TOWN OF STONINGTON
2008 PHASE 2 STORMWATER ANNUAL REPORT

Prepared by
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Stonington Town Engineer

January 2008

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Section A

Stormwater Program Permit Information

Permitting Authority:	CT DEP
Permit Number:	000056
Permit Type:	General
Permit Name:	Stonington Small MS4 Permit
Date Issue:	07/09/2004
Date Expire:	01/08/2009

General Information for MS4 Operator

Operator Name:	Mr. Edward Haberek, Jr
Operator Title:	First Selectman
Represented Entity:	Town of Stonington
Mailing Address:	152 Elm St
Mail City, State, Zip:	Stonington, CT 06378
Phone Number	(860) 535-5050
Population:	Approx. 18,000
Households:	Approx. 7,000
Area:	Approx 39 sq miles
Official Website:	www.townofstonington.com

General Information for Primary Contact Person

Name:	Joseph J. Bragaw, PE
Title:	Director of Public Works
Phone Number:	(860) 535-5055
E-Mail Address:	jbragaw@stonington-ct.gov

General Information for Secondary Contact Person

Name:	Lawrence M. Sullivan, P.E.
Title:	Town Engineer
Phone Number:	(860) 535-5055
E-Mail Address:	lsullivan@stonington-ct.gov

General Information for Receiving Waters

Receiving Water Lists: Listed below are all the identified receiving waterbodies to which identified outfalls discharge.

Receiving Streams (Creek, stream, river, etc.)	***Receiving Waterbodies*** (Lake, wetland, ocean, etc.)	***Receiving Watersheds***
Whitford Brook	Mystic River	Whitford Brook
Pequotsepos Brook	Whitford Pond	Mystic River
Copps Brook	Mystic Harbor	Pequotsepos Brook
Anguilla Brook	Stonington Harbor	Copps Brook
Stony Brook	Mystic Reservoir	Stonington Harbor
Donahue Brook	Little Narragansett Bay	Wequetequock River
Wheeler Brook	Fishers Island Sound	Little Narragansett Bay
	Wequetequock Pond	Pawcatuck River
	Wequetequock River	
	Pawcatuck River	

Section B

Plan Contents Summary

The Stormwater Management Plan consists of the following Minimum Control Measures (MCM's) and Best Management Practices (BMP's):

MCM's and BMP's		Target Start Date	Target End Date
MCM #1 - Public Participation/Involvement			
1.1	Establishing a Stormwater Mgt Study Group	07/01/2004	06/30/2005
1.2	Public Info Meeting	07/01/2004	06/30/2005
1.3	Finalize SMSG Recommendations	07/01/2004	06/30/2005
1.4	Continue to meet with Stormwater Group	07/01/2005	01/09/2009
1.5	Organize a Storm Drain Marking Program	07/01/2005	06/29/2006
1.6	Storm Drain Marking (Year 3)	07/01/2006	06/29/2007
1.7	Storm Drain Marking (Year 4)	07/01/2007	06/29/2008
1.8	Storm Drain Marking (Year 5)	07/01/2008	01/08/2009
MCM #2 - Public Education and Outreach			
2.1	Creating & Procuring Stormwater Literature (Year1)	07/01/2004	06/29/2005
2.2	Develop Info for Website (Year 1)	07/01/2004	06/29/2005
2.3	Teach Stormwater Issues to Schools (Year 1)	07/01/2004	06/29/2005
2.4	Inform the public on the hazards of Illicit Discharges	07/01/2005	06/29/2006
2.5	Distribute Literature (Year 2)	07/01/2005	06/29/2006
2.6	Update Info for Website (Year 2)	07/01/2005	06/30/2006
2.7	Distribute Literature (Year 3)	07/01/2006	06/29/2007
2.8	Storm Drain Marking (Year 3)	07/01/2006	06/29/2007
2.9	Update Info for Website (Year 3)	07/01/2006	06/29/2007
2.10	Distribute Literature (Year 4)	07/01/2007	06/29/2008
2.11	Storm Drain Marking (Year 4)	07/01/2007	06/29/2008
2.12	Update Info on Website (Year 4)	07/01/2007	06/29/2008
2.13	Distribute Literature (Year 5)	07/01/2008	01/08/2009
2.14	Storm Drain Marking (Year 5)	07/01/2008	01/07/2009
2.15	Update Info for Website (Year 5)	07/01/2008	01/08/2009
MCM #3 - Illicit Discharge Detection and Elimination			
3.1	Initial Identification of Illicit Discharge Sources	07/01/2004	06/29/2005
3.2	Inform the public on non-stormwater discharges	07/01/2005	06/30/2006
3.3	Stormwater Ordinance	07/01/2004	06/29/2005
3.4	Develop and Implement an IDD&E Program	07/01/2005	06/30/2006
3.5	Drainage System Map - Year 2	07/01/2005	06/29/2006
3.6	Drainage System Map - Year 3	07/01/2006	06/29/2007
3.7	Drainage System Map - Year 4	07/01/2007	06/29/2008
3.8	Outlet Sampling - Year 1	07/01/2004	06/29/2005
3.9	Outlet Sampling - Year 2	07/01/2005	06/29/2006

