

05

Municipality/Organization: Town of Wilmington

EPA NPDES Permit Number: MA04123

MaDEP Transmittal Number: W-040988

Annual Report Number

& Reporting Period: No. 2: March 04-March 05

NPDES PII Small MS4 General Permit Annual Report

PART I. GENERAL INFORMATION

Contact Person: Donald Onusseit

Title: Director, Department of Public Works

Telephone #: 978.658.4481

Email: donusseit@town.wilmington.ma.us

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:

Printed Name: Michael A. Caira

Title: Town Manager

Date:

PART II. SELF-ASSESSMENT

The Town of Wilmington has completed the required self assessment and has determined that we are in compliance with all this year's permit conditions, with the exception of some areas which will require greater emphasis during next year's permit period:

Part 2-2: Due to budgetary constraints, the Town has not been able to fund two (2) Household Hazardous Waste Collection Days. The Town has had one (1) day during the reporting period and has another day scheduled in May 2005. As a compromise, the Town has reviewed alternatives and offers a relatively extensive recycling program. Mercury is collected 5 days a week year round, while white goods and Cathode Ray Tubes (CRTs) are collected by a private recycle company once a week at no cost to the residents. The DPW accepts waste oil from Wilmington Residents year round, Monday through Friday. Yard Waste was collected at residences during their normal trash collection day for 3 weeks in the spring and 8 weeks in the fall. Furthermore, residents had the opportunity to drop off yard waste and brush this past reporting year at the Town Recycling Center Monday through Saturday and the 1st and 3rd Sunday of each month during all but the winter months.

Part 3-(1-3): Although approximately 95% of the Town's MS4 has been mapped and hand superimposed onto the Town's topographic map system (to include pipe materials, sizes, and flow direction), the GPS mapping of the Town's outfalls has been hindered by the lack of GPS equipment within the Town's GIS department. Funding for new GPS equipment has been approved for Fiscal Year 06 which will enable a more versatile electronic database of the town's outfall system. Outfall inspections will be performed in conjunction with locating the outfalls during this upcoming reporting year. Subsequently, necessary testing of outfall discharges will be performed as needed depending on outfall survey results.

Furthermore, additional programs that are not listed as requirements in our Stormwater Management Permit have been active this past reporting year. Crews from the Massachusetts Mosquito Control Project continue to perform outfall cleaning and maintenance (plus removal of vegetative debris and trash) to reduce the amounts of standing water, thus improving water quality. The sixth grade science class at the Wilmington Middle School has been participating in a comprehensive stormwater quality and erosion control curriculum, which has been included in Appendix 3 of this report.

Additionally, the Town of Wilmington has received a grant from the EPA through the Massachusetts Department of Conservation and Recreation for a demonstration project consisting of innovative Low Impact Development (LID) techniques at Silver Lake. The project will include a demonstration of porous pavement at the Silver Lake beach parking lot as well as LID infiltration features around the lake and an assessment of the existing drainage outfalls at the lake itself. Currently in the preliminary design phases, construction of the project is anticipated to begin during the fall of 2005.

a. PART III. SUMMARY OF MINIMUM CONTROL MEASURES

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
1-1	Educational Material	DPW	<p>Measurable goals for this BMP will be:</p> <p>1) procurement, development or modification of four brochures or fact sheets that include stormwater information, and</p> <p>2) posting of stormwater information on the Town's web site. During Years 2 through 5, distribute one of the brochures or fact sheets annually to property owners based on Assessors records and update the web site semi-annually.</p>	<p>The first of four informational stormwater brochures has been developed by the DPW and has been distributed to Wilmington Residents through a recent newsletter mailing. A copy of the brochure has been included in Appendix 1 of this report.</p> <p>The DPW mails a recycling informational brochure to all residents annually. Included in the brochure is a collection schedule, information regarding specific collection items, hazardous waste information, and a recycle hotline for more information. A copy of the brochure has been included in Appendix 2 of this report.</p> <p>The sixth grade science department at the Wilmington Middle School has developed a stormwater/wastewater curriculum that provides hands-on learning methods for students. Parents have been actively involved in take-home assignments and demonstrations. A copy of the curriculum has been included in Appendix 3 of this report.</p> <p>The Town of Wilmington has contracted the help of a webpage design firm to aid in the development of a new town website. Separate links on the website has been dedicated to Phase II stormwater information, including the year 1 stormwater brochure, an illicit discharge reporting hotline, and recycling scheduling and FAQ's. The website is currently in the developmental stages and completion is anticipated this spring.</p>	<p>Continue to develop and distribute the remaining stormwater informational brochures.</p> <p>Continue to update the Department of Public Works web page with stormwater-related information and modify/add FAQ's.</p> <p>Continue mailing the recycling informational brochure to Wilmington residents and responding to hotline inquiries.</p>

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
2-1	Stormwater Task Force	DPW	<p>The individuals who will serve on this task force will be identified within the first two months of the permitting period. On a yearly basis, this task force will hold meetings every four months, will be responsible for the development of material, and will keep track of the status of the control measures and record keeping associated with programs being developed</p>	<p>In August of 2004, the Task Force submitted a Final Comprehensive Water Resource Management Plan to DEP that specifies specific stormwater management requirements already being implemented in Wilmington. The CWRMP's local media publicity has helped to provide the public informational campaign necessary to assure passage of a separate by-law, and/or modification to existing regulations.</p> <p>Members of the Planning and Conservation Office, the Engineering Department, and the Department of Public Works have met to discuss the draft bylaw and subsequent strategies for a comprehensive stormwater bylaw addressing illicit discharges, construction site runoff, and post construction runoff.</p>	<p>Members of the Planning and Conservation Office, the Engineering Department, and the Department of Public Works will continue to meet, and will focus on improving stormwater regulations and reviewing the draft by-law in an effort to produce a final stormwater regulation document.</p>

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
2-2	Promote Public Programs	DPW/BoH	The Town will hold a household hazardous waste day two times per year and will support community clean-up days by providing clean-up materials and will pick up and dispose of the waste collected	<p>Due to budgetary constraints, the Town has held one hazardous waste day this past year, and another is scheduled for May 7, 2005. No cars are turned away during this collection day, regardless of the amount of hazardous waste. Nearly 950 cars dropped off hazardous waste during this past year's collection.</p> <p>Mercury is collected 5 days a week year round, and Cathode Ray Tubes (CRTs) are collected by the Town Recycle Company once a week, by special pickup <u>at no cost to the residents.</u></p> <p>The DPW accepts waste oil from Wilmington Residents year round, Monday through Friday.</p> <p>The Town has supported community clean-up programs for local volunteer groups to perform stream and roadway clean-up and has provided materials and safety equipment at the expense of the Town.</p> <p>Yard Waste is collected at residences during their normal trash collection day for 3 weeks in the spring and 8 weeks in the fall. Furthermore, yard waste could be dropped off this past reporting year at the Town Yard Waste Monday through Saturday and the 1st and 3rd Sunday of each month during all but the winter months.</p>	The Town will continue to hold household hazardous waste days and support citizen group clean-up efforts. Also, the DPW will continue to investigate the possibility of sharing hazardous waste days with surrounding communities to maximize opportunities for area residents.

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
3-1	Map Stormwater Assets	DPW	Using GPS, the exact locations will be identified for outfalls. All information from field investigations will be attached to the database. During the first two years of this permit, this mapping will be updated on a quarterly basis to integrate all information into the database system from investigations. Following the first two years, this schedule will be revised based on the amount of data to be added, however, at a minimum, the database will be updated every six months. A Goal of completing mapping of 50 percent of surface water outfalls, major stormwater drainage structures, and receiving surface water bodies by the end of Year 5.	Approximately 95% of the Wilmington Storm Drain System including such structures as catch basins, manholes and outfalls have been mapped and hand superimposed onto the Town's topographic map system. Pipe sizes and materials, direction of flow, and estimated age of the subsystem have also been included in the mapping. The Town Storm Drain System Map can be viewed upon request at the Department of Public Works. A standard outfall inspection form has been developed and is included in Appendix 4 of this report.	Although the mapped locations of outfalls have proven to be accurate in the field, GPS coordinates of these outfalls will be obtained during the actual outfall inspections which will begin during next years reporting period. The grid system will serve to organize inspections on a day-to-day basis, as major receiving bodies will be inspected first. GPS mapping of the system will provide the Town will a more versatile electronic version of the storm drain system map. The Wilmington Engineering Department is planning to continue their internship program which will help to provide outfall inspection man-power for next year's reporting period.
3-2	Detection and Elimination Program	DPW/Boh	The goal is to identify a plan for completing dry weather sampling during the first year of the permit term. Subsequent years will include completing dry weather investigations of all outfalls along the Ipswich River and Maple Meadow Brook, and 50% of outfalls along other waterways	The Storm Drain System Map Index has helped to "separate" the storm drain system into prioritized areas. The grid will serve to organize daily inspections, as outfalls along the Ipswich River and Maple Meadow Brook will be inspected first. Subsequent inspections will be performed with the use of the grid system.	The Wilmington Engineering Department is planning to obtain another co-op student during next fiscal year (FY 06). Initial inspections will be made by this individual with the newly developed outfall inspection form presented in Appendix 4.
3-3	Conduct Illicit Discharge Education Program	DPW	See BMP 1-1 and BMP 6-1	See BMP 1-1 and BMP 6-1	See BMP 1-1 and BMP 6-1

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
3-4	Proposed by-law to prohibit illicit discharges and illegal connections	DPW	The draft bylaw will be developed by the end of Year 2 of the permit period, and the final bylaw will be prepared by the end of Year 3. The bylaw will be presented to Town Meeting in Year 4. If it is not approved, it will be revised, if appropriate, and presented to Town Meetings in Year 5.	As part of the CWRMP, the Town is developing a stormwater by-law and regulations. This effort is tied to similar efforts for water supply and wastewater disposal through the CWRMP as mentioned in BMP ID# 2-1. A single Draft Bylaw has been created which addresses illicit connections, construction site runoff / erosion control, and post construction runoff / erosion control. A copy of the draft bylaw has been presented in Appendix 5 of this report.	The Draft Bylaw will be reviewed for content and compared with existing regulations already being implemented by the Town of Wilmington to create a final means of addressing illicit discharges, construction site runoff, and post construction erosion control measures.
3-5	Enforce illicit discharges and illegal connections By-law	DPW	The draft changes to regulations and policies will be developed by the end of Year 2 of the permit period. The final changes will be prepared by the end of Year 3. Adoption of the new regulations and policies will be dependent upon approval of the bylaw. Regulations will be proposed for adoption within one year of approval of the bylaw	See BMP 3-4 above.	See BMP 3-4 above.

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
4-1	Revise Site Plan Review Bylaw	Planning	Draft changes to the bylaw will be developed by the end of Year 2 of the permit period. The proposed changes will be presented to Town Meeting in Year 4. . If they are not approved, they will be revised, if appropriate, and presented to Town Meeting in Year 5.	See BMP 3-4 above.	See BMP 3-4 above.
4-2	Improve Site Plan Review Process	DPW	The revised process will be developed with departments involved in the Construction Site Plan Review Process. A checklist or similar tracking tool will be developed during the first year of the permitting period. This tool will be adopted during the second year of the permitting period and employed as described thereafter	See BMP 3-4 above. A draft site plan review checklist has been developed and is presented in Appendix 6 of this report.	The draft site plan review checklist will be finalized with the help of the Engineering Department and used as an aid in future site plan reviews.
Revised			Once the recommendations of the CWRMP are finalized, this BMP will be revisited.		

