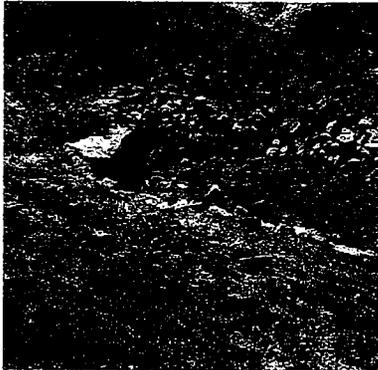


# CITY OF MANCHESTER, NEW HAMPSHIRE

1017



## Stormwater Management Program Annual Report

May 1, 2004 through April 30, 2005

Prepared By:  
Department of Highways / EPD Environmental Permits Coordinator



**City Of Manchester  
Department of Highways  
Environmental Protection Division**

300 Winston Street  
Manchester, New Hampshire 03103-6826  
(603) 624-6595 Fax (603) 628-6234

Frank C. Thomas, P.E.  
Public Works Director

Kevin A. Sheppard, P.E.  
Deputy Public Works Director

April 27, 2005

U.S. Environmental Protection Agency  
Water Technical Unit (SEW)  
P.O. Box 8127  
Boston, MA 02114-8127

#05-002-EPC

RE: NPDES II Small MS4 General Permit Annual Report -  
EPA NPDES Permit Number: NHR041017

To Whom It May Concern:

Herein is the annual Stormwater Management Program report for the year ending April 30, 2005 for the City of Manchester, New Hampshire. This document completes the annual program reporting requirements for this second year of the program.

If you should have any questions or concerns in regards to this report please give our Storm Water Program Coordinator, Rick Cantu, a call at (603) 624-6513.

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.

Sincerely,

Frank C. Thomas, P.E.  
Director of Public Works

Cc: NHDES – Concord, NH  
Thomas W. Seigle, P.E. – City of Manchester  
H:\StormWater\AnnualReport\Report2005\IntroLtr05EPA.doc



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April 27, 2005

NH Department of Environmental Services  
Water Division  
Wastewater Engineering Bureau  
PO Box 95  
Concord, NH 03302-0095

#05-003-EPC

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Frank C. Thomas, P.E.  
Director of Public Works

Cc: EPA – Boston, MA  
Thomas W. Seigle, P.E. – City of Manchester  
H:\StormWater\AnnualReport\Report2005\IntroLtr05NHDES.doc

## **Storm Water Management Program Annual Report Reporting Year May 1, 2004 through April 30, 2005**

This is a listing of the progress the City of Manchester has made in regards to the Six Minimum Controls; Best Management Practices (BMPs) as outlined in the City's approved Storm Water Management program.

At the end of this section is an 11" X 17" chart outlining all the steps in Manchester's approved program. The listing includes the development and status of implementation, the end date of when the specific task has to be in place, priority identification when compared to the other tasks (A being most important and D being least important) and a listing of the completed date. Also listed at the bottom of this chart is a brief explanation of each BMP that is not immediately self-evident.

The annual report requires an assessment of the appropriateness of the selected BMPs. As this program has completed its second year, one will see that many tasks are ahead of schedule and the information provided is more in-depth. It is now possible to detail and evaluate the effectiveness of many of the BMPs in this report.

This report is broken down by each of the six minimum controls.

### **Section one - Public Education and Outreach.**

There are six tasks associated with the completion of this BMP.

### **Section Two - Public Participation**

This control has five tasks that are outlined for completion.

### **Section Three - Illicit Discharge Detection and Elimination**

This control requires the development of a protocol along with other field investigative requirements. There are four tasks required by this control.

### **Section Four - Construction Site Runoff Controls**

This section covers three required tasks.

### **Section Five - Post-construction Storm Water Management in New Development and Redevelopment for Projects Disturbing More Than One Acre**

This section only has two tasks scheduled for development and completion.

### **Section Six - Pollution Prevention/Good Housekeeping for Municipal Operations Control**

This is the most extensive task oriented control and covers nine separate items.

## Manchester's Storm Water Management Program Summary Priority Listing In-House

BMP#	Description	Develop	Implement	End Date	Priority	Completed
1-1	Assign SW Coordinator	10/1/04 (1)	Ongoing	7/30/04	A	5/17/03
1-2	Add SW Info to City's Website	10/1/04 (2)		3/21/04	C	10/7/2003
1-3	Outreach with Local watershed groups	7/1/04 (3)	Summer 04	7/30/04	B	Ongoing
1-4	Brochures available DPW & library	9/1/03 (4)		7/1/06 (3)	D	Spring 2005
1-5	Signage @ Urban Ponds	7/30/04 (5)	Draft done 3/04	3/21/04	B	9/25/2003
1-6	Pet Waste Brochure & Signage			7/1/06	C	5-Feb
2-1	Comply with State Public Notice					City Protocol
2-2	Annual Household Haz-waste Day					5/8-10/9/2004
2-3	Collect Used Oil, batteries & tires					March-05
2-4	Urban Forestation "Green Street Program"					3/16/2005
2-5	Stormwater & Combined Sewer Hotline					8/26/2002

Ongoing - provide notice when NOI & SWMP are effective.

Ongoing - Check with JoAnn M. for dates and totals.

Ongoing - Obtain annual report from JoAnn M.

Ongoing - 130 trees for the year 2004

Ongoing - 9/1/03 7/30/04 (6) ASAP

6-8 (19) Four hours of training for targeted employees during the first year - document. Check with state for training materials.

6-9 (20) Get together with SEPP people to determine what has been planned. Determine course for the rest of this year and next. Meet with Derryfield Management. Explain program and benefits. Become informed on all current practices that are listed in SWMP and make out an inspection report. Work with Department Head to develop a SWMP for the Derryfield Country Club.

## **BMP #1 Public Education and Outreach**

### **Assign Storm Water Coordinator - (BMP completed)**

**Current Status:** The City of Manchester hired the Environmental Permits Coordinator to oversee the development and implementation of the City's Stormwater Management Program. Mr. Cantu was assigned to the position on May 17, 2003 and given the title of Environmental Permits Coordinator.

**BMP Effectiveness Evaluation:** This position was essential to get the Storm Water Program off to a running start and to assure that the City stays on task as to fulfillment of the program requirements. Without this BMP in place, few if any of the tasks could be completed to levels satisfying regulatory expectations.

**Future Goals:** No additional personnel are planned. The two Industrial Pretreatment Personnel will be used in instances to track illicit discharges. Engineering inspector staff are used in the field to report back to the Storm Water Coordinator in regard to construction activity compliance with Storm Water Pollution Prevention Plans. It is ideal to get the sewer crews involved with reporting back instances where pollutants are found in catch basins and drainage swales.

### **Add Stormwater Information to the City's Website - (Expanded significantly since last annual report)**

**Current Status:** The City of Manchester first posted a Storm Water citywide website on October 7, 2003 consisting of four pages. Since inception, the site was extensively upgraded and can be accessed at the following address:

<http://www.manchesternh.gov/CityGov/dpw/EPD/stormwater/home.html>

The home page has four subsections. On the home page there are informational links to each of the six minimum controls. There is also an online poll listed at the top of the EPD homepage that asks questions in relation to City storm water and pollution issues. This poll is dynamic with a listing of polling data at the end of the questionnaire. A copy of the current poll, at the writing of this report, is included at the end of this section. This feature will be used more in the coming years.

The Public Education and Outreach page has links to Manchester's recycling program and to the EPA's, "Stop Pointless Personal Pollution" activities site.

The Public Participation page has links to Manchester's Urban Pond Program website and also to EPA's Storm Water Outreach Materials website.

The Illicit Discharge page is a stand-alone page.

The Construction Site Runoff Controls page has several links. These include links to EPA's "BMPs for Storm Water Phase II"; the State of New Hampshire BMP listing; the International BMP Storm Water Database; California's handbook for Construction site

BMPs; the US D.O.T's, "Guide to BMPs"; the State of Oregon's, "Recommended BMP Guide"; EPA's guide to developing a Storm Water Pollution Prevention Plans; overview of Minnesota's "Construction Storm Water Permit"; and the Natural Resource Defense Council's "Resource Fact Sheet."

The Post Construction Runoff page has numerous links. The major link is to the EPA's "Post Construction Information" website. There are two other categories of links on this page. The first is for "Structural BMPs." These include links to Dry Extended Detention Ponds, Wet Ponds, Infiltration Basins, Infiltration Trenches, Porous Pavement, Bioretention, Sand & Organic filters, Storm Water Wetlands, Grassed Swales, Grassed Filter Strip, Catch Basin Insert, In-line Storage, and Manufactured Products – Storm Water Inlets.

Links from the non-structural BMPs portion of this page include: On-lot Treatment, Buffer Zones, Open Space Design, Urban Forestry, Conservation Easements, Narrow Streets, Eliminating Curbs & Gutters, Green Parking, Alternative Turnarounds, Alternative Pavers, and Inspection & Maintenance.

There is a left navigational link to a "Citizens Awareness Page." Included with the information on this page are links back to previously mentioned informational pages.

There is a left navigational link for "Contractor Requirements." The top link takes the contractors to the Notice of Intent page of the Manchester website. This page provides information and links for filing a Notice of Intent, the online link for the electronic NOI and a link to an example Storm Water Pollution Prevention Plan. Also on this page is a City developed slide show on contractor obligations regarding the Storm Water Program requirements. There are also links back to previously mentioned pages.

There is a left navigational link to a "Frequently Asked Questions" page with 14 common questions and accompanying answers.

Finally, there is a link with contact information referencing Environmental Protection Division Staff.

**BMP Effectiveness Evaluation:** This BMP is proving to be highly effective in regards to information presented. There is a national site at the following link, <http://www.asist.net/site/links/city.htm> that lists over 90 municipal storm water websites throughout the country. Manchester looked at each of these sites to find ordinance ideas for the development of our City's Ordinance. During the site reviews, it was realized that Manchester's Storm Water website stands up very well in comparison to all of these sites. In appearance and content, Manchester's site is very competitive with sites with populations in excess of one million residents.

The City's website has a statistics trend counter. At the end of this section is the web trends report for March of 2005. This report outlines the activity for each page within the EPD site. We are able to gauge use of our site through this report.

**Future Goals:** To use the online Poll to gather additional data in regards to the citizen's knowledge concerning storm water and environmental issues. To track the use of the storm water website to determine if use is increasing or decreasing. To further expand the site to provide additional information to developers, contractors and the citizens of Manchester. To include the Storm Water Rules & Regulations and Storm Water Ordinance once adopted.

3 **Conduct Outreach with Local Watershed Organizations – (New group organized at Pine Island Pond “PIPES”)**

**Current Status:** The City is working through an additional year of the Supplemental Environmental Projects Programs program. The program officially ended on February 1, 2005. The City forwarded a letter to the EPA and NHDES with a request to extend the program through December 31, 2005. This extension was granted.

The City has successfully worked with the residents of Pine Island Pond to assist in developing a local pond group. The group chose the name “Pine Island Pond Environmental Society” (PIPES). The group has met twice during the 2004-reporting year. A storm drain stenciling project is scheduled in May 14, 2005 with the PIPES organization.

The City is presently working with the Student Conservation Association (SCA) in preparing an “Earth Day” event. Over 75 individuals have committed to two projects within the Merrimack River watershed. The first project is to clean, clear and prepare a portion of the “Rails to Trails” bike path on the eastside of Manchester from the Shaw's supermarket to the new Fisher Cat baseball stadium south to the “OSRAM SYLVANIA” industrial building. The second project will be a pond clean up event around Nutts Pond.

The Urban Ponds program continues to interact with citizens throughout Manchester. There are two other active pond organizations beside the newly formed PIPES group. One is the Dorrs Pond Preservation Society and the other is the Crystal Lake organization. Even though the City's Urban Ponds coordinator has been moved from the Supplemental Environmental Projects Program to the Planning Department, he presently continues to function as the Urban Ponds coordinator. The Storm Water Coordinator will assist the Urban Pond coordinator as duties gradually shift from the ponds to the planning department.

**BMP Effectiveness Evaluation:** The formation of another pond organization has been the highlight of the local watershed outreach program. As the ponds are the most sensitive water bodies within Manchester, it is a priority to give them a greater portion of the environmental attention. This BMP continues to grow and illustrate effectiveness.

**Future Goals:** The City will continue to work with the State of New Hampshire and interested watershed groups in supporting the removal of the Maxwell Pond dam. This would re-establish the natural stream that once existed in this area and correct issues of siltation and invasive species. If that can be done during the upcoming reporting year it

would be a major accomplishment. The City hopes to organize some type of resident group for Stevens Pond over the coming year.

#### 4 Make Brochures Available at the DPW and Public Libraries

**Current Status:** The City is continuing to rely on the brochures developed and discussed in last year's annual report. These brochures will again be made available at this year's Earth Day event along with other public outlets within the City.

The City also uses the RiverSmart's brochure titled, "10 Tips for Conserving Water" which is available at the EPD billing office.

The City will also be distributing bookmarks and rulers that have 10 "Earth Care Tips" for the Earth Day activities. These were purchased from a national distributor.

The City will continue to give students City made brochures explaining the "Wastewater Treatment Process" when visiting classes to provide student instruction.

**BMP Effectiveness Evaluation:** It is difficult to gage the effectiveness of this BMP. We have not received any feedback from the general public. We do know this information is being distributed. The "Merrimack River Matters" Program survey indicates that the students are gaining some knowledge from the wastewater brochures.

**Future Goals:** Design a two-sided envelope stuffer that contains stormwater information and mail this out with the 22,500 EPD billing statements once over the coming year. Advertise the website, storm water hotline and places where information can be obtained.

#### 5 Develop, Install & Maintain Signage at Urban Ponds

**Current Status:** The signage information that was presented in last year's annual report is current. The signs are still in place and maintained by the Parks & Recreation Department when either vandalized or sprayed with graffiti.

**BMP Effectiveness Evaluation:** It is difficult to gage the effectiveness of this BMP. The signs are only effective if read. The kiosks are at the popular entrance areas of each pond therefor they are easily accessible. The individuals who frequent the area most will probably maintain more of the sign's information through subconscious familiarity.

**Future Goals:** The current goal is to maintain these signs in serviceable and readable conditions.

#### 6 Distribute Pet Waste Brochures with Dog Licenses & Increase Signage at Parks - (Over 10,500 brochures were mailed to licensed dog owners)

**Current Status:** There are signs for "No Fouling By Pet Waste" erected at the entrances of the urban ponds and also at the City Parks. These signs reference the City ordinance that enforces this law.

A finalized version of last year's submitted draft "Pet Waste Brochure" was mailed out to 10,500 dog owners. The City Clerk's office included this brochure with the notice for dog license renewal sent to those residents who had registered their dog(s) the previous year. This brochure is available at the City Hall kiosk and will be distributed at the Earth Day event. A copy of the mailed brochure is included at the end of this section.

**BMP Effectiveness Evaluation:** It is difficult to gage the effectiveness of this BMP. The signs are only effective if read. The kiosks are at the popular entrance areas of each pond, therefor they are easily accessible. The individuals who frequent the area most will probably maintain more of the sign's information through subconscious familiarity. In checking these areas for erosion and illicit connections, there appears to be little pet waste left behind by those who walk their dogs.

**Future Goals:** To keep residents informed in regards to their obligations handling their pet waste.



Tuesday, April 12, 2006

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## Environmental Protection Division Online Poll

EPD is conducting this online poll to gage the awareness and understanding of environmental impacts in a watershed.

### 1) What is a watershed?

- A pumping station that pumps water from the Merrimack River to the City
- A large lagoon where waterfowl (ducks, geese, herons, etc.) can build nes
- A large land area where all the brooks, streams and rivers flow to a comrr
- A building where additional drinking water is stored in event of emergency

### 2) From the four items below, what is most responsible for polluting the River?

- Wastewater Treatment Plants
- Combined Sewer Overflows (When rain water mixes with sewage and flows into Merrimack River)
- Industrial Facilities
- Storm flows from parking lots, driveways, roofs, farms, forests and other

### 3) Of the four items below, which one contributes the most bacteria and can cause infectious disease?

- Compost (stabilized - also called Class A biosolids)
- Pet waste
- Rotting garbage
- Old household fryolator grease

### 4) Of the four items below, which one can not be discharged into a stream?

- Cellar sump water
- Roof drain water
- Foundation drain (French drain) water
- Washing machine rinse water

### 5) Below are all good reasons to keep sand and silt out of rivers and ponds. What is the most important reason in your view?

- Sand and silt cover fish breeding grounds and limit egg hatch
- Sand and silt disrupt the food chain by covering and eliminating a lower food source (plankton)
- Sand and silt disrupt wildlife habitats by eventually altering the course of rivers and streams
- Sand and silt reduce recreational opportunities by reducing water depth (reducing swimming area size)
- Sand and silt reduce boating activities (fill in boat launch sites)
- Sand and silt reduce fishing (disrupts the life cycle of fish)

**6) Which City Pond is closest to the Manchester Airport?**

- Pine Island Pond
- Nutts Pond
- Dorrs Pond
- Maxwell Pond

**7) What is erosion?**

- The name of the day when there is a high intensity rainfall
- The loss of clean water in the Merrimack River due to wastewater discharge
- The loss of soil from the land
- When snow is dumped directly into the rivers and ponds

**8) What is a catch basin?**

- The sewer cover placed over manholes
- The square open checkerboard grate you see on the sides of the road over a storm drain
- An open pit that catches sticks and trash in a stream or pond
- A pit where mud is pumped during any construction activity

Your Comments :

[Submit Vote](#)

[View Results](#)

# ManchesterNH.gov



## According to our records you've already participated in this poll!

### 1) What is a watershed?

- A pumping station that pumps water from the Merrimack River to the City's Urban Ponds 1  (12.50%)
- A large lagoon where waterfowl (ducks, geese, herons, etc.) can build nests 0  (0.00%)
- A large land area where all the brooks, streams and rivers flow to a common point 7  (87.50%)
- A building where additional drinking water is stored in event of emergency 0  (0.00%)

### 2) From the four items below, what is most responsible for polluting the Merrimack River?

- Wastewater Treatment Plants 0  (0.00%)
- Combined Sewer Overflows (When rain water mixes with sewage and flows to the Merrimack River) 1  (12.50%)
- Industrial Facilities 2  (25.00%)
- Storm flows from parking lots, driveways, roofs, farms, forests and other impervious areas 5  (62.50%)

### 3) Of the four items below, which one contributes the most bacteria per gram that can cause infectious disease?

- Compost (stabilized - also called Class A biosolids) 0  (0.00%)
- Pet waste 7  (87.50%)
- Rotting garbage 1  (12.50%)
- Old household fryolator grease 0  (0.00%)

### 4) Of the four items below, which one can not be discharged into a storm drain?

- Cellar sump water 0  (0.00%)
- Roof drain water 0  (0.00%)
- Foundation drain (French drain) water 0  (0.00%)
- Washing machine rinse water 8  (100.00%)

### 5) Below are all good reasons to keep sand and silt out of rivers and ponds. What is the most important reason in your view?

- Sand and silt cover fish breeding grounds and limit egg hatch 3  (37.50%)
- Sand and silt disrupt the food chain by covering and eliminating a lower food source (plankton) 4  (50.00%)
- Sand and silt disrupt wildlife habitats by eventually altering the course of flows in rivers and streams 1  (12.50%)
- Sand and silt reduce recreational opportunities by reducing water depth (reducing swimming area size) 0  (0.00%)
- Sand and silt reduce boating activities (fill in boat launch sites) 0  (0.00%)
- Sand and silt reduce fishing (disrupts the life cycle of fish) 0  (0.00%)

### 6) Which City Pond is closest to the Manchester Airport?

- Pine Island Pond 7  (87.50%)
- Nutts Pond 1  (12.50%)
- Dorrs Pond 0  (0.00%)
- Maxwell Pond 0  (0.00%)

**7) What is erosion?**

- The name of the day when there is a high intensity rainfall 0 ■ (0.00%)
- The loss of clean water in the Merrimack River due to wastewater discharge 0 ■ (0.00%)
- The loss of soil from the land 8 ■ (100.00%)
- When snow is dumped directly into the rivers and ponds 0 □ (0.00%)

**8) What is a catch basin?**

- The sewer cover placed over manholes 0 ■ (0.00%)
- The square open checkerboard grate you see on the sides of the road over manholes 7 ■ (87.50%)
- An open pit that catches sticks and trash in a stream or pond 1 ■ (12.50%)
- A pit where mud is pumped during any construction activity 0 □ (0.00%)

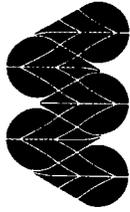
**Total Replies : 8**

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## *Are You Risking Your Health?*

Pet waste in the yard can spread disease. Your pet, children, and any adult who gardens is at risk. Infections can be spread by bacteria and parasites found in pet waste. Flies can also spread this disease. Infection can also be tracked into homes when we inadvertently step in pet waste. Pet waste must be handled carefully due to diseases and parasites. Parasites live for a long time and are difficult to kill resulting in severe harm to human health. The following is a list of diseases that have been transmitted to humans from pet waste.

- ◆ **Campylobacteriosis** - a bacterial infection that can cause diarrhea in humans
- ◆ **Salmonellosis** - this is the most common bacterial infection transmitted to humans by animals. The symptoms range from fever, muscle aches, and headache to vomiting and diarrhea.
- ◆ **Toxocariasis** - these are round worms transmitted from dogs to humans. There are usually no noticeable symptoms, but there can be a temporary loss of vision, rash, fever, and cough.
- ◆ **Toxoplasmosis** - this is a protozoan parasite that is carried by cats. This can cause mental retardation in an unborn infant if a pregnant woman comes in contact with this parasite. It is a large problem for people with depressed immune systems. Symptoms include headache, muscle aches, and lymph node enlargement.



## **A Public Service Brochure Developed for the Storm Water Management Program**

City of Manchester

**PET WASTE  
AND WATER  
QUALITY**

*Are you polluting our Merrimack  
River Watershed?*

City of Manchester

A Public Informational Brochure Developed by the  
"Storm Water Management Program" in conjunction  
with the Department of Parks & Recreation, Health  
Department and the Manchester Police Department—  
Animal Control Division.

Environmental Protection Division  
300 Winston Street  
Manchester, NH 03103

Phone: 603-668-8711 x-441 (Animal Control Office)  
Web site address: <http://www.manchesternh.gov>



Environmental Protection Division  
Tel: 624-6513  
Fax: 628-6234

## BMP #2 Public Participation

### Comply with State Public Notification Laws - (status the same as in last year's report)

**Current Status:** The City of Manchester continues to comply with all Public Notification Laws through the development of the Storm Water Management Program process. Any meeting scheduled in the early stages of informational exchange in regards to program or ordinance development with either the Planning Board or Department of Public Works, Highway Commission are announced on the weekly agenda, posted at City Hall or DPW, and also posted on the City's website.

The City of Manchester has a guide that all departments, boards, committees and the Mayor and Aldermen must abide by. It references the rules on Meetings, the Formation of Committees, Rules for Ordinances, Resolutions and Orders, Access to Public Records and Meetings, and Minutes and Records Available for Public Inspection. These Rules comply with the State of New Hampshire Public Notification Laws as outlined in RSA 47:6, and RSA 91-A:1 through RSA 91-A:6. This guidebook is available in all departments for reference should questions arise in regards to the implementation of Public Notice Law regulations.

