

Municipality/Organization: Town of North Reading, MA

EPA NPDES Permit Number: MAR041215

MassDEP Transmittal Number: W-041239

**Annual Report Number
& Reporting Period:** No. 4: April 1, 2006 – March 31, 2007

NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2007)

Part I. General Information

Contact Person: Michael P. Soraghan, P.E. **Title:** Town Engineer

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Mailing Address: Town of North Reading, 235 North Street, North Reading, MA 01864

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: Greg Balukonis

Title: Town Administrator

Date: 4/27/2007

Part II. Self-Assessment

The Town of North reading has completed the required self-assessment and has determined that our municipality is in compliance with all permit conditions.

The schedule modifications based on the Year 3 Annual Report Schedule for some of the best management practices (BMPs) include the following:

- **BMP 3B (Illicit Discharge Detection and Elimination) – extended schedule through Permit Year 5. The Town is expected to investigate the 24 suspect outfalls found during the illicit connection identification program and identify the source of the connection based on recommended methods identified in the Town’s *Storm Water Capital Improvement Report*. The Town recently passed the Storm Water Management Bylaw that includes Article I, Non-Storm Water Discharges that gives the Town the authority to require residents and businesses to eliminate any illicit connections they have to the storm drainage system.**
- **BMPs 4A and 4B (Construction Site Stormwater Runoff Control) and BMP 5D (Post-Construction Stormwater Management in New Development and Redevelopment) – extended schedules through Permit Year 5. Town has met the original measurable goals; the Storm Water Management Bylaw was approved at Fall 2006 Town Meeting and became effective March 1, 2007 with the Attorney General Office’s approval. The Bylaw identifies the Building Inspector to be the Enforcement Officer for Article II, Construction and Post Construction Storm Water Management of New Developments and Redevelopments. The Rules and Regulations for Article II will be finalized in Permit Year 5.**
- **BMPs 6B and 6D (Pollution Prevention and Good Housekeeping in Municipal Operations) – extended schedule through Permit Year 5. The Town is expected to schedule and prioritize street sweeping and catch basin cleaning based on recommendations provided in the *Storm Water Capital Improvement Report*.**

The following are responses to EPA's August 18, 2006 letter to North Reading in regards to Program Implementation – Progress and Compliance Status. Subtitles correlate to the EPA letter subtitles.

Illicit Discharge Programs (Permit Part II.B.3.)

The Town has made significant progress through the permit cycle on their illicit discharge detection and elimination (IDDE) program. In Summer 2005, the Town completed illicit connection identification with the assessment of 524 outfalls. 24 total outfalls were identified for further investigation. These will be addressed as part of Permit Year 5.

Outfall Mapping Requirement

The Town's drainage system has been mapped in GIS. This includes the following drainage system components:

- 45 miles of drainage pipe
- 864 manholes (852 Town-owned and 12 Private)
- 1,976 catch basins (1,865 Town-owned and 112 Private)
- 57 catch basins/manholes
- 557 outfalls (524 Town owned and 33 Private)
- 97 culverts

Certification of Eligibility – Endangered Species Act (ESA) and National Historic Preservation Act (NHPA)

The Town submitted their NPDES Phase II Small MS4 NOI with yes checked for meeting eligibility criteria for “listed species” and critical habitat and for protection of historic properties.

The Division of Fisheries and Wildlife submitted a letter in June 2003 stating that no federally-listed rare plants or animals reside in North Reading. Therefore, endangered species and any critical habitat they would occupy are not applicable to the Town. The Town will re-verify this status with the Division of Fisheries and Wildlife at the beginning of the next permit cycle and, if applicable, incorporate any measures to avoid, eliminate, and minimize adverse affects to endangered species and critical habitat.

The Massachusetts Historical Commission (MHC) submitted a letter in June 2003 stating that storm water discharges are unlikely to affect significant historic or archaeological resources in North Reading and to submit proposed construction plans

for review if construction activities are to take place. The Town is aware that the MHC should review project plans if construction activities in historic or archeological sites take place.