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
4-3	Develop Procedures for receipt and consideration of information submitted by the public	Planning	This program will be developed with departments involved in the Construction Site Plan Review Process. The review of existing procedures will be completed by the end of Year 2. If revisions to the procedures are deemed necessary, they will be drafted by the end of Year 3 and adopted during Year 4.	See BMP 3-4 above. The CWRMP's local media publicity and public meetings have helped to provide the public with a public input forum. Furthermore, the Town has recently received a grant from EPA through the Department of Conservation and Recreation for an LID techniques demonstration project at Silver Lake. The preliminary design of these LID techniques is currently underway.	The local media publicity and public hearings pertaining to the CWRMP will continue to provide an informational forum for the residents of the Town of Wilmington. Furthermore, the Silver Lake LID project includes a public outreach program that will educate the public on why and how the LID techniques were chosen. The consulting engineering firm has agreed to conduct a public tour of the LID demonstration project at Silver Lake once completed. The permitting of the above project will also be in a public hearing forum.
4-4	Develop site inspection and enforcement of control measures program	DPW	The program will be developed by the end of Year 2, and will be implemented in Years 3, 4 and 5.	See BMP 3-4 above. Site inspection and enforcement has been covered in the Draft Bylaw. Furthermore, the CWRMP has investigated the existing inspectional procedures currently being implemented with the current Rules & Regulations. A copy of the Draft Bylaw has been included in Appendix 5 of this report.	The Engineering department and conservation office will continue with their inspections as required and as needed. Once the Draft Bylaw has been finalized, this requirement will be revisited.

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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
5-1	Develop Post-construction runoff bylaw, regulations and guidance	Planning	A draft of the post-construction runoff bylaw will be completed by the end of Year 2. The final bylaw will be developed for inclusion on the Town Meeting warrant for Year 3. If the article does not pass, it will be revised as appropriate, and presented at Town Meeting in Years 4 and 5. The associated regulations and guidance will be developed in Year 3. If and when the bylaw is approved, a public meeting will be held to solicit input from municipal departments and the public on the regulations and guidance. If necessary, the regulations and guidance will be modified, and they will be presented for a vote at a public hearing of the Planning Board.	Post-construction runoff has been covered in as part of the overall Stormwater Draft Bylaw. A copy of the Draft Bylaw has been included in Appendix 6 of this report.	The Post Construction portion of the Draft Bylaw will be reviewed and modified per recommendations of members of the Planning and Conservation Office, the Engineering Department, and the Department of Public Works
5-2	Develop Post-construction monitoring program	Planning	The post-construction monitoring program will be developed during Years 3 and 4, and implemented in Year 5, provided the bylaw is approved by Town Meeting.	No activity planned.	The post-construction monitoring program will be drafted during year 3.
5-3	Ensure adequate long-term operation and maintenance of BMPs	DPW	A draft procedure for evaluation of BMPs for operation and maintenance issues will be developed by the end of Year 2 of the permitting period, and the final procedure will be prepared by the end of Year 3. This effort will be coordinated with the revisions to the procedure for joint boards review of construction projects. During Year 2, the DPW and Planning Board will investigate potential funding mechanisms, develop a draft warrant article, and hold a public meeting to solicit input from the community. During Year 3, the draft article will be revised if necessary and presented to Town Meeting. If it is not approved, it will be revised, if appropriate, and presented to Town Meeting in Years 4 and 5, if necessary	See BMP 3-4 above. Long term operation and maintenance has been discussed in the Post Construction Runoff portion of the overall Stormwater Draft Bylaw.	Once the recommendations of the Planning and Conservation Office, the Engineering Department, and the Department of Public Works are finalized, this BMP will be revisited.
Revised			The potential funding and public input will be in conjunction with discussions and public forums of the CWRMP.		

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2	Planned Activities – Permit Year 3
6-1	Educate Municipal Employees	DPW	General stormwater training sessions will be held by the Department of Public Works on an annual basis. The goal will be for 90% of municipal employees with storm water management responsibilities to attend at least one session over the permit period. Department specific training sessions will be held annually, with a goal of 50% of personnel responsible for storm water management attending 90% of the sessions.	The first in a series of training sessions has been held for employees of the Department of Public Works. Due to the intense winter conditions this past year, the session that was originally planned to be held in January was postponed and held on April 5, 2005. Comprehensive Environmental Incorporated (CEI) has been hired by the Town to perform the in-house training for DPW Staff. This year, approximately 70% of the DPW work staff attended the training. Sign-in sheets are available upon request.	Education efforts will continue throughout the permit period.
6-2	Develop and adhere to operation and maintenance schedule	DPW	The Municipal Operation and Maintenance Schedule will be created and implemented within the first two years of the permit period	<p>The Town owns two vacuum street sweepers and contracts for a third mechanical sweeper. This additional equipment has enabled the Town in increase its street sweeping and catch basin cleaning schedule, and helps the Town achieve spring cleaning by the end of May. Each catch basin in Wilmington is cleaned at least every three years, and high-load areas are cleaned multiple times every year. A draft plan for residuals management has been developed and is currently still being reviewed by the DEP.</p> <p>The Town of Wilmington is part of the Mosquito Control Project, which performs routine stream maintenance throughout the year. Furthermore, a summer crew was hired last year to perform stream cleaning activities throughout the Town.</p>	The DPW will continue to hire summer employees to perform stream-cleaning activities and will continue to provide regular street sweeping and cleaning operations throughout the Town.

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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1	Planned Activities – Permit Year 2
1-1	Educational Material	DPW	See BMP 1-1	See BMP 1-1	See BMP 1-1
3-3,4,5	Conduct Illicit Discharge Education Program, Propose & Enforce Illicit Discharge By-Law	DPW	See BMP 3-4	See BMP 3-4	See BMP 3-4
5-1,2,3	Develop Post-Construction Runoff By-Law, Regulations & Guidance, Develop Post-Construction Monitoring Program, & Ensure Long-Term O&M of BMP's.	DPW	See BMP 5-1	See BMP 5-1	See BMP 5-1

7b. WLA Assessment

A relatively small portion of Wilmington lies within the Shawsheen River basin, for which the TMDL has been developed. The entire Stormwater Drainage System has already been mapped within the Shawsheen River Basin, and outfall inspections for the storm drainage system in this critical area will begin in this region during Year 3. Furthermore, construction runoff regulations presented in the Draft Stormwater Bylaw seek to target this area, in conjunction with standards of the Massachusetts Stormwater Management Guidelines.

Part IV. Summary of Information Collected and Analyzed

As presented in BMP ID#3.1 of this report, the majority of the entire MS4 for the Town of Wilmington has been mapped and labeled for pipe material, size, and approximate age of the sub-system. Laboratory testing results are anticipated for next year's report, since outfall inspections are scheduled for this coming year. Please refer to Appendix 4 for a copy of the standard outfall inspection form that will be utilized during these inspections.

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NPDES PII Small MS4 General Permit Annual Report

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Contact Person: Donald Onusseit

Title: Director, Department of Public Works

Telephone #: 978.658.4481

Email: donusseit@town.wilmington.ma.us

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Signature: 

Printed Name: Michael A. Caira

Title: Town Manager

Date: 4/25/05

APPENDIX 1
STORMWATER BROCHURE

Keeping Wilmington's Stormwater Runoff Clean

What You Can Do To Help



The Town of Wilmington is actively working to implement our 5-year Stormwater Management Plan as required by the Massachusetts Office of Environmental Affairs and US Environmental Protection Agency.

Together with your help, we can make the waterways cleaner and more environmentally safe for both human and animal habitats. Please use the tips presented below as a guideline to help get started.

For more information about stormwater programs in Wilmington, please contact the Dept of Public Works at 978-658-4481 or

The Massachusetts Department of Environmental Protection at 617-654-6500

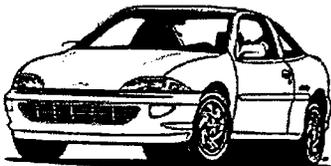


1. What is stormwater runoff?
 - Stormwater runoff is the result of precipitation falling on impervious surfaces, such as driveways and streets.
2. Why should I care about stormwater?
 - Since stormwater runoff does not soak into the ground, it must be captured by man-made storm sewer systems that often discharge into nearby wetlands, ponds, and streams.
3. What can I put into the storm drain?
 - NEVER pour or sweep anything into the storm drain system. This includes pet waste, oil, paint, litter, sand, and leaves.
4. How can I learn more about stormwater?
 - Additional information not included in this brochure can be found on-line at: www.epa.gov/npdes/stormwater



Car Care & Maintenance Tips

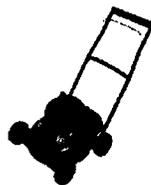
- Recycle motor oil and antifreeze
- Use commercial Car Washes that recycle wash water



- Use low-phosphate detergents when washing your car at home
- Check for fluid leaks regularly

Lawn & Yard Care Tips

- Mulch leaves and grass clippings
- Reduce the size of your lawn by utilizing decorative rock gardens & natural vegetation
- Use organic lawn care products
- Do not overuse fertilizer
- Re-plant bare areas to discourage soil erosion



What Else Can We Do to Help?

- Clean up after your pet and properly dispose of droppings in the toilet
- Dispose of household chemicals at DPW's Hazardous Waste Day
- Help maintain your neighborhood stream
- Never pour or sweep ANYTHING into a storm drain



HELP SPREAD THE WORD!

APPENDIX 2
RECYCLE PROGRAM MAILING



Recycling - It's easier than you think!

Think recycling is hard or confusing? Well, good news! Recycling requirements have changed over the years making it even simpler for you to take part. You no longer have to remove labels or keep track of many other recycling rules. Most items can just be dropped in the bin!

Check inside for details and find out just how easy recycling is.

Did you know...?

Massachusetts prohibits the disposal of the following items:

- Paper and cardboard
- Bottle and cans
- Leaves and yard waste
- Car batteries
- TV's and computers
- Large home appliances

Be sure to keep these items out of your trash.

Your efforts are making a difference!

Last year, Wilmington collected more than 1,724 tons of recyclables saving approximately \$245,000 in incineration fees. This included 1,139 tons of paper - enough to save over 18,000 trees. In addition, over 2,250 tons of leaves and yard waste were

recycled into mulch and compost. You have helped make our recycling program a success. But we still have a long way to go to meet our recycling goals. Together we can make a difference. **Keep up the good work!**



Recycle.

a little effort

a Big difference

Check inside for details on how to recycle them or call 978-658-4481.

Town Hall
121 Glen Road
Wilmington, MA 01887-3597

ECRWSS
RESIDENT CUSTOMER
WILMINGTON, MA

PRSR STD
U.S. POSTAGE
PAID
Boston, MA
Permit No.
53295

PLEASE SAVE • 2004 - 2005 Recycling Information Inside

For More Information Call 978-658-4481 or visit <http://www.town.wilmington.ma.us/psrvc.htm>



Printed with vegetable-based ink on 100% post consumer waste recycled paper.

2004-2005 Wilmington Recycling Information

FOR ALL RESIDENTS WITH MUNICIPAL TRASH COLLECTION

CURBSIDE RECYCLING

Paper

Place in paper bag next to bin



- ◆ Books, hard or soft cover, phone books
- ◆ Boxboard, cereal, shoe, cracker boxes, etc.
- ◆ Newspaper/inserts, paper bags
- ◆ Magazines/catalogs, junk mail, phone books, brown paper bags
- ◆ White and colored and computer paper
- ◆ Corrugated cardboard, must be flattened, cut into 2' x 2' pieces or smaller, and bundled.
- ◆ All paper & cardboard must be clean & dry.
- ◆ No soda holders, pizza boxes, egg cartons.

