Stormwater Management Plan (SWMP)

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Tab 1

Introduction

STORMWATER MANAGEMENT PROGRAM (SWMP)

Original Date of SWMP: March 10, 2003
Revised Date: October 2, 2019
Prepared for the U.S. Environmental Protection Agency (EPA)

Effective Date of Final General (MS4) Permit: July 1, 2018

Submitted by:

June 30, 2019

Town of Wellesley
Department of Public Works
20 Municipal Way
Wellesley, Massachusetts 02481

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1.0 Introduction

1.1 Stormwater Regulations and Background

In an effort to preserve, protect and improve the Nation's water resources, the Environmental Protection Agency in 1987 implemented a Phase I Rule, which required medium and large cities or counties with populations of 100,000 or more to obtain a National Pollutant Discharge Elimination System (NPDES) permit for their stormwater discharges. In 1999, the Phase II program expanded the Phase I program by including additional operators small Municipal Separate Storm Sewer Systems (MS4's) defined by the Census Bureau to obtain NPDES permit coverage for their stormwater discharges. Phase II also included non-traditional MS4s such as public universities, department of transportation, hospitals and prisons.

The purpose of this program is to reduce the discharge of pollutants from the MS4 to the maximum extent practicable; protect water quality, and satisfy the water quality requirements of the Clean Water Act and Massachusetts Water Quality Standards.

The Town of Wellesley is the owner and operator of a small municipal separate storm sewer system in the Commonwealth of Massachusetts. Wellesley has been determined by the U.S. Bureau of the Census to be located within the boundary of an "urbanized area." Therefore, under the requirements of the Clean Water Act and the U.S. EPA's Storm Water Phase II Program, the Town is required to obtain a NPDES permit for its stormwater discharges. The Town will seek permit coverage under the NPDES General Permit for Small Municipal Separate Storm Sewer System in the States of Massachusetts and New Hampshire; Indian Country Lands in the States of Connecticut, Massachusetts and Rhode Island; and Federal Facilities in the State of Vermont.

A further requirement of EPA's Stormwater Phase II Program is the Town must have NPDES permit coverage for stormwater discharges associated with an industrial activity. The Town's Recycling and Disposal Facility operation is considered industrial activity by the EPA. The Town continues to implement EPA's Multi-Sector General Permit, which was recently revised and became effective on June 4, 2015. The new permit will expire on June 4, 2020.

On April 4, 2016, the EPA signed the Final General Permit, which became effective July 1, 2018 after a year of postponement of the effective date. The final permit reflects modifications to the 2014 draft small MS4 general permit released for comment on September 30, 2014 and replaces the 2003 small MS4 general permit for MS4 general permit for MS4 operators within the Commonwealth of Massachusetts. Under the Final General NPDES MS4s permit, permittees are required to either revised their existing Stormwater Management Plan (SWMP) or prepare a new SWMP that must be implemented during the MS4s permit period, which began July 1, 2018, the effective date of the new permit. Provided herewith is a copy of the SWMP, which utilizes a template provided by the EPA. The SWMP describes and details the activities and measures required to meet the terms of the permit. The activities and measures include six minimum control measures as follows: MCM1 Public Education and Outreach, MCM2 Public Involvement and Participation, MCM3 Illicit Discharge Detection and Elimination, MCM4 Construction Site Stormwater Runoff Control, MCM5 Post-Construction Stormwater Management in New Development and Redevelopment, MCM6 Pollution Prevention and Good Housekeeping in

Municipal Operations. The SWMP also describes requirements to meet the terms of the permit for communities that discharge to the Charles River, which requires communities to address by reducing phosphorus from its MS4.

1.2 Permit Approval

Under the Final General Permit, the Town of Wellesley was required to submit a Notice of Intent (NOI) in order to be eligible to receive authorization from the EPA to continue discharging stormwater from the Town's MS4. The NOI included a copy of the Endangered Species Act (ESA) certification and review of the National Historic Preservation Act (NHPA), both of which are included in the NOI. See Section 7.1. On February 14, 2019, the Town of Wellesley received a letter from the EPA granting authorization by EPA and MassDEP to discharge stormwater from the Town's MS4 in accordance with the terms and conditions of the MS4 General Permit, including all relevant and applicable Appendices. The first annual report is due by September 30, 2019 for the reporting period from May 1, 2018 through June 30, 2019. A copy of the Notice of Intent and approval letter from the EPA is attached as Section 2 and 3 respectively.

1.3 Self-Evaluation

The Town of Wellesley has completed the required self-assessment and has determined that our municipality is in compliance with all MS4 permit conditions.

The Town both through education and regulatory review continues to encouraged private development projects to focus on stormwater runoff by installing BMP's and LID techniques, where feasible. For private construction projects that are regulated by the Town, there were a total of 20 on-site stormwater BMP's installed this year, including sub-surface infiltration, rain gardens, bioswales, porous pavement and other LID techniques, which continues to grow through public education and outreach. We are including information on managing sediment and erosion control for single family residential construction sites in our current newsletter. The Town continues to require builders to provide as-built plans for the private drainage systems and to produce annual reports to the DPW, which we are adding to our GIS system. A key public project was the new high school track and field, for which 3 pre-treatment bio-basins were installed. The Town has partnered with other communities and formed the Charles River Stormwater Coalition to discuss and provide information in preparation for the new MS4 permit.

The Town continues to field proof the Town's drainage network and is approximately 85% complete. All inspections and inventory corrections are being made directly to our GIS system. We have completed 100% of our dry weather outfall inspections. This year, a total of 44 outfalls were inspected for dry weather flow. There are approximately 5% of our outfalls with dry weather flow, which through laboratory analysis has indicated that the dry weather flow is from natural causes such as high groundwater.

We continue to manage and update the Town's Stormwater Management webpage, which includes copies of our annual reports, stormwater mapping, stormwater brochure, watershed maps, stormwater hotline and other information that provides residents with the latest information on stormwater. The stormwater webpage provides a link to the Think Blue

Massachusetts educational campaign for residents and businesses to reduce polluted runoff to our state's lakes, rivers and streams. We continue to attend stormwater seminars and local stormwater coalition meetings to stay informed and collaborate on stormwater related issues. We have recently attended the Massachusetts Statewide Municipal stormwater Coalition, which meets to help communities meet the MS4 permit.

The Town's Natural Resources Commission (NRC) hosted a rain barrel and composting event to help the community collect and save stormwater, which helps to reduce runoff from homes and developments.

The Town's regulations governing land disturbances require that we review projects to protect sensitive areas including navigable waters, the water supply areas and wetlands resources. We continue to reach out to engineers, builders and architects to address for sediment and erosion controls for site development and redevelopment work. In 2018, the Town's newsletter contained a message regarding erosion and sediment control on construction sites.

We have recently worked with students from the Wellesley High School to implement a stormwater stenciling project in which over 150 stencils were placed at catch basins.

1.4 Mapping

Provided as Figure 1 to this SWMP is a copy of the Phase I system that shows the following: outfalls, receiving waters, open channel conveyances, interconnections with other MS4s, municipally-owned stormwater treatment systems, waterbodies approved on the Massachusetts Integrated List of waters and initial catchment delineations. Additionally, a copy of the Town's zoning map and watershed drainage basin has been provided as Figure 2 & 3 respectively.

1.5 As-Built

The Town requires that all new private and public stormwater treatment structures require an as-built plan. Town Departments such as the Building Department, Zoning Board of Appeals, Planning Department and DPW Engineering Division provide conditions of approval during the review process for Site Plan Review, Large House Review, stormwater review, wetlands review and private drain connections. The Town's DPW is involved in the inspection of most private BMP's, which includes taking measurements for an as-built that is prepared in GIS.

1.6 Operation and Maintenance Plans

Long term Operation and Maintenance Plans (O&M) are required for projects that reviewed under Site Plan Review, Large House Review, Wetlands Review and Stormwater Review. The applicant is required to provide written procedures for maintain on-site stormwater conveyances and treatment devices, which include an inspection form and notice to the Town Engineer on an annual basis.

The following outlines the six Minimum Control Measures (MCM) required by the MS4 General Permit.

2.0 PUBLIC EDUCATION AND OUTREACH (MCM 1)

2.1 Objectives

The objective of the education program is to increase knowledge and change behavior of the public so that pollutants in stormwater runoff is reduced. The Town is engaged in teaching Middle School students about stormwater on an annual basis. We offer programs such as catch basin stenciling that could be incorporated into Eagle Scout projects, Minuteman School "Community Action Project", High School community hours work and 8th Grade Community Service Day. The Town also includes stormwater education materials in the annual Newsletter from the DPW. The Town's NOI includes a schedule of education and outreach program for each year of the MS4 permit. The Town includes a link to the Think Blue Massachusetts educational campaign that is available to residents and business owners.

2.2 GOALS:

The MS4 permit requires a minimum of two (2) educational messages over the permit term to each audience: (1) residents, (2) businesses, institutions (churches, hospitals), and commercial facilities, (3) developers (construction), and (4) industrial facilities.

3.0 PUBLIC INVOLVEMENT AND PARTICIPATION (MCM 2)

3.1 Objectives

The Town will involve the public with continued workshops, cleanup days, and community events. We also post for review the Stormwater Management Plan, Annual Report and other MS4 permit documentation on the Town's website. Advocacy groups are encouraged to participate in discussions centered on improving stormwater related activities. An email subscriber program was created to provide an email blast and public meeting notices to involve the public. Local schools are encouraged to participate in the installation of catch basin stenciling throughout the Town.

3.2 Goals

Encourage Town involvement and participation through public meetings, distribution of permit materials through the Town's website, workshops and events through the NRC. Provide website hotlines, cleanup teams, monitoring teams and work with the NRC and other community committees.

4.0 ILLICIT DISHARGE DETECTION AND ELIMINATION (IDDE) (MCM 3)

4.1 Objectives

The objectives of the IDDE program are to identify and eliminate sources of non-stormwater related discharges to the municipal storm sewer system and implement procedures to avoid future discharges.

4.2 Sanitary Sewer Overflow (SSO)

Sanitary Sewer Overflows occur as a result of broken, cracked or disjointed piping, root growth, blockages in the pipe, etc. that cause raw sewerage to overflow from the sanitary sewer system. When this occurs, the Town must eliminate the SSO as soon as possible and take interim mitigation measures to minimize the discharge of pollutants to and from its MS4 until SSO is complete. Our permit with the MWRA requires that all SSO's are reported to both the MWRA and the MADEP within 24 hours. This permit further requires the Town to identify all known locations where SSO's have discharged to the MS4 within the previous (5) years. Refer to section 2.3.4.4 Sanitary Sewer Overflows in the MA MS4 General Permit. Included in Section 2.1 is a copy of the inventory of all identified SSOs within the past 5 years. Historically, Wellesley's SSO's have been the result of a blockage in the sewer collection system. Fortunately, they have been discovered quickly without any known or observable impact to natural result of discharges regulated by the permit.

4.3 System Mapping

Phase I system mapping shall be updated within 2 years of the effective date of the permit to include outfalls, receiving waters, open channel conveyances, interconnections, municipally owned stormwater treatment structures, waterbodies and initial catchment delineations.

Phase II mapping is required within 10 years of the effective date of the permit and includes outfall location, pipes, manholes, catch basins, refined catchment delineations, municipal sanitary sewer system and combined sewer system if applicable. Wellesley has completed the phase I & II requirements and is in the process of reconfirming the information.

4.4 Employer Training

For the last few years the DPW has conducted annual training of all employees that includes awareness, identification, reporting, and safety precautions related to IDDE.

4.5 Goals

Provide legal authority to allow IDDE investigation on private property that discharges to the MS4 system and implement enforcement procedures. Continue to train employees on IDDE implementation annually. Complete ongoing outfall screening, outfall and interconnection inventory, and priority ranking. Annually assess illicit discharge potential based on information, dry weather screening and other relevant inspections.

Written IDDE program with all the requirements to meet the permit. Assess and priority rank the outfalls in terms of their potential to have illicit discharges and SSOs and public health significance. An initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information to be completed within one (1) year of the effective date of the permit. The IDDE program shall include development of an outfall and interconnection screening and sampling procedure to be included in the IDDE program within one year (1) year of the permit effective date. A systematic procedure to investigate each catchment associated with an outfall or interconnection within the MS4 system shall be developed. Personnel involved in IDDE shall be trained annually.
Refer to section 2.3.4.4 Sanitary Sewer Overflows (SSOs) in the MA MS4 General Permit. Included in tab 6 is a copy of the inventory of all identified SSOs within the past 5 years.

5.0 CONSTRUCTION SITE STORMWATER RUNOFF (MCM 4)

5.1 Objectives

To develop and implement an effective construction site stormwater runoff control program to minimize erosion and prevent sediment from running off site to the MS4 system. This program is typically for land disturbances of 1 acre or greater, unless the land is part of a larger common plan.

5.2 Planning and Permitting

Existing regulations that include the review of stormwater runoff are in place for the following activities.

Regulatory Body	Category	Construction Activity/Limit
P.B.	Subdivision	New Road
P.B.	P.S.I.	≥15,000 s.f. disturbance
P.B.	Drainage Review	>1.0 acre disturbance
W.P.C.	Any Work	Wetlands Resources/Buffer Zone
Z.B.A.	Large House Review	Zoning
Z.B.A.	Site Plan Approval -Major -Minor	10,000 disturbance (major) 5,000 disturbance (minor)
D.P.W.	Drain Connection	Proposed Drain Connection & Specified Conditions

All construction activities that trigger the above permitting activities will undergo a stormwater review by DPW engineering staff. These reviews typically result in the project moving the MassDOT stormwater standards including controlling construction stormwater runoff.

5.3 Goals

Written procedure for site inspections and enforcement of sediment and erosion controls. Site inspection and enforcement of erosion and sediment control measures. Unifying current written procedures and specifications for engineering review at construction sites and expansion of inspections.

6.0 POST CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (MCM 5)

6.1 Objectives

Reduce the discharge of pollutants found in stormwater runoff through retention or treatment of stormwater after construction on new or redeveloped sites. By assuring that systems are maintained and function properly.

6.2 Stormwater System Post Construction Management

The Town has 8 infiltration systems and 8 bio basins and 1 rain garden. We plan on expanding this as appropriate during the permit term. Additionally, private development is adding on an average of 12 subsurface infiltration systems per year, mostly to comply with permit requirements. Due to physical and staffing limitation, the Town will continue to require that private systems will be maintained by the owners and that operation and maintenance plans, repairs and modifications will be forwarded and recorded with the DPW on an annual basis.

6.3 Goals

Require submission of as-built drawings and ensure long term operation and maintenance will be part of the SWMP for Town owned systems. Work with all departments that regulate land development to assess existing local regulations to determine the feasibility of expanding green infrastructure practices.

6.2 Record Keeping/Reporting

7.0 POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS (MCM 6)

7.1 Objectives

Responsible Department: DPW - Engineering

A. Develop and implement a program with a goal of preventing and/or reducing pollutant runoff from municipal operations. The program must include an employee training component.
    1. The Town shall evaluate its existing controls for reducing or eliminating discharges from roads, municipal parking lots, maintenance and storage yards,

refuse stations, salt storage locations, and snow disposal areas. The Town has NPDES permit coverage for stormwater discharges associated with an industrial activity at the Recycling Disposal Facility (RDF). Coverage is under EPA's Multi-Sector General Permit (MSGP).

2. MEASUREABLE GOALS: Reducing pollutants from municipal operations.
3. Employee training will be conducted annually for storage and handling of hazardous materials, vehicle refueling and washing, and preventive maintenance.
4. MEASUREABLE GOALS: 100% attendance by DPW employees.
5. Continue performing scheduling and documenting maintenance activities on BMP's and oil/water separators that we own. Develop a construction checklist. Recording private property BMP maintenance actions.
6. MEASUREABLE GOALS: Recording maintenance activities, completed construction checklist and BMP maintenance logs.

Any petroleum spill will be responded to in accordance with the procedures presented in this Plan. For purposes of outlining emergency response procedures for spills, all spills are categorized into one of two types: incidental spills that do not pose a hazard to human health or the environment, and all other spills.

7.2 Goals

Prepare operation and maintenance procedures for municipal activities related to Town owned facilities for parks and open space, buildings and facilities and vehicles and equipment. The SWMP includes written procedures for maintaining the stormwater infrastructure to reduce the discharge of pollutants from the MS4.

8.0 DISCHARGES TO IMPAIRED WATERWAYS

All assessments are from the 2016 Massachusetts Year 2016 Integrated List of Waters. Total Maximum Daily Loads (TMDL's) have been approved for Fuller Brook, Rosemary Brook and the Charles River. The pollutants of concern are identified on the 303(d) list of the Clean Water Act. In Section 10.1 is a copy of the Massachusetts Year 2016 Integrated List of Waters.

Charles River Watershed Phosphorus TMDL Requirements

To address the discharge of phosphorus from the MS4 to the Charles River, the permittee is required to develop a Phosphorus Control Plan (PCP) designed to reduce the amount of phosphorus in stormwater discharges to the Charles River and tributaries. The PCP shall be prepared in phases and added to the SWMP upon completion. The annual reports shall include progress toward achieving its Phosphorus Reduction Requirements. The PCP shall be developed and fully implemented as soon as possible but no later than 20 years after the permit effective date. A full description of the requirements and due dated for the PCP is found in Appendix F of the MA MS4 General Permit. In anticipation of this requirement the Towns have undertaken several important BMP projects to minimize phosphorus loading. A list of these included;

1. Pervious parking lot on State Street and tennis court.

2. Bio-basin between Seaward Road and Abbott Road.
3. Biobasin on Caroline Street.
4. Infiltration/bio-swale at Wellesley High School.
5. Infiltration/bio-swale at Wellesley Senior Center.
6. Infiltration system at the Fiske School.

Bacteria and Pathogen Requirements

The Charles River, Fuller Brook and Rosemary Brook have approved TMDL's for bacteria and pathogens. To reduce the bacteria and pathogens from the MS4, enhancements to BMP's is required. Through public education, the permittee shall supplement its Residential program of pet waste, including noting existing ordinances. Information about pet waste shall be provided to dog owners at the time of dog license renewal. The Town shall also provide information to owners of septic systems about proper maintenance in catchment areas that discharge to an impaired water body for bacteria or pathogens. In 2019, the community had 30 on-lot septic systems. Catchments draining to waterbodies impaired for bacteria or pathogens shall be designated Problem Catchments or HIGH priority in implementing the IDDE program. A full description of the requirement is found in Appendix F of the MA MS4 General Permit.

A. <u>CATEGORY 4c</u>

1. Lake Waban – (MA72125)
    a. Eurasian Water Milfoil, Myriophyllum spicatum.

2. Morses Pond – (MA72079)
    a. Eurasian Water Milfoil, Myriophyllum spicatum.
    b. Non-Native Aquatic Plants

B. <u>CATEGORY 5 – Waters Requiring a TMDL, 303(d) List</u>

1. Charles River – South Natick (MA 72-06)
    a. Excess Algal Growth (TMDL 40317)
    b. Other flow regime alterations.
    c. DDT in Fish Tissue
    d. Fishes Bioassessments
    e. Nutrient/Eutrophication Biological Indicators (TMDL 40317)
    f. PCB in Fish Tissue
    g. Total Phosphorus (TMDL 40317)
    h. Eurasian Water Milfoil Myriophyllum spicatum
    i. Non-Native Aquatic Plants

2. Lower Charles River – (MA 72-07)
    a. Excess Algal Growth (TMDL 40317)
    b. DDT in Fish Tissue
    c. Fishes Bioassessments
    d. Nutrient/Eutrophication Biological Indicators (TMDL 40317)
    e. PCB in Fish Tissue

f. Total Phosphorus (TMDL 40317)
g. Eurasian Water Milfoil Myriophyllum spicatum
h. Non-Native Aquatic Plants

3. Waban Brook – (MA72-17)
   a. Temperature, water

4. Fuller Brook – (MA 72-18)
   a. Physical substrate habitat alterations
   b. Escherichia coli (TMDL 32374)
   c. Nutrient/Eutrophication Biological Indicators (TMDL 40317)

Tab 2

Stormwater Management Plan (SWMP) Template

Stormwater Management Program (SWMP)

Wellesley

525 Washington St, Wellesley MA 02482

EPA NPDES Permit Number MAR041067

Certification

Authorized Representative (Optional): All reports, including SWPPPs, inspection reports, annual reports, monitoring reports, reports on training and other information required by this permit must be signed by a person described in Appendix B, Subsection 11.A or by a duly authorized representative of that person in accordance with Appendix B, Subsection 11.B. If there is an authorized representative to sign MS4 reports, there must be a signed and dated written authorization.
The authorization letter is:

☒ Attached to this document (document name listed below)

Letter of Delegation

☒ Publicly available at the website below

https://wellesleyma.gov/322/Stormwater-Reports

"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."

Printed Name Davide J. Hickey, Jr., P.E.

Signature

Date 9/30/19

Click Here for Revisions

Background

Stormwater Regulation

The Stormwater Phase II Final Rule was promulgated in 1999 and was the next step after the 1987 Phase I Rule in EPA's effort to preserve, protect, and improve the Nation's water resources from polluted stormwater runoff. The Phase II program expands the Phase I program by requiring additional operators of MS4s in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted stormwater runoff. Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of stormwater discharges that have the greatest likelihood of causing continued environmental degradation. Under the Phase II rule all MS4s with stormwater discharges from Census designated Urbanized Area are required to seek NPDES permit coverage for those stormwater discharges.

Permit Program Background

On May 1, 2003, EPA Region 1 issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (2003 small MS4 permit) consistent with the Phase II rule. The 2003 small MS4 permit covered "traditional" (i.e., cities and towns) and "non-traditional" (i.e., Federal and state agencies) MS4 Operators located in the states of Massachusetts and New Hampshire. This permit expired on May 1, 2008 but remained in effect until operators were authorized under the 2016 MS4 general permit, which became effective on July 1, 2018.

Stormwater Management Program (SWMP)

The SWMP describes and details the activities and measures that will be implemented to meet the terms and conditions of the permit. The SWMP accurately describes the permittees plans and activities. The document should be updated and/or modified during the permit term as the permittee's activities are modified, changed or updated to meet permit conditions during the permit term. The main elements of the stormwater management program are (1) a public education program in order to affect public behavior causing stormwater pollution, (2) an opportunity for the public to participate and provide comments on the stormwater program (3) a program to effectively find and eliminate illicit discharges within the MS4 (4) a program to effectively control construction site stormwater discharges to the MS4 (5) a program to ensure that stormwater from development projects entering the MS4 is adequately controlled by the construction of stormwater controls, and (6) a good housekeeping program to ensure that stormwater pollution sources on municipal properties and from municipal operations are minimized.

Town Specific MS4 Background (optional)

Small MS4 Authorization

The NOI was submitted on Oct 1, 2018

The NOI can be found at the following (document name or web address):

https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/wellesley.pdf
https://www.wellesleyma.gov/DocumentCenter/View/13859/Final-Signed-NOI-MS4-Permit_jmo

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Authorization to Discharge was granted on Feb 14, 2019

The Authorization Letter can be found (document name or web address):

https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/wellesley-auth.pdf

Stormwater Management Program Team

SWMP Team Coordinator

Name	David J. Hickey	Title	Town Engineer
Department	Public Works, Engineering Division		
Phone Number	(781) 235-7600	Email	dhickey@wellesleyma.gov
Responsibilities	MCM1, MCM2, MCM3, MCM4, MCM5, MCM6, TMDL/Impaired Waters		

SWMP Team

Name	George Saraceno	Title	Senior Civil Engineer
Department	DPW-Engineering		
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Responsibilities	MCM1, MCM2, MCM3, MCM4, MCM5, MCM6, TMDL/Impaired Waters		

Name	Brandon Schmitt	Title	Director
Department	Natural Resources Commission		
Phone Number	781-431-1019	Email	bschmitt@wellesleyma.gov
Responsibilities	MCM1, MCM2, MCM6		

Name	MA Statewide Stormwater Coalition	Title	
Department	MA Statewide Stormwater Coalition		
Phone Number		Email	
Responsibilities	MCM1		

Name	MAPC	Title	
Department	MAPC		
Phone Number	617-933-0700	Email	
Responsibilities	MCM4		

Name	Planning Board	Title	
Department	Planning Board		
Phone Number	781-431-1019	Email	
Responsibilities	MCM4, MCM5		

Name	Zoning Board of Appeals	Title	
Department	Zoning Board of Appeals		
Phone Number	781-431-1019	Email	
Responsibilities	MCM5		

Name	Town Counsel	Title	
Department	Town Counsel		
Phone Number		Email	
Responsibilities	MCM5		

Name	Highway Division	Title	
Department	Highway Division		
Phone Number	781-235-7600	Email	

Responsibilities MCM6

Add SWMP Member

Receiving Waters

The following table lists all receiving waters, impairments and number of outfalls discharging to each waterbody segment.

OR

The information can be found in the following document or at the following web address:

https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/wellesley.pdf

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
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
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		☐	☐	☐	☐	☐	☐	☐	☐	☐	

Click here to lengthen table

Eligibility: Endangered Species and Historic Properties

*Reminder: The proper consultations and updates to the SWMP must be conducted for construction projects related to your permit compliance where Construction General Permit (CGP) coverage, which requires its own endangered species and history preservation determination, is NOT being obtained.

Attachments:

- ☐ The results of Appendix C U.S. Fish and Wildlife Service endangered species screening determination
- ☐ The results of the Appendix D historic property screening investigations
- ☐ If applicable, any documents from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or other Tribal representative to mitigate effects

These attachments are required within one year of the permit effective date and are:

- ☐ Attached to this document (document names listed below)
- ☒ Publicly available at the website listed below

https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/wellesley.pdf

Under what criterion did permittee determine eligibility for ESA?

☐ Criterion A ☐ Criterion B ☒ Criterion C

Under what criterion did permittee determine eligibility for Historic Properties?

☒ Criterion A ☐ Criterion B ☐ Criterion C

Below add any additional measures for structural controls that you're required to do through consultation with U.S. Fish and Wildlife Service (if applicable):

Below add any additional measures taken 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 applicable):

MCM 1
Public Education and Outreach
Permit Part 2.3.2

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 the pollutants in stormwater are reduced.

Examples and Templates:
EPA's Stormwater Education Toolbox
MassDEP's Stormwater Outreach Materials

Other templates relevant to MCM 1 can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#peo

BMP:DPW Newsletter

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Mitigating Stormwater

Targeted Audience: Residents

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Mail to residents in spring 2018

Message Date(s): 2018, 2019, 2020, 2021, 2022, 2023

BMP:Web Page

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Grass Clippings/Phosphorus free fertilizer

Targeted Audience: Residents, Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Spring 2018, annually

Message Date(s): 2018, 2019, 2020, 2021, 2022, 2023

BMP:Web page

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Management of pet waste

Targeted Audience: Residents, Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Spring 2018, annually

Message Date(s): 2018, 2019, 2020, 2021, 2022, 2023

BMP:Web Page

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Leaf Litter

Targeted Audience: Residents, Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Fall 2018, annually

Message Date(s): 2018, 2019, 2020, 2021, 2022,2023

BMP:Brochures/Pamphlets/Events

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Pesticide awareness

Targeted Audience: Residents

Responsible Department/Parties: DPW-Engineering/Natural Resources Commission (NRC)

Measurable Goal(s):

Fall 2018, annually

Message Date(s): 2018, 2019, 2020, 2021, 2022, 2023

BMP:Classroom

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Presentation

Targeted Audience: Middle School Students

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Spring 2018, annually

Message Date(s): 2018, 2019, 2020, 2021, 2022, 2023

BMP:Internet/YouTube

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Think Blue Massachusetts

Targeted Audience: General Public

Responsible Department/Parties: Massachusetts Statewide Stormwater Coalition

Measurable Goal(s):

Statistics Report, annually

Message Date(s): 2018, 2019, 2020, 2021, 2022, 2023

BMP:Annual Reports/Web Page

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Pond Restoration/Phosphorus Reduction

Targeted Audience: General Public

Responsible Department/Parties: DPW-Engineering/Natural Resources Commission (NRC)

Measurable Goal(s):

Phosphorus Removal

Message Date(s): 2018, 2019, 2020, 2021, 2022, 2023

BMP:Brochures/Pamphlets

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

General Stormwater Info

Targeted Audience: Residents/Developers (construction)

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Mail to residents/permit applicants, total number distributed

Message Date(s): 2018, 2019, 2021, 2023

BMP:Brochures/Pamphlets

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Waste Disposal

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Flyer available at Bldg. Dept & BOH. Count number of flyers distributed

Message Date(s): 2018, 2020

BMP:Brochures/Pamphlets

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Fertilizer

Targeted Audience: Landscapers

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Brochure available at DPW. Count the number of flyers distributed

Message Date(s): 2019

BMP:Brochures/Pamphlets

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Fleet Maintenance

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Mail to applicable businesses

Message Date(s): 2022

Add BMP

MCM 2

Public Involvement and Participation

Permit Part 2.3.3

Objective: The permittee shall provide opportunities to engage the public to participate in the review and implementation of the permittee's SWMP.

BMP: Public Review of Stormwater Management Program

BMP Number (Optional) _____

Location of Plan and/or Web Address: https://www.wellesleyma.gov/319/stormwater-management

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Stormwater Management Plan is publicly available.

BMP: Public Participation in Stormwater Management Program Development

BMP Number (Optional) _____

Description:

Allow public to comment on stormwater management plan annually

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Annual public input provided.

BMP: Public Participation

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Catch basin stenciling/markers

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Allow Middle School students to install stencils at catch basins through the Town

---

BMP: Public Participation

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Advocacy groupts

Responsible Department/Parties: DPW-Engineering/Townwide

Measurable Goal(s):

Number of meetings, attendance

BMP: Public Participation

BMP Number (Optional) _____

Document Name and/or Web Address:

Description:

Email blast and public meetings

Responsible Department/Parties: Natural Resources Commission

Measurable Goal(s):

Subscribers

Add BMP

MCM 3
Illicit Discharge Detection and Elimination (IDDE) Program

Permit Part 2.3.4

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

Examples and Templates:
IDDE Program Template and SOPs

Other templates relevant to IDDE can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#idde

BMP: IDDE Legal Authority

BMP Number (Optional) _____ **Completed** (by May 1, 2008) ☒

Ordinances Link or Reference: https://www.wellesleyma.gov/DocumentCenter/View/898/Stormwater-Rules-and-Regulations-PDF?bidId=

Department Responsible for Enforcement: Director, Public Works

---

BMP: Sanitary Sewer Overflow (SSO) Inventory

BMP Number (Optional) _____ **Completed** (by year 1) ☐

Document Name and/or Web Address:

Description:

Develop SSO inventory in accordance of permit conditions

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Annually track and report the following SSO information: the location; a clear statement of whether the discharge entered a surface water directly or entered the MS4; date(s) and time(s) of each known SSO occurrence; estimated volume(s) of the occurrence; description of the occurrence indicating known or suspected cause(s); mitigation and corrective measures completed with dates implemented; and mitigation and corrective measures planned with implementation schedules. Update inventory as needed.

SSO Reporting:

In the event of an overflow or bypass, a notification must be reported within 24 hours by phone to MassDEP, EPA, and other relevant parties. Follow up the verbal notification with a written report following MassDEP's Sanitary Sewer Overflow (SSO)/Bypass notification form within 5 calendar days of the time you become aware of the overflow, bypass, or backup.

The MassDEP contacts are:	The EPA contacts are:
Northeast Region (978) 694-3215 205B Lowell Street Wilmington, MA 01887 Central Region (508) 792-7650 8 New Bond Street Worcester, MA 01606 Southeast Region (508) 946-2750 20 Riverside Drive Lakeville, MA 02347 Western Region (413) 784-1100 436 Dwight Street Springfield, MA 01103 24-hour Emergency Line 1-888-304-1133	EPA New England (617) 918-1510 5 Post Office Square Boston, MA 02109

BMP: Map of Storm Sewer System

BMP Number (Optional) _____ **Phase I Completed** (by year 2) ☐ **Phase II Completed** (by year 10) ☐

Document Location and/or Web Address: http://www.wellesleyma.gov/321/stormwater-maps

Description:

Create map and update during IDDE program completion

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Map 100% of outfalls and receving waters, open channel conveyances, interconnections with other MS4s and other storm sewer systems, municipally-owned stormwater treatment structures, waterbodies identified by name and indication of all use impairments, and initial catchment delineations within 2 years of the permit's effective date. Map 100% of outfall spatial locations, pipes, manholes, catch basins, refined catchment delineations, municipal sanitary sewer system (if available), and municipal combined sewer system (if applicable) within 10 years of the permit's effective date.

BMP: IDDE Program

BMP Number (Optional) _____ **Written Document Completed** (by year 1) ☐

Document Name and/or Web Address:

Description:

Develop and implement IDDE program in accordance with permit conditions

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Conduct 100% of outfall screening on High and Low Priority Outfalls within 3 years of the permit's effective date. Complete catchment investigations for 100% of the Problem Outfalls within 7 years of the permit's effective date. Complete 100% of all catchment investigations within 10 years of the permit's effective date.

The outfall/interconnection inventory and initial ranking and the dry weather outfall and interconnection screening and sampling results can be found:

BMP: Employee Training

BMP Number (Optional) _____

Description:

Train employees on IDDE implementation

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Training occurs on (DATE(S)) annually.

BMP:[BMP name here]

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Responsible Department/Parties:

Measurable Goal(s):

Add BMP

MCM 4

Construction Site Stormwater Runoff Control

Permit Part 2.3.5

Objective: The objective of an effective construction stormwater runoff control program is 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.

Examples and Templates:
Examples and templates relevant to MCM 4, including model ordinances and site inspection templates, can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#csrc

BMP: Sediment and Erosion Control Ordinance

BMP Number (Optional) _____ **Completed** (by May 1, 2008) ☐

Ordinances Link or Reference: https://www.wellesleyma.gov/DocumentCenter/View/898/Stormwater-Rules-and-Regulations-PDF?bidId=

Department Responsible for Enforcement: Director, Public Works

---

BMP: Site Plan Review Procedures

BMP Number (Optional) _____ **Written procedures completed** (by year 1) ☐

Document Name and/or Web Address:

Description:

Complete written procedures of site plan review and begin implementation

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Conduct site plan review of 100% of projects according to the procedures outlined above.

BMP: Site Inspections and Enforcement of Sediment and Erosion Control Measures Procedures

BMP Number (Optional) _____ **Completed** (by year 1) ☐

Document Name and/or Web Address:

Description:

Complete written procedures of site inspections and enforcement procedures

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Inspect 100% of construction sites as outlined in the above document and take enforcement actions as needed.

BMP:Waste Control

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Complete written procedures and specifications for engineering review at construction sites and begin implementation

Responsible Department/Parties:

Measurable Goal(s):

Complete within 1 year of the effective date of permit

BMP:Regulation Review

BMP Number (Optional) _____ **Completed** ☒

Document Name and/or Web Address:

Description:

Review and access current regulations to improve stormwater controls

Responsible Department/Parties: MAPC - Planning Board

Measurable Goal(s):

Complete

Add BMP

MCM 5

Post Construction Stormwater Management in New Development and Redevelopment

Permit Part 2.3.6

Objective: The objective of an effective post construction stormwater management program is to reduce the discharge of pollutants found in stormwater to the MS4 through the retention or treatment of stormwater after construction on new or redeveloped sites and to ensure proper maintenance of installed stormwater controls.

Examples and Templates:
Examples and templates relevant to MCM 5, including model ordinances and bylaw review templates and guidance can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#pcsm

BMP: Post-Construction Ordinance

BMP Number (Optional) _____ **Completed** (by year 2) ☐

Town Ordinances Link or Reference: https://www.wellesleyma.gov/DocumentCenter/View/898/Stormwater-Rules-and-Regulations-PDF?bidId=

Department Responsible for Enforcement: Director, Public Works

---

BMP: Street Design and Parking Lot Guidelines Report

BMP Number (Optional) _____ **Completed** (by year 4) ☐

Document Name and/or Web Address:

Description:

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.

Responsible Department/Parties: DPW-Engineering & Planning Board

Measurable Goal(s):

Recommendations are implemented by (DATE) with progress reported annually.

BMP: Green Infrastructure Report

BMP Number (Optional) _____ **Completed** (by year 4) ☐

Document Name and/or Web Address:

Description:

Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist

Responsible Department/Parties: DPW-Engineering & Planning Board

Measurable Goal(s):

Recommendations are implemented by (DATE) with progress reported annually.

BMP: List of Municipal Retrofit Opportunities

BMP Number (Optional) _____ **Completed** (by year 4) ☐

Document Name and/or Web Address:

Description:

Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

The list is completed by (DATE) and updated as needed.

BMP:Phosphorus removal - retrofit inventory, priority ranking

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Regulatory mechanism to meet permit requirements

Responsible Department/Parties: DPW-Engineering, Town Counsel

Measurable Goal(s):

Appendix H-1.a.i.2

BMP:Post-construction stormwater runoff program regulatory mechanism

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Modify existing regulatory mechanisms (e.g., site plan review, drainage review) to incorporate 2017 permit requirements. Ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the Massachusetts Stormwater Handbook

Responsible Department/Parties: DPW-Engineering, Planning Board, ZBA, Town Counsel, Town Meeting

Measurable Goal(s):

Complete drainage review for all proposed projects disturbing more than one acre. Ensure approved BMPs are

installed and functioning

BMP:Post-construction stormwater runoff program: Inspections

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Monitor inspection and maintenance of privately-owned BMPs

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

All private BMPs with required O&M plans are identified in Town GIS system. Required annual reports are tracked and compliance evaluated.

Add BMP

MCM 6

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

Permit Part 2.3.7

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.

Examples and Templates:
Examples and templates relevant to MCM 6, including SOP templates for catch basin cleaning, street sweeping, vehicle maintenance, parks and open space management, winter deicing, and Stormwater Pollutoin Prevention Plans can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#gh

PERMITTEE OWNED FACILITIES

BMP: Parks and Open Spaces Operations and Maintenance Procedures

BMP Number (Optional) _____ **Written Document Completed** (by year 2) ☐

Document Name and/or Web Address:

Description:

Create written O&M procedures including all requirements contained in 2.3.7.a.ii for parks and open spaces

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Implement the SOP listed above on 100% of the parks and open spaces.

Properties List (Optional):

BMP: Buildings and Facilities Operations and Maintenance Procedures

BMP Number (Optional) _____ **Written Document Completed** (by year 2) ☐

Document Name and/or Web Address:

Description:

Create written O&M procedures including all requirements contained in 2.3.7.a.ii for buildings and facilities

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Implement the SOP listed above on 100% of buildings and facilities.

Properties List (Optional):

BMP: Vehicles and Equipment Operations and Maintenance Procedures

BMP Number (Optional) _____ **Written Document Completed** (by year 2) ☐

Document Name and/or Web Address:

Description:

Create written O&M procedures including all requirements contained in 2.3.7.a.ii for vehicles and equipment

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Implement the SOP listed above for 100% of vehicles and equipment according to the above document.

Properties List (Optional):

INFRASTRUCTURE

BMP: Infrastructure Operations and Maintenance Procedures

BMP Number (Optional) _____ **Written Procedure Completed** (by year 2) ☐

Document Name and/or Web Address:

Description:

Establish and implement program for repair and rehabilitation of MS4 infrastructure

Responsible Department/Parties: DPW-Engineering/Highway Division

Measurable Goal(s):

100% of infrastructure is maintained to ensure proper function in accordance with the procedures above.

BMP: Catch Basin Cleaning Program

BMP Number (Optional) _____ **Written Procedure Completed** (by year 1) ☐

Document Name and/or Web Address:

Description:

Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule

Responsible Department/Parties: DPW-Engineering/Highway Division

Measurable Goal(s):

All catch basins are cleaned in accordance to the document above such that no catch basin is more than 50% full at any given time.

BMP: Street Sweeping Program

BMP Number (Optional) _____ **Written Procedure Completed** (by year 1) ☐

Document Name and/or Web Address:

Description:

Sweep all streets and permitee-owned parking lots in accordance with permit conditions

Responsible Department/Parties: DPW-Engineering/Highway Division

Measurable Goal(s):

Annually sweep 100% of all streets and 50% of all municipal parking lots in accordance with the schedule listed above.

BMP: Winter Road Maintenance Program

BMP Number (Optional) _____ **Written Procedure Completed** (by year 1) ☐

Document Name and/or Web Address:

Description:

Establish and implement a program to minimize the use of road salt

Responsible Department/Parties: DPW-Engineering/Highway Division

Measurable Goal(s):

Evaluate at least one salt/chloride alternative for use in the municipality.

BMP: Stormwater Treatment Structures Inspection and Maintenance Procedures

BMP Number (Optional) _____ **Completed** (by year 1) ☐

Document Name and/or Web Address:

Description:

Establish and implement inspection and maitenance procedures and frequencies

Responsible Department/Parties: DPW-Engineering/Highway Division

Measurable Goal(s):

Inspect and maintain 100% of treatment structures to ensure proper function.

BMP: SWPPP

BMP Number (Optional) _____ **Completed** (by year 2) ☐

Document Name and/or Web Address:

Description:

Create SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Develop and implement SWPPPs for 100% of facilities.

BMP: Grass cutting and leaf litter procedures

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Establish for permitee owned operations

Responsible Department/Parties: DPW-Engineering/Highway Division

Measurable Goal(s):

Implement twice annually, See appendix II.1.a.i.3

BMP:Phosphorus source identification report

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Written report

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Within 4 years of effective date of permit, see Appendix II.1.b.i

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BMP:Potential structural BMPs

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Evaluate all permittee-owned property for retrofit opportunities

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Within 5 years of effective date of permit, see Appendix II.1.c.i

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BMP:Mechanical Weed Harvesting of Ponds

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Mechanically remove aquatic weeds

Responsible Department/Parties: DPW-Engineering/NRC

Measurable Goal(s):

Visual observation of reduction of invasive and nuisance aquatic weeds (performed annually)

BMP:Spill Control and Countermeasure (SPCC) training

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Annual classroom training

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Annual training of employees

BMP:O&M Program (Public BMP maintenance)

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

O&M Program for all BMPs claimed for phosphorus reduction

Responsible Department/Parties: DPW-Engineering

Measurable Goal(s):

Number of BMPs and maintenance logs

BMP:Waterbody Restoration

BMP Number (Optional) _____ **Completed** ☐

Document Name and/or Web Address:

Description:

Phosphorus inactivation system in Morses Pond

Responsible Department/Parties: DPW-Engineering/NRC

Measurable Goal(s):

Visual inspection of reduction of invasive and nuisance aquatic weeds

---

Add BMP

Annual Evaluation

Year 1 Annual Report

Document Name and/or Web Address:

Year 2 Annual Report

Document Name and/or Web Address:

Year 3 Annual Report

Document Name and/or Web Address:

Year 4 Annual Report

Document Name and/or Web Address:

Year 5 Annual Report

Document Name and/or Web Address:

Year X Annual Report

Document Name and/or Web Address:

Add a Year

TMDLs and Water Quality Limited Waters

Select the applicable Impairment(s) and/or TMDL(s).

Impairment(s)

☒ Bacteria/Pathogens ☐ Chloride ☐ Nitrogen ☒ Phosphorus

☒ Solids/oil/grease (hydrocarbons)/metals

TMDL(s)

In State:

☐ Assabet River Phosphorus ☒ Bacteria and Pathogen ☐ Cape Cod Nitrogen

☒ Charles River Watershed Phosphorus ☐ Lake and Pond Phosphorus

Out of State:

☐ Bacteria and Pathogen ☐ Metals ☐ Nitrogen ☐ Phosphorus

Clear Impairments and TMDLs

Bacteria/Pathogens

Combination of Impaired Waters Requirements and TMDL Requirements as Applicable

Applicable Receiving Waterbody(ies)	TMDL Name (if applicable)	Add/Delete Row
Fuller Brook (MA72-18) Rosemary Brook (MA72-25) Charles River (MA72-06, MA72-07)	FinalPathogen TMDL for the Charles River Watershed (CN0156.0)	+ -

Annual Requirements Beginning Year 1

Rank outfalls to these receiving waters as high priority for IDDE implementation in the initial outfall ranking

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM3 - IDDE Program, Outfall Ranking

Public Education and Outreach

(Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information))

Annual message encouraging the proper management of pet waste, including noting any existing ordinances where appropriate

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM1 - Residents

Permittee or its agents disseminate educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM1 - Residents

Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM1 - Residents

Solids, Oil and Grease (Hydrocarbons), or Metals

Combination of Impaired Requirements and TMDL Requirements as Applicable

Applicable Receiving Waterbody(ies)	TMDL Name (if applicable)	Add/Delete Row
Fuller Brook (MA72-18)		+ -

Annual Requirements Beginning Year 1

Rank outfalls to these receiving waters as high priority for IDDE implementation in the initial outfall ranking

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

Not required by permit

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

---

Increase street sweeping frequency of all municipal owned streets and parking lots to a schedule to target areas with potential for high pollutant loads

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM6 - Street Sweeping

Prioritize inspection and maintenance for catch basins to ensure that no sump shall be more than 50 percent full; Clean catch basins more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM6 - Catch basin cleaning

Requirements Due by Year 2

Stormwater Management in New Development and Redevelopment

Stormwater management systems designed on commercial and industrial land use area draining to the water quality limited water body 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

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM5 - Post-construction stormwater runoff program

Phosphorus

Combination of Impaired Waters Requirements and TMDL Requirements as Applicable

Applicable Receiving Waterbody(ies)	TMDL Name (if applicable)	Add/Delete Row
All	Upper/Middle Charles TMDL	+ -

Annual Requirements Beginning Year 1

Public Education and Outreach

(Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information))

Distribute an annual message in the spring(April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorus-free fertilizers

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM1 - Grass clippings/Phosphorus free fertilizer

Distribute an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM1 - Management of pet waste

Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM1 - Leaf litter

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

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Increase street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM6 - Street sweeping

Establish procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM6 - grass cutting and leaf litter procedures

Stormwater Management in New Development and Redevelopment

Retrofit inventory and priority ranking under 2.3.6.1.b. shall include consideration of BMPs to reduce phosphorus discharges

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM5 - Phosphorus removal

Phosphorus Reduction Tracking BMP

Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents shall be tracked and the permittee shall estimate the phosphorus removal by the BMP consistent with Attachment 1 to Appendix H.

The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in pass per year by the BMP is found in the following document or website and is updated yearly at a minimum:

Requirements Due by Year 2

Stormwater Management in New Development and Redevelopment

The requirement for adoption/amendment of the permittee's ordinance or other regulatory mechanism shall include a requirement that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM5 - Post-construction regulatory mechanism

Requirements Due by Year 4

Complete a Phosphorus Source Identification Report

The document name (if attached) and/or web address is/are:

Stormwater Management in New Development and Redevelopment

Retrofit inventory and priority ranking under 2.3.6.1.b. shall include consideration of BMPs that infiltrate stormwater where feasible

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM5 - Post-construction regulatory mechanism

Requirements Due by Year 5

Potential Structural BMPs

Evaluate all permittee-owned properties identified as presenting retrofit opportunities or areas for structural BMP installation under Permit part 2.3.6.d.ii or identified in the Phosphorus Source Identification Report that are within the drainage area of the impaired water or its tributaries

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM6 - Potential Structural BMPs

Complete a listing of planned structural BMPs and a plan and schedule for implementation

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

MCM6 - Potential Structural BMPs

Charles River Watershed Phosphorus TMDL

PCP Phase	Document Location
I (completed by year 5)	
II (completed by year 10)	
III (completed by year 15)	

Tab 3

Notice of Intent (NOI)

TOWN OF WELLESLEY
WELLESLEY, MASSACHUSETTS 02481

DAVID J. HICKEY, JR, PE
TOWN ENGINEER

DOUGLAS R. STEWART, P.E.
ASSISTANT TOWN ENGINEER

20 MUNICIPAL WAY
781-235-7600
FAX 781-237-0047

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

October 3, 2018

Mrs. Glenda Velez
U. S. Environmental Protection Agency – Region 1
5 Post Office Square – Suite 100
Mail Code - OEP06-01
Boston, MA 02109-3912
Attn: Newton Teddar

RE: NPDES Phase II Small MS4 General Permit
NOI
Wellesley, Massachusetts
EPA NPDES Permit Number: MA 041067

Dear Mr. Teddar,

Please find enclosed herewith a copy of our Notice of Intent (NOI) for coverage under the Small MS4 General Permit for the period July 1, 2018 to June 30, 2023 as required by our NPDES Phase II Small MS4 General Permit.

Should you have any questions or if you require additional information, please feel free to contact me.

Sincerely,

George J. Saraceno
Certified Stormwater Manager

David J. Hickey, Jr., P.E.
Town Engineer

Cc: Michael Pakstis, Director
David Cohen, Assistant Director
Blythe Robinson, Executive Director
Brandon Schmitt, Natural Resources Commission
Michael Zehner, Planning Board

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

Part I: General Conditions

General Information

Name of Municipality or Organization: Town of Wellesley State: MA

EPA NPDES Permit Number (if applicable): MA041067

Primary MS4 Program Manager Contact Information

Name: David J. Hickey, Jr. Title: Town Engineer

Street Address Line 1: 20 Municipal Way

Street Address Line 2:

City: Wellesley State: MA Zip Code: 02481

Email: dhickey@wellesleyma.gov Phone Number: (781) 235-7600

Fax Number: (781) 237-0047

Other Information

Stormwater Management Program (SWMP) Location (web address or physical location, if already completed): https://www.wellesleyma.gov/319/stormwater-management

Eligibility Determination

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

National Historic Preservation Act (NHPA) Determination Complete? Yes — 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? *(Part II, III, IV or V, Subpart B.3.(a.) of 2003 permit)* 100%

If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY):

Web address where MS4 map is published: http://www.wellesleyma.gov/321/stormwater-maps

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): 02/24/05

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): 04/12/05

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): 04/12/05

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

Check off relevant pollutants for discharges to impaired waterbodies (see above 303(d) lists) without an approved TMDL in accordance with part 2.2.2.a 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
Fuller Brook	79	☐	☐	☐	☐	☐	☒	☐	☒	☐	Sedimentation/siltation, nutrients/europhication, biological indicator, physical substrate habitate alterations. TMDL No. 32374, 40317.
Caroline Brook	7	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Morses Pond	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Boulder Brook	33	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Abbott Brook	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Indian Springs Brook	30	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Cold Stream Brook	7	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Rosemary Brook	15	☐	☐	☒	☐	☐	☒	☐	☐	☐	Phosphorus and Dissolved Oxygen, TMDL No. 40317.
Pollock Brook	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Bogle Brook	16	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Waban Brook	6	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Charles River	27	☐	☐	☒	☐	☐	☒	☐	☒	☐	Nutrient, excess algae growth, eutrophication biological indicator. TMDL No. 40317.
Sabrina Lake	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Cold Spring Brook	15	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
Hurd Brook	8	☐	☐	☐	☐	☐	☐	☐	☐	☐	NA
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	

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 an 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 requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
DPW Newsletter	Mitigating Stormwater	Residents	DPW-Engineering	Mail to Residents in Spring 2018	2018
Web Page	Grass Clippings/ Phosphorous free fertilizer	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Spring 2018, annually	2018
Web Page	Management of Pet Waste	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Summer 2018, annually	2018
Web Page	Leaf Litter	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Fall, 2018, annually	2018
Brochures/Pamphlets/Events	Pesticide awareness	Residents	DPW-Engineering/Natural Resources Commission (NRC)	Fall, 2018, annually	2018
Classroom	Presentation	Middle School Students	DPW-Engineering	Spring 2018, annually	2018
Internet/YouTube	Think Blue Massachusetts	General Public	Massachusetts Statewide Stormwater Coalition	Statistics Report, report annually	2018
Annual Reports/web page	Pond Restoration/ Phosphorous Reduction	General Public	DPW-Engineering/Natural Resources Commission (NRC)	Phosphorous Removal	2018
Brochures/Pamphlets	General Stormwater Info	Residents	DPW-Engineering	Mailed to residents, total number distributed	2018
Brochures/Pamphlets	Waste Disposal	Commercial	DPW-Engineering	Flyer available at Bldg. Dept & BOH. Count number of flyers distributed	2018

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 an 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.

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MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
DPW Newsletter	Mitigating Stormwater	Residents	DPW-Engineering	Mail to Residents in Spring 2018	2019
Web Page	Grass Clippings/ Phosphorous free fertilizer	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Spring 2018, annually	2019
Web Page	Management of Pet Waste	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Summer 2018, annually	2019
Web Page	Leaf Litter	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Fall, 2018, annually	2019
Brochures/Pamphlets/Events	Pesticide awareness	Residents	DPW-Engineering/Natural Resources Commission (NRC)	Fall, 2018, annually	2019
Classroom	Presentation	Middle School Students	DPW-Engineering	Spring 2018, annually	2019
Internet/YouTube	Think Blue Massachusetts	General Public	Massachusetts Statewide Stormwater Coalition	Statistics Report, report annually	2019
Annual Reports	Pond Restoration/ Phosphorous Reduction	General Public	DPW-Engineering/Natural Resources Commission (NRC)	Phosphorous Removal	2019
Brochures/Pamphlets	General Stormwater Info	Developers (construction)	DPW-Engineering	Mail to 2018 permit applicants	2019
Brochures/Pamphlets	Fertilizer	Landscapers	DPW-Engineering	Brochure availble at DPW. Count the number of flyers distributed	2019

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 an 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 requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
DPW Newsletter	Mitigating Stormwater	Residents	DPW-Engineering	Mail to Residents in Spring 2018	2020
Web Page	Grass Clippings/ Phosphorous free fertilizer	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Spring 2018, annually	2020
Web Page	Management of Pet Waste	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Summer 2018, annually	2020
Web Page	Leaf Litter	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Fall, 2018, annually	2020
Brochures/Pamphlets/Events	Pesticide awareness	Residents	DPW-Engineering/Natural Resources Commission (NRC)	Fall, 2018, annually	2020
Classroom	Presentation	Middle School Students	DPW-Engineering	Spring 2018, annually	2020
Internet/Youtube	Think Blue Massachusetts	General Public	Massachusetts Statewide Stormwater Coalition	Statistics Report, report annually	2020
Annual Reports	Pond Restoration/ Phosphorous Reduction	General Public	DPW-Engineering/Natural Resources Commission (NRC)	Phosphorous Removal	2020
Brochures/Pamphlets	Waste Disposal	Businesses, Institutions and Commercial Facilities	DPW-Engineering	Brochure available at RDF, BOH & Bldg. Dept. Count brochures distributed	2020

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 an 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 requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
DPW Newsletter	Mitigating Stormwater	Residents	DPW-Engineering	Mail to Residents in Spring 2018	2021
Web Page	Grass Clippings/ Phosphorous free fertilizer	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Spring 2018, annually	2021
Web Page	Management of Pet Waste	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Summer 2018, annually	2021
Web Page	Leaf Litter	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Fall, 2018, annually	2021
Brochures/Pamphlets/Events	Pesticide awareness	Residents	DPW-Engineering/Natural Resources Commission (NRC)	Fall, 2018, annually	2021
Classroom	Presentation	Middle School Students	DPW-Engineering	Spring 2018, annually	2021
Internet/YouTube	Think Blue Massachusetts	General Public	Massachusetts Statewide Stormwater Coalition	Statistics Report, report annually	2021
Annual Reports	Pond Restoration/ Phosphorous Reduction	General Public	DPW-Engineering/Natural Resources Commission (NRC)	Phosphorous Removal	2021
Brochures/Pamphlets	General Stormwater Info	Developers (construction)	DPW-Engineering	Mail to permit applicants	2021

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 an 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 requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
DPW Newsletter	Mitigating Stormwater	Residents	DPW-Engineering	Mail to Residents in Spring 2018	2022
Web Page	Grass Clippings/ Phosphorous free fertilizer	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Spring 2018, annually	2022
Web Page	Management of Pet Waste	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Summer 2018, annually	2022
Web Page	Leaf Litter	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Fall, 2018, annually	2022
Brochures/Pamphlets/Events	Pesticide awareness	Residents	DPW-Engineering/Natural Resources Commission (NRC)	Fall, 2018, annually	2022
Classroom	Presentation	Middle School Students	DPW-Engineering	Spring 2018, annually	2022
Internet/YouTube	Think Blue Massachusetts	General Public	Massachusetts Statewide Stormwater Coalition	Statistics Report, report annually	2022
Annual Reports	Pond Restoration/ Phosphorous Reduction	General Public	DPW-Engineering/Natural Resources Commission (NRC)	Phosphorous Removal	2022
Brochures/Pamphlets	Fleet Maintenace	Businesses, Institutions and Commercial Facilit	DPW-Engineering	Mail to applicable businesses	2022

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 an 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 requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
DPW Newsletter	Mitigating Stormwater	Residents	DPW-Engineering	Mail to Residents in Spring 2018	2023
Web Page	Grass Clippings/ Phosphorous free fertilizer	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Spring 2018, annually	2023
Web Page	Management of Pet Waste	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Summer 2018, annually	2023
Web Page	Leaf Litter	Residents, Businesses, Institutions and Commercial Facilities	DPW-Engineering	Fall, 2018, annually	2023
Brochures/Pamphlets/Events	Pesticide awareness	Residents	DPW-Engineering/Natural Resources Commission (NRC)	Fall, 2018, annually	2023
Classroom	Presentation	Middle School Students	DPW-Engineering	Spring 2018, annually	2023
Internet/YouTube	Think Blue Massachusetts	General Public	Massachusetts Statewide Stormwater Coalition	Statistics Report, report annually	2023
Annual Reports	Pond Restoration/ Phosphorous Reduction	General Public	DPW-Engineering/Natural Resources Commission (NRC)	Phosphorous Removal	2023
Brochures/Pamphlets	General Stormwater Info	Residents	DPW-Engineering	Mail to residents, total number distributed	2023

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

Part III: Stormwater Management Program Summary (continued)

MCM 2: Public Involvement and Participation

BMP Categorization	Brief BMP Description (enter your own text to override the drop down menu)	Responsible Department/Parties (enter your own text to override the drop down menu)	Additional Description/ Measurable Goal	Beginning Year of BMP Imple-mentation
Public Review	Stormwater Management Plan (SWMP) Review	DPW-Engineering	Allow annual review of stormwater management plan and posting of stormwater management plan on website	2019
Public Participation	Catch Basin Stenciling/Markers	DPW-Engineering	Allow Middle School students to install stencils at catch basins throughout the Town	2019
Public Participation	Advocacy Groups	DPW-Engineering/Townwide	Number of meetings, attendance	2019
Public Participation	Email blast and public meetings	Natural Resources Commission	Subscribers	2019

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

Part III: Stormwater Management Program Summary (continued)

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

BMP Categorization (enter your own text to override the drop down menu)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
SSO inventory	Develop SSO inventory in accordance of permit conditions	DPW-Engineering	Complete within 1 year of effective date of permit	2019
Storm sewer system map	Create map and update during IDDE program completion	DPW-Engineering	Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit	2019
Written IDDE program	Create written IDDE program	DPW-Engineering	Complete within 1 year of the effective date of permit and update as required	2019
Implement IDDE program	Implement catchment investigations according to program and permit conditions	DPW-Engineering	Complete 10 years after effective date of permit	2020
Employee training	Train employees on IDDE implementation	DPW-Engineering	Train annually	2019
Conduct dry weather screening	Conduct in accordance with outfall screening procedure and permit conditions	DPW-Engineering	Complete 3 years after effective date of permit	2020
Conduct wet weather screening	Conduct in accordance with outfall screening procedure	DPW-Engineering	Complete 10 years after effective date of permit	2019
Ongoing screening	Conduct dry weather and wet weather screening (as necessary)	DPW-Engineering	Complete ongoing outfall screening upon completion of IDDE program	2019

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

Part III: Stormwater Management Program Summary (continued)

MCM 4: Construction Site Stormwater Runoff Control

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
Site inspection and enforcement of Erosion and Sediment Control (ESC) measures	Complete written procedures of site inspections and enforcement procedures	DPW-Engineering	Complete within 1 year of the effective date of permit	2019
Site plan review	Complete written procedures of site plan review and begin implementation	DPW-Engineering	Complete within 1 year of the effective date of permit	2019
Erosion and Sediment Control	Complete written procedures and specifications for engineering review at construction sites and begin implementation	DPW-Engineering	Complete within 1 year of the effective date of permit	2019
Waste Control	Complete written procedures and specifications for engineering review at construction sites and begin implementation	DPW-Engineering	Complete within 1 year of the effective date of permit	2019
Regulation Review	Review and access current regulations to improve stormwater controls	MAPC - Planning Board	Complete	2018

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

Part III: Stormwater Management Program Summary (continued)

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

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
As-built plans for on-site stormwater control	The procedures to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP	DPW-Engineering	Require submission of as-built plans for completed projects	2018
Target properties to reduce impervious areas	Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually	DPW-Engineering	Complete 4 years after effective date of permit and report annually on retrofitted properties	2020
Allow green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	DPW-Engineering & Planning Board	Complete 4 years after effective date of permit and implement recommendations of report	2020
Street design 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	DPW-Engineering & Planning Board	Complete 4 years after effective date of permit and implement recommendations of report	2020

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
Ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the permit and all applicable requirements of the Massachusetts Stormwater Handbook	Adoption, amendment, or modification of a regulatory mechanism to meet permit requirements	DPW-Engineering, Town Counsel	Complete 2 years after effective date of permit	2020
Phosphorus removal - retrofit inventory, priority ranking	Regulatory mechanism to meet permit requirements	DPW-Engineering, Town Counsel	Appendix H-1.a.i.2	2020
Post-construction stormwater runoff program regulatory mechanism	Modify existing regulatory mechanisms (e.g., site plan review, drainage review) to incorporate 2017 Permit requirements	DPW, Planning Board, ZBA, Town Counsel, Town Meeting	By July 2020, ensure that all projects disturbing more than one acre are required to comply with items listed in Section 2.36.a.ii of 2016 Permit	2018
Post-construction stormwater runoff program implementation: application review	Continue to review and approve proposed stormwater management designs, including water quality BMPs	DPW/Engioneering	Complete drainage review for all proposed projects disturbing more than one acre. Ensure approved BMPs are installed and functioning	2018
Post-constrution stormwater runoff program: inspections	Monitor inspection and maintenance of privately owned BMPs	DPW/Engineering	All private BMPs with required O&M plans are identified in Town GIS system. Required annual reports are tracked and compliance evaluated	2018

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

Part III: Stormwater Management Program Summary (continued)

MCM 6: Municipal Good Housekeeping and Pollution Prevention

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
O&M procedures	Create written O&M procedures including all requirements contained in 2.3.7.a.ii for parks and open spaces, buildings and facilities, and vehicles and equipment	DPW-Engineering	Complete and implement 2 years after effective date of permit	2020
Inventory all permittee-owned parks and open spaces, buildings and facilities, and vehicles and equipment	Create inventory	DPW-Engineering , NRC	Complete 2 years after effective date of permit and implement annually	2020
Infrastructure O&M	Establish and implement program for repair and rehabilitation of MS4 infrastructure	DPW-Engineering	Complete 2 years after effective date of permit	2020
Stormwater Pollution Prevention Plan (SWPPP)	Create SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities	DPW-Engineering	Complete and implement 2 years after effective date of permit	2020
Catch basin cleaning	Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule	DPW-Engineering/Highway Division	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually	2019
Street sweeping program	Sweep all streets and permitee-owned parking lots in accordance with permit conditions	DPW-Engineering/Highway Division	Sweep all streets and permitee-owned parking lots once per year in the spring	2019
Road salt use optimization program	Establish and implement a program to minimize the use of road salt	DPW-Engineering/Highway Division	Implement salt use optimization during deicing season	2018

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
Inspections and maintenance of stormwater treatment structures	Establish and implement inspection and maitenance procedures and frequencies	DPW-Engineering/Highway Division	Inspect and maintain treatment structures at least annually	2019
Grass cutting and leaf litter procedures	Establish for permittee owned operations	DPW-Engineering/Highway Division	Implement twice annually, See appendix II.1.a.i.3	2019
Phosphorus Source Identification Report	Written report	DPW-Engineering	Within 4 years of effective date of permit, See Appendix II.1.b.i	2021
Potential Structural BMP's	Evaluate all permittee owned property for retrofit opportunities	DPW-Engineering	Within 5 years of effective date of permit, See Appendix II.1.c.i.	2022
Mechanical Weed Harvesting of Ponds	Mechanically remove aquatic weeds	DPW-Engineering/NRC	Visual observation of reduction of invasive and nuisance aquatic weeds (performed annually)	2018
Spill Control and Countermeasure (SPCC) training	Annual classroom training	DPW-Engineering	Annual training of employees	2018
O&M Program (Public BMP Maintenance)	O&M Program for all BMP's claimed for phosphorous reduction	DPW-Engineering	Number of BMP's and maintenance logs	2019
Waterbody Restoration	Phosphorus Inactivation system in Morses Pond	DPW-Engineering/NRC	Visual inspection of reduction of invasive and nuisance aquatic weeds	2018

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.**

Applicable TMDL	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
Upper/Middle Charles River (Phosphorus)	Adhere to requirements in part A.I of Appendix F	DPW-Engineering
Upper/Middle Charles River (E. Coli)	Adhere to requirements in part A.III of Appendix F	DPW-Engineering
Upper/Middle Charles River (Nutrient/Eutrophication)	Adhere to requirements in part A.I of Appendix F	DPW-Engineering
Rosemary Brook (Dissolved Oxygen)	Adhere to requirements in part A.II of Appendix F	DPW-Engineering
Rosemary Brook (Total Phosphorus)	Adhere to requirements in part A.II of Appendix F	DPW-Engineering
Fuller Brook (E. Coli)	Adhere to requirements in part A.III of Appendix F	DPW-Engineering
Fuller Brook (Nutrient/Eutrophication)	Adhere to requirements in part A.II of Appendix F	DPW-Engineering

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.**

Pollutant	Waterbody ID(s)	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
E. Coli (32374)	MA72-18 (Fuller Brook)	Adhere to requirements in part III of Appendix H	DPW-Engineering
Phosphorus (40317)	MA72-18 (Fuller Brook)	Adhere to requirements in part II of Appendix H	DPW-Engineering
Sedimentation/Siltation	MA72-18 (Fuller Brook)	Adhere to requirements in part II of Appendix H	DPW-Engineering
Total Phosphorus (40317)	MA72-25 (Rosemary Brook)	Adhere to requirements in part II of Appendix H	DPW-Engineering
Oxygen Dissolved (40317)	MA72-25 (Rosemary Brook)	Adhere to requirements in part II of Appendix H	DPW-Engineering
E. Coli (32370)	MA72-07 (Charles River)	Adhere to requirements in part III of Appendix H	DPW-Engineering
Total Phosphorus (40317)	MA72-07 (Charles River)	Adhere to requirements in part II of Appendix H	DPW-Engineering
Nutrient/Eutrophication (40	MA72-07 (Charles River)	Adhere to requirements in part II of Appendix H	DPW-Engineering

Part IV: Notes and additional information

Use the space below to indicate the part(s) of 2.2.1and 2.2.2 that you have identified as not applicable to your MS4 because you do not discharge to the impaired water body or a tributary to an impaired water body due to nitrogen or phosphorus. Provide all supporting documentation below or attach additional documents if necessary.
Also, provide any additional information about your MS4 program below.

The DPW-Engineering Division is currently working with the EPA and MADEP in delisting Fuller Brook, which is on the integrated list of waterways with a TMDL for phosphorus and E. coli. The Fuller Brook Preservation Project (including installation of biofiltration sytems, dredging, bank stabilization, drainage system upgrades and invasive species management) was completed last year. A sampling plan has been designed for implementation this year, to evaluate the impact of the project on water quality in the brook and determine whether Fuller Brook can be removed from the state list of impaired waters.

There are two large land areas owned by two colleges, Babson College and Wellesley College that have there own private utilities, including drainage areas and discharge points and are not managed by the Town. This includes vast areas of impervious area such as parking lots, buildings, pathways, etc.

Other land areas that are not managed by the Town include Worcester Street (Route 9) and the railroad tracks, owned by MassDOT and the MBTA.

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

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:	Jack Morgan	Title:	Board of Selectmen, Chairman
Signature:	Jack Morgan *[To be signed according to Appendix B, Subparagraph B.11, Standard Conditions]*	Date:	10/01/18

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

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-2494
Event Code: 05E1NE00-2018-E-05802
Project Name: NPDES MS4 General Permit 2018

July 24, 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-2494

Event Code: 05E1NE00-2018-E-05802

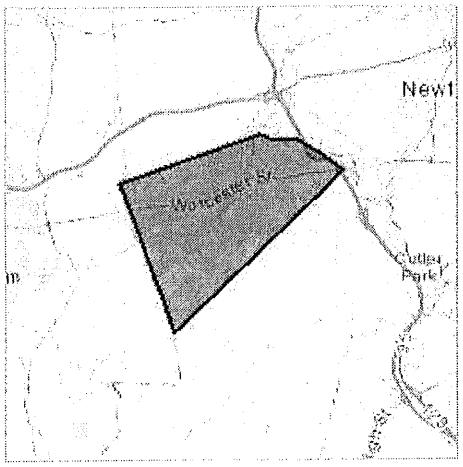
Project Name: NPDES MS4 General Permit 2018

Project Type: ** OTHER **

Project Description: Entire Town

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.296713012188555N71.29144582026109W



Counties: Middlesex, MA | Norfolk, MA

Endangered Species Act Species

There is a total of 1 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 Fisheries[1], 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 *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

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

Tab 4

Authorization Letter & Delegation Letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

VIA EMAIL

February 14, 2019

Jack Morgan
Board of Selectmen, Chairman

And;

David J. Hickey, Jr.
Town Engineer
20 Municipal Way
Wellesley, MA. 02481
dhickey@wellesleyma.gov

Re: National Pollutant Discharge Elimination System Permit ID #: MAR041067, Town of Wellesley

Dear David J. Hickey, Jr.:

The 2016 NPDES General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (MS4 General Permit) is a jointly issued EPA-MassDEP permit. Your Notice of Intent (NOI) for coverage under this MS4 General Permit has been reviewed by EPA and appears to be complete. You are hereby granted authorization by EPA and MassDEP to discharge stormwater from your MS4 in accordance with the applicable terms and conditions of the MS4 General Permit, including all relevant and applicable Appendices. This authorization to discharge expires at midnight on **June 30, 2022.**

For those permittees that certified Endangered Species Act eligibility under Criterion C in their NOI, this authorization letter also serves as EPA's concurrence with your determination that your discharges will have no effect on the listed species present in your action area, based on the information provided in your NOI.

As a reminder, your first annual report is due by **September 30, 2019** for the reporting period from May 1, 2018 through June 30, 2019.

Information about the permit and available resources can be found on our website: https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit. Should you have any questions regarding this permit please contact Newton Tedder at tedder.newton@epa.gov or (617) 918-1038.

Sincerely,

Thelma Murphy, Chief
Stormwater and Construction Permits Section
Office of Ecosystem Protection
United States Environmental Protection Agency, Region 1

and;

Lealdon Langley, Director
Wetlands and Wastewater Program
Bureau of Water Resources
Massachusetts Department of Environmental Protection

TOWN OF WELLESLEY MASSACHUSETTS

BOARD OF SELECTMEN

TOWN HALL • 525 WASHINGTON STREET • WELLESLEY, MA 02482-5992

MARJORIE R. FREIMAN, CHAIR
THOMAS H. ULFELDER, VICE CHAIR
JACK MORGAN, SECRETARY
BETH SULLIVAN WOODS
LISE OLNEY

FACSIMILE: (781) 239-1043
TELEPHONE: (781) 431-1019 x2201
WWW.WELLESLEYMA.GOV
MEGHAN C. JOP
EXECUTIVE DIRECTOR OF GENERAL GOVERNMENT

July 18, 2019

Memo: To File

CC: Thelma Murphy, Section Chief EPA Region 1
Newton Tedder, EPA region 1
Fred Civian, Mass DEP
Tom Harrington, Town Counsel
Meghan Jop, Executive Director
Dave Cohen, DPW Director

Re: Documentation for delegation of "Authorized Representative" for NPDES Small Municipal Separate Storm Sewer System (MS4) General Permit

This document serves to affirm that Dave Hickey, Wellesley Town Engineer has responsibility for the operation of the MS4 and is hereby designated as an authorized person for signing all reports including but not limited to the Stormwater Management Plan (SWMP), Stormwater Pollution Prevention Plans (SWPPPs), inspection reports, annual reports, monitoring reports, reports on training, and other information required by the General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Wellesley, Massachusetts. 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 I meet the following requirements to make such a designation as set forth in Part B.11 of Appendix B 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.

"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."

Marjorie R Freiman

Marjorie R. Freiman,
Chair Wellesley Board of Selectmen

July 18, 2019
Date

Tab 5

Illicit Discharge Detection & Elimination (IDDE)

1.0 Introduction

1.1 Stormwater Regulations and Background

The Town of Wellesley is dedicated to provide clean drinking water for its citizens and to insure that stormwater runoff from drainage outlet pipes, lawn areas, paved surfaces, roofs, etc. are not harming the natural resources. The Environmental Protection Agency (EPA) regulates stormwater runoff under the section of the Clean Water Act National Pollution Discharge Elimination System (NPDES), which was designed to improve water quality to US waterways.

The first wave of stormwater regulations (Phase I) were published on November 16, 1990, and required stormwater permits under the Clean Water Act's (NPDES) program. Municipalities with separate storm sewer systems (MS4s) and populations of over 100,000 and certain industries that discharged to MS4s or directly to waters of the United States were included in the requirements of the Phase I regulations.

The second wave of stormwater regulations (Phase II) was published on December 8, 1999 and required NPDES permits for small MS4s (populations fewer than 100,000) as well as for previously exempted municipal industrial activities. EPA's Phase II MS4 permit became effective in 2003, for a five (5) year term. On April 4, 2016, the EPA issued the 2016 Massachusetts Small MS4 General Permit, which will become effective July 1, 2017. The final permit replaces the 2003 small MS4 general permit for MS4 operators within the Commonwealth of Massachusetts. Identifying and eliminating illicit discharges to the stormwater system is paramount to meet the goals of the Town's MS4 permit.

1.2 What is an Illicit Discharge?

Illicit discharges are defined by federal regulations as "any discharge to the MS4 that is not entirely stormwater" with some exceptions. See section 1.6 Special Permit Conditions below that list non-stormwater discharges that are exempt. Illicit discharges are considered "illicit" because MS4s are not designed to accept, process or discharge such non-stormwater waste. Examples of illicit discharges include sanitary wastewater, car wash wastewater, chemicals, improper oil disposal, etc.

Research conducted by the (EPA has shown that dry-weather flows discharging to stormwater drainage systems is contributing to polluting of receiving waters, for example Fuller Brook, Morses Pond and the Charles River. Dry-weather flows may originate from vehicle wash bays, sanitary sewer connections, industrial or commercial entries, etc., which are considered illicit connections. Section 402 of the NPDES permit requires communities to develop a program of eliminating non-stormwater discharges into storm drains.

Illicit discharges can enter the drainage system either directly via a non-stormwater pipe mistakenly or deliberately connected to the storm drain pipe such as a sump pump for sanitary sewer, septic system, washing machine or floor drain.

An indirect discharge may occur through failed drainage systems, sanitary sewer overflows, grass clippings, hazardous waste spills, leaf litter, fertilizing, etc. Indirect discharges are typically occurring irregularly and are difficult to track.

Illicit discharges flow directly to waterways without any treatment, unlike wastewater flows at wastewater treatment facilities. Illicit discharges often include pathogens, chlorine, surfactants (soap), nutrient and toxic pollutants.

1.3 Illicit Discharges to Ponds, Lakes and other Water Bodies

The Town of Wellesley has a system of drainage pipes and structures that convey stormwater runoff from our streets and parking lots to streams, brooks, lakes and ponds (US waterways) and eventually to the Charles River. These waterways provide recreation and environmental value to the Town. Illicit discharges to water bodies contribute to elevated levels of pathogens, nutrients and other pollutants that can contribute to unsafe conditions for recreational use and accelerate algae growth that reduces oxygen in the water and degrades aquatic habitat.

The Commonwealth of Massachusetts has a list of integrated waters that are "impaired" due to various pollution sources. The Town of Wellesley has the following water bodies that are impaired due to various pollutant sources.

