



January 14, 2020

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

Dear Mr. Ramanauskas:

Re: RCRA Corrective Action Administrative Order on Consent (AOC)
Progress Report 75, Fourth Quarter 2019
GM GPS – Bedford Facility, ID 006036099, Docket No. RCRA 05 2017 0011
Bedford, Indiana

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 2019 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 first quarter of 2020 will be submitted on or before April 15, 2020.

1. List of Completed Activities

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

1. The Groundwater Treatment Plant (GWTP) collected and treated approximately 6,181,006 gallons of water from the Pilot Trench, Vault sumps, and wet wells during the third quarter of 2019. An estimated 0.09 pounds of PCBs were removed during the quarter through collection and treatment of the groundwater. A summary of the volumes and sample results used for this calculation is provided in Table 1. Monthly discharge monitoring reports have been submitted to the State of Indiana in conformance with the National Pollutant Discharge Elimination System (NPDES) Permit Number IN0064424.
2. Table 2 summarizes oil removal volumes (based on disposal weights) from the AOI-8 area.
 - An estimated 19.81 pounds of PCBs have been removed from CH-5A since January 2019.
 - Collection from MW- X209Y053 began on March 25, 2019. Approximately 3.05 gallons of oil and an estimated 0.41 pounds of PCBs have been removed since. During sock retrieval from MW-X209Y053 in December 2019, field personnel noted that the sock was



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not in the cage. The sock is thought to have floated out of the cage, then sank to the bottom of the well. A new absorbent sock was placed on December 17, 2019. Additional equipment will be brought to the site in January 2020 to attempt to retrieve the sock, presumably at the bottom of the well.

- Oil collection from CH-2A (solar sipper) is on-going. Routine maintenance activities at the end of August discovered a bad solenoid. On November 20, 2019 the solenoid was replaced, however an error message has pronounced the system out of order. GHD is working with the solar sipper manufacturer to have a technicians on-Site troubleshoot the issue.
 - Monitoring at CAMW-2 showed three distinct layers, LNAPL, water and DNAPL. Layers were sampled and analyzed for waste characterization. LNAPL and DNAPL layers contained 160,000 ppm and 310,000 ppm PCBs, respectively. Insufficient sample volumes has delayed characterization of the water layer, samples will be retaken and analyzed within the first quarter of 2020.
3. Solids (PPE, spent absorbent socks) from the AOI-8 oil collection process was sent for disposal on October 4, 2019.
 4. RCRA Quarterly Progress Report #74, covering the third quarter of 2019, was submitted to the U.S. EPA and IDEM on October 15, 2019.
 5. GM requested U.S. EPA approval to reduce the frequency of regularly scheduled public meetings from semi-annual to annual. U.S. EPA approved this request on November 1, 2019.
 6. Repairs to the sewer broken during the clarifier area well installation were completed on November 7, 2019.
 7. Updated annual costs estimate for Financial Assurance was submitted to U.S EPA on November 11, 2019. Comments from USEPA were addressed on November 15, 2019 and U.S. EPA returned approval of the response on the same day.
 8. Quarterly EI CA750 static groundwater monitoring and the second half of EI CA750 sampling was completed during the week of November 18, 2019.
 9. Semi-annual monitoring of the East Plant, West Plant and Vault cover systems for the second half of 2019 was completed on November 20, 2019. Photographic log and inspection sheets of the inspection are in Appendix A.
 10. Severson completed repairs to the West Plant Parking lot asphalt on November 22, 2019. The asphalt has developed a dip due to gravel washout from a leaking fire hydrant (previously repaired). Structural foam was injected in the void space and the asphalt surface was raised to match the surrounding grade.
 11. GM requested U.S.EPA approval to abandon monitoring well MW-X165Y068 on November 22, 2019. The well currently overlaps the area of a proposed truck scale location in which there is little flexibility for avoidance of the well. U.S.EPA approved the request on November 27, 2019.
 12. During the week of December 16, 2019, GM cleaned the exterior tanks for the GWTP in order to facilitate installation of the floating cover system.
 13. On December 19, 2019, GHD conducted a video inspection of a 3-inch pipe within the GUS sump to determine if the location would be feasible for installation of a pump.
 14. The East Plant Area Vault Annual Report covering the Calendar Year of 2018 was submitted to U.S. EPA on June 11, 2019. On July 18, 2019, U.S. EPA asked a question related to the reported LCS sump operation. As noted during the August 2019 monthly conference call, the



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operator noted that no samples were collected because the LCS pump did not prime due insufficient water level. Follow-up found that the pump can operate in manual mode. Samples were collected on December 23, 2019.

