

If you have any questions, comments, or would like to provide input on Westford's NPDES Stormwater Program Compliance Plan, please contact the Program Coordinator:

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STORMWATER MANAGEMENT MASTER PLAN

Volume 4: NPDES Stormwater Program Compliance Plan

Final Report - November 2018 - Revised Jan. 2025

WESTFORD





Westford Stormwater Management Master Plan

Volume 4: NPDES Stormwater Program Compliance Plan

November 2018

Revised January 2025

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Report Photography: Sources of all report photos are cited unless taken by Tighe & Bond staff.

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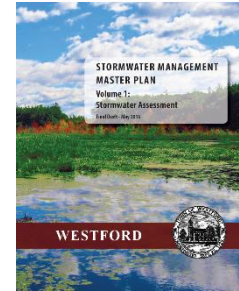
Stormwater Management Master Plan Contents

The Stormwater Management Master Plan is organized into the following four volumes:

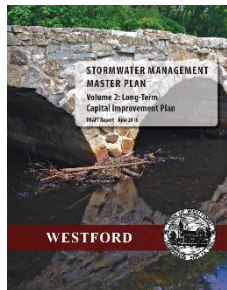
- Volume 1: Stormwater Assessment
- Volume 2: Long-term Capital Improvement Plan (CIP)
- Volume 3: Operation & Maintenance (O&M) Plan
- Volume 4: NPDES Stormwater Program Compliance Plan

The Town has also explored funding and financial alternatives, which are available under a separate cover from the Stormwater Management Master Plan.

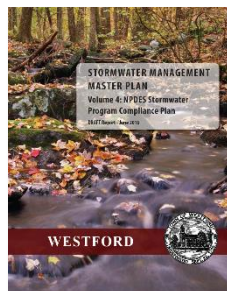
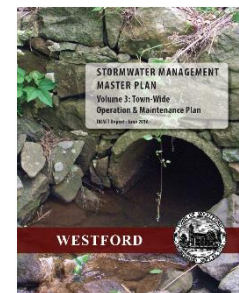
Volume 1, the **Stormwater Assessment**, includes a summary of existing and future conditions (e.g., demographics, land use, water resources), a summary of the current and anticipated future municipal separate storm sewer system (MS4) programs, infrastructure needs, and operations and maintenance. This volume also clarifies drivers for an enhanced stormwater program.



Volume 2, the **Long-Term CIP** includes prioritization of capital projects to address identified drainage and/or water quality needs, recommendations for additional investigation of stormwater infrastructure, and recommendations for the purchase of equipment and hiring of additional staff to meet needs. This plan also incorporates upcoming projects and priorities in Westford that may lend themselves to strategic and cost-effective add-on drainage improvements. For each sub-basin, a menu of appropriate stormwater BMPs that are best to meet that basin's water quality challenges are presented, which can inform future Town projects and also be used to advise local developers during design and permitting for private projects. The Long-term CIP includes an implementation schedule and an opinion of probable costs.



Volume 3, the **Town-wide O&M Plan** includes an inventory of municipal facilities and operations. For the types of activities that the Town routinely conducts, this plan includes town-wide and site specific standard operating procedures (SOPs) for Town staff to follow with the goal of reducing pollutants in stormwater runoff. SOPs are presented in "fact sheets" that can be easily accessed or carried by staff responsible for operations, in some cases at various facilities. The SOPs are consistent with MassDEP's and EPA's most current guidelines.



Volume 4, the **NPDES Stormwater Program Compliance Plan** is equivalent to the written Stormwater Management Program required to satisfy EPA's 2016 Massachusetts Small MS4 General Permit. This Plan documents the best management practices the town will implement to comply with the six minimum control measures (MCMs) within the timeline specified in the reissued General Permit.

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Section 1



Section 1

Introduction

Westford is located in Middlesex County in the northeastern portion of Massachusetts, approximately 30 miles northwest of Boston. It is abutted by the Towns of Carlisle and Chelmsford to the east; the Town of Tyngsborough to the north; the Towns of Littleton and Groton to the west; and the Town of Acton to the south. There are approximately 0.7 square miles of water within its 31.3 square mile footprint.

According to the 2010 United States (U.S.) Census, Westford is home to approximately 22,000 residents in more than 7,500 households.

Protecting the quality of Westford's water resources, including lakes, ponds, rivers, and groundwater supplies is a priority for the Town of Westford. Pollutants from stormwater runoff are a contributing factor to the impairment of Westford's waterbodies, leading to low dissolved oxygen levels and bacterial contamination.



Figure 1-1 Location of Westford, Massachusetts

1.1 Purpose of this Plan

In an on-going effort to minimize stormwater impacts within Westford, the Town has developed this NPDES Stormwater Program Compliance Plan. This Plan documents the stormwater management program and is required by the U.S. Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts ("Small MS4 General Permit"). This Plan describes and details the activities and measures that will be implemented by Westford to meet the terms and conditions of the permit.

This Plan will be updated and/or modified during the permit term as the Town's activities are modified, changed, or updated to meet permit conditions. Other requirements of the Small MS4 General Permit, such as a Notice of Intent (NOI), Authorization to Discharge letter, and documentation showing Endangered Species Act and Historic Properties eligibility criteria have been certified and are located in the Appendices of this Plan.

1.2 Regulatory Requirements

1.2.1 Overview of EPA's NPDES MS4 Program

Through the NPDES program, the EPA nationally regulates the discharge of stormwater runoff that is transported into local water bodies via MS4s. EPA's MS4 stormwater program was enacted in two phases:

- Phase I, issued in 1990, requires *medium* and *large* cities or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their stormwater discharges.
- Phase II, issued in 1999, requires regulated *small* MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges.

A **municipal separate storm sewer system (MS4)** is a conveyance or system of conveyances that is:

- owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.,
- designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches),
- not a combined sewer, and
- not part of a sewage treatment plant, or publicly owned treatment works (POTW).

In Massachusetts, the EPA Region 1 and the Massachusetts Department of Environmental Protection (MassDEP) jointly administer the municipal stormwater program. EPA and MassDEP originally authorized Westford to discharge stormwater in 2003 under a *NPDES General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems*, known as the "2003 General Permit." Under this permit, the Town developed and implemented a Stormwater Management Program to reduce the contamination of stormwater runoff.

The 2003 General Permit expired in May 2008 but remained in full force and effect until a replacement permit was promulgated. In April 2016, EPA published the *NPDES General Permit for Stormwater Discharges from Small MS4 in Massachusetts*, which substantially increases stormwater management requirements and mandates specific timelines for compliance. In June 2017, an EPA stay delayed the effective date of the General Permit until July 1, 2018. The MassDEP also adopted this delayed effective date.

Once implemented, the Plan described herein will satisfy the requirements for compliance under the 2016 General Permit. The reissued General Permit is intended to be more prescriptive than the 2003 General Permit, and to build upon the regulations already in place. The 2016 General Permit substantially increases stormwater management requirements and mandates specific timelines for compliance. A few of the major differences for each minimum control measure are summarized in the following points:

- **Public Education and Outreach:** More specific messages required and prescriptive deadlines compared to the 2003 General Permit.
- **Public Involvement and Participation:** No substantial change from the 2003 General Permit.

- **Illicit Discharge Detection and Elimination (IDDE) Program:** Complete drainage system mapping, building on outfall mapping developed under the 2003 General Permit. Add interconnections to the outfall inventory. Delineate catchment areas and prioritize catchment investigations. Perform dry weather screening and sampling of high priority and low priority MS4 interconnections and outfalls by the end of Year 3. Perform wet weather screening in the spring for the catchments that indicate the presence of one or more System Vulnerability Factors. Complete catchment investigations. For impaired waters without Total Maximum Daily Loads (TMDLs), implement a multi-step approach to address the discharges including BMPs, source identification, and an evaluation of retrofit feasibility.
- **Construction Site Stormwater Runoff Control:** If it does not already exist, add inspection and enforcement to the site plan review procedure.
- **Stormwater Management in New Development and Redevelopment:** For new development, retain the first 1 inch of runoff from all impervious surfaces on site, or provide pollutant removal with a BMP. For redevelopment, retain the first 0.80 inches of runoff from all impervious surfaces on site or provide pollutant removal with a BMP. Offsite mitigation may be used for redevelopment projects. Evaluate local code for consistency with smart growth principles and green infrastructure.
- **Good Housekeeping and Pollution Prevention:** Develop a program to repair and rehabilitate the MS4 infrastructure. Sweep/clean municipal streets once in the spring. Include all activities that occur at a municipal facility and potential pollutants associated with each activity in the stormwater pollution prevention plan (SWPPP) for the facility.

1.2.2 Westford's Regulated Area

The Town of Westford meets EPA's regulatory threshold for Phase II of the MS4 program, and therefore is required to be covered under a NPDES permit for its stormwater discharges from the MS4 in its Urbanized Area. The Town of Westford is charged by the EPA with operating and maintaining its MS4 to manage stormwater runoff, as well as to protect public health and safety, preserve environmental resources, and safeguard town character.

Urbanized Areas (also known as "regulated areas") are defined by the latest U.S. decennial census. An urbanized area encompasses a densely settled territory that consists of core census block groups or blocks that have a population of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile or are included to link outlying densely settled territory with a densely settled urban core.¹ According to EPA Region 1, the area covered by either the 2000 census or the 2010 census are regulated by EPA under the MS4 program. The 2000 census was used to determine that approximately 28 square miles (88%) of Westford was urbanized and therefore regulated under the 2003 General Permit. On March 26, 2012, the Census Bureau published the final listing of urbanized areas for the 2010 census, which increased Westford's urbanized area by approximately 2.5 square miles, or 8%. In total,

¹ U.S. EPA. *Fact Sheet: Draft General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts*. September 2014. For a complete definition of Urbanized Area see Federal Register, August 24, 2011. Vol. 76 No. 164 p. 53030. URL: <http://www2.census.gov/geo/pdfs/reference/fedreg/fedregv76n164.pdf>.

97% of Westford is considered an urbanized area, as illustrated by the hatching in Figure 1-2². This Plan must be implemented within all regulated portions of Town at a minimum.

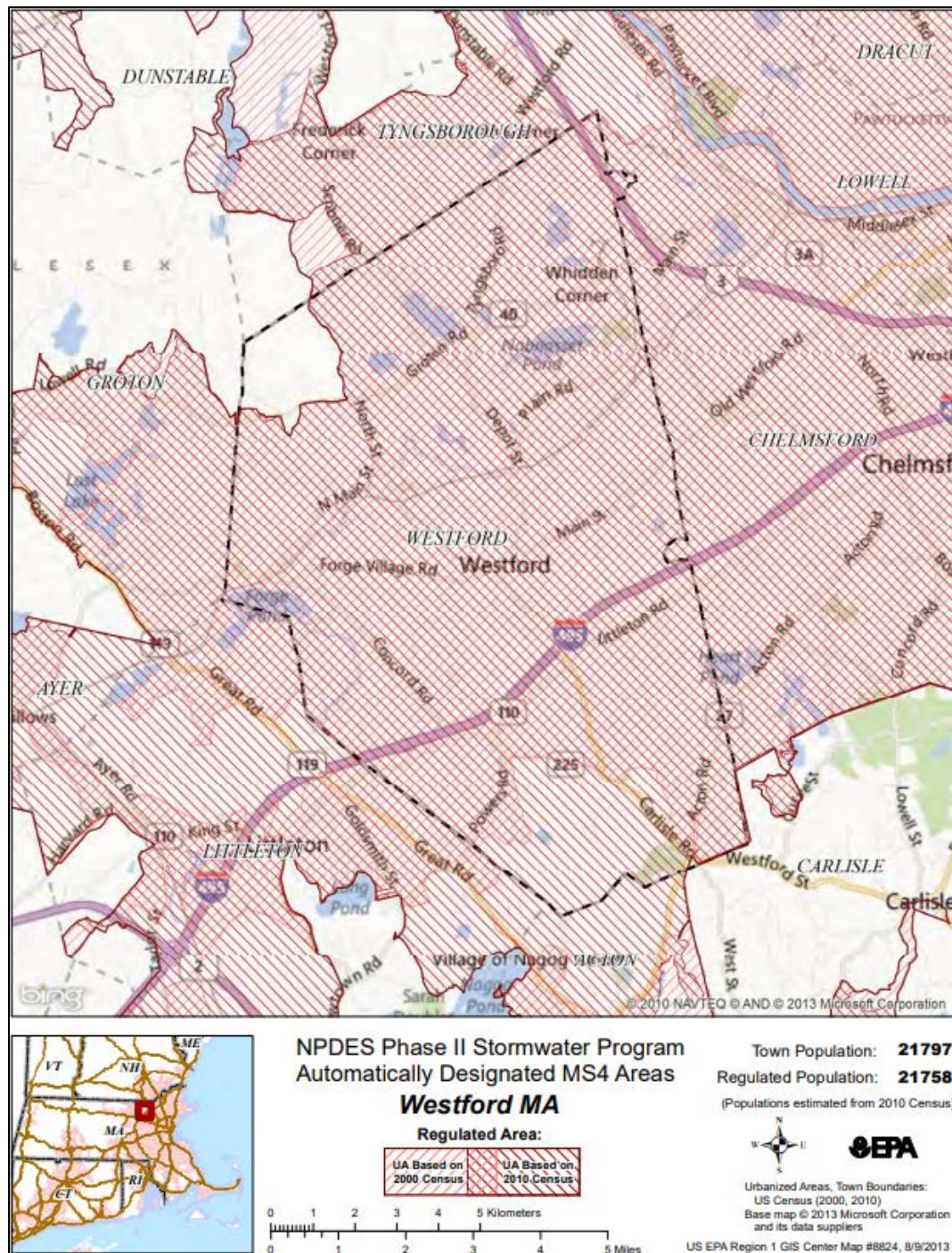


Figure 1-2 Town of Westford's Urbanized Area based on 2000 and 2010 census

² U.S. EPA, 2014.

1.3 Summary of Westford's Stormwater Management Program under the 2003 Small MS4 General Permit

The Town of Westford has achieved all of the measurable goals for the BMPs selected in the 2003 Notice of Intent, as well as those added in subsequent years to reflect unplanned stormwater activities undertaken by the Town. The following paragraphs include brief descriptions of current practices that the Town undertakes as part of its Stormwater Management Program.

1.3.1 MCM 1 - Public Education and Outreach

The Town has been able to provide a robust multi-media public education program related to nonpoint source pollution and stormwater management targeted at multiple audiences. The Town has achieved this by distributing brochures, maintaining a stormwater webpage, utilizing regional educational programs like Stormwater Matters materials from the Sudbury-Assabet-Concord (SuAsCo) Watershed Community Council and readily-available stormwater videos, and educating fifth grade students about stormwater runoff and watersheds through the award-winning Living Lab program.

1.3.2 MCM 2 – Public Involvement and Participation

Public meeting notices comply with State and Local Open Meeting Law requirements, providing opportunities for residents of all ages to participate in Westford's stormwater program and overall environmental stewardship. This includes water quality monitoring through the Healthy Lakes and Ponds Collaborative and Stream Team and regular recycling and hazardous waste events. The Town is also a participant in the SuAsCo Watershed Community Council and is a member of the Northern Middlesex Stormwater Collaborative (NMSC). Town Staff holds an Annual Strategic Planning Retreat that allows residents to give feedback about various topics, including stormwater.

1.3.3 MCM 3 – Illicit Discharge and Detection Elimination

Westford has spent considerable effort on their IDDE Program. The Town has satisfied the mapping requirements of the 2003 General Permit and is well on the way to meeting the requirements in the 2016 Small MS4 General Permit. Beginning in 2000, the Town nearly completed all mapping of its storm drainage system including catch basins, manholes, outfalls, culverts, other structures, receiving waters, and some connectivity. The mapping is available in ArcGIS and regularly updated. As part of the Town's Stormwater Management Master Plan, a more thorough evaluation of the storm drain mapping is underway.

The Town has inventoried all municipal outfalls and inspected them for the presence of illicit discharges during dry weather using a procedure from the Center for Watershed Protection. This procedure is further outlined in the Town's IDDE plan (June 2012). Westford has used an application on an iPad to update the mapping database during field investigations and has improved in-house capabilities to use mobile technology for ongoing data collection needs.

In May 2008, Westford adopted Chapter 82 of its bylaws, *Discharges to the Municipal Storm Drain System*, which regulates illicit discharges and illegal connections to the MS4. The Board of Health serves as the enforcement agency.

Town Staff and volunteers have been trained on illicit discharges and stormwater outfall investigations and sampling. Town staff looks for the presence of illicit discharges during regular operations.

1.3.4 MCM 4 – Construction Site Stormwater Runoff Control and MCM 5 – Post-Construction Stormwater Management

Westford adopted Chapter 147 of its bylaws, *Stormwater Management* Bylaw, in May 2008 and associated regulations in November 2012. The Bylaw and regulations require that all new development and redevelopment projects with one acre of land disturbance or greater obtain a stormwater permit, meet performance standards, and implement a management plan or face penalties. In addition, the Westford Wetlands Bylaw and Regulations were updated in April 2012. These Bylaws and regulations are enforced by the Planning Board and Conservation Commission.

In addition, the Town of Westford Wetlands Bylaw addresses stormwater construction issues through site plan review requirements. Procedures for site plan reviews are established and enforced, and reviews by the Engineering Department and Conservation Commission are conducted. These reviews include regular inspections and communication with the developer to ensure adherence to local requirements during construction, specifically erosion and sediment controls.

The Town also implements post-construction best management practices (BMPs) maintenance based on the *Stormwater Management* Bylaw and associated regulations. These regulations highlight private BMP operation and maintenance procedures including maintenance and inspection reporting.

1.3.5 MCM 6 – Pollution Prevention and Good Housekeeping

The Town implements Good Housekeeping Standard Operating Procedures and employee training for numerous actions to reduce pollutant runoff from municipal operations, including catch basin cleaning, street sweeping, staff training, storing oil and hazardous materials properly, covering winter deicing materials, vehicle washing and maintenance, park and landscape maintenance, culverts and outfall cleaning, and implementing a Town-Wide Operation and Maintenance (O&M) Program Plan, as well as a Stormwater Pollution Prevention Plan for the Highway Facility.

1.3.6 Additional Permit Requirements

Groundwater Recharge and Infiltration: Through implementation of the *Stormwater Management* Bylaw and Zoning Bylaw, the Town evaluates site conditions relative to stormwater infiltration. Additionally, the Town of Westford Zoning Bylaw includes infiltration design requirements in the Water Resource Protection Overlay District, which promote surface infiltration and require artificial recharge when lot impervious area exceeds specific percentages.

Public Drinking Water Supply Requirements: The Town of Westford Zoning Bylaw Water Resource Protection Overlay District addresses adequate drinking water quality and quantity, preserves and protects drinking water supplies, conserves natural resources, and prevents contamination of the environment. The Town considers water supply sources and protection areas a priority for stormwater management, particularly in terms of IDDE activities.

Record Keeping: The Town of Westford maintains stormwater management program records that are organized by year and are stored in both paper and digital format.

Water Quality Impaired Waters and Total Maximum Daily Load (TMDL) Allocations: Westford's stormwater program is addressing many of the current requirements for discharges to impaired waterbodies. Through implementation of its current stormwater program, the Town is reducing the discharge of the pollutants of concern.

1.3.7 Building on 2003 BMPs

According to Section 1.10.b of the 2016 General Permit, Westford must modify or update the BMPs being implemented under the 2003 General Permit to meet the terms and conditions of part 2.3 of the 2016 General Permit. Appendix B includes a list of BMPs completed under the 2003 Small MS4 General Permit and BMPs included in the Notice of Intent and Stormwater Management Program (SWMP), which comply with the 2016 Small MS4 General Permit. This list identifies how the intent of each 2003 BMP is being met under the 2016 BMPs (further description of 2016 BMPs is included in Section 3 of this Plan).

1.4 General Eligibility Determination

Section 1.2.1 of the Small MS4 General Permit authorizes the discharge of stormwater from small MS4s if the MS4 is determined to meet general eligibility criteria:

- *Small MS4 within the Commonwealth of Massachusetts*

The Town of Westford is located within Middlesex County, Massachusetts.

- *Not a large or medium MS4 as defined in 40 CFR 122.26(b)(4) or (7)*

The population of Westford is approximately 22,000 according to the 2010 Census, the MS4 is not within a designated County, and the Town has not been designated by the Director as part of a large or medium MS4.

- *Located either fully or partially within an urbanized area as determined by the 2010 Census or located in a geographic area designated by EPA as requiring a permit*

Figure 1-2 shows the Regulated MS4 Areas for the Town of Westford, based on 2000 and 2010 census urbanized area boundaries. Westford is a mostly urbanized area.

1.5 Special Eligibility Determinations

1.5.1 Endangered Species

On behalf of the Town of Westford, Tighe & Bond completed the National Endangered Species Eligibility Determination screening process in accordance with Part 1.9.1 and Appendix C of the Small MS4 General Permit, and determined that the Town of Westford meets **Criterion C**, where it has been determined that the Town's stormwater discharges and discharge related activities will have "no affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the US Fish and Wildlife Service. Refer to Appendix C of this Plan for supporting information, including the US Fish and Wildlife Service Official Species List for the project area and the Endangered Species Act Certification.

1.5.2 Historic Properties

On behalf of the Town of Westford, Tighe & Bond completed the National Historic Preservation Act Eligibility Determination screening process in accordance with Part 1.9.2 and Appendix D of the Small MS4 General Permit and determined that the Town of Westford meets **Criterion A**, as the discharges do not have the potential to cause effects on historic properties. Please refer to Appendix D of this Plan for supporting information, including a list of the federal- and state-listed historic areas, buildings, burial grounds, objects, and structures in the Town of Westford's regulated area downloaded from the Massachusetts Cultural Resource Information System (MACRIS).

1.6 Authorization for Westford to Discharge Stormwater

A NOI must be submitted within 90 days of the effective date of the permit. A copy of the NOI is included in Appendix A. Documentation of the Town of Westford's Authorization to Discharge by EPA will also be provided in Appendix A once issued by EPA. This written Plan must be finalized within one year of the effective date of the permit.

Section 2



Section 2

Watershed Resources

This section provides an overview of Westford's watersheds and receiving waters relevant to the Small MS4 General Permit. More detailed information about these water resources related to land use, water quality, and drinking water supply is included in Stormwater Management Master Plan (SWMMP) *Volume 1: Stormwater Assessment*.

2.1 Watershed Inventory

The Town of Westford is located within the Merrimack River and the SuAsCo Watersheds, as shown in Figure 2-1. These two watersheds ultimately drain into the Merrimack River.

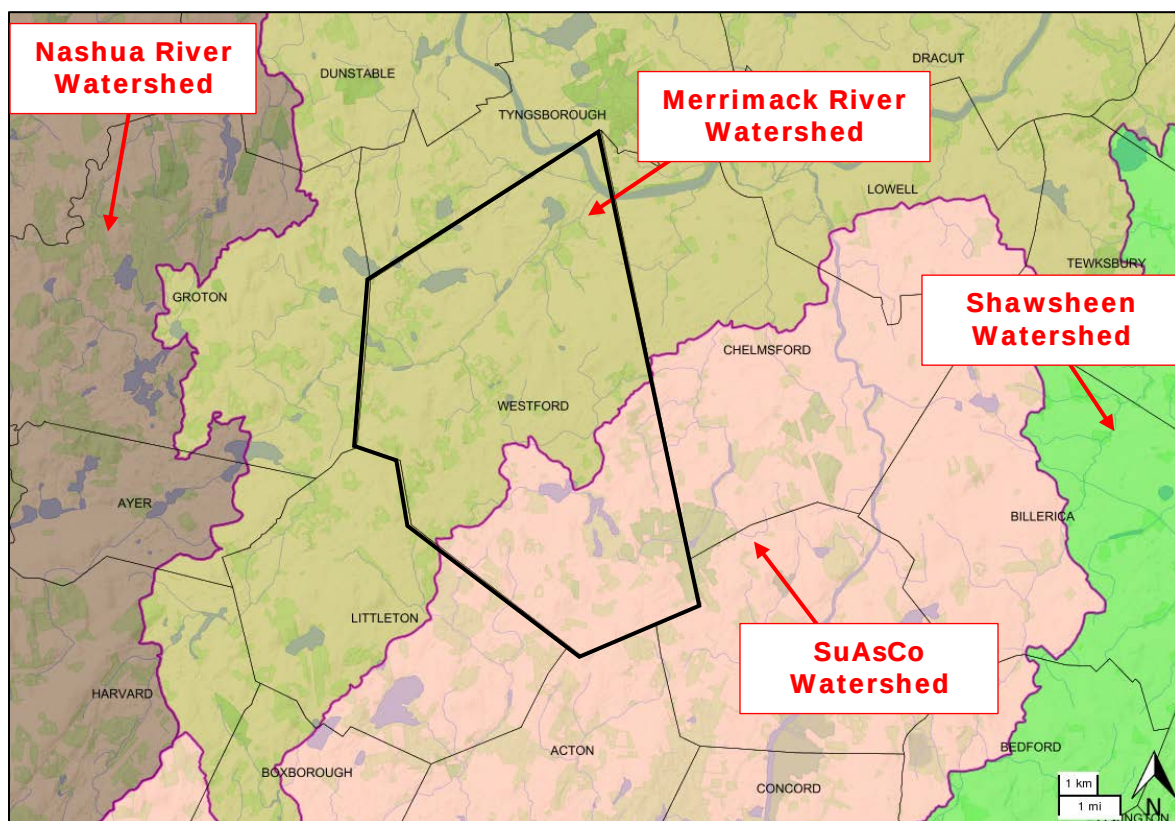


Figure 2-1 Major basins in Westford⁶

The northern half of Westford is within the Merrimack River Watershed, which occupies a majority of the northeastern portion of Massachusetts and extends to the Atlantic Ocean. The watershed runs along the Massachusetts/New Hampshire border and shares borders with the Parker River, Ipswich River, Shawsheen River, SuAsCo, and Nashua River Watersheds.

⁶ Created using the MassGIS OLIVER online mapping tool.

The southern half of Westford is within the SuAsCo Watershed, which encompasses most of central Massachusetts and extends from the town of Hopkinton to the City of Lowell. The watershed is bordered by the Blackstone River and Nashua River Watersheds to the west; the Charles River and Shawsheen River Watersheds to the east; and the Merrimack River Watershed to the north.

Table 2-1 identifies the natural drainage basins within the Town of Westford for waterbodies that are included in the 2014 Integrated List of Waters (see discussion in Section 2.2 for additional information). Note that there may be additional waterbodies within Town that are not included in the Integrated List.

Table 2-1

Natural Drainage Basins within the Town of Westford, Massachusetts

Major Basin	Main Stem Basin
Merrimack River Watershed	MA84B-08 – Reed Brook
	MA84015 – Forge Pond
	MA84044 – Nabnasset Pond
	MA84A-21 – Deep Brook
	MA84B-02 – Beaver Brook
	MA84B-03 – Stony Brook
	MA84B-04 – Stony Brook
SuAsCo Watershed	MA84B-07 – Tadmuck Brook
	MA82059 – Heart Pond
	MA82B-14 – Nashoba Brook

2.2 Water Quality

To meet the requirements of the Clean Water Act (CWA) Section 303(d), Massachusetts must assess and categorize surface waterbodies for attainment of designated uses (such as habitat for aquatic wildlife, aquatic wildlife consumption, and primary and secondary recreation), as well as identify any waterbodies that are not expected to meet surface water quality standards after implementation of controls. These sources are prioritized for establishing TMDLs for use in permit setting. Massachusetts meets the CWA reporting requirements through the development of an Integrated List of Waters, in which waters in the Commonwealth are categorized for attainment of designated uses. The Integrated List assigns each waterbody or waterway with one of five categories:

- **Category 1:** waters that are unimpaired and not threatened for all designated uses
- **Category 2:** waters that are unimpaired for some uses and not assessed for others
- **Category 3:** waters with insufficient information to make assessments for any uses
- **Category 4a:** waters with a completed TMDL
- **Category 4c:** waters that are impaired or threatened for one or more uses, but not by a pollutant and therefore not requiring the calculation of a TMDL
- **Category 5:** waters that are impaired or threatened for one or more uses and requiring a TMDL

Waterbodies classified as Category 4a (waterbodies with a TMDL) and Category 5 (“water quality limited” waterbodies) do not meet CWA designated uses, and stormwater pollutants of concern will need to be addressed per General Permit requirements. Detailed information about permit requirements to address discharges to impaired waters with an approved TMDL (Category 4a) and to other water quality limited waters (Category 5) is included in Section 4 of this Plan.

2.2.1 2014 Integrated List of Waters – Category 5

As of the date of this Plan, Massachusetts waters categorized as impaired surface waters were identified in the Final Massachusetts Year 2014 Integrated List of Waters.⁷ Waterbodies identified on Integrated List within Westford are listed in Table 2-2.

⁷ MassDEP, Bureau of Water Resources “Final Massachusetts Year 2014 Integrated List of Waters”. December 2015. Accessed online at: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf>.

Table 2-2

Summary of 2014 Integrated List of Waters - Status of Westford's Receiving Waters

Category 5 Waters: waters requiring a TMDL							
Indicator contributing to impairment:	Deep Brook MA84A-21	Beaver Brook MA84B-02	Stony Brook MA84B-03	Stony Brook MA84B-04	Tadmuck Brook MA84B-07	Heart Pond MA82059	Nashoba Brook MA82B-14
Fecal Coliform		X	X				
Dissolved Oxygen		X					
Low pH		X					
Total Suspended Solids (TSS)		X					
Turbidity			X				
Habitat Assessment (Streams)*	X						
Aquatic Macroinvertebrate Bioassessments	X		X	X			
Escherichia Coli	X			X	X	X	
Low flow alterations*							X
Fishes Bioassessments	X						X
Sedimentation/ Siltation	X						
Category 4a Waters: TMDL is completed							
Indicator contributing to impairment:	Forge Pond MA84015		Nabnasset Pond MA84044				
Non-Native Aquatic Plants*	X		X				
Mercury in Fish Tissue	X		X				
Category 2 Waters: attaining some uses; other uses not assessed							
Uses attained:					Reed Brook MA84B-08		
Fish, other Aquatic Life and Wildlife					X		
*TMDL not required (Non-pollutant)							

2.2.2 Pollutants of Concern

Based on the 2014 Integrated List of Waters, the pollutants of concern for Westford's impaired waters related to stormwater include bacteria, solids, and dissolved oxygen concentrations. More information about these pollutants and their potential sources are included in Appendix E.

2.2.3 Applicable TMDLs

Several waterbodies within the Town of Westford are identified as Category 5 waters (impaired and requiring a TMDL), as described in Section 2.2.1. Currently, only one TMDL is established and final that applies to waters within Westford, the *Assabet River Total Maximum Daily Load for Total Phosphorus* (2004). While the Assabet River is not within Westford, the Town will need to implement BMPs within the watershed as described herein and detailed in Section 4.

A *Draft Pathogen TMDL Report for the Merrimack River Watershed* has been completed but is not yet final. This TMDL would include Beaver Brook (MA84B-02) and Stony Brook (MA84B-03 and -04) within Westford.

Section 3



Section 3

Best Management Practices (BMPs) to Address Minimum Control Measures (MCMs)

This section includes descriptions of each BMP included in Westford's NOI, an implementation plan, guidelines and resources, and lists of important documentation to best address the MCMs in the General Permit.

3.1 MCM 1: Public Education and Outreach

Objective: *The permittee shall implement an education program that includes educational goals based on stormwater issues of significance within the MS4 area. The ultimate objective of a public education program is to increase knowledge and change behavior of the public so that pollutants in stormwater are reduced.*

This section of the Plan describes how to comply with the Public Education and Outreach requirements in General Permit Section 2.3.2.

3.1.1 MCM 1 BMPs from NOI

BMP ID	BMP Media / Category	BMP Description	Targeted Audience	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
1A	Multi-media methods (including web, direct mail, and print materials at public buildings)	Education and outreach on stormwater management topics of significance in Westford (including proper pet waste management, proper use of pesticides and fertilizers). Educational topics will include but are not limited to those in Part 2.3.2.d.i	Residents	Engineering Department	Distribute a minimum of two (2) educational messages spaced at least a year apart	2018 (PY1)
1B	Multi-media methods (including web and direct mail)	Education and outreach on stormwater management topics of significance in Westford (including proper lawn maintenance, parking lot sweeping). Educational topics will include but are not limited to those in Part 2.3.2.d.ii	Businesses, Institutions, and Commercial Facilities	Engineering Department	Distribute a minimum of two (2) educational messages spaced at least a year apart	2019 (PY2)

BMP ID	BMP Media / Category	BMP Description	Targeted Audience	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
1C	Multi-media methods (including web and permit application guidance)	Education and outreach on stormwater management topics of significance in Westford (including proper erosion and sedimentation control, permit requirements, and design standards). Educational topics will include but are not limited to those in Part 2.3.2.d.iii	Developers (Construction)	Planning/ Conservation	Distribute a minimum of two (2) educational messages spaced at least a year apart	2018 (PY1)
1D	Multi-media methods (including web and direct mail)	Education and outreach on stormwater management topics of significance in Westford (including pollution prevention, illicit discharges, Multi-Sector General Permit). Educational topics will include but are not limited to those in Part 2.3.2.d.iv	Industrial Facilities	Engineering Department	Distribute a minimum of two (2) educational messages spaced at least a year apart	2019 (PY2)

3.1.2 MCM 1 Implementation Plan

BMP 1A Education and Outreach to Residents

Education and outreach goals for BMP 1A include:

- Increasing awareness of the impact of human activities on stormwater runoff and water quality;
- Changing residential behavior over time; and
- Reaching broad audiences with information that appeals to a diverse public.

Westford will provide educational materials and general outreach to residents for stormwater management topics relevant to the Town. Topics may include:

- General stormwater program information;
- Information about Westford's impaired waterbodies;
- Effects of outdoor activities such as lawn care on water quality (use of pesticides, herbicides, and fertilizers);
- Information about illicit discharges;
- Benefits of appropriate on-site infiltration of stormwater;

- Effects of automotive work and car washing on water quality;
- Septic system management;
- Proper disposal of swimming pool water; and
- Proper management of pet waste.

The Town will build upon the existing public education and outreach program to disseminate educational materials to residents via the internet, direct mailing, and/or public posting. The Town will coordinate public educational strategies with SuAsCo Watershed Community Council and NMSC to take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can take advantage of to supplement the program.

BMP 1B Education and Outreach to Businesses, Institutions, and Commercial Facilities

Education and outreach goals for BMP 1B include:

- Increasing awareness of business practices that may contribute to stormwater pollution;
- Changing behavior over time; and
- Improving compliance with local code.

Westford will provide educational materials and general outreach to businesses, institutions, and commercial facilities within Town for stormwater management topics relevant to Westford. Topics may include:

- Information about Westford's impaired waterbodies;
- Proper lawn maintenance (use of pesticides, herbicides and fertilizer);
- Benefits of appropriate on-site infiltration of stormwater;
- Building maintenance (use of detergents);
- Minimizing the use of salt or other de-icing and anti-icing materials;
- Proper storage of salt or other de-icing/anti-icing materials (cover/prevent runoff to storm system and contamination to groundwater);
- Proper storage of materials that could obstruct the MS4 or contribute to stormwater pollution (emphasize pollution prevention);
- Proper management of waste materials and dumpsters (cover and pollution prevention);
- Guidance for car wash fundraisers;
- Proper management of parking lot surfaces (sweeping);
- Proper car care activities (washing of vehicles and maintenance); and
- Proper disposal of swimming pool water by entities such as motels, hotels, and health and country clubs (discharges must be dechlorinated and otherwise free from pollutants).

The Town will build upon the existing public education and outreach program to disseminate educational materials to businesses, institutions, and commercial facilities within Town via the internet, direct mailing, and/or public posting. The Town will coordinate public educational strategies with NMSC, SuAsCo Watershed Community Council, and others to take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can take advantage of to supplement the program.

BMP 1C Education and Outreach to Developers

Education and outreach goals for BMP 1C include:

- Increasing awareness of the impact of construction activities and increased impervious cover on stormwater runoff and water quality;
- Changing developer behavior over time; and
- Improving compliance with local code.

Westford will provide educational materials and general outreach to developers for stormwater management topics relevant to Westford. Topics may include:

- Information about Westford's impaired waterbodies;
- Proper sediment and erosion control management practices;
- Information about Low Impact Development (LID) principles and technologies; and
- Information about EPA's construction general permit (CGP).

The Town will build upon the existing public education and outreach program to disseminate educational materials to developers via the internet, direct mailing, and/or public posting. The Town will coordinate public educational strategies with SuAsCo Watershed Community Council and NMSC to take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can take advantage of to supplement the program.

BMP 1D Education and Outreach to Industrial Facilities

Education and outreach goals for BMP 1D include:

- Increasing awareness of industrial activities that may contribute to stormwater pollution;
- Changing behavior over time; and
- Improving compliance with local code.

Westford will provide educational materials and general outreach to industrial facilities within Town for stormwater management topics relevant to Westford. Topics may include:

- Information about Westford's impaired waterbodies;
- Equipment inspection and maintenance;
- Proper storage of use and storage of industrial materials and chemicals (emphasize pollution prevention);
- Proper management and disposal of wastes;

- Proper management of dumpsters;
- Minimization of use of salt or other de-icing/anti-icing materials;
- Proper storage of salt or other de-icing/anti-icing materials (cover/prevent runoff to storm system and groundwater contamination);
- Benefits of appropriate on-site infiltration of stormwater runoff from areas with low exposure to industrial materials such as roofs or employee parking;
- Proper maintenance of parking lot surfaces (sweeping); and
- Requirements for coverage under EPA's Multi-Sector General Permit (MSGP).

The Town will build upon the existing public education and outreach program to disseminate educational materials to industrial facilities within Town via the internet, direct mailing, and/or public posting. The Town will coordinate public educational strategies with SuAsCo Watershed Community Council and NMSC and take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can take advantage of to supplement the program.

3.1.3 MCM 1 Implementation Schedule

Outreach Method	PY1	PY2	PY3	PY4	PY5
Stormwater Website					
Signage and brochures					
Targeted outreach					
Targeted outreach					
Targeted outreach					
Targeted outreach					
Survey					

 Residents
 Businesses, Institutions, and Commercial Facilities
 Developers
 Industrial Facilities
 All Audiences

3.1.4 Public Education and Outreach Goals and Progress

Per Section 2.3.2.e of the General Permit, the public education and outreach program shall provide focused messages for specific audiences and show evidence that progress toward the goals of the program have been achieved. The following methods may be used by the Town to evaluate the effectiveness of the educational messages and overall education program:

- Quantify the number of each audience that is reached during direct mailings
- Develop survey for each audience and distribute in Permit Year 1 and again in Permit Year 5 to determine whether there has been a change in knowledge or behavior. This survey may be developed and deployed by the State-wide Municipal Stormwater Coalition, NMSC, or another regional partner.
- Track changes in behavior for specific issues addressed with education throughout the permit term (e.g., issues with erosion/sediment control during construction, pet waste bags found in catch basins, etc.)

The above methods used to evaluate the effectiveness of the program, and any additional methods developed after the date of this Plan, shall be tied to the defined goals of the program and the overall objective of **changes in behavior and knowledge**.

3.1.5 MCM 1 Guidelines and Resources

The Town should use existing communication methods for stormwater messaging including:

- Town Manager Newsletter
- Census Newsletter
- Water Department Newsletter – *Resource*
- Strategic Planning Retreat table display
- Town Website
- Town Meeting Displays
- Westford CAT (local cable access TV)

The following links include free or low-cost resources Westford can use to supplement the Public Education program.

EPA Public Education

<https://cfpub.epa.gov/npstbx/>

EPA Stormwater Management Program Resources – Public Education

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#peo>

EPA Stormwater Education Toolkit (SET)

<http://www.stormwater.ucf.edu/toolkit/>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu>

MassDEP Public Education

<https://www.mass.gov/guides/stormwater-outreach-materials-to-help-towns-comply-with-the-ms4-permit>

Developing an Effective Stormwater Education and Outreach Program for Your Community

http://www.urbanwaterslearningnetwork.org/wp-content/uploads/2016/04/Manual-Stormwater-Education-and-Outreach_2014.pdf

EPA Evaluation of the Role of Public Outreach and Stakeholder Engagement in Stormwater Funding Decisions in New England: Lessons from Communities

<https://www.epa.gov/sites/production/files/2015-09/documents/eval-sw-funding-new-england.pdf>

SuAsCo Watershed Community Council

<http://suasco.org/resources-3/>

Northern Middlesex Stormwater Collaborative

<http://www.nmstormwater.org/resources-stormwater-collaborative>

Urban Waters

<http://www.nmstormwater.org/for-municipalities>

Merrimack Valley Stormwater Collaborative

<http://www.merrimackvalleystormwater.org/who-we-are/public-education/>

OARS (information for the Assabet, Sudbury, and Concord Rivers)

<http://www.oars3rivers.org/river>

Think Blue Massachusetts

<https://www.thinkbluemassachusetts.org/>

Office of Technical Assistance and Technology (OTA) – OTA serves business owners by recommending ways to better comply with environmental regulations and reduce costs associated with toxics, energy, and water use.

<https://www.mass.gov/orgs/office-of-technical-assistance-and-technology-ota>

3.1.6 MCM 1 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 1. See Section 5 of this Plan for additional record keeping information.

- ☐ All educational materials provided to target audiences
- ☐ Distribution lists for target audiences
- ☐ Dates of distribution of educational materials
- ☐ Annually track visits to stormwater website
- ☐ Note educational goals and opinion on effectiveness based on results tracked; modify education and outreach program if necessary

3.2 MCM 2: Public Involvement and Participation

Objective: *The permittee shall provide opportunities to engage the public to participate in the review and implementation of this Plan.*

This section of the Plan describes how to comply with the Public Involvement and Participation requirements in General Permit Section 2.3.3.

3.2.1 MCM 2 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
2A	Public Review	SWMP Review (Plan and reports available on web and at public meetings)	Engineering Department	Annually provide the public with an opportunity to participate in the review and implementation of this Plan	2018 (PY1)
2B	Public Participation	Provide opportunities for public involvement and participation in Westford's stormwater program (including clean up events and outreach to school-aged children). Specific activities, schedule, and lead departments are included in this Plan.	Engineering Department	Ongoing opportunities available to the public	2018 (PY1)
2C	Public Participation	Continue Stormwater Advisory Group	Engineering Department	Stormwater Advisory Group will meet as needed	2018 (PY1)

3.2.2 MCM 2 Implementation Plan

BMP 2A Stormwater Management Program Public Review

Westford shall provide the public with an opportunity to review this Plan prior to finalizing it, and with other opportunities to participate in the Town's Stormwater Program on an annual basis.

While the Engineering Department is the responsible party for this BMP, multiple Town Departments can help aid in successful implementation, as public participation in stormwater management initiatives often crosses Departments.

The Notice of Intent was presented at a Board of Selectmen meeting on September 25, 2018 to solicit input from the general public. Additionally, the draft Plan was posted online and available to the public for 30 days.

BMP 2B Public Participation in Stormwater Management Program

Public involvement and participation goals for BMP 2B include:

- Increasing public involvement in and knowledge of Westford's stormwater program; and
- Improving water quality through a variety of local clean up and waste collection events.

Westford shall continue to provide notice for public meetings per Massachusetts General Law requirements, including meetings pertaining to the Stormwater Management Program.

The Town shall continue to provide annual opportunities for public participation in the Program. These opportunities may include, but are not limited to:

- Stormwater-related content with elementary school and high school students;
- Hazardous waste drop off days;
- Mercury drop off days;
- Yard waste collection days; and/or
- Stream or street clean ups.

Appendix E includes a document with helpful tips for organizing and conducting volunteer clean-up events that Westford may reference. The Town shall document all public participation activities in the Annual Reports, and documentation should seek to quantify results or impact to better evaluate the public involvement and participation program effectiveness.

BMP 2C Stormwater Advisory Group

The Town has implemented a Stormwater Advisory Group, which was convened for the SWMMP and continues to meet on an as-needed basis. The Group will continue to meet and have on-going communication during the Permit term. The Group consists of Town staff, residents, and local opinion leaders and stakeholders.

3.2.3 MCM 2 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
2A Stormwater Management Program Public Review	●	●	●	●	●
2B Public Participation in Stormwater Management Program	←→				
2C Stormwater Advisory Group	●	●	●	●	●

 = annual requirement
 = ongoing requirement

3.2.4 MCM 2 Guidelines and Resources

The following links include free or low-cost resources Westford can use to supplement the Public Involvement program.

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#inv>

Manchester Urban Ponds Restoration Program: Tips for Organizing and Conducting Volunteer Clean-up Events

Available in Appendix E of this Plan

Massachusetts Open Meeting Law Guide

<http://www.mass.gov/ago/docs/government/oml/oml-guide.pdf>

3.2.5 MCM 2 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 2. See Section 5 of this Plan for additional record keeping information.

- ☐ Public meeting dates and topics when stormwater management-related topic is discussed. Documentation of public notice.
- ☐ Dates of public participation activities and quantification of participation (such as number of volunteers/participants, number of trash bags collected, etc.)
- ☐ Meeting dates, topics, and attendees for Stormwater Advisory Group meetings

3.3 MCM 3: Illicit Discharge Detection and Elimination (IDDE) Program

Objective: *The permittee shall implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges.*

This section of the Plan describes how to comply with the Illicit Discharge Detection and Elimination Program requirements in General Permit Section 2.3.4.

3.3.1 MCM 3 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
3A	IDDE Bylaw	Complete. Continue to enforce and update if necessary.	Board of Health	Track illicit discharges identified and removed.	2018 (PY1)
3B	SSO Inventory	Complete. Update SSO inventory in accordance with permit conditions	Engineering Department	Complete within one (1) year of effective date of permit. Track # of SSOs identified and removed annually	2018 (PY1)
3C	Storm sewer system map	Create map and update during IDDE program implementation	GIS Department	Update map within two (2) years of effective date of permit and complete full system map 10 years after effective date of permit	2018 (PY1)
3D	Written IDDE program	Complete. Update written IDDE program as necessary.	Engineering Department	Complete within one (1) year of the effective date of permit and update as required	2018 (PY1)
3E-1	Assessment and Priority Ranking of Outfalls & Interconnections	Outfall/Interconnection Inventory and Initial Ranking as part of BMP 3D Complete.	Engineering Department	Complete within one (1) year of the effective date of permit and update as necessary	2018 (PY1)

BMP ID	BMP Category	BMP Description	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
3E-2	Assessment and Priority Ranking of Outfalls & Interconnections	Dry Weather Outfall Screening & Sampling in accordance with IDDE Plan and permit conditions	Highway Department	Complete three (3) years after effective date of permit. Track # of illicit discharges identified & volume removed. Summarize screening/sampling results.	2018 (PY1)
3E-3	Assessment and Priority Ranking of Outfalls & Interconnections	Catchment Investigations according to IDDE Program and permit conditions	Highway Department	Complete 10 years after effective date of permit. Track # and percentage of MS4 catchments evaluated. Track # of illicit discharges identified & volume removed. Summarize screening/sampling results.	2019 (PY2)
3F	Employee Training	Train employees on IDDE implementation	Engineering Department	Train annually. Track employees trained, training topic, date/time, and materials presented.	2018 (PY1)

3.3.2 MCM 3 Implementation Plan

A written Illicit Discharge Detection and Elimination Plan was developed for the Town of Westford, dated June 2012 and updated in June 2018. Refer to this Plan for the complete IDDE program and requirements of MCM 3. This section presents a brief summary of the information presented in the IDDE Plan.

BMP 3A IDDE Bylaw

The IDDE program shall include adequate legal authority to prohibit, investigate, and eliminate illicit discharges and implement enforcement procedures and actions. In May 2008, Westford adopted Chapter 82 of its bylaws, *Discharges to the Municipal Storm Drain System*, which regulates illicit discharges and illegal connections to the Town's drainage system. The Board of Health serves as the enforcement agency.

BMP 3A is complete. See Section 5 of the IDDE Plan for additional information.

BMP 3B SSO Inventory

The Town must identify all known locations where sanitary sewer overflows (SSOs) have discharged to the municipal drainage system within the past five (5) years and create an inventory that includes the following information:

- Location, date, time, and volume of each occurrence;
- Whether the discharge entered surface water or the MS4;
- Description, indicating known or suspected cause(s); and
- Mitigation and corrective measures planned and completed.

This inventory must be kept up to date and appended to this Plan. Each municipal Department can aid in the development and maintenance of the inventory by reporting instances of SSOs found during field work to the Engineering Department.

BMP 3B is complete for Permit Year 1. See Section 3 of the IDDE Plan for additional information.

BMP 3C Storm Sewer System Map

A comprehensive map of Westford's drainage system has been developed, and the Town has met the requirements of this BMP. Town staff will continue to update the map as necessary to reflect newly discovered information, corrections or modifications, improved connectivity, and progress made.

BMP 3C is ongoing. See Section 4 of the IDDE Plan for additional information.

BMP 3D Written IDDE Program

Westford has implemented a town-wide IDDE Plan, finalized in June 2008 and updated in June 2018, which includes procedures and timelines developed in accordance with the final General Permit. The Town should continue to update and modify the Plan on an as-needed basis.

BMP 3D is complete. See the IDDE Plan for additional information.

BMP 3E-1 Outfall/Interconnection Inventory and Initial Ranking

The Town has assessed and priority ranked each outfall within the MS4 in terms of their potential to have illicit discharges and SSOs, and the related public health significance.

BMP 3E-1 is complete. See Section 6 of the IDDE Plan and 2018 update for additional information.

BMP 3E-2 Dry Weather Outfall/Interconnection Screening and Sampling

Field investigations must be completed during dry weather conditions to confirm whether any Low or High Priority outfalls have dry weather flow, which may be indicative of illicit connections/discharges. The initial catchment delineation and priority ranking must be updated by the end of Permit Year 3 based on the data gathered in the field. All data gathered during implementation of this BMP must be reported annually.

BMP 3E-2 is ongoing. See Section 6 of the IDDE Plan for additional information.

BMP 3E-3 Outfall/Interconnection Catchment Investigations

Each catchment associated with an outfall or interconnection within the MS4 must be investigated based on identified System Vulnerability Factors (SVF) (i.e., the likelihood that illicit discharges/connections exist) in that particular area. For all catchments, key junction manholes shall be opened and inspected for evidence of illicit connections during

dry weather conditions. For catchments with one or more SVF, wet weather monitoring must be completed. The Town will identify the number of outfall catchments in the MS4 that have been evaluated using the catchment investigation procedure developed under BMP 3D. All data gathered during implementation of this BMP must be reported annually.

At the conclusion of field work for this BMP, the outfall/interconnection inventory should be updated and reprioritized for ongoing screening once every five years.

See Section 6.3 of the 2018 IDDE Plan update for additional information.

BMP 3F Employee Training

Employees involved in the IDDE Program must be trained annually on the Program, including on how to recognize illicit discharges and SSOs in accordance with the IDDE Plan.

See Section 6.6 of the IDDE Plan for additional information.

3.3.3 MCM 3 Implementation Schedule

EPA's implementation timeline for the IDDE Program is available in Appendix E.

BMP	PY1	PY2	PY3	PY4	PY5
3A IDDE Bylaw	✓				
3B SSO Inventory	✓	●	●	●	●
3C Storm Sewer System Map	←→	●	←→	←→	←→
3D Written IDDE Program	✓				
3E-1 Outfall/Interconnection Inventory and Initial Ranking	✓				
3E-2 Dry Weather Screening and Sampling	←→	←→	←→		
3E-3 Catchment Investigations		←→	←→	←→	←→
3F Employee Training	●	●	●	●	●

✓ = BMP complete
 ● = annual requirement or year due
 ←→ = ongoing requirement

3.3.4 MCM 3 Guidelines and Resources

The following links include free or low-cost resources Westford can use to supplement the IDDE program. The Town-specific procedures in the IDDE Plan were developed using the IDDE Guidance Manual and New England Source Tracking Protocol linked below.

**Center for Watershed Protection Illicit Discharge Detection and Elimination:
A Guidance Manual for Program Development and Technical Assessments**

https://www3.epa.gov/npdes/pubs/idde_manualwithappendices.pdf

EPA Stormwater Management Program Resources – IDDE

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#idde>

EPA New England Bacterial Source Tracking Protocol

<https://www3.epa.gov/region1/npdes/stormwater/ma/2014AppendixI.pdf>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#ill>

Westford Discharges to the Municipal Storm Drain System Bylaw

<https://westfordma.gov/DocumentCenter/View/829/Bylaws-Chapter-82---Discharges-to-the-Municipal-Storm-Drain-System-PDF>

3.3.5 MCM 3 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 3. More information about IDDE reporting is located in Section 6.5 of the IDDE Plan. See Section 5 of this Plan for additional record keeping information.

- ☐ Log of phone calls and complaints received regarding suspected illicit connections and other storm drain issues, including dates and actions taken;
- ☐ SSO inventory (updated annually), including the number of illicit discharges/connections identified and/or removed and the volume of sewage removed;
- ☐ Drainage system map;
- ☐ Data collected during dry and wet weather outfall/interconnection investigations, including the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening results, and results of all analyses (summarize on an annual basis and for the entire permit term);
- ☐ Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure;
- ☐ Presence or absence of System Vulnerability Factors for each catchment;
- ☐ Data collected during key junction manhole investigations;
- ☐ Inspection and maintenance records; and
- ☐ Frequency and type of employee training, including employees trained, training topic, date/time, and materials presented.

3.4 MCM 4: Construction Site Stormwater Runoff Control

Objective: *To minimize or eliminate erosion and maintain sediment on site so that it is not transported in stormwater and allowed to discharge to a water of the U.S. through the permittee's MS4.*

This section of the Plan describes how to comply with the Construction Site Stormwater Runoff Control requirements in General Permit Section 2.3.5.

3.4.1 MCM 4 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
4A	Construction Bylaw and Regulations	Modify local regulations, if necessary, to contain new MS4 provisions per Part 2.3.5.	Engineering/Land Use Management	Review current procedures and modify, if necessary, within one (1) year of permit effective date	2018 (PY1)
4B	Construction Policy and Procedures	Develop and implement written procedures for site inspections and enforcement procedures per Part 2.3.5.	Engineering/Land Use Management	Review current procedures and modify if necessary within one (1) year of permit effective date	2018 (PY1)

3.4.2 MCM 4 Implementation Plan

Per the General Permit, Westford must develop and implement the following items, which will be adopted as either Bylaw/regulation modifications or as a new policy or procedure:

- A regulatory mechanism that requires the use of sediment and erosion control practices at construction sites, as well as controls for other wastes on construction sites such as demolition debris, litter, and sanitary wastes;
- Written procedures for site inspections and enforcement of sediment and erosion control measures, including identifying the responsible party for site inspections and enforcement authority, due within one (1) year of the effective date of the permit;
- Requirements for construction site operators performing land disturbance activities within the MS4 jurisdiction that result in stormwater discharges to the MS4 to implement a sediment and erosion control program that includes BMPs appropriate for the conditions at the construction site;

- Requirements for construction site operators within the MS4 jurisdiction to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes; and
- Written procedures for site plan review and inspection and enforcement, due within one (1) year of the effective date of the permit.

BMP 4A Construction Bylaw and Regulations

The Town shall implement and enforce a program to reduce pollutants in stormwater runoff discharged to the municipal drainage system from construction activities, including use of sediment and erosion control practices, at sites greater than one acre and including all subdivisions. Westford has met this requirement by adopting Chapter 147 of its bylaws, *Stormwater Management Bylaw*, in May 2008 and associated regulations in November 2012. The Bylaw and regulations require that all new development and redevelopment projects with greater than one acre of land disturbance obtain a stormwater permit, meet performance standards, and implement a management plan or face penalties. The Planning Board is responsible for overseeing the *Stormwater Management Bylaw*.

The Town will review the existing regulations with respect to the 2016 General Permit and modify it if needed.

BMP 4B Construction Policy and Procedures

Westford shall develop written procedures for site inspections and enforcement of sediment and erosion control measures. They will include procedures for tracking the number of site reviews, inspections, and enforcement actions. This may include a form and guidance for construction-period inspections by both Town staff and contractors.

3.4.3 MCM 4 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
4A Construction Bylaw and Regulations	●				
4B Construction Policy and Procedures	●				

● = year due. Implementation is ongoing.

3.4.4 MCM 4 Guidelines and Resources

The following links include free or low-cost resources Westford can use to supplement the Construction program.

EPA Construction General Permit SWPPP template, including inspection forms
<https://www.epa.gov/npdes/epas-2017-construction-general-permit-cgp-and-related-documents>

Massachusetts Stormwater Handbook
<https://www.mass.gov/guides/massachusetts-stormwater-handbook-and-stormwater-standards>

EPA Stormwater Management Program Resources – Construction Site Runoff Control
<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#csrc>

EPA National Menu of BMPs for Stormwater
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#constr>

Westford Stormwater Management Bylaw
<https://westfordma.gov/DocumentCenter/View/830/Bylaws-Chapter-147---Stormwater-Management-PDF>

Westford Rules & Regulations for Stormwater Management
<https://westfordma.gov/DocumentCenter/View/834/Planning-Board-Rules-and-Regulations-for-Stormwater-Management-PDF>

Central Massachusetts Regional Stormwater Coalition SOP 5: Construction Site Inspection
http://www.centralmastormwater.org/Pages/csrc_toolbox/Construction%20Inspection%20SOP_FINAL.pdf

Central Massachusetts Regional Stormwater Coalition SOP 6: Erosion and Sedimentation Control
http://www.centralmastormwater.org/Pages/csrc_toolbox/Erosion%20and%20Sedimentation%20Control%20SOP_FINAL.pdf

3.4.5 MCM 4 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 4. See Section 5 of this Plan for additional record keeping information.

- ☐ Number of site reviews, inspections, and enforcement actions; and
- ☐ Modifications to Westford's regulations, policies, and/or procedures as necessary.

3.5 MCM 5: Post-Construction Stormwater Management

Objective: *Reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater after construction on new or redeveloped sites.*

This section of the Plan describes how to comply with the Stormwater Management in New Development and Redevelopment requirements in General Permit Section 2.3.6.

3.5.1 MCM 5 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
5A	Post-Construction Bylaw and Regulations	Modify local regulations to contain new MS4 provisions per Part 2.3.6.a.	Engineering/Land Use Management	Modify existing regulations, if necessary, within two (2) years of permit effective date	2019 (PY2)
5B	Assess street and parking lot guidelines	Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.	Engineering/Land Use Management	Complete report no later than four (4) years of permit effective date	2020 (PY3)
5C	Assess allowing green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Engineering/Land Use Management	Complete report no later than four (4) years of permit effective date	2020 (PY3)
5D	Retrofit Feasibility Assessment	Conduct detailed inventory of Town-owned properties and rank for retrofit potential	Engineering Department	Complete report no later than four (4) years of permit effective date. Beginning in Permit Year 5, keep running list of at least five (5) retrofit sites	2020 (PY3)

3.5.2 MCM 5 Implementation Plan

BMP 5A Post-Construction Bylaw and Regulations

The Town shall implement and enforce a program to reduce pollutants in stormwater runoff discharged to the municipal drainage system from post-construction activities for all new development and redevelopment sites greater than one acre. Westford has met this requirement by adopting Chapter 147 of its bylaws, *Stormwater Management Bylaw*, in May 2008 and associated regulations in November 2012. The regulations provide guidance for site planning and stormwater runoff control during construction and post-construction to protect local water resources from discharges. The Planning Board serves as the enforcement agency for the bylaw. The regulations also highlight private BMP operation and maintenance procedures, including maintenance and inspection reporting.

The Town will need to review the regulations with respect to the 2016 General Permit and modify it if needed. Note, that if MassDEP updates the Massachusetts Stormwater Handbook to be consistent with the Small MS4 General Permit, minimal or no changes will be necessary. Additionally, the Town must continue to require the submission of as-built plans after the completion of construction projects and ensure long-term operation and maintenance of stormwater management practices that are in place at construction sites. The Town has already met these requirements through Sections 6.H and 12 of the Stormwater Management regulations. Likewise, the Town already requires BMPs that address pollutants of concern in impacted waterways and infiltration to the maximum extent possible to meet the requirements in General Permit Appendix F Part A.V.1.a.i.2 (Assabet River Phosphorus TMDL Requirements). See Section 4 for more information.

BMP 5B Assess Street and Parking Lot Guidelines

In accordance with General Permit Section 2.3.6.b, Westford shall develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover. This assessment shall be used to provide information to allow the Town to determine if changes to design standards for streets and parking lots can be made to support low impact design (LID) options. Input will be gathered from multiple Town departments. The final report will be appended to this Plan once completed (Appendix F Record Keeping).

BMP 5C Assess Feasibility of Allowing Green Infrastructure

As detailed in General Permit Section 2.3.6.c, Westford shall develop a report assessing local regulations to determine the feasibility of making green roofs, infiltration practices, and water harvesting devices allowable when appropriate site conditions exist. The Town shall implement all recommendations in accordance with the schedules contained in the assessment.

BMP 5D Retrofit Feasibility Assessment

The Town must identify at least five town-owned properties that could potentially be modified or retrofitted with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges or through a reduction of impervious area. General Permit Section 2.3.6.d describes factors and considerations for selecting potential sites with the goal of reducing impervious area and improving water quality. The inventory must be updated annually starting in Permit Year 5. The Town will be required to construct one demonstration structural BMP in Permit Year 6. The Town should look for opportunities to take credit for municipal BMPs that are being installed in an earlier year as part of another

capital improvement project. This BMP should also be coordinated with water quality data collected during the IDDE Program for impaired waters pollutants of concern.

3.5.3 MCM 5 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
5A Post-Construction Bylaw and Regulations		●			
5B Assess Street and Parking Lot Guidelines				●	
5C Assess Feasibility of Allowing Green Infrastructure				●	
5D Retrofit Feasibility Assessment				●	→

● = year due

3.5.4 MCM 5 Guidelines and Resources

The following links include free or low-cost resources Westford can use to supplement the Post-Construction program.

Massachusetts Stormwater Handbook

<https://www.mass.gov/guides/massachusetts-stormwater-handbook-and-stormwater-standards>

EPA Stormwater Management Program Resources – Post Construction Stormwater Control

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#pcsm>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#post>

Westford Stormwater Management Bylaw

<https://westfordma.gov/DocumentCenter/View/830/Bylaws-Chapter-147---Stormwater-Management-PDF>

Westford Rules & Regulations for Stormwater Management

<https://westfordma.gov/DocumentCenter/View/834/Planning-Board-Rules-and-Regulations-for-Stormwater-Management-PDF>

Managing Stormwater in Your Community: A Guide for Building an Effective Post-Construction Program

<https://www3.epa.gov/npdes/pubs/stormwaterinthecommunity.pdf>

EPA Managing Stormwater with LID Practices: Addressing Barriers to LID

<https://www3.epa.gov/region1/npdes/stormwater/assets/pdfs/AddressingBarrier2LID.pdf>

Metropolitan Area Planning Council LID Toolkit

<https://www.mapc.org/resource-library/low-impact-development-toolkit/>

Central Massachusetts Regional Stormwater Coalition SOP 5: Construction Site Inspection

http://www.centralmastormwater.org/Pages/crsc_toolbox/Construction%20Inspection%20SOP_FINAL.pdf

Central Massachusetts Regional Stormwater Coalition SOP 6: Erosion and Sedimentation Control

http://www.centralmastormwater.org/Pages/crsc_toolbox/Erosion%20and%20Sedimentation%20Control%20SOP_FINAL.pdf

3.5.5 MCM 5 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 5. See Section 5 of this Plan for additional record keeping information.

- ☐ Measures the Town has taken to ensure adequate long-term operation and maintenance of private stormwater BMPs and to require submission of as-built plans;

- ☐ Modifications to Westford's regulations, policies, and/or procedures as necessary;
- ☐ Status of BMP 5B and 5C assessments, including any planned or completed changes to local regulations and guidelines (BMP 5B) and findings and progress towards making the practices allowable (BMP 5C); and
- ☐ Retrofit inventory, including all sites that have been modified or retrofitted. Sites should include town-owned sites identified in the inventory as well as non-municipal property modified or retrofitted to mitigate impervious area.

3.6 MCM 6: Good Housekeeping and Pollution Prevention

Objective: *The permittee shall implement an operations and maintenance program for permittee-owned operations that has a goal of preventing or reducing pollutant runoff and protecting water quality from all permittee-owned operations.*

This section of the Plan describes how to comply with the Good Housekeeping and Pollution Prevention requirements in General Permit Section 2.3.7.

3.6.1 MCM 6 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
6A	Operation & Maintenance Program	Complete. Inventory and create O&M procedures for all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment	Engineering/ Highway Department	Continue to implement Operation & Maintenance Program.	2019 (PY2)
6B	Operation & Maintenance Program	Complete. Establish and implement program for repair and rehabilitation of MS4 infrastructure	Engineering/ Highway Department	Continue to implement Operation & Maintenance Program.	2019 (PY2)
6C	Stormwater Pollution Prevention Plans (SWPPP)	Develop and implement a SWPPP for DPW facility	Engineering/ Highway Department	Complete SWPPPs within two (2) years of permit effective date, implement in following years	2019 (PY2)
6D-1	Operation & Maintenance Program	Implement procedures to optimize catch basin cleaning developed under BMP 6B	Highway Department	Track frequency and material quantity of catch basin cleaning in town. In first Annual Report and in this Plan, document plan for optimizing catch basin cleaning	2018 (PY1)

BMP ID	BMP Category	BMP Description	Responsible Department / Parties	Measurable Goal	Beginning Year of BMP Implementation
6D-2	Operation & Maintenance Program	Implement procedures for street and parking lot sweeping developed under BMP 6B	Highway Department	Annually track number of miles cleaned or the volume or mass of material removed.	2018 (PY1)
6D-3	Operation & Maintenance Program	Implement procedures for use and storage of deicing materials developed under BMP 6B	Highway Department	Implement program for winter road maintenance throughout permit term.	2018 (PY1)
6D-4	Operation & Maintenance Program	Implement procedures to inspect and maintain Town-owned structural stormwater BMPs	Engineering/ Highway Department	Develop an inventory of Town- owned BMPs within two (2) years of permit effective date. Report on inspection and maintenance conducted annually.	2018 (PY1)

3.6.2 MCM 6 Implementation Plan

BMP 6A Operation and Maintenance Program for Municipal Facilities and Equipment

Westford has developed a written Town-Wide Operation and Maintenance Program, Volume 3 of the SWMMP, for municipal facilities and equipment, including:

- Parks and open space;
- Buildings and facilities, including schools, where pollutants are exposed to stormwater runoff; and
- Vehicles and equipment.

This Plan includes an inventory of the municipally-owned facilities and equipment. It also evaluates the Town's wastewater infrastructure from a stormwater pollution potential. This Plan is available in the Engineering Department.

BMP 6B Operation and Maintenance Program for MS4 Infrastructure

The Town included MS4 Infrastructure in the Town-Wide Operation & Maintenance Plan described in BMP 6A. Section 4.2 of the plan describes the activities and procedures used to maintain MS4 infrastructure in a timely manner to reduce the discharge of pollutants from the MS4.

BMP 6C Stormwater Pollution Prevention Plan

The Town shall prepare and implement a SWPPP for the Town's DPW garage in accordance with General Permit Section 2.3.7.b. SWPPP requirements include "regular" employee training for all members of the Pollution Prevention Team (recommended annually at a minimum). Additionally, quarterly site inspections are required at these sites according to General Permit Section 2.3.7.b.iii.

BMP 6D-1 Catch Basin Cleaning

The Town must clean and inspect catch basins to make sure that catch basins are no more than 50% full. Develop and implement a program to optimize routine inspections, cleaning, and maintenance of catch basins. If a catch basin is consistently less than 50% full, the Town can reduce the frequency of cleanings. If a catch basin is more than 50% full during two consecutive cleanings/inspections, the Town must investigate the contributing drainage area for sources of excessive sediment loading and abate contributing sources when possible. Store and dispose/reuse catch basin cleanings according to MassDEP policies. The Town-Wide Operation and Maintenance Program plan referred to under BMPs 6A and 6B includes additional recommendations and guidance for this BMP.

BMP 6D-2 Street Sweeping

Establish and implement procedures for sweeping and/or cleaning streets and Town-owned parking lots. All streets must be swept and/or cleaned at least once per year in the spring (excluding rural streets with no curbs or catch basins). More frequent sweeping shall occur in targeted areas on the basis of pollutant load reduction potential. See Section 4. Store and dispose/reuse street sweepings according to MassDEP policies.

For rural streets with no curbs or catch basins, the Town must sweep at least once per year or develop a targeted inspection and sweeping plan for those streets.

The Town-Wide Operation and Maintenance Program plan referred to under BMPs 6A and 6B includes additional recommendations and guidance for this BMP.

BMP 6D-3 Deicing Materials

Establish and implement procedures for winter road maintenance, including the use and storage of salt and sand.

The Town-Wide Operation and Maintenance Program plan referred to under BMPs 6A and 6B includes additional recommendations and guidance in the *Winter Deicing and Snow Removal* section.

BMP 6D-4 Inspection and Maintenance of Town-Owned BMPs

The Town shall develop inspection and maintenance procedures and frequencies for all stormwater treatment structures. All town-owned stormwater treatment structures must be inspected annually at a minimum. This does not include catch basins, which are covered under BMP 6D-1. The Town-Wide Operation and Maintenance Program plan referred to under BMPs 6A and 6B includes additional information about this BMP. See also SWMMP Volume 2: Long-Term Capital Improvement Plan for additional recommendations related to this BMP.

3.6.3 MCM 6 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
6A O&M Program for Municipal Facilities and Equipment	✓				
6B O&M Program for MS4 Infrastructure	✓				
6C Stormwater Pollution Prevention Plans	●				
6D-1 Catch Basin Cleaning	←→				
6D-2 Street Sweeping	←→				
6D-3 Deicing Materials	←→				
6D-4 Inspection and Maintenance of Town-Owned BMPs	●	●	●	●	●

 = BMP complete
 = annual requirement or year due
 = ongoing requirement

3.6.4 MCM 6 Guidelines and Resources

The following links include free or low-cost resources Westford can use to supplement the Good Housekeeping and Pollution Prevention program. The Town should also refer to the Town-Wide O&M plan, located in the Engineering Department.

EPA Stormwater Management Program Resources – Good Housekeeping

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#gh>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#poll>

Center for Watershed Protection Municipal Pollution Prevention/Good Housekeeping Practices

http://cdrpc.org/wp-content/uploads/2015/05/CWP_Municipal_Pollution_Prevention.pdf

MassDEP Management of Catch Basin Cleanings

<https://www.mass.gov/files/documents/2018/03/09/catch-basins.pdf>

MassDEP Reuse & Disposal of Street Sweepings

<https://www.mass.gov/files/documents/2018/05/14/street-sweepings.pdf>

MassDEP Snow Disposal Guidance

<https://www.mass.gov/guides/snow-disposal-guidance>

Central Massachusetts Regional Stormwater Coalition SOP: Inspecting Constructed BMPs

http://centralmastormwater.org/Pages/crsc_toolbox/Constructed%20BMP%20Inspection%20SOP_FINAL.pdf

3.6.5 MCM 6 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 6. See Section 5 of this Plan for additional record keeping information.

- ☐ Updates to inventory of municipal facilities and equipment;
- ☐ Plan for optimizing catch basin cleaning and metrics about the number of catch basins, quantity cleaned and inspected, and total volume of material removed from all catch basins;
- ☐ Miles of streets cleaned and the volume of material removed;
- ☐ Written records of all activities associated with SWMMP Volume 3: Town-wide Operation & Maintenance Plan including BMP maintenance, inspections, and training; and
- ☐ All records associated with SWPPP quarterly site inspections, maintenance activities, and training.

Section 4



Section 4

BMPs to Address Specific Waterbody Requirements

4.1 Impaired Waterbodies

As described in Section 2 of this Plan, several surface waterbodies within Westford were identified in the 2014 Integrated List of Waters as Category 5 waters needing a TMDL. Although Beaver Brook is impaired for dissolved oxygen, no additional BMPs are required for this waterbody. The 2016 General Permit does not require BMPs or outreach to be completed for dissolved oxygen impairments beyond the outfall/interconnection monitoring described in the IDDE Plan.

Beaver Brook, Stony Brook, Deep Brook, Tadmuck Brook, and Heart Pond are impaired for bacteria. Per Appendix H of the General Permit, the Town must comply with the additional requirements listed in Section 4.1.1 below to address bacteria or pathogens in their stormwater discharges.

Beaver Brook and Stony Brook (segment MA84B-03) are impaired for solids. Per Appendix H of the General Permit, the Town must comply with the additional requirements listed in Section 4.1.2 below to address solids in their stormwater discharges.

4.1.1 Enhanced BMPs for Bacteria or Pathogens: Beaver Brook, Stony Brook, Deep Brook, Tadmuck Brook, and Heart Pond

General Permit Part 2.3.2: Public Education and Outreach

Westford shall supplement the residential public education program with an annual message about the proper management of pet waste, including noting any existing bylaws where appropriate, and disseminating educational materials to dog owners at the time of issuance or renewal of a dog license. Education materials shall describe the detrimental impacts of improper management of pet waste, requirements for waste collection and disposal, and penalties for non-compliance.

The Town shall also provide information to owners of septic systems about proper maintenance in any catchment that discharges to a waterbody impaired for bacteria or pathogens.

General Permit Part 2.3.4: Illicit Discharge

Westford shall implement the IDDE program required by the General Permit and described in Section 3.3 of this Plan. Additionally, catchments draining to any waterbody impaired for bacteria or pathogens have been designated as High Priority in implementation of the IDDE program.

4.1.2 Enhanced BMPs for Solids: Beaver Brook and Stony Brook

General Permit Part 2.3.6: Stormwater Management in New Development and Redevelopment

Stormwater management systems designed on commercial and industrial land that drains to the water quality limited waterbody shall incorporate designs that allow for shutdown and containment, where appropriate, to isolate the system in the event of an emergency spill or other unexpected event. EPA also encourages the Town to require any stormwater management system designed to infiltrate stormwater on commercial or industrial sites to provide the level of pollutant removal equal to or greater than the level of pollutant removal provided through the use of biofiltration of the same volume of runoff to be infiltrated, prior to infiltration.

General Permit Part 2.3.7: Good House Keeping and Pollution Prevention for Permittee Owned Operations

The Town shall:

- Increase street sweeping frequency of all municipally-owned streets and parking lots to target areas with potential for high pollutant loads. This may include, but is not limited to, increased street sweeping frequency in commercial areas and high density residential areas, or drainage areas with a large amount of impervious area.
- Prioritize inspection and maintenance for catch basins to ensure that no sump is more than 50 percent full. Clean catch basins more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
- Annually report on the street sweeping schedule to target high pollutant loads.

4.2 SuAsCo Watershed Nutrient TMDL

As described in Section 2.2.3 of this Plan, a final TMDL for phosphorus has been developed for the SuAsCo Watershed. This TMDL requires that Towns discharging to the impaired waterways within the SuAsCo Watershed, either directly or indirectly, must comply with requirements in Appendix F of the General Permit. These requirements are summarized below as they apply to Westford's program.

4.2.1 Enhanced BMPs

General Permit Part 2.3.2: Public Education and Outreach

Westford shall supplement the residential and business/commercial/institution public education program with an annual message about various topics, including:

- Spring – the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free fertilizers;
- Summer – the proper management of pet waste, including noting any existing bylaws where appropriate; and
- Fall – the proper disposal of leaf litter.

General Permit Part 2.3.6: Stormwater Management in New Development and Redevelopment

Westford's Stormwater Management Regulations include requirements that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal. Additionally, the Town requires BMPs that infiltrate stormwater when possible.

General Permit Part 2.3.7: Good House Keeping and Pollution Prevention for Permittee Owned Operations

The Town shall establish a program to properly manage grass cuttings and leaf litter on Town-owned properties. This program should prohibit blowing organic waste onto impervious surfaces and increasing street sweeping to a minimum of two occurrences per year, once in the spring and at least once in the fall.

4.3 Additional Requirements for Discharges to Surface Drinking Water Supplies and Their Tributaries

According to Section 3.0 of the 2016 Small MS4 General Permit, MS4s that discharge to public surface drinking water supply sources or their tributaries should consider these waters a priority in the implementation of this Plan. Westford does not have any surface water supplies, only drinking water wells, so this requirement is not applicable.

Section 5



Section 5

Program Evaluation, Record Keeping, and Reporting

5.1 Program Evaluation

The Town will annually self-evaluate its compliance with the terms and conditions of the 2016 General Permit, including the appropriateness of selected BMPs and progress toward defined measurable goals. The self-evaluation will be submitted as part of the Annual Report and maintained as part of this Plan.

5.2 Record Keeping

The Town will keep all records required by the 2016 General Permit for **at least five years**, including, but not limited to the following key information:

- Monitoring results;
- Copies of reports;
- Records of outfall/interconnection screening;
- Follow-up and elimination of illicit discharges;
- Maintenance records; and
- Inspection records.

Checklists of record keeping items that Westford should maintain are also included under each BMP in Section 3 of this Plan. Records relating to the 2016 General Permit, including this Plan, will be made available to the public, as required by Section 4.2.c of the Permit.

5.3 Annual Reports

The Town will submit annual reports throughout the Small MS4 permit term, 90 days from the close of the reporting period (i.e., September 28). The reporting period will be a one-year period commencing on the permit effective date, and subsequent anniversaries thereof, except that the first annual report under the 2016 General Permit shall also cover the period from May 1, 2018 to the permit effective date, July 1, 2018. Under the 2016 General Permit, annual reports will consist of a simple update provided to EPA and more robust documentation included in Appendix F of this SWMP.

Per Section 4.4.b of the 2016 General Permit, the annual reports shall contain the following information:

- A self-assessment review of compliance with the permit terms and conditions.*
- An assessment of the appropriateness of the selected BMPs.*
- The status of any plans or activities required by part 2.1 and/ or part 2.2, including:*

- *Identification of all discharges determined to be causing or contributing to an exceedance of water quality standards and description of response including all items required by part 2.1.1;*
 - *For discharges subject to TMDL related requirements, identification of specific BMPs used to address the pollutant identified as the cause of impairment and assessment of the BMPs effectiveness at controlling the pollutant (part 2.2.1. and Appendix F) and any deliverables required by Appendix F;*
 - *For discharges to water quality limited waters a description of each BMP required by Appendix H and any deliverables required by Appendix H.*
- iv. *An assessment of the progress towards achieving the measurable goals and objectives of each control measure in part 2.3 including:*
- *Evaluation of the public education program including a description of the targeted messages for each audience; method of distribution and dates of distribution; methods used to evaluate the program; and any changes to the program.*
 - *Description of the activities used to promote public participation including documentation of compliance with state public notice regulations.*
 - *Description of the activities related to implementation of the IDDE program including: status of the map; status and results of the illicit discharge potential ranking and assessment; identification of problem catchments; status of all protocols described in part 2.3.4.(program responsibilities and systematic procedure); number and identifier of catchments evaluated; number and identifier of outfalls screened; number of illicit discharges located; number of illicit discharges removed; gallons of flow removed; identification of tracking indicators and measures of progress based on those indicators; and employee training.*
 - *Evaluation of the construction runoff management including number of project plans reviewed; number of inspections; and number of enforcement actions.*
 - *Evaluation of stormwater management for new development and redevelopment including status of ordinance development (2.3.6.a.ii.), review and status of the street design assessment (2.3.6.b.), assessments to barriers to green infrastructure (2.3.6.c), and retrofit inventory status (2.3.6.d.)*
 - *Status of the O&M Programs required by part 2.3.7.a.*
 - *Status of SWPPP required by part 2.3.7.b. including inspection results.*
 - *Any additional reporting requirements in part 3.0.*
- v. *All outfall screening and monitoring data collected by or on behalf of the permittee during the reporting period and cumulative for the permit term, including but not limited to all data collected pursuant to part 2.3.4. The permittee shall also provide a description of any additional monitoring data received by the permittee during the reporting period.*
- vi. *Description of activities for the next reporting cycle.*
- vii. *Description of any changes in identified BMPs or measurable goals.*

- viii. *Description of activities undertaken by any entity contracted for achieving any measurable goal or implementing any control measure.*

5.4 Stormwater Management Program Modifications

Per Section 4.1 of the 2016 General Permit, the Town shall complete the following tasks:

- a. *The permittee shall annually self-evaluate its compliance with the terms and conditions of this permit and submit each self-evaluation in the Annual Report. The permittee shall also maintain the annual evaluation documentation as part of the SWMP.*
- b. *The permittee shall evaluate the appropriateness of the selected BMPs in achieving the objectives of each control measure and the defined measurable goals. Where a BMP is found to be ineffective the permittee shall change BMPs in accordance with the provisions below. In addition, permittees may augment or change BMPs at any time following the provisions below:*
 - *Changes adding (but not subtracting or replacing) components or controls may be made at any time.*
 - *Changes replacing an ineffective or infeasible BMP specifically identified in the SWMP with an alternative BMP may be made as long as the basis for the changes is documented in the SWMP by, at a minimum:*
 - o *An analysis of why the BMP is ineffective or infeasible;*
 - o *Expectations on the effectiveness of the replacement BMP; and*
 - o *An analysis of why the replacement BMP is expected to achieve the defined goals of the BMP to be replaced.*

The permittee shall indicate BMP modifications along with a brief explanation of the modification in each Annual Report.

- c. *EPA or MassDEP may require the permittee to add, modify, repair, replace or change BMPs or other measures described in the annual reports as needed:*
 - *To address impacts to receiving water quality caused or contributed to by discharges from the MS4; or*
 - *To satisfy conditions of this permit*

Any changes requested by EPA or MassDEP will be in writing and will set forth the schedule for the permittee to develop the changes and will offer the permittee the opportunity to propose alternative program changes to meet the objective of the requested modification.

The Town may update or revise this Plan as needed as the Town's activities are modified, changed, or updated to meet permit conditions during the permit term. If it is necessary to modify or update this Plan, the Town will follow this procedure to formalize the changes:

- Keep a log with a description of the modification, the date, and the name and signature of the person making it; and
- Re-sign and date the certification statement in Section 6 of this Plan.

A Plan amendment log and additional certification statements are located in Appendix G.

Section 6

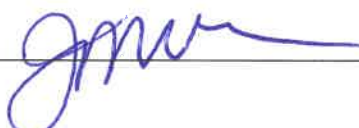


Section 6

Plan 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 gathered and evaluated 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.

Name: Jodi Ross Title: Town Manager

Signature:  Date: June 27, 2019

A letter that authorizes the Town of Westford Town Manager and Town Engineer to sign and certify certain documents prepared under the Small MS4 General Permit is included in Appendix H.

Questions and comments about the Town's stormwater program should be directed to the Program Coordinator:

Paul Starratt, P.E.

Town Engineer

(978) 399-2716

pstarratt@westfordma.gov



Appendix A

Notice of Intent and Authorization to Discharge Letter from EPA

Part I: General Conditions

General Information

Name of Municipality or Organization: State:

EPA NPDES Permit Number:

Primary MS4 Program Manager Contact Information

Name: Title:

Street Address Line 1:

Street Address Line 2:

City: State: Zip Code:

Email: Phone Number:

Fax Number:

Other Information

Stormwater Management Program (SWMP) Location (web address or physical location, if already completed):

Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Eligibility Criteria (check all that apply): ☐ A ☐ B ☒ C

National Historic Preservation Act (NHPA) Determination Complete? Eligibility Criteria (check all that apply): ☒ A ☐ B ☐ C

☒ Check the box if your municipality or organization was covered under the 2003 MS4 General Permit

MS4 Infrastructure (if covered under the 2003 permit)

Estimated Percent of Outfall Map Complete? If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY):

Web address where MS4 map is published:

If outfall map is unavailable on the internet an electronic or paper copy of the outfall map must be included with NOI submission (see section V for submission options)

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted? (Part II, III, IV or V, Subpart B.3.(b.) of 2003 permit)	Yes	Effective Date or Estimated Date of Adoption (MM/DD/YY):	05/10/08
Construction/Erosion and Sediment Control (ESC) Authority Adopted? (Part II, III, IV or V, Subpart B.4.(a.) of 2003 permit)	Yes	Effective Date or Estimated Date of Adoption (MM/DD/YY):	05/10/08
Post- Construction Stormwater Management Adopted? (Part II, III, IV or V, Subpart B.5.(a.) of 2003 permit)	Yes	Effective Date or Estimated Date of Adoption (MM/DD/YY):	05/10/08

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part II: Summary of Receiving Waters

Please list the waterbody segments to which your MS4 discharges. For each waterbody segment, please report the number of outfalls discharging into it and, if applicable, any impairments.

Massachusetts list of impaired waters: [Massachusetts 2014 List of Impaired Waters- http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf](http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf)

Check off relevant pollutants for discharges to impaired waterbodies (see above 303(d) lists) without an approved TMDL in accordance with Section 2.2.2a of the permit. List any other pollutants in the last column, if applicable.

Waterbody segment that receives flow from the MS4	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/ PAH	Phosphorus	Solids/ TSS/ Turbidity	E. coli	Enterococcus	Other pollutant(s) causing impairments
Beaver Brook Tributary/Wetland (MA84B-02)	11	☐	☐	☒	☐	☐	☐	☒	☐	☐	Fecal coliform, Low pH
Blue Brook Direct Discharge	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Boutwell Brook Tributary/Wetland	12	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Butter Brook Direct Discharge	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Butter Brook Tributary/Wetland	11	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Coldspring Brook Direct Discharge	6	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Coldspring Brook Tributary/Wetland	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Flushing Pond Direct Discharge	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Forge Pond Direct Discharge (MA84015)	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Non-Native Aquatic Plants, Mercury in Fish Tissue
Forge Pond Tributary/Wetland (MA84015)	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	Non-Native Aquatic Plants, Mercury in Fish Tissue
Gilson Brook Pond Tributary/Wetland	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Gilson Brook Direct Discharge	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Gilson Brook Tributary/Wetland	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Greystone Pond Tributary/Wetland	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Keyes Pond Direct Discharge	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Long Sought For Pond Direct Discharge	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Long Sought For Pond Tributary/Wetland	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Nabnasset Lake Tributary/Wetland (MA84044)	11	☐	☐	☐	☐	☐	☐	☐	☐	☐	Non-Native Aquatic Plants, Mercury in Fish Tissue

[illegible]

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

Identify the Best Management Practices (BMPs) that will be employed to address each of the six Minimum Control Measures (MCMS). For municipalities/organizations whose MS4 discharges into a receiving water with an approved Total Maximum Daily Load (TMDL) and applicable waste load allocation (WLA), identify any additional BMPs employed to specifically support the achievement of the WLA in the TMDL section at the end of Part III.

For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be employed (public education and outreach BMPs also require a target audience).

MCM 1: Public Education and Outreach

BMP ID	BMP Media/Category	BMP Description	Targeted Audience	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
1A	Multi-media methods (including web, direct mail, and print materials at public buildings)	Education and outreach on stormwater management topics of significance in Westford (including proper pet waste management, proper use of pesticides and fertilizers). Educational topics will include but are not limited to those in Part 2.3.2.d.i	Residents	Engineering Department	Distribute a minimum of two (2) educational messages spaced at least a year apart	2018 (PY1)
1B	Multi-media methods (including web and direct mail)	Education and outreach on stormwater management topics of significance in Westford (including proper lawn maintenance, parking lot sweeping). Educational topics will include but are not limited to those in Part 2.3.2.d.ii	Businesses, Institutions, and Commercial Facilities	Engineering Department	Distribute a minimum of two (2) educational messages spaced at least a year apart	2019 (PY2)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

BMP ID	BMP Media/Category	BMP Description	Targeted Audience	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
1C	Multi-media methods (including web and permit application guidance)	Education and outreach on stormwater management topics of significance in Westford (including proper erosion and sedimentation control, permit requirements, and design standards). Educational topics will include but are not limited to those in Part 2.3.2.d.iii	Developers (Construction)	Planning/ Conservation	Distribute a minimum of two (2) educational messages spaced at least a year apart	2018 (PY1)
1D	Multi-media methods (including web and direct mail)	Education and outreach on stormwater management topics of significance in Westford (including pollution prevention, illicit discharges, Multi-Sector General Permit). Educational topics will include but are not limited to those in Part 2.3.2.d.iv	Industrial Facilities	Engineering Department	Distribute a minimum of two (2) educational messages spaced at least a year apart	2019 (PY2)

Notice of Intent (NOI) for coverage under Small MS4 General Permit**Part III: Stormwater Management Program Summary****MCM 2: Public Involvement and Participation**

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
2A	Public Review	SWMP Review (Plan and reports available on web and at public meetings)	Engineering Department	Annually provide the public with an opportunity to participate in the review and implementation of the SWMP	2018 (PY1)
2B	Public Participation	Provide opportunities for public involvement and participation in Westford's stormwater program (including clean up events and outreach to school-aged children). Specific activities, schedule, and lead departments are included in the SWMP.	Engineering Department	Ongoing opportunities available to the public	2018 (PY1)
2C	Public Participation	Continue Stormwater Advisory Group	Engineering Department	Stormwater Advisory Group will meet as needed	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
3A	IDDE Bylaw	Complete. Continue to enforce and update if necessary.	Board of Health	Track illicit discharges identified and removed.	2018 (PY1)
3B	SSO Inventory	Complete. Update SSO inventory in accordance with permit conditions	Engineering Department	Complete within one (1) year of effective date of permit. Track # of SSOs identified and removed annually	2018 (PY1)
3C	Storm sewer system map	Create map and update during IDDE program implementation	GIS Department	Update map within two (2) years of effective date of permit and complete full system map 10 years after effective date of permit	2018 (PY1)
3D	Written IDDE program	Complete. Update written IDDE program as necessary.	Engineering Department	Complete within one (1) year of the effective date of permit and update as required	2018 (PY1)
3E-1	Assessment and Priority Ranking of Outfalls & Interconnections	Outfall/Interconnection Inventory and Initial Ranking as part of BMP 3D Complete.	Engineering Department	Complete within one (1) year of the effective date of permit and update as necessary	2018 (PY1)
3E-2	Assessment and Priority Ranking of Outfalls & Interconnections	Dry Weather Outfall Screening & Sampling in accordance with IDDE Plan and permit conditions	Highway Department	Complete three (3) years after effective date of permit. Track # of illicit discharges identified & volume removed. Summarize screening/sampling results.	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
3E-3	Assessment and Priority Ranking of Outfalls & Interconnections	Catchment Investigations according to IDDE Program and permit conditions	Highway Department	Complete 10 years after effective date of permit. Track # and percentage of MS4 catchments evaluated. Track # of illicit discharges identified & volume removed. Summarize screening/sampling results.	2019 (PY2)
3F	Employee Training	Train employees on IDDE implementation	Engineering Department	Train annually. Track employees trained, training topic, date/time, and materials presented.	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit**Part III: Stormwater Management Program Summary****MCM 4: Construction Site Stormwater Runoff Control**

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
4A	Construction Bylaw and Regulations	Modify local regulations, if necessary, to contain new MS4 provisions per Part 2.3.5.	Engineering/Land Use Management	Review current procedures and modify, if necessary, within one (1) year of permit effective date	2018 (PY1)
4B	Construction Policy and Procedures	Develop and implement written procedures for site inspections and enforcement procedures per Part 2.3.5.	Engineering/Land Use Management	Review current procedures and modify if necessary within one (1) year of permit effective date	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
5A	Post-Construction Bylaw and Regulations	Modify local regulations to contain new MS4 provisions per Part 2.3.6.a.	Engineering/Land Use Management	Modify existing regulations, if necessary, within two (2) years of permit effective date	2019 (PY2)
5B	Assess street and parking lot guidelines	Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.	Engineering/Land Use Management	Complete report no later than four (4) years of permit effective date	2020 (PY3)
5C	Assess allowing green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Engineering/Land Use Management	Complete report no later than four (4) years of permit effective date	2020 (PY3)
5D	Retrofit Feasibility Assessment	Conduct detailed inventory of Town-owned properties and rank for retrofit potential	Engineering Department	Complete report no later than four (4) years of permit effective date. Beginning in Permit Year 5, keep running list of at least five (5) retrofit sites	2020 (PY3)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

MCM 6: Municipal Good Housekeeping and Pollution Prevention

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Additional Description/Measurable Goal	Beginning Year of BMP Implementation
6A	Operation & Maintenance Program	Complete. Inventory and create O&M procedures for all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment	Engineering/ Highway Department	Continue to implement Operation & Maintenance Program.	2019 (PY2)
6B	Operation & Maintenance Program	Complete. Establish and implement program for repair and rehabilitation of MS4 infrastructure	Engineering/ Highway Department	Continue to implement Operation & Maintenance Program.	2019 (PY2)
6C	Stormwater Pollution Prevention Plans (SWPPP)	Develop and implement a SWPPP for DPW facility	Engineering/ Highway Department	Complete SWPPPs within two (2) years of permit effective date, implement in following years	2019 (PY2)
6D-1	Operation & Maintenance Program	Implement procedures to optimize catch basin cleaning developed under BMP 6B	Highway Department	Track frequency and material quantity of catch basin cleaning in town. In first Annual Report and in SWMP, document plan for optimizing catch basin cleaning	2018 (PY1)
6D-2	Operation & Maintenance Program	Implement procedures for street and parking lot sweeping developed under BMP 6B	Highway Department	Annually track number of miles cleaned or the volume or mass of material removed.	2018 (PY1)
6D-3	Operation & Maintenance Program	Implement procedures for use and storage of deicing materials developed under BMP 6B	Highway Department	Implement program for winter road maintenance throughout permit term.	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Additional Description/Measurable Goal	Beginning Year of BMP Implementation
6D-4	Operation & Maintenance Program	Implement procedures to inspect and maintain Town-owned structural stormwater BMPs	Engineering/ Highway Department	Develop an inventory of Town-owned BMPs within two (2) years of permit effective date. Report on inspection and maintenance conducted annually.	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

Use the drop-down menus to select the applicable TMDL, action description to meet the TMDL requirements, and the responsible department/parties. If no options are applicable, or more than one, **enter your own text to override drop-down menus.**

[illegible]

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

Use the drop-down menus to select the pollutant causing the water quality limitation and enter the waterbody ID(s) experiencing excursions above water quality standards for that pollutant. Choose the action description from the dropdown menu and indicate the responsible party. If no options are applicable, or more than one, **enter your own text to override drop-down menus.**

[illegible]

Part IV: Notes and additional information

Use the space below to provide any additional information about your MS4 program

1. BMPs identified in the 2003 General Permit NOI have evolved over the permit term due to staff changes and Stormwater Program modifications. The intent of the 2003 BMPs are being met under the proposed 2016 General Permit BMPs included in the Stormwater Management Plan. The Plan describes how the BMPs under the 2003 permit fit into the new program, particularly where BMPs and/or measurable goals that are outdated or no longer appropriate have been replaced or updated.
2. The National Endangered Species Eligibility Determination screening process has been completed and the Town of Westford meets Criterion C. The Town's stormwater discharges and discharge related activities will have no affect on listed species or critical habitat. The Town will consult with U.S. Fish and Wildlife as needed during the permit term.
3. The National Historic Preservation Act Eligibility Determination screening process has been completed and the Town of Westford meets Criterion A. The Town's stormwater discharges do not have the potential to cause effects on historic properties. The Town will consult with the State Historic Preservation Officer as needed during the permit term.
4. The outfalls and associated receiving waters in Part II are based on mapping as of September 2018 and are subject to change during implementation of the Stormwater Management Program as newly constructed outfalls are added to the map and inventory; locations are adjusted; or outfalls are removed if they are determined to be non-municipally owned/operated or reclassified as a BMP inlet, culvert, or other structure. Changes to the outfall inventory and mapping will be formalized in Annual Reports to EPA.

Detailed explanations of the above notes are included in the Town's Stormwater Management Plan.

Part V: 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, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:

Scott Hazelton

Title:

Board of Selectmen Chair

Signature:

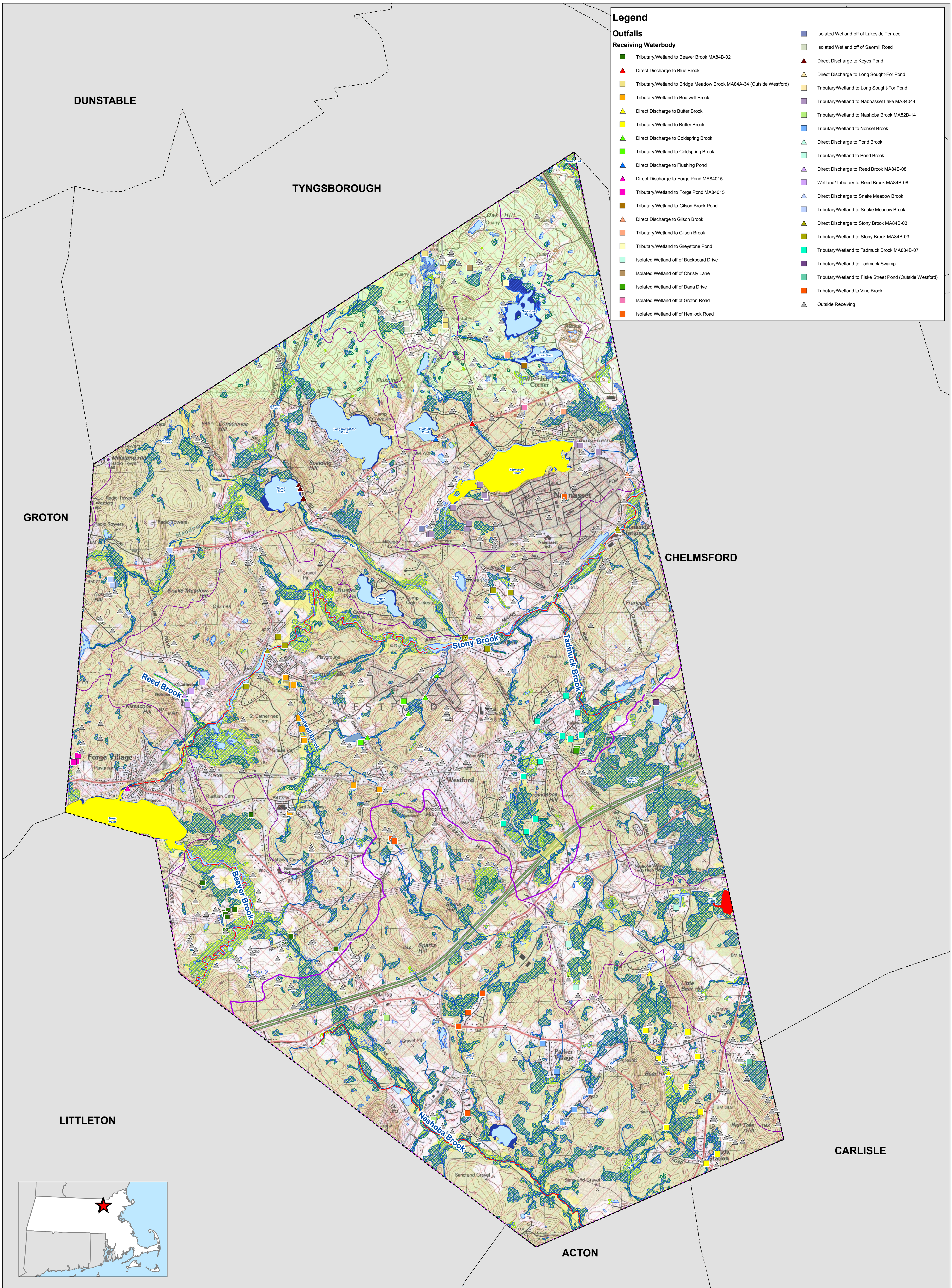


Date:

9-25-18

[To be signed according to Appendix B, Subparagraph B.11, Standard Conditions]

Note: When prompted during signing, save the document under a new file name

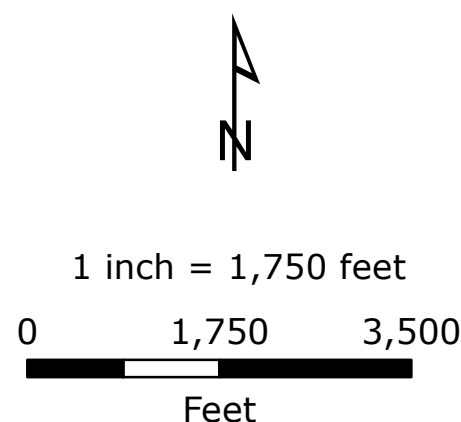


- Legend**
- Integrated List of Waters - Rivers**
- 2-Attaining some uses; other uses not assessed
 - 3-No uses assessed
 - 4A -Impaired - TMDL is completed
 - 4C -Impairment not caused by a pollutant
 - 5-Impaired-TMDL required
- Integrated List of Waters - Lakes, Estuaries**
- 2-Attaining some uses; other uses not assessed
 - 3-No uses assessed
 - 4A -Impaired-TMDL is completed
 - 4C -Impairment not caused by a pollutant
 - 5-Impaired-TMDL required

- NWI Wetland Areas**
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine
 - Other
- MassDEP Waterbodies**
- Rivers and Streams
 - Public Surface Water Supply (PSWS)
 - Water Bodies
 - MassDEP Inland Wetlands
 - Stream/Intermittent Stream

- MassDOT Major Roads**
- Limited Access Highway
 - Multi-lane Hwy, not limited access
 - Other Numbered Highway
 - Major Road, Collector
 - Town Boundary
 - Major Basin Boundary
 - Subbasin
 - FEMA 100 Year Flood Zone
 - Urban Area 2000 Census
 - Urban Area 2010 Census

1. Based on USGS Topo Map (1987)
2. MassGIS: 2014 Integrated List Data (2016), Major Drainage Basins (2003), Subbasins (2007), FEMA National Flood Hazard (2017), MassDOT Major Roads (2014)
3. Town of Westford: Outfalls



OUTFALLS AND RECEIVING WATERBODIES

Notice of Intent
Westford, Massachusetts

September 2018

Tighe&Bond
Engineers | Environmental Specialists



Appendix B

Summary of 2003 and 2016 MS4 General Permit BMPs

Appendix B

Summary of 2003 and 2016 MS4 General Permit BMPs

BMPs identified in the 2003 General Permit NOI have evolved over the permit term due to staff changes and Stormwater Program modifications. The intent of the 2003 BMPs are being met under the following proposed 2016 General Permit BMPs (BMPS current as of 2018 Annual Report):

<u>2003</u> <u>BMP ID</u>	<u>BMP Description</u>	<u>2016 BMPs</u>
1A	Stormwater Flyer for Residents	1A
1B	Lesson Plan for 5th Graders	1A
1C	Stormwater Flyer for Businesses	1B
1D	Stormwater Media Campaign	1A-D
1E	Stormwater Video	1A-D
1F	Recycling/Trash Info. on Website	1A-D
1G	Recycling/Trash Mailing to Residents	1A
1H	Advertise HHW Info. in Community Phonebook	1A-D
1I	Advertise Brush/Multi Collection on Cable and in Paper	1A-D
1J	Leaf Dumping Article in Paper (<i>revised: Promote Yard Waste and Leaf Disposal Guidance</i>)	1A-D
1K	Leaf Dumping Pamphlet to Public	1A
1L	Leaf Dumping Pamphlet at Events (<i>revised: Enforcement of Leaf Dumping Prohibition</i>)	1A-D
1M	Town of Westford Pesticide Policy	1B
1N	Fertilizer Info. in Newsletter	1A-D
1O	Septic System Pamphlets in Water Department	1A-D
1P	Septic System Pamphlets at Events	1A-D
1Q	Hazardous Material Bylaw Info. On Website	1A-D
2A	Stormwater Traveling Display	1A
2B	Poster Contest for Fourth Graders	1A and 2B
2C	Poster Contest for High Schoolers	1A and 2B
2D	Local Stormwater Summit Event	2B
2E	Stormwater Super Summit Event	2B
2F	Curbside Recycling	2B
2G	In Town HHW Drop-off	2B
2H	HHW Drop-off in Lexington	2B
2I	Leaf Drop-off at Laughton's Nursery (<i>revised: Promote Leaf Disposal Options</i>)	2B
2J	Brush Drop-off in Westford	2B
2K	Multi-Collection Events	2B
2L	Mercury Drop-off at Board of Health	2B
2M	Mercury Drop-off at Multi-Collection Event	2B
2N	Public Meetings	2A-B
2O	Procedure to Address Public Comment	2A-B

Appendix B

Summary of 2003 and 2016 MS4 General Permit BMPs

<u>2003 BMP ID</u>	<u>BMP Description</u>	<u>2016 BMPs</u>
3A	Storm Sewer Map	3C
3B	Illicit Discharge Bylaw	3A
3C	Detection & Elimination Plan	3D
3D	Illicit Discharge Education for Public	1A
3E	Illicit Discharge Education for Municipal Employees	3F
4A	Wetlands Bylaw	4A
4B	Construction Site Runoff Bylaw	4A
4C	Erosion, Sediment & Waste Controls	4B
4D	Site Plan Review Procedures	4B
4E	Site Inspection & Enforcement	4A-B
4F	Procedure to Address Public Comment	4B
5A	Post-Construction Site Runoff Bylaw	5A
5B	BMP Design Standards	5A
5C	Long-Term Operation & Maintenance	5A
5D	Structural BMP Implementation Procedures	6D-4
6A	Catch Basin Schedule	6D-1
6B	Regular Street Sweeping	6D-2
6C	Sand/Salt Covered	6D-3
6D	Used Oil is Recycled	6C
6E	Municipal Hazardous Material Stored Inside	6A and 6C
6F	Implement SWPPP BMPs at Garage	6C
6G	Increase Vehicle Fueling Cover	6A
6H	Municipal Employee Training	6A-C
6I	Municipal Operation/Maintenance Plan	6A-D
6J	Mosquito Control Project & Drainage System Maintenance	6B



Appendix C

Endangered Species Act Eligibility Criteria Documentation

Endangered Species Act Eligibility Certification

TO: Town of Westford Stormwater Management Program Files
FROM: Tighe & Bond
COPY: Paul Starratt, P.E., Town Engineer
Jeremy Downs, P.E, Asst. Town Engineer
DATE: October 25, 2018

Tighe & Bond has completed the National Endangered Species Eligibility Determination screening process in accordance with Part 1.9.1 and Appendix C of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A of this memorandum), effective July 1, 2018, and determined that the **Town of Westford** meets **Criterion C**, where informal consultation with U.S. Fish and Wildlife Service (USFWS) resulted in a finding that the stormwater discharges and discharge related activities will have "no affect" on listed species or critical habitat.

Tighe & Bond followed EPA's screening process required by the 2016 Small MS4 General Permit as follows:

Tighe & Bond went to the USFWS Information for Planning and Consultation (IPaC) website¹ and requested an Official Species List from the USFWS New England Ecological Services Field Office, included in Attachment B to this memorandum. The Official Species List for Westford includes the following species that may occur or could potentially be affected by activities in the Town:

- Small Whorled Pogonia, and
- Northern Long-eared Bat.

The Official Species List documents that there are **no critical habitats in Westford**.

Tighe & Bond then went to the USFWS New England Field Office website for Endangered Species Reviews/Consultations² and selected the Massachusetts state list³ to review which Towns have federally-listed species. A copy of the list of Federally Listed Endangered and Threatened Species in Massachusetts is included in Attachment C to this memorandum. Based on review of this list, in Middlesex County **the Small Whorled Pogonia is listed only in the Town of Groton** and the Northern Long-eared Bat is listed statewide.

Tighe & Bond then reviewed Step 1 Part B of the USFWS endangered species consultation, and visited the Massachusetts Natural Heritage and Endangered Species Program (NHESP) species information and conservation website about the Northern Long-eared Bat⁴. The NHESP website included a map showing the known locations of the Northern Long-eared Bat

¹ <http://ecos.fws.gov/ipac/>

² https://www.fws.gov/newengland/EndangeredSpec-Consultation_Project_Review.htm

³ <https://www.fws.gov/newengland/pdfs/MA%20species%20by%20town.pdf>

⁴ <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/rare-mammals/northern-long-eared-bat.html>

within Massachusetts. Attachment D includes a map showing there are **no roost trees or hibernating locations within Westford.**

Based on the results of the NHESP website review, Tighe & Bond determined there is no potential habitat for any listed species within the action area and therefore **no further coordination is required with the USFWS.** Attachment E provides the results of Tighe & Bond's informal consultation on behalf of the Town of Westford with USFWS "no species present" letter that states "no species are known to occur in the project area".

Step 1 – Determine if you can meet USFWS Criterion A

"USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC."

No, the Town of Westford's IPaC action area contains the Small Whorled Pogonia and Northern Long-eared Bat.

Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B

"USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer "Yes" to **all** of the following questions:

- 1) Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?"

Yes, the Town of Westford's action area may contain the Small Whorled Pogonia.

- 2) Did your assessment of the discharge and discharge related activities indicate that the discharge or discharge related activities "may affect" or are "not likely to adversely affect" listed species or critical habitat?

No, based on review of the list of Federally Listed Endangered and Threatened Species in Massachusetts, the Small Whorled Pogonia is listed only in Groton and not known to be present in Westford (see discussion above).

Step 3 – Determine if You Can Meet Eligibility USFWS Criteria C

"You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer "Yes" to both of the following questions:

- 1) Does your action area contain one or more of the following species: Northern Long-eared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and does not contain any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?

Yes, the Town of Westford's action area contains the Northern Long-eared Bat and Small Whorled Pogonia, but none of the other subsequent species.

- 2) Did the assessment of your discharge and discharge related activities indicate that there would be “no affect” on listed species or critical habitat and EOA provided concurrence with your determination?

Yes, based on review of USFWS and NHESP documentation on the Northern Long-eared Bat and Small Whorled Pogonia, it was determined that the Town’s discharges and discharge related activities will have “no affect” on listed species or critical habitat (see discussion above).

- 3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity “may affect” or is “not likely to adversely affect” listed species or critical habitat under the jurisdiction of the USFWS.”

Yes, during the course of the permit term the Town of Westford agrees to conduct an endangered species screening for the proposed site and contact USFWS if they plan to install a structural BMP not identified in the NOI.

Tighe & Bond’s review of questions under Step 3 resulted in “Yes” and thereby we determined the Town of Westford’s action area meets the endangered species’ eligibility requirements included in Criterion C.

Attachment A

Appendix C of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts

APPENDIX C ENDANGERED SPECIES GUIDANCE

A. Background

In order to meet its obligations under the Clean Water Act and the Endangered Species Act (ESA), and to promote the goals of those Acts, the Environmental Protection Agency (EPA) is seeking to ensure the activities regulated by this general permit do not adversely affect endangered and threatened species or critical habitat. Applicants applying for permit coverage must assess the impacts of their stormwater discharges and discharge-related activities on federally listed endangered and threatened species (“listed species”) and designated critical habitat (“critical habitat”) to ensure that those goals are met. Prior to obtaining general permit coverage, applicants must meet the ESA eligibility provisions of this permit by following the steps in this Appendix¹.

Applicants also have an independent ESA obligation to ensure that their activities do not result in any prohibited “take” of listed species¹². The term “Take” is used in the ESA to include harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. “Harass” is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Many of the measures required in this general permit and in these instructions to protect species may also assist in ensuring that the applicant’s activities do not result in a prohibited take of species in violation of section 9 of the ESA. If the applicant has plans or activities in an area where endangered and threatened species are located, they may wish to ensure that they are protected from potential take liability under ESA section 9 by obtaining an ESA section 10 permit or by requesting formal consultation under ESA section 7. Applicants that are unsure whether to pursue a section 10 permit or a section 7 consultation for takings protection should confer with the appropriate United States Fish and Wildlife Service (USFWS) office or the National Marine Fisheries Service (NMFS), (jointly the Services).

Currently, there are 20 species of concern for applicants applying for permit coverage, namely the Dwarf wedgemussel (*Alasmodonta heterodon*), Northeastern bulrush (*Scirpus ancistrochaetus*), Sandplain gerardia (*Agalinis acuta*), Piping Plover (*Charadrius melodus*), Roseate Tern (*Sterna dougallii*), Northern Red-bellied cooter (*Pseudemys rubriventis*), Bog Turtle (*Glyptemys muhlenbergii*), Small whorled Pogonia (*Isotria medeoloides*), Puritan tiger beetle (*Cicindela puritana*), American burying beetle (*Nicrophorus americanus*), Northeastern beach tiger beetle (*Cicindela dorsalis*), Northern Long-eared Bat (*Myotis septentrionalis*), Atlantic Sturgeon (*Acipenser oxyrinchus*), Shortnose Sturgeon (*Acipenser brevirostrum*), North Atlantic Right Whale (*Eubalaena glacialis*), Humpback Whale (*Megaptera novaengliae*), Fin Whale (*Balaenoptera physalus*), Kemp’s Ridley Sea Turtle (*Lepidochelys kempii*), Loggerhead Sea Turtle (*Caretta caretta*), Leatherback Sea Turtle (*Dermochelys coriacea*), and the Green Turtle (*Chelonia*

¹ EPA strongly encourages applicants to begin this process at the earliest possible stage to ensure the notification requirements for general permit coverage are complete upon Notice of Intent (NOI) submission.

² Section 9 of the ESA prohibits any person from “taking” a listed species (e.g. harassing or harming it) unless: (1) the taking is authorized through an “incidental take statement” as part of completion of formal consultation according to ESA section 7; (2) where an incidental take permit is obtained under ESA section 10 (which requires the development of a habitat conversion plan; or (3) where otherwise authorized or exempted under the ESA. This prohibition applies to all entities including private individuals, businesses, and governments.

mydas). The Atlantic Sturgeon, Shortnose Sturgeon, North Atlantic Right Whale, Humpback Whale, Fin Whale, Loggerhead Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle and Green Turtle are listed under the jurisdiction of NMFS. The Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle are listed under the jurisdiction of the U.S. Fish and Wildlife Service.

Any applicant seeking coverage under this general permit, must consult with the Services where appropriate. When listed species are present, permit coverage is only available if EPA determines, or the applicant determines and EPA concurs, that the discharge or discharge related activities will have "no affect" on the listed species or critical habitat, or the applicant or EPA determines that the discharge or discharge related activities are "not likely to adversely affect" listed species or critical habitat and formal or informal consultation with the Services has been concluded and results in written concurrence by the Services that the discharge is "not likely to adversely affect" an endangered or threatened species or critical habitat.

EPA may designate the applicants as non-Federal representatives for the general permit for the purpose of carrying out formal or informal consultation with the Services (See 50 CFR §402.08 and §402.13). By terms of this permit, EPA has automatically designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the U.S. Fish and Wildlife Service. EPA has not designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the National Marine Fisheries Service. EPA has determined that discharges from MS4s are not likely to adversely affect listed species or critical habitat under the jurisdiction of the National Marine Fisheries Service. EPA has initiated informal consultation with the National Marine Fisheries Service on behalf of all permittees and no further action is required by permittees in order to fulfill ESA requirements of this permit related to species under the jurisdiction of NMFS

B. The U.S. Fish and Wildlife Service ESA Eligibility Process

Before submitting a notice of intent (NOI) for coverage by this permit, applicants must determine whether they meet the ESA eligibility criteria by following the steps in Section B of this Appendix. Applicants that cannot meet the eligibility criteria in Section B must apply for an individual permit.

The USFWS ESA eligibility requirements of this permit relating to the Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle may be satisfied by documenting that one of the following criteria has been met:

USFWS Criterion A: No endangered or threatened species or critical habitat are in proximity to the stormwater discharges or discharge related activities.

USFWS Criterion B: In the course of formal or informal consultation with the Fish and Wildlife Service, under section 7 of the ESA, the consultation resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the stormwater discharges and

discharge related activities are “not likely to adversely affect” listed species or critical habitat (informal consultation).

USFWS Criterion C: Using the best scientific and commercial data available, the effect of the stormwater discharge and discharge related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the stormwater discharges and discharge related activities will have “no affect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.

1. The Steps to Determine if the USFWS ESA Eligibility Criteria Can Be Met

To determine eligibility, you must assess the potential effects of your known stormwater discharges and discharge related activities on listed species or critical habitat, PRIOR to completing and submitting a Notice of Intent (NOI). You must follow the steps outlined below and document the results of your eligibility determination.

Step 1 – Determine if you can meet USFWS Criterion A

USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC.

If you have met USFWS Criterion A skip to Step # 4.

If you have not met USFWS Criterion A, go to Step # 2.

Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B

USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer “Yes” to **all** of the following questions:

- 1) Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?
AND
- 2) Did your assessment of the discharge and discharge related activities indicate that the discharge or discharge related activities “may affect” or are “not likely to adversely affect” listed species or critical habitat?
AND
- 3) Did you contact the USFWS and did the formal or informal consultation result in either a “no jeopardy” opinion by the USFWS (for formal consultation) or concurrence by the

USFWS that your activities would be “not likely to adversely affect” listed species or critical habitat (for informal consultation)?

AND

- 4) Do you agree to implement all measures upon which the consultation was conditioned?
- 5) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will re-initiate informal or formal consultation with USFWS as necessary?

Use the guidance below Step 3 to understand effects determination and to answer these questions.

If you answered “Yes” to all four questions above, you have met eligibility USFWS Criteria B. Skip to Step 4.

If you answered “No” to any of the four questions above, go to Step 3.

Step 3 – Determine if You Can Meet Eligibility USFWS Criterion C

USFWS Criterion C: You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer “Yes” to both of the following question:

- 1) Does your action area contain one or more of the following species: Northern Long-eared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and **does not** contain one any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?³
- OR
- 2) Did the assessment of your discharge and discharge related activities and indicate that there would be “no affect” on listed species or critical habitat and EPA provided concurrence with your determination?
- 3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will to conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity “may affect” or is “not likely to adversely affect” listed species or critical habitat under the jurisdiction of the USFWS.

Use the guidance below to understand effects determination and to answer these questions.

If you answered “Yes” to both the question above, you have met eligibility USFWS Criterion C. Go to Step 4.

If you answered “No” to either of the questions above, you are not eligible for coverage by this permit. You must submit an application for an individual permit for your stormwater discharges. (See 40 CFR 122.21).

USFWS Effects Determination Guidance:

If you are unable to certify eligibility under USFWS Criterion A, you must assess whether your stormwater discharges and discharge-related activities “may affect”, will have “no affect” or are “not likely to adversely affect” listed species or critical habitat. “Discharge-related activities” include: activities which cause, contribute to, or result in point source stormwater pollutant discharges; and measures to provide treatment for stormwater discharges including the siting, construction and operational procedures to control, reduce or prevent water pollution. Please be aware that no protection from incidental take liability is provided under this criterion.

The scope of effects to consider will vary with each system. If you are having difficulty in determining whether your system is likely to cause adverse effects to a listed species or critical habitat, you should contact the USFWS for assistance. In order to complete the determination of effects it may be necessary to follow the formal or informal consultation procedures in section 7 of the ESA.

Upon completion of your assessment, document the results of your effects determination. If your results indicate that stormwater discharges or discharge related activities will have “no affect” on threatened or endangered species or critical habitat and EPA concurs with your determination, you are eligible under USFWS Criterion C of this Appendix. Your determination may be based on measures that you implement to avoid, eliminate, or minimized adverse effects.

If the determination is “May affect” or “not likely to adversely affect” you must contact the USFWS to discuss your findings and measures you could implement to avoid, eliminate, or minimize adverse effects. If you and the USFWS reach agreement on measures to avoid adverse effects, you are eligible under USFWS Criterion B. Any terms and/or conditions to protect listed species and critical habitat that you relied on in order to complete an adverse effects determination, must be incorporated into your Storm Water Management Program (required by this permit) and implemented in order to maintain permit eligibility.

If endangered species issues cannot be resolved: If you cannot reach agreement with the USFWS on measures to avoid or eliminate adverse effects then you are not eligible for coverage under this permit. You must seek coverage under an individual permit.

Effects from stormwater discharges and discharge-related activities which could pose an adverse effect include:

- *Hydrological:* Stormwater discharges may cause siltation, sedimentation, or induce other changes in receiving waters such as temperature, salinity or pH. These effects will vary with the amount of stormwater discharged and the volume and condition of the receiving water. Where a discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.
- *Habitat:* Excavation, site development, grading and other surface disturbance activities, including the installation or placement of treatment equipment may adversely affect listed species or their habitat. Stormwater from the small MS4 may inundate a listed species habitat.

- *Toxicity:* In some cases, pollutants in the stormwater may have toxic effects on listed species.

Step 4 - Document Results of the Eligibility Determination

Once the USFWS ESA eligibility requirements have been met, you shall include documentation of USFWS ESA eligibility in the Storm Water Management Program required by the permit. Documentation for the various eligibility criteria are as follows:

- USFWS Criterion A: A copy of the IPaC generated preliminary determination letter indicating that no listed species or critical habitat is present within your action area. You shall also include a statement on how you determined that no listed species or critical habitat are in proximity to your stormwater system or discharges.
- USFWS Criterion B: A dated copy of the USFWS letter of concurrence on a finding of “no jeopardy” (for formal consultation) or “not likely to adversely affect” (for informal consultation) regarding the ESA section 7 consultation.
- USFWS Criterion C: A dated copy of the EPA concurrence with the operator’s determination that the stormwater discharges and discharge-related activities will have “no affect” on listed species or critical habitat.

C. Submittal of Notice of Intent

Once the ESA eligibility requirements of Part C of this Appendix have been met, you may submit the Notice of Intent indicating which Criterion you have met to be eligible for permit coverage. Signature and submittal of the NOI constitutes your certification, under penalty of law, of eligibility for permit coverage under 40 CFR 122.21.

D. Duty to Implement Terms and Conditions upon which Eligibility was Determined

You must comply with any terms and conditions imposed under the ESA eligibility requirements to ensure that your stormwater discharges and discharge related activities do not pose adverse effects or jeopardy to listed species and/or critical habitat. You must incorporate such terms and conditions into your Storm Water Management Program as required by this permit. If the ESA eligibility requirements of this permit cannot be met, then you may not receive coverage under this permit and must apply for an individual permit.

E. Services Information

United States Fish and Wildlife Service Office

National websites for Endangered Species Information:

Endangered Species home page: <http://endangered.fws.gov>

ESA Section 7 Consultations: <http://endangered.fws.gov/consultation/index.html>

Information, Planning, and Conservation System (IPAC): <http://ecos.fws.gov/ipac/>

U.S. FWS – Region 5
Supervisor

New England Field Office
U.S. Fish and Wildlife Services
70 Commercial Street, Suite 300
Concord, NH 03301

Natural Heritage Network

The Natural Heritage Network comprises 75 independent heritage program organizations located in all 50 states, 10 Canadian provinces, and 12 countries and territories located throughout Latin America and the Caribbean. These programs gather, manage, and distribute detailed information about the biological diversity found within their jurisdictions. Developers, businesses, and public agencies use natural heritage information to comply with environmental laws and to improve the environmental sensitivity of economic development projects. Local governments use the information to aid in land use planning.

The Natural Heritage Network is overseen by NatureServe, the Network's parent organization, and is accessible on-line at: http://www.natureserve.org/nhp/us_programs.htm, which provides websites and other access to a large number of specific biodiversity centers.

U.S. Fish and Wildlife IPaC system instructions

Use the following protocol to determine if any federally listed species or designated critical habitats under USFWS jurisdiction exist in your action area:

Enter your project specific information into the “Initial Project Scoping” feature of the Information, Planning, and Conservation (IPaC) system mapping tool, which can be found at the following location:

<http://ecos.fws.gov/ipac/>

- a. Indicate the action area¹ for the MS4 by either:
 - a. Drawing the boundary on the map or by uploading a shapefile.
Select “Continue”
- c. Click on the “SEE RESOURCE LIST” button and on the next screen you can export a trust resources list. This will provide a list of natural resources of concern, which will include an Endangered Species Act Species list. You may also request an official species list under “REGULATORY DOCUMENTS” Save copies and retain for your records

¹ The action area is defined by regulation as all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action (50 CFR §402.02). This analysis is not limited to the "footprint" of the action nor is it limited by the Federal agency's authority. Rather, it is a biological determination of the reach of the proposed action on listed species. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area.

The documentation used by a Federal action agency to initiate consultation should contain a description of the action area as defined in the Services' regulations and explained in the Services' consultation handbook. If the Services determine that the action area as defined by the action agency is incorrect, the Services should discuss their rationale with the agency or applicant, as appropriate. Reaching agreement on the description of the action area is desirable but ultimately the Services can only consult when an action area is defined properly under the regulations.

For storm water discharges or discharge related activities, the action area should encompass the following:

- The immediate vicinity of, or nearby, the point of discharge into receiving waters.
- The path or immediate area through which or over which storm water flows from the municipality to the point of discharge into the receiving water. This includes areas in the receiving water downstream from the point of discharge.
- Areas that may be impacted by construction or repair activities. This extends as far as effects related to noise (from construction equipment, power tools, etc.) and light (if work is performed at night) may reach.

The action area will vary with the size and location of the outfall pipe, the nature and quantity of the storm water discharges, and the type of receiving waters, among other factors.

Attachment B

Westford IPaC Trust Resources Report



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>



In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-2650
Event Code: 05E1NE00-2018-E-06193
Project Name: Westford NOI

August 08, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-2650

Event Code: 05E1NE00-2018-E-06193

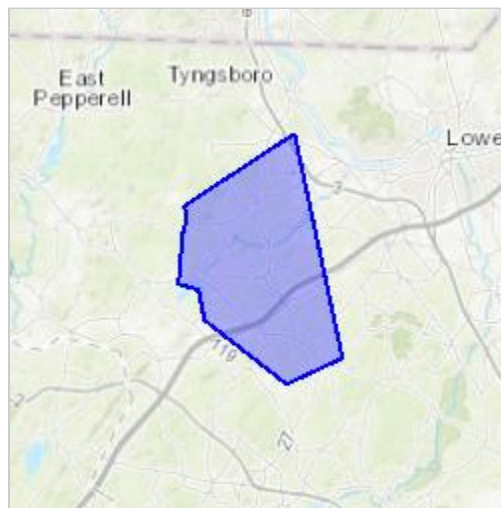
Project Name: Westford NOI

Project Type: ** OTHER **

Project Description: This project is applying for coverage under the 2016 MS4 General Permit. The project consists of the entire area of the Town of Westford's small municipal separate storm sewer systems (MS4) that falls within the urbanized area of the town. Based on EPA's 2016 MS4 General Permit, Westford must apply for permit coverage for the Town's MS4 stormwater discharges and assess the impacts of the stormwater discharges and discharge-related activities on endangered and threatened species, and designated critical habitats that fall within the areas that fall within the MS4.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/42.58945576891189N71.44791623453001W>



Counties: Middlesex, MA

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Small Whorled Pogonia <i>Isotria medeoloides</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Attachment C

Federally Listed Endangered and Threatened Species in
Massachusetts

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Taunton
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

Updated 02/05/2016

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN MASSACHUSETTS**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague, Warwick
	Dwarf wedgemussel	Endangered	Mill River	Whately
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hatfield, Amherst and Northampton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN MASSACHUSETTS**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Suffolk	Piping Plover	Threatened	Coastal Beaches	Revere, Winthrop
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

¹Migratory only, scattered along the coast in small numbers

-Eastern cougar and gray wolf are considered extirpated in Massachusetts.

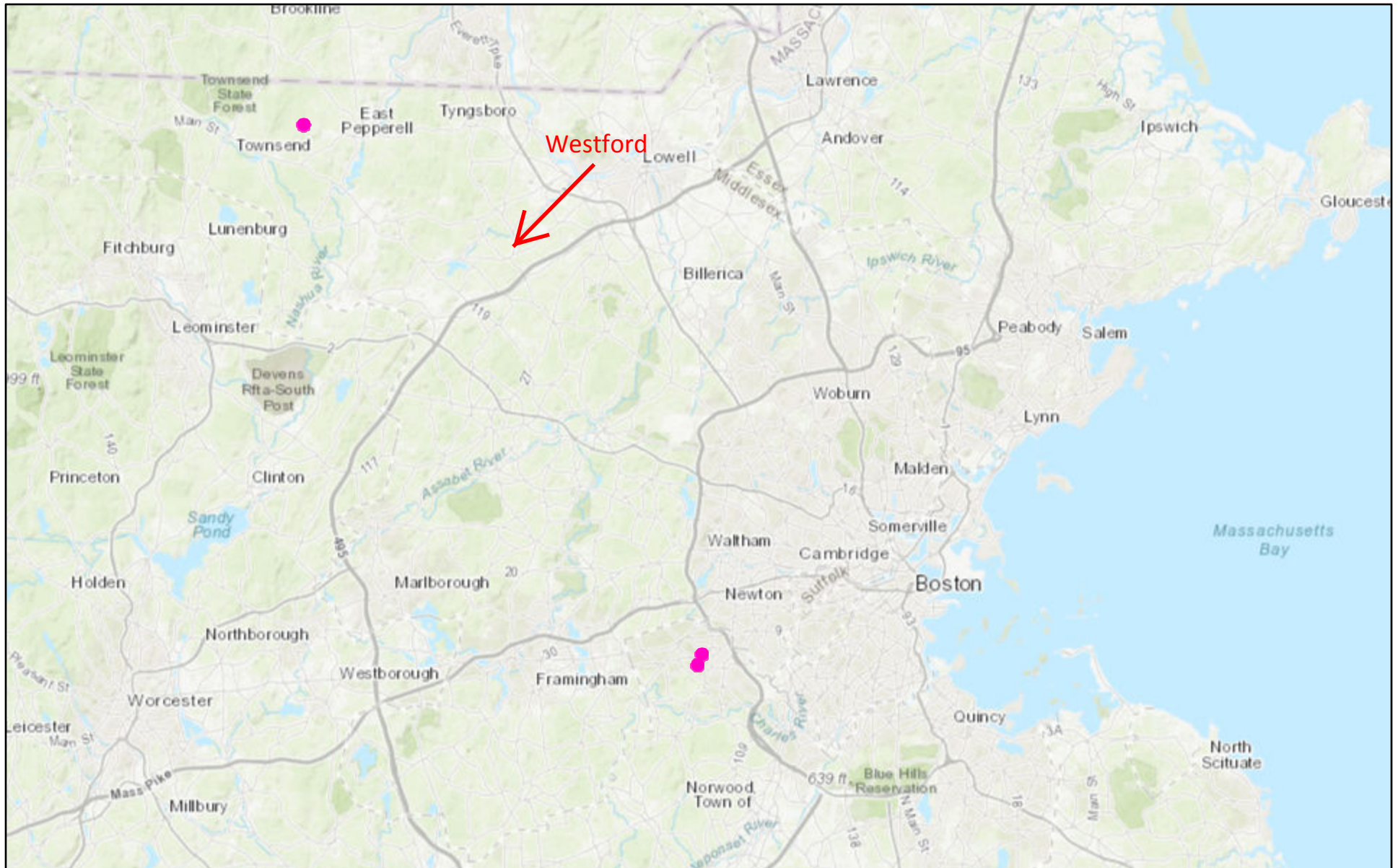
-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.

-Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

Attachment D

Northern Long-eared Bat Location Map

Northern Long-eared Bat Locations

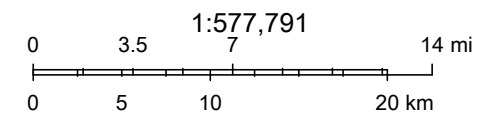


August 8, 2018

Statewide NLEB Symbolology

● Hibernaculum

■ MA Northern Long-eared Bat Winter Hibernacula (with ¼ mile buffer)



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

Attachment E

U.S. Fish and Wildlife Review Letter



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
<http://www.fws.gov/newengland>



January 8, 2018

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm> (accessed January 2018)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact David Simmons of this office at 603-227-6425 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office



Appendix D

Historic Properties Eligibility Criteria Documentation

National Historic Preservation Act Eligibility Certification

To: Town of Westford Stormwater Management Program Files
FROM: Tighe & Bond
COPY: Paul Starratt, P.E, Town Engineer
Jeremy Downs, P.E., Asst. Town Engineer
DATE: August 8, 2018

Tighe & Bond has completed the National Historic Preservation Act Eligibility Determination screening process in accordance with Part 1.9.2 and Appendix D of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A of this memorandum), effective July 1, 2018, and determined that the **Town of Westford** meets **Criterion A: The discharges do not have the potential to cause effects on historic properties.**

Tighe & Bond followed the screening process included in Appendix D and has determined Westford is an existing facility authorized by the previous permit and therefore meets Criterion A (see Question 1 in Appendix D of the Permit) and is not, as part of developing and submitting the Notice of Intent for permit coverage, undertaking any activity involving subsurface land disturbance less than an acre. Based on this screening process, the Town of Westford's stormwater discharges, allowable non-stormwater discharges, and stormwater discharge-related activities will not have an effect on a property that is listed or eligible for listing on the National Register of Historic Properties (NRHP) and no further action is necessary at this time.

Attachment B to this memorandum includes a list of the federal- and state-listed historic areas, buildings, burial grounds, objects, and structures downloaded from the Massachusetts Cultural Resource Information System (MACRIS) that is current as of August 8, 2018. If the Town undertakes construction on or around a property that is listed or eligible for listing, the Town will coordinate with the State Historic Preservation Officer (SHPO) (i.e. the Massachusetts Historical Commission) by submitting a Project Notification Form and associated documentation for the project. As applicable for each project, the Town will implement measures to avoid or minimize adverse impacts on places listed, or eligible for listing, on the NRHP, including any conditions imposed by the SHPO or THPO. If the Town fails to document and implement such measures, those discharges are ineligible for coverage under EPA's Small MS4 General Permit.

Attachment A

Appendix D of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts

Appendix D

National Historic Preservation Act Guidance

Background

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of Federal “undertakings” on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. The term federal “undertaking” is defined in the NHPA regulations to include a project, activity, or program of a federal agency including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license or approval. See 36 CFR 800.16(y). Historic properties are defined in the NHPA regulations to include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. See 36 CFR 800.16(1).

EPA’s issuance of a National Pollutant Discharge Elimination System (NPDES) General Permit is a federal undertaking within the meaning of the NHPA regulations and EPA has determined that the activities to be carried out under the general permit require review and consideration, in order to be in compliance with the federal historic preservation laws and regulations. Although individual submissions for authorization under the general permit do not constitute separate federal undertakings, the screening processes provides an appropriate site-specific means of addressing historic property issues in connection with EPA’s issuance of the permit. To address any issues relating to historic properties in connection with the issuance of this permit, EPA has included a screening process for applicants to identify whether properties listed or eligible for listing on the National Register of Historic Places are within the path of their discharges or discharge-related activities (including treatment systems or any BMPs relating to the discharge or treatment process) covered by this permit.

Applicants seeking authorization under this general permit must comply with applicable, State, Tribal, and local laws concerning the protection of historic properties and places and may be required to coordinate with the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO) and others regarding effects of their discharges on historic properties.

Activities with No Potential to Have an Effect on Historic Properties

A determination that a federal undertaking has no potential to have an effect on historic properties fulfills an agency’s obligations under NHPA. EPA has reason to believe that the vast majority of activities authorized under this general permit will have no potential effects on historic properties. This permit typically authorizes discharges from existing facilities and requires control of the pollutants discharged from the facility. EPA does not anticipate effects on historic properties from the pollutants in the authorized discharges. Thus, to the extent EPA’s issuance of this general permit authorizes discharges of such constituents, confined to existing channels, outfalls or natural drainage areas, the permitting action does not have the potential to cause effects on historical properties.

In addition, the overwhelming majority of sources covered under this permit will be facilities that are seeking renewal of previous permit authorization. These existing dischargers should have already addressed NHPA issues in the previous general permit as they were required to certify that they were either not affecting historic properties or they had obtained written agreement from

the applicable SHPO or THPO regarding methods of mitigating potential impacts. To the extent this permit authorizes renewal of prior coverage without relevant changes in operations the discharge has no potential to have an effect on historic properties.

Activities with Potential to Have an Effect on Historic Properties

EPA believes this permit may have some potential to have an effect on historic properties the applicant undertakes the construction and/or installation of control measures that involve subsurface disturbance that involves less than 1 acre of land. (Ground disturbances of 1 acre or more require coverage under the Construction General Permit.) Where there is disturbance of land through the construction and/or installation of control measures, there is a possibility that artifacts, records, or remains associated with historic properties could be impacted. Therefore, if the applicant is establishing new or altering existing control measures to manage their discharge that will involve subsurface ground disturbance of less than 1 acre, they will need to ensure (1) that historic properties will not be impacted by their activities or (2) that they are in compliance with a written agreement with the SHPO, THPO, or other tribal representative that outlines all measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Examples of Control Measures Which Involve Subsurface Disturbance

The type of control measures that are presumptively expected to cause subsurface ground disturbance include:

- Dikes
- Berms
- Catch basins, drainage inlets
- Ponds, bioretention areas
- Ditches, trenches, channels, swales
- Culverts, pipes
- Land manipulation; contouring, sloping, and grading
- Perimeter Drains
- Installation of manufactured treatment devices

EPA cautions applicants that this list is non-inclusive. Other control measures that involve earth disturbing activities that are not on this list must also be examined for the potential to affect historic properties.

Certification

Upon completion of this screening process the applicant shall certify eligibility for this permit using one of the following criteria on their Notice of Intent for permit coverage:

Criterion A: The discharges do not have the potential to cause effects on historic properties.

Criterion B: A historic survey was conducted. The survey concluded that no historic properties are present. Discharges do not have the potential to cause effects on historic properties.

Criterion C: The discharges and discharge related activities have the potential to have an effect on historic properties, and the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Authorization under the general permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above. Small MS4s that cannot meet any of the eligibility criteria in above must apply for an individual permit.

Screening Process

Applicants or their consultant need to answer the questions and follow the appropriate procedures below to assist EPA in compliance with 36 CFR 800.

Question 1: Is the facility an existing facility authorized by the previous permit or a new facility and the applicant is not undertaking any activity involving subsurface land disturbance less than an acre?

YES - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.

The applicant should certify eligibility for this permit using Criterion A on their Notice of Intent for permit coverage. The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has “no potential to cause effects” (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

NO- Go to Question 2.

Question 2: Is the property listed in the National Register of Historic Places or have prior surveys or disturbances revealed the existence of a historic property or artifacts?

NO - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.

The applicant should certify eligibility for this permit using Criterion B on their Notice of Intent for permit coverage. The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has “no potential to cause effects” (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

YES - The applicant or their consultant should prepare a complete information submittal to the SHPO. The submittal consists of:

- Completed Project Notification Form- forms available at <http://www.sec.state.ma.us/mhc/mhcform/formidx.htm>;

- USGS map section with the actual project boundaries clearly indicated; and
- Scaled project plans showing existing and proposed conditions.

(1) Please note that the SHPO does not accept email for review. Please mail a paper copy of your submittal (Certified Mail, Return Receipt Requested) or deliver a paper copy of your submittal (and obtain a receipt) to:

State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Blvd.
Boston MA 02125.

(2) Provide a copy of your submittal and the proof of MHC delivery showing the date MHC received your submittal to:

NPDES Permit Branch Chief
US EPA Region 1 (OEP06-1)
5 Post Office Square, Suite 100
Boston MA 02109-3912.

The SHPO will comment within thirty (30) days of receipt of complete submittals, and may ask for additional information. Consultation, as appropriate, will include EPA, the SHPO and other consulting parties (which includes the applicant). The steps in the federal regulations (36 CFR 800.2 to 800.6, etc.) will proceed as necessary to conclude the Section 106 review for the undertaking. **The applicant should certify eligibility for this permit using Criterion C on their Notice of Intent for permit coverage.**

Attachment B

Massachusetts Cultural Resource Information System (MACRIS)
List of federal- and state-listed historic areas, buildings, burial
grounds, objects, and structures

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Westford; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
WSR.A	Abbott and Company - Sargent's, C. G. and Sons		Westford	
WSR.B	Abbott Worsted Company		Westford	
WSR.C	Westford Common		Westford	
WSR.D	Westford Center Historic District		Westford	
WSR.E	Forge Village Historic District		Westford	
WSR.F	Graniteville Historic District		Westford	
WSR.G	Brookside Road Streetscape		Westford	
WSR.H	Brookside Historic District		Westford	
WSR.I	Parker Village		Westford	
WSR.J	Parker Village Historic District		Westford	
WSR.K	Fairview Cemetery		Westford	
WSR.L	Westlawn Cemetery		Westford	
WSR.M	Russian Cemetery		Westford	
WSR.N	Hillside Cemetery		Westford	
WSR.O	Wright Cemetery		Westford	
WSR.396	Abbot Worsted Yarn Manufacturing Company Housing	1 Abbot St	Westford	c 1940
WSR.75	Abbot Worsted Yarn Manufacturing Company Housing	3 Abbot St	Westford	c 1939
WSR.397		4 Abbot St	Westford	c 1990
WSR.398		6 Abbot St	Westford	c 1980
WSR.399	Abbot Worsted Yarn Manufacturing Company Housing	7 Abbot St	Westford	c 1940
WSR.400		8 Abbot St	Westford	c 1980
WSR.401		9 Abbot St	Westford	c 1960
WSR.402		10 Abbot St	Westford	c 1980
WSR.403	Abbot Worsted Yarn Manufacturing Company	11 Abbot St	Westford	c 1940

Inv. No.	Property Name	Street	Town	Year
WSR.404	Housing Abbot Worsted Yarn Manufacturing Company Housing	12 Abbot St	Westford	c 1940
WSR.405	Abbot Worsted Yarn Manufacturing Company Housing	13 Abbot St	Westford	c 1940
WSR.406		14 Abbot St	Westford	c 1965
WSR.407	Abbot Worsted Yarn Manufacturing Company Housing	15 Abbot St	Westford	c 1940
WSR.408	Abbot Worsted Yarn Manufacturing Company Housing	16 Abbot St	Westford	c 1940
WSR.409	Abbot Worsted Yarn Manufacturing Company Housing	17 Abbot St	Westford	c 1940
WSR.410		18 Abbot St	Westford	c 1980
WSR.411	Abbot Worsted Yarn Manufacturing Company Housing	19 Abbot St	Westford	c 1940
WSR.412	Abbot Worsted Yarn Manufacturing Company Housing	20 Abbot St	Westford	c 1940
WSR.136	Abbot Worsted Yarn Manufacturing Company Housing	21 Abbot St	Westford	c 1938
WSR.133	Abbot Worsted Yarn Manufacturing Company Housing	23 Abbot St	Westford	c 1938
WSR.413		25 Abbot St	Westford	c 1960
WSR.9046	Freeman, Charles Stone Corn Silo	49 Acton Rd	Westford	c 1930
WSR.234		3 Beacon St	Westford	c 1870
WSR.235		8 Beacon St	Westford	c 1870
WSR.236		10 Beacon St	Westford	c 1870
WSR.315		23 Beacon St	Westford	c 1960
WSR.907	Metcalf, William Civil War Memorial	Boston Rd	Westford	1910
WSR.6	Westford Academy Building	2 Boston Rd	Westford	1794
WSR.137	Westford Fire Cottage	2 Boston Rd	Westford	c 1870
WSR.138		5 Boston Rd	Westford	c 1880
WSR.139		6 Boston Rd	Westford	c 1870
WSR.140		7 Boston Rd	Westford	c 1890
WSR.141		8 Boston Rd	Westford	c 1930
WSR.142		10 Boston Rd	Westford	c 1940
WSR.143		11 Boston Rd	Westford	c 1860
WSR.144		12 Boston Rd	Westford	c 1900
WSR.145		13 Boston Rd	Westford	c 1925
WSR.146	Fletcher, J. H. House	14 Boston Rd	Westford	c 1830
WSR.147		15 Boston Rd	Westford	c 1830
WSR.148		16 Boston Rd	Westford	c 1920

Inv. No.	Property Name	Street	Town	Year
WSR.149		17 Boston Rd	Westford	c 1931
WSR.150		18 Boston Rd	Westford	c 1950
WSR.151		19 Boston Rd	Westford	c 1910
WSR.58	Tadmuck Club - Westford District Schoolhouse #1	20 Boston Rd	Westford	1875
WSR.152		21 Boston Rd	Westford	c 1865
WSR.153		22 Boston Rd	Westford	c 1980
WSR.154		23 Boston Rd	Westford	c 1885
WSR.59	Wells, Theodore House	24 Boston Rd	Westford	c 1843
WSR.155		25 Boston Rd	Westford	c 1840
WSR.414	Abbot Worsted Yarn Manufacturing Company Housing	1-3 Bradford St	Westford	c 1885
WSR.111	Abbot Worsted Yarn Manufacturing Company Housing	2-4 Bradford St	Westford	c 1885
WSR.68	Abbot Worsted Yarn Manufacturing Company Housing	5-11 Bradford St	Westford	c 1885
WSR.67	Abbot Worsted Yarn Manufacturing Company Housing	8-10 Bradford St	Westford	c 1885
WSR.416	Abbot Worsted Yarn Manufacturing Company Housing	12 Bradford St	Westford	c 1885
WSR.417	Abbot Worsted Yarn Manufacturing Company Housing	13 Bradford St	Westford	c 1885
WSR.69	Abbot Worsted Yarn Manufacturing Company Housing	15-17 Bradford St	Westford	c 1913
WSR.418	Abbot Worsted Yarn Manufacturing Company Housing	16 Bradford St	Westford	c 1885
WSR.70	Abbot Worsted Yarn Manufacturing Company Housing	19-21 Bradford St	Westford	c 1913
WSR.419	Abbot Worsted Yarn Manufacturing Company Housing	20 Bradford St	Westford	c 1885
WSR.420	Abbot Worsted Yarn Manufacturing Company Housing	23 Bradford St	Westford	c 1885
WSR.71	Abbot Worsted Yarn Manufacturing Company Housing	24-26 Bradford St	Westford	c 1913
WSR.927	Bridge Street Culvert	Bridge St	Westford	c 1900
WSR.237		4 Bridge St	Westford	c 1920
WSR.238		6 Bridge St	Westford	c 1955
WSR.239		12 Bridge St	Westford	c 1900
WSR.240		18 Bridge St	Westford	c 1900
WSR.241	Sargent, C. G. and Sons Worker Housing	21 Bridge St	Westford	c 1870
WSR.242	Sargent, C. G. and Sons Machine - Carpenter Shop	31 Bridge St	Westford	c 1965

Inv. No.	Property Name	Street	Town	Year
WSR.243	Graniteville Foundry	41 Bridge St	Westford	1917
WSR.244		44 Bridge St	Westford	c 1890
WSR.245		46 Bridge St	Westford	c 1890
WSR.246		48 Bridge St	Westford	c 1890
WSR.27	Sargent, C. G. and Sons Machine Shop	Broadway	Westford	1877
WSR.903	Broadway Bridge over Stony Brook	Broadway	Westford	c 1925
WSR.102	Furbush Garage	5 Broadway	Westford	c 1910
WSR.247		8 Broadway	Westford	c 1870
WSR.248		10-12 Broadway	Westford	c 1870
WSR.249		14 Broadway	Westford	c 1870
WSR.250		16 Broadway	Westford	c 1870
WSR.92		17 Broadway	Westford	c 1885
WSR.251		18 Broadway	Westford	c 1870
WSR.252		19 Broadway	Westford	c 1870
WSR.253		22 Broadway	Westford	c 1870
WSR.254		25 Broadway	Westford	c 1870
WSR.255		26 Broadway	Westford	c 1900
WSR.91		27 Broadway	Westford	c 1870
WSR.257		28 Broadway	Westford	c 1870
WSR.258		30 Broadway	Westford	c 1870
WSR.259		32 Broadway	Westford	c 1870
WSR.260	Cowles, Dr. House	33 Broadway	Westford	c 1870
WSR.261		34 Broadway	Westford	c 1870
WSR.262	Leduc Ice Cream Shop	35 Broadway	Westford	c 1870
WSR.263		36 Broadway	Westford	c 1870
WSR.264	Westford Hardware Store	37 Broadway	Westford	c 1900
WSR.265		38 Broadway	Westford	c 1870
WSR.266		39 Broadway	Westford	c 1870
WSR.268		40-42 Broadway	Westford	c 1870
WSR.267		41-43 Broadway	Westford	c 1870
WSR.270		44-46 Broadway	Westford	c 1870
WSR.269	Graniteville Fire Station	45 Broadway	Westford	c 1880
WSR.271		48-50 Broadway	Westford	c 1870
WSR.272		49 Broadway	Westford	c 1870
WSR.273		53 Broadway	Westford	c 1900
WSR.274		54 Broadway	Westford	c 1915
WSR.275		55 Broadway	Westford	c 1870
WSR.276		56-58 Broadway	Westford	c 1870

Inv. No.	Property Name	Street	Town	Year
WSR.277		59 Broadway	Westford	c 1860
WSR.278		60 Broadway	Westford	c 1870
WSR.279		64 Broadway	Westford	c 1870
WSR.106	Abbot Worsted Company Boarding House	66 Broadway	Westford	c 1870
WSR.107	Sargent, Charles G. House	67 Broadway	Westford	c 1830
WSR.280		68 Broadway	Westford	c 1870
WSR.16	Moore Yarn Mill - Bigelow Carpet Company	Brookside Rd	Westford	c 1862
WSR.202	Brookside Refrigeration Facility	Brookside Rd	Westford	c 1970
WSR.920	Brookside Dam	Brookside Rd	Westford	c 1894
WSR.921	Brookside Road Bridge over Stony Brook	Brookside Rd	Westford	c 1895
WSR.943	Brookside Mill Penstock Turbine Intake	Brookside Rd	Westford	c 1894
WSR.944	Brookside Mill Stone Wall	Brookside Rd	Westford	c 1894
WSR.945	Boston and Maine Railroad Right-of-Way	Brookside Rd	Westford	1848
WSR.203	Butterfield, Reuben J. House	1 Brookside Rd	Westford	c 1885
WSR.204	Hamblett, Theodore H. House	9 Brookside Rd	Westford	1862
WSR.205	Fletcher, H. E. Social and Athletic Club	11 Brookside Rd	Westford	1920
WSR.116	Chandler, William House	20 Brookside Rd	Westford	c 1725
WSR.589		22-24 Brookside Rd	Westford	c 1880
WSR.590		26 Brookside Rd	Westford	c 1880
WSR.207		27 Brookside Rd	Westford	c 1890
WSR.208		28 Brookside Rd	Westford	c 1895
WSR.591		30 Brookside Rd	Westford	c 1990
WSR.209		31 Brookside Rd	Westford	c 1895
WSR.592		32 Brookside Rd	Westford	c 1880
WSR.210	Moore, George C. Woolen Mill Worker Housing	34 Brookside Rd	Westford	c 1895
WSR.593		35 Brookside Rd	Westford	c 1980
WSR.211	Moore, George C. Woolen Mill Worker Housing	36 Brookside Rd	Westford	c 1895
WSR.594		37 Brookside Rd	Westford	c 1980
WSR.212	Moore, George C. Woolen Mill Worker Housing	38 Brookside Rd	Westford	c 1895
WSR.129	Moore, George C. Woolen Mill Worker Housing	40 Brookside Rd	Westford	c 1895
WSR.595		41 Brookside Rd	Westford	c 1920
WSR.213	Moore, George C. Woolen Mill Worker Housing	42 Brookside Rd	Westford	c 1895
WSR.214	Moore, George C. Woolen Mill Worker Housing	44 Brookside Rd	Westford	c 1895
WSR.421	Abbot Worsted Yarn Manufacturing Company Housing	1 Canal St	Westford	c 1900
WSR.422	Abbot Worsted Yarn Manufacturing Company Housing	4 Canal St	Westford	c 1900
WSR.423	Abbot Worsted Yarn Manufacturing Company Housing	6 Canal St	Westford	c 1900

Inv. No.	Property Name	Street	Town	Year
WSR.424	Abbot Worsted Yarn Manufacturing Company Housing	8 Canal St	Westford	c 1900
WSR.110	Parker Village Schoolhouse	Carlisle Rd	Westford	1880
WSR.800	Pioneer Cemetery	Carlisle Rd	Westford	c 1750
WSR.922		Carlisle Rd	Westford	c 1980
WSR.923	Carlisle Road Stone Culvert	Carlisle Rd	Westford	c 1870
WSR.225		66 Carlisle Rd	Westford	c 1940
WSR.226		68 Carlisle Rd	Westford	c 1960
WSR.227	Parker, Otis W. House and Farm	76 Carlisle Rd	Westford	c 1870
WSR.228		77 Carlisle Rd	Westford	1988
WSR.229		78 Carlisle Rd	Westford	c 1930
WSR.587		78R Carlisle Rd	Westford	c 1990
WSR.230		80R Carlisle Rd	Westford	c 1990
WSR.231		81 Carlisle Rd	Westford	c 1970
WSR.232	Parker, James Madison House and Farm	85 Carlisle Rd	Westford	c 1850
WSR.127	Dupee's Tavern	178 Carlisle Rd	Westford	c 1760
WSR.425	Abbot Worsted Yarn Manufacturing Company Housing	5 Chestnut St	Westford	c 1915
WSR.426	Abbot Worsted Yarn Manufacturing Company Housing	13 Chestnut St	Westford	c 1915
WSR.281	Graniteville Old Methodist Church Parsonage	4 Church St	Westford	c 1870
WSR.282	Graniteville Methodist Church Parsonage	6 Church St	Westford	c 1940
WSR.283		7 Church St	Westford	c 1990
WSR.28	Westford Methodist Church	10 Church St	Westford	1871
WSR.104		55 Coldspring Rd	Westford	c 1868
WSR.807	Westlawn Cemetery	Concord Rd	Westford	1760
WSR.924	Concord Road - Carlisle Road Granite Sign Post	Concord Rd	Westford	c 1890
WSR.946	Westlawn Cemetery - Prescott, Levi Family Tomb	Concord Rd	Westford	1839
WSR.947	Westlawn Cemetery - Leighton Family Tomb	Concord Rd	Westford	1824
WSR.948	Westlawn Cemetery - Patten - Prescott Family Tomb	Concord Rd	Westford	1812
WSR.949	Westlawn Cemetery - Robinson, Col. John Marker	Concord Rd	Westford	1805
WSR.950	Westlawn Cemetery - Read, Bridget Marker	Concord Rd	Westford	1760
WSR.951	Westlawn Cemetery - Prescott, Lt. Jonas Marker	Concord Rd	Westford	1813
WSR.952	Westlawn Cemetery - Day Family Marker	Concord Rd	Westford	1898
WSR.953	Westlawn Cemetery - Rathbone, Carrie Marker	Concord Rd	Westford	1857
WSR.954	Westlawn Cemetery - Prescott, Luther Family Marker	Concord Rd	Westford	1885
WSR.955	Westlawn Cemetery Gate Posts	Concord Rd	Westford	1858

Inv. No.	Property Name	Street	Town	Year
WSR.956	Westlawn Cemetery Chainlink Fence	Concord Rd	Westford	1946
WSR.957	Westlawn Cemetery - Kostechko, Stephen Marker	Concord Rd	Westford	1955
WSR.958	Westlawn Cemetery - Robinson, Col. John DAR Plaque	Concord Rd	Westford	1968
WSR.959	Westlawn Cemetery Flagpole	Concord Rd	Westford	c 1950
WSR.960	Westlawn Cemetery - Carver Family Marker	Concord Rd	Westford	r 1895
WSR.961	Westlawn Cemetery - Day, Isaac Marker	Concord Rd	Westford	1856
WSR.962	Westlawn Cemetery - Haussler, Carl F. Marker	Concord Rd	Westford	1964
WSR.588	Morin, Joseph A. - Alcorn, Frederick H. House	137 Concord Rd	Westford	c 1929
WSR.36	Proctor, John House	218 Concord Rd	Westford	r 1730
WSR.35	Fletcher, Henry House and Barn	224 Concord Rd	Westford	c 1810
WSR.128		233 Concord Rd	Westford	c 1840
WSR.217		236 Concord Rd	Westford	c 1940
WSR.218		238 Concord Rd	Westford	c 1990
WSR.219		239 Concord Rd	Westford	c 1955
WSR.220		241 Concord Rd	Westford	c 1955
WSR.221		243 Concord Rd	Westford	c 1950
WSR.126	Balch, Wayland F. House	246 Concord Rd	Westford	c 1810
WSR.222	Kidder, George House and Farm	253 Concord Rd	Westford	c 1855
WSR.223		254 Concord Rd	Westford	c 1850
WSR.224	Carter, Lester House	257 Concord Rd	Westford	c 1950
WSR.215	Abbot Worsted Company Worker Housing	1 Coolidge Ave	Westford	c 1936
WSR.596		3 Coolidge Ave	Westford	c 1919
WSR.216	Abbot Worsted Company Double Worker Housing	5-7 Coolidge Ave	Westford	c 1919
WSR.284		2 Country Club Dr	Westford	1997
WSR.285		3 Country Club Dr	Westford	1997
WSR.910	Cowdry Hill Road Bridge	Cowdry Hill Rd	Westford	c 1855
WSR.286	Graniteville American Legion Post #159	2 Cross St	Westford	c 1910
WSR.287		3-5 Cross St	Westford	c 1870
WSR.288	Graniteville Old Fire House	4 Cross St	Westford	1914
WSR.289	Harrington, P. H. House	8 Cross St	Westford	c 1870
WSR.803	Hillside Cemetery	Depot Rd	Westford	1753
WSR.9004	Hillside Cemetery Granite Walls	Depot Rd	Westford	1846
WSR.9005	Hillside Cemetery - Cobblestone Gateway	Depot Rd	Westford	1846
WSR.9007	Hillside Cemetery Flagpole	Depot Rd	Westford	c 1960
WSR.9008	Hillside Cemetery Asphalt Pathways	Depot Rd	Westford	c 1960
WSR.9009	Hillside Cemetery - Wright, Thomas Marker	Depot Rd	Westford	1769

Inv. No.	Property Name	Street	Town	Year
WSR.9010	Hillside Cemetery - Wright, Hannah & Jotham Marker	Depot Rd	Westford	1775
WSR.9011	Hillside Cemetery - Smith Family Plot	Depot Rd	Westford	1829
WSR.9012	Hillside Cemetery - Richardson, Henry Marker	Depot Rd	Westford	1776
WSR.9013	Hillside Cemetery - Nutting, Asia Obelisk	Depot Rd	Westford	1880
WSR.9014	Hillside Cemetery - Wright, James Marker	Depot Rd	Westford	1867
WSR.9015	Hillside Cemetery - Wright, Mary Marker	Depot Rd	Westford	1839
WSR.9016	Hillside Cemetery - Cummings, Hezekiah Marker	Depot Rd	Westford	1870
WSR.9017	Hillside Cemetery - Keyes, Edward Marker	Depot Rd	Westford	c 1898
WSR.9018	Hillside Cemetery - Keyes, George Marker	Depot Rd	Westford	1898
WSR.9019	Hillside Cemetery - Reed, Elbridge Marker	Depot Rd	Westford	1908
WSR.9020	Hillside Cemetery - Nixon, Harry E. Jr. Marker	Depot Rd	Westford	1969
WSR.9021	Hillside Cemetery - Perry, Wendell L. R. Marker	Depot Rd	Westford	1968
WSR.9022	Hillside Cemetery - Keyes, Joseph W. Marker	Depot Rd	Westford	1879
WSR.9023	Hillside Cemetery - Tenney, Samuel Marker	Depot Rd	Westford	1848
WSR.9024	Hillside Cemetery - Bates, Capt. Oliver Marker	Depot Rd	Westford	1775
WSR.9025	Hillside Cemetery - Chandler, William Marker	Depot Rd	Westford	1826
WSR.9026	Hillside Cemetery - Spaulding, Lt. Solomon Marker	Depot Rd	Westford	
WSR.9027	Hillside Cemetery - Wright, Pelatiah Marker	Depot Rd	Westford	
WSR.9028	Hillside Cemetery - Wright, Ephraim Marker	Depot Rd	Westford	
WSR.9029	Hillside Cemetery - Wright, Joseph Jr. Marker	Depot Rd	Westford	
WSR.9030	Hillside Cemetery - Reed, Roswell Marker	Depot Rd	Westford	
WSR.9031	Hillside Cemetery - Wright, Jacob & Abigail Marker	Depot Rd	Westford	1761
WSR.9032	Hillside Cemetery - Smith, Thomas & William Marker	Depot Rd	Westford	1775
WSR.9033	Hillside Cemetery - Wright, Rebecca Marker	Depot Rd	Westford	1775
WSR.9034	Hillside Cemetery - Cummings, R. W. Marker	Depot Rd	Westford	1910
WSR.9035	Hillside Cemetery - Chandler Family Plot	Depot Rd	Westford	1871
WSR.9036	Hillside Cemetery - Wendell, Jacob Marker	Depot Rd	Westford	1809
WSR.9037	Hillside Cemetery - Keyes, George Marker	Depot Rd	Westford	1898
WSR.156		2 Depot St	Westford	c 1940
WSR.60	Fisher, Alvan House	3 Depot St	Westford	1730
WSR.157		4 Depot St	Westford	c 1910
WSR.158		5 Depot St	Westford	c 1840
WSR.159	Livingston, Sprake House	6 Depot St	Westford	c 1870
WSR.160		7 Depot St	Westford	c 1840
WSR.161	Fletcher, Charles Leonard House	8 Depot St	Westford	c 1835

Inv. No.	Property Name	Street	Town	Year
WSR.162		9 Depot St	Westford	c 1830
WSR.163		10 Depot St	Westford	c 1830
WSR.164		13 Depot St	Westford	c 1830
WSR.165		14 Depot St	Westford	c 1830
WSR.166		16 Depot St	Westford	c 1940
WSR.167		17 Depot St	Westford	c 1880
WSR.919	Westford Knight	17 Depot St	Westford	
WSR.168		18 Depot St	Westford	c 1928
WSR.169	Wright House	20 Depot St	Westford	c 1840
WSR.12	Kittridge House	21 Depot St	Westford	r 1820
WSR.61		30 Depot St	Westford	c 1928
WSR.427	Westford Fire Department	1 East Prescott St	Westford	c 1914
WSR.88	Splain, Daniel E. Store and Post Office	2 East Prescott St	Westford	c 1895
WSR.429	Abbot Worsted Yarn Manufacturing Company Housing	3 East Prescott St	Westford	c 1920
WSR.89	Lowell and Fitchburg Street Railway Powerhouse	4 East Prescott St	Westford	c 1907
WSR.428	Abbot Worsted Yarn Manufacturing Company Housing	5 East Prescott St	Westford	c 1940
WSR.430		8 East Prescott St	Westford	c 1890
WSR.431	Abbot Worsted Yarn Manufacturing Company Housing	9 East Prescott St	Westford	c 1930
WSR.432		10 East Prescott St	Westford	c 1890
WSR.433	Weaver House	11 East Prescott St	Westford	1924
WSR.434	Abbot Worsted Yarn Manufacturing Company Housing	13 East Prescott St	Westford	c 1924
WSR.134	Carmichael House	14 East Prescott St	Westford	c 1920
WSR.435	Abbot Worsted Yarn Manufacturing Company Housing	15 East Prescott St	Westford	c 1920
WSR.436		18 East Prescott St	Westford	c 1870
WSR.437		20 East Prescott St	Westford	c 1870
WSR.438	Abbot Worsted Yarn Manufacturing Company Housing	21 East Prescott St	Westford	c 1920
WSR.439	Abbot Worsted Yarn Manufacturing Company Housing	22 East Prescott St	Westford	c 1920
WSR.440	Abbot Worsted Yarn Manufacturing Company Housing	23 East Prescott St	Westford	c 1920
WSR.441	Abbot Worsted Yarn Manufacturing Company Housing	25 East Prescott St	Westford	c 1920
WSR.442	Abbot Worsted Yarn Manufacturing Company Housing	27 East Prescott St	Westford	c 1900
WSR.443	Abbot Worsted Yarn Manufacturing Company	28 East Prescott St	Westford	c 1920

Inv. No.	Property Name	Street	Town	Year
WSR.444	Housing Abbot Worsted Yarn Manufacturing Company Housing	30 East Prescott St	Westford	c 1920
WSR.445	Abbot Worsted Yarn Manufacturing Company Housing	32 East Prescott St	Westford	c 1920
WSR.446	Abbot Worsted Yarn Manufacturing Company Housing	34 East Prescott St	Westford	c 1920
WSR.447		36 East Prescott St	Westford	c 1900
WSR.448	Abbot Worsted Yarn Manufacturing Company Housing	2 Elm St	Westford	c 1960
WSR.449	Abbot Worsted Yarn Manufacturing Company Housing	6 Elm St	Westford	c 1940
WSR.450	Abbot Worsted Yarn Manufacturing Company Housing	8 Elm St	Westford	c 1940
WSR.451	Abbot Worsted Yarn Manufacturing Company Housing	9 Elm St	Westford	c 1920
WSR.452	Abbot Worsted Yarn Manufacturing Company Housing	10 Elm St	Westford	c 1960
WSR.453	Abbot Worsted Yarn Manufacturing Company Housing	13 Elm St	Westford	c 1940
WSR.454	Abbot Worsted Yarn Manufacturing Company Housing	15 Elm St	Westford	c 1940
WSR.455	Abbot Worsted Yarn Manufacturing Company Housing	17 Elm St	Westford	c 1940
WSR.456	Abbot Worsted Yarn Manufacturing Company Housing	18 Elm St	Westford	c 1940
WSR.291		4 First St	Westford	c 1870
WSR.292		6 First St	Westford	c 1870
WSR.293		8 First St	Westford	c 1870
WSR.294		11 First St	Westford	c 1870
WSR.295		13 First St	Westford	c 1870
WSR.296		14 First St	Westford	c 1900
WSR.297		15 First St	Westford	c 1870
WSR.298		17 First St	Westford	c 1870
WSR.299		18 First St	Westford	c 1870
WSR.300		20 First St	Westford	c 1870
WSR.301		21 First St	Westford	c 1870
WSR.911	Flushing Pond Road Bridge	Flushing Pond Rd	Westford	1843
WSR.65		11 Forge Village Rd	Westford	c 1900
WSR.64	Coolidge, Oren House	17 Forge Village Rd	Westford	c 1840
WSR.98	Sargent's, C. G. Sons Mill Worker Housing	3 Fourth St	Westford	c 1880
WSR.302		4 Fourth St	Westford	c 1870

Inv. No.	Property Name	Street	Town	Year
WSR.99	Sargent's, C. G. Sons Mill Worker Housing	5 Fourth St	Westford	c 1880
WSR.100	Sargent's, C. G. Sons Mill Worker Housing	6 Fourth St	Westford	c 1916
WSR.303		7 Fourth St	Westford	c 1870
WSR.101	Sargent's, C. G. Sons Mill Worker Housing	8-20 Fourth St	Westford	c 1916
WSR.304		9 Fourth St	Westford	c 1870
WSR.305		11 Fourth St	Westford	c 1870
WSR.306		15 Fourth St	Westford	c 1870
WSR.307		22 Fourth St	Westford	c 1990
WSR.123	Keyes, Solomon Garrison House	16 Frances Hill Rd	Westford	r 1750
WSR.171		4 Graniteville Rd	Westford	c 1870
WSR.56	Cameron, Julian A. House	7 Graniteville Rd	Westford	c 1895
WSR.57	Flint, Levi House	8 Graniteville Rd	Westford	c 1880
WSR.108	Day, John House	47 Graniteville Rd	Westford	c 1832
WSR.66		51 Graniteville Rd	Westford	c 1920
WSR.103		82 Graniteville Rd	Westford	c 1938
WSR.308		87 Graniteville Rd	Westford	c 1970
WSR.309		89 Graniteville Rd	Westford	c 1860
WSR.600	Robbins, Phillip - Hutchins, Thomas House	31 Greenwood Rd	Westford	c 1750
WSR.125	Westford District #5 Schoolhouse	2 Griffin Rd	Westford	1787
WSR.10	Downs, Matthew Hotel - McDonough, J. H. Hotel	Groton Rd	Westford	c 1855
WSR.115	Fletcher, Herbert E. House	Groton Rd	Westford	1909
WSR.804	Wright Cemetery	Groton Rd	Westford	1819
WSR.9038	Wright Cemetery Wood and Stone Fence	Groton Rd	Westford	c 1900
WSR.9039	Wright Cemetery Wood and Stone Gateway	Groton Rd	Westford	c 1900
WSR.9040	Wright Cemetery Stone Wall	Groton Rd	Westford	c 1900
WSR.9041	Wright Cemetery - Wright, Edmund Marker	Groton Rd	Westford	1819
WSR.9042	Wright Cemetery - Wight, Lt. Nahum Marker	Groton Rd	Westford	1834
WSR.9043	Wright Cemetery - Wright, Joel Obelisk	Groton Rd	Westford	1834
WSR.9044	Wright Cemetery - Pickering, Albert Marker	Groton Rd	Westford	1994
WSR.9045	Wright Cemetery Flagpole	Groton Rd	Westford	r 1980
WSR.135		476 Groton Rd	Westford	c 1905
WSR.54	Hamlin, Nathan S. House	1 Hildreth St	Westford	1790
WSR.9	Fletcher Tavern, Old	2 Hildreth St	Westford	c 1713
WSR.172		3 Hildreth St	Westford	c 1990
WSR.173		4 Hildreth St	Westford	c 1880
WSR.174		6 Hildreth St	Westford	c 1950
WSR.175		7 Hildreth St	Westford	c 1830
WSR.176		8 Hildreth St	Westford	c 1850

Inv. No.	Property Name	Street	Town	Year
WSR.18	Hildreth, Charles L. Farm	10 Hildreth St	Westford	1908
WSR.19	Hildreth, Ephraim House	58 Hildreth St	Westford	r 1690
WSR.117	Moore, George C. Woolen Mill Worker Housing	3 Jonas Rd	Westford	c 1900
WSR.11		Leland Rd	Westford	r 1750
WSR.52	Spalding, A. and E. G. House	1 Leland Rd	Westford	1846
WSR.53	Leland, Ira House	4 Leland Rd	Westford	c 1794
WSR.937	Abbot Worsted Yarn Manufacturing Company Millrace	Lincoln Ave	Westford	c 1853
WSR.938	Abbot Worsted Yarn Manufacturing Company Dam	Lincoln Ave	Westford	c 1853
WSR.457	Abbot Worsted Yarn Manufacturing Company Housing	5 Lincoln Ave	Westford	c 1920
WSR.458	Abbot Worsted Yarn Manufacturing Company Housing	6 Lincoln Ave	Westford	c 1920
WSR.459	Abbot Worsted Yarn Manufacturing Company Housing	9 Lincoln Ave	Westford	c 1950
WSR.7	Union Congregational Church	Lincoln St	Westford	1829
WSR.908	Westford War Memorial	Lincoln St	Westford	1924
WSR.55	Fletcher, John Bateman House	4 Lincoln St	Westford	c 1843
WSR.5	Fletcher Store	6-8 Lincoln St	Westford	c 1850
WSR.15	Heywood - Burbeck House	2-4 Lowell Rd	Westford	r 1820
WSR.120	Fletcher, Peletiah House	54 Lowell Rd	Westford	c 1720
WSR.121	Richardson, Samuel House	120 Lowell Rd	Westford	1783
WSR.122	Read - Drew Fruit Farm	Main St	Westford	1746
WSR.597	Fairview Cemetery Hearse House	Main St	Westford	1870
WSR.598	Fairview Cemetery Maintenance Shed	Main St	Westford	c 1960
WSR.806	Fairview Cemetery	Main St	Westford	c 1702
WSR.909	Whitney Playground	Main St	Westford	c 1910
WSR.913	Westford Common	Main St	Westford	c 1748
WSR.914	Westford Common Iron Watering Trough	Main St	Westford	1913
WSR.915	Westford Common Cannon	Main St	Westford	1899
WSR.916	Westford Common Stone Water Trough	Main St	Westford	1883
WSR.917	Westford Common War Memorial	Main St	Westford	c 1983
WSR.918	Westford Common Flag Pole	Main St	Westford	c 1976
WSR.963	Fairview Cemetery - Summer House - Gazebo	Main St	Westford	1896
WSR.964	Fairview Cemetery - Town Tomb	Main St	Westford	1871
WSR.965	Fairview Cemetery - Walls and Stone Gateway	Main St	Westford	1840
WSR.966	Fairview Cemetery - Pauper's Row	Main St	Westford	1907
WSR.967	Fairview Cemetery - Abbot Marker	Main St	Westford	1791

Inv. No.	Property Name	Street	Town	Year
WSR.968	Fairview Cemetery - Cameron, Allan Obelisk	Main St	Westford	1900
WSR.969	Fairview Cemetery - Hall, Willard Table Marker	Main St	Westford	1779
WSR.970	Fairview Cemetery - Brooks, Charles T. Marker	Main St	Westford	1938
WSR.971	Fairview Cemetery - Fletcher, Dea. Paul Marker	Main St	Westford	1735
WSR.972	Fairview Cemetery - Cameron, Agnes Marker	Main St	Westford	1865
WSR.973	Fairview Cemetery - Heywood, George Millstone	Main St	Westford	1914
WSR.974	Fairview Cemetery - Stevens, Nettie Marker	Main St	Westford	1912
WSR.975	Fairview Cemetery - Path Network	Main St	Westford	1876
WSR.976	Fairview Cemetery - Symmes Plot Cast Iron Fence	Main St	Westford	c 1878
WSR.978	Fairview Cemetery - Richardson, Solomon Tomb	Main St	Westford	1817
WSR.979	Fairview Cemetery - Heywood - Keyes Tomb	Main St	Westford	1816
WSR.980	Fairview Cemetery - Searles Family Marker	Main St	Westford	1901
WSR.981	Fairview Cemetery - Abbot, J. W. P. Obelisk	Main St	Westford	1872
WSR.982	Fairview Cemetery - Fletcher, H. E. Mausoleum	Main St	Westford	1912
WSR.983	Fairview Cemetery - Frost, William E. Marker	Main St	Westford	1904
WSR.984	Fairview Cemetery - Chandler, William Marker	Main St	Westford	1756
WSR.985	Fairview Cemetery Boundary Fence	Main St	Westford	r 1850
WSR.178		1 Main St	Westford	c 1850
WSR.179		4 Main St	Westford	c 1791
WSR.180		7 Main St	Westford	c 1930
WSR.181		8 Main St	Westford	c 1930
WSR.39	Frost, William E. House	12 Main St	Westford	r 1880
WSR.182		13 Main St	Westford	c 1990
WSR.183		16 Main St	Westford	c 1830
WSR.184		19 Main St	Westford	c 1990
WSR.185		20 Main St	Westford	c 1860
WSR.63	Mille Fleur	21 Main St	Westford	c 1835
WSR.40	First Parish Congregational Church Parsonage	23 Main St	Westford	1872
WSR.4	Abbot, Capt. John A. House	24 Main St	Westford	c 1820
WSR.34	Luce, Rev. Leonard House	25 Main St	Westford	1850
WSR.187		29 Main St	Westford	c 1885
WSR.41	Read, Joseph Henry House	30 Main St	Westford	c 1875
WSR.42	Abbot, Abiel J. House	32 Main St	Westford	c 1890
WSR.43	Herrick, Henry House	36 Main St	Westford	c 1835
WSR.3	Fletcher, Sherman Dewey House	37 Main St	Westford	1848
WSR.62	Cameron, Allan House	39 Main St	Westford	c 1850
WSR.2	Fletcher, Samuel and Sherman D. Store	40 Main St	Westford	1839

Inv. No.	Property Name	Street	Town	Year
WSR.188		44 Main St	Westford	c 1950
WSR.189	Northern Bank and Trust Company	45 Main St	Westford	c 1930
WSR.37	First Parish Church United	48 Main St	Westford	1794
WSR.44	Fletcher, John Varnum Library	50 Main St	Westford	c 1895
WSR.190	Westford Fire and Police Station	51-53 Main St	Westford	c 1975
WSR.191		54 Main St	Westford	c 1850
WSR.8	Westford Town Hall	55 Main St	Westford	1872
WSR.45	Lanktree, John House	56 Main St	Westford	c 1875
WSR.46		57 Main St	Westford	1911
WSR.192		58 Main St	Westford	c 1820
WSR.193		59 Main St	Westford	c 1840
WSR.194		60 Main St	Westford	c 1910
WSR.47	Fletcher, Charles H. House	62 Main St	Westford	r 1760
WSR.48	Cameron, Donald House	63 Main St	Westford	1893
WSR.14	Roudenbush, William C. School	65 Main St	Westford	1897
WSR.13	Wheeler, Rev. Winthrop House	66 Main St	Westford	c 1830
WSR.195		70 Main St	Westford	c 1870
WSR.49	Drew, Greenleaf H. House	72 Main St	Westford	r 1840
WSR.50	Frost, William E. Grade School	73 Main St	Westford	1908
WSR.196		75 Main St	Westford	c 1880
WSR.197		76 Main St	Westford	c 1850
WSR.51	Cummings, Artemus House	78 Main St	Westford	c 1850
WSR.198		80 Main St	Westford	c 1850
WSR.25	Abbot Worsted Company Worker Housing	6 Maple St	Westford	c 1888
WSR.310		8 Maple St	Westford	c 1880
WSR.311		10 Maple St	Westford	c 1880
WSR.312		12 Maple St	Westford	c 1880
WSR.313		13 Maple St	Westford	c 1900
WSR.314		14 Maple St	Westford	c 1960
WSR.316		17 Maple St	Westford	c 1900
WSR.317		18 Maple St	Westford	c 1960
WSR.318		19 Maple St	Westford	c 1900
WSR.319		20 Maple St	Westford	c 1960
WSR.320		21 Maple St	Westford	c 1870
WSR.17		5 Moore Rd	Westford	c 1870
WSR.929	Palmer, Benjamin Quarry	North Main St	Westford	1853
WSR.930	Former Nashua and Acton Railroad	North Main St	Westford	1873
WSR.931	Former Stony Brook Railroad	North Main St	Westford	1848

Inv. No.	Property Name	Street	Town	Year
WSR.932		North Main St	Westford	1866
WSR.928	Sargent, Charles G. Mill Pond	1 North Main St	Westford	c 1858
WSR.321		2 North Main St	Westford	c 1870
WSR.322		5 North Main St	Westford	c 1870
WSR.323	Abbot Worsted Company Garage	6 North Main St	Westford	c 1920
WSR.324		9 North Main St	Westford	c 1980
WSR.325	Abbot Worsted Company Sort, Wash and Dry Building	10 North Main St	Westford	c 1863
WSR.326		11 North Main St	Westford	c 1870
WSR.1	Abbott and Company Worsted Mill	12 North Main St	Westford	1858
WSR.327		13 North Main St	Westford	c 1925
WSR.328	Wellman Cottage	17 North Main St	Westford	c 1870
WSR.329		19 North Main St	Westford	c 1980
WSR.30	Sargent, Charles G. House #2	25 North Main St	Westford	c 1875
WSR.330		29 North Main St	Westford	c 1885
WSR.331		33 North Main St	Westford	c 1870
WSR.332		35 North Main St	Westford	c 1870
WSR.333		41 North Main St	Westford	c 1890
WSR.334		44 North Main St	Westford	c 1870
WSR.901	Fletcher, Samuel Quarry	49 North Main St	Westford	1845
WSR.335		53 North Main St	Westford	c 1870
WSR.31	Fletcher, Samuel House	57 North Main St	Westford	c 1875
WSR.336		59 North Main St	Westford	c 1940
WSR.337		61 North Main St	Westford	c 1860
WSR.338		62 North Main St	Westford	c 1850
WSR.339		63 North Main St	Westford	c 1910
WSR.340		66 North Main St	Westford	c 1860
WSR.96	Reed, William House	67 North Main St	Westford	c 1875
WSR.341		71 North Main St	Westford	c 1980
WSR.342		74 North Main St	Westford	c 1940
WSR.343		75 North Main St	Westford	c 1980
WSR.344		77 North Main St	Westford	c 1900
WSR.345		81 North Main St	Westford	c 1860
WSR.346	Sudak Grocery Store	84 North Main St	Westford	c 1860
WSR.347		89 North Main St	Westford	c 1870
WSR.348		90 North Main St	Westford	c 1870
WSR.95	West Graniteville Social Hall	92 North Main St	Westford	c 1925
WSR.349		94 North Main St	Westford	c 1980

Inv. No.	Property Name	Street	Town	Year
WSR.350		95 North Main St	Westford	c 1990
WSR.351		95 North Main St	Westford	c 1990
WSR.105	Nashua & Acton Railroad West Graniteville Station	98 North Main St	Westford	c 1873
WSR.93	Saint Catherine's Roman Catholic Church Rectory	107 North Main St	Westford	1927
WSR.94	Saint Catherine's Roman Catholic Church	107 North Main St	Westford	1934
WSR.9006	Hillside Cemetery - Nutting Road Stone Steps	Nutting Rd	Westford	c 1840
WSR.118		77 Oak Hill Rd	Westford	c 1936
WSR.119		78 Oak Hill Rd	Westford	c 1930
WSR.460	Abbot Worsted Yarn Manufacturing Company Housing	1 Oak St	Westford	c 1915
WSR.461	Abbot Worsted Yarn Manufacturing Company Housing	4 Oak St	Westford	c 1915
WSR.233		2 Old Lowell Rd	Westford	c 1970
WSR.462	Abbot Worsted Yarn Manufacturing Company Housing	1 Orchard St	Westford	c 1911
WSR.463	Abbot Worsted Yarn Manufacturing Company Housing	2 Orchard St	Westford	c 1911
WSR.464	Abbot Worsted Yarn Manufacturing Company Housing	3 Orchard St	Westford	c 1911
WSR.465	Abbot Worsted Yarn Manufacturing Company Housing	4 Orchard St	Westford	c 1911
WSR.466	Abbot Worsted Yarn Manufacturing Company Housing	5 Orchard St	Westford	c 1911
WSR.467	Abbot Worsted Yarn Manufacturing Company Housing	6 Orchard St	Westford	c 1911
WSR.468	Abbot Worsted Yarn Manufacturing Company Housing	7 Orchard St	Westford	c 1911
WSR.469	Abbot Worsted Yarn Manufacturing Company Housing	8 Orchard St	Westford	c 1911
WSR.470	Abbot Worsted Yarn Manufacturing Company Housing	9 Orchard St	Westford	c 1911
WSR.471	Abbot Worsted Yarn Manufacturing Company Housing	10 Orchard St	Westford	c 1911
WSR.472	Abbot Worsted Yarn Manufacturing Company Housing	11 Orchard St	Westford	c 1911
WSR.473	Abbot Worsted Yarn Manufacturing Company Housing	12 Orchard St	Westford	c 1911
WSR.474	Abbot Worsted Yarn Manufacturing Company Housing	13 Orchard St	Westford	c 1911
WSR.475	Abbot Worsted Yarn Manufacturing Company Housing	14 Orchard St	Westford	c 1911
WSR.476	Abbot Worsted Yarn Manufacturing Company	15 Orchard St	Westford	c 1911

Inv. No.	Property Name	Street	Town	Year
	Housing			
WSR.477	Abbot Worsted Yarn Manufacturing Company Housing	16 Orchard St	Westford	c 1911
WSR.478	Abbot Worsted Yarn Manufacturing Company Housing	17 Orchard St	Westford	c 1911
WSR.479	Abbot Worsted Yarn Manufacturing Company Housing	19 Orchard St	Westford	c 1911
WSR.480	Abbot Worsted Yarn Manufacturing Company Housing	1 Palermo St	Westford	c 1920
WSR.77	Abbot Worsted Yarn Manufacturing Company Housing	2-8 Palermo St	Westford	c 1915
WSR.76	Abbot Worsted Yarn Manufacturing Company Housing	3-13 Palermo St	Westford	c 1922
WSR.481	Abbot Worsted Yarn Manufacturing Company Housing	12 Palermo St	Westford	c 1920
WSR.482	Abbot Worsted Yarn Manufacturing Company Housing	14 Palermo St	Westford	c 1920
WSR.483	Abbot Worsted Yarn Manufacturing Company Housing	22 Palermo St	Westford	c 1920
WSR.484	Abbot Worsted Yarn Manufacturing Company Housing	26 Palermo St	Westford	c 1920
WSR.599	Russian Cemetery Maintenance Shed	Patten Rd	Westford	c 2000
WSR.805	Russian Cemetery	Patten Rd	Westford	1918
WSR.925	Bicentennial Tribute	Patten Rd	Westford	1992
WSR.986	Russian Cemetery Stone Walls	Patten Rd	Westford	c 1918
WSR.987	Russian Cemetery Stone Gate Piers	Patten Rd	Westford	c 1918
WSR.988	Russian Cemetery Circulation System	Patten Rd	Westford	c 1940
WSR.989	Russian Cemetery - Russian Alphabet Marker	Patten Rd	Westford	1918
WSR.990	Russian Cemetery - Russian Alphabet Marker	Patten Rd	Westford	1923
WSR.991	Russian Cemetery - Prowker, Matrona Marker	Patten Rd	Westford	1927
WSR.992	Russian Cemetery - Worobey Marker	Patten Rd	Westford	1941
WSR.993	Russian Cemetery - Archinski, Luke Marker	Patten Rd	Westford	1945
WSR.994	Russian Cemetery - Butko, George and Annie Marker	Patten Rd	Westford	1946
WSR.995	Russian Cemetery - Sudak, Matthew Marker	Patten Rd	Westford	1951
WSR.996	Russian Cemetery - Talanetz, Peter Marker	Patten Rd	Westford	1953
WSR.997	Russian Cemetery - Belida, Mary and Steve Marker	Patten Rd	Westford	1951
WSR.998	Russian Cemetery - Belida, Demitry and Vera Marker	Patten Rd	Westford	1960
WSR.999	Russian Cemetery - Worobey, Peter and Mary Marker	Patten Rd	Westford	1941

Inv. No.	Property Name	Street	Town	Year
WSR.9000	Russian Cemetery - Concrete Grave Marker	Patten Rd	Westford	
WSR.9001	Russian Cemetery Chain Link Fence	Patten Rd	Westford	c 1960
WSR.9002	Russian Cemetery Flag Pole	Patten Rd	Westford	c 1960
WSR.9003	Russian Cemetery - Beskalo, Stephen Marker	Patten Rd	Westford	2000
WSR.485	Abbot Worsted Yarn Manufacturing Company Housing	1 Pershing St	Westford	c 1920
WSR.486	Abbot Worsted Yarn Manufacturing Company Housing	2 Pershing St	Westford	c 1920
WSR.87	Abbot Worsted Yarn Manufacturing Company Housing	3 Pershing St	Westford	c 1920
WSR.84	Abbot Worsted Yarn Manufacturing Company Housing	5 Pershing St	Westford	c 1920
WSR.487	Abbot Worsted Yarn Manufacturing Company Housing	6 Pershing St	Westford	c 1920
WSR.488	Abbot Worsted Yarn Manufacturing Company Housing	7 Pershing St	Westford	c 1920
WSR.489	Abbot Worsted Yarn Manufacturing Company Housing	8 Pershing St	Westford	c 1920
WSR.86	Abbot Worsted Yarn Manufacturing Company Housing	10-12 Pershing St	Westford	c 1920
WSR.85	Abbot Worsted Yarn Manufacturing Company Housing	14-16 Pershing St	Westford	c 1920
WSR.490	Abbot Worsted Yarn Manufacturing Company Housing	20 Pershing St	Westford	c 1920
WSR.491	Abbot Worsted Yarn Manufacturing Company Housing	2 Pine St	Westford	c 1915
WSR.492	Abbot Worsted Yarn Manufacturing Company Housing	3 Pine St	Westford	c 1920
WSR.493	Abbot Worsted Yarn Manufacturing Company Housing	4 Pine St	Westford	c 1915
WSR.494	Abbot Worsted Yarn Manufacturing Company Housing	5 Pine St	Westford	c 1960
WSR.495	Abbot Worsted Yarn Manufacturing Company Housing	6 Pine St	Westford	c 1915
WSR.496	Abbot Worsted Yarn Manufacturing Company Housing	7 Pine St	Westford	c 1920
WSR.497	Abbot Worsted Yarn Manufacturing Company Housing	8 Pine St	Westford	c 1915
WSR.498		9 Pine St	Westford	c 1920
WSR.499	Abbot Worsted Yarn Manufacturing Company Housing	10 Pine St	Westford	c 1915
WSR.500		11 Pine St	Westford	c 1900
WSR.501	Abbot Worsted Yarn Manufacturing Company Housing	12 Pine St	Westford	c 1910

Inv. No.	Property Name	Street	Town	Year
WSR.502		16 Pine St	Westford	c 1950
WSR.503		17 Pine St	Westford	c 1960
WSR.504	Abbot Worsted Yarn Manufacturing Company Housing	18 Pine St	Westford	c 1910
WSR.505	Abbot Worsted Yarn Manufacturing Company Housing	21 Pine St	Westford	c 1910
WSR.20	Prescott, Levi House	25 Pine St	Westford	1780
WSR.112	Nabnasset Grade School	170 Plain Rd	Westford	1922
WSR.900	Pleasant Street Bridge	Pleasant St	Westford	1800
WSR.83	Abbot Worsted Yarn Manufacturing Company Office	2 Pleasant St	Westford	1923
WSR.38	Abbot Worsted Company	7 Pleasant St	Westford	1879
WSR.82	Prescott, Ebenezer House	10 Pleasant St	Westford	c 1760
WSR.80	Abbot Worsted Yarn Manufacturing Company Housing	11 Pleasant St	Westford	c 1910
WSR.22	Wright, George House	13 Pleasant St	Westford	r 1810
WSR.507	Abbot Worsted Yarn Manufacturing Company Housing	14 Pleasant St	Westford	c 1920
WSR.81	Pigeon, Victor House and Grocery Store	16-18 Pleasant St	Westford	c 1900
WSR.23	Cameron School	20 Pleasant St	Westford	1908
WSR.508		23 Pleasant St	Westford	c 1800
WSR.132	Saint Andrews Mission Church	25-27 Pleasant St	Westford	1903
WSR.509		30 Pleasant St	Westford	c 1890
WSR.510	Abbot Worsted Yarn Manufacturing Company Housing	32 Pleasant St	Westford	c 1890
WSR.21	Forge Village School	35 Pleasant St	Westford	1825
WSR.511		36 Pleasant St	Westford	c 1890
WSR.512		38 Pleasant St	Westford	c 1890
WSR.79		39 Pleasant St	Westford	c 1765
WSR.513	Abbot Worsted Yarn Manufacturing Company Housing	40 Pleasant St	Westford	c 1910
WSR.514		41 1/2 Pleasant St	Westford	c 1870
WSR.586		41 Pleasant St	Westford	c 1910
WSR.515		43 Pleasant St	Westford	c 1870
WSR.78	Sartell, C. House	44 Pleasant St	Westford	c 1865
WSR.516	Abbot Worsted Yarn Manufacturing Company Housing	45 Pleasant St	Westford	c 1900
WSR.517		46 Pleasant St	Westford	c 1900
WSR.518	Abbot Worsted Yarn Manufacturing Company Housing	47 Pleasant St	Westford	c 1900
WSR.519	Abbot Worsted Yarn Manufacturing Company	48 Pleasant St	Westford	c 1920

Inv. No.	Property Name	Street	Town	Year
	Housing			
WSR.520		50 Pleasant St	Westford	c 1900
WSR.521		51 Pleasant St	Westford	c 1980
WSR.522		54 Pleasant St	Westford	c 1900
WSR.523		55 Pleasant St	Westford	c 1960
WSR.524		56 Pleasant St	Westford	c 1960
WSR.525		59 Pleasant St	Westford	c 1960
WSR.526	Abbot Worsted Yarn Manufacturing Company Housing	61 Pleasant St	Westford	c 1940
WSR.527	Abbot Worsted Yarn Manufacturing Company Housing	63 Pleasant St	Westford	c 1940
WSR.528	Heald House	64 Pleasant St	Westford	c 1730
WSR.529	Abbot Worsted Yarn Manufacturing Company Housing	65 Pleasant St	Westford	c 1940
WSR.530		66 Pleasant St	Westford	c 1985
WSR.531	Abbot Worsted Yarn Manufacturing Company Housing	1 Pond St	Westford	c 1906
WSR.532	Abbot Worsted Yarn Manufacturing Company Housing	2 Pond St	Westford	c 1906
WSR.533	Abbot Worsted Yarn Manufacturing Company Housing	3 Pond St	Westford	c 1906
WSR.74	Abbot Worsted Yarn Manufacturing Company Housing	4 Pond St	Westford	c 1900
WSR.73	Abbot Worsted Yarn Manufacturing Company Housing	5 Pond St	Westford	c 1900
WSR.534	Abbot Worsted Yarn Manufacturing Company Housing	6 Pond St	Westford	c 1906
WSR.535	Abbot Worsted Yarn Manufacturing Company Housing	8 Pond St	Westford	c 1906
WSR.536	Abbot Worsted Yarn Manufacturing Company Housing	9 Pond St	Westford	c 1930
WSR.537	Abbot Worsted Yarn Manufacturing Company Housing	11 Pond St	Westford	c 1909
WSR.538	Abbot Worsted Yarn Manufacturing Company Housing	14 Pond St	Westford	c 1906
WSR.72	Abbot Worsted Yarn Manufacturing Company Housing	15-17 Pond St	Westford	c 1905
WSR.539	Abbot Worsted Yarn Manufacturing Company Housing	16 Pond St	Westford	c 1906
WSR.540	Abbot Worsted Yarn Manufacturing Company Housing	19 Pond St	Westford	c 1909
WSR.199		2 Randolph Cir	Westford	c 1990
WSR.904	River Street Bridge over B & M Railroad	River St	Westford	1928

Inv. No.	Property Name	Street	Town	Year
WSR.912	River Street Bridge over Stony Brook	River St	Westford	c 1865
WSR.934	Graniteville Ball Field	River St	Westford	c 1913
WSR.352		1 River St	Westford	c 1860
WSR.353		2 River St	Westford	c 1900
WSR.354		3 River St	Westford	c 1920
WSR.355		5 River St	Westford	c 1900
WSR.356		6 River St	Westford	c 1910
WSR.357		7 River St	Westford	c 1900
WSR.358		8 River St	Westford	c 1900
WSR.359		9 River St	Westford	c 1920
WSR.360		11 River St	Westford	c 1920
WSR.361		12 River St	Westford	c 1900
WSR.362		13 River St	Westford	c 1920
WSR.363		16 River St	Westford	c 1900
WSR.364		17 River St	Westford	c 1870
WSR.365		18 River St	Westford	c 1870
WSR.366		19 River St	Westford	c 1900
WSR.367		20 River St	Westford	c 1910
WSR.368		21 River St	Westford	c 1900
WSR.369		25 River St	Westford	c 1990
WSR.370		26 River St	Westford	c 1900
WSR.371		27 River St	Westford	c 1990
WSR.372		28 River St	Westford	c 1900
WSR.373		29 River St	Westford	c 1990
WSR.374		30 River St	Westford	c 1900
WSR.375		31 River St	Westford	c 1870
WSR.376		33 River St	Westford	c 1990
WSR.378		36 River St	Westford	c 1990
WSR.377		37 River St	Westford	c 1890
WSR.379		45 River St	Westford	c 1870
WSR.380		47 River St	Westford	c 1870
WSR.381	Abbot Worsted Company Wool Storehouse	50 River St	Westford	c 1940
WSR.382		51 River St	Westford	c 1870
WSR.383		55 River St	Westford	c 1870
WSR.905	Route 3 Bridge over Dunstable Road	Rte 3	Westford	1959
WSR.906	Route 3 Bridge over Ledge Road	Rte 3	Westford	1959
WSR.384		2 School Ln	Westford	c 1990
WSR.385		6 School Ln	Westford	c 1990

Inv. No.	Property Name	Street	Town	Year
WSR.386		10 School Ln	Westford	c 1990
WSR.29	Sargent Elementary School	School St	Westford	1885
WSR.387		3 Second St	Westford	c 1870
WSR.388		4 Second St	Westford	c 1870
WSR.97		5 Second St	Westford	r 1880
WSR.389		6 Second St	Westford	c 1870
WSR.541	Abbot Worsted Yarn Manufacturing Company Housing	2 Smith St	Westford	c 1920
WSR.926	Stony Brook Bridge	Stony Brook	Westford	1988
WSR.542	Abbot Worsted Yarn Manufacturing Company Housing	4 Story St	Westford	c 1900
WSR.543	Abbot Worsted Yarn Manufacturing Company Housing	6 Story St	Westford	c 1900
WSR.544	Abbot Worsted Yarn Manufacturing Company Housing	8 Story St	Westford	c 1900
WSR.545	Abbot Worsted Yarn Manufacturing Company Housing	9 Story St	Westford	c 1910
WSR.546	Abbot Worsted Yarn Manufacturing Company Housing	10 Story St	Westford	c 1910
WSR.547	Abbot Worsted Yarn Manufacturing Company Housing	12 Story St	Westford	c 1910
WSR.548	Abbot Worsted Yarn Manufacturing Company Housing	14 Story St	Westford	c 1900
WSR.549	Abbot Worsted Yarn Manufacturing Company Housing	15 Story St	Westford	c 1900
WSR.550	Abbot Worsted Yarn Manufacturing Company Housing	16 Story St	Westford	c 1900
WSR.551	Abbot Worsted Yarn Manufacturing Company Housing	18 Story St	Westford	c 1910
WSR.552	Abbot Worsted Yarn Manufacturing Company Housing	19 Story St	Westford	c 1910
WSR.553	Abbot Worsted Yarn Manufacturing Company Housing	22 Story St	Westford	c 1900
WSR.554	Abbot Worsted Yarn Manufacturing Company Housing	23 Story St	Westford	c 1900
WSR.555	Abbot Worsted Yarn Manufacturing Company Housing	24 Story St	Westford	c 1920
WSR.556	Abbot Worsted Yarn Manufacturing Company Housing	25 Story St	Westford	c 1910
WSR.557	Abbot Worsted Yarn Manufacturing Company Housing	28 Story St	Westford	c 1920
WSR.558	Abbot Worsted Yarn Manufacturing Company Housing	30 Story St	Westford	c 1960
WSR.559	Abbot Worsted Yarn Manufacturing Company	32 Story St	Westford	c 1940

Inv. No.	Property Name	Street	Town	Year
	Housing			
WSR.390		4 Third St	Westford	c 1920
WSR.391		5 Third St	Westford	c 1870
WSR.392		7 Third St	Westford	c 1870
WSR.393		9 Third St	Westford	c 1870
WSR.394		15 Third St	Westford	c 1870
WSR.395		19 Third St	Westford	c 1860
WSR.32	Westford Town Farm	35 Town Farm Rd	Westford	1837
WSR.114		72 Tyngsborough Rd	Westford	r 1840
WSR.939	Forge Village Tennis Courts	West Prescott St	Westford	c 1980
WSR.940	Forge Village Baseball Dugouts	West Prescott St	Westford	c 1980
WSR.941	Forge Village Ball Fields	West Prescott St	Westford	c 1915
WSR.942	Forge Village Ball Fields	West Prescott St	Westford	c 1915
WSR.90	Scotty's Garage	1 West Prescott St	Westford	c 1940
WSR.560	Spinner's Package Store	4 West Prescott St	Westford	c 1980
WSR.561	U. S. Post Office - Forge Village Branch	5 West Prescott St	Westford	c 1956
WSR.562		7 West Prescott St	Westford	c 1800
WSR.563	Forge Village Store	8 West Prescott St	Westford	1900
WSR.564	Abbot Worsted Yarn Manufacturing Company Housing	9 West Prescott St	Westford	c 1900
WSR.565		11 West Prescott St	Westford	c 1870
WSR.566		12 West Prescott St	Westford	c 1870
WSR.567	Abbot Worsted Yarn Manufacturing Company Housing	15 West Prescott St	Westford	c 1920
WSR.568		16 West Prescott St	Westford	c 1870
WSR.569	Abbot Worsted Yarn Manufacturing Company Housing	17 West Prescott St	Westford	c 1930
WSR.570		19 West Prescott St	Westford	c 1870
WSR.571		26 West Prescott St	Westford	c 1870
WSR.572		27 West Prescott St	Westford	c 1860
WSR.573		28 West Prescott St	Westford	c 1870
WSR.574		31 West Prescott St	Westford	c 1870
WSR.575		34 West Prescott St	Westford	c 1840
WSR.576	Abbot Worsted Yarn Manufacturing Company Housing	35 West Prescott St	Westford	c 1940
WSR.577	Abbot Worsted Yarn Manufacturing Company Housing	37 West Prescott St	Westford	c 1920
WSR.578	Abbot Worsted Yarn Manufacturing Company Housing	38 West Prescott St	Westford	c 1930
WSR.579	Abbot Worsted Yarn Manufacturing Company	39 West Prescott St	Westford	c 1900

Inv. No.	Property Name	Street	Town	Year
	Housing			
WSR.580		42 West Prescott St	Westford	c 1960
WSR.581	Abbot Worsted Yarn Manufacturing Company Housing	43 West Prescott St	Westford	c 1900
WSR.582	Abbot Worsted Yarn Manufacturing Company Housing	44 West Prescott St	Westford	c 1940
WSR.583		46 West Prescott St	Westford	c 1950
WSR.584	Abbot Worsted Yarn Manufacturing Company Housing	47 West Prescott St	Westford	c 1900
WSR.585		48 West Prescott St	Westford	c 1960
WSR.902	Stone Railroad Bridge	West St	Westford	1847
WSR.9048	Carlisle - Westford Road Stone	West St	Westford	r 1865
WSR.9047	Carlisle - Westford Corner Monument	1022 Westford St	Westford	r 1865
WSR.200		2 Wheeler Ln	Westford	c 1900
WSR.201		4 Wheeler Ln	Westford	c 1900



Appendix E

Reference Documents

Pollutant Impacts on Water Quality

Sediment	Sediment is a common component of stormwater, and can be a pollutant. Sediment can be detrimental to aquatic life (primary producers, benthic invertebrates, and fish) by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.
Nutrients	Nutrients including nitrogen and phosphorous are the major plant nutrients used for fertilizing landscapes, and are often found in stormwater. These nutrients can result in excessive or accelerated growth of vegetation, such as algae, resulting in impaired use of water in lakes and other sources of water supply. For example, nutrients have led to a loss of water clarity in Lake Tahoe. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish.
Bacteria and Viruses	Bacteria and viruses are common contaminants of stormwater. For separate storm drain systems, sources of these contaminants include animal excrement and sanitary sewer overflow. High levels of indicator bacteria in stormwater have led to the closure of beaches, lakes, and rivers to contact recreation such as swimming.
Oil and Grease	Oil and grease includes a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Sources of oil and grease include leakage, spills, cleaning and sloughing associated with vehicle and equipment engines and suspensions, leaking and breaks in hydraulic systems, restaurants, and waste oil disposal.
Metals	Metals including lead, zinc, cadmium, copper, chromium, and nickel are commonly found in stormwater. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles, or preserved wood) contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach. Over half the trace metal load carried in stormwater is associated with sediments. Metals are of concern because they are toxic to aquatic organisms, can bioaccumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies.
Organics	Organics may be found in stormwater at low concentrations. Often synthetic organic compounds (adhesives, cleaners, sealants, solvents, etc.) are widely applied and may be improperly stored and disposed. In addition, deliberate dumping of these chemicals into storm drains and inlets causes environmental harm to waterways.
Pesticides	Pesticides (including herbicides, fungicides, rodenticides, and insecticides) have been repeatedly detected in stormwater at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about the adverse effects of pesticides on the environment and human health. Accumulation of these compounds in simple aquatic organisms, such as plankton, provides an avenue for biomagnification through the food web, potentially resulting in elevated levels of toxins in organisms that feed on them, such as fish and birds.
Gross Pollutants	Gross Pollutants (trash, debris and floatables) may include heavy metals, pesticides, and bacteria in stormwater. Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables may create an aesthetic "eye sore" in waterways. Gross pollutants also include plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. Such substances may harbor bacteria, viruses, vectors, and depress the dissolved oxygen levels in streams, lakes and estuaries sometimes causing fish kills.
Vector Production	Vector production (e.g., mosquitoes, flies, and rodents) is frequently associated with sheltered habitats and standing water. Unless designed and maintained properly, standing water may occur in treatment control BMP's for 72 hours or more, thus providing a source for vector habitat and reproduction (Metzger, 2002).

Source: California Stormwater Quality Association, Stormwater BMP Handbook, 2003.

Potential pollutants likely associated with specific *municipal facilities*

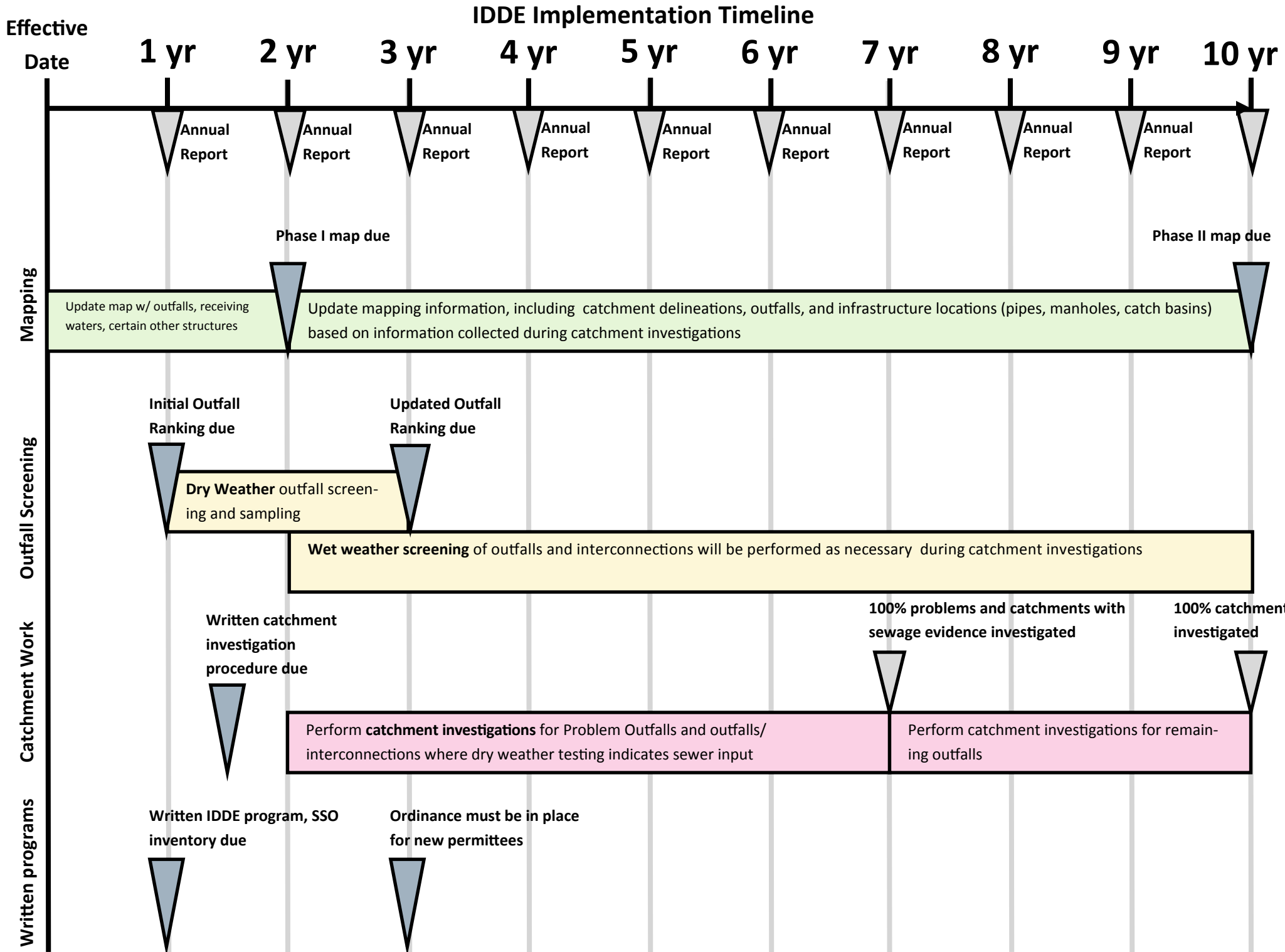
Municipality Facility Activity	Potential Pollutants								
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Building and Grounds Maintenance and Repair	X	X	X	X	X	X	X	X	X
Parking/Storage Area Maintenance	X	X	X	X	X	X	X		X
Waste Handling and Disposal	X	X	X	X	X	X	X	X	X
Vehicle and Equipment Fueling			X	X		X	X		
Vehicle and Equipment Maintenance and Repair				X		X	X		
Vehicle and Equipment Washing and Steam Cleaning	X	X	X	X		X	X		
Outdoor Loading and Unloading of Materials	X	X	X	X		X	X	X	X
Outdoor Container Storage of Liquids		X		X		X	X	X	X
Outdoor Storage of Raw Materials	X	X	X			X	X	X	X
Outdoor Process Equipment	X		X	X		X	X		
Overwater Activities			X	X	X	X	X	X	X
Landscape Maintenance	X	X	X		X			X	X

Source: California Stormwater BMP Handbook (<http://www.cabmphandbooks.com/>)(slightly modified)

Potential pollutants likely associated with *municipal activities*

Municipal Program	Activities	Potential Pollutants								
		Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Roads, Streets, and Highways Operation and Maintenance	Sweeping and Cleaning	X		X	X		X			X
	Street Repair, Maintenance, and Striping/Painting	X		X	X		X	X		
	Bridge and Structure Maintenance	X		X	X		X	X		
Plaza, Sidewalk, and Parking Lot Maintenance and Cleaning	Surface Cleaning	X	X			X	X			X
	Graffiti Cleaning	X	X		X			X		
	Sidewalk Repair	X		X						
	Controlling Litter	X		X		X	X			X
Fountains, Pools, Lakes, and Lagoons Maintenance	Fountain and Pool Draining		X					X		
	Lake and Lagoon Maintenance	X	X	X		X			X	X
Landscape Maintenance	Mowing/Trimming/Planting	X	X	X		X			X	X
	Fertilizer & Pesticide Management	X	X						X	
	Managing Landscape Wastes			X					X	X
	Erosion Control	X	X							
Drainage System Operation and Maintenance	Inspection and Cleaning of Stormwater Conveyance Structures	X	X	X		X		X		X
	Controlling Illicit Connections and Discharges	X	X	X	X	X	X	X	X	X
	Controlling Illegal Dumping	X	X	X	X	X	X	X	X	X
	Maintenance of Inlet and Outlet Structures	X		X	X		X			X
Waste Handling and Disposal	Solid Waste Collection		X	X	X	X	X	X		X
	Waste Reduction and Recycling			X	X					X
	Household Hazardous Waste Collection			X	X		X	X	X	
	Controlling Litter			X	X	X		X		X
	Controlling Illegal Dumping	X		X		X	X		X	X
Water and Sewer Utility Operation and Maintenance	Water Line Maintenance	X				X	X			
	Sanitary Sewer Maintenance	X				X	X			X
	Spill/Leak/Overflow Control, Response, and Containment	X	X			X		X		X

Source: California Stormwater BMP Handbook (<http://www.cabmphandbooks.com/>)



Tips for Organizing and Conducting Volunteer Clean-up Events

By: Jen Drociak –Acting Coordinator / Volunteer, Manchester Urban Ponds Restoration Program (UPRP)

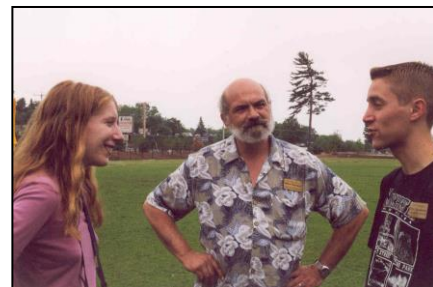
Step 1: Plan Your Clean-Up Event

- A. Land and / or Shore? Determine the Location(s):** Determine where, in proximity to the waterbody, your group wishes to concentrate its efforts on during a clean-up event. To find heavily-littered areas, and / or areas that are prone to illegal dumping, walk along the shore, in advance, to identify location(s) for the clean-up event. Identify accessible paths along the shoreline and / or on public trails that are easy for people to walk. The location(s) may be largely determined by public (or lake / homeowner association) access points such as a public beach, boat-launch, or park. If the location is large, consider identifying smaller locations within the larger location which can be managed by individual group leaders and groups. Determining the location(s) will provide you with an idea of the footwear that may be needed for the task based upon the terrain. If the clean-up event will be located at a beach or a dry area, sandals or sneakers may be adequate. If it will be located in a wetland or mucky area, knee-boots may be appropriate. If it will be located in water, hip-boots may be most appropriate. Determining the location(s) will also provide you with a sense of how many volunteers your group is seeking for the clean-up event.



The UPRP typically focuses clean-up efforts in the parks adjacent to the ponds by skirting around the ponds themselves. This involves differing terrain, and thus footwear. There have been occasions, however, where one or more volunteers have also used a small fishing boat to retrieve trash from the water that is too deep to obtain via hip-waders.

- B. Obtain Landowner Permission:** Whether the location(s) of your clean-up event is / are municipally-owned or privately-owned, determine who owns the property in advance in order to obtain permission. If you do not know who the property owner is, visit your municipality's on-line assessor's website to review the tax map(s) and property card(s) associated with the area. It is typically easy to obtain permission to organize a clean-up on municipally-owned / public land. If the location(s) are on privately-owned land, talk to the land owner(s) and explain why you are organizing a clean-up in that area, along with the benefits of doing so. Obtain permission from them in writing, if you can, by considering they sign a form. Verbal permission may be adequate, however.



The UPRP organizes clean-up events on land owned by Public Works and Parks, Recreation, and Cemetery Departments. We have not had to seek private landowner permission. We simply notify the Manchester Public Works Department and Parks, Recreation, and Cemetery Department of the dates of the clean-up events.

- C. Determine the Task(s) at Hand:** Determine what you will request of your volunteers. Will it be the removal of trash only? If so, will it be the removal of large items only or all items including the minutia? Will it be the removal of yard waste only? Graffiti removal or other vandalism? All of the above? Determining the task(s) at hand will provide you with an idea of the supplies (and hours) you will need to perform the task(s).

The UPRP typically removes trash only. We typically do not pick up the minutia (cigarette butts, bottle caps, etc.) due to the large volume of trash we collect and the limited amount of time and volunteers we have at each clean-up event.



- D. Determine the Check-In Location:** Based upon the chosen location(s) of the clean-up event, consider and determine the most appropriate location for volunteers to initially gather to check in and obtain supplies, as well as to reconvene at the end of the clean-up event. This may be a kiosk, boat-launch, or specific location on a beach or in a park. Try to stay away from busy roads or areas that are difficult to access.

The UPRP typically requests that volunteers meet in one central / well-known location such as a kiosk in a parking lot or boat-launch. We have kept the initial meeting location at each clean-up event consistent over the years.



- E. Determine the Most Appropriate Age(s) of Your Volunteers:** Based upon the task(s) at hand, determine the most appropriate age(s) of your volunteers. Are you seeking adults only? Children? Both? Do you have tasks that all can partake in, or are the tasks age-specific?

The UPRP generally seeks volunteers of all ages for clean-up events and encourage everyone, despite their age or ability, to participate in a manner of how they most feel comfortable.

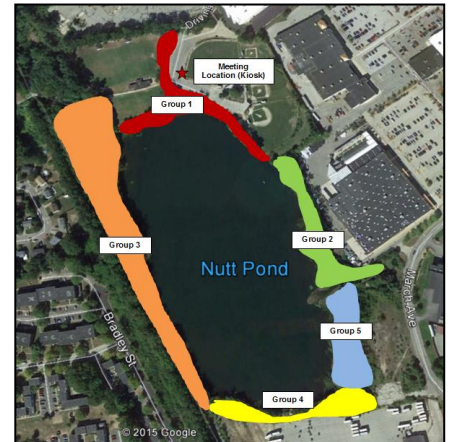


- F. Determine the Desired Number of Volunteers:** Based upon the number and location(s) that are chosen for the clean-up event, determine the desired number of volunteers to partake in the event.

The UPRP typically splits the area adjacent to the ponds into several areas, or groups of volunteers.

- G. Create Map(s) of the Location(s) OR Plan on Designating a “Group Leader” for Each Location:** If the location(s) is / are large enough to break into more than one group during the clean-up event, consider making aerial photographic “maps” (or using topographic maps) of each group’s area, indicating on the map the original meeting location, and the group’s start and end point.

The UPRP has created aerial maps to use in the past. However, what we consider to be more helpful is having a “group leader” (returning volunteer or someone familiar with the area) lead a small group of other volunteers in each designated area.



Step 2: Schedule Your Clean-Up Event

- A. Choose a Date:** Choose a date for the clean-up event at a time of year that makes the most sense to your group. Keep in mind that while lakes and ponds have year-round residents, the majority of residents are likely seasonal and may not arrive for the season, or on or around Memorial Day weekend. Thus, a late-spring or late-fall cleanup may not be the most appropriate time as it may not garner the most volunteers. An early or mid-summer cleanup may be the most appropriate. Consider, perhaps, scheduling the event in conjunction with an annual lake association meeting or holiday barbeque. Also consider scheduling the date of the clean-up event at least a month in advance to allow time to prepare (gather supplies and recruit volunteers). Lastly, consider a rain date.



The UPRP typically schedules annual pond and park cleanups on Saturday mornings during the last two weeks in April and the first one or two weeks in May. This is because a) this time of year is typically after the snow has melted and b) this time of year is typically before “leaf-in” (and in the case of some of these areas, this is important, as the areas are overtaken with thick stands of invasive species). We do not offer rain dates.

- B. Choose a Time:** Determine the amount of time it may take to clean up the area(s) of your choosing. Will it take one hour? Two hours? More? This is also a factor of the number of volunteers that attend (typically the more volunteers that attend the least amount of time the clean-up will take). If you believe the area(s) may take more than two hours, it may be best to schedule a two-part clean-up event. Also consider the time of day most appropriate to your group, especially if it is scheduled in conjunction with (or before or after) another event such as an annual meeting or holiday barbeque.



The UPRP has realized that 1 ½ - 2 hours is a sufficient amount of time to allot to clean-up events. We also realize that volunteers typically do not have the time or patience to commit to any more time in one day than that. We have also typically scheduled the clean-up events from 9:00AM to 11:00AM, with a meeting time of no later than 8:50AM. Early-morning clean-up events afford volunteers to have the remainder of the day for other things.

Step 3: Determine and Obtain Necessary Supplies

- A. Determine the Necessary Supplies:** Determining the task(s) at hand will determine your necessary supplies. If your clean-up event is strictly a trash removal cleanup, you may only need to obtain latex gloves and trash bags. If your clean-up event also includes yard-waste removal, you may need to obtain paper yard-waste bags, rakes and / or other tools.

Since the UPRP clean-up events are strictly focused on trash-removal, the only supplies we must procure are latex gloves (medium sized) and trash bags. We also have a few hand-held trash-grabbers since some volunteers find them helpful in reaching difficult areas and / or to prevent excessive bending.



- B. Obtain the Necessary Supplies:** Determine how you will obtain the necessary supplies. Does your group have a budget? Will your group be purchasing your supplies? Will your group fundraise to purchase supplies? Will your group borrow supplies, from perhaps the town or city?

The UPRP typically obtains supplies from the Manchester Parks, Recreation, and Cemetery Department. These supplies typically only include latex gloves and trash bags, but have included, in the past, rakes, other tools and yard waste bags. We also typically have a large container of hand-sanitizer available.

- C. Obtain a First-Aid Kit:** Consider obtaining one or more First Aid kits (for one or more groups of volunteers) in case it is needed. It is better to be proactively safe!

The UPRP has one First-Aid kit for use.

- D. Consider Providing Water and Snacks:** If your group has the financial means, consider providing water and snacks to your volunteers for afterwards. If your group does not have the financial means, consider soliciting donations from local establishments or having your group bake some treats, and bring a large cooler of ice water (or iced-tea) and some paper (or reusable plastic) cups.

The UPRP does not regularly provide water and snacks to volunteers since we do not have a budget to do so. On occasion, we have been able to obtain donations for yogurt snacks from Stonyfield Farm. On occasion we have also brought or made a baked good.



Step 4: Determine Your Waste Disposal Options

- A. Determine Your Waste Disposal Options:** At the end of your clean-up event, determine how and where you will dispose of the trash that was collected. Is there a dumpster on site that your group has permission to use? Are there already trash and / or recycling carts on site that your group has permission to use? If not, consider contacting your municipality's Highway Department, Parks & Recreation Department, or Road Agent, at least a month in advance, who may be able to coordinate trash and / or recycling pickup from your municipality's vendor (i.e. Waste Management, Pinard, etc.). Determine when the trash and / or recycling will be picked up and what the requirements for pickup are (especially with items such as vehicular tires and batteries, etc.). In addition, consider recruiting volunteers with pick-up trucks, especially if your group is cleaning multiple areas, and trash must be stockpiled in one area at the end of the event. Similarly, if you cannot obtain trash pick-up services, volunteers with pick-up trucks, and a municipal sticker (or permission) may be able to haul the trash and / or recycling to your local landfill or transfer station for free.



The UPRP typically sends notification of the clean-up schedule to the Manchester Public Works Director as soon as the dates are calendared. The Public Works Director, or staff, has coordinated with Manchester's solid waste collection staff to collect the trash on the Monday following the cleanup event (which have been held on Saturdays). While there have been a few times the Public Works Department has made one or more 95-gallon recycling carts available for the clean-up events, they are generally not available, and therefore, recycling is not typically sorted from other debris. All (tied / secure) bags of trash have been neatly placed in the same locations over the years; typically underneath or adjacent to the informational kiosks. Trash collected that does not fit into bags is also neatly placed adjacent to the bagged trash. We also recruit volunteers with pick-up trucks so that trash from different areas of the cleanup can be taken to one designated location at the end of the event. In addition, one of our volunteers separates steel and other scrap metal and takes it to a scrap metal recycling facility.

Step 5: Advertise Your Clean-Up Event / Recruit Volunteers

- A. Determine Any Project Partners:** In addition to volunteers who live around the waterbody, and any other residents of the town, determining any existing local groups or clubs that may be able to assist with the clean-up event is always helpful. Is there a local middle school, high school, or even college (if nearby) environmental club? A local chapter of the Student Conservation Association (SCA)? Any other organization, volunteer group, or club? A lot of these groups and / or clubs seek new community service projects and can help you garner additional / new volunteers.



The UPRP has partnered with the Student Conservation Association, local high school ecology clubs, local boy-scout troops, trout-fishing clubs, geo-caching groups, and others in the past. This has helped garner additional / new volunteers.

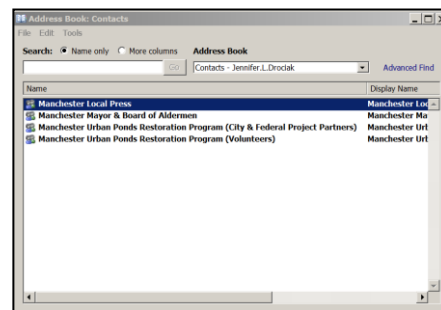
- B. Determine the Best Way(s) to Advertise Your Clean-Up Event:** Determine the target audience of volunteers and consider the best way(s) to advertise your clean-up event. Is it by e-mail? Website? Post-card? Posting of a flyer on a community bulletin board and / or kiosk? An annual lake association newsletter? An advertisement in a local newspaper? TV? Radio? facebook / social media? All of the above? Remember, printed materials and postage cost money, as typically do newspaper and radio advertisements. If your group has available funds for this, that is one thing. If not, instead of



simply placing a paid advertisement in a newspaper, try reaching out to a local news reporter to see if s/he will write a story about your cleanup (or write and submit an op-ed piece). This is usually good, free, advertisement. Also determine the most appropriate time to advertise for the clean-up event. Will you be advertising only once, or multiple times before the event?

The UPRP has typically advertised clean-up events in the following manners: 1) The UPRP webpage, 2) The City of Manchester website "Calendar of Events", 3) the UPRP facebook page, and 4) E-newsletter / e-mail. Local newspapers are also always gracious to cover the event(s) in a story beforehand. The UPRP typically sends posts the clean-up events on the website, and sends out an e-mail approximately three weeks in advance of the cleanup. The UPRP will then send weekly e-mails.

- C. Create an E-Mail Distribution List:** If you don't already have an e-mail distribution list, consider creating one. This may include names and e-mail addresses of lake association members, conservation commissioners, selectmen, municipal employees / department heads and others you know who may be interested. You can add to this with each clean-up event your group coordinates. If you have access to Constant Contact, Mailer, Mail Chimp, or other similar e-mail platform, this may be easier and more appropriate to use. If not, e-mail is a good starting place.



The UPRP has an e-mail distribution list which consists of approximately 200 individuals consisting of city aldermen, city department heads, conservation commissioners, media contacts, active school groups and other environmental organizations, and former volunteers. With every e-mail sent, an option is sent to opt-out of receiving e-mails by having a name and e-mail address removed from the list. This list is updated at least twice a year.

- D. Before You Mail, Post, (or Hit the Send Button):** Before you mail or post your flyer, or hit the send button to your e-mail distribution list, be sure to include the Who, What, Where, When, Why, and How to ensure all information is readily available. Why are you seeking volunteers? Who are you seeking as volunteers? What tasks are you seeking of volunteers? Where (general location and specific meeting location) are you seeking volunteers? When (date / time) are you seeking volunteers? Is there a rain date? How will the tasks be conducted? What should the volunteers wear or bring? What will be provided? Are you requesting an RSVP? For more information, who should they contact? Prepare your volunteers by letting them know what time to arrive, what to wear (clothes that can get dirty or wet, long pants, work gloves, boots or sturdy shoes, etc.), what to bring (sunscreen, insect repellent, water) and what to do in case of bad weather (rain date or cancellation information / phone number).



For Example: Seeking volunteers of all ages to assist in an annual trash clean-up at Black Brook and Blodget Park in Manchester on Saturday, April 23, 2016 from 9:00AM – 11:00AM. Volunteers will partner to clean the park and skirt the edges of the brook and wetland complex to remove accumulated trash. Please dress appropriately for weather as no rain date is scheduled. Latex gloves and trash bags will be provided, but please wear knee-boots, or hip-waders if you have them. No RSVP necessary. For more information, please visit www.manchesternh.gov/urbanponds or contact Jen Drociak email@gmail.com or (603) ### - ####. We look forward to seeing you there!

Step 6: Conduct Your Clean-Up Event

- A. Arrive Early:** Consider arriving 15 minutes to one hour earlier than your volunteers so that you can set up at your check in location. Consider setting up the following: "Clean-Up Attendance Sheet", water and / or refreshments, first aid and safety, trash bags and clean-up supplies, organizational information (flyers, fact sheets, reports, etc.). Consider also walking around the location(s) to identify any new trash and / or safety concerns that may have accrued / arisen since your last visit.

The UPRP coordinator(s) typically meet on-site approximately 15-30 minutes in advance of volunteers to set up trash bags, latex gloves, and the “Clean-Up Attendance Sheet”. We also survey the site to identify any new trash or safety hazards to relay to volunteers.

B. Welcome Your Volunteers and Ask Them to Sign-In:

Welcome each volunteer upon arrival and ask that they sign a “Clean-Up Attendance Sheet” so that your group may account for number of volunteers and volunteer hours contributed to the clean-up event. Consider leaving the “Clean-Up Attendance Sheet” at the check-in location for those volunteers who may have to leave (and sign out) earlier than the full allotted time.

The UPRP “Clean-Up Attendance Sheet” typically notes the location and date of the event, and has room to tally the number of volunteers, number of volunteer hours, number of bags of trash and other debris. It also has fields for volunteers to print their name, address, and e-mail, and note the time they checked in, and the time they checked out.

Manchester Urban Ponds Restoration Program 2016 Clean-Up Attendance Sheet					
Location: _____		Date: _____	Hours at Event: _____	# Volunteers: _____	# Volunteer Hours: _____
Name (Please Print)	Address	E-Mail	Time In	Time Out	
1					
2					
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- F. Provide Necessary Supplies to Your Volunteers:** Ensure your volunteers have ample supplies for the duration of the clean-up event. If they did not bring their own work gloves, request that they take two pairs of Latex gloves (in case one pair rips), and more than one trash bag, depending on the designated location(s). If your group is also removing yard waste, provide your volunteers with rakes and lawn-waste bags. Request that they return any unused pair of gloves, trash bags, and any supplies to you at the end of the clean-up event. Consider also leaving supplies out in a designated location along with the “Clean-Up Attendance Sheet” for volunteers who may show up late.



Many of the UPRP bring their own work gloves. We then issue two pairs of Latex gloves to each volunteer as well as multiple trash bags, depending on the specific area they will be cleaning up. We request that all unused supplies be returned at the end of the clean-up.

- G. Provide Your Volunteers with Instructions for the Clean-Up Event:** Provide your volunteers with instructions for the clean-up event such as what they will be retrieving (large trash only, all trash, etc.) what not to pick up (hypodermic needles, cigarette butts, etc.), if they are to separate trash from recycling or not (in which case they may carry two bags at once – different colors may be helpful - one for trash and one for recycling), what is considered recyclable if they are separating recycling from trash (this differs in each community and some vendors may not accept unclean / dirty recyclables from clean-up events), etc. Also provide your volunteers with safety tips and a general schedule of the clean-up event including the location to reconvene at the end and where to place trash. Ensure everyone knows there to focus their efforts and then to stop.

The UPRP typically only picks up large items, and does not typically separate trash from recycling, due to limited means. However, we have done so in the past and have provided volunteers with two trash bags – one for recycling, and one for trash.

- H. Make It Fun! Play One or More Games While You're at It!** Why not make things fun while you're out there picking up trash? Consider playing one or more games (especially if some of the volunteers are children) such as a scavenger hunt, who can find the most interesting or unusual piece of trash, who can find the largest piece of trash, who collects the most trash, etc. Consider offering a prize and / or certificate to the winner(s) of one or more of the games you play.

The UPRP has, for many years, asked volunteers to find the “Most Interesting or Unusual Piece of Trash” at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for “judging” by the coordinator(s) of the clean-up event. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken. We have found some really interesting and unusual pieces of trash over the years, and have kept a list!



- I. Relinquish Groups of Volunteers / Group Leader(s) to Designated Area(s):** If you are separating volunteers into more than one group for your clean-up event, relinquish the groups to their designated location(s). If you don't have a group leader for each group, relinquish them with their maps in hand. If you have a group leader be sure to introduce the volunteers in each group to their group leader before relinquishing them to their designated location(s). Remember to consider that not all locations may need the same number of volunteers.

The UPRP typically asks one or more returning volunteers if they would agree to be group leaders. Not all locations require the same amount of volunteers, however. This is decided based upon the area of the designated location(s), as well as the amount of trash to be removed in the designated location(s). For example, one small area along the shoreline may only require two volunteers, but a larger area in another location with a lot of trash may require 4-6 or more volunteers.



- J. Reconvene at Initial Check-In Area at Designated Time:** After the allotted period of time has elapsed for the clean-up event, reconvene at your initial check-in area. Account for all volunteers that did not sign out early.

The UPRP always meets at our initial check-in area. We then account for each group leader and group of volunteers (who did not sign out early) to ensure all have safely returned.

- K. Count Full Bags of Trash (or Weigh All Trash):** Count all full bags of trash that were collected and returned. If one or more bags are returned and are not considered full, consider consolidating them to make full bags of trash. That way, your measurements of “full bags” collected for this, and any other clean-up events, are consistently measured / counted. If your group has access to a scale, you consider weighing your bags of trash, and any other trash, to account for pounds of trash collected. Another option is to ask if the vendor who is charged with collecting the trash after the event can inform your group of the weight of the collection when the truck enters the scale at the weigh-station before drop-off at the refuse facility.

Since trash collected at UPRP clean-up events has not been weighed by a scale, and trash has been weighed by vendor truck only occasionally, to be consistent, we always count full bags at the site, and consolidate bags of trash that are returned not full in order to make full bags.

- L. Account for and Count Other Items:** Account for and count the quantity of other items of trash collected that cannot fit into bags.

The UPRP always accounts for and counts any trash that is collected that cannot be bagged. This typically includes vehicular tires, shopping carts, wood debris, construction debris, or any other items that have been illegally dumped.

- M. Share the Data with Volunteers:** Once you have tallied the final numbers of bags of trash and other items collected during the clean-up event, announce them to your volunteers so they know just how much trash and other debris they removed from the area, know how important their contribution of time and efforts were, and have immediate results of their work!



- N. Tally Final Numbers on Clean-Up Attendance Sheet:** Once you have tallied everything collected, write these numbers on your “Clean-Up Attendance Sheet”.

- O. Take Photographs:** To commemorate the success of your clean-up event, take a photo of the trash collected, and of the group of volunteers who helped collect it!

The UPRP always photographs the trash collected (in and out of bags), as well as takes a group photograph in front of or aside the trash collected.



- P. Award a Prize, or Two, or Three:** If you played one or more games during the clean-up event, consider awarding a certificate or prize to your winner(s) and photographing them with their winning piece of trash!

The UPRP has, for many years, asked volunteers to find the “Most Interesting or Unusual Piece of Trash” at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for “judging” by the coordinator(s) of the clean-up. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken.



- Q. Thank the Volunteers:** Before parting ways, be sure to thank your volunteers for their assistance! Encourage them to volunteer again. Be sure to individually thank any special guests (aldermen / selectmen, city employees, media, etc.).

At the end of each clean-up event, the UPRP notes upcoming clean-up events in order to encourage volunteers to return for the next event.



Above Left: Volunteers at the 100th Cleanup of the Manchester Urban Ponds Restoration Program.

Above Right: Cake served to volunteers at the 100th official cleanup of the Manchester Urban Ponds Restoration Program .

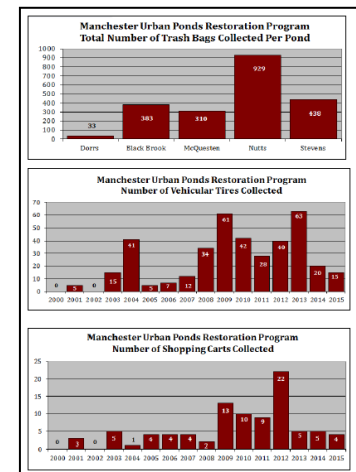
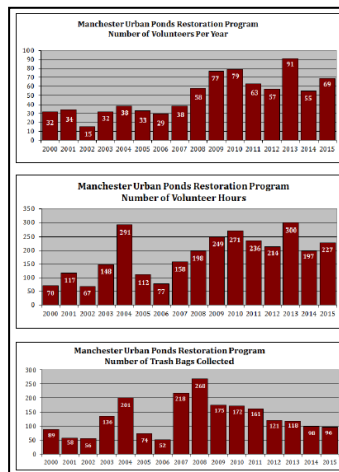
- R. Consider Having a Picnic / Cookout / or Lunch:** If you have the financial means, consider having a picnic / cookout / lunch afterwards to celebrate your accomplishment. Or, consider soliciting local vendors for food donations in exchange for sponsor / partnership recognition at your clean-up event. If you're not able to make or supply lunch, consider encouraging volunteers to bring a brown-bag lunch for afterwards.

Step 7: Follow Up After the Clean-Up Event

- A. Update Your Electronic Records:** Now is the time to transpose the information collected on the “Clean-Up Attendance Sheet” into an electronic record-retention system if you have access to one. Perhaps you have access to a database. If not, consider using a Microsoft Excel workbook / spreadsheet system to track measurements from your clean-up events. Now is also the time to update your existing e-mail distribution list with the names and e-mail addresses of those volunteers who participated in your clean-up event.

The UPRP has consistently used Microsoft Excel to track clean-up measurements. In the first worksheet of the workbook, we account for the number of our clean-up event, the location, date, hours spent at the event, numbers of bags of trash collected at the event, number of volunteers at the event, number of volunteer hours at the event, total value of volunteer time for the event, and other items retrieved at the event. For each year tracked, we created a “total” line with auto-calculations to account for the total of each year. To account for the value of volunteer time, we use figures taken from www.independentsector.org. In the second worksheet of the workbook, we account for pond cleanup attendees, where, for each clean-up event, we list the location, date, names (in alphabetical order), address, and hours at event. Similarly, for each year tracked, we created a “total” line. In the third worksheet of the workbook, we have created graphs based upon each year’s total metrics. We then transpose these graphs to a Microsoft Word document, then an Adobe PDF document, and post on our website, and at the kiosks.

Manchester Urban Ponds Restoration Pond Cleanup Measurements									
#	Location	Date	Hours	# Bags Trash Collected	# Volunteers in Attendance	# Volunteer Hours	Value of Volunteer Time (\$22.50/hr)	Other Items Retrieved	
2013									
1	Black Brook	6/30/2013	2	16	10	10	\$225.00	5 tires, 1 vacuum motor, 2 large plastic containers	
2	Revere Pond	6/30/2013	2	16	10	10	\$225.00	5 tires, 1 vacuum motor, 1 television, 3 bags	
3	Nash Pond	9/4/2013	2	16	10	10	\$225.00	10 tires, 1 vacuum motor, 1 television, 3 bags	
4	Manchester Pond (NPRC)	9/10/2013	4	16	10	10	\$225.00	17 tires, 1 vacuum motor, 4 car tires	
5	Manchester Pond (NPRC)	9/10/2013	4	16	10	10	\$225.00	17 tires, 1 vacuum motor, 4 car tires	
2014									
1	Black Brook	6/30/2014	2	16	10	10	\$225.00	5 tires, 1 vacuum motor, 2 large plastic containers	
2	Revere Pond	6/30/2014	2	16	10	10	\$225.00	5 tires, 1 vacuum motor, 1 television, 3 bags	
3	Nash Pond	9/4/2014	2	16	10	10	\$225.00	10 tires, 1 vacuum motor, 1 television, 3 bags	
4	Manchester Pond (NPRC)	9/10/2014	4	16	10	10	\$225.00	17 tires, 1 vacuum motor, 4 car tires	
5	Manchester Pond (NPRC)	9/10/2014	4	16	10	10	\$225.00	17 tires, 1 vacuum motor, 4 car tires	
2015									
1	Black Brook	6/30/2015	2	16	10	10	\$225.00	5 tires, 1 vacuum motor, 2 large plastic containers	
2	Revere Pond	6/30/2015	2	16	10	10	\$225.00	5 tires, 1 vacuum motor, 1 television, 3 bags	
3	Nash Pond	9/4/2015	2	16	10	10	\$225.00	10 tires, 1 vacuum motor, 1 television, 3 bags	
4	Manchester Pond (NPRC)	9/10/2015	4	16	10	10	\$225.00	17 tires, 1 vacuum motor, 4 car tires	
5	Manchester Pond (NPRC)	9/10/2015	4	16	10	10	\$225.00	17 tires, 1 vacuum motor, 4 car tires	
TOTALS									
101			209	800	2028.50	\$45,254.80			



- B. Follow Up With an E-mail or Thank-You Note:** It is always nice to follow up with your new (and / or returning) volunteers by sending them a formal personalized thank-you via e-mail or US Postal Service. Besides, who doesn't like receiving a letter in the letter box, especially in this electronic day-in-age?

The UPRP, has, on occasion, sent personalized thank-you cards in the mail. Typically, however, we send a group thank-you via e-mail and attach photographs taken at the event(s), as well as re-cap tallies from the clean-up event(s).



- C. Consider Writing an Article for Your Newsletter or the Newspaper:** Consider writing an article for your newsletter, if you have one, or a local newsletter or newspaper, summarizing the event with photographs and tallies from the event. Volunteers who helped out at your clean-up event will feel proud of their accomplishment and the results. This is a good way to garner publicity about your group and its event as well as garner additional volunteers in the future.

The UPRP has often written newspaper articles and / or shared summary information about the clean-up events (at the end of the season) listing sponsors / project partners and volunteers, and including photographs of volunteers at the event, via an electronic newsletter.



From 2000 - 2005 **The Manchester Urban Ponds Restoration Program** (UPRP) was part of the Supplemental Environmental Projects Plan (SEPP) which was part of an agreement between the City of Manchester, NH Department of Environmental Services, and the US Environmental Protection Agency to address combined sewers in the City. Seven (7) waterbodies in Manchester have been evaluated and monitored for restoration potential. Specific restoration projects to meet the program's goals have also been identified, funded, and completed through this project. Since 2000, the Manchester Urban Ponds Restoration Program has organized 101 clean-up events. Over the past 15 years, 800 volunteers have spent 2,298.50 hours collecting 2,093 bags of trash! This does not include the items illegally “dumped” such as shopping carts (91), tires (388), car batteries, other car parts, construction debris, and other items. In addition, the value of volunteer time spent at these clean-ups has amounted to over \$54,000 over the past 15 years! The Manchester Urban Ponds Restoration Program was awarded an EPA “Environmental Merit Award” in 2011. More information on the Manchester Urban Ponds Restoration Program can be found by visiting www.manchesternh.gov/urbanponds.



Jen Drociak lives in Manchester, NH and holds a Bachelor of Science degree in Environmental Conservation from the University of New Hampshire. She is employed with the New Hampshire Department of Environmental Services where she has worked as a program specialist for the Pollution Prevention Program, a restoration specialist for the NH Coastal Program where she established a monitoring program for pre- and post-restoration projects in NH's salt marshes, and as the Volunteer River Assessment Program Coordinator

where she provided technical assistance to approximately 200 volunteers who collected water quality samples for surface water quality assessments on NH's rivers and streams. Jen has also worked for the Wastewater Engineering Bureau as a grants management specialist and is currently working for the Land Resources Management Bureau as a compliance specialist. Since 2000, Jen has also been involved with the Manchester Urban Ponds Restoration Program, and has served as acting coordinator since 2006 where she largely coordinates annual clean-up events and water quality monitoring.



Appendix F

Record Keeping

**MS4 Record Keeping Update
Westford, MA
January 2025**

Volume 4 of the Town's Stormwater Management Master Plan (SWMMP), NPDES Stormwater Program Compliance Plan, has been appended through the Permit term, including development of the following standalone reports. These reports are available from the Westford Engineering Department.

The **IDDE Program** has been updated to include:

- Illicit Discharge Detection and Elimination (IDDE) Plan, June 2012
 - IDDE Plan Addendum: Update for the 2016 Small MS4 General Permit, June 2018
- Sanitary Sewer Overflow Inventory, updated annually
- IDDE Training Log, updated annually
- Illicit Discharge Removal Reports, updated annually as applicable
- Westford Outfall Inventory and Dry Weather Screening Field Effort Summary, June 29, 2018
- Westford Inventory and Dry Weather Screening Field Effort FY2020 Summary, November 13, 2020
- Westford Outfall Inventory & Screening Report, October 2021
- Westford Outfall Inventory & Screening Report, November 2023 (Draft)
- Westford MS4 Catchment Investigation Procedures, December 2019
- Westford Catchment Investigations Summary and Data, September 2022
- Westford Catchment Investigations Summary and Data, November 2023 (Draft)
- Summary of Westford's TMDLs and Impaired Waters, 2016 303(d) List
- Summary of Westford's TMDLs and Impaired Waters, 2018/2020 303(d) List
- Summary of Westford's TMDLs and Impaired Waters, 2022 303(d) List
- Westford Catchment Investigations Summary and Data, June 2024

The **Construction and Post-Construction Programs** have been updated to include:

- Westford Planning Board Rules & Regulations for Stormwater Management Permits met many of the 2016 General Permit requirements since adopted in 2012 (e.g., requiring submission of as-built drawings, requiring long-term operation and maintenance of private stormwater management systems, addressing pollutants of concern for impaired waters and waters subject to a TMDL, requiring adherence to the MA Stormwater Handbook, etc.). However, the Planning Board adopted updated Regulations on June 21, 2021 to more specifically meet EPA's 2016 General Permit requirements for oversight of Construction Site Stormwater Runoff and Post-Construction Stormwater Management (e.g., more stringent design criteria for new development and redevelopment) as well as anticipated MA Stormwater Handbook updates (e.g., reference to updated precipitation frequency estimates). The updated Rules and Regulations are available online here: <https://westfordma.gov/DocumentCenter/View/10187/Stormwater-Regulations-as-of-6-21-2021>
- Westford's Local Code Assessment, May 2022. A report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover; as well as assessing existing local regulations to determine the feasibility of making

**MS4 Record Keeping Update
Westford, MA
January 2025**

green infrastructure and LID practices allowable. Mass Audubon's *By-Law Review for LID & Climate-Smart, Nature Based Solutions* is available electronically.

- Westford's Retrofit Assessment Report, Draft June 2022, Updated February 2023. An assessment of Town-owned properties and infrastructure that could be modified or retrofitted with BMPs to mitigate impervious areas. The report is available electronically.

The **Municipal Good Housekeeping Program** has been updated to include:

- Westford's Town-Wide Operation & Maintenance Plan, Volume 3 of the SWMMP, dated August 2020, including a standard operating procedure for inspection and maintenance of stormwater best management practices (BMPs) and a catch basin cleaning optimization plan. Updated July 2023. The revised Volume 3 is available on the Town's stormwater webpage.
- Highway Garage Facility Stormwater Pollution Prevention Plan, Revised January 2024
- School Maintenance Garage Facility Stormwater Pollution Prevention Plan, Revised January 2024
- Water Department Maintenance Garage Facility Stormwater Pollution Prevention Plan, Revised January 2024

Reporting includes:

(Reports and attachments are available on the Town's stormwater webpage here: <https://www.westfordma.gov/339/Managing-Our-Stormwater>).

- Year 1 Annual Report. The following attachments are available on the Town's stormwater webpage:
 - Sanitary Sewer Overflow Inventory 2013 – June 30, 2019
 - Permit Year 1 Outfall Inventory
 - Westford Outfall Inventory and Dry Weather Screening Field Effort Summary, June 29, 2018
- Year 2 Annual Report. The following attachments are available on the Town's stormwater webpage:
 - Westford Inventory and Dry Weather Screening Field Effort FY2020 Summary, November 13, 2020
 - Westford MS4 Catchment Investigation Procedures, December 2019
 - Annual Report for the 2019 Post-Treatment Management Program for Westford Ponds – Keyes, Long Sought For, Nabnasset
- Year 3 Annual Report. The following attachments are available on the Town's stormwater webpage:
 - Westford Outfall Inventory & Screening Report, October 2021
- Year 4 Annual Report. The following attachments are available on the Town's stormwater webpage:
 - Westford Code Assessment, May 2022
 - Westford Catchment Investigation Summary and Data, September 2022

**MS4 Record Keeping Update
Westford, MA
January 2025**

- Year 5 Annual Report. The following attachments are available on the Town's stormwater webpage:
 - Summary of Westford's TMDLs and Impaired Waters
 - Westford Field Effort Summary, September 2023
 - Westford Catchment Investigations Tracking Summary, September 2023
- Summary of Westford's TMDLs and Impaired Waters (2022 Updates) is attached.
- Year 6 Annual Report. The following attachments are available on the Town's stormwater webpage:
 - Permit Year 6 Catchment Investigations Summary and Data, June 2024
 - Westford Illicit Discharge Report

Summary of Westford's TMDLs and Impaired Waters ^{1, 2, 3, 6}



Receiving Waterbody	2018/2020 Category	2018/2020 Water Quality Impairments ⁶	2022 Category	2022 Water Quality Impairments ³	Applicable General Permit Section	Change to Permit Requirements
Beaver Brook (MA84B-02) ⁴	5	Fecal Coliform TSS Dissolved Oxygen pH, Low	5	Dissolved Oxygen Fecal Coliform pH, Low		Requirements of Appendix H, Section V - Solids no longer apply Requirements of Appendix H, Section III - Pathogens are not applicable because there are no direct discharges identified for this waterbody
Stony Brook (MA84B-03)	5	Fecal Coliform Turbidity Benthic Macroinvertebrates	5	Fecal Coliform Turbidity Benthic Macroinvertebrates	Appendix H, Section III - Pathogens Appendix H, Section V - Solids	None
Stony Brook (MA84B-04) ⁵	5	E. Coli Benthic Macroinvertebrates Dewatering	5	E. Coli Benthic Macroinvertebrates Dewatering		None Requirements of Appendix H, Section III - Pathogens are not applicable because there are no direct discharges identified for this waterbody
Tadmuck Brook (MA84B-07) ⁴	5	E. Coli	5	E. Coli		None Requirements of Appendix H, Section III - Pathogens are not applicable because there are no direct discharges identified for this waterbody
Forge Pond (MA84015)	4a	Curly-leaf Pondweed Fanwort Water Chestnut Mercury in Fish Tissue (33880)	4a	Curly-leaf Pondweed Fanwort Water Chestnut Mercury in Fish Tissue (33880)	Appendix F, Section C - Mercury TMDL	None No requirements related to this Mercury TMDL are imposed on MS4 discharges under this part. If the permittee becomes aware, or EPA or MassDEP determines, that an MS4 discharge is causing or contributing to such impairment to an extent that cannot be explained by atmospheric deposition (e.g. chemical spill, acid landfill leachate or other sources), the permittee shall comply with the requirements of part 2.1.1.d and 2.3.4 of the permit.
Nabnasset Pond (MA84044) ⁴	5	Curly-leaf Pondweed Non-Native Aquatic Plants Harmful Algal Blooms Mercury in Fish Tissue (33880)	5	Curly-leaf Pondweed Non-Native Aquatic Plants Harmful Algal Blooms Mercury in Fish Tissue (33880)	Appendix F, Section C - Mercury TMDL	None No requirements related to this Mercury TMDL are imposed on MS4 discharges under this part. If the permittee becomes aware, or EPA or MassDEP determines, that an MS4 discharge is causing or contributing to such impairment to an extent that cannot be explained by atmospheric deposition (e.g. chemical spill, acid landfill leachate or other sources), the permittee shall comply with the requirements of part 2.1.1.d and 2.3.4 of the permit.
Nashoba Brook (MA82B-14) ⁴	5	Dewatering E. Coli Temperature	5	Dewatering E. Coli Temperature Benthic Macroinvertebrates	Appendix F, Section A.V - Phosphorus TMDL	None Requirements of Appendix H, Section III - Pathogens are not applicable because there are no direct discharges identified for this waterbody
Reed Brook (MA84B-08)	3		3			None
Heart Pond (MA82059) ⁵	5	Non-Native Fish/Shellfish/Zooplankton Water Chestnut E. Coli Mercury in Fish Tissue	5	Non-Native Fish/Shellfish/Zooplankton Water Chestnut E. Coli Mercury in Fish Tissue	Appendix F, Section A.V - Phosphorus TMDL	None Requirements of Appendix H, Section III - Pathogens are not applicable because there are no direct discharges identified for this waterbody
Deep Brook (MA84A-21) ⁵	5	Sedimentation/Siltation Habitat Assessment Benthic Macroinvertebrates E. Coli Lack of a coldwater assemblage Temperature	5	Sedimentation/Siltation Habitat Assessment Benthic Macroinvertebrates E. Coli Lack of a coldwater assemblage Temperature		None Requirements of Appendix H, Section III - Pathogens and Appendix H, Section V - Solids, are not applicable because there are no direct discharges identified for this waterbody
Bridge Meadow Brook (MA84A-34) ⁵	3		3			None
Fiske Street Pond (MA82037) ⁴	3		3		Appendix F, Section A.V - Phosphorus TMDL	None
Assabet River TMDL for Total Phosphorus (SuAsCo Watershed) ⁷					Appendix F, Section A.V - Assabet River Phosphorus TMDL	None

¹ TMDLs associated with major rivers may apply to additional waterbodies within the watershed.

² Any TMDL or impairments related to nutrients (nitrogen and phosphorus) apply to all receiving waterbodies within the watershed.

³ Impairments in **blue** were added in the 2022 Integrated List of Waters.

⁴ Waterbody does not receive direct discharge from the MS4. MS4 discharges to a tributary/wetland of the waterbody. Included for reference only.

⁵ Waterbody or tributary/wetlands to the waterbody does not receive direct discharge from the MS4. Included for reference only.

⁶ Impairments in **red** were removed from the 2022 Integrated List of Waters.

⁷ This TMDL applies to the Assabet River and all tributaries in the watershed, including unlisted receiving waters such as Vine Brook, Butter Brook, Nonset Brook, and other unnamed tributaries.



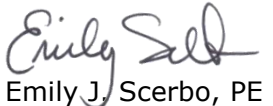
Appendix G

Plan Amendment Log

NPDES STORMWATER PROGRAM COMPLIANCE PLAN

AMENDMENT LOG

Tighe&Bond

Amend. No.	Description of the Amendment	Date of Amendment	Amendment Prepared by (Name/Signature)
1	A summary of updates and standalone reports developed for the following MCMs was added to Appendix F of the Compliance Plan: • Construction and Post-Construction Programs • Municipal Good Housekeeping Program • Annual Reporting	July 2021	 Emily J. Scerbo, PE Sr. Project Manager Tighe&Bond
2	The IDDE Program has been updated to include the following standalone reports, as outlined in the summary in Appendix F: • Illicit Discharge Detection and Elimination (IDDE) Plan, June 2012 ◦ IDDE Plan Addendum: Update for the 2016 Small MS4 General Permit, June 2018 • Sanitary Sewer Overflow Inventory, updated annually • Westford Outfall Inventory and Dry Weather Screening Field Effort Summary, June 29, 2018 • Westford Inventory and Dry Weather Screening Field Effort FY2020 Summary, November 13, 2020 • Westford MS4 Catchment Investigation Procedures, December 2019 • Summary of Westford's TMDLs and Impaired Waters, September 2020	July 2021	 Emily J. Scerbo, PE Sr. Project Manager Tighe&Bond

Amend. No.	Description of the Amendment	Date of Amendment	Amendment Prepared by (Name/Signature)
3	The IDDE Program has been updated to include the following standalone reports, as outlined in the summary in Appendix F – Record Keeping: • Sanitary Sewer Overflow Inventory, updated annually • Westford Outfall Inventory & Screening Report, October 2021 • Westford MS4 Catchment Investigations Summary and Data, September 2022 • Summary of Westford’s TMDLs and Impaired Waters, September 2022 The Construction and Post-Construction Programs have been updated to include the following standalone reports, as outlined in the summary in Appendix F – Record Keeping: • Westford Local Code Assessment, May 2022 Updated Appendix F – Record Keeping with a summary of Year 3 and Year 4 Annual Reporting. Inclusion of Summary of Westford’s TMDL and Impaired Waters (2022 Updates) to Appendix F.	October 2022	 Emily J. Scerbo, PE Sr. Project Manager Tighe&Bond
4	The Stormwater Program Compliance Plan has been amended as follows: • Updated MS4 Record Keeping Log in Appendix F • Added the Year 5 Annual Report and associated attachments to Appendix F • Updated Plan Amendment Log in Appendix G The IDDE Program has been updated to include the following standalone reports, as outlined in the summary in Appendix F – Record Keeping: • Westford Outfall Inventory & Screening Report, November 2023 (Draft) • Westford Catchment Investigations Memo, November 2023 (Draft) • Summary of Westford’s TMDLs and Impaired Waters, September 2023	December 2023	 Emily J. Scerbo, PE Vice President Tighe&Bond

Amend. No.	Description of the Amendment	Date of Amendment	Amendment Prepared by (Name/Signature)
5	The Stormwater Program Compliance Plan has been amended as follows: • Updated MS4 Record Keeping Log in Appendix F • Added the Year 6 Annual Report and associated attachments to Appendix F • Updated Plan Amendment Log in Appendix G The IDDE Program has been updated to include the following standalone report, as outlined in the summary in Appendix F – Record Keeping: • Permit Year 6 Catchment Investigations Summary and Data, June 2024 • Sanitary Sewer Overflow Inventory, updated annually • Added Employee Training Records	January 2025	 Evelyn Ramos, PE Project Manager Tighe&Bond

Section 6

Plan 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 gathered and evaluated 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.

Name: Kristen Las Title: Town Manager

Signature: _____ Date: _____

A letter that authorizes the Town of Westford Town Manager and Town Engineer to sign and certify certain documents prepared under the Small MS4 General Permit is included in Appendix H.

Questions and comments about the Town's stormwater program should be directed to the Program Coordinator:

Paul Starratt, P.E.

Town Engineer

(978) 399-2716

pstarratt@westfordma.gov



Appendix H

Delegation of Authority Documentation

September 25, 2018

Ms. Thelma Murphy
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912

Re: NPDES MA Small MS4 General Permit
Delegating an "Authorized Representative"

Dear Ms. Murphy:

This letter serves to designate the Town of Westford **Town Manager** as an authorized person for signing the Stormwater Management Plan (SWMP) and annual reports, and the Town of Westford **Town Engineer** as an authorized person for signing stormwater pollution prevention plans (SWPPPs), inspection reports, monitoring reports, reports on training, and other information required under the General Permit. This authorization cannot be used for signing a NPDES permit application (e.g., Notice of Intent (NOI)) in accordance with 40 CFR 122.22.

By signing this authorization, I confirm that the Board of Selectmen meets the following requirements to make such a designation as set forth in Appendix B, Subparagraph 11 of the Small MS4 General Permit:

For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

"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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely,


Scott Hazelton, Chair
Westford Board of Selectmen