



**Worldwide Facilities Group
Remediation Team**

January 4, 2006 (rev. Jan. 16/06)

Reference No. 13968

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

Dear Mr. Ramanauskas:

Re: GM Powertrain – Bedford Plant, IND 006036099
RCRA Corrective Action, East Plant Interim Measure
Proposed Grading Areas 3 and 4 Pre-Final Design Drawings
GM Powertrain Group, Bedford Indiana Facility
Bedford, Indiana

Please find enclosed the revised Pre-Final Design Drawings for proposed Grading Areas 3 and 4 for the East Plant Interim Measure at the GM Bedford Powertrain – Bedford Facility, 105 GM Drive, Bedford, Indiana. These drawings are being submitted pursuant to the Performance-Based Corrective Action Agreement between the U.S. EPA and General Motors (GM), signed March 20, 2001, and amended October 1, 2002.

In the East Plant Area, Grading Area 1 has been completely filled and covered, and the capacity for fill in Grading Area 2 will likely be exhausted in mid to late January. However, construction of the vault cannot be completed before the end of February 2006, with weather determining the exact date of completion. Therefore, additional space will be required for placement of grading fill within the East Plant Area prior to final cap construction. To this end, GM is submitting the pre-final design drawings for construction of two additional grading areas to allow the current creek cleanup to continue. In addition, we are requesting an additional expansion of Grading Area 2, as described herein.

The proposed Grading Area 3 is located south of the East Plant Area parking lot (previously referred to as the salary parking lot), located immediately east of GM Drive, as illustrated on the attached Drawing C-04. Excavation of over 50 mg/kg PCB soil materials will be required prior to filling of this grading area. Impacted soils along the northern boundary of Grading Area 3 are part of the over 50 mg/kg PCB soils excavation activities, of which the initial soil removal activities under the East Plant Area parking lot are scheduled to commence around the time the vault is completed. The limits of this excavation are illustrated on Drawing C-04.

Grading Area 3 would be constructed in two phases to facilitate removal of the over 50 mg/kg PCB soils in the northern portion of this grading area. Initially, the west, south, and east berms will be constructed to allow placement of the overburden soils (under 50 mg/kg PCB) removed from the north end of the grading area to be placed at the south end of the grading area, while the over 50 mg/kg soils under the north berm are excavated. This staged construction plan for Grading Area 3 will facilitate the removal of the soils to be excavated south of the East Plant Area parking lot by providing a partially contained area for placement of approximately 2,000 cubic yards (c.y.) of under 50 mg/kg soil materials, which must be removed to gain access to over 50 mg/kg PCB soil materials at depth.

Removal of the under 50 mg/kg PCB soils and over 50 mg/kg PCB soils will be performed in accordance with the protocols established for the Soil Source Removal program (specifications and design drawings for which have been previously submitted to U.S. EPA for review and approval). The GM-retained contractor currently constructing the vault base will perform the soil source removal work as well. To prevent any potential for mixing under 50 mg/kg PCB soils and over 50 mg/kg PCB soils, excavation of these soils will be performed separately. The Soil Source Removal program has been designed to excavate overburden soils in five-foot depth intervals, the first layer being from 720 to 725 feet AMSL (for which the highest ground surface elevation is only 722 feet AMSL, so the actual depth of excavation would be two feet or less). In the specific excavation area under and adjacent to Grading Area 3, this first interval involves the removal of a small area of over 50 mg/kg PCB soils located directly adjacent to the southwest corner of the East Plant Area parking lot (approximately 150 c.y.).

Only after the area of over 50 mg/kg PCB soils has been confirmed through survey of the excavation to be completely removed, would excavation of the under 50 mg/kg PCB soils within this same depth interval proceed. The over 50 mg/kg PCB soils will be taken to the temporary staging area located on AOI4, while the approximately 2,000 c.y. of under 50 mg/kg PCB soils would be placed at the lower south end of Grading Area 3. Before proceeding to the next five-foot depth interval, the excavation would be surveyed in depth and lateral extent to confirm that all planned soils had been removed. Upon confirmation of the completion of the first depth interval, excavation of the next five-foot interval (715 to 720 feet AMSL) would proceed. In this depth interval, there are only over 50 mg/kg soils requiring excavation in the area adjacent to Grading Area 3 and this volume of approximately 3,200 c.y. would also be placed in the temporary staging area. By following the established protocols and procedures, excavation of over 50 mg/kg PCB soils and under 50 mg/kg PCB soils can be conducted successively within the same area, without the potential for mixing of these soils, because the soils are excavated separately and placed in separate stockpile areas.

The north berm of Grading Area 3 will be constructed once the area immediately south of the East Plant Area parking lot has been backfilled. The limit of excavation has been extended approximately 10-15 feet beyond the northern and eastern berm locations to ensure that subsequent excavation of the remaining impacted soils can be completed without affecting the

integrity of the berm in Grading Area 3 and the stockpiled under 50 mg/kg PCB soils. This portion of the perimeter berm is located along the upgradient side of the proposed Grading Area 3, where the existing ground elevation is approximately 20 feet above the ground elevation at the south end of this grading area. Until the north berm is completely constructed, under 50 mg/kg PCB soil materials would only be placed in the southern portion of Grading Area 3 where accumulated rain water would be contained by an elevated clay berm (i.e., higher than the 2-foot minimum height). Operation of the sump located in the lowest elevation point within Grading Area 3 will be performed in accordance with the identical procedures implemented for the existing Grading Areas 1 and 2.

