



**Global Environmental
Compliance & Sustainability**

April 15, 2015

Reference No. 013968

Mr. Peter Ramanauskas
Project Manager for IND 0060306099
Waste, Pesticide and Toxins Division
U.S. EPA Region 5
77 West Jackson Blvd. (DW-8J)
Chicago, IL 60604-3590

Dear Mr. Ramanauskas:

Re: RCRA Corrective Action Administrative Order on Consent (AOC)
Progress Report 56, First Quarter 2015
GM CET – Bedford Facility, IND 006036099, Docket No. RCRA-05-2014-0011
Bedford, Indiana

Please find enclosed the Progress Report 56 (First Quarter 2015) for the Resource Conservation and Recovery Act (RCRA) Corrective Action (CA) project at the GM Castings, Engines, and Transmissions (CET; formerly Powertrain) Bedford Facility (Facility) at 105 GM Drive 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 2015 will be submitted on or before July 15, 2015.

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

Yours truly,

General Motors LLC

Cheryl R. Hiatt
Project Manager

PG/jdh/154/SS
Encl.

c.c.: See Attached Distribution List

Mr. Ramanauskas
April 15, 2015

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GM Bedford Distribution List

Peter Ramanauskas	U.S. EPA, Region 5
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James McGuigan	CRA Project Manager
Bill Steinmann	CRA Project Geologist
Katie Kamm	CRA Oversight Engineer
Stephen Song	ENVIRON International Corporation, Inc.



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RCRA Facility Investigation and CERCLA Removal Action

Progress Report 56 First Quarter 2015

GM CET – Bedford Facility
105 GM Drive
Bedford, Indiana

EPA ID# IND006036099
AOC Docket No. RCRA-05-2014-0011

Prepared for: GM LLC

Conestoga-Rovers & Associates

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**Progress Report
Distribution List**

U.S. EPA - Waste, Pesticide and Toxins Division, Project Manager	Peter Ramanauskas (via e-mail)
U.S. EPA – Emergency Response Branch, On-Scene Coordinator	Brad Stimple
Indiana Department of Environmental Management	Gerald O'Callaghan (via e-mail)
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CRA, Project Coordinator	James McGuigan (via e-mail)
CRA, Project Geologist	Bill Steinmann (via e-mail)
CRA, Oversight Engineer	Katie Kamm (via e-mail)
ENVIRON	Steve Song (via e-mail)

Section 1.0 Introduction

This Progress Report is submitted by General Motors LLC (GM) in accordance with the GM Bedford Castings, Engines, Transmissions (CET) Facility Resource Conservation and Recovery Act 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 first calendar quarter of 2015 for the RCRA Corrective Action (CA) Project at the GM Castings, Engines, and Transmissions (CET; formerly Powertrain) – Bedford Facility (Facility) and select surrounding properties (Site), Bedford, Indiana.

The next RCRA progress report covering the second quarter of 2015 will be submitted on or before July 15, 2015.

Section 2.0 List of Completed Activities

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

- Maintenance of storm water and erosion controls continued on an as-needed basis.
- Results for samples collected from Spring 018 during the quarter are presented in Table 2.1. Sample results for the monthly sampling were previously emailed to U.S. EPA and IDEM as they became available. As of the March 2015 sampling, the 12-month rolling average concentration of PCBs in the Spring 018 discharge is 0.16 micrograms per liter ($\mu\text{g/L}$). Regular monthly sampling was conducted on January 14, February 11 and March 11, 2015. An opportunistic sample was collected on March 15, 2015 following a rain event of greater than 1 inch in 24-hours.
- The 300 gpm design capacity (Site Source Control [SSC]) and 2,000 gpm design capacity water treatment plants (WTPs) collected and treated 2,340,000 gallons of water this past quarter. A summary of the volumes and sample results used for this calculation is provided in Table 2.2. An estimated 0.19 pounds of PCBs were removed during the first quarter of 2015 through collection and treatment of the groundwater.
- Concrete filling of Pool #2 upstream of the confluence with Tributary 3 and Spring 018 is delayed pending the issuance of a CERCLA Administrative Order on Consent (CERCLA AOC) being prepared to allow GM LLC to conduct remaining creek work in the Spring 018 area. Following the amendment, the filling will be scheduled as the weather allows.
- The first quarter 2015 EI CA750 monitoring of static groundwater levels was conducted on February 5-6, 2015.

