

Stormwater Program

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Department of Environmental Quality

Division of Energy, Mining, and Land Resources

Stormwater Permitting Unit

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<https://deq.nc.gov/about/divisions/energy-mineral-land-resources>

DEQ-DEMLR Web Site

<https://deq.nc.gov/about/divisions/energy-mineral-land-resources>

Stormwater Program

- **Stormwater Program**
 - **Construction SW**
 - **NPDES Industrial Stormwater**
- **Post Construction Stormwater**
 - **Stormwater Design Manual**
 - **Operation and Maintenance**
- **MS4 Permitting**
 - **Inspection Guidance and Checklists**
 - **MS4 Sustainability Strategy**

*POLLUTION PREVENTION AND GOOD
HOUSEKEEPING FOR MUNICIPAL OPERATIONS*

- **Municipal Separate Stormwater Sewer System (MS4)**
 - **Stormwater Inspection and Maintenance (SWIM)**
 - **Practices that can reduce pollution in stormwater runoff**
- **Stormwater Control Measure (SCM)**
- **Best Management Practices for Landscaping**
- **Municipal Operations**
 - **Stormwater Pollution Prevention Plans (SPPP)**
- **Best management practices for construction**

Municipal Separate Stormwater Sewer System (MS4)

- **Streets**
- **Manholes**
- **Outfalls**
- **Public parking**
- **Piped conveyances**
- **Vegetative conveyances**
- **Catch basin and drop inlets**



Municipal Separate Stormwater Sewer System (MS4) Stormwater Inspection and Maintenance (SWIM)



Culverts, Vegetative and Piped Conveyances, Outfalls



Municipal Separate Stormwater Sewer System (MS4) Stormwater Inspection and Maintenance (SWIM)



**Inlets and
Catch
Basins**



Municipal Separate Stormwater Sewer System (MS4) Stormwater Inspection and Maintenance (SWIM)



Public Parking

Municipal Separate Stormwater Sewer System (MS4) Stormwater Inspection and Maintenance (SWIM)



**Streets and
Medians**

*POLLUTION PREVENTION AND GOOD
HOUSEKEEPING FOR MUNICIPAL OPERATIONS*

Municipal Separate Stormwater Sewer System (MS4) Practices that can reduce pollution in stormwater runoff



*POLLUTION PREVENTION AND GOOD
HOUSEKEEPING FOR MUNICIPAL OPERATIONS*

Municipal Separate Stormwater Sewer System (MS4) Practices that can reduce pollution in stormwater runoff

