Catch Basin Cleaning

Catch Basin Cleaning Activities Guidance Document

Catch Basin Cleaning Activities

Catch basins are included in storm sewer system designs in order to remove solids such as gravel, sand, oils, and organic material carried by storm water. Catch basins also contain elevated concentrations of metals (attached to the solids) from street runoff or drainage from industrial, commercial and residential properties. In order to maintain the storm sewer systems effectiveness, catch basins must be periodically cleaned out. The Department of Environmental Quality (DEQ) Water Bureau (WB) and Waste and Hazardous Materials Division (WHMD) oversee environmental regulations pertaining to this activity. The Michigan Occupational Safety and Health Administration (MIOSHA) within the Department of Labor and Economic Growth oversee confined space entry and other worker health and safety standards.

In the past, the waste generated from the catch basin cleaning activities was typically discharged back into the storm sewer system. This type of discharge is unauthorized per Part 31, Water Resources Protection (Part 31) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) and is therefore illegal. The combined solid and liquid waste stream (solid/liquid waste) from cleaning storm sewers systems is legally defined as "liquid industrial waste" pursuant to Part 121, Liquid Industrial Wastes (Part 121) of NREPA.

The following are options recommended to properly deal with the waste stream generated from catch basin cleaning activities:

1. Have the waste transported to drying beds to separate the solid/liquid waste. This is usually performed at a publicly owned treatment plant or at a privately owned permitted facility where the liquid portion of the waste stream is separated from the solids and treated.

2. Request permission from the local wastewater treatment plant operator to discharge the combined solid/liquid waste into the sanitary system. Most treatment plants will require pre-treatment prior to the discharge. All applicable local ordinance provisions must be followed.

3. When conducting catch basin maintenance activities where the above options are not available, the following method can be used as long as there are no discharges to surface waters during dry weather conditions.

- Conduct visual inspection to ensure the water in the sump has not been contaminated. If necessary, collect a grab sample of the water and look for signs of contamination such as visible sheen, discoloration, obvious odor, etc. See the EPA Visual Inspection guidance for more tips. If there is any doubt of the quality of the water, it should be collected into the Vactor truck and treated as waste under Part 121 or Part 115 Solid Waste Management (Part 115) of NREPA.

- Using a sump pump, or any other pumping mechanism, remove the majority of water in the sump of the basin without disturbing the solid material below. Do not use pumps connected to the Vactor truck's holding tank.

- The clear water may then be directly discharged to one of the following:
  - Sanitary system (with prior approval from local sewer authority)
  - Curb and gutter
  - Back into the storm sewer system as long as it is contained within the system during dry weather condition to ensure no discharge into surface water
  - Applied to the ground adjacent to the catch basin (evenly distributed at a maximum rate of 250 gallons/acre/year)

- The remaining liquid/solid in the sump should be collected with a Vactor truck and disposed of off-site in accordance with Parts 115 or 121.

The entity whose catch basin is being cleaned is responsible for meeting the generator requirements under Part 121. See the Liquid Industrial Waste Generator guidance for more information.

The entity transporting the solid/liquid waste must meet the applicable transporter requirements. A local, state, or federal government may use its own vehicle to service catch basins or other parts of the sewer system without being a permitted and registered transporter under the provisions of the Hazardous Materials Transportation Act, 1998 PA 138, as amended (HMTA).

If the local government contracts with a private company to transport the liquids generated from cleaning the catch basins or other parts of the sewer system, that entity must be registered and permitted as a uniform liquid industrial waste transporter under the provisions of HMTA.

The transporter must notify the WHMD about their activity and obtain a site identification number. Follow the instructions and links to the form EQP5150 and online paying option posted at www.deq.state.mi.us/wdspi. There is a fee.

A uniform hazardous waste manifest must accompany the load, or a consolidated manifest may be used per Operational Memo 121-3, when the liquid waste is transported over public roadways by the local government or by a contract transporter. Keep the records at least three years from shipment. The waste transporting portion of the vehicle and/or containers used to

transport the waste must be kept closed except when adding or removing the waste, and the exteriors must be kept free of the liquid waste and residue.

The facility accepting the solid/liquid waste must meet operating requirements:

- They must notify the WHMD that they are operating a liquid industrial waste designated facility, obtain a site identification number, and meet operating requirements under Part 121. This includes practices to prevent unauthorized discharge of the waste, sign manifests, and keep required records. If waste containers are used, they must be kept closed and protected from the weather, fire, physical damage and vandals.

- The discharge of the liquids into the treatment plant that is permitted by the WB must meet the wastewater treatment plant requirements. Any other discharge of the liquids would require a separate DEQ discharge permit.

- The resulting solid waste must be managed under Part 115 requirements. Dispose of the solid waste in a licensed landfill. Contact the landfill authority for their specific disposal requirements, including any tests they require to document the solids are not hazardous or liquid waste. Do not use the solids as fill on local government or private property, or for any other use, unless it meets the conditions of being an inert material according to the solid waste rules R299.4114 through R299.4118. See the Waste Characterization Guidance for information how to determine if the waste is hazardous or not.

Street sweeping activities are also subject to the above solid waste requirements. Street sweeping involves the use of specialized equipment to remove litter, loose gravel, soil, pet waste, vehicle debris and pollutants, dust, de-icing chemicals, and industrial debris from road surfaces. See the BMPs for Street Sweeping and Parking Lot and Street Cleaning.

Follow-up Answers Can be Found as Follows:	
Topic	**Contact:**
Using the solids as fill or other use under Part 115	Duane Roskoskey at 517-335-4712
Part 121 transportation requirements and HMTA	WHMD District Office
Managing waste under Part 31, or general questions regarding this guidance	Mark Fife at 517-241-8993
Confined space entry requirements	MIOSHA Consultation, Education and Training Division at 517-322-1809

DRAINAGE SYSTEM MAINTENANCE

OVERVIEW

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, detention basins, vegetated swales, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding. To ensure proper maintenance and effectiveness of these drainage systems, please review and apply the following approaches, protocols, and requirements below. This procedure requires that all controls be maintained to reduce to the maximum extent practicable the contribution of pollutants to stormwater.

New applicant-owned or operated facilities or new structural stormwater controls for water **quantity** will be designed and implemented in accordance with the post-construction stormwater runoff control performance standards and long-term operation and maintenance requirements. This maintenance standard operation procedure shall be reviewed and updated/revised approximately thirty (30) days following the implementation of a new structural storm water control.