Containers

Rinse and place inside of bin



- ◆ Glass bottles/jars, all colors and sizes
- ◆ Aluminum, tin/steel cans and lids, deposit and non-deposit beverage cans
- ◆ All plastic containers, except motor oil or chemical containers
- ◆ Milk and juice cartons

No waxed paper ◆ No waxed cardboard ◆ No broken or other glass such as light bulbs, window or auto glass, dishes, glasses, Pyrex ◆ No paint or aerosol cans or other metal items ◆ No plastic bags, containers over 2 gals., motor oil/chemical containers, styrofoam, foam packing material, or flower pots

Drop-Off Recycling



Hazardous Waste

Call DPW at 978-658-4481 for collection/Information (Usually held early May)
Mercury (thermometers) collection available.
Call Board of Health 978-658-4298



Yard Waste

Bring leaves, grass, and brush to the Yard waste Center at Old Main St.
Mon-Fri. 8 am - 2 pm,
Sat. 9 am - 4 pm, Sun.
9 am - 4 pm on 1st & 3rd Sunday of month (closed in winter)



Motor Oil

Residential waste oil can (5 gal. or less) be dropped-off at the DPW at 135 Andover Rd.
M-F
6:30 am - 3 pm

2004-2005 Collection Calendar

RECYCLING COLLECTION SCHEDULE

Recycling bins are collected every other week on your regular trash collection day. All Green Bins are collected during weeks highlighted in GREEN on calendar below. All Blue Bins are collected during weeks highlighted in BLUE.

GREEN
BLUE

HOLIDAY SCHEDULE

Whenever a scheduled collection day falls on a holiday, that day's collection and all remaining collections for the week will be delayed one day. Friday's collection will be on Saturday. Holidays are circled.

JUNE 2004

6	12
13	19
20	26
27	

JULY 2004

3	10
11	17
18	24
25	31

AUGUST 2004

1	7
8	14
15	21
22	28
29	

SEPTEMBER 2004

5	12
19	25
26	

OCTOBER 2004

2	9
10	17
17	23
24	30

NOVEMBER 2004

6	13
14	20
21	28

DECEMBER 2004

4	11
12	18
19	25
26	

JANUARY 2005

2	8
9	15
16	22
23	29

FEBRUARY 2005

5	12
13	19
20	27

MARCH 2005

5	12
13	19
20	26
27	

APRIL 2005

2	9
10	16
17	23
24	30

MAY 2005

1	7
8	14
15	21
22	28
29	

JUNE 2005

5	11
12	18
19	25
26	

Miscellaneous Collection



Yard Waste

Place leaves, grass, and other easily raked material in barrels or paper leaf bags - no plastic bags, branches or stumps.
Collection Days:
Nov. 1 - Dec. 3, 2004
April 11 - 29, 2005



CRT's

TV's and computer monitors are collected curbside on Fridays but must call 978-658-4481 for pick-up.



Christmas Trees

Collect early January



Bulk Metal

Major appliances. Collected on Fridays but must call 978-658-4481 for pick-up. Remove doors. Do not remove freon.

For More Information Call 978-658-4481 or check online at <http://www.town.wilmington.ma.us/serve.htm>

Do Evil Spirits Lurk in Your Home?

Clean the skeletons out of your closets, basement, and garage. Come to Wilmington's Household Hazardous Waste Collection Day.

Date: Saturday, May 7, 2005

Time: 9:00am - 2:00pm

Place: West Intermediate parking lot

Info: (978) 658-4481

OFF CARTER LN.

WHAT DO I BRING??

From the Workbench:

- ✓ Oil Based Paints
- ✓ Stains & Varnishes
- ✓ Wood Preservatives
- ✓ Paint Strippers/Thinners
- ✓ Solvent Adhesives
- ✓ Lighter Fluid

From the Yard:

- ✓ Weed Killer
- ✓ Chemical Fertilizers
- ✓ Flea Control Products
- ✓ Moth Balls
- ✓ Poisons, Insecticides, Fungicides

From the Garage:

- ✓ Fuels/Gasoline/Kerosene
- ✓ Engine Degreaser
- ✓ Brake Fluid/Carburetor Cleaner
- ✓ Transmission Fluid
- ✓ Car Wax, Polishes
- ✓ Driveway Sealer
- ✓ Antifreeze
- ✓ Roofing Tar
- ✓ Swimming Pool Chemicals
- ✓ Motor Oil
- ✓ Car Batteries
- ✓ Propane Tanks

From the House:

- ✓ Rubber Cement, Airplane Glue
- ✓ Fiberglass Resins
- ✓ Aerosol Cans
- ✓ Photo Chemicals
- ✓ Furniture Polish
- ✓ Floor & Metal Polish
- ✓ Oven Cleaner
- ✓ Drain & Toilet Cleaner
- ✓ Spot Remover
- ✓ Rug & Upholstery Cleaner
- ✓ Hobby Supplies, Artist Supplies
- ✓ Chemistry Sets
- ✓ Fluorescent Bulbs

Please solidify Latex Paint by removing lid to allow paint to dry out or by adding an absorbent material such as "kitty litter." Then dispose of hardened paint with trash.

Cost to Residents is
FREE

☞ **Proof of residency is required** ☞



WHAT NOT TO BRING!!

- ∅ Empty Containers/Trash
- ∅ Latex Paint
- ∅ Commercial or Industrial Waste
- ∅ Radioactive Waste, Smoke Detectors
- ∅ Infectious & Biological Wastes
- ∅ Ammunition, Fireworks, Explosives
- ∅ Fire Extinguishers
- ∅ Prescription Medicines/Syringes

How Can I Safely Transport These Hazardous Materials???

- ♦ Leave materials in original containers.
- ♦ Tighten caps and lids.
- ♦ Sort and pack separately: oil paint, pesticides, and household cleaners.
- ♦ Pack containers in sturdy upright boxes and pad with newspaper.
- ♦ NEVER MIX CHEMICALS.
- ♦ NEVER SMOKE while handling hazardous material.

This Collection is Operated By: Clean Harbors Environmental Services, Inc. (978) 683-1002

APPENDIX 3
6TH GRADE CIRRICULUM

ACTIVITY

Surface-Water and Ground-Water Pollution

Introduction

Surface waters (rivers, streams, lakes, ponds) and ground waters are interconnected in some areas. That is, water can move from surface-water bodies to ground-water bodies and vice versa. If surface waters become polluted, this pollution can also affect the area's ground-water system. Likewise, polluted ground water can move into lakes, streams, or rivers. The following activity demonstrates the movement of pollutants from surface water to ground water as well as the difficulty in cleaning up the pollution.

Objectives -- Students will:

1. Observe the connection between surface and ground water; and
2. Experience the difficulty of cleaning up polluted water.

Materials -- Each group will need:

1. One 266-mL clear plastic cup;
2. Sufficient clean pea-sized gravel to fill the 266-mL clear plastic cup $\frac{3}{4}$ full;
3. Three 240-mL paper cups;
4. One pump dispenser from soft-soap or hand-lotion containers;
5. 3.8 L of water; and
6. One bottle of food coloring.

Teacher Preparation

1. This activity is designed for students to work in groups of three.
2. Display a copy of the poster titled "Water Quality: Potential Sources of Pollution" on the classroom wall several days prior to conducting this activity.
3. Fill a clear plastic cup $\frac{3}{4}$ full of clean pea-sized gravel for each group.
4. Using an ice pick or awl, punch 8-10 small holes in the bottom of one of the paper cups for each group. When filled with water, this cup will be used to simulate rain.
5. Fill one paper cup (without holes) $\frac{3}{4}$ full of water for each group.

ACTIVITY

Erosion

Introduction

Sediment results from the erosion of land surfaces and streambanks. One of the most effective means of controlling erosion is to protect the land surfaces and streambanks with vegetation and vegetative litter (leaves, twigs, and stems that fall from plants). Vegetation helps prevent erosion by holding soil in place. The vegetation canopy and resulting litter protect soil from the impact of rain drops, which can increase erosion. The following activity demonstrates the effectiveness of vegetative litter in preventing soil erosion.

Objectives -- Student will observe:

1. The effect of rainfall on soil erosion.
2. The effect of vegetative litter on the reduction of soil erosion.

Materials -- Each group will need:

1. 480 mL of soil (in two 240-mL cups);
2. One cake pan or similar container at least 30 cm x 30 cm;
3. Four 240-mL paper cups;
4. Water; and
5. A large handful of vegetative litter (leaves, twigs, grass, and stems, etc.).

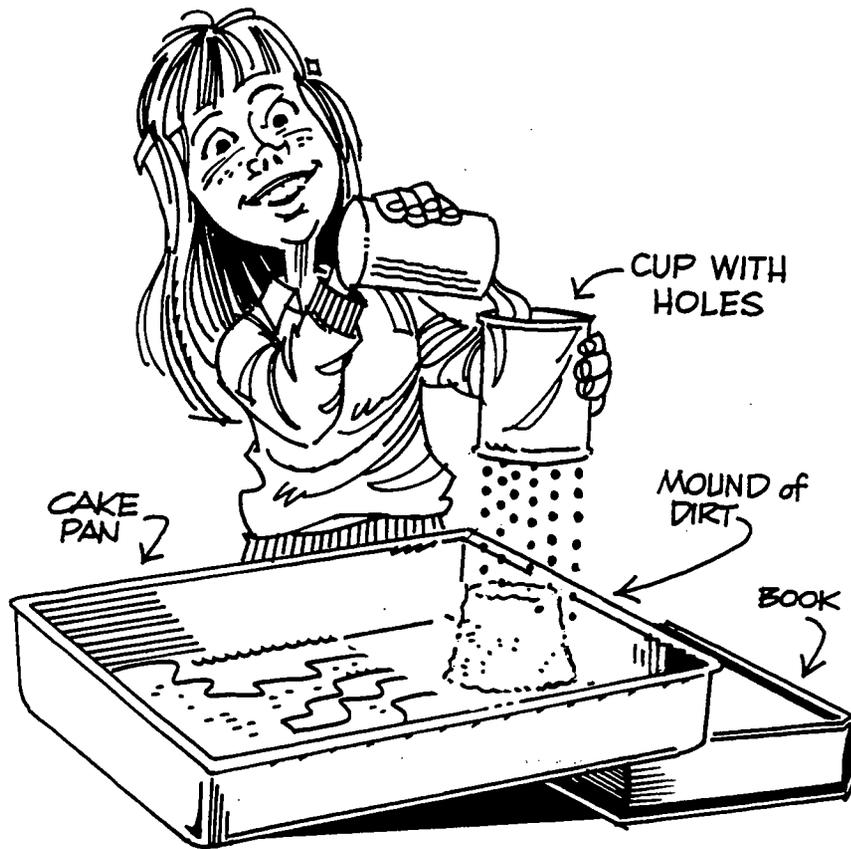
Teacher Preparation

1. This activity is designed for students to work in groups of three. If sufficient materials are not available, it can be done as a demonstration.
2. Using an ice pick or awl, punch 8-10 small holes in the bottom of one of the paper cups.
3. Take the students on a walk to a nearby park, woods, or field to collect soil and vegetative litter. Caution against collecting inorganic "litter" and animal waste. Also, warn students about coming in contact with poison ivy and other harmful plants.

Procedure

1. Divide the class into groups of three students. Provide each group with one cake pan, one 240-mL cup with holes punched in the bottom, two 240-mL cups filled with soil, one 240-mL cup filled 2/3 full of water, and a large handful of vegetative litter.

2. Have the students place one side of the cake pan on a thin book or tablet of paper to create a slight slope.
3. Have the students make a small mound with the 240 mL of soil at the upslope side of the cake pan. Explain to students that the mound represents a hill.
4. Instruct a student to hold the 240-mL cup with holes over the soil mound. Then add water to this cup. Explain to the students that they are simulating rain. Have the students observe the amount of soil in the "lake" at the bottom of the pan.



5. Introduce these words: **erosion** - the movement of soil from the mound, and **sediment** - the soil deposited in the lake at the bottom of the pan.
6. Remove the soil and water from the pan. Refill one paper cup 2/3 full of water. Repeat steps 2 and 3, using the second 240-mL cup of soil. Place the vegetative litter on top of the soil mound. Have it "rain" on the litter-covered mound as described in step 4. Have the students observe the amount of soil in the "lake" at the bottom of the pan.
7. Discuss with the students the differences between the amount of soil in the "lake" at the bottom of the pan following the two different erosion experiments.

Interpretive Questions

1. Which one of the mounds produced the greatest amount of sediment?

Answer: The mound that was not covered with vegetative litter.

2. What effect did the vegetative litter have on erosion?

Answer: It reduced the erosion by protecting the soil.

Poster Series

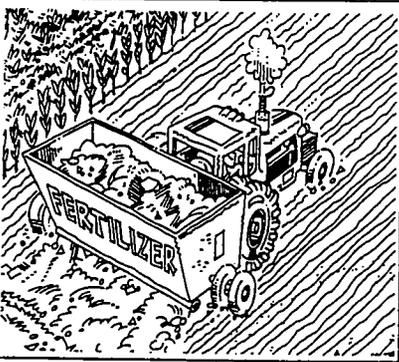
This poster is part of a series of water-resources education posters developed through the Water Resources Education Initiative. The Water Resources Education Initiative is a cooperative effort between public and private education interests. Partners in the program include the U.S. Geological Survey, U.S. Bureau of Reclamation, and the U.S. Fish and Wildlife Service of the U.S. Department of the Interior, the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, the Groundwater Foundation, and the National Science Teachers Association.

The other completed posters in the series are entitled "Water: The Resource That Gets Used & Used & Used for Everything!", "How Do We Treat Our Wastewater?", "Wetlands: Water, Wildlife, Plants, & People!", "Ground Water: The Hidden Resource!", "Navigation: Traveling the Water Highways!", "Hazardous Waste: Cleanup and Prevention", and "Watersheds: Where We Live." The posters in the series are designed to be joined to create a wall mural. A schematic of the wall mural including the topics for the completed and planned posters is displayed on this panel. The light-shaded spaces indicate the completed posters. The dark-shaded space represents this poster.

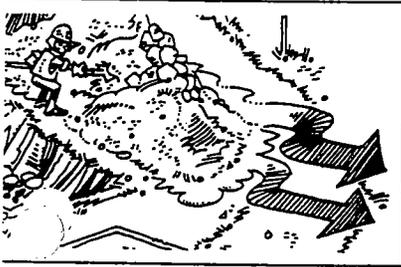
OCEANS	WATERSHEDS	HAZARDOUS WASTE
WETLANDS	WATER USE	WASTEWATER TREATMENT
NAVIGATION	GROUND WATER	WATER QUALITY

Water-resources topics of the completed posters are drawn in a cartoon format by the same artist. Posters are available in color or black-and-white. The reverse sides of the color posters contain educational activities: one version for children in grades 3-5 and the other with activities for children in grades 6-8. The black-and-white posters are intended for coloring by children in grades K-2.

Nonpoint-Source Pollution



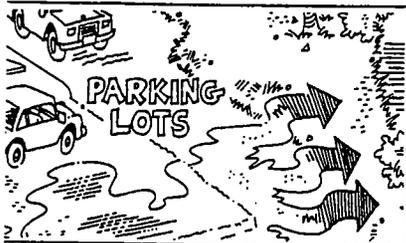
Nonpoint source means that the pollution comes from a broad area, such as a large field that has been covered with fertilizer or pesticides. Excessive application of fertilizer or pesticides on agricultural lands or on lawns and gardens can create nonpoint sources. People who use fertilizers and pesticides must read labels to ensure that they are applying the materials properly.



A land-surface disturbance caused by humans, such as construction or logging, can create nonpoint sources of pollution. Pollution can occur when an increase in erosion caused by land disturbances produces large quantities of sediment, which is washed into rivers, streams, and lakes. Contamination can be reduced by preventing sediment from reaching waters through the implementation of erosion-control structures and the by planting and maintenance of soil-holding vegetation.



Disposal of garbage and trash at community landfills has the potential for polluting surface and ground water. Recycling of waste products such as oil, grease, plastics, paper, and aluminum reduces the potential for pollution from landfills. Many automobile products, such as gasoline and brake fluid, and household chemicals like cleaning solutions and turpentine, should not be placed in landfills but taken to special collection areas.



Oil and grease from automobiles, sand, gravel, salt, and other potential pollutants accumulate on parking lots and streets. Because very little water infiltrates into asphalt and concrete, the nonpoint-source pollutants that accumulate on them can be washed into surface waters during large storms. Prevention of this type of nonpoint pollution requires collection and treatment prior to discharge into surface waters.

Hazardous Materials



Hazardous wastes produced as byproducts of manufacturing can affect water resources. Proper handling, storage, and disposal of hazardous materials is critical to the prevention of their entry into surface and ground water. This requires moving these materials to a safe storage location. What can individuals do to stop hazardous-waste pollution? One method is to stop dumping oil, cleaning liquids, or unknown sub-

DEFINITIONS

- Aquifer** - An underground body of porous sand, gravel, or fractured rock filled with water and capable of supplying useful quantities of water to a well or spring.
- Erosion** - Process whereby materials of the Earth's crust are loosened, dissolved, or worn away and moved, usually by water or wind.
- Ground Water** - Water in the saturated zone beneath the Earth's surface.
- Nonpoint Source of Pollution** - Pollution from a broad area such as areas of fertilizer and pesticide application, rather than from point sources.
- Point Source of Pollution** - Pollution originating from a discrete source, such as the outflow from a pipe, ditch, tunnel, or well.
- Sediment** - Particles derived from rock or organic materials that have been transported by water or wind.
- Surface Water** - Water that is on the Earth's surface, such as rivers, streams, lakes, and reservoirs.
- Unconfined Aquifer** - An aquifer whose upper water surface (water table) is at atmospheric pressure and is free to rise and fall.
- Water Pollution** - Presence of any substance in water or addition of any substance to water that restricts the use of water.
- Water Table** - The top of the water surface in the saturated area of an aquifer.

ACKNOWLEDGMENTS

The following individuals contributed to the development of this poster:

Project Chief, Principal Author, and Layout: Stephen Vandas, U.S. Geological Survey, Denver, Colorado

Artwork: Frank Farrar, Frank Farrar Graphics, Denver, Colorado, under contract to the National Science Teachers Association

U.S. Geological Survey

The USGS provides the Nation with reliable, impartial information to describe and understand the Earth. This information is used to minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; enhance and protect the quality of life; and contribute to wise economic and physical development. The USGS proudly serves the Nation in providing "science for a changing world."

GRADE SCHOOL

Procedure

1. Divide the class into groups of three. Provide each group with one clear plastic cup 3/4 full of pea-sized gravel, one paper cup with holes in the bottom, one paper cup with no holes punched in the bottom, one paper cup 3/4 full of water, and one pump dispenser.
2. Instruct the students to hold the 240-mL cup with holes in the bottom over the cup containing the pea-sized gravel. Then add the water contained in the other 240-mL cup. Ask the students what they think the water simulates (rain).
3. Explain to the students that rain enters the gravel and becomes ground water. This process is called infiltration.
4. Instruct the students to dig a hole in the center of the gravel. Ask them what the hole simulates. (Answer: A lake or pond.) Have students observe the connection between the level of water in the lake and how it corresponds to the level of water in the gravel.
5. Add two drops of food coloring (to simulate pollution) to each model lake. Have the students place the pump dispenser in the gravel beside the lake and pump water into the paper cup with no holes. Observe the color of the water in the cup.
6. Have the students add small amounts of clean water to their models while pumping. Continue to add clean water and pump out polluted water until it becomes clear.

Interpretive Questions

1. Where does the pollution pumped from the ground water come from?

Answer: The lake.

2. How can pollution from a lake get into the ground water?

Answer: The water in the lake and the ground water are connected.

3. Was it easy to clean up all the pollution in the water?

Answer: No. It took a lot of water and pumping to remove the pollution.

ORDERING INFORMATION

Copies of the completed posters in the series (see Poster Series panel) and the Water Quality poster (color for grades 3-5 and 6-8 or black-and-white) can be obtained at no cost from the U.S. Geological Survey. Write to the address below and specify the poster title(s) and grade level(s) desired. A limited number of color and black-and-white posters entitled "Water: The Resource That Gets Used & Used & Used for Everything!" also are available in Spanish by writing to the address below.

U.S. Geological Survey
Branch of Information Services
Box 25286
Denver Federal Center
Denver, CO 80225
Telephone: 1-800-435-7627

WHERE DOES YOUR USED WATER GO?

INTRODUCTION

Students and their parents should know how wastewater gets to a treatment facility, and what type of treatment the wastewater receives there. The following activity and investigation panel are designed to examine how used water gets to a treatment facility and the treatment process or processes utilized in your community. Do the activity first, then ask the students to answer the questions addressed by the investigation panel.

ACTIVITY

OBJECTIVE

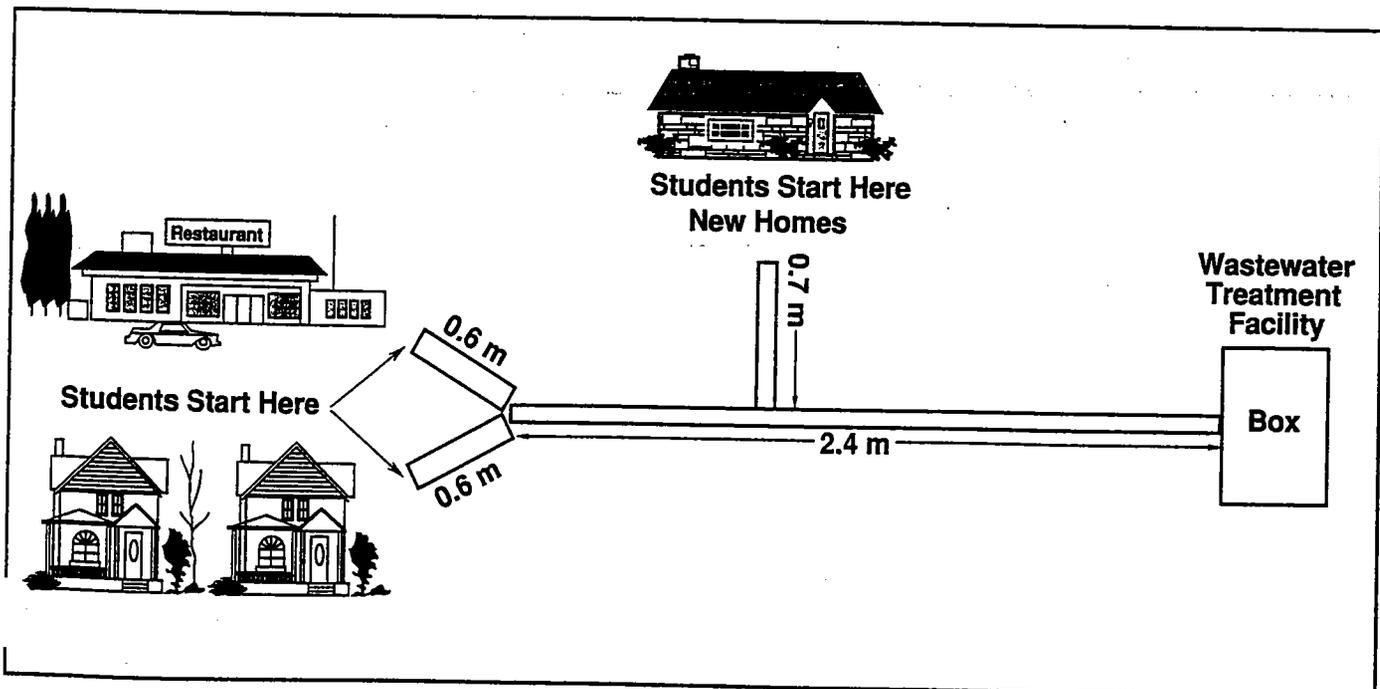
To demonstrate what happens to wastewater and the importance of treatment facilities to a community.

