

Storm Water Pollution Prevention Plan (SWPPP)

Saginaw Nodular Industrial Land
2100 Veterans Memorial Parkway
Saginaw, MI

Revitalizing Auto Communities Environmental Response (RACER) Trust

FACILITY NAME:

SAGINAW NODULAR INDUSTRIAL LAND

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

DEQ SWPPP Template (Revised 6/15/2011)

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1.0 GENERAL FACILITY INFORMATION

Name of Facility: **Saginaw Nodular Industrial Land**

Facility Address: **2100 Veterans Memorial Parkway Saginaw, MI**

Standard Industrial Classification (SIC) Code: 6733 (**NAICS Code: 52592**)

Owner or Authorized Representative: **Revitalizing Auto Communities Environmental Response (RACER) Trust (authorized representative Dave Favero)**

Facility Contact

Name: **Dave Favero**

Title: **Deputy Cleanup Manager**

Telephone: **734-879-9525**

Mailing Address: **500 Woodward Avenue, Suite 2650, Detroit, MI 48226**

Name: **Sam Solomon**

Title: **Site Manager**

Telephone: **248-990-1042**

Mailing Address: **500 Woodward Avenue, Suite 2650, Detroit, MI 48226**

Certified Storm Water Operator

Name & Certification Number: **Steve Hoevemeyer (GHD) Industrial site certification # I-10477 expires 7/1/20**

Permit Information

Permit	Permit No.	Issue/Effective Date	Expiry Date
NPDES	MI0059042 (Appendix A-1)	August 24, 2012	October 1, 2016
MDEQ Floodplain Permit (North Ditch)	15-73-0000-P (Appendix A.2)	August 11, 2015	August 11, 2020
MDEQ Floodplain Permit (Access to clay pile)	WRP004925 (Appendix A.3)	October 27, 2016	October 27, 2020
Receiving Waters: Saginaw River			

Brief Industrial Activity Description

The Saginaw Nodular Industrial Land (Site) is located on an approximate 225-acre plot including an old wastewater treatment system and a clay soil stockpile area. The site is bounded by Veterans Memorial Parkway west, Hack Road to the north and North Outer Drive to the east in Saginaw, MI.

The wastewater treatment plant (WWTP) stopped receiving waters in September 2010 and was decommissioned in 2015/2016.

Activities at the Site will be limited to decommissioning and area closure activities.

Storm water flows through a series of drainage ditches and discharges through 4 outfalls as identified on Figure 1 at the Site and eventually outlets to the Saginaw River. The four outfalls are identified below:

- Outfall 020 – Discharges surface runoff from a small portion of the Site in the southeast. The ditch is not expected to discharge contaminated storm water as Site related activities are not conducted in the vicinity of this area.
- Outfall 021 – Controlled overflow for the secondary pond – is a controlled outlet (pipe installed through the secondary pond embankment to discharge into nearby ditch, valve on outfall pipe is normally closed) from the secondary pond that allows the owner to discharge water from the secondary pond should freeboard be needed in the secondary pond. As of September 2010 the secondary pond stopped receiving waters from the WWTP and now only accumulates storm water. See Section 4.4 for a summary of the secondary pond water characterization and discharge characterization. Controlled discharges from the secondary pond are not expected to be contaminated.
- Outfall 022 – North Ditch Emergency Overflow – catchbasin located at the south end of the North Ditch, which is only utilized in the event that the water level in the North Ditch rises above a level that would flood the surrounding properties. The water exiting through the catchbasin is not expected to discharge contaminated storm water.
- Outfall 023 – Northeast corner of Site – water that accumulates in the ditching beside the railroad from surface runoff is now directed via a culvert under Outer Drive into ditching that ultimately discharges into Koehler drain which ultimately discharges to the Saginaw River. The ditch is not expected to discharge contaminated storm water as Site related activities are not conducted in the vicinity of this area.
- Outfall 024 – Controlled overflow for the secondary pond (approximately 250 east of Outfall 021) – is a controlled outlet (pipe installed through the secondary pond embankment to discharge into nearby ditch, valve on outfall pipe is normally closed) from the secondary pond that allows the owner to discharge water from the secondary pond should freeboard be needed in the secondary pond. NOTE: This outfall will not be utilized without approval by MDEQ (Outfall 024 was included as part of the NPDES application renewal submitted to MDEQ on December 22, 2016). As of September 2010 the secondary pond stopped receiving waters from the WWTP and now only accumulates storm water. See Section 4.4 for a summary of the secondary pond water characterization and discharge characterization. Controlled discharges from the secondary pond are not expected to be contaminated.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team and their primary responsibilities (i.e. implementing, maintaining, record keeping, submitting reports, conducting inspections, employee training, conducting the annual compliance evaluation, testing for non-storm water discharges, signing the required certifications) are as follows:

NAME & TITLE	RESPONSIBILITY
Dave Favero (RACER Trust PM)	Director of works (overall coordination)
Michael Tomka (GHD PM)	Coordinating inspections, training, evaluations, and record keep and reporting.
Steve Hoevemeyer (GHD Field Staff)	Conduct inspections and record keeping
Sam Solomon (RACER)	Site Manager

3.0 SITE MAP

The facility's site map includes all applicable items listed in the permit, which include:

- 1) Buildings and other permanent structures
- 2) Storage or disposal areas for significant materials
- 3) Secondary containment structures and descriptions of what they contain in the primary containment structures (None)
- 4) Storm water discharge outfalls (numbered or other wise labeled for reference)
- 5) Location of storm water and non-storm water inlets contributing to each outfall (catch basins, roof drains, conduits, drain tiles, detention pond riser pipes, sump pumps, etc.) (numbered or other wise labeled for reference) (None)
- 6) Location of NPDES permitted discharges other than storm water
- 7) Outlines of the drainage areas contributing to each outfall
- 8) Structural runoff controls or storm water treatment facilities
- 9) Areas of vegetation (with brief description such as lawn, old field, marsh, wooded, etc.)
- 10) Areas of exposed and/or erodible soils
- 11) Impervious surfaces (roofs, asphalt, concrete, etc.)
- 12) Name and location of receiving waters
- 13) Areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the Michigan Act. (None)

See Figure 1 for the Site Map and Figure 2 for a 2016 aerial of the Site.

4.0 SIGNIFICANT MATERIALS

Definition: Significant materials are any material which could degrade or impair water quality, including but not limited to:

- ✓ Raw Materials
- ✓ Fuels
- ✓ Solvents
- ✓ Detergents
- ✓ Plastic pellets
- ✓ Finished materials (i.e. metallic products)
- ✓ Hazardous Substances designated under section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), see 40 CFR 372.65
- ✓ Any chemical the facility is required to report pursuant to section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA)
- ✓ Polluting Materials – Oil and any material, in solid or liquid form, identified as polluting material under the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code)
- ✓ Hazardous Wastes as defined in Part 111 of the Michigan Act
- ✓ Fertilizers
- ✓ Pesticides
- ✓ Waste Products (i.e. ashes, slag, sludge, plant waste, animal waste)

Significant materials were identified for all sources of potential storm water contamination including both inside and outside of the facility. Please note the process of identifying significant materials included residual contaminants which may be found on items stored outside.

4.1 Inventory of Exposed Significant Materials

The permit requires a general inventory of significant materials that could enter storm water. For each material listed, the SWPPP includes the ways in which each type of material has been or has reasonable potential to become exposed to storm water (e.g. spillage during handling; leaks from pipes, pumps, or vessels; contact with storage piles, contaminated materials or soils; waste handling and disposal; deposits from dust or overspray; etc.). In addition, the SWPPP identifies the inlet(s) spilled significant materials may enter and the outfall(s) through which the spilled significant material may be discharged.

See Table 1 for the Significant Material Inventory.

4.2 Description of Industrial Activities & Significant Material Storage Areas

The facility was evaluated for reasonable potential for contribution of significant materials to storm water runoff from at least the following areas or activities:

- 1) Loading, unloading, and other material handling operations
- 2) Outdoor storage including secondary containment structures
- 3) Outdoor manufacturing or processing activities
- 4) Significant dust or particulate generating processes
- 5) Discharge from vents, stacks, and air emission controls

- 6) On-site waste disposal practices
- 7) Maintenance and cleaning of vehicles, machines, and equipment
- 8) Areas of exposed and/or erodible soils
- 9) Sites of Environmental Contamination listed under Part 201 (Environmental Response) of the Michigan Act
- 10) Areas of significant material residues
- 11) Areas where animals congregate (wild or domestic) and deposit wastes
- 12) Other areas where storm water may contact significant materials

For each applicable item, the permit requires a written description of the specific activity or storage area. Along with the written description of the activities or storage areas, a description of the significant materials associated with those items must be included.

See Table 1 for a list of industrial activities and a description of the significant materials associated with those activities.

4.3 List of Significant Spills

No spills have been identified, however Table 2 is provided in the report as a placeholder for if and when a spill occurs.

4.4 Summary of Sampling Data

The permit requires a summary of existing storm water discharge sampling data (if available) describing pollutants in storm water discharges associated with industrial activity at the facility. The following is a summary of data that has been recently collected from the secondary pond:

- In June 2011 the secondary pond water and surrounding water features were characterized further. Appendix B.1 includes the characterization results. The data were compared to Michigan Groundwater Surface Water Interface (GSI) Criteria and Rule 57. One sample marginally exceeded the GSI criteria for mercury and one sample marginally exceeded GSI and Rule 57 for cyanide (total). The majority of the samples exceeded GSI and Rule 57 for unionized ammonia, the source of which is unknown. As ammonia degrades naturally, regular measurements of ammonia were collected which confirmed the degradation of ammonia.
- Prior to the issuance of the NPDES permit on August 24, 2012, there were 3 controlled discharges since June 2011 from the secondary pond in order to maintain adequate freeboard. Appendix B.2 includes the results of sampling associated with the discharges. The data were compared to Rule 57 and there were no exceedances.
- Since the NPDES permit was obtained on August 24, 2012 there have been 21 discharges from the secondary pond (Outfall 021) in order to maintain adequate freeboard. Starting June 21, 2016, in order to prepare for future work to be completed on the sediments in the pond, RACER initiated discharge through Outfall 021 to expose the sediments. Water from the Secondary Pond was discharged via gravity and pump for 53 days until discharges were stopped on September 12, 2016. The data collected from the discharges was submitted via the EDMR. Appendix B.3 includes the results of sampling associated with the discharges.
- Since the NPDES permit was obtained on August 24, 2012 there have been 12 discharges from the North Ditch (Outfall 022). The data collected from the discharges was submitted via the EDMR. Appendix B.4 includes the results of sampling associated with discharge.

- In July 2013 the North Ditch water was characterized further. Appendix B.5 includes the characterization results. The data were compared to Michigan GSI Criteria and Rule 57. No samples exceeded criteria.
- In March 2016, the Secondary Pond water was characterized further. Appendix B.6 includes the characterization results. The data were compared to Michigan GSI Criteria and Rule 57. No samples exceeded criteria.

5.0 NON-STRUCTURAL CONTROLS

Non-structural controls are practices that are relatively simple, fairly inexpensive, and applicable to a wide variety of industries or activities. Non-structural controls are intended to reduce the amount of pollution getting into the surface waters of the state and are generally implemented to address the problem at the source. They do not require any structural changes to the facility. The following non-structural controls have been selected for implementation

5.1 Preventative Maintenance Program (Routine Inspection Program)

Preventative maintenance involves regular inspection of facility equipment (if any) and operational systems. The intent of the inspections are to identify conditions that could lead to the release of materials and allow for maintenance to prevent such a release.

The treatment plant is no longer operational and all materials used for treatment have been removed. There are no significant sources that could affect the stormwater with the exception of areas prone to erosion and vehicle fluids.

Preventative maintenance inspections are conducted at the Site in industrial areas exposed to storm water including drainage ditches, secondary pond, material storage areas, and outfalls. During periods of Site inactivity inspections will be completed monthly and if possible within 24 hours of a major storm event. See Appendix C for the preventative maintenance inspection form.

During periods of activity at the Site (eg. primary settling basins closure, storm water drainage improvements, North Ditch closure, and secondary pond sediment stabilization) routine inspection of vehicles and vehicle parking and fueling areas will be conducted to identify/reduce the likelihood of leaks/spills. In addition, the number of preventative maintenance inspections will increase from monthly to weekly during periods of activity and within 24 hours of a major storm event. See Appendix C for the routine inspection of vehicles, vehicle parking and vehicle fueling areas.

A log of the inspection and corrective actions shall be maintained on file and shall be retained for three years.

5.2 Comprehensive Site Inspection

The permit requires a schedule for comprehensive site inspection including but not limited to equipment, drainage areas, and structural controls. The inspection includes a review of the routine preventive maintenance/good housekeeping inspections, and any other paperwork associated with the SWPPP. The comprehensive site inspection is conducted by the Certified

Storm Water Operator quarterly (March, June, September, and December). The comprehensive site inspection results are retained for three years. The inspections will identify any incidents of non-compliance with the SWPPP or this permit. If there are no reportable incidents of non-compliance, the report shall contain a certification that the facility is in compliance with this permit. The Comprehensive Site Inspection Form is in Appendix C.

5.3 Housekeeping Procedures

The permit requires that the SWPPP include a description of good housekeeping procedures to maintain a clean, orderly facility. Housekeeping procedures are intended to reduce the potential for significant materials to come in contact with storm water. The housekeeping procedures have been incorporated into the preventative maintenance inspection form provided in Appendix C.

Location	Equipment/Area	Task	Frequency
Site	Contractor supplied waste bins for specific activities (sporadically during temporary Site activities)	Waste inspection – identify waste to go off-Site and keep drum inventory	Monthly during inactivity and weekly during activity and within 24 hours of a major storm event
Site	Designated construction vehicle parking area identified at the start of proposed activity (sporadically during temporary Site activities)	Inspect for fluid leaks	Weekly during activity and within 24 hours of a major storm event
Site	Construction vehicles (sporadically during temporary Site activities)	Vehicle inspection – fluid leaks and dirt	Weekly during activity and within 24 hours of a major storm event

5.4 Material Handling & Spill Prevention / Clean-Up Procedures

5.4.1 Material Handling –Discharge from Outfalls 021/024/022

Discharges may be necessary from Outfall 021/024 (Controlled Overflow Secondary Pond) to maintain sufficient freeboard or lower the level in the secondary pond to evaluate sediment impacts and from Outfall 022 (Emergency Outfall North Ditch) if the level in the North Ditch is too high. Should discharges occur from Outfall 021/024 and Outfall 022, sampling and reporting will be completed in accordance with the NPDES permit herein attached as Appendix A-2 and in accordance with the Standard Operating Procedures (SOPs) included in Appendix D. Please note that the NPDES permit does not require sampling for the other two outfalls; Outfall 020 (located in the southeast corner for the property) and Outfall 023 (northeast corner of Site).

5.4.2 Material Handling – Temporary Construction Activities

There are currently no industrial operations being conducted at the Site. Activity at the Site is limited to those activities related to stormwater drainage improvements, re-use of on-Site source

of clay, and environmental remediation/closure of the Site, which will include but is not limited to the stabilization of the north ditch and secondary pond sediments.

Stormwater drainage improvements include:

- Clearing and grubbing of vegetation
- Cleaning out existing ditches and creating new ditches to eliminate the need for pumping storm water
- Removal and disposal of pump
- Installation of drive culverts at driveways
- Abandoning existing sewer lines by filling existing sewers with flowable fill

Re-use of on-Site source of clay will include:

- Construction of access road to the clay pile
- Excavation and hauling clay for on-Site or off-Site use.

The scope of the north ditch includes the following:

- Installation of erosion control measures in accordance with the county SESC (to be determined) including but not limited to silt fence and filter cloth installed on catchbasin and manholes located nearby the proposed work
- Clearing and grubbing of vegetation
- Install new catchbasin within North Ditch and connect to existing storm sewer
- Remove water from North Ditch, place filter fabric over sediments, sling p-gravel over filter fabric and backfill and grade ditch to drain towards newly installed catchbasin
- Place 3 inches of topsoil and seed

The scope of the secondary pond may include the following:

- Installation of erosion control measures in accordance with the county SESC (to be determined) including but not limited to silt fence
- Clearing and grubbing of vegetation
- Removal and disposal of impacted sediment
- Consolidate sediments
- Stabilize sediments
- Cover sediments
- Manage water

5.4.3 Material Handling – Waste

There are two waste streams generated at the Site; miscellaneous waste generated from inspections/annual sampling and waste generated from temporary construction activities. The certified storm water operator will dispose of miscellaneous waste generated at the Site and the contractor hired to conduct work at the Site will be responsible for the disposal of waste generated through construction activities.

Inspections of waste bins are included as part of the routine maintenance inspections.

5.4.4 Spill Prevention / Clean-Up Procedures

Spills and leaks together are the largest industrial source of storm water pollution. Thus, this SWPPP specifies material handling procedures and storage requirements for significant materials. In the event of a spill, personnel are trained to respond in a safe and effective

manner. An employee may determine that a spill or release has occurred through obvious visible signs, such as a substance on the ground or leaking out of a container, a visible sheen on the water, and/or through odor detection. While maintaining personal safety, the immediate objectives are stopping the release of the oil and containing the release to prevent its migration to a pathway off the property. Any storm drains in the immediate vicinity will be covered. Personal protective equipment shall be worn during all spill response efforts. All employees have been made aware of the proper procedures.

For small spills, all pollutants are to be recovered and stored in drums, characterized, and disposed of as appropriate. In the event of a large spill, sand is to be used to contain the spill. If a spill were to reach areas that drain storm water (ie. Storm water ditching, secondary pond) sand should be used to block the exit of the drain (if appropriate) before it enters the Saginaw River.

In the event of a spill, notification must be made immediately to:

- Facility Contact - Dave Favero (217-741-6235)
- Storm water operator – Steve Hoevemeyer (616-437-7734)
- The facility contact will make the necessary phone calls to the MDEQ district contact (Keith Noble - 989-894-6282). The after hours pollution emergency alert system number is 1-800-292-4706

See Table 3 for the material handling & spill prevention clean-up procedures and Table 4 for the spill kit inventory. See Appendix C-3 for the MDEQ Spill or Release Report

THE FOLLOWING PLANS ARE ON FILE AT THE FACILITY:

SWPPP
Due Care Plan
Health and Safety Plan

5.5 Soil Erosion & Sedimentation Control Measures

Although erosion has not generally been a concern at the Site, certain areas around the drainage ditches and material piles (classified sand and clay) could become prone to soil erosion and erosion may be a concern after construction activities until a vegetative cover is established. These areas are included in the regular preventative maintenance inspections. The following are recommended control measures for specific tasks that are to be completed and specific areas of the Site prone to erosion.

AREA OF CONCERN:	CONTROL MEASURE:
Future work (North Ditch): - Stabilization of the North Ditch sediments by Slinging p-gravel over filter fabric and backfill ditch with clay from clay stockpile and grade ditch towards newly installed catchbasin - Will require removal of water from North Ditch and installation of a new catchbasin in North Ditch	• Silt fencing, vegetation barriers, diversions/channels dust suppression measures, erosion control inspections following rainfall, and re-vegetate disturbed area following completion of work or 30-days of inactivity; obtain Soil Erosion Sedimentation Control Permit from Saginaw County Public Works Commission. Following completion of closure activities stabilize disturbed area by placing topsoil and seed

AREA OF CONCERN:	CONTROL MEASURE:
Clay Stockpile	• During periods of inactivity, conduct periodic preventative maintenance inspections (minimum one per month) and/or following a rainfall event to identify whether erosion is occurring • During periods of activity, conduct weekly inspections of erosion/sedimentation controls, as necessary. Following completion of closure activities stabilize disturbed area by placing topsoil and seed
Future work (Secondary Pond - Scope yet to be defined): - Stabilization of the Secondary Pond sediments through removal and disposal, consolidating, and/or covering and vegetating - Remove water from Secondary Pond	• Silt fencing, mud mats to minimize tracking dirt off-Site, vegetation barriers, diversions/channels dust suppression measures, erosion control inspections following rainfall, and re-vegetate disturbed area following completion of work or 30-days of inactivity; obtain Soil Erosion Sedimentation Control Permit from Saginaw County Public Works Commission. Following completion of closure activities stabilize disturbed area by placing topsoil and seed

If during the preventative maintenance inspections erosion affects are reported, the Storm Water Operator will assess the situation and develop appropriate measures to reduce and eliminate the erosion. Common erosion control measures implemented include but are not limited to:

- Silt fence
- Diversions/channels
- Check dams
- Use of barriers to prevent vehicles from destroying vegetation
- Stabilization measures including seeding, vegetation mats, or rocks (depending on the severity of the erosion)
- Construction of temporary settling basin
- Mud mats in order to unnecessarily track mud off Site

5.6 Employee Training Program

Employee training is a major component in ensuring the success of the facility's SWPPP since the more knowledgeable the employees are about the facility's SWPPP and what is expected of them, the greater the chance that the plan will be effective. The following is a description of the employee training programs to be implemented to inform appropriate personnel at all levels of responsibility of the components and goals of the SWPPP (i.e. good housekeeping practices, spill prevention and response procedures, waste minimization practices, informing customers of facility policies, etc.). The Employee Training Form is in Appendix E.

EMPLOYEE TRAINING DESCRIPTION & FREQUENCY:

- Annual review of video on the MDEQ Website (http://www.michigan.gov/deq/0,1607,7-135-3308_3333_4168---,00.html)
- New Employees to the Site must review and sign off on the Site documents including the SWPPP (good housekeeping practices, spill prevention and response procedures), Due Care Plan and HASP

5.7 TMDL Requirements

The Total Maximum Daily Load (TMDL) is the amount of pollutant load a water body can assimilate and still meet water quality standards. If a receiving water body does not meet the water quality standards for a specific pollutant, the MDEQ will establish the appropriate daily maximum load for that pollutant to allow the water body to again meet water quality standards. If a permitted facility is expected to discharge that specific pollutant in its storm water to that water body, the General Permit requires the facility to list actions it will take to meet that TMDL requirement.

According to the MDEQ website, there are no TMDL requirements for the Saginaw River.

5.8 List of Significant Materials Still Present

Following implementation of non-structural preventative measures and source controls, the potential for fuel or other significant materials at the facility to impact storm water is minimal. Any remaining risk is addressed through the use of structural controls.

Potential significant materials that may be in the storm water runoff after implementation of the other nonstructural controls include:

- Fuels (sporadically during temporary Site activity)
- Eroding soils (soil, classified sands, clay pile)

6.0 STRUCTURAL CONTROLS

The permit requires that where implementation of non-structural controls does not control storm water discharges in accordance with water quality standards, the SWPPP shall provide a description of the location, function, and design criteria of structural controls for prevention and treatment. Structural controls may be necessary to prevent uncontaminated storm water from contacting or being contacted by significant materials; or if preventive measures are not feasible or are inadequate to keep significant materials at the site from contaminating storm water. Structural controls shall be used to treat, divert, isolate, recycle, reuse, or otherwise manage storm water in a manner that reduces the level of significant materials in the storm water and provides compliance with the Water Quality Standards. Table 5 presents the structural measures in place at the Site. At this time no additional structural controls are needed beyond those already in place, however, during temporary construction activities sediment and erosion control measures will be put in place in accordance with SESC permit that is obtained for the activity, which includes silt fencing along the north and west sides of the primary settling basins.

7.0 NON-STORM WATER DISCHARGES

The permit requires that all discharge locations be evaluated for the presence of non-storm water discharges. Any unauthorized storm water discharges must be eliminated, or covered under another NPDES permit.

Storm water shall be defined to include all of the following non-storm water discharges provided pollution prevention controls for the non-storm water component are identified in the SWPPP:

- 1) Discharges from fire hydrant flushing
- 2) Potable water sources including water line flushing
- 3) Fire system test water
- 4) Irrigation drainage
- 5) Lawn watering
- 6) Routine building wash down which does not use detergents or other compounds
- 7) Pavement wash waters where contamination by toxic or hazardous materials have not occurred (unless all contamination by toxic or hazardous materials have been removed) and where detergents are not used
- 8) Air conditioning condensate
- 9) Springs
- 10) Uncontaminated ground water
- 11) Foundations or footing drains where flows are not contaminated with process materials such as solvents

Discharges from fire fighting activities are authorized by the permit, but are exempted from the requirement to be identified in the SWPPP.

8.0 ANNUAL REVIEW

The permit requires that the permittee shall review the SWPPP annually after it is developed and maintain written summaries of the reviews. Based on the review, the permittee shall amend the SWPPP as needed to ensure continued compliance with the terms and conditions of the permit. The annual review is to be retained on site. It does not need to be submitted to the DEQ. The Annual Review Form is in Appendix F. However, it is noted that Permit MI0059042 requires that an annual certification be submitted to the MDEQ by January 10 of each year.

In addition, should any changes be made to Site conditions or work being conducted at the Site, the SWPPP will be reviewed and modified as appropriate.

9.0 CERTIFIED STORM WATER OPERATOR UPDATE

The permit requires that if the Certified Storm Water Operator is changed or an additional Certified Storm Water Operator is added, the permittee shall provide the name and certification

number of the new Certified Storm Water Operator to the Department. If a facility has multiple Certified Storm Water Operators, the name and certification number of the Certified Storm Water Operators shall be included in the SWPPP.

10.0 RECORD KEEPING

The permit requires that the permittee shall maintain records of all SWPPP related inspection and maintenance activities. Records shall also be kept describing incidents such as spills or other discharges that can affect the quality of storm water runoff. The following forms/records are to be retained for three years.

- Preventative maintenance inspections
- Comprehensive inspections
- Spill or Release report
- Non-Storm Water Inspection Report
- Record of Plan Revisions
- Employee Training Record

Record of Plan Revisions

Revision Date	Version No.	Revision Author	Modifications	Revision Authorized by	Revision Approved by
October 2012	1	GHD	Created original document	Dave Favero, Steve Hoevemeyer	Dave Favero, Steve Hoevemeyer
January 2015	2	GHD	Work completed and new work proposed	Dave Favero, Steve Hoevemeyer	Dave Favero, Steve Hoevemeyer
January 2017	3	GHD	Work completed and new work proposed	Dave Favero, Steve Hoevemeyer	Dave Favero, Steve Hoevemeyer

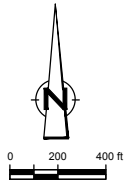
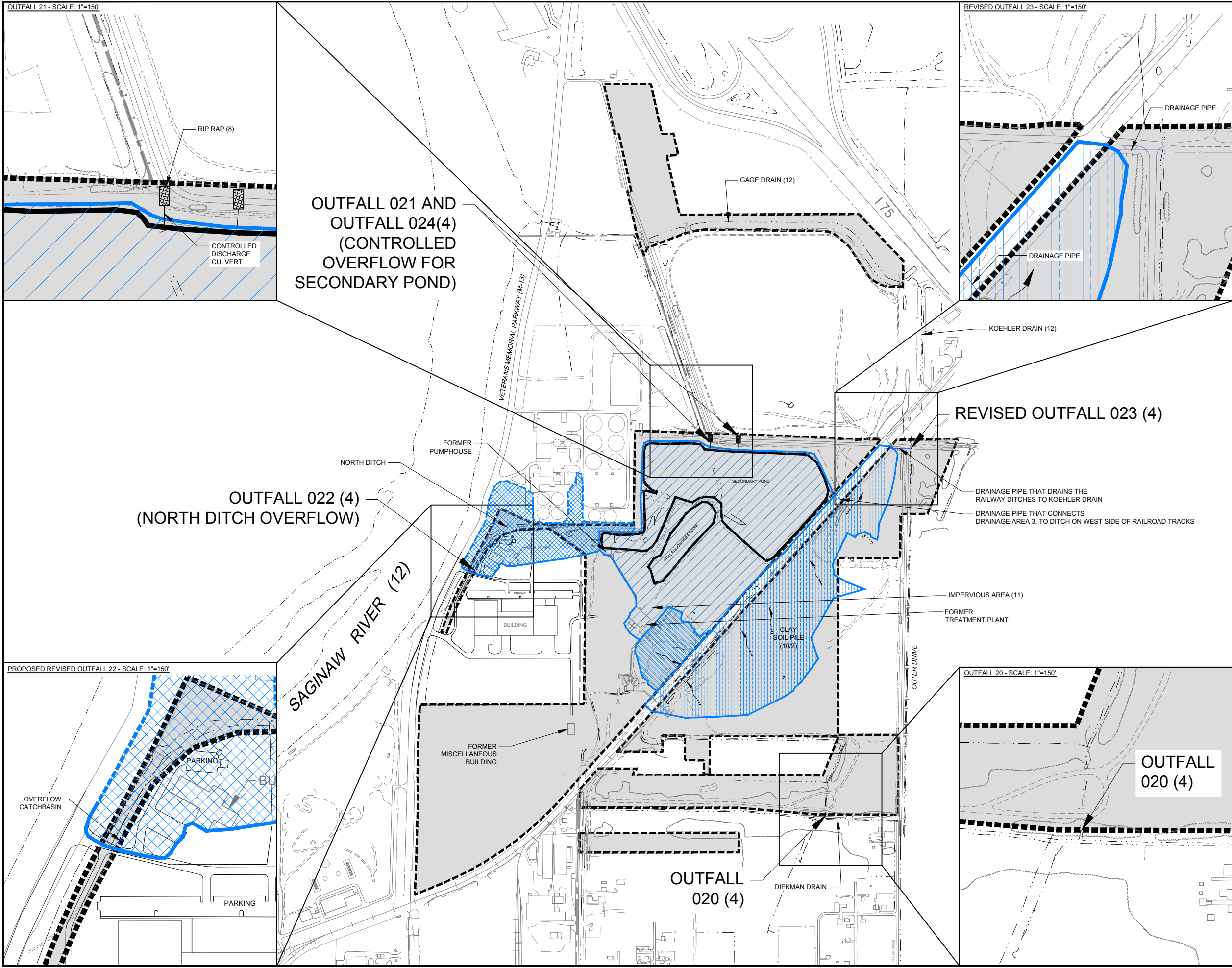
SWPPP CERTIFICATION

The permit requires that the SWPPP shall be reviewed and signed by the Certified Storm Water Operator(s) and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. The SWPPP shall be retained on-site at the facility which generates the storm water discharge.

I certify under penalty of law that the storm water drainage system in this SWPPP has been tested or evaluated for the presence of non-storm water discharges either by me, or under my direction and supervision. I certify under penalty of law that this SWPPP has been developed in accordance with the General Permit and with good engineering practices. To the best of my knowledge and belief, the information submitted is true, accurate, and complete. At the time this plan was completed no unauthorized discharges were present. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Permittee or Authorized Representative	
Printed Name & Title: David Favero - Deputy Cleanup Manager - Michigan	
Signature & Date:	 1/5/2017

Certified Storm Water Operator	
Printed Name & Certification Number: Steve Hoevemeyer - Industrial site certification #: I-10477 expires 7/1/20	
Signature & Date:	 1/5/2017



- LEGEND**
- APPROXIMATE LIMITS OF RACER PROPERTY
 - DRAINAGE AREA 1 (46.7 ACRES)
 - DRAINAGE AREA 2 (5.2 ACRES)
 - DRAINAGE AREA 3 (37.9 ACRES)
 - DRAINAGE AREA 4 (12.9 ACRES)
 - FLOW DIRECTION

DRAINAGE SUMMARY

STORMWATER IN DRAINAGE AREA 1 OVERLAND FLOWS FROM THE SOUTHWEST TO THE NORTHEAST. AN EMERGENCY OVERFLOW FROM THE SECONDARY POND HAS BEEN INSTALLED THAT DISCHARGES INTO A DITCH TO THE NORTH.

STORMWATER IN DRAINAGE AREA 2 OVERLAND FLOWS TO THE DITCH ALONG THE WEST SIDE OF THE RAILROAD TRACKS WHICH DRAINS TO THE NORTHEAST INTO KOEHLER DRAIN.

STORMWATER IN DRAINAGE AREA 3 OVERLAND FLOWS TO THE DITCHES ALONG THE RAILROAD TRACKS. A DRAINAGE PIPE DIRECTS THE STORMWATER BENEATH THE RAILROAD TRACK TO THE DITCH ON THE EAST SIDE OF OUTER DRIVE WHICH DRAINS TO THE NORTH INTO KOEHLER DRAIN.