15. The draft Pilot Trench Construction Certification Report, incorporating responses to comments, was submitted to U.S EPA on August 6, 2019. USEPA provided approval of the responses to comments by email on December 5, 2019. The final Pilot Trench Construction Report was submitted to U.S.EPA electronically on December 27, 2019.
16. Monthly conference calls/meetings were held with U.S. EPA and IDEM on October 17, November 21, and December 20, 2019 to discuss items related to the project.
17. On-site tailgate meetings for the reporting period were held daily, during field activities, to discuss safety and project scope.

Although not included in the RCRA CA activities, GM continues to work with U.S. EPA and IDEM for the prescriptive removal of PCB-impacted soil at Parcels 400, 430 and 431. The following activities took place and the following documents were prepared and distributed during this quarter related to this work:

1. The Parcel 400 property owners signed the access agreement and environmental restrictive covenant (ERC) for the remediation work to be conducted on their property on October 18, 2019.

2. Summaries of Problems and Planned Resolutions

A 3-inch galvanized pipe is located within the GUS sump and was used to mount a transducer. On December 19, 2019, a camera was inserted into the pipe. The pipe extends to the base of the sump. Due to the sediment accumulation in the base of the sump, it is unclear if there is a gap between the bottom of the sump and the pipe. Field personnel estimated an approximate 14 foot water column within the 3-inch pipe.

3. Community Relations

U.S EPA has agreed to the reduction of public meetings, therefore no meeting was conducted in December 2019. GM will continue to update the project website and will conduct public meetings on an annual basis moving forward. The next public meeting is tentatively scheduled for June 2020.

4. Changes in Personnel During the Reporting Period

There have been no changes in key project personnel during the reporting period.

5. Projected Work for the Next Reporting Period

Work anticipated for the next reporting period includes:

1. Continue OMM for the GWTP.
2. Continue GWTP discharge reporting under the NPDES permit.
3. Install floating cover system in the GWTP exterior tanks.



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4. Collect quarterly groundwater static levels.
5. Collect NAPL from the AOI-8 area wells.
6. Collect water from CAMW-2 for waste characterization.
7. Inspect and repair cover system as needed.
8. Submit summary of Thermal Study Report.
9. Prepare for and conduct the dye trace study.
10. Submit a draft Waste Management Plan to U.S. EPA for review.
11. Submit the Spring 018 Completion Report.
12. Submit the Final RCRA Facility Investigation Report.
13. Retain a remediation contractor for the removal action on Parcel 400, 430 and 431.
14. Submit a summary memorandum to report results of the video inspection of the cleanouts.
15. Obtain necessary access agreements associated with Pilot Trench Monitoring Plan and initiate field work associated with plan.
16. Conduct monthly meetings with U.S. EPA.
17. Abandon MW-X165Y068.
18. Repair the gravel access road along the east side of the East Plant Area cover system.

6. Copies of Inspection Reports and Laboratory/Monitoring Data

Analytical data have been, and will continue to be, submitted to U.S. EPA as the validated data becomes available.

Please feel free to call me at 313-506-9465 if you have any questions concerning this information or otherwise regarding the Bedford GM LLC Project.

Sincerely,



Ed Peterson
Project Manager, Eco-Restorers
GM Sustainable Workplaces

JV/aj/187

Encl.

cc: Daniel Haag; U.S. EPA
Chris Myer; IDEM
Ed Peterson; General Motors
Ryan McDuffee; General Motors
John Maher; General Motors

