

# Stormwater Management Guidance Manual for Local Officials

*Construction and Post-Construction  
Stormwater Runoff Management*

*September 2004*

The *Stormwater Guidance Manual for Local Officials* was prepared by the New York State Department of Environmental Conservation and New York State Department of State in cooperation with the New York State Association of Regional Councils. This manual is the first in a series of guidance materials to help communities implement the Stormwater Phase II Program in New York State.

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# How to Use this Guidance Manual

This Guidance Manual is designed to help regulated municipalities and publicly-owned institutions develop and implement local control of Construction Site and Post-Construction stormwater runoff, as required under state and federal law.

## *For All New York State Municipalities*

By adopting a Stormwater Management Local Law and following this manual's program recommendations, any municipality or institution can improve its management of construction/post-construction stormwater runoff. The *Stormwater Requirements and Opportunities* table in Chapter 1 points out ways in which localities and institutions can use elements of the state/federal program to strengthen stormwater management, even if they are not required to establish a full, formal stormwater program.

## *For Operators of Regulated Municipal Separate Storm Sewer Systems (MS4s )*

The state/federal stormwater management program requires urbanized municipalities that operate MS4s to adopt local laws or equivalent regulations governing construction and post-construction stormwater runoff. It also requires certain procedures and other measures to implement the local laws. This Guidance Manual will help regulated MS4s to:

- **Identify a strategy for developing a stormwater management local law** that meets the requirements of the state/federal stormwater program and matches an MS4's specific circumstances. (Checklists 1 and 2; Table 3).
- **Develop the language for a Stormwater Management Local Law** (Chapter 3, Appendix 1).
- **Develop procedures and program features** to implement the Stormwater Management Local Law and the local stormwater management program (Chapter 4).
- **Identify existing local programs** that can contribute to and be supported by the local stormwater management program (Checklists 1 and 2).

### **Where to Find Stormwater Management Information**

**Note: MS4s must consult essential stormwater management documents** (listed in Appendix 4) as they design and implement local programs. *Further Information* boxes in this manual highlight relevant documentation and give locations where documents can be found on the Web.

**For complete stormwater information and links**, visit DEC's Web site, <http://www.dec.state.ny.us/website/dow/mainpage.htm>, and the Web site of the US EPA, <http://www.epa.gov/ebtpages/watstormwater.html>.

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Photo courtesy of Don Lake.



## Executive Summary

This manual will help local governments and publicly-owned institutions develop and implement stormwater runoff controls, including local stormwater management laws or regulations as required by state and federal law.

Stormwater that runs off during and after land development (*construction/post-construction runoff*) results in flooding and erosion, as well as significant pollution of lakes, streams, rivers and estuaries.

Control of land use and development rests with local governments. For this reason, state and federal law now require urbanized commu-

*Filter strips are areas of native grass or plants created to trap the pollutants stormwater picks up as it flows across driveways and streets.*

nities and publicly-owned institutions in New York State to establish stormwater management programs, which must be fully functional by January 8, 2008. The goal of these programs is to retain or absorb stormwater on developed sites wherever possible, with the quantity, rate and quality of runoff remaining as they were before the sites were developed.

To protect resources and quality of life, New York State encourages all localities, urban and rural, to manage stormwater through existing land use approval processes. This Guidance Manual includes information that localities need as they develop programs to manage construction site and post-construction stormwater runoff. The *Sample Stormwater Management Local Law* in Appendix 1 includes all of the requirements for stormwater management local laws in regulated New York State municipalities; communities can adjust the language of the law to reflect local needs and conditions.

The State of New York recommends that every community, whether or not it is regulated under the state/federal program, adopt a Stormwater Management Local Law similar to the sample law in Appendix 1 of this manual.

### *Stormwater Management Requirements*

Under delegation from the federal government, New York State is using two Stormwater Management General Permits as the framework for managing stormwater across the state. Regulations require operators of construction sites to obtain coverage under a general permit for construction activity, and operators of regulated Municipal Separate Storm Sewer Systems (MS4s) to obtain coverage under a general permit for MS4s. The size of the disturbed area and the population of the MS4 determine who must obtain permit coverage. See Table 1 for a summary of stormwater management responsibilities under the state/federal program.

