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**Annual Report Number
& Reporting Period:** #6 April 1, 2008 – March 31, 2009

**NPDES PII Small MS4 General Permit
Annual Report
(Due: May 1, 2009)**

Part I. General Information

Contact Person: William R. Griffin

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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: William R. Griffin

Title: Town Manager

Date: May 1, 2009

Part II. Self-Assessment:

In 2008, the Cohasset Board of Selectmen voted to extend the term of the Cohasset Stormwater Management Committee to develop the Cohasset Stormwater By-law (the By-Law). After the By-law was passed and adopted by the Town in June 2008 the existing Stormwater Committee was dissolved. However, the outgoing committee proposed to the Board of Selectmen that a new committee should be established to continue to advise the Town on Stormwater related issues.

The Conservation Commission is now responsible for the implementation of the By-law which came into effect in June 2008. The Conservation Commission appointed Norfolk Ram Group, LLC to act as the Stormwater Agent for the Town of Cohasset.

Following are recommendations made to the Selectmen by the Stormwater Committee on the tasks (a) (b) and (c) noted below. Beneath each specific charge (underlined) is a corresponding bulleted list of action items undertaken by the Committee in 2008.

a) Implementation of measures such as installing rain gardens or other Low Impact Development (LID) applications to alleviate existing stormwater problems;

Mass. DEP 319 NPS Grant

- Partnering with the Cohasset Board of Selectmen and various other entities of the Town, the Stormwater Management Committee applied for and received a Massachusetts DEP 319 Nonpoint Source Pollution (NPS) grant to be used to complement ongoing sewer work around Little Harbor. The total award was \$250,000.00 which includes a requirement for \$100,000.00 in matching funds from the Town. The monies will be used to permanently protect and improve water quality in Little Harbor through the construction of Best Management Practice (BMP) solutions. Designs are currently being finalized and implementation of these BMPs is to begin in the fall of 2009.
- In addition, Committee members have also worked closely with the Cohasset Center for Student Coastal Research (CSCR) to provide grant funded testing of stormwater samples collected at Little Harbor outfalls. The Project also includes a public outreach and education component to explain the Project and the effectiveness of Stormwater BMP's to residents and encourage participation in reducing nonpoint source pollution.
- To date, over 40 raingardens or LID have been installed under Mass DEP 319 NPS Grants.

Coastal Pollutant Remediation Grant Program/Coastal Zone Management (CZM) BMP Implementation within James Brook Watershed

- Partnering with the Cohasset Board of Selectmen and other entities of the Town, the Stormwater Committee applied for and received award of a Coastal Pollution Remediation (CPR) grant for BMP Design & Implementation within the James Brook Watershed. The funding awarded by CZM was \$46,430. The CPR grant is intended to improve the water quality and protection of Cohasset Cove through the design, environmental permitting, and construction of stormwater control and treatment systems within the James Brook watershed, part of the South coastal Watershed. The designs incorporated Low Impact Development (LID) strategies to capture and minimize runoff flows and pollutant loading into the Jacobs Meadow salt marsh and Cohasset Cove. A total of 6 stormwater BMP's were constructed under this program in 2008/2009; 3 raingardens, 2 constructed wetlands, and a Filtera tree box filter.

b) Adoption of bylaws or other regulatory controls to prevent additional stormwater issues, such as a Model Stormwater Bylaw;

- The Committee was successful in obtaining Town Meeting approval of a Stormwater Management Bylaw at the 2008 Spring Town Meeting.
- The By-law came into effect on July 10, 2008. The purpose of the Bylaw is to prevent and reduce flooding, protect water quality, increase groundwater recharge, reduce erosion and sedimentation, promote environmental sensitive site design practices, ensure long-term maintenance of stormwater controls, and help the Town meet Federal requirements under Phase II of the National Pollutant Discharge Elimination System (Clean Water Act). Due to Cohasset's unique setting, flood prevention and environmental protection are key purposes of the Bylaw. The Bylaw and the associated Stormwater Management Rules & Regulations establish minimum requirements and procedures to control: impacts of increased stormwater runoff; decreased groundwater recharge; and non-point source pollution associated with new development and redevelopment.
- The Conservation Commission appointed Norfolk Ram Group, LLC to act as the Stormwater Agent for assisting with implementation of the new Stormwater Bylaw for the Town of Cohasset. Norfolk Ram Group assists the Conservation Commission with the following tasks:

- *Pre-application meetings to review proposed development plans*
- *Determine completeness of submitted applications*
- *Estimate professional review fee for applications*
- *Review Administrative Approval Applications and issue decisions based on review*
- *Review Stormwater Permit Applications, attend Stormwater Permit hearings as necessary, and issue permits*
- *Conduct necessary site visits and investigations*
- *Review comments from Town Boards and Town Employees*
- *Conduct inspections*
- *Monitor permit conditions*
- *Review final reports*
- *Issue certificates of completion*

- To date, a total of ten (10) new or re-development projects have been reviewed and permitted under this new Stormwater Bylaw.
- In addition, Norfolk Ram Group assists the Town of Cohasset with, when requested, technical assistance on stormwater management issues.

c) Other Stormwater Committee Activity

The outgoing committee proposed to the Board of Selectmen that a new Stormwater Committee should be established to continue to advise the Town on Stormwater related issues. The proposed charge of the new Stormwater Advisory committee would be as follows:

1. Conduct public education activities in support of stormwater remediation.
2. Provide opportunities for public participation in stormwater and watershed remediation discussions in association with the Board of Selectmen and Conservation Commission.
3. Conduct an annual inventory of flood prone areas in Cohasset on behalf of the Selectmen and interested Town Committees as a supplement to the Final Flood Control Master Plan of 2009.
4. Seek funding sources including grants for stormwater remediation and advise the Board of Selectmen on recommended capital expenditures for submission to the Capital Budget Committee.
5. Provide assistance to the town employee responsible for preparing the required reports to the EPA and others. Review the reports for completeness.

The proposed composition of the new Stormwater Advisory committee would be as follows;

1. Five members with three year terms appointed by the Board of Selectmen. Initially two members will be appointed for three years, two for two years and one for one year. Subsequently, expiring terms will be filled with new three year appointments. When a member resigns, a new appointee will be named to the fill the balance of the departing member's term.

2. Liaisons from the Board of Selectmen, Board of Health, Conservation Commission, Water Commission, Sewer Commission, Planning Board, School Committee, and Department of Emergency Management are encouraged to participate.
3. Appointments to the Stormwater Advisory Committee will first be made from interested members of the liaison boards and committees listed in item 2 above, then from volunteers from the community, with preference given to people with relevant professional qualifications, including licensed professional engineers in hydrological or environmental specialties, architects, attorneys specializing in environmental law and public relations professionals with relevant experience.
4. Staff of the Department of Public Works shall serve in an advisory capacity to the Stormwater Advisory Committee.
5. The Committee has requested that the Board of Selectmen build on the progress that has been made, thus far, by supporting a Stormwater Management Committee on an ongoing basis. The Board of Selectmen is still in the process of deliberating on establishing a stormwater Advisory Committee.

There are no measures required by the U.S. Fish and Wildlife or National Marine Fisheries Service to minimize adverse effects to endangered species or critical habitats. There are no measures required to prevent adverse impacts on historic properties.

Cohasset Cove continues to be a water quality impaired water. Extensive testing continues to be performed with assistance from volunteers as noted below. For example the Town continues to perform water quality tests on the lower portion of James Brook and stormwater structures leading to the Brook. After storm events, levels of fecal coliform and Enterococci bacteria exceeded 100,000 colony forming units / 100 milliliters in some of the sampled sites. Other parameters tested such as total suspended solids, nitrates, total Kjeldahl nitrogen and volatile organic compounds did not have levels which were of any great concern. The Gulf River, the other major water body emptying into the Cove also continues to be monitored by volunteers from the Center for Student Coastal Research (CSCR) and the United States Environmental Protection Agency (USEPA). A source of large numbers of fecal coliform and Enterococci bacteria is a storm drain discharging to the River in North Scituate Village. Septic systems are apparently connected to the stormwater system. Cohasset continues to work with Scituate officials to upgrade septic systems in the area to reduce the pollution load. Another area which contributes to the bacterial loading of the Cove is a drainage swale (The Cut) which is in need of repair. The source of the bacteria has not been found. Further investigations will take place in 2009. During large rain events, the wastewater treatment plant continues to discharge untreated or partially treated sewage into the Cove. This problem is being addressed through on-going WWTF upgrades and through efforts to reduce infiltration / inflow.