Katie Kamm; GHD
Julie Luzwick; GHD
Bill Steinmann; GHD
Francis Ramacciotti; GHD



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Table 1

**GWTP PCB Mass Removal Estimate
GM Bedford GPS Facility
Bedford, Indiana**

	Groundwater Treatment Plant (GWTP) Treated Volume (gallon)	PCB Influent Concentration (µg/L)	Mass PCB Treated (pound)
January 2019	5,467,881	0.71	0.032
February 2019	5,393,116	ND	0.000
March 2019	4,916,870	0.92	0.038
April 2019	5,547,708	1.5	0.069
May 2019	3,670,000	1.3	0.040
June 2019	5,542,417	1.2	0.056
July 2019	1,743,512	1.6	0.023
August 2019	930,385	1.1	0.009
September 2019	753,569	1.6	0.010
October 2019	977,000	1.5	0.012
November 2019	2,104,042	2.2	0.039
December 2019	3,099,964	1.4	0.036
Total Estimated Volume of Water Treated, Fourth Quarter 2019 (gallons)			6,181,006
Total Estimated Mass of PCB Treated, Fourth Quarter 2019 (pounds)			0.09
Total Estimated Mass of PCB Treated, Since January 2019 (pounds)			0.36

Notes:

¹ PCB concentration based on an average of parent and duplicate sample

Table 2

**AOI-8 Oil Removal
GM Bedford GPS Facility
Bedford, Indiana**

Date	Well	Weight (lbs)	PCB Weight (lbs) ¹
1/9/2019	CH-5A ¹	2.22	1.73
1/23/2019	CH-5A	2.16	1.68
2/11/2019	CH-5A	2.3	1.79
2/26/2019	CH-5A	2.33	1.82
3/7/2019	CH-5A	2.18	1.70
3/18/2019	CH-5A	2.29	1.79
4/1/2019	CH-5A	2.39	1.86
7/15/2019	CH-5A	2.85	2.22
7/31/2019	CH-5A	1.88	1.47
8/22/2019	CH-5A	1.1	0.86
11/20/2019	CH-5A	1.2	0.94
12/17/2019	CH-5A	2.5	1.95
Total PCB Removed			19.81
3/25/2019	MW-X209Y053 ²	25.02	0.33
7/15/2019	MW-X209Y053	2.45	0.03
7/31/2019	MW-X209Y053	1.98	0.03
8/22/2019	MW-X209Y053	1.1	0.01
11/20/2019	MW-X209Y053	1.0	0.01
Total PCB Removed			0.41
3/28/2019	Solar Sipper ³	76.57	1.00

Notes:

¹ PCB weight based on analytical data from April 9, 2014
(CH-5: 780,000 mg/kg; CH-2A: 13,000 mg/kg)

² MW-X209Y053 PCB weight based on DNAPL density of 1.2 g/cc

³ PCB weight from solar sipper is based on an approximate volume of oil removal

Appendix A

TABLE D.1
COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

Date of Inspection: 11/20/2019 Weather: Cloudy
Inspector: Scott Sholar, Evan Meinzer Temperature: 44F

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
VEGETATED SOIL COVER SYSTEM						
Transect EV1	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- EXPOSURE OF LINER	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- EROSION	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- LOCALIZED SETTLEMENT/SLOUMPING	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- PONDING OF WATER/DRAINAGE	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- ROOTING OF TREES	<input type="checkbox"/>	<input checked="" type="checkbox"/>		← Remove saplings	Removed tree saplings, 1 #
	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Transect EV2	- EXPOSURE OF LINER	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- EROSION	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- LOCALIZED SETTLEMENT/SLOUMPING	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- PONDING OF WATER/DRAINAGE	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- ROOTING OF TREES	<input type="checkbox"/>	<input checked="" type="checkbox"/>		← Remove saplings	Removed tree saplings, 1 #

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CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
VEGETATED SOIL COVER SYSTEM (CONTINUED)						
Transect EV3	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	EXPOSURE OF LINER	<input checked="" type="radio"/>	<input type="radio"/>			
	EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	LOCALIZED SETTLEMENT/SLUMPING	<input checked="" type="radio"/>	<input type="radio"/>			
	PONDING OF WATER/DRAINAGE	<input checked="" type="radio"/>	<input type="radio"/>			
	SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	ROOTING OF TREES	<input type="radio"/>	<input checked="" type="radio"/>	REMOVE SAPLINGS		Removed tree saplings. 1/14
	Transect EV4	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>		
EXPOSURE OF LINER	<input checked="" type="radio"/>	<input type="radio"/>				
EROSION	<input checked="" type="radio"/>	<input type="radio"/>				
LOCALIZED SETTLEMENT/SLUMPING	<input checked="" type="radio"/>	<input type="radio"/>				
PONDING OF WATER/DRAINAGE	<input checked="" type="radio"/>	<input type="radio"/>				
SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>				
ROOTING OF TREES	<input type="radio"/>	<input checked="" type="radio"/>	REMOVE SAPLINGS		Removed tree saplings. 1/14	
Transect EV5	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	EXPOSURE OF LINER	<input checked="" type="radio"/>	<input type="radio"/>			
	EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	LOCALIZED SETTLEMENT/SLUMPING	<input checked="" type="radio"/>	<input type="radio"/>			
	PONDING OF WATER/DRAINAGE	<input checked="" type="radio"/>	<input type="radio"/>			
	SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	ROOTING OF TREES	<input type="radio"/>	<input checked="" type="radio"/>	REMOVE SAPLINGS		Removed tree saplings. 1/14