STORMWATER IN DRAINAGE AREA 4, TO THE NORTH, FROM THE WWTP IS COLLECTED IN TWO STORM SEWERS AND ONE DITCH WHICH OUTLET INTO THE NORTH DITCH. ALL OTHER STORMWATER THAT FALLS ON DRAINAGE AREA 4 FLOWS OVERLAND AND COLLECTS IN THE NORTH DITCH BEFORE BEING DISCHARGED FROM OUTFALL 022 INTO A STORM SEWER THAT OUTLETS TO THE SAGINAW RIVER.

- Buildings and other permanent structures
- Storage or Disposal areas for significant materials
- Secondary containment structures and descriptions of what they contain (NONE)
- Storm water discharge outfalls
- Location of storm water and non-storm water inlets contributing to each outfall (NONE)
- Location of NDPS permitted discharges other than storm water (NONE)
- Outlines of the drainage areas contributing to each outfall
- Structural runoff controls or storm water treatment facilities
- Areas of vegetation (SEE FIGURE 2)
- Areas of exposed and/or erodible soils (SEE FIGURE 2)
- Impervious Surfaces (SEE FIGURE 2)
- Name and location of receiving waters
- Areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the Michigan Act (NONE)

NOTE: TOPO - SANBORN, 1996

SCALE VERIFICATION

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

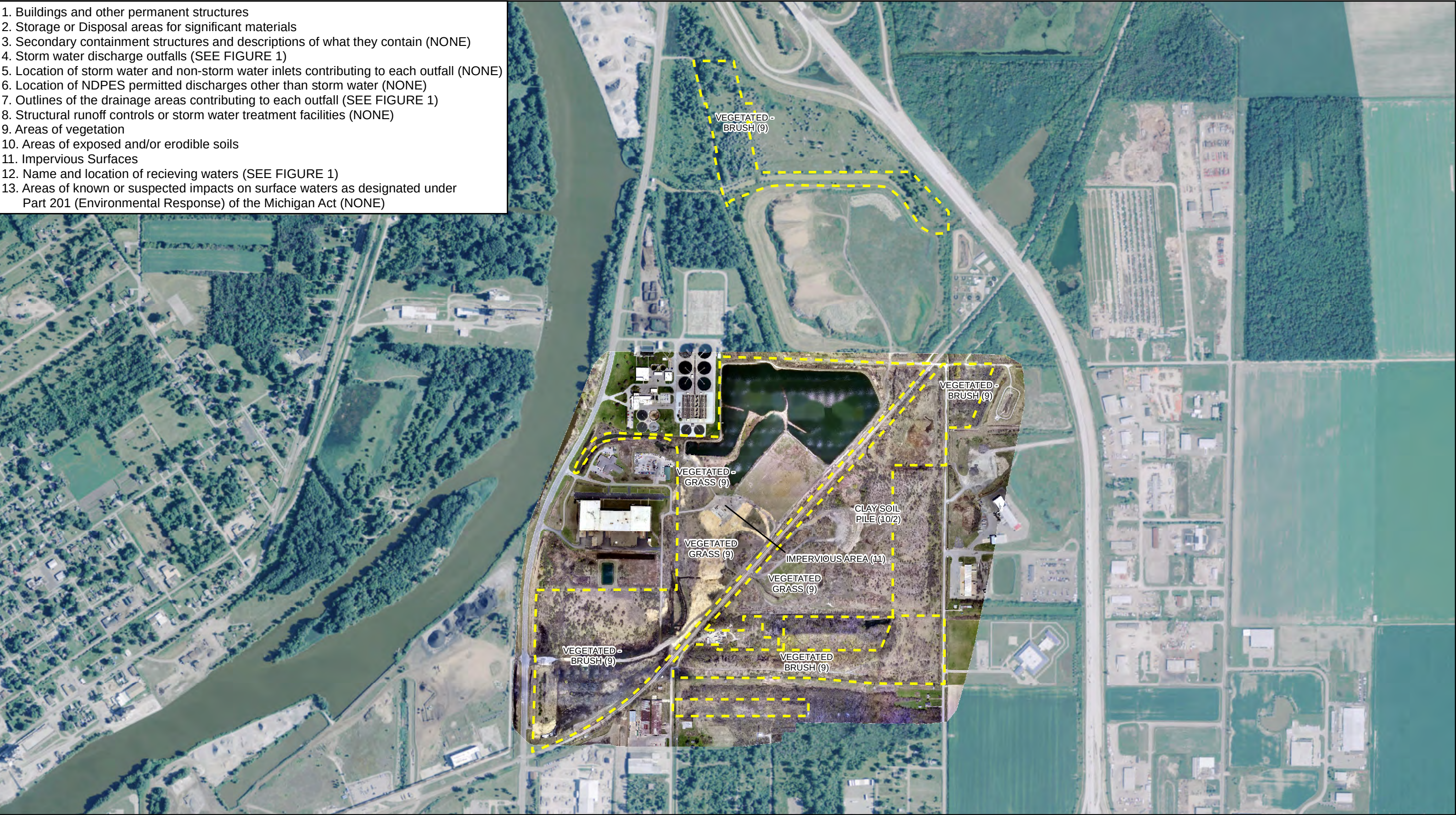
REVITALIZING AUTO COMMUNITIES
ENVIRONMENTAL RESPONSE (RACER)
SAGINAW NODULAR INDUSTRIAL LAND
SAGINAW, MICHIGAN

**SITE MAP
FOR SWPPP**

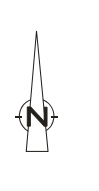
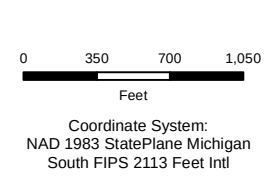


Source Reference: MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88			
Project Manager: M.T.	Reviewed By: J.E.P.	Date: MARCH 2016	
Scale: 1" = 400'	Project N°: 58502-T02	Report N°: 013	Drawing N°: 1

- 1. Buildings and other permanent structures
- 2. Storage or Disposal areas for significant materials
- 3. Secondary containment structures and descriptions of what they contain (NONE)
- 4. Storm water discharge outfalls (SEE FIGURE 1)
- 5. Location of storm water and non-storm water inlets contributing to each outfall (NONE)
- 6. Location of NDPES permitted discharges other than storm water (NONE)
- 7. Outlines of the drainage areas contributing to each outfall (SEE FIGURE 1)
- 8. Structural runoff controls or storm water treatment facilities (NONE)
- 9. Areas of vegetation
- 10. Areas of exposed and/or erodible soils
- 11. Impervious Surfaces
- 12. Name and location of recieving waters (SEE FIGURE 1)
- 13. Areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the Michigan Act (NONE)



Source: 2014 Saginaw County NAIP Provided by USDA.



Legend

— — — — — APPROXIMATE LIMITS OF RACER PROPERTY



REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL REPSONSE (RACER)
SAGINAW NODULAR INDUSTRIAL LAND
SAGINAW, MICHIGAN

2016 AERIAL

58502-T02
Dec 1, 2016

FIGURE 2

TABLE 1
SIGNIFICANT MATERIAL INVENTORY AND DESCRIPTION OF INDUSTRIAL ACTIVITY OR SIGNIFICANT MATERIAL STORAGE AREAS

Section Listed in General Permit	Storage Areas / Activity Areas	Significant Materials	Exposure Method	Reasonable Potential Evaluation (high,medium,low)	Inlet(s)	Outfalls(s)
1) Loading, unloading, and other material handling operations	Fueling (during specific activities) area TBD	Gasoline, diesel fuel, lubricating oils	leaks	low		21/22/23/24
2) Outdoor storage including secondary containment structures	Stockpiled clay	Stockpiled clay	Direct Contact with stormwater	Low (Material excavated from virgin soil and stockpiled)		
	Secondary Pond	Stormwater	Direct Contact with stormwater	Low (see Appendix B for characterization)		21/22/24
	Secondary Pond	Sediment	Indirect contact with stormwater through secondary pond water	Low (see Appendix B for characterization)		21/22/24
3) Outdoor manufacturing or processing activities						
4) Significant dust or particulate generating processes	Temporary: Construction Activities (Storm water improvements, north ditch and secondary pond closure)	Dust particulate, erosion	Inhalation/direct contact	low		21/22/23/24
5) Discharge from vents, stacks, and air emission controls						
6) On-site waste disposal practices	- Waste bins provided by Contractor (temporary)	Various garbage	Leaks	Low		NA

TABLE 1 (CONTINUED)
SIGNIFICANT MATERIAL INVENTORY AND DESCRIPTION OF INDUSTRIAL ACTIVITY OR SIGNIFICANT MATERIAL STORAGE AREAS

Section Listed in General Permit	Storage Areas / Activity Areas	Significant Materials	Exposure Method	Reasonable Potential Evaluation (high,medium,low)	Inlet(s)	Outfalls(s)
7) Maintenance and cleaning of vehicles, machines and equipment	Construction Vehicles (during specific activities)	Fuel/vehicle fluids	Leaks	Low		21/22/23/24
8) Areas of exposed and/or erodible soils	See Outdoor Storage including secondary containment structures (2)					
9) Sites of Environmental Contamination listed under Part 201						
10) Areas of significant material residues	Secondary ponds	sediments	Direct contact	Low (see Appendix B for characterization)		21/22/24
11) Areas where animals congregate (wild or domestic) and deposit wastes						
12) Other areas where storm water may contact significant materials						

TABLE 3
MATERIAL HANDLING & SPILL PREVENTION / CLEAN-UP PROCEDURES

Potential Spill Area	Material Handling & Storage Procedures	Spill Response Procedures & Equipment
Temporary (construction) - construction vehicles	- maintain area for construction vehicles that are not being used.	- notify necessary parties (project manager, owner, DEQ) - secure area, stop source of spill - limit the extents of spill (using absorbent material) - spill cleanup - report
Erosion potential Areas (ditches, clay pile, sand pile, secondary pond berms)	- Maintain controls in the SESC Plan - Vegetate exposed soils prone to erosion	- repair sediment and erosion control measures, as necessary - evaluate alternative erosion control measures if repairs are being conducted frequently - implement alternative erosion control measures

TABLE 4
SPILL KIT INVENTORY

List the spill response equipment that will be maintained in each location or locker (refer to MSDSs to determine recommended clean-up methods and supplies):

Person responsible for maintaining this inventory: Steve Hoevemeyer

Locker number or location	Absorbents (pads, booms, kitty litter, etc.)	Tools (shovels, brooms, squeegees, etc.)	Personal Protective Equipment (rubber gloves, boots, masks, etc.)	Other Supplies (warning tape, labels, markers, MSDSs, etc.)
Site trailer (during construction activities)	Absorbent pads and sand	Shovels and brooms	Gloves	Cones and warning tape to secure area MSDS (if applicable)

Label each spill kit with the words "SPILL KIT" and the necessary emergency telephone number(s) or pager number(s) of persons to be contacted in case of a spill or leak that is beyond the training and equipment available on or near each spill locker:

Facility Responsible Person/Phone Number: Dave Favero – 734-879-9525, Steve Hoevemeyer - 616-437-7734

Spill Response Contractor (if any)/Phone Number: _____

DEQ District Office Phone Number: Keith Noble - 989-894-6282

DEQ 24-Hour Emergency Spill Reporting Hot-Line: **1-800-292-4706**

Stencil the following warning on each spill kit:

**"WARNING: NEVER HOSE DOWN A SPILL!
CLEAN IT UP PROMPTLY AND DISPOSE OF THE WASTE PROPERLY."**

TABLE 5
STRUCTURAL CONTROLS USED AT THE FACILITY

Description of Structural Control	Location of Structural Control	Significant Materials intended to be managed
Outfall 020 – ditch		
Outfall 021 – controlled outlet for secondary pond	See Figure 1	Surface water, sediment
Outfall 022 – North Ditch overflow – catch basin	See Figure 1	Surface water
Outfall 023 – ditch	See Figure 1	Surface water
Outfall 024 – controlled outlet for secondary pond	See Figure 1	Surface water
Silt Fence – used to remove sediments from surface water runoff	See Figure 1	Sediment
Splash Pads (at Outfalls) – used to dissipate discharge flow energy and collect sediments	See Figure 1	Sediment, surface water

Appendices

Appendix A

Permits

Appendix A.1

NPDES Permit (expired)

PERMIT NO. MI0059042

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 *et seq.*) (the "Federal Act"), Michigan Act 451, Public Acts of 1994, as amended (the "Michigan Act"), Parts 31 and 41, and Michigan Executive Order 2011-1,

Revitalizing Auto Communities Environmental Response (RACER) Trust

2930 Ecorse Road
Ypsilanti, Michigan 48198

is authorized to discharge from the **RACER-Saginaw Nodular Industrial Land** located at

2100 Veterans Memorial Parkway
Saginaw, Michigan 48601

designated as **RACER-Saginaw Nodular Indust**

to the receiving waters named the Saginaw River and an unnamed tributary to the Saginaw River in accordance with effluent limitations, monitoring requirements, and other conditions set forth in this permit.

This permit is based on a complete application submitted on April 4, 2012, as amended through May 11, 2012.

This permit for a new use takes immediate effect on the date of issuance. The provisions of this permit are severable. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term in accordance with applicable laws and rules.

This permit and the authorization to discharge shall expire at midnight, **October 1, 2016**. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit an application which contains such information, forms, and fees as are required by the Department of Environmental Quality (Department) by **April 4, 2016**.

Issued August 24, 2012


Philip Argiroff, Chief
Permits Section
Water Resources Division

PERMIT FEE REQUIREMENTS

In accordance with Section 324.3120 of the Michigan Act, the permittee shall make payment of an annual permit fee to the Department for each October 1 the permit is in effect regardless of occurrence of discharge. The permittee shall submit the fee in response to the Department's annual notice. The fee shall be postmarked by January 15 for notices mailed by December 1. The fee is due no later than 45 days after receiving the notice for notices mailed after December 1.

Annual Permit Fee Classification: Industrial-Commercial Minor, high-flow (Individual Permit)

In accordance with Section 324.3118 of the Michigan Act, the permittee shall make payment of an annual storm water fee to the Department for each January 1 the permit is in effect regardless of occurrence of discharge. The permittee shall submit the fee in response to the Department's annual notice. The fee shall be postmarked by March 15 for notices mailed by February 1. The fee is due no later than 45 days after receiving the notice for notices mailed after February 1.

ANTIDEGRADATION

The Department has determined that the permittee's Antidegradation Demonstration/Exemption, based on information required by Subrule (4) of R323.1098, shows that lowering of water quality is necessary to support the identified important social and economic development in the area. This determination is solely for purposes of satisfying state water quality regulations and is not intended to supplant local requirements, including land use or zoning laws. It is not, and should not be construed as, a finding by the Department that the proposed development meets local requirements or ordinances.

CONTACT INFORMATION

Unless specified otherwise, all contact with the Department required by this permit shall be made to the Saginaw Bay District Supervisor of the Water Resources Division. The Saginaw Bay District Office is located at 401 Ketchum Street, Suite B, Bay City, Michigan 48708-5430, Telephone: 989-894-6200, Fax: 989-891-9237.

CONTESTED CASE INFORMATION

Any person to whom this permit is not acceptable may file a sworn petition with the Office of Regulatory Reinvention within the Michigan Department of Licensing and Regulatory Affairs, setting forth the conditions of the permit which are being challenged and specifying the grounds for the challenge. The Department of Licensing and Regulatory Affairs may reject any petition filed more than 60 days after issuance as being untimely.

PART I

Section A. Limitations and Monitoring Requirements

1. Final Effluent Limitations, Monitoring Point 021A

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge a maximum of 1.63 MGD of previously accumulated wastewater from a former foundry process combined with storm water from Monitoring Point 021A through Outfall 021. Outfall 021 discharges to an unnamed tributary to the Saginaw River. Such discharge shall be limited and monitored by the permittee as specified below.

Parameter	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring Frequency	Sample Type
	Monthly	Daily	Units	Monthly	Daily	Units		
Flow	(report)	(report)	MGD	---	---	---	Daily*	Report Total Daily Flow
Carbonaceous Biochemical Oxygen Demand (CBOD ₅)								
May – September	---	---	---	---	7.2	mg/l	Daily*	Grab
October – November	---	---	---	---	13	mg/l	Daily*	Grab
December – March	---	---	---	---	28	mg/l	Daily*	Grab
April	---	---	---	---	39	mg/l	Daily*	Grab
Ammonia Nitrogen (as N)								
May – September	---	---	---	---	2.5	mg/l	Daily*	Grab
October – November	---	---	---	---	5.8	mg/l	Daily*	Grab
December – March	---	---	---	---	10	mg/l	Daily*	Grab
April	---	---	---	---	(report)	mg/l	Daily*	Grab
Total Suspended Solids	---	---	---	35	70	mg/l	See Part I.A.1.c.	3-Portion Composite
Turbidity (See Part I.A.1.d.)	---	---	---	80	160	NTU	See Part I.A.1.c.	Grab
Outfall Observation	(report)	---	yes/no	---	---	---	Daily*	Visual
Minimum Maximum								
Daily Daily								
pH	---	---	---	6.5	9.0	S.U.	Daily*	Grab
Dissolved Oxygen	---	---	---	6.0	---	mg/l	Daily*	Grab

* During discharge

- a. Narrative Standard
The receiving water shall contain no turbidity, color, oil films, floating solids, foams, settleable solids, or deposits as a result of this discharge in unnatural quantities which are or may become injurious to any designated use.
- b. Monitoring Location
Samples, measurements, and observations taken in compliance with the monitoring requirements above shall be taken prior to discharge to the unnamed tributary to the Saginaw River.

PART I**Section A. Limitations and Monitoring Requirements**

- c. **Frequency of Analysis for Turbidity and Total Suspended Solids**
The permittee may determine compliance for the total suspended solids effluent limitations either by direct measurement or by a combination of direct and indirect methods. The method that is used to measure compliance will determine the frequency of analysis required for each parameter, as described below.
- 1) **Direct Measurement**
If the permittee only monitors total suspended solids by direct measurement, the monitoring frequency shall be daily during discharge, unless otherwise specified in accordance with Part I.A.3. of this permit. Turbidity requirements will **not** be in effect.
- 2) **Combination of Direct and Indirect Measurement**
If the permittee monitors total suspended solids using a combination of direct and indirect methods, the permittee shall monitor turbidity as an indirect, partial substitute for monitoring total suspended solids. The monitoring frequency shall be daily during discharge for turbidity and weekly during discharge for total suspended solids, unless otherwise specified in accordance with Part I.A.3. of this permit. Any exceedance of the turbidity limitations shall be considered an exceedance of the total suspended solids limitations.
- d. **Monitoring Requirements for Turbidity**
The monitoring requirements for turbidity are in effect only if the permittee uses turbidity to indirectly determine compliance for total suspended solids as described in Part I.A.1.c. If the permittee does not indirectly determine compliance with the monitoring requirements, the permittee is not required to monitor for turbidity.
- Monitoring for turbidity shall be conducted daily during periods of discharge, shall be representative of the discharge, and shall be analyzed using EPA approved methods. A minimum of four turbidity samples are required daily. All turbidity samples shall be collected at equal intervals over the discharge period for that day. An average of the results from all of the turbidity monitoring conducted during the day shall be used to determine compliance with the daily maximum effluent limitation. All daily averages for the month shall be averaged to determine compliance with the monthly average effluent limitation.
- The permittee may choose to demonstrate that an alternate site-specific turbidity effluent limitation is appropriate. Such request and supporting documentation shall be submitted to the Department. Supporting documentation shall include a calculation of the correlation between turbidity and total suspended solids. If an alternate site-specific turbidity effluent limitation is approved, the permit shall be modified in accordance with applicable laws and rules to incorporate the alternate site-specific turbidity effluent limitation.
- e. **Outfall Observation**
Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Department followed with a written report within five (5) days detailing the findings of the investigation and the steps taken to correct the condition.
- f. **Water Treatment Additives**
This permit does not authorize the discharge of water additives without approval from the Department. Approval of water additives is authorized under separate correspondence. Water additives include any material that is added to water used at the facility or to a wastewater generated by the facility to condition or treat the water. In the event a permittee proposes to discharge water additives, including an increased discharge concentration of a previously approved water additive, the permittee shall submit a request to the Department for approval. See Part I.A.4. for information on requesting water treatment additive use.

PART I

Section A. Limitations and Monitoring Requirements

2. Final Effluent Limitations, Monitoring Point 022A

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge an unspecified amount of storm water from Monitoring Point 022A through Outfall 022. Outfall 022 discharges to the Saginaw River. Such discharge shall be limited and monitored by the permittee as specified below.

Parameter	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring Frequency	Sample Type
	Monthly	Daily	Units	Monthly	Daily	Units		
Flow	(report)	(report)	MGD	---	---	---	Daily*	Report Total Daily Flow
Total Suspended Solids	---	---	---	35	70	mg/l	see Part I.A.2.c.	3-Portion Composite
Turbidity (see Part I.A.2.d.)	---	---	---	80	160	NTU	see Part I.A.2.c.	Grab
Outfall Observation	(report)	---	yes/no	---	---	---	Daily*	Visual
				Minimum	Maximum			
				Daily	Daily			
pH	---	---	---	6.5	9.0	S.U.	Daily*	Grab

* During discharge

- a. Narrative Standard
The receiving water shall contain no turbidity, color, oil films, floating solids, foams, settleable solids, or deposits as a result of this discharge in unnatural quantities which are or may become injurious to any designated use.
- b. Monitoring Location
Samples, measurements, and observations taken in compliance with the monitoring requirements above shall be taken prior to discharge to the Saginaw River.
- c. Frequency of Analysis for Turbidity and Total Suspended Solids
The permittee may determine compliance for the total suspended solids effluent limitations either by direct measurement or by a combination of direct and indirect methods. The method that is used to measure compliance will determine the frequency of analysis required for each parameter, as described below.
 - 1) Direct Measurement
If the permittee only monitors total suspended solids by direct measurement, the monitoring frequency shall be daily during discharge, unless otherwise specified in accordance with Part I.A.3. of this permit. Turbidity requirements will **not** be in effect.
 - 2) Combination of Direct and Indirect Measurement
If the permittee monitors total suspended solids using a combination of direct and indirect methods, the permittee shall monitor turbidity as an indirect, partial substitute for monitoring total suspended solids. The monitoring frequency shall be daily during discharge for turbidity and weekly during discharge for total suspended solids, unless otherwise specified in accordance with Part I.A.3. of this permit. Any exceedance of the turbidity limitations shall be considered an exceedance of the total suspended solids limitations.

PART I

Section A. Limitations and Monitoring Requirements

d. Monitoring Requirements for Turbidity

The monitoring requirements for turbidity are in effect only if the permittee uses turbidity to indirectly determine compliance for total suspended solids as described in Part I.A.2.c. If the permittee does not indirectly determine compliance with the monitoring requirements, the permittee is not required to monitor for turbidity.

Monitoring for turbidity shall be conducted daily during periods of discharge, shall be representative of the discharge, and shall be analyzed using EPA approved methods. A minimum of four turbidity samples are required daily. All turbidity samples shall be collected at equal intervals over the discharge period for that day. An average of the results from all of the turbidity monitoring conducted during the day shall be used to determine compliance with the daily maximum effluent limitation. All daily averages for the month shall be averaged to determine compliance with the monthly average effluent limitation.

The permittee may choose to demonstrate that an alternate site-specific turbidity effluent limitation is appropriate. Such request and supporting documentation shall be submitted to the Department. Supporting documentation shall include a calculation of the correlation between turbidity and total suspended solids. If an alternate site-specific turbidity effluent limitation is approved, the permit shall be modified in accordance with applicable laws and rules to incorporate the alternate site-specific turbidity effluent limitation.

e. Outfall Observation

Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Department followed with a written report within five (5) days detailing the findings of the investigation and the steps taken to correct the condition.

f. Water Treatment Additives

This permit does not authorize the discharge of water additives without approval from the Department. Approval of water additives is authorized under separate correspondence. Water additives include any material that is added to water used at the facility or to a wastewater generated by the facility to condition or treat the water. In the event a permittee proposes to discharge water additives, including an increased discharge concentration of a previously approved water additive, the permittee shall submit a request to the Department for approval. See Part I.A.4. for information on requesting water treatment additive use.

3. Monitoring Frequency Reduction

After the submittal of six months of data, the permittee may request, in writing, Department approval of a reduction in monitoring frequency. This request shall contain an explanation as to why the reduced monitoring is appropriate. A reduction will only be allowed if effluent concentrations are well below the discharge limitations or there is minimal variability in the effluent concentrations. Upon receipt of written approval and consistent with such approval, the permittee may reduce the monitoring frequency indicated in this permit. The monitoring frequency for every parameter shall not be reduced to less than weekly during discharge. The Department may revoke the approval for reduced monitoring at any time upon notification to the permittee.

PART I**Section A. Limitations and Monitoring Requirements****4. Request for Discharge of Water Treatment Additives**

In the event a permittee proposes to discharge water additives, the permittee shall submit a request to discharge water additives to the Department for approval. Such requests shall be sent to the Permits Section, Water Resources Division, Department of Environmental Quality, P.O. Box 30458, Lansing, Michigan 48909, with a copy to the Department contact listed on the cover page of this permit. Instructions to submit a request electronically may be obtained via the Internet (<http://www.michigan.gov/deqnpdes>; then click on Applicable Rules and Regulations which is under the Information banner and then click on Water Treatment Additive Discharge Application Instructions). Written approval from the Department to discharge such additives at specified levels shall be obtained prior to discharge by the permittee. Additional monitoring and reporting may be required as a condition for the approval to discharge the additive.

A request to discharge water additives shall include all of the following water additive usage and discharge information:

- a. Material Safety Data Sheet;
- b. the proposed water additive discharge concentration with supporting calculations;
- c. the discharge frequency (i.e., number of hours per day and number of days per year);
- d. the monitoring point from which the product is to be discharged;
- e. the type of removal treatment, if any, that the water additive receives prior to discharge;
- f. product function (i.e. microbiocide, flocculant, etc.);
- g. a 48-hour LC₅₀ or EC₅₀ for a North American freshwater planktonic crustacean (either *Ceriodaphnia sp.*, *Daphnia sp.*, or *Simocephalus sp.*); and
- h. the results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2) of the Water Quality Standards.

Prior to submitting the request, the permittee may contact the Permits Section by telephone at 517-241-1346 or via the Internet at the address given above to determine if the Department has the product toxicity data required by items g. and h. above. If the Department has the data, the permittee will not need to submit product toxicity data.

PART I

Section A. Limitations and Monitoring Requirements

5. Storm Water Pollution Prevention Plan

The permittee is authorized to discharge storm water associated with industrial activities as defined in 40 CFR 122.26(b)(14)(i-ix). These storm water discharges shall be controlled in accordance with the requirements of this special condition. The permittee has developed and implemented a Storm Water Pollution Prevention Plan (SWPPP). The permittee shall continue implementation of the SWPPP for maximum control of significant materials (as defined in Part II.A.) so that storm water discharges will not cause a violation of the Water Quality Standards. The SWPPP shall be routinely reviewed and updated in accordance with the requirements of this section.

Storm water discharges are a violation of this permit if:

The receiving water will contain unnatural turbidity, color, oil films, floating solids, foams, settleable solids, suspended solids, or deposits as a result of this discharge; or

The permittee has not implemented an acceptable SWPPP.

a. Source Identification

To identify potential sources of significant materials that can pollute storm water and subsequently be discharged from the facility, the SWPPP shall, at a minimum, include the following:

1) A site map identifying the following: buildings and other permanent structures; storage or disposal areas for significant materials; secondary containment structures and descriptions of what is contained in the primary containment structures; storm water discharge outfalls (numbered or otherwise labeled for reference); location of storm water and non-storm inlets (catch basins, roof drains, conduits, drain tiles, retention pond riser pipes, and sump pumps) (numbered or otherwise labeled for reference) contributing to each outfall; location of NPDES permitted discharges other than storm water; outlines of the drainage areas contributing to each outfall; structural runoff controls or storm water treatment facilities; areas of vegetation (with brief description such as lawn, old field, marsh, wooded, etc); areas of exposed and/or erodible soils and gravel lots; impervious surfaces (roofs, asphalt, concrete); name and location of receiving water(s); and areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the Michigan Act;

2) A list of all significant materials that could pollute storm water. For each material listed, the SWPPP shall include each of the following descriptions:

- a) ways in which each type of significant material has been or has reasonable potential to become exposed to storm water (e.g., spillage during handling; leaks from pipes, pumps, and vessels; contact with storage piles, contaminated materials, or soils; waste handling and disposal; deposits from dust or overspray, etc.);
- b) an evaluation of the reasonable potential for contribution of significant materials to runoff from at least the following areas or activities: loading, unloading, and other significant material handling operations; outdoor storage, including secondary containment structures; outdoor manufacturing or processing activities; significant dust or particulate generating processes; discharge from vents, stacks and air emission controls; on-site waste treatment, storage, and disposal practices; maintenance and cleaning of vehicles, machines and equipment; sites of exposed and/or erodible soil; Sites of Environmental Contamination listed under Part 201 (Environmental Response) of the Michigan Act; waste management units and areas of concern subject to corrective action under Part 111 (Hazardous Waste Management) or Part 115 (Solid Waste Management) of the Michigan Act; areas of significant material residues; areas where animals congregate (wild or domestic) and deposit wastes; and other areas where storm water may contact significant materials;

PART I**Section A. Limitations and Monitoring Requirements**

- c) identification of the outfall(s) and the inlet(s) contributing the significant material to each outfall through which the significant material may be discharged if released;
 - d) a listing of significant spills and significant leaks of polluting materials that occurred at areas that are exposed to precipitation or that otherwise discharge to a point source at the facility. The listing shall include spills that occurred over the three (3) years prior to the completion of the SWPPP or latest update of the SWPPP; the date, volume and exact location of release; and the action taken to clean up the material and/or prevent exposure to storm water runoff or contamination of surface waters of the state. Any release that occurs after the SWPPP has been developed shall be controlled in accordance with the SWPPP and is cause for the SWPPP to be updated as appropriate within 14 calendar days of obtaining knowledge of the spill or loss; and
 - e) the permittee shall determine whether its facility discharges storm water to a water body for which the Department has established a Total Maximum Daily Load (TMDL). If so, the permittee shall assess whether the TMDL requirements for the facility's discharge are being met through the existing SWPPP controls or whether additional control measures are necessary. The permittee's assessment of whether the TMDL requirements are being met shall focus on the effectiveness, adequacy, and implementation of the permittee's SWPPP controls; and
- 3) A summary of existing storm water discharge sampling data (if available) describing pollutants in storm water discharges at the facility. This summary shall be accompanied by a description of the suspected source(s) of the pollutants detected.
- b. Preventive Measures and Source Controls, Non-Structural
- To prevent significant materials from contacting storm water at the source, the SWPPP shall, at a minimum, include the following non-structural controls:
- 1) A program which includes a schedule for routine preventive maintenance. The preventive maintenance program shall consist of routine inspections and maintenance of storm water management and control devices (e.g., cleaning of oil/water separators and catch basins, routine housekeeping activities, etc.) as well as inspecting and testing plant equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to the storm sewer system or the surface waters of the state. The routine inspection shall include areas of the facility in which significant materials have the reasonable potential to contaminate runoff. A written report of the inspection and corrective actions shall be maintained on file by the permittee, and shall be retained in accordance with Record Keeping, below;
 - 2) Good housekeeping procedures to maintain a clean, orderly facility. Good housekeeping procedures shall include routine inspections that focus on the areas of the facility that have a reasonable potential to contaminate storm water runoff from the property. The routine housekeeping inspections may be combined with the routine inspections for the preventive maintenance program. A written report of the inspection and corrective actions shall be retained in accordance with Record Keeping, below;
 - 3) Regularly scheduled comprehensive site inspections. The inspections shall include, but not be limited to, the structural controls in use at the facility and the areas and equipment identified in the preventive maintenance program and good housekeeping procedures. The inspections shall also include a review of the routine preventive maintenance reports, good housekeeping inspections reports, and any other paperwork associated with the SWPPP. The comprehensive site inspection shall be conducted by the Certified Storm Water Operator at least quarterly. The permittee may request Department approval of an alternate schedule for comprehensive site inspections. A written report of the inspection and corrective actions shall be retained in accordance with Record Keeping, below. Included in the report shall be a certification that the facility is in compliance with this permit and the SWPPP;

PART I

Section A. Limitations and Monitoring Requirements

4) Material handling procedures and storage requirements for significant materials. Equipment and procedures for cleaning up spills shall be identified in the SWPPP and made available to the appropriate personnel. The procedures shall identify measures to prevent the spilled materials or material residues from contaminating storm water runoff from the property. The SWPPP shall include language describing what a reportable spill or release is and the appropriate reporting requirements in accordance with Part II.C.6. and Part II.C.7. of the permit. The SWPPP may include, by reference, requirements of either a Pollution Incident Prevention Plan (PIPP) prepared in accordance with the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code); a Hazardous Waste Contingency Plan prepared in accordance with 40 CFR 264 and 265 Subpart D, as required by Part 111 of the Michigan Act; or a Spill Prevention Control and Countermeasure (SPCC) plan prepared in accordance with 40 CFR 112;

5) Measures used to control soil erosion and sedimentation including identification of the areas that, due to topography, activities, or other factors, have a high potential for significant soil erosion. Gravel lots are to be included;

6) A description of the employee training program which will be implemented on an annual basis to inform appropriate personnel at all levels of their responsibility as it relates to the components and goals of the SWPPP. The SWPPP shall identify periodic dates for the employee training program. Records of the employee training program shall be retained in accordance with Record Keeping, below; and

7) Actions being taken to limit the discharge of significant materials in order to comply with TMDL requirements.