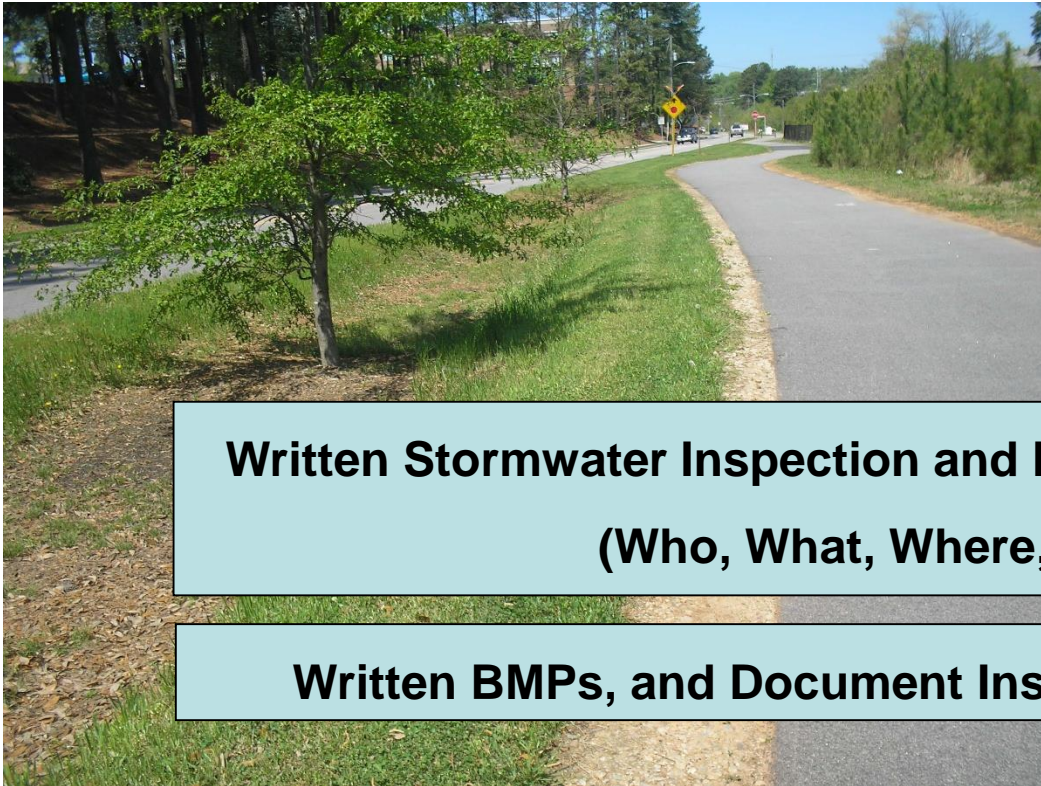
Proper Disposal of Debris and Waste



Municipal Separate Stormwater Sewer System (MS4) Practices that can reduce pollution in stormwater runoff



Municipal Separate Stormwater Sewer System (MS4)



**Written Stormwater Inspection and Maintenance (SWIM) Program
(Who, What, Where, When, Why)**

Written BMPs, and Document Inspections and Maintenance

POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

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Stormwater Control Measures (SCM) Stormwater Inspection and Maintenance (SWIM)



**Ponds and wetlands
Dry detention basins
Bioretention cells and rain gardens
Level spreaders
Permeable pavement
Vegetative filter strip
Infiltration trenches
Sand filters
Cisterns
Underground dete**

**DEQ Web site
Stormwater**

- **Post Construction Stormwater**
- **Stormwater Design Manual**
- **Table of Contents**
- **Operation and Maintenance**

Best Management Practices for SCM



Stormwater Control Measures

- Overgrown or not maintained
- Rutting due to mowing during wet conditions
- Scalping and erosion from mowing to tight
- Over use of fertilizer

**Written Stormwater Inspection and Maintenance (SWIM) Program
(Who, What, Where, When, Why)**

Document Inspection and Maintenance

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- Municipal operations
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Best Management Practices for Landscaping



- **Product Management**
- **Fertilizers, Pesticides & Herbicides**



Municipal Separate Stormwater Sewer System (MS4) Practices that can reduce pollution in stormwater runoff



Proper use of fertilizer, pesticides and herbicides

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Municipal Operations

- **Fleet Maintenance**
- **Fuel Farms**
- **Materials Storage Yards**
- **Pesticide Storage Facilities**
- **Public Works Facilities**
- **Parks and Recreations**
- **Recycling and Household Waste Facilities**
- **Oil Collection Centers**
- **Street Repair and Maintenance Sites**

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

- 1. Facility Information**
- 2. Site Plan**
- 3. Best Management Practices**
- 4. Written Training Program**
- 5. Stormwater Inspections and Maintenance (SWIM)**
- 6. Visual Monitoring of Outfalls (Industrial Activity
(Analytical Monitoring))**
- 7. Annual Assessment**



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

1. Facility Information

- **Name**
- **Address**
- **Contact and Phone No**
- **Brief description of facility**
- **Potential sources of stormwater pollution**
- **Allowable stormwater discharges**



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

2. Site Plan

- **Drainage areas**
- **Inlets and outfalls**
- **Oil water separators (OWS)**
- **Manholes, cleanouts, drains**
- **Stormwater and sanitary piping**
- **Stormwater control Measures (SCM)**



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

3. Written Best Management Practices BMPs



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

3. Written BMP - Spill Response Procedures

- **Written spill response procedures**
- **Identifies what employees should do in the event of a minor/Major spill or release**
- **Identifies where MSDS, PPE, spill kits, and storm drain inlet/outlet protection**



POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

3. Written BMP - Spill Response Equipment



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

3. Written BMPs – Material Handling



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

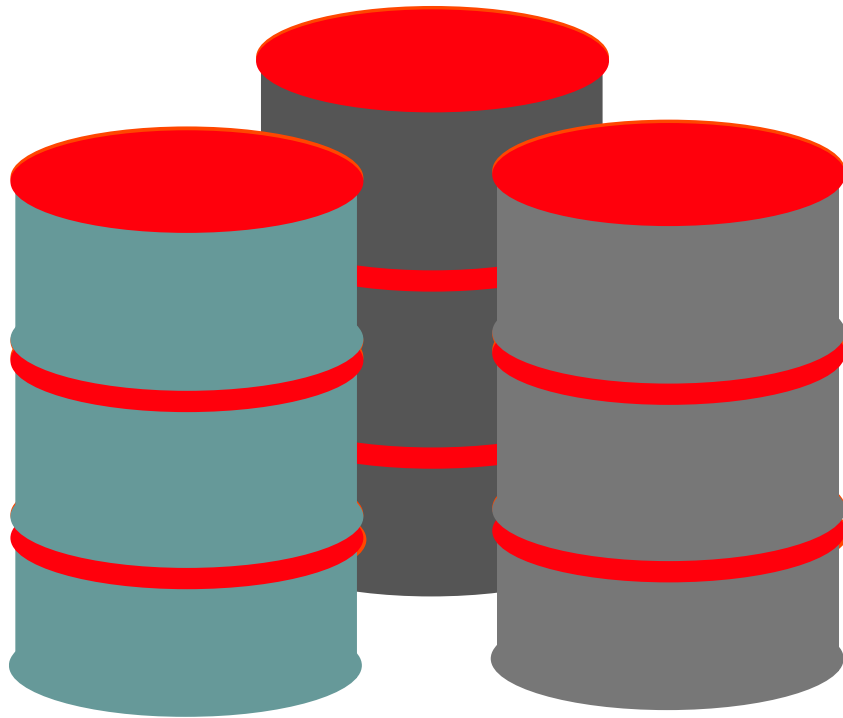
3. Written BMPs – Minimize Exposure



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

3. Best Management Practices BMPs



Solid Waste and Recycling Practices



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

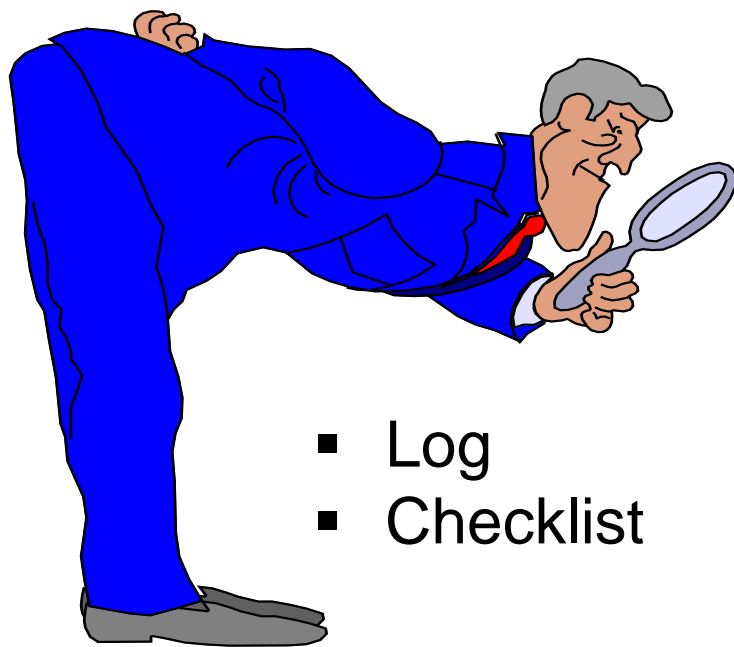
4. Training

- Does the facility maintain copies of the materials used in the training?
- Do training records identify, i.e., who was trained, what they were trained on, and when they were trained?
- Does the staff know what to look for?
- Does the staff know what to do in the event of a minor spill? Major spill?

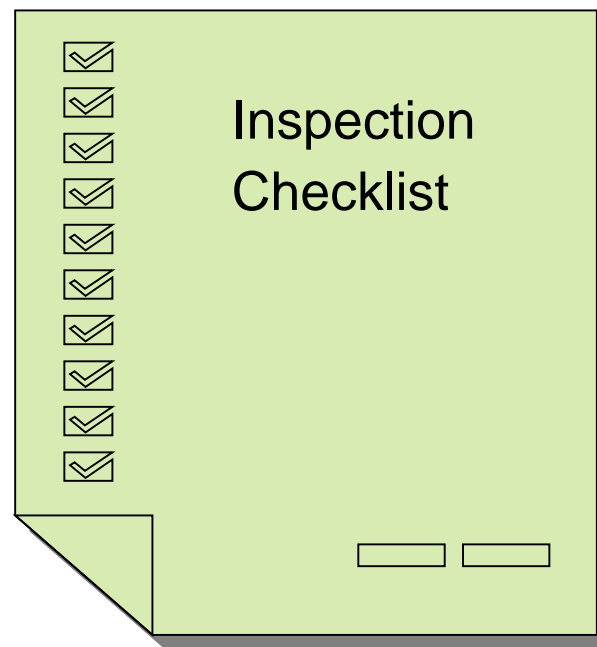
Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)



- Log
- Checklist



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)

1. SCM is in excellent condition. No action required.
2. SCM is in good condition. No action required in the immediate future.
3. SCM requires maintenance. Required maintenance to be scheduled in 7 to 10 days.
4. SCM is needs immediate maintenance and/or repair.
5. SCM has failed.

