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DEPARTMENT OF ENVIRONMENTAL QUALITY  
GRAND RAPIDS DISTRICT OFFICE



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DIRECTOR

October 28, 2014

Ms. Carrie Rivette, Project Engineer  
City of Grand Rapids  
1120 Monroe Avenue NW  
Grand Rapids, Michigan 49503

**SUBJECT:** Municipal Separate Storm Sewer System (MS4) Audit  
National Pollutant Discharge Elimination System (NPDES)  
Certificate of Coverage (COC) No. Permit No. MIG610371  
Designated Name: Grand Rapids MS4

Dear Ms. Rivette:

On September 16, 2014, and September 17, 2014, staff from the Department of Environmental Quality (DEQ), Water Resources Division (WRD) conducted an audit of the City of Grand Rapids' (City) MS4 Program. The purpose of the audit was to determine compliance with Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and NPDES MS4 Watershed Based General Permit No. MIG619000 and the City's NPDES COC No. MIG610371.

Based on the audit, it appears that the City of Grand Rapids is implementing an effective MS4 program. The findings of the audit are detailed in the enclosed report.

Thank you for your commitment to protecting and improving the water resources of the state. Further, WRD staff appreciates the cooperation and assistance that the City provided as a part of this audit process.

If you have any questions or concerns regarding this letter, please contact me at 616-356-0215; [stamoura@michigan.gov](mailto:stamoura@michigan.gov); or at the address below.

Sincerely,

Amanda St. Amour  
Senior Environmental Quality Analyst

as/lr

Enclosure: Audit Report

cc/enc: Ms. Bonnie Broadwater, Grand Valley Metro Council

## **Municipal Separate Storm Sewer System (MS4) Audit Report**

### **Grand Rapids MS4 National Pollutant Discharge Elimination System (NPDES) NPDES MS4 Watershed Based General Permit No. MIG619000 Certificate of Coverage (COC) No. MIG610371**

On September 16, 2014, and September 17, 2014, staff from the Department of Environmental Quality (DEQ), Water Resources Division (WRD) conducted an audit of the City of Grand Rapids' (City) MS4 program. The purpose of the audit was to determine compliance with the NPDES MS4 Watershed Based General Permit No. MIG619000 and the City's COC No. MIG610371. The audit consisted of interviews with City personnel, review of MS4 program documentation and files, and an inspection of City-owned property.

During the audit, WRD staff examined the following areas of the City's MS4 program:

- Watershed Management Plan (WMP) and Public Participation Plan (PPP) – Part I.B.1. of the permit
- Public Education Plan (PEP) – Part I.A.3.b. of the permit
- Illicit Discharge Elimination Program (IDEP) – Part I.A.3.a. of the permit
- Storm Water Pollution Prevention Initiative (SWPPI)
  - Actions Committed to in the WMP – Part I.B.2.a.1)a) of the permit
  - Post-Construction – Part I.B.2.a.1)c) of the permit
  - Pollution Prevention/Good Housekeeping (P2/GH) – Part I.B.2.a.1)b) of the permit

The primary participants in the City's MS4 audit were as follows:

- Ms. Carrie Rivette, Project Engineer
- Mr. Mike Lunn, Environmental Services Manager
- Mr. Dan Taber, Project Engineer
- Ms. Bonnie Broadwater, Grand Valley Metro Council
- Ms. Wendy Ogilvie, Grand Valley Metro Council

The following provides a summary of the audit of the City's MS4 program.

### **WMP and PPP Audit Findings**

The permit requires permittees to participate in the development and implementation of WMPs. As a part of the WMP, permittees were required to create a joint PPP to facilitate the planning process. In accordance with their COC, the City was required to participate in the development and implementation of the Lower Grand River WMP.

The City participated in the writing of the WMP through several revisions, including the most recent in 2011. The City continues to implement WMP activities while general WMP organizing is performed by the Lower Grand River Organization of Watershed (LGROW). The City has incorporated several WMP actions into the Storm Water Pollution Prevention Initiative.

The most recent revision of the Public Participation Plan was completed in 2010.

The City invites the public to become involved in the development and implementation of the WMP through initiatives led by their previous consultant and the Grand Valley Metro Council.