MCM's and BMP's		Target Start Date	Target End Date
MCM #3 - Illicit Discharge Detection and Elimination (Cont.)			
3.10	Outlet Sampling - Year 3	07/01/2006	06/30/2007
3.11	Outlet Sampling - Year 4	07/01/2007	06/29/2008
3.12	Outlet Sampling - Year 5	07/01/2008	01/09/2009
MCM #4 - Construction Site Runoff Control			
4.1	Modify & Enforce Town's Ex. E&S Control Program	07/01/2004	06/29/2005
4.2	Ordinance / Regulatory Mechanism	07/01/2004	06/29/2005
4.3	Implement Reg. Req. - projects exc. 1 ac. threshold	07/01/2004	06/30/2005
4.4	Continue to Improve on E&S Program	07/01/2005	01/09/2009
4.5	Continue Compliance with Reg. Requirements	07/01/2005	01/09/2009
4.6	Continue Req. for E&S Controls on all projects	07/01/2004	01/09/2009
4.7	Develop an IMS to Track E&S compliance	07/01/2004	06/29/2005
4.8	Perform Construction Site Inspections	07/01/2005	01/09/2009
4.9	Requirements for Controlling Waste	07/01/2004	06/29/2005
MCM #5 - Post-Construction Runoff Control			
5.1	Develop a Town-Wide Tech Standards Document	07/01/2004	06/29/2005
5.2	Require BMP's	07/01/2005	01/09/2009
5.3	Continue to Improve Water Quality Standards	07/01/2005	01/09/2009
5.4	Drainage Maintenance Agreements	07/01/2005	01/09/2009
MCM #6 - Pollution Prevention/Good Housekeeping			
6.1	Develop an O&M Program for Municipal Operations	07/01/2004	06/29/2005
6.2	Employee Training Materials	07/01/2004	06/29/2005
6.3	Train Employees	07/01/2005	01/09/2009
6.4	Develop and Implement Street Sweeping Program	07/01/2004	06/29/2005
6.5	Continue Street Sweeping Program	07/01/2005	01/09/2009
6.6	Develop & Impl. Catch Basin Cleaning Program	07/01/2004	06/29/2005
6.7	Continue Catch Basin Cleaning Program	07/01/2005	01/09/2009
6.8	Develop a Drainage System Improvement Program	07/01/2006	06/30/2007

Section C

Minimum Control Measure #1 - Public Participation/Involvement

EPA Requirements:

To satisfy this minimum control measure, the operator of a regulated small MS4 must:

1. Comply with applicable State, Tribal, and local public notice requirements; and
2. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

EPA believes that the public can provide valuable input and assistance to a regulated small MS4's municipal storm water management program and, therefore, suggests that the public be given opportunities to play an active role in both the development and implementation of the program. An active and involved community is crucial to the success of a storm water management program because it allows for:

1. Broader public support since citizens who participate in the development and decision making process are partially responsible for the program and, therefore, may be less likely to raise legal challenges to the program and more likely to take an active role in its implementation.
2. Shorter implementation schedules due to fewer obstacles in the form of public and legal challenges and increased sources in the form of citizen volunteers;
3. A broader base of expertise and economic benefits since the community can be a valuable, and free, intellectual resource; and
4. A conduit to other programs as citizens involved in the storm water program development process provides important cross-connections and relationships with other community and government programs. This benefit is particularly valuable when trying to implement a storm water program on a watershed basis, as encouraged by EPA.