- Fuller Brook - E. coli, nutrients/eutrophication biological indicators and siltation/sedimentation
- Rosemary Brook - dissolved oxygen and total phosphorus
- Charles River - nutrients/ eutrophication biological indicators, total phosphorus and excess algal growth

1.4 Summary of Permit Requirements

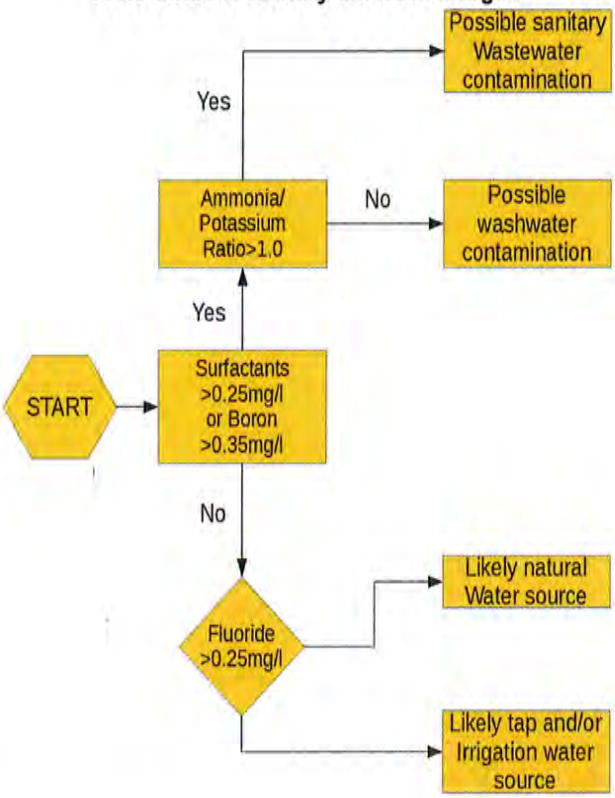
In order for the Town of Wellesley to comply with its NPDES permit, the town is required to implement stormwater pollution prevention plans (SWPPPs) or stormwater management programs both using best management practices (BMPs) that effectively reduce or prevent the discharge of pollutants into receiving waters, namely the Charles River. One specific part of this required plan is to detect and address illicit discharges into the drainage system. According to the EPA each municipal separate stormwater system must implement a plan which includes the following four components: procedures for locating priority areas likely to have illicit discharges; procedures for tracing the source of an illicit discharge; procedures for removing the source of the discharge; and procedures for program evaluation and assessment. The EPA has adopted a protocol for detection and elimination of illicit discharge into stormwater systems, which all communities are expected to put into practice.

1.5 Stormwater Monitoring Requirements

Each MS4 community is required to inspect outfalls for dry-weather flow, grab samples for testing water quality, locate illicit discharges and remove them from the drainage system. The flow chart

method of detecting illicit discharges is most effective when analysis of the samples is done in the field. The flow chart, **Figure 1** below, shows the testing needed to determine if a discharge is a regulated non-stormwater discharge or a contaminated source. The EPA's guidance manual gives direction as to what equipment and methods should be used in analyzing each parameter. Section 3.2 lists equipment that may be used to initially screen field samples. Field-testing will minimize the use of a contracted lab to perform the sample analysis, delays to get results, and will greatly reduce the cost of sampling after the initial purchase of equipment. These field tests performed on the specified parameters will give instantaneous results and will allow the source to be not only identified but also traced back to the problem area. The results found from the field sampling tests will allow Wellesley to take the next step towards reducing the concentration of illicit material discharged into the town's watersheds. The DPW personnel that maintain the drainage system are being trained to observe suspected illicit discharges in the stormwater system. The suspected discharge can be reported to the Engineering Division and with the use of the purchased equipment; field-testing can be done on the spot.

Figure 1
Flow Chart to Identify Illicit Discharges



<u>Industrial Discharges</u>
Ammonia ≥50 mg/l
Conductivity ≥2,000 µS/cm
PH ≥5

1.6 Special Permit Conditions

There are two special conditions on all general permits: 1) prohibition of non-stormwater discharges; and 2) procedures in the event of a release of a reportable quantity of hazardous substances and oil.

Discharges of non-stormwater flows are allowed and have been exempted by the permit. These include;

- Discharges from fire fighting activity;
- Fire hydrant flushing;
- Potable water sources including water line flushings;
- Irrigation drainage;
- Routine external building wash down without detergents;
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
- Air conditioning or compressor condensate;
- Uncontaminated groundwater or spring water;
- Foundation or footing drains where flows are not contaminated with process materials such as solvents that are combined with stormwater discharges associated with industrial activity;
- Mist discharges which originate from cooling towers and which are deposited at an industrial facility (with certain requirements and restrictions);
- Individual residential car washing;
- Lawn watering; and
- De-chlorinated swimming pool discharges.

Reportable Quantity Releases of Hazardous Substances and Oil

If a permitted stormwater discharge contains a hazardous substance or oil in an amount equal to or higher than the reporting quantity in either 40 CFR 110, 117, and 302 (see section 2.1.2.4 of the Permit), the discharger must:

- Notify the National Response Center (800)-424-8802;
- Modify the Stormwater Pollution Prevention Plan within 14 calendar days to provide a release description, including dates and circumstances;
- Provide written description of the release to EPA within 14 calendar days; and
- Modify the Spill Prevention Control and Countermeasure Plan.

Facilities with more than one anticipated discharge of this type per year must submit notification for the first event of the calendar year and describe the events and identify measures to reduce the releases in the Pollution Prevention Plan.

1.7 Town of Wellesley IDDE Rules & Regulations

The IDDE program implements and enforces the Town's rules and regulations governing illicit discharges under Article 3100, which was amended by the Board of Public Works on November 15, 2006. A copy of the article is included in **Attachment A**. This article specifically prohibits the discharge of construction dewater without obtaining a permit to do so, solid waste, construction debris, paint or painting product, antifreeze, hazardous waste, oil, gasoline, grease and all other automotive and petroleum products, solvents and degreasers, drain cleaners, commercial and household cleaners, soap, detergent, ammonia, food and food waste, grass or yard waste, leaves, animal feces, dirt, sand gravel, wastewater, sanitary sewage, septage or industrial waste.

Violation of this article is a public offense and may carry fines of up to $50 per offense, and separate offenses each day in which violation continues. Restrictions and regulations within the article are intended to protect the ecological health and value of the existing water resources and to comply with NPDES.

1.8 Definitions

Best Management Practices (BMP's) – The most effective and practical measures to reduce or prevent pollutants from reaching water bodies and to control the quantity of runoff from a site. BMP's may be structural, such as particle separators or sand filters, and they may be non-structural, such as the establishment of buffer zones around commercial development, or proper storage of chemicals.

Conditionally Exempt Discharge – Non-stormwater discharge that may not qualify as an illicit discharge, as defined by US EPA (EPA 833-F-00-007) fact sheet and listed in section 1.6 above. The Town of Wellesley may identify these discharges as significant contributors of pollutants to its MS4.

Combined Sewer Overflow (CSO) – When raw sewerage lines are connected to stormwater drain lines, combining the two flows that are conveyed to a waterbody.

Dewatering – Groundwater or surface water which is removed from a site and discharged beyond the limits of the site by means of gravity or pumping.

Exempt Discharge – Non-stormwater discharge that does not qualify as an illicit discharge, as defined by the US EPA (EPA 833-F-00-007).

Geographical Information System (GIS) – is a digital mapping program designed to visually capture, store, manipulate, analyze, manage and present special and geographical data.

Groundwater – A supply of water under the earth's surface contained within or flowing through a geological formation.

IDDE – Illicit Discharge Detection and Elimination.

Illicit Discharge – Any discharge to an MS4 that is prohibited under local, state and federal statutes,

ordinances, codes or regulations. This includes all non-stormwater discharges except those discharges with a NPDES permit and discharges that are exempt or conditionally exempt. Illegal dumping of hazardous/solid waste is considered an illicit discharge.

Illicit Connection – Any conveyance that is connected to the MS4 without a permit or through which prohibited non-stormwater flows are discharged.

Indirect Entry – Flows that originate outside the storm drainage system that enter the drainage system through drainage inlets or infiltrate through breaks, cracks or joints.

MCM – Minimum Control Measures.

Municipal Separate Storm Sewer System (MS4) – a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into the waters of the United States ("Waters of the United States" refers to surface water only).

National Pollution Discharge Detection and Elimination System (NPDES) Stormwater discharge permit – A permit issued by the U.S. EPA (or by a State under authority delegated pursuant to 33 USC ' 1342 (b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-Contact Cooling Water – Water used to reduce temperature which does not come in direct contact with any raw material, intermediate product, a waste product or finished project.

Outfall – A point source at the point where an MS4 discharges to receiving waters, or to other MS4s.

Pollutant – Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes and solvents, oil and other automotive fluids, non-hazardous liquid and solid wastes and yard wastes, refuse, rubbish, garbage, littler, or other discarded or abandoned objects, floatables, pesticides, herbicides, and fertilizers, hazardous substances and wastes, sewage, fecal coliform and pathogens, dissolved and particulate metals, animal wastes, construction debris, and noxious or offensive matter of any kind.

Right-of-Way (ROW) – A legal right to pass through property along a specific route established by usage or grant.

Sewage – Household or commercial wastewater that contains human waste. Distinguished from industrial wastewater.

Sanitary Sewer Overflow (SSO) – When raw sewage from sewer manholes or through leaking or

broken sewer pipes spills into waterways, yards, roadway or basements.

Storm Drainage System – A storm drain can either be an enclosed pipe or an open channel, including pumping stations, inlets, catch basins and manholes used in the collection and transport of stormwater.

Stormwater Management – Regulatory, structural, administrative, managerial, maintenance, physical and chemical measures or devices that are designed to prevent the discharge of pollutants to stormwater or to prevent flooding.

Waters of the United States – All streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems, and all other bodies or accumulations of water surface or underground, natural or artificial, public or private, which are contained within, flow through or border upon state any portion thereof.

1.9 Discharge Flow Types

Dry weather flows consist one or more of the following types:

- Sewerage and septage flows conveyed from sewer pipes and septic tanks.
- Washwater flows refer to discharges from laundry (grey water), commercial car wash wastewater, fleet washing, commercial laundry wastewater and floor washing to shop drains.
- Liquid waste flows such as oil, paint, process water (radiator flushing water, plating, bath wastewater, etc.).
- Tap water flows from leak and losses that occur during the distribution of drinking water in a water supply system.
- Landscape irrigation flows from over watering used for residential and commercial lawns that flow into a drainage system.
- Groundwater and spring water flows occur when the local water table rises, typically during the spring during wet weather conditions and enters the drainage system through cracked pipes or open joints or if the groundwater table is higher than the invert or the inside bottom of the pipe.

Table 1 lists land use, generating sites and activities that produce indirect discharges.

Table - 1: Land Use, Generating Sites and Activities That Produce Indirect Discharges		
Land Use	**Generating Site**	**Activity that Produces Discharge**
Residential	Apartments	Car washing
	Multi-family	Driveway cleaning
	Single family detached	Dumping/spills (e.g. leaf litter and RV/boat)
		Equipment washdowns
		Lawn/landscapewatering
		Septic system maintenance
		Swimming pool discharges
Commercial	Campgrounds/RV parks	Buildign maintenance (power washing)
	Car dealers/rental car companies	Dumping/spills
	Car washes	Landscaping/grounds Care (irrigation)
	Commercial laudry/dry cleaning	Outdoor fluid storage
	Gas stations/Auto repair shops	Parking lot maintenance (power washing)
	Marinas	Vehicle maintenance/repair
	Nurseries and garden centers	Vehicle washing
	Oil change shops	Washdown of greasy equipment and grease traps
	Restaurants	
	Swimming pools	
Industrial	Auto recyclers	All commercial activities
	Beverages and brewing	Industrial process water or rinse water
	Construction vehicle washouts	Loading and un-loading area washdowns
	Distribution centers	Outdoor material storage (fluids)
	Food Processing	
	Garbage truck washouts	
	Marinas, boat building and repair	
	Metal plating operations	
	Paper and wood products	
	Petroleum storage and refining	
	Printing	
Institutional	Cemeteries	Building maintenance (e.g., power washing)
	Churches	Dumping/spills
	Corporate Campuses	Landscaping/grounds care (irrigation)
	Hospitals	Parking lot maintenance (power washing)
	Schools and Universities	Vehicle washing
Municipal	Airports	Building maintenance (e.g., power washing)
	Landfills	Dumping/spills
	Maintenance depots	Landscaping/grounds care (irrigation)
	Municipal fleet storage areas	Outdoor fluid storage
	Ports	Parking lot maintenance (power washing)
	Public Works yards	Road maintenance
	Streets and highways	Spill prevention/response
		Vehicle fueling
		Vehicle maintenance/repair
		Vehicle washing

2.0 Public Outreach and Staff Training

The Town of Wellesley has developed a public outreach program that consists of a website, stormwater brochures for residential and commercial use and providing stormwater presentations to the Middle School, all of which make the general public aware of illicit discharge issues. Citizens are encouraged to use the stormwater hotline to report an illicit discharge at stormwater@wellesleyma.gov. In Wellesley, the NRC had taken a leadership role in educating the public and providing public outreach through a series of workshops, including rain garden design and function, healthy landscapes, vehicle idle reduction, healthy yards and many more. They also organize several stream and field clean up events.

DPW staff will receive annual IDDE training during SPCC training, which are attended by all DPW staff. Training materials will include videos and Power Point presentations showing examples of illicit discharges and corrective actions implemented to remove the illicit discharge.

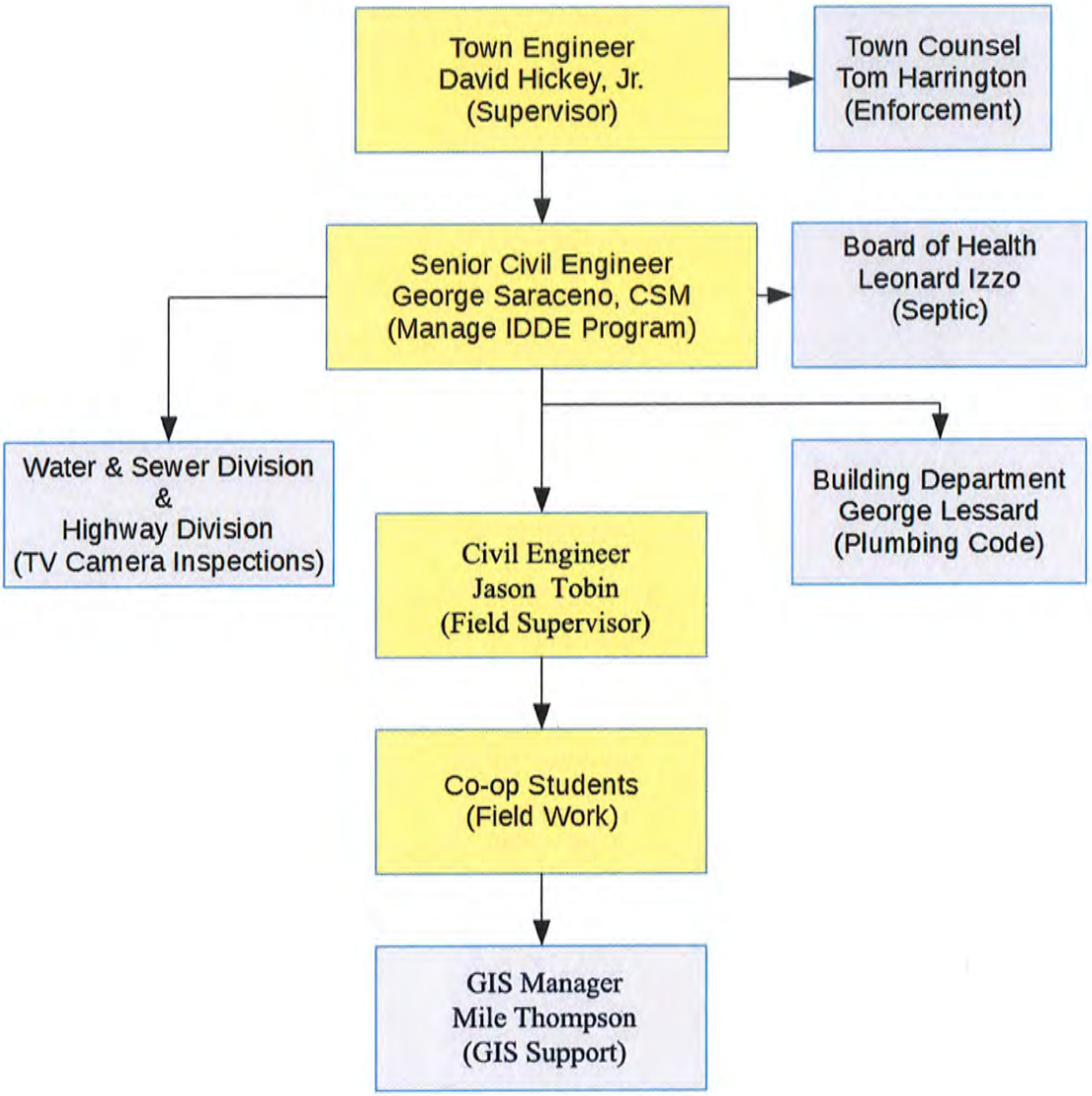
2.0 Planning and Organization

2.1 Formation and Goals of the IDDE Team

The Town of Wellesley DPW is the lead agency responsible for implementing the IDDE plan for the Town and has assembled an IDDE team with the goal of developing and administering the IDDE plan. Each member of the team will be responsible for the implementation of the plan with respect to site-specific operations and/or within a prescribed area of the Town.

Wellesley team members are shown on the following team organization chart (**Figure 2**), which outlines the responsibility of each team member.

FIGURE 2
IDDE Organizational Chart



If an illicit discharge is discovered, determining the point of origin, both public and private will require the IDDE team members to locate the source of the illicit discharge and determine the best course of action to remove the illicit discharge. In some circumstances this may require working on private property. The Water & Sewer Division and Highway Division assist with television inspections, flushing drain lines, opening structures, etc. The Board of Health should be involved when dealing with septic flow into the drainage system and cross connections. The Town utilizes the GIS Department to help prepare maps that accurately show the location of the drainage system and potential illicit discharges. The DPW Engineering Division staff manage the stormwater program and implement the IDDE plan by utilizing the field engineers and engineering students to aide in the process of locating, mapping, inspecting and preparing plans.

2.2 Components of an IDDE Program

1. Review existing local resources, regulations, and responsibilities that are responsible for illicit discharge control in the community. An audit should be implemented to define local needs, capabilities which will provide the foundation for the IDDE program plan.

2. Establish responsibility, authority and tracking for the IDDE program within existing local departments and agencies.

3. Complete an assessment of illicit discharge potential within the community. This will help narrow the search for the most severe illicit discharge problems through analysis of existing mapping and water quality monitoring.

4. Establish measurable goals for the overall IDDE program during the permit cycle. Based on the goals, develop specific implementation strategies to improve water quality and measure program success.

5. Search for illicit discharge problems in the field, screening out potential problematic outfalls within a watershed. Perform a rapid Outfall Reconnaissance Inventory (ORI) on every mile of stream or channel in the community, starting with watersheds that have the greatest risk.

6. Isolate and fix an illicit discharge problem, tracing them back up the pipe to isolate the specific source or improper connection that generates them. Make necessary corrective action to eliminate the illicit discharge.

7. Reach out to the community to educate the community on the need to remove illicit discharges from the drainage system.

8. Evaluate the measurable goals set for the IDDE program and periodically review and revise the IDDE plan to determine if progress is being made or implement strategies to make adjustments.

Table 2 outlines the key tasks and products needed to implement an IDDE program.

Table - 2: Key Tasks & Products in IDDE Program Implementation		
Program Component	**Key Tasks**	**Products**
Audit existing programs	Infrastructure profile	Agreement on lead agency
	Existing legal authority	5 year program development plan
	Available mapping	First year budget and scope of work
	Experienced field crews	
	Access to lab services	
	Education and outreach outlets	
	Discharge removal capability	
	Program budget and financing	
Establish responsibility & authority	Review existing ordinances	Adopt or amend ordinance
	Define "Illicit"	Implement tracking system
	Provisions for access/inspections	
	Select enforcement tools	
	Design tracking system	
Assessment of illicit discharge potential	Delineate subwatersheds	Prioritize subwatersheds for field screening
	Compile mapping layers/data	
	Define discharge schreening factors	
	Screen subwatersheds for illicit discharge potential	
	Generate maps for field screening	
Develop program goals & strategies	Community analysis of illicit discharge	Measurable program goals
	Public Involvement	Implementation strategies
Search for illicity discharges in the field	Outfall reconnaissance inventory (ORI)	Initial storm drain outfall
	Integrate ORI data in tracking system	Map
	Follow-up monitoring at suspect outfalls	Develop monitoring strategy
Isolate and fix individual discharges	Implement pollution hotline	Maintain tracking system
	Trunk and on-site investigation	
	Corrections and enforcement	
Prevent illicit discharges	Select key discharge behaviors	Implement Municipal pollution prevention program
	Prioritize outreach targets	
	Develop budget and delivery system	
Program evaluation	Analyze tracking system	Annual reports
	Characterize illicit discharge detected	Permit renegotiation
	Update goals and strategies	

3.0 Locating Priority Areas

3.1 "Hot Spots"

Use available Town resources to identify potential "hot spots." This may involve reviewing Sanitary Sewer Overflows (SSO) and Combined Sewer Overflows (CSO), which are reportable to the Department of Environmental Protection (DEP) and the Environmental Protection Agency (EPA) and all available day dry and wet weather flow data.

"Hot spots" are areas that may be considered to have likely sources of illicit discharges based on gathered information. Common areas of "hot spots" are older section of town with aging infrastructure, and illegal connections.

Commercial/industrial areas that would likely have a high potential to affect water quality should also be inspected.

Utilize Geographic Information System (GIS) mapping to locate areas of the town that have

had repeated complaints of illegal dumping or contaminated discharges. For example, there may be places within the town with repeated calls of soap suds in a stream, which may tie into an illegal residential connection of a washing machine.
Upon locating priority areas using GIS, conduct dry-weather field screening to look for non-storm water discharges. Dry-weather field screening requires a visual inspection of outfalls during dry weather. The presence of flow during a dry weather observation may indicate an illicit discharge. However, groundwater or an approved non-stormwater flow may be the cause of the dry weather flow. Repeated inspection of the outfall may be required to determine if the source of the dry weather flow is illicit in nature.

The Town of Wellesley utilizes an outfall inspection form to record data during an inspection of an outfall. The outfall inspection form records background data, watershed, land use, outfall description, necessary outfall repairs, flow description, physical indications of a flow and data collection. See **Appendix B** for a copy of the outfall inspection form.

The form also records potential illicit discharge indicators such as odor, color, turbidity, deposits, stains, vegetation and pipe benthic growth, all possible indicators of dry-weather flow.

3.2 Conducting Water Quality Testing

Dry weather screening shall be performed when there is no more than 0.1 inches of rainfall that has occurred in a 24-hour period and no significant snow melt.

Dry weather screening should include the following information and protocol listed below.

a. Physical features of outfall/interconnections

- unique identifier
- receiving water
- date of most recent inspection
- dimensions
- shape
- material
- spatial location
- physical condition
- indications of potential non-stormwater discharges, including odor, color, turbidity, floatables or oil sheen.

b. If an outfall/interconnection is submerged or inaccessible, the first accessible upstream manhole or structure for observation and sampling.

c. If no flow is observed but evidence of an illicit connection exists, the outfall/interconnection shall be revisited within one week to perform a second dry weather screening and sample any flow.

d. If dry weather flow is found at an outfall/interconnection, at least one (1) sample shall be collected for the following water quality test parameters listed in **Table 3**. Units of measure for each parameter are provided below.

Table - 3: Water Quality Test Parameters and Uses		
Water Quality Test	**Use of Water Quality Test**	**Comments**
Conductivity	Used as an indicator of dissolved solids	Typically measured in the field with a probe
Ammonia	High levels can be indicator of the presence of sanitary sewer	Equipment if readily available
Surfactants	Indicate the presence of detergent	Field test kits available
pH	Low or high pH values may indicate commercial or industrial flows	Typically measured in the field with a probe.
Temperature	Most useful during cold weather as sanitary wastewater and cooling water influences	Measured in the field with a thermometer or probe
Hardness	Used to distiquish between natural and treated waters	Measured in the lab
Total Chlorine	Used to indicate flow from a water source	Measured in the lab
Fluoride	Used to indicate flow from a water source	Measured in the lab
Potassium	High levels may indicate the presence of santiary wastewater	Meaured in the lab
Optical Brighteners (Fluorescence)	Used to indicate the presence of laundry detergents	Measured in the field
Bacteria (fecal coliform, E. coli, and/or enterococci)	Used to indicate the presence of sanitary wastewater	Measured in the lab

- Ammonia (≥0.5 mg/l)
- Chlorine (>0.5 mg/l)
- Conductivity (2,000 µS/cm)
- Salinity (Practical Salinity Unit (PSU) = 1g/kg)
- E. coli (>12,000 MPN/100ml)
- Surfactants (≥0.25 mg/l)
- Temperature (83° F)
- Pollutants of concern (total phosphorus) (>0.3 mg/l)

Results of the outfall/interconnection screening and sampling test results shall be submitted with the Annual Report to EPA. The ranking of outfall/interconnections will be updated continuously but shall be completed within three (3) years of the effective date of the MS4 permit.

If a dry-weather flow is observed from an outfall, samples should be collected to determine if the

flow is of a natural background, i.e., groundwater or if there is the presence of an illicit connection, i.e., surfactants. Samples should be collected following a Quality Assurance Project Plan (QAPP), which details sample collection, preservation, and quality control requirements. Bacteria samples require a strict holding time, which should be discussed with the laboratory prior to obtaining the samples. Samples will be collected using a field kit. A field kit and general sampling equipment consists of the following.

- 5-gallon Bucket
- Clean sample containers
- Cooler with ice for transporting bottles
- Flashlight
- Pen/pencil and permanent marker
- Traffic safety cones
- Field notebook
- Extension pole sampler
- Digital camera
- Pry bar or pick for manhole or catch basin cover removal
- Nitrile gloves
- Distilled water
- Paper towels
- Reflective vest/jacket
- Measuring tape
- Camera
- Mobile data collector or Outfall Inspection Form
- pH & conductivity – tester/meter
- Temperature – thermometer (conductivity meter)
- Ammonia Sample – Testing Strips
- Surfactant Sample – Testing Kit
- Chlorine Sample – Testing Strips
- Potassium Sample – Testing Strips
- Turbidity Sample
- Separate bottle

A stormwater field test kit may be purchased through Hach for approximately $500. However, the field test kit will not be able to test for bacteria, which will require submission to a local certified laboratory.

Example of a Field Test Kit from Hach
"Storm Water Test Kit, Model SW-1." *Manufactures Water Quality Testing and Analytical Instruments & Reagents*. Hach, n.d. Web. 09 June 2016. <http://www.hach.com/storm-water-test-kit-model-sw-1/product?id=7640217336>.

Bottles and laboratory containers such as coolers should be purchased or provided by the sampling company performing, i.e., Alpha Lab or equal, the analytical analysis. Label all containers used for sampling with a site number, sample number and sampling date. As soon as the samples are collected in the field, they should be immediately placed into a cooler with ice.

Bacteria Sampling Procedure

Bacteria samples must be performed in a laboratory and are specifically tested for E. coli. The sample bottle contains a thiosulfate tablet in the bottom of the bottle. Bacteria sample bottles are provided by the laboratory performing the analysis. When filling the sample bottom, be careful not to overfill the container and lose the thiosulfate tablet. Place the container into a cooler filled with ice and send to the lab within six hours of sampling.

Phosphorus Sampling Procedure

Total phosphorus analysis is conducted in the laboratory. Containers have sulfuric acid as a preservative. Fully fill the container without overfilling or losing the sulfuric acid. Samples may be taken directly from the outfall discharge pipe.

pH/Conductivity/Turbidity/Temperature Procedure

A pH/conductivity meter may be used by placing the probes into the testing container and recording pH, conductivity, turbidity and temperature.

Ammonia Test Trip Procedures

Fill container with water sample and place test strip into the water for 30 seconds. Compare test strip pad with color designations on the testing strip bottle and record ammonia concentration.

Chlorine Test Strip Procedures

Fill container with water sample and place test strip into the water for 30 seconds. Compare test strip pad with color designations on the testing strip bottle and record chlorine concentration.

Surfactants Test Kit Procedures

Follow the instructions in the test kit to get surfactants concentration. See **Appendix C**.

3.3 Safety

Persons conducting the field water samples shall do so in a safe manner by wearing light colored long-sleeved shirts and pants, insect repellent with DEET, tuck pants into socks to help prevent ticks and wear boots or waders that provide suitable traction and movement in mud and water. Use nitrile gloves when collecting samples or performing field analysis. Entry into culverts, manholes and storage tanks requires confined space entry, which is required by trained staff only. Do not work during electrical storms, hail, hurricanes, snow or during flash flood events. Sampling poles must be kept 10 feet from power lines at all times.

4.0 Tracing the Source of an Illicit Discharge

4.1 Manhole Observation

Tracing an illicit discharge back to its source requires following or tracing dry-weather flows upstream to a drain structure, typically a manhole or catch basin. A thorough review of the drain system map will help locate connected drainage structures upstream. You may need to sample the upstream manhole junction for evidence of an illicit connection. Continue to locate junctions further upstream until there is no evidence of flow. The discharge is most likely between the upstream junction with no flow and the downstream junction with flow.

Video inspection cameras are a great way to observe illegal drain connections. The Town utilizes their own video equipment, which includes the ability to save the video on a disk, thumb drive or onto the network.

Smoke testing is a viable method for determining the location of an illicit detection. Non-toxic smoke is injected into the drainage system and then noting the emergence of smoke from sanitary sewer vents in illegally connected buildings or from cracks and leaks in the sanitary sewer lines.

Dye testing involves flushing a non-toxic dye into toilets and sinks and observing from opened sanitary sewer manholes, drain manholes, catch basins and outfalls the presence of the dye. Prior to performing a dye test, building owners and occupants must be notified and granted permission for entry. Local public health and state water quality staff must be notified.

4.2 Tracking Illegal Dumping & Discharge

The Town has created a hotline that can be used to report illegal dumping and discharges. When reported, DPW staff will observe the materials that were dumped and where possible tracking the source of the materials. Further, the DPW will use our GIS system to track how often the illegal dumping occurs, what time of day, how often and who is doing the dumping. Tracking illegal dumping can help pinpoint this source of illicit discharges.

5.0 Removing the Source of Illicit Discharge

5.1 Compliance

Upon discovering an illicit discharge, the municipality should respond to the illicit discharge in coordinated steps. The property owner may not be aware of the existence of the illicit connection between their property and the Town's drainage system. Schedule a meeting with the property owner to discuss the illicit connection issue. The municipality should inform the property owner of the regulatory requirements, environmental impacts and what steps are necessary to remove the illicit connection.

For each illicit discharge identified, an Illicit Discharge Inspection Log (**Appendix D**) must be completed. Within one (1) year of removal of all identified illicit discharges within a catchment area, confirmatory outfall and interconnection screening shall be conducted. For catchment areas with System Vulnerability Factors (SVF's) that have been identified, additional sampling for both dry and wet weather screening shall be conducted. If confirmatory screening shows evidence of illicit discharges, the catchment shall be investigated further. Catchment areas should be screened every five (5) years.

5.2 Proper Construction and Maintenance

Some illicit connections are the result of public works projects and are the responsibility of the MS4. Problems creating illicit discharges include cross connections between sanitary sewer and the drainage system and broken sanitary sewer pipes that leak into the drainage system. Cross-connections between the sanitary sewer system and drainage system are typically mistakes. GIS mapping can help identify cross-connection issues and prevent them during new construction. Ongoing maintenance of the sanitary sewer system and drainage system will help prevent contamination from leaking sanitary sewer pipes, septic systems and contaminated groundwater. A copy of the Town of Wellesley drainage system mapping in GIS is included in **Appendix E**.

5.3 Preventing and Responding to Illegal Dumping

The following are considered illegal discharges into the Town's municipal stormwater drainage system; any solid waste, construction debris, paint or painting product, antifreeze, hazardous waste,

oil, gasoline, grease and all other automotive and petroleum products, solvents and degreasers, drain cleaners, commercial and household cleaners, soap, detergent, ammonia, food and food waste, grass or yard waste, leaves, animal feces, dirt, sand, gravel, or other pollutants.
To help prevent illegal dumping, measures should be taken to educate the general public, residential and business owners about the environmental and legal consequences of illegally dumping into the drainage system. Brochures, **Appendix F** have been prepared by the Town for residents, commercial and industrial business and colleges (institutions) to educate and involve these groups about the importance of stormwater management and illegal dumping.

6.0 Program Evaluation and Assessment

6.1 What Worked & What Didn't

Evaluating and assessing illicit discharges includes television inspection of the sanitary sewer and drainage system, outfall inspections for dry-weather flow, removing illicit connections, reviewing complaints and investigations and reporting progress toward measurable goals for the IDDE program. Assessment of what worked and what didn't work will help make adjustments to the IDDE program. On average, we TV inspect approximately 5,000 linear feet of drain pipe per year. We typically TV inspect 20,000 linear feet of sanitary sewer pipe per year. In the course of ten years, we have TV'ed over 85% of the sanitary sewer system.

6.2 Employee Training

Employee training to educate DPW personnel at all levels of responsibility of components and goals of the IDDE plan. The training session should be provided annually and include the following topics:

- Potential Contaminant Sources
- Illegal Dumping
- Good Housekeeping
- Material Management Practices
- Other Topics as Deemed Necessary

Aditionally, employee training will be conducted on an annual basis and will inform DPW personnel at all levels of responsibility of components and goals of the IDDE program.

7.0 Outfall/Interconnection Inventory & Initial Ranking

7.1 Outfall/Interconnection Inventory

The Town of Wellesley is required to inventory and rank each outfall to assess illicit discharge potential based on existing information. Each outfall and interconnection point shall be prioritized as follows.

- Problem Outfalls – outfall/interconnections with known or suspected contributions of illicit discharges based on existing information.
- High Priority Outfalls – outfalls that are discharging to an area of concern for public health such as beaches, drinking water supplies or shellfish beds.
- Low Priority Outfalls – outfall/interconnections determined to be low priority based on available information.
- Excluded Outfalls – outfall/interconnections with no potential for illicit discharges are excluded from the IDDE program. In areas with no sanitary sewer and no dwellings, athletic fields, undeveloped green space would be categorized as excluded outfall/interconnections.

7.2 Outfall/Interconnection Ranking

Outfall/interconnections with a priority ranking typically have the following characteristics.

- The receiving waters have a high illicit discharge potential: exceed water quality standards for bacteria; ammonia levels above 0.5 mg/l; surfactants levels greater than or equal to 0.25 mg/l.
- Past discharge complaints and reports.
- Generating sites with the potential to introduce pollutants that could introduce illicit discharges such as car washes, gas stations, garden centers and industrial manufacturing areas.
- Age of development and infrastructure greater than 40 years old could have a high illicit discharge potential.

8.0 Catchment Investigations

8.1 Identify Maps, Historic Records and Other Sources of Data

Catchment areas are small drainage areas or watersheds with a low point collects stormwater runoff and discharges to the drainage system or waterway. The MS4 permit requires the Town of Wellesley to review each catchment area as part of the IDDE plan. For each catchment area under review, relevant historic mapping and records will be reviewed to help identify areas of higher potential for illicit connections. SVF's, as described below, will be identified.

- Sanitary Sewer Overflow (SSO's)
- Structures serving both drain and sanitary sewer systems
- Known areas in a sanitary sewer system that surcharge
- Sanitary sewer defects such as leaking, cracked and broken pipes
- Areas with a history of combined sewer systems
- Crossing sanitary sewer and drain systems
- Lift stations, siphons and areas of sewer restrictions where power/equipment failures could result in SSO's.
- History of septic issues with on-lot septic systems

For each catchment, key junction points, manholes and catch basins must be inspected to gather information that will help the catchment investigation. Catchments with one (1) SVF are subject to wet weather sampling at the associated outfall to determine if high flows in sanitary sewer or septic systems are discharging to the drainage system. The EPA recommends sampling during the spring when groundwater levels are high. The wet weather sampling must be completed before the catchment investigation is complete. All dry and wet weather sampling for the catchment investigation must be reported in each annual report.

Tab 6

Sanitary Sewer Overflow (SSO) List

Sanitary Sewer Overflows (SSO)

Location	Date Discovered	Time Discovered	Date Resolved	Time Resolved	Discharge from	Cause	Discharge to	Estimated Volume	Site Cleaned
125 Barton Road	7/24/2017	2:49 PM	7/24/2017	3:00 PM	Manhole and Backup	Sewer System Blockage	Ground Surface	1,200 Gal	Yes
6 Fairbanks Avenue	10/5/2016	11:00 AM	10/5/2016	12:30 PM	Disconnected House Service	Sewer System Blockage	Ground Surface	1,200 Gal	Yes
116 Elmwood Road (Bates School)	5/18/2016	9:00 AM	5/18/2016	1:45 PM	Sewer Manhole	Sewer System Blockage	Boulder Brook	14,400 Gal	Yes
Fuller Brook Siphon @ Cottage Street	3/4/2015	5:00 PM	3/4/2015	9:00 PM	Pump Station	Sewer System Blockage	Fuller Brook	7,200 Gal	Yes
Brown Park	12/10/2014	12:30 PM	12/10/2014	1:00 PM	Manhole and Backup	Root Growth	Rockridge Brook		Yes
Easement @ #881 Colburn Road	4/1/2014	3:50 PM	4/1/2014	4:30 PM	Sewer Manhole	Rain Event	Ground Surface	600 Gal	Yes
Fuller Brook Siphon @ Leighton Road	3/31/2014	11:30 AM	3/31/2014	1:30 PM	Sewer Manhole	Sewer System Blockage	Fuller Brook	1,200 Gal	Yes

The discharges shown above did not enter the Town's surface water directly or the Towns MS4.

Tab 7

Construction Site Runoff Control

APPENDIX A

Article 3100

Municipal Stormwater Drainage System Rules & Regulations

House Drain: shall mean that part of the lowest horizontal piping of a drainage system, which receives the discharge of drainage inside the'walls of a building and conveys it to a storm drain. It can also transport drainage from roof, building and yard drains.

Illegal Discharge: any direct or indirect non-stormwater discharge to the stormwater drainage system, except as exempted, allowed or permitted in these rules and regulations.

Illicit Connections: an illicit connection shall be defined as either of the following:

Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including, but not limited to any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by federal, state, or Town permits.

Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and has not been authorized by federal, state, or Town permits.

Impervious Areas: means any surface from which most water runs off including, but not limited to, paved streets, paved areas such as driveways, parking areas, densely compacted earth, oiled macadam or other treated surfaces, walkways, roofs, patios, decks, and swimming pools.

Industrial Wastes: shall include the liquid or water-carried wastes of any industrial process not clearly included within the definitions of sanitary sewage, stormwater or non-contact cooling water. In general, waste waters carrying any quantity of oils, grease, fats, abrasives, chemicals, wastes from commercial food preserving or canning, from slaughterhouses or meat processing plants, and similar substances, whether dissolved, in suspension, or mechanically carried by water, shall be considered as industrial wastes.

Municipal Stormwater Drainage System: shall mean all drain pipes, culverts, structural controls, manholes, catch basins, inlet and outlet structures, improved channels, manmade detention or retention basins, and other appurtenances that are either on Town owned public ways or under the control of the Town of Wellesley by written agreement recorded at the Norfolk County Registry of Deeds.

National Pollutant Discharge Elimination System (NPDES) StormWater Discharge Permit: shall mean a permit issued by the U.S. EPA (or by a State under authority delegated pursuant to 33 USC ' 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

appurtenances, including inlets, catch basins, and manholes used in the collection and transport of stormwater.

Stormwater: shall mean any water resulting from rainfall or other precipitation that runs off surfaces or infiltrates into the ground during or after a storm.

Stormwater Management: shall mean regulatory, structural, administrative, managerial, maintenance, physical and chemical measures or devices that are designed to prevent the discharge of pollutants to stormwater or to prevent flooding.

Temporary Permit: shall mean a permit, which will allows the applicant to discharge water into a catch basin or manhole belonging to the Town's stormwater drainage system. These permits typically relate to construction activities.

Total Suspended Solids (TSS): shall mean matter suspended in stormwater that can be retained on a filter.

Wastewater: shall mean any water or other liquid, other than uncontaminated stormwater, discharged from a private dwelling, facility, commercial or institutional establishment or industrial source. .

3102. USE OF STORM DRAINS

The use of the Municipal Stormwater Drainage System in the Town of Wellesley shall be under the control and jurisdiction of the Board of Public Works.

Except as hereinafter provided, no person shall discharge any water into any public street or any part of the Town's municipal stormwater system without first having obtained a permit for said purpose from the Board of Public Works.

No person shall uncover, excavate, block access to, or make a connection to any pipe, culvert, catch basin, manhole, or other structure under the control of the Town without first having obtained a permit for said purpose from the Board of Public Works.

No person shall discharge any water from construction sites into any public street or any part of the municipal stormwater drainage system without first having obtained a permit for said purpose from the Board of Public Works.

The following discharges are allowed and will not require a Private Drain Connection Permit:

1. Individual residential car washing.
2. Flushing of the Town's water distribution system.
3. Fire fighting.
4. Emergency pumping of uncontaminated water from flooded basements.
5. Emptying of dechlorinated swimming pools. Permanent connections for the purpose of periodic emptying of swimming pools are prohibited. The Department of

system shall not be given without a written request being filed and approved by the Department of Public Works, Engineering Division. Written requests for a permit shall be made to the office of the Wellesley Department of Public Works, Engineering Division, 455 Worcester Street, Wellesley Hills, MA 02481. All applications shall be accompanied by a sketch or plan showing details of the proposed connection including but not limited to: location, size of pipe or dimensions of channel, location and dimensions of BMP's if utilized, and any other relevant information.

B. Classes of Permits: There shall be two (2) classes of permits: (a) permanent private drain connection permits for residential and commercial property; and (b) temporary permits for diversion of water, site dewatering, ground water remediation, or other construction related activities. In either case, the owner or his agent shall make application as specified herein. The permit application shall be supplemented by any runoff calculations, plans, specifications, permits obtained from other Town Departments or Boards, or other information considered pertinent in the judgment of the Director.

C. Schedule of Rates: There is no charge for use of the Municipal Stormwater Drainage System. The applicant shall be responsible for all fees associated with obtaining a Street Opening Permit where required, or the filing of a Private Drain Connection Agreement at the Norfolk County Registry of Deeds, or any permit or approval that may be required by other Town Departments or Boards.

D. Availability of Service: The acceptance of an application for a private drain connection will be contingent upon the existence, accessibility, and capacity of a municipal storm drain to serve the property.

E. Compatibility with other permits - New Construction and Reconstruction. Where approvals from other Town permitting authorities will be sought (Site Plan Review, Special Permit, Order of Conditions, etc.), the applicant shall first confer with the Town Engineer as to the feasibility of connecting to the Town's drainage system. A Private Drain Connection Agreement will not be issued until all other permits or approvals have been obtained.

F Stormwater Quantity Considerations:

On-site stormwater management BMP's shall be used to infiltrate, disperse, and retain stormwater runoff on-site to the maximum extent practicable. The requirement for maximum on site infiltration shall be waived where there is a demonstrated and documented threat to public health.

For permanent private drain connection permits, the applicant shall submit runoff calculations substantiating the anticipated volume of discharge. In the case of development or redevelopment projects, discharge quantity shall be limited to preconstruction amounts. If the 10-year storm peak discharge is greater than 0.5

loadings will not be approved for connection to the Town's stormwater drainage system.

If structural BMP's are selected, then a plan for maintenance and inspection shall be included with the application. The Town shall be granted access to inspect BMP's through written agreements or easements. After construction of the BMP, an annual report shall be submitted to the Department of Public Works indicating dates of inspections and maintenance actions taken.

For guidance on the selection of structural and nonstructural BMP's, the applicant should refer to *Stormwater Management, Volume Two: Stormwater Technical Handbook,* published by the Commonwealth of Massachusetts, Department of Environmental Protection, Latest Edition. Proprietary structural BMP's that have been assessed by the Massachusetts Strategic Envirotechnology Partnership (STEP) are also acceptable. The Department of Public Works may approve other BMP's upon submittal of supporting documentation.

The applicant may be required, at his own expense, to implement a monitoring program, which may include flow measurement, sampling, chemical and biological tests, recording of data, and periodic reports to the Town.

Discharges entirely from residential basement sumps, sump pumps, or residential roof drains shall be exempt from the treatment requirements of this section unless found to discharge pollutants. Projects that have been granted an Order of Conditions under M.G.L. Chapter 131, Section 40 shall be considered to be in compliance with the requirements of this section.

H. Private Drain Connection Agreement Upon approval of the application for permit, the applicant may proceed with executing a Private Drain Connection Agreement. The agreement shall be of a standard form approved by the Town and appended herewith (see Appendix A), and will be accompanied by a plan or sketch of the proposed work. The agreement shall be signed and sealed by the owner(s) of the private property and by the Town Engineer. The applicant shall be responsible for the payment of the recording fee. The Town shall record the executed agreement at the Norfolk County Registry of Deeds. By execution of the Private Drain Connection Agreement, the applicant (owner of the property making connection) shall indemnify the Town of Wellesley against and hold it harmless from any and all claims for damage by reason or arising directly or indirectly from the connection of said private drain to said drainage system. No work may begin until the executed agreement and recording fee have been received by the Department of Public Works, Engineering Division,

I. Changes to permitted discharges: The applicant shall not significantly increase the average daily volume or flow rate of discharge or make any other changes to his private drain system that would introduce new pollutants or increase the

making excavations or using any portion of any public way are required to obtain a Street Opening Permit from the Director. The Director will not issue this permit until the written application for the private drain connection has been approved by the Engineering Division. All persons working and making excavations in public ways, in accordance with Department regulations, shall notify the Director seventy-two (72) hours before starting work.

All persons making excavations in public or private ways or public or private land shall have first notified DIG SAFE (1-888-DIG-SAFE) in accordance with Mass. General Laws Chap. 82, Sec. 40.

The size, slope, alignment, and materials of construction of a private drain connection, and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench shall conform to the requirements of the building and plumbing code, current specifications and construction standards from the Department, or other applicable rules, regulations and bylaws of the Town.

All persons making excavations will make certain that all material, labor and. equipment necessary to complete the work are at the project site, and that they are in compliance with the *"Town of Wellesley, Department of Public Works, Construction Requirements for the Installation and/or Repair of Underground Facilities and Paving in the Public Way",* as amended.

The applicant or his contractor shall notify the Engineering Division seventy-two (72) hours in advance of when work is to begin. The connection shall be made under the supervision of the Engineering Division. The contractor shall verify that DIG SAFE has been notified and that all underground utilities have been marked out prior to beginning excavation.

Whenever possible, the private drain connection shall be made to an existing catch basin or manhole. If no catch basin or manhole is available, a residential connection of no greater than 4" diameter may be made directly to a municipal drain pipe. This connection shall discharge by gravity and not under pressure. A means of sampling the discharge at or near the point of connection to the Town's system shall be provided. Discharges under pressure shall terminate at the nearest municipal catch basin or manhole. In all cases of non-residential connections, or residential connections over 4" diameter, a new manhole or catch basin shall be constructed. All connections and required structures shall conform to Town of Wellesley Construction Standards and Specifications. All direct gravity connections from residential basement sumps shall have a check valve at an accessible point on the applicant's property. The Town shall have no responsibility to operate or maintain the check valve.

All excavations for private drain connection installation shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of

D. A copy of the agreement will be provided to the applicant, the Director of Public Works, and the Engineering Division Municipal Stormwater Drainage Permit file.

E. After the agreement is executed and all applicable permits have been obtained, the work may proceed.

3108. PROCEDURE FOR OBTAINING A TEMPORARY DISCHARGE PERMIT

Temporary permits for diversion of water, site dewatering, ground water remediation, or other construction related activities shall be in the form of a letter of permission from the Town Engineer. The letter shall state the specific requirements applicable to the requested activity and shall be valid for a specified duration.

3109. ENFORCEMENT

Whenever any person is found to have violated or to be violating any provision of these Regulations or a permit or private drain connection agreement issued pursuant to these Regulations, the Director shall provide that person with a notification of the nature of the violation and specify those actions to be taken to remedy the noncompliance. Within thirty (30) days after receipt of the notice, unless a shorter time is specified in the notice, a plan for the satisfactory correction thereof shall be submitted by the violator to the Director. Such notice may require without limitation:

1. The elimination of illicit discharges or connections.
2. The performance of monitoring, analyses, and reporting.
3. That violating discharges, practices, or operations shall cease and desist.
4. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property.
5. Payment of a fine to cover administrative and remediation costs.
6. The implementation of appropriate BMP's.

A. Verbal Notice: For a violation that involves the discharge or imminent threat of discharge of pollutants and which presents or appears to present an immediate danger to the health or welfare of humans, the Director may notify the violator by telephone or visit to take immediate action to discontinue or reduce the discharge to safe levels or, in the case of an imminent threat, to take appropriate action to eliminate the threat within a reasonable amount of time as established by the Director. Such verbal notice shall be followed within five days by a written notice.

B. Written Notice: For any violation other than one requiring immediate action, the Director may notify the violator by letter of the nature of the violation and require him to take action to remedy the noncompliance.

If abatement of a violation and/or restoration of affected property is required, the notice,

3113. RIGHT TO HEARING

Any person accused of violation these rules or regulations shall be notified of the alleged violation, in writing, via certified mail, return receipt requested, which shall set forth a date and time at which a hearing will be held before the Director or his designee in order to afford the person an opportunity to be heard in regard to the alleged violation, with or without counsel, as the person shall choose.

3114. SEVERABILITY

A. Severability: If any of these Regulations are for any reason declared to be unconstitutional or otherwise invalid, such unconstitutionality or invalidity shall not affect the validity of the remaining portions or sections of these Regulations or amendments thereto.

B. Compatibility: No provision of these Regulations shall contravene nor render ineffective any lawfully established federal, state, or Town rule or regulation. In instances where various regulations contain different requirements, the most stringent requirements shall apply.

C. Authority: The Wellesley Board of Public Works has established these Rules and Regulations under the authority of the Massachusetts General Laws, Special Acts of 1907, Chapter 567.

D. Right to Amend Regulations: The Board reserves the right to amend these regulations in any manner and to establish more stringent limitations or requirements as are deemed necessary or appropriate.

EFFECTIVE DATE: February 24, 2005

AMENDED: November 18, 2014

APPENDIX A.1 - SAMPLE PRIVATE DRAIN CONNECTIO AGREEMENT (*for Recorded Land*)

THIS DOCUMENT WILL BE PREARED BY THE DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION ONLY

SAMPLE RECORDED

PRIVATE DRAIN CONNECTION AGREEMENT

TOWN OF WELLESLEY
DEPARTEMENT OF PUBLIC WORKS

This indenture made this _____ day of_____, 2011 by and between the Town of Wellesley, a municipal corporation located in Norfolk County, Massachusetts, hereinafter called the Town, and_____and _____hereinafter called the Owner and referred to by masculine pronouns, each in consideration of the agreements of the other hereinafter contained, agrees as follows:

1. The Town hereby grants permission to the Owner to install, maintain, and use a private drain connection to the storm sewer or surface water drainage system of the Town located in said way and connect said private drain to said drainage system in a manner approved by the Town Engineer, all upon the further terms and conditions hereinafter provided.

   Location of Private Drain _____

2. The Owner for himself and for his successors in title to said premises covenants and agrees with the Town

   (a) That the foregoing permission granted to him is a revocable license which may be terminated at any time by notice in writing given by the Town Engineer or any other duly authorized officer of the Town to the owner or any part owner of said premises at that time;

   (b) To install and maintain said private drain, and upon termination of said license to remove it or disconnect it from said drainage system, strictly in compliance with any regulations or specifications of the Town, of its Board of Public Works or of any other board which shall become responsible for the maintenance of said drainage system and to the satisfaction of the Town Engineer or any other duly authorized officer of the Town;

   (c) To pay all costs and expense in connection with the construction, maintenance, disconnection and removal of said private drain;

   (d) Not to connect the sanitary sewerage at the Owner's premises to said private drain or said drainage system or permit it to be so connected; and

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, ss , 2014

On this _____ day of _____ , before me, the undersigned Notary Public, personally appeared DAVID J. HICKEY, JR., proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires_____

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, ss , 2014

On this _____ day of _____ , before me, the undersigned Notary Public, personally appeared (Owners name), proved to me through satisfactory evidence of identification, which was _____ , to be the person whose name is on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires _____

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, s , 2014

On this _____ day of_____, before me, the undersigned Notary Public, personally appeared (Owners name), proved to me through satisfactory evidence of identification, which was _____ , to be the person whose name is on the preceding document, and acknowledged to me that she signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires_____

(e) To be responsible for all damages to the above specified premises and to any person or any personal property upon said premises by reason of or arising directly or indirectly out of the installation, maintenance and use of said private drain connected to said drainage system, not to bring any action of law or suit in equity against the Town because of anything which may happen directly or indirectly by reason of the installation, maintenance and use of said private drain and the connection thereof to said drainage system, and to indemnify the Town against and hold it harmless from any and all damage and claims for damage by reason or arising directly or indirectly from the connection of said private drain to said drainage system.

For title, see Certificate of Title No. _____ in Book _____, Page_____, filed with the Norfolk Registry District of the Land Court.

IN WITNESS **WHEREOF,** the Town has caused this indenture to be signed by the Town Engineer, thereunto duly authorized, and the Owner has hereunto set his hand and seal,

TOWN OF WELLESLEY

By _____
DAVID J. HICKEY, JR., Town Engineer

OWNER

_____
(Owners name)

OWNER

_____
(Owners name)

Attachment

Norfolk County Registry of Deeds - Filing Fees

There is a $76.00 recording fee for Recorded Land and a $75.00 recording fee for Registered Land (Land Court) for recording the agreement, which is paid by the applicant. If there is a Limited Liability Corporation listed on the property deed, a Certificate of Good Standing for the LLC, issued by the Secretary of State, dated within 60 days of signing the drain connection agreement must be recorded with the agreement. There is a $76.00 recording fee for Recorded Land and no recording fee for Registered Land (Land Court) for the Certificate of Good Standing, which is paid by the applicant. If there is a Trustee's Certificate to authorize signing of the agreement, this must be recorded with the agreement. There is a $76.00 recording fee for Recorded Land and a $75.00 recording fee for Registered Land (Land Court) for the Trustee's Certificate, which is paid by the applicant. The applicant shall make the check for the recording fee payable to the Norfolk County Registry of Deeds. The Engineering Division delivers the check to the Norfolk County Registry of Deeds in Dedham when recording the original executed agreement and any attachments.

OUTFALL INSPECTION FORM

Town of Wellesley
Department of Public Works
Engineering Division
Form Date: 12/29/11

Section 1 : Background Data

Form Completed By: _____ Date : _____ Time : _____ ☐ GPS Location

Outfall ID: _____ Atlas Sheet: _____ Weather: _____ ☐ **New Outfall** See Attached Sketch

Watershed

☐ Waban Brook Basin ☐ Pollock Brook Basin ☐ Cold Stream Brook Basin ☐ Charles River-East Basin

☐ Fuller Brook Basin ☐ Rosemary Brook Basin ☐ Charles River-NE Basin

☐ Hurd Brook Basin ☐ Charles River Dover Basin ☐ Charles River-NW Basin

Land Use in Drainage Area:

☐ Institutional ☐ Commercial ☐ Residential ☐ Town ☐ Other: _____

Section 2: Outfall Description

☐ Headwall ☐ Pipe Only ☐ Flared End ☐ Culvert ☐ Other: _____

DIMENSIONS	*MATERIAL*	*SHAPE*	*If Headwall, Outfall Quantity*
Diameter: _____ Dimension: Height (ft.) : _____ Width (ft.) : _____	☐ HDPE ☐ RCP ☐ Clay ☐ PVC ☐ CMP ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Triple ☐ Double ☐ Other: _____

Comments:

Section 3: Outfall Repairs

PIPE REPAIR	*HEADWALL REPAIR*	*CHANNEL REPAIR*
☐ Replace Pipe	☐ Replace Headwall	☐ Repair Bank
☐ Broken Pipe	☐ Headwall Repair	☐ Replace Floor
☐ Corrosion	☐ Grout Repair	☐ Widen Channel
☐ Spalling, Cracking or Chipping	☐ Remove Vegetation	☐ Remove Vegetation
☐ Other: _____	☐ Other: _____	☐ Other: _____

Section 4: Flow Description

		PIPE SUBMERGED	
☐ No Flow	☐ Substantial		
☐ Trickle	☐ Undetermined	*In Water:*	*With Sediment:*
☐ Moderate	Reason: _____	☐ No ☐ Partially ☐ Fully	☐ No ☐ Partially ☐ Fully

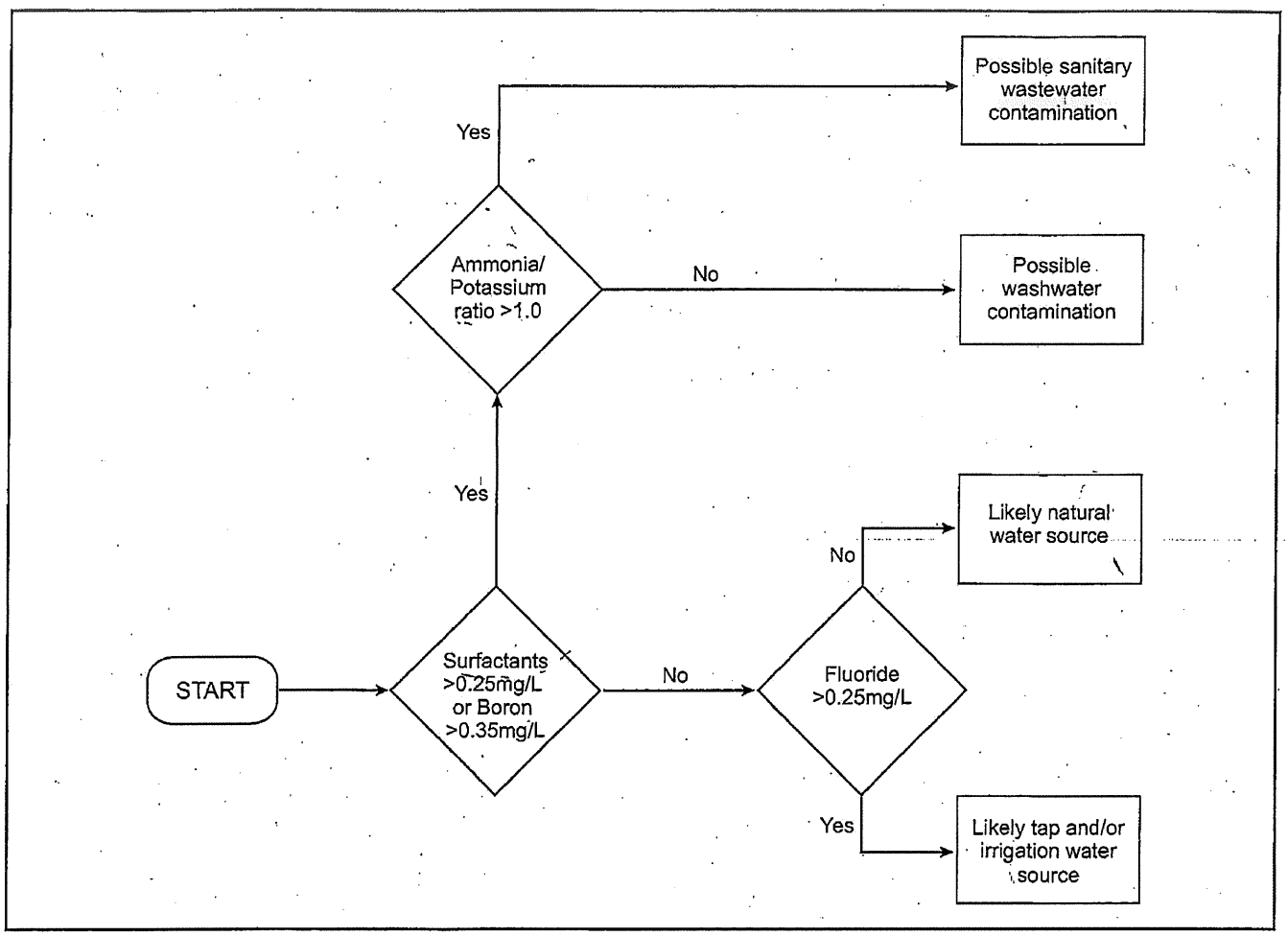


Figure 47: Flow Chart to Identify Illicit Discharges in Residential Watersheds

Detergents CHEMets Kit

K-9400/R-9400: 0 - 3 ppm

Test Procedure

1. Rinse the reaction tube with the sample to be tested, and then fill it to the 5 mL mark with the sample.
2. While holding the double-tipped ampoule in a vertical position, snap the upper tip using the tip breaking tool (fig. 1).
3. Invert the ampoule and position the open end over the reaction tube. Snap the upper tip and allow the contents to drain into the reaction tube (fig. 1).
4. Cap the reaction tube and shake it vigorously for **30 seconds**. Allow the tube to stand undisturbed for **1 minute**.
5. Make sure that the flexible tubing is firmly attached to the CHEMet ampoule tip.
6. Insert the CHEMet assembly (tubing first) into the reaction tube making sure that the end of the flexible tubing is at the bottom of the tube. Break the tip of the CHEMet ampoule by gently pressing it against the side of the reaction tube (fig. 2). The ampoule should draw in fluid only from the organic phase (bottom layer).
7. When filling is complete, remove the CHEMet assembly from the reaction tube.

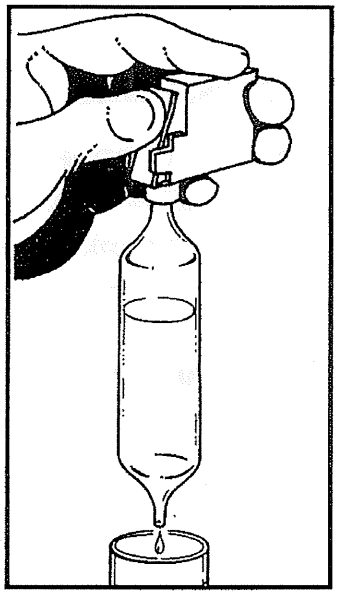


Figure 1

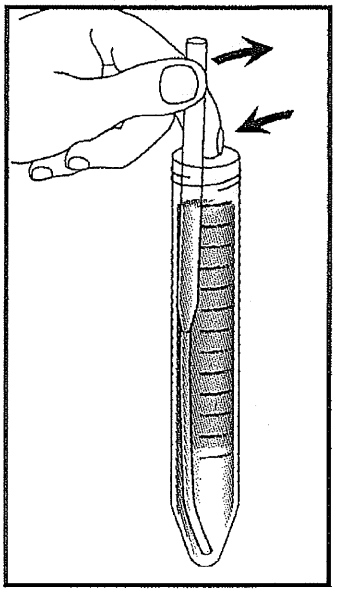


Figure 2

8. Remove the flexible tubing from the CHEMet ampoule and wipe all liquid from the exterior of the ampoule. Place an ampoule cap firmly onto the tip of the CHEMet ampoule. Invert the ampoule several times, allowing the bubble to travel from end to end.

APPENDIX D

Illicit Discharge Log Form

APPENDIX E

GIS Drainage Systems Map

The water in streets, parking lots, and storm drains typically is not treated before entering the waterways in Wellesley. Businesses must be aware of the materials they are discharging into the stormwater system and the impact they have on the water quality of streams, brooks, and rivers. Contaminated waterways results in an unsafe environment for both people and wildlife. Follow these simple and easy tips to prevent pollution, protect public health, and improve water quality.

Illegal Discharges Prohibited!

The following are considered illegal discharges into the Town's municipal stormwater drainage system; any solid waste, construction debris, paint or painting product, antifreeze, hazardous waste, oil, gasoline, grease and all other automotive and petroleum products, solvents and degreasers, drain cleaners, commercial and household cleaners; soap, detergent, ammonia, food and food waste, grass or yard waste, leaves, animal feces, dirt, sand, gravel, or other pollutant.

http://www.wellesleyma.gov/Pages/WellesleyMA_DPW/stormwater regulations.pdf

Town of Wellesley
Engineering Division
20 Municipal Way
Wellesley Hills, MA 02481
Phone (781) 235-7600
Fax (781) 237-0047

HELP IMPROVE WATER QUALITY

A Primer to Stormwater Pollution Prevention for Businesses

Town of Wellesley
Department of Public Works
20 Municipal Way
Wellesley Hills, MA 02481
781-235-7600

www.wellesleyma.gov

Stormwater Hotline
stormwater@wellesleyma.gov

Prepared by: Town of Wellesley, DPW
Engineering Division

What's wrong with draining my pool, spa or filter backwash to the street or storm drain?

Street drains and storm drains lead to rivers, lakes, streams, and brooks. Chlorine, bromine, algaecides, biocides, water conditioners, stabilizers, and other chemicals in pool water are toxic to fish and other aquatic life. Diatomaceous earth (DE), cellulose fiber, and sand particles from backwash water can fill in spaces in the stream bed gravel, preventing oxygen from reaching fish eggs and young fish. DE and Cellulose fiber can also clog fish gills.

TOWN OF Wellesley MASSACHUSETTS

Town of Wellesley
Department of Public Works
Engineering Division
20 Municipal Way
Wellesley Hills, MA 02481
Phone (781) 235-7600, 3318
Fax (781) 237-0047

http://www.wellesleyma.gov/pages/WellesleyMA_DPW/Stormwater

STORMWATER POLLUTION PREVENTION:

SWIMMING POOLS & SPA

Guidelines for

Proper Swimming Pool or Spa Drainage

What is Stormwater?

Water that falls from the sky as rain or snow is considered stormwater. The water that is not absorbed into the ground flows off paved surfaces, dirt surfaces, landscaped surfaces, houses and buildings, and drains into one of Wellesley's many waterways or waterbodies. Stormwater can pick up debris, chemicals, dirt, and pollutants as it flows through our community. The stormwater then travels into waterways or waterbodies and can potentially contaminate them. With your help we can keep our stormwater clean to provide proper habitat for fish, plants, animals, swimmers and boaters.

Wellesley's Stormwater System

Stormwater that falls into the Town streets enters our brooks, lakes and ponds through ditches, inlets, and pipes. Stormwater is also introduced into our brooks from private properties that adjoin the brooks. Wellesley is a residential community with many lakes, ponds and brooks that running through it. These waterways ultimately discharge into the Charles River. The Town also has an extensive stormwater drainage system that discharges into the waterways and waterbodies, which are summarized below.

Lakes

Lake Waban and Sabrina Lake.

Ponds

Abbott's Pond, Town Hall Duck Pond, Longfellow Pond, Morse's Pond, Paintshop Pond, Reed's Pond, Rockridge Pond, Skating Pond, Farms Station Pond, and Wight's Pond.

Brooks

Abbott Brook, Academy Brook, Bogle Brook, Boulder Brook, Caroline Brook, Cold Spring Brook, Cold Stream Brook, Fuller Brook, Hurd Brook, Indian Spring Brook, Pollock Brook, Rosemary Brook, Sunnyside Brook and Waban Brook.

Why should I care about it?

Each of us contributes to stormwater pollution. If not by knowingly discarding items into the right of way, we unknowingly place or position materials that are removed by stormwater and introduced into our waterways. Daily activities that you may not have considered harmful have been shown to contribute to poor water quality. How you perform these activities will affect our stormwater quality. Take a look at the suggestions below to find ways you can help reduce pollutants entering our waterways and waterbodies.

Automobile Maintenance

Oil, grease, anti-freeze and other toxic automotive fluids too often make their way into the stormdrain system through catch basins, floor drains, etc. Avoid spills by utilizing drip pans and funnels when pouring and draining fluids. Spills that do occur should be addressed promptly and thoroughly and serious spills should be reported to the appropriate authorities. Automotive fluids and hazardous materials should be stored in a well-maintained covered area. Remember to recycle motor oil, oil filters, anti-freeze and other hazardous automotive fluids, batteries, tires and metal filings. Under no condition should these materials be disposed of in a catch basin or other inlet that discharges to the Town's waterways and waterbodies. When washing your vehicle consider using a car wash to prevent detergent, grease and oil from entering the stormwater system.

Household Activities

Households produce waste that, if introduced into our stormwater system, can have an adverse impact on our waterways and waterbodies. Most household hazardous waste is leftover products that are found in your kitchen, bathroom, laundry room, and garage and are discarded. Placement of these items down the drain, into the stormwater system, or on the ground is not permitted and can have adverse environmental impacts. All household chemicals and hazardous waste should be properly discarded at the Wellesley Recycling and Disposal Facility (RDF). A special Household Hazardous Waste Day is conducted annually.

When using landscaping chemicals always follow application and disposal directions listed on the product's label. Do not apply these chemicals within 100 feet of waterways. Sweep up any fertilizer cast onto parking lots and sidewalks, and place back in container.

Pet Care

Besides being a nuisance, pet waste can pollute our waterways and waterbodies if not disposed of properly. During rainfall, pet waste left outdoors can wash into storm drains. This waste flows directly into our brooks, lakes and ponds where it can harm human health and the ecology of our waterways.

As it decomposes, pet waste requires a high level of oxygen from water. This decomposition can contribute to the reduction of dissolved oxygen available to water life, causing a population decrease in fish and other aquatic life.

Please carry a bag with you and pick up after your pets when taking walks or hikes. Many of Wellesley's Parks and Recreation areas have bags at conspicuous locations for this purpose. Dispose of your pet's waste in an appropriate container or in a toilet. Taking care of your pet's waste will help to improve the cleanliness of our community as well as improving the water quality of our waterways and waterbodies.

Tab 7

Construction Site Runoff Control

Construction Site Runoff Control

Purpose

The establishment of a comprehensive plan outlining proper construction practices for work done on sites close to or containing water bodies and resource areas is essential to the MS4 permit. The aim of the procedures outlined within this document is to encourage the highest care and quality surrounding potential construction site runoff into the environment, and to encourage the longevity of Town utilities through the prevention of the following:

1. Contamination of drinking water supplies.
2. Impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater.
3. Flooding related to the presence of impervious surfaces.
4. Reduced performance of Town BMP structures.
5. Overload or obstruction of drainage utilities.
6. Erosion of construction sites, lakes, ponds, streams, rivers, and wetlands.

To minimize the potential for these incidents, it is required that all construction sites spanning an acre of land or more include preventative measures to limit the egress of sediment and contaminated water runoff. Should the boundary of any construction site, regardless of whether this boundary directly contains or abuts a water body, be within a range deemed by Town authorities to be potentially hazardous to a lake, pond, stream, river, or wetland, this construction site, regardless of its, should also include preventative measures. In certain cases, the grade of a site under construction introduces unique considerations to runoff management which may require town resources authorities to require preventative measures to be used at the site, regardless of the site's size or proximity to water bodies. Common preventative measures include, but are not limited to, the following:

1. Fiber, straw, or hay roll barriers.
2. Fiber sheet and sand bay barriers.
3. Erosion control mats such as coir mats.
4. Sediment trenches and/or basins.
5. Weepers and/or wattles.
6. Clear indication of the locations of BMP structures and utilities such as gas, sewer and water lines.
7. Properly protected infiltration systems and/or inlets.
8. Clear and unobstructed maintenance access to utility lines and BMP structures.
9. Silt fences.
10. Construction phasing.
11. Sediment control plans & wash stations.

Procedure:

At a pre-arranged time taking place before the beginning of active construction on sites fitting the above-listed descriptions requiring preventative measures for BMP and waterbody pollution, the following site aspects, as applicable, should be examined and have their condition recorded by a qualified town inspector:

1. Outfalls and discharge points for evidence of sediment migration, pollutants, or erosion.

2. Site boundaries and perimeter controls for containment with some form of sediment barrier.
3. Ponds, basins, traps, drainage ditches/swales, and other water quality features for correct construction, function, protection, integrity, and maintenance.
4. Disturbed areas for correct phasing and dormant areas not currently being worked that require stabilization, temporary seeding or other means of cover.
5. Areas with final stabilization for germination, adequate cover, and/or need for reapplication or maintenance.
6. Paved surfaces for evidence of dirt tracking, dirt ramps, need for cleaning, installation of vehicle track pads, and sediment barriers installed adjacent to disturbed sections.
7. Infiltration systems and inlets for correct and adequate protection, maintenance, or staining from pollution sources.
8. Material storage and waste handling areas for management of all potential pollution sources. This may include waste receptacles, lay-down and staging areas, designated liquid waste washout areas, fuel storage, and waste piles.
9. Appropriate control features for site drainage leaving the limits of the site (run-off) and management of adjacent site drainage entering the site (run-on).
10. Other implemented or required procedural, non-structural, or administrative control measures.

Should the inspector deem the quality of the site's condition and runoff control features to be adequate, they are to notify the site operator, either verbally or in writing, of the site's construction readiness. Should the inspector deem the construction site to be improperly outfitted with runoff controls, they are to submit a written notification for the site operator requesting the addition of the necessary preventative measures before the beginning of on-site construction. Worksites should be subsequently inspected at key phases during active construction, at which time the condition of present runoff control features should be reviewed and noted. Additionally, the inspector should examine the worksite for the following major violations:

1. BMP's that are not installed according to approved SWMP and drawings.
2. BMP's not installed correctly, or not implemented correctly.
3. Neglected BMP's in need of significant maintenance or replacement.
4. Portable toilets that are improperly stationed on paved surfaces or at curb flow lines, or which are not anchored properly.
5. Evidence of liquid waste or washouts that are discharged directly onto the ground or nearby water bodies without containment.
6. Concrete washout areas that are near failure, not installed, or not signed properly.
7. Fuel leaks or spills that have not been properly remediated.
8. Inadequate vehicle tracking control measures to prevent sediment tracking onto paved sections.
9. Repeated runoff control neglect and/or findings from previous reports that have not been adequately addressed.
10. Silt fence or other erosion control measures overrun by sediment and debris.

Should the inspector deem the worksite to be of adequate condition and regulatory compliance, they will submit a verbal or written communication to the site operator notifying them of their continued quality of site upkeep. In cases where significant violations are noted, regular inspections will be undertaken by the inspector until said violations are satisfactorily resolved. Upon the completion of

each inspection, the inspector should fill out a copy of the Stormwater Construction Site Inspection Report. Depending on the presence, abundance, and severity of worksite violations, the inspector will then notify the party responsible for site construction activity of all concerns and corrective actions.

Stop Work Order: A Stop Work Order is a written notification given to the site operator to cease all on-site construction activities for flagrant violations or repeated unresolved Notices of Violation for work performed in the public right-of-way. Stop Work Orders require the Operator to immediately stop all construction activities, but continue to remediate noted site violations. Stop Work Orders remain in force until an on-site inspection is conducted by the inspector to verify that all issues and concerns have been properly addressed and the site is violation free. The Stop Work Order is only removed when the site operator receives written notification from the inspector that it has been lifted.

Construction Site Inspections
Standard Operating Procedures

CONSTRUCTION SITE INSPECTION

Construction sites that lack adequate stormwater controls can contribute a significant amount of sediment to nearby bodies of water. This Standard Operating Procedure describes the major components of a municipal Stormwater Construction Inspection Plan, as well as procedures for evaluating compliance of stormwater controls at construction sites.

Stormwater Construction Inspection Plan

A stormwater Construction Site Inspection program is a program developed by municipalities to track, inspect, and enforce local stormwater requirements at construction sites.

A municipal stormwater Construction Site Inspection program should include or address the following:

1. Construction Site Inventory
    - A tracking system to inventory projects and identify sites for inspection.
    - Track the results of inspection and prioritize sites based on factors such as proximity to waterways, size, slope, and history of past violations.
2. Construction Requirements and BMPs
    - Municipalities provide contractors with guidance on the appropriate selection and design of stormwater BMPs.
3. Plan Review Procedures
    - Submitted plans must be reviewed to ensure they address local requirements and protect water quality.
4. Public Input
    - A program that allows the public to provide comment on inspection procedures, and must consider information provided by the public.
5. Construction Site Inspections
    - Identify an inspection frequency for each site.
    - See more detailed information below.
6. Enforcement Procedures
    - A written progressive enforcement policy for the inspection program.
    - Sanctions, both monetary and non-monetary, shall be utilized to ensure compliance with the program
7. Training and Education
    - Municipal staff conducting inspections should receive training on regulatory requirements, BMPs, inspections, and enforcement.

Conducting Stormwater Inspections at Construction Sites

Construction Site Inspections
Standard Operating Procedures

The role of the construction inspector is to ensure that site operations match the approved site plans and the Stormwater Pollution Prevention Plan (SWPPP) for the project, and that all precautions are taken to prevent pollutants and sediment from the construction site from impacting local waterways. The inspector is also expected to determine the adequacy of construction site stormwater quality control measures.

The attached Construction Site Stormwater Inspection Report shall be used by the inspector during site visits. Construction site inspectors should abide by the following guidelines:

1. Inspections to monitor stormwater compliance should be performed at least once per month at each active construction site, with priority placed on sites that require coverage under the USEPA 2017 Construction General Permit (i.e., that disturb one or more acres), and sites less than or greater than 1 acre that are located in the watershed of any 303(d) water bodies, such as Fuller Brook, Charles River and Rosemary Brook.
2. The inspector shall always wear personal protective equipment appropriate for the site.
3. The inspector shall abide by the contractor's site-specific safety requirements.
4. The inspector has legal authority to enter the site. However, if denied permission to enter the site, the inspector should never force entry.

Prior to planning a site visit, the inspector shall determine if the project is subject to USEPA's 2017 Construction General Permit, which is true if the project disturbs one or more acres, total.

If the site requires this coverage, the inspector shall request a copy or other proof that the site complies with the 2017 Construction General Permit.

If the contractor cannot show compliance with the Construction General Permit, work cannot proceed on the site until a Notice of Intent (NOI) for coverage under the 2017 Construction General Permit has been approved by the USEPA.