- The Second Half 2014 EI CA750 Sampling Memo was submitted to the U.S. EPA and IDEM on January 22, 2015.
 - U.S. EPA emailed comments on the sampling memo on February 25, 2015.
 - MW-X085070S-2 was re-sampled on March 5, 2015.
 - Responses to U.S. EPA comments will be submitted in the second quarter.
- GM and CRA chemists continue to review the surrogate recovery issues with the laboratory. A technical summary of the issue, including corrective measures to address the issue in the future, was submitted January 22, 2015.
 - U.S. EPA provided comments on the laboratory memo on February 25, 2015 and a discussion between U.S. EPA and GM and CRA occurred on March 25, 2015.
 - Further information will be provided to the U.S. EPA to respond to these comments in the second quarter 2015.
- Formal monitoring of the East Plant, West Plant and Vault cover systems were completed in March 2015. A summary of the results are presented in Section 8.
- U.S. EPA provided additional comments on the 2012 Annual Vault Report, the Vault Post-Closure Plan and the Vault Construction Certification Report on November 25, 2014.
 - Responses were submitted to the U.S. EPA on April 1, 2015.
- A memorandum summarizing the work plan for additional surficial sampling in previously unsampled areas that are not covered with a barrier was submitted to the U.S. EPA on October 31, 2014.
 - U.S. EPA emailed comments on the work plan on December 5, 2014.
 - Responses to U.S. EPA emailed comments were submitted on January 23, 2015.
 - U.S. EPA emailed comments on the response to comments January 27, 2015.
 - A call between U.S. EPA and GM was conducted on March 25, 2015 to discuss the comments and proposed responses.
 - GM submitted responses to comments on March 30, 2015.
- The East Plant Construction Certification Report, including OMM activities, was submitted to the U.S. EPA and IDEM on March 2, 2015.
- The Construction Certification Report for the West Plant Area Interim Measures (IMs) was submitted to the U.S. EPA and IDEM on November 12, 2014.
 - U.S. EPA emailed comments on the Report on January 27, 2015.
 - GM submitted responses to comments on March 26, 2015.

- The Pilot Perimeter Groundwater Collection Trench Study was submitted to the U.S. EPA and IDEM on December 2, 2014.
 - U.S. EPA emailed comments on the Study on January 30, 2015.
 - GM submitted responses to comments on March 31, 2015.
- The AOI 8 Groundwater Source Collection System Interim Measure was submitted to the U.S. EPA and IDEM on December 31, 2014.
 - U.S. EPA emailed comments on the report on March 11, 2015.
 - CRA is currently working on the response to comments.
- A conference call was held on March 25 to discuss proposed revisions to the Parcel 400, 430 and 431 sampling plan. U.S. EPA provided comments on the sampling locations on March 25, 2015.
- Conference calls were held with U.S. EPA and IDEM on January 9 and 22, February 9 and 19, and March 10 and 26, 2015, to discuss items related to the project.
- On-Site construction meetings for the reporting period have been held informally daily and formally as needed. Formal SES construction meetings are no longer being held following SES demobilization from the Site in December 2014.
- The RCRA/CERCLA Quarterly Progress Report #55, covering the fourth quarter of 2014, was submitted to the U.S. EPA and IDEM on January 14, 2015.

Section 3.0 Summaries of all Problems and Planned Resolutions

- There were no problems this quarter.

Section 4.0 Summaries of all Changes Made in the Corrective Action (CA) During the Reporting Period

- Submittal of the East Plant Construction Certification Report, including OMM activities, on March 2, 2015

Section 5.0 Community Relations

The telephone number for public contact is 812-277-8956 (Katie Kamm, Conestoga-Rovers & Associates [CRA]). Individual meetings can be arranged to discuss project progress with residents as requested.

Community Liaison Panel (CLP) and public meetings were held at the CRA trailers to update the CLP and public on the status of the clean-up efforts on December 10, 2014. The next neighborhood/public meeting and CLP meetings are tentatively scheduled for June 2015. Presentations for past meetings are posted on the GM website at: 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. All data located in the Library repository can also be found on the aforementioned website.

Section 6.0 Changes in Personnel During the Reporting Period

Oversight personnel for CRA remain unchanged. The final demobilization of SES's WTP was completed as of end of December 2014.

