

GM Sustainable Workplaces  
VEC East, 5<sup>th</sup> Floor  
30400 Van Dyke  
Warren, MI 48093



April 12, 2019

Peter Ramanauskas  
U.S.EPA Region 5  
77 West Jackson Blvd.  
Chicago, Illinois 60604-3590

Re: RCRA Corrective Action Administrative Order on Consent (AOC)  
Progress Report 68, First Quarter 2018  
GM GPS – Bedford Facility, IND 006036099, Docket No. RCRA 05 2014 0011  
Bedford, Indiana

Dear Mr. Ramanauskas:

Please find enclosed the Progress Report 68 (First Quarter 2018) for the Resource Conservation and Recovery Act (RCRA) Corrective Action (CA) project at the GM Bedford Global Propulsion Systems (GPS) (formerly Castings, Engines, and Transmissions (CET) and formerly Powertrain) Facility (Facility) at 105 GM Drive in Bedford, Indiana, and select surrounding properties (Site). This report is being submitted in accordance with the Administrative Order on Consent, effective August 4, 2014 (United States Environmental Protection Agency (U.S. EPA) Docket No. RCRA-05 2014 011).

The next RCRA quarterly progress report covering the Second Quarter of 2018 will be submitted on or before July 15, 2018.

Should you have any questions regarding this document, please do not hesitate to contact me at (313) 510 4328.

Sincerely

Cheryl R. Hiatt  
Project Coordinator  
General Motors Remediation

YD/aj/176

Encl.

c.c.: See Attached Distribution List



**GENERAL MOTORS**

GM Bedford Distribution List

Peter Ramanauskas	U.S. EPA, Region 5
Daniel Haag	U.S. EPA, OSC
Chris Myer	IDEM Management
Carl Wodrich	Indiana Department of Natural Resources
Cheryl Hiatt/Ed Peterson	GM WFG Remediation
Lisa LaCouver	GM Bedford Environmental Compliance
James McGuigan	GHD Project Manager
Bill Steinmann	GHD Project Geologist
Katie Kamm	GHD Oversight Engineer
Stephen Song	Ramboll Environ



GENERAL MOTORS



## **First Quarter 2018 Progress Report 68**

GM GPS – Bedford Facility  
105 GM Drive  
Bedford, Indiana  
EPA ID# IND006036099  
AOC Docket No. RCRA 05 2014 0011

GHD | 651 Colby Drive Waterloo Ontario N2V 1C2 Canada  
013968 | Report No 417 | April 13, 2018



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## 1. Introduction

This Progress Report is submitted by General Motors LLC (GM) in accordance with the GM Bedford Global Propulsion Systems (GPS) Facility Resource Conservation and Recovery Act (RCRA) Administrative Order on Consent (AOC – United States Environmental Protection Agency [U.S. EPA] Docket No. RCRA 05-2014-0011), executed on August 4, 2014. This report covers the period of the fourth calendar quarter of 2017 for the RCRA Corrective Action (CA) Project at the GM GPS – Bedford Facility (Facility) and select surrounding properties (Site), Bedford, Indiana.

The next RCRA progress report covering the second quarter of 2018 will be submitted on or before July 15, 2018.

## 2. List of Completed Activities

The following activities took place and the following documents were prepared and distributed during this quarter:

- Results for samples collected from Spring 018 during this quarter are presented in Table 2.1. Sample results for the monthly sampling were previously emailed to U.S. EPA and Indiana Department of Environmental Management (IDEM) as they became available. As of the end of March 2018 sampling, the 12-month rolling average concentration of polychlorinated biphenyls (PCBs) in the Spring 018 discharge is 0.10 micrograms per liter ( $\mu\text{g/L}$ ). First quarterly sampling was conducted on January 10, 2018. The routine samples collected were non-detect for PCBs.
- The groundwater water treatment plant (GWTP) collected and treated approximately 11,397,304 gallons of water from the Pilot Trench, Vault sumps, and wet wells during the First Quarter of 2018. An estimated 0.17 pounds of PCBs were removed during the quarter through collection and treatment of the groundwater. An estimated 0.32 pounds of PCBs have been removed over the last 12 months (April 2017 through March 2018). A summary of the volumes and sample results used for this calculation is provided in Table 2.2.
- The First Half 2018 EI CA750 static groundwater levels were completed during the week of March 5, 2018.
- The Second Half 2017 EI CA750 groundwater quality sampling was completed during the week of December 4, 2017. Quarterly static groundwater levels were collected during the same event.
  - Results memorandum was submitted to U.S. EPA on March 29, 2018.
- GM submitted the results of the statistical evaluation of replicate samples collected during the Incremental Sampling Plan implementation to the U.S. EPA on March 28, 2018.
  - U.S. EPA responded with their review of the statistical evaluation on March 28, 2018.
  - GM is preparing a response to address their comments.