TABLE D.1

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 CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
 GM CET BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
VEGETATED SOIL COVER SYSTEM (CONTINUED)						
Transect EV6	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input type="radio"/>	<input type="radio"/>			
	- EXPOSURE OF LINER	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input type="radio"/>	<input checked="" type="radio"/>	Excessive erosion noted on 1/4		
	- LOCALIZED SETTLEMENT/SLUMPING	<input checked="" type="radio"/>	<input type="radio"/>			
	- PONDING OF WATER/DRAINAGE	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input type="radio"/>	<input checked="" type="radio"/>	Tree saplings removed		tree saplings removed, 1/4
	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
Transect EV7	- EXPOSURE OF LINER	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- LOCALIZED SETTLEMENT/SLUMPING	<input checked="" type="radio"/>	<input type="radio"/>			
	- PONDING OF WATER/DRAINAGE	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input checked="" type="radio"/>	<input type="radio"/>			
	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	- EXPOSURE OF LINER	<input checked="" type="radio"/>	<input type="radio"/>			
Transect EV8	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- LOCALIZED SETTLEMENT/SLUMPING	<input checked="" type="radio"/>	<input type="radio"/>			
	- PONDING OF WATER/DRAINAGE	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input type="radio"/>	<input checked="" type="radio"/>	Tree saplings removed		Tree saplings removed, 1/4

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CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
VEGETATED SOIL COVER SYSTEM (CONTINUED)						
Transect EV9	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	- EXPOSURE OF LINER	<input type="checkbox"/>	<input type="checkbox"/>			
	- EROSION	<input type="checkbox"/>	<input type="checkbox"/>			
	- LOCALIZED SETTLEMENT/SLUMPING	<input type="checkbox"/>	<input type="checkbox"/>			
	- PONDING OF WATER/DRAINAGE	<input type="checkbox"/>	<input type="checkbox"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input type="checkbox"/>	<input type="checkbox"/>			
	- ROOTING OF TREES	<input type="checkbox"/>	<input type="checkbox"/>			
	- ROOTING OF TREES	<input type="checkbox"/>	<input type="checkbox"/>			
Transect WV1	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input type="checkbox"/>	<input type="checkbox"/>			
	- EXPOSURE OF LINER	<input type="checkbox"/>	<input type="checkbox"/>			
	- EROSION	<input type="checkbox"/>	<input type="checkbox"/>			
	- LOCALIZED SETTLEMENT/SLUMPING	<input type="checkbox"/>	<input type="checkbox"/>			
	- PONDING OF WATER/DRAINAGE	<input type="checkbox"/>	<input type="checkbox"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input type="checkbox"/>	<input type="checkbox"/>			
	- ROOTING OF TREES	<input type="checkbox"/>	<input type="checkbox"/>			
	- ROOTING OF TREES	<input type="checkbox"/>	<input type="checkbox"/>			

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 GM CET BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
<u>HARD SURFACE COVER SYSTEMS</u>						
Transect EA1	- QUALITY OF ASPHALT COVER	<input checked="" type="radio"/>	<input type="radio"/>			
	- PRESENCE OF CRACKING OR DISCOLORATION	<input checked="" type="radio"/>	<input type="radio"/>			
Transect EA2	- QUALITY OF ASPHALT COVER	<input checked="" type="radio"/>	<input type="radio"/>			
	- PRESENCE OF CRACKING OR DISCOLORATION	<input type="radio"/>	<input checked="" type="radio"/>		NOTED IN BLACKTOP INSPECTION	
Transect WA3	- QUALITY OF ASPHALT COVER	<input checked="" type="radio"/>	<input type="radio"/>			
	- PRESENCE OF CRACKING OR DISCOLORATION	<input checked="" type="radio"/>	<input type="radio"/>			
<u>ACCESS ROAD</u>						
ACCESS ROAD	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS/DEBRIS	<input checked="" type="radio"/>	<input type="radio"/>			
	- POTHOLES	<input type="radio"/>	<input checked="" type="radio"/>		GRAVEL REPAIR SCHEDULED	
	- DAMAGE CAUSED BY VEHICULAR TRAFFIC	<input checked="" type="radio"/>	<input type="radio"/>			