In addition to involving the public in the watershed planning process, the City encourages public participation in several activities related to stormwater quality and watershed improvement. The City hosts an annual river clean-up where volunteers remove trash and debris from the Lower Grand River and its tributaries. Local schools districts use the WMP in their curricula. The City has conducted several community based stormwater initiatives which will ultimately result in the development of a technical reference manual and asset management plan under the guidance of a stormwater oversight commission. The City is currently partnering with Plaster Creek Stewards to help design and install storm water BMPs on residential properties; a project that will rely heavily on public participation for success.

The City of Grand Rapids makes water quality a priority and maintains several initiatives to meet water quality goals. The City performs weekly or monthly water quality testing on the Grand River and at the confluences of several tributaries. Projects to improve the quality of Plaster Creek and to restore the rapids in the Grand River are intended to increase not only water quality, but also the public use and benefits of those waterbodies. Construction on City-owned properties, incorporate Low Impact Design (LID) as the default option. Recent construction projects to utilize LID include: Joe Taylor Park's underground detention to store and treat 40 acres of stormwater; Mary Waters Park's underground infiltration of 135 acres of stormwater and pervious basketball courts; and several road reconstruction projects that include stormwater treatment islands, rain garden bump-outs, and pervious parking lanes.

### **PEP Audit Findings**

In accordance with the City's COC and Part I.A.3.b. of the permit, the City was required to submit a PEP by May 1, 2006. The most current PEP was approved by the DEQ in February 2013.

In accordance with the City's PEP, the City has implemented Public Education activities in cooperation with LGROW. In addition to participating on the LGROW Public Education Committee and distributing information developed by the group to be used by all participants, the City conducts public education activities separately. Examples of the City's outreach include: a booth during all four days of the Home and Garden Show,

Wastewater Treatment Plant tours that reach about 1800 people a year, Earth Day celebration at the zoo. The City's Environmental Services Department has made a presentation to City Council, as well as speaking engagements at sustainability, resiliency and green infrastructure conferences regionally. The City has a representative on President Obama's Task Force on Climate Preparedness.

The City of Grand Rapids also incorporates Public Education into regular construction and maintenance activities by installing informational signs alongside green infrastructure projects, generating stormwater related scripts for the City's 311 Customer Service Center, and creating an adopt-a-storm-basin program.

The PEP is considered to be effective by the numbers and types of reported complaints and responses to CSO questionnaires. The City, along with other permittees in the watershed has recently focused PEP efforts on public events and local festivals. These have been effective activities to reach audiences of all ages. The City reaches all citizens by including stormwater related materials in mailings to water customers. LGROW intends to conduct a survey of watershed citizens to gauge the effectiveness of the PEP for the entire permittee group.

Based on the information provided during the audit, it appears the City is meeting the minimum requirements of Part 1.A.3.b of the permit.

### **IDEP Audit Findings**

In accordance with the City's COC and Part 1.A.3.a of the permit, the City was required to submit an IDEP by May 1, 2006. The IDEP was revised and approved in 2013.

### **Point Sources Map**

The City has located 365 surface water discharge points, 257 MS4 to MS4 discharge points, and their associated receiving waters on an updated map.

### **Dry Weather Screening**

In accordance with the approved IDEP, all of the City's surface water discharge points have been screened multiple times. The City maintains an updated map of outfalls and reports changes in the Progress Report. The dry weather screening protocol includes visual and olfactory observations. The City employs and trains interns to perform dry-weather screening. Interns are equipped with field tests to gather additional information if necessary. Any suspicious discharges are reported to the Stormwater Engineer for follow-up. Secondary testing and source tracing are conducted according to the priorities table in the IDEP.

### **Regulatory Authority**

The City's stormwater ordinance prohibits illicit discharges. The City uses verbal notices and civil infractions to enforce the ordinance. In the case of accidental discharges, the City's goal is to reach and contain spills within an hour.

Improper connections take more time to correct due to the necessary coordination between departments; however, the most challenging projects are still completed within about two (2) months. The sanitary and water ordinances can also be used to address illicit discharges.

#### IDEP Training

All City staff are trained in IDEP identification and the use of the water pollution report form. City staff in Environmental Services, Parking and Facilities departments have all received additional training specific to their roles in illicit discharge abatement. In-person training is also offered to specific positions. Staff of the one-call system 311 are also trained to answer and refer questions about stormwater.

#### General IDEP Program

The City works closely with other departments to coordinate the IDEP requirements. The City has initiated a program to ensure the quality of water discharged from vault pumping activities with input from various utility companies.

