED FROM PREVIOUS RMT DESIGN

Project Manager:	Reviewed By:	Date:
G. CARLI	R. HOEKSTRA	JUNE 2012
Scale: AS SHOWN	Project N°: 56393-08	Report N°: MEMO015
		Drawing N°: figure 4

56393-08(MEMO015)GN-WA004 JUN 21/2012

TABLE 1

GROUNDWATER MONITORING WELLS
FEBRUARY 2012 WATER LEVEL DATA
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Locations	*Ground Surface Elevation (feet AMSL)*	*Reference Elevation (feet AMSL)*	*Monitoring Well Depth (feet bgs)*	*Screened Interval (feet AMSL)*	*April 2012 Water Level Data Depth to Water (feet bgs)*						
					9-Apr-12	*11-Apr-12*	*13-Apr-12*	*16-Apr-12*	*18-Apr-12*	*20-Apr-12*	*23-Apr-12*
MW-101S	734.35	737.46	39	702.35 to 695.35	36.72	35.54	35.88	35.14	35.40	35.36	35.53
MW-101D	734.33	737.14	75	664.33 to 659.33	35.43	35.83	35.62	35.13	35.08	35.05	35.25
MW-102S	704.18	707.36	10	701.18 to 694.18	5.6	5.71	5.75	5.30	5.27	5.23	5.42
MW-102D	704.43	707.43	45	664.43 to 659.43	5.64	5.75	5.79	5.35	5.32	5.25	5.45
MW-103D	704.37	707.36	35	674.37 to 669.37	6.42	6.52	6.56	6.08	6.10	6.04	6.24
MW-104S	703.86	706.55	25.5	684.86 to 677.86	6.2	6.31	6.35	5.82	5.87	5.79	6.02
MW-104D	703.48	706.42	45	663.48 to 658.48	6.04	6.17	6.19	5.68	5.69	5.62	5.87
MW-105S	704.89	707.86	12	699.89 to 692.89	7.76	7.89	7.91	7.30	7.36	7.27	7.57
MW-105D	704.78	707.89	47	662.78 to 657.78	7.55	7.67	7.71	7.05	7.17	7.06	7.37
MW-106S	703.88	706.96	9	701.88 to 694.88	6.95	7.12	7.13	6.35	6.51	6.40	6.77
MW-106D	703.66	706.36	45	664.66 to 659.66	6.23	6.36	6.38	5.65	6.78	5.70	6.03
MW-107S	703.76	706.73	13	695.76 to 690.76	6.5	6.65	6.67	5.91	6.07	5.98	6.32
MW-108S	703.32	706.21	9	701.32 to 694.32	5.81	5.95	5.98	5.23	5.41	5.30	5.65
MW-108D	703.39	706.16	45	663.39 to 658.39	5.84	5.98	6.02	5.28	5.40	5.31	5.66
MW-109D	707.41	710.46	23	689.41 to 684.41	9.32	9.44	9.50	8.88	8.93	8.85	9.14
SG-101	700.9	703.05	-	-	0.02	0.7	0.74	0.86	0.68	0.72	0.48

Notes:

[redacted] Indicates that water level in monitoring well is lower than the river elevation