## Controlling Construction/Post-Construction Stormwater

MS4s should integrate stormwater management with local land use controls through a stormwater management local law that amends existing subdivision, site plan and/or zoning laws or ordinances. The New York State Department of State recommends that localities adopt a construction/post-construction stormwater regulation as a local law under the Municipal Home Rule Law. The local law must include the requirement that developers prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit it to the local Governing Body with any application for a land use approval; it must also include sanctions for non-compliance.

**Further Stormwater Management Information**  
**New York State stormwater management program**  
<http://www.dec.state.ny.us/website/dow/mainpage.htm>

**Federal stormwater management programs**  
<http://www.epa.gov/ebtpages/watstormwater.html>

## Carrying Out the Local Stormwater Management Program

Once the stormwater management local law has been adopted, the municipality must put it into effect. This is accomplished through: procedures for review of SWPPPs; procedures for site inspections and enforcement; procedures to ensure proper maintenance of post-construction runoff control measures; training in construction/post-construction stormwater management for construction site operators and people who operate and maintain facilities; public education and involvement in stormwater management. This manual includes ideas and recommendations for local stormwater management program implementation; a later volume will develop additional recommendations.

Cooperation among municipalities and publicly-owned institutions will make it easier to develop successful and economical local stormwater management programs. Municipalities and institutions that share the same watershed are encouraged to cooperate in resource assessments, stormwater management training and cost-sharing.

## *Using this Manual to Develop the Local Stormwater Management Program*

Using this manual, local governments can develop stormwater management local laws that match their specific needs.

- The two-part checklist in Chapter 2 is a thumbnail inventory of relevant resources that are already in place in the municipality.
- The *Sample Stormwater Management Local Law* in Appendix 1 contains legislative language that municipalities can adopt as is or adapt as needed to make use of existing local resources or authorize needed program elements. Table 3 contains guidelines for adapting the sample law.

This Guidance Manual does not discuss stormwater management program design for MS4s discharging to waters identified as polluted (watersheds having approved Total Maximum Daily Loads or water bodies listed on DEC's 303(d) list). DEC is currently providing this guidance directly to affected MS4s and developing heightened program criteria to achieve the required pollutant reductions.

## Who Should Use this Guidance Manual

This Guidance Manual contains information useful to local officials involved in stormwater management, whether in a regulated MS4 or in a community or institution that is not subject to the state/federal stormwater management rules. The officials who will find this guidance manual most useful are:

- **Local Government Agencies directly involved in stormwater management**—Building Department; City/County Attorney; Department of Environmental Management; Engineering Department; Fire Department; Health Department; Planning Department; Public Works Department; Water and Sewer Department; County Soil and Water Conservation District.
- **City/County Personnel whose duties include or relate to stormwater management**—Emergency responders; engineers and environmental planners; County Planners; financial officers; enforcement personnel, including zoning, planning and building inspectors; public health officers; public outreach personnel; public works directors; site plan reviewers; treatment works operators.
- **Municipal Governing Boards** and others with roles in initiating and promoting stormwater runoff control—elected officials; community representatives; educators; environmental advocates; Zoning Board of Appeals and Planning Board members.

Officials responsible for publicly owned and operated institutions will find information in this manual to be applicable to meeting their stormwater management obligations.

*Land development disrupts natural stormwater controls. To prevent harm to water resources, state and federal law require many communities and publicly-owned institutions to set up stormwater management programs.*



Photo courtesy of New York Sea Grant, Eileen Keenan.

# Chapter 1

## Stormwater Management Basics

### *Land Development and Stormwater Management*

Stormwater is an important water resource. As rain falls, some water runs off overland and most soaks into the soil, recharging groundwater as it makes its way to lakes and streams.

Numerous features of the natural landscape trap runoff and allow rainwater to filter into the ground. Wetlands and ponds can retain significant volumes of water; forests and grasslands absorb water freely. These natural features remove pollutants and slow the rate of surface runoff.

Land development often eliminates features that moderate stormwater runoff, exposing soil to erosion. Intensified runoff carries soil and other pollutants into streams, lakes, rivers and estuaries. Downstream, bank erosion and flooding increase, and even upstream communities begin to experience road washouts and flooded basements. Instead of a valuable resource, stormwater becomes a costly and sometimes dangerous problem.

Preventing these problems requires precautions during and after land development. Because local governments have the principal responsibility for controlling land use and development, federal and state law require urbanized communities to establish stormwater management programs whose goal is to maintain pre-development runoff conditions. The state/federal stormwater management program is set up to allow flexibility for local governments to manage stormwater in a way that suits their own individual conditions.

