Attachment B6

Engineering Plans

2017 Final Cover Survey

SUPPLEMENTAL INFORMATION
B6 – ENGINEERING PLANS
(revised 12/20/2018)

ENGINEERING PLANS

Final As-Built Drawings of Eastern Containment Unit and the Western Containment Unit for the Ford River Raisin Warehouse are contained in the *Waste Disposal Surface Impoundment* As-Built Drawings (drawings 1 through 65) included in the *Closure Certification Report*, dated October 1999.

These drawings contain information regarding engineering plans and process flow. Additionally, the text portion of the *Closure Certification Report*, dated October 1999 includes the basis of design for the components of the Eastern Containment Unit and the Western Containment Unit.

The text portion of the *Closure Certification Report* and the as-built drawings are attached herein.

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Environmental
Consultants, Inc. of Michigan
Toledo • Dearborn • Detroit

CLOSURE CERTIFICATION REPORT

REPORT, TABLES AND FIGURES THROUGH SECTION 6

SURFACE IMPOUNDMENT CLOSURE PROJECT
MONROE STAMPING PLANT
MONROE, MICHIGAN

SEPTEMBER 1999

PREPARED FOR:

FORD ENVIRONMENTAL QUALITY OFFICE
ONE PARKLANE BOULEVARD
PARKLANE TOWERS EAST, SUITE 1400
DEARBORN, MICHIGAN 48126

PREPARED BY:

MIDWEST ENVIRONMENTAL CONSULTANTS,
INC. OF MICHIGAN
22720 MICHIGAN AVENUE, SUITE 306
DEARBORN, MICHIGAN 48124

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1.0 INTRODUCTION

The Waste Disposal Surface Impoundment Closure Project at the Monroe Stamping Plant in Monroe, Michigan was undertaken by Ford Motor Company to properly close on-site waste management units. Work for this project was performed in accordance with the Act 64 Post-Closure Operating License and the Resource Conservation and Recovery Act Permit (MID 005 057 005). This closure involved construction of two final on-site containment units that encompassed six separate surface impoundments (Areas A, B, C, D, the Polishing Lagoon, and the North Lagoon). In addition, seven areas outside the boundary of the two on-site containment units were cleaned to applicable standards, the contents placed within the two on-site containment units, and closed (Area D-West, Area D-North, North Intake Canal, West Marsh, Area D Towers, and the Process Canal). Also, an on-site sediment containment unit was built to hold sediments dredged during the River Raisin Sediment Removal project. Finally, several other on-site waste management areas were remediated and the contents disposed of within the on-site containment units as part of the activities within the corrective action management unit.

This report is divided into separate sections detailing closure of the surface impoundments. Appendices are included which contain supporting documentation for this Closure Certification Report.

2.0 BACKGROUND

The following was excerpted from the Post-Closure Operating License Application Volume 1 - Application prepared by NTH Consultants, Ltd. dated July 18, 1994.

Site Location: The Monroe Stamping Plant is located in the City of Monroe, Monroe County, Michigan. The site is located adjacent to wetland areas, approximately ¾ mile west of the western shore of Lake Erie, north of the mouth of the River Raisin. The River Raisin forms the southern boundary of the property while an intake canal forms the northern boundary. Marshes border the site to the east and west. The site is located away from residential areas, with the nearest residences located approximately ½ mile to the north of the property boundary. The commercial and residential areas of the City of Monroe are located several miles west of the site. The site is not located near an active fault zone, nor is this region of the Lake Erie shoreline a designated coastal high-risk area. The site does not exist above a sole source aquifer or such an aquifer's recharge zone. The nearest source of a public water supply is more than one mile from the site.

Site History: The area of the Lake Erie shoreline near the site has a history of industrial use. Many areas along the Lake Erie shore have been filled with construction debris, dredge spoils and other materials. Several other industries are located in the vicinity of the site, including the Detroit Edison Monroe Power Plant across the River Raisin to the south, and the Monroe Paper Company approximately one mile to the west. In addition, the Port of Monroe and City of Monroe landfills are located across the River Raisin to the southwest of the site.

The first industrial use of the property was for a plant built by Newton Steel Company. the plant was built during the period from 1927 to 1931. Newton Steel, and later Republic Steel, operated the plant as a steel mill until 1938 when the plant was closed. During the 1940's the plant was operated first by the Aluminum Company of America and then by Kelsey-Hayes Wheel Company, apparently for metal stamping and forging.

Ford purchased the property from Kelsey Hayes in 1950 and converted the steel mill into an automobile parts manufacturing facility. During the period of Ford ownership the facility has produced coil springs, wheels stabilizer bars, catalytic converter assemblies, head lamp housings and chromium plated bumpers. As part of these production activities, Ford conducted electroplating operation and disposed of the resulting electroplating and wastewater treatment sludges in the on-site surface impoundments.

Placement of electroplating and wastewater treatment sludges began in Area C in 1950. In approximately 1956, the Process Canal was constructed to transfer treated effluent discharged from two settling lagoons (North and West Lagoons) to the site NPDES discharge point. At about the same time, disposal of electroplating wastewater treatment sludges began in Area D. Millwater sludge resulting from treatment of incoming plant process water was settled out in the North Lagoon and placed in Area D. Areas A and B

were constructed in 1969 and 1976, respectively. These areas were filled with both electroplating and millwater treatment sludges. Areas D-North and D-West were created by dredging the material form Area D. It appears that the dredged material migrated to the North Intake Canal and West Marsh from Areas D-North and D-West, respectively. A surface impoundment identified as the West Lagoon was used for sludge storage from approximately 1956 until 1984. The closure of the West Lagoon was approved by the US EPA on July 27, 1984. Beginning in 1979, off-site disposal of sludges was phased-in and on-site disposal was discontinued in 1982.

Areas A and B were operated under the Resource Conservation and Recovery Act interim status regulations specified in 40 CFR 265. Areas C, D, D-West, D-North, North Lagoon, Polishing Lagoon, and Process Canal were registered pursuant to Section 103(c) the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) on June 9, 1981, as inactive hazardous waste disposal areas. In 1985 Ford submitted plans to close Areas A and B as required by RCRA. In reviewing the closure plans the MDNR suggested that all of these areas be closed under a comprehensive site closure as inactive disposal areas. By letter dated March 6, 1989, the USEPA concurred with this approach.

Description of Waste Materials: The sludges found at the site are of two basic types, a blue-green electroplating sludge and a brown millwater sludge. There is also non-sludge fill in Area C, consisting of foundry slag, foundry sand and construction debris.

The sludges observed in the North Intake Canal and West Marsh areas consisted primarily of a soft black material. A greenish sheen was evident on some of the material. A very dark brown sludge was present in other locations of the West Marsh.

Chemical Testing of Wastes: Several studies have been undertaken to determine the chemical nature of the sludges (Neyer, Tiseo and Hindo, Ltd. 1985, 1987, 1990). The results of these studies are presented in Tables 1A through 1H of the Closure Plan.

Although listed hazardous waste by regulation 40 CFR §261.31, the sludges do not exhibit the hazardous waste toxicity characteristic pursuant to the TCLP procedure for any of the metal or organic parameters specified in 40 CFR §261.24 or Michigan R 299.9212.

Extent of Waste Materials: The depth of wastes in the impoundments and associated areas in general ranges from 0 to 14 feet. However, in small sections of Areas A and D the depth of sludge extends to 24 and 21 feet, respectively. The depths and volumes of sludge and non-sludge fill in each area are presented in the Closure Plan.

Ford Motor Company received an Act 64 Post-Closure Operating License and Resource Conservation and Recovery Act Permit (MID 005 057 005), effective on March 27, 1995. Construction activities were initiated in the summer and fall of 1995. Construction activities were complete, with the exception of some minor details, in August of 1999. This Closure Certification Report presents a general summary of site closure activities and

certification that the closure was completed in accordance with facility requirements (MID 005 057 005).

3.0 CUTOFF WALL

3.1 Summary of Design

The Closure Plan (Attachment 6 to the Post-Closure License), in Section 4.0 identified that as part of the closure of the surface impoundment units, a cutoff wall around the perimeter of the containment units. As part of the construction, cutoff walls were built to surround the two impoundments. Cutoff walls provide a low permeability zone, which prevents the lateral flow of water into and away from the containment units. This low permeability wall is a mixture of soil, fly ash, and bentonite. The mixture was backfilled into trenches, which were keyed 3 feet into the underlying clay till. To provide lateral stability within the trench during construction, a slurry of bentonite and water was continuously added during excavation.

Section 5H of the Construction Specifications (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with implementation of cutoff wall construction.

Section 6.0 of the CQA Plan (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that cutoff wall construction was performed in accordance with the approved Post-Closure Plan.

3.2 Permit Conditions

Several permit conditions are included within the Post-Closure License relative to cutoff wall construction. These conditions were incorporated into site work activities. Specific conditions addressing cutoff wall construction details, Permit Conditions II.H.3.(a) to II.H.3.(l), are summarized below. These conditions included additional quality assurance testing and documentation requirements and specification modifications.

- Testing equipment shall also include a moisture tester, pH meter, and slump tester.
- The pH specification for slurry shall be 7 to 9, with viscosity specification of 40 seconds.
- The depth of each test boring along the alignment of the trench, shall extend to the bedrock to verify the thickness of the lower clay till above bedrock, and detailed cross-sections of the bottom of the wall and a fence diagram shall be generated to illustrate the geological conditions and wall.
- A final layout of the worksite areas for slurry wall construction was to be submitted to MDEQ.

- A minimum of 6 inches of soil (USCS of SC, CL, ML, or CH) shall be placed over the backfilled cutoff wall to accommodate consolidation and settlement, and the geotextile and load bearing fill shall be placed on top of the 6 inches of soil.

- Locations where the lower clay till has a thickness of less than 3 feet shall be staked to identify where the depth of key must be reduced to maintain a minimum of one foot of clay above bedrock and avoid trench blow-out. The depth of key-in zone must be measured with tape, rope, or rod.

- Fresh slurry testing shall include density, sand content (if slurry is stored in basins), and viscosity at a frequency of one test every 4 hours or twice per day. Fluid loss and pH testing to be performed at a frequency of one test per day.

- In-trench slurry testing shall include density, viscosity, and sand content at least twice per shift. Sand content tests shall be performed on samples from the top 3-4 feet and near the bottom. If results indicate that sand content poses no problems, then it must be measured only where sand pockets and lenses are expected.

- A minimum of one gradation test per 5,000 cubic yards of backfill shall be conducted. 100% of the backfill must pass a 3-inch sieve and a minimum of 25% must pass a number 200 sieve. A minimum of one slump test per 200 cubic yards of backfill shall be conducted. A minimum of one slope verification per 50 linear feet of backfill shall be conducted.

In addition, several permit conditions (Permit Conditions I.F.3., IV.A., IV.D., IV.F., and IV.G.) addressed possible air quality impacts from cutoff wall construction activities. In summary, these conditions established criteria that ensured cutoff wall mixing operations were performed in a manner that would prevent fugitive dust emissions.

3.3 Construction

This section has been prepared as a general summary of construction activities associated with this work effort. A complete presentation of construction activities associated with this work is contained in the Daily Field Reports, included as Appendix M.

3.3.1 Roles

The prime contractor for this work was J.A. Jones Environmental Services, Inc. (JAJES). JAJES was responsible for coordinating the work of various on-site subcontractors and preparing the working platform prior to cutoff wall installation. A specialty subcontractor, Inquip Associates, Inc. (Inquip), was selected by JAJES to perform cutoff wall construction. Inquip selected a geotechnical consultant, Schleede Hampton Associates, Inc. (SHA), to provide quality control assistance.

Midwest Environmental Consultants, Inc. performed duties related to construction quality assurance (CQA). MEC retained geotechnical and analytical laboratory subcontractors to assist with laboratory quality assurance testing.

3.3.2 Implementation

Preparation for cutoff wall construction in the Eastern Containment Unit began on October 2, 1996. A demonstration of the backfill mixing procedure was performed for MDEQ representatives on October 25, 1996. Cutoff wall construction was completed as two separate sections. Construction on the first section began on November 6, 1996, at the southwest corner and proceeded counterclockwise to the north side of Area B at the eagle restriction zone limit on November 25, 1996. Construction of the second section began nearly one year later on October 25, 1997, at the southwest corner and proceeded clockwise to the north side of Area B to connect with the previous stopping point on November 11, 1997. A total of 106,703 square feet of cutoff wall was constructed for the Eastern Containment Unit.

Preparation for cutoff wall construction in the Western Containment Unit began on September 17, 1997. Cutoff wall construction was completed as two separate sections. Construction on the first section began on September 30, 1997, at the southwest corner and proceeded clockwise to the northeast corner at the edge of the Area D Tower area on October 8, 1997. Construction of the second section began on October 10, 1997, at the southwest corner and proceeded counterclockwise to the northeast corner to connect with the previous stopping point on October 24, 1997. A total of 83,130 square feet of cutoff wall was constructed for the Western Containment Unit.

Inquip utilized a Caterpillar 375L excavator for trench work. The three foot wide trench was excavated at least three feet into the underlying clay till. Bentonite slurry was continuously added during excavation and was kept at least one foot from top of trench. Slurry was prepared by Inquip in a continuous venturi tube shear mixer and stored for a minimum of 24 hours in a clay-lined basin for hydration. The majority of spoil from cutoff wall trench excavation was placed into the containment units for solidification and disposal. A significant portion of the spoil was clay (London Aggregates, Milan, Michigan) that had been placed as load bearing fill. This clay was reused as part of the backfill mixture, when practical.

Inquip mixed Backfill materials with a D6HLGP bulldozer. Backfill mixing was performed adjacent to the excavated trench. The backfill mixture consisted of 2.0% bentonite (Granular 12/40 Wyoming Sodium Bentonite), 90.6% clay (London Aggregates, Milan, Michigan), and 7.4% fly ash (JTM, Niles, Michigan, Class F, High Carbon Moisture Condition - HiC). Backfill material was placed through the in-trench slurry.

Cutoff wall construction details are reflected in CQA Daily Field Reports included in Appendix M, Project Photographs included in Appendix N, and As-Built drawings included in Appendix U.

3.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

Inquip Associates, Inc. performed CQC testing during cutoff wall construction. Inquip prepared daily CQC reports throughout cutoff wall construction. These reports were submitted to MEC by JAJES as part of the CQA monitoring effort. The Inquip daily CQC reports are contained within MEC's project files and have not been included within this report.

3.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License). This section details efforts associated with implementation of Section 6 of the CQA Plan. These activities were conducted to provide assurance that the surface impoundments and disposal areas were closed in accordance with the requirements of the Post-Closure License.

Prior to cutoff wall construction, a series of test borings was installed along the entire cutoff wall alignment to establish the elevation and thickness of clay till for the cutoff wall key, establish the depth to bedrock, and identify any sand seams present. Initial test borings were at 100-foot intervals with supplemental test borings being added at 25-foot intervals in areas where sand seams were encountered to define sand seam limits. Test boring logs are included within the CQA Daily Field Reports (Appendix N). Soil samples were collected utilizing a continuous sampler to define the clay till elevation and check for sand seams. Visual classification was performed according to the Unified Soil Classification system. This information was utilized for planning of cutoff wall construction and was included within the Cutoff Wall Sounding Summary Table, Table 3.1.

MEC provided continuous monitoring during cutoff wall excavation. Excavated soils were visually examined by MEC's ITE. Soundings were taken at 10-foot intervals along the cutoff wall alignment. First, MEC's ITE performed an elevation survey to establish the elevation at each sounding station. At each sounding station, the top of clay till was

visually confirmed during excavation and an initial sounding was completed. Excavation continued to provide the three foot minimum key and a second sounding was taken to confirm the three foot key was present. Both soundings were recorded on the Cutoff Wall Sounding Summary Table (Table 3.1). The key was extended to three foot below any sand seams recorded during the test boring program or any sand seams encountered during excavation were not detected during the test boring program. Information collected during this continuous monitoring was used to prepare cross-sections and fence diagrams of the as-built cutoff wall.

Slurry CQA testing was performed throughout cutoff wall construction. The water source for slurry mixing was the River Raisin. Off-site water testing included pH and hardness. Fresh slurry was tested daily prior to discharge to the trench. In-trench slurry was tested twice per day. Slurry test parameters included temperature, density, viscosity, fluid loss, pH, and sand content. Slurry was visually observed for consistency throughout the construction process.

Soil-fly ash-bentonite (SFB) backfill testing was performed throughout cutoff wall construction. Fly ash samples were collected for laboratory testing of gradation and carbon content at a 5,000 cubic yard frequency. The clay component of SFB was sampled at a 5,000 cubic yard frequency for gradation laboratory testing.

MEC provided continuous monitoring during SFB placement. SFB was tested in the field prior to placement into the trench. Testing included slump, density, and moisture content. Slump testing was performed at a rate of one test per 200 cubic yards, typically several tests per day. Moisture content and wet density testing was performed at a minimum frequency of one per batch. SFB was visually observed for consistency throughout the construction process. SFB was placed continuously from the excavation initiation point following the excavation operation. SFB was placed by sliding along sloped backfill into the trench. Free dropping of SFB into the trench was not permitted.

The alignment of the cutoff wall was surveyed by MEC after placement of SFB. Determination of the as-built alignment was critical since the cutoff wall alignment was shifted in several instances to accommodate conditions encountered during construction.

Permeability samples were collected approximately one month after SFB placement. This one month lag was to allow the SFB material to stabilize to enable efficient sampling. Samples were collected, at a minimum frequency of one per 2,000 cubic yards, using thin wall tubes and conventional drilling equipment. The average permeability for the cutoff wall was 8.7E-8 cm/sec in the Western Containment Unit and 6.6E-8 cm/sec in the Eastern Containment Unit.

Daily test data for slurry and SFB backfill is included within CQA Daily Field Reports (Appendix M). Laboratory data is included within Cutoff Wall Geotechnical Laboratory Data (Appendix C). Soundings are recorded on the Cutoff Wall Sounding Summary Table (Table 3.1). Test data is summarized in the Cutoff Wall Construction Quality

Assurance Summary Table (Table 3.2). Test locations are reflected on the As-Built Drawings (Appendix U).

Cutoff wall cap testing was not performed. The cutoff wall cap was designed to support vehicular traffic on top of the cutoff wall. Access roads were constructed across the cutoff wall, but vehicular traffic was not allowed to travel along the top of the cutoff wall. Hence, the cutoff wall cap was not constructed.

3.6 Revisions

Several revisions relative to cutoff wall work were approved by MDEQ. These revisions are summarized below.

- A revised cutoff wall alignment was submitted to MDEQ on May 29, 1996, and revised on July 22, 1996. The design revision was made to account for the increased depth associated with the Process Canal excavation and clean closure. The revised alignment was approved by MDEQ on October 2, 1996.
- Inquip developed a work plan for cutoff wall construction. This work plan, Inquip Associates, Inc.'s Work Plan for the Construction of the Soil, Fly Ash, Bentonite Cutoff Wall, was submitted to MDEQ on October 22, 1996. The work plan included details of cutoff wall work areas. MDEQ representatives were on-site on October 25, 1996, to observe implementation of procedures detailed in the October 22 submittal. These procedures were approved by MDEQ representative based upon the demonstrated field performance, as documented in Ford's October 28, 1996, letter to MDEQ.
- Proposed changes to cutoff wall construction details associated with alignment revisions were submitted to MDEQ on January 9, 1998. Based upon MDEQ input, these details were revised on February 4, 1998. These revisions were approved on February 26, 1998.

3.7 Clarifications

Several minor clarifications were incorporated into the cutoff wall to accommodate conditions encountered during construction. These clarification items are summarized below.

- Soil samples for visual classification were collected from test borings using a five foot long continuous sampler instead of a conventional split spoon sampler. This provided more precise determination of the clay till contact point and increased assurance that any sand seams present were detected. (Volume IV Construction Specifications - Section 5H Subsection 3.1.3)
- Testing of fresh slurry was performed at a minimum frequency of two tests per day, one test by MEC as part of CQA efforts and one test by Inquip as part of CQC efforts. (Permit Condition II.H.3.(h))

- Separate gradation testing of SFB at a frequency of one per 5,000 cubic yards was not performed. Gradation tests for fly ash and clay, collected at one per 5,000 cubic yard intervals, were compared to SFB requirements to assure specifications were achieved. (Permit Condition II.H.3.(j))
- Trench alignment, depth and width were adjusted in several instances to accommodate conditions encountered during construction. This as-built trench alignment, depth and width is documented on As-Built Drawings. (Volume IV Construction Specifications - Section 5H Subsection 3.1.2)
- SFB backfill placement was permitted when ambient air temperatures were below 32 degrees Fahrenheit, provided SFB temperature was not below 32 degrees Fahrenheit. (Volume IV Construction Specifications - Section 5H Subsection 3.2.7)
- The cutoff wall cap was not constructed. The cutoff wall was allowed to consolidate over a period of one to two years while cap construction was completed. The cutoff wall cap was not constructed since construction vehicles were not permitted to drive on top of the cutoff wall. (Volume IV Construction Specifications - Section 5H Subsection 3.2.8 and Permit Condition II.H.3.(f))
- Two separate areas of cutoff wall, one in the Eastern Containment Unit and one in the Western Containment Unit, were damaged during other site construction efforts. These areas were repaired in accordance with project specifications. (Volume V Construction Quality Assurance Plan – Section 6.0 Subsections 6.3.1.2 and 6.3.1.3)

4.0 CAP SYSTEM

4.1 Summary of Design

The Closure Plan (Attachment 6 to the Post-Closure License), in Section 4.0 identified that as part of the closure of the surface impoundment units, a final cover (cap) system would be constructed to provide long term protection against infiltration of precipitation, promote surface run-off, and function with a minimum amount of maintenance. The components of the cap system included a clay layer, geomembrane liner, sand layer, geotextile filter, gravel toe drain, cover soil layer, and a vegetated topsoil cover.

Section 5K of the Construction Specifications (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with implementation of cap system construction.

Section 7.0 of the CQA Plan (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that cap system construction was performed in accordance with the approved Post-Closure Plan.

4.2 Permit Conditions

Several Permit Conditions are included within the Post-Closure License relative to closure activities associated with the construction of the cap components. These conditions were incorporated into site work activities. Specific conditions of note include Permit Conditions II.H.5.(a) through (j).

Permit Condition II.H.5.(a) modified Item K (Volume IV, Section 5.K.3.2.2 - Construction Specifications) to specify scarification of the smooth lift a minimum depth of 2 inches to provide key-in for the new lift and to prevent development of a horizontal conduit within the clay layer prior to the placement of the next lift.

Permit Condition II.H.5.(b) modified the total thickness of cover soil fill, including the 12-inch sand drainage layer, to be a minimum of 32 inches.

Permit Conditions II.H.5.(c) through II.H.5.(h) modified the testing frequencies as listed below.

- In-place moisture testing is modified from one per 10,000 cy to one per 1,000 cy of material placed with a minimum of one test per day for clay placement
- The collection of Shelby tube samples to determine hydraulic conductivity of clay from one per 5,000 cubic yard to one per 10,000 cubic yard, and bentonite shall be used for backfilling the hole.
- The liquid limit, plastic limit, plasticity index, and moisture density relationship of clay from one per 25,000 cubic yard to one per 5,000 cubic yard of material placed.

- Sand layer testing shall include a permeability test per every 5,000 cubic yard of sand placed.
- Clay liner and sand layer thickness and elevation verification is every 100 feet of longitudinal direction of the containment unit and at the centerline and all grade breaks in the transverse direction of the containment unit.

Permit Condition II.H.5.(i) identified specific acceptance criteria for sand. First, no sharp particles. Sharp particles are determined based on visual observation of the materials during excavation and laboratory testing. Second, 100% must pass a 3/4-inch sieve and less than 7% shall pass a #200 sieve. Finally, the minimum hydraulic conductivity shall be $1x10^{-2}$ cm/sec.

Permit Condition II.H.5.(j) identified specific procedures for sand placement. First, a bulldozer, with low ground pressure tracks, shall place sand maintaining at least 12 inches of sand between itself and the geomembrane. Second, equipment used for placing the sand shall not be driven directly on the geomembrane. Finally, a minimum of two feet of soil shall be maintained between rubber-tired vehicles and geomembrane.

4.3 Construction

This section has been prepared as a general summary of construction activities associated with this work effort. A complete presentation of construction activities associated with this work is contained in the Daily Field Reports, included as Appendix M.

4.3.1 Roles

J.A. Jones Environmental Services, Inc. (JAJES) was the General Contractor responsible for the earthwork activities associated with the cap system construction. Responsibilities included constructing all portions of the cap system according to the Project Drawings and Specifications. Specific work areas included placement of clay, sand, geotextile, cover soil and vegetative topsoil cover and anchor trench excavation and backfilling. JAJES also performed construction layout surveying.

Haseley Construction Companies, Inc. (Haseley) served as the earthwork subcontractor to JAJES. Haseley was responsible for assisting Jones in constructing portions of the cap system. Specific work areas included placement of clay, sand, geotextile, cover soil and vegetative topsoil cover and anchor trench excavation and backfilling. Haseley retained NOVA Consultants, Inc. (NOVA) to provide construction layout surveying.

GSE Lining Technologies (GSE), subcontractor to JAJES, served as the geomembrane installer. GSE was responsible for installation of the geomembrane liner.

Canon Russeau Landscape, Inc. served as the seeding and mulch subcontractor to JAJES. Canon Russeau was responsible for supplying and placing all seed and mulch for the final cap system.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer, Independent Testing Engineer (ITE) and record surveyor.

4.3.2 Implementation

The cap system was constructed over both the Eastern Containment Unit (ECU) and the Western Containment Unit (WCU). The cap system covers the entire area within the cutoff wall perimeter boundary. The cap system is a composite system consisting of a series of layers including: clay layer, geomembrane, sand layer, geotextile filter, gravel toe drain, cover soil layer, and vegetated top soil cover. Construction activities began with clay placement in September, 1997 in the ECU. Clay placement continued until December of 1997. Clay placement resumed in May 1998. Work then progressed concurrently in the ECU and WCU. All cap system work was essentially complete by December 1998. Construction of the cap system interface with the existing Plant was completed by August 1999.

Cap system construction details are reflected in CQA Daily Field Reports included in Appendix M, Project Photographs included in Appendix N, and As-Built drawings included in Appendix U.

4.3.2.1 Clay Layer

Prior to clay placement, JAJES graded the top of waste surface to provide a uniform subgrade. The waste subgrade was typically between 4% and 10%. Areas that were either above or below grade were reworked and resurveyed to verify that design requirements had been met.

Clay liner was placed on top of the graded waste. The clay material borrow source was London Aggregates located in Milan, Michigan.

The clay was spread in 9-inch loose lifts. Prior to compaction, the contractor manually removed rocks that were larger than three inches in diameter and any deleterious or organic material observed. Clay moisture content was controlled to met project specifications. Compaction was performed with a Caterpillar 815 or 825 soil compactor. The clay was compacted to achieve a density and moisture content within the permeability acceptance window established by CQA testing. Hand compaction equipment, such as tamping foot and segmented pad walk behind compactors, was used around penetrations of the clay layer.

Areas that became desiccated during clay layer installation were reworked to achieve project specifications. Areas of unstable clay placement were reworked to ensure overall cap system stability and integrity. When necessary, scarification was used to minimum depth of two inches to ensure lift bonding between subsequent lifts of clay soil. Completed sections were smooth drum rolled as necessary to facilitate on-going construction activities. Exposed finished lifts of clay were sprinkled with water to maintain the clay condition.

Prior to initiation of geomembrane placement, any protrusions, irregularities or sharp stones were removed and the resultant voids backfilled with compacted clay or bentonite powder. This process was continued until a surface suitable for geomembrane deployment was achieved.

Placement of the clay layer began in Areas B and C in the ECU in September 13, 1997 and continued through November 1997. JAJES and Haseley were jointly primarily responsible for clay placement during 1997. One lift of clay was placed on the western side of the WCU, but was not compacted. Clay placement operations were then postponed due to winter weather conditions.

Clay placement resumed May 13, 1998 and continued to completion in November 1998. Both JAJES and Haseley were jointly responsible for clay placement during 1998, with both working in the ECU and the WCU. Prior to resuming clay placement in the spring of 1998, the upper lift of clay placed during 1997 was reworked to project specifications

Clay was placed in excess of the three-foot minimum thickness. The volume of clay liner placed in the ECU to achieve the three-foot thickness was 146,390 cubic yards. The volume of clay liner placed in the WCU to achieve the three-foot thickness was 80,780 cubic yards.

4.3.2.2 Geomembrane Liner

A 40 mil thick Linear Low Density Polyethylene (LLDPE) geomembrane was utilized as the geomembrane liner. GSE provided quality control certificates from the manufacturing process for geomembrane materials (resin, rolls, and extrusion rod) furnished for the project.

The geomembrane liner surface was examined by the GSE superintendent and a MEC's ITE prior to deployment of the geomembrane material. When found to be suitable for deployment, Subgrade Surface Acceptance Certificates were signed for the area covered during deployment on a daily basis.

Rolls were transported from the on-site stockpile area to the cap as needed for deployment. The 40-mil LLDPE liner panels were deployed by GSE using a front-end loader with a spreader bar and frame attachment. The geomembrane panels were deployed by driving the loader backward across the cap system, rolling the geomembrane

out smoothly. When necessitated by site conditions, the membrane was pulled from the roll across the clay surface. GSE technicians aligned all geomembrane panels so that a typical overlap of four inches was maintained between the panels. Geomembrane panels were initially observed for defects and damages during deployment.

Trial seam welds were conducted on fragment pieces of geomembrane liner to verify that technician-seaming apparatus combinations were capable of producing quality production seams. These trial seams were conducted at the beginning of each seaming period, and at least once every 4 hours, for each seaming technician-apparatus combination used each day.

The geomembrane panels were seamed together in the field using double wedge fusion and extrusion welding. The fusion welder was used for the majority of the field seams. Extrusion welding was used for patches and repairs. The fusion welds were non-destructively tested using the pressure test method and the extrusion welds were non-destructively tested with the vacuum box or by spark testing.

Destructive seam sample locations were designated by MEC personnel and removed by GSE from non-destructively tested seams at a minimum rate of one sample per 500 linear feet. The goal of this sampling/testing program was to obtain samples that represent the overall quality of the installation and to test those areas which may be suspect. GSE performed destructive seam testing for CQC purposes.

GSE mobilized on June 30, 1998, and began geomembrane installation on July 9, 1998. GSE continued with geomembrane installation intermittently throughout the remainder of the year until completion in November of 1998. A total of 151,000 square yards was deployed in the ECU and 82,850 square yards was deployed in the WCU. GSE was responsible for all geomembrane installation.

4.3.2.3 Sand Layer

Sand layer was placed on top of the geomembrane liner. The sand material borrow source was CTE Sand and Gravel located in Tecumseh, Michigan and Sylvester Materials (Clinton Michigan Quarry).

Once the geomembrane liner was accepted, a one-foot thick drainage layer of sand was placed on the geomembrane. The sand was placed in one twelve-inch loose lift. Haseley performed sand placement utilizing a bulldozer with low-pressure tracks, a Caterpillar D6LGP. The bulldozer was used to mound sand so that it would fall down onto the geomembrane. Sand was not pushed across the geomembrane.

Sand was delivered to the placement area using rubber tired off-road truck. These trucks traveled on sand access roads that were maintained at a minimum two-foot thickness.

Sand was placed in excess of the 12-inch minimum thickness. The volume of sand placed in the ECU to achieve the 12-inch thickness was 54,465 cubic yards. The volume of sand placed in the WCU to achieve the 12-inch thickness was 27,037 cubic yards. Haseley was primarily responsible for sand layer construction.

4.3.2.4 Geotextile

Geotextile was placed above the sand layer. Prior to the deployment of the geotextile, the sand layer elevations were verified. When the sand was found suitable geotextile was deployed.

A polypropylene, needlepunched, non-woven geotextile, Style TNS R060, manufactured by TNS Advanced Technologies was utilized. This material was deployed by hand after geotextile rolls were delivered to the work area. Geotextile panels were installed vertically (machine direction parallel to the slope) beginning at the low end of the disposal area. All geotextile seams were overlapped a minimum of eighteen inches in lieu of sewing. Geotextile placement was followed immediately by cover soil placement to secure the geotextile in place.

Haseley was predominantly responsible for geotextile installation. . A total of 148,650 square yards was deployed in the ECU and 83,350 square yards was deployed in the WCU.

4.3.2.5 Cover Soil Placement

Cover soil was placed on top of the geotextile. The cover soil borrow sources were London Aggregates located in Milan, Michigan and Michigan Waterways Marine Construction in Monroe, Michigan.

A sixteen to eighteen inch loose lift of cover soil was placed on the geotextile. The cover soil was placed in one loose lift by a bulldozer and compacted by a Cat 815F or Cat 825C soil compactor. This lift compacted to a minimum thickness of fourteen inches. Hand compaction equipment, such as tamping foot and segmented pad walk behind compactors, was used around penetrations of the clay layer.

Cover soil placement was completed in December 1998. Both JAJES and Haseley were jointly responsible for cover soil placement, with both working in the ECU and the WCU.

Cover soil was placed in excess of the 14-inch minimum thickness. The volume of cover soil placed in the ECU to achieve the 14-inch thickness was 61,340 cubic yards. The volume of sand placed in the WCU to achieve the 14-inch thickness was 38,590 cubic yards.

4.3.2.6 Topsoil

Once the cover soil layer was determined to meet project requirements, a six-inch layer of topsoil was placed over the cover soil layer in one lift and lightly compacted. The topsoil borrow source was Sylvania Materials (South Rockwood, Michigan). Once the topsoil layer thickness and overall cap thickness were verified, the surface was seeded and mulched by Canon Russeau.

Topsoil placement was completed in December 1998. Both JAJES and Haseley were jointly responsible for topsoil placement, with both working in the ECU and the WCU.

Topsoil was placed between 4.5 and 7.5 inches thick. The volume of topsoil placed in the ECU was 29,500 cubic yards. The volume of topsoil placed in the WCU was 17,300 cubic yards.

4.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

JAJES and Haseley performed construction layout surveying to control placement of soil layers for the cap system. Haseley's surveyors also performed layer thickness checks to provide greater control of the layer thickness.

GSE performed CQC testing of the geomembrane including field trial seams, seam non-destructive testing and intermittent destructive seam sample testing during geomembrane installation. GSE prepared daily CQC reports throughout geomembrane installation. These reports were submitted to MEC by JAJES as part of the CQA monitoring effort. The GSE daily CQC reports are contained within MEC's project files and have not been included within this report.

4.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License). This section details efforts associated with the implementation of Section 7 of the CQA Plan. These activities were conducted to provide assurance that the cap system was constructed in accordance with the requirements of the Post-Closure License.

4.5.1 Clay Layer

MEC conducted preconstruction sampling and testing of the soil material to be used for the clay layer (London Aggregates gray clay). Samples were collected from the borrow source and subjected to grain size, plasticity, moisture content and classification for characterization purposes. The modified proctor density was determined and permeability testing was performed at various moisture content and densities to establish a relationship between compaction achieved (moisture content and density) and permeability. This information was utilized to develop the Range of Densities Required to Attain Permeability (PAW), Figure 4.1. This figure was used throughout clay recompaction to assure that permeability requirements were achieved.

During construction, clay compaction was monitored continuously by MEC's ITE. Compaction testing was performed, using a nuclear moisture-density gauge, at a minimum frequency of one per 1,000 cubic yards or one per day. The moisture-density test is a non-destructive test that measures the water content and density of the compacted soil. The moisture content and density are measured by the gauge and compared to the PAW. The PAW defines the moisture-density range in which the clay achieves project specification requirements. Moisture-density test results were recorded as part of the CQA Daily Field Report.

Bulk samples of clay were also collected during construction to assure material consistency during placement. Samples were collected at 5,000 cubic yard intervals and were tested for moisture-density, plasticity, and gradation.

Performance samples of compacted clay were collected utilizing a thin wall tube sampler. These samples were collected at a frequency of one per 10,000 cubic yards. All performance samples collected exhibited a permeability of less than 1.0E-7 cm/sec. Additional permeability samples were taken in May of 1998 to provide assurance that winter weather conditions had no detrimental effects on clay placed during 1997. All clay placed in 1997 met project specifications prior to additional clay being placed.

All moisture-density and permeability test points were backfilled with bentonite to maintain compacted clay liner integrity.

MEC also performed thickness verification surveys to assure a minimum of 3.0 feet of clay was compacted in place. Thickness verification was performed at a minimum of every 100 feet and at all grade breaks incorporated into the final waste grade. In order to maximize accuracy, grade verification was performed using a Sokkia Set 4B total station to determine horizontal location and an auto level to determine vertical elevation.

Daily test data for compacted clay is included within CQA Daily Field Reports (Appendix M). Laboratory data is included within Cap System Geotechnical Laboratory Data (Appendix D). Laboratory test data is summarized in the CQA Clay Data Tables

(Tables 4.1 and 4.2). Clay thickness and elevation verification data are reflected on the As-Built Drawings (Appendix U).

4.5.2 Geomembrane Liner

Prior to geomembrane installation, MEC collected geomembrane conformance samples for quality assurance testing. Samples were collected at a frequency of one per 100,000 square feet, and one per resin batch. MEC had conformance samples tested by a geosynthetic laboratory subcontractor, J&L Testing, Inc. (JLT). Conformance samples were tested for density, thickness, tensile properties and dimensional stability.

In addition, GSE provided quality control certificates for each geomembrane roll delivered to the site, each resin batch used to manufacture geomembrane, and for welding rod shipped to the site. These quality control certificates were reviewed by MEC's ITE as part of the CQA effort.

MEC's ITE conducted continuous monitoring of geomembrane installation. Trial weld preparation and testing by GSE was observed and documented. Panel deployment and seaming were observed and documented. Repair of damaged geomembrane sections was observed and documented. Non-destructive testing, including pressurized dual seam, vacuum box and spark, by GSE was observed and documented. MEC CQA personnel also conducted observations on a daily basis for any damage sustained by the liner after deployment and seaming were completed. Any observed damage was immediately brought to the attention of GSE's superintendent for repair.

Destructive samples were tested by MEC utilizing a tensiometer mobilized to the site for destructive seam testing. One out of every ten destructive seam samples was also shipped to JLT for additional assurance that geomembrane seams had achieved project specifications. An archive seam sample has been retained for each destructive seam sample collected.

Prior to the placement of the sand layer, MEC's ITE and GSE's superintendent examined the geomembrane. Sand placement did not begin until the geomembrane was determined to be suitable by MEC's ITE and GSE's superintendent.

Daily test data for geomembrane liner is included within CQA Daily Field Reports (Appendix M). Geomembrane laboratory test data is summarized in the Geomembrane CQA Conformance Test Results (Table 4.3). Destructive seam sample results are summarized in the Destructive Seam CQA Test Results (Table 4.4). Geosynthetic laboratory data, including GSE quality control certificates are, included within Cap System Geosynthetic Laboratory Test Data (Appendix E). The geomembrane panel layout for the ECU and WCU are reflected on the As-Built Drawings (Appendix U).

4.5.3 Sand Layer

MEC conducted preconstruction sampling and testing of the soil material to be used for the sand layer (CTE Sand and Gravel located in Tecumseh, Michigan and Sylvester Materials (Clinton Michigan Quarry)). Samples were collected from the borrow source and subjected to grain size, classification and permeability testing. A coefficient of permeability versus density plot was developed to assure that the sand, as placed, would meet project permeability requirements.

During construction, sand placement was monitored continuously by MEC's ITE. Compaction testing was performed, using a nuclear moisture-density gauge, at a minimum frequency of one per 40,000 square feet of sand placed. Sand layer thickness excavation checks were also performed at each moisture density test location. Moisture-density test results were recorded as part of the CQA Daily Field Report.

Bulk samples of sand were also collected during construction to assure material consistency during placement. Samples were collected at 5,000 cubic yard intervals and were tested for gradation and permeability. All permeability samples collected exhibited a permeability of greater than 1.0E-2 cm/sec.

MEC also performed thickness verification surveys to assure a minimum of 12 inches of sand was placed. Thickness verification was performed at a minimum of every 100 feet and at all grade breaks incorporated into the compacted clay grade. In order to maximize accuracy, grade verification was performed using a Sokkia Set 4B total station to determine horizontal location and an auto level to determine vertical elevation.

Daily information for sand layer is included within CQA Daily Field Reports (Appendix M). Laboratory data is included within Cap System Geotechnical Laboratory Data (Appendix D). Laboratory test data is summarized in the CQA Sand Data Tables (Tables 4.5 and 4.6). Sand layer thickness and elevation verification data are reflected on the As-Built Drawings (Appendix U).

4.5.4 Geotextile

Geotextile installation was monitored by MEC's ITE to assure material consistency and check for any indications of damaged material or material that did not meet project specification. In addition, the ITE also observed that the required minimum overlap was maintained during geotextile placement operations.

Haseley provided quality control certificates for geotextile delivered to the site. These quality control certificates were reviewed by MEC's ITE as part of the CQA effort.

Daily information for geotextile installation is included within CQA Daily Field Reports (Appendix M).

4.5.5 Cover Soil

Cover soil construction was monitored by MEC's ITE. Cover soil particle size, classification, and compaction characteristics were determined prior to delivery to the site. Confirmation testing was performed at a frequency of one per 10,000 cubic yards for particle size, classification, and compaction characteristics.

During construction, cover soil compaction was monitored continuously by MEC's ITE. Compaction testing was performed, using a nuclear moisture-density gauge, at a minimum frequency of one per 40,000 square feet. Moisture-density test results were recorded as part of the CQA Daily Field Report.

MEC also performed thickness verification surveys to document the thickness of cover soil placed. Thickness verification was performed at a minimum of every 100 feet and at all grade breaks incorporated into the compacted clay grade. Grade verification was performed using a Sokkia Set 4B total station to determine horizontal location and vertical elevation.

Daily information for cover soil is included within CQA Daily Field Reports (Appendix M). Laboratory data is included within Cap System Geotechnical Laboratory Data (Appendix D). Laboratory test data is summarized in the CQA Cover Soil Data Tables (Tables 4.7 and 4.8). Cover soil thickness and elevation verification data are reflected on the As-Built Drawings (Appendix U).

4.5.6 Topsoil

Topsoil construction was monitored by MEC's ITE. Topsoil pH and organic content testing was performed prior to delivery to the site. In addition, confirmation testing of pH and organic content was performed at a one per 10,000 cubic yard frequency.

MEC also performed thickness verification surveys to assure a minimum of 32 inches of total thickness of cover soil fill was placed. Thickness verification was performed at a minimum of every 100 feet and at all grade breaks incorporated into the compacted clay grade. In order to maximize accuracy, grade verification was performed using a Sokkia Set 4B total station to determine horizontal location and an auto level to determine vertical elevation.

Daily information for topsoil is included within CQA Daily Field Reports (Appendix M). Laboratory data is included within Cap System Geotechnical Laboratory Data (Appendix D). Laboratory test data is summarized in the CQA Topsoil Data Tables (Tables 4.9 and 4.10). Topsoil and total cover soil fill (including sand drainage layer) thickness and elevation verification data are reflected on the As-Built Drawings (Appendix U).

4.6 Revisions

Several revisions relative to cap system work were approved by MDEQ. These revisions are summarized below.

- Based upon a verbal request to MDEQ by Ford, the cover soil specification was revised to allow for use of sand as a cover soil. This revision was approved in a November 17, 1998, letter from MDEQ. Sand was not used as cover soil. (Volume IV Construction Specifications - Section 5K Subsection 2.6)
- Based upon a verbal request to MDEQ by Ford, the use of Aerospray 70 binder as a surface coating for compacted clay to prevent desiccation was approved. This revision was approved in a November 17, 1998, letter from MDEQ. (Volume IV Construction Specifications - Section 5K Subsection 3.3.1)
- Based upon a verbal request to MDEQ by Ford, the temperature specification for sand placement was eliminated. This revision was approved in a November 17, 1998, letter from MDEQ. (Volume IV Construction Specifications - Section 5K Subsection 3.4.2)
- Based upon an August 28, 1995, request from Ford, MDEQ approved several general changed to the Construction Specifications in a letter dated May 9, 1996. (Volume IV Construction Specifications - Section 5K)
- Design revisions in the Process Canal were submitted to MDEQ on May 29, 1996, and revised on July 22, 1996. MDEQ approved these revisions in an October 2, 1996, letter. (Design Drawings – Plates 1 to 59)
- Proposed changes to cutoff wall construction details associated with alignment revisions were submitted to MDEQ on January 9, 1998. These revisions included general grading, clay placement procedures and the addition of a geogrid of portions of the cutoff wall, thereby impacting cap system work. Based upon MDEQ input, these details were revised on February 4, 1998. These revisions were approved on February 26, 1998. (Volume IV Construction Specifications - Section 5K Subsection 3.2.2)

4.7 Clarifications

Several minor clarifications were incorporated into the cap system to accommodate conditions encountered during construction. These clarification items are summarized below.

- The geotextile utilized for this project was TNS Advanced Technologies TNS R060. The grab strength for this material is 160 pounds, as determined by ASTM D4632. (Volume IV Construction Specifications - Section 5K Subsection 2.4.1)
- The resin specific gravity was adjusted to reflect the material furnished by GSE, LLDPE. The revised specific gravity was 0.915 to 0.918. (Volume IV Construction Specifications - Section 5K Subsection 2.5.1)

- The destructive seam test method was switched from ASTM D3083 to ASTM D4437 to reflect the material furnished by GSE, LLDPE. (Volume IV Construction Specifications - Section 5K Subsection 2.5.1)
- JAJES requested MEC obtain clarification from MDEQ regarding freeze-thaw impacts on compacted clay liner. MDEQ provided clarification of the need to rework any clay liner impacted by freeze-thaw effects in a September 22, 1997, letter. Compacted clay liner that was impacted by freeze-thaw effects during the winter of 1997/1998 was recompacted to project requirements in the spring of 1998. (Volume IV Construction Specifications - Section 5K Subsections 3.2.2.I and 3.3.1.D.)
- Compaction specifications for anchor trench backfill were switched from those shown in Section 5K 3.2.2.D. to Section 5N 3.4. (Design Drawings - Plate 57)
- A rubber tired grader, a Caterpillar 12G Motor Grader, was utilized for portions of sand grading. (Volume IV Construction Specifications - Section 5K Subsection 3.4.2.B. and Permit Condition II.H.5.(j))
- The geotextile was overlapped 18 inches instead of being sewn. (Volume IV Construction Specifications - Section 5K Subsection 3.5.2.)
- The cover soil material was placed in a single fourteen-inch lift but was tested by the CQA personnel as two seven-inch lifts. The contractor excavated down seven inches in order to allow a moisture-density test to be taken at the seven-inch depth. The material was replaced and another moisture-density test was performed. The single fourteen inch lift thickness is the replacement of two nine-inch loose lifts in an effort to minimize traffic over the geotextile and sand. (Volume IV Construction Specifications - Section 5K Subsection 3.7.2.B.)
- 40 mil thick LLDPE geomembrane liner was used instead of 40 mil thick VLDPE. VLDPE geomembrane is no longer manufactured. LLDPE geomembrane is the replacement material for the VLDPE geomembrane. (Volume IV Construction Specifications - Section 5K Subsection 2.5.2.)
- The topsoil pH range was modified from 5.9-7.0 to 5.9-7.9. (Volume IV Construction Specifications - Section 5W Subsection 2.1.2.)
- Grading modifications were made to several areas of the cover system due to the amount of waste requiring disposal, shifting of the cutoff wall alignment, and the addition of the Sediment Containment Unit within the Eastern Containment Unit. The final configuration is reflected by the As-Built Drawings (Design Drawings - Plates 1 through 59)

5.0 OFF-SITE TRANSPORTATION AND DISPOSAL

5.1 Summary of Design

The Closure Plan (Attachment 6 to the Post-Closure License), in Section 2.0, identified that wastes which were incompatible for disposal in the on-site containment units would be disposed of off-site. Wastes that may have been determined to be incompatible included demolition debris, hazardous or non-hazardous wastes that did not meet the requirements for solidification.

Section 5L of the Construction Specification (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with implementation of off-site transportation and disposal.

Section 8.0 of the CQAP (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that off-site transportation and disposal activities were performed in accordance with the approved Post-Closure Plan.

5.2 Permit Conditions

Permit Conditions I.F. and II.H.9. provide requirements for off-site transportation and disposal of waste materials.

5.3 Construction

This section has been prepared as a general summary of construction activities associated with this work effort. A complete presentation of construction activities associated with this work is contained within Daily Field Reports, included as Appendix M.

5.3.1 Roles

J. A. Jones Environmental Services, Inc. (JAJES) was the General Contractor responsible for implementation of off-site transportation and disposal work.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer and Independent Testing Engineer (ITE).

5.3.2 Implementation

Off-site transportation and disposal occurred throughout the length of the project. Two main categories of waste were transported off-site: construction debris and soil excavated from Area D West which was determined to contain PCBs at levels above 50 ppm (TSCA regulated).

Construction debris, including concrete, steel, and various other types of debris, was transported intermittently from 1995 through 1998 to the Allen Park Clay Mine Landfill in Allen Park, Michigan. When sufficient construction debris had accumulated on-site, JAJES would schedule a roll-off box for off-site disposal. The debris was cleaned of all loose soil and then loaded into the roll-off box. MEC observed the roll-off box to ensure no waste was mounded above the side rails, no waste had accumulated on the outside of the box, and to ensure the box had an adequate cover. The roll-off box and truck were then decontaminated under the observation of MEC's ITE and Form 17 and Form 18 were completed to document off-site transportation.

Soil containing PCBs at levels above 50 ppm were transported from 04/14/97 to 04/23/97 to CWM Chemical Services, Inc. MDC in Model City, New York (US EPA ID# NYD049836679) and on 08/05/97 and 08/14/97 to Wayne Disposal in Belleville, Michigan (US EPA ID# MID048090633). Appendix F contains a summary table of the manifests and copies of all associated paperwork including uniform hazardous waste manifests, disposal standards for NY state regulated hazardous PCB wastes, trucking company paperwork, weigh tickets from on-site scales, certificates of disposal, EQ PCB continuation sheets, and Forms 17 and 18.

5.4 Construction Quality Control (CQC) Monitoring

CQC monitoring was not provided for this work.

5.5 Construction Quality Assurance (CQA) Monitoring

The ITE performed vehicle inspection prior to vehicle departure from site, monitored vehicle loading operations, and approved or rejected vehicle cover systems proposed for use by JAJES. Each load that went off-site was documented by MEC in the CQA Daily Field Reports. The CQA Officer received and retained copies of off-site disposal records, Vehicle Decontamination Logs, and Vehicle Inspection Reports for project records. Hazardous waste manifests are located in Appendix F. Vehicle Inspection Reports and Vehicle Decontamination Logs are located within the CQA Daily Field Reports contained within Appendix M.

Soil containing PCBs at levels above 50 ppm hauled off-site consisted of soil excavated from the south side of Area D West, also identified in Section 12.0 of this report. This soil was loaded into trucks that had plastic liners in their beds. Once the truck was full, the plastic was folded over the waste and a separate tarp was placed over the bed. MEC observed that no waste was mounded above the side rails of the truck, that no waste had accumulated on the outside of the truck or bed and that the load was distributed evenly in the bed of the truck. The truck was then decontaminated under observation of MEC and Forms 17 and 18 were completed. As the truck left the plant, it went over the scales to determine its weight. A weigh ticket was retained by MEC, which showed the time, date, tare weight and overall weight. A total of 21 loads of soil was transported off-site, 19 loads to Model City and 2 loads to Wayne Disposal.

Construction debris loads were documented with Vehicle Inspection Reports and Vehicle Decontamination Logs. Soil containing PCBs at levels above 50 ppm were documented with Vehicle Inspection Reports and Vehicle Decontamination Logs and Hazardous Waste Manifests.

5.6 Revisions

There were no revisions to this work.

5.7 Clarifications

The first two loads of construction debris transported off-site in 1995 were not observed by MEC and are not documented by Vehicle Inspection Reports and Vehicle Decontamination Logs, although the off-site transport event is noted in the CQA Daily Field Report. All subsequent construction debris disposed of off-site was observed and documented by MEC.

6.0 EARTHWORK

6.1 Summary of Design

The Closure Plan (Attachment 6 to the Post-Closure License), in Section 9.0, identified earthwork activities as part of the closure of the surface impoundment units including, the placement of fill soil and general grading for the haul road across the East Intake Canal; dike construction and reconstruction; and placement of general fill.

Section 5N of the Construction Specifications (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with the earthwork activities.

Section 9.0 of the CQA Plan (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that earthwork activities were performed in accordance with the approved Post-Closure Plan.

6.2 Permit Conditions

There were no Permit Conditions included within the Post-Closure License relative to the general earthwork activities described in Section 5N of the Construction Specifications.

6.3 Construction

This section has been prepared as a general summary of construction activities associated with this work effort. A complete presentation of construction activities associated with this work is contained in the Daily Field Reports, included as Appendix M.

6.3.1 Roles

J.A. Jones Environmental Services, Inc. (JAJES) was the General Contractor responsible for the earthwork activities associated with the closure activities. All earthwork activities were completed by JAJES except for the general fill compaction performed by Haseley Construction, Inc. (Haseley) in Area D North.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer, Independent Testing Engineer (ITE) and record surveyor.

6.3.2 Implementation

The earthwork activities included the placement of fill soil and general grading for the haul road; placement of general fill; placement and compaction of load-bearing fill (e.g., dike reconstruction); excavation and backfilling of anchor trenches; all necessary repair work; and restoration work. Restoration was performed in the six closure areas outside of the containment units by placing and compacting general or load bearing fill within the

areas of impacted soil and sludge removal. These areas included Area D West, West Marsh, Area D North, Area D Towers, North Intake Canal, and Process Canal.

The haul roads were constructed with load-bearing fill meeting the classification, grain-size distribution, and quality requirements in Section 5N of the Construction Specifications in November and December of 1995. The load-bearing fill material was placed in twelve-inch loose lifts and compacted. Upon reaching final grades, the roads were lined with an aggregate/rock fill (MDOT 21A or 22A). The load-bearing fill material was obtained from London Aggregates of Milan, Michigan.

The East Intake Canal Access Corridor was backfilled in November and December of 1995 with rock fill to create a construction/maintenance access between the containment units. The rock fill material was placed in order to bring the fill above water level such that dewatering the Intake Canal would not be necessary. The rock fill was placed a minimum of twelve inches above the existing water level.

Unclassified fill was used as backfill in the Area D-West and the West Marsh wetland restoration and mitigation area from June through August of 1997. The unclassified fill was placed in loose lifts not exceeding 12 inches in thickness and was compacted to a density of 90% of the maximum dry density, as determined by the Modified Proctor Test. JAJES surveyed and staked each 50-foot grid point within the limits of the D-West and West Marsh earthwork. They placed the coordinate location and elevation of each grid point on its respective timber lathe and in their field notes.

A twelve-inch thick, lightly compacted wetland topsoil layer was placed above the unclassified fill in the Area D-West and West Marsh restoration and mitigation area. The topsoil was a fertile, friable, sandy, loamy soil free of deleterious material with a pH range between 6.5 to 8.4. The area was then seeded, mulched, erosion control matting was placed and the area was prepared for the planting of trees and shrubs.

The six areas outside of containment where closure activities were performed included Area D West, West Marsh, Area D North, Area D Towers, North Intake Canal and Process Canal. Once excavation activities were completed, all sampling locations tested, and materials excavated were solidified, restoration activities took place. Restoration activities for Area D West began on June 18, 1997, for Area D Towers on September 12, 1997, for Area D North and the North Intake Canal on November 3, 1997, and for the Process Canal on June 3, 1996. Restoration was performed by placing and compacting general or load bearing fill within the areas of impacted soil and sludge removal.

6.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the

Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

There were no CQC procedures implemented for closure activities associated with general earthwork activities.

6.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License). This section details efforts associated with the implementation of Section 9 of the CQA Plan. These activities were conducted to provide assurance that the earthwork activities were performed in accordance with the requirements of the Post-Closure License.

For each task associated with the earthwork activities, a MEC ITE performed monitoring throughout the course of the work. MEC documented closure activities, performed all field sampling activities, surveyed final grades and identified to JAJES when an area was suitable for restoration. MEC's observations are documented within Daily Field Reports contained within Appendix M. Project photographs in Appendix N also document work activities.

Bulk samples of all load-bearing fill borrow sources were collected by the MEC ITE. The sources were tested by the ITE for particle-size analysis (ASTM D421 and D422), soil classification testing (ASTM D2487), and modified Proctor test (ASTM D1557). In cases where the source visually appeared to be a clean, granular soil, maximum and minimum density testing (ASTM D4253 and D4254) were substituted in lieu of the modified Proctor testing. This testing was also performed for each 10,000 cubic yards of soil placed and compacted, or when a material change was noticed. The samples collected during placement and compaction were also tested for moisture content in accordance with ASTM D4959. Earthwork laboratory data is presented in Appendix G, Earthwork Geotechnical Laboratory Data.

The MEC ITE performed field density and moisture content of all load-bearing fill for each 40,000 square feet of material placed using nuclear density methods (ASTM D2922 and D3017, respectively). The testing was done to verify that each lift was compacted to 95 percent of the maximum dry density or to a minimum relative density of 75 percent. Structural fill was placed in the haul road and the restoration areas.

No testing was required by the ITE during placement and compaction of the rock fill and crushed stone for the haul roads and East Intake Canal Access Corridor. However, the MEC ITE made visual observations of the placement and compaction techniques and observed the materials to be free of organic matter and deleterious material.

Bulk samples of all unclassified and general fill borrow sources were collected by the MEC ITE prior to their use. The sources were tested by the ITE for particle-size analysis (ASTM D421 and D422).

The MEC ITE monitored the placement and compaction of all general and unclassified fill placed. Areas requiring general fill material included anchor trenches and areas requiring repair (i.e., the restoration areas). Areas requiring unclassified fill material included the Area D-West and West Marsh wetland restoration and mitigation areas.

6.6 Revisions

There were no modifications related to the placement and compaction of general fill.

6.7 Clarifications

Several minor clarifications were incorporated into general earthwork activities to accommodate conditions encountered during construction. These clarification items are summarized below.

- The distance from the cutoff wall to the top of bank of the North Intake Canal was not constant, as indicated in the Construction Drawings, when general fill was placed adjacent to and along the North Intake Canal at a slope of 3(H):1(V) up to a top of bank elevation of 577.5. The actual distance is documented on As-Built Drawings (Construction Drawings, Plate Nos. 43, 43-A, 44, 46, and 56).
- Backfilled soils placed in the dewatering ditches, drainage swales and the ditches in Area C-1 that exceeded 3'-0" in width were not compacted during placement if the soils had a USCS soil classification of GW, GP, SW, SP, GW-GC and SP-SM. Soils having other USCS soil classifications were compacted in accordance with the Construction Specifications. (Volume IV Construction Specifications – Section 5N).
- The North Intake Canal Flow (culvert) Bypass located at Sterling State Park was removed and backfilled with 4" by 8" diameter rock meeting the general fill provisions of the Construction. The 4" by 8" diameter rock was choked (i.e., overlain) with MDOT 21AA aggregate and rolled to provide a pedestrian walkway (i.e., Nature Trail) complying with the requirements of the Construction Specifications (Volume IV Construction Specifications – Section 5N Subsection 2.1 and Section 5O Subsection 3.1.5, respectively).

7.0 SOLIDIFICATION

7.1 Summary of Design

The Closure Plan (Attachment 6 to the Post-Closure License), in Section 4.3, outlined waste solidification for the project. Strength and permeability criteria were established for performance of the solidified material. Three separate means were established to ensure physical stability of materials disposed of within the on-site containment units: geotechnical stability evaluation of in-situ disposal areas; solidification; and compaction as waste placement above grade. A solidification trial operation procedure was specified to ensure project objectives could be met. CQA protocols were outlined to assure that project objectives were met.

Section 5P of the Construction Specification (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with waste solidification.

Section 10.0 of the CQA Plan (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that waste solidification activities were performed in accordance with the approved Post-Closure Plan.

7.2 Permit Conditions

Permit Conditions II.H.2. of the Post-Closure License identified specific slurry reagent equipment as suitable for solidification efforts. This condition also identified that dry reagent addition may be performed, providing the requirements of Permit Condition IV.E were met.

Permit Condition IV.E specified a shroud or enclosure cover the mixing area if dry reagents were used and that a fan or baghouse system be included to ensure air emissions from the mixing area complied with opacity limits specified in Section 15 of Act 348.

7.3 Construction

This section has been prepared as a general summary of construction activities associated with solidification. A complete presentation of construction activities associated with this work is contained within Daily Field Reports, included as Appendix M of this report.

7.3.1 Roles

J. A. Jones Environmental Services, Inc. (JAJES) was the General Contractor responsible for solidification efforts. JAJES performed all in-situ solidification efforts. The solidification equipment utilized by JAJES for this effort was developed specifically for this project. As such, there was significant involvement from several JAJES subcontractors, including the mixing head manufacturer, the reagent delivery pump manufacturer, and the batch plant manufacturer. In addition to in-situ solidification, all

excavation, regrading and compaction associated with waste placement above grade activities was also performed by JAJES.

City Environmental (City) was a specialty subcontractor retained by JAJES to perform ex-situ solidification efforts. City performed all ex-situ solidification efforts using a pugmill.

STS Consultants Ltd. (STS) was a specialty subcontractor retained by JAJES to perform stability evaluation sampling and testing. STS performed field cone penetrometer and geotechnical laboratory testing for stability evaluation efforts.

Several other subcontractors were utilized by JAJES for this effort. These included technical experts, to increase JAJES understanding of the solidification process, reagent suppliers, to provide various reagent materials utilized by JAJES for solidification, and specialty contractors, to assist JAJES with compaction of waste materials.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer, Independent Testing Engineer (ITE) and record surveyor.

7.3.2 Implementation

Work for solidification consisted of three main components. These components included preliminary activities (sludge survey and stability evaluation), solidification, and waste placement above grade.

7.3.2.1 Preliminary Activities

A sludge survey was performed by JAJES to determine the depth of sludge prior to mixing. The sludge survey was performed on a 50 foot maximum grid. Generally, the procedure utilized a 1¼" diameter pipe section(s) manually pushed through the sludge by two laborers until refusal was achieved. The pipe section(s) had a survey prism mounted to the top that was jointly surveyed by JAJES and MEC. These survey measurements were then used by JAJES as the planning guide for solidification of the separate impoundment areas. MEC utilized these same measurements for construction quality assurance purposes.

JAJES retained STS to perform cone penetrometer testing, complete soil borings, and provide geotechnical laboratory testing associated with the stability evaluation. This work focused primarily on nonsludge fill areas within Area C. Some minor additional stability evaluation testing was performed at the southern end of Area D, southwest of the North Lagoon. The stability evaluation was provided to the CQA Officer and an area was delineated as the edge of the stable area where solidification would not be required.

7.3.2.2 Solidification

JAJES performed laboratory testing to define optimal reagents and additive ratios prior to initiating field solidification. Proposed mix designs were developed by JAJES utilizing sludge samples collected from the various on-site impoundments and performing treatibility studies in a laboratory. These mix designs were presented in a Proposed Mix Designs Report prepared by JAJES. In this report, JAJES identified optimal reagent addition rates based upon sludge water content. Two primary additives were identified by JAJES for solidification: cement and fly ash. These additives were combined in varying proportions and the combined reagent addition rate was identified versus sludge water content.

The field trial phase was performed from March 25 to 28, 1996, in the North Lagoon. A two to one fly ash to cement proportion was selected by JAJES for solidification purposes. The solidification unit operator controlled mixing consistency. Mixing depth was controlled by the solidification unit operator and recorded by the JAJES solidification superintendent. Reagent addition was recorded and controlled by JAJES solidification superintendent. The field trail phase demonstrated the feasibility of the proposed process. Full-scale solidification efforts were initiated by JAJES immediately, on April 2, 1996, without awaiting the result of field trial samples.

Full-scale solidification was performed throughout the course of the project in the same general manner. The JAJES solidification engineer provided the solidification crew with a detailed plan for mixing, including depth and reagent addition rate, daily for each separate production shift. The solidification unit operator controlled mixing consistency and depth. Mixing consistency was controlled by visual observation. Mixing depth was controlled by extending the unit to the maximum depth achievable based upon the limitations of the unit (i.e., the maximum downward force exerted and the maximum downward distance reachable). The solidification unit was expected to achieve the depth identified by the manual sludge survey previously described. Reagent addition rates were controlled by the solidification superintendent or by a laborer. The solidification superintendent or a laborer calculated actual reagent addition rates after the solidification unit operator obtained initial depth measurements. The solidification superintendent or laborer recorded actual solidification depths and reagent addition rates for each separate mixing cell. This information was provided to the solidification engineer at the completion of each working day for review and construction quality control purposes. JAJES solidification engineer provided this documentation to the CQA Officer on a weekly basis for construction quality assurance purposes.

A solidification unit consisted of two rotating mixer heads mounted to a Caterpillar 375L excavator. The mixing heads were capable of rotating in either

direction. A depth monitor was incorporated into the mixing unit to enable the operator to identify the mixing depth. A survey prism was mounted to the mixing unit for record surveying and construction quality assurance purposes. Two separate solidification units were utilized for this project. Both units initially operated using slurry reagent. One of the units was converted to operate using dry reagent during the winter of 1997 to allow for continued solidification during the winter months. This unit was subsequently converted back to a slurry reagent system. The mixer heads were removed from the excavators and a conventional backhoe bucket (slotted for this application) was utilized during the last two to three months of solidification.

The primary reagent additives, fly ash and cement, were mixed with water at an on-site batch plant constructed for this specific purpose. The slurry was pumped from the batch plant to the solidification unit via surface piping with the discharge point being a tube centered between the mixing head. The slurry additive rate utilized during the project was either one to one or two to one fly ash to cement ratio. The reasons for this variation between additive rates were primarily cost and availability of reagents.

Several additional solidification additives were used by JAJES throughout the course of the project. These additives were incorporated by JAJES in efforts to improve final product strength and permeability and overall performance of solidification operations. These additives included chip sand, calciment, sodium silicate, and wood chips. Chip sand, and to a lesser extent wood chips, was added throughout the various surface impoundments in an effort to increase the permeability of the final solidified product. Calciment was added throughout the various surface impoundments in an effort to increase the final product strength and improve overall solidification performance. Sodium silicate was added to the upper portion of Area B in an effort to accelerate reaction time to prevent reagent settling, improve upper lift strength, and improve overall solidification performance.

Full-scale solidification occurred from April 2, 1996, until January 8, 1998. The sequence of solidification was adjusted by JAJES throughout the course of the project to facilitate internal JAJES scheduling requirements.

For Area A, solidification began on June 12, 1996, and was completed on January 8, 1998. The Area A solidification included sludge originally in Area A plus material excavated for the West Marsh and Area D West. For Area B, solidification began on August 1, 1996, and was completed on July 17, 1997. For Area C, solidification began on May 15, 1996, and was completed on November 26, 1996. For Area D, solidification began on April 16, 1996, and was completed on July 3, 1997. For the Polishing Lagoon, solidification began on June 26, 1996, and was completed on December 30, 1997. The Polishing Lagoon solidification included sludge originally in Polishing Lagoon plus material excavated from the

Process Canal. For the North Lagoon, solidification began on March 26, 1996, and was completed on June 18, 1997.

In support of JAJES, City operated a pugmill on-site to perform solidification of impacted materials excavated during remediation of areas outside of containment. The pugmill utilized the same reagent addition rate as the JAJES in-situ mixers; the two to one fly ash to cement ratio. The exception was reagents were added dry instead of in a slurry form. The pugmill operational periods were from October 10, 1996, to January 10, 1997, and from June 5, 1997, to December 17, 1997.

Solidification volumes for the project were: 1) Area A 128,118 cubic yards; 2) Area B 57,848 cubic yards; 3) Area C 75,150 cubic yards; 4) Area D 265,411 cubic yards; 5) Polishing Lagoon 19,030 cubic yards; 6) North Lagoon 14,037 cubic yards; 7) Process Canal 18,500 cubic yards; 8) Area D West 38,522 cubic yards; 9) Area D North 25,520 cubic yards; 10) North Intake Canal 55,888 cubic yards; 11) West Marsh 43,500 cubic yards; 12) Area D Towers 18,263 cubic yards; and 13) cutoff wall and LCS spoils 20,813 cubic yards.

7.3.2.3 Waste Placement Above Grade

Waste grading and compaction was required to obtain final grades specified by the Post-Closure License. This operation consisted of placing waste materials within the containment unit and compacting the material to achieve project requirements. Solidified material or materials that were suitable for compaction without solidification were placed within the containment unit as a single lift of 12-inches or less and compacted with a Caterpillar 815B or 563P compactor. Waste compaction efforts were performed intermittently throughout the course of the project. However, the majority of the waste placement above grade activities occurred in the second half of 1997 and the first half of 1998. Waste placement above grade activities were performed by JAJES.

In an effort to facilitate compaction, JAJES elected to have a subcontractor, Hensley, utilize a road subgrade conditioning mixer to mix calciment with stable waste materials to speed compaction efforts. This operation occurred during the spring of 1998.

Material that was placed as waste placement above grade includes pugmill solidified product, compactable impacted soils excavated from Area D North, Area D West, and the Area D Towers, solidified product requiring excavation to achieve project grades, and 4"x8" rock from rock access roads used for remediation of areas outside containment, see Section 12.0 of this Report.

7.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality. CQC procedures performed by JAJES relative to solidification are detailed within this section.

Prior to implementation of solidification, JAJES performed a lab study to determine the types and amounts of reagent(s) needed to meet solidification performance criteria. JAJES hired a subcontractor, Waste Geotechnics, to assist them in preparation of the mix schedules. This laboratory effort was followed by a field trial mixing effort. The laboratory and field trial phase indicated the proposed mixing procedure and mix designs were suitable to site waste materials.

Throughout the course of solidification, JAJES provided CQC for solidification unit location, solidification depth, and reagent addition rate. Solidification unit location was controlled by JAJES survey crew. The areas to be solidified were laid out in the field prior to solidification and staked or flagged. In addition, the solidification superintendent (or lead solidification laborer), batch plant operator, and solidification unit operator were given daily work schedules indicating the area to be solidified, the anticipated solidification depth based upon the initial sludge survey, and expected reagent addition rates. The daily work schedules were prepared by JAJES solidification engineer. When solidification occurred, the solidification superintendent (or lead solidification laborer) recorded mixing limits, mixing depth, and reagent addition rate actually performed in the field. This information was provided to the solidification engineer for review to confirm that proper implementation of the solidification process had occurred. The daily work schedule and actual production information was incorporated into a CQC production summary by the solidification engineer. These production summaries were provided to MEC for construction quality assurance review.

After several months of solidification had been performed, JAJES retained a solidification specialist, Connor Technologies, to provide guidance for solidification operations. JAJES received a report from Conner Technologies with recommendations for improving strength and permeability and incorporating CQC procedures and methods to improve overall performance. These recommendation focused on utilizing sludge moisture contents for mix proportioning (with more frequent CQC determination of sludge moisture content) and suggested continuing evaluation of supplemental reagent additions to improve final product performance.

As a result of these recommendations, JAJES setup an on-site laboratory to assist with quality control. The lab was equipped to perform water content testing and to identify alternative reagents and optimize reagent addition rates for particular waste characteristics. Throughout the solidification process, JAJES collected sludge samples

and returned them to the lab. The samples were then used to analyze the sludge water content. This data was used to determine the percent reagent addition for the sludge represented by that sample. The sludge samples were also used to perform additional reagent/sludge ratio evaluations.

After the first three to four months of solidification, JAJES initiated CQC sampling of solidification product immediately after mixing. JAJES collected a sample by extending a sampling tube through the entire depth of solidification. JAJES solidification crew prepared a replicate cylinder sample set from each depth interval represented. Total sample depths less than 4 feet were represented by a single sample set (upper). Total sample depths between 4 feet and 8 feet were represented by two sample sets (upper and lower). Total sample depths over 8 feet were represented by three sample sets (upper, middle, and lower). The number of cylinders prepared per sample set was five. If sample preparation was observed by MEC, MEC's ITE would initial the sample cylinders, validating the CQC sample set for possible CQA usage. These samples were tested at 3 and 7 day intervals to provide JAJES with an indication of anticipated performance and improve JAJES ability to coordinate project work.

7.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License). This section details efforts associated with the implementation of Section 10 of the CQA Plan. These activities were conducted to provide assurance that solidification activities were performed in accordance with the requirements of the Post-Closure License.

For CQA and record surveyor purposes, MEC participated in the initial sludge survey by JAJES. MEC's ITE obtained a survey measurement at the same time as JAJES survey crew during the sludge survey. This survey measurement provided a means to assure adequate solidification depth was achieved during full-scale solidification operations.

The initial CQA effort was the stability evaluation. The CQA Officer reviewed all data furnished by STS and determined stable areas that did not require solidification. This evaluation was supplemented by plate load testing to further evaluate areas that were not conducive to cone penetrometer testing. The limits of these stable areas were defined and reported to JAJES. Stability evaluation data is presented within Appendix O, Stability Evaluation Data.

For the laboratory phase of the trial run, the CQA Officer reviewed the Proposed Mix Designs Report provided by JAJES to become familiar with the proposed reagents and addition rates. The data provided indicated JAJES was able to achieve project objectives in a laboratory situation and that project objectives would be achievable in a field mixing situation.

The CQA Officer and MEC's ITE observed the field phase of the trial run. Mixing was observed to be thorough, uniform and consistent. Immediately after mixing, the product was observed to be generally liquid in nature with obvious pozzolanic reaction. MEC's ITE collected samples of the treated material and prepared cylinder samples for strength and permeability testing. The field phase of the trial run demonstrated the feasibility of the proposed process. The compaction portion of the field phase was performed as part of the waste placement above grade operations initiated at a later date and was not included in the field phase trial run.

MEC's ITE observed all full-scale solidification operations, including day and evening shifts. During mixing the ITE monitored for uniformity and consistency of mixing. Random depth verification survey measurements were obtained during solidification for quality assurance purposes. These measurements were obtained using a survey mirror prism mounted on the solidification unit. The survey measurements recorded the depth the solidification unit achieved. These survey measurements were compared against initial sludge survey data, when the locations were close enough to justify comparison, to assure that appropriate sludge solidification depths had been achieved.

Strength testing was performed by MEC at a minimum frequency of once per day per solidification unit. If a material variation was observed during mixing, or if JAJES varied the solidification process, MEC's ITE would request multiple samples to reflect the variations present. JAJES furnished a sample by extending a sampling tube through the entire depth of solidification. MEC's ITE prepared a replicate cylinder sample set from each depth interval represented. Total sample depths less than 4 feet were represented by a single sample set (upper). Total sample depths between 4 feet and 8 feet were represented by two sample sets (upper and lower). Total sample depths over 8 feet were represented by three sample sets (upper, middle, and lower). The number of cylinders prepared per sample set varied from eight to twelve, dependant upon the ITE and CQA Officers discretion. These samples were tested at various time intervals to demonstrate solidified product strength. The three most common test intervals were 3, 7, and 28 days after initial mixing. Strength test data for each separate solidification area (Area A, Area B, Area C, Area D, Polishing Lagoon, North Lagoon, and Pugmill) was summarized into a data table. Data tables reflecting daily production for each solidification area are presented as Tables 7.1 through 7.7.

Permeability sampling was performed after the solidified product had achieved project strength requirements. This was typically 28 or more days after initial mixing. The sample collected was an undisturbed sample, collected by one of three methods. The first method is conventional thin wall tube sampling. Second, drilled core samples were obtained when the solidified product was excessively hard for thin wall tube sampling. Finally, in several instances a sample pipe was placed into the solidified material immediately after mixing. This tube was than extracted to obtain an undisturbed permeability sample. Permeability test data for each separate in-situ solidification area (Area A, Area B, Area C, Area D, Polishing Lagoon, and North Lagoon) was summarized

into a data table. Data tables reflecting daily production for each solidification area are presented as Tables 7.8 through 7.13.

Deficient work areas were identified at various points during the course of solidification work. This deficient work included strength and permeability deficiencies. Deficient work was identified to JAJES through the use of the Problem Identification Forms (i.e., a Notice of Deficiency). Resolution of deficient work was reported through the use of the Corrective Measure Forms (i.e., a Corrective Measure Report). These forms are included within Appendix J of this report. A summary table of all solidification NODs is presented as Table 7.14.

All solidification work achieved permeability and strength requirements required by the Post-Closure License.

MEC's ITE observed and documented compaction efforts associated with waste placement above grade activities by JAJES. Field density testing was performed at least once per acre for every lift of material placed. Density testing was performed using a nuclear density gauge for both density and moisture content.

Daily test data for solidification work is included within CQA Daily Field Reports (Appendix M). Laboratory data is included within Solidification Laboratory Data (Appendix I). The stability evaluation is included within Stability Evaluation Data (Appendix O). Strength and permeability test data is summarized in Tables 7.1 through 7.13. Deficiency and corrective measure notices for damaged pipe sections are presented in LCRS NODs and CMRs (Appendix J). These notices are summarized in Table 7.14.

7.6 Revisions

Several revisions relative to LCS system work were approved by MDEQ. These revisions are summarized below.

- In an August 28, 1995, letter, remolded grab samples were proposed instead of undisturbed samples. This revision was approved by MDEQ on May 9, 1996. (Volume IV Construction Specifications - Section 5P Subsections 3.5.3, 3.6.1 and 3.6.5 and Volume V Construction Quality Assurance Plan – Section 10.0)
- In an August 28, 1995, letter, the laboratory phase timing with relation to start-up of the field trail and full-scale solidification was deleted. This revision was approved by MDEQ on May 9, 1996. (Volume IV Construction Specifications - Section 5P Subsection 3.5.1)
- In an August 28, 1995, letter, a statistical evaluation utilizing five samples collected over a 5,000 cubic yards increment was proposed to evaluate permeability specification compliance of sections of solidified waste. This procedure was approved by MDEQ on May 9, 1996. (Volume IV Construction Specifications -

Section 5P Subsection 2.2 and Volume V Construction Quality Assurance Plan – Section 10.0)

- A June 26, 1996, request from Ford was submitted to allow for utilization of plate load testing to evaluate portions of containment unit which contained stable material (slag, fill, construction debris and municipal waste) that was not readily amenable to cone penetrometer testing. This procedure was approved by MDEQ on August 27, 1996. (Volume IV Construction Specifications - Section 5P Subsections 2.2 and 3.4 and Volume V Construction Quality Assurance Plan – Section 10.0)
- A March 27, 1997, request from Ford was submitted to allow for the addition of french drains or decreasing of leachate pipe spacing to accommodate below specification portions of solidified waste. This revision was approved by MDEQ on May 7, 1997. (Volume IV Construction Specifications - Section 5P Subsection 2.2 and Volume V Construction Quality Assurance Plan – Section 10.0)
- In an April 29, 1997, letter, a stability evaluation procedure was proposed to evaluate if small segment of solidified waste below 25 psi unconfined compressive strength could remain within the containment unit. A maximum of 5% of the waste within each containment unit was proposed to be between 10 psi and 25 psi unconfined compressive strength. This revision was approved by MDEQ on May 28, 1997. (Volume IV Construction Specifications - Section 5P Subsection 2.2 and Volume V Construction Quality Assurance Plan – Section 10.0)

7.7 Clarifications

Several minor clarifications were incorporated into the solidification work to accommodate conditions encountered during construction. These clarification items are summarized below.

- Solidification of areas adjacent to the slurry wall was required to achieve a minimum unconfined compressive strength of 25 psi rather than the 50 psi identified in the Construction Specifications. (Volume IV Construction Specifications - Section 5P Subsection 2.2)
- The final resistance criteria for sludge survey agreed upon by JAJES and WCC was the maximum downward pressure exerted by the solidification unit. This depth was checked for CQA purposes against a manually performed sludge survey. This process ensured that all soft material would be solidified to project specifications. (Volume IV Construction Specifications - Section 5P Subsection 3.3)
- A Hanson 10 Cone Penetrometer was utilized, in accordance with ASTM D3441 procedure, to evaluate segments of solidified material. (Volume IV Construction Specifications - Section 5P Subsection 2.2 and Volume V Construction Quality Assurance Plan – Section 10.0)
- Permeability samples were collected a locations at or below the zone of influence of the leachate collection system. (Volume IV Construction Specifications - Section 5P Subsection 3.6.6)

- JAJES utilized a soil stabilization unit, instead of conventional moisture control methods, to accelerate compaction of soils and solidified waste for waste compaction above grade efforts. (Volume IV Construction Specifications - Section 5P Subsection 3.6.4)
- In several instances, freshly treated pugmill material was placed in lifts greater than 12 inches to fill ditches or existing open excavations. This material was sampled during placement for unconfined strength testing and was not monitored for compaction. (Volume IV Construction Specifications - Section 5P Subsection 3.6.5)
- In many instances, the final solidified product produces was extremely hard with a decomposed rock consistency. This type of final product did not have a soil-like consistency and was not readily excavated. (Volume lV Construction Specifications - Section 5P Subsection 2.2)

8.0 REMEDIATION WORK NEAR TOWERS

8.1 Summary of Design

Section 5R of the Construction Specification (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with implementation of remediation work near the Area D Towers.

Section 12.0 of the CQAP (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that remediation work near the Area D Towers was performed in accordance with the approved Post-Closure Plan.

8.2 Permit Conditions

There were no Permit Conditions included within the Post Closure License relative to the remediation work near towers.

8.3 Construction

This work was completed as part of Closure Activities Outside of Containment, Section 12.0 of this report. Construction activities associated

8.3.1 Roles

J. A. Jones Environmental Services, Inc. (JAJES) was the General Contractor responsible for remediation work near towers.

Detroit Edison was responsible for approval of all excavation activities associated with remediation efforts near towers.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer, Independent Testing Engineer (ITE) and record surveyor.

8.3.2 Implementation

The remediation work near towers was a component of the remediation of areas outside containment. Implementation of this work is outlined in Section 12.0 of this Report. All remediation efforts, specifically excavation, in the vicinity of the Area D Towers were performed in accordance with procedure approved by Detroit Edison. Remediation work in this area continued until the limits of safe excavation, as defined by Detroit Edison, were reached.

Specific safety precautions, as detailed within the Specifications, were taken by JAJES to ensure work safety when working beneath and around the Area D Towers.

8.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

Remediation work near towers was a component of the remediation of areas outside containment. CQC efforts associated with this work are detailed in Section 12.0 of this Report.

8.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License).

Remediation work near towers was a component of the remediation of areas outside containment. CQA efforts associated with this work are detailed in Section 12.0 of this Report.

8.6 Revisions

There were no revisions to this work.

8.7 Clarifications

There were no clarifications to this work.

9.0 LEACHATE COLLECTION AND REMOVAL SYSTEM

9.1 Summary of Design

The Closure Plan (Attachment 6 to the Post-Closure License), in Section 4.2, identified that the leachate collection and removal system (LCRS) would maintain an inward hydraulic gradient by collecting and removing leachate from within the containment units. The removal of leachate would maintain the piezometric surface at an elevation below the piezometric surface of the underlying bedrock aquifer and below the groundwater surface of the surrounding soil strata and surface water bodies, thereby establishing an inward groundwater gradient.

The removal of leachate was accomplished by installing a network of 6" slotted corrugated polyethylene pipes termed laterals. The laterals drained by gravity to perimeter pipes of the same size and composition. The perimeter pipes gravity drained into seven collection manholes. The manholes contained pumps that transmitted the collected leachate to a central manhole via 3" high-density polyethylene (HDPE) pipe. The central manhole pumped leachate to the on-site wastewater treatment facility. Where the pipes where installed outside of the cutoff walls, dual containment pipe was utilized.

Section 5T of the Construction Specification (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with construction of the leachate collection and removal system.

Section 13.0 of the CQA Plan (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that leachate collection and removal system construction activities were performed in accordance with the approved Post-Closure Plan.

9.2 Permit Conditions

There were no Permit Conditions included within the Post Closure License relative to the leachate collection and removal system.

9.3 Construction

This section has been prepared as a general summary of construction activities associated with this work effort. A complete presentation of construction activities associated with this work is contained within Daily Field Reports, included as Appendix M of this report.

9.3.1 Roles

J. A. Jones Environmental Services, Inc. (JAJES) was the General Contractor responsible for construction of the leachate collection and removal system.

Horizontal Technologies, Inc. (HTI) was hired as a specialty subcontractor to JAJES to install the piping and manholes included in the LCRS. HTI specializes in trenchless pipe installation technology.

Staelgraeve Turner Electric (STE) was hired as a subcontractor to JAJES to install the electrical system and controls for the LCRS.

HI-PO Industrial Services and K&D Industrial Services were hired as subcontractors to JAJES to perform 6" LCRS pipe integrity verification testing.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer, Independent Testing Engineer (ITE) and record surveyor.

9.3.2 Implementation

Work for installation of the LCRS consisted of five main components. These components included pretrenching, trenchless LCRS installation, pipe and manhole connections, repair operations for damaged LCRS pipe sections, and pressure conveyance pipe installation. HTI was primarily responsible for completion of these activities. JAJES provided support to HTI during LCS installation work.

Pretrenching was performed by HTI to remove any debris or naturally occurring rocks or boulders that may be present in the path of the trenchless pipe installation equipment. Pretrenching consisted of excavating a trench approximately 3 feet wide, along the proposed alignment, to one foot below the depth of the LCRS line. The excavated soil and solidified waste were separated from the debris and/or rocks and placed back into the trench. This allowed the trenchless pipe installation equipment to cut through the material with less difficulty and no obstructions.

Initially, pretrenching was performed along LCRS pipe alignments through areas that solidification did not occur. This would be areas where LCRS pipes were located in naturally occurring soil deposits, which were likely to contain rocks or boulders, or where LCRS pipes were located in demolition debris areas, which contained concrete, reinforcing steel and wood. The initial pretrenching areas were predominantly Area C and Area D. However, due the hardness of solidified waste, and the presence of 4"x8" rock, debris, and wood pallets added during solidification, HTI elected to perform pretrenching for all of the LCRS pipe alignments to facilitate trenchless pipe installation.

Trenchless LCRS installation was performed using a modified trenching excavator. The trench was created by a vertically traveling cutting chain and the pipe was fed through a tube down to the bottom of the trench. Stone bedding (6" minimum) and backfill were continuously fed into the trench via a hopper on top of the trencher. Backfill was placed to the top of the trench. The speed of the trencher and slope of the pipe were controlled

by computer from within the trencher. As a double check, HTI used a laser level with a receiver mounted on the excavator. HTI also checked pipe elevations using an auto level and a survey rod mounted on the excavator.

Pipe and manhole connections were completed one LCRS pipe had been installed in a specific area. HTI would excavate around the connection area to expose the installed LCRS pipe(s). A trench shield would then be set and the connection or manhole installation would be completed. Backfill would be placed around the pipe connection point and the trench shield would be removed.

In July of 1998, MEC performed pipe integrity verification testing and identified sections of damaged, clogged or blocked LCS pipe. HTI and JAJES performed pipe repair operations. The pipe repair procedure utilized was identical to the procedure utilized for pipe and manhole connections, previously discussed. Additional pipe integrity verification testing was performed by HTI, using subcontractors, to demonstrate that damaged, clogged or blocked LCRS had been repaired.

Pressure conveyance piping was installed using a shallow trencher or soil excavator. Pipe sections were fused together to provide a 3" diameter sealed pressure conveyance pipe. Pressure testing of this pipe was performed by HTI in accordance with the manufacturer's specifications. This pipe bedding and backfill were placed after pressure testing was complete.

LCRS construction was completed during two separate work periods. The first work period extended from March to October of 1997. LCRS installation focused on Area C, Area B, Area A, and Area D during this period. The second work period extended from January to October of 1998. LCRS installation during the second period focused on Area A and Area D. LCRS repairs were completed during the second period from July to October of 1998. Installation work associated with leachate pumps and control panels and wastewater treatment facility control panels continued from October 1998 to April/May of 1999.

LCRS installation incorporated 20,236 linear feet of pipe, 12,801 linear feet in the ECU and 7,525 in the WCU. Of this, 457 linear feet (approximately 2%) has been determined to be damaged, clogged or blocked. Pressure conveyance piping included 5,150 linear feet of single containment pipe, within the ECU and WCU, and 445 linear feet of dual containment pipe, outside the ECU and WCU.

9.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

JAJES provided CQC survey layout for all of the LCRS components.

HTI provided CQC survey verification for the installation of the LCRS components. Their efforts consisted of verifying the elevation of pipes and manholes and monitoring the slopes of the LCRS lines. HTI performed pressure testing of all of the 3" pressure conveyance and 8" containment piping.

JAJES and HTI performed pipe integrity verification testing, utilizing pipe cleaning subcontractors, to document repair efforts associated with damaged, clogged or blocked LCRS piping.

9.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License). This section details efforts associated with the implementation of Section 13 of the CQA Plan. These activities were conducted to provide assurance that the earthwork activities were performed in accordance with the requirements of the Post-Closure License.

MEC observed and documented all LCRS pipe installation. Due to the contractor's use of trenchless technology, MEC could not verify that the minimum bedding was supplied below the LCRS pipe. MEC also could not verify that the LCRS pipe condition during installation or backfilling. MEC did verify that adequate and appropriate trench backfill was supplied. MEC performed CQA conformance testing of the LCRS backfill.

During installation, MEC performed verification survey of LCRS pipe inverts at installation start and stopping points for each LCRS line. Additional verification survey data was obtained during pipe and manhole connection construction. If any pipe was not to grade, the Contractor and Resident Engineer were notified. Corrective action, if necessary, was performed and verified by MEC.

At the request of the Ford, MEC performed LCRS pipe integrity verification testing for the 6" diameter pipe. LCS pipe integrity verification procedure consisted of a ¾" diameter water jet probe utilized to check all LCS interior laterals and perimeter pipes. The acceptance criteria was that the water jet probe passed easily through the 6" LCS pipe. Using this procedure, MEC identified LCRS pipe that was damaged, clogged or blocked. Damaged, clogged or blocked LCRS pipe sections were reported to JAJES through issuance of a Notice of Deficiency (NOD), Form 3. Once the deficiencies were rectified, MEC issued a Corrective Measure Report (CMR), Form 4. A summary of the NODs and CMRs along with the JAJES responses is presented in LCRS NOD Summary, Table 9.1. Once LCRS pipe repairs had been completed, a follow up pipe integrity test was performed by JAJES using either the same procedure as that used by MEC or a 4"

mandrel passing through the pipe. Table 9.2 is the LCRS Pipe Integrity Verification Summary.

Portions of the damaged, clogged or blocked LCRS pipe were determined to not impact the system design and were allowed to remain. A summary of the approved LCRS pipe lengths is shown in Final LCRS Pipe Length Summary, Table 9.3.

MEC observed and documented installation of pressure conveyance piping. These observations included pipe fusion, trench excavation and trench backfill. MEC surveyed pressure conveyance pipes alignments for as-built drawing preparation. MEC also observed and documented all hydrostatic testing of pressure conveyance pipe. Hydrostatic testing was performed by HTI using guidelines provided by the Manufacturer. The results of the pressure testing are located in the CQA Daily Field Reports in Appendix M of this report.

MEC documented the pump operability tests and initial LCRS operation.

Daily test data for leachate collection system work is included within CQA Daily Field Reports (Appendix M). Laboratory data is included within Leachate Collection Removal System Geotechnical Laboratory Data (Appendix I). Leachate collection system as-built pipe grades and alignments and construction details are reflected on the As-Built Drawings (Appendix U).

Deficiency and corrective measure notices for damaged pipe sections are presented in LCRS NODs and CMRs (Appendix K). These notices are summarized in Table 9.1. Pipe integrity verification test data is summarized in Table 9.2 and the final LCRS pipe lengths, including pipe status, are summarized in Table 9.3.

9.6 Revisions

Several revisions relative to LCS system work were approved by MDEQ. These revisions are summarized below.

- Letters were sent to MDEQ requesting approval of four separate LCS interior pipes which were either blocked, clogged, or damaged. These LCS interior pipes were line C1-2 in the ECU and lines D1-2, D2-1, and D4-2 in the WCU. These letter requests were approved in a December 2, 1998, letter from MDEQ. (Volume IV Construction Specifications - Section 5T Subsection 3.2.2)
- Proposed changes to cutoff wall construction details associated with alignment revisions were submitted to MDEQ on January 9, 1998. These revisions included shifting of the cutoff wall outward along the western side of the ECU. Three french drains were added to the LCS to accommodate this cutoff wall alignment shift. Based upon MDEQ input, these details were revised on February 4, 1998. These revisions

were approved on February 26, 1998. (Volume IV Construction Specifications - Section 5K Subsection 3.2.2

- A March 27, 1997, request from Ford was submitted to allow for the addition of french drains or decreasing of leachate pipe spacing to accommodate below specification portions of solidified waste. This revision was approved by MDEQ on a May 7, 1997. Several french drain sections were incorporated into the LCRS to accommodate these instances. (Volume IV Construction Specifications - Section 5T Subsection 3.2.2)

9.7 Clarifications

Several minor clarifications were incorporated into the LCS system to accommodate conditions encountered during construction. These clarification items are summarized below.

- LCS interior laterals and perimeter collection pipes were installed using trenchless pipe installation technology instead of conventional trench excavation procedures. (Volume IV Construction Specifications - Section 5T Subsection 3.2.2)
- LCS collection pipe alignment, grades and locations were adjusted slightly in the field to accommodate actual conditions encountered during construction. Several additional LCS lateral pipes were added to ensure 150 foot LCS pipe spacing requirements were met. (Design Drawings - Plates 1 through 59)
- Some french drains were backfilled with 4"x8" rock instead of MDOT 6A gravel. The 4"x8" rock was used in conjunction with TNS Mills, Inc. Style TNS R070 geotextile. (Volume IV Construction Specifications - Section 5T Subsections 2.1 and 2.5.1)
- MDOT 25A gravel was utilized for LCS gravel in addition to MDOT 6A gravel. (Volume IV Construction Specifications - Section 5T Subsection 2.1)
- The pipe utilized for the LCS was 6" Diameter Heavy Duty Remediation Pipe manufactured by Plastic Tubing Industries of Orlando, Florida. (Volume IV Construction Specifications - Section 5T Subsection 2.3)
- In addition to MDOT 5 gravel, MDOT 34 gravel and MDOT Class II sand; MDOT 25A gravel was utilized as pressure conveyance pipe bedding. (Volume IV Construction Specifications - Section 5T Subsection 3.3.2)
- Schedule 80 PVC pipe and PVC pipe fittings were used within leachate manholes instead of HDPE pipe. (Volume IV Construction Specifications - Section 5T Subsection 2.4 and Design Drawings – Plate 59)
- The primary purpose of the geotextile sock is cross-plane flow and soil retention. Geotextile sock specifications were revised to eliminate grab, puncture, and trapezoidal tear requirements. (Volume IV Construction Specifications - Section 5T Subsection 2.5.1)
- A concrete ballast ring was not installed around the base of LMH-6. Gravel backfill around this manhole was determined to provide sufficient friction resistance to

prevent buoyancy uplift. (Volume IV Construction Specifications - Section 5T Subsection 2.4 and Design Drawings – Plate 59)

- Specifications were incorporated for leachate manholes to increase sidewall thickness and tensile strength. (Volume IV Construction Specifications - Section 5T Subsection 2.6.1)
- Additional features were incorporated associated with internal piping for LCS manholes. These features included a check valve on the discharge line, a revised manhole lid opening to simplify pump removal, and a six inch internal concrete base to support pump guide rail base. (Volume IV Construction Specifications - Section 5T Subsections 2.6 and 2.7)
- Pump control panel locations were shifted from a position adjacent to the LCS manholes to a position near the LCS manholes but outside of the containment unit edge to allow for greater stability of installation. (Volume IV Construction Specifications - Section 5T Subsection 2.8)
- Dual containment pipe begins approximately 10 feet inside of the containment units.
- Concerns were raised on-site regarding LCS integrity. A LCS pipe integrity verification procedure consisting of a ¾" diameter water jet probe was utilized to check all LCS interior laterals and perimeter pipes. The acceptance criteria was that the water jet probe passed easily through the 6" LCS pipe. A 4" mandrel passing through the 6" LCS pipe was also an acceptable verification procedure. (Volume IV Construction Specifications - Section 5T Subsection 3.2.2)

10.0 DRAINAGE AND EROSION CONTROL

10.1 Summary of Design

The Closure Plan (Attachment 6 to the Post-Closure License), in Section 4.0 identified that as part of the closure of the surface impoundment units, drainage and erosion control measures shall be installed to divert surface runon and runoff, minimize the impact of erosion forces, and to detail sediments during all closure activities and after construction of the Final Cover. The products consist of silt fencing, riprap, erosion control blankets and a grout filled erosion mat.

Section 5F of the Construction specifications (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with the implementation of drainage and erosion control procedures.

Section 14.0 of the CQA Plan (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that the drainage and erosion control measures were implemented in accordance with the approved Post-Closure Plan. This effort was focused on a grout filled erosion mat for the ECU/East Marsh dike.

10.2 Permit Conditions

There were no Permit Conditions included within the Post Closure License relative to the drainage and erosion control.

10.3 Implementation

The grout filled erosion mat was deleted from the project and replaced by conventional riprap.

Drainage and erosion control measures were implemented within the Eastern Containment Unit (ECU) and Western Containment Unit (WCU), access road and staging areas, tower pad construction, and for remediation areas outside the containment units. Drainage and erosion control activities began with the construction of the access roads in November 1995 and ran throughout the duration of the project. Relative to these efforts, JAJES obtained a soil erosion and sediment control permit from the Monroe County Drain Commission and a National Pollutant Discharge Elimination System (NPDES) to discharge stormwater. The site construction NPDES number is MIR102494.

During the course of the project, MEC's ITE observed and documented drainage and erosion control measures implemented by JAJES. Areas of concern, such as damaged or inadequate erosion control measures, were referred to JAJES for corrective action. In addition, MEC's ITE observed and documented construction of cap system diversion berms and let down structures. The final configuration of these structures is reflected on

the As-Built Drawings in Appendix U. MEC observations are presented within the CQA Daily Field Reports in Appendix M.

10.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

JAJES performed routine inspections of drainage and erosion control measures utilizes on-site. Documentation of these inspections has not been included within this Report.

10.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License).

The grout filled erosion mat was deleted from the project and replaced by conventional riprap. No specific CQA requirements were identified relative to the revised configuration. MEC's efforts for this work are summarized in Section 10.3.

10.6 Revisions

The drainage and erosion work was revised to delete the grout filled erosion mat along the ECU/East Marsh dike. This revision was approved by MDEQ-LWMD in a February 25, 1997, letter and by MDEQ-WMD in a May 28, 1997, letter. (Volume IV Construction Specifications - Section 5E; Volume V Construction Quality Assurance Plan – Section 14.0; Design Drawings- Plate 57)

10.7 Clarifications

There were no clarifications to this work.

11.0 AIR MONITORING

11.1 Summary of Design

The Closure Plan (Attachment 8 to the Post-Closure License), in Section 7.0, identified that ambient air monitoring would be conducted to assess potential ambient air emissions during all remedial activities. Air monitoring would be conducted at four fixed air monitoring stations at the locations shown on Plate 12 of the Design Drawings. The parameters to be sampled and analyzed include total suspended particulates (TSP), total chromium, hexavalent chromium and the volatile organic compounds (VOC's) benzene, methylene chloride, trichloroethylene, chloroform, and xylenes. The meteorological conditions (wind speed and direction, and general weather conditions) were also recorded for each working day.

Section 5Y of the Construction Specification (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with air monitoring and weather stations.

Section 15.0 of the CQA Plan (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that air monitoring and weather station operation were performed in accordance with the approved Post-Closure Plan.

11.2 Permit Conditions

Several permit conditions are included within the Post-Closure License relative to air monitoring. These conditions were incorporated into site work activities. Specific conditions addressing air monitoring details, Permit Conditions III.B.1 to III.B.7, are summarized below. These conditions included specification modifications and quality assurance documentation and testing requirements.

- The sampling and analysis method for hexavalent chromium shall be NIOSH Method 7600 unless a more sensitive method is approved by MDEQ-AQD prior to closure.
- If additional control measures enacted in response to excess emissions fail to maintain air quality within critical action levels, all activities that emit the excess contaminants shall be terminated immediately and re-evaluated with MDNR (MDEQ-AQD).
- The initial period for daily VOC sampling shall be one week for solidification activities in each area (A, B, C, D, D-North, D-West, North Intake Canal, and West Marsh), and two weeks for waste handling activities (excavation and grading) in each area.
- The sample start and end time shall be selected such that each day's remedial activities are covered by one sample. A work day shall not be split up over two different samples.
- VOC sampling shall be conducted on a randomly selected day on a bi-weekly basis during the months of October through April, unless a less frequent basis is approved by MDEQ-AQD.

- The air monitoring results for TSP shall be reported in micrograms per cubic meter of TSP.
- If air quality action levels are exceeded or an air-quality based condition of this license or any Act 348 permit is violated, the licensee shall cease all activity that may be the source of the violation if directed by MDEQ-AQD.

11.3 Construction

This section has been prepared as a general summary of activities associated with this work effort. A complete presentation of activities associated with this work is contained in the Daily Field Reports, included as Appendix M.