**Future Goals:** A Storm Water Ordinance and supporting Rules & Regulations have been finalized via the internal City processes. During the summer of 2005, Manchester wants to reach the affected parties (developers, contractors, designers, and engineers) for public comment. The formal groundwork is completed. Now the process of Aldermanic review and public hearings begin.

### Hold Annual Household Hazardous Waste Day

**Current Status:** The City of Manchester held two Hazardous Waste Days within Manchester during 2004. These dates have always fallen on the second Saturday of May and the second Saturday of October. The first collection was held on May 8, 2004 and the second was held on October 9, 2004. The date of collection is mentioned on the City's website, announced on flyers at Public Works and various other kiosks throughout the City and also announced in the newspaper the week of the collection. The following material amounts were collected over the 2004 reporting year.

**Spring Haz-waste clean up** – Hazardous materials consisting of the following components: Waste Oxidizing Liquid, Waste Caustic Alkali Liquids, Waste Corrosive Liquids, Pesticides Liquid, Pesticides Solid, Mercury Waste, Non-RCRA, Non-regulated Hazardous Waste, Solid, Non-RCRA, Non-regulated Hazardous Waste, Liquid.

**Total Collected - 15,800 Pounds  
Waste Oil Collected – 495 Gallons**

**Fall Haz-waste clean up** – Hazardous materials consisting of the following components: Waste Oxidizing Liquid, Waste Caustic Alkali Liquids, Waste Corrosive Liquids, Pesticides Liquid, Pesticides Solid, Mercury Waste, Non-RCRA, Non-regulated

Hazardous Waste, Solid, Non-RCRA, Non-regulated Hazardous Waste, Liquid.

**Total Collected - 27,200 Pounds**  
**Waste Oil Collected - 385 Gallons**

During the course of the 2004 reporting year, Manchester also collected 33.58 tons of universal waste (consisting mainly of TVs, CRTs and computer peripherals).

**BMP Effectiveness Evaluation:** This has been one of the more successful programs conducted semi-annually throughout Manchester. There are still remote areas within Manchester that serve as drop-off sites for citizens that refuse to make the effort to travel to the recycling center. The true success is evident when any citizen brings their waste to the drop off center and witnesses the vast piles of refuse the City has collected.

**Future Goals:** Manchester expects to hold two haz-waste collection days during the 2005 calendar year. One would be May 14<sup>th</sup> and the other October 8<sup>th</sup>.

3 **Continue Regular Used Oil, Battery and Tire Collection**

**Current Status:** The City collected 73.6 tons of tires, 1,740 gallons of used oil and 4.95 tons of used automotive batteries during the 2004 calendar year that was in addition to the materials collected on the haz-waste collection days.

**Future Goals:** Continue the same level of accessibility and collection hours as is currently established.

4 **Continue Urban Forestation through "Green Streets" Program**

**Current Status:** The City of Manchester, through the Parks and Recreation "Green Streets Program," sold and installed 130 trees during the calendar year of 2004. There were 38 fewer trees planted this year than in the previous year.

**Future Goals:** To continue the program as currently established. Develop methods to make the public more aware of the availability of this service through the City of Manchester.

5 **Publicize & Maintain Stormwater & Combined Sewer Hotline**

**Current Status:** The City established the Storm Water / CSO Hotline on August 26, 2003. The phone number is (603) 665-6899. The City sent envelope stuffers with the 22,500 bills informing the citizens of the storm water hotline and how it can be used to address environmental concerns. This was done over the period of mid-August through late October (over the course of the 11-week billing cycle).

**BMP Effectiveness Evaluation:** This BMP was quite effective within the initial 30 days of notification. After that period, the calls drop off dramatically until there are probably only one or two calls every month. There has also been some misconception of the

purpose of the hotline as during heavy rains many residents would call for basement flooding issues. This is outside the intended use for the storm water hotline.

**Future Goals:** Manchester intends to make the stormwater hotline visible on the storm water web page. We will also include this number on mailings and brochures as they are developed and sent to the citizens of Manchester.

## **BMP #3 Illicit Discharge Detection and Elimination**

### **Develop & Present Draft Storm Sewer Ordinance**

**Current Status:** The City staff had several internal reviews on the Storm Water Ordinance. After much discussion, it was decided to have a small ordinance that referenced an extensive set of Rules & Regulations. This consensus was reached as it takes the entire Board of Mayor and Aldermen to make changes to any Ordinance. The Ordinance root would prove to be a cumbersome undertaking for any minor changes.

With Rules & Regulations, the Director of Public Works has the authority to make changes to this document. As the program becomes more established, we envision several changes and additions to be made to the Rules & Regulations. This is part of the growth process until a broad set of Rules and Regulations is established to cover most instances of storm water non-compliance.

The final draft of the Ordinance and Rules & Regulations is attached at the end of this section for review.

**BMP Effectiveness Evaluation:** Progress is being made in finalizing this important task. The BMP cannot be measured as the Ordinance has not been finalized.

**Future Goals:** The current goal is to bring this Ordinance and accompanying Rules & Regulations to the Highway Commission and the City's Ordinance Committee for final review. It is expected that this can be completed by early June 2005. From this point these two documents will go to public hearing and then be brought before the Mayor of Board and Aldermen for the two readings and enrollment. We are hoping to have this process complete and the two documents adopted by August 1, 2005.

### **Continue Dry Weather Screening of Outfalls**

**Current Status:** Outfalls have been randomly inspected as staff comes upon them when doing other work in those areas. This part of the program is not getting the attention we had hoped at this point in the five-year program. We have concentrated more time on Ordinance development, Rules & Regulations and construction site inspection.

Staff continues to concentrate efforts on the urban ponds, as these are the more sensitive areas to pollution impacts and the places where the City has already expended a large amount of resources.

We are currently training on a GPS system to mark the exact locations of the outfalls and code them into the unit. This will facilitate finding them easier in subsequent years. Descriptions of the location along with a digital photograph will be taken to document condition.

**BMP Effectiveness Evaluation:** The task item for outfalls outside the urban pond areas has lagged behind. There will be greater chance of success for these outfalls outside the

urban pond districts when we combine the use of GPS and digital pictures during future documentation of each outfall.

The success of the urban pond detection of pollutants of concern can be reviewed in the City's annual Urban Pond report or by visiting the urban pond website at:  
<http://www.manchesternh.gov/CityGov/DPW/EPD/SEPP/Pond/Home.html>

**Future Goals:** The approach for the pond outfalls has been highly successful and the City will continue to monitor these.

It is anticipated that a many of the outfalls along the Piscataquog and Merrimack rivers will be inspected and documented over the summer and fall period of 2005.

### 3 Develop and Implement System for Detection & Elimination of Illicit Discharges

**Current Status:** This program was developed and submitted last year. It has proved to be a good baseline especially for detecting illicit discharges. Currently there are no plans to change that protocol.

**BMP Effectiveness Evaluation:** Two examples are presented here to illustrate the effectiveness of this protocol.

Intermittent sewage discharge was detected alongside a manhole of Pond Drive. Initial inspection indicated that six private homes had individual force mains that discharged directly into the manhole. One of the force mains was broken just outside the manhole. Through dye testing, records review, and matching up sewer tie data, City staff was able to isolate the home that had the broken force main. The home abandoned the original force main and ran a gravity line to the sewer stub that was provided when the street was reconstructed.

On North River Road a crack in the asphalt, just off the sidewalk and slightly in the road had a small amount of sewage exiting. It was strongly believed that a resident's private sewer line was the problem. The main line was jetted and televised with no obvious problems on the City's side of the structures. The homes upstream and downstream were dye tested to see if any of them were the cause of the problem. None of the testing pinpointed any particular resident. This is one of the oldest sections of the City and there is not much information in the sewer card files in regards to the location of the individual tie-ins from these residents.



In discussing this issue with staff, it was reported by a senior employee that he remembered many years back that a particular house on Elm Street was having issues with their sewer discharge. He thought that the house, which was located in line with the leak on River Road, had a right of way to the North River Road sewer and the connection was in the vicinity of the leak.

This house was dye tested on two separate occasions and on the second attempt, dye showed up in the street. This led to the City informing the owner that it was his private line and corrective actions are being scheduled to abate this illicit discharge.

**Future Goals:** The ongoing goal is to continue aggressively responding to illicit discharges as they are found within the City. Also, the City wants to continue to monitor the outfalls that Malcolm-Pirnie targeted in their study as being suspect for any illicit discharge connection.

#### Map Outfalls and Receiving Waters

**Current Status:** The City had CDM map the outfalls from the Malcolm-Pirnie findings in early 2001. CDM has developed an extensive GIS mapping system for the City to include both sewage and drainage systems. This mapping has been extended to include tax maps, and City assessing information along with water department infrastructure.

Once annually, the City commissions CDM to input all the new growth and City sewer extension updates into the GIS and make it a dynamic mapping system rather than a dated static system. This task is probably the most mature and accomplished BMP of the total Storm Water Management Program.

**BMP Effectiveness Evaluation:** This tool has proved invaluable to our Storm Water Management Program. It is being used to track cleaning of lines, location of baffle tanks, sectioning off catch basin cleaning areas and for review to determine potential locations for illicit discharges.

**Future Goals:** The City wants to integrate the field GPS unit to gather field data that was missed or not included in the current GIS program. All structures (baffle tanks, swirl concentrators and storm treat systems) will be located on the mapping. The most important part will be to develop a solid organizational chart where the information is gathered by a particular set of staff, verified by other staff, and inserted into the GIS by the engineering department. The City is hoping to have this protocol completed by the next annual reporting period.

# Storm Water Ordinance

Storm Water Ordinance

## Section 1. General provisions.

- (1). Purpose. It is the purpose of these Rules & Regulations is to:
  - (a) Protect, maintain, and enhance the environment of the City of Manchester, New Hampshire and the public health, safety and the general welfare of the citizens of the city, by controlling discharges of pollutants to the city's storm water system and to maintain and improve the quality of the receiving waters into which the storm water outfalls flow, including, without limitation, lakes, rivers, streams, ponds, wetlands, and groundwater of the city.
  - (b) Enable the City of Manchester to comply with the National Pollution Discharge Elimination System permit (NPDES) and applicable regulations, 40 CFR §122.26 for storm water discharges.
  - (c) Allow the City of Manchester to exercise the powers granted by the State of New Hampshire through ordinance or resolution to:
    - (1) Exercise general regulation over the planning, location, construction, and operation and maintenance of storm water facilities in the City, whether or not owned and operated by the City;
    - (2) Adopt any rules and regulations deemed necessary to accomplish the purposes of this statute, including the adoption of a system of fees for services and permits;
    - (3) Establish standards to regulate the quantity of storm water discharged and to regulate storm water contaminants as may be necessary to protect water quality;
    - (4) Review and approve plans for storm water management in proposed subdivisions or commercial developments;
    - (5) Issue permits for storm water discharges, or for the construction, alteration, extension, or repair of storm water facilities;
    - (6) Suspend or revoke permits when it is determined that the permittee has violated any applicable ordinance, resolution, or condition of the permit;
    - (7) Regulate and prohibit discharges into storm water facilities of sanitary, industrial, or commercial sewage or waters that have otherwise been contaminated; and
    - (8) Expend funds to remediate or mitigate the detrimental effects of contaminated land or other sources of storm water contamination, whether public or private.
- (2). Administration. The director of the Department of Public Works or his designee shall administer the provisions of this ordinance and shall adopt and amend from time to time Rules & Regulations as required herein.

## Section 2. Prohibited Discharges

Prohibited Discharges The specific prohibited discharges outlined in the Storm Water Rules & Regulations are not inclusive of all discharges prohibited by this ordinance and the Storm Water Rules & Regulations.

## Section 3. Permit Procedures and Requirements

- (1) Permit Required.

Rules & Regulations, unless a written request is filed to waive this requirement. Requests to waive the storm water management program requirements shall be submitted to the Director of Public Works for approval.

**Section 6. Stormwater System Design and Management Standards.**

- (1) Storm Water design or BMP manual.
  - (a) Adoption. The City adopts as its storm water design and best management practices (BMP) manual those publications referenced in the Storm Water Rules & Regulations.

**Section 7. Industrial Activity Discharges**

- (1) All operators of City landfills; hazardous waste treatment, disposal, and recovery facilities and industrial facilities are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) 42, USC § 11023; and industrial facilities that the City determines are contributing a pollutant load to the MS4, which are sources of stormwater discharges associated with industrial activity shall comply with the requirements outlined in the City's Storm Water Rules & Regulations.

**Section 8. Access and Inspection of Properties and Facilities**

- (1) The representative of the Department of Public Works shall be permitted to enter and inspect properties and facilities at reasonable times as often as may be necessary to determine compliance with this ordinance.
- (2) If a property or facility has security measures in force, which require proper identification and clearance before entry into its premises, the owner or operator shall make the necessary arrangements to allow access to representatives of the Department of Public Works.
- (3) The owner or operator shall allow the representative of the Department of Public Works ready access to all parts of the premises for the purposes of inspection, sampling, photography, videotaping, examination and copying of any records that are required under the conditions of an NPDES permit to discharge storm water.
- (4) The Department of Public Works shall have the right to set up on any property or facility such devices as are necessary in the opinion of the Department of Public Works to conduct monitoring and/or sampling of flow discharges.
- (5) The Department of Public Works may require the owner or operator to install monitoring equipment and perform monitoring as necessary, and make the monitoring data available to the Department of Public Works. This sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the owner or operator at his/her own expense. All devices used to measure flow and quality shall be calibrated to ensure their accuracy.
- (6) Any temporary or permanent obstruction to safe and easy access to the property or facility to be inspected and/or sampled shall be promptly removed by the owner or operator at the written or oral request of the Department of Public Works and shall not be replaced. The costs of clearing such access shall be borne by the owner or operator.
- (7) Unreasonable delays in allowing the Department of Public Works access to a facility shall be a violation of this ordinance.
- (8) If the Department of Public Works has been refused access to any part of the premises from which storm water is discharged, and the Department of Public Works is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, environment and welfare of the

- (6) The implementation of pollution prevention practices.
- (3) Appeal of Notice of Violation Any person receiving a Notice of Violation may appeal the determination of the Department of Public Works. The notice of appeal must be received within five (5) days from the date of the Notice of Violation. Filing of an Appeal does not relieve the owner from full compliance with the remedial actions outlined in the Notice of Violation. Hearing on the appeal before the Department of Public Works, Storm Water Appeals Committee shall take place within 30 days from the date of receipt of the notice of appeal. The decision of the Storm Water Appeals Committee shall be final.
- (4) Enforcement Measures After Appeal If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, then representatives of the Department of Public Works may enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.
- (5) Costs of Abatement of the Violation Within ten (10) days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the assessment or to the amount of the assessment within fifteen (15) days of such notice. If the amount due is not paid within thirty (30) days after receipt of the notice, or if an appeal is taken, within five (5) days after a decision on said appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the City of Manchester by reason of such violation.
- (6) Civil Penalties In the event the alleged violator fails to take the remedial measures set forth in the notice of violation or otherwise fails to cure the violations described therein within two (2) days, or such greater period as the Department of Public Works shall deem appropriate, after the Director of Public Works or designee has taken one or more of the actions described above, the Public Works Director may impose a penalty not to exceed \$10,000 (depending on the severity of the violation) for each day the violation remains unremedied after receipt of the notice of violation.
- (7) Criminal Penalties For violations of the Storm Water Ordinance or the Rules & Regulations, the Director of Public Works may issue a citation to the alleged violator requiring such person to appear in court to answer charges for such violation. Upon conviction, such person shall be punished by a fine not to exceed \$1,000 for each day the violation has occurred, or imprisonment for up to 60 days or both. Each act of violation and each day upon which any violation shall occur shall constitute a separate offense.
- (8) Violations Deemed a Public Nuisance In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this ordinance, the approved storm water pollution prevention plan, is a threat to public health, safety, welfare, and environment and is declared and deemed a nuisance, and may be abated by injunctive or other equitable relief as provided by law.

## **“Storm Water Rules & Regulations”**

**Note:** These “Rules & Regulations” are prepared as a direct supplement to the City of Manchester’s Storm Water Ordinance, Title V, Section 53. These “Rules & Regulations” will incorporate language directly from that Ordinance along with additional conditions and requirements as provided by that Ordinance.

### **Section 1. General provisions.**

- (1). Purpose. It is the purpose of these Rules & Regulations is to:
- (a) Protect, maintain, and enhance the environment of the City of Manchester, New Hampshire and the public health, safety and the general welfare of the citizens of the city, by controlling discharges of pollutants to the city’s storm water system and to maintain and improve the quality of the receiving waters into which the storm water outfalls flow, including, without limitation, lakes, rivers, streams, ponds, wetlands, and groundwater of the city.
  - (b) Enable the City of Manchester to comply with the National Pollution Discharge Elimination System permit (NPDES) and applicable regulations, 40 CFR §122.26 for storm water discharges.
  - (c) Allow the City of Manchester to exercise the powers granted by the State of New Hampshire through ordinance or resolution to:
    - (1) Exercise general regulation over the planning, location, construction, and operation and maintenance of storm water facilities in the City, whether or not owned and operated by the City;
    - (2) Adopt any rules and regulations deemed necessary to accomplish the purposes of this statute, including the adoption of a system of fees for services and permits;
    - (3) Establish standards to regulate the quantity of storm water discharged and to regulate storm water contaminants as may be necessary to protect water quality;
    - (4) Review and approve plans for storm water management in proposed subdivisions or commercial developments;
    - (5) Issue permits for storm water discharges, or for the construction, alteration, extension, or repair of storm water facilities;
    - (6) Suspend or revoke permits when it is determined that the permittee has violated any applicable ordinance, resolution, or condition of the permit;
    - (7) Regulate and prohibit discharges into storm water facilities of sanitary, industrial, or commercial sewage or waters that have otherwise been contaminated; and
    - (8) Expend funds to remediate or mitigate the detrimental effects of contaminated land or other sources of storm water contamination, whether public or private.

- (10) *"Director of Public Works"* is the chief administrator of DPW and is authorized to assign DPW staff to oversee the implementation of these Rules & Regulations and the City of Manchester's Storm Water Ordinance.
- (11) *"Design Storm Event"* means a hypothetical storm event, of a given frequency interval and duration, used in the analysis and design of a storm water facility.
- (12) *"Discharge"* means dispose, deposit, spill, pour, inject, seep, dump, leak or place by any means, or that which is disposed, deposited, spilled, poured, injected, seeped, dumped, leaked, or placed by any means including any direct or indirect entry of any solid or liquid matter into the municipal separate storm sewer system.
- (13) *"Easement"* means an acquired privilege or right of use or enjoyment that a person, party, firm, corporation, City or other legal entity has in the land of another.
- (14) *"Erosion"* means the removal of soil particles by the action of water, wind, ice or other geological agents, whether naturally occurring or acting in conjunction with or promoted by anthropogenic activities or effects.
- (15) *"Erosion and Sediment Control Plan"* means a written plan (including drawings or other graphic representations) that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.
- (16) *"Hotspot" ("Priority Area")* means an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in storm water.
- (17) *"Illicit Connections"* means illegal and/or unauthorized connections to the municipal separate storm water system whether or not such connections result in discharges into that system. *"Illegal Connection"* means either of the following:
- a) Any pipe, open channel, drain or conveyance, whether on the surface or subsurface, which allows an illicit discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system, regardless of whether such pipe, open channel, drain or conveyance has been previously allowed, permitted, or approved by an authorized enforcement agency; or
  - b) Any pipe, open channel, drain or conveyance connected to the municipal separate storm sewer system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.
- (18) *"Illicit Discharge"* means any discharge to the municipal separate storm sewer system that is not composed entirely of storm water and not specifically exempted under Section 3, (10).
- (19) *"Industrial Activity"* means activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).
- (20) *"Land Disturbing Activity"* means any activity on property that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land-disturbing activities include, but are not limited to, development, re-development, demolition, construction, reconstruction, clearing, grading, filling, and excavation.

or environment, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.

- (32) *"Premises"* means any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips
- (33) *"Priority Area"* means "hot spot" as defined in Definitions (16).
- (34) *"Runoff"* means that portion of the precipitation on a drainage area that is discharged from the area into the municipal separate storm water system.
- (35) *"Sediment"* means solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.
- (36) *"Sedimentation"* means soil particles suspended in storm water that can settle in streambeds and disrupt the natural flow of the stream.
- (37) *"Soils Report"* means a study of soils on a subject property with the primary purpose of characterizing and describing the soils. The soils report shall be prepared by a qualified soils engineer, who shall be directly involved in the soil characterization either by performing the investigation or by directly supervising employees.
- (38) *"Stabilization"* means providing adequate measures, vegetative and/or structural, that will prevent erosion from occurring.
- (39) *"State Waters"* means any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface and subsurface water, natural or artificial, lying within or forming a part of the boundaries of the State of New Hampshire which are not entirely confined and retained completely upon the property of a single person.
- (40) *"Storm Water"* means storm water runoff, snow melt runoff, surface runoff, street wash waters related to street cleaning or maintenance, infiltration and drainage.
- (41) *"Storm Water Management"* means the programs to maintain quality and quantity of storm water runoff to pre-development levels.
- (42) *"Storm Water Management Facilities"* means the drainage structures, conduits, ditches, combined sewers, sewers, and all device appurtenances by means of which storm water is collected, transported, pumped, treated or disposed of.
- (43) *"Storm Water Management Plan"* means the set of drawings and other documents that comprise all the information and specifications for the programs, drainage systems, structures, BMPs, concepts and techniques intended to maintain or restore quality and quantity of storm water runoff to pre-development levels.
- (44) *"Storm Water Pollution Prevention Plan"* (SWPPP) means a plan that clearly describes appropriate control measures that include a description of all pollution control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges and describes the interim and permanent stabilization practices for the site.

commercial or public service vehicle, including truck, bus, or heavy equipment, by a business or public entity that operates more than two such vehicles;

8. Any wastewater from the washing, cleaning, de-icing, or other maintenance of aircraft;
9. Any wastewater from commercial mobile power washer or from the washing or other cleaning of a building exterior that contains any soap, detergent, degreaser, solvent, or any other harmful cleaning substance;
10. Any wastewater from any floor, rug or carpet cleaning;
11. Any wastewater from the wash down or other cleaning of pavement that contains any harmful quantity of soap, detergent, solvent, degreaser, emulsifier, dispersant, or any other harmful cleaning substance, or any wastewater from the wash down or other cleaning of any pavement where any spill, leak, or other release of oil, motor fuel, or other petroleum or hazardous substance has occurred, unless all harmful quantities of such released material have been previously removed;
12. Any effluent from a cooling tower, condenser, compressor, emissions scrubber, emissions filter, or the blowdown from a boiler;
13. Any ready-mixed concrete, mortar, ceramic, or asphalt base material or hydro mulch material, or from the cleaning of commercial vehicles or equipment containing, or used in transporting or applying, such material;
14. Any runoff or wash down water from any animal pen, kennel, or fowl or livestock containment area;
15. Any filter backwash from a swimming pool, fountain or spa;
16. Any swimming pool water containing any harmful quantity of chlorine, muriatic acid or other chemical used in the treatment or disinfection of the swimming pool water or in the pool cleaning;
17. Any water from a water curtain in a spray room used for painting vehicles or equipment;
18. Any contaminated runoff from a vehicle wrecking yard;
19. Any substance or material that will damage, block, or clog the MS4;
20. Any release from a petroleum storage tank, or any leachate or runoff from soil contaminated by a leaking petroleum storage tank, or any discharge of pumped, confined, or treated waste water from the remediation of any such petroleum storage tank release, unless it complies with state and federal standards and does not contain any harmful quantity of any pollutant;
21. Any pet waste as outlined in the Manchester Ordinance §90.04

- (3) Introduction of Earth-type Materials No person shall introduce or cause to be introduced into the MS4 any harmful quantity of sediment, silt, earth, soil, or other material associated with cleaning, grading, excavation or other construction activities, (or associated with landfilling or other placement or disposal of soil, rock, or other earth

(10) Allowable Discharges - Notwithstanding any provisions to the contrary, the following types of discharges into the storm drain system are exempt from the prohibitions set herein:

1. Watering of lawns, landscaping and gardens;
2. Washing of personal motor vehicles by residents;
3. Draining of water from swimming pools or spas, after chlorine content of such water according to a test kit, shows a zero reading of chlorine;
4. Flushing of water lines or other discharges from potable water sources;
5. Flows from fire fighting activities;
6. Managed minimal amounts of air conditioning condensation;
7. Uncontaminated pumped groundwater;
8. Discharges from rising ground waters, springs, and flows from riparian habitats and wetlands.