There are two objectives of the storm water controls for the grading areas. The first objective is to prevent surface water from the adjacent areas from entering the grading areas via the construction of perimeter berms, and to control this water as it is diverted around the grading areas via the implementation of controls (silt fences/straw bales) to control erosion. The second objective is to control and collect any water that contacts the grading fill via containment within the perimeter berms and direction to installed collection sumps, which will be directed for treatment (either the temporary or permanent treatment systems) prior to discharge. In order to minimize the quantity of water requiring treatment, tarps will be placed over the grading fill during inactive fill placement periods (including upon completion of filling) to minimize contact of precipitation with the grading fill.

The proposed Grading Area 4 will be located on the current Zipp parking lot, directly north of the current vault location, as illustrated on Drawing C-05. Excavation of over 50 mg/kg PCB soils is required to be performed in this area prior to placing soil materials in this grading area. Soils beneath the Zipp parking lot are currently scheduled to be excavated as part of the second phase of over 50 mg/kg PCB excavation activities, but this excavation schedule can be adjusted to facilitate removal of these soil materials sooner (should Grading Area 3 become full prior to completion of the vault). Should this grading area be required, a new constructed temporary staging area for over 50 mg/kg PCB soils will be required, as the approximately 4,000 c.y. of material cannot be accommodated by the current temporary staging area located on AOI4. The limits of the over 50 mg/kg PCB soil materials excavation beneath the Zipp parking lot and Grading Area 4 are illustrated on Drawing C-05.

Grading Area 4 will be constructed to use as much of the current Zipp parking lot as possible, without preventing access to the rest of the East Plant Area (including the vault) for continued placement of both under 50 mg/kg PCB and over 50 mg/kg PCB soil materials. A traffic buffer zone (i.e. truck access road) has been designed around the perimeter of Grading Area 4. This truck access road will not be specifically constructed, but will utilize the outer limits of the current gravel surface over the Zipp parking lot. This will provide access for trucks from the current west gate off GM Drive to the weigh scales adjacent to the southeast corner of the Zipp parking lot. After unloading in the vault or one of the grading areas, all hauling vehicles would proceed around the other side of Grading Area 4 in a counter-clockwise direction to exit the East Plant Area. The traffic flow pattern is identified on the revised Drawing C-05.

Mr. Peter Ramanauskas
January 4, 2006 (rev. Jan. 16/06)
Page 4

Both of the new two grading areas will be constructed, filled, and covered following the protocols approved for the previous two grading areas, with the exception of filter fabric, which will not be installed before placing fill (similar to the Grading Area 2 Extension). The maximum side slopes have been designed as 2:1 to maximize the grading fill placement potential. These slopes have been implemented for both Grading Area 1 and Grading Area 2 and we have not experienced any sloughing/slippage. However, slope stability calculations are attached to this letter to confirm that 2:1 side slopes are stable. Using the 2:1 side slopes, the overall heights of the two new grading areas will be 40 to 50 feet above the existing ground surface.

For Grading Area 3, the upper 15 feet of fill placement to achieve the peak only involves 2,000 c.y. or less, so the peak has been removed from the revised design to reduce the overall height. For Grading Area 4, the proposed height is similar to the final elevation of the adjacent vault (after capping) When it comes time to reshape the grading fill, the height of Grading Area 4 would be reduced by 20 feet along the cross-section shown on the drawings. The shape of Grading Area 4 is a little more rectangular, so the shape of the peak would be longer (i.e., not a point).

In addition to the requested approval to construct two new grading areas as described above, this letter is requesting permission to place an additional 11,100 c.y. of under 50 mg/kg PCB soil materials within the existing Grading Area 2. The initial fill plan for this grading area did not include placing fill against the eastern slope of the storm water management pond in order to retain future flexibility for storm water management when designing the final East Plant Area cap. Subsequent to the original design of Grading Area 2, this grading area was expanded and the final cap design was moved forward. As part of the expanded Grading Area 2, twin 24-inch diameter HDPE culvert pipes were placed beneath the placed soil materials within Grading Area 2 to facilitate surface water drainage beneath this grading area (instead of around it). As such, the retained area along the eastern slope of the storm water management pond is no longer required for surface water drainage of the final East Plant Area cap.

With space for grading fill placement becoming critical, GM is requesting approval for placement of additional fill within Grading Area 2. This additional grading fill would be placed in the existing valley between the eastern slope of the storm water management pond and the western slope of the current stockpiled soils within Grading Area 2. Section C on Drawing C-06 presents a cross-section through Grading Area 2 illustrating where additional soils can be placed in this existing valley. The additional soils will be placed at a 4:1 slope to approximately match the underside of the final East Plant Area cap so as to avoid any future double-handling of these soils during final cap construction.