11.3.1 Roles

J.A. Jones Environmental Services, Inc. (JAJES) was responsible for providing, installing and maintaining power to four ambient air monitoring stations. JAJES was also responsible for providing and installing a weather station to monitor wind speed and direction. A subcontractor, Staelgraeve Turner Electric, Inc., was selected by JAJES to install the electrical system for the air monitoring stations and weather station. A subcontractor, A.J. Williams, was selected by JAJES to construct the air monitoring platforms and weather station.

Midwest Environmental Consultants, Inc. (MEC) performed duties related to air sampling and weather monitoring. MEC retained an analytical laboratory subcontractor, ENCOTEC, to perform laboratory analysis of air samples.

11.3.2 Implementation

TSP and total chromium were sampled using high-volume samplers and EPA-approved borosilicate glass fiber filters. VOC's were sampled using low volume samplers with evacuated canisters (SUMMA polished) as the sampling media. Hexavalent chrome was sampled when necessary using low volume samplers with PVC 5 μm membrane filters. The platforms for the air monitors were constructed as outlined in Section 5Y Subsection 3.2 of the Specifications and as shown on the Design Drawings.

Preparation for air monitoring began on October 11, 1995. The platforms and permanent electrical systems were complete on October 31, 1995 (except for permanent electrical to air monitoring station A-4 which was completed on December 4, 1995). The meteorological station was installed and operational on November 27, 1995.

On October 30, 1995, background monitoring was initiated for TSP, total chromium, and VOC's. Background monitoring continued for one week to establish background conditions prior to the start of full-scale remediation efforts.

VOC sampling was performed daily during the initial period of solidification activities for each separate area. VOC sampling was performed daily during excavation and grading activities for each separate area. At all other times, VOC sampling was performed bi-weekly unless there was a reduction in the air monitoring frequency approved by MDEQ-AQD. See Section 11.6 for approved revisions to the specified sampling frequencies.

TSP and total chromium sampling was performed daily unless the work activities performed did not require air monitoring or there was a reduction in the air monitoring frequency approved by MDEQ-AQD. Hexavalent chromium sampling was performed when total chromium results indicated it was warranted. See Section 11.6 for approved revisions to the specified sampling frequencies.

The dates of sampling and results of all monitoring were included in the air monitoring reports submitted to MDEQ-AQD throughout the project. Total chromium sampling was terminated on August 13, 1998. VOC sampling was terminated on November 30, 1998. TSP sampling was terminated on December 18, 1998.

11.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

JAJES provided no CQC Monitoring relative to perimeter ambient air quality. Work zone air monitoring was included as part of the JAJES health and safety procedures implemented during the project. This effort by JAJES is not detailed herein.

11.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License). This section details efforts associated with the implementation of Section 15 of the CQA Plan. These activities were conducted to provide assurance that air monitoring activities were performed in accordance with the requirements of the Post-Closure License.

MEC performed quality assurance for air monitoring which included following the specified sample and preparation methods, data reduction, validation and reporting, and general preventative maintenance and repair.

MEC provided MDEQ-AQD with bi-weekly reports as required by Condition III.B and 60-day Environmental Monitoring Reports as required by Condition I.E.9(c) of the Post Closure Operating License. Table 11.1 presents a summary of the bi-weekly and 60-day report submittal dates and coverage dates. MEC did not include any air monitoring results within this report since all results have been previously submitted to MDEQ-AQD.

ENCOTEC, MEC's analytical laboratory subcontractor, laboratory QAQC, as outlined in the CQA Plan (Sections 15.1.3 and 15.1.6). This included the use of blanks, analytical replicates, performance audits and system audits. ENCOTEC provided QAQC data with the final results. As previously noted, air monitoring results have not been included with this Report since all results have been previously submitted to MDEQ-AQD.

11.6 Revisions

Several revisions to air monitoring work were approved by MDEQ-AQD. These revisions are summarized below.

- A Permit to Install application was submitted to MDEQ-AQD for the process of reagent staging, slurry batching, slurry distribution, and blending of slurry with soil and waste. This application (No. 44-96) was approved on April 1, 1996.
- A Permit to Install application was submitted to MDEQ-AQD for reagent staging, distribution, and pugmill mixing for solidification of waste and unstable soils. This application (No. 222-96) was approved on October 4, 1996.
- A Permit to Install application was submitted to MDEQ-AQD on September 17, 1996 for a dry reagent injection system for the blending of cement, fly ash and lime with soil and waste. This application (identified as No. 480-96) was approved on January 22, 1997.
- A request to modify the air monitoring program was submitted to MDEQ-AQD on November 18, 1996. The requested modification indicated: 1) for the period from November 1 to March 30, filter samples would be collected every third working day with TSP analysis being performed on all samples and total chromium analysis being performed only if solidification, waste excavation, or waste grading occur; 2) for the period from April 1 to October 31, filter samples would be collected every working day with TSP analysis being performed on all samples and total chromium analysis being performed on samples collected every third working day only if solidification, waste excavation, or waste grading occur; 3) VOC sampling will continue to be performed in accordance with existing permit conditions. The modification, as requested, was approved by MDEQ-AQD on December 6, 1996.
- A verbal request was made to MDEQ-AQD prior to Christmas of 1997 to modify the ambient air monitoring program. This verbal request was followed by a written request submitted to MDEQ-AQD on January 6, 1998. The modification requested: 1) Samples for TSP and total chrome be collected once per week; 2) VOC sampling be eliminated. These modifications would only be in effect from Christmas of 1997

to the end of March 1998. The modification, as requested, was approved by MDEQ-AQD on January 26, 1998.

- On August 12, 1998 MEC held a telephone conversation with Mr. Robert Teoh (MDEQ-AQD) to discuss modifications to the ambient air monitoring program. The modification requested termination of sampling and analysis for total chromium at the beginning of August 13, 1998. The modification, as requested, was approved by MDEQ-AQD on August 12, 1998.
- A request to terminate TO-14 air sampling was submitted to MDEQ-AQD on November 30, 1998. This request was based on a telephone conversation of November 25, 1998 during which it was discussed that the containment units were covered by the cap system. The request was approved by MDEQ-AQD on December 7, 1998.
- A request to terminate TSP monitoring was discussed with Ms. Deb Allen (MDEQ-AQD) on or about December 18, 1998. This request was based on the fact that major earthwork activities had been completed at that time. The request was approved by MDEQ-AQD on December 18, 1998 via telephone.

11.7 Clarifications

Several minor clarifications were incorporated into the air monitoring program. These clarification items are summarized below.

- Air monitoring station A-3 (the southeast station) was relocated approximately 150 ft to the north. This was done to avoid existing maintenance materials (sand and gravel stockpiles) stored in the plan location. (Design Drawings)
- The meteorological station was located immediately adjacent to air monitoring station A-2. (Design Drawings)
- The high-volume air samplers were designed for eight hours of sampling one day per week. The project samplers were actually run for 24 hours five to seven days per week. The increased usage resulted in failure of motors and brushes and significant repair and maintenance efforts. However, the data quality objective for completeness of 95% was met for the project. (Volume IV Construction Specifications – Section 5Y)
- The low-volume air samplers for hexavalent chrome were designed for indoor usage. MEC provided weather-tight boxes to place the samplers in with the suction tube extending outside of the box. (Volume IV Construction Specifications – Section 5Y)

12.0 CLOSURE ACTIVITIES OUTSIDE OF CONTAINMENT UNITS

12.1 Summary of Design

The Closure Plan (Attachment 6 to the Post-Closure License), in Section 6.0, identified that waste materials located in areas outside of the two on-site containment units would be removed and disposed of within the containment units. Areas located outside of the two on-site containment units which were identified included Area D West, Area D North, West Marsh, North Intake Canal, and Process Canal. Surrounding soils were to be tested to confirm compliance with relevant cleanup criteria. Soil sampling was to be performed according to procedures established within the MDEQ Guidance Document for Verification of Soil Remediation, dated April 1994. Confirmatory sample results were to be evaluated using various Act 307 criteria, with site-specific or state-wide background levels being the most restrictive.

Section 5O of the Construction Specification (Attachment 6 to the Post-Closure License) identified procedures to be followed associated with implementation of closure activities.

Section 16.0 of the CQAP (Attachment 6 to the Post-Closure License) identified procedures to be followed to provide assurance that closure activities were performed in accordance with the approved Post-Closure Plan.

12.2 Permit Conditions

Several Permit Conditions are included within the Post-Closure License relative to closure activities outside of containment units. These conditions were incorporated into site work activities. Specific conditions of note include Permit Conditions II.H.4.(a) and II.H.4.(d).

Permit Condition II.H.4.(a) required that the levels of constituents remaining in sediments and soils satisfy Act 307 Type B cleanup criteria. In addition, specific cleanup levels were identified for several North Intake Canal Constituents. These constituents and the associated cleanup level are: total chromium 26 mg/kg; copper 16 mg/kg; nickel 16 mg/kg; zinc 120 mg/kg; and cyanide 0.38 mg/kg.

Permit Condition II.H.4.(d) identified analytical testing additions to those identified in the Closure Plan. The identified additions to the confirmatory sampling lists are presented below.

- PCB analysis to not less than 25% of the West Marsh samples.
- PCB analysis to not less than 25% of the Process Canal samples.
- Arsenic, barium and cadmium analysis included for North Intake Canal samples.
- Cyanide included for Area D West samples.
- Xylene and methylene chloride included for Area D North samples.
- Volatile organic compounds (601/602) included for Process Canal samples.

12.3 Construction

This section has been prepared as a general summary of construction activities associated with this work effort. A complete presentation of construction activities associated with this work is contained within Daily Field Reports, included as Appendix M.

12.3.1 Roles

J. A. Jones Environmental Services, Inc. (JAJES) was the General Contractor responsible for implementation of remediation outside of containment work.

ENCOTEC (ENCOTEC underwent several ownership changes during the course of this project from Rollins/ENCOTEC to Laidlaw/ENCOTEC to Safety Kleen/ENCOTEC) was the analytical laboratory subcontractor utilized by JAJES to test soil confirmation samples. ENCOTEC performed all analytical tests for soil confirmation.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer, Independent Testing Engineer (ITE), and record surveyor.

12.3.2 Implementation

Closure of areas outside of containment was performed for six separate areas. These included Area D West, West Marsh, Area D North, Area D Towers, North Intake Canal, and Process Canal. Closure of these areas was performed as three separate operations. The first operation, initiated in January 1996, was the Process Canal. The second operation, initiated in March of 1996, addressed Area D West and the West Marsh. The third operation, initiated in January of 1997, addressed Area D North, Area D Towers, and North Intake Canal. Each of these separate operations is summarized below.

Restoration was performed by placing and compacting general or load bearing fill within the areas of impacted soil and sludge removal. Restoration efforts are discussed in Section 6.0 Earthwork.

12.3.2.1 Process Canal

The Process Canal closure was completed in three separate steps: preparation activities, gross excavation, and final excavation.

Preparation activities included an initial drawdown of contact water, sludge depth survey, and construction of an access ramp. Drawdown of contact water was initiated on January 2, 1996. Water was pumped from the Process Canal to other on-site surface impoundments enroute to ultimate discharge to the on-site wastewater treatment plant. At first contact water was pumped to the Polishing Lagoon. However, the closure of several connecting flow pipes between the Process Canal and Area A and the Polishing Lagoon was necessary to prevent circular flow.

Closure of connecting pipes was completed and pumps and piping were reset to direct contact water pumped from the Process Canal to Area A. The Process Canal to Area A configuration was the configuration used to successfully allow for dewatering of the Process Canal.

A sludge survey of the Process Canal was performed to identify the depth of sludge present. Project drawings indicated an approximate sludge depth of three feet. However, sludge survey data indicated the sludge was ten to fourteen feet deep with an approximate bottom elevation of 559 to 560. This variation in sludge depth was identified on January 5, 1996, the first day of sludge survey in the Process Canal. A complete survey of the Process Canal was performed to confirm the approximate bottom elevation.

The access ramp was constructed to provide access to the Process Canal for construction equipment. The Process Canal perimeter elevation varied from approximately 580 at the edge of Area C to 585 at the edge of Area A. The approximate bottom elevation of 559 resulted in a differential of 21 to 26 feet. Construction of the access ramp was initiated on January 15, 1996. The ramp was constructed of 4"x8" surge rock initiating at approximate middle of the west edge of Area C and directed northward into the Process Canal. The surge rock was end dumped and tracked in by bulldozer.

A test gross excavation was performed on March 6, 1996, in order for JAJES to assess the intended procedure. Gross excavation was initiated on March 7, 1996. Gross excavation was performed by an excavator positioned on the access road in the Process Canal. Off-road trucks entered the Process Canal via the access road to be loaded by the excavator. The off-road trucks then exited the Process Canal by traveling up the access road and dumped their contents into the Polishing Lagoon for future solidification. The cycle was then repeated. A considerable amount of spillage occurred from the off-road trucks during this operation; however, this spillage occurred within the Process Canal, as trucks traveled up the access ramp, with all of the sludge returning immediately to the Process Canal.

In order to facilitate access, and due to concerns about basal stability of the Process Canal, the access road was utilized along the entire Process Canal length. Stability concerns were identified by NTH on March 29, 1996, due to the depth of excavation, and excavation activities were halted for one week while JAJES extended the access road along the Process Canal length. The alignment of the access road was kept inside of the cutoff wall alignment to allow the surge rock to remain in-place within the final Eastern Containment Unit.

A test final excavation was performed on April 12, 1996. Full-scale final excavation activities were initiated on April 25, 1996. An excavator removed the thin layer of sludge and underlying soil remaining at the base after the completion of gross excavation. Final excavation began at the north end of the Process Canal and proceeded from north to south. Sampling was performed within the area that ultimately ended up outside of the final Eastern Containment Unit. The area inside of the final Eastern Containment Unit did not undergo final excavation activities and the surge rock access road was left in place on top of this area. Initial soil confirmation samples were collected by MEC on April 29, 1996, with the final samples being collected on June 3, 1996.

A total of 18,500 cubic yards was removed from the Process Canal. This material consisted predominately of sludge with some soil excavated as part of the final cleaning effort. All of this material was placed into the Polishing Lagoon for ultimate disposal within the Eastern Containment Unit. The Process Canal material was solidified as part of the Polishing Lagoon solidification effort, see Section 7.0.

12.3.2.2 Area D West/West Marsh

Closure of Area D West and the West Marsh was completed in five separate steps: cofferdam installation, sheet pile installation, preparation activities, gross excavation, and final excavation.

A cofferdam was constructed within the West Marsh in accordance with Michigan Department of Environmental Quality Land and Water Management Division (MDEQ-LWMD) Permit No. 94-10-0863. The cofferdam consisted of a stone core with a PVC geomembrane on the exterior side covered by additional protective stone. Stone was placed directly on top of the existing marsh deposits. The top of cofferdam width was approximately 20 feet. Construction of the cofferdam began on March 28, 1996. Geocomposite deployment began on April 25, 1996. Cofferdam construction was completed on May 14, 1996. Pumping of water from the cofferdam area commenced on July 8.

The cofferdam was determined to be an inadequate water seal on July 17, 1996. Water was observed flowing through the sediment and gravel beneath the PVC geomembrane. A supplemental design was developed by JAJES to provide a more effective water seal. The supplemental design incorporated a sheet pile wall installed along the outer edge of the cofferdam. This supplemental design was approved by MDEQ-LWMD on August 6, 1996, as a modification to Permit No. 94-10-0863.

Sheet pile installation began on August 12 and was complete on September 4, 1996. Interlocking steel sheet pile was driven to refusal along the outer edge of the cofferdam.

Preparation activities consisted of dewatering and rock road construction. Dewatering efforts began on September 5. Dewatering was accomplished with dewatering ditches excavated by JAJES which conveyed contact water within the remediation area to several pumping locations from which the water was pumped, via the existing surface impoundments, to the on-site treatment plant. The primary contact water holding areas at that time were Area D, the North Lagoon and Area A.

A series of rock access roads were constructed by JAJES to facilitate access by off-road trucks. These rock access roads were constructed by placing a geotextile over top of the existing soil. Approximately 4 feet of rock was then placed on top of the geotextile. The rock access roads were installed for JAJES convenience to allow conventional off-road trucks to travel on top of unexcavated sediment deposits, to increase the efficiency of off-road truck traffic flow, and to improve access for conventional excavation equipment.

Gross excavation activities began on October 1, 1996, in Area D West. Excavation was performed intermittently during the month of October in Area D West. Excavation switched to full-time and shifted to the West Marsh in November. Gross excavation then proceeded in a general west to east direction beginning at the cofferdam edge, completing the West Marsh first followed by Area D West. Gross excavation continued until June of 1997.

Gross excavation was performed by an excavator positioned on an access road. Conventional excavators and extended boom excavators were utilized for this work. Off-road trucks entered the area via the access road network. Off-road trucks were loaded by the excavator and then they exited the work area via the access road network. Off-road truck contents were deposited in Area D for subsequent solidification using the on-site pug mill, see Section 7.0 of this report for solidification details. The cycle was then repeated.

During gross excavation activities an area of PCB impacted soils was encountered at the edge of the Area D West excavation at the side parallel to the main Plant building. Testing of this area indicated the presence of PCBs at levels above 50 ppm. This area was delineated and the soils determined to contain PCBs at levels above 50 ppm were excavated and transported off-site for disposal, as discussed in Section 5.0 of this Report. Approximately 330 tons of material from Area D West was disposed off-site.

Final excavation activities were initiated November of 1996. An excavator removed the thin layer of stained soils and underlying soil remaining after the completion of gross excavation. The material was handled in the same general manner as that material excavated during gross excavation. Final excavation initiated at the west edge of the West Marsh and continued in a general west to east direction. Initial soil confirmation samples were collected by MEC on December 4, 1996, with the final samples being collected on June 18, 1997.

A total of 43,500 cubic yards was removed from the West Marsh. A total of 38,522 cubic yards was removed from Area D West. This material consisted predominately of impacted marsh sediments mixed with various fill materials and some soil excavated as part of the final cleaning effort. This material was either placed into Area A or the Polishing Lagoon for ultimate in-situ solidification and disposal within the Eastern Containment Unit or run through the pug mill solidification process in Area D and disposed of within the Eastern Containment Unit. The West Marsh and Area D West material was solidified as part of the Area A, Polishing Lagoon, and pug mill solidification effort, see Section 7.0.

12.3.2.3 Area D North/Area D Towers/North Intake Canal

Area D North, Area D Towers and the North Intake Canal closure was completed in four separate activities: sheet pile installation, preparation activities, gross excavation, and final excavation.

Sheet pile installation across the North Intake Canal was performed in accordance with procedures submitted to and approved by MDEQ. Details associated with this installation are presented within Section 13.0 of this report.

Preparation activities consisted of dewatering and rock road construction. Dewatering efforts began on May 6, 1997. Dewatering was accomplished through dewatering ditches and pumps set within the remediation area. Contact water was transferred, through the North Lagoon or Process Canal, to the on-site wastewater treatment plant. Constructing clay dikes across the North Intake Canal and creating multiple subsections facilitated dewatering of the North Intake Canal. This enabled subareas to be dewatered, minimizing contact water handling requirements. Additional clay dikes were constructed as areas were released for backfill to prevent contact water from flowing back across the cleaned areas.

Rock roads were constructed in the North Intake Canal starting on August 29, 1997. The rock roads were constructed of 4x8 rock and were used for access by off-road trucks and excavators into and out of the North Intake Canal. The primary rock road was constructed along the north edge of the North Intake Canal. As final excavation was performed from west to east, the rock roads were removed and hauled to the containment units for disposal in accordance with waste placement above grade requirements.

Gross excavation activities began on June 13, 1997, in Area D North. Excavation was performed intermittently during the month of June in Area D North. Gross excavation proceeded in a general westerly direction beginning at the approximate center of Area D North and ended at the west edge. Excavation then resumed near the center of Area D North and proceeded to the east edge. Excavation switched to full-time in July. Gross excavation initiated in the North Intake Canal in July. Gross excavation proceeded in a general westerly direction beginning at the approximate center of the North Intake Canal and continued to the west limit of the North Intake Canal. Gross excavation continued until August of 1997 in Area D North and the North Intake Canal.

Gross excavation was performed by an excavator positioned in a permanent location on an access road. Conventional and long boom excavators were utilized for this work. Bulldozers were utilized to push the soil/sludge material to the excavators. Off-road trucks entered the area via the access road. Off-road trucks were loaded by the excavators and then exited the work area via the access road. Off-road truck contents were either deposited in Area D for subsequent solidification using the on-site pug mill or were deposited in the Polishing Lagoon for subsequent in-situ solidification , see Section 7.0 of this report for solidification details. The cycle was then repeated.

Final excavation activities were initiated July of 1997 in Area D North. An excavator removed the thin layer of stained soils and underlying soil remaining after the completion of gross excavation. The material was handled in the same general manner as material excavated during gross excavation. Final excavation initiated near the center of the Area D North and continued in a general westerly direction to the west edge. Final excavation then resumed near the center of Area D North and continued easterly to the east edge. Final excavation initiated at the west end of the North Intake Canal and continued in a general easterly direction to the east edge. Initial soil confirmation samples were collected by MEC on July 29, 1997, with the final samples being collected on November 13, 1997.

A total of 25,520 cubic yards was removed from the Area D North. A total of 18,263 cubic yards was removed from the Area D Towers. A total of 55,888 cubic yards was removed from the North Intake Canal. This material consisted predominately of impacted sediments, impacted soil and sludge. This material was stockpiled in Area D for pug mill solidification. The Area D North, Area D Towers and North Intake Canal material was handled as part of the pug mill solidification effort, see Section 7.0.

12.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

There were no CQC procedures implemented for closure activities outside of containment units.

12.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project and included as part of the Post-Closure License (Attachment 6 to the Post-Closure License). This section details efforts associated with implementation of Section 16 of the CQA Plan. These activities were conducted to provide assurance that the surface impoundments and disposal areas were closed in accordance with the requirements of the Post-Closure License.

For each separate area, a MEC ITE performed monitoring of closure activities throughout the course of the work. MEC documented closure activities, performed all field sampling activities, surveyed sample locations, reviewed analytical data received from ENCOTEC, and identified to JAJES when an area was suitable for restoration. MEC's observations are documented within Daily Field Reports contained within Appendix M. Project photographs in Appendix N also document work activities.

Sampling was performed following procedures identified within the MDEQ Guidance Document for Verification of Soil Remediation, dated April 1994.

12.5.1 Process Canal

The area undergoing clean closure was approximately 81,900 square feet or 1.9 acres. This is a medium size site. Based upon this area a sampling grid interval of 40 feet was used and a sampling grid was established for the Process Canal. Approximately 52 grid nodes are anticipated for an area of this size and a grid interval of 40 feet. Sampling 25% of 52 grid nodes would result in a minimum number of 13 samples required for this area.

Due to the long, thin shape of the area and the position of the cutoff wall, MEC positioned the sampling grid to be located along the revised cutoff wall alignment. This provided maximum coverage of the area and assurance that closure objectives would be met for the entire area to the west of the cutoff wall. This positioning of the sampling grid resulted in 85 grid nodes present within the sampling area. Sampling 25% of 85 grid nodes would result in a minimum number of 22 samples required for this area.

A total of 30 samples were collected by MEC for initial verification testing. A random number generator table was utilized to select 24 sample locations. The remaining 6 samples were collected by the ITE based upon visual observations or to facilitate restoration activities. Of the 30 grid nodes sampled, 2 were determined to require additional excavation after receipt of analytical results. Resampling at these 2 grid nodes resulted in 8 additional samples being collected or 38 total verification samples within this area.

All of the samples were collected from the underlying on-site silty clay.

Analytical testing was performed by ENCOTEC in accordance with MERA Operational Memorandum No. 6, Revision 3 (February 4, 1994): Analytical Detection Level Guidance for Environmental Contamination Response Activities under Act 307 Rules and MERA Operation Memorandum No. 13 (February 18, 1993): Data Quality Objectives, Review of TMDL Excursions, and Evaluation of Laboratory Data. All 38 samples were analyzed for arsenic, barium, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, silver, zinc, cyanide, and 601/602 volatile organic compounds. Of the 38 total samples, 11 (or 29%) were analyzed for PCBs. Sample results are shown in Table 12.1.

MEC completed review of verification sample results. Documentation utilized by MEC for this review included the Post-Closure License, MERA Operational Memorandum No. 15 (September 30, 1993: Default Type A Cleanup Criteria, MERA Operational Memorandum No. 8, Revision 3 (February 4, 1994): Type B Criteria, and MERA Operation Memorandum No. 12, Revision 1 (September 9, 1994); Alternate Soil Leaching Procedures.

First, verification sample results were compared to site specific background levels contained within the Post-Closure License (Attachment 6 to the Post-Closure License), default Type A criteria and twenty times drinking water criteria. Samples that were above the higher of these three combined criteria were compared to Type B direct contact criteria. Samples that were below the Type B direct contact criteria were subject to leaching evaluation to demonstrate the levels present were protective of groundwater. Additional excavation was performed and the area was resampled if initial sample results indicated levels above Type B direct contact criteria.

Of the 36 final record samples, 27 were below site specific background levels. Sample results are shown in Table 12.1. The remaining 9 samples were below site specific background, default Type A criteria, or twenty times drinking water criteria for all compounds except mercury (2 samples), selenium (7 samples) and zinc (1 sample). Synthetic precipitation leaching procedure analysis of samples from the Process Canal demonstrates that all 9 of these samples are protective of groundwater. See Table 12.6 for the Summary of Highest Parameter Value

Leached. The area of the Process Canal outside of the Eastern Containment Unit has achieved Act 307 Type B cleanup criteria, in accordance with Permit Condition II.H.4.(a).

12.5.2 West Marsh/Area D West

The combined area undergoing clean closure was approximately 444,600 square feet or 10.2 acres. This is a large size site. Based upon this area, a sampling grid interval of 45 feet was used for the combined West Marsh/Area D West. Approximately 220 grid nodes are anticipated for an area of this size and a grid interval of 45 feet. Sampling 25% of 220 grid nodes would result in a minimum number of 55 samples required for this area.

Due to the wide, flat shape of the area and the position of the site grid system, MEC aligned a 400 node sampling grid with the site grid system to simplify survey layout in the field. This sampling grid included nearly 180 points beyond the remediation area limit. This provided complete coverage of the remediation area, with 220 grid nodes within the area, and assurance that closure objectives would be met.

A total of 76 samples were collected by MEC for initial verification testing. A random number generator table was utilized to select sample locations. Of the 76 grid nodes sampled, 9 were determined to require additional excavation after receipt of analytical results. Resampling at these 9 grid nodes resulted in 41 additional samples being collected.

Samples were collected from the soils underlying the remediation area. The soil type encountered at the sampling grid was determined in the field by visual observation during sampling. The soil types included the on-site: 1) sandy clay; 2) silty clay; 3) sediment; 4) organic sediment; and 5) peat.

Analytical testing was performed by ENCOTEC in the same manner as noted previously. All 117 samples were analyzed for arsenic, barium, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, silver, zinc, cyanide, and xylenes. Samples collected from within the Area D West limit were also tested for methylene chloride. Of the 117 total samples, 45 (or over 38%) were analyzed for PCBs. The additional PCB analysis were performed in Area D West due to PCB impacted soils identified in this area. Sample results are shown in Table 12.2.

During gross excavation activities, an area of PCB impacted soils was encountered concentrated at grid node 60. The impacted soil was a peat deposit approximately 12 feet below ground surface. The peat was observed to have a heavy oil sheen. Subsequent sampling of this material was performed and PCB concentrations above 50 ppm were identified. The impacted peat soil was transported off-site for disposal, see Section 5.0 of this Report. Confirmation samples were collected to confirm that soils with PCB levels above 50 ppm had been removed. A final summary of this delineation effort is contained in Appendix L. This area was at the edge of Area D West parallel to the main Plant building.

MEC completed review of verification sample results. Documentation utilized by MEC for this review included the Post-Closure License, MERA Operational Memorandum No. 15 (September 30, 1993: Default Type A Cleanup Criteria, MERA Operational Memorandum No. 8, Revision 3 (February 4, 1994): Type B Criteria, and MERA Operation Memorandum No. 12, Revision 1 (September 9, 1994); Alternate Soil Leaching Procedures.

First, verification sample results were compared to site specific background levels contained within the Post-Closure License (Attachment 6 to the Post-Closure License), default Type A criteria and twenty times drinking water criteria. Samples that were above the higher of these three combined criteria were compared to Type B direct contact criteria. Samples that were below the Type B direct contact criteria were subject to leaching evaluation to demonstrate the levels present were protective of groundwater. Additional excavation was performed and the area was resampled if initial sample results indicated levels above Type B direct contact criteria.

Of the 107 final record samples, 33 were below site specific background levels, default Type A criteria, or twenty times drinking water criteria. Sample results are shown in Table 12.2. Analytical results for the remaining 74 samples indicated nickel (17 samples), barium (22 samples), arsenic (3 samples), copper (8 samples), mercury (3 samples), selenium (65 samples) and zinc (14 samples) present at levels higher than all three of the previously noted criteria, but below Type B Direct Contact levels. Synthetic precipitation leaching procedure analysis of samples from the various soil types present at the site demonstrate that 68 of these 74 samples are protective of groundwater. See Table 12.6 for the Summary of Highest Parameter Value Leached.

SPLP leach data was not available to address the 6 remaining samples. The parameters of concern for these samples, indicated on Table 12.2 in bold, were selenium (5 samples) and mercury (1 sample). All 5 of the selenium results were for organic sediment and were between 1.1 and 1.3 mg/kg. Selenium was successfully leached at 1.0 mg/kg for organic sediment. Selenium was also successfully leached at 1.2 mg/kg for silty clay, 2.2 mg/kg for peat, and 1.8 mg/kg for sediment. The mercury results were 0.78 mg/kg for an organic sediment sample. Mercury was successfully leached by NTH during the Supplemental Investigation of the West Marsh at 2.5 mg/kg for West Marsh sediment. Review of the data obtained indicates these values are consistent with background levels present at the site. Accordingly, the area of the West Marsh and Area D West outside of the containment units has achieved Act 307 Type B cleanup criteria, in accordance with Permit Condition II.H.4.(a), as clarified herein.

The eastern edge of Area D West, adjacent to the WCU, was not sampled for verification testing purposes. The cutoff wall alignment along the west edge of the WCU was shifted outward so that the excavation limit on the east side of Area D West was included within the limit of the WCU.

The southern edge of Area D West, parallel to the main Plant building, was not sampled for verification testing purposes. A 12 to 15 foot vertical excavation face remained at the limit of excavation. This area will need to be addressed as part of the solid waste management unit investigation (SWMU) being conducted in accordance with Condition IV.G of the RCRA Post-

Closure Permit and the groundwater investigation work being conducted in accordance with Permit Condition V.D.5 of the Act 64 Post-Closure Permit.

12.5.3 Area D North and North Intake Canal

Area D North and the North Intake Canal were combined as a single area for verification sampling purposes. The area undergoing clean closure was 266,283 square feet or 6.1 acres. This area was separated into two verification sampling grids. Sampling grid #1, the initial sampling grid, was originally established for the entire area. Sampling grid #2 was utilized for the area for the north boundary of the North Intake Canal, along the Sterling State Park dike, and 20 feet south. Sampling grid #2 was added to provide sampling along the Sterling State Park dike prior to dewatering to facilitate timely completion of remediation activities within the North Intake Canal by defining the excavation limit along the north side of the work area.

Sampling grid #2 addressed a 35,400 square feet or 0.8 acres. This is a medium size site. Based upon this area, a sampling grid interval of 25 feet was used for the Sterling State Park dike. For an area of this size and a grid interval of 25 feet, 57 grid nodes are anticipated. Sampling 25% of 57 grid nodes would result in a minimum number of 15 samples required for this area.

Sampling grid #1 covered the remaining 230,883 square feet or 5.3 acres. This is a large size site. Based upon this area, a sampling grid interval of 60 feet was used for the Area D North and the remaining portion of the North Intake Canal. For an area of this size and a grid interval of 60 feet, 65 grid nodes are anticipated. Sampling 25% of 65 grid nodes would result in a minimum number of 17 samples required for this area.

For Grid #2, a total of 39 samples were collected by MEC for initial verification testing. A random number generator table was utilized to select sample locations. None off the 39 grid nodes sampled were determined to require additional excavation.

For Grid #1, a total of 58 samples were collected by MEC for initial verification testing. A random number generator table was utilized to select sample locations. Of the 58 grid nodes sampled, 9 were determined to require additional excavation after receipt of analytical results. Resampling at these 9 grid nodes resulted in 37 additional samples being collected.

Samples were collected from the soils underlying the remediation areas. The soil type encountered at the sampling grid was determined in the field by visual observation during sampling. The soil types included the on-site: 1) sandy clay; 2) silty clay; 3) sediment; 4) peat; and 5) sand.

Analytical testing was performed by ENCOTEC in the same manner as noted previously. All 134 samples were analyzed for arsenic, barium, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, silver, zinc, cyanide, and xylenes. Sample results are shown in Table 12.3 for Grid #1 and Table 12.4 for Grid #2.

MEC completed review of verification sample results. Documentation utilized by MEC for this review included the Post-Closure License, MERA Operational Memorandum No. 15 (September 30, 1993: Default Type A Cleanup Criteria, MERA Operational Memorandum No. 8, Revision 3 (February 4, 1994): Type B Criteria, and MERA Operation Memorandum No. 12, Revision 1 (September 9, 1994); Alternate Soil Leaching Procedures.

First, verification sample results were compared to site specific background levels contained within the Post-Closure License (Attachment 6 to the Post-Closure License), default Type A criteria and twenty times drinking water criteria. Samples that were above the higher of these three combined criteria were compared to Type B direct contact criteria. Samples that were below the Type B direct contact criteria were subject to leaching evaluation to demonstrate the levels present were protective of groundwater. Additional excavation was performed and the area was resampled if initial sample results indicated levels above Type B direct contact criteria.

For Grid #1, of the 85 final record samples, 75 were below site specific background levels, default Type A criteria, or twenty times drinking water criteria. Sample results are shown in Table 12.3. Analytical results for the remaining 10 samples indicated nickel (7 samples), arsenic (1 sample), copper (7 samples), and zinc (5 samples) present at levels higher than all three of the previously noted criteria, but below Type B Direct Contact levels. Synthetic precipitation leaching procedure analysis of samples from the various soil types present at the site demonstrate that 9 of these 10 samples are protective of groundwater. See Table 12.6 for the Summary of Highest Parameter Value Leached.

SPLP leach data was not available to address the 1 remaining sample. The parameter of concern for this sample, indicated on Table 12.3 in bold, was copper (1 sample). The copper result was 130 mg/kg for a peat sample. Copper was successfully leached for peat at 72 mg/kg. In addition, copper was successfully leached for organic sediment at 94 mg/kg, sandy clay at 130 mg/kg, West Marsh sediment at 220 mg/kg and silty clay at 2,700 mg/kg. Review of the copper data obtained indicates this value is consistent with background levels present at the site. Accordingly, the entire Area D North and the area of the North Intake Canal represented by Grid #1 has achieved Act 307 Type B cleanup criteria, in accordance with Permit Condition II.H.4.(a).

Of the 39 final record samples collected for Grid #2, 38 below site specific background levels, default Type A criteria, or twenty times drinking water criteria. Sample results are shown in Table 12.4. Analytical results for the remaining sample indicated lead (1 sample) present at a level higher than all three of the previously noted criteria, but below Type B Direct Contact levels.

SPLP leach data was not available to address the 1 remaining sample. The parameter of concern for this sample, indicated on Table 12.3 in bold, was lead (1 sample). The lead result was 58 mg/kg for a silty clay sample. This sample was collected near the crest of the Sterling State Park dike at the work edge limit. Excavation into the Sterling State Park dike was not practical. Accordingly, the area of the North Intake Canal represented by Grid #2, along the Sterling State Park dike, has achieved Act 307 Type B cleanup criteria, in accordance with Permit Condition II.H.4.(a), as clarified herein.

12.5.4 Area D Towers

The area undergoing clean closure was 70,273 square feet or 1.6 acres. This is a medium size site. Based upon this area, a sampling grid interval of 35 feet was used for the Area D Towers. Approximately 58 grid nodes are anticipated for an area of this size and a grid interval of 35 feet. Sampling 25% of 58 grid nodes would result in a minimum number of 15 samples required for this area.

A total of 25 samples were collected by MEC for initial verification testing. A random number generator table was utilized to select sample locations. Of the 25 grid nodes sampled, 6 were determined to require additional excavation after receipt of analytical results. Resampling at these 6 grid nodes resulted in 31 additional samples being collected.

Samples were collected from the soils underlying the remediation areas. The soil type encountered at the sampling grid was determined in the field by visual observation during sampling. The soil types included the on-site: 1) silty clay; and 2) sediment.

Analytical testing was performed by ENCOTEC in the same manner as noted previously. All 56 samples were analyzed for arsenic, barium, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, silver, zinc, cyanide, xylenes and methylene chloride. Sample results are shown in Table 12.5.

MEC completed review of verification sample results. Documentation utilized by MEC for this review included the Post-Closure License, MERA Operational Memorandum No. 15 (September 30, 1993: Default Type A Cleanup Criteria, MERA Operational Memorandum No. 8, Revision 3 (February 4, 1994): Type B Criteria, and MERA Operation Memorandum No. 12, Revision 1 (September 9, 1994); Alternate Soil Leaching Procedures.

First, verification sample results were compared to site specific background levels contained within the Post-Closure License (Attachment 6 to the Post-Closure License), default Type A criteria and twenty times drinking water criteria. Samples that were above the higher of these three combined criteria were compared to Type B direct contact criteria. Samples that were below the Type B direct contact criteria were subject to leaching evaluation to demonstrate the levels present were protective of groundwater. Additional excavation was performed and the area was resampled if initial sample results indicated levels above Type B direct contact criteria.

Of the 46 final record samples, 29 were below site specific background levels, default Type A criteria, or twenty times drinking water criteria. Analytical results for the remaining 17 samples indicated nickel (13 samples), barium (4 samples), copper (14 samples) and zinc (12 samples) present at levels higher than all three of the previously noted criteria, but below Type B Direct Contact levels. Synthetic precipitation leaching procedure analysis of samples from the Area D Towers demonstrates that all 17 of these samples are protective of groundwater. The area of the Area D Towers outside of the containment units has achieved Act 307 Type B cleanup criteria, in accordance with Permit Condition II.H.4.(a), as clarified below.

The eastern edge of the Area D Towers, adjacent to the East Intake Canal, was sampled for verification testing purposes. Three separate sidewall samples were collected. A review of Table 12.5 indicates that all sample concentrations from this dike are below Type B Direct Contact Criteria. Excavation in this area did not continue due to concerns about dike stability adjacent to the East Intake Canal.

The area beneath the towers themselves was sampled for verification testing purposes. Twelve separate sidewall samples were collected. A review of Table 12.5 indicates that all sample concentrations from beneath the transmission towers are below Type B Direct Contact Criteria, with the exceptions of arsenic and copper. However, all detected concentrations of arsenic and copper are below current Industrial Soil Direct Contact Criteria (ISDCC) as published in MDEQ-ERD Operational Memorandum #18, Part 201 Generic Cleanup Criteria Tables, dated May 29, 1999. Leaching of samples representative of the levels encountered was not performed. The material in this area could not be excavated without completely removing the transmission towers.

Monitoring wells placed around the WCU will allow for monitoring of water quality in the vicinity of both of these areas during the 30-year post-closure period, specifically at monitoring wells PCW12 and PCW13.

12.6 Revisions

Several revisions relative to remediation outside of containment work were approved by MDEQ. These revisions are summarized below.

- Sheet pile was utilized to serve as the cofferdam for the North Intake Canal. This revision was approved by MDEQ-LWMD on February 25, 1996, as a modification to Permit No. 94-10-0863. (Design Drawings – Plates 1 to 59)
- Sheet pile was added around the perimeter of the West Marsh rock cofferdam when the rock cofferdam was determined to not be functioning properly. This revision was approved by MDEQ-LWMD on August 6, 1996, as a modification to Permit No. 94-10-0863. (Volume IV Construction Specifications - Section 5O Subsection 3.1 and Design Drawings – Plates 1 to 59)
- Excavation in the Process Canal was deeper than anticipated necessitating shifting of the cutoff wall alignment west and decreasing the area to be clean closed. This revision facilitated overall ECU construction. This proposed revision was submitted to MDEQ on May 29, 1996, and revised on July 22, 1996. The revision was approved by MDEQ on October 2, 1996. (Design Drawings – Plates 1 to 59)
- The two designated temporary culverts installed in the Sterling State Park dike were approved to remain in-place permanently in a February 25, 1997, letter from MDEQ-LWMD and a December 17, 1997, letter from MDNR-Parks & Recreation Division. (Volume IV Construction Specifications - Section 5O Subsection 3.1.5)

- A west access road was constructed to facilitate access to the West Marsh and Area D West. This revision was approved by MDEQ as a modification to Permit No. 94-10-0863 in a February 2, 1996, letter from MDEQ-LWMD. (Design Drawings – Plates 1 to 59)

12.7 Clarification

Several minor clarifications were incorporated into the remediation outside of containment to accommodate conditions encountered during construction. These clarification items are summarized below.

- For the Process Canal samples, EPA SW846 Method 8260 was used for volatile organic analysis. This is an approved analysis method referenced in MERA Operational Memorandum #6, Revision #3, dated February 4, 1994. (Permit Condition II.H.4.(d)
- Several flooding events occurred during remediation efforts in Area D West and the West Marsh when water overtopped the sheet pile wall due to elevated Lake Erie water levels. Dewatering in accordance with Construction Specification procedures followed flooding events. Several repeat confirmation samples were collected after one flood event; these samples confirmed no impact to the completed remediation area was caused by the flooding event. (Volume IV Construction Specifications - Section 5O Subsection 3.1.4)
- A clay berm was incorporated between the sheet pile and rock cofferdam in the West Marsh to raise the overall water barrier height and prevent repeated overtopping and flooding. (Design Drawings – Plates 1 to 59)
- Excavation of the east edge of Area D West was terminated west of the anticipated limit due to concerns about stability of the Area D dike. The cutoff wall alignment was shifted west to include the portion of Area D West not excavated within the WCU limit. (Design Drawings – Plates 1 to 59)
- Excavation of the south edge of Area D West was terminated at the limit defined by the Design Drawings. The limit in this area was parallel to the main Plant building. A clean sidewall along this edge was not obtained. (Design Drawings – Plates 1 to 59)
- The dike between Area D North and Area D was completely excavated as part of the remediation outside of containment effort. This course of action was necessary due to the dike separating from the solidified waste into Area D North. A more stable configuration was obtained. (Design Drawings – Plates 1 to 59)
- Backfill was placed in portions of the North Intake Canal that were excavated below elevation 560. Approximately 7,000 cubic yards of fill, predominantly 1"x3" rock with some intermixed clay, was placed. (Volume IV Construction Specifications - Section 5O Subsection 3.9 and Design Drawings – Plates 1 to 59)

13.0 SHEETPILE COFFERDAM

13.1 Summary of Design

Section 6.0 of the Closure Plan (Attachment 6 to the Post-Closure License) identified a geomembrane covered stone cofferdam to be constructed to enable dewatering for remediation of the waste materials in the North Intake Canal. Based upon the Area D West and West Marsh remediation efforts, the geomembrane covered stone cofferdam was determined to be an impractical means of facilitating dewatering of remediation areas. A request was submitted to MDEQ to substitute a sheet pile cofferdam for the geomembrane covered stone cofferdam for the North Intake Canal work. This request was approved by MDEQ, as detailed within Subsection 13.6.

The sheet pile cofferdam permitted dewatering in the North Intake Canal to facilitate the remediation and restoration activities of the combined Area D North and North Intake Canal area outside of the containment units. The sheet piles were designed to be installed to a depth sufficient to provide stability and to limit the seepage through or below the cofferdam. Furthermore, the sheet pile cofferdams were constructed to maintain adequate stability during excavation and backfilling operations of the dewatered areas.

The documentation provided to MDEQ for the substitute sheet pile cofferdam included Specifications and Construction Quality Plan.

13.2 Permit Conditions

There were no Permit Conditions included within the Post-Closure License relative to the sheet pile cofferdam.

13.3 Construction

This section has been prepared as a general summary of construction activities associated with this work effort. A complete presentation of construction activities associated with this work is contained in the Daily Field Reports, dated January 31, 1997 to June 7, 1997, which are included as Appendix M.

13.3.1 Roles

The prime contractor for this work was J.A. Jones Environmental Services, Inc. (JAJES). JAJES was responsible for the following work items during construction of the sheet pile cofferdams: coordinating the work of various on-site subcontractors; constructing the North Intake Canal flow by-pass; and placing, grading and compacting 4" by 8" stone for the east and west cofferdams. In addition, JAJES was responsible for several work items implemented after construction of the sheet pile cofferdams including dewatering and removal of sludge from within the work area bounded by the east and west cofferdams

(discussed in Section 12 of this report) and removal of the cofferdam 4" by 8" rock after completion of the remediation activities in the North Intake Canal.

A specialty subcontractor, A.J. Williams, Inc., was selected by JAJES to install the sheet piles and perform several other associated tasks including but not limited to the following: construction of sedimentation berms for the east and west cofferdams; removal of sediment from the area bounded by the sediment berm and the rock cofferdams; and, placement of stone on both sides of the sheet piling. In addition, after remediation of the North Intake Canal was completed, A.J. Williams removed the sheet piling and assisted JAJES in the removal of the 4" by 8" rock that butted both sides of the sheet piling.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer, Independent Testing Engineer (ITE) and record Surveyor.

13.3.2 Implementation

Construction of the sheet pile cofferdam occurred in three stages. In the first stage, which occurred from January 31, 1997 to February 28, 1997, JAJES placed and graded 4" by 8" stone for the North Intake Canal east and west cofferdams, as well as the east cofferdam truck turnaround area, with a Caterpillar D6X bulldozer then compacted the stone with a Caterpillar CS563 smooth-drum roller. In addition, JAJES used a Kobelco K909LC 11 excavator to create a trench for the flow by-pass culvert and a Komatsu WA250 to stockpile 4" by 8" stone for the cofferdam construction.

In the second stage, A.J. Williams mobilized on-site on March 5, 1997 and began construction of the North Intake Canal west cofferdam. Construction of the west cofferdam was completed on March 31, 1997. In the third and final stage of construction, A.J. Williams mobilized equipment for the east cofferdam construction on March 31, 1997. Construction of the east cofferdam was completed on June 2, 1997. A.J. Williams demobilized from the site on June 6 and 7, 1997.

A.J. Williams constructed the sediment berm first for the east and west cofferdams using 4" by 8" stone. They removed sediment from the area bounded by the sediment berm and the cofferdam and placed it outside of the sediment berms (i.e., within the area to be remediated). A.J. Williams then installed the PZ-27 sheet piling in single continuous sheets using a hairpin hammer and vibratory driver/extractor down to a minimum of two feet below the top of the stiff clay layer. During installation of the sheet piling, several of the sheets were reset since they were originally not driven to refusal and all of the sheets were plumbed to establish a level vertical surface.

After the sheet piling was complete, A.J. Williams placed 4" by 8" stone on both sides of the sheet piling, with placement occurring in one- to three-foot lifts on either side of the sheet pile such that the differential between stone surfaces on opposite sides of the sheet pile was not more than two feet until the final lift was placed. The stone fill was then

leveled off above and below the water surface and graded to the required slopes prior to the placement of geocomposite.

After construction of the sheet pile cofferdams was completed, JAJES dewatered and remediated the North Intake Canal. A discussion of these events is provided in Section 12.

Placing load-bearing fill along the banks to provide stability restored the remediated areas within the North Intake Canal. A discussion of these activities is provided in Section 6.

A.J. Williams remobilized on-site on November 17, 1997 to begin sheet pile removal operations. The sheets were removed utilizing a 290 OW Manitowoc Crane. The 4" by 8" cofferdam rock was removed by A.J. Williams and JAJES utilizing various pieces of equipment including a Caterpillar 330B excavator and a 290 OW Manitowoc Crane with a clam bucket. The stone was utilized in other areas of the site. Sheet pile and rock removal was completed by January 6, 1998.

13.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

No specific CQC documentation was generated and provided by A.J. Williams.

13.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. A CQA Plan was developed specifically for this project. The CQA Plan was not included as part of the Post-Closure License (Attachment 6 to the Post-Closure License) since its' preparation occurred after submittal and approval of the Post-Closure License Application. This section details efforts associated with the implementation of the North Intake Canal Cofferdams CQA Plan. These activities were conducted to provide assurance that the cofferdams were constructed according to the requirements of the Post-Closure License.

Prior to the start of construction, the MEC CQA Officer reviewed submittals certifying that the sheet piling met the requirements of ASTM A 328 and that the stone fill met the project specifications. The CQA Officer also reviewed and became familiar with the Construction Work Plan submitted by JAJES.

A MEC ITE performed continuous monitoring of construction of the cofferdams in accordance with the CQA Plan. MEC documented all construction and field sampling activities, record surveying documentation, and identified to JAJES when an area was suitable for restoration. MEC's observations are documented within Daily Field Reports contained within Appendix M. Project photographs in Appendix N also document work activities.

MEC monitored water levels twice daily outside of the North Intake Canal cofferdams to observe that the water level did not approach within 1.5 feet of the design high and low water levels of 577.5 and 566.3, respectively. There was only one documented occurrence where the water level rose within 1.5 feet. During the daily monitoring on March 14, 1997, MEC observed the water level to be within 1.5 feet and sheets 39 through 78 tipping due to the high water levels and inadequate bracing and supports for the sheet pile. The repair of these sheets was completed the day after the sheets were observed to tip. For the repair, the sheets were returned to vertical alignment using the on-site crane and a top brace was added to tie the sheets together and provide adequate support.

MEC used a level to verify the top of clay before the sheet piles were driven to refusal (defined as sheet pile movement less than 1 inch in 10 hammer blows) and would measure the sheet pile length prior to placement to verify that the sheet piles were embedded a minimum of 2 feet into the clay. The top of rock placement was also verified with a level.

MEC prepared a CQA Verification Summary table that listed the sheet number, whether sediment was removed, the top of clay elevation, sheet length, final elevation, tip elevation and embedment depth. The summaries indicate that in all cases the tip elevation of the sheet piling was a minimum of 2 feet below the top of clay elevation. MEC verified that the top clay varied from elevation 562 to elevation 569. These summaries are included within the CQA Daily Field Reports in Appendix M.

Other miscellaneous CQA tasks performed by MEC included the performance of soundings jointly with A.J. Williams to verify completion of sedimentation berm. MEC also would identify holes in the sheet pile to A.J. Williams so that they could be repaired by welding plates over the holes.

Finally, MEC compared top of clay elevations with the final stone fill elevations to ensure that balanced stone fill placement requirements were met.

13.6 Revisions

Several revisions relative to the North Intake Canal cofferdams were approved by the MDEQ. These revisions are summarized below.

- A revised design and location of the cofferdams in the North Intake Canal was submitted to the MDEQ. The design revision was made due to the potential inability of the permitted cofferdam to maintain a dewatered condition. The permitted cofferdam for the North Intake Canal had been designed similar to the West Marsh Cofferdam, which did not maintain the site in a dry condition during the dewatering of the West Marsh. The revised design and location of the cofferdams was approved by MDEQ in a February 25, 1997, letter.

13.7 Clarifications

There was only one minor clarification that was incorporated into construction of the cofferdams. JAJES constructed the east and west rock cofferdams (i.e., stone fill) with a 30 foot wide top whereas the design by NTH indicated a 17 foot wide top.

14.0 SEDIMENT CONTAINMENT UNIT

14.1 Summary of Design

The USEPA RCRA Post Closure License, in Section IV.C.3.d, identified that a Sediment Containment Unit (SCU) would be constructed within the Corrective Action Management Unit (CAMU) boundary. The SCU would be constructed for on-site disposal of PCB-impacted sediments resulting from cleanup of the River Raisin Area of Concern and associated plant sewer piping and impacted areas at the facility. Once constructed, the SCU was a completely separate unit within the surrounding Eastern Containment Unit. The SCU has a dedicated leachate collection and removal system and a 60-mil HDPE geomembrane base and cap.

Section IV.C.3.d(1) of the USEPA RCRA Post Closure License indicated the SCU should be located and constructed within the CAMU in accordance with the SCU design plans and specifications, approved by the State of Michigan on June 7, 1996.

A letter from Ford Environmental Quality Office to Mr. Steven Sliver (MDEQ) dated December 6, 1995 indicated the Construction Quality Assurance would be provided in accordance with the provisions of the approved CQA Plan, Section 7.0 (clay, geomembrane, sand, geotextile, and gravel subsection), Section 9.0 (earthwork), Section 10.0 (placement and compaction of solidified waste), and Section 13.0 (leachate collection system).

14.2 Permit Conditions

The Permit Conditions included within Post Closure License were detailed in Section 14.1.

14.3 Construction

This section has been prepared as a general summary of activities associated with this work effort. A complete presentation of activities associated with this work is contained in the River Raisin Sediment Removal/Sediment Containment Unit Daily Field Reports, included as Appendix P of this report.

14.3.1 Roles

Sevenson Environmental Services, Inc. (SESI) was responsible for the overall construction of the SCU. SESI also performed on-site solidification of impacted sediment and soils disposed of within the SCU.

New England Liner Systems (NELS), subcontractor to SESI, served as the geomembrane installer. NELS was responsible for installation of the geomembrane liner base and cap.

Midwest Environmental Consultants, Inc. (MEC) performed duties related to construction quality assurance (CQA). MEC retained geotechnical and geosynthetic laboratory subcontractors to assist with laboratory quality assurance testing.

14.3.2 Implementation

The SCU is approximately 3.2 acres in size and is located within the Eastern Containment Unit at the center of the southern portion. For additional information concerning the overall SCU configuration, refer to the SCU As-Built Drawings in Appendix U of this report.

Construction of the SCU was initiated in April 1997. SESI graded and compacted the solidified waste surface, prepared by JAJES, in the area of the SCU to project specifications. SESI then constructed the berm, which formed the perimeter of the SCU in May using solidified waste stockpiles generated by JAJES from the Surface Impoundment Closure effort and off-site gray clay. The berm was constructed using nine-inch loose lifts of solidified waste and clay and was compacted using a segmented pad compactor. A leachate sump was constructed along the southern limit of the SCU to collect leachate. The base of the SCU was graded at approximately one to two percent towards the sump.

NELS initiated the 60-mil HDPE geomembrane installation on June 6, 1997. The geomembrane was anchored around the perimeter of the SCU in an anchor trench. Geomembrane installation was completed on June 13, 1997.

SESI initiated placement of MDOT Class 2NS sand on top of the base geomembrane on June 16, 1997. The sand was spread using low ground pressure equipment into a one-foot lift. A 60 mil HDPE geomembrane scuff strip was placed in the bottom of the sump and then the sump was filled with 6A stone. The 18" SDR 17 riser pipe, with perforated base, was then installed in the bottom of the sump and covered with additional 6A stone. A layer of geotextile was placed on top of the 6A stone. Sand placement was complete on July 1, 1997. Approximately 5660 CY of sand were placed in the SCU.

SESI initiated solidification of dredged river sediments on June 27, 1997. The sediments were solidified in a pugmill using cement as the reagent. The solidified material was allowed to cure for several days prior to being placed in the SCU. The first load of material was placed into the SCU on July 7. Sediments generated during the sewer cleaning project were also placed into the SCU. Railroad ties from the plant and various construction debris was also placed in the SCU. The wastes placed into the SCU were spread with a bulldozer and then compacted with a segmented pad or smooth drum roller, when necessary. Waste placement was completed on October 9, 1997. Approximately 27,125 CY of waste was placed in the SCU.

New England returned on October 6, 1997 to initiate installation of the 60-mil HDT (high density textured) cap geomembrane. The cap geomembrane was welded to the base

geomembrane at the approximate edge of the anchor trench. Cap geomembrane installation was complete on October 14, 1997.

SESI initiated placement of a one-foot thick protective layer of clay on top of the cap geomembrane on October 13, 1997. The clay was spread with low ground pressure bulldozers and compacted with a smooth drum roller. Clay placement, grading and compacting was complete on October 23, 1997.

14.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

SESI performed various quality control measures during SCU construction. SESI performed real-time air monitoring, survey layout, and daily documentation construction activities (including reagent additions, material quantities, etc.) as part of their overall CQC program. SESI transmitted all CQC daily field reports to MEC. MEC has retained these reports in the project files.

The geomembrane installation subcontractor, NELS, provided CQC Monitoring for the geomembrane installation. NELS performed field trial seam testing, non-destructive seam testing, and destructive seam testing as a part of their overall CQC program. NELS CQC daily field reports were transmitted to MEC as part of the SESI CQC daily field reports.

New England provided manufacturer quality control certifications for the geomembrane liner. These are included in Appendix R of this report.

14.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. The CQA for this portion of the work was performed using the CQA Plan included as part of the Post-Closure License (Attachment 6 to the Post-Closure License).

14.5.1 Subgrade

The subgrade of the SCU was constructed of previously solidified sludge and clay borrow. All soil materials used to construct the SCU were analyzed at the geotechnical lab for proctor analysis and grain size analysis. During construction, MEC performed moisture/density testing to ensure the compacted soils met the construction specifications.

Results for the various soils used to construct the base of the SCU are included in Appendix Q of this report.

14.5.2 Geomembrane Liner

During deployment of the geomembrane, MEC collected CQA conformance samples of the smooth and textured HDPE geomembrane. Samples were collected at a frequency of one per 100,000 square feet, and one per resin batch. A geosynthetic laboratory subcontractor, J&L Testing, Inc. (JLT) tested CQA conformance samples. Samples were tested for density, thickness, tensile properties and dimensional stability.

In addition, New England provided quality control certificates for each roll of geomembrane delivered to the site, each resin batch used to manufacture geomembrane, and for welding rod shipped to the site. These quality control certificates were reviewed by MEC's ITE as part of the CQA effort.

MEC's ITE conducted continuous monitoring of geomembrane installation. Trial weld preparation and testing by New England was observed and documented. Panel deployment and seaming were observed and documented. Repair of damaged geomembrane sections was observed and documented. Non-destructive testing, including pressurized dual seam and vacuum box, by New England was observed and documented. MEC CQA personnel also conducted observations on a daily basis for any damage sustained by the liner after deployment and seaming were completed. Any observed damage was immediately brought to the attention of New England's superintendent for repair.

Destructive seam samples were tested by MEC utilizing a tensiometer mobilized to the site for this specific purpose. One out of every ten destructive seam samples was also shipped to JLT for additional assurance that geomembrane seams had achieved project specifications. An archive seam sample has been retained for each destructive seam sample collected.

Prior to the placement of the sand layer, MEC's ITE and New England's superintendent examined the geomembrane. Sand placement did not begin until the geomembrane was determined to be suitable by MEC's ITE and New England's superintendent.

Daily test data for geomembrane liner is included within SCU CQA Daily Field Reports (Appendix P). Destructive seam sample results are included within SCU CQA Daily Field Reports (Appendix P) and SCU Geosynthetic Laboratory and Manufacturer Test Data (Appendix R). Geosynthetic laboratory data, including New England quality control certificates are included within SCU Geosynthetic Laboratory and Manufacturer Test Data (Appendix R). The geomembrane panel layout for the base liner and cover liner is reflected on the As-Built Drawings (Appendix U).

14.5.3 Sand Layer

Prior to SCU construction, MEC collected a sample of the sand to be used as the drainage layer in the SCU (Sylvester Material Company, Clinton Quarry). The sample was analyzed for grain size and permeability at minimum, maximum and 80% relative density. See Appendix Q for sand geotechnical laboratory data.

During construction, sand placement was monitored continuously by MEC's ITE. Compaction testing was performed, using a nuclear moisture-density gauge, at a minimum frequency of one per 40,000 square feet of sand placed. Moisture-density test results were recorded as part of the SCU CQA Daily Field Report. MEC also performed thickness verification to assure a minimum of 12 inches of sand was placed. Thickness verification was performed at a minimum of every 100 feet.

Daily information for sand layer construction is included within SCU CQA Daily Field Reports (Appendix P). Laboratory data is included within SCU Soil Geotechnical Laboratory Data (Appendix Q).

14.5.4 Solidified Waste

During solidification of the river sediments, MEC collected representative 3"x6" cylinder sample sets of the final product. Each sample set contained five to eight cylinders, dependant upon the CQA Officers or ITE's discretion. These samples were allowed to cure and were tested for unconfined compressive strength, typically at three, seven, and 28 days intervals. All testing occurred at the on-site MEC laboratory by a MEC ITE. A summary of unconfined testing is included as Table 14.1 of this report. All solidified sediments met unconfined compressive strength requirements or project compaction requirements.

During placement of solidified river sediments into the SCU, SESI compacted waste, which did not meet project unconfined compressive strength specifications. A test pad was constructed on July 16, 1997 to establish the maximum dry density of solidified, compacted river sediments. This maximum dry density was used as the basis for verification of conformance with project specifications. Results of moisture/density testing of solidified, compacted river sediments are included in Appendix P of this report.

14.6 Revisions

There were no revisions to the permit for SCU construction.

14.7 Clarifications

There were no clarifications to the permit for SCU construction.

15.0 WEST LAGOON

As depicted on Figure 15.1, Former West Lagoon Area, the Former West Lagoon at the Monroe Stamping Plant was located north of the main manufacturing building. Reportedly, the West Lagoon had dimensions of 512 feet by 64 feet and 10 feet deep and was used for settling treated electroplating effluent and storage of the settled wastewater treatment sludge.

In 1982, Ford Motor Company discontinued using the West Lagoon and began cleanup activities. The Former West Lagoon was dredged and the sludge was removed, dewatered on site and disposed of at an off-site facility. Ford also removed impacted soil from the Former West Lagoon. Following cleanup activities, the United States Environmental Protection Agency (USEPA) certified closure of the West Lagoon on July 27, 1984. Since this time, the Former West Lagoon area has been covered with gravel, and in portions of the area asphalt pavement, and used for the storage of metal parts racks.

As part of the Act 64 Post Post-Closure Operating License, MDEQ required Ford to re-evaluate closure of the Former West Lagoon. Investigation of the closure of the West Lagoon is set forth as Condition II.H.11 of the Post-Closure Permit, dated March 27, 1995.

Ford authorized NTH Consultants, Ltd. Of Farmington Hills, Michigan (NTH) to conduct a limited subsurface investigation. This investigation is documented in a report titled *Investigation Report of Former West Lagoon,* dated April 11, 1996. Ford submitted this report to MDEQ on May 8, 1996. Much of the following discussion was excerpted from the NTH report and MEC's evaluation is based upon data presented within the NTH report.

The approximate limits of the West Lagoon were determined by NTH based upon a review of historic aerial photographs and interviews with Ford plant personnel. The limits were then staked and verified by the advancement of a series of shallow test pits. The resulting area was then divided into 20 sampling grids (80 potential sampling locations) utilizing information provided in the MDEQ guidance document "*Verification of Soil Remediation*", dated April 1994, Revision 1. Twenty sampling locations were then selected using a random number generator. The selection process was slightly modified to ensure that sampling locations occurred along all perimeter sides. The sampling locations for the Former West Lagoon are depicted on Figure 15.1, Former West Lagoon Area Solid Waste Management Unit.

On June 13 and 14, 1995, 20 borings, designated as TB-1 through TB-20, were drilled utilizing a Central Mine Equipment (CME) 750 drill rig equipped with 4.25-inch inside-diameter hollow stem augers operated by Geo-Tek, Incorporated of Lowell, Michigan. Soil samples were collected utilizing a 2-inch diameter split-spoon sampler driven in place by the rigs down-hole hammer.

Soil samples were examined to determine soil lithology. Representative soil was immediately placed into clean laboratory supplied sample containers and chilled or refrigerated until relinquished to the laboratory. Table 1 lists the sample identification numbers, locations, soil types, and depths for each of the aforementioned borings.

Soil samples were collected at depths of 2, 6, 10, 14 and 18 feet below ground surface (bgs) in the perimeter boring locations. Soil samples were collected at the approximate base of the Former West Lagoon, 2 feet below the base and 4 feet below the base. The 2 feet and 4 feet samples for the interior sampling location were not analyzed. The fill placed within the Former West Lagoon was not sampled as part of this investigation.

The drill rig and auger flights were decontaminated between each boring and the water treated prior to discharge to the City of Monroe sanitary sewer system. The split-spoon sampler was decontaminated between samples utilizing a detergent wash with a deionized water rinse. Soil cuttings were disposed of into the Western Containment Unit (WCU). Each borehole was sealed with cement-bentonite grout at the completion of soil sampling.

Select soil samples were analyzed for the F006 Plating Sludge parameters consisting of the 10 Michigan metals (including chromium and zinc), hexavalent chromium, nickel, total cyanide and amenable cyanide. Soil samples were submitted under chain-of-custody procedures to ENCOTEC for laboratory analysis of the indicator parameters listed above.

Soil borings TB-1 through TB-20 were advanced from 16 to 18 feet bgs in and around the Former West Lagoon area. The perimeter area is generally covered with fill consisting primarily of sands and silty clays ranging from 3 feet to 11 feet bgs. Trace amounts of a black fill material was also reported around the perimeter of the Former West Lagoon. A cohesive silty clay unit underlies this area, which is regionally extensive both laterally and vertically. Peat and marl deposits were also encountered at 7.5 feet and 17 feet bgs, respectively, in soil boring TB-12.

The soil profile within the Former West Lagoon consisted of fill clays and some sands ranging from approximately 12 feet to 14 feet bgs. Trace amounts of concrete rubble and construction debris were also indicated. The regionally extensive silty clay unit mentioned above also underlies this area. Perched water was encountered in seven soil borings at depths ranging from 5.0 feet to 9.7 feet bgs. Refer to individual soil borings, presented in the NTH Report, for more information.

Quality Assurance/Quality Control (QA/QC) procedures were performed by laboratory personnel from ENCOTEC. Based on a review of the QA/QC summary information presented in the analytical reports, the laboratory results are acceptable. Copies of the QA/QC data for original laboratory data were included within the NTH Report.

Analytical results for soil samples obtained are presented in Table 15.1, Former West Lagoon Analytical Data Summary. Copies of the original laboratory analytical reports for these samples are contained within the NTH Report.

Soil sample analytical results were compared to: 1) Default Type A Cleanup Criteria as published in MERA Operational Memorandum No. 15, dated September 30, 1993; 2) Type B 20 x Drinking Water Cleanup Criteria as published in MERA Operational Memorandum No. 8, Revision 3, dated February 4, 1994; and 3) Site-Specific Background Levels contained in Attachment 6 of the Post-Closure Operating License. Sample concentrations that were above the higher of these three combined criteria were compared to Type B Direct Contact Criteria as published in MERA Operational Memorandum No. 8, Revision 3, dated February 4, 1994.

A review of Table 15.1, Former West Lagoon Analytical Data Summary, indicates that all sample concentrations are below Type B Direct Contact Criteria, with the exception of arsenic. However, all detected concentrations of arsenic are below current Industrial Soil Direct Contact Criteria (ISDCC) as published in MDEQ-ERD Operational Memorandum #18, Part 201 Generic Cleanup Criteria Tables, dated May 29, 1999.

As part of the project, an asphalt cap was constructed to the south of the WCU, immediately over top of the Former West Lagoon. In addition, monitoring wells have been installed around the perimeter of the Former West Lagoon as part of the groundwater investigation work which is currently being conducted under the direction of MDEQ in accordance with Permit Condition V.D.5 of the Act 64 Post-Closure Permit.

The Former West Lagoon will be incorporated into the Restrictive Covenant.

Therefore, based on the soil sample results obtained for the Former West Lagoon, the permanent asphalt cover above the area, the Restrictive Covenant, and the ongoing groundwater investigation work, no further action is required.

16.0 SOLID WASTE MANAGEMENT UNITS

16.1 Summary of Design

The U.S EPA in the RCRA Permit identified that a Corrective Action Management Unit (CAMU) shall be used to facilitate the remediation of the hazardous waste surface impoundments. This enabled the movement of waste materials from various waste management units within the CAMU for disposal. This section specifically addresses the movement of wastes from areas identified as Solid Waste Management Units (SWMUs) into the Eastern Containment Unit within the CAMU.

16.2 Permit Conditions

There were no Permit Conditions within the Post-Closure License relative to the movement of material from the Solid Waste Management Units into an on-site containment unit.

16.3 Construction

This section has been prepared as a general summary of construction activities associated with this work effort. A complete presentation of construction activities performed by J.A. Jones Environmental Services, Inc. associated with this work is contained in the Daily Field Reports which are included as Appendix M of this report. A complete presentation of construction activities performed by Sevenson Environmental Services, Inc. associated with this work is contained in the River Raisin/Sediment Containment Unit Project Daily Field Reports which are included as Appendix P of this report.

16.3.1 Roles

The prime contractor for this work was J.A. Jones Environmental Services, Inc. (JAJES). JAJES was responsible for the movement and placement of waste materials from the SWMUs into the Eastern Containment Unit.

Sevenson Environmental Services, Inc. (SESI), as part of the work performed for the River Raisin/Sediment Containment Unit Project, hauled and placed waste materials from the SWMUs into the Eastern Containment Unit.

Midwest Environmental Consultants, Inc. (MEC) served as the construction quality assurance (CQA) agency. MEC staff served the roles of CQA Officer, Independent Testing Engineer (ITE) and record Surveyor.

16.3.2 Implementation

On December 29, 1995 JAJES initiated excavation in the Dead Tree Area (DTA). Excavation was performed with an excavator, which loaded the material into an off-road

dump truck. Soil and debris excavation was continued in January 1996. All excavated material from the DTA was hauled to and stockpiled in Area C for future in-situ solidification and/or compaction as waste placement above grade. Excavation in the Dead Tree Area by JAJES was performed in February, April and May of 1996. Excavation was completed on May 30, 1996. Approximately 880 CY of material was excavated from the DTA by JAJES.

In January 1996, JAJES initiated excavation of concrete/rubble from the Demolition Disposal Area. This material was hauled to the south side of Area D for use as fill for parking area extension. This material was also hauled into Area C in December of 1996 for use as fill material and for construction/extension of dike haul roads. Approximately 2,500 CY of material was excavated from the Demolition Disposal Area by JAJES.

On July 31, 1997 SESI initiated excavation, transportation and placement of concrete/rubble from the Demolition Disposal Area. The material was excavated by a hydraulic excavator and loaded into on-road and off-road dump trucks. The trucks hauled the material to the eastern side of the Sediment Containment Unit (located in Area C). There a bulldozer was used to grade the material. Excavation was complete when SESI reached original ground level (soil). Excavation, transportation and placement by SESI was performed from July 31 through August 11, September 16 through 18, September 22, September 29 through October 6, and October 21 through 28. Approximately 15,920 CY of material was excavated from the Demolition Disposal Area and hauled and placed in the Eastern Containment Unit (east of the SCU) by SESI.

On October 3, SESI initiated excavation of the east end of the Dead Tree Area (DTA). The soil/rubble was excavated using a hydraulic excavator which loaded on-road dump trucks. The material was hauled to the debris area east of the SCU (in the Eastern Containment Unit). There a bulldozer was used to grade the material. Material was excavated, transported and placed from October 3 through 7. Approximately 420 CY of material was excavated for the DTA and hauled and place in the Eastern Containment Unit (east of the SCU) by SESI.

16.4 Construction Quality Control (CQC) Monitoring

CQC refers to activities conducted by the Contractor to ensure the highest quality construction practical is provided. CQC procedures are typically identified within a CQC plan or document. A CQC plan or document is developed and implemented by the Contractor. The CQC plan or document and resultant documentation is often provided to the Owner to demonstrate the Contractor's commitment to quality.

No specific CQC documentation was generated by JAJES or SESI.

16.5 Construction Quality Assurance (CQA) Monitoring

CQA refers to activities conducted by an independent third party, not affiliated with the Owner or Contractor, to provide reasonable assurance that construction quality objectives have been achieved. There was no CQA Plan developed specifically for this work.

No CQA was performed for this work beyond observation and documentation of the work.

16.6 Revisions

There were no revisions to this work.

16.7 Clarifications

There were no clarifications to this work

17.0 CERTIFICATION

Certification of closure is required within 60 days of completion of final closure. This certification is required to be signed by both the licensee and an independent registered professional engineer. This certification fulfills the requirements of R299.9613(2), 40 CFR 265.111, and Condition II.H.10 of the Act 64 Post-Closure Operating License (MID 005 057 005). Certification is included as Appendix T of this report.

DWG. NO. 1 OF 65
PROJ. NO. F66A2C

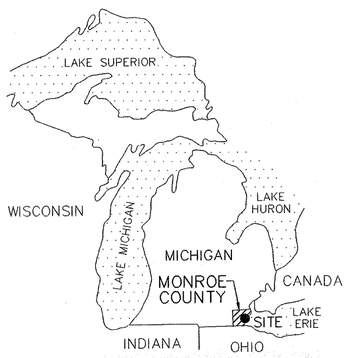
FORD MOTOR COMPANY

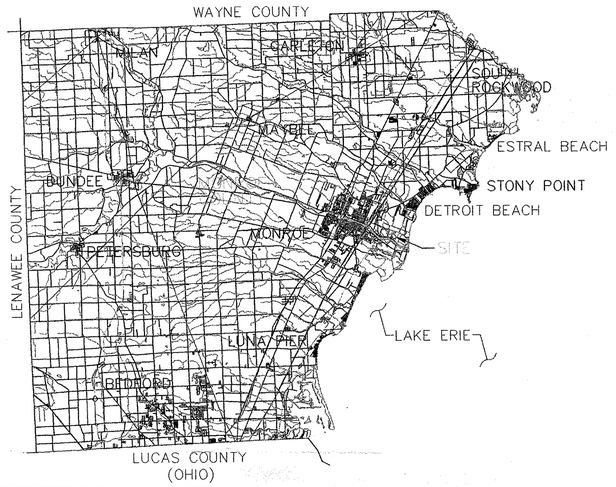
MONROE STAMPING PLANT

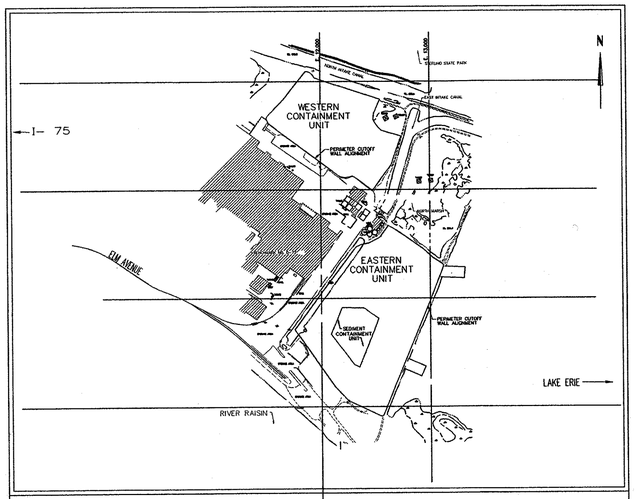
MID 005 057 005
MONROE, MICHIGAN

WASTE DISPOSAL
SURFACE IMPOUNDMENT CLOSURE

AS-BUILT DRAWING







LOCATION MAP

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4	North Intake Canal, Area D North, and Area D Tower Closure	F66A2CO3
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6	Solidified Waste Surface - ECU South	F66A1E11
7	Solidified Waste Surface - ECU North	F66A1E11
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18	Geomembrane Panel Layout - WCU	F66A2C21
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PLANS PREPARED FOR:

FORD ENVIRONMENTAL QUALITY OFFICE
AND
FORD MOTOR LAND SERVICES CORPORATION

PLANS PREPARED BY:

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
22720 Michigan Avenue, Suite 306
Dearborn, Michigan 48124
PHONE NO.: (313) 563-6326

STATE OF MICHIGAN
JOHN S. BROWNING III
ENGINEER
No. 39872
LICENSED PROFESSIONAL ENGINEER

JOHN S. BROWNING III, PE

OCTOBER 1999
DWG. NO. 1 OF 65
PROJ. NO. F66A2C

DWG. NO. 57 OF 65
PROJ. NO. F66A3N

VISTEON CORPORATION

MONROE STAMPING PLANT

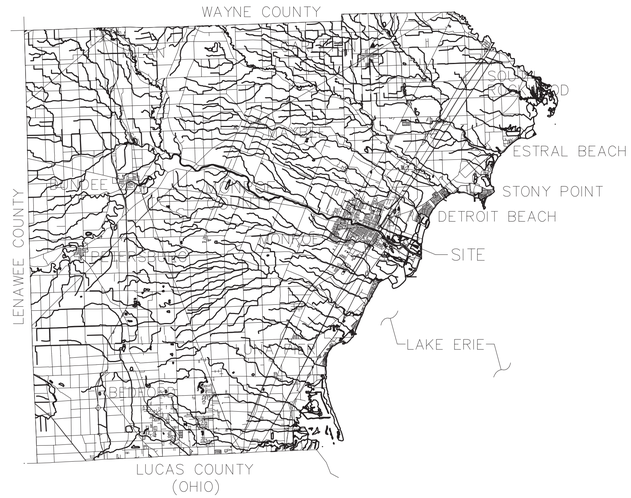
MID 005 057 005

MONROE, MICHIGAN

RIVER RASIN SEDIMENT REMOVAL PROJECT

SEDIMENT CONTAINMENT UNIT

AS-BUILT



GENERAL LEGEND

SYMBOL	DESIGNATION
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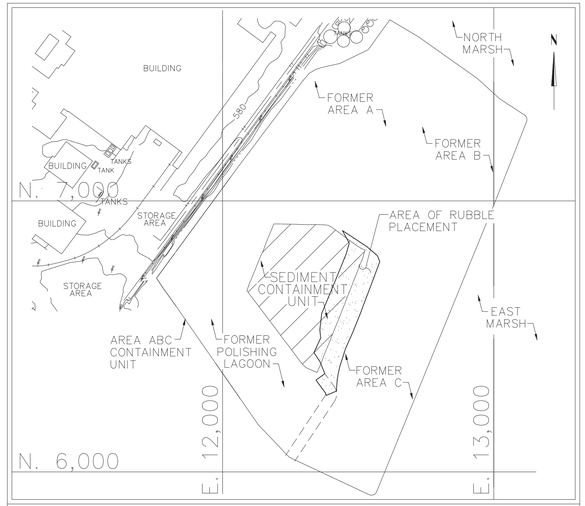
0.0%	FLOW DIRECTION & PERCENT SLOPE
00:00	HORIZONTAL TO VERTICAL SLOPE RATIO
	TOP OF SLOPE
	TOE OF SLOPE
N.T.S.	NOT TO SCALE
HDPE	HIGH-DENSITY POLYETHYLENE
HDT	HIGH-DENSITY TEXTURED POLYETHYLENE
MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION



LOCATION MAP

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TOP OF PROTECTIVE CLAY	5
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PLANS PREPARED FOR:

VISTEON ENVIRONMENTAL QUALITY OFFICE
AND
VISTEON LAND SERVICES CORPORATION

PLANS PREPARED BY:

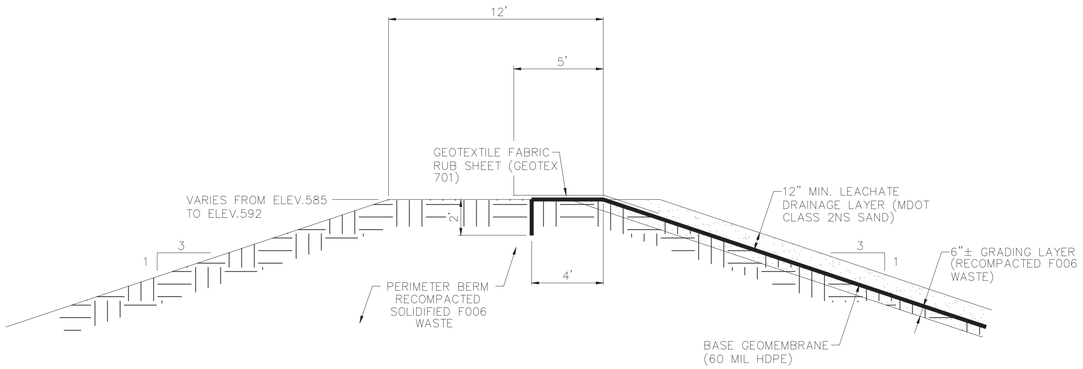
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
22720 MICHIGAN AVENUE, SUITE 306
DEARBORN, MICHIGAN 48124
PHONE NO.: (313)563-6326

JOHN S. BROWNING III, PE

FEBRUARY, 1998

DWG. NO. 57 OF 65

PROJ. NO. F66A3N



BASE GEOMEMBRANE PROTECTION
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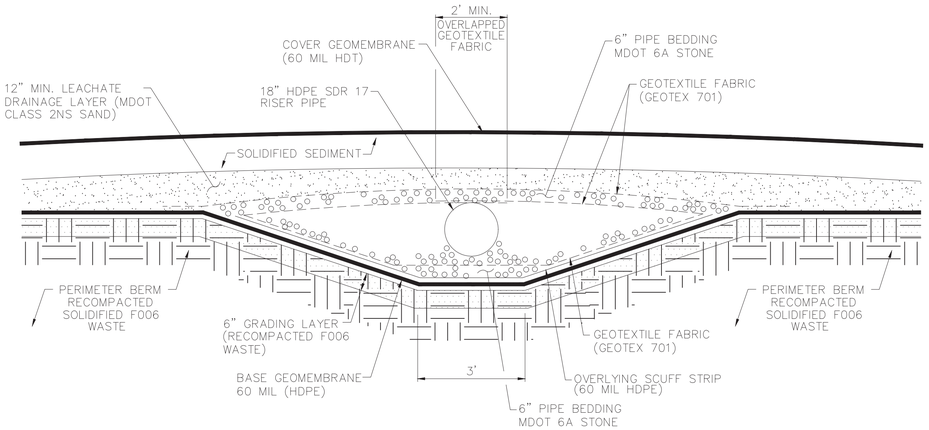

RISER PIPE CROSS SECTION
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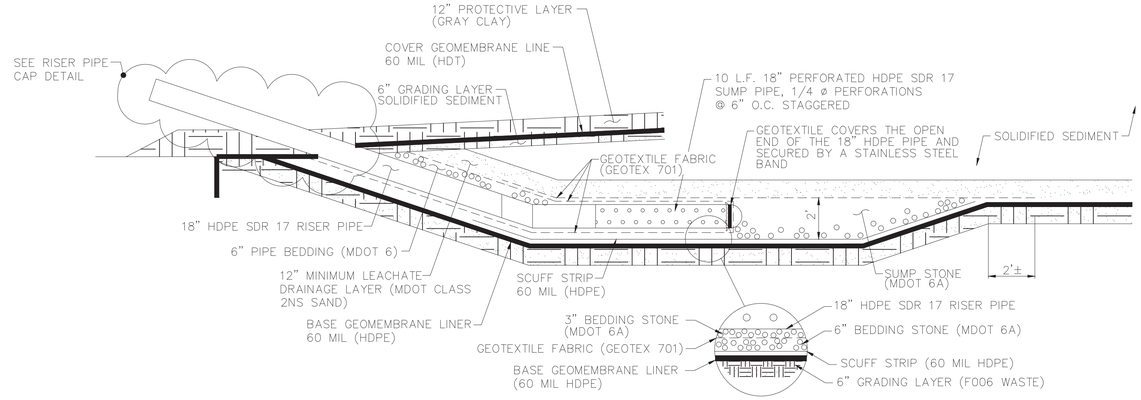

RISER PIPE CROSS SECTION
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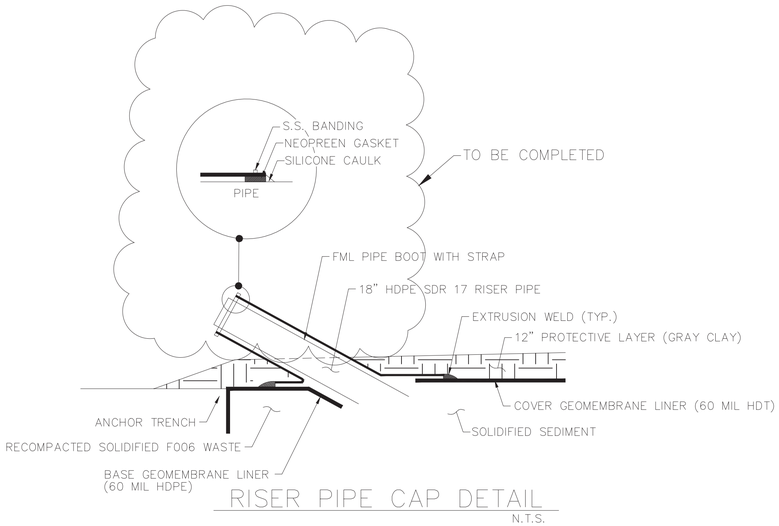

RISER PIPE CAP DETAIL
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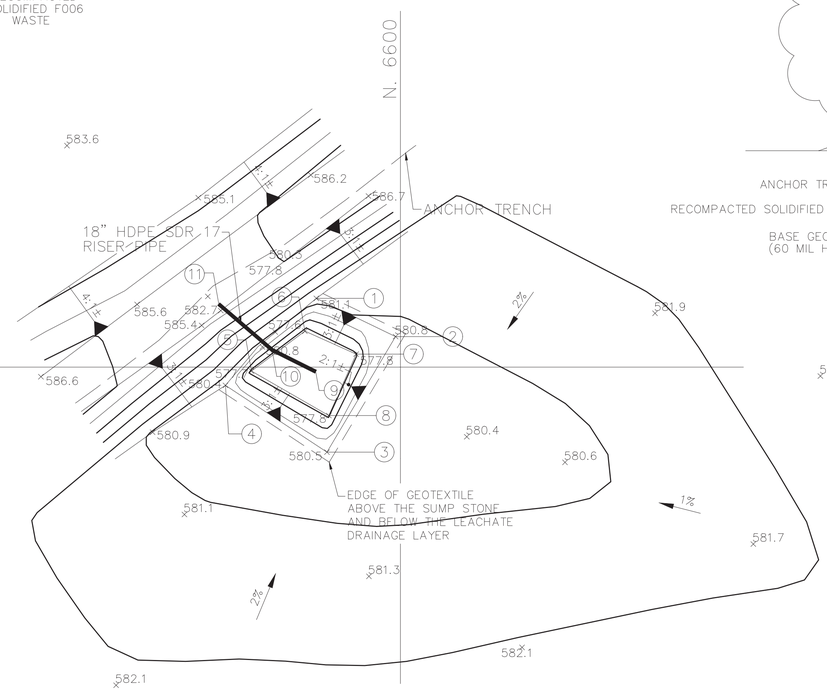

POINT NO.	NORTH	EAST	ELEVATION
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2	6598.6	12191.5	–
3	6579.5	12223.8	–
4	6551.1	12205.1	–
5	6558.4	12201.1	–
6	6573.3	12190.0	–
7	6587.6	12196.4	–
8	6580.0	12213.5	–
9	6576.3	12201.3	–
10	6564.1	12195.2	–
11	6549.2	12182.4	–

SUMP PLAN VIEW
SCALE: 1"=20'

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1			AS-BUILT DETAILS NTH PLATE 4

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

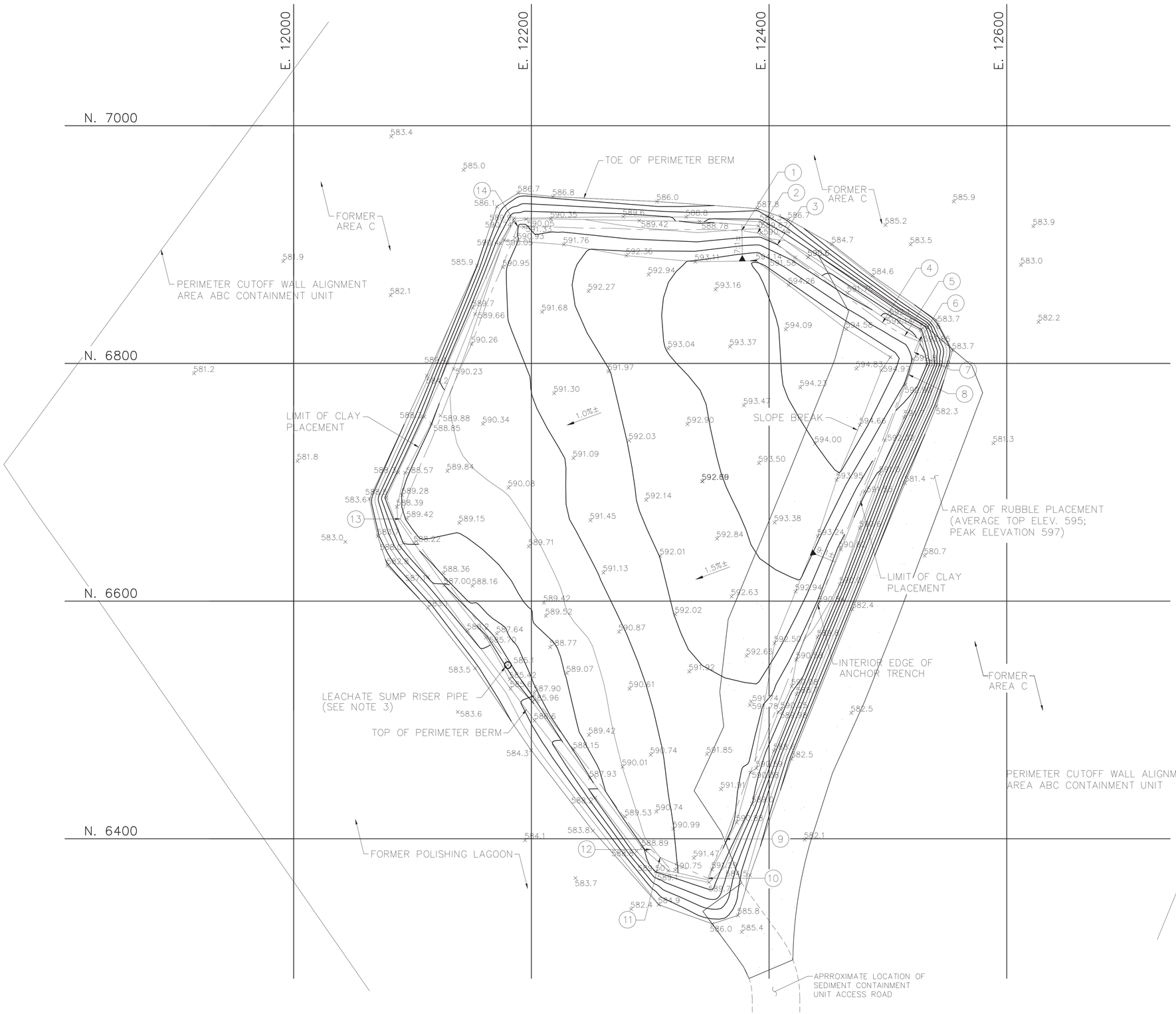
TITLE: VISTEON CORPORATION – MONROE PLANT

SEDIMENT CONTAINMENT UNIT DETAILS

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 2/98	AS NOTED	63 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
BMC 2/98	BMC 2/98		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A3N	F66A3N06	

DWG. NO. 62 OF 65

PROJ. NO. F66A3N



N

SCALE 1"= 40'

0' 20' 40' 80'

INTERIOR EDGE OF ANCHOR TRENCH
AS-BUILT SURVEY DATA

POINT NO.	NORTH	EAST	ELEVATION
1	6911.6	12376.9	–
2	6909.8	12390.3	–
3	6899.7	12407.0	–
4	6834.3	12495.4	–
5	6823.2	12514.2	–
6	6818.6	12525.9	–
7	6809.4	12522.2	–
8	6790.6	12517.4	–
9	6399.9	12363.1	–
10	6366.8	12348.4	–
11	6384.4	12308.3	–
12	6391.0	12300.5	–
13	6669.1	12089.6	–
14	6915.1	12188.7	–

NOTES

1. THE SURVEY OF THE TOP OF PROTECTIVE CLAY COVER IS BASED UPON TEMPORARY SITE CONTROL SDR1 N.6741.80, E.11727.40, EL.579.69 AND SDR2 N.7827.00, E.12489.30, EL.579.07. PERMANANT SURVEY CONTROL WILL BE PROVIDED FOR THE SITE AT THE COMPLETION OF THE SURFACE IMPOUNDMENT CLOSURE PROJECT.
2. AS-BUILT TOP OF PROTECTIVE CLAY IS BASED UPON SURVEY PERFORMED OCTOBER 22, 1997 (INCLUDED IN 10/23/1997 DAILY FIELD REPORT) BY MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
3. ADDITIONAL LEACHATE COLLECTION SUMP DETAILS AND RISER PIPE DETAILS ARE SHOWN ON SHEET 6.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	- -	- -	AS-BUILT FINAL SCU GRADE

MEC inc

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

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Visteon

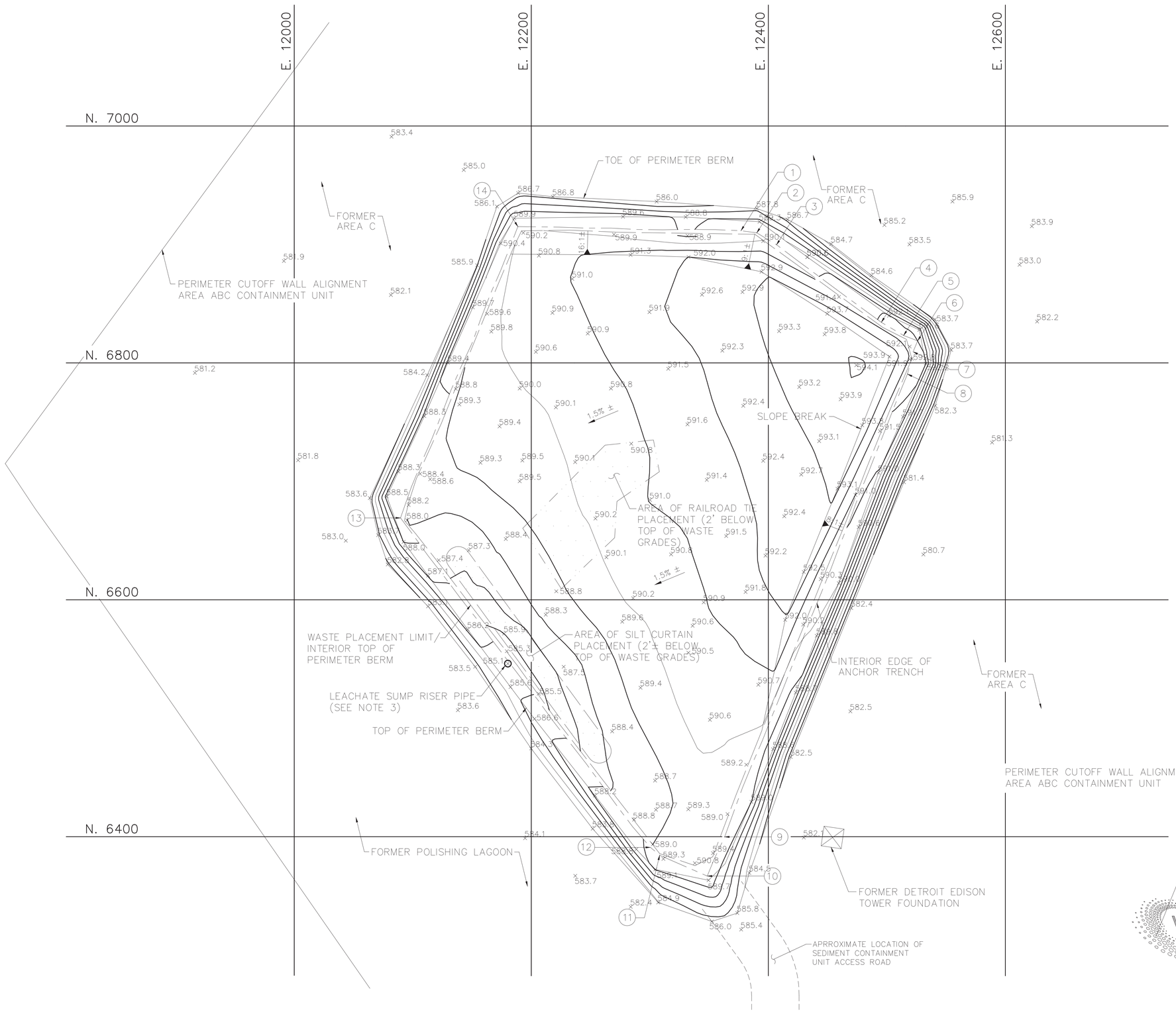
TITLE: VISTEON CORPORATION – MONROE PLANT

SEDIMENT CONTAINMENT UNIT TOP OF PROTECTIVE CLAY

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 2/98	AS NOTED	62 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
BMC 2/98	TMA 2/98		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
- -	F66A3N	F66A3N05	

DWG. NO. 60 OF 65

PROJ. NO. F66A3N



N

SCALE 1"= 40'

0' 20' 40' 80'

INTERIOR EDGE OF ANCHOR TRENCH
AS-BUILT SURVEY DATA

POINT NO.	NORTH	EAST	ELEVATION
1	6911.6	12376.9	–
2	6909.8	12390.3	–
3	6899.7	12407.0	–
4	6834.3	12495.4	–
5	6823.2	12514.2	–
6	6818.6	12525.9	–
7	6809.4	12522.2	–
8	6790.6	12517.4	–
9	6399.9	12363.1	–
10	6366.8	12348.4	–
11	6384.4	12308.3	–
12	6391.0	12300.5	–
13	6669.1	12089.6	–
14	6915.1	12188.7	–

NOTES

1. THE SURVEY OF THE WASTE GRADES AND RAILROAD TIES IS BASED UPON TEMPORARY SITE CONTROL SDR1 N.6741.80, E.11727.40, EL.579.69 AND SDR2 N.7827.00, E.12489.30, EL.579.07. PERMANANT SURVEY CONTROL WILL BE PROVIDED FOR THE SITE AT THE COMPLETION OF THE SURFACE IMPOUNDMENT CLOSURE PROJECT.
2. AS-BUILT WASTE GRADE IS BASED UPON SURVEYS PERFORMED SEPTEMBER 19, AND OCTOBER 2, 13, 1997 BY MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
3. ADDITIONAL LEACHATE COLLECTION SUMP DETAILS AND RISER PIPE DETAILS ARE SHOWN ON SHEET 6.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	- -	- -	AS-BUILT NTH WASTE GRADES PLATE 2

MEC inc

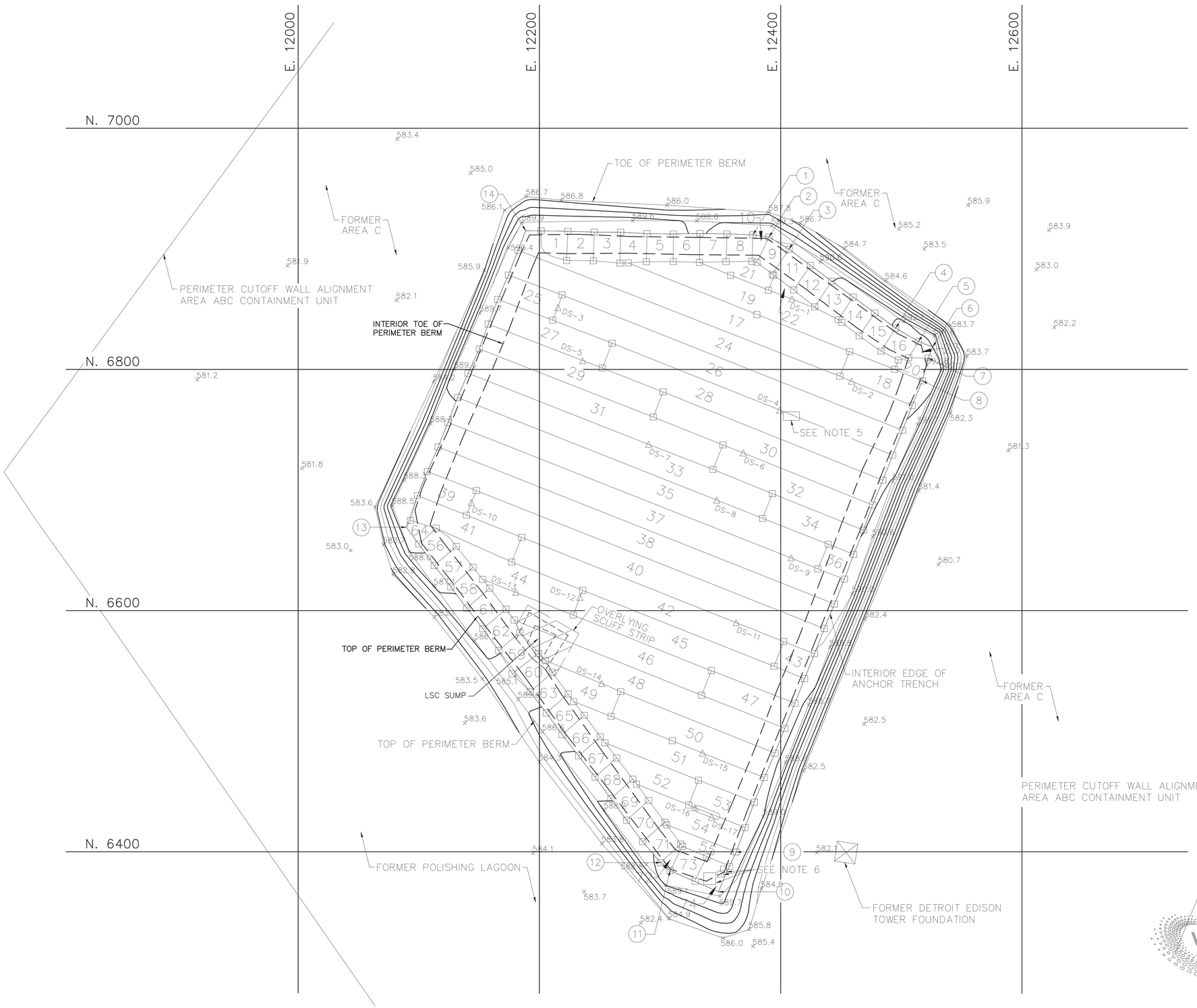
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