- GM submitted the results of the initial investigation of AOI 8 within the Clarifier Area west of GM Drive and Work Plan for additional investigation in the area to the U.S. EPA on March 28, 2018.
- A request to terminate groundwater collection and monitoring of the Gravel Underdrain System (GUS) Sump was submitted by GM to U.S. EPA on January 18, 2017.
  - U.S. EPA responded with clarification questions on February 24, 2017.
  - GM provided a response letter to U.S. EPA's questions on March 21, 2017; letter is under review by U.S. EPA.
- GM and GHD have proposed an interim groundwater monitoring program to monitor the impact of the Pilot Trench to groundwater flow.
  - The interim groundwater monitoring plan was submitted U.S. EPA on January 11, 2018.
  - U.S. EPA responded with comments on January 24, 2018.
  - Responses to comments were submitted to U.S. EPA on March 12, 2018.
  - Pilot Trench monthly static groundwater monitoring was completed on January 23, February 26, and March 27, 2018.
- Phase 2 Trench Design Report was submitted to U.S. EPA on March 12, 2018.
- AOI 8 NAPL Recovery system construction was substantially completed.
  - Work on the electrical components between the solar slipper assembly and solar panel was completed in March.
  - GM is establishing a new waste profile for disposal of the future recovered oil.
  - Final draft of the memorandum summarizing the IWTP clarifier area (former Lagoons 1-3) initial sampling and outlining well installation was sent to GM on March 21, 2018.
- Formal monitoring of the East Plant, West Plant and Vault cover systems for the first quarter was completed on March 26, 2018. Photographic log and inspection sheets of the inspection are in Appendix A.
- A letter was submitted to U.S. EPA requesting a reduction of landfill cover inspections from quarterly to semi-annually on March 23, 2018.
  - U.S. EPA approved the frequency change in an email on March 26, 2018
- Guardrail construction around the Stormwater Pond was completed on January 22, 2018.
  - Construction of a stair system to access the platform extending into the pond went under construction during the first quarter.
- An updated review of the Financial Assurance (FA) expected cost amounts for the FA documents as required by the RCRA CA Order was submitted on November 16, 2017. In an email dated November 20, 2017, U.S. EPA requested additional backup to the information provided.
  - Additional information requested by U.S. EPA was submitted on January 9, 2018.
  - U.S. EPA approved the Financial Assurance cost estimate on January 9, 2018.



- GM submitted the financial assurance demonstration to U.S.EPA on March 28, 2018.
- U.S. EPA provided a “No Objection” letter to the 2018 Bedford Site Financial Assurance demonstration via letter dated April 4, 2018.
- Groundwater treatment plant continued to treat impacted groundwater and vault sump water with discharge under the NPDES permit during the first quarter.
  - Decommissioning of the former groundwater treatment system was coordinated with improvements to the surface water treatment plant. Selected contractors had limited availability; other contractors are being vetted to complete the work.
- Security fence and gates installation (along GM Drive) was completed on January 22, 2018.
- Tree clearing along the balance of the perimeter fence alignment was completed on March 27, 2018.
- Conference calls were held with U.S. EPA and IDEM on January 11, 25, February 22, March 8, and 22, 2018, to discuss items related to the project.
- Tailgate meetings for the reporting period were held daily to discuss safety topics related to on-going maintenance activities.
- RCRA Quarterly Progress Report #67, covering the fourth quarter of 2017, was submitted to the U.S. EPA and IDEM on January 12, 2018.