The City maintains a robust reporting and work order database to track IDEP instances. Details of the occurrence, whether found during daily activities or a complaint, and all steps taken to eliminate the connection or spill are recorded. Efforts are reported to DEQ at the time of discovery and in the Progress Report. At the time of the audit, all but one complaint had been resolved. The remaining issue is intermittent, and the City is working with the Kent County Drain Commission to continue to look for the source of the discharge.

The Environmental Service Department works closely with the county Health Department and the City's Water Department to prevent and eliminate seepage from sanitary sewers into the storm sewer system. In general, sanitary sewer is located several feet below the storm sewer so the potential for infiltration is low. The City has identified water-only users to locate parcels that are served by an on-site sewage system and works with those property owners to educate them about the proper maintenance of those systems.

The City evaluates the effectiveness of the IDEP by considering the amount and type of complaints received along with the efficiency of resolving problems. The City also conducts river monitoring on a regular basis and evaluates the program by the Water Quality Index results of the testing.

Based on the information provided during the audit, it appears that the City is meeting the minimum requirements of Part 1.A.3.a of the permit.

## **SWPPI Audit Findings**

In accordance with the City's COC and Part I.B.2.a. of the permit, the City was required to submit a Storm Water Pollution Prevention Initiative (SWPPI) by May 1, 2006. As detailed in the permit, the SWPPI is required to include the actions the City committed to in the WMP and actions to comply with the permit requirements for Pollution Prevention / Good Housekeeping and Post-construction Storm Water Management for new development and redevelopment projects. The City's SWPPI was revised and approved in June 2012.

### **SWPPI: Actions Committed to in the WMP**

Based on the audit and file review, the City appears to be implementing actions from the Lower Grand River Watershed Management Plan in accordance with their commitments.

### **SWPPI: Post-Construction Control (PCC)**

In accordance with Part 1.B.2.a.1) c) of the permit, the City is required to develop, implement and enforce a comprehensive storm water management program for post-construction controls for areas of new development and significant redevelopment. The goal is to protect the designated uses in the receiving water from the effects commonly associated with urbanization. These effects include: "flashiness" (higher peak flows and lower base flows), stream-bank erosion, increased stream temperature and pollutant load, reduced bank vegetation, and degraded fish and other aquatic habitats.

The City manages its Post-construction Control requirements through several ordinances. Ordinances Ord. No. 2001-26, §1 of 2001; Ord. No. 2007-13, §1 are stormwater ordinances and 2012-01, §1 of 2012 is a zoning ordinance related to the protection of natural resources. The City has also created the Green Grand Rapids Master Plan to encourage and guide the use of Low Impact Development.

The City's Post-Construction Control program requires water quality treatment for the first half-inch of runoff, and limits the discharge rate to 0.13 cubic feet per second per acre (cfs/acre) for events up to the 25-year/24-hour storm. Additionally, the city limits the discharge rate on sites in sensitive areas to 0.05 cfs/acre. In areas of known flooding, sites must retain runoff from a 100-year storm event. The City has setback requirements for development in sensitive environmental areas. These delineations are published in the Green Grand Rapids Master Plan. The City offers incentives to developers for using Low Impact Design.

Any project that increases the amount of impervious area on a site by more than 1000 square feet is subject to the Post-Construction Control requirements. Stormwater program staff review all LUDS permit applications for compliance with the Post-Construction Control requirements and compare stormwater plans to building and plumbing plans to ensure consistency. During construction controls are inspected monthly until the site is stabilized with vegetation.

The City inspects existing Post-Construction Controls on a two-year cycle. Inspections are performed from the right-of-way, as there is currently not a mechanism to allow inspectors access to each site. Problems that are identified and complaints that are received can be address by using the City's nuisance ordinance. Specific concerns about development projects can be addressed in the general conditions section of the Land Use Development Services permit.

City projects are planned with LID serving as the default design. Recent examples of LID on City-owned projects include the reconstruction of Joe Taylor Park which incorporated enough underground retention to treat 40-acres of urban residential runoff, Plainfield Avenue reconstruction which included stormwater treatment islands rather than transitional raised medians, and several road projects that include rain-garden bump-outs along the curb along with permeable pavement in the parking lanes.

The City is currently participating in a watershed-wide effort to update Post-Construction Control Ordinances to meet the conditions of the next MS4 permit.

Based on the information provided during the audit, it appears that the City is meeting the minimum requirements of Part 1.B.2.a.1)c) of the permit.