Once it has been determined that the site is in compliance with the 2012 Construction General Permit, the site inspection process can continue. The Construction Site Inspection process shall include the following:

1. Plan the inspection before visiting the construction site
    a. Obtain and review permits, site plans, previous inspection reports, and any other applicable information.
    b. Inform the contractor of the planned site visit.
2. Meet with the contractor
    a. Review the Construction SWPPP (if the site includes over one acre of disturbance) or other document, as required by the municipality's legal authority. Compare BMPs in the approved site plans with those shown in the SWPPP.
    b. Review the project's permit conditions and confirm that information shown continues to be accurate.
    c. Get a general overview of the project from the contractor.

   d. Review inspections done by the contractor.
   e. Review the status of any issues or corrective actions noted in previous inspection reports.
   f. Discuss any complaints or incidents since the last meeting.
3. Inspect perimeter controls
   a. Examine perimeter controls to determine if they are adequate, properly installed, and properly maintained.
   b. For each structural BMP, check structural integrity to determine if any portion of the BMP needs to be replaced or requires maintenance.
4. Inspect slopes and temporary stockpiles
   a. Determine if sediment and erosion controls are effective.
   b. Look for slumps, rills, and tracking of stockpiled materials around the site.
5. Compare BMPs in the site plan with the construction site conditions
   a. Determine whether BMPs are in place as specified in the site plan, and if the BMPs have been adequately installed and maintained.
   b. Note any areas where additional BMPs may be needed which are not specified in the site plans.
6. Inspect site entrances/exits
   a. Determine if there has been excessive tracking of sediment from the site.
   b. Look for evidence of additional entrances/exits which are not on the site plan and are not properly stabilized.
7. Inspect sediment basins
   a. Look for signs that sediment has accumulated beyond 50% of the original capacity of the basin.
8. Inspect pollution prevention and good housekeeping practices
   a. Inspect trash areas and material storage/staging areas to ensure that materials are properly maintained and that pollutant sources are not exposed to rainfall or runoff.
   b. Inspect vehicle/equipment fueling and maintenance areas for the presence of spill control measures and for evidence of leaks or spills.
9. Inspect discharge points and downstream, off-site areas
   a. Walk down the street and/or in other directions off-site to determine if erosion and sedimentation control measures are effective in preventing off-site impacts.
   b. Inspect down-slope catch basins to determine if they are protected, and identify whether sediment buildup has occurred.
10. Meet with the contactor again prior to leaving
    a. Discuss the effectiveness of current controls and whether modifications are needed.
    b. Discuss possible violations or concerns noted during the site inspection, including discrepancies between approved site plans, the SWPPP, and/or the implementation of stormwater controls.
    c. Agree on a schedule for addressing all discrepancies, and schedule a follow-up inspection.
11. Provide a written copy of the inspection report to the contractor.
12. Follow up, as determined, and provide copy of subsequent inspection to the contractor.

13. Use Stop Work orders, as needed, until compliance with the 2012 Construction General Permit and/or other document, as required by the municipality's legal authority, can be achieved.

Attachments

1. Construction Site Stormwater Inspection Report

Construction Site Runoff Control

Purpose

The establishment of a comprehensive plan outlining proper construction practices for work done on sites close to or containing water bodies and resource areas is essential to the MS4 permit. The aim of the procedures outlined within this document is to encourage the highest care and quality surrounding potential construction site runoff into the environment, and to encourage the longevity of Town utilities through the prevention of the following:

1. Contamination of drinking water supplies.
2. Impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater.
3. Flooding related to the presence of impervious surfaces.
4. Reduced performance of Town BMP structures.
5. Overload or obstruction of drainage utilities.
6. Erosion of construction sites, lakes, ponds, streams, rivers, and wetlands.

To minimize the potential for these incidents, it is required that all construction sites spanning an acre of land or more include preventative measures to limit the egress of sediment and contaminated water runoff. Should the boundary of any construction site, regardless of whether this boundary directly contains or abuts a water body, be within a range deemed by Town authorities to be potentially hazardous to a lake, pond, stream, river, or wetland, this construction site, regardless of its, should also include preventative measures. In certain cases, the grade of a site under construction introduces unique considerations to runoff management which may require town resources authorities to require preventative measures to be used at the site, regardless of the site's size or proximity to water bodies. Common preventative measures include, but are not limited to, the following:

1. Fiber, straw, or hay roll barriers.
2. Fiber sheet and sand bay barriers.
3. Erosion control mats such as coir mats.
4. Sediment trenches and/or basins.
5. Weepers and/or wattles.
6. Clear indication of the locations of BMP structures and utilities such as gas, sewer and water lines.
7. Properly protected infiltration systems and/or inlets.
8. Clear and unobstructed maintenance access to utility lines and BMP structures.
9. Silt fences.
10. Construction phasing.
11. Sediment control plans & wash stations.

Procedure:

At a pre-arranged time taking place before the beginning of active construction on sites fitting the above-listed descriptions requiring preventative measures for BMP and waterbody pollution, the following site aspects, as applicable, should be examined and have their condition recorded by a qualified town inspector:

1. Outfalls and discharge points for evidence of sediment migration, pollutants, or erosion.

2. Site boundaries and perimeter controls for containment with some form of sediment barrier.
3. Ponds, basins, traps, drainage ditches/swales, and other water quality features for correct construction, function, protection, integrity, and maintenance.
4. Disturbed areas for correct phasing and dormant areas not currently being worked that require stabilization, temporary seeding or other means of cover.
5. Areas with final stabilization for germination, adequate cover, and/or need for reapplication or maintenance.
6. Paved surfaces for evidence of dirt tracking, dirt ramps, need for cleaning, installation of vehicle track pads, and sediment barriers installed adjacent to disturbed sections.
7. Infiltration systems and inlets for correct and adequate protection, maintenance, or staining from pollution sources.
8. Material storage and waste handling areas for management of all potential pollution sources. This may include waste receptacles, lay-down and staging areas, designated liquid waste washout areas, fuel storage, and waste piles.
9. Appropriate control features for site drainage leaving the limits of the site (run-off) and management of adjacent site drainage entering the site (run-on).
10. Other implemented or required procedural, non-structural, or administrative control measures.

Should the inspector deem the quality of the site's condition and runoff control features to be adequate, they are to notify the site operator, either verbally or in writing, of the site's construction readiness. Should the inspector deem the construction site to be improperly outfitted with runoff controls, they are to submit a written notification for the site operator requesting the addition of the necessary preventative measures before the beginning of on-site construction. Worksites should be subsequently inspected at key phases during active construction, at which time the condition of present runoff control features should be reviewed and noted. Additionally, the inspector should examine the worksite for the following major violations:

1. BMP's that are not installed according to approved SWMP and drawings.
2. BMP's not installed correctly, or not implemented correctly.
3. Neglected BMP's in need of significant maintenance or replacement.
4. Portable toilets that are improperly stationed on paved surfaces or at curb flow lines, or which are not anchored properly.
5. Evidence of liquid waste or washouts that are discharged directly onto the ground or nearby water bodies without containment.
6. Concrete washout areas that are near failure, not installed, or not signed properly.
7. Fuel leaks or spills that have not been properly remediated.
8. Inadequate vehicle tracking control measures to prevent sediment tracking onto paved sections.
9. Repeated runoff control neglect and/or findings from previous reports that have not been adequately addressed.
10. Silt fence or other erosion control measures overrun by sediment and debris.

Should the inspector deem the worksite to be of adequate condition and regulatory compliance, they will submit a verbal or written communication to the site operator notifying them of their continued quality of site upkeep. In cases where significant violations are noted, regular inspections will be undertaken by the inspector until said violations are satisfactorily resolved. Upon the completion of

each inspection, the inspector should fill out a copy of the Stormwater Construction Site Inspection Report. Depending on the presence, abundance, and severity of worksite violations, the inspector will then notify the party responsible for site construction activity of all concerns and corrective actions.

Stop Work Order: A Stop Work Order is a written notification given to the site operator to cease all on-site construction activities for flagrant violations or repeated unresolved Notices of Violation for work performed in the public right-of-way. Stop Work Orders require the Operator to immediately stop all construction activities, but continue to remediate noted site violations. Stop Work Orders remain in force until an on-site inspection is conducted by the inspector to verify that all issues and concerns have been properly addressed and the site is violation free. The Stop Work Order is only removed when the site operator receives written notification from the inspector that it has been lifted.

CONSTRUCTION SITE STORMWATER INSPECTION REPORT

General Information

Project Name			
Project Location			
Site Operator			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Subject to USEPA Construction General Permit? Yes ☐ No ☐ If yes, has NOI been approved? Yes ☐ No ☐ If yes, attach approved NOI to this report. **If no, contact site operator immediately to determine status of NOI.**			
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			
Describe the current phase of construction			

Site-Specific BMPs

Customize the following BMPs to be consistent with the SWPPP for the site being inspected.

	BMP Description	Installed and Operating Properly?	Corrective Action Needed
1		Yes ☐ No ☐	
2		Yes ☐ No ☐	

CONSTRUCTION SITE STORMWATER INSPECTION REPORT

(continued)

	BMP Description	Installed and Operating Properly?	Corrective Action Needed
3		Yes ☐ No ☐	
4		Yes ☐ No ☐	
5		Yes ☐ No ☐	
6		Yes ☐ No ☐	
7		Yes ☐ No ☐	
8		Yes ☐ No ☐	
9		Yes ☐ No ☐	
10		Yes ☐ No ☐	
11		Yes ☐ No ☐	
12		Yes ☐ No ☐	
13		Yes ☐ No ☐	
14		Yes ☐ No ☐	
15		Yes ☐ No ☐	
16		Yes ☐ No ☐	
17		Yes ☐ No ☐	
18		Yes ☐ No ☐	
19		Yes ☐ No ☐	
20		Yes ☐ No ☐	

CONSTRUCTION SITE STORMWATER INSPECTION REPORT

Erosion and Sedimentation Control

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

Issue	Status	Corrective Action Needed
Have all ESC features been constructed before initiating other construction activities?	Yes ☐ No ☐	
Is the contractor inspecting and maintaining ESC devices regularly?	Yes ☐ No ☐	
Is existing vegetation maintained on the site as long as possible?	Yes ☐ No ☐	
Is construction staged so as to minimize exposed soil and disturbed areas?	Yes ☐ No ☐	
Are disturbed areas restored as soon as possible after work is completed?	Yes ☐ No ☐	
Is clean water being diverted away from the construction site?	Yes ☐ No ☐	
Are sediment traps and sediment barriers cleaned regularly?	Yes ☐ No ☐	
Are vegetated and wooded buffers protected and left undisturbed?	Yes ☐ No ☐	
Are soils stabilized by mulching and/or seeding when they are exposed for a long time?	Yes ☐ No ☐	
Has vegetation been allowed to establish itself before flows are introduced to channels?	Yes ☐ No ☐	
Is regular, light watering used for dust control?	Yes ☐ No ☐	
Is excessive soil compaction with heavy machinery avoided, to the extent possible?	Yes ☐ No ☐	

(continued)

Issue	Status	Corrective Action Needed
Are erosion control blankets used when seeding slopes?	Yes ☐ No ☐	
Are trees and vegetation that are to be retained during construction adequately protected?	Yes ☐ No ☐	
Are areas designated as off-limits to construction equipment flagged or easily distinguishable?	Yes ☐ No ☐	
If excavated topsoil has been salvaged and stockpiled for later use on the project, are stockpiles adequately protected?	Yes ☐ No ☐	
Are temporary slope drains or chutes used to transport water down steep slopes?	Yes ☐ No ☐	
Do all entrances to the storm sewer system have adequate protection?	Yes ☐ No ☐	

Overall Site Conditions

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

Issue	Status	Corrective Action Needed
Are slopes and disturbed areas not being actively worked properly stabilized?	Yes ☐ No ☐	
Are material stockpiles covered or protected when not in use?	Yes ☐ No ☐	
Are natural resource areas protected with sediment barriers or other BMPs?	Yes ☐ No ☐	

Are perimeter controls and sediment barriers installed and maintained?	Yes ☐ No ☐	

(continued)

Issue	Status	Corrective Action Needed
Are discharge points and receiving waters free of sediment deposits and turbidity?	Yes ☐ No ☐	
Are storm drain inlets properly protected?	Yes ☐ No ☐	
Is there evidence of sediment being tracked into streets?	Yes ☐ No ☐	
Is trash/litter from the construction site collected and placed in dumpsters?	Yes ☐ No ☐	
Are vehicle/equipment fueling and maintenance areas free of spills and leaks?	Yes ☐ No ☐	
Are potential stormwater contaminants protected inside or under cover?	Yes ☐ No ☐	
Is dewatering from site properly controlled?	Yes ☐ No ☐	
Are portable restroom facilities properly sited and maintained?	Yes ☐ No ☐	
Are all hazardous materials and wastes stored in accordance with local regulations?	Yes ☐ No ☐	

Non-Compliance Actions

The Town shall provide the site operator with a copy of this report, and notice of the corrective action(s) to be taken. It is the responsibility of the site operator to take curative action of the violation in a timely manner.

Tab 8

Written Procedures for Site Plan Review & Plan Checklist

Large House Review Process

SECTION XVID. LARGE HOUSE REVIEW

Editor's Note: Updated March 27, 2018 to reflect amendments under Article 32 at 2017 ATM)

A. PURPOSE

This Section is adopted by the Town to provide pre-construction and post-construction review of single family dwellings which meet the applicability standards set forth below.

B. DEFINITIONS

Total Living Area plus Garage Space - This term includes:

(i) The sum of the floor area(s) of the above-grade floors, including portions of attics, in structures used as one-family dwellings and detached accessory structures related to such use on a lot, measured from the exterior face of the exterior walls;

(ii) Floor area(s) of portions of attic(s) with an interior roofline height of 5 ft. or greater;

Figure 1. Attic TLAG Illustration – Gable Roof

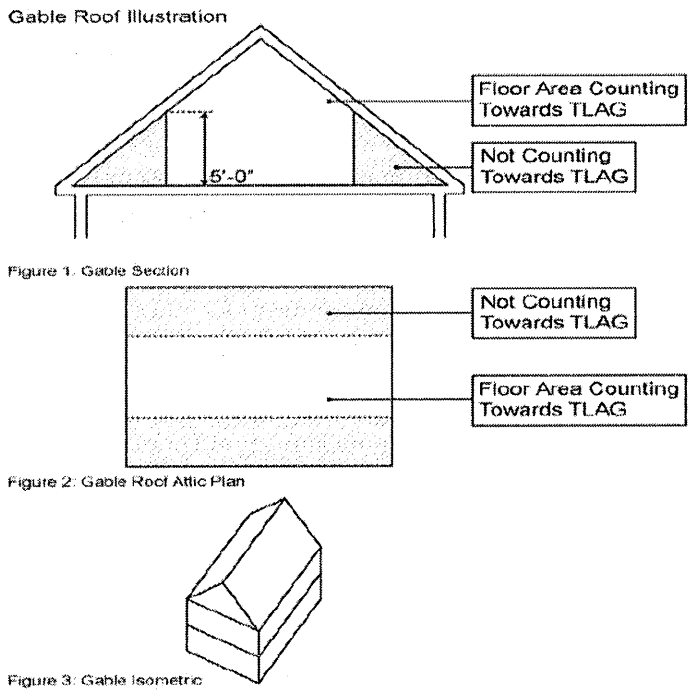
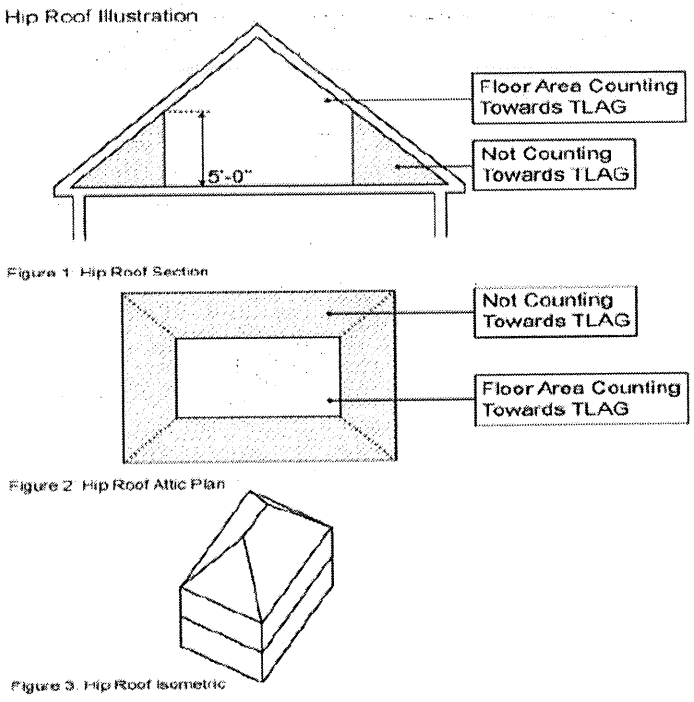


Figure 2. Attic TLAG Illustration – Hip Roof



(iii) Floor area of garage and storage space, whether as part of a one-family dwelling or in detached accessory structures; and

(iv) Basement area multiplied by a fraction, the numerator of which is the external above ground surface of basement walls and the denominator of which is the total surface (both above and below ground) of external basement walls, provided that if such fraction is less than .25, then the basement areas shall not be included.

Calculations shall be determined in accordance with the Rules and Regulations adopted by the Planning Board.

C. APPLICABILITY

The provisions of this Section shall apply to all building permits issued after January 1, 2008 for new single family dwellings where the Total Living Area plus Garage Space of the dwelling, after completion, exceeds:

3,600 square feet for dwellings within the Single Residence 10,000 Square Foot Area Regulation District;

4,300 square feet for dwellings within the Single Residence 15,000 Square Foot Area Regulation District;

5,900 square feet for dwellings within the Single Residence 20,000 Square Foot Area Regulation District; and

7,200 square feet for dwellings within the Single Residence 30,000 and 40,000 Square Foot Area Regulation Districts.

The provisions of this section shall also apply to all building permits issued after January 1, 2008 for alteration of single family dwellings where the alteration will increase the Total Living Area Plus Garage Space of the dwelling in question by more than 10%, and the Total Living Area Plus Garage Space of the dwelling, after completion of the project, will exceed the applicable threshold, as listed above.

Notwithstanding the foregoing, the following are exempt from Planning Board review:

1. Changes to non-conforming single-family dwellings which are subject to a Finding in accordance with Section 6 of Chapter 40A M.G.L and SECTION XVII. PRE-EXISTING NON-CONFORMING USES, STRUCTURES AND LOTS., of this Zoning Bylaw;

2. The reconstruction of pre-existing, non-conforming buildings, damaged or destroyed by accidental cause, including fire, or otherwise damaged or destroyed without the consent of the owner, in accordance with SECTION XVII. PRE-EXISTING NON-CONFORMING USES, STRUCTURES AND LOTS., C. DISASTER REBUILD; and

3. The completion or finishing of attics in existing structures where there are no exterior alterations or changes.

D. PROCEDURE

1. General. Any applicant for a single family residential dwelling which is subject to this Section shall submit the required information, including plans indicating the delineation of the neighborhood, existing and proposed site conditions, photographs, topography, building elevations, proposed grading and landscape design described in the Rules and Regulations to the Planning Board through the Planning Director and shall not be entitled to the issuance of a building permit unless and until the dwelling is approved in accordance with this Section.

2. Waivers. The Planning Board may, in any particular case where it determines such action to be consistent with the purpose and intent of the Zoning Bylaw and otherwise in the public interest, waive strict compliance with certain application and review requirements contained in this Section and with the Rules and Regulations adopted by it under this Section if it finds that the proposed construction, or certain aspects of the construction are de minimus based on the Standards and Criteria contained in Part E of this Section. Waiver requests must be made in writing and shall be addressed in a preliminary meeting between the Planning Board and the prospective applicant, held not later than 21 days after receipt of the waiver request. An applicant who makes a waiver request shall not submit an application until after meeting with the Planning Board on the waiver request.

3. Review and Timing. The Planning Board and Design Review Board shall each meet separately with the applicant to discuss the applicability of the Standards and Criteria set forth in Part E of this Section after receipt of the submission to discuss the project. Although a public hearing is not required, notice of the Planning Board meeting shall be sent by mail, postage prepaid, to the abutters and abutters to the abutters within 300 feet of the property line of the applicant, as they appear on the most recent applicable tax list at least 10 days prior to the public meeting. Owners of land directly opposite the applicant on any public or private street or way shall be considered abutters under this Section. Written comments from abutters will be received and considered, and oral comments will be considered only at the discretion of the Planning Board. The Design Review Board shall prepare comments and recommendations as it deems appropriate and shall submit these to the Planning Board. The Planning Board shall prepare its decision and provide it to the applicant within 90 days of the submission as well as to the Building Inspector and Zoning Board of Appeals as may be appropriate. The Planning Board may seek the recommendations of other Town Departments depending on the nature of the application. If the Planning Board has not issued its decision within 90 days of receipt of the submission from the applicant, the project, as described in the submission, shall be deemed approved. The 90-day time limit may be extended by written agreement between the Planning Board and the applicant, signed by, or on behalf of, the applicant.

4. Approval. The Planning Board shall determine whether the Standards and Criteria for Review set forth below have been satisfied. In reaching its decision, the Planning Board shall consider the recommendations of the Design Review Board and other applicable Boards and Departments, and all other materials submitted to the Planning Board. If the Planning Board finds that the Standards and Criteria for Review have been satisfied, it shall approve the project as set forth in the submissions, provided that it may approve the project subject to conditions or plan modifications specified by the Planning Board in writing. A construction mitigation plan may be required if the site warrants erosion and sedimentation control measures. If the Planning Board finds that the Standards and Criteria for Review have not been satisfied, it shall disapprove the project, and shall state in writing the basis for its decision.

5. Issuance of Building Permit and Certificate of Occupancy. The Building Inspector shall not issue a building permit unless and until the project is approved by the Planning Board or is deemed approved in accordance with this Section and is filed at the Registry of Deeds. The Building Inspector shall verify compliance with all required conditions or plan modifications prior to the issuance of a Certificate of Occupancy. The Building Inspector shall inform the Planning Director and the applicant of any failure to comply with conditions of plan approval or plan modifications pursuant to this section.

6. Revision and Amendment of Plans. Any revision, amendment or new information relating to an LHR application shall be considered as follows:

   a. Pending LHR Applications. Revision or amendments relating to a pending LHR application that is before the Planning Board for review shall be accepted by the Planning Board as part of the original submission.

b. Previously Approved LHR Applications. Revisions or amendments to an LHR Application that has previously been approved by the Planning Board must be submitted to the Planning Director who shall make a determination as to whether the revisions are major or minor and shall be processed as follows:

i. Minor. If the Planning Director determines the proposed revisions or amendments to be minor, he or she shall determine the consistency of the revisions with the Planning Board's previous findings and the Standards and Criteria for Review, and either approve or deny the revisions accordingly. If denied, the Planning Director shall notify the applicant and the Planning Board within five (5) business days of the applicant's submittal of such revisions. The applicant may submit denied minor revisions to the Planning Board for their consideration; the Board shall either accept or reject the proposed revisions as part of the approved LHR application.

ii. Major. If the Planning Director determines the proposed revisions or amendments to be major, the Director shall notify the applicant and Planning Board within five (5) business days of the applicant's submittal to such revisions. The applicant may then submit the proposed revisions to the Planning Board, which shall either accept or reject the proposed revisions as part of the approved LHR application.

E. STANDARDS AND CRITERIA FOR REVIEW

1. Preservation of Landscape. The landscape shall be preserved in its natural state insofar as practicable by minimizing use of wetlands, flood plains, hilltops, any grade changes and vegetation and soil removal. Unique natural areas, topographic features such as ledge outcrops, significant trees and landscaping, and historic features shall be saved or enhanced insofar as practicable.

2. Scale of Buildings. All new construction shall be sited and implemented in a manner that is consistent with the scale of other structures in its vicinity through the use of appropriate massing, screening, lighting and other architectural techniques such as variation in detail, form and siting. Consideration shall be given to the need for vegetated buffers. To the extent practicable this shall be based on the "Intent, Policy and Recommendations" specified in Part II. Design Criteria. of the "Design Guidelines Handbook" adopted by the Design Review Board and otherwise applying good architectural and aesthetic principles. Structures shall be arranged insofar as practicable to avoid casting shadows onto abutting property.

3. Lighting. Exterior lighting shall be only as needed to accomplish safety and design objectives and shall be arranged so as to minimize the impact on neighboring properties.

4. Open Space. Open space shall be as extensive as is practicable and designed so as to add to the visual amenities of the neighborhood for persons passing the site or overlooking it from nearby properties. To the extent practicable this shall be based on

the "Intent, Policy and Recommendations" specified in Part II. Design Criteria. of the "Design Guidelines Handbook" adopted by the Design Review Board

5. Drainage. The development shall incorporate measures that are adequate to prevent pollution of surface or groundwater, to minimize erosion and sedimentation, and to prevent changes to groundwater levels, increased rates of runoff, and minimize potential for flooding. Drainage shall be designed so that groundwater recharge is maximized, and so that the rate of runoff shall not be increased at the project boundaries.

6. Circulation. Walkways, drives and parking shall be safe and convenient and, insofar as practicable, not detract from the use and enjoyment of adjacent properties and Town streets.

F. FEES

Any applicant seeking plan approval under this section shall submit an application and pay such fees as shall be determined by the Planning Board, to cover any expenses connected with public notice and review of plans, including but not limited to the costs of any engineering or planning consulting services necessary for review purposes.

G. RULES AND REGULATIONS

The Planning Board may promulgate or amend Rules and Regulations which pertain to the plan approval process under this section, and shall file a copy of said rules in the office of the Town Clerk. Such rules may prescribe the size, form, contents, style, and number of copies of plans and specifications, and the procedure for the submission and approval of such review so long as the Rules and Regulations conform to this SECTION XVID. LARGE HOUSE REVIEW of the Zoning By-law. The adoption or amendment of Rules and Regulations shall be after a public hearing to receive comments on the proposed or amended Rules and Regulations. The public hearing shall be advertised once in a newspaper of general local circulation, at least 14 days prior to the date of the public hearing.

H. APPEALS

An applicant, or any person receiving notice under paragraph D., 4. above, may appeal the Planning Board's approval, denial, conditions or plan modifications to the Zoning Board of Appeals in accordance with SECTION XXIV. PERMIT GRANTING AUTHORITY.

Site Plan Approval Process

TOWN OF WELLESLEY MASSACHUSETTS

ZONING BOARD OF APPEALS
TOWN HALL • 525 WASHINGTON STREET • WELLESLEY, MA 02482-5992

J. RANDOLPH BECKER, CHAIRMAN
RICHARD L. SEEGEL
DAVID G. SHEFFIELD

LENORE R. MAHONEY
EXECUTIVE SECRETARY
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(781) 431-1019 EXT. 2208

ROBERT W. LEVY, VICE CHAIRMAN
WALTER B. ADAMS
DEREK B. REDGATE

PROCESS SCHEDULE FOR SITE PLAN APPROVAL PROJECTS

1. Petitioner meets with Executive Secretary to discuss project. At initial meeting, petitioner is given the List of Plans, Check List, Time Line, Official Development Prospectus, and Process Schedule.

Preliminary Meetings

A. Mandatory – Design Review Board

B. Voluntary

(1). Department of Public Works

a. Petitioner arranges preliminary meeting with Town Engineer, which will include other DPW representatives. Petitioner will be prepared to discuss in detail the water, sewer, drainage, electric, parking and landscaping requirements associated with the project. Petitioner will bring preliminary engineering and landscape/parking plans to this meeting.

b. No less than Ten (10) weeks prior to the Public Hearing, the applicant will send **one** full set of plans to the Town Engineer for review by the Department of Public Works. Plans should include all requirements on the Check List. Within ten (10) days of receipt of the plans, the Department of Public Works will send a letter of review to the petitioner, summarizing comments and concerns and issues to be addressed.

(2). Wetlands Protection Committee

a. If the location of the construction is within a Resource Area, a Water Supply Protection District or a Flood Plain District, the petitioner must obtain all necessary approvals and Orders of Conditions at least ten (10) days prior to the date of the Public Hearing on the petition.

(3). Public Safety Officer – Fire Department

(4). Board of Health

Process Schedule Continued

1. No less than six (6) weeks prior to Board of Appeals Public Hearing, the applicant shall submit twelve (12) copies of the application for Site Plan Review, Development Prospectus, the Check List and any supplemental materials, twelve (12) large sets of all required plans & six (6) sets of 11 x 17 plans, incorporating all DPW comments, to the office of the Board of Appeals.

2. The Executive Secretary shall time-stamp two (2) copies of all materials and plans submitted in the Town Clerk's office. Individual packages of all plans and materials with a cover letter shall be distributed to the Planning Board, Design Review Board, Wetlands Protection Committee, Town Engineer, Board of Health, Fire Chief, Police Chief and Municipal Light Plan, for review and recommendations.

3. The Board of Appeals will automatically continue the scheduled Site Plan Approval Public Hearing, if all revised plans and/or additional requested materials have not been approved by all departments no less than ten (10) days prior to the hearing.

4. Public Hearing on petition for Site Plan Approval
   If the above requirements have not been completed, or if the Board requests additional information or plan revisions at the initial hearing, the Board may continue the hearing for one month.

5. Decision
   The decision shall be issued between three to four weeks following the last Public Hearing.

6. General Comments
   If the project requires a Special Permit for a Project of Significant Impact issued by the Planning Board, the Preliminary steps in the process may be undertaken concurrent with the processing of the Special Permit. However, no submission shall be made to the Board of Appeals until the Special Permit has been granted and the twenty-day appeal period has expired.

ALL WETLANDS PROTECTION ISSUES (DETERMINATION OF NEGATIVE APPLICABILITY OR ORDER OF CONDITIONS) MUST BE RESOLVED AND SUBMITTED TO THE BOARD BEFORE THE ZBA PUBLIC HEARING.

THE BOARD RECOMMENDS THAT THE PETITIONER REVIEW THE ZONING BOARD OF APPEALS RULES AND REGULATIONS.

TOWN OF WELLESLEY MASSACHUSETTS

ZONING BOARD OF APPEALS

TOWN HALL • 525 WASHINGTON STREET • WELLESLEY, MA 02482-5992

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WALTER B. ADAMS
DEREK B. REDGATE

Special Permit Granting Authority
Wellesley Town Hall
Wellesley, MA 02482

Date:_____

ZBA Number:_____

Pursuant to the provisions of Section _____, subparagraph_____, and Section_____of the Zoning Bylaw, the undersigned hereby requests Site Plan Approval for the construction of

_____

Located at _____

Within a _____ District (s).

The following plans are submitted:

1. Existing Site Features Plan Plan #_____ (Title Block Number)
2. Site Development Plan Plan #_____
3. Plot Plan Plan # _____
4. Grading & Drainage Plan Plan # _____
5. Utilities Site Plan Plan # _____
6. Landscaping/Parking Plan Plan #_____
7. Architectural Plans Plan # _____ through _____
8. Subsurface Conditions Plan Plan # _____
9. Utilities Detail Plans Plan # _____ through _____
   a. Structure Details Plan # _____
   b. Plumbing Details Plan # _____
   c. Electric Details Plan # _____

(Ten full sized copies of each plan, seven 11inch by 17 inch copies of each plan, a check in the amount of _____ payable to the Town of Wellesley, and a check in the amount of _____ payable to the Town of Wellesley Fire Department (for Site Plan Approval without PSI).

OWNER OF RECORD:_____
ADDRESS:_____
TELEPHONE NUMBER: _____

PETITIONER:(If not Owner, relationship to owner)_____
_____
ADDRESS:_____
TELEPHONE NUMBER:_____

PROJECT CONTACT PERSON:_____
ADDRESS:_____
TELEPHONE NUMBER:_____ FAX NUMBER:_____

TOWN OF WELLESLEY

ZONING BOARD OF APPEALS

SITE PLAN APPROVAL REVIEW
PLANS AND SUBMITTAL CHECKLIST

Plans and submittals for site plan approval review are submitted to the Department of Public Works for its review and approval on behalf of the Zoning Board of Appeals shall contain the items listed in this checklist. Electric plans will be reviewed by representatives of the Wellesley Municipal Light Plant.

PLANS	CHECK
1. EXISTING SITE FEATURES PLAN	
a) Location, type, size or dimension of existing trees and rock masses	_____
b) Surface drainage and topography with one foot contours	_____
c) Property lines, zoning districts, adjacent roadways, historical or archeological features	_____
d) Rights of way and easements (temporary and permanent)	_____
e) Wetlands and floodplains	_____
f) Adjacent public, footpaths, trails and other natural or man-made features such as walls and fences	_____
g) Plan to be Scale 1" = 40' or larger	_____
h) Plan must be stamped, dated and signed by a Registered Land Surveyor in the Commonwealth of Massachusetts	_____
2. SITE PLAN DEVELOPMENT	
a) Building locations, finish floor elevations at basement and first floor	_____
b) Grading detail for entire site with existing and proposed contours	_____
c) Existing and proposed curb cuts, design as per Town Policy by Board of Selectmen dated 5/15/73	_____
d) Property lines and easement lines	_____
e) All elevations on the Town of Wellesley datum base	_____
f) North directional arrows shall be provided and point due north	_____
g) Plan must be stamped, dated and signed by a Registered Architect, Registered Land Surveyor or Professional Engineer in the Commonwealth of Massachusetts	_____
3. PLOT PLAN	
a) Existing buildings and structures	_____
b) Proposed structure(s) including all dimensions and distances from front, rear and side property lines	_____
c) Area of lot or lots included in the project	_____
d) Zoning district lines and portion of lot in different zoning district (if applicable)	_____
e) Names of all abutters as they appear on the most recent tax list	_____
f) The location of all permanent survey monuments	_____
g) Not less than 3 permanent benchmarks, preferably triangulated, shall be shown	_____
h) Plan must be stamped, dated and signed by a Registered Land Surveyor in the Commonwealth of Massachusetts	_____

4. GRADING AND DRAINAGE PLAN

a) Existing and proposed contours in one foot intervals of elevation _____
b) Location of existing and proposed storm drainage structures _____
c) Profile showing proposed utilities in relation to the ground surface _____
d) Erosion control measures such as haybales and siltation fencing _____
e) Plan must be stamped, dated and signed by a Registered Professional Engineer in the Commonwealth of Massachusetts _____

5. UTILITIES SITE PLAN

a) Building location and elevations _____
b) Existing utilities on project site and in abutting street _____
c) Location, depth, size, (slope where applicable) and material of: _____
   - Water service and hydrants _____
   - Gas service _____
   - Sanitary sewer connection (pipe to be SRD-35 PVC, green) _____
   - Storm drain installations _____
   - Electric service _____
   - Fire alarm connection _____
   - Telephone service _____
d) Number utility structures such as manholes and catch basins for identification purposes _____
e) Detail specifications for installation of all utilities including street pavement restoration as per current DPW standards _____
f) Flow direction arrows on drain and sewer lines _____
g) Plan must be stamped, dated and signed by a Registered Professional Engineer in the Commonwealth of Massachusetts _____

6. LANDSCAPING/PARKING PLAN

a) Proposed landscaping of property _____
b) Size, type and location of proposed plant materials with botanical names _____
c) Consider the impact for plantings at their maturity size as relates to sight distances _____
d) Landscaping plan shall be coordinated with the grading plan _____
e) Tree planting and shrub planting details _____
f) Hardscape details such as walkways and patios _____
g) See attached listing of undesirable plants as prepared by the Town Horticulturalist _____
h) Plan must be stamped, dated and signed by a Registered Landscape Architect in the Commonwealth of Massachusetts _____
i) No bushes or trees of any kind shall be planted within 10 feet in any direction of a Fire Department connection or a Master Fire Alarm box. Connections include hydrants, standpipes and sprinkler feeds on the outside of buildings. _____
j) Parking lot plans shall include dimensions of parking spaces, maneuvering aisles, islands, turning radii, percentage of landscaped open space, percentage of interior landscaping, appropriate number of handicapped parking spaces, and directional flow arrows. All parking spaces shall be numbered _____

7. ARCHITECTURAL PLANS

a) Proposed floor plans _____
b) Elevations of all sides of all buildings _____
c) Sections identifying type and exterior finish of proposed buildings _____
d) Plan must be stamped, dated and signed by a Registered Architect in the Commonwealth of Massachusetts _____

8. SUBSURFACE CONDITIONS PLAN

a) Boring location with boring numbers _____
b) Boring logs _____
c) Ledge encountered and depth _____
d) Water encountered and depth _____
e) Percolation test info (if applicable) _____

9. UTILITIES DETAIL PLAN

_____

a) Structure details _____
- Sanitary sewer manholes _____
- Drain manholes, detention structures, etc. _____
- Catchbasins (gas and oil separators required at parking lots) _____
- Outside grease trap if restaurant is proposed _____

b) Plumbing details _____
- Water service size and entrance location _____
- Water meter size, location and piping detail _____
- Size and location of water service backflow protection devices (if applicable) _____
- Sanitary sewer size and entrance location with elevations _____
- Size and location of sanitary sewer check valves (if applicable) _____
- Oil/water separators and MDC gas traps (if applicable) _____
- Pumping equipment (if applicable) _____

c) Electrical Details _____
- Location service entrance _____
- Size of Service _____
- Meter location and switchgear arrangement _____
- Provision for future expansion _____
- Transformer size and facilities for pad or vault room _____
- Data including load requirements _____

GENERAL PLAN COMMENTS

a) All plans must be stamped, signed and dated by a Registered Professional Engineer, or Architect in the Commonwealth of Massachusetts responsible for the particular plan's contents _____
b) Title Blocks shall provide the name of project, job site location, architects and engineer responsible for plan contents, date and plan scale _____
c) All plans must be numbered and titled _____
d) All dates of revisions shall be included _____
e) Provide retaining wall design details _____
f) Provide locus plan drawn at a scale of 1" = 500' showing the relation of the project to adjoining properties within a radius of ¼ mile _____
g) The cover sheet shall provide the names, mailing addresses and phone numbers of the land owner, building owner, architects and engineers and project contact person, and Table of Contents _____
h) Location of all mechanical systems must be shown _____

SUBMITTALS

a) Drain calculations showing capacities of the existing and proposed drain systems _____
b) Runoff calculations for the 10, 25 and 100 year storm event for storm drains, leaching basins or holding areas _____
c) Post development rate of peak runoff less than pre-development rate of peak runoff _____
d) Information showing that the DEP Stormwater Management Standards will be met _____
e) Operation and maintenance plan for drainage system _____
f) Evaluation of existing municipal systems capacities _____
g) Quantification and documentation of infiltration/inflow reduction measures _____
h) Quantification and documentation of water conservation measures _____
i) Written statement from a Registered Professional Engineer in the Commonwealth of Massachusetts regarding the adequacy of the water flow for the fire protection system _____
j) Construction area to be fenced _____
k) Traffic Management Plan during construction period _____
l) Area of construction worker and equipment parking _____
m) Materials staging area _____

UNDESIRABLE PLANTS FOR LANDSCAPE DESIGNS SUBMITTED WITHIN THE TOWN OF WELLESLEY

TREES:	
* *Acer platanoides*	Norway Maple
* *Acer pseudoplatanus*	Sycamore Maple
Acer saccharinum	Silver Maple
* *Ailanthus altissima*	Tree-of-Heaven
Elaeagnus angustifolia	Russian-olive
Morus alba	White Mulberry
* *Phelodendron amurense*	Amur Cork-tree
Populus alba	White Poplar
Pyrus c. 'Bradford'	Bradford Pear
Pyrus c. 'New Bradford'	New Bradford Pear
* *Robinia pseudoacacia*	Black Locust
Tsuga canadensis	Eastern Hemlock
SHRUBS:	
Alnus glutinosa	Common Alder
* *Berberis thunbergii*	Japanese Barberry
* *Berberis vulgaris*	Common Barberry
* *Elaeagnus umbellata*	Autumn-olive
* *Euonymus alatus*	Burning Bush
* *Frangula alnus*	Glossy Buckthorn
* *Ligustrum obtusifolium*	Border Privet
Ligustrum sinese	Chinese Privet
Ligustrum vulgare	Common Privet
* *Lonicera maackii*	Amur Honeysuckle
* *Lonicera morrowii*	Morrow Honeysuckle
* *Lonicera tatarica*	Tatarian Honeysuckle
* *Lonivera x bella*	Bell's Honeysuckle
* *Rhamnus cathartica*	Common Buckthorn
* *Rosa multiflora*	Multiflora Rose
VINES:	
* *Ampelopsis brevipedunculata*	Porcelain Ampelopsis
* *Celastrus orbiculatus*	Chinese Bittersweet
* *Cynanchum spp.*	Swallow-worts
* *Humulus japonicas*	Japanese Hops
* *Lonicera japonica*	Japanese Honeysuckle
* *Polygonum perfoliatum*	Mile-a-minute Vine
Wisteria sinensis	Chinese Wisteria
ORNAMENTALS:	
* *Aegopodium podagraria*	Goutweed
* *Alliaria petiolate*	Garlic-mustard
* *Iris pseudacorus*	Yellow Flag Iris
* *Lythrum salicaria*	Purple Loosestrife
* *Microstegium vimineum*	Japanese Stilt-grass
* *Phalaris arundinaceae*	Ribbon Grass
* *Pragmites australis*	Common Reed
* *Polygonum cuspidatum*	Japanese Knotweed
Utgica dioica	Stinging Nettle
AQUATICS:	
* *Hydrilla verticillata*	Hydrilla
* *Myriophyllum spp.*	Water Milfoils
* *Trapa natans*	Water-Chestnut

* Indicates species listed *A Guide to Invasive Plants in MA*

TOWN OF WELLESLEY MASSACHUSETTS

ZONING BOARD OF APPEALS

TOWN HALL • 525 WASHINGTON STREET • WELLESLEY, MA 02482-5992

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TOWN OF WELLESLEY

OFFICIAL DEVELOPMENT PROSPECTUS

Applicable to Major Construction Projects
Submitted Under Section XVIA of the Zoning Bylaw
And Comprehensive Permit Projects Submitted
Under Chapter 40B

Date: _____

Year/Number: _____

I. IDENTIFICATION

Petitioner: _____

Address: _____

Telephone: _____

Land Owner of Record: _____

Location of Property: _____

Proposed Use of Property: _____

Zoning Districts: (Including all overlay districts) _____

_____

Are any other special permits or variances, other than Site Plan Approval required for this project? Yes _____ No _____

If yes, what is required? _____

_____

II. DESCRIPTION

Describe in detail the plan to be executed under the appropriate categories below

1. Land Area _____

2. Square footage of proposed construction footprint _____

3. Square footage of existing building footprint _____

4. Square footage of total structure footprint _____

5. Total floor area of existing building _____

6. Total floor area of proposed construction _____

7. Total floor area after proposed construction completed _____

8. Floor area ratio: (Commercial)

9. Number of Buildings _____

10. Number of Stories of each Building _____

11. Height of each Building _____

12. Number of Parking Spaces: (Existing/Proposed)

    Standard_____/_____ Compact_____/___ Handicapped_____/_____

    Covered_____/_____ Open_____/_____

    Total (Existing and proposed) _____

    Total Number Required _____

13. Number of handicapped sidewalk curb cuts provided _____

14. Lot coverage in square feet (%)

	Before	After
1) Buildings	( )	( )
2) Drives & Parking	( )	( )
3) Other uses (identify uses and coverage)	( )	( )

15. Open Space

1) Landscaped area	( )	( )
2) Natural (i.e. woods, fields)	( )	( )
3) Recreational	( )	( )

A. Residential Construction

1. Number of Dwelling Units
   Efficiency_____ One Bedroom_____ Two Bedroom_____
   Three Bedroom_____ Other_____

2. How many units will be provided with handicapped access to bathrooms, toilets, entrances, egresses, etc.? _____

3. Density in square feet of land per dwelling unit.
   Existing _____ Proposed _____

4. Density in square feet of land per person:
   Existing _____ Proposed _____

III. TRAFFIC IMPACT ANALYSIS AND DATA
(Explain basis for data entered)

If, as a result of the proposed construction, the following conditions will exist, Questions 1-5 must be answered:

a. If the floor area of the building exceeds 10,000 sf; or

b. If 50 or more vehicle trips will be generated by the completed project in any single hour of the day.

1. Projected traffic generation of proposed new development:

a. Peak Day	In	Out	Total
24-Hour	_____	_____	_____
Am Peak Hour	_____	_____	_____
PM Peak Hour	_____	_____	_____

b. Typical or Average Day			
24-Hour	_____	_____	_____
Am Peak Hour	_____	_____	_____
PM Peak Hour	_____	_____	_____

2. Current two-way traffic flows on frontage street(s):

	24 Hour	AM Peak Hour	PM Peak Hour
Street _____	_____	_____	_____
Street _____	_____	_____	_____

3. Data compiled by: _____

4. Date of data compilation: _____

5. Comment on adequacy of drive entrances & exits with respect to sight distance and other traffic operations considerations on frontage street(s)

Locations through which 30 or more vehicles approach from a single direc in any single hour of the day.
(List intersections and operational problems):

_____

_____

List possible hazardous pedestrian and bicycle crossings:

_____

6. Has a separate Traffic Study been submitted? Yes_____ No_____

IV. PUBLIC UTILITIES - (Quantitative, state basis for data entered)

A. Estimated water consumption _____gal/day

B. Number of Fire Hydrants - existing within 200 ft _____ Proposed_____

C. Estimated discharge to sewer system _____gal/day

D. Sewer Disposal - will any proposed on-site individual sewage disposal systems be designed to receive more than 110 gallons of sewage per quarter acre per day? Yes_____ No_____

E. Refuse disposal _____lbs. or tons/day

1. Proposed method of handling_____

2. What provisions will be made to facilitate the recycling of solid waste? _____

F. Service Voltage _____Service Amperage _____

1. Estimated peak electrical consumption _____kw

a. Heating Season _____kw b. Cooling Season _____kw

2. Estimated annual electric energy consumption _____kw

3. Three Phase Service _____ Single Phase Service _____

G. Are energy efficient appliances to be used? _____

H. What R-Factors will be used in insulation and glazing for walls and ceilings? _____

I. What energy source will be used for heating water?
Electric_____ Gas_____ Fuel Oil_____ Other_____

J. Will electric resistance heating or heat pumps be used? Yes____No____

K. Will the facility include an emergency electric generator?

Yes____No____

If YES, would you be willing to run it to reduce your peak load?

Yes____No____

V. FIRE PROTECTION

A. *Fire flow presently available at site _____

B. *Total floor area of building (Largest single building if more than one building) _____

C. Type of Building Construction _____

D. *Required fire flow for building (Maximum required for a single building if more than one building) _____

E. *If required fire flow (D) exceeds available fire flow (A), describe plans to provide required fire flow (D)

_____

F. Describe access for fire apparatus to building (s)_____

_____

*Written statement indicating these figures signed by a registered professional engineer must accompany submittal.

VI. ENVIRONMENTAL IMPACT

A. What percentage of the property is Wetlands _____
Floodplains _____

Will either be altered as a result of the project? _____

B. Will the proposed development contribute in any way to pollution of groundwater, surface water, or waterway: Yes____No____

Oil____ Salt____ Chemicals____ Other____

Explain

_____

_____

Describe proposed measures to eliminate or minimize such pollution:

_____

_____

C. Does the proposed development involve storage of any of the following materials above or below the ground?

_____ deicing chemicals or other related materials
_____ commercial fertilizers and other related materials
_____ hazardous materials
_____ liquid petroleum products

If YES to any of the above, list specific materials to be stored:

_____

_____

D. Impact on surface drainage

1a. Current rate of peak runoff _____ cubic ft/second
b. Current volume of runoff _____ cubic feet or acre-feet

2a. Post-development rate of peak runoff _____ cfs
b. Post-development volume of runoff _____ cubic feet or acre-feet

(Design storm and rainfall intensity should be cited for #1 & #2)

3. Describe measures to eliminate or minimize any increase in rate of runoff _____

_____

4. Might the project result in significant changes in existing drainage patterns? Will any abutting or other property be adversely affected by the changes? _____

_____

E. Does the proposed structure include installation of floor drains?
Yes____ No____ If YES, how many? ____

F. Will the project affect the condition, use, or access to any existing public open space or recreation area? If so, how?

_____

_____

G. Does the proposed development involve outside lighting? Yes____No____
if YES, state height of lighting fixtures _____

Will the outside lighting shine directly on abutting premises?
Yes____No____

If YES, explain

_____

Describe proposed steps to minimize this impact _____

_____

H. Might any site or structure of historic or archeological significance be affected? Yes____No____

Describe _____

I. Will the project require the removal of any street trees protected under M.G.L. Ch. 87? Yes____No____
If YES, how many?_____

J. Will the project involve blasting or pile driving? Yes____No____

1. What is the approximate volume of the material to be removed?

_____

Where will this material be disposed? _____

K. Is an Environmental Notification Form required to be filed under M.G.L. Ch. 30, Section 61-62H, the Mass. Environmental Policy Act?
Yes____No____

VII. IMPACT OF WATER SUPPLY

A. Will the project result in an increase of 10,000 square feet or more of impervious area within a Water Supply Protection District defined by Section XIVE of the Zoning Bylaw? Yes____No____

If so, does it satisfy the design and operation standards of Section XIVE? Yes____No____

B. Will the project result in finished exterior grades lower than the existing grade and less than 5 feet of soil overburden above the maximum ground water elevation within a Water Supply Protection District? Yes____No____

C. Will catch basins be installed? Yes____No____
If so, how many? _____

Do catch basins presently exist? Yes____No____
If so, how many? _____

Are catch basins fitted with oil and grease traps? Yes____No____
How many? Existing _____ Proposed _____

D. Will water saving appliances be used or water conservation devices be used in all plumbing? Yes____No____

VIII. FINANCIAL IMPACT

A. Estimated Building Permit Valuation _____

B. Estimated assessed value _____

TOWN OF WELLESLEY MASSACHUSETTS

ZONING BOARD OF APPEALS
TOWN HALL • 525 WASHINGTON STREET • WELLESLEY, MA 02482-5992

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DEREK REDGATE

Date: _____ ZBA: _____

Petition for:	Residential Fee	Commercial & Municipal Fee
Variance	_____ $200	_____
Special Permit	_____ $200	_____ $500
Special Permit/Findings	_____ $200	_____
Special Permit Renewals	_____ $150	_____
Signs	_____	_____ $300
Site Plan Approval without PSI	_____	_____ $2,000 & Fire Department Consulting Fee
Site Plan Approval with PSI	_____	_____ $3,500
Appeals	_____ $200	_____ $300
Comprehensive Permit	_____	_____ $2,000
Publication & Mailing Fees/All Petitions	$25	$25
Petitioner assumes all costs for Peer Review		

Property Location: _____ Zoning District: _____

Property located in a:

	Yes	No
Historic District	☐	☐
Wetlands Protection Area	☐	☐
Water Supply Protection District	☐	☐

Applicable Section(s) of the Zoning Bylaw: _____

Explanation of Request: _____

_____

_____

_____

Requested Relief:

_____ Lot Area
_____ Lot Coverage
_____ Frontage
_____ Front Yard Width
_____ Front Yard Depth (Street Setback)
_____ Side Yard Width (Side Line Setback)
_____ Rear Yard Depth (Rear Line Setback)
_____ Other _____

OWNER OF PROPERTY: _____

MAILING ADDRESS: _____

PHONE: WORK: _____ HOME: _____

SIGNATURE OF OWNER: _____

PETITIONER (If different than Owner): _____

MAILING ADDRESS: _____

PHONE: WORK: _____ HOME: _____

ZONING BOARD OF APPEALS
SITE PLAN SUBMITTAL
TIMELINE

PRELIMINARY MEETING WITH DPW
(Preliminary Engineering & Landscape Plans)

OTHER MEETINGS AS REQUIRED WITH:
DRB, MLP, FIRE DEPT., WPC & BOH

ONE FULL SET OF ENGINEERING & LANDSCAPE PLANS TO DPW	10 WEEKS PRIOR TO HEARING
DPW RESPONSE TO APPLICANT ON PLANS	10 DAYS AFTER RECEIPT OF PLANS
13 COPIES OF SUBMITTAL TO THE ZBA	6 WEEKS PRIOR TO HEARING
PLANS MUST BE APPROVED BY DPW OR ZBA HEARING CONTINUED	10 DAYS PRIOR TO HEARING
ZBA HEARING	

SECTION XVIA. PROJECT APPROVAL.

A. SCOPE AND PURPOSE.

Minor Construction Projects (as herein defined) and Major Construction Projects (as herein defined) are subject to comprehensive review in accordance with the terms of this section. This section shall not apply to construction, alteration, enlargement or reconstruction of one-family or two-family dwellings or structures accessory thereto, unless such one-family or two-family dwelling is located in a Flood Plain or Watershed Protection District.

This section shall be interpreted so as to:

1. Ensure compliance with the Zoning Bylaws of the Town of Wellesley;
2. Protect the safety, convenience and welfare of the public;
3. Minimize additional congestion in public and private ways;
4. Ensure adequate provision for water, sewerage and drainage;
5. Ensure compliance with the provisions of SECTION XVI. RESTRICTIONS AFFECTING ALL DISTRICTS.;
6. Ensure compliance with the provisions of SECTION XXI. OFF-STREET PARKING.; and
7. Ensure compliance with the provisions of SECTION XXII. DESIGN REVIEW.

B. Part 1 PRINICIPAL DEFINITIONS.

Construction Project - shall mean projects subject to review under this Section XVIA, and shall include phased or segmented projects where a series of two or more projects on a single parcel, lot or development area, for which application for building permits are filed within a three-year period are, in the opinion of the Inspector of Buildings, components or segments of a single project.

Major Construction Project – shall mean any construction project which involves a change in the outside appearance of a building or buildings or premises, and includes one or more of the following:

1. construction of twenty-five hundred (2,500) or more square feet gross floor area;
2. an increase in gross floor area by fifty (50) percent or more which results in a gross floor area of at least twenty-five hundred (2,500) square feet;
3. grading or regrading of land to planned elevations, and/or removal or disturbance of the existing vegetative cover, over an area of five thousand (5,000) or more square feet;

4. any activities regulated or restricted under SECTION XIVB. FLOOD PLAIN OR WATERSHED PROTECTION DISTRICTS.; or

5. any activities regulated under SECTION XIVE, WATER SUPPLY PROTECTION DISTRICTS.

Minor Construction Project shall mean any construction project, not included within the definition of a major construction project, which involves either or both of the following:

1. a change in the outside appearance of a building or premises visible from a public or private street or way, requiring a building permit;

2. construction, enlargement or alteration of a parking or storage area requiring a parking plan permit. Alteration, as used in the preceding phrase, includes installation, removal or relocation of any curbing, landscaping or traffic channelization island, driveway, storm drainage, lighting or similar facilities but does not include resurfacing, striping or restriping pavement markings on existing parking or storage areas.

Project of Significant Impact (PSI) means any construction project having an aggregate total of:

1. newly constructed floor area of 10,000 or more square feet; or

2. renovated, altered and/or replacement floor area of 15,000 or more square feet in a building having 15,000 or more square feet of ground coverage to provide for a use which is different from the existing use as determined by the Commonwealth of Massachusetts Property Type Classification Codes (April 1991 edition).

B. Part 2 ADDITIONAL DEFINTIONS FOR TRAFFIC REVIEWS

Annual Average Daily Traffic (AADT) – The total yearly volume of automobiles and trucks divided by the number of days in the year.

Average Daily Traffic (ADT) - The calculation of averaged traffic volumes in a time period greater than one day and less that one year. Usually ADT is determined based on a representative (no holidays or unusual weather related circumstances) 7 day week.

Design Hourly Volume (DHV) – The one-hour volume in the design year selected for determining the highway design (typically the worst-case weekday morning or evening peak hour or the 30th highest hour of the year).

K-Factor (K) – The percent of Average Daily Traffic (ADT) that occurs during the peak hour (PH).

Level of Service – A quantitative measure of traffic congestion identified by a declining letter scale (A-F) promulgated by the Institute of Transportation Engineers (ITE) and used by the Massachusetts Highway Department (MHD), traffic engineers and traffic planning professionals.

Peak-Hour Traffic (PH) – The highest number of vehicles passing over a section of highway during 60 consecutive minutes. The term T(PH) may be used to designate the PH for truck traffic only.

Peak-Hour Factor (PHF) – a ratio of the total volume occurring during the peak hour to the maximum rate of flow during a given time period within the peak hour (typically 15 minutes duration).

Roadway Impacted by Development Traffic – A roadway segment, including one or more approaches to an intersection, shall be considered as impacted if traversed by 20 or more vehicles related to the project in a single direction during any single hour and it:

a. a signalized intersection and ADT or PH will increase by 5% or more; or

b. is an unsignalized intersection with a minor street approach PH of 50 or more vehicles; or

c. is substandard, as determined by the Town Engineer, in terms of structure, pavement surface, or other deficiencies; or

d. exhibits safety problems as identified by the Town Engineer, Town Traffic Engineer or other qualified professional as determined by the Planning Board.

C. APPLICABILITY AND PROCEDURE.

1. Design Review. Minor Construction Projects, Major Construction Projects, and Projects of Significant Impact are subject to Design Review, as follows:

   Plans and other submission materials as specified on the "Application for Design Review" along with the completed application shall be submitted to the Design Review Board for its written advisory design recommendations in accordance with SECTION XXII. Within twenty-one (21) days of submission, copies of the written design recommendations shall be sent by the Design Review Board to the Building Inspector, Planning Board and the applicant. No building permit or parking plan permit shall be issued by the Building Inspector within this twenty-one (21) day period unless the required written recommendations are received.

2. Site Plan Review. In addition to Design Review in accordance with the preceding section, Major Construction Projects and Projects of Significant Impact are subject to Site Plan Review, as follows:

   a. The applicant shall submit to the Zoning Board of Appeals ("ZBA") plans and other submission materials in accordance with the procedures for Special Permits adopted by the ZBA pursuant to SECTION XXV of this Zoning Bylaw. Within seven (7) days from the date of its submission to the ZBA, copies of the complete application as submitted shall be referred by the ZBA to the Board of Health, Planning Board, Design Review Board, Town Engineer, Wetlands Protection Committee, Municipal Light Plant, Fire Chief, Police Chief and any other Town agencies or boards designated by the ZBA, for review and preparation of written

recommendations to the ZBA, Building Inspector and the applicant prior to the required public hearing. Said written recommendations shall be attached to and become part of the application.

b. No decision shall be made by the ZBA in connection with any application until the above referenced written recommendations have been received or thirty-five (35) days shall have elapsed after such referral of the application without a recommendation being received. The ZBA may modify such plans to meet the requirements of this Section, and as modified, approve the same, or may disapprove the plans. No building permit or parking plan permit shall be issued by the Building Inspector without the written approval of plans as herein above provided.

3. Special Permit for Projects of Significant Impact. In addition to Design Review and Site Plan Review in accordance with the preceding sections, Projects of Significant Impact (PSI), shall require a Special Permit issued by the Planning Board, as follows:

a. The applicant shall submit to the Planning Board a Municipal Systems Impact Analysis (MSIA), prepared by professional engineers registered in the Commonwealth of Massachusetts, and identifying the impact of the Construction Project on water, sewer, storm drainage, electric, traffic, intersections, sidewalks and footways, building occupant life safety, refuse disposal and recycling. The water, sewer, and storm drainage portions of the MSIA shall be prepared by engineers having expertise in civil engineering; the electric portion shall be prepared by engineers having expertise in electrical engineering; the traffic and pedestrian safety and bicycle safety portions shall be prepared by engineers having expertise in traffic and transportation engineering.

b. The intent of the analysis is to determine the impact on the Town's existing capital infrastructure in order to assess costs of providing or upgrading Town public facilities which will benefit a PSI.

c. The Municipal Systems Impact Analysis shall include:

1) Utility Capacity

including water, sewer, storm drain and electric distribution systems before construction and at expected occupancy date;

2) Traffic

identification of existing traffic and anticipated traffic at time of full project occupancy at existing and proposed roadway segments and intersections, existing and proposed site connections to the street system, and streets bordering, supporting, and connecting the development including:

a) vehicle speed;
b) 85th percentile vehicle speed;
c) sight distances;

d) existing safety records including accident data;
e) description of existing traffic controls;
f) Annual Average Daily Traffic;
g) Average Daily Traffic
h) Peak-Hour Traffic (morning, afternoon and other peak(s));
i) Peak-Hour Factor;
j) Design Hourly Volume;
k) K- Factor;
l) Levels of Service (LOS);
m) Project generated traffic and its distribution;
n) Volume to Capacity Ratio;
o) Average Delay;
p) Average and 95th Percentile Queue Lengths;
q) Roadways Impacted by Development Traffic;
r) Delay and Gap Study (when deemed necessary by the Town's traffic engineering consultant); and
s) Data Calibration.

Evaluations shall be made in accordance with the current MHD Design Guide, the elements listed above and standards adopted by the Board of Selectmen.

identification of roadways impacted by development traffic;

estimated traffic impacts of the proposed development in terms of the amount of morning and afternoon peak hour and total daily traffic generated by the development on streets bordering the development area; sight lines from access connections; proposed changes to traffic controls; and projected levels of service of intersections identified in item 3. above and at points of connection of the development area to the street system;

3) Pedestrian and Bicycle Safety

possible hazardous pedestrian and bicycle crossings; a detailed identification of gaps in the sidewalk network and identification of cracking, deterioration, heaving, sinking, shifting, patching and missing sections and intrusion or encroachment of vegetation and other obstructions into the sidewalk area within a walking distance of 600 feet from the development area and along walking routes to the nearest public transportation station(s) or boarding point(s) if such facilities exists within one mile of the development site; identification of sidewalk links or connections to surrounding neighborhoods. Pedestrian crosswalks, traffic control devices and traffic calming measures will be part of the safety analysis.

4) Building Occupant Life Safety

identification of proposed use and occupancy and characteristics of the occupants, building contents, equipment and materials on site; identification of possible hazards and hazard scenarios and anticipated impact on municipal

fire alarm systems. The Fire Chief may require a comprehensive emergency plan which shall include an evacuation plan.

5) Refuse Disposal and Recycling

anticipated impact on the Town's refuse disposal and recycling system.

d. No decision shall be made by the Planning Board acting as Special Permit Granting Authority (SPGA) in connection with any properly completed application until it has been referred to, reviewed and approved by the four review departments (Department of Public Works for the water, sewer, storm drain, refuse and recycling elements; Municipal Light Plant for the electric element, Fire Department for fire alarm, fire protection and life safety element and the Board of Selectmen for the traffic and pedestrian safety element). The Board of Selectmen shall solicit the recommendations of the Chief of Police. The report of the Board of Selectmen to the Planning Board shall include the recommendations of the Chief of Police or verification that the Chief offered no comment. Review departments are not required to hold a public hearing for this purpose. Review departments may employ outside consultant assistance as deemed necessary.

e. The Planning Board shall grant a special permit provided the following minimum service standards are met:

1) Water -

There shall be sufficient water capacity to meet the flow demands of the proposed use without causing municipal water flow characteristics off site to fall below the standards adopted by the Board of Public Works.

2) Sewer -

There shall be sufficient sewer capacity to meet the flow demands of the proposed use without causing surcharge in those sewer lines which serve the project and consistent with the standards adopted by the Board of Public Works.

3) Storm Drainage -

There shall be sufficient storm drainage capacity to meet the flow demands of the proposed development site without causing surcharge in those storm drainage lines which serve the project and consistent with the standards adopted by the Board of Public Works.

4) Electric -

There shall be sufficient electrical capacity to meet the peak service demands of the proposed use without causing the service in adjacent areas to fall below the standards adopted by the Municipal Light Board.

5) Traffic, Pedestrian and Bicycle Safety

With respect to all signalized impacted intersections, and any unsignalized impacted intersections having 50 or more PH vehicle trips on any minor approach, there shall be no degradation in the overall level of service designation to a level below the level of "C" and, if an impacted intersection is projected to operate at an overall level of service lower than "C" in a design year no-build alternative, then the proposed development shall not degrade the level of service designation below the projected design year no-build levels; and

With respect to unsignalized impacted intersections having fewer than 50 PH vehicle trips on any minor approach, the Applicant shall undertake an evaluation to identify any specific circumstances requiring further action or mitigation, which may be the subject of negotiated improvements at the discretion of the Planning Board. For purposes of clause 1 above, the "overall level of service" for an unsignalized impacted intersection shall be considered to be the worst of the individual levels of service for each of the minor movements.

Pedestrian and bicycle circulation shall be provided in accordance with recognized safety standards; provided in all cases sidewalks within a walking distance of 600 feet of the Project shall be provided and in addition sidewalk connections within such radius to surrounding neighborhoods and to public transportation shall be provided as required by the Special Permit Granting Authority in a safe and convenient condition and consistent with standards of the Massachusetts Highway Project Development and Design Guide.

6) Fire Protection and Life Safety -

There shall be sufficient municipal fire alarm system capacity to meet the operating requirements of the proposed use under applicable codes, regulations and statutes enforced by the Fire Chief. There shall be off-site fire protection facilities serving the development site in the opinion of the Fire Chief meeting the needs of the project based on the intended use and occupancy including fire flow requirements, location of and access to fire hydrants and access for emergency vehicles. The Fire Chief may require a comprehensive emergency plan which shall include an evacuation plan satisfactory to the Fire Chief and meeting the specifications and standards adopted by the Fire Chief.

7) Refuse Disposal System -

Refuse recycling and disposal systems, consistent with the standards adopted by the Board of Public Works, shall be provided.

f. Following review of the Municipal Systems Analysis, applicants for PSI approval or the Planning Board may propose specific design alternatives and/or off-site

Negotiated Improvements to municipal facilities to meet minimum service standards.

g. The Planning Board is authorized to incorporate these design alternatives and improvements as conditions in special permit PSI approval.

h. The applicant shall bear all of the costs of design work and construction of all Negotiated Improvements and shall be responsible for implementation of the Negotiated Improvements and special permit approval conditions. All work proposed to improve or upgrade Town utilities or facilities shall be done according to the specifications adopted by the Board of Public Works, except that electric work shall be done according to the specifications adopted by the Municipal Light Board. The applicant shall also bear the cost of review of plans and of periodic inspections of such work during construction.

   Post development traffic counts may be required at the discretion of the Planning Board, at reasonable intervals over a period not to exceed twelve (12) months, and commencing no sooner than three months after commencement of Project operation. The purpose of this monitoring is to review the accuracy of PSI traffic projections. If at least two consecutive traffic counts no less than six months apart reflect that site-related daily traffic is more than 10 percent (10%) above the projected volume, then the Applicant shall undertake an evaluation to identify any specific circumstances requiring further action or mitigation. Should post development traffic counts, review of plans, mitigation proposals or any other peer review or related professional services be required, the Applicant shall bear the cost thereof.

i. Upon the granting of a special permit by the Planning Board for a PSI the applicant is authorized to apply for Project Approval under the procedure in SECTION XVIA for Major Construction Project Approval. Planning Board review of PSI application shall not substitute for Major Construction Project approval. No application shall be made for Major Construction Project approval for a PSI prior to the granting of a special permit by the Planning Board.

Construction Site Inspection Checklist

Background

The Minnesota Pollution Control Agency (MPCA) developed this document to assist you with the requirements of the MPCA's Authorization to Discharge Stormwater Associated with small MS4s under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit (MS4 Permit). The MS4 Permit requires your regulatory mechanism to be as stringent as the MPCA's Authorization to Discharge Stormwater Associated with Construction Activity under the NPDES/SDS Program (Construction Stormwater Permit) for erosion, sediment, and waste controls. Your written procedure must include a checklist or other written means to document each site inspection you conduct (MS4 Permit Part III.D.4.d.(4) and Part III.D.4.f.(2)). You must retain these documents for three years beyond the term of the MS4 Permit (MS4 Permit Part IV.C.).

Using the Checklist

The "Checklist" worksheet is provided as guidance only. You may add more fields for your internal use. You may

USE THIS AS A GUIDE

Site name: _____ Inspector: _____

Address/Location: _____ NPDES Permit # (if applicable): _____

Owner/operator: _____ Date and time: _____

Site contact name: _____ Weather Conditions: _____

Site contact info: _____ Amount and date of last rainfall: _____

Other person(s) interviewed or onsite: _____

Name of special or impaired waters or public waters within 1 mile, if any:

Item	Yes	No	N/A	Items to be evaluated at all inspections	Type
1				Effective best management practices (BMPs) used to minimize erosion, areas of work are delineated, and steep slope disturbance minimized?	BMPs to minimize erosion
2				Soils stabilized where work has stopped for 14 days?	
3				Conveyance channels route water around unstabilized areas?	
4				Wetted perimeter of drainage ditch/swale stabilized in 24 hrs for areas within 200 ft of the property edge or discharge point, and 14 days for the rest of the ditch/swale?	
5				Pipe outlets have energy dissipation if connected to surface water?	
6				BMPs discharge to vegetated areas?	
7				Effective sediment control practices used?	BMPs to minimize sediment discharge
8				Perimeter control BMPs used on downgradient perimeters and upgradient of buffer zones?	
9				Sediment control devices reinstalled if they've been adjusted for short-term work	
10				All storm drain inlets protected?	
11				Soil stockpiles have sediment controls and are not in conveyances or natural buffer zones?	
12				Effective vehicle tracking BMPs used?	
13				Minimizing soil compaction and preserving top soil?	
14				A 50 ft buffer preserved if site is within 50 ft of, and drains to, surface water, or redundant sediment controls used?	
15				Are flocculants or other sedimentation treatment chemicals being used appropriately?	
16				All perimeter control BMPs maintained, functioning, and properly installed?	BMP maintenance/Site Inspections
				If no to the previous, will the BMPs be replaced by the end of the next business day?	
17				Sediment in sediment control BMPs is less than 1/2 the device height?	
				If no to the previous, will the BMP be replaced by the end of the next business day?	
18				Surface waters and discharge points free of erosion and sediment?	
				If no to the previous, will deltas and sediment be removed within 7 days?	
19				Paved surfaces on and next to the site free of tracked sediment?	
				If no to the previous, will streets be swept/cleaned within 24 hrs?	
20				All infiltration areas protected from compaction and sediment deposition?	
21				Inspections performed as needed (every 7 days or within 24 hours of a half inch rainfall) and records available?	
22				Building products & chemicals (pesticides, herbicides, fertilizers, etc.) covered?	Solid and hazardous waste
23				Solid & hazardous waste stored and disposed of properly?	
24				Portable toilets positioned so they are secure?	
25				Vehicle fueling in a contained area?	
26				Vehicle & equipment washing wastes don't contact the ground & engine degreasing prohibited?	
27				Concrete and other washout wastes contained and properly identified?	
28				Stormwater Pollution Prevention Plan (SWPPP) present and implemented onsite?	Other
29				Permanent stormwater management system onsite to retain 1 inch or more of runoff if new impervious surfaces are one acre or more?	

Notes, corrective actions & dates corrective actions completed:

Item	Yes	No	N/A	For projects with temporary sediment basins	Temporary sediment basin
30				Temporary sediment basin used if 10 or more acres disturbed?	
31				Basin outlet withdraws water from the surface and has energy dissipation?	
32				Basin has an emergency overflow?	
33				Sediment in basin less than 1/2 the storage volume?	

Notes, corrective actions & dates corrective actions completed:

Item	Yes	No	N/A	For projects with dewatering	BMPs for dewatering
34				Turbid or sediment-laden water discharging to a dewatering or sedimentation basin?	
35				Dewatering BMPs prevent sediment discharge, erosion, and wetland inundation?	
36				Backwash water is disposed of offsite, retreated, reused without causing erosion, or discharged to sanitary sewer, if applicable?	

Notes, corrective actions & dates corrective actions completed:

Item	Yes	No	N/A	If project is near a special or impaired waters	Special or impaired waters
37				Soils stabilized where work has stopped for 7 days if within 1 mile of special/impaired water, or 24 hours (hrs) if within 200 feet (ft) of fish spawning?	
38				If adjacent to a special water, 100 ft natural buffer preserved?	
39				Temporary sediment basin used if 5 or more acres within 1 mile of special/impaired water disturbed?	

Notes, corrective actions & dates corrective actions completed:

Item	Yes	No	N/A	If construction is complete	Final stabilization
40				Soils stabilized with 70% density perennial vegetative cover?	
41				Permanent stormwater management system is operating as designed?	
42				All sediment removed from stormwater basin and conveyances (i.e. pipes)?	
43				All temporary erosion prevention and sediment control BMPs removed?	
44				For residential lots & the house is sold, are erosion practices at the downgradient perimeter?	
45				For agriculture projects, has the land been returned it its preconstruction use?	