The SWPPP shall identify significant materials expected to be present in storm water discharges following implementation of non-structural preventative measures and source controls.

c. Structural Controls for Prevention and Treatment

Where implementation of the measures required by Preventive Measures and Source Controls, Non-Structural; above; does not control storm water discharges in accordance with Water Quality Standards, below, the SWPPP shall provide a description of the location, function, design criteria, and installation/construction schedules of structural controls for prevention and treatment. Structural controls may be necessary:

1) To prevent uncontaminated storm water from contacting or being contacted by significant materials, and/or

2) If preventive measures are not feasible or are inadequate to keep significant materials at the site from contaminating storm water.

Structural controls shall be used to treat, divert, isolate, recycle, reuse, or otherwise manage storm water in a manner that reduces the level of significant materials in the storm water and provides compliance with the Water Quality Standards, below.

d. Keeping SWPPPs Current

1) The permittee and/or the Certified Storm Water Operator shall review the SWPPP annually after it is developed and maintain a written report of the review in accordance with Record Keeping, below. Based on the review, the permittee or the Certified Storm Water Operator shall amend the SWPPP as needed to ensure continued compliance with the terms and conditions of this permit. The written report shall be submitted to the department on or before January 10th of each year.

2) The SWPPP developed under the conditions of a previous permit shall be amended as necessary to ensure compliance with this permit.

PART I**Section A. Limitations and Monitoring Requirements**

3) The SWPPP shall be updated or amended whenever changes at the facility have the potential to increase the exposure of significant materials to storm water, significant spills at the facility occur, or when the SWPPP is determined by the permittee or the Department to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Updates based on increased activity at the facility shall include a description of how the permittee intends to control any new sources of significant materials or respond to and prevent spills in accordance with the requirements of Source Identification; Preventive Measures and Source Controls, Non-Structural; and Structural Controls for Prevention and Treatment; above.

4) The Department or authorized representative may notify the permittee at any time that the SWPPP does not meet minimum requirements. Such notification shall identify why the SWPPP does not meet minimum requirements. The permittee shall make the required changes to the SWPPP within 30 days after such notification from the Department or authorized representative and shall submit to the Department a written certification that the requested changes have been made.

5) Amendments to the SWPPP shall be signed and retained on-site pursuant to Record Keeping, below.

e. **Certified Storm Water Operator Requirements**

A Certified Storm Water Operator certified by the Department is required by Section 3110 of the Michigan Act. The Certified Storm Water Operator shall have supervision over the facility's storm water treatment and control measures included in the SWPPP. The names and certification numbers of the Certified Storm Water Operators shall be included in the SWPPP.

If the Certified Storm Water Operator is changed or an additional Certified Storm Water Operator is added, the permittee shall provide the name and certification number of the new Certified Storm Water Operator to the Department. If a facility has multiple Certified Storm Water Operators, the names and certification numbers of the Certified Storm Water Operators shall be included in the SWPPP.

f. **Signature and SWPPP Review**

1) The SWPPP shall be signed by the Certified Storm Water Operator and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. The SWPPP and associated records shall be retained on-site at the facility which generates the storm water discharge.

2) The permittee shall make SWPPPs, reports, log books, storm water discharge sampling data (if collected), and items required by Record Keeping, below, available upon request to the Department or authorized representative.

g. **Record Keeping**

The permittee shall maintain records of all SWPPP related inspection and maintenance activities. Records shall also be kept describing incidents such as spills or other discharges that can affect the quality of storm water runoff. All such records shall be retained for three (3) years.

h. **Water Quality Standards**

At the time of discharge, there shall be no violation of the Water Quality Standards in the receiving waters as a result of the storm water discharge. This requirement includes, but is not limited to, the following conditions:

1) In accordance with Rule 323.1050 of the Water Quality Standards, the receiving waters shall not have any of the following unnatural physical properties as a result of this discharge in quantities which are or may become injurious to any designated use: turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits;

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Section A. Limitations and Monitoring Requirements

2) Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Department followed by a written report within five (5) days detailing the findings of the investigation and the steps taken to correct the condition; and

3) Any pollutant for which a level of control is specified to meet a TMDL established by the Department shall be controlled at the facility so that its discharge is reduced by/to the amount specified in the TMDL.

i. **Prohibition of Non-storm Water Discharges**

Discharges of material other than storm water shall be in compliance with an NPDES permit issued for the discharge. Storm water shall be defined to include the following non-storm water discharges provided pollution prevention controls for the non-storm water component are identified in the SWPPP: discharges from fire hydrant flushing, potable water sources including water line flushing, water from fire system testing and fire fighting training without burned materials or chemical fire suppressants, irrigation drainage, lawn watering, routine building wash down which does not use detergents or other compounds, pavement wash water where toxic or hazardous materials have not occurred (unless all contamination by toxic or hazardous materials have been removed) and where detergents are not used, air conditioning condensate, springs, uncontaminated groundwater, foundation or footing drains where flows are not contaminated with process materials such as solvents, and discharges from fire fighting activities. Discharges from fire fighting activities are exempted from the requirement to be identified in the SWPPP.

6. Facility Contact

The "Facility Contact" was specified in the application. The permittee may replace the facility contact at any time, and shall notify the Department in writing within 10 days after replacement (including the name, address and telephone number of the new facility contact).

a. The facility contact shall be (or a duly authorized representative of this person):

- for a corporation, a principal executive officer of at least the level of vice president, or a designated representative, if the representative is responsible for the overall operation of the facility from which the discharge described in the permit application or other NPDES form originates,
- for a partnership, a general partner,
- for a sole proprietorship, the proprietor, or
- for a municipal, state, or other public facility, either a principal executive officer, the mayor, village president, city or village manager or other duly authorized employee.

b. A person is a duly authorized representative only if:

- the authorization is made in writing to the Department by a person described in paragraph a. of this section; and
- the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the facility (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

Nothing in this section obviates the permittee from properly submitting reports and forms as required by law.

PART II

Section A. Definitions

This list of definitions may include terms not applicable to this permit.

Acute toxic unit (TU_A) means $100/LC_{50}$ where the LC_{50} is determined from a whole effluent toxicity (WET) test which produces a result that is statistically or graphically estimated to be lethal to 50% of the test organisms.

Bioaccumulative chemical of concern (BCC) means a chemical which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor of more than 1000 after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation. The human health bioaccumulation factor shall be derived according to R 323.1057(5). Chemicals with half-lives of less than 8 weeks in the water column, sediment, and biota are not BCCs. The minimum bioaccumulation concentration factor (BAF) information needed to define an organic chemical as a BCC is either a field-measured BAF or a BAF derived using the biota-sediment accumulation factor (BSAF) methodology. The minimum BAF information needed to define an inorganic chemical as a BCC, including an organometal, is either a field-measured BAF or a laboratory-measured bioconcentration factor (BCF). The BCCs to which these rules apply are identified in Table 5 of R 323.1057 of the Water Quality Standards.

Biosolids are the solid, semisolid, or liquid residues generated during the treatment of sanitary sewage or domestic sewage in a treatment works. This includes, but is not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes and a derivative of the removed scum or solids.

Bulk biosolids means biosolids that are not sold or given away in a bag or other container for application to a lawn or home garden.

Chronic toxic unit (TU_C) means $100/MATC$ or $100/IC_{25}$, where the maximum acceptable toxicant concentration (MATC) and IC_{25} are expressed as a percent effluent in the test medium.

Class B Biosolids refers to material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with the Part 24 Rules. Processes include aerobic digestion, composting, anaerobic digestion, lime stabilization and air drying.

Daily concentration is the sum of the concentrations of the individual samples of a parameter divided by the number of samples taken during any calendar day. If the parameter concentration in any sample is less than the quantification limit, regard that value as zero when calculating the daily concentration. The daily concentration will be used to determine compliance with any maximum and minimum daily concentration limitations (except for pH and dissolved oxygen). When required by the permit, report the maximum calculated daily concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the Discharge Monitoring Reports (DMRs).

For pH, report the maximum value of any individual sample taken during the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs and the minimum value of any individual sample taken during the month in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. For dissolved oxygen, report the minimum concentration of any individual sample in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Daily loading is the total discharge by weight of a parameter discharged during any calendar day. This value is calculated by multiplying the daily concentration by the total daily flow and by the appropriate conversion factor. The daily loading will be used to determine compliance with any maximum daily loading limitations. When required by the permit, report the maximum calculated daily loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMRs.

Department means the Michigan Department of Environmental Quality.

Detection Level means the lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability.

PART II

Section A. Definitions

Discharge Event is a discrete occurrence during which effluent is discharged to the surface water up to 10 days of a consecutive 14 day period.

EC₅₀ means a statistically or graphically estimated concentration that is expected to cause 1 or more specified effects in 50% of a group of organisms under specified conditions.

Fecal coliform bacteria monthly is the geometric mean of the samples collected in a calendar month (or 30 consecutive days). The calculated monthly value will be used to determine compliance with the maximum monthly fecal coliform bacteria limitations. When required by the permit, report the calculated monthly value in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMRs. FOR SEASONAL LAGOON DISCHARGES ONLY: If the period in which the discharge occurred was partially in each of two months, the monthly average shall be reported on the DMR of the month in which the last day of discharge occurred.

Fecal coliform bacteria 7-day is the geometric mean of the samples collected in any 7-day period. The calculated 7-day value will be used to determine compliance with the maximum 7-day fecal coliform bacteria limitations. When required by the permit, report the maximum calculated 7-day concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. FOR SEASONAL LAGOON DISCHARGES ONLY: If the seven day period was partially in each of two months, the seven day average shall be reported on the DMR of the month in which the last day of discharge occurred.

Flow Proportioned sample is a composite sample with the sample volume proportional to the effluent flow.

Grab sample is a single sample taken at neither a set time nor flow.

Geometric Mean is the average of the logarithmic values of a base 10 data set, converted back to a base 10 number.

IC₂₅ means the toxicant concentration that would cause a 25% reduction in a nonquantal biological measurement for the test population.

Interference is a discharge which, alone or in conjunction with a discharge or discharges from other sources, both: 1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and 2) therefore, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or, of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act. [This definition does not apply to sample matrix interference.]

Land Application means spraying or spreading biosolids or a biosolids derivative onto the land surface, injecting below the land surface, or incorporating into the soil so that the biosolids or biosolids derivative can either condition the soil or fertilize crops or vegetation grown in the soil.

LC₅₀ means a statistically or graphically estimated concentration that is expected to be lethal to 50% of a group of organisms under specified conditions.

Maximum acceptable toxicant concentration (MATC) means the concentration obtained by calculating the geometric mean of the lower and upper chronic limits from a chronic test. A lower chronic limit is the highest tested concentration that did not cause the occurrence of a specific adverse effect. An upper chronic limit is the lowest tested concentration which did cause the occurrence of a specific adverse effect and above which all tested concentrations caused such an occurrence.

MGD means million gallons per day.

PART II

Section A. Definitions

Monthly monitoring frequency refers to a calendar month. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

Monthly concentration is the sum of the daily concentrations determined during a reporting month (or 30 consecutive days) divided by the number of daily concentrations determined. The calculated monthly concentration will be used to determine compliance with any maximum monthly concentration limitations. When required by the permit, report the calculated monthly concentration in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMRs. FOR SEASONAL LAGOON DISCHARGES ONLY: If the period in which the discharge occurred was partially in each of two months, the monthly average shall be reported on the DMR of the month in which the last day of discharge occurred.

For minimum percent removal requirements, the monthly influent concentration and the monthly effluent concentration shall be determined. The calculated monthly percent removal, which is equal to 100 times the quantity [1 minus the quantity (monthly effluent concentration divided by the monthly influent concentration)], shall be reported in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Monthly loading is the sum of the daily loadings of a parameter divided by the number of daily loadings determined in the reporting month (or 30 consecutive days). The calculated monthly loading will be used to determine compliance with any maximum monthly loading limitations. When required by the permit, report the calculated monthly loading in the "AVERAGE" column under "QUANTITY OR LOADING" on the DMRs. FOR SEASONAL LAGOON DISCHARGES ONLY: If the period in which the discharge occurred was partially in each of two months, the monthly average shall be reported on the DMR of the month in which the last day of discharge occurred.

National Pretreatment Standards are the regulations promulgated by or to be promulgated by the Federal Environmental Protection Agency pursuant to Section 307(b) and (c) of the Federal Act. The standards establish nationwide limits for specific industrial categories for discharge to a POTW.

NTU means nephelometric turbidity unit.

No observed adverse effect level (NOAEL) means the highest tested dose or concentration of a substance which results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.

Noncontact Cooling Water is water used for cooling which does not come into direct contact with any raw material, intermediate product, by-product, waste product or finished product.

Nondomestic user is any discharger to a POTW that discharges wastes other than or in addition to water-carried wastes from toilet, kitchen, laundry, bathing or other facilities used for household purposes.

Partially treated sewage is any sewage, sewage and storm water, or sewage and wastewater, from domestic or industrial sources that is treated to a level less than that required by the permittee's National Pollutant Discharge Elimination System permit, or that is not treated to national secondary treatment standards for wastewater, including discharges to surface waters from retention treatment facilities.

Pretreatment is reducing the amount of pollutants, eliminating pollutants, or altering the nature of pollutant properties to a less harmful state prior to discharge into a public sewer. The reduction or alteration can be by physical, chemical, or biological processes, process changes, or by other means. Dilution is not considered pretreatment unless expressly authorized by an applicable National Pretreatment Standard for a particular industrial category.

POTW is a publicly owned treatment works.

Quantification level means the measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calculated at a specified concentration above the detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant.

PART II

Section A. Definitions

Quarterly monitoring frequency refers to a three month period, defined as January through March, April through June, July through September, and October through December. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

Regional Administrator is the Region 5 Administrator, U.S. EPA, located at R-19J, 77 W. Jackson Blvd., Chicago, Illinois 60604.

Significant industrial user is a nondomestic user that: 1) is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; or 2) discharges an average of 25,000 gallons per day or more of process wastewater to a POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastestream which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the permittee as defined in 40 CFR 403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's treatment plant operation or violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Significant Materials Significant Materials means any material which could degrade or impair water quality, including but not limited to: raw materials; fuels; solvents, detergents, and plastic pellets; finished materials such as metallic products; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (see 40 CFR 372.65); any chemical the facility is required to report pursuant to Section 313 of Emergency Planning and Community Right-to-Know Act (EPCRA); polluting materials as identified under the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code); Hazardous Wastes as defined in Part 111 of the Michigan Act; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Tier I value means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier I toxicity database.

Tier II value means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier II toxicity database.

Total Maximum Daily Loads (TMDLs) are required by the Federal Act for waterbodies that do not meet Water Quality Standards. TMDLs represent the maximum daily load of a pollutant that a waterbody can assimilate and meet Water Quality Standards and an allocation of that load among point sources, nonpoint sources, and a margin of safety.

Toxicity Reduction Evaluation (TRE) means a site-specific study conducted in a stepwise process designed to identify the causative agents of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity.

Water Quality Standards means the Part 4 Water Quality Standards promulgated pursuant to Part 31 of Act No. 451 of the Public Acts of 1994, as amended, being Rules 323.1041 through 323.1117 of the Michigan Administrative Code.

Weekly monitoring frequency refers to a calendar week which begins on Sunday and ends on Saturday. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

Yearly monitoring frequency refers to a calendar year beginning on January 1 and ending on December 31. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

24-Hour Composite sample is a flow proportioned composite sample consisting of hourly or more frequent portions that are taken over a 24-hour period.

PART II

Section A. Definitions

3-Portion Composite sample is a sample consisting of three equal volume grab samples collected at equal intervals over an 8-hour period.

7-day concentration is the sum of the daily concentrations determined during any 7 consecutive days in a reporting month divided by the number of daily concentrations determined. The calculated 7-day concentration will be used to determine compliance with any maximum 7-day concentration limitations. When required by the permit, report the maximum calculated 7-day concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. FOR SEASONAL LAGOON DISCHARGES ONLY: If the seven day period was partially in each of two months, the seven day average shall be reported on the DMR of the month in which the last day of discharge occurred.

7-day loading is the sum of the daily loadings of a parameter divided by the number of daily loadings determined during any 7 consecutive days in a reporting month. The calculated 7-day loading will be used to determine compliance with any maximum 7-day loading limitations. When required by the permit, report the maximum calculated 7-day loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMRs. FOR SEASONAL LAGOON DISCHARGES ONLY: If the seven day period was partially in each of two months, the seven day average shall be reported on the DMR of the month in which the last day of discharge occurred.

PART II**Section B. Monitoring Procedures****1. Representative Samples**

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations promulgated pursuant to Section 304(h) of the Federal Act (40 CFR Part 136 - Guidelines Establishing Test Procedures for the Analysis of Pollutants), unless specified otherwise in this permit. Requests to use test procedures not promulgated under 40 CFR Part 136 for pollutant monitoring required by this permit shall be made in accordance with the Alternate Test Procedures regulations specified in 40 CFR 136.4. These requests shall be submitted to the Chief of the Permits Section, Water Resources Division, Michigan Department of Environmental Quality, P.O. Box 30458, Lansing, Michigan, 48909-7773. The permittee may use such procedures upon approval.

The permittee shall periodically calibrate and perform maintenance procedures on all analytical instrumentation at intervals to ensure accuracy of measurements. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Control/Quality Assurance program.

3. Instrumentation

The permittee shall periodically calibrate and perform maintenance procedures on all monitoring instrumentation at intervals to ensure accuracy of measurements.

4. Recording Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information: 1) the exact place, date, and time of measurement or sampling; 2) the person(s) who performed the measurement or sample collection; 3) the dates the analyses were performed; 4) the person(s) who performed the analyses; 5) the analytical techniques or methods used; 6) the date of and person responsible for equipment calibration; and 7) the results of all required analyses.

5. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Regional Administrator or the Department.

PART II**Section C. Reporting Requirements****1. Start-up Notification**

If the permittee will not discharge during the first 60 days following the effective date of this permit, the permittee shall notify the Department within 14 days following the effective date of this permit, and then 60 days prior to the commencement of the discharge.

2. Submittal Requirements for Self-Monitoring Data

Part 31 of Act 451 of 1994, as amended, specifically Section 324.3110(3) and Rule 323.2155(2) of Part 21 allows the department to specify the forms to be utilized for reporting the required self-monitoring data. Unless instructed on the effluent limitations page to conduct "Retained Self Monitoring" the permittee shall submit self-monitoring data via the Department's Electronic Environmental Discharge Monitoring Reporting (e2-DMR) system.

The permittee shall utilize the information provided on the e2-Reporting website @ <https://secure1.state.mi.us/e2rs/> to access and submit the electronic forms. Both monthly summary and daily data shall be submitted to the department no later than the **20th day of the month** following each month of the authorized discharge period(s). The permittee may be allowed to submit the electronic forms after this date if the Department has granted an extension to the submittal date.

3. Retained Self-Monitoring Requirements

If instructed on the effluent limits page to conduct retained self-monitoring, the permittee shall maintain a year-to-date log of retained self-monitoring results and, upon request, provide such log for inspection to the staff of the Water Resources Division, Michigan Department of Environmental Quality. Retained self-monitoring results are public information and shall be promptly provided to the public upon request.

The permittee shall certify, in writing, to the Department, on or before January 10th of each year, that: 1) all retained self-monitoring requirements have been complied with and a year-to-date log has been maintained; and 2) the application on which this permit is based still accurately describes the discharge. With this annual certification, the permittee shall submit a summary of the previous years monitoring data. The summary shall include maximum values for samples to be reported as daily maximums and/or monthly maximums and minimum values for any daily minimum samples.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

Monitoring required pursuant to Part 41 of the Michigan Act or Rule 35 of the Mobile Home Park Commission Act (Act 96 of the Public Acts of 1987) for assurance of proper facility operation shall be submitted as required by the Department.

5. Compliance Dates Notification

Within 14 days of every compliance date specified in this permit, the permittee shall submit a written notification to the Department indicating whether or not the particular requirement was accomplished. If the requirement was not accomplished, the notification shall include an explanation of the failure to accomplish the requirement, actions taken or planned by the permittee to correct the situation, and an estimate of when the requirement will be accomplished. If a written report is required to be submitted by a specified date and the permittee accomplishes this, a separate written notification is not required.

PART II

Section C. Reporting Requirements

6. Noncompliance Notification

Compliance with all applicable requirements set forth in the Federal Act, Parts 31 and 41 of the Michigan Act, and related regulations and rules is required. All instances of noncompliance shall be reported as follows:

- a. 24-hour reporting - Any noncompliance which may endanger health or the environment (including maximum and/or minimum daily concentration discharge limitation exceedances) shall be reported, verbally, within 24 hours from the time the permittee becomes aware of the noncompliance. A written submission shall also be provided within five (5) days.
- b. other reporting - The permittee shall report, in writing, all other instances of noncompliance not described in a. above at the time monitoring reports are submitted; or, in the case of retained self-monitoring, within five (5) days from the time the permittee becomes aware of the noncompliance.

Written reporting shall include: 1) a description of the discharge and cause of noncompliance; and 2) the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and the steps taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

7. Spill Notification

The permittee shall immediately report any release of any polluting material which occurs to the surface waters or groundwaters of the state, unless the permittee has determined that the release is not in excess of the threshold reporting quantities specified in the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code), by calling the Department at the number indicated on the second page of this permit, or if the notice is provided after regular working hours call the Department's 24-hour Pollution Emergency Alerting System telephone number, 1-800-292-4706 (calls from out-of-state dial 1-517-373-7660).

Within ten (10) days of the release, the permittee shall submit to the Department a full written explanation as to the cause of the release, the discovery of the release, response (clean-up and/or recovery) measures taken, and preventative measures taken or a schedule for completion of measures to be taken to prevent reoccurrence of similar releases.

8. Upset Noncompliance Notification

If a process "upset" (defined as an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee) has occurred, the permittee who wishes to establish the affirmative defense of upset, shall notify the Department by telephone within 24-hours of becoming aware of such conditions; and within five (5) days, provide in writing, the following information:

- a. that an upset occurred and that the permittee can identify the specific cause(s) of the upset;
- b. that the permitted wastewater treatment facility was, at the time, being properly operated; and
- c. that the permittee has specified and taken action on all responsible steps to minimize or correct any adverse impact in the environment resulting from noncompliance with this permit.

In any enforcement proceedings, the permittee, seeking to establish the occurrence of an upset, has the burden of proof.

PART II**Section C. Reporting Requirements****9. Bypass Prohibition and Notification**

- a. Bypass Prohibition - Bypass is prohibited unless:
 - 1) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - 2) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass; and
 - 3) the permittee submitted notices as required under 9.b. or 9.c. below.
- b. Notice of Anticipated Bypass - If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least ten (10) days before the date of the bypass, and provide information about the anticipated bypass as required by the Department. The Department may approve an anticipated bypass, after considering its adverse effects, if it will meet the three (3) conditions listed in 9.a. above.
- c. Notice of Unanticipated Bypass - The permittee shall submit notice to the Department of an unanticipated bypass by calling the Department at the number indicated on the second page of this permit (if the notice is provided after regular working hours, use the following number: 1-800-292-4706) as soon as possible, but no later than 24 hours from the time the permittee becomes aware of the circumstances.
- d. Written Report of Bypass - A written submission shall be provided within five (5) working days of commencing any bypass to the Department, and at additional times as directed by the Department. The written submission shall contain a description of the bypass and its cause; the period of bypass, including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass; and other information as required by the Department.
- e. Bypass Not Exceeding Limitations - The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of 9.a., 9.b., 9.c., and 9.d., above. This provision does not relieve the permittee of any notification responsibilities under Part II.C.10. of this permit.
- f. Definitions
 - 1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
 - 2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

PART II

Section C. Reporting Requirements

10. Notification of Changes in Discharge

The permittee shall notify the Department, in writing, within 10 days of knowing, or having reason to believe, that any activity or change has occurred or will occur which would result in the discharge of: 1) detectable levels of chemicals on the current Michigan Critical Materials Register, priority pollutants or hazardous substances set forth in 40 CFR 122.21, Appendix D, or the Pollutants of Initial Focus in the Great Lakes Water Quality Initiative specified in 40 CFR 132.6, Table 6, which were not acknowledged in the application or listed in the application at less than detectable levels; 2) detectable levels of any other chemical not listed in the application or listed at less than detection, for which the application specifically requested information; or 3) any chemical at levels greater than five times the average level reported in the complete application (see the first page of this permit for the date(s) the complete application was submitted). Any other monitoring results obtained as a requirement of this permit shall be reported in accordance with the compliance schedules.

11. Changes in Facility Operations

Any anticipated action or activity, including but not limited to facility expansion, production increases, or process modification, which will result in new or increased loadings of pollutants to the receiving waters must be reported to the Department by a) submission of an increased use request (application) and all information required under Rule 323.1098 (Antidegradation) of the Water Quality Standards or b) by notice if the following conditions are met: 1) the action or activity will not result in a change in the types of wastewater discharged or result in a greater quantity of wastewater than currently authorized by this permit; 2) the action or activity will not result in violations of the effluent limitations specified in this permit; 3) the action or activity is not prohibited by the requirements of Part II.C.12.; and 4) the action or activity will not require notification pursuant to Part II.C.10. Following such notice, the permit may be modified according to applicable laws and rules to specify and limit any pollutant not previously limited.

12. Bioaccumulative Chemicals of Concern (BCC)

Consistent with the requirements of Rules 323.1098 and 323.1215 of the Michigan Administrative Code, the permittee is prohibited from undertaking any action that would result in a lowering of water quality from an increased loading of a BCC unless an increased use request and antidegradation demonstration have been submitted and approved by the Department.

13. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the permittee shall submit to the Department 30 days prior to the actual transfer of ownership or control a written agreement between the current permittee and the new permittee containing: 1) the legal name and address of the new owner; 2) a specific date for the effective transfer of permit responsibility, coverage and liability; and 3) a certification of the continuity of or any changes in operations, wastewater discharge, or wastewater treatment.

If the new permittee is proposing changes in operations, wastewater discharge, or wastewater treatment, the Department may propose modification of this permit in accordance with applicable laws and rules.

PART II**Section D. Management Responsibilities****1. Duty to Comply**

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.

It is the duty of the permittee to comply with all the terms and conditions of this permit. Any noncompliance with the Effluent Limitations, Special Conditions, or terms of this permit constitutes a violation of the Michigan Act and/or the Federal Act and constitutes grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of an application for permit renewal.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

2. Operator Certification

The permittee shall have the waste treatment facilities under direct supervision of an operator certified at the appropriate level for the facility certification by the Department, as required by Sections 3110 and 4104 of the Michigan Act. Permittees authorized to discharge storm water shall have the storm water treatment and/or control measures under direct supervision of a storm water operator certified by the Department, as required by Section 3110 of the Michigan Act.

3. Facilities Operation

The permittee shall, at all times, properly operate and maintain all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures.

4. Power Failures

In order to maintain compliance with the effluent limitations of this permit and prevent unauthorized discharges, the permittee shall either:

- a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit; or
- b. upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, the permittee shall halt, reduce or otherwise control production and/or all discharge in order to maintain compliance with the effluent limitations and conditions of this permit.

5. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the surface waters or groundwaters of the state resulting from noncompliance with any effluent limitation specified in this permit including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the discharge in noncompliance.

PART II

Section D. Management Responsibilities

6. Containment Facilities

The permittee shall provide facilities for containment of any accidental losses of polluting materials in accordance with the requirements of the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code). For a Publicly Owned Treatment Work (POTW), these facilities shall be approved under Part 41 of the Michigan Act.

7. Waste Treatment Residues

Residuals (i.e. solids, sludges, biosolids, filter backwash, scrubber water, ash, grit, or other pollutants or wastes) removed from or resulting from treatment or control of wastewaters, including those that are generated during treatment or left over after treatment or control has ceased, shall be disposed of in an environmentally compatible manner and according to applicable laws and rules. These laws may include, but are not limited to, the Michigan Act, Part 31 for protection of water resources, Part 55 for air pollution control, Part 111 for hazardous waste management, Part 115 for solid waste management, Part 121 for liquid industrial wastes, Part 301 for protection of inland lakes and streams, and Part 303 for wetlands protection. Such disposal shall not result in any unlawful pollution of the air, surface waters or groundwaters of the state.

8. Right of Entry

The permittee shall allow the Department, any agent appointed by the Department or the Regional Administrator, upon the presentation of credentials:

- a. to enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and
- b. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect process facilities, treatment works, monitoring methods and equipment regulated or required under this permit; and to sample any discharge of pollutants.

9. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Act and Rule 2128 (Rule 323.2128 of the Michigan Administrative Code), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department and the Regional Administrator. As required by the Federal Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Act and Sections 3112, 3115, 4106 and 4110 of the Michigan Act.

PART II**Section E. Activities Not Authorized by This Permit****1. Discharge to the Groundwaters**

This permit does not authorize any discharge to the groundwaters. Such discharge may be authorized by a groundwater discharge permit issued pursuant to the Michigan Act.

2. POTW Construction

This permit does not authorize or approve the construction or modification of any physical structures or facilities at a POTW. Approval for the construction or modification of any physical structures or facilities at a POTW must be by permit issued under Part 41 of the Michigan Act.

3. Civil and Criminal Liability

Except as provided in permit conditions on "Bypass" (Part II.C.9. pursuant to 40 CFR 122.41(m)), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance, whether or not such noncompliance is due to factors beyond the permittee's control, such as accidents, equipment breakdowns, or labor disputes.

4. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee may be subject under Section 311 of the Federal Act except as are exempted by federal regulations.

5. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Federal Act.

6. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other Department of Environmental Quality permits, or approvals from other units of government as may be required by law.

Appendix A.2

MDEQ Floodplain Permit for North Ditch



**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
PERMIT**

ISSUED TO:

RACER Properties
c/o Dave Favero
500 Woodward Avenue, Suite 1500
Detroit, MI 48226

Permit No.	15-73-0003-P
Issued	August 11, 2015
Extended	
Revised	
Expires	August 11, 2020

This permit is being issued by the Michigan Department of Environmental Quality (MDEQ) under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and specifically:

- | | |
|--|---|
| ☒ Part 301, Inland Lakes and Streams | ☐ Part 315, Dam Safety |
| ☐ Part 325, Great Lakes Submerged Lands | ☐ Part 323, Shorelands Protection and Management |
| ☐ Part 303, Wetlands Protection | ☐ Part 353, Sand Dunes Protection and Management |
| ☒ Part 31, Floodplain/Water Resources Protection | |

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Permitted Activity: 2350 Veterans Memorial Parkway, Saginaw, MI

Place up to 3,826 cubic yards of clean fill and excavate 482 within the 100-year floodplain of the Saginaw River. All work must be completed in accordance with the attached plans.

Water Course Affected: Saginaw River

Property Location: Saginaw County, City of Saginaw, Section 8

Town/Range 12N, 5E **Property Tax No.** 21-4333-00500

Authority granted by this permit is subject to the following limitations:

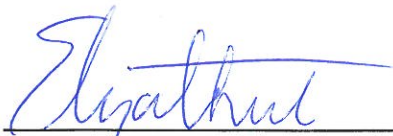
- A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
- B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31, Water Resources Protection, of the NREPA.
- C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
- D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
- E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
- F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Act of 1974 and comply with each of the requirements of that Act.
- G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
- H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
- I. Permittee shall notify the MDEQ within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
- J. This permit shall not be assigned or transferred without the written approval of the MDEQ.