Section 7.0 Projected Work For The Next Reporting Period

Work anticipated for the next reporting period includes:

- Response to U.S. EPA comments on the Unsampled Areas Soil Sampling Work Plan. Upon U.S. EPA concurrence with the Work Plan, GM will perform the additional on-site soil sampling within the unsampled areas and report results to U.S. EPA.
- Response to U.S. EPA comments received for the AOI 8 Groundwater Source Collection System IM.
- Response to U.S. EPA comments received for the laboratory technical memo received on February 25, 2015.
- Re-submittal of the following after response to comments are approved by the U.S. EPA:
 - 2012 Annual Vault Report
 - Vault Post-Closure Plan
 - Vault Construction Certification Report
 - Unsampled Areas Soil Sampling Work Plan
 - Construction Certification Report for the West Plant Area IM
 - Pilot Perimeter Groundwater Collection Trench Study
 - AOI 8 Groundwater Source Collection System IM

- Parcel 400 sampling plan was approved with modifications by the U.S. EPA. Implementation of the sampling plan is expected to commence in second quarter 2015.
- Continuance of monitoring Spring 018 on a monthly basis.
- Conductance of groundwater monitoring and sampling activities related to the EI CA750 in May 2015.
- Submittal of the EI CA750 First Half 2015 Results Memorandum.
- Completion of the second quarter EI CA750 groundwater level statics.
- Finalization of the proposed CERCLA Administrative Order on Consent for Removal Action.
- Annual meeting with U.S. EPA and GM in Bedford on April 28.
- A public meeting and Community Liaison Panel (CLP) meeting held in June 2015 on a date to be determined.
- Fact Sheet #40 will be published in June 2015.

The following documents will be submitted in accordance with the schedule set out by the RCRA AOC:

- Vault 2014 Annual Report, due July 1, 2015.

Section 8.0 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 site source control systems for the past 12 months.

Appendix A includes the monitoring forms for the cover systems and photographs. A summary of the findings follows.

1. In the exterior ditch, adjacent to wooded areas (south side of Parcel 201 and the east side of the cover system along Parcels 208, 412 and 413), we noted some saplings starting to grow. The saplings will be pulled to the extent possible after the ground has softened. Saplings that cannot be pulled will be cut.
2. One other sapling was encountered during the walking of the rest of the cover system (already pulled).
3. Numerous mole holes were identified on the west and north side of the east plant cover system. Moles typically burrow 8-12 inches, however, they tend to damage root growth in their quest for grubs. CRA will confirm with the liner companies to see if there is any

- concern for damage to the geonet drainage layer. In the meantime, an exterminator for the grubs has been contacted to assess removal of the moles food source (the grubs).
4. There are some erosion ruts along the east side of GM Drive, outside the cover system area. This does not appear to be due to any on-Site RCRA activities, but could have an impact on the liner system in the ditch and so will be addressed.
 5. Cracks are present along the seams in the asphalt cover system. The cracks do not extend the full depth of the asphalt thickness. O'Mara Paving has been contacted to discuss options to fill the cracks.
 6. Historically the north side of the landfill and the east side of the landfill (where it faces the storm pond) have been difficult to grow grass and were the last areas seeded. These areas are now filling in, but not as rapidly the other areas. It may be beneficial to kick-start the growth by overseeding the area (hand-seed). Erosion was not observed.
 7. During the inspection it was noted that the velocity of the water coming from Detention Basin 1 (DB1) into DB2 has at times been strong enough to displace the riprap at the point the water enters the basin, exposing about a 5 foot length of the channel, including the underlying liner. The riprap will be replaced with larger diameter stone as used in DB1.
 8. Some of the catch basins in the detention basins were covered with dead grasses. These were not enough to impede normal flow, however, the debris was cleared during the inspection.
 9. The Facility repaired two fire hydrants along the far west side of the paved West Plant cover system. The Facility's contractor excavated the soils surrounding the hydrant, repaired the hydrant, backfilled, and SES/O'Mara Paving made the necessary repairs to the asphalt. There are signs of settlement under the repaved area as the new asphalt has sunk. O'Mara Paving will look at this area for recommended repairs.