#### SWPPI: Pollution Prevention/Good Housekeeping

Part 1.B.2.a.1).b) of the permit identifies the Pollution Prevention and Good Housekeeping (P2/GH) requirements applicable to municipally-owned properties. The City's SWPPI includes a number of activities intended to meet these requirements. To evaluate compliance with this part of the permit, DEQ staff conducted interviews, document reviews, and inspected City-owned properties.

The following individuals were present during this portion of the audit:

- Ms. Carrie Rivette, Project Engineer
- Mr. Mike Lunn, Environmental Services Manager
- Mr. Dan Taber, Project Engineer
- Mr. Kyle Johnson, Facilities Supervisor
- Mr. Don Clark, Fleet Operations Instructor
- Mr. Jim Arsulowicz, Parks Manager
- Mr. Arden Postma, Hydraulic Engineer
- Mr. Jeff McCaul, Assistant City Engineer
- Ms. Kim Miller, Parking Manager
- Mr. Victor Rose, Public Services Manager
- Mr. Chris Zull, Traffic Safety Manager
- Mr. Craig Kooinga, Golf Course Manager

A number of SWPPI specific actions and permit conditions were evaluated during the audit and are discussed below:

P2/GH Training: The permit requires P2/GH training for staff and contractors employed by the City in activities that may affect storm water runoff. Based on the audit the City has conducted a training and inspection program for appropriate City staff and contractors in activities that may affect storm water runoff. Departments that are involved with activities that may affect stormwater include: Collections System Maintenance, Public Services, Facilities and Fleet Management, Field Staff, Parking Services, Stormwater Management, Design, Parks, Water System, Streets, Engineering and Traffic. Training is regularly conducted for all staff - most recently in 2014. Training is provided in several formats depending on the department and position responsibilities. In addition to videos, web-based training and brochures, many employees are sent to the DEQ's Industrial or Construction-site Stormwater training program and Soil Erosion and Sedimentation Control certification class.

Maintenance Activities, Schedules & Inspection Procedures: The permit requires that the SWPPI include maintenance activities, schedules, and inspection procedures for storm water structural controls.

The City owns and operates a storm sewer system composed of curb and gutter, catch basins, storm sewer, regional ponds and stormwater lift stations. The City's SWPPI includes maintenance schedules and inspection procedures for all structural controls.

The City maintains one regional pond "Woodlawn" which is mowed four (4) times per year. Approximately 2500 catch basins are cleaned on an annual basis as the City works toward cleaning basins on a 5-year cycle. Stormwater pipes are cleaned on a complaint - or as-needed- basis. Creek grates are cleaned annually. Lift stations and force mains are inspected bi-weekly.

The City is an Authorized Public Agency under Michigan's Part 91 (Soil Erosion and Sedimentation Control). All of the City's construction projects follow this program and utilize Best Management Practices for earth changes.

#### Flood Management Projects and Water Quantity Structures

The Permit requires that flood management projects assess the impacts on the water quality of the receiving waters and, whenever possible, examine existing water quantity structures for incorporation of additional water quality protection devices or practices.

The City incorporates water quality protection on all projects whenever feasible. This practice is driven by the Green Grand Rapids Master Plan and Sustainability Plan both of which establish baselines for water quality requirements on all City projects. The City's flood walls are inspected regularly, and plans to improve the flood walls would consider and include water quality features. The City has undertaken several other projects that incorporate a combination of water quantity control and water quality protection. These include underground infiltration basins at Joe Taylor Park and Mary Waters Park; and green infrastructure and native plantings in the section of Treemont Park designed to manage excess stormwater.

Roads, Highways, Parking Lots, & Maintenance Garages: The permit requires that the SWPPI include controls for reducing or eliminating the discharges of pollutants from streets, roads, highways, parking lots, and maintenance garages.

The City sweeps all streets on a regular basis. Major streets are swept three times per year and local streets are swept two times per year. Parking lots are checked daily and swept once per month. Downtown areas and areas with street trees that require more attention are swept more frequently. The City has adopted a procedure outlining the frequency of sweeping and the proper disposal of street sweeping wastes.

The City uses a combination of salt, sand and brine for deicing. The type and ratio of deicing agents are adjusted according to weather conditions. Salt truck drivers are trained in the City's deicing procedures which include standards for using pre-wetted salt and calibration of spreader rates. Salt is stored indoors, brine is obtained from the Kent County Road Commission facility when necessary. Snow is occasionally stockpiled in parking lots and the lots are swept as the piles melt to prevent debris from entering the storm sewer. Any snow removed from streets to be stockpiled is stored at the DOMTAR yard waste site which has no discharges to the storm sewer system.