feet AMSL - feet above mean sea level

feet bgs - feet below ground surface

TABLE 1

GROUNDWATER MONITORING WELLS
FEBRUARY 2012 WATER LEVEL DATA
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Locations	*Ground Surface Elevation (feet AMSL)*	*Reference Elevation (feet AMSL)*	*Monitoring Well Depth (feet bgs)*	*Screened Interval (feet AMSL)*	*April 2012 Water Level Data Water Level Elevation (feet AMSL)*							
					9-Apr-12	*9-Apr-12*	*11-Apr-12*	*13-Apr-12*	*16-Apr-12*	*18-Apr-12*	*20-Apr-12*	*23-Apr-12*
MW-101S	734.35	737.46	39	702.35 to 695.35	36.72	700.74	701.92	701.58	702.32	702.06	702.10	701.93
MW-101D	734.33	737.14	75	664.33 to 659.33	35.43	701.71	701.31	701.52	702.01	702.06	702.09	701.89
MW-102S	704.18	707.36	10	701.18 to 694.18	5.6	701.76	701.65	701.61	702.06	702.09	702.13	701.94
MW-102D	704.43	707.43	45	664.43 to 659.43	5.64	701.79	701.68	701.64	702.08	702.11	702.18	701.98
MW-103D	704.37	707.36	35	674.37 to 669.37	6.42	700.94	700.84	700.80	701.28	701.26	701.32	701.12
MW-104S	703.86	706.55	25.5	684.86 to 677.86	6.2	700.35	700.24	700.20	700.73	700.68	700.76	700.53
MW-104D	703.48	706.42	45	663.48 to 658.48	6.04	700.38	700.25	700.23	700.74	700.73	700.80	700.55
MW-105S	704.89	707.86	12	699.89 to 692.89	7.76	700.10	699.97	699.95	700.56	700.50	700.59	700.29
MW-105D	704.78	707.89	47	662.78 to 657.78	7.55	700.34	700.22	700.18	700.84	700.72	700.83	700.52
MW-106S	703.88	706.96	9	701.88 to 694.88	6.95	700.01	699.84	699.83	700.61	700.45	700.56	700.19
MW-106D	703.66	706.36	45	664.66 to 659.66	6.23	700.13	700.00	699.98	700.71	699.58	700.66	700.33
MW-107S	703.76	706.73	13	695.76 to 690.76	6.5	700.23	700.08	700.06	700.82	700.66	700.75	700.41
MW-108S	703.32	706.21	9	701.32 to 694.32	5.81	700.40	700.26	700.23	700.98	700.80	700.91	700.56
MW-108D	703.39	706.16	45	663.39 to 658.39	5.84	700.32	700.18	700.14	700.88	700.76	700.85	700.50
MW-109D	707.41	710.46	23	689.41 to 684.41	9.32	701.14	701.02	700.96	701.58	701.53	701.61	701.32
SG-101	700.9	703.05	-	-	0.02	699.77	700.45	700.49	700.61	700.43	700.47	700.23

Notes:
[ ] Indicates that water level in monitoring well is lower than the river elevation
feet AMSL - feet above mean sea level
feet bgs - feet below ground surface

TABLE 2

SUMMARY OF FEBRUARY 2012 GROUNDWATER ANALYTICAL RESULTS
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location:					*MW-101S*	*MW-101D*	*MW-102S*	*MW-102D*	*MW-103D*	*MW-104S*
Sample Identification:					*WG-56393-020612-JV-038*	*WG-56393-020612-JV-037*	*WG-56393-020612-JV-040*	*WG-56393-020612-JV-039*	*WG-56393-020712-JV-043*	*WG-56393-020712-JV-044*
Sample Date:					*4/27/2012*	*4/27/2012*	*4/25/2012*	*4/25/2012*	*4/25/2012*	*4/25/2012*
Sample Type:		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]								
	Units	Residential Drinking Water [a]	Non-Residential Drinking Water [b]	Groundwater Surface Water Interface [c]						
Volatile Organic Compounds										
Acetone	µg/L	730	2100	1700	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	µg/L	5	5	200	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	10	29	35	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	13000	38000	2200	20 U	20 U	20 U	20 U	20 U	20 U
Carbon disulfide	µg/L	800	2300	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	µg/L	5	5	45	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	µg/L	100	100	25	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	430	1700	1100	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	µg/L	80	80	350	0.50 U	0.50 U	0.50 U	0.11 J	0.13 J	0.50 U
Chloromethane (Methyl chloride)	µg/L	260	1100	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.10 J
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	0.2	0.2	-	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	0.05	0.05	5.7	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	600	600	13	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	µg/L	6.6	19	28	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	75	75	17	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	µg/L	1700	4800	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	880	2500	740	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	5	5	360	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	7	7	130	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	70	70	620	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	100	100	1500	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	µg/L	5	5	230	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	µg/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,3-Dichloropropene	µg/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	74	74	18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	µg/L	1000	2900	ID	20 U	20 U	20 U	20 U	20 U	20 U
Isopropyl benzene	µg/L	800	2300	28	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	µg/L	40	40	7100	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone [2]	µg/L	1800	5200	ID	20 U	20 U	20 U	20 U	20 U	20 U
Methylene chloride	µg/L	5	5	1500	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	µg/L	100	100	80	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	8.5	35	78	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	5	5	60	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	µg/L	790	790	270	0.31 J	0.16 J	0.50 U	0.11 J	0.50 U	0.060 J
1,2,4-Trichlorobenzene	µg/L	70	70	99	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	µg/L	200	200	89	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	5	5	330	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	5	5	200	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	µg/L	2600	7300	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	2	2	13	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	µg/L	280	280	41	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	µg/L				0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2