The Cohasset Little Harbor is a water body for which a Total Maximum Daily Load (TMDL) has been established for pathogens. The Town of Cohasset has signed an Agreement for Judgment with Massachusetts Department of Environmental Protection (MADEP) to connect all homes in the Little Harbor Watershed to the municipal sewer. The Town obtained a permit to upgrade the treatment plant

and increase its capacity to 450,000 gpd to accommodate the increased flows from Little Harbor. Construction of the plant upgrade and new sewers will be completed within the year 2009.

Department of Public Works employees have been trained in proper street sweeping, catch basin cleaning, and use GPS to locate structures.

Students from CSCR performed all sample collection and analyses (except TKN and VOC) for the lower James Brook assessment. As part of the Watershed Academy component of the water quality assessment students received training in sample collection, use of field instruments to measure temperature, pH, dissolved oxygen, watershed definition and other related subjects. These monitoring programs are expected to continue throughout the summer. Students are trained by Cohasset High School Faculty, North and South River Watershed Association staff as well as other Town of Cohasset Employees.

In 2008 the town hired a consultant to prepare a Flood Control Master Plan (FCMP) which evaluated stormwater control issues in two key watersheds that experience significant flooding and have water quality issues. The study scope included:

- Compile drainage system mapping and data
- Utilize existing GIS mapping as available
- Analyze and Evaluate Drainage System
- Conduct hydrologic and hydraulic evaluations
- Evaluate drainage system under various conditions
- Identify system deficiencies
- Evaluate remediation measures
- Solicit Public input
- Conduct cost benefit analyses
- Develop final recommendations
- Develop a phase implementation plan

The preparation of the plan included researching the existing drainage components, both public and private, to establish a basis for subsequent hydraulic analyses. Historical flooding data was compiled and interviews with various parties have led to a preliminary identification of problem areas. Jacob's Meadow was given a high priority for evaluation due to an apparent worsening of flood conditions attributed to James Brook flows. Initial field survey of critical hydraulic structures was conducted along James Brook from its outfall at Cohasset Cove to its headwaters at Sanctuary Pond to confirm and establish hydraulic attributes of the drainage system in order to properly model existing conditions and the impacts of future alternatives.

It was concluded that flooding can be reduced by providing localized impoundment areas within the watershed to detain stormwaters.

This will allow a delay of storm flows enhancing the abilities of the tidally restricted system to drain over several low tide cycles. Detention will also enhance settling and infiltration of stormwaters, promoting pollution attenuation. Also, by installing control structures at culvert inlets and adding stormwater detention within the upper watershed to increase storage will delay peak flows but will cause minor stormwater flooding on private properties. Town acquisition of flood corridors will enhance the Town's ability to institute more beneficial improvements in these areas and to control the extent of localized flooding.

The following is a summary of the recommendations for the James Brook Watershed and Treats Pond / Atlantic Ave. Watersheds;
James Brook

- Initiate a public Rain Garden campaign providing support, instructions and potentially planting materials
- Continue BMP implementation for all public right-of-ways and Town parcels. There are over 70 additional detention & infiltration options allowing 5 to 10% reduction in peak runoff and significant increase (up to 30%) in infiltration.

[Flooding can be reduced by providing localized impoundment areas within the watershed to detain stormwaters. This will allow a delay of storm flows enhancing the abilities of the tidally restricted outfall pipe to drain over time. Detention will also enhance settling and infiltration of stormwaters, promoting pollution attenuation and reducing peak flows. Adding Best Management Practices (BMP's) (pollution removal methods) within the watershed can also be beneficial to detain and treat storm water flows helping to infiltrate and delay peak flow contributions. Common applications are Rain Gardens and vegetated swales in private yards to aesthetically collect and infiltrate runoff.]

Treats Pond / Atlantic Ave.

- Begin legal access investigations for proposed detention areas and larger BMP's on private properties
- Initiate a public Rain Garden campaign providing support, instructions and potentially planting materials
- Continue BMP implementation for all public right-of-ways and Town parcels. There are over 30 additional detention & infiltration options allowing 10-30% reduction in peak runoff and significant increase in infiltration.

Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
1 Revised	Health Notes to Cohasset Mariner	BOH-Steve Bobo	Produce (4) articles per year	Five (5) Health Notes relating to stormwater were published in the Cohasset Mariner	Continue to publish at least four (4) articles per year.
2 Revised	Informational Mailing	Water Commission	Households reached	North and South River Watershed Association “Greenscapes” mailed to all residents.	Continue to mail “Greenscapes” to all residents
3 Revised	Beach and Stream Cleaning Day	Girl Scouts/BOH	Number of truckloads of material disposed Do at least two collections per year	Collected six (6) truckloads (one ton capacity) of waste.	Have at least two (2) cleanup days.

1a. Additions

4	Provide information on the Town Website	BOH – Tara Tradd	Revise/update website quarterly		Car washing information; NE Rain barrel program
5	Provide summary of flood control/Drainage Master	Bill Griffin	-	Powerpoint Summaries provided on Town's Website	-

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
1. Revised	Utilize local groups	BOH – Steve Bobo and CMHS Faculty	Attendance at related meetings Number of topics offered	Classes offered by the Watershed Academy. Non-municipal partners (instructors) were Coughlin Engineering; Thompson and Grady Consultants	Offer classes in the Watershed Academy. Curriculum to be determined.
2. Revised	Collect samples from stormdrain outfalls after storm events	Conservation Commission and CSCR	Reports on water quality	James Brook / Jacobs Meadow LID constructed completed in 2008. Currently finalizing plans for Little Harbor stormwater retrofit project.	Perform wet weather sampling of both James Brook/Jacobs Meadow area and Little Harbor area as part of LID retrofit projects.
3. Revised	Volunteer Monitoring Program Water Quality	BOH-Steve Bobo and CHS Faculty	Reports on water quality	SEE ITEM 2. ABOVE. (CSCR)	Continue sampling of Cohasset Harbor, Gulf River, and North Scituate Village. Sample stormwater outfalls in Little Harbor.
4. Revised	Beach and Stream Cleanup Day	BOH/Girl Scouts	Do at least two (2) cleanups	Citizen volunteers picked up litter and debris and filled six loads of one ton pickup truck. Materials disposed of at the Cohasset Transfer Station.	Continue with organized cleanup days.
Revised					
Revised					

2a. Additions

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
1.	Connectivity Mapping	DPW-Carl Sestito	Complete field form. Put information into GIS catch basin and outfall mapping. Number of basins and outfalls measured	No significant amount of data gathered. No additional personnel.	Continue to gather connectivity data.
Revised					
2.	Illicit Connection Regulation	BOH-Steve Bobo	Number of connection reported and removed	No additional illicit connections discovered.	Continue to enforce regulation.
Revised					
Revised					
Revised					
Revised					
Revised					

3a. Additions

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
1. Revised	Bylaw Development	Stormwater Committee Conservation Commission	Adopt Bylaw	ATM accepted the new Bylaw developed by the Stormwater Committee.	Implement and Enforce Bylaws, create new Stormwater Advisory Committee
Revised		Conservation Commission	Adopt Stormwater Bylaw	Regulations for bylaw implementation & management adopted by the Conservation Commission in June, 2008	Implement through peer review of projects submitted under Stormwater Bylaw.
Revised		Conservation Commission	Adopt Technical Guidance document for Engineer's	Appendix A- Post Development criteria for 5 Stormwater Management (See attached)	Implement through peer review of projects submitted under Stormwater Bylaw.
Revised					
Revised					
Revised					
Revised					

4a. Additions

5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 6(Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
1 Revised	Bylaw enforcement	Stormwater Committee Conservation Commission	Adoption of Bylaw	Regulations for bylaw implementation & management adopted by the Conservation Commission in June 2008	Implement and Enforce Bylaws, create new Stormwater Advisory Committee
Revised					
Revised					
Revised					
Revised					
Revised					
Revised					

5a. Additions

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 6(Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
1. Revised	Rain Gardens Installation	Water Commission – Glenn Pratt Cohasset Conservation Commission	Construct more BMP's in the Lilly Pond Watershed.	Constructed 4 new BMPs (rain gardens) in the James Brook / Jacobs Meadow watershed; Design 5 to 10 new BMPs (rain gardens) in the Little Harbor watershed.	Construct 4 to 8 more BMP's if grant funds are available Construct 6 or more BMP's if grant funds are available
2. Revised	Catch basin cleaning and maintenance	DPW – Carl Sestito	Number of catch basins cleaned	Basins cleaned by DPW – 600 Basins rebuilt by DPW – 6 Cleaned and maintained self regulating tide gate at Harbor – 2 Brooks and Streams cleaned by Plymouth County Mosquito Control District: (PCMCDD) ➤ Heather Dr. to Cedar Acres Lane ➤ Sohler Street behind the Mobil Gas Station ➤ 3A and King Street to Sanctuary Pond ➤ Section of Treats Pond	Continue catch basin cleaning and maintenance. Continue to work with PCMCDD
3. Revised	Develop signage for catch basins and other infrastructure	Water Resource Protection Commission James Kinch, Chairman	Number of catch basins signed	No signs applied.	Apply signage in James Brook and Little Harbor Areas.
4. Revised	Street sweeping	DPW – Carl Sestito	Number of Streets swept	All Streets swept	Continue to sweep streets in spring.
5.	Training	DPW- Carl Sestito	Educate all DPW staff on catch basin cleaning and street sweeping protocols	In house training conducted for all DPW personnel	Update training. Implement IPM training for all personnel. Garden Club sponsored organic gardening training. To use Beechwood

Revised					Ballfield as a pilot site.
6.	Raingarden maintenance for Lily Pond Watershed	Water Dept. – Glenn Pratt	Retain the services of a landscaping company to perform regular maintenance on all existing BMPS	Landscape company was retained by the Water Department. Also, certain Contractors still under guarantee period for maintenance	Continue regular maintenance of BMPs (2-4 times per year)
7	Raingarden maintenance for James Brook Watershed	Cohasset Conservation Commission	Retain the services of a landscaping company to perform regular maintenance on all existing BMPS	Contractor hired for a 3 year period.	

6a. Additions

7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 6(Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
1	Rain gardens in Lily Pond water shed	Water Dept, Glenn Pratt	Reduce TSS and nutrient load at Peppermint Brook entry to Lily Pond	Annual Town Meeting 2007 Authorized funds to construct. Construction complete.	Apply for 319 Grant
Revised					
2	Upgrade catch basins around Little Harbor	DPW-Carl Sestito	Reduce TSS and bacterial load from outfalls into Little Harbor	Annual Town Meeting authorized funds for upgrades of all catch basins.	Upgrade catch basins.
Revised					
3	Rain Gardens in Little Harbor watershed	William Griffin Town Manager	Reduce TSS, nutrient and bacterial load from outfalls into Little Harbor	Finalize design and begin construction	Complete construction
Revised					
4	Rain Gardens in James Brook / Jacobs Meadow watershed	William Griffin Town Manager	Reduce TSS, nutrient and bacterial load from outfalls into James Brook	Construction completed	Apply for CZM grant for the permitting, design and construction of more raingardens
Revised					

7a. Additions

7b. WLA Assessment