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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: No. 11 March 2013–April 2014

## NPDES Phase II 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: **May 2, 2014**

## Part II. Self-Assessment

The Town of Marshfield's stormwater management activities for the 11th year of the General Permit (March 2013 through April 2014) 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>)

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 assist in Public Education. This year, press releases were issued through the Greenscapes Program which promoted water conservation, water resource protection and awareness. **Presentations were made to Marshfield second Graders (5 elementary schools) featuring "Water All Around You Program."** The revised Original Greenscape Guide 2013 version, was distributed throughout the Town and made available at the Marshfield Fair in a booth shared by Marshfield DPW and North and South River Watershed featuring Xeriscaping from August 16 to August 25, 2013. NRSWA sponsored Gardening Green Expo at Kennedy's Country Gardening Scituate presenting better ways of planting with less water use and utilizing fertilizers that are more friendly to the environment. **Articles promoting the Green Expo event were posted on the Marshfield Mariner website on March 18, 2013.**

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

**3. Training: Town officials: As part of the new permit for beneficial reuse of catch basin cleanings,**

**the Towns consultant reviewed requirements with key highway personnel on sight in Fall of 2013.**

4. 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)

NSRWA has taken over sampling and testing of the Green Harbor estuary to monitor water quality. This effort is conducted on a voluntary basis. 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. **The water level measuring devices are operational and DPW monitors the collection of data through a website connection and is the subscriber of the website.**

Community Cleanup Days (BMP ID No. 5)

2. The Town conducted its annual "Keep Marshfield Clean" weekend on **April 12, 2014**. There were **4.8 tons of trash** collected, and **300 lbs. of recyclables** collected **Town wide**. **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.

**In fall of 2013, the Conservation Dept. through Open Space Committee and the DPW obtained authorization to purchase 45.67 acres of open space called the "Holly Hill Land Acquisition" for**



**the purpose of passive recreation and watershed protection.**

4. **The DPW provides the general public handouts promoting water conservation, recycling, composting at the Town Hall and sponsors distribution of Rain Barrels.**

**Illicit Discharge Detection and Elimination:**

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

The Town is in its 10<sup>th</sup> year developing GIS Mapping capabilities. A new town wide drainage system map was developed showing connectivity of piping and final draft was submitted in November 2012. The Engineering Dept. conducted field checks of streets in the Holly Hill area, and in Black Mount Subdivision to verify location of structures. There is significant amount of field checking still required to verify the accuracy of the plan. The map format will be modified to add direction of flow. **The map is being developed as an interactive layer compatible to the Towns GIS System.**

**The Town is under contract with a consultant who has completed the initial phase of on line mapping, data collection, and data management. Training was conducted in March with foreman and tablets were provided to be used in the field to log work effort like catch basin cleaning, and for checking utility locations. The program will be used to log screening of outfalls including time of test and GPS location and pertinent screening results. The drainage system layer will be added in the fall of 2014.**

Previously, detention basins were located and field checked for sediment accumulation by seasonal student hired.

**No Sediment was removed from previous identified Detention Basins.**

**Drainage Ditches were cleaned on Union St. from Short St. to Hunter Drive (600 feet) - annual routine**

**Culvert and drainage ditches were cleaned along Plymouth Ave. by Plymouth County Mosquito Control.**

Potential Illicit Discharge locations previously identified through outfall screening process were reviewed for connectivity. **The Riverside Circle drainage system showed elevated levels of fecal coliform at the outfall in July 2013. The sand filter was cleaned out with the Town's vac truck and new sand was placed in the unit. The outfall was resampled and tested for fecal coliform. There was improvement in water quality but not total elimination. Further investigation is required.**

Water Quality Testing (BMP ID No.4)

**Staff screened 27 sites in August of 2013, some of which were previously identified as priority sites, for specific conductance, TDS, PH and temperature. There was one potential problem involving an illegal connection identified on Spring St. which may be resolved when the drainage system is replaced in 2014. Further investigation is required.**