The previous paragraphs of this letter discuss the construction of two additional grading areas, as well as the placement of additional grading fill in Grading Area 2. In summary, the expected volume of under 50 mg/kg PCB soil materials that can be accommodated by each of these three grading areas is as follows (in order of the expected placement of under 50 mg/kg PCB soils):

Mr. Peter Ramanauskas
January 4, 2006 (rev. Jan. 16/06)
Page 5

Grading Area 2 – 11,100 c.y. (additional)
Grading Area 3 – 44,500 c.y.
Grading Area 4 – 30,800 c.y.

Additional soils placement within Grading Area 2, as well as construction and placement of soils within new Grading Areas 3 and 4, will provide for an additional storage volume of 86,400 c.y. of grading fill (under 50 mg/kg PCB soils). Assuming 1.5 tons per c.y., the available storage volume would be 129,600 tons. The current optimal production rate for hauling under 50 mg/kg PCB soil materials from the removal action work areas is generally ~1,500 tons per day (during good weather). As a result, the additional storage volume would facilitate under 50 mg/kg PCB soils placement within the East Plant Area for a minimum of 17+ weeks (or 4 months). This should provide adequate time to complete the vault and much of the over 50 mg/kg PCB soil materials excavation, sufficient to allow for backfilling of the excavations with imported under 50 mg/kg PCB soils after that time.

Should you have any questions regarding this document, please do not hesitate to contact me at (248) 753-5799.

Yours truly,

General Motors Corporation



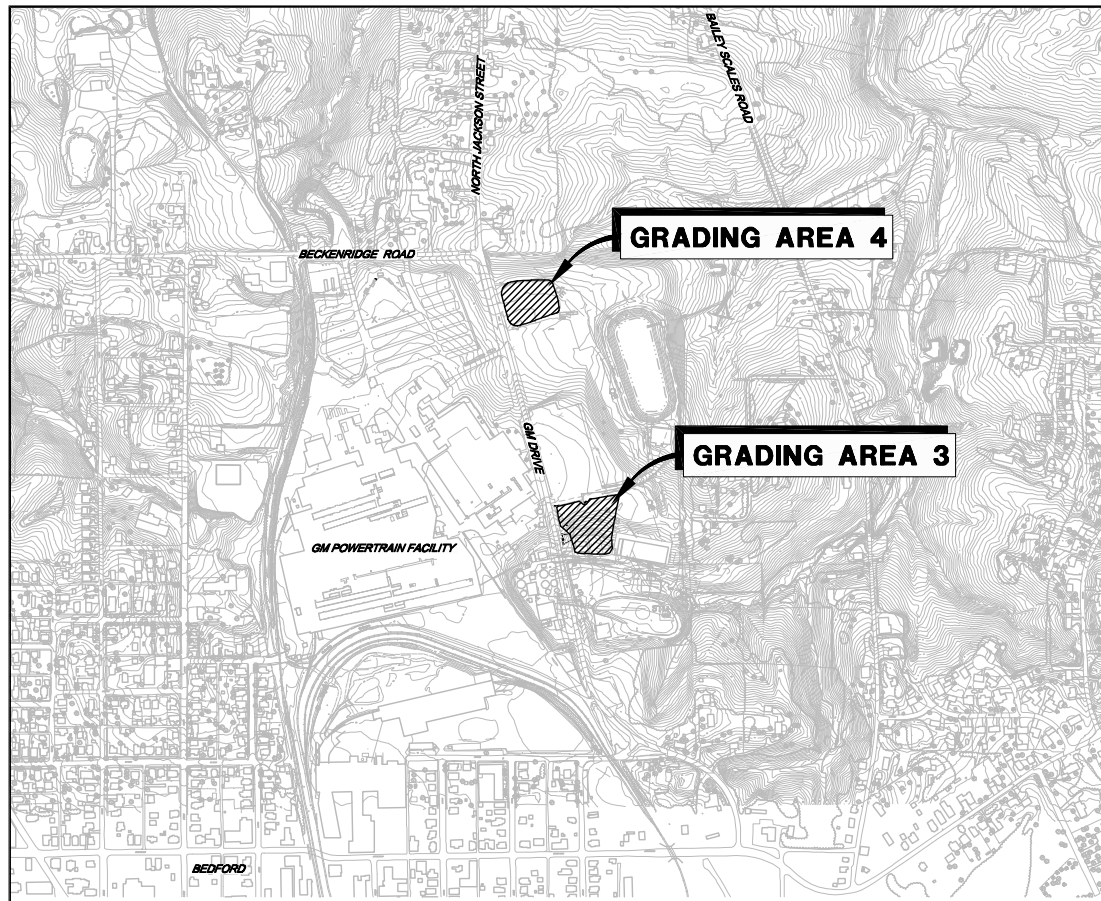
Cheryl R. Hiatt
Project Manager

CRH/cnb/53
Encl.