Notes, corrective actions & dates corrective actions completed:

Additional notes and photos

Item (from checklist)	Construction Stormwater Permit (MNR1000001) Requirement
1	The Permittee(s) must plan for and implement appropriate BMPs such as construction phasing, vegetative buffer strips, horizontal slope grading, inspection and maintenance of Part IV.E. and other construction practices that minimize erosion as necessary to comply with this permit and protect waters of the state. The location of areas not to be disturbed must be delineated (e.g., with flags, stakes, signs, silt fence etc.) on the project site before work begins. The Permittee(s) must minimize the need for disturbance of portions of the project that have steep slopes. For those sloped areas which must be disturbed, the Permittee(s) must use techniques such as phasing and stabilization practices designed for steep slopes (e.g., slope draining and terracing). [Part IV. B. 1]
2	The Permittee(s) must stabilize all exposed soil areas (including stockpiles). Stabilization must be initiated immediately to limit soil erosion whenever any construction activity has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization must be completed no later than 14 calendar days after the construction activity in that portion of the site has temporarily or permanently ceased. For Public Waters that the Minnesota Department of Natural Resources has promulgated "work in water restrictions" during specified fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete the stabilization activities within 24 hours during the restriction period. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots and similar surfaces are exempt from this requirement but must be in compliance with Part IV.C.5 [Part IV. B. 2] Stabilization of all exposed soil areas must be initiated immediately to limit soil erosion but in no case completed later than seven (7) days after the construction activity in that portion of the site has temporarily or permanently ceased. [Appendix A C.1.a]
3	If using stormwater conveyance channels ,the Permittee(s) must design the channels to route water around unstabilized areas on the site and to reduce erosion, unless infeasible. The Permittee(s) must use erosion controls and velocity dissipation devices such as check dams, sediment traps, riprap, or grouted riprap at outlets within and along the length of any constructed stormwater conveyance channel, and at any outlet, to provide a non-erosive flow velocity, to minimize erosion of channels and their embankments, outlets, adjacent stream banks, slopes, and downstream waters during discharge conditions. [Part IV. B. 3]
4	The Permittee(s) must stabilize the normal wetted perimeter of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, within 200 lineal feet from the property edge, or from the point of discharge into any surface water. Stabilization of the last 200 lineal feet must be completed within 24 hours after connecting to a surface water or property edge. The Permittee(s) shall complete stabilization of the remaining portions of any temporary or permanent ditches or swales within 14 calendar days after connecting to a surface water or property edge and construction in that portion of the ditch has temporarily or permanently ceased. Temporary or permanent ditches or swales that are being used as a sediment containment system during construction (with properly designed rock-ditch checks, bio rolls, silt dikes, etc.) do not need to be stabilized during the temporary period of its use as a sediment containment system. These areas must be stabilized within 24 hours after no longer being used as a sediment containment system. Applying mulch, hydromulch, tackifier, polyacrylamide or similar erosion prevention practices is not acceptable stabilization in any part of a temporary or permanent drainage ditch or swale. [Part IV. B. 4]
5	Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours after connection to a surface water. [Part IV. B. 5]
6	Unless infeasible due to lack of pervious or vegetated areas, the Permittee(s) must direct discharges from BMPs to vegetated areas of the site (including any natural buffers) in order to increase sediment removal and maximize stormwater infiltration. The Permittee(s) must use velocity dissipation devices if necessary to prevent erosion when directing stormwater to vegetated areas. [(MNR100001) Part IV. B. 6]
7	The Permittee(s) must employ Sediment control practices as necessary to minimize sediment from entering surface waters, including curb and gutter systems and storm sewer inlets. a. Temporary or permanent drainage ditches and sediment basins that are designed as part of a sediment containment system (e.g., ditches with rock-check dams) require sediment control practices only as appropriate for site conditions. b. If the down gradient sediment controls are overloaded (based on frequent failure or excessive maintenance requirement), the Permittee(s) must install additional upgradient sediment control practices or redundant BMPs to eliminate the overloading, and the SWPPP must be amended to identify these additional practices as required in Part III.B 1.-3. [Part IV.C.1.]
8	Sediment control practices must be established on all down gradient perimeters and be located upgradient of any buffer zones. The perimeter sediment control practice must be in place before any upgradient land-disturbing activities begin. These practices shall remain in place until Final Stabilization has been established in accordance with Part IV.G. A floating silt curtain placed in the water is not a sediment control BMP to satisfy perimeter control requirements in this part except when working on a shoreline and below the waterline. In those cases, a floating silt curtain can be used as a perimeter control practice if the floating silt curtain is installed as close to shore as possible. Immediately after the short term construction activity (e.g. installation of rip rap along the shoreline) in that area is complete, an upland perimeter control practice must be installed if exposed soils still drain to the surface water. [Part IV. C. 2]
9	The Permittee(s) shall re-install all sediment control practices that have been adjusted or removed to accommodate short-term activities such as clearing or grubbing, or passage of vehicles, immediately after the short-term activity has been completed. The Permittee(s) shall complete any short-term activity that requires removal of sediment control practices as quickly as possible. The Permittee(s) must re-install sediment control practices before the next precipitation event even if the short-term activity is not complete. [Part IV.C.3.]
10	All storm drain inlets must be protected by appropriate BMPs during construction until all sources with potential for discharging to the inlet have been stabilized. Inlet protection may be removed for a particular inlet if a specific safety concern (street flooding/freezing) has been identified by the Permittee(s) or the jurisdictional authority (e.g., city/county/township/MnDOT engineer).The Permittee(s) must document the need for removal in the SWPPP. [Part IV. C. 4]
11	Temporary soil stockpiles must have silt fence or other effective sediment controls, and cannot be placed in any natural buffers or surface waters, including stormwater conveyances such as curb and gutter systems, or conduits and ditches unless there is a bypass in place for the stormwater. [Part IV. C. 5]
12	Where vehicle traffic leaves any part of the site (or onto paved roads within the site): a. The Permittee(s) must install a vehicle tracking BMP to minimize the track out of sediment from the construction site. Examples of vehicle tracking BMPs include (but are not limited to) rock pads, mud mats, slash mulch, concrete or steel wash racks, or equivalent systems. b. The Permittee(s) must use street sweeping if such vehicle tracking BMPs are not adequate to prevent sediment from being tracked onto the street (see Part IV.E.5.d.). [Part IV. C. 6]
13	The Permittee(s) must minimize soil compaction and, unless infeasible, preserve topsoil. Minimizing soil compaction is not required where the function of a specific area of the site dictates that it be compacted. [Part IV. C. 8]
14	The Permittee(s) must preserve a 50 foot natural buffer or (if a buffer is infeasible on the site) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water. Natural buffers are not required adjacent to road ditches, judicial ditches, county ditches, stormwater conveyance channels, storm drain inlets, and sediment basins. The Permittee(s) is/are not required to enhance the quality of the vegetation that already exists in the buffer or provide vegetation if none exist. However, Permittee(s) can improve the natural buffer with vegetation. [Part IV. C. 9]
15	If the Permittee(s) intend to use polymers, flocculants, or other sedimentation treatment chemicals on the project site, the Permittee(s) must comply with the following minimum requirements: a. The Permittee(s) must use conventional erosion and sediment controls prior to chemical addition to ensure effective treatment. Chemicals may only be applied where treated stormwater is directed to a sediment control system which allows for filtration or settlement of the floc prior to discharge. b. Chemicals must be selected that are appropriately suited to the types of soils likely to be exposed during construction, and to the expected turbidity, pH, and flow rate of stormwater flowing into the chemical treatment system or area. c. Chemicals must be used in accordance with accepted engineering practices, and with dosing specifications and sediment removal design specifications provided by the manufacturer or provider/supplier of the applicable chemicals. [Part IV. C. 10]
16	The Permittee(s) must inspect all erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness during all routine and post-rainfall event nspections. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow access unless another time frame is specified below. The Permittee(s) must investigate and comply with the following inspection and maintenance requirements: [(MNR100001) Part IV. D. 5] All perimeter control devices must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches one-half (1/2) of the height of the device. These repairs must be made by the end of the next business day after discovery, or thereafter as soon as field conditions allow access. [Part IV. D. 5. a.]
17	All perimeter control devices must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches one-half (1/2) of the height of the device. These repairs must be made by the end of the next business day after discovery, or thereafter as soon as field conditions allow access. [Part IV. D. 5. a.]
18	Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of erosion and sediment deposition during each inspection. The Permittee(s) must remove all deltas and sediment deposited in surface waters, including drainage ways, catch basins, and other drainage systems, and restabilize the areas where sediment removal results in exposed soil. The removal and stabilization must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints. The Permittee(s) shall use all reasonable efforts to obtain access. If precluded, removal and stabilization must take place within seven (7) calendar days of obtaining access. The Permittee(s) is/are responsible for contacting all local, regional, state and federal authorities and receiving any applicable permits, prior to conducting any work in surface waters. [Part IV. D. 5. c.]
19	Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all paved surfaces both on and off site within 24 hours of discovery, or if applicable, within a shorter time to comply with Part IV.C.6. e. Streets and other areas adjacent to the project must be inspected for evidence of off-site accumulations of sediment. If sediment is present, it must be removed in a manner and at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment in streets could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets). [Part IV. D. 5. d. & e.]
20	All infiltration areas must be inspected to ensure that no sediment from ongoing construction activity is reaching the infiltration area. All infiltration areas must be inspected to ensure that equipment is not being driven across the infiltration area. [Part IV. D. 6.]
21	The Permittee(s) must ensure that a trained person (as identified in Part III.A.3.a.) will routinely inspect the entire construction site at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24 hours after a rainfall event, the next inspection must be conducted within seven (7) days after the rainfall event. 2. All inspections and maintenance conducted during construction must be recorded within 24 hours in writing and these records must be retained with the SWPPP in accordance with Part III.E. Records of each inspection and maintenance activity shall include: a. Date and time of inspections b. Name of person(s) conducting inspections c. Findings of inspections, including the specific location where corrective actions are needed d. Corrective actions taken (including dates, times, and party completing maintenance activities) e. Date and amount of all rainfall events greater than 1/2 inch (0.5 inches) in 24 hours. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, a weather station that is within 1 mile of your location or a weather reporting system that provides site specific rainfall data from radar summaries. f. If any discharge is observed to be occurring during the inspection, a record of all points of the property from which there is a discharge must be made, and the discharge should be described (i.e., color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of pollutants) and photographed. g. Any amendments to the SWPPP proposed as a result of the inspection must be documented as required in Part III.B. within seven (7) calendar days. [Part IV. E. 1 & 2.]

Item (from checklist)	Construction Stormwater Permit (MNR1000001) Requirement
22	Storage, Handling, and Disposal of Construction Products, Materials, and Wastes: The Permittee(s) shall comply with the following to minimize the exposure to stormwater of any of the products, materials, or wastes. Products or wastes which are either not a source of contamination to stormwater or are designed to be exposed to stormwater are not held to this requirement: a. Building products that have the potential to leach pollutants must be under cover (e.g., plastic sheeting or temporary roofs) to prevent the discharge of pollutants or protected by a similarly effective means designed to minimize contact with stormwater. b. Pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials must be under cover (e.g., plastic sheeting or temporary roofs) to prevent the discharge of pollutants or protected by similarly effective means designed to minimize contact with stormwater. [Part IV. F. 1. a. & b.]
23	Hazardous materials, toxic waste, (including oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) must be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste or hazardous materials must be in compliance with Minn. R. ch. 7045 including secondary containment as applicable. d. Solid waste must be stored, collected and disposed of properly in compliance with Minn. R. ch. 7035. [Part IV. F. 1. a. & b.]
24	Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. ch. 7041. [Part IV. F. 1. e.]
25	Fueling and Maintenance of Equipment or Vehicles; Spill Prevention and Response: The Permittee(s) shall take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded including the use of drip pans or absorbents unless infeasible. The Permittee(s) must conduct fueling in a contained area unless infeasible. The Permittee(s) must ensure adequate supplies are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials. The Permittee(s) must report and clean up spills immediately as required by Minn. Stat. § 115.061, using dry clean up measures where possible. [Part IV. F. 2.]
26	Vehicle and equipment washing: If the Permittee(s) wash the exterior of vehicles or equipment on the project site, washing must be limited to a defined area of the site. Runoff from the washing area must be contained in a sediment basin or other similarly effective controls and waste from the washing activity must be properly disposed of. The Permittee(s) must properly use and store soaps, detergents, or solvents. No engine degreasing is allowed on site. [Part IV. F. 3.]
27	Concrete and other washouts waste: The Permittee(s) must provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds and other construction materials) related to the construction activity. The liquid and solid washout wastes must not contact the ground, and the containment must be designed so that it does not result in runoff from the washout operations or areas. Liquid and solid wastes must be disposed of properly and in compliance with MPCA rules. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes. [Part IV. F. 4.]
28	The owner must develop a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall be completed prior to submitting any permit application and prior to conducting any construction activity by any required Permittee(s). For stormwater discharges from construction activity where the owner or operator changes, the new owner or operator can implement the original SWPPP created for the project, modify the original SWPPP, or develop and implement their own SWPPP. Permittee(s) shall ensure either directly or through coordination with other Permittee(s) that their SWPPP meets all terms and conditions of this permit and that their activities do not render another party's erosion prevention and sediment control BMPs ineffective. [Part III. A]
29	Where a project's ultimate development replaces vegetation and/or other pervious surfaces with one (1) or more acres of cumulative impervious surface, the Permittee(s) must design the project so that the water quality volume of one (1) inch of runoff from the new impervious surfaces created by the project is retained on site (i.e. infiltration or other volume reduction practices) and not discharged to a surface water. For purposes of this part, surface waters does not include man-made drainage systems that convey stormwater to a compliant permanent stormwater management system. [Part III. D]
30	Where ten (10) or more acres of disturbed soil drain to a common location, the Permittee(s) must provide a temporary sediment basin to provide treatment to the runoff before it leaves the construction site or enters surface waters. A temporary sediment basin may be converted to a permanent basin after construction is complete. The temporary basin is no longer required when permanent cover has reduced the acreage of disturbed soil to less than ten (10) acres draining to a common location. The Permittee(s) is/are encouraged, but not required, to install temporary sediment basins where appropriate in areas with steep slopes or highly erodible soils even if less than ten (10) acres drains to one area.[Part III. C] Temporary sediment basin requirements described in Part III.C. must be used for common drainage locations that serve an area with five (5) or more acres disturbed at one time. [Appendix A C.1.a]
31	The outlet structure must be designed to withdraw water from the surface in order to minimize the discharge of pollutants, except that the use of a surface withdrawal mechanism for discharge of the basin may be temporarily suspended during frozen conditions. Energy dissipation must be provided for the basin outlet (see Part IV.B.5.). [Part III. C.3.]
32	The basin must be designed with the ability to allow complete basin drawdown for maintenance activities, and must include a stabilized emergency overflow to prevent failure of pond integrity. [Part III. C.3.]
33	Temporary and permanent sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches one-half (1/2) the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access (see Part IV.D.). [Part IV. D. 5.b.]
34	The Permittee(s) must discharge turbid or sediment-laden waters related to dewatering or basin draining (e.g., pumped discharges, trench/ditch cuts for drainage) to a temporary or permanent sedimentation basin on the project site unless infeasible. The Permittee(s) may discharge from the temporary or permanent sedimentation basins to surface waters if the basin water has been visually checked to ensure adequate treatment has been obtained in the basin and that nuisance conditions (see Minn. R. 7050.0210, subp. 2) will not result from the discharge. If the water cannot be discharged to a sedimentation basin prior to entering the surface water, it must be treated with the appropriate BMPs, such that the discharge does not adversely affect the receiving water or downstream properties. If the Permittee(s) must discharge water that contains oil or grease, the Permittee(s) must use an oil-water separator or suitable filtration device (e.g. cartridge filters, absorbents pads) prior to discharging the water. The Permittee(s) must ensure that discharge points are adequately protected from erosion and scour. The discharge must be dispersed over natural rock riprap, sand bags, plastic sheeting, or other accepted energy dissipation measures. [Part IV. D. 1.]
35	All water from dewatering or basin-draining activities must be discharged in a manner that does not cause nuisance conditions, erosion in receiving channels or on downslope properties, or inundation in wetlands causing significant adverse impact to the wetland. [Part IV. D. 2.]
36	If the Permittee(s) is/are using filters with backwash water, the Permittee(s) must haul the backwash water away for disposal, return the backwash water to the beginning of the treatment process, or incorporate the backwash water into the site in a manner that does not cause erosion. The Permittee(s) may discharge backwash water to the sanitary sewer if permission is granted by the sanitary sewer authority. The Permittee(s) must replace and clean the filter media used in dewatering devices when required to retain adequate function. [Part IV. D. 3.]
37	For Public Waters that the Minnesota Department of Natural Resources has promulgated "work in water restrictions" during specified fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete the stabilization activities within 24 hours during the restriction period. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots and similar surfaces are exempt from this requirement but must be in compliance with Part IV.C.5 [(MNR100001) Part IV. B. 2] Stabilization of all exposed soil areas must be initiated immediately to limit soil erosion but in no case completed later than seven (7) days after the construction activity in that portion of the site has temporarily or permanently ceased. [(MNR100001) Appendix A C.1.a]
38	Buffer zone: The Permittee(s) shall include an undisturbed buffer zone of not less than 100 linear feet from the special water (not including tributaries) and this buffer zone shall be maintained at all times, both during construction and as a permanent feature post construction, except where a water crossing or other encroachment is necessary to complete the project. The Permittee(s) must fully document the circumstance and reasons that the buffer encroachment is necessary in the SWPPP and include restoration activities. Replacement of existing impervious surface within the buffer is allowed under this permit. All potential water quality, scenic and other environmental impacts of these exceptions must be minimized by the use of additional or redundant BMPs and documented in the SWPPP for the project. [Appendix A C.3.]
39	Temporary sediment basin requirements described in Part III.C. must be used for common drainage locations that serve an area with five (5) or more acres disturbed at one time. [Appendix A C.1.a]
40	All soil disturbing activities at the site have been completed and all soils are stabilized by a uniform perennial vegetative cover with a density of 70 percent of its expected final growth density over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions. [Part IV. G. 5.1.]
41	The permanent stormwater management system is constructed, meets all requirements in Part III.D. and is operating as designed. [Part IV. G. 5.2.]
42	Temporary or permanent sedimentation basins that are to be used as permanent water quality management basins have been cleaned of any accumulated sediment. All sediment has been removed from conveyance systems and ditches are stabilized with permanent cover. [Part IV. G. 5.2.]
43	All temporary synthetic and structural erosion prevention and sediment control BMPs (such as silt fence) have been removed on the portions of the site for which the Permittee(s) is/are responsible. BMPs designed to decompose on site (such as some compost logs) may be left in place. [Part IV. G. 5.3.]
44	For residential construction only, individual lots are considered finally stabilized if the structure(s) are finished and temporary erosion protection and downgradient perimeter control has been completed and the residence has been sold to the homeowner. Additionally, the Permittee has distributed the MPCA's "Homeowner Fact Sheet" to the homeowner to inform the homeowner of the need for, and benefits of, permanent cover. [Part IV. G. 4.]
45	For construction projects on agricultural land (e.g., pipelines across crop, field pasture or range land) the disturbed land has been returned to its preconstruction agricultural use. [Part IV. G. 4.]

Drainage Review Process

SECTION XVIC. DRAINAGE REVIEW

A. PURPOSE

This Section is adopted by the Town to provide a pre-construction, construction and post-construction review of the projects which have the potential for detrimental effect caused by storm water drainage discharge onto streets and ways, into the Town's storm water drainage system and into the Charles River, the Town's lakes, ponds and streams; to reduce discharge of pollutants to the maximum extent practicable; to protect water quality; to satisfy the water quality requirements of the Clean Water Act and Massachusetts Water Quality Standards; to maintain compliance with Wellesley's General Permit under the Phase II Regulations of National Pollutant Discharge Elimination System of U.S. EPA; and to be consistent with the Massachusetts Wetlands Protection Act; the Town of Wellesley Wetlands Protection Bylaw (Article 44 of the Town Bylaws); the Town of Wellesley Erosion and Sedimentation Control Regulations and the Municipal Stormwater Drainage System Rules and Regulations adopted by the Board of Public Works; by minimizing land clearing; by minimizing the amount of exposed soil and duration of exposure, by installing, protecting and maintaining vegetative buffers, silt fencing, and BMP's.

B. DEFINITIONS

Best Management Practices (BMP's) - The most effective and practical measures to reduce or prevent pollutants from reaching water bodies and to control the quantity of runoff from a site. These measures may be structural, such as particle separators or sand filters, and they may be non-structural, such as but not limited to, buffer areas around developments or proper methods for storage of chemicals.

Construction Mitigation Plan - A plan which details the design, location and type of erosion and sedimentation control measures to be employed on-site.

Grading and Drainage Plan - To be prepared in accordance with specifications to be developed and from time to time amended by the Town Engineer it shall include but not be limited to the following information: post-development peak runoff rates, rates of recharge of stormwater to groundwater and rates of removal of total suspended solids. It shall be stamped and signed by a Massachusetts Registered Professional Engineer.

On-Site Stormwater System - Catch basins, leaching basins, manholes, pipes, retention and/or detention basins, swales, drainage ditches, headwalls, BMP's and other components.

Operation and Maintenance Plan - A plan which includes the details of the regular maintenance of the on-site stormwater system including but not necessarily limited to cleaning of dry wells for roof drains and any catch basins, sweeping of paved areas draining into the catch basins, visual inspection of drainage structures for damage or blockage, keeping the area around catch basins located in lawns or other landscaped areas clear of excess leaves, twigs and other debris, and inspection and maintenance of BMP's.

Review Staff - Town Engineer (or designated representative of the Town Engineer), Inspector of Buildings (or designated representative of the Inspector of Buildings), Wetlands Administrator (or designated representative of the Wetlands Administrator).

C. APPLICABILITY

The provisions of this section shall apply to all projects not otherwise subject to SECTION XVIA. PROJECT APPROVAL. involving grading or re-grading of land to planned elevations, and/or removal or disturbance of the existing vegetative cover, over an area of one acre or more.

D. PROCEDURE

Prior to the issuance of a building permit, a grading and drainage plan and other materials as may be required consistent with specifications to be developed by the Wellesley Department of Public Works shall be submitted to the Planning Director. A reasonable submission fee may be established and from time to time adjusted by the review staff. The Planning Director shall forthwith send copies of the submission to the review staff.

The review staff shall within 14 days make such comments or recommendations as deemed appropriate and shall send copies to the Planning Director and the applicant. The grading and drainage plan may be approved, approved subject to conditions or plan modifications. An operation and maintenance plan may be required in instances where the on-site stormwater system is deemed by the review staff to warrant same. A construction mitigation plan may be required if in the opinion of the review staff the topography of the land warrants erosion and sedimentation control measures.

Prior to a Certificate of Occupancy being issued or final building inspection being made as the case may be for the construction, reconstruction or addition an inspection shall be made by the Town Engineer or designated representative of the Town Engineer to determine whether there is compliance with the grading and drainage plan and notify the other members of the review staff of the inspection results. If there is compliance the other members of the review staff shall be so notified whereupon a Certificate of Occupancy may be issued, or final building inspection may be made. If found to be not in compliance, the Planning Director shall notify the applicant of the work remaining to be done.

E. APPEALS

An applicant may appeal the decision of the review staff. In the event of an appeal it shall be made to the Zoning Board of Appeals in accordance with SECTION XXIV. PERMIT GRANTING AUTHORITY.

Tab 9

Municipal Stormwater Drainage System Rules & Regulations

TOWN OF WELLESLEY
DEPARTMENT OF PUBLIC WORKS

MUNICIPAL STORMWATER DRAINAGE SYSTEM RULES AND REGULATIONS

ARTICLE 3100

Purpose: These regulations are intended to protect the public health, safety, welfare and the environment and to insure proper and safe operation of the Town of Wellesley municipal stormwater drainage system by regulating or prohibiting the direct and indirect discharge of stormwater, wastewater, and pollutants into the Town's stormwater collection system.

3101. DEFINITIONS

Applicant: shall mean the owner or owners of the property applying for a permit to construct or maintain a private drain connection.

Best Management Practices (BMP's): shall mean the most effective and practical measures to reduce or prevent pollutants from reaching water bodies and to control the quantity of runoff from a site. BMP's may be structural, such as particle separators or sand filters, and they may be non-structural, such as the establishment of buffer zones around commercial development, or proper storage of chemicals.

Board: shall mean the Town of Wellesley, Board of Public Works.

Check Valve: shall mean a device installed in a private drain connection to prevent discharge from the building, or structure, or flows originating outside the building, or structure, from flowing back into the building, or structure.

Cleanout: shall mean a device or structure designed to provide access to a private drain connection for the purpose of inspecting a discharge, eliminating blockages, or removing deposited or accumulated materials.

Department: shall mean the Town of Wellesley, Department of Public Works.

Dewatering: shall mean groundwater or surface water, which is removed from a site and discharged beyond the limits of the site by means of gravity or pumping.

Director: shall mean the Town of Wellesley, Director of Public Works, or his or her designee. For the purpose of these regulations, the Town Engineer has been so designated.

Groundwater: shall mean a supply of water under the earth's surface contained within or flowing through a geological formation.

House Drain: shall mean that part of the lowest horizontal piping of a drainage system, which receives the discharge of drainage inside the walls of a building and conveys it to a storm drain. It can also transport drainage from roof, building and yard drains.

Illegal Discharge: any direct or indirect non-stormwater discharge to the stormwater drainage system, except as exempted, allowed or permitted in these rules and regulations.

Illicit Connections: an illicit connection shall be defined as either of the following:

Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including, but not limited to any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by federal, state, or Town permits.

Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and has not been authorized by federal, state, or Town permits.

Impervious Areas: means any surface from which most water runs off including, but not limited to, paved streets, paved areas such as driveways, parking areas, densely compacted earth, oiled macadam or other treated surfaces, walkways, roofs, patios, decks, and swimming pools.

Industrial Wastes: shall include the liquid or water-carried wastes of any industrial process not clearly included within the definitions of sanitary sewage, stormwater or non-contact cooling water. In general, waste waters carrying any quantity of oils, grease, fats, abrasives, chemicals, wastes from commercial food preserving or canning, from slaughterhouses or meat processing plants, and similar substances, whether dissolved, in suspension, or mechanically carried by water, shall be considered as industrial wastes.

Municipal Stormwater Drainage System: shall mean all drain pipes, culverts, structural controls, manholes, catch basins, inlet and outlet structures, improved channels, manmade detention or retention basins, and other appurtenances that are either on Town owned public ways or under the control of the Town of Wellesley by written agreement recorded at the Norfolk County Registry of Deeds.

National Pollutant Discharge Elimination System (NPDES) StormWater Discharge Permit: shall mean a permit issued by the U.S. EPA (or by a State under authority delegated pursuant to 33 USC ' 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-Contact Cooling Water: water used to reduce temperature which does not come in direct contact with any raw material, intermediate product, a waste product or finished product.

Person: shall mean any individual, group of individuals, association, partnership, public or private corporation, company, business organization, trust, agency of the federal government, agency or political subdivision of the Commonwealth of Massachusetts, or any other entity or group thereof, and any officer, employee, or agent of such person, and any group of persons.

Pollutant: shall mean anything, which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes and solvents, oil and other automotive fluids, non-hazardous liquid and solid wastes and yard wastes, refuse, rubbish, garbage, litter, or other discarded or abandoned objects, floatables, pesticides, herbicides, and fertilizers, hazardous substances and wastes, sewage, fecal coliform and pathogens, dissolved and particulate metals, animal wastes, construction debris, and noxious or offensive matter of any kind.

Private Drain: shall mean any drain that is not owned by the Town of Wellesley. Private drains shall include all drain pipes, culverts, structural controls, manhole's, catch basins, inlet and outlet structures, improved channels, BMP's, manmade detention or retention basins, and other appurtenances that are located on private property and are not within an easement held by the Town for drainage purposes. The connection from a private drain that crosses Town property (i.e. crossing under a sidewalk to reach a catch basin on a public street) to connect to the municipal stormwater drainage system is also owned by and shall be the responsibility of the owner of the private drain.

Private Drain Connection Permit: shall mean a permit that allows the applicant to place and maintain a pipe or other conveyance to drain water from private property into the Town's stormwater drainage system.

Private Drain Connection Agreement: shall mean a formal agreement between the Town of Wellesley and the owner or owners of private property granting a revocable license to install and maintain a private drain connection to the Town's Municipal Stormwater Drainage System. It shall be recorded with the title to the private property.

Septage: shall mean the liquid and solid wastes of sanitary sewage origin that are removed from a cesspool, septic tank or similar onsite wastewater disposal system.

Sewage: shall mean household and commercial wastewater that contains human waste. Distinguished from industrial wastewater.

Storm Drain: shall mean a pipe or conduit or conveyance designed to carry stormwater or runoff.

Stormwater Drainage System: shall mean pipes, conduits, pumping stations and

appurtenances, including inlets, catch basins, and manholes used in the collection and transport of stormwater.

Stormwater: shall mean any water resulting from rainfall or other precipitation that runs off surfaces or infiltrates into the ground during or after a storm.

Stormwater Management: shall mean regulatory, structural, administrative, managerial, maintenance, physical and chemical measures or devices that are designed to prevent the discharge of pollutants to stormwater or to prevent flooding.

Temporary Permit: shall mean a permit, which will allows the applicant to discharge water into a catch basin or manhole belonging to the Town's stormwater drainage system. These permits typically relate to construction activities.

Total Suspended Solids (TSS): shall mean matter suspended in stormwater that can be retained on a filter.

Wastewater: shall mean any water or other liquid, other than uncontaminated stormwater, discharged from a private dwelling, facility, commercial or institutional establishment or industrial source. .

3102. USE OF STORM DRAINS

The use of the Municipal Stormwater Drainage System in the Town of Wellesley shall be under the control and jurisdiction of the Board of Public Works.

Except as hereinafter provided, no person shall discharge any water into any public street or any part of the Town's municipal stormwater system without first having obtained a permit for said purpose from the Board of Public Works.

No person shall uncover, excavate, block access to, or make a connection to any pipe, culvert, catch basin, manhole, or other structure under the control of the Town without first having obtained a permit for said purpose from the Board of Public Works.

No person shall discharge any water from construction sites into any public street or any part of the municipal stormwater drainage system without first having obtained a permit for said purpose from the Board of Public Works.

The following discharges are allowed and will not require a Private Drain Connection Permit:

1. Individual residential car washing.
2. Flushing of the Town's water distribution system.
3. Fire fighting.
4. Emergency pumping of uncontaminated water from flooded basements.
5. Emptying of dechlorinated swimming pools. Permanent connections for the purpose of periodic emptying of swimming pools are prohibited. The Department of

Public Works shall be notified at least 48 hours prior to the discharge of dechlorinated swimming pool water to the municipal stormwater drainage system.

6. Irrigation.
7. Dye testing. (Notify DPW of this activity.)
8. Discharges for which a NPDES permit has been obtained.

3103. ILLEGAL DISCHARGES PROHIBITED

No person shall directly or indirectly dump, discharge or cause or allow to be discharged into any catch basin, manhole, pipe, retention or detention pond, earth channel, structural control, infiltration chamber, or any other component of the Town's municipal stormwater drainage system, any solid waste, construction debris, paint or painting product, antifreeze, hazardous waste, oil, gasoline, grease and all other automotive and petroleum products, solvents and degreasers, drain cleaners, commercial and household cleaners. soap, detergent, ammonia, food and food waste, grass or yard waste, leaves, animal feces, dirt, sand, gravel, or other pollutant.

No person shall discharge or put into any portion of the Town's municipal stormwater drainage system, or into any private drain which thereafter discharges into the Town's municipal stormwater drainage system, any wastewater, sanitary sewage, septage, industrial waste, or substance other than such kinds or types of water permitted and allowed above.

No person shall construct or maintain facilities to allow direct infiltration to groundwater any untreated stormwater containing any of the above pollutants except as allowed by the operation of permitted structural BMP's.

3104. ILLICIT CONNECTIONS PROHIBITED

The construction, use, maintenance or continued existence of illicit connections to the municipal stormwater drainage system is prohibited.

This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

A person is considered to be in violation of these rules and regulations if the person connects a line conveying an illegal discharge to the municipal stormwater drainage system, or allows such a connection to continue.

3105. APPLICATION PROCEDURE

A. Application for Permit: Permission to use the municipal stormwater drainage

system shall not be given without a written request being filed and approved by the Department of Public Works, Engineering Division. Written requests for a permit shall be made to the office of the Wellesley Department of Public Works, Engineering Division, 455 Worcester Street, Wellesley Hills, MA 02481. All applications shall be accompanied by a sketch or plan showing details of the proposed connection including but not limited to: location, size of pipe or dimensions of channel, location and dimensions of BMP's if utilized, and any other relevant information.

B. Classes of Permits: There shall be two (2) classes of permits: (a) permanent private drain connection permits for residential and commercial property; and (b) temporary permits for diversion of water, site dewatering, ground water remediation, or other construction related activities. In either case, the owner or his agent shall make application as specified herein. The permit application shall be supplemented by any runoff calculations, plans, specifications, permits obtained from other Town Departments or Boards, or other information considered pertinent in the judgment of the Director.

C. Schedule of Rates: There is no charge for use of the Municipal Stormwater Drainage System. The applicant shall be responsible for all fees associated with obtaining a Street Opening Permit where required, or the filing of a Private Drain Connection Agreement at the Norfolk County Registry of Deeds, or any permit or approval that may be required by other Town Departments or Boards.

D. Availability of Service: The acceptance of an application for a private drain connection will be contingent upon the existence, accessibility, and capacity of a municipal storm drain to serve the property.

E. Compatibility with other permits - New Construction and Reconstruction. Where approvals from other Town permitting authorities will be sought (Site Plan Review, Special Permit, Order of Conditions, etc.), the applicant shall first confer with the Town Engineer as to the feasibility of connecting to the Town's drainage system. A Private Drain Connection Agreement will not be issued until all other permits or approvals have been obtained.

F Stormwater Quantity Considerations:

On-site stormwater management BMP's shall be used to infiltrate, disperse, and retain stormwater runoff on-site to the maximum extent practicable. The requirement for maximum on site infiltration shall be waived where there is a demonstrated and documented threat to public health.

For permanent private drain connection permits, the applicant shall submit runoff calculations substantiating the anticipated volume of discharge. In the case of development or redevelopment projects, discharge quantity shall be limited to preconstruction amounts. If the 10-year storm peak discharge is greater than 0.5

c.f.s., then the effect on the downstream and upstream capacity of the stormwater system shall be investigated. The applicant may be required, at his own expense, to construct improvements to the Town's stormwater system to accommodate his connection.

For temporary permits, the discharge quantity and impacts shall be determined on a case-by-case basis.

Discharges entirely from private drain connections from residential basement sumps or sump pumps shall be exempt from the requirements of this section.

G. Stormwater Quality Considerations:

Treatment of discharge shall be required for private drain connections in the following cases:

1. Commercial or industrial activities.
2. Parking lots.
3. Disturbance of pervious areas of 1.0-acre or more.
4. Creation of 10,000 sq.ft. or more of impervious area.
5. Land uses involving the storage, fueling, or maintenance of vehicles or heavy equipment.
6. All other sites that may have the potential for higher pollutant loadings.

Treatment shall be required for stormwater to be infiltrated on-site as well as stormwater to be discharged to the municipal stormwater drainage system.

Specific BMP's and the following measurable criteria will be required for discharges having the potential to contain the following pollutants with quantities indicating required levels of pollutant reduction:

1. Total suspended solids (must achieve 80% removal, unless monitoring of TSS indicates a concentration consistently less than 20mg/l).
2. Oil & grease (no visible sheen and less than 15 mg/l of total petroleum hydrocarbons (TPH),
3. Nutrients (phosphorous, nitrogen) (must achieve 50% reduction of phosphorous, 35% nitrogen),
4. Pesticides and toxic chemicals (public awareness program),
5. Salts (program to restrict use of road salt),
6. Heavy metals (to the maximum extent possible based on current practice),
7. Floatable materials (to the maximum extent possible), and
8. Bacteria and viruses (achieve 75-90% removal).

Each application for a private drain connection permit shall include a description of the BMP's proposed and calculations indicating the anticipated reduction in pollutants. Applications that fail to demonstrate substantially reduced pollutant

loadings will not be approved for connection to the Town's stormwater drainage system.

If structural BMP's are selected, then a plan for maintenance and inspection shall be included with the application. The Town shall be granted access to inspect BMP's through written agreements or easements. After construction of the BMP, an annual report shall be submitted to the Department of Public Works indicating dates of inspections and maintenance actions taken.

For guidance on the selection of structural and nonstructural BMP's, the applicant should refer to *Stormwater Management, Volume Two: Stormwater Technical Handbook,* published by the Commonwealth of Massachusetts, Department of Environmental Protection, Latest Edition. Proprietary structural BMP's that have been assessed by the Massachusetts Strategic Envirotechnology Partnership (STEP) are also acceptable. The Department of Public Works may approve other BMP's upon submittal of supporting documentation.

The applicant may be required, at his own expense, to implement a monitoring program, which may include flow measurement, sampling, chemical and biological tests, recording of data, and periodic reports to the Town.

Discharges entirely from residential basement sumps, sump pumps, or residential roof drains shall be exempt from the treatment requirements of this section unless found to discharge pollutants. Projects that have been granted an Order of Conditions under M.G.L. Chapter 131, Section 40 shall be considered to be in compliance with the requirements of this section.

H. Private Drain Connection Agreement Upon approval of the application for permit, the applicant may proceed with executing a Private Drain Connection Agreement. The agreement shall be of a standard form approved by the Town and appended herewith (see Appendix A), and will be accompanied by a plan or sketch of the proposed work. The agreement shall be signed and sealed by the owner(s) of the private property and by the Town Engineer. The applicant shall be responsible for the payment of the recording fee. The Town shall record the executed agreement at the Norfolk County Registry of Deeds. By execution of the Private Drain Connection Agreement, the applicant (owner of the property making connection) shall indemnify the Town of Wellesley against and hold it harmless from any and all claims for damage by reason or arising directly or indirectly from the connection of said private drain to said drainage system. No work may begin until the executed agreement and recording fee have been received by the Department of Public Works, Engineering Division,

I. Changes to permitted discharges: The applicant shall not significantly increase the average daily volume or flow rate of discharge or make any other changes to his private drain system that would introduce new pollutants or increase the

discharge of existing pollutants beyond levels already permitted. The applicant shall notify the Town Engineer of any proposed changes and the Town Engineer shall make a determination as to whether additional controls or BMP's are required. Failure to report changes shall be considered a violation of these regulations and shall be cause for revocation of the private drain connection agreement.

J. Inspection Powers of Department and Town Agents: The Director and other duly authorized agents of the Town bearing proper credentials and identification shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling and testing in accordance with the provisions of these Regulations. The Director shall have no authority to inquire into any processes--including metallurgical, chemical, oil, refining, ceramic, paper, food processing or preparation, or other industries--beyond that necessary to determine the kind, source, and amount of discharge to the Town's municipal stormwater drainage system.

The Director and other duly authorized agents of the Town shall be permitted to enter all private properties through which the Town holds a duly negotiated;. easement or written agreement for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair and maintenance of any portion of the Town's municipal stormwater drainage system lying within said easement. All entry and subsequent work, if any, on said easement shall be done in full accordance with the terms of the easement pertaining to the private property involved.

3106. CONSTRUCTION METHODS

A. Permanent Drain Connections: The applicant is responsible for procuring the services of a contractor, familiar with work of this nature, to perform the work. The choice of the contractor is subject to the approval of the Department, such approval or disapproval will be based on the contractor's demonstrated ability and capability to perform the work to the satisfaction of the Department.

The entire length of a private drain connection, including that portion lying within the public way shall be considered the property of the applicant, who shall be responsible for its maintenance and replacement.

All costs and expenses incident to the installation of the private drain connection shall be the sole responsibility of the applicant.

In accordance with Town Bylaws, Police Regulations, Article 49.3 Excavation in Streets and Sidewalks, and Article 49.11, Obstructions On Streets and Sidewalks, together with the regulations of the Board of Public Works entitled *"Utility and Work in Public Way, Rules and Specifications Regulating Street Excavations, Obstructions and Driveway Aprons," as* amended, all persons

making excavations or using any portion of any public way are required to obtain a Street Opening Permit from the Director. The Director will not issue this permit until the written application for the private drain connection has been approved by the Engineering Division. All persons working and making excavations in public ways, in accordance with Department regulations, shall notify the Director seventy-two (72) hours before starting work.

All persons making excavations in public or private ways or public or private land shall have first notified DIG SAFE (1-888-DIG-SAFE) in accordance with Mass. General Laws Chap. 82, Sec. 40.

The size, slope, alignment, and materials of construction of a private drain connection, and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench shall conform to the requirements of the building and plumbing code, current specifications and construction standards from the Department, or other applicable rules, regulations and bylaws of the Town.

All persons making excavations will make certain that all material, labor and equipment necessary to complete the work are at the project site, and that they are in compliance with the *"Town of Wellesley, Department of Public Works, Construction Requirements for the Installation and/or Repair of Underground Facilities and Paving in the Public Way"*, as amended.

The applicant or his contractor shall notify the Engineering Division seventy-two (72) hours in advance of when work is to begin. The connection shall be made under the supervision of the Engineering Division. The contractor shall verify that DIG SAFE has been notified and that all underground utilities have been marked out prior to beginning excavation.

Whenever possible, the private drain connection shall be made to an existing catch basin or manhole. If no catch basin or manhole is available, a residential connection of no greater than 4" diameter may be made directly to a municipal drain pipe. This connection shall discharge by gravity and not under pressure. A means of sampling the discharge at or near the point of connection to the Town's system shall be provided. Discharges under pressure shall terminate at the nearest municipal catch basin or manhole. In all cases of non-residential connections, or residential connections over 4" diameter, a new manhole or catch basin shall be constructed. All connections and required structures shall conform to Town of Wellesley Construction Standards and Specifications. All direct gravity connections from residential basement sumps shall have a check valve at an accessible point on the applicant's property. The Town shall have no responsibility to operate or maintain the check valve.

All excavations for private drain connection installation shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of

the work shall be restored to its preconstruction condition in a timely manner satisfactory to the Town Engineer, in compliance with the Department of Public Works Construction Requirements for Work in the Public Way, as amended, and as soon as possible after the completion of the installation of the drain connection.

Upon completion of the work, the applicant shall provide to the Engineering Division an as built plan to be shown on the Town Plans and GIS drainage layer map.

B. Temporary Permits for Construction Site Dewatering No untreated discharge of water being pumped at construction sites shall be allowed to enter the Town's municipal stormwater drainage system. Catch basin inserts, filtration bags, or siltation basins shall be used to trap silt. The applicant shall provide a schedule for inspection and maintenance of his filtering devices. Construction site dewatering shall be considered a part of an erosion and sedimentation control plan. A copy of the erosion and sedimentation control plan shall be submitted with the permit application.

Equipment being used for groundwater remediation may discharge directly, into the Town's municipal stormwater drainage system subject to the review and approval of the proposed filtration system by the Town Engineer.

The approval of a permit from the Town shall in no way relieve the applicant from obtaining all required federal and state discharge permits.

3107. PROCEDURE FOR OBTAINING A PRIVATE DRAIN CONNECTION AGREEMENT

A. 1. Residential basement sumps, sump pumps, underground perimeter drains collecting ground water, and drains from roofs not exceeding 3,000 sq. ft.
The applicant shall furnish a plan or sketch indicating the proposed drain location pipe sizes and other pertinent details.

2. All other sources. The applicant shall furnish a site plan and runoff calculations. If appropriate, the applicant shall furnish details of selected BMP's and expected reduction in pollutants, monitoring and maintenance plans, and copies of obtained Town, State or Federal Permits and approvals.

B. The Town Engineer reviews and approves the application.

C. The Engineering Division prepares a Private Drain Connection Agreement to be signed by the owner(s) of record and notarized. The Town Engineer will also sign this agreement to indicate approval of the connection by the Town. The original agreement will be recorded at the Norfolk County Registry of Deeds. The applicant is responsible for the payment of filing fees, see attachment, page 22.

D. A copy of the agreement will be provided to the applicant, the Director of Public Works, and the Engineering Division Municipal Stormwater Drainage Permit file.

E. After the agreement is executed and all applicable permits have been obtained, the work may proceed.

3108. PROCEDURE FOR OBTAINING A TEMPORARY DISCHARGE PERMIT

Temporary permits for diversion of water, site dewatering, ground water remediation, or other construction related activities shall be in the form of a letter of permission from the Town Engineer. The letter shall state the specific requirements applicable to the requested activity and shall be valid for a specified duration.

3109. ENFORCEMENT

Whenever any person is found to have violated or to be violating any provision of these Regulations or a permit or private drain connection agreement issued pursuant to these Regulations, the Director shall provide that person with a notification of the nature of the violation and specify those actions to be taken to remedy the noncompliance. Within thirty (30) days after receipt of the notice, unless a shorter time is specified in the notice, a plan for the satisfactory correction thereof shall be submitted by the violator to the Director. Such notice may require without limitation:

1. The elimination of illicit discharges or connections.
2. The performance of monitoring, analyses, and reporting.
3. That violating discharges, practices, or operations shall cease and desist.
4. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property.
5. Payment of a fine to cover administrative and remediation costs.
6. The implementation of appropriate BMP's.

A. Verbal Notice: For a violation that involves the discharge or imminent threat of discharge of pollutants and which presents or appears to present an immediate danger to the health or welfare of humans, the Director may notify the violator by telephone or visit to take immediate action to discontinue or reduce the discharge to safe levels or, in the case of an imminent threat, to take appropriate action to eliminate the threat within a reasonable amount of time as established by the Director. Such verbal notice shall be followed within five days by a written notice.

B. Written Notice: For any violation other than one requiring immediate action, the Director may notify the violator by letter of the nature of the violation and require him to take action to remedy the noncompliance.

If abatement of a violation and/or restoration of affected property is required, the notice,

shall set forth a deadline within which such remediation or restoration must be completed. If the violator has a private drain connection agreement with the Town and fails to comply with the notice within the time specified in the notice, then the Director may terminate the agreement and order the connection to the Town's municipal stormwater drainage system removed. Said notice shall further advise that, should the violator fail to remediate the violation or remove his connection within the established deadline, then the work will be done by the Town or a contractor designated by the Director of Public Works and any expense incurred by the Town shall become the sole responsibility of the violator.

3110. PROTECTION FROM DAMAGE

No unauthorized person shall maliciously, willfully or negligently break damage, destroy, uncover, deface or tamper with a pipe, structure, appurtenance or equipment which is a part of the municipal stormwater drainage system of the Town. Any person, firm, partnership, association, society, corporation, company or organization of any kind, or their agents or assigns found to be violating this provision shall be subject to prosecution for the destruction of public property.

3111. VIOLATIONS DEEMED A PUBLIC NUISANCE

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of these rules and regulations shall be considered a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense in the manner prescribed above, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

3112. FINES AND PENALTIES

Failure to take immediate action to correct a violation which involves the discharge or imminent threat of discharge of pollutants and which presents or appears to present an immediate danger to the health or welfare of humans, to meet a deadline set by written notice of violation, or to comply with any section of these regulations shall be subject to a fine not exceeding $50.00 for each offense, pursuant to Town Bylaw, Article 52, Bylaw, Rule or Regulation Violations; Non-criminal Disposition. Each day in which violation continues shall constitute a separate offense. For purposes of these regulations, the Director of Public Works shall be the enforcement officer.

When it appears likely the responsible person will perform the required corrective action, the Director may suspend assessment of the fines conditioned upon completion of the corrective action by the ordered deadline

3113. RIGHT TO HEARING

Any person accused of violation these rules or regulations shall be notified of the alleged violation, in writing, via certified mail, return receipt requested, which shall set forth a date and time at which a hearing will be held before the Director or his designee in order to afford the person an opportunity to be heard in regard to the alleged violation, with or without counsel, as the person shall choose.

3114. SEVERABILITY

A. Severability: If any of these Regulations are for any reason declared to be unconstitutional or otherwise invalid, such unconstitutionality or invalidity shall not affect the validity of the remaining portions or sections of these Regulations or amendments thereto.

B. Compatibility: No provision of these Regulations shall contravene nor render ineffective any lawfully established federal, state, or Town rule or regulation. In instances where various regulations contain different requirements, the most stringent requirements shall apply.

C. Authority: The Wellesley Board of Public Works has established these Rules and Regulations under the authority of the Massachusetts General Laws, Special Acts of 1907, Chapter 567.

D. Right to Amend Regulations: The Board reserves the right to amend these regulations in any manner and to establish more stringent limitations or requirements as are deemed necessary or appropriate.

EFFECTIVE DATE: February 24, 2005

AMENDED: November 15, 2006

Adopted by vote of the Board of Public Works on February 24, 2005, pursuant to Massachusetts General Laws, Chapter 83, Section 1, Wellesley Town Bylaw Article 29, and the regulations of the Federal Clean Water Act found at 40 CFR 122.34.

TOWN OF WELLESLEY
BOARD OF PUBLIC WORKS

David A. T. Donohue, Chairman

Owen H. Dugan

William E. Charlton

APPROVED AS TO FORM:

Albert S. Robinson
Town Counsel

APPENDIX A.1 – SAMPLE PRIVATE DRAIN CONNECTION AGREEMENT (for Recorded Land)

PRIVATE DRAIN CONNECTION AGREEMENT

THIS DOCUMENT WILL BE PREPARED BY THE DPW ENGINEERING DIVISION ONLY

TOWN OF WELLESLEY
DEPARTMENT OF PUBLIC WORKS

SAMPLE RECORDED

This indenture made this _____ day of _____, 2011 by and between the Town of Wellesley, a municipal corporation located in Norfolk County, Massachusetts, hereinafter called the Town, and _____ and _____ hereinafter called the Owner and referred to by masculine pronouns, each in consideration of the agreements of the other hereinafter contained, agrees as follows:

1. The Town hereby grants permission to the Owner to install, maintain, and use a private drain connection to the storm sewer or surface water drainage system of the Town located in said way and connect said private drain to said drainage system in a manner approved by the Town Engineer, all upon the further terms and conditions hereinafter provided.

   Location of Private Drain_____

2. The Owner for himself and for his successors in title to said premises covenants and agrees with the Town

   (a) That the foregoing permission granted to him is a revocable license which may be terminated at any time by notice in writing given by the Town Engineer or any other duly authorized officer of the Town to the owner or any part owner of said premises at that time;

   (b) To install and maintain said private drain, and upon termination of said license to remove it or disconnect it from said drainage system, strictly in compliance with any regulations or specifications of the Town, of its Board of Public Works or of any other board which shall become responsible for the maintenance of said drainage system and to the satisfaction of the Town Engineer or any other duly authorized officer of the Town;

   (c) To pay all costs and expense in connection with the construction, maintenance, disconnection and removal of said private drain;

   (d) Not to connect the sanitary sewerage at the Owner's premises to said private drain or said drainage system or permit it to be so connected; and

(e) To be responsible for all damages to the above specified premises and to any person or any personal property upon said premises by reason of or arising directly or indirectly out of the installation, maintenance and use of said private drain connected to said drainage system, not to bring any action of law or suit in equity against the Town because of anything which may happen directly or indirectly by reason of the installation, maintenance and use of said private drain and the connection thereof to said drainage system, and to indemnify the Town against and hold it harmless from any and all damage and claims for damage by reason or arising directly or indirectly from the connection of said private drain to said drainage system.

For title, see deed in Book_____, Page_____, recorded in Norfolk County Registry of Deeds.

IN WITNESS WHEREOF, the Town has caused this indenture to be signed by the Town Engineer, thereunto duly authorized, and the Owner has hereunto set his hand and seal,

TOWN OF WELLESLEY

By _____
DAVID J. HICKEY, JR., Town Engineer

OWNER

_____
(Owners name)

OWNER

_____
(Owners name)

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, ss _____, 2011

On this _____ day of _____, before me, the undersigned Notary Public, personally appeared DAVID J. HICKEY, JR., proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires_____

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, ss _____, 2011

On this _____ day of _____, before me, the undersigned Notary Public, personally appeared (Owners name), proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires_____

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, ss _____, 2011

On this _____ day of _____, before me, the undersigned Notary Public, personally appeared (Owners name), proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is on the preceding document, and acknowledged to me that she signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires_____

APPENDIX A.2 – SAMPLE PRIVATE DRAIN CONNECTION AGREEMENT for Registered Land (Land Court)

THIS DOCUMENT WILL BE PREPARED BY THE DPW ENGINEERING DIVISION ONLY

PRIVATE DRAIN CONNECTION AGREEMENT

TOWN OF WELLESLEY
DEPARTMENT OF PUBLIC WORKS

This indenture made this _____ day of _____, 2011 by and between the Town of Wellesley, a municipal corporation located in Norfolk County, Massachusetts, hereinafter called the Town, and _____ and _____ hereinafter called the Owner and referred to by masculine pronouns, each in consideration of the agreements of the other hereinafter contained, agrees as follows:

SAMPLE
LAND COURT

1. The Town hereby grants permission to the Owner to install, maintain, and use a private drain connection to the storm sewer or surface water drainage system of the Town located in said way and connect said private drain to said drainage system in a manner approved by the Town Engineer, all upon the further terms and conditions hereinafter provided.

   Location of Private Drain_____

2. The Owner for himself and for his successors in title to said premises covenants and agrees with the Town

   (a) That the foregoing permission granted to him is a revocable license which may be terminated at any time by notice in writing given by the Town Engineer or any other duly authorized officer of the Town to the owner or any part owner of said premises at that time;

   (b) To install and maintain said private drain, and upon termination of said license to remove it or disconnect it from said drainage system, strictly in compliance with any regulations or specifications of the Town, of its Board of Public Works or of any other board which shall become responsible for the maintenance of said drainage system and to the satisfaction of the Town Engineer or any other duly authorized officer of the Town;

   (c) To pay all costs and expense in connection with the construction, maintenance, disconnection and removal of said private drain;

   (d) Not to connect the sanitary sewerage at the Owner's premises to said private drain or said drainage system or permit it to be so connected; and

(e) To be responsible for all damages to the above specified premises and to any person or any personal property upon said premises by reason of or arising directly or indirectly out of the installation, maintenance and use of said private drain connected to said drainage system, not to bring any action of law or suit in equity against the Town because of anything which may happen directly or indirectly by reason of the installation, maintenance and use of said private drain and the connection thereof to said drainage system, and to indemnify the Town against and hold it harmless from any and all damage and claims for damage by reason or arising directly or indirectly from the connection of said private drain to said drainage system.

For title, see Certificate of Title No. _____ in Book_____, Page_____, filed with the Norfolk Registry District of the Land Court.

IN WITNESS WHEREOF, the Town has caused this indenture to be signed by the Town Engineer, thereunto duly authorized, and the Owner has hereunto set his hand and seal,

TOWN OF WELLESLEY

By _____
DAVID J. HICKEY, JR., Town Engineer

OWNER

_____
(Owners name)

OWNER

_____
(Owners name)

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, ss _____, 2011

On this _____ day of _____, before me, the undersigned Notary Public, personally appeared DAVID J. HICKEY, JR., proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires_____

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, ss _____, 2011

On this _____ day of _____, before me, the undersigned Notary Public, personally appeared (Owners name), proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires_____

COMMONWEALTH OF MASSACHUSETTS

NORFOLK, ss _____, 2011

On this _____ day of _____, before me, the undersigned Notary Public, personally appeared (Owners name), proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is on the preceding document, and acknowledged to me that she signed it voluntarily for its stated purpose.

_____
Notary Public

My Commission Expires_____

Attachment

Norfolk County Registry of Deeds - Filing Fees

There is a $76.00 recording fee for Recorded Land and a $75.00 recording fee for Registered Land (Land Court) for recording the agreement, which is paid by the applicant. If there is a Limited Liability Corporation listed on the property deed, a Certificate of Good Standing for the LLC, issued by the Secretary of State, dated within 60 days of signing the drain connection agreement must be recorded with the agreement. There is a $76.00 recording fee for Recorded Land and no recording fee for Registered Land (Land Court) for the Certificate of Good Standing, which is paid by the applicant. If there is a Trustee's Certificate to authorize signing of the agreement, this must be recorded with the agreement. There is a $76.00 recording fee for Recorded Land and a $75.00 recording fee for Registered Land (Land Court) for the Trustee's Certificate, which is paid by the applicant. The applicant shall make the check for the recording fee payable to the Norfolk County Registry of Deeds. The Engineering Division delivers the check to the Norfolk County Registry of Deeds in Dedham when recording the original executed agreement and any attachments.

Tab 10

Water Supply Protection Districts

SECTION XIVE. WATER SUPPLY PROTECTION DISTRICTS.

A. PURPOSE.

The Water Supply Protection Districts are intended to protect the public health, safety, and welfare by preventing contamination of and preserving the quantity of ground and surface water which provides existing or potential water supply for the town's residents, institutions, and businesses.

B. DEFINITIONS.

For the purposes of this Section, the following terms shall be defined as follows:

Hazardous Waste - Materials as defined and regulated by 310 CMR 30.00 (Massachusetts Hazardous Waste Management regulations).

Impervious Surface - Material covering the ground, including but not limited to macadam, cement, concrete, pavement, and buildings, that does not allow surface water to penetrate into the soil.

Maximum Groundwater Elevation - The seasonal high level of the groundwater table. This level shall be the same as the maximum groundwater elevation defined and determined in 310 CMR 15.00 (Title 5, State Environmental Code).

Mining of Land - The removal of geologic materials such as topsoil, sand and gravel, metallic ores or bedrock.

Solid Waste - Unwanted or discarded solid material within sufficient liquid content to be free flowing, including without limitation rubbish, garbage, junk, refuse. The term does not include vegetative compost, tree stumps, and brush.

Toxic or Hazardous Materials - Any substance or mixture of such physical, chemical or infectious characteristics as to pose a significant, actual or potential hazard to water supplies and to human health, if such substance or mixture were discharged to land or waters of this town. Toxic or hazardous materials include, without limitation, petroleum products, heavy metals, radioactive materials, virulent infectious wastes, pesticides, herbicides, solvents, thinners and other materials which are listed as U.S. EPA Priority Pollutants.

C. APPLICABILITY

1. Water Supply Protection Districts shall be considered as overlying other zoning districts.

2. The applicability of this Section, XIVE, to existing uses or structures and to projects legally begun at the time of adoption, shall be governed by SECTION XVII. NON-CONFORMING USES AND STRUCTURES.

3. The provisions of Parts D.1 and D.2 shall not apply to the installation, operation, or maintenance of necessary public water, public waste water, public stormwater, and public electric facilities and devices.

D. USE REGULATIONS

Within Water Supply Protection Districts the requirements of the underlying districts continue to apply, except that uses are prohibited as indicated in Part D.1 and require a Special Permit where indicated in Part D.2, even where underlying district requirements are more permissive. Within Water Supply Protection Districts, these regulations shall apply:

1. The following uses are prohibited:

   a. Solid waste disposal facilities, including without limitation landfills and junk and salvage yards, that require a site assignment from the Board of Health under M.G.L., Ch.111, s.150A (the landfill site assignment law) and regulations adopted by the Department of Environmental Quality Engineering, 310 CMR 19.00;

   b. Storage of petroleum and other refined petroleum products, including without limitation gasoline, waste oil, and diesel fuel, except within buildings which it will heat or where it currently exists or for in-kind replacement or in quantities for normal household use, provided there is compliance with all local, state, and federal laws;

   c. Storage of road salt or other de-icing chemicals in quantities greater than for normal household use;

   d. Storage of hazardous wastes, including without limitation chemical wastes, radioactive wastes, and waste oil in quantities greater than resulting from normal household activities;

   e. Manufacture, use, storage, or disposal of toxic or hazardous materials as an integral part of a principal activity, but excluding domestic activities and pesticide applications;

   f. Motor vehicle service stations, repair garages, car washes, truck or bus terminals, heliports, airports, electronic manufacturing, metal plating, commercial chemical and bacteriological laboratories, and dry cleaning establishments using toxic or hazardous materials on site;

   g. Disposal of hazardous wastes.

2. If, in the judgment of the Special Permit Granting Authority, the Design and Operation Standards in Part F are adequately satisfied and not otherwise prohibited in Part D.1, the following uses may be allowed upon issuance of a Special Permit and subject to such conditions as the SPGA may impose. Failure to comply with the terms and conditions of a Special Permit shall be grounds for revocation of said permit.

a. Commercial mining of land;

b. Major construction projects which are defined in SECTION XVIA. PROJECT APPROVAL, Parts B.1 through B.4, and which are subject to site plan review.

c. Parking lots, vehicle rental agencies, photographic processing establishments, or printing establishments;

d. Any uses where more than 10,000 square feet of any lot would be rendered impervious.

E. PROJECT APPROVAL
The provisions of SECTION XVIA. PROJECT APPROVAL. shall apply.

F. DESIGN AND OPERATION STANDARDS

1. Safeguards. Provision shall be made to adequately protect against toxic or hazardous materials discharge or loss through corrosion, accidental damage, spillage, or vandalism through such measures as provision for spill control in the vicinity of chemical or fuel delivery points, secure storage areas for toxic or hazardous materials, and indoor storage provisions for corrodible or dissolvable materials.

2. Disposal. No disposal of hazardous wastes within Water Supply Protection Districts shall occur. All provisions of M.G.L., Ch.111, s.150A (the landfill site assignment law), and M.G.L., Ch. 21C (the Massachusetts Hazardous Waste Management Act) shall be adequately satisfied.

3. Fill. Fill material used in a Water Supply Protection District shall contain no solid waste, toxic or hazardous materials, or hazardous waste. Adequate documentation shall be provided to ensure proper condition of the fill. The SPGA may require soils testing by a certified laboratory at the applicant's expense.

4. Spill Containment. For industrial and commercial uses, an emergency response plan to prevent contamination of soil or water in the event of accidental spills or the release of toxic or hazardous materials shall be submitted to the SPGA, if deemed necessary, for approval prior to granting of a Special Permit. Recommendations of the Fire Department on said plan shall be sought.

5. Monitoring. Periodic monitoring shall be required when the site location and land use activities indicate a significant risk of contamination to the water supply as determined by the SPGA based upon recommendations of the Department of Public Works, Board of Health, and Wetlands Protection Committee. Such monitoring may include analyses of water for appropriate substances and the installation of groundwater monitoring wells constructed and located as specified by the Department of Public Works. All costs shall be borne by the owner of the premises.

6. On-site Recharge. All storm water runoff from impervious surfaces shall be recharged on-site unless in conducting site plan review it is determined that either recharge is not feasible because of site conditions or is undesirable because of uncontrollable risks to water quality from such recharge. Such recharge shall be by surface infiltration through vegetated surfaces unless otherwise approved by the SPGA during site plan review. If dry wells or leaching basins are approved for use, they shall be preceded by oil, grease, and sediment traps. Drainage from loading areas for toxic or hazardous materials shall be separately collected for safe disposal.

7. Grade Reduction. Soil overburden shall not be lowered to finished exterior grades less than five (5) feet above maximum groundwater elevation, unless technical evidence can be provided showing to the SPGA's satisfaction that groundwater quantity or quality will not be detrimentally affected. Technical evidence may include without limitation a determination of soil and geologic conditions where low permeability will mitigate leachate penetration and evaporation transpiration.

Tab 11

NPDES Phase II Small MS4 General Permit

United States Environmental Protection Agency (EPA)
National Pollutant Discharge Elimination System (NPDES)

GENERAL PERMITS FOR STORMWATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS IN MASSACHUSETTS

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act (CWA), as amended (33 U.S.C. §1251 *et seq.*), and the Massachusetts Clean Waters Act, as amended (M.G.L. Chap.21 §§ 26-53), any operator of a small municipal separate storm sewer system whose system:

- Is located in the areas described in part 1.1;
- Is eligible for coverage under part 1.2 and part 1.9; and
- Submits a complete and accurate Notice of Intent in accordance with part 1.7 of this permit and EPA issues a written authorization

is authorized to discharge in accordance with the conditions and the requirements set forth herein.

The following appendices are also included as part of these permits:
Appendix A – Definitions, Abbreviations, and Acronyms;
Appendix B – Standard permit conditions applicable to all authorized discharges;
Appendix C – Endangered Species Act Eligibility Guidance;
Appendix D – National Historic Preservation Act Eligibility Guidance;
Appendix E – Information required for the Notice of Intent (NOI);
Appendix F – Requirements for MA Small MS4s Subject to Approved TMDLs;
Appendix G – Impaired Waters Monitoring Parameter Requirements;
Appendix H – Requirements related to discharges to certain water quality limited waterbodies;

These permits become effective on **July 1, 2017**.

These permits and the authorization to discharge expire at midnight, **June 30, 2022**.

Signed this 4th day of April, 2016

Ken Moraff, Director
Office of Ecosystem Protection
United States Environmental Protection Agency
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Signed this 4th day of April 2016

Douglas E. Fine
Assistant Commissioner for Water Resources
Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

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1.0. Introduction

This document consists of three (3) general permits listed in part 1.1. Each general permit is applicable to a particular type of municipal system within Massachusetts. Many of the permit terms and conditions are applicable across all regulated entities, and therefore are presented just once in parts 1-2, part 4, and Appendices A through E. Other conditions are applicable to a particular set of authorized entities; these terms and conditions are included in parts 3, and 5 and Appendices F through H. Throughout the permit, the terms "this permit" or "the permit" will refer to the three general permits.

1.1. Areas of Coverage

This permit covers small municipal separate storm sewer systems (MS4s) located in the Commonwealth of Massachusetts:

- Traditional Cities and Towns (NPDES Permit No. MAR041000)
- State, federal, county and other publicly owned properties (Non-traditional) (MAR042000)
- State transportation agencies (except for MassDOT- Highway Division) (MAR043000)

1.2. Eligibility

The MS4 shall meet the eligibility provisions described in part 1.2.1 and part 1.9 to be eligible for authorization under this permit.

1.2.1. Small MS4s Covered

This permit authorizes the discharge of stormwater from small MS4s as defined at 40 CFR § 122.26(b) (16). This includes MS4s described in 40 CFR §122.32(a) (1) and (a) (2). An MS4 is eligible for coverage under this permit if it is:

- A small MS4 within the Commonwealth of Massachusetts;
- Not a large or medium MS4 as defined in 40 CFR §§122.26(b)(4) or (7);
- Located either fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census as of the effective date of this permit (the 2010 Census); or
- Located in a geographic area designated by EPA as requiring a permit.

If the small MS4 is not located entirely within an urbanized area, only the portion of the MS4 that is located within the urbanized area is regulated under 40 CFR §122.32(a) (1).

A small municipal separate storm sewer system means all separate storm sewers that are:

- Owned or operated by the United States, a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.
- Not defined as large or medium municipal separate storm sewer systems pursuant to 40 CFR § 122.26(b) (4) and (b) (7) or designated under 40 CFR § 122.26(a) (1) (v).
- This term includes systems similar to separate storm sewer systems in municipalities such as systems at military bases, large hospitals or prison complexes, and highways

and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

1.3. Limitations on Coverage

This permit does not authorize the following:

a. Stormwater discharges mixed with sources of non-stormwater unless such non-stormwater discharges are:
   - Authorized under a separate NPDES permit; or
   - A non-stormwater discharge as listed in part 1.4.

b. Stormwater discharges associated with industrial activity as defined in 40 CFR §122.26 (b) (14) (i)-(ix) and (xi).

c. Stormwater discharges associated with construction activity as defined in 40 CFR §122.26(b) (14) (x) or (b) (15).

d. Stormwater discharges currently authorized under another NPDES permit, including discharges covered under other regionally issued general permits.

e. Stormwater discharges or discharge related activities that are likely to adversely affect any species that are listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. The permittee shall follow the procedures detailed in Appendix C to make a determination regarding eligibility. The permittee shall certify compliance with this provision on the submitted NOI.

f. Stormwater discharges whose direct or indirect impacts do not prevent or minimize adverse effects on any Essential Fish Habitat.

g. Stormwater discharges, or implementation of a stormwater management program, which adversely affects properties listed or eligible to be listed on the National Register of Historic Places. The permittee shall follow the procedures detailed in Appendix D to make a determination regarding eligibility. The permittee shall certify compliance with this provision on the submitted NOI.

h. Stormwater discharges prohibited under 40 CFR § 122.4.

i. Stormwater discharges to the subsurface subject to state Underground Injection Control (UIC) regulations. Although the permit includes provisions related to infiltration and groundwater recharge, structural controls that dispose of stormwater into the ground may be subject to UIC regulation requirements. Authorization for such discharges shall be obtained from Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program, Underground Injection Control, One Winter Street, Boston, MA 02108 – phone 617-292-5859.

j. Any non-traditional MS4 facility that is a "new discharger" as defined in part 5.1.4. and discharges to a waterbody listed in category 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b) due to nutrients (Total Nitrogen or (Total Phosphorus), metals (Cadmium, Copper, Iron, Lead or Zinc), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride) or oil and grease (Petroleum Hydrocarbons or Oil and Grease), or discharges to a waterbody with an approved TMDL for any of those pollutants.

1.4. Non-Stormwater Discharges

The following categories of non-stormwater discharges are allowed under this permit *unless* the permittee, EPA, or the MassDEP identifies any category or individual discharge of non-stormwater discharge in part 1.4.a-r as a significant contributor of pollutants to the MS4, then that category or individual discharge is not allowed under part 1.4, but rather shall be deemed an "illicit discharge" under part 2.3.4.1, and the permittee shall address that category or individual discharge as part of the Illicit Discharge Detection and Elimination (IDDE) Program described in part 2.3.4 of this permit.

a. Water line flushing
b. Landscape irrigation
c. Diverted stream flows
d. Rising ground water
e. Uncontaminated ground water infiltration (as defined at 40 CFR § 35.2005(20))
f. Uncontaminated pumped ground water
g. Discharge from potable water sources
h. Foundation drains
i. Air conditioning condensation
j. Irrigation water, springs
k. Water from crawl space pumps
l. Footing drains
m. Lawn watering
n. Individual resident car washing
o. Flows from riparian habitats and wetlands
p. De-chlorinated swimming pool discharges
q. Street wash waters
r. Residential building wash waters without detergents

Discharges or flows from firefighting activities are allowed under this permit need only be addressed where they are identified as significant sources of pollutants to waters of the United States.

1.5. Permit Compliance

Non-compliance with any of the requirements of this permit constitutes a violation of the permit and the CWA and may be grounds for an enforcement action and may result in the imposition of injunctive relief and/or penalties.

1.6. Continuation of this Permit

If this permit is not reissued prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedure Act and remain in force and effect for discharges that were authorized prior to expiration. If a small MS4 was granted permit authorization prior to the expiration date of this permit, it will automatically remain authorized by this permit until the earliest of:

- Authorization under a reissued general permit following timely and appropriate submittal of a complete and accurate NOI requesting authorization to discharge under the reissued permit; or
- Issuance or denial of an individual permit for the MS4's discharges; or
- Authorization or denial under an alternative general permit.

If the MS4 operator does not submit a timely, appropriate, complete, and accurate NOI requesting authorization to discharge under the reissued permit or a timely request for authorization under an individual or alternative general permit, authorization under this permit will terminate on the due date for the NOI under the reissued permit unless otherwise specified in the reissued permit.

1.7. Obtaining Authorization to Discharge

1.7.1. How to Obtain Authorization to Discharge

To obtain authorization under this permit, a small MS4 shall:

- Be located in the areas listed in part 1.1 of this permit;
- Meet the eligibility requirements in part 1.2 and part 1.9;
- Submit a complete and accurate Notice of Intent (NOI) in accordance with the requirements of part 1.7.2; and
- EPA issues a written authorization.

1.7.2. Notice of Intent

a. Operators of Small MS4s seeking authorization to discharge under the terms and conditions of this permit shall submit a Notice of Intent that contains the information identified in Appendix E. This includes operators of small MS4s that were previously authorized under the May 1, 2003 small MS4 general permit (MS4-2003 permit).

b. The NOI shall be signed by an appropriate official (see Appendix B, Subparagraph B.11, Standard Conditions).

c. The NOI shall contain the following 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 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.

Print the name and title of the official, followed by signature and date.

d. The NOI shall be submitted within 90 days of the effective date of the permit. If EPA notifies an MS4 that it is designated under 40 CFR § 122.32(a) (2) or (b), the NOI shall be submitted within 180 days of receipt of notice unless granted a longer period of time by EPA.

1.7.3. Submission of Notice of Intent

a. All small MS4s shall submit a complete and accurate Notice of Intent (suggested form in Appendix E) to EPA-Region 1 at the following address:

United States Environmental Protection Agency
Stormwater and Construction Permits Section (OEP06-1)
Five Post Office Square, Suite 100
Boston, MA 02109

Or submitted electronically to EPA at the following email address: stormwater.reports@epa.gov

b. All small MS4s shall also submit a copy of the NOI to the MassDEP at the following address:

Massachusetts Department of Environmental Protection
One Winter Street -5th Floor
Boston, Massachusetts 02108
ATTN: Frederick Civian, Stormwater Coordinator

c. Late notification: A small MS4 is not prohibited from submitting a NOI after the dates provided in part 1.7.2.d. However, if a late NOI is submitted, authorization is only for discharges that occur after permit authorization is granted. EPA and MassDEP reserve the right to take enforcement actions for any unpermitted discharges. All NOIs submitted after December 21, 2020 must be submitted electronically.

1.7.4. Public Notice of NOI and Effective Date of Coverage

a. EPA will provide a public notice and opportunity for comment on the contents of the submitted NOIs. The public comment period will be a minimum of 30 calendar days.

b. Based on a review of a small MS4's NOI or other information, EPA may grant authorization, extend the public comment period, or deny authorization under this permit and require submission of an application for an individual or alternative NPDES permit. (See part 1.8) A small MS4 will be authorized to discharge under the terms and conditions of this permit upon receipt of notice of authorization from EPA.

c. Permittees whose authorization to discharge under the MS4-2003 permit, which expired on May 1, 2008, has been administratively continued in accordance with the Administrative Procedure Act (5 U.S.C. § 558(c) and 40 CFR § 122.6, who wish to obtain coverage under this permit, must submit a new NOI requesting permit coverage in accordance with the requirements of part 1.7 of this permit to EPA within 90 days after the effective date of this permit. Permittees whose authorization to discharge under the expired MS4-2003 permit was administratively continued, who fail to submit a timely, complete and accurate NOI or an application for an individual NPDES permit within 90 after the effective date of this permit will be considered to be discharging without a permit (see 40 CFR § 122.28(b)(3)(iii)).

1.8. Individual Permits and Alternative General Permits

a. EPA may require a small MS4 to apply for and obtain authorization under either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition EPA in accordance with the provisions of 40 CFR § 122.26(f) to require a small MS4 to apply for and/or obtain authorization under either an individual NPDES permit or an alternative NPDES general permit. If EPA requires a small MS4 to apply for an individual or alternative NPDES permit, EPA will notify the small MS4 in writing that a permit application is required. This notification will include a brief statement of the reasons for this decision and will provide application information and an application deadline. If a small MS4 is authorized under the MS4-2003 permit or this permit and fails to submit an individual NPDES or an alternative general permit NPDES permit application as required by EPA, then the authorization under the MS4-2003 permit or this permit to the small MS4 is automatically terminated at the end of the date specified by EPA as the deadline

for application submittal. EPA reserves the right to take enforcement action for any unpermitted discharge.

b. A small MS4 may request to be excluded from this general permit by applying for an individual permit or authorization under an alternative general permit. In such a case, a small MS4 shall submit an individual permit application in accordance with the requirements of 40 CFR § 122.33(b) (2) (i) or § 122.33(b) (2) (ii), with reasons supporting the request, to EPA at the address listed in part 1.7.3 of this permit. The request may be granted by issuance of an individual permit or authorization under an alternative general permit if EPA determines that the reasons stated by the small MS4 are adequate to support the request. (See 40 CFR § 122.28(b) (3)).

c. When an individual NPDES permit is issued, or a small MS4 is authorized to discharge under an alternative NPDES general permit, authorization under this permit automatically terminates on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit.

1.9. Special Eligibility Determinations

1.9.1. Documentation Regarding Endangered Species

The small MS4 shall certify eligibility regarding endangered species in the NOI required by part 1.7.2. The Stormwater Management Program (SWMP) shall include documentation supporting the permittee's eligibility determination with regard to federal Endangered and Threatened Species and Critical Habitat Protection, including:

- Results of the Appendix C U.S. Fish and Wildlife Service endangered species screening determination; and
- If applicable, a description of the measures the small MS4 shall implement to protect federally listed endangered or threatened species, or critical habitat, including any conditions imposed by the U.S. Fish and Wildlife Service. If a permittee fails to document and implement such measures, the permittee's discharges are ineligible for coverage under this permit.

1.9.2. Documentation Regarding Historic Properties

The small MS4 shall certify eligibility regarding historic properties on the NOI required by part 1.7.2. The SWMP shall include documentation supporting the small MS4's eligibility determination with regard to Historic Properties Preservation, including:

- Information on whether the permittee's stormwater discharges, allowable non-stormwater discharges, or stormwater discharge-related activities would have an effect on a property that is listed or eligible for listing on the National Register of Historic Properties (NRHP);
- Where such effects may occur, any documents received by the permittee or any written agreements the permittee has made with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or other Tribal representative to mitigate those effects;
- Results of the Appendix D historic property screening investigations; and
- If applicable, a description of the measures the permittee shall implement 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 permittee fails to

document and implement such measures, those discharges are ineligible for coverage under this permit.

1.10. Stormwater Management Program (SWMP)

a. The permittee shall develop and implement a written (hardcopy or electronic) SWMP. The SWMP shall be signed in accordance with Appendix B, Subsection 11, including the date of signature. A signature and date is required for initial program preparation and for any significant revision to the program, which shall be in writing. The written SWMP shall be completed within one (1) year of the effective date of the permit.

The SWMP is the document used by the permittee to describe and detail the activities and measures that will be implemented to meet the terms and conditions of the permit. The SWMP shall accurately describe the permittees plans and activities. The document should be updated and/or modified during the permit term as the permittee's activities are modified, changed or updated to meet permit conditions during the permit term.

b. Permittees authorized by the MS4-2003 permit shall modify or update their existing Best Management Practices (BMPs) and measurable goals to meet the terms and conditions of part 2.3 of this permit within one (1) year of the effective date of the permit. These modifications and updates shall be reflected in the written (hardcopy or electronic) SWMP. Permittees authorized by the MS4-2003 permit shall continue to implement their existing SWMP until the program has been updated.

1.10.1. Stormwater Management Program Availability

a. The permittee shall retain a copy of the current SWMP required by this permit at the office or facility of the person listed as the program contact on the submitted Notice of Intent (NOI). The SWMP shall be immediately available to representatives from EPA, MassDEP, U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) at the time of an onsite inspection or upon request.

b. The permittee shall make the SWMP available to the public during normal business hours. The permittee shall also post the SWMP online[1] if the permittee has a website on which to post the SWMP.

1.10.2. Contents and Timelines of the Stormwater Management Program for 2003 permittees

The following information must be included in the SWMP within one (1) year of the permit effective date and updated annually thereafter, as necessary:

- Identification of names and titles of people responsible for program implementation. If a position is currently unfilled, list the title of the position and modify the SWMP with the name once the position is filled;
- Documentation of compliance with part 1.9.1;

[1] Should a permittee not wish to post mapping information included in the SWMP (see part 1.10.2) on their website for public safety reasons, they must state the reason either with or within the online SWMP and provide how the MS4 mapping information can be obtained. The permittee must retain the entire SWMP, including all completed mapping, at a location where it can be made available to the public during normal business hours.

- Documentation of compliance with part 1.9.2;
- Documentation of authorization of all new or increased discharges granted by MassDEP in compliance with part 2.1.2; part
- Listing of all discharges identified pursuant to part 2.1.1 and description of response;
- Description of practices to achieve compliance with part 2.3 (MEP requirements) identified in the permittee's NOI and any updates to those BMPs within the first year;
  For each permit condition in part 2.3 identify:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal shall have a measure of assessment associated with it;
- Sanitary Sewer Overflow (SSO) inventory including all of the information required in part 2.3.4.4.b;
- Written IDDE Program pursuant to part 2.3.4.6;
- Written procedures for site inspections and enforcement of sediment and erosion control procedures in accordance with part 2.3.5;
- Description of measures to avoid or minimize impacts to surface public drinking water supply sources. The permittee is also encouraged to include provisions to notify public water supplies in the event of an emergency. Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program, One Winter Street, Boston, MA 02108 – phone 617.292.5770.
- Description of activities to achieve compliance with part 3.0;
- Annual program evaluation (part 4.1). Update annually and maintain copies.

The following information must be included in the SWMP within two (2) years of the permit effective date and updated annually thereafter, as necessary:

- Listing of all receiving waterbody segments, their classification under the applicable state water quality standards, any impairment(s) and associated pollutant(s) of concern, applicable TMDLs and WLAs, and number of outfalls from the MS4 that discharge to each waterbody. In addition to the receiving water, the permittee shall document in the SWMP all surface public drinking water sources that may be impacted by MS4 discharges;
- Listing of all interconnected MS4s and other separate storm sewer systems receiving a discharge from the permitted MS4, the receiving waterbody segment(s) ultimately receiving the discharge, their classification under the applicable state water quality standards, any impairment(s) and associated pollutant(s) of concern, applicable TMDLs and WLAs, and the number of interconnections;
- Written procedures to require submission of as-built drawings and ensure long term operation and maintenance in accordance with part 2.3.6.a.iii;
- The map of the separate storm sewer system required by part 2.3.4.5.

The following information must be included in the SWMP within four (4) years of the permit effective date and updated annually thereafter, as necessary:

- Report(s) assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover.