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ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
SWALE/DRAINAGE DITCHES						
Transect ES1	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input type="radio"/>	<input type="radio"/>			
Transect ES2	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input type="radio"/>	<input type="radio"/>			
	- EROSION	<input type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input type="radio"/>	<input checked="" type="radio"/>		Picture saved on ipad27206	
	- ROOTING OF TREES	<input type="radio"/>	<input type="radio"/>			
Transect ES3	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input type="radio"/>	<input type="radio"/>			
	- EROSION	<input type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input checked="" type="radio"/>	<input type="radio"/>			

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ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
SWALE/DRAINAGE DITCHES (CONTINUED)						
Transect E5A	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	⊙	○			
	- EROSION	⊙	○			
	- OBSTRUCTIONS	⊙	○			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	⊙	○			
	- SIGNS OF BURROWING BY ANIMALS	7	○			
	- ROOTING OF TREES	7	○			
	Transect E5B	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	7	○		
- EROSION	7	○				
- OBSTRUCTIONS	7	○				
- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	7	○				
- SIGNS OF BURROWING BY ANIMALS	7	○				
- ROOTING OF TREES	7	○				
Transect E5C	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	7	○			
	- EROSION	7	○			
	- OBSTRUCTIONS	7	○			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	7	○			
	- SIGNS OF BURROWING BY ANIMALS	7	○			
	- ROOTING OF TREES	7	○	Tree saplings removed		Tree saplings removed. 1/11

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GM CET BEDFORD FACILITY
BEDFORD, INDIANA