c.c.: See Attached Distribution List

GM Bedford Distribution List

		copy sent (y/n)
Peter Ramanauskas (2 copies)	U.S. EPA - Waste, Pesticide and Toxins Division, Project Manager	yes
Brad Stimple	U.S. EPA – Emergency Response Branch, On-Scene Coordinator	yes
Jean Greensley	U.S. EPA – Waste, Pesticide and Toxins Division	yes
Priscilla Fonseca	U.S. EPA – Waste, Pesticide and Toxins Division	yes
Tony Martig	U.S. EPA – Waste, Pesticide and Toxins Division	yes
Stacey DeLaReintrie	Tetra Tech EM Inc.	yes
Gerald O’Callaghan (5 copies)	IDEM Management	yes
Cheryl Hiatt	GM WFG Remediation	yes
Ed Peterson	GM WFG Remediation	yes



KEY MAP

DRAWING INDEX

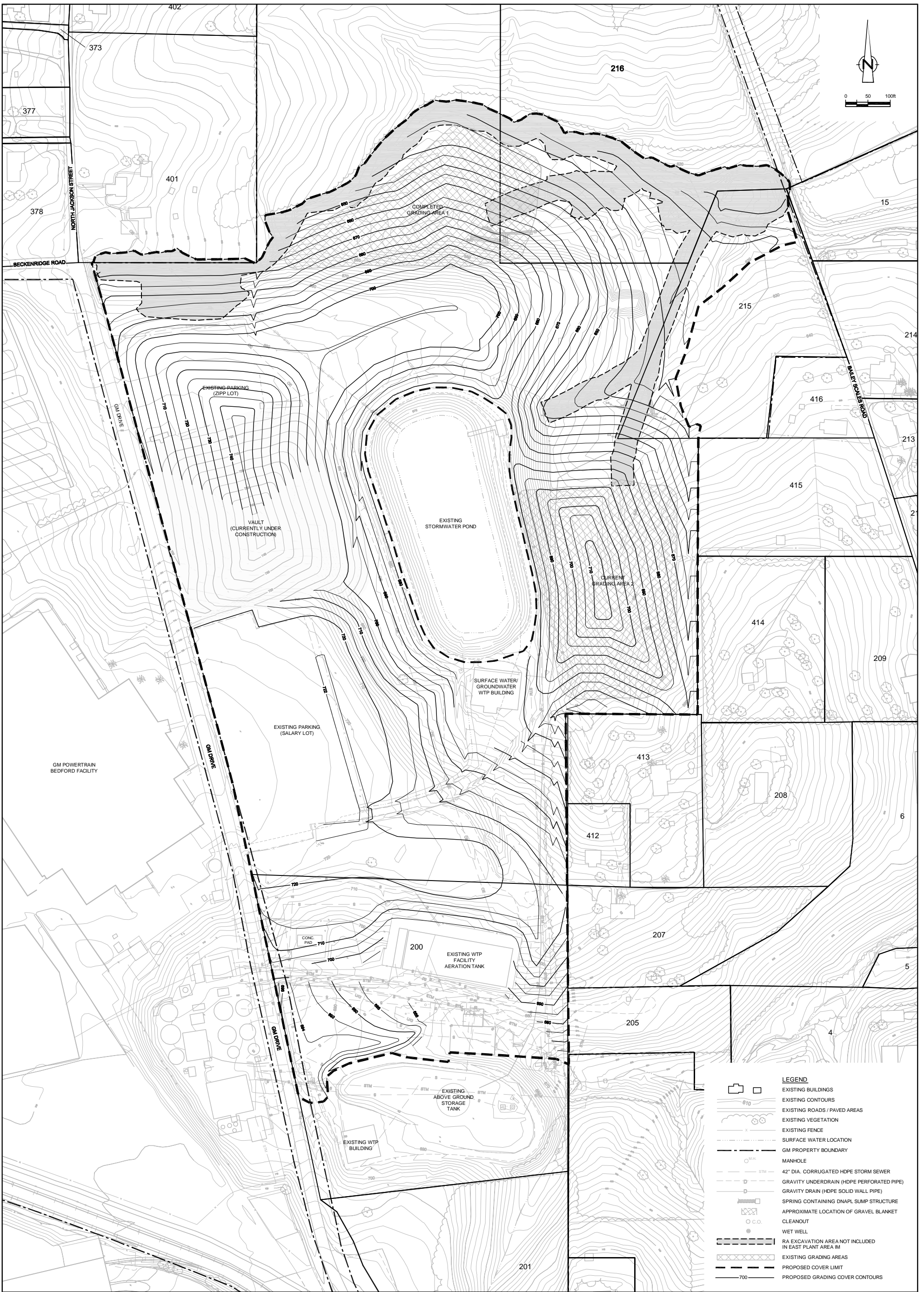
DWG. No.	REV. No.	DATE	TITLE
C-01	0	JANUARY 2006	EXISTING CONDITIONS
C-02	0	JANUARY 2006	PROPOSED TOP OF GRADING LAYER CONTOURS
C-03	2	FEBRUARY 2006	SITE WORKS
C-04	2	FEBRUARY 2006	GRADING AREA 3
C-05	1	JANUARY 2006	GRADING AREA 4
C-06	2	FEBRUARY 2006	CROSS-SECTIONS
C-07	0	JANUARY 2006	DETAILS