MATERIALS REQUIRED

1. One piece of wood, rope, or a strip of paper, approximately 2.4 meters long.
2. Two pieces of wood, rope, or strips of paper approximately 0.6 meter long.
3. One piece of wood, rope, or strip of paper approximately 0.7 meter long.
4. Shredded newspaper.
5. Cardboard box, any size.

TEACHER PREPARATION

1. Place a copy of this poster on the wall where the students can see it.
2. Set up materials for the activity as shown in the following diagram.



The 2.4-meters-long object represents the main underground sewer pipe. Place the cardboard box at one end of the "main sewer pipe" to represent the wastewater-treatment facility. At the other end of the "main sewer pipe," place two 0.6-meter-long objects to represent underground pipes

ROCEDURE

1. Begin with a general discussion about the importance of treating wastewater. Using the poster, trace the flow of "wastewater" from several "buildings" to the "treatment facility." Explain how wastewater travels from houses, schools, and businesses through underground sewer pipes to a wastewater-treatment facility. Once at the "treatment facility" on the poster, discuss some of the processes used to treat wastewater. The pictures and description of the various treatment processes, located on adjacent panels, provide background information.
2. Explain to the students that they are going to pretend to be wastewater. Ask two students to take a handful of shredded newspaper (representing sewage waste). Place one student at the end of each 0.6-meter-long object (total of two students). Explain that the number of students represents the size of the community today. You, the teacher, then should say "flush," signaling the students to walk along the "pipes" towards the "treatment facility." Upon reaching the "treatment facility," the students must count to three, which represents the time taken to treat the wastewater, and throw the newspaper into the "treatment facility."
3. Next ask six students to volunteer. Ask two students to stand at the end of each 0.6-meter-long object and two students to stand at the end of the 0.7-meter-long object. Explain that the increased number of students represents the concept that the community has expanded. Send two students per "flush" signal toward the "treatment facility." Give signals in quick succession. When the students become crowded at the "treatment facility" because of treatment time (three seconds), ask the students to wait their turns before throwing the newspaper into the "treatment facility."

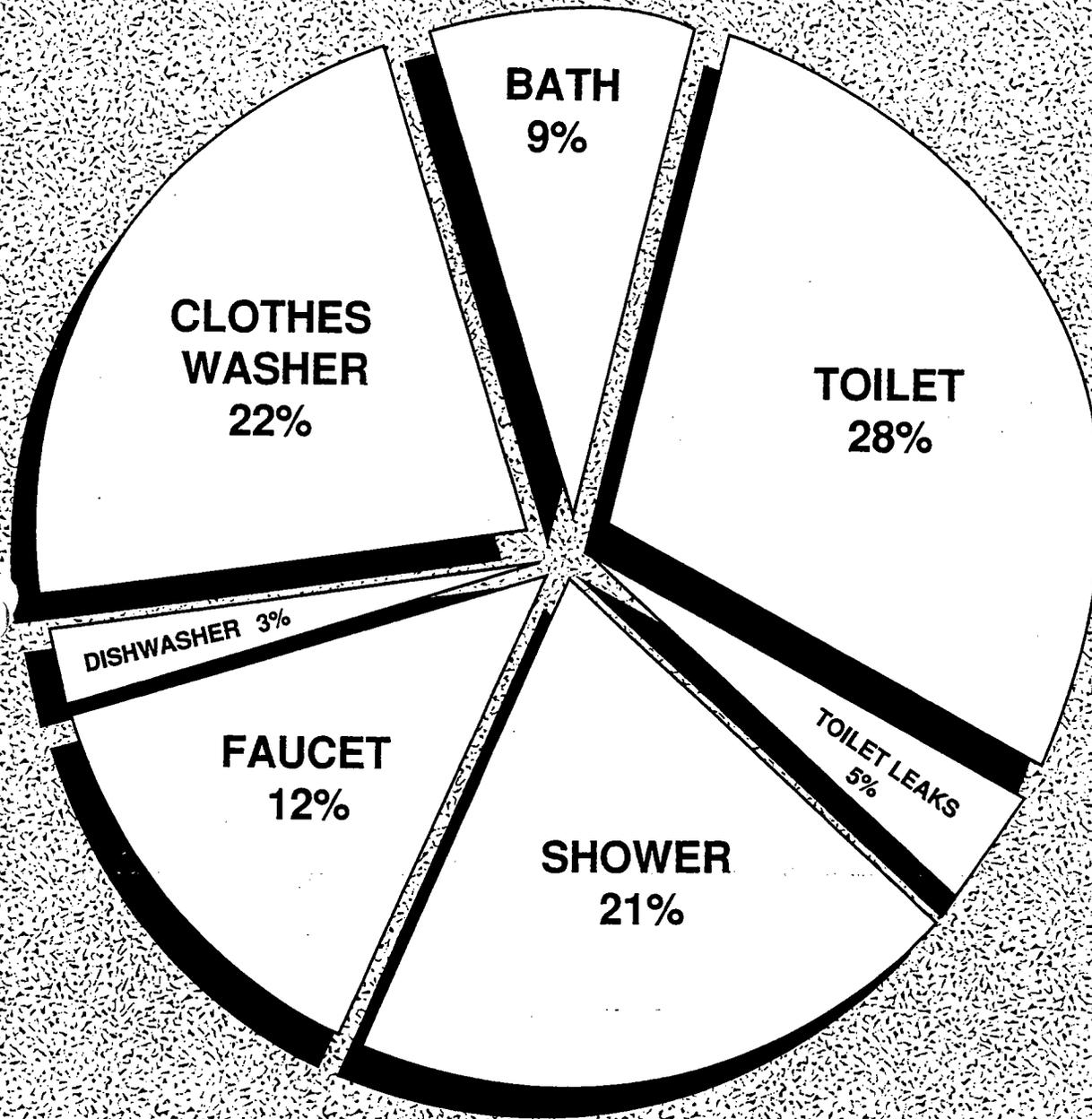
INTERPRETIVE QUESTIONS

Use the following questions for discussion.

1. What caused the crowding at the "treatment facility?"
Answer: Too much "wastewater" to treat at one time.
2. What problems could be caused by the backup of wastewater?
Answer: Delays in treatment, restrictions on water use, prevention of community expansion.
3. What can each student do to prevent backup at treatment facilities?
Answer: Conserve water. For example, only flush the toilet when necessary. Use waste containers for tissue trash and paper towels. Turn water off when brushing teeth.
4. What can the community do?
Answer: Conserve water. Increase the size of the treatment facility.

This activity was adapted from the Massachusetts Water Resources Authority, "Water Wizards."

WHERE YOU USE WATER IN YOUR HOME



Average indoor home use of water in the United States is approximately 300 liters per person per day. Approximately 75 percent of the water used in the home is utilized in the bathroom (See Pie Chart).

Sou. : John Woodwell, "Water Efficiency for Your Home," 1991, Rocky Mountain Institute

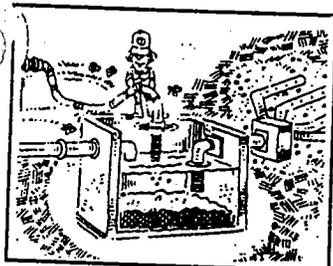
Identify ways you can save water at home by completing the "Water Conservation Quiz" (See Adjacent Panel).

Water used in homes, schools, businesses, and industries must be cleaned or treated before it can be used again or returned to the environment. No matter where you live, in an urban or rural setting, the water you use does not just disappear: it is piped to a treatment system. President George Bush and the U.S. Congress proclaimed 1992 the Year of Clean Water. The treatment of wastewater is important to keeping our water clean. This poster depicts what happens to the water we all use, and how wastewater is treated so that it can be used again. The poster is folded into 8 1/2- by 11-inch panels; front and back panels can easily be photocopied. A black and white version is available for coloring by younger children.

Drawings on the left-hand side of the poster represent the large city (urban and suburban areas) and drawings on the right-hand side of the poster represent small towns and rural areas. In the city, the used water is piped through large underground sewer pipes to a community wastewater-treatment facility. At the wastewater-treatment facility, the wastewater is treated by various processes, which include grit chambers, sedimentation tanks, trickling filters, and disinfection. The treated water then is reused or returned to the environment.

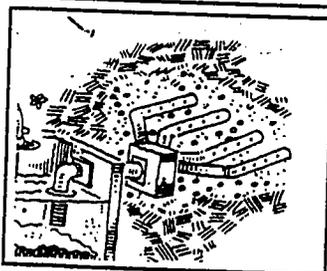
In small towns and rural areas, several alternative and individual onsite collection and treatment processes are used in treating wastewater. This poster depicts several processes, which are: lagoons, wetlands, septic tanks and leach fields, and sand filters.

This poster is the second in a series of Water Education Posters designed to stimulate students' interest in water resources. Posters in the series can be joined to create a large wall mural. Please see the "Acknowledgments" section for more information.



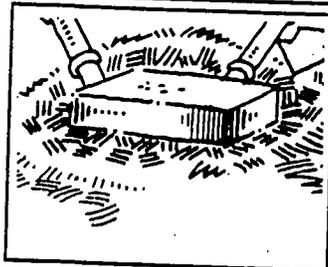
Septic Tank

The septic tank separates solids from liquids. The solids (sludge) collect on the bottom of the tank and are periodically pumped out and disposed of at a community treatment facility or an approved disposal site. The partially treated wastewater is piped to a leach field.



Leach Field

Wastewater from the septic tank is piped to the leach field or absorption field and seeps through the soil. The soil serves as a filter, removing bacteria and nutrients from the wastewater. The wastewater is purified by the microorganisms that live in the soil.



Sand Filter

A system used in areas with high water tables, shallow soils, or soils that water cannot flow through easily. Sand and gravel are mounded on top of natural soil to filter wastewater received from the septic tank before the wastewater reaches natural soil.



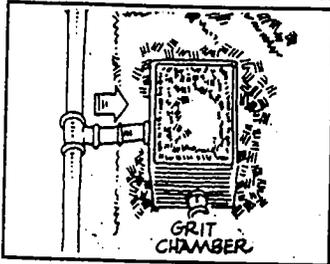
Lagoon

A treatment pond, usually 1 to 1.5 meters deep, that uses sunlight, algae, microorganisms, and oxygen to remove organic matter and nutrients from wastewater. The resultant wastewater may be disinfected by chlorine before being reused or released to the environment.



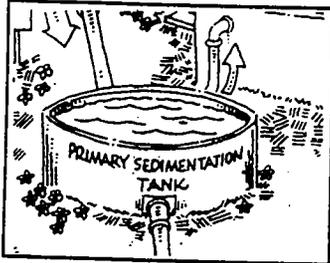
Wetland

A naturally occurring filtering system that improves water quality by reducing nutrients while providing wildlife habitat.



Grit Chamber

The initial step for raw sewage where heavy materials that might damage equipment or interfere with later processes are removed from raw sewage.



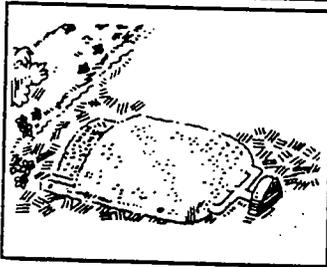
Sedimentation Tank

A structure designed to remove suspended solids. The speed of flow is decreased as wastewater moves through this tank, and suspended solids sink to the bottom and are removed. This mass of solids is called raw sludge.



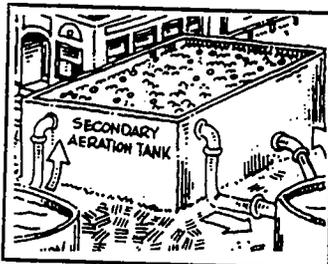
Sludge Treatment

Sludge is that part of wastewater that settles to the bottom. Sludge is removed from the bottom of tanks and filters. Prior to use or disposal, sludge is treated with chemicals and heat to kill disease-causing organisms and decrease the water content.