The log book should have a separate entry or some other method to record when the required maintenance is completed.

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)



DEQ DEMLR Web site

- Stormwater
- Post-construction Program
- Stormwater Stormwater Design Manual
- Part A: Common Site and SCM Elements

A-5. [Construction](#)

A-6. [Operation and Maintenance](#)

A-7. [Guidance on SCM Selection](#)

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

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Oil Water Separators (OWS)

DEQ-DEMLR Web Site

- Stormwater Program
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- MS4 Sustainability Strategy

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)



**Secondary
Containment**

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)



Secondary Containment



Municipal Operations

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Empty Containers



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)



Look for evidence of spills or exposure

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)



Chemical Storage Areas

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)



**Chemical Storage
Areas**

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

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**Inlets, Catch
Basins, and
Outfalls**



Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

5. Stormwater Inspection and Maintenance (SWIM)



Dumpsters

**DEQ-DEMLR Web Site
Stormwater**

- **MS4 Permitting**
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Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

6. Visual Monitoring of Outfalls



- Color
- Odor
- Clarity
- Floating Solids
- Suspended Solids
- Foam
- Oil Sheen
- Erosion or deposition at the outfall
- Other obvious indicators of stormwater pollution

**DEQ Stormwater web-site
Stormwater Program**

- **NPDES Industrial Stormwater Monitoring Forms**
- **Qualitative Monitoring Guidance**

Analytical Monitoring Requirements (normally quarterly during a measurable rain event, parameters depends on the activity)

Municipal Operations

Stormwater Pollution Prevention Plans (SPPP)

7. Annual Assessment

A common practice is to review, sign and date the cover page. Minor modifications are usually entered in the margin, initialed and dated.

**Written Stormwater Pollution Prevention Program (SPPP)
(Who, What, Where, When, Why)**

**Document Training, Inspection, Maintenance, Monitoring and Annual
Assessment**

CONSTRUCTION SITE RUNOFF CONTROLS

- Municipal Separate Stormwater Sewer System (MS4)
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CONSTRUCTION STORMWATER



<https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/stormwater-permits/construction-sw>

CONSTRUCTION STORMWATER

- **No paint or liquid wastes in stream or storm drains**
- **Dedicated areas for demolition**
- **Wastes must be located 50' from storm drains and streams unless no reasonable alternatives available**
- **Earthen-material stockpiles must be located 50' from storm drains and streams unless no reasonable alternatives available**
- **Concrete materials must be controlled to avoid contact with surface waters, wetlands or buffers**



GROUND STABILIZATION

Site Area Description	Time Frame for Stabilization	Exceptions to Time Frame
Perimeter dikes, swales, ditches and slopes	7 days	None
High Quality Water (HQW)	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10 feet or less and not steeper than 2:1 14 days allowed
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50 feet in length
All other areas with slopes flatter than 4:1	14 days	None

CONSTRUCTION SITE RUNOFF CONTROLS

Inspections

Weekly and after ½ inch rain event (rain gage)

Inspections only required during normal business hours

Inspection reports must be available on-site during normal business hours

Records must be kept for 3 years and available upon request

Conditions in Erosion and Sedimentation Control Plans

Designate where the 7 and 14 day ground stabilization requirements apply

Designate where sedimentation basins are located



Sediment Basins

**Outlet Structures
must withdraw from
the basin surface
unless drainage area
is less than an acre**

**Use only DEQ
approved flocculants**



CONSTRUCTION SITE RUNOFF CONTROLS

Inspection Checklist - Rank from 1 (Excellent) to 5 (Poor)

Construction Exit. Is dirt being tracked out and onto the road?

Silt Fences. Are silt fences falling down, properly trenched, over half full with sediment, creating a point source?

Temporary Sediment Traps/Filters. Are check dams properly installed and maintained? Are check dams installed using porous baffles? Are curb outlets protected?

Temporary Sediment Basins. Are porous baffles installed and maintained? Is sediment reaching outlet/outfall pipe? Does the skimmer appear to be working properly? Is outlet protection provided? Is the basin stabilized with vegetation?

Storm Drain Outlet Protection. Is filter fabric provided between soil and riprap/stone? Is rip rap adequate? Has riprap or stone been dislodged?

Soil Cover: Is straw/hay mulch spread evenly? Has the ground been properly stabilized? Have dirt piles been seeded, covered by traps, or surrounded by a silt fence?

Stream Buffers: Are stream buffers protected?

Sediment: Is sediment contained on site? Is pavement clear of any sediment? Is there sediment deposits in the stream bed?

DEQ-DEMLR Web Site

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