1 Regulatory Review (BMP ID No. 7)

The Town hired a consultant and completed a review of the Watershed Protection By Law and Regulations and presented proposed changes to the Board of Public Works and the Planning Board (Special Permit Granting Authority). This Bylaw remained unchanged for 20 years. The Town accepted the revised Bylaw at the ATM April 2011. The Bylaw specifies performance and design standards for stormwater management in accordance with Massachusetts Stormwater Management Standards. Now, all site plan reviews, and Special Permits required within the WRPD District require review by the Planning Board (WRPD Special Permit authority). The WRPD District was expanded and new zoning map was approved at the April 2012 Town Meeting.

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. The Engineering Division obtained funding to hire a seasonal student in 2013 to increase this effort. Most of students time was spent on construction oversight, drainage map**

verification and drainage problem investigation .

**Construction Site Runoff Control:**

1. Regulatory Review (BMP ID No. 7)

Stormwater management measures are required by subdivision regulation. The revised Water Resource Protection Bylaw approved April 2011, requires all site plan approvals and special permit applications within the WRPD to be reviewed by the Planning Board, the Special Permit Granting authority. **The WRPD now covers 5932 Acres within the Town.**

2. Permit Enforcement (BMP ID No. 8)

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

**The following roads that have had individuals with enforcement issues related to construction site runoff:**

**Issued Through Conservation Agent:**

695 Holly Road  
96 Avon St.  
Indiana St.  
2205 Main St.  
113 Smoke Hill Ridge  
835 Moraine St.  
214 Plain St. MassDOT

**Issued through Zoning Officer:**

**Elm St. / Boles Rd.**

**Issued through DPW Engineering Division:  
White Oak Farm (through Planning Dept.)**

**The following developments were under construction and inspected periodically for compliance which included inspection of all erosion control measures:**

- 1. Pudding Hill ARAV –Mariners Hill Dr.**
- 2. Strawberry Farm Rd. OSRD**
- 3. Garden Gate Lane**
- 4. Wind Chime Lane**
- 5. White Holland**
- 6. Whites Ferry**
- 7. Commerce Green / Village Green Way**
- 8. Proprietor's Woods**
- 9. Indiana St.**
- 10. Peregrine White Dr**
- 11. Parkway & Norwell site plans**
- 12. White Oak Farm**
- 13. Marshhawk Subdivision**
- 14. Norwell St.**

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

**No Illegal Dumping was reported. Some minor dumping of trash was found in the Brant Rock area.**



## Post Construction Site Runoff Control

1. Regulatory Review (BMP ID No. 7) The DPW hired a consultant to review the Town's Stormwater efforts and compliance with NPDES Permit. A meeting was held with the Town Planner, Town Administrator, DPW Director, Engineering staff, Town Building Officers and DPW hired consultant to discuss the upcoming new NPDES permit requirements, and past practice. **Based on the review conducted by the consultant, draft Stormwater Management Regulations were developed and presented to the Board of Public Works on February 6, 2012 to address site plan review for new development and exemptions. The Board adopted the new regulations August 20, 2012.**

2. Permit Enforcement (BMP ID No. 8)

None

## Municipal Good House Keeping:

1. Improved Street sweeping (BMP ID No. 11)

The DPW swept all paved roads within the Town during the spring of 2013. Several major streets were swept several times including Brant Rock and Rexhame/Fieldston Area several times related to storms, including down-town area.

A Sediment Critical area was established within the Tributary area of Bass Creek

2. Improved Catch Basin Cleaning (BMP ID No. 12) The Marshfield Highway Department cleaned 320 basins in the beach area after the storm in February 2013. The Town cleaned 2500 catch basins by contract in the summer of 2013.
3. Household Hazardous Waste Days: (BMP ID No. 13) The Town conducted its Household Hazardous Waste Day on September 21, 2013.
4. The Town accepts waste oil and paint from May to November at the Transfer Station.