SUMMARY OF FEBRUARY 2012 GROUNDWATER ANALYTICAL RESULTS
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location:					*MW-101S*	*MW-101D*	*MW-102S*	*MW-102D*	*MW-103D*	*MW-104S*
Sample Identification:					*WG-56393-020612-JV-038*	*WG-56393-020612-JV-037*	*WG-56393-020612-JV-040*	*WG-56393-020612-JV-039*	*WG-56393-020712-JV-043*	*WG-56393-020712-JV-044*
Sample Date:					*4/27/2012*	*4/27/2012*	*4/25/2012*	*4/25/2012*	*4/25/2012*	*4/25/2012*
Sample Type:		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]								
	Units	Residential Drinking Water [a]	Non-Residential Drinking Water [b]	Groundwater Surface Water Interface [c]						
Metals										
Cyanide (amenable)	ug/L	200	200		10 U	10 U	10 U	10 U	10 U	4 J
Cyanide (total)	ug/L	200	200	5.2	10 U	10 U	10 U	10 U	10 U	4 J
Magnesium	ug/L	400000	1100000		25400	24300	26800	22800	23200	23200
Mercury	ug/L	2	2	0.0013	0.00129	0.00147 [c]	0.00074 J	0.00084 J	0.00075 J	0.00073 J
Sodium	ug/L	120000	350000		24800	26400	23600	21200	21700	22100
PCBs										
Aroclor-1016 (PCB-1016)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1221 (PCB-1221)	ug/L				0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Aroclor-1232 (PCB-1232)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1242 (PCB-1242)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1248 (PCB-1248)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1254 (PCB-1254)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1260 (PCB-1260)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Total PCBs	ug/L	0.5	0.5	0.2	ND	ND	ND	ND	ND	ND
Field Parameters										
Conductivity	mS/cm	-	-	-	0.779	0.774	0.836	0.785	0.612	0.739
Dissolved oxygen (DO)	mg/L	-	-	-	5.21	4.36	1.92	2.53	1.95	2.67
Oxidation reduction potential (ORP)	millivolts	-	-	-	230	227	81	209	230	229
pH	s.u.	6.5 - 8.5	6.5 - 8.5	-	7.23	7.18	6.71	6.88	5.76	7.07
Temperature	Deg C	-	-	-	9.3	10.8	10.9	11.9	13.35	13.3
Turbidity	NTU	-	-	-	<0.80	<0.98		<0.63	<2.00	<1.0

Notes:

(1) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.

a Residential Drinking Water

b Non-Residential Drinking Water

c Groundwater Surface Water Interface

(2) Also known as Methyl isobutyl ketone (MIBK).

U Not present at or above the associated value.

J Laboratory qualifiers - estimated concentration.

TABLE 2

SUMMARY OF FEBRUARY 2012 GROUNDWATER ANALYTICAL RESULTS
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location:					*MW-104D*	*MW-104D*	*MW-105S*	*MW-105D*	*MW-106S*	*MW-106D*
Sample Identification:					*WG-56393-020712-JV-046*	*WG-56393-020712-JV-045*	*WG-56393-020712-JV-048*	*WG-56393-020712-JV-047*	*WG-56393-020712-JV-050*	*WG-56393-020712-JV-049*
Sample Date:					*4/25/2012*	*4/25/2012*	*4/25/2012*	*4/25/2012*	*4/26/2012*	*4/26/2012*
Sample Type:		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]			*Duplicate*					
	Units	Residential Drinking Water [a]	Non-Residential Drinking Water [b]	Groundwater Surface Water Interface [c]						
Volatile Organic Compounds										
Acetone	µg/L	730	2100	1700	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	µg/L	5	5	200	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	10	29	35	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	13000	38000	2200	20 U	20 U	20 U	20 U	20 U	20 U
Carbon disulfide	µg/L	800	2300	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	µg/L	5	5	45	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	µg/L	100	100	25	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	430	1700	1100	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	µg/L	80	80	350	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	260	1100	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	0.2	0.2	-	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	0.05	0.05	5.7	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	600	600	13	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	µg/L	6.6	19	28	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	75	75	17	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	µg/L	1700	4800	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	880	2500	740	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	5	5	360	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	7	7	130	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	70	70	620	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	100	100	1500	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	µg/L	5	5	230	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	µg/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,3-Dichloropropene	µg/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	74	74	18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	µg/L	1000	2900	ID	20 U	20 U	20 U	20 U	20 U	20 U
Isopropyl benzene	µg/L	800	2300	28	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	µg/L	40	40	7100	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone [2]	µg/L	1800	5200	ID	20 U	20 U	20 U	20 U	20 U	20 U
Methylene chloride	µg/L	5	5	1500	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	µg/L	100	100	80	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	8.5	35	78	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	5	5	60	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	µg/L	790	790	270	0.50 U	0.17 J	0.060 J	0.18 J	0.14 J	0.13 J
1,2,4-Trichlorobenzene	µg/L	70	70	99	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	µg/L	200	200	89	0.50 U	0.50 U	0.080 J	0.090 J	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	5	5	330	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	5	5	200	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	µg/L	2600	7300	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	2	2	13	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	µg/L	280	280	41	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	µg/L				0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2