### **Section 3. Permit Procedures and Requirements**

(1) Permit Required.

No land owner or land operator shall begin any site work on any building(s), grading or other land development or any land disturbance activities without first submitting a Notice of Intent (NOI) to EPA Region I. Owner must also have received an acknowledgement, have an approved Storm Water Pollution Prevention Plan (SWPPP) and meet the requirements of this ordinance.

(2) Application Requirements Unless specifically excluded by this ordinance, any landowner or operator desiring a permit for a land disturbance activity (as described in Section 4, (1)) shall secure required approvals through the City of Manchester's Planning Board and shall submit to the Department of Public Works a copy of the NOI and approved SWPPP for related project before beginning any site clearing or construction.

Unless otherwise excepted by these Rules & Regulations, a permit application must be accompanied by the following in order that the permit application be considered: a storm water management concept plan; a maintenance agreement; and a non-refundable permit review fee.

The Storm Water Management Plan shall be prepared to meet the requirements of Section 4, (2)(b) of these Rules & Regulations. The maintenance agreement may be prepared to meet the requirements of these "Rules & Regulations" and fees may be those established by the Department of Public Works.

(3) The Department of Public Works May Establish Application Review Fees The fee for review of any land development application shall be based on the amount of land to be

- (d) The creation and use of borrow pits (the excavation of soils from one area to be used in another area that meets any of the criteria of a., b., and c. above).
- (2). Application for a Land Disturbance Permit.
- (a) Each application shall include the following:
- (1) Name of applicant;
  - (2) Business or residence address of applicant;
  - (3) Name, address and telephone number of the owner of the property of record in the office of the assessor of property;
  - (4) Address and legal description of subject property including the tax reference number and parcel number of the subject property;
  - (5) Name, address and telephone number of the contractor and any subcontractor(s) who shall perform the land disturbing activity and who shall implement the erosion and sediment control plan and SWPPP;
  - (6) A statement indicating the nature, extent and purpose of the land disturbing activity including the size of the area for which the permit shall be applicable and a schedule for the starting and completion dates of the land disturbing activity.
  - (7) The applicant shall obtain from any other state or federal agency any other appropriate environmental permits that pertain to the property. However, the inclusion of those permits in the application shall not foreclose the City of Manchester from imposing additional development requirements and conditions, commensurate with this ordinance, on the development of property covered by those permits.
- (b) Each application shall be accompanied by:
- (1) A sediment and erosion control plan.
  - (2) A Storm Water Pollution Prevention Plan providing for storm water management during the land disturbing activity and after the activity has been completed. The SWPPP shall be prepared, signed, and sealed by a Registered Professional Engineer (the signature and seal of the Registered Professional Engineer shall constitute his/her attestation that the SWPPP fully complies with the requirements of the Construction General Permit, or with any applicable individual or group NPDES permit issued for storm water discharges from the construction site, and with any additional requirement imposed by these "Rules & Regulations") and shall provide the following BMP measures:
    - a. Ensure existing vegetation is preserved where feasible;
    - b. Disturbed portions of the site are stabilized as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased;

This certification must include the name and title of the person providing the signature; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made. The SWPPP with Engineers seal and signature and the certifications of contractors and subcontractors shall be retained at the construction site from the date of commencement of construction through the date of final stabilization. A copy must also be made available to the City of Manchester's Department of Public Works.

Each application for a land disturbance permit shall be accompanied by payment of land disturbance permit and other storm water management fees, which shall be set in the Rules & Regulations.

(4). Review and Approval of Application.

(a) The Planning Board and Department of Public Works will review each application for a land disturbance permit to determine its conformance with the provisions of this ordinance. Within 30 days after receiving an application, the Planning Board shall provide one of the following responses in writing:

- (1) Approval of the permit application;
- (2) Approval of the permit application, subject to such reasonable conditions as may be necessary to secure substantially the objectives of this ordinance, and issue the permit subject to these conditions; or
- (3) Denial of the permit application, indicating the reason(s) for the denial.

(b) If the Planning Board has granted conditional approval of the permit, the applicant shall submit a revised plan that conforms to the conditions established by the Planning Board. However, the applicant shall be allowed to proceed with his land disturbing activity so long as it conforms to conditions established by the Planning Board.

(c) No development plans will be released until the land disturbance permit has been approved.

(5). Permit Duration.

Every land disturbance permit shall expire and become null and void if substantial work authorized by such permit has not commenced within one hundred eighty (180) calendar days of issuance, or is not complete within eighteen (18) months from the date of the commencement of construction (unless construction extension is granted by the Planning Board).

(6). Notice of Construction. The applicant must notify the Department of Public Works ten (10) working days in advance of the commencement of construction. The Owner/Operator/Contractor shall conduct regular inspections of the storm water management system construction. Inspections shall be performed on all areas that have not had final stabilization, areas used for storage of materials that are exposed to precipitation, structural control measures, locations where vehicles enter and exit the construction site, open manholes and piping that could collect sediment and other

Within 30 days of the submission of the NOT the operator's construction site must be cleaned and free of any residual stock piles of materials, hay bales, silt fences or any such BMPs that were used for site erosion and sediment controls. If these are not completed the City may draw funds from any retainage, performance, or security bonds to have a contractor complete the clean up and close out any remaining site stabilization.

(9). Performance Bonds.

- (a) The Department of Public Works may, at its discretion, require the submittal of a performance security or performance bond prior to issuance of a permit in order to ensure that the storm water practices are installed by the permit holder as required by the approved Storm Water Management Plan. The amount of the installation performance security or performance bond shall be the total estimated construction cost of the structural BMPs approved under the permit plus any reasonably foreseeable additional related costs, e.g., for damages or enforcement. [Or plus a certain percentage of the total estimated costs.] The performance security shall contain forfeiture provisions for failure to complete work specified in the Storm Water Management Plan. The applicant shall provide an itemized construction cost estimate complete with unit prices, which shall be subject to acceptance, amendment or rejection by the Department of Public Works. Alternatively the Department of Public Works shall have the right to calculate the cost of construction cost estimates.
- (b) The performance security or performance bond shall be released in full only upon submission of as-built plans and written certification by a registered professional engineer licensed to practice in the State of New Hampshire that the structural BMP has been installed in accordance with the approved plan and other applicable provisions of these Rules & Regulations. The Department of Public Works will make a final inspection of the structural BMP to ensure that it is in compliance with the approved plan and the provisions of these Rules & Regulations. Provisions for a partial pro-rata release of the performance security or performance bond based on the completion of various development stages can be made at the discretion of the Department of Public Works.

**Section 5. Waivers.**

- (1). General. Every applicant shall provide for storm water management as required by the ordinance and its Rules & Regulations unless a written request to waive the requirement has been filed with and approved by the Director of Public Works.
- (2). Conditions for Waiver. The minimum requirements for storm water management may be waived in whole or in part upon written request of the applicant, provided that at least one of the following conditions applies:
- (a) It can be demonstrated that the proposed development is not likely to impair attainment of the objectives of these Rules & Regulations.

sources of storm water discharges associated with industrial activity shall comply with the following requirements;

- (a) Any operator who intends to obtain coverage for storm water discharge associated with industrial activity under the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity ("the Industrial General Permit") shall submit a signed copy of its NOI to the Director of Public Works at least five (5) days prior to the commencement of the industrial activity at the facility. If industrial activity is already underway upon the effective date of the Storm Water Ordinance, the NOI shall be submitted within thirty (30) days.
- (b) A SWPPP shall be prepared and implemented in accordance with the requirements of the Industrial General Permit or any individual or group NPDES permit issued for storm water discharges from the industrial facility, and with any additional requirement imposed by or under these Rules & Regulations.
- (c) The SWPPP shall be prepared, signed and sealed by a Registered Professional Engineer as outlined in Section 4, (2)(b)(2 through 4).
- (d) Qualified personnel (provided by the operator) shall conduct comprehensive site compliance evaluations as required by Part IV.D.4 of the Industrial General Permit at intervals of no less than once per year. Based on the results of the compliance prevention measures and controls identified in the SWPPP shall be revised as appropriate within two weeks of such evaluation and shall provide for implementation of any changes to the SWPPP in a timely manner, but in no case more than twelve weeks after the compliance evaluation.
- (e) A report summarizing the scope of the comprehensive site compliance evaluation required by paragraph VI.A.14, personnel making the compliance inspection, the date(s) of the inspection, major observations relating to the implementation of the SWPPP, and actions taken in accordance with necessary and appropriate plan revisions shall be made and retained as part of the SWPPP for at least one year after all storm water discharges from the facility are eliminated and the required NOT has been submitted. The report shall identify any incidence of noncompliance; or, if the report does not identify any incidence of noncompliance, the report shall contain a certification that the facility is in compliance with the SWPPP, the applicable NPDES permit, and these Rules & Regulations. The individual responsible for the comprehensive site compliance evaluation shall sign the report, and it shall be submitted to the City 's Director of Public Works within ten days of completion.
- (f) If the industrial facility is required by Part VI.B.2 of the Industrial General Permit to conduct semi-annual monitoring, a signed copy of each semi-annual monitoring report prepared in accordance with Part VI.D. shall be submitted to the Director of Public Works.
- (g) By written notice, the Director of Public Works may require any industrial facility identified in accordance with this Section VI to implement a monitoring program that includes the submission of quantitative data on the following constituents; any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for the facility, oil and grease, COD,

Regulations, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, environment and welfare of the community, then the Department of Public Works may seek issuance of a search warrant from any court of competent jurisdiction.

## **Section 9. Notification of Accidental Discharges and Spills**

- (1) Notification Notwithstanding other requirements of law, as soon as any person responsible for a facility, activity or operation, or responsible for emergency response for a facility, activity or operation has information of any known or suspected release of pollutants or non-storm water discharges from that facility or operation which are resulting or may result in illicit discharges or pollutants discharging into storm water, the City of Manchester's separate storm sewer system, State Waters, or Waters of the U.S., said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release so as to minimize the effects of the discharge.
- (2) Release Reporting Any person in charge of any facility, vehicle, or other source of any spilling, leaking, pumping, pouring, emitting, emptying, discharging, escaping, leaching, dumping, disposing or any other release of any substances that may flow, leach, enter, or otherwise be introduced into the MS4 or waters of the United States, shall immediately telephone and notify the City of Manchester. Substances include any reportable quantity as outlined in 40 CFR Part 302; any extremely hazardous substance as established under 40 CFR Part 355, any oil that causes a film or sheen or discolors the surface of the water or causes a sludge emulsion to be deposited beneath the surface of the water or any harmful quantity of pollutant.
- (3) Immediate Notification Required The immediate notification to the Department of Public Works or the authorized enforcement agency in person or by phone, or facsimile no later than 24 hours of any incident outlined in Section 9, (2), of the nature, quantity and time of occurrence of the discharge. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the Director of Public Works or his duly authorized agent within three business days of the phone or in person notice and shall include the chemical or substance name, exact location of release, time and duration of release, estimated quantity and concentration of release, source of release, precautions that should be taken in regards to release, steps taken to contain and /or clean up release and the telephone numbers of the person or persons to be contacted for further information.

If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years. Said person shall also take immediate steps to ensure no recurrence of the discharge or spill. This information shall also be submitted in written form within five days of the incident unless waived by a representative of the City.

B. Such notice may require without limitation:

- (1) The performance of monitoring, analyses, and reporting;
- (2) The elimination of illicit discharges and illegal connections;
- (3) That violating discharges, practices, or operations shall cease and desist;
- (4) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
- (5) Payment of costs to cover administrative and abatement costs; and,
- (6) The implementation of pollution prevention practices.

(3) Appeal of Notice of Violation Any person receiving a Notice of Violation may appeal the determination of the Department of Public Works. The notice of appeal must be received within five (5) days from the date of the Notice of Violation. Filing of an Appeal does not relieve the owner from full compliance with the remedial actions outlined in the Notice of Violation. Hearing on the appeal before the Department of Public Works, Storm Water Appeals Committee shall take place within 30 days from the date of receipt of the notice of appeal. The decision of the Committee shall be final.

(4) Enforcement Measures After Appeal If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, then representatives of the Department of Public Works may enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

(5) Costs of Abatement of the Violation Within ten (10) days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the assessment or to the amount of the assessment within fifteen (15) days of such notice. If the amount due is not paid within thirty (30) days after receipt of the notice, or if an appeal is taken, within five (5) days after a decision on said appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment.

Any person violating any of the provisions of this article shall become liable to the City of Manchester by reason of such violation.

(6) Civil Penalties In the event the alleged violator fails to take the remedial measures set forth in the notice of violation or otherwise fails to cure the violations described therein within two (2) days, or such greater period as the Department of Public Works shall deem appropriate, after the Director of Public Works or designee has taken one or more of the actions described above, the Public Works Director may impose a penalty not to exceed \$10,000 (depending on the severity of the violation) for each day the violation remains unremedied after receipt of the notice of violation.

requirements for determination of no impact status as outlined in the Endangered Species Act and Historic Preservation Act along with the completion of a storm water pollution prevention plan as outlined in the NOI submission is still a mandatory submission to the City of Manchester and must follow the conditions as outlined in the EPA's NOI.

EPA reissued the Construction General Permit (CGP) on July 1, 2003. The reissued CGP now covers both the Phase I large construction sites greater than five acres and "Storm Water Associated with Small Construction Activity," which includes construction sites from one to five acres (or smaller than one acre if part of a larger "common plan of development or sale" that totals one acre). The permit contains conditions to protect endangered species and historic properties and requires the owner and operator of the construction site to, among other things:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP).
- Post a visible public notice at the main entrance of the construction site (or if infeasible, at a local public building) containing confirmation of permit coverage and details on where the SWPPP may be viewed.
- As part of the SWPPP, develop a site map showing surface waters, disturbed areas, best management practices (BMPs), etc.
- Have "qualified personnel" inspect all erosion and sediment control BMPs, maintain BMPs after storm events and keep records in the SWPPP of all inspections and maintenance performed.
- Control wastes, such as discarded building materials, concrete truck washout, and sanitary wastes.
- File a Notice of Termination (NOT) form when the construction site is stabilized and revegetated.

## BMP #4 Construction Site Runoff Controls

### 1 Develop & Present Ordinance to Require Erosion & Sediment Control Plan (to include construction material management plan and plan review for sites disturbing more than one acre)

**Current Status:** This is outlined in the draft ordinance and Rules & Regulations that are included at the end of section BMP # 3.

**BMP Effectiveness Evaluation:** This tool is currently being used as a guide during field investigations. They are noted in our field inspection reports. Generally, the contractors are more than willing to comply with our suggestions, but without the ordinance, we do not have the enforcement potential that would be afforded the City with the Ordinance in place.

**Future Goals:** The current goal is to bring this Ordinance and accompanying Rules & Regulations to the Highway Commission and the City's Ordinance Committee for final review. It is expected that this can be completed by early June 2005. From this point these two documents will go to public hearing and then be brought before the Mayor of Board and Aldermen for the two readings and enrollment. We are hoping to have this who process complete and the two documents adopted by August 1, 2005.

### 2 Develop Procedure for Receipt and Consideration of Public Comment

**Current Status:** The City takes suggestions via the website, called in comments, and by letter. The ordinance adoption process will go through a public hearing, receipt of comments and the two required readings prior to enrollment. This is the same process as reported last year. It has proven to be an effective process with other City Ordinance adoptions. The goal is to continue following the City's protocol for adoption of the Storm Water Ordinance and the Rules & Regulations.

### 3 Check Erosion Control Measures and Construction Material Management on Site Inspection

**Current Status:** The City, during the previous yearly inspections, has developed an onsite inspection checklist that seems to be comprehensive and affords the inspector initial information when out in the field. The site, historical rainfall for the past few weeks, and the conditions of BMPs is noted on this checklist. The inspection of BMPs is gauged against the Erosion and Sediment Control Plan that was submitted by the developer during the approval process. Any deviance from the plan is noted and a clean copy is made from the field inspection, signed by the inspector, and forwarded to the contractor for action. Pictures taken at the site are referenced by link on the sheet and can be easily pulled up and evaluated when reviewing the report on the office computer. A copy of a completed field inspection report is included for reference.

**BMP Effectiveness Evaluation:** After several changes made to the field inspection checklist, it is believed that a comprehensive version of the checklist is now completed. This checklist is useful for field investigation, to check against the contractors obligation of weekly field inspections and inspections after >0.5" of rain and with required BMPs as outlined on the approved plans.

**Future Goals:** The future goal is to continue to work with this inspection checklist, document variances and violations from the approved BMPs via digital photographs, and to continue to compile a site review of each approved project within the City of Manchester.

**Report # 1**

**Woodland Pond (Countryside Lane)  
Inspection and Maintenance Report**



**Week Ending:** April 15, 2005

**Date of Inspection:** 4/7 & 11/2005

**Name of Inspector:** Ricardo Cantu

**Inspector Title:** Env. Permit Coord.

**Inspector Qualifications:** Coordinator of the City of Manchester's EPA approved Storm Water Program. Responsible for Storm Water Management Program and Storm Water Pollution Prevention Plan compliance by all contractors who disturb one or more acres of land.

**Weather Summary Since Last Inspection**

**Weather was changeable**  
Precip on 4/2 - 0.74", 4/3 - 0.59", 4/7 - 0.09", 4/8 - 0.01"  
No documented inspections for the 4/2 & 4/3 rainfall events or the required weekly checklist for BMPs

**Date of Last Rain Event:** Friday, April 8, 2005      **Amount of Precipitation:** 0.01"

**Current Weather Conditions:** Sunny and mild - 45 degrees

**Site Condition and Inspection Frequency**

- Normal Conditions** - Inspection required once every 7 days
- Rainfall Event > 0.5"** - Inspection required after every 1/2" rainfall
- Reduced Activity** - Monthly if site is temporarily stabilized and/or frozen conditions exist
- Waived** - Land disturbing activities have been suspended (extended frozen winter conditions)
- Routine** - General City inspection outside the requirements of the Storm Water Pollution Prevention Plan
- Compliance** - Follow up to check on compliance with previous violations

*The slope on the lot off the right side of the entrance road to Phase III was redone w/ Jute mat and reseeded.*

**Current Status of Project**

**Areas Requiring Inspection:** Initial inspection last week. Follow up to orient plans and check on the NOI and the Storm Water Pollution Prevention Plan (Neither NOI or SWPPP was onsite, in Methuen MA)

**No Site Activity Since Last Disturbance**      **Is Area Stabilized:** YES  NO

**Condition of Construction Site Exit(s)**

Location	Is Off-Site Tracking Occurring	Is Entrance Apron Clean?	Are There Other Exits?
Phase I paved	None noted	Phase I essentially complete	No
Phase II 1/2 paved	None noted	Paved entry way	No
Phase III under const.	None noted	No apron, const. Beginning	No

**Maintenance Action Required:** None at this point in time

**Perimeter Controls**

Location	Measure Property Installed	Sediment Depth	Measure Effective
Phase I treatment swale	Yes	At headwall across from Acron Street, approximately 4" - 6"	To a point, traps sediment, but the swale is eroding
Phase II detention Pond	Yes	No sediment noted in the bottom of the pond	Currently it is

**Maintenance Action Required:** Clean out the rip-rap after the headwall and remove the mud. Repair the erosion in the middle of the swale

**Woodland Pond  
Inspection and Maintenance Report (cont.)  
Stabilization of Slopes**

Location	Is Grading Still Occurring	What BMP is Implemented	BMP Effective?
Slope off of entry road to Phase III	Grading is completed	Jute matting & seeding	Not previously. Bank eroded. Also in the process of stabilizing the bank along the rear of the property
Slope off entry road of Phase III (right)	Some degrading of slope, silt fence is completely down	Silt Fence	NO

**Note:** Slopes > 3:1 require erosion blankets. Slopes unworked for >14 days require mulching & seed.

**Maintenance Action Required:** The slopes need to be watched for future erosion. Silt Fence needs to be reinstalled

**Catch Basin Inlet Protection**

Location	Inlet Protection Installed?	Is BMP Effective?	Can Inlet Collect H2O?
Phase II	No, sediment can easily get into the CBs during rain events	No BMPs	Currently, but they may eventually fill up with sediment above invert and not take water

**Maintenance Action Required:** May want to consider filter fabric inside CBs in Phase II work areas

**Sedimentation Basins**

Location	Is Detention Basin Completed?	Basin Slopes Stable?	Depth of Sediment / Any Bypass?
Phase II	Basin is completed	The slopes appeared stable	Detention Pond is new. No sediment at this point.

**Notes:** Sediment to be removed when basin is 1/3 full.

**Maintenance Action Required:** None at this time

**Other BMP Measures**

Location	TYPE	Field Observations & Notes
\\H1\VOL2\DEPTS\EPD\USE	\\H1\VOL2\DEPTS\EPD\USE	\\H1\VOL2\DEPTS\EPD\USE

**Maintenance Action Required:** Above are the pictures of the site that illustrate the concerns with BMP compliance. Also pictures taken for baseline reference

Report # 1

# Woodland Pond Inspection and Maintenance Report (cont.)

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### Change Order Required for the Storm Water Pollution Prevention Plan

- No Storm Water Pollution Prevention Plan change order is needed at this time
- A change order is needed because of the following:

NOI and Storm Water Pollution Prevention Plan are required to be onsite. Could not determine if any change to Storm Water Pollution Prevention Plan is appropriate at this time.

Date Storm Water Pollution Prevention Plan changes have been made and recorded: \_\_\_\_\_

### Storm Water Pollution Prevention Plan Compliance

*Based on today's observations and inspection notes*

- Project is in Compliance with their Storm Water Pollution Prevention Plan Requirements
- Project is NOT in Compliance with their Storm Water Pollution Prevention Plan because of the following: No formal weekly inspections are being performed. The NOI was not onsite, nor was there a copy of the Storm Water Pollution Prevention Plan available for review. Susan Brown will call when they are delivered to the site.

### Inspector's Certification

I certify that I have completed this Inspection & Maintenance Report and that it is based on actual field observations that I have made on this day. I have documented any and all observable deficiencies associated with the Storm Water Pollution Prevention Plan and have identified, to the best of my ability, all BMP areas that require maintenance action or repair.

