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**Municipality/Organization:** Town of Marshfield, MA

**EPA NPDES Permit Number:** MA041048

**MADEP Transmittal Number:** W-036194

**Annual Report Number & Reporting Period:** No7 : March 09-April 10

APR 30 2010

## NPDES PII Small MS4 General Permit Annual Report

### Part I. General Information

**Contact Person:** Rod Procaccino **Title:** Town Engineer

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#### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Signature:** 

**Printed Name:** Rod Procaccino

**Title:** Town Engineer

**Date:** April 30, 2010

## Part II. Self-Assessment

The Town of Marshfield's stormwater management activities for the 7th year of the General Permit (March 2009 through April 2010) were consistent with the Notice of Intent (Massachusetts DEP form BRP WM 08A) and schedule, submission dated July 21, 2003. The following assessment of activities that were included in the plan is provided below:

**Public Education:** 1. Continue Partnership with North and South River Watershed Association (NSRWA) (BMP ID No.1) The Town continues its support of NSRWA GreenScapes Program. Brochures and Reference guide are on display at the Town Hall and Marshfield's Stormwater Management Plan is referenced in the Town's CCR (Water Quality) Report.

(Website - <http://www.townofmarsfield.org>)

The Town Engineer, attended a workshop regarding Adapting Water Supply to Climate Change, Land Use & Regulation. - November 3, 2009.

### 2. Develop Brochures: (BMP ID No. 2)

The Town added language to the Water Quality Report to emphasize Storm Water Management Plan. This information is sent out on an annual basis. The water quality report was sent out to all customers representing 98% of the Town.

The DPW contracts with the North and South River Watershed Association GreenScapes program to make brochures available for general public. This year a **calendar** was issued which promoted alternative landscaping, ground water recharge, pesticide and fertilizer alternatives and water conservation and impacts to stormwater.

The CCR (Water Quality Report) is available at the DPW office.

### 3. Develop Web Site for Public Service Posting: (BMP ID No. 3)

The IT department has developed the Town wide website and is responsible for it's maintenance. Visit the Town's website at <http://www.townofmarsfield.org> Access is provided to the NPDES Phase II Small MS4 General Permit Annual Report.

## Public Participation:

### 1. Water Quality Testing (BMP ID No. 4)

Water Quality Testing was conducted on Union St. drainage system upgradient the North River by NSRWA and DPW assisted on two occasions. There were slightly elevated fecal coliform levels detected. Water testing was conducted on groundwater at 38 Edmund Rd. to evaluate impact to drainage system.

Green Harbor is being monitored by volunteer professor and students from Whitman/Hanson High School. State CZM personnel are monitoring the Green Harbor River Estuary while participating in a joint state- town effort to capture real time water levels and subsequently water quality data with newly purchased instrumentation with access to collected data on web- based server. **NSRWA has taken over sampling and testing of the estuary.** This information is also being used to assist the DPW in its efforts to restore drainage in the Rexhame/Fieldston area and the permitting for Bass Creek dredging project. **The Conservation Agent has secured a grant to purchase and install another water level device to be installed in Spring 2010.**

North and South River Watershed Association (NSRWA) met with the Dept. of Public Works and discussed water quality results obtained from monitoring the North and South River and future stormwater low impact development projects. The Library Plaza was targeted for future project site. The Town requested Town meeting approval to acquire a drainage easement for Library drainage outfall pipe. The need for additional water quality testing was discussed for Kent Park Area.

### Community Cleanup Days (BMP ID No. 5)

2. The Town conducted its annual cleanup day) Rid litter day was held April 4, 2009. The next clean up day will be April 10 and 11, 2010. (Clean up Marshfield Weekend) and the quantity of waste will be measured to set goals for future events. The Town's Solid Waste Transfer Station also supports other neighborhood clean-up efforts and the NSRWA annual River Clean-up Day.