To protect resources and quality of life, New York State encourages all localities to employ local land use controls in stormwater management. Ideally, stormwater should be retained or absorbed on-site; the quantity, rate and quality of runoff should not be significantly different from what they were before the site was developed.

### **Using this Guidance Manual in Local Stormwater Management**

This Guidance Manual will help all New York State communities and institutions, including those not currently covered by state and federal regulations, to manage stormwater as a valuable resource. It emphasizes information needed by regulated localities to implement stormwater management laws that meet state/federal requirements and that are appropriate for local conditions.

#### **Further Stormwater Management Information**

##### **Background and technical requirements:**

*New York State Stormwater Management Design Manual*, NYS-DEC, August 2004; <http://www.dec.state.ny.us/website/dow/toolbox/swmanual/index.html>

*New York Standards and Specifications for Erosion and Sediment Control*: NYSDEC, Feb. 2005;

<http://www.dec.state.ny.us/website/dow/toolbox/escstandards/index.html>

##### **Links to program documents:**

[http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_toolbox.html](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_toolbox.html)

Photo courtesy of New York State Sea Grant, Eileen Keenan



*Uncontrolled stormwater runoff harms local quality of life, degrading drinking water, swimming or fishing, and damaging aquatic life.*

es local laws and procedures for stormwater management, and includes as Appendix 1 a *Sample Stormwater Management Local Law* that meets the requirements of the state/federal program.

Future volumes will deal in greater detail with recommended procedures for stormwater management and wider nonpoint source considerations involving stormwater.

### *The Need for Stormwater Management*

Recent research by the US Environmental Protection Agency finds stormwater runoff to be the leading source of water quality impairments to estuaries and the third largest source of impairments to lakes. Pollutants from untreated stormwater runoff can harm fish and wildlife, kill native vegetation, taint drinking water supplies and foul recreational areas. Stormwater runoff also increases the volume and rate at which water moves across the land and into lakes and streams, leading to erosion and flooding.

### **The Dynamics of Stormwater**

Stormwater falling on land that has been disturbed for construction flows rapidly off the site to surface waters, carrying large amounts of eroded soil, plus pollutants from vehicles and construction processes. After construction is finished, parts of the site are usually covered by pavement, buildings and other impervious surfaces. Water can no longer be absorbed into these areas, so more stormwater remains on the land surface, to run off quickly overland or through storm drains.

Runoff from developed sites typically carries soil and sediments, road salts, nutrients and pesticides, fluids from motor vehicles and toxic chemicals in amounts that are damaging to natural resources. Generally speaking, damage to resources from development is directly proportional to the amount of impervious surface on the developed site. Studies show that water resources are damaged whenever impervious surface area within a watershed exceeds 25 to 30 percent, and degradation can be detected with as little as 10 percent impervious surface.

### **Protecting Local Quality of Life by Managing Stormwater**

Problems from stormwater vary in severity, depending on soil and surface water conditions and on the way people use land and other resources. But unless stormwater runoff is controlled, it always harms local quality of life, whether through high-visibility occurrences such as floods and washouts, or through subtler and more pervasive

losses, like degradation of drinking water, swimming or fishing, or a general weakening of natural systems, with loss of native species and increase of invasive species.

The state/federal stormwater program provides a framework to help localities manage stormwater effectively and protect quality of life. When stormwater runoff is kept to pre-development amounts and quality, benefits accrue throughout the local community and beyond.

- **Public health** is protected when water is kept clean for drinking, contact recreation and the harvest of fish, shellfish and other edible resources; reducing the physical hazards of flooding, erosion and subsidence also protects public health.
- **The environment** improves when pollution and sedimentation of water bodies are reduced and groundwater recharge is increased. Important biological resources, natural habitats and ecosystems become healthier and more productive.
- **The local economy** reaps numerous benefits, including: protection for property values (by avoiding flooding, erosion and related costs to property owners, and by buffering developed areas from flooding); promotion of sustainable resources; improved tourism attracted by stable beaches and banks, clean swimming areas and successful fishing.
- **Local governance** benefits when the community determines stormwater management goals and oversees construction/post-construction measures, as well as when local citizens participate in stormwater management decisions.

