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

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**EPA NPDES Permit Number: MA041048**

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**MADEP Transmittal Number: W-036194**

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**Annual Report Number  
& Reporting Period: No. 10 : March 2012 –April 2013**

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## NPDES Phase II Small MS4 General Permit Annual Report

### Part I. General Information

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

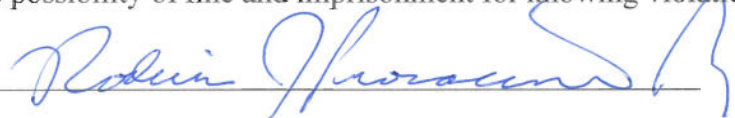
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Telephone #: **781-834-5575** Email: **Rprocaccino@townofmarshfield.org**

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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: 

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Printed Name: **Rod Procaccino**

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Title: **Town Engineer**

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Date: **April 26, 2013**

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## Part II. Self-Assessment

The Town of Marshfield's stormwater management activities for the 10th year of the General Permit (March 2012 through April 2013) 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. The title of the press release specifically regarding stormwater was: "**Lawn fertilizers Pack a Powerful Punch.**" Placed in **Marshfield Mariner and Patriot Ledger. Presentations were made to Marshfield second Graders (5 elementary schools) featuring " Water All Around You Program."** The revised Original Greenscape Guide 2012 version, was distributed throughout the Town

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

**3. Training: Town officials: The Town hired a consultant to conduct SPCC review of Highway and Wastewater Facility which included stormwater related training to Highway personnel.**

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 dredging project. The Conservation Agent secured a grant to purchase and install two water level devices. **These devices were installed and the 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 6, 2013. There were **3.4 tons of trash** collected, and **775 lbs. of recyclables** along with **2.75 tons of storm debris, lobster pots, line, metal, televisions, tires etc..** 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 2013, the Conservation Dept. through Open Space Committee obtained**

funding and purchased 37+/- acres (Assessors H08-02-01, H08-02-03, H8-04-01) abutting the South River and 8.3 acres part of F15-02-12 on Carolina Hill for the purpose of passive recreation and land. The DPW purchased 2.18 acres (H12-01-04A, H12-01-7X) for watershed protection.

4. The Town works closely with NSRWA as part of the Greenscapes Program and other projects concerning the North and South River. NSRWA works with other surrounding Towns that are tributary to the North and South Rivers.
5. 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 9<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 awarded contract and is in final stages of executing a contract to provide on line mapping, data collection, and data management capability 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.

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**

**Drainage Ditches (150 feet) were cleaned on Corn Hill Lane – annual routine**

**Drainage Ditch and Pipe were cleaned on Union St. near Little's Farm (50 feet). The pipe has collapsed and is scheduled for repair.**

**Culvert and ditch was cleaned on Union St. at Pembroke/ Marshfield Town Line (25 feet) 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 2011. The sand filter will likely require replacement based on the test results. The Town's Vac truck, which has been out of service for the past 6 month will be used to remove and replace the sand in the filter.**

Water Quality Testing (BMP ID No.4)

**Staff screened 85 sites in August of 2012, some of which were previously identified as priority sites, for specific conductance, TDS, PH and temperature. Several potential problems were identified requiring follow up screening and testing.**

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 2012 to increase this effort. Most of students time spent on construction oversight and drainage map verification.**

#### **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:**

**Eustis Street**

**Spring St.**

**Summer St.**

**Issued through Planning Department:**

**Pine Oak Subdivision (Strawberry Farm Road)**

**Issued through Zoning Officer:**

**Preston Terrace**

**Ferry St.**

**Issued through DPW Engineering Division:**

**North River Drive ( Illicit Pipe Discharge)**

**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)

The new developer involved with Marshhawk subdivision located off Grove St. will be addressing site clean-up. The Planning Board approved the subdivision revision and the developer committed to clean up the site. **Cleanup was conducted and the drainage structures have been stabilized.**

**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.**

2. Improved Catch Basin Cleaning (BMP ID No. 12) **The Marshfield Highway Department has cleaned 2500 catch basins by contract and repaired the following: 73 structures including catch basins, and manholes.**
3. Household Hazardous Waste Days: (BMP ID No. 13) **The Town conducted its Household Hazardous Waste Day on September 15, 2012.**
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 submitted **final application for Beneficial Use Determination (BUD) to dispose of catch basin cleanings in December 2102. (Estimated Quantity 400CY annual accumulation)**

**The Town is under contract with a consultant to finalize BUD to determine method of handling and disposal of catch basin cleanings on a long term basis. The final BUD was issued by DEP in January 2013 and there are some issues being addressed by the Town's consultant.**

**The 600 + CY of catch basin cleanings currently being stored at the highway garage, based on BUD, will be combined with compost and utilized on the Town's landfill cap for slope stabilization.**

**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.**

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.
- 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.**

### **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.**

**Corn Hill Lane turn around BMP**

Turn around area was reconfigured with gardens designed to improve stormwater entering adjacent marsh. The BMP was funded and constructed by private party with DPW assistance and sponsored by NSRWA.

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

Construction was completed in June 2012 and some punch list items require attention.

**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.**

**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. **Some minor drainage work remains. Final paving remains 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.**

**In April 2013, the Town voted to purchase 9.8 acres of Marshland abutting Bass Creek for additional access point to remove sediment.**

**Construction of RTR BMP Site was complete in June 2012.**

#### Route Route 139 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 2012. A new salt shed has been authorized and construction will begin in June 2013.**

**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 Final Draft plan was submitted in November 2012.**

**The Town appropriated \$50,000 at ATM April 2013 to meet new permit requirements.**

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.**

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 is being finalized.**

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 Program costs. (\$11,000.)**

End of Report.