5. The Town conducts roadside clean-up with seasonal personnel several times a week during the summer (16 Weeks)
6. Drain Stenciling: (BMP ID No. 14) **The Town has taken no action.**
7. The Town received final approval and permit for **Beneficial Use Determination (BUD)** to reuse catch basin cleanings from **DEP in August of 2013. (Estimated Quantity 227 CY annual accumulation as of December 2013)**

**BMP's for Meeting TMDL:**

Water Quality Testing (BMP ID No. 4)

1. Sediment was retested in April 2010 as required by DEP to support Permitting of Bass Creek Dredging Phase I. The Bass Creek which is tributary to the Green Harbor River and is heavily obstructed by vegetation and sediment. The Town obtained Permits to conduct maintenance dredging of the Bass Creek and applied and obtained a Beneficial Use Determination in 2010 to dispose of the sediment. Approximately 250 CY of sediment was removed in January 2011 which represented about 20% of the total dredging required in Phase I. The dredge sediment was combined with yard waste and composted during the summer 2011 and winter 2012. The compost was retested for metals and salinity February 2012. The amended soil from compost was used on the RTR BMP and Dredge Spoils Area (DSA) to stabilize slopes with grass in June of 2012. **Dredge spoils from the completion of phase I were brought to the transfer station (800CY) for composting in March of 2014. The compost will be tested prior to beneficial reuse.**

Background: 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. The Town has purchased the adjustable tide gate for Dyke Rd. funded through a CZM grant program (\$20,000). The Tide Gate was installed in December 2009. The gate has been adjusted open on a gradual basis to observe its effectiveness.

2. 2009-05/ARRA 604 South River Bacteria Assessment Project, Town of Marshfield. South River has history of being impaired by Pathogens. The Town hired consultant CEI and NSRWA to conduct a bacteria assessment study to determine areas of high bacteria contributing to the South River, and to recommend BMP's to provide removal of TSS and bacteriological treatment. A total of 30 sites tributary to the South River were tested. Sites were prioritized and three sites were selected. BMP's were brought to 30 % design for each of those 3 sites. NSRWA conducted follow up testing in 2011. **The 2 sites at 30% design involve taking easements and interfacing with plans to expand Library. These projects are on hold.**
3. South River NPS Implementation Coastal Pollutant Remediation Grant: The Town applied and in January 2012, the Town received a grant (\$51,980) to prepare final design for two of the BMP sites and to permit and construct one of the sites. Final Plans were prepared and the NOI was submitted and the hearing was conducted the first week in April 2012. **Construction of RTR Outfall and Bio-retention area was completed in June 2012. Punch list items were completed in 2013.**

#### **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. **No progress has been made on this BMP.**



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. Design modifications were required and was modeling adjusted in fall of 2010 to handle additional stormwater and to change outfall location. A notice of intent will be filed in Spring of 2011. **The model was created and design was completed, however the NOI application had to be withdrawn due to potential litigation. The Town is pursuing an alternative design.**

Status of the following drainage improvement projects:

Ferry St. (Drainage from Medford St.)

Notice of Intent was prepared, submitted and withdrawn.

**Several options are being considered pending results of ongoing litigation.**

RTR –BMP (drainage outfall and bio-retention area)

**Construction was completed in June 2012 and punch list items were addressed in 2013.**

Summer St. Drainage

Obtained partial funding (\$100,000) ATM April 2009 Part of drainage modification was completed in 2009 and 500L.f of drainage system remain to be designed, permitted and constructed. The field survey has been conducted. **The design is complete. A tree hearing is required prior to submitting the NOI. Work is scheduled for 2014.**



Pine Street Drainage Design and Construction

The Town installed a under drain and water quality swale approximately 1600 feet long along Pine Street in the fall 2010 to treat stormwater runoff. The grass swales were stabilized and 15 catch basins were installed in the summer of 2011. The roads were paved in November 2011. **Drainage work was completed in 2013. Final paving is scheduled for April 2014 from Forest St. to Rte. 3A Main St.**