PRE-FINAL (95%) DESIGN

GRADING AREAS 3 AND 4 FOR THE EAST PLANT AREA INTERIM MEASURE

GM POWERTRAIN BEDFORD FACILITY BEDFORD, INDIANA





No.	Revision	Date	Initial

SCALE VERIFICATION

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

Approved _____

**GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA**

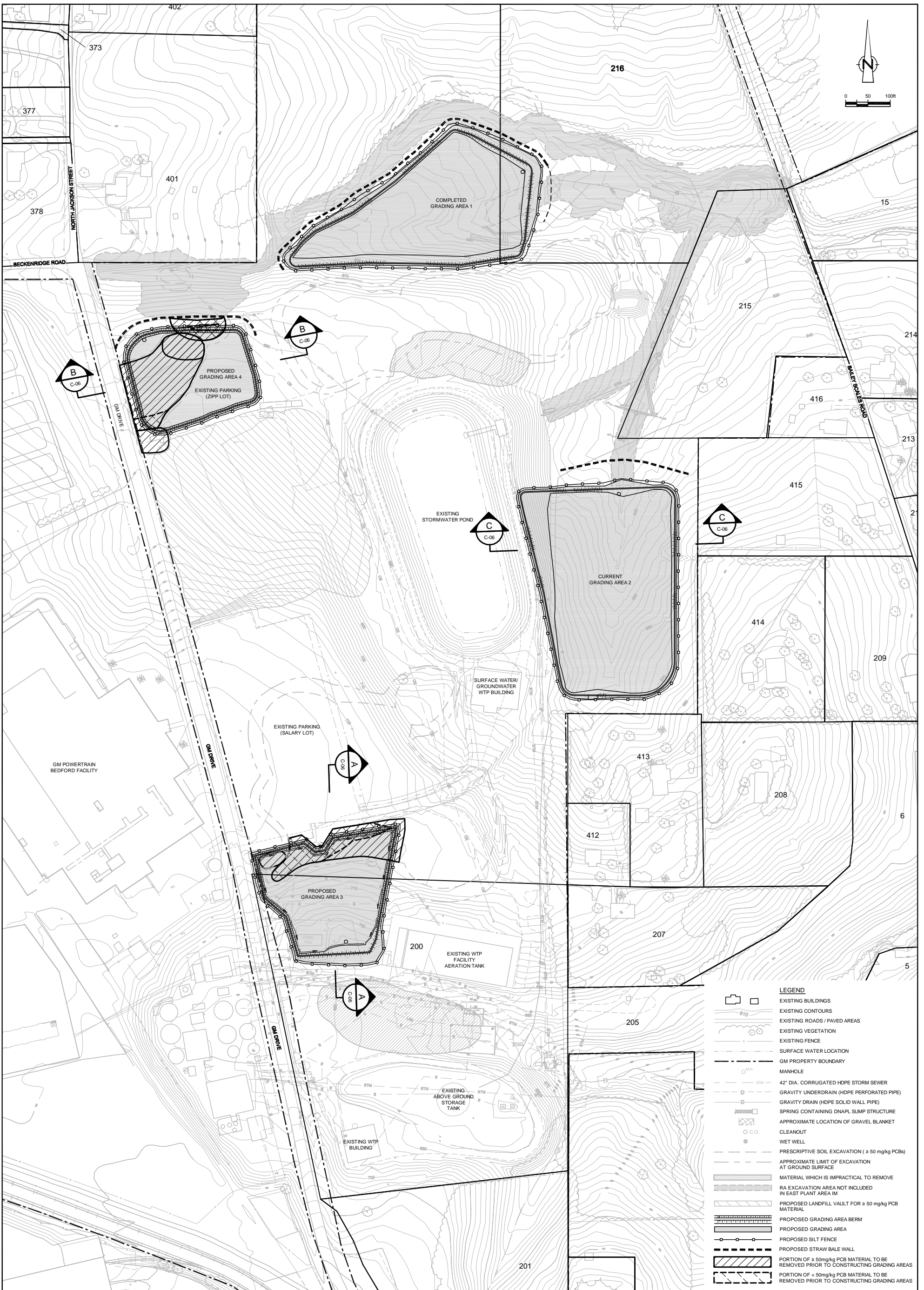
GRADING AREAS 3 AND 4 - EAST PLANT AREA INTERIM MEASURE

**PROPOSED TOP OF GRADING
LAYER CONTOURS**

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.
AND CRA SURVEY DATED MARCH 8 2005.

Project Manager: J.M.	Reviewed By: J.D.	Date: JANUARY 2006
Scale: 1" = 100'	Project No: 13968-00	Report No: RAMA053
		Drawing No: C-02



Nº	Revision	Date	Initial
1	REVISED PORTION OF PCB MATERIAL TO BE REMOVED PRIOR TO CONSTRUCTING GRADING AREA	JAN. 11, 2006	CRH
2	REVISED GRADING AREA 3 PERIMETER BERM	FEB. 6, 2006	CRH

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

Approved

**GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA**

GRADING AREAS 3 AND 4 - EAST PLANT AREA INTERIM MEASURE

SITE WORKS

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.
AND CRA SURVEY DATED MARCH 8 2005.