SUMMARY OF FEBRUARY 2012 GROUNDWATER ANALYTICAL RESULTS
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location:					*MW-104D*	*MW-104D*	*MW-105S*	*MW-105D*	*MW-106S*	*MW-106D*
Sample Identification:					*WG-56393-020712-JV-046*	*WG-56393-020712-JV-045*	*WG-56393-020712-JV-048*	*WG-56393-020712-JV-047*	*WG-56393-020712-JV-050*	*WG-56393-020712-JV-049*
Sample Date:					*4/25/2012*	*4/25/2012*	*4/25/2012*	*4/25/2012*	*4/26/2012*	*4/26/2012*
Sample Type:		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]			*Duplicate*					
	Units	Residential Drinking Water [a]	Non-Residential Drinking Water [b]	Groundwater Surface Water Interface [c]						
Metals										
Cyanide (amenable)	ug/L	200	200	-	10 U	10 U	10 U	10 U	10 U	10 U
Cyanide (total)	ug/L	200	200	5.2	10 U	10 U	10 U	10 U	10 U	10 U
Magnesium	ug/L	400000	1100000		22600	23100	28600	25100	33400	24600
Mercury	ug/L	2	2	0.0013	0.00061 J	0.00064 J	0.00047 J	0.00088 J	0.00119	0.0012
Sodium	ug/L	120000	350000		21000	21900	25600	23600	25000	26300
PCBs										
Aroclor-1016 (PCB-1016)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1221 (PCB-1221)	ug/L				0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Aroclor-1232 (PCB-1232)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1242 (PCB-1242)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1248 (PCB-1248)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1254 (PCB-1254)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.0098 J
Aroclor-1260 (PCB-1260)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Total PCBs	ug/L	0.5	0.5	0.2	ND	ND	ND	ND	ND	0.0098 J
Field Parameters										
Conductivity	mS/cm	-	-	-	0.734	0.734	0.928	0.881	1.04	0.781
Dissolved oxygen (DO)	mg/L	-	-	-	2.74	2.74	.93	1.80	.98	3.42
Oxidation reduction potential (ORP)	millivolts	-	-	-	233	233	81	96	-59	91
pH	s.u.	6.5 - 8.5	6.5 - 8.5	-	7.06	7.06	6.75	6.77	6.63	7.17
Temperature	Deg C	-	-	-	13.1	13.1	12.8	13.2	11.3	12.5
Turbidity	NTU	-	-	-	<2.77	<2.77	<0.64	<4.58	<1.02	<2.98

Notes:

(1) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.

a Residential Drinking Water

b Non-Residential Drinking Water

c Groundwater Surface Water Interface

(2) Also known as Methyl isobutyl ketone (MIBK).

U Not present at or above the associated value.

J Laboratory qualifiers - estimated concentration.