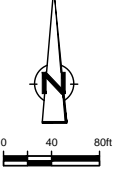
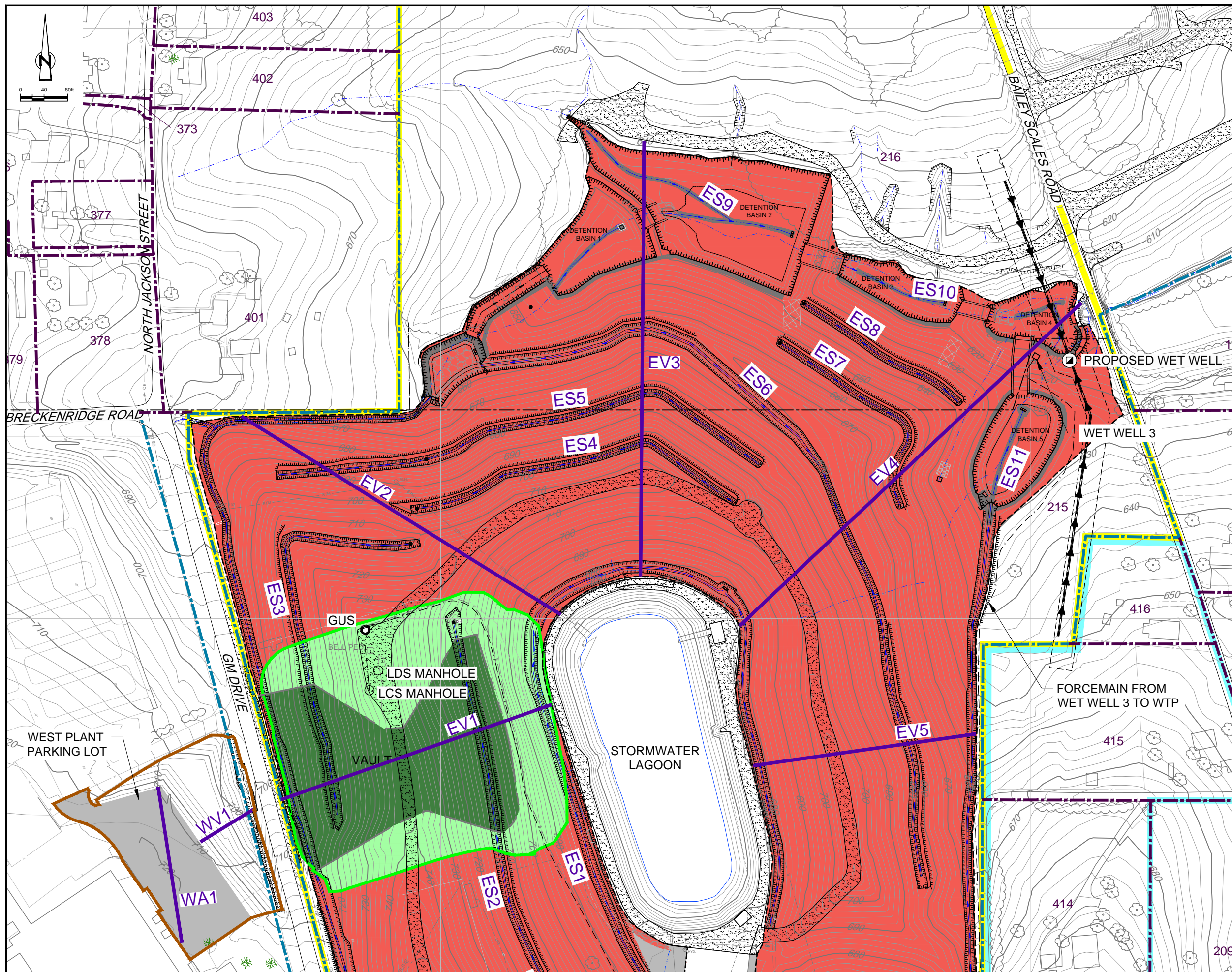
ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
SWALE/DRAINAGE DITCHES (CONTINUED)						
Transect ES7	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input checked="" type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input checked="" type="radio"/>	<input type="radio"/>			
Transect ES8	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input checked="" type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input checked="" type="radio"/>	<input type="radio"/>			
Transect ES9	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input checked="" type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input checked="" type="radio"/>	<input type="radio"/>			

TABLE D.1
COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
SWALE/DRAINAGE DITCHES (CONTINUED)						
Transect ES10	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input checked="" type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input checked="" type="radio"/>	<input type="radio"/>			
Transect ES11	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input checked="" type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input checked="" type="radio"/>	<input type="radio"/>			
Transect ES12	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	<input checked="" type="radio"/>	<input type="radio"/>			
	- EROSION	<input checked="" type="radio"/>	<input type="radio"/>			
	- OBSTRUCTIONS	<input checked="" type="radio"/>	<input type="radio"/>			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	<input checked="" type="radio"/>	<input type="radio"/>			
	- SIGNS OF BURROWING BY ANIMALS	<input checked="" type="radio"/>	<input type="radio"/>			
	- ROOTING OF TREES	<input type="radio"/>	<input checked="" type="radio"/>	Tree saplings removed		Tree saplings removed. 1 tr

TABLE D.1
 COVER SYSTEMS INSPECTION LOG
 CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
 GM CET BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
SWALE/DRAINAGE DITCHES (CONTINUED)						
Transect ES13	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS					
	- EROSION					
	- OBSTRUCTIONS					
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION					
	- SIGNS OF BURROWING BY ANIMALS					
	- ROOTING OF TREES					
Transect ES13 ES14	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS					
	- EROSION					
	- OBSTRUCTIONS					
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION					
	- SIGNS OF BURROWING BY ANIMALS					
	- ROOTING OF TREES					



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 GPS BEDFORD FACILITY BEDFORD, INDIANA