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 - JANUARY/FEBRUARY/MARCH 2015
GM CET BEDFORD FACILITY
BEDFORD, INDIANA**

Area:		P015	P015	P015	P015	P015
Sample Location:		Spring 018C	Spring 018C	Spring 018C	Spring 018C	Spring 018C
Sample Identification:		SW-015-011415-GS-400067	SW-015-021115-GS-40070	SW-015-021115-GS-40071	SW-015-031115-GS-40227	SW-015-031515-GS-40229
Sample Date:		1/14/2015	2/11/2015	2/11/2015	3/11/2015	3/15/2015
	Units			Duplicate		
PCBs						
Aroclor-1016 (PCB-1016)	µg/L	0.19 U	0.19 U	0.20 U	0.19 U	0.19 U
Aroclor-1221 (PCB-1221)	µg/L	0.19 U	0.19 U	0.20 U	0.19 U	0.19 U
Aroclor-1232 (PCB-1232)	µg/L	0.19 U	0.19 U	0.20 U	0.19 U	0.19 U
Aroclor-1242 (PCB-1242)	µg/L	0.19 U	0.19 U	0.20 U	0.19 U	0.19 U
Aroclor-1248 (PCB-1248)	µg/L	0.19 U	0.19 U	0.20 U	0.19 U	0.19 U
Aroclor-1254 (PCB-1254)	µg/L	0.19 U	0.19 UJ	0.20 UJ	0.19 U	0.19 U
Aroclor-1260 (PCB-1260)	µg/L	0.19 U	0.19 UJ	0.20 UJ	0.19 U	0.19 U
Total PCBs	µg/L	ND	ND	ND	ND	ND
General Chemistry						
Total suspended solids (TSS)	µg/L	4400	2000 U	2000 U	5800	4600

Notes:

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Twelve month average as of March 2015 - 0.16 µg/L PCBs

TABLE 2.2

**300 GPM DESIGN CAPACITY WATER TREATMENT SYSTEM PCB MASS REMOVAL ESTIMATE
GM BEDFORD CET FACILITY
BEDFORD, INDIANA**

	<i>Estimated 300 gpm Design Capacity System Treated Volume ⁽¹⁾ (gallon)</i>	<i>300 gpm Design Capacity System Treated Volume (gallon)</i>	<i>Estimated PCB Influent Concentration ⁽²⁾ (µg/L)</i>	<i>PCB Influent Concentration (µg/L)</i>	<i>Mass PCB Treated (pound)</i>
January 2014	1,394,952	--	5	--	0.055
February 2014	1,392,062	--	5	--	0.055
March 2014	2,150,655	--	5	--	0.084
April 2014	1,735,126	292,720	--	3.1	0.052
May 2014	--	2,020,660	--	2.6	0.044
June 2014	--	1,614,800	--	7.1	0.096
July 2014	--	440,460	--	4.4	0.016
August 2014	--	791,734	--	3.7	0.024
September 2014	--	1,068,718	--	2.4	0.021
October 2014	--	1,359,936	--	4.9	0.056
November 2014	--	1,198,730	--	3.5	0.04
December 2014	--	2,340,508	--	1.6	0.031
January 2015	--	1,439,400	--	1	0.012
February 2015	--	464,672	--	7.8	0.030
March 2015	--	3,193,494	--	5.7	0.152
Total Estimated Volume of Water Treated, First Quarter 2015		5,097,566	gallons		
Total Estimated Mass of PCB Treated, First Quarter 2015		0.19	pounds		
Total Estimated Mass of PCB Treated, Since April 2014		0.57			

Notes:

⁽¹⁾ The groundwater treatment system was down from Oct. 2013-April 2014. During this time, groundwater was redirected to the storm water pond. Estimated treated volumes are estimated based on the treated volumes for the corresponding month for years 2008 - 2013.