Inspector's Signature: \_\_\_\_\_

Date: 4/11/2005

### Authorized Certification

*(to be signed after all corrective maintenance identified herein has been completed)*

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 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.

Name (Authorized Representative): \_\_\_\_\_

Title (Authorized Representative): \_\_\_\_\_

Signature (Authorized Representative): \_\_\_\_\_ Date: \_\_\_\_\_

## **BMP #6 Pollution Prevention/Good Housekeeping for Municipal Operations**

### **Install Silt Fence Around Snow Dump Area**

**Current Status:** Silt fences are installed around the snow dumping areas in Manchester during the month of November. The City has purchased a snow melter and used it over the 2004/2005-winter season. This resulted in less snow being stockpiled throughout the winter, less stress on the erected snow fences, and the spreading out of the sodium chloride effect on the treatment plant and receiving waters.

**BMP Effectiveness:** The silt fence keeps the trash and sand that is collected with the plowed snow from entering the waterways. The big plus is the snow melter. This has reduced overall stock piling of snow, the intensity of the sodium chloride pollutant and reduced the peak snow runoff volumes throughout the City.

**Future Goals:** Continue with the existing program and use the snow melter to its full potential.

### **Continue Catch Basin Cleaning Program, Including Priority Catch Basins**

2 **Current Status:** The City has placed the catch basin cleaning program on a high priority well before the Storm Water Phase II program was initiated. The City contracts to have 1,000 catch basins cleaned by a private company during the 2004/2005 fiscal year. As of the writing of this report, over 500 basins have been finished with the rest to be completed before the close of May. The cost for this contract is \$35,000. A contractor report is attached at the end of this section.

There is a listing of priority catch basins that must be inspected, and if warranted, cleaned at least annually. The catch basin cleaning listing completed by municipal crews is attached. The catch basins surrounding the urban ponds receive top priority and are inspected and cleaned if necessary twice annually. This report is included at the end of this section.

**BMP Effectiveness:** The process worked well last year and continues to keep the City ahead of their catch basin cleaning issues around the ponds. In the process we are learning the problem areas within the City and developing a tracking list to put these problem areas in the forefront of inspection. City staff usually learn about problem areas through calls and complaints by residents. A yearly tracking sheet has been developed this year to find trends in both catch basin and sewer complaints and is included at the back of this section.

**Future Goals:** To continue to prioritize the urban pond catch basins for cleaning and to develop a reliable listing of trends for problem catch basins throughout the city. To also hopefully finance a contract with a private contractor to clean additional catch basins within the City.

**3** Sweep Streets Three Times Annually

**Current Status:** The City continues to follow a schedule of street sweeping that was presented in last year's report.

**BMP Effectiveness:** This BMP is more effective than what is outlined in the program as some sections of the inner City business district are swept on a biweekly basis far exceeding the required 3 times annually. All sections of the city are currently swept more than three times annually.

**Future Goals:** To develop a procedure for measuring the amount of sand and debris that is picked up by the sweepers on an annual basis and to determine the amount of material that is collected annually and kept from entering the water bodies.

**4** Continue to Follow SOPs for Disposal of Catch basin Cleaning and Street Sweeping Residuals

**Current Status:** The City continues to place street sweeping debris and catch basin debris up in the rear lot of the recycling facility. The street sweepings are placed on a concrete pad with three-sided cement block walls. These sweepings are reused as fill at a site on Straw Road.

The catch basin waste is piled across from the street sweeping debris in a compacted depression. This catch basin waste is allowed to evaporate to a certain extent then it is also used as fill at the Straw Road site or mixed with other material and reused for road base.

**BMP Effectiveness:** This BMP is as effective as it has been in the past. The City would like to explore ways to improve this BMP.

**Future Goals:** To look at a better way to handle the catch basin debris.

**5** Minimize Salt Usage and Maintain Cover over Salt Storage Area

**Current Status:** The majority of the salt the City uses for highway treatment in the winter is kept under cover up at the Highway Garage. There is also a satellite location up at Dunbarton Road that is only active during the winter period and this salt pile is covered with a tarp.

All salting trucks are calibrated once annually before the winter sand/salt application season begins to assure the greatest efficiency and minimal use during spreading. City supervisory staff attended an anti-icing application daylong seminar given by the University of New Hampshire on September 29, 2004. This was given in anticipation of the issues with the I-93 widening and the impact of salt on the adjacent water bodies.

In regard to the issue of salt getting to the water bodies, the City of Manchester purchased a snow melter during the 2004 season. This melter was used successfully in late January.

A 22-hour run was completed of most of the downtown commercial district. The melter is capable of melting 135 tons of snow per hour. This translated to a total of 2,970 tons of snow being melted. All the associated chloride was sent with the melt water down the combined sewer system to the wastewater treatment plant. There was a good possibility that the salt associated with the 2,970 tons of snow would have gone to the Merrimack River during the spring melts and heavy rains that cause ongoing bypasses out the storm overflows.

Also, the trash and debris associated with the melt are collected at the bottom of the melter. This was vacuumed out by the City's Vactor truck during the operation. This trash also had the potential of getting washed into the Merrimack River during the spring melt.

**BMP Effectiveness:** This BMP is getting more attention due to the I-93 widening project. The City staff is becoming more aware of the problem of excess salt usage on the water bodies and is seeking additional training in means and methods to reduce overall salt usage.

**Future Goals:** To assure all sand and salting trucks are calibrated before the start of the winter application season. To keep informed on the issues with the I-93 widening and the implication of chloride pollution on the city's water bodies.

#### Develop/Implement Program for Cleaning Pond Inlets & Trash Racks

**Current Status:** There are two trash inlet racks at Nutts Pond. Both have been inspected and cleaned during this reporting year. There are currently plans to upgrade the sediment collection system through various BMPs in the Nutts Pond area. CEI is working with the City's Supplemental Environmental Projects Programs committee and Parks and Recreation to design BMPs for this pond.

There are also three, three-chamber baffle tanks at Dorrs Pond, one three-chamber baffle tank system at Crystal Lake, and one Vortech swirl concentrator at Douglas Street. The city has devised a checklist for the spring and fall inspection of these units to assure they are cleaned when they begin to get filled with sediment. The baffle tank-cleaning checklist is attached for review.

There is a Storm Treat™ at Crystal Lake that the City is currently investigating. It has not been in use since installation in 1998. The City had a manufacturer's representative come to the site to evaluate the equipment (report attached) and the City will attempt to free the blocked line from the baffle tank to the treatment units. If this is successful, then the system will be reactivated.

**BMP Effectiveness:** This BMP is highly effective. In reviewing the tanks it is evident that sediment is being trapped in these units. These new units have reduced the sediment load to the water bodies they were installed to protect.

**Future Goals:** To continue to look at the use of baffle tanks in high sediment areas. The City also wants to log the inspections and cleaning of the existing baffle tanks and other treatment units.

### Develop/Implement Employee Education Program

7 **Current Status:** The City has continued building upon the Power Point presentations that were given to the employees last year. Those presentations were modified and new information included updating employees on the status of the storm water program.

The sewer crew training covered an overview of the six minimum controls, illicit discharges, construction site runoff, post construction site management, pollution prevention and good housekeeping, review of the illicit discharge form, baffle tank operation and overview of field violations (see attached training log).

The second training session focused on the engineering staff that is involved with inspections at construction sites. This training included an overview of the Storm Water Management Program and the NOI, EPA NOI submission requirements, Endangered Species Act, Manchester's Inspection form, minimum inspection requirements of the contractor, inspector certification, baffle tank use, review of proposed notice of violation and overview of the Ordinance and Rules & Regulations. The training log and the Notice of Violation form are included at the end of this section.

Employee training goes beyond the Department of public works employees. The City of Manchester prints and distributes a bi-monthly newsletter entitled "The City Matters" to its employees. As with last year, copies of the articles for this reporting year are included for reference.

Teacher training is a very important part of the Storm Water Management Program. The City's 8<sup>th</sup> grade teachers do receive a fair amount of instruction through the SEPP sponsored "Merrimack River Matters" program. The City has agreed to extend the Amoskeag Fishways contract one year beyond the end of the Supplemental Environmental Projects Programs program to assure the City's 8<sup>th</sup> grade teachers are being supported in the environmental training programs.

The City is working with the Student Conservation Association to sponsor a citywide "Earth Day" Celebration event. This event is being held on April 23, 2005. It will include approximately 20 booths; demonstrations on storm drain stenciling, sponsor an urban pond cleanup and complete a "Rails-to-Trails" project.

Training also involves the people who run the Storm Water Program within the City and the surrounding communities. Manchester hosts the regional "Storm Water Assessment Team" (SWAT) that is made up of the New Hampshire communities consisting of Auburn, Bedford, Derry, Goffstown, Londonderry, the NHDOT and Manchester. Minutes of these meetings are included for reference.

**BMP Effectiveness:** This BMP continues to show effective results. The students are learning more as evidenced by the survey results taken by the Amoskeag Fishways staff. Employees are becoming more familiar and comfortable with the requirements of the Manchester's Storm Water Program. All City employees are becoming better informed of Storm Water management through the "City Matters" newsletter articles.

**Future Goals:** To continue supporting the Amoskeag Fishways. City staff will continue to support future "Earth" Day events. The storm water program will be kept in the forefront through the efforts of the "City Matters" newsletter and online polling at the City's website.

The City wants to continue working with the teachers who are involved in the "Merrimack River Matters" curriculum. Currently, the City is working with a retired teacher to secure seven Hach test kits for analyzing the local waterways for a middle school salmon release project. It is anticipated that this effort will happen over the May time frame of the 2005/2006 reporting year.

### Design & Construct Pond Specific Pollution Prevention Projects

**Current Status:** The Administrative Order, as issued by the EPA to the City of Manchester, created the SEPP program. This program required the design and implementation of pollution prevention projects around the ponds. Many items have been completed since the previous reporting year.

During the reporting year the Crystal Lake project was completed. This included a stone parking area with filter fabric for groundwater recharge, installation of infiltrating catch basins and baffle tank, installation of a grassed swale area to capture nutrients from the runoff that exits the parking area and the dredging of over 100 cubic yards of sediment delta from the right side of the beach area.

Dorrs Pond had three baffle tanks installed. The City also introduced BMPs to a feeding brook that was transporting a large amount of sediment to the pond. The streambed was widened, fiber mats and plantings were placed along the slopes, stone check dams were added upstream to reduce velocities and biologs were planted within the bed to trap sediment, support new plant growth and inhibit velocities.

The Piscataquog River had three areas where steep slopes were revegetated and stabilized. A long wheel chair access ramp was installed and several hundred plantings were placed along the banks to increase the initial stabilization efforts.

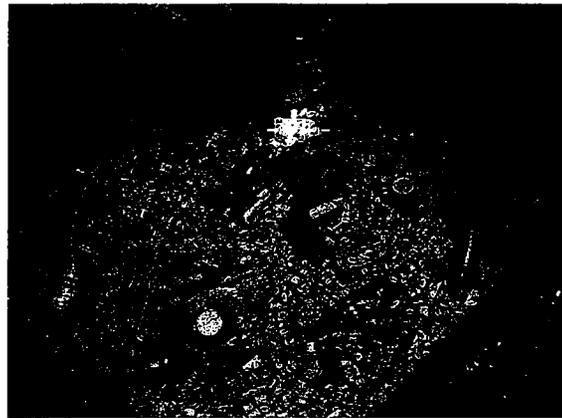
A Vortech<sup>TM</sup> unit was installed on the drain leading to the Piscataquog River on Douglas Street.

There is much information on the above projects contained in the Supplemental Environmental Projects Programs minutes and also in the project files. These reports are too large to include in this report, but are available for review at the EPD offices.

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**BMP Effectiveness:** These BMPs continue to increase the effectiveness of sediment and trash removal from the ponds. As these are relatively new, it will be hard to determine how effective this measure is until the contents of the first cleaning can be quantified. We did do an initial evaluation of the Vortech Unit in early April to determine warranty compliance. The unit was activated in late September 2004. Six full months of collection demonstrated several 55-gallon bags of floatables (foam popcorn and cups, plastic bottles, glass bottles, cans and various sized sticks and twigs, with a collection of approximately 1 foot of sediment in the first swirl chamber

This would have all gone to the Piscataquog River demonstrating that these units are quite effective in keeping trash out of the river.



**Future Goals:** Follow up on the completed projects at Dorrs Pond and the Piscataquog to assure all punch list items are finalized.

Work with the Parks and Recreation Department and their engineers to plans at Nutts Pond and determine the extent of work to be completed as the last project of the Supplemental Environmental Projects Programs for the Urban Ponds.

To keep a record of the amount of material that has been successfully removed within the baffle tanks that were placed to protect the water quality of the ponds.

#### 9 Best Management Practices for Derryfield Country Club

**Current Status:** The City did a review the Derryfield Country Club to determine the need for BMPs. An extensive report is included at the end of this section with findings. In summary, the Derryfield Country Club in practice was using BMPs in their daily maintenance of the golf course. The configuration and layout of the greens and holes also created BMP effects (whether or not these were planned initially in the design of the course).

The biggest unknown was the amount of pollutants being added from off-site sources. Part of the BMP protocol was to test the water coming off from both sides of the golf course. One test is conducted at a time furthest from the last fertilizer application. The

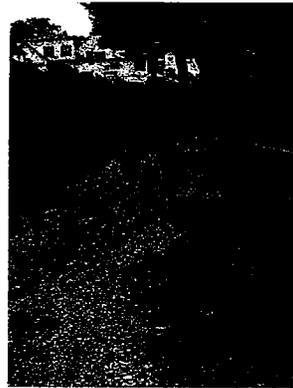
sampling this March was done from the longest application period (last application of fertilizer was September of 2004). This would give a baseline pollutant load from offsite sources (analytical results attached at the end of this section). The City is awaiting the sampling during the first substantial rain after application. Application is scheduled the first two weeks of May, so sampling will probably happen sometime during mid to end of May for the pollutant contribution data.

During the study the City also noted the amount of erosion on the golf cart paths that were not paved. One side of the golf course has extensively paved paths and the other side has no paved paths. The erosion was evident during the review. A report was generated and presented to the Supplemental Environmental Projects Programs committee.

It was agreed to try a limited amount of porous pavement to determine the effectiveness of the application. If it held up well and drained water sufficiently, reducing the erosion damage along the path, then more areas of the golf course would be considered for additional application. Below is the presentation.

### DCC Erosion Issues

- Erosion due to storm runoff on cart paths
- Only areas to erode are the cart paths
- Dirt paths for natural gullies to funnel water toward the NHDOT drainage swale on the east side of the DCC



### Site Erosion

- Root system prevents soil from lifting
- Sand from up slope is deposited over the root structures
- Sand eventually makes its way to the NHDOT swale

**Banked Greens**

- Banked greens have a higher velocity runoff
- Water follows the cart paths
- Gravel is deposited along the path and onto the fairways



**Sediment laying in wet areas**

**Pavement Break Problems**



**Paved Cart Paths Show No Erosion**



**Estimated Sediment Lost**

- Five 10-wheelers of hard-pack are used per season (14 cu/yd +/- at 3,500 pounds a yard for hard pack = 49,000 pounds or 24.5 tons)
- Half of this is applied after the spring runoff
- Applications wash out after storms and the ruts and gullies are refilled with the hard-pack. This eventually washes off into the two swales that run through the golf course.

**Anticipated Costs**

- 1,200 ft. of cart path at six feet width that are in need of upgrade to stop erosion.
- The cost is \$15 to \$20 per liner foot that is laid with an 8" base during installation.
- The total cost for project is estimated to be between \$18,000 and \$24,000.
- Worst areas could be covered with 600 ft. of pavement (\$9,000 to \$12,000).
- Critical areas would meet about 400 ft. of pavement (\$6,000 to \$8,000).



At the time of writing this report, the second-hole area cart path was being prepared to overlay the 400 feet of porous asphalt. This is the area where the most erosion is taking place and is the area ahead of the above picture with the caption "Sediment laying in wet areas."

## **BMP #5 Post-Construction Stormwater Management in New Development & Redevelopment**

### **Develop Ordinance to Require Runoff Controls for New & Re-Development for Projects Disturbing > One Acre**

**Current Status:** This ordinance is also part of the overall Ordinance and Rules & Regulations drafted for BMP #3 and may be found at the end of that section. Runoff Controls are mainly outlined in Section 4, General Permit Provisions, of the Ordinance.

**BMP Effectiveness:** As it is very early in the development of this BMP, and the practice hasn't been applied to any completed developments, the effectiveness of the BMP cannot be determined at this point.

**Future Goals:** The current goal is to bring this Ordinance and accompanying Rules & Regulations to the Highway Commission and the City's Ordinance Committee for final review. It is expected that this can be completed by early June 2005. From this point these two documents will go to public hearing and then be brought before the Mayor of Board and Aldermen for the two readings and enrollment. We are hoping to have this who process complete and the two documents adopted by August 1, 2005.

### **Recommend a BMP Manual for Use by Planners and Developers**

**Current Status:** This is outlined in the Draft Storm Water Rules & Regulations Section 6 (attached at the end of BMP #3) and mentioned in the same section of the Storm Water Ordinance. It references the New Hampshire Department of Environmental Services Sediment and Erosion Control Manual, "Green Book" (also known as the Rockingham County "Storm Water Management and Erosion Control Handbook for Urban and Developing Area"; City of Manchester's "Standard Specifications for Road, Drain & Sewer Construction"; "Innovative Stormwater Treatment Technologies" – Best Management Practices Manual NHDES, May 2003; and the "New Hampshire DOT, Guidelines for Temporary Erosion and Sediment Control and Storm Water Management" – NHDOT Bureau of Construction; as reference manuals.

**BMP Effectiveness:** This will be an effective approach as most of the state contractors are familiar with these documents and use these guidelines when developing their sediment and erosion control plans.

**Future Goals:** To review the potential to incorporate some of the BMP material of these documents into the City of Manchester's Standard Specifications to have much of the information in one manual.

### May 2004 through April 30, 2005 Catch Basin Cleaning List

This is a listing of all the catch basins cleaned by a private contractor during the contract period of July 1, 2004 through June 30, 2005. This listing will have more basins added as the contractor progresses beyond the Storm Water Program reporting year ending April 30, 2005.

<b>Date</b>	<b>Street</b>	<b># of Basins Cleaned</b>
10/25/04	Maple St	25
	Dix St	2
	Somerville	8
	Silver	5
	Harvard	2
	Prescott	2
	Hayward	3
	Lincoln	5
	Dix	4
	Clay	4
	Wilson	4
10/26/04	Young	3
	Harvard	4
	Silver St	4
	Belmont	6
	Taylor	3
	South Taylor	2
	Wilson	10
	Somerville	2
	Silver	2
	Silver & south back	2
	Harvard	1
	Hayward	8
	Lincoln	4
	Hall	2
Belmont	2	
10/27/04	Hall	11
	Somerville	6
	Silver	1
	17244	1
	Wilson	3
	Clay	2
	Roy	6
South Taylor	1	
10/29/04	Silver Street	6
	Prescott	1
	Hayward	4

## Private Contractor

## Catch Basin Cleaning List

	Miami Court	2
	Hoyt St	10
	Weston Road	4
	Roysan St	2
	Kara St.	4
<b>12/11/04</b>	South Porter	3
<b>4/6/05</b>	South Jewett	2
	Seames Drive	4
	Laxson Ave	3
	Doris St.	2
<b>4/8/05</b>	Cilley Road	36
	Union St.	4
<b>4/11/05</b>	Weston Rd	4
	Kara St.	2
	Circle Rd	2
	Manor Drive	4
<b>4/18/05</b>	South Porter	5
	Cambridge Court	6
	Brad Court	6
<b>4/19/05</b>	Mooresville Road	11
	Martel Drive	6
	Brach St.	5
	Union Street	14
	Beech St.	4
	<b>Total Basins Cleaned during the reporting year by a private contractor.</b>	<b>508</b>

## Stormwater Catch Basin Cleaning Program

### Program year May 2004 through April 2005

In accordance with the City of Manchester's Stormwater Management Program, the City is required, under BMP #6-2, to track the catch basins that are cleaned. The Stormwater Program is required to have the pond basins set on a priority-cleaning schedule. This is a listing of the streets where catch basins have been cleaned throughout the City. During this reporting several catch basins were cleaned in the below listed areas around the urban ponds.

This listing of streets was determined to be priority areas in the Phase I Malcolm-Pirnie study, around the City of Manchester's Urban Ponds. City personnel and City equipment clean these at least twice annually. These are inspected periodically and if additional cleaning is needed, a City crew is dispatched to clean these basins more frequently than twice per year. City of Manchester personnel cleaned all these once during the fall of 2004.

The crews checked these catch basins, and if they appeared to be relatively clean from the previous semi-annual cleaning, they were skipped and the crew moved on to check other basins. Only the basins there greater than a modest amount of sediment were again cleaned this reporting period.

#### **Stevens Pond**

- Pennsylvania Avenue
- Delaware Avenue
- Beaver Street (to Bridge Street)
- Maplehurst Street (to Bridge Street)
- Ohio Avenue

#### **Maxwell Pond**

- English Village Road
- Garden Road
- Greeley Street (CB 3950 to CB 3948)

#### **Dorrs Pond**

- Apple Court
- Hooksett Road (CB 1277 to 1272)
- Poplar Street
- Juniper Street
- Shady Lane
- Campbell Street (Shady Lane to Poplar Street)
- Bicentennial (CB 1289 to CB 1284)
- Crosbie Street (Pickering to Hooksett Road)
- Day Street (Fairfield to Hooksett Road)
- Pickering Street (Barrett Street to Crosbie)



## Urban Pond Priority CB Cleaning List

Fall 2004 [ X ]

[ ] Spring 2005

<b>Nutts Pond</b> - Map 4G March Avenue - 11 CBs Driving Park Road - 8 CBs John E. Devine - 8 CBs	<u>Oct-04</u> Date Work Completed Name of Crew: <u>Tim Perkins / Danny Richards - Vactors 1&amp;2</u> All CBs on list cleaned. Crew had to go back a few times due to call-outs and also due to vehicles parked over CBs upon prior visits.
<b>Crystal Lake</b> - Map 6H Corning Road - 9 CBs	<u>4-Sep</u> Date Work Completed Name of Crew: <u>Tim Perkins / Danny Richards - Vactors 1&amp;2</u> All CBs on list cleaned. Crew had to go back a few times due to call-outs and also due to vehicles parked over CBs upon prior visits.
<b>Dorrs Pond</b> - Map - 4C Juniper Street - 7 CBs Poplar Street - 14 CBs Arah Street - 20 CBs Bicentennial Drive - 6 CBs Day Street - 8 CBs Crosbie Street - 6 CBs Hooksett Road - 6 CBs	<u>Insp. Sept. 04</u> Date Work Completed Name of Crew: <u>B. Fitzpatrick - Still relatively clean from Spring work</u> CBs don't need cleaning and will be put on Spring 2005 listing
<b>Pine Island Pond</b> - Map 4I Gnome Street - 11 CBs Kennedy Street - 2 CBs Perimeter Road - 8 CBs	<u>4-Oct</u> Date Work Completed Name of Crew: <u>Tim Perkins / Danny Richards - Vactors 1&amp;2</u> All CBs on list cleaned. Crew had to go back a few times due to call-outs and also due to vehicles parked over CBs upon prior visits.
<b>Maxwell Pond</b> - Map 2D Garden Drive - 9 CBs English Village Road - 11 CBs Greeley Street - 2 CBs	<u>Inspected Sept. 04</u> Date Work Completed Name of Crew: <u>B. Fitzpatrick - Still relatively clean from Spring work</u> CBs don't need cleaning and will be put on Spring 2005 listing
<b>McQuesten Pond</b> - Map 2G Erie Street - 10 CBs South Main Street - 18 CBs (Newgate to Ann Ave) South Main Street - 10 CBs (Second to Oneida)	<u>Oct-04</u> Date Work Completed Name of Crew: <u>Tim Perkins / Danny Richards Crew 1&amp;2</u> All CBs on list cleaned. Crews had to go back due to call-outs and vehicles parked on CBs during prior cleanings.
<b>Stevens Pond</b> - Map 5E & 6E Maplehurst Avenue - 5 CBs Beaver Street - 3 CBs Bridge Street - 4 CBs Pennsylvania Avenue - 5 CBs Deleware Avenue - 5 CBs	<u>4-Sep</u> Date Work Completed Name of Crew: <u>Tim Perkins / Danny Richards - Vactors 1&amp;2</u> All CBs on list cleaned. Crew had to go back a few times due to call-outs and also due to vehicles parked over CBs upon prior visits.