TABLE 2

SUMMARY OF FEBRUARY 2012 GROUNDWATER ANALYTICAL RESULTS
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location:					*MW-107S*	*MW-108S*	*MW-108D*	*MW-109D*
Sample Identification:					*WG-56393-020812-JV-051*	*WG-56393-020812-JV-053*	*WG-56393-020812-JV-052*	*WG-56393-020612-JV-041*
Sample Date:					*4/26/2012*	*4/26/2012*	*4/26/2012*	*4/26/2012*
Sample Type:		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]						
	Units	Residential Drinking Water [a]	Non-Residential Drinking Water [b]	Groundwater Surface Water Interface [c]				
Volatile Organic Compounds								
Acetone	µg/L	730	2100	1700	20 U	20 U	20 U	20 U
Benzene	µg/L	5	5	200	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	10	29	35	0.50 U	0.50 U	0.50 U	0.50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	13000	38000	2200	20 U	20 U	20 U	20 U
Carbon disulfide	µg/L	800	2300	ID	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	µg/L	5	5	45	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	µg/L	100	100	25	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	430	1700	1100	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	µg/L	80	80	350	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	260	1100	ID	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	0.2	0.2	-	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	µg/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	0.05	0.05	5.7	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	600	600	13	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	µg/L	6.6	19	28	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	75	75	17	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	µg/L	1700	4800	ID	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	880	2500	740	0.50 U	0.50 U	0.11 J	0.50 U
1,2-Dichloroethane	µg/L	5	5	360	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	7	7	130	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	70	70	620	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	100	100	1500	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	µg/L	5	5	230	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	µg/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,3-Dichloropropene	µg/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	74	74	18	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	µg/L	1000	2900	ID	20 U	20 U	20 U	20 U
Isopropyl benzene	µg/L	800	2300	28	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	µg/L	40	40	7100	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone [2]	µg/L	1800	5200	ID	20 U	20 U	20 U	20 U
Methylene chloride	µg/L	5	5	1500	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	µg/L	100	100	80	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	8.5	35	78	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	5	5	60	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	µg/L	790	790	270	0.13 J	0.23 J	0.21 J	0.50 U
1,2,4-Trichlorobenzene	µg/L	70	70	99	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	µg/L	200	200	89	0.50 U	0.50 U	0.14 J	0.50 U
1,1,2-Trichloroethane	µg/L	5	5	330	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	5	5	200	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	µg/L	2600	7300	-	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	2	2	13	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	µg/L	280	280	41	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	µg/L				0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2

SUMMARY OF FEBRUARY 2012 GROUNDWATER ANALYTICAL RESULTS
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location:					*MW-107S*	*MW-108S*	*MW-108D*	*MW-109D*
Sample Identification:					*WG-56393-020812-JV-051*	*WG-56393-020812-JV-053*	*WG-56393-020812-JV-052*	*WG-56393-020612-JV-041*
Sample Date:					*4/26/2012*	*4/26/2012*	*4/26/2012*	*4/26/2012*
Sample Type:		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]						
	Units	Residential Drinking Water [a]	Non-Residential Drinking Water [b]	Groundwater Surface Water Interface [c]				
Metals								
Cyanide (amenable)	ug/L	200	200		10 U	10 U	10 U	10 U
Cyanide (total)	ug/L	200	200	5.2	10 U	10 U	10 U	10 U
Magnesium	ug/L	400000	1100000		28200	24300	25900	24700
Mercury	ug/L	2	2	0.0013	0.00065 J	0.00141 [1]	0.00079 J	0.00085 J
Sodium	ug/L	120000	350000		22100	23300	44400	22900
PCBs								
Aroclor-1016 (PCB-1016)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1221 (PCB-1221)	ug/L				0.040 U	0.040 U	0.040 U	0.040 U
Aroclor-1232 (PCB-1232)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1242 (PCB-1242)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1248 (PCB-1248)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1254 (PCB-1254)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1260 (PCB-1260)	ug/L				0.020 U	0.020 U	0.020 U	0.020 U
Total PCBs	ug/L	0.5	0.5	0.2	ND	ND	ND	ND
Field Parameters								
Conductivity	mS/cm	-	-	-	0.933	0.851	0.884	0.764
Dissolved oxygen (DO)	mg/L	-	-	-	6.38	2.72	1.68	4.12
Oxidation reduction potential (ORP)	millivolts	-	-	-	-24	-12	-33	193
pH	s.u.	6.5 - 8.5	6.5 - 8.5	-	6.84	7.05	7.18	7.17
Temperature	Deg C	-	-	-	11.9	11.9	12.3	11.7
Turbidity	NTU	-	-	-	<0.24	<0.5	<0.41	<0.35

Notes:

(1) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.

a Residential Drinking Water

b Non-Residential Drinking Water

c Groundwater Surface Water Interface

[1] Also known as Methyl isobutyl ketone (MIBK).

U Not present at or above the associated value.

J Laboratory qualifiers - estimated concentration.