Activities Performed in 2008

Continue Meeting with STF

Due to several issues with Town staffing and outstanding public improvement projects we were unable to bring all members of the task force together for a meeting in 2008.

Every effort will be made to reconvene the task force meetings in the spring of 2009.

Storm Drain Marker Project

In 2008, the Save the Sound Organization installed 250 markers in Pawcatuck area. There are still approximately 200 catch basins remaining to be marked. The Town plans on installing the remaining markers in the spring of 2009.

Minimum Control Measure #2 – Public Education and Outreach

EPA Requirements:

To satisfy this minimum control measure, the operator of a regulated small MS4 needs to:

1. Implement a public education program to distribute educational materials to the community, or conduct equivalent outreach activities about the impacts of storm water discharges on local waterbodies and the steps that can be taken to reduce storm water pollution; and

2. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

An informed and knowledgeable community is crucial to the success of a storm water management program since it helps to ensure the following:

1. Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important. Public support is particularly beneficial when operators of small MS4s attempt to institute new funding initiatives for the program or seek volunteers to help implement the program; and
2. Greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.

Activities Performed in 2008

Teaching School Children

The Task Force continued to use the enviroscape model in teaching school age children about stormwater pollution.

In the fall of 2008, Alisa Morrison, Deb Downie, Joe Bragaw and Larry Sullivan taught the 5th grade classes at Mystic Middle School about stormwater issues.

In the fall of 2008, Alisa Morrison, Deb Downie, Joe Bragaw and Larry Sullivan taught the 6th grade classes at Mystic Middle School about stormwater issues.

In the fall of 2008 Larry Sullivan taught several different age groups from the Deans Mill Elementary School about stormwater issues.

Distributed Stormwater Literature

The Town worked with a local environmental group, CUSH which stands for Clean Up Stonington Harbors, on the distribution of a stormwater brochure.

The brochure is entitled "A yard care guide for the coastal homeowner" and covered such subjects as mowing, watering, fertilizing, yard waste disposal and stormwater control.

The brochure was delivered to 11,825 homes via the Mystic River Press, to 4,305 homes via the Westerly/Pawcatuck Press and to 7,600 homes via the Stonington Times.

Provide Information on the Town's Website

We continue to provide information on the Town's website on the Phase 2 subject. Additionally, we have been talking with a local group that has been very active in stormwater education. They have their own website that provides a tremendous amount of information on this subject. The website can be viewed at http://www.cushinc.org/

Minimum Control Measure #3 - Illicit Discharge Detection and Elimination

EPA Requirements:
Recognizing the adverse effects illicit discharges can have on receiving waters, the final rule requires an operator of a regulated small MS4 to develop, implement and enforce illicit discharge detection and elimination program. This program must include the following:

1. A storm sewer system map, showing the location of all outfalls and the names and location of all waters of the Town that receive discharges from those outfalls.
2. Through an ordinance, or other regulatory mechanism, a prohibition (to the extent allowable under State, Tribal, or local law) on non-storm water discharges into the MS4, and appropriate enforcement procedures and actions.
3. A plan to detect and address non-storm water discharges, including illegal dumping, into the MS4.
4. The education of public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste.
5. The determination of appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

Discharges from MS4s often include wastes and wastewater from non-storm water sources. A study conducted in 1987 in Sacramento, California, found that almost one-half of the water discharged from a local MS4 was not directly attributable to precipitation runoff. A significant portion of these dry weather flows were from illicit and/or inappropriate discharges and connections to the MS4. Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

Activities Performed in 2008

Identification of Illicit Discharges

Our outfall and drainage mapping project has been completed. We have earmarked 35 different outlets in which to begin our illicit discharge and illegal connection investigations. We anticipate screening these outlets in the summer of 2009 as part of our dry sampling program.

2008 Wet Sampling

The town continued to perform our wet sampling in the same locations that were sampled in 2004-2007. All of the sampling was performed on September 26, 2008.

The Town also provided the sampling results from 2 additional locations inside the Stonington Borough and forwarded the data to the Borough Warden.