⁽²⁾ Estimated PCB influent concentration calculated based on the average influent concentration for years 2008-2014

Appendix A

First Quarter 2015 Cover System Inspection: Field Logs, Transect Figures and Photograph Log

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

Date of Inspection: March 12, 2015 Weather: Overcast, 45°F
 Inspector: G. Seng, K. Krumm

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
VEGETATED SOIL COVER					
Transect EV1	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok			
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	ok			
	- ROOTING OF TREES	ok			
Transect EV2	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok			
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	ok			
	- ROOTING OF TREES	ok			

* New grass had not started to grow much at the time of the inspection

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>Transect EV3</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok		* grass appears thin - check on new growth in June 2015	
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	mole		contact liner company about impact	
	- ROOTING OF TREES	ok			
<u>Transect EV4</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok		check sporadic growth in June 2015	
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	mole		check w/ liner co. about impact	
	- ROOTING OF TREES	ok			

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
Transect EV5	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok		Sparse growth on "pond side" - check on growth in June 2015	
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	no holes			
	- ROOTING OF TREES	ok			
Transect EV6 8	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok			
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	ok			
	- ROOTING OF TREES	ok			

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>Transect EV7</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok			
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	ok			
	- ROOTING OF TREES	ok			
<u>Transect EV6</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok			
	- EXPOSURE OF LINER	ok			
	- EROSION *	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	noles		check w/ liner co.	
	- ROOTING OF TREES	ok			

* erosion along ^{GM} powerpoles, outside the cap limits,
 ~ across the street from the substation

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>Transect EV9</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok			
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	ok			
	- ROOTING OF TREES *		ditch	pull up trees/saplings	by April 2014
<u>Transect EV10</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS				
	- EXPOSURE OF LINER				
	- EROSION				
	- LOCALIZED SETTLEMENT/SLUMPING				
	- PONDING OF WATER/DRAINAGE				
	- SIGNS OF BURROWING BY ANIMALS				
	- ROOTING OF TREES				

* ~~these~~ saplings present in the outside berm at the top of the ~~landfill~~^{cover} where the cover is adjacent to wooded areas

TABLE D.1

EAST PLANT COVER INSPECTION LOG
EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
GM CETC BEDFORD FACILITY
BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>Transect WV1</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	ok			
	- EXPOSURE OF LINER	ok			
	- EROSION	ok			
	- LOCALIZED SETTLEMENT/SLUMPING	ok			
	- PONDING OF WATER/DRAINAGE	ok			
	- SIGNS OF BURROWING BY ANIMALS	ok			
	- ROOTING OF TREES	ok			
ASPHALT COVER					
<u>Transect EA1</u>	- QUALITY OF ASPHALT COVER	ok			
	- PRESENCE OF CRACKING OR DISCOLORATION	ok			
<u>Transect EA2</u>	- QUALITY OF ASPHALT COVER	ok			
	- PRESENCE OF CRACKING OR DISCOLORATION		cracking noted	contact paving co. & get cost to fill crack	
<u>Transect WA1</u>	- QUALITY OF ASPHALT COVER	ok			
	- PRESENCE OF CRACKING OR DISCOLORATION		cracking	contact paving co. & get cost to fill cracks	
ACCESS ROAD					
<u>ACCESS ROAD</u>	- EROSION	ok			
	- OBSTRUCTIONS/DEBRIS	ok			
	- POTHOLES	ok			
	- DAMAGE CAUSED BY VEHICULAR TRAFFIC	ok			
<p style="text-align: center;">some settling - see if anything can be done about the settlement</p>					

* road showing signs of washboarding, may need to regrade in the future

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
SWALE/DRAINAGE DITCH					
Transect ES1	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	dh			
	- EROSION	dh			
	- OBSTRUCTIONS	dh			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION		debris	debris removed during inspection	
	- SIGNS OF BURROWING BY ANIMALS	dh dh			
	- ROOTING OF TREES				
Transect ES2	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	dh			
	- EROSION	dh			
	- OBSTRUCTIONS	dh			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	dh			
	- SIGNS OF BURROWING BY ANIMALS	dh dh			
	- ROOTING OF TREES				

Generally, the grass seems to be slow in growing through the erosion control matting - but it is growing + doesn't show erosion issues

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>Transect ES3</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	de			
	- EROSION	de			
	- OBSTRUCTIONS	de			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	de			
	- SIGNS OF BURROWING BY ANIMALS	de			
	- ROOTING OF TREES	de			
<u>Transect ES4</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	de			
	- EROSION	de			
	- OBSTRUCTIONS	de			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	de			
	- SIGNS OF BURROWING BY ANIMALS	de			
	- ROOTING OF TREES	de			
<u>Transect ES5</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	de			
	- EROSION	de			
	- OBSTRUCTIONS	de			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	de			
	- SIGNS OF BURROWING BY ANIMALS	de			
	- ROOTING OF TREES	de			