### Catch Basin Complaint Investigation & Follow Up

Date	CSF #	Time	Address	Problem	Findings
5/3/2004	11709	12:23	239 Harrison Street	CB not taking water	CB full of roots, cleaned, need root treatment
5/15/2004	11868	7:20	91 Marry Ann	CB blocked in front of Residence	Cleaned CB
5/17/2004	12007	8:56	100 Magnolia Road	CB needs cleaning, filled with rocks & sand	Cleaned CB
5/18/2004	12016	8:57	Int. of North and Hemlock Streets	CB on NW corner needs to be cleaned	Cleaned all CBs at intersection
5/24/2004	11894	3:00	65 Hecker Street	CB in front of house is full	Full of debris, cleaned CB
5/24/2004	11893	3:00	Pearl St. between Union and Pine	Two CBs not taking water	Cleaned CBs in the area
5/24/2004	11891	2:21	CB at intersection of S. Belmont Plugged	Two CBs not taking water	Cleaned out two CBs
5/25/2004	11897	7:37	64 Merrimack Street	CB not taking water	CB full of debris, vacuumed
5/25/2004	11900	1:26	Taylor Street at Dix St. Intersection	CB not taking water	CB full, cleaned
5/27/2004	12031	11:32	339 Joseph Street	CB full of mud, trees and overgrown	Cleaned two CBs
5/27/2004	11917	2:45	110 Holly Avenue	CB needs to be cleaned	Cleaned CB
5/28/2004	11921	2:00	Robert Court off Westland Ave.	CBs not taking water	CB & line full of roots, root cut & jetted
5/28/2004	11920	10:18	1005 Hanover/NW corner of Pennsylvania	CBs not taking water	Cleaned three CBs
6/1/2004	12033	8:32	40 Liberty Street	CBs full of leaves & dirt	Cleaned out two CBs
6/3/2004	11941	5:00	55 Goodwin Street	Two CBs in front of house blocked	Cleaned out two CBs
6/10/2004	11963	11:31	49 North Adams Street	CB needs to be cleaned	Cleaned out CB
6/15/2004	11984	11:37	19 Ruggles Street	CB needs to be cleaned	Cleaned out CB
6/18/2004	12002	2:15	422 Vinton Street at South Taylor	CB is plugged at this intersection	Cleaned out CB
6/21/2004	12159	8:57	608 Chestnut Street	CB not taking water	Cleaned out CB
6/23/2004	12171	2:15	22 Russel Street	CB full of sand	Cleaned out CB
6/28/2004	12189	11:55	874 Union Street	CB is not taking water	Vacuumed CB
6/30/2004	12200	9:02	152 Hayward Street	CB not taking water	Cleaned out CB
7/1/2004	12208	10:06	17 Oak Street	CB plugged	Jetted pipe from Manhole now O.K.
7/1/2004	12212	1:39	Orange Street & intersection of Russel	Clean CB	Cleaned CB
7/8/2004	12234	9:21	Maple Street front of Central High	CB is not taking water	Vacuumed and cleaned two CBs
7/9/2004	12240	12:44	Wilson Street @ intersection of Grove	Two CBs are not taking water	Cleaned two CBs
7/9/2004	12223	1:02	187 Coolidge Avenue	CB not taking water, basements flood	Vacuumed two CBs, now O.K.
7/12/2004	12249	10:30	Summer Street @ intersection of Hall	CBs not taking water	Cleaned out three CBs, now O.K.
7/13/2004	12253	11:06	99 Weston Road	CB caved in	Cleaned & patched. Needs repair
7/21/2004	12275	10:23	50 Beech Hill Road	CB not taking water	Vacuumed out two CBs



Storm Water Annual Report

<b>January</b>	25 complaints - 12 issues found
1/1	- 181 Gabrielle - root blockage
1/3	- 628 Green St - blocked line
1/5	- 25 Garmon St - blocked line
1/7	- 28 Blevens - blocked line
1/8	- 215 Blucher - blocked line
1/14	- 110 McNeal - block @ Second St
1/15	- S. Willow & Gabrielle - MH plugged
1/19	- 95 Gray St - blocked line
1/20	- Smyth Rd School - blocked line
1/25	- 2020 Elm St - blocked line
1/27	- 169 Cypress - blocked line
1/30	- 125 Gabrielle St - partial blocked line

<b>May</b>	22 complaints - 4 issues found
5/4	- 60 Oakdale - blocked line
5/5	- 141 Whitney - blocked line
5/12	- 555 Auburn St - line blocked by roots
5/26	- 88 Market St - MH plugged

<b>September</b>	20 complaints - 5 issues found
9/9	- 238 Youville St - line blocked by roots
9/13	- 144 Whitney St - line blocked
9/17	- Farmer/Mission Int - MH blocked
9/19	- Wellington Rd/ Edward J. Roy - blocked
9/28	- 38 Flint St - Dead end line plugged

<p style="text-align: center;"><b>City of Manchester Department of Highways</b> <b>Sewer Problem Areas</b></p>
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**SOUTH**

1. Miami Court – Houses #6 through #73
2. Porter Street – House #120 (do area resurfaced in 1999)
3. Slade Street – House #7
4. Purchase Avenue – House #67
5. Beech Hill Avenue – Houses #193 through #220
6. Harrington Street – Houses #62 through #87
7. Mitchell Street – From Calef Road to South Beech Street
8. South Gray Street – From Cilley Road intersection in the southerly direction
9. South Lincoln Street – Houses #85 through #177
10. South Taylor Street – Houses #150 through #317
11. Vinton Street – House #36
12. Weston Road – House #239 through #589
13. Lois Street – House #34 through #144
14. Maurice Street – House #39
15. Mystic Street – Calef Road to South Beech Street
16. South Beech Street – House #161 area
17. Westland Ave House #21, House # 130 & House #457
18. Huse Road – Overpass to Mooresville Road
19. South Beech Street – Houses #680 through 700
20. South Willow Street – Rear of Bickfords Restaurant to So. Jewett Street
21. South Willow Street – Gabrielle St (clean south for two manholes)
22. Lennox Avenue – Deadend to South Beech Street
23. Pepperidge Drive – House #135
24. Murphy Street – House #99 to Kevin Street
25. Armand Street – Mitchell Street to Cross Country
26. Morey Street - #173 to Lincoln Street
27. Westwood Drive - # 335 Roots

**SIPHONS**

1. South Mammoth Street at Bodwell Road
2. Goffsfalls Road (opposite Post Office in the woods)

**NORTH**

1. Dave Street at Lindahl
2. McCarthy Street (Edgar Street Westerly)
3. Andrew Street (River Road at the dead end)
4. 656 Chestnut Street – Jet Pennacook Street to the Back
5. Coral Avenue – House # 193
6. Harold Street – Houses #64 through #81
7. Haven Hill Road – Dead Ends at House #12 and Dead End at House #60

## **WEST**

1. Rose Terrace – House #30
2. Kingston Street – Houses #30 through #70
3. Youville Street – East side back in the #300 House area
4. Warner Street – Houses #82 through 172
5. Dennis Street – The Dead End
6. Lenz Street – The Dead End
7. Dubuque Street – Houses #167 through #250 & Sullivan St. Dead End
8. Dunbarton Road – Houses #65 through #158
9. Garden Drive – Entire Street
10. Lockwood Avenue – Houses #103 through #113
11. Maybrook Street – House #99
12. Bernard Street – House #121
13. Wilkins Street – House # 133 and Houses #172 through #250
14. Carroll Street – House #99
15. Anne Avenue – Houses #25 through #78
16. Westside Interceptor – Rear of Sullivan Tire Southerly to under the on ramp
17. Chapleau Street – Clean at Kimball Street
18. Parker Street – House #104 to the Dead End
19. Brock Street – Charleston Street to Brockton Street
20. Hancock Street – Dartmouth Street easterly
21. Saint Marie Street – House at #237
22. Front Street – Metering Station Manhole to the first manhole north
23. Bismark Street – House #229 to the Dead End



Fall Inspe

Tank Name **Corning Road** D

Inspector(s): \_\_\_\_\_

**1st Inspection Port Information**

Water Appearance in 1st Port: [ ] dry [ ] od  
Depth of sand: [ ] 1"- 3" [ ] 4"- 6" [ ] 7"  
Does the sand seem to be evenly distributed thr  
Structural Condition: [ ] Excellent [ ] Very Go  
Weed/brush growth around tank: [ ] None [ ] L

**2nd Inspection Port Information**

Water Appearance in 1st Port: [ ] dry [ ] od  
Depth of sand: [ ] 1"- 3" [ ] 4"- 6" [ ] 7"  
Does the sand seem to be evenly distributed thr  
Structural Condition: [ ] Excellent [ ] Very Go

**3rd Inspection Port Information**

Water Appearance in 1st Port: [ ] dry [ ] od  
Depth of sand: [ ] 1"- 3" [ ] 4"- 6" [ ] 7"  
Does the sand seem to be evenly distributed thr  
Structural Condition: [ ] Excellent [ ] Very Go

Recommendations: \_\_\_\_\_

If cleaned, how much sand/grit was removed?  
\_\_\_\_\_

Tank Name **Dorrs Pond Tank #1** D

Inspector(s): \_\_\_\_\_

**Inspect Diversion Manhole** Sand Depth [ ]  
Structural Condition: [ ] Excellent [ ] Very Go

**1st Inspection Port Information**

Water Appearance in 1st Port: [ ] dry [ ] od  
Depth of sand: [ ] 1"- 3" [ ] 4"- 6" [ ] 7"  
Does the sand seem to be evenly distributed thr  
Structural Condition: [ ] Excellent [ ] Very Go  
Weed/brush growth around tank: [ ] None [ ] L

**2nd Inspection Port Information**

Water Appearance in 1st Port: [ ] dry [ ] od  
Depth of sand: [ ] 1"- 3" [ ] 4"- 6" [ ] 7"  
Does the sand seem to be evenly distributed thr  
Structural Condition: [ ] Excellent [ ] Very Go

**3rd Inspection Port Information**

Water Appearance in 1st Port: [ ] dry [ ] od  
Depth of sand: [ ] 1"- 3" [ ] 4"- 6" [ ] 7"  
Does the sand seem to be evenly distributed thr  
Structural Condition: [ ] Excellent [ ] Very Go

Recommendations: \_\_\_\_\_

If cleaned, how much sand/grit was removed?  
\_\_\_\_\_

STORMTREAT SYSTEM  
MAINTENANCE INSPECTION REPORT

Installation Name and Location:  
CRYSTAL LAKE  
Corning Road  
Manchester, NH

Number of Tanks:  
6

Date of Inspection:  
November 5, 2004  
By: Roy Perry

Annual Maintenance:

- X Inspect catch basins preceding the STS tanks.

Comments: Catch basins were pumped by City of Manchester and found to be in good condition.

- X Visually inspect skimmers to ensure that the flexible hoses are undamaged and tightly connected to the skimmer and bulkhead. Replace damaged hoses.

Comments: Skimmers and flexible hoses were found to be in good condition.

- X Measure sediment depth in chambers of each tank.

Comments: Sediment depth found to be 6 inches or more in all tanks. All tanks need to be pumped, at the time of this inspection.

- X Collect debris from wetland area and trim dead growth from wetland plants. Replace dead plants as necessary.

Comments: Plants need to be replaced in all tanks, in the spring of 2005. Suggested 12 daylilies per tank, planted 22 inches apart.

- X If there is flow from the effluent pipe, measure flow rate and adjust exit valve, if necessary.

Comments: Tanks were empty of water, with no flow from the effluent pipes. Therefore, no adjustments were made to the exit valves.

Three-Year Maintenance:

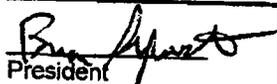
- X In addition to the above procedures, spray down all sediments in the tank and pump the tank clean. Make sure that the exit pipes to the wetland, as well as all flexible hoses and skimmers, are clean.

Comments: As noted above, spray down all sediments in each tank and pump tanks clean.

**NOTE:** The inflow pipe from the distribution box to the STORMTREAT SYSTEM appears to be plugged and needs to be cleaned.

Summary: After completing the above maintenance, the STORMTREAT SYSTEM should perform as designed; provided all inflow and outflow pipes and stone within the tanks are clean of sediments.

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President  
ECO-CYCLE, INC.



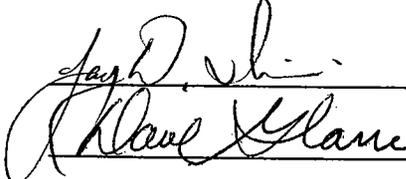
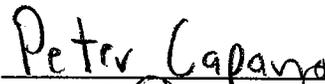
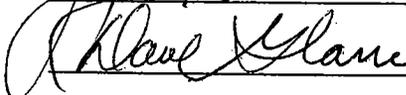
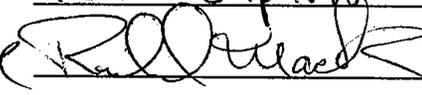
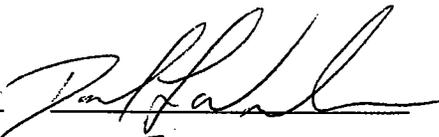
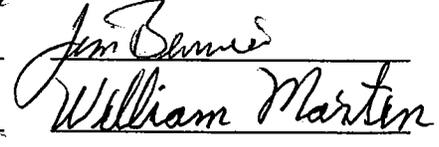
## Stormwater Training Program Engineering Staff

1. Overview SWMP
2. Overview NOI
3. EPA NOI Submissions
4. Endangered Species
5. Manchester Inspection Form
6. Minimum Required Inspection by Contractor (weekly > 0.5" rain)
7. Inspector Certification
8. Site Pictures (what is wrong with what you see)
9. Baffle Tank & Vortechincs Unit
10. Minimum Information Needed on Inspection Report
11. Form Notice of Violation
12. Rules & Regulation Review
13. Ordinance Review
14. Wrap Up

Date	Day	Time	Location
(1) 4/18/2005	Monday	9:00 AM	DPW Conference Rm
(2)			

Training Session # Year 2 - Refresher

Name of People Attending :



## Stormwater Training Program Sewer Crew

1. Overview Six-Minimum Controls
2. Overview of Illicit Discharge and Elimination
3. Overview Construction Site Runoff Controls
4. Overview of Post Construction Management
5. Overview of Pollution Prevention and Housekeeping in Municipal Operations
6. Overview of Employee Education
7. Illicit Discharge Examples & Discussion
8. Illicit Discharge Detection Tools
9. Review of Illicit Discharge Form
10. Overview of Storm Water Compliance Requirements
11. Example Storm Water Violations and Discussion of Pictures (Several Slides)
12. Review of Vortechincs Baffle Tank and Operation
13. Wrap Up

Date	Day	Time	Location
(1) 4/18/2005	Monday	8:00 AM	DPW Conference Rm
(2)			

**Training Session # Year 2 - Refresher**

Name of People Attending :

<i>Paul Meservey</i>	<i>Rick LEBLANC</i>	
<i>Norman A. Pein</i>	<i>Mike Dooley</i>	<i>Tom Perkins</i>
	<i>Bill Greenwood</i>	



# "Notice of Violation" City of Manchester's Storm Water Management Program

Name: \_\_\_\_\_ Address: \_\_\_\_\_

Address/Description of Location Where Violation Occurred: \_\_\_\_\_

Description of Violation: \_\_\_\_\_

Necessary Remedial Measures to Restore Compliance: \_\_\_\_\_

Time Schedule for Remedial Measures : \_\_\_\_\_

**Civil Penalties** In the event the alleged violator fails to take the remedial measures set forth in the notice of violation or otherwise fails to cure the violations described therein within two (2) days, or such greater period as the Department of Public Works shall deem appropriate, after the Director of Public Works or designee has taken one or more of the actions described above, the Public Works Director may impose a penalty not to exceed \$1,000 (depending on the severity of the violation) for each day the violation remains unremedied after receipt of the notice of violation.

**Criminal Penalties** For violations of the Storm Water Ordinance or the "Rules & Regulations," the Director of Public Works may issue a citation to the alleged violator requiring such person to appear in court to answer charges for such violation. Upon conviction, such person shall be punished by a fine not to exceed \$1,000 for each day the violation has occurred, or imprisonment for up to 60 days or both. Each act of violation and each day upon which any violation shall occur shall constitute a separate offense.

**Appeal of Notice of Violation** Any person receiving a Notice of Violation may appeal the determination of the Department of Public Works. The notice of appeal must be received within five (5) days from the date of the Notice of Violation. Filing of an Appeal does not relieve the owner from full compliance with the remedial actions outlined in the Notice of Violation. Hearing on the appeal before the Department of Public Works, Storm Water Appeals Committee shall take place within 30 days from the date of receipt of the notice of appeal. The decision of the Storm Water Appeals Committee shall be final.

\_\_\_\_\_  
Name of DPW designee issuing "Notice of Violation"

\_\_\_\_\_  
DATE

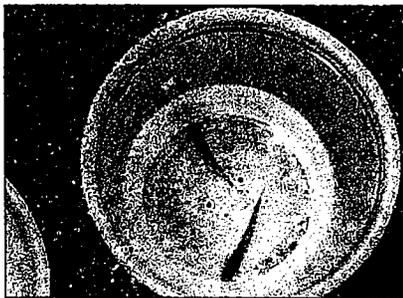
# The CITY MATTERS

A NEWSLETTER FOR AND BY THE EMPLOYEES OF MANCHESTER, NEW HAMPSHIRE

## Local Students Participate in Environmental Education!

By:  
Rick Cantu

Manchester's EPD recently assisted approximately 70, eighth grade students from Hillside Middle School on a field trip activity. The Amoskeag Fishways, with the help of four AmeriCorps volunteers, participated in the activity. The activity included a visit to the Amoskeag Fishways to view the fish ladders, Merrimack River history, and the museum of the Merrimack River. Half the students visited the Fishways while the other half made the trip to the Piscataquog River behind the West Side Arena. The two teams then swapped activities at mid-morning so all students could participate in both field activity.



Baby salmon awaiting release.

temperature tests and viewing the series of steps needed to determine river oxygen content. All four separate groups measured a pH of 6.7, a water temperature of 64 degrees F° (18 to 19 C°) and a dissolved oxygen level of between 9.0 and 10.0 mg/l. The students then referred to the laminated charts to determine if the water was suitable for baby salmon release. It was determined that all three parameters were well within criteria for a healthy fish envi-



Students capturing organic life.

Two activities took place simultaneously at the Piscataquog River. At one station, Rick Cantu did a field demonstration for the students measuring Piscataquog River water for pH, dissolved oxygen, and temperature. This is the station where the salmon were to be released. At the other station, Kathleen Neville, of the Amoskeag Fishways, helped students identify the life in the streambed to determine the overall health of the river.

The students assisted by obtaining the water samples, performing the pH and

ronment so, the fish were released.

At the other station where the students examined the life and health of the riverbed, students used nets to gather river life as it floated by and collected river bottom material to examine. In reviewing the material and organisms that were suspended in the water and upon examining the organisms and life on the river bottom, it was determined that the river was healthy enough to support the growth of salmon.

## Sixth Annual Junior Fire Muster

*Sponsored by the*  
Manchester N.H. Fire  
Department  
June 5, 2004  
JFK Coliseum  
1:00 to 3:30

No charge!— FREE

All Manchester Schools are invited to send and support a Fifth Grade Jr. Muster Team.

A team of five up to fifteen fifth grade students, will compete in three events. Awards will be presented for individual events (for those actually participating) and for the top three combined times.

A Firefighter of Local 856 will help explain the events to the team members. They will become a coach/coordinator. We are hoping to make this the best Junior Fire Muster yet.

So get your teams ready and we'll have the coaches for you.

Yours in Fire Safety,  
**The Junior Fire Muster  
Organizing Committee**

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- Granite Pineapple Awards
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- 7 ....Equivalent - Whats the Meaning?  
Highway Department Employee  
of the Quarter
- Cost of Living Increase
- Firefighter Fundraising Event

- 8 ....A Trepine of the Skull!?
- Insert** ... Bob Power's Memorial  
Pantry

Congratulations!  
Big Brothers, Big Sisters  
Family Fair Schedule

# The CITY MATTERS

A NEWSLETTER FOR AND BY THE EMPLOYEES OF MANCHESTER NEW HAMPSHIRE

## Can Rain Really

# Pollute Our Ponds and Rivers?

By: Rick Cantu

There are new Storm Drain signs appearing all around the City. The message is, "No Dumping, Drains to River." Storm drains are designed to move rainwater and snow melt from the streets to the ponds and Merrimack River. People think that rainwater is quite clean and everyone knows the saying, "pure as the driven snow." I'll bet you didn't know that rain and snow have a dirty little secret.

Rain absorbs airborne particles as it falls from the sky. These particles consist of sulfur dioxide (from paper mills and coal fired industrial plants), metals like cadmium, chromium, lead and mercury are also airborne from mid-west smelter plants, coal-fired electrical generating stations (like New Hampshire's PSNH Bow and Schiller plants) and plants that incinerate garbage and sludge. Even though these amounts are very minute in each raindrop, a moderate rain-storm can dump millions of gallons of water and hence hundreds of pounds of pollutants over the landscape of Manchester.

These raindrops hit roofs that have a light deposit of the chemicals listed above. When these chemical particulates clump together they become heavier than air and drift onto the rooftops. These same raindrops now run across lawns that are covered with fertilizers, herbicides and pesticides. Now these raindrops make their way

across driveways that have soap, scum and sand from the last car washing. The final journey for these drops happens as they move along the road gutters picking up cigarette butts, road grime, leaking oil, sand and sediment, dog and other animal feces and a host of trash that is left on the roadsides before finally entering the rivers and ponds of Manchester. Is it any wonder why this rain runoff is the major contributor of pollution to the local rivers and ponds? Rain runoff and snowmelt contribute more total pollution to the Merrimack River than the discharges from the City's Combined Sewer Overflows (CSO) and treatment plant discharge.