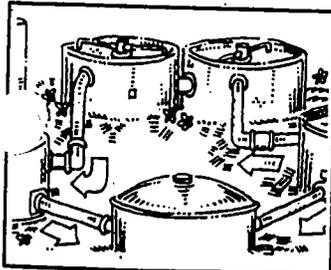
Sludge Composting

Composting uses biological processes to generate heat to kill disease-causing organisms. By forcing air into the compost pile, more oxygen is available to the biological organisms that decompose the sludge. The treated sludge can be used as fertilizer, burned, or placed in a landfill.



Activated Sludge

Wastewater is mixed with air and microorganisms in an aeration tank, and the microorganisms break down organic matter. From the aeration tank the wastewater is piped to another sedimentation tank to remove remaining suspended solids. The treated wastewater or effluent may be disinfected by chlorine before being released to the environment.



Trickling Filter

A bed of stones from 0.9 to 1.8 meters deep through which wastewater passes. Microorganisms, including bacteria, collect on the rocks and consume most of the organic matter in the wastewater. The treated wastewater or effluent may be disinfected by chlorine before being released to the environment.

What is water quality? To most students, water quality may suggest only "clean" water for drinking, swimming, and fishing. But to the farmer or manufacturer, water quality may have an entirely different meaning. One of the most important issues concerning the quality of water is how that water will be used. Water that is perfectly fine for irrigation might not be suitable for drinking or swimming.

The quality of water can change as it flows over the land surface as rivers, streams, lakes, or ponds (surface water), or under the land surface (ground water). Because surface and ground waters are interconnected in some areas, changes in the quality of surface water can affect the quality of the area's ground water, and vice versa. These changes in water quality may be due to natural factors or human activities.

As rock minerals come in contact with water, some dissolve and become part of the surface- or ground-water system. Other natural materials, such as soil or organic matter, become suspended in the water and move from one place to another. The effects of human activities on water may result from land disturbances, which increase the amount of rock minerals, soils, or organic matter available to be transported by and dissolved in water, or from the addition of human-made pollutants. When water is degraded to a point that affects its use for a particular purpose, it has become polluted.

Water pollution originates from two very different sources: point sources and nonpoint sources. This poster depicts human activities associated with point sources (labeled in yellow) and nonpoint sources (labeled in red). Also displayed is the movement of pollutants from their sources to surface and ground waters. The stream flowing from the mountains on the left-hand side of the poster represents clean water not affected by human activities. The river on the left-hand side of the poster receives pollutants from point sources (wastewater-treatment plant, storm drain, and factory). The quantities of pollutants entering this river are reduced as a result of pollution-control measures. The river on the right-hand side of the poster receives pollutants from many nonpoint sources (suburban lawn, parking lot, construction site, landfill, logging area, septic tank, and agricultural field). This river receives large amounts of pollution because there are no pollution controls. The bottom part of the poster displays the movement of water between streams and the underlying aquifer.

The poster is folded into 8.5" x 11" panels; the front and back sides can easily be photocopied.

Point-Source Pollution

Pollution contributed to water from a discrete source, such as a pipe, ditch, tunnel, or well, are referred to as point sources. Generally, pollution from point sources are controlled to some degree by treatment technology. Municipal wastewater-treatment plants are one of the most common examples of treatment of point sources. While a municipal wastewater-treatment plant might receive water from many sources, it discharges into a water body at a single point.



WATER CONSERVATION QUIZ

Saving or Wasting

Print an "S" on the line before an action that saves water. Print a "W" on the line before an action that wastes water.

- _____ 1. Take long showers.
- _____ 2. Fill the bathtub full.
- _____ 3. Delay fixing a leaky faucet.
- _____ 4. Fix a leaky toilet.
- _____ 5. Wash only full loads in the washing machine or dishwasher.
- _____ 6. Fill the bathtub 1/4 full.
- _____ 7. Turn off water while brushing teeth.
- _____ 8. Fix leaky faucet.
- _____ 9. Wash a few clothes every day.
- _____ 10. Let water run while brushing teeth.

Adapted from: Tennessee Valley Authority, The Energy Sourcebook "Thinking About It."

DEFINITIONS

- Advanced treatment** - A level of treatment that removes additional contaminants that have not been removed by secondary treatment.
- Community wastewater-treatment system** - The collection of wastewater from many locations by using a series of underground sewer pipes and a central treatment facility.
- Effluent** - Water that flows from a treatment facility after the wastewater has been treated.
- Microorganisms** - Small living organisms, including bacteria. Some species consume the organic parts of sewage.
- Primary treatment** - The first stage of the wastewater-treatment process at the facility in which mechanical procedures are used to remove pollutants.
- Reclaimed water** - Effluent that is used for irrigation or other purposes.
- Secondary treatment** - The second stage in wastewater treatment in which microorganisms consume the organic parts of the waste.
- Sewer** - A system of underground pipes that collect and deliver wastewater to treatment facilities or streams.
- Suspended solids** - Undissolved waste particles carried by the water.
- Wastewater** - Polluted water that has been used in homes, schools, businesses, and industries that is not suitable for reuse prior to treatment.
- Wastewater-treatment facility** - A structure with a series of tanks, screens, filters, and other processes used to clean wastewater before it is returned to the

INVESTIGATION PANEL

This investigation panel is designed to examine the wastewater-treatment process or processes utilized in your community. Make one copy of this panel for each student in your class. The questions that address the disposal of wastewater from the school can be assigned as a class project and answered by contacting the local wastewater-treatment facility. The questions that address septic tanks apply only to students whose homes utilize this type of wastewater-treatment process. These questions can be answered at home with assistance from the students' parents.

If the wastewater from your school is piped to a community treatment facility, complete the following:

1. Where is the wastewater-treatment facility?
2. Discover some facts about your wastewater-treatment system.
 - a. What process of treatment does the wastewater-treatment facility use?
trickling filter _____ activated sludge _____
lagoon _____ other _____
 - b. What is the treatment capacity? _____ million liters per day.
 - c. How is the sludge disposed?
burned _____ landfill _____
used as fertilizer _____ other _____
 - d. Where does the treated wastewater go after it leaves the facility?
river or stream _____ lake _____
ocean _____ other _____
reuse _____

SEPTIC TANK SYSTEMS

If the wastewater from your home is piped to a septic tank, complete the following:

1. Draw a map of your home and yard on the back of this worksheet or on a separate sheet of paper and mark the location of the septic tank and leach field.
 2. Has the septic tank ever worked improperly? No _____ Yes _____
What was the problem?
 3. When was the last time your septic tank was pumped?
 4. Where was the pumped waste disposed?
landfill _____ treatment facility _____
lagoon _____ other _____
-

INVESTIGATION PANEL

This investigation panel is designed to examine the wastewater-treatment process or processes utilized in your community. Make one copy of this panel for each student in your class. The questions that address the disposal of wastewater from the school can be assigned as a class project and answered by contacting the local wastewater-treatment facility. The questions that address septic tanks apply only to students whose homes utilize this type of wastewater-treatment process. These questions can be answered at home with assistance from the students' parents.

If the wastewater from your school is piped to a community treatment facility, complete the following:

1. Where is the wastewater-treatment facility?
2. Discover some facts about your wastewater-treatment system.
 - a. What process of treatment does the wastewater-treatment facility use?
trickling filter _____ activated sludge _____
lagoon _____ other _____
 - b. What is the treatment capacity? _____ million liters per day.
 - c. How is the sludge disposed?
burned _____ landfill _____
used as fertilizer _____ other _____
 - d. Where does the treated wastewater go after it leaves the facility?
river or stream _____ lake _____
ocean _____ other _____
reuse _____

SEPTIC TANK SYSTEMS

If the wastewater from your home is piped to a septic tank, complete the following:

1. Draw a map of your home and yard on the back of this worksheet or on a separate sheet of paper and mark the location of the septic tank and leach field.
2. Has the septic tank ever worked improperly? No _____ Yes _____
What was the problem?
3. When was the last time your septic tank was pumped?
Where was the pumped waste disposed?
landfill _____ treatment facility _____
lagoon _____ other _____

APPENDIX 4
OUTFALL INSPECTION FORM



TOWN OF WILMINGTON
STORMWATER DRAINAGE SYSTEM OUTFALL INSPECTION FORM

OUTFALL I.D. _____

LOCATION AID: _____

DATE: _____

WEATHER: _____ TEMPERATURE: _____ F

TIME: _____

OBSERVED BY: _____

DRY DURING LAST 72 HOURS? YES NO

FLOW OBSERVED? YES NO

1. Flow Observations <small>(fill out if flow is observed)</small>	Pipe Flow Depth <small>(measured in inches from invert)</small>	Channel flow depth <small>(measured from bottom of channel)</small>	Flow Color & Appearance	Odor	<u>General Comments:</u>	
			clear cloudy dark sheen other	no odor chemical oil sewage other		
2. Structure Details	Pipe Material	Pipe Condition	Channel Condition <small>(if applicable)</small>	Pipe Diameter <small>(or channel width)</small>	GPS Coordinates	Discharge Directly to Surface Water?
	cast iron clay concrete corrugated metal pvc corrugated plastic	good fair poor other:	good clogged / debris eroded other:			
3. Follow Up	Follow Up needed?	Follow Up with Testing?	<u>Additional Notes:</u>			
	Yes No	Yes No Type:				

APPENDIX 5

DRAFT BYLAW

TOWN OF WILMINGTON
STORMWATER MANAGEMENT BYLAW
DRAFT

ARTICLE 10.1
STORMWATER MANAGEMENT

SECTION 10.1.1 – DISCHARGES TO MUNICIPAL DRAIN SYSTEM

I. PREFACE

In accordance with obligations of the Town of Wilmington under the Clean Water Act and the Town's National Pollutant Discharge Elimination System Storm Water Permit, the Town of Wilmington has hereby established regulatory measures for the discharges to its Municipal Separate Storm Sewer System (MS4).

II. AUTHORITY

In accordance with Mass General Laws Chapter 43B Section 13 and Amendment Article 89 to Article II of the Massachusetts Constitution, this section is hereby adopted with enforcement and administrative responsibility granted to the Board of Selectmen of the Town of Wilmington who may re-delegate the enforcement and administrative responsibilities in writing to the Superintendent of Public Works and his or her subordinates and/or Officials of the Offices of Planning and Conservation when deemed appropriate by said authority.

III. PURPOSE

This section hereby serves to accomplish the following:

- a. To protect the waters of the Town of Wilmington as defined in the Clean Water Act by implementing regulatory procedures for uncontrolled stormwater and contaminated water into the Town's MS4 which may adversely impact the environment by negatively impacting the physical, biological, and chemical compositions of receiving waters
- b. To reduce the contaminants introduced into the Town's MS4 and therefore into the receiving water bodies of the Town of Wilmington, thus improving the quality of surface water and protecting the public health and safety of the Town.
- c. To increase the reasonable accessibility of the Town's MS4 for purposes of maintenance and general drainage management

- d. Ensure the effective implementation of the above tasks by the issuance of a regulatory enforcement and penalties procedure

IV. DEFINITIONS

BOARD: The Board of Selectmen and, to the extent delegated, shall include the Highway Superintendent and his or her subordinates, and Officials of the Offices of Planning and Conservation.

CONTAMINATED WATER: Water containing levels of pollutants which exceed acceptable levels set forth by the Clean Water Act and associated regulations included but not limited to: heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria.

DIRECT CONNECTION: A discernable conveyance method that discharges water into the Town's MS4 including but not limited to the following: pipe, drain, channel, conduit, tunnel, or swale.