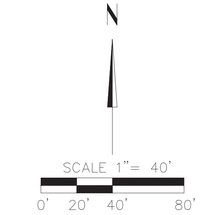
THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION – MONROE PLANT

SEDIMENT CONTAINMENT UNIT DETAILS

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
GMC 2/98	AS NOTED	60 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
BMC 2/98	TMA 2/98		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
- -	F66A3N	F66A3N04	





INTERIOR EDGE OF ANCHOR TRENCH
AS-BUILT SURVEY DATA

POINT NO.	NORTH	EAST	ELEVATION
1	6911.6	12376.9	–
2	6909.8	12390.3	–
3	6899.7	12407.0	–
4	6834.3	12495.4	–
5	6823.2	12514.2	–
6	6818.6	12525.9	–
7	6809.4	12522.2	–
8	6790.6	12517.4	–
9	6399.9	12363.1	–
10	6366.8	12348.4	–
11	6384.4	12308.3	–
12	6391.0	12300.5	–
13	6669.1	12089.6	–
14	6915.1	12188.7	–

LEGEND

□ – PATCHES
△ – DESTRUCTIVE SAMPLE LOCATION (DS#)
⬭ – CAP STRIP

NOTES

1. THE SURVEY OF THE SUBGRADE AND PERIMETER BERMS IS BASED UPON TEMPORARY SITE CONTROL SDR1 N.6741.80, E.11727.40, EL.579.69 AND SDR2 N.7827.00, E.12489.30, EL.579.07. PERMANANT SURVEY CONTROL WILL BE PROVIDED FOR THE SITE AT THE COMPLETION OF THE SURFACE IMPOUNDMENT CLOSURE PROJECT.
2. AS-BUILT PANEL LAYOUT IS BASED UPON SURVEY PERFORMED JUNE 16, 1997 BY MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
3. REPAIRS DENOTED ARE 1' OR LARGER IN LENGTH OR DIAMETER.
4. THE BASE GEOMEMBRANE UTILIZED WAS GSE LINING SYSTEM INC., 60 MIL HDPE, INSTALLED BY NEW ENGLAND LINER SYSTEM, INC.
5. THIS REPAIR WAS COMPLETE ON 6/25/97.
6. THIS REPAIR WAS COMPLETE ON 10/10/97 DURING INSTALLATION OF THE COVER SYSTEM GEOMEMBRANE.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	- -	- -	AS-BUILT GEOMEMBRANE BASE PANEL LAYOUT

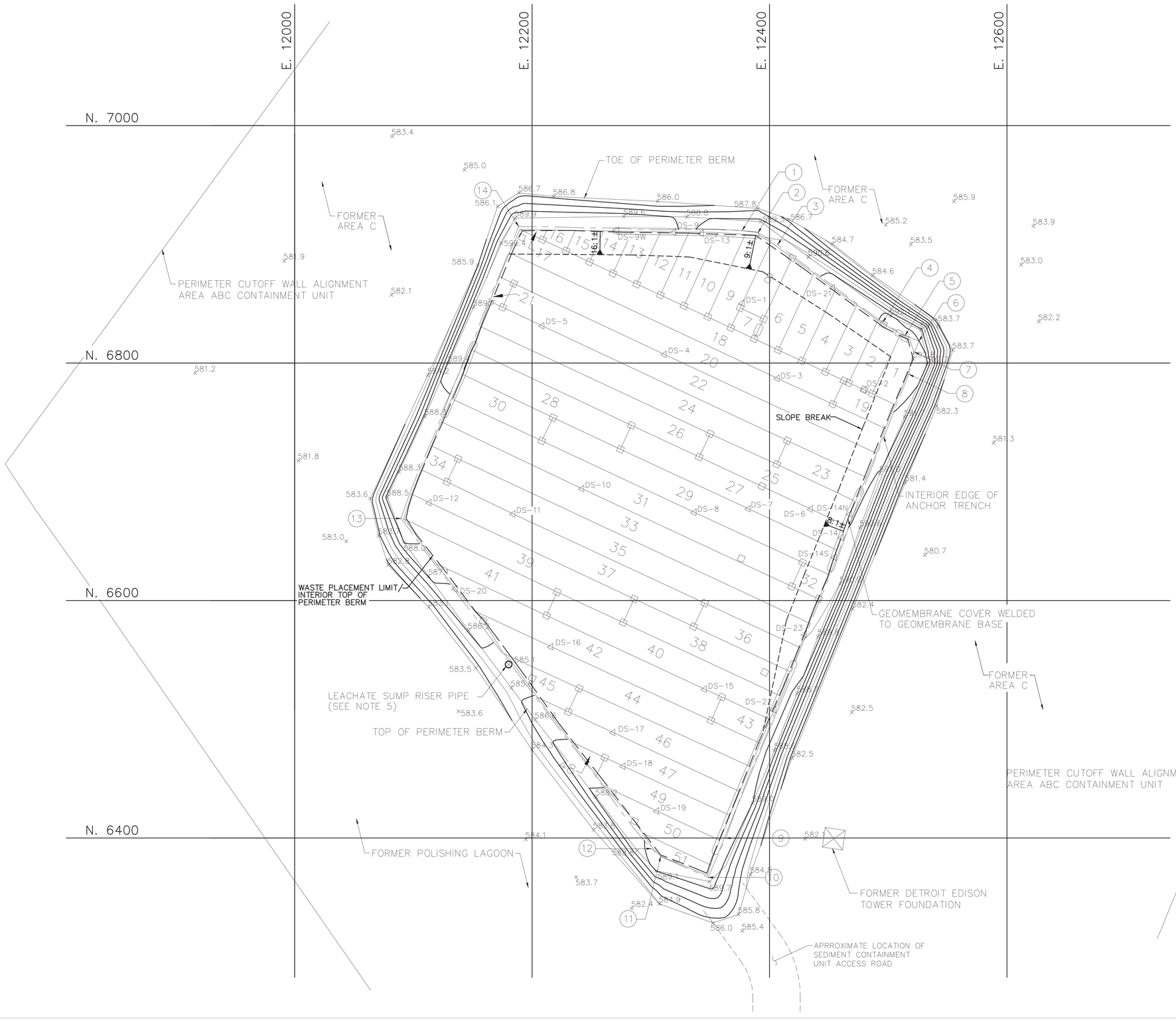
MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

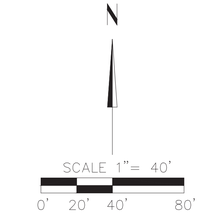
THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

Visteon

TITLE: VISTEON CORPORATION – MONROE PLANT
GEOMEMBRANE BASE LINER PANEL LAYOUT

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 2/98	AS NOTED	59 OF 65	1
DESIGNED: DATE BMC 2/98	REVIEWED: DATE BMC 2/98		
APPROVED: DATE	PROJECT NO. F66A3N	CADD FILE: F66A3N03	





INTERIOR EDGE OF ANCHOR TRENCH
AS-BUILT SURVEY DATA

POINT NO.	NORTH	EAST	ELEVATION
1	6911.6	12376.9	–
2	6909.8	12390.3	–
3	6899.7	12407.0	–
4	6834.3	12495.4	–
5	6823.2	12514.2	–
6	6818.6	12525.9	–
7	6809.4	12522.2	–
8	6790.6	12517.4	–
9	6399.9	12363.1	–
10	6366.8	12348.4	–
11	6384.4	12308.3	–
12	6391.0	12300.5	–
13	6669.1	12089.6	–
14	6915.1	12188.7	–

LEGEND

□ – PATCHES
△ – DESTRUCTIVE SAMPLE LOCATION (DS#)
⬭ – CAP STRIP

NOTES

1. THE SURVEY OF THE SUBGRADE AND PERIMETER BERMS IS BASED UPON TEMPORARY SITE CONTROL SDR1 N.6741.80, E.11727.40, EL.579.69 AND SDR2 N.7827.00, E.12489.30, EL.579.07. PERMANANT SURVEY CONTROL WILL BE PROVIDED FOR THE SITE AT THE COMPLETION OF THE SURFACE IMPOUNDMENT CLOSURE PROJECT.
2. AS-BUILT PANEL LAYOUT IS BASED UPON SURVEY PER-FORMED OCTOBER 13, 1997 BY MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
3. REPAIRS DENOTED ARE 1' OR LARGER IN LENGTH OR DIAMETER.
4. THE BASE GEOMEMBRANE UTILIZED WAS GSE LINING SYSTEM INC., 60 MIL HDT, INSTALLED BY NEW ENGLAND LINER SYSTEM, INC.
5. ADDITIONAL LEACHATE COLLECTION SUMP DETAILS AND RISER PIPE DETAILS ARE SHOWN ON SHEET 6.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1			AS-BUILT GEOMEMBRANE COVER PANEL LAYOUT

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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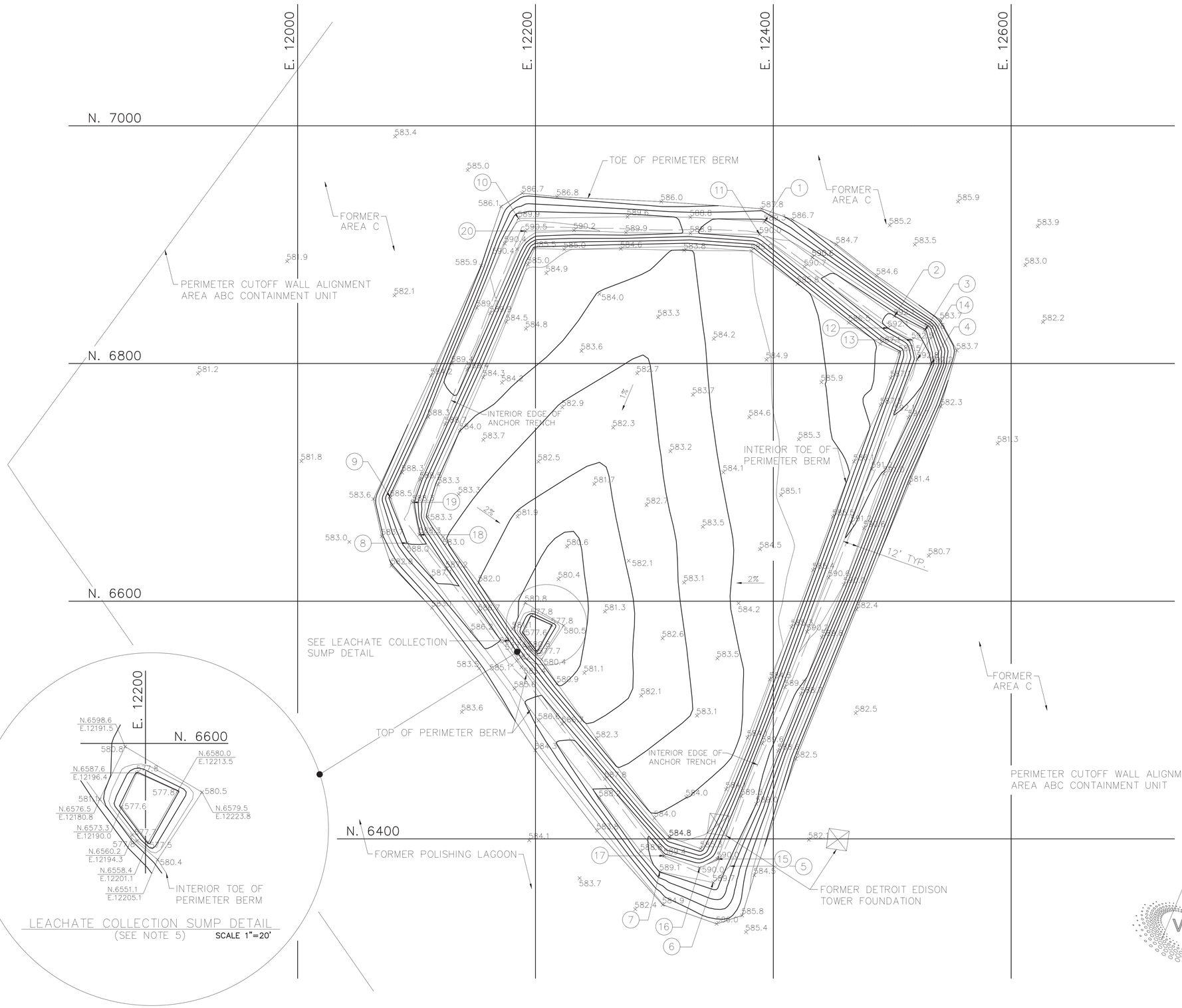
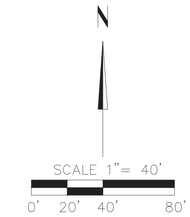
Visteon

TITLE: VISTEON CORPORATION – MONROE PLANT
GEOMEMBRANE COVER PANEL LAYOUT

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 2/98	AS NOTED	61 OF 65	1
DESIGNED: DATE BMC 2/98	REVIEWED: DATE TMA 2/98		
APPROVED: DATE	PROJECT NO. F66A3N	CADD FILE: F66A3N02	



LEACHATE COLLECTION SUMP DETAIL
(SEE NOTE 5) SCALE 1"=20'



TOP OF BERM AS-BUILT SURVEY DATA

POINT NO.	NORTH	EAST	ELEVATION
1	6919.2	12392.5	589.3
2	6839.8	12501.8	592.1
3	6827.9	12527.3	591.6
4	6799.7	12532.8	592.2
5	6377.1	12363.5	–
6	6363.3	12349.5	589.7
7	6372.4	12304.7	589.1
8	6648.9	12092.3	588.0
9	6687.2	12078.1	588.5
10	6922.1	12185.7	589.9
11	6908.6	12388.6	590.0
12	6929.9	12496.6	592.1
13	6819.9	12516.6	592.5
14	6803.5	12521.1	592.8
15	6383.1	12353.1	590.0
16	6375.7	12338.1	590.0
17	6385.7	12308.3	589.4
18	6655.9	12102.3	588.3
19	6683.2	12096.8	588.3
20	6911.5	12191.7	590.5

NOTES

1. THE SURVEY OF THE SUBGRADE AND PERIMETER BERMS IS BASED UPON TEMPORARY SITE CONTROL SDR1 N.6741.80, E.11727.40, EL.579.69 AND SDR2 N.7827.00, E.12489.30, EL.579.07. PERMANANT SURVEY CONTROL WILL BE PROVIDED FOR THE SITE AT THE COMPLETION OF THE SURFACE IMPOUNDMENT CLOSURE PROJECT.
2. AS-BUILT SUBGRADE LAYER IS BASED UPON SURVEY PER-FORMED JUNE 12, 1997 BY MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
3. THE SUBGRADE AND PERIMETER BERM WERE CONSTRUCTED OF RECOMPACTED SOLIDIFIED F006 WASTE WITH A MINIMAL QUANTITY OF GRAY CLAY USED IN THE EASTERN SIDE BERM.
4. THE EDISON TOWER FOUNDATIONS WERE BELOW THE LINER GRADES APPROXIMATELY 5'.
5. ADDITIONAL LEACHATE COLLECTION SUMP DETAILS AND RISER PIPE DETAILS ARE SHOWN ON SHEET 6.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1			AS-BUILT NTH LINER GRADES PLATE 1

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

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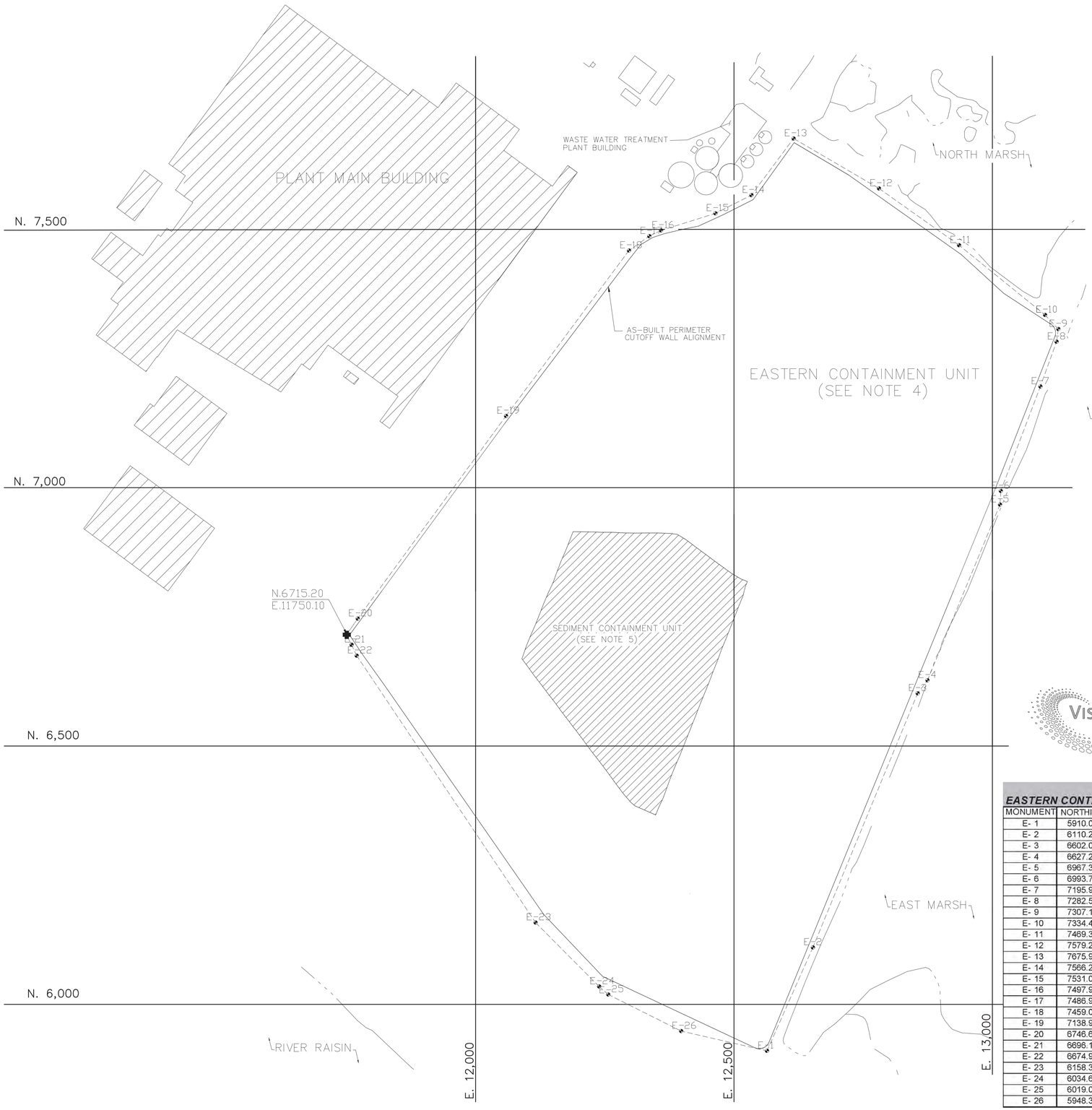
TITLE: VISTEON CORPORATION – MONROE PLANT
SEDIMENT CONTAINMENT UNIT SUBGRADE AND PERIMETER BERMS

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 2/98	AS NOTED	58 OF 65	1
DESIGNED: DATE BMC 2/98	REVIEWED: DATE TMA 2/98		
APPROVED: DATE	PROJECT NO. F66A3N	CADD FILE: F66A3N01	



SCALE 1"= 100'
0' 50' 100' 200'

OWNER AND / OR OPERATOR RESTRICTION

USE OF THE PROPERTY CONTAINED WITHIN THE LIMITS OF THE EASTERN CONTAINMENT UNIT DELINEATED AND DENOTED HEREON, IS RESTRICTED PURSUANT TO TITLE 40, CODE OF FEDERAL REGULATION PART 264, SUBPART G AND 1979 PUBLIC ACT 64, AS AMENDED, MICHIGAN'S HAZARDOUS WASTE MANAGEMENT ACT. USE OF THE AREA BY ANY OWNER OR OPERATOR SHALL NOT BE ALLOWED TO DISTURB THE INTEGRITY OF THE FINAL COVER OR ANY OTHER COMPONENT OF THE CONTAINMENT SYSTEM, OR THE FUNCTION OF THE FACILITY'S MONITORING SYSTEMS, UNLESS THE REGIONAL ADMINISTRATOR OF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND THE DIRECTOR OF THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY SPECIFICALLY APPROVE THE USE PURSUANT TO APPLICABLE REGULATIONS.

CERTIFICATION

WE HEREBY CERTIFY THAT WE HAVE LOCATED THE BOUNDARY OF THE LAND DELINEATED AND DENOTED HEREON AS THE EASTERN CONTAINMENT UNIT AND THAT, TO THE BEST OF OUR KNOWLEDGE AND INFORMATION, WE BELIEVE THAT SAID LAND, AS BOUNDED, DELINEATED AND DENOTED, ENCOMPASSES THE WASTE DISPOSAL UNIT AND AREA DESIGNATED FOR AND DENOTED AS THE EASTERN CONTAINMENT UNIT BY FORD MOTOR COMPANY.

BY: _____
GREG L. ASH
REGISTERED PROFESSIONAL SURVEYOR
NO: 28400 STATE OF MICHIGAN

DATE: _____

BY: _____
JOHN S. BROWNING III
REGISTERED PROFESSIONAL ENGINEER
N0: 039872 STATE OF MICHIGAN

DATE: _____

Notes

1. All site elevations based upon USLS benchmark No: D-72 (1935) which has an elevation of 585.282. The benchmark is located in the Power House building wall.
2. The site survey control grid was utilized throughout construction. This grid was as established on the project Permit Drawings. All points referenced on these drawings utilize the site survey control grid.
3. Site survey grid control points can be converted to Michigan State Plane Coordinate System South Zone (2113) 1983 North American Datum (NAD83). The conversion is noted below.

Site Monitor	Site Grid Coordinates	NAD 83 Coordinates
E1	N. 5,910.01 E. 12,563.88	N. 146,819.48 E. 13,400,766.22
E2	N. 6,110.25 E. 12,652.70	N. 147,018.56 E. 13,400,857.60

4. A total of 780,600 cubic yards of F006 sludge and impacted soil with required solidification reagent was disposed of within the on-site containment units. Approximately 470,600 cubic yards of F006 sludge and impacted soil was disposed of with the Eastern Containment Unit. In addition, demolition and construction debris has been disposed of within the Eastern Containment Unit.
5. A Sediment Containment Unit was constructed within the Eastern Containment Unit. The Sediment Containment Unit contains 25,100 cubic yards of PCB impacted sediment and soil from the River Raisin Sediment Removal Project.
6. Eastern Containment Unit boundary monuments are set in concrete. Monuments were set from 8/16/99 through 8/20/99 by Midwest Surveying and Mapping, Inc. of Edinburgh, Indiana.

LEGEND:

E-7 – MONUMENT LOCATION EXISTING

✚ – MONUMENT LOCATION TO BE SET (1 TOTAL)

Visteon

EASTERN CONTAINMENT UNIT BOUNDARY MONUMENTS

MONUMENT	NORTHING	EASTING	ELEVATION	DESCRIPTION
E- 1	5910.01	12563.88	581.26	REBAR-5/8"
E- 2	6110.25	12652.70	581.32	REBAR-5/8"
E- 3	6602.08	12855.41	580.87	REBAR-5/8"
E- 4	6627.26	12874.41	578.33	REBAR-5/8"
E- 5	6967.32	13014.75	578.35	REBAR-5/8"
E- 6	6993.77	13016.31	581.17	REBAR-5/8"
E- 7	7195.94	13092.87	581.93	REBAR-5/8"
E- 8	7282.53	13124.16	581.86	REBAR-5/8"
E- 9	7307.15	13127.54	580.25	REBAR-5/8"
E- 10	7334.46	13101.89	580.40	REBAR-5/8"
E- 11	7469.36	12935.55	579.35	REBAR-5/8"
E- 12	7579.26	12780.61	580.61	REBAR-5/8"
E- 13	7675.91	12615.35	582.17	REBAR-3/8"
E- 14	7566.21	12533.69	583.80	REBAR-5/8"
E- 15	7531.02	12464.03	582.48	REBAR-3/8"
E- 16	7497.98	12358.96	584.54	BOLT SPIKE-1/2"* 8"
E- 17	7486.93	12336.04	584.24	BOLT SPIKE-1/2"* 8"
E- 18	7459.02	12296.73	584.02	BOLT SPIKE-1/2"* 8"
E- 19	7138.97	12058.89	580.85	BOLT SPIKE-1/2"* 8"
E- 20	6746.68	11771.97	584.20	BOLT SPIKE-1/2"* 8"
E- 21	6698.13	11760.01	584.28	REBAR-5/8"
E- 22	6674.93	11769.99	584.40	REBAR-5/8"
E- 23	6158.34	12116.09	583.75	REBAR-5/8"
E- 24	6034.64	12239.01	583.63	REBAR-5/8"
E- 25	6019.07	12256.77	583.38	REBAR-5/8"
E- 26	5948.38	12397.70	583.52	REBAR-5/8"

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	JSB 11/99	AS-BUILT DRAWINGS

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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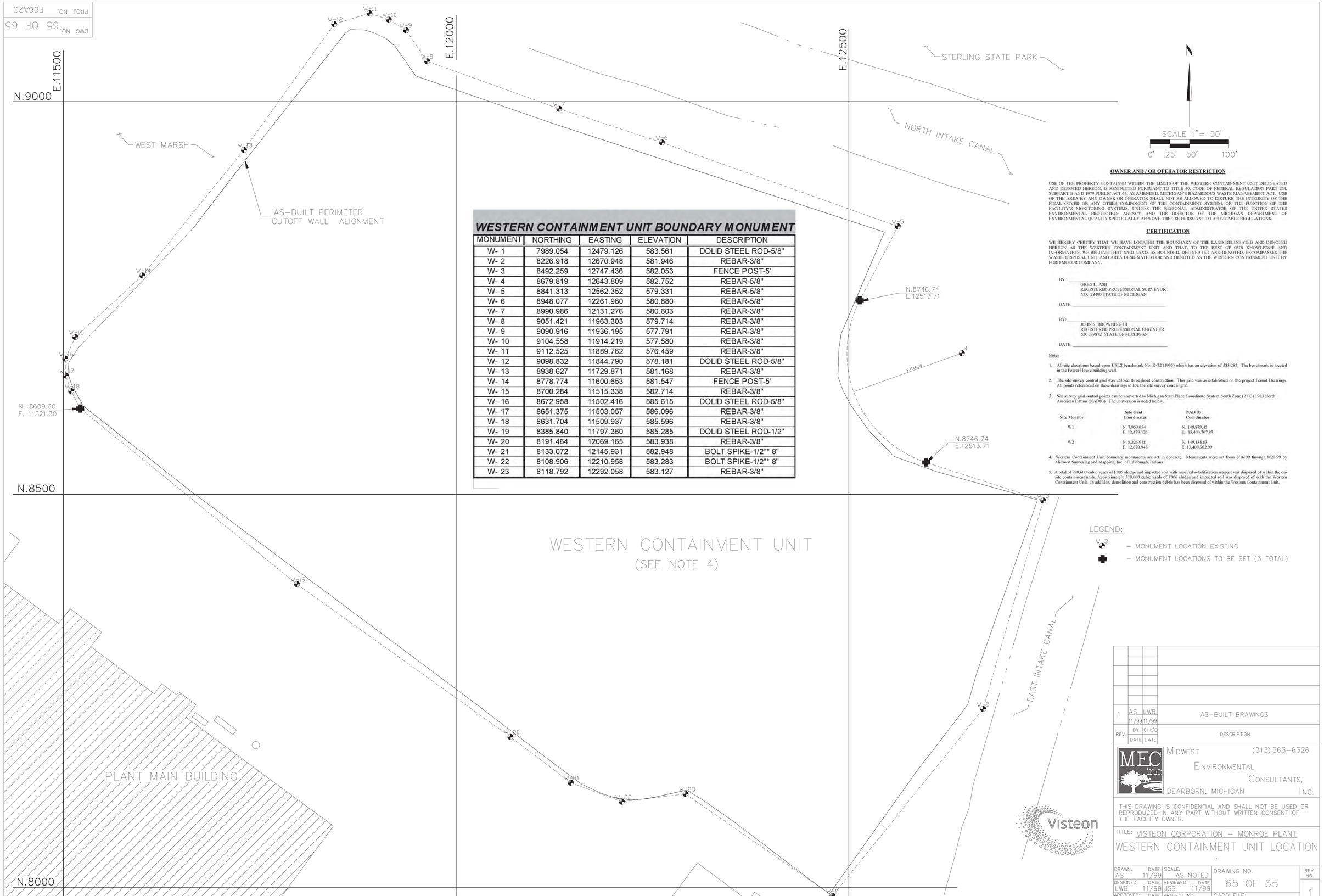
TITLE: VISTEON CORPORATION – MONROE PLANT
EASTERN CONTAINMENT UNIT LOCATION

DRAWN: AS DATE 11/99	SCALE: AS NOTED	DRAWING NO. 64 OF 65	REV. NO. 1
DESIGNED: LWB DATE 11/99	REVIEWED: JSB DATE 11/99		
APPROVED: - DATE -	PROJECT NO. F66A2C	CADD FILE: F66A2G4	

DWG. NO. 65 OF 65

PROJ. NO. F66A2C



WESTERN CONTAINMENT UNIT BOUNDARY MONUMENT

MONUMENT	NORTHING	EASTING	ELEVATION	DESCRIPTION
W- 1	7989.054	12479.126	583.561	DOLID STEEL ROD-5/8"
W- 2	8226.918	12670.948	581.946	REBAR-3/8"
W- 3	8492.259	12747.436	582.053	FENCE POST-5'
W- 4	8679.819	12643.809	582.752	REBAR-5/8"
W- 5	8841.313	12562.352	579.331	REBAR-5/8"
W- 6	8948.077	12261.960	580.880	REBAR-5/8"
W- 7	8990.986	12131.276	580.603	REBAR-3/8"
W- 8	9051.421	11963.303	579.714	REBAR-3/8"
W- 9	9090.916	11936.195	577.791	REBAR-3/8"
W- 10	9104.558	11914.219	577.580	REBAR-3/8"
W- 11	9112.525	11889.762	576.459	REBAR-3/8"
W- 12	9098.832	11844.790	578.181	DOLID STEEL ROD-5/8"
W- 13	8938.627	11729.871	581.168	REBAR-3/8"
W- 14	8778.774	11600.653	581.547	FENCE POST-5'
W- 15	8700.284	11515.338	582.714	REBAR-3/8"
W- 16	8672.958	11502.416	585.615	DOLID STEEL ROD-5/8"
W- 17	8651.375	11503.057	586.096	REBAR-3/8"
W- 18	8631.704	11509.937	585.596	REBAR-3/8"
W- 19	8385.840	11797.360	585.285	DOLID STEEL ROD-1/2"
W- 20	8191.464	12069.165	583.938	REBAR-3/8"
W- 21	8133.072	12145.931	582.948	BOLT SPIKE-1/2"* 8"
W- 22	8108.906	12210.958	583.283	BOLT SPIKE-1/2"* 8"
W- 23	8118.792	12292.058	583.127	REBAR-3/8"

OWNER AND / OR OPERATOR RESTRICTION

USE OF THE PROPERTY CONTAINED WITHIN THE LIMITS OF THE WESTERN CONTAINMENT UNIT DELINEATED AND DENOTED HEREON, IS RESTRICTED PURSUANT TO TITLE 40, CODE OF FEDERAL REGULATION PART 264, SUBPART G AND 1979 PUBLIC ACT 64, AS AMENDED, MICHIGAN'S HAZARDOUS WASTE MANAGEMENT ACT. USE OF THE AREA BY ANY OWNER OR OPERATOR SHALL NOT BE ALLOWED TO DISTURB THE INTEGRITY OF THE FINAL COVER OR ANY OTHER COMPONENT OF THE CONTAINMENT SYSTEM, OR THE FUNCTION OF THE FACILITY'S MONITORING SYSTEMS, UNLESS THE REGIONAL ADMINISTRATOR OF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND THE DIRECTOR OF THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY SPECIFICALLY APPROVE THE USE PURSUANT TO APPLICABLE REGULATIONS.

CERTIFICATION

WE HEREBY CERTIFY THAT WE HAVE LOCATED THE BOUNDARY OF THE LAND DELINEATED AND DENOTED HEREON AS THE WESTERN CONTAINMENT UNIT AND THAT, TO THE BEST OF OUR KNOWLEDGE AND INFORMATION, WE BELIEVE THAT SAID LAND, AS BOUNDED, DELINEATED AND DENOTED, ENCOMPASSES THE WASTE DISPOSAL UNIT AND AREA DESIGNATED FOR AND DENOTED AS THE WESTERN CONTAINMENT UNIT BY FORD MOTOR COMPANY.

BY: _____
GREG L. ASH
REGISTERED PROFESSIONAL SURVEYOR
NO: 28400 STATE OF MICHIGAN

DATE: _____

BY: _____
JOHN S. BROWNING III
REGISTERED PROFESSIONAL ENGINEER
NO: 039872 STATE OF MICHIGAN

DATE: _____

Notes

1. All site elevations based upon USLS benchmark No: D-72 (1935) which has an elevation of 585.282. The benchmark is located in the Power House building wall.
2. The site survey control grid was utilized throughout construction. This grid was as established on the project Permit Drawings. All points referenced on these drawings utilize the site survey control grid.
3. Site survey grid control points can be converted to Michigan State Plane Coordinate System South Zone (2113) 1983 North American Datum (NAD83). The conversion is noted below.

Site Monitor	Site Grid Coordinates	NAD 83 Coordinates
W1	N. 7,969.054 E. 12,479.126	N. 148,879.45 E. 13,400,707.87
W2	N. 8,226.918 E. 12,670.948	N. 149,134.83 E. 13,400,902.99

4. Western Containment Unit boundary monuments are set in concrete. Monuments were set from 8/16/99 through 8/20/99 by Midwest Surveying and Mapping, Inc. of Edinburgh, Indiana.
5. A total of 780,600 cubic yards of F006 sludge and impacted soil with required solidification reagent was disposed of within the on-site containment units. Approximately 330,000 cubic yards of F006 sludge and impacted soil was disposed of with the Western Containment Unit. In addition, demolition and construction debris has been disposed of within the Western Containment Unit.

LEGEND:

W-3 – MONUMENT LOCATION EXISTING

– MONUMENT LOCATIONS TO BE SET (3 TOTAL)

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS-BUILT BRAWINGS

MEC inc — MIDWEST ENVIRONMENTAL CONSULTANTS, INC. DEARBORN, MICHIGAN (313) 563-6326

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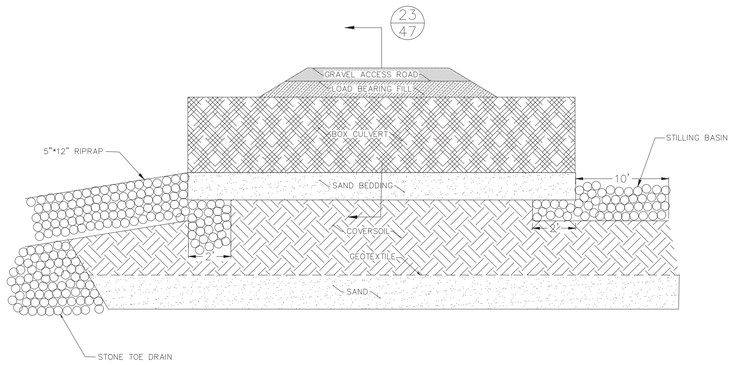
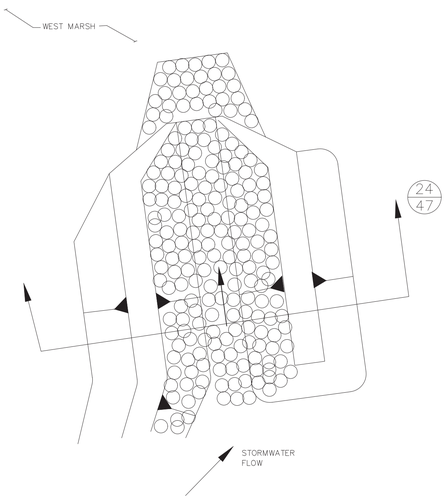
TITLE: VISTEON CORPORATION – MONROE PLANT

WESTERN CONTAINMENT UNIT LOCATION

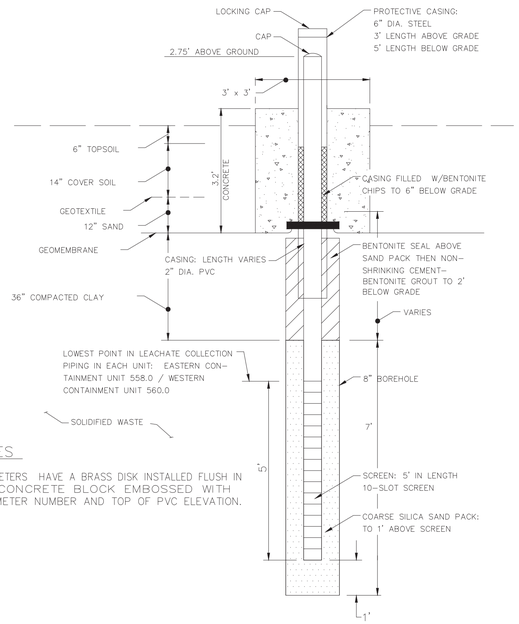
DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 11/99	AS NOTED	65 OF 65	1
DESIGNED: DATE LWB 11/99	REVIEWED: DATE JSB 11/99		
APPROVED: DATE . .	PROJECT NO. F66A2C	CADD FILE: F66A2G3	



20/47 OUTFALL
NOT TO SCALE
SEE DRAWINGS 29, 30 AND 32



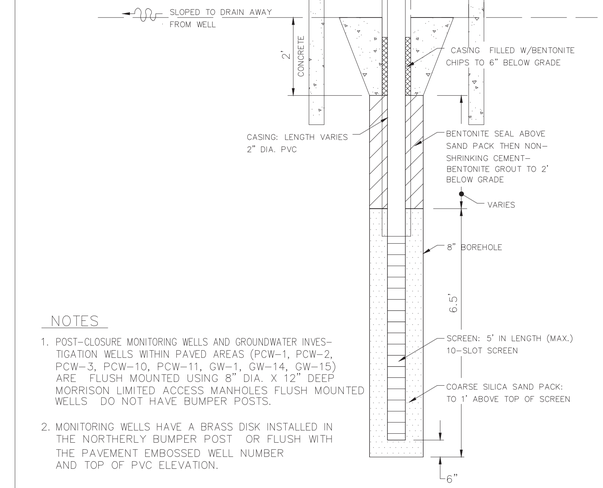
21/47 WEST MARSH OUTFALL
NOT TO SCALE
SEE DRAWINGS 32



NOTES

1. PIEZOMETERS HAVE A BRASS DISK INSTALLED FLUSH IN THE CONCRETE BLOCK EMBOSSED WITH PIEZOMETER NUMBER AND TOP OF PVC ELEVATION.

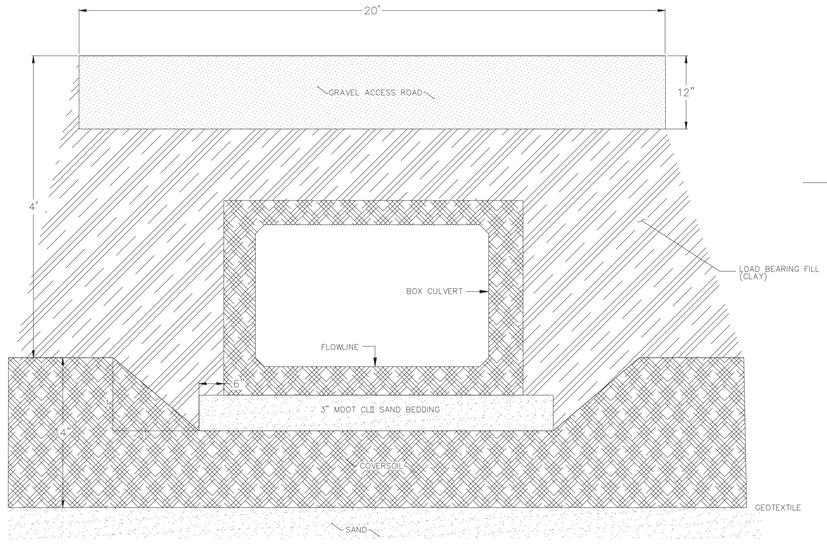
22/46 POST-CLOSURE PIEZOMETER
NOT TO SCALE
SEE DRAWINGS 29, 30, 32, 55 AND 56



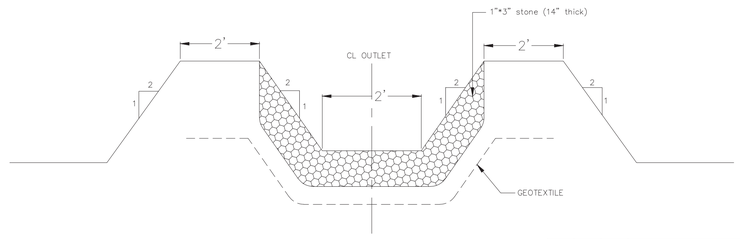
NOTES

1. POST-CLOSURE MONITORING WELLS AND GROUNDWATER INVESTIGATION WELLS WITHIN PAVED AREAS (PCW-1, PCW-2, PCW-3, PCW-10, PCW-11, GW-1, GW-14, GW-15) ARE FLUSH MOUNTED USING 8" DIA. X 12" DEEP MORRISON LIMITED ACCESS MANHOLES FLUSH MOUNTED WELLS DO NOT HAVE BUMPER POSTS.
2. MONITORING WELLS HAVE A BRASS DISK INSTALLED IN THE NORTHERLY BUMPER POST OR FLUSH WITH THE PAVEMENT EMBOSSED WELL NUMBER AND TOP OF PVC ELEVATION.

22A/47 POST CLOSURE DETECTION MONITORING WELL AND GROUND WATER MONITORING WELL
NOT TO SCALE
SEE DRAWINGS 29, 30 , 32, 55 AND 56



23/47 OUTFALL CROSS-SECTION
NOT TO SCALE
SEE DETAIL 20/47



24/47 WEST MARSH OUTFALL CROSS-SECTION
NOT TO SCALE
SEE DETAIL 21/47

REV.	BY	DATE	CHK'D	DATE	DESCRIPTION
1	AS	12/99	LWB	12/99	AS-BUILT DRAWINGS

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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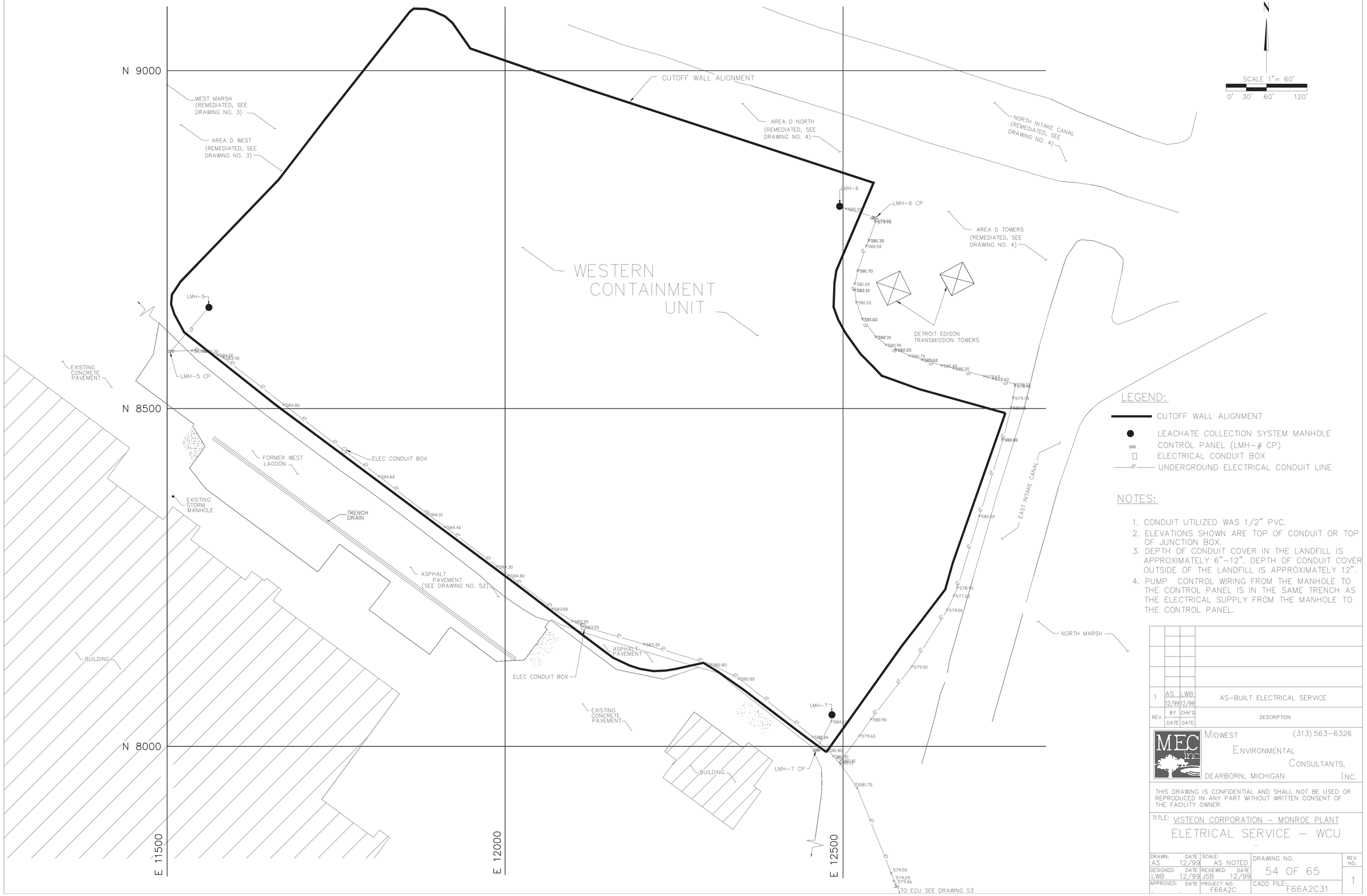
TITLE: VISTEON CORPORATION – MONROE PLANT
WASTE DISPOSAL SURFACE IMPOUNDMENTS DETAIL 4

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 12/99	AS NOTED	47 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 12/99	JSB 12/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C32	



LEGEND:

- CUTOFF WALL ALIGNMENT
- LEACHATE COLLECTION SYSTEM MANHOLE
- CONTROL PANEL (LMH-# CP)
- ELECTRICAL CONDUIT BOX
- UNDERGROUND ELECTRICAL CONDUIT LINE

NOTES:

1. CONDUIT UTILIZED WAS 1/2" PVC.
2. ELEVATIONS SHOWN ARE TOP OF CONDUIT OR TOP OF JUNCTION BOX.
3. DEPTH OF CONDUIT COVER IN THE LANDFILL IS APPROXIMATELY 6"-12". DEPTH OF CONDUIT COVER OUTSIDE OF THE LANDFILL IS APPROXIMATELY 12".
4. PUMP CONTROL WIRING FROM THE MANHOLE TO THE CONTROL PANEL IS IN THE SAME TRENCH AS THE ELECTRICAL SUPPLY FROM THE MANHOLE TO THE CONTROL PANEL.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 12/99	LWB 12/99	AS-BUILT ELECTRICAL SERVICE

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(313) 563-6326
DEARBORN, MICHIGAN

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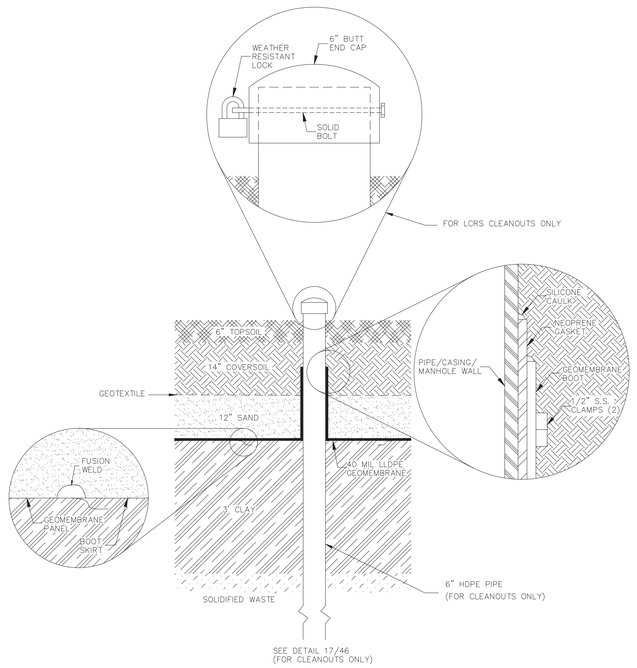
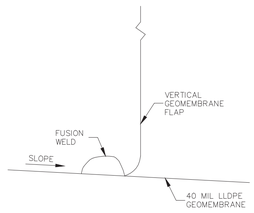
TITLE: VISTEON CORPORATION - MONROE PLANT
ELETRICAL SERVICE - WCU

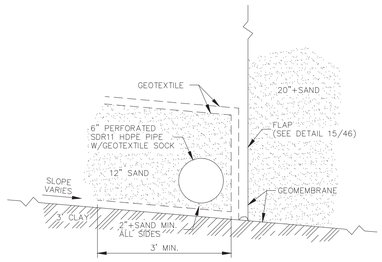
DRAWN: AS DATE 12/99	SCALE: AS NOTED	DRAWING NO. 54 OF 65	REV. NO. 1
DESIGNED: LWB DATE 12/99	REVIEWED: JSB DATE 12/99		
APPROVED: - DATE -	PROJECT NO. F66A2C	CADD FILE: F66A2C31	



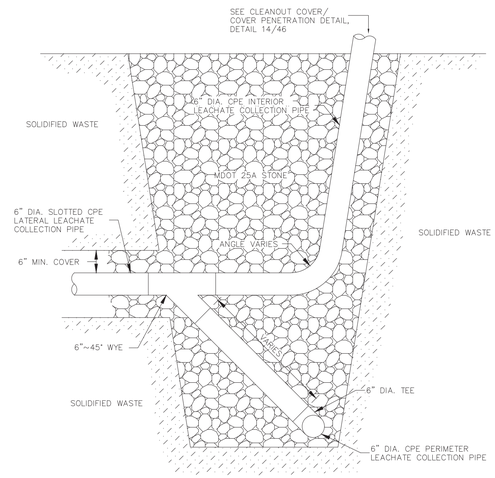
14/46 GEOMEMBRANE BOOT/COVER PENETRATION
NOT TO SCALE
SEE DRAWINGS 48, 49 & 50 AND DETAIL 17/46
NOTE: SKIRT OF BOOT FUSION WELDED TO GEOMEMBRANE PANEL(S)



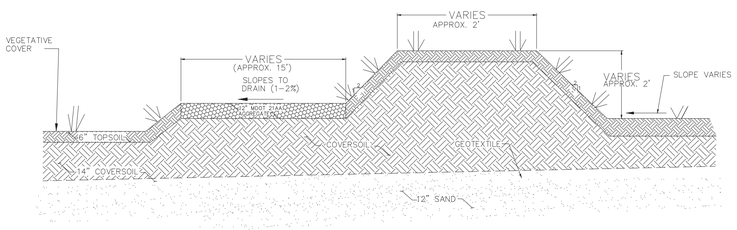
15/46 GEOMEMBRANE FLAP
NOT TO SCALE
SEE DRAWINGS 16, 17 & 18 AND DETAIL 16/46



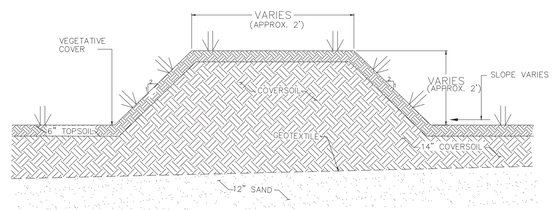
16/46 TOE DRAIN PIPE
NOT TO SCALE
SEE DRAWING 45



17/46 LATERAL/PERIMETER LEACHATE COLLECTION PIPE CONNECTION DETAIL
NOT TO SCALE
SEE DRAWINGS 48, 49 & 50 AND DETAIL 14/46



18/46 DIVERSION BERM/ ACCESS ROAD
NOT TO SCALE
SEE DRAWINGS 29, 30 AND 32



19/46 DIVERSION BERM
NOT TO SCALE
SEE DRAWINGS 29, 30 AND 32

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS-BUILT COVERSOIL SURFACE

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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TITLE: VISTEON CORPORATION – MONROE PLANT
DETAILS III

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS/TMB 11/99	AS NOTED	46 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 11/99	JSB 11/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C30	

DWG. NO. 56 OF 65
PROJ. NO. F66A2C

Eastern Containment Unit
Piezometers & Detection Monitoring Wells

Piezo-meter	Date Installed	North	East	T/PVC Elevation	Bottom of Screen Elev.
PCP-1	11/6/98	6,809.7	11,930.1	585.94	554.0
PCP-2	11/6/98	7,020.1	12,100.1	586.48	553.6
PCP-3	11/3/98	7,349.7	12,328.7	586.33	553.0
PCP-4	11/18/98	7,421.0	12,887.9	589.99	553.2
PCP-5	6/16/98	7,201.0	13,030.1	588.54	552.9
PCP-6	6/16/98	6,669.7	12,827.0	587.45	553.0
PCP-7	11/18/98	6,246.0	12,639.7	588.09	552.5
PCP-8	9/18/98	6,349.3	12,069.7	589.14	554.2
PCL-1	6/15/98	6,450.5	12,600.2	595.45	553.3
PCL-2	11/3/98	7,036.9	12,451.7	612.63	552.9
PCL-3	10/31/98	7,247.1	12,575.1	609.25	553.0
PCW-1	2/24/99	6,718.1	11,740.2	579.76	555.7
PCW-2	2/24/99	7,238.6	12,127.6	579.94	555.8
PCW-3	2/24/99	7,478.4	12,307.0	579.36	555.9
PCW-4	3/3/99	7,630.8	12,708.4	583.45	555.7
PCW-5	3/4/99	7,251.9	13,120.8	583.55	554.3
PCW-6	3/10/99	6,418.3	12,791.7	582.52	553.9
PCW-7	3/5/99	5,882.8	12,529.5	582.24	555.2
PCW-8	2/24/99	6,310.3	11,998.2	583.37	554.8
PCP-3 (DEEP)	3/11/99	7,544.4	12,407.3	582.24	486.5

Western Containment Unit
Piezometers & Detection Monitoring Wells

Piezo-meter	Date Installed	North	East	T/PVC Elevation	Bottom of Screen Elev.
PCP-9	7/29/98	8,800.3	11,766.8	592.65	556.0
PCP-10	8/19/98	8,498.2	11,762.7	590.19	555.9
PCP-11	8/19/98	8,258.4	12,102.9	590.64	555.7
PCP-12	8/18/98	8,250.9	12,600.2	590.56	555.8
PCP-13	8/17/98	8,811.1	12,360.5	592.92	556.0
PCP-14	7/29/98	8,920.4	12,040.6	592.64	555.8
PCL-4	8/18/98	8,661.11	12,030.17	601.62	556.0
PCL-5	8/17/98	8,520.90	12,290.54	601.98	555.8
PCW-9	2/23/99	8,870.9	11,656.8	578.44	555.8
PCW-10	2/22/99	8,577.5	11,531.6	582.31	560.4
PCW-11	3/2/99	8,117.8	12,162.3	582.60	556.1
PCW-12	2/23/99	8,184.8	12,654.5	584.08	556.1
PCW-13	3/10/99	8,676.0	12,789.8	582.74	554.4
PCW-14	2/23/99	9,046.9	11,965.9	582.77	556.4

Groundwater Monitoring Wells

Well	Date Installed	North	East	T/PVC Elevation	Bottom of Screen Elev.
GW-1	3/3/99	7,971.4	10,429.6	580.53	571.6
GW-2	3/3/99	8,006.4	10,308.6	582.31	571.3
GW-3	3/1/99	7,652.2	10,230.9	581.41	570.9
GW-4	3/1/99	7,246.0	9,969.1	581.40	571.9
GW-5	3/1/99	7,046.2	9,851.8	580.15	570.8
GW-6	3/1/99	7,110.2	10,179.2	579.74	570.2
GW-7	2/26/99	7,059.1	10,331.3	580.52	570.9
GW-8	2/26/99	6,818.2	10,924.7	583.07	572.5
GW-9	2/25/99	6,383.1	11,351.7	580.44	569.8
GW-10	3/2/99	5,988.3	11,798.2	582.48	569.8
GW-11	2/25/99	6,186.0	11,928.1	582.93	569.7
GW-12	2/25/99	5,645.9	12,163.2	580.87	566.1
GW-13	3/2/99	7,718.6	12,617.2	583.70	564.1
GW-14	3/4/99	7,709.5	12,336.3	578.48	559.9
GW-15	3/4/99	8,301.7	11,793.3	ND	570.0
GW-16	3/2/99	8,624.4	11,406.5	585.90	565.3

ND = Not Determined

Eastern Containment Unit
Leachate Collection System Cleanouts
(See Note 3)

Cleanout ID	Year Installed	North	East	T/Clean-out Elev.(2)
A-1	1998	7,538.4	12,554.6	588.6
A-2	Line Empties Directly Into Manhole			
A-3	1998	7,346.6	12,316.7	582.5
A-4	1998	7,236.8	12,235.1	581.9
A-5	1998	7,132.8	12,160.1	583.3
B-1	1997	7,273.0	13,077.7	585.0
B-2	1997	7,135.8	13,022.8	584.8
B-3	1997	6,993.1	12,972.3	586.4
B-4	1997	6,849.5	12,913.6	586.2
C1-1	1997	7,008.1	12,072.1	583.8
C1-2	1997	6,889.9	11,977.5	584.1
C1-3	1997	6,776.2	11,896.4	583.2
C1-4	1997	6,694.5	11,807.9	581.5
C1-5	1997	6,194.4	12,156.8	586.9
C1-6	1997	6,137.7	12,203.0	586.2
C2-1	1997	6,739.7	12,873.9	586.3
C2-2	1997	6,611.2	12,820.0	586.4
C2-3	1997	6,469.7	12,764.0	586.5
C2-4	1997	6,333.6	12,703.6	586.1
C2-5	1997	6,194.3	12,647.5	586.6
C2-6	1997	6,053.1	12,591.0	585.9
AN	1998	7,498.9	12,829.5	585.3
AW(S)	1998	7,039.7	12,093.6	582.7
AW(N)	1998	7,634.3	12,625.2	588.2
BN	1998	7,503.2	12,830.4	584.8
BE	1997	6,776.8	12,885.9	586.3
C2E	1997	6,759.9	12,883.3	586.1
C2S	1998	6,044.7	12,313.7	585.4
C1S	1998	6,130.1	12,203.6	586.3
C1W	1998	7,022.6	12,082.3	582.9

Surface Water Level Monitoring Stations

Station ID	North	East	Elevation
SG-1	ND	ND	578.01
SG-2	ND	ND	576.70
SG-3	7,226.1	13,139.3	581.62 (1)
SG-4	7,469.4	12,935.6	579.37
SG-5	5,139.1	12,770.8	578.11
SG-6	8,803.6	12,819.6	578.81

(1) NOVAPKNWPAD (survey control point)
ND = Not Determined

Western Containment Unit
Leachate Collection System Cleanouts
(See Note 3)

Cleanout ID	Year Installed	North	East	T/Clean-out Elev.(2)
D1-1	1997	8,551.6	11,660.1	589.0
D1-2	1998	8,455.9	11,774.2	588.4
D1-3	1998	8,367.0	11,892.8	588.7
D2-1	1998	8,275.3	12,018.9	587.8
D2-2	1998	8,182.0	12,133.6	586.2
D2-3	1998	8,149.2	12,299.6	588.0
D2-4	1998	8,104.1	12,408.2	589.3
D3-1	1997	8,819.0	12,428.1	587.4
D3-2	1997	8,610.2	12,462.1	589.3
D3-3	1997	8,516.5	12,555.4	593.4
D3-4	1997	8,482.1	12,685.8	588.0
D4-1	1997	8,968.6	11,974.5	589.9
D4-2	1997	8,918.6	12,125.9	589.5
D4-3	1998	8,866.7	12,276.5	590.1
DN(W)	1998	8,981.4	11908.0	590.7
DN(E)	1997	8,482.1	12,690.8	588.5
DW	1998	9,004.9	11,906.9	588.5
DS(W)	1998	8,330.3	11,940.8	588.5
DS(E)	1998	8,315.2	11,962.1	588.0
DE	1997	8,469.3	12,688.1	589.3

(2) Calculated By:
top of cap system elev. + measured length of pipe above cap

(top of cap system elevation calculated as waste elevation at cleanout location (see drawings 6, 7, 9, 48, 49, and 50) plus 6.2 feet (cap system average thickness))

NOTES:
1. SEE DRAWING 55 FOR LOCATION MAP OF POST– CLOSURE PIEZOMETERS, DETECTION MONITORING WELLS, GROUNDWATER INVESTIGATION MONITORING WELLS AND SURFACE WATER LEVEL MONITORING STATIONS. SEE DRAWINGS 48, 49 AND 50 FOR LOCATION MAPS OF THE LEACHATE COLLECTION SYSTEM CLEANOUTS.
2. BOTTOM OF SCREEN ELEVATION DETERMINED DURING WELL/PIEZOMETER INSTALLATION.
3. ASSUMING THE CLEANOUT IS 30° FROM VERTICAL, THE LEACHATE ELEVATION CAN BE CALCULATED AS (T/CLEANOUT ELEV)–(MEASURED DEPTH TO LEACHATE)(COS30°).

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS– BUILT GROUNDWATER MONITORING SYSTEM SURVEY DATA

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563–6326
DEARBORN , MICHIGAN

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TITLE: FORD MOTOR COMPANY
GROUNDWATER MONITORING
SURVEY CONTROL DATA

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 11/99	NONE	56 OF 65	1
DESIGNED: DATE LWB 11/99	REVIEWED: DATE JSB 11/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A2C29	

LEGEND:

- GW-# – GROUNDWATER INVESTIGATION MONITORING WELL (CONDITION IV.D.3. OF ACT 64 POST-CLOSURE OPERATING LICENSE MID 005 057 005)
- PCP-# OR PCL-# – POST-CLOSURE PIEZOMETER (CONDITION III.A. OF ACT 64 POST-CLOSURE OPERATING LICENSE MID 005 057 005)
- PCW-# – POST-CLOSURE DETECTION MONITORING WELL (CONDITION III.A. OF ACT 64 POST-CLOSURE OPERATING LICENSE MID 005 057 005)
- SG-# – SURFACE WATER LEVEL MONITORING STATION
- CONTAINMENT UNIT

NOTES:

1. WELL/PIEZOMETER SURVEY AND ADDITIONAL INFORMATION IS PRESENTED ON DRAWING 56.
2. POST- CLOSURE PIEZOMETERS PCP-1 THROUGH PCP-14 AND PCL-1 THROUGH PCL-5 INSTALLED BETWEEN 6/15/98 AND 11/18/98 BY TOLTEST, TOLEDO, OHIO UNDER DIRECTION OF MEC. GROUNDWATER INVESTIGATION MONITORING WELLS GW-1 THROUGH GW-16 AND POST- CLOSURE DETECTION MONITORING WELLS PCW-1 THROUGH PCW-14 AND POST- CLOSURE PIEZOMETER PCP-3 (DEEP) INSTALLED BY STEARNS DRILLING COMPANY, DUTTON, MICHIGAN BETWEEN 2/22/99 AND 3/11/99 UNDER THE DIRECTION OF MEC. SURFACE WATER LEVEL MONITORING STATIONS SG-1 THROUGH SG-6 INSTALLED BY MEC IN EARLY 1999.

NOTES

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS- BUILT PIEZOMETER AND GROUNDWATER WELL LOCATIONS

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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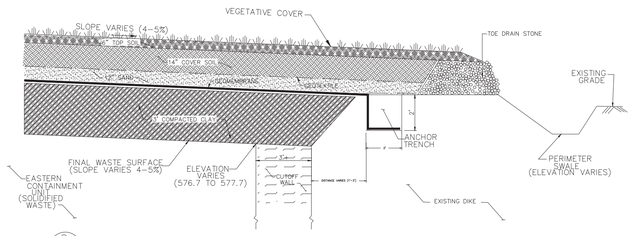
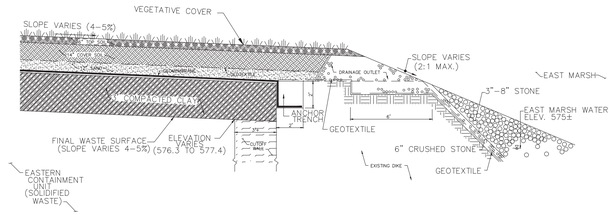
TITLE: VISTEON CORPORATION – MONROE PLANT

SURACE IMPOUNDMENT CLOSURE GOURNDWATER MONITORIGN NETWORK

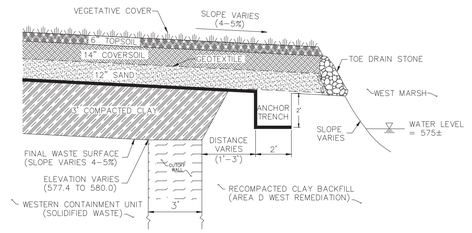
DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	55 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 10/99	JSB 10/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C28	



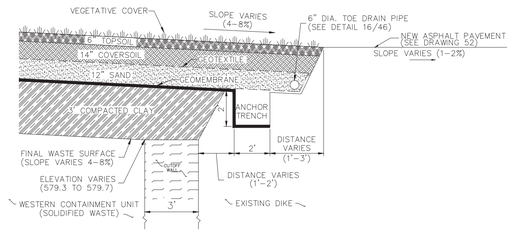
6/45 EASTERN CONTAINMENT UNIT AT SOUTH SIDE PERIMETER
N.T.S., SEE DRAWINGS 6, 11, 16, 19, 24 AND 29



7/45 EASTERN CONTAINMENT UNIT AT EAST SIDE PERIMETER
N.T.S., SEE DRAWINGS 6, 7, 11, 12, 16, 17, 19, 20, 24, 25, 29 AND 30

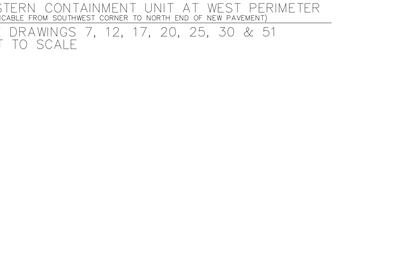


8/45 WESTERN CONTAINMENT UNIT AT WEST PERIMETER
NOT TO SCALE
SEE DRAWINGS 9, 14, 18, 22, 27 & 32



9A/45 WESTERN CONTAINMENT UNIT AT SOUTH PERIMETER
(FROM SOUTHWEST CORNER TO WHERE NEW PAVEMENT IS OVER CUT–OFF WALL)
NOT TO SCALE
SEE DRAWINGS 9, 14, 18, 22, 27, & 32

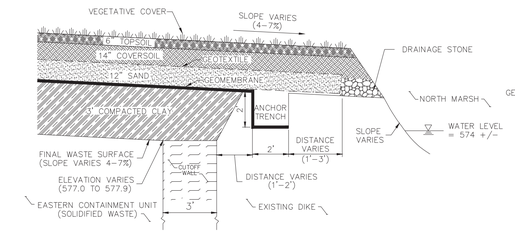
9B/45 WESTERN CONTAINMENT UNIT AT SOUTH PERIMETER
(APPLICABLE WHERE NEW PAVEMENT INSTALLED OVER LANDFILL)
SEE DRAWINGS 9, 14, 18, 22, 27 & 32
NOT TO SCALE



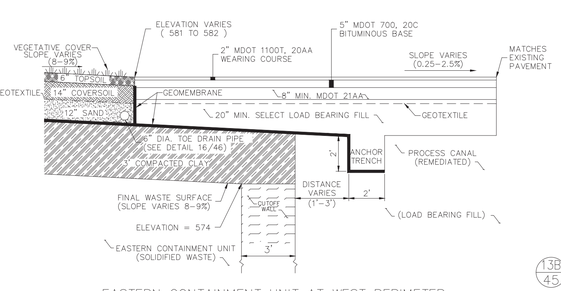
9C/45 WESTERN CONTAINMENT UNIT AT SOUTH PERIMETER
(APPLICABLE FROM SOUTHEAST CORNER TO WHERE NEW PAVEMENT OVER LANDFILL)
SEE DRAWINGS 9, 14, 18, 22, 27 & 32
NOT TO SCALE

10/45 WESTERN CONTAINMENT UNIT AT EAST PERIMETER
SEE DRAWINGS 9, 14, 18, 22, 27 & 32
NOT TO SCALE

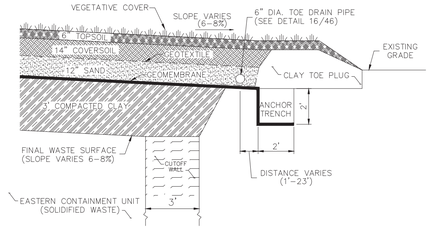
11/45 WESTERN CONTAINMENT UNIT AT NORTH PERIMETER
SEE DRAWINGS 9, 14, 18, 22, 27 & 32
NOT TO SCALE



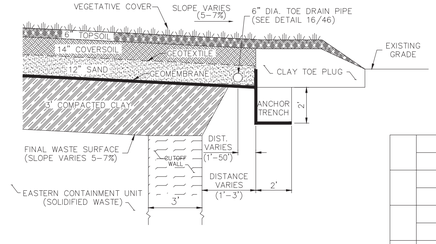
12/45 EASTERN CONTAINMENT UNIT AT NORTH PERIMETER
SEE DRAWINGS 7, 12, 17, 20, 25 & 30
NOT TO SCALE



13A/45 EASTERN CONTAINMENT UNIT AT WEST PERIMETER
(APPLICABLE FROM SOUTHWEST CORNER TO NORTH END OF NEW PAVEMENT)
SEE DRAWINGS 7, 12, 17, 20, 25, 30 & 51
NOT TO SCALE



13B/45 EASTERN CONTAINMENT UNIT AT WEST PERIMETER
(APPLICABLE FROM NORTHWEST CORNER TO ANCHOR TRENCH/GEOMEMBRANE FLAP JUNCTION)
SEE DRAWINGS 7, 12, 17, 20, 25, 30 & 51
NOT TO SCALE



13C/45 EASTERN CONTAINMENT UNIT AT WEST PERIMETER
(APPLICABLE FROM ANCHOR TRENCH/GEOMEMBRANE FLAP JUNCTION TO NORTH END OF NEW PAVEMENT)
SEE DRAWINGS 7, 12, 17, 20, 25, 30 & 51
NOT TO SCALE

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	AS 12/99	LWB 12/99	AS–BUILT COVERSOIL SURFACE

MEC inc.
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
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DEARBORN, MICHIGAN

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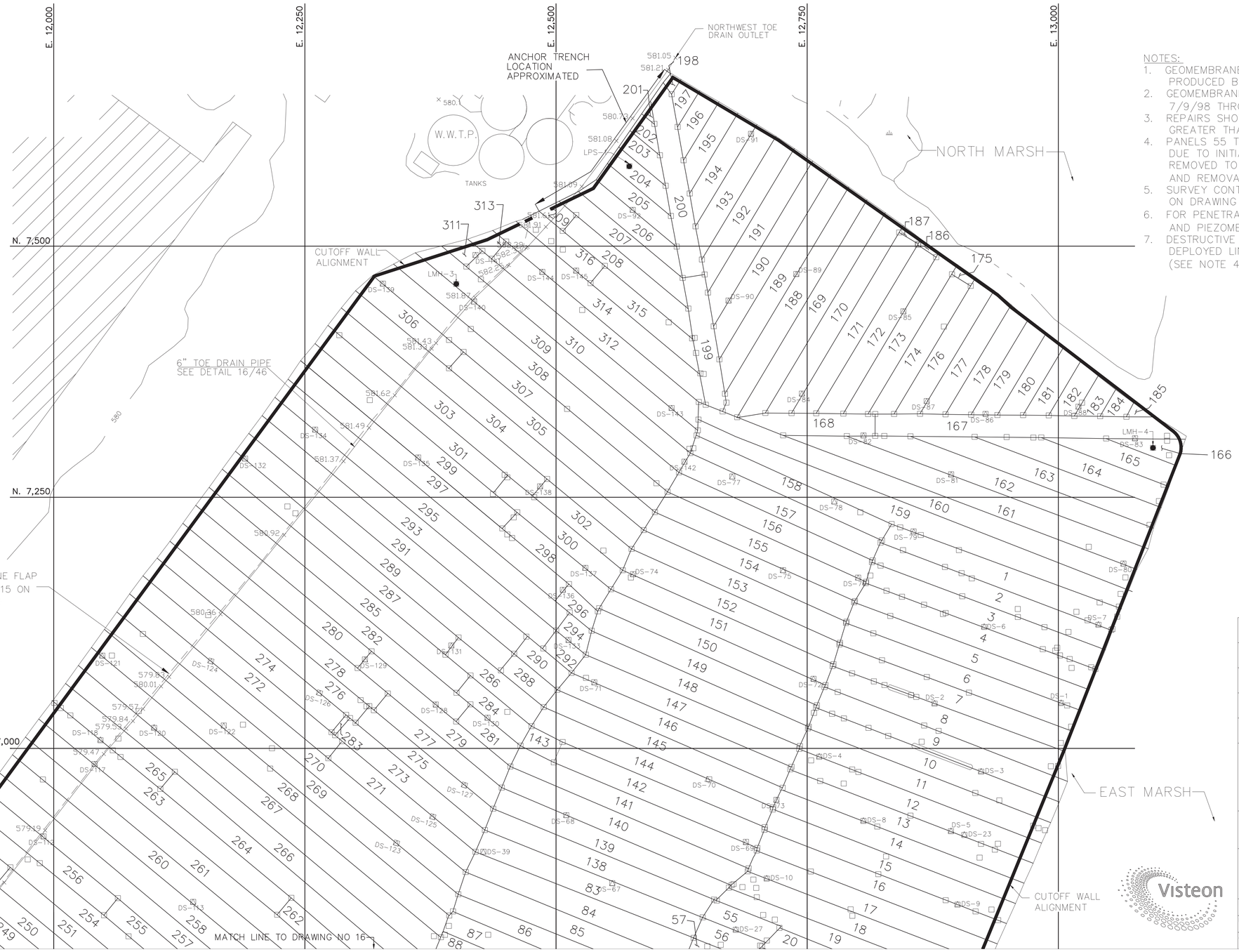
Visteon

TITLE: VISTEON CORPORATION – MONROE PLANT
DETAILS II

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS/TMB 12/99	AS NOTED	45 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 12/99	JSB 12/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C27	



NOTES:
1. GEOMEMBRANE UTILIZED WAS 40MIL LLDPE PRODUCED BY GSE LINING TECHNOLOGIES.
2. GEOMEMBRANE WAS DEPLOYED FROM 7/9/98 THROUGH 11/15/98.
3. REPAIRS SHOWN ARE PATCHES OR CAPS GREATER THAN 6 INCHES IN LENGTH OR DIAMETER.
4. PANELS 55 THROUGH 57 WERE DEPLOYED DUE TO INITIAL GEOMEMBRANE BEING REMOVED TO PERFORM LEACHATE COLLECTION AND REMOVAL SYSTEM PIPING REPAIRS/REPLACEMENT.
5. SURVEY CONTROL POINTS FOR THE SITE ARE SHOWN ON DRAWING 64.
6. FOR PENETRATION (MANHOLE, 6" LCRS CLEANOUT AND PIEZOMETER) BOOT DETAILS, SEE DRAWING 46.
7. DESTRUCTIVE SAMPLES REMOVED WHEN ORIGINALLY DEPLOYED LINER REMOVED FOR LCRS REPAIRS (SEE NOTE 4): DS-12, DS-16, DS-18, DS-24.

LEGEND:
- □ – PATCHES
- △ – DESTRUCTIVE SAMPLE LOCATION (DS#)
- ⬭ – CAP STRIP (REPAIR)
- ● – LCRS MANHOLE
- ▬ – CUTOFF WALL
- 579.03 × – 6" TOE DRAIN PIPE

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS-BUILT GEOMEMBRANE

MEC inc
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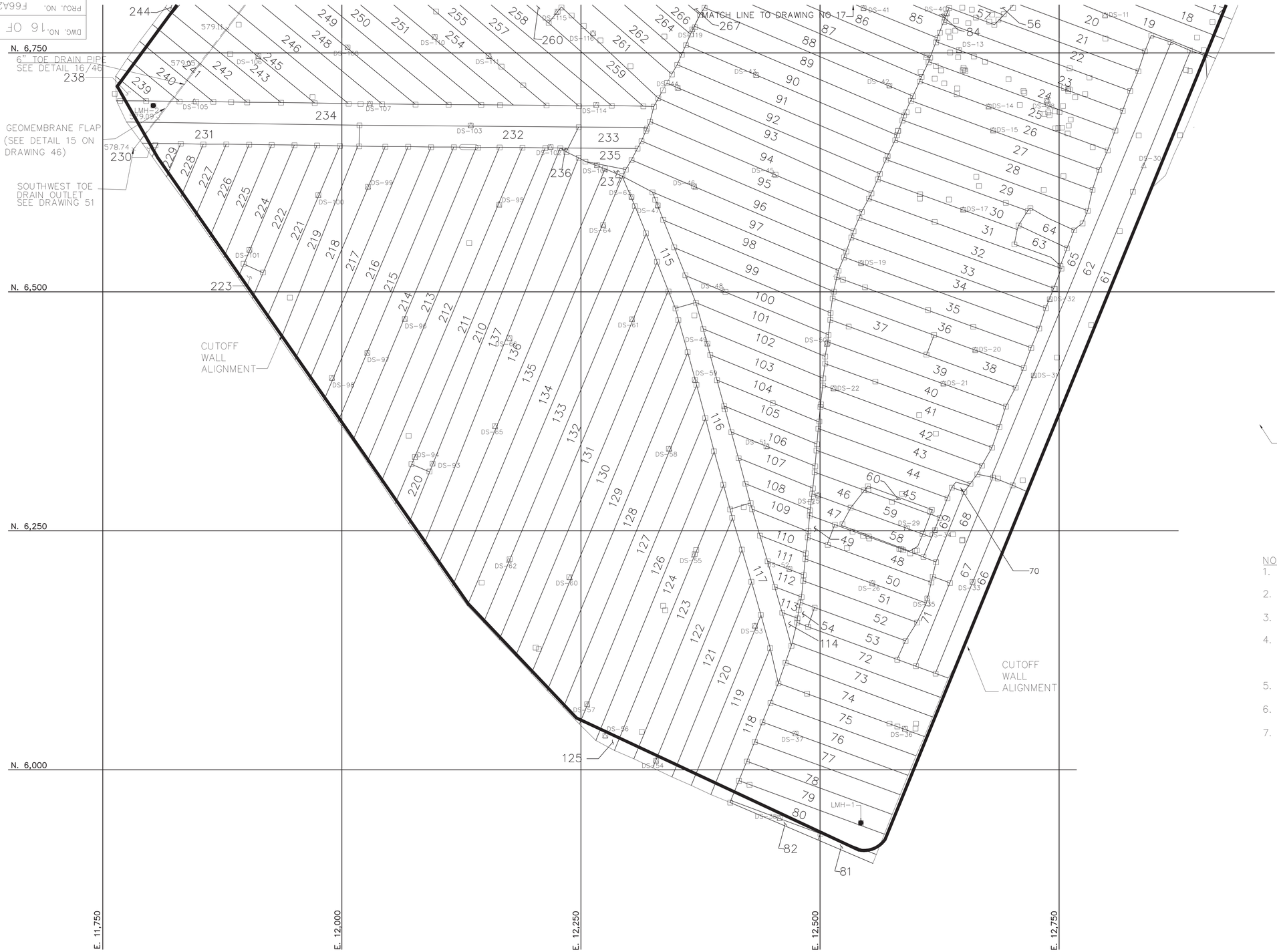
TITLE: VISTEON CORPORATION – MONROE PLANT

GEOMEMBRANE PANEL LAYOUT ECU NORTH

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 11/99	AS NOTED	17 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 11/99	JSB 11/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C26	

Visteon



LEGEND:

- □ – PATCHES
- △ – DESTRUCTIVE SAMPLE LOCATION (DS#)
- ⬭ – CAP STRIP
- ● – LCRS MANHOLE
- ▬ – CUTOFF WALL
- 579.03 × – 6" TOE DRAIN PIPE

NOTES:

1. GEOMEMBRANE UTILIZED WAS 40MIL LLDPE PRODUCED BY GSE LINING TECHNOLOGIES.
2. GEOMEMBRANE WAS DEPLOYED FROM 7/9/98 THROUGH 11/15/98.
3. REPAIRS SHOWN ARE PATCHES OR CAPS GREATER THAN 6 INCHES IN LENGTH OR DIAMETER.
4. PANELS 56 THROUGH 71 WERE DEPLOYED DUE TO INITIAL GEOMEMBRANE BEING REMOVED TO PERFORM LEACHATE COLLECTION AND REMOVAL SYSTEM PIPING REPAIRS/REPLACEMENT.
5. SURVEY CONTROL POINTS FOR THE SITE ARE SHOWN ON DRAWINGS 64 AND 65.
6. FOR PENETRATION (MANHOLE, 6" LCRS CLEANOUT AND PIEZOMETER) BOOT DETAILS, SEE DRAWING 46.
7. DESTRUCTIVE SAMPLES REMOVED WHEN ORIGINALLY DEPLOYED LINER REMOVED FOR LCRS REPAIRS (SEE NOTE 4); DS-12, DS-16, DS-18 AND DS-24.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS-BUILT GEOMEMBRANE

MEC inc
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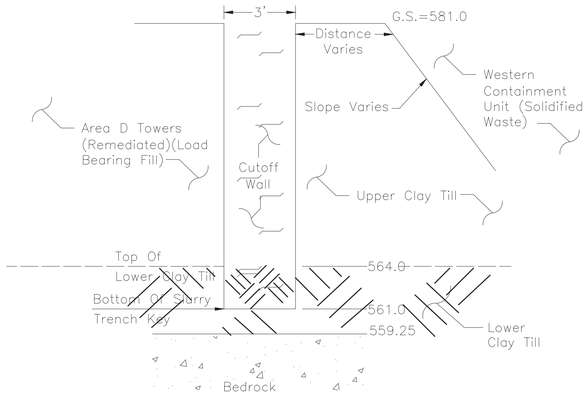
Visteon

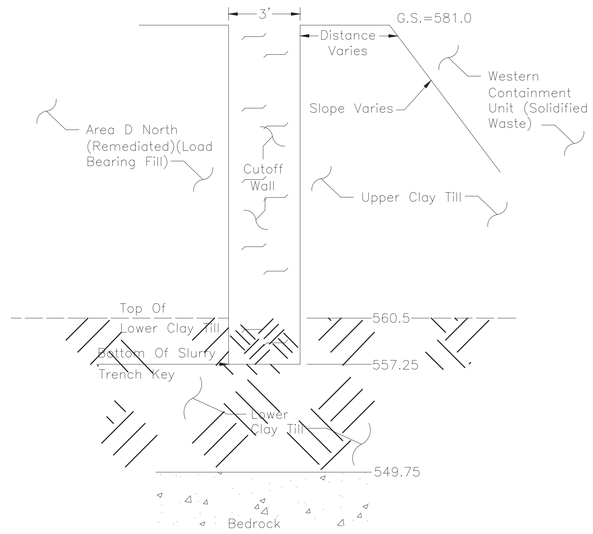
TITLE: VISTEON CORPORATION – MONROE PLANT

GEOMEMBRANE PANEL LAYOUT ECU SOUTH

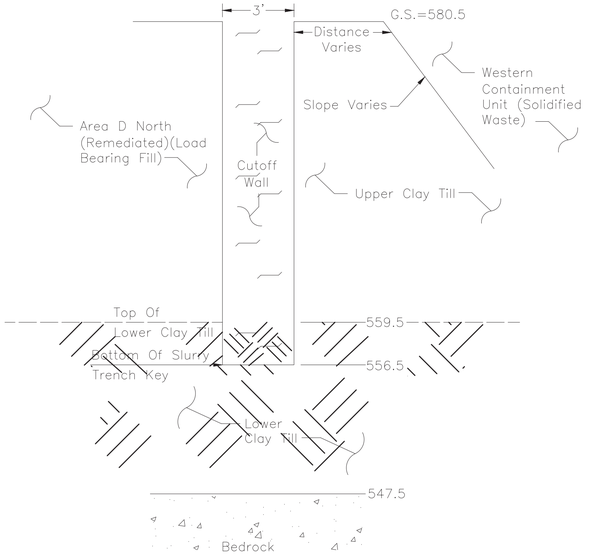
DRAWN:	DATE	SCALE:	DRAWING NO.	REV. NO.
AS	11/99	AS NOTED	16 OF 65	1
DESIGNED: LWB	DATE 11/99	REVIEWED: JSB	DATE 11/99	
APPROVED: -	DATE -	PROJECT NO. F66A2C	CADD FILE: F66A2C26	



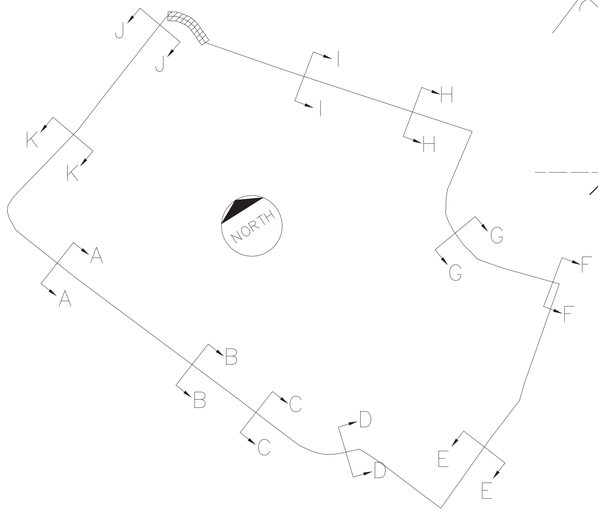
G–G; MEC 21+20', NTH 16+00
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



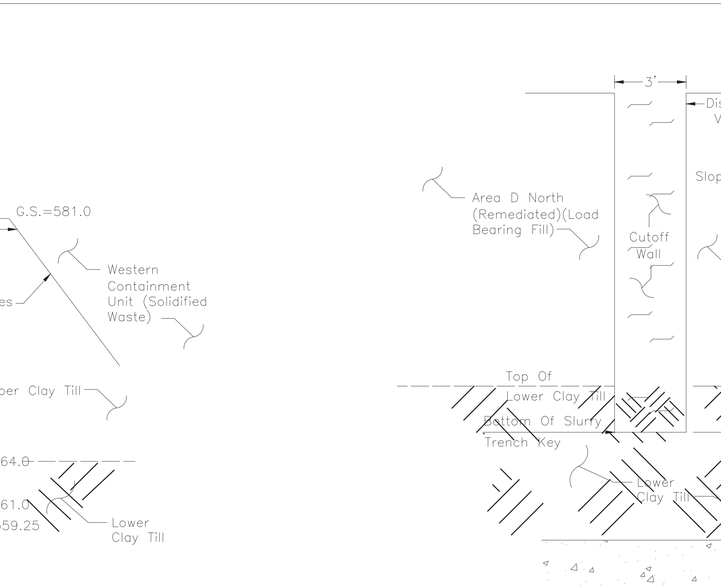
H–H; MEC 24+40', NTH 12+80
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



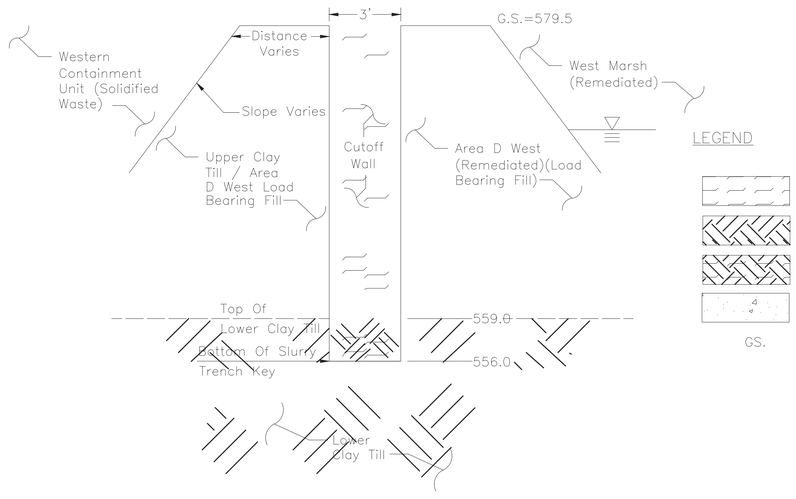
I–I; MEC 8+40 NTH 9+50
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



WESTERN CONTAINMENT UNIT KEY MAP
SCALE 1"=200'



K–K; MEC 1+40 NTH 2+50
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



J–J; MEC 4+90, NTH 6+00
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'

LEGEND

- –CUTOFF WALL BACKFILL
- –LOWER CLAY TILL
- –CUTOFF WALL BACKFILL/LOWER CLAY TILL KEY
- –BEDROCK

GS. –GROUND SURFACE ELEVATION FROM SOIL BORING

NOTES

1. PROFILE FOR CUTOFF WALL CROSS SECTION SHOWN PRESENTED ON DRAWINGS 39, 40, AND 41.
2. MEC STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION (I.E., CONSTRUCTION STAKING). NTH STATIONING SHOWN TAKEN FROM CONTRACT DRAWINGS.
3. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	JAM 11/99	LWB 11/99	AS–BUILT CUTOFF WALL CROSS–SECTIONS ECU; NTH PLATES 40, 40A, AND 41.

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563–6326
DEARBORN, MICHIGAN

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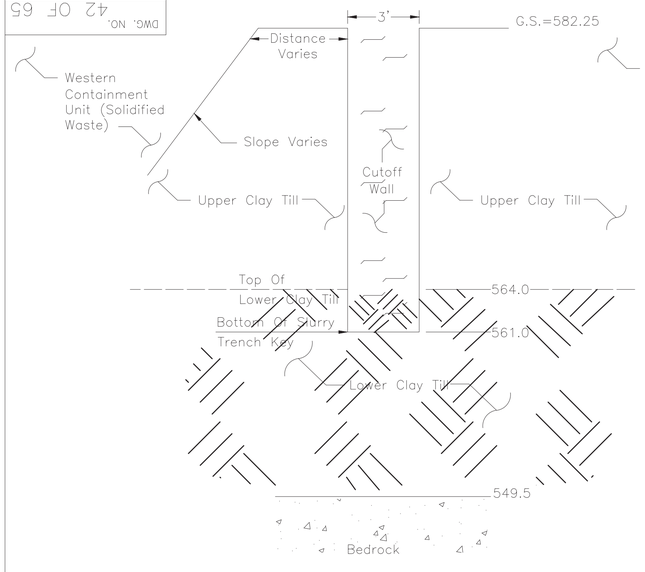
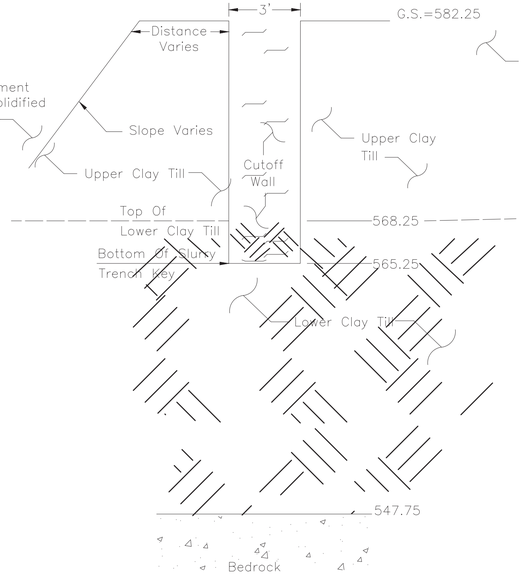
TITLE:
VISTEON CORPORATION
MONROE STAMPING PLANT
CUTOFF WALL CROSS–SECTION–WCUII

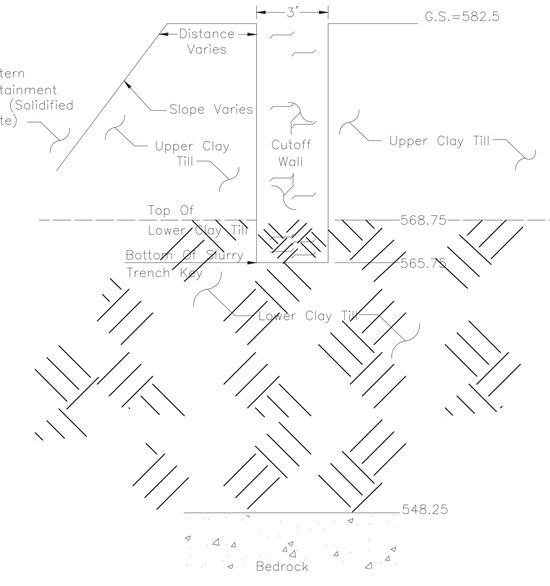
DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
J.A.M. 11/99	AS NOTED	43 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
L.W.B. 11/99	J.S.B. 11/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
- -	F66A2C	F66A2C25	



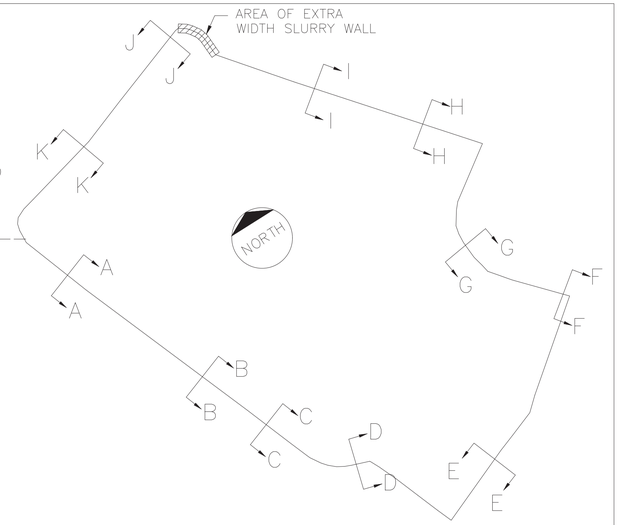
A–A: MEC 2+50', NTH 34+78
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



B–B: MEC 6+10', NTH 31+17
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



C–C: MEC 7+50', NTH 29+80
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



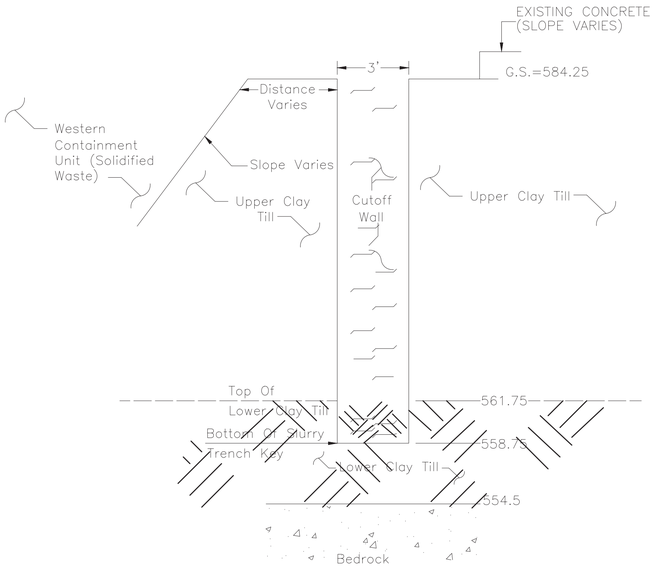
WESTERN CONTAINMENT UNIT KEY MAP
SCALE 1"=200'

LEGEND

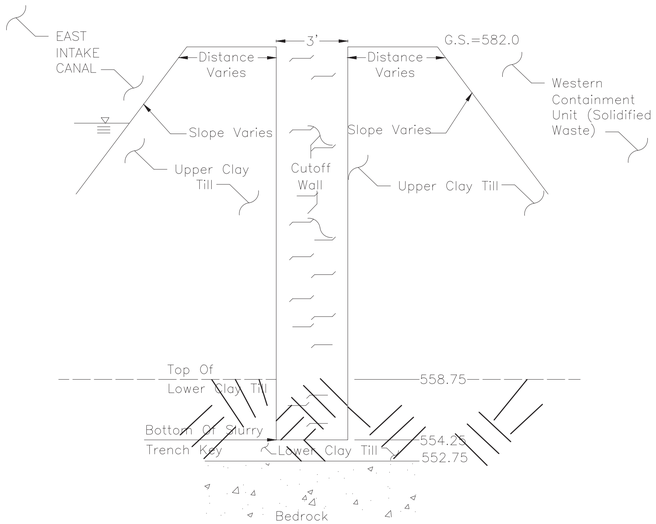
- –CUTOFF WALL BACKFILL
- –LOWER CLAY TILL
- –CUTOFF WALL BACKFILL/LOWER CLAY TILL KEY
- –BEDROCK
- G.S. –GROUND SURFACE ELEVATION FROM SOIL BORING

NOTES

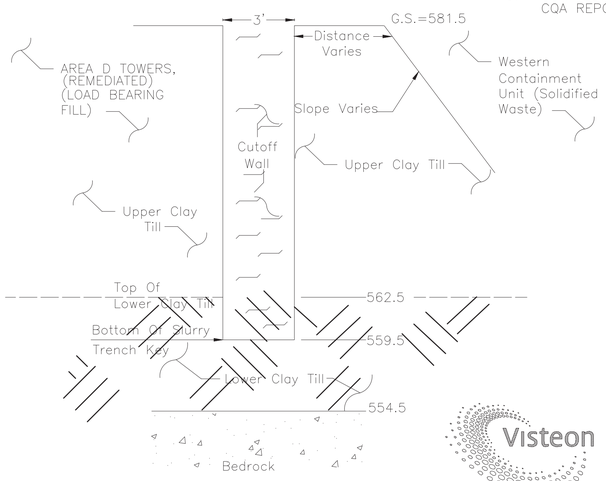
1. PROFILE FOR CUTOFF WALL CROSS–SECTIONS SHOWN PRESENTED ON DRAWINGS 39 AND 40.
2. MEC STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION (I.E., CONSTRUCTION STAKING). NTH STATIONING SHOWN TAKEN FROM CONTRACT DRAWINGS.
3. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.