## How Stormwater is Managed

Controlling runoff during and after construction is central to effective stormwater management. To control construction/post-construction stormwater, the state/federal stormwater management laws establish the following obligations:

- **Operators of construction sites** must prepare and abide by Stormwater Pollution Prevention Plans (SWPPPs) that prescribe how stormwater must be managed during construction and post-construction, and must construct any needed stormwater management facilities (such as absorption areas, stormwater ponds or swales).
- **Urbanized municipalities, publicly-funded institutions and other public entities** must establish stormwater management programs to review and enforce Stormwater Pollution Prevention Plans (SWPPPs) and ensure ongoing operation and maintenance of permanent stormwater controls on developed sites.

**Stormwater Plans:** SWPPPs formalize the selection and design of stormwater management measures for each site. The SWPPP includes an erosion and sediment control plan, and, in most cases, a post-construction stormwater control plan.

- **The erosion and sediment control plan**, required for all construction activities disturbing one or more acres of land, lays out the nature, placement and capacity of runoff control measures to be used during construction.

### Further Stormwater Management Information

**Definition of MS4:** *Overview of the Municipal Separate Storm Sewer Systems (MS4) Phase II Stormwater Permit Program*; NYSDEC, Feb. 2003, rev. August 2003; [http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_overview.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_overview.pdf) and <http://www.dec.state.ny.us/website/dow/Phasell.html>

**Elements of a SWPPP:** *SPDES General Permit for Stormwater Discharges from Construction Activity [GP-02-01] Part 3D.* [http://www.dec.state.ny.us/website/dow/gen\\_constr.pdf](http://www.dec.state.ny.us/website/dow/gen_constr.pdf)

### Further Stormwater Management Information

#### List of regulated MS4 municipalities in New York State:

Overview of the Municipal Separate Storm Sewer Systems (MS4) Phase II Stormwater Permit Program, Chapter 2; NYS-DEC, Feb. 2003, rev. Aug. 2003;

[http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_overview.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_overview.pdf) and <http://www.dec.state.ny.us/website/dow/urbanlst.htm>

#### Designing a program around the Minimum Control

**Measures:** *Guidelines for Completing the Notice of Intent Based on SPDES General Permit (GP-02-02) for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems*, NYSDEC, 2003, [http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_guidelines.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_guidelines.pdf)

• **The post-construction stormwater control plan** is prepared whenever permanent controls are necessary to manage stormwater runoff on a developed site. The post-construction plan gives engineering details and construction schedules, and establishes responsibility for operation and maintenance of permanent controls. Post-construction controls are always required when stormwater discharges into 303(d) listed waters or Total Maximum Daily Load (TMDL) watersheds, for all construction disturbing five acres or more, and for commercial or multi-family projects disturbing one acre or more.

Construction and post-construction stormwater controls prescribed in SWPPPs must conform to the technical standards specified in the *New York State Stormwater Management Design Manual* or the *New York Standards and Specifications for Erosion and Sediment Control*, or meet equivalent standards.

**Controlling Pollutants in Stormwater:** Treating stormwater that contains soil and other pollutants requires on-site detention, filtration and processing, usually through a system of vegetative, structural and other measures. Historic water flows indicate where treatment measures should be placed and how much water they need to handle; the activities conducted at the site and the quality of the receiving waters determine which pollutants need to be treated.

**Preventing Erosion, Sedimentation and Flooding:** Managing the rate and amount of stormwater runoff requires measures that slow the water's flow, preventing it from leaving the site too rapidly. Generally, directing runoff so that it infiltrates into the ground on-site is preferable to holding the water for later discharge. Sometimes, the same system of vegetative and structural measures that is used to treat polluted stormwater can be engineered to reduce the rate of runoff. In other cases, water quality controls will be installed in combination with measures to control water quantity.

The SWPPP includes site information, specifications for stormwater pollution control and erosion/sediment control measures to be used during construction, specifications for any permanent controls needed, as well as construction schedules and other information helpful to overseeing plan implementation.

## *State/Federal Stormwater Management Laws, Regulations and Programs*

More than a decade ago, the U.S. government created the federal stormwater management program under the National Pollutant Discharge Elimination System (NPDES). The program's goal is to limit pollution of the nation's lakes, streams, rivers and estuaries by runoff from construction sites and developed areas. It is administered by the US Environmental Protection Agency (EPA).

The New York State Department of Environmental Conservation (DEC) has received delegation from the federal government to carry out the NPDES program, using a system of state permits called SPDES (State Pollutant Discharge Elimination System).