Minimum Control Measure #4 - Construction Site Runoff Control

EPA Requirements:

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in storm water runoff to their MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. The small MS4 operator is required to:

1. Have an ordinance or other regulatory mechanism requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites.
2. Have procedures for site plan review of construction plans that consider potential water quality impacts.
3. Have procedures for site inspection and enforcement of control measures.
4. Have sanctions to ensure compliance (established in the ordinance or other regulatory mechanism).
5. Establish procedures for the receipt and consideration of information submitted by the public.
6. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

Polluted storm water runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams. Of the pollutants listed in Table 1, sediment is usually the main pollutant of concern. Sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to our nation's waters. For example, excess sediment can quickly fill rivers and lakes, requiring dredging and destroying aquatic habitats.

Pollutants Commonly Discharged from Construction Sites include the following; Sediment, Solid and sanitary wastes, Phosphorous (fertilizer), Nitrogen (fertilizer), Pesticides, Oil and grease, Concrete truck washout

Activities Performed in 2008

Continue to Inspect for E&S Controls

The town is continuing to inspect all development projects over 5 acres and smaller selected projects which are in sensitive locations for compliance with their approved stormwater pollution prevention plan (SWPPP). The town continues to request E&S bonds for all of these types of projects to help pay for these efforts.

Continue Compliance with Registration Requirements

We continue to make sure in our plan review process that development applications which propose over 5 acres of disturbance submit General Permit for Construction Activities to the CTDEP.

Minimum Control Measure # 5 - Post-Construction Runoff Control

EPA Requirements:
The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in post-construction runoff to their MS4 from new development and redevelopment projects that result in the land disturbance of greater than or equal to 1 acre. The small MS4 operator is required to:

1. Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMP's).
2. Have an ordinance or other regulatory mechanism requiring the implementation of post-construction runoff controls to the extent allowable under State, Tribal or local law.
3. Ensure adequate long-term operation and maintenance of controls.
4. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly effect receiving waterbodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management.

There are generally two forms of substantial impacts of post-construction runoff. The first is caused by an increase in the type and quantity of pollutants in storm water runoff. As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams.

Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans. The second kind of post-construction runoff impact occurs by increasing the quantity of water delivered to the waterbody during storms. Increased impervious surfaces interrupt the natural cycle of gradual percolation of water through vegetation and soil. Instead, water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include stream bank scouring and downstream flooding, which often lead to a loss of aquatic life and damage to property?

Activities Performed in 2008

Requiring BMP's

During our plan review process we require that all projects are designed to be in strict conformance with the 2002 CT E&S Guidelines as well as the 2004 Connecticut Stormwater Quality Manual.

Hydrodynamic Separator

The Town is working with a local marina to install a hydrodynamic separator on the Town owned drainage system in hopes of reducing the amount of sediments being deposited into Stonington Harbor during rainfall events. We will compare the amounts of sediments previously removed from the harbor to future amounts to gauge the effectiveness of the hydrodynamic separator installed.

Maintenance Agreements

We continue to require where necessary drainage maintenance agreements for homeowner's associations and/or commercial sites to insure that the owners fulfill their maintenance obligations.

If a developer proposes to install a new drainage system in which the Town will take ownership of upon completion, we have been requiring the developer to post a cash bond for future maintenance and outlet sampling as required by our MS4 permit.

Minimum Control Measure #6-Pollution Prevention/Good Housekeeping

EPA Requirements:
Recognizing the benefits of pollution prevention practices, the rule requires an operator of a regulated small MS4 to:

1. Develop and implement an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system.
2. Include employee training on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system

maintenance. To minimize duplication of effort and conserve resources, the MS4 operator can use training materials that are available from EPA, their State or Tribe, or relevant organizations.

3. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

The Pollution Prevention/Good Housekeeping for municipal operations minimum control measure is a key element of the small MS4 storm water management program. This measure requires the small MS4 operator to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that: (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems. While this measure is meant primarily to improve or protect receiving water quality by altering municipal or facility operations, it also can result in a cost savings for the small MS4 operator, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

Activities Performed in 2008

Operations and Maintenance Programs

The Town has in place Stormwater Pollution Prevention Plans for the Highway Garage and the Town Dock facilities. On top of these plans, the Town has Spill Prevention, Control and Countermeasure plans for these facilities as well as the Police Station. We will continue to inspect these sites and abide by these plans.

Street Sweeping Program

The Town's Public Works Department swept all 107 miles (214 lane miles) of road throughout Town by mid summer of 2007. There were locations in Mystic and Pawcatuck were we made additional passes with the sweeper throughout the summer.