Discharges into Water Quality Impaired Waters

The Town has three impaired waterbodies—Martins Brook, Martins Pond, and the Ipswich River. No additional impaired waterbodies or pollutants of concern have been added to the *Final Massachusetts Year 2004 Integrated List of Waters*.

Pollutants of concern include the following:

- Martins Brook – Organic enrichment/low DO, pathogens
- Martins Pond – Metals (Mercury), Noxious aquatic plants, turbidity
- Ipswich River – Nutrients, organic enrichment/low DO

North Reading's storm water management program has focused on these three waterbodies for all six minimum control measures to reduce and control pollutants that discharge to them.

Discharges into Waters with Approved Total Maximum Daily Load Allocations

Currently, there are no TMDLs referenced for Martins Brook, Martins Pond, and the Ipswich River in DEP draft or final TMDL reports. Once TMDLs are established, the Town will determine whether the approved TMDL is for a pollutant likely to be found in storm water discharges from the Town and if the TMDL should include a pollutant waste load allocation (WLA), BMP recommendations, or other performance requirements for storm water discharges.

Stressed Basins

North Reading is located within the Ipswich River Basin, classified as a “highly” stressed basin. Therefore to the maximum extent practicable, the Town should minimize the loss of annual recharge to groundwater to help alleviate the Ipswich River's low flow problem. The Town recently passed the Storm Water Management Bylaw that became effective on March 1, 2007. This bylaw includes two articles—Article I addresses illicit discharges and Article II addresses construction and post construction storm water management. One of Article II's objectives is to promote groundwater recharge and infiltration. The draft Rules and Regulations includes a requirement for developers to promote groundwater recharge where practicable. These include the implementation of BMPs that prevent the loss of annual recharge to groundwater through the use of infiltration measures to the maximum extent practicable. Developers will be required to determine the volume of groundwater necessary for recharge using the latest version of the *Massachusetts Stormwater Management Policy*.

Measurable Goals

North Reading reviews BMP measurable goals on an annual basis to ensure they are appropriate during each annual report cycle, with revisions made as necessary. EPA guidance has been used for BMP and measurable goal development.

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 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
1A	Two meetings with Town	DPW/ M. Soraghan	Hold a meeting on storm water in Town.	WSWAC held several meetings to act as a forum for public input on storm water management issues in the Town. In addition, a presentation on the Town's storm water management program, goals, and permit compliance was held at Town Meeting on October 16, 2006. The Town placed local newspaper advertisements for public awareness of the new Storm Water Management Bylaw on February 22, 2007 and March 1, 2007.	WSWAC to continue to hold regular meetings to act as a forum for public input on storm water management issues in the Town.
Revised					
1B	Develop plan for public education	DPW/ M. Soraghan	Identify and develop public education programs.	WSWAC continued to coordinate public outreach activities. Activities included: coordination with the Reading/North Reading Stream Team, Headwaters Stream Team, Ipswich River Watershed Association, and the Martins Pond Association; development of public outreach materials including septic system brochures, local newspaper advertisements, storm water information and links on Martins Pond's website; and programs for storm drain stenciling and river clean-ups.	Continue to coordinate public outreach activities.
Revised					

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
2A Revised	Two meetings with Town	DPW/ M. Soraghan	Number of meetings held.	Held several meetings with the Town that included public involvement from the WSWAC and Martins Pond Association. Continued Ipswich River Park clean-up day & BBQ sponsored by the Reading/North Reading stream team.	If funds are available continue the Ipswich River Park clean-up day.
2B Revised	Public Participation Plan	DPW/ M. Soraghan	Number of programs developed.	WSWAC continued to coordinate with existing Town agencies/groups including the Martins Pond Association, Reading/North Reading Stream Team, and the Ipswich River Watershed Association to conduct three programs: stenciling, development of public outreach materials, and a low phosphate detergent exchange as part of a detergent program.	Continue with public outreach activities.

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
3A	Illicit Connection Identification	DPW/ M. Soraghan	# of dry weather outfalls assessed.	524 out of 524 outfalls have been assessed in Permit Year 3.	No action anticipated.
Revised					
3B	Illicit Source Identification	DPW/ M. Soraghan	# of illicit sources investigated.	Outlined a program in the Town's <i>Storm Water Capital Improvement Program Report</i> that includes field investigation methods to identify illicit discharge locations. Article I, Non-Storm Water Discharges of the Storm Water Management Bylaw gives the Town the authority to have residents and businesses disconnect (or eliminate) any illicit connections to the drainage system.	Conduct investigations on illicit connections at 24 suspect
Revised					
3C	Ordinance development to prohibit non-storm water flows	DPW/ M. Soraghan	Bylaw/Ordinance adopted by Town.	Presented Storm Water Management Bylaw that includes an Article titled Non-Storm Water Discharges to prohibit non-storm water flows at Fall 2006 Town Meeting. Bylaw was approved at Town Meeting and became effective on March 1, 2007 with the Attorney General Office's approval.	No action anticipated.
Revised					
3D	Storm Water map development	DPW & Planning/ M. Soraghan and K. Honetschlager	Map completed showing outfalls.	Completed mapping of storm water system that included outfalls, drainage piping, catch basins, and manholes in Permit Year 3.	Update GIS as needed based on as-built submissions and field work.
Revised		DPW & Planning/ M. Soraghan and S. Murphy			

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
4A	Ordinance development for waste control	DPW/ M. Soraghan	Recommend ordinance/bylaw language at Town Meeting.	Completed final Storm Water Management Bylaw that includes Article II, Construction and Post Construction Storm Water Management of New and Redevelopments and drafted separate Rules and Regulations that address construction waste control for review and approval. Bylaw was presented and approved at Fall 2006 Town Meeting and became effective on March 1, 2007 with the Attorney General Office's approval.	Finalize Rules and Regulations and implement with Bylaw.
Revised					
4B	Formalize site plan review procedures	DPW/ M. Soraghan	Site plan review procedures document complete.	Finalized Bylaw was presented and approved at Fall 2006 Town Meeting and became effective on March 1, 2007 with the Attorney General Office's approval. Drafted Rules and Regulations. Town Departments (DPW, Community Planning Commission, Conservation Commission, Building Inspector, and Board of Health) held a workshop to identify department responsibilities that include plan review procedures.	Finalize Rules and Regulations and implement with Bylaw.
Revised					

4C	Revised ordinance to address storm water pollution	DPW/ M. Soraghan	Recommend ordinance/bylaw language at Town Meeting.	Finalized Bylaw was presented and approved at Fall 2006 Town Meeting and became effective on March 1, 2007 with the Attorney General Office's approval. Drafted Rules and Regulations for review and approval.	Finalize Rules and Regulations and implement with Bylaw.
Revised					
4D	BMP Manual	DPW/ M. Soraghan	Handbook completed and adopted by Town.	The Town of North Reading's BMP Manual was reviewed and finalized in Year 3. Manual is referenced in the draft Rules and Regulations.	No action anticipated.
Revised					
4E	Formalize Inspection Procedures	DPW/ M. Soraghan	Standard operating procedures on inspections complete.	Storm Water Management Bylaw became effective. Draft Rules and Regulation include inspection requirements.	Finalize Rules and Regulations and implement with Bylaw.
Revised					

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 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
5A	Procedures for long-term O&M	DPW/ M. Soraghan	Adoption of procedures by Town.	Bylaw was presented and passed at Fall 2006 Town Meeting and became effective on March 1, 2007 with the Attorney General Office's approval. Drafted Rules and Regulations. Town Departments (DPW, Community Planning Commission, Conservation Commission, Building Inspector, and Board of Health) held a workshop to identify department responsibilities that include procedures for long-term O&M.	Finalize Rules and Regulations and implement with Bylaw.
Revised					
5B	Site plan review procedures for water quality impacts	DPW/ M. Soraghan	Adopt procedures.	Bylaw was presented and passed at Fall 2006 Town Meeting and became effective on March 1, 2007 with the Attorney General Office's approval. Drafted Rules and Regulations. Town Departments (DPW, Community Planning Commission, Conservation Commission, Building Inspector, and Board of Health) held a workshop to identify department responsibilities that include site plan review procedures.	Finalize Rules and Regulations and implement with Bylaw.
Revised					
5C	BMP Handbook	DPW/ M. Soraghan	BMP Handbook.	The Town of North Reading's BMP Manual was reviewed and finalized in Permit Year 3. Manual is referenced in the draft Rules and Regulations.	No action anticipated.
Revised					

5D	Revise ordinance to address storm water pollution	DPW/ M. Soraghan	Recommend ordinance/bylaw language at Town Meeting.	Finalized Bylaw was presented and approved at Fall 2006 Town Meeting and became effective on March 1, 2007 with the Attorney General Office's approval. Drafted Rules and Regulations for review and approval.	Finalize Rules and Regulations and implement with Bylaw.
Revised					

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 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
6A	Employee Training	DPW/ M. Soraghan	# of employees trained.	Conducted Storm Water Management workshop with Town departments including the DPW in Permit Year 2. Eighteen (18) employees were trained. No action taken.	No action anticipated.
Revised					
6B	Prioritized Street Sweeping	DPW/ M. Soraghan	Schedules and prioritized street sweeping.	Town-wide street sweeping is conducted once per year. The Town purchased a mechanical sweeper in 2005.	Conduct Town-wide street sweeping on a more frequent basis in prioritized areas.
Revised					
6C	Spill Response and Prevention	DPW/ M. Soraghan	Develop procedures.	At Storm Water Management Workshop discussed proper spill response and prevention BMPs in Permit Year 2. No action taken.	No action anticipated.
Revised					
6D	Prioritized Catch Basin Cleaning	DPW/ M. Soraghan	Schedules and prioritizes cleaning.	Outlined recommendations in the Town's <i>Storm Water Capital Improvement Program Report</i> that includes modifications to the Town's current catch basin cleaning program. Modifications include field inspections to prioritize catch basin cleaning and equipment recommendations.	Consider changes to the catch basin cleaning program based on prioritization and cleaning equipment recommendations.
Revised					

**7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>
- NOT APPLICABLE -**

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
Revised					
Revised					
Revised					
Revised					
Revised					
Revised					

7a. Additions

7b. WLA Assessment

Part IV. Summary of Information Collected and Analyzed

During this Annual Report period no data reports have been generated.

A 319 Grant titled *Martins Pond Shoreline Restoration and Sediment Reduction Project* was awarded in January 2007 and is pending approval of local appropriations. This project will include the implementation of BMPs to reduce metals and TSS loading to Martins Pond. These BMPs will reduce sediment runoff from surrounding areas into the pond, which will improve the water quality characteristics of the pond.

Part V. Program Outputs & Accomplishments (OPTIONAL)

(Since beginning of permit coverage unless specified otherwise by a **, which indicates response is for period covering April 1, 2006 through March 31, 2007)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	
Annual program budget/expenditures **	(\$)	
Total program expenditures since beginning of permit coverage	(\$)	
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		

Education, Involvement, and Training

Estimated number of property owners reached by education program(s)	(# or %)	
Stormwater management committee established	(y/n)	Y
Stream teams established or supported	(# or y/n)	Y
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	Y
Shoreline cleaned since beginning of permit coverage	(mi.)	
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	1
▪ community participation **	(# or %)	
▪ material collected **	(tons or gal)	
School curricula implemented	(y/n)	

Legal/Regulatory

	In Place Prior to Phase II	Reviewing Existing Authorities	Drafted	Draft in Review	Adopted
Regulatory Mechanism Status (indicate with "X")					
▪ Illicit Discharge Detection & Elimination					X
▪ Erosion & Sediment Control					X
▪ Post-Development Stormwater Management					X
Accompanying Regulation Status (indicate with "X")					
▪ Illicit Discharge Detection & Elimination				N/A	
▪ Erosion & Sediment Control				X	
▪ Post-Development Stormwater Management				X	