DIRECT CONNECTION LICENSE: A license that permits a Direct Connection to the MS4 and grants maintenance responsibility to the Owner or said connection.

DUMPING: An act resulting in the introduction of a Pollutant into the Town's MS4 by any person or entity.

EXEMPTED DISCHARGES: Discharges from the following sources unless such discharge would result in a substantial increase in Pollutant levels in receiving waters, as determined by the granted authority:

1. Water line and hydrant flushing
2. Landscape irrigation
3. Diverted stream flows
4. Rising ground water
5. Pumped ground water
6. Discharges from potable water sources
7. Foundation drains
8. Air conditioning condensation
9. Springs
10. Water from crawl space pumps (sump pumps)
11. Footing drains
12. Individual residential car washing
13. Flows from riparian habitats and wetlands
14. De-chlorinated swimming pool discharges (less than 1 ppm of chlorine)
15. Street, sidewalk, and yard runoff
16. Roof Runoff

EXISTING SOURCE: Any structure or facility from which there is a flow of Storm Water or Exempted Discharge and the construction of which occurred prior to the acceptance and promulgation of this By-Law.

ILLCIT CONNECTION: Any drain or conveyance, whether on the surface or subsurface, which allows an Illicit Discharge to enter the MS4.

ILLCIT DISCHARGE: Any release into the MS4 of Contaminated Water, any Discharge of Storm Water from a Direct connection for which a Direct Connection License is not in force and effect, any Discharge which is not an Exempted Discharge, or any Discharge from an Indirect Connection not in compliance with this By-Law.

INDIRECT CONNECTION: The natural drainage of Storm Water over the surface or under the ground into the MS4.

MUNICIPAL SEPARATE STORM SEWER SYSTEM or MS4: The Storm Water collection system comprised of pipes, catch basins, manholes, streams, canals, culverts, ditches, swales, and watercourses through which storm water flows for the purposes of conveying storm water to a discharge point.

NEW SOURCE: Any structure or facility from which there is a flow of Storm Water or Exempted Discharge and the construction of which occurred after adoption of this By-Law.

NPDES PERMIT: The National Pollution Discharge Elimination System Permit issued by the Federal Environmental Protection Agency to the Town.

OWNER: The owner of a parcel of land as recorded in the Assessor's Office of the Town.

POLLUTANT: Solid waste, incinerator residue, filter back-wash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, rock, sand, animal or agricultural waste, oil, grease, gasoline, or diesel fuel. (see also "Contaminated Water").

PUBLIC WAYS: Any roadway (including berms, curbs, drains, catch basins, sewers, water mains, sidewalks, and paved and unpaved shoulders within the paper lay-out) to which the public has access and the Town has maintenance responsibilities.

STORM WATER: Rainfall that exceeds the soil's capacity to absorb it and which, instead, runs across the surface of the ground as run-off.

V. PROHIBITIONS

- a. No person or entity shall do any Dumping into the MS4, including but not limited to the placing or emptying of any Pollutant into any portal to the MS4.

- b. No person or entity shall directly or indirectly create or introduce an Illicit Discharge into the Town's MS4.
- c. No Direct Connections shall be installed after the Effective Date of this By-Law, whether from a New or Existing Source without an approved and authorized Direct Connection License.
- d. Direct Connection from an Existing Source shall be allowed to continue after the Effective Date provided that:
 - i. The Owner must disclose the Direct Connection and must within 30 days of the effective date of this By-Law apply for and therefore be granted a Direct Connection License, and
 - ii. The Owner must Discharge only non-contaminated storm water via the direct connection.
- e. Indirect Connections from existing sources shall be allowed provided that:
 - i. Only non-contaminated storm water or an Exempted Discharge indirectly enters the MS4, and.
 - ii. Safety problems due to icing or flooding of public ways or damage to Town Property is not created or exacerbated by the Indirect Connection.
- f. Indirect Connections from New Sources shall be allowed provided that:
 - i. Only non-contaminated storm water or an Exempted Discharge indirectly enters the MS4, and.
 - ii. Sub-surface infiltration trenches are used which comply with criteria established in the Town's Sub-Division Rules & Regulations.

VI. PENALTIES

- a. A fine of \$100.00 (one-hundred dollars) shall be assessed to any person or entity that causes or allows a Dumping or is in violation with Section V of this section.
- b. A fine of \$100.00 (one-hundred dollars) per day shall be assessed to any person or entity that causes or allows an Illicit Discharge to emanate from his property for each day that the Illicit Discharge continues after notice is given by or at the direction of the Board of Selectmen.
- c. Any Owner who allows a Direct Connection to be maintained on his property, whether or not it results in an Illicit Discharge, without applying for and receiving a Direct Connection License from the Town shall be subject to a fine of \$100.00

(one-hundred dollars) per day for each day that the unlicensed Direct Connection continues after the deadline set for abatement by the Board of Selectmen.

VII. ENFORCEMENT

- a. Violations of Section VI (a) shall be disposed of through the non-criminal procedure specified in M.G.L. C. 40 s. 21D.
- b. If an Illicit Discharge or Dumping occurs or an Illicit Connection is maintained, the Board shall give or cause to be given written notice ordering an immediate cessation of any act or condition in violation of this By-Law directed to the Owner of the emanating parcel or on which the Illicit Connection is maintained.
- c. The Board may order the Owner or entity to begin and bring to completion such remediation efforts as the Board may deem appropriate.
- d. If the Board determines that the Illicit Discharge resulted from a Direct Connection to the MS4, the Board shall revoke Owner's Connection License immediately. After the Owner has fully completed all remediation ordered by the Board, the Owner may then apply to the Board for a new Direct Connection License that the Board shall consider in the same manner as any other new application.

VIII. APPEALS

Any person or Owner aggrieved by an action of the Board which was not either the assessment of a penalty for Dumping for which the provisions of M.G.L.C. 40s 21 D exclusively apply, or an action taken by the Board at a meeting of which the aggrieved person or Owner was given notice and was afforded the opportunity to present evidence and argument with a view to causing the Board to modify its earlier action then, within thirty days of such Board action, the aggrieved person or Owner shall request a hearing before the Board at which they shall be afforded the opportunity to present evidence and argument concerning final action by the Board. The Board shall hold such hearing within a reasonable time following its request and within a reasonable time thereafter shall either confirm the Board's previous action or order such other final action as it may determine.

Any person or Owner aggrieved by a decision of the Board of Selectmen under this By-Law may appeal such decision to the appropriate court of competent jurisdiction.

IX. SEVERABILITY

If any clause, section, or other part of this section By-Law shall be held invalid or unconstitutional by any court of competent jurisdiction, the remainder of this By-Law shall not be affected thereby but shall remain in full force and effect.

X. EFFECTIVE DATE

This By-Law shall take effect upon approval by the Office of the Attorney General.

SECTION 10.1.2 – EROSION AND SEDIMENT CONTROL

I. PREFACE

In accordance with obligations of the Town of Wilmington under the Clean Water Act and the Town's National Pollutant Discharge Elimination System Storm Water Permit, the Town of Wilmington has hereby established regulatory measures for construction related erosion and sediment control.

II. AUTHORITY

In accordance with Mass General Laws Chapter 43B Section 13 and Amendment Article 89 to Article II of the Massachusetts Constitution, this section is hereby adopted with enforcement and administrative responsibility granted to the Board of Selectmen of the Town of Wilmington who may re-delegate the enforcement and administrative responsibilities in writing to the Superintendent of Public Works and his or her subordinates and/or Officials of the Offices of Planning and Conservation when deemed appropriate by said authority.

III. PURPOSE

This section serves to reduce the negative effects of soil erosion and sedimentation on the environment, public welfare, and health of the residents of the Town of Wilmington, which may be the result of earth alteration, excavation, landscape alteration, and general construction activity.

IV. DEFINITIONS

AGRICULTURE – The normal maintenance or improvement of land in agricultural or aquacultural use as defined by the Massachusetts Wetlands Protection Act and its implementing regulations.

CLEARING – Any activity that involves the removal of vegetative surface cover and related landscaping appurtenances.

DRAINAGE WAY – Any channel, swale, pipe, or device that conveys surface runoff throughout a site.

EROSION CONTROL – Any measure that is intended to prevent or mitigate earth alteration related and stormwater related erosion.

EROSION AND SEDIMENT CONTROL PLAN – A plan or set of plans prepared in accordance with Section 10.1.2.V(a) of this Bylaw which indicates the measures and sequencing to be used in controlling erosion and sedimentation at a development site before, during, and after construction activities.

GRADING – the landscape conditions resulting in the alteration, excavation, or fill of earth related material.

OWNER - The owner of a parcel of land as recorded in the Assessor's Office of the Town.

PERIMETER CONTROL – An erosion control barrier surrounding a site that is intended to prevent sediment leaving the construction site by means of filtration or diversion into a sedimentation basin.

PHASING – The clearing and stabilization of land in separate and subsequent time frames.

SEDIMENT CONTROL – Measures intended to prevent construction activity related sediment from washing off-site or entering the drainage system.

STABILIZATION – Measures intended to prevent the erosion of exposed soil.

START OF CONSTRUCTION – The first land – disturbing activity performed as a result of developing a site, including land preparation and clearing.

WATERCOURSE – Any body of water including but not limited to lakes, ponds, rivers, and streams.

WATERWAY - Any channel, swale, pipe, or device that conveys surface runoff to a watercourse or to a subsequent drainage system.

V. JURISDICTION

No person or entity shall excavate, cut, grade, or perform any significant land-disturbing activities without an approved Erosion and Sediment Control Plan when working on a construction site that disturbs 1 acre or more and contributes runoff to the Municipal Separate Storm Sewer System (MS4). This jurisdiction shall also include smaller sites that are part of a common plan that together will disturb 1 or more acres of land.

Activities exempt from the submission of an Erosion and Sediment Control Plan are as follows:

- a. Emergency activities for the protection of life, property, or natural resources
- b. Existing permitted nursery and agricultural operations

VI. EROSION AND SEDIMENT CONTROL PLAN

The following information must be included at a minimum on the Erosion and Sediment Control Plan:

- a. Stamp certification from a Registered Professional Engineer
- b. Name, address, and telephone number of owner, applicant, and civil engineer
- c. Property Lines
- d. Location of all existing and proposed structures and impervious surfaces
- e. Location of all existing and proposed drainage utilities (structures, pipes, swales, detention basins, chambers, galleys)
- f. Existing and Proposed grading contours
- g. Measures taken to control erosion and sediment transport
- h. Measures taken to minimize disturbance to the site
- i. Construction details for erosion and sediment control measures
- j. A locus map showing the surrounding area's watercourses, roads, and other significant structures or major topographic features.
- k. Existing and proposed vegetative limits, including existing isolated trees.
- l. A clear delineation of wetlands, watercourses, and drainage ditches / swales
- m. A summary of construction sequencing for the site including but not limited to clearing, grading, utility infrastructure, building construction, final grading, landscaping and final site stabilization.

VII. PERFORMANCE STANDARDS

A construction project shall be considered in conformance with this section of the Bylaw if soil, sediment, and other eroded matter have been prevented from entering the adjacent property, right of way, public storm drainage system, adjacent watercourses, or wetlands, and all limits of disturbance have been adhered to.

VIII. REVIEW AND APPROVAL

An Erosion and Sediment Control review is triggered by conditions as described in Section 10.1.2.V (Jurisdiction). Applicants are referred by the permit-issuing agency to the Wilmington Engineering Department to conduct the Erosion and Sediment Control Review as part of the normal subdivision or site plan review process. Activities that are exempt from the requirement of a building permit and still conform to conditions described in paragraph V (Jurisdiction) are not exempt from this provision and still require an Erosion and Sediment Control Review from the Wilmington Engineering Department.