Catch Basin Cleaning Program

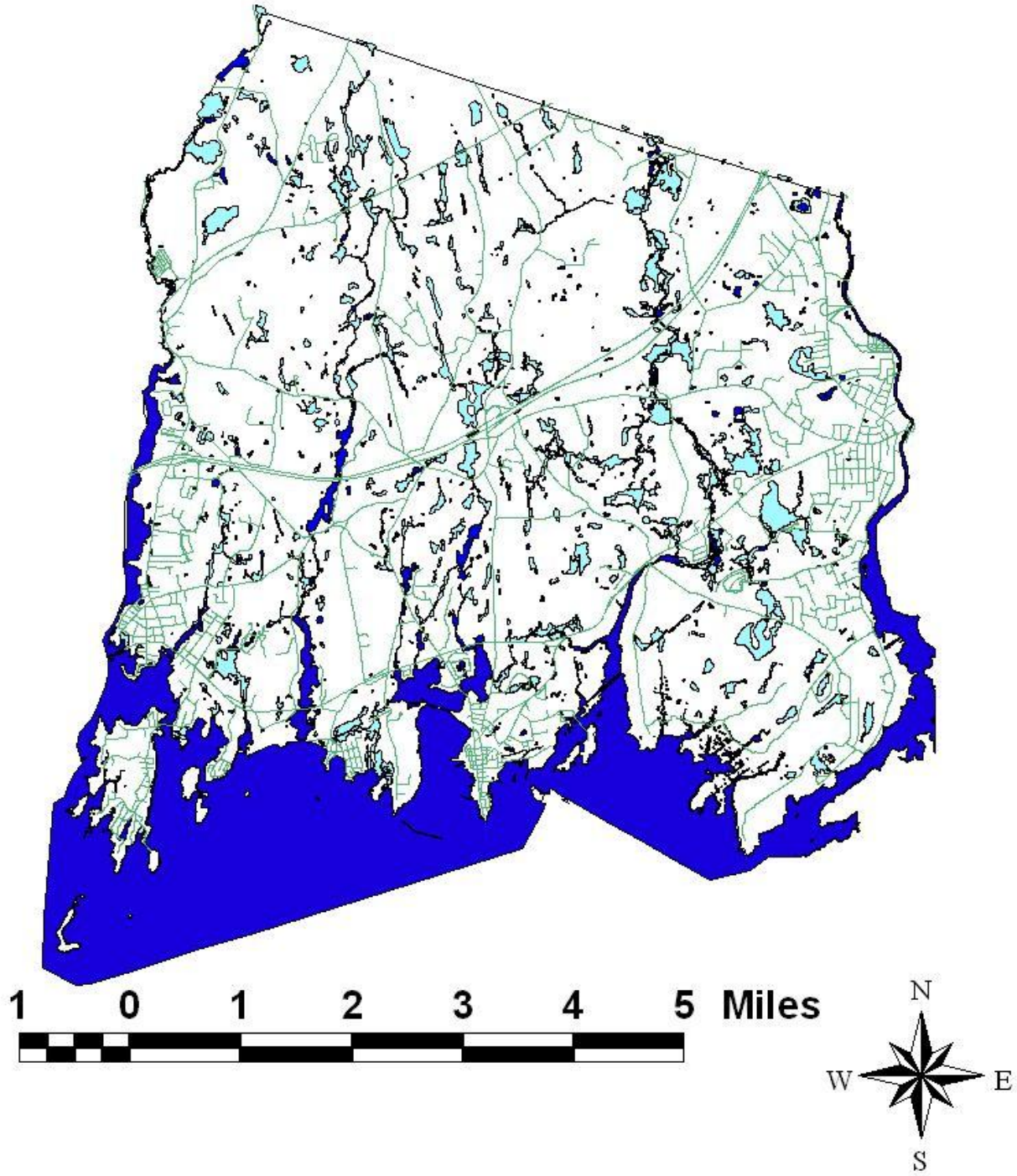
The Town hired a contractor to vacuum out all of the catch basins throughout Town in the spring of 2008. The cost of this work totaled approx. $35,000. The Town will continue to budget funds to have this work done on an annual basis.