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>Transect ES6</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	de			
	- EROSION	de			
	- OBSTRUCTIONS	de			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	de			
	- SIGNS OF BURROWING BY ANIMALS	de			
	- ROOTING OF TREES	de			
<u>Transect ES7</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	de			
	- EROSION	de			
	- OBSTRUCTIONS	de			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	de			
	- SIGNS OF BURROWING BY ANIMALS	de			
	- ROOTING OF TREES	de			
<u>Transect ES8</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	de			
	- EROSION	de			
	- OBSTRUCTIONS	de			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	de			
	- SIGNS OF BURROWING BY ANIMALS	de			
	- ROOTING OF TREES	de			

TABLE D.1

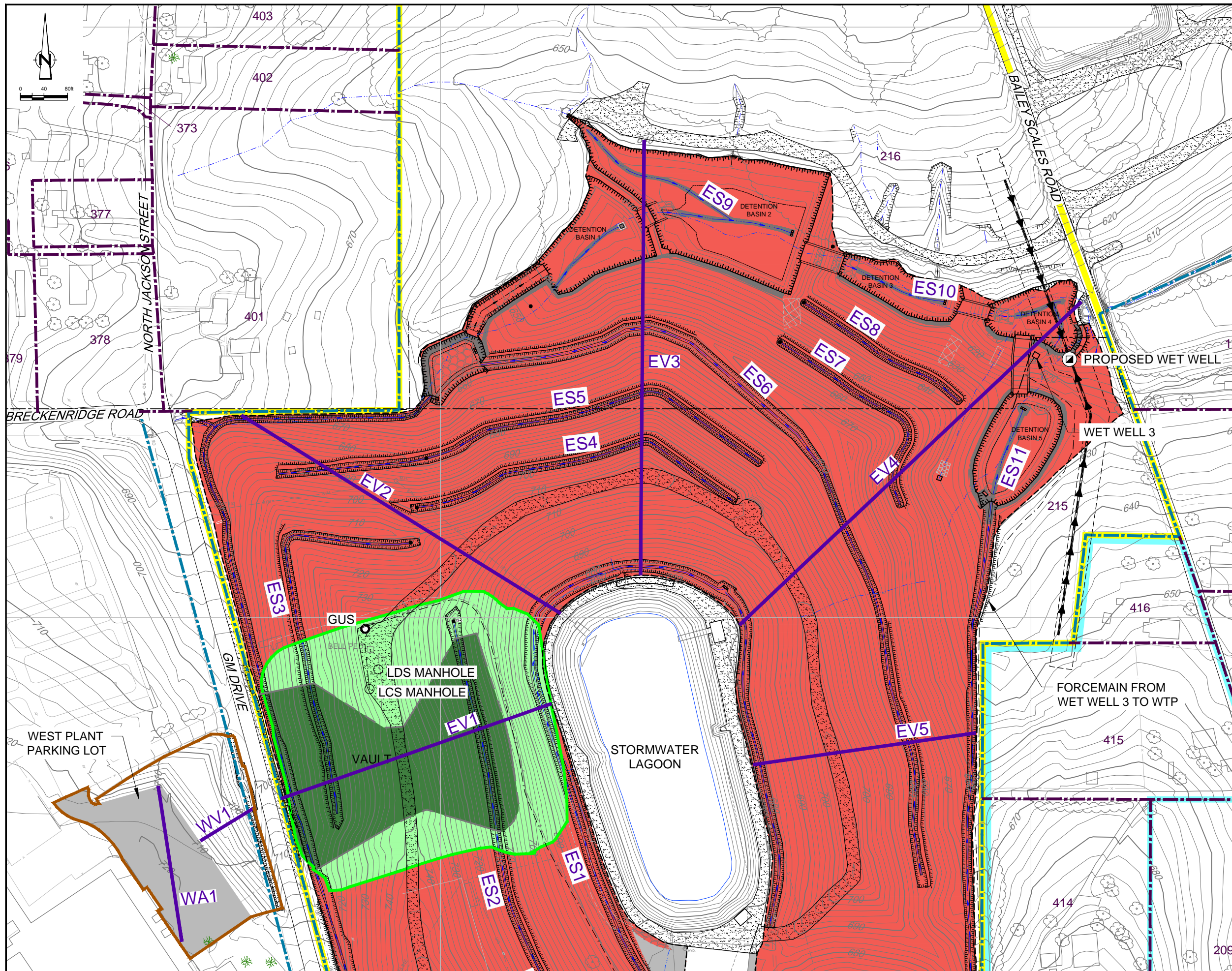
EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>Transect ES9</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION			rip rap washed out have SES get \$ to repair w/ bigger rip rap	need to wait until spring rain ceases so it is dry when doing the repair
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect ES10</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION			debris in catch basin removed debris at time of inspection	
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect ES11</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			

