CONCORD PUBLIC WORKS

ENGINEERING DIVISION
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JAMES SHURIS, P.E.
TOWN ENGINEER

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December 21, 2007

United States Environmental Protection Agency
Water Technical Unit
P.O. Box 8127
Boston, MA 02114

RE: EPA NPDES Permit # MA041187

To Whom It May Concern:

Enclosed, please find the Town of Concord's NPDES Phase II annual report for 2006 to 2007. If you have any questions regarding this report or require any additional information, please do not hesitate to contact our office at (978) 318-3210.

Respectfully Submitted,

William J. Renault Jr.
Town of Concord
Public Works Engineer

Enclosures

cc: Richard Reine, Director of Public Works
James Shuris, P.E., Town Engineer
File

Printed on 30% post consumer recycled paper.

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

EPA NPDES Permit Number: **MA041187**

MaDEP Transmittal Number: **W-035280**

Annual Report Number & Reporting Period: **No. 4: March 06-March 07**

NPDES PII Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: William J. Renault Title: Public Works Engineer

Telephone #: (978) 318-3210 Email: wrenault@concordma.gov

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: Christopher Whelan

Title: Town Manager

Date: 12/19/07

Part II. Self-Assessment

The Town of Concord, Massachusetts, has completed the required self-assessment and has determined that our municipality is in compliance with all permit conditions, except for the following provisions:

Part II.F Annual report provided after May 1, 2007.

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
1	Stormwater information page on Town of Concord website.	Concord Public Works (CPW)	Creation of website in Winter 2005-2006.	Website content mapped out. Design, programming, and activation of website delayed due to Town's decision to update the entire Town's website.	Complete design, programming of website and activate it in 2008.
Revised			Creation of website in 2008		
2	Provide annual stormwater informational bill inserts.	CPW	Annual bill inserts to Water and Sewer customers, to be mailed in Winter '05-'06.	No Progress.	Develop inserts, and distribute 2008.
Revised			Annual bill inserts to be mailed in 2008.		
3	Drop-off/Swap-off recycling days.	CPW	Hold twice a year, every year.	Held in Spring and Fall, 2007.	Hold in Spring and Fall, 2007/2008
4	Provide stormwater information to businesses.	CPW	Provide to businesses in conjunction with annual recycling information.	No Progress.	Develop and distribute in 2008.
Revised			Provide to businesses in conjunction with annual recycling information in 2008.		
5	Provide informational brochures on recycling, household hazardous materials, composting, and water conservation.	CPW	Maintain at Town House, CPW Administration, and Department of Planning and Land Management (DPLM)	Always available.	Continue to display and make available.
6	Hold "Conservation Coffees", informational and idea exchange sessions regarding maintenance of environmental quality.	Division of Natural Resources (DNR)	Hold Monthly	Held Monthly	Continue to hold monthly.

7	Provide informational brochures on open spaces and water ways.	Natural Resources Commission (NRC)	Maintain at Town House and NRC office.	Always maintained.	Continue to maintain and make available.
8	Maintain affiliations with various public conservation groups	NRC	Maintain affiliations.	Always maintained.	Continue to maintain.

1a. Additions

9	Provide stormwater education to Concord Public Schools	CPW	Provide information in classroom to each Fourth Grade class each year.	CPW to conduct an educational session to local 7th graders as part of Public Works Day Event in August of 2007	Conduct an educational session to local 7th graders as part of Public Works Day Event.
Revised			Conduct an educational session with 7th graders as part of Public Works Day		
10	Provide stormwater information to annual "Healthy Lawns" workshop.	CPW	Provide information to workshop participants	Educational material developed and discussed during workshop	Continue to provide information to the workshop participants.

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
11	Provide logistical support to river, etc. clean-up days.	CPW/DNR	Provide support once a year, on average.	Provided support to Green Team clean up day.	Continue to provide support.
12	Tag catch basins draining to Mill Brook.	NRC	Tag 100% of known catch basins to Mill Brook by end of year 1.	Monitoring, mapping, and tagging of basins continued by the Mill Brook Task Force of the NRC.	Continue the monitoring, mapping and tagging.
Revised			Tag all known catch basins as they are discovered.		