Project Manager: J.M.	Reviewed By: J.D.	Date: JANUARY 2006
Scale: 1" = 100'	Project N°: 13968-00	Report N°: RAMA053 Drawing N°: C-03



NO	Revision	Date	Initial
1	REVISED PORTION OF PCB MATERIAL TO BE REMOVED PRIOR TO CONSTRUCTING GRADING AREA	JAN. 11, 2006	CRH
2	REVISED PERIMETER BERM	FEB. 6, 2006	CRH
3	REVISED NORTH SECTION OF PERIMETER BERM	FEB. 16, 2006	CRH

LEGEND

- EXISTING BUILDINGS
- EXISTING CONTOURS
- EXISTING ROADS / PAVED AREAS
- EXISTING VEGETATION
- EXISTING FENCE
- SURFACE WATER LOCATION
- GM PROPERTY BOUNDARY
- MANHOLE
- EXISTING MONITORING WELL
- EXISTING UTILITY POLE
- PRESCRIPTIVE SOIL EXCAVATION ($\ge 50\text{mg/kg}$ PCBs)
- APPROXIMATE LIMIT OF EXCAVATION AT GROUND SURFACE
- MATERIAL WHICH IS IMPRACTICAL TO REMOVE
- PROPOSED GRADING AREA
- PROPOSED GRADING AREA BERM
- PROPOSED SILT FENCE
- FLOW DIRECTION WITHIN GRADING AREA BERM
- GENERAL SURFACE WATER FLOW DIRECTION
- PORTION OF $\ge 50\text{mg/kg}$ PCB MATERIAL TO BE REMOVED PRIOR TO CONSTRUCTING GRADING AREAS
- PORTION OF $< 50\text{mg/kg}$ PCB MATERIAL TO BE REMOVED PRIOR TO CONSTRUCTING GRADING AREAS

SCALE VERIFICATION

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

Approved

DRAWING STATUS

Status	Date	Initial

**GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA**

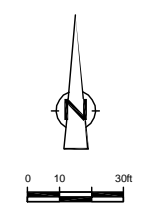
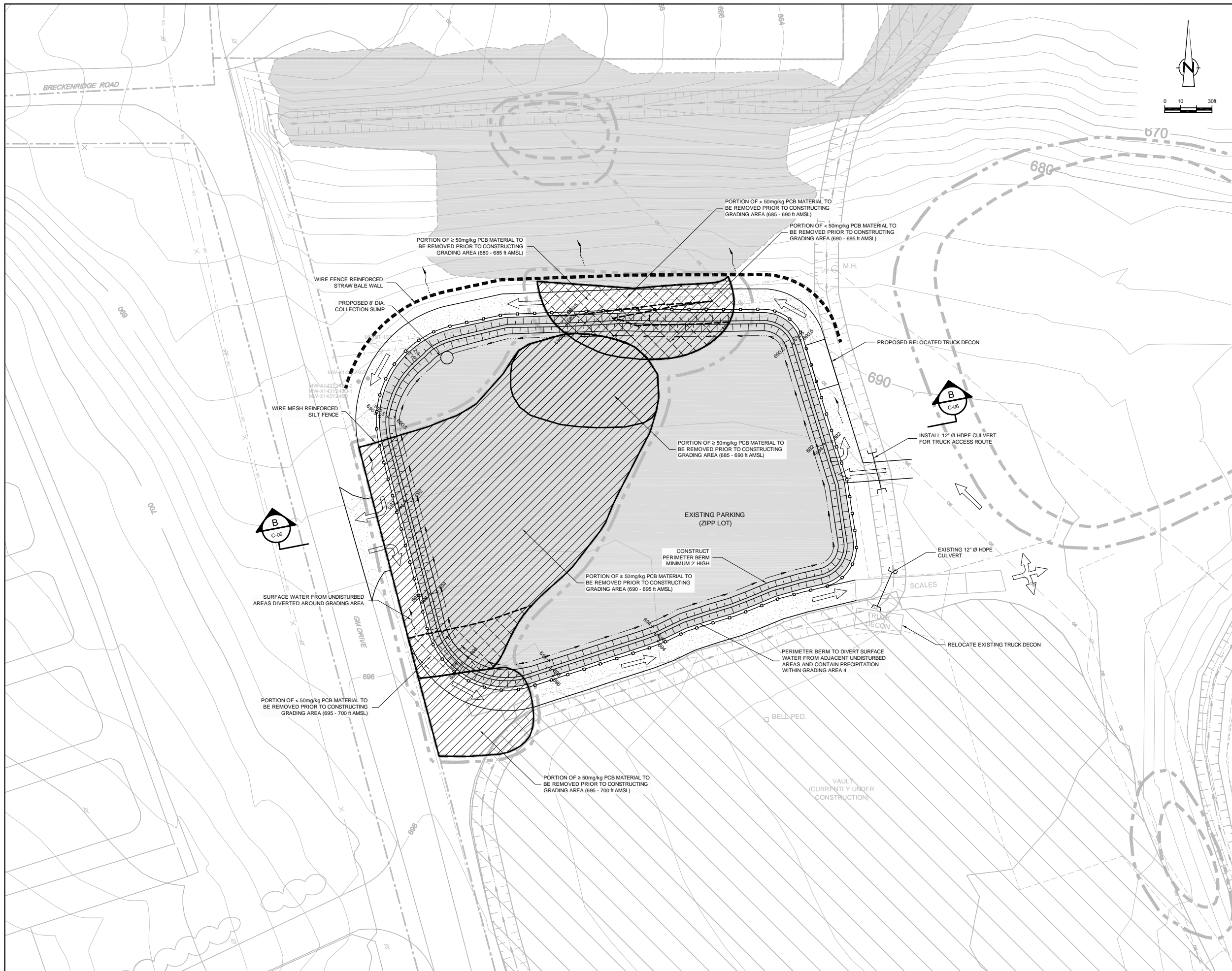
GRADING AREAS 3 AND 4 - EAST PLANT AREA INTERIM MEASURE