TABLE D.1

EAST PLANT COVER INSPECTION LOG
 EAST PLANT COVER SYSTEM CONSTRUCTION CERTIFICATION REPORT
 GM CETC BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>Transect ES12</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	dk			
	- EROSION	dk			
	- OBSTRUCTIONS	dk			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	dk			
	- SIGNS OF BURROWING BY ANIMALS	dk			
	- ROOTING OF TREES	dk			
<u>Transect ES13</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	dk			
	- EROSION	dk			
	- OBSTRUCTIONS	dk			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	dk			
	- SIGNS OF BURROWING BY ANIMALS	dk			
	- ROOTING OF TREES			trees removed during inspection	
<u>Transect ES14</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	dk			
	- EROSION	dk			
	- OBSTRUCTIONS	dk			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	dk			
	- SIGNS OF BURROWING BY ANIMALS	dk			
	- ROOTING OF TREES	dk			



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.

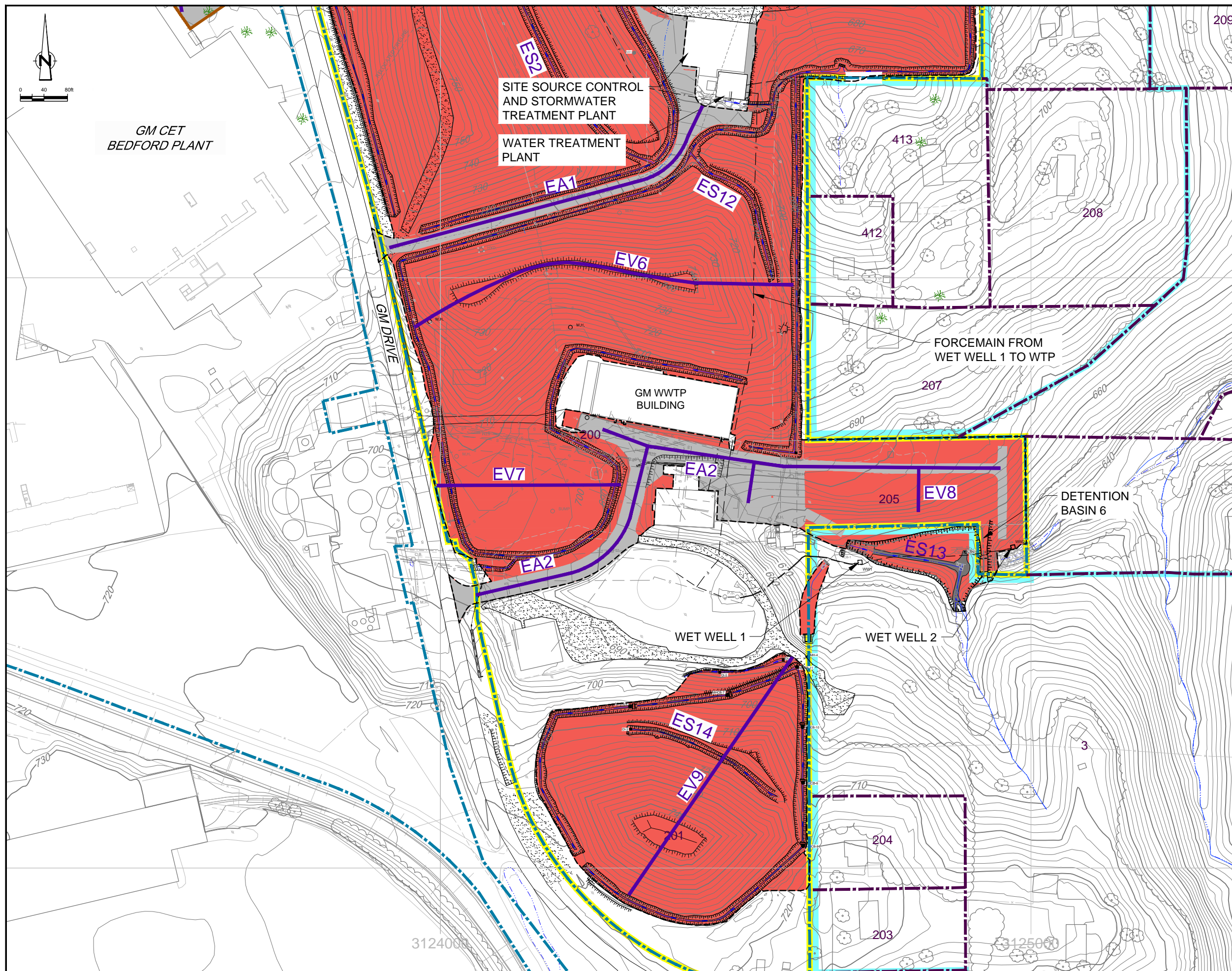
**GM CET BEDFORD FACILITY
BEDFORD, INDIANA**