- K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
- L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31, and wetland).
- M. In issuing this permit, the MDEQ has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, the MDEQ may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
- N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the State (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the State and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
- O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, the MDEQ may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
- P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from the MDEQ. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by the MDEQ prior to being implemented.
- Q. This permit may be transferred to another person upon written approval of the MDEQ. The permittee must submit a written request to the MDEQ to transfer the permit to the new owner. The new owner must also submit a written request to the MDEQ to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties which includes all the above information may be provided to the MDEQ. The MDEQ will review the request and if approved, will provide written notification to the new owner.
- R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
- S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
- T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent.
- U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
- V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
- W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
- X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the MDNR, Fisheries Division.
- Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:
 - 1. The design flood or 1% annual chance (100-year) floodplain elevation at this location on the Saginaw River is 589.3 feet NGVD29.
 - 2. Unless specifically stated under the "Permitted Activity" of this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a floodplain, wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
 - 3. The compensating cut (excavations) for floodplain fill, as authorized by this permit, shall be completed prior to, or concurrently with, the placement of the fill. The compensating cut and fill areas shall be

properly stabilized to prevent soil erosion and off site sedimentation in conformance with Part 91, Soil Erosion and Sedimentation Control, of the NREPA.

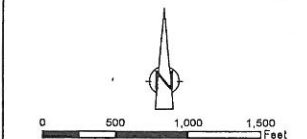
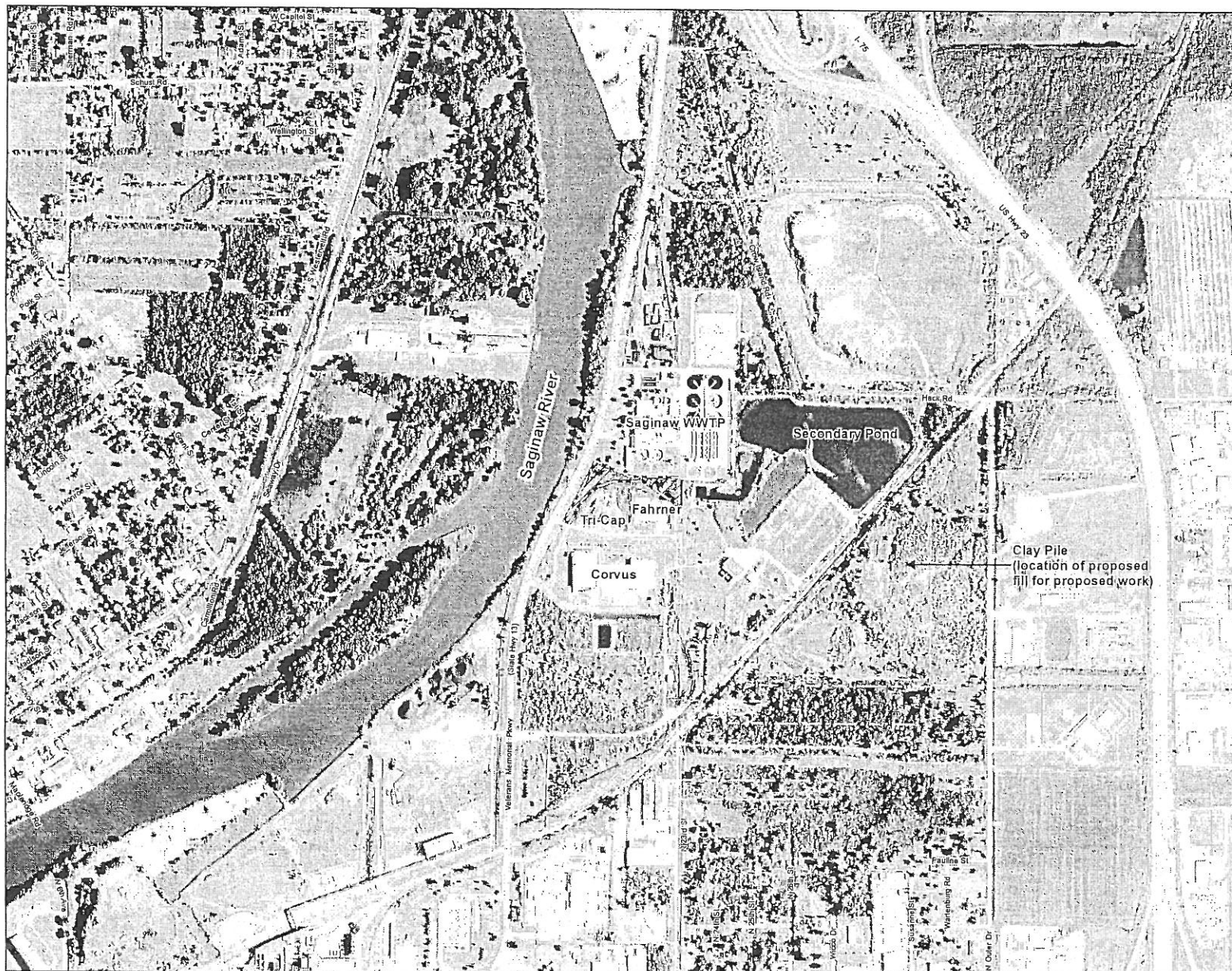
4. Fill shall not be placed to prevent surface water drainage across the site. Site runoff shall be directed to public or natural drainage ways and not unnaturally discharged onto adjacent properties.
5. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
6. All fill/backfill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants. All fill shall be contained in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be stabilized with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.
7. Under Appendix G of the Michigan Building Code 2009, a local building permit is required for development located in flood hazard areas.
8. The project is located within a community that participates in the National Flood Insurance Program (NFIP). As a participant in the NFIP, the community must comply with the Michigan Building Code (including Appendix G and listed supporting materials); the Michigan Residential Code; and Title 44 of the Code of Federal Regulations, Part 60, Criteria for Land Management and Use. The community is also responsible to ensure that its floodplain maps and studies are maintained to show changes to flood elevations and flood delineations as described in 44 CFR, Part 65, Identification and Mapping of Special Hazard Areas.
9. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to or part of this project shall be confined to the existing right-of-way limits or other acquired easements.
10. Authority granted by this permit does not waive any jurisdiction of the United States Army Corps of Engineers or the need for a federal permit, if required.
11. Authority granted by this permit does not waive permit or program requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA), if applicable. To locate the Soil Erosion Program Administrator for your county visit www.mi.gov/soilerosion and look for Soil Erosion and Sedimentation Control Agencies under "SESC Info".
12. No fill, excess soil, or other material shall be placed in the 100-year floodplain, any wetland or surface water area not specifically authorized by this permit, its plans, and specifications.
13. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state or federal approval or authorization, necessary to conduct the activity.
14. This permit is limited to authorizing the construction as specified above and carries with it no assurances or implications that associated lake, stream, wetland or floodplain areas can be developed and serviced by the structures authorized by this permit.
15. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDEQ, will be for a five-year period beginning at the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

16. The permittee is hereby notified that portions of the parcel, not covered by this permit, fall under the regulatory authority of Part 301, Inland Lakes and Streams, and/or Part 31, Floodplain Regulatory Authority/Water Resources Protection, and/or Part 303, Wetlands Protection, of the NREPA. A permit from the MDEQ's Water Resources Division may be required for certain regulated activities. Failure to comply with the requirements of the NREPA may subject the owner to compliance actions as provided by statute.

By:  8/11/15
Elizabeth Theile
Water Resources Division
989-894-6224

cc: City of Saginaw Clerk
Saginaw Public Works Office
USACE
John-eric Pardys, Conestoga-Rovers & Associates

15-45-0003-P
EMT



LEGEND
 APPROXIMATE LIMITS OF RACER PROPERTY
 PROPOSED SITE WORK (NORTH DITCH)

WATER RESOURCES DIVISION
 FEB 19 2015

Coordinate System
 MICHIGAN STATE PLANE SOUTH, HAD 83 USHIS INTERNATIONAL FEET, NAD83

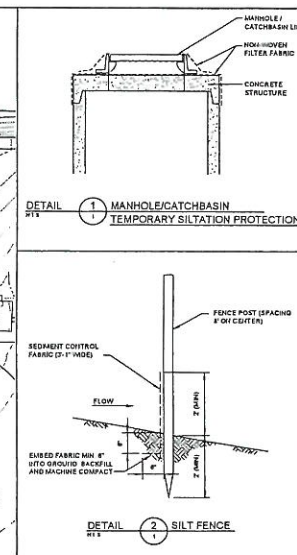
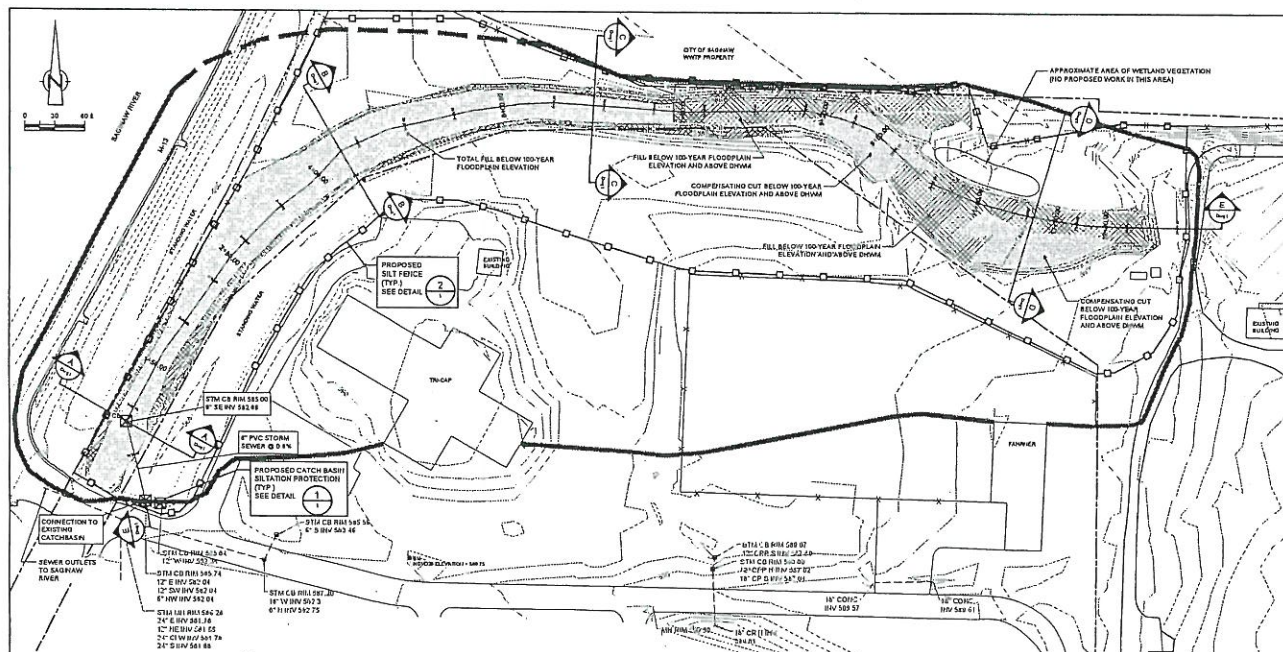
REVITALIZING AUTO COMMUNITIES
 ENVIRONMENTAL RESPONSE (RACER)
 SAGINAW NODULAR INDUSTRIAL LAND
 SAGINAW, MICHIGAN

SITE VICINITY MAP

CONESTOGA-ROVERS & ASSOCIATES

Source References HARBOR - 2014 SAGINAW COUNTY MAP PROVIDED BY U.S.A. STREETS - PROCESSED TO 2010 STREETS, U.S. CENSUS BUREAU			
Project Manager M.T.	Reviewed By J.E.P.	Date FEBRUARY 2015	
Scale 1:10,000	Project No. 55502-702	Memo No. 012	Drawing No 1

15-75-0005-P
EMT



NO.	Revision	Date	Initial

LEGEND	
---	EXISTING GROUND CONTOUR
---	EXISTING DITCH
---	RACER PROPERTY BOUNDARY
---	APPROXIMATE CATCHMENT BOUNDARY
---	EXISTING STORM SEWER
---	CENTER LINE OF PROPOSED SWALE
---	PROPOSED SWALE CONTOUR
---	PROPOSED CATCHBASIN
---	EXISTING CATCHBASIN
---	100-YEAR FLOODPLAIN
---	ELEVATION: 583.5 FT AMSL (NOV02)
---	DESIGN HIGH WATER MARK (DHWM)
---	ELEVATION: 585.4 FT AMSL
---	TOTAL FILL BELOW 100-YEAR FLOODPLAIN ELEVATION AND ABOVE DITCH
---	COMPENSATING CUT BELOW 100-YEAR FLOODPLAIN ELEVATION AND ABOVE DITCH
---	CATCHBASIN/MANHOLE SILTATION PROTECTION
---	PROPOSED SILT FENCE

SEDIMENT AND EROSION CONTROL NOTES:
1. THE SELECTED CONTRACTOR SHALL OBTAIN A SOIL EROSION AND SEDIMENTATION CONTROL (SESC) PERMIT THROUGH THE COUNTY OF SAGINAW AND COMPLETE THE WORK IN ACCORDANCE WITH THE SESC PERMIT. THE SESC MEASURES INCLUDED ON THIS DRAWING ARE EXPECTED TO MEET THE REQUIREMENTS OF THE COUNTY OF SAGINAW. HOWEVER, THE SPECIFIC DETAILS WILL BE INCLUDED IN THE PERMIT.
2. SEED MEASURES WILL BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. SESC MEASURES WILL BE INSPECTED AND MAINTAINED THROUGHOUT THE DURATION OF THE CONSTRUCTION ACTIVITIES AND UNTIL THE SITE IS FULLY STABILIZED.
4. DISCHARGE OF WATER FROM THE NORTH DITCH WILL BE CONDUCTED IN ACCORDANCE WITH THE IMPER PERMIT SUBMITTALS FOR THE SITE.
5. A FLOATED PUMP RELEASE, FILTER BAG, OR AN APPROVED EQUIVALENT WILL BE USED TO LIMIT THE AMOUNT OF SEDIMENT IN DISCHARGES FROM THE NORTH DITCH.

NOTE:
BENCHMARK (BM) ARROW ON HYDRANT SOUTH OF TRICAP BUILDING ALONG ASPHALT DRIVE NOV02 ELEVATION = 582.15

PARAMETER	UNIT	QUANTITY
LENGTH OF EXISTING DITCH	FEET	1015
MAXIMUM WIDTH OF EXISTING DITCH	FEET	83
TOTAL VOLUME OF FILL TO BE PLACED	CUBIC YARDS	3318
TOTAL VOLUME OF FILL ABOVE DITCH	CUBIC YARDS	173
COMPENSATING CUT VOLUME	CUBIC YARDS	34
NET RESULT (CUT ABOVE DITCH)	CUBIC YARDS	161

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

DRAWING STATUS	
Author	
Checker	
Reviewer	
Drawn	
Scale	
Date	
Initial	

REVITALIZING AUTO COMMUNITIES
ENVIRONMENTAL RESPONSE (RACER)
SAGINAW, MICHIGAN
NORTH DITCH
PLAN AND PROFILE

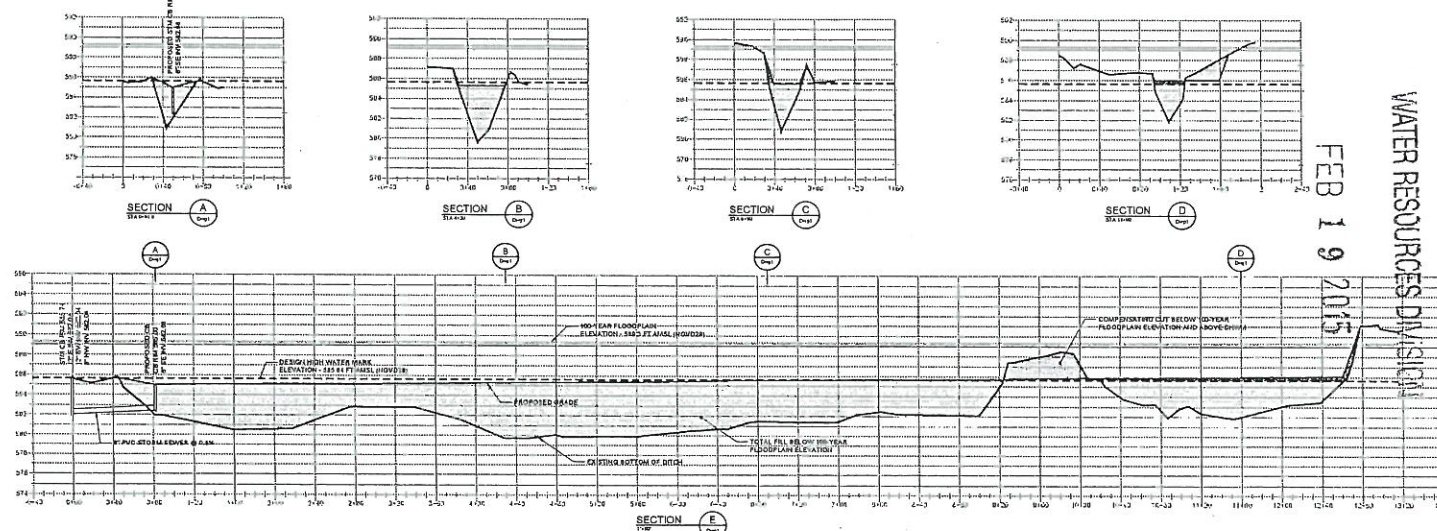
CONESTOGA-ROVERS & ASSOCIATES

Source References:			
Project Manager:	Review By:	Date:	
Client:	Project No.:	Revision:	
Scale:	Project No.:	Revision:	
VERT: 1"=40'	58502-T02	MEM0012	Dwg#1

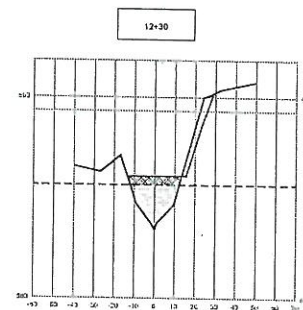
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WATER RESOURCES DIVISION

FEB 19 2015



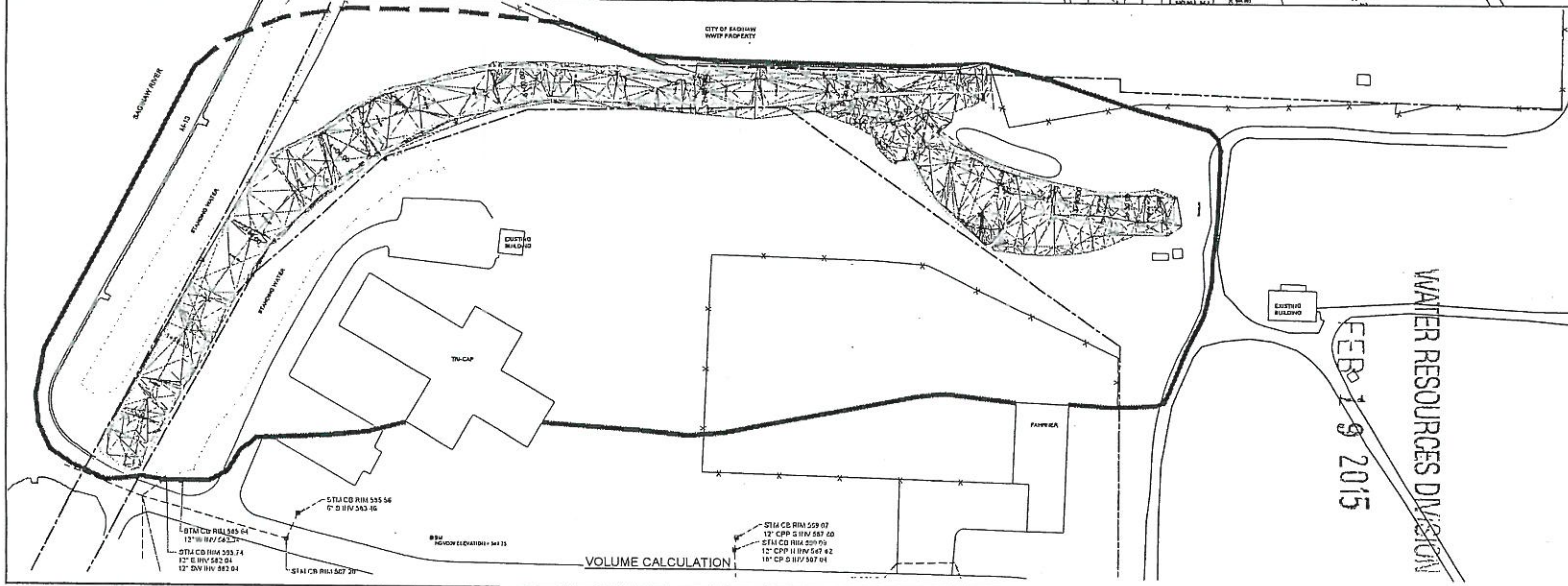
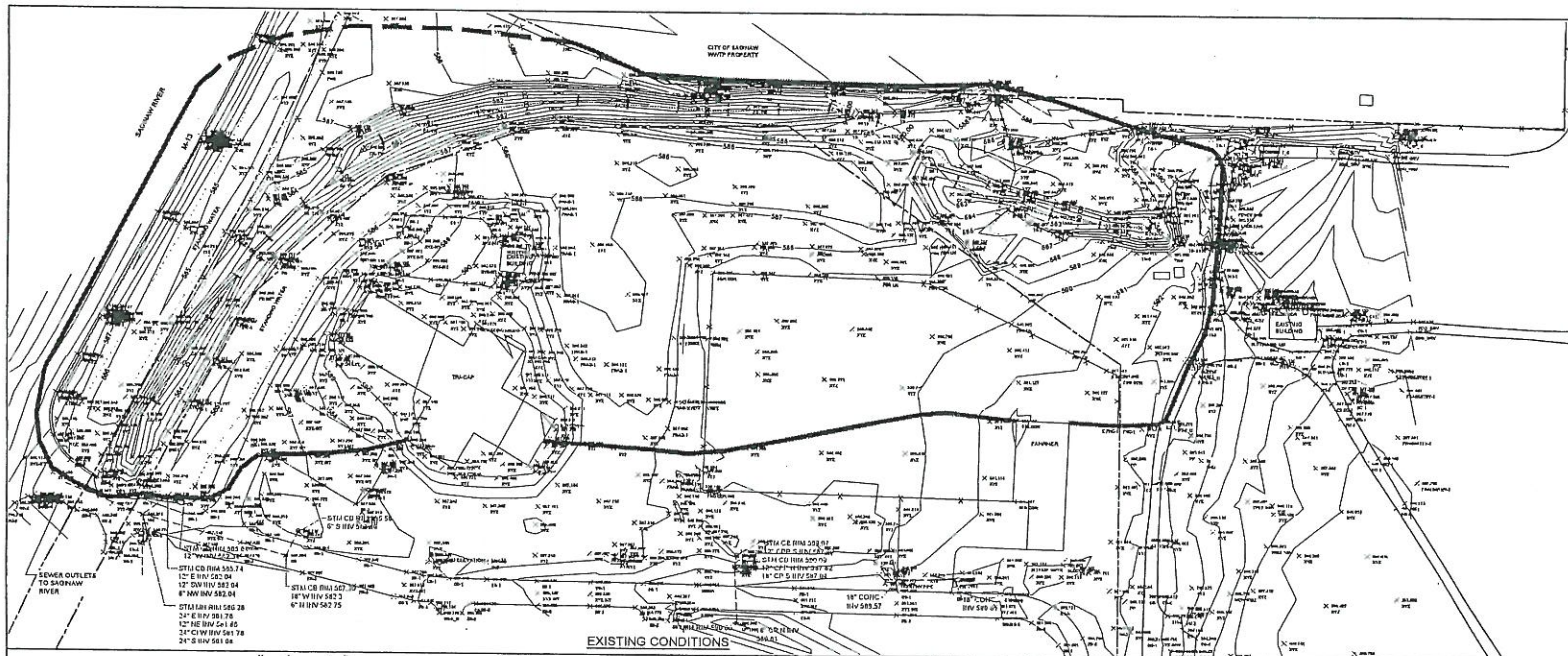
WATER RESOURCES DIVISION



FEB 19 2015

54502-T02(ME)0012)ON-VIA001 FEB 12/20

15-75-0005-Y
Emt



NO	Revision	Date	Initial



LEGEND

- 100 — EXISTING GROUND CONTOUR
- 100 — TOPO SURVEY POINT
- 100 — EXISTING DITCH
- 100 — RACER PROPERTY BOUNDARY
- 100 — FENCE
- 100 — APPROXIMATE CATCHMENT BOUNDARY
- 100 — EXISTING STORM SEWER
- 100 — CENTER LINE OF PROPOSED SWALE
- 100 — EXISTING CATCHBASIN
- 100 — TIN LINE

NOTE: REICHMARK (RM) ARROW OFFSHORE SOUTH OF THURGOOD BUILDING ALONG ASPHALT DRIVE HOUGH ELEVATION = 545.78

SCALE VERIFICATION

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

Approved

DRAWING STATUS

Status	Date	Initial

REVITALIZING AUTO COMMUNITIES
ENVIRONMENTAL RESPONSE (RACER)

SAGINAW, MICHIGAN

NORTH DITCH
FILL VOLUME SUPPORTING INFORMATION



CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

84502-000-000-MEMO005/DW-0003

Project Manager:	Reviewed By:	Date:
M. TONAKA	J. PARDY	FEBRUARY 2015
Scale:	Project No.:	Report No.:
1" = 80'	58502-T02	MEMO012
		Dwg3

84502-000-000-000-MEMO005/DW-0003 FEB 12/2015



PHOTO 5: NORTH DITCH (7/2013)

RESOURCES DIVISION

FEB 19 2015

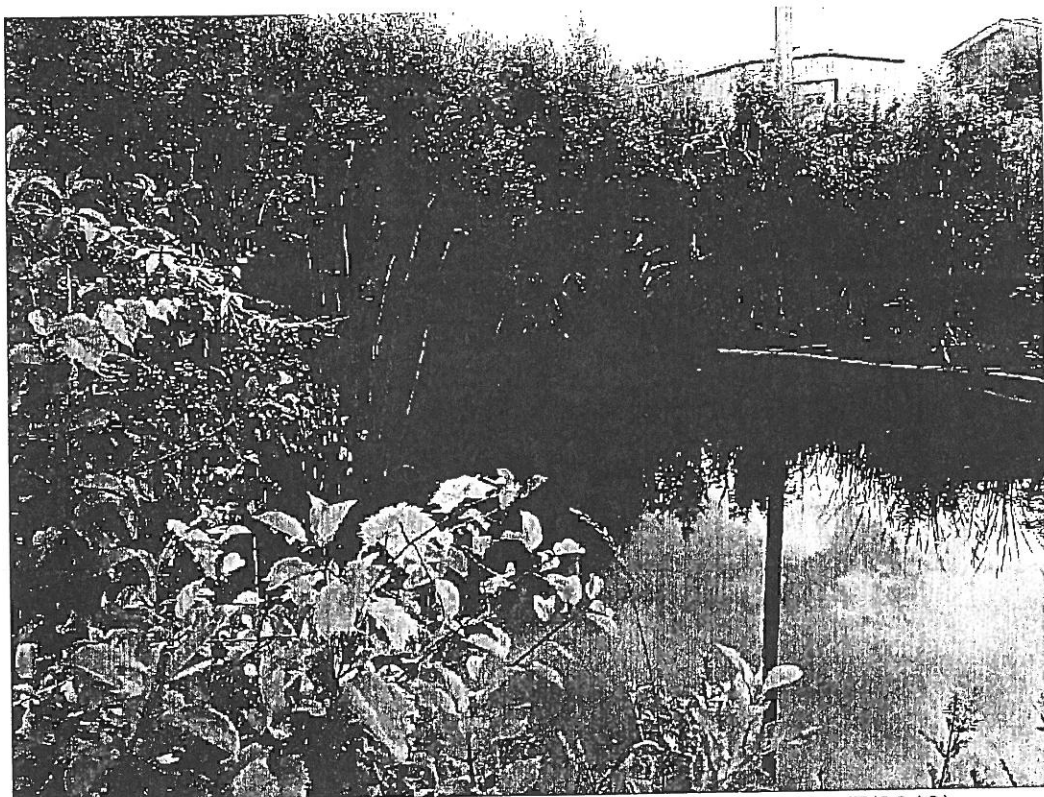


PHOTO 6: NORTH DITCH NEAR SECONDARY POND (7/2013)

SITE PHOTOGRAPHS
NORTH DITCH
NODULAR INDUSTRIAL LAND
SAGINAW, MI



PHOTO 5: NORTH DITCH (7/2013)

RESOURCES DIVISION

FEB 19 2015

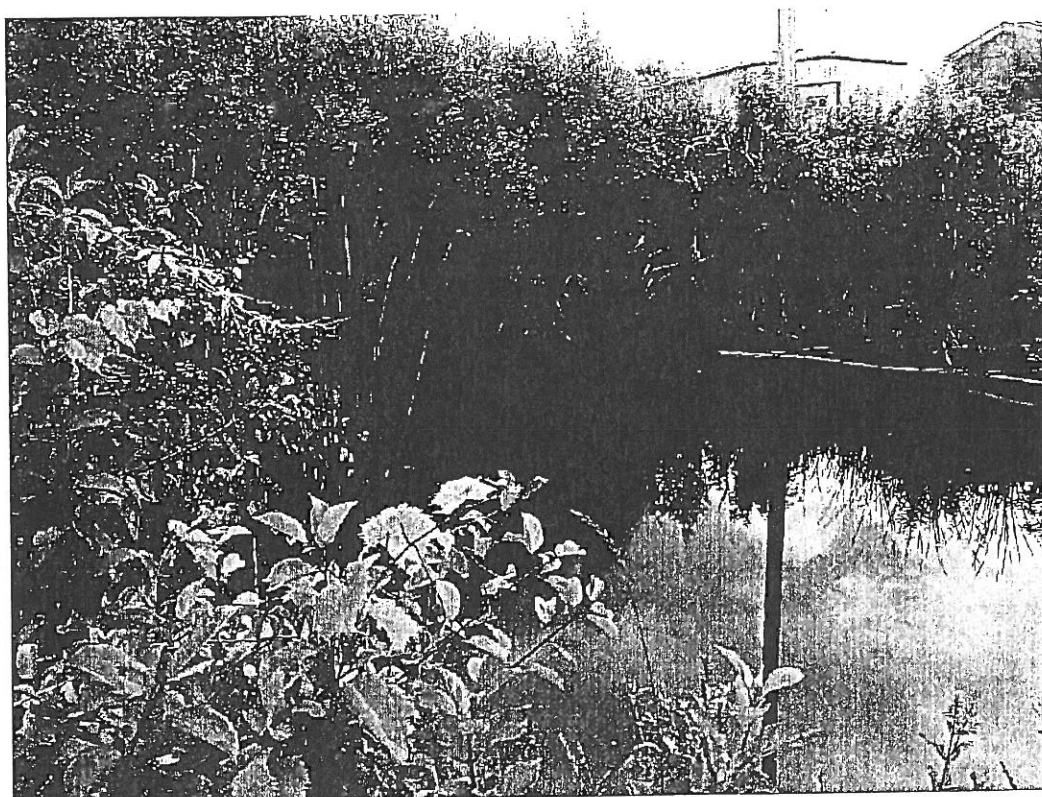


PHOTO 6: NORTH DITCH NEAR SECONDARY POND (7/2013)

SITE PHOTOGRAPHS
NORTH DITCH
NODULAR INDUSTRIAL LAND
SAGINAW, MI

Appendix A.3

MDEQ Floodplain Permit for Access to Clay Pile



**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
PERMIT**

ISSUED TO:

Mr. Dave Favero
RACER Properties LLC
500 Woodward Avenue, Suite 2650
Saginaw, Michigan 48601

Permit No.	WRP004925
Issued	October 27, 2016
Extended	
Revised	
Expires	October 27, 2021

This permit is being issued by the Michigan Department of Environmental Quality (MDEQ) under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and specifically:

- | | |
|--|---|
| ☐ Part 301, Inland Lakes and Streams | ☐ Part 315, Dam Safety |
| ☐ Part 325, Great Lakes Submerged Lands | ☐ Part 323, Shorelands Protection and Management |
| ☐ Part 303, Wetlands Protection | ☐ Part 353, Sand Dunes Protection and Management |
| ☒ Part 31, Floodplain/Water Resources Protection | |

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Permitted Activity:

Place up to 150 cubic yards of clean fill within the 100-year floodplain of the Saginaw River.