The following information must be included in the SWMP concurrent with the applicable deadlines in Appendix F and H and updated annually thereafter, as necessary:

- Description of practices to achieve compliance with part 2.2.1 (TMDL requirements) including:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal must have an associated measure of assessment.
- Description of practices to achieve compliance with part 2.2.2 (discharges to certain water quality limited waters subject to additional requirements) including:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal must have an associated measure of assessment;

Description of any other practices to achieve compliance with part 2.1 (water quality based requirements);1.10.3. Contents and Timelines of the Stormwater Management Program for New Permittees

a. Permittees seeking authorization for the first time shall meet all deadlines contained in this permit except the following:

- Timelines for public education requirements in part 2.3.2.c shall be extended by one (1) year and need to include one (1) message to each audience over the permit term;
- The ordinances, by-laws, or other regulatory mechanisms required by parts 2.3.4, 2.3.5 and 2.3.6 shall be completed as soon as possible, but no later than three (3) years from the permit effective date; and
- All other deadlines in part 2.3.4 shall be extended by three (3) years.
- partAll other deadlines in part 2.3.5, 2.3.6 and 2.3.7 shall be extended by two (2) years.
- partpartpartAll deadlines for discharges to water quality limited waters without a TMDL under part 2.2.2 shall be extended by two (2) years.

b. Contents of the Stormwater Management Program for New Permittees

The following information must be included in the SWMP within one (1) year of the permit effective date and updated annually thereafter, as necessary:

- Identification of names and titles of people responsible for program implementation. If a position is currently unfilled, list the title of the position and modify the SWMP with the name once the position is filled;
- Documentation of compliance with part 1.9.1;
- Documentation of compliance with part 1.9.2;
- Documentation of authorization of all new or increased discharges granted by MassDEP in compliance with part 2.1.2;
- Listing of all discharges identified pursuant to part 2.1.1 and description of response;
- Description of practices to achieve compliance with part 2.3 (MEP requirements)

identified in the permittee's NOI and any updates to those BMPs within the first year;
For each permit condition in part 2.3 identify:
- The person(s) or department responsible for the measure;
- The BMPs for the control measure or permit requirement;
- The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal shall have a measure of assessment associated with it;

- Description of measures to avoid or minimize impacts to surface public drinking water supply sources. The permittee is also encouraged to include provisi9ons to notify public water supplies in the event of an emergency. Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program, One Winter Street, Boston, MA 02108 – phone 617.292.5770. Description of activities to achieve compliance with part 3.0;
- Annual program evaluation (part 4.1). Update annually and maintain copies.

The following information must be included in the SWMP within three (3) years of the permit effective date and updated annually thereafter, as necessary:

- Written procedures for site inspections and enforcement of sediment and erosion control procedures in accordance with part 2.3.5;
- Written operation and maintenance procedures for municipal activities in part 2.3.7.a.ii;
- Written program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4 in accordance with part 2.3.7.a.iii.1;
- Written procedures to require submission of as-built drawings and ensure long term operation and maintenance in accordance with part 2.3.6.a.iii;

The following information must be included in the SWMP within four (4) years of the permit effective date and updated annually thereafter, as necessary:

- Outfall and interconnection inventory;
- Sanitary Sewer Overflow (SSO) inventory including all of the information required in part 2.3.4.4.b;
- Written IDDE Program pursuant to part 2.3.4.6.

The following information must be included in the SWMP within four (5) years of the permit effective date and updated annually thereafter, as necessary:

- Phase 1 of the map of the separate storm sewer system required by part 2.3.4.5;
- Listing of all receiving waterbody segments, their classification under the applicable state water quality standards, any impairment(s) and associated pollutant(s) of concern, applicable TMDLs and WLAs, and number of outfalls from the MS4 that discharge to each waterbody. In addition to the receiving water, the permittee shall document in the SWMP all surface public drinking water sources that may be impacted by MS4 discharges;
- Listing of all interconnected MS4s and other separate storm sewer systems receiving a discharge from the permitted MS4, the receiving waterbody segment(s) ultimately receiving the discharge, their classification under the applicable state water quality standards, any impairment(s) and associated pollutant(s) of concern, applicable TMDLs

and WLAs, and the number of interconnections;

The following information must be included in the SWMP within four (4) years of the permit effective date and updated annually thereafter, as necessary:

- Report(s) assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover.

The following information must be included in the SWMP concurrent with the applicable deadlines in Appendix F and H (extended by two (2) years) and updated annually thereafter, as necessary:

- Description of practices to achieve compliance with part 2.2.1 (discharges subject to requirements related to approved TMDLs)including:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal must have an associated measure of assessment.
- Description of practices to achieve compliance with part 2.2.2 (discharges to certain water quality limited waters subject to additional requirements) including:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal must have an associated measure of assessment;
- Description of any other practices to achieve compliance with part 2.1 (water quality based requirements).

2.0. Non-Numeric Effluent Limitations

The permittee shall develop, implement, and enforce a program to reduce the discharge of pollutants from the MS4 to the maximum extent practicable; to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act and the Massachusetts Water Quality Standards.

2.1. Water Quality Based Effluent Limitations

Pursuant to Clean Water Act 402(p)(3)(B)(iii), this permit includes provisions to ensure that discharges from the permittee's small MS4 do not cause or contribute to an exceedance of water quality standards, in addition to requirements to reduce the discharge of pollutants to the maximum extent practicable. The requirements found in this part and part 2.2 constitute appropriate water quality based effluent limits of this permit. Requirements to reduce the discharge of pollutants to the maximum extent practicable are set forth in part 2.3.

2.1.1. Requirement to Meet Water Quality Standards

a. The permittee shall reduce the discharge of pollutants such that the discharges from the MS4 do not cause or contribute to an exceedance of water quality standards.

b. If there is a discharge from the MS4 to a waterbody (or its tributaries in some cases) that is subject to an approved TMDL identified in part 2.2.1, the permittee is subject to the requirements of part 2.2.1 and Appendix F of this permit and the permittee shall comply with all applicable schedules and requirements in Appendix F. A permittee's compliance with all applicable requirements and BMP implementation schedules in Appendix F applicable to it will constitute compliance with part 2.1.1.a. of the Permit.

c. If there is a discharge from the MS4 to a waterbody (or its tributaries in some cases) that is water quality limited (see definition in Appendix A) due to nutrients (Total Nitrogen or Total Phosphorus), metals (Cadmium, Copper, Iron, Lead or Zinc), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enterococcus or Fecal Coliform), chloride (Chloride) or oil and grease (Petroleum Hydrocarbons or Oil and Grease) and is not subject to an approved TMDL, or the MS4 is located within a municipality listed in part 2.2.2.a.-b., the permittee is subject to the requirements of part 2.2.2 and Appendix H of this permit and the permittee shall comply with all applicable schedules and requirements in Appendix H. A permittee's compliance with all applicable requirements and BMP implementation schedules in Appendix H applicable to it will constitute compliance with part 2.1.1.a. of the Permit.

d. Except where a pollutant of concern in a discharge is subject to the requirements of part 2.2.1 and/or part 2.2.2 of this permit or is the result of an illicit discharge and subject to part 2.3.4 of this Permit, if a pollutant in a discharge from the MS4 is causing or contributing to a violation of applicable water quality criteria[2] for the receiving water, the permittee shall, as expeditiously as possible, but no later than 60 days of becoming aware of the situation, reduce or eliminate the pollutant in its discharge such that the discharge meets applicable water quality criteria.

2.1.2. Increased Discharges

a. Any increased discharge, including increased pollutant loading(s) through the MS4 to waters of the United States is subject to Massachusetts antidegradation regulations at 314 CMR 4.04. The permittee shall comply with the provisions of 314 CMR 4.04 including information submittal requirements and obtaining authorization for increased discharges where appropriate[3]. Any authorization of an increased discharge by MassDEP shall be incorporated into the permittee's SWMP. If an applicable MassDEP approval specifies additional conditions or requirements, then those requirements are incorporated into this permit by reference. The permittee must comply with all such requirements.

b. There shall be no increased discharges, including increased pollutant loading(s) from the MS4 to impaired waters listed in categories 5 or 4b on the most recent Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b) unless the permittee demonstrates that there is no net increase in loading from the MS4 to the impaired water of the pollutant(s) for which the waterbody is impaired. The permittee may demonstrate compliance with this provision by *either:*

[2] Applicable water quality criteria are part of the state standards that have been federally approved as of the effective date of this permit and are compiled by EPA at http://www.epa.gov/waterscience/standards/wqslibrary/

[3] Contact MassDEP for guidance on compliance with 314 CMR 4.04

i. Documenting that the pollutant(s) for which the waterbody is impaired is not present in the MS4's discharge and retaining documentation of this finding with the SWMP; or

ii. Documenting that the total load of the pollutant(s) of concern from the MS4 to any impaired portion of the receiving water will not increase as a result of the activity and retaining documentation of this finding in the SWMP. Unless otherwise determined by the Permittee, USEPA or by MassDEP that additional demonstration is necessary, compliance with the requirements of part 2.2.2 and part 2.3.6 of this Permit, including all reporting and documentation requirements, shall be considered as demonstrating no net increase as required by this part.

c. The requirements of this part are independent of permit conditions requiring reduction in discharges of pollutants as set forth in parts 2.1.1 and 2.2 (water quality based requirements) and 2.3 (requirements to reduce discharge of pollutants to the maximum extent practicable). Permittees remain subject to requirements to reduce the discharge of pollutants from the MS4 as set forth in those parts.

2.2. Discharges to Certain Impaired Waters

The permittee shall identify in the SWMP and Annual Reports all MS4 discharges, including both outfalls and interconnections to other MS4s or other separate storm sewer systems, that:

- Are subject to Total Maximum Daily Load (TMDL) related requirements as identified in part 2.2.1.
- Are subject to additional requirements to protect water quality as identified in part 2.2.2.

The discharge location from an interconnection shall be determined based on the receiving water of the outfall from the interconnected system.

2.2.1. Discharges Subject to Requirements Related to an Approved TMDL

a. "Approved TMDLs" are those that have been approved by EPA as of the date of issuance of this permit.

b. The MS4s specified below discharge to waters within Massachusetts that are subject to TMDLs, or in some cases, to tributaries of such waters, and shall comply with the requirements of Appendix F, part A. Appendix F identifies, by section, the provisions the permittee shall implement to be consistent with the terms of the approved TMDL. Alternatively, EPA may notify the permittee that an individual permit application is necessary in accordance with part 1.8.a.

i. The following is a list of municipalities in the Charles River Watershed:

1.

Arlington	Mendon
Ashland	Milford
Bellingham	Millis
Belmont	Natick
Brookline	Needham

Cambridge	Newton
Dedham	Norfolk
Dover	Sherborn
Foxborough	Walpole
Franklin	Waltham
Holliston	Watertown
Hopedale	Wayland
Hopkinton	Wellesley
Lexington	Weston
Lincoln	Westwood
Medfield	Wrentham
Medway	

Permittees that operate regulated MS4s located in municipalities listed above that discharge to the Charles River or its Tributaries shall meet the requirements of Appendix F, part A.I with respect to the reduction of phosphorus discharges from their MS4.

ii. The following is a list of municipalities that contain a lake or pond subject to an approved lake or pond phosphorus TMDL in the Northern Blackstone Basin, Chicopee Basin, Connecticut Basin, French Basin, Millers Basin or in the watershed of Bare Hill Pond, Flint Pond, Indian Lake, Lake Boon, Lake Quinsigamond, Leesville Pond, Salisbury Pond, Quaboag Pond or Quacumquasit Pond.

1.

Auburn	Millbury
Charlton	Oxford
Dudley	Shrewsbury
Gardner	Spencer
Grafton	Springfield
Granby	Stow
Hadley	Templeton
Harvard	Westminster
Hudson	Winchendon
Leicester	Wilbraham
Ludlow	

Permittees that operate regulated MS4s in the above municipalities that discharge to waterbodies listed on Table F-6 in Appendix F or their tributaries, and any other MS4 that discharges to waterbodies listed on Table F-6 in Appendix F or their tributaries,

shall meet the requirements of Appendix F, part A.II with respect to reduction of phosphorus discharges from their MS4.

iii. The following is a list of municipalities that contain waters subject to an approved TMDL for bacteria or pathogens.

1.

Abington	Marshfield
Acushnet	Mashpee
Andover	Mattapoisett
Avon	Medfield
Barnstable	Medway
Bedford	Melrose
Bellingham	Mendon
Belmont	Milford
Berkley	Millis
Beverly	Milton
Billerica	Nahant
Bourne	Natick
Brewster	Needham
Bridgewater	New Bedford
Brockton	Newton
Brookline	Norfolk
Burlington	North Andover
Cambridge	Norton
Canton	Norwell
Chatham	Norwood
Cohasset	Orleans
Concord	Peabody
Danvers	Pembroke
Dartmouth	Plymouth
Dedham	Raynham
Dennis	Rehoboth
Dighton	Revere
Dover	Rockland
Duxbury	Rockport
East Bridgewater	Salem
Eastham	Sandwich
Essex	Saugus
Everett	Scituate
Fairhaven	Seekonk
Fall River	Sharon

Falmouth	Sherborn
Foxborough	Somerset
Franklin	Stoughton
Freetown	Swampscott
Gloucester	Swansea
Hanover	Taunton
Hanson	Tewksbury
Harwich	Wakefield
Holliston	Walpole
Hopedale	Waltham
Hopkinton	Wareham
Ipswich	Watertown
Kingston	Wellesley
Lawrence	Wellfleet
Lexington	West Bridgewater
Lincoln	Weston
Lynn	Westport
Lynnfield	Westwood
Malden	Whitman
Manchester	Wilmington
Mansfield	Winthrop
Marblehead	Yarmouth
Marion	

The operators of MS4s located in municipalities listed above that discharge to a waterbody segment listed on Table F-8 in Appendix F and any other MS4 that discharges directly to a waterbody segment listed on Table F-8 in Appendix F shall meet the requirements of Appendix F, part A.III with respect to reduction of bacteria/pathogens discharges from their MS4.

iv. The following is a list of municipalities located on Cape Cod that contain waters subject to an approved TMDL for nitrogen (Total Nitrogen).

1.

Bourne
Barnstable
Chatham
Falmouth
Harwich
Mashpee
Orleans
Yarmouth

Permittees that operate regulated MS4s located in the municipalities above that discharge to waterbodies found on Table F-9 in Appendix F or their tributaries and any other MS4 that discharges to waterbodies found on Table F-9 in Appendix F or their tributaries shall meet the requirements of Appendix F, part A.IV with respect to reduction of nitrogen discharges from their MS4.

v. The following is a list of municipalities located in the Assabet River Watershed:

1.

Acton	Hudson
Berlin	Littleton
Bolton	Marlborough
Boxborough	Maynard
Boylston	Northborough
Ca rlisle	Shrewsbury
Clinton	Stow
Concord	Westborough
Grafton	Westford
Harvard	

Permittees that operate regulated MS4s located in the municipalities above that discharge to the Assabet River or its tributaries shall meet the requirements of Appendix F part A.V with respect to reduction of phosphorus discharges from their MS4.

c. The MS4s specified below discharge to waters, or tributaries of waters, that have been identified in an adjacent state's approved TMDL as being impaired due, in part, to MS4 stormwater discharges in Massachusetts, and shall comply with the requirements of Appendix F, part B. Appendix F identifies, by section, the provisions the permittee shall implement to be consistent with the reasonable assumptions related to Massachusetts MS4 discharges. Alternatively, EPA may notify the permittee that an individual permit application is necessary in accordance with part 1.8.a.

i. The following is a list of municipalities in Massachusetts located in the watershed of Long Island Sound, which has an approved TMDL for nitrogen (Total Nitrogen).

1.

Adams	North Adams
Agawam	Northampton
Amherst	Oxford
Ashburnham	Palmer
Ashby	Paxton
Auburn	Pelham
Belchertown	Pittsfield
Charlton	Richmond
Cheshire	Russell

Chicopee	Rutland
Dalton	South Hadley
Douglas	Southampton
Dudley	Southbridge
East Longmeadow	Southwick
Easthampton	Spencer
Gardner	Springfield
Granby	Sturbridge
Hadley	Sutton
Hampden	Templeton
Hatfield	Ware
Hinsdale	Webster
Holyoke	West Springfield
Lanesborough	Westfield
Leicester	Westhampton
Lenox	Westminster
Longmeadow	Wilbraham
Ludlow	Williamsburg
Millbury	Winchendon
Monson	

Permittees that operate regulated MS4s located in the municipalities above that discharge to a water within the Connecticut River Watershed, the Housatonic River Watershed, or the Thames River Watershed shall meet the requirements of Appendix F part B. I with respect to nitrogen discharges from their MS4.

ii. The following is a list of municipalities in Massachusetts identified in a TMDL as containing MS4s contributing phosphorus to waterbody segments that have out of state approved TMDLs for phosphorus:

1.

Attleboro
North Attleborough
Plainville
Rehoboth
Seekonk
Swansea

Permittees that operate regulated MS4s located in the municipalities above that discharge to a waterbody found on Table F-12 in Appendix F or its tributaries shall meet the requirements of Appendix F part B. II with respect to phosphorus discharges from their MS4.

iii. The following is a list of municipalities in Massachusetts identified in a TMDL as containing MS4s contributing bacteria/pathogens to waterbody segments that have out of state approved TMDLs for bacteria/pathogens:

1.

Attleboro
North Attleborough
Plainville
Rehoboth
Seekonk

Permittees that operate regulated MS4s located in the municipalities above that discharge to a waterbody found on Table F-13 in Appendix F or its tributaries shall meet the requirements of Appendix F part B. III with respect to bacteria/pathogens discharges from their MS4.

iv. The following is a list of municipalities in Massachusetts identified in a TMDL as containing MS4s contributing metals (cadmium, lead, aluminum iron) to waterbody segments that have out of state approved TMDLs for metals (cadmium, lead, aluminum, iron):

1.

Attleboro
North Attleborough
Plainville
Seekonk

Permittees that operate regulated MS4s located in the municipalities above that discharge to a waterbody found on Table F-14 in Appendix F or its tributaries shall meet the requirements of Appendix F part B. IV with respect to metals discharges from their MS4.

2.2.2. Discharges to Certain Water Quality Limited Waters Subject to Additional Requirements

For purposes of this permit, a 'water quality limited water body' is any water body that does not meet applicable water quality standards, including but not limited to waters listed in categories 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b).

If there is a discharge from the MS4 to a water quality limited waterbody where pollutants typically found in stormwater (specifically nutrients (Total Nitrogen or Total Phosphorus), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride), metals (Cadmium, Copper, Iron, Lead or Zinc) and oil and grease (Petroleum Hydrocarbons or Oil and Grease)) are the cause of the impairment and there is not an approved TMDL, or the MS4 is located in a town listed in part 2.2.2.a.-b, the permittee shall comply with the provisions in Appendix H applicable to it.

In the absence of a defined pollutant reduction target and where no approved TMDL has been established, this permit part and Appendix H define an iterative approach addressing pollutant reductions to waterbodies where the permittee's discharge is causing or contributing to an excursion above water quality standards due to nutrients (Total Nitrogen Total Phosphorus), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride), metals

(Cadmium, Copper, Iron, Lead or Zinc) or oil and grease (Petroleum Hydrocarbons or Oil and Grease).

a. Discharges to water quality limited waterbodies where nitrogen (Total Nitrogen) is the cause of the impairment, or their tributaries

i. The requirements of this part are applicable to:

1. Permittees (including traditional and non-traditional MS4s) that own or operate an MS4 in the following municipalities. Discharges from MS4s within these municipalities are to waterbodies that are impaired due to nitrogen (Total Nitrogen), or their tributaries.

Abington	Mattapoisett
Acushnet	Middleborough
Attleboro	New Bedford
Avon	Norton
Barnstable	Peabody
Berkley	Pembroke
Bourne	Plainville
Bridgewater	Plymouth
Brockton	Plympton
Carver	Raynham
Dartmouth	Rehoboth
Dighton	Rochester
East Bridgewater	Salem
Easton	Seekonk
Fairhaven	Sharon
Fall River	Somerset
Foxborough	Stoughton
Freetown	Swansea
Halifax	Taunton
Hanson	Wakefield
Holbrook	Wareham
Kingston	West Bridgewater
Lakeville	Westport
Lynnfield	Whitman
Mansfield	Wrentham
Marion	Yarmouth

2. Any other permittee that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to nitrogen (Total Nitrogen), or a tributary of such water.

ii. Permittees subject to part 2.2.2.a.i above shall meet the requirements of Appendix H part I with respect to the control of nitrogen discharges from their MS4;

iii. During development of their Notice of Intent, the permittee may determine that all discharges from the regulated area through their MS4 are outside of a watershed that contains a nitrogen (Total Nitrogen) impairment in a downstream segment. The permittee shall retain all documentation used in this determination as part of their NOI and are relieved from the requirements of part 2.2.2.a.i and Appendix H part I.

b. Discharges to water quality limited waterbodies where phosphorus ("Total Phosphorus") is the cause of the impairment, or their tributaries

i. The requirements of this part are applicable to:

1. Permittees (including traditional and non-traditional MS4s) that own or operate an MS4 in the following municipalities. Discharges from MS4s within these municipalities are to waterbodies that are impaired due to phosphorus (Total Phosphorus), or their tributaries.

Abington	Lynn
Acushnet	Lynnfield
Andover	Malden
Arlington	Mansfield
Ashburnham	Marlborough
Ashland	Mashpee
Auburn	Medfield
Avon	Medford
Ayer	Melrose
Barnstable	Mendon
Bedford	Methuen
Belchertown	Millbury
Belmont	Millville
Billerica	Milton
Blackstone	North Andover
Bolton	Northbridge
Brewster	Norton
Bridgewater	Norwood
Brockton	Oxford
Burlington	Peabody
Cambridge	Pembroke
Canton	Pepperell
Carlisle	Pittsfield

Carver	Quincy
Chelmsford	Randolph
Chelsea	Reading
Clinton	Revere
Concord	Rockland
Dalton	Salem
Dedham	Scituate
Douglas	Seekonk
Dover	Sharon
Dracut	Shirley
Dunstable	Shrewsbury
East Bridgewater	Somerville
Eastham	Southampton
Easthampton	Spencer
Everett	Springfield
Falmouth	Stoneham
Fitchburg	Stoughton
Foxborough	Sudbury
Framingham	Sutton
Gloucester	Taunton
Grafton	Tewksbury
Granby	Townsend
Groton	Tyngsborough
Halifax	Upton
Hanover	Uxbridge
Hanson	Wakefield
Harvard	Walpole
Haverhill	Wareham
Hinsdale	Watertown
Hopkinton	Wayland
Hudson	West Bridgewater
Lancaster	Westfield
Lawrence	Westminster
Leicester	Westwood
Lenox	Whitman
Leominster	Wilmington
Lexington	Winchendon
Littleton	Winchester
Lowell	Winthrop

Lunenburg	Woburn
Lynn	

2. Any other permittee that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to phosphorus ("Total Phosphorus"), or to a tributary of such water.

ii. The permittees subject to part 2.2.2.b.i. above shall meet all requirements of Appendix H part II with respect to the control of phosphorus discharges from the MS4.

iii. During development of their Notice of Intent, the permittee may determine that all discharges from the regulated area through their MS4 are outside of a watershed that contains a phosphorus ("Total Phosphorus") impairment in a downstream segment. The permittee shall retain all documentation used in this determination as part of their NOI and are relieved from the requirements of part 2.2.2.b.i and Appendix H part II.

c. Discharges to water quality limited waterbodies where bacteria or pathogens is the cause of the impairment

i. The requirements of this part are applicable to:

1. Any MS4 discharge identified by the permittee on their Notice of Intent as discharging directly to an impaired waterbody on the most recent EPA approved Massachusetts 303(d) list where bacteria or pathogens (E. Coli, Enteroccus or Fecal Coliform) is the cause of the impairment.
2. Any other MS4 that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to bacteria or pathogens.

ii. The permittees subject to part 2.2.2.c.i. shall meet all requirements of Appendix H part III with respect to reduction of bacteria or pathogens discharges from the MS4.

d. Discharges to water quality limited waterbodies where chloride (Chloride) is the cause of the impairment

i. The requirements of this part are applicable to:

1. Any MS4 discharge identified by the permittee on their Notice of Intent as discharging directly to an impaired waterbody on the most recent EPA approved Massachusetts 303(d) list where chloride (Chloride) is the cause of the impairment.
2. Any other MS4 that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to chloride (Chloride).

ii. The permittees subject to part 2.2.2.d.i. shall meet all requirements of Appendix H part IV with respect to reduction of chloride discharges from the MS4.

e. Discharges to water quality limited waterbodies where oil and grease (Petroleum Hydrocarbons or Oil and Grease), solids (TSS or Turbidity) or metals (Cadmium, Copper, Iron, Lead or Zinc) is the cause of the impairment

i. The requirements of this part are applicable to:

1. Any MS4 discharge identified by the permittee on their Notice of Intent as discharging directly to an impaired waterbody on the most recent EPA approved Massachusetts 303(d) list where oil and grease, solids or metals (Oil and Grease, Petroleum Hydrocarbons TSS, Turbidity, Cadmium, Copper, Iron, Lead or Zinc) is the cause of the impairment.
2. Any other MS4 that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to oil and grease (Petroleum Hydrocarbons or Oil and Grease), solids (TSS or Turbidity) or metals (Cadmium, Copper, Iron, Lead or Zinc).

ii. The permittees subject to part 2.2.2.d.i. shall meet all requirements of Appendix H part V with respect to reduction of solids, oil and grease or metals discharges from the MS4.

2.3. Requirements to Reduce Pollutants to the Maximum Extent Practicable (MEP)

The permittee shall reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP) as detailed in parts 2.3.2 through 2.3.7.

2.3.1. Control Measures

a. Permittees authorized under the MS4-2003 permit shall continue to implement their existing SWMPs while updating their SWMPs pursuant to this permit. This permit does not extend the compliance deadlines set forth in the MS4-2003 permit.

b. Implementation of one or more of the minimum control measures described in parts 2.3.2- 2.3.7 or other permit requirements may be shared with another entity (including another interconnected MS4) or the other entity may fully implement the measure or requirement, if the following requirements are satisfied:

- The other entity, in fact, implements the control measure.
- The particular control measure or component thereof undertaken by the other entity is at least as stringent as the corresponding permit requirement.
- The other entity agrees to implement the control measure on the permittee's behalf. The annual reports must specify that the permittee is relying on another entity to satisfy some of its permit obligations and specify what those obligations are.
- If the permittee is relying on another governmental entity regulated under 40 CFR §122 to satisfy all of its permit obligations, including the obligation to file annual reports, the permittee shall note that fact in its NOI, but is not required to file annual reports.
- The permittee remains responsible for compliance with all permit obligations if the other entity fails to implement the control measures (or component thereof). The permittee may enter into a legally binding agreement with the other entity regarding the other entity's performance of control measures, but the permittee remains ultimately responsible for permit compliance.

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2.3.2. 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.

a. The permittee shall continue to implement the public education program required by the MS4-2003 permit by distributing educational material to the MS4 community. The educational program shall define educational goals, express specific messages, define the targeted audience for each message, and identify responsible parties for program implementation. If appropriate for the target audience, materials may be developed in a language other than English. At a minimum, the program shall provide information concerning the impact of stormwater discharges on water bodies within the community, especially those waters that are impaired or identified as priority waters. The program shall identify steps and/or activities that the public can take to reduce the pollutants in stormwater runoff and their impacts to the environment.

b. The educational program shall include education and outreach efforts for the following four audiences: (1) residents, (2) businesses, institutions (churches, hospitals), and commercial facilities, (3) developers (construction), and (4) industrial facilities, unless one of these audiences is not present in the MS4 community. In such a situation, the MS4 must document in both the NOI and SWMP which audience is absent from the community and no educational messages are required to that audience.

c. The permittee shall distribute a minimum of two (2) educational messages over the permit term to each audience identified in part 2.3.2.b. The distribution of materials to each audience shall be spaced at least a year apart. Educational messages may be printed materials such as brochures or newsletters; electronic materials such as websites; mass media such as newspaper articles or public service announcement (radio or cable); targeted workshops on stormwater management, or displays in a public area such as town/city hall. The permittee may use existing materials if they are appropriate for the message the permittee chooses to deliver or the permittee may develop its own educational materials. The permittee may partner with other MS4s, community groups or watershed associations to implement the education program to meet this permit requirement.

Some EPA educational materials are available at: http://cfpub.epa.gov/npstbx/index.html.

d. The permittee shall, at a minimum, consider the topics listed in part 2.3.2.d.i. – iv when developing the outreach/education program. The topics are not exclusive and the permittee shall focus on those topics most relevant to the community.

i. Residential program: effects of outdoor activities such as lawn care (use of pesticides, herbicides, and fertilizers and information on Massachusetts Regulation 331 CMR 31 pertaining to proper use of phosphorus containing fertilizers on turf grasses) on water quality; benefits of appropriate on-site infiltration of stormwater; effects of automotive work and car washing on water quality; proper disposal of swimming pool water; proper management of pet waste; maintenance of septic systems. If the small MS4 area has areas serviced by septic systems, the permittee shall consider information pertaining to maintenance of septic systems as part of its education program.

ii. Business/Commercial/Institution program: proper lawn maintenance (use of pesticides, herbicides and fertilizer, and information on Massachusetts Regulation 331 CMR 31 pertaining to proper use of phosphorus containing fertilizers on turf grasses); benefits of appropriate on-site infiltration of stormwater; building maintenance (use of detergents); use of salt or other de-icing and anti-icing materials (minimize their use); proper storage

of salt or other de-icing/anti-icing materials (cover/prevent runoff to storm system and contamination to ground water); proper storage of materials (emphasize pollution prevention); proper management of waste materials and dumpsters (cover and pollution prevention); 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).

iii. Developers and Construction: 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). This education can also be a part of the Construction Site Stormwater Runoff Control measure detailed in part 2.3.5.

iv. Industrial program: equipment inspection and maintenance; proper storage of industrial materials (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 ground water 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.

e. The program shall show evidence of focused messages for specific audiences as well as evidence that progress toward the defined educational goals of the program has been achieved. The permittee shall identify methods that it will use to evaluate the effectiveness of the educational messages and the overall education program. Any methods used to evaluate the effectiveness of the program shall be tied to the defined goals of the program and the overall objective of changes in behavior and knowledge.

f. The permittee shall modify any ineffective messages or distribution techniques for an audience prior to the next scheduled message delivery.

g. The permittee shall document in each annual report the messages for each audience; the method of distribution; the measures/methods used to assess the effectiveness of the messages, and the method/measures used to assess the overall effectiveness of the education program.

2.3.3. Public Involvement and participation

Objective: The permittee shall provide opportunities to engage the public to participate in the review and implementation of the permittee's SWMP.

a. All public involvement activities shall comply with state public notice requirements (MGL Chapter 30A, Sections 18 – 25 – effective 7/10/2010). The SWMP and all annual reports shall be available to the public.

b. The permittee shall annually provide the public an opportunity to participate in the review and implementation of the SWMP.

c. The permittee shall report on the activities undertaken to provide public participation opportunities including compliance with part 2.3.3.a. Public participation opportunities pursuant to part 2.3.3.b may include, but are not limited to, websites; hotlines; clean-up teams; monitoring teams; or an advisory committee.

2.3.4. 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.

a. Legal Authority - The IDDE program shall include adequate legal authority to:: prohibit illicit discharges; investigate suspected illicit discharges; eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system; and implement appropriate enforcement procedures and actions. Adequate legal authority consists of a currently effective ordinance, by-law, or other regulatory mechanism. For permittees authorized by the MS4-2003 permit, the ordinance, by-law, or other regulatory mechanism was a requirement of the MS4-2003 permit and was required to be effective by May 1, 2008. For new permittees the ordinance, by-law, or other regulatory mechanism shall be in place within 3 years of the permit effective date.
b. During the development of the new components of the IDDE program required by this permit, permittees authorized by the MS4-2003 permit must continue to implement their existing IDDE program required by the MS4-2003 permit to detect and eliminate illicit discharges to their MS4.

2.3.4.1. Definitions and Prohibitions

The permittee shall prohibit illicit discharges and sanitary sewer overflows (SSOs) to its MS4 and require removal of such discharges consistent with parts 2.3.4.2 and 2.3.4.4 of this permit.

An SSO is a discharge of untreated sanitary wastewater from a municipal sanitary sewer.

An illicit discharge is any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

2.3.4.2. Elimination of Illicit Discharges

a. Upon detection of an illicit discharge, the permittee shall locate, identify and eliminate the illicit discharge as expeditiously as possible. Upon identification of the illicit source the MS4 notify all responsible parties for any such discharge and require immediate cessation of improper disposal practices in accordance with its legal authorities. Where elimination of an illicit discharge within 60 days of its identification as an illicit discharge is not possible, the permittee shall establish an expeditious schedule for its elimination and report the dates of identification and schedules for removal in the permittee's annual reports. The permittee shall immediately commence actions necessary for elimination. The permittee shall diligently pursue elimination of all illicit discharges. In the interim, the permittee shall take all reasonable and prudent measures to minimize the discharge of pollutants to and from its MS4.

b. The period between identification and elimination of an illicit discharge is not a grace period. Discharges from an MS4 that are mixed with an illicit discharge are not authorized by this Permit (part 1.3.a) and remain unlawful until eliminated.

2.3.4.3. Non-Stormwater Discharges

The permittee may presume that the sources of non-stormwater listed in part 1.4 of this permit need not be addressed. However, if the permittee identifies any of these sources as significant contributors of pollutants to the MS4, then the permittee shall implement measures to control these sources so they are no longer significant contributors of pollutants, and/or eliminate them entirely, consistent with part 2.3.4.

2.3.4.4. Sanitary Sewer Overflows

a. Upon detection of an SSO the permittee shall eliminate it as expeditiously as possible and take interim mitigation measures to minimize the discharge of pollutants to and from its MS4 until elimination is completed.

b. The permittee shall identify all known locations where SSOs have discharged to the MS4 within the previous five (5) years. This shall include SSOs resulting, during dry or wet weather, from inadequate conveyance capacities, or where interconnectivity of the storm and sanitary sewer infrastructure allows for communication of flow between the systems. Within one (1) year of the effective date of the permit, the permittee shall develop an inventory of all identified SSOs indicating the following information, if available:

    1. Location (approximate street crossing/address and receiving water, if any);
    2. A clear statement of whether the discharge entered a surface water directly or entered the MS4;
    3. Date(s) and time(s) of each known SSO occurrence (i.e., beginning and end of any known discharge);
    4. Estimated volume(s) of the occurrence;
    5. Description of the occurrence indicating known or suspected cause(s);
    6. Mitigation and corrective measures completed with dates implemented; and
    7. Mitigation and corrective measures planned with implementation schedules.

    The permittee shall maintain the inventory as a part of the SWMP and update the inventory annually, all updates shall include the information in part 2.3.4.4.b.1-7.

c. In accordance with Paragraph B.12 of Appendix B of this permit, upon becoming aware of an SSO to the MS4, the permittee shall provide oral notice to EPA within 24 hours. Additionally, the permittee shall provide written notice to EPA and MassDEP within five (5) days of becoming aware of the SSO occurrence and shall include the information in the updated inventory. The notice shall contain all of the information listed in part 2.3.4.4.b. Where common notification requirements for SSOs are included in multiple NPDES permits issued to a permittee, a single notification may be made to EPA as directed in the permittee's wastewater or CSO NPDES permit and constitutes compliance with this part.

d. The permittee shall include and update the SSO inventory in its annual report, including the status of mitigation and corrective measures implemented by the permittee to address each SSO identified pursuant to this part.

e. The period between detection and elimination of a discharge from the SSO to the MS4 is not a grace period. Discharges from an MS4 that are mixed with an SSO are not authorized by this Permit (part 1.3.a) and remain unlawful until eliminated.

2.3.4.5. System mapping

The permittee shall develop a revised and more detailed map than was required by the MS4-2003 permit. This revised map of the MS4 shall be completed in two phases as outlined below. The mapping shall include a depiction of the permittee's separate storm sewer system in the permit area. The mapping is intended to facilitate the identification of key infrastructure and factors influencing proper system operation, and the potential for illicit sanitary sewer discharges.

a. Phase I: The system map shall be updated within two (2) years of the permit effective date to include the following information:

- Outfalls and receiving waters (required by MS4-2003 permit)
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally-owned stormwater treatment structures (e.g., detention and retention basins, infiltration systems , bioretention areas, water quality swales, gross particle separators, oil/water separators, or other proprietary systems)
- Waterbodies identified by name and indication of all use impairments as identified on the most recent EPA approved Massachusetts Integrated List of waters report pursuant to Clean Water Act section 303(d) and 305(b)
- Initial catchment delineations. Any available system data and topographic information may be used to produce initial catchment delineations. For the purpose of this permit, a catchment is the area that drains to an individual outfall or interconnection.

b. Phase II: The system map shall be updated annually as the following information becomes available during implementation of catchment investigation procedures in part 2.3.4.8. This information must be included in the map for all outfalls within ten (10) years of the permit effective date:
- Outfall spatial location (latitude and longitude with a minimum accuracy of +/-30 feet)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineations. Catchment delineations shall be updated to reflect information collected during catchment investigations
- Municipal sanitary sewer system (if available)
- Municipal combined sewer system (if applicable).

c. Recommended elements to be included in the system map as information becomes available:
- Storm sewer material, size (pipe diameter) and age
- Sanitary sewer system material, size (pipe diameter) and age
- Privately-owned stormwater treatment structures
- Where a municipal sanitary sewer system exists, properties known or suspected to be served by a septic system, especially in high-density urban areas
- Area where the permittee's MS4 has received or could receive flow from septic system discharges (e.g., areas with poor soils, or high ground water elevations unsuitable for conventional subsurface disposal systems)
- Seasonal high water table elevations impacting sanitary alignments
- Topography
- Orthophotography

- Alignments, dates and representation of work completed (with legend) of past illicit discharge investigations (e.g., flow isolation, dye testing, CCTV)
- Locations of suspected, confirmed and corrected illicit discharges (with dates and flow estimates).

d. The mapping may be produced by hand or through computer-aided methods (e.g. GIS). The required scale and detail of the map shall be appropriate to facilitate a rapid understanding of the system by the permittee, EPA and the state. In addition, the mapping shall serve as a planning tool for the implementation and phasing of the IDDE program and demonstration of the extent of complete and planned investigations and corrections. The permittee shall update the mapping as necessary to reflect newly discovered information and required corrections or modifications.

e. The permittee shall report on the progress towards the completion of the system map in each annual report.

2.3.4.6. Written Illicit Discharge Detection and Elimination Program

The IDDE program shall be recorded in a written (hardcopy or electronic) document. The IDDE program shall include each of the elements described in parts 2.3.4.7 and part 2.3.4.8, unless the permittee provides a written explanation within the IDDE program as to why a particular element is not applicable to the permittee.

Notwithstanding the permittee's explanation, EPA may at any time determine that a particular element is in fact applicable to the permittee and require the permittee to add it to the IDDE program. The written (hardcopy or electronic) IDDE program shall be completed within one (1) year of the effective date of the permit and updated in accordance with the milestones of this part. The permittee shall implement the IDDE program in accordance with the goals and milestones contained in this part.

a. The written (hardcopy or electronic) IDDE program shall include a reference or citation of the authority the permittee will use to implement all aspects of the IDDE program.
b. Statement of IDDE Program Responsibilities - The permittee shall establish a written (hardcopy or electronic) statement that clearly identifies responsibilities with regard to eliminating illicit discharges. The statement shall identify the lead municipal agency(ies) or department(s) responsible for implementing the IDDE Program as well as any other agencies or departments that may have responsibilities for aspects of the program (e.g., board of health responsibilities for overseeing septic system construction; sanitary sewer system staff; inspectional services for enforcing plumbing codes; town counsel responsibilities in enforcement actions, etc.). Where multiple departments and agencies have responsibilities with respect to the IDDE program specific areas of responsibility shall be defined and processes for coordination and data sharing shall be established and documented.

c. Program Procedures – The permittee shall include in the written IDDE program all written procedures developed in accordance with the requirements and timelines in parts 2.3.4.7 and 2.3.4.8 below. At a minimum this shall include the written procedures for dry weather outfall screening and sampling and for catchment investigations.

2.3.4.7. Assessment and Priority Ranking of Outfalls/Interconnections

The permittee shall assess and priority rank the outfalls in terms of their potential to have illicit discharges and SSOs and the related public health significance. This ranking will determine the priority order for

screening of outfalls and interconnections pursuant to part 2.3.4.7.b, catchment investigations for evidence of illicit discharges and SSOs pursuant to part 2.3.4.8, and provides the basis for determining permit milestones of this part.

a. Outfall/Interconnection Inventory and Initial Ranking:
An initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information shall be completed within one (1) year from the effective date of the permit; an updated inventory and ranking will be provided in each annual report thereafter. The inventory shall be updated annually to include data collected in connection with the dry weather screening and other relevant inspections conducted by the permittee.

i. The outfall and interconnection inventory will identify each outfall and interconnection discharging from the MS4, record its location and condition, and provide a framework for tracking inspections, screenings and other activities under the permittee's IDDE program.

- An outfall means a point source as defined by 40 CFR § 122.2 as the point where the municipal separate storm sewer discharges to waters of the United States. An outfall does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels or other conveyances that connect segments of the same stream or other waters of the United States and that are used to convey waters of the United States. (40 CFR § 122.26(b)(9)). However, it is strongly recommended that a permittee inspect all accessible portions of the system as part of this process. Culverts longer than a simple road crossing shall be included in the inventory unless the permittee can confirm that they are free of any connections and simply convey waters of the United States.
- An interconnection means the point (excluding sheet flow over impervious surfaces) where the permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is conveyed to waters of the United States or to another storm sewer system and eventually to a water of the United States.

ii. The permittee shall classify each of the permittee's outfalls and interconnections into one of the following categories:
- Problem Outfalls: outfalls/interconnections with known or suspected contributions of illicit discharges based on existing information shall be designated as Problem Outfalls. This shall include any outfalls/interconnections where previous screening indicates likely sewer input.[4] Problem Outfalls need not be screened pursuant to part 2.3.4.7.b.
- High Priority Outfalls: Outfalls/interconnections that have not been classified as Problem Outfalls and that are:
  - discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds;
  - determined by the permittee as high priority based on the characteristics listed below or other available information;
- Low Priority Outfalls: Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed below or other available information.

[4] Likely sewer input indicators are any of the following:
- Olfactory or visual evidence of sewage,
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammoni a ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

- Excluded outfalls: outfalls/interconnections with no potential for illicit discharges may be excluded from the IDDE program. This category is limited to roadway drainage in undeveloped areas with no dwellings and no sanitary sewers; drainage for athletic fields, parks or undeveloped green space and associated parking without services; cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.

iii. The permittee shall priority rank outfalls into the categories above (except for excluded outfalls), based on the following characteristics of the defined initial catchment area where information is available:

- Past discharge complaints and reports.
- Poor receiving water quality- the following guidelines are recommended to identify waters as having a high illicit discharge potential: exceeding water quality standards for bacteria; ammonia levels above 0.5 mg/l; surfactants levels greater than or equal to 0.25 mg/l.
- Density of generating sites- Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples of these sites include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.
- Age of development and infrastructure – Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old will probably have a high illicit discharge potential. Developments 20 years or younger will probably have a low illicit discharge potential.
- Sewer conversion – contributing catchment areas that were once serviced by septic systems, but have been converted to sewer connections may have a high illicit discharge potential.
- Historic combined sewer systems – contributing areas that were once serviced by a combined sewer system, but have been separated may have a high illicit discharge potential.
- Surrounding density of aging septic systems – Septic systems thirty years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.
- Culverted streams – any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.
- Water quality limited waterbodies that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.
- The permittee may also consider additional relevant characteristics, including location-specific characteristics; if so, the permittee shall include the additional characteristics in its written (hardcopy or electronic) IDDE program.

b. Dry Weather Outfall and Interconnection Screening and Sampling
All outfalls/interconnections (excluding Problem and excluded Outfalls) shall be inspected for the presence of dry weather flow within three (3) years of the permit effective date. The permittee shall screen all High and Low Priority Outfalls in accordance with their initial ranking developed at part 2.3.4.7.a.

i. Written procedure: The permittee shall develop an outfall and interconnection screening and sampling procedure to be included in the IDDE program within one (1) year of the permit effective date. This procedure shall include the following procedures for:

- sample collection,
- use of field kits,

- storage and conveyance of samples (including relevant hold times), and
- field data collection and storage.

An example screening and sampling protocol (*EPA New England Bacterial Source Tracking Protocol*) can be found on EPA's website.

ii. Weather conditions: Dry weather screening and sampling shall proceed only when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow melt is occurring.

iii. Screening requirements: For each outfall/interconnection:

1. The permittee shall record all of the following information and include it in the outfall/interconnection inventory and priority ranking:
    - unique identifier,
    - receiving water,
    - date of most recent inspection,
    - dimensions,
    - shape,
    - material (concrete, PVC),
    - spatial location (latitude and longitude with a minimum accuracy of +/-30 feet,
    - physical condition,
    - indicators of potential non-stormwater discharges (including presence or evidence of suspect flow and sensory observations such as odor, color, turbidity, floatables, or oil sheen).
2. If an outfall/interconnection is inaccessible or submerged, the permittee shall proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results.
3. If no flow is observed, but evidence of illicit flow exists, the permittee shall revisit the outfall during dry weather within one week of the initial observation, if practicable, to perform a second dry weather screening and sample any observed flow (proceed as in iv. below).
4. Where dry weather flow is found at an outfall/interconnection, at least one (1) sample shall be collected, and:
    a) Samples shall be analyzed at a minimum for:
        - ammonia,
        - chlorine,
        - conductivity,
        - salinity,
        - *E. coli* (freshwater receiving water) or enterococcus (saline or brackish receiving water),
        - surfactants (such as MBAS),
        - temperature, and
        - pollutants of concern[5]
    b) All analyses with the exception of indicator bacteria and pollutants of concern can be performed with field test kits or field instrumentation and are not subject to 40

[5] Where the discharge is directly into a water quality limited water or a water subject to an approved TMDL as indicated in Appendix F; the sample shall be analyzed for the pollutant(s) of concern identified as the cause of the impairment as specified in Appendix G

CFR part 136 requirements. Sampling for bacteria and pollutants of concern shall be conducted using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Sampling for ammonia and surfactants must use sufficiently sensitive methods to detect those parameters at or below the threshold indicator concentrations of 0.5 mg/L for ammonia and 0.25 mg/L for surfactants. Sampling for residual chlorine must use a method with a detection limit of 0.02 mg/L or 20 ug/L.

iv. The permittee may rely on screening conducted under the MS4-2003 permit, pursuant to an EPA enforcement action, or by the state or EPA to the extent that it meets the requirements of part 2.3.4.7.b.iii.4. All data shall be reported in each annual report. Permittees that have conducted substantially equivalent monitoring to that required by part 2.3.4.7.b as part of an EPA enforcement action can request an exemption from the requirements of part 2.3.4.7.b by submitting a written request to EPA and retaining exemption approval from EPA as part of the SWMP. Until the permittee receives formal written approval of the exemption from part 2.3.4.7.b from EPA the permittee remains subject to all requirements of part 2.3.4.7.b.

v. The permittee shall submit all screening data used in compliance with this part in its Annual Report.

c. Follow-up ranking of outfalls and interconnections:

i. The permittee's outfall and interconnection ranking (2.3.4.7.a) shall be updated to reprioritize outfalls and interconnections based on information gathered during dry weather screening (part 2.3.4.7.b).

ii. Outfalls/interconnections where relevant information was found indicating sewer input to the MS4 or sampling results indicating sewer input[6] shall be considered highly likely to contain illicit discharges from sanitary sources, and such outfalls/interconnections shall be ranked at the top of the High Priority Outfalls category for investigation. At this time, permittees may choose to rank other outfalls and interconnections based on any new information from the dry weather screening.

iii. The ranking can be updated continuously as dry weather screening information becomes available, but shall be completed within three (3) years of the effective date of the permit.

2.3.4.8. Catchment Investigations

The permittee shall develop a systematic procedure to investigate each catchment associated with an outfall or interconnection within their MS4 system.

a. Timelines:

- A written catchment investigation procedure shall be developed within 18 months of the permit effective date in accordance with the requirements of part 2.3.4.8.b below.
- Investigations of catchments associated with Problem Outfalls shall begin no later than two (2)

[6] Likely sewer input indicators are any of the following:

- Olfactory or visual evidence of sewage,
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

years from the permit effective date.

- Investigations of catchments associated with High and Low Priority Outfalls shall follow the ranking of outfalls updated in part 2.3.4.7.c.
- Investigations of catchments associated with Problem Outfalls shall be completed with seven (7) years of the permit effective date
- Investigations of catchments where any information gathered on the outfall/interconnection identifies sewer input[7] shall be completed within seven (7) years of the permit effective date.
- Investigations of catchments associated with all Problem, High- and Low-Priority Outfalls shall be completed within ten (10) years of the permit effective date.

*For the purposes of these milestones, an individual catchment investigation will be considered complete if all relevant procedures in part 2.3.4.8.c. and 2.3.4.8.d. below have been completed.

b. A written catchment investigation procedure shall be developed that:

i. **Identifies maps, historic plans and records, and other sources of data**, including but not limited to plans related to the construction of the storm drain and of sanitary sewers, prior work performed on the storm drains or sanitary sewers, board of health or other municipal data on septic system failures or required upgrades, and complaint records related to SSOs, sanitary sewer surcharges, and septic system breakouts. These data sources will be used in identifying system vulnerability factors within each catchment.

ii. **Includes a manhole inspection methodology** that shall describe a storm drain network investigation that involves systematically and progressively observing, sampling (as required below) and evaluating key junction manholes (see definition in Appendix A) in the MS4 to determine the approximate location of suspected illicit discharges or SSOs. The manhole inspection methodology may either start from the outfall and work up the system or start from the upper parts of the catchment and work down the system or be a combination of both practices. Either method must, at a minimum, include an investigation of each key junction manhole within the MS4, even where no evidence of an illicit discharge is observed at the outfall. The manhole inspection methodology must describe the method the permittee will use. The manhole inspection methodology shall include procedures for dry and wet weather investigations.

iii. **Establishes procedures to isolate and confirm sources of illicit discharges** where manhole investigations or other physical evidence or screening has identified that MS4 alignments are influenced by illicit discharges or SSOs. These shall include isolation of the drainage area for implementation of more detailed investigations, inspection of additional manholes along the alignment to refine the location of potential contaminant sources, and methods such as sandbagging key junction manhole inlets, targeted internal plumbing inspections, dye testing, video inspections, or smoke testing to isolate and confirm the sources.

c. Requirements for each catchment investigation associated with an outfall/interconnection:

i. For each catchment being investigated, the permittee shall review relevant mapping and historic plans and records gathered in accordance with Part 2.3.4.8.b.i. This review shall be used to identify

[7] Likely sewer input indicators are any of the following:

- Olfactory or visual evidence of sewage,
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

areas within the catchment with higher potential for illicit connections. The permittee shall identify and record the presence of any of the following specific **System Vulnerability Factors (SVFs)**:

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages;
- Common or twin-invert manholes serving storm and sanitary sewer alignments;
- Common trench construction serving both storm and sanitary sewer alignments;
- Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system;
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints;
- Areas formerly served by combined sewer systems;
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.

EPA recommends the permittee include the following in their consideration of System Vulnerability Factors:

- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs;
- Any sanitary sewer and storm drain infrastructure greater than 40 years old;
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance);
- History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance);

The permittee shall document the presence or absence of System Vulnerability Factors for each catchment, retain this documentation as part of its IDDE program, and report this information in Annual Reports. Catchments with a minimum of one (1) System Vulnerability Factor are subject to wet weather sampling requirements of part 2.3.4.8.c.ii.2.

ii. For each catchment, the permittee must inspect key junction manholes and gather catchment information on the locations of MS4 pipes, manholes, and the extent of the contributing catchment.

1. <u>For all catchments</u>
   a) Infrastructure information shall be incorporated into the permittee's mapping required at part 2.3.4.5; the permittee will refine their catchment delineation based on the field investigation where appropriate.
   b) The SVF inventory for the catchment will be updated based on information obtained during the inspection, including common (twin invert) manholes, directly piped connections between storm drains and sanitary sewer infrastructure, common weir walls, sanitary sewer underdrain connections and other structural vulnerabilities where sanitary discharges could enter the storm drain system during wet weather.
      1) **Where a minimum of one (1) SVF is identified based on previous information**

or the investigation, a wet weather investigation must be conducted at the associated outfall (see below).

c) During dry weather, key junction manholes[8] shall be opened and inspected systematically for visual and olfactory evidence of illicit connections (e.g., excrement, toilet paper, gray filamentous bacterial growth, or sanitary products present).
   1) If flow is observed, the permittee shall sample the flow at a minimum for ammonia, chlorine and surfactants and can use field kits for these analyses.
   2) Where sampling results or visual or olfactory evidence indicate potential illicit discharges or SSOs, the area draining to the junction manhole shall be flagged for further upstream investigation.

d) Key junction and subsequent manhole investigations will proceed until the location of suspected illicit discharges or SSOs can be isolated to a pipe segment between two manholes. If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon completion of key junction manhole sampling.

2. <u>For all catchments with a minimum of one (1) SVF identified</u>
   a) The permittee shall meet the requirements above for dry weather screening
   b) The permittee shall inspect and sample under wet weather conditions to the extent necessary to determine whether wet weather-induced high flows in sanitary sewers or high groundwater in areas served by septic systems result in discharges of sanitary flow to the MS4.
      1) The permittee shall conduct at least one wet weather screening and sampling at the outfall that includes the same parameters required during dry weather screening, part 2.3.4.7.b.iii.4.
      2) Wet weather sampling and screening shall proceed during or after a storm event of sufficient depth or intensity to produce a stormwater discharge. EPA strongly recommends sampling during the spring (March through June) when groundwater levels are relatively high.
      3) The permit does not require a minimum rainfall event prior to wet weather screening. However, permittees may incorporate provisions that assist in targeting such discharges, including avoiding sampling during the initial period of discharge ("first flush") and/or identifying minimum storm event intensities likely to trigger sanitary sewer interconnections.
   c) This sampling can be done upon completion of any dry weather investigation but must be completed before the catchment investigation is marked as complete.

iii. All data collected as part of the dry and wet weather catchment investigations shall be recorded and reported in each annual report.

d. <u>Identification/Confirmation of illicit source</u>
Where the source of an illicit discharge has been approximated between two manholes in the permittee's MS4, the permittee shall isolate and identify/confirm the source of the illicit discharge using more detailed methods identified in their written procedure (2.3.4.8.b.iii). For outfalls that contained evidence of an illicit discharge, catchment investigations will be considered complete upon

[8] Where catchments do not contain junction manholes, the dry weather screening and sampling shall be considered as meeting the manhole inspection requirement. In these catchments, dry weather screenings that indicate potential presence of illicit discharges shall be further investigated pursuant to part 2.3.4.8.d. Investigations in these catchments may be considered complete where dry weather screening reveals no flow; no evidence of illicit discharges or SSOs is indicated through sampling results or visual or olfactory means; and no wet weather System Vulnerability Factors are identified.

confirmation of all illicit sources.

e. Illicit discharge removal
When the specific source of an illicit discharge is identified, the permittee shall exercise its authority as necessary to require its removal pursuant to part 2.3.4.2 or 2.3.4.3.

i. For each confirmed source the permittee shall include in the annual report the following information:
- the location of the discharge and its source(s);
- a description of the discharge;
- the method of discovery;
- date of discovery;
- date of elimination, mitigation or enforcement action OR planned corrective measures and a schedule for completing the illicit discharge removal; and
- estimate of the volume of flow removed.

ii. Within one year of removal of all identified illicit discharges within a catchment area, confirmatory outfall or interconnection screening shall be conducted. The confirmatory screening shall be conducted in dry weather unless System Vulnerability Factors have been identified, in which case both dry weather and wet weather confirmatory screening shall be conducted. If confirmatory screening indicates evidence of additional illicit discharges, the catchment shall be scheduled for additional investigation.

2.3.4.9. Indicators of IDDE Program Progress

The permittee shall define or describe indicators for tracking program success and evaluate and report on the overall effectiveness of the IDDE program in each annual report. At a minimum the permittee shall document in each annual report:

- the number of SSOs and illicit discharges identified and removed,
- the number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure,
- all dry weather and wet weather screening and sampling results and
- the volume of sewage removed

2.3.4.10 Ongoing Screening

Upon completion of all catchment investigations pursuant to part 2.3.4.8.c and illicit discharge removal and confirmation (if necessary) pursuant to paragraph 2.3.4.8.e, each outfall or interconnection shall be reprioritized for screening in accordance with part 2.3.4.8.a and scheduled for ongoing screening once every five years. Ongoing screening shall consist of dry weather screening and sampling consistent with part 2.3.4.7.b; wet weather screening and sampling shall also be required at outfalls where wet weather screening was required due to SVFs and shall be conducted in accordance with part 2.3.4.8.c.ii. All sampling results shall be reported in the permittee's annual report.

2.3.4.11 Training

The permittee shall, at a minimum, annually provide training to employees involved in IDDE program about the program, including how to recognize illicit discharges and SSOs. The permittee shall report on the frequency and type of employee training in the annual report.

2.3.5. Construction Site Stormwater Runoff Control

Objective: The objective of an effective construction stormwater runoff control program is 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. The construction site stormwater runoff control program required by this permit is a separate and distinct program from EPA's stormwater construction permit program. (http://cfpub1.epa.gov/npdes/stormwater/cgp.cfm)

a. Permittees shall implement and enforce a program to reduce pollutants in any stormwater runoff discharged to the MS4 from all construction activities that result in a land disturbance of greater than or equal to one acre within the regulated area. The permittee's program shall include disturbances less than one acre if that disturbance is part of a larger common plan of development or sale that would disturb one or more acres. Permittees authorized under the MS4-2003 permit shall continue to implement and enforce their existing program and modify as necessary to meet the requirements of this part.

b. The permittee does not need to apply its construction program requirements to projects that receive a waiver from EPA under the provisions of 40 CFR § 122.26(b) (15) (i).

c. The permittee shall develop and implement a construction site runoff control program that includes the elements in Paragraphs i. through v. of this part:

i. An ordinance or regulatory mechanism that requires the use of sediment and erosion control practices at construction sites. In addition to addressing sediment and erosion control, the ordinance must include controls for other wastes on constructions sites such as demolition debris, litter and sanitary wastes. Development of an ordinance or other regulatory mechanism was a requirement of the MS4-2003 permit (See part II.B.4 and part IV.B.4).The ordinance or other regulatory mechanism required by the MS4-2003 permit shall have been effective by May 1, 2008.

ii. Written (hardcopy or electronic) procedures for site inspections and enforcement of sediment and erosion control measures. If not already existing, these procedures shall be completed within one (1) year from the effective date of the permit. The procedures shall clearly define who is responsible for site inspections as well as who has authority to implement enforcement procedures. The program shall provide that the permittee may, to the extent authorized by law, impose sanctions to ensure compliance with the local program. These procedures and regulatory authorities shall be documented in the SWMP.

iii. 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. The program may include references to BMP design standards in state manuals, such as the Massachusetts Stormwater Handbook[9], or design standards developed by the MS4. EPA supports and encourages the use of design standards in local programs. Examples of appropriate sediment and erosion control measures for construction sites include local requirements to:

[9] The handbook is available at: http://www.mass.gov/dep/water/laws/policies.htm#storm

1. Minimize the amount of disturbed area and protect natural resources;
2. Stabilize sites when projects are complete or operations have temporarily ceased;
3. Protect slopes on the construction site;
4. Protect all storm drain inlets and armor all newly constructed outlets;
5. Use perimeter controls at the site;
6. Stabilize construction site entrances and exits to prevent off-site tracking;
7. Inspect stormwater controls at consistent intervals.

iv. 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. These wastes may not be discharged to the MS4.

v. Written procedures for site plan review and inspection and enforcement. If not already existing, the procedures for site plan review and inspection and enforcement shall be completed within one (1) year from the effective date of the permit. The site plan review procedure shall include a pre-construction review by the permittee of the site design, the planned operations at the construction site, planned BMPs during the construction phase, and the planned BMPs to be used to manage runoff created after development. The review procedure shall incorporate procedures for the consideration of potential water quality impacts, and procedures for the receipt and consideration of information submitted by the public. The site plan review procedure shall also include evaluation of opportunities for use of low impact design and green infrastructure. When the opportunity exists, the permittee shall encourage project proponents to incorporate these practices into the site design. The procedures for site inspections conducted by the permittee shall include the requirement that inspections occur during construction of BMPs as well as after construction of BMPs to ensure they are working as described in the approved plans, clearly defined procedures for inspections including qualifications necessary to perform the inspections, the use of mandated inspection forms if appropriate, and procedure for tracking the number of site reviews, inspections, and enforcement actions. This tracking information shall be included as part of each annual report required by part 4.4.

2.3.6. Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management)

Objective: The objective of this control measure is to reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater after construction on new or redeveloped sites. For the purposes of this part (2.3.6.), the following definitions apply:

site is defined as the area extent of construction activities, including but not limited to the creation of new impervious cover and improvement of existing impervious cover (e.g. repaving not covered by 2.3.6.a.ii.4.d.)

new development is defined as any construction activities or land alteration resulting in total earth disturbances equal to or greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) on an area that has not previously been developed to include impervious cover.

redevelopment is defined as any construction, land alteration, or improvement of impervious surfaces resulting in total earth disturbances equal to or greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) that does not meet the definition of new development (see above).

a. Permittees shall develop, implement, and enforce a program to address post-construction stormwater runoff from all new development and redevelopment sites that disturb one or more acres and discharge into the permittees MS4 at a minimum. Permittees authorized under the MS4-2003 permit shall continue to implement and enforce their program and modify as necessary to meet the requirements of this part.

i. The permittee's new development/ redevelopment program shall include sites less than one acre if the site is part of a larger common plan of development or redevelopment which disturbs one or more acre.

ii. The permittee shall develop or modify, as appropriate, an ordinance or other regulatory mechanism within two (2) years of the effective date of the permit to contain provisions that are as least as stringent as the following:

1. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent feasible.

2. The design of treatment and infiltration practices should follow the guidance in Volume 2 of the Massachusetts Stormwater Handbook, as amended, or other federally or State approved[10] BMP design guidance.

3. Stormwater management systems on new development sites shall be designed to:
   a) Not allow new stormwater conveyances to discharge untreated stormwater in accordance with Massachusetts Stormwater Handbook Standard 1;
   b) Control peak runoff rates in accordance with Massachusetts Stormwater Handbook Standard 2[11];
   c) Recharge groundwater in accordance with Massachusetts Stormwater Handbook Standard 3[12];
   d) Eliminate or reduce the discharge of pollutants from land uses with higher pollutant loads as defined in the Massachusetts Stormwater Handbook in accordance with Massachusetts Stormwater Handbook Standard 5;
   e) Protect Zone II or Interim Wellhead Protection Areas of public water supplies in accordance with Massachusetts Stormwater Handbook Standard 6[13];
   f) Implement long term maintenance practices in accordance with Massachusetts Stormwater Handbook Standard 9; and
   g) Require that all stormwater management systems be designed to:
      1) Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the

[10] State approved includes any state in the United States, including, but not limited to, approved guidance by the Commonwealth of Massachusetts
[11] Requirement necessary for Section 401 water quality certification by Massachusetts
[12] Requirement necessary for Section 401 water quality certification by Massachusetts
[13] Requirement necessary for Section 401 water quality certification by Massachusetts

site AND/OR

2) Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site[14] AND 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site[14]. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved[15] BMP design guidance or performance standards (e.g. State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.

4. Redevelopment Requirements
   a) Stormwater management systems on Redevelopment sites shall meet the following sections of part 2.3.6.a.ii.3 to the maximum extent feasible:
      1) Part 2.3.6.a.ii.3(a) (Massachusetts Stormwater Standard 1);
      2) Part 2.3.6.a.ii.3(b) (Massachusetts Stormwater Standard 2);
      3) Part 2.3.6.a.ii.3(c) (Massachusetts Stormwater Standard 3); and
      4) The pretreatment and structural best management practices requirements of 2.3.6.a.ii.3(d) and 2.3.6.a.ii.3(e) (Massachusetts Stormwater Standards 5 and 6).
   b) Stormwater management systems on Redevelopment sites shall also improve existing conditions by requiring that stormwater management systems be designed to:
      1) Retain the volume of runoff equivalent to, or greater than, 0.80 inch multiplied by the total post-construction impervious surface area on the site AND/OR
      2) Remove 80% of the average annual post-construction load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1 where available. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved BMP design guidance or performance standards (e.g. State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.
   c) Stormwater management systems on redevelopment sites may utilize offsite mitigation within the same USGS HUC10 as the redevelopment site to meet the equivalent tretention or pollutant removal requirements in part 2.3.6.a.ii.4(b).
   d) Redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways, (including widening less than a single

[14] The required removal percentage is not required for each storm,it is the average removal over a year that is required
[15] See footnote 14

lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving projects) shall improve existing conditions where feasible and are exempt from part 2.3.6.a.ii.4(a), part 2.3.6.a.ii.4(b) and part 2.3.6.a.ii.4(c). Roadway widening or improvements that increase the amount of impervious area on the redevelopment site by greater than or equal to a single lane width shall meet the requirements of part 2.3.6.a.ii.4(a) – (c)fully.

iii. The permittee shall require, at a minimum, the submission of as-built drawings no later than two (2) years after completion of construction projects. The as-built drawings must depict all on site controls, both structural and non-structural, designed to manage the stormwater associated with the completed site (post construction stormwater management). The new development/redevelopment program shall have procedures to ensure adequate long-term operation and maintenance of stormwater management practices that are put in place after the completion of a construction project. These procedures may include the use of dedicated funds or escrow accounts for development projects or the acceptance of ownership by the permittee of all privately owned BMPs. These procedures may also include the development of maintenance contracts between the owner of the BMP and the permittee. Alternatively, these procedures may include the submission of an annual certification documenting the work that has been done over the last 12 months to properly operate and maintain the stormwater control measures. The procedures to require submission of as-built drawings and ensure long term operation and maintenance shall be a part of the SWMP. The permittee shall report in the annual report on the measures that the permittee has utilized to meet this requirement.

b. Within four (4) years of the effective date of this permit, the permittee 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 permittee to determine if changes to design standards for streets and parking lots can be made to support low impact design options. If the assessment indicates that changes can be made, the assessment shall include recommendations and proposed schedules to incorporate policies and standards into relevant documents and procedures to minimize impervious cover attributable to parking areas and street designs. The permittee shall implement all recommendations, in accordance with the schedules, contained in the assessment. The local planning board and local transportation board should be involved in this assessment. This assessment shall be part of the SWMP. The permittee shall report in each annual report on the status of this assessment including any planned or completed changes to local regulations and guidelines.

c. Within four (4) years from the effective date of the permit, the permittee shall develop a report assessing existing local regulations to determine the feasibility of making, at a minimum, the following practices allowable when appropriate site conditions exist:

i. Green roofs;
ii. Infiltration practices such as rain gardens, curb extensions, planter gardens, porous and pervious pavements, and other designs to manage stormwater using landscaping and structured or augmented soils; and
iii. Water harvesting devices such as rain barrels and cisterns, and the use of stormwater for non-potable uses.

The assessment should indicate if the practices are allowed in the MS4 jurisdiction and under what circumstances are they allowed. If the practices are not allowed, the permittee shall determine what hinders the use of these practices, what changes in local regulations may be made to make them allowable, and provide a schedule for implementation of recommendations. The permittee shall implement all recommendations, in accordance with the schedules, contained in the assessment. The permittee shall report in each annual report on its findings and progress towards making the practices allowable.(Information available at: http://www.epa.gov/region1/npdes/stormwater/assets/pdf/AddressingBarrier2LID.pdf and http://www.mapc.org/resources/low-impact-dev-toolkit/local-codes-lid)

d. Four (4) years from the effective date of this permit, the permittee shall identify a minimum of 5 permittee-owned properties that could potentially be modified or retrofitted with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges to and from its MS4 through the reduction of impervious area. Properties and infrastructure for consideration shall include those with the potential for reduction of on-site impervious area (IA) as well as those that could provide reduction of off-site IA. At a minimum, the permittee shall consider municipal properties with significant impervious cover (including parking lots, buildings, and maintenance yards) that could be modified or retrofitted. MS4 infrastructure to be considered includes existing street right-of-ways, outfalls and conventional stormwater conveyances and controls (including swales and detention practices) that could be readily modified or retrofitted to provide reduction in frequency, volume or pollutant loads of such discharges through reduction of impervious cover.

In determining the potential for modifying or retrofitting particular properties, the permittee shall consider factors such as access for maintenance purposes; subsurface geology; depth to water table; proximity to aquifers and subsurface infrastructure including sanitary sewers and septic systems; and opportunities for public use and education. In determining its priority ranking, the permittee shall consider factors such as schedules for planned capital improvements to storm and sanitary sewer infrastructure and paving projects; current storm sewer level of service; and control of discharges to water quality limited waters, first or second order streams, public swimming beaches, drinking water supply sources and shellfish growing areas.

Beginning with the fifth year annual report and in each subsequent annual report, the permittee shall identify additional permittee owned sites and infrastructure that could be retrofitted such that the permittee maintains a minimum of 5 sites in their inventory, until such a time as when the permittee has less than 5 sites remaining. In addition, the permittee shall report on all properties that have been modified or retrofitted with BMPs to mitigate IA that were inventoried in accordance with this part. The permittee may also include in its annual report non-MS4 owned property that has been modified or retrofitted with BMPs to mitigate IA.

2.3.7. Good House Keeping and Pollution Prevention for Permittee Owned Operations

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.

a. Operations and Maintenance Programs

i. Within two (2) years from the effective date of the permit, the permittee shall develop, if not already developed, written (hardcopy or electronic) operations and maintenance procedures for the municipal activities listed below in part 2.3.7.a.ii. These written procedures shall be included as part of the SWMP.

ii. Within two (2) year of the effective date of this permit, the permittee shall develop an inventory of all permittee owned facilities within the categories listed below. The permittee shall review this inventory annually and update as necessary.

1. Parks and open space: Establish procedures to address the proper use, storage, and disposal of pesticides, herbicides, and fertilizers including minimizing the use of these products and using only in accordance manufacturer's instruction. Evaluate lawn maintenance and landscaping activities to ensure practices are protective of water quality. Protective practices include reduced mowing frequencies, proper disposal of lawn clippings, and use of alternative landscaping materials (e.g., drought resistant planting). Establish pet waste handling collection and disposal locations at all parks and open space where pets are permitted, including the placing of proper signage concerning the proper collection and disposal of pet waste. Establish procedures to address waterfowl congregation areas where appropriate to reduce waterfowl droppings from entering the MS4. Establish procedures for management of trash containers at parks and open space (scheduled cleanings; sufficient number). Establish procedures to address erosion or poor vegetative cover when the permittee becomes aware of it; especially if the erosion is within 50 feet of a surface water.

2. Buildings and facilities where pollutants are exposed to stormwater runoff: This includes schools (to the extent they are permittee-owned or operated), town offices, police, and fire stations, municipal pools and parking garages and other permittee-owned or operated buildings or facilities. Evaluate the use, storage, and disposal of petroleum products and other potential stormwater pollutants. Provide employee training as necessary so that those responsible for handling these products know proper procedures. Ensure that Spill Prevention Plans are in place, if applicable, and coordinate with the fire department as necessary. Develop management procedures for dumpsters and other waste management equipment. Sweep parking lots and keep areas surrounding the facilities clean to reduce runoff of pollutants.

3. Vehicles and Equipment: Establish procedures for the storage of permittee vehicles. Vehicles with fluid leaks shall be stored indoors or containment shall be provided until repaired. Evaluate fueling areas owned or operated by the permittee. If possible, place fueling areas under cover in order to minimize exposure. Establish procedures to ensure that vehicle wash waters are not discharged to the municipal storm sewer system or to surface waters. This permit does not authorize such discharges.

iii. Infrastructure Operations and Maintenance

1. The permittee shall establish within two (2) year of the effective date of the permit a written (hardcopy or electronic) program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4. If the permittee has an existing program to maintain its MS4 infrastructure in a timely manner to reduce or eliminate the discharge of pollutants from the MS4, the permittee shall document the program in the SWMP.

2. The permittee shall optimize routine inspections, cleaning and maintenance of catch basins such that the following conditions are met:

   - Prioritize inspection and maintenance for catch basins located near construction activities (roadway construction, residential, commercial, or industrial development or redevelopment). Clean catch basins in such areas more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
   - Establish a schedule with a goal that the frequency of routine cleaning will ensure that no catch basin at anytime will be more than 50 percent full.
   - If a catch basin sump is more than 50 percent full during two consecutive routine inspections/cleaning events, the permittee shall document that finding, investigate the contributing drainage area for sources of excessive sediment loading, and to the extent practicable, abate contributing sources. The permittee shall describe any actions taken in its annual report.
   - For the purposes of this part, an excessive sediment or debris loading is a catch basin sump more than 50 percent full. A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.
   - The permittee shall document in the SWMP and in the first annual report its plan for optimizing catch basin cleaning, inspection plans, or its schedule for gathering information to develop the optimization plan. Documentation shall include metrics and other information used to reach the determination that the established plan for cleaning and maintenance is optimal for the MS4. The permittee shall keep a log of catch basins cleaned or inspected.
   - The permittee shall report in each annual report the total number of catch basins, number inspected, number cleaned, and the total volume or mass of material removed from all catch basins.

3. The permittee shall establish and implement procedures for sweeping and/or cleaning streets, and permittee-owned parking lots. All streets with the exception of rural uncurbed roads with no catch basins or high speed limited access highways shall be swept and/or cleaned a minimum of once per year in the spring (following winter activities such as sanding). The procedures shall also include more frequent sweeping of targeted areas determined by the permittee on the basis of pollutant load reduction potential, based on inspections, pollutant loads, catch basin cleaning or inspection results, land use, water quality limited or TMDL waters or other relevant factors as determined by the permittee. The permittee shall report in each annual report the number of miles cleaned or the volume or mass of material removed.

   For rural uncurbed roadways with no catch basins and limited access highways, the permittee shall either meet the minimum frequencies above, or develop and implement an inspection, documentation and targeted sweeping plan within two (2) year of the effective date of the permit, and submit such plan with its year one annual report.

4. The permittee shall ensure proper storage of catch basin cleanings and street sweepings prior to disposal or reuse such that they do not discharge to receiving

waters. These materials should be managed in compliance with current MassDEP policies:

- For catch basins cleanings: http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catch-basin-cleanings.html
- For street sweepings: http://www.mass.gov/eea/docs/dep/recycle/laws/stsweep.pdf.

5. The permittee shall establish and implement procedures for winter road maintenance including the use and storage of salt and sand; minimize the use of sodium chloride and other salts, and evaluate opportunities for use of alternative materials; and ensure that snow disposal activities do not result in disposal of snow into waters of the United States. For purposes of this MS4 Permit, salt shall mean any chloride-containing material used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.

6. The permittee shall establish and implement inspection and maintenance frequencies and procedures for all stormwater treatment structures such as water quality swales, retention/detention basins, infiltration structures, proprietary treatment devices or other similar structures. All permittee-owned stormwater treatment structures (excluding catch basins) shall be inspected annually at a minimum.

iv. The permittee shall report in the annual report on the status of the inventory required by this part and any subsequent updates; the status of the O&M programs for the permittee-owned facilities and activities in part 2.3.7.a.ii; and the maintenance activities associated with each.

v. The permittee shall keep a written (hardcopy or electronic) record of all required activities including but not limited to maintenance activities, inspections and training required by part 2.3.7.a. The permittee shall maintain, consistent with part 4.2.a, all records associated with maintenance and inspection activities required by part 2.3.7.a.

b. Stormwater Pollution Prevention Plan (SWPPP)

The permittee shall develop and fully implement a SWPPP for each of the following permittee-owned or operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater as determined by the permittee. If facilities are located at the same property, the permittee may develop one SWPPP for the entire property. The SWPPP is a separate and different document from the SWMP required in part 1.10. A SWPPP does not need to be developed for a facility if the permittee has either developed a SWPPP or received a no exposure certification for the discharge under the Multi-Sector General Permit or the discharge is authorized under another NPDES permit.

i. No later than two (2) years from the effective date of the permit, the permittee shall develop and implement a written (hardcopy or electronic) SWPPP for the facilities described above. The SWPPP shall be signed in accordance with the signatory requirements of Appendix B – Subparagraph 11.

ii. The SWPPP shall contain the following elements:

1. Pollution Prevention Team
   Identify the staff on the team, by name and title. If the position is unstaffed, the title of the position should be included and the SWPPP updated when the position is filled. The role of the team is to develop, implement, maintain, and revise, as necessary, the SWPPP for the facility.

2. Description of the facility and identification of potential pollutant sources
   The SWPPP shall include a map of the facility and a description of the activities that occur at the facility. The map shall show the location of the stormwater outfalls, receiving waters, and any structural controls. Identify all activities that occur at the facility and the potential pollutants associated with each activity including the location of any floor drains. These may be included as part of the inventory required by part 2.3.7.a.

3. Identification of stormwater controls
   The permittee shall select, design, install, and implement the control measures detailed in paragraph iv below to prevent or reduce the discharge of pollutants from the permittee owned facility.