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: FEBRUARY 2015
Scale: 1:80	Project N ^o : 13968-00	Report N ^o : 350 Drawing N ^o : figure D.1



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
SOUTHERN SECTION**

CRA CONESTOGA-ROVERS & ASSOCIATES

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: FEBRUARY 2015
Scale: 1:80	Project N°: 13968-00	Report N°: 350
		Drawing N°: figure D.2



Photo 1: EV1 Vault cover facing northwest



Photo 2: EV1 Vault cover (and East Plant Area cover beyond) facing southeast

COVER SYSTEM INSPECTION 1st QUARTER 2015
GM CET BEDFORD FACILITY
BEDFORD, INDIANA



Photo 3: EV2 East Plant Area cover facing northwest



Photo 4: EV3 East Plant Area cover facing south

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Photo 5: EV3 facing south



Photo 6: EV4 facing northeast

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Photo 7: EV5 facing northeast



Photo 8: EV6 facing east

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Photo 9: EV6 erosion rut outside cap limit



Photo 10: EV7 facing west

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Photo 11: EV8 facing south

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Photo 12: EV9 facing northwest

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Photo 13: EV9 Parcel 201 sapling removal



Photo 14: EV9 Parcel 201 facing northwest

COVER SYSTEM INSPECTION 1st QUARTER 2015
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Photo 15: EV9 facing south



Photo 16: EV9

COVER SYSTEM INSPECTION 1st QUARTER 2015
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Photo 17: ES1 facing north along ditch around stormwater pond



Photo 18: ES5 drainage swale on north cover facing west

COVER SYSTEM INSPECTION 1st QUARTER 2015
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BEDFORD, INDIANA



Photo 19: ES6 drainage swale on north cover facing north



Photo 20: ES6 drainage swale on east cover facing southeast

COVER SYSTEM INSPECTION 1st QUARTER 2015
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BEDFORD, INDIANA



Photo 21: ES7 north cover facing east



Photo 22: EV9 rip rap erosion at storm drain into detention basin #2 facing north

COVER SYSTEM INSPECTION 1st QUARTER 2015
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Photo 23: ES10 channel through detention basin #3 facing east



Photo 24: ES11 detention basin #5 facing north

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Photo 25: EA2 crack near WWTP aeration basin facing north

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Photo 26: EA2 facing east, cracks in asphalt west of Parcel 205



Photo 27: WV1 facing northeast

COVER SYSTEM INSPECTION 1st QUARTER 2015
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BEDFORD, INDIANA



Photo 28: WA West Plant fire hydrant repair asphalt patch 1



Photo 29: WA West Plant fire hydrant repair asphalt patch 2

COVER SYSTEM INSPECTION 1st QUARTER 2015
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Photo 30: WA surficial asphalt crack facing east

COVER SYSTEM INSPECTION 1st QUARTER 2015
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BEDFORD, INDIANA



Photo 31: WA asphalt gouge in parking spot



Photo 32: WA damaged asphalt surface near catch basin

COVER SYSTEM INSPECTION 1st QUARTER 2015
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