APPROACH

Protocols

Catch Basin/Inlet Structures

- Regularly inspect facilities to ensure the following:
  - -Immediate repair of any deterioration threatening structural integrity.
  - -Cleaning before the sump is 60% full. Catch basins should be cleaned as frequently as needed to meet this standard.
- Clean catch basins, storm drain inlets, and other conveyance structures in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.
- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Update maintenance logs to include new structures on an as needed basis.
- Record the amount of waste collected.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be

pumped or vacuumed to a tank and properly disposed of. Do NOT dewater near a storm drain, river or stream.

- Except for small communities with relatively few catch basins that may be cleaned manually, most municipalities will require mechanical cleaners such as eductors, vacuums, or bucket loaders.
- All material extracted from catch basins should be hauled to a WWTP, dried on drying beds and then hauled to a licensed landfill. (*http://www.michigan.gov/documents/deq/wb-stormwater-CatchBasinGuidance_216198_7.pdf*)
  Accumulated pollutants are not to be discharged during cleaning and are removed prior to discharging to surface waters of the state.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect flushed effluent and pump to the sanitary sewer for treatment.

Vegetated Swales/Bio-Swales

- Inspect pea gravel for clogging and remove any issues.
- Inspect grass alongside slopes and the bed of the swale for erosion and the formation of rills and gullies; attend to and correct on an as needed basis.
- Remove trash and debris.
- Replenish vegetation, grass species, and wetland species on an as needed basis.
- Keep grass mowed to a height of 3-4 inches to provide sufficient performance of removing pollutants.
- Maintenance waste material will be disposed of properly.

Risers/Stand Pipe

- For a detention basin, check the inlet and outlet structures and assure that flow restricting devises are not blocked and are operating properly. (may also need to additionally examine during wet weather event)
- Ensure that riprap around the inlet and outlet structures within detention basins is intact and replace when the riprap is clogged with sediment and debris.

Detention Basins/Retention Basins

- Clean out any accumulated trash in the basin. Dispose of trash properly.
- Inspect for invasive plant species and remove or eradicate following proper procedures.
- Maintain vegetation properly, per applicable ordinances.
- For a detention basin, check the inlet and outlet structures and assure that flow restricting devises are not blocked and are operating properly. (may also need to additionally examine during wet weather event)
- Regularly inspect the embankments to ensure structural stability and for eroded areas.

- Ensure that riprap around the inlet and outlet structures within detention basins is intact and replace when the riprap is clogged with sediment and debris.
- Inspect for sediment accumulation at the inlet pipes.
- Do not use pesticides, herbicides, or fertilizers.
- Document findings and maintenance completed.

Open Channel

- Consider modification of storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Contact the State of Michigan to investigate which agencies will regulate the proposed activity. The developer-applicant should also contact local governments (city, county, special districts).

Secondary Containment

- Evaluate whether the secondary containment system is adequate for the facility, and whether it is maintained to contain oil discharges to navigable waters or adjoining shorelines. This evaluation may include reviewing inspection reports and maintenance records. Some items that the inspector should look for include the following:
    - Capacity of the system to contain oil as determined in accordance with good engineering practice and the requirements of the rule;
    - Cracks in containment system materials (e.g., concrete, liners, coatings, earthen materials);
    - Discoloration;
    - Presence of spilled or leaked material (standing liquid);
    - Corrosion of the system;
    - Erosion of the system;
    - Operational status of drain valves or other drainage controls;
    - Dike or berm permeability;
    - Presence of debris;
    - Level of precipitation in diked area and available capacity versus design capacity;
    - Location/status of pipes, inlets, and drainage around and beneath containers;
    - Excessive vegetation that may inhibit visual inspection and assessment of berm integrity;
    - Large-rooted plants (e.g., shrubs, cacti, trees) that could affect the berm integrity;
    - Holes or penetrations to the containment system created by burrowing animals; and
    - Drainage records for rainwater discharges from containment areas.

Vortex Separators

- Maintenance should be conducted during dry weather when no flow is entering the system. All maintenance, except possibly the attachment of sorbent pads (if required), may be conducted without entering the DVS structure. Once safety measures such as traffic control are deployed, the access covers may be removed and the following activities may be conducted to complete maintenance:
    - Remove floating trash, debris, and oils from the water surface using an extension on the end of the boom hose of the vacuum truck. Continue using the vacuum truck to completely dewater the structure through the vortex tubes and evacuate all accumulated sediment from the sediment sump. Some jetting may be required to fully evacuate sediment from the sump. This is easily achieved by inserting a jet hose through the vortex tube opposite the tube used for vacuum hose access.
    - If sorbent pads are required and are tethered to the structure, only personnel that are OSHA Confined Space Entry trained and certified may enter the structure to remove and replace the spent pads.
    - The structure does not need to be refilled with water after maintenance is complete. The system will fill with water when the next storm event occurs.
    - All material removed from the DVS during maintenance must be disposed of in accordance with local regulations. In most cases, the material may be handled in the same manner as disposal of material removed from sumped catch basins or manholes.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do NOT allow discharge from cleaning a storm drain pump station, or other facilities to reach the storm drain system.
- Conduct quarterly routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.
- Sample collected sediments to determine if landfill disposal is possible, or if illegal discharges in the watershed are occurring.

Oil/Water Separator

- Inspect the discharge water for obvious signs of poor water quality.
- Clean out oil/water separator when sediment depth in bottom of vault exceeds 6-inches in depth.
- Insect for trash and debris accumulation in the vault.
- Inspect for oil accumulations; clean out when oil accumulations exceed 1-inch at the surface of the water. Vactor out oil/water separator on an as needed basis and properly dispose of material.
- Repair inlet or outlet piping damaged or broken and in need of repair.

- Inspect the cover for corrosion/deformation.
- Inspect for cracks, corrosion, warping and signs of failure.
- Inspect, clean, and repair as necessary.

Porous Pavement

- Vacuum pavement and high-pressure jet clean at least four times per year.
    - Note: Cleaning schedule may vary depending on location and weather conditions.
- Inspection should be conducted for ponding after large storms.
- Maintain planted areas adjacent to the pavement.
- Immediately clean soil or mulch spills from pavement.
- Not suitable for storing construction materials such as soil, mulch or compost on unprotected pavement.
- Not suitable for abrasive applications of sand for snow/ice control.

Water Reuse (Rain Barrel/above ground tank)

- Inspect rain barrels four times per year and after major rain events.
- Clean debris screen as needed.
- Drain container prior to freezing weather.
- Flush sediment build-up as needed.
- Disinfect storage device twice per year.

Vegetated Filter Strips

- Remove weeds as needed within first 1-3 years after installation.
- Inspect stone trench or level spreader 2-4 times per year and remove sediment/debris when it exceeds 2 inches in depth.
- Remove leaves and decomposing material 1-2 times per year or as needed.