Train Employees

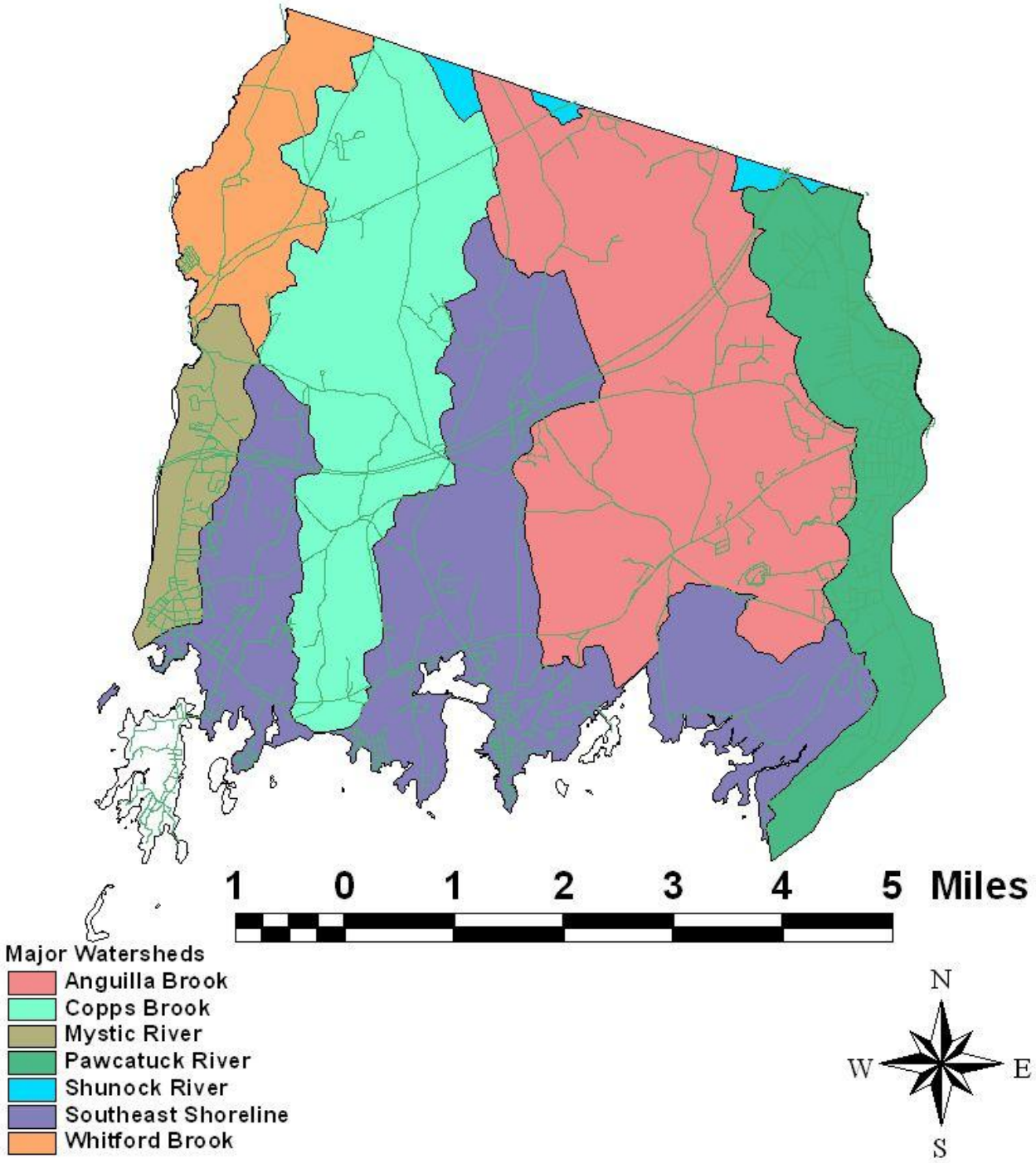
On February 20, 2008, the Town trained employees from the Highway Department, Transfer Station and the Water Pollution Control Authority on Stormwater Pollution Prevention with regards to the Industrial Permit and the MS4 Permit. Employees were shown a PowerPoint presentation along with hard copy materials to take back with them.

APPENDICES

TOWN OF STONINGTON ROAD NETWORK



TOWN OF STONINGTON
MAJOR DRAINAGE BASINS



TOWN OF STONINGTON DRAINAGE STRUCTURES