### **3. Summaries of Problems and Planned Resolutions**

- Issue with the pumps in the Leachate Collection System (LCS) sump is being resolved. The pumps in the LCS had failed and the riser pipe had become sufficiently corroded to prevent direct replacement pumps from working. A temporary replacement pump has been installed to allow pumping as needed based on manual measurements. Manual monitoring and pumping of the LCS continues. As discussed during the bi-weekly calls, the temporary pump within the GUS failed. When attempting to remove the temporary pump for replacement, the temporary pump became wedged in the sump, between the inner and outer casing. It may be possible to remove the original pump within the inner steel well casing (not previously attempted due to a curve in the casing as a result of the outer well casing kink). Due to the construction, a crane is required to remove the pump
  - GUS removal/replacement was put on hold during the first quarter pending U.S. EPA’s review of the Pilot Trench monitoring plan.
  - Monitoring of the LCS continued during the first quarter. Removal and replacement of the LCS was delayed due to the limited availability of the selected contractor. Vetting of new contractors began in the first quarter.
- A tear in the liner within the AOI-8 area was detected on April 4, 2018. Preliminary indication is that the tear was caused by upward pressure exerted on the cover system as a result of a damaged air line running below the cover system. U.S.EPA was notified of the situation on the same day as discovery. GM is working with facility personnel to arrange for replacement of the



broken line with a surface line and shutdown of the broken airline under the cap so repairs can be made to the cover system.

## **4. Summaries of Changes Made in the Corrective Action (CA) During the Reporting Period**

The following changes made to the CA during the reporting period.

- The RCRA Quarterly Progress Report # 67, covering the fourth quarter of 2017, was submitted to the U.S. EPA and IDEM on January 12, 2018.

## **5. Community Relations**

The telephone number for public contact is 812-277-8954 (Katie Kamm, GHD). Individual meetings can be arranged to discuss project progress with residents as requested.

The next neighborhood/public meeting is tentatively scheduled for June 20, 2018. Presentations for the December 2017 meeting and past meetings are posted on the GM Bedford project website at:

[www.bedfordpowertraincorrectiveaction.com](http://www.bedfordpowertraincorrectiveaction.com)

The document repository continues to be located at the Bedford Public Library, with relevant project related documents available on compact disc (CD) in PDF format. Information will be updated periodically, as new documents become available. Data located in the Library repository can also be found on the aforementioned website.

## **6. Changes in Personnel During the Reporting Period**

No changes to report for this quarter.

## **7. Projected Work for the Next Reporting Period**

Work anticipated for the next reporting period includes:

- Replace the pump and stainless steel riser installations at the LCS sump
- Monitor Spring 018 in accordance with the revised schedule
- Select a contractor for installation of the balance of the perimeter fence
- Prepare bid documents for the Phase II Trench installation
- Complete outstanding responses to comments on documentation and/or finalize reports for the following:
  - Response to Comments for the RFI Report



- Construction Certification Report for the Pilot Trench
- Pilot Trench Monitoring Plan
- Construction Certification Report for Stormwater Pond Sediment Removal
- Quality Assurance Project Plan (update)
- Response to U.S. EPA's review comments on the statistical evaluation

## **8. Copies of Daily Reports, Inspection Reports, Laboratory/Monitoring Data**

Table 2.1 presents the quarterly results from Spring 018 sampling. Table 2.2 presents the estimated PCB mass removal for the SSC systems for the past 12 months. Table 2.3 presents the static water levels to support the performance of the pilot perimeter groundwater trench collection system.

Appendix A includes the field monitoring forms for the cover system inspections and a photographic log:

1. Weeds or clover growth were noted at most Transects in the East Plant Area and the West Plant Area, which is also typically accompanied by some bare patches.
2. Heavy weed growth and bare spots was identified at Transects EV1, EV2, EV3, EV4, EV5, EV6, EV7, EV8, EV9, and WV1.
3. Slight erosion reported at Transects EV4 and EV5.

Additional packages of analytical data have been, and will continue to be submitted to U.S. EPA as the validated data becomes available.

Table 2.1

**Spring 018 Sampling Results - First Quarter 2018**  
**GM CET Bedford Facility**  
**Bedford, Indiana**

<b>Area</b>	<b>P015</b>
<b>Sample Location:</b>	<b>Spring 018C</b>
<b>Sample Identification:</b>	<b>SW-015-011018-MC-40985</b>
<b>Sample Date:</b>	<b>1/10/2018</b>

<b>Parameters</b>	<b>Units</b>	
<b>PCBs</b>		
Aroclor-1016 (PCB-1016)	ug/L	0.19 U
Aroclor-1221 (PCB-1221)	ug/L	0.19 U
Aroclor-1232 (PCB-1232)	ug/L	0.19 U
Aroclor-1242 (PCB-1242)	ug/L	0.19 U
Aroclor-1248 (PCB-1248)	ug/L	0.19 U
Aroclor-1254 (PCB-1254)	ug/L	0.19 U
Aroclor-1260 (PCB-1260)	ug/L	0.19 U
Total PCBs	ug/L	ND
<b>Wet</b>		
Total suspended solids (TSS)	ug/L	2200

**Notes:**

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

ND - Non-Detect for total PCBs

12 month rolling average (April 2017 – March 2018) is 0.10 ug/L PCBs.