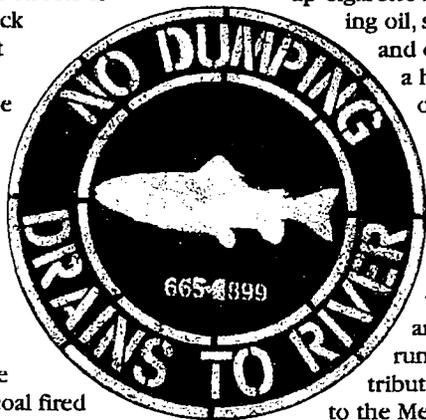
The City is installing baffle tanks at Crystal Lake and Dorrs Pond. These tanks take the flow from catch basins and allow the sediment, sludge and grit to settle in the bottom of the tank. This provides for cleaner runoff to enter into these two ponds. It is in this settled material where most of the metals and other pollutants collect. The City will have these tanks cleaned out on a semi-annual rotating schedule. The sediment is removed with the City's vacuum truck and taken to a secure location for processing.

This sediment can then be mixed with sand and gravel and used for road base.

This material can be recycled in this way as it is in a stabilized state and will no longer contribute to polluted run off.

You can see we all are responsible for contributing some of the pollution that gets to the rivers and ponds within Manchester. To find out more about the types of pollution that citizens are unknowingly putting down the storm drains and what you can do to make the environment a little cleaner, please visit the EPD website at: [www.manchesternh.gov/CityGov/dpw/EPD/stormwater/PublicParticipation.html](http://www.manchesternh.gov/CityGov/dpw/EPD/stormwater/PublicParticipation.html)

As you see more of these storm drain stencils and adhesive labels around the City, remember that you can do your part to help clean up our rivers and ponds and make the environment a little cleaner and safer for our children and grandchildren.



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- 6 ...Retirement Referendum**  
New Retirement Website!  
Manchester Employees Contributory Retirement System

# Parkside Students Participate in a Day of Awareness

By: Rick Cantu-EPD

It was a brilliantly cloudless day with the temperatures approaching 90° on June 8th. There were over 20 students from the Parkside Middle School who were about to participate in a storm drain stenciling project for EPD. These were Manchester's youths, the next generation of volunteers for the environmental cause.

Earlier that morning a representative from the Amoskeag Fishways and EPD had met with the students to explain the importance of the project. It was an awareness campaign for the citizens in the neighborhood, but it was a hands-on experience for the students.

Students learned that all these drains now led to the Piscataquog River since the City has completed the sewer and drain separation projects in these neighborhoods.

Representatives from the Amoskeag Fishways, the School Department, Urban Ponds, the Highway Division and EPD assisted the students in completing the project. Six teams of four students accompanied by adults were dispatched to various areas within the Parkside neighborhood. A demonstration was given to the teams in the front of Parkside School on how to apply the "No Dumping" decals as these are put

on granite curbing with a vulcanizing adhesive. The students were also trained in how to prepare the asphalt, set the stencil, spray the design and remove the stencil to leave the sharpest



design possible. The students and adults were given support items including safety vests, facemasks (to protect against the spray paint fumes), brooms, wire brushes, stencils, decals and paint.

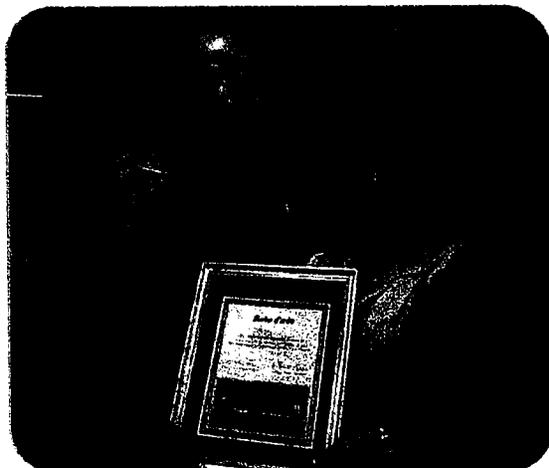
It was nearing noon and the teams were dispatched during the heat of the day. The area included all the streets within the quadrant bordered by Sullivan Street on the south, Kelly Street on the northern side, Kimball Street on the west and Rimmon Street on the east. It is estimated that the various teams stenciled approximately 200 catch basins that day.

The students were very focused on the task and some teams completed their project ahead of schedule. They then went to assist other teams and all had completed their projects by the 2:00 PM finish time.

During the stenciling project, the students left brochures in doorways and on cars informing the residents what a storm drain is, actions they can take to help the Piscataquog River, pollution prevention tips and locations where residential waste can be disposed.

The diligent efforts of the students were rewarded with over 70 ice-cold bottles of water. This may not appear as much of a reward, but it was cold and a welcome relief under the sun of a rare hazy, hot and humid June day.

EPD extends its thanks to those students who participated in the storm drain stenciling project. The project went much better than anticipated with more being accomplished than expected. Gratitude is also extended to the adult volunteers who helped keep the team on track by following the maps as laid out and guiding the students to complete the work in their assigned areas.



## Jackie Curtis Award

Alderman Mike Lopez recently organized a Memorial Day Dinner Program for World War II Veterans. He asked for volunteers and as would be expected, Jackie Curtis volunteered. Alderman Lopez presented Jackie with a beautiful framed citation from the Manchester Veterans Council for her service.

# The CITY MATTERS

A NEWSLETTER FOR AND BY THE EMPLOYEES OF MANCHESTER, NEW HAMPSHIRE

City Agencies Work With

## ST. ANSELM VOLUNTEERS On Local Clean Up

On Saturday August 24th staff from the Office of Youth Services worked with Students from St. Anselm College to remove graffiti from an alley in center city Manchester. For 15 years Dan Forbes, Director of the Meelia Center on Community Volunteerism at St. Anselm College, has been working with local partners to provide opportunities for St. Anselm students to participate in community service projects around the City. This year, Jon Donovan and Jeff Gore from the Office of Youth Services collaborated with Manchester Police Department MPAL Officer Brian O'Keefe and the Pal Family, owners of the Chateau Restaurant on Hanover Street, who donated materials for the graffiti removal project. Nickie Lora, Assistant Director at the Meelia Center coordinated the students with OYS staff. She said, "The new students came back glowing from their experiences at all of the sites. It is amazing to see so many new students out doing community service all at the same time."



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- 6 ....Crystal Lake Is More Protected  
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- 7 ....Emergency Challenges  
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- 8 ....The Captain & His Sword  
Thank You Harry Ntapolis

### Employee Profile: **Peter Capano**

*Profiled in this issue of 'the City Matters,' is a man whose loyalty, love, and pride of his adopted Manchester are evident by his civic activism. Upon first meeting, his friendly and engaging manner give one a sense of having already known. Today, we focus on Manchester resident Peter Capano.*

A native of Cape Elizabeth, Maine, Peter has been with the public works since 1987. As chief inspector at the Department of Highways, this civil engineer works with contractors ensuring that all city standards and specifications are met in regard to construction and development. On site each day, it would be a safe wager that the man knows his city well.

After graduating from Cape Elizabeth High School, Peter continued his studies at the University of Maine - a fact that he does not let his many friends that are UNH hockey fans, forget. Having played baseball, soccer, and basketball, Peter's love of athletics, particularly youth athletics, has not waned. Until recently, he coached the U-14 Manchester United girls soccer traveling team. This season, he is the voice of Manchester girl's high school soccer, broadcast locally on MCTV. Prior to taking

his place in front of a microphone, Peter volunteered his time behind the camera, helping to produce local cable access television.

Along with these lofty endeavors, each week he climbs the tower of the old Ash Street School, currently the home of the Manchester School Department, to wind and maintain the historic clock that sits atop this city landmark. By appointment of the mayor, Peter is also a member of the city Planning Board.

Married to Susan, a mathematics teacher at Concord High School, they are the proud parents of Neil, a Central graduate and currently enrolled at the University of Minnesota-Morris. Daughter Lucia is a sophomore at Central and a member of the state champion Central girls soccer program.

A cycling enthusiast, of the sport itself and in terms of recreation and staying fit, Peter can often be found on his bike, traveling the city. While his pursuits are many, more than can be mentioned in this limited space, the biking he does takes him around and about the city he refers to with pride. Manchester, the city he calls home.

# Crystal Lake is More Protected Due to Best Management Practices (BMPs)

By: Rick Cantu - EPD

Crystal Lake has received a reprieve from its impending death sentence. Thanks to the Supplemental Environmental Projects Program (SEPP), the Lake is being given an extension on future boating and recreation usability.

For decades, sand, silt and salt from Bodwell and Corning roads have slowly made its way into the lake. This has caused an enrichment of nutrients with associated invasive species growth. It has also caused a filling in of usable beach area by this sediment that results in a shallow water depth in the swimming area.

Without action, this lake would continue to deteriorate and become unusable in a couple of generations. SEPP has committed \$377,583 for the protection of Crystal Lake, Dorrs Pond and the Piscataquog River. A high percentage of this funding has gone to the Crystal Lake project. Prevention is the key and stopping the source of sediment before it enters the pond is what extends the lake's longevity.

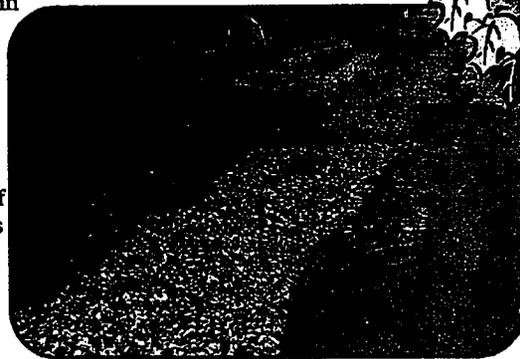
The project required the installation of a baffle tank on Corning Road. This tank receives the runoff water, settles out the sand, silt and trapped salt and allows a cleaner runoff to exit and enter the Lake. This tank is inspected semi-annually by DPW and cleaned as needed.

The entrance road was upgraded.

Additional leaching manholes were added and both sides of the roadway were fitted with BMPs. Leaching manholes look like giant strainers that allow water to be absorbed by the surrounding earth.

A filter fabric was placed over the gravel to allow water to infiltrate into the earth and not run down the asphalt driveway carrying along with it silt and sediment into the lake.

Stone was placed over this fabric to provide large porous space for the water to infiltrate through the fabric and also to trap silt and sedi-



ment as it runs along the stone.

Bleed-offs were installed along the length of the stoned area to move water into the wooded area while keeping more of it out of the lake.

The water that does get through the stone parking area enters a newly constructed grass swale. Finer particles of silt are trapped in this area. It is at the



end of this area where several hundred cubic feet of sediment have now made its way into the Lake.

Dredging of this sediment will happen during September to remove between 40 and 50 tons of sediment and hopefully, much of the invasive species that are there now. These BMPs should greatly reduce the pollutants that have entered the Lake over the past few decades and allow the Lake to remain the recreation area it is for several generations to come. Take a ride out there and witness firsthand the vast improvement to the parking area and see how BMPs help reduce or eliminate the destructive ability of storm water runoff.

## MANCHESTER MAN TAKES CONTROL OF HEADQUARTERS CO.

*Captain Thomas R Benard took command of Headquarters Company at White Sands Missile Range in New Mexico in stirring ceremonies at the Post on May 4, 2004.*

Captain Benard was born in Manchester on August 19, 1968, attended St. Raphael's west side Catholic school, graduating from West in 1986.

Tom joined the US Air Force out of high school. He served three years in Greenham Commons on Peace Keepers and served a year in Greece and was honorably discharged after five years of active

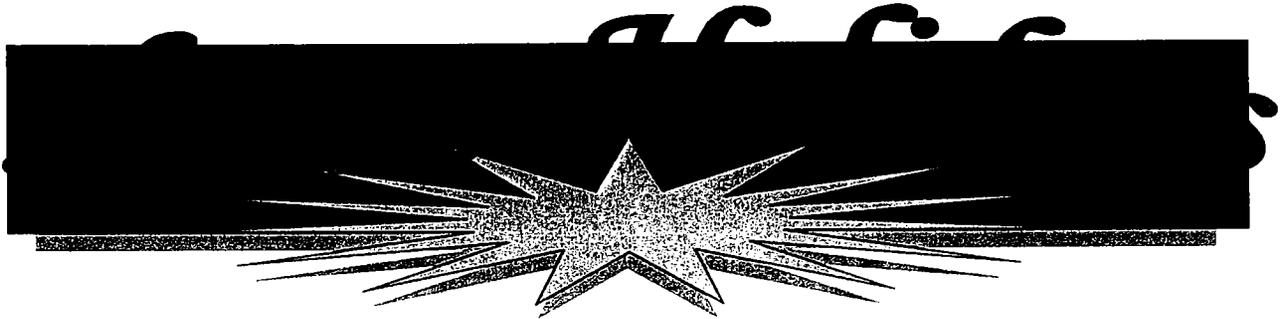
service. He continued to maintain his military service in the Army National Guard and was also employed full time as a police officer in Albuquerque, NM for seven years. Tom earned a BS at U.N.M. and was commissioned a 2nd Lt. in August of 1999.

Tom's father works as a housing inspector for the City and his mother is a cook at West High School.



# The CITY MATTERS

A NEWSLETTER FOR AND BY THE EMPLOYEES OF MANCHESTER, NEW HAMPSHIRE



## Manchester Employees' Contributory Retirement System Receives 2004 Award for Compliance with Public Pension Standards

By Gerry Fleury

The Manchester Employees' Contributory Retirement System, (MECRS) is proud to announce that it has received the Public Pension Coordinating Council's 2004 Award for compliance with Public Pension Standards. The Public Pension Coordinating Council is a confederation of the National Association of State Retirement Administrators, the National Conference on Public Employee Retirement Systems, and the National Council on Teacher Retirement. The award is given in recognition of meeting professional standards for plan design and administration as set forth in the Public Pension Standards established by the confederation and requires that plans meet specific criterion related to funding, financial reporting, member benefits, and actuarial and audit practices.

The MECRS believes that this award helps to demonstrate the continuing commitment to plan excellence on behalf of participants.

## News from the Events Committee:

We are in full swing of our winter events. We have in the planning a Free Tubing event at McIntyre Ski Area, Free Skating at JFK and a winter event for the adults at Fratello's. We are still selling Entertainment Books and they are a wonderful stocking stuffer or hostess gift. Contact any member of the Events committee to buy one. Our calendar raffle did very well and we would like to thank everyone who bought and sold tickets. The winter event for the adults costs will be offset by this fund-raiser to make it a wonderful, virtually inexpensive night out. We are planning on a get together at Fratello's on Saturday night February 5<sup>th</sup> 2005. We planned this event after the holiday's because we know how busy we all are at this time of year. We are planning a wonderful buffet with extras thrown in, a free drink for those attending and a DJ.

We are covering some of the costs so it will be only \$20.00 per person for this event. There is no dress code so you can come casual or dressy, (whatever you feel like that day). This is a wonderful opportunity for everyone to get together and get to know one another. We on the committee have met so many wonderful employees since we started these events and hope to eventually meet everyone. Put the 5<sup>th</sup> of February on your calendar and keep on the lookout for more information soon. The hall holds 150 people and we hope to fill it.

Anne Hatin, Committee Chairperson



# Pet Waste is a Major Source of Storm Water Pollution

By Rick Cantu

The Storm Water Management Program has designed a "Pet Waste" brochure. A copy of this will be given out with dog license renewals in 2005.



Few people see dog waste as an environmental issue. Many dog owners do not realize that pet waste can actually spread serious disease. Family members can step in this waste and track it into homes. Children playing in the yards in the neighborhood can get this waste on their hands

and into their mouths. Following is a list of potential diseases from animal wastes:

- Campylobacteriosis – bacterial infection
- Salmonellosis – the most common bacterial infection transmitted to humans by animals
- Toxocariasis – round worms transmitted to humans by dogs
- Toxoplasmosis – a protozoan parasite carried by cats that can be transmitted to humans

When pet waste is left on grass, roadways and sidewalks to decay it can spread disease and get washed into storm drains. This in turn travels to your ponds, lakes and rivers.



Pet waste is very high in E. coliform bacteria. This is the bacterial analysis count that is used to close beaches. In Manchester the safe swimming limit for E. coliform bacteria is a count of 88.

One gram of dog feces can carry up to 20 million E. Coliform bacteria. You

can see it wouldn't take much pet waste to close a beach.

Cleaning up after you pet can be as simple as taking along a plastic bag or pooper-scooper with you on your next pet walk. Place your hand in the plastic bag, pick up the waste, pull the bag inside out and tie a knot in the top. The best place to dispose of this waste is in your toilet, as it will go to the wastewater plant for treatment. It is also acceptable to put this waste in your garbage.

Another option is to bury the waste on your property or use an in-ground pet waste composting unit. Do not bury the waste near a vegetable garden as the soil tends to be handled often during tilling, seeding and weeding. Bury this waste in a flower garden and the nutrients (nitrogen and phosphorus) will help your plants thrive and you will not need to use as much fertilizer when the garden is planted.

The nitrogen and phosphorus also promotes algae growth in the ponds and creates problems and a disturbance in the food chain as oxygen can no longer penetrate to the lower layers of the water.

## Old Pictures of the Manchester Fire Dept.

- 1 Chemical Ladder Truck ca. 1913
- 2 Old Central Station Muster with Salvation Army Bldg. in background
- 3 Old Central Station ca. 1906
- 4 Flying Squadron ca. 1918
- 5 Old Central Station ca. 1912 looking toward Concord St.

The old Central Fire Station was located on the West Side of Vine Street between Amherst and Concord Streets. Vine Street is only one block long and is one block east of Elm Street.



With the construction of the current Central Fire Station on Merrimack and Pine Streets, the old station was demolished and the New England Telephone and Telegraph Company (now named Verizon) facility was expanded to include almost the entire west side of Vine Street.



Across from the old Central Station was a portion of Victory Park which eventually became a City parking lot and later a City parking structure.



In the "muster" picture, you can see the narrow three-story building in the distance on Concord Street. For many years, the building was the home of the Salvation Army. It is now part of a parking lot for the A.C.A. (American Canadian Association.)



Gene Mackie  
November 8, 2004



# The CITY MATTERS

A NEWSLETTER FOR AND BY THE EMPLOYEES OF MANCHESTER NEW HAMPSHIRE

## Earth Day Events in Manchester

Earth Day celebration events will be held on Saturday, April 23rd from 10:00 a.m. to 4:00 p.m. The Student Conservation Association is coordinating the events with the support of the City of Manchester. The activities will take place at Veterans Park.

Over 60 people have signed on for the 'Rails to Trails' clean up events. Buses will take groups of people to three stations to clean the trails of brush, garbage and perform a pre-grooming for the trail installation. One area will be on the east



side of Manchester from Shaw's to Singer Park. The other area will be along the lower end of the Pistacaquog River on the west side of Manchester and third project will be a pond cleanup along Nutts Pond. Any and all volunteers will be appreciated for this large undertaking.

It is anticipated that upwards of 50 booths will be staffed by various environmental organizations. The EPA has tentatively scheduled the display of their Envirosphere project geared toward younger adults. Activities will include face painting, environmental design applied to canvas bags, designing of water bottles and storm drain stenciling demonstrations. There will be an ongoing list of featured speakers, music and food throughout the days events.

Everyone is encouraged to come by and learn of the environmental activities happening in and around Manchester. Your support is greatly appreciated.

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Manchester NH, 2nd Regiment  
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1861-1864

# How You Clean Affects the Environment

By Rick Cantu - EPD

Manchester has over 60% of its sewer system combined with the storm drain system. What does this mean? Anytime it rains, the storm drain water mixes with the sewer water as a single pipe is used for both sewage and storm water. Additional flows increase the holding capacity of the collection piping throughout the City. Because of this, even moderate rainstorms will cause mixed sewer and storm water to overflow into the Merrimack River.

That means if you are using floor washing chemicals, tub & tile cleaners, bleach or any strong chemicals during those times before or during rainstorms, chances are this stuff is going out into the Merrimack River. Go ahead look at the label on your cleaning product. Can you pronounce the name(s) of the active ingredient(s)? Those chemicals are deadly to the fish and river biology.

Now you wonder, "What can I do to help?" Below are some helpful hints that will save you money on expensive cleaners and put nonhazardous products out into the Merrimack River during rainstorms.

- When scrubbing counter tops, stainless steel sinks or other surfaces use baking soda and then wipe the surface clean with a vinegar (25%) / water (75%) solution
- When cleaning your floor and toilet bowl, use 3 teaspoons of borax and 2 ounces of liquid dish soap in two quarts of hot water. It will replace harsh cleaners that usually contain bleach and hydrochloric acid
- Sometimes you'll want to remove mildew on surfaces and will buy a product that has a pesticide chemical. Borax and warm water are as effective
- In areas where you are experiencing mold, use a full-strength white vinegar
- Baking soda, vinegar and ammonia make a great toilet bowl and ceramic tile cleaner. Use ¼ cup of baking soda, ½ cup of white vinegar and 1 cup of ammonia
- Looking to clean a porcelain sink or the outside of the toilet bowl? Use a small amount of cream of tartar and a little water to make a paste. This makes a great cleaner
- Do you have chocolate or blood stains on laundry? Club soda and cold water works

wonders in removing these stains (only works with fairly fresh stains)

- Grease stains from foods can drive you crazy. Try rubbing corn meal and water into the stain, and then rinse with lemon juice before washing. Hey it worked for our grand parents!
- Really tough stains can be soaked in ¼ cup of borax and 2 cups of cold water before washing.

Even if you only try one of the above tips, you're doing your part to help. One 12-ounce can of tile cleaner removed

yearly for each person in Manchester (107,000 residents) means a savings of 10,036 gallons of that cleaner. That is 182, 55-gallon drums of pollution! Can you see how even the smallest savings can add up to big numbers. Let's mix the above formulas, we've got some cleaning to do.



## 2005 SCIENCE FAIRS

### "Manchester Water Works: Water is a Precious Resource"



<u>DATE</u>	<u>SCHOOL</u>	<u>TIME</u>
April 4 <sup>th</sup>	Auburn Village School	1:30-3:15 – (awards 7:00 pm)
April 12 <sup>th</sup>	Smyth Road School	10:30-12:30
April 13 <sup>th</sup>	Parker Varney School	9:00-11:30
April 14 <sup>th</sup>	Hallsville School	10:30-12:30
April 14 <sup>th</sup>	Webster School	12:45-2:30
April 15 <sup>h</sup>	Jewett Street School	8:45-11:00
April 15 <sup>h</sup>	Green Acres School	9:00-11:30
April 19 <sup>h</sup>	Northwest Elementary	9:00-11:30
April 20 <sup>h</sup>	Gossler Park School	9:00-11:00
April 20 <sup>h</sup>	Beech Street School	10:30-12:30
April 21 <sup>st</sup>	CITY FINAL	3:00-5:00
April 27 <sup>h</sup>	Poster Contest Judging	12:30-2:00
May 4 <sup>th</sup> (Wednesday)	State Final	9:00-12:30

Above is a listing of our Annual 4<sup>th</sup> grade Water Science Fairs and Poster Contest. Contact Cindy, Kristin or Cheryl at 624-6482 or email [cherylwood@comcast.net](mailto:cherylwood@comcast.net) to sign up.