The City has vehicle wash bays in several locations. All are plumbed to sanitary sewers. Vehicles are maintained at the motor pool garage.

Disposal of Operation & Maintenance Waste: The permit requires that the SWPPI include procedures for the proper disposal of operation and maintenance waste from the separate storm water drainage system.

The City has adopted several procedures for the proper handling of waste materials. This list was last reviewed in 2013. It is City policy to recycle as many waste products as possible. The list of recycled waste products includes used vehicle fluids, metals from traffic safety and parks, and sodium bulbs from street lights. Catch basin cleaning waste is decanted at the Waste Water Treatment Plant and dried solids are hauled away. Street sweeping waste and woody debris is stockpiled at DOMTAR until it is hauled away.

Application of Pesticides, Herbicides, & Fertilizers: The permit requires that the SWPPI include actions to reduce the discharge of pollutants related to the application of pesticides, herbicides, and fertilizers.

The City employs licensed applicators to apply these products in City parks. Other departments include items in project bid that require the appropriate application of these products. The City uses native plantings in several locations to reduce the need for pesticides, herbicides and fertilizers. For example, there are several native plant rain gardens on the WWTP property, the City golf course has installed native plant buffers along streets and the county drain, and the City is working with Plaster Creek Stewarts to install native plant landscapes in that sub-watershed.

## SITE INSPECTIONS:

Waste Water Treatment Plant – This facility was inspected previously. There is no stormwater discharge from this site.

Golf Course Garage: Golf Course equipment is stored and maintained inside a small garage with no floor drains. There is a covered fueling area with two aboveground tanks and no storm sewer. Equipment is washed outdoors on a concrete pad that drains to a grassy area with no runoff to waters of the state. Chemicals are stored indoors; a spill kit and oil dry are available in the case of a spill.

Cemetery Garage: The cemetery garage stores a small amount of concrete along with equipment. There is no storm sewer discharge from this site. Equipment is serviced and fueled at the Motor Equipment Services building.

Motor Equipment Services: All City vehicles are washed and serviced at this site. The drive through vehicle wash bay drains to sanitary. The maintenance area is drained by trench drains which are plumbed to sanitary and an in-ground pit is cleaned annually. Spill kits, drain covers and emergency phone numbers are available in key locations. The fueling area is covered and did not show signs of staining. Runoff that accumulates in the fuel vaults is stored in barrels and disposed of properly. New and used vehicle fluids are stored indoors with secondary containment. The emulsion tank is protected by secondary containment. The only problem area at this site was an apparent spill or vehicle leak near the emulsion tank. It was stated that the spill had just occurred earlier in the day.

Public Services Garage: This building is the storage site for waste and recycling hauling trucks. The interior floor drains are plumbed to sanitary sewer. Truck hoppers are washed daily to reduce the potential for "hopper juice" to discharge onto the roads.

Based on the information provided during the audit, it appears that the City is meeting the minimum requirements of Part I.B.2.a.1).b) of the permit.



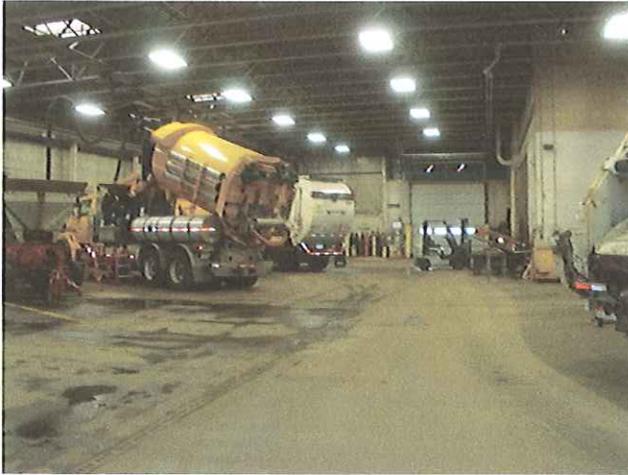
Golf Course equipment wash pad



Golf Course chemical storage



Motor Equipment Services fueling area



Motor Equipment Services maintenance area



Motor Equipment Services maintenance area



Motor Equipment Services fluid storage



Drive-through vehicle wash bay



Spill near emulsion tank