Table 2.2

**300 gpm Design Capacity Water Treatment System  
and GWTP PCB Mass Removal Estimate  
GM Bedford CET Facility  
Bedford, Indiana**

	<b>Groundwater Treatment Plant (GWTP) Treated Volume (gallon)</b>	<b>PCB Influent Concentration (µg/L)</b>	<b>Mass PCB Treated (pound)</b>
April 2017	2,849,000	1.1	0.026
May 2017	4,648,000	1.3	0.050
June 2017	2,385,000	1.1	0.022
July 2017 <sup>1</sup>	1,618,000	0.055 <sup>1</sup>	0.001
August 2017	395,000	1.5	0.005
September 2017 <sup>2,3</sup>	459,483	0.055 <sup>1</sup>	0.000
October 2017 <sup>4</sup>	833,154	1.6	0.011
November 2017	1,627,974	0.74	0.010
December 2017	1,525,264	1.7	0.022
January 2018 <sup>5</sup>	3,120,854	1.6	0.040
February 2018	4,425,851	2.2	0.081
March 2018	3,850,599	1.5	0.048
Total Estimated Volume of Water Treated, First Quarter 2018 (gallons)			11,397,304
Total Estimated Mass of PCB Treated, First Quarter 2018 (pounds)			0.17
Total Estimated Mass of PCB Treated, Since April 2017 (pounds)			0.32

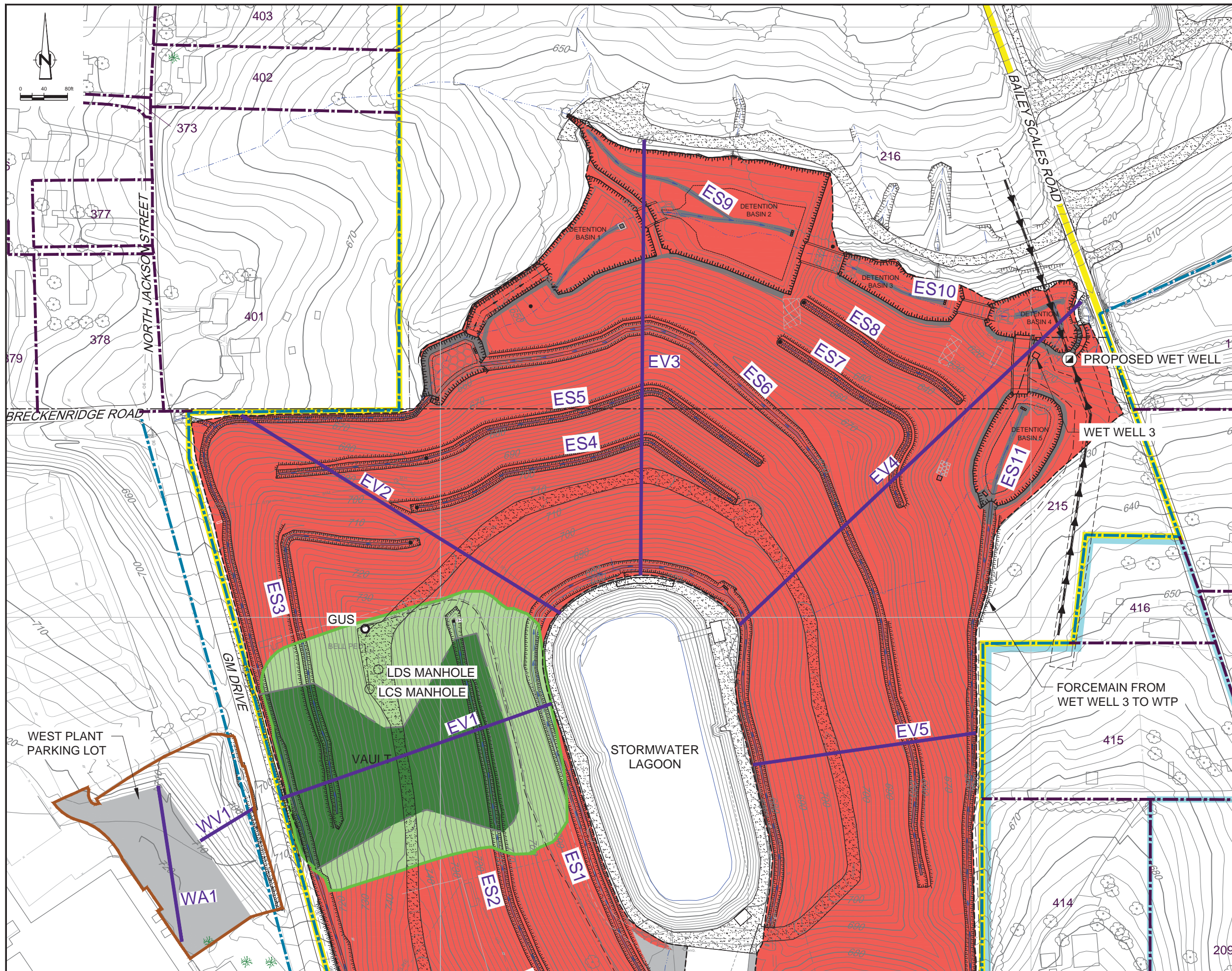
## Notes:

- 1 Sample results were non-detect. Half of the quantitation limit (max of 0.11 µg/L for both samples) is used to calculate the mass of PCB treated.
- 2 Estimate based on average daily flow rate for first fourteen days (6 days operation) of September, projected for a total of 13 days of operation consistent with August treatment.
- 3 PCB concentration based on one value instead of average of two monthly samples.
- 4 PCB concentration based on an average of two values for October 2017
- 5 PCB concentration based on an average of two values for January 2018



**Appendix A**  
**First Quarter 2018 Cover System Inspection:**  
**Photograph Log, Transect Figures,**  
**and Field Logs**





**LEGEND**

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- EXISTING FENCE LINE
- EXISTING RAILROAD TRACKS
- EXISTING DIRT ROADS
- EXISTING ROADS / PAVED AREAS
- EXISTING ELECTRICAL POWER LINE
- EXISTING FORCEMAIN TO TREATMENT FACILITY
- EXISTING OVERHEAD ELECTRICAL POWER LINE
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- APPROXIMATE PROPERTY BOUNDARY
- EXISTING STORM SEWER
- WEST PLANT COVER LIMIT
- VAULT LIMIT
- EAST PLANT COVER LIMIT
- DRAINAGE DITCH
- ASPHALT PAVEMENT AREA
- LOW FLOW CHANNEL
- EAST PLANT AREA
- GM LLC OWNED RESIDENTIAL
- EAST PLANT COVER SYSTEM
- FINAL VAULT COVER SYSTEM AT SURFACE
- FINAL VAULT COVER SYSTEM BURIED BY EAST PLANT AREA COVER SYSTEM
- GRAVEL BED
- PAVED COVER SURFACE
- PROPOSED PILOT TRENCH
- VAULT GROUNDWATER UNDERDRAIN SYSTEM SUMP
- LEAK DETECTION SYSTEM SUMP
- LEACHATE COLLECTION SYSTEM SUMP
- TRANSECT