All work must be completed in accordance with the attached plans.

Water Course Affected: Saginaw River

Property Location: Saginaw County, Buena Vista Township, Section 08

Town/Range 12N/05E Property Tax No. 10-12-5-08-1001-001

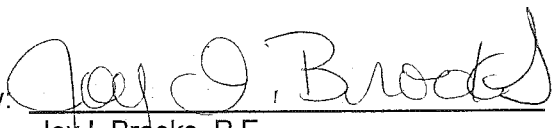
Authority granted by this permit is subject to the following limitations:

- A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
- B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31, Water Resources Protection, of the NREPA.
- C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
- D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
- E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
- F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Act of 1974 and comply with each of the requirements of that Act.
- G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
- H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
- I. Permittee shall notify the MDEQ within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
- J. This permit shall not be assigned or transferred without the written approval of the MDEQ.

- K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
- L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31, and wetland).
- M. In issuing this permit, the MDEQ has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, the MDEQ may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
- N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents and representatives for any and all claims or causes of action arising from acts or omissions of the permittee or employees, agents, or representatives of the permittee undertaken in connection with this permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
- O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, the MDEQ may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
- P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from the MDEQ. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by the MDEQ prior to being implemented.
- Q. This permit may be transferred to another person upon written approval of the MDEQ. The permittee must submit a written request to the MDEQ to transfer the permit to the new owner. The new owner must also submit a written request to the MDEQ to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties which includes all the above information may be provided to the MDEQ. The MDEQ will review the request and if approved, will provide written notification to the new owner.
- R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
- S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
- T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent.
- U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
- V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
- W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
- X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the MDNR, Fisheries Division.
- Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:
1. The design flood or 1% annual chance (100-year) floodplain elevation at this location on the Saginaw River is 589.3 feet NGVD29.
 2. Fill within the 100-year floodplain is limited to 150 cubic yards.
 3. Fill shall not be placed to prevent surface water drainage across the site. Site runoff shall be directed to public or natural drainage ways and not unnaturally discharged onto adjacent properties.
 4. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
 5. All fill/backfill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants. All fill shall be contained in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be stabilized with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.
 6. All raw areas in uplands resulting from the permitted construction activity shall be effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters, wetlands, and/or floodplains. Temporary stabilization measures shall be installed before or upon

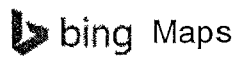
commencement of the permitted activity, and shall be maintained until permanent measures are in place. Permanent measures shall be in place within five (5) days of achieving final grade.

7. No fill, excess soil, or other material shall be placed in the 100-year floodplain, any wetland or surface water area not specifically authorized by this permit, its plans, and specifications.
8. Unless specifically stated under the "Permitted Activity" of this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a floodplain, wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
9. Under Appendix G of the Michigan Building Code 2009, a local building permit is required for development located in flood hazard areas.
10. The project is located within a community that participates in the National Flood Insurance Program (NFIP). As a participant in the NFIP, the community must comply with the Michigan Building Code (including Appendix G and listed supporting materials); the Michigan Residential Code; and Title 44 of the Code of Federal Regulations, Part 60, Criteria for Land Management and Use. The community is also responsible to ensure that its floodplain maps and studies are maintained to show changes to flood elevations and flood delineations as described in 44 CFR, Part 65, Identification and Mapping of Special Hazard Areas.
11. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to or part of this project shall be confined to the existing right-of-way limits or other acquired easements.
12. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state or federal approval or authorization, necessary to conduct the activity.
13. This permit is limited to authorizing the construction as specified above and carries with it no assurances or implications that associated lake, stream, wetland or floodplain areas can be developed and serviced by the structures authorized by this permit.
14. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDEQ, will be for a five-year period beginning at the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.
15. The permittee is hereby notified that portions of the parcel, not covered by this permit, fall under the regulatory authority of Part 301, Inland Lakes and Streams, and/or Part 31, Floodplain Regulatory Authority/Water Resources Protection, and/or Part 303, Wetlands Protection, of the NREPA. A permit from the MDEQ's Water Resources Division may be required for certain regulated activities. Failure to comply with the requirements of the NREPA may subject the owner to compliance actions as provided by statute.

By: 

Joy I. Brooks, P.E.
Water Resources Division
989-894-6226

cc: Saginaw CEA
Buena Vista Township Clerk
Buena Vista Township Building Official/Floodplain Administrator
Mr. John-eric Pardys, GHD Services, Inc.

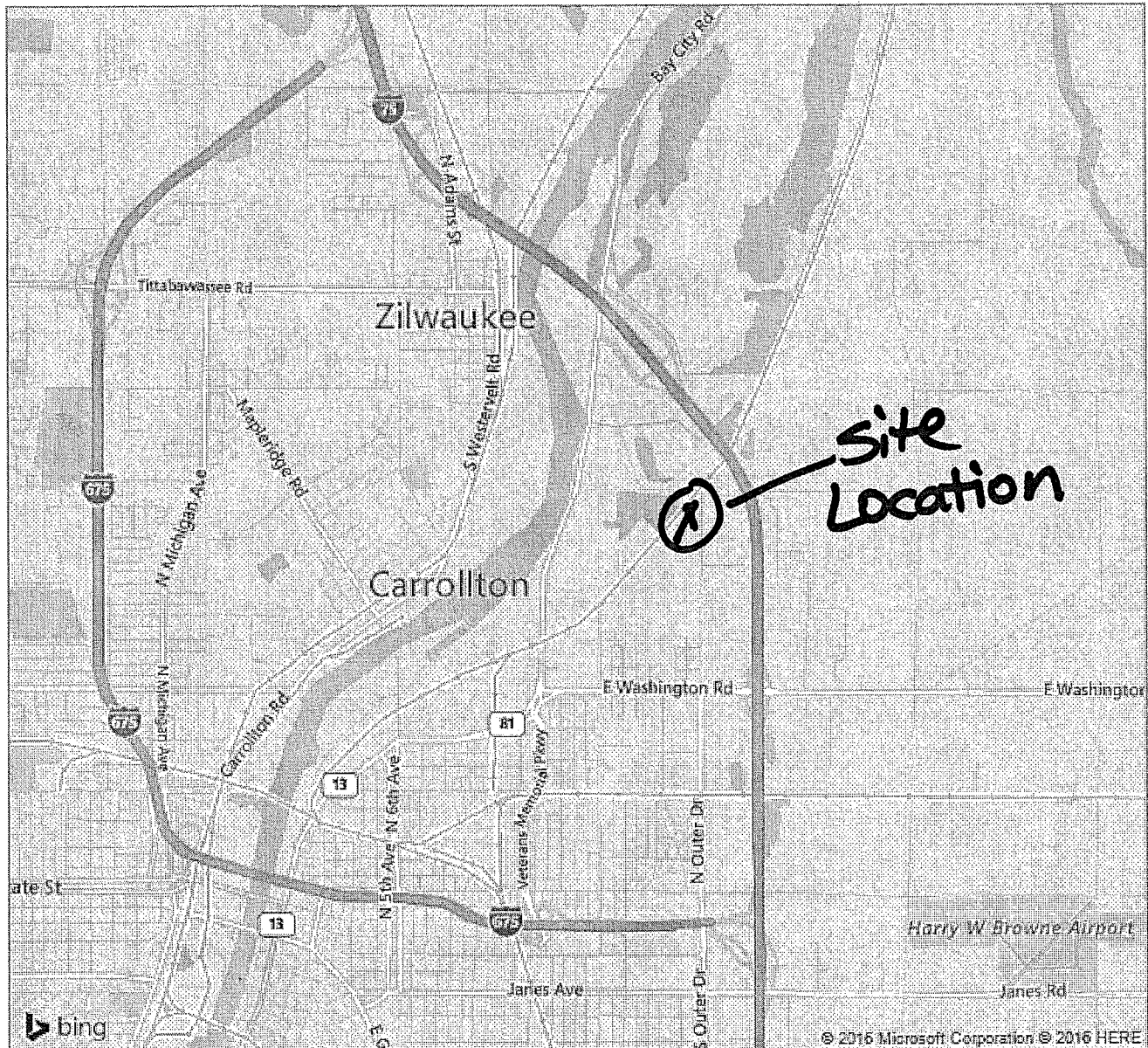
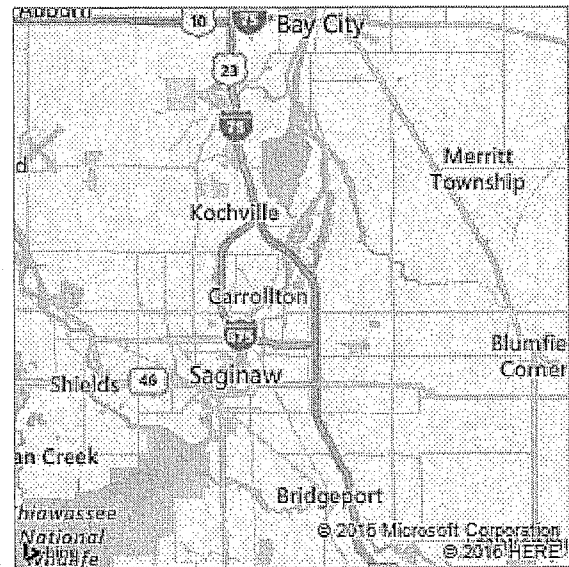


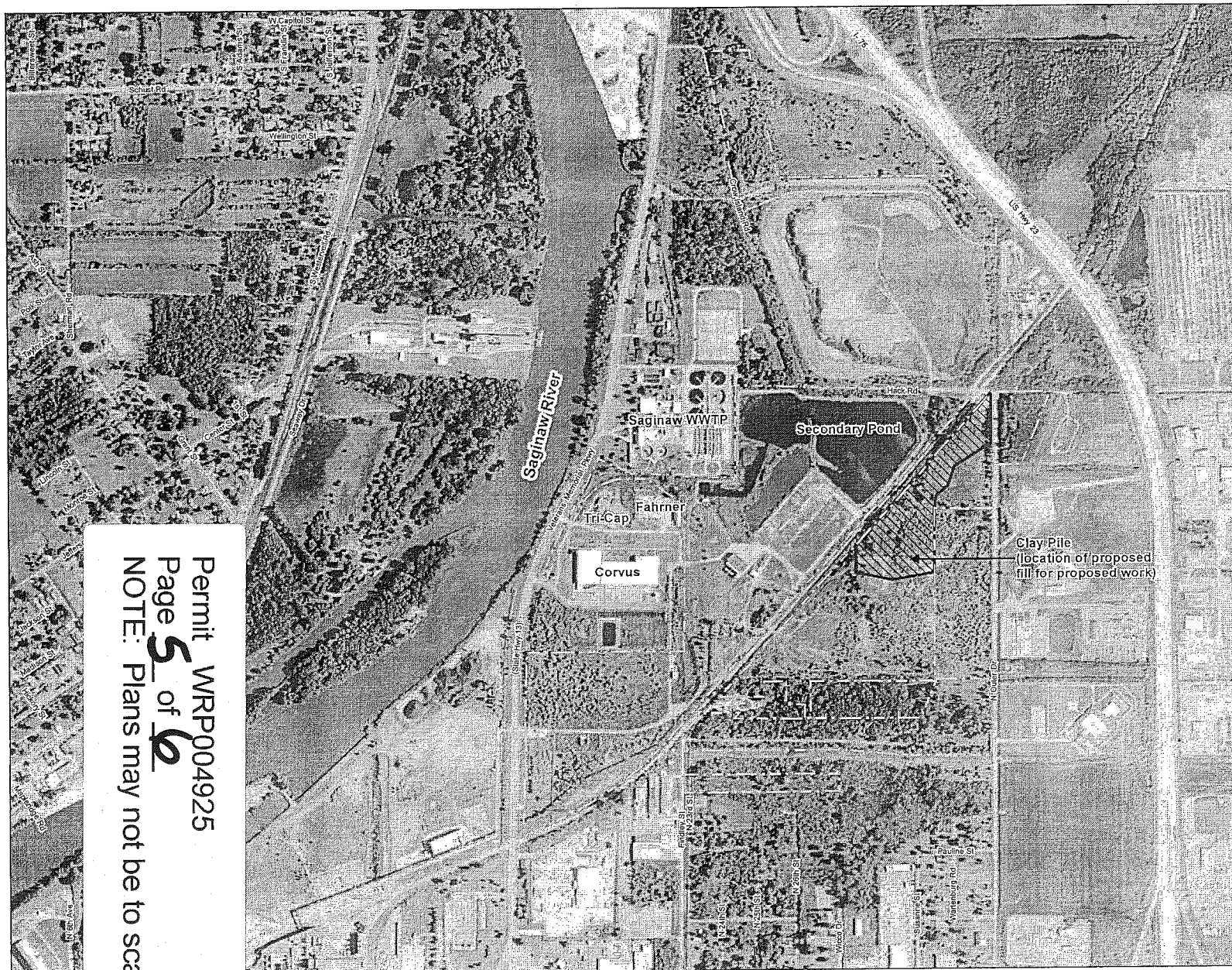
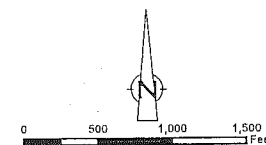
My Notes

Permit WRP004925

Page 4 of 6

NOTE: Plans may not be to scale



Permit WRP004925
Page 5 of 6
NOTE: Plans may not be to scale

LEGEND

APPROXIMATE LIMITS OF RACER
PROPERTY

 PROPOSED SITE WORK (CONSTRUCT ROADS TO ACCESS CLAY PILE AND REMOVE CLAY)

Coordinate System
 ANCHUTIAN STATE PLANE SOUTH, NAD 83 UTM ZONE 18J ENHANCED FEET, PIVOT 59

REVITALIZING AUTO COMMUNITIES
ENVIRONMENTAL RESPONSE (RACER)
SAGINAW NODULAR INDUSTRIAL LAND

SAGINAW, MICHIGAN

SITE VICINITY MAP



GHD

Source Reference
IMAGERY - 2014 SAGINAW COUNTY NAIP PROVIDED BY USDA
STRATYS - PROCESSED TIGER 2010 STREETS, U.S. CENSUS BUREAU

Project Manager M.T.	Reviewed By J.E.P.	Date JULY 2016
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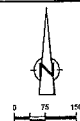
Scale 1:10 MM	Project No. SERRA T02	Memo No. BSC0001
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Memo No.	Drawin
BRO0001	1

Permit, WRP004925

Page 6 of 6

NOTE: Plans may not be to scale



LEGEND

--- 2" --- CONTOUR LINES - MAJOR

--- CONTOUR LINES - MINOR

--- 150 --- EXISTING FLOODPLAIN CONTOUR (100-YEAR FLOODPLAIN ELEVATION IS 593.3 FT AMSL)

 APPROXIMATELY 43,000 CUBIC YARDS OF CLAY TO BE REMOVED FROM THIS AREA (ADJACE 100-YEAR FLOODPLAIN ELEVATION)

 APPROXIMATE AREA OF PROPOSED WORK

 GRAVEL

 FILL PROPOSED BELOW 103'-6" EAF FLOODPLAIN

 CROSS SECTION LOCATION

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

DRAWING STATUS

[illegible]

PLAN AND PROFILE



Project Manager:	Reviewed By:	Date:	
J.E.P.	J.E.P.	AUGUST 2016	
Scale:	Project No:	Report No:	Drawing No:
AS SHOWN	058502-T02	BRO0001	2

05A502-TT01 (PROD001)GNLDEP01 AUG 5701

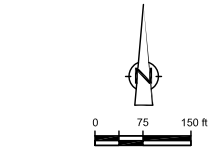
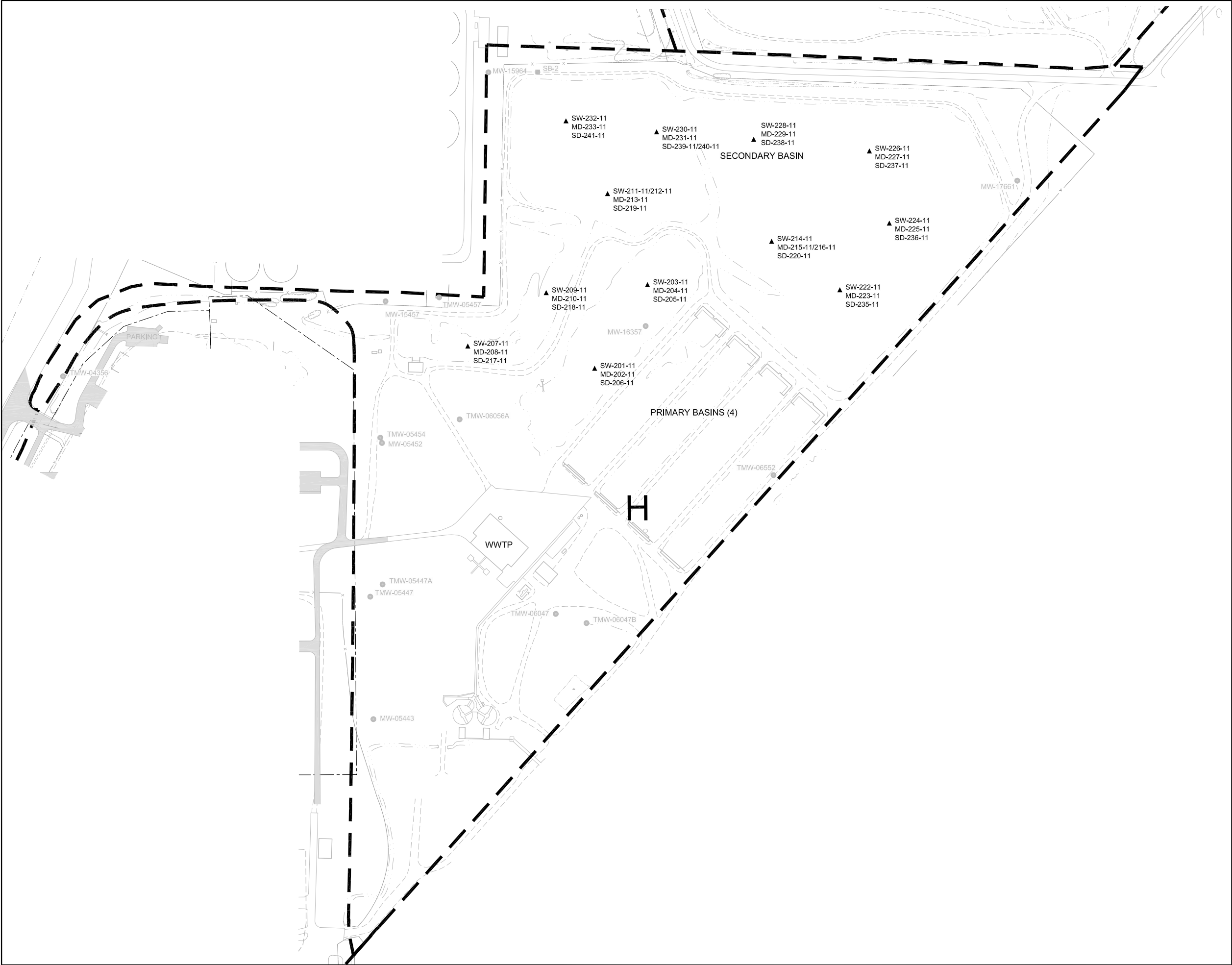
Appendix B

Sampling Data

Appendix B.1

Secondary Pond Characterization Results

- June 2011



LEGEND

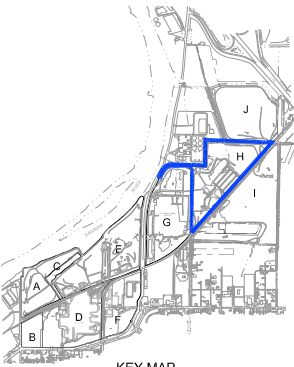
A-- INVESTIGATIVE UNIT BOUNDARY AND IDENTIFIER

● MONITORING WELL LOCATION

▲ POND WATER AND SEDIMENT SAMPLE LOCATION

NOTES:

- POND ELEVATION APPROX. 593.00 ft AMSL
- SW = SURFACE WATER
- MD = MID-DEPTH
- SD = SEDIMENT



KEY MAP

SCALE VERIFICATION

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



REVITALIZING AUTOMOTIVE COMMUNITY
ENVIRONMENTAL RESPONSE

SAGINAW, MICHIGAN

POND WATER AND SEDIMENT
SAMPLE LOCATIONS



CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88
TOPO - SANBORN, 1996

Project Manager: I.R.	Reviewed By: M.T.	Date: JULY 2011	
Scale: 1" = 200'	Project N°: 58502-T02	Report N°: 005	Drawing N°: figure 1

Table 1

**Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:**Sample ID:****Sample Date:****Parameters:****Metals**

	Units	a GSI	b FCV	c HCVd	d HNVD	e WV	MD-202-11 SW-58502-062711-SH-202 6/27/2011	MD-204-11 SW-58502-062711-SH-204 6/27/2011	MD-208-11 SW-58502-062711-SH-208 6/27/2011	MD-210-11 SW-58502-062811-SH-210 6/28/2011	MD-213-11 SW-58502-062811-SH-213 6/28/2011
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00037 J	0.00034 J	0.00055 J	0.00053 J	0.00052 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0025 J	0.0026 J	0.0024 J	0.0024 J	0.0025 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.033 J	0.032 J	0.043 J	0.043 J B	0.044 J B
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00019 J	0.00015 J	0.00018 J	0.00023 J	0.00024 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00097 J	0.00095 J	0.00068 J	0.00054 J B	0.00059 J B
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.003 U	0.00027 J	0.00028 J	0.00019 J
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.15	0.12	0.17	0.18	0.18
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.00000037 J	0.00000014	0.00000014 J	0.00000024 J	0.00000003 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0011 J	0.00093 J	0.001 J	0.0012 J B	0.0013 J B
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.0003 J	0.001 U	0.001 U	0.001 U	0.00017 J B
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.0055 J B	0.02 U	0.0042 J B	0.02 U	0.0026 J B

Polychlorinated Biphenyls

Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U

General Chemistry

Ammonia	mg/L						0.83 J	0.83 J	3.6	3.6	3.9
Unionized Ammonia (calculated)	mg/L	0.056	0.053				0.10	0.09	0.40	0.40	0.44
Biochemical oxygen demand (BOD)	mg/L	-					2.0 U	2.0 U	2.3	10	9.0
Chemical oxygen demand (COD)	mg/L	-					51	20 U	56	53	30
Cyanide (amenable)	mg/L	-					0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052	0.0052		0.6		0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0		0.025 J B	0.017 J B	0.022 J B	0.016 J B	0.016 J B
Nitrate (as N)	mg/L	-			10		0.27	0.27	0.41	0.53	0.43
Oil and grease (HEM), polar	mg/L	-					4.8 U	0.86 J	0.96 J	1.2 J B	0.87 J B
pH, lab	s.u.	-					8.18 H	8.50 H	8.55 H	8.43 H	8.40 H
Phenolics (total)	mg/L	-					0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Total organic carbon (TOC)	mg/L	-					15	16	14	14	14

Notes:

B - For organics Method blank contamination / For Inorganics = Estimated Value

J - Estimated concentration.

U - Not present at or above the associated value.

0.01 calculated value assuming a hardness of: 100 mg/L

Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink

HNVD = Human Noncancer Value-Drink

FCV = Final Chronic Value

WV = Wildlife Value

Table 1

**Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:		Rule 57					MD-215-11 SW-58502-062811-SH-215 6/28/2011	MD-215-11 SW-58502-062811-SH-216 6/28/2011 (Duplicate)	MD-223-11 SW-58502-062911-SH-223 6/29/2011	MD-225-11 SW-58502-062911-SH-225 6/29/2011	MD-227-11 SW-58502-062911-SH-227 6/29/2011
Sample ID:											
Sample Date:											
Parameters:	Units	a GSI	b FCV	c HCVd	d HNVD	e WV					
Metals											
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00053 J	0.00048 J	0.0005 J	0.00055 J	0.00046 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0024 J	0.0023 J	0.0023 J	0.0024 J	0.0022 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.044 J B	0.042 J B	0.043 J	0.043 J	0.043 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00021 J	0.00022 J	0.0002 J	0.00019 J	0.00018 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00058 J B	0.00054 J B	0.0006 J	0.00058 J	0.00042 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.17	0.16	0.18	0.17	0.17
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.00000022 J	0.00000027 J	0.00000033 J	0.00000015 J	0.00000019 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.001 J B	0.0018 J B	0.0012 J	0.0012 J	0.0011 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.001 U	0.001 U	0.001 U	0.0004 J	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.02 U	0.02 U	0.0042 J B	0.02 U	0.02 U
Polychlorinated Biphenyls											
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U
General Chemistry											
Ammonia	mg/L						4.2	4.7	4.2	3.6	4.7
Unionized Ammonia (calculated)	mg/L	0.056	0.053				0.47	0.53	0.47	0.40	0.53
Biochemical oxygen demand (BOD)	mg/L	-					8.7	8.9	4.0 H	8.3	5.7
Chemical oxygen demand (COD)	mg/L	-					56	58	40	48	51
Cyanide (amenable)	mg/L	-					0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052	0.0052		0.6		0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0		0.018 J B	0.018 J B	0.016 J B	0.017 J B	0.017 J B
Nitrate (as N)	mg/L	-			10		0.43	0.45	0.38	0.39	0.38
Oil and grease (HEM), polar	mg/L	-					1.0 J B	1.1 J B	1.3 J	1.4 J	1.6 J
pH, lab	s.u.	-					8.40 H	8.46 H	8.22 H	8.28 H	8.32 H
Phenolics (total)	mg/L	-					0.040 U	0.014 J	0.040 U	0.0094 J	0.0094 J
Total organic carbon (TOC)	mg/L	-					14	14	14	14	14

Notes:

B - For organics Method blank contamination / For Inorganics = Estimated Value

J - Estimated concentration.

U - Not present at or above the associated value.

0.01 calculated value assuming a hardness of: 100 mg/L

Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink

HNVD = Human Noncancer Value-Drink

FCV = Final Chronic Value

WV = Wildlife Value

Table 1

**Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:**Sample ID:****Sample Date:****Parameters:****Metals**

	Units	a GSI	b FCV	c HCVd	d HNVD	e WV	MD-229-11 SW-58502-062911-SH-229 6/29/2011	MD-231-11 SW-58502-062911-SH-231 6/29/2011	MD-233-11 SW-58502-062911-SH-233 6/29/2011	SW-201-11 SW-58502-062711-SH-201 6/27/2011	SW-201-11 SW-58502-062711-SH-207 6/27/2011
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00051 J	0.00052 J	0.00049 J	0.00031 J	0.00052 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0024 J	0.0025 J	0.0025 J	0.0023 J	0.0023 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.043 J	0.044 J	0.042 J	0.032 J	0.041 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00019 J	0.00019 J	0.00019 J	0.00016 J	0.00017 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00062 J	0.00056 J	0.00057 J	0.0011 J	0.00045 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.17	0.2	0.17	0.13	0.098
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.000001	0.00000023 J	0.00000032 J	0.0000004 J	0.0000005 U
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0013 J	0.00095 J	0.0011 J	0.0011 J	0.001 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.001 U	0.001 U	0.001 U	0.00037 J	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.02 U	0.02 U	0.0025 J B	0.0052 J B	0.0024 J B

Polychlorinated Biphenyls

Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.00011 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U

General Chemistry

Ammonia	mg/L					3.9	3.3	3.6	0.83 J	3.9
Unionized Ammonia (calculated)	mg/L	0.056	0.053			0.44	0.37	0.40	0.09	0.44
Biochemical oxygen demand (BOD)	mg/L	-				4.8	4.3	4.7	2.0 U	4.2
Chemical oxygen demand (COD)	mg/L	-				56	40	45	53	53
Cyanide (amenable)	mg/L	-				0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052	0.0052		0.6	0.010 U	0.010 U	0.0060 J	0.010 U	0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0	0.017 J B	0.019 J B	0.016 J B	0.019 J B	0.019 J B
Nitrate (as N)	mg/L	-			10	0.38	0.39	0.39	0.27	0.51
Oil and grease (HEM), polar	mg/L	-				0.77 J	4.8 U	1.0 J	1.1 J	1.3 J
pH, lab	s.u.	-				8.32 H	8.24 H	8.45 H	8.35 H	8.40 H
Phenolics (total)	mg/L	-				0.040 U	0.0094 J	0.040 U	0.040 U	0.0073 J
Total organic carbon (TOC)	mg/L	-				14	14	14	16	14

Notes:

B - For organics Method blank contamination / For Inorganics = Estimated Value

J - Estimated concentration.

U - Not present at or above the associated value.

0.01 calculated value assuming a hardness of: 100 mg/L

Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink

HNVD = Human Noncancer Value-Drink

FCV = Final Chronic Value

WV = Wildlife Value

Table 1

**Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:**Sample ID:****Sample Date:****Parameters:****Metals**

	Units	a GSI	b FCV	c HCVd	d HNVD	e WV	SW-203-11 SW-58502-062711-SH-203 6/27/2011	SW-209-11 SW-58502-062811-SH-209 6/28/2011	SW-211-11 SW-58502-062811-SH-211 6/28/2011	SW-211-11 SW-58502-062811-SH-212 6/28/2011 (Duplicate)	SW-214-11 SW-58502-062811-SH-214 6/28/2011
Rule 57											
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00031 J	0.00055 J	0.00055 J	0.00054 J	0.00053 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0026 J	0.0025 J	0.0024 J	0.0023 J	0.0024 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.033 J	0.043 J B	0.044 J B	0.043 J B	0.043 J B
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00016 J	0.00021 J	0.00022 J	0.00021 J	0.00023 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00099 J	0.00058 J B	0.00072 J B	0.0006 J B	0.00055 J B
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.00027 J	0.00018 J	0.00018 J	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.12	0.18	0.17	0.15	0.16
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.00000018 J	0.00000047 J	0.00000005 U	0.00000014 J	0.00000015 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0014 J	0.0011 J B	0.0013 J B	0.0011 J B	0.0012 J B
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.00018 J	0.001 U	0.001 U	0.00021 J B	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.02 U	0.02 U	0.0027 J B	0.0035 J B	0.02 U

Polychlorinated Biphenyls

Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U	0.000095 U	0.000095 U	0.000095 U

General Chemistry

Ammonia	mg/L					1.1 J	4.2	4.2	3.9	4.2
Unionized Ammonia (calculated)	mg/L	0.056	0.053			0.12	0.47	0.47	0.44	0.47
Biochemical oxygen demand (BOD)	mg/L	-				2.0 U	12	7.6	8.0	7.4
Chemical oxygen demand (COD)	mg/L	-				51	48	33	30	38
Cyanide (amenable)	mg/L	-				0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052	0.0052		0.6	0.010 U	0.010 U	0.0071 J	0.010 U	0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0	0.022 J B	0.018 J B	0.018 J B	0.016 J B	0.018 J B
Nitrate (as N)	mg/L	-			10	0.27	0.48	0.46	0.46	0.45
Oil and grease (HEM), polar	mg/L	-				4.9 U	1.2 J B	0.82 J B	1.4 J B	5.2 U
pH, lab	s.u.	-				8.55 H	8.27 H	8.40 H	8.25 H	8.23 H
Phenolics (total)	mg/L	-				0.040 U	0.23	0.040 U	0.040 U	0.011 J
Total organic carbon (TOC)	mg/L	-				15	15	14	14	14

Notes:

B - For organics Method blank contamination / For Inorganics = Estimated Value

J - Estimated concentration.

U - Not present at or above the associated value.