Stormwater Treatment Structure

- For nutrient, TSS, and trash reduction:
    - Inspect 2-4 times per year.
    - Clean screens and catch basin as needed.
    - Replace oil absorption materials when saturated or darkened in color.

Illicit Connections and Discharges

- During routine maintenance of conveyance system and drainage structures, field staff should look for evidence of illegal discharges or illicit connections:

    -Is there evidence of spills such as paints, discoloring, etc.

    -Are there any odors associated with the drainage system?

    -Record locations of apparent illegal discharges/illicit connections

    -Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of up gradient manholes or alternate techniques including zinc chloride smoke testing,

fluorometric dye testing, physical inspection testing, or television camera inspection.

-Once the origin of flow is established, require illicit discharger to eliminate the discharge.

- Stencil or color code storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should be color coded or have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Please refer to the fact sheet found within the Non-Stormwater Discharges section.

Illegal Dumping

- Regularly inspect and clean-up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:

  -Illegal dumping hot spots

  -Types and quantities (in some cases) of wastes

  -Patterns in time of occurrence (time of day/night, month, or year)

  -Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)

  -Responsible parties
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Please refer to the fact sheet found within the Non-Stormwater Discharges section.
- To report environmental violations during business hours, contact the State's Environmental Assistance Division at 800-662-9278. Emergency calls and calls after business hours, during weekends, and holidays should be directed to the Pollution Emergency Alerting System (PEAS) at 800-292-4706.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Only properly trained individuals are allowed to handle hazardous materials/wastes.
- Train municipal employees from all departments (public works, utilities, street cleaning, parks and recreation, industrial waste inspection, hazardous waste inspection, sewer maintenance) to recognize and report illegal dumping.
- Train municipal employees and educate businesses, contractors, and the general public in proper and consistent methods for disposal.

- Train municipal staff regarding non-stormwater discharges (Please see the Non-Stormwater Discharges section).

Spill Response and Prevention

- Please refer to the Spill Prevention, Control & Cleanup section.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

REQUIREMENTS

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.
- Identifying illicit discharges requires teams of at least two people (volunteers can be used), plus administrative personnel, depending on the complexity of the storm sewer system.
- Arrangements must be made for proper disposal of collected wastes.
- Requires technical staff to detect and investigate illegal dumping violations, and to coordinate public education.

MEASURABLE GOALS

- Volume of sediment removed from the system per year.
- Volume of trash removed from the system per year.
- Number of structures cleaned or maintained per year.

REFERENCES

GLRC Municipal BMP Handbook
www.mywatersheds.org

U.S. EPA National Pollutant Discharge Elimination System (NPDES) for Grassed Swales
http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=75

Secondary Containment
https://www.epa.gov/sites/production/files/2014-04/documents/4_secondarycontainment_impracticability_2014.pdf

Vortex Separator
http://www.nj.gov/dep/stormwater/pdf/dual-vortex-old-castle-main.pdf

U.S. EPA National Pollutant Discharge Elimination System (NPDES) for Grassed Swales
http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=75

Porous Pavement
Washtenaw County Water Resources Commissioner Rules and Guidelines Procedures & Design Criteria for Stormwater Management Systems

MDEQ Nonpoint Source Best Management Practices Manual,
http://www.michigan.gov/documents/deq/deq-wb-nps-pap_250889_7.pdf

Water reuse (Rain Barrel/above ground tank)
Washtenaw County Water Resources Commissioner Rules and Guidelines Procedures & Design Criteria for Stormwater Management Systems

Vegetated filter strips
Washtenaw County Water Resources Commissioner Rules and Guidelines Procedures & Design Criteria for Stormwater Management Systems

Stormwater Treatment Structure
http://www.suntreetech.com/Products/Nutrient+Separating+Baffle+Box/Servicing/default.aspx

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Administrative Building
200 Grand River Ave., Port Huron, MI 48060

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	1
Priority B (Medium)	5
Priority C (Low)	7
Total Catch Basins =	**13**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.975539	-82.421027	**Sediment:** Approximately 6" sediment— removal of sediment recommended **Other:** Covered with leaves and debris—remove debris	Medium
2	42.97549	-82.4215517	**Sediment:** Approximately 6" sediment— removal of sediment recommended **Other:** Covered with leaves and debris—remove debris	Medium
3	42.975505	-82.4215517	**Sediment:** Approximately 14" sediment—removal of sediment recommended **Other:** Covered with leaves and debris—remove debris	High
4	42.9755367	-82.4215333	**Sediment:** Approximately 6" sediment—removal of sediment recommended	Medium
5	42.9761583	-82.4217183	**Sediment:** Too deep to measure, approximately 3" to 5" sediment—monitor and re-check in 2017	Low
6	42.97619	-82.42145	**Sediment:** Too deep to measure, approximately 6" sediment—removal of sediment recommended	Medium
7	42.97648	-82.421223	**Sediment:** 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
8	42.97653	-82.421294	**Water:** Dry **Other:** Cigarette butts at bottom of structure—signage recommended for not dispersing cigarette butts in catch basin	Low
9	42.97669	-82.42111	**Sediment:** No sediment **Water:** Dry **Structure:** Good condition	Low
10	42.97653	-82.421083	**Sediment:** No sediment **Structure:** Good condition	Low
11	42.97649	-82.42063	**Sediment:** Approximately 8" sediment—removal of sediment recommended **Water:** Standing water present	Medium
12	42.97663	-82.42203	**Sediment:** No sediment **Water:** Standing water present **Structure:** Good condition **Other:** No vegetation around structure	Low
13	42.97647	-82.42197	**Water:** Flow present **Structure:** Good condition **Other:** No vegetation around structure	Low

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Figure 1.Reference Map

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Avoca Warehouse
8791 Avoca Road, Avoca, MI 48006

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	0
Priority B (Medium)	1
Priority C (Low)	2
Total Catch Basins =	**3**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	43.06184	-82.6878	**Sediment:** 2” to 3” sediment—monitor and re-check in 2017 **Water:** Minor turbidity (cloudiness) **Structure:** Minor corrosion of interior pipe--monitor	Medium
2	43.06188	-82.688	**Sediment:** Approximately 1” sediment—monitor and re-check in 2017	Low
3	43.06188	-82.6884	**Sediment:** 4” to 5” sediment—monitor and re-check in 2017	Low

Figure 1.Reference Map

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Day Treatment/Night Watch
1238 Michigan Road, Port Huron, MI 48060

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	3
Priority B (Medium)	1
Priority C (Low)	3
Total Catch Basins =	**7**

Table 2.Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
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St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.9434417	-82.479887	**Sediment:** Approximately 26” sediment – removal of sediment recommended	High
2	42.943481	-82.479881	**Sediment:** Approximately 26” sediment – removal of sediment recommended	High
3	42.943505	-82.479952	**Sediment:** South catch basin within bioswale: approximately 18” sediment – removal of sediment recommended **Structure:** Bioswale	High
4	42.943601	-82.480283	**Structure:** North catch basin within bioswale: good condition	Low
5	42.9436083	-82.479995	**Structure:** Bioswale, good condition **Other:** Noted phragmites in swale	Low
6	42.943419	-82.480557	**Sediment:** Approximately 4" sediment – monitor and re-check in 2017	Low
7	42.943438	-82.480565	**Other:** Covered with leaves/debris – remove debris	Medium

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Figure 1.Reference Map

Figure 2.Phragmites near bioswale (Location #5 on reference map)

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Family Independent Agency Parking Lot
220 Fort St., Port Huron, MI 48060 (Corner of Merchant St. and Quay St.)