D–D: MEC 10+30', NTH 27+00
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



E–E: MEC 14+20', NTH 23+10
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



F–F: MEC 18+50', NTH 18+75
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'

Visteon

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	JAM 11/99	LWB 11/99	AS–BUILT CUTOFF WALL CROSS–SECTIONS ECU; NTH PLATES 41 AND 41A

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563–6326
DEARBORN, MICHIGAN

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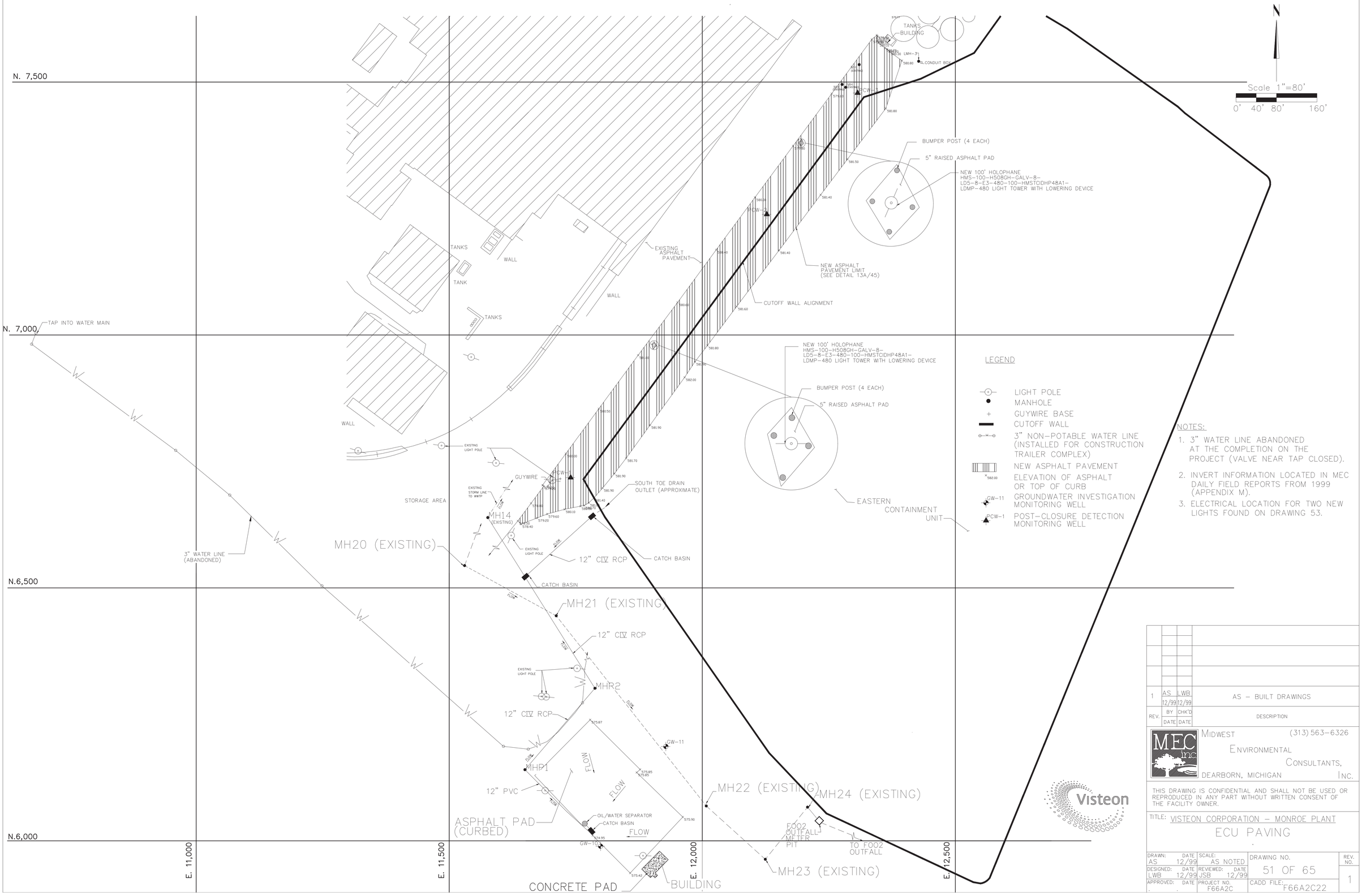
TITLE:
VISTEON CORPORATION
MONROE STAMPING PLANT
CUTOFF WALL CROSS–SECTION–WCUI

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
J.A.M. 11/99	AS NOTED	42 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
L.W.B. 11/99	J.S.B. 11/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C24	

DWG. NO. 51 OF 65
PROJ. NO. F66A2C



NOTES:

1. 3" WATER LINE ABANDONED AT THE COMPLETION ON THE PROJECT (VALVE NEAR TAP CLOSED).
2. INVERT INFORMATION LOCATED IN MEC DAILY FIELD REPORTS FROM 1999 (APPENDIX M).
3. ELECTRICAL LOCATION FOR TWO NEW LIGHTS FOUND ON DRAWING 53.

REV.	BY	CHK'D	DESCRIPTION
1	AS 12/99	LWB 12/99	AS – BUILT DRAWINGS

MEC inc.
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

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TITLE: VISTEON CORPORATION – MONROE PLANT
ECU PAVING

DRAWN: AS	DATE 12/99	SCALE: AS NOTED	DRAWING NO. 51 OF 65	REV. NO. 1
DESIGNED: LWB	DATE 12/99	REVIEWED: JSB DATE 12/99		
APPROVED:	DATE	PROJECT NO. F66A2C	CADD FILE: F66A2C22	

LEGEND:

- □ PATCHES
- DS-26△ DESTRUCTIVE SAMPLE LOCATION (DS#)
- 1 GEOMEMBRANE PANEL AND ID
- ● LCRS MANHOLE
- ▬ CUTOFF WALL
- ▨ CONCRETE
- 581.27 6" TOE DRAIN PIPE

NOTES:

1. GEOMEMBRANE UTILIZED WAS 40MIL LLDPE PRODUCED BY GSE LINING TECHNOLOGIES.
2. GEOMEMBRANE WAS DEPLOYED FROM 9/27/98 THROUGH 10/19/98.
3. REPAIRS SHOWN ARE PATCHES OR CAPS GREATER THAN 6 INCHES IN LENGTH OR DIAMETER.
4. PANELS 114 THROUGH 116 AND 137 THROUGH 152 WERE DEPLOYED DUE TO INITIAL GEOMEMBRANE BEING REMOVED TO PREFORM LEACHATE COLLECTION AND REMOVAL SYSTEM PIPING REPAIRS/REPLACEMENT.
5. SURVEY CONTROL POINTS FOR THE SITE ARE SHOWN ON DRAWINGS 64 AND 65.
6. FOR PENETRATION (MANHOLE, 6" LCRS CLEANOUT AND PIEZOMETER) BOOT DETAILS, SEE DRAWING 46.
7. DESTRUCTIVE SAMPLE REMOVED WHEN ORIGINALLY DEPLOYED LINER REMOVED FOR LCRS REPAIRS (SEE NOTE 4):DS-23.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS-BUILT DRAWINGS

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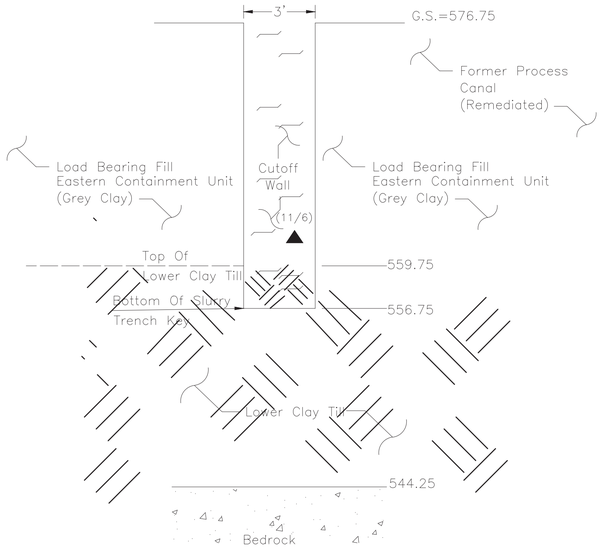
TITLE: VISTEON CORPORATION – MONROE PLANT

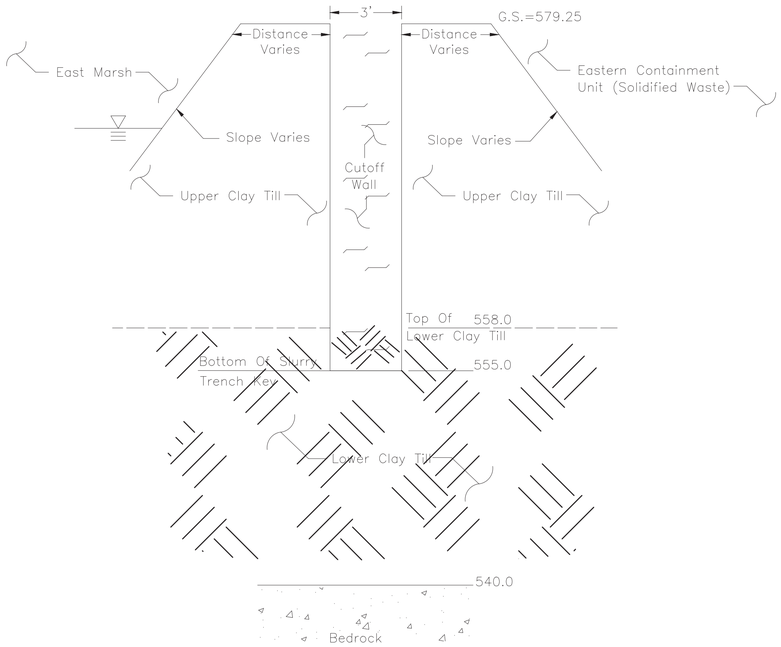
GEOMEBRANE PANEL LAYOUT – WCU

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 11/99	AS NOTED	18 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 11/99	JSB 11/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C21	

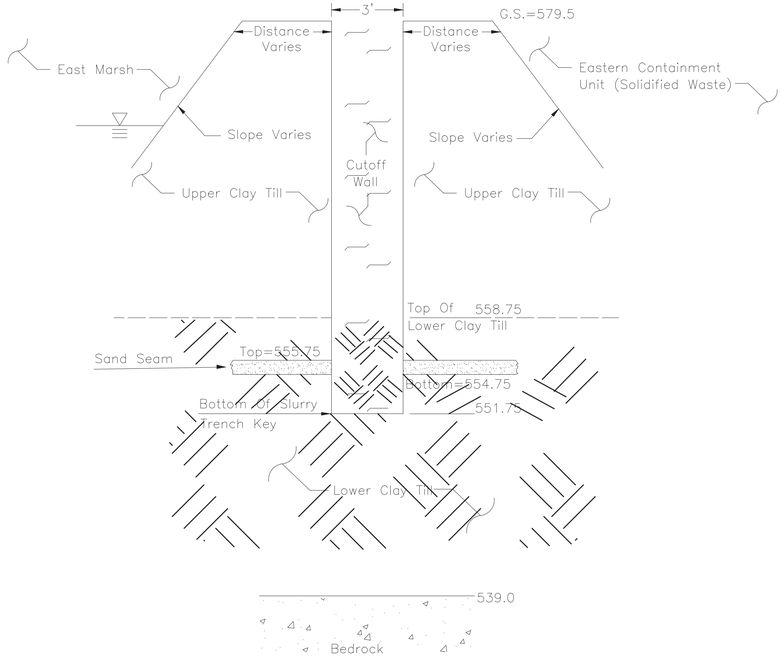
Visteon



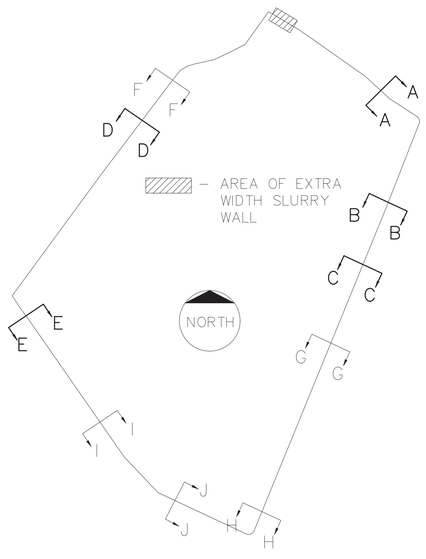
F–F: MEC 10+00, NTH 42+05
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



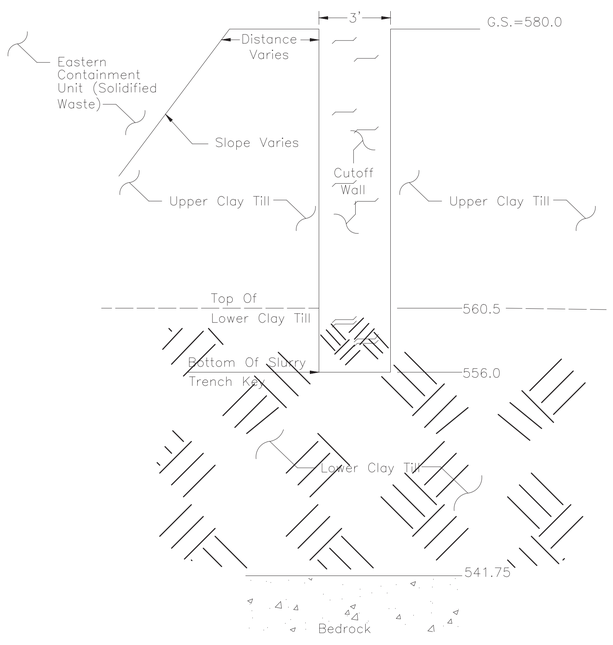
G–G: MEC 15+90, NTH 16+38
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



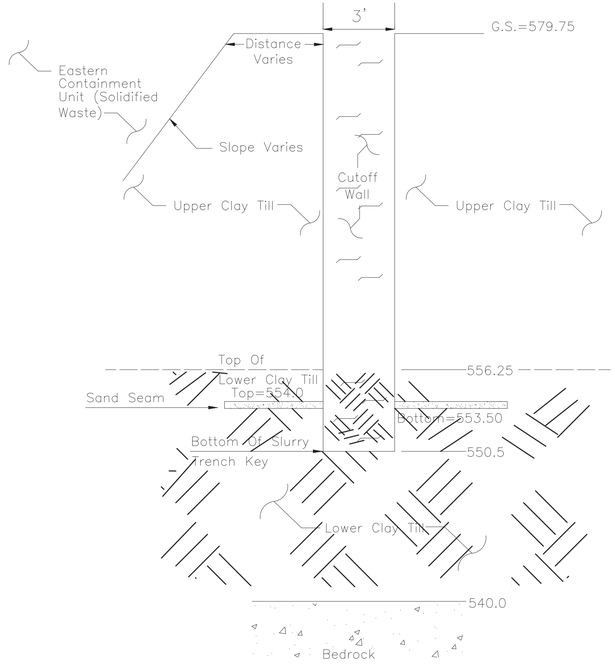
H–H: MEC 11+40, NTH 20+93
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



EASTERN CONTAINMENT UNIT KEY MAP
SCALE 1"=300'



I–I: MEC 4+60, NTH 27+66
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



J–J: MEC 8+60, NTH 23+67
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'

NOTES:

1. PROFILE FOR CUTOFF WALL CROSS SECTION SHOWN PRESENTED ON DRAWINGS 34 AND 36.
2. MEC STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION (I.E., CONSTRUCTION STAKING). NTH STATIONING SHOWN TAKEN FROM CONTRACT DRAWINGS.
3. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.

LEGEND

- 0/0 – IN TRENCH SLURRY TEST LOCATION AND DATE
- – SAND SEAM
- – CUTOFF WALL BACKFILL
- – LOWER CLAY TILL
- – CUTOFF WALL BACKFILL/LOWER CLAY TILL KEY
- – BEDROCK
- G.S. – GROUND SURFACE ELEVATION FROM SOIL BORING

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	JAM 11/99	LWB 11/99	AS–BUILT CUTOFF WALL CROSS–SECTIONS ECU; NTH PLATES 14, 15 AND 16

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563–6326

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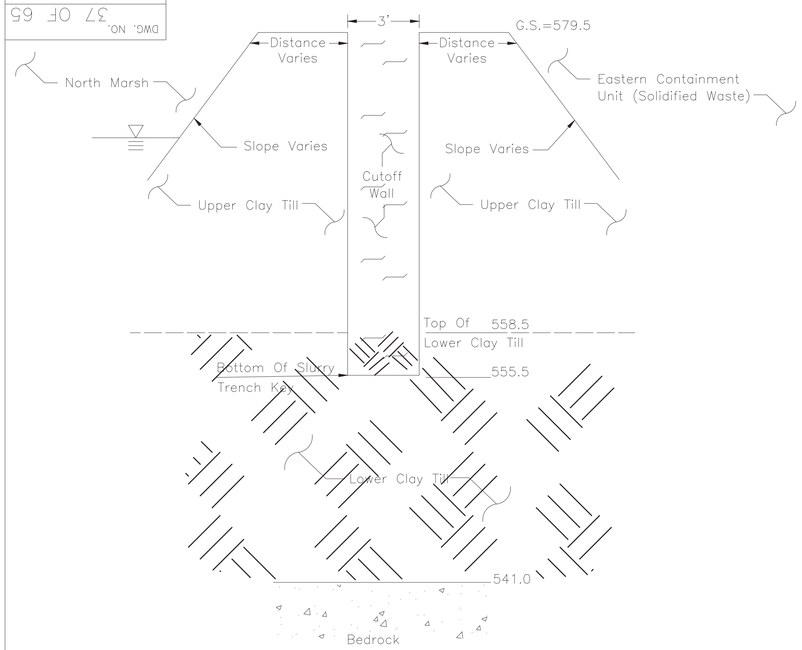
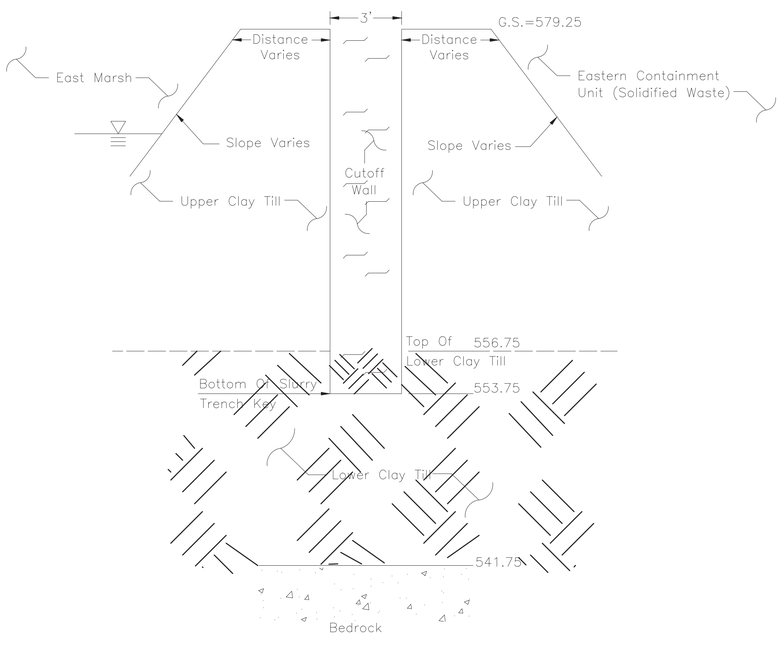
TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
CUTOFF WALL CROSS–SECTION–ECUII

DRAWN: DATE J.A.M. 11/99	SCALE: AS NOTED	DRAWING NO. 38 OF 65	REV. NO. 1
DESIGNED: DATE L.W.B. 11/99	REVIEWED: DATE J.S.B. 11/99		
APPROVED: DATE . .	PROJECT NO. F66A2C	CADD FILE: F66A2C20	

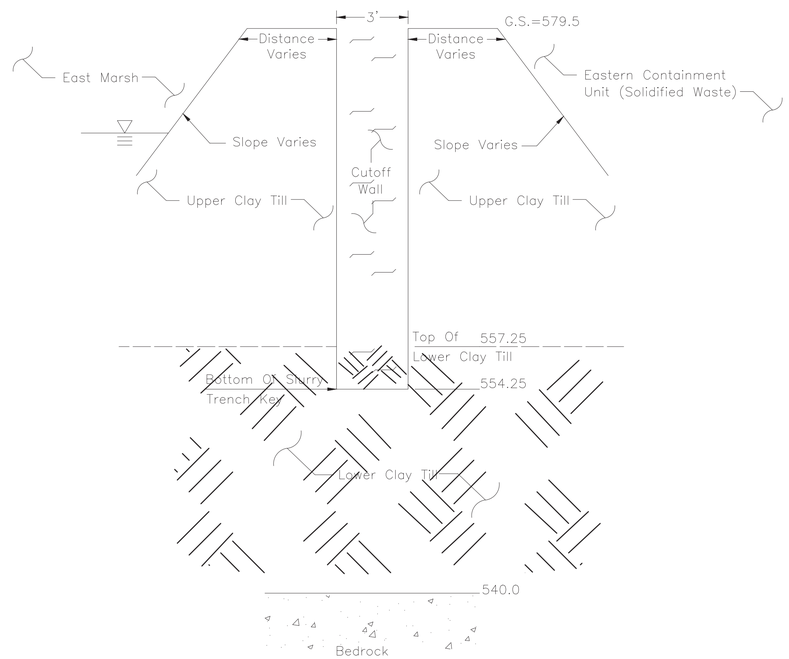
DWG. NO. 37 OF 65
PROJ. NO. F66A2C



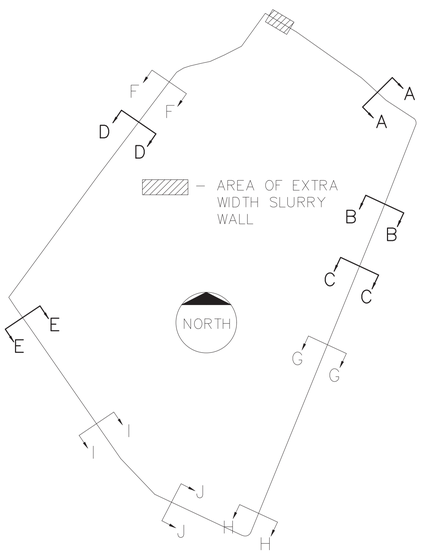
A–A: MEC 28+00, NTH 4+32
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



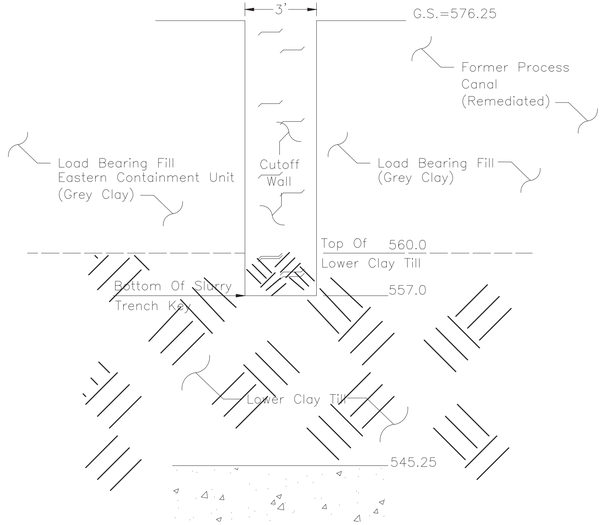
B–B: MEC 22+40, NTH 9+90
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



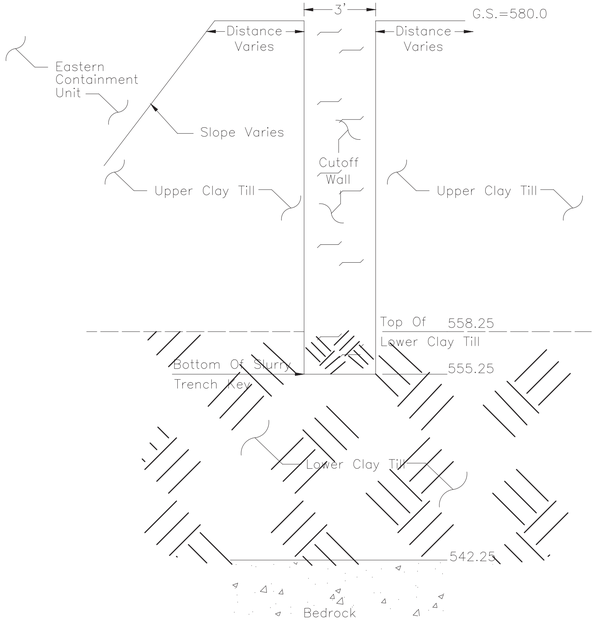
C–C: MEC 20+00, NTH 12+26
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



EASTERN CONTAINMENT UNIT KEY MAP
SCALE 1"=300'



D–D: MEC 7+30', NTH 39+40
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'



E–E: MEC 0+40', NTH 32+50
SCALE: HORIZ. 1"=3', VERTICAL 1"=5'

LEGEND

- –CUTOFF WALL BACKFILL
- –LOWER CLAY TILL
- –CUTOFF WALL BACKFILL/LOWER CLAY TILL KEY
- –BEDROCK
- G.S. –GROUND SURFACE ELEVATION FROM SOIL BORING

NOTES

1. PROFILE FOR CUTOFF WALL CROSS–SECTIONS SHOWN PRESENTED ON DRAWINGS 34 AND 35.
2. MEC STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION (I.E., CONSTRUCTION STAKING). NTH STATIONING SHOWN TAKEN FROM CONTRACT DRAWINGS.
3. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	JAM 11/99	LWB 11/99	AS–BUILT CUTOFF WALL CROSS–SECTIONS ECU; NTH PLATES 14 AND 16

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563–6326
DEARBORN, MICHIGAN

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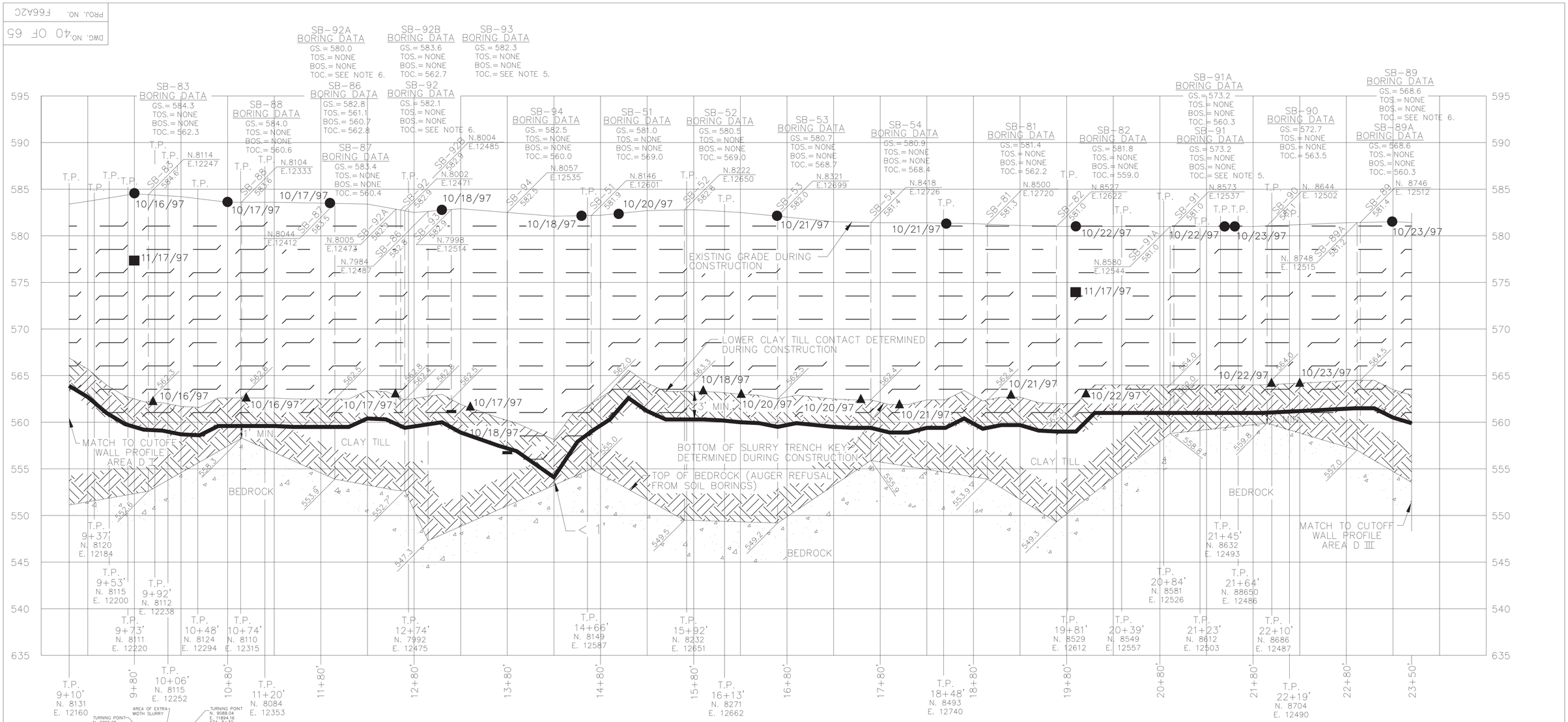
TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
CUTOFF WALL CROSS–SECTION–ECUI

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
J.A.M. 11/99	AS NOTED	37 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
L.W.B. 11/99	J.S.B. 11/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C19	

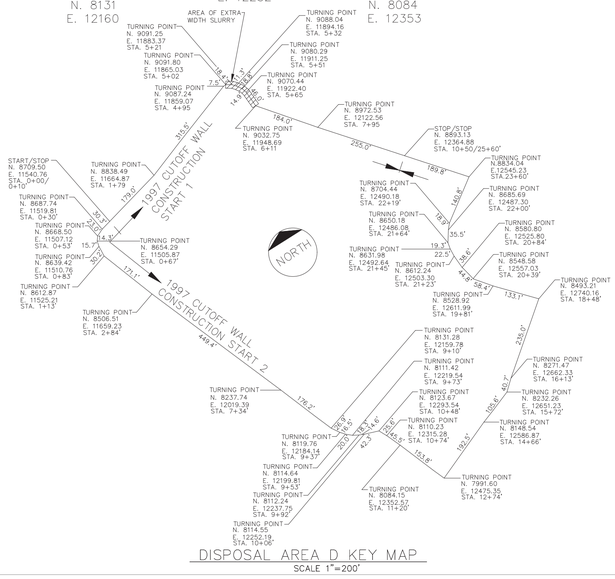
DWG. NO. 40 OF 65

PROJ. NO. F66A2C



CUTOFF WALL PROFILE STATION 9+10' TO STATION 23+50'

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



DISPOSAL AREA D KEY MAP
SCALE 1"=200'

LEGEND

- ● 0/0 – BACKFILL TEST LOCATION AND DATE
- ■ 0/0 – PERMEABILTY TEST LOCATION AND DATE
- ▲ 0/0 – IN TRENCH SLURRY TEST LOCATION AND DATE
- – CUTOFF WALL BACKFILL
- – LOWER CLAY TILL
- – CUTOFF WALL BACKFILL / LOWER CLAY TILL KEY
- GS. – GROUND SURFACE ELEVATION FROM SOIL BORING
- TOS. – TOP OF SAND ELEVATION FROM SOIL BORING
- BOS. – BOTTOM OF SAND ELEVATION FROM SOIL BORING
- TOC. – TOP OF CLAY ELEVATION FROM SOIL BORING
- – OBSTRUCTION

NOTES

1. PRODUCTION OF SLURRY WALL FOR THE PORTION SHOWN OCCURED ON OCTOBER 16, 17, 18, 20, 21, 22 AND 23, 1997.
2. SOUNDINGS WERE TAKEN EVERY TEN FEET DURING CONSTRUCTION. SOUNDINGS AT 20' INTERVALS ARE REFLECTED ON DRAWING. FOR CLARITY, ELEVATION IDENTIFIED ON AS-BUILT DRAWING ARE EVERY 100'±.
3. STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION. (I.E., CONSTRUCTION STAKING). THE AS-BUILT CUTOFF WALL CENTERLINE COORDINATES ARE PRESENTED ON THE KEY MAP (I.E., AS-BUILT SURVEY POSITION) WITH ASSOCIATED CONSTRUCTION STATIONING. AS-BUILT LENGTHS BETWEEN CONSTRUCTION STATIONS ARE ALSO SHOWN ON KEY MAP.
4. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.
5. OBSTRUCTION PREVENTED SAMPLING. NO CLAY INTERFACE DETERMINED.
6. CONTINUOUS SAMPLER PLUGGED WITH ROCKS. NO CLAY INTERFACE DETERMINED.

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	BMC	JSB	AS-BUILT OF AREA D CUTOFF WALL PROFILE NTH PLATES 38 AND 39
	3/98	3/98	

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TITLE: VISTEON CORPORATION – MONROE PLANT

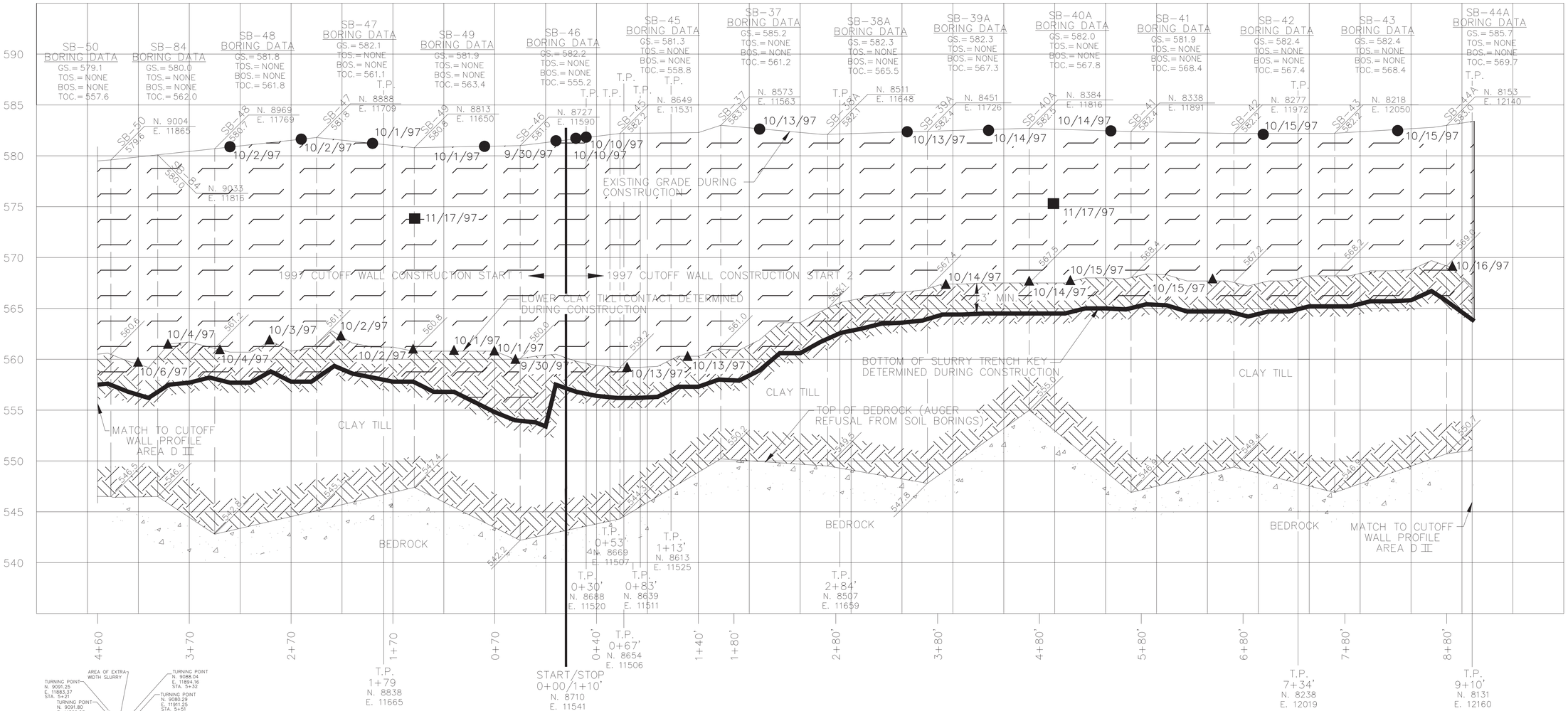
WASTE DISPOSAL SURFACE IMPOUNDMENTS CUTOFF WALL PROFILE – WCU

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 3/98	AS NOTED	40 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
BMC 3/98	JSB 3/98		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2	F66A2C18	

Visteon

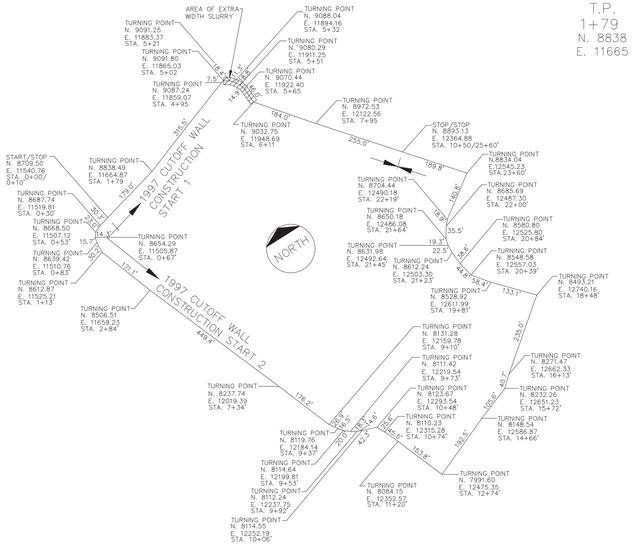
DWG. NO. 39 OF 65

PROJ. NO. F66A2C



CUTOFF WALL PROFILE STATION 4+60 TO STATION 9+10'

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



LEGEND

- ● 0/0 – BACKFILL TEST LOCATION AND DATE
- ■ 0/0 – PERMEABILTY TEST LOCATION AND DATE
- ▲ 0/0 – IN TRENCH SLURRY TEST LOCATION AND DATE
- CUTOFF WALL BACKFILL
- LOWER CLAY TILL
- CUTOFF WALL BACKFILL / LOWER CLAY TILL KEY
- GS. – GROUND SURFACE ELEVATION FROM SOIL BORING
- TOS. – TOP OF SAND ELEVATION FROM SOIL BORING
- BOS. – BOTTOM OF SAND ELEVATION FROM SOIL BORING
- TOC. – TOP OF CLAY ELEVATION FROM SOIL BORING

NOTES

1. PRODUCTION OF SLURRY WALL FOR THE PORTION SHOWN OCCURED ON SEPTEMBER 30 AND OCTOBER 1, 2, 3, 4, 6, 10, 13, 14, 15, AND 16 1997.
2. SOUNDINGS WERE TAKEN EVERY TEN FEET DURING CONSTRUCTION. SOUNDINGS AT 20' INTERVALS ARE REFLECTED ON DRAWING. FOR CLARITY, ELEVATION IDENTIFIED ON AS-BUILT DRAWING ARE EVERY 100'±.
3. STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION. (I.E., CONSTRUCTION STAKING). THE AS-BUILT CUTOFF WALL CENTERLINE COORDINATES ARE PRESENTED ON THE KEY MAP (I.E., AS-BUILT SURVEY POSITION) WITH ASSOCIATED CONSTRUCTION STATIONING. AS-BUILT LENGTHS BETWEEN CONSTRUCTION STATIONS ARE ALSO SHOWN ON KEY MAP.
4. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	BMC 3/98	JSB 3/98	AS-BUILT OF AREA D CUTOFF WALL PROFILE NTH PLATES 38 AND 39

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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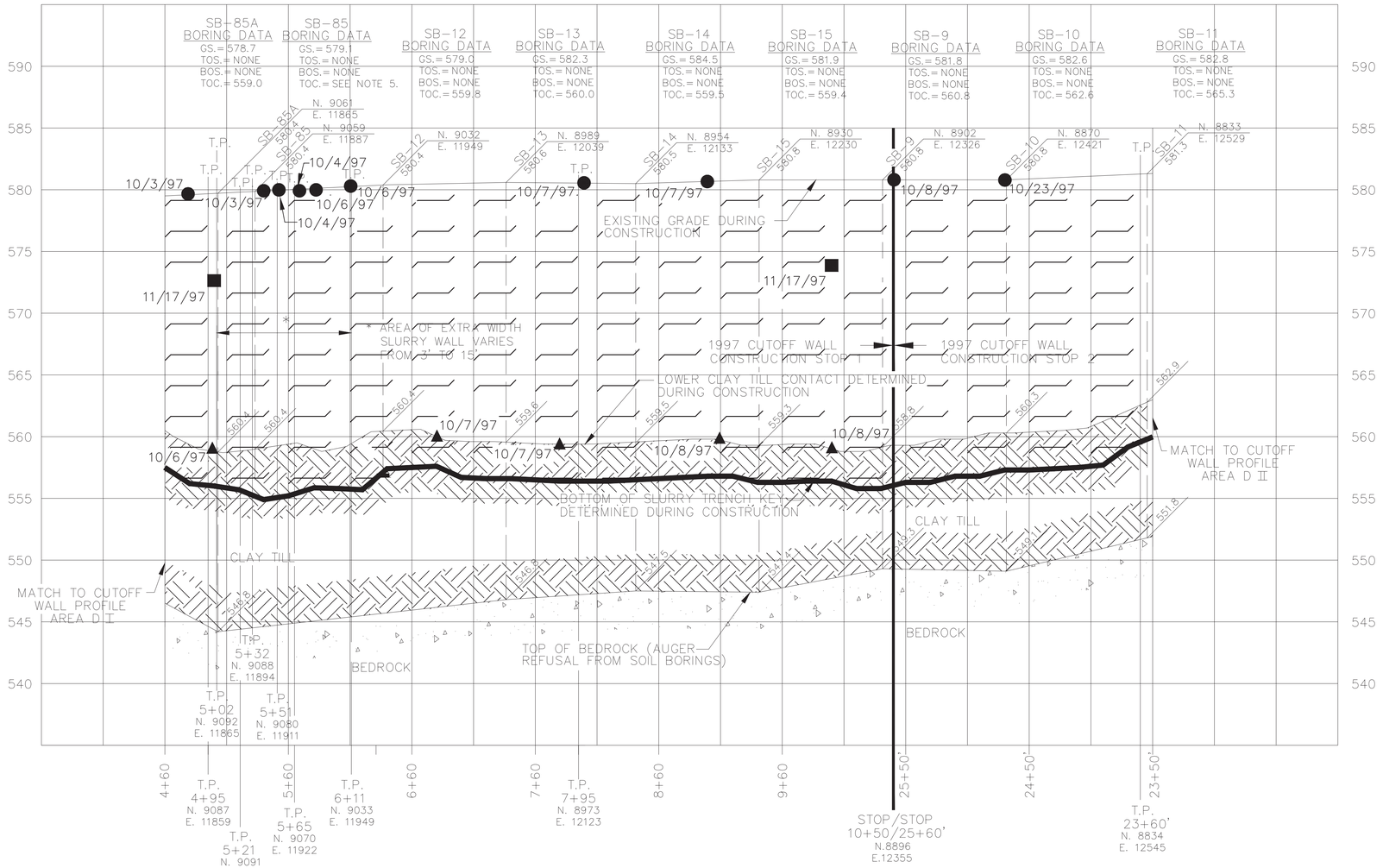
TITLE: VISTEON CORPORATION – MONROE PLANT

WASTE DISPOSAL SURFACE IMPOUNDMENTS CUTOFF WALL PROFILE-WCU 1

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 3/98	AS NOTED	39 OF 65	1
DESIGNED: DATE BMC 3/98	REVIEWED: DATE JSB 3/98		
APPROVED: DATE	PROJECT NO. F66A2	CADD FILE: F66A2C17	

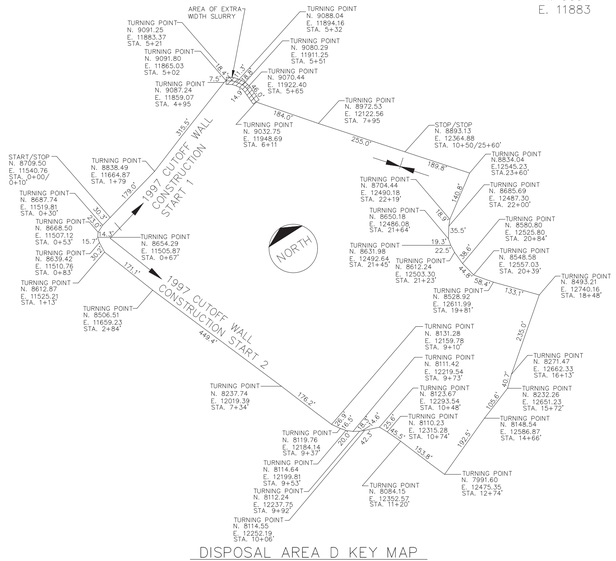
DWG. NO. 41 OF 65

PROJ. NO. F66A2C



CUTOFF WALL PROFILE STATION 4+60 TO STATION 23+50'

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



DISPOSAL AREA D KEY MAP

SCALE 1"=200'

LEGEND

- ● 0/0 – BACKFILL TEST LOCATION AND DATE
- ■ 0/0 – PERMEABILTY TEST LOCATION AND DATE
- ▲ 0/0 – IN TRENCH SLURRY TEST LOCATION AND DATE
- – CUTOFF WALL BACKFILL
- – LOWER CLAY TILL
- – CUTOFF WALL BACKFILL / LOWER CLAY TILL KEY
- GS. – GROUND SURFACE ELEVATION FROM SOIL BORING
- TOS. – TOP OF SAND ELEVATION FROM SOIL BORING
- BOS. – BOTTOM OF SAND ELEVATION FROM SOIL BORING
- TOC. – TOP OF CLAY ELEVATION FROM SOIL BORING
- – OBSTRUCTION

NOTES

1. PRODUCTION OF SLURRY WALL FOR THE PORTION SHOWN OCCURED ON OCTOBER 4, 6, 7, 8 AND 23, 1997.
2. SOUNDINGS WERE TAKEN EVERY TEN FEET DURING CONSTRUCTION. SOUNDINGS AT 20' INTERVALS ARE REFLECTED ON DRAWING. FOR CLARITY, ELEVATION IDENTIFIED ON AS-BUILT DRAWING ARE EVERY 100'±.
3. STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION. (I.E., CONSTRUCTION STAKING). THE AS-BUILT CUTOFF WALL CENTERLINE COORDINATES ARE PRESENTED ON THE KEY MAP (I.E., AS-BUILT SURVEY POSITION) WITH ASSOCIATED CONSTRUCTION STATIONING. AS-BUILT LENGTHS BETWEEN CONSTRUCTION STATIONS ARE ALSO SHOWN ON KEY MAP.
4. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.
5. OBSTRUCTION PREVENTED SAMPLING. NO CLAY INTERFACE DETERMINED.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	BMC 3/98	JSB 3/98	AS-BUILT OF AREA D CUTOFF WALL PROFILE NTH PLATES 38 AND 39

MEC inc — MIDWEST ENVIRONMENTAL CONSULTANTS, INC. (313) 563-6326 DEARBORN, MICHIGAN

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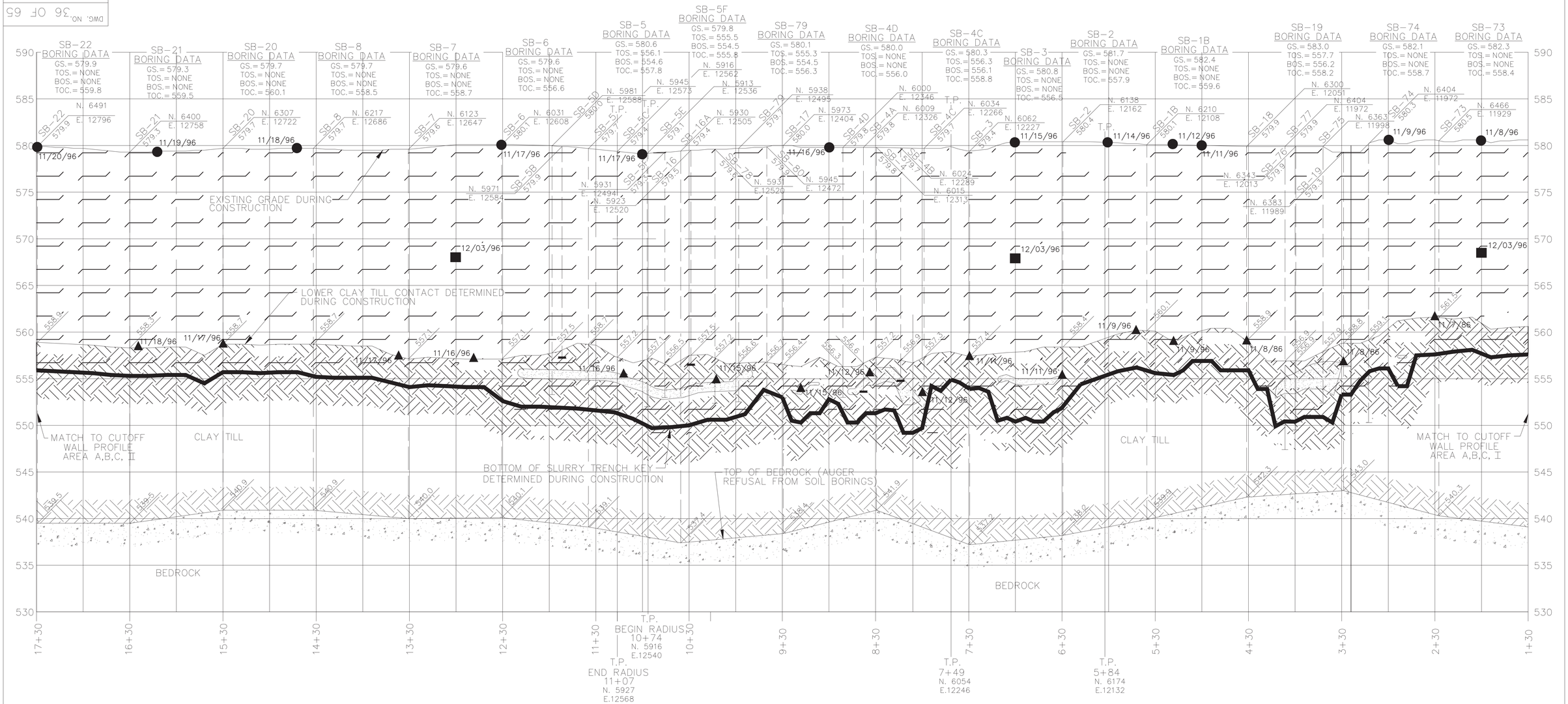
TITLE: VISTEON CORPORATION – MONROE PLANT

WASTE DISPOSAL SURFACE IMPOUNDMENTS CUTOFF WALL PROFILE – WCU 3

DRAWN: DATE BMC 3/98	SCALE: AS NOTED	DRAWING NO. 41 OF 65	REV. NO. 1
DESIGNED: DATE BMC 3/98	REVIEWED: DATE JSB 3/98		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A2C16	

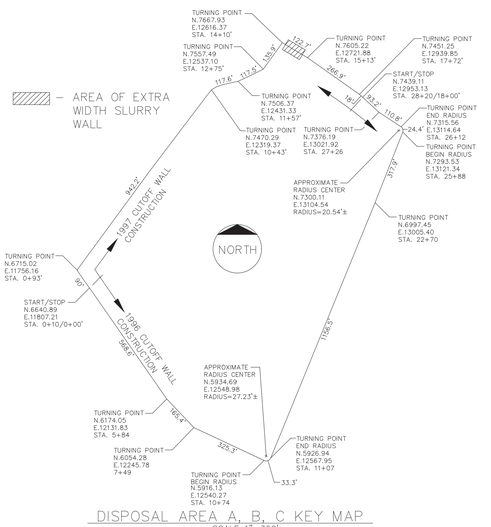
DWG. NO. 36 OF 65

PROJ. NO. F66A2C



CUTOFF WALL PROFILE STATION 17+30 TO STATION 1+30

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



DISPOSAL AREA A, B, C KEY MAP
SCALE 1"=300'

SB-4 BORING DATA	SB-4A BORING DATA	SB-4B BORING DATA	SB-5B BORING DATA
GS.= 579.9	GS.= 580.1	GS.= 579.9	GS.= 581.2
TOS.= 556.1	TOS.= NONE	TOS.= 556.2	TOS.= NONE
BOS.= 553.6	BOS.= NONE	BOS.= 555.1	BOS.= NONE
TOC.= 558.6	TOC.= 556.9	TOC.= 559.5	TOC.= OBSTRUCTION

SB-5C BORING DATA	SB-5D BORING DATA	SB-5E BORING DATA	SB-16 BORING DATA
GS.= 579.8	GS.= 581.3	GS.= 579.0	GS.= 579.8
TOS.= 555.3	TOS.= 554.8	TOS.= 555.7	TOS.= NONE
BOS.= 554.1	BOS.= 554.6	BOS.= 554.5	BOS.= NONE
TOC.= 556.9	TOC.= 556.9	TOC.= 556.5	TOC.= 557.8

SB-16A BORING DATA	SB-17 BORING DATA	SB-18 BORING DATA	SB-75 BORING DATA
GS.= 579.4	GS.= 579.9	GS.= 582.8	GS.= 582.4
TOS.= 554.9	TOS.= NONE	TOS.= NONE	TOS.= 554.4
BOS.= 553.2	BOS.= NONE	BOS.= NONE	BOS.= 553.9
TOC.= 556.6	TOC.= 558.6	TOC.= 557.0	TOC.= 557.4

SB-76 BORING DATA	SB-77 BORING DATA	SB-78 BORING DATA	SB-80 BORING DATA
GS.= 582.5	GS.= 582.4	GS.= 580.1	GS.= 580.1
TOS.= 556.9	TOS.= NONE	TOS.= 555.5	TOS.= 556.5
BOS.= 553.7	BOS.= NONE	BOS.= 554.2	BOS.= 556.4
TOC.= 557.9	TOC.= 558.4	TOC.= 556.5	TOC.= 557.5

LEGEND

- ● 0/0 – BACKFILL TEST LOCATION AND DATE
- ■ 0/0 – PERMEABILTY TEST LOCATION AND DATE
- ▲ 0/0 – IN TRENCH SLURRY TEST LOCATION AND DATE
- – CUTOFF WALL BACKFILL
- – LOWER CLAY TILL
- – CUTOFF WALL BACKFILL / LOWER CLAY TILL KEY
- GS. – GROUND SURFACE ELEVATION FROM SOIL BORING
- TOS. – TOP OF SAND ELEVATION FROM SOIL BORING
- BOS. – BOTTOM OF SAND ELEVATION FROM SOIL BORING
- TOC. – TOP OF CLAY ELEVATION FROM SOIL BORING
- – BOULDER OBSTRUCTION

NOTES

1. PRODUCTION OF SLURRY WALL FOR THE PORTION SHOWN OCCURED ON NOVEMBER 7, 8, 9, 11, 12, 14, 15, 16, 17, 18, 19 AND 20, 1996.
2. SOUNDINGS WERE TAKEN EVERY TEN FEET DURING CONSTRUCTION. SOUNDINGS AT 20' INTERVALS ARE REFLECTED ON DRAWING. FOR CLARITY, ELEVATION IDENTIFIED ON AS-BUILT DRAWING ARE EVERY 100'±.
3. STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION. (I.E., CONSTRUCTION STAKING). THE AS-BUILT CUTOFF WALL CENTERLINE COORDINATES ARE PRESENTED ON THE KEY MAP (I.E., AS-BUILT SURVEY POSITION) WITH ASSOCIATED CONSTRUCTION STATIONING. AS-BUILT LENGTHS BETWEEN CONSTRUCTION STATIONS ARE ALSO SHOWN ON KEY MAP.
4. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	BMC 3/98	BMC 3/98	AS-BUILT OF AREA A,B,C, CUTOFF WALL PROFILE NTH PLATES 12 AND 13

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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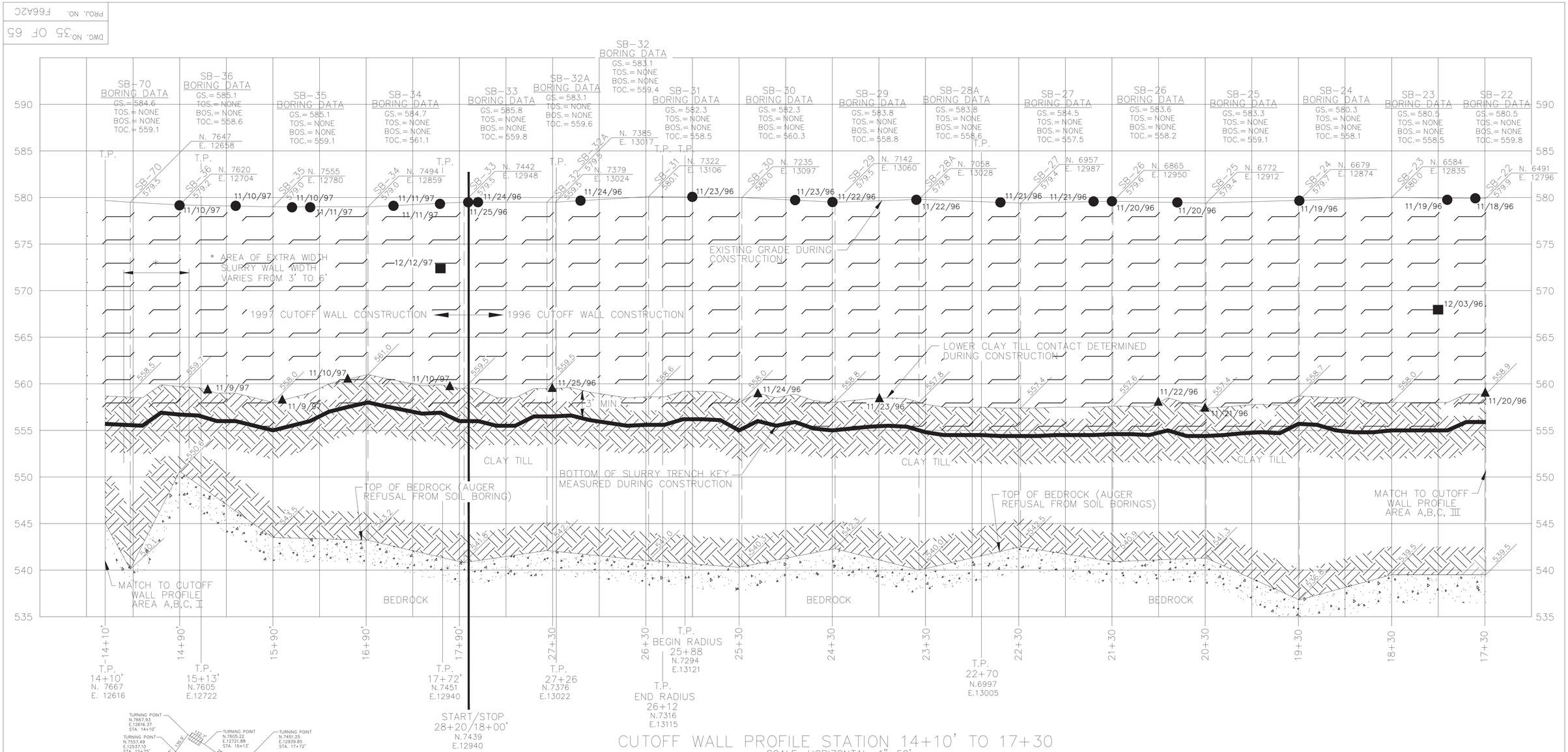
TITLE: VISTEON CORPORATON – MONROE PLANT

WASTE DIPOSAL SURFACE IMPOUNDMENTS
CUTOFF WALL PROFILE – ECU 3

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 2/98	AS NOTED	36 OF 65	1
DESIGNED: DATE BMC 2/98	REVIEWED: DATE JSB 2/98		
APPROVED: DATE - -	PROJECT NO. F66A1C	CADD FILE: F66A2C15	

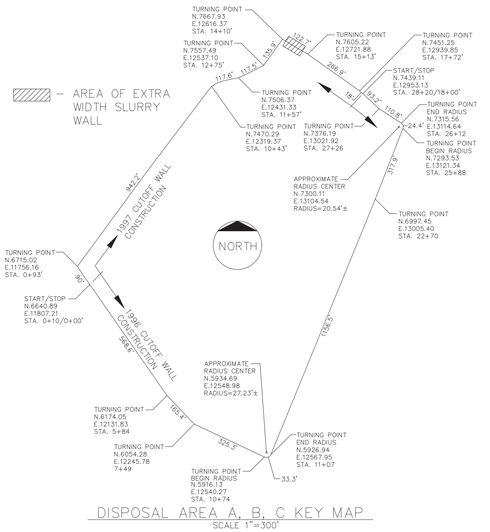
DWG. NO. 35 OF 65

PROJ. NO. F66A2C



CUTOFF WALL PROFILE STATION 14+10' TO 17+30

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



DISPOSAL AREA A, B, C KEY MAP
SCALE 1"=300'

LEGEND

- ● 0/0 – BACKFILL TEST LOCATION AND DATE
- ■ 0/0 – PERMEABILTY TEST LOCATION AND DATE
- ▲ 0/0 – IN TRENCH SLURRY TEST LOCATION AND DATE
- – CUTOFF WALL BACKFILL
- – LOWER CLAY TILL
- – CUTOFF WALL BACKFILL / LOWER CLAY TILL KEY
- GS. – GROUND SURFACE ELEVATION FROM SOIL BORING
- TOS. – TOP OF SAND ELEVATION FROM SOIL BORING
- BOS. – BOTTOM OF SAND ELEVATION FROM SOIL BORING
- TOC. – TOP OF CLAY ELEVATION FROM SOIL BORING

NOTES

1. PRODUCTION OF SLURRY WALL FOR THE PORTION SHOWN OCCURED ON NOVEMBER 18, 19, 20, 21, 22, 23, 24 AND 25, 1996 AND NOVEMBER 9, 10, AND 11, 1997.
2. SOUNDINGS WERE TAKEN EVERY TEN FEET DURING CONSTRUCTION. SOUNDINGS AT 20' INTERVALS ARE REFLECTED ON DRAWING. FOR CLARITY, ELEVATION IDENTIFIED ON AS-BUILT DRAWING ARE EVERY 100'±.
3. STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION. (I.E., CONSTRUCTION STAKING). THE AS-BUILT CUTOFF WALL CENTERLINE COORDINATES ARE PRESENTED ON THE KEY MAP (I.E., AS-BUILT SURVEY POSITION) WITH ASSOCIATED CONSTRUCTION STATIONING. AS-BUILT LENGTHS BETWEEN CONSTRUCTION STATIONS ARE ALSO SHOWN ON KEY MAP.
4. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	BMC 3/98	JSB 3/98	AS-BUILT OF AREA A,B,C CUTOFF WALL PROFILE NTH PLATES 12 AND 13

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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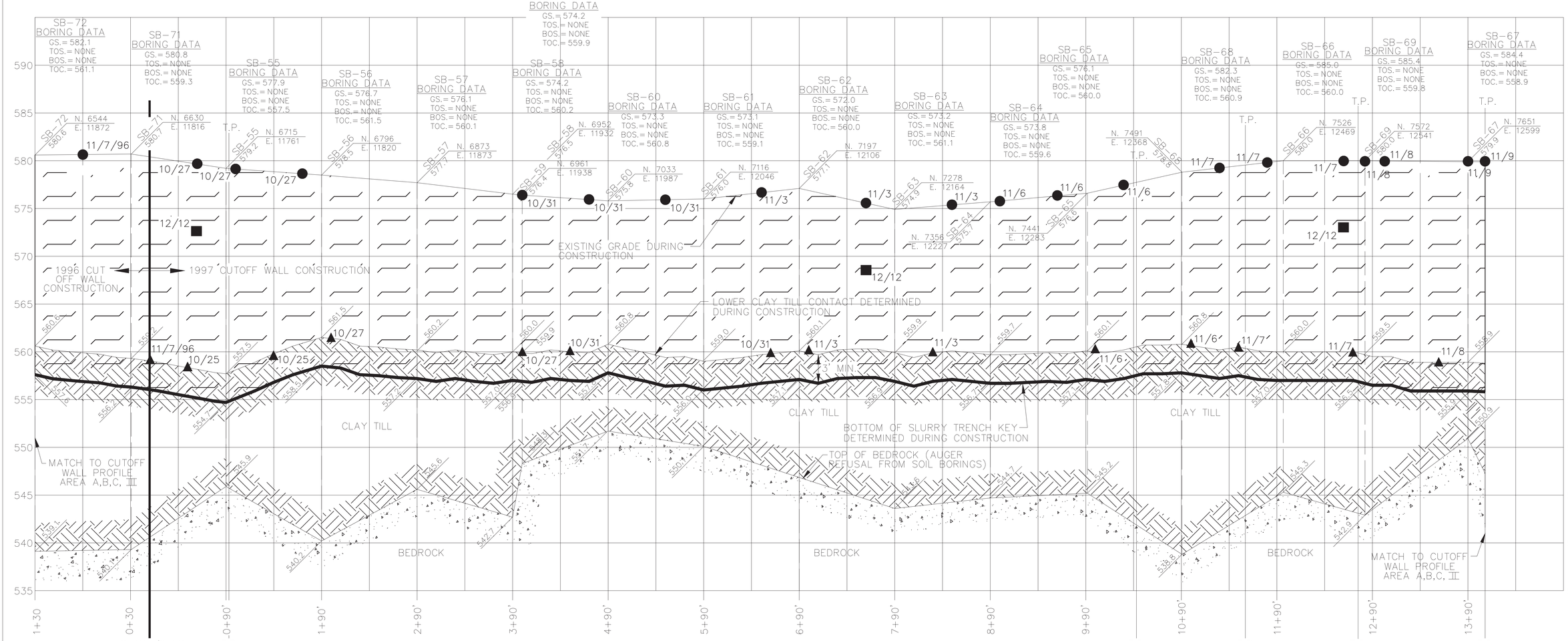
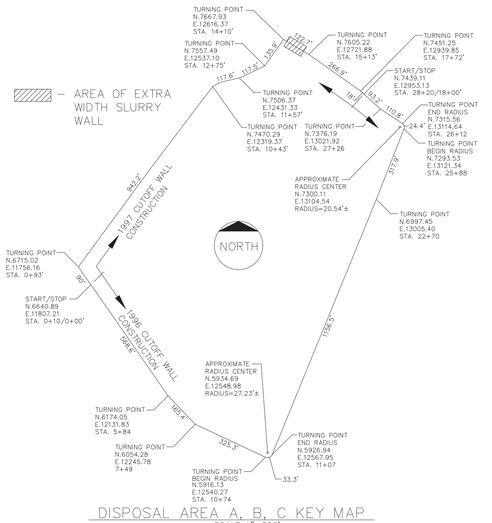
TITLE: VISTEON CORPORATION – MONROE PLANT
WASTE DISPOSAL SURFACE IMPOUNDMENTS
CUTOFF WALL PROFILE – ECU 2

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 2/98	AS NOTED	35 OF 65	1
DESIGNED: DATE BMC 2/98	REVIEWED: DATE JSB 2/98		
APPROVED: DATE	PROJECT NO. F66A1C	CADD FILE: F66A2C14	



CUTOFF WALL PROFILE STATION 1+30 TO STATION 14+10'

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



DISPOSAL AREA A, B, C KEY MAP
SCALE 1"=300'

LEGEND

- 0/0 – BACKFILL TEST LOCATION AND DATE
- 0/0 – PERMEABILTY TEST LOCATION AND DATE
- 0/0 – IN TRENCH SLURRY TEST LOCATION AND DATE
- – CUTOFF WALL BACKFILL
- – LOWER CLAY TILL
- – CUTOFF WALL BACKFILL / LOWER CLAY TILL KEY
- GS. – GROUND SURFACE ELEVATION FROM SOIL BORING
- TOS. – TOP OF SAND ELEVATION FROM SOIL BORING
- BOS. – BOTTOM OF SAND ELEVATION FROM SOIL BORING
- TOC. – TOP OF CLAY ELEVATION FROM SOIL BORING

NOTES

1. PRODUCTION OF SLURRY WALL FOR THE PORTION SHOWN OCCURED ON NOVEMBER 7, 1996 OCTOBER 25, 27, AND 31 AND NOVEMBER 3, 6, 7, 8 AND 9 1997.
2. SOUNDINGS WERE TAKEN EVERY TEN FEET DURING CONSTRUCTION. SOUNDINGS AT 20' INTERVALS ARE REFLECTED ON DRAWING. FOR CLARITY, ELEVATION IDENTIFIED ON AS-BUILT DRAWING ARE EVERY 100'±.
3. STATIONING SHOWN WAS UTILIZED DURING CUTOFF WALL CONSTRUCTION. (I.E., CONSTRUCTION STAKING). THE AS-BUILT CUTOFF WALL CENTERLINE COORDINATES ARE PRESENTED ON THE KEY MAP (I.E., AS-BUILT SURVEY POSITION) WITH AS-SOCIATED CONSTRUCTION STATIONING. AS-BUILT LENGTHS BETWEEN CONSTRUCTION STATIONS ARE ALSO SHOWN ON KEY MAP.
4. CQA TEST AND SOUNDING DATA IS CONTAINED WITHIN THE CQA REPORT.

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	BMC 3/98	JSB 3/98	AS-BUILT OF AREA A,B,C CUTOFF WALL PROFILE NTH PLATES 12 AND 13

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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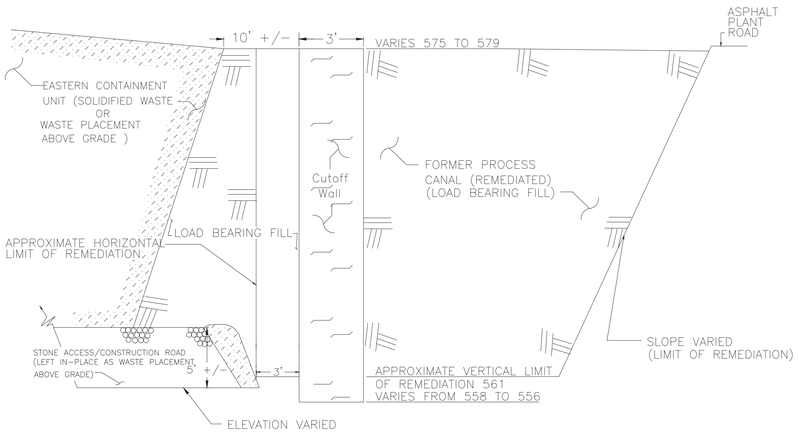
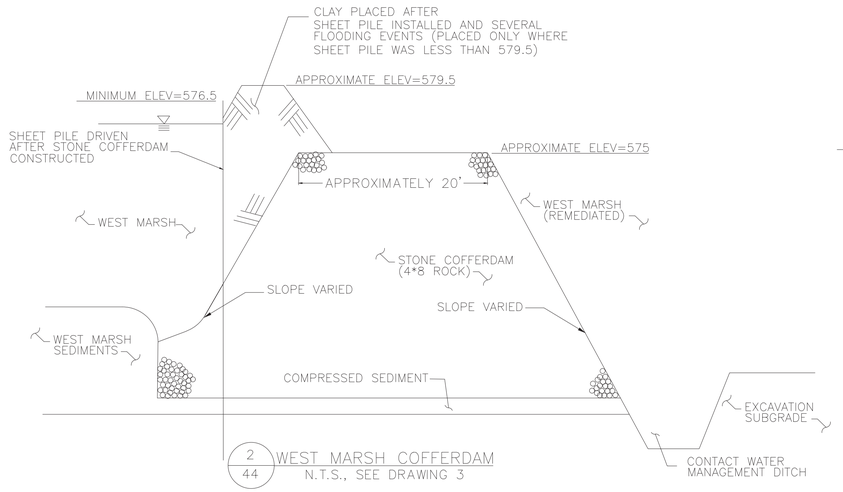
TITLE: VISTEON CORPORATION – MONROE PLANT
WASTE DISPOSAL SURFACE IMPOUNDMENTS
CUTOFF WALL PROFILE – ECU 1

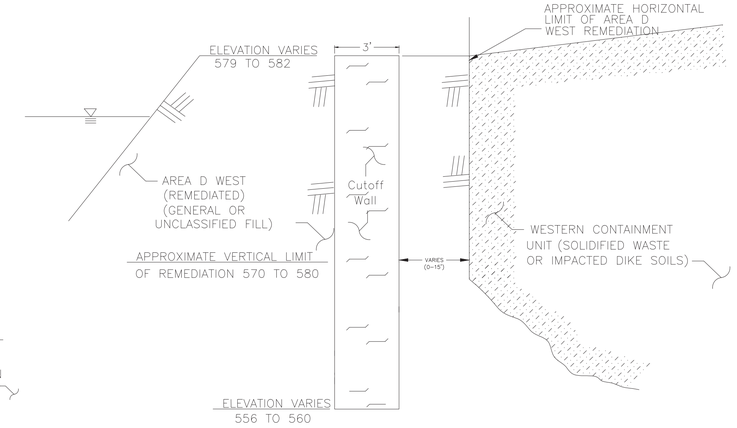
DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
BMC 2/98	AS NOTED	34 OF 65	1
DESIGNED: DATE BMC 2/98	REVIEWED: DATE JSB 2/98		
APPROVED: DATE . .	PROJECT NO. F66A1C	CADD FILE: F66A2C13	



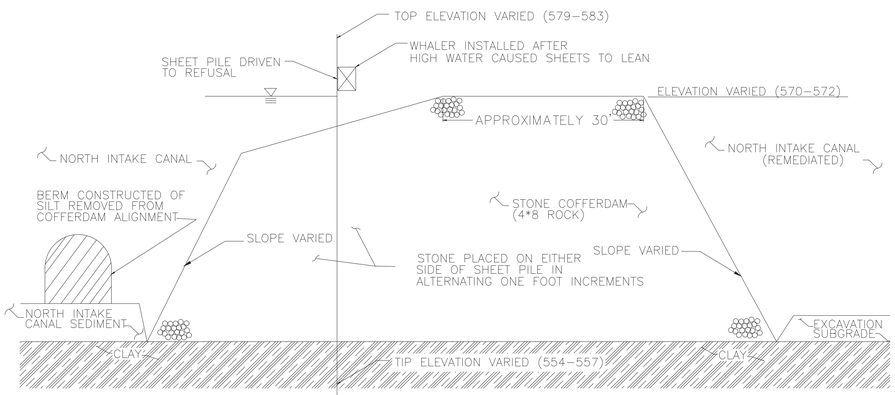
1/44 PROCESS CANAL CLOSURE LIMIT AT CUTOFF WALL
N.T.S., SEE DRAWING 2



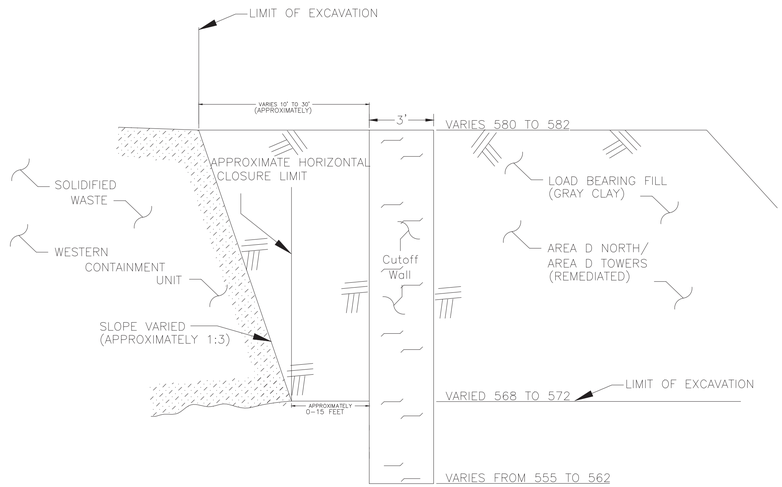
2/44 WEST MARSH COFFERDAM
N.T.S., SEE DRAWING 3



3/44 AREA D WEST CLOSURE AT CUTOFF WALL
N.T.S., SEE DRAWING 3



4/44 NORTH INTAKE CANAL COFFERDAM
N.T.S., SEE DRAWING 4



5/44 AREA D NORTH/AREA D TOWER CLOSURE LIMIT AT CUTOFF WALL
N.T.S., SEE DRAWING 4

Visteon

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	AS 12/99	LWB 12/99	AS-BUILT DRAWINGS

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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TITLE: VISTEON CORPORATION - MONROE PLANT
WASTE DISPOSAL SURFACE IMPOUNDMENTS DETAIL 1

DRAWN: AS	DATE 12/99	SCALE: AS NOTED	DRAWING NO. 44 OF 65	REV. NO. 1
DESIGNED: LWB	DATE 12/99	REVIEWED: JSB	DATE 12/99	
APPROVED: .	DATE .	PROJECT NO. F66A2C	CADD FILE: F66A2C12	

DWG. NO. 5 OF 65

PROJ. NO. F66A2C

AS-BUILT SAMPLE LOCATIONS
WEST MARSH AND D-WEST

SAMPLE GN#	NORTH COORDINATE	EAST COORDINATE
60	8690.0	11385.0
81	8735.0	11295.0
81R1C	8735.0	11295.0
81R1N	8757.5	11295.0
81R1E	8735.0	11317.5
82	8735.0	11340.0
82R1C	8735.0	11340.0
82R1N	8757.5	11340.0
82R1S	8712.5	11340.0
82R1E	8735.5	11362.5
83	8735.5	11385.0
83R1C	8735.5	11385.0
83R1N	8735.5	11385.0
83R1S	8712.5	11385.0
83R1E	8735.0	11407.5
84	8735.0	11430.0
84R1C	8735.0	11430.0
84R1N	8757.5	11430.0
84R1S	8712.5	11430.0
84R1E	8735.0	11452.5
84R2N	8757.5	11430.0
86	8735.0	11520.0
104	8780.0	11295.0
105	8780.0	11340.0
106	8780.0	11385.0
107	8780.0	11430.0
126	8825.0	11250.0
129	8825.0	11385.0
132	8825.0	11520.0
133	8825.0	11565.0
145	8872.0	11070.0
146	8870.0	11115.0
150	8870.0	11295.0
151	8870.0	11340.0
154	8870.0	11475.0
158	8870.0	11655.0
170	8915.0	11160.0
177	8915.0	11475.0
190	8960.0	11025.0
191	8960.0	11070.0
194	8960.0	11205.0
197	8960.0	11340.0
201	8960.0	11520.0
204	8960.0	11655.0
210	9005.0	10890.0
213	9005.0	11025.0
214	9005.0	11070.0
216	9005.0	11160.0
218	9005.0	11250.0
226	9005.0	11610.0
229	9005.0	11745.0
229R1C	9005.0	11745.0
229R1N	9027.5	11745.0
229R1S	8982.5	11745.0
229R1E	9005.0	11767.5
229R1W	9005.0	11722.5
231	9050.0	10800.0
233	9050.0	10890.0
234	9050.0	10935.0
234R1C	9050.0	10935.0
234R1N	9072.5	10935.0
234R1S	9027.5	10935.0

AS-BUILT SAMPLE LOCATIONS
WEST MARSH AND D-WEST

SAMPLE GN#	NORTH COORDINATE	EAST COORDINATE
234R1E	9050.0	10957.5
234R1W	9050.0	10912.5
240	9050.0	11205.0
245	9050.0	11430.0
250	9050.0	11655.0
255	9095.0	10845.0
256	9095.0	10890.0
259	9095.0	11025.0
263	9095.0	11205.0
266	9095.0	11340.0
268	9095.0	11430.0
270	9095.0	11520.0
273	9095.0	11655.0
281	9140.0	10980.0
288	9140.0	11295.0
289	9140.0	11340.0
289R1C	9140.0	11340.0
289R1N	9162.5	11340.0
289R1S	9117.5	11340.0
289R1E	9140.0	11362.5
289R1W	9140.0	11317.5
292	9140.0	11475.0
302	9185.0	1089.0
305	9185.0	11025.0
306	9185.0	11070.0
307	9185.0	11115.0
308	9185.0	11160.0
314	9185.0	11430.0
315	9185.0	11475.0
316	9185.0	11520.0
328	9230.0	11025.0
329	9230.0	11070.0
331	9230.0	11160.0
332	9230.0	11205.0
333	9230.0	11250.0
334	9230.0	11295.0
336	9230.0	11385.0
348	9275.0	10892.0
349	8275.0	10935.0
352	9275.0	11070.0
354	9275.0	11160.0
370	9320.0	10845.0
372	9320.0	10935.0
372R1C	9320.0	10935.0
372R1N	9342.5	10935.0
372R1S	9297.5	10935.0
372R1E	9320.0	10957.0
372R1W	9320.0	10912.5
375	9320.0	11070.0
396	9365.0	10980.0
396R1C	9365.0	10980.0
396R1N	9387.0	10980.0
396R1S	9342.5	10980.0
396R1E	9365.0	11002.5
396R1W	9365.0	11957.5

AS-BUILT SAMPLE LOCATIONS
AREA D NORTH/NORTH INTAKE CANAL GRID #1

SAMPLE GN#	NORTH COORDINATE	EAST COORDINATE
34	9304.8	11314.4
35	9285.9	11371.3
38	9229.4	11542.2
41	9172.8	11713.1
43	9135.1	11827.0
44	9116.3	11884.0
67	9361.7	11333.2
69	9324.0	11447.1
71	9286.3	11561.1
73	9248.6	11675.0
75	9210.9	11788.9
77	9173.2	11902.8
82	9079.0	12187.7
83	9060.1	12244.6
86	9003.6	12415.5
88	8965.9	12529.4
90	8928.2	12643.4
91	8909.4	12700.3
91RC1	8909.4	12700.3
91R1N	8937.8	12709.8
91R1S	8880.9	12690.9
91R1E	8899.9	12728.8
91R1W	8918.8	12671.8
95	8834.0	12928.2
96	8815.1	12985.1
100	9418.7	11352.1
102	9381.0	11466.0
103	9362.1	11523.0
104	9343.3	11579.9
105	9324.4	11636.9
108	9267.9	11807.8
114	9154.8	12149.5
117	9098.3	12320.4
119	9060.6	12434.4
120	9041.7	12491.3
123	8985.2	12662.2
126	8928.6	12833.1
127	8909.8	12890.1
129	8872.1	13004.0

AS-BUILT SAMPLE LOCATIONS
AREA D NORTH/NORTH INTAKE CANAL GRID #2

SAMPLE GN#	NORTH COORDINATE	EAST COORDINATE
1	9427.2	11345.5
5	9396.4	11447.0
7	9380.2	11497.4
8	9371.8	11522.6
11	9346.5	11598.0
12	9338.1	11623.1
15	9311.6	11698.0
16	9303.7	11723.3
18	9288.0	11774.0
24	9236.9	11924.6
25	9228.3	11949.6
31	9174.9	12099.4
38	9116.6	12275.5
39	9108.3	12300.7
40	9099.9	12325.8
44	9063.3	12425.3
48	9032.5	12526.8
53	8993.6	12653.6
58	8953.5	12779.9
62	8912.4	12877.8
64	8893.6	12927.4
66	8888.5	12981.7
69	9433.4	11375.6
72	9410.6	11451.9
74	9394.4	11502.3
79	9352.3	11628.0
80	9344.3	11653.5
81	9335.9	11678.4
83	9317.9	11728.2
86	9294.2	11804.2
91	9251.1	11929.4
94	9225.0	12004.6
95	9216.7	12029.7
97	9199.0	12079.1
100	9172.4	12154.6
103	9147.5	12229.5
111	9077.4	12430.2
119	9016.0	12632.6
133	8910.8	12988.3

AS-BUILT SAMPLE LOCATIONS
AREA D-NORTH /NORTH INTAKE CANAL GRID#1 (CONTINUED)

SAMPLE GN#	NORTH COORDINATE	EAST COORDINATE
14	9002.8	12036.0
15	8983.9	12093.0
17	8946.2	12206.9
20	8889.7	12377.8
20R1C	8889.7	12377.8
20R1N	8918.2	12387.2
20R1E	8880.2	12406.3
20R1W	8899.1	12349.3
21	8870.8	12434.8
22	8852.0	12491.8
24	8829.3	12610.6
24R1C	8829.3	12610.6
24R1S	8800.9	12601.2
24R1E	8819.9	12639.1
24R1W	8838.8	12582.2
26	8791.9	12724.3
26R1C	8791.9	12724.3
26R1N	8820.3	12733.7
26R1S	8763.4	12714.9
26R1W	8801.3	12695.8
46	9078.6	11997.9
47	9059.7	12054.9
47R1C	9059.7	12054.9
47N	9088.2	12064.3
47R1S	9031.2	12045.5
47R1E	9050.3	12083.4
47R1W	9069.1	12026.4
47ER2	9097.6	12035.8
47ER1	9078.8	12092.8
48	9040.9	12111.9
48R1C	9049.9	12111.9
48N	9069.4	12121.3
48R1S	9012.4	12102.4
48R1E	9031.5	12140.3
49	9022.0	12168.8
49R1C	9022.0	12168.8
49N	9050.5	12178.2
49R1S	8993.5	12159.4
49R1E	9012.6	12197.3
51	8984.3	12282.7
52	8965.5	12339.7
52R1C	8965.5	12339.7
52N	8994.3	12349.6
52R1S	8937.0	12330.3
52R1E	8956.1	12368.2
52R1W	8974.9	12311.2
54N	8956.3	12463.1
55	8908.9	12510.6
56N	8910.6	12577.0
57	8871.2	12624.5
57R1C	8871.2	12624.5
57N	8899.7	12633.9
57R1S	8842.8	12615.1
57R1E	8861.8	12653.0
57R1W	8880.7	12596.0

AS-BUILT SAMPLE LOCATIONS
AREA D TOWER PAD

SAMPLE GN#	NORTH COORDINATE	EAST COORDINATE
007	8507.0	12717.0
014	8530.0	12632.0
015	8530.0	12667.0
016	8530.0	12702.0
022	8565.0	12562.0
023	8565.0	12597.0
023C	8565.0	12597.0
023N	8582.5	12597.0
023S	8547.5	12597.0
023E	8565.0	12579.5
023W	8565.0	12614.5
027	8565.0	12732.5
031	8600.0	12527.0
031C	8600.0	12527.0
031N	8617.5	12527.0
031S	8582.5	12527.0
031E	8600.0	12544.5
031W	8600.0	12509.0
033	8600.0	12597.0
037	8600.0	12737.0
038	8600.0	12742.5
040	8635.0	12497.0
041	8635.0	12527.0
045	8635.0	12667.0
045R1C	8635.0	12667.0
045R1N	8652.5	12667.0
045R1S	8617.5	12667.0
045R1E	8635.0	12684.5
045R1W	8635.0	12649.5
045R1NA	8652.5	12667.0
045R2N	8670.0	12667.0
045R2E	8652.5	12684.5
045R2W	8652.5	12649.5
050	8670.0	12492.0
052	8600.0	12562.0
052R1C	8670.0	12562.0
052R1N	8687.5	12562.0
052R1S	8652.5	12562.0
052R1E	8670.0	12579.5
052R1W	8670.0	12544.5
056	8670.0	12702.0
056R1C	8670.0	12702.0
056R1N	8687.5	12702.0
056R1S	8652.5	12702.0
056R1E	8670.0	12719.5
056R1W	8670.0	12684.5
057	8670.0	12737.0
057R1C	8670.0	12737.0
057R1S	8652.5	12737.0
064	8705.0	12632.0
070	8740.0	12511.0
071	8740.0	12527.0
073	8740.0	12597.0
074	8740.0	12632.0
076	8740.0	12702.0
092	8804.5	12562.0

AS-BUILT SAMPLE LOCATIONS
PROCESS CANAL

SAMPLE GN#	NORTH COORDINATE	EAST COORDINATE
1	7561.0	12356.2
5	7531.2	12329.8
7	7496.1	12379.7
10	7484.4	12323.3
15	7420.1	12277.0
16	7404.3	12230.5
19	7356.5	12227.4
21	7323.0	12203.4
23	7291.7	12180.8
26	7243.3	12112.6
29	7194.3	12108.5
30	7178.1	12066.2
30R	7178.2	12065.9
30RE	7167.0	12085.0
30RN	7195.0	12080.0
30RS	7163.0	12055.0
36	7082.3	11994.5
36R	7082.1	11994.3
36RE	7070.0	12010.0
36RN	7097.0	12007.0
36RS	7065.0	11982.0
39	7033.8	11990.5
43	6970.1	11940.9
50	6859.2	11825.8
51	6839.1	11846.9
54	6794.7	11778.9
55	6777.7	11800.6
62	6729.5	11732.9
63	6707.9	11757.8
64	6694.1	11773.1
68	6661.9	11748.0
71	6643.6	11711.2
74	6632.9	11660.9
76	6599.7	11703.4
80	6568.6	11676.8
81	6550.0	11700.0
83	6553.4	11637.2
84	6538.7	11659.5

NOTE:

1. AS BUILT VERIFICATION SAMPLE LOCATIONS ARE REFLECTED ON DRAWINGS 2 THROUGH 4.

2. SURVEY CONTROL POINTS FOR THE SITE ARE SHOWN ON DRAWINGS 64 AND 65.

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	JSB 10/99	AS-BUILT DRAWINGS

MEC inc

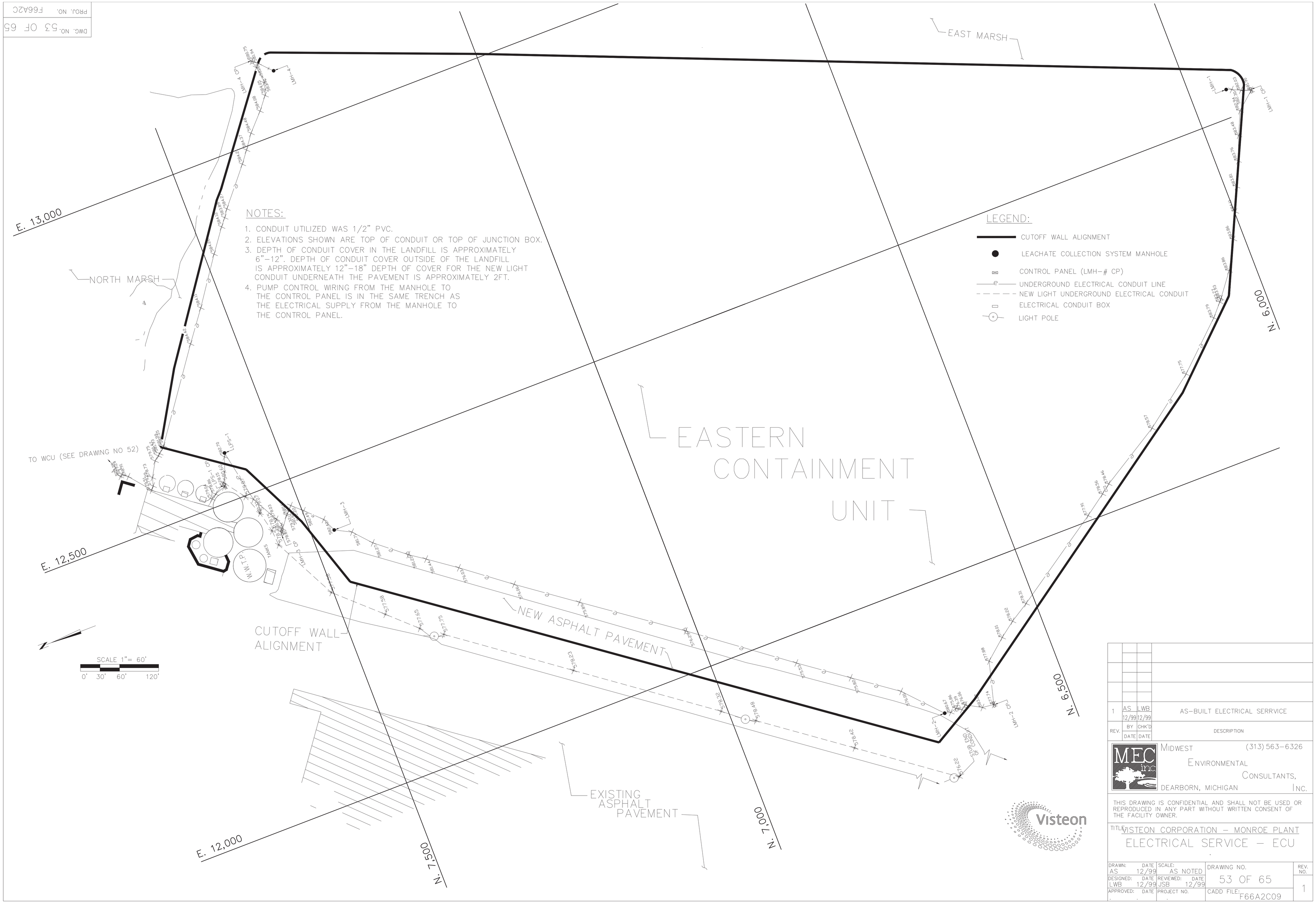
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION MONROE STAMPING PLANT
WASTE DISPOSAL SURFACE IMPOUNDMENTS
CLOSURE SAMPLE LOCATIONS

DRAWN: AS DATE 10/99	SCALE: AS NOTED	DRAWING NO. 5 OF 65	REV. NO. 1
DESIGNED: BMC DATE 4/98	REVIEWED: JSB DATE 10/99		
APPROVED: . DATE .	PROJECT NO. F66A2C	CADD FILE: F66A2C11	

DWG. NO. 53 OF 65
PROJ. NO. F66A2C



NOTES:

1. CONDUIT UTILIZED WAS 1/2" PVC.
2. ELEVATIONS SHOWN ARE TOP OF CONDUIT OR TOP OF JUNCTION BOX.
3. DEPTH OF CONDUIT COVER IN THE LANDFILL IS APPROXIMATELY 6"–12". DEPTH OF CONDUIT COVER OUTSIDE OF THE LANDFILL IS APPROXIMATELY 12"–18" DEPTH OF COVER FOR THE NEW LIGHT CONDUIT UNDERNEATH THE PAVEMENT IS APPROXIMATELY 2FT.
4. PUMP CONTROL WIRING FROM THE MANHOLE TO THE CONTROL PANEL IS IN THE SAME TRENCH AS THE ELECTRICAL SUPPLY FROM THE MANHOLE TO THE CONTROL PANEL.

LEGEND:

- CUTOFF WALL ALIGNMENT
- LEACHATE COLLECTION SYSTEM MANHOLE
- CONTROL PANEL (LMH–# CP)
- UNDERGROUND ELECTRICAL CONDUIT LINE
- NEW LIGHT UNDERGROUND ELECTRICAL CONDUIT
- ELECTRICAL CONDUIT BOX
- LIGHT POLE

REV.	BY / DATE	CHK'D / DATE	DESCRIPTION
1	AS 12/99	LWB 12/99	AS–BUILT ELECTRICAL SERRVICE

MEC inc

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563–6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION – MONROE PLANT
ELECTRICAL SERVICE – ECU

DRAWN: AS	DATE 12/99	SCALE: AS NOTED	DRAWING NO. 53 OF 65	REV. NO. 1
DESIGNED: LWB	DATE 12/99	REVIEWED: JSB	DATE 12/99	
APPROVED:	DATE	PROJECT NO.	CADD FILE: F66A2C09	

DWG. NO. 3 OF 65
PROJ. NO. F66A2C

E. 10,750 E. 11,000 E. 11,250 E. 11,500 E. 11,750
N. 9,250 N. 9,000 N. 8,750

STERLING STATE PARK DIKE
CLOSURE LIMIT
NORTH INTAKE CANAL
WEST MARSH
WEST MARSH COFFERDAM (2A)
CLOSURE LIMIT
AREA D WEST
RUINS
TANKS
AREA OF VISIBLE SIDEWALL STAINING
GRID INTERVAL 45'
AREA D WEST (2A) CLOSURE LIMIT AT CUTOFF WALL

N
Scale 1"=40'
0' 20' 40' 80'

LEGEND
- VISIBLE SIDEWALL STAINING
- SAMPLED GRID POINT
- CONCRETE PAVEMENT

NOTE
1. AS-BUILT INFORMATION WAS OBTAINED FROM VARIOUS FIELD SURVEYS PERFORMED BY MIDWEST ENVIRONMENTAL CONSULTANTS, INC BETWEEN DECEMBER 1996 AND JUNE 1997.
2. FOR SURVEY SAMPLE LOCATIONS, SEE DRAWING 5.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	JSB 10/99	AS-BUILT DRAWINGS NTH PLATE 43

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

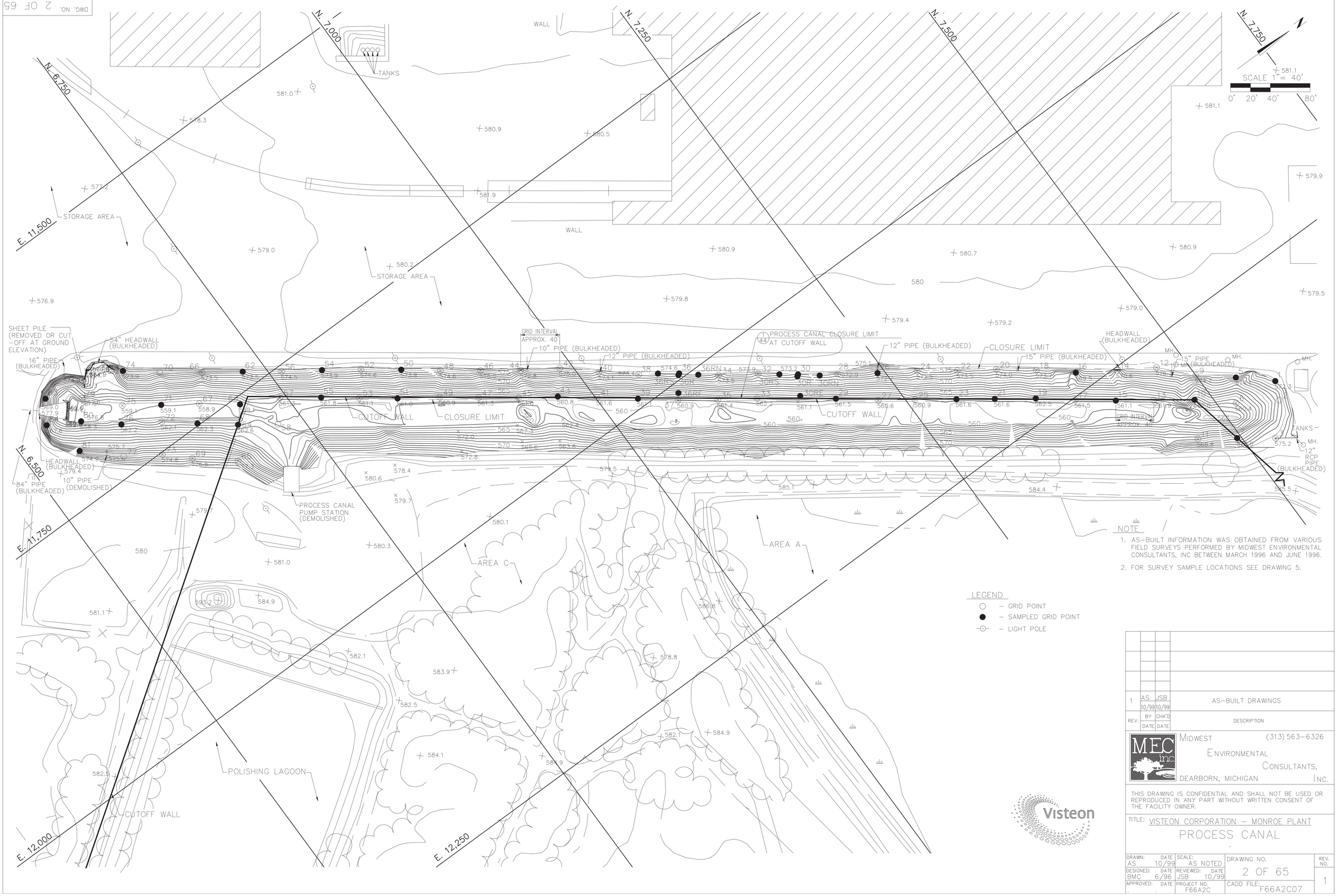
THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION, MONROE STAMPING PLANT
WASTE DISPOSAL SURFACE IMPOUNDMENTS
WEST MARSH AND AREA D WEST CLOSURE

DRAWN:	DATE	SCALE:	DRAWING NO.	REV. NO.
AS	10/99	AS NOTED	3 OF 65	1
DESIGNED: BMC	DATE 4/98	REVIEWED: JSB	DATE 10/99	
APPROVED:	DATE	PROJECT NO. F66A2C	CADD FILE: F66A2C08	

DWG. NO. 2 OF 65

PROJ. NO. F66A2C



LEGEND

○ – GRID POINT

● – SAMPLED GRID POINT

⊙– – LIGHT POLE

NOTE

1. AS-BUILT INFORMATION WAS OBTAINED FROM VARIOUS FIELD SURVEYS PERFORMED BY MIDWEST ENVIRONMENTAL CONSULTANTS, INC BETWEEN MARCH 1996 AND JUNE 1996.
2. FOR SURVEY SAMPLE LOCATIONS SEE DRAWING 5.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	JSB 10/99	AS-BUILT DRAWINGS

MEC inc

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION – MONROE PLANT

PROCESS CANAL

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	2 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
BMC 6/96	JSB 10/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C07	

WESTERN CONTAINMENT UNIT

N

Scale 1"=80'
0' 20' 40' 80'

BUMPER POST
LMH5 (CP)
VALVE BOX (EXISTING)
EXISTING CONCRETE PAVEMENT
BUMPER POST (EXISTING)
PCW-10
N.8500
12" CLASS IV RCP
EXISTING STORM MANHOLE
TRENCH DRAIN
GW-15
FORMER DRUM STORAGE AREA SWMU
APPROXIMATE BOUNDARY OF FORMER WEST LAGOON AREA SWMU
LIMIT OF CONCRETE AROUND TRENCH DRAIN
PCW-11
EXISTING ASPHALT PAVEMENT
EXISTING CONCRETE PAVEMENT
BUILDING
BUILDING
N.8000
E 11500
E.12000

LEGEND:

- CUTOFF WALL
- CONCRETE PAVEMENT
- CENTERLINE OF 12" WIDE TRENCH DRAIN
- NEW ASPHALT PAVEMENT
- PCW-10 — POST-CLOSURE DETECTION MONITORING WELL
- GW-15 — GROUNDWATER INVESTIGATION MONITORING WELL
- 583.41 — ASPHALT OR TOP OF TRENCH DRAIN ELEVATION

NOTE:

1. INVERT ELEVATIONS FOR THE TRENCH DRAIN AND 12" RCP ARE LOCATED IN MEC'S DAILY FIELD REPORTS FOR 1999 (APPENDIX M).

REV.	BY	DATE	CHK'D	DATE	DESCRIPTION
1	AS	12/99	LWB	12/99	AS - BUILT DRAWINGS

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION - MONROE PLANT
WESTERN CONTAINMENT UNIT PAVING

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 12/99	AS NOTED	52 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 12/99	JSB 12/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C06	

Visteon

PCS LINE AS-BUILT SUMMARY TABLE

POINT ID	NORTH	EAST	ELEVATION
EP- 1	7,308.7	13,099.9	575.3
EP- 2	7,364.0	13,012.2	575.0
EP- 3	7,420.9	12,938.2	574.7
EP- 4	7,479.8	12,856.3	574.1
EP- 5	7,531.9	12,778.3	573.5
EP- 6	7,590.6	12,691.3	574.0
EP- 7	5,940.9	12,541.6	576.1
EP- 8	6,028.1	12,329.5	575.1
EP- 9	6,079.3	12,257.5	574.8
EP- 10	6,133.4	12,192.6	574.6
EP- 11	6,251.1	12,107.8	574.4
EP- 12	6,340.7	12,045.6	574.2
EP- 13	6,490.0	11,942.8	573.9
EP- 14	6,697.4	11,804.8	573.4
EP- 15	6,747.0	11,866.4	573.3
EP- 16	6,804.6	11,917.2	573.0
EP- 17	6,875.5	11,962.1	572.8
EP- 18	6,940.0	12,020.5	572.6
EP- 19	7,017.9	12,081.6	572.3
EP- 20	7,097.6	12,140.5	572.1
EP- 21	7,176.7	12,199.0	571.9
EP- 22	7,261.2	12,259.6	
EP- 23	7,341.4	12,318.7	571.5
EP- 24	7,424.9	12,374.7	571.3
EP- 25	7,469.1	12,401.1	
EP- 26	7,469.1	12,400.6	
EP- 27	7,469.5	12,397.6	
EP- 28	7,470.6	12,401.1	
EP- 29	7,511.4	12,497.4	
EP- 30	6,533.9	11,913.3	
EP- 31	6,601.3	11,865.4	574.2
EP- 32	6,668.8	11,803.8	574.0
EP- 33	6,673.0	11,799.2	574.0
EP- 34	6,679.8	11,793.6	
EP- 35	7,636	12,627	
EP- 36	7,637	12,613	
EP- 37	7,303.9	13,097.0	575.6
EP- 38	7,316.5	13,085.6	575.3

LCRS MANHOLE AS- BUILT SUMMARY TABLE

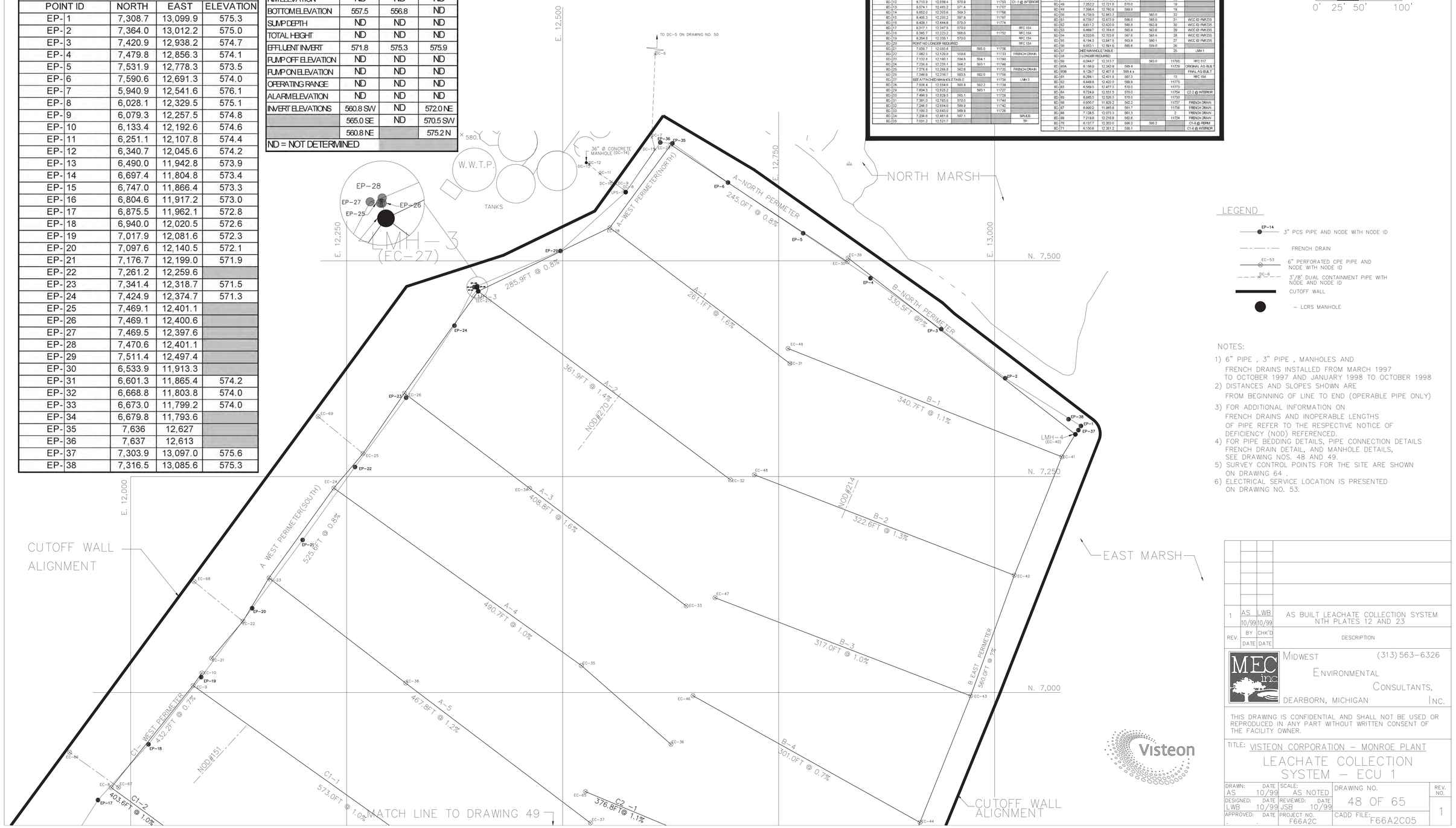
MANHOLE	LMH- 3	LMH- 4	LPS- 1
NORTH	7,464.7	7,299.0	7,579.5
EAST	12,402.2	13,093.5	12,572.9
RIM ELEVATION	ND	ND	ND
BOTTOM ELEVATION	557.5	556.8	ND
SUMP DEPTH	ND	ND	ND
TOTAL HEIGHT	ND	ND	ND
EFFLUENT INVERT	571.8	575.3	575.9
PUMP OFF ELEVATION	ND	ND	ND
PUMP ON ELEVATION	ND	ND	ND
OPERATING RANGE	ND	ND	ND
ALARM ELEVATION	ND	ND	ND
INVERT ELEVATIONS	560.8 SW	ND	572.0 NE
	565.0 SE	ND	570.5 SW
	560.8 NE		575.2 N
ND = NOT DETERMINED			

3"/8" DUAL CONTAINMENT PIPE AS- BUILT SUMMARY TABLE

NODE ID	NORTH	EAST	ELEVATION	COMMENTS
DC-6	7,739.3	12,607.1	576.4	
DC-7	7,654.0	12,600.0		END 8"
DC-8	7,582.1	12,570.7	575.9	START 3" (LPS-1)
DC-9	7,589.1	12,561.5	576.4	START 8"
DC-10	7,591.5	12,556.5	576.4	CUTOFF WALL PENETRATION
DC-11	7,600.8	12,542.9	576.4	
DC-12	7,612.3	12,530.5	576.4	
DC-13	7,611.5	12,530.9	575.9	
DC-14	7,613.6	12,527.3		36" MH @ WWTP
DC-15	7,629.0	12,607.0		

POINT ID	NORTH	EAST	LATERAL ELEVATION	PERIMETER ELEVATION	NTH POINT	COMMENTS
EC-1	6,130.1	12,233.8		566.3		RFC 154
EC-2	6,194.4	12,156.8	566.1	566.1	11766	RFC 154
EC-3	POINT NO LONGER REQUIRED				11784	RFC 154
EC-4	POINT NO LONGER REQUIRED				11782	RFC 154
EC-5	SEE ATTACHED MANHOLE TABLE				11748	LMH 2
EC-6	6,894.5	11,931.8	583.0	581.5	11749	
EC-7	6,776.2	11,896.4	582.7	583.4	11750	
EC-8	6,666.9	11,977.5	585.2	583.4	11751	
EC-9	7,008.1	12,072.1	585.4	584.8	11735	
EC-10	7,022.6	12,093.3		584.7	11783	
EC-11	6,776.4	12,397.5	589.3		11769	
EC-12	6,713.9	12,558.4	570.9		11733	C1-1 @ INTERIOR
EC-13	6,574.1	13,485.2	571.4		11757	
EC-14	6,652.0	12,303.6	569.3		11768	
EC-15	6,465.3	12,293.2	567.9		11767	
EC-16	6,438.1	12,444.6	570.0		11774	
EC-17	6,317.1	12,347.9	570.0			RFC 154
EC-18	6,366.7	12,223.2	568.6		11752	RFC 154
EC-19	6,204.8	12,335.1	570.0			RFC 154
EC-20	POINT NO LONGER REQUIRED					RFC 154
EC-21	7,059.7	12,093.6		565.0	11756	
EC-22	7,062.3	12,129.9	559.8		11733	FRENCH DRAIN
EC-23	7,132.9	12,160.1	564.8	564.1	11760	
EC-24	7,256.8	12,235.1	564.7	563.1	11746	
EC-25	7,276.8	12,266.8	562.6		11735	FRENCH DRAIN
EC-26	7,346.6	12,316.1	563.5	562.0	11758	
EC-27	SEE ATTACHED MANHOLE TABLE				11738	LMH 3
EC-28	7,538.4	12,554.6	565.9	562.2	11739	
EC-29	7,634.3	12,625.2		563.1	11727	
EC-30	7,498.3	12,629.1	565.1		11729	
EC-31	7,361.0	12,763.0	572.0		11749	
EC-32	7,246.5	12,634.0	569.9		11742	
EC-33	7,100.3	12,643.0	569.9		11726	
EC-34	7,236.8	12,461.6	567.1			SPLICE
EC-35	7,051.2	12,521.7				TP

POINT ID	NORTH	EAST	LATERAL ELEVATION	PERIMETER ELEVATION	NTH POINT	COMMENTS
ED-36	6,940.0	12,625.3	569.2	19	11731	
ED-37	6,949.0	12,532.0	570.3		11761	
ED-38	7,010.9	12,318.3	567.7			SPLICE
ED-39	7,503.2	12,830.4		564.9	15	
ED-40	CHED MANHOLE TABLE				12	LMH 4
ED-41	7,273.0	13,077.7	566.3	560.8	16	
ED-42	7,135.8	13,022.6	565.8	561.9	17	
ED-43	6,996.1	12,972.3	568.8	563.2	20	
ED-44	6,849.5	12,913.6	568.1	564.5	21	
ED-45	6,776.8	12,885.9		567.4	23	
ED-46	6,965.3	12,650.8	570.1		24	
ED-47	7,109.8	12,676.3	570.1		22	
ED-48	7,252.2	12,721.9	570.6		19	
ED-49	7,398.4	12,760.9	569.9		18	
ED-50	6,739.9	12,583.7		565.0	32	
ED-51	6,779.7	12,673.9	568.6	565.9	31	WCC ID FM1255
ED-52	6,611.2	12,620.0	565.6	563.8	30	WCC ID FM1235
ED-53	6,469.7	12,764.9	565.8	562.6	29	WCC ID FM1235
ED-54	6,333.6	12,703.8	567.6	561.4	28	WCC ID FM1235
ED-55	6,194.3	12,647.5	563.8	560.1	27	WCC ID FM1255
ED-56	6,053.1	12,591.6	565.6	559.0	26	
ED-57	CHED MANHOLE TABLE				25	LMH 1
ED-58	D LONGER REQUIRED					
ED-59	6,044.7	12,313.7		563.0	11765	RFC 117
ED-60A	6,156.9	12,343.9	569.4		11729	ORIGINAL AS-BUILT
ED-60B	6,129.7	12,407.8	569.4			FINAL AS-BUILT
ED-61	6,264.1	12,401.8	567.3		13	RFC 154
ED-62	6,449.8	12,422.0	569.9		11775	
ED-63	6,589.3	12,477.3	570.0		11773	
ED-64	6,724.9	12,531.3	570.0		11754	C2-2 @ INTERIOR
ED-65	6,865.3	12,526.3	570.0		11730	
ED-66	6,930.7	11,929.2	562.2		11737	FRENCH DRAIN
ED-67	6,800.2	11,985.8	591.7		11758	FRENCH DRAIN
ED-68	7,128.5	12,073.3	561.3		7	FRENCH DRAIN
ED-69	7,319.6	12,216.9	562.6		11734	FRENCH DRAIN
ED-70	6,137.7	12,353.9	566.3	560.2		C1-6 @ RBRM
ED-71	6,130.6	12,261.2	568.1			C1-6 @ INTERIOR



LEGEND

- EP-14 — 3" PCS PIPE AND NODE WITH NODE ID
- FRENCH DRAIN
- EC-53 — 6" PERFORATED CPE PIPE AND NODE WITH NODE ID
- DC-6 — 3"/8" DUAL CONTAINMENT PIPE WITH NODE AND NODE ID
- CUTOFF WALL
- LCRS MANHOLE

NOTES:

1) 6" PIPE , 3" PIPE , MANHOLES AND FRENCH DRAINS INSTALLED FROM MARCH 1997 TO OCTOBER 1997 AND JANUARY 1998 TO OCTOBER 1998
2) DISTANCES AND SLOPES SHOWN ARE FROM BEGINNING OF LINE TO END (OPERABLE PIPE ONLY)
3) FOR ADDITIONAL INFORMATION ON FRENCH DRAINS AND INOPERABLE LENGTHS OF PIPE REFER TO THE RESPECTIVE NOTICE OF DEFICIENCY (NOD) REFERENCED.
4) FOR PIPE BEDDING DETAILS, PIPE CONNECTION DETAILS FRENCH DRAIN DETAIL, AND MANHOLE DETAILS, SEE DRAWING NOS. 48 AND 49.
5) SURVEY CONTROL POINTS FOR THE SITE ARE SHOWN ON DRAWING 64 .
6) ELECTRICAL SERVICE LOCATION IS PRESENTED ON DRAWING NO. 53.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS BUILT LEACHATE COLLECTION SYSTEM NTH PLATES 12 AND 23

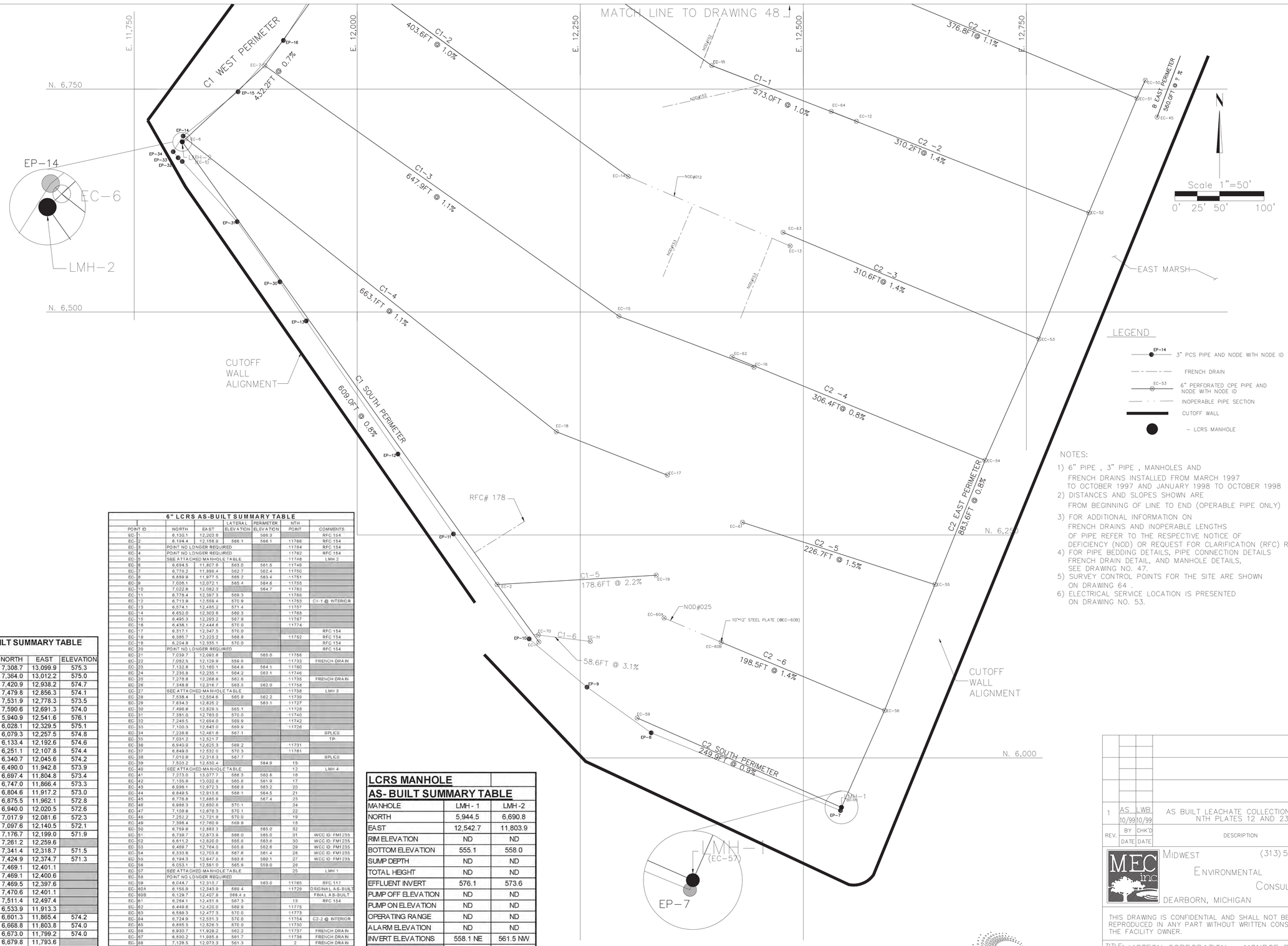
MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION – MONROE PLANT

LEACHATE COLLECTION SYSTEM – ECU 1

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	48 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 10/99	JSB 10/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C05	



LEGEND

- EP-14 — 3" PCS PIPE AND NODE WITH NODE ID
- FRENCH DRAIN
- EC-53 — 6" PERFORATED CPE PIPE AND NODE WITH NODE ID
- INOPERABLE PIPE SECTION
- CUTOFF WALL
- LCRS MANHOLE

NOTES:

1) 6" PIPE , 3" PIPE , MANHOLES AND FRENCH DRAINS INSTALLED FROM MARCH 1997 TO OCTOBER 1997 AND JANUARY 1998 TO OCTOBER 1998
2) DISTANCES AND SLOPES SHOWN ARE FROM BEGINNING OF LINE TO END (OPERABLE PIPE ONLY)
3) FOR ADDITIONAL INFORMATION ON FRENCH DRAINS AND INOPERABLE LENGTHS OF PIPE REFER TO THE RESPECTIVE NOTICE OF DEFICIENCY (NOD) OR REQUEST FOR CLARIFICATION (RFC) REFERENCED.
4) FOR PIPE BEDDING DETAILS, PIPE CONNECTION DETAILS FRENCH DRAIN DETAIL, AND MANHOLE DETAILS, SEE DRAWING NO. 47.
5) SURVEY CONTROL POINTS FOR THE SITE ARE SHOWN ON DRAWING 64 .
6) ELECTRICAL SERVICE LOCATION IS PRESENTED ON DRAWING NO. 53.

PCS LINE AS-BUILT SUMMARY TABLE

POINT ID	NORTH	EAST	ELEVATION
EP- 1	7,308.7	13,099.9	575.3
EP- 2	7,364.0	13,012.2	575.0
EP- 3	7,420.9	12,938.2	574.7
EP- 4	7,479.8	12,856.3	574.1
EP- 5	7,531.9	12,778.3	573.5
EP- 6	7,590.6	12,691.3	574.0
EP- 7	5,940.9	12,541.6	576.1
EP- 8	6,028.1	12,329.5	575.1
EP- 9	6,079.3	12,257.5	574.8
EP- 10	6,133.4	12,192.6	574.6
EP- 11	6,251.1	12,107.8	574.4
EP- 12	6,340.7	12,045.6	574.2
EP- 13	6,490.0	11,942.8	573.9
EP- 14	6,697.4	11,804.8	573.4
EP- 15	6,747.0	11,866.4	573.3
EP- 16	6,804.6	11,917.2	573.0
EP- 17	6,875.5	11,962.1	572.8
EP- 18	6,940.0	12,020.5	572.6
EP- 19	7,017.9	12,081.6	572.3
EP- 20	7,097.6	12,140.5	572.1
EP- 21	7,176.7	12,199.0	571.9
EP- 22	7,261.2	12,259.6	
EP- 23	7,341.4	12,318.7	571.5
EP- 24	7,424.9	12,374.7	571.3
EP- 25	7,469.1	12,401.1	
EP- 26	7,469.1	12,400.6	
EP- 27	7,469.5	12,397.6	
EP- 28	7,470.6	12,401.1	
EP- 29	7,511.4	12,497.4	
EP- 30	6,533.9	11,913.3	
EP- 31	6,601.3	11,865.4	574.2
EP- 32	6,668.8	11,803.8	574.0
EP- 33	6,673.0	11,799.2	574.0
EP- 34	6,679.8	11,793.6	
EP- 35	7,636	12,627	
EP- 36	7,637	12,613	
EP- 37	7,303.9	13,097.0	575.6
EP- 38	7,316.5	13,085.6	575.3

6" LCRS AS-BUILT SUMMARY TABLE

POINT ID	NORTH	EAST	LATERAL ELEVATION	PERIMETER ELEVATION	NTH POINT	COMMENTS
EC- 1	6,130.1	12,203.8		566.3		RFC 154
EC- 2	6,194.4	12,156.8	566.1	566.1	11766	RFC 154
EC- 3	POINT NO LONGER REQUIRED				11764	RFC 154
EC- 4	POINT NO LONGER REQUIRED				11762	RFC 154
EC- 5	SEE ATTACHED MANHOLE TABLE				11748	LMH 2
EC- 6	6,694.5	11,807.9	563.0	561.5	11748	
EC- 7	6,776.2	11,896.4	562.7	562.4	11750	
EC- 8	6,859.9	11,977.5	565.2	563.4	11751	
EC- 9	7,005.1	12,072.1	565.4	564.6	11755	
EC- 10	7,022.8	12,082.3		564.7	11763	
EC- 11	6,778.4	12,397.3	569.3		11760	
EC- 12	6,713.9	12,559.4	570.9		11753	C1-1 @ INTERIOR
EC- 13	6,574.1	12,485.2	571.4		11757	
EC- 14	6,652.0	12,303.6	569.3		11768	
EC- 15	6,495.3	12,293.2	567.9		11767	
EC- 16	6,438.1	12,448.6	570.0		11774	
EC- 17	6,317.1	12,347.5	570.0			RFC 154
EC- 18	6,385.7	12,223.2	568.6		11752	RFC 154
EC- 19	6,204.8	12,335.1	570.0			RFC 154
EC- 20	POINT NO LONGER REQUIRED					RFC 154
EC- 21	7,039.7	12,093.6		565.0	11756	
EC- 22	7,052.5	12,129.9	559.6		11733	FRENCH DRAIN
EC- 23	7,132.8	12,160.1	564.8	564.1	11760	
EC- 24	7,236.8	12,235.1	564.2	563.1	11746	
EC- 25	7,276.8	12,268.8	562.6		11735	FRENCH DRAIN
EC- 26	7,348.9	12,316.7	563.5	562.0	11758	
EC- 27	SEE ATTACHED MANHOLE TABLE				11738	LMH 3
EC- 28	7,538.4	12,554.6	565.9	562.2	11739	
EC- 29	7,634.3	12,625.2		563.1	11727	
EC- 30	7,498.9	12,829.5	565.1		11728	
EC- 31	7,381.0	12,763.0	570.0		11740	
EC- 32	7,245.5	12,684.0	569.9		11742	
EC- 33	7,100.3	12,643.0	569.9		11726	
EC- 34	7,236.6	12,461.6	567.1			SPLICE
EC- 35	7,031.2	12,521.7				TP
EC- 36	6,940.0	12,625.3	569.2		11731	
EC- 37	6,849.0	12,532.0	570.3		11761	
EC- 38	7,010.9	12,318.3	567.7			SPLICE
EC- 39	7,503.2	12,830.4		564.9	15	
EC- 40	SEE ATTACHED MANHOLE TABLE				12	LMH 4
EC- 41	7,273.0	13,077.7	566.3	560.8	16	
EC- 42	7,135.8	13,022.8	565.8	561.9	17	
EC- 43	6,998.1	12,972.5	566.8	563.2	20	
EC- 44	6,849.5	12,913.6	568.1	564.5	21	
EC- 45	6,778.8	12,885.9		567.4	23	
EC- 46	6,986.3	12,650.8	570.1		24	
EC- 47	7,109.8	12,676.5	570.1		22	
EC- 48	7,252.2	12,721.9	570.0		19	
EC- 49	7,398.4	12,760.9	569.9		18	
EC- 50	6,759.9	12,883.3		565.0	32	
EC- 51	6,739.7	12,873.9	566.0	565.0	31	WCC ID: FM1235
EC- 52	6,611.2	12,826.0	565.6	563.6	30	WCC ID: FM1235
EC- 53	6,469.7	12,764.0	566.8	562.6	29	WCC ID: FM1235
EC- 54	6,333.6	12,703.6	567.6	561.4	28	WCC ID: FM1235
EC- 55	6,194.3	12,647.5	563.8	560.1	27	WCC ID: FM1235
EC- 56	6,053.1	12,591.0	565.6	559.0	26	
EC- 57	SEE ATTACHED MANHOLE TABLE				25	LMH 1
EC- 58	POINT NO LONGER REQUIRED					
EC- 59	6,044.7	12,313.7		563.0	11765	RFC 117
EC- 60A	6,156.8	12,343.9	566.4		11729	ORIGINAL AS-BUILT
EC- 60B	6,129.7	12,407.8	568.4 1			FINAL AS-BUILT
EC- 61	6,264.1	12,431.8	567.3		13	RFC 154
EC- 62	6,449.8	12,420.0	569.9		11775	
EC- 63	6,589.3	12,477.3	570.0		11773	
EC- 64	6,724.9	12,531.3	570.0		11754	C2-2 @ INTERIOR
EC- 65	6,885.3	12,526.5	570.0		11730	
EC- 66	6,930.7	11,929.2	562.2		11737	FRENCH DRAIN
EC- 67	6,800.2	11,985.8	561.7		11736	FRENCH DRAIN
EC- 68	7,128.5	12,073.3	561.3		2	FRENCH DRAIN
EC- 69	7,319.6	12,216.9	562.6		11734	FRENCH DRAIN
EC- 70	6,137.7	12,203.0	566.3	566.2		CI-6 @ PERIM
EC- 71	6,130.6	12,261.2	568.1			CI-6 @ INTERIOR

LCRS MANHOLE AS- BUILT SUMMARY TABLE

MANHOLE	LMH - 1	LMH -2
NORTH	5,944.5	6,690.8
EAST	12,542.7	11,803.9
RIM ELEVATION	ND	ND
BOTTOM ELEVATION	555.1	558.0
SUMP DEPTH	ND	ND
TOTAL HEIGHT	ND	ND
EFFLUENT INVERT	576.1	573.6
PUMP OFF ELEVATION	ND	ND
PUMP ON ELEVATION	ND	ND
OPERATING RANGE	ND	ND
ALARM ELEVATION	ND	ND
INVERT ELEVATIONS	558.1 NE	561.5 NW
	560.7 SW	561.0 SE
ND = NOT DETERMINED		

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	AS 10/99	LWB 10/99	AS BUILT LEACHATE COLLECTION SYSTEM NTH PLATES 12 AND 23

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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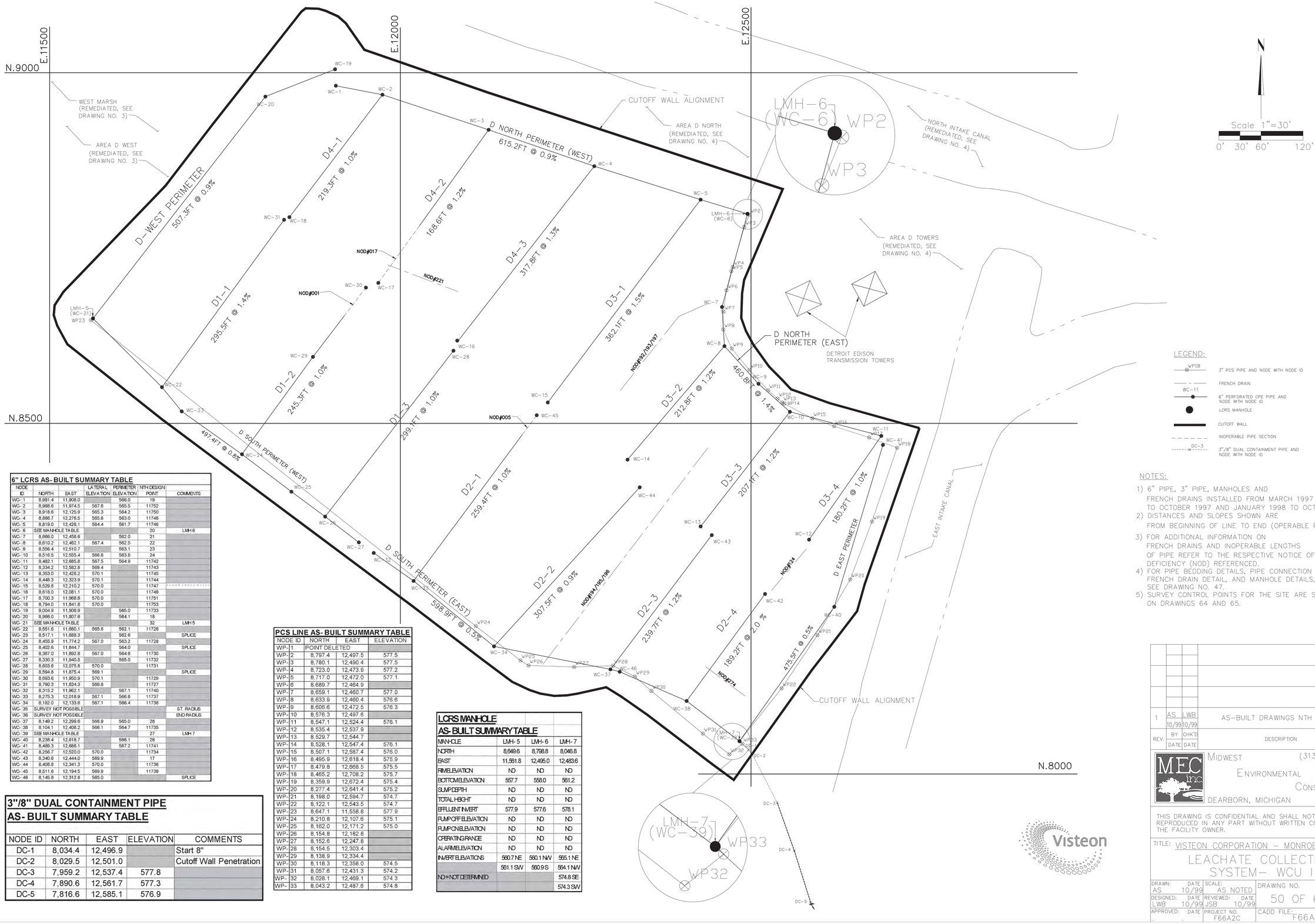
TITLE: VISTEON CORPORATION – MONROE PLANT

LEACHATE COLLECTION SYSTEM – ECU 2

DRAWN:	DATE	SCALE:	DRAWING NO.	REV. NO.
AS	10/99	AS NOTED	49 OF 65	1
DESIGNED: LWB	DATE 10/99	REVIEWED: JSB	DATE 10/99	
APPROVED: .	DATE .	PROJECT NO. F66A2C	CADD FILE: F66A2C05	

Visteon



NOTES:

1) 6" PIPE, 3" PIPE, MANHOLES AND FRENCH DRAINS INSTALLED FROM MARCH 1997 TO OCTOBER 1997 AND JANUARY 1998 TO OCTOBER 1998
2) DISTANCES AND SLOPES SHOWN ARE FROM BEGINNING OF LINE TO END (OPERABLE PIPE ONLY)
3) FOR ADDITIONAL INFORMATION ON FRENCH DRAINS AND INOPERABLE LENGTHS OF PIPE REFER TO THE RESPECTIVE NOTICE OF DEFICIENCY (NOD) REFERENCED.
4) FOR PIPE BEDDING DETAILS, PIPE CONNECTION DETAILS FRENCH DRAIN DETAIL, AND MANHOLE DETAILS, SEE DRAWING NO. 47.
5) SURVEY CONTROL POINTS FOR THE SITE ARE SHOWN ON DRAWINGS 64 AND 65.

6" LCRS AS- BUILT SUMMARY TABLE

NODE ID	NORTH	EAST	LATERAL ELEVATION	PERIMETER ELEVATION	NTH DESIGN POINT	COMMENTS
WC- 1	8,981.4	11,908.0		566.0	19	
WC- 2	8,988.6	11,974.5	567.6	565.5	11752	
WC- 3	8,918.6	12,125.9	565.3	564.2	11750	
WC- 4	8,886.7	12,276.5	565.6	563.0	11748	
WC- 5	8,819.0	12,428.1	564.4	561.7	11746	
WC- 6	SEE MANHOLE TABLE				20	LMH-6
WC- 7	8,666.0	12,458.6		562.0	21	
WC- 8	8,610.2	12,462.1	567.4	562.5	22	
WC- 9	8,556.4	12,510.7		563.1	23	
WC- 10	8,516.5	12,555.4	566.6	563.8	24	
WC- 11	8,482.1	12,685.8	567.5	564.9	11742	
WC- 12	8,334.2	12,582.8	569.4		11743	
WC- 13	8,353.0	12,428.2	570.1		11745	
WC- 14	8,448.3	12,323.9	570.1		11744	
WC- 15	8,529.8	12,210.2	570.0		11747	
WC- 16	8,618.0	12,081.1	570.0		11749	
WC- 17	8,700.3	11,968.6	570.0		11751	
WC- 18	8,794.0	11,841.8	570.0		11753	
WC- 19	9,004.9	11,906.9		565.0	11733	
WC- 20	8,986.0	11,807.6		564.1	18	
WC- 21	SEE MANHOLE TABLE				32	LMH-5
WC- 22	8,551.6	11,660.1	565.6	562.1	11726	
WC- 23	8,517.1	11,688.3		562.6		SPLICE
WC- 24	8,455.9	11,774.2	567.0	563.2	11728	
WC- 25	8,402.6	11,844.7		564.0		SPLICE
WC- 26	8,367.0	11,892.8	567.0	564.6	11730	
WC- 27	8,330.3	11,940.8		565.0	11732	
WC- 28	8,603.6	12,075.6	570.0		11731	
WC- 29	8,594.8	11,875.4	569.1			SPLICE
WC- 30	8,693.6	11,950.9	570.1		11729	
WC- 31	8,790.3	11,834.3	569.8		11727	
WC- 32	8,315.2	11,962.1		567.1	11740	
WC- 33	8,275.3	12,018.9	567.1	566.8	11737	
WC- 34	8,182.0	12,133.6	567.1	566.4	11738	
WC- 35	SURVEY NOT POSSIBLE					ST. RADIUS
WC- 36	SURVEY NOT POSSIBLE					END RADIUS
WC- 37	8,149.2	12,299.6	566.9	565.0	28	
WC- 38	8,104.1	12,408.2	566.1	564.7	11735	
WC- 39	SEE MANHOLE TABLE				27	LMH-7
WC- 40	8,238.4	12,618.7		566.1	26	
WC- 41	8,469.3	12,688.1		567.2	11741	
WC- 42	8,256.7	12,520.0	570.0		11734	
WC- 43	8,340.6	12,444.0	569.9		17	
WC- 44	8,408.8	12,341.3	570.0		11736	
WC- 45	8,511.6	12,194.5	569.9		11739	
WC- 46	8,145.8	12,312.8	565.0			SPLICE

3"/8" DUAL CONTAINMENT PIPE AS- BUILT SUMMARY TABLE

NODE ID	NORTH	EAST	ELEVATION	COMMENTS
DC-1	8,034.4	12,496.9		Start 8"
DC-2	8,029.5	12,501.0		Cutoff Wall Penetration
DC-3	7,959.2	12,537.4	577.8	
DC-4	7,890.6	12,561.7	577.3	
DC-5	7,816.6	12,585.1	576.9	

PCS LINE AS- BUILT SUMMARY TABLE

NODE ID	NORTH	EAST	ELEVATION
WP- 1	POINT DELETED		
WP- 2	8,797.4	12,497.5	577.5
WP- 3	8,780.1	12,490.4	577.5
WP- 4	8,723.0	12,473.9	577.2
WP- 5	8,717.0	12,472.0	577.1
WP- 6	8,689.7	12,464.9	
WP- 7	8,659.1	12,460.7	577.0
WP- 8	8,633.9	12,460.4	576.6
WP- 9	8,606.6	12,472.5	576.3
WP- 10	8,576.3	12,497.6	
WP- 11	8,547.1	12,524.4	576.1
WP- 12	8,535.4	12,537.9	
WP- 13	8,529.7	12,544.7	
WP- 14	8,528.1	12,547.4	576.1
WP- 15	8,507.1	12,587.4	576.0
WP- 16	8,495.9	12,618.4	575.9
WP- 17	8,479.8	12,668.5	575.5
WP- 18	8,465.2	12,708.2	575.7
WP- 19	8,359.9	12,672.4	575.4
WP- 20	8,277.4	12,641.4	575.2
WP- 21	8,198.0	12,594.7	574.7
WP- 22	8,122.1	12,543.5	574.7
WP- 23	8,647.1	11,558.8	577.9
WP- 24	8,210.8	12,107.6	575.1
WP- 25	8,162.0	12,171.2	575.0
WP- 26	8,154.8	12,182.8	
WP- 27	8,152.6	12,247.8	
WP- 28	8,154.5	12,303.4	
WP- 29	8,138.9	12,334.4	
WP- 30	8,118.3	12,358.0	574.5
WP- 31	8,057.6	12,431.3	574.2
WP- 32	8,028.1	12,469.1	574.3
WP- 33	8,043.2	12,487.6	574.8

LCRS MANHOLE AS-BUILT SUMMARY TABLE

MANHOLE	LMH- 5	LMH- 6	LMH- 7
NORTH	8,649.6	8,798.8	8,046.8
EAST	11,561.8	12,495.0	12,483.6
RIM ELEVATION	ND	ND	ND
BOTTOM ELEVATION	557.7	558.0	561.2
SUMP DEPTH	ND	ND	ND
TOTAL HEIGHT	ND	ND	ND
EFFLUENT INVERT	577.9	577.6	578.1
PUMP OFF ELEVATION	ND	ND	ND
PUMP ON ELEVATION	ND	ND	ND
OPERATING RANGE	ND	ND	ND
ALARM ELEVATION	ND	ND	ND
INVERT ELEVATIONS	560.7 NE	560.1 NW	555.1 NE
	561.1 SW	560.9 SE	564.1 NW
ND = NOT DETERMINED			574.8 SE
			574.3 SW

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS-BUILT DRAWINGS NTH PLATE 42

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION – MONROE PLANT

LEACHATE COLLECTION SYSTEM– WCU 1

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	50 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 10/99	JSB 10/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A2C04	

DWG. NO. 4 OF 65

PROJ. NO. F66A2C

E. 11,250 E. 11,500 E. 11,750 E. 12,000

N. 9,500

STERLING STATE PARK DIKE

CLOSURE LIMIT

LIMIT OF EXCAVATION

1101
579.3520

NORTH INTAKE CANAL
COFFERDAM
4
44

NORTH INTAKE CANAL

MATCH LINE

CLOSURE LIMIT

WEST MARSH

LIMIT OF EXCAVATION

N. 9,250

N. 9,000

SCALE 1"= 40'
0' 20' 40' 80'

E. 12,250 E. 12,500 E. 12,750 E. 13,000

AIR MONITORING STATION A-4

CLOSURE LIMIT

STERLING STATE PARK DIKE

LIMIT OF EXCAVATION

4
44
NORTH INTAKE CANAL
COFFERDAM

MATCH LINE

91R1N
NORTH INTAKE CANAL
91R1W 91 91R1E
91R1C
91R1S

AREA D-NORTH

LIMIT OF EXCAVATION

N. 9,000

N. 8,750

AREA D TOWER

5
44
AREA D NORTH/ AREA D TOWER
CLOSURE LIMIT AT CUTOFF WALL

WESTERN
CONTAINMENT
UNIT

EAST
INTAKE
CANAL

SCALE 1"= 40'
0' 20' 40' 80'

LEGEND

105 – SAMPLED GRID POINTS (GRID #1)

79 – SAMPLED GRID POINTS (GRID #2)

– VISIBLE SIDEWALL STAINING

Visteon

NOTES

1. AS BUILT INFORMATION WAS OBTAINED FROM VARIOUS FIELD SURVEYS PERFORMED BY MIDWEST ENVIRONMENTAL CONSULTANTS, INC. BETWEEN JULY 1997 AND JANUARY 1998.
2. FOR SURVEY SAMPLE LOCATIONS SEE DRAWING 5.
3. EXCAVATION OF IMPACTED SOILS BETWEEN THE DETROIT EDISON ELECTRICAL TRANSMISSION TOWERS WAS HALTED DUE TO STABILITY CONCERNS.
4. EXCAVATION OF IMPACTED SOILS ALONG THE EAST INTAKE CANAL WAS HALTED DUE TO DIKE STABILITY CONCERNS.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	JSB 10/99	AS-BUILT DRAWINGS

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION MONROE STAMPING PLANT
WASTE DISPOSAL SURFACE IMPOUNDMENTS
NORTH INTAKE CANAL, AREA D NORTH, AND AREA D TOWER CLOSURE

DRAWN: AS DATE 10/98	SCALE: AS NOTED	DRAWING NO. 4 OF 65	REV. NO. 1
DESIGNED: BMC DATE 4/98	REVIEWED: JSB DATE 10/99		
APPROVED: - DATE -	PROJECT NO. F66A2C	CADD FILE: F66A2C03	

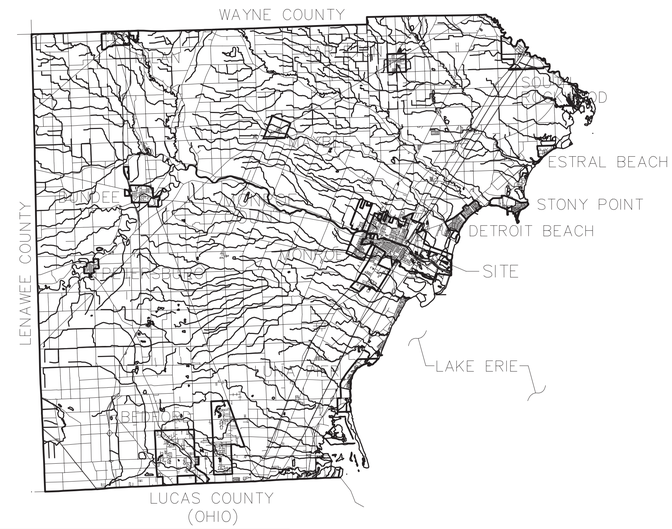
VISTEON CORPORATION

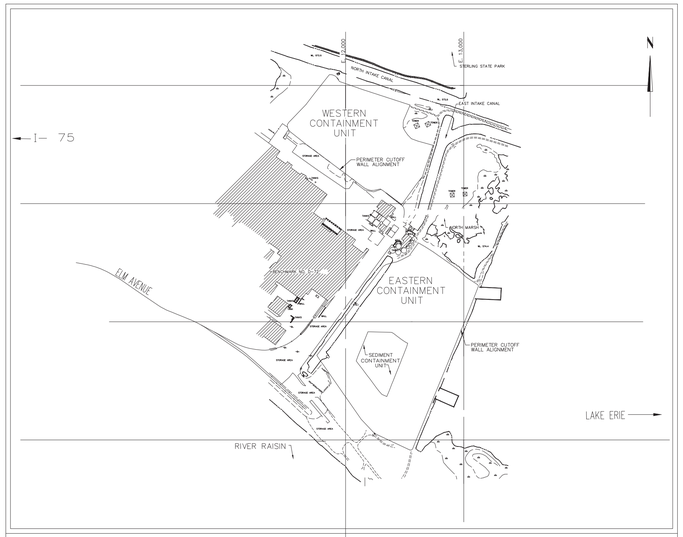
MONROE STAMPING PLANT

MID 005 057 005
MONROE, MICHIGAN

WASTE DISPOSAL
SURFACE IMPOUNDMENT CLOSURE

AS-BUILT DRAWING





LOCATION MAP

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PLANS PREPARED FOR:

VISTEON ENVIRONMENTAL QUALITY OFFICE
AND
VISTEON LAND SERVICES CORPORATION

PLANS PREPARED BY:

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
22720 Michigan Avenue, Suite 306
Dearborn, Michigan 48124
PHONE NO.: (313) 563-6326

JOHN S. BROWNING III, PE

OCTOBER 1999
DWG. NO. 1 OF 65
PROJ. NO. F66A2C

NOTES:

1. SOLIDIFIED WASTE SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 10/08/97 AND 7/30/98.
2. AN INITIAL 100'•100' GRID WAS SETUP. ADDITIONAL POINTS WERE ADDED TO DEFINE BREAKLINES AND CUTOFF WALL BOUNDARY.
3. THE WESTERN CONTAINMENT UNIT CONTAINS AREA D AND THE NORTH LAGOON. IN ADDITION SOME MATERIAL FROM AREA D WEST AREA D NORTH, WEST MARSH, NORTH INTAKE CANAL AND AREA D WAS PLACED WITHIN THE WESTERN CONTAINMENT UNIT AS PART OF THE WASTE PLACEMENT ABOVE GRADE OPERATIONS.
4. SOLIDIFICATION CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
5. GRADE VERIFICATION SURVEY LOCATIONS FOR THE WESTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 10.
6. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWING 50.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS- BUILT WASTE SURFACE NTH PLATE 44

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION – MONROE PLANT

SOLIDIFIED WASTE SURFACE – WCU

DRAWN: AS DATE 10/99	SCALE: AS NOTED	DRAWING NO. 9 OF 65	REV. NO. 1
DESIGNED: LWB DATE 10/99	REVIEWED: JSB DATE 10/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1EB	

DWG. NO. 31 OF 65
PROJ. NO. F66A2C

POINT NO.	NORTH	EAST	CLAY ELEV	COVER SOIL ELEV	TOP-SOIL ELEV	CAP SYSTEM THICKNESS	BREAK-LINE (Y/N)	DATE SUR-VEYED
E-001	7,427.9	12,965.3	580.75	583.51	583.89	38	N	12/14/98
E-002	7,325.7	13,092.7	580.51	583.34	584.31	46	N	12/15/98
E-003	7,293.3	13,113.2	580.38	583.01	583.94	43	N	12/15/98
E-004	7,269.5	13,107.6	580.64	583.44	584.16	42	N	12/15/98
E-005	7,242.7	13,098.6	580.62	583.32	584.01	41	N	12/15/98
E-006	7,193.2	13,077.9	580.50	583.62	584.26	45	N	12/15/98
E-007	7,103.0	13,043.9	580.28	583.41	584.21	47	N	12/15/98
E-008	7,009.8	13,007.1	580.19	583.29	583.93	45	N	12/17/98
E-009	6,917.2	12,970.9	580.09	582.78	583.60	42	N	12/10/98
E-010	6,824.6	12,932.6	580.24	582.71	583.56	40	N	12/10/98
E-011	DELETED							
E-012	DELETED							
E-013	DELETED							
E-014	7,312.0	13,079.8	581.58	584.20	584.99	41	N	12/15/98
E-015	DELETED							
E-016	IN DIVERSION BERM/ROAD							
E-017	IN DIVERSION BERM/ROAD							
E-018	7,290.2	13,064.3	582.82	585.49	586.07	39	Y	12/15/98
E-019	IN DIVERSION BERM/ROAD							
E-020	IN DIVERSION BERM/ROAD							
E-021	IN DIVERSION BERM/ROAD							
E-022	IN DIVERSION BERM/ROAD							
E-023	IN DIVERSION BERM/ROAD							
E-024	7,346.5	12,908.2	589.28	591.88	593.03	45	N	12/7/98
E-025	DELETED							
E-026	7,281.8	12,979.5	587.45	590.20	590.90	41	Y	12/7/98
E-027	7,222.3	12,981.4	585.94	588.62	589.10	38	N	12/7/98
E-028	7,136.7	12,956.4	585.60	588.02	588.52	35	N	12/7/98
E-029	7,047.6	12,917.5	585.62	588.07	588.79	38	N	12/7/98
E-030	6,951.1	12,877.7	585.60	588.10	588.82	39	N	12/3/98
E-031	6,858.6	12,838.8	585.47	587.82	588.80	40	N	12/3/98
E-032	7,308.5	12,874.5	594.02	596.36	597.33	40	N	12/7/98
E-033	7,278.7	12,915.1	590.78	593.28	594.05	39	N	12/7/98
E-034	7,155.2	12,909.7	588.48	590.85	591.50	36	N	11/28/98
E-035	7,067.1	12,870.7	588.59	591.23	592.04	41	N	11/28/98
E-036	6,968.1	12,830.4	588.70	591.31	592.02	40	N	11/28/98
E-037	6,874.2	12,797.3	588.63	590.96	591.65	36	N	11/28/98
E-038	6,798.3	12,707.1	591.63	594.05	594.88	39	N	11/28/98
E-039	7,268.9	12,851.2	594.68	597.42	598.00	40	Y	12/7/98
E-040	7,167.4	12,876.2	590.33	592.90	593.73	41	N	11/28/98
E-041	7,087.7	12,825.9	591.65	594.03	594.78	38	N	11/28/98
E-042	6,985.2	12,783.7	591.79	594.15	595.01	39	N	11/28/98
E-043	6,893.1	12,746.0	591.50	594.24	594.99	42	N	11/28/98
E-044	7,172.7	12,757.3	597.89	600.37	601.07	38	Y	12/7/98
E-045	7,122.7	12,736.4	597.70	600.36	600.88	38	Y	12/7/98
E-046	7,020.4	12,690.5	597.94	600.65	601.35	41	Y	12/7/98
E-047	6,930.3	12,650.5	598.38	600.70	601.28	35	Y	12/7/98
E-048	6,837.6	12,609.1	598.55	601.06	601.95	41	Y	12/3/98
E-049	6,732.6	12,895.0	580.36	582.63	583.27	35	N	12/10/98
E-050	6,640.0	12,856.9	580.26	582.64	583.22	36	N	12/10/98
E-051	6,547.3	12,819.2	580.15	582.73	583.39	39	N	12/10/98
E-052	6,455.0	12,781.5	580.61	583.14	583.89	39	N	12/10/98
E-053	6,362.8	12,743.9	580.50	583.05	583.76	39	N	12/10/98
E-054	6,270.7	12,706.0	580.61	583.02	583.77	38	N	12/10/98
E-055	6,178.8	12,668.3	580.99	583.49	584.04	37	N	12/10/98
E-056	6,085.9	12,630.0	580.74	583.12	583.61	34	N	12/10/98
E-057	5,993.0	12,592.1	580.33	582.82	583.64	40	N	12/10/98
E-058	5,946.4	12,572.9	579.48	582.14	583.25	45	N	12/10/98
E-059	5,922.7	12,564.6	579.40	581.84	583.13	45	N	12/10/98
E-060	6,747.2	12,847.1	582.76	585.17	585.84	37	Y	12/10/98
E-061	6,658.7	12,811.2	582.70	585.08	585.73	36	Y	12/10/98
E-062	6,564.2	12,772.4	582.58	584.99	585.95	40	Y	12/10/98
E-063	6,473.6	12,735.8	582.64	584.95	585.67	36	Y	12/10/98
E-064	IN DIVERSION BERM/ROAD							
E-065	IN DIVERSION BERM/ROAD							
E-066	6,196.9	12,622.2	582.44	585.12	585.82	41	Y	12/10/98

POINT NO.	NORTH	EAST	CLAY ELEV	COVER SOIL ELEV	TOP-SOIL ELEV	CAP SYSTEM THICKNESS	BREAK-LINE (Y/N)	DATE SUR-VEYED
E-067	6,103.4	12,583.5	582.39	585.24	586.29	47	Y	12/10/98
E-068	IN DIVERSION BERM/ROAD							
E-069	5,940.5	12,545.6	580.21	582.68	583.57	40	Y	12/10/98
E-070	5,964.7	12,473.4	581.57	584.46	585.04	42	N	12/15/98
E-071	IN DIVERSION BERM/ROAD							
E-072	5,985.0	12,428.0	581.73	584.39	585.10	40	N	12/15/98
E-073	IN DIVERSION BERM/ROAD							
E-074	6,004.8	12,382.8	581.55	584.29	585.05	42	N	12/3/98
E-075	IN DIVERSION BERM/ROAD							
E-076	6,027.8	12,392.1	582.68	585.47	585.93	39	N	12/3/98
E-077	6,048.1	12,345.9	582.69	585.40	586.12	41	N	12/3/98
E-078	6,764.4	12,799.4	585.98	588.36	589.27	39	N	12/9/98
E-079	6,677.7	12,762.8	585.71	588.29	588.78	37	N	12/3/98
E-080	6,584.1	12,728.1	585.72	588.05	588.59	34	N	12/10/98
E-081	6,487.3	12,688.2	585.49	588.02	588.58	37	N	12/3/98
E-082	6,405.2	12,654.3	585.73	588.08	588.72	36	N	12/3/98
E-083	6,303.8	12,612.7	585.72	588.21	589.03	40	N	12/3/98
E-084	6,215.3	12,575.7	585.76	588.44	589.19	41	N	11/28/98
E-085	6,122.0	12,537.7	586.04	588.40	588.93	35	N	12/15/98
E-086	6,034.3	12,502.1	585.66	588.37	589.28	43	Y	12/15/98
E-087	6,054.1	12,456.4	585.66	588.18	589.56	47	N	12/15/98
E-088	6,073.8	12,410.2	585.81	588.44	589.77	48	N	12/15/98
E-089	6,093.7	12,364.2	585.66	588.22	589.58	47	N	12/3/98
E-090	DELETED							
E-091	6,782.4	12,754.9	588.57	590.82	591.73	38	N	11/28/98
E-092	6,694.4	12,719.1	588.37	590.61	591.41	36	N	11/28/98
E-093	6,602.5	12,682.1	588.42	590.58	591.60	38	N	11/28/98
E-094	6,511.3	12,644.5	588.52	590.72	591.70	38	N	11/28/98
E-095	6,424.6	12,609.5	588.65	591.08	591.81	38	N	11/28/98
E-096	6,315.6	12,561.8	588.58	591.00	591.88	40	N	11/28/98
E-097	6,233.6	12,529.6	588.89	591.42	591.93	36	N	11/28/98
E-098	6,140.1	12,491.3	588.88	591.38	592.08	38	N	12/15/98
E-099	6,100.1	12,475.2	588.82	591.30	592.14	40	Y	12/15/98
E-100	6,119.8	12,429.2	588.96	591.64	592.40	41	N	12/15/98
E-101	6,139.7	12,383.4	588.53	591.16	591.73	38	N	12/3/98
E-102	6,714.0	12,672.3	591.62	593.97	594.73	37	N	11/28/98
E-103	6,621.9	12,634.2	591.41	593.80	595.00	43	N	11/28/98
E-104	6,529.7	12,596.5	591.49	593.98	594.86	40	N	11/28/98
E-105	6,446.3	12,562.3	591.60	594.15	594.98	41	N	11/28/98
E-106	6,338.0	12,518.1	591.62	594.24	594.87	39	N	11/28/98
E-107	6,250.8	12,482.7	591.75	594.39	594.95	38	N	11/28/98
E-108	6,166.0	12,448.2	591.68	594.41	595.38	44	Y	12/15/98
E-109	6,185.7	12,402.1	591.60	594.14	594.90	40	N	12/9/98
E-110	6,640.6	12,587.6	594.50	597.09	597.68	38	N	11/28/98
E-111	6,548.7	12,550.3	594.44	597.09	598.08	44	N	11/28/98
E-112	6,467.1	12,516.9	594.87	597.40	598.11	39	N	11/28/98
E-113	6,351.6	12,470.2	595.03	597.57	598.51	42	N	11/28/98
E-114	6,746.8	12,571.3	598.77	601.36	602.14	40	Y	12/15/98
E-115	6,659.5	12,541.2	598.01	600.55	601.26	39	Y	12/3/98
E-116	6,567.2	12,504.1	598.15	600.65	601.20	37	Y	12/3/98
E-117	6,486.9	12,471.1	598.65	601.17	601.75	37	Y	12/3/98
E-118	6,363.8	12,445.3	597.99	600.46	601.02	36	N	12/9/98
E-119	6,381.0	12,432.0	598.67	601.58	602.02	40	Y	12/3/98
E-120	6,288.0	12,386.0	596.30	598.80	599.28	36	N	12/3/98
E-121	6,196.0	12,348.0	590.14	592.64	593.31	38	N	12/3/98
E-122	IN DIVERSION BERM/ROAD							
E-123	6,027.4	12,273.6	580.98	583.39	583.78	34	N	12/3/98
E-124	6,150.4	12,228.8	582.84	585.56	586.20	40	Y	12/3/98
E-125	6,234.0	12,255.0	588.08	590.83	591.67	43	N	12/3/98
E-126	6,326.0	12,293.0	595.04	597.51	598.23	38	N	12/3/98
E-127	6,419.0	12,331.0	603.17	605.91	606.55	41	N	12/3/98
E-128	6,511.0	12,368.0	607.97	610.38	611.40	41	N	12/3/98
E-129	6,604.1	12,406.0	607.80	610.32	610.90	37	N	12/3/98
E-130	6,697.1	12,444.1	607.27	610.12	610.60	40	N	12/3/98
E-131	6,789.0	12,482.0	607.35	610.17	610.73	41	N	12/3/98
E-132	6,734.0	12,351.0	609.96	612.71	613.14	38	N	12/3/98
E-133	6,642.1	12,314.0	609.73	612.42	612.82	37	N	12/3/98

POINT NO.	NORTH	EAST	CLAY ELEV	COVER SOIL ELEV	TOP-SOIL ELEV	CAP SYSTEM THICKNESS	BREAK-LINE (Y/N)	DATE SUR-VEYED
E-134	6,549.0	12,276.0	609.18	611.93	612.45	39	N	12/10/98
E-135	6,439.8	12,257.2	602.73	605.23	605.77	36	N	12/3/98
E-136	6,363.0	12,200.0	593.61	596.08	596.81	38	N	12/3/98
E-137	6,260.0	12,140.0	583.03	585.74	586.41	41	Y	12/3/98
E-138	6,326.6	12,096.1	583.12	585.61	586.41	39	Y	12/3/98
E-139	IN DIVERSION BERM/ROAD							
E-140	6,494.0	12,145.0	596.72	599.10	599.90	38	N	12/10/98
E-141	6,587.0	12,183.0	604.05	606.69	607.41	40	N	12/10/98
E-142	6,680.0	12,221.0	605.02	607.83	608.49	42	N	12/10/98
E-143	6,772.0	12,259.0	604.31	606.97	607.77	42	N	12/10/98
E-144	6,717.1	12,128.0	599.23	602.08	602.66	41	N	12/10/98
E-145	6,625.0	12,091.0	599.10	601.52	602.46	40	N	12/10/98
E-146	6,532.0	12,053.0	591.38	593.75	594.45	37	N	12/16/98
E-147	6,400.2	12,039.6	583.32	585.54	586.56	39	Y	12/16/98
E-148	6,476.1	11,921.8	580.73	583.34	584.16	41	N	12/16/98
E-149	IN DIVERSION BERM/ROAD							
E-150	6,650.4	12,030.9	596.41	598.67	599.66	39	Y	12/10/98
E-151	6,755.0	12,035.0	590.76	593.26	594.11	40	N	12/10/98
E-152	6,793.0	11,943.0	581.87	584.83	585.48	43	N	12/11/98
E-153	6,700.0	11,905.0	584.01	586.33	587.23	39	N	12/10/98
E-154	6,646.4	11,863.7	582.80	585.37	586.04	39	Y	12/16/98
E-155	NO TOPSOIL							
E-156	7,307.1	12,801.0	598.37	601.00	601.61	39	N	12/7/98
E-157	7,399.9	12,839.0	588.75	591.22	592.19	41	N	12/7/98
E-158	7,492.0	12,877.0	581.17	584.02	584.65	42	N	12/14/98
E-159	6,882.0	12,520.0	606.62	609.41	610.15	42	N	12/3/98
E-160	6,974.1	12,557.0	606.33	609.17	609.90	43	N	12/10/98
E-161	7,067.0	12,595.0	606.20	608.97	609.62	41	N	12/7/98
E-162	7,160.0	12,633.0	605.83	609.04	609.95	49	N	12/7/98
E-163	DELETED							
E-164	7,344.9	12,707.9	600.96	603.86	604.78	46	N	12/7/98
E-165	7,436.9	12,745.9	590.94	593.43	594.31	40	N	12/7/98
E-166	DELETED							
E-167	7,568.0	12,691.0	582.97	585.76	586.68	45	N	12/15/98
E-168	7,475.0	12,654.0	592.24	594.74	595.72	42	N	12/10/98
E-169	7,381.9	12,616.0	597.92	600.33	601.05	38	N	12/7/98
E-170	7,290.0	12,578.0	601.71	604.70	605.42	45	N	12/10/98
E-171	7,196.9	12,539.9	604.49	606.95	607.64	38	N	12/10/98
E-172	7,105.0	12,503.0	607.01	609.59	610.11	37	N	12/10/98
E-173	7,012.0	12,456.1	608.00	610.59	611.39	41	N	12/10/98
E-174	6,920.0	12,427.0	609.28	611.74	612.41	38	N	12/10/98
E-175	6,827.0	12,389.0	609.63	612.07	612.94	40	N	12/10/98
E-176	6,865.0	12,297.0	603.75	606.60	607.35	43	N	12/10/98
E-177	6,957.0	12,334.0	602.64	604.96	605.86	39	N	12/10/98
E-178	7,050.0	12,372.0	600.47	603.26	603.71	39	N	12/10/98
E-179	7,141.9	12,409.9	597.98	601.08	601.84	46	N	12/10/98
E-180	7,234.9	12,447.9	595.53	598.39	599.00	42	N	12/10/98
E-181	7,328.0	12,485.0	593.17	595.87	596.58	41	N	12/10/98
E-182	7,420.0	12,523.0	589.91	592.57	593.40	42	N	12/16/98
E-183	7,512.0	12,561.0	585.41	588.23	589.44	48	N	12/14/98
E-184	7,605.0	12,599.0	582.01	584.79	585.48	42	N	12/14/98
E-185	7,458.1	12,431.0	581.68	584.19	585.04	40	N	12/10/98
E-186	7,365.0	12,392.9	583.81	586.29	587.03	39	N	12/10/98
E-187	7,273.0	12,355.0	585.94	588.50	589.24	40	N	12/10/98
E-188	7,180.0	12,317.0	588.45	590.93	591.73	39	N	12/11/98
E-189	7,088.0	12,280.1	590.81	593.84	594.33	42	N	12/10/98
E-190	6,995.0	12,242.0	593.45	596.21	597.03	43	N	12/10/98
E-191	6,902.0	12,204.0	595.39	598.22	599.08	44	N	12/10/98
E-192	6,810.0	12,165.9	597.33	600.20	600.64	40	N	12/10/98
E-193	6,848.0	12,074.1	588.60	591.01	591.94	40	N	12/10/98
E-194	6,940.0	12,111.0	585.88	588.42	589.28	41	N	12/10/98
E-195	7,033.0	12,148.9	583.78	586.57	587.24	42	N	12/10/98
E-196	7,125.0	12,186.9	581.54	584.65	585.34	46	N	12/10/98
E-197	7,215.2	12,219.4	579.51	582.46	583.20	44	N	12/10/98
E-198	NO TOPSOIL							
E-199	NO TOPSOIL							
E-200	NO TOPSOIL							

POINT NO.	NORTH	EAST	CLAY ELEV	COVER SOIL ELEV	TOP-SOIL ELEV	CAP SYSTEM THICKNESS	BREAK-LINE (Y/N)	DATE SUR-VEYED
E-201	NO TOPSOIL							
E-202	6,977.9	12,019.2	578.19	580.93	581.76	43	Y	12/11/98
E-203	NO TOPSOIL							
E-204	NO TOPSOIL							
E-205	7,211.2	12,770.3	598.00	600.66	601.21	39	N	12/7/98
E-206	6,053.8	12,245.8	581.07	583.54	583.98	35	N	12/3/98
E-207	5,997.6	12,333.0	581.08	583.78	584.42	40	N	12/11/98
E-208	5,981.2	12,376.5	580.80	583.54	584.08	39	N	12/3/98
E-209	6,018.6	12,372.1	582.02	584.71	585.43	41	N	12/3/98
E-210	IN DIVERSION BERM/ROAD							
E-211	6,123.0	12,332.4	586.83	589.18	590.15	40	N	12/15/98
E-212	6,159.1	12,377.9	589.46	592.48	593.35	47	N	12/9/98
E-213	6,236.1	12,418.5	594.62	596.87	597.48	34	Y	12/3/98
E-214	6,112.9	12,189.9	580.73	583.64	584.10	40	N	12/3/98
E-215	6,174.4	12,133.7	580.64	583.18	583.68	36	N	12/3/98
E-216	6,227.7	12,093.9	580.78	583.43	583.93	38	N	12/3/98
E-217	6,294.2	12,048.4	581.04	583.50	583.95	35	N	12/3/98
E-218	6,371.0	11,995.6	580.84	583.44	584.78	47	N	12/16/98
E-219	6,209.9	12,177.6	582.63	585.38	586.13	42	Y	12/3/98
E-220	6,215.3	12,175.4	582.78	585.52	586.09	40	N	12/3/98
E-221	6,271.4	12,195.5	588.14	590.66	591.33	38	N	12/3/98
E-222	6,319.5	12,211.5	592.22	594.44	595.38	38	N	12/3/98
E-223	6,397.6	12,239.0	598.56	601.04	601.63	37	N	12/3/98
E-224	6,497.7	12,353.6	608.67	611.17	611.78	37	Y	12/3/98
E-225	6,415.7	12,374.7	604.38	606.78	607.34	36	Y	12/3/98
E-226	6,329.7	12,402.6	598.98	601.31	601.81	34	Y	12/3/98
E-227	6,500.3	12,307.0	607.41	609.86	610.43	36	N	12/3/98
E-228	6,502.8	11,965.7	583.03	586.02	586.65	43	Y	12/16/98
E-229	6,623.0	11,818.4	580.60	582.96	583.54	35	N	12/16/98
E-230	6,509.9	12,374.6	607.48	610.13	610.84	40	Y	12/3/98
E-231	6,602.5	12,412.4	607.32	609.78	610.48	38	Y	12/3/98
E-232	6,698.4	12,451.8	606.84	609.64	610.30	42	Y	12/3/98
E-233	6,789.4	12,491.2	606.63	609.34	610.13	42	Y	12/3/98
E-234	6,869.9	12,523.5	606.33	608.86	609.50	38	Y	12/3/98
E-235	6,654.9	11,899.8	585.87	588.25	588.82	35	Y	12/16/98
E-236	6,605.4	12,011.7	592.09	594.72	595.20	37	N	12/16/98
E-237	6,957.1	12,557.8	605.86	608.74	609.42	43	Y	12/10/98
E-238	7,050.6	12,599.9	605.59	608.09	609.00	41	Y	12/7/98
E-239	7,143.9	12,637.6	605.16	608.08	608.94	45	Y	12/7/98
E-240	7,254.1	12,683.4	605.02	608.42	609.10	49	Y	12/7/98
E-241	7,261.0	12,739.9	601.08	603.78	604.60	42	Y	12/7/98
E-242	6,587.7	12,326.4	611.18	613.53	614.10	35	Y	12/3/98
E-243	6,630.3	12,346.1	610.97	613.60	614.12	38	Y	12/3/98
E-244	6,723.0	12,390.4	610.52	613.75	614.52	48	Y	12/3/98
E-245	6,814.7	12,432.6	610.30	613.13	613.90	43	Y	12/3/98
E-246	6,905.7	12,477.4	609.26	613.08	613.87	55	Y	12/3/98
E-247	6,995.9	12,520.0	608.81	611.79	612.56	45	Y	12/10/98
E-248	7,081.3	12,560.5	608.16	611.57	612.10	47	Y	12/10/98
E-249	7,108.5	12,573.4	608.16	611.23	611.97	46	Y	12/10/98
E-250	7,171.9	12,609.0	607.50	610.60	611.30	46	N	12/10/98
E-251	6,650.5	12,073.6	599.43	601.94	602.62	38	Y	12/10/98
E-252	6,720.5	12,121.9	598.67	601.44	602.12	41	Y	12/10/98
E-253	6,910.8	12,453.4	610.54	613.05	613.85	40	Y	12/3/98
E-254	6,629.3	12,170.8	604.13	606.86	607.40	39	Y	12/10/98
E-255	6,599.6	12,294.2	609.67	612.58	613.40	45	Y	12/10/98
E-256	6,813.5	12,412.6	610.97	613.42	614.03	37	Y	12/3/98
E-257	6,705.6	12,363.7	611.10	613.75	614.22	37	Y	12/3/98
E-258	6,661.8	12,344.4	610.58	613.34	613.92	40	Y	12/3/98
E-259	6,632.8	12,300.3	609.38	611.93	612.74	40	N	12/10/98
E-260	6,625.5	12,328.5	610.62	613.19	613.70	37	N	12/3/98
E-261	6,692.3	12,211.6	604.30	607.09	607.73	41	N	12/10/98
E-262	6,942.9	12,353.0	604.55	606.91	607.51	36	Y	12/10/98
E-263	6,761.0	12,166.2	599.73	602.37	602.93	38	Y	12/10/98
E-264	6,839.9	12,232.7	600.70	603.44	604.35	44	Y	12/10/98
E-265	6,879.2	12,267.3	601.46	603.96	604.44	36	Y	12/10/98

POINT NO.	NORTH	EAST	CLAY ELEV	COVER SOIL ELEV	TOP-SOIL ELEV	CAP SYSTEM THICKNESS	BREAK-LINE (Y/N)	DATE SUR-VEYED
E-266	IN DIVERSION BERM/ROAD							
E-267	NO TOPSOIL							
E-268	NO TOPSOIL							
E-269	NO TOPSOIL							
E-270	NO TOPSOIL							
E-271	NO TOPSOIL							
E-272	NO TOPSOIL							
E-273	NO TOPSOIL							
E-274	7,059.4	12,081.5	578.13	580.67	581.41	39	Y	12/11/98
E-275	6,893.6	11,960.0	578.36	581.02	581.70	40	Y	12/11/98
E-276	6,810.9	11,899.9	578.35	580.99	581.98	44	Y	12/11/98
E-277	6,728.4	11,837.3	578.30	581.15	581.84	42	Y	12/11/98
E-278	IN DIVERSION BERM/ROAD							
E-279	6,685.6	11,806.7	578.32	581.48	582.12	46	Y	12/11/98
E-280	6,997.2	12,494.3	610.21	612.70	613.21	36	Y	12/10/98
E-281	7,013.3	12,501.8	610.11	612.66	613.23	37	Y	12/10/98
E-282	7,034.4	12,465.1	607.71	610.46	611.20	42	N	12/10/98
E-283	7,085.6	12,392.7	599.87	602.60	603.37	42	N	12/10/98
E-284	7,139.2	12,313.2	590.36	593.46	594.02	44	N	12/10/98
E-285	7,226.3	12,205.9	578.28	580.98	581.58	40	Y	12/11/98
E-286	NO TOPSOIL							
E-287	7,143.3	12,142.9	578.14	580.69	581.51	40	Y	12/11/98
E-288	7,102.9	12,551.1	609.04	612.00	612.51	42	Y	12/10/98
E-289	7,162.8	12,590.0	608.16	611.04	611.56	41	Y	12/10/98
E-290	7,249.0	12,653.6	606.48	609.38	609.78	40	Y	12/7/98
E-291	7,296.1	12,672.3	605.80	608.58	609.31	42	Y	12/7/98
E-292	7,304.8	12,677.4	605.36	608.34	609.45	49	Y	12/7/98
E-293	7,138.5	12,413.6	598.54	601.51	602.34	46	Y	12/10/98
E-294	7,222.3	12,473.8	598.99	601.12	602.02	36	Y	12/10/98
E-295	7,335.7	12,554.2	597.53	600.08	600.59	37	Y	12/10/98
E-296	7,383.5	12,663.5	599.25	601.76	602.57	40	Y	12/7/98
E-297	7,472.0	12,650.8	592.64	595.31	595.84	38	Y	12/10/98
E-298	7,520.8	12,644.5	588.96	591.25	592.12	38	Y	12/16/98
E-299	7,579.3	12,633.2	584.90	587.20	587.88	36	Y	12/14/98
E-300	7,669.2	12,615.0	580.54	583.33	583.89	40	Y	12/14/98
E-301	7,606.3	12,711.0	581.47	584.13	584.69	39	Y	12/14/98
E-302	7,553.9	12,793.0	580.85	583.86	584.35	42	Y	12/14/98
E-303	7,524.5	12,779.7	582.35	585.13	586.00	44	Y	12/7/98
E-304	7,472.1	12,859.8	582.40	585.17	585.72	40	Y	12/7/98
E-305	7,403.9	12,952.6	582.25	584.85	585.61	40	Y	12/7/98
E-306	7,342.3	13,035.8	582.28	585.02	585.59	40	Y	12/15/98
E-307	7,318.9	13,086.2	581.11	583.62	584.56	41	Y	12/15/98
E-308	7,283.7	13,114.6	580.51	583.05	583.95	41	Y	12/15/98
E-309	7,283.6	13,078.1	582.00	584.86	585.43	41	Y	12/15/98
E-310	7,306.9	13,069.0	582.40	585.04	585.65	39	Y	12/15/98
E-311	7,313.6	13,001.3	586.43	588.89	589.41	36	Y	12/16/98
E-312	7,317.3	12,959.1	588.96	591.43	592.12	38	Y	12/15/98
E-313	7,319.1	12,869.6	594.23	596.63	597.40	38	Y	12/7/98
E-314	7,316.7	12,753.1	601.29	603.85	604.41	37	Y	12/7/98
E-315	7,613.4	12,572.7	580.65	583.40	583.92	39	Y	12/14/98
E-316	7,557.8	12,528.6	581.02	583.68	584.26	39	Y	12/14/98
E-317	IN DIVERSION BERM/ROAD							
E-318	5,962.0	12,418.5	580.90	583.50	584.42	42	Y	12/15/98
E-319	5,942.3	12,464.5	580.72	583.39	584.14	41	Y	12/10/98
E-320	5,913.3	12,532.9	580.21	582.60	583.46	39	Y	12/10/98
E-321	NO TOPSOIL							
E-322	7,457.0	12,382.1	578.87	581.47	581.95	37	Y	12/11/98
E-323	NO TOPSOIL							
E-324	NO TOPSOIL							
E-325	NO TOPSOIL							
E-326	NO TOPSOIL							
E-327	NO TOPSOIL							
E-328	NO TOPSOIL							
E-329	7,371.5	12,340.1	579.98	582.80	583.47	42	N	12/11/98
E-330	7,440.0	12,397.2	580.06	582.70	583.67	43	N	12/10/98
E-331	7,457.0	12,414.8	580.49	583.05	584.11	43	N	12/10/98

NOTES:

1. SURVEY CONTROL POINTS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING NO. 64.
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NOS. 29 AND 30.

SUMMARY OF TOPSOIL VERIFICATION DATA

REV.	BY / DATE	CHK'D / DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS- BUILT TOPSOIL SURFACE SURVEY DATA

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN , MICHIGAN
(313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
TOPSOIL SURFACE SURVEY VERIFICATION DATA- ECU

DRAWN: AS DATE 11/99 | SCALE: AS NOTED | DRAWING NO. 31 OF 65 | REV. NO. 1
DESIGNED: LWB DATE 11/99 | REVIEWED: JSB DATE 11/99
APPROVED: DATE | PROJECT NO. F66A2C | CADD FILE: F66A1E22

DWG. NO. 26 OF 65
PROJ. NO. F66A2C

POINT NO.		NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	001	7,427.9	12,965.3	582.13	583.51	17	N	11/25/98
E-	002	7,325.7	13,092.7	581.95	583.34	17	N	12/1/98
E-	003	7,293.3	13,113.2	581.76	583.01	15	N	12/1/98
E-	004	7,269.5	13,107.6	581.86	583.44	19	N	12/1/98
E-	005	7,242.7	13,098.6	581.90	583.32	17	N	12/1/98
E-	006	7,193.2	13,077.9	582.32	583.62	16	N	12/1/98
E-	007	7,103.0	13,043.9	581.97	583.41	17	N	12/1/98
E-	008	7,009.8	13,007.1	581.89	583.29	17	N	12/1/98
E-	009	6,917.2	12,970.9	581.42	582.78	16	N	11/21/98
E-	010	6,824.6	12,932.6	581.54	582.71	14	N	11/21/98
E-	011	DELETED						
E-	012	DELETED						
E-	013	DELETED						
E-	014	7,312.0	13,079.8	582.86	584.20	16	N	12/1/98
E-	015	DELETED						
E-	016	7,357.6	12,975.9	585.52	586.92	17	N	11/25/98
E-	017	7,327.1	13,015.3	585.77	587.11	16	N	11/25/98
E-	018	7,290.2	13,064.3	583.96	585.49	18	Y	12/1/98
E-	019	7,208.5	13,030.6	584.30	585.76	18	Y	12/1/98
E-	020	7,119.8	13,000.4	583.80	585.07	15	Y	11/21/98
E-	021	7,029.3	12,962.9	583.77	585.04	15	Y	11/21/98
E-	022	6,933.9	12,923.7	583.89	585.32	17	Y	11/20/98
E-	023	6,840.7	12,885.6	583.87	585.17	16	Y	11/20/98
E-	024	7,346.5	12,908.2	590.32	591.88	19	N	11/25/98
E-	025	DELETED						
E-	026	7,281.8	12,979.5	588.71	590.20	18	Y	11/25/98
E-	027	7,222.3	12,981.4	587.11	588.62	18	N	11/21/98
E-	028	7,136.7	12,956.4	586.67	588.02	16	N	11/21/98
E-	029	7,047.6	12,917.5	586.68	588.07	17	N	11/21/98
E-	030	6,951.1	12,877.7	586.69	588.10	17	N	11/20/98
E-	031	6,858.6	12,838.8	586.60	587.82	15	N	11/20/98
E-	032	7,308.5	12,874.5	595.10	596.36	15	N	11/21/98
E-	033	7,278.7	12,915.1	591.95	593.28	16	N	11/21/98
E-	034	7,155.2	12,909.7	589.64	590.85	15	N	11/21/98
E-	035	7,067.1	12,870.7	589.76	591.23	18	N	11/21/98
E-	036	6,968.1	12,830.4	589.89	591.31	17	N	11/20/98
E-	037	6,874.2	12,797.3	589.68	590.96	15	N	11/20/98
E-	038	6,798.3	12,707.1	592.78	594.05	15	N	11/20/98
E-	039	7,268.9	12,851.2	595.98	597.42	17	Y	11/21/98
E-	040	7,167.4	12,876.2	591.44	592.90	18	N	11/21/98
E-	041	7,087.7	12,825.9	592.84	594.03	14	N	11/21/98
E-	042	6,985.2	12,783.7	592.89	594.15	15	N	11/20/98
E-	043	6,893.1	12,746.0	592.67	594.24	19	N	11/20/98
E-	044	7,172.7	12,757.3	599.16	600.37	15	Y	11/21/98
E-	045	7,122.7	12,736.4	598.93	600.36	17	Y	11/21/98
E-	046	7,020.4	12,690.5	599.15	600.65	18	Y	11/20/98
E-	047	6,930.3	12,650.5	599.51	600.70	14	Y	11/20/98
E-	048	6,837.6	12,609.1	599.64	601.06	17	Y	11/20/98
E-	049	6,732.6	12,895.0	581.40	582.63	15	N	11/21/98
E-	050	6,640.0	12,856.9	581.40	582.64	15	N	11/21/98
E-	051	6,547.3	12,819.2	581.28	582.73	17	N	11/21/98
E-	052	6,455.0	12,781.5	581.80	583.14	16	N	11/21/98
E-	053	6,362.8	12,743.9	581.49	583.05	19	N	11/21/98
E-	054	6,270.7	12,706.0	581.64	583.02	17	N	11/21/98
E-	055	6,178.8	12,668.3	582.04	583.49	17	N	12/1/98
E-	056	6,085.9	12,630.0	581.84	583.12	15	N	12/3/98
E-	057	5,993.0	12,592.1	581.68	582.82	14	N	12/1/98
E-	058	5,946.4	12,572.9	580.80	582.14	16	N	12/1/98
E-	059	5,922.7	12,564.6	580.43	581.84	17	N	12/1/98
E-	060	6,747.2	12,847.1	583.80	585.17	16	Y	11/20/98
E-	061	6,658.7	12,811.2	583.71	585.08	16	Y	11/10/98
E-	062	6,564.2	12,772.4	583.68	584.99	16	Y	11/10/98
E-	063	6,473.6	12,735.8	583.64	584.95	16	Y	11/10/98
E-	064	6,384.9	12,700.3	583.78	585.08	16	Y	11/10/98
E-	065	6,286.4	12,659.3	583.72	585.10	17	Y	11/20/98
E-	066	6,196.9	12,622.2	583.64	585.12	18	Y	11/22/98

POINT NO.		NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	067	6,103.4	12,583.5	583.64	585.24	19	Y	11/22/98
E-	068	6,010.8	12,545.2	583.90	585.30	17	Y	11/25/98
E-	069	5,940.5	12,545.6	581.49	582.68	14	Y	12/1/98
E-	070	5,964.7	12,473.4	582.95	584.46	18	N	11/25/98
E-	071	5,976.7	12,508.1	583.73	585.22	18	N	11/25/98
E-	072	5,985.0	12,428.0	583.00	584.39	17	N	11/25/98
E-	073	5,987.7	12,482.8	583.83	585.44	19	N	11/25/98
E-	074	6,004.8	12,382.8	582.78	584.29	18	N	11/25/98
E-	075	6,008.0	12,437.8	583.92	585.42	18	N	11/25/98
E-	076	6,027.8	12,392.1	584.10	585.47	16	N	11/24/98
E-	077	6,048.1	12,345.9	583.80	585.40	19	N	11/24/98
E-	078	6,764.4	12,799.4	587.03	588.36	16	N	11/20/98
E-	079	6,677.7	12,762.8	586.78	588.29	18	N	11/10/98
E-	080	6,584.1	12,728.1	586.78	588.05	15	N	11/10/98
E-	081	6,487.3	12,688.2	586.71	588.02	16	N	11/10/98
E-	082	6,405.2	12,654.3	586.74	588.08	16	N	11/10/98
E-	083	6,303.8	12,612.7	586.93	588.21	15	N	11/20/98
E-	084	6,215.3	12,575.7	586.90	588.44	18	N	11/22/98
E-	085	6,122.0	12,537.7	587.06	588.40	16	N	11/22/98
E-	086	6,034.3	12,502.1	586.89	588.37	18	Y	11/25/98
E-	087	6,054.1	12,456.4	586.84	588.18	16	N	11/25/98
E-	088	6,073.8	12,410.2	586.99	588.44	17	N	11/24/98
E-	089	6,093.7	12,364.2	586.88	588.22	16	N	11/24/98
E-	090	DELETED						
E-	091	6,782.4	12,754.9	589.63	590.82	14	N	11/20/98
E-	092	6,694.4	12,719.1	589.43	590.61	14	N	11/10/98
E-	093	6,602.5	12,682.1	589.44	590.58	14	N	11/10/98
E-	094	6,511.3	12,644.5	589.55	590.72	14	N	11/10/98
E-	095	6,424.6	12,609.5	589.73	591.08	16	N	11/20/98
E-	096	6,315.6	12,561.8	589.61	591.00	17	N	11/20/98
E-	097	6,233.6	12,529.6	589.93	591.42	18	N	11/22/98
E-	098	6,140.1	12,491.3	589.86	591.38	18	N	11/22/98
E-	099	6,100.1	12,475.2	589.84	591.30	18	Y	11/25/98
E-	100	6,119.8	12,429.2	590.19	591.64	17	N	11/24/98
E-	101	6,139.7	12,383.4	589.55	591.16	19	N	11/24/98
E-	102	6,714.0	12,672.3	592.75	593.97	15	N	11/10/98
E-	103	6,621.9	12,634.2	592.52	593.80	15	N	11/10/98
E-	104	6,529.7	12,596.5	592.64	593.98	16	N	11/10/98
E-	105	6,446.3	12,562.3	592.71	594.15	17	N	11/20/98
E-	106	6,338.0	12,518.1	592.62	594.24	19	N	11/20/98
E-	107	6,250.8	12,482.7	593.08	594.39	16	N	11/22/98
E-	108	6,166.0	12,448.2	592.94	594.41	18	Y	11/24/98
E-	109	6,185.7	12,402.1	592.74	594.14	17	N	11/24/98
E-	110	6,640.6	12,587.6	595.55	597.09	18	N	11/22/98
E-	111	6,548.7	12,550.3	595.46	597.09	20	N	11/22/98
E-	112	6,467.1	12,516.9	595.93	597.40	18	N	11/22/98
E-	113	6,351.6	12,470.2	596.07	597.57	18	N	11/22/98
E-	114	6,746.8	12,571.3	599.90	601.36	18	Y	11/22/98
E-	115	6,659.5	12,541.2	598.99	600.55	19	Y	11/22/98
E-	116	6,567.2	12,504.1	599.24	600.65	17	Y	11/22/98
E-	117	6,486.9	12,471.1	599.72	601.17	17	Y	11/22/98
E-	118	6,363.8	12,445.3	599.06	600.46	17	N	11/22/98
E-	119	6,381.0	12,432.0	599.95	601.58	20	Y	11/22/98
E-	120	6,288.0	12,386.0	597.50	598.80	16	N	11/24/98
E-	121	6,196.0	12,348.0	591.28	592.64	16	N	11/24/98
E-	122	6,103.0	12,310.0	585.79	587.42	20	N	11/24/98
E-	123	6,027.4	12,273.6	582.10	583.39	15	N	11/25/98
E-	124	6,150.4	12,228.8	583.88	585.56	20	Y	11/24/98
E-	125	6,234.0	12,255.0	589.20	590.83	20	N	11/24/98
E-	126	6,326.0	12,293.0	596.12	597.51	17	N	11/24/98
E-	127	6,419.0	12,331.0	604.18	605.91	21	N	11/28/98
E-	128	6,511.0	12,368.0	609.04	610.38	16	N	11/23/98
E-	129	6,604.1	12,406.0	608.86	610.32	18	N	11/23/98
E-	130	6,697.1	12,444.1	608.33	610.12	21	N	11/23/98
E-	131	6,789.0	12,482.0	608.44	610.17	21	N	11/23/98
E-	132	6,734.0	12,351.0	611.07	612.71	20	N	11/28/98

POINT NO.		NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	133	6,642.1	12,314.0	610.78	612.42	20	N	11/28/98
E-	134	6,549.0	12,276.0	610.23	611.93	20	N	11/28/98
E-	135	6,439.8	12,257.2	603.98	605.23	15	N	11/28/98
E-	136	6,363.0	12,200.0	594.70	596.08	17	N	11/24/98
E-	137	6,260.0	12,140.0	584.46	585.74	15	Y	11/24/98
E-	138	6,326.6	12,096.1	584.11	585.61	18	Y	11/24/98
E-	139	6,402.0	12,107.0	589.88	591.30	17	N	11/24/98
E-	140	6,494.0	12,145.0	597.69	599.10	17	N	11/24/98
E-	141	6,587.0	12,183.0	605.17	606.69	18	N	11/30/98
E-	142	6,680.0	12,221.0	606.19	607.83	20	N	11/30/98
E-	143	6,772.0	12,259.0	605.71	606.97	15	N	11/30/98
E-	144	6,717.1	12,128.0	600.48	602.08	19	N	11/29/98
E-	145	6,625.0	12,091.0	600.23	601.52	15	N	12/2/98
E-	146	6,532.0	12,053.0	592.49	593.75	15	N	12/2/98
E-	147	6,400.2	12,039.6	584.32	585.54	15	Y	12/11/98
E-	148	6,476.1	11,921.8	582.10	583.34	15	N	12/4/98
E-	149	6,569.9	11,960.0	587.06	588.37	16	N	12/2/98
E-	150	6,650.4	12,030.9	597.49	598.67	14	Y	11/29/98
E-	151	6,755.0	12,035.0	591.93	593.26	16	N	11/29/98
E-	152	6,793.0	11,943.0	583.18	584.83	20	N	11/29/98
E-	153	6,700.0	11,905.0	585.09	586.33	15	N	11/29/98
E-	154	6,646.4	11,863.7	584.08	585.37	15	Y	11/29/98
E-	155	6,738.0	11,813.0	579.39	580.16	9	N	12/9/98
E-	156	7,307.1	12,801.0	599.58	601.00	17	N	11/21/98
E-	157	7,399.9	12,839.0	589.94	591.22	15	N	11/25/98
E-	158	7,492.0	12,877.0	582.66	584.02	16	N	11/25/98
E-	159	6,882.0	12,520.0	608.03	609.41	17	N	11/23/98
E-	160	6,974.1	12,557.0	607.65	609.17	18	N	11/30/98
E-	161	7,067.0	12,595.0	607.50	608.97	18	N	11/29/98
E-	162	7,160.0	12,633.0	607.58	609.04	18	N	11/29/98
E-	163	DELETED						
E-	164	7,344.9	12,707.9	602.06	603.86	22	N	11/29/98
E-	165	7,436.9	12,745.9	592.04	593.43	17	N	11/25/98
E-	166	DELETED						
E-	167	7,568.0	12,691.0	584.20	585.76	19	N	11/29/98
E-	168	7,475.0	12,654.0	593.38	594.74	16	N	11/29/98
E-	169	7,381.9	12,616.0	598.98	600.33	16	N	11/30/98
E-	170	7,290.0	12,578.0	603.13	604.70	19	N	11/30/98
E-	171	7,196.9	12,539.9	605.58	606.95	16	N	11/30/98
E-	172	7,105.0	12,503.0	608.11	609.59	18	N	11/30/98
E-	173	7,012.0	12,456.1	609.23	610.59	16	N	11/30/98
E-	174	6,920.0	12,427.0	610.34	611.74	17	N	11/28/98
E-	175	6,827.0	12,389.0	610.83	612.07	15	N	11/28/98
E-	176	6,865.0	12,297.0	605.07	606.60	18	N	12/2/98
E-	177	6,957.0	12,334.0	603.68	604.96	15	N	11/29/98
E-	178	7,050.0	12,372.0	601.88	603.26	17	N	11/29/98
E-	179	7,141.9	12,409.9	599.47	601.08	19	N	11/29/98
E-	180	7,234.9	12,447.9	596.69	598.39	20	N	11/29/98
E-	181	7,328.0	12,485.0	594.30	595.87	19	N	11/29/98
E-	182	7,420.0	12,523.0	591.04	592.57	18	N	11/29/98
E-	183	7,512.0	12,561.0	586.59	588.23	20	N	11/29/98
E-	184	7,605.0	12,599.0	583.33	584.79	18	N	11/30/98
E-	185	7,458.1	12,431.0	582.67	584.19	18	N	12/4/98
E-	186	7,365.0	12,392.9	584.87	586.29	17	N	11/29/98
E-	187	7,273.0	12,355.0	587.19	588.50	16	N	11/29/98
E-	188	7,180.0	12,317.0	589.63	590.93	16	N	12/11/98
E-	189	7,088.0	12,280.1	592.48	593.84	16	N	11/29/98
E-	190	6,995.0	12,242.0	594.85	596.21	16	N	11/29/98
E-	191	6,902.0	12,204.0	596.78	598.22	17	N	11/29/98
E-	192	6,810.0	12,165.9	598.60	600.20	19	N	11/29/98
E-	193	6,848.0	12,074.1	589.79	591.01	15	N	11/29/98
E-	194	6,940.0	12,111.0	587.04	588.42	17	N	11/29/98
E-	195	7,033.0	12,148.9	585.17	586.57	17	N	12/4/98
E-	196	7,125.0	12,186.9	582.89	584.65	21	N	12/4/98
E-	197	7,215.2	12,219.4	580.61	582.46	22	N	12/4/98
E-	198	7,311.7	12,259.7	579.54	580.35	10	Y	12/4/98
E-	199	7,403.0	12,300.0	578.88	579.88	12	N	12/9/98
E-	200	7,169.5	12,088.2	578.77	579.34	7	N	12/9/98

POINT NO.		NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	201	7,071.0	12,057.0	579.19	579.91	9	N	12/9/98
E-	202	6,977.9	12,019.2	579.44	580.93	18	Y	12/4/98
E-	203	6,885.0	11,981.0	580.51	582.21	20	N	12/4/98
E-	204	6,836.0	11,844.9	578.51	579.39	11	N	12/9/98
E-	205	7,211.2	12,770.3	599.13	600.66	18	N	11/21/98
E-	206	6,053.8	12,245.8	582.17	583.54	16	N	11/25/98
E-	207	5,997.6	12,333.0	582.25	583.78	18	N	11/25/98
E-	208	5,981.2	12,376.5	581.98	583.54	19	N	11/25/98
E-	209	6,018.6	12,372.1	583.30	584.71	17	N	11/24/98
E-	210	6,100.7	12,319.0	586.25	587.72	18	N	11/24/98
E-	211	6,123.0	12,332.4	587.85	589.18	16	N	11/24/98
E-	212	6,159.1	12,377.9	590.69	592.48	21	N	11/24/98
E-	213	6,236.1	12,418.5	595.62	596.87	15	Y	11/24/98
E-	214	6,112.9	12,189.9	581.84	583.64	22	N	11/25/98
E-	215	6,174.4	12,133.7	581.94	583.18	15	N	11/25/98
E-	216	6,227.7	12,093.9	582.04	583.43	17	N	11/25/98
E-	217	6,294.2	12,048.4	582.02	583.50	18	N	11/25/98
E-	218	6,371.0	11,995.6	581.80	583.44	20	N	11/25/98
E-	219	6,209.9	12,177.6	583.94	585.38	17	Y	11/24/98
E-	220	6,215.3	12,175.4	583.90	585.52	19	N	11/24/98
E-	221	6,271.4	12,195.5	589.25	590.66	17	N	11/24/98
E-	222	6,319.5	12,211.5	593.26	594.44	14	N	11/24/98
E-	223	6,397.6	12,239.0	599.62	601.04	17	N	11/24/98
E-	224	6,497.7	12,353.6	609.72	611.17	17	Y	11/30/98
E-	225	6,415.7	12,374.7	605.42	606.78	16	Y	11/28/98
E-	226	6,329.7	12,402.6	600.01	601.31	16	Y	11/24/98
E-	227	6,500.3	12,307.0	608.44	609.86	17	N	11/28/98
E-	228	6,502.8	11,965.7	584.14	586.02	23	Y	12/2/98
E-	229	6,623.0	11,818.4	581.68	582.96	15	N	12/4/98
E-	230	6,509.9	12,374.6	608.60	610.13	18	Y	11/23/98
E-	231	6,602.5	12,412.4	608.38	609.78	17	Y	11/23/98
E-	232	6,698.4	12,451.8	607.95	609.64	20	Y	11/23/98
E-	233	6,789.4	12,491.2	607.71	609.34	20	Y	11/23/98
E-	234	6,869.9	12,523.5	607.54	608.86	16	Y	11/23/98
E-	235	6,654.9	11,899.8	586.94	588.25	16	Y	11/29/98
E-	236	6,605.4	12,011.7	593.26	594.72	18	N	12/2/98
E-	237	6,957.1	12,557.8	607.21	608.74	18	Y	11/30/98
E-	238	7,050.6	12,599.9	606.85	608.09	15	Y	11/29/98
E-	239	7,143.9	12,637.6	606.58	608.08	18	Y	11/29/98
E-	240	7,254.1	12,683.4	606.32	608.42	25	Y	11/29/98
E-	241	7,261.0	12,739.9	602.21	603.78	19	Y	11/29/98
E-	242	6,587.7	12,326.4	612.19	613.53	16	Y	11/28/98
E-	243	6,630.3	12,346.1	612.04	613.60	19	Y	11/28/98
E-	244	6,723.0	12,390.4	611.97	613.75	21	Y	11/28/98
E-	245	6,814.7	12,432.6	611.61	613.13	18	Y	11/28/98
E-	246	6,905.7	12,477.4	611.38	613.08	20	Y	11/28/98
E-	247	6,995.9	12,520.0	610.27	611.79	18	Y	11/30/98
E-	248	7,081.3	12,560.5	610.03	611.57	18	Y	11/30/98
E-	249	7,108.5	12,573.4	609.87	611.23	16	Y	11/30/98
E-	250	7,171.9	12,609.0	609.15	610.60	17	N	11/30/98
E-	251	6,650.5	12,073.6	600.50	601.94	17	Y	12/2/98
E-	252	6,720.5	12,121.9	599.96	601.44	18	Y	11/30/98
E-	253	6,910.8	12,453.4	611.59	613.05	18	Y	11/28/98
E-	254	6,629.3	12,170.8	605.33	606.86	18	Y	11/30/98
E-	255	6,599.6	12,294.2	610.91	612.58	20	Y	11/28/98
E-	256	6,813.5	12,412.6	612.09	613.42	16	Y	11/28/98
E-	257	6,705.6	12,363.7	612.13	613.75	19	Y	11/28/98
E-	258	6,661.8	12,344.4	611.69	613.34	20	Y	11/28/98
E-	259	6,632.8	12,300.3	610.45	611.93	18	N	11/28/98
E-	260	6,625.5	12,328.5	611.76	613.19	17	N	11/28/98
E-	261	6,692.3	12,211.6	605.76	607.09	16	N	11/30/98
E-	262	6,942.9	12,353.0	605.62	606.91	15	Y	12/2/98
E-	263	6,761.0	12,166.2	601.04	602.37	16	Y	11/30/98
E-	264	6,839.9	12,232.7	601.95	603.44	18	Y	11/29/98
E-	265	6,879.2	12,267.3	602.56	603.96	17	Y	11/29/98
E-	266	6,639.6	11,828.1	582.03	583.33	16	Y	12/4/98
E-	267	6,666.2	11,787.2	579.75	581.45	20	Y	12/9/98

POINT NO.		NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	268	6,688.7	11,769.2	579.46	580.06	7	N	12/9/98
E-	269	6,714.0	11,761.3	579.08	579.82	9	N	12/9/98
E-	270	6,751.5	11,783.3	579.06	579.93	10	N	12/9/98
E-	271	6,916.8	11,902.9	578.49	579.05	7	N	12/9/98
E-	272	7,003.0	11,967.5	578.26	579.07	10	N	12/9/98
E-	273	7,082.6	12,025.2	578.61	579.36	9	N	12/9/98
E-	274	7,059.4	12,081.5	579.49	580.67	14	Y	12/4/98
E-	275	6,893.6	11,960.0	579.65	581.02	16	Y	12/4/98
E-	276	6,810.9	11,899.9	579.59	580.99	17	Y	12/4/98
E-	277	6,728.4	11,837.3	579.69	581.15	18	Y	12/4/98
E-	278	6,636.6	11,810.6	581.14	582.67	18	Y	12/4/98
E-	279	6,685.6	11,806.7	579.88	581.48	19	Y	12/9/98
E-	280	6,997.2	12,494.3	611.42	612.70	15	Y	11/30/98
E-	281	7,013.3	12,501.8	611.37	612.66	15	Y	11/30/98
E-	282	7,034.4	12,465.1	609.03	610.46	17	N	11/30/98
E-	283	7,085.6	12,392.7	601.07	602.60	18	N	11/29/98
E-	284	7,139.2	12,313.2	591.61	593.46	22	N	11/29/98
E-	285	7,226.3	12,205.9	579.52	580.98	18	Y	12/4/98
E-	286	7,263.4	12,158.0	578.28	579.15	10	N	12/9/98
E-	287	7,143.3	12,142.9	579.31	580.69	17	Y	12/4/98
E-	288	7,102.9	12,551.1	610.30	612.00	20	Y	11/30/98
E-	289	7,162.8	12,590.0	609.54	611.04	18	Y	11/30/98
E-	290	7,249.0	12,653.6	607.98	609.38	17	Y	11/29/98
E-	291	7,296.1	12,672.3	607.05	608.58	18	Y	11/29/98
E-	292	7,304.8	12,677.4	606.52	608.34	22	Y	11/29/98
E-	293	7,138.5	12,413.6	599.87	601.51	20	Y	11/29/98
E-	294	7,222.3	12,473.8	600.05	601.12	13	Y	12/7/98
E-	295	7,335.7	12,554.2	598.73	600.08	16	Y	11/29/98
E-	296	7,383.5	12,663.5	600.42	601.76	16	Y	11/30/98
E-	297	7,472.0	12,650.8	593.70	595.31	19	Y	11/29/98
E-	298	7,520.8	12,644.5	589.99	591.25	15	Y	11/29/98
E-	299	7,579.3	12,633.2	585.86	587.20	16	Y	11/30/98
E-	300	7,669.2	12,615.0	581.84	583.33	18	Y	11/30/98
E-	301	7,606.3	12,711.0	582.63	584.13	18	Y	11/25/98
E-	302	7,553.9	12,793.0	582.37	583.86	18	Y	11/25/98
E-	303	7,524.5	12,779.7	583.63	585.13	18	Y	11/25/98
E-	304	7,472.1	12,859.8	583.61	585.17	19	Y	11/25/98
E-	305	7,403.9	12,952.6	583.41	584.85	17	Y	11/25/98
E-	306	7,342.3	13,035.8	583.41	585.02	19	Y	11/25/98
E-	307	7,318.9	13,066.2	582.29	583.62	16	Y	12/1/98
E-	308	7,283.7	13,114.6	581.75	583.05	16	Y	12/1/98
E-	309	7,283.6	13,078.1	583.51	584.86	16	Y	12/1/98
E-	310	7,306.9	13,069.0	583.55	585.04	18	Y	12/1/98
E-	311	7,313.6	13,001.3	587.50	588.89	17	Y	11/25/98
E-	312	7,317.3	12,959.1	590.13	591.43	16	Y	11/25/98
E-	313	7,319.1	12,869.6	595.41	596.63	15	Y	11/21/98
E-	314	7,316.7	12,753.1	602.41	603.85	17	Y	11/29/98
E-	315	7,613.4	12,572.7	582.01	583.40	17	Y	11/30/98
E-	316	7,557.8	12,528.6	582.36	583.68	16	Y	11/30/98
E-	317	7,520.1	12,454.9	581.37	582.77	17	Y	11/30/98
E-	318	5,962.0	12,418.5	582.03	583.50	18	Y	11/25/98
E-	319	5,942.3	12,464.5	581.81	583.39	19	Y	11/25/98
E-	320	5,913.3	12,532.9	581.34	582.60	15	Y	12/1/98
E-	321	7,387.1	12,320.8	579.55	580.67	13	Y	12/4/98
E-	322	7,457.0	12,382.1	579.95	581.47	18	Y	12/4/98
E-	323	7,506.6	12,416.6	580.41	581.81	17	N	12/4/98
E-	324	7,494.8	12,365.1	579.48	580.45	12	N	12/9/98
E-	325	7,467.9	12,313.3	578.84	579.60	9	N	12/9/98
E-	326	7,449.8	12,295.4	578.96	579.69	9	N	12/9/98
E-	327	7,421.7	12,274.0	578.79	579.40	7	N	12/9/98
E-	328	7,343.2	12,217.4	578.48	579.19	9	N	12/9/98
E-	329	7,371.5	12,340.1	581.27	582.80	18	N	12/4/98
E-	330	7,440.0	12,397.2	581.12	582.70	19	N	12/4/98
E-	331	7,457.0	12,414.8	581.46	583.05	19	N	12/4/98

NOTES:

1. SURVEY CONTROL POINTS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING NO. 64.
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NOS. 24 AND 25.
3. POINTS WHICH ARE LOCATED WITHIN THE NEW PAVEMENT AREA (FORMER PROCESS CANAL) AND REQUIRED ONLY 20" OF COVER OVER THE GEOMEMBRANE (CLAY) SURFACE: E-155(26"), E-198(24"), E-199(24"), E-200(22"), E-201(24") E-202(33"), E-203(37"), E-204(25"), E-267(34"), E-268(22") E-269(22"), E-270(26"), E-271(22"), E-272(23"), E-273(21") E-274(30"), E-275(32"), E-276(32"), E-277(34"), E-279(38") E-285(32"), E-286(24"), E-287(31"), E-321(29"), E-323(32") E-324(26"), E-325(21"), E-326(22"), E-327(20") AND E-328(25")
4. POINT E-294 PROVIDES 13" OF COVERSOIL BUT WITH TOPSOIL (SEE DRAWING 31) PROVIDES 36" OF COVER OVER THE GEOMEMBRANE.