2a. Additions

None

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
13 (Revised)	Create GIS based Drainage Map of entire Town.	CPW	Create by year 2, maintain and update as needed.	All work on roadway drainage system has been documented. The GIS inventory updated using the documentation provided by CPW work crews working with the Stormwater/Drainage Program Manager.	The GIS inventory will be updated using the documentation provided by CPW work crews working with the Stormwater/Drainage Program Manager. Culvert inventory to be performed in Summer of 2008.
14 (Revised)	Town of Concord Public Storm Drainage Connection Policy	CPW	In place; Enforce at all times.	Continued to enforce policy.	Policy to be reviewed further by current staff for applicability to existing drainage and culvert connections. Enforcement to continue.
15 (Revised)	Develop system to locate priority areas of illicit conn.'s	CPW	System in place by end of year 3.	No Progress.	Discuss, plan, and implement simultaneously with BMP #13 and BMP #14.
Revised			System in place by end of year 5.		
16 (Revised)	Develop proceedure for tracing source of illicit conn.'s	CPW	System in place by end of year 3.	Results of smoke and dye testing performed in commercial areas of downtown Concord did not show any drainage cross connections.	None, dependent upon completion of BMP #13 and BMP #14.
17 (Revised)	Develop procedure for removing source of illicit/illegal discharges.	CPW	System in place by end of year 4.	No Progress	None, dependent upon completion of BMP #13 and BMP #14.
18 (Revised)	Develop procedure for evaluating the progress of the programs.	CPW	System in place by end of year 4.	No Progress	None, dependent upon completion of BMP #13 and BMP #14.
19 (Revised)	Implement BMPs 15-18. (Revised)	CPW	Begin implementation by Fall 2005.	No Progress	Must begin with BMP #13 and BMP #14
Revised			Begin implementation by Fall 2006.		
20 (Revised)	Develop Wastewater Master Plan.	CPW	Complete creation by end of year 1.	Construction of Phase I continued in East Concord (Elm Brook.)	Update CWMP.

27 (Revised)	Storm water pollution prevention training provided to Town's inspectors of construction sites.	CPW/BI/DNR	Pertinent employees receive storm water training upon completion of BMP #22. (Revised)	No Progress due not yet receiving approval of BMP #22 by the Planning Board.	Begin development of training program. Begin implementation upon completion of Erosion Control By-Law passage (BMP #22).

4a. Additions

None.

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**
28 (Revised)	MADEP Stormwater Standards 2,3,4 and 7.	NRC	100% Compliance for all work within wetlands jurisdiction.	All regulated projects comply with this standard.	Continue with compliance with all regulated projects.
29 (Revised)	Pre-construction review of regulated developments.	NRC/PD/CPW	100% of proposed regulated projects reviewed.	All regulated projects were reviewed.	Continue reviewing all regulated projects.
30 (Revised)	Massachusetts Wetland Protection Act.	NRC	100% of projects within wetland jurisdiction areas reviewed.	All regulated projects were reviewed and permitted as necessary.	Continue reviewing and permitting all regulated projects.
31 (Revised)	Inspection of regulated subdivisions.	CPW	100% of regulated subdivisions inspected to ensure proper construction of environmental protections and drainage utilities.	All regulated projects were inspected.	Continue to inspect all regulated projects.
32 (Revised)	Recommended list of BMPs to be used in new construction to be developed and provided to potential developers.	DNR/PD/CPW	By end of year 3, a list has been developed as guidance.	EPA poster "Stormwater and the Construction Industry" is posted prominently in the CPW Engineering Office. Poster shows the proper use and placement of BMP's on construction sites.	Stormwater Committee has decided to not provide a list of preferred BMP's. The Town shall provide a list of reference documents for all efficient and accepted BMP's
Revised			Provide a list of reference documents for all efficient and accepted BMP's		

33	Subdivision Rules & Regulations; Storm Drainage Requirements	PD/CPW	Completed, evaluate yearly for effectiveness	Progress made on updating Stormwater and Erosion Control performance criteria in the Subdivision Rules and Regulations.	Continue Storm Drainage/Erosion Control Changes for Planning Board approval in 2008.

5a. Additions

None.

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
34 (Revised)	Cleaning of catch basins.	CPW	25% of basins cleaned each year.	50% of basins were cleaned.	Clean at least 25% of catch basins, and more as funding allows.
35 (Revised)	Annual street sweeping.	CPW	100% of streets are swept of sand and sediments yearly.	All streets were swept twice during the spring/summer.	Continue to sweep all streets at least once each spring.
36 (Revised)	Central Business District (CBD) street sweeping.	CPW	CBD swept weekly, weather permitting, April to November.	CBD sweeping performed as planned.	Continue CBD sweeping weekly, weather permitting, from April to November.
37 (Revised)	Sewer main and manhole cleanings go to WWTP.	CPW	All cleanings are disposed of at WWTP.	All cleanings disposed of properly at WWTP.	Continue to properly dispose of cleanings.
38 (Revised)	Composting facility, open to public, accepts used paint.	CPW	Open to public once a week from April through November.	Composting facility opened as planned.	Continue opening facility as planned.
39 (Revised)	Member of Minuteman Regional Household Hazardous Waste Facility.	CPW	Maintain membership in this regional facility.	Maintained membership in this regional facility.	Continue to maintain membership.

40 (Revised)	CPW drainage maintenance within the right of way controlled by Drainage Maintenance Permit, issued by the NRC.	NRC/CPW	Meet terms and conditions of permit.	General maintenance permit extended with NRC in the Winter of 2006-2007.	Follow terms and conditions of the permit
41 (Revised)	Storm Water Pollution Prevention Plan (SWPPP) and Integrated Contingency Plan (ICP) in place and in effect for CPW facility.	CPW	Maintain ICP and SWPPP, review and update as needed.	Have complied with ICP and SWPPP.	Evaluate and revise ICP and SWPPP as necessary.
42 (Revised)	CPW operation employees receive storm water, spill control and prevention, and wetlands training.	CPW	100% of operations employees receive training.	All new employees receive initial orientation training.	All new employees continue to receive initial orientation. Develop and implement ongoing training program for all operations employees.
43 (Revised)	Drainage system mapping and GIS system will be used to optimize catch basin cleaning program.	CPW	By year 5, catch basin cleaning program has been optimized.	Edits are made to drainage map as they are needed.	Continue to edit and update drainage map.
44 (Revised)	Use GIS/Drainage system inventory/mapping to identify catch basins in poor condition and then repair and/or retrofit those basins.	CPW	Remove/Retrofit/Repair at least 5 catch basins a year, beginning in year 1.	50-catch basins were retrofitted, repaired, or replaced. All new catch basins were installed with deep sumps.	Continue to upgrade at least 5 catch basins.
45 (Revised)	Increase use of infiltration chambers, LID technologies and stormwater pretreatment for roadway and parking lot redevelopment projects.	CPW	Where soil and site conditions are appropriate, use infiltration chambers/low impact development techniques for stormwater treatment.	Preliminary design completed for 3 in-house design infiltration/low impact development retrofit projects. Treatment and infiltration components incorporated into capital improvement projects.	Complete final design and begin construction of LID & infiltration retrofit projects. Identify additional retrofit projects for upcoming projects.

6a. Additions

None

6b. Assessment

In an effort to meet BMP #45, the Concord Public Works Engineering Division has identified the following projects to implement a combination of low impact development technologies, stormwater treatment, and stormwater infiltration:

Pail Factory Pocket Park: The project includes the construction of a park area overlooking Warner's Pond and the newly reconstructed dam. The project will also implement LID techniques and infiltration components into the stormwater management plan. Currently, the drainage system in the area discharges untreated stormwater from the Lawsbrook Road area into Nashoba Brook, a tributary of the Assabet River through a 24" outfall adjacent to the park. The watershed area for this portion of the Town's drainage system is approximately 40.5 acres. Approximately 25% of this area is paved surface, including roadways, driveways and buildings. An underground infiltration system will be installed prior to this outfall to promote infiltration and improve base flow within Nashoba Brook. The design will incorporate a sediment and oil separator chamber to treat collected stormwater prior to discharge to the proposed Cultec leaching chambers.

Church Street Parking Lot Reconstruction: The existing onsite drainage system consists of a catch basin located within the center of the parking area, which discharges to the Church Street closed drainage system. The Church Street closed drainage system outfalls, without treatment, to Nashoba Brook. The project will increase stormwater infiltration through the installation of an underground infiltration system. The design will incorporate a sediment and oil separator chamber to treat collected stormwater prior to discharge to the proposed Cultec leaching chambers. The underground infiltration system will be sized to infiltrate runoff generated by the Town owned portion of the parking lot.

Vanderhoofs Parking Lot Reconstruction: The drainage system within the parking area conveys stormwater from the Monument Square and Bedford Street areas to an outfall located at Mill Brook. An existing Vortechnic Stormwater treatment chamber installed a few years prior will be connected through the installation of a diversion manhole. The Vortech chamber will provide sediment and oil treatment prior to discharge into Mill Brook. Additionally, the installation of porous pavers will be investigated to provide stormwater infiltration in the area.

Mill Brook Culvert Reconstruction Project: Two catch basins are currently located on an existing CMP arch culvert under Main Street, allowing for sediment to be discharged directly into Mill Brook. During the culvert reconstruction, the two catch basins will be relocated next to the culvert and installed with deep sumps to provide additional stormwater treatment prior to discharge into Mill Brook.