3. The DPW, Town Assessors, and Conservation Commission and other volunteers from the general public developed an Open Space Plan. Watershed protection was the highest priority included in the evaluation criteria. The DPW obtained support and authorization through Open Space Committee and funding from Town Meeting and acquired 23.65 Acres of undeveloped land off Steamboat Drive (Sweets Property) for



watershed protection. The Town voted funding and acquired 17.94 acre undeveloped subdivision located off Maryland Street. Several other parcels were sought after by the various departments without success.

### **Illicit Discharge Detection and Elimination:**

#### **1. Catch basin/Outfall and Receiving Water Mapping (BMP ID No. 6)**

The Town is in it's 6<sup>th</sup> year developing GIS Mapping capabilities. The Town's IT dept. contracted to have the Town re flown over to conduct photography in March 2007 in order to obtain the most up to date information at a very high resolution. The ortho- photo's are available. The Town was last flown over in 2004. The Topography Map overlay was added in 2005. This topographical information has been a very useful tool in determining the extent of drainage areas and trouble shooting drainage problems. (Previous year - Approximately 80 percent of the Towns 4500 catch basins, manholes, and outfalls, along with receiving waters were presented on 40 scale maps. The Town's consultant has located and screened a total of 962 outfalls. The locations have been added to the GIS generated Map. )

Detention Basins were located and field checked for sediment accumulation by seasonal hired student. A total of 44 basins (11 Town Owned) were inspected and an estimated 7000 cubic feet of sediment will be required to be removed at some point. This effort will require coordination with the Conservation Agent. **Sediment removal is underway.**

Potential Illicit Discharge locations previously identified through outfall screening process were reviewed for connectivity. Field inspection was completed in June 2009. **The Union St. drainage system was screened and sampled.**

**A drainage problem at 969 Ferry St. was investigated and solution worked out with homeowner. (No water quality issues found.)**

## Water Quality Testing (BMP ID No.4)

Dye testing was conducted on Union St. to determine connectivity to municipal drainage system. **Abutters have been identified in preparation of notification to track sump pump connections.**

### 3. Regulatory Review (BMP ID No. 7)

A Storm Water Overlay district was adopted in April 2006 to control development within the Telegraph Hill Area. Developers had to obtain site plan approval for and meet criteria set forth in the bylaw. Several site plans have been submitted and approved through the process. There has been an appeal filed in one case. **Plans are being reviewed from developer who resubmitted revised plans to construct Norwell St. and Parkway on Telegraph Hill.**

The DPW developed a Municipal Storm Drain Bylaw and regulations, and obtained Town Meeting approval in April 2007. Regulations will allow connections to the Town's municipal drain system as part of the bylaw. The Town has yet to implement a town wide investigation due to manpower requirement, however based on discussions with the BPW, staff plans on sending each resident a questionnaire allowing the opportunity for residents to disclose private connections and sump pumps in areas identified as problem areas. Residents will be asked to obtain a license from the DPW and comply with the bylaw and obtain a license to be connected to the Town's storm drain system.

## Construction Site Runoff Control:

### 1. Regulatory Review (BMP ID No. 7)

Storm water management measures are required by subdivision regulation. Historically, these structures required by regulation fail during the construction phase. The BMP's are often short circuited during the initial phases of construction. Town officials have had to issue stop work orders to several developers during the past permit year. The developers were instructed to take corrective action. The DPW, Conservation Dept. and Planning Dept. have recognized the need to require more detailed explanation of construction methods being proposed. Erosion control plans, and proper construction sequencing should be addressed in the model bylaws and corresponding regulations are being developed. The Town received first draft revisions of WRPD Zoning Requirements and Regulations in April of 2010. Upon review, a series of public meetings are planned to prepare for modification to the WRPD Zoning By-Law.



The proposed changes will be brought to Town Meeting for approval in the fall 2010.