SUMMARY OF COVERSOIL VERIFICATION DATA

Visteon

REV.	BY / DATE	CHK'D / DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS- BUILT COVERSOIL SURFACE SURVEY DATA

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN
(313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
COVERSOIL SURFACE SURVEY VERIFICATION DATA- ECU

DRAWN: AS DATE 11/99	SCALE: AS NOTED	DRAWING NO. 26 OF 65	REV. NO. 1
DESIGNED: LWB DATE 11/99	REVIEWED: JSB DATE 11/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E21	

DWG. NO. 21 OF 65
PROJ. NO. F66A2C

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-001	7,427.9	12,965.3	580.75	582.13	1.4	N	11/13/98
E-002	7,325.7	13,092.7	580.51	581.95	1.4	N	11/19/98
E-003	7,293.3	13,113.2	580.38	581.76	1.4	N	11/19/98
E-004	7,269.5	13,107.6	580.64	581.86	1.2	N	11/19/98
E-005	7,242.7	13,098.6	580.62	581.90	1.3	N	11/19/98
E-006	7,193.2	13,077.9	580.50	582.32	1.8	N	11/19/98
E-007	7,103.0	13,043.9	580.28	581.97	1.7	N	11/7/98
E-008	7,009.8	13,007.1	580.19	581.89	1.7	N	11/4/98
E-009	6,917.2	12,970.9	580.09	581.42	1.3	N	11/4/98
E-010	6,824.6	12,932.6	580.24	581.54	1.3	N	11/4/98
E-011	DELETED						
E-012	DELETED						
E-013	DELETED						
E-014	7,312.0	13,079.8	581.58	582.86	1.3	N	11/19/98
E-015	DELETED						
E-016	7,357.6	12,975.9	584.27	585.52	1.3	N	11/13/98
E-017	7,327.1	13,015.3	584.25	585.77	1.5	N	11/13/98
E-018	7,290.2	13,064.3	582.82	583.96	1.1	Y	11/10/98
E-019	7,208.5	13,030.6	583.23	584.30	1.1	Y	11/10/98
E-020	7,119.8	13,000.4	582.69	583.80	1.1	Y	10/31/98
E-021	7,029.3	12,962.9	582.69	583.77	1.1	Y	10/31/98
E-022	6,933.9	12,923.7	582.79	583.89	1.1	Y	10/31/98
E-023	6,840.7	12,885.6	582.80	583.87	1.1	Y	10/31/98
E-024	7,346.5	12,908.2	589.28	590.32	1.0	N	11/13/98
E-025	DELETED						
E-026	7,281.8	12,979.5	587.45	588.71	1.3	Y	11/10/98
E-027	7,222.3	12,981.4	585.94	587.11	1.2	N	11/10/98
E-028	7,136.7	12,956.4	585.60	586.67	1.1	N	10/31/98
E-029	7,047.6	12,917.5	585.62	586.68	1.1	N	10/31/98
E-030	6,951.1	12,877.7	585.60	586.69	1.1	N	10/31/98
E-031	6,858.6	12,838.8	585.47	586.60	1.1	N	10/31/98
E-032	7,308.5	12,874.5	594.02	595.10	1.1	N	11/10/98
E-033	7,278.7	12,915.1	590.78	591.95	1.2	N	11/10/98
E-034	7,155.2	12,909.7	588.48	589.64	1.2	N	10/31/98
E-035	7,067.1	12,870.7	588.59	589.76	1.2	N	10/31/98
E-036	6,968.1	12,830.4	588.70	589.89	1.2	N	10/31/98
E-037	6,874.2	12,797.3	588.63	589.68	1.0	N	10/31/98
E-038	6,798.3	12,707.1	591.63	592.78	1.1	N	11/4/98
E-039	7,268.9	12,851.2	594.68	595.98	1.3	Y	11/10/98
E-040	7,167.4	12,876.2	590.33	591.44	1.1	N	10/31/98
E-041	7,087.7	12,825.9	591.65	592.84	1.2	N	10/31/98
E-042	6,985.2	12,783.7	591.79	592.89	1.1	N	10/31/98
E-043	6,893.1	12,746.0	591.50	592.67	1.2	N	10/31/98
E-044	7,172.7	12,757.3	597.89	599.16	1.3	Y	11/7/98
E-045	7,122.7	12,736.4	597.70	598.93	1.2	Y	11/7/98
E-046	7,020.4	12,690.5	597.94	599.15	1.2	Y	11/7/98
E-047	6,930.3	12,650.5	598.38	599.51	1.1	Y	11/7/98
E-048	6,837.6	12,609.1	598.55	599.64	1.1	Y	11/5/98
E-049	6,732.6	12,895.0	580.36	581.40	1.0	N	11/4/98
E-050	6,640.0	12,856.9	580.26	581.40	1.1	N	11/4/98
E-051	6,547.3	12,819.2	580.15	581.28	1.1	N	11/1/98
E-052	6,455.0	12,781.5	580.61	581.80	1.2	N	11/1/98
E-053	6,362.8	12,743.9	580.50	581.49	1.0	N	11/1/98
E-054	6,270.7	12,706.0	580.61	581.64	1.0	N	11/1/98
E-055	6,178.8	12,668.3	580.99	582.04	1.0	N	11/1/98
E-056	6,085.9	12,630.0	580.74	581.84	1.1	N	11/1/98
E-057	5,993.0	12,592.1	580.33	581.68	1.3	N	11/1/98
E-058	5,946.4	12,572.9	579.48	580.80	1.3	N	11/3/98
E-059	5,922.7	12,564.6	579.40	580.43	1.0	N	11/3/98
E-060	6,747.2	12,847.1	582.76	583.80	1.0	Y	11/4/98
E-061	6,658.7	12,811.2	582.70	583.71	1.0	Y	11/4/98
E-062	6,564.2	12,772.4	582.58	583.68	1.1	Y	11/1/98
E-063	6,473.6	12,735.8	582.64	583.64	1.0	Y	11/1/98
E-064	6,384.9	12,700.3	582.57	583.78	1.2	Y	11/1/98
E-065	6,286.4	12,659.3	582.52	583.72	1.2	Y	11/1/98
E-066	6,196.9	12,622.2	582.44	583.64	1.2	Y	11/1/98
E-067	6,103.4	12,583.5	582.39	583.64	1.3	Y	11/1/98

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-068	6,010.8	12,545.2	582.69	583.90	1.2	Y	11/1/98
E-069	5,940.5	12,545.6	580.21	581.49	1.3	Y	11/3/98
E-070	5,964.7	12,473.4	581.57	582.95	1.4	N	11/3/98
E-071	5,976.7	12,508.1	582.63	583.73	1.1	N	11/3/98
E-072	5,985.0	12,428.0	581.73	583.00	1.3	N	11/3/98
E-073	5,987.7	12,482.8	582.67	583.83	1.2	N	11/3/98
E-074	6,004.8	12,382.8	581.55	582.78	1.2	N	11/9/98
E-075	6,008.0	12,437.8	582.92	583.92	1.0	N	11/3/98
E-076	6,027.8	12,392.1	582.68	584.10	1.4	N	11/9/98
E-077	6,048.1	12,345.9	582.69	583.80	1.1	N	11/9/98
E-078	6,764.4	12,799.4	585.98	587.03	1.0	N	11/4/98
E-079	6,677.7	12,762.8	585.71	586.78	1.1	N	11/4/98
E-080	6,584.1	12,728.1	585.72	586.78	1.1	N	11/1/98
E-081	6,487.3	12,688.2	585.49	586.71	1.2	N	11/1/98
E-082	6,405.2	12,654.3	585.73	586.74	1.0	N	11/1/98
E-083	6,303.8	12,612.7	585.72	586.93	1.2	N	11/1/98
E-084	6,215.3	12,575.7	585.76	586.90	1.1	N	11/1/98
E-085	6,122.0	12,537.7	586.04	587.06	1.0	N	11/1/98
E-086	6,034.3	12,502.1	585.66	586.89	1.2	Y	11/1/98
E-087	6,054.1	12,456.4	585.66	586.84	1.2	N	11/3/98
E-088	6,073.8	12,410.2	585.81	586.99	1.2	N	11/9/98
E-089	6,093.7	12,364.2	585.66	586.88	1.2	N	11/9/98
E-090	DELETED						
E-091	6,782.4	12,754.9	588.57	589.63	1.1	N	11/4/98
E-092	6,694.4	12,719.1	588.37	589.43	1.1	N	11/4/98
E-093	6,602.5	12,682.1	588.42	589.44	1.0	N	11/4/98
E-094	6,511.3	12,644.5	588.52	589.55	1.0	N	11/4/98
E-095	6,424.6	12,609.5	588.65	589.73	1.1	N	11/3/98
E-096	6,315.6	12,561.8	588.58	589.61	1.0	N	11/3/98
E-097	6,233.6	12,529.6	588.89	589.93	1.0	N	11/3/98
E-098	6,140.1	12,491.3	588.88	589.86	1.0	N	11/3/98
E-099	6,100.1	12,475.2	588.82	589.84	1.0	Y	11/3/98
E-100	6,119.8	12,429.2	588.96	590.19	1.2	N	11/9/98
E-101	6,139.7	12,383.4	588.53	589.55	1.0	N	11/9/98
E-102	6,714.0	12,672.3	591.62	592.75	1.1	N	11/4/98
E-103	6,621.9	12,634.2	591.41	592.52	1.1	N	11/4/98
E-104	6,529.7	12,596.5	591.49	592.64	1.1	N	11/4/98
E-105	6,446.3	12,562.3	591.60	592.71	1.1	N	11/4/98
E-106	6,338.0	12,518.1	591.62	592.62	1.0	N	11/5/98
E-107	6,250.8	12,482.7	591.75	593.08	1.3	N	11/5/98
E-108	6,166.0	12,448.2	591.68	592.94	1.3	Y	11/9/98
E-109	6,185.7	12,402.1	591.60	592.74	1.1	N	11/9/98
E-110	6,640.6	12,587.6	594.50	595.55	1.0	N	11/5/98
E-111	6,548.7	12,550.3	594.44	595.46	1.0	N	11/5/98
E-112	6,467.1	12,516.9	594.87	595.93	1.1	N	11/5/98
E-113	6,351.6	12,470.2	595.03	596.07	1.0	N	11/5/98
E-114	6,746.8	12,571.3	598.77	599.90	1.1	Y	11/5/98
E-115	6,659.5	12,541.2	598.01	598.99	1.0	Y	11/5/98
E-116	6,567.2	12,504.1	598.15	599.24	1.1	Y	11/5/98
E-117	6,486.9	12,471.1	598.65	599.72	1.1	Y	11/5/98
E-118	6,363.8	12,445.3	597.99	599.06	1.1	N	11/9/98
E-119	6,381.0	12,432.0	598.67	599.95	1.3	Y	11/6/98
E-120	6,288.0	12,386.0	596.30	597.50	1.2	N	11/9/98
E-121	6,196.0	12,348.0	590.14	591.28	1.1	N	11/9/98
E-122	6,103.0	12,310.0	584.70	585.79	1.1	N	11/9/98
E-123	6,027.4	12,273.6	580.98	582.10	1.1	N	11/9/98
E-124	6,150.4	12,228.8	582.84	583.88	1.0	Y	11/9/98
E-125	6,234.0	12,255.0	588.08	589.20	1.1	N	11/9/98
E-126	6,326.0	12,293.0	595.04	596.12	1.1	N	11/9/98
E-127	6,419.0	12,331.0	603.17	604.18	1.0	N	11/9/98
E-128	6,511.0	12,368.0	607.97	609.04	1.1	N	11/9/98
E-129	6,604.1	12,406.0	607.80	608.86	1.1	N	11/9/98
E-130	6,697.1	12,444.1	607.27	608.33	1.1	N	11/9/98
E-131	6,789.0	12,482.0	607.35	608.44	1.1	N	11/9/98
E-132	6,734.0	12,351.0	609.96	611.07	1.1	N	11/18/98
E-133	6,642.1	12,314.0	609.73	610.78	1.0	N	11/18/98

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-134	6,549.0	12,276.0	609.18	610.23	1.1	N	11/14/98
E-135	6,439.8	12,257.2	602.73	603.98	1.3	N	11/16/98
E-136	6,363.0	12,200.0	593.61	594.70	1.1	N	11/14/98
E-137	6,260.0	12,140.0	583.03	584.46	1.4	Y	11/14/98
E-138	6,326.6	12,096.1	583.12	584.11	1.0	Y	11/14/98
E-139	6,402.0	12,107.0	588.76	589.88	1.1	N	11/16/98
E-140	6,494.0	12,145.0	596.72	597.69	1.0	N	11/14/98
E-141	6,587.0	12,183.0	604.05	605.17	1.1	N	11/14/98
E-142	6,680.0	12,221.0	605.02	606.19	1.2	N	11/18/98
E-143	6,772.0	12,259.0	604.31	605.71	1.4	N	11/18/98
E-144	6,717.1	12,128.0	599.23	600.48	1.3	N	11/18/98
E-145	6,625.0	12,091.0	599.10	600.23	1.1	N	11/16/98
E-146	6,532.0	12,053.0	591.38	592.49	1.1	N	11/16/98
E-147	6,400.2	12,039.6	583.32	584.32	1.0	Y	11/16/98
E-148	6,476.1	11,921.8	580.73	582.10	1.4	N	11/19/98
E-149	6,569.9	11,960.0	585.90	587.06	1.2	N	11/19/98
E-150	6,650.4	12,030.9	596.41	597.49	1.1	Y	11/19/98
E-151	6,755.0	12,035.0	590.76	591.93	1.2	N	11/19/98
E-152	6,793.0	11,943.0	581.87	583.18	1.3	N	11/19/98
E-153	6,700.0	11,905.0	584.01	585.09	1.1	N	11/19/98
E-154	6,646.4	11,863.7	582.80	584.08	1.3	Y	11/19/98
E-155	6,738.0	11,813.0	577.99	579.39	1.4	N	11/23/98
E-156	7,307.1	12,801.0	598.37	599.58	1.2	N	11/10/98
E-157	7,399.9	12,839.0	588.75	589.94	1.2	N	11/13/98
E-158	7,492.0	12,877.0	581.17	582.66	1.5	N	11/13/98
E-159	6,882.0	12,520.0	606.62	608.03	1.4	N	11/9/98
E-160	6,974.1	12,557.0	606.33	607.65	1.3	N	11/9/98
E-161	7,067.0	12,595.0	606.20	607.50	1.3	N	11/9/98
E-162	7,160.0	12,633.0	605.83	607.58	1.8	N	11/21/98
E-163	DELETED						
E-164	7,344.9	12,707.9	600.96	602.06	1.1	N	11/13/98
E-165	7,436.9	12,745.9	590.94	592.04	1.1	N	11/13/98
E-166	DELETED						
E-167	7,568.0	12,691.0	582.97	584.20	1.2	N	11/13/98
E-168	7,475.0	12,654.0	592.24	593.38	1.1	N	11/13/98
E-169	7,381.9	12,616.0	597.92	598.98	1.1	N	11/22/98
E-170	7,290.0	12,578.0	601.71	603.13	1.4	N	11/22/98
E-171	7,196.9	12,539.9	604.49	605.58	1.1	N	11/22/98
E-172	7,105.0	12,503.0	607.01	608.11	1.1	N	11/21/98
E-173	7,012.0	12,456.1	608.00	609.23	1.2	N	11/20/98
E-174	6,920.0	12,427.0	609.28	610.34	1.1	N	11/20/98
E-175	6,827.0	12,389.0	609.63	610.83	1.2	N	11/18/98
E-176	6,865.0	12,297.0	603.75	605.07	1.3	N	11/20/98
E-177	6,957.0	12,334.0	602.64	603.68	1.0	N	11/20/98
E-178	7,050.0	12,372.0	600.47	601.88	1.4	N	11/21/98
E-179	7,141.9	12,409.9	597.98	599.47	1.5	N	11/22/98
E-180	7,234.9	12,447.9	595.53	596.69	1.2	N	11/22/98
E-181	7,328.0	12,485.0	593.17	594.30	1.1	N	11/22/98
E-182	7,420.0	12,523.0	589.91	591.04	1.1	N	11/22/98
E-183	7,512.0	12,561.0	585.41	586.59	1.2	N	11/22/98
E-184	7,605.0	12,599.0	582.01	583.33	1.3	N	11/25/98
E-185	7,458.1	12,431.0	581.68	582.67	1.0	N	11/25/98
E-186	7,365.0	12,392.9	583.81	584.87	1.1	N	11/22/98
E-187	7,273.0	12,355.0	585.94	587.19	1.3	N	11/22/98
E-188	7,180.0	12,317.0	588.45	589.63	1.2	N	11/22/98
E-189	7,088.0	12,280.1	590.81	592.48	1.7	N	11/21/98
E-190	6,995.0	12,242.0	593.45	594.85	1.4	N	11/21/98
E-191	6,902.0	12,204.0	595.39	596.78	1.4	N	11/20/98
E-192	6,810.0	12,165.9	597.33	598.60	1.3	N	11/19/98
E-193	6,848.0	12,074.1	588.60	589.79	1.2	N	11/19/98
E-194	6,940.0	12,111.0	585.88	587.04	1.2	N	11/20/98
E-195	7,033.0	12,148.9	583.78	585.17	1.4	N	11/21/98
E-196	7,125.0	12,186.9	581.54	582.89	1.4	N	11/21/98
E-197	7,215.2	12,219.4	579.51	580.61	1.1	N	11/24/98
E-198	7,311.7	12,259.7	578.34	579.54	1.2	Y	11/24/98
E-199	7,403.0	12,300.0	577.87	578.88	1.0	N	11/25/98
E-200	7,169.5	12,088.2	577.48	578.77	1.3	N	11/23/98

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-201	7,071.0	12,057.0	577.93	579.19	1.3	N	11/23/98
E-202	6,977.9	12,019.2	578.19	579.44	1.3	Y	11/20/98
E-203	6,885.0	11,981.0	579.12	580.51	1.4	N	11/20/98
E-204	6,836.0	11,844.9	577.28	578.51	1.2	N	11/23/98
E-205	7,211.2	12,770.3	598.00	599.13	1.1	N	11/10/98
E-206	6,053.8	12,245.8	581.07	582.17	1.1	N	11/9/98
E-207	5,997.6	12,333.0	581.08	582.25	1.2	N	11/9/98
E-208	5,981.2	12,376.5	580.80	581.98	1.2	N	11/9/98
E-209	6,018.6	12,372.1	582.02	583.30	1.3	N	11/9/98
E-210	6,100.7	12,319.0	0.00				
			585.23	586.25	1.0	N	11/9/98
E-211	6,123.0	12,332.4	0.00				
			586.83	587.85	1.0	N	11/9/98
E-212	6,159.1	12,377.9	589.46	590.69	1.2	N	11/9/98
E-213	6,236.1	12,418.5	594.62	595.62	1.0	Y	11/6/98
E-214	6,112.9	12,189.9	580.73	581.84	1.1	N	11/9/98
E-215	6,174.4	12,133.7	580.64	581.94	1.3	N	11/14/98
E-216	6,227.7	12,093.9	580.78	582.04	1.3	N	11/16/98
E-217	6,294.2	12,048.4	581.04	582.02	1.0	N	11/14/98
E-218	6,371.0	11,995.6	580.84	581.80	1.0	N	11/14/98
E-219	6,209.9	12,177.6	582.63	583.94	1.3	Y	11/14/98
E-220	6,215.3	12,175.4	582.78	583.90	1.1	N	11/14/98
E-221	6,271.4	12,195.5	588.14	589.25	1.1	N	11/14/98
E-222	6,319.5	12,211.5	592.22	593.26	1.0	N	11/14/98
E-223	6,397.6	12,239.0	598.56	599.62	1.1	N	11/16/98
E-224	6,497.7	12,353.6	608.67	609.72	1.1	Y	11/9/98
E-225	6,415.7	12,374.7	604.38	605.42	1.0	Y	11/9/98
E-226	6,329.7	12,402.6	598.98	600.01	1.0	Y	11/6/98
E-227	6,500.3	12,307.0	607.41	608.44	1.0	N	11/14/98
E-228	6,502.8	11,965.7	583.03	584.14	1.1	Y	11/16/98
E-229	6,623.0	11,818.4	580.60	581.68	1.1	N	11/19/98
E-230	6,509.9	12,374.6	607.48	608.60	1.1	Y	11/9/98
E-231	6,602.5	12,412.4	607.32	608.38	1.1	Y	11/9/98
E-232	6,698.4	12,451.8	606.84	607.95	1.1	Y	11/9/98
E-233	6,789.4	12,491.2	606.63	607.71	1.1	Y	11/9/98
E-234	6,869.9	12,523.5	606.33	607.54	1.2	Y	11/9/98
E-235	6,654.9	11,899.8	585.87	586.94	1.1	Y	11/19/98
E-236	6,605.4	12,011.7	592.09	593.26	1.2	N	11/19/98
E-237	6,957.1	12,557.8	605.86	607.21	1.4	Y	11/9/98
E-238	7,050.6	12,599.9	605.59	606.85	1.3	Y	11/9/98
E-239	7,143.9	12,637.6	605.16	606.58	1.4	Y	11/21/98
E-240	7,254.1	12,683.4	605.02	606.32	1.3	Y	11/22/98
E-241	7,261.0	12,739.9	601.08	602.21	1.1	Y	11/10/98
E-242	6,587.7	12,326.4	611.18	612.19	1.0	Y	11/18/98
E-243	6,630.3	12,346.1	610.97	612.04	1.1	Y	11/18/98
E-244	6,723.0	12,390.4	610.52	611.97	1.5	Y	11/18/98
E-245	6,814.7	12,432.6	610.30	611.61	1.3	Y	11/19/98
E-246	6,905.7	12,477.4	609.26	611.38	2.1	Y	11/20/98
E-247	6,995.9	12,520.0	608.81	610.27	1.5	Y	11/20/98
E-248	7,081.3	12,560.5	608.16	610.03	1.9	Y	11/21/98
E-249	7,108.5	12,573.4	608.16	609.87	1.7	Y	11/21/98
E-250	7,171.9	12,609.0	607.50	609.15	1.6	N	11/21/98
E-251	6,650.5	12,073.6	599.43	600.50	1.1	Y	11/18/98
E-252	6,720.5	12,121.9	598.67	599.96	1.3	Y	11/18/98
E-253	6,910.8	12,453.4	610.54	611.59	1.1	Y	11/20/98
E-254	6,629.3	12,170.8	604.13	605.33	1.2	Y	11/18/98
E-255	6,599.6	12,294.2	609.67	610.91	1.2	Y	11/18/98
E-256	6,813.5	12,412.6	610.97	612.09	1.1	Y	11/18/98
E-257	6,705.6	12,363.7	611.10	612.13	1.0	Y	11/18/98
E-258	6,661.8	12,344.4	610.58	611.69	1.1	Y	11/18/98
E-259	6,632.8	12,300.3	609.38	610.45	1.1	N	11/18/98
E-260	6,625.5	12,328.5	610.62	611.76	1.1	N	11/18/98
E-261	6,692.3	12,211.6	604.30	605.76	1.5	N	11/18/98
E-262	6,942.9	12,353.0	604.55	605.62	1.1	Y	11/20/98
E-263	6,761.0	12,166.2	599.73	601.04	1.3	Y	11/18/98
E-264	6,839.9	12,232.7	600.70	601.95	1.3	Y	11/18/98
E-265	6,879.2	12,267.3	601.46	602.56	1.1	Y	11/20/98
E-266	6,639.6	11,828.1	580.94	582.03	1.1	Y	11/19/98

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-267	6,666.2	11,787.2	578.60	579.75	1.1	Y	11/21/98
E-268	6,688.7	11,769.2	578.20	579.46	1.3	N	11/23/98
E-269	6,714.0	11,761.3	578.00	579.08	1.1	N	11/23/98
E-270	6,751.5	11,783.3	577.80	579.06	1.3	N	11/23/98
E-271	6,916.8	11,902.9	577.24	578.49	1.3	N	11/23/98
E-272	7,003.0	11,967.5	577.17	578.26	1.1	N	11/23/98
E-273	7,082.6	12,025.2	577.65	578.61	1.0	N	11/24/98
E-274	7,059.4	12,081.5	578.13	579.49	1.4	Y	11/23/98
E-275	6,893.6	11,960.0	578.36	579.65	1.3	Y	11/21/98
E-276	6,810.9	11,899.9	578.35	579.59	1.2	Y	11/21/98
E-277	6,728.4	11,837.3	578.30	579.69	1.4	Y	11/21/98
E-278	6,636.6	11,810.6	579.96	581.14	1.2	Y	11/19/98
E-279	6,685.6	11,806.7	578.32	579.88	1.6	Y	11/21/98
E-280	6,997.2	12,494.3	610.21	611.42	1.2	Y	11/20/98
E-281	7,013.3	12,501.8	610.11	611.37	1.3	Y	11/20/98
E-282	7,034.4	12,465.1	607.71	609.03	1.3	N	11/20/98
E-283	7,085.6	12,392.7	599.87	601.07	1.2	N	11/21/98
E-284	7,139.2	12,313.2	590.36	591.61	1.3	N	11/21/98
E-285	7,226.3	12,205.9	578.28	579.52	1.2	Y	11/24/98
E-286	7,263.4	12,158.0	577.13	578.28	1.1	N	11/24/98
E-287	7,143.3	12,142.9	578.14	579.31	1.2	Y	11/23/98
E-288	7,102.9	12,551.1	609.04	610.30	1.3	Y	11/21/98
E-289	7,162.8	12,590.0	608.16	609.54	1.4	Y	11/21/98
E-290	7,249.0	12,653.6	606.48	607.98	1.5	Y	11/22/98
E-291	7,296.1	12,672.3	605.80	607.05	1.3	Y	11/22/98
E-292	7,304.8	12,677.4	605.36	606.52	1.2	Y	11/22/98
E-293	7,138.5	12,413.6	598.54	599.87	1.3	Y	11/22/98
E-294	7,222.3	12,473.8	598.99	600.05	1.1	Y	11/22/98
E-295	7,335.7	12,554.2	597.53	598.73	1.2	Y	11/22/98
E-296	7,383.5	12,663.5	599.25	600.42	1.2	Y	11/23/98
E-297	7,472.0	12,650.8	592.64	593.70	1.1	Y	11/13/98
E-298	7,520.8	12,644.5	588.96	589.99	1.0	Y	11/13/98
E-299	7,579.3	12,633.2	584.90	585.86	1.0	Y	11/13/98
E-300	7,669.2	12,615.0	580.54	581.84	1.3	Y	11/25/98
E-301	7,606.3	12,711.0	581.47	582.63	1.2	Y	11/13/98
E-302	7,553.9	12,793.0	580.85	582.37	1.5	Y	11/13/98
E-303	7,524.5	12,779.7	582.35	583.63	1.3	Y	11/13/98
E-304	7,472.1	12,859.8	582.40	583.61	1.2	Y	11/13/98
E-305	7,403.9	12,952.6	582.25	583.41	1.2	Y	11/13/98
E-306	7,342.3	13,035.8	582.28	583.41	1.1	Y	11/13/98
E-307	7,318.9	13,086.2	581.11	582.29	1.2	Y	11/19/98
E-308	7,283.7	13,114.6	580.51	581.75	1.2	Y	11/19/98
E-309	7,283.6	13,078.1	582.00	583.51	1.5	Y	11/10/98
E-310	7,306.9	13,069.0	582.40	583.55	1.1	Y	11/13/98
E-311	7,313.6	13,001.3	586.43	587.50	1.1	Y	11/10/98
E-312	7,317.3	12,959.1	588.96	590.13	1.2	Y	11/10/98
E-313	7,319.1	12,869.6	594.23	595.41	1.2	Y	11/10/98
E-314	7,316.7	12,753.1	601.29	602.41	1.1	Y	11/10/98
E-315	7,613.4	12,572.7	580.65	582.01	1.4	Y	11/25/98
E-316	7,557.8	12,528.6	581.02	582.36	1.3	Y	11/25/98
E-317	7,520.1	12,454.9	580.39	581.37	1.0	Y	11/25/98
E-318	5,962.0	12,418.5	580.90	582.03	1.1	Y	11/3/98
E-319	5,942.3	12,464.5	580.72	581.81	1.1	Y	11/3/98
E-320	5,913.3	12,532.9	580.21	581.34	1.1	Y	11/3/98
E-321	7,387.1	12,320.8	578.23	579.55	1.3	Y	11/25/98
E-322	7,457.0	12,382.1	578.87	579.95	1.1	Y	11/25/98
E-323	7,506.6	12,416.6	579.14	580.41	1.3	N	11/25/98
E-324	7,494.8	12,365.1	578.28	579.48	1.2	N	11/25/98
E-325	7,467.9	12,313.3	577.85	578.84	1.0	N	11/25/98
E-326	7,449.8	12,295.4	577.89	578.96	1.1	N	11/25/98
E-327	7,421.7	12,274.0	577.77	578.79	1.0	N	11/25/98
E-328	7,343.2	12,217.4	577.11	578.48	1.4	N	11/24/98
E-329	7,371.5	12,340.1	579.98	581.27	1.3	N	11/25/98
E-330	7,440.0	12,397.2	580.06	581.12	1.1	N	11/25/98
E-331	7,457.0	12,414.8	580.49	581.46	1.0	N	11/25/98

SUMMARY OF SAND VERIFICATION DATA

NOTES:

1. SURVEY CONTROL POINTS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING NO. 64.
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NOS. 19 AND 20.

REV.	BY / DATE	CHK'D / DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS- BUILT SAND SURFACE SURVEY DATA

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN
(313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
SAND SURFACE SURVEY VERIFICATION DATA- ECU

DRAWN: AS DATE 10/99 | SCALE: AS NOTED | DRAWING NO. 21 OF 65 | REV. NO. 1
DESIGNED: LWB DATE 10/99 | REVIEWED: JSB DATE 10/99
APPROVED: DATE | PROJECT NO. F66A2C | CADD FILE: F66A1E20

DWG. NO. 13 OF 65
PROJ. NO. F66A2C

POINT NO.		NORTH	EAST	WASTE ELEV	CLAY ELEV	CLAY THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	001	7,427.9	12,965.3	577.20	580.75	3.5	N	10/29/98
E-	002	7,325.7	13,092.7	577.23	580.51	3.3	N	10/29/98
E-	003	7,293.3	13,113.2	576.69	580.38	3.7	N	10/29/98
E-	004	7,269.5	13,107.6	577.37	580.64	3.3	N	10/28/98
E-	005	7,242.7	13,098.6	577.07	580.62	3.5	N	10/28/98
E-	006	7,193.2	13,077.9	577.27	580.50	3.2	N	10/28/98
E-	007	7,103.0	13,043.9	577.18	580.28	3.1	N	7/6/98
E-	008	7,009.8	13,007.1	577.11	580.19	3.1	N	7/6/98
E-	009	6,917.2	12,970.9	577.07	580.09	3.0	N	7/6/98
E-	010	6,824.6	12,932.6	577.16	580.24	3.1	N	7/6/98
E-	011	DELETED						
E-	012	DELETED						
E-	013	DELETED						
E-	014	7,312.0	13,079.8	578.27	581.58	3.3	N	10/29/98
E-	015	DELETED						
E-	016	7,357.6	12,975.9	580.70	584.27	3.6	N	10/29/98
E-	017	7,327.1	13,015.3	580.84	584.25	3.4	N	10/29/98
E-	018	7,290.2	13,064.3	579.50	582.82	3.3	Y	10/28/98
E-	019	7,208.5	13,030.6	579.81	583.23	3.4	Y	10/28/98
E-	020	7,119.8	13,000.4	579.54	582.69	3.2	Y	7/6/98
E-	021	7,029.3	12,962.9	579.65	582.69	3.0	Y	7/6/98
E-	022	6,933.9	12,923.7	579.65	582.79	3.1	Y	7/6/98
E-	023	6,840.7	12,885.6	579.67	582.80	3.1	Y	7/6/98
E-	024	7,346.5	12,908.2	585.96	589.28	3.3	N	10/29/98
E-	025	DELETED						
E-	026	7,281.8	12,979.5	584.21	587.45	3.2	Y	10/28/98
E-	027	7,222.3	12,981.4	582.57	585.94	3.4	N	10/28/98
E-	028	7,136.7	12,956.4	582.57	585.60	3.0	N	7/6/98
E-	029	7,047.6	12,917.5	582.52	585.62	3.1	N	7/6/98
E-	030	6,951.1	12,877.7	582.39	585.60	3.2	N	7/6/98
E-	031	6,858.6	12,838.8	582.42	585.47	3.1	N	7/6/98
E-	032	7,308.5	12,874.5	590.75	594.02	3.3	N	10/28/98
E-	033	7,278.7	12,915.1	587.57	590.78	3.2	N	10/28/98
E-	034	7,155.2	12,909.7	585.48	588.48	3.0	N	7/6/98
E-	035	7,067.1	12,870.7	585.62	588.59	3.0	N	7/6/98
E-	036	6,968.1	12,830.4	585.56	588.70	3.1	N	7/9/98
E-	037	6,874.2	12,797.3	585.66	588.63	3.0	N	7/7/98
E-	038	6,798.3	12,707.1	588.50	591.63	3.1	N	7/6/98
E-	039	7,268.9	12,851.2	591.16	594.68	3.5	Y	10/28/98
E-	040	7,167.4	12,876.2	587.31	590.33	3.0	N	7/6/98
E-	041	7,087.7	12,825.9	588.49	591.65	3.2	N	7/6/98
E-	042	6,985.2	12,783.7	588.67	591.79	3.1	N	7/9/98
E-	043	6,893.1	12,746.0	588.43	591.50	3.1	N	7/6/98
E-	044	7,172.7	12,757.3	594.50	597.89	3.4	Y	10/27/98
E-	045	7,122.7	12,736.4	594.39	597.70	3.3	Y	10/27/98
E-	046	7,020.4	12,690.5	594.63	597.94	3.3	Y	10/27/98
E-	047	6,930.3	12,650.5	594.45	598.38	3.9	Y	10/27/98
E-	048	6,837.6	12,609.1	594.78	598.55	3.8	Y	7/6/98
E-	049	6,732.6	12,895.0	577.11	580.36	3.3	N	10/5/98
E-	050	6,640.0	12,856.9	577.07	580.26	3.2	N	10/5/98
E-	051	6,547.3	12,819.2	576.83	580.15	3.3	N	10/5/98
E-	052	6,455.0	12,781.5	577.35	580.61	3.3	N	10/5/98
E-	053	6,362.8	12,743.9	576.78	580.50	3.7	N	10/5/98
E-	054	6,270.7	12,706.0	577.15	580.61	3.5	N	10/5/98
E-	055	6,178.8	12,668.3	577.41	580.99	3.6	N	10/5/98
E-	056	6,085.9	12,630.0	577.37	580.74	3.4	N	10/17/98
E-	057	5,993.0	12,592.1	577.19	580.33	3.1	N	10/17/98
E-	058	5,946.4	12,572.9	576.30	579.48	3.2	N	10/17/98
E-	059	5,922.7	12,564.6	576.30	579.40	3.1	N	10/17/98
E-	060	6,747.2	12,847.1	579.80	582.76	3.0	Y	10/5/98
E-	061	6,658.7	12,811.2	579.62	582.70	3.1	Y	10/5/98
E-	062	6,564.2	12,772.4	579.41	582.58	3.2	Y	10/5/98
E-	063	6,473.6	12,735.8	579.41	582.64	3.2	Y	10/5/98
E-	064	6,384.9	12,700.3	579.47	582.57	3.1	Y	10/5/98
E-	065	6,286.4	12,659.3	579.29	582.52	3.2	Y	10/5/98
E-	066	6,196.9	12,622.2	579.31	582.44	3.1	Y	7/11/98
E-	067	6,103.4	12,583.5	579.19	582.39	3.2	Y	10/17/98

POINT NO.		NORTH	EAST	WASTE ELEV	CLAY ELEV	CLAY THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	068	6,010.8	12,545.2	579.59	582.69	3.1	Y	10/17/98
E-	069	5,940.5	12,545.6	577.12	580.21	3.1	Y	10/17/98
E-	070	5,964.7	12,473.4	578.30	581.57	3.3	N	10/17/98
E-	071	5,976.7	12,508.1	579.50	582.63	3.1	N	10/17/98
E-	072	5,985.0	12,428.0	578.50	581.73	3.2	N	10/17/98
E-	073	5,987.7	12,482.8	579.60	582.67	3.1	N	10/17/98
E-	074	6,004.8	12,382.8	578.50	581.55	3.0	N	10/17/98
E-	075	6,008.0	12,437.8	579.70	582.92	3.2	N	10/17/98
E-	076	6,027.8	12,392.1	579.50	582.68	3.2	N	10/17/98
E-	077	6,048.1	12,345.9	579.50	582.69	3.2	N	10/19/98
E-	078	6,764.4	12,799.4	582.98	585.98	3.0	N	7/7/98
E-	079	6,677.7	12,762.8	582.60	585.71	3.1	N	7/6/98
E-	080	6,584.1	12,728.1	582.55	585.72	3.2	N	7/6/98
E-	081	6,487.3	12,688.2	582.47	585.49	3.0	N	7/7/98
E-	082	6,405.2	12,654.3	582.73	585.73	3.0	N	7/7/98
E-	083	6,303.8	12,612.7	582.49	585.72	3.2	N	7/6/98
E-	084	6,215.3	12,575.7	582.59	585.76	3.2	N	7/11/98
E-	085	6,122.0	12,537.7	582.68	586.04	3.4	N	10/17/98
E-	086	6,034.3	12,502.1	582.40	585.66	3.3	Y	10/17/98
E-	087	6,054.1	12,456.4	582.40	585.66	3.3	N	10/17/98
E-	088	6,073.8	12,410.2	582.40	585.81	3.4	N	10/17/98
E-	089	6,093.7	12,364.2	582.40	585.66	3.3	N	10/19/98
E-	090	DELETED						
E-	091	6,782.4	12,754.9	585.35	588.57	3.2	N	7/6/98
E-	092	6,694.4	12,719.1	585.29	588.37	3.1	N	7/6/98
E-	093	6,602.5	12,682.1	585.30	588.42	3.1	N	7/6/98
E-	094	6,511.3	12,644.5	585.30	588.52	3.2	N	7/6/98
E-	095	6,424.6	12,609.5	585.50	588.65	3.1	N	7/6/98
E-	096	6,315.6	12,561.8	585.60	588.58	3.0	N	7/6/98
E-	097	6,233.6	12,529.6	585.49	588.89	3.4	N	7/11/98
E-	098	6,140.1	12,491.3	585.56	588.88	3.3	N	10/17/98
E-	099	6,100.1	12,475.2	585.50	588.82	3.3	Y	10/17/98
E-	100	6,119.8	12,429.2	585.60	588.96	3.4	N	10/17/98
E-	101	6,139.7	12,383.4	585.30	588.53	3.2	N	10/21/98
E-	102	6,714.0	12,672.3	588.45	591.62	3.2	N	7/6/98
E-	103	6,621.9	12,634.2	588.28	591.41	3.1	N	7/6/98
E-	104	6,529.7	12,596.5	588.40	591.49	3.1	N	7/6/98
E-	105	6,446.3	12,562.3	588.56	591.60	3.0	N	7/6/98
E-	106	6,338.0	12,518.1	588.59	591.62	3.0	N	7/6/98
E-	107	6,250.8	12,482.7	588.78	591.75	3.0	N	7/11/98
E-	108	6,166.0	12,448.2	588.30	591.68	3.4	Y	10/17/98
E-	109	6,185.7	12,402.1	588.30	591.60	3.3	N	10/19/98
E-	110	6,640.6	12,587.6	591.42	594.50	3.1	N	7/6/98
E-	111	6,548.7	12,550.3	591.34	594.44	3.1	N	7/6/98
E-	112	6,467.1	12,516.9	591.71	594.87	3.2	N	7/6/98
E-	113	6,351.6	12,470.2	591.74	595.03	3.3	N	10/21/98
E-	114	6,746.8	12,571.3	594.87	598.77	3.9	Y	10/17/98
E-	115	6,659.5	12,541.2	594.31	598.01	3.7	Y	10/17/98
E-	116	6,567.2	12,504.1	594.32	598.15	3.8	Y	10/17/98
E-	117	6,486.9	12,471.1	594.61	598.65	4.0	Y	10/21/98
E-	118	6,363.8	12,445.3	594.37	597.99	3.6	N	10/21/98
E-	119	6,381.0	12,432.0	595.08	598.67	3.6	Y	10/21/98
E-	120	6,288.0	12,386.0	592.80	596.30	3.5	N	10/19/98
E-	121	6,196.0	12,348.0	586.40	590.14	3.7	N	10/19/98
E-	122	6,103.0	12,310.0	580.70	584.70	4.0	N	10/19/98
E-	123	6,027.4	12,273.6	577.30	580.98	3.7	N	10/19/98
E-	124	6,150.4	12,228.8	579.50	582.84	3.3	Y	10/19/98
E-	125	6,234.0	12,255.0	584.65	588.08	3.4	N	10/19/98
E-	126	6,326.0	12,293.0	591.72	595.04	3.3	N	10/19/98
E-	127	6,419.0	12,331.0	599.83	603.17	3.3	N	10/19/98
E-	128	6,511.0	12,368.0	604.56	607.97	3.4	N	10/22/98
E-	129	6,604.1	12,406.0	604.14	607.80	3.7	N	10/17/98
E-	130	6,697.1	12,444.1	603.63	607.27	3.6	N	10/17/98
E-	131	6,789.0	12,482.0	603.37	607.35	4.0	N	10/17/98
E-	132	6,734.0	12,351.0	605.00	609.96	5.0	N	10/21/98
E-	133	6,642.1	12,314.0	606.39	609.73	3.3	N	10/21/98

POINT NO.		NORTH	EAST	WASTE ELEV	CLAY ELEV	CLAY THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	134	6,549.0	12,276.0	605.62	609.18	3.6	N	10/19/98
E-	135	6,439.8	12,257.2	598.97	602.73	3.8	N	10/19/98
E-	136	6,363.0	12,200.0	590.33	593.61	3.3	N	10/19/98
E-	137	6,260.0	12,140.0	579.45	583.03	3.6	Y	10/19/98
E-	138	6,326.6	12,096.1	579.50	583.12	3.6	Y	10/19/98
E-	139	6,402.0	12,107.0	585.31	588.76	3.5	N	10/19/98
E-	140	6,494.0	12,145.0	593.08	596.72	3.6	N	10/19/98
E-	141	6,587.0	12,183.0	600.31	604.05	3.7	N	10/31/98
E-	142	6,680.0	12,221.0	601.33	605.02	3.7	N	11/5/98
E-	143	6,772.0	12,259.0	601.26	604.31	3.0	N	11/5/98
E-	144	6,717.1	12,128.0	595.93	599.23	3.3	N	11/5/98
E-	145	6,625.0	12,091.0	595.60	599.10	3.5	N	10/31/98
E-	146	6,532.0	12,053.0	587.96	591.38	3.4	N	10/31/98
E-	147	6,400.2	12,039.6	579.60	583.32	3.7	Y	10/19/98
E-	148	6,476.1	11,921.8	577.59	580.73	3.1	N	10/31/98
E-	149	6,569.9	11,960.0	582.63	585.90	3.3	N	10/31/98
E-	150	6,650.4	12,030.9	592.86	596.41	3.5	Y	10/31/98
E-	151	6,755.0	12,035.0	587.61	590.76	3.1	N	11/5/98
E-	152	6,793.0	11,943.0	578.36	581.87	3.5	N	11/5/98
E-	153	6,700.0	11,905.0	580.75	584.01	3.3	N	10/31/98
E-	154	6,646.4	11,863.7	579.13	582.80	3.7	Y	10/31/98
E-	155	6,738.0	11,813.0	574.16	577.99	3.8	N	11/5/98
E-	156	7,307.1	12,801.0	594.79	598.37	3.6	N	10/28/98
E-	157	7,399.9	12,839.0	585.57	588.75	3.2	N	10/29/98
E-	158	7,492.0	12,877.0	577.82	581.17	3.3	N	10/29/98
E-	159	6,882.0	12,520.0	603.18	606.62	3.4	N	10/17/98
E-	160	6,974.1	12,557.0	602.97	606.33	3.4	N	10/27/98
E-	161	7,067.0	12,595.0	602.65	606.20	3.6	N	10/27/98
E-	162	7,160.0	12,633.0	602.45	605.83	3.4	N	10/27/98
E-	163	DELETED						
E-	164	7,344.9	12,707.9	596.87	600.96	4.1	N	10/29/98
E-	165	7,436.9	12,745.9	587.57	590.94	3.4	N	10/29/98
E-	166	DELETED						
E-	167	7,568.0	12,691.0	579.37	582.97	3.6	N	10/29/98
E-	168	7,475.0	12,654.0	588.99	592.24	3.3	N	10/29/98
E-	169	7,381.9	12,616.0	594.12	597.92	3.8	N	11/5/98
E-	170	7,290.0	12,578.0	598.08	601.71	3.6	N	10/28/98
E-	171	7,196.9	12,539.9	600.86	604.49	3.6	N	10/27/98
E-	172	7,105.0	12,503.0	603.44	607.01	3.6	N	10/27/98
E-	173	7,012.0	12,456.1	604.50	608.00	3.5	N	10/27/98
E-	174	6,920.0	12,427.0	605.59	609.28	3.7	N	10/21/98
E-	175	6,827.0	12,389.0	605.99	609.63	3.6	N	10/21/98
E-	176	6,865.0	12,297.0	600.49	603.75	3.3	N	11/5/98
E-	177	6,957.0	12,334.0	599.37	602.64	3.3	N	11/3:11/4/98
E-	178	7,050.0	12,372.0	596.93	600.47	3.5	N	11/3:11/4/98
E-	179	7,141.9	12,409.9	594.87	597.98	3.1	N	11/3:11/4/98
E-	180	7,234.9	12,447.9	592.20	595.53	3.3	N	11/3:11/4/98
E-	181	7,328.0	12,485.0	589.86	593.17	3.3	N	11/3:11/4/98
E-	182	7,420.0	12,523.0	586.63	589.91	3.3	N	11/2/98
E-	183	7,512.0	12,561.0	581.86	585.41	3.5	N	11/2/98
E-	184	7,605.0	12,599.0	578.71	582.01	3.3	N	11/5/98
E-	185	7,458.1	12,431.0	578.11	581.68	3.6	N	11/14/98
E-	186	7,365.0	12,392.9	580.28	583.81	3.5	N	11/14/98
E-	187	7,273.0	12,355.0	582.67	585.94	3.3	N	11/3:11/4/98
E-	188	7,180.0	12,317.0	585.22	588.45	3.2	N	11/3:11/4/98
E-	189	7,088.0	12,280.1	587.52	590.81	3.3	N	11/3:11/4/98
E-	190	6,995.0	12,242.0	590.01	593.45	3.4	N	11/3:11/4/98
E-	191	6,902.0	12,204.0	592.25	595.39	3.1	N	11/6/98
E-	192	6,810.0	12,165.9	594.20	597.33	3.1	N	11/5/98
E-	193	6,848.0	12,074.1	585.41	588.60	3.2	N	11/6/98
E-	194	6,940.0	12,111.0	582.79	585.88	3.1	N	11/5/98
E-	195	7,033.0	12,148.9	580.30	583.78	3.5	N	11/3:11/4/98
E-	196	7,125.0	12,186.9	577.93	581.54	3.6	N	11/3:11/4/98
E-	197	7,215.2	12,219.4	575.42	579.51	4.1	N	11/3:11/4/98
E-	198	7,311.7	12,259.7	574.30	578.34	4.0	Y	11/14/98
E-	199	7,403.0	12,300.0	574.15	577.87	3.7	N	11/14/98

POINT NO.		NORTH	EAST	WASTE ELEV	CLAY ELEV	CLAY THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	200	7,169.5	12,088.2	574.00	577.48	3.5	N	11/3:11/4/98
E-	201	7,071.0	12,057.0	574.17	577.93	3.8	N	11/3:11/4/98
E-	202	6,977.9	12,019.2	574.30	578.19	3.9	Y	11/5/98
E-	203	6,885.0	11,981.0	575.77	579.12	3.4	N	11/5/98
E-	204	6,836.0	11,844.9	574.00	577.28	3.3	N	11/5/98
E-	205	7,211.2	12,770.3	594.56	598.00	3.4	N	10/27/98
E-	206	6,053.8	12,245.8	577.60	581.07	3.5	N	10/19/98
E-	207	5,997.6	12,333.0	577.30	581.08	3.8	N	10/19/98
E-	208	5,981.2	12,376.5	577.30	580.80	3.5	N	10/19/98
E-	209	6,018.6	12,372.1	578.40	582.02	3.6	N	10/19/98
E-	210	6,100.7	12,319.0	581.80	585.23	3.4	N	10/19/98
E-	211	6,123.0	12,332.4	583.30	586.83	3.5	N	10/19/98
E-	212	6,159.1	12,377.9	586.20	589.46	3.3	N	10/19/98
E-	213	6,236.1	12,418.5	591.00	594.62	3.6	Y	10/19/98
E-	214	6,112.9	12,189.9	577.10	580.73	3.6	N	10/19/98
E-	215	6,174.4	12,133.7	577.30	580.64	3.3	N	10/19/98
E-	216	6,227.7	12,093.9	577.20	580.78	3.6	N	10/19/98
E-	217	6,294.2	12,048.4	577.65	581.04	3.4	N	10/19/98
E-	218	6,371.0	11,995.6	577.40	580.84	3.4	N	10/19/98
E-	219	6,209.9	12,177.6	579.45	582.63	3.2	Y	10/29/98
E-	220	6,215.3	12,175.4	579.39	582.78	3.4	N	10/29/98
E-	221	6,271.4	12,195.5	584.81	588.14	3.3	N	10/19/98
E-	222	6,319.5	12,211.5	589.01	592.22	3.2	N	10/19/98
E-	223	6,397.6	12,239.0	595.08	598.56	3.5	N	10/19/98
E-	224	6,497.7	12,353.6	605.19	608.67	3.5	Y	10/19/98
E-	225	6,415.7	12,374.7	601.16	604.38	3.2	Y	10/19/98
E-	226	6,329.7	12,402.6	595.40	598.98	3.6	Y	10/19/98
E-	227	6,500.3	12,307.0	604.11	607.41	3.3	N	10/19/98
E-	228	6,502.8	11,965.7	579.47	583.03	3.6	Y	10/31/98
E-	229	6,623.0	11,818.4	577.44	580.60	3.2	N	10/31/98
E-	230	6,509.9	12,374.6	604.03	607.48	3.5	Y	10/21/98
E-	231	6,602.5	12,412.4	603.73	607.32	3.6	Y	10/17/98
E-	232	6,698.4	12,451.8	603.39	606.84	3.5	Y	10/17/98
E-	233	6,789.4	12,491.2	603.05	606.63	3.6	Y	10/17/98
E-	234	6,869.9	12,523.5	602.94	606.33	3.4	Y	10/21/98
E-	235	6,654.9	11,899.8	582.50	585.87	3.4	Y	10/31/98
E-	236	6,605.4	12,011.7	588.48	592.09	3.6	N	10/31/98
E-	237	6,957.1	12,557.8	602.78	605.86	3.1	Y	10/27/98
E-	238	7,050.6	12,599.9	601.88	605.59	3.7	Y	10/27/98
E-	239	7,143.9	12,637.6	601.65	605.16	3.5	Y	10/27/98
E-	240	7,254.1	12,683.4	601.25	605.02	3.8	Y	10/28/98
E-	241	7,261.0	12,739.9	597.49	601.08	3.6	Y	10/28/98
E-	242	6,587.7	12,326.4	607.95	611.18	3.2	Y	10/22/98
E-	243	6,630.3	12,346.1	607.75	610.97	3.2	Y	10/17/98
E-	244	6,723.0	12,390.4	606.73	610.52	3.8	Y	10/17/98
E-	245	6,814.7	12,432.6	606.27	610.30	4.0	Y	10/17/98
E-	246	6,905.7	12,477.4	605.36	609.26	3.9	Y	10/17/98
E-	247	6,995.9	12,520.0	605.16	608.81	3.6	Y	10/27/98
E-	248	7,081.3	12,560.5	604.31	608.16	3.9	Y	10/27/98
E-	249	7,108.5	12,573.4	604.75	608.16	3.4	Y	10/27/98
E-	250	7,171.9	12,609.0	604.09	607.50	3.4	N	10/27/98
E-	251	6,650.5	12,073.6	596.07	599.43	3.4	Y	10/31/98
E-	252	6,720.5	12,121.9	595.45	598.67	3.2	Y	11/5/98
E-	253	6,910.8	12,453.4	607.03	610.54	3.5	Y	10/21/98
E-	254	6,629.3	12,170.8	600.82	604.13	3.3	Y	11/18/98
E-	255	6,599.6	12,294.2	606.63	609.67	3.0	Y	10/23/98
E-	256	6,813.5	12,412.6	607.62	610.97	3.4	Y	10/17/98
E-	257	6,705.6	12,363.7	608.03	611.10	3.1	Y	10/17/98
E-	258	6,661.8	12,344.4	607.22	610.58	3.4	Y	10/17/98
E-	259	6,632.8	12,300.3	606.23	609.38	3.1	N	10/21/98
E-	260	6,625.5	12,328.5	607.18	610.62	3.4	N	10/17/98
E-	261	6,692.3	12,211.6	600.67	604.30	3.6	N	11/5/98
E-	262	6,942.9	12,353.0	601.32	604.55	3.2	Y	11/3:11/4/98
E-	263	6,761.0	12,166.2	596.66	599.73	3.1	Y	11/5/98
E-	264	6,839.9	12,232.7	597.40	600.70	3.3	Y	11/5/98
E-	265	6,879.2	12,267.3	598.22	601.46	3.2	Y	11/5/98

POINT NO.		NORTH	EAST	WASTE ELEV	CLAY ELEV	CLAY THICKNESS (FEET)	BREAK-LINE (Y/N)	DATE SURVEYED
E-	266	6,639.6	11,828.1	577.83	580.94	3.1	Y	10/31/98
E-	267	6,666.2	11,787.2	574.30	578.60	4.3	Y	11/5/98
E-	268	6,688.7	11,769.2	574.15	578.20	4.1	N	11/5/98
E-	269	6,714.0	11,761.3	574.00	578.00	4.0	N	11/5/98
E-	270	6,751.5	11,783.3	574.00	577.80	3.8	N	11/5/98
E-	271	6,916.8	11,902.9	574.00	577.24	3.2	N	11/5/98
E-	272	7,003.0	11,967.5	574.00	577.17	3.2	N	11/5/98
E-	273	7,082.6	12,025.2	574.00	577.65	3.6	N	11/3:11/4/98
E-	274	7,059.4	12,081.5	574.30	578.13	3.8	Y	11/3:11/4/98
E-	275	6,893.6	11,960.0	574.30	578.36	4.1	Y	11/5/98
E-	276	6,810.9	11,899.9	574.30	578.35	4.1	Y	11/5/98
E-	277	6,728.4	11,837.3	574.30	578.30	4.0	Y	11/5/98
E-	278	6,636.6	11,810.6	576.73	579.96	3.2	Y	11/5/98
E-	279	6,685.6	11,806.7	574.30	578.32	4.0	Y	11/5/98
E-	280	6,997.2	12,494.3	606.91	610.21	3.3	Y	10/27/98
E-	281	7,013.3	12,501.8	606.89	610.11	3.2	Y	10/27/98
E-	282	7,034.4	12,465.1	604.33	607.71	3.4	N	10/27/98
E-	283	7,085.6	12,392.7	596.61	599.87	3.3	N	11/3:11/4/98
E-	284	7,139.2	12,313.2	586.97	590.36	3.4	N	11/3:11/4/98
E-	285	7,226.3	12,205.9	574.30	578.28	4.0	Y	11/3:11/4/98
E-	286	7,263.4	12,158.0	574.00	577.13	3.1	N	11/3:11/4/98
E-	287	7,143.3	12,142.9	574.30	578.14	3.8	Y	11/3:11/4/98
E-	288	7,102.9	12,551.1	605.91	609.04	3.1	Y	10/27/98
E-	289	7,162.8	12,590.0	604.92	608.16	3.2	Y	10/27/98
E-	290	7,249.0	12,653.6	603.33	606.48	3.1	Y	10/27/98
E-	291	7,296.1	12,672.3	602.53	605.80	3.3	Y	10/28/98
E-	292	7,304.8	12,677.4	601.91	605.36	3.5	Y	10/28/98
E-	293	7,138.5	12,413.6	595.45	598.54	3.1	Y	11/3:11/4/98
E-	294	7,222.3	12,473.8	594.92	598.99	4.1	Y	11/3:11/4/98
E-	295	7,335.7	12,554.2	594.17	597.53	3.4	Y	11/5/98
E-	296	7,383.5	12,663.5	595.90	599.25	3.4	Y	10/29/98
E-	297	7,472.0	12,650.8	589.40	592.64	3.2	Y	10/29/98
E-	298	7,520.8	12,644.5	585.60	588.96	3.4	Y	10/29/98
E-	299	7,579.3	12,633.2	581.62	584.90	3.3	Y	10/29/98
E-	300	7,669.2	12,615.0	577.33	580.54	3.2	Y	10/29/98
E-	301	7,606.3	12,711.0	577.88	581.47	3.6	Y	10/29/98
E-	302	7,553.9	12,793.0	577.00	580.85	3.9	Y	10/29/98
E-	303	7,524.5	12,779.7	578.70	582.35	3.6	Y	10/29/98
E-	304	7,472.1	12,859.8	578.57	582.40	3.8	Y	10/29/98
E-	305	7,403.9	12,952.6	578.48	582.25	3.8	Y	10/29/98
E-	306	7,342.3	13,035.8	578.60	582.28	3.7	Y	10/29/98
E-	307	7,318.9	13,086.2	577.91	581.11	3.2	Y	10/29/98
E-	308	7,283.7	13,114.6	577.18	580.51	3.3	Y	10/29/98
E-	309	7,283.6	13,078.1	578.87	582.00	3.1	Y	10/28/98
E-	310	7,306.9	13,069.0	578.97	582.40	3.4	Y	10/28/98
E-	311	7,313.6	13,001.3	583.26	586.43	3.2	Y	10/28/98
E-	312	7,317.3	12,959.1	585.66	588.96	3.3	Y	10/28/98
E-	313	7,319.1	12,869.6	591.03	594.23	3.2	Y	10/28/98
E-	314	7,316.7	12,753.1	597.77	601.29	3.5	Y	10/28/98
E-	315	7,613.4	12,572.7	577.45	580.65	3.2	Y	11/2/98
E-	316	7,557.8	12,528.6	577.27	581.02	3.8	Y	11/2/98
E-	317	7,520.1	12,454.9	576.70	580.39	3.7	Y	11/2/98
E-	318	5,962.0	12,418.5	577.46	580.90	3.4	Y	10/17/98
E-	319	5,942.3	12,464.5	577.59	580.72	3.1	Y	10/17/98
E-	320	5,913.3	12,532.9	577.04	580.21	3.2	Y	10/17/98
E-	321	7,387.1	12,320.8	574.32	578.23	3.9	Y	11/3:11/4/98
E-	322	7,457.0	12,382.1	574.74	578.87	4.1	Y	11/14/98
E-	323	7,506.6	12,416.6	574.72	579.14	4.4	N	11/14/98
E-	324	7,494.8	12,365.1	574.15	578.28	4.1	N	11/14/98
E-	325	7,467.9	12,313.3	574.00	577.85	3.9	N	11/14/98
E-	326	7,449.8	12,295.4	574.00	577.89	3.9	N	11/14/98
E-	327	7,421.7	12,274.0	574.00	577.77	3.8	N	11/14/98
E-	328	7,343.2	12,217.4	574.00	577.11	3.1	N	11/3:11/4/98
E-	329	7,371.5	12,340.1	575.45	579.98	4.5	N	11/3:11/4/98
E-	330	7,440.0	12,397.2	576.09	580.06	4.0	N	11/14/98
E-	331	7,457.0	12,414.8	577.02	580.49	3.5	N	11/14/98

SUMMARY OF CLAY VERIFICATION DATA

NOTES:

1. SURVEY CONTROL POINTS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING NO. 64.
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NOS. 11 AND 12.

REV.	BY / DATE	CHK'D / DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS- BUILT CLAY SURFACE SURVEY DATA

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN
(313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
CLAY SURFACE SURVEY VERIFICATION DATA- ECU

DRAWN: AS	DATE: 10/99	SCALE: AS NOTED	DRAWING NO. 13 OF 65	REV. NO. 1
DESIGNED: LWB	DATE: 10/99	REVIEWED: JSB DATE: 10/99		
APPROVED:	DATE:	PROJECT NO. F66A2C	CADD FILE: F66A1E19	

DWG. NO. 8 OF 65
PROJ. NO. F66A2C

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
E - 001	7,427.9	12,965.3	577.20	N	10/12/98
E - 002	7,325.7	13,092.7	577.23	N	10/12/98
E - 003	7,293.3	13,113.2	576.69	N	10/12/98
E - 004	7,269.5	13,107.6	577.37	N	10/16/97
E - 005	7,242.7	13,098.6	577.07	N	10/16/97
E - 006	7,193.2	13,077.9	577.27	N	10/16/97
E - 007	7,103.0	13,043.9	577.18	N	10/2/97
E - 008	7,009.8	13,007.1	577.11	N	10/2/97
E - 009	6,917.2	12,970.9	577.07	N	9/29/97
E - 010	6,824.6	12,932.6	577.16	N	9/29/97
E - 011	DELETED				
E - 012	DELETED				
E - 013	DELETED				
E - 014	7,312.0	13,079.8	578.27	N	10/12/98
E - 015	DELETED				
E - 016	7,357.6	12,975.9	580.70	N	10/12/98
E - 017	7,327.1	13,015.3	580.84	N	10/12/98
E - 018	7,290.2	13,064.3	579.50	Y	10/30/97
E - 019	7,208.5	13,030.6	579.81	Y	10/16/97
E - 020	7,119.8	13,000.4	579.54	Y	10/2/97
E - 021	7,029.3	12,962.9	579.65	Y	10/2/97
E - 022	6,933.9	12,923.7	579.65	Y	9/29/97
E - 023	6,840.7	12,885.6	579.67	Y	9/29/97
E - 024	7,346.5	12,908.2	585.96	N	10/12/98
E - 025	DELETED				
E - 026	7,281.8	12,979.5	584.21	Y	10/30/97
E - 027	7,222.3	12,981.4	582.57	N	10/16/97
E - 028	7,136.7	12,956.4	582.57	N	10/2/97
E - 029	7,047.6	12,917.5	582.52	N	10/2/97
E - 030	6,951.1	12,877.7	582.39	N	9/29/97
E - 031	6,858.6	12,838.8	582.42	N	9/29/97
E - 032	7,308.5	12,874.5	590.75	N	10/12/98
E - 033	7,278.7	12,915.1	587.57	N	10/30/97
E - 034	7,155.2	12,909.7	585.48	N	10/2/97
E - 035	7,067.1	12,870.7	585.62	N	10/2/97
E - 036	6,968.1	12,830.4	585.56	N	9/29/97
E - 037	6,874.2	12,797.3	585.66	N	9/29/97
E - 038	6,798.3	12,707.1	588.50	N	9/29/97
E - 039	7,268.9	12,851.2	591.16	Y	10/30/97
E - 040	7,167.4	12,876.2	587.31	N	10/2/97
E - 041	7,087.7	12,825.9	588.49	N	10/2/97
E - 042	6,985.2	12,783.7	588.67	N	9/29/97
E - 043	6,893.1	12,746.0	588.43	N	9/29/97
E - 044	7,172.7	12,757.3	594.50	Y	
E - 045	7,122.7	12,736.4	594.39	Y	10/14/97
E - 046	7,020.4	12,690.5	594.63	Y	10/14/97
E - 047	6,930.3	12,650.5	594.45	Y	10/14/97
E - 048	6,837.6	12,609.1	594.78	Y	10/14/97
E - 049	6,732.6	12,895.0	577.11	N	10/14/97
E - 050	6,640.0	12,856.9	577.07	N	9/29/97
E - 051	6,547.3	12,819.2	576.83	N	9/18/97
E - 052	6,455.0	12,781.5	577.35	N	9/18/97
E - 053	6,362.8	12,743.9	576.78	N	9/18/97
E - 054	6,270.7	12,706.0	577.15	N	9/18/97
E - 055	6,178.8	12,668.3	577.41	N	9/18/97
E - 056	6,085.9	12,630.0	577.37	N	9/18/97
E - 057	5,993.0	12,592.1	577.19	N	9/18/97
E - 058	5,946.4	12,572.9	576.30	N	
E - 059	5,922.7	12,564.6	576.30	N	
E - 060	6,747.2	12,847.1	579.80	Y	
E - 061	6,658.7	12,811.2	579.62	Y	9/29/97
E - 062	6,564.2	12,772.4	579.41	Y	9/18/97
E - 063	6,473.6	12,735.8	579.41	Y	9/18/97
E - 064	6,384.9	12,700.3	579.47	Y	9/18/97
E - 065	6,286.4	12,659.3	579.29	Y	9/18/97

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
E - 066	6,196.9	12,622.2	579.31	Y	9/18/97
E - 067	6,103.4	12,583.5	579.19	Y	9/18/97
E - 068	6,010.8	12,545.2	579.59	Y	9/18/97
E - 069	5,940.5	12,545.6	577.12	Y	10/1/98
E - 070	5,984.7	12,473.4	578.3	N	9/8/97
E - 071	5,976.7	12,508.1	579.5	N	9/8/97
E - 072	5,985.0	12,428.0	578.5	N	9/8/97
E - 073	5,987.7	12,482.8	579.6	N	9/8/97
E - 074	6,004.8	12,382.8	578.5	N	9/8/97
E - 075	6,008.0	12,437.8	579.7	N	9/8/97
E - 076	6,027.8	12,392.1	579.5	N	9/8/97
E - 077	6,048.1	12,345.9	579.5	N	9/8/97
E - 078	6,764.4	12,799.4	582.98	N	9/29/97
E - 079	6,677.7	12,762.8	582.60	N	9/29/97
E - 080	6,584.1	12,728.1	582.55	N	9/16/97
E - 081	6,487.3	12,688.2	582.47	N	9/16/97
E - 082	6,405.2	12,654.3	582.73	N	9/10/97
E - 083	6,303.8	12,612.7	582.49	N	9/10/97
E - 084	6,215.3	12,575.7	582.59	N	9/10/97
E - 085	6,122.0	12,537.7	582.68	N	9/10/97
E - 086	6,034.3	12,502.1	582.4	Y	9/8/97
E - 087	6,054.1	12,456.4	582.4	N	9/8/97
E - 088	6,073.8	12,410.2	582.4	N	9/8/97
E - 089	6,093.7	12,364.2	582.4	N	9/8/97
E - 090	DELETED				
E - 091	6,782.4	12,754.9	585.35	N	9/29/97
E - 092	6,694.4	12,719.1	585.29	N	9/29/97
E - 093	6,602.5	12,682.1	585.3	N	9/16/97
E - 094	6,511.3	12,644.5	585.3	N	9/16/97
E - 095	6,424.6	12,609.5	585.5	N	9/10/97
E - 096	6,315.6	12,561.8	585.6	N	9/10/97
E - 097	6,233.6	12,529.6	585.49	N	9/10/97
E - 098	6,140.1	12,491.3	585.56	N	9/10/97
E - 099	6,100.1	12,475.2	585.5	Y	9/8/97
E - 100	6,119.8	12,429.2	585.6	N	9/8/97
E - 101	6,139.7	12,383.4	585.3	N	9/8/97
E - 102	6,714.0	12,672.3	588.45	N	9/29/97
E - 103	6,621.9	12,634.2	588.28	N	9/16/97
E - 104	6,529.7	12,596.5	588.4	N	9/16/97
E - 105	6,446.3	12,562.3	588.56	N	9/10/97
E - 106	6,338.0	12,518.1	588.59	N	9/10/97
E - 107	6,250.8	12,482.7	588.78	N	9/10/97
E - 108	6,166.0	12,448.2	588.3	Y	9/8/97
E - 109	6,185.7	12,402.1	588.3	N	9/8/97
E - 110	6,640.6	12,587.6	591.42	N	9/16/97
E - 111	6,548.7	12,550.3	591.34	N	9/16/97
E - 112	6,467.1	12,518.9	591.71	N	9/10/97
E - 113	6,351.6	12,470.2	591.74	N	9/10/97
E - 114	6,746.8	12,571.3	594.87	Y	10/14/97
E - 115	6,659.5	12,541.2	594.31	Y	9/16/97
E - 116	6,567.2	12,504.1	594.32	Y	9/16/97
E - 117	6,486.9	12,471.1	594.61	Y	9/10/97
E - 118	6,363.8	12,445.3	594.37	N	9/10/97
E - 119	6,381	12,432	595.08	Y	8/1/98
E - 120	6,288	12,386	592.8	N	7/2;7/6/98
E - 121	6,196	12,348	586.4	N	7/2;7/6/98
E - 122	6,103	12,310	580.7	N	7/2;7/6/98
E - 123	6,027.4	12,273.6	577.3	N	7/2;7/6/98
E - 124	6,150.4	12,228.8	579.5	Y	7/17/98
E - 125	6,234	12,255	584.65	N	7/25/98
E - 126	6,326	12,293	591.72	N	7/29/98
E - 127	6,419	12,331	599.83	N	8/1/98
E - 128	6,511	12,368	604.56	N	8/1/98
E - 129	6,604.1	12,406	604.14	N	8/24/98
E - 130	6,697.1	12,444.1	603.63	N	8/24/98
E - 131	6,789	12,482	603.37	N	8/24/98
E - 132	6,734	12,351	605.0	N	8/29/98

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
E - 133	6,642.1	12,314	606.39	N	8/29/98
E - 134	6,549	12,276	605.62	N	8/21/98
E - 135	6,439.8	12,257.2	598.97	N	8/1/98
E - 136	6,363	12,200	590.33	N	7/25/98
E - 137	6,260	12,140	579.45	Y	7/17/98
E - 138	6,326.6	12,096.1	579.50	Y	7/17/98
E - 139	6,402	12,107	585.31	N	7/25/98
E - 140	6,494	12,145	593.08	N	7/25/98
E - 141	6,587	12,183	600.31	N	8/21/98
E - 142	6,680	12,221	601.33	N	8/29/98
E - 143	6,772	12,259	601.26	N	9/10/98
E - 144	6,717.1	12,128	595.93	N	8/29/98
E - 145	6,625	12,091	595.6	N	8/21/98
E - 146	6,532	12,053	587.96	N	8/3/98
E - 147	6,400.2	12,039.6	579.60	Y	7/17/98
E - 148	6,476.1	11,921.8	577.59	N	8/3/98
E - 149	6,569.9	11,960	582.63	N	8/14/98
E - 150	6,650.4	12,030.9	592.86	Y	8/21/98
E - 151	6,755	12,035	587.61	N	8/29/98
E - 152	6,793	11,943	578.36	N	9/19/98
E - 153	6,700	11,905	580.75	N	9/19/98
E - 154	6,646.4	11,863.7	579.13	Y	8/3/98
E - 155	6,738	11,813	574.16	N	9/19/98
E - 156	7,307.1	12,801	594.79	N	10/12/98
E - 157	7,399.9	12,839	585.57	N	10/12/98
E - 158	7,492.0	12,877.0	577.82	N	10/12/98
E - 159	6,882	12,520	603.18	N	8/24/98
E - 160	6,974.1	12,557	602.97	N	8/24/98
E - 161	7,067	12,595	602.65	N	8/24/98
E - 162	7,160	12,633	602.45	N	8/24/98
E - 163	DELETED				
E - 164	7,344.9	12,707.9	596.87	N	10/12/98
E - 165	7,436.9	12,745.9	587.57	N	10/12/98
E - 166	DELETED				
E - 167	7,568.0	12,691.0	579.37	N	10/12/98
E - 168	7,475.0	12,654.0	588.99	N	10/12/98
E - 169	7,381.9	12,616.0	594.12	N	10/12/98
E - 170	7,290.0	12,578.0	598.08	N	10/12/98
E - 171	7,196.9	12,539.9	600.86	N	10/12/98
E - 172	7,105.0	12,503.0	603.44	N	10/12/98
E - 173	7,012.0	12,456.1	604.50	N	9/26/98
E - 174	6,920	12,427	605.59	N	9/10/98
E - 175	6,827	12,389	605.99	N	9/10/98
E - 176	6,865	12,297	600.49	N	9/10/98
E - 177	6,957	12,334	599.37	N	9/10/98
E - 178	7,050	12,372	596.93	N	9/26/98
E - 179	7,141.9	12,409.9	594.87	N	10/12/98
E - 180	7,234.9	12,447.9	592.2	N	10/12/98
E - 181	7,328.0	12,485.0	589.86	N	10/12/98
E - 182	7,420.0	12,523.0	586.63	N	10/12/98
E - 183	7,512.0	12,561.0	581.86	N	10/12/98
E - 184	7,605.0	12,599.0	578.71	N	10/12/98
E - 185	7,458.1	12,431	578.11	N	10/12/98
E - 186	7,365.0	12,392.9	580.28	N	10/12/98
E - 187	7,273.0	12,355.0	582.67	N	10/12/98
E - 188	7,180.0	12,317.0	585.22	N	10/12/98
E - 189	7,088.0	12,280.1	587.52	N	9/26/98
E - 190	6,995	12,242	590.01	N	9/11/98
E - 191	6,902	12,204	592.25	N	9/11/98
E - 192	6,810.0	12,165.9	594.20	N	9/11/98
E - 193	6,848.0	12,074.1	585.41	N	9/15/98
E - 194	6,940	12,111	582.79	N	9/20/98
E - 195	7,033.0	12,148.9	580.30	N	9/20/98
E - 196	7,125.0	12,186.9	577.93	N	9/26/98

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
E - 197	7,215.2	12,219.4	575.42	N	9/26/98
E - 198	7,311.7	12,259.7	574.30	Y	10/27/98
E - 199	7,403	12,300	574.15	N	10/27/98
E - 200	7,169.5	12,088.2	574.00	N	9/26/98
E - 201	7,071	12,057	574.17	N	9/19/98
E - 202	6,977.9	12,019.2	574.30	Y	9/19/98
E - 203	6,885	11,981	575.77	N	9/19/98
E - 204	6,836.0	11,844.9	574.00	N	9/19/98
E - 205	7,211.2	12,770.3	594.56	N	10/24/97
E - 206	6,053.8	12,245.8	577.60	N	7/2;7/6/98
E - 207	5,997.6	12,333.0	577.30	N	7/2;7/6/98
E - 208	5,981.2	12,376.5	577.30	N	7/2;7/6/98
E - 209	6,018.6	12,372.1	578.40	N	7/2;7/6/98
E - 210	6,100.7	12,319.0	581.80	N	7/2;7/6/98
E - 211	6,123.0	12,332.4	583.30	N	7/2;7/6/98
E - 212	6,159.1	12,377.9	586.20	N	7/2;7/6/98
E - 213	6,236.1	12,418.5	591.00	Y	7/6/98
E - 214	6,112.9	12,189.9	577.10	N	7/17/98
E - 215	6,174.4	12,133.7	577.30	N	7/17/98
E - 216	6,227.7	12,093.9	577.20	N	7/17/98
E - 217	6,294.2	12,048.4	577.65	N	7/17/98
E - 218	6,371.0	11,995.6	577.40	N	7/17/98
E - 219	6,209.9	12,177.6	579.45	Y	7/17/98
E - 220	6,215.3	12,175.4	579.39	N	7/25/98
E - 221	6,271.4	12,195.5	584.81	N	7/25/98
E - 222	6,319.5	12,211.5	589.01	N	7/25/98
E - 223	6,397.6	12,239.0	595.08	N	7/25/98
E - 224	6,497.7	12,353.6	605.19	Y	8/1/98
E - 225	6,415.7	12,374.7	601.16	Y	8/1/98
E - 226	6,329.7	12,402.6	595.40	Y	8/1/98
E - 227	6,500.3	12,307.0	604.11	N	8/1/98
E - 228	6,502.8	11,985.7	579.47	Y	8/3/98
E - 229	6,623.0	11,818.4	577.44	N	8/3/98
E - 230	6,509.9	12,374.6	604.03	Y	8/13/98
E - 231	6,602.5	12,412.4	603.73	Y	8/13/98
E - 232	6,698.4	12,451.8	603.39	Y	8/13/98
E - 233	6,789.4	12,491.2	603.05	Y	8/13/98
E - 234	6,869.9	12,523.5	602.94	Y	8/13/98
E - 235	6,654.9	11,899.8	582.50	Y	8/14/98
E - 236	6,605.4	12,011.7	588.48	N	8/14/98
E - 237	6,957.1	12,557.8	602.78	Y	8/17/98
E - 238	7,050.6	12,599.9	601.88	Y	8/17/98
E - 239	7,143.9	12,637.6	601.65	Y	8/17/98
E - 240	7,254.1	12,683.4	601.25	Y	8/17/98
E - 241	7,261.0	12,739.9	597.49	Y	8/17/98
E - 242	6,587.7	12,328.4	607.95	Y	8/24/98
E - 243	6,630.3	12,346.1	607.75	Y	8/24/98
E - 244	6,723.0	12,390.4	606.73	Y	8/24/98
E - 245	6,814.7	12,432.6	606.27	Y	8/24/98
E - 246	6,905.7	12,477.4	605.36	Y	8/24/98
E - 247	6,995.9	12,520.0	605.16	Y	8/24/98
E - 248	7,081.3	12,560.5	604.31	Y	8/24/98
E - 249	7,108.5	12,573.4	604.75	Y	8/24/98
E - 250	7,171.9	12,609.0	604.09	N	8/24/98
E - 251	6,650.5	12,073.6	596.07	Y	8/29/98
E - 252	6,720.5	12,121.9	595.45	Y	8/29/98
E - 253	6,910.8	12,453.4	607.03	Y	9/10/98
E - 254	6,629.3	12,170.8	600.82	Y	8/29/98
E - 255	6,599.6	12,294.2	606.63	Y	8/29/98
E - 256	6,813.5	12,412.6	607.62	Y	9/10/98
E - 257	6,705.6	12,363.7	608.03	Y	9/10/98
E - 258	6,661.8	12,344.4	607.22	Y	9/10/98
E - 259	6,632.8	12,300.3	606.23	N	9/10/98
E - 260	6,625.5	12,328.5	607.18	N	9/10/98
E - 261	6,692.3	12,211.6	600.67	N	9/10/98
E - 262	6,942.9	12,353.0	601.32	Y	9/10/98
E - 263	6,761.0	12,186.2	596.66	Y	9/11/98
E - 264	6,839.9	12,232.7	597.40	Y	9/11/98
E - 265	6,879.2	12,267.3	598.22	Y	9/11/98

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
E - 266	6,639.6	11,828.1	577.83	Y	9/19/98
E - 267	6,666.2	11,787.2	574.30	Y	9/19/98
E - 268	6,688.7	11,769.2	574.15	N	9/19/98
E - 269	6,714.0	11,761.3	574.00	N	9/19/98
E - 270	6,751.5	11,783.3	574.00	N	9/19/98
E - 271	6,916.8	11,902.9	574.00	N	9/19/98
E - 272	7,003.0	11,967.5	574.00	N	9/19/98
E - 273	7,082.6	12,025.2	574.00	N	9/19/98
E - 274	7,059.4	12,081.5	574.30	Y	9/19/98
E - 275	6,893.6	11,960.0	574.30	Y	9/19/98
E - 276	6,810.9	11,899.9	574.30	Y	9/19/98
E - 277	6,728.4	11,837.3	574.30	Y	9/19/98
E - 278	6,636.6	11,810.6	576.73	Y	9/20/98
E - 279	6,685.6	11,806.7	574.30	Y	9/19/98
E - 280	6,997.2	12,494.3	606.91	Y	9/26/98
E - 281	7,013.3	12,501.8	606.89	Y	9/26/98
E - 282	7,034.4	12,465.1	604.33	N	9/26/98
E - 283	7,085.6	12,392.7	596.61	N	9/26/98
E - 284	7,139.2	12,313.2	586.97	N	9/26/98
E - 285	7,226.3	12,205.9	574.30	Y	9/26/98
E - 286	7,263.4	12,158.0	574.00	N	9/26/98
E - 287	7,143.3	12,142.9	574.30	Y	9/26/98
E - 288	7,102.9	12,551.1	605.91	Y	10/12/98
E - 289	7,162.8	12,590.0	604.92	Y	10/12/98
E - 290	7,249.0	12,653.6	603.33	Y	10/12/98
E - 291	7,296.1	12,672.3	602.53	Y	10/12/98
E - 292	7,304.8	12,677.4	601.91	Y	10/12/98
E - 293	7,138.5	12,413.6	595.45	Y	10/12/98
E - 294	7,222.3	12,473.8	594.92	Y	10/12/98
E - 295	7,335.7	12,554.2	594.17	Y	10/12/98
E - 296	7,383.5	12,663.5	595.90	Y	10/12/98
E - 297	7,472.0	12,650.8	589.40	Y	10/12/98
E - 298	7,520.8	12,644.5	585.60	Y	10/12/98
E - 299	7,579.3	12,633.2	581.62	Y	10/12/98
E - 300	7,669.2	12,615.0	577.33	Y	10/12/98
E - 301	7,606.3	12,711.0	577.88	Y	10/12/98
E - 302	7,553.9	12,793.0	577.00	Y	10/12/98
E - 303	7,524.5	12,779.7	578.70	Y	10/12/98
E - 304	7,472.1	12,859.8	578.57	Y	10/12/98
E - 305	7,403.9	12,952.6	578.48	Y	10/12/98
E - 306	7,342.3	13,035.8	578.60	Y	10/12/98
E - 307	7,318.9	13,086.2	577.91	Y	10/12/98
E - 308	7,283.7	13,114.6	577.18	Y	10/12/98
E - 309	7,283.6	13,078.1	578.87	Y	10/12/98
E - 310	7,306.9	13,069.0	578.97	Y	10/12/98
E - 311	7,313.6	13,001.3	583.26	Y	10/12/98
E - 312	7,317.3	12,959.1	585.66	Y	10/12/98
E - 313	7,319.1	12,869.6	591.03	Y	10/12/98
E - 314	7,316.7	12,753.1	597.77	Y	10/12/98
E - 315	7,613.4	12,572.7	577.45	Y	10/12/98
E - 316	7,557.8	12,528.6	577.27	Y	10/12/98
E - 317	7,520.1	12,454.9	576.70	Y	10/12/98
E - 318	5,962.0	12,418.5	577.46	Y	9/8/97
E - 319	5,942.3	12,464.5	577.59	Y	9/8/97
E - 320	5,913.3	12,532.9	577.04	Y	9/24/97
E - 321	7,387.1	12,320.8	574.32	Y	10/27/98
E - 322	7,457.0	12,382.1	574.74	Y	10/27/98
E - 323	7,506.6	12,416.6	574.72	N	10/27/98
E - 324	7,494.8	12,365.1	574.15	N	10/27/98
E - 325	7,467.9	12,313.3	574.0	N	10/27/98
E - 326	7,449.8	12,295.4	574.0	N	10/27/98
E - 327	7,421.7	12,274.0	574.0	N	10/27/98
E - 328	7,343.2	12,217.4	574.0	N	10/27/98
E - 329	7,371.5	12,340.1	575.45	N	10/27/98
E - 330	7,440.0	12,397.2	576.09	N	10/27/98
E - 331	7,457.0	12,414.8	577.02	N	10/27/98

NOTES:
1. SURVEY CONTROL POINTS FOR THE EASTERN CONTAINMENT UNITS ARE SHOWN ON DRAWING NO. 64 .
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NO. 6 AND 7 .

SUMMARY OF WASTE VERIFICATION DATA

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS- BUILT WASTE SURFACE SURVEY DATA

MEC inc.
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
WASTE SURFACE SURVEY VERIFICATION DATA- ECU

DRAWN: AS	DATE 10/99	SCALE: AS NOTED	DRAWING NO. 8 OF 65	REV. NO. 1
DESIGNED: LWB	DATE 10/99	REVEWED: JSB	DATE 10/99	
APPROVED:	DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E18	

DWG. NO. 33 OF 65
PROJ. NO. F66A2C

POINT NO.	NORTH	EAST	CLAY ELEV.	COVER SOIL ELEV.	TOP SOIL ELEV.	CAP SYSTEM THICKNESS (INCHES)	BREAK-LINE (Y/N)	DATE SURVEYED
W- 001	8,683.5	11,664.4	592.74	595.03	595.75	36	N	11/27/98
W- 002	8,769.0	11,639.9	593.10	595.71	596.40	40	N	11/27/98
W- 003	8,861.6	11,694.1	592.64	594.97	595.72	37	N	11/27/98
W- 004	8,932.6	11,736.3	592.81	595.05	595.68	37	N	11/27/98
W- 005	9,011.1	11,737.6	592.52	594.65	595.40	36	N	11/21/98
W- 006	8,662.3	11,659.0	595.50	597.85	598.57	37	N	12/5/98
W- 007	8,730.5	11,640.0	595.05	598.03	598.82	45	Y	11/27/98
W- 008	8,826.0	11,713.9	594.36	597.14	597.87	42	Y	11/27/98
W- 009	8,898.3	11,771.1	594.72	597.17	598.00	39	Y	11/27/98
W- 010	8,976.1	11,833.9	594.77	596.99	597.64	34	Y	11/21/98
W- 011	8,997.9	11,898.6	594.91	597.14	597.82	35	Y	11/21/98
W- 012	8,553.2	11,590.8	592.53	594.89	595.84	40	N	12/5/98
W- 013	8,634.2	11,631.2	595.97	598.15	598.99	36	N	12/5/98
W- 014	8,700.1	11,694.8	598.42	590.85	591.49	37	N	12/4/98
W- 015	8,753.8	11,750.8	597.33	599.97	600.77	41	N	11/27/98
W- 016	8,874.3	11,820.3	597.37	599.66	600.42	37	N	11/27/98
W- 017	8,950.3	11,877.3	597.42	599.73	600.35	35	N	11/22/98
W- 018	8,940.4	11,920.0	599.35	591.73	592.29	35	Y	11/22/98
W- 019	8,979.7	12,029.1	593.35	596.60	596.52	38	N	11/21/98
W- 020	8,955.7	12,020.8	594.49	596.94	597.67	38	Y	11/21/98
W- 021	8,887.2	11,951.5	593.15	596.38	597.05	47	Y	11/21/98
W- 022	8,815.7	11,902.1	593.89	596.46	597.32	41	N	11/21/98
W- 023	8,740.0	11,848.0	594.00	596.40	597.28	39	N	11/21/98
W- 024	8,661.1	11,789.0	593.55	592.74	593.81	39	N	11/21/98
W- 025	8,581.0	11,729.0	595.37	598.99	599.62	39	N	11/21/98
W- 026	8,501.1	11,669.2	592.63	595.28	595.95	40	N	11/21/98
W- 027	8,800.5	11,918.8	595.43	597.74	598.64	39	Y	11/21/98
W- 028	DELETED							
W- 029	8,971.4	12,132.5	592.32	594.69	595.19	34	N	11/21/98
W- 030	8,925.2	12,116.4	594.70	597.18	597.85	38	Y	11/21/98
W- 031	8,877.7	12,099.3	599.28	591.67	592.45	38	N	11/22/98
W- 032	DELETED							
W- 033	8,761.2	11,988.9	599.28	601.78	602.55	39	N	11/16/98
W- 034	8,681.2	11,929.0	594.45	597.16	597.91	41	N	11/16/98
W- 035	8,601.0	11,869.0	590.47	593.02	593.63	38	N	11/21/98
W- 036	8,521.1	11,809.1	595.38	598.74	599.35	36	N	11/21/98
W- 037	8,441.2	11,749.3	592.63	594.82	595.55	35	N	11/21/98
W- 038	8,360.0	11,828.0	592.57	595.21	595.87	40	N	11/21/98
W- 039	8,461.2	11,889.1	595.74	599.16	599.82	37	N	11/21/98
W- 040	8,541.2	11,949.1	590.46	592.91	593.79	40	N	11/21/98
W- 041	8,621.3	12,009.0	594.57	597.25	597.90	40	N	11/16/98
W- 042	8,701.3	12,069.9	598.58	601.23	602.05	42	N	11/16/98
W- 043	8,757.2	12,166.3	598.43	600.90	601.75	40	Y	11/13/98
W- 044	8,845.5	12,165.3	599.32	591.46	592.09	33	N	11/13/98
W- 045	DELETED WITHIN THE ACCESS ROAD							
W- 046	8,940.1	12,227.3	592.05	594.34	594.95	35	N	11/21/98
W- 047	DELETED WITHIN THE ACCESS ROAD							
W- 048	8,883.5	12,307.3	594.57	597.39	598.22	44	Y	12/4/98
W- 049	8,814.2	12,287.8	599.41	591.54	592.25	34	N	11/13/98
W- 050	8,721.0	12,208.0	600.34	602.62	603.34	36	N	11/13/98

POINT NO.	NORTH	EAST	CLAY ELEV.	COVER SOIL ELEV.	TOP SOIL ELEV.	CAP SYSTEM THICKNESS (INCHES)	BREAK-LINE (Y/N)	DATE SURVEYED
W- 051	8,641.0	12,148.0	599.75	601.10	601.92	38	N	11/13/98
W- 052	8,561.0	12,088.0	594.64	596.95	597.68	35	N	11/13/98
W- 053	8,481.0	12,028.0	590.46	593.04	593.60	38	N	11/13/98
W- 054	8,400.0	11,968.0	596.28	598.74	599.30	35	N	11/13/98
W- 055	8,320.0	11,910.0	592.54	595.52	596.01	42	N	11/13/98
W- 056	8,280.0	11,959.0	592.85	595.19	595.84	35	N	11/13/98
W- 057	8,341.0	12,048.0	596.49	599.01	599.53	36	N	11/13/98
W- 058	8,421.0	12,108.0	590.65	593.10	593.85	38	N	11/13/98
W- 059	8,501.0	12,168.0	594.74	596.91	597.60	34	N	11/14/98
W- 060	8,581.0	12,228.0	598.74	601.05	601.67	35	N	11/13/98
W- 061	8,661.0	12,288.0	597.65	600.50	601.12	42	N	11/13/98
W- 062	8,700.9	12,283.2	600.09	602.50	603.05	35	Y	11/13/98
W- 063	8,748.7	12,365.8	592.95	595.39	596.32	40	Y	11/22/98
W- 064	DELETED WITHIN THE ACCESS ROAD							
W- 065	8,874.9	12,419.0	592.27	594.54	595.28	35	Y	11/21/98
W- 066	DELETED WITHIN THE ACCESS ROAD							
W- 067	8,761.6	12,487.0	593.26	595.52	596.37	37	N	11/21/98
W- 068	DELETED WITHIN THE ACCESS ROAD							
W- 069	8,601.0	12,368.0	590.14	592.58	593.35	39	N	11/13/98
W- 070	8,521.0	12,308.0	596.27	598.77	599.30	35	N	11/13/98
W- 071	8,441.0	12,248.0	594.65	596.90	597.45	34	N	11/14/98
W- 072	8,361.0	12,188.0	590.53	592.92	593.44	35	N	11/13/98
W- 073	8,281.0	12,129.0	596.56	598.92	599.38	34	N	11/13/98
W- 074	8,199.6	12,069.8	592.68	594.94	595.54	34	N	11/22/98
W- 075	DELETED- NEW AFVEMENT AREA							
W- 076	8,221.0	12,209.0	595.72	598.01	598.49	33	N	11/13/98
W- 077	8,301.0	12,269.0	599.40	591.67	592.23	34	N	11/13/98
W- 078	8,381.0	12,328.0	594.08	596.28	596.79	33	N	11/14/98
W- 079	8,461.0	12,388.0	598.15	596.95	596.72	43	N	11/13/98
W- 080	8,542.0	12,448.0	595.71	599.18	599.92	39	N	11/22/98
W- 081	8,482.0	12,528.0	595.68	598.03	598.93	39	N	11/22/98
W- 082	8,402.0	12,468.0	590.70	592.85	593.70	35	N	11/13/98
W- 083	8,321.0	12,408.0	593.05	595.45	596.03	36	N	11/14/98
W- 084	8,241.0	12,349.0	598.16	590.52	591.18	35	N	11/14/98
W- 085	8,161.0	12,289.0	593.63	596.89	596.79	38	N	11/22/98
W- 086	8,125.3	12,385.2	594.65	597.12	597.61	35	N	11/13/98
W- 087	8,162.0	12,429.0	597.73	599.99	590.57	34	N	11/14/98
W- 088	8,262.0	12,469.0	599.93	592.36	593.09	38	N	11/14/98
W- 089	8,342.0	12,548.0	598.20	590.43	591.28	37	N	11/14/98
W- 090	8,422.0	12,608.0	596.75	599.20	599.84	37	N	11/22/98
W- 091	8,513.9	12,671.2	592.78	596.10	596.89	37	N	11/21/98
W- 092	8,356.5	12,694.4	592.53	596.37	596.09	43	N	12/4/98
W- 093	8,282.0	12,629.0	594.07	596.34	596.90	34	N	11/13/98
W- 094	8,202.0	12,569.0	594.59	597.18	597.74	38	N	11/13/98
W- 095	8,128.5	12,505.7	594.75	597.57	598.09	40	N	11/14/98
W- 096	8,042.0	12,449.0	592.15	594.49	595.09	35	N	11/14/98
W- 097	8,659.4	11,560.3	595.17	597.64	598.41	39	Y	12/5/98
W- 098	8,673.9	11,631.8	597.29	599.43	590.05	33	Y	12/5/98
W- 099	8,697.9	11,684.6	598.92	591.09	591.55	32	Y	12/4/98
W- 100	8,703.3	11,735.9	590.47	592.74	593.31	34	Y	11/21/98

POINT NO.	NORTH	EAST	CLAY ELEV.	COVER SOIL ELEV.	TOP SOIL ELEV.	CAP SYSTEM THICKNESS (INCHES)	BREAK-LINE (Y/N)	DATE SURVEYED
W- 101	8,718.3	11,792.0	592.55	594.91	595.52	35	Y	11/21/98
W- 102	8,732.7	11,846.7	594.16	595.39	597.19	35	Y	11/21/98
W- 103	8,755.5	11,929.4	597.16	599.78	600.50	40	Y	11/21/98
W- 104	8,764.6	12,016.5	599.64	602.12	602.84	38	Y	11/13/98
W- 105	8,537.6	12,260.3	598.57	600.81	601.41	34	Y	11/13/98
W- 106	8,500.2	12,285.5	597.61	599.82	600.44	34	Y	11/13/98
W- 107	8,831.9	11,984.4	599.15	601.59	602.29	38	N	11/21/98
W- 108	8,795.2	12,073.9	597.94	600.40	601.08	38	N	11/13/98
W- 109	8,614.3	11,526.4	592.49	594.93	595.51	48	N	12/5/98
W- 110	DELETED WITHIN THE ACCESS ROAD							
W- 111	8,649.4	11,511.4	592.85	595.35	595.11	39	N	12/5/98
W- 112	8,669.6	11,510.1	593.18	595.62	596.65	42	N	12/5/98
W- 113	8,688.7	11,523.1	593.27	595.72	596.46	38	N	12/5/98
W- 114	8,709.5	11,540.9	593.01	595.37	595.98	36	N	12/5/98
W- 115	8,805.9	12,471.6	594.51	596.84	597.49	36	Y	11/21/98
W- 116	8,848.3	12,508.4	591.32	593.74	594.41	37	N	11/21/98
W- 117	8,836.0	12,541.9	591.57	593.93	594.65	36	N	11/21/98
W- 118	8,774.2	12,519.8	592.03	594.32	594.97	35	N	11/21/98
W- 119	8,721.3	12,152.1	601.43	603.69	604.19	33	Y	11/13/98
W- 120	8,668.7	12,197.0	601.93	604.14	604.70	33	Y	11/13/98
W- 121	8,607.9	12,237.1	599.88	602.20	602.92	35	Y	11/13/98
W- 122	8,671.6	12,240.2	601.97	604.29	604.91	35	Y	11/13/98
W- 123	8,785.5	12,494.9	593.13	595.40	596.26	38	N	11/21/98
W- 124	8,791.6	12,475.7	594.05	596.70	597.43	40	N	11/21/98
W- 125	8,675.6	12,284.8	599.42	601.65	602.21	33	N	11/13/98
W- 126	8,469.1	12,321.2	596.79	599.08	599.69	35	Y	11/13/98
W- 127	9,092.0	11,864.0	590.50	592.71	593.40	35	N	11/21/98
W- 128	9,092.2	11,886.2	590.08	592.75	593.41	40	N	11/21/98
W- 129	9,092.0	11,912.0	590.48	592.89	593.55	37	N	11/21/98
W- 130	9,052.2	11,938.0	591.32	593.68	594.50	38	N	11/21/98
W- 131	9,033.9	11,949.9	592.31	594.55	595.32	36	N	11/21/98
W- 132	9,050.0	11,822.4	591.12	593.43	594.05	35	N	11/21/98
W- 133	9,057.4	11,851.3	591.65	594.05	594.70	37	Y	11/21/98
W- 134	9,040.6	11,870.9	592.92	595.11	595.79	34	Y	11/21/98
W- 135	9,016.2	11,880.0	594.07	595.32	595.97	35	Y	11/21/98
W- 136	9,017.7	11,852.5	592.93	595.53	596.24	40	N	11/21/98
W- 137	9,015.7	11,823.0	592.38	594.85	595.58	38	N	11/21/98
W- 138	9,050.9	11,845.1	591.75	594.28	594.93	38	N	11/21/98
W- 139	9,072.9	11,880.4	591.48	593.78	594.45	36	N	11/21/98
W- 140	9,080.3	11,903.5	591.81	594.04	594.72	35	N	11/21/98
W- 141	9,031.8	11,917.5	593.12	595.29	596.07	35	N	11/21/98
W- 142	8,704.7	12,456.3	592.71	594.95	595.59	35	N	11/21/98
W- 143	8,694.7	12,469.9	592.71	595.03	595.83	37	N	11/21/98
W- 144	8,648.7	12,491.4	592.72	595.12	595.84	37	N	11/21/98
W- 145	8,630.3	12,497.6	592.72	594.95	595.72	36	N	11/21/98
W- 146	8,609.2	12,509.9	592.69	594.98	595.69	36	N	11/21/98
W- 147	8,578.1	12,531.8	592.70	594.97	595.77	37	N	11/21/98
W- 148	8,695.6	12,360.0	590.95	593.25	593.88	35	N	11/13/98
W- 149	8,631.7	12,330.4	593.29	595.58	596.34	37	N	11/13/98
W- 150	8,538.6	12,361.7	590.99	593.76	594.32	40	N	11/13/98

POINT NO.	NORTH	EAST	CLAY ELEV.	COVER SOIL ELEV.	TOP SOIL ELEV.	CAP SYSTEM THICKNESS (INCHES)	BREAK-LINE (Y/N)	DATE SURVEYED
W- 151	DELETED WITHIN THE ACCESS ROAD							
W- 152	8,552.1	12,559.7	592.92	595.29	595.95	36	N	11/21/98
W- 153	8,531.2	12,612.8	592.76	595.56	596.23	42	N	11/21/98
W- 154	8,495.2	12,737.8	592.77	595.04	595.69	37	N	12/4/98
W- 155	8,239.0	12,666.2	592.16	595.05	595.69	42	N	11/13/98
W- 156	DELETED WITHIN THE ACCESS ROAD							
W- 157	8,473.7	12,700.1	593.64	595.87	596.64	36	N	12/4/98
W- 158	8,403.1	12,642.5	596.02	598.32	598.97	36	N	11/22/98
W- 159	DELETED WITHIN THE ACCESS ROAD							
W- 160	DELETED WITHIN THE ACCESS ROAD							
W- 161	8,314.7	12,423.3	593.83	595.12	595.71	35	Y	11/13/98
W- 162	8,310.5	12,452.4	592.99	595.23	595.88	35	Y	11/13/98
W- 163	8,347.6	12,511.0	593.92	592.28	592.89	36	Y	11/13/98
W- 164	8,396.5	12,581.5	597.67	590.01	590.71	36	Y	11/13/98
W- 165	8,260.0	12,474.1	590.80	593.04	593.72	35	Y	11/14/98
W- 166	8,191.6	12,076.7	590.20	593.52	594.23	48	N	11/22/98
W- 167	DELETED							
W- 168	DELETED- NEW AFVEMENT AREA							
W- 169	8,121.0	12,291.0	590.84	593.11	593.75	35	N	11/22/98
W- 170	8,164.7	12,303.5	594.00	596.26	596.92	36	N	11/14/98
W- 171	8,160.9	12,228.9	593.13	595.50	596.13	36	N	11/22/98
W- 172	8,171.2	12,195.7	593.31	595.55	596.10	33	N	11/22/98
W- 173	DELETED- NEW AFVEMENT AREA							
W- 174	DELETED- NEW AFVEMENT AREA							
W- 175	8,130.9	12,283.3	591.08	593.60	594.47	41	Y	11/22/98
W- 176	8,234.8	12,663.4	592.38	594.85	595.61	39	N	11/13/98
W- 177	8,254.8	12,610.4	594.92	597.18	597.74	34	N	11/13/98
W- 178	8,149.9	12,560.9	592.99	595.32	595.99	36	N	11/14/98
W- 179	8,165.0	12,544.6	595.09	597.51	598.18	37	N	11/14/98
W- 180	8,095.2	12,551.6	592.49	594.98	595.62	38	N	11/14/98
W- 181	7,993.8	12,468.7	590.35	592.89	593.62	39	N	11/13/98
W- 182	8,002.9	12,405.6	590.63	593.09	593.67	34	N	11/13/98
W- 183	8,094.3	12,363.9	590.81	593.16	593.63	34	N	11/13/98
W- 184	8,163.0	12,489.5	596.36	598.69	599.15	33	Y	11/14/98
W- 185	8,090.4	12,497.3	593.73	595.93	596.55	34	Y	11/14/98
W- 186	8,032.9	12,504.1	591.40	594.05	594.63	39	Y	11/14/98
W- 187	7,993.4	12,473.3	590.26	592.91	593.58	40	N	11/13/98
W- 188	8,777.1	12,003.9	599.83	602.02	602.77	36	N	11/13/98
W- 189	8,805.5	11,993.9	599.94	602.15	602.79	34	N	11/21/98
W- 190	8,837.5	11,995.2	598.61	601.22	601.91	40	N	11/21/98
W- 191	8,839.8	11,981.7	598.70	600.84	601.49	33	N	11/21/98
W- 192	8,836.7	11,980.1	598.80	601.11	601.74	36	N	11/21/98
W- 193	8,803.4	11,984.6	599.64	602.05	602.72	37	N	11/21/98
W- 194	8,660.0	12,360.9	NA	594.84	595.41	NA	N	11/13/98
W- 195	8,146.2	12,208.6	591.32	593.64	594.29	36	N	11/22/98
W- 196	8,122.9	12,277.9	590.70	593.04	593.68	36	N	11/22/98
W- 197	8,219.1	12,094.1	592.70	595.02	595.76	37	N	11/22/98
W- 198	8,201.8	12,063.1	592.46	594.89	595.55	37	N	11/22/98

NOTES:
1. SURVEY CONTROL POINTS FOR THE WESTERN CONTAINMENT UNITS ARE SHOWN ON DRAWING NO. 65 .
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NO. 32.

SUMMARY OF TOPSOIL VERIFICATION DATA

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS- BUILT TOPSOIL SURFACE SURVEY DATA

M.E.C. inc — MIDWEST ENVIRONMENTAL CONSULTANTS, INC. (313) 563-6326 DEARBORN , MICHIGAN

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
TOPSOIL SURFACE SURVEY VERIFICATION DATA- WCU

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 11/99	AS NOTED	33 OF 65	1
DESIGNED: DATE LWB 11/99	REVIEWED: DATE JSB 11/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E17	

DWG. NO. 28 OF 65

PROJ. NO. F66A2C

POINT NO.	NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
W- 001	8,838.5	11,664.4	583.75	595.03	15	N	11/5/98
W- 002	8,769.0	11,609.9	584.16	595.71	19	N	11/5/98
W- 003	8,861.6	11,694.1	583.65	594.97	16	N	11/5/98
W- 004	8,932.6	11,736.3	583.89	595.03	14	N	11/5/98
W- 005	9,011.1	11,797.6	583.49	594.65	14	N	11/5/98
W- 006	8,952.3	11,589.0	586.46	597.86	17	N	11/5/98
W- 007	8,730.5	11,640.0	568.09	592.08	24	Y	11/5/98
W- 008	8,826.0	11,713.9	585.48	597.14	20	Y	11/5/98
W- 009	8,898.3	11,771.1	585.68	597.17	18	Y	11/5/98
W- 010	8,976.1	11,833.9	585.83	595.99	14	Y	11/10/98
W- 011	8,997.9	11,898.6	585.91	597.14	15	Y	11/5/98
W- 012	8,553.2	11,590.8	583.62	594.89	15	N	11/5/98
W- 013	8,634.2	11,631.2	587.01	598.15	14	N	11/5/98
W- 014	8,700.1	11,684.8	589.40	590.85	17	N	11/5/98
W- 015	8,793.8	11,750.8	588.34	599.97	20	N	11/5/98
W- 016	8,874.3	11,820.3	588.40	599.65	15	N	11/11/98
W- 017	8,950.3	11,877.3	588.46	599.73	15	N	11/5/98
W- 018	8,940.4	11,920.0	590.38	591.73	16	Y	11/4/98
W- 019	8,979.7	12,029.1	584.39	595.60	15	N	11/4/98
W- 020	8,955.7	12,020.8	585.72	595.94	15	Y	11/4/98
W- 021	8,887.2	11,951.5	594.23	595.38	26	Y	11/4/98
W- 022	8,815.7	11,902.1	594.87	595.46	19	N	11/5/98
W- 023	8,740	11,848	594.99	595.40	17	N	11/5/98
W- 024	8,661.1	11,789.0	591.58	592.74	14	N	11/5/98
W- 025	8,581.0	11,729.0	587.39	598.99	19	N	11/5/98
W- 026	8,501.1	11,669.2	583.74	595.28	18	N	11/5/98
W- 027	8,800.5	11,918.8	595.51	597.74	15	Y	11/5/98
W- 028	DELETED						
W- 029	8,971.4	12,132.5	583.41	594.68	15	N	11/4/98
W- 030	8,925.2	12,116.4	586.03	587.18	14	Y	11/5/98
W- 031	8,877.7	12,099.3	590.50	591.67	14	N	11/4/98
W- 032	DELETED						
W- 033	8,761.2	11,988.9	600.34	601.78	17	N	11/4/98
W- 034	8,681.2	11,929.0	595.59	597.16	19	N	11/5/98
W- 035	8,601.0	11,869.0	591.55	593.02	18	N	11/5/98
W- 036	8,521.1	11,809.1	587.51	588.74	15	N	11/9/98
W- 037	8,441.2	11,749.3	583.61	584.82	15	N	11/9/98
W- 038	8,380	11,828	583.57	585.21	20	N	11/9/98
W- 039	8,461.2	11,889.1	587.75	589.16	17	N	11/9/98
W- 040	8,541.2	11,949.1	591.58	592.91	16	N	11/18/98
W- 041	8,621.3	12,009.0	595.67	597.25	19	N	11/5/98
W- 042	8,701.3	12,068.9	599.80	601.23	17	N	11/4/98
W- 043	8,757.2	12,165.3	599.45	600.90	17	Y	11/4/98
W- 044	8,845.5	12,195.3	590.33	591.46	14	N	11/4/98
W- 045	8,892.5	12,210.9	585.05	587.21	14	Y	11/4/98
W- 046	8,940.1	12,227.3	583.07	584.34	15	N	11/4/98
W- 047	8,908.6	12,322.6	583.55	584.72	14	N	11/5/98
W- 048	8,860.5	12,307.3	585.82	587.39	19	Y	11/4/98
W- 049	8,814.2	12,287.8	590.38	591.54	14	N	11/4/98
W- 050	8,721	12,208	601.32	602.62	16	N	11/5/98

POINT NO.	NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
W- 051	8,641	12,148	599.90	601.10	14	N	11/4/98
W- 052	8,551	12,088	595.67	596.95	15	N	11/5/98
W- 053	8,481	12,028	591.57	593.04	18	N	11/5/98
W- 054	8,400	11,968	587.37	588.74	16	N	11/5/98
W- 055	8,320	11,910	583.66	585.52	22	N	11/5/98
W- 056	8,260	11,999	593.94	595.19	15	N	11/5/98
W- 057	8,341	12,048	587.57	589.01	17	N	11/5/98
W- 058	8,421	12,108	591.78	593.10	16	N	11/5/98
W- 059	8,501	12,168	595.74	596.91	14	N	11/5/98
W- 060	8,581	12,228	599.73	601.05	16	N	11/5/98
W- 061	8,661	12,288	598.71	600.50	21	N	11/5/98
W- 062	8,706.9	12,283.2	601.12	602.50	17	Y	11/3/98
W- 063	8,748.7	12,395.8	594.19	595.39	14	Y	11/4/98
W- 064	8,829.4	12,402.0	585.46	586.71	15	Y	11/4/98
W- 065	8,874.9	12,419.0	583.35	584.54	14	Y	11/5/98
W- 066	8,782.5	12,432.0	588.93	590.29	16	Y	11/4/98
W- 067	8,761.6	12,467.0	584.34	585.52	14	N	11/4/98
W- 068	8,681.5	12,428.0	587.54	588.80	15	N	11/4/98
W- 069	8,601	12,368	591.18	592.58	17	N	11/3/98
W- 070	8,521	12,308	597.57	598.77	14	N	11/3/98
W- 071	8,441	12,248	595.73	596.90	14	N	11/5/98
W- 072	8,361	12,188	591.53	592.92	17	N	11/5/98
W- 073	8,281	12,129	587.65	588.92	15	N	11/5/98
W- 074	8,199.6	12,089.8	583.65	584.94	15	N	11/17/98
W- 075	DELETED- NEW PAVEMENT AREA						
W- 076	8,221	12,209	586.72	588.01	15	N	11/5/98
W- 077	8,301	12,269	590.43	591.67	15	N	11/5/98
W- 078	8,381	12,328	595.14	596.28	14	N	11/5/98
W- 079	8,461	12,388	594.80	595.95	14	N	11/3/98
W- 080	8,542	12,448	587.76	589.18	17	N	11/5/98
W- 081	8,482	12,528	586.74	588.03	15	N	11/4/98
W- 082	8,402	12,468	591.71	592.85	14	N	11/3/98
W- 083	8,321	12,408	594.17	595.45	15	N	11/3/98
W- 084	8,241	12,349	589.25	590.52	15	N	11/5/98
W- 085	8,161	12,289	584.68	585.89	15	N	11/5/98
W- 086	8,125.3	12,395.2	585.94	587.12	14	N	11/5/98
W- 087	8,182	12,429	588.76	589.99	15	N	11/5/98
W- 088	8,262	12,489	591.12	592.35	15	N	11/4/98
W- 089	8,342	12,548	589.21	590.43	15	N	11/3/98
W- 090	8,422	12,608	587.84	589.20	16	N	11/3/98
W- 091	8,513.9	12,671.2	583.93	585.10	14	N	11/3/98
W- 092	8,356.5	12,694.4	583.69	585.37	20	N	11/3/98
W- 093	8,282	12,629	585.10	586.34	15	N	11/3/98
W- 094	8,202	12,569	585.88	587.18	16	N	11/4/98
W- 095	8,128.5	12,505.7	586.01	587.57	19	N	11/5/98
W- 096	8,042	12,449	583.25	584.49	15	N	11/9/98
W- 097	8,659.4	11,580.3	585.18	587.64	18	Y	11/5/98
W- 098	8,673.9	11,631.8	588.25	589.43	14	Y	11/5/98
W- 099	8,687.9	11,684.6	589.88	591.09	15	Y	11/5/98
W- 100	8,703.3	11,736.9	591.51	592.74	15	Y	11/9/98

POINT NO.	NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
W- 101	8,718.3	11,792.0	593.60	594.91	16	Y	11/5/98
W- 102	8,732.7	11,846.7	595.17	596.39	15	Y	11/5/98
W- 103	8,756.5	11,929.4	598.20	599.78	19	Y	11/5/98
W- 104	8,764.6	12,016.5	600.67	602.12	17	Y	11/4/98
W- 105	8,537.6	12,260.3	599.65	600.81	14	Y	11/3/98
W- 106	8,500.2	12,285.5	598.60	599.82	15	Y	11/5/98
W- 107	8,831.9	11,984.4	600.28	601.59	16	N	11/4/98
W- 108	8,796.2	12,073.9	598.92	600.40	18	N	11/4/98
W- 109	8,614.3	11,526.4	583.62	584.93	16	N	11/9/98
W- 110	8,634.2	11,516.6	583.81	585.44	20	N	11/19/98
W- 111	8,649.4	11,511.4	583.92	585.36	17	N	11/18/98
W- 112	8,669.6	11,510.1	584.25	585.62	16	N	11/9/98
W- 113	8,688.7	11,523.1	584.32	585.72	17	N	11/9/98
W- 114	8,709.5	11,540.9	583.98	585.37	17	N	11/9/98
W- 115	8,805.9	12,471.6	585.57	586.84	15	Y	11/4/98
W- 116	8,848.3	12,508.4	582.33	583.74	17	N	11/5/98
W- 117	8,836.0	12,541.9	582.67	583.93	15	N	11/5/98
W- 118	8,774.2	12,519.8	583.04	584.32	15	N	11/6/98
W- 119	8,721.3	12,152.1	602.46	603.69	15	Y	11/4/98
W- 120	8,698.7	12,197.0	602.95	604.14	14	Y	11/4/98
W- 121	8,607.9	12,237.1	600.99	602.20	15	Y	11/3/98
W- 122	8,671.6	12,240.2	603.09	604.29	14	Y	11/5/98
W- 123	8,785.5	12,494.9	584.15	585.40	15	N	11/4/98
W- 124	8,791.6	12,475.7	585.14	586.70	19	N	11/4/98
W- 125	8,675.6	12,284.8	600.48	601.65	14	N	11/3/98
W- 126	8,489.1	12,321.2	597.85	599.08	15	Y	11/7/98
W- 127	9,092.0	11,864.0	581.47	582.71	15	N	11/9/98
W- 128	9,092.2	11,886.2	581.50	582.75	15	N	11/9/98
W- 129	9,092.0	11,912.0	581.50	582.89	17	N	11/9/98
W- 130	9,052.2	11,938.0	582.43	583.68	15	N	11/9/98
W- 131	9,033.9	11,949.9	583.28	584.55	15	N	11/9/98
W- 132	9,050.0	11,822.4	582.06	583.43	16	N	11/9/98
W- 133	9,057.4	11,861.3	582.77	584.05	15	Y	11/9/98
W- 134	9,040.6	11,870.9	583.91	585.11	14	Y	11/9/98
W- 135	9,016.2	11,880.0	585.13	586.32	14	Y	11/9/98
W- 136	9,017.7	11,852.5	584.11	585.53	17	N	11/9/98
W- 137	9,015.7	11,823.0	583.44	584.85	17	N	11/10/98
W- 138	9,050.9	11,845.1	583.05	584.28	15	N	11/9/98
W- 139	9,072.9	11,880.4	582.48	583.78	16	N	11/9/98
W- 140	9,060.3	11,903.5	582.80	584.04	15	N	11/9/98
W- 141	9,031.8	11,917.5	584.10	585.29	14	N	11/9/98
W- 142	8,704.7	12,496.3	583.75	584.95	14	N	11/5/98
W- 143	8,684.7	12,489.9	583.73	585.03	16	N	11/6/98
W- 144	8,648.7	12,491.4	583.78	585.12	16	N	11/5/98
W- 145	8,630.3	12,497.6	583.75	584.95	14	N	11/5/98
W- 146	8,609.2	12,509.9	583.78	584.98	14	N	11/5/98
W- 147	8,578.1	12,531.8	583.80	584.97	14	N	11/5/98
W- 148	8,695.6	12,380.0	592.04	593.25	15	N	11/4/98
W- 149	8,631.7	12,330.4	594.36	595.58	15	N	11/3/98
W- 150	8,538.6	12,381.7	592.17	593.76	19	N	11/5/98

POINT NO.	NORTH	EAST	SAND ELEV	COVER SOIL ELEV	COVER SOIL THICKNESS (IN)	BREAK-LINE (Y/N)	DATE SURVEYED
W- 151	8,605.0	12,440.8	586.32	587.46	14	N	11/4/98
W- 152	8,552.1	12,559.7	584.02	585.29	15	N	11/5/98
W- 153	8,531.2	12,612.8	584.05	585.56	18	N	11/5/98
W- 154	8,495.2	12,737.8	583.75	585.04	15	N	11/27/98
W- 155	8,269.0	12,663.2	583.24	585.05	22	N	11/9/98
W- 156	8,368.2	12,659.4	586.58	588.82	15	N	11/3/98
W- 157	8,473.7	12,700.1	584.73	585.87	14	N	11/9/98
W- 158	8,436.1	12,642.5	587.02	588.32	16	N	11/3/98
W- 159	8,482.7	12,600.3	585.67	586.90	15	N	11/3/98
W- 160	8,501.3	12,539.1	585.95	587.16	15	N	11/4/98
W- 161	8,343.7	12,423.3	594.80	596.12	16	Y	11/3/98
W- 162	8,310.5	12,452.4	594.05	595.23	14	Y	11/3/98
W- 163	8,347.6	12,511.0	591.05	592.28	15	Y	11/3/98
W- 164	8,396.5	12,581.5	588.71	590.01	16	Y	11/3/98
W- 165	8,260.0	12,474.1	591.87	593.04	14	Y	11/5/98
W- 166	8,191.6	12,076.7	582.01	583.52	18	N	11/16/98
W- 167	DELETED						
W- 168	DELETED- NEW PAVEMENT AREA						
W- 169	8,121.0	12,291.0	581.82	583.11	15	N	11/16/98
W- 170	8,164.7	12,303.5	585.05	586.26	15	N	11/5/98
W- 171	8,160.9	12,228.9	584.15	585.50	16	N	11/16/98
W- 172	8,171.2	12,195.7	584.37	585.55	14	N	11/17/98
W- 173	DELETED- NEW PAVEMENT AREA						
W- 174	DELETED- NEW PAVEMENT AREA						
W- 175	8,130.9	12,283.3	582.22	583.60	17	Y	11/16/98
W- 176	8,234.8	12,653.4	583.63	584.85	15	N	11/9/98
W- 177	8,264.8	12,605.4	585.98	587.18	14	N	11/3/98
W- 178	8,149.9	12,590.9	584.06	585.32	15	N	11/9/98
W- 179	8,185.0	12,544.6	586.31	587.51	14	N	11/5/98
W- 180	8,095.2	12,551.6	583.48	584.98	18	N	11/9/98
W- 181	7,993.8	12,468.7	581.45	582.89	17	N	11/9/98
W- 182	8,020.9	12,435.6	581.88	583.09	15	N	11/5/98
W- 183	8,084.3	12,353.9	581.90	583.16	15	N	11/5/98
W- 184	8,150.0	12,469.5	587.48	588.69	15	Y	11/5/98
W- 185	8,080.4	12,497.3	584.70	585.93	15	Y	11/9/98
W- 186	8,032.9	12,504.1	582.64	584.05	17	Y	11/9/98
W- 187	7,993.4	12,473.3	581.37	582.91	18	N	11/9/98
W- 188	8,777.1	12,003.9	600.84	602.02	14	N	11/4/98
W- 189	8,805.5	11,993.9	600.98	602.15	14	N	11/4/98
W- 190	8,837.5	11,985.2	599.78	601.22	17	N	11/4/98
W- 191	8,839.8	11,981.7	599.70	600.84	14	N	11/4/98
W- 192	8,836.7	11,980.1	599.92	601.11	14	N	11/4/98
W- 193	8,803.4	11,994.6	600.72	602.05	16	N	11/4/98
W- 194	8,650.0	12,350.9	593.64	594.84	14	N	11/3/98
W- 195	8,146.2	12,208.6	582.43	583.64	15	N	11/16/98
W- 196	8,122.9	12,277.9	581.80	583.04	15	N	11/16/98
W- 197	8,219.1	12,084.1	583.77	585.02	15	N	11/16/98
W- 198	8,201.8	12,063.1	583.51	584.89	17	N	11/17/98

NOTES:

1. SURVEY CONTROL POINTS FOR THE WESTERN CONTAINMENT UNITS ARE SHOWN ON DRAWING NO. 65 .
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NO. 27.

SUMMARY OF COVERSOIL VERIFICATION DATA

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS- BUILT COVERSOIL SURFACE SURVEY DATA

MEC inc

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN , MICHIGAN (313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISEON CORPORATION
MONROE STAMPING PLANT
COVER SOIL SURFACE SURVEY VERIFICATION DATA- WCU

DRAWN: AS DATE 11/99	SCALE: AS NOTED	DRAWING NO. 28 OF 65	REV. NO. 1
DESIGNED: LWB DATE 11/99	REVIEWED: JSB DATE 11/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E16	

DWG. NO. 23 OF 65

PROJ. NO. F66A2C

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE	DATE SURVEYED
W- 001	8,838.5	11,654.4	592.74	583.75	1.0	(Y/N)	10/27/98
W- 002	8,769.0	11,609.9	593.10	584.16	1.1	N	10/27/98
W- 003	8,851.6	11,694.1	592.64	583.65	1.0	N	10/27/98
W- 004	8,932.6	11,736.3	592.81	583.89	1.1	N	10/27/98
W- 005	9,011.1	11,797.6	592.52	583.49	1.0	N	9/17/98
W- 006	8,652.3	11,599.0	595.50	586.46	1.0	N	10/27/98
W- 007	8,730.5	11,640.0	595.05	586.09	1.0	N	10/27/98
W- 008	8,826.0	11,713.9	594.36	585.48	1.1	Y	10/26/98
W- 009	8,898.3	11,771.1	594.72	585.68	1.0	Y	10/26/98
W- 010	8,976.1	11,833.9	594.77	585.83	1.1	Y	9/17/98
W- 011	8,997.9	11,888.6	594.91	585.91	1.0	Y	9/17/98
W- 012	8,553.2	11,590.8	592.53	583.62	1.1	Y	10/30/98
W- 013	8,634.2	11,631.2	595.97	587.01	1.0	N	10/27/98
W- 014	8,700.1	11,684.8	588.42	589.40	1.0	N	10/27/98
W- 015	8,790.8	11,750.8	587.33	588.34	1.0	N	10/26/98
W- 016	8,874.3	11,820.3	587.37	588.40	1.0	N	10/26/98
W- 017	8,950.3	11,877.3	587.42	588.46	1.0	N	9/17/98
W- 018	8,940.4	11,920.0	589.36	590.38	1.0	N	9/17/98
W- 019	8,979.7	12,029.1	593.35	594.39	1.0	Y	9/17/98
W- 020	8,955.7	12,020.8	584.49	585.72	1.2	N	9/17/98
W- 021	8,887.2	11,951.5	593.15	594.23	1.1	Y	9/23/98
W- 022	8,815.7	11,902.1	593.89	594.87	1.0	Y	10/26/98
W- 023	8,740.0	11,848.0	594.00	594.99	1.0	N	10/26/98
W- 024	8,651.1	11,789.0	590.55	591.58	1.0	N	10/26/98
W- 025	8,581.0	11,729.0	586.37	587.39	1.0	N	10/26/98
W- 026	8,501.1	11,669.2	592.63	593.74	1.1	N	10/27/98
W- 027	8,800.5	11,918.8	595.43	596.51	1.1	N	10/26/98
W- 028	8,832.3	11,985.0	598.34	600.25	1.9	Y	9/23/98
W- 029	8,971.4	12,132.5	592.32	593.41	1.1	Y	9/17/98
W- 030	8,925.2	12,116.4	594.70	596.03	1.3	N	9/17/98
W- 031	8,877.7	12,099.3	589.28	590.50	1.2	Y	9/17/98
W- 032	DELETED						
W- 033	8,761.2	11,998.9	599.28	600.34	1.1	N	10/22/98
W- 034	8,691.2	11,929.0	594.46	595.59	1.1	N	10/22/98
W- 035	8,601.0	11,869.0	590.47	591.56	1.1	N	10/23/98
W- 036	8,521.1	11,809.1	596.38	597.51	1.1	N	10/23/98
W- 037	8,441.2	11,749.3	592.63	593.61	1.0	N	10/24/98
W- 038	8,380.0	11,828.0	592.57	593.57	1.0	N	10/24/98
W- 039	8,461.2	11,889.1	596.74	597.75	1.0	N	10/23/98
W- 040	8,541.2	11,949.1	590.46	591.58	1.1	N	10/23/98
W- 041	8,621.3	12,009.0	594.57	595.67	1.1	N	10/22/98
W- 042	8,701.3	12,068.9	598.58	599.80	1.2	N	10/22/98
W- 043	8,757.2	12,166.3	596.43	599.46	1.0	N	9/21/98
W- 044	8,845.5	12,196.3	599.32	600.33	1.0	Y	9/21/98
W- 045	8,892.5	12,210.9	584.93	586.05	1.1	N	9/21/98
W- 046	8,940.1	12,227.3	592.05	593.07	1.0	Y	9/21/98
W- 047	8,908.6	12,322.6	592.64	593.59	1.0	N	9/21/98
W- 048	8,850.5	12,307.3	584.57	585.82	1.3	N	9/21/98
W- 049	8,814.2	12,287.8	589.41	590.38	1.0	Y	9/21/98
W- 050	8,721.0	12,208.0	600.34	601.32	1.0	N	9/21/98

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE	DATE SURVEYED
W- 051	8,641.0	12,148.0	598.75	599.90	1.1	N	10/18/98
W- 052	8,561.0	12,088.0	594.64	595.67	1.0	N	10/18/98
W- 053	8,481.0	12,028.0	590.46	591.57	1.1	N	10/18/98
W- 054	8,400.0	11,968.0	586.28	587.37	1.1	N	10/20/98
W- 055	8,320.0	11,910.0	582.54	583.66	1.1	N	10/24/98
W- 056	8,260.0	11,969.0	582.86	583.94	1.1	N	10/23/98
W- 057	8,341.0	12,048.0	586.49	587.57	1.1	N	10/20/98
W- 058	8,421.0	12,108.0	590.65	591.78	1.1	N	10/18/98
W- 059	8,501.0	12,168.0	594.74	595.74	1.0	N	10/15/98
W- 060	8,581.0	12,228.0	598.74	599.73	1.0	N	10/15/98
W- 061	8,661.0	12,288.0	597.65	598.71	1.1	N	9/22/98
W- 062	8,705.9	12,283.2	600.09	601.12	1.0	N	9/22/98
W- 063	8,748.7	12,365.8	592.96	594.19	1.2	Y	9/22/98
W- 064	8,829.4	12,402.0	584.41	585.46	1.1	Y	10/30/98
W- 065	8,874.9	12,419.0	582.27	583.35	1.1	Y	10/30/98
W- 066	8,782.5	12,432.0	587.86	588.93	1.1	Y	10/30/98
W- 067	8,761.6	12,487.0	583.26	584.34	1.1	Y	10/30/98
W- 068	8,681.5	12,428.0	586.46	587.54	1.1	N	10/30/98
W- 069	8,601.0	12,368.0	590.14	591.18	1.0	N	9/22/98
W- 070	8,521.0	12,308.0	596.27	597.57	1.3	N	9/22/98
W- 071	8,441.0	12,248.0	594.65	595.73	1.1	N	10/15/98
W- 072	8,361.0	12,188.0	590.53	591.53	1.0	N	10/15/98
W- 073	8,281.0	12,129.0	586.56	587.65	1.1	N	10/20/98
W- 074	8,199.6	12,099.8	582.68	583.65	1.0	N	11/11/98
W- 075	8,139.7	12,148.7	580.24	581.74	1.5	N	11/11/98
W- 076	8,221.0	12,209.0	585.72	586.72	1.0	N	10/20/98
W- 077	8,301.0	12,269.0	589.40	590.43	1.0	N	10/15/98
W- 078	8,381.0	12,328.0	594.08	595.14	1.1	N	10/15/98
W- 079	8,461.0	12,388.0	593.15	594.80	1.6	N	9/24/98
W- 080	8,542.0	12,448.0	586.71	587.76	1.0	N	9/24/98
W- 081	8,482.0	12,528.0	585.68	586.74	1.1	N	9/24/98
W- 082	8,402.0	12,468.0	590.70	591.71	1.0	N	9/24/98
W- 083	8,321.0	12,408.0	593.05	594.17	1.1	N	10/15/98
W- 084	8,241.0	12,349.0	588.16	589.25	1.1	N	10/15/98
W- 085	8,161.0	12,289.0	583.63	584.68	1.0	N	10/20/98
W- 086	8,125.3	12,385.2	584.65	585.94	1.3	N	9/24/98
W- 087	8,182.0	12,429.0	587.73	588.76	1.0	N	9/24/98
W- 088	8,262.0	12,489.0	589.93	591.12	1.2	N	9/24/98
W- 089	8,342.0	12,548.0	588.20	589.21	1.0	N	9/24/98
W- 090	8,422.0	12,608.0	586.75	587.84	1.1	N	9/24/98
W- 091	8,513.9	12,671.2	582.78	583.93	1.1	N	9/24/98
W- 092	8,356.5	12,694.4	582.53	583.69	1.2	N	9/24/98
W- 093	8,282.0	12,629.0	584.07	585.10	1.0	N	9/24/98
W- 094	8,202.0	12,569.0	584.59	585.88	1.3	N	9/24/98
W- 095	8,128.5	12,505.7	584.75	586.01	1.3	N	9/24/98
W- 096	8,042.0	12,449.0	582.15	583.25	1.1	N	9/24/98
W- 097	8,659.4	11,580.3	585.17	586.18	1.0	Y	10/27/98
W- 098	8,673.9	11,631.8	587.29	588.25	1.0	Y	10/27/98
W- 099	8,687.9	11,684.6	588.92	589.88	1.0	Y	10/27/98
W- 100	8,703.3	11,736.9	590.47	591.51	1.0	Y	10/26/98

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE	DATE SURVEYED
W- 101	8,718.3	11,792.0	592.56	593.60	1.0	Y	10/26/98
W- 102	8,732.7	11,846.7	594.16	595.17	1.0	Y	10/26/98
W- 103	8,756.5	11,929.4	597.16	598.20	1.0	Y	10/26/98
W- 104	8,764.6	12,016.5	599.64	600.67	1.0	Y	10/22/98
W- 105	8,537.6	12,260.3	598.57	599.65	1.1	Y	10/15/98
W- 106	8,500.2	12,285.5	597.61	598.60	1.0	Y	10/15/98
W- 107	8,831.9	11,994.4	599.15	600.28	1.1	N	9/23/98
W- 108	8,796.2	12,073.9	597.94	598.92	1.0	N	10/22/98
W- 109	8,614.3	11,525.4	582.49	583.62	1.1	N	10/30/98
W- 110	8,634.2	11,516.6	582.80	583.81	1.0	N	10/30/98
W- 111	8,649.4	11,511.4	582.85	583.92	1.1	N	10/30/98
W- 112	8,669.6	11,510.1	583.18	584.25	1.1	N	10/30/98
W- 113	8,688.7	11,523.1	583.27	584.32	1.1	N	10/27/98
W- 114	8,709.5	11,540.9	583.01	583.98	1.0	N	10/27/98
W- 115	8,805.9	12,471.6	584.51	585.57	1.1	Y	10/30/98
W- 116	8,848.3	12,508.4	581.32	582.33	1.0	N	10/30/98
W- 117	8,836.0	12,541.9	581.57	582.67	1.1	N	10/30/98
W- 118	8,774.2	12,519.8	582.03	583.04	1.0	N	10/30/98
W- 119	8,721.3	12,152.1	601.43	602.46	1.0	Y	9/21/98
W- 120	8,698.7	12,197.0	601.93	602.95	1.0	Y	9/22/98
W- 121	8,607.9	12,237.1	599.88	600.99	1.1	Y	10/15/98
W- 122	8,671.6	12,240.2	601.97	603.09	1.1	Y	9/22/98
W- 123	8,785.5	12,494.9	583.13	584.15	1.0	N	10/30/98
W- 124	8,791.6	12,475.7	584.05	585.14	1.1	N	10/30/98
W- 125	8,675.6	12,284.8	599.42	600.48	1.1	N	9/22/98
W- 126	8,469.1	12,321.2	596.79	597.85	1.1	Y	10/15/98
W- 127	9,092.0	11,864.0	580.50	581.47	1.0	N	9/17/98
W- 128	9,092.2	11,886.2	580.08	581.50	1.4	N	9/17/98
W- 129	9,082.0	11,912.0	580.48	581.50	1.0	N	9/17/98
W- 130	9,052.2	11,938.0	581.32	582.43	1.1	N	9/17/98
W- 131	9,033.9	11,949.9	582.31	583.28	1.0	N	9/17/98
W- 132	9,050.0	11,822.4	581.12	582.05	0.9	N	9/17/98
W- 133	9,057.4	11,861.3	581.65	582.77	1.1	Y	9/17/98
W- 134	9,040.6	11,870.9	582.92	583.91	1.0	Y	9/17/98
W- 135	9,016.2	11,880.0	584.07	585.13	1.1	Y	9/17/98
W- 136	9,017.7	11,852.5	582.93	584.11	1.2	N	9/17/98
W- 137	9,015.7	11,823.0	582.38	583.44	1.1	N	9/17/98
W- 138	9,050.9	11,845.1	581.75	583.05	1.3	N	9/17/98
W- 139	9,072.9	11,880.4	581.48	582.48	1.0	N	9/17/98
W- 140	9,060.3	11,903.5	581.81	582.80	1.0	N	9/17/98
W- 141	9,031.8	11,917.5	583.12	584.10	1.0	N	9/17/98
W- 142	8,704.7	12,495.3	582.71	583.75	1.0	N	10/30/98
W- 143	8,684.7	12,489.9	582.71	583.73	1.0	N	10/30/98
W- 144	8,648.7	12,491.4	582.72	583.78	1.1	N	10/30/98
W- 145	8,630.3	12,497.6	582.72	583.75	1.0	N	10/30/98
W- 146	8,609.2	12,509.9	582.69	583.78	1.1	N	10/30/98
W- 147	8,578.1	12,531.8	582.70	583.80	1.1	N	10/30/98
W- 148	8,695.6	12,380.0	590.95	592.04	1.1	N	9/22/98
W- 149	8,631.7	12,330.4	593.29	594.36	1.1	N	9/22/98
W- 150	8,538.6	12,381.7	590.99	592.17	1.2	N	9/22/98

POINT NO.	NORTH	EAST	CLAY ELEV	SAND ELEV	SAND THICKNESS (FEET)	BREAK-LINE	DATE SURVEYED
W- 151	8,603.0	12,440.8	585.22	586.32	1.1	N	10/30/98
W- 152	8,562.1	12,559.7	582.92	584.02	1.1	N	10/30/98
W- 153	8,531.2	12,612.8	582.76	584.05	1.3	N	9/24/98
W- 154	8,495.2	12,737.8	582.77	583.75	1.0	N	9/24/98
W- 155	8,269.0	12,695.2	582.16	583.24	1.1	N	9/24/98
W- 156	8,368.2	12,659.4	584.49	585.58	1.1	N	9/24/98
W- 157	8,473.7	12,700.1	583.64	584.73	1.1	N	9/24/98
W- 158	8,436.1	12,642.5	585.02	587.02	1.0	N	9/24/98
W- 159	8,482.7	12,600.3	584.53	585.67	1.1	N	9/24/98
W- 160	8,501.3	12,539.1	584.81	585.95	1.1	N	9/24/98
W- 161	8,343.7	12,423.3	593.83	594.80	1.0	Y	9/24/98
W- 162	8,310.5	12,452.4	592.99	594.05	1.1	Y	9/24/98
W- 163	8,347.6	12,511.0	589.92	591.05	1.1	Y	9/24/98
W- 164	8,366.5	12,581.5	587.67	588.71	1.0	Y	9/24/98
W- 165	8,260.0	12,474.1	590.80	591.87	1.1	N	9/24/98
W- 166	8,191.6	12,076.7	580.20	582.01	1.8	Y	11/11/98
W- 167	DELETED						
W- 168	8,110.9	12,233.7	580.37	581.88	1.5	N	11/11/98
W- 169	8,121.0	12,291.0	580.84	581.82	1.0	N	10/22/98
W- 170	8,164.7	12,303.5	584.00	585.05	1.0	N	10/20/98
W- 171	8,160.9	12,228.9	583.13	584.15	1.0	N	10/23/98
W- 172	8,171.2	12,195.7	583.31	584.37	1.1	N	10/23/98
W- 173	8,150.9	12,168.8	580.51	582.32	1.8	N	11/11/98
W- 174	8,137.9	12,212.1	581.09	582.66	1.6	Y	11/11/98
W- 175	8,130.9	12,283.3	581.08	582.22	1.1	Y	10/23/98
W- 176	8,234.8	12,653.4	582.38	583.63	1.3	Y	9/24/98
W- 177	8,264.8	12,605.4	584.92	585.98	1.1	N	9/24/98
W- 178	8,149.9	12,590.9	582.99	584.05	1.1	N	9/24/98
W- 179	8,185.0	12,544.6	585.09	586.31	1.2	N	9/24/98
W- 180	8,095.2	12,551.6	582.49	583.48	1.0	N	9/24/98
W- 181	7,993.8	12,468.7	580.35	581.45	1.1	N	10/22/98
W- 182	8,020.9	12,435.6	580.83	581.88	1.0	N	10/22/98
W- 183	8,084.3	12,353.9	580.81	581.90	1.1	N	10/22/98
W- 184	8,150.0	12,489.5	586.35	587.48	1.1	N	9/24/98
W- 185	8,080.4	12,497.3	583.73	584.70	1.0	Y	9/24/98
W- 186	8,032.9	12,504.1	581.40	582.64	1.2	Y	9/24/98
W- 187	7,993.4	12,473.3	580.26	581.37	1.1	Y	10/22/98
W- 188	8,777.1	12,003.9	599.83	600.84	1.0	N	10/22/98
W- 189	8,805.5	11,993.9	599.94	600.98	1.0	N	10/23/98
W- 190	8,837.5	11,995.2	598.61	599.78	1.2	N	9/23/98
W- 191	8,839.8	11,981.7	598.70	599.70	1.0	N	9/23/98
W- 192	8,836.7	11,980.1	598.80	599.92	1.1	N	9/23/98
W- 193	8,803.4	11,984.6	599.64	600.72	1.1	N	10/23/98
W- 194	8,650.0	12,350.9	NA	593.64	NA	N	9/24/98
W- 195	8,146.2	12,208.6	581.32	582.43	1.1	N	10/22/98
W- 196	8,122.9	12,277.9	580.70	581.80	1.1	N	10/22/98
W- 197	8,219.1	12,084.1	582.70	583.77	1.1	N	10/22/98
W- 198	8,201.8	12,053.1	582.46	583.51	1.0	N	10/23/98

NOTES:

1. SURVEY CONTROL POINTS FOR THE WESTERN CONTAINMENT UNITS ARE SHOWN ON DRAWING NO. 65 .
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NO. 22.

SUMMARY OF SAND VERIFICATION DATA

Visteon

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS- BUILT SAND SURFACE SURVEY DATA

MEC inc

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN , MICHIGAN (313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
SAND SURFACE SURVEY VERIFICATION DATA- WCU

DRAWN: AS	DATE 10/99	SCALE: AS NOTED	DRAWING NO. 23 OF 65	REV. NO. 1
DESIGNED: LWB	DATE 10/99	REVIEWED: JSB	DATE 10/99	
APPROVED:	DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E15	

DWG. NO. 10 OF 65
PROJ. NO. F66A2C

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
W- 001	8,838.5	11,664.4	579.5	N	6/13:15/98
W- 002	8,769.0	11,609.9	580.0	N	6/13:15/98
W- 003	8,861.6	11,684.1	579.6	N	6/13:15/98
W- 004	8,932.6	11,736.3	579.4	N	11/3/97
W- 005	9,011.1	11,797.6	579.3	N	11/3/97
W- 006	8,662.3	11,589.0	582.3	N	6/11/98
W- 007	8,730.5	11,640.0	581.7	Y	6/11/98
W- 008	8,826.0	11,713.9	581.2	Y	6/11/98
W- 009	8,898.3	11,771.1	581.2	Y	6/11/98
W- 010	8,976.1	11,833.9	581.5	Y	
W- 011	8,997.9	11,888.6	581.6	Y	
W- 012	8,563.2	11,590.8	579.5	N	6/8/98
W- 013	8,634.2	11,631.2	582.8	N	6/8/98
W- 014	8,700.1	11,684.8	585.4	N	6/11/98
W- 015	8,790.8	11,750.8	584.3	N	6/11/98
W- 016	8,874.3	11,820.3	584.1	N	11/12/97
W- 017	8,950.3	11,877.3	584.2	N	11/4/97
W- 018	8,940.4	11,920.0	586.2	Y	11/4/97
W- 019	8,979.7	12,029.1	580.4	N	11/4/97
W- 020	8,955.7	12,020.8	581.3	Y	11/4/97
W- 021	8,887.2	11,951.5	590.0	Y	11/4/97
W- 022	8,815.7	11,902.1	590.7	N	11/5/97
W- 023	8,740.0	11,848.0	590.9	N	6/11/98
W- 024	8,661.1	11,789.0	587.4	N	6/8/98
W- 025	8,581.0	11,729.0	583.3	N	6/8/98
W- 026	8,501.1	11,669.2	579.5	N	6/8/98
W- 027	8,800.5	11,918.8	592.1	Y	6/11/98
W- 028	8,832.3	11,985.0	594.0	Y	11/12/97
W- 029	8,971.4	12,132.5	579.0	N	11/5/97
W- 030	8,925.2	12,116.4	581.1	Y	11/5/97
W- 031	8,877.7	12,099.3	586.2	N	11/5/97
W- 032	8,795.6	12,072.4	594.6	Y	11/12/97
W- 033	8,761.2	11,988.9	595.8	N	6/8/98
W- 034	8,681.2	11,929.0	591.4	N	6/8/98
W- 035	8,601.0	11,869.0	587.4	N	6/8/98
W- 036	8,521.1	11,809.1	583.4	N	6/8/98
W- 037	8,441.2	11,749.3	579.5	N	6/8/98
W- 038	8,380.0	11,828.0	579.4	N	6/18/98
W- 039	8,461.2	11,889.1	583.7	N	6/8/98
W- 040	8,541.2	11,949.1	587.5	N	6/8/98
W- 041	8,621.3	12,009.0	591.5	N	6/8/98
W- 042	8,701.3	12,068.9	595.5	N	6/8/98
W- 043	8,757.2	12,166.3	595.4	Y	10/8/97
W- 044	8,845.5	12,195.3	586.2	N	10/8/97
W- 045	8,892.5	12,210.9	581.4	Y	10/8/97
W- 046	8,940.1	12,227.3	578.9	N	10/8/97
W- 047	8,908.6	12,322.6	579.3	N	10/9/97
W- 048	8,860.5	12,307.3	581.4	Y	10/9/97
W- 049	8,814.2	12,287.8	586.2	N	10/9/97
W- 050	8,721.0	12,208.0	597.3	N	6/26/98

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
W- 051	8,641.0	12,148.0	595.5	N	6/18/98
W- 052	8,561.0	12,088.0	591.4	N	6/18/98
W- 053	8,481.0	12,028.0	587.3	N	6/18/98
W- 054	8,400.0	11,968.0	583.2	N	6/18/98
W- 055	8,320.0	11,910.0	579.5	N	6/18/98
W- 056	8,260.0	11,989.0	579.7	N	6/18/98
W- 057	8,341.0	12,048.0	583.4	N	6/18/98
W- 058	8,421.0	12,108.0	587.5	N	6/18/98
W- 059	8,501.0	12,168.0	591.5	N	6/18/98
W- 060	8,581.0	12,228.0	595.5	N	6/18/98
W- 061	8,661.0	12,288.0	594.4	N	6/26/98
W- 062	8,706.9	12,283.2	596.6	Y	
W- 063	8,748.7	12,365.8	589.8	Y	
W- 064	8,829.4	12,402.0	581.3	Y	
W- 065	8,874.9	12,419.0	579.1	Y	6/18/98
W- 066	8,782.5	12,432.0	584.6	Y	
W- 067	8,761.6	12,487.0	580.3	N	6/18/98
W- 068	8,681.5	12,428.0	583.44	N	7/10/98
W- 069	8,601.0	12,368.0	586.97	N	7/10/98
W- 070	8,521.0	12,308.0	593.04	N	7/8/98
W- 071	8,441.0	12,248.0	591.32	N	7/8/98
W- 072	8,361.0	12,188.0	587.47	N	7/8/98
W- 073	8,281.0	12,129.0	583.47	N	7/8/98
W- 074	8,199.6	12,069.8	579.54	N	7/11/98
W- 075	8,139.7	12,148.7	577.0	N	7/20;7/21/98
W- 076	8,221.0	12,209.0	582.49	N	7/8/98
W- 077	8,301.0	12,269.0	586.15	N	7/8/98
W- 078	8,381.0	12,328.0	590.45	N	7/8/98
W- 079	8,461.0	12,388.0	590.01	N	7/10/98
W- 080	8,542.0	12,448.0	583.59	N	7/10/98
W- 081	8,482.0	12,528.0	582.48	N	7/15/98
W- 082	8,402.0	12,468.0	587.58	N	7/15/98
W- 083	8,321.0	12,408.0	589.64	N	7/15/98
W- 084	8,241.0	12,349.0	584.82	N	7/15/98
W- 085	8,161.0	12,289.0	580.63	N	7/20/98
W- 086	8,125.3	12,385.2	581.56	N	7/28/98
W- 087	8,182.0	12,429.0	584.55	N	7/15/98
W- 088	8,262.0	12,489.0	586.7	N	7/15/98
W- 089	8,342.0	12,548.0	584.99	N	7/15/98
W- 090	8,422.0	12,608.0	583.35	N	7/15/98
W- 091	8,513.9	12,671.2	579.48	N	7/11/98
W- 092	8,356.5	12,694.4	579.08	N	7/11/98
W- 093	8,282.0	12,629.0	580.86	N	7/11/98
W- 094	8,202.0	12,569.0	581.24	N	7/28/98
W- 095	8,128.5	12,505.7	581.66	N	7/28/98
W- 096	8,042.0	12,449.0	579.01	N	7/30/98
W- 097	8,659.4	11,580.3	582.1	Y	6/8/98
W- 098	8,673.9	11,631.8	584.1	Y	6/8/98
W- 099	8,687.9	11,684.6	585.9	Y	6/8/98
W- 100	8,703.3	11,736.9	587.4	Y	6/8/98

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
W- 101	8,718.3	11,792.0	589.4	Y	6/8/98
W- 102	8,732.7	11,846.7	591.1	Y	6/8/98
W- 103	8,756.5	11,929.4	594.0	Y	6/8/98
W- 104	8,764.6	12,016.5	596.5	Y	6/8/98
W- 105	8,537.6	12,260.3	595.14	Y	7/8:7/10/98
W- 106	8,500.2	12,285.5	594.26	Y	7/8:7/10/98
W- 107	8,831.9	11,984.4	595.5	N	6/8/98
W- 108	8,796.2	12,073.9	594.9	N	6/8/98
W- 109	8,614.3	11,526.4	579.3	N	6/8/98
W- 110	8,634.2	11,516.6	579.6	N	6/9/98
W- 111	8,649.4	11,511.4	579.4	N	6/9/98
W- 112	8,669.6	11,510.1	580.0	N	6/13:15/98
W- 113	8,688.7	11,523.1	580.0	N	6/13:15/98
W- 114	8,709.5	11,540.9	579.7	N	6/13:15/98
W- 115	8,805.9	12,471.6	581.2	Y	
W- 116	8,848.3	12,508.4	578.0	N	6/18/98
W- 117	8,836.0	12,541.9	578.1	N	6/19/98
W- 118	8,774.2	12,519.8	578.9	N	6/19/98
W- 119	8,721.3	12,152.1	598.1	Y	6/26/98
W- 120	8,698.7	12,197.0	598.7	Y	6/26/98
W- 121	8,607.9	12,237.1	596.7	Y	6/26/98
W- 122	8,671.6	12,240.2	598.9	Y	6/26/98
W- 123	8,785.5	12,494.9	580.1	N	6/19/98
W- 124	8,791.6	12,475.7	580.8	N	6/19/98
W- 125	8,675.6	12,284.8	595.3	N	6/26/98
W- 126	8,469.1	12,321.2	593.68	Y	7/8:7/10/98
W- 127	9,092.0	11,864.0	577.43	N	7/8:7/10/98
W- 128	9,092.2	11,886.2	576.99	N	7/8:7/10/98
W- 129	9,082.0	11,912.0	577.15	N	7/8:7/10/98
W- 130	9,052.2	11,938.0	578.18	N	7/8:7/10/98
W- 131	9,033.9	11,949.9	579.16	N	7/8:7/10/98
W- 132	9,050.0	11,822.4	577.82	N	7/10/98
W- 133	9,067.4	11,861.3	578.5	Y	7/10/98
W- 134	9,040.6	11,870.9	579.46	Y	7/10/98
W- 135	9,016.2	11,880.0	580.78	Y	7/10/98
W- 136	9,017.7	11,852.5	579.55	N	7/10/98
W- 137	9,015.7	11,823.0	579.02	N	7/10/98
W- 138	9,050.9	11,845.1	578.5	N	7/10/98
W- 139	9,072.9	11,880.4	578.06	N	7/10/98
W- 140	9,060.3	11,903.5	578.45	N	7/10/98
W- 141	9,031.8	11,917.5	579.9	N	7/10/98
W- 142	8,704.7	12,495.3	579.63	N	7/10/98
W- 143	8,684.7	12,489.9	579.62	N	7/10/98
W- 144	8,648.7	12,491.4	579.52	N	7/10/98
W- 145	8,630.3	12,497.6	579.60	N	7/10/98
W- 146	8,609.2	12,509.9	579.47	N	7/10/98
W- 147	8,578.1	12,531.8	579.64	N	7/10/98
W- 148	8,695.6	12,380.0	587.91	N	7/10/98
W- 149	8,631.7	12,330.4	590.22	N	7/10/98
W- 150	8,538.6	12,381.7	587.88	N	7/10/98

POINT NO.	NORTH	EAST	ELEV	BREAK-LINE (Y/N)	DATE SURVEYED
W - 151	8,606.0	12,440.8	582.13	N	7/10/98
W - 152	8,552.1	12,559.7	579.72	N	7/11/98
W - 153	8,531.2	12,612.8	579.52	N	7/11/98
W - 154	8,495.2	12,737.8	579.45	N	7/11/98
W - 155	8,269.0	12,666.2	578.96	N	7/11/98
W - 156	8,368.2	12,659.4	580.97	N	7/11/98
W - 157	8,473.7	12,700.1	580.37	N	7/11/98
W - 158	8,436.1	12,642.5	582.76	N	7/11/98
W - 159	8,482.7	12,600.3	581.31	N	7/11/98
W - 160	8,501.3	12,539.1	581.59	N	7/11/98
W - 161	8,343.7	12,423.3	590.64	Y	7/15/98
W - 162	8,310.5	12,452.4	589.74	Y	7/15/98
W - 163	8,347.6	12,511.0	586.74	Y	7/15/98
W - 164	8,396.5	12,581.5	584.28	Y	7/15/98
W - 165	8,260.0	12,474.1	587.72	Y	7/15/98
W - 166	8,191.6	12,076.7	576.27	N	7/20:7/21/98
W - 167	8,122.7	12,170.0	576.94	N	7/20:7/21/98
W - 168	8,110.9	12,233.7	577.09	N	7/20/98
W - 169	8,121.0	12,291.0	577.60	N	7/20/98
W - 170	8,164.7	12,303.5	580.77	N	7/20/98
W - 171	8,160.9	12,228.9	579.98	N	7/20/98
W - 172	8,171.2	12,195.7	580.08	N	7/20/98
W - 173	8,150.9	12,168.8	577.54	Y	7/21/98
W - 174	8,137.9	12,212.1	577.97	Y	7/21/98
W - 175	8,130.9	12,283.3	578.00	Y	7/20/98
W - 176	8,234.8	12,653.4	579.07	N	7/28/98
W - 177	8,264.8	12,605.4	581.64	N	7/28/98
W - 178	8,149.9	12,590.9	579.35	N	7/28/98
W - 179	8,185.0	12,544.6	581.87	N	7/28/98
W - 180	8,095.2	12,551.6	579.11	N	7/28/98
W - 181	7,993.8	12,468.7	576.95	N	7/30/98
W - 182	8,020.9	12,435.6	577.56	N	7/30/98
W - 183	8,084.3	12,353.9	577.71	N	7/28/98
W - 184	8,150.0	12,489.5	583.33	Y	7/28/98
W - 185	8,080.4	12,497.3	580.62	Y	7/28/98
W - 186	8,032.9	12,504.1	578.34	Y	7/28/98
W - 187	7,993.4	12,473.3	576.67	N	7/30/98

NOTES:

1. SURVEY CONTROL POINTS FOR THE WESTERN CONTAINMENT UNITS ARE SHOWN ON DRAWING NO. 65 .
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NO. 9 .

SUMMARY OF WASTE VERIFICATION DATA

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS- BUILT WASTE SURFACE SURVEY DATA

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN , MICHIGAN (313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

Visteon

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
WASTE SURFACE SURVEY VERIFICATION DATA- WCU

DRAWN: AS DATE 10/99	SCALE: AS NOTED	DRAWING NO. 10 OF 65	REV. NO. 1
DESIGNED: LWB DATE 10/99	REVIEWED: JSB DATE 10/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E14	

DWG. NO. 15 OF 65
PROJ. NO. F66A2C

POINT NO.			WASTE	CLAY	CLAY THICKNESS	BREAK-LINE	DATE
	NORTH	EAST	ELEV	ELEV	(FEET)	(Y/N)	SURVEYED
W- 001	8,838.5	11,664.4	579.50	582.74	3.2	N	10/12/98
W- 002	8,769.0	11,609.9	580.00	583.10	3.1	N	10/12/98
W- 003	8,861.6	11,684.1	579.60	582.64	3.0	N	10/12/98
W- 004	8,932.6	11,736.3	579.40	582.81	3.4	N	8/18/98
W- 005	9,011.1	11,797.6	579.30	582.52	3.2	N	8/18/98
W- 006	8,662.3	11,589.0	582.30	585.50	3.2	N	10/12/98
W- 007	8,730.5	11,640.0	581.70	585.05	3.3	Y	10/12/98
W- 008	8,826.0	11,713.9	581.20	584.36	3.2	Y	10/12/98
W- 009	8,898.3	11,771.1	581.20	584.72	3.5	Y	8/18/98
W- 010	8,976.1	11,833.9	581.50	584.77	3.3	Y	8/18/98
W- 011	8,997.9	11,888.6	581.60	584.91	3.3	Y	8/19/98
W- 012	8,563.2	11,590.8	579.50	582.53	3.0	N	10/12/98
W- 013	8,634.2	11,631.2	582.80	585.97	3.2	N	10/12/98
W- 014	8,700.1	11,684.8	585.40	588.42	3.0	N	10/12/98
W- 015	8,790.8	11,750.8	584.30	587.33	3.0	N	10/12/98
W- 016	8,874.3	11,820.3	584.10	587.37	3.3	N	8/18/98
W- 017	8,950.3	11,877.3	584.20	587.42	3.2	N	8/18/98
W- 018	8,940.4	11,920.0	586.20	589.36	3.2	Y	8/18/98
W- 019	8,979.7	12,029.1	580.40	583.35	3.0	N	8/18/98
W- 020	8,955.7	12,020.8	581.30	584.49	3.2	Y	8/18/98
W- 021	8,887.2	11,951.5	590.00	593.15	3.1	Y	8/18/98
W- 022	8,815.7	11,902.1	590.70	593.89	3.2	N	10/12/98
W- 023	8,740.0	11,848.0	590.90	594.00	3.1	N	10/12/98
W- 024	8,661.1	11,789.0	587.40	590.55	3.1	N	10/12/98
W- 025	8,581.0	11,729.0	583.30	586.37	3.1	N	10/12/98
W- 026	8,501.1	11,669.2	579.50	582.63	3.1	N	10/12/98
W- 027	8,800.5	11,918.8	592.10	595.43	3.3	Y	8/18/98
W- 028	8,832.3	11,985.0	594.00	598.34	4.3	Y	8/18/98
W- 029	8,971.4	12,132.5	579.00	582.32	3.3	N	8/18/98
W- 030	8,925.2	12,116.4	581.10	584.70	3.6	Y	8/18/98
W- 031	8,877.7	12,099.3	586.20	589.28	3.1	N	8/18/98
W- 032	8,795.6	12,072.4	594.60	598.03	3.4	Y	8/18/98
W- 033	8,761.2	11,988.9	595.80	599.28	3.5	N	10/7/98
W- 034	8,681.2	11,929.0	591.40	594.46	3.1	N	10/7/98
W- 035	8,601.0	11,869.0	587.40	590.47	3.1	N	10/7/98
W- 036	8,521.1	11,809.1	583.40	586.38	3.0	N	10/7/98
W- 037	8,441.2	11,749.3	579.50	582.63	3.1	N	10/7/98
W- 038	8,380.0	11,828.0	579.40	582.57	3.2	N	10/18/98
W- 039	8,461.2	11,889.1	583.70	586.74	3.0	N	10/7/98
W- 040	8,541.2	11,949.1	587.50	590.46	3.0	N	10/7/98
W- 041	8,621.3	12,009.0	591.50	594.57	3.1	N	10/7/98
W- 042	8,701.3	12,068.9	595.50	598.58	3.1	N	10/7/98
W- 043	8,757.2	12,166.3	595.40	598.43	3.0	Y	8/18/98
W- 044	8,845.5	12,195.3	586.20	589.32	3.1	N	8/18/98
W- 045	8,892.5	12,210.9	581.40	584.93	3.5	Y	8/18/98
W- 046	8,940.1	12,227.3	578.90	582.05	3.1	N	8/18/98
W- 047	8,908.6	12,322.6	579.30	582.64	3.3	N	8/31/98
W- 048	8,860.5	12,307.3	581.40	584.57	3.2	Y	8/18/98
W- 049	8,814.2	12,287.8	586.20	589.41	3.2	N	8/18/98
W- 050	8,721.0	12,208.0	597.30	600.34	3.0	N	8/18/98

POINT NO.			WASTE	CLAY	CLAY THICKNESS	BREAK-LINE	DATE
	NORTH	EAST	ELEV	ELEV	(FEET)	(Y/N)	SURVEYED
W- 051	8,641.0	12,148.0	595.50	598.75	3.3	N	8/18/98
W- 052	8,561.0	12,088.0	591.40	594.64	3.2	N	8/28/98
W- 053	8,481.0	12,028.0	587.30	590.46	3.2	N	9/26/98
W- 054	8,400.0	11,968.0	583.20	586.28	3.1	N	9/26/98
W- 055	8,320.0	11,910.0	579.50	582.54	3.0	N	9/26/98
W- 056	8,260.0	11,989.0	579.70	582.86	3.2	N	9/26/98
W- 057	8,341.0	12,048.0	583.40	586.49	3.1	N	9/26/98
W- 058	8,421.0	12,108.0	587.50	590.65	3.1	N	9/26/98
W- 059	8,501.0	12,168.0	591.50	594.74	3.2	N	8/28/98
W- 060	8,581.0	12,228.0	595.50	598.74	3.2	N	8/28/98
W- 061	8,661.0	12,288.0	594.40	597.65	3.3	N	8/28/98
W- 062	8,706.9	12,283.2	596.60	600.09	3.5	Y	8/21/98
W- 063	8,748.7	12,365.8	589.80	592.96	3.2	Y	8/28/98
W- 064	8,829.4	12,402.0	581.30	584.41	3.1	Y	10/16/98
W- 065	8,874.9	12,419.0	579.10	582.27	3.2	Y	10/15/98
W- 066	8,782.5	12,432.0	584.60	587.86	3.3	Y	8/28/98
W- 067	8,761.6	12,487.0	580.30	583.26	3.0	N	8/28/98
W- 068	8,681.5	12,428.0	583.44	586.46	3.0	N	8/28/98
W- 069	8,601.0	12,368.0	586.97	590.14	3.2	N	8/28/98
W- 070	8,521.0	12,308.0	593.04	596.27	3.2	N	8/28/98
W- 071	8,441.0	12,248.0	591.32	594.65	3.3	N	8/28/98
W- 072	8,361.0	12,188.0	587.47	590.53	3.1	N	9/8/98
W- 073	8,281.0	12,129.0	583.47	586.56	3.1	N	9/8/98
W- 074	8,199.6	12,069.8	579.54	582.68	3.1	N	9/26/98
W- 075	8,139.7	12,148.7	577.00	580.24	3.2	N	9/12/98
W- 076	8,221.0	12,209.0	582.49	585.72	3.2	N	9/8/98
W- 077	8,301.0	12,269.0	586.15	589.40	3.3	N	9/8/98
W- 078	8,381.0	12,328.0	590.45	594.08	3.6	N	8/28/98
W- 079	8,461.0	12,388.0	590.01	593.15	3.1	N	8/28/98
W- 080	8,542.0	12,448.0	583.59	586.71	3.1	N	8/28/98
W- 081	8,482.0	12,528.0	582.48	585.68	3.2	N	8/28/98
W- 082	8,402.0	12,468.0	587.58	590.70	3.1	N	8/28/98
W- 083	8,321.0	12,408.0	589.64	593.05	3.4	N	8/28/98
W- 084	8,241.0	12,349.0	584.82	588.16	3.3	N	9/8/98
W- 085	8,161.0	12,289.0	580.63	583.63	3.0	N	9/8/98
W- 086	8,125.3	12,385.2	581.56	584.65	3.1	N	9/8/98
W- 087	8,182.0	12,429.0	584.55	587.73	3.2	N	9/8/98
W- 088	8,262.0	12,489.0	586.70	589.93	3.2	N	8/28/98
W- 089	8,342.0	12,548.0	584.99	588.20	3.2	N	8/28/98
W- 090	8,422.0	12,608.0	583.35	586.75	3.4	N	8/28/98
W- 091	8,513.9	12,671.2	579.48	582.78	3.3	N	8/28/98
W- 092	8,356.5	12,694.4	579.08	582.53	3.4	N	8/28/98
W- 093	8,282.0	12,629.0	580.86	584.07	3.2	N	8/28/98
W- 094	8,202.0	12,569.0	581.24	584.59	3.4	N	8/28/98
W- 095	8,128.5	12,505.7	581.66	584.75	3.1	N	9/8/98
W- 096	8,042.0	12,449.0	579.01	582.15	3.1	N	9/8/98
W- 097	8,659.4	11,580.3	582.10	585.17	3.1	Y	10/12/98
W- 098	8,673.9	11,631.8	584.10	587.29	3.2	Y	10/12/98
W- 099	8,687.9	11,684.6	585.90	588.92	3.0	Y	10/12/98
W- 100	8,703.3	11,736.9	587.40	590.47	3.1	Y	10/12/98

POINT NO.			WASTE	CLAY	CLAY THICKNESS	BREAK-LINE	DATE
	NORTH	EAST	ELEV	ELEV	(FEET)	(Y/N)	SURVEYED
W- 101	8,718.3	11,792.0	589.40	592.56	3.2	Y	10/12/98
W- 102	8,732.7	11,846.7	591.10	594.16	3.1	Y	10/12/98
W- 103	8,756.5	11,929.4	594.00	597.16	3.2	Y	10/12/98
W- 104	8,764.6	12,016.5	596.50	599.64	3.1	Y	10/7/98
W- 105	8,537.6	12,260.3	595.14	598.57	3.4	Y	8/28/98
W- 106	8,500.2	12,285.5	594.26	597.61	3.4	Y	8/28/98
W- 107	8,831.9	11,984.4	595.50	599.15	3.6	N	8/22/98
W- 108	8,796.2	12,073.9	594.90	597.94	3.0	N	8/18/98
W- 109	8,614.3	11,526.4	579.30	582.49	3.2	N	10/12/98
W- 110	8,634.2	11,516.6	579.60	582.80	3.2	N	10/12/98
W- 111	8,649.4	11,511.4	579.40	582.85	3.5	N	10/12/98
W- 112	8,669.6	11,510.1	580.00	583.18	3.2	N	10/12/98
W- 113	8,688.7	11,523.1	580.00	583.27	3.3	N	10/12/98
W- 114	8,709.5	11,540.9	579.70	583.01	3.3	N	10/12/98
W- 115	8,805.9	12,471.6	581.20	584.51	3.3	Y	8/28/98
W- 116	8,848.3	12,508.4	578.00	581.32	3.3	N	8/28/98
W- 117	8,836.0	12,541.9	578.10	581.57	3.5	N	8/28/98
W- 118	8,774.2	12,519.8	578.90	582.03	3.1	N	8/28/98
W- 119	8,721.3	12,152.1	598.10	601.43	3.3	Y	8/18/98
W- 120	8,698.7	12,197.0	598.70	601.93	3.2	Y	8/18/98
W- 121	8,607.9	12,237.1	596.70	599.88	3.2	Y	8/28/98
W- 122	8,671.6	12,240.2	598.90	601.97	3.1	Y	8/18/98
W- 123	8,785.5	12,494.9	580.10	583.13	3.0	N	8/28/98
W- 124	8,791.6	12,475.7	580.80	584.06	3.3	N	8/28/98
W- 125	8,675.6	12,284.8	595.30	599.42	4.1	N	8/28/98
W- 126	8,469.1	12,321.2	593.68	596.79	3.1	Y	8/28/98
W- 127	9,092.0	11,864.0	577.43	580.50	3.1	N	8/19/98
W- 128	9,092.2	11,886.2	576.99	580.08	3.1	N	8/19/98
W- 129	9,082.0	11,912.0	577.15	580.48	3.3	N	8/19/98
W- 130	9,052.2	11,938.0	578.18	581.32	3.1	N	8/19/98
W- 131	9,033.9	11,949.9	579.16	582.31	3.1	N	8/19/98
W- 132	9,050.0	11,822.4	577.82	581.12	3.3	N	8/19/98
W- 133	9,067.4	11,861.3	578.50	581.65	3.1	Y	8/19/98
W- 134	9,040.6	11,870.9	579.46	582.92	3.5	Y	8/19/98
W- 135	9,016.2	11,880.0	580.78	584.07	3.3	Y	8/19/98
W- 136	9,017.7	11,852.5	579.55	582.93	3.4	N	8/19/98
W- 137	9,015.7	11,823.0	579.02	582.38	3.4	N	8/19/98
W- 138	9,050.9	11,845.1	578.50	581.75	3.3	N	8/19/98
W- 139	9,072.9	11,880.4	578.06	581.48	3.4	N	8/19/98
W- 140	9,060.3	11,903.5	578.45	581.81	3.4	N	8/19/98
W- 141	9,031.8	11,917.5	579.90	583.12	3.2	N	8/19/98
W- 142	8,704.7	12,495.3	579.63	582.71	3.1	N	8/28/98
W- 143	8,684.7	12,489.9	579.62	582.71	3.1	N	8/28/98
W- 144	8,648.7	12,491.4	579.52	582.72	3.2	N	8/28/98
W- 145	8,630.3	12,497.6	579.60	582.72	3.1	N	8/28/98
W- 146	8,609.2	12,509.9	579.47	582.69	3.2	N	8/28/98
W- 147	8,578.1	12,531.8	579.64	582.70	3.1	N	8/28/98
W- 148	8,695.6	12,380.0	587.91	590.95	3.0	N	8/31/98
W- 149	8,631.7	12,330.4	590.22	593.29	3.1	N	8/28/98
W- 150	8,538.6	12,381.7	587.88	590.99	3.1	N	8/28/98

POINT NO.			WASTE	CLAY	CLAY THICKNESS	BREAK-LINE	DATE
	NORTH	EAST	ELEV	ELEV	(FEET)	(Y/N)	SURVEYED
W- 151	8,606.0	12,440.8	582.13	585.22	3.1	N	8/28/98
W- 152	8,552.1	12,559.7	579.72	582.92	3.2	N	8/28/98
W- 153	8,531.2	12,612.8	579.52	582.76	3.2	N	8/28/98
W- 154	8,495.2	12,737.8	579.45	582.77	3.3	N	8/28/98
W- 155	8,269.0	12,666.2	578.96	582.16	3.2	N	8/28/98
W- 156	8,368.2	12,659.4	580.97	584.49	3.5	N	8/28/98
W- 157	8,473.7	12,700.1	580.37	583.64	3.3	N	8/28/98
W- 158	8,436.1	12,642.5	582.76	586.02	3.3	N	8/28/98
W- 159	8,482.7	12,600.3	581.31	584.53	3.2	N	8/28/98
W- 160	8,501.3	12,539.1	581.59	584.81	3.2	N	8/28/98
W- 161	8,343.7	12,423.3	590.64	593.83	3.2	Y	8/28/98
W- 162	8,310.5	12,452.4	589.74	592.99	3.3	Y	8/28/98
W- 163	8,347.6	12,511.0	586.74	589.92	3.2	Y	8/28/98
W- 164	8,396.5	12,581.5	584.28	587.67	3.4	Y	8/28/98
W- 165	8,260.0	12,474.1	587.72	590.80	3.1	Y	8/28/98
W- 166	8,191.6	12,076.7	576.27	580.20	3.9	N	9/26/98
W- 167	DELETED						
W- 168	8,110.9	12,233.7	577.09	580.37	3.3	N	9/12/98
W- 169	8,121.0	12,291.0	577.60	580.84	3.2	N	9/12/98
W- 170	8,164.7	12,303.5	580.77	584.00	3.2	N	9/8/98
W- 171	8,160.9	12,228.9	579.98	583.13	3.1	N	9/8/98
W- 172	8,171.2	12,195.7	580.06	583.31	3.2	N	9/8/98
W- 173	8,150.9	12,168.8	577.54	580.51	3.0	Y	11/12/98
W- 174	8,137.9	12,212.1	577.97	581.09	3.1	Y	9/8/98
W- 175	8,130.9	12,283.3	578.00	581.08	3.1	Y	9/8/98
W- 176	8,234.8	12,653.4	579.07	582.38	3.3	N	8/28/98
W- 177	8,264.8	12,605.4	581.64	584.92	3.3	N	8/28/98
W- 178	8,149.9	12,590.9	579.35	582.99	3.6	N	8/28/98
W- 179	8,185.0	12,544.6	581.87	585.09	3.2	N	8/28/98
W- 180	8,095.2	12,551.6	579.11	582.49	3.4	N	9/8/98
W- 181	7,993.8	12,468.7	576.95	580.35	3.4	N	9/12/98
W- 182	8,020.9	12,435.6	577.56	580.83	3.3	N	9/12/98
W- 183	8,084.3	12,353.9	577.71	580.81	3.1	N	9/12/98
W- 184	8,150.0	12,489.5	583.33	586.36	3.0	Y	9/8/98
W- 185	8,090.4	12,497.3	580.62	583.73	3.1	Y	9/8/98
W- 186	8,032.9	12,504.1	578.34	581.40	3.1	Y	9/8/98
W- 187	7,993.4	12,473.3	576.67	580.26	3.6	N	9/12/98
W- 188	8,777.1	12,003.9	N/A	599.83	N/A	N	10/7/98
W- 189	8,805.5	11,993.9	N/A	599.94	N/A	N	8/21,8/22/98
W- 190	8,837.5	11,985.2	N/A	598.61	N/A	N	8/21,8/22/98
W- 191	8,839.8	11,981.7	N/A	598.70	N/A	N	8/21,8/22/98
W- 192	8,836.7	11,980.1	N/A	598.80	N/A	N	8/21,8/22/98
W- 193	8,803.4	11,984.6	N/A	599.64	N/A	N	8/21,8/22/98
W- 194	8,618.2	12,469.2	N/A	584.13	N/A	N	10/16/98
W- 195	8,575.6	12,479.0	N/A	584.52	N/A	N	10/16/98

NOTES:
1. SURVEY CONTROL POINTS FOR THE WESTERN CONTAINMENT UNITS ARE SHOWN ON DRAWING NO. 65 .
2. AS- BUILT GRADE VERIFICATION SURVEY LOCATIONS ARE REFLECTED ON DRAWING NO. 14.

SUMMARY OF CLAY VERIFICATION DATA

Visteon

REV.	BY	DATE	DESCRIPTION
1	AS	10/99	AS- BUILT CLAY SURFACE SURVEY DATA
	LWB	10/99	

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN , MICHIGAN

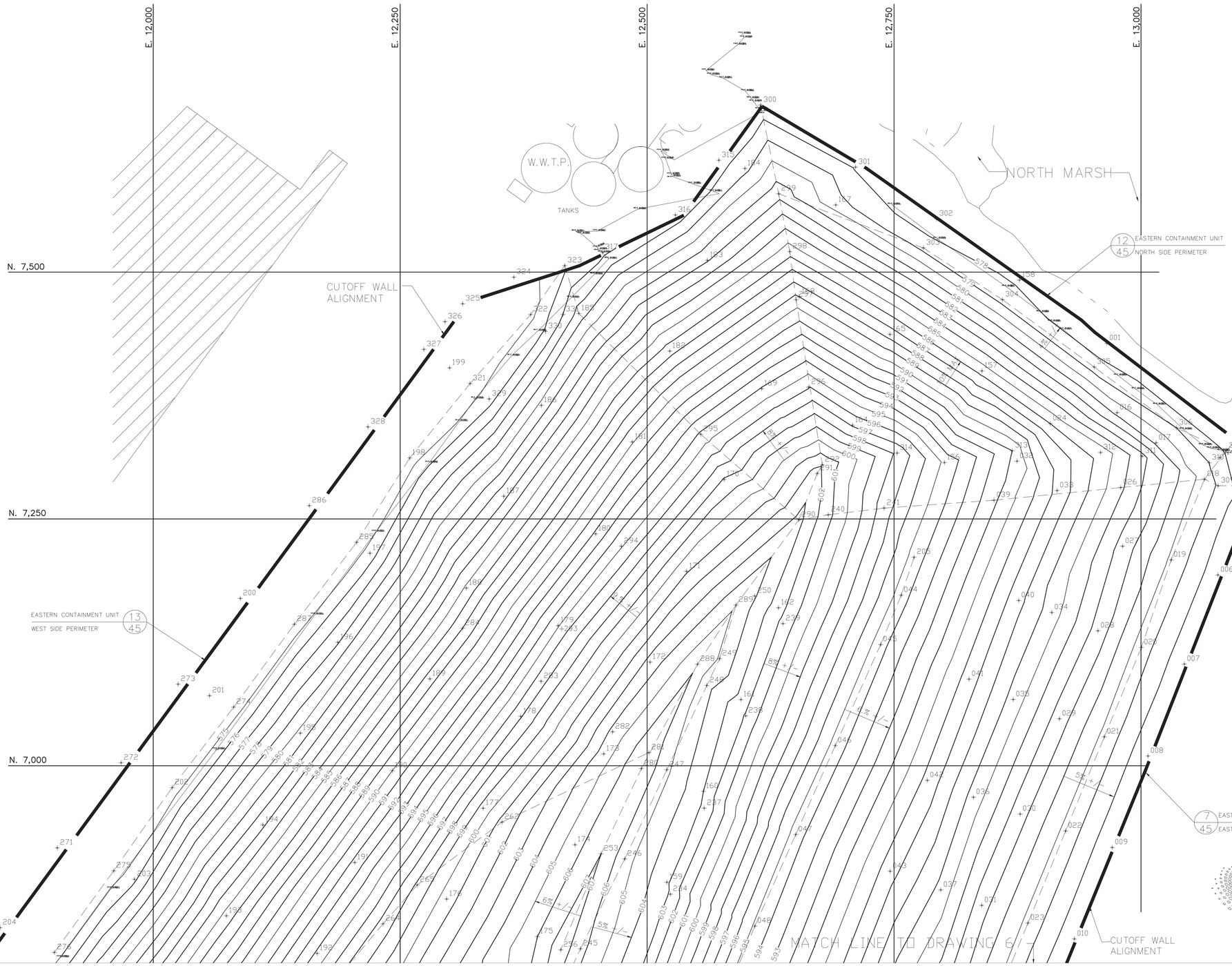
THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THIS CORPORATION.

TITLE: VISTEON CORPORATION
MONROE STAMPING PLANT
CLAY SURFACE SURVEY VERIFICATION DATA- WCU

DRAWN: AS DATE 10/99	SCALE: AS NOTED	DRAWING NO. 15 OF 65	REV. NO. 1
DESIGNED: LWB DATE 10/99	REVIEWED: JSB DATE 10/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E13	

DWG. NO. 7 OF 65

PROJ. NO. F66A2C



N

Scale 1"=50'

0' 25' 50' 100'

NOTES:

1. SOLIDIFIED WASTE SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 9/8/97 AND 10/27/98.
2. AN INITIAL 100'*100' GRID WAS SETUP. ADDITIONAL POINTS WERE ADDED TO DEFINE BREAKLINES AND CUTOFF WALL BOUNDARY.
3. THE EASTERN CONTAINMENT UNIT CONTAINS AREAS A,B AND C THE POLISHING LAGOON, A PORTION OF THE PROCESS CANAL AND THE SEDIMENT CONTAINMENT UNIT (SEE DRAWINGS 57 THROUGH 63) IN ADDITION MATERIAL FROM AREA D WEST, AREA D NORTH, WEST MARSH, NORTH INTAKE CANAL, AREA D TOWERS AND THE WESTERN CONTAINMENT WAS PLACED WITHIN THE EASTERN CONTAINMENT UNIT AS PART OF THE WASTE PLACEMENT ABOVE GRADE OPERATIONS.
4. SOLIDIFICATION CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
5. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING NO. 8.
6. LEACHATE COLLECTION AS– BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.

LEGEND

- 020 – WASTE SURFACE VERIFICATION POINT
- – – – – SLOPE BREAKLINE
- 5991 – SURFACE CONTOUR (1 FT INTERVAL)
- 5990 – SURFACE CONTOUR (5 FT INTERVAL)
- ——— – CUTOFF WALL ALIGNMENT

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS– BUILT WASTE SURFACE NTH PLATES 24,25 AND 26

MEC inc

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DEARBORN, MICHIGAN (313) 563–6326

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TITLE: VISTEON CORPORATION – MONROE PLANT

SOLIDIFIED WASTTE SURFACE – ECU NORTH

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	7 OF 65	1
DESIGNED: DATE LWB 10/99	REVIEWED: DATE JSB 10/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E11	

NOTES:

1. SOLIDIFIED WASTE SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 9/8/97 AND 10/27/98.
2. AN INITIAL 100'*100' GRID WAS SETUP. ADDITIONAL POINTS WERE ADDED TO DEFINE BREAKLINES AND CUTOFF WALL BOUNDARY.
3. THE EASTERN CONTAINMENT UNIT CONTAINS AREAS A,B AND C THE POLISHING LAGOON, A PORTION OF THE PROCESS CANAL AND THE SEDIMENT CONTAINMENT UNIT (SEE DRAWINGS 57 THROUGH 63) IN ADDITION MATERIAL FROM AREA D WEST, AREA D NORTH, WEST MARSH, NORTH INTAKE CANAL, AREA D TOWERS AND THE WESTERN CONTAINMENT WAS PLACED WITHIN THE EASTERN CONTAINMENT UNIT AS PART OF THE WASTE PLACEMENT ABOVE GRADE OPERATIONS.
4. SOLIDIFICATION CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
5. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING NO. 8.
6. LEACHATE COLLECTION AS– BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.

LEGEND

- 020 – WASTE SURFACE VERIFICATION POINT
- – – – SLOPE BREAKLINE
- 590 – SURFACE CONTOUR (1 FT INTERVAL)
- 590 – SURFACE CONTOUR (5 FT INTERVAL)
- CUTOFF WALL ALIGNMENT

REV.	BY / DATE	CHK'D / DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS– BUILT WASTE SURFACE NTH PLATES 24,25 AND 26

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563–6326
DEARBORN, MICHIGAN

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TITLE: VISTEON CORPORATION – MONROE PLANT

SOLIDIFIED WASTE SURFACE – ECU -NORTH

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	6 OF 65	1
DESIGNED: DATE LWB 10/99	REVIEWED: DATE JSB 10/99		
APPROVED: DATE . .	PROJECT NO. F66A2C	CADD FILE: F66A1E11	

Visteon

F66A2C

E. 12,000 E. 12,250 E. 12,500 E. 12,750 E. 13,000

N. 7,500 N. 7,250 N. 7,000

W.W.T.P. TANKS

NORTH MARSH

CUTOFF WALL ALIGNMENT

12/45 EASTERN CONTAINMENT UNIT / NORTH SIDE PERIMETER

EASTERN CONTAINMENT UNIT 13/45 WEST SIDE PERIMETER

7/45 EASTERN CONTAINMENT UNIT / EAST SIDE PERIMETER

NORTH TRANSMISSION TOWER PAD

EAST MARSH

CUTOFF WALL ALIGNMENT

MATCH LINE TO DRAWING 24 OF 65

N

Scale 1"=00'

0' 0' 0' 0'

NOTES:
1. COVERSOIL SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 11/10/98 AND 12/9/98.
2. ALL GRADE VERIFICATION POINTS FROM THE SAND SURFACE WERE VERIFIED FOR THE COVERSOIL SURFACE, EXCEPT AS NOTED ON DRAWING 26.
3. COVERSOIL CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 26.
5. LEACHATE COLLECTION AS-BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.
6. ALL COVERSOIL WAS FROM LONDON AGGREGATES, MILAN, MICHIGAN AND MICHIGAN WATERWAYS CONSTRUCTION, MONROE, MICHIGAN.

LEGEND

233 OR 020 — COVERSOIL SURFACE VERIFICATION POINT

— — — SLOPE BREAKLINE

582 — SURFACE CONTOUR (1 FT INTERVAL)

585 — SURFACE CONTOUR (5 FT INTERVAL)

CUTOFF WALL ALIGNMENT

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 11/99	LWB 11/99	AS-BUILT COVERSOIL SURFACE

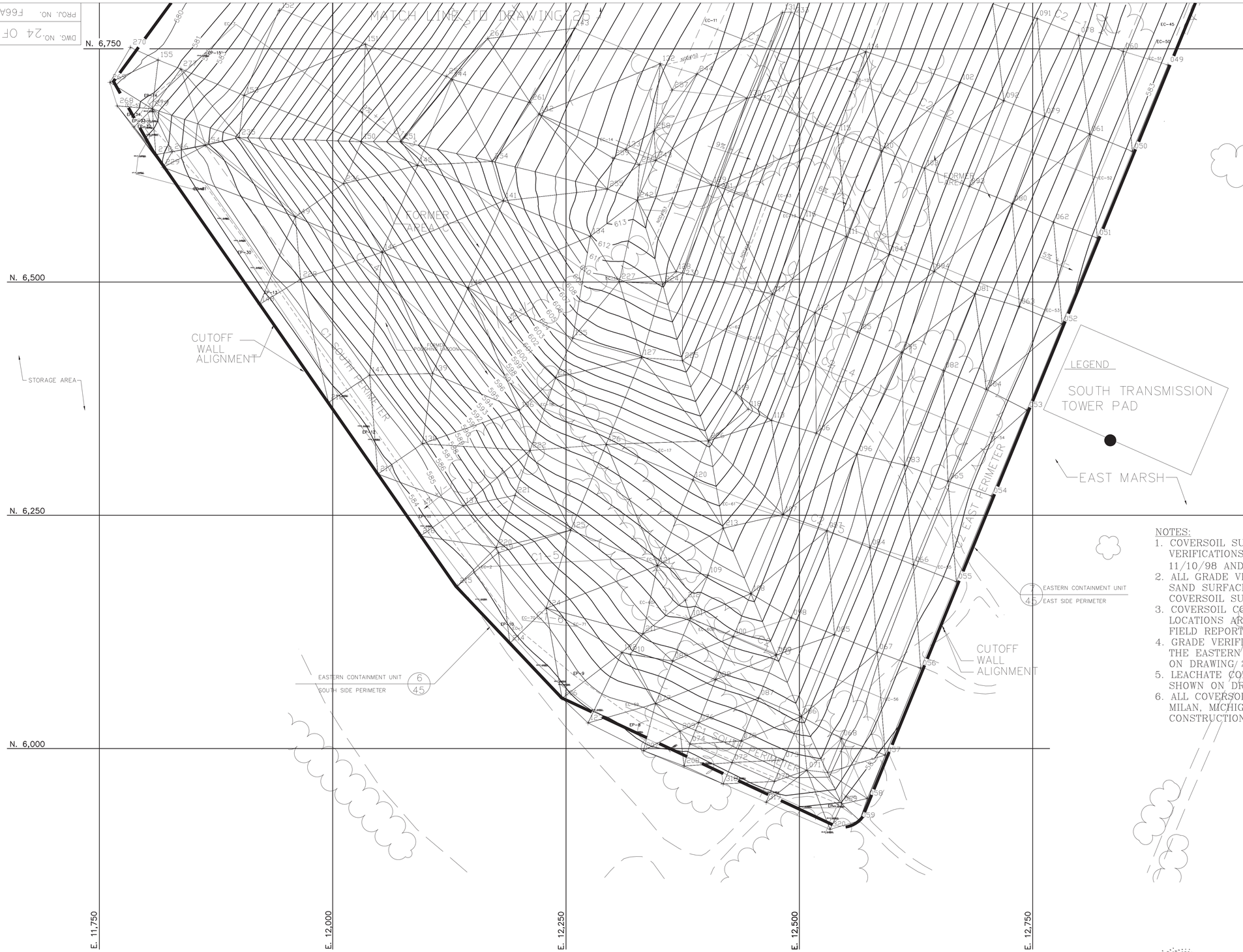
MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

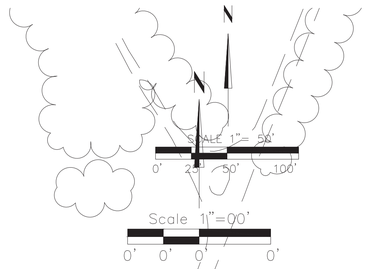
THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION – MONROE PLANT

COVERSOIL SURFACE – ECU SOUTH

DRAWN: AS 11/99	SCALE: AS NOTED	DRAWING NO. 25 OF 65	REV. NO. .
DESIGNED: LWB 11/99	REVIEWED: JSB 11/99		
APPROVED: . .	PROJECT NO. F66A2C	CADD FILE: F66A1E10	





LEGEND

233 OR 920 + COVERSOIL SURFACE VERIFICATION POINT

SLOPE BREAKLINE

582 SURFACE CONTOUR (1 FT INTERVAL)

585 SURFACE CONTOUR (5 FT INTERVAL)

CUTOFF WALL ALIGNMENT

NOTES:

1. COVERSOIL SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 11/10/98 AND 12/9/98.
2. ALL GRADE VERIFICATION POINTS FROM THE SAND SURFACE WERE VERIFIED FOR THE COVERSOIL SURFACE, EXCEPT AS NOTED ON DRAWING 26.
3. COVERSOIL CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 26.
5. LEACHATE COLLECTION AS-BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.
6. ALL COVERSOIL WAS FROM LONDON AGGREGATES, MILAN, MICHIGAN AND MICHIGAN WATERWAYS CONSTRUCTION, MONROE, MICHIGAN.

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	AS 11/99	LWB 11/99	AS-BUILT COVERSOIL SURFACE

MEC inc

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

Visteon

TITLE: VISTEON CORPORATION – MONROE PLANT

COVERSOIL SURFACE – ECU SOUTH

DRAWN:	DATE	SCALE:	DRAWING NO.	REV. NO.
AS	11/99	AS NOTED	24 OF 65	1
DESIGNED: LWB	DATE 11/99	REVIEWED: JSB	DATE 11/99	
APPROVED: .	DATE .	PROJECT NO. F66A2C	CADD FILE: F66A1E10	

DWG. NO. 30 OF 65

PROJ. NO. F66A2C

TO WCU

E. 12,000 E. 12,250 E. 12,500 E. 12,750 E. 13,000

N. 7,500 N. 7,250 N. 7,000

GW14 GW13

NORTHWEST TOE DRAIN OUTLET SEE DRAWING 51

PCW4

W.W.T.P.

LPS-1 CP

LPS

MH-3 CP

ELEC CONDUIT BOX

PCPD3

CUTOFF WALL ALIGNMENT

NORTH MARSH

12/45 EASTERN CONTAINMENT UNIT NORTH SIDE PERIMETER

SG4

PCW3

MH-3

GRAVEL ACCESS ROAD

19/46 DIVERSION BERM

PCR4

ELEC CONDUIT BOX

PCP3

EXISTING ASPHALT PAVEMENT

NEW ASPHALT PAVEMENT

MH-4 CP

577.15/ST1TOPROCK1

574.12/ST1TOEROCK1

PCW5

SG3

NORTH TRANSMISSION TOWER PAD

PCR3

PCP5

574.06/TOEROCK1

EAST MARSH

RIP RAP EROSION PROTECTION

13/45 EASTERN CONTAINMENT UNIT WEST SIDE PERIMETER

NEW ASPHALT PAVEMENT LIMIT

573.98/TOEROCK1

GRAVEL TOE DRAIN

ELEC CONDUIT BOX

PCW2

PCP2

PCR2

18/45 DIVERSION BERM ACCESS ROAD

7/45 EASTERN CONTAINMENT UNIT EAST SIDE PERIMETER

CUTOFF WALL ALIGNMENT

573.84/TOEROCK1

EAST MARSH OUTFALL NORTH, SEE DETAIL 20/47

574.07/TOEROCK1

MATCH LINE TO DRAWING NO. 29

NOTES:
1. TOPSOIL SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 11/28/98 AND 12/16/98.
2. ALL GRADE VERIFICATION POINTS FROM THE COVERSOIL SURFACE EXCEPT FOR E-16, E-17, E-19 E-20 TO E-23, E-64, E-65, E-68, E-71, E-73, E-75, E-122, E-139, E-149, E-155, E-198 TO E-201, E-203, E- 204, E-210, E-266 TO E-273, E-278, E-286, E-317 E-321, E-323 TO E-328 WERE VERIFIED FOR THE TOPSOIL SURFACE.
3. TOPSOIL CQA SAMPLE LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 31.
5. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.
6. ALL TOPSOIL WAS FROM SYLVANIA MATERIALS SOUTH ROCKWOOD, MICHIGAN.
7. THE GRAVEL PLACED FOR ACCESS ROAD CONSTRUCTION WAS PERFORMED BY SEVENSON ENVIRONMENTAL SERVICES.

N

SCALE 1"= 50'

0' 25' 50' 100'

LEGEND:

- 083 — GRADE VERIFICATION POINTS (SEE SHEET 31 OF 65)
- GW14 — GROUNDWATER INVESTIGATION MONITORING WELL
- PCP5 — POST-CLOSURE PIEZOMETER
- PCW5 — POST-CLOSURE DETECTION MONITORING WELL
- SG3 — SURFACE WATER LEVEL MONITORING STATION
- CUTOFF WALL ALIGNMENT
- B-1 — LEACHATE COLLECTION SYSTEM MANHOLE
- LEACHATE COLLECTION SYSTEM CLEANOUT
- BREAKLINE
- —592— SURFACE CONTOUR (ONE FOOT INTERVAL)
- —590— SURFACE CONTOUR (FIVE FEET INTERVAL)
- GRAVEL ACCESS ROAD
- GRAVEL TOE DRAIN
- CONTROL PANEL (LMH-# CP)
- ELECTRICAL CONDUIT BOX
- RIP RAP EROSION PROTECTION

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 12/99	LWB 12/99	AS – BUILT DRAWINGS

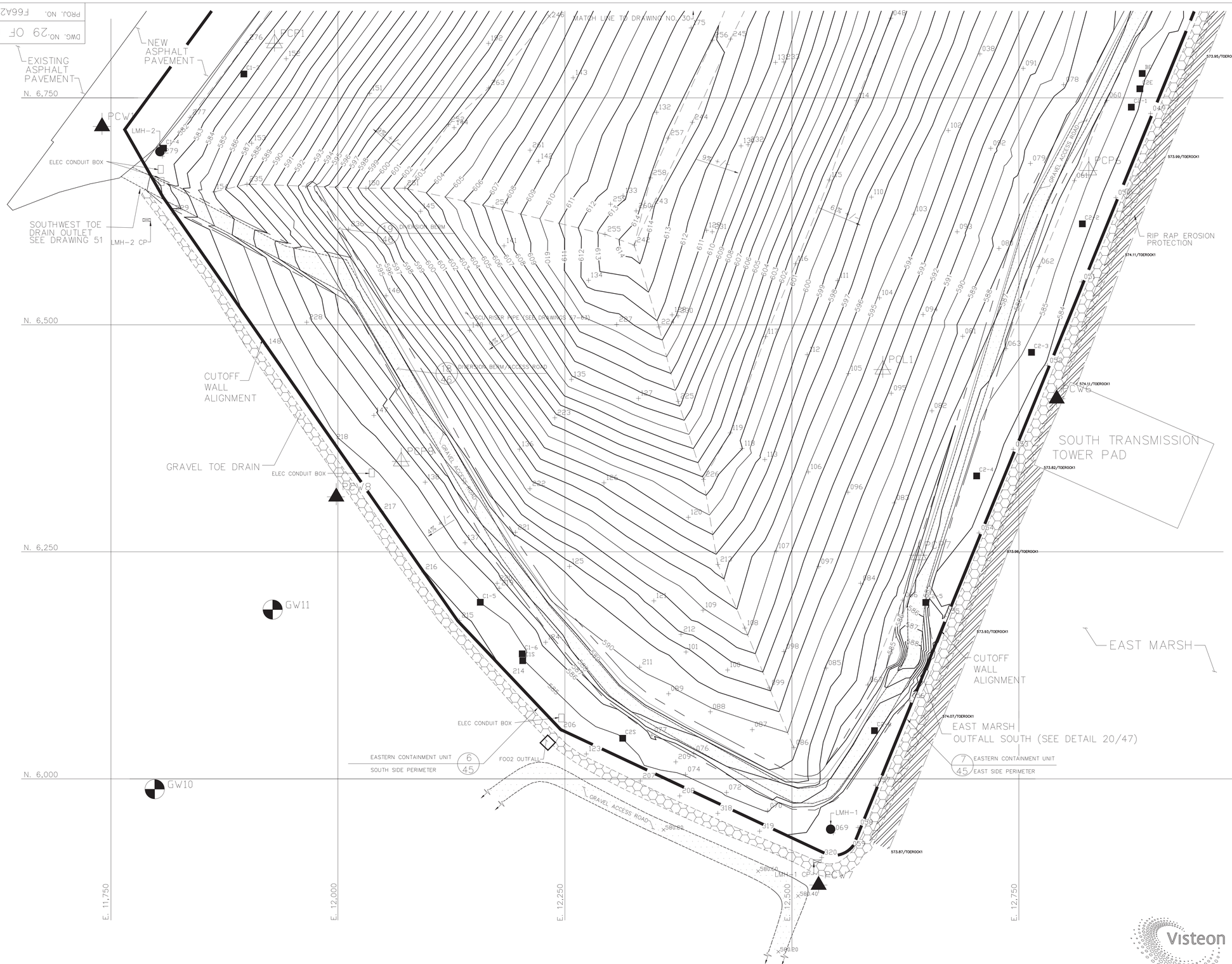
MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF THE FACILITY OWNER.

TITLE: VISTEON CORPORATION – MONROE PLANT

TOPSOIL SURFACE – ECU NORTH

DRAWN: AS DATE 12/99	SCALE: AS NOTED	DRAWING NO. 30 OF 65	REV. NO. 1
DESIGNED: LWB DATE 12/99	REVIEWED: JSB DATE 12/99		
APPROVED: . DATE .	PROJECT NO. F66A2C	CADD FILE: F66A1E9	



SCALE 1" = 50'
0' 25' 50' 100'

NOTES:
1. TOPSOIL SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 11/28/98 AND 12/16/98.
2. ALL GRADE VERIFICATION POINTS FROM THE COVERSOIL SURFACE EXCEPT FOR E-16, E-17, E-19 E-20 TO E-23, E-64, E-65, E-68, E-71, E-73, E-75, E-122, E-139, E-149, E-155, E-198 TO E-201, E-203, E- 204, E-210, E-266 TO E-273, E-278, E-286, E-317 E-321, E-323 TO E-328 WERE VERIFIED FOR THE TOPSOIL SURFACE
3. TOPSOIL CQA SAMPLE LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 31.
5. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.
6. ALL TOPSOIL WAS FROM SYLVANIA MATERIALS SOUTH ROCKWOOD, MICHIGAN.
7. THE GRAVEL PLACED FOR ACCESS ROAD CONSTRUCTION WAS PERFORMED BY SEVENSON ENVIRONMENTAL SERVICES.