GRADING AREA 3

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001
AND CRA SURVEY DATED MARCH 8 2005.

Project Manager: J.M.	Reviewed By: J.D.	Date: JANUARY 2006
Scale: 1" = 30'	Project N ^o : 13968-00	Report N ^o : RAMA053
		Drawing N ^o : C-04



NO	Revision	Date	Initial
1	REVISED PORTION OF PCB MATERIAL TO BE REMOVED PRIOR TO CONSTRUCTING GRADING AREA	JAN. 11, 2006	CRH

LEGEND	
	EXISTING BUILDINGS
	EXISTING CONTOURS
	EXISTING ROADS / PAVED AREAS
	EXISTING VEGETATION
	EXISTING FENCE
	SURFACE WATER LOCATION
	GM PROPERTY BOUNDARY
	MANHOLE
	EXISTING MONITORING WELL
	EXISTING UTILITY POLE
	EXISTING STORM SEWER
	PRESCRIPTIVE SOIL EXCAVATION ($\ge 50\text{ mg/kg PCBs}$)
	APPROXIMATE LIMIT OF EXCAVATION AT GROUND SURFACE
	RA EXCAVATION AREA
	PROPOSED LANDFILL VAULT FOR $\ge 50\text{ mg/kg PCB}$ MATERIAL
	PROPOSED GRADING AREA
	PROPOSED GRADING AREA BERM
	PROPOSED SILT FENCE
	PROPOSED STRAW BALE WALL
	FLOW DIRECTION WITHIN GRADING AREA BERM
	GENERAL SURFACE WATER FLOW DIRECTION
	PORTION OF $\ge 50\text{mg/kg}$ PCB MATERIAL TO BE REMOVED PRIOR TO CONSTRUCTING GRADING AREAS
	PORTION OF $< 50\text{mg/kg}$ PCB MATERIAL TO BE REMOVED PRIOR TO CONSTRUCTING GRADING AREAS
	PROPOSED GRAVEL TRUCK ACCESS ROUTE
	DIRECTION OF TRAFFIC

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

APPROVED

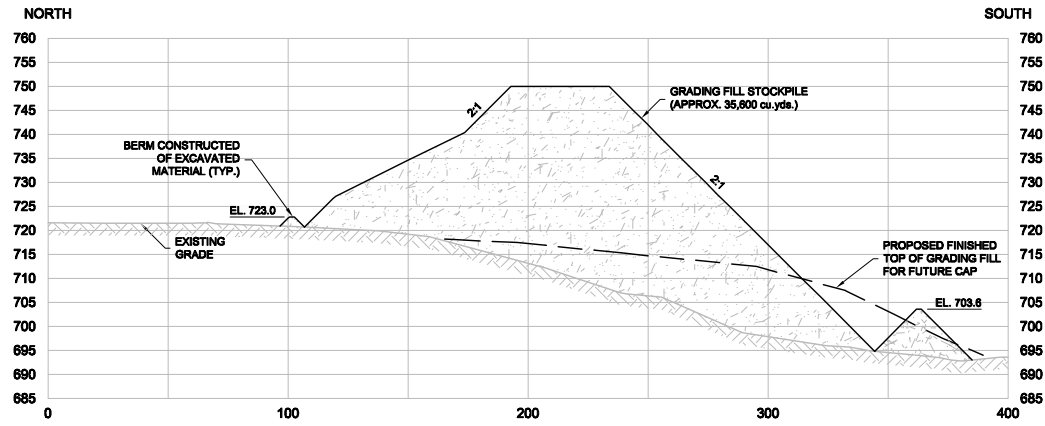
DRAWING STATUS		
Status	Date	Initial

GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA
GRADING AREAS 3 AND 4 - EAST PLANT AREA INTERIM MEASURE
GRADING AREA 4