0.01 calculated value assuming a hardness of: 100 mg/L

Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink

HNVD = Human Noncancer Value-Drink

FCV = Final Chronic Value

WV = Wildlife Value

Table 1

**Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:**Sample ID:****Sample Date:****Parameters:****Metals**

	Units	a GSI	b FCV	c HCVd	d HNVD	e WV	SW-222-11 SW-58502-062911-SH-222 6/29/2011	SW-224-11 SW-58502-062911-SH-224 6/29/2011	SW-226-11 SW-58502-062911-SH-226 6/29/2011	SW-228-11 SW-58502-062911-SH-228 6/29/2011	SW-230-11 SW-58502-062911-SH-230 6/29/2011
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.0005 J	0.00049 J	0.00052 J	0.00055 J	0.00076 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0025 J	0.0024 J	0.0023 J	0.0024 J	0.0027 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.045 J	0.043 J	0.043 J	0.043 J	0.046 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00021 J	0.00019 J	0.00018 J	0.0002 J	0.00023 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00053 J	0.0007 J	0.00058 J	0.0005 J	0.00068 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.003 U	0.003 U	0.003 U	0.00019 J
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.19	0.17	0.16	0.17	0.19 B
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0000003 J	0.00000026 J	0.0000002 J	0.00000024 J	0.0000005 U
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0013 J	0.001 J	0.00097 J	0.0011 J	0.0013 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.001 U	0.001 U	0.001 U	0.001 U	0.0011
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.00066 J	0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.0041 J B	0.0035 J B	0.0031 J B	0.0029 J B	0.0024 J

Polychlorinated Biphenyls

Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U	0.000095 U

General Chemistry

Ammonia	mg/L						3.6	3.9	3.6	4.7	4.2
Unionized Ammonia (calculated)	mg/L	0.056	0.053				0.40	0.44	0.40	0.53	0.47
Biochemical oxygen demand (BOD)	mg/L	-					8.5	7.8	8.0	4.3	6.5
Chemical oxygen demand (COD)	mg/L	-					40	43	51	51	48
Cyanide (amenable)	mg/L	-					0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052	0.0052		0.6		0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0		0.017 J B	0.020 J B	0.017 J B	0.018 J B	0.016 J B
Nitrate (as N)	mg/L	-			10		0.38	0.39	0.38	0.37	0.39
Oil and grease (HEM), polar	mg/L	-					1.0 J	1.1 J	1.2 J	1.2 J	0.91 J
pH, lab	s.u.	-					8.27 H	8.28 H	8.35 H	8.26 H	8.30 H
Phenolics (total)	mg/L	-					0.040 U	0.0094 J	0.040 U	0.040 U	0.040 U
Total organic carbon (TOC)	mg/L	-					14	14	14	14	14

Notes:

B - For organics Method blank contamination / For Inorganics = Estimated Value

J - Estimated concentration.

U - Not present at or above the associated value.

0.01 calculated value assuming a hardness of: 100 mg/L

Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink

HNVD = Human Noncancer Value-Drink

FCV = Final Chronic Value

WV = Wildlife Value

Table 1

**Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:							SW-232-11
Sample ID:							SW-58502-062911-SH-232
Sample Date:							6/29/2011
		Rule 57					
Parameters:	Units	a GSI	b FCV	c HCVd	d HNVD	e WV	
Metals							
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00047 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0025 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.042 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00019 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00051 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.17
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0000005 U
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0012 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.0024 J B
Polychlorinated Biphenyls							
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U
General Chemistry							
Ammonia	mg/L						3.9
Unionized Ammonia (calculated)	mg/L	0.056	0.053				0.44
Biochemical oxygen demand (BOD)	mg/L	-					6.8
Chemical oxygen demand (COD)	mg/L	-					51
Cyanide (amenable)	mg/L	-					0.010 U
Cyanide (total)	mg/L	0.0052	0.0052		0.6		0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0		0.021 J B
Nitrate (as N)	mg/L	-			10		0.40
Oil and grease (HEM), polar	mg/L	-					0.81 J
pH, lab	s.u.	-					8.39 H
Phenolics (total)	mg/L	-					0.040 U
Total organic carbon (TOC)	mg/L	-					14

Notes:

B - For organics Method blank contamination / For Inorganics = Estimated Value

J - Estimated concentration.

U - Not present at or above the associated value.

0.01 calculated value assuming a hardness of: 100 mg/L

Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink

HNVD = Human Noncancer Value-Drink

FCV = Final Chronic Value

WV = Wildlife Value

Table 2

Isotope Analysis of Ammonia
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample	Date	Position	Mass (mg)	N2 Ampl (volts)	N2 Area (V/s)	%N	Obs N (ug)	Exp N (ug)	% recovery	$\delta^{15}\text{N}$ (‰)	Comments
SH-208	22-Sep-11	5		0.81	19.80		38.31	40.00	95.78	23.82	
SH-208	22-Sep-11	6		0.80	19.53		37.80	40.00	94.50	23.39	
SH-208	22-Sep-11	7		0.82	20.02		38.75	40.00	96.89	23.84	
SH-204	22-Sep-11	8		0.19	4.98		9.63	40.00	24.08	18.18	
SH-204	22-Sep-11	9		0.20	5.49		10.62	40.00	26.55	20.19	
SH-204	22-Sep-11	10		0.21	5.61		10.85	40.00	27.13	17.13	
SH-202	22-Sep-11	11		0.28	7.27		14.08	40.00	35.20	20.01	
SH-202	22-Sep-11	12		0.27	7.09		13.72	40.00	34.31	19.30	
SH-202	22-Sep-11	14		0.27	7.00		13.55	40.00	33.86	19.38	
SH-216	22-Sep-11	15		0.29	7.58		14.68	40.00	36.69	8.66	
SH-216	22-Sep-11	16		0.66	16.08		31.12	40.00	77.80	22.84	
SH-216	22-Sep-11	17		0.66	16.06		31.08	40.00	77.71	22.67	
SH-215	22-Sep-11	18		0.73	17.82		34.50	40.00	86.24	23.58	
SH-215	22-Sep-11	19		0.70	17.11		33.11	40.00	82.76	23.73	
SH-215	22-Sep-11	20		0.71	17.29		33.47	40.00	83.66	23.50	
SH-213	22-Sep-11	21		0.79	19.16		37.08	40.00	92.71	23.81	
SH-213	22-Sep-11	22		0.79	19.13		37.01	40.00	92.54	23.36	
SH-213	22-Sep-11	23		0.77	18.65		36.09	40.00	90.22	23.44	
SH-210	22-Sep-11	24		0.73	17.63		34.12	40.00	85.31	25.27	
SH-210	22-Sep-11	26		0.70	16.79		32.49	40.00	81.23	25.79	
SH-210	22-Sep-11	27		0.72	17.26		33.41	40.00	83.53	25.80	
SH-227	22-Sep-11	28		0.66	15.78		30.54	40.00	76.35	23.73	
SH-227	22-Sep-11	29		0.63	15.28		29.57	40.00	73.92	23.25	
SH-227	22-Sep-11	30		0.66	15.78		30.54	40.00	76.36	23.56	
SH-233	22-Sep-11	31		0.84	20.05		38.81	40.00	97.02	23.77	
SH-233	22-Sep-11	32		0.84	20.08		38.85	40.00	97.13	23.89	
SH-233	22-Sep-11	33		0.83	19.90		38.52	40.00	96.31	23.75	
SH-231	22-Sep-11	34		0.94	22.37		43.29	40.00	108.23	23.75	
SH-231	22-Sep-11	35		0.94	22.37		43.29	40.00	108.23	23.62	
SH-231	22-Sep-11	36		0.90	21.46		41.53	40.00	103.83	22.36	
SH-225	22-Sep-11	38		0.81	20.63		39.93	40.00	99.81	23.72	
SH-225	22-Sep-11	39		0.83	20.75		40.17	40.00	100.42	23.64	
SH-225	22-Sep-11	40		0.84	20.72		40.11	40.00	100.27	23.98	
SH-229	22-Sep-11	41		0.77	18.95		36.67	40.00	91.69	23.72	
SH-229	22-Sep-11	42		0.78	19.06		36.89	40.00	92.23	23.91	
SH-229	22-Sep-11	43		0.74	17.87		34.59	40.00	86.46	26.45	
SH-223	22-Sep-11	44		0.73	17.76		34.38	40.00	85.95	23.89	
SH-223	22-Sep-11	45		0.67	16.47		31.87	40.00	79.67	23.41	
SH-223	22-Sep-11	46		0.51	12.81		24.79	40.00	61.98	12.27	
			min	0.19	4.98						
			max	0.94	22.37						
Note: the accuracy of "% recovery" depends on the accuracy of the supplied [NH4] data.											
Diffused standards											
IAEA N1	22-Sep-11	70	0.150	0.67	16.82	21.70	32.56	40.00	81.39	0.45	Expected
IAEA N1	22-Sep-11	71	0.167	0.72	17.56	20.35	33.98	40.00	84.94	0.31	d15N = 0.43
IAEA N1	22-Sep-11	72	0.200	0.81	19.64	19.00	38.01	40.00	95.02	0.53	d15N = 0.43
									avg	0.43	
									sd	0.12	
IAEA N2	22-Sep-11	74	0.184	0.85	20.54	21.61	39.76	40.00	99.40	20.29	d15N = 20.41
IAEA N2	22-Sep-11	75	0.204	0.95	22.99	21.81	44.50	40.00	111.24	20.52	d15N = 20.41
IAEA N2	22-Sep-11	76	0.188	0.89	21.48	22.11	41.57	40.00	103.91	20.42	d15N = 20.41
									avg	20.41	
									sd	0.11	
Lab (NH4)2SO4	22-Sep-11	77		0.77	18.09		35.00	40.00	87.51	0.92	
Lab (NH4)2SO4	22-Sep-11	79		0.74	17.88		34.61	40.00	86.52	0.84	
Lab (NH4)2SO4	22-Sep-11	81		0.75	17.90		34.65	40.00	86.62	0.92	
Lab (NH4)2SO4	22-Sep-11	82		0.74	17.85		34.55	40.00	86.38	1.08	
Lab (NH4)2SO4	22-Sep-11	84		0.75	17.97		34.78	40.00	86.96	1.09	
Lab (NH4)2SO4	22-Sep-11	86		0.74	17.66		34.19	40.00	85.46	0.98	
			min	0.74	17.66				avg	0.97	
			max	0.77	18.09				sd	0.10	
Blank 1	22-Sep-11	67		-	-	-	-	-	-	-	
Blank 2	22-Sep-11	68		-	-	-	-	-	-	-	
Blank 3	22-Sep-11	69		-	-	-	-	-	-	-	
Powdered standards											
IAEA N1	22-Sep-11	87	0.288	1.30	31.59	21.23	61.13			0.43	Expected
IAEA N2	22-Sep-11	88	0.286	1.30	31.73	21.47	61.40			20.41	d15N = 20.41
Lab (NH4)2SO4	22-Sep-11	3	0.303	1.36	33.40	21.34	64.65			0.73	
Lab (NH4)2SO4	22-Sep-11	4	0.307	1.41	34.90	22.00	67.54			0.78	
Lab (NH4)2SO4	22-Sep-11	13	0.322	1.44	35.53	21.36	68.76			0.75	
Lab (NH4)2SO4	22-Sep-11	25	0.308	1.42	34.49	21.67	66.75			0.90	
Lab (NH4)2SO4	22-Sep-11	37	0.319	1.39	36.39	22.08	70.44			0.84	
Lab (NH4)2SO4	22-Sep-11	49	0.278	1.26	31.41	21.87	60.80			0.73	
Lab (NH4)2SO4	22-Sep-11	61	0.300	1.37	33.61	21.69	65.06			0.86	
Lab (NH4)2SO4	22-Sep-11	73	0.328	1.47	36.18	21.35	70.02			0.74	
Lab (NH4)2SO4	22-Sep-11	85	0.292	1.35	32.87	21.79	63.62			0.64	
Lab (NH4)2SO4	22-Sep-11	89	1.007	4.72	113.65	21.84	219.95			0.97	
Lab (NH4)2SO4	22-Sep-11	90	0.466	2.18	52.47	21.79	101.55			0.99	
Lab (NH4)2SO4	22-Sep-11	91	0.256	1.17	28.40	21.47	54.97			0.76	
Lab (NH4)2SO4	22-Sep-11	92	0.054	0.23	5.67	20.33	10.98			0.97	
Lab (NH4)2SO4	22-Sep-11	93	0.296	1.36	32.92	21.52	63.70			0.67	
			min	0.23	5.67				avg	0.81	
			max	4.72	113.65				sd	0.11	

Table 3
Field Ammonia Readings
Saginaw Nodular Industrial Land
Saginaw, Michigan

Location	23-Nov-11		2-Dec-11		9-Dec-11		16-Dec-11		21-Dec-11	
	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated
Lagoon 5			0.44	0.0085	0.35	0.0063	0.11	0.0023	0.21	0.0041
Secondary Pond 1(point)	0.44	0.0113	0.30	0.0058	0.30	0.0053	0.24	0.0050	0.37	0.0072
Secondary Pond 2(pump house)	0.20	0.0051	0.10	0.0019	0.26	0.0046	0.23	0.0049	0.23	0.0044
Secondary Pond 3(NE corner)	0.30	0.0077	0.40	0.0077	0.27	0.0048	0.28	0.0059	0.37	0.0071
Outfall 21										
north ditch					0.02	0.0004				
railroad sump					0.00	0.0000				
Findley Rd. sump					0.25	0.0045	0.22	0.0046	0.41	0.0080
Primary #3					0.68	0.0121	0.57	0.0120	0.88	0.0170
Primary #4									0.88	0.0170
pH of Saginaw River	8.3		8.2		8.2		8.2 ⁽¹⁾		8.2 ⁽¹⁾	
Temperature of Saginaw River (°F)	39.75		38.2		35.8		38.3		36.4	
Unionized ammonia fraction (%)	2.57%		1.93%		1.78%		2.09%		1.93%	

Notes:

(1) Value taken from previous reading as current day's data is unavailable

(2) USGS 04157005 SAGINAW RIVER AT HOLLAND AVENUE AT SAGINAW, MI - Rule 57 Criteria for unionized ammonia in warm water is **0.053 mg/L**

(3) Monthly Estimate from Historical data

(4) Values used to calculate Unionized Ammonia Fraction

Table 3
Field Ammonia Readings
Saginaw Nodular Industrial Land
Saginaw, Michigan

Location	4-Jan-12		11-Jan-12		20-Jan-12		26-Jan-12	
	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated
Lagoon 5	0.14	0.0014	0.35	0.0062	0.18	0.0032	0.32	0.0026
Secondary Pond 1(point)	0.17	0.0017	0.42	0.0075	0.19	0.0034	0.41	0.0034
Secondary Pond 2(pump house)	0.49	0.0047	0.32	0.0057	0.21	0.0037	0.25	0.0021
Secondary Pond 3(NE corner)	0.28	0.0027	0.37	0.0066			0.3	0.0025
Outfall 21								
north ditch								
railroad sump								
Findley Rd. sump	1.70	0.0165	1.25	0.0223	1.05	0.0187	0.68	0.0055
Primary #3	0.21	0.0020	0.27	0.0048				
Primary #4	1.05	0.0102	1.05	0.0187			1.45	0.0119
pH of Saginaw River	8.0		8.2		8.2		8.0	
Temperature of Saginaw River (°F)	36.4 ⁽¹⁾		34.1		34.1 (1)		32.4	
Unionized ammonia fraction (%)	0.97%		1.78%		1.78%		0.82%	

Notes:

(1) Value taken from previous reading as current day's data is unavailable

(2) USGS 04157005 SAGINAW RIVER AT HOLLAND AVENUE AT SAGINAW, MI - Rule 57 Criteria for unionized ammonia in warm water is **0.053 mg/L**

(3) Monthly Estimate from Historical data

(4) Values used to calculate Unionized Ammonia Fraction

Table 3
Field Ammonia Readings
Saginaw Nodular Industrial Land
Saginaw, Michigan

Location	2-Feb-12		15-Feb-12		29-Feb-12		24-Apr-12		24-Jan-13	
	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated
Lagoon 5	0.09	0.0011	0.23	0.0035	0.11	0.0017	0.02	0.00063		
Secondary Pond 1(point)	0.12	0.0015	0.12	0.0018	0.12	0.0018	0.05	0.0016		
Secondary Pond 2(pump house)	0.08	0.0010	0.09	0.0014	0.02	0.0003	0.01	0.00032	0.2	0.0030
Secondary Pond 3(NE corner)	0.1	0.0013	0.13	0.0020	0.11	0.0017	0.05	0.0016	0.15	0.0023
Outfall 21										
north ditch									0.13	0.0019
railroad sump										
Findley Rd. sump	0.55	0.0070	1.45	0.022	1.53	0.023	0.06	0.0019		
Primary #3	0.11	0.0014	0.62	0.0094	0.12	0.0018	0.02	0.00063		
Primary #4	0.28	0.0035	0.88	0.013	0.79	0.0119	0.01	0.00032		
pH of Saginaw River	8.1		8.2		8.2 (1)		8.3		8.3	(estimated)
Temperature of Saginaw River (°F)	34.5		32.5		32.5 (1)		52.3		32.5	(estimated)
Unionized ammonia fraction (%)	1.27%		1.51%		1.51%		3.16%		1.51%	

Notes:

- (1) Value taken from previous reading as current day's data is unavailable
(2) USGS 04157005 SAGINAW RIVER AT HOLLAND AVENUE AT SAGINAW, MI - Rule 57 Criteria for unionized ammonia in warm water is **0.053 mg/L**
(3) Monthly Estimate from Historical data
(4) Values used to calculate Unionized Ammonia Fraction

Appendix B.2

Secondary Pond Discharge Results (Pre-NPDES Permit)

Table 1

Secondary Pond Discharge - Analytical Results (Pre-NPDES)
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample ID:	W-58502-031412-SSH-260	W-58502-032912-SSH-261	W-58502-051712-SSH-262
Sample Date:	3/14/2012	3/29/2012	5/17/2012
Matrix:	SURFACE WATER	SURFACE WATER	SURFACE WATER
Rule 57 Water Quality Values- Surface Water Assessment Section Criteria ⁽¹⁾			
Parameters	Units		
Polychlorinated Biphenyls (PCBs)			
Aroclor-1016	ug/L	-	0.095U
Aroclor-1221	ug/L	-	0.095U
Aroclor-1232	ug/L	-	0.095U
Aroclor-1242	ug/L	-	0.095U
Aroclor-1248	ug/L	-	0.095U
Aroclor-1254	ug/L	-	0.095U
Aroclor-1260	ug/L	-	0.095U
Total PCBs	ug/L	0.000026	-
Volatiles			
Silver	ug/L	0.06	1.0U
Arsenic	ug/L	10	5.0U
Barium	ug/L	438 ⁽²⁾	31
Cadmium	ug/L	2.2 ⁽²⁾	1.0U
Chromium	ug/L	74.1 ⁽²⁾	2.0U
Copper	ug/L	9 ⁽²⁾	2.0U
Lead	ug/L	14	1.0U
Selenium	ug/L	5	5.0U
Zinc	ug/L	117.2 ⁽²⁾	10U
Other			
Mercury	ug/L	0.0013	0.20U
Total Suspended Solids (TSS)	mg/L	--	4.0U
Ammonia	mg/L	0.029	2.0U

Notes:

ug/L - micrograms per litre

mg/L - milligrams per litre

0.095U - concentrations were not detectable above the stated threshold value

(1) Criteria were selected from Rule 57 under the most stringent category for each parameter

(2) The criteria were calculated using a hardness of 100mg/L

Appendix B.3

Discharge Sampling Results for Outfall 21A in Accordance with NPDES Permit

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21A	OUTFALL21A	OUTFALL21A	OUTFALL21A	OUTFALL21A
Sample ID:			SW-040313-58502-SSH-263	W-58502-041613-SSH-264	W-58502-041713-SSH-265	W-58502-041913-SSH-266	W-58502-042213-SSH-267
Sample Date:			4/3/2013	4/16/2013	4/17/2013	4/19/2013	4/22/2013
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.96	0.65	0.56	0.50	0.50
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.22 HF	8.31 HF	8.24 HF	8.33 HF	8.39 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	6.0	8.0	4.0 U	6.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	5.54	8.16	8.14	8.78	8.56
Turbidity	NTU	160	3.99	6.04	5.16	9.23	9.17
Field pH (2)		between 6.5 and 9.0	6.56	6.68	6.61	6.93	6.88

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21A	OUTFALL21A	OUTFALL21A	OUTFALL21A	OUTFALL21A	OUTFALL21A
Sample ID:			W-58502-042313-SSH-268	W-58502-042413-SSH-269	W-58502-042513-SSH-270	W-58502-050713-SSH-271	W-58502-050813-SSH-272	W-58502-050813-SSH-273
Sample Date:			4/23/2013	4/24/2013	4/25/2013	5/7/2013	5/8/2013	5/8/2013
Parameters	Units	NPDES Limits						
Wet								
Ammonia-N	mg/L	(1)	0.42	0.41	0.42	0.23	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.7	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.47 HF	8.58 HF	8.37 HF	8.53 HF	8.66 HF	8.66 HF
Total suspended solids (TSS)	mg/L	35	9.0	8.0	5.0	4.0 U	4.0 U	4.0 U
Field Parameters								
Dissolved Oxygen	mg/l	6 (min)	7.86	8.45	8.08	7.82	7.81	
Turbidity	NTU	160	7.34	6.91	7.32	2.96	2.75	
Field pH (2)		between 6.5 and 9.0	7.28	7.3	7.21	6.62	6.29	

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:	OUTFALL21A	OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21A
Sample ID:	W-58502-052314-SSH-285	W-58502-020416-SSH-1602	W-58502-020516-SSH-1611	W-58502-021016-SSH-1612	W-58502-030116-SSH-1614
Sample Date:	5/23/2014	2/4/2016	2/5/2016	2/10/2016	3/1/2016

Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	8.5 b	2.0 U	2.0 U	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.33	8.39 J	8.39 J	8.51 J	8.74 J
Total suspended solids (TSS)	mg/L	35	4.0 U	6.0	6.0	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	6.77				
Turbidity	NTU	160	2.10				
Field pH (2)		between 6.5 and 9.0	6.59				

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21A	OUTFALL21A	OUTFALL21A	OUTFALL21A	OUTFALL21A
Sample ID:			W-58502-030216-SSH-1615	W-58502-040716-SSH-1647	W-58502-040816-SSH-1648	W-58502-041216-SSH-1649	W-58502-041316-SSH-1650
Sample Date:			3/2/2016	4/7/2016	4/8/2016	4/12/2016	4/13/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	-	-	-
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U	2.0 U*	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.90 J	8.24 H	8.25 H	8.19 HF	8.27 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	-	-	-
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)		11.84	12.41	11.97	11.96
Turbidity	NTU	160		3.48	4.09	4.94	4.09
Field pH (2)		between 6.5 and 9.0		7.17	6.91	7.05	7.21

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21A	OUTFALL21A	OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-062116-SSH-1651	W-58502-062216-SSH-1652	W-58502-062316-SSH-1653	W-58502-062816-SSH-1654	W-58502-062816-SSH-1655
Sample Date:			6/21/2016	6/22/2016	6/23/2016	6/28/2016	6/28/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 Ub	2.0 UH	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	9.05 HF	9.05 HF	9.09	8.90 HF	8.90 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	7.91	7.80	7.07	7.07	7.46
Turbidity	NTU	160	6.77	8.14	6.69	3.91	3.49
Field pH (2)		between 6.5 and 9.0	7.98	7.22	7.09	7.33	7.27

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-062916-SSH-1656	W-58502-063016-SSH-1657	W-58502-070116-SSH-1658	W-58502-070516-SSH-1659	W-58502-070616-SSH-1660
Sample Date:			6/29/2016	6/30/2016	7/1/2016	7/5/2016	7/6/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U	2.4 b	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.90 HF	9.01 HF	9.05 HF	9.07 HF	9.04 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	7.54	7.32	13.22	7.83	(1)
Turbidity	NTU	160	2.71	2.68	3.32	2.92	2.64
Field pH (2)		between 6.5 and 9.0	7.91	7.55	8.89	7.84	(1)

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-070716-SSH-1661	W-58502-070816-SSH-1662	W-58502-071216-SSH-1663	W-58502-071316-SSH-1664	W-58502-071416-SSH-1665
Sample Date:			7/7/2016	7/8/2016	7/12/2016	7/13/2016	7/14/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U ^a	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U	2.0 U ^H	7.6	2.0 U ^b
pH, lab (2)	s.u.	between 6.5 and 9.0	9.12 HF	9.12 HF	8.74 HF	8.92 HF	8.87 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	5.0	4.0 U	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	6.63	6.71	7.63	7.20	7.14
Turbidity	NTU	160	2.51	3.13	3.51	3.11	3.84
Field pH (2)		between 6.5 and 9.0	8.81	8.76	7.66	7.12	6.95

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:	OUTFALL21		OUTFALL21		OUTFALL21		OUTFALL21	
Sample ID:	W-58502-071516-SSH-1666		W-58502-071916-SSH-1667		W-58502-072016-SSH-1668		W-58502-072116-SSH-1669	
Sample Date:	7/15/2016		7/19/2016		7/20/2016		7/21/2016	
Parameters	Units	NPDES Limits						
Wet								
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.23	
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.8 b	2.0 U	2.0 U	2.0 U	
pH, lab (2)	s.u.	between 6.5 and 9.0	9.57 HF	8.78 HF	8.88	8.89 HF	9.18 HF	
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0	4.0 U	4.0 U	4.0 U	
Field Parameters								
Dissolved Oxygen	mg/l	6 (min)	7.47	7.01	7.85	7.63	7.39	
Turbidity	NTU	160	4.09	4.11	3.88	3.70	3.92	
Field pH (2)		between 6.5 and 9.0	7.26	7.15	6.85	8.49	8.29	

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location: Sample ID: Sample Date:			OUTFALL21 W-58502-072716-SSH-1671 7/27/2016	OUTFALL21 W-58502-072816-SSH-1672 7/28/2016	OUTFALL21 W-58502-072916-SSH-1673 7/29/2016	OUTFALL21 W-58502-080216-SSH-1674 8/2/2016	OUTFALL21 W-58502-080316-SSH-1675 8/3/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.7 b	2.0 U	3.1 b	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	9.24 HF	9.1	9.1 HF	8.7 HF	9.0 HF
Total suspended solids (TSS)	mg/L	35	4.0	4.0	4.0 U	5.0	4.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	7.88	7.03	7.21	7.57	8.58
Turbidity	NTU	160	4.99	7.16	7.27	6.91	6.65
Field pH (2)		between 6.5 and 9.0	7.95	8.20	7.29	7.49	7.89

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-080416-SSH-1676	W-58502-080516-SSH-1677	W-58502-080916-SSH-1678	W-58502-081016-SSH-1679	W-58502-081116-SSH-1680
Sample Date:			8/4/2016	8/5/2016	8/9/2016	8/10/2016	8/11/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	9.0 HF	9.1 HF	8.7 HF	8.8 HF	8.8 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	5.0	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	8.47	8.80	6.95	7.88	8.43
Turbidity	NTU	160	8.01	8.12	6.56	4.43	4.14
Field pH (2)		between 6.5 and 9.0	8.57	7.90	7.09	7.18	8.29

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-081616-SSH-1681	W-58502-081716-SSH-1683	W-58502-081816-SSH-1684	W-58502-081916-SSH-1685	W-58502-082416-SSH-1686
Sample Date:			8/16/2016	8/17/2016	8/18/2016	8/19/2016	8/24/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.23	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.3	2.4	3.6	-	5.8
pH, lab (2)	s.u.	between 6.5 and 9.0	8.8 HF	8.5 HF	8.7 HF	8.8 HF	9.1 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0	4.0 U	6.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	(1)	6.28	6.84	8.10	9.19
Turbidity	NTU	160	(1)	7.05	8.12	7.88	12.40
Field pH (2)		between 6.5 and 9.0	(1)	7.48	7.71	8.60	8.37

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-082516-SSH-1687	W-58502-082616-SSH-1688	W-58502-082716-SSH-1689	W-58502-082816-SSH-1690	W-58502-082916-SSH-1691
Sample Date:			8/25/2016	8/26/2016	8/27/2016	8/28/2016	8/29/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	3.9	5.2	5.9	7.2	8.3
pH, lab (2)	s.u.	between 6.5 and 9.0	9.1 HF	9.3 HF	9.0 HF	10 HF	9.2 HF
Total suspended solids (TSS)	mg/L	35	5.0	10	10	8.0	11
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	9.35	8.81	8.66	8.96	8.77
Turbidity	NTU	160	9.76	16.70	11.70	15.00	14.50
Field pH (2)		between 6.5 and 9.0	8.74	7.99	7.19	7.88	7.87

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-083116-SSH-1692	W-58502-090116-SSH-1693	W-58502-090216-SSH-1694	W-58502-090316-SSH-1695	W-58502-090416-SSH-1696
Sample Date:			8/31/2016	9/1/2016	9/2/2016	9/3/2016	9/4/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	9.1	4.6	7.6	5.4	4.8
pH, lab (2)	s.u.	between 6.5 and 9.0	8.5 HF	8.6 HF	8.7	7.8 HF	8.8 HF
Total suspended solids (TSS)	mg/L	35	9.0	8.0	9.0	7.0	10
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	8.79	9.44	6.92	9.15	8.86
Turbidity	NTU	160	19.90	13.80	14.00	14.00	14.30
Field pH (2)		between 6.5 and 9.0	7.45	7.06	6.75	7.94	7.99

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-090516-SSH-1697	W-58502-090616-SSH-1698	W-58502-090716-SSH-1699	W-58502-090816-SSH-1700	W-58502-090916-SSH-1701
Sample Date:			9/5/2016	9/6/2016	9/7/2016	9/8/2016	9/9/2016
Parameters	Units	NPDES Limits					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.29	0.52	0.58
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	5.3	6.5	8.3	3.1	7.6
pH, lab (2)	s.u.	between 6.5 and 9.0	9.2 HF	9.0 HF	8.4 HF	8.1 HF	8.0 HF
Total suspended solids (TSS)	mg/L	35	6.0	12	6.0	7.0	8.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	7.24	9.12	7.05	7.30	7.49
Turbidity	NTU	160	14.80	18.40	14.10	12.30	12.30
Field pH (2)		between 6.5 and 9.0	7.27	6.84	7.02	7.04	7.17

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	<u>CBOD5</u>	<u>Ammonia-N</u>
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

**NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:			OUTFALL21	OUTFALL21	OUTFALL21
Sample ID:			W-58502-091016-SSH-1702	W-58502-091116-SSH-1703	W-58502-091216-SSH-1704
Sample Date:			9/10/2016	9/11/2016	9/12/2016
Parameters	Units	NPDES Limits			
Wet					
Ammonia-N	mg/L	(1)	0.72	1.1	1.0
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	8.4	6.9	7.9
pH, lab (2)	s.u.	between 6.5 and 9.0	8.0 HF	7.8 HF	8.2 HF
Total suspended solids (TSS)	mg/L	35	6.0	11	12
Field Parameters					
Dissolved Oxygen	mg/l	6 (min)	8.23	8.09	8.09
Turbidity	NTU	160	17.80	24.60	
Field pH (2)		between 6.5 and 9.0	6.85	6.96	8.20

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

8.5 indicates a parameter exceeding NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Appendix B.4

Discharge Sampling Results for Outfall 22A in Accordance with NPDES Permit

Table 1

NPDES Permit Monitoring Results for Outfall 22a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			OUTFALL22A	OUTFALL22A	OUTFALL22A	OUTFALL22A	OUTFALL22A	OUTFALL22A
Sample ID:			W-58502-041414-SSH-283	W-58502-051614-SSH-284	W-58502-112614-SSH-14011	W-58502-041015-SSH-1558	W-58502-061615-SSH-1560	W-58502-090415-SSH-ND2
Sample Date:			4/14/2014	5/16/2014	11/26/2014	4/10/2015	6/16/2015	9/4/2015
Parameters	Units	NPDES Limits						
Wet								
pH, lab	s.u.	between 6.5 and 9.0	7.60 HF	7.75 HF	7.70 HF	7.84 HF	7.66	7.58 HF
Total suspended solids (TSS)	mg/L	35	5.0	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U

Notes:

U Not detected at the associated reporting limit.

J Estimated concentration.