**TRANSECT LABELING**

- E EAST PLANT COVER
- V VEGETATIVE COVER
- A ASPHALT COVER
- W WEST PLANT COVER
- S SWALE

**SCALE VERIFICATION**

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

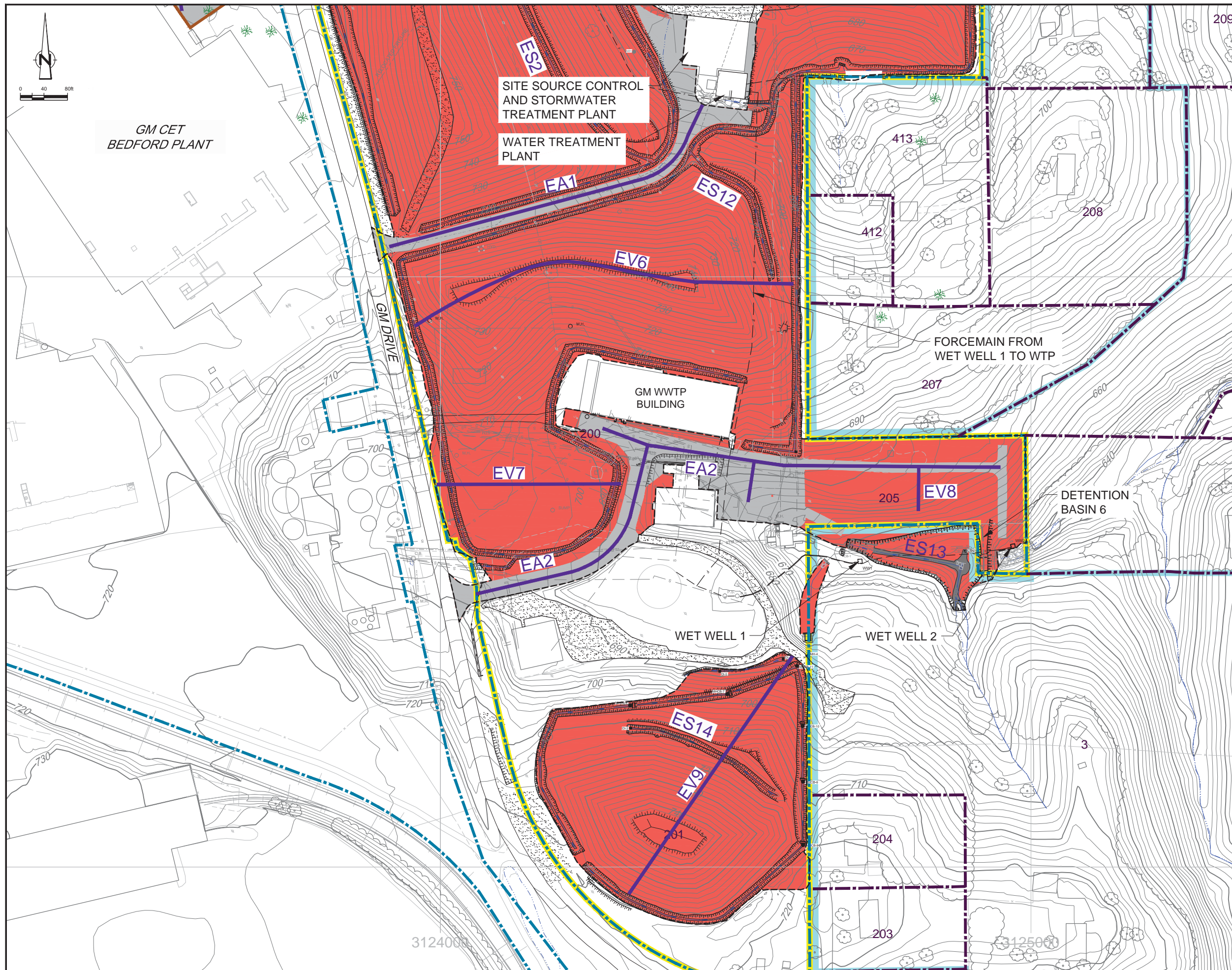
**GM CET BEDFORD FACILITY  
BEDFORD, INDIANA**

**INTERIM OPERATIONS, MAINTENANCE AND MONITORING PLAN  
EAST PLANT COVER SYSTEM  
EAST PLANT COVER SYSTEM INSPECTIONS  
NORTHERN SECTION AND WEST PLANT  
COVER SYSTEM INSPECTIONS**



Source Reference: BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001 AND CRA SURVEYS 2002 TO 2008			
Project Manager: J.M.	Reviewed By: P.G.	Date: October 2016	
Scale: 1:80	Project N <sup>o</sup> : 13968-00	Report N <sup>o</sup> : 402	Drawing N <sup>o</sup> : figure D.1