**Phase II Construction/Post-Construction Stormwater Management**

**Table 1—Permittee Requirements and MS4 Opportunities**

*For a full description of all entities' responsibilities, see the General Permits, GP-02-01 and GP-02-02*

Entity	Phase II Requirements	Opportunities for MS4s
<p><b>Construction Site Operators Statewide</b></p> <p><i>See Stormwater General Permit for Construction Activities, GP-02-01</i></p>	<p>Obtain permit coverage for construction disturbing one acre or more:  <i>File NOI with DEC before starting</i>  <i>Prepare SWPPP (erosion &amp; sediment controls, post-construction controls)</i>  <i>Implement SWPPP</i>  <i>Practices follow state technical guidance</i>  <i>Control waste on construction site</i></p> <p>Submit NOI &amp; SWPPP to local governing body, copy on site and available to public</p>	<p><b>Gain control</b> of the handling of stormwater during and after construction by reviewing and amending SWPPPs.</p> <p><b>Achieve effective performance</b> in handling runoff from construction sites and developed lands through the advanced technical standards of the state/federal program.</p>
<p><b>Regulated MS4s; Publicly Owned and/or Operated Institutions; Other Public Entities</b></p> <p><i>See Stormwater General Permit for MS4s, GP-02-02</i></p>	<p>Obtain permit coverage for MS4 discharge under GP-02-02:  <i>Submit NOI (due 3/10/03)</i>  <i>Adopt Stormwater Management Local Law</i>  <i>Require construction site waste mgt.</i>  <i>Comply with water quality standards</i>  <i>Inform and involve the public</i></p> <p>Identify stormwater management program goals and activities</p> <p>Review SWPPPs</p> <p>Inspect construction sites; enforce SWPPPs</p> <p>Require management practices to follow state technical standards</p> <p>Assure maintenance of mgt. practices</p> <p>Educate construction site operators and O&amp;M personnel</p> <p>Maintain permit coverage with annual program report, Compliance Cert.</p>	<p><b>Protect natural resources and property values</b> by avoiding floods, pollution</p> <p><b>Reduce property owner and MS4 costs</b> by requiring developers to engineer sites properly</p> <p><b>Enhance effectiveness of MS4 stormwater management practices, infrastructure:</b>  <i>Increase public understanding, support</i>  <i>Provide resources for program support</i>  <i>Strengthen local stormwater law</i>  <i>Improve O&amp;M through training</i></p> <p><b>Enhance effectiveness of local planning and resource assessment</b> by applying them directly to stormwater-related land use and regulatory decisions.</p>
<p><b>All Communities and Institutions</b></p>	<p><b>Non-regulated communities, privately owned/operated institutions:</b></p> <ul style="list-style-type: none"> <li>• No MS4 permitting requirements</li> <li>• Subject to the construction permit requirements above when they disturb one acre or more of land</li> </ul>	<p><b>Join with nearby MS4s</b> for effective stormwater management.</p> <p><b>Review construction site SWPPPs</b>, even if no full local stormwater program in place</p> <p><b>Serve property owners</b> by using local planning and regulatory powers to minimize stormwater problems</p> <p><b>Improve stormwater management at low cost</b> during routine maintenance and operation of municipally-owned facilities</p>

## Phase I Stormwater Management Regulations

In 1990, EPA published rules establishing Phase I of the federal stormwater program. Phase I required operators of MS4s in large urbanized areas (populations of 100,000 or greater) to implement stormwater management programs that would control polluted discharges. In New York State, the Phase I MS4 regulations applied only to New York City. Phase I construction regulations required all operators of construction projects disturbing five acres or more of land to prepare SWPPPs, regardless of whether the projects were sited in a large MS4.

## The Stormwater Phase II Program

The federal *Storm Water Phase II* rule, issued in 1999, expands the stormwater program to cover smaller MS4s and smaller construction disturbances:

- **All operators of construction sites** that disturb one acre or more of land or are part of a larger plan of development must prepare SWPPPs, regardless of whether the construction sites are located within the jurisdiction of a regulated MS4. When a construction site discharges into polluted waters (303(d) listed waters or a Total Maximum Daily Load, or TMDL, watershed), the SWPPP must include erosion and sediment controls during construction and also post-construction controls. Post-construction controls are also required for single-family residential construction disturbing five acres or more, or commercial or multi-family projects disturbing one acre or more, or for any construction disturbing one acre or more on a site that discharges to a polluted waterbody.
- **All MS4s located in “urbanized areas”** as defined by the Bureau of the Census, plus additional MS4s in areas designated by the state, must establish stormwater management programs whose components match a federal standard, integrating review of SWPPPs into local land use regulation. **This Guidance Manual uses the term *regulated MS4s* to mean all MS4s in urban and designated areas.**

Photo courtesy of NYSDEC, Karen Williamson.