   The selection, design, installation, and implementation of the control measures shall be in accordance with good engineering practices and manufacturer's specifications. The permittee shall also take all reasonable steps to control or address the quality of discharges from the site that may not originate at the facility.

   If the discharge from the facility is to a water quality limited water and the facility has the potential to discharge the pollutant identified as causing the water quality limitation, the permittee shall identify the control measures that will be used to address this pollutant at the facility so that the discharge does not cause or contribute to a violation of a water quality standard.

4. The SWPPP shall include the following management practices:
   a) Minimize or Prevent Exposure: The permittee shall to the extent practicable either locate materials and activities inside, or protect them with storm-resistant coverings in order to prevent exposure to rain, snow, snowmelt and runoff (although significant enlargement of impervious surface area is not recommended). Materials do not need to be enclosed or covered if stormwater runoff from affected areas will not be discharged directly or indirectly to surface waters or to the MS4 or if discharges are authorized under another NPDES permit.

   b) Good Housekeeping: The permittee shall keep clean all exposed areas that are potential sources of pollutants, using such measures as sweeping at regular intervals. Ensure that trash containers are closed when not in use, keep storage areas well swept and free from leaking or damaged containers; and store leaking vehicles needing repair indoors.

   c) Preventative Maintenance: The permittee shall regularly inspect, test, maintain, and repair all equipment and systems to avoid situations that

may result in leaks, spills, and other releases of pollutants in stormwater to receiving waters. Inspections shall occur at a minimum once per quarter.

d) Spill Prevention and Response: The permittee shall minimize the potential for leaks, spills, and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum, the permittee shall have procedures that include:

- Preventive measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling.
- Response procedures that include notification of appropriate facility personnel, emergency agencies, and regulatory agencies, and procedures for stopping, containing, and cleaning up leaks, spills and other releases. Measures for cleaning up hazardous material spills or leaks shall be consistent with applicable Resource Conservation and Recovery Act (RCRA) regulations at 40 CFR section 264 and 40 CFR section 265. Employees who may cause, detect, or respond to a spill or leak shall be trained in these procedures and have necessary spill response equipment available. If possible, one of these individuals should be a member of the Pollution Prevention Team; and
- Contact information for individuals and agencies that shall be notified in the event of a leak, spill, or other release. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under 40 CFR section 110, 40 CFR section 117, or 40 CFR section 302, occurs during a 24-hour period, the permittee shall notify the National Response Center (NRC) at (800) 424-8802 in accordance with the requirements of 40 CFR section 110, 40 CFR section 117, and 40 CFR section 302 as soon as the permittee has knowledge of the discharge. State or local requirements may necessitate reporting spills or discharges to local emergency, public health or drinking water supply agencies, and owners of public drinking water supplies. Contact information shall be in locations that are readily accessible and available.

e) Erosion and Sediment Control: The permittee shall use structural and non-structural control measures at the facility to stabilize and contain runoff from exposed areas and to minimize or eliminate onsite erosion and sedimentation. Efforts to achieve this may include the use of flow velocity dissipation devices at discharge locations and within outfall channels where necessary to reduce erosion.

f) Management of Runoff: The permittee shall manage stormwater runoff from the facility to prevent or reduce the discharge of pollutants. This may include management practices which divert runoff from areas that

are potential sources of pollutants, contain runoff in such areas, or reuse, infiltrate or treat stormwater to reduce the discharge of pollutants.

g) Salt Storage Piles or Piles Containing Salt: For storage piles of salt or piles containing salt used for deicing or other purposes (including maintenance of paved surfaces) for which the discharge during precipitation events discharges to the permittee's MS4, any other storm sewer system, or to a Water of the US, the permittee shall prevent exposure of the storage pile to precipitation by enclosing or covering the storage piles. Such piles shall be enclosed or covered within two (2) years of the permit effective date. The permittee shall implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. The permittee is encouraged to store piles in such a manner as not to impact surface water resources, ground water resources, recharge areas, and wells.

h) Employee Training: The permittee shall regularly train employees who work in areas where materials or activities are exposed to stormwater, or who are responsible for implementing activities identified in the SWPPP (e.g., inspectors, maintenance personnel), including all members of the Pollution Prevention Team. Training shall cover both the specific components and scope of the SWPPP and the control measures required under this part, including spill response, good housekeeping, material management practices, any best management practice operation and maintenance, etc. EPA recommends annual training.

The permittee shall document the following information for each training:

- The training date, title and training duration;
- List of municipal attendees;
- Subjects covered during training

i) Maintenance of Control Measures: The permittee shall maintain all control measures, required by this permit in effective operating condition. The permittee shall keep documentation onsite that describes procedures and a regular schedule for preventative maintenance of all control measures and discussions of back-up practices in place should a runoff event occur while a control measure is off-line. Nonstructural control measures shall also be diligently maintained (e.g., spill response supplies available, personnel trained).

iii. The permittee shall conduct the following inspections:

1. Site Inspections: Inspect all areas that are exposed to stormwater and all stormwater control measures. Inspections shall be conducted at least once each calendar quarter. More frequent inspections may be required if significant activities are exposed to stormwater. Inspections shall be performed when the facility is in operation. At least one of the quarterly inspections shall occur during a period when a stormwater discharge is occurring.

The permittee shall document the following information for each facility inspection:

- The inspection date and time;
- The name of the inspector;
- Weather information and a description of any discharge occurring at the time of the inspection;
- Identification of any previously unidentified discharges from the site;
- Any control measures needing maintenance or repair;
- Any failed control measures that need replacement.
- Any SWPPP changes required as a result of the inspection.

If during the inspections, or any other time, the permittee identifies control measures that need repair or are not operating effectively, the permittee shall repair or replace them before the next anticipated storm event if possible, or as soon as practicable following that storm event. In the interim, the permittee shall have back-up measures in place.

The permittee shall report the findings from the Site Inspections in the annual report.

iv. The permittee must keep a written (hardcopy or electronic) record of all required activities including but not limited to maintenance, inspections, and training required by part 2.3.7.b.The permittee shall maintain all records associated with the development and implementation of the SWPPP required by this part consistent with the requirements of part 4.2.

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

a. Permittees which discharge to public surface drinking water supply sources (Class A and Class B surface waters used for drinking water) or their tributaries should consider these waters a priority in the implementation of the SWMP.

b. Permittees should provide pretreatment and spill control measures to stormwater discharges to public drinking water supply sources or their tributaries to the extent feasible.

c. Direct discharges to Class A waters should be avoided to the extent feasible.

4.0. Program Evaluation, Record Keeping, and Reporting

4.1. Program Evaluation

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:
    - An analysis of why the BMP is ineffective or infeasible;
    - Expectations on the effectiveness of the replacement BMP; and
    - 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.

4.2. Record Keeping

a. The permittee shall keep all records required by this permit for a period of at least five years. EPA may extend this period at any time. Records include information used in the development of any written (hardcopy or electronic) program required by this permit, any monitoring results, copies of reports, records of screening, follow-up and elimination of illicit discharges; maintenance records; inspection records; and data used in the development of the notice of intent, SWMP, SWPPP, and annual reports. This list provides examples of records that should be maintained, but is not all inclusive.

b. Records other than those required to be included in the annual report, part 4.4, shall be submitted only when requested by the EPA or the MassDEP.

c. The permittee shall make the records relating to this permit, including the written (hardcopy or electronic) stormwater management program, available to the public. The public may view the records during normal business hours. The permittee may charge a reasonable fee for copying requests. The permittee is encouraged to satisfy this requirement by posting records online.

4.3. Outfall Monitoring Reporting

a. The permittee shall monitor and sample its outfalls at a minimum through sampling and testing at the frequency and locations required in connection with IDDE screening under part 2.3.4.7.b. and 2.3.4.8.c.ii.2. The monitoring program may also include additional outfall and interconnection monitoring as determined by the permittee in connection with assessment of SWMP effectiveness

pursuant to part 4.1; evaluation of discharges to water quality limited waters pursuant to part 2.2; assessment of BMP effectiveness pursuant to part 2.2 or 2.3; or otherwise.

b. The permittee shall document all monitoring results each year in the annual report. The report shall include the date, outfall or interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results of all analyses. The annual report shall include all of this information and data for the current reporting period and for the entire permit period.

c. The permittee shall also include in the annual report results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period where that data is being used by the permittee to inform permit compliance or program effectiveness. If such monitoring or studies were conducted on behalf of the permittee, or if monitoring or studies conducted by other entities were reported to the permittee, a brief description of the type of information gathered or received shall be included in the annual report(s) covering the time period(s) the information was received.

4.4. Annual Reports

a. The permittee shall submit annual reports each year of the permit term. 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 this permit shall also cover the period from May 1, [year of final permit issuance] to the permit effective date. The annual report is due ninety days from the close of each reporting period.

b. The annual reports shall contain the following information:

i. A self-assessment review of compliance with the permit terms and conditions.

ii. An assessment of the appropriateness of the selected BMPs.

iii. 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.

c. Reports shall be submitted to EPA at the following address:

United State Environmental Protection Agency
Stormwater and Construction Permits Section (OEP06-1)
Five Post Office Square, Suite 100
Boston, MA 02109

Massachusetts Department of Environmental Protection
One Winter Street – 5th Floor
Boston, MA 02108
ATTN: Frederick Civian

Or submitted electronically to EPA at the following email address: stormwater.reports@epa.gov. After December 21, 2020 all Annual Reports must be submitted electronically.

5.0. Non-Traditional MS4s

Non-traditional MS4s are MS4s owned and operated by the Commonwealth of Massachusetts, counties or other public agencies within the Commonwealth of Massachusetts, and properties owned and operated by the United States (Federal Facilities) within the Commonwealth of Massachusetts. This part addresses all non-traditional MS4s except MS4s that are owned or operated by transportation agencies, which are addressed in part 6.0 below.

5.1. Requirements for Non-Traditional MS4s

All requirements and conditions of parts 1 – 4 above apply to all Non-traditional MS4s, except as specifically provided below:

5.1.1. Public education

For the purpose of this permit, the audiences for a Non-traditional MS4 include the employees, clients and customers (including students at education MS4s), visitors to the property, tenants, long term contractors and any other contractors working at the facility where the MS4 is located. The permittee may use some of the educational topics included in part 2.3.2.d. as appropriate, or may focus on topics specific to the MS4. The permittee shall document the educational topics for each target audience in the SWMP and annual reports.

5.1.2. Ordinances and regulatory mechanisms

Some Non-traditional MS4s may not have authority to enact an ordinance, by-law, or other regulatory mechanisms. MS4s without the authority to enact an ordinance shall ensure that written policies or procedures are in place to address the requirements of part 2.3.4.5., part 2.3.4.6 and part 2.3.6.a.

5.1.3. Assessment of Regulations

Non-traditional MS4s do not need to meet the requirements of part 2.3.6.c.

5.1.4. New Dischargers

New MS4 facilities are subject to additional water quality-based requirements if they fall within the definition of "new discharger" under 40 CFR § 122.2: "A new discharger is any building, structure, facility or installation (a) from which there is or may be a 'discharge of pollutants' (b) that did not commence the 'discharge of pollutants' at a particular 'site' prior to August 13, 1979; (c) which is not a 'new source'; and (d) which never received a finally effective NPDES permit for discharges at that 'site.' The term "site" is defined in § 122.2 to mean "the land or water area where any 'facility or activity' is physically located or conducted including adjacent land used in connection with the facility or activity."

Consistent with these definitions, a Non-traditional MS4 is a "new discharger" if it discharges stormwater from a new facility with an entirely new separate storm sewer system that is not physically located on the same or adjacent land as an existing facility and associated system operated by the same MS4.

Any Non-traditional MS4 facility that is a "new discharger" and discharges to a waterbody listed in category 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water

Act section 303(d) and 305(b) due to nutrients (Total Nitrogen or Total Phosphorus), metals (Cadmium, Copper, Iron, Lead or Zinc), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride) or oil and grease (Petroleum Hydrocarbons or Oil and Grease), or discharges to a waterbody with an approved TMDL for any of those pollutants, is not eligible for coverage under this permit and shall apply for an individual permit.

Any Non-traditional MS4 facility that is a "new discharger" and discharges to a waterbody that is in attainment is subject to Massachusetts antidegradation regulations at 314 CMR 4.04. The permittee shall comply with the provisions of 314 CMR 4.04 including information submittal requirements and obtaining authorization for new discharges where appropriate[16]. Any authorization of new discharges by MassDEP shall be incorporated into the permittee's SWMP. If an applicable MassDEP approval specifies additional conditions or requirements, then those requirements are incorporated into this permit by reference. The permittee must comply with all such requirements.

6.0 Requirements for MS4s Owned or Operated by Transportation Agencies

This part applies to all MS4s owned or operated by any state or federal transportation agency (except Massachusetts Department of Transportation –MassDOT- Highway Division, which is subject to a separate individual permit). All requirements and conditions of this permit apply with the following exceptions:

6.1 Public education

For the purpose of this permit, the audiences for a transportation agency education program include the general public (users of the roadways), employees, and any contractors working at the location. The permittee may use some of the educational topics included in part 2.3.2.d. as appropriate, or may focus on topics specific to the agency. The permittee shall document the educational topics for each target audience.

6.2 Ordinances and regulatory mechanisms

The transportation agency may not have authority to enact an ordinance, by-law or other regulatory mechanisms. The agency shall ensure that written agency policies or procedures are in place to address the requirements of part 2.3.4.5., part 2.3.4.6 and part 2.3.6.a.

6.3 Assessment of regulations

Non-traditional MS4s do not need to meet the requirements of part 2.3.6.c.

6.4 New Dischargers

New MS4 facilities are subject to additional water quality-based requirements if they fall within the definition of "new dischargers" under 40 CFR § 122.2: "A new discharger is any building, structure, facility or installation (a) from which there is or may be a 'discharge of pollutants' (b) that did not commence the 'discharge of pollutants' at a particular 'site' prior to August 13, 1979; (c) which is not a 'new source'; and (d) which never received a finally effective NPDES permit for discharges at that 'site.' The term "site" is defined in § 122.2 to mean "the land or water area where any 'facility or activity' is physically located or conducted including adjacent land used in connection with the facility or activity."

[16] Contact MassDEP for guidance on compliance with 314 CMR 4.04

Consistent with these definitions, a new transportation MS4 is a "new discharger" if it discharges stormwater from a new facility with an entirely new separate storm sewer system that is not physically located on the same or adjacent land as an existing facility and associated system operated by the same MS4.

Any transportation MS4 facility that is a "new discharger" and discharges to a waterbody listed as impaired in category 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b) due to nutrients (Total Nitrogen or Total Phosphorus), metals (Cadmium, Copper, Iron, Lead or Zinc), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride) or oil and grease (Petroleum Hydrocarbons or Oil and Grease), or discharges to a waterbody with an approved TMDL for any of those pollutants, is not eligible for coverage under this permit and shall apply for an individual permit.

Any transportation MS4 facility that is a "new discharger" and discharges to a waterbody that is in attainment is subject to Massachusetts antidegradation regulations at 314 CMR 4.04. The permittee shall comply with the provisions of 314 CMR 4.04 including information submittal requirements and obtaining authorization for new discharges where appropriate[17]. Any authorization of new discharges by MassDEP shall be incorporated into the permittee's SWMP. If an applicable MassDEP approval specifies additional conditions or requirements, then those requirements are incorporated into this permit by reference. The permittee must comply with all such requirements.

[17] Contact MassDEP for guidance on compliance with 314 CMR 4.04

United States Environmental Protection Agency (EPA)
National Pollutant Discharge Elimination System (NPDES)

GENERAL PERMITS FOR STORMWATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS IN MASSACHUSETTS

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act (CWA), as amended (33 U.S.C. §1251 *et seq.*), and the Massachusetts Clean Waters Act, as amended (M.G.L. Chap.21 §§ 26-53), any operator of a small municipal separate storm sewer system whose system:

- Is located in the areas described in part 1.1;
- Is eligible for coverage under part 1.2 and part 1.9; and
- Submits a complete and accurate Notice of Intent in accordance with part 1.7 of this permit and EPA issues a written authorization

is authorized to discharge in accordance with the conditions and the requirements set forth herein.

The following appendices are also included as part of these permits:
Appendix A – Definitions, Abbreviations, and Acronyms;
Appendix B – Standard permit conditions applicable to all authorized discharges;
Appendix C – Endangered Species Act Eligibility Guidance;
Appendix D – National Historic Preservation Act Eligibility Guidance;
Appendix E – Information required for the Notice of Intent (NOI);
Appendix F – Requirements for MA Small MS4s Subject to Approved TMDLs;
Appendix G – Impaired Waters Monitoring Parameter Requirements;
Appendix H – Requirements related to discharges to certain water quality limited waterbodies;

These permits become effective on **July 1, 2017**.

These permits and the authorization to discharge expire at midnight, **June 30, 2022**.

Signed this 4th day of April, 2016

Ken Moraff, Director
Office of Ecosystem Protection
United States Environmental Protection Agency
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Signed this 4th day of April 2016

Douglas E. Fine
Assistant Commissioner for Water Resources
Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

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1.0. Introduction

This document consists of three (3) general permits listed in part 1.1. Each general permit is applicable to a particular type of municipal system within Massachusetts. Many of the permit terms and conditions are applicable across all regulated entities, and therefore are presented just once in parts 1-2, part 4, and Appendices A through E. Other conditions are applicable to a particular set of authorized entities; these terms and conditions are included in parts 3, and 5 and Appendices F through H. Throughout the permit, the terms "this permit" or "the permit" will refer to the three general permits.

1.1. Areas of Coverage

This permit covers small municipal separate storm sewer systems (MS4s) located in the Commonwealth of Massachusetts:

- Traditional Cities and Towns (NPDES Permit No. MAR041000)
- State, federal, county and other publicly owned properties (Non-traditional) (MAR042000)
- State transportation agencies (except for MassDOT- Highway Division) (MAR043000)

1.2. Eligibility

The MS4 shall meet the eligibility provisions described in part 1.2.1 and part 1.9 to be eligible for authorization under this permit.

1.2.1. Small MS4s Covered

This permit authorizes the discharge of stormwater from small MS4s as defined at 40 CFR § 122.26(b) (16). This includes MS4s described in 40 CFR §122.32(a) (1) and (a) (2). An MS4 is eligible for coverage under this permit if it is:

- A small MS4 within the Commonwealth of Massachusetts;
- Not a large or medium MS4 as defined in 40 CFR §§122.26(b)(4) or (7);
- Located either fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census as of the effective date of this permit (the 2010 Census); or
- Located in a geographic area designated by EPA as requiring a permit.

If the small MS4 is not located entirely within an urbanized area, only the portion of the MS4 that is located within the urbanized area is regulated under 40 CFR §122.32(a) (1).

A small municipal separate storm sewer system means all separate storm sewers that are:

- Owned or operated by the United States, a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.
- Not defined as large or medium municipal separate storm sewer systems pursuant to 40 CFR § 122.26(b) (4) and (b) (7) or designated under 40 CFR § 122.26(a) (1) (v).
- This term includes systems similar to separate storm sewer systems in municipalities such as systems at military bases, large hospitals or prison complexes, and highways

and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

1.3. Limitations on Coverage

This permit does not authorize the following:

a. Stormwater discharges mixed with sources of non-stormwater unless such non-stormwater discharges are:
   - Authorized under a separate NPDES permit; or
   - A non-stormwater discharge as listed in part 1.4.

b. Stormwater discharges associated with industrial activity as defined in 40 CFR §122.26 (b) (14) (i)-(ix) and (xi).

c. Stormwater discharges associated with construction activity as defined in 40 CFR §122.26(b) (14) (x) or (b) (15).

d. Stormwater discharges currently authorized under another NPDES permit, including discharges covered under other regionally issued general permits.

e. Stormwater discharges or discharge related activities that are likely to adversely affect any species that are listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. The permittee shall follow the procedures detailed in Appendix C to make a determination regarding eligibility. The permittee shall certify compliance with this provision on the submitted NOI.

f. Stormwater discharges whose direct or indirect impacts do not prevent or minimize adverse effects on any Essential Fish Habitat.

g. Stormwater discharges, or implementation of a stormwater management program, which adversely affects properties listed or eligible to be listed on the National Register of Historic Places. The permittee shall follow the procedures detailed in Appendix D to make a determination regarding eligibility. The permittee shall certify compliance with this provision on the submitted NOI.

h. Stormwater discharges prohibited under 40 CFR § 122.4.

i. Stormwater discharges to the subsurface subject to state Underground Injection Control (UIC) regulations. Although the permit includes provisions related to infiltration and groundwater recharge, structural controls that dispose of stormwater into the ground may be subject to UIC regulation requirements. Authorization for such discharges shall be obtained from Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program, Underground Injection Control, One Winter Street, Boston, MA 02108 – phone 617-292-5859.

j. Any non-traditional MS4 facility that is a "new discharger" as defined in part 5.1.4. and discharges to a waterbody listed in category 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b) due to nutrients (Total Nitrogen or (Total Phosphorus), metals (Cadmium, Copper, Iron, Lead or Zinc), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride) or oil and grease (Petroleum Hydrocarbons or Oil and Grease), or discharges to a waterbody with an approved TMDL for any of those pollutants.

1.4. Non-Stormwater Discharges

The following categories of non-stormwater discharges are allowed under this permit *unless* the permittee, EPA, or the MassDEP identifies any category or individual discharge of non-stormwater discharge in part 1.4.a-r as a significant contributor of pollutants to the MS4, then that category or individual discharge is not allowed under part 1.4, but rather shall be deemed an "illicit discharge" under part 2.3.4.1, and the permittee shall address that category or individual discharge as part of the Illicit Discharge Detection and Elimination (IDDE) Program described in part 2.3.4 of this permit.

a. Water line flushing
b. Landscape irrigation
c. Diverted stream flows
d. Rising ground water
e. Uncontaminated ground water infiltration (as defined at 40 CFR § 35.2005(20))
f. Uncontaminated pumped ground water
g. Discharge from potable water sources
h. Foundation drains
i. Air conditioning condensation
j. Irrigation water, springs
k. Water from crawl space pumps
l. Footing drains
m. Lawn watering
n. Individual resident car washing
o. Flows from riparian habitats and wetlands
p. De-chlorinated swimming pool discharges
q. Street wash waters
r. Residential building wash waters without detergents

Discharges or flows from firefighting activities are allowed under this permit need only be addressed where they are identified as significant sources of pollutants to waters of the United States.

1.5. Permit Compliance

Non-compliance with any of the requirements of this permit constitutes a violation of the permit and the CWA and may be grounds for an enforcement action and may result in the imposition of injunctive relief and/or penalties.

1.6. Continuation of this Permit

If this permit is not reissued prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedure Act and remain in force and effect for discharges that were authorized prior to expiration. If a small MS4 was granted permit authorization prior to the expiration date of this permit, it will automatically remain authorized by this permit until the earliest of:

- Authorization under a reissued general permit following timely and appropriate submittal of a complete and accurate NOI requesting authorization to discharge under the reissued permit; or
- Issuance or denial of an individual permit for the MS4's discharges; or
- Authorization or denial under an alternative general permit.

If the MS4 operator does not submit a timely, appropriate, complete, and accurate NOI requesting authorization to discharge under the reissued permit or a timely request for authorization under an individual or alternative general permit, authorization under this permit will terminate on the due date for the NOI under the reissued permit unless otherwise specified in the reissued permit.

1.7. Obtaining Authorization to Discharge

1.7.1. How to Obtain Authorization to Discharge

To obtain authorization under this permit, a small MS4 shall:

- Be located in the areas listed in part 1.1 of this permit;
- Meet the eligibility requirements in part 1.2 and part 1.9;
- Submit a complete and accurate Notice of Intent (NOI) in accordance with the requirements of part 1.7.2; and
- EPA issues a written authorization.

1.7.2. Notice of Intent

a. Operators of Small MS4s seeking authorization to discharge under the terms and conditions of this permit shall submit a Notice of Intent that contains the information identified in Appendix E. This includes operators of small MS4s that were previously authorized under the May 1, 2003 small MS4 general permit (MS4-2003 permit).

b. The NOI shall be signed by an appropriate official (see Appendix B, Subparagraph B.11, Standard Conditions).

c. The NOI shall contain the following 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 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.

Print the name and title of the official, followed by signature and date.

d. The NOI shall be submitted within 90 days of the effective date of the permit. If EPA notifies an MS4 that it is designated under 40 CFR § 122.32(a) (2) or (b), the NOI shall be submitted within 180 days of receipt of notice unless granted a longer period of time by EPA.

1.7.3. Submission of Notice of Intent

a. All small MS4s shall submit a complete and accurate Notice of Intent (suggested form in Appendix E) to EPA-Region 1 at the following address:

United States Environmental Protection Agency
Stormwater and Construction Permits Section (OEP06-1)
Five Post Office Square, Suite 100
Boston, MA 02109

Or submitted electronically to EPA at the following email address: stormwater.reports@epa.gov

b. All small MS4s shall also submit a copy of the NOI to the MassDEP at the following address:

Massachusetts Department of Environmental Protection
One Winter Street -5th Floor
Boston, Massachusetts 02108
ATTN: Frederick Civian, Stormwater Coordinator

c. Late notification: A small MS4 is not prohibited from submitting a NOI after the dates provided in part 1.7.2.d. However, if a late NOI is submitted, authorization is only for discharges that occur after permit authorization is granted. EPA and MassDEP reserve the right to take enforcement actions for any unpermitted discharges. All NOIs submitted after December 21, 2020 must be submitted electronically.

1.7.4. Public Notice of NOI and Effective Date of Coverage

a. EPA will provide a public notice and opportunity for comment on the contents of the submitted NOIs. The public comment period will be a minimum of 30 calendar days.

b. Based on a review of a small MS4's NOI or other information, EPA may grant authorization, extend the public comment period, or deny authorization under this permit and require submission of an application for an individual or alternative NPDES permit. (See part 1.8) A small MS4 will be authorized to discharge under the terms and conditions of this permit upon receipt of notice of authorization from EPA.

c. Permittees whose authorization to discharge under the MS4-2003 permit, which expired on May 1, 2008, has been administratively continued in accordance with the Administrative Procedure Act (5 U.S.C. § 558(c) and 40 CFR § 122.6, who wish to obtain coverage under this permit, must submit a new NOI requesting permit coverage in accordance with the requirements of part 1.7 of this permit to EPA within 90 days after the effective date of this permit. Permittees whose authorization to discharge under the expired MS4-2003 permit was administratively continued, who fail to submit a timely, complete and accurate NOI or an application for an individual NPDES permit within 90 after the effective date of this permit will be considered to be discharging without a permit (see 40 CFR § 122.28(b)(3)(iii)).

1.8. Individual Permits and Alternative General Permits

a. EPA may require a small MS4 to apply for and obtain authorization under either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition EPA in accordance with the provisions of 40 CFR § 122.26(f) to require a small MS4 to apply for and/or obtain authorization under either an individual NPDES permit or an alternative NPDES general permit. If EPA requires a small MS4 to apply for an individual or alternative NPDES permit, EPA will notify the small MS4 in writing that a permit application is required. This notification will include a brief statement of the reasons for this decision and will provide application information and an application deadline. If a small MS4 is authorized under the MS4-2003 permit or this permit and fails to submit an individual NPDES or an alternative general permit NPDES permit application as required by EPA, then the authorization under the MS4-2003 permit or this permit to the small MS4 is automatically terminated at the end of the date specified by EPA as the deadline

for application submittal. EPA reserves the right to take enforcement action for any unpermitted discharge.

b. A small MS4 may request to be excluded from this general permit by applying for an individual permit or authorization under an alternative general permit. In such a case, a small MS4 shall submit an individual permit application in accordance with the requirements of 40 CFR § 122.33(b) (2) (i) or § 122.33(b) (2) (ii), with reasons supporting the request, to EPA at the address listed in part 1.7.3 of this permit. The request may be granted by issuance of an individual permit or authorization under an alternative general permit if EPA determines that the reasons stated by the small MS4 are adequate to support the request. (See 40 CFR § 122.28(b) (3)).

c. When an individual NPDES permit is issued, or a small MS4 is authorized to discharge under an alternative NPDES general permit, authorization under this permit automatically terminates on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit.

1.9. Special Eligibility Determinations

1.9.1. Documentation Regarding Endangered Species

The small MS4 shall certify eligibility regarding endangered species in the NOI required by part 1.7.2. The Stormwater Management Program (SWMP) shall include documentation supporting the permittee's eligibility determination with regard to federal Endangered and Threatened Species and Critical Habitat Protection, including:

- Results of the Appendix C U.S. Fish and Wildlife Service endangered species screening determination; and
- If applicable, a description of the measures the small MS4 shall implement to protect federally listed endangered or threatened species, or critical habitat, including any conditions imposed by the U.S. Fish and Wildlife Service. If a permittee fails to document and implement such measures, the permittee's discharges are ineligible for coverage under this permit.

1.9.2. Documentation Regarding Historic Properties

The small MS4 shall certify eligibility regarding historic properties on the NOI required by part 1.7.2. The SWMP shall include documentation supporting the small MS4's eligibility determination with regard to Historic Properties Preservation, including:

- Information on whether the permittee's stormwater discharges, allowable non-stormwater discharges, or stormwater discharge-related activities would have an effect on a property that is listed or eligible for listing on the National Register of Historic Properties (NRHP);
- Where such effects may occur, any documents received by the permittee or any written agreements the permittee has made with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or other Tribal representative to mitigate those effects;
- Results of the Appendix D historic property screening investigations; and
- If applicable, a description of the measures the permittee shall implement 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 permittee fails to

document and implement such measures, those discharges are ineligible for coverage under this permit.

1.10. Stormwater Management Program (SWMP)

a. The permittee shall develop and implement a written (hardcopy or electronic) SWMP. The SWMP shall be signed in accordance with Appendix B, Subsection 11, including the date of signature. A signature and date is required for initial program preparation and for any significant revision to the program, which shall be in writing. The written SWMP shall be completed within one (1) year of the effective date of the permit.

The SWMP is the document used by the permittee to describe and detail the activities and measures that will be implemented to meet the terms and conditions of the permit. The SWMP shall accurately describe the permittees plans and activities. The document should be updated and/or modified during the permit term as the permittee's activities are modified, changed or updated to meet permit conditions during the permit term.

b. Permittees authorized by the MS4-2003 permit shall modify or update their existing Best Management Practices (BMPs) and measurable goals to meet the terms and conditions of part 2.3 of this permit within one (1) year of the effective date of the permit. These modifications and updates shall be reflected in the written (hardcopy or electronic) SWMP. Permittees authorized by the MS4-2003 permit shall continue to implement their existing SWMP until the program has been updated.

1.10.1. Stormwater Management Program Availability

a. The permittee shall retain a copy of the current SWMP required by this permit at the office or facility of the person listed as the program contact on the submitted Notice of Intent (NOI). The SWMP shall be immediately available to representatives from EPA, MassDEP, U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) at the time of an onsite inspection or upon request.

b. The permittee shall make the SWMP available to the public during normal business hours. The permittee shall also post the SWMP online[1] if the permittee has a website on which to post the SWMP.

1.10.2. Contents and Timelines of the Stormwater Management Program for 2003 permittees

The following information must be included in the SWMP within one (1) year of the permit effective date and updated annually thereafter, as necessary:

- Identification of names and titles of people responsible for program implementation. If a position is currently unfilled, list the title of the position and modify the SWMP with the name once the position is filled;
- Documentation of compliance with part 1.9.1;

[1] Should a permittee not wish to post mapping information included in the SWMP (see part 1.10.2) on their website for public safety reasons, they must state the reason either with or within the online SWMP and provide how the MS4 mapping information can be obtained. The permittee must retain the entire SWMP, including all completed mapping, at a location where it can be made available to the public during normal business hours.

- Documentation of compliance with part 1.9.2;
- Documentation of authorization of all new or increased discharges granted by MassDEP in compliance with part 2.1.2; part
- Listing of all discharges identified pursuant to part 2.1.1 and description of response;
- Description of practices to achieve compliance with part 2.3 (MEP requirements) identified in the permittee's NOI and any updates to those BMPs within the first year;
  For each permit condition in part 2.3 identify:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal shall have a measure of assessment associated with it;
- Sanitary Sewer Overflow (SSO) inventory including all of the information required in part 2.3.4.4.b;
- Written IDDE Program pursuant to part 2.3.4.6;
- Written procedures for site inspections and enforcement of sediment and erosion control procedures in accordance with part 2.3.5;
- Description of measures to avoid or minimize impacts to surface public drinking water supply sources. The permittee is also encouraged to include provisions to notify public water supplies in the event of an emergency. Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program, One Winter Street, Boston, MA 02108 – phone 617.292.5770.
- Description of activities to achieve compliance with part 3.0;
- Annual program evaluation (part 4.1). Update annually and maintain copies.

The following information must be included in the SWMP within two (2) years of the permit effective date and updated annually thereafter, as necessary:

- Listing of all receiving waterbody segments, their classification under the applicable state water quality standards, any impairment(s) and associated pollutant(s) of concern, applicable TMDLs and WLAs, and number of outfalls from the MS4 that discharge to each waterbody. In addition to the receiving water, the permittee shall document in the SWMP all surface public drinking water sources that may be impacted by MS4 discharges;
- Listing of all interconnected MS4s and other separate storm sewer systems receiving a discharge from the permitted MS4, the receiving waterbody segment(s) ultimately receiving the discharge, their classification under the applicable state water quality standards, any impairment(s) and associated pollutant(s) of concern, applicable TMDLs and WLAs, and the number of interconnections;
- Written procedures to require submission of as-built drawings and ensure long term operation and maintenance in accordance with part 2.3.6.a.iii;
- The map of the separate storm sewer system required by part 2.3.4.5.

The following information must be included in the SWMP within four (4) years of the permit effective date and updated annually thereafter, as necessary:

- Report(s) assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover.

The following information must be included in the SWMP concurrent with the applicable deadlines in Appendix F and H and updated annually thereafter, as necessary:

- Description of practices to achieve compliance with part 2.2.1 (TMDL requirements) including:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal must have an associated measure of assessment.
- Description of practices to achieve compliance with part 2.2.2 (discharges to certain water quality limited waters subject to additional requirements) including:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal must have an associated measure of assessment;

Description of any other practices to achieve compliance with part 2.1 (water quality based requirements);1.10.3. Contents and Timelines of the Stormwater Management Program for New Permittees

a. Permittees seeking authorization for the first time shall meet all deadlines contained in this permit except the following:

- Timelines for public education requirements in part 2.3.2.c shall be extended by one (1) year and need to include one (1) message to each audience over the permit term;
- The ordinances, by-laws, or other regulatory mechanisms required by parts 2.3.4, 2.3.5 and 2.3.6 shall be completed as soon as possible, but no later than three (3) years from the permit effective date; and
- All other deadlines in part 2.3.4 shall be extended by three (3) years.
- partAll other deadlines in part 2.3.5, 2.3.6 and 2.3.7 shall be extended by two (2) years.
- partpartpartAll deadlines for discharges to water quality limited waters without a TMDL under part 2.2.2 shall be extended by two (2) years.

b. Contents of the Stormwater Management Program for New Permittees

The following information must be included in the SWMP within one (1) year of the permit effective date and updated annually thereafter, as necessary:

- Identification of names and titles of people responsible for program implementation. If a position is currently unfilled, list the title of the position and modify the SWMP with the name once the position is filled;
- Documentation of compliance with part 1.9.1;
- Documentation of compliance with part 1.9.2;
- Documentation of authorization of all new or increased discharges granted by MassDEP in compliance with part 2.1.2;
- Listing of all discharges identified pursuant to part 2.1.1 and description of response;
- Description of practices to achieve compliance with part 2.3 (MEP requirements)

identified in the permittee's NOI and any updates to those BMPs within the first year;
For each permit condition in part 2.3 identify:
- The person(s) or department responsible for the measure;
- The BMPs for the control measure or permit requirement;
- The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal shall have a measure of assessment associated with it;

- Description of measures to avoid or minimize impacts to surface public drinking water supply sources. The permittee is also encouraged to include provisi9ons to notify public water supplies in the event of an emergency. Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program, One Winter Street, Boston, MA 02108 – phone 617.292.5770. Description of activities to achieve compliance with part 3.0;
- Annual program evaluation (part 4.1). Update annually and maintain copies.

The following information must be included in the SWMP within three (3) years of the permit effective date and updated annually thereafter, as necessary:

- Written procedures for site inspections and enforcement of sediment and erosion control procedures in accordance with part 2.3.5;
- Written operation and maintenance procedures for municipal activities in part 2.3.7.a.ii;
- Written program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4 in accordance with part 2.3.7.a.iii.1;
- Written procedures to require submission of as-built drawings and ensure long term operation and maintenance in accordance with part 2.3.6.a.iii;

The following information must be included in the SWMP within four (4) years of the permit effective date and updated annually thereafter, as necessary:

- Outfall and interconnection inventory;
- Sanitary Sewer Overflow (SSO) inventory including all of the information required in part 2.3.4.4.b;
- Written IDDE Program pursuant to part 2.3.4.6.

The following information must be included in the SWMP within four (5) years of the permit effective date and updated annually thereafter, as necessary:

- Phase 1 of the map of the separate storm sewer system required by part 2.3.4.5;
- Listing of all receiving waterbody segments, their classification under the applicable state water quality standards, any impairment(s) and associated pollutant(s) of concern, applicable TMDLs and WLAs, and number of outfalls from the MS4 that discharge to each waterbody. In addition to the receiving water, the permittee shall document in the SWMP all surface public drinking water sources that may be impacted by MS4 discharges;
- Listing of all interconnected MS4s and other separate storm sewer systems receiving a discharge from the permitted MS4, the receiving waterbody segment(s) ultimately receiving the discharge, their classification under the applicable state water quality standards, any impairment(s) and associated pollutant(s) of concern, applicable TMDLs

and WLAs, and the number of interconnections;

The following information must be included in the SWMP within four (4) years of the permit effective date and updated annually thereafter, as necessary:

- Report(s) assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover.

The following information must be included in the SWMP concurrent with the applicable deadlines in Appendix F and H (extended by two (2) years) and updated annually thereafter, as necessary:

- Description of practices to achieve compliance with part 2.2.1 (discharges subject to requirements related to approved TMDLs)including:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal must have an associated measure of assessment.
- Description of practices to achieve compliance with part 2.2.2 (discharges to certain water quality limited waters subject to additional requirements) including:
  - The person(s) or department responsible for the measure;
  - The BMPs for the control measure or permit requirement;
  - The measurable goal(s) for each BMP. Each measurable goal shall include milestones and timeframes for its implementation and have a quantity or quality associated with its endpoint. Each goal must have an associated measure of assessment;
- Description of any other practices to achieve compliance with part 2.1 (water quality based requirements).

2.0. Non-Numeric Effluent Limitations

The permittee shall develop, implement, and enforce a program to reduce the discharge of pollutants from the MS4 to the maximum extent practicable; to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act and the Massachusetts Water Quality Standards.

2.1. Water Quality Based Effluent Limitations

Pursuant to Clean Water Act 402(p)(3)(B)(iii), this permit includes provisions to ensure that discharges from the permittee's small MS4 do not cause or contribute to an exceedance of water quality standards, in addition to requirements to reduce the discharge of pollutants to the maximum extent practicable. The requirements found in this part and part 2.2 constitute appropriate water quality based effluent limits of this permit. Requirements to reduce the discharge of pollutants to the maximum extent practicable are set forth in part 2.3.

2.1.1. Requirement to Meet Water Quality Standards

a. The permittee shall reduce the discharge of pollutants such that the discharges from the MS4 do not cause or contribute to an exceedance of water quality standards.

b. If there is a discharge from the MS4 to a waterbody (or its tributaries in some cases) that is subject to an approved TMDL identified in part 2.2.1, the permittee is subject to the requirements of part 2.2.1 and Appendix F of this permit and the permittee shall comply with all applicable schedules and requirements in Appendix F. A permittee's compliance with all applicable requirements and BMP implementation schedules in Appendix F applicable to it will constitute compliance with part 2.1.1.a. of the Permit.

c. If there is a discharge from the MS4 to a waterbody (or its tributaries in some cases) that is water quality limited (see definition in Appendix A) due to nutrients (Total Nitrogen or Total Phosphorus), metals (Cadmium, Copper, Iron, Lead or Zinc), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enterococcus or Fecal Coliform), chloride (Chloride) or oil and grease (Petroleum Hydrocarbons or Oil and Grease) and is not subject to an approved TMDL, or the MS4 is located within a municipality listed in part 2.2.2.a.-b., the permittee is subject to the requirements of part 2.2.2 and Appendix H of this permit and the permittee shall comply with all applicable schedules and requirements in Appendix H. A permittee's compliance with all applicable requirements and BMP implementation schedules in Appendix H applicable to it will constitute compliance with part 2.1.1.a. of the Permit.

d. Except where a pollutant of concern in a discharge is subject to the requirements of part 2.2.1 and/or part 2.2.2 of this permit or is the result of an illicit discharge and subject to part 2.3.4 of this Permit, if a pollutant in a discharge from the MS4 is causing or contributing to a violation of applicable water quality criteria[2] for the receiving water, the permittee shall, as expeditiously as possible, but no later than 60 days of becoming aware of the situation, reduce or eliminate the pollutant in its discharge such that the discharge meets applicable water quality criteria.

2.1.2. Increased Discharges

a. Any increased discharge, including increased pollutant loading(s) through the MS4 to waters of the United States is subject to Massachusetts antidegradation regulations at 314 CMR 4.04. The permittee shall comply with the provisions of 314 CMR 4.04 including information submittal requirements and obtaining authorization for increased discharges where appropriate[3]. Any authorization of an increased discharge by MassDEP shall be incorporated into the permittee's SWMP. If an applicable MassDEP approval specifies additional conditions or requirements, then those requirements are incorporated into this permit by reference. The permittee must comply with all such requirements.

b. There shall be no increased discharges, including increased pollutant loading(s) from the MS4 to impaired waters listed in categories 5 or 4b on the most recent Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b) unless the permittee demonstrates that there is no net increase in loading from the MS4 to the impaired water of the pollutant(s) for which the waterbody is impaired. The permittee may demonstrate compliance with this provision by *either:*

[2] Applicable water quality criteria are part of the state standards that have been federally approved as of the effective date of this permit and are compiled by EPA at http://www.epa.gov/waterscience/standards/wqslibrary/

[3] Contact MassDEP for guidance on compliance with 314 CMR 4.04

i. Documenting that the pollutant(s) for which the waterbody is impaired is not present in the MS4's discharge and retaining documentation of this finding with the SWMP; or

ii. Documenting that the total load of the pollutant(s) of concern from the MS4 to any impaired portion of the receiving water will not increase as a result of the activity and retaining documentation of this finding in the SWMP. Unless otherwise determined by the Permittee, USEPA or by MassDEP that additional demonstration is necessary, compliance with the requirements of part 2.2.2 and part 2.3.6 of this Permit, including all reporting and documentation requirements, shall be considered as demonstrating no net increase as required by this part.

c. The requirements of this part are independent of permit conditions requiring reduction in discharges of pollutants as set forth in parts 2.1.1 and 2.2 (water quality based requirements) and 2.3 (requirements to reduce discharge of pollutants to the maximum extent practicable). Permittees remain subject to requirements to reduce the discharge of pollutants from the MS4 as set forth in those parts.

2.2. Discharges to Certain Impaired Waters

The permittee shall identify in the SWMP and Annual Reports all MS4 discharges, including both outfalls and interconnections to other MS4s or other separate storm sewer systems, that:

- Are subject to Total Maximum Daily Load (TMDL) related requirements as identified in part 2.2.1.
- Are subject to additional requirements to protect water quality as identified in part 2.2.2.

The discharge location from an interconnection shall be determined based on the receiving water of the outfall from the interconnected system.

2.2.1. Discharges Subject to Requirements Related to an Approved TMDL

a. "Approved TMDLs" are those that have been approved by EPA as of the date of issuance of this permit.

b. The MS4s specified below discharge to waters within Massachusetts that are subject to TMDLs, or in some cases, to tributaries of such waters, and shall comply with the requirements of Appendix F, part A. Appendix F identifies, by section, the provisions the permittee shall implement to be consistent with the terms of the approved TMDL. Alternatively, EPA may notify the permittee that an individual permit application is necessary in accordance with part 1.8.a.

i. The following is a list of municipalities in the Charles River Watershed:

1.

Arlington	Mendon
Ashland	Milford
Bellingham	Millis
Belmont	Natick
Brookline	Needham

Cambridge	Newton
Dedham	Norfolk
Dover	Sherborn
Foxborough	Walpole
Franklin	Waltham
Holliston	Watertown
Hopedale	Wayland
Hopkinton	Wellesley
Lexington	Weston
Lincoln	Westwood
Medfield	Wrentham
Medway	

Permittees that operate regulated MS4s located in municipalities listed above that discharge to the Charles River or its Tributaries shall meet the requirements of Appendix F, part A.I with respect to the reduction of phosphorus discharges from their MS4.

ii. The following is a list of municipalities that contain a lake or pond subject to an approved lake or pond phosphorus TMDL in the Northern Blackstone Basin, Chicopee Basin, Connecticut Basin, French Basin, Millers Basin or in the watershed of Bare Hill Pond, Flint Pond, Indian Lake, Lake Boon, Lake Quinsigamond, Leesville Pond, Salisbury Pond, Quaboag Pond or Quacumquasit Pond.

1.

Auburn	Millbury
Charlton	Oxford
Dudley	Shrewsbury
Gardner	Spencer
Grafton	Springfield
Granby	Stow
Hadley	Templeton
Harvard	Westminster
Hudson	Winchendon
Leicester	Wilbraham
Ludlow	

Permittees that operate regulated MS4s in the above municipalities that discharge to waterbodies listed on Table F-6 in Appendix F or their tributaries, and any other MS4 that discharges to waterbodies listed on Table F-6 in Appendix F or their tributaries,

shall meet the requirements of Appendix F, part A.II with respect to reduction of phosphorus discharges from their MS4.

iii. The following is a list of municipalities that contain waters subject to an approved TMDL for bacteria or pathogens.

1.

Abington	Marshfield
Acushnet	Mashpee
Andover	Mattapoisett
Avon	Medfield
Barnstable	Medway
Bedford	Melrose
Bellingham	Mendon
Belmont	Milford
Berkley	Millis
Beverly	Milton
Billerica	Nahant
Bourne	Natick
Brewster	Needham
Bridgewater	New Bedford
Brockton	Newton
Brookline	Norfolk
Burlington	North Andover
Cambridge	Norton
Canton	Norwell
Chatham	Norwood
Cohasset	Orleans
Concord	Peabody
Danvers	Pembroke
Dartmouth	Plymouth
Dedham	Raynham
Dennis	Rehoboth
Dighton	Revere
Dover	Rockland
Duxbury	Rockport
East Bridgewater	Salem
Eastham	Sandwich
Essex	Saugus
Everett	Scituate
Fairhaven	Seekonk
Fall River	Sharon

Falmouth	Sherborn
Foxborough	Somerset
Franklin	Stoughton
Freetown	Swampscott
Gloucester	Swansea
Hanover	Taunton
Hanson	Tewksbury
Harwich	Wakefield
Holliston	Walpole
Hopedale	Waltham
Hopkinton	Wareham
Ipswich	Watertown
Kingston	Wellesley
Lawrence	Wellfleet
Lexington	West Bridgewater
Lincoln	Weston
Lynn	Westport
Lynnfield	Westwood
Malden	Whitman
Manchester	Wilmington
Mansfield	Winthrop
Marblehead	Yarmouth
Marion	

The operators of MS4s located in municipalities listed above that discharge to a waterbody segment listed on Table F-8 in Appendix F and any other MS4 that discharges directly to a waterbody segment listed on Table F-8 in Appendix F shall meet the requirements of Appendix F, part A.III with respect to reduction of bacteria/pathogens discharges from their MS4.

iv. The following is a list of municipalities located on Cape Cod that contain waters subject to an approved TMDL for nitrogen (Total Nitrogen).

1.

Bourne
Barnstable
Chatham
Falmouth
Harwich
Mashpee
Orleans
Yarmouth

Permittees that operate regulated MS4s located in the municipalities above that discharge to waterbodies found on Table F-9 in Appendix F or their tributaries and any other MS4 that discharges to waterbodies found on Table F-9 in Appendix F or their tributaries shall meet the requirements of Appendix F, part A.IV with respect to reduction of nitrogen discharges from their MS4.

v. The following is a list of municipalities located in the Assabet River Watershed:

1.

Acton	Hudson
Berlin	Littleton
Bolton	Marlborough
Boxborough	Maynard
Boylston	Northborough
Ca rlisle	Shrewsbury
Clinton	Stow
Concord	Westborough
Grafton	Westford
Harvard	

Permittees that operate regulated MS4s located in the municipalities above that discharge to the Assabet River or its tributaries shall meet the requirements of Appendix F part A.V with respect to reduction of phosphorus discharges from their MS4.

c. The MS4s specified below discharge to waters, or tributaries of waters, that have been identified in an adjacent state's approved TMDL as being impaired due, in part, to MS4 stormwater discharges in Massachusetts, and shall comply with the requirements of Appendix F, part B. Appendix F identifies, by section, the provisions the permittee shall implement to be consistent with the reasonable assumptions related to Massachusetts MS4 discharges. Alternatively, EPA may notify the permittee that an individual permit application is necessary in accordance with part 1.8.a.

i. The following is a list of municipalities in Massachusetts located in the watershed of Long Island Sound, which has an approved TMDL for nitrogen (Total Nitrogen).

1.

Adams	North Adams
Agawam	Northampton
Amherst	Oxford
Ashburnham	Palmer
Ashby	Paxton
Auburn	Pelham
Belchertown	Pittsfield
Charlton	Richmond
Cheshire	Russell

Chicopee	Rutland
Dalton	South Hadley
Douglas	Southampton
Dudley	Southbridge
East Longmeadow	Southwick
Easthampton	Spencer
Gardner	Springfield
Granby	Sturbridge
Hadley	Sutton
Hampden	Templeton
Hatfield	Ware
Hinsdale	Webster
Holyoke	West Springfield
Lanesborough	Westfield
Leicester	Westhampton
Lenox	Westminster
Longmeadow	Wilbraham
Ludlow	Williamsburg
Millbury	Winchendon
Monson	

Permittees that operate regulated MS4s located in the municipalities above that discharge to a water within the Connecticut River Watershed, the Housatonic River Watershed, or the Thames River Watershed shall meet the requirements of Appendix F part B. I with respect to nitrogen discharges from their MS4.

ii. The following is a list of municipalities in Massachusetts identified in a TMDL as containing MS4s contributing phosphorus to waterbody segments that have out of state approved TMDLs for phosphorus:

1.

Attleboro
North Attleborough
Plainville
Rehoboth
Seekonk
Swansea

Permittees that operate regulated MS4s located in the municipalities above that discharge to a waterbody found on Table F-12 in Appendix F or its tributaries shall meet the requirements of Appendix F part B. II with respect to phosphorus discharges from their MS4.

iii. The following is a list of municipalities in Massachusetts identified in a TMDL as containing MS4s contributing bacteria/pathogens to waterbody segments that have out of state approved TMDLs for bacteria/pathogens:

1.

Attleboro
North Attleborough
Plainville
Rehoboth
Seekonk

Permittees that operate regulated MS4s located in the municipalities above that discharge to a waterbody found on Table F-13 in Appendix F or its tributaries shall meet the requirements of Appendix F part B. III with respect to bacteria/pathogens discharges from their MS4.

iv. The following is a list of municipalities in Massachusetts identified in a TMDL as containing MS4s contributing metals (cadmium, lead, aluminum iron) to waterbody segments that have out of state approved TMDLs for metals (cadmium, lead, aluminum, iron):

1.

Attleboro
North Attleborough
Plainville
Seekonk

Permittees that operate regulated MS4s located in the municipalities above that discharge to a waterbody found on Table F-14 in Appendix F or its tributaries shall meet the requirements of Appendix F part B. IV with respect to metals discharges from their MS4.

2.2.2. Discharges to Certain Water Quality Limited Waters Subject to Additional Requirements

For purposes of this permit, a 'water quality limited water body' is any water body that does not meet applicable water quality standards, including but not limited to waters listed in categories 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b).

If there is a discharge from the MS4 to a water quality limited waterbody where pollutants typically found in stormwater (specifically nutrients (Total Nitrogen or Total Phosphorus), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride), metals (Cadmium, Copper, Iron, Lead or Zinc) and oil and grease (Petroleum Hydrocarbons or Oil and Grease)) are the cause of the impairment and there is not an approved TMDL, or the MS4 is located in a town listed in part 2.2.2.a.-b, the permittee shall comply with the provisions in Appendix H applicable to it.

In the absence of a defined pollutant reduction target and where no approved TMDL has been established, this permit part and Appendix H define an iterative approach addressing pollutant reductions to waterbodies where the permittee's discharge is causing or contributing to an excursion above water quality standards due to nutrients (Total Nitrogen Total Phosphorus), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride), metals

(Cadmium, Copper, Iron, Lead or Zinc) or oil and grease (Petroleum Hydrocarbons or Oil and Grease).

a. Discharges to water quality limited waterbodies where nitrogen (Total Nitrogen) is the cause of the impairment, or their tributaries

i. The requirements of this part are applicable to:

1. Permittees (including traditional and non-traditional MS4s) that own or operate an MS4 in the following municipalities. Discharges from MS4s within these municipalities are to waterbodies that are impaired due to nitrogen (Total Nitrogen), or their tributaries.

Abington	Mattapoisett
Acushnet	Middleborough
Attleboro	New Bedford
Avon	Norton
Barnstable	Peabody
Berkley	Pembroke
Bourne	Plainville
Bridgewater	Plymouth
Brockton	Plympton
Carver	Raynham
Dartmouth	Rehoboth
Dighton	Rochester
East Bridgewater	Salem
Easton	Seekonk
Fairhaven	Sharon
Fall River	Somerset
Foxborough	Stoughton
Freetown	Swansea
Halifax	Taunton
Hanson	Wakefield
Holbrook	Wareham
Kingston	West Bridgewater
Lakeville	Westport
Lynnfield	Whitman
Mansfield	Wrentham
Marion	Yarmouth

2. Any other permittee that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to nitrogen (Total Nitrogen), or a tributary of such water.

ii. Permittees subject to part 2.2.2.a.i above shall meet the requirements of Appendix H part I with respect to the control of nitrogen discharges from their MS4;

iii. During development of their Notice of Intent, the permittee may determine that all discharges from the regulated area through their MS4 are outside of a watershed that contains a nitrogen (Total Nitrogen) impairment in a downstream segment. The permittee shall retain all documentation used in this determination as part of their NOI and are relieved from the requirements of part 2.2.2.a.i and Appendix H part I.

b. Discharges to water quality limited waterbodies where phosphorus ("Total Phosphorus") is the cause of the impairment, or their tributaries

i. The requirements of this part are applicable to:

1. Permittees (including traditional and non-traditional MS4s) that own or operate an MS4 in the following municipalities. Discharges from MS4s within these municipalities are to waterbodies that are impaired due to phosphorus (Total Phosphorus), or their tributaries.

Abington	Lynn
Acushnet	Lynnfield
Andover	Malden
Arlington	Mansfield
Ashburnham	Marlborough
Ashland	Mashpee
Auburn	Medfield
Avon	Medford
Ayer	Melrose
Barnstable	Mendon
Bedford	Methuen
Belchertown	Millbury
Belmont	Millville
Billerica	Milton
Blackstone	North Andover
Bolton	Northbridge
Brewster	Norton
Bridgewater	Norwood
Brockton	Oxford
Burlington	Peabody
Cambridge	Pembroke
Canton	Pepperell
Carlisle	Pittsfield

Carver	Quincy
Chelmsford	Randolph
Chelsea	Reading
Clinton	Revere
Concord	Rockland
Dalton	Salem
Dedham	Scituate
Douglas	Seekonk
Dover	Sharon
Dracut	Shirley
Dunstable	Shrewsbury
East Bridgewater	Somerville
Eastham	Southampton
Easthampton	Spencer
Everett	Springfield
Falmouth	Stoneham
Fitchburg	Stoughton
Foxborough	Sudbury
Framingham	Sutton
Gloucester	Taunton
Grafton	Tewksbury
Granby	Townsend
Groton	Tyngsborough
Halifax	Upton
Hanover	Uxbridge
Hanson	Wakefield
Harvard	Walpole
Haverhill	Wareham
Hinsdale	Watertown
Hopkinton	Wayland
Hudson	West Bridgewater
Lancaster	Westfield
Lawrence	Westminster
Leicester	Westwood
Lenox	Whitman
Leominster	Wilmington
Lexington	Winchendon
Littleton	Winchester
Lowell	Winthrop

Lunenburg	Woburn
Lynn	

2. Any other permittee that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to phosphorus ("Total Phosphorus"), or to a tributary of such water.

ii. The permittees subject to part 2.2.2.b.i. above shall meet all requirements of Appendix H part II with respect to the control of phosphorus discharges from the MS4.

iii. During development of their Notice of Intent, the permittee may determine that all discharges from the regulated area through their MS4 are outside of a watershed that contains a phosphorus ("Total Phosphorus") impairment in a downstream segment. The permittee shall retain all documentation used in this determination as part of their NOI and are relieved from the requirements of part 2.2.2.b.i and Appendix H part II.

c. Discharges to water quality limited waterbodies where bacteria or pathogens is the cause of the impairment

i. The requirements of this part are applicable to:

1. Any MS4 discharge identified by the permittee on their Notice of Intent as discharging directly to an impaired waterbody on the most recent EPA approved Massachusetts 303(d) list where bacteria or pathogens (E. Coli, Enteroccus or Fecal Coliform) is the cause of the impairment.
2. Any other MS4 that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to bacteria or pathogens.

ii. The permittees subject to part 2.2.2.c.i. shall meet all requirements of Appendix H part III with respect to reduction of bacteria or pathogens discharges from the MS4.

d. Discharges to water quality limited waterbodies where chloride (Chloride) is the cause of the impairment

i. The requirements of this part are applicable to:

1. Any MS4 discharge identified by the permittee on their Notice of Intent as discharging directly to an impaired waterbody on the most recent EPA approved Massachusetts 303(d) list where chloride (Chloride) is the cause of the impairment.
2. Any other MS4 that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to chloride (Chloride).

ii. The permittees subject to part 2.2.2.d.i. shall meet all requirements of Appendix H part IV with respect to reduction of chloride discharges from the MS4.

e. Discharges to water quality limited waterbodies where oil and grease (Petroleum Hydrocarbons or Oil and Grease), solids (TSS or Turbidity) or metals (Cadmium, Copper, Iron, Lead or Zinc) is the cause of the impairment

i. The requirements of this part are applicable to:

1. Any MS4 discharge identified by the permittee on their Notice of Intent as discharging directly to an impaired waterbody on the most recent EPA approved Massachusetts 303(d) list where oil and grease, solids or metals (Oil and Grease, Petroleum Hydrocarbons TSS, Turbidity, Cadmium, Copper, Iron, Lead or Zinc) is the cause of the impairment.
2. Any other MS4 that, during the permit term, becomes aware that its discharge is to a waterbody that is water quality limited due to oil and grease (Petroleum Hydrocarbons or Oil and Grease), solids (TSS or Turbidity) or metals (Cadmium, Copper, Iron, Lead or Zinc).

ii. The permittees subject to part 2.2.2.d.i. shall meet all requirements of Appendix H part V with respect to reduction of solids, oil and grease or metals discharges from the MS4.

2.3. Requirements to Reduce Pollutants to the Maximum Extent Practicable (MEP)

The permittee shall reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP) as detailed in parts 2.3.2 through 2.3.7.

2.3.1. Control Measures

a. Permittees authorized under the MS4-2003 permit shall continue to implement their existing SWMPs while updating their SWMPs pursuant to this permit. This permit does not extend the compliance deadlines set forth in the MS4-2003 permit.

b. Implementation of one or more of the minimum control measures described in parts 2.3.2- 2.3.7 or other permit requirements may be shared with another entity (including another interconnected MS4) or the other entity may fully implement the measure or requirement, if the following requirements are satisfied:

- The other entity, in fact, implements the control measure.
- The particular control measure or component thereof undertaken by the other entity is at least as stringent as the corresponding permit requirement.
- The other entity agrees to implement the control measure on the permittee's behalf. The annual reports must specify that the permittee is relying on another entity to satisfy some of its permit obligations and specify what those obligations are.
- If the permittee is relying on another governmental entity regulated under 40 CFR §122 to satisfy all of its permit obligations, including the obligation to file annual reports, the permittee shall note that fact in its NOI, but is not required to file annual reports.
- The permittee remains responsible for compliance with all permit obligations if the other entity fails to implement the control measures (or component thereof). The permittee may enter into a legally binding agreement with the other entity regarding the other entity's performance of control measures, but the permittee remains ultimately responsible for permit compliance.

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2.3.2. 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.

a. The permittee shall continue to implement the public education program required by the MS4-2003 permit by distributing educational material to the MS4 community. The educational program shall define educational goals, express specific messages, define the targeted audience for each message, and identify responsible parties for program implementation. If appropriate for the target audience, materials may be developed in a language other than English. At a minimum, the program shall provide information concerning the impact of stormwater discharges on water bodies within the community, especially those waters that are impaired or identified as priority waters. The program shall identify steps and/or activities that the public can take to reduce the pollutants in stormwater runoff and their impacts to the environment.

b. The educational program shall include education and outreach efforts for the following four audiences: (1) residents, (2) businesses, institutions (churches, hospitals), and commercial facilities, (3) developers (construction), and (4) industrial facilities, unless one of these audiences is not present in the MS4 community. In such a situation, the MS4 must document in both the NOI and SWMP which audience is absent from the community and no educational messages are required to that audience.

c. The permittee shall distribute a minimum of two (2) educational messages over the permit term to each audience identified in part 2.3.2.b. The distribution of materials to each audience shall be spaced at least a year apart. Educational messages may be printed materials such as brochures or newsletters; electronic materials such as websites; mass media such as newspaper articles or public service announcement (radio or cable); targeted workshops on stormwater management, or displays in a public area such as town/city hall. The permittee may use existing materials if they are appropriate for the message the permittee chooses to deliver or the permittee may develop its own educational materials. The permittee may partner with other MS4s, community groups or watershed associations to implement the education program to meet this permit requirement.

Some EPA educational materials are available at: http://cfpub.epa.gov/npstbx/index.html.

d. The permittee shall, at a minimum, consider the topics listed in part 2.3.2.d.i. – iv when developing the outreach/education program. The topics are not exclusive and the permittee shall focus on those topics most relevant to the community.

i. Residential program: effects of outdoor activities such as lawn care (use of pesticides, herbicides, and fertilizers and information on Massachusetts Regulation 331 CMR 31 pertaining to proper use of phosphorus containing fertilizers on turf grasses) on water quality; benefits of appropriate on-site infiltration of stormwater; effects of automotive work and car washing on water quality; proper disposal of swimming pool water; proper management of pet waste; maintenance of septic systems. If the small MS4 area has areas serviced by septic systems, the permittee shall consider information pertaining to maintenance of septic systems as part of its education program.

ii. Business/Commercial/Institution program: proper lawn maintenance (use of pesticides, herbicides and fertilizer, and information on Massachusetts Regulation 331 CMR 31 pertaining to proper use of phosphorus containing fertilizers on turf grasses); benefits of appropriate on-site infiltration of stormwater; building maintenance (use of detergents); use of salt or other de-icing and anti-icing materials (minimize their use); proper storage

of salt or other de-icing/anti-icing materials (cover/prevent runoff to storm system and contamination to ground water); proper storage of materials (emphasize pollution prevention); proper management of waste materials and dumpsters (cover and pollution prevention); 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).

iii. Developers and Construction: 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). This education can also be a part of the Construction Site Stormwater Runoff Control measure detailed in part 2.3.5.

iv. Industrial program: equipment inspection and maintenance; proper storage of industrial materials (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 ground water 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.

e. The program shall show evidence of focused messages for specific audiences as well as evidence that progress toward the defined educational goals of the program has been achieved. The permittee shall identify methods that it will use to evaluate the effectiveness of the educational messages and the overall education program. Any methods used to evaluate the effectiveness of the program shall be tied to the defined goals of the program and the overall objective of changes in behavior and knowledge.

f. The permittee shall modify any ineffective messages or distribution techniques for an audience prior to the next scheduled message delivery.

g. The permittee shall document in each annual report the messages for each audience; the method of distribution; the measures/methods used to assess the effectiveness of the messages, and the method/measures used to assess the overall effectiveness of the education program.

2.3.3. Public Involvement and participation

Objective: The permittee shall provide opportunities to engage the public to participate in the review and implementation of the permittee's SWMP.

a. All public involvement activities shall comply with state public notice requirements (MGL Chapter 30A, Sections 18 – 25 – effective 7/10/2010). The SWMP and all annual reports shall be available to the public.

b. The permittee shall annually provide the public an opportunity to participate in the review and implementation of the SWMP.

c. The permittee shall report on the activities undertaken to provide public participation opportunities including compliance with part 2.3.3.a. Public participation opportunities pursuant to part 2.3.3.b may include, but are not limited to, websites; hotlines; clean-up teams; monitoring teams; or an advisory committee.

2.3.4. 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.

a. Legal Authority - The IDDE program shall include adequate legal authority to:: prohibit illicit discharges; investigate suspected illicit discharges; eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system; and implement appropriate enforcement procedures and actions. Adequate legal authority consists of a currently effective ordinance, by-law, or other regulatory mechanism. For permittees authorized by the MS4-2003 permit, the ordinance, by-law, or other regulatory mechanism was a requirement of the MS4-2003 permit and was required to be effective by May 1, 2008. For new permittees the ordinance, by-law, or other regulatory mechanism shall be in place within 3 years of the permit effective date.
b. During the development of the new components of the IDDE program required by this permit, permittees authorized by the MS4-2003 permit must continue to implement their existing IDDE program required by the MS4-2003 permit to detect and eliminate illicit discharges to their MS4.

2.3.4.1. Definitions and Prohibitions

The permittee shall prohibit illicit discharges and sanitary sewer overflows (SSOs) to its MS4 and require removal of such discharges consistent with parts 2.3.4.2 and 2.3.4.4 of this permit.

An SSO is a discharge of untreated sanitary wastewater from a municipal sanitary sewer.

An illicit discharge is any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

2.3.4.2. Elimination of Illicit Discharges

a. Upon detection of an illicit discharge, the permittee shall locate, identify and eliminate the illicit discharge as expeditiously as possible. Upon identification of the illicit source the MS4 notify all responsible parties for any such discharge and require immediate cessation of improper disposal practices in accordance with its legal authorities. Where elimination of an illicit discharge within 60 days of its identification as an illicit discharge is not possible, the permittee shall establish an expeditious schedule for its elimination and report the dates of identification and schedules for removal in the permittee's annual reports. The permittee shall immediately commence actions necessary for elimination. The permittee shall diligently pursue elimination of all illicit discharges. In the interim, the permittee shall take all reasonable and prudent measures to minimize the discharge of pollutants to and from its MS4.

b. The period between identification and elimination of an illicit discharge is not a grace period. Discharges from an MS4 that are mixed with an illicit discharge are not authorized by this Permit (part 1.3.a) and remain unlawful until eliminated.

2.3.4.3. Non-Stormwater Discharges

The permittee may presume that the sources of non-stormwater listed in part 1.4 of this permit need not be addressed. However, if the permittee identifies any of these sources as significant contributors of pollutants to the MS4, then the permittee shall implement measures to control these sources so they are no longer significant contributors of pollutants, and/or eliminate them entirely, consistent with part 2.3.4.

2.3.4.4. Sanitary Sewer Overflows

a. Upon detection of an SSO the permittee shall eliminate it as expeditiously as possible and take interim mitigation measures to minimize the discharge of pollutants to and from its MS4 until elimination is completed.

b. The permittee shall identify all known locations where SSOs have discharged to the MS4 within the previous five (5) years. This shall include SSOs resulting, during dry or wet weather, from inadequate conveyance capacities, or where interconnectivity of the storm and sanitary sewer infrastructure allows for communication of flow between the systems. Within one (1) year of the effective date of the permit, the permittee shall develop an inventory of all identified SSOs indicating the following information, if available:

    1. Location (approximate street crossing/address and receiving water, if any);
    2. A clear statement of whether the discharge entered a surface water directly or entered the MS4;
    3. Date(s) and time(s) of each known SSO occurrence (i.e., beginning and end of any known discharge);
    4. Estimated volume(s) of the occurrence;
    5. Description of the occurrence indicating known or suspected cause(s);
    6. Mitigation and corrective measures completed with dates implemented; and
    7. Mitigation and corrective measures planned with implementation schedules.

    The permittee shall maintain the inventory as a part of the SWMP and update the inventory annually, all updates shall include the information in part 2.3.4.4.b.1-7.

c. In accordance with Paragraph B.12 of Appendix B of this permit, upon becoming aware of an SSO to the MS4, the permittee shall provide oral notice to EPA within 24 hours. Additionally, the permittee shall provide written notice to EPA and MassDEP within five (5) days of becoming aware of the SSO occurrence and shall include the information in the updated inventory. The notice shall contain all of the information listed in part 2.3.4.4.b. Where common notification requirements for SSOs are included in multiple NPDES permits issued to a permittee, a single notification may be made to EPA as directed in the permittee's wastewater or CSO NPDES permit and constitutes compliance with this part.

d. The permittee shall include and update the SSO inventory in its annual report, including the status of mitigation and corrective measures implemented by the permittee to address each SSO identified pursuant to this part.

e. The period between detection and elimination of a discharge from the SSO to the MS4 is not a grace period. Discharges from an MS4 that are mixed with an SSO are not authorized by this Permit (part 1.3.a) and remain unlawful until eliminated.

2.3.4.5. System mapping

The permittee shall develop a revised and more detailed map than was required by the MS4-2003 permit. This revised map of the MS4 shall be completed in two phases as outlined below. The mapping shall include a depiction of the permittee's separate storm sewer system in the permit area. The mapping is intended to facilitate the identification of key infrastructure and factors influencing proper system operation, and the potential for illicit sanitary sewer discharges.

a. Phase I: The system map shall be updated within two (2) years of the permit effective date to include the following information:

- Outfalls and receiving waters (required by MS4-2003 permit)
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally-owned stormwater treatment structures (e.g., detention and retention basins, infiltration systems , bioretention areas, water quality swales, gross particle separators, oil/water separators, or other proprietary systems)
- Waterbodies identified by name and indication of all use impairments as identified on the most recent EPA approved Massachusetts Integrated List of waters report pursuant to Clean Water Act section 303(d) and 305(b)
- Initial catchment delineations. Any available system data and topographic information may be used to produce initial catchment delineations. For the purpose of this permit, a catchment is the area that drains to an individual outfall or interconnection.

b. Phase II: The system map shall be updated annually as the following information becomes available during implementation of catchment investigation procedures in part 2.3.4.8. This information must be included in the map for all outfalls within ten (10) years of the permit effective date:
- Outfall spatial location (latitude and longitude with a minimum accuracy of +/-30 feet)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineations. Catchment delineations shall be updated to reflect information collected during catchment investigations
- Municipal sanitary sewer system (if available)
- Municipal combined sewer system (if applicable).

c. Recommended elements to be included in the system map as information becomes available:
- Storm sewer material, size (pipe diameter) and age
- Sanitary sewer system material, size (pipe diameter) and age
- Privately-owned stormwater treatment structures
- Where a municipal sanitary sewer system exists, properties known or suspected to be served by a septic system, especially in high-density urban areas
- Area where the permittee's MS4 has received or could receive flow from septic system discharges (e.g., areas with poor soils, or high ground water elevations unsuitable for conventional subsurface disposal systems)
- Seasonal high water table elevations impacting sanitary alignments
- Topography
- Orthophotography

- Alignments, dates and representation of work completed (with legend) of past illicit discharge investigations (e.g., flow isolation, dye testing, CCTV)
- Locations of suspected, confirmed and corrected illicit discharges (with dates and flow estimates).

d. The mapping may be produced by hand or through computer-aided methods (e.g. GIS). The required scale and detail of the map shall be appropriate to facilitate a rapid understanding of the system by the permittee, EPA and the state. In addition, the mapping shall serve as a planning tool for the implementation and phasing of the IDDE program and demonstration of the extent of complete and planned investigations and corrections. The permittee shall update the mapping as necessary to reflect newly discovered information and required corrections or modifications.

e. The permittee shall report on the progress towards the completion of the system map in each annual report.

2.3.4.6. Written Illicit Discharge Detection and Elimination Program

The IDDE program shall be recorded in a written (hardcopy or electronic) document. The IDDE program shall include each of the elements described in parts 2.3.4.7 and part 2.3.4.8, unless the permittee provides a written explanation within the IDDE program as to why a particular element is not applicable to the permittee.

Notwithstanding the permittee's explanation, EPA may at any time determine that a particular element is in fact applicable to the permittee and require the permittee to add it to the IDDE program. The written (hardcopy or electronic) IDDE program shall be completed within one (1) year of the effective date of the permit and updated in accordance with the milestones of this part. The permittee shall implement the IDDE program in accordance with the goals and milestones contained in this part.

a. The written (hardcopy or electronic) IDDE program shall include a reference or citation of the authority the permittee will use to implement all aspects of the IDDE program.
b. Statement of IDDE Program Responsibilities - The permittee shall establish a written (hardcopy or electronic) statement that clearly identifies responsibilities with regard to eliminating illicit discharges. The statement shall identify the lead municipal agency(ies) or department(s) responsible for implementing the IDDE Program as well as any other agencies or departments that may have responsibilities for aspects of the program (e.g., board of health responsibilities for overseeing septic system construction; sanitary sewer system staff; inspectional services for enforcing plumbing codes; town counsel responsibilities in enforcement actions, etc.). Where multiple departments and agencies have responsibilities with respect to the IDDE program specific areas of responsibility shall be defined and processes for coordination and data sharing shall be established and documented.

c. Program Procedures – The permittee shall include in the written IDDE program all written procedures developed in accordance with the requirements and timelines in parts 2.3.4.7 and 2.3.4.8 below. At a minimum this shall include the written procedures for dry weather outfall screening and sampling and for catchment investigations.

2.3.4.7. Assessment and Priority Ranking of Outfalls/Interconnections

The permittee shall assess and priority rank the outfalls in terms of their potential to have illicit discharges and SSOs and the related public health significance. This ranking will determine the priority order for

screening of outfalls and interconnections pursuant to part 2.3.4.7.b, catchment investigations for evidence of illicit discharges and SSOs pursuant to part 2.3.4.8, and provides the basis for determining permit milestones of this part.

a. Outfall/Interconnection Inventory and Initial Ranking:
An initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information shall be completed within one (1) year from the effective date of the permit; an updated inventory and ranking will be provided in each annual report thereafter. The inventory shall be updated annually to include data collected in connection with the dry weather screening and other relevant inspections conducted by the permittee.

i. The outfall and interconnection inventory will identify each outfall and interconnection discharging from the MS4, record its location and condition, and provide a framework for tracking inspections, screenings and other activities under the permittee's IDDE program.

- An outfall means a point source as defined by 40 CFR § 122.2 as the point where the municipal separate storm sewer discharges to waters of the United States. An outfall does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels or other conveyances that connect segments of the same stream or other waters of the United States and that are used to convey waters of the United States. (40 CFR § 122.26(b)(9)). However, it is strongly recommended that a permittee inspect all accessible portions of the system as part of this process. Culverts longer than a simple road crossing shall be included in the inventory unless the permittee can confirm that they are free of any connections and simply convey waters of the United States.
- An interconnection means the point (excluding sheet flow over impervious surfaces) where the permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is conveyed to waters of the United States or to another storm sewer system and eventually to a water of the United States.

ii. The permittee shall classify each of the permittee's outfalls and interconnections into one of the following categories:
- Problem Outfalls: outfalls/interconnections with known or suspected contributions of illicit discharges based on existing information shall be designated as Problem Outfalls. This shall include any outfalls/interconnections where previous screening indicates likely sewer input.[4] Problem Outfalls need not be screened pursuant to part 2.3.4.7.b.
- High Priority Outfalls: Outfalls/interconnections that have not been classified as Problem Outfalls and that are:
  - discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds;
  - determined by the permittee as high priority based on the characteristics listed below or other available information;
- Low Priority Outfalls: Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed below or other available information.