Mapping and Illicit Discharges

	(Preferred Units)	Response
Outfall mapping complete	(%)	100¹
Estimated or actual number of outfalls	(#)	524²
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	100
Mapping method(s)		
▪ Paper/Mylar	(%)	100³
▪ CADD	(%)	Unknown
▪ GIS	(%)	100⁴
Outfalls inspected/screened **	(# or %)	0
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	524 or 100%
Illicit discharges identified **	(#)	0
Illicit discharges identified (Since beginning of permit coverage)	(#)	24
Illicit connections removed **	(#); and (est. gpd)	0
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	0
% of population on sewer	(%)	1
% of population on septic systems	(%)	99

Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre) **	(#)	
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(%)	
Site inspections completed **	(# or %)	
Tickets/Stop work orders issued **	(# or %)	
Fines collected **	(# and \$)	
Complaints/concerns received from public **	(#)	

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	
Site inspections (for proper BMP installation & operation) completed **	(# or %)	
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	
Low-impact development (LID) practices permitted and encouraged	(y/n)	

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **	(times/yr)	1
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	1
Qty of structures cleaned **	(#)	1,476
Qty. of storm drain cleaned **	(%, LF or mi.)	0 (unless clogged)
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Beneficial use

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	
• Hourly or per basin contract rate **	(\$/hr or \$ per basin)	
• Disposal cost**	(\$)	
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	
• Vacuum truck(s) owned/leased	(#)	
• Vacuum trucks specified in contracts	(y/n)	
• % Structures cleaned with clam shells **	(%)	
• % Structures cleaned with vector **	(%)	

	(Preferred Units)	Response
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	1
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	1
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Beneficial use
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	
• Hourly or lane mile contract rate **	(\$/hr. or ln mi.)	
• Disposal cost**	(\$)	
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	1⁵
• Vacuum street sweepers owned/leased	(#)	
• Vacuum street sweepers specified in contracts	(y/n)	N
• % Roads swept with rotary brush sweepers **	%	100
• % Roads swept with vacuum sweepers **	%	0

Reduction (since beginning of permit coverage) in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	
▪ Herbicides	(lbs. or %)	
▪ Pesticides	(lbs. or %)	
Integrated Pest Management (IPM) Practices Implemented	(y/n)	

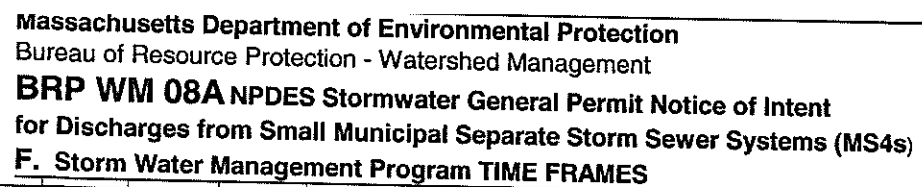
	(Preferred Units)	Response
Average Ratio of Anti-/De-Icing products used ** (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)	% NaCl % CaCl ₂ % MgCl ₂ % CMA % Kac % KCl % Sand	60% NaCL 35% Sand 5% CaCL2
Pre-wetting techniques utilized **	(y/n or %)	Y
Manual control spreaders used **	(y/n or %)	Y
Zero-velocity spreaders used **	(y/n or %)	N
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/ln mi. or %)	
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln mi. or %)	
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100
Storage shed(s) in design or under construction	(y/n or #)	N
100% of salt/chemical pile(s) covered in storage shed(s) by May 2008	(y/n)	Y

Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	
Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	

Notes:

1. Based on available mapping of outfalls.
2. Updated based on revised mapping and outfall assessments conducted.
3. 100% of all new and existing outfalls have drainage plans filed with Town.
4. 100% correlates to the percentage of outfalls visited and GPS located.
5. One mechanical sweeper purchased in 2005.



Transmittal Number W 041239

Facility ID (if known)

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Revision Date: April 30, 2007