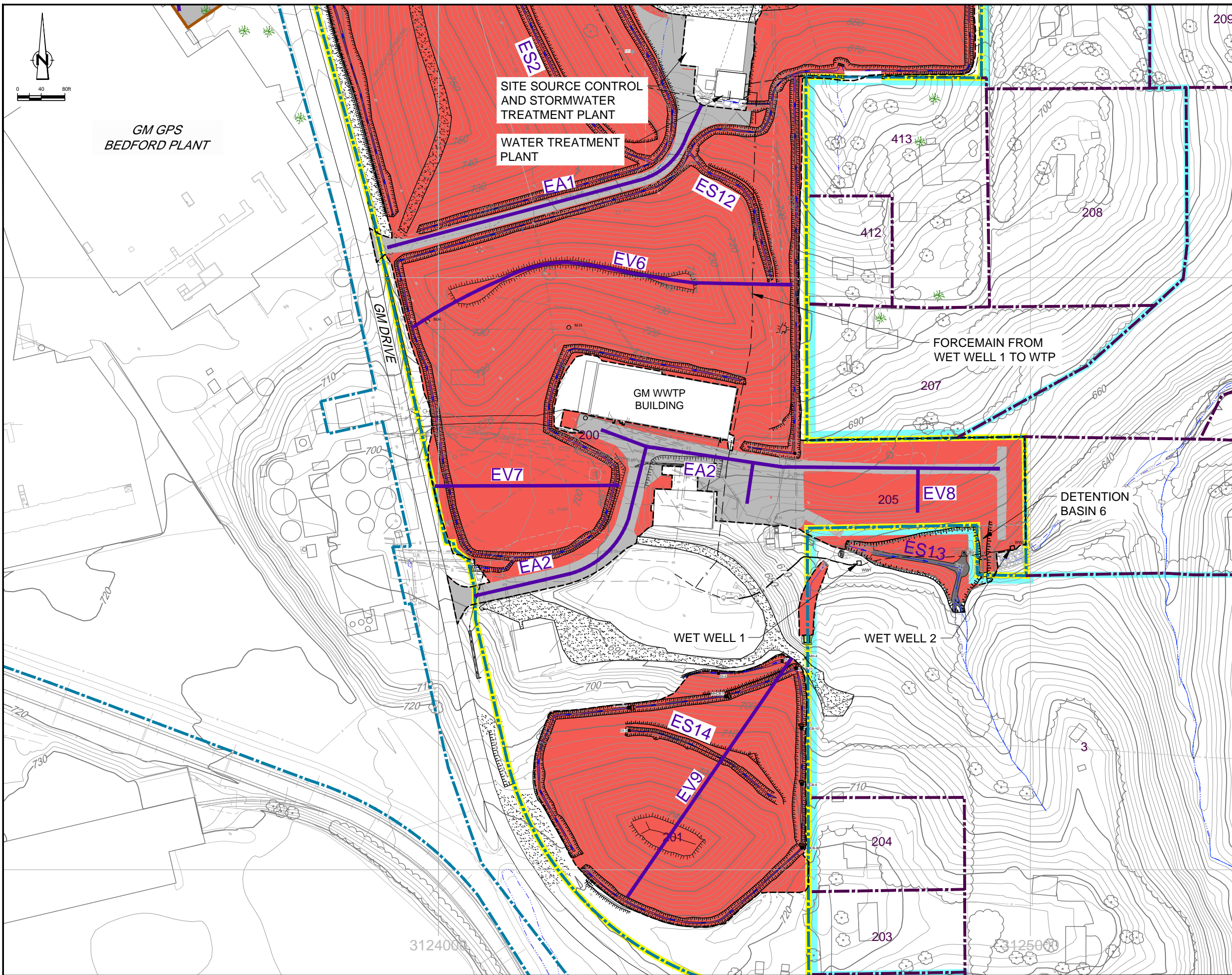
INTERIM OPERATIONS, MAINTENANCE AND MONITORING PLAN EAST PLANT COVER SYSTEM

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: January 2020
Scale: 1:80	Project No: 13968-00	Report No: RAMA187 Drawing No: 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 GPS BEDFORD FACILITY BEDFORD, INDIANA

INTERIM OPERATIONS, MAINTENANCE AND MONITORING PLAN
EAST PLANT COVER SYSTEM

EAST PLANT COVER SYSTEM INSPECTIONS SOUTHERN SECTION

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: January 2020	
Scale: 1:80	Project No: 13968-00	Report No: RAMA187	Drawing No: figure D.2



Photo 1: Observation of burrows at east side of ES14; facing north



Cover System Inspection Fourth Quarter 2019



Photo 2: Evidence of erosion near WWTP; facing north



Cover System Inspection Fourth Quarter 2019



Photo 3: Burrows near ES2 over Vault Cover System; facing southwest



Cover System Inspection Fourth Quarter 2019