[4] Likely sewer input indicators are any of the following:
- Olfactory or visual evidence of sewage,
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammoni a ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

- Excluded outfalls: outfalls/interconnections with no potential for illicit discharges may be excluded from the IDDE program. This category is limited to roadway drainage in undeveloped areas with no dwellings and no sanitary sewers; drainage for athletic fields, parks or undeveloped green space and associated parking without services; cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.

iii. The permittee shall priority rank outfalls into the categories above (except for excluded outfalls), based on the following characteristics of the defined initial catchment area where information is available:

- Past discharge complaints and reports.
- Poor receiving water quality- the following guidelines are recommended to identify waters as having a high illicit discharge potential: exceeding water quality standards for bacteria; ammonia levels above 0.5 mg/l; surfactants levels greater than or equal to 0.25 mg/l.
- Density of generating sites- Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples of these sites include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.
- Age of development and infrastructure – Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old will probably have a high illicit discharge potential. Developments 20 years or younger will probably have a low illicit discharge potential.
- Sewer conversion – contributing catchment areas that were once serviced by septic systems, but have been converted to sewer connections may have a high illicit discharge potential.
- Historic combined sewer systems – contributing areas that were once serviced by a combined sewer system, but have been separated may have a high illicit discharge potential.
- Surrounding density of aging septic systems – Septic systems thirty years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.
- Culverted streams – any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.
- Water quality limited waterbodies that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.
- The permittee may also consider additional relevant characteristics, including location-specific characteristics; if so, the permittee shall include the additional characteristics in its written (hardcopy or electronic) IDDE program.

b. Dry Weather Outfall and Interconnection Screening and Sampling
All outfalls/interconnections (excluding Problem and excluded Outfalls) shall be inspected for the presence of dry weather flow within three (3) years of the permit effective date. The permittee shall screen all High and Low Priority Outfalls in accordance with their initial ranking developed at part 2.3.4.7.a.

i. Written procedure: The permittee shall develop an outfall and interconnection screening and sampling procedure to be included in the IDDE program within one (1) year of the permit effective date. This procedure shall include the following procedures for:

- sample collection,
- use of field kits,

- storage and conveyance of samples (including relevant hold times), and
- field data collection and storage.

An example screening and sampling protocol (*EPA New England Bacterial Source Tracking Protocol*) can be found on EPA's website.

ii. Weather conditions: Dry weather screening and sampling shall proceed only when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow melt is occurring.

iii. Screening requirements: For each outfall/interconnection:

1. The permittee shall record all of the following information and include it in the outfall/interconnection inventory and priority ranking:
    - unique identifier,
    - receiving water,
    - date of most recent inspection,
    - dimensions,
    - shape,
    - material (concrete, PVC),
    - spatial location (latitude and longitude with a minimum accuracy of +/-30 feet,
    - physical condition,
    - indicators of potential non-stormwater discharges (including presence or evidence of suspect flow and sensory observations such as odor, color, turbidity, floatables, or oil sheen).
2. If an outfall/interconnection is inaccessible or submerged, the permittee shall proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results.
3. If no flow is observed, but evidence of illicit flow exists, the permittee shall revisit the outfall during dry weather within one week of the initial observation, if practicable, to perform a second dry weather screening and sample any observed flow (proceed as in iv. below).
4. Where dry weather flow is found at an outfall/interconnection, at least one (1) sample shall be collected, and:
    a) Samples shall be analyzed at a minimum for:
        - ammonia,
        - chlorine,
        - conductivity,
        - salinity,
        - *E. coli* (freshwater receiving water) or enterococcus (saline or brackish receiving water),
        - surfactants (such as MBAS),
        - temperature, and
        - pollutants of concern[5]
    b) All analyses with the exception of indicator bacteria and pollutants of concern can be performed with field test kits or field instrumentation and are not subject to 40

[5] Where the discharge is directly into a water quality limited water or a water subject to an approved TMDL as indicated in Appendix F; the sample shall be analyzed for the pollutant(s) of concern identified as the cause of the impairment as specified in Appendix G

CFR part 136 requirements. Sampling for bacteria and pollutants of concern shall be conducted using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Sampling for ammonia and surfactants must use sufficiently sensitive methods to detect those parameters at or below the threshold indicator concentrations of 0.5 mg/L for ammonia and 0.25 mg/L for surfactants. Sampling for residual chlorine must use a method with a detection limit of 0.02 mg/L or 20 ug/L.

iv. The permittee may rely on screening conducted under the MS4-2003 permit, pursuant to an EPA enforcement action, or by the state or EPA to the extent that it meets the requirements of part 2.3.4.7.b.iii.4. All data shall be reported in each annual report. Permittees that have conducted substantially equivalent monitoring to that required by part 2.3.4.7.b as part of an EPA enforcement action can request an exemption from the requirements of part 2.3.4.7.b by submitting a written request to EPA and retaining exemption approval from EPA as part of the SWMP. Until the permittee receives formal written approval of the exemption from part 2.3.4.7.b from EPA the permittee remains subject to all requirements of part 2.3.4.7.b.

v. The permittee shall submit all screening data used in compliance with this part in its Annual Report.

c. Follow-up ranking of outfalls and interconnections:

i. The permittee's outfall and interconnection ranking (2.3.4.7.a) shall be updated to reprioritize outfalls and interconnections based on information gathered during dry weather screening (part 2.3.4.7.b).

ii. Outfalls/interconnections where relevant information was found indicating sewer input to the MS4 or sampling results indicating sewer input[6] shall be considered highly likely to contain illicit discharges from sanitary sources, and such outfalls/interconnections shall be ranked at the top of the High Priority Outfalls category for investigation. At this time, permittees may choose to rank other outfalls and interconnections based on any new information from the dry weather screening.

iii. The ranking can be updated continuously as dry weather screening information becomes available, but shall be completed within three (3) years of the effective date of the permit.

2.3.4.8. Catchment Investigations

The permittee shall develop a systematic procedure to investigate each catchment associated with an outfall or interconnection within their MS4 system.

a. Timelines:

- A written catchment investigation procedure shall be developed within 18 months of the permit effective date in accordance with the requirements of part 2.3.4.8.b below.
- Investigations of catchments associated with Problem Outfalls shall begin no later than two (2)

[6] Likely sewer input indicators are any of the following:

- Olfactory or visual evidence of sewage,
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

years from the permit effective date.

- Investigations of catchments associated with High and Low Priority Outfalls shall follow the ranking of outfalls updated in part 2.3.4.7.c.
- Investigations of catchments associated with Problem Outfalls shall be completed with seven (7) years of the permit effective date
- Investigations of catchments where any information gathered on the outfall/interconnection identifies sewer input[7] shall be completed within seven (7) years of the permit effective date.
- Investigations of catchments associated with all Problem, High- and Low-Priority Outfalls shall be completed within ten (10) years of the permit effective date.

*For the purposes of these milestones, an individual catchment investigation will be considered complete if all relevant procedures in part 2.3.4.8.c. and 2.3.4.8.d. below have been completed.

b. A written catchment investigation procedure shall be developed that:

i. **Identifies maps, historic plans and records, and other sources of data**, including but not limited to plans related to the construction of the storm drain and of sanitary sewers, prior work performed on the storm drains or sanitary sewers, board of health or other municipal data on septic system failures or required upgrades, and complaint records related to SSOs, sanitary sewer surcharges, and septic system breakouts. These data sources will be used in identifying system vulnerability factors within each catchment.

ii. **Includes a manhole inspection methodology** that shall describe a storm drain network investigation that involves systematically and progressively observing, sampling (as required below) and evaluating key junction manholes (see definition in Appendix A) in the MS4 to determine the approximate location of suspected illicit discharges or SSOs. The manhole inspection methodology may either start from the outfall and work up the system or start from the upper parts of the catchment and work down the system or be a combination of both practices. Either method must, at a minimum, include an investigation of each key junction manhole within the MS4, even where no evidence of an illicit discharge is observed at the outfall. The manhole inspection methodology must describe the method the permittee will use. The manhole inspection methodology shall include procedures for dry and wet weather investigations.

iii. **Establishes procedures to isolate and confirm sources of illicit discharges** where manhole investigations or other physical evidence or screening has identified that MS4 alignments are influenced by illicit discharges or SSOs. These shall include isolation of the drainage area for implementation of more detailed investigations, inspection of additional manholes along the alignment to refine the location of potential contaminant sources, and methods such as sandbagging key junction manhole inlets, targeted internal plumbing inspections, dye testing, video inspections, or smoke testing to isolate and confirm the sources.

c. Requirements for each catchment investigation associated with an outfall/interconnection:

i. For each catchment being investigated, the permittee shall review relevant mapping and historic plans and records gathered in accordance with Part 2.3.4.8.b.i. This review shall be used to identify

[7] Likely sewer input indicators are any of the following:

- Olfactory or visual evidence of sewage,
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

areas within the catchment with higher potential for illicit connections. The permittee shall identify and record the presence of any of the following specific **System Vulnerability Factors (SVFs)**:

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages;
- Common or twin-invert manholes serving storm and sanitary sewer alignments;
- Common trench construction serving both storm and sanitary sewer alignments;
- Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system;
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints;
- Areas formerly served by combined sewer systems;
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.

EPA recommends the permittee include the following in their consideration of System Vulnerability Factors:

- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs;
- Any sanitary sewer and storm drain infrastructure greater than 40 years old;
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance);
- History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance);

The permittee shall document the presence or absence of System Vulnerability Factors for each catchment, retain this documentation as part of its IDDE program, and report this information in Annual Reports. Catchments with a minimum of one (1) System Vulnerability Factor are subject to wet weather sampling requirements of part 2.3.4.8.c.ii.2.

ii. For each catchment, the permittee must inspect key junction manholes and gather catchment information on the locations of MS4 pipes, manholes, and the extent of the contributing catchment.

1. <u>For all catchments</u>
   a) Infrastructure information shall be incorporated into the permittee's mapping required at part 2.3.4.5; the permittee will refine their catchment delineation based on the field investigation where appropriate.
   b) The SVF inventory for the catchment will be updated based on information obtained during the inspection, including common (twin invert) manholes, directly piped connections between storm drains and sanitary sewer infrastructure, common weir walls, sanitary sewer underdrain connections and other structural vulnerabilities where sanitary discharges could enter the storm drain system during wet weather.
      1) **Where a minimum of one (1) SVF is identified based on previous information**

or the investigation, a wet weather investigation must be conducted at the associated outfall (see below).

c) During dry weather, key junction manholes[8] shall be opened and inspected systematically for visual and olfactory evidence of illicit connections (e.g., excrement, toilet paper, gray filamentous bacterial growth, or sanitary products present).
   1) If flow is observed, the permittee shall sample the flow at a minimum for ammonia, chlorine and surfactants and can use field kits for these analyses.
   2) Where sampling results or visual or olfactory evidence indicate potential illicit discharges or SSOs, the area draining to the junction manhole shall be flagged for further upstream investigation.

d) Key junction and subsequent manhole investigations will proceed until the location of suspected illicit discharges or SSOs can be isolated to a pipe segment between two manholes. If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon completion of key junction manhole sampling.

2. <u>For all catchments with a minimum of one (1) SVF identified</u>
   a) The permittee shall meet the requirements above for dry weather screening
   b) The permittee shall inspect and sample under wet weather conditions to the extent necessary to determine whether wet weather-induced high flows in sanitary sewers or high groundwater in areas served by septic systems result in discharges of sanitary flow to the MS4.
      1) The permittee shall conduct at least one wet weather screening and sampling at the outfall that includes the same parameters required during dry weather screening, part 2.3.4.7.b.iii.4.
      2) Wet weather sampling and screening shall proceed during or after a storm event of sufficient depth or intensity to produce a stormwater discharge. EPA strongly recommends sampling during the spring (March through June) when groundwater levels are relatively high.
      3) The permit does not require a minimum rainfall event prior to wet weather screening. However, permittees may incorporate provisions that assist in targeting such discharges, including avoiding sampling during the initial period of discharge ("first flush") and/or identifying minimum storm event intensities likely to trigger sanitary sewer interconnections.
   c) This sampling can be done upon completion of any dry weather investigation but must be completed before the catchment investigation is marked as complete.

iii. All data collected as part of the dry and wet weather catchment investigations shall be recorded and reported in each annual report.

d. <u>Identification/Confirmation of illicit source</u>
Where the source of an illicit discharge has been approximated between two manholes in the permittee's MS4, the permittee shall isolate and identify/confirm the source of the illicit discharge using more detailed methods identified in their written procedure (2.3.4.8.b.iii). For outfalls that contained evidence of an illicit discharge, catchment investigations will be considered complete upon

[8] Where catchments do not contain junction manholes, the dry weather screening and sampling shall be considered as meeting the manhole inspection requirement. In these catchments, dry weather screenings that indicate potential presence of illicit discharges shall be further investigated pursuant to part 2.3.4.8.d. Investigations in these catchments may be considered complete where dry weather screening reveals no flow; no evidence of illicit discharges or SSOs is indicated through sampling results or visual or olfactory means; and no wet weather System Vulnerability Factors are identified.

confirmation of all illicit sources.

e. Illicit discharge removal
When the specific source of an illicit discharge is identified, the permittee shall exercise its authority as necessary to require its removal pursuant to part 2.3.4.2 or 2.3.4.3.

i. For each confirmed source the permittee shall include in the annual report the following information:
- the location of the discharge and its source(s);
- a description of the discharge;
- the method of discovery;
- date of discovery;
- date of elimination, mitigation or enforcement action OR planned corrective measures and a schedule for completing the illicit discharge removal; and
- estimate of the volume of flow removed.

ii. Within one year of removal of all identified illicit discharges within a catchment area, confirmatory outfall or interconnection screening shall be conducted. The confirmatory screening shall be conducted in dry weather unless System Vulnerability Factors have been identified, in which case both dry weather and wet weather confirmatory screening shall be conducted. If confirmatory screening indicates evidence of additional illicit discharges, the catchment shall be scheduled for additional investigation.

2.3.4.9. Indicators of IDDE Program Progress

The permittee shall define or describe indicators for tracking program success and evaluate and report on the overall effectiveness of the IDDE program in each annual report. At a minimum the permittee shall document in each annual report:

- the number of SSOs and illicit discharges identified and removed,
- the number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure,
- all dry weather and wet weather screening and sampling results and
- the volume of sewage removed

2.3.4.10 Ongoing Screening

Upon completion of all catchment investigations pursuant to part 2.3.4.8.c and illicit discharge removal and confirmation (if necessary) pursuant to paragraph 2.3.4.8.e, each outfall or interconnection shall be reprioritized for screening in accordance with part 2.3.4.8.a and scheduled for ongoing screening once every five years. Ongoing screening shall consist of dry weather screening and sampling consistent with part 2.3.4.7.b; wet weather screening and sampling shall also be required at outfalls where wet weather screening was required due to SVFs and shall be conducted in accordance with part 2.3.4.8.c.ii. All sampling results shall be reported in the permittee's annual report.

2.3.4.11 Training

The permittee shall, at a minimum, annually provide training to employees involved in IDDE program about the program, including how to recognize illicit discharges and SSOs. The permittee shall report on the frequency and type of employee training in the annual report.

2.3.5. Construction Site Stormwater Runoff Control

Objective: The objective of an effective construction stormwater runoff control program is 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. The construction site stormwater runoff control program required by this permit is a separate and distinct program from EPA's stormwater construction permit program. (http://cfpub1.epa.gov/npdes/stormwater/cgp.cfm)

a. Permittees shall implement and enforce a program to reduce pollutants in any stormwater runoff discharged to the MS4 from all construction activities that result in a land disturbance of greater than or equal to one acre within the regulated area. The permittee's program shall include disturbances less than one acre if that disturbance is part of a larger common plan of development or sale that would disturb one or more acres. Permittees authorized under the MS4-2003 permit shall continue to implement and enforce their existing program and modify as necessary to meet the requirements of this part.

b. The permittee does not need to apply its construction program requirements to projects that receive a waiver from EPA under the provisions of 40 CFR § 122.26(b) (15) (i).

c. The permittee shall develop and implement a construction site runoff control program that includes the elements in Paragraphs i. through v. of this part:

i. An ordinance or regulatory mechanism that requires the use of sediment and erosion control practices at construction sites. In addition to addressing sediment and erosion control, the ordinance must include controls for other wastes on constructions sites such as demolition debris, litter and sanitary wastes. Development of an ordinance or other regulatory mechanism was a requirement of the MS4-2003 permit (See part II.B.4 and part IV.B.4).The ordinance or other regulatory mechanism required by the MS4-2003 permit shall have been effective by May 1, 2008.

ii. Written (hardcopy or electronic) procedures for site inspections and enforcement of sediment and erosion control measures. If not already existing, these procedures shall be completed within one (1) year from the effective date of the permit. The procedures shall clearly define who is responsible for site inspections as well as who has authority to implement enforcement procedures. The program shall provide that the permittee may, to the extent authorized by law, impose sanctions to ensure compliance with the local program. These procedures and regulatory authorities shall be documented in the SWMP.

iii. 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. The program may include references to BMP design standards in state manuals, such as the Massachusetts Stormwater Handbook[9], or design standards developed by the MS4. EPA supports and encourages the use of design standards in local programs. Examples of appropriate sediment and erosion control measures for construction sites include local requirements to:

[9] The handbook is available at: http://www.mass.gov/dep/water/laws/policies.htm#storm

1. Minimize the amount of disturbed area and protect natural resources;
2. Stabilize sites when projects are complete or operations have temporarily ceased;
3. Protect slopes on the construction site;
4. Protect all storm drain inlets and armor all newly constructed outlets;
5. Use perimeter controls at the site;
6. Stabilize construction site entrances and exits to prevent off-site tracking;
7. Inspect stormwater controls at consistent intervals.

iv. 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. These wastes may not be discharged to the MS4.

v. Written procedures for site plan review and inspection and enforcement. If not already existing, the procedures for site plan review and inspection and enforcement shall be completed within one (1) year from the effective date of the permit. The site plan review procedure shall include a pre-construction review by the permittee of the site design, the planned operations at the construction site, planned BMPs during the construction phase, and the planned BMPs to be used to manage runoff created after development. The review procedure shall incorporate procedures for the consideration of potential water quality impacts, and procedures for the receipt and consideration of information submitted by the public. The site plan review procedure shall also include evaluation of opportunities for use of low impact design and green infrastructure. When the opportunity exists, the permittee shall encourage project proponents to incorporate these practices into the site design. The procedures for site inspections conducted by the permittee shall include the requirement that inspections occur during construction of BMPs as well as after construction of BMPs to ensure they are working as described in the approved plans, clearly defined procedures for inspections including qualifications necessary to perform the inspections, the use of mandated inspection forms if appropriate, and procedure for tracking the number of site reviews, inspections, and enforcement actions. This tracking information shall be included as part of each annual report required by part 4.4.

2.3.6. Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management)

Objective: The objective of this control measure is to reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater after construction on new or redeveloped sites. For the purposes of this part (2.3.6.), the following definitions apply:

site is defined as the area extent of construction activities, including but not limited to the creation of new impervious cover and improvement of existing impervious cover (e.g. repaving not covered by 2.3.6.a.ii.4.d.)

new development is defined as any construction activities or land alteration resulting in total earth disturbances equal to or greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) on an area that has not previously been developed to include impervious cover.

redevelopment is defined as any construction, land alteration, or improvement of impervious surfaces resulting in total earth disturbances equal to or greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) that does not meet the definition of new development (see above).

a. Permittees shall develop, implement, and enforce a program to address post-construction stormwater runoff from all new development and redevelopment sites that disturb one or more acres and discharge into the permittees MS4 at a minimum. Permittees authorized under the MS4-2003 permit shall continue to implement and enforce their program and modify as necessary to meet the requirements of this part.

i. The permittee's new development/ redevelopment program shall include sites less than one acre if the site is part of a larger common plan of development or redevelopment which disturbs one or more acre.

ii. The permittee shall develop or modify, as appropriate, an ordinance or other regulatory mechanism within two (2) years of the effective date of the permit to contain provisions that are as least as stringent as the following:

1. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent feasible.

2. The design of treatment and infiltration practices should follow the guidance in Volume 2 of the Massachusetts Stormwater Handbook, as amended, or other federally or State approved[10] BMP design guidance.

3. Stormwater management systems on new development sites shall be designed to:
   a) Not allow new stormwater conveyances to discharge untreated stormwater in accordance with Massachusetts Stormwater Handbook Standard 1;
   b) Control peak runoff rates in accordance with Massachusetts Stormwater Handbook Standard 2[11];
   c) Recharge groundwater in accordance with Massachusetts Stormwater Handbook Standard 3[12];
   d) Eliminate or reduce the discharge of pollutants from land uses with higher pollutant loads as defined in the Massachusetts Stormwater Handbook in accordance with Massachusetts Stormwater Handbook Standard 5;
   e) Protect Zone II or Interim Wellhead Protection Areas of public water supplies in accordance with Massachusetts Stormwater Handbook Standard 6[13];
   f) Implement long term maintenance practices in accordance with Massachusetts Stormwater Handbook Standard 9; and
   g) Require that all stormwater management systems be designed to:
      1) Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the

[10] State approved includes any state in the United States, including, but not limited to, approved guidance by the Commonwealth of Massachusetts
[11] Requirement necessary for Section 401 water quality certification by Massachusetts
[12] Requirement necessary for Section 401 water quality certification by Massachusetts
[13] Requirement necessary for Section 401 water quality certification by Massachusetts

site AND/OR

2) Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site[14] AND 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site[14]. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved[15] BMP design guidance or performance standards (e.g. State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.

4. Redevelopment Requirements
   a) Stormwater management systems on Redevelopment sites shall meet the following sections of part 2.3.6.a.ii.3 to the maximum extent feasible:
      1) Part 2.3.6.a.ii.3(a) (Massachusetts Stormwater Standard 1);
      2) Part 2.3.6.a.ii.3(b) (Massachusetts Stormwater Standard 2);
      3) Part 2.3.6.a.ii.3(c) (Massachusetts Stormwater Standard 3); and
      4) The pretreatment and structural best management practices requirements of 2.3.6.a.ii.3(d) and 2.3.6.a.ii.3(e) (Massachusetts Stormwater Standards 5 and 6).
   b) Stormwater management systems on Redevelopment sites shall also improve existing conditions by requiring that stormwater management systems be designed to:
      1) Retain the volume of runoff equivalent to, or greater than, 0.80 inch multiplied by the total post-construction impervious surface area on the site AND/OR
      2) Remove 80% of the average annual post-construction load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1 where available. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved BMP design guidance or performance standards (e.g. State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.
   c) Stormwater management systems on redevelopment sites may utilize offsite mitigation within the same USGS HUC10 as the redevelopment site to meet the equivalent tretention or pollutant removal requirements in part 2.3.6.a.ii.4(b).
   d) Redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways, (including widening less than a single

[14] The required removal percentage is not required for each storm,it is the average removal over a year that is required
[15] See footnote 14

lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving projects) shall improve existing conditions where feasible and are exempt from part 2.3.6.a.ii.4(a), part 2.3.6.a.ii.4(b) and part 2.3.6.a.ii.4(c). Roadway widening or improvements that increase the amount of impervious area on the redevelopment site by greater than or equal to a single lane width shall meet the requirements of part 2.3.6.a.ii.4(a) – (c)fully.

iii. The permittee shall require, at a minimum, the submission of as-built drawings no later than two (2) years after completion of construction projects. The as-built drawings must depict all on site controls, both structural and non-structural, designed to manage the stormwater associated with the completed site (post construction stormwater management). The new development/redevelopment program shall have procedures to ensure adequate long-term operation and maintenance of stormwater management practices that are put in place after the completion of a construction project. These procedures may include the use of dedicated funds or escrow accounts for development projects or the acceptance of ownership by the permittee of all privately owned BMPs. These procedures may also include the development of maintenance contracts between the owner of the BMP and the permittee. Alternatively, these procedures may include the submission of an annual certification documenting the work that has been done over the last 12 months to properly operate and maintain the stormwater control measures. The procedures to require submission of as-built drawings and ensure long term operation and maintenance shall be a part of the SWMP. The permittee shall report in the annual report on the measures that the permittee has utilized to meet this requirement.

b. Within four (4) years of the effective date of this permit, the permittee 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 permittee to determine if changes to design standards for streets and parking lots can be made to support low impact design options. If the assessment indicates that changes can be made, the assessment shall include recommendations and proposed schedules to incorporate policies and standards into relevant documents and procedures to minimize impervious cover attributable to parking areas and street designs. The permittee shall implement all recommendations, in accordance with the schedules, contained in the assessment. The local planning board and local transportation board should be involved in this assessment. This assessment shall be part of the SWMP. The permittee shall report in each annual report on the status of this assessment including any planned or completed changes to local regulations and guidelines.

c. Within four (4) years from the effective date of the permit, the permittee shall develop a report assessing existing local regulations to determine the feasibility of making, at a minimum, the following practices allowable when appropriate site conditions exist:

i. Green roofs;
ii. Infiltration practices such as rain gardens, curb extensions, planter gardens, porous and pervious pavements, and other designs to manage stormwater using landscaping and structured or augmented soils; and
iii. Water harvesting devices such as rain barrels and cisterns, and the use of stormwater for non-potable uses.

The assessment should indicate if the practices are allowed in the MS4 jurisdiction and under what circumstances are they allowed. If the practices are not allowed, the permittee shall determine what hinders the use of these practices, what changes in local regulations may be made to make them allowable, and provide a schedule for implementation of recommendations. The permittee shall implement all recommendations, in accordance with the schedules, contained in the assessment. The permittee shall report in each annual report on its findings and progress towards making the practices allowable.(Information available at: http://www.epa.gov/region1/npdes/stormwater/assets/pdf/AddressingBarrier2LID.pdf and http://www.mapc.org/resources/low-impact-dev-toolkit/local-codes-lid)

d. Four (4) years from the effective date of this permit, the permittee shall identify a minimum of 5 permittee-owned properties that could potentially be modified or retrofitted with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges to and from its MS4 through the reduction of impervious area. Properties and infrastructure for consideration shall include those with the potential for reduction of on-site impervious area (IA) as well as those that could provide reduction of off-site IA. At a minimum, the permittee shall consider municipal properties with significant impervious cover (including parking lots, buildings, and maintenance yards) that could be modified or retrofitted. MS4 infrastructure to be considered includes existing street right-of-ways, outfalls and conventional stormwater conveyances and controls (including swales and detention practices) that could be readily modified or retrofitted to provide reduction in frequency, volume or pollutant loads of such discharges through reduction of impervious cover.

In determining the potential for modifying or retrofitting particular properties, the permittee shall consider factors such as access for maintenance purposes; subsurface geology; depth to water table; proximity to aquifers and subsurface infrastructure including sanitary sewers and septic systems; and opportunities for public use and education. In determining its priority ranking, the permittee shall consider factors such as schedules for planned capital improvements to storm and sanitary sewer infrastructure and paving projects; current storm sewer level of service; and control of discharges to water quality limited waters, first or second order streams, public swimming beaches, drinking water supply sources and shellfish growing areas.

Beginning with the fifth year annual report and in each subsequent annual report, the permittee shall identify additional permittee owned sites and infrastructure that could be retrofitted such that the permittee maintains a minimum of 5 sites in their inventory, until such a time as when the permittee has less than 5 sites remaining. In addition, the permittee shall report on all properties that have been modified or retrofitted with BMPs to mitigate IA that were inventoried in accordance with this part. The permittee may also include in its annual report non-MS4 owned property that has been modified or retrofitted with BMPs to mitigate IA.

2.3.7. Good House Keeping and Pollution Prevention for Permittee Owned Operations

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.

a. Operations and Maintenance Programs

i. Within two (2) years from the effective date of the permit, the permittee shall develop, if not already developed, written (hardcopy or electronic) operations and maintenance procedures for the municipal activities listed below in part 2.3.7.a.ii. These written procedures shall be included as part of the SWMP.

ii. Within two (2) year of the effective date of this permit, the permittee shall develop an inventory of all permittee owned facilities within the categories listed below. The permittee shall review this inventory annually and update as necessary.

1. Parks and open space: Establish procedures to address the proper use, storage, and disposal of pesticides, herbicides, and fertilizers including minimizing the use of these products and using only in accordance manufacturer's instruction. Evaluate lawn maintenance and landscaping activities to ensure practices are protective of water quality. Protective practices include reduced mowing frequencies, proper disposal of lawn clippings, and use of alternative landscaping materials (e.g., drought resistant planting). Establish pet waste handling collection and disposal locations at all parks and open space where pets are permitted, including the placing of proper signage concerning the proper collection and disposal of pet waste. Establish procedures to address waterfowl congregation areas where appropriate to reduce waterfowl droppings from entering the MS4. Establish procedures for management of trash containers at parks and open space (scheduled cleanings; sufficient number). Establish procedures to address erosion or poor vegetative cover when the permittee becomes aware of it; especially if the erosion is within 50 feet of a surface water.

2. Buildings and facilities where pollutants are exposed to stormwater runoff: This includes schools (to the extent they are permittee-owned or operated), town offices, police, and fire stations, municipal pools and parking garages and other permittee-owned or operated buildings or facilities. Evaluate the use, storage, and disposal of petroleum products and other potential stormwater pollutants. Provide employee training as necessary so that those responsible for handling these products know proper procedures. Ensure that Spill Prevention Plans are in place, if applicable, and coordinate with the fire department as necessary. Develop management procedures for dumpsters and other waste management equipment. Sweep parking lots and keep areas surrounding the facilities clean to reduce runoff of pollutants.

3. Vehicles and Equipment: Establish procedures for the storage of permittee vehicles. Vehicles with fluid leaks shall be stored indoors or containment shall be provided until repaired. Evaluate fueling areas owned or operated by the permittee. If possible, place fueling areas under cover in order to minimize exposure. Establish procedures to ensure that vehicle wash waters are not discharged to the municipal storm sewer system or to surface waters. This permit does not authorize such discharges.

iii. Infrastructure Operations and Maintenance

1. The permittee shall establish within two (2) year of the effective date of the permit a written (hardcopy or electronic) program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4. If the permittee has an existing program to maintain its MS4 infrastructure in a timely manner to reduce or eliminate the discharge of pollutants from the MS4, the permittee shall document the program in the SWMP.

2. The permittee shall optimize routine inspections, cleaning and maintenance of catch basins such that the following conditions are met:

   - Prioritize inspection and maintenance for catch basins located near construction activities (roadway construction, residential, commercial, or industrial development or redevelopment). Clean catch basins in such areas more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
   - Establish a schedule with a goal that the frequency of routine cleaning will ensure that no catch basin at anytime will be more than 50 percent full.
   - If a catch basin sump is more than 50 percent full during two consecutive routine inspections/cleaning events, the permittee shall document that finding, investigate the contributing drainage area for sources of excessive sediment loading, and to the extent practicable, abate contributing sources. The permittee shall describe any actions taken in its annual report.
   - For the purposes of this part, an excessive sediment or debris loading is a catch basin sump more than 50 percent full. A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.
   - The permittee shall document in the SWMP and in the first annual report its plan for optimizing catch basin cleaning, inspection plans, or its schedule for gathering information to develop the optimization plan. Documentation shall include metrics and other information used to reach the determination that the established plan for cleaning and maintenance is optimal for the MS4. The permittee shall keep a log of catch basins cleaned or inspected.
   - The permittee shall report in each annual report the total number of catch basins, number inspected, number cleaned, and the total volume or mass of material removed from all catch basins.

3. The permittee shall establish and implement procedures for sweeping and/or cleaning streets, and permittee-owned parking lots. All streets with the exception of rural uncurbed roads with no catch basins or high speed limited access highways shall be swept and/or cleaned a minimum of once per year in the spring (following winter activities such as sanding). The procedures shall also include more frequent sweeping of targeted areas determined by the permittee on the basis of pollutant load reduction potential, based on inspections, pollutant loads, catch basin cleaning or inspection results, land use, water quality limited or TMDL waters or other relevant factors as determined by the permittee. The permittee shall report in each annual report the number of miles cleaned or the volume or mass of material removed.

   For rural uncurbed roadways with no catch basins and limited access highways, the permittee shall either meet the minimum frequencies above, or develop and implement an inspection, documentation and targeted sweeping plan within two (2) year of the effective date of the permit, and submit such plan with its year one annual report.

4. The permittee shall ensure proper storage of catch basin cleanings and street sweepings prior to disposal or reuse such that they do not discharge to receiving

waters. These materials should be managed in compliance with current MassDEP policies:

- For catch basins cleanings: http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catch-basin-cleanings.html
- For street sweepings: http://www.mass.gov/eea/docs/dep/recycle/laws/stsweep.pdf.

5. The permittee shall establish and implement procedures for winter road maintenance including the use and storage of salt and sand; minimize the use of sodium chloride and other salts, and evaluate opportunities for use of alternative materials; and ensure that snow disposal activities do not result in disposal of snow into waters of the United States. For purposes of this MS4 Permit, salt shall mean any chloride-containing material used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.

6. The permittee shall establish and implement inspection and maintenance frequencies and procedures for all stormwater treatment structures such as water quality swales, retention/detention basins, infiltration structures, proprietary treatment devices or other similar structures. All permittee-owned stormwater treatment structures (excluding catch basins) shall be inspected annually at a minimum.

iv. The permittee shall report in the annual report on the status of the inventory required by this part and any subsequent updates; the status of the O&M programs for the permittee-owned facilities and activities in part 2.3.7.a.ii; and the maintenance activities associated with each.

v. The permittee shall keep a written (hardcopy or electronic) record of all required activities including but not limited to maintenance activities, inspections and training required by part 2.3.7.a. The permittee shall maintain, consistent with part 4.2.a, all records associated with maintenance and inspection activities required by part 2.3.7.a.

b. Stormwater Pollution Prevention Plan (SWPPP)

The permittee shall develop and fully implement a SWPPP for each of the following permittee-owned or operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater as determined by the permittee. If facilities are located at the same property, the permittee may develop one SWPPP for the entire property. The SWPPP is a separate and different document from the SWMP required in part 1.10. A SWPPP does not need to be developed for a facility if the permittee has either developed a SWPPP or received a no exposure certification for the discharge under the Multi-Sector General Permit or the discharge is authorized under another NPDES permit.

i. No later than two (2) years from the effective date of the permit, the permittee shall develop and implement a written (hardcopy or electronic) SWPPP for the facilities described above. The SWPPP shall be signed in accordance with the signatory requirements of Appendix B – Subparagraph 11.

ii. The SWPPP shall contain the following elements:

1. Pollution Prevention Team
   Identify the staff on the team, by name and title. If the position is unstaffed, the title of the position should be included and the SWPPP updated when the position is filled. The role of the team is to develop, implement, maintain, and revise, as necessary, the SWPPP for the facility.

2. Description of the facility and identification of potential pollutant sources
   The SWPPP shall include a map of the facility and a description of the activities that occur at the facility. The map shall show the location of the stormwater outfalls, receiving waters, and any structural controls. Identify all activities that occur at the facility and the potential pollutants associated with each activity including the location of any floor drains. These may be included as part of the inventory required by part 2.3.7.a.

3. Identification of stormwater controls
   The permittee shall select, design, install, and implement the control measures detailed in paragraph iv below to prevent or reduce the discharge of pollutants from the permittee owned facility.

   The selection, design, installation, and implementation of the control measures shall be in accordance with good engineering practices and manufacturer's specifications. The permittee shall also take all reasonable steps to control or address the quality of discharges from the site that may not originate at the facility.

   If the discharge from the facility is to a water quality limited water and the facility has the potential to discharge the pollutant identified as causing the water quality limitation, the permittee shall identify the control measures that will be used to address this pollutant at the facility so that the discharge does not cause or contribute to a violation of a water quality standard.

4. The SWPPP shall include the following management practices:
   a) Minimize or Prevent Exposure: The permittee shall to the extent practicable either locate materials and activities inside, or protect them with storm-resistant coverings in order to prevent exposure to rain, snow, snowmelt and runoff (although significant enlargement of impervious surface area is not recommended). Materials do not need to be enclosed or covered if stormwater runoff from affected areas will not be discharged directly or indirectly to surface waters or to the MS4 or if discharges are authorized under another NPDES permit.

   b) Good Housekeeping: The permittee shall keep clean all exposed areas that are potential sources of pollutants, using such measures as sweeping at regular intervals. Ensure that trash containers are closed when not in use, keep storage areas well swept and free from leaking or damaged containers; and store leaking vehicles needing repair indoors.

   c) Preventative Maintenance: The permittee shall regularly inspect, test, maintain, and repair all equipment and systems to avoid situations that

may result in leaks, spills, and other releases of pollutants in stormwater to receiving waters. Inspections shall occur at a minimum once per quarter.

d) Spill Prevention and Response: The permittee shall minimize the potential for leaks, spills, and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum, the permittee shall have procedures that include:

- Preventive measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling.
- Response procedures that include notification of appropriate facility personnel, emergency agencies, and regulatory agencies, and procedures for stopping, containing, and cleaning up leaks, spills and other releases. Measures for cleaning up hazardous material spills or leaks shall be consistent with applicable Resource Conservation and Recovery Act (RCRA) regulations at 40 CFR section 264 and 40 CFR section 265. Employees who may cause, detect, or respond to a spill or leak shall be trained in these procedures and have necessary spill response equipment available. If possible, one of these individuals should be a member of the Pollution Prevention Team; and
- Contact information for individuals and agencies that shall be notified in the event of a leak, spill, or other release. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under 40 CFR section 110, 40 CFR section 117, or 40 CFR section 302, occurs during a 24-hour period, the permittee shall notify the National Response Center (NRC) at (800) 424-8802 in accordance with the requirements of 40 CFR section 110, 40 CFR section 117, and 40 CFR section 302 as soon as the permittee has knowledge of the discharge. State or local requirements may necessitate reporting spills or discharges to local emergency, public health or drinking water supply agencies, and owners of public drinking water supplies. Contact information shall be in locations that are readily accessible and available.

e) Erosion and Sediment Control: The permittee shall use structural and non-structural control measures at the facility to stabilize and contain runoff from exposed areas and to minimize or eliminate onsite erosion and sedimentation. Efforts to achieve this may include the use of flow velocity dissipation devices at discharge locations and within outfall channels where necessary to reduce erosion.

f) Management of Runoff: The permittee shall manage stormwater runoff from the facility to prevent or reduce the discharge of pollutants. This may include management practices which divert runoff from areas that

are potential sources of pollutants, contain runoff in such areas, or reuse, infiltrate or treat stormwater to reduce the discharge of pollutants.

g) Salt Storage Piles or Piles Containing Salt: For storage piles of salt or piles containing salt used for deicing or other purposes (including maintenance of paved surfaces) for which the discharge during precipitation events discharges to the permittee's MS4, any other storm sewer system, or to a Water of the US, the permittee shall prevent exposure of the storage pile to precipitation by enclosing or covering the storage piles. Such piles shall be enclosed or covered within two (2) years of the permit effective date. The permittee shall implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. The permittee is encouraged to store piles in such a manner as not to impact surface water resources, ground water resources, recharge areas, and wells.

h) Employee Training: The permittee shall regularly train employees who work in areas where materials or activities are exposed to stormwater, or who are responsible for implementing activities identified in the SWPPP (e.g., inspectors, maintenance personnel), including all members of the Pollution Prevention Team. Training shall cover both the specific components and scope of the SWPPP and the control measures required under this part, including spill response, good housekeeping, material management practices, any best management practice operation and maintenance, etc. EPA recommends annual training.

The permittee shall document the following information for each training:

- The training date, title and training duration;
- List of municipal attendees;
- Subjects covered during training

i) Maintenance of Control Measures: The permittee shall maintain all control measures, required by this permit in effective operating condition. The permittee shall keep documentation onsite that describes procedures and a regular schedule for preventative maintenance of all control measures and discussions of back-up practices in place should a runoff event occur while a control measure is off-line. Nonstructural control measures shall also be diligently maintained (e.g., spill response supplies available, personnel trained).

iii. The permittee shall conduct the following inspections:

1. Site Inspections: Inspect all areas that are exposed to stormwater and all stormwater control measures. Inspections shall be conducted at least once each calendar quarter. More frequent inspections may be required if significant activities are exposed to stormwater. Inspections shall be performed when the facility is in operation. At least one of the quarterly inspections shall occur during a period when a stormwater discharge is occurring.

The permittee shall document the following information for each facility inspection:

- The inspection date and time;
- The name of the inspector;
- Weather information and a description of any discharge occurring at the time of the inspection;
- Identification of any previously unidentified discharges from the site;
- Any control measures needing maintenance or repair;
- Any failed control measures that need replacement.
- Any SWPPP changes required as a result of the inspection.

If during the inspections, or any other time, the permittee identifies control measures that need repair or are not operating effectively, the permittee shall repair or replace them before the next anticipated storm event if possible, or as soon as practicable following that storm event. In the interim, the permittee shall have back-up measures in place.

The permittee shall report the findings from the Site Inspections in the annual report.

iv. The permittee must keep a written (hardcopy or electronic) record of all required activities including but not limited to maintenance, inspections, and training required by part 2.3.7.b.The permittee shall maintain all records associated with the development and implementation of the SWPPP required by this part consistent with the requirements of part 4.2.

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

a. Permittees which discharge to public surface drinking water supply sources (Class A and Class B surface waters used for drinking water) or their tributaries should consider these waters a priority in the implementation of the SWMP.

b. Permittees should provide pretreatment and spill control measures to stormwater discharges to public drinking water supply sources or their tributaries to the extent feasible.

c. Direct discharges to Class A waters should be avoided to the extent feasible.

4.0. Program Evaluation, Record Keeping, and Reporting

4.1. Program Evaluation

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:
    - An analysis of why the BMP is ineffective or infeasible;
    - Expectations on the effectiveness of the replacement BMP; and
    - 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.

4.2. Record Keeping

a. The permittee shall keep all records required by this permit for a period of at least five years. EPA may extend this period at any time. Records include information used in the development of any written (hardcopy or electronic) program required by this permit, any monitoring results, copies of reports, records of screening, follow-up and elimination of illicit discharges; maintenance records; inspection records; and data used in the development of the notice of intent, SWMP, SWPPP, and annual reports. This list provides examples of records that should be maintained, but is not all inclusive.

b. Records other than those required to be included in the annual report, part 4.4, shall be submitted only when requested by the EPA or the MassDEP.

c. The permittee shall make the records relating to this permit, including the written (hardcopy or electronic) stormwater management program, available to the public. The public may view the records during normal business hours. The permittee may charge a reasonable fee for copying requests. The permittee is encouraged to satisfy this requirement by posting records online.

4.3. Outfall Monitoring Reporting

a. The permittee shall monitor and sample its outfalls at a minimum through sampling and testing at the frequency and locations required in connection with IDDE screening under part 2.3.4.7.b. and 2.3.4.8.c.ii.2. The monitoring program may also include additional outfall and interconnection monitoring as determined by the permittee in connection with assessment of SWMP effectiveness

pursuant to part 4.1; evaluation of discharges to water quality limited waters pursuant to part 2.2; assessment of BMP effectiveness pursuant to part 2.2 or 2.3; or otherwise.

b. The permittee shall document all monitoring results each year in the annual report. The report shall include the date, outfall or interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results of all analyses. The annual report shall include all of this information and data for the current reporting period and for the entire permit period.

c. The permittee shall also include in the annual report results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period where that data is being used by the permittee to inform permit compliance or program effectiveness. If such monitoring or studies were conducted on behalf of the permittee, or if monitoring or studies conducted by other entities were reported to the permittee, a brief description of the type of information gathered or received shall be included in the annual report(s) covering the time period(s) the information was received.

4.4. Annual Reports

a. The permittee shall submit annual reports each year of the permit term. 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 this permit shall also cover the period from May 1, [year of final permit issuance] to the permit effective date. The annual report is due ninety days from the close of each reporting period.

b. The annual reports shall contain the following information:

i. A self-assessment review of compliance with the permit terms and conditions.

ii. An assessment of the appropriateness of the selected BMPs.

iii. 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.

c. Reports shall be submitted to EPA at the following address:

United State Environmental Protection Agency
Stormwater and Construction Permits Section (OEP06-1)
Five Post Office Square, Suite 100
Boston, MA 02109

Massachusetts Department of Environmental Protection
One Winter Street – 5th Floor
Boston, MA 02108
ATTN: Frederick Civian

Or submitted electronically to EPA at the following email address: stormwater.reports@epa.gov. After December 21, 2020 all Annual Reports must be submitted electronically.

5.0. Non-Traditional MS4s

Non-traditional MS4s are MS4s owned and operated by the Commonwealth of Massachusetts, counties or other public agencies within the Commonwealth of Massachusetts, and properties owned and operated by the United States (Federal Facilities) within the Commonwealth of Massachusetts. This part addresses all non-traditional MS4s except MS4s that are owned or operated by transportation agencies, which are addressed in part 6.0 below.

5.1. Requirements for Non-Traditional MS4s

All requirements and conditions of parts 1 – 4 above apply to all Non-traditional MS4s, except as specifically provided below:

5.1.1. Public education

For the purpose of this permit, the audiences for a Non-traditional MS4 include the employees, clients and customers (including students at education MS4s), visitors to the property, tenants, long term contractors and any other contractors working at the facility where the MS4 is located. The permittee may use some of the educational topics included in part 2.3.2.d. as appropriate, or may focus on topics specific to the MS4. The permittee shall document the educational topics for each target audience in the SWMP and annual reports.

5.1.2. Ordinances and regulatory mechanisms

Some Non-traditional MS4s may not have authority to enact an ordinance, by-law, or other regulatory mechanisms. MS4s without the authority to enact an ordinance shall ensure that written policies or procedures are in place to address the requirements of part 2.3.4.5., part 2.3.4.6 and part 2.3.6.a.

5.1.3. Assessment of Regulations

Non-traditional MS4s do not need to meet the requirements of part 2.3.6.c.

5.1.4. New Dischargers

New MS4 facilities are subject to additional water quality-based requirements if they fall within the definition of "new discharger" under 40 CFR § 122.2: "A new discharger is any building, structure, facility or installation (a) from which there is or may be a 'discharge of pollutants' (b) that did not commence the 'discharge of pollutants' at a particular 'site' prior to August 13, 1979; (c) which is not a 'new source'; and (d) which never received a finally effective NPDES permit for discharges at that 'site.' The term "site" is defined in § 122.2 to mean "the land or water area where any 'facility or activity' is physically located or conducted including adjacent land used in connection with the facility or activity."

Consistent with these definitions, a Non-traditional MS4 is a "new discharger" if it discharges stormwater from a new facility with an entirely new separate storm sewer system that is not physically located on the same or adjacent land as an existing facility and associated system operated by the same MS4.

Any Non-traditional MS4 facility that is a "new discharger" and discharges to a waterbody listed in category 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water

Act section 303(d) and 305(b) due to nutrients (Total Nitrogen or Total Phosphorus), metals (Cadmium, Copper, Iron, Lead or Zinc), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride) or oil and grease (Petroleum Hydrocarbons or Oil and Grease), or discharges to a waterbody with an approved TMDL for any of those pollutants, is not eligible for coverage under this permit and shall apply for an individual permit.

Any Non-traditional MS4 facility that is a "new discharger" and discharges to a waterbody that is in attainment is subject to Massachusetts antidegradation regulations at 314 CMR 4.04. The permittee shall comply with the provisions of 314 CMR 4.04 including information submittal requirements and obtaining authorization for new discharges where appropriate[16]. Any authorization of new discharges by MassDEP shall be incorporated into the permittee's SWMP. If an applicable MassDEP approval specifies additional conditions or requirements, then those requirements are incorporated into this permit by reference. The permittee must comply with all such requirements.

6.0 Requirements for MS4s Owned or Operated by Transportation Agencies

This part applies to all MS4s owned or operated by any state or federal transportation agency (except Massachusetts Department of Transportation –MassDOT- Highway Division, which is subject to a separate individual permit). All requirements and conditions of this permit apply with the following exceptions:

6.1 Public education

For the purpose of this permit, the audiences for a transportation agency education program include the general public (users of the roadways), employees, and any contractors working at the location. The permittee may use some of the educational topics included in part 2.3.2.d. as appropriate, or may focus on topics specific to the agency. The permittee shall document the educational topics for each target audience.

6.2 Ordinances and regulatory mechanisms

The transportation agency may not have authority to enact an ordinance, by-law or other regulatory mechanisms. The agency shall ensure that written agency policies or procedures are in place to address the requirements of part 2.3.4.5., part 2.3.4.6 and part 2.3.6.a.

6.3 Assessment of regulations

Non-traditional MS4s do not need to meet the requirements of part 2.3.6.c.

6.4 New Dischargers

New MS4 facilities are subject to additional water quality-based requirements if they fall within the definition of "new dischargers" under 40 CFR § 122.2: "A new discharger is any building, structure, facility or installation (a) from which there is or may be a 'discharge of pollutants' (b) that did not commence the 'discharge of pollutants' at a particular 'site' prior to August 13, 1979; (c) which is not a 'new source'; and (d) which never received a finally effective NPDES permit for discharges at that 'site.' The term "site" is defined in § 122.2 to mean "the land or water area where any 'facility or activity' is physically located or conducted including adjacent land used in connection with the facility or activity."

[16] Contact MassDEP for guidance on compliance with 314 CMR 4.04

Consistent with these definitions, a new transportation MS4 is a "new discharger" if it discharges stormwater from a new facility with an entirely new separate storm sewer system that is not physically located on the same or adjacent land as an existing facility and associated system operated by the same MS4.

Any transportation MS4 facility that is a "new discharger" and discharges to a waterbody listed as impaired in category 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b) due to nutrients (Total Nitrogen or Total Phosphorus), metals (Cadmium, Copper, Iron, Lead or Zinc), solids (TSS or Turbidity), bacteria/pathogens (E. Coli, Enteroccus or Fecal Coliform), chloride (Chloride) or oil and grease (Petroleum Hydrocarbons or Oil and Grease), or discharges to a waterbody with an approved TMDL for any of those pollutants, is not eligible for coverage under this permit and shall apply for an individual permit.

Any transportation MS4 facility that is a "new discharger" and discharges to a waterbody that is in attainment is subject to Massachusetts antidegradation regulations at 314 CMR 4.04. The permittee shall comply with the provisions of 314 CMR 4.04 including information submittal requirements and obtaining authorization for new discharges where appropriate[17]. Any authorization of new discharges by MassDEP shall be incorporated into the permittee's SWMP. If an applicable MassDEP approval specifies additional conditions or requirements, then those requirements are incorporated into this permit by reference. The permittee must comply with all such requirements.

[17] Contact MassDEP for guidance on compliance with 314 CMR 4.04

Tab 12

Integrated List of Waters 2016

Massachusetts Year 2016 Integrated List of Waters

Proposed Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act

CN 470.0

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Matthew A. Beaton, Secretary
Massachusetts Department of Environmental Protection
Martin Suuberg, Commissioner
Bureau of Water Resources
Douglas E. Fine, Assistant Commissioner

NOTICE OF AVAILABILITY

This report is available via the Massachusetts Department of Environmental Protection's (MassDEP) website: http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html

DISCLAIMER

References to trade names, commercial products and manufacturers in this report does not constitute endorsement.

Cover photo: Blackstone River, Millville, MA by Therese Beaudoin

Massachusetts Year 2016 Integrated List of Waters

Proposed Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act

Prepared by:

Massachusetts Division of Watershed Management
Watershed Planning Program

CN: 470.0

June, 2017

Massachusetts Department of Environmental Protection
Division of Watershed Management
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List of Acronyms and Abbreviations

ADB	Assessment Database
AU	Assessment Unit
AUID	Assessment Unit Identifier
ATTAINS	Assessment and TMDL Tracking and Implementation System
AWQC	Ambient Water Quality Criteria
BMPs	Best Management Practices
CALM	Consolidated Assessment and Listing Methodology
CAMIS	Coastal and Marine Inventory System
CAPS	Conservation Assessment and Prioritization System
CPP	Continuing Planning Process
CSOs	Combined Sewer Overflows
CWA	Clean Water Act
CWMP	Comprehensive Wastewater Management Plan
DCR	Massachusetts Department of Conservation and Recreation
DFG	Massachusetts Department of Fish and Game
DMF	Massachusetts Division of Marine Fisheries
DPH	Massachusetts Department of Public Health
DQOs	Data Quality Objectives
DWM-WPP	Division of Watershed Management-Watershed Planning Program
EEA	Massachusetts Executive Office of Energy and Environmental Affairs
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information Systems
IBI	Index of Biological Integrity
IEI	Index of Ecological Integrity
IUP	Intended Use Plan
IR	Integrated Report
LIS	Long Island Sound
MassDEP	Massachusetts Department of Environmental Protection
MassGIS	Massachusetts Geographic Information System
MEP	Massachusetts Estuaries Project
MS4	Municipal Separate Stormwater Sewer Systems
MyRWA	Mystic River Watershed Association
NEIWPCC	New England Interstate Water Pollution Control Commission
NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
ORW	Outstanding Resource Water
OWOW	Office of Wetlands, Oceans and Watersheds
PALIS	Pond and Lake Information System
PPA	Performance Partnership Agreement
QC	Quality Control
QAPP	Quality Assurance Project/Program Plan
RBP	Rapid Bioassessment Protocols
SARIS	Stream and River Inventory System
SLAM	Site-level Assessment Methodology
SMAST	UMass-Dartmouth School of Marine Science and Technology
SRF	Massachusetts State Revolving Fund

SWMI	Sustainable Water Management Initiative
SWQS	Surface Water Quality Standards
TMDL	Total Maximum Daily Load
UBWPAD	Upper Blackstone Water Pollution Abatement District
USGS	U.S. Geological Survey
WBP	Watershed-based Plan
WLA	Waste Load Allocation
WMA	Water Management Act
WPA	Wetlands Protection Act
WWTP	Wastewater Treatment Plant

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INTRODUCTION

The Federal Water Pollution Control Act of 1972 and subsequent Amendments in 1977, 1981 and 1987 are collectively known as the Clean Water Act (CWA). The objective of this statute is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. As one step toward meeting this goal each state must administer a program to monitor and assess the quality of its surface and groundwater and provide periodic status reports to the U.S. Environmental Protection Agency (EPA), the U.S. Congress, and the public. S. 305(b) of the CWA codifies the process whereby waters are evaluated with respect to their capacity to support designated uses as defined in each of the states' surface water quality standards (SWQS). These uses include aquatic life support, fish and shellfish consumption, drinking water supply, and primary (e.g., swimming) and secondary (e.g., boating) contact-recreation. The 305(b) process entails assessing each of these uses for rivers, lakes and coastal waters. Causes and sources of impairment are identified wherever possible.

S. 303(d) of the CWA and the implementing regulations at 40 CFR 130.7 require states to identify those water bodies that are not expected to meet SWQS after the implementation of technology-based controls and to prioritize and schedule them for the development of total maximum daily loads (TMDLs). A TMDL establishes the maximum amount of a pollutant that may be introduced into a water body and still ensure attainment and maintenance of water quality standards. Furthermore, a TMDL must also allocate that acceptable pollutant load among all potential sources. The formulation of the 303(d) *List of Impaired Waters* (303(d) List) includes a more rigorous public review and comment process than does reporting under s. 305(b), and the final version of the list must be formally approved by the EPA.

Prior to 2002 states prepared and submitted to the EPA both a biennial *Summary of Water Quality Report* in accordance with the requirements of s. 305(b) as well as a separate s. 303(d) List. On November 19, 2001 the EPA released guidance for the preparation of an optional *Integrated List of Waters* that would combine reporting elements of both ss. 305(b) and 303(d) of the CWA. This Integrated Report (IR) format allows states to provide the status of all their assessed waters in a single, multi-part list.

States choosing this option can list each Assessment Unit (AU) (i.e., water body or segment thereof) in one of the following five categories (Note: Massachusetts' IR category titles have been modified slightly from the EPA guidance and Category 4 has been divided into subcategories -- see text for explanation):

1) Unimpaired and not threatened for all designated uses;
2) Unimpaired for some uses and not assessed for others;
3) Insufficient information to make assessments for any uses;
4) Impaired or threatened for one or more uses, but not requiring the calculation of a TMDL; or
5) Impaired or threatened for one or more uses and requiring a TMDL.

The Massachusetts Department of Environmental Protection (MassDEP) has modified the above wording of the category titles contained in the EPA guidance, and Category 4 has been divided into three sub-categories, as explained later in this report. Nonetheless, waters listed in Category 5 constitute the 303(d) List and, as such, are to be reviewed and approved by the EPA. The remaining four categories are submitted in fulfillment of the requirements under s. 305(b), essentially replacing the old 305(b) report format. The MassDEP prepared IRs in accordance with EPA guidance every other year from 2002 through 2014. The EPA subsequently approved each of these. The final approved version of the *Massachusetts 2014 Integrated List of Waters* (2014 IR) (MassDEP 2015a) and EPA approval documents, can be found at http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html.

A memorandum entitled "Information Concerning 2016 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions" (August 13, 2015) from Benita Best-Wong, Director of the EPA's Office of Wetlands, Oceans and Watersheds (OWOW), to that agency's regional Water Division Directors recommends that states prepare their 2016 IRs consistent with previous EPA IR guidance, including EPA's 2006 IR Guidance, which is supplemented by EPA's 2008, 2010, 2012, 2014 and 2016 IR memoranda. The

2016 IR guidance, along with all of EPA's clarifying guidance pertaining to s. 303(d) reporting can be accessed at http://www.epa.gov/tmdl/integrated-reporting-guidance.

Following the completion of the 2014 reporting cycle, the MassDEP made substantial improvements to the process by which water body assessments are carried out. These revisions are embodied in the *Massachusetts Consolidated Assessment and Listing Methodology (CALM) Guidance Manual for the 2016 Reporting Cycle* (MassDEP 2016a) which represents the first major revision of the CALM since it was first published in 2012 (MassDEP 2012). New enhancements to the CALM include a description of how new kinds of data and information, such as long-term dissolved oxygen and temperature data, are used to make assessments, and clarification on the use of response indicators for assessing impairments associated with nutrients.

This report opens with some descriptive statistics pertaining to the surface water resources of Massachusetts, followed by a brief analysis of the costs and benefits of clean water, and an overview of MassDEP's water quality management program. Next, a general description of the methods used to assess and categorize the use-attainment status of Massachusetts' waters is presented. Water quality issues of special concern in Massachusetts are also briefly discussed. A section entitled "Prioritizing Waters for TMDL Development" is included that reflects the most recent schedule for completing TMDLs negotiated between MassDEP and the EPA as part of their Performance Partnership Agreement (PPA). Following this introductory material, all of Massachusetts' assessed water bodies (i.e., AUs) are presented by major watershed (see Figure 1) in individual tables corresponding to the IR categories defined above. Finally, appendices are provided to assist the reader in navigating the multi-part list. Appendix 1 presents a description of every AU included in the IR and indicates the list category in which each AU appears. Appendices 2 and 3 list the impairments *added to* and *removed from* categories 5 and 4c of the IR for 2016.

MASSACHUSETTS SURFACE WATER ATLAS

The Commonwealth of Massachusetts ranks 45th out of the 50 states in surface area (approx. 8,300 sq mi of dry land and inland water combined), yet its estimated (2014) 6,745,408 inhabitants place it 14th in population (US Census Bureau 2015). More than 75 percent of the population resides in the eastern one-third of the state.

Massachusetts encompasses two geological provinces: the Coastal Plain and the New England Upland. Cape Cod and the Islands form the coastal plain and consist of low hills and plains covering unconsolidated sediments that form the most productive aquifers in the state. The New England Upland province consists of till and stratified drift above metamorphic and igneous rocks, and provides small productive aquifers. Groundwater is used for water supply in small communities and almost exclusively on Cape Cod and the Islands. Surface water is the major source of water supply for all the major urban areas in the state, since no other source is capable of meeting these demands. Surface water in the state is relatively plentiful and of high quality, but it is not distributed in proportion to the distribution of the population. Two thirds of Massachusetts' residents depend upon surface water for their needs. The Massachusetts Water Resources Authority supplies communities in the greater Boston area (about half the state usage of surface water) from Quabbin and Wachusett reservoirs in the central uplands.

Annual precipitation averages about 44 inches and is fairly evenly distributed throughout the state. Average annual evaporation of free water surfaces ranges from about 26 inches in Western Massachusetts to about 28 inches in the eastern half of the state. Yearly runoff ranges from about 20 inches in Cape Cod to about 32 inches in the northwestern corner of the state. The lowest runoff generally occurs during July, August and September. Runoff is highest in March in the eastern sections of the state and April in the western sections and at higher elevations.

A summary of general surface water resource statistics for Massachusetts is provided in Table 1. Massachusetts incorporates all or a portion of nine major drainage systems – Hudson, Housatonic,

Connecticut, Thames, Narragansett Bay, Mount Hope Bay, Boston Harbor, Merrimack and Coastal – that, in turn, comprise 33 smaller river basins (i.e., watersheds) and coastal drainage areas that generally serve as the fundamental planning units of Massachusetts' surface water monitoring, assessment and management programs described throughout this report (see Figure 1).

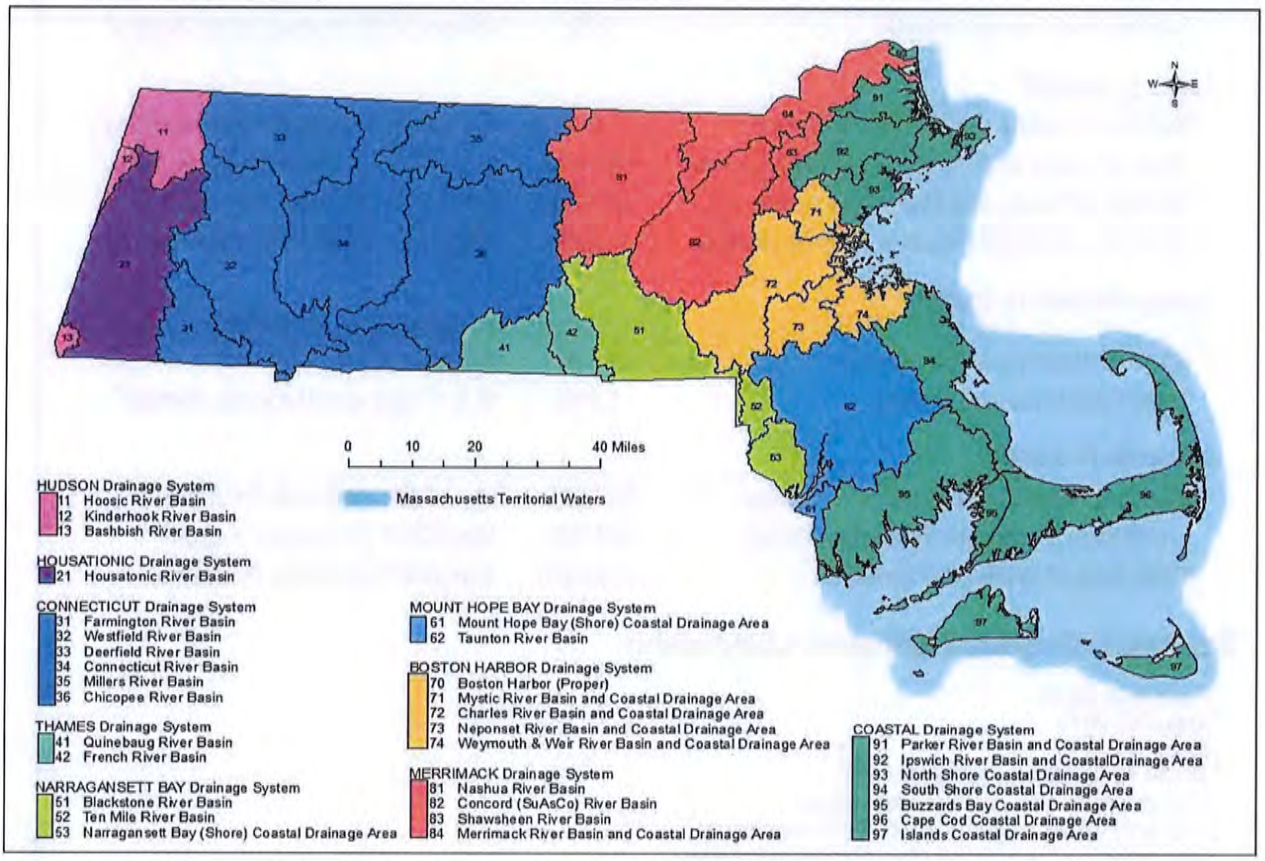
Table 1. Surface Water Atlas for Massachusetts.

Water Type [Scale] (units)	Value	Data Source*
Rivers [1:24,000]		
Perennial river/streams (miles)	10,033	UMass NHD Hydrography Project[1]
Intermittent streams (miles)	3,684	UMass NHD Hydrography Project[1]
Ditches and Canals (miles)	202	UMass NHD Hydrography Project[1]
Lakes [1:25,000]		
Number of Lakes and Ponds >= 5 acres	2,622	MassGIS - MassDEP Hydrography[2]
Area of Lakes and Ponds >= 5 acres (acres)	153,514	MassGIS - MassDEP Hydrography[2]
Number of Lakes and Ponds < 5 acres	24,479	MassGIS - MassDEP Hydrography[2]
Area of Lakes and Ponds < 5 acres (acres)	15,506	MassGIS - MassDEP Hydrography[2]
Coastal Waters [1:25,000]		
Coastal Waters (square miles)	2,726	MassGIS – MassDFG Designated Shellfish Growing Areas[3]
Total Tidal Shoreline (miles)	1,519	U.S. Coast and Geodetic Survey[4]
Wetlands [1:5,000]		
Marine and Estuarine Wetlands (acres)	107,525	MassDEP Wetlands Program[5,6]
Freshwater Vegetated Wetlands (acres)	467,331	MassDEP Wetlands Program[5,7]
Total Area of Wetlands (acres)	574,856	MassDEP Wetlands Program

***Data Sources (See General References in Bibliography):**

[1] Rees et al. 2010
[2] MassGIS 2010
[3] MassGIS 2015
[4] NOAA 1975, Maietta 1984, Gil 1985
[5] 2005 wetlands map layer (in preparation)
[6] does not include 34,777 acres of eel grass pasture
[7] open water and agricultural cranberry bogs excluded

Figure 1. Major drainage systems, river basins (i.e., watersheds) and coastal drainage areas of Massachusetts with their unique Stream and River Inventory System (SARIS) code numbers, as assigned by Halliwell et al. 1982. These river basins and coastal drainage areas serve as the fundamental planning units of MassDEP's surface water monitoring, assessment and management programs.



COSTS AND BENEFITS OF CLEAN WATER

The benefits to society of clean water can hardly be over-stated. Adequate supplies of clean water are essential to the survival and propagation of fish, shellfish and other aquatic life, as well as terrestrial vegetation and wildlife and the humans that rely on these organisms for food. Furthermore, humanity's dependence on clean water for domestic, industrial and recreational purposes is placing ever-increasing demands on limited water supplies. While the value to society of maintaining clean water is intuitive and fairly easily understood in a qualitative sense, a comprehensive economic analysis of the benefits of clean water can be far-reaching and complex. Sometimes it is useful to turn the question around: "What is the cost to society, in terms of public health, economics or other factors, of NOT achieving sound water quality conditions?" For example, drinking water contaminated with pathogens is estimated to sicken 20 million Americans each year (Reynolds *et al.* 2008). The Centers for Disease Control estimates that the cost of hospitalizations for waterborne diseases could exceed $500 million annually (CDC 2010), and in 2005, U.S. consumers paid over $50 million for bottled water in response to drinking water contamination (Zivin, *et al.* 2011).

Property values for single-family homes have been shown to decrease by up to 10% due to their proximity to polluted water ways (Braden *et al.* 2006). In 2007, the State of New Hampshire reported that a decrease in water clarity or purity would result in a loss of $51 million in sales, $18 million in income, and 810 jobs due to decreased recreation (Nordstrom 2007). Finally, Dodds *et al.* (2009) evaluated the economic impacts of human-induced eutrophication on US freshwaters and estimated that $2.2 billion are lost annually in recreational usage, waterfront property values, water treatment costs and spending on the recovery of threatened and endangered species.

An analysis such as this typically involves comparing the costs of maintaining or restoring water quality with the socioeconomic benefits realized when the desired water quality condition is achieved. In a strict sense, this "cost-benefit analysis" has an underlying premise that a threshold exists beyond which the cost to attain the use may exceed the benefit gained, but this most certainly has implications for resources such as air and water that are essential to life on this planet. And, whereas it is possible to assign monetary costs to the construction and operation of water and wastewater treatment facilities or other activities aimed at restoring water quality, it is often more difficult to predict the value of the benefit gained from achieving water quality goals. Typically, these gains are measured by indicators such as increases in the number of fishing licenses sold, decreases in the number of shellfish bed or beach closures, or increases in property values associated with good quality waters. The aesthetic value placed on clean water, on the other hand, is more difficult to measure economically and may vary considerably from one person to the next. Another significant factor limiting the utility of this kind of analysis is the lack of data and information pertaining to the impacts of water pollution on public health and the economy. For example, the incidence of water-borne illnesses associated with swimming in contaminated waters goes largely unreported, making the resultant savings in health costs associated with the cleanup of those waters, to say nothing of the human suffering, difficult to estimate.

A complete assessment of the socioeconomic costs and benefits associated with restoring and maintaining the integrity of Massachusetts' waters is beyond the scope of this report. Nonetheless, a few examples of the financial commitments made to the protection and restoration of water resources, and the value of selected enterprises relying on those resources, can serve to illustrate the magnitude of the socioeconomic affects of clean water. The most significant financial commitment to the protection and restoration of water resources is the funding, through the State Revolving Fund (SRF) of both wastewater collection and treatment infrastructure and drinking water treatment and distribution systems. In 2015 approximately $246 million and $81 million in funding were allocated for wastewater and drinking water infrastructure, respectively (MassDEP *et al.* 2015). This program, along with its predecessor Construction Grants Program, represents the single largest financial commitment to clean water in Massachusetts and is estimated to be over $8 billion from 1968 to the present.

The construction grant and loan programs are by no means the only sources of capital used to ensure clean water. Private industries and institutions pay for the installation and operation of wastewater treatment and pre-treatment facilities. Furthermore, water and wastewater infrastructure will not do the job alone. For

example, the management of nonpoint sources (NPS) of pollution is best accomplished through the implementation of best management practices (BMPs) and responsible land use, so resources are needed to increase public awareness and stewardship. NPS pollution reductions through the application of BMPs are a cost-effective alternative to mechanical water treatment. Practicing water conservation instead of building and operating a water filtration plant can treat drinking water at one fifth of the cost. Planting, or improving, forest buffers instead of building and operating a wastewater treatment plant can reduce nitrogen inputs for less than half the cost. Constructed wetlands can treat wastewater at one sixth the cost of conventional treatment methods. Wetlands in the Boston area have been shown to provide $42,000 worth of flood protection per acre (EPA 2012). The CWA s. 319 addresses the identification and management of nonpoint sources of pollution and provides grant monies for the implementation of BMPs and public education programs. Many other agencies, as well as non-governmental organizations, such as private institutions, watershed associations and citizen environmental advocacy groups, commit time and financial support to educating the public and promoting behaviors that will lead to cleaner waters in Massachusetts. It is difficult, however, to put a price tag on all of this good work.

As stated earlier, it is even more challenging to estimate the magnitude of the economic benefit associated with clean water than it is the costs of achieving clean water. Economic benefits from clean water in Massachusetts are reflected in data and information on sport and commercial fisheries, recreation in and on the water, tourism, and property values. The following statistics may help to illustrate the extent of these benefits, but they are by no means comprehensive or complete. The US Fish and Wildlife Service and US Census Bureau (2013) reported that 532,000 recreational anglers fished a total of 8.3 million days in Massachusetts in 2011. Associated expenditures were $455 million dollars. This includes food, lodging, transportation, fishing gear and associated equipment, licenses and fees, etc.

More recent information pertaining to revenues generated through the sale of fishing licenses and shellfishing permits in Massachusetts is summarized in the 2014 annual reports of the Massachusetts Division of Fisheries and Wildlife and Division of Marine Fisheries, respectively. Sales of freshwater fishing licenses exceeded $2.9 million in FY2014, while over $1.9 million in permit fees were collected from commercial fishermen, fish and shellfish dealers and other marine fisheries permittees.

The marine finfish and shellfish harvests for 2014 grossed in excess of $500 million (MADFG 2014a). Because most finfish and shellfish species that comprise this commercial catch rely on near-shore waters and river estuaries for all or a portion of their lifecycles, the quality of freshwaters and their watersheds has a direct effect on the health of the offshore fishery. Reductions in ground stocks of commercially valuable fishes have been documented in the waters off New England for several years now, and this serious problem is likely attributed to a combination of environmental degradation, over-fishing and other factors that are difficult to quantify. Therefore, it is difficult to predict with certainty the direct monetary benefits to the commercial fishery from various steps taken to achieve clean water in Massachusetts' watersheds and coastal waters. Nonetheless, it stands to reason that a recovery in Massachusetts' marine fisheries cannot be accomplished if clean water is not restored and maintained in those near-shore waters. The Massachusetts Estuaries Project is currently addressing several water quality issues as they pertain to near-shore waters (see http://www.oceanscience.net/estuaries/index.htm)

The Massachusetts tourism industry brought in $19.5 billion in direct spending in 2014 that generated $1.2 billion in state and local taxes (see http://www.massvacation.com/travel-trade/stats-facts/stats-reports-2/#economic). It is assumed that two-thirds of this travel was for leisure and that a substantial number of tourists were involved with water-related activities such as swimming, boating, fishing and viewing wildlife. Furthermore, much of Massachusetts' cultural history centers on its waterways that provided food and transportation to its' endemic people and early settlers and hydropower and navigation during the industrial revolution. The aesthetic value of these waters and associated sites of interest is enhanced immeasurably by clean water. Again, although not quantified here, it is evident that the Massachusetts travel industry benefits directly from clean water and that ongoing pollution abatement will result in further economic gains for tourism. Finally, several studies have concluded that clean water has a positive effect on adjacent property values. For example, a study in Maine (Michael *et al.* 1996) demonstrated that lakefront properties were up to $200 higher per frontage foot when water quality was good. Similarly, others have shown that

water clarity is essential to the enjoyment of lakes and ponds and that people are willing to pay to ensure that clean water is maintained. See, for example, Krysel et al. 2003.

In summary, a detailed analysis of the socioeconomic benefit of clean water to Massachusetts' residents would be complex and time-consuming and would be better undertaken as a separate study. Nonetheless, from the examples presented, it should be evident that the restoration and maintenance of clean water, while not inexpensive, result in enormous benefit to the economy and quality of life in Massachusetts.

AN OVERVIEW OF THE MASSACHUSETTS WATER QUALITY MANAGEMENT PROGRAM

The Continuing Planning Process

Section 303(e) of the CWA and the implementing regulations at 40 CFR 130.5 require each state to establish and maintain a continuing planning process (CPP) that defines and documents the implementation of a comprehensive water quality management program. While the format of the CPP is left to the discretion of the state, it must address, at a minimum, nine essential processes or water quality management program elements required by the CWA. The EPA is responsible for periodically reviewing the adequacy of each state's CPP, and cannot approve any permit program under Title IV of the CWA for any state which does not have an approved CPP.

Massachusetts first documented its water quality management program in a CPP report in 1973. Five subsequent revisions, completed during the period 1976 - 1990, followed guidance presented in the *State Continuing Planning Process Handbook,* published in 1975 by the EPA. Massachusetts' CPP documents included descriptions of the SWQS, water quality monitoring and assessment programs, river basin (s. 303e) and area-wide (s. 208) wastewater planning, TMDLs and waste load allocation (WLA), and NPS pollution control.

As time went on, most of the information presented in the CPP documents was also presented, often in more detail, in separate reports required by the EPA as part of the annual EPA-State Performance Partnership Agreements (PPA), and less emphasis was placed on the periodic production of a separate CPP document. For example, ongoing revisions to the SWQS classified Massachusetts' surface waters, designated beneficial uses, assigned criteria that were to be attained in order to support those uses, and specified antidegradation provisions. In addition, 305b reports presented the status of Massachusetts' surface waters with respect to their designated use attainment, and the 303(d) lists presented waters impaired by pollutants and set priorities for deriving TMDLs for those waters. In 2002 these two reporting requirements were combined into one IR format, and this report, prepared every two years, includes descriptions of most of the program elements called for in EPA's CPP guidance. Finally, Massachusetts prepares periodic updates to its Nonpoint Source Management Plan (NPS Plan), and is developing guidance for the production of individual watershed-based plans (WBP) that are a prerequisite for funding nonpoint pollution control projects in accordance with s. 319 of the CWA.

In summary, the CPP refers to the ongoing administration, by the MassDEP, of a comprehensive water quality management program, as mandated by the CWA. It should be thought of as a system of program elements aimed at establishing SWQS, monitoring and assessing waters, deriving WLAs and TMDLs, and planning and implementing measures to restore impaired waters. While this program was described in a separate document in the past, this information is now provided within the context of the EPA-State PPA and associated reporting elements and deliverables.

Surface Water Quality Standards

The establishment of achievable goals for surface waters is fundamental to their restoration and protection. To this end, states adopt water quality standards that ascribe these goals in the form of beneficial uses that are assigned to specific defined water bodies. For example waters may be designated for the support of aquatic life, recreational use, and fish and shellfish consumption. Water quality standards also

specify criteria that water bodies must meet in order to support their assigned uses. Criteria may be expressed as numerical values that should not be exceeded in ambient water, such as the geometric mean of all *E. coli* samples shall not exceed 126 colonies per 100 mililiters (ml), or a minimum instream dissolved oxygen concentration of 5 miligrams per liter (mg/l). Alternatively, water quality standards may include narrative statements that waters shall be free from constituents in concentrations that would impair their intended uses.