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	0
Priority B (Medium)	0
Priority C (Low)	4
Total Catch Basins =	**4**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/ Maintenance Required	Priority
1	42.975875	-82.420273	**Sediment:** Approximately 3" sediment (gravel) – monitor and re-check in 2017	Low
2	42.975561	-82.420261	**Sediment:** Approximately 3" sediment –monitor and re-check in 2017	Low
3	42.975488	-82.420813	**Water:** Dry **Structure:** Good condition	Low
4	42.9755333	-82.420887	**Water:** Dry **Structure:** Good condition	Low

Figure 1.Reference Map

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Goodells County Park
8264 County Park Drive, Goodells, MI 48027

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	1
Priority B (Medium)	6
Priority C (Low)	36
Total Catch Basins =	**43**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.9835	-82.65322	**Sediment:** Approximately 1" sediment – monitor and re-check in 2017 **Water:** Standing water present	Low
2	42.98345	-82.65367	**Sediment:** 1" to 2" sediment – monitor and re-check in 2017	Low
3	42.98347	-82.65439	**Sediment:** 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present **Other:** Debris present—remove debris on grate	Low
4	42.98402	-82.65445	**Sediment:** Too deep to measure, approximately 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
5	42.98405	-82.65376	**Sediment:** Too deep to measure, approximately 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
6	42.98411	-82.65328	**Sediment:** Too deep to measure, approximately 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
7	42.984079	-82.652967	**Sediment:** Too deep to measure, approximately 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present **Structure:** Good condition	Low
8	42.9837	-82.65801	**Sediment:** Too deep to measure, approximately 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
9	42.98377	-82.65799	**Sediment:** 1" to 2" sediment—monitor and re-check in 2017 **Structure:** Good condition	Low
10	42.98369	-82.65849	**Sediment:** Too deep to measure, approximately 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present **Structure:** Good condition	Low
11	42.98376	-82.6585	**Sediment:** 2" to 3" sediment—monitor and re-check in 2017 **Water:** Standing water present **Structure:** Good condition	Low
12	42.98363	-82.65884	**Sediment:** Too deep to measure—monitor and re-check in 2017 **Water:** Flow present **Structure:** Good condition	Low
13	42.98346	-82.65898	**Sediment:** Too deep to measure—monitor and re-check in 2017 **Structure:** Damaged grate-needs repair. Good condition on interior	High
14	42.98421	-82.65815	**Other:** Inactive/dormant. Full of dirt and leaves.	Low
15	42.98415	-82.65824	**Sediment:** 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
16	42.98416	-82.65743	**Sediment:** 2" to 3" sediment—monitor and re-check in 2017 **Water:** Standing water present **Structure:** Good condition	Low