*Local stormwater management can make the difference between polluted runoff (inset) and clean water returning to local water bodies.*



Phase II includes special requirements for stormwater management programs in MS4s discharging to waters that are already polluted. Phase II requirements apply to redevelopment of previously-developed sites, as well as to new development, and to publicly-owned institutions as well as to municipalities.

***New York State Implementation of Phase II:*** To comply with Phase II, New York State in January, 2003 issued two non-industrial Stormwater Management General Permits under the State Pollutant Discharge Elimination System (SPDES).

State/federal regulations require operators of regulated construction sites and regulated MS4s to obtain coverage under the appropriate general permit.

- ***Under the SPDES General Permit for Stormwater Discharges from Construction Activity (GP-02-01)***, construction site operators must notify the state of any project disturbing one acre or more, prepare a formal written Stormwater Pollution Prevention Plan (SWPPP) and adhere to the provisions of the plan during and after construction.
- ***Under the SPDES General Permit for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems, or MS4s (GP-02-02)***, regulated MS4s must establish stormwater management programs that reduce the discharge of pollutants to the *maximum extent practicable*, employing program elements specified by the Phase II rule and embodying certain parts of the program in a local law or other regulatory mechanism.

The term *MS4* includes both municipal and non-municipal systems of underground pipes, and also systems of streets and roads with drainage, catch basins, curbs, gutters, ditches, man-made channels or storm drains, whether or not the system is owned by a municipality. An MS4 may be a city, town or village system, or one serving a large publicly-owned complex such as a military base, hospital, school or prison.

DEC has established a list of municipal MS4s in New York State that are regulated under Phase II. Municipalities that have stormwater transport systems meeting the definition of MS4s, but that are not located within urbanized areas or areas specially designated by DEC, are not subject to MS4 permitting requirements at this time. However, DEC encourages all municipalities to develop stormwater management programs.

In regulated MS4s, Phase II requires stormwater management programs to include the six Minimum Control Measures established by the EPA, or to demonstrate that the program provides at least equivalent protection. **In New York State, stormwater management programs in all regulated MS4s must be fully developed and implemented by January 8, 2008.** In most municipalities in the state, program development is underway.



*Stormwater management practices include wet ponds, which detain runoff on-site, allowing pollutants like sediment to settle out so that the water that finally reaches a lake or stream is clear.*

Table 1 (page 5) gives a broad summary of the responsibilities of all parties under the Phase II rule for construction and post-construction stormwater management (these responsibilities are fully described in the General Permits for Construction Site Operators and MS4s, GP-02-01 and GP-02-02).

This manual does not cover details of the special requirements that affect MS4s discharging to New York water bodies known to be impaired by pollution.

### *Construction/Post-Construction Stormwater Management Opportunities for Communities and Institutions*

In conjunction with its summary of construction and post-construction stormwater management responsibilities, Table 1 highlights stormwater management opportunities for all communities and institutions, whether or not they are regulated under Phase II. All communities and institutions can make use of SWPPPs and other stormwater management techniques to protect and enhance surface waters, land resources and wildlife habitats, and to protect and improve local quality of life.

Among the most promising of the opportunities created by Phase II are:

- **Stormwater Pollution Prevention Plans:** SWPPPs offer a powerful way of increasing municipal oversight of development while maintaining a “level playing field” across the state. Since SWPPPs are required for all construction disturbing one acre or more, all municipalities can review these plans and incorporate them into existing land use controls, without increasing requirements on local developers.
- **Techniques:** Guidance created for managing stormwater includes detailed specifications for many highly effective stormwater management techniques.
- **Local Planning and Facility Operation/Maintenance:** Local stormwater management programs offer excellent opportunities for increasing the effectiveness of local land use planning and of routine operation and maintenance of facilities.

*When developments are not properly engineered to manage stormwater, impervious areas can generate too much runoff for storm drains to handle. The resulting flooding may damage basements and wash out roadways, as it carries pollutants and sediment into lakes, streams or estuaries.*



Photo courtesy of NYSDEC, Scott Cuppert