Bass Creek dredging/channel restoration \$650,000

Permitting completed by June 2010. Funding for Phase I Construction was approved in April 2010 in the Amount of \$50,000. Dredging was conducted in January 2011 by Town and private contract. Phase I is 20% complete. The Town completed composting of the dredge sediment (175 tons) and is in the process of receiving final approval by DEP i.a.w. BUD to utilize the final composted product. In October 2011 Town meeting authorized \$200,000 to be used as Town share of a \$10 million FAA grant for the Marshfield Municipal Airport Improvement Project, which in turn will include the dredging of Bass Creek as Environmental mitigation for the project. The DPW has been working with the Airport officials and DEP to obtain the necessary permits. Permits are still pending. DEP is requiring a stormwater management plan.

**Permits were issued in October 2013 and the FAA provided \$400K to dredge the remaining portion of Bass Creek. Bids were solicited and contractor selected. Dredging commenced in February and was completed by April 4, 2014. Final site restoration is substantially complete. Major blockages were**

**removed allowing the area upstream to drain. The water levels upstream were lowered several inches as a result of the project. This work provided significant flood mitigation for the residential area located up stream.**

**In April 2013, the Town voted to purchase 9.8 acres of Marshland abutting Bass Creek for additional access point to remove sediment. The Airport was used for access to Bass Creek for dredging Phase I while it was shut down and under construction.**

### **Stormwater Management Plan**

**The Town prepared a SWMP to reduce the sediment entering Bass Creek and submitted it to DEP as required by the permit. Upon receiving comments a final plan was revised and resubmitted prior to receiving NTP to start dredging from DEP.**

### **Route Route139 Corridor Improvement Project**

**Construction of the project began in March 2012 and will be completed in the Fall 2013. Project Completion Spring 2014**

### **Reduction of Sand in Sand-Salt Mixture to Treat Roads**

**Several trucks were outfitted with liquid applicators to make road salt more effective and the amount of sand used was reduced.**

**More trucks were outfitted in 2013. A new salt shed was constructed in summer of 2013 on Parsonage St. at the highway garage to reduce amount of salt storage on Clay Pit Road. The amount of sediment removed from catch basins was reduced by 50 %.**

**Other related projects:**

EPA Phase II- SW Compliance Testing and Mapping

Drainage System Mapping and GIS Drainage Layer under way  
Design Contract issued (\$9,500). The map is partially complete.  
**Direction of flow is being added to the plan.**

**Future BMP**

The Town appropriated \$50,000 at ATM April 2013 to meet  
new permit requirements and for BMP construction.  
Conceptual designs for six BMP sites were identified in the Bass  
Creek Area. A BMP consisting of catch basins and outfall will  
be designed and constructed in fall of 2014. ( 715 Ocean St.)

**Integrated Water Resource Management Plan - Phase I**

The Draft of Phase I of the IWRMP Report was prepared by  
hired consultant and submitted to DPW in January 2013. **Final  
comments were prepared and provided to consultant and the  
consultant provided recommendations for Phase II Scope of  
Work.**

**Sewer Needs Assessment Kent Park and Black Mount Area**

The Draft Sewer Assessment prepared by hired consultant  
submitted in September to the DPW in September 2012.  
**Comments were made and the report was finalized in 2013.**

Stormwater MS4 Phase II Program Permit Compliance

The DPW is under contract with Consultant to do the following:  
Prepare Notice of Intent for submittal to EPA within 90 days of  
issuance of final permit.

**This work has been delayed until the draft permit is reissued.**



Online Mapping, Field Verification, and Data Management

Contract awarded, \$38,600 to implement Online Mapping

The Town Approved DPW Budget in April 2013 which included budget to support MapsOnline the program costs are (\$11,000.) **The project is near completion of initial phase. Training has been provided. The most significant benefit is having the ability to use tablet with access to Towns GIS mapping in the field to locate utilities input and store photos and to prepare work order requests, and document completed work within web based data base. The program is being developed to log outfall survey results.**

End of Report.