The Massachusetts SWQS are found at 314 CMR 4.00 and are available online at http://www.mass.gov/eea/agencies/massdep/water/regulations/314-cmr-4-00-mass-surface-water-quality-standards.html. The SWQS assign all inland and coastal and marine waters to classes according to the intended beneficial uses of those waters. For example Class A waters are waters designated as a source of public water supply and their tributaries. They should also be suitable for supporting aquatic life, recreational uses such as swimming and boating and fish consumption. Class B waters are not water supplies, but are designated for all of the other uses cited above for Class A. Finally, Class C waters should be suitable for aquatic life and recreational uses where contact with the water is incidental, such as boating and fishing, but may not be suitable for swimming, diving or water skiing. Inland waters are also subcategorized as to fishery type (cold water fishery, warm water fishery or aquatic life) based on their natural capacity to support these resources. Likewise, Massachusetts' coastal and marine waters are assigned to classes (i.e., SA, SB and SC) that distinguish shellfish harvesting and recreational uses while providing suitable habitat for wildlife, fish and other aquatic life. In all cases, minimum criteria (e.g., dissolved oxygen, temperature, etc.) are specified for each class based on the most sensitive use designated to that class. Additional criteria that apply to all surface waters are also included in the SWQS.

Some waters are designated for special protection under the antidegradation provisions of the SWQS. These provisions restrict or prohibit the authorization of wastewater discharges to critical resource waters. Most notable is the Outstanding Resource Water (ORW) designation that applies to all Class A waters and certain Class B, Class SA and Class SB waters. These waters exhibit exceptional socio-economic, recreational, ecological and/or aesthetic qualities. ORWs include, but are not limited to, Class A public water supplies and their bordering vegetated wetlands, and vernal pools certified as such by the DFG. Other waters designated as ORWs may include those protected by special legislation, as well as selected waters found in national parks, state forests and parks, or areas of critical environmental concern.

The adoption of water quality standards is a public process and the CWA specifies that states hold public hearings at least once every three years (i.e., triennial review) to review and, where appropriate, revise their water quality standards. The MassDEP adopted the most recent revisions to the SWQS on December 29, 2006. These were subsequently submitted to the EPA for review in January 2007, and on March 26, 2007 the EPA approved some revisions while indicating that the remaining revisions proposed by the MassDEP were still under review. In September 2007, the EPA approved an additional set of the revisions adopted in 2006. With no updates to the Massachusetts SWQS in almost a decade, the MassDEP is planning to make some limited revisions to the SWQS in 2017 with a more comprehensive triennial review to be initiated soon thereafter. The proposed revisions for 2017 include: an update to the bacteria criteria as recommended by the EPA in 2012, a revision to the method for assessing the existing aluminum criteria, and the removal of previously adopted site-specific criteria that were not approved by EPA. Since 2002, EPA has issued several recommended ambient water quality criteria (AWQC) that have not yet been reviewed or included in the Massachusetts SWQS. The CWA, as amended in 2015, requires states to review EPA recommended criteria, and either adopt EPA's recommendations or develop equivalent alternatives into their water quality standards. MassDEP is in the process of reviewing all of EPA's AWQC guidance documents in anticipation of the next triennial review.

From this brief overview it should be evident that the process of assessing surface waters (305b) and listing impairments (303d) is inextricably linked to the SWQS, as they define the uses that are to be evaluated for any given water body as well as the criteria for determining whether or not those uses are, in fact, supported. Furthermore, revisions to the SWQS from one triennial review to the next may alter the methodology used to make assessment and listing decisions, and resulting changes to that methodology would be reflected in the next revision of the CALM document.

Monitoring and Assessment – Rivers, Lakes and Estuaries

Most elements of the MassDEP's existing surface water monitoring program are administered by personnel of the Division of Watershed's Watershed Planning Program (DWM-WPP), and an overview of this program can be found at http://www.mass.gov/eea/agencies/massdep/water/watersheds/water-quality-monitoring-program.html. Current and proposed surface water monitoring program elements are also presented in *DRAFT A Strategy for Monitoring and Assessing the Quality of Massachusetts' Waters to Support Multiple Water Resource Management Objectives 2016 - 2025* (the Monitoring Strategy) (MassDEP 2015b). The ultimate goal embodied in the Monitoring Strategy is to implement a comprehensive monitoring program that serves all water quality management needs and addresses all water body types. As such, the monitoring program is designed to provide data and information from streams, rivers, lakes, reservoirs, estuaries, coastal areas and wetlands to support the five major objectives listed below.

1) Assess the status or condition of Massachusetts' waters
2) Develop, implement and evaluate pollution control strategies
3) Develop policies and standards and identify emerging issues
4) Measure the effectiveness of water quality management programs
5) Maintain reserve monitoring capacity to respond to unforeseen data needs

Major themes inherent in both the MassDEP's water management programs and the monitoring elements that support them are 1) the focus on the watershed as the fundamental planning unit for water quality management, 2) the assessment of biological communities, such as aquatic macroinvertebrates and fish, as the most reliable indicators of water quality conditions and ecosystem health, 3) the application of new technology and streamlined systems for data processing and analysis to support monitoring and assessment activities, and 4) the formation and reliance on partnerships and collaboration to meet water quality goals.

Watershed protection is the dominant theme of many state water quality management programs, and the EPA has endorsed this approach by providing financial and technical support for watershed-based water quality management activities. Details pertaining to the watershed approach to managing Massachusetts' water resources can be found at http://www.mass.gov/eea/agencies/massdep/water/watersheds/the-watershed-management-approach.html. In 1993 the major watersheds and coastal drainage areas in Massachusetts were placed on a rotating five-year schedule to synchronize several components of its water management program. These watersheds were regrouped on a regional basis in 2010 to take advantage of potential benefits to monitoring survey logistics of more closely aligned watersheds (see http://www.mass.gov/eea/agencies/massdep/water/watersheds/adjustments-to-surface-water-monitoring-program.html).

Today, the watershed remains the fundamental planning unit utilized by MassDEP's water management program elements. However, the execution of all of the steps in the watershed management process, including many monitoring and assessment activities, within a five-year time frame has proven to be difficult. The practice of watershed management is inherently complex, resource-intensive and time-consuming and project demand often outpaces available funding and other resources. Therefore, while MassDEP's water management program continues to progress in a stepwise fashion to restore impaired waters and protect waters that meet water quality standards, in practice these steps are typically not completed within a five-year timeframe as originally conceived. Nonetheless, it is a goal of the Monitoring Strategy to continue to carry out some monitoring activities in accordance with a rotating watershed schedule, subject to the availability of personnel and other resources.

Massachusetts' water monitoring programs include both deterministic (targeted) and probabilistic (random) sampling networks and encompass both rotating watershed monitoring cycles as well as non-rotating, priority-driven schedules. The EPA encourages states to adopt networks of randomly selected sampling sites that will allow for statistically unbiased assessments that can be applied at larger scales

(e.g., statewide). Because statistically-valid inferences can be drawn for an entire population of water bodies by monitoring a set of sites randomly selected from that population, a probabilistic design can achieve the goal of reporting in s. 305(b) reports the status of all waters without actually having to monitor them all. MassDEP recently completed a multi-year probabilistic survey of wadable streams and is proposing to apply a similar sampling design to lakes and ponds during 2016 – 2018.

In addition to the state-scale statistical monitoring described above, the MassDEP performs deterministic or targeted monitoring to obtain the data and information needed to assess the condition of site-specific water bodies and wetlands, assess specific designated uses such as fish consumption, identify causes and sources of impairments in all water body types, and to develop, implement and measure the effectiveness of control strategies, such as TMDLs, watershed-based plans, wastewater discharge permitting under the National Pollutant Discharge Elimination System (NPDES) and BMPs.

Results of the MassDEP's monitoring efforts, combined with all other credible data and information, constitute the basis for making water quality assessment and listing decisions in accordance with the requirements set forth in ss. 305(b) and 303(d) of the CWA. Details pertaining to the assessment process are presented in the 2016 CALM Guidance Manual (see "Integrated Assessment and Listing of Massachusetts' Waters" later in this report). Use-attainment determinations are made for each water body segment for which adequate data and information are available. However, many waters are not assessed for one or more uses in any given assessment cycle, and many small and unnamed streams and ponds have never been monitored and assessed. In the past, individual use assessment decisions, along with supporting water quality data and information, were documented in individual watershed assessment reports. These are listed in the Bibliography and are available for all of Massachusetts' watersheds and coastal drainage areas at http://www.mass.gov/eea/agencies/massdep/water/watersheds/water-quality-assessments.html. It should be noted, however, that these reports may no longer represent the most recent assessments completed by the MassDEP for these watersheds. Following the 2012 integrated reporting cycle the MassDEP discontinued the publication of individual watershed assessment reports in order to streamline the process and complete the assessments in a more timely fashion. Currently, the assessment status of Massachusetts' waters is reported through the application of EPA's Assessment Database (ADB). The ADB is a relational database that stores water quality assessment information for individual AUs (i.e., lakes, river and coastal waters), including use attainment decisions, and causes and sources of impairment. The ADB was designed to improve the quality and consistency of water quality reporting, improve water quality data analysis, and reduce the burden of preparing reports under ss. 305(b), 303(d), 314 and 319 of the CWA. Following EPA's approval of the 303(d) List, the assessment and listing decisions are made available through an ArcGIS 10 geodatabase file and its supporting shapefiles and databases that can be downloaded from the MassGIS website (see "Consolidated Assessment and Listing Methodology (CALM)" later in this report).

Monitoring and Assessment – Wetlands

The EPA encourages states to integrate wetlands into their water quality programs and to report on the status of their wetlands as part of the CWA s. 305(b) reporting process. Unlike rivers, lakes and estuaries, however, Masachusetts' wetlands are not defined as individual AUs and assessed in accordance with the CALM. Furthermore, the results of wetland assessments are not stored in the ADB, and individual wetlands are not assigned to categories of the IR. Details pertaining to the MassDEP's Wetland Monitoring and Assessment Program can be found online and are briefly described below (see http://www.mass.gov/eea/agencies/massdep/water/watersheds/wetlands-protection.html#2). The results of the first MassDEP pilot study assessing 45 forested wetlands in the Chicopee Watershed are also summarized.

Consistent with EPA's recommendations, the MassDEP's Wetlands Program has been working collaboratively with the University of Massachusetts at Amherst (UMass-Amherst) and the Massachusetts Coastal Zone Management Program since 2006 to develop a strategy to monitor and assess wetlands for purposes of reporting on the status and trends of all wetlands across the state and for developing criteria

to monitor and assess the physical, chemical and biological integrity of wetlands for reporting under s. 305(b) of the CWA. The central feature of the Massachusetts strategy is the Conservation Assessment and Prioritization System (CAPS), a landscape-level assessment model that has been developed by UMass-Amherst (see http://www.umasscaps.org/about/index.html). CAPS combines land-cover mapping derived from geographic information systems (GIS) and aerial photography with 26 inland and coastal stressor or resiliency metrics, each representing a stressor on the environment, to calculate a value between 0 and 1 for each 30 square meter plot on the landscape. A complete list of metrics can be found at: http://www.umasscaps.org/about/metrics.html. The CAPS computer model can analyze individual metrics, or combine them to derive an Index of Ecological Integrity, or IEI. Wetland IEI values generated from the CAPS model define a continuous gradient that is inversely proportional to the magnitude of stressors acting on those wetlands (generalized stressor gradient). High IEI scores (approaching 1.0) are indicative of communities that are relatively free from stressors. The IEI is a *predictor* of the capacity of a wetland to sustain its ecological condition in the long term and to recover from stress.

Because CAPS does not use field-based information to assess ecological conditions on the ground, site-level assessment methodologies (SLAMs) are being developed that utilize actual measurements of biological integrity in the field to evaluate wetland condition and calibrate the CAPS model. Efforts are ongoing to identify dose-dependent relationships that may exist between the field data and the metrics modeled in CAPS, and to develop Indices of Biological Integrity (IBIs) to incorporate into the SLAMs. IBIs are metrics used to quantify changes in biological communities in response to adverse human activity and can serve as indicators of particular stressors acting on a wetland or water body, as well as providing a composite score for biological condition. To date, SLAMs have been developed for forested wetlands and salt marshes and these have been used to sample 219 forested wetland sites and 175 salt marsh sites that were randomly selected along a gradient of IEI values. These data, along with data from 490 wadable streams collected by the DWM-WPP have been used to test and validate the CAPS predictions and modify (as needed) the CAPS models; and to develop IBIs for use in assessing site-specific wetland condition.

In September 2013, the IBI development work was documented in a report entitled: *Empirically Derived Indices of Biotic Integrity for Forested Wetlands, Coastal Salt Marshes and Wadable Freshwater Streams in Massachusetts.* This report describes the effort to develop IBI's and the results. In summary, 60 of 164 separate IBI's created for single taxonomic groups (and sampling methods) across stressor metrics and ecological systems were deemed statistically and ecologically reliable. This report is available at http://www.mass.gov/eea/docs/dep/water/resources/a-thru-m/ibifin.pdf

Also in 2013 the MassDEP Wetland Program was awarded a Wetland Program Development Grant by the EPA to use the monitoring and assessment tools developed to date to conduct a pilot study on forested wetlands in the Chicopee River Watershed and use CAPS model to assess those sites. This work was undertaken in 2014 to coincide with the MassDEP's five-year watershed monitoring and assessment cycle and consisted of a landscape level GIS-based assessment using the CAPS model, and a SLAM based on IBI's developed specifically for forested wetlands. A brief summary of the results of this pilot study is presented below. The complete report (MassDEP 2016b) is available online at http://www.mass.gov/eea/agencies/massdep/water/watersheds/chicopee-watershed-wetland-monitoring-and-assessment.html.

The application of the CAPS landscape level GIS-based model revealed that the primary causes of ecological stress on forested wetlands in the Chicopee Watershed are: 1) loss of terrestrial connectedness; 2) loss of similarity; 3) the presence of non-native invasive plant species; and 4) the loss of aquatic connectedness. Based on this assessment, strategies were identified to alleviate these sources of stress. Recommended measures include: the establishment of terrestrial wildlife passage structures between areas of similar forested wetland habitat; protection of buffer zones; improvement of stream crossings to meet the Massachusetts Stream Crossing Standards; and the identification and control of non-native plant species infestations.

In addition to the CAPS landscape-level assessment, site-level assessments were conducted at 45 targeted sites throughout the watershed to assess the actual wetland condition at those sites, and to evaluate the reliability of the CAPS landscape-level predictions. Forty of the wetlands chosen for site-level assessments had received low IEI values (0.10-0.25) from the CAPS analysis and, therefore, were predicted to be impaired. The IEI scores for the five remaining sites ranged from 0.75-0.90, forecasting little or no impairment. Field verification of wetland condition at each site was carried out by sampling vascular plants and applying the resulting IBI values to determine whether sites met expectations. All 40 sites with low IEI values also exhibited low IBI values calculated from the field data, thus confirming the impaired wetland conditions predicted by the CAPS model. Alternatively, three out of the five sampled sites for which the CAPS model yielded high IEI scores (i.e., predicted little or no impairment) actually exhibited low IBI values indicative of impaired conditions. Upon further investigation it was determined that two of the three sites not meeting expectations were, in fact, stressed due to beaver activity; however, the inconsistent findings at the third site could not be fully explained without further investigation. Although the model did not predict what stressor caused two of the sites to fail, it did correctly identify stressed biological condition. While the beaver activity is naturally stressing the forested wetland condition, the result may be a healthy shrub or emergent wetland. Regardless, no corrective action was recommended for these two sites.

In summary, the CAPS model predicted that 40 forested wetland sites throughout the Chicopee Watershed would exhibit low ecological integrity based on the developed landscape around each site, and the sampling and IBI analysis accurately reflected the impaired condition of these sites. These, and likely many other sites, are adversely affected by the developed landscape, and opportunities for restoration should be actively evaluated to improve wetland condition at all low IEI forested wetlands in the watershed.

TMDL Program

Section 303(d) of the CWA and the EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) require states to develop TMDLs for water bodies that are not meeting designated uses under technology-based controls. The TMDL process establishes the maximum allowable loading of pollutants that a water body can receive and still meet the SWQS established for protecting public health and maintaining the designated beneficial uses of those waters. Through this process states implement water quality-based controls to reduce pollutant loadings from both point and nonpoint sources and restore and maintain the quality of their water resources. TMDL implementation is accomplished through adherence to prevailing regulations and program requirements such as those governing the NPDES permits for point source control, watershed-based plans and s. 319 guidelines for managing nonpoint source pollution, and the stormwater management performance standards upheld by conservation commissions under the Wetlands Protection Act. Furthermore, funding priority for CWA s. 319 grants and the SRF is given to watershed clean-up projects that are consistent with TMDL Program requirements.

The EPA tracks the states' progress with completing TMDLs in its Assessment and Total Maximum Daily Load Tracking and Implementation System (ATTAINS) which can be accessed at http://www.epa.gov/waterdata/assessment-and-total-maximum-daily-load-tracking-and-implementation-system-attains. This system assigns a unique identification number to each approved TMDL which is included for reference in categories 4a and 5 of the 2016 IR. All of the TMDLs approved by the EPA for Massachusetts' waters through January 2016 are presented by EPA TMDL number in Table 2, and full citations are provided in the Bibliography. TMDLs approved on or after September 25, 2014 are included for the first time in this reporting cycle. The individual TMDL documents, themselves, are available at http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html.

A specific time frame for developing TMDLs is not set forth in either the statute or regulation governing the TMDL program. Because TMDLs can take several years to develop, ongoing commitments to complete specific TMDLs are now included in each State-EPA PPA, and the most recent PPA and associated MassDEP Work Plan reflect the current priorities for TMDL development (see "Prioritizing Waters for TMDL Development" later in this report). For more information pertaining to the Massachusetts

TMDL Program see http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html.

Table 2. List of TMDLs approved by the EPA for Massachusetts waters. TMDLs newly approved for the 2016 reporting cycle are indicated in **bold**.

EPA TMDL Number	TMDL Report Title	Approval Date
5, 6	Total Maximum Daily Loads of Phosphorus for Selected Connecticut Basin Lakes *(CN 112.0)*	April 12, 2002
175, 360, 361, 379	Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes *(CN 70.1)*	May 2, 2002
444	Total Maximum Daily Loads of Phosphorus for Lake Quinsigamond and Flint Pond *(CN 115.0)*	June 28, 2002
498, 550	Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes *(CN 70.1)*	May 2, 2002
644	Total Maximum Daily Loads of Phosphorus for Lake Quinsigamond and Flint Pond *(CN 115.0)*	June 28, 2002
651, 653	Total Maximum Daily Loads of Phosphorus for Selected Connecticut Basin Lakes *(CN 112.0)*	April 12, 2002
671	Total Maximum Daily Load of Phosphorus for Leesville Pond *(CN 117.0)*	June 28, 2002
675	Total Maximum Daily Loads of Phosphorus for Selected Connecticut Basin Lakes *(CN 112.0)*	April 12, 2002
722	Total Maximum Daily Loads of Phosphorus for Selected Chicopee Basin Lakes *(CN 118.0)*	April 12, 2002
726	Total Maximum Daily Loads of Phosphorus for Selected Connecticut Basin Lakes *(CN 112.0)*	April 12, 2002
804, 862, 938	Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes *(CN 70.1)*	May 2, 2002
1332	Total Maximum Daily Loads of Phosphorus for Selected Chicopee Basin Lakes *(CN 118.0)*	April 12, 2002
2319	Total Maximum Daily Loads of Phosphorus for Salisbury Pond *(CN 114.0)*	June 28, 2002
2323	Total Maximum Daily Loads of Phosphorus for Indian Lake *(CN 116.0)*	June 28, 2002
2353	Total Maximum Daily Loads of Phosphorus for Lake Boon *(CN 119.0)*	June 28, 2002
2354-2371, 2373-2375	Total Maximum Daily Loads of Phosphorus for Selected French Basin Lakes *(CN 110.0)*	July 12, 2002
2377, 2382, 2385, 2389-2392	Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes *(CN 70.1)*	May 2, 2002
2586	Total Maximum Daily Loads of Bacteria for Little Harbor *(CN 120.0)*	September 12, 2002
2587	Total Maximum Daily Loads of Bacteria for the Shawsheen River Basin *(CN 122.0)*	September 12, 2002
2592	Total Maximum Daily Loads of Bacteria for Neponset River Basin *(CN 121.0)*	June 21, 2002
2615	Bare Hill Pond, Harvard, MA. (MA81007) TMDL *(CN 14.0)*	November 2, 1999
3626, 3629-3631, 3633	Total Maximum Daily Loads of Phosphorus for Selected Chicopee Basin Lakes *(CN 118.0)*	April 12, 2002
4115, 4117, 4118, 4123-4125, 4127, 4128, 4133, 4134, 4136, 4137, 4140, 4141, 4144, 4145	Total Maximum Daily Loads of Phosphorus for Selected Millers Basin Lakes *(CN 123.2)*	February 5, 2003
22512	Bacteria TMDL for Muddy Creek, Chatham and Harwich, Massachusetts. *(CN 208.0)*	April 28, 2005

22513	Bacteria Total Maximum Daily Load for Frost Fish Creek, Chatham, Massachusetts. *(CN 207.0)*	April 28, 2005
30341	Pleasant Bay System Total Maximum Daily Loads for Total Nitrogen *(CN 244.0)*	October 24, 2007
30702	Bacteria TMDL for Kickamuit River. *(CN 285.0)*	September 29, 2006
32364-32366, 32370-32374, 32376, 32377, 32379-32383	Total Maximum Daily Loads for Pathogens within the Charles River Watershed *(CN 156.0)*	May 22, 2007
32532, 32534, 32535, 32537, 32638	Great, Green and Bournes Pond Embayment Systems Total Maximum Daily Loads for Total Nitrogen *(CN 181.0)*	July 18, 2007
33780, 33781, 33786-33799	Pleasant Bay System Total Maximum Daily Loads for Total Nitrogen *(CN 244.0)*	October 24, 2007
33811-33815	Nitrogen TMDL Report for the Quashnet River, Hamblin Pond, Little River, Jehu Pond, and Great River in the Waquoit Bay System *(CN 218.0)*	November 7, 2007
33826	Total Maximum Daily Load for Nutrients in the Lower Charles River Basin, Massachusetts *(CN 301.0)*	October 17, 2007
33846	Total Maximum Daily Loads of Total Phosphorus for Quaboag & Quacumquasit Ponds *(CN 216.1)*	November 28, 2007
33858	Centerville River – East Bay System Total Maximum Daily Loads for Total Nitrogen *(CN 248.0)*	December 18, 2007
33880	Northeast Regional Mercury Total Maximum Daily Load *(MassDEP CN 376.0)*	December 20, 2007
33965-33969	Popponesset Bay Total Maximum Daily Loads for Total Nitrogen *(CN 217.0)*	January 22, 2008
33988-33993	Three Bays System Total Maximum Daily Loads for Total Nitrogen *(CN 242.0)*	February 13, 2008
34009	Little Pond Embayment System Total Maximum Daily Loads for Total Nitrogen *(CN 246.0)*	March 3, 2008
34284, 34328, 34331, 34332	West Falmouth Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen *(CN 243.0)*	May 5, 2008
34345	Oyster Pond Embayment System Total Maximum Daily Loads for Total Nitrogen *(CN 245.0)*	May 5, 2008
34917, 34918	West Falmouth Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen *(CN 243.0)*	May 5, 2008
35069	Phinneys Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen *(CN 247.0)*	February 5, 2008
35085-35088, 35096, 35097	Bacteria TMDL for the Palmer River Basin *(CN 182.0)*	September 22, 2004
35103-35109	Assabet River Total Maximum Daily Load for Total Phosphorus *(CN 201.0)*	September 23, 2004
36011, 36012	Nantucket Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen *(CN 249.0)*	May 12, 2009
36170-36172	Pathogen Total Maximum Daily Load for the Buzzards Bay Watershed *(CN 251.1)*	May 15, 2009
36219-36222, 36228-36231	Stage Harbor/Oyster Pond, Sulphur Springs/Bucks Creek, Taylors Pond/Mill Creek Total Maximum Daily Load Re-evaluations for Total Nitrogen *(CN 206.1)*	June 22, 2009
36582-36585	Pathogen Total Maximum Daily Load for the Three Bays Watershed, Barnstable, MA *(CN 309.0)*	August 28, 2009
36771-36772	Pathogen Total Maximum Daily Load for the Cape Cod Watershed *(CN 252.0)*	August 28, 2009
38912, 38914	Final Total Maximum Daily Load for Phosphorus for White Island Pond, Plymouth/Wareham, MA. *(CN 330.2)*	July 20, 2010
38903-38909	Final Pathogen TMDL for the Narragansett/Mt. Hope Bay Watershed *(CN 351.0)*	July 21, 2010

40307-40310	Final Pathogen TMDL for the Taunton River Watershed *(CN 256.0)*	June 16, 2011
40317-40319	Total Maximum Daily Load for Nutrients in the Upper/Middle Charles River, Massachusetts. *(CN 272.0)*	June 10, 2011
42353-42369	Addendum: Final Pathogen TMDL for the Cape Cod Watershed. *(CN 252.5)*	August 28, 2012
42392-42411	Northeast Regional Mercury Total Maximum Daily Load Addendum for Massachusetts. *(CN 377.0)*	September 20, 2012
50120-50123	Final Pathogen TMDL for the North Coastal Watershed. *(CN 155.0)*	October 25, 2012
54840, 54842, 54860, 54861	Addendum: Final Total Maximum Daily Loads of Bacteria for Neponset River Basin. *(CN 121.5)*	July 3, 2013
61706, 61708, 61710, 61713, 61715, 61716, 61718, 61720, 61721, 61723-61725, 61727, 61728, 61730, 61731, 61734, 61735, 61737, 61738, 61739	**Final Pathogen TMDL for the South Coastal Watershed. *(CN 255.0)***	**September 25, 2014**
64145-64149, 64151	**Final Nitrogen TMDL for Lewis Bay and Halls Creek. *(CN 314.0)***	**April 15, 2015**
64380	**Final Nitrogen TMDL for Edgartown Great Pond System. *(CN 318.0)***	**June 24, 2015**
64480-64482	**Final Nitrogen TMDL for Madaket Harbor and Long Pond Estuarine System. *(CN 283.0)***	**July 30, 2015**
64583, 64584	**Final Nitrogen TMDL for Lagoon Pond Estuarine System. *(CN 390.1)***	**September 2, 2015**
64662	**Final Nitrogen TMDL for Farm Pond Estuarine System. *(CN 391.1)***	**October 2, 2015**
65320, 65321	**Final Nitrogen TMDL for Sengekontacket Pond Estuarine System. *(CN 310.1)***	**January 7, 2016**

Surface Water Discharge Permitting and Stormwater Programs

Information pertaining to the Surface Water Discharge Permitting Program can be accessed at: http://www.mass.gov/eea/agencies/massdep/water/wastewater/surface-water-discharge-permitting-npdes.html. Wastewater discharges to surface waters in Massachusetts are governed by permits issued in accordance with both the SWQS and guidelines set forth as part of the federal NPDES permit program. This system establishes levels of effluent quality that must be achieved at municipal, institutional and industrial treatment facilities to ensure that water quality standards are met in the receiving waters. Massachusetts has not been delegated the authority to issue NPDES permits by the EPA. Therefore, the EPA retains the responsibility for the administration of the program, including drafting the discharge permits, conducting public hearings and issuing the final permit. The MassDEP must provide state certification of the final draft permit prior to issuance in accordance with s. 401 of the CWA. The MassDEP also is a signatory to the final permit, making it a joint permit. This process results in a final discharge permit that is valid under both federal and state law, so each permitting agency has the independent right to enforce its terms and conditions. The CWA requires that discharges satisfy both minimum technology and water quality requirements.

The EPA's Stormwater Management Program began in the late 1990s with the regulation of medium (100,000 populace served) and large (250,000 served) municipal separate stormwater sewer systems (MS4), a wide range of industrial activities (controlled through the EPA's multi-sector general permits) and construction activities involving the disturbance of land area greater than five acres. Rather than limiting the concentration of individual constituents in stormwater, permit conditions emphasized the use of BMPs to manage stormwater. Facilities and construction sites are required to develop and implement

stormwater management plans to control runoff, limit transport of pollutants off-site and to mitigate erosion and other habitat alterations associated with stormwater runoff.

The scope of the stormwater program was expanded in 2003 to include small municipalities (i.e., 237 cities and towns in Massachusetts), and public entities that operate MS4 systems, such as highways, parks, colleges and correctional facilities. The program requirements, established in 1999 by the EPA Storm Water Phase II regulations, are being implemented in over two-thirds of the municipalities in Massachusetts and several dozen other public MS4 systems through the use of general permits. The 2016 Massachusetts Small MS4 General Permit was signed April 4, 2016, and published in the Federal Register on April 13, 2016. The permit will become effective July 1, 2017. The final permit reflects modifications to the 2014 draft small MS4 general permit released for comment on September 30, 2014 and replaces the 2003 small MS4 general permit for MS4 operators within Massachusetts. The final permit, appendices, and response to comment documents are available on EPA's website at https://www3.epa.gov/region1/npdes/stormwater/MS4_MA.html along with useful information and resources for stormwater management. Additional information pertaining to the management of stormwater in Massachusetts can be found online at http://www.mass.gov/eea/agencies/massdep/water/wastewater/stormwater.html.

Sustainable Water Management and the Water Management Act

Maintaining sufficient stream flow and reservoir levels to support fish, other aquatic life and wildlife, while responding to increased anthropogenic demands for water, is a major challenge facing Massachusetts' environmental officials and its citizenry. Massachusetts receives 44 inches of precipitation in an average year, which is plentiful compared to other parts of the country, and most of the time provides enough water to meet the needs of people and the environment. However, during the summer and fall months, when evaporation and human demands are highest and stream flows are naturally lowest, the wide variety of human and ecological needs cannot always be met. In extreme cases this has resulted in streams drying up, seasonally, resulting in a loss of fish and other aquatic species dependent on those habitats.

The MassDEP is primarily addressing stream flow depletion through the implementation of the Massachusetts Water Management Act (WMA). Enacted in 1985, the WMA regulates all withdrawals from ground and surface water sources that exceed an average annual volume of 100,000 gallons per day (gpd). The WMA allowed all withdrawals of this magnitude that existed between 1981 and 1985 to be registered if the applicant applied by January 4, 1988. The MassDEP allows registrants to continue these historic withdrawals provided that they meter or otherwise verify their actual water use and that they report their usage annually. New withdrawal points or increased withdrawal volumes from registered points exceeding the WMA threshold of 100,000 gpd sought after 1985 are required to obtain a withdrawal permit.

Massachusetts launched the Sustainable Water Management Initiative (SWMI) in 2010 to develop a water policy that balances ecological needs along with the need to support long term economic growth and development. The SWMI was initiated by the Massachusetts Executive Office of Energy and Environmental Affairs in partnership with the MassDEP, the Department of Conservation and Recreation (DCR), and the Department of Fish and Game (DFG) and included input from a wide range of stakeholders. Its purpose was to reevaluate the way water is managed so that there is enough for the many and sometimes competing long-term water needs of our communities and aquatic ecosystems. A SWMI Framework, based on extensive scientific analyses and an active public review process, was released in November of 2012 (EEA 2012). In November 2014, MassDEP promulgated new WMA regulations that incorporate key components of the SWMI.

The WMA permit application review process considers other withdrawals within the same watershed. This process includes an analysis of the potential local impacts that may result from the proposed withdrawal. Included in this local impact analysis is the identification of resources affected by water level fluctuations and a determination of acceptable groundwater levels for those resources. The impact of water withdrawals on

surface water quantity and quality, as well as the effects of induced infiltration on the quality of the withdrawal water, are considered as a part of the review. Water conservation measures are included in WMA permits that reflect the state water conservation standards promulgated by the EEA and Water Resources Commission. Water conservation standards that are included as permit conditions include: meeting an annual value of 65 residential gallons per person per day, maintaining 10 percent or less unaccounted-for water loss, and requiring seasonal reductions in nonessential outdoor uses under certain environmental conditions (e.g., drought) for public water systems. Some permittees are also required to mitigate, commensurate with impact, any impacts of their water withdrawals. For more information on the WMA see http://www.mass.gov/eea/agencies/massdep/water/drinking/the-massachusetts-water-management-act-program.html.

Nonpoint Source Program

The website http://www.mass.gov/eea/agencies/massdep/water/watersheds/nonpoint-source-pollution.html presents a definition of nonpoint source pollution and describes the measures and programs currently aimed at its control. In the past the EPA and the states have focused water pollution abatement programs on the control of point sources through waste load allocation and NPDES permitting. Nonpoint source pollution is not as easily assessed nor controlled, for it is intricately linked with the use of the land and land-use is typically regulated at the local level. For this reason federal and state efforts are aimed at educating local officials and the general public with respect to the importance of land-use planning and zoning, the use of BMPs to control stormwater and other measures for preventing nonpoint pollution. Critical to the success of this approach is the establishment of partnerships between all of the parties that have an interest in the process. By bringing these parties together, problems are identified and prioritized and innovative solutions are developed. Moreover, the watershed represents a logical planning unit on which to focus this effort.

The Massachusetts NPS Plan was originally developed by the MassDEP in 1988 pursuant to s. 319 of the CWA. In April 2013, the EPA issued new Nonpoint Source Program and Grants Guidelines for States and Territories (Guidelines). The Guidelines continued to promote the use of s. 319 funding for developing and implementing WBPs to protect unimpaired waters and restore impaired waters. WBPs are required for all projects implemented with s. 319 incremental dollars, and are recommended for all watershed projects, whether they are designed to protect unimpaired waters, restore impaired waters, or both. The new Guidelines also required states to update their NPS plans. The most recent revision of the Massachusetts NPS Plan (MassDEP 2014) covers the five-year period 2014 – 2019 and is available from the above website. This updated NPS Plan sets forth an integrated strategy for the prevention, control, and reduction of pollution from nonpoint sources in an effort to protect and improve the quality of the waters of Massachusetts and serves as a framework on which the changes to the SRF regulations are built. An update to the s. 6217 Coastal Nonpoint Pollution Control Program Plan was also incorporated into the revised NPS Plan. Each year Congress appropriates funds under s. 319 to assist the states with the implementation of their approved NPS plans. Implementation activities include: regulatory enforcement, technical assistance, education, training, technology transfer, and watershed restoration and demonstration projects. Finally, the new Guidelines encourage states to incorporate the protection of healthy watersheds into state nonpoint source programs, and allow the use of 319 funds for that purpose. Since 1990, and extending through 2015, the MassDEP has administered 270 s. 319 nonpoint source management projects, which total over $48 million.

In addition to the updates to the NPS Plan, the MassDEP has revised the Nonpoint Source Management Manual. Now referred to as the Clean Water Toolkit, the manual is a compilation of nonpoint source BMPs that was first developed in 1998. Since then our understanding of nonpoint source issues and BMPs has evolved, as have the options for presenting and distributing such material. In 2003, a s. 319 grant was used to revise the original hard copy manual in electronic and web-based formats. This update was completed in 2006. The current revision adds interactive media, updated information and links and additional user-friendly tools and resources. New topics include municipal good housekeeping, low impact development, Phase II stormwater and related material. The Clean Water Toolkit can be accessed at the Nonpoint Source

Program's internet site, http://www.mass.gov/eea/agencies/massdep/water/watersheds/nonpoint-source-pollution.html#2.

Clean Water State Revolving Fund (SRF)

Information pertaining to the Massachusetts SRF for water pollution abatement projects and drinking water infrastructure can be accessed at http://www.mass.gov/eea/agencies/massdep/water/grants/state-revolving-fund.html. Administered jointly by the MassDEP's Division of Municipal Services and the Massachusetts Clean Water Trust (the Trust), the SRF was established to provide a low-cost financing mechanism to assist municipalities and wastewater districts/authorities seeking to comply with federal and state water quality requirements. The SRF loan program receives funding from the EPA in the form of an annual grant, supplemented by state matching funds and funds paid back by previous borrowers. The Trust, in turn, leverages these funds through the sale of bonds, resulting in a much larger pool of money to loan to borrowers.

Each year the MassDEP solicits water and wastewater infrastructure projects from Massachusetts municipalities and wastewater districts to be considered for subsidized loans, which are currently offered through a two percent interest rate loan. Certain nutrient removal projects may be eligible for zero percent interest rate loans. Financial assistance is available for planning and construction of infrastructure, including new water and wastewater treatment facilities and upgrades of existing facilities; infiltration/inflow correction; drinking water distribution and wastewater collection systems; control of combined sewer overflows (CSOs); brownfields water resource infrastructure improvement; and nonpoint source pollution abatement projects, such as landfill capping, community programs for upgrading septic systems (Title 5) and stormwater remediation. In addition, non-structural projects are eligible for SRF funding; e.g., planning projects for nonpoint source problems that are consistent with the Massachusetts NPS Plan and that identify pollution sources and suggest potential remediation strategies. A priority ranking system, consisting of environmental, program and implementation criteria, is used to evaluate the proposed projects. The projects, borrowers and amounts that will be financed through the SRF are presented in annual Intended Use Plans (IUPs) that are publicly noticed for review and comment. See, for example, the 2016 Final Clean Water IUP in which the MassDEP announces its intention to finance 35 new construction projects, 9 carryover projects, and 15 planning projects totaling approximately $410 million (http://www.mass.gov/eea/agencies/massdep/water/grants/clean-water-state-revolving-fund.html).

Wetlands Management Programs

The MassDEP administers both regulatory and non-regulatory programs aimed at the assessment and protection of the Massachusetts' valuable wetland resources. All of these programs are presented in detail at http://www.mass.gov/eea/agencies/massdep/water/watersheds/wetlands-protection.html#top. The monitoring and assessment of wetlands were described earlier in this report.

The MassDEP protects inland and coastal wetlands pursuant to the Massachusetts Wetlands Protection Act (WPA), first enacted in 1972, and the WPA regulations at 310 CMR 10.00. The WPA regulations provide strong protection of bordering vegetated wetlands, allowing for no more than 5000 square feet of alteration and requiring full replacement in most cases, and only if the altered area is replaced in a manner that will function similarly to the lost area. In Massachusetts, implementation of the WPA is administered by local conservation commissions and approximately 8,500 applications ('Notices of Intent') are submitted each year. MassDEP is responsible for appeals, Water Quality Certifications under s. 401 of the CWA and enforcement.

In 1996 the Massachusetts Legislature amended the WPA to provide additional protection to rivers. Known as the Massachusetts Rivers Protection Act, this amendment regulates activities within a newly established wetland resource area known as the Riverfront Area. This Act extends to rivers the protection originally offered only to wetlands, with the same overall goals and purposes: protection of private and public water supply, groundwater protection, flood control, prevention of storm damage, prevention of pollution and protection of wildlife habitat, shellfish beds and fisheries.

ASSESSMENT UNIT DEFINITIONS FOR MASSACHUSETTS

When defining AUs (sometimes referred to as "segments") for reporting and listing the use-attainment status of its surface waters, Massachusetts takes into consideration any of the following:

- Water body inventory systems for rivers/streams, lakes/ponds, and coastal/marine features
- Water body type (lotic, lentic, estuarine)
- SWQS classification
- Features that affect water quality (wastewater discharges, dams, river confluences, etc.)
- Availability of recent water quality and/or biological monitoring data
- Development of TMDLs

The Massachusetts SWQS classification is the primary source for defining AUs used for CWA reporting requirements, and water bodies must be broken into smaller AUs to reflect differences in SWQS Class (e.g., B, SA, etc.) and/or qualifiers (e.g., Cold Water resource, Shellfishing, etc.). Furthermore, because each AU is generally assumed to be fairly homogeneous in water quality, AUs are established to account for changes in water quality conditions that may be expected (i.e., at the confluence of a major tributary, at a dam or at the site of a NPDES discharge).

To aid in monitoring, assessing and managing the water quality of Massachusetts' surface waters, the MassDEP (in conjunction with other agencies and institutions) developed water body inventory systems for rivers, lakes, and estuaries, where each water body was assigned a unique identifying code number tied to the watershed where it was located. The Stream and River Inventory System (SARIS) (Halliwell *et al.* 1982) was created to describe all Massachusetts' perennial streams that were named on U.S. Geological Survey (USGS) topographic maps (unnamed tributaries were originally excluded from SARIS). The SARIS numbering system was built around a nested stream hierarchy within each watershed with lower numbers corresponding to the main stem river and higher numbers corresponding to headwater tributaries. Each SARIS code is a seven-digit number starting with the two-digit number assigned to each of the 33 major watersheds in Massachusetts (see Figure 1). Each number was originally incremented by units of 25 to allow for the future addition of tributary streams. For example, the Ipswich River, located within the Ipswich River Watershed (92), was assigned a SARIS code of 9253500, and all tributaries to the Ipswich River have larger SARIS numbers. To accommodate new AUs where no SARIS number exists, new SARIS numbers are added as needed to the original inventory system (MassDEP unpublished). Likewise, approximately 3,000 lakes, ponds, reservoirs, and impoundments were included in the Pond and Lake Information System (PALIS), a numbering system originally developed by Godfrey et al. (1979) and later adopted by the MassDEP's Clean Lakes Program (Ackerman *et al.* 1984, Ackerman 1989). Each PALIS code is a five-digit number starting with the two-digit watershed number (e.g., 82109 is Walden Pond, located in the Concord River Watershed (82)). PALIS codes are maintained for defining AUs by the DWM-WPP, where they may be created, modified or deleted on occasion. Finally, the Coastal and Marine Inventory System (CAMIS) (MassDEP unpublished) has been utilized to organize coastal waters, estuaries, and harbors based on their respective drainage areas as described in SARIS, and for which no SARIS or PALIS numbers have been assigned. Each five-digit CAMIS number begins with the two-digit watershed number followed by a 9 to indicate CAMIS water bodies (e.g., 94906 is Plymouth Harbor; portions of the South Shore coastal drainage system (94) drains to this water body). Note that Boston Harbor (proper) (70) was added as a "watershed" for assessment purposes and is utilized within CAMIS, but was not included as one of the original 32 Massachusetts watersheds described under the SARIS and PALIS systems.

Massachusetts defines AUs using the following three water body types represented by the SARIS/PALIS/CAMIS inventories described above (units given in parentheses): rivers (miles), lakes (acres), and estuaries (square miles). However, AUs were never universally established for every water body in these inventories. Rather, AUs were (and continue to be) created, over time, as actual

assessments of those water bodies are carried out for the first time. Therefore, the complete inventory of all of Massachusetts' water bodies is not represented by the AUs presented in the IR. When creating AUs, names are adopted directly from the associated SARIS, PALIS or CAMIS water body, although some exceptions do occur. Descriptions also help to identify the location of the AU. For lakes, the town where the AU is located is noted in the description. For rivers, the start and end point of the AU is described in terms of such features as tributaries, headwaters, outlets from ponds, and roads/bridges. Estuarine AUs may be described either way. Unlike lakes and ponds, a river or estuary represented by a single SARIS or CAMIS number may be divided into two or more AUs (see below). Therefore, AU identifiers (AUIDs) are assigned using two formats: 1) prefix "MA" followed by the five-digit PALIS code (lakes); or 2) prefix "MA" followed by "WW-XX" (rivers and estuaries), where WW is the two-digit watershed identification number and XX is a unique number beginning with "01". Unlike the SARIS coding system there is no hierarchical numbering system used for an AUID. Each new AUID for a river or an estuary is incremented by one as it is added during a reporting cycle.

Prior to the use of geographic information systems (GIS), AUs were defined using USGS topographic maps, with sizes determined by map wheels (rivers) and planimetry (lakes and estuaries). AUs were first depicted using GIS in 2000 using two feature classes, one for linear features (rivers and a few estuaries) and one for polygon features (lakes and estuaries). Lake and river AUs were georeferenced using the 1:25,000 USGS hydrography dataset (later modified by MassDEP), which depicts water bodies based on USGS topographic quadrangle maps. Today, Massachusetts Geographic Information System (MassGIS) color orthophotos, rasterized USGS topographic base maps, and professional judgment are used to help interpret and define individual river and lake AUs. Estuaries are defined using the USGS 1:25,000 topographic maps, National Oceanic and Atmospheric Administration nautical charts at several scales, and the original inventory and planimetry of Gil (1985) and Maietta (1984), respectively. In addition, coastal boundary definitions, landmarks (such as lighthouses), rock outcroppings, the extent of shellfishing beds, and professional expertise inform the creation of estuarine AUs.

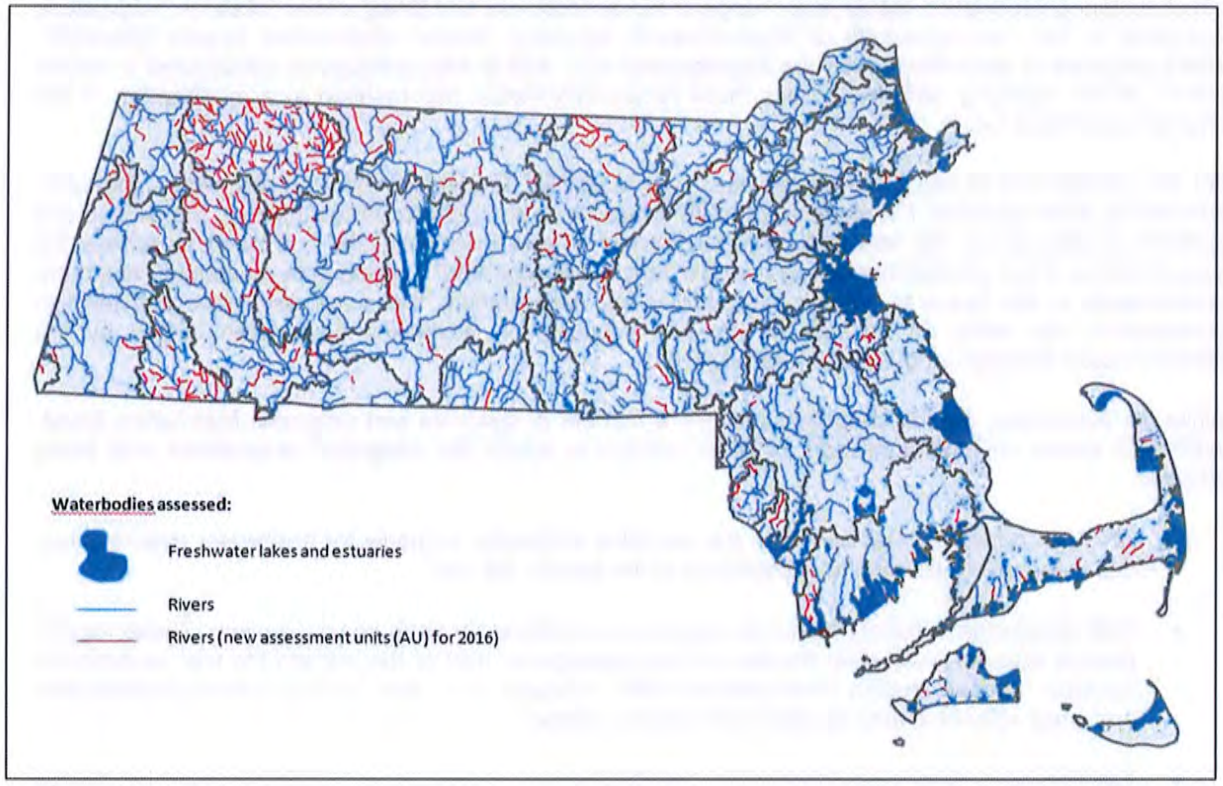
When a watershed is scheduled for an assessment update during a new CWA reporting cycle, new AUs may be established due to the availability of a sufficient amount of recent water quality or biological data (as outlined in the CALM document), as a result of a TMDL study, or as a result of public comment. Furthermore, as SWQS are updated, new information may become available that requires geospatial changes to existing AUs, such as new data that indicate support of an existing use (e.g., Cold Water resource), or changes in public water supply/ORW status. Geospatial changes may require deleting an entire AU, splitting an AU into two or more segments, or joining all or part of one AU with another AU. Whenever an AU is resegmented, the former AU identifiers are listed within the AU description.

With the completion of the 2016 IR, MassDEP concluded a major effort to clarify AU designations and descriptions and eliminate cases where AUs overlapped. Specifically, since many of Massachusetts' lakes and ponds are impounded stream reaches, several were included in earlier IR reporting cycles as both lake and stream AUs. To avoid this "double-counting" in future IRs, MassDEP began, with the 2008 reporting cycle, to review pertinent morphometric and hydrological data from impoundments as part of the watershed assessment process to determine whether they should continue to be defined and assessed as lake AUs or incorporated into stream AUs. As a general rule, those impoundments formerly identified as lake AUs, but exhibiting unidirectional flow and retention times of less than fourteen days, were eliminated and merged with their respective stream AUs.

In addition to the clarification of AUs described above, all of Massachusetts' streams designated as "Cold Water" in the SWQS, were described as AUs and added to the ADB. Additional streams in the Deerfield River Watershed, not currently designated as "Cold Water" in the SWQS, but which were found to support an "Existing 'Cold Water' Use", were also described as AUs and included in the ADB.

All of the AUs contained in the ADB for the 2016 CWA assessment and listing cycle are presented in Appendix 1 and are depicted in Figure 2 with 289 newly added AUs highlighted in red. A total of 1,157 lake, 1,024 river and 290 estuarine AUs are included in the 2016 reporting cycle.

Figure 2. Assessment Units (AUs) included in the Assessment Database (ADB) for Massachusetts. AUs newly added for the 2016 assessment and listing cycle are highlighted in red. The ADB contains a total of 1,157 lake, 1,024 river and 290 estuarine AUs for 2016.



INTEGRATED ASSESSMENT AND LISTING OF MASSACHUSETTS' WATERS

Sources of Information

The DWM-WPP's internal monitoring networks and program elements described earlier constitute a major source of data and information for making assessment and listing decisions, but are, by no means, the only sources utilized. Additional sources typically include monitoring data and information from other state and federal agencies and citizen monitoring organizations, as well as reports on projects resulting from state or local grants or federally funded projects through the CWA (e.g., ss. 314, 319, 604(b), etc.). For example, s. 314 provided for cooperative agreements between federal, state and local entities to restore publicly owned freshwater lakes and ponds and protect them against degradation. During the late 1970s through the early 1990s diagnostic and feasibility studies were completed for several lakes and ponds throughout Massachusetts and these were used in earlier assessment and listing decisions. Impairment information from these studies continues to carry forward into new assessment and listing cycles unless new monitoring information results in a change in the assessment and listing status. Likewise, information contained in the *Commonwealth of Massachusetts Nonpoint Source Assessment Report* (MassDEP 1989) prepared in accordance with the requirements of s. 319 is also reflected in subsequent s. 305(b) and s. 303(d) reporting elements unless more recent information has resulted in a modification of the original impairment listing.

For the assessment of some designated uses, the MassDEP is entirely reliant on data and information provided by other agencies. For example, the GIS datalayer on shellfish classification areas, maintained and updated periodically by the Massachusetts Division of Marine Fisheries (DMF), is used to assess the support status of the shellfish harvesting use. Similarly, while MassDEP collects data on mercury and other contaminants in fish tissue to support fish edibility risk assessments, the actual assessment of the fish consumption use relies on whether or not fish consumption advisories have been issued by the Massachusetts Department of Public Health (DPH).

While not exhaustive, the following list highlights a number of agencies and programs from which DWM-WPP staff derive environmental data or other records to inform the integrated assessment and listing process:

- DFG fish population assessments are available statewide, primarily for freshwater riverine sites, and these are utilized in the assessment of the aquatic life use.

- DMF anadromous fishery technical reports are available for each coastal system. These reports provide data for evaluating barriers to fish passage as part of the aquatic life use assessment decision. Special studies conducted by DMF biologists (i.e., river herring habitat assessments and smelt spawning area studies) may also be utilized.

- The frequency and duration of public beach closures, at marine and DCR-managed freshwater facilities, are derived from the Beaches Bill database maintained by the DPH.

- Whole-effluent toxicity testing data, submitted as a requirement of NPDES wastewater discharge permits, provide information on the survival of test organisms exposed to ambient river water samples, and may be used to determine the support status of the aquatic life use.

- Presumptive assessments of recreational use impairment are made downstream from CSOs discharging to waters that are not covered by variances in the SWQS.

- Stream discharge data from continuous gaging sites, as well as estimated streamflows from ungaged sites (Streamstats), are available from the USGS. Data on such water quality variables as bacteria, chloride, ammonia, metals, nutrients, polycyclic aromatic hydrocarbons, and

pesticides are also available from the USGS from approximately 70 sites statewide (2005 – 2014).

- The Massachusetts Division of Ecological Restoration is managing over 150 Habitat Restoration Projects statewide involving such stream improvement measures as dam removal, tidal flow restoration, culvert size remediation and urban river revitalization. Information generated by these projects may be used as part of the aquatic life use assessment.

- Precipitation and other climatic data are available from the Global Historical Climatology Network maintained by the National Oceanic and Atmospheric Administration's National Climatic Data Center, and from DCR's Rainfall Program.

Data Acceptability

The availability of appropriate and reliable scientific data and technical information is fundamental to the assessment and listing of waters pursuant to CWA ss. 305(b) and 303(d). And, while states must consider all existing and readily available data and information when preparing lists of impaired waters to meet s. 303(d) requirements, it is the EPA's policy (EPA Order 5360.1 CHG 1) that any organization performing work for or on behalf of the EPA must establish a quality system to support the development, review, approval, implementation and assessment of data collection operations. To this end, the MassDEP describes its Quality System in an EPA-approved Quality Management Plan to ensure that environmental data are of known and documented quality and are suitable for their intended use.

Historically, the MassDEP relied most heavily on internal data collected by the DWM-WPP's ambient water quality monitoring program to support assessment and other CWA water management activities. Over the last decade the number of non-MassDEP data collectors has increased along with advances in technology that have created new opportunities for data sharing between MassDEP and non-MassDEP data collectors. Concurrently, federal and state CWA program resources for monitoring and assessment have declined in recent years. As a result, MassDEP is working to expand partnerships in data collection and the use of external or secondary data from other state and federal agencies, local governments, drinking water utilities, volunteer organizations and other sources to support CWA program needs for water quality data. The MassDEP's monitoring results, augmented by all other "external" data that are deemed reliable and usable, constitute the basis for making water quality assessments in accordance with the requirements set forth in ss. 305(b) and 303(d) of the CWA.

Section B9.3 of the DWM-WPP's *Quality Assurance Program Plan for Surface Water Monitoring and Assessment 2015 – 2019* addresses the use of secondary or external data (MassDEP 2015c). The DWM-WPP categorizes external data into three general levels, which are related to the monitoring objectives (i.e., why the data were collected):

- Educational/Stewardship-level
- Screening-level
  Regulatory/Assessment-level

While very important, data collected primarily for educational and/or stewardship purposes generally do not meet the rigor (i.e., accuracy, precision, frequency, comparability, overall confidence, etc.) required for use in water body assessments or TMDL development. It is unlikely this type of data would be used for s. 305(b) and/or s. 303(d)-related decision-making. Screening-level data are also very important, but generally fail to meet one or more DWM-WPP criteria required for direct use in assessments or TMDLs. Screening-level data may meet the data quality objectives (DQOs) specified in the original project QAPP, but not those in the DWM-WPP's monitoring program QAPP approved by the EPA for CWA activities. Screening-level data are typically used to direct future sampling efforts and as supporting evidence only. Assessment-level data have been deemed by the MassDEP, based on the DWM-WPP's external review procedures, to be directly usable for CWA decision-making. These data are typically the

result of extensive planning, attention to detail, relatively stringent DQOs, training, standard lab procedures, metadata collection, project organization and data verification---all of which contribute to data that are scientifically sound and legally-defensible. Contingent on review and approval, these data can help determine whether or not a water body is meeting water quality standards.

External data can be submitted to the DWM-WPP using guidelines found on the following web site: http://www.mass.gov/eea/agencies/massdep/water/watersheds/external-data-submittals-for-the-wpp.html. All submitted external data are reviewed using a consistent procedure. Once data are received by the DWM-WPP, a standard data review spreadsheet is used to facilitate and document the review. Each potential secondary data source is evaluated using the following preliminary criteria: 1) adherence to an acceptable QAPP, including a laboratory quality assurance plan and associated standard operating procedures for field sampling and laboratory analyses; 2) use of a state-certified (or as otherwise acceptable to the MassDEP) analytical laboratory; and 3) availability of quality control (QC) data supporting the validity of the data.

Meeting these criteria provides a basic level of confidence that the data were generated using appropriate field sampling and analytical methods and that the data were assessed by the external group for accuracy, precision and representativeness. External data meeting these criteria are then further reviewed by one or more DWM-WPP staff to verify that the group's DQOs were met based on the QC data provided. These DQOs are then compared to the DWM-WPP's DQOs to look for any large discrepancies that could affect acceptability. In cases where additional information is needed, the external data group is contacted for the information. If available information is deemed insufficient to complete the review, the data are not used for performing assessments, though they may still be suitable for screening and/or stewardship purposes. Data may also be considered unusable due to poor or undocumented QAPP implementation, lack of project documentation, incomplete reporting of data or information, poor QC results and/or project monitoring objectives unsuitable for MassDEP assessment purposes. Best professional judgment is used to make the final determination regarding data validity and usability for assessment purposes. External data are not qualified by the DWM-WPP in any way, but are considered either acceptable for use or not (as a whole or in part). External data greater than five years old, with few exceptions, are generally considered unusable for assessment decisions because they are not representative of current conditons.

Consolidated Assessment and Listing Methodology (CALM)

In 2002 the EPA published the *Consolidated Assessment and Listing Methodology – Toward a Compendium of Best Practices* or CALM Document (EPA 2002) aimed at improving states' monitoring and assessment programs and making data and information more available to the public. The CALM Document provided guidance to the states on how to update and clarify the decision making process for assessing the attainment of water quality standards. Prior to the 2012 CWA integrated reporting cycle the MassDEP included its assessment procedures in individual watershed assessment reports. For the 2012 IR, however, MassDEP published a stand-alone CALM Guidance Manual (MassDEP 2012) that contained a brief summary of the SWQS that define the goals for water quality in the state, the requirements for assessing the quality of data to be used for CWA reporting, the methods of reviewing water quality data and information used by the MassDEP to make use assessment decisions, and the use of the ADB for storing and reporting those decisions in the IR format. Extensive revisions were made to the Massachusetts CALM manual in anticipation of the 2016 CWA assessment and reporting cycle. The 2016 CALM Guidance Manual (MassDEP 2016a) incorporates evaluation methods for long-term continuous monitoring datasets (e.g., dissolved oxygen and temperature), screening methods to determine whether or not conditions are natural, more detailed screening guidelines used to make nutrient enrichment decisions and updated evaluation methods for toxic pollutants. In addition, guidance was developed for the documentation and submittal to MassDEP of external data from nongovernmental sources, such as volunteer monitoring groups, that wish to have their data considered for use in assessing and listing waters. The 2016 CALM Guidance Manual can be found online at http://www.mass.gov/eea/docs/dep/water/resources/07v5/2016calm.pdf.

Details pertaining to how environmental data and information are utilized to make use-attainment decisions for each designated use and water body type included in the IR are presented in the 2016 CALM Guidance Manual and are not reproduced here. The determination of whether or not a water body supports its designated uses is a function of the type(s), quality and quantity of available current information. While the SWQS prescribe minimum water quality criteria to sustain the designated uses, numerical criteria are not available for every indicator of pollution. Best available guidance in the literature may be applied in lieu of actual numerical criteria. Excursions from criteria due solely to naturally occurring conditions do not constitute violations of the SWQS and are not causes of use impairment.

If possible, each designated use, within a particular AU, is individually assessed as "supporting" or "not supporting". When too little current data or information are available to make an assessment the use is identified as having "insufficient information". When no reliable data are available the use is "not assessed". However, if there is some indication of water quality impairment, which is not naturally-occurring, the use is identified with an "Alert Status". It is important to note that not all waters are assessed. Many small and/or unnamed rivers, lakes and estuarine areas have never been assessed; the status of their designated uses has never been reported in historical s. 305(b) reports or in more recent IR format; nor is information on these waters maintained in the ADB. These waters do not have assigned AUs and are considered "not assessed other waters".

In addition to assessing the use-status of each AU for which data are available, s. 305(b) guidance specifies that, whenever possible, the causes and sources of impairment be identified for those AUs not supporting one or more designated use(s). A large number of cause and source codes are available for selection when storing assessments in the ADB. Those codes that are typically used by the MassDEP are presented in Appendix F of the 2016 CALM Guidance Manual.

Causes of use impairment may be expressed as individual variables that suggest the degree of contact with an environmental stressor, such as a water-column pollutant concentration (e.g., phosphorus, ammonia, chloride, etc.) or a level of ambient toxicity ("exposure indicators"). Other causes are expressed as "response indicators" which provide measures of integrated or cumulative reactions to exposure and stress. Algae blooms, fish kills and deleterious changes in the structural or functional integrity of aquatic macroinvertebrate communities are all examples of biological response indicators that may be identified as causes of impairment.

Sources are the discharges, land-use practices or other anthropogenic activities that contribute the pollutants or stressors that result in the impairment of one or more designated uses of a water body. Impairments may result from both point sources and nonpoint sources of pollution. Point sources discharge pollutants directly into surface waters from pipes, channels or similar conveyances and include, but are not limited to, industrial and municipal wastewater treatment facilities, CSOs and storm sewers. Nonpoint sources deliver pollutants to surface waters from diffuse origins. Examples include urban runoff that is not captured in a storm sewer, agricultural runoff, untreated landfill leachate and malfunctioning septic systems. Because water quality conditions at any site are a reflection of all of the various land uses and activities occurring within the watershed, source(s) of impairment can be difficult to identify with a high degree of certainty. MassGIS datalayers (e.g., orthophotos, land-use patterns and urbanization) and DMF sanitary survey reports are consulted when attempting to identify potential sources of pollution. Sources can be entered into the ADB as either "confirmed" or "suspected" but sources of impairment generally remain unconfirmed unless a more intensive analysis, such as the development of a TMDL, is carried out.

Through the 2012 reporting cycle, the MassDEP provided details pertaining to the assessment process and its application to specific water bodies (i.e., AUs) in individual watershed assessment reports that were completed on a continuous rotating schedule. Following the 2014 reporting cycle, which did not involve any new watershed assessments, the preparation of these assessment reports was discontinued in order to streamline the assessment process and complete future assessments in a timelier manner. For the 2016 reporting cycle, summary statements pertaining to the use assessments and listing decisions for each individual AU have been entered into the appropriate comment fields in the ADB. The assessment

and listing decisions, along with pertinent supporting data and information, are also maintained in a watershed "repository" document that is not intended for publication.

The ADB automates the production of the IR by generating output files that are then assembled into a single, multi-part list, as described in more detail in the next section of this report. Following the approval of the 303(d) List (i.e., Category 5), the assessment and listing information contained in the ADB forms the basis for developing the subsequent IR to be completed two years later. Meanwhile, the ADB is populated with new information as the latest assessment and listing decisions are made. New assessments may result in changes to the listing status of AUs; however, impairments remain with AUs from one reporting cycle to the next unless new data indicate that the impairment no longer exists, a change in assessment methodology has resulted in a delisting of the impairment, or a TMDL has been approved.

A spatial representation of the assessment and listing decisions is made available to the public through an ArcGIS 10 geodatabase file and its supporting shapefiles and databases. These files can be downloaded from the MassGIS website once the IR is finalized and Category 5 (i.e., the 303(d) List) is approved by the EPA. (For the 2014 IR, see: http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/wbs2014.html). An interactive mapping tool is also available to provide access to this information without the need for ArcMap (http://www.mass.gov/eea/agencies/massdep/water/watersheds/integrated-list-of-waters.html).

Shared Waters

The EPA encourages states with shared water bodies to collaborate with one another in the development of their IRs in an attempt to make assessments for those waters as consistent as possible. Many factors can contribute to discrepancies in the use attainment determinations rendered by neighboring states for the same waters. States may vary with respect to the specific goals for those waters set forth in their respective SWQS. Furthermore, differing assessment and listing methodologies, or even asynchronous rotating watershed assessment schedules may lead to assessment and listing inconsistencies between states. Prior to making individual watershed assessments the MassDEP attempts to gather all existing and readily available data and information from as many sources as possible, including neighboring states. Nonetheless, discrepancies often do exist for the reasons cited above.

DEVELOPMENT OF THE 2016 INTEGRATED REPORT

The final version of the 2014 IR (MassDEP 2015a) was submitted to the EPA on December 11, 2015 and the 303(d) List was approved on February 23, 2016. However, no new watershed assessments had been completed since the submittal of the 2012 IR. Newly approved TMDLs, the addition of a few DPH fish consumption advisories and comments received during the public review period were the only new sources of information represented in the 2014 IR. By submitting a 2014 IR with few substantative changes from 2012, MassDEP was able to focus more resources on revising the CALM Guidance Manual and developing and implementing a number of new program enhancements aimed at completing as many new watershed assessments and listing updates as possible for the 2016 IR cycle. For example, from 2005 – 2011 the DWM-WPP completed water quality and biomonitoring surveys in almost all watersheds and coastal drainage areas (Table 3), yet, as recently as the 2014 integrated reporting cycle, data obtained during many of those surveys had not been processed and validated and, therefore, remained unavailable for making assessment and listing decisions. Data management obstacles, contributed to a considerable lag between the time the monitoring surveys were carried out and the point at which the data were available for assessments and other purposes. In addition, the increasing variety of data sources, as well as the volume and types of data available for making assessment decisions (e.g., discrete and continuous), demanded that a review and modification of the assessment process be undertaken in order to complete assessments and listing decisions more efficiently.

Table 3: Approximate number of sites monitored from 2005 – 2011 by the DWM/WPP. Table includes all water types (rivers, streams, lakes and ponds). Sites vary with respect to sampling frequency, methodology and parametric coverage. Most data from 2005 – 2009 and selected data from 2010 – 2011 were used to complete watershed assessments for the 2016 integrated reporting cycle pursuant to the requirements of CWA ss. 305(b) and 303(d).

Year	Watershed	Number of Sites Monitored					
		Water quality (streams)	Macro-invertebrates	Fish population	Fish toxics	Algae	Lakes
2005	Buzzards Bay	25	9	--	2	3	6
	Deerfield	30	15	6	1	10	--
	Ipswich	15	8	1	1	4	--
	Millers	21	9	--	2	6	--
	Shawsheen	11	10	1	1	3	--
	(Multiple)	--	--	--	2	--	30
2006	Concord	31	9	--	--	--	--
	Farmington	18	11	--	--	7	4
	South Coastal	17	14	6	--	6	--
	Taunton	24	17	--	--	6	--
	Westfield	36	11	--	2	8	4
2007	Charles	32	13	4	2	26	--
	Housatonic	30	14	6	1	5	--
	Hudson	25	12	6	2	19	--
	North Coastal	21	8	6	2	8	--
	Ten Mile	22	6	--	--	--	--
	(Multiple)	--	--	--	8	--	1
2008	Blackstone	51	16	7	2	20	5
	Chicopee	49	17	6	2	17	2
	Connecticut	33	11	14	2	11	--
	Nashua	50	17	9	1	13	--
	(Multiple)	--	--	--	7	--	--
2009	Cape Cod	10	14	7	5	11	8
	Mystic	16	6	6	--	6	--
	Narragansett/Mt. Hope Bay	18	8	8	2	--	--
	Neponset	20	12	8	3	11	2
	Weymouth/Weir	23	11	7	2	6	--
	(Multiple)	--	--	--	4	--	3
2010 - 2011	(Multiple)	100	74	70	8	11	6

Concerted efforts have been made, since the 2012 cycle, to address the data management issues, streamline assessment methods and redirect resources to address the backlog of data to be processed. These efforts resulted in improved data validation procedures, automated decision matrices designed to relate data to the appropriate AUs and an expanded use of GIS applications and facilitated data flows from both MassDEP's monitoring programs, as well as those of other agencies. As a result of these efforts, all of the 2005 – 2009 survey results, as well as data from selected monitoring projects through 2011 were used for making use-support determinations for the 2016 assessment and listing cycle.

The MassDEP's intensive efforts to validate and report on its back-logged monitoring data and to streamline the assessment and listing process culminated in the completion, for the 2016 integrated reporting cycle, of a statewide assessment (i.e., all watersheds) of the shellfish harvesting, primary and secondary contact recreation and aesthetic uses, as well as the assessments of the aquatic life use-attainment status of 15 watersheds and/or coastal drainages (Figure 3). For this reason, the number of changes made during the 2016 reporting cycle far exceeds that for the 2014 IR. While no new DPH fish advisories were issued since the completion of the 2014 IR, impairments of the fish consumption use were applied to seven new AUs in the Millers River Watershed for the 2016 reporting cycle because the prevailing advisory for this watershed was worded to include all tributaries joining the Millers River downstream from its confluence with the Otter River. All assessment and listing decisions were input to the ADB and each AU was assigned to the appropriate list category, as described in further detail below.

The IR format allows states to meet the provisions of CWA ss. 305(b), 303(d) and 314 by presenting the use-attainment status of all of their assessed waters in a single, multi-part list. To that end, the MassDEP has placed each AU in one of five categories, as described in more detail below. It should be reiterated here that the ADB does not contain AUs for all of the surface waters in Massachusetts. Only those waters for which assessments of one or more designated uses were actually completed at some time in the past are included in the database. Surface waters that have never been assessed are not explicitly listed in the IR and they are considered Category 3 (i.e., no uses assessed) waters by default. As water quality monitoring and data collection efforts are carried out in waters not previously assessed AUs are defined and added to the ADB, resulting in greater representation of Massachusetts' surface waters with each updated reporting cycle.

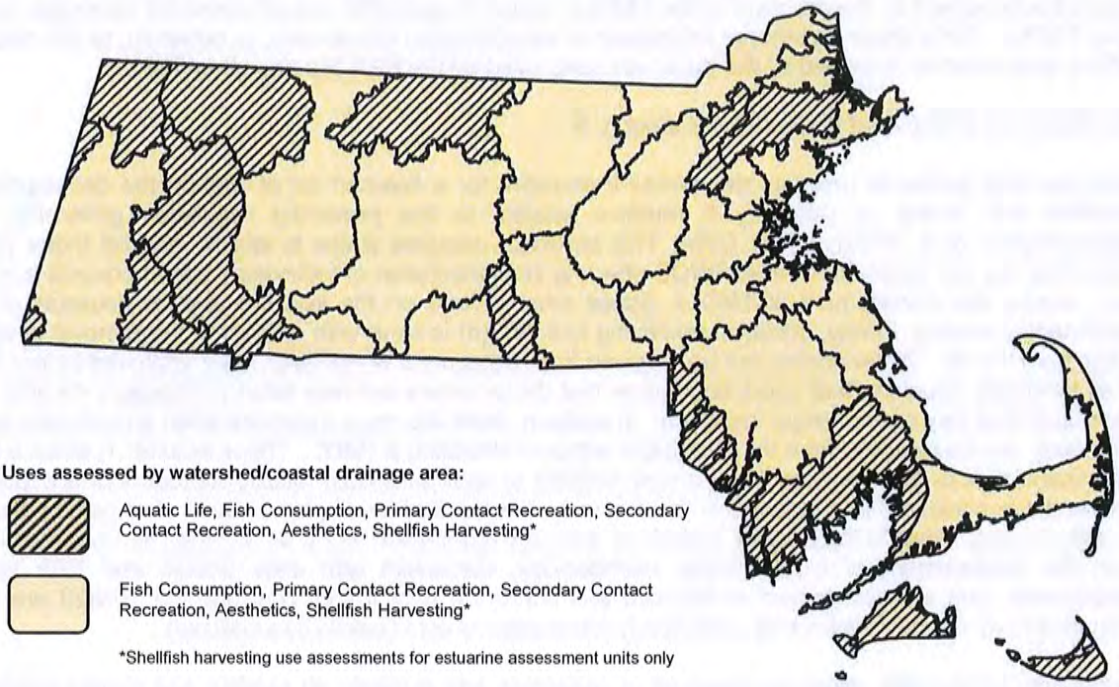
List Categories 1 - 4

Categories 1-3 include those waters whose designated uses are either supported or not assessed. Waters attaining all of their uses would be included in Category 1; however, no Massachusetts waters are listed in this category because a statewide DPH advisory pertaining to the consumption of fish precludes any waters from being in full support of the fish consumption use (see Fish Consumption Advisories later in this section). Those waters that are supporting some uses, but are not assessed for all other uses, are listed in Category 2. However, the Category 2 list does not contain AUs that support some uses but are impaired for others. Impaired waters are listed in categories 4 and 5 (see below) but supported uses are not identified in these lists due to space constraints. Finally, Category 3 contains those waters for which insufficient or no information is available to assess any of their designated uses. Waters for which assessments are determined to be insufficient for 303(d) listing are also included in Category 3.

Waters exhibiting impairment for one or more uses are placed in either Category 4 (impaired, but not requiring TMDLs) or Category 5 (impaired, and requiring one or more TMDLs) according to the EPA guidance. Category 4 is further divided into three sub-categories – 4a, 4b and 4c – depending upon the reason that TMDLs are not needed. Category 4a includes waters for which the required TMDL(s) have already been completed and approved by the EPA. However, since MassDEP chooses to list each AU in only one category, waters that have an approved TMDL for some pollutants, but not others, remain in Category 5 until TMDLs are approved for all of the pollutants impairing those waters.

Category 4b was proposed by the EPA to list waters for which pollution control measures other than TMDLs are expected to attain all designated uses. Massachusetts attempted to use this category in 2004 to list lakes and ponds impaired solely by mercury deriving from atmospheric deposition. However, the

Figure 3. Designated use assessment and listing decisions updated by the MassDEP for the 2016 CWA 305(b)/303(d) reporting cycle. A statewide assessment and listing decision update was completed for the fish consumption, shellfish harvesting, primary and secondary contact recreation and aesthetic uses. The support status of the aquatic life use was also updated for waters in 15 watersheds and/or coastal drainages. Individual watersheds and drainage areas are identified in Figure 1.



use of this category was disapproved by the EPA (see Waters Impaired by Mercury later in this section). Massachusetts is not including any waters in Category 4b for the 2016 listing cycle.

The CWA distinguishes between "pollutants" such as nutrients, metals, pesticides, solids and pathogens that all require TMDLs and "pollution" such as low flow, habitat alterations or non-native species infestations that do not require TMDLs. Non-pollutant impairments are marked with an asterisk in the IR to distinguish them from pollutants requiring TMDLs. Water bodies impaired solely by "pollution" are included in Category 4c unless there are also TMDLs approved for them, in which case they appear in Category 4a.

When developing TMDLs and pollution control strategies it is often more efficient to focus limited resources collectively on waters that exhibit the same types of impairments. For example, the Northeast Regional Mercury TMDL (see Waters Impaired by Mercury) establishes the mercury reduction goal and management strategy for multiple water bodies throughout New England that are impaired by the atmospheric deposition of mercury. In addition, the MassDEP has worked collaboratively with the EPA to derive "bundled" TMDLs and cleanup plans at the watershed scale for waters impaired by bacteria. These state- or watershed-wide TMDLs were designed such that additional waters, found to be similarly impaired subsequent to the approval of the TMDLs, could, if applicable, be proposed for coverage under those TMDLs. While these waters are addressed in supplemental documents, or addenda, to the original TMDLs, they must be reviewed by the public and approved by the EPA like any other TMDLs.

The 303(d) List of Impaired Waters - List Category 5

While the EPA guidance provides the overall framework for a five-part list of waters, the development, submittal and review of Category 5 remains subject to the prevailing regulation governing the implementation of s. 303(d) of the CWA. This regulation requires states to identify and list those water bodies that are not expected to meet SWQS after the implementation of technology-based controls and, as such, require the development of TMDLs. States must include on the lists the specific cause(s) of the impairment (if known). Finally, guidance pertaining to s. 303(d) is clear with respect to the removal of water bodies from the list. Water bodies can be removed from Category 5 when TMDLs are approved by the EPA for all pollutants impairing that water body (note that these waters are now listed in Category 4a until it is determined that they are no longer impaired). In addition, there are some instances when a previously listed water body can be removed from the 303(d) List without calculating a TMDL. These include: 1) when a new assessment reveals that the water body is now meeting all applicable water quality standards or is expected to meet those standards in a reasonable timeframe as the result of the implementation of required pollution controls; 2) when flaws in the original analysis of data and information led to an incorrect listing decision; 3) when the development of a new listing methodology, consistent with state SWQS and EPA listing requirements, and a reassessment of the data that led to the prior listing, conclude that SWQS are now attained; and 4) a determination that a previously listed water is not impaired by a pollutant.

In preparing 303(d) lists states are required to assemble and evaluate all existing and readily available data, including, but not limited to, the most recent 305(b) report and 319 nonpoint source assessment report, dilution calculations or predictive simulation models and reports by government agencies, members of the public or academic institutions. When conducting individual watershed assessments the MassDEP relies on these and additional information sources as described earlier in this document. The development of the 2016 Category 5 (i.e., 303d) list began with a review of Category 5 waters contained in the 2014 List. To these were added previously unlisted water bodies that were determined, as the result of assessments completed since the 2014 reporting cycle, to be impaired due to the presence of one or more pollutants.

As an integral part of the assessment and listing process, waters were listed in Category 5 if they were identified as impaired (i.e., not supporting one or more intended use), the impairment was related to the presence of one or more pollutants, and the condition was not considered to be natural. However, to AUs with incomplete or anecdotal information suggesting the possibility of use impairment an "alert status" was assigned during the watershed assessment and listing process so that they may be targeted for

monitoring and follow-up assessments. These water bodies were not placed on the 303(d) List because the MassDEP believed there were insufficient data to support doing so.

Waters Impaired by Nutrients

The Massachusetts SWQS do not include numeric criteria for the essