1.0 REGULATORY BACKGROUND

The Federal Water Pollution Control Act (WPCA), initially enacted in 1948, utilized ambient water quality standards to specify acceptable levels of pollution in lieu of preventing the causes of water pollution. The 1972 amendments to the WPCA, referred to as the Clean Water Act (CWA), implemented measures which were focused on establishing effluent limitations on point sources, or "any discernable, confined, and discrete conveyance… from which pollutants are or may be discharged."

The 1972 CWA introduced the National Pollutant Discharge Elimination System (NPDES). The NPDES program was established as the fundamental regulatory mechanism of the CWA requiring direct dischargers of pollutants into waters of the United States to obtain a NPDES permit. Between 1972 and 1987, the NPDES permit program focused on improving surface water quality by reducing pollutants of industrial process wastewater and municipal sewage. During this period, several nationwide studies on water quality, most notably the United States Environmental Protection Agency (USEPA) National Urban Runoff Program (NURP), identified storm water discharges as a significant source of water pollution.

The results of the NURP and similar studies, along with pressure from environmental groups, resulted in the reauthorization of the CWA in 1987 with the passage of the Water Quality Act (WQA). The WQA established a legal framework for and required USEPA to develop a comprehensive phased program for regulating municipal and industrial stormwater discharges under the NPDES permit program.

The NPDES Phase I rule, which was issued in November 1990, addressed stormwater discharges from medium to large municipal separate storm sewer systems (MS4s), which were communities serving a population of at least 100,000 people, as well as stormwater discharges from 11 categories of industrial activity. One industrial activity was construction activities disturbing five or more acres of land.

The NPDES Phase II rule, which was promulgated in December 1999, addressed small municipal separate storm sewer systems (MS4s) serving a population of less than 100,000 people in urbanized areas. The ruling also included construction activities disturbing between one and five acres of land. The final rule requires that all MS4s located within urbanized areas as defined by the Bureau of the Census automatically comply with the Phase II Stormwater regulations. The USEPA has designated the Town of North Andover as a Phase II community that must comply with the new NPDES regulations.

In the Commonwealth of Massachusetts, the USEPA has retained primacy as the Phase II permitting authority. The permit was jointly issued by the USEPA and the Massachusetts Department of Environmental Protection (MA DEP) on May 1, 2003.

2.0 INTRODUCTION

The NPDES Phase II regulations require that the operator of a small MS4 develop, implement, and enforce a stormwater management program (SWMP). The objectives of the SWMP are to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA. These objectives are accomplished through the implementation of Best Management Practices (BMPs) for each of six minimum control measures.

The six minimum control measures are as follows:

- Public Education and Outreach
- Public Involvement/Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations

The Phase II Final Rule requires nationwide coverage of all operators of small MS4s that are located within the boundaries of a Bureau of the Census-defined "urbanized area" (UA) based on the latest decennial Census. The Final Rule requires that the NPDES permitting authority – in Massachusetts this is the USEPA – develop and apply designation criteria to make a final determination of which communities are required to comply with this regulation. Appendix A of this report provides a map of the Phase II stormwater "permit compliance area" for North Andover as determined by the USEPA using the latest decennial (year 2000) Census. The figure can be accessed on the Internet at http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/ma/North Andover.pdf.

Weston & Sampson Engineers, Inc. was selected by the Town of North Andover to provide assistance in the development of the Phase II SWMP to address each of the above six minimum control measures. It is intended that the six minimum control measures will be a part of the Phase II Notice of Intent (NOI) that is due to be submitted to the USEPA and MA DEP no later than July 30, 2003. The SWMP developed for the Town of North Andover is discussed in detail below.

3.0 TOWN INFORMATION

3.1 Setting

The Town of North Andover (Town) was incorporated in 1855, and is located in northeastern Massachusetts, in the northwest corner of Essex County. The Town is bordered by Methuen and Haverhill on the north; Boxford on the east; Middleton and North Reading to the south; and Andover and Lawrence on the west. Harold Parker State Forest extends from the central to the southwest

portion of the town. The total area of the town is 27.85 square miles. According to the year 2000 Census, North Andover's population is approximately 27,200.

Climate within North Andover ranges from January normal temperature of 24.7 degrees Fahrenheit (°F) to July normal temperature of 72.5°F. Normal annual precipitation is 42.8 inches.

Principal highways located within North Andover include Interstate Route 495 and State Route 114, which generally run north and south, and State Routes 125 and 133, which run east to west.

There are several surface water resources located in North Andover. The largest of the surface water resources is the Merrimack River, which flows from west to east through the town. Some of the other surface water resources within the town include the Shawsheen River, Lake Cochichewick (the Town's water supply), Cochichewick Brook, Swain Brook, Mosquito Brook, Boston Brook, Fish Brook, Cedar Brook, Rocky Brook, Osgood Pond, Mill Pond, Sutton Pond, Stevens Pond, Rae's Pond, Cedar Pond, and Sharpners Pond.

3.2 Local Government

The Town is governed by an open Town Meeting form of government, a five-member Board of Selectmen, and a Town Manager, pursuant to a Home Rule Charter that went into effect in 1986.

3.3 Ordinances and Guidance

The key Town of North Andover bylaws and ordinances that may be affected by the Storm Water Management Program are:

- Subdivision Rules and Regulations
- Zoning Bylaws
- Wetlands Bylaws and Regulations
- Sewer Ordinances

3.4 Legal Authority

The Town will, as part of the SWMP, be reviewing the ordinances and guidance listed above to identify potential revisions to address elements of the SWMP.

3.5 Inspection/Enforcement

The Town has a Building Code and conducts building inspections through the Building Inspector.

The Conservation Commission (ConCom) conducts project reviews for areas of ConCom jurisdiction (that is, within 100 feet of wetland resources and 200 feet of riverfront resources), and will, as part of the SWMP, review the ordinances and guidelines listed above to identify potential revisions to address elements of the SWMP. In addition, the ConCom conducts pre- and post- construction inspections. The Planning Department also conducts site inspections on subdivision and special permit projects prior to and throughout construction and will also review the above-mentioned ordinances and guidelines.

3.6 Infrastructure/Municipal Operations

In North Andover, runoff management, as well as street maintenance, is handled by the Streets & Parks Department under the Division of Public Works (DPW). North Andover has separate stormwater and sewer systems covering a portion of the Town. Currently, there are approximately 79 miles of sewer with 4,857 house connections; those not on Town sewers are served by septic systems. The Town is continuously addressing infiltration and inflow removal, and additional sewer expansions and rehabilitations are scheduled. The Town's water supply is Lake Cochichewick. An average of 3.14 million gallons of water is used per day.

The Town's drainage system consists of between approximately 3,800 and 4,000 catch basins. There is both a street sweeping program and catch basin cleaning program in place. Catch basins are rebuilt and repaired as needed. The Town is in the process of mapping all of the outfalls on the stormwater drainage system. To date, it is known that outfalls are present to the Merrimack and Shawsheen Rivers, Lake Cochichewick, Cochichewick Brook, Stevens Pond, Osgood Pond, Mill Pond, Sutton Pond, and Swain Brook.

3.7 Construction and Development

Development within the Town is regulated by the Planning Board. The Board conducts pre-development reviews of proposed projects. Building permits are issued by the Building Department.

3.8 Program Funding

At the present time the Town intends to fund stormwater quality and drainage management programs through general taxation financing.

3.9 Outreach/Training

The Town provides public education to residents on a variety of subjects using numerous media outlets, including but not limited to, providing information via the local cable access television channel, Town web site on the Internet (http://www.townofnorthandover.com) and local newspapers (Eagle Tribune, North Andover Citizen).

4.0 NPDES PHASE II MINIMUM CONTROL MEASURES

This section provides a summary of the regulatory requirements for each of the six minimum control measures as defined for the NPDES Phase II Stormwater Permit by the USEPA. It also provides a summary of those stormwater management practices that the Town currently employs. As part of the requirements of the Phase II Stormwater Notice of Intent, the Town has established a list of the Best Management Practices (BMPs) that it plans to implement in order to comply with each of the six minimum control measures. These BMPs will be implemented over the next five years (i.e., the term of the first permit cycle). The Town has designated various departments as responsible for ensuring that the proposed stormwater management practices are met. Appendix B includes a copy of the NPDES Phase II permit issued to the Town. Appendix C includes the Notice of Intent filed by the Town to the USEPA and MA DEP. Appendix D includes a copy of the letter sent by the Town to the USEPA and Massachusetts DEP on March 10, 2003, expressing its intention to comply with the final NPDES Phase II general permit.

4.1 Public Education and Outreach

4.1.1 Regulatory Requirement

Under 40 Code of Federal Regulations (CFR) 122.34 (b)(1), the federal regulations require that each Phase II community "implement a public education program to distribute educational materials to the community of contact, equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps the public can take to reduce pollutants in storm water runoff."

4.1.2 Existing Town Practices

North Andover provides on-going public education to its residents in a number of different ways. The Town distributes information on its recycling program and its Watershed Protection program using postings, mailings, flyers, and the Town website. There are also bulletin boards in the schools and Town offices, which are used to display informative posters and brochures on various topics (BMP ID #1d).

4.1.3 Proposed Best Management Practices

The Town plans to use their local cable access channel to broadcast informative messages on stormwater issues. The Town plans to air one new message for two weeks every quarter beginning in the second permit year (BMP ID #1a). Appendix E includes a list of stormwater messages that could be aired on the Town's local cable access channel throughout the permit cycle.

During the first and second permit years, the Town also plans to update their website with general stormwater information. Since the website already contains other topics of interest to local residents such as litter control, proper management of pesticides and fertilizers, etc., the Town will devote a larger portion of their website to public awareness of storm water issues. The website will also include links to other stormwater related sites. Appendix F includes a list of stormwater links that could be added to the Town's website. The website will be updated periodically with new information (BMP ID #1b).

The Town plans to use bulletin boards located in the schools and town-owned buildings to display posters, which discuss recommended stormwater management practices. The Town currently has a stormwater information poster and plans to distribute it to all public buildings and schools during the first permit year (BMP ID #1c).

4.2 Public Involvement/Participation

4.2.1 Regulatory Requirement

Under 40 CFR 122.34 (b)(2), the federal regulations require that each Phase II community, "at a minimum, comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program. The USEPA recommends that the public be included in developing, implementing, and reviewing your storm water management program and that the public participation process should make efforts to reach out and engage all economic and ethnic groups."

4.2.2 Existing Town Practices

The Town has a year-round, comprehensive recycling program in place, and encourages continued public involvement in its recycling program. Residents are informed about the program and its current schedules through mailings, flyers, and the Town's website. Currently, the Town holds household hazardous waste collection days two times per year where residents can come and dispose of their hazardous waste. However, the Town's recycling program collects items such as motor oil, latex and oil paint, mercury thermometers, automobile batteries, etc. year round (BMP ID #2a, 2b).

4.2.3 Proposed Best Management Practices

As part of their proposed Best Management Practices for Public Involvement and Participation, the Town plans to develop a stormwater hotline for residents to call to obtain information on stormwater issues, ask

questions, provide feedback/suggestions to the Town on stormwater issues, or report activities harmful to good stormwater management practices. The Town plans to have the hotline up and running by the end of the second permit year (BMP ID #2c).

The Town will also introduce an annual, volunteer waterways clean-up day. Relationships will be established with local groups that may be interested in supporting a stream clean-up day such as the Merrimack River Watershed Council, Shawsheen River Watershed Association, Groundwork Lawrence, Boy Scout troops, Rotary Clubs, League of Women Voters, etc. It is the Town's hope that a local group will organize and run this event every year, with ConCom approval and assistance from the Town, if necessary. The Town plans to hold the first annual waterways clean up day in the spring of the third permit year (BMP ID #2d).

In an effort to involve the public with the development of the Town's stormwater management program, the SWMP will be available for public review and comment at the DPW office, the library, and on the Town website (BMP ID #2e).

4.3 Illicit Discharge Detection and Elimination

4.3.1 Regulatory Requirement

Under 40 CFR 122.34 (b)(3), the federal regulations require that each Phase II community do the following: "develop, implement, and enforce a program to detect and eliminate illicit discharges into your small MS4. Develop a storm sewer system map, showing the location of all outfalls and the names and locations of all waters of the United States that receive discharges from those outfalls. To the extent allowable under state, tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions. Develop and implement a plan to detect and address non-storm water discharges including illegal dumping to your system. Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. Address categories listed in 122.34(b)(3)(D)(iii) if you determine they are significant contributors of pollutants to MS4."

4.3.2 Existing Town Practices

At present, North Andover has between 3,800 and 4,000 catch basins, which are connected to the stormwater drainage system. The Town has begun to map its stormwater drainage system, including outfalls to

receiving waters (BMP ID #3a). The Town currently has a GIS base map of the stormwater drainage system, and it has begun to map the outfalls in the Cochichewick Brook drainage basin. To date, outfalls have been identified to the following water bodies: Cochichewick Brook, Shawsheen River, Swain Brook, Mill Pond, Sutton Pond, Stevens Pond, a tributary to the Cochichewick Brook at the intersection of Osgood Street and Harkaway Road, Osgood Pond, and the Merrimack River.

It is also important to note that the Town does not have responsibility for mapping outfalls for the MS4s operated by Lawrence Municipal Airport, Harold Parker State Forest, Greater Lawrence Sanitary District, and Mass Highway (Interstate 495, State Routes 114, 125, and 133 (where it runs concurrent with Rte. 125)). The Town will periodically (at least annually) contact the above-mentioned entities to determine the status of the mapping of these MS4s and related matters.

The Town also has a wetlands bylaw that prohibits the "depositing of and refuse, debris, yard waste, or construction material into a wetland or water body," and within 25 feet of these resources and allows the Conservation Commission to enforce this bylaw.

4.3.3 Proposed Best Management Practices

North Andover plans to map its entire stormwater drainage system, with special attention given to the location and mapping of outfalls. These outfalls would be mapped using GPS, and the names and locations of all waters that receive discharges from these outfalls would be included on a GIS map. The map would be completed by the end of the fourth permit year. This drainage map will then be used to implement the illicit discharge detection and elimination program, if it is determined that one is needed. The illicit discharge detection plan will include methods for identifying priority areas, locating illicit discharges and their sources, and will also include a procedure for their removal. All actions will be documented and their impact evaluated. The development of this program will begin in the fourth permit year, if necessary (BMP ID #3b).

As noted above, the Town does not have responsibility for mapping outfalls for the MS4s operated by Lawrence Municipal Airport, Harold Parker State Forest, Greater Lawrence Sanitary District, and Mass Highway (Interstate 495, State Routes 114, 125, and 133 (where it runs concurrent with Rte. 125)). The Town will periodically (at least annually) contact the above-mentioned entities to determine the status of the mapping of these MS4s and related matters.

In accordance with the conditions of the final General Permit, those portions of the Town's MS4 that discharge within public drinking water

sources and their protection areas should be considered priority in implementation of the stormwater management program.

Another requirement of the NPDES Phase II Rule is a certification that storm water discharges from the Town's MS4 are not likely to have an adverse impact on Federally-listed endangered and threatened species ("listed species") and designated critical habitat, Essential Fish Habitat, and/or historic properties. Although the Notice of Intent is primarily concerned with federally listed endangered species and/or historic properties, the Town should also be aware that state and local laws regarding protection of endangered species and historic properties are still applicable.

The permit requires that when a MS4 with outfalls discharges to a habitat for one of the two listed species of concern (the short nosed sturgeon and the dwarf wedge mussel), the MS4 must consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish & Wildlife Service (FWS). Furthermore, the permit requires a determination that the MS4's stormwater is not likely to adversely affect the Federal list of listed species by county. A list of the Endangered Species located within Essex County was obtained from USEPA's website and has been included in Appendix G. Both of the two species of concern has habitats listed that are near the MS4. The Town has consulted with the FWS regarding the dwarf wedge mussel and with the National Oceanic and Atmospheric Administration (NOAA) of the NMFS regarding the shortnose sturgeon. Both organizations determined that the Town's stormwater discharges and discharge-related activities are not likely to adversely affect listed species or critical habitat. This fulfills Criterion B of the eligibility requirements, as outlined in Addendum A, Endangered Species Guidance, of the permit. Appendix H contains copies of the letters from the FWS and NMFS explaining their determinations.

A preliminary review of the National Register of Historic Places indicates that North Andover has a number of national historic properties within Town boundaries. A list of these properties has been included in Appendix I. As the outfalls are mapped, the following website should be consulted periodically to ensure that updates affecting North Andover have not been made to this register: http://www.nationalregisterofhistoricplaces.com.

If the MS4's stormwater discharges to an eligible historic property, a visual inspection should be performed to determine whether the property is adversely affected. If not adversely affected, the Town has met the eligibility criteria. The Town will retain all information used to determine eligibility and incorporate this information into their stormwater management plans. Upon request, this information will be made available

to USEPA and MA DEP. If the Town finds that a stormwater discharge is adversely affecting an eligible historic property, the Town must enter into an agreement with the State or Tribal Historic Preservation Officer. The agreement will outline the measures the Town will follow to reduce the adverse effects.

During the third permit year, the Town will review its existing bylaws and regulations for requirements relating to illicit discharge detection and elimination (BMP ID #3c). In addition, a general illicit discharge bylaw that meets USEPA requirements will also developed (BMP ID #3d). This will also occur during the third permit year, and then during the fourth permit year, the general illicit discharge bylaw will be presented for Town Meeting action, if necessary (BMP ID #3e).

4.4 Construction Site Stormwater Runoff Control

4.4.1 Regulatory Requirement

Under 40 CFR 122.34 (b)(4), the federal regulations require that each Phase II community "develop, implement and enforce a program to reduce pollutants in any stormwater runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Program must include: the development and implementation of (at a minimum) an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, requirements for construction site operators to implement appropriate erosion and sediment control BMPs, requirements for construction site operators to control waste at the construction site, procedures for site plan review which incorporate consideration of potential water quality impacts, procedures for receipt and consideration of information submitted by the public."

4.4.2 Existing Town Practices

The Planning Board regulates development in North Andover. There are two existing bylaws that address development in North Andover. These include the Zoning Bylaws and Wetlands Bylaws.

The Planning Subdivision Rules require that developers submit both an erosion/sedimentation control plan and a drainage plan for new projects prior to beginning construction. The Planning Board is responsible for determining the adequacy of the erosion/sedimentation plan for each site. It also provides general review of the drainage design. After the review process has been completed, any necessary changes are made to the erosion/sedimentation and drainage plans, and the plan is then incorporated into the construction drawings. The conditions of approval

are also specified at this time and relayed to the developer. The regulations also require that the contractor retain an environmental monitor to conduct weekly inspections and check for such things as proper runoff drainage and erosion control.

The Conservation Commission is responsible for ensuring that the wetlands bylaws are followed. Prior to performing any construction or land alteration, in or adjacent to a wetlands resource area, the Conservation Commission must be consulted. The Conservation Commission conducts pre- and post- construction inspections, as well as intermittent inspections during construction. In addition, Conservation Commission bylaws require that a contractor retain an environmental monitor to conduct weekly inspections to ensure that the requirements in the Order of Conditions are being upheld.

4.4.3 Proposed Best Management Practices

In the third year, the Town will review the relevant sections of the Rules and Regulations Governing the Subdivision of Land and the Zoning Bylaws, and propose comments detailing recommended revisions to the existing controls as they relate to construction site stormwater runoff (BMP ID #4a, 4b). In particular, the Town will review their erosion/sedimentation control and drainage submittal requirements, as well as their site inspection practices, and make recommendations for improving these plan requirements (BMP ID #4d, 4e). The Town will review their existing applicable bylaws and determine if they meet USEPA requirements for construction stormwater runoff control (BMP ID #4a). Bylaws will include enforcements with monetary and/or non-monetary sanctions as allowed by state and local law. Applicable bylaws will then be modified as necessary and presented for Town Meeting action during the fourth year of the permit (BMP ID #4b, 4c).

4.5 Post-Construction Stormwater Management in New Development and Redevelopment

4.5.1 Regulatory Requirement

Under 40 CFR 122.34 (b)(5), the federal regulations require that each Phase II community, "develop, implement and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects that are less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for your community. Use an ordinance

or other regulatory mechanism to address post-construction runoff. Ensure adequate long-term operation and maintenance of BMPs."

4.5.2 Existing Town Practices

The Planning Board regulates development in North Andover. There are two existing documents that address post-construction runoff control in North Andover. These include the Rules and Regulations Governing the Subdivision of Land and the Zoning Bylaws. Some regulations already contain language addressing post-construction stormwater management. In particular, Section 6.14.1 of the Rules and Regulations Governing the Subdivision of Land states the following:

> "Property shall be developed in such a manner as to maximize storm water recharge on the site and to minimize direct overland run-off into adjoining streets and watercourses. Rate of peak flows at the boundaries if the subdivision shall be no higher than before development, for the 10 and 100 year storm events."

The Building Inspector issues permits and conducts building inspections. Once construction is complete, either a consulting engineer or a member of the Planning Department provides a post-construction site review to ensure that site drainage is working as shown on the plans. The Conservation Commission also conducts a post-construction site inspection for sites within their jurisdiction.

4.5.3 Proposed Best Management Practices

During the third year of the permit, the Town will review existing site inspection and maintenance practices. The Town will subsequently determine whether the existing site inspection and maintenance practices comply with USEPA's stormwater management plan requirements (BMP ID #5d). The Town's existing site inspection and maintenance practices will then be modified accordingly to ensure compliance with USEPA requirements (BMP ID #5e). The Town will also evaluate regulations regarding the control of post-construction stormwater runoff, including the Rules and Regulations Governing the Subdivision of Land and the Zoning Bylaws (BMP ID #5a). Revisions to these documents will be proposed during the third year to ensure that post-construction storm water runoff controls for new development and redevelopment are addressed. The Town will develop a post-construction site runoff control bylaw that meets USEPA requirements (BMP ID #5b) and will consider MA DEP Stormwater Management Policy Standard 3 (Recharge to Groundwater). This bylaw will then be presented for Town Meeting action during the fourth year of the permit (BMP ID #5c).

4.6 Pollution Prevention/Good Housekeeping for Municipal Operations

4.6.1 Regulatory Requirement

Under 40 CFR 122.34 (b)(6), the federal regulations require that each Phase II community "develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations."

4.6.2 Existing Town Practices

During the spring of every year, the North Andover Highway Department sweeps all streets in the area. Although its primary focus is on streets within the watershed, they try to make sure that all streets throughout the Town are swept at least once per year (BMP ID #6a). The Town owns one street sweeper.

There are between 3,800 and 4,000 catch basins in the Town. The Town owns one catch basin cleaner. Catch basins are cleaned once every one to two years (BMP ID #6b).

The Town does not have any formal existing municipal employee training programs currently in place.

4.6.3 Proposed Best Management Practices

Throughout the permit cycle, the Town will continue its street sweeping program, sweeping all streets at least once per year. The Town also will continue with its current catch basin cleaning program throughout the permit cycle, cleaning all catch basins at least once every two years (BMP ID #6a, 6b).

During the second year, the Town will perform site visits to examine existing practices at municipal facilities. All applicable municipal facilities will be targeted. Recommendations will be made, based on input from employees, on the need for additional training programs in certain areas. During the third year, the Town will train employees at all applicable municipal facilities (BMP ID #6c). Municipal employee training videos regarding stormwater management issues will be used to assist with training at municipal facilities. The following videos available from the USEPA may be useful in fulfilling employee training requirements:

- "Clean Water, Clear Choices: the Challenge of Nonpoint Source Pollution". Call Number: VID 212.

- "Keeping Soil on Construction Sites: Best Management Practices". Call Number: VID 145.

In the fourth and fifth years of the permit, annual follow-ups will be performed at municipal facilities to ensure that employees working at these facilities are following the required stormwater management practices, and that new employees are receiving the required training. The Town Manager will keep records at the Town Hall that detail observations made during these annual follow-ups (BMP ID #6d).

In addition to the Proposed Best Management Practices listed here for Pollution Prevention and Good Housekeeping for Municipal Operations, the Town will also look at current maintenance activities for parks and open space areas such as public golf courses, cemeteries, and playing fields. The Town will look at the frequency and timing of fertilizer applications, and also examine current practices for pest control management.

4.7 Total Maximum Daily Loads

4.7.1 Background Information

Under Massachusetts General Law (MGL) Chapter 21, the MA DEP is responsible for monitoring the waters of the Commonwealth, identifying those waters that are impaired, and developing a plan to bring them back into compliance with the Massachusetts Surface Water Quality Standards. The list of impaired waters, better known as the "303d list," identifies river, lake, and coastal waters and the reasons for impairment.

Once a waterbody is identified as impaired, the MA DEP is required by the Federal CWA to develop a strategy for restoring the health of the impaired waterbody. The process of developing this strategy, which is generally referred to as a Total Maximum Daily Load (TMDL) includes identifying the type of pollutant and the potential sources of the pollutant, in addition to determining the maximum amount of pollutant that can be discharged to a specific surface water body in order to meet surface water quality standards. Part of the TMDL also includes the development of a plan to help in meeting the Total Maximum Daily Load limits once they have been established.

4.7.2 TMDLs within North Andover

As part of their Stormwater Management Program, all applicable Phase II communities are required to develop BMPs for surface water bodies within their jurisdiction for which a TMDL has already been developed. These impaired waters are listed under Category 4A in Part II of the

Massachusetts Integrated List of Waters. This list can be found at http://www.state.ma.us/dep/brp/wm/files/303dpt2.pdf. North Andover does not currently have any surface water bodies within its boundaries for which a TMDL has already been developed.

4.8 Discharges to Water Quality Impaired Waters

4.8.1 303d List of Impaired Waters

In addition to identifying water bodies for which a Total Maximum Daily Load has already been developed, the Proposed Massachusetts Year 2002 Integrated List of Waters also identifies the 303(d) List of Impaired Waters under Category 5. The 303(d) List identifies water bodies that are impaired or threatened for one or more designated uses and requires a TMDL. This list can also be found at http://www.state.ma.us/dep/brp/wm/files/303dpt2.pdf.

The general permit requires that all permitees determine whether stormwater discharges from any part of the MS4 contribute, either directly or indirectly, to a 303(d) listed water body. Each stormwater management program must include a section describing what measures will be taken to control the discharge of pollutants of concern and to ensure that the discharge will not cause an instream exceedance of the water quality standards. The MS4 must identify what control measures and BMPs will be used to control the discharge of the pollutants of concern.

4.8.2 Stevens Pond

In North Andover, Stevens Pond has been placed on the Proposed Massachusetts Year 2002 List of Integrated Waters for metals. A copy of the relevant sections of this list, as they pertain to North Andover, has been included in Appendix J. The Town is planning to try to increase the frequency of street sweeping and catch basin cleaning around Stevens Pond. The Town also plans to locate any illicit discharges to all the waters of the Town, including impaired waters, by mapping outfalls and potentially developing an illicit discharge detection and elimination program. All of these actions are done in an effort to remove Stevens Pond from the Massachusetts Year 2002 List of Integrated Waters.

4.9 Stressed Basins

4.9.1 Background Information

In 1999, the Massachusetts Water Resources Commission (WRC) developed a list of criteria to be used in classifying a river basin as "stressed". The WRC defines a stressed basin as a drainage basin that

meets one of the following criteria: the quantity of streamflow has been significantly reduced, the quality of the streamflow is degraded, or the key habitat factors are impaired. This definition has been further clarified by the WRC as follows:

- A significant reduction in streamflow quantity is defined as a decrease in key low and high streamflow statistics.
- A degraded water quality is defined as water in a stream that does not meet surface water quality standards.
- A degraded habitat is defined as a river reach in which key habitat factors, such as temperature, quality, cover, substrate, and accessibility, necessary to sustain a biologically diverse community are degraded.

At present, the WRC is currently using an interim definition of stress, which is based solely on streamflow quantity. All major drainage basins in Massachusetts have been classified as "high", "medium", or "low", by comparing a particular river basin's low flows relative to low flows within other river basins across the state. In accordance with the general permit, MS4s whose urbanized areas are within drainage basins identified as "medium" or "high" in the most recent Stressed Basins in Massachusetts report developed by the WRC are required to minimize the loss of annual recharge to groundwater from new development and redevelopment. This includes drainage improvements done in conjunction with road improvements, street drainage improvement projects, and flood mitigation projects, consistent with Standard 3 of the Stormwater Management Policy in areas both within and outside the jurisdiction of the Massachusetts Wetlands Protection Act. The general permit requires that the loss of annual recharge be minimized to the maximum extent possible through the use of infiltration measures.

4.9.2 Ipswich River Watershed

North Andover lies within the boundaries of the Ipswich River, Shawsheen River, Merrimack River, and Parker River Watersheds. Although the Shawsheen, Merrimack, and Parker Rivers drainage basins have yet to be classified due to the lack of available data, portions of the Ipswich River drainage basin have been classified by the WRC (Stressed Basins in Massachusetts, Approved December 13, 2001) as "high" stress areas. Some of these "high" stress areas lie within areas designated by the USEPA as urbanized areas. As a result of this designation, North Andover will try to manage its stormwater so that more of it remains within the Ipswich River drainage basin.

As described in Sections 4.4 and 4.5, the Town plans to review its existing bylaws, which govern construction site stormwater runoff control and

post-construction stormwater management in new development and re-development. The Town will look at ways in which they can place specific groundwater recharge requirements on both contractors and developers. Alternatives may include requiring that contractors and developers use on-site infiltration basins, watergardens, and detention basins for groundwater recharge. Other BMP suggestions may include reducing the percentage of site imperviousness allowed and/or following MADEP Stormwater Management Policy Standard 3.

5.0 NPDES PHASE II REPORTING PROCESS

The Town of North Andover must submit a NOI to the USEPA and the MA DEP by July 30, 2003. The purpose of the NOI is to demonstrate what measures the Town will take to comply with the terms of the NPDES general permit for stormwater discharges from regulated small municipal separate storm sewer systems (MS4s). This NOI (see Appendix C) must indicate the BMPs that will be implemented during the first permit term (2003-2008) to ensure compliance with the six minimum control measures. The NPDES Phase II rule will allow a permittee to implement the identified BMPs over this five-year period.

Permittees will also be required to submit annual reports assessing the effectiveness of the proposed best management practices and to report if the minimum control measures were met. The initial report is due one year from the effective date of this permit and annually thereafter. Reports should be submitted to both the USEPA and MA DEP. At a minimum, the report should include the following:

- The status of compliance with permit conditions, including an assessment of the appropriateness of the selected BMPs and progress toward achieving the selected measurable goals for each minimum control measure.
- Results of any information collected and analyzed, including monitoring data, if any.
- A summary of the stormwater activities planned for the next reporting cycle.
- A change in any identified best management practices or measurable goals for any minimum control measure.
- Notice of relying on another governmental entity to satisfy some of the permit obligations, if applicable.

Annual reports should be submitted to both USEPA and MA DEP at the following addresses:

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

Massachusetts Department of Environmental Protection
Division of Watershed Management
627 Main Street
Worcester, MA 01608

6.0 MODIFICATIONS TO THE SWMP

Modifications to the Town's SWMP may be made in accordance with the following provisions:

- At any time, the Town may add (but not subtract or replace) components, controls or requirements to the SWMP as long as written notification is made to USEPA and MA DEP.
- The Town may request to replace an ineffective or infeasible BMP specifically identified in the SWMP with an alternative BMP at any time, as long as the request is made in writing to USEPA and MA DEP. Unless the request is denied, changes proposed in accordance with the criteria below shall be deemed approved and may be implemented 60 days from submittal of the request. If the request is denied, USEPA or MA DEP, as applicable, will send the Town a written explanation of the denial.
- Modification requests must include the following information:
  i.) An analysis of why the BMP is ineffective or infeasible (including cost prohibitive).
  ii.) Expectations on the effectiveness of the replacement BMP.
  iii.) An analysis of why the replacement BMP is expected to achieve the goals of the BMP to be replaced.
- Change requests or notifications must be made in writing to the USEPA (with copy to MA DEP) and signed in accordance with USEPA signatory requirements.

The MA DEP will be meeting with each town to review its SWMP. North Andover is tentatively scheduled to have its review with MA DEP during permit year three of the 5-year basin cycle, occurring sometime between March 2005 and February 2006.

APPENDIX A

MAP OF NORTH ANDOVER'S PHASE II PERMIT COMPLIANCE AREA

APPENDIX B

NPDES PHASE II GENERAL PERMIT

APPENDIX C

PHASE II NOTICE OF INTENT

APPENDIX D

NPDES PHASE II NOI INTENTION TO SUBMIT LETTER, MARCH 10, 2003

APPENDIX E

LOCAL CABLE ACCESS CHANNEL STORMWATER MESSAGES

APPENDIX F

STORMWATER INFORMATION WEBSITE LISTING

APPENDIX G

ESSEX COUNTY ENDANGERED SPECIES LISTING

APPENDIX H

NORTH ANDOVER NATIONAL HISTORIC PROPERTIES LISTING

APPENDIX I

ENDANGERED SPECIES ELIGIBILITY CRITERIA DETERMINATION LETTERS

APPENDIX J

303(D) LIST OF IMPAIRED WATERS UNDER CATEGORY 5 FOR NORTH ANDOVER