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

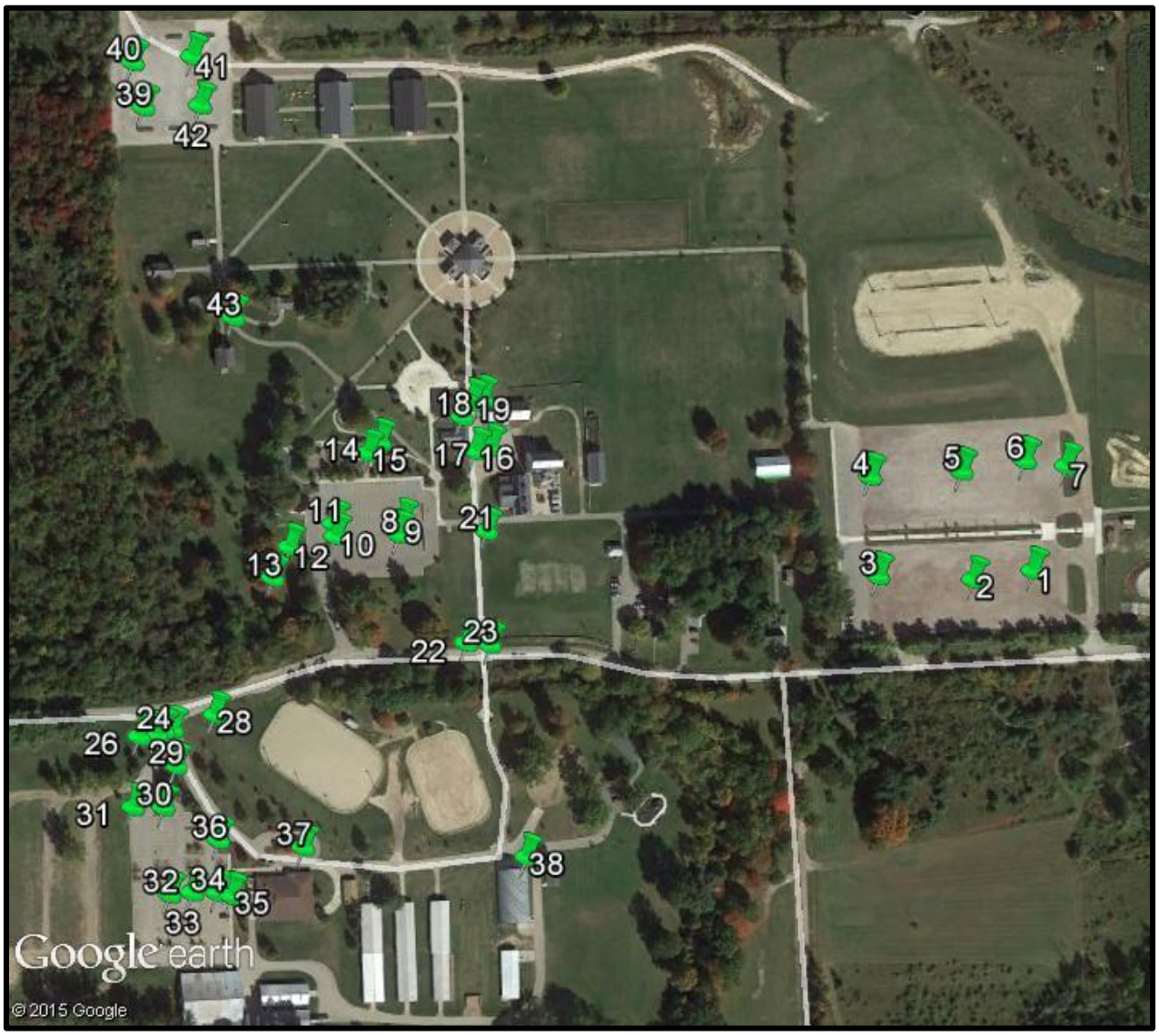
17	42.98418	-82.65732	**Sediment:** Approximately 2” sediment (gravel) —monitor and re-check in 2017 **Water:** Dry **Structure:** Good condition	Low
18	42.98435	-82.65753	**Sediment:** 4” to 5” sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
19	42.98443	-82.65746	**Sediment:** 1” to 2” sediment and rock—monitor and re-check in 2017 **Water:** Standing water present, chlorine odor – monitor and verify potential connection to fountain drains **Structure:** Good condition	Medium
20	42.98445	-82.65738	**Sediment:** Approximately 6” sediment— removal of sediment recommended **Water:** Standing water present, chlorine odor—monitor and verify potential connection to fountain drains	Medium
21	42.98372	-82.65735	**Sediment:** Approximately 2” sediment and rock—monitor and re-check in 2017 **Water:** Standing water present **Structure:** Good condition **Other:** Vegetation around grate—remove vegetation. Potential for erosion--monitor	Medium
22	42.9831	-82.65751	**Sediment:** Too deep to measure—monitor and re-check in 2017 **Structure:** Good condition	Low
23	42.98309	-82.65733	**Sediment:** Too deep to measure, approximately 1” to 2” sediment—monitor and re-check in 2017 **Other:** Vegetation around grate—remove vegetation	Low
24	42.98261	-82.65981	**Sediment:** 2” to 3” sediment—monitor and re-check in 2017 **Structure:** Good condition	Low
25	42.98259	-82.65986	**Sediment:** 1” to 2” sediment—monitor and re-check in 2017 **Structure:** Good condition	Low
26	42.98258	-82.65999	**Sediment:** Approximately 1” sediment—monitor and re-check in 2017 **Structure:** Good condition	Low
27	42.98262	-82.65974	**Sediment:** 2” to 3” sediment—monitor and re-check in 2017 **Structure:** Good condition	Low
28	42.9827	-82.65942	**Sediment:** 1” sediment—monitor and re-check in 2017 **Structure:** Good condition	Low
29	42.98242	-82.65971	**Sediment:** 1” to 2” sediment—monitor and re-check in 2017 **Water:** Standing water present **Other:** Debris present—remove debris on grate	Low
30	42.98219	-82.6598	**Sediment:** 1” to 2” sediment—monitor and re-check in 2017 **Structure:** Good condition	Low
31	42.98219	-82.66003	**Sediment:** 2” to 3” sediment—monitor and re-check in 2017 **Structure:** Minor seepage on north side of interior--monitor **Other:** Debris present—remove debris on grate	Medium
32	42.98171	-82.65975	**Sediment:** 1” to 2” sediment—monitor and re-check in 2017 **Water:** Minor turbidity (cloudiness)--monitor	Medium
33	42.98172	-82.65958	**Sediment:** Approximately 1” sediment—monitor and re-check in 2017 **Structure:** Good condition	Low

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

34	42.98172	-82.65939	**Sediment:** Too deep to measure—monitor and re-check in 2017 **Water:** Standing water present **Structure:** Good condition	Low
35	42.9817	-82.65928	**Sediment:** 3” to 4” sediment—monitor and re-check in 2017	Low
36	42.98201	-82.65938	**Sediment:** Too deep to measure, approximately 2” to 3” sediment—monitor and re-check in 2017. Minor/small rocks present in catch basin	Low
37	42.98197	-82.65874	**Sediment:** Too deep to measure, approximately 2” to 3” sediment—monitor and re-check in 2017. **Water:** Minor turbidity (cloudiness)--monitor **Structure:** Minor concrete cracking--monitor	Medium
38	42.98191	-82.65706	**Other:** Minor debris present at bottom of structure	Low
39	42.98606	-82.65994	**Sediment:** 1” to 2” sediment (rock) —monitor and re-check in 2017	Low
40	42.98631	-82.66002	**Sediment:** 1” to 2” sediment (rock) —monitor and re-check in 2017	Low
41	42.98634	-82.65957	**Sediment:** 3” to 4” sediment—monitor and re-check in 2017	Low
42	42.98607	-82.65951	**Structure:** Good condition **Other:** Some debris and vegetation present around exterior—remove debris and vegetation.	Low
43	42.9849	-82.65926	**Other:** Small structure, possibly sump to house. Grates too small to measure—monitor and re-check in 2017	Low

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Figure 1.Reference Map



St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Figure 2.Catch Basin #13

Figure 3.Catch Basin #21

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Marine City Warehouse
500 Metropolis St., Marine City, MI 48039

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	5
Priority B (Medium)	1
Priority C (Low)	4
Total Catch Basins =	**10**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.724022	-82.501365	**Water:** Standing water present **Structure:** Good condition	Low
2	42.724021	-82.500841	**Water:** Standing water present **Structure:** Good condition	Low
3	42.7238889	-82.500833	**Water:** Standing water present **Structure:** Good condition	Low
4	42.72351	-82.500773	**Sediment:** Silt sack present – clean out/remove sediment annually	Medium
5	42.723144	-82.500732	**Structure:** T-structure, good condition	Low
6	42.72292	-82.500694	**Sediment:** Too deep to measure, removal of sediment recommended **Structure:** T-structure. Over-sized and crooked lid – repair **Other:** Noted sink hole near side	High
7	42.7225083	-82.500628	**Sediment:** 13” sediment – removal of sediment recommended	High
8	42.722378	-82.50063	**Sediment:** 18” sediment – removal of sediment recommended	High
9	42.722404	-82.501009	**Sediment:** 21” sediment – removal of sediment recommended	High
10	42.722482	-82.501126	**Sediment:** 14” sediment – removal of sediment recommended	High

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Figure 1.Reference Map

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Marine City Warehouse
500 Metropolis St., Marine City, MI 48039

