

MAY 05 2015

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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. 12 March 2014–April 2015

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## NPDES Phase II Small MS4 General Permit Annual Report

### Part I. General Information

Contact Person: **Rod Procaccino**

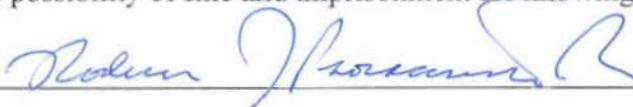
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### Certification:

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 29, 2015**

## Part II. Self-Assessment

The Town of Marshfield's stormwater management activities for the 12th year of the General Permit (March 2014 through April 2015) 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. The program promotes water conservation, water resource protection and awareness of stormwater pollution. **Presentations were made to Marshfield second Graders (5 elementary schools) featuring "Water All Around You Program."** A two minute public service announcement about stormwater pollution was created and placed on the Marshfield cable station. The PSA has been running periodically since January. Outreach activities include, Greenscape program representatives, at Marshfield Farmers market twice, sharing a booth with Marshfield's Water Department at The Marshfield Fair, and at Town Meeting with display. NRSWA sponsored Gardening Green Expo at Kennedy's Country Gardening Scituate presenting better ways of planting with less water use, the use of composted soils and reducing the use of pesticides, and use of organic fertilizers that are more friendly to the environment. An article was submitted to the Marshfield Mariner in October 2014 regarding last summers drought on the South Shore. Rain Barrels and Composters are on sale at the Town Hall and through NSRWA/ Greenscapes Program.

**The link to the Stormwater Pollution Anouncement:**

[https://drive.google.com/file/d/0B\\_44sSjWybIuZVJEMmowX3dhVTA/view](https://drive.google.com/file/d/0B_44sSjWybIuZVJEMmowX3dhVTA/view)

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**3. Training: Town officials: As part of the new permit for beneficial reuse of catch basin cleanings, the Town's consultant reviewed requirements with key highway personnel on sight in August 2014.**

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 its maintenance. Visit the Town's website at <http://www.townofmarshfield.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 will conduct its annual "**Keep Marshfield Clean**" weekend on May 2 2015 (delayed this year due to extended winter). There were **4.8 tons of trash** collected, and **300 lbs. of recyclables** collected Town wide last year. **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 summer of 2014, the Conservation Dept. through Open Space Committee purchased 34 acres of open space called the “Pratt Property Land Acquisition”, obtained 28.2 acres of open space called the “Adelaide Property” off Webster St., and was gifted 28 acres, called the “Chase Property” off Marshview Drive, for the purpose of passive recreation and water resource and watershed protection. The DPW obtained a Drinking Water Supply Protection Grant to partially fund the purchase of a 10.22 acre parcel adjacent to the Town water supply in Black Mount Area. The DPW purchased a 14 acre parcel off Union St. called the “North Property” for 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 12<sup>th</sup> year developing GIS Mapping capabilities.

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 sewer system was added to the Maps Online system as a layer. Drainage structures in that area were identified during that effort. Additional field work is required before the drainage layer is complete. Staff spent a considerable amount of time field checking the drainage system within the sediment critical area near Bass Creek.**

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

hired.

**Sediment was removed from the Detention Basin at Chowder March and repairs were made.**

**Drainage Ditches were cleaned on Union St.**

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

**Pipe installed at 222 Cohasset Ave. (private road) in Stormwater Overlay District investigated by Health Agent and Building Inspector. ( Determined to be erosion control issue and not illicit discharge)**

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)

**The town hired a consultant to sample and analyze priority sites in June 2014. 53 outfall sites were inspected, and 4 were sampled/ tested that had discharge. No significant issues were reported.**

I Regulatory Review (BMP ID No. 7)

**A modification to the Stormwater Management Overlay District and Zoning Bylaw was presented at the ATM April 2015 and approved. The Bylaw specifies performance and design standards for stormwater management within the district. The intent of the modification was to streamline the review process.**

**Construction Site Runoff Control:**

1. Regulatory Review (BMP ID No. 7)

Stormwater management measures are required by subdivision regulation, and zoning requirements. The following development was reviewed:

**Horseshoe Farm – Spring Street**  
**Christmas Cove – Highland Street**  
**John Sherman’s Estates – Main Street**  
**Adelaide – Webster Street**  
**Little Lane – Improvement**  
**Eames Way – Improvement**  
**Monica Way (formerly Cross St.) – Deer Hill Lane**  
**Regina Way (formerly Alberta St.) – Pleasant Street**

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:**

**Holly Road ext.**  
**Webster St. near Rand Handy**  
**Indiana St.**  
**1829 Main St.**  
**Preston Terrace**  
**400 Ferry St.**  
**214 Plain St. MassDOT**

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. Indiana St.
4. Peregrine White Dr
5. White Oak Farm
6. Marshawk Subdivision
7. Horse Shoe Farm
8. John Sherman Estates ( Abner Way)

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)

**Problem exists at Prince Rogers Way Drainage outlet at Hse. 253 – Major Erosion at outlet requires major excavation.**

2. Permit Enforcement (BMP ID No. 8)

## **Chowder March – Town Forces reconstructed control outlet structure**

### **Municipal Good House Keeping:**

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

**The DPW swept all paved roads within the Town during 4 to 5 month period in the summer 2014 and spring 2015. Several major streets were swept several times including Brant Rock and Rexhame/Fieldston Area several times related to storms, including down-town area. Several 1000 cubic yards of beach material that was washed over the seawalls into the Esplanade during the Blizzard of 2015 were collected culled for debris, and put back on the beach as directed by the Conservation Agent.**

**A Sediment Critical area was established within the Tributary area of Bass Creek. DPW coop students field checked all the basins within the area.**

2. Improved Catch Basin Cleaning (BMP ID No. 12) **The Town cleaned 2500 catch basins by contract in the summer of 2014. The DPW repaired 46 catch basins and 30 manholes.**
3. 3. Household Hazardous Waste Days: (BMP ID No. 13) **The Town conducted its Household Hazardous Waste Day on September 20, 2014**
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. **Approximately 140 Catch basins were numbered in the sediment critical area.**
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) These cbc's were sampled and analyzed in 2014 and did not meet BUD standard. The piles will be turned and retested in Spring 2015.

### **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 resultant compost ( Approximately 980 CY) was tested in late April 2015 for BUD standard. The dredging project was environmental mitigation for the Airport Improvement Project. The Airport's environmental consultant will be monitoring water quality for five years after project completion. The amount of salinity reported has increased, which indicates improvement in water turnover and circulation.**

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. The Town selected the Owners Rep and Architect for the Library/Recreation facility and design is in process.**

#### **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. A settlement on pending litigation was reached for and approved at Town Meeting 2014. The detail of the settlement is being worked out.**

**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.**

Summer St. Drainage

Obtained partial funding (\$100,000) ATM April 2009 Part of drainage modification was completed in 2009 and 500Lf 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. **Funding was eliminated. The Dept. will schedule use of CH90 funds to proceed with the project.**

Bass Creek dredging/channel restoration

**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 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.**

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. **The revised plan dated February 10, 2014 was reviewed with the Highway Foreman.**

Route Route139 Corridor Improvement Project

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

**Two more trucks were outfitted in 2014. 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. The borrowing was delayed until 2015. Conceptual designs for six BMP sites were identified in the Creek Area. A BMP consisting of catch basins and outfall will be designed and constructed in Spring of 2015. ( 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. **The Final Report was received in October 2014.**

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 new 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. The Sewer Map Overlay was completed.**

End of Report.