## Phase II Storm Water Meeting

Minutes of the 5/4/04 Meeting held at EPD office in Manchester, NH at 2:00 PM

### Present:

Tom Fatcheric	–	Goffstown, NH	<a href="mailto:tfatcheric@ci.goffstown.nh.us">tfatcheric@ci.goffstown.nh.us</a>
John R. Trottier	–	Londonderry, NH	<a href="mailto:JRTROTTIER@Londonderry.org">JRTROTTIER@Londonderry.org</a>
Allen Cote -		Derry, NH	<a href="mailto:alancote@ci.derry.nh.us">alancote@ci.derry.nh.us</a>
Rick Cantu -		Manchester, NH	<a href="mailto:rcantu@ci.manchester.nh.us">rcantu@ci.manchester.nh.us</a>
Janusz Czyzowski	–	Londonderry, NH	<a href="mailto:jczykowski@londonderry.org">jczykowski@londonderry.org</a>
Jim Stanford -		Bedford, NH	<a href="mailto:jstanford@ci.bedford.nh.us">jstanford@ci.bedford.nh.us</a>
Bruce Knox		Auburn, NH	<a href="mailto:auburntown03032@yahoo.com">auburntown03032@yahoo.com</a>
Debbie Loiselle	–	NH DOT	<a href="mailto:Dloiselle@dot.state.nh.us">Dloiselle@dot.state.nh.us</a>
Rob Robinson		Manchester, NH	<a href="mailto:rrobinso@ci.manchester.nh.us">rrobinso@ci.manchester.nh.us</a>
Jayson Brennen		CDM	<a href="mailto:brennenJD@cdm.com">brennenJD@cdm.com</a>

The first item was a presentation by Jayson Brennen of CDM regarding mobile GIS applications. The demonstration was done on a desktop and tablet PC. The purpose was to demonstrate field collection of data, access to the existing database and maintenance of these systems in regards to updates.

An example city was demonstrated with GIS data including roads, buildings, sewers, drains and associated manholes. A section of the base-map data was then downloaded (checked out) to a tablet PC and disconnected from the main system. The tablet PC was utilized in an example field demonstration where new sewer lines were snapped on an example street, manholes inserted, and data on condition and rim elevations updated on the tablet PC in real-time.

The tablet PC was once again connected to the desktop with the main base map and the field data was uploaded (checked-in) to the desktop PC. The previous section of mapping that was checked out now had the entire field collected data within the display.

A GPS unit can be used in association with Arc Pad to have the map move with the person while they are out in the field. Attribute buttons can be added for maintenance items such as inspections, repairs, sampling, overflows and any combination of designations one would want to assign to the attributes.

Several questions were asked and answered after the presentation, which took about an hour. If there are any further questions that may have arisen since the presentation you may contact Jayson at the above email address.

The next item discussed was EPA storm water audits. Rick had explained to the group that the EPA had audited Manchester within the past three weeks. He explained how the audit followed the Storm Water Management Program plan submission in sequence. The audit consisted on questions on how the city was coming along with what they had

due to runoff control and erosion measures. Alan was designated the tree warden for Derry, but most of the members did not know who was designated tree warden in their respective communities. There are State RSAs that govern the duties and responsibilities of the tree warden.

Rick had explained how the first cycle of sewer billing had received the Stormwater Hotline mailer and instruction notification. He said that he is getting calls now for basement flooding, high river water, water ponding in the back yards and the like. He has also received calls for people draining oil and throwing other things in the catch basins. Rick believes the confusion is in the word storm water. Anything that happens during a storm or results from a storm is the fault of storm water (hence the calls for basement flooding, high river water and water ponding). That wasn't the original intent, but a couple of the residents said they took the mailer and placed in on their refrigerator with a magnet so they can have someone to call now in the City with their problems. Rick said he would have given more thought to what the flyer had said, have been more specific on what constitutes storm water notices and maybe have waited a year or so to allow more time for the citizens to become more familiar with the storm water program.

The next meeting is scheduled for Tuesday, July 20<sup>th</sup> at 2:00 PM in Manchester.

The NHDOT does not face these specific issues, but they have met with the Construction Site Bureau and have given training to all the employees. In the winter time when things are slow there is a week of NPDES permit training for this group that includes everything from traffic safety to NOI and SWPPP. Deb believes this Bureau is on track and that they are more aware of the requirements of the NOI and SWPPP. This should better prepare them for site upkeep in the various cities and towns in New Hampshire where they have projects. Deb handed out the material the State includes in every bid that outlines general guidance for a SWPPP. There is also a checklist given to each work site to determine if they have completed all the requirements of the NOI and SWPPP.

### **Public Outreach Updates**

Deb said she had a statewide meeting with aeronautics folks in regards to SWPPPs and erosion control BMPs. The larger airports were all aware of the material presented in the training, but the smaller airports had no idea there was this program or had any idea of what they needed to do to comply. In October there will be outreach that includes getting the Construction Site Bureau together and prioritizing the training for next year.

Goffstown has an Adopt-a-Spot that is working very well. The town provides the signage, the bags and picks up the waste. The more material that gets picked up off the streets the less that is left to get into the river. After a team has cleaned up their spot a report is filled out to record what has been picked up. There is an Eagle Scout preparing to do a storm drain stenciling program with the associated door hangers. Tom is getting informational updates out in the semi-annual Goffstown newsletter that is sent to the Citizens. Goffstown has been airing the Seacoast video "There is Another Way" on the local public TV access cable channel. They have also updated their website. Bedford is using Goffstown's newsletter idea and also doing some of the things Goffstown is doing. Manchester had a local middle school do storm drain stenciling. About 200 CBs were stenciled or decaled in a half-day. Rick showed the group the stencil and others were interested in the product. The stencils were provided by:

Franklin Paint Company, Inc  
259 Cottage Street  
PO Box F  
Franklin, MA 02038

The Pine Island Pond residents have formed a pond organization. They call themselves PIPES (Pine Island Pond Environmental Society). This is the third pond with an active organization (the other two are Dorrs Pond and Crystal Lake). Manchester will support this group with testing equipment, decals and stencils to test their waters and keep the CBs marked.

### **GIS Updates**

Goffstown has its GIS online but it is not available for specific use. There will be a new intern from UNH who will help over the next few years in mapping and updating the GIS system. Bedford has hired a consultant to update and evaluate the existing GIS system for overlays that don't seem to match up and fit. Bedford has an RFP out for a consultant to do the road maps within the Town. This will consist of a fly over at either a 40:1 or 100:1 ratio which has yet to be determined. There won't be much to the drainage system mapping as most of the drainage is on private property and follows drainage swales from

## Phase II Storm Water Meeting

Minutes of the 9/21/04 Meeting held at EPD office in Manchester, NH at 2:00 PM

### Present:

John R. Trottier	-	Londonderry, NH	<a href="mailto:JRTROTTIER@Londonderry.org">JRTROTTIER@Londonderry.org</a>
Allen Cote	-	Derry, NH	
Rick Cantu	-	Manchester, NH	<a href="mailto:rcantu@ci.manchester.nh.us">rcantu@ci.manchester.nh.us</a>
Russ St. Pierre	-	NH DOT	<a href="mailto:drstpierre@dot.state.nh.us">drstpierre@dot.state.nh.us</a>
Debbie Loiselle	-	NH DOT	<a href="mailto:Dloiselle@dot.state.nh.us">Dloiselle@dot.state.nh.us</a>
Janusz Czyzowski	-	Londonderry, NH	<a href="mailto:jczykowski@londonderry.org">jczykowski@londonderry.org</a>

### Audit Updates

Deb told the group that Exeter and Somersworth both had their Audits. These were performed by Jack Healy (EPA) and Jeff Andrews (NHDES). Responses were received and the audit response was about three pages for each community.

Rick went over EPA's audit response from Thelma Murphy. He noted that even though the report was very good, EPA has mentioned the need to benchmark progress for next year. Examples would be to target an increase in household hazardous waste collected. It was suggested that Manchester increase the target number of trees planted through the green streets program and include amounts of catch basin cleaning debris volume. Rick thought this would be the natural next step in the Storm Water Program. He was more focused on getting each BMP completed rather than looking at the completed BMPs and seeing how the progress made could be enhanced and carried forward.

### Ordinance Updates

The group discussed the status of ordinance development. Derry is using CLD to help put together their storm water ordinance. Londonderry is going to contract with Volmer Associates to put together a draft ordinance. Deb gave the group the model ordinance as distributed by the Maine Municipal Association that help small communities in Maine develop their storm water ordinance. Rick explained that Manchester's ordinance was greatly reduced and much of the original ordinance was placed in Rules & Regulations. The concern with the draft ordinance review committee is that enough requirements are placed in the shortened ordinance to give teeth to the Rules & Regulations.

### Contractor Compliance with NOI & SWPPP

Londonderry, Derry and Manchester check the Internet sites to assure contractors have submitted their NOIs to the EPA. Derry will check with contractors who have no NOI posted on the website. Allen gives them a friendly reminder that they need to quickly submit an NOI to the EPA and develop a Storm Water Pollution Prevention Plan (usually a three-day time limit). If this isn't done Allen will have to notify the EPA. He says the mention of EPA usually gets quick results.

The Town of Derry uses a wood grinder to tear up stumps and trees to make check dams. These pieces of wood are usually about 18" long and 1/2" or so in diameter. He says these make great breaks, are better than hay bales and allow the snapping turtles to climb over

The State will be working on TMDLs and the group believes it is best for the elected officials to understand that a different level of service will be given with the reduced salt usage in the I-93 target area. They are the ones who will have to sell this to the general citizenship.

#### **Explore Future Half-day Meeting**

Deb thought it might be a good idea to get the chairs of each regional group together first to discuss the logistics in regards to a ½ day meeting. Then get back to the groups to coordinate the ½ day meeting with all participants. Rick will work with Deb to establish logistics.

#### **Other Business**

Rick showed the GPS system and explained how it will be used for maintenance and tracking field data as it is completed.

This was not mentioned at the meeting, but during the first few meetings we were all asked to think about a name for the group. As the Pipes organization in Manchester thought that to be an important first step and we usually see acronyms for many other groups, we should start thinking about a name for our group. With this in mind I'd like to throw out a possibility to get the group thinking in this direction again. The acronym would be ARC SWAT and it would stand for (Amoskeag Regional Communities Storm Water Assessment Team).

#### **Next Meeting Date**

The next meeting is scheduled for Tuesday, November 16, 2004. This will be held at the EPD Administration Building in Manchester.

The EPA will be hosting workshops in Merrimack on January 14<sup>th</sup> and also in Portsmouth on January 21<sup>st</sup>. These are being held to help the towns and individuals understand better the aspects of the Storm Water Management Program and its application relative to Minimum Measures #4 (Construction) & #5 (Post-Construction).

### **Public Outreach Updates**

Derry continues to be very successful with program tasks as assumed by the Rotary Club and the Beaver Lake Association in regards to storm drain stenciling. Allan will be getting magnets as suggest by Thelma for the students. Allan goes to the eighth grade classes to tell them about stormwater issues in Derry and other environmental training.

The Pine Island Pond residents of Manchester (known as PIPES Pine Island Pond Environmental Society) are an official group and have had a couple of meetings. They will take stewardship of that pond and will assist with storm drain stenciling. Rick is also assisting the Amoskeag Fishways in the "Merrimack River Matters" curriculum that is being given to 8<sup>th</sup> graders in Manchester.

Deb said the Nashua area storm water group have prioritized the outreach list for outreach and education. The project will be further discussed in December and the information will be shared with all groups. The top three priority is first a cable TV program, then DPW training in collaboration with 2<sup>nd</sup> graders (a successful program in Merrimack), and third would be stormwater education for middle schools. The team members will all bring their videos, brochures, news releases and any other information that may give ideas to the video portion of the list. Deb will keep the team informed on their progress.

Bedford and Londonderry have been working on mapping and other stormwater tasks and have not focused on the outreach portion yet.

### **State-wide Group Meeting**

The chairs from each group will be meeting on November 30<sup>th</sup> to discuss the potential of having either a ½ day or full day meeting with all four regional stormwater committees. Logistics will be worked out and agenda formulated. These will be brought back to the individual teams for further review and refinement and then an annual meeting set up with a final agenda.

The team was asked to think of the best time for an annual meeting and all thought the spring and summer would be too busy, but the late October first of November time frame would be ideal for an annual meeting.

### **Team Name**

As was stated in the previous minutes, a suggestion to develop a team name went out. An example was ARC SWAT and it would stand for (Amoskeag Regional Communities Storm Water Assessment Team). This is to gain an identity so an acronym can put names and faces to our group. Some creative ideas came out during the discussions. Deb offered a prize for the member of the group who came up with a team name.

## Phase II Storm Water Meeting

Minutes of the 1/18/05 Meeting held at EPD office in Manchester, NH at 2:00 PM

### Present:

John R. Trottier	-	Londonderry, NH	<a href="mailto:JRTROTTIER@Londonderry.org">JRTROTTIER@Londonderry.org</a>
Tom Fatcheric	-	Goffstown, NH	<a href="mailto:tfatcheric@ci.goffstown.nh.us">tfatcheric@ci.goffstown.nh.us</a>
Rick Cantu	-	Manchester, NH	<a href="mailto:rcantu@ci.manchester.nh.us">rcantu@ci.manchester.nh.us</a>
Debbie Loiselle	-	NH DOT	<a href="mailto:Dloiselle@dot.state.nh.us">Dloiselle@dot.state.nh.us</a>
Janusz Czyzowski	-	Londonderry, NH	<a href="mailto:jczykowski@londonderry.org">jczykowski@londonderry.org</a>

### Audit Updates

Goffstown had Jack Healey of the EPA do a Storm Water Audit of their program. It took about three hours. Jack looked at everything Goffstown worked on during the past year and a half. Jack had a copy of the NOI, Storm Water Management Program and the submitted annual report. Jack was pleased with Goffstown's Adopt-a-Spot and Roadside Clean Up programs. He also liked the town's website.

Tom thought the weakest part of his program was the pre and post construction program tasks. Now that Goffstown has hired an inspection engineer (Megan) they will be able to tie the pre and post requirements into the planning board material and mesh both the approval process and subsequent follow through in a seamless fashion.

Tom thought that EPA was seeking how they could better help the smaller communities implement their programs. He got the feeling that they would be there as a reference and guide during the first five years of program implementation. Jack said that Goffstown must notify EPA soon after any program changes or additions have been made to get that on record.

Deb thought that three out of the four statewide groups have had some if not all of their communities reviewed. Atkinson is the only state wide group that has not had audit at this point. She also said that the NHDOT met with Thelma to see if EPA approved of the way the state had developed and was implementing their program. NHDOT needed clarification and guidance from the EPA in some of the gray areas regarding rule interpretation.

### Winter Shut Down and Compliance

Discussions ensued on winter shut down and compliance. The communities expressed that other than paving, construction still continues for the most part throughout the winter. It is hard to determine if BMPs (silt fences, hay bales, temporary detention ponds, etc.) are effective as they are either covered with snow, or behind plowed snow piles. It is harder to determine compliance during the winter construction season than it is when everything is visible in the summer.

### Inspection Check Sheets

Some of the towns rely on the check sheets as prepared by their contract engineers or as completed by the contractors. Goffstown has a check sheet that is used by their

citizens can do to help abate stormwater contamination. Londonderry also finalized the stormwater hotline and will be notifying the citizens of its availability.

The NHDOT is doing a ½ day of training for its construction employees and will be doing this in the game format. It will be a Family Feud type game show with all the questions pertaining to the stormwater training the groups have received over the past year. This may be videotaped and shared with the four state community stormwater teams. They are also going to have a ½ day outreach training for all the private contractors in the State to inform them of their responsibilities under the EPA Stormwater Program. Members of the group asked for a copy of the attendance list to see if the contractors in their towns have attend the training and are aware of their obligations under the stormwater program.

Manchester is putting together a 2-hour training program for the DPW employees and also awaiting the Pet Waste Brochures for distribution with the new dog licenses issued in 2005.

### **Status of State-wide Group Meeting**

The four chairs of the varying state committees had a meeting in early December. Another date was set for February to begin to work on the material and agenda for the ½ day state group-wide meeting. A date for the meeting has yet to be determined.

### **Team Name**

A listing of the team names considered are listed below:

- |   |                  |
|---|------------------|
| • Storm Water Assessment Team                           | SWAT             |
| • Community Runoff Assessment Program                   | CRAP             |
| • Community Rainfall Urban Stormwater Heads             | CRUSH            |
| • Merrimack Urban Stormwater Coalition Limiting Erosion | MUSCLE           |
| • Manchester Area Storm Water Assessment Committee      | MASWAC           |
| • Storm Water Management Program – Things               | SWMP – Things    |
| • Storm Water Management Program – Monsters             | SWMP – Monsters  |
| • GREEN TEAM (Combination of all the area town names)   |                  |
| • Amoskeag Storm Water Innovation Starts Here           | Amoskeag – SWISH |
| • Amoskeag Storm Water Initiatives Starts Here          | Amoskeag - SWISH |

The group had a good time reviewing the submissions and everyone was in agreement that the SWAT name would be the team name. Bruce Thomas of Manchester's Engineering Division submitted this name.

### **Next Meeting Date**

Due to the late hour (4:05 PM) the meeting was adjourned, other agenda items will be discussed at the next meeting. This meeting is scheduled for Tuesday, March 15, 2005 at 1:30 PM. The additional ½ hour will allow us to finish the next agenda if we are pressed for time. The meeting will be held at the EPD Administration Building in Manchester.

It was asked to Rick how the Asist software compares with the hand-held GPS unit for tracking CB maintenance cleaning. The response was the PDA is one unit with issues of reading in direct sunlight. It is more for locating structures and mapping new outfalls. It will also be used to delineate the extent of construction sites. The Asist software has the ability to query the data base and review historical trends. Each serves a specific function that is different from the other.

More discussion went into GIS issues. Londonderry has had the fly over completed with outfalls and structures mapped. Derry is using summer interns to GPS each structure out in the field manually. Goffstown has already taken this step. All realized that there would always be things missed with the development of a functioning GIS project.

There are about six weeks before the second annual report is required for submission. We are now moving into the third year of the five-year initial permit period.

### **Status of State-wide Group Meeting**

The four chairs of the varying state committees had another meeting in February. The Statewide storm water meeting will be held at Fratello's in Manchester on Wednesday, September 21, 2005. It will be a whole day workshop. Mark your calendars. More information will be forthcoming, as it becomes available.

### **Ordinance Update**

Manchester's City Solicitor has completed the review of the proposed Storm Water Ordinance and the accompanying Rules & Regulations. Once the recommended changes are received and put into the two documents it will be forwarded to the Ordinance Committee for review and comment and finally to the full Council. Manchester is hoping to have this adopted in the May/June time frame. Once the changes are made it will be forwarded to meeting participants.

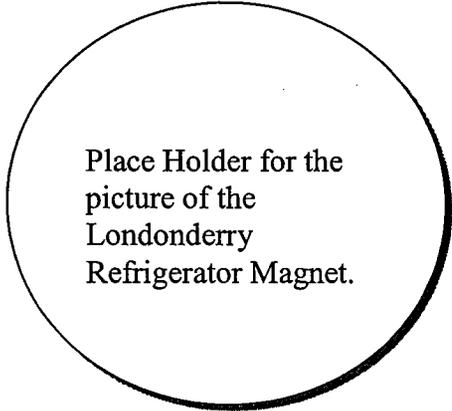
Derry has had CLD develop their Storm Water Ordinance and adoption is in the process of moving forward.

### **Outreach Updates**

Derry continues to work with the schools and Alan is hoping that some type of simple storm water curriculum is available to present to the teachers so they can continue the environmental education of the students. The land maps and where do you live in the watershed approach have worked well with the classes.

Londonderry had a booth set up at the polling places to provide storm water information to the citizens.

They have also made refrigerator magnets and have looked into other ways of providing information to the citizens of Londonderry. There were questions as to what the limits of outreach are being suggested by the EPA.



Place Holder for the  
picture of the  
Londonderry  
Refrigerator Magnet.



# **City of Manchester**

## **Storm Water Management Program**



### **Derryfield Country Club Best Management Practices (BMP#6-9)**

**Prepared by: Environmental Permits Coordinator  
August 2004**

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# **Manchester Storm Water Program**

## **Derryfield Country Club Best Management Practices (BMP#6-9)**

### **Introduction**

The City of Manchester submitted a Notice of Intent (NOI) outlining the basics of a proposed Storm Water Management Program. This NOI was received and reviewed by the EPA. The EPA sent a program approval notice on August 5, 2003, by certified letter, of acceptance of the NOI outlining Manchester's reporting responsibilities.

There are six minimum controls that are required by the EPA and proposed in Manchester's Storm Water Program. These include:

1. Public Education and Outreach
2. Public Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Each of these controls has associated tasks. Task nine of control six (BMP #6-9) requires the study of the Derryfield Country Club for potential BMPs to include:

- Golf cart cleaning and maintenance procedures
- Vehicle cleaning and maintenance procedures
- Fertilizer, herbicide and pesticide storage and usage
- Proper storage of used motor oil and other vehicle fluids
- Proper disposal of grass clippings and associated wastes

The City is required to do a study of potential golf course BMPs during the second year of the Storm Water Permit. This time period began May 1, 2004 and is completed April 30, 2005. With the bulk of the golfing season being in the 2004 calendar year, the following study was completed to fulfill the requirements of the program.

The Derryfield Golf Course was first opened as a nine-hole course on May 11, 1932. It was upgraded to an 18-hole Golf Course on October 31, 1934.

The course is usually open between April 1<sup>st</sup> and December 1<sup>st</sup> (depending on weather conditions) and averages 40,000 rounds of golf annually. Annual membership has been steady at 800 +/- members.

Currently, there are plans to demolish the existing clubhouse and replace it with a new facility.

## **Summary**

Rick Cantu and Stan Jaworski did a site inspection of the Derryfield Country Club on August 3, 2004. All the areas of BMP potential listed above were reviewed. It was evident that natural topographical features created simple rain gardens, detention ponds with sedimentation capabilities and vegetative strips that would all contribute to reduce runoff pollution.

The current vehicle maintenance practice is to bring these to the DPW Highway Garage to be serviced and repaired. No vehicle maintenance is done on site at the Country Club. The current golf cart cleaning and maintenance practices would all be considered good BMPs. No changes need to be made in these areas.

The use and storage of vehicle and golf cart oils and fluids are an appropriate BMP as these are taken offsite to a waste oil burner in Auburn, New Hampshire. Grass clippings are left where cut and due to the frequency of cutting and topography of the course, these are usually kept out of the onsite stream when storm events happen.

The only unknown BMP impact is from fertilizer use and to a lesser extent the turf fungicide application. Further study with sampling and analysis of potential impacts will need to be performed. The two compounds contained within fertilizer that impact water quality are nitrogen and phosphorus.

There are offsite impacts that drain through the golf course and would also have a storm water impact. These combine with the impact from the golf course and could give an indication of a higher pollution load from the golf course than it contributes.

A field study will be conducted during August and September of 2004. This will include sample and analysis of offsite impacts and total golf course impact. The offsite pollution load will be subtracted from the total pollution load measured to provide the quantity of pollutants the golf course is contributing.

The biggest fertilizer application is done twice yearly. The first fertilizer application happens during the first two weeks of May and the second during the first two weeks of September. The least fertilizer residual would be expected at the end of the first application season (last two weeks in August) and the heaviest fertilizer residual would be expected immediately after application (second two weeks of September).

There are two ideal sites (one on the golf course located on the eastern side of Mammoth Road and another on the western side) where the offsite impacts can be assessed. One is the retention swale behind Trinity High School (adjacent to the ninth-hole) and the other is at the NHDOT drain easement outlet on third-hole.

There are also good sites to measure the total pollution impact leaving the golf course property. The one on the east side of Mammoth Road (16<sup>th</sup> hole) discharges to a culvert on Hanover Street at the East Side Plaza where the Shop & Save is located. This would be an ideal location to sample to determine the impact of pollutants from the eastern side of the golf course.