Table 1

NPDES Permit Monitoring Results for Outfall 22a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			OUTFALL22A	OUTFALL22A	OUTFALL22A	OUTFALL22A	OUTFALL22A	OUTFALL22
Sample ID:			W-58502-020316-SSH-1601	W-58502-022916-SSH-1613	W-58502-031016-SSH-1616	W-58502-031616-SSH-1617	SW-58502-033116-JY-001	W-58502-081616-SSH-1682
Sample Date:			2/3/2016	2/29/2016	3/10/2016	3/16/2016	3/31/2016	8/16/2016
Parameters	Units	NPDES Limits						
Wet								
pH, lab	s.u.	between 6.5 and 9.0	7.44 J	8.22 J	7.68 J	7.79 J	8.30 HF	7.6 HF
Total suspended solids (TSS)	mg/L	35	5.0	4.0 U	4.0	5.0	4.0	4.0 U

Notes:

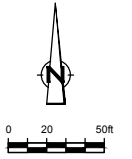
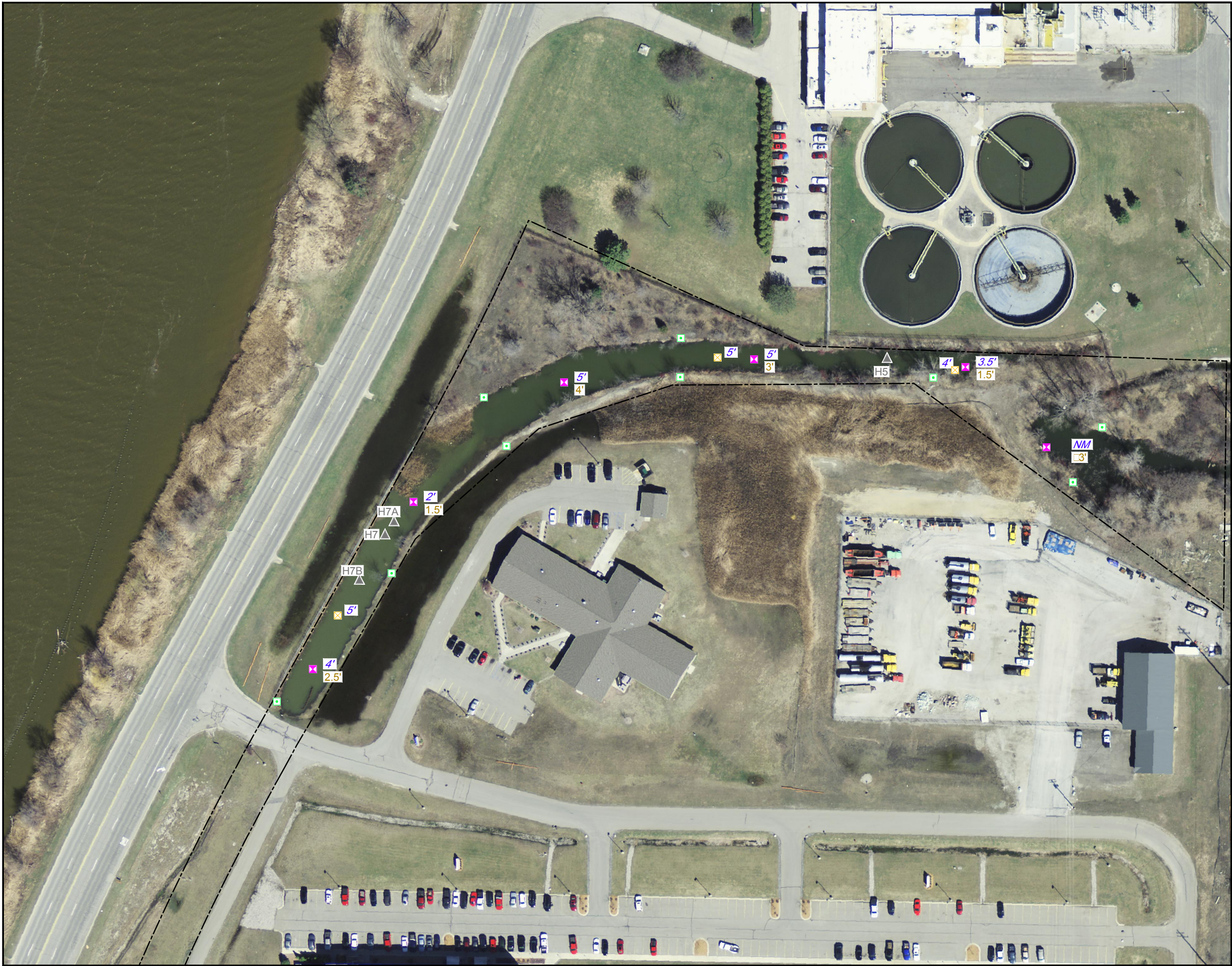
U Not detected at the associated reporting limit.

J Estimated concentration.

Appendix B.5

North Ditch Characterization Results

- July 2013



LEGEND

- SURVEYED PROPERTY BOUNDARY
- ▲ HISTORICAL SEDIMENT SAMPLE LOCATION
- ✕ SEDIMENT SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- ⊠ SURFACE WATER SAMPLE LOCATION
- 4' WATER DEPTH
- 1.5' SEDIMENT THICKNESS

SOURCE: 2010 USGS

SCALE VERIFICATION

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



RACER TRUST
SAGINAW NODULAR INDUSTRIAL LAND
SAGINAW, MICHIGAN

NORTH DITCH WATER DEPTH
AND SEDIMENT THICKNESS



Source Reference:
MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88
AERIAL PHOTO BY USGS, DATED MARCH 2010.

Project Manager: M.T.	Reviewed By: B.P.	Date: NOVEMBER 2013
Scale: 1" = 50'	Project N°: 58502-T02	Report N°: MEMO005
		Drawing N°: figure 4

Table 1

**North Ditch Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:
Sample ID:
Sample Date:
Sample Depth:
matrix_code

H6
W00013
11/18/1998
(0-0) ft BWS
WS

MD-312-13
W-58502-071713-SSH-312
7/17/2013
(2.5-2.5) ft BWS
WS

MD-314-13
W-58502-071713-SSH-314
7/17/2013
(2.5-2.5) ft BWS
WS

MD-316-13
W-58502-071713-SSH-316
7/17/2013
(2-2) ft BWS
WS

DEQ Rule 57 -							
Parameters:	Units	Res/Non_Res/GW SW Interface	Surface Water Quality				
			Values				
Metals							
Antimony	mg/L	0.13	0.0017	0.05 U	0.00038 J	0.00045 J	0.00029 J
Arsenic	mg/L	0.01	0.01	0.005 U	0.005 U	0.005 U	0.005 U
Barium	mg/L	-	1.9	0.035	0.036 J	0.033 J	0.033 J
Beryllium	mg/L	-	0.16	0.005 U	0.001 U	0.00013 J	0.000056 J
Cadmium	mg/L	-	0.0025	0.004 U	0.00003 J	0.00012 J	0.001 U
Chromium	mg/L	0.011	0.12	0.005 U	0.005 U	0.005 U	0.005 U
Cobalt	mg/L	0.1	0.1	0.01 U	0.00018 J	0.0002 J	0.000093 J
Copper	mg/L	-	0.47	0.01 U	0.002 U	0.002 U	0.002 U
Lead	mg/L	-	0.014	0.002 U	0.0014 J	0.001 J	0.00053 J
Manganese	mg/L	-	1.3	0.093	0.16	0.14	0.14
Mercury	mg/L	0.0000013	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	-	2.6	0.02 U	0.02 U	0.02 U	0.02 U
Selenium	mg/L	0.005	0.005	0.005 U	0.00067 J	0.00056 J	0.00035 J
Silver	mg/L	0.0002	0.00006	0.01 U	0.000019 J	0.000018 J	0.00001 J
Thallium	mg/L	0.0037	0.0012	0.005 U	0.001 U	0.001 U	0.001 U
Vanadium	mg/L	0.012	0.027	0.01 U	0.004 U	0.004 U	0.004 U
Zinc	mg/L	-	3.3	0.018 UJ	0.02 U	0.02 U	0.02 U
Polychlorinated Biphenyls							
Aroclor-1016 (PCB-1016)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U
General Chemistry							
Ammonia	mg/L	-	-	-	1.4 J	2.0 U	2.0 U
Ammonia (unionized)	mg/L	0.053	0.053	-	0.01	-	-
Biochemical oxygen demand (BOD)	mg/L	-	-	-	2.0 U	2.0 U	2.0 U
Chemical oxygen demand (COD)	mg/L	-	-	-	20	20	22
Cyanide (amenable)	mg/L	-	-	-	0.010 U	0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052	0.0052	-	0.010 U	0.010 U	0.010 U
Hardness, carbonate	mg/L	-	-	-	130	130	120
Hardness, magnesium	mg/L	-	-	-	44	45	46
Nitrate (as N)	mg/L	-	10	-	0.10 U	0.10 U	0.10 U
Oil and grease (HEM), polar	mg/L	-	-	-	4.7 U	4.8 UJ	4.8 U
pH, lab	s.u.	-	-	-	7.45 J	7.52 J	7.42 J
Phenolics (total)	mg/L	-	-	-	0.040 U	0.040 U	0.040 U
Total organic carbon (TOC)	mg/L	-	-	-	5.9	6.2	6.1

Notes:

J - Estimated concentration.

U - Not present at or above the associated value.

UJ - Estimated reporting limit.

BWS - Below Water surface

⁽¹⁾ The generic GSI criteria are based on the toxicity of unionized ammonia (NH₃);
the criteria is 53 µg/L warm water surface water

⁽²⁾ Temperature of the water was assumed to be approximately 65 degrees F at
the criteria is 53 µg/L warm water surface water

Table 1

**North Ditch Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan**

Sample Location:

Sample ID:

Sample Date:

Sample Depth:

matrix_code

SW-310-13
W-58502-071713-SSH-310
7/17/2013
(0-0) ft BWS
WS

SW-311-13
W-58502-071713-SSH-311
7/17/2013
(0-0) ft BWS
WS

SW-313-13
W-58502-071713-SSH-313
7/17/2013
(0-0) ft BWS
WS

SW-315-13
W-58502-071713-SSH-315
7/17/2013
(0-0) ft BWS
WS

DEQ Rule 57 -								
Parameters:	Units	Res/Non_Res/GW SW Interface	Surface Water Quality Values					
Metals								
Antimony	mg/L	0.13	0.0017	0.0005 J	0.00036 J	0.00032 J	0.00036 J	
Arsenic	mg/L	0.01	0.01	0.005 U	0.005 U	0.005 U	0.005 U	
Barium	mg/L	-	1.9	0.037 J	0.036 J	0.033 J	0.033 J	
Beryllium	mg/L	-	0.16	0.00025 J	0.00015 J	0.00004 J	0.000096 J	
Cadmium	mg/L	-	0.0025	0.00014 J	0.000029 J	0.001 U	0.001 U	
Chromium	mg/L	0.011	0.12	0.005 U	0.005 U	0.005 U	0.005 U	
Cobalt	mg/L	0.1	0.1	0.00029 J	0.00018 J	0.000083 J	0.00014 J	
Copper	mg/L	-	0.47	0.002 U	0.002 U	0.002 U	0.002 U	
Lead	mg/L	-	0.014	0.002 J	0.0015 J	0.00062 J	0.001 J	
Manganese	mg/L	-	1.3	0.17	0.15	0.11	0.18	
Mercury	mg/L	0.0000013	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	
Nickel	mg/L	-	2.6	0.02 U	0.02 U	0.02 U	0.02 U	
Selenium	mg/L	0.005	0.005	0.00083 J	0.00052 J	0.00055 J	0.00049 J	
Silver	mg/L	0.0002	0.00006	0.000039 J	0.000022 J	0.000017 J	0.000012 J	
Thallium	mg/L	0.0037	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	
Vanadium	mg/L	0.012	0.027	0.004 U	0.004 U	0.004 U	0.004 U	
Zinc	mg/L	-	3.3	0.02 U	0.02 U	0.02 U	0.02 U	
Polychlorinated Biphenyls								
Aroclor-1016 (PCB-1016)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
Aroclor-1221 (PCB-1221)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
Aroclor-1232 (PCB-1232)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
Aroclor-1242 (PCB-1242)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
Aroclor-1248 (PCB-1248)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
Aroclor-1254 (PCB-1254)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
Aroclor-1260 (PCB-1260)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
Aroclor-1262 (PCB-1262)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
Aroclor-1268 (PCB-1268)	mg/L	0.0002	0.000000026	0.00011 U	0.0001 U	0.0001 U	0.000097 U	
General Chemistry								
Ammonia	mg/L	-	-	2.0 U	1.1 J	1.1 J	2.0 U	
Ammonia (unionized)	mg/L	0.053	0.053	-	0.01	0.01	-	
Biochemical oxygen demand (BOD)	mg/L	-	-	2.0 U	2.0 U	2.0 U	2.0 U	
Chemical oxygen demand (COD)	mg/L	-	-	22	25	17 J	30	
Cyanide (amenable)	mg/L	-	-	0.010 U	0.010 U	0.010 U	0.010 U	
Cyanide (total)	mg/L	0.0052	0.0052	0.010 U	0.010 U	0.010 U	0.010 U	
Hardness, carbonate	mg/L	-	-	180	180	170	170	
Hardness, magnesium	mg/L	-	-	45	44	45	44	
Nitrate (as N)	mg/L	-	10	0.10 U	0.10 U	0.10 U	0.10 U	
Oil and grease (HEM), polar	mg/L	-	-	4.9 U	4.9 U	4.8 U	4.9 U	
pH, lab	s.u.	-	-	7.43 J	7.44 J	7.44 J	7.41 J	
Phenolics (total)	mg/L	-	-	0.040 U	0.040 U	0.040 U	0.040 U	
Total organic carbon (TOC)	mg/L	-	-	6.0	6.1	6.0	6.4	

Notes:

J - Estimated concentration.

U - Not present at or above the associated value.

UJ - Estimated reporting limit.

BWS - Below Water surface

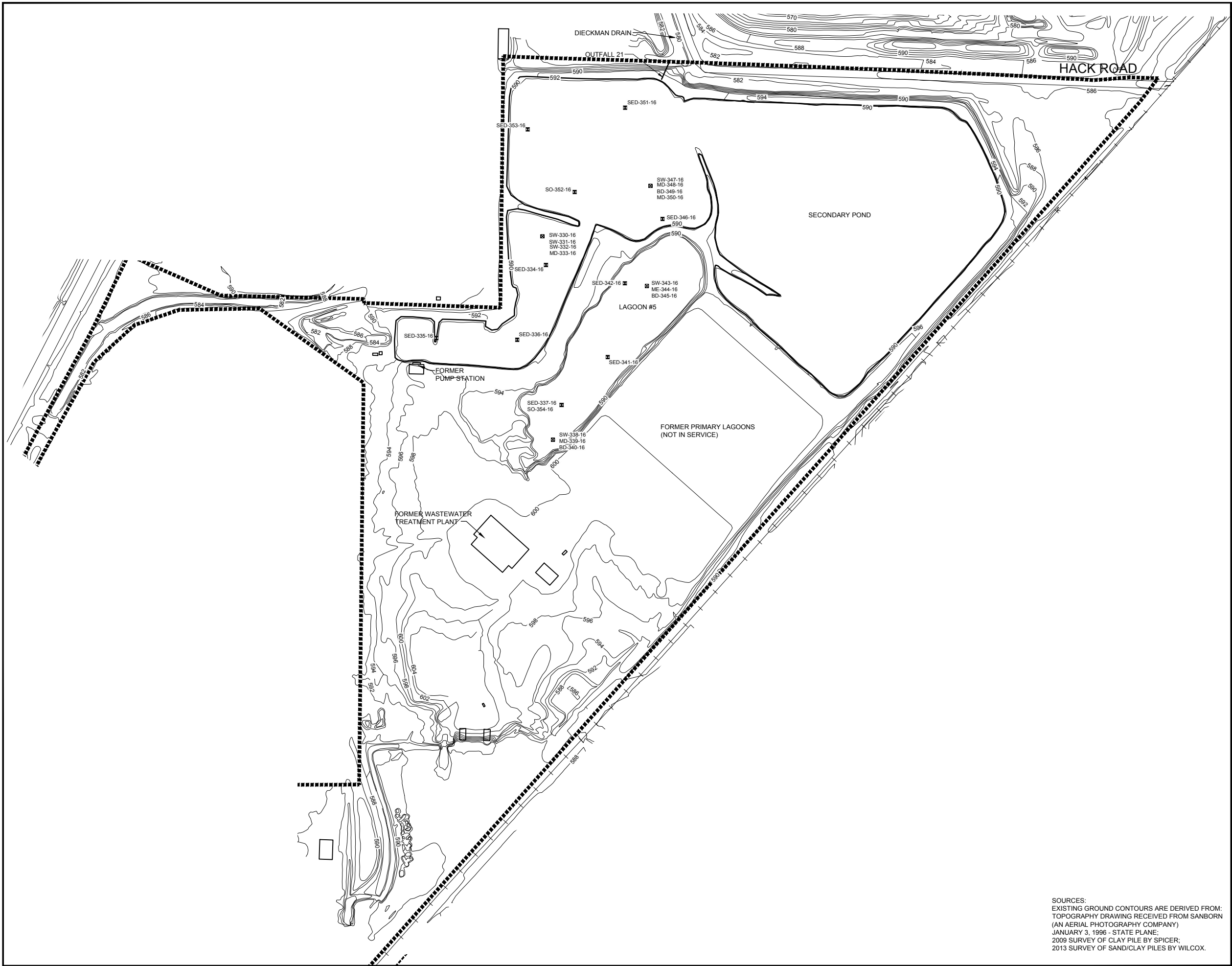
⁽¹⁾ The generic GSI criteria are based on the toxicity of unionized ammonia (NH₃); the criteria is 53 µg/L warm water surface water

⁽²⁾ Temperature of the water was assumed to be approximately 65 degrees F at the criteria is 53 µg/L warm water surface water

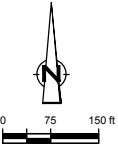
Appendix B.6

Secondary Pond Characterization Results

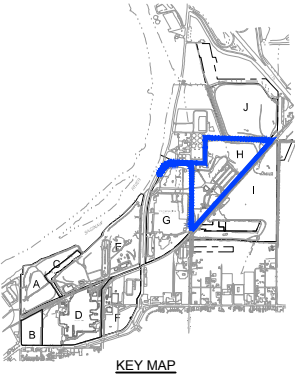
- March 2016



SOURCES:
EXISTING GROUND CONTOURS ARE DERIVED FROM:
TOPOGRAPHY DRAWING RECEIVED FROM SANBORN
(AN AERIAL PHOTOGRAPHY COMPANY)
JANUARY 3, 1996 - STATE PLANE;
2009 SURVEY OF CLAY PILE BY SPICER;
2013 SURVEY OF SAND/CLAY PILES BY WILCOX.



- LEGEND
- 586 A- - - EXISTING CONTOUR ELEVATION
 - 590 - - - INVESTIGATIVE UNIT BOUNDARY AND IDENTIFIER
 - - - APPROXIMATE LIMITS OF RACER PROPERTY
 - - - EXISTING GROUND CONTOUR (NGVD)
 - ☒ WATER SAMPLE LOCATION
 - SEDIMENT SAMPLE LOCATION



KEY MAP

SCALE VERIFICATION

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



REVITALIZING AUTOMOTIVE COMMUNITY ENVIRONMENTAL RESPONSE

SAGINAW, MICHIGAN

POND WATER AND SEDIMENT SAMPLE LOCATIONS



Source Reference:
MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88
TOPO - SANBORN, 1996

Project Manager: I.R.	Reviewed By: M.T.	Date: APRIL 2016
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Scale: 1" = 200'	Project N°: 58502-T02	Report N°: MEMO018	Drawing N°: figure 1
---------------------	--------------------------	-----------------------	-------------------------

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:

Sample ID:

Sample Date:

BD-340-16

BD-345-16

BD-349-16

W-58502-032416-SSH-1637 W-58502-032416-SSH-1634 W-58502-031716-SSH-1623

3/24/2016

3/24/2016

3/17/2016

Rule 57

Parameters	Units	Res/Non_Res/ GW SW Interface	FCV	HCV Drink	HNV Drink	WV			
VOAs		a	b	c	d	e			
1,1,1-Trichloroethane	mg/L	0.089	0.089	-	62	-	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	mg/L	0.078	0.2	0.0032	0.18	-	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	mg/L	0.33	0.73	0.012	0.11	-	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	mg/L	0.74	0.74	-	9.8	-	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.13	0.13	-	1.2	-	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	mg/L	0.099	0.13	-	0.08	-	0.001 U	0.001 U	0.001 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	-	-	0.00024	-	-	0.001 U	0.001 U	0.001 U
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.0057	0.015	0.00017	0.25	-	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L	0.013	0.013	-	2	-	0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	mg/L	0.36	2	0.006	6.9	-	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	mg/L	0.23	0.23	0.0091	12	-	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	mg/L	0.028	0.028	-	0.037	-	0.001 U	0.001 U	0.001 U
1,4-Dichlorobenzene	mg/L	0.017	0.017	0.024	1.1	-	0.001 U	0.001 U	0.001 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	2.2	2.2	-	17	-	0.01 U	0.01 U	0.01 U
2-Hexanone	mg/L	-	-	-	9.7	-	0.01 U	0.01 U	0.01 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	-	-	-	-	-	0.01 U	0.01 U	0.01 U
Acetone	mg/L	1.7	1.7	-	5.6	-	0.01 U	0.01 U	0.01 U
Benzene	mg/L	0.2	0.2	0.012	0.019	-	0.001 U	0.001 U	0.001 U
Bromodichloromethane	mg/L	-	-	0.0068	0.17	-	0.001 U	0.001 U	0.001 U
Bromoform	mg/L	-	-	0.052	0.47	-	0.001 U	0.001 U	0.001 U
Bromomethane (Methyl bromide)	mg/L	0.035	0.0042	-	0.039	-	0.001 U	0.001 U	0.001 U
Carbon disulfide	mg/L	-	-	-	1	-	0.005 U	0.005 U	0.005 U
Carbon tetrachloride	mg/L	0.045	0.077	0.0047	0.018	-	0.001 U	0.001 U	0.001 U
Chlorobenzene	mg/L	0.025	0.025	-	0.47	-	0.001 U	0.001 U	0.001 U
Chloroethane	mg/L	1.1	1.1	0.17	500	-	0.001 U	0.001 U	0.001 U
Chloroform (Trichloromethane)	mg/L	0.35	0.63	-	0.35	-	0.001 U	0.001 U	0.001 U
Chloromethane (Methyl chloride)	mg/L	-	-	0.11	3.5	-	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	mg/L	0.62	0.62	-	0.88	-	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	mg/L	-	0.009	0.0033	0.93	-	0.001 U	0.001 U	0.001 U
Cyclohexane	mg/L	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Dibromochloromethane	mg/L	-	-	0.0068	0.57	-	0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane (CFC-12)	mg/L	-	-	-	2.9	-	0.001 U	0.001 U	0.001 U
Ethylbenzene	mg/L	0.018	0.018	0.025	2.1	-	0.001 U	0.001 U	0.001 U
Isopropyl benzene	mg/L	0.028	0.028	-	1.7	-	0.001 U	0.001 U	0.001 U
Methyl acetate	mg/L	-	-	-	-	-	0.01 U	0.01 U	0.01 U
Methyl cyclohexane	mg/L	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Methyl tert butyl ether (MTBE)	mg/L	7.1	32	0.1	0.92	-	0.001 U	0.001 U	0.001 U
Methylene chloride	mg/L	1.5	1.5	0.047	1.6	-	0.005 U	0.005 U	0.005 U
Styrene	mg/L	0.08	0.16	0.02	4.2	-	0.001 U	0.001 U	0.001 U
Tetrachloroethene	mg/L	0.06	0.19	0.011	0.32	-	0.001 U	0.001 U	0.001 U
Toluene	mg/L	0.27	0.27	-	5.6	-	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	mg/L	1.5	1.5	-	0.47	-	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	mg/L	-	0.009	0.0033	0.93	-	0.001 U	0.001 U	0.001 U
Trichloroethene	mg/L	0.2	0.2	0.029	0.044	-	0.001 U	0.001 U	0.001 U
Trichlorofluoromethane (CFC-11)	mg/L	-	-	-	-	-	0.001 U	0.001 U	0.001 U

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:

Sample ID:

Sample Date:

BD-340-16

BD-345-16

BD-349-16

W-58502-032416-SSH-1637 W-58502-032416-SSH-1634 W-58502-031716-SSH-1623

3/24/2016

3/24/2016

3/17/2016

Rule 57

Parameters	Units	Res/Non_Res/ GW SW Interface	FCV	HCV Drink	HNV Drink	WV			
Trifluorotrichloroethane (CFC-113)	mg/L	0.032	0.032	-	444	-	0.001 U	0.001 U	0.001 U
Vinyl chloride	mg/L	0.013	0.93	0.00025	0.083	-	0.001 U	0.001 U	0.001 U
Xylenes (total)	mg/L	0.041	0.049	-	3.8	-	0.002 U	0.002 U	0.002 U
SVOAs									
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	-	-	0.006	0.99	-	0.0048 U	0.0052 U	0.0049 U
2,4,5-Trichlorophenol	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
2,4,6-Trichlorophenol	mg/L	0.005	0.005	0.041	1.9	-	0.0038 U	0.0042 U	0.0039 U
2,4-Dichlorophenol	mg/L	0.011	0.011	-	0.22	-	0.0095 U	0.01 U	0.0098 U
2,4-Dimethylphenol	mg/L	0.38	0.38	-	0.45	-	0.0048 U	0.0052 U	0.0049 U
2,4-Dinitrophenol	mg/L	-	0.019	-	0.055	-	0.019 U	0.021 U	0.02 U
2,4-Dinitrotoluene	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
2,6-Dinitrotoluene	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
2-Chloronaphthalene	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
2-Chlorophenol	mg/L	0.018	0.018	-	0.19	-	0.0048 U	0.0052 U	0.0049 U
2-Methylnaphthalene	mg/L	0.019	0.019	-	0.6	-	0.0048 U	0.0052 U	0.0049 U
2-Methylphenol	mg/L	0.03	0.076	-	1.4	-	0.0048 U	0.0052 U	0.0049 U
2-Nitroaniline	mg/L	-	-	-	-	-	0.019 U	0.021 U	0.02 U
2-Nitrophenol	mg/L	-	0.056	-	-	-	0.0048 U	0.0052 U	0.0049 U
3&4-Methylphenol	mg/L	0.03	0.025	-	1.4	-	0.0048 U	0.0052 U	0.0049 U
3,3'-Dichlorobenzidine	mg/L	0.0003	0.0045	0.00014	0.65	-	0.00095 U	0.001 U	0.00098 U
3-Nitroaniline	mg/L	-	-	-	-	-	0.019 U	0.021 U	0.02 U
4,6-Dinitro-2-methylphenol	mg/L	-	-	-	-	-	0.019 U	0.021 U	0.02 U
4-Bromophenyl phenyl ether	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
4-Chloro-3-methylphenol	mg/L	0.0074	0.0074	-	6.9	-	0.0048 U	0.0052 U	0.0049 U
4-Chloroaniline	mg/L	-	-	0.002	0.039	-	0.0095 U	0.01 U	0.0098 U
4-Chlorophenyl phenyl ether	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
4-Nitroaniline	mg/L	-	-	-	-	-	0.019 U	0.021 U	0.02 U
4-Nitrophenol	mg/L	-	0.2	-	0.68	-	0.019 U	0.021 U	0.02 U
Acenaphthene	mg/L	0.038	0.038	-	0.58	-	0.0048 U	0.0052 U	0.0049 U
Acenaphthylene	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
Acetophenone	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
Anthracene	mg/L	-	-	-	1.9	-	0.0048 U	0.0052 U	0.0049 U
Atrazine	mg/L	0.0073	0.0073	-	0.88	-	0.0029 U	0.0031 U	0.0029 U
Benzaldehyde	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
Benzo(a)anthracene	mg/L	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U
Benzo(a)pyrene	mg/L	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U
Benzo(b)fluoranthene	mg/L	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U
Benzo(g,h,i)perylene	mg/L	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U
Benzo(k)fluoranthene	mg/L	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U
Biphenyl (1,1-Biphenyl)	mg/L	-	0.013	-	0.46	-	0.0048 U	0.0052 U	0.0049 U
bis(2-Chloroethoxy)methane	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U
bis(2-Chloroethyl)ether	mg/L	0.001	-	0.00079	-	-	0.00095 U	0.001 U	0.00098 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.025	-	0.014	0.12	-	0.0048 U	0.0052 U	0.0049 U
Butyl benzylphthalate (BBP)	mg/L	0.067	0.067	-	0.0069	-	0.0048 U	0.0052 U	0.0049 U
Caprolactam	mg/L	-	-	-	-	-	0.0095 U	0.01 U	0.0098 U

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:								BD-340-16	BD-345-16	BD-349-16
Sample ID:								W-58502-032416-SSH-1637	W-58502-031716-SSH-1634	W-58502-031716-SSH-1623
Sample Date:								3/24/2016	3/24/2016	3/17/2016
Rule 57										
Parameters	Units	Res/Non_Res/ GW SW Interface	FCV	HCV Drink	HNV Drink	WV				
Carbazole	mg/L	0.01	0.004	0.019	-	-	0.0095 U	0.01 U	0.0098 U	
Chrysene	mg/L	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U	
Dibenz(a,h)anthracene	mg/L	-	-	-	-	-	0.0019 U	0.0021 U	0.002 U	
Dibenzofuran	mg/L	0.004	0.004	-	-	-	0.0038 U	0.0042 U	0.0039 U	
Diethyl phthalate	mg/L	0.11	0.11	-	14	-	0.0048 U	0.0052 U	0.0049 U	
Dimethyl phthalate	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	
Di-n-butylphthalate (DBP)	mg/L	0.0097	0.0097	-	0.64	-	0.0048 U	0.0052 U	0.0049 U	
Di-n-octyl phthalate (DnOP)	mg/L	-	-	-	0.24	-	0.0048 U	0.0052 U	0.0049 U	
Fluoranthene	mg/L	0.0016	0.0016	-	0.018	-	0.00095 U*	0.001 U*	0.00098 U	
Fluorene	mg/L	0.012	0.012	-	0.14	-	0.0048 U	0.0052 U	0.0049 U	
Hexachlorobenzene	mg/L	0.0002	-	0.00000045	0.000046	0.0000003	0.00019 U	0.00021 U	0.0002 U	
Hexachlorobutadiene	mg/L	0.000053	0.001	0.00033	0.000093	0.000053	0.00095 U	0.001 U	0.00098 U	
Hexachlorocyclopentadiene	mg/L	-	-	-	0.14	-	0.0048 U	0.0052 U	0.0049 U	
Hexachloroethane	mg/L	0.0067	0.013	0.0053	0.006	-	0.0048 U	0.0052 U	0.0049 U	
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	-	-	0.0019 U	0.0021 U	0.002 U	
Isophorone	mg/L	1.3	1.3	0.31	4.1	-	0.0048 U	0.0052 U	0.0049 U	
Naphthalene	mg/L	0.011	0.011	-	1.1	-	0.0048 U	0.0052 U	0.0049 U	
Nitrobenzene	mg/L	0.18	0.23	0.0047	0.026	-	0.0029 U	0.0031 U	0.0029 U	
N-Nitrosodi-n-propylamine	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	
N-Nitrosodiphenylamine	mg/L	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	
Pentachlorophenol	mg/L	-	-	0.0018	0.3	-	0.0048 U	0.0052 U	0.0049 U	
Phenanthrene	mg/L	0.002	0.0017	-	-	-	0.0019 U	0.0021 U	0.002 U	
Phenol	mg/L	0.45	0.45	-	1.1	-	0.0048 U	0.0052 U	0.0049 U	
Pyrene	mg/L	-	-	-	0.015	-	0.0048 U	0.0052 U	0.0049 U	
Metals										
Aluminum	mg/L	-	-	-	-	-	0.1	0.11	0.092	
Antimony	mg/L	0.13	0.24	-	0.0017	-	0.002 U	0.002 U	0.002 U	
Arsenic	mg/L	0.01	0.15	0.01	0.01	-	0.005 U	0.005 U	0.005 U	
Barium	mg/L	0.69 (1)	-	-	1.9	-	0.1 U	0.1 U	0.1 U	
Beryllium	mg/L	0.0072 (1)	-	-	0.16	-	0.001 U	0.001 U	0.001 U	
Cadmium	mg/L	0.0031 (1)	-	-	0.0025	-	0.001 U	0.001 U	0.001 U	
Calcium	mg/L	-	-	-	-	-	57	63	56	
Chromium	mg/L	0.11 (1)(2)	-	-	0.12	-	0.01 U	0.01 U	0.01 U	
Cobalt	mg/L	0.1	0.1	-	-	-	0.02 U	0.02 U	0.02 U	
Copper	mg/L	0.013 (1)	-	-	0.47	-	0.004 U	0.004 U	0.004 U	
Iron	mg/L	-	-	-	-	-	0.2 U	0.2 U	0.2 U	
Lead	mg/L	0.029 (1)	-	-	0.014	-	0.003 U	0.003 U	0.003 U	
Magnesium	mg/L	-	-	-	-	-	16	17	18	
Manganese	mg/L	2.90 (1)	-	-	1.3	-	0.29	0.32	0.18	
Mercury	mg/L	0.0000013	-	-	0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	
Nickel	mg/L	0.075 (1)	-	-	2.6	-	0.02 U	0.02 U	0.02 U	
Potassium	mg/L	-	-	-	-	-	12	13	13	
Selenium	mg/L	0.005	0.005	-	0.12	-	0.005 U	0.005 U	0.005 U	

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

							BD-340-16	BD-345-16	BD-349-16
							W-58502-032416-SSH-1637	W-58502-032416-SSH-1634	W-58502-031716-SSH-1623
							3/24/2016	3/24/2016	3/17/2016
Rule 57									
Parameters	Units	Res/Non_Res/ GW SW Interface	FCV	HCV Drink	HNV Drink	WV			
Silver	mg/L	0.0002	0.00006	-	0.13	-	0.0002 U	0.0002 U	0.0002 U
Sodium	mg/L	-	-	-	-	-	190	210	150
Thallium	mg/L	0.0037	0.0072	-	0.0012	-	0.002 U	0.002 U	0.002 U
Vanadium	mg/L	0.027	0.027	-	0.053	-	0.004 U	0.004 U	0.004 U
Zinc	mg/L	0.17 ⁽¹⁾	-	-	3.3	-	0.05 U	0.05 U	0.05 U
PCBs									
Aroclor-1016 (PCB-1016)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000096 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000096 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000096 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000096 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000096 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000096 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000096 U
Wet									
Ammonia-N	mg/L	-	-	-	-	-	0.20 U	0.20 U	-
Biochemical oxygen demand (carbonaceous)	mg/L	-	-	-	-	-	6.3	5.4	-
Formaldehyde	mg/L	0.12	0.18	-	5	-	0.050 U	0.050 U	-

Notes:

U Not detected at the associated reporting limit.

(1) Calculated GSI value, based on assumed value of hardness of 154.3 mg/kg (average calculated in the North Ditch - 2013)

(2) Chromium III criteria utilized since speciated data in the RFI indicated that available chromium was Chromium III

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:	MD-333-16	MD-339-16	MD-344-16	MD-348-16	MD-350-16	SW-338-16	
Sample ID:	W-58502-032416-SSH-1645	W-58502-032416-SSH-1636	W-58502-032416-SSH-1633	W-58502-031716-SSH-1622	W-58502-032416-SSH-1644	W-58502-032416-SSH-1635	
Sample Date:	3/24/2016	3/24/2016	3/24/2016	3/17/2016	3/24/2016	3/24/2016	
Parameters	Units						
VOAs							
1,1,1-Trichloroethane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,1,2,2-Tetrachloroethane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U*
1,1,2-Trichloroethane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,1-Dichloroethane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,1-Dichloroethene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,2,4-Trichlorobenzene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,2-Dibromoethane (Ethylene dibromide)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U*
1,2-Dichlorobenzene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,2-Dichloroethane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,2-Dichloropropane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,3-Dichlorobenzene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
1,4-Dichlorobenzene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U
2-Hexanone	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U*
Acetone	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U
Benzene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Bromodichloromethane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Bromoform	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Bromomethane (Methyl bromide)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U*
Carbon disulfide	mg/L	-	0.005 U	0.005 U	0.005 U	-	0.005 U
Carbon tetrachloride	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Chlorobenzene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Chloroethane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Chloroform (Trichloromethane)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Chloromethane (Methyl chloride)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
cis-1,2-Dichloroethene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
cis-1,3-Dichloropropene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Cyclohexane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Dibromochloromethane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Dichlorodifluoromethane (CFC-12)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Ethylbenzene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Isopropyl benzene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Methyl acetate	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U*
Methyl cyclohexane	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Methyl tert butyl ether (MTBE)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Methylene chloride	mg/L	-	0.005 U	0.005 U	0.005 U	-	0.005 U
Styrene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Tetrachloroethene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Toluene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
trans-1,2-Dichloroethene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
trans-1,3-Dichloropropene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Trichloroethene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Trichlorofluoromethane (CFC-11)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		MD-333-16	MD-339-16	MD-344-16	MD-348-16	MD-350-16	SW-338-16
Sample ID:		W-58502-032416-SSH-1645	W-58502-032416-SSH-1636	W-58502-032416-SSH-1633	W-58502-031716-SSH-1622	W-58502-032416-SSH-1644	W-58502-032416-SSH-1635
Sample Date:		3/24/2016	3/24/2016	3/24/2016	3/17/2016	3/24/2016	3/24/2016
Parameters	Units						
Trifluorotrichloroethane (CFC-113)	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Vinyl chloride	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Xylenes (total)	mg/L	-	0.002 U	0.002 U	0.002 U	-	0.002 U
SVOAs							
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2,4,5-Trichlorophenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2,4,6-Trichlorophenol	mg/L	-	0.0042 U	0.0042 U	0.004 U	-	0.0042 U
2,4-Dichlorophenol	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U
2,4-Dimethylphenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2,4-Dinitrophenol	mg/L	-	0.021 U	0.021 U	0.02 U	-	0.021 U
2,4-Dinitrotoluene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2,6-Dinitrotoluene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2-Chloronaphthalene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2-Chlorophenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2-Methylnaphthalene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2-Methylphenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
2-Nitroaniline	mg/L	-	0.021 U	0.021 U	0.02 U	-	0.021 U
2-Nitrophenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
3&4-Methylphenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
3,3'-Dichlorobenzidine	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
3-Nitroaniline	mg/L	-	0.021 U	0.021 U	0.02 U	-	0.021 U
4,6-Dinitro-2-methylphenol	mg/L	-	0.021 U	0.021 U	0.02 U	-	0.021 U
4-Bromophenyl phenyl ether	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
4-Chloro-3-methylphenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
4-Chloroaniline	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U
4-Chlorophenyl phenyl ether	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
4-Nitroaniline	mg/L	-	0.021 U	0.021 U	0.02 U	-	0.021 U
4-Nitrophenol	mg/L	-	0.021 U	0.021 U	0.02 U	-	0.021 U
Acenaphthene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Acenaphthylene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Acetophenone	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Anthracene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Atrazine	mg/L	-	0.0031 U	0.0031 U	0.003 U	-	0.0031 U
Benzaldehyde	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Benzo(a)anthracene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Benzo(a)pyrene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Benzo(b)fluoranthene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Benzo(g,h,i)perylene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Benzo(k)fluoranthene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Biphenyl (1,1-Biphenyl)	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
bis(2-Chloroethoxy)methane	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
bis(2-Chloroethyl)ether	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Butyl benzylphthalate (BBP)	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Caprolactam	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		MD-333-16	MD-339-16	MD-344-16	MD-348-16	MD-350-16	SW-338-16
Sample ID:		W-58502-032416-SSH-1645	W-58502-032416-SSH-1636	W-58502-032416-SSH-1633	W-58502-031716-SSH-1622	W-58502-032416-SSH-1644	W-58502-032416-SSH-1635
Sample Date:		3/24/2016	3/24/2016	3/24/2016	3/17/2016	3/24/2016	3/24/2016
Parameters	Units						
Carbazole	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U
Chrysene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Dibenz(a,h)anthracene	mg/L	-	0.0021 U	0.0021 U	0.002 U	-	0.0021 U
Dibenzofuran	mg/L	-	0.0042 U	0.0042 U	0.004 U	-	0.0042 U
Diethyl phthalate	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Dimethyl phthalate	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Di-n-butylphthalate (DBP)	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Di-n-octyl phthalate (DnOP)	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Fluoranthene	mg/L	-	0.001 U*	0.001 U*	0.001 U	-	0.001 U*
Fluorene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Hexachlorobenzene	mg/L	-	0.00021 U	0.00021 U	0.0002 U	-	0.00021 U
Hexachlorobutadiene	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Hexachlorocyclopentadiene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Hexachloroethane	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Indeno(1,2,3-cd)pyrene	mg/L	-	0.0021 U	0.0021 U	0.002 U	-	0.0021 U
Isophorone	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Naphthalene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Nitrobenzene	mg/L	-	0.0031 U	0.0031 U	0.003 U	-	0.0031 U
N-Nitrosodi-n-propylamine	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
N-Nitrosodiphenylamine	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Pentachlorophenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Phenanthrene	mg/L	-	0.0021 U	0.0021 U	0.002 U	-	0.0021 U
Phenol	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Pyrene	mg/L	-	0.0052 U	0.0052 U	0.005 U	-	0.0052 U
Metals							
Aluminum	mg/L	-	0.12	0.13	0.092	-	0.1
Antimony	mg/L	-	0.002 U	0.002 U	0.002 U	-	0.002 U
Arsenic	mg/L	-	0.005 U	0.005 U	0.005 U	-	0.005 U
Barium	mg/L	-	0.1 U	0.1 U	0.1 U	-	0.1 U
Beryllium	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Cadmium	mg/L	-	0.001 U	0.001 U	0.001 U	-	0.001 U
Calcium	mg/L	-	62	65	54	-	62
Chromium	mg/L	-	0.01 U	0.01 U	0.01 U	-	0.01 U
Cobalt	mg/L	-	0.02 U	0.02 U	0.02 U	-	0.02 U
Copper	mg/L	-	0.004 U	0.004 U	0.004 U	-	0.004 U
Iron	mg/L	-	0.2 U	0.2 U	0.2 U	-	0.2 U
Lead	mg/L	-	0.003 U	0.003 U	0.003 U	-	0.003 U
Magnesium	mg/L	-	17	18	18	-	17
Manganese	mg/L	-	0.31	0.34	0.18	-	0.31
Mercury	mg/L	-	0.0002 U	0.0002 U	0.0002 U	-	0.0002 U
Nickel	mg/L	-	0.02 U	0.02 U	0.02 U	-	0.02 U
Potassium	mg/L	-	13	14	13	-	13
Selenium	mg/L	-	0.005 U	0.005 U	0.005 U	-	0.005 U

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		MD-333-16	MD-339-16	MD-344-16	MD-348-16	MD-350-16	SW-338-16
Sample ID:		W-58502-032416-SSH-1645	W-58502-032416-SSH-1636	W-58502-032416-SSH-1633	W-58502-031716-SSH-1622	W-58502-032416-SSH-1644	W-58502-032416-SSH-1635
Sample Date:		3/24/2016	3/24/2016	3/24/2016	3/17/2016	3/24/2016	3/24/2016
Parameters	Units						
Silver	mg/L	-	0.0002 U	0.0002 U	0.0002 U	-	0.0002 U
Sodium	mg/L	-	200	220	150	-	200
Thallium	mg/L	-	0.002 U	0.002 U	0.002 U	-	0.002 U
Vanadium	mg/L	-	0.004 U	0.004 U	0.004 U	-	0.004 U
Zinc	mg/L	-	0.05 U	0.05 U	0.05 U	-	0.05 U
PCBs							
Aroclor-1016 (PCB-1016)	mg/L	-	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U
Aroclor-1221 (PCB-1221)	mg/L	-	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U
Aroclor-1232 (PCB-1232)	mg/L	-	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U
Aroclor-1242 (PCB-1242)	mg/L	-	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U
Aroclor-1248 (PCB-1248)	mg/L	-	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U
Aroclor-1254 (PCB-1254)	mg/L	-	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U
Aroclor-1260 (PCB-1260)	mg/L	-	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U
Wet							
Ammonia-N	mg/L	-	0.20 U	0.20 U	0.20 U	-	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	-	6	5	2.0 U	-	5.6
Formaldehyde	mg/L	0.050 U	0.050 U	0.050 U	-	0.050 U	0.050 U

Notes:

- U Not detected at the associated reporting limit.
- (1) Calculated GSI value, based on assumed value of hardness of 154.3 mg/kg (a
- (2) Chromium III criteria utilized since speciated data in the RFI indicated that avail

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:	SW-343-16	SW-347-16
Sample ID:	W-58502-032416-SSH-1632	W-58502-031716-SSH-1621
Sample Date:	3/24/2016	3/17/2016

Parameters	Units		
VOAs			
1,1,1-Trichloroethane	mg/L	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	mg/L	0.001 UF1	0.001 U
1,1,2-Trichloroethane	mg/L	0.001 U	0.001 U
1,1-Dichloroethane	mg/L	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.001 U	0.001 U
1,2,4-Trichlorobenzene	mg/L	0.001 U	0.001 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	0.001 UF1	0.001 U
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L	0.001 U	0.001 U
1,2-Dichloroethane	mg/L	0.001 UF1	0.001 U
1,2-Dichloropropane	mg/L	0.001 U	0.001 U
1,3-Dichlorobenzene	mg/L	0.001 UF2	0.001 U
1,4-Dichlorobenzene	mg/L	0.001 U	0.001 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	0.01 U	0.01 U
2-Hexanone	mg/L	0.01 U	0.01 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	0.01 U	0.01 U
Acetone	mg/L	0.01 U	0.01 U
Benzene	mg/L	0.001 U	0.001 U
Bromodichloromethane	mg/L	0.001 U	0.001 U
Bromoform	mg/L	0.001 UF1	0.001 U
Bromomethane (Methyl bromide)	mg/L	0.001 U	0.001 U
Carbon disulfide	mg/L	0.005 U	0.005 U
Carbon tetrachloride	mg/L	0.001 U	0.001 U
Chlorobenzene	mg/L	0.001 U	0.001 U
Chloroethane	mg/L	0.001 U	0.001 U
Chloroform (Trichloromethane)	mg/L	0.001 U	0.001 U
Chloromethane (Methyl chloride)	mg/L	0.001 U	0.001 U
cis-1,2-Dichloroethene	mg/L	0.001 U	0.001 U
cis-1,3-Dichloropropene	mg/L	0.001 U	0.001 U
Cyclohexane	mg/L	0.001 U	0.001 U
Dibromochloromethane	mg/L	0.001 U	0.001 U
Dichlorodifluoromethane (CFC-12)	mg/L	0.001 U	0.001 UF1
Ethylbenzene	mg/L	0.001 U	0.001 U
Isopropyl benzene	mg/L	0.001 U	0.001 U
Methyl acetate	mg/L	0.01 U	0.01 U
Methyl cyclohexane	mg/L	0.001 U	0.001 U
Methyl tert butyl ether (MTBE)	mg/L	0.001 U	0.001 U
Methylene chloride	mg/L	0.005 UF1	0.005 U
Styrene	mg/L	0.001 U	0.001 U
Tetrachloroethene	mg/L	0.001 U	0.001 U
Toluene	mg/L	0.001 U	0.001 U
trans-1,2-Dichloroethene	mg/L	0.001 U	0.001 U
trans-1,3-Dichloropropene	mg/L	0.001 U	0.001 U
Trichloroethene	mg/L	0.001 U	0.001 U
Trichlorofluoromethane (CFC-11)	mg/L	0.001 U	0.001 U

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:	SW-343-16	SW-347-16
Sample ID:	W-58502-032416-SSH-1632	W-58502-031716-SSH-1621
Sample Date:	3/24/2016	3/17/2016

Parameters	Units		
Trifluorotrichloroethane (CFC-113)	mg/L	0.001 U	0.001 U
Vinyl chloride	mg/L	0.001 U	0.001 U
Xylenes (total)	mg/L	0.002 U	0.002 U
SVOAs			
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	0.0052 U	0.0048 U
2,4,5-Trichlorophenol	mg/L	0.0052 U	0.0048 U
2,4,6-Trichlorophenol	mg/L	0.0042 U	0.0038 U
2,4-Dichlorophenol	mg/L	0.01 U	0.0095 U
2,4-Dimethylphenol	mg/L	0.0052 U	0.0048 U
2,4-Dinitrophenol	mg/L	0.021 U	0.019 U
2,4-Dinitrotoluene	mg/L	0.0052 U	0.0048 U
2,6-Dinitrotoluene	mg/L	0.0052 U	0.0048 U
2-Chloronaphthalene	mg/L	0.0052 U	0.0048 U
2-Chlorophenol	mg/L	0.0052 U	0.0048 U
2-Methylnaphthalene	mg/L	0.0052 U	0.0048 U
2-Methylphenol	mg/L	0.0052 U	0.0048 U
2-Nitroaniline	mg/L	0.021 U	0.019 U
2-Nitrophenol	mg/L	0.0052 U	0.0048 U
3&4-Methylphenol	mg/L	0.0052 U	0.0048 U
3,3'-Dichlorobenzidine	mg/L	0.001 U	0.00095 U
3-Nitroaniline	mg/L	0.021 U	0.019 U
4,6-Dinitro-2-methylphenol	mg/L	0.021 U	0.019 U
4-Bromophenyl phenyl ether	mg/L	0.0052 U	0.0048 U
4-Chloro-3-methylphenol	mg/L	0.0052 U	0.0048 U
4-Chloroaniline	mg/L	0.01 U	0.0095 U
4-Chlorophenyl phenyl ether	mg/L	0.0052 U	0.0048 U
4-Nitroaniline	mg/L	0.021 U	0.019 U
4-Nitrophenol	mg/L	0.021 U	0.019 U
Acenaphthene	mg/L	0.0052 U	0.0048 U
Acenaphthylene	mg/L	0.0052 U	0.0048 U
Acetophenone	mg/L	0.0052 U	0.0048 U
Anthracene	mg/L	0.0052 U	0.0048 U
Atrazine	mg/L	0.0031 U	0.0029 U
Benzaldehyde	mg/L	0.0052 U	0.0048 U
Benzo(a)anthracene	mg/L	0.001 U	0.00095 U
Benzo(a)pyrene	mg/L	0.001 U	0.00095 U
Benzo(b)fluoranthene	mg/L	0.001 U	0.00095 U
Benzo(g,h,i)perylene	mg/L	0.001 U	0.00095 U
Benzo(k)fluoranthene	mg/L	0.001 U	0.00095 U
Biphenyl (1,1-Biphenyl)	mg/L	0.0052 U	0.0048 U
bis(2-Chloroethoxy)methane	mg/L	0.0052 U	0.0048 U
bis(2-Chloroethyl)ether	mg/L	0.001 U	0.00095 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.0052 U	0.0048 U
Butyl benzylphthalate (BBP)	mg/L	0.0052 U	0.0048 U
Caprolactam	mg/L	0.01 U	0.0095 U

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:	SW-343-16	SW-347-16
Sample ID:	W-58502-032416-SSH-1632	W-58502-031716-SSH-1621
Sample Date:	3/24/2016	3/17/2016

Parameters	Units		
Carbazole	mg/L	0.01 U	0.0095 U
Chrysene	mg/L	0.001 U	0.00095 U
Dibenz(a,h)anthracene	mg/L	0.0021 U	0.0019 U
Dibenzofuran	mg/L	0.0042 U	0.0038 U
Diethyl phthalate	mg/L	0.0052 U	0.0048 U
Dimethyl phthalate	mg/L	0.0052 U	0.0048 U
Di-n-butylphthalate (DBP)	mg/L	0.0052 U	0.0048 U
Di-n-octyl phthalate (DnOP)	mg/L	0.0052 U	0.0048 U
Fluoranthene	mg/L	0.001 U*	0.00095 U
Fluorene	mg/L	0.0052 U	0.0048 U
Hexachlorobenzene	mg/L	0.00021 U	0.00019 U
Hexachlorobutadiene	mg/L	0.001 U	0.00095 U
Hexachlorocyclopentadiene	mg/L	0.0052 U	0.0048 U
Hexachloroethane	mg/L	0.0052 U	0.0048 U
Indeno(1,2,3-cd)pyrene	mg/L	0.0021 U	0.0019 U
Isophorone	mg/L	0.0052 U	0.0048 U
Naphthalene	mg/L	0.0052 U	0.0048 U
Nitrobenzene	mg/L	0.0031 U	0.0029 U
N-Nitrosodi-n-propylamine	mg/L	0.0052 U	0.0048 U
N-Nitrosodiphenylamine	mg/L	0.0052 U	0.0048 U
Pentachlorophenol	mg/L	0.0052 U	0.0048 U
Phenanthrene	mg/L	0.0021 U	0.0019 U
Phenol	mg/L	0.0052 U	0.0048 U
Pyrene	mg/L	0.0052 U	0.0048 U
Metals			
Aluminum	mg/L	0.1	0.078
Antimony	mg/L	0.002 U	0.002 U
Arsenic	mg/L	0.005 U	0.005 U
Barium	mg/L	0.1 U	0.1 U
Beryllium	mg/L	0.001 U	0.001 U
Cadmium	mg/L	0.001 U	0.001 U
Calcium	mg/L	67	54
Chromium	mg/L	0.01 U	0.01 U
Cobalt	mg/L	0.02 U	0.02 U
Copper	mg/L	0.004 U	0.004 U
Iron	mg/L	0.2 U	0.2 U
Lead	mg/L	0.003 U	0.003 U
Magnesium	mg/L	18	18
Manganese	mg/L	0.34	0.17
Mercury	mg/L	0.0002 U	0.0002 U
Nickel	mg/L	0.02 U	0.02 U
Potassium	mg/L	15	12
Selenium	mg/L	0.005 U	0.005 U

Table 1

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:	SW-343-16	SW-347-16
Sample ID:	W-58502-032416-SSH-1632	W-58502-031716-SSH-1621
Sample Date:	3/24/2016	3/17/2016

Parameters	Units		
Silver	mg/L	0.0002 U	0.0002 U
Sodium	mg/L	220	150
Thallium	mg/L	0.002 U	0.002 U
Vanadium	mg/L	0.004 U	0.004 U
Zinc	mg/L	0.05 U	0.05 U
PCBs			
Aroclor-1016 (PCB-1016)	mg/L	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.000095 U	0.000095 U
Wet			
Ammonia-N	mg/L	0.20 U	-
Biochemical oxygen demand (carbonaceous)	mg/L	5.9	-
Formaldehyde	mg/L	0.050 U	-

Notes:

- U Not detected at the associated reporting limit.
- (1) Calculated GSI value, based on assumed value of hardness of 154.3 mg/kg (a
- (2) Chromium III criteria utilized since speciated data in the RFI indicated that avail

Appendix C

Inspection Forms

Appendix C.1

Routine Maintenance Inspection Form

APPENDIX C-1

ROUTINE MAINTENANCE STORM WATER INSPECTION FORM
(Once every month during periods of inactivity and weekly during activity
or within 24 hours of a storm event)

Inspection Date: _____ Time: _____
 Name of Inspector(s): _____
 Manager of SWPPP (signature): _____
 Weather Conditions: _____

Checklist for visual site inspection - preventative maintenance inspections

Y/N/NA

1. Inspect discharge from outfalls to determine if they are meeting water quality standards

- Outfall 020 (Southeast corner of property)
- Outfall 021 (Controlled Overflow for Secondary Pond)
- Outfall 022 (Emergency Outfall for North Ditch)
- Outfall 023 (Northeast corner of property)
- Outfall 024 (Controlled Overflow for Secondary Pond)

Area	Stains (y/n)	Oil Sheen (y/n)	Solids/Foam (y/n)	Odors (y/n)	Color/Clarity (y/n)	Abnormal Conditions (y/n)
Outfalls						
Drainage Ditches						
Sump pumps						
Fueling Areas						
Construction						
Vehicle Parking Areas						

2. Inspect ditches for abnormal conditions

3. Evaluate areas of existing erosion, erosion protection, or erosion susceptible areas

- classified sand pile
- clay pile
- primary settling basin
- secondary pond berms

Water Level _____

4. Inspect waste container for leaks Empty Waste Bin: _____ (Y/N)**Additional Checklist for visual site inspection during periods of activity at the Site**_____
5. Inspect designated parking/fueling areas for construction vehicles for leaks/spills

- Construction Parking Location
- Construction Refueling Location

6. Inspect construction vehicle for signs of fuel and lubricant leaks._____
7. Inspect sediment and erosion control measures to ensure compliance with County permit.

Major Observations from Checklist:

Actions Taken:

Appendix C.2

Comprehensive Inspection Form

APPENDIX C.2

**COMPREHENSIVE INSPECTION FORM
(Completed Quarterly)**

Inspection Date: _____ Time: _____

Name of Inspector(s): _____

Weather Conditions: _____

Checklist for visual comprehensive inspections

Y/N/NA

- _____ 1. Maintain all non-structural controls on outfalls and drainage ditches
- _____ 2. Evaluate good housekeeping practices on Site.
- _____ 3. Inspect property boundaries and evaluate adequacy of current security measures
- _____ 4. Inspect vegetation areas for signs of stress
- _____ 5. Evaluate areas of existing erosion, erosion protection, or erosion susceptible areas
- _____ 6. Evaluate record keeping and reporting
- _____ 7. Evaluate adequacy of spill prevention and response procedures
- _____ 8. Evaluate employee training
- _____ 9. Review and evaluate routine inspection forms.

Major Observations from Checklist: _____

APPENDIX C.2

COMPREHENSIVE INSPECTION FORM (continued)

Area	Stains (y/n)	Oil Sheen (y/n)	Solids/Foam (y/n)	Odors (y/n)	Color/Clarity (y/n)	Abnormal Conditions (y/n)
Outfalls						
Drainage Ditches						
Sump pumps						
Fueling Areas						
Construction Vehicle Parking Areas						

Major Observations from Checklist:

Corrective Actions:

Implementation Schedule for Corrective Actions:

I certify that a comprehensive evaluation was conducted in accordance with the NPDES Permit. Unless otherwise noted above, the inspected areas are in compliance with the requirements of the SWPPP and NPDES Permit No. MI0059042.

Inspector's Signature

Date

Appendix D

Standard Operating Procedures (SOPs)

**STANDARD OPERATING PROCEDURE
OUTFALL 021/024 (SECONDARY POND) NPDES DISCHARGE PROCEDURES**

The following sections outline the procedures for discharging from Outfall 021/024 (Secondary Pond) in accordance with the NPDES permit MI0059042 (See Appendix A.1 of the SWPPP). Figure 1 (of the SWPPP) presents the location of Outfall 021/024.

STAFF GAUGE DETAILS - Secondary Pond

- There is currently no staff gauge in the secondary pond as the level has been dropped to expose the sediments
- Discharge pipe diameter is 1 foot

DISCHARGE PROCEDURE - Outfall 021/024 (Secondary Pond)

- In 2016, a significant amount of water was discharged from the Secondary Pond. There is no longer any concern that the level in the pond will overflow the banks. The purpose of future discharges is expected to be associated with stabilizing the secondary pond sediments and will be conducted as necessary through the use of a pump. Discharge events will involve one sample of 3-aliquots in every 24-hour period of discharge
 - o Samples are submitted to the laboratory for: TSS*, CBOD5, Ammonia-N, pH
 - o Field measurements are taken for each aliquot for: DO, turbidity*, pH, NH3, and staff gauge readings to determine flow
 - o Rainfall amounts are reviewed from the following website:
<https://secure1.state.mi.us/e2rs/skin/main/FrmLogin.aspx>
 - o *Monitoring of turbidity may be used as a partial substitute for monitoring TSS. The monitoring frequency shall be daily during discharge for turbidity and weekly during discharge for total suspended solids.

INSPECTIONS - Outfall 021/024 (Secondary Pond)

- Inspection of all outfalls are completed, at a minimum, once per month as per the SWPPP (See Appendix C.1 of the SWPPP)
 - o Staff gauge levels are recorded on a separate page that is kept in the field book in the event a copy of the levels requires submittal to the State
 - o A Routine Maintenance Inspection form is completed for the outfalls (See Appendix C.1 of the SWPPP) once per month when there are no activities being conducted at the Site and weekly when activities are being completed at the Site
- A comprehensive Site inspection is completed quarterly (See Appendix C.2 of the SWPPP)
- Once a new staff gauge is installed, readings will be collected monthly.

STANDARD OPERATING PROCEDURE OUTFALL 022 (NORTH DITCH) NPDES DISCHARGE PROCEDURES

The following sections outline the procedures for discharging from Outfall 022 (North Ditch) in accordance with the NPDES permit MI0059042 (Appendix A.1 of the SWPPP). Figure 1 (of the SWPPP) presents the location of Outfall 022.

STAFF GAUGE/OUTFALL 022 DETAILS - North Ditch

- CBMH 2590 (closest to Veterans Memorial Parkway) RIM = 585.74
- CB 2591(furthest from Veterans Memorial Parkway) RIM = 585.64
- Staff gauging reading of 4.9 feet – level at which water in North Ditch overflows into the catchbasins
- Staff gauge for the north ditch is located at the most southerly part of the north ditch (see Figure 1 of the SWPPP)

DISCHARGE PROCEDURE - Outfall 022 (North Ditch)

- If inspection identifies water discharging into catchbasins, one sample of 3-aliquots in every 24-hr period is required during discharge:
 - o Samples are submitted to the laboratory for: *TSS, pH
 - o Field measurements are taken for each aliquot for: turbidity*, staff gauge reading, and approximate flow rate
 - o *Monitoring of turbidity may be used as a partial substitute for monitoring TSS. The monitoring frequency shall be daily during discharge for turbidity and weekly during discharge for total suspended solids.
 - o Rainfall amounts are reviewed from the following website:
<https://secure1.state.mi.us/e2rs/skin/main/FrmLogin.aspx>
- Discharge is not controlled and will continue until the water level is below catchbasin elevations

INSPECTIONS - Outfall 022 (North Ditch)

- Inspection of all outfalls are completed, at a minimum, once per month as per the SWPPP (See Appendix C.1 of the SWPPP)
 - o Staff gauge levels are recorded on a separate page that is kept in the field book in the event a copy of the levels requires submittal to the State
 - o A Routine Maintenance Inspection form is completed for the outfalls (See Appendix C.1 of the SWPPP) once per month when there are no activities being conducted at the Site and weekly when activities are being completed at the Site
- A comprehensive Site inspection is completed quarterly (See Appendix C.2 of the SWPPP)
- Frequency of staff gauge readings:
 - o A minimum of one staff gauge will be taken monthly during the dry months (July, August, September, December, January, February) and weekly during the wet months (March, April, May, June, October, and November)
 - o If the most recent staff gauge reading was greater than 4.5 feet and there was a rain event, a staff gauge reading will be measured the following day

Appendix E

Employee Training Form

Appendix E - EMPLOYEE TRAINING FORM

Date of Session:

Trainer

Print:

Signature:

Topics Covered:

[illegible]

Appendix F

Annual SWPPP Review Form

Appendix F - ANNUAL SWPPP REVIEW FORM

Facility Information		
Designated Name:	Certificate of Coverage No.:	
Facility Contact Information		
Name:	Telephone No.:	
Email Address:	Certification No:	
Backup Facility Contact Information		
Name:	Telephone No.:	
Email Address:	Certification No:	
Certified Operator Information		
Name:	Telephone No.:	
Email Address:	Certification No:	

SWPPP Review Checklist

1) Facility general information is current and accurate	Yes	No	
2) Site map is current and accurate	Yes	No	
3) Significant material inventory is current and accurate	Yes	No	
4) New exposures, processes and related controls have been documented appropriately in the SWPPP	Yes	No	NA
5) Spills have been recorded and reported as appropriate	Yes	No	NA
6) Employee SWPPP training was conducted and documented	Yes	No	
7) Records of routine preventative maintenance and housekeeping inspections are available in the SWPPP file	Yes	No	
8) Comprehensive site inspections have been completed, certified and filed in the SWPPP file	Yes	No	
9) Corrective actions noted in the inspection reports have been completed	Yes	No	
10) SWPPP has been reviewed and signed by the Certified Storm Water Operator and the Permittee or designated representative	Yes	No	

Additional Comments (use additional sheets if necessary):

I certify that the above information is correct	
Name:	Signature / Date:

SUBMIT THIS FORM TO THE DISTRICT OFFICE IDENTIFIED ON YOUR CERTIFICATE OF COVERAGE ON OR BEFORE **JANUARY 10TH** OF EACH YEAR

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