LEGEND:

- 083 — GRADE VERIFICATION POINTS (SEE SHEET 31 OF 65)
- GW10 — GROUNDWATER INVESTIGATION MONITORING WEL
- PCP5 — POST-CLOSURE PIEZOMETER
- PCW5 — POST-CLOSURE DETECTION MONITORING WELL
- CUTOFF WALL ALIGNMENT
- B-1 — LEACHATE COLLECTION SYSTEM MANHOLE
- LEACHATE COLLECTION SYSTEM CLEANOUT
- BREAKLINE
- 592 — SURFACE CONTOUR (ONE FOOT INTERVAL)
- 590 — SURFACE CONTOUR (FIVE FEET INTERVAL)
- GRAVEL ACCESS ROAD
- GRAVEL TOE DRAIN
- CONTROL PANEL (LMH-# CP)
- ELECTRICAL CONDUIT BOX
- RIP RAP EROSION PROTECTION

REV.	DATE	BY	CHK'D	DESCRIPTION
1	12/99	AS	LWB	AS – BUILT DRAWINGS

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(313) 563-6326
DEARBORN, MICHIGAN

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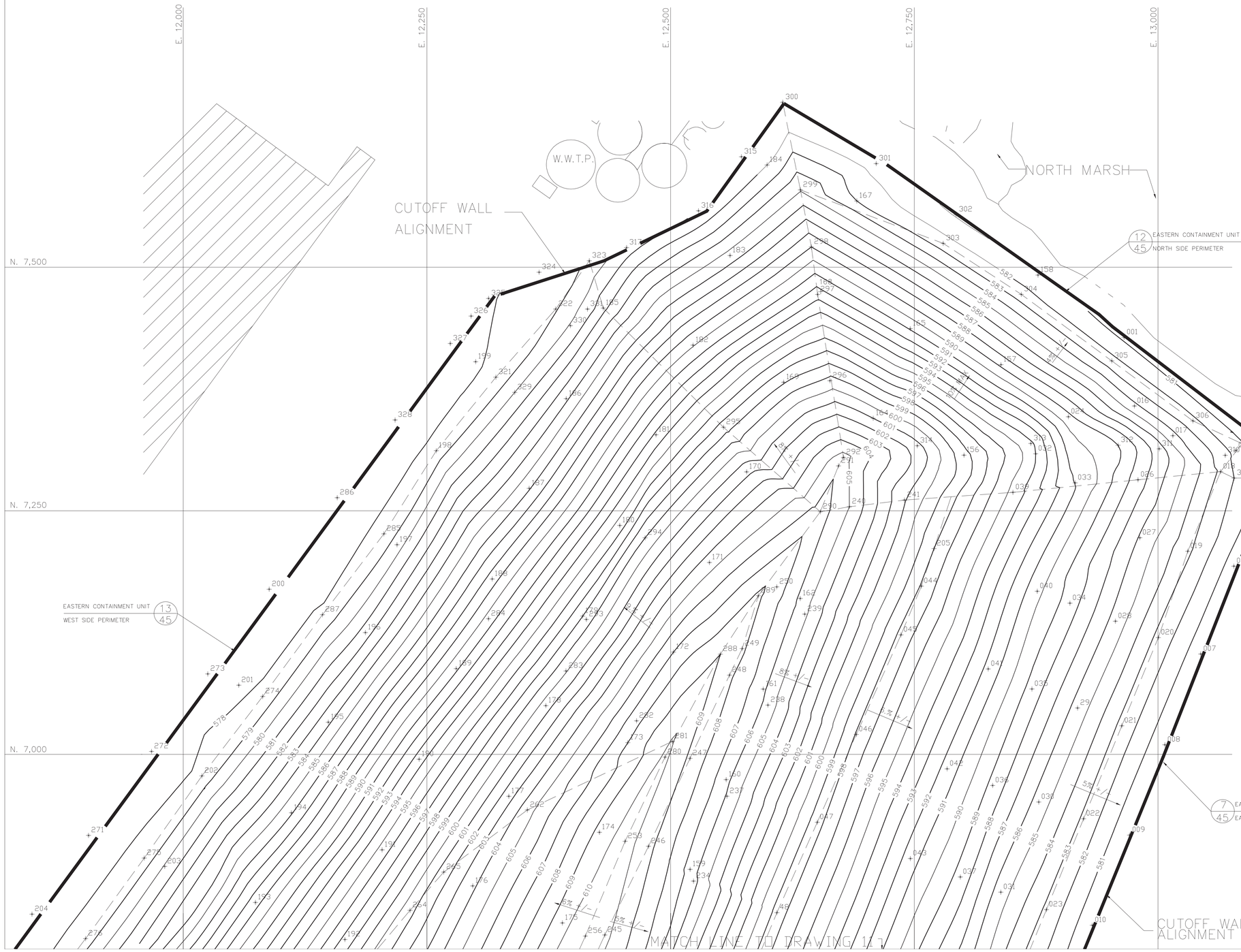
TITLE: VISTEON CORPORATION – MONROE PLANT

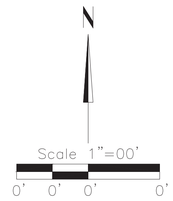
TOPSOIL SURFACE – ECU SOUTH

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 12/99	AS NOTED	29 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 12/99	JSB 12/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E9	

DWG. NO. 12 OF 65

PROJ. NO. F66A2C





NOTES:

1. CLAY SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 7/6/98 AND 11/14/98.
2. ALL GRADE VERIFICATION POINTS FROM THE WASTE SURFACE WERE VERIFIED FOR THE CLAY SURFACE.
3. CLAY CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 13.
5. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.
6. ALL CLAY WAS FROM LONDON AGGREGATES, MILAN, MICHIGAN.

LEGEND

- 020 — CLAY SURFACE VERIFICATION POINT
- ----- SLOPE BREAKLINE
- 595 — SURFACE CONTOUR (1 FT INTERVAL)
- 590 — SURFACE CONTOUR (5 FT INTERVAL)
- ━━━ CUTOFF WALL ALIGNMENT

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS-BUILT CLAY SURFACE

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DEARBORN, MICHIGAN

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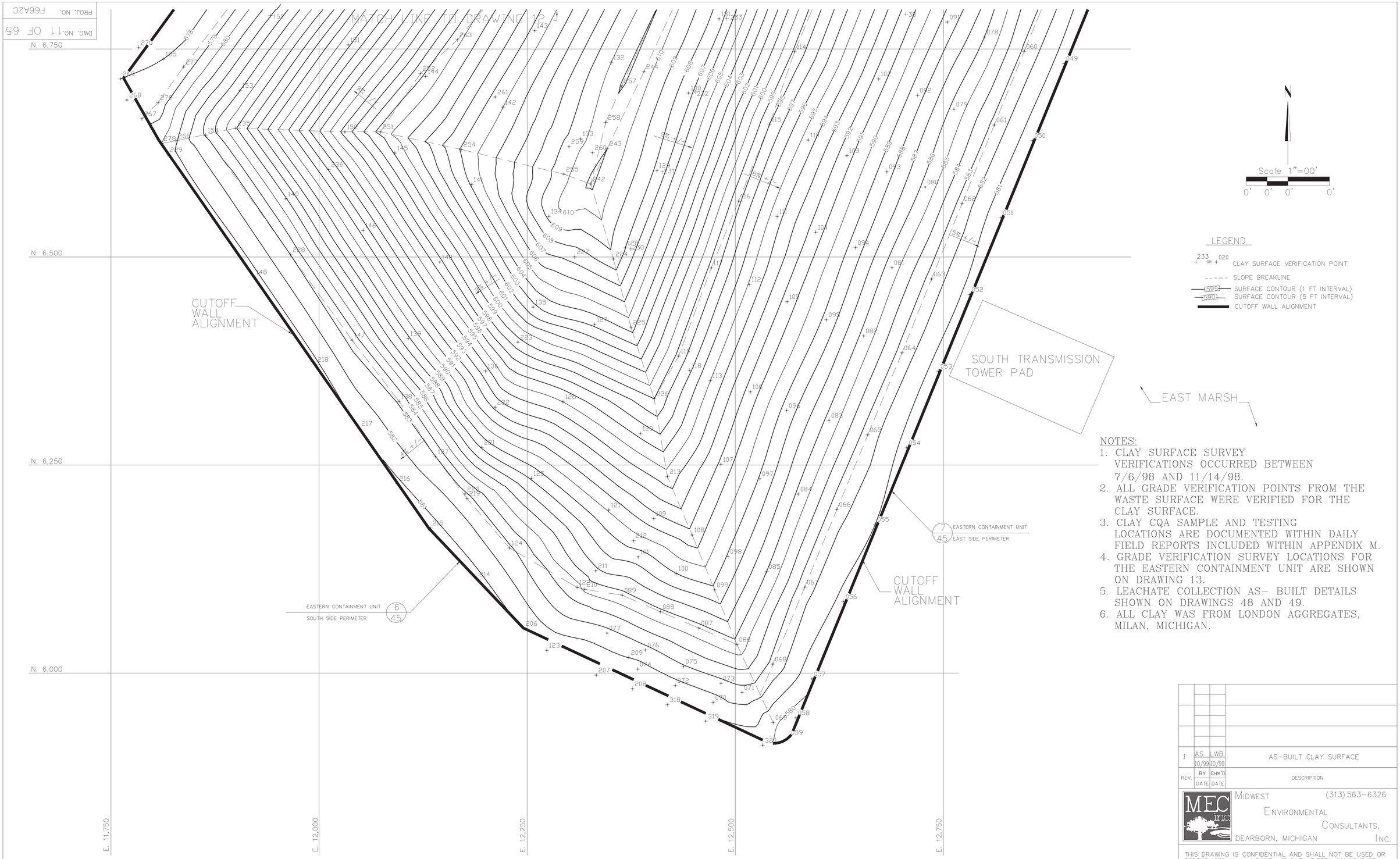
TITLE: VISTEON CORPORATION – MONROE PLANT

CLAY GRADE – ECU NORTH

DRAWN: AS 10/99	SCALE: AS NOTED	DRAWING NO. 12 OF 65	REV. NO. 1
DESIGNED: LWB 10/99	REVIEWED: JSB 10/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E8	



LEGEND

- 233 OR 020 + — CLAY SURFACE VERIFICATION POINT
- ----- SLOPE BREAKLINE
- 5991 — SURFACE CONTOUR (1 FT INTERVAL)
- 5901 — SURFACE CONTOUR (5 FT INTERVAL)
- CUTOFF WALL ALIGNMENT

NOTES:

1. CLAY SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 7/6/98 AND 11/14/98.
2. ALL GRADE VERIFICATION POINTS FROM THE WASTE SURFACE WERE VERIFIED FOR THE CLAY SURFACE.
3. CLAY CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 13.
5. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.
6. ALL CLAY WAS FROM LONDON AGGREGATES, MILAN, MICHIGAN.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS-BUILT .CLAY SURFACE

MEC inc.
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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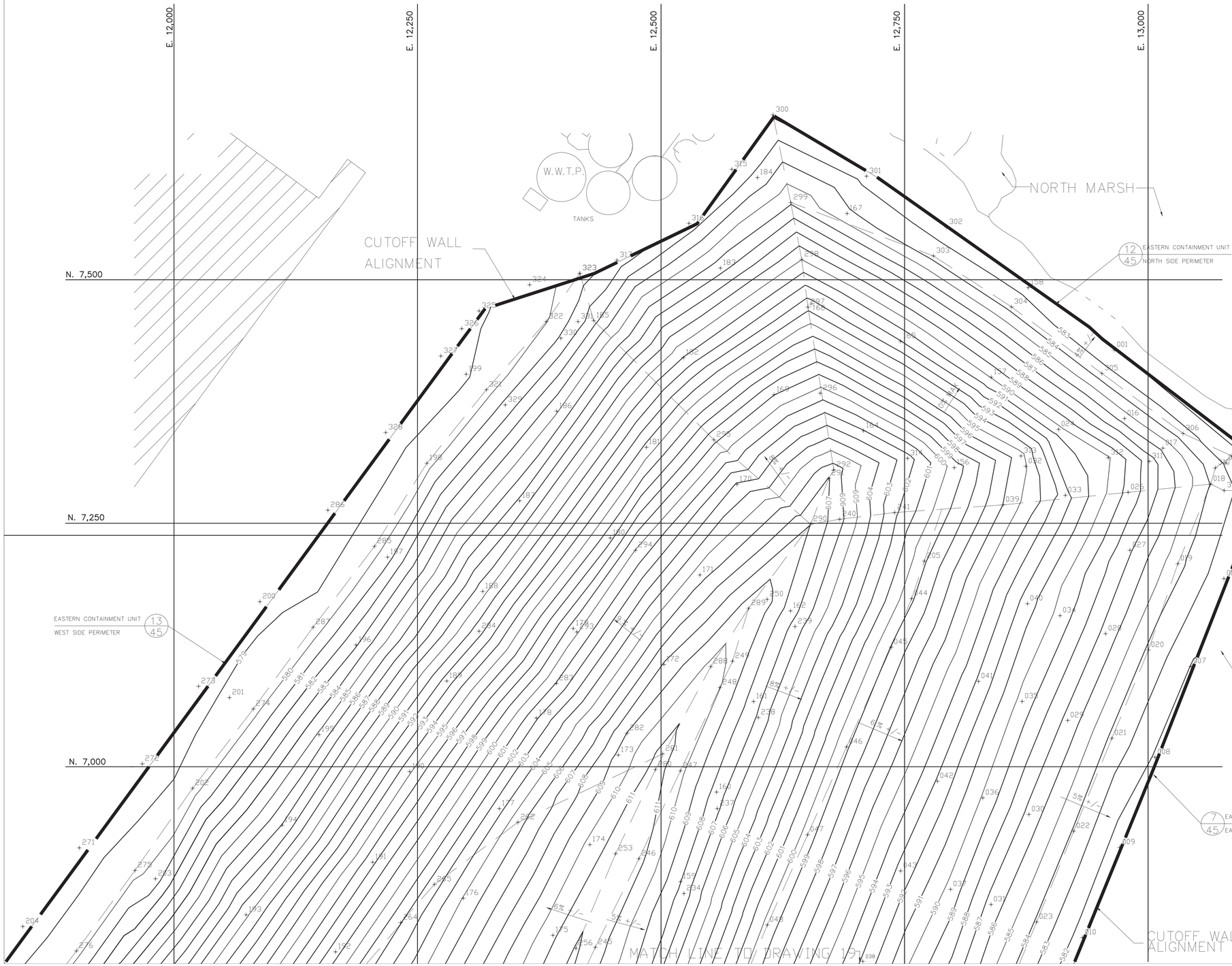
TITLE: VISTEON CORPORATION - MONROE PLANT

CLAY GRADE - ECU SOUTH

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	11 OF 65	1
DESIGNED: DATE LWB 10/99	REVIEWED: DATE JSB 10/99		
APPROVED: DATE . .	PROJECT NO. F66A2C	CADD FILE: F66A1E8	

Visteon

DWG. NO. 20 OF 65
PROJ. NO. F66A2C



N

Scale 1"=50'

0' 25' 50' 100'

NOTES:
1. SAND SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 10/31/98 AND 11/25/98.
2. ALL GRADE VERIFICATION POINTS FROM THE CLAY SURFACE WERE VERIFIED FOR THE SAND SURFACE.
3. SAND CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 21.
5. LEACHATE COLLECTION AS-BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.
6. ALL SAND WAS FROM CTE, TECUMSEH, MICHIGAN AND SYLVESTER MATERIALS, CLINTON, MICHIGAN.

LEGEND

233 OR 020 — CLAY SURFACE VERIFICATION POINT

— — — SLOPE BREAKLINE

582 — SURFACE CONTOUR (1 FT INTERVAL)

585 — SURFACE CONTOUR (5 FT INTERVAL)

CUTOFF WALL ALIGNMENT

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS-BUILT SAND SURFACE

MEC inc

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(313) 563-6326
DEARBORN, MICHIGAN

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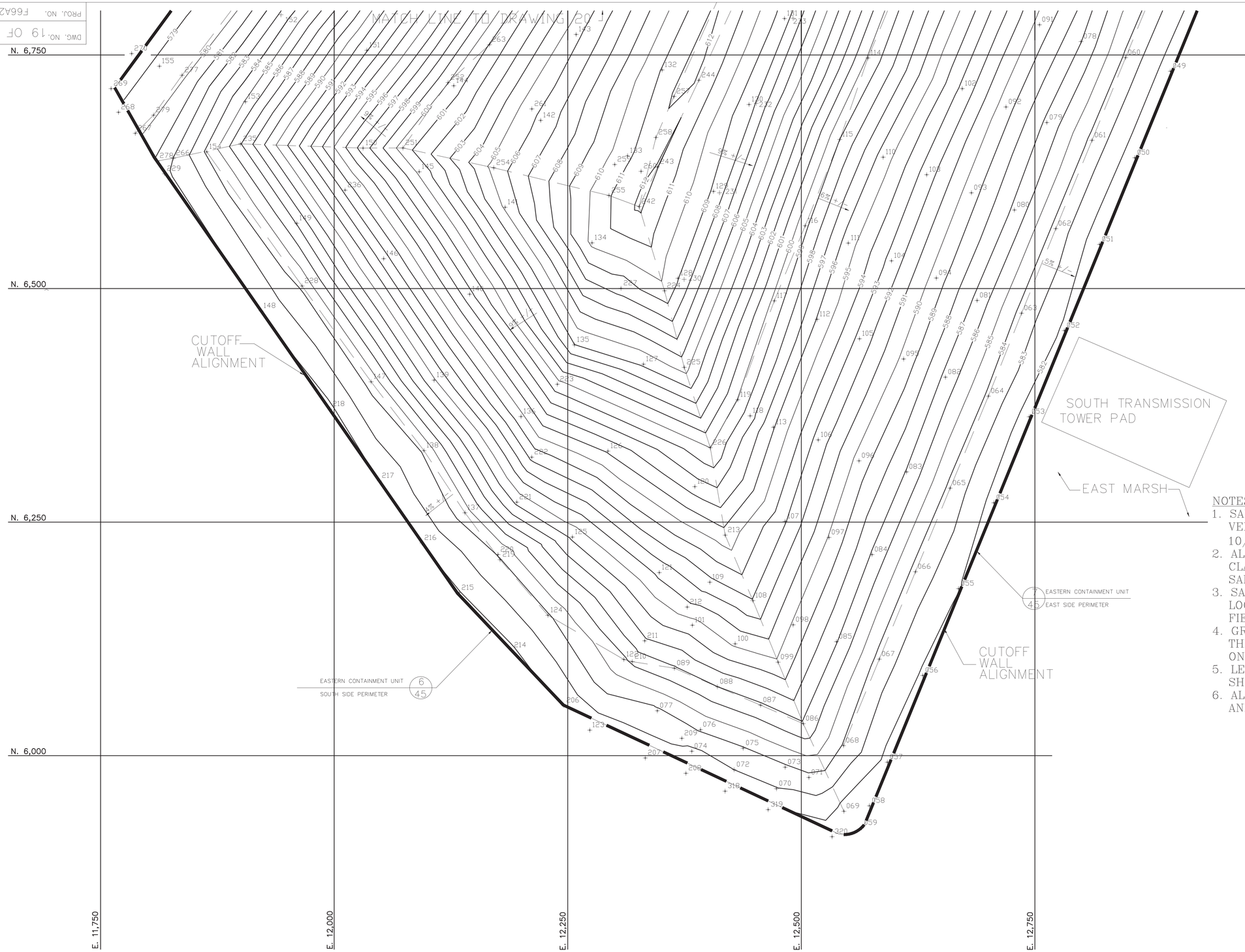
TITLE: VISTEON CORPORATION - MONROE PLANT

SAND SURFACE - ECU SOUTH

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	20 OF 65	1
DESIGNED: DATE LWB 10/99	REVIEWED: DATE JSB 10/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E7	



N

Scale 1"=50'

0' 25' 50' 100'

LEGEND

233 OR 020 — SAND SURFACE VERIFICATION POINT

— — — SLOPE BREAKLINE

582 — SURFACE CONTOUR (1 FT INTERVAL)

585 — SURFACE CONTOUR (5 FT INTERVAL)

CUTOFF WALL ALIGNMENT

NOTES:

1. SAND SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 10/31/98 AND 11/25/98.
2. ALL GRADE VERIFICATION POINTS FROM THE CLAY SURFACE WERE VERIFIED FOR THE SAND SURFACE.
3. SAND CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE EASTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 21.
5. LEACHATE COLLECTION AS-BUILT DETAILS SHOWN ON DRAWINGS 48 AND 49.
6. ALL SAND WAS FROM CTE, TECUMSEH, MICHIGAN AND SYLVESTER MATERIALS, CLINTON, MICHIGAN.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS-BUILT SAND SURFACE

MEC inc

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
DEARBORN, MICHIGAN (313) 563-6326

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Visteon

TITLE: VISTEON CORPORATION – MONROE PLANT

SAND SURFACE – ECU SOUTH

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	19 OF 65	1
DESIGNED: DATE LWB 10/99	REVIEWED: DATE JSB 10/99		
APPROVED: DATE - -	PROJECT NO. F66A2C	CADD FILE: F66A1E7	

DWG. NO. 32 OF 65

PROJ. NO. F66A2C

NOTES:
1. TOPSOIL SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 11/13/98 AND 12/5/98.
2. ALL GRADE VERIFICATION POINTS FROM THE COVERSOIL SURFACE EXCEPT FOR W-45, W-47 W-64, W-66, W-68, W-110, W-151, W-156, W-159 AND W-160 WERE VERIFIED FOR THE TOPSOIL SURFACE.
3. TOPSOIL CQA SAMPLE LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE WESTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 33.
5. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWING 50.
6. ALL TOPSOIL WAS FROM SYLVANIA MATERIALS SOUTH ROCKWOOD, MICHIGAN.
7. THE GRAVEL PLACED FOR ACCESS ROAD CONSTRUCTION WAS PERFORMED BY SEVENSON ENVIRONMENTAL SERVICES.

LEGEND:

- GRADE VERIFICATION POINT (SEE SHEET 33 OF 65)
- GW15 GROUNDWATER INVESTIGATION MONITORING WELL
- PCP12 POST-CLOSURE PIEZOMETER
- PCW12 POST-CLOSURE DETECTION MONITORING WELL
- SG6 SURFACE WATER LEVEL MONITORING STATION
- CUTOFF WALL ALIGNMENT
- LEACHATE COLLECTION SYSTEM MANHOLE
- D2-4 LEACHATE COLLECTION SYSTEM CLEANOUT
- 581.14x PERIMETER AREA SPOT ELEVATION
- 591 SURFACE CONTOUR (ONE FOOT INTERVAL)
- 590 SURFACE CONTOUR (FIVE FOOT INTERVAL)
- BREAKLINE
- GRAVEL ACCESS ROAD
- GRAVEL TOE DRAIN
- CONTROL PANEL (LMH-# CP)
- ELECTRICAL CONDUIT BOX

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	AS 12/99	LWB 12/99	AS-BUILT DRAWING

MEC inc
MIDWEST ENVIRONMENTAL CONSULTANTS, INC.
(313) 563-6326
DEARBORN, MICHIGAN

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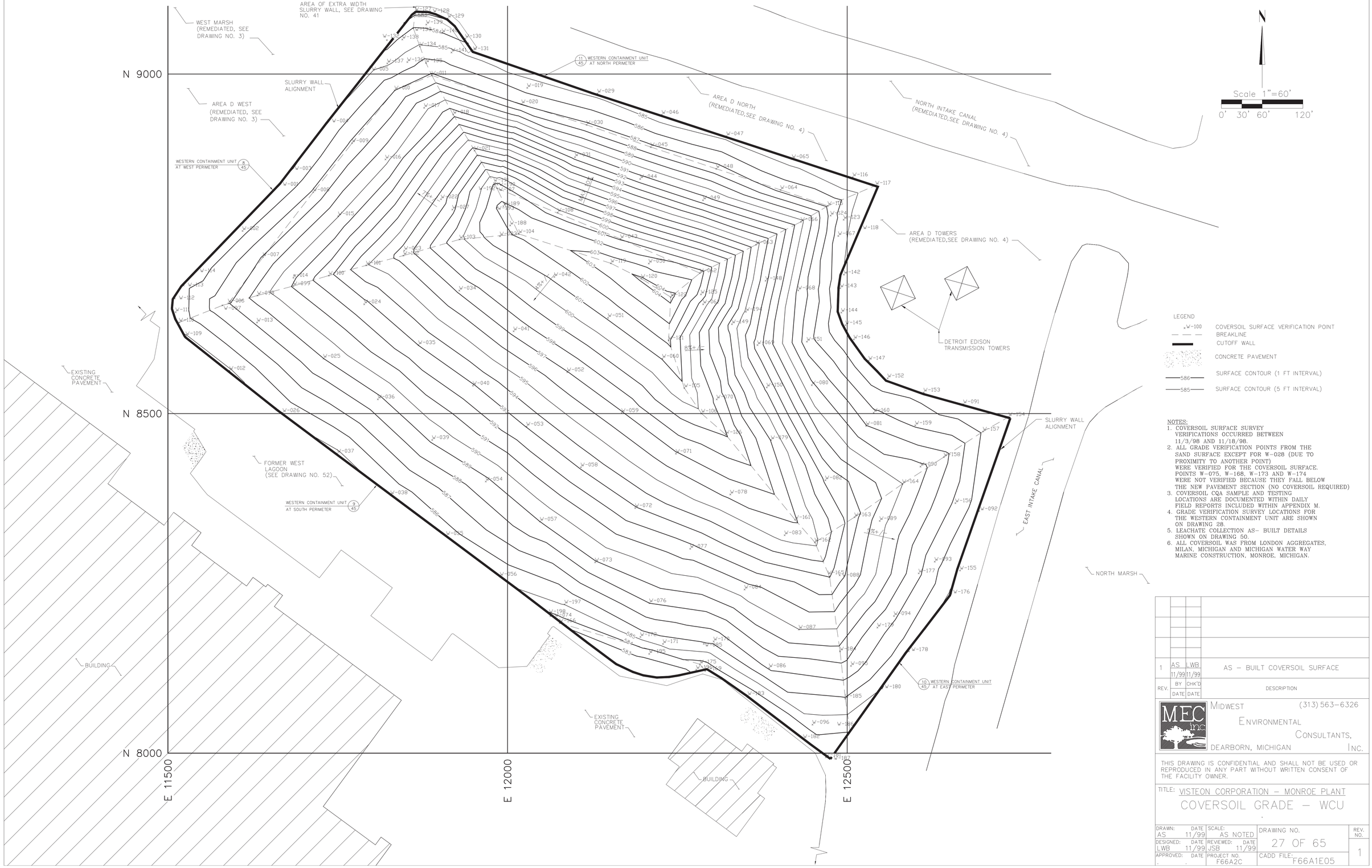
TITLE: VISTEON CORPORATION, MONROE PLANT

WESTERN CONTAINMENT UNIT TOPSOIL GRADE

DRAWN:	DATE	SCALE:	DRAWING NO.	REV. NO.
AS	12/99	AS NOTED	32 OF 65	1
DESIGNED:	DATE	REVIEWED:	DATE	
LWB	12/99	JSB	12/99	
APPROVED:	DATE	PROJECT NO.	CADD FILE:	
.	.	F66A2C	F66A1E06	

DWG. NO. 27 OF 65

PROJ. NO. F66A2C



NOTES:
1. COVERSOIL SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 11/3/98 AND 11/18/98.
2. ALL GRADE VERIFICATION POINTS FROM THE SAND SURFACE EXCEPT FOR W-028 (DUE TO PROXIMITY TO ANOTHER POINT) WERE VERIFIED FOR THE COVERSOIL SURFACE. POINTS W-075, W-168, W-173 AND W-174 WERE NOT VERIFIED BECAUSE THEY FALL BELOW THE NEW PAVEMENT SECTION (NO COVERSOIL REQUIRED)
3. COVERSOIL CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE WESTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 28.
5. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWING 50.
6. ALL COVERSOIL WAS FROM LONDON AGGREGATES, MILAN, MICHIGAN AND MICHIGAN WATER WAY MARINE CONSTRUCTION, MONROE, MICHIGAN.

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	AS 11/99	LWB 11/99	AS – BUILT COVERSOIL SURFACE

MEC inc
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TITLE: VISTEON CORPORATION – MONROE PLANT

COVERSOIL GRADE – WCU

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 11/99	AS NOTED	27 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 11/99	JSB 11/99		
APPROVED: DATE	PROJECT NO.	CADD FILE:	
. .	F66A2C	F66A1E05	

DWG. NO. 22 OF 65

PROJ. NO. F66A2C

LEGEND:

- ×W-100 SAND SURFACE VERIFICATION POINT
- BREAKLINE
- CUTOFF WALL
- CONCRETE PAVEMENT
- 584 SURFACE CONTOUR (1 FT INTERVAL)
- 585 SURFACE CONTOUR (5 FT INTERVAL)

NOTES:

1. SAND SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 9/17/98 AND 11/11/98.
2. ALL GRADE VERIFICATION POINTS FROM THE CLAY SURFACE (EXCEPT FOR W-194 AND 195) WERE VERIFIED FOR THE SAND SURFACE. POINTS W-194 AND W-195 (CHANGED COORDINATES) AND W-196 THROUGH W-198 WERE ADDED FOR THE SAND SURFACE TO PROVIDE ADDITIONAL DEFINITION.
3. SAND CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE WESTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 23.
5. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWING 50.
6. ALL SAND WAS FROM CTE, TECUMSEH, MICHIGAN AND SYLVESTER MATERIALS, CLINTON, MICHIGAN.

REV.	BY	CHK'D	DESCRIPTION
	DATE	DATE	
1	AS 10/99	LWB 10/99	AS-BUILT SAND SURFACE

MEC inc

MIDWEST ENVIRONMENTAL CONSULTANTS, INC.

(313) 563-6326

DEARBORN, MICHIGAN

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TITLE:

FORD MOTOR COMPANY

MONROE STAMPING PLANT SAND SURFACE- WCU

DRAWN: DATE	SCALE:	DRAWING NO.	REV. NO.
AS 10/99	AS NOTED	22 OF 65	1
DESIGNED: DATE	REVIEWED: DATE		
LWB 10/99	JSB 10/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E04	

DWG. NO. 14 OF 65

PROJ. NO. F66A1E03

LEGEND:

- x-XXX — CLAY SURFACE VERIFICATION POINT
- BREAKLINE
- CUTOFF WALL
- CONCRETE PAVEMENT
- 579 — SURFACE CONTOUR (1 FT INTERVAL)
- 580 — SURFACE CONTOUR (5 FT INTERVAL)

NOTES:

1. CLAY SURFACE SURVEY VERIFICATIONS OCCURRED BETWEEN 8/18/98 AND 11/12/98.
2. ALL GRADE VERIFICATION POINTS FROM THE WASTE SURFACE (EXCEPT FOR W-167) WERE VERIFIED FOR THE CLAY SURFACE. POINTS W-188 THROUGH W-195 WERE ADDED FOR THE CLAY SURFACE TO PROVIDE ADDITIONAL DEFINITION.
3. CLAY CQA SAMPLE AND TESTING LOCATIONS ARE DOCUMENTED WITHIN DAILY FIELD REPORTS INCLUDED WITHIN APPENDIX M.
4. GRADE VERIFICATION SURVEY LOCATIONS FOR THE WESTERN CONTAINMENT UNIT ARE SHOWN ON DRAWING 15.
5. LEACHATE COLLECTION AS- BUILT DETAILS SHOWN ON DRAWING 50.
6. ALL CLAY WAS FROM LONDON AGGREGATES, MILAN, MICHIGAN.

REV.	BY DATE	CHK'D DATE	DESCRIPTION
1	AS 10/99	LWB 10/99	AS- BUILT CLAY SURFACE

MEC inc
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(313) 563-6326
DEARBORN, MICHIGAN

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TITLE:

VISTEON CORPORATION

MONROE STAMPING PLANT CLAY SURFACE- WCU

DRAWN: AS DATE 10/99	SCALE: AS NOTED	DRAWING NO. 14 OF 65	REV. NO. 1
DESIGNED: LWB DATE 10/99	REVIEWED: JSB DATE 10/99		
APPROVED: DATE	PROJECT NO. F66A2C	CADD FILE: F66A1E03	

November 17, 2017

Mr. Peter Quackenbush, Engineer
Hazardous Waste Section
Office of Waste Management and Radiological Protection
Michigan Department of Environmental Quality
Constitution Hall, Atrium South
525 West Allegan
Lansing, Michigan 48909-7741

Re: Final Cover Survey 2017
Ford Monroe Plant - MID 005 057 005

Dear Mr. Quackenbush:

The Mannik & Smith Group, Inc. (MSG) has completed the Final Cover Survey 2017 at the Ford Monroe Plant in accordance with the Hazardous Waste Management Facility Post-Closure Operating License (MID 005 057 005), dated November 28, 2007, and subsequent amendments.

We have reviewed the results of the survey including control points and monitoring points, and the average change for the points at each Corrective Action Management Units (CAMUs) are as follows.

- Eastern Containment Unit - E-1 thru E-26 in northing is 0.027 feet, easting -0.027 feet, and elevation is 0.024 feet.

- Western Containment Unit - W-1 thru W-23 in northing is 0.053 feet, easting 0.032 feet, and elevation is 0.019 feet.

Based on these values we have determined that no significant movement has occurred at either the CAMU. Topographic drawings and data tables are attached.

Should you need any additional information or have any questions, please call our office at (734) 397-3100.

Sincerely,

Thomas E. Peters, CPG, CHMM
Senior Project Manager

Attachments

cc: Colleen Liddell (Ford EQO)

2365 Haggerty Road South, Canton, Michigan 48188 Tel: 734.397.3100 Fax: 734.397.3131 www.MannikSmithGroup.com

Monroe Plant
Monroe, Michigan
ECU Control Monuments

Monument	Original Location			2001 Survey			Delta (Orig. - 2001)			2003 Survey			Delta (Orig. - 2003)			2005 Survey			Delta (Orig. - 2005)		
No.	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation
E-1	5,910.009	12,563.881	581.263	5,910.035	12,563.797	581.290	0.026	-0.084	0.027	5,910.030	12,563.780	581.350	0.021	-0.101	0.087	5,910.016	12,563.969	581.320	0.007	0.088	0.057
E-2	6,110.253	12,652.703	581.321	6,110.236	12,652.727	581.357	-0.017	0.024	0.036	6,110.280	12,652.730	581.380	0.027	0.027	0.059	6,110.201	12,652.876	581.320	-0.052	0.173	-0.001
E-3	6,602.075	12,855.411	580.865	6,602.070	12,855.395	580.864	-0.005	-0.016	-0.001	6,602.030	12,855.430	580.870	-0.045	0.019	0.005	6,602.047	12,855.449	580.830	-0.028	0.038	-0.035
E-4	6,627.255	12,874.410	578.326	6,627.256	12,874.424	578.332	0.001	0.014	0.006	6,627.270	12,874.520	578.340	0.015	0.110	0.014	6,627.238	12,874.502	578.330	-0.017	0.092	0.004
E-5	6,967.323	13,014.748	578.350	6,967.299	13,014.708	578.349	-0.024	-0.040	-0.001	6,967.350	13,014.770	578.340	0.027	0.022	-0.010	6,967.259	13,014.769	578.320	-0.064	0.021	-0.030
E-6	6,993.767	13,016.311	581.166	6,993.759	13,016.274	581.178	-0.008	-0.037	0.012	6,993.780	13,016.340	581.160	0.013	0.029	-0.006	6,993.732	13,016.339	581.120	-0.035	0.028	-0.046
E-7	7,195.935	13,092.867	581.930	7,195.914	13,092.870	581.931	-0.021	0.003	0.001	7,195.930	13,092.960	581.900	-0.005	0.093	-0.030	7,195.900	13,092.955	581.910	-0.035	0.088	-0.020
E-8	7,282.527	13,124.155	581.862	7,282.482	13,124.144	581.883	-0.045	-0.011	0.021	7,282.500	13,124.180	581.910	-0.027	0.025	0.048	7,282.507	13,124.166	581.900	-0.020	0.011	0.038
E-9	7,307.147	13,127.539	580.246	7,307.095	13,127.548	580.319	-0.052	0.009	0.073	7,307.130	13,127.359	580.320	-0.017	-0.180	0.074	7,307.130	13,127.592	580.360	-0.017	0.053	0.114
E-10	7,334.462	13,101.890	580.398	7,334.416	13,101.869	580.416	-0.046	-0.021	0.018	7,334.450	13,101.900	580.420	-0.012	0.010	0.022	7,334.474	13,101.904	580.440	0.012	0.014	0.042
E-11	7,469.364	12,935.554	579.352	7,469.425	12,935.565	579.303	0.061	0.011	-0.049	7,469.470	12,935.620	579.300	0.106	0.066	-0.052	7,469.499	12,935.615	579.200	0.135	0.061	-0.152
E-12	7,579.259	12,780.614	580.606	7,579.269	12,780.551	580.569	0.010	-0.063	-0.037	7,579.290	12,780.730	580.650	0.031	0.116	0.044	7,579.283	12,780.672	580.620	0.024	0.058	0.014
E-13	7,675.905	12,615.353	582.171	7,675.944	12,615.335	582.217	0.039	-0.018	0.046	7,676.050	12,615.590	582.270	0.145	0.237	0.099	7,675.985	12,615.462	582.130	0.080	0.109	-0.041
E-14	7,566.211	12,533.686	583.802	7,566.248	12,533.647	583.784	0.037	-0.039	-0.018	7,566.270	12,533.830	583.790	0.059	0.144	-0.012	7,566.228	12,533.723	583.670	0.017	0.037	-0.132
E-15	7,531.015	12,464.025	582.480	7,531.053	12,463.993	582.509	0.038	-0.032	0.029	7,531.100	12,464.140	582.490	0.085	0.115	0.010	7,531.039	12,464.049	582.390	0.024	0.024	-0.090
E-16	7,497.978	12,358.955	581.038	7,498.017	12,358.862	581.062	0.039	-0.093	0.024	7,498.030	12,359.060	581.000	0.052	0.105	-0.038	7,497.911	12,358.967	580.980	-0.067	0.012	-0.058
E-17	7,486.933	12,336.037	580.744	7,487.127	12,335.837	580.796	0.194	-0.200	0.052	7,487.010	12,336.140	580.690	0.077	0.103	-0.054	7,486.902	12,336.034	580.730	-0.031	-0.003	-0.014
E-18	7,459.019	12,296.729	580.515	7,459.145	12,296.549	580.560	0.126	-0.180	0.045	7,459.120	12,296.830	580.440	0.101	0.101	-0.075	7,458.979	12,296.761	580.550	-0.040	0.032	0.035
E-19	7,138.974	12,058.890	580.851	7,138.954	12,058.794	580.842	-0.020	-0.096	-0.009	7,139.070	12,059.000	581.120	0.096	0.110	0.269	7,138.935	12,058.948	580.840	-0.039	0.058	-0.011
E-20	6,746.680	11,771.971	580.700	6,746.697	11,771.843	580.599	0.017	-0.128	-0.101	6,746.840	11,772.030	580.720	0.160	0.059	0.020	6,746.656	11,771.984	580.660	-0.024	0.013	-0.040
E-21	6,696.134	11,760.011	580.779	6,696.165	11,759.753	580.860	0.031	-0.258	0.081	6,696.290	11,760.060	580.790	0.156	0.049	0.011	6,696.129	11,760.139	580.850	-0.005	0.128	0.071
E-22	6,674.932	11,769.989	580.899	6,674.908	11,769.911	580.831	-0.024	-0.078	-0.068	6,675.090	11,770.010	580.830	0.158	0.021	-0.069	n/a [1]	n/a [1]	n/a [1]	n/a [1]	n/a [1]	n/a [1]
E-23	6,158.343	12,116.088	580.254	6,158.310	12,116.098	580.178	-0.033	0.010	-0.076	6,158.258	12,116.080	580.290	-0.085	-0.008	0.036	6,158.300	12,116.139	580.260	-0.043	0.051	0.006
E-24	6,034.639	12,239.010	580.134	6,034.680	12,238.930	580.046	0.041	-0.080	-0.088	6,034.650	12,238.980	580.100	0.011	-0.030	-0.034	6,034.644	12,239.062	580.050	0.005	0.052	-0.084
E-25	6,019.066	12,256.772	579.877	6,019.128	12,256.723	579.964	0.062	-0.049	0.087	6,019.047	12,256.743	579.870	-0.019	-0.029	-0.007	6,019.052	12,256.858	579.830	-0.014	0.086	-0.047
E-26	5,948.384	12,397.702	580.018	5,948.384	12,397.608	579.964	0.000	-0.094	-0.054	5,948.400	12,397.630	580.030	0.016	-0.072	0.012	5,948.311	12,397.700	579.980	-0.073	-0.002	-0.038

1) E-22 was been bent over between the 2003 and the 2005 monitoring event; presumably by snow removal activities. Therefore, it was not surveyed for this monitoring event.

PLEASE NOTE: ALL MEASUREMENT IN FEET (0.01' = ~1/8")

Monroe Plant
Monroe, Michigan
ECU Control Monuments

Monument	Original Location			2007 Survey			Delta (Orig. - 2007)			2012 Survey			Delta (Orig. - 2012)			2017 Survey			Delta (Orig. - 2017)		
No.	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation
E-1	5,910.009	12,563.881	581.263	5,909.995	12,563.916	581.337	-0.014	0.035	0.074	5910.007	12563.893	581.314	-0.002	0.012	0.051	5910.055	12563.800	581.319	0.046	-0.081	0.056
E-2	6,110.253	12,652.703	581.321	6,110.228	12,652.816	581.373	-0.025	0.113	0.052	6110.242	12652.802	581.333	-0.011	0.099	0.012	6110.272	12652.818	581.334	0.019	0.115	0.013
E-3	6,602.075	12,855.411	580.865	6,602.043	12,855.495	580.851	-0.032	0.084	-0.014	6602.049	12855.515	580.825	-0.026	0.104	-0.040	6602.104	12855.437	580.848	0.029	0.026	-0.017
E-4	6,627.255	12,874.410	578.326	6,627.246	12,874.571	578.358	-0.009	0.161	0.031	6627.249	12874.566	578.346	-0.006	0.156	0.020	6627.309	12874.507	578.374	0.053	0.097	0.048
E-5	6,967.323	13,014.748	578.350	6,967.267	13,014.826	578.317	-0.056	0.078	-0.033	6967.302	13014.817	578.319	-0.021	0.069	-0.031	6967.346	13014.746	578.347	0.023	-0.002	-0.003
E-6	6,993.767	13,016.311	581.166	6,993.728	13,016.421	581.139	-0.039	0.110	-0.028	6993.763	13016.363	581.102	-0.004	0.052	-0.064	6993.800	13016.315	581.117	0.033	0.004	-0.049
E-7	7,195.935	13,092.867	581.930	7,195.866	13,093.011	581.876	-0.069	0.144	-0.054	7195.889	13093.003	581.850	-0.046	0.136	-0.080	7195.922	13093.012	581.862	-0.013	0.145	-0.068
E-8	7,282.527	13,124.155	581.862	7,282.488	13,124.219	581.902	-0.039	0.064	0.040	7282.515	13124.193	581.908	-0.012	0.038	0.046	7282.587	13124.114	581.931	0.060	-0.041	0.069
E-9	7,307.147	13,127.539	580.246	7,307.101	13,127.653	580.355	-0.046	0.114	0.109	7307.126	13127.613	580.400	-0.021	0.074	0.154	7307.220	13127.585	580.436	0.073	0.046	0.190
E-10	7,334.462	13,101.890	580.398	7,334.471	13,101.979	580.371	0.009	0.089	-0.028	7334.513	13101.906	580.351	0.051	0.016	-0.048	7334.557	13101.805	580.365	0.095	-0.085	-0.033
E-11	7,469.364	12,935.554	579.352	7,469.531	12,935.683	579.211	0.167	0.129	-0.141	7469.574	12935.637	579.223	0.210	0.083	-0.129	7469.470	12935.500	579.231	0.106	-0.055	-0.121
E-12	7,579.259	12,780.614	580.606	7,579.330	12,780.772	580.731	0.071	0.158	0.125	7579.316	12780.682	580.845	0.057	0.068	0.239	7579.229	12780.537	580.950	-0.030	-0.077	0.344
E-13	7,675.905	12,615.353	582.171	7,676.016	12,615.517	582.209	0.111	0.164	0.038	7675.996	12615.450	582.215	0.091	0.097	0.044	7676.015	12615.314	582.271	0.110	-0.039	0.100
E-14	7,566.211	12,533.686	583.802	7,566.231	12,533.785	583.762	0.020	0.099	-0.040	7566.262	12533.726	583.771	0.051	0.040	-0.031	7566.225	12533.654	583.797	0.014	-0.032	-0.005
E-15	7,531.015	12,464.025	582.480	7,531.034	12,464.067	582.545	0.019	0.042	0.065	7531.048	12463.991	582.531	0.033	-0.034	0.051	7531.105	12463.878	582.577	0.090	-0.147	0.097
E-16	7,497.978	12,358.955	581.038	7,497.984	12,359.017	581.035	0.006	0.062	-0.003	7498.004	12358.921	580.993	0.026	-0.034	-0.045	7497.993	12358.776	581.018	0.015	-0.179	-0.020
E-17	7,486.933	12,336.037	580.744	7,487.004	12,336.087	580.715	0.071	0.050	-0.029	7486.955	12336.017	580.693	0.022	-0.020	-0.051	7486.919	12335.970	580.713	-0.014	-0.067	-0.031
E-18	7,459.019	12,296.729	580.515	7,459.042	12,296.752	580.525	0.023	0.023	0.010	7459.041	12296.666	580.448	0.022	-0.063	-0.067	n/a	n/a	n/a			
E-19	7,138.974	12,058.890	580.851	7,139.025	12,058.979	580.828	0.051	0.089	-0.023	7138.996	12058.892	580.812	0.022	0.002	-0.039	n/a	n/a	n/a			
E-20	6,746.680	11,771.971	580.700	6,746.724	11,772.018	580.593	0.044	0.047	-0.107	6746.703	11771.965	580.623	0.023	-0.006	-0.077	n/a	n/a	n/a			
E-21	6,696.134	11,760.011	580.779	6,696.190	11,760.048	580.843	0.056	0.037	0.064	6696.145	11759.989	580.758	0.011	-0.022	-0.021	n/a	n/a	n/a			
E-22	6,674.932	11,769.989	580.899	6,674.956	11,770.026	580.837	0.024	0.037	-0.062	6674.972	11770.045	580.851	0.040	0.056	-0.048	6674.891	11769.949	580.875	-0.041	-0.040	-0.024
E-23	6,158.343	12,116.088	580.254	6,158.338	12,116.090	580.285	-0.005	0.002	0.031	6158.342	12116.087	580.263	-0.001	-0.001	0.009	6158.363	12116.046	580.266	0.020	-0.042	0.012
E-24	6,034.639	12,239.010	580.134	6,034.609	12,239.063	580.072	-0.030	0.053	-0.062	6034.600	12239.007	580.034	-0.039	-0.003	-0.100	6034.589	12239.015	580.026	-0.050	0.005	-0.108
E-25	6,019.066	12,256.772	579.877	6,019.032	12,256.781	579.891	-0.034	0.009	0.014	6019.096	12256.783	579.942	0.030	0.011	0.065	6019.053	12256.743	579.952	-0.013	-0.029	0.075
E-26	5,948.384	12,397.702	580.018	5,948.305	12,397.678	580.026	-0.079	-0.024	0.007	5948.344	12397.656	580.012	-0.040	-0.046	-0.006	5948.357	12397.594	580.032	-0.027	-0.108	0.014

1) E-18, E-19, E-20, and E-21 are under material storage bins and not accessable.

PLEASE NOTE: ALL MEASUREMENT IN FEET (0.01' = ~1/8")

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Date Printed: 11/15/2017
Date Modified: 8/29/2017
Modified by: KSW

Monroe Plant
Monroe, Michigan
WCU Control Monuments

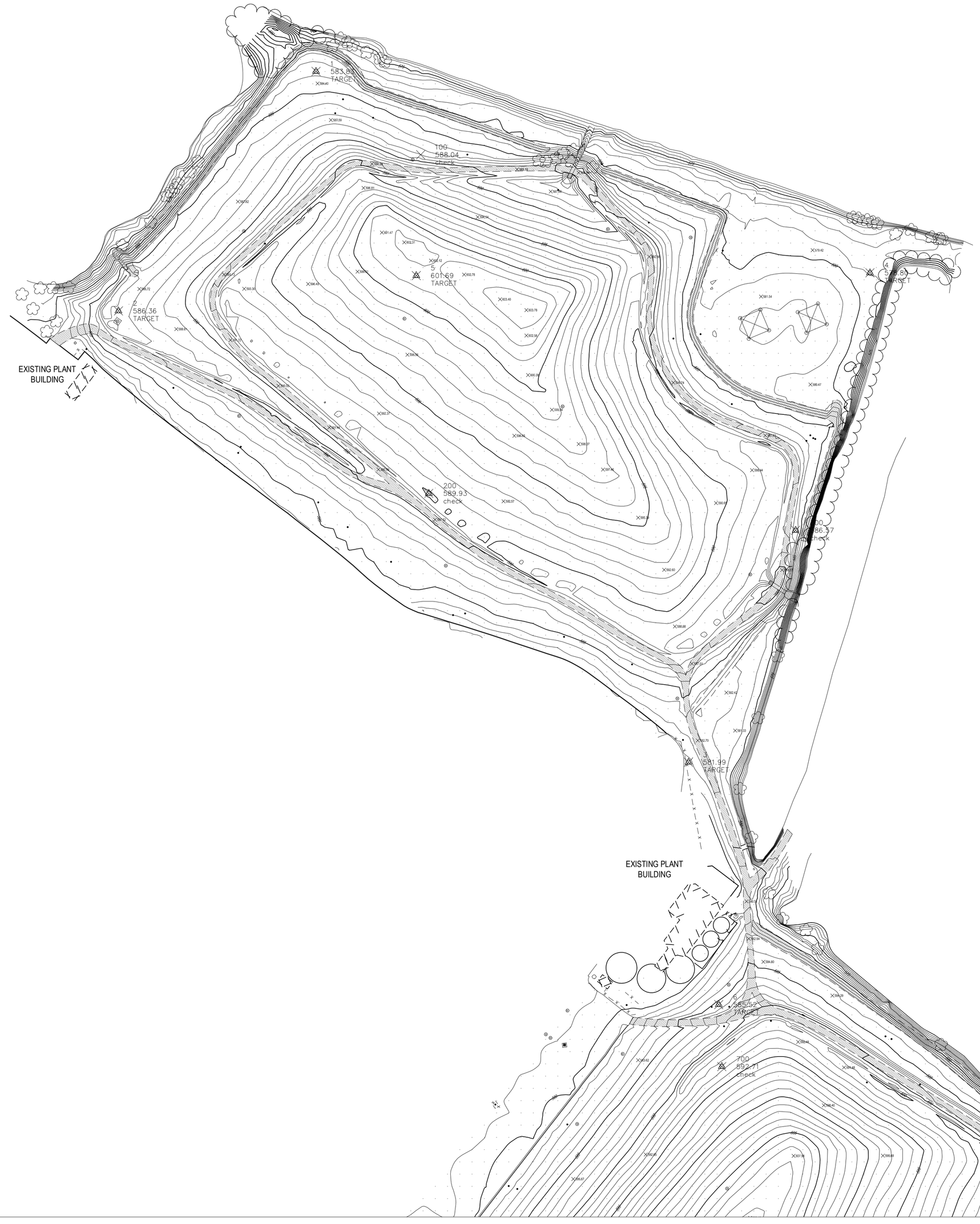
Monument	Original Location			2001 Survey			Delta (Orig. - 2001)			2003 Survey			Delta (Orig. - 2003)			2005 Survey			Delta (Orig. - 2005)		
No.	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation
W-1	7,989.054	12,479.126	583.561	7,989.042	12,479.099	583.598	-0.012	-0.028	0.037	7,989.120	12,479.420	583.630	0.066	0.294	0.069	7,989.046	12,479.239	583.570	-0.008	0.113	0.009
W-2	8,226.918	12,670.948	581.946	8,226.875	12,671.203	581.982	-0.043	0.255	0.036	8,226.880	12,671.420	581.950	-0.038	0.472	0.004	8,226.871	12,671.291	581.930	-0.047	0.343	-0.016
W-3	8,492.259	12,747.436	582.053	8,492.345	12,747.482	581.985	0.086	0.046	-0.068	8,492.310	12,747.800	582.070	0.051	0.364	0.017	8,492.382	12,747.595	582.020	0.123	0.159	-0.033
W-4	8,679.819	12,643.809	582.752	8,679.882	12,643.876	582.705	0.063	0.067	-0.047	8,679.780	12,644.180	582.780	-0.039	0.371	0.028	8,679.775	12,643.883	582.730	-0.044	0.074	-0.022
W-5	8,841.313	12,562.352	579.331	8,841.302	12,562.301	579.263	-0.011	-0.051	-0.068	8,841.310	12,562.680	579.390	-0.003	0.328	0.059	8,841.313	12,562.379	579.340	0.000	0.027	0.009
W-6	8,948.077	12,261.960	580.880	8,948.192	12,262.019	580.854	0.115	0.059	-0.026	8,948.180	12,262.330	580.980	0.103	0.370	0.100	8,948.091	12,262.001	580.930	0.014	0.041	0.050
W-7	8,990.986	12,131.276	580.603	8,991.100	12,131.290	580.538	0.114	0.014	-0.065	8,991.080	12,131.630	580.780	0.094	0.354	0.177	8,990.968	12,131.333	580.700	-0.018	0.057	0.097
W-8	9,051.421	11,963.303	579.714	9,051.587	11,963.287	579.600	0.166	-0.016	-0.114	9,051.540	11,963.700	579.740	0.119	0.397	0.026	9,051.467	11,963.363	579.690	0.046	0.060	-0.024
W-9	9,090.916	11,936.195	577.791	9,091.045	11,936.219	577.704	0.129	0.024	-0.087	9,091.080	11,936.640	577.800	0.164	0.445	0.009	9,090.962	11,936.259	577.750	0.046	0.064	-0.041
W-10	9,104.558	11,914.219	577.580	9,104.706	11,914.195	577.510	0.148	-0.024	-0.070	9,104.690	11,914.600	577.630	0.132	0.381	0.050	9,104.598	11,914.238	577.590	0.040	0.019	0.010
W-11	9,112.525	11,889.762	576.459	9,112.648	11,889.760	576.333	0.123	-0.002	-0.126	9,112.650	11,890.180	576.490	0.125	0.418	0.031	9,112.537	11,889.783	576.440	0.012	0.021	-0.019
W-12	9,098.832	11,844.790	578.181	9,099.019	11,844.804	578.039	0.187	0.014	-0.142	9,099.040	11,845.130	578.230	0.208	0.340	0.049	9,098.877	11,844.781	578.190	0.045	-0.009	0.009
W-13	8,938.627	11,729.871	581.168	8,939.056	11,729.667	581.040	0.429	-0.204	-0.128	8,938.970	11,730.000	581.390	0.343	0.129	0.222	8,938.727	11,729.707	581.160	0.100	-0.164	-0.008
W-14	8778.774	11600.653	581.547	8779.001	11600.523	581.398	0.227	-0.130	-0.149	8778.960	11600.890	581.470	0.186	0.237	-0.077	8,778.757	11,600.590	581.410	-0.017	-0.063	-0.137
W-15	8,700.284	11,515.338	582.714	8,700.435	11,515.290	582.565	0.151	-0.048	-0.149	8,700.500	11,515.700	582.700	0.216	0.362	-0.014	8,700.280	11,515.409	582.660	-0.004	0.071	-0.054
W-16	8,672.958	11,502.416	585.615	8,673.048	11,502.361	585.461	0.090	-0.055	-0.154	8,673.100	11,502.760	585.480	0.142	0.344	-0.135	n/a	n/a	n/a	n/a	n/a	n/a
W-17	8,651.375	11,503.057	586.096	8,651.503	11,503.011	585.893	0.128	-0.046	-0.203	8,651.570	11,503.390	585.950	0.195	0.333	-0.146	n/a	n/a	n/a	n/a	n/a	n/a
W-18	8,631.704	11,509.937	585.596	8,631.795	11,509.889	585.392	0.091	-0.048	-0.204	8,631.900	11,510.280	585.460	0.196	0.343	-0.136	n/a	n/a	n/a	n/a	n/a	n/a
W-19	8,385.840	11,797.360	585.285	8,385.959	11,797.362	585.232	0.119	0.002	-0.053	8,385.880	11,797.670	585.320	0.040	0.310	0.035	8,385.850	11,797.459	585.300	0.010	0.099	0.015
W-20	8,191.464	12,069.165	583.938	8,191.498	12,069.161	583.897	0.034	-0.004	-0.041	8,191.470	12,069.500	583.960	0.006	0.335	0.022	8,191.422	12,069.273	583.930	-0.042	0.108	-0.008
W-21	8,133.072	12,145.931	582.948	8,133.417	12,145.925	582.846	0.345	-0.006	-0.102	8,133.140	12,146.270	582.960	0.068	0.339	0.012	8,133.087	12,146.040	582.940	0.015	0.109	-0.008
W-22	8,108.906	12,210.958	583.283	8,108.983	12,210.969	583.187	0.077	0.011	-0.096	8,108.990	12,211.290	583.260	0.084	0.332	-0.023	8,108.936	12,211.089	583.250	0.030	0.131	-0.033
W-23	8,118.792	12,292.058	583.127	8,118.889	12,292.033	583.031	0.097	-0.025	-0.096	8,118.910	12,292.390	583.120	0.118	0.332	-0.007	8,118.826	12,292.186	583.100	0.034	0.128	-0.027

Note: W-16, W-17 and W-18 were removed during 2004 remedial activities in the Former Drum Storage Area. Replacement monuments W-16A, W-17A and W-18A installed in March of 2009.

Monroe Plant
Monroe, Michigan
WCU Control Monuments

Monument	Original Location			2007 Survey			Delta (Orig. - 2007)			2012 Survey			Delta (Orig. - 2012)			2017 Survey			Delta (Orig. - 2017)		
No.	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation	North	East	Elevation
W-1	7,989.054	12,479.126	583.561	7,989.087	12,479.319	583.598	0.033	0.193	0.037	7,989.072	12,479.243	583.605	0.018	0.117	0.044	7,989.107	12,479.228	583.615	-0.053	-0.102	0.053
W-2	8,226.918	12,670.948	581.946	8,226.901	12,671.326	581.931	-0.017	0.378	-0.015	8,226.900	12,671.298	581.909	-0.018	0.350	-0.037	8,226.986	12,671.291	581.907	-0.068	-0.343	-0.039
W-3	8,492.259	12,747.436	582.053	8,492.370	12,747.632	582.004	0.111	0.196	-0.049	8,492.390	12,747.570	581.981	0.131	0.134	-0.072	8,492.372	12,747.610	582.011	-0.113	-0.174	-0.042
W-4	8,679.819	12,643.809	582.752	8,679.863	12,643.967	582.715	0.044	0.158	-0.037	8,679.857	12,643.923	582.685	0.038	0.114	-0.067	8,679.928	12,643.868	582.687	-0.109	-0.059	-0.065
W-5	8,841.313	12,562.352	579.331	8,841.334	12,562.484	579.355	0.021	0.132	0.024	8,841.363	12,562.391	579.384	0.050	0.039	0.053	8,841.457	12,562.388	579.393	-0.144	-0.036	0.062
W-6	8,948.077	12,261.960	580.880	8,948.091	12,262.076	580.924	0.014	0.116	0.044	8,948.108	12,262.018	581.030	0.031	0.058	0.150	8,948.172	12,261.978	581.041	-0.095	-0.018	0.161
W-7	8,990.986	12,131.276	580.603	8,990.971	12,131.369	580.647	-0.015	0.093	0.044	8,990.992	12,131.332	580.703	0.006	0.056	0.100	8,991.033	12,131.333	580.729	-0.047	-0.057	0.126
W-8	9,051.421	11,963.303	579.714	9,051.482	11,963.399	579.677	0.061	0.096	-0.037	9,051.449	11,963.388	579.678	0.028	0.085	-0.036	9,051.565	11,963.336	579.679	-0.144	-0.033	-0.035
W-9	9,090.916	11,936.195	577.791	9,091.038	11,936.328	577.777	0.122	0.133	-0.014	9,091.001	11,936.248	577.756	0.085	0.053	-0.035	9,091.051	11,936.255	577.777	-0.135	-0.060	-0.014
W-10	9,104.558	11,914.219	577.580	9,104.631	11,914.290	577.580	0.073	0.071	0.000	9,104.633	11,914.236	577.566	0.075	0.017	-0.014	9,104.698	11,914.333	577.561	-0.140	-0.114	-0.019
W-11	9,112.525	11,889.762	576.459	9,112.586	11,889.859	576.429	0.061	0.097	-0.030	9,112.507	11,889.782	576.424	-0.018	0.020	-0.035	9,112.604	11,889.796	576.433	-0.079	-0.034	-0.026
W-12	9,098.832	11,844.790	578.181	9,098.908	11,844.889	578.185	0.076	0.099	0.004	9,098.980	11,844.851	578.164	0.148	0.061	-0.017	9,098.978	11,844.746	578.132	-0.146	0.044	-0.049
W-13	8,938.627	11,729.871	581.168	8,938.877	11,729.775	581.154	0.250	-0.096	-0.014	8,938.908	11,729.699	581.193	0.281	-0.172	0.025	8,938.971	11,729.567	581.427	-0.344	0.304	0.259
W-14	8778.774	11600.653	581.547	8,778.847	11,600.654	581.377	0.073	0.001	-0.170	8,778.828	11,600.567	581.361	0.054	-0.086	-0.186	8,778.859	11,600.419	581.334	-0.085	0.234	-0.213
W-15	8,700.284	11,515.338	582.714	8,700.361	11,515.435	582.639	0.077	0.097	-0.075	8,700.359	11,515.392	582.620	0.075	0.054	-0.094	8,700.356	11,515.293	582.606	-0.072	0.045	-0.108
W-16A	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8,672.755	11,502.332	585.027	n/a	n/a	n/a	8,672.674	11,502.348	585.019	*0.081*	*-0.016*	*0.008*
W-17A	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8,651.525	11,503.032	584.354	n/a	n/a	n/a	8,651.509	11,502.980	584.336	*0.015*	*0.053*	*0.018*
W-18A	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8,622.359	11,517.290	585.212	n/a	n/a	n/a	8,622.319	11,517.247	585.201	*0.040*	*0.042*	*0.011*
W-19	8,385.840	11,797.360	585.285	8,385.892	11,797.538	585.281	0.052	0.178	-0.005	8,385.893	11,797.451	585.275	0.053	0.091	-0.010	8,385.881	11,797.442	585.281	-0.041	-0.082	-0.004
W-20	8,191.464	12,069.165	583.938	8,191.392	12,069.384	583.919	-0.072	0.219	-0.019	8,191.441	12,069.294	583.927	-0.023	0.129	-0.011	8,191.399	12,069.196	583.947	0.065	-0.031	0.009
W-21	8,133.072	12,145.931	582.948	8,133.101	12,146.096	583.014	0.029	0.165	0.066	8,133.136	12,146.035	582.916	0.064	0.104	-0.032	8,133.320	12,146.110	582.955	-0.248	-0.179	0.007
W-22	8,108.906	12,210.958	583.283	8,108.981	12,211.143	583.235	0.075	0.185	-0.048	8,108.982	12,211.033	583.206	0.076	0.075	-0.077						
W-23	8,118.792	12,292.058	583.127	8,118.870	12,292.252	583.092	0.078	0.194	-0.035	8,118.875	12,292.160	583.106	0.083	0.102	-0.021	8,118.960	12,292.087	583.135	-0.168	-0.029	0.008

Note: W-16, W-17 and W-18 were removed during 2004 remedial activities in the Former Drum Storage Area. Replacement monuments W-16A, W-17A and W-18A installed in March of 2009.



NOTE:
This plan is in Michigan State Plane Coordinates, South Zone, Int'l Foot

Horizontal & Vertical Control Performed by Mannik & Smith Group
Aerial Survey Performed By Drone View Technologies

NORTH

TOPOGRAPHICAL SURVEY

SCALE: 1:100

0 50 100 200 Feet
1" = 100'

FORD MOTOR COMPANY

FORD MONROE PLANT

005-057-005

FINAL COVER SURVEY
EASTERN CONTAINMENT UNIT
WESTERN CONTAINMENT UNIT

MONROE MONROE MI

SITE CODE: —
MSG PROJECT NUMBER: FORD0166

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TECHNICAL SKILL. CREATIVE SPIRIT.
www.MannikSmithGroup.com

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DATE	ISSUED FOR
10-19-17	• 1 TOPO SURVEY

IN CHARGE:	T. PETERS
DRAWN BY:	P. MURPHY
DESIGNED BY:	P. MURPHY
CHECKED BY:	B. BRAUN
APPROVED BY:	T. PETERS

SHEET TITLE

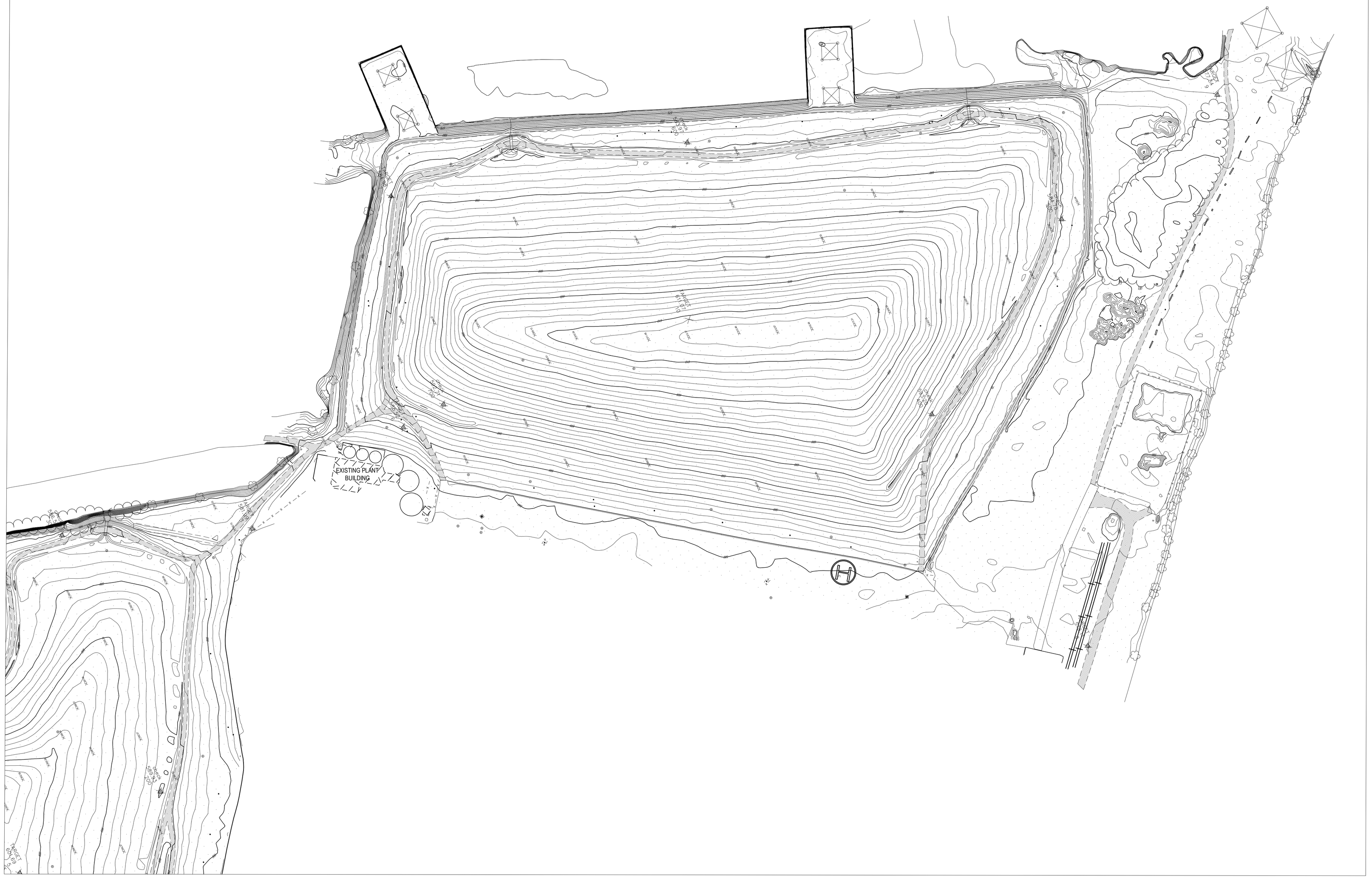
FINAL COVER SURVEY

FORD DWG NO. —

SHEET NUMBER

1

W:\Projects\Projects F-I\FORD0166\CAD\SURVEY\BASE\FORD0166_BMET.dwg
PETER J. MURPHY
SAVE DATE: 10/18/2017 11:09:57 AM
PLOT DATE: 10/18/2017 11:25:22 AM



NOTE:
This plan is in Michigan State Plane Coordinates, South Zone, Int'l Foot

Horizontal & Vertical Control Performed by Mannik & Smith Group
Aerial Survey Performed By Drone View Technologies

NORTH

TOPOGRAPHICAL SURVEY

SCALE: 1:100

0 50 100 200 Feet

1" = 100'

FORD MOTOR COMPANY

FORD MONROE PLANT

005-057-005

FINAL COVER SURVEY
EASTERN CONTAINMENT UNIT
WESTERN CONTAINMENT UNIT

MONROE MONROE MI

SITE CODE:
MSG PROJECT NUMBER: FORD0166

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DATE	ISSUED FOR
10-19-17	• 1 TOPO SURVEY

IN CHARGE:	T. PETERS
DRAWN BY:	P. MURPHY
DESIGNED BY:	P. MURPHY
CHECKED BY:	B. BRAUN
APPROVED BY:	T. PETERS

SHEET TITLE

FINAL COVER SURVEY

FORD DWG NO.

SHEET NUMBER

2

PLOT DATE: 10/18/2017 11:23:34 AM SAVE DATE: 10/18/2017 11:09:57 AM PETER J. MURPHY W:\Projects\Projects F-J\FORD0166\CAD\SURVEY\BASE\FORD0166_BMET.dwg

Attachment B7

Proof of Insurance of Other Permits or License

PROOF OF ISSUANCE OF OTHER PERMITS OR LICENSES

See Attachments I for copies of permits.

Attachment B8

Capability Certification/Compliance Schedule

CAPABILITY CERTIFICATION/COMPLIANCE SCHEDULE

See attached.

2365 Haggerty Road South * Canton, Michigan 48188
P: 734-397-3100 * F: 734-397-3131
www.MannikSmithGroup.com

LETTER OF TRANSMITTAL

To: **Mr. Peter Quackenbush, Engineer**
Hazardous Waste Section
Office of Waste Management and Radiological Protection
Michigan Department of Environmental Quality
Constitution Hall, Atrium South
525 West Allegan
Lansing, Michigan 48909-7741

Project #: FORD0136
Date: January 27, 2017

Re: Post-Closure Care Certification 2016, Ford Monroe Plant, MID 005 057 005

Enclosed are the following:

No. of Copies	Description
1	Post-Closure Care Certification 2016

The above items are transmitted as checked below:

☐ For review and approval
☒ For your use
☐ As requested
☐ For review and comment
☐ Approved as submitted
☒ Other: UPS Ground & E-copy
☐ Returned for corrections
☐ Approved as noted

Remarks:

Copies To: File (1 copy)
Plant (1 copy)
Chuck Pinter (FORD EQO – e-copy)

Signed:
Printed: Thomas E. Peters, CPG, CHMM
Senior Project Manager

This transmittal is subject to the following conditions to which you agree by accepting these terms on a reply to this message or using the information in any manner, including but not limited to, copying or using the information for reference.

1. Any work product of The Mannik & Smith Group, Inc. may not be altered in manner, form or content without our prior express written consent.
2. If you discover any errors and/or omissions in the attached information, you will promptly notify us so that we can make any necessary revisions.
3. For any electronic file(s) attached hereto, The Mannik & Smith Group, Inc. is not responsible for any errors caused by the transmission of said files, your software, or your computer systems.

W:\Projects\Projects F-J\FORD0136\ADMINISTRATION\PC Care Certification\LOT.FORD0136.Post-Closure Care Certification 2016.Docx

Mannik Smith GROUP

CERTIFICATION OF POST-CLOSURE CARE

FORD MOTOR COMPANY MONROE PLANT

MONROE, MICHIGAN

SURFACE IMPOUNDMENT CLOSURE PROJECT

HAZARDOUS WASTE MANAGEMENT FACILITY POST-CLOSURE OPERATING LICENSE

(MID 005 057 005) – EFFECTIVE DATE - NOVEMBER 28, 2007

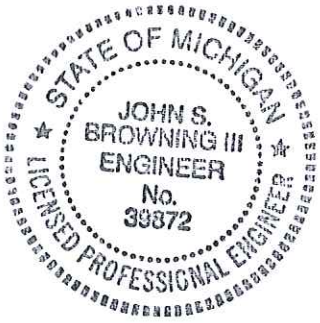
INDEPENDENT REGISTERED PROFESSIONAL ENGINEER CERTIFICATION OF POST-CLOSURE CARE

This certification relates to post-closure activities conducted at the Ford Motor Company (Ford) Monroe Plant in Monroe, Michigan for the Surface Impoundment Closure Project. The time period covered by this certification is January 1 through December 31, 2016. I certify that all inspection and maintenance efforts conducted as part of the post-closure monitoring efforts for this project were performed under my direction or supervision in accordance with a system designed to assure that qualified personnel properly collect and evaluate the information submitted (Hazardous Waste Landfill Operating License Permit Application Renewal, Attachment A11, Post-Closure Plan). Information collected during implementation of the Post-Closure Plan has been utilized to assemble the yearly inspection and maintenance report.

I hereby certify that to the best of my knowledge, information, or belief, the Post-Closure Plan for the Monroe Plant in Monroe, Michigan has been implemented in accordance with the requirements of the Hazardous Waste Management Facility Post-Closure Operating License (MID 005 057 005), effective date - November 28, 2007.

The Mannik & Smith Group, Inc.
John S. Browning III, P.E.
License No. 039872

FEBRUARY 7, 2017
Date



Seal

Attachment B9

Restrictive Covenant (Landfills Only)

RESTRICTIVE COVENANT (LANDFILLS ONLY)

See attached.

2000 Environmental ...

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

"Better Service for a Better Environment"

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: www.deq.state.mi.us

RUSSELL J. HARDING, Director

REPLY TO:

WASTE MANAGEMENT DIVISION
PO BOX 30241
LANSING MI 48909-7741

cc: Basil Robbins
Ken Pew
Kevin Cassidy
Cliff Fleener

SH.
7/25/00

July 21, 2000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Larry Hinkle, Plant Manager
Visteon Monroe
Visteon Corporation
3200 East Elm Avenue
Monroe, Michigan 48162

Dear Mr. Hinkle:

SUBJECT: Restrictive Covenant
Visteon Monroe; MID 005 057 005

The Restrictive Covenant for Visteon Monroe, which was recorded by the Monroe County Register of Deeds, is enclosed. A second copy with original signatures is enclosed with the copy of this letter to Mr. David Miller, Ford Motor Company, and the Department of Environmental Quality has retained one copy.

Please contact me if you have any questions.

Sincerely,

Steven R. Sliver
Environmental Engineer Specialist
Waste Management Division
517-373-1976

Enclosure

cc/enc: Mr. David Miller, Ford Motor Company
cc: Mr. Steve Buda, DEQ
HWP/C&E File

03 JUN 27 AM 9:51

RESTRICTIVE COVENANTS RUNNING WITH THE LAND

Visteon Corporation, "Visteon", a Delaware corporation, is located at 5500 Auto Club Drive, Dearborn, Michigan 48126.

Visteon is the record owner of land located in the city of Monroe, Monroe County, Michigan, described in Exhibit A attached (the "land").

Ford Motor Company, predecessor in interest to Visteon, notified the Michigan Department of Environmental Quality of their hazardous waste management activity pursuant to 1979 PA 64 MCLA 299.503 *et seq.*, as amended ("Act 64") and obtained interim status to continue operation of their hazardous waste management activity on the land. Act 64 was recodified to become Part 111 of 1994 PA 451 MCL 324.11102-11152, as amended ("Act 451"). The interim status designation authorized management of hazardous waste in surface impoundments on the land pursuant to the requirements of Michigan law, including, but not limited to the requirements of closure, post-closure, corrective action and other obligations more fully set forth under Part 111 of Act 451 and the regulations promulgated thereunder.

Closure of the surface impoundments pursuant to Part 111 of Act 451 included the solidification of the hazardous wastes and the disposal of the solidified hazardous wastes into two containment units located on the land, described in Exhibits B, C1, and C2 attached (the "Containment Units").

The land and containment units are herein referred to as the "Property."

The following restrictive covenants are executed by Visteon as the sole owner of the Property pursuant to Part 111 of Act 451 to ensure the care, maintenance, monitoring and long-term integrity of the Property for the protection of the health, safety and welfare of the people of the State of Michigan and the natural resources and the environment of the State of Michigan:

1. The Property has been used to manage hazardous wastes.

2. Use of the Property, including use of the land and/or the containment units, shall not disturb the final cover, liners, components of any containment system, or the function of the monitoring systems on or in the Property.

3. No one, including Visteon, any purchaser of the record owner of the land or Containment Units, any purchaser of the land or Containment Units, or any of their agents, employees, heirs, successors, lessees, or assignees, shall engage in any development, including any filling, grading, excavating, building, drilling or mining on the Containment Units following completion of the closure without obtaining prior written authorization from the Director of the Department of Environmental Quality.

4. The survey plat and records of the types, locations and quantities of hazardous wastes on or in the Containment Units have been filed with the local zoning or land use authority as required by Part 111 of Act 451 and its Rules.

5. Ownership of all or a portion of the land or Containment Units shall not be conveyed without the owner of the land or Containment Units sending written notice to the prospective purchaser(s) of the existence of these restrictive covenants. Such notice shall state:

   (a) that there are restrictive covenants on the Property;

   (b) that development on the Containment Units is prohibited without prior written authorization from the Director of the Department of Environmental Quality;

   (c) that the prospective purchaser(s) must comply with the restrictive covenants, Part 111 of Act 451 and Rules promulgated under Part 111 of Act 451; and

   (d) that the prospective purchaser(s) cannot interfere with the containment or monitoring systems on or in the Property.

Such notice shall include a copy of these restrictive covenants and shall be sent to the prospective purchaser(s) by certified mail with a copy sent to the Director of the Department of Environmental Quality.

These restrictions may be enforced in law or in equity in a court of competent jurisdiction. Such action(s) may be taken against anyone, including any person, corporation, partnership, agent, successor, assignee, heir, employee or lessee, who violates or threatens to violate any of these restrictive covenants.

These restrictive covenants shall run with the land in perpetuity and shall be binding upon Visteon, any purchaser of the record owner of the land or Containment Units, or any of their agents, employees, heirs, successors, lessees, or assignees.

Signed in the presence of:

Carol S. Moore
(Witness Name)

CAROL S. MOORE
(Witness Name, printed or typed)

Kathy J. Hofer
(Witness Name)

KATHY J. HOFER
(Witness Name, printed or typed)

VISTEON CORPORATION

By: Stacy L. Fox

Stacy L. Fox
(Name, printed or typed)

DSM KSH

Its: Senior V.P. & General Counsel
(Title)

STATE OF MICHIGAN)
) ss.
COUNTY OF WAYNE)

The foregoing instrument was acknowledged before me this 30th day of MAY, 2000, by STACY L. FOX of OGC, on behalf of Visteon.

Juanita Garza
Notary Public JUANITA GARZA
WAYNE County, Michigan
My commission expires June 9, 2001

JUANITA GARZA
NOTARY PUBLIC STATE OF MICHIGAN
WAYNE COUNTY
ACTING IN:
MY COMMISSION EXP. JUNE 9,2001

Return To
Steve Slivka
Waste Management Division
Dept. of Env. Quality
PO Box 30241
Lansing MI 48909

Signed in presence of:

Mary Beth Thelen
(Witness Name)

Mary Beth Thelen
(Witness Name, printed or typed)

Joan Capel
(Witness Name)

Joan Capel
(Witness Name, printed or typed)

STATE OF MICHIGAN

By: _____
Russell J. Harding

Its: Director of the Department of Environmental Quality for the State of Michigan

STATE OF MICHIGAN)
) ss.
COUNTY OF INGHAM)

The foregoing instrument was acknowledged before me this 8th day of JUNE, 2000, by Russell J. Harding, on behalf of the Department of Environmental Quality.

Janice M. Adams
Notary Public
JACKSON County, Michigan
My commission expires 7-21-04
Acting in Ingham Co.

JANICE M. ADAMS
Notary Public, Jackson County, MI
My Comm. Expires July 21, 2004

EXHIBIT A

LEGAL DESCRIPTION OF THE LAND

AT

3200 East Elm Avenue, Monroe, Michigan

PARCEL 1

All that certain parcel of land situated in Private Claim 512 and Private Claim 653 and in Fractional Section 11, Township 7, South, Range 9 East, in the City of Monroe, Monroe County, State of Michigan, described as follows:

Commencing at the Northwest corner of Private Claim 512;

thence South 67 Degrees 27 Minutes East 921.36 feet;

thence South 70 Degrees East 1770.78 feet;

thence South 69 Degrees 33 Minutes East 454.08 feet;

thence South 69 Degrees 29 Minutes East 2048.22 feet;

thence South 10 Degrees 17 Minutes East 426.58 feet;

thence South 43 Degrees 14 Minutes East 552.15 feet;

thence South 85 Degrees 40 Minutes East 1377.03 feet

to the original meander line of Lake Erie;

thence South 07 Degrees 27 Minutes West 3465.27 feet;

thence South 11 Degrees 57 Minutes West 335.45 feet

to the North bank of the U.S. Ship Canal;

thence North 68 Degrees 08 Minutes West 3783.53 feet along said North bank of canal to its intersection with the North bank of River Raisin;

thence North 43 Degrees 56 Minutes West 628.17 feet;

thence North 46 Degrees 21 Minutes West 391.60 feet;

thence North 66 Degrees 11 Minutes West 175.10 feet;

thence North 54 Degrees 39 Minutes West 283.15 feet;

thence North 38 Degrees 29 Minutes West 141.90 feet;

thence North 28 Degrees 26 Minutes West 296.90 feet;

thence North 35 Degrees 25 Minutes 30 Seconds West 495.27 feet;

thence North 53 Degrees 09 Minutes West 285.00 feet;

thence North 62 Degrees 35 Minutes West 257.00 feet

to the Southwest corner of Private Claim 512;

thence North 87 Degrees 25 Minutes West 753.95 feet;

thence North 89 Degrees 01 Minutes West 177.20 feet;

thence North 05 Degrees 06 Minutes East 553.46 feet;

thence South 82 Degrees 05 Minutes East 344.29 feet;

thence on a 4 degree 2 minute 34 second curve to the right 375.56 feet;

thence North 55 Degrees 30 Minutes West 239.45 feet;

thence on a 3 degree 51 minute 46 second curve to the left 157.49 feet;

thence North 82 Degrees 05 Minutes West 369.51 feet;

thence North 13 Degrees West 881.70 feet;

thence North 39 Degrees East 396.00 feet;

thence North 22 Degrees West 264.00 feet;

thence North 20 Degrees East 1089.00 feet to the place of beginning.

Excepting from the above a strip of land one hundred fifty feet (150') in equal width extending upon and along the northern boundary of the above described property but including also all reversionary and other rights and interests in and to said excepted portion as is more fully set forth in a deed of record in the office of the Register of Deeds for Monroe County, Michigan in Liber 246 of Deeds, Pages 1 and 2; said Parcel 1 being subject of the two easements granted to the United States of America by those instruments recorded in the Office of the Register of Deeds, Monroe County, Michigan, in Liber 260 of Deeds, pages 43 and 44.

PARCEL 2

All that certain parcel of land situated in Private Claim 653, in the City of Monroe, Monroe County, State of Michigan, described as follows:

Beginning at the northwest corner of Private Claim 512 also being the northwest corner of the certain parcel of land conveyed by Kelsey-Hayes Wheel Company to Ford Motor Company by Warranty Deed, dated November 7, 1949, recorded in Liber 374 of Deeds on page 45, Register of Deeds Office, Monroe County, Michigan,
thence South 20 Degrees 00 Minutes 00 Seconds West 1089.00 feet;
thence South 22 Degrees 00 Minutes 00 Seconds East 264.00 feet;
thence South 39 Degrees 00 Minutes 00 Seconds West 396.00 feet;
thence South 13 Degrees 00 Minutes 00 Seconds East 881.70 feet,
to the true point of beginning;
thence South 82 Degrees 05 Minutes 00 Seconds East 369.51 feet;
thence on a 3 Degree 51 Minute 46 Second curve to the right 157.49 feet to the Easterly line of Private Claim 653; thence along the Easterly line of Private Claim 653 South 55 Degrees 30 Minutes 00 Seconds East 239.45 feet;
thence on a 4 Degree 2 Minute 34 Second curve to the left parallel to the afore described curve 375.56 feet;
thence North 82 Degrees 05 Minutes 00 Seconds West 1557.94 feet;
thence North 07 Degrees 55 Minutes 00 Seconds East 66.00 feet;
thence South 82 Degrees 05 Minutes 00 Seconds East 1188.43 feet to the true point of beginning.

EXHIBIT B

LEGAL DESCRIPTIONS OF THE CONTAINMENT UNITS

AT

3200 East Elm Avenue, Monroe, Michigan

Description for the Western Containment Unit:

From the corner of the building located at N 8,147.45, E 10,706.95 (local coordinate system) N62°27'26"E 930.08 feet to the point of beginning (well PCW-10);

thence N21°48'31"W 58.35 feet to a rebar (W-18);

thence N19°16'09"W 20.85 feet to a rebar (W-17);

thence N01°41'55"W 21.59 feet to a solid steel rod (W-16);

thence N25°18'36"E 30.22 feet to a rebar (W-15);

thence N47°23'03"E 115.92 feet to a fence post (W-14);

thence N31°20'18"E 108.00 feet to a well (PCW-9);

thence N47°12'55"E 99.53 feet to a rebar (W-13);

thence N35°39'14"E 197.16 feet to a rebar (W-12);

thence N73°03'24"E 47.01 feet to a rebar (W-11);

thence S71°57'09"E 25.73 feet to a rebar (W-10);

thence S58°10'40"E 25.87 feet to a rebar (W-9);

thence S34°27'11"E 47.90 feet to a rebar (W-8);

thence S70°12'51"E 178.52 feet to a rebar (W-7);

thence S71°49'19"E 137.54 feet to a rebar (W-6);

thence S70°25'58"E 318.80 feet to a rebar (W-5);

thence S54°00'00"E 281.11 feet to a well (PCW-13);

thence S12°58'13"W 188.63 feet to a fence post (W-3);

thence S16°05'10"W 276.09 feet to a rebar (W-2);

thence S21°18'26"W 45.18 feet to a well (PCW-12);

thence S41°50'55"W 262.90 feet to a solid steel rod (W-1);

thence N55°15'26"W 227.66 feet to a rebar (W-23);

thence S83°03'15"W 81.70 feet to a bolt spike (W-22);

thence N79°36'26"W 49.51 feet to a well (PCW-11);

thence N46°59'58"W 22.33 feet to a bolt spike (W-21);

thence N52°44'25"W 96.44 feet to a rebar (W-20);

thence N54°25'49"W 334.16 feet to a solid steel rod (W-19);

thence N54°11'45"W 327.67 feet to the point of beginning.

Description for the Eastern Containment Unit:

From the corner of the building located at N 8,147.45, E 10,706.95 (local coordinate system) S35°51'54"E 1763.70 feet to the point of beginning (well PCW-1);

thence N48°01'44"E 42.66 feet to a bolt spike (E-20);

thence N36°10'54"E 486.02 feet to a bolt spike (E-19);

thence N34°35'37"E 121.03 feet to a well (PCW-2);

thence N37°29'56"E 277.82 feet to a bolt spike (E-18);

thence N27°54'47"E 22.01 feet to a well (PCW-3);

thence N73°44'42"E 30.21 feet to a bolt spike (E-17);

thence N64°15'39"E 25.44 feet to a bolt spike (E-16);

thence N46°07'07"E 67.04 feet to a well (PCP-3 DEEP);

thence S76°41'03"E 58.32 feet to a rebar (E-15);

thence N63°11'55"E 78.04 feet to a rebar (E-14);

thence N36°39'50"E 136.76 feet to a rebar (E-13);

thence S64°09'22"E 103.47 feet to a well (PCW-4);

thence S54°27'09"E 88.66 feet to a rebar (E-12);

thence S54°39'06"E 189.96 feet to a rebar (E-11);

thence S50°57'30"E 214.17 feet to a rebar (E-10);

thence S43°12'17"E 37.47 feet to a rebar (E-9);

thence S07°49'02"W 24.85 feet to a rebar (E-8);

thence S06°08'36"W 30.78 feet to a well (PCW-5);

thence S26°34'06"W 62.59 feet to a rebar (E-7);

thence S20°44'28"W 216.18 feet to a rebar (E-6);

thence S03°22'31"W 26.50 feet to a rebar (E-5);

thence S22°25'32"W 367.88 feet to a rebar (E-4);

thence S37°02'13"W 31.54 feet to a rebar (E-3);

thence S19°05'56"W 194.45 feet to a well (PCW-6);

thence S24°17'49"W 338.02 feet to a rebar (E-2);

thence S23°55'14"W 219.05 feet to a rebar (E-1);

thence S51°36'23"W 43.81 feet to a well (PCW-7);

thence N63°33'19"W 147.25 feet to a rebar (E-26);

thence N63°21'43"W 157.67 feet to a rebar (E-25);

thence N48°45'33"W 23.62 feet to a rebar (E-24);

thence N44°49'08"W 174.39 feet to a rebar (E-23);

thence N37°46'51"W 192.32 feet to a well (PCW-8);

thence N32°03'06"W 430.15 feet to a rebar (E-22);

thence N25°12'32"W 23.43 feet to a rebar (E-21);

thence N41°53'29"W 29.58 feet to the point of beginning.

EXHIBIT C1

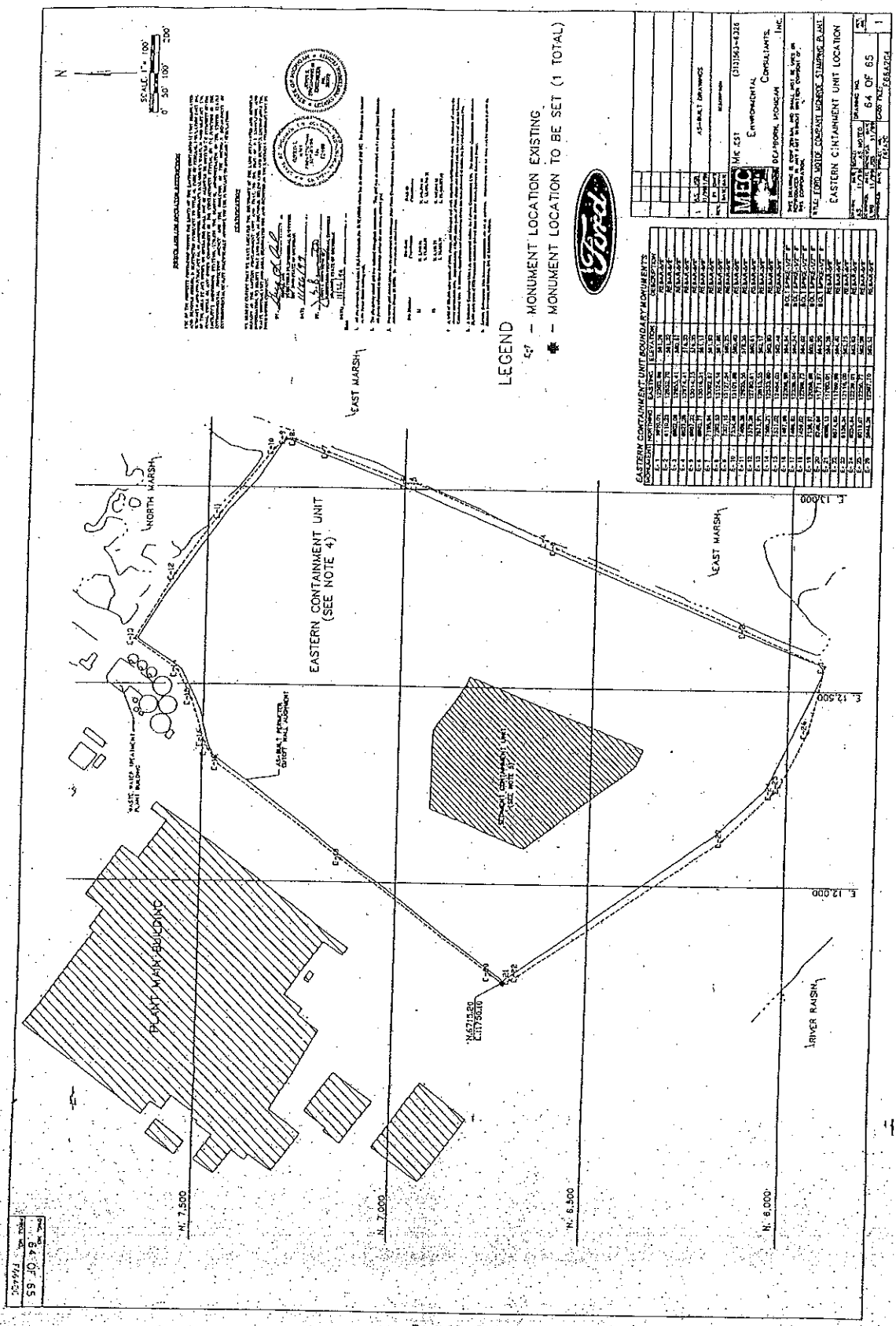
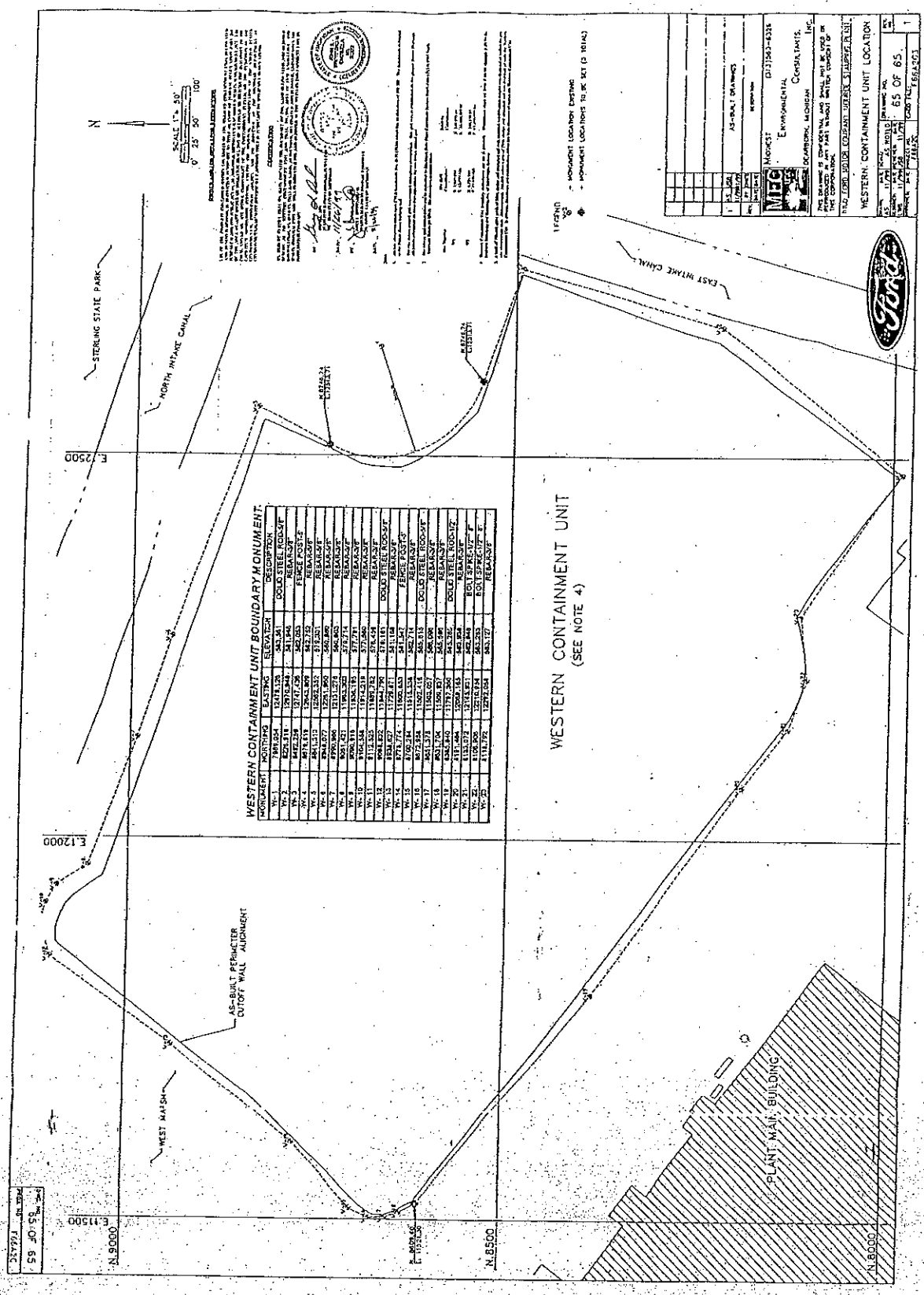

LEGEND
– MONUMENT LOCATION EXISTING
– MONUMENT LOCATION TO BE SET (1 TOTAL)
EASTERN CONTAINMENT UNIT
(SEE NOTE 4)
PLANT MANUFACTURING
EAST MARSH
NORTH MARSH
RIVER RAISIN
EASTERN CONTAINMENT UNIT LOCATION
64 OF 65

EXHIBIT C2



MONUMENT	NORTHING	EASTING	ELEVATION	DESCRIPTION
W-1	7989.054	12478.126	583.561	DOUG STEEL ROD-3/8"
W-2	8226.818	12970.848	581.848	REBAR-3/8"
W-3	8482.239	12747.436	582.053	FENCE POST-5'
W-4	8678.619	12643.809	582.752	REBAR-3/8"
W-5	8841.313	12562.332	579.331	REBAR-3/8"
W-6	8944.077	12261.950	580.890	REBAR-3/8"
W-7	8990.980	12131.278	580.803	REBAR-3/8"
W-8	9051.421	11963.303	579.714	REBAR-3/8"
W-9	9090.818	11836.185	577.781	REBAR-3/8"
W-10	9104.554	11914.219	577.580	REBAR-3/8"
W-11	9112.525	11891.782	578.458	REBAR-3/8"
W-12	9094.822	11844.790	578.161	DOUG STEEL ROD-3/8"
W-13	9034.627	11729.871	581.168	REBAR-3/8"
W-14	9778.774	11600.633	581.547	FENCE POST-5'
W-15	9700.264	11518.538	582.718	REBAR-3/8"
W-16	9672.958	11502.416	585.015	DOUG STEEL ROD-3/8"
W-17	9651.378	11503.057	586.098	REBAR-3/8"
W-18	9631.704	11509.837	585.580	REBAR-3/8"
W-19	9385.840	11797.300	583.382	DOUG STEEL ROD-1/2"
W-20	9191.464	12009.165	583.958	REBAR-3/8"
W-21	9193.072	12113.851	582.848	BOLT SPIKE-1/2" 8"
W-22	9106.906	12210.934	583.293	BOLT SPIKE-1/2" 8"
W-23	9118.792	12292.084	583.127	REBAR-3/8"

Attachment B10

Construction Certificate (New, Altered, Enlarged, or Expanded)

CONSTRUCTION CERTIFICATION (NEW, ALTERED, ENLARGED, OR EXPANDED

Not Applicable.

Attachment C1

Landfills

FACILITY SPECIFIC INFORMATION
C1 – LANDFILLS
(revised 12/20/2018)

LANDFILLS

The site includes two containment units (the Eastern Containment Unit and Western Containment Unit) that contain electroplating wastes (F006) and impacted soils that have been solidified by addition of a fly ash/cement kiln dust/lime kiln dust/cement mixture.

The containment system of each unit consists of a native clay base, a cutoff wall surrounding each unit keyed into the underlying clay, and a clay/flexible membrane composite cover. Leachate collection systems collect leachate from the interior of the containment units. Leachate is pumped to the on-site wastewater treatment plant and from there to the local publicly owned treatment works (POTW) via the sanitary system. All discharges to the POTW are made in accordance with the RRW's sewer discharge permit and local sewer use ordinance.

Detailed plans and engineering reports describing how the landfills are designed, operated, and maintained are included in Section B6 - Engineering Plans. Additionally, post-closure maintenance and care is detailed in the May 2017 *Post Closure Operating License Post Closure Plan,* located in Section A11.

LINER

As stated above, the units consist of a native clay base, a cutoff wall surrounding each unit keyed into the underlying clay, and a clay/flexible membrane composite cover. The design was approved without the placement of a liner at the base of the containment units due to the natural artesian ground water conditions at the site along with the leachate collection system that maintain an inward and upward hydraulic gradient at the two containment units. Two Detail sheets (Drawings 45 and 46) included in the October 1999 *Closure Certification Report* are included in Section B6 – Engineering Plans.