The sample location on the west side of the golf course (seventh hole) would be from the end of the swale that runs between the 7<sup>th</sup> and 11<sup>th</sup> holes. This is on the far south side of the course before it reaches the end of Kenny Street.

The time frame for completion of this study has to coincide with that outlined in the City of Manchester's Storm Water Management Program. The current impact of the pollution load on the Merrimack River is anticipated to be very minor as Cemetery Brook (where the runoff from both sides of the golf course eventually migrate) flows to the wastewater plant for treatment. It is only during rain events of a moderate or larger category that the Cemetery Brook CSO overflow discharges to the Merrimack River.

## Inspection Review

An inspection of the Derryfield Country Club BMPs was conducted on Tuesday, August 3, 2004. Participating in the inspection was Stan Jaworski, Maintenance Manager for the Derryfield Country Club and Rick Cantu, Environmental Permits Coordinator.

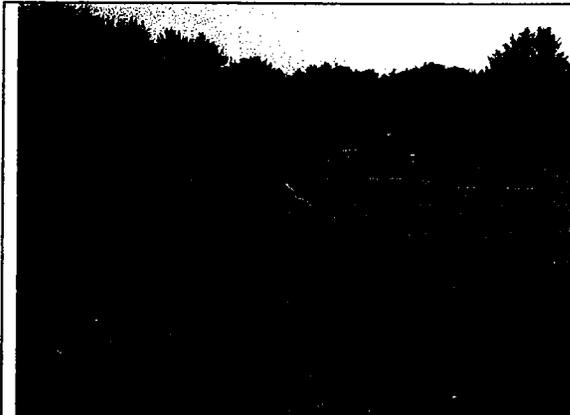
The inspection began at 9:00 AM and covered the golf course grounds, maintenance buildings, fertilizer and herbicide storage and vehicle and golf cart maintenance. The findings from the inspection are listed below:

- The Country Club (CC) fertilizes the fairways (approximately 25 acres) twice yearly during the first two weeks of May and the first two weeks of September. This is done during a period when there is no threat of rain for the next few days after the application.
- Tees and greens (each including approximately 80,000 square feet / 2 acres) are fertilized monthly, but with lesser amounts than the semi-annual fertilizer applications.
- The CC has tried a nature safe fertilizer. It was harder to apply and copious amounts of water had had to be used with the application to disperse and soak in. Overall, the results were not as good as the current fertilizer being used.
- Stan Jaworski is a Licensed Pesticide Sprayer in New Hampshire and applies the product in accordance with State and Federal laws. He applies the fertilizer in May and September when there is no rain, so it soaks into the grass blades. In addition, this practice is used during the monthly fertilizer application on the tees and greens. The chemical is a turf fungicide and it is locked in a storage room in the maintenance building. During the 2003 season 380 pounds of Scotts Fungicide-9 and 570 ounces of Daconil-ZN was used on the tees and greens. There are 142.5 ounces of Bayleton and 1,520 ounces of Daconil Weather-Stik used on the fairways. The 2003 annual pesticide report was submitted to the State of New Hampshire and is attached as reference.
- The grass is cut to three different lengths. One and  $\frac{3}{4}$  inches in the areas of rough (outside perimeter areas of each hole and typically bordering the entire course). The grass length is kept to a  $\frac{1}{2}$  inch on the fairways and  $\frac{5}{16}$  inches on the tees. (Note: grass was being cut on the sixth-hole during the site review. Clippings were short and no clipping bunches could be found along any of the low-lying areas or along the open waterways on the course. It appears the grass is compacted by foot traffic and golf carts and is subject to little or no movement during rain events).
- About a ton and a half of fertilizer is applied to the tees and greens annually. No fertilizer is used in the roughs. Approximately four tons of fertilizer is used annually on the fairways. The nitrogen/phosphorus/potassium (NPK) mix varies. Nitrogen is the component that helps the grass get a fast green up and potassium and potash are good for structural root development. Country Club (Lebanon Grade) fertilizer is used at a 10% Nitrogen, 4% phosphate and 10% potash. Also used is an organic based nitrogen called Milorganite at 6% Nitrogen, 2% Phosphate and no potash. These two are used on the greens in low doses, once a month. The tees and fairways get a product called Simplot Partners with a ratio mix of 22% Nitrogen, 2% phosphate and 22% Potash. This product is applied semi-annually during the first two weeks of May and again during the first two weeks of September. A Country

Club product with a ratio of 10% Nitrogen, 18% Phosphate and 18% Potash is used on new green development only. This product has not been used in about four years.

- The State of New Hampshire has a drainage easement onto the golf course where the drain pipe discharges onto the 3rd green. It drains through the center swale low-point along the lower end of the east side of the course. Water was running well (estimate 25 +/- gpm) and did not have any smell, or turbidity. It was as clear as brook water can be. This is a good location to sample for offsite impacts.
- There is a natural pond area between the 15<sup>th</sup> and 16<sup>th</sup> holes. The pond is approximately 20 feet square and estimated between two to three feet deep. This stores between 6,000 and 9,000 gallons of natural drainage retention. This pond aids in the settling out of any grass clippings and fertilizer that may runoff during heavier rains.
- Sand traps for the most part are located at the lower grade of the greens. These sand bunkers encompass approximately 35,000 ft<sup>2</sup>. This seems like a natural recharge site for flow that comes from the greens. All greens have a sand trap that is in close proximity to the pin. Also around each green is a fairway buffer strip bordered by the rough.
- Holes seven through 11 are located on the west side of Mammoth Road. The rest of the holes are on the east side of Mammoth Road.
- Along the backside of Trinity High School (this borders the extreme north side of the holes on the west side of Mammoth Road) is a natural drainage swale. Two 12" pipes enter this side of the swale, then exit under the service road to the golf course side. This flow moves to the golf course side of the service road and exits two smaller 4" pipes. This restricted outlet creates a natural delayed storage area and would be a good representative sample location to determine what type of pollution is being brought onto this side of the golf course from offsite locations.
- Maintenance by City staff is only performed on the lawn mowing equipment and six golf carts. This maintenance is performed in a new 50 X 100 foot building on the west side of Mammoth road that abuts Burgess Street. Used oil is given to Ted Bantis of Auburn who does landscape work for the Country Club. He burns this in a waste-oil burner. The floor of the maintenance shop is sloped in such a way that it would take a large spill to exit the concrete slab onto the golf course grounds. All equipment is of the small engine type with oil capacities of a gallon or less and gasoline tanks of typically less than five-gallons. The storage area was neat and clean with no visible signs of leakage on the concrete floor.
- Sixty-six private golf carts are under the service of the Pro Golf Shop and are not under the control of the City. These carts are cleaned behind a small shed off the backside of the clubhouse. Only water and a pressure cleaner is used to clean the carts when they come in after each use. The area is bermed and water soaks into the ground behind the shed. The carts are leased from a leasing company that performs the maintenance. No evidence of any fuel leakage could be seen around the area where the golf carts are stored.
- It is not likely that any members are using the areas underneath the canopy of trees for restrooms as the clubhouse and porta-potties are strategically placed about every six holes.

## BMP Assessment & Practices



**(Description #1)** This is an example of a mowing machine cutting the grass on the sixth-hole fairway. The mower deck is set to ½ inch on the fairways. It is set to 5/16 inches on the greens and one and ¾ inches in the rough.

The greens are mowed often resulting in very short blades of grass that are left behind. Upon inspection of the course it was not evident that grass clippings wash to the low-lying areas during storm events.



**(Description #2)** The perimeter of the golf course contains the higher grass and associated canopy cover. This helps reduce the velocity and quantity of total runoff that flows onto the fairways and greens. This reduction in velocity may help explain the minimal movement of grass clippings during storm events.



**(Description #3)** This is the lowest depressed point at the golf course on the east side of Mammoth Road. This stream usually runs with water year round and the small pond is usually wet.

The NHDOT has an 8" pipe that discharges to the lower left on this third hole. This drains portions of Old Wellington Road, Merrit Nyberg Lane and Bridge Streets. This will be a good spot to sample to determine offsite impacts.

The pond area acts as detention storage to settle out any sediment or clippings that are pushed through during a rain event. The bottom of the small streambed was clear with no visible sediment.



**(Description #4)** This is the NHDOT storm swale that continues south from the pond described in #3 above through the 14<sup>th</sup> hole. There was no evidence of erosion and in discussions with Stan (Maintenance Manager for Derryfield CC who has worked there for 29 years), in the heaviest of rains the water may raise about a foot along this channel, but does not overflow past the red areas depicted.

The flow has never surcharged over the footbridge that is depicted in the blue rectangle.

Heavy flows and higher velocities during any large storm event do not cause any visible erosion along this swale.



**(Description #5)** This is the swale as it continues into the wooded canopy along the 16<sup>th</sup> fairway (golf cart road to right).

This brook flows slower than the swale in the open area in description #4 above and is close to the border of the eastern property boundary.

This brook discharges to a culvert on Hanover Street at the East Side Plaza where the Shop & Save is located. This would be an ideal location to sample to determine the impact of pollutants from the eastern side of the golf course.



**(Description #6)** This picture of the 16<sup>th</sup> hole and the ones below of the 11<sup>th</sup> and 18<sup>th</sup> holes illustrates that the sand traps are placed along side or near the greens. During the site inspection it was noted that these traps sit in depressed areas and act as a natural collection point for storm water runoff. As they are composed of a fine sand component they act as natural and rapid infiltration recharge. These traps are raked daily so any sediment that is trapped on the surface after a rain event is dispersed and no clogging of this infiltration area is possible.

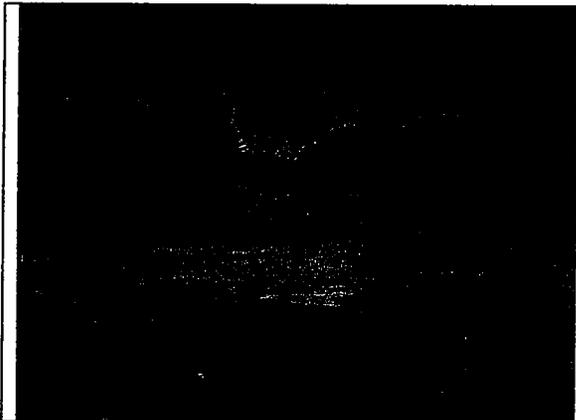


See description #6



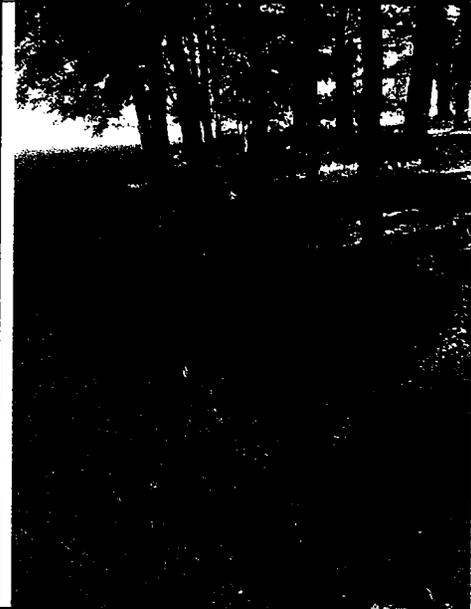
**(Description #7)** This is a picture of the green at the 11<sup>th</sup> hole. To the left of the well-mowed green you can observe the fairway buffer strip and beyond this you can see the rough. The greens usually slope off through the fairway then through the rough.

This configuration acts as a simple vegetative rain garden. Fertilizer that is applied to the green monthly must first migrate through the thicker fairway ring and then again through the heavier rough grass area. This contributes to keeping more fertilizer on the golf course with less washing off into the onsite drainage swales.



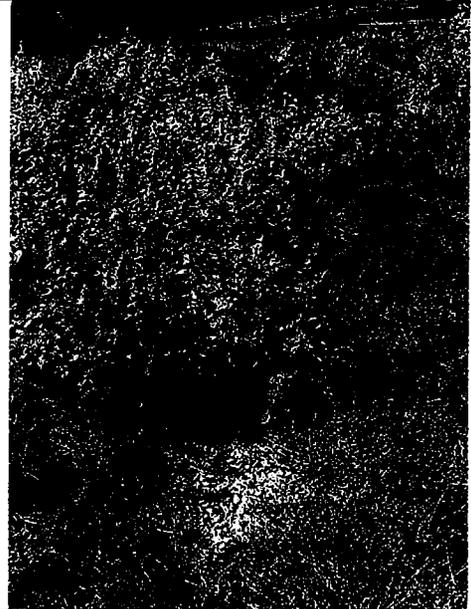
**(Description #8)** A picture of the 7<sup>th</sup> hole fairway on the west side of Mammoth Road (Holes 7 through 11 are on this side of the street). The layout is similar to the course on the east side. This fairway slopes to a large sand trap area and storm water moves over this to the narrow swale pictured below.

The sand trap provides holding capacity with ground water recharge and helps retain any small grass clippings that may be moved toward the swale.



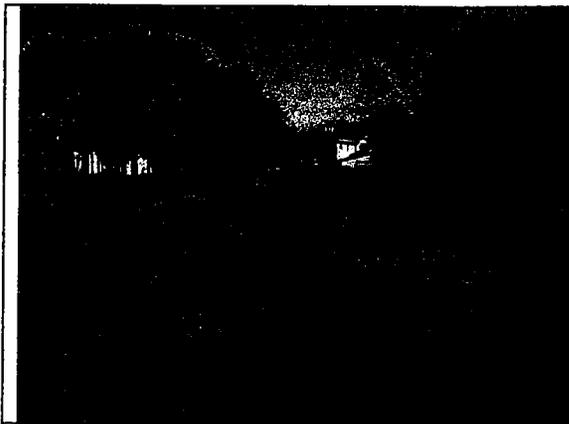
**(Description #9)** This is the swale where the entire storm water discharge from the western side of the golf course flows. All along this swale there is a thicker growth of vegetation that helps filter any grass clippings and fertilizer that would move along the slope during heavy rains.

There was no evidence of erosion along this swale, the bottom of the streambed was free of sediment and debris. The canopy of trees also helps reduce runoff velocities and erosion from direct overhead impact.



**(Description #10)** Pictured is a rock base with vegetation coverage on the outlet side of a large depression area in the front of the maintenance garage. There are two, four-inch pipes underneath this that drain the depression that is fed by two, 12" drain pipes and a 4" drain pipe (behind the Fire Station on Mammoth Road). The storm water backs up and pools within this depression due to the restriction created by the structure at the left. It is estimated that the water can pool between 8" and 12" and cover an area that is approximately 150 feet in diameter. This covers an area of approximately 17,700 square feet. This would equate to a retention of 8,000 gallons of storm water in an 8" pool and 12,000 gallons of storm water in a 12" pool.

As the system is dynamic and the water velocity is reduced, but constantly moving, this would act as a sediment area for material from the Mammoth / Bridge Street intersection area.



**(Description #11)** These two, 12" drain pipes rapidly move storm water through the field. The field acts as a temporary detention pond as it filters through the previous described structure. The water collects in the drainage swale on the backside of the service road. Runoff from the Fire Station also pools in this area. This would be the best area to sample for the impact of offsite pollutants on the seventh through 11<sup>th</sup> course holes.



**(Description #12)** This is the service road to the new maintenance garage. Note how the road slopes to the left toward the two, 12" drain pipes explained in description #11. This is the northern boundary of the pool area as discussed in description #10.

The City owns the property behind the new facility that extends to Burgess Street.



**(Description #13)** The potential for pollutant contribution due to golf cart use was reviewed. The country club leases 66 golf carts through the Golf Pro Shop. This is privately owned and not associated with the City of Manchester.

The leasing company maintains the vehicles. Any repairs or service that is needed on the carts is scheduled with the leasing company and done onsite at the Derryfield CC by the leasing company field service technician.



**(Description #14)** This is the service building that is directly behind the clubhouse. This is where the City operations were located until they built the new maintenance garage across the street. There are no floor drains in this building and the only work currently being performed within this building is when the leasing company comes to perform service on the leased golf carts.



**(Description #15)** This is the area directly behind a small shed that has a couple of vending machines. This is adjacent to the golf cart parking area described in #13.

Carts are washed in this area when they are returned. They are cleaned with either a pressure washer or a hose. There is no soap used only water. The area is somewhat hard-packed so infiltration would be at a minimum. There is a berm area around the down slope grade. No wash water gets beyond the berm area and is contained within the pictured site.



**(Description #16)** All the fertilizer is stored on the far-left side of the maintenance garage. There are no oils or other chemicals stored in this area that could interact with this product.

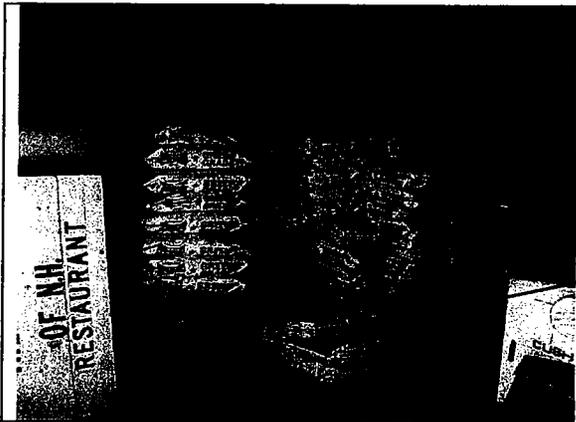
The bags are stored upon pallets to keep them from getting wet should water get onto the floor.

These three bags on the floor were moved before the picture was taken to read the contents of the different products that were stored on the lower section of that pallet.



**(Description #17)** The pesticide is stored in a locked shed to the rear left of the building. Stan who is a New Hampshire licensed pesticide applicator only applies this product at previously mentioned intervals.

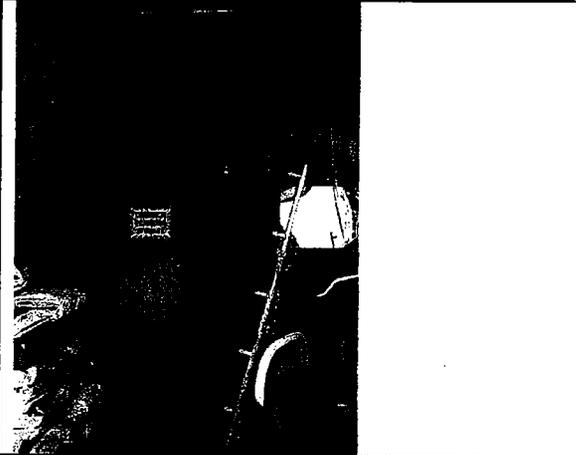
An annual report is filed with the State of New Hampshire on the pesticide use and is included with this report as Attachment A.



**(Description #16)** All the fertilizer is stored on the far-left side of the maintenance garage. There are no oils or other chemicals stored in this area that could interact with this product.

The bags are stored upon pallets to keep them from getting wet should water get onto the floor.

These three bags on the floor were moved before the picture was taken to read the contents of the different products that were stored on the lower section of that pallet.



**(Description #17)** The pesticide is stored in a locked shed to the rear left of the building. Stan who is a New Hampshire licensed pesticide applicator only applies this product at previously mentioned intervals.

An annual report is filed with the State of New Hampshire on the pesticide use and is included with this report as Attachment A.



**(Description #18)** The golf course gets heavy use (40,000 rounds of golf annually), is 116 acres and there are many wooded areas of canopy where golfers could void themselves. This is a concern as the canopy areas are usually covering the swales, swampy areas and streambeds.

There are restroom facilities at the clubhouse that could be used at the start of play and after ten holes. There are also two pota-potties located on the sixth hole. These would be available after the seventh through 11<sup>th</sup> holes are played on the west side of Mammoth Road or at the start of the 12<sup>th</sup> hole. The Clubhouse would again be used after the 18<sup>th</sup> hole. Also, no pets are allowed on the course during play so there is no fecal contribution due to domestic pets.

## **Follow Up Actions**

Several of the reviewed items have adequate practices to meet BMP criteria so no further action will be taken in regards to the following study recommendations:

- Golf cart cleaning and maintenance procedures
- Vehicle cleaning and maintenance procedures
- Fertilizer, herbicide and pesticide storage
- Proper storage of used motor oil and other vehicle fluids
- Proper disposal of grass clippings and associated wastes

The only unknown BMP impact is from fertilizer use and to a lesser extent the turf fungicide application. Further study with sampling and analysis of potential impacts will need to be performed. Fertilizer contains nitrogen and phosphorus that impairs water quality.

The extent of offsite impacts that drains through the golf course is unknown. These eventually combine with golf course runoff and it is expected that this combination will give the appearance of a higher pollution load than the golf course alone contributes.

It is recommended that a field study be conducted during August and September of 2004. This must include the sampling and analysis of offsite impacts. The offsite pollution load will be subtracted from the total pollution load to determine the quantity of pollutants the golf course is contributing.

The largest fertilizer applications are done twice annually. The first application happens during the first two weeks of May and the second during the first two weeks of September. It is reasonable to anticipate that the least fertilizer residual will be found at the end of the application season (last two weeks in April and August). The heaviest fertilizer residual would be expected immediately after application (second two weeks of either May or September).

There are two ideal sites (one on the golf course located on the eastern side of Mammoth Road and another on the western side) where the offsite impacts will be assessed. One is the retention swale behind Trinity High School and the other is at the NHDOT drain easement outlet on the third-hole.

There are two representative sites to measure the total pollution impact leaving the golf course property. One is on the east side of Mammoth Road ( 16<sup>th</sup> hole) and discharges to a culvert on Hanover Street at the East Side Plaza where the Shop & Save is located.

The other location is on the west side of the golf course (seventh hole) at the end of the a swale that runs between the 7<sup>th</sup> and 11<sup>th</sup> holes. This is on the far south side of the course before it reaches the end of Kenny Street.

The current impact of the pollution load on the Merrimack River is minor as Cemetery Brook (where the runoff from both sides of the golf course eventually migrate) flows to the wastewater plant for treatment. It is only during rain events of a moderate or larger category that the Cemetery Brook CSO overflow discharges to the Merrimack River.

**Derryfield Country Club Nutrient Sampling** Rain on 3/29/05 - 7:50 AM - 8:15 AM

**Longest Period of Time since fertilizer Application**

Parameter	NHDOT Drain	Hanover Street	Fire Station	Kenny Street
Nitrate	0.1 mg/l	0.25 mg/l	0.25 mg/l	0.25 mg/l
Ortho - P	0.16 mg/l	0.06 mg/l	0.56 mg/l	0.05 mg/l
Phosphorus	0.053mg/l	0.02 mg/l	0.1866 mg/l	0.0166mg/l
<b>Metals</b>				
Copper	<0.025 mg/l	<0.025 mg/l	<0.025 mg/l	0.025 mg/l
Lead	<0.005 mg/l	<0.005 mg/l	<0.005 mg/l	0.008 mg/l
Zinc	0.0869 mg/l	0.0673 mg/l	0.0258 mg/l	0.0844 mg/l

**Shortest Period of Time since fertilizer Application**

**Derryfield Country Club Nutrient Sampling** Analytical Date Pending (after May 15, 2005)

Parameter	NHDOT Drain	Hanover Street	Fire Station	Kenny Street
Nitrate				
Ortho - P				
Phosphorus				
<b>Metals</b>				
Copper				
Lead				
Zinc				