**LEGEND**

- 810 — EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- ☁ EXISTING VEGETATION
- ▭ EXISTING BUILDINGS
- - - EXISTING FENCE LINE
- +—+—+— EXISTING RAILROAD TRACKS
- - - - EXISTING DIRT ROADS
- +—+—+— EXISTING ROADS / PAVED AREAS
- - - E EXISTING ELECTRICAL POWER LINE
- - - F EXISTING FORCEMAIN TO TREATMENT FACILITY
- - - OE EXISTING OVERHEAD ELECTRICAL POWER LINE
- - - - - APPROXIMATE SURFACE WATER LOCATION
- +—+—+— (Blue) APPROXIMATE GM PROPERTY BOUNDARY
- +—+—+— (Purple) APPROXIMATE PROPERTY BOUNDARY
- STM — EXISTING STORM SEWER
- (Red) WEST PLANT COVER LIMIT
- (Green) VAULT LIMIT
- - - - - EAST PLANT COVER LIMIT
- - - - - DRAINAGE DITCH
- ▨ ASPHALT PAVEMENT AREA
- (Blue) LOW FLOW CHANNEL
- ▨ (Yellow) EAST PLANT AREA
- ▨ (Light Blue) GM LLC OWNED RESIDENTIAL
- ▨ (Red) EAST PLANT COVER SYSTEM
- ▨ (Green) FINAL VAULT COVER SYSTEM AT SURFACE
- ▨ (Light Green) FINAL VAULT COVER SYSTEM BURIED BY EAST PLANT AREA COVER SYSTEM
- ▨ (Stippled) GRAVEL BED
- ▨ (Dotted) PAVED COVER SURFACE
- - - - - PROPOSED PILOT TRENCH
- GUS VAULT GROUNDWATER UNDERDRAIN SYSTEM SUMP
- LDS LEAK DETECTION SYSTEM SUMP
- LCS LEACHATE COLLECTION SYSTEM SUMP
- (Purple) TRANSECT

**TRANSECT LABELING**

- E EAST PLANT COVER
- V VEGETATIVE COVER
- A ASPHALT COVER
- W WEST PLANT COVER
- S SWALE

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

**GM CET BEDFORD FACILITY  
 BEDFORD, INDIANA**

INTERIM OPERATIONS, MAINTENANCE AND MONITORING PLAN  
 EAST PLANT COVER SYSTEM

**EAST PLANT COVER SYSTEM INSPECTIONS  
 SOUTHERN SECTION**

**GHD**

Source Reference:  
 BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001  
 AND CRA SURVEYS 2002 TO 2008

Project Manager: J.M.	Reviewed By: P.G.	Date: October 2016
Scale: 1:80	Project N°: 13968-00	Report N°: 402
		Drawing N°: figure D.2





Photo 1: EV2 Drainage along ES6 facing west



## Cover System Inspection First Quarter 2018





Photo 2: EV3 East Plant Cover facing south toward pond



## Cover System Inspection First Quarter 2018





Photo 3: Vegetation at ES1 facing north



## Cover System Inspection First Quarter 2018





Photo 4: EV3 East Plant Cover area facing west



## Cover System Inspection First Quarter 2018





Photo 5: ES2 East Plant Area Cover facing north



## Cover System Inspection First Quarter 2018



Photo 6: EV2 East Plant Cover area facing south



## Cover System Inspection First Quarter 2018





Photo 7: Drainage at ES6 facing west



## Cover System Inspection First Quarter 2018





Photo 8: Vegetation along EV5 East Plant Area Cover facing west



## Cover System Inspection First Quarter 2018





Photo 9: Stormwater pond facing northwest



## Cover System Inspection First Quarter 2018





Photo 10: EV1 near ES2 East Plant Area Cover facing northwest



## Cover System Inspection First Quarter 2018





Photo 11:       Vegetation at EV8 East Plant Cover area facing north



## Cover System Inspection First Quarter 2018





Photo 12: Vegetative growth along EV5 East Plant Area facing east



## Cover System Inspection First Quarter 2018





Photo 13: Vegetation growth at ES12 East Plant Area Cover facing northwest



## Cover System Inspection First Quarter 2018





Photo 14: EV7 East Plant Cover facing southwest



## Cover System Inspection First Quarter 2018





Photo 15: EV6 East Plant Area Cover area facing south



## Cover System Inspection First Quarter 2018





Photo 16: ES12 East Plant Area Cover facing north



## Cover System Inspection First Quarter 2018





Photo 17: EV9 East Plant Area Cover facing southwest



## Cover System Inspection First Quarter 2018





Photo 18: ES14 East Plant Area Cover facing east



## Cover System Inspection First Quarter 2018