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	5
Priority B (Medium)	1
Priority C (Low)	4
Total Catch Basins =	**10**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.724022	-82.501365	**Water:** Standing water present **Structure:** Good condition	Low
2	42.724021	-82.500841	**Water:** Standing water present **Structure:** Good condition	Low
3	42.7238889	-82.500833	**Water:** Standing water present **Structure:** Good condition	Low
4	42.72351	-82.500773	**Sediment:** Silt sack present – clean out/remove sediment annually	Medium
5	42.723144	-82.500732	**Structure:** T-structure, good condition	Low
6	42.72292	-82.500694	**Sediment:** Too deep to measure, removal of sediment recommended **Structure:** T-structure. Over-sized and crooked lid – repair **Other:** Noted sink hole near side	High
7	42.7225083	-82.500628	**Sediment:** 13” sediment – removal of sediment recommended	High
8	42.722378	-82.50063	**Sediment:** 18” sediment – removal of sediment recommended	High
9	42.722404	-82.501009	**Sediment:** 21” sediment – removal of sediment recommended	High
10	42.722482	-82.501126	**Sediment:** 14” sediment – removal of sediment recommended	High

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Figure 1.Reference Map

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Sheriff's Offices and Intervention Center
1170 Michigan Rd., Port Huron, MI 48060

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	0
Priority B (Medium)	1
Priority C (Low)	12
Total Catch Basins =	**13**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

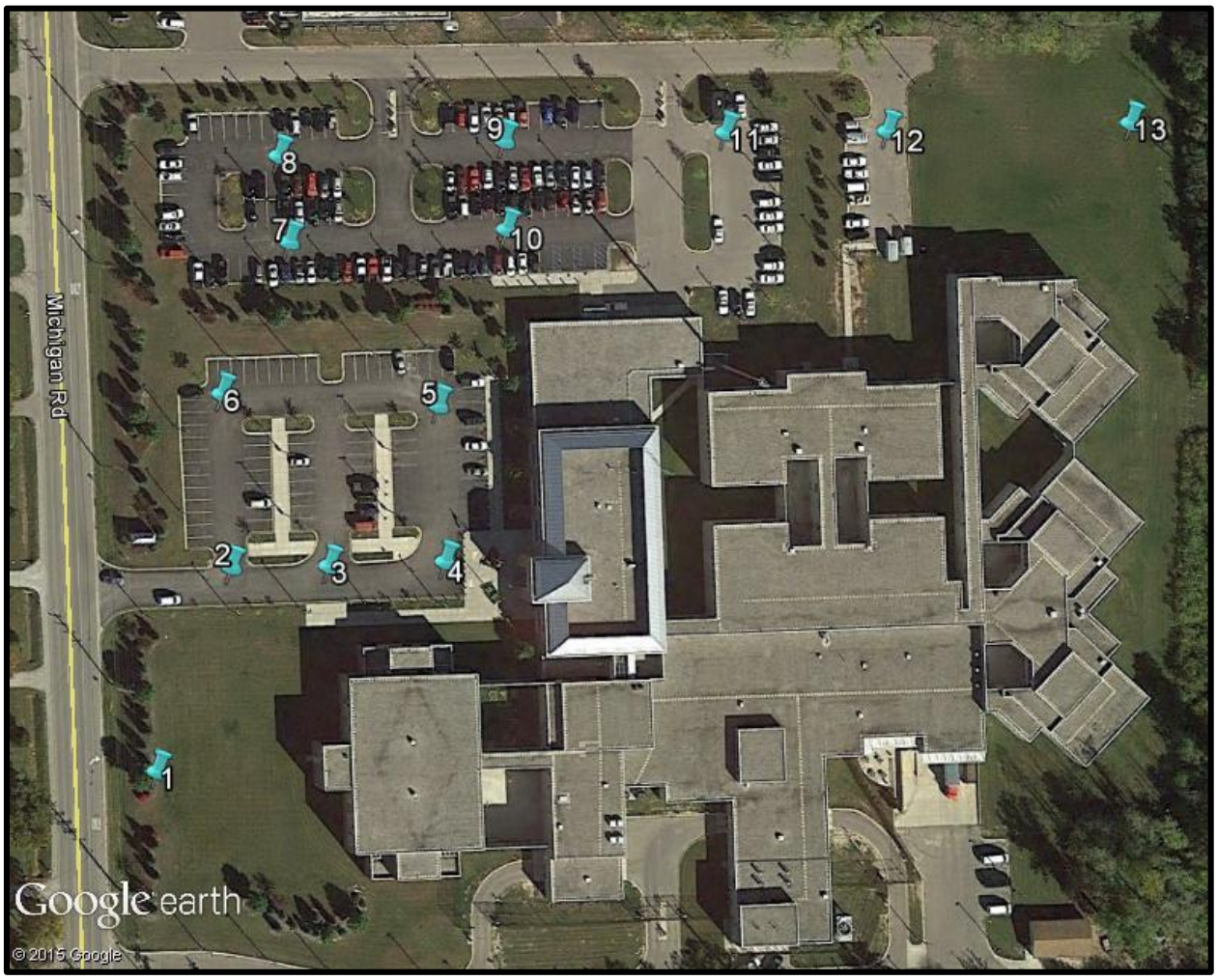
St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.941994	-82.481077	**Structure:** Good Condition	Low
2	42.942398	-82.480877	**Sediment:** Approximately 4" sediment – monitor and re-check in 2017	Low
3	42.9424	-82.480613	**Sediment:** Approximately 3" sediment—monitor and re-check in 2017 **Other:** Covered with leaves/debris – remove debris	Low
4	42.942408	-82.480299	**Sediment:** Approximately 6" sediment – removal of sediment recommended	Medium
5	42.9427167	-82.480318	**Sediment:** Approximately 3" sediment – monitor and re-check in 2017	Low
6	42.94274	-82.480902	**Sediment:** Approximately 4" sediment – monitor and re-check in 2017	Low
7	42.94304	-82.48072	**Sediment:** Approximately 4" sediment – monitor and re-check in 2017	Low
8	42.94321	-82.480748	**Structure:** Good condition	Low
9	42.94324	-82.48014	**Structure:** Good condition	Low
10	42.943065	-82.480133	**Sediment:** Approximately 2" sediment – monitor and re-check in 2017	Low
11	42.9432567	-82.479542	**Sediment:** Approximately 2" sediment –Monitor and re-check in 2017 **Structure:** Good condition	Low
12	42.94326	-82.479104	**Sediment:** Approximately 3" sediment –monitor and re-check in 2017	Low
13	42.9432767	-82.478445	**Structure:** Good condition	Low

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Figure 1.Reference Map



St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

St. Clair County Courthouse
201 McMorran Blvd., Port Huron, MI 48060

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	0
Priority B (Medium)	1
Priority C (Low)	12
Total Catch Basins =	**13**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

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St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.98002	-82.421	**Sediment:** Approximately 1" sediment—monitor and re-check in 2017 **Water:** Standing water present **Structure:** Cracked asphalt around structure--monitor	Medium
2	42.98001	-82.4214	**Sediment:** Approximately 1" sediment—monitor and re-check in 2017 **Water:** Standing water present **Structure:** Good condition	Low
3	42.97996	-82.4218	**Sediment:** 2" to 3" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
4	42.97981	-82.4216	**Sediment:** 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
5	42.97981	-82.4212	**Sediment:** 2" to 3" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
6	42.9798	-82.4209	**Sediment:** 1" to 2" sediment—monitor and re-check in 2017	Low
7	42.97983	-82.4207	**Sediment:** No sediment **Water:** Standing water present	Low
8	42.97966	-82.4207	**Sediment:** No sediment **Water:** Standing water present	Low
9	42.97963	-82.4208	**Sediment:** approximately 1" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
10	42.97963	-82.4212	**Sediment:** Too deep to measure, approximately 1" to 2" sediment—monitor and re-check in 2017. **Water:** Standing water present	Low
11	42.97963	-82.4216	**Sediment:** Approximately 1" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
12	42.97944	-82.4206	**Sediment:** 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low
13	42.97918	-82.4207	**Sediment:** 1" to 2" sediment—monitor and re-check in 2017 **Water:** Standing water present	Low

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Figure 1.Reference Map

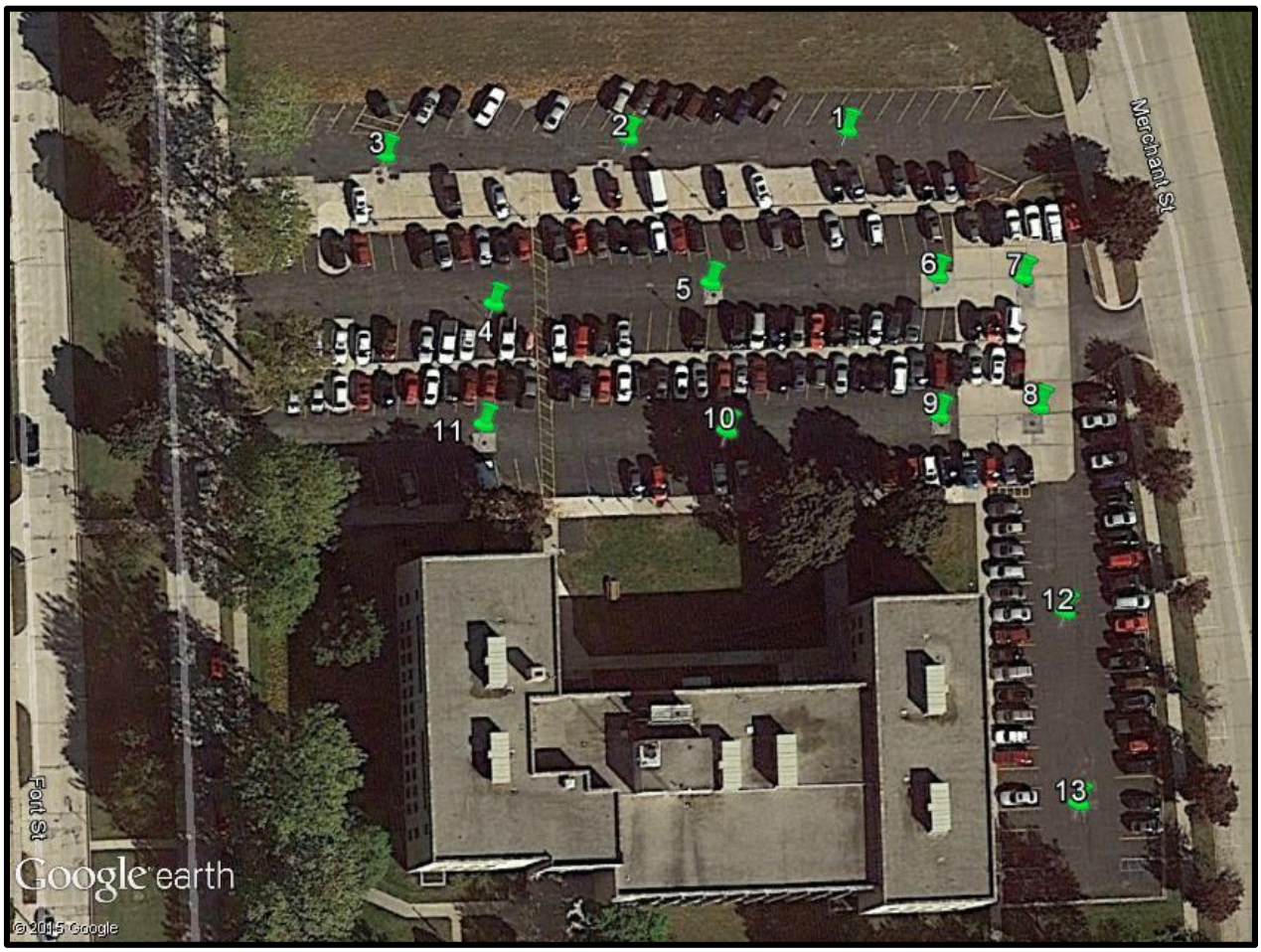

Figure 2.Catch Basin #1

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

St. Clair County Health Department
3415 28th Street, Port Huron, MI 48060

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	0
Priority B (Medium)	0
Priority C (Low)	2
Total Catch Basins =	**2**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.943543	-82.457073	**Sediment:** Approximately 3" sediment – monitor and re-check in 2017	Low
2	42.9434433	-82.457317	**Structure:** Good condition	Low

Figure 1: Reference Map

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

St. Clair County Library, Merchant Street and Grand River Parking Lots
210 McMorran Blvd. & 210 Grand River Ave., Port Huron, MI 48060

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	0
Priority B (Medium)	1
Priority C (Low)	5
Total Catch Basins =	**6**

Table 2. Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

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Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.97802	-82.4204	**Sediment:** No sediment **Structure:** Good condition	Low
2	42.97828	-82.4204	**Sediment:** Approximately 1” sediment—monitor and re-check in 2017 **Structure:** Minor concrete cracking--monitor	Medium
3	42.97777	-82.4213	**Sediment:** 1” to 2” sediment—monitor and re-check in 2017	Low
4	42.97762	-82.4213	**Sediment:** 1” to 2” sediment—monitor and re-check in 2017	Low
5	42.97782	-82.4205	**Sediment:** Approximately 1” sediment—monitor and re-check in 2017 **Water:** Dry **Other:** Small amounts of debris around exterior and interior of structure—remove debris	Low
6	42.97764	-82.4204	**Sediment:** 1” to 2” sediment—monitor and re-check in 2017 **Water:** Standing water present	Low

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Figure 1.Reference Map

St. Clair County
STRUCTURAL STORMWATER CONTROL OPERATION AND MAINTENANCE ACTIVITIES

St. Clair County Road Commission/St. Clair County Drain Commission
21 Airport Drive, St. Clair, MI 48079

Table 1.Catch Basin Priority Designation Summary

Priority	Number of catchbasins
Priority A (High)	5
Priority B (Medium)	0
Priority C (Low)	2
Total Catch Basins =	**7**

Table 2.Individual Catch Basin Priority Designation Table

Catch Basin Condition	Priority
No problems - new system	Low
Sump has no sediment	Low
Sump has 6" of sediment	Medium
Sump has 12" of sediment	Medium
Sump has sediment at pipe invert	High
Sump has bad odor	High
Catch basin interior is cracked; sand is coming into the cracks; no displacement is noted at the cracks	High
There is settling around the rim; the interior has gaping cracks and displacement; sinkholes are nearby; the sump is full	High
If built out of brick; bricks are failing; bricks are missing; the rim is settling into the street or parking lot; the sump is full	High

Catch Basin Cleaning:

Cleaning all of the catch basins at once is more economical than trying to inspect/clean some and not others on different years. The permittee will check all catch basins with a **low priority** approximately **one time** over the duration of the implementation of the permit **(1x/5 years)** and will clean out the catch basin(s) if deemed necessary. All documentation/reports of these activities will be presented in their permit progress reports. The permittee will inspect catch basins with a **medium priority once every two years** and will clean out the catch basin(s) if deemed necessary. Lastly, for the **high priority** catch basins, the permittee will **inspect each every year** and will clean out and document when necessary. Please see the Drainage System Maintenance Standard Operating Procedure for additional recommended protocols for the maintenance and cleaning of catch basin/inlet structures.

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Table 3.Catch Basin Priority Designation Details (see attached reference map)

Number on Map	Latitude	Longitude	Inspection Notes/Maintenance Required	Priority
1	42.904267	-82.52133	**Structure:** Good condition	Low
2	42.90407	-82.521321	**Sediment:** Approximately 7" sediment – removal of sediment recommended **Structure:** Chipped/missing blocks – repair	High
3	42.903887	-82.521311	**Sediment:** Approximately 1" sediment **Structure:** Good condition	Low
4	42.9037	-82.521303	**Sediment:** 2" sediment – removal of sediment recommended **Structure:** Chipped/missing blocks - repair	High
5	42.903261	-82.521282	**Structure:** Chipped/missing blocks - repair	High
6	42.903805	-82.520257	**Sediment:** 13" sediment – removal of sediment recommended	High
7	42.902845	-82.520542	**Sediment:** 14” sediment – removal of sediment recommended	High

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Figure 1.Reference Map

Detention Pond Vegetation

Is there excessive algae growth?
Yes No N/A

Are there areas or signs of erosion along the banks of the detention pond?
Yes No N/A

Is there a 15-25 foot no-mow and chemical-free buffer zone around the pond? (If yes, corrective action is not necessary.)
Yes No N/A

Has the area been inspected for invasive species?
Yes No N/A

Is there vegetation growing in and/or around the inlet or outlet pipe that is obstructing the flow of water?
Yes No N/A

Does it appear that sediment, vegetation and/or debris has accumulated around the stone, slowing the flow of water?
Yes No N/A

A yes answer to any of the items on this checklist should result in corrective action or a call to a professional consultant and/or contractor.

Other observations: _____

_____

_____

Other Considerations

Does the depth of sediment or other factors suggest a loss of storage volume?
Yes No N/A

Is there standing water in inappropriate areas? (Examples may include ruts, divots, bare areas, or typically dry ponds not draining properly)
Yes No N/A

Is there accumulation of floating debris and/or trash?
Yes No N/A

Is there evidence of encroachments or improper use of impounded areas?
Yes No N/A

Does the fence, gate, lock or other safety device need repair?
Yes No N/A

A yes answer to any of the items on this checklist should result in corrective action or a call to a professional consultant and/or contractor.

Other observations: _____

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_____

Detention Pond Inspection and Maintenance Record

Task	Inspection Frequency	Year _____		
		Contractor (Name & Phone #)	Cost	Notes
Storm Sewer Systems				
Inspect the riser/standpipe cover for trash and debris	Monthly and after rain events			
Inspect for sediment and trash accumulation at the inlet pipes	Twice a year and after rain events			
Inspect the stone around the riser/standpipe (outlet pipe)	Twice a year and after rain events			
Remove accumulated sediment at pond inlets or in pond forebay	Twice a year and after rain events			
Inspect the inlet pipes and outlet pipe for structural integrity	Annually			
Inspect riprap at the inlet pipes	Annually			
Inspect for excess sediment accumulation in the pond	Annually			
Inspect and clean the storm sewer system and catch basins upstream from the detention pond	Minimum every 3 years			
Have a Professional Civil Engineer inspect the pond to ensure it is functioning properly	Minimum every 5 years or as needed			
Have a Professional Civil Engineer inspect all outlet control structures to ensure they are functioning properly	Minimum every 5 years or as needed			
Detention Pond Vegetation				
Inspect side slopes, berms and spillways for erosion	Annually and after rain events			
Reestablish permanent native vegetation on eroded slopes	Annually in the spring and after rain events			

Detention Pond Inspection and Maintenance Record

Task	Inspection Frequency	Year _____		
		Contractor (Name & Phone #)	Cost	Notes
Maintain 15-25 foot "no-mow and chemical-free" zone around the pond edge	Annually			
Mow (or burn) the "no-mow" buffer zone once a year	Annually - late April/early May			
Inspect pond and no-mow zone for invasive species such as purple loosestrife, phragmites, buckthorn (common & glossy), honeysuckle and autumn olive that out-compete native vegetation	Annually - July			
Have a qualified professional selectively herbicide invasive species	Annually - July/August			
Increase plant diversity by planting additional vegetation in and around the pond	Annually - fall or early spring			
Maintain any maintenance access locations that have a tendency to become "overgrown"	Annually, fall or early spring			
Property Management				
Inspect pond for signs of chemicals (solvents, gas, diesel, paint, natural gas). Identify and control source and remove/dispose of properly	Monthly and after rain events			
Common are maintenance	Annually			
Street sweeping	Annually			
Review maintenance plan	Annually			