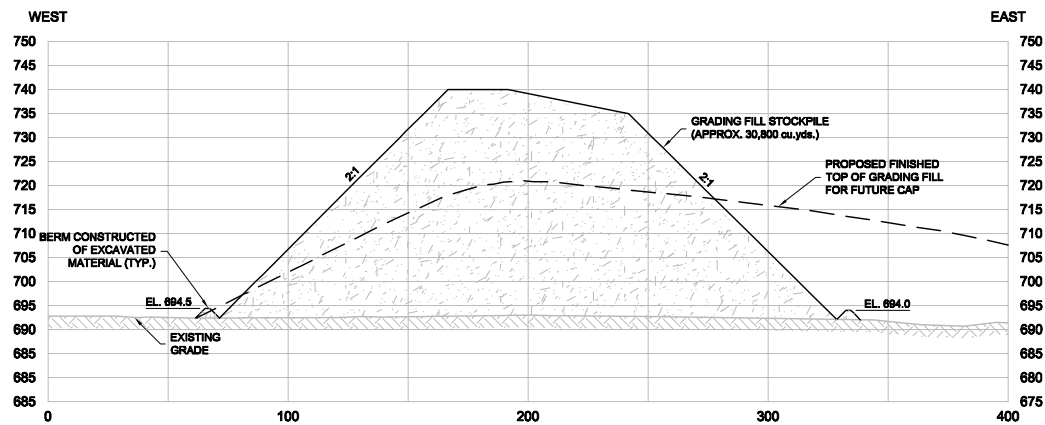
CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
 BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001
 AND CRA SURVEY DATED MARCH 8 2005.

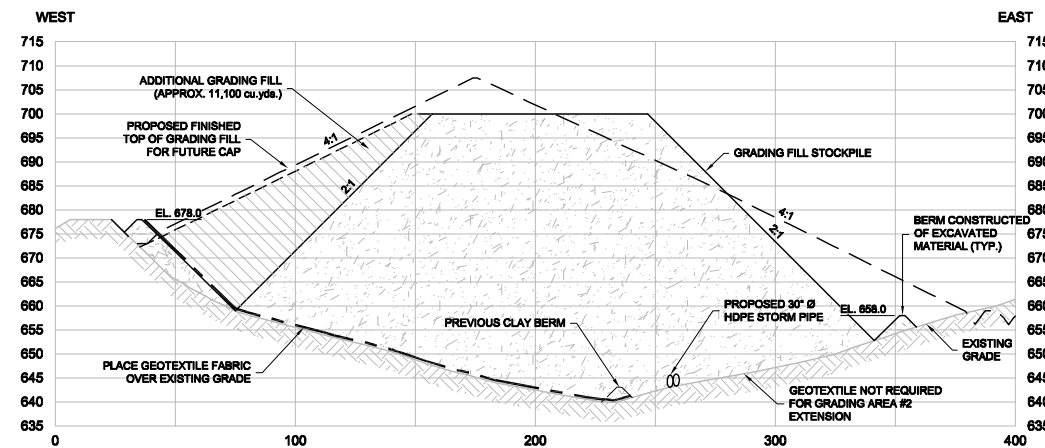
Project Manager: J.M.	Reviewed By: J.D.	Date: JANUARY 2006
Scale: 1" = 30'	Project N ^o : 13968-00	Report N ^o : RAMA053
		Drawing N ^o : C-05



SECTION A GRADING AREA 3
 HOR. 1" = 40'
 VER. 1" = 20'



SECTION B GRADING AREA 4
 HOR. 1" = 40'
 VER. 1" = 20'



SECTION C GRADING AREA 2
 HOR. 1" = 40'
 VER. 1" = 20'

NO	Revision	Date	Initial
1	REVISED GRADING FILL STOCKPILE IN SECTION A	JAN. 11, 2006	CRH
2	REVISED GRADING FILL STOCKPILE AND PERIMETER BERM IN SECTION A	FEB. 6, 2006	CRH

- NOTE:**
- MATERIAL PLACED IN GRADING AREAS SHALL BE COVERED ON A DAILY BASIS WITH TEMPORARY TARPS OR SPRAY ON COVER. COLLECTED WATER WHICH CONTACTS GRADING FILL WILL BE COLLECTED AND TREATED.
 - FOLLOWING COMPLETION OF PLACEMENT, COVERED AREAS WILL BE COVERED WITH A REINFORCED POLYETHYLENE TARP. CLEAN RUNOFF WILL BE DIRECTED OFF SITE.

SCALE VERIFICATION

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



Approved	
----------	--

DRAWING STATUS

Status	Date	Initial

**GM POWERTRAIN BEDFORD FACILITY
 BEDFORD, INDIANA**

GRADING AREAS 3 AND 4 - EAST PLANT AREA INTERIM MEASURE

CROSS-SECTIONS



Source Reference:			
Project Manager: J.M.	Reviewed By: J.D.	Date: JANUARY 2006	
Scale: HOR. 1" = 40' VER. 1" = 20'	Project N°: 13968-00	Report N°: RAMA053	Drawing N°: C-06