The Wilmington Engineering Department will review each Erosion and Sediment Control Plan to determine its conformance with the provisions of this section within 30 Calendar days after receiving the application and shall, in writing:

- a. Approve the plan as submitted, OR
- b. Approve the plan subject to reasonable conditions as may be necessary to secure the objectives of this provision, OR
- c. Disapprove the plan and request a re-submission, indicating reasons for disapproval.

IX. INSPECTIONS

The Wilmington Engineering Department, Wilmington Conservation Department, or designated agent shall perform inspections as part of their routine construction project inspections. The inspector(s) shall either approve the respective portion of completed work or shall notify the responsible party that the work fails to comply with the Erosion and Sediment Control Plan as approved.

The purpose of the Erosion and Sediment Control inspections is to determine the overall conformance and effectiveness of the control plan and the possible need of additional control measures.

X. ENFORCEMENT

In the event that the activity at a site violates the conditions as stated or shown on the approved Erosion and Sediment Control Plan in such a manner as to adversely affect the environment, public welfare, and health of the residents of the Town of Wilmington, then the inspector or designated authority may suspend work until the violation are corrected.

XI. SEVERABILITY

If any clause, section, or other part of this section By-Law shall be held invalid or unconstitutional by any court of competent jurisdiction, the remainder of this By-Law shall not be affected thereby but shall remain in full force and effect.

SECTION 10.1.3 – POST CONSTRUCTION STORMWATER MANAGEMENT

I. PREFACE

In accordance with obligations of the Town of Wilmington under the Clean Water Act and the Town's National Pollutant Discharge Elimination System Storm Water Permit, the Town of Wilmington has hereby established regulatory measures for the post construction management of stormwater systems and related erosion and sediment control.

II. AUTHORITY

In accordance with Mass General Laws Chapter 43B Section 13 and Amendment Article 89 to Article II of the Massachusetts Constitution, this section is hereby adopted with enforcement and administrative responsibility granted to the Board of Selectmen of the Town of Wilmington who may re-delegate the enforcement and administrative responsibilities in writing to the Superintendent of Public Works and his or her subordinates and/or Officials of the Offices of Planning and Conservation when deemed appropriate by said authority.

III. PURPOSE

This section serves to establish minimum requirements and controls to reduce the negative effects of stormwater runoff on the environment, public welfare, safety, and health of the residents of the Town of Wilmington by minimizing stormwater runoff from a development, providing groundwater recharge where appropriate, and ensuring the proper long term maintenance of stormwater drainage systems.

IV. DEFINITIONS

ACCELERATED EROSION – Erosion caused by development activities that exceeds the natural processes by which the surface of the land is worn away by the action of water, wind, or chemical reaction.

APPLICANT – The property owner or agent who has filed a stormwater management plan.

BUILDING – Any temporary or permanent structure having walls and a roof that is primarily intended to provide shelter to any person, animal, or property and occupies more than 100 square feet of area.

CHANNEL – A natural or artificial watercourse with a definite bed and banks that conveys or sometimes conveys flowing water.

DETENTION – The temporary storage of stormwater runoff in a stormwater management facility that is intended to reduce peak discharge rates and provide pollutant settling.

DEVELOPER – Any person or entity who performs or initiates land disturbance activities.

DRAINAGE EASEMENT – A legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

EROSION AND SEDIMENT CONTROL PLAN – A plan or set of plans prepared in accordance with Section 10.1.2.V(a) of this Bylaw which indicates the measures and sequencing to be used in controlling erosion and sedimentation at a development site before, during, and after construction activities.

FEE IN LIEU – A payment made in return for NOT meeting all of the stormwater management standards presented in this section.

IMPERVIOUS COVER – Surfaces that cannot effectively infiltrate rainfall (pavement, rooftops, etc.)

INDUSTRIAL STORMWATER PERMIT – National Pollutant Discharge Elimination System (NPDES) issued to a commercial industry or group of industries that regulates the pollutant levels associated with industrial stormwater discharges.

INFILTRATION – The process of percolating stormwater into the soil.

LANDOWNER - The owner of a parcel of land as recorded in the Assessor's Office of the Town.

OPERATION AND MAINTENANCE PLAN – A plan that specifies the mechanisms for ongoing operation and maintenance of the stormwater management system to ensure proper future functionality.

RESOURCE AREA – Any piece of land protected under the Massachusetts Wetlands Protection Act or Massachusetts Rivers Act.

RECHARGE – The process of replenishing subsurface water reserves.

STORMWATER MANAGEMENT – The practice of using structural or non-structural methods to reduce pollutant loading from stormwater, discharge volumes, and peak rates that may adversely affect water quality.

STORMWATER TREATMENT PRACTICES (STPs) - Measures that are determined to be the most effective and practical means of reducing the introduction of pollutants into stormwater runoff and therefore watercourses.

WATERCOURSE – Any body of water including but not limited to lakes, ponds, rivers, and streams.

WATERWAY - Any channel, swale, pipe, or device that conveys surface runoff to a watercourse or to a subsequent drainage system.

V. JURISDICTION

No person or entity shall excavate, cut, grade, or perform any significant land-disturbing activities without an approved Stormwater Management Plan when working on a construction site that disturbs 1 acre or more and discharges new runoff to the Town's MS4 directly or indirectly or a construction site that is less than one acre which is part of a common plan that collectively will disturb 1 or more acres and will discharge new runoff to the Town's MS4 directly or indirectly.

Activities exempt from the submission of a Stormwater Management Plan are as follows:

- a. Emergency repairs to any stormwater structure or system
- b. Maintenance of existing gardens or lawns
- c. Utility construction and/or installation that does not alter drainage patterns.

VI. STORMWATER MANAGMENT PLAN

In addition to providing sufficient information to evaluate the environmental characteristics of the affected areas, the potential impacts of the proposed development on water resources, and the effectiveness and acceptability of measures proposed for managing stormwater runoff, the following information must be included at a minimum on the Stormwater Management Plan:

- a. Stamp certification from a Registered Professional Engineer
- b. Name, address, and telephone number of owner, applicant, and civil engineer
- c. Property Lines
- d. Location of all existing and proposed structures and impervious surfaces

- e. Location of all existing and proposed drainage utilities (structures, pipes, swales, detention basins, chambers, galleys)
- f. Existing and Proposed grading contours
- g. Flow paths for all as-built runoff patterns
- h. Soil investigations data and estimated seasonal high groundwater level for all areas where infiltration structures or mechanisms exist.
- i. A locus map showing the surrounding area's watercourses, roads, and other significant structures or major topographic features.
- j. A clear delineation of wetlands, watercourses, and drainage ditches / swales
- k. Location and ownership of existing and proposed easements
- l. Structural details and O&M manuals (if applicable) for all aspects of the stormwater drainage system.
- m. An Operation & Maintenance schedule which includes a frequency plan illustrating the time frame for such maintenance and who is responsible for providing such maintenance.

VII. PERFORMANCE STANDARDS

A construction project shall be considered in conformance with this section of the Bylaw if all post construction activities, BMP's, and stormwater management practices aim to minimize stormwater runoff, maximize infiltration and recharge where appropriate, and minimize pollutants in stormwater runoff and are in accordance with the approved Stormwater Management Plan.

VIII. REVIEW AND APPROVAL

The Wilmington Engineering Department, Office of Planning and Conservation, or designated agent will review the Stormwater Management Plan to determine conformance with the provisions of this section within 30 Calendar days after receiving the application and shall, in writing:

- a. Approve the plan as submitted, OR
- b. Approve the plan subject to reasonable conditions as may be necessary to secure the objectives of this provision, OR
- c. Disapprove the plan and request a re-submission, indicating reasons for disapproval.

IX. INSPECTIONS

The Wilmington Engineering Department, Wilmington Conservation Department, or designated agent shall perform inspections as part of their routine construction project inspections. If the work fails to comply with the Stormwater Management Plan, the inspector(s) shall notify the appropriate parties.

The Applicant shall submit an "as-built" plan for stormwater controls after final construction is completed. The plan must show the final design specifications of all stormwater management controls and must be certified by a Professional Engineer.

The purpose of the Stormwater Management Plan inspections is to determine the overall conformance and effectiveness of the control plan and the possible need of additional control measures.

X. ENFORCEMENT

In the event that the activity at a site violates the conditions as stated or shown on the approved Stormwater Management Plan in such a manner as to adversely affect the environment, public welfare, and health of the residents of the Town of Wilmington due to the improper installation, operation or maintenance or stormwater controls, fining as follows may be imposed by the Town of Wilmington in accordance with the appropriate sections of the By-Laws of the Town of Wilmington:

- | | |
|------------------------------------|----------|
| a. First Violation | \$100.00 |
| b. Second Violation | \$200.00 |
| c. Third and Subsequent Violations | \$300.00 |

The Wilmington Board of Selectmen may order the Owner or entity to begin and bring to completion such remediation efforts as may be deemed appropriate in order to achieve compliance with the Stormwater Management Plan.

XI. SEVERABILITY

If any clause, section, or other part of this section By-Law shall be held invalid or unconstitutional by any court of competent jurisdiction, the remainder of this By-Law shall not be affected thereby but shall remain in full force and effect.

APPENDIX 6

DRAFTSITE PLAN REVIEW CHECKLIST



TOWN OF WILMINGTON

DEPARTMENT OF PUBLIC WORKS

DRAFT SITE PLAN REVIEW CHECKLIST

GENERAL REQUIREMENTS

- _____ 16 Copies of the application have been submitted
- _____ Application signed by the applicant, owner (if different) or their authorized agents
- _____ Written statement detailing the proposed use and existing use, an evaluation of the proposed use based on Section 6.4.4 Site Design Standards of the Zoning Bylaw.
- _____ Drainage Calculations
- _____ Earth Removal Calculations (if applicable)
- _____ Written justifications of zoning variances or site plan waivers
- _____ Filing fee – Cash or check payable to the Town of Wilmington in accordance with the fee schedule in effect at the time of the application
- _____ If the applicant desires a waiver of one or more of the site plan regulations, a request for such waiver must be submitted in writing with the application
- _____ Certified list of all abutters within 300 feet of the parcel boundaries which must be certified by the Wilmington Assessor's Office

SITE PLAN REQUIREMENTS

- _____ Locus Plan showing location of the property, roads and important features of the adjacent area
- _____ Scale of 1:40 or reasonable alternative
- _____ Stamp of a Registered Professional Surveyor on existing conditions plan
- _____ All lot lines, including existing and proposed bearings and distances
- _____ Stamp of a Registered Professional Engineer on design plans
- _____ Bounds of proposed lots, areas, and dimensions
- _____ Map and Parcel Number
- _____ All lot lines, including existing and proposed bearings and distances
- _____ North Arrow
- _____ Zoning district boundaries, including the Groundwater Protection District
- _____ Floodplain and wetlands boundaries
- _____ All existing and proposed topography at 2-foot contour intervals
- _____ All existing and proposed buildings and structures, their dimensions, and distances from lot lines
- _____ Parking and loading areas, including dimensions of spaces and aisles
- _____ Locations and widths of all streets and driveways within 200 feet of the subject parcel
- _____ Size and location of existing and proposed water mains and their appurtenances, and all existing and proposed hydrants
- _____ All existing and proposed facilities for sewage waste disposal and drainage
- _____ All existing and proposed drainage utilities, including storage areas and structures
- _____ Exterior lighting, electrical, and gas utilities
- _____ Signature block for Planning Board signatures
- _____ Plan showing planting and landscaping detail
- _____ Proper Erosion Control measures
- _____ Architectural elevation(s) and floor plan(s) of proposed buildings showing the layout of each floor with a tabular summary of the floor area
- _____ Necessary Construction Details
- _____ Details of proposed signage and statement as to whether it conforms with zoning
- _____ Location and ownership of abutting property

OTHER INFORMATION

- _____ Traffic Impact Analysis (if needed)
- _____ Hazardous Waste Studies (if needed)