The CPW Engineering Division will be performing in-house design of the redevelopment of the parking area.

7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA)

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
46 (Revised)	NRC Order of Conditions, Special Condition #27, prohibits use of herbicides, pesticides, or fertilizers within resource areas except in a case by case basis for invasive species removal.	NRC	In place, will enforce at all times.	Special Condition enforced.	Continue enforcement of Special Conditions.

47 (Revised)	Remove direct discharge of Walden Street stormwater to Walden Pond.	CPW (in partnership with Walden Pond State Reservation)	Walden Pond infiltration system installed. Monitor system efficiency.	System efficiency monitored.	Continue monitoring system efficiency.

7a. Additions
None.

Part IV. Summary of Information Collected and Analyzed

None.

Part V. Program Outputs & Accomplishments

Programmatic

Stormwater management position created/staffed	(y/n)	Y- A Stormwater Program Manager is currently staffed to deal with all Drainage issues for the Town Of Concord.
Annual program budget/expenditures	($)	$155,000 for FY08.

Education, Involvement, and Training

Estimated number of residents reached by education program(s)	(# or %)	300
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.)	-
Drop-off/Swap-off Recycling Days in Spring and Fall (2 days)		
▪ days sponsored	(#)	2
▪ community participation	# of cars/day	728 (10/11/06) 908 (5/5/07)

▪ material collected in Fall '06 and Spring '07 CPW Drop-Off Days ○ Fluorescent bulbs (bulbs) ○ Mercury (lbs) ○ Rechargeable & Specialty batteries (lbs.) ○ Lead batteries and lead ballast (lbs.) ○ Latex based paints (non-hazardous) (gallons) ○ Oil and alkyd based paints, polyurethane, paint thinner and stripper (hazardous) (gallons)	(lbs, gal, linear feet)	4,650 bulbs 20 lbs 36 lbs. 1,359 lbs ~1,200 gal. ~1,200 gal.
School curricula implemented	(y/n)	Y

Legal/Regulatory

	In Place Prior to Phase II	Under Review	Drafted	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	X			
▪ Erosion & Sediment Control		X		
▪ Post-Development Stormwater Management		X		

Mapping and Illicit Discharges

Outfall mapping complete	(%)	100% of known
Estimated or actual number of outfalls	(#)	183
System-Wide mapping complete	(%)	100% of known
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	100%

Outfalls inspected/screened	(# or %)	100% in Year 1.
Illicit discharges identified	(#)	1
Illicit connections removed	(#) (est. gpd)	1 connection in design phase of upgrade in accordance with Town's Drainage Connections Policy
% of population on sewer	(%)	35% of parcels are sewered, with the completion of the East Concord portion of the Phase I Sewer Extension.
% of population on septic systems	(%)	65% of parcels are not sewered.

Construction

Number of construction starts (>1-acre)	(#)	3
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	100%
Site inspections completed	(# or %)	1
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	(%)	100%
Site inspections completed	(# or %)	100%
Walden Pond Drainage, Hayward Mill Road Drainage: Estimated volume of stormwater recharged (based upon 42-inches of rain per year).	(Million Gallons per Year)	2.3 MGY

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	.5/year
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	.5/year
Total number of structures cleaned	(#)	1400/year
Storm drain cleaned	(LF or mi.)	1 mi.
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	-
Disposal or use of cleanings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)		landfill
Cost of catch basin/drain cleaning and screenings disposal	($)	$18,000
Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	2/yr
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	2/yr, and weekly between Apr. and Nov. in business districts.
Qty. of sand/debris collected by sweeping	(lbs. or tons)	1,000
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	Compost, Roadside use, Stockpiles
Cost of sweepings disposal	($)	-
Vacuum street sweepers purchased/leased	(#)	0
Vacuum street sweepers specified in contracts	(y/n)	N

Reduction in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	0%
▪ Herbicides	(lbs. or %)	Minimal
▪ Pesticides	(lbs. or %)	N/A

Anti-/De-Icing products and ratios	% NaCl $CaCl_2$ % Sand	2,800 tons (78%) (est.) 1,500 gallons (est.) 1,200 tons (22%) (est.)
Pre-wetting techniques utilized	(y/n)	Y
Manual control spreaders used	(y/n)	Y
Automatic or Zero-velocity spreaders used	(y/n)	N
Estimated net reduction in typical year salt application	(lbs. or %)	None
Salt pile(s) covered in storage shed(s)	(y/n)	Y
Storage shed(s) in design or under construction	(y/n)	N/A