#### Permit Enforcement (BMP ID No. 8)

The Town has issued enforcement orders on the following subdivisions to address erosion control problems during construction:

Developers on Indiana St. and Peregrine White Drive were warned several times to contain site erosion. Corrective measures were taken to stabilize a severe slope which was disturbed as a result of installation of a drainage pipe. Sediment was removed from drainage structures. **This issue is still outstanding and the conservation agent has been monitoring the site.**

Developers of Proprietors Way and Enterprise Drive were contacted and they responded to a major erosion problem impacting the Town's drainage system on Enterprise drive. **This issue is still outstanding and the conservation agent has been monitoring the site.**

Developers on Waltham Ave. were contacted to respond to an erosion problem impacting the Town's drainage system. **Repairs were made to a collapsed catch basin grate by the developer. (Wyoming St.)**

Developers of site improvements on Snow road were contacted to respond to erosion control problems impacting the Town's drainage system on Webster St. and the access road leading behind Curtlo Property. **The Conservation Agent had the developer reconstruct the drainage swale behind the building and the modification of the rain garden along Webster St. was completed.**

Developers of Walgreens Pharmacy located on Ocean St. have had numerous problems with construction related erosion problems which have been reported and subsequently resolved. **This issue is still outstanding and the conservation agent has been monitoring the site.**

#### 3. Misconnection/ Illegal Dumping (BMP ID No. 9)

The Water Dept has removed construction material dumped at Church St. and Mt. Skirgo well fields. The new developer involved with Marshhawk subdivision located off Grove St. will be addressing site clean-up.

### Post Construction Site Runoff Control

**1.Regulatory Review (BMP ID No. 7 Water Resource Protection District By Law – reviewed by consultant and draft revisions proposed.**

**2. Permit Enforcement (BMP ID No. 8)**

To resolve a severe erosion control problem caused by development on Telegraph Hill (Spy Glass Landing) within an area off Mather Road , The Engineering and Planning Department have met onsite with the designer and notified the owner that there is problem. The Town will be looking into the feasibility of extending drainage pipes to resolve the issue. The designer will be looking at the detention basin to reduce impact from single discharge point from outfall. **A meeting was held between concerned parties and the owners of Spy Glass were not interested in participating in a joint private - Town solution to resolve the problem. The issue remains unresolved.**

The Town entered into a Memorandum of Agreement with developer of Pleasant Spring Farm subdivision to install and maintain drainage structures that will be installed in Canoe Tree St. and discharged into a privately constructed detention basin and outfall. Construction of the subdivision started in March 2009. **The Town completed construction of drainage system in Canoe Tree St. connected the system to the newly constructed detention basin.**

The Town met with the Developer of Peregrine White Drive to discuss future maintenance and dredging of manmade pond impacted by numerous flood events and soil erosion. **The Town removed approximately 200 cy of sediment from the roadside as directed by the Conservation Agent in April 2010. The DPW was unable to dredge the pond with equipment on hand. A contractor has visited the site to prepare a proposal for dredging the material.**

**The Town installed drainage structures in Summer St. to handle and treat stormwater and constructed an under drain and swale to treat road runoff and handle runoff from a field that was degrading the road surface. Approximately 500 linear feet of drainage work remains near Murdock Pond.**

The Town installed temporary structures to help reduce flooding of a private residence on Emery Road and committed to install drainage pipe to provide permanent solution. This was a combined public-private effort with partial private contributions. **The drainage structures were installed in the summer of 2009 and connected to the Dwight Road drainage system.**

**Owner of parking lot at Ferry St. and Neptune Road has hired consultant at the request of the Conservation Commission to address erosion and sediment impacting adjacent creek from parking lot.**



The DPW investigated solutions to improve a degraded pond located at the Town's Landfill which is part of the Landfill's Stormwater Management System. The composting operation is affecting the water quality of this isolated manmade pond. The pond was dredged and spoils were stored onsite for reuse as capping material for the landfill. (The material sampled and tested for contaminants) The Town installed an electrical connection and obtained a grinder pump to control water levels. **The dredging conducted has improved the situation. No further action has been initiated.**

9. **Sediment (30CY) was removed from Veterans Park and South River in fall 2009 with new semi amphibious excavator on an emergency basis.**

### **BMP's for Meeting TMDL:**

#### **Water Quality Testing (BMP ID No. 4)**

Water quality testing was performed in the Green Harbor River. The Town received the draft report on Green Harbor River Tidal Hydraulics Study, by Applied Coastal Research and Engineering, Inc. March 2007 and draft report on Hydrology and Ecological Analysis of the Upper Green Harbor River, by Dr. David S. White & Dr. Brian L. Howe's Coastal Systems Program February 23, 2007. Louis Berger Group Inc. is the Prime Contractor. This study was funded by a Grant obtained through CZM and the Gulf of Maine Council on Marine Environment. The Tidal Hydraulics portion of the study considered the impact of altering the flow through the tide gates for the purpose of improving the water quality of a severely degraded upper Green Harbor. The water quality portion of the project involved estimate of freshwater flow and nutrient discharge from the fresh water portion of the Green Harbor River, evaluate the nutrient loading from two tributaries Bass Creek and Wharf Creek, and evaluate sediment/ porewater constituents in restricted and unrestricted wetland habitats within the Green Harbor River. The DPW helped fund the project by providing Topographical Survey of the area with one foot contour accuracy. The DPW provided contract labor to support inspection and manipulation of the tide gates. **Sediment is being retested in April 2010 as required by DEP to support Permitting of Bass Creek Dredging.**

The Town has purchased the adjustable tide gate for Dyke Rd. funded through a CZM grant program (\$20,000) and the Town will install the tide gate in June 2009. **The Tide Gate was installed in December 2009. The gate**



has been adjusted open on a gradual basis to observe its effectiveness.

Implementation of other BMP's :

The DPW plans on implementing a proposed drainage improvement at the Union St. Bridge. The bridge reconstruction was completed in fall 2009. **The State Highway Dept. participated in the proposed improvement by constructing the low flow bypass within the drainage system within the paved areas and limit of work during the bridge reconstruction project in the summer of 2009 at DPW's request. The DPW will be working with the Conservation Agent and NSRWA to implement the proposal.**

The DPW installed a sediment trap (\$6,000) in Sea St. drainage system to help mitigate impact from runoff to South River. **The trap is functioning and has been cleaned out twice.**

A drainage pipe from Surf Ave. was uncovered and repaired at bass creek outfall including the addition of stone swale by subcontractor, P. J. Hayes Inc. at Ocean St. to trap sediment.

A grass swale and under drain was constructed at 882 Summer St. and catch basin leaching system was installed at 1000 Summer St.

Storm Water Modeling (BMP ID no. 15)

1. The Town hired Amory Engineers to design BMP in Ferry St. at Medford St. – Modeling is underway to determine impact to wetland. **The drainage structures have been sized and a plan has been prepared. The Town has met with the Conservation Commission and a NHESP representative and prepared and filed a MESA Review check list for consideration of proposed drainage structures and work within an area designated as Priority Habitat. A notice of intent will be filed in Spring of 2010.**

Status of the following drainage improvement projects:

Ferry St. (Drainage from Medford St.)

**Design was completed (\$8,000)**

Summer St. Drainage

Obtained partial funding (\$100,000) ATM April 2009 **Part of drainage modification was completed in 2009 and 500L of drainage system remain to be designed, permitted and constructed. The field survey has been conducted.**

Rexhame/ Fieldston Drainage Construction \$655,584.

Construction was 100% complete in the fall of 2009

Bass Creek dredging/channel restoration \$650,000

Permitting is under way and expected to be complete by June 2010. Funding for Phase I Construction was approved in April 2010 in the Amount of \$50,000.

Received funding for semi amphibious excavator to dredge channel and clean detention basins \$220,000 (April 2008) The Town received delivery of excavator in August 2009. Phase I construction to commence August or September 2010.

South River Bacterial Assessment Project – 604B Grant

Town received \$49,430 Grant- Contract Awarded

Project will involve sampling, analysis, and BMP Design to 30%

EPA Phase II- SW Compliance Testing and Mapping  
for Illicit Discharge Detection and Elimination

\$13,100 available

Pine St. Drainage Improvement - Design \$28,000

Design is under way to improve road side drainage

Construction to be begin spring 2010.

South River Greenway Park

Town obtained funding to develop park with rain garden

Route 139 Corridor Improvement Project

75% Plans are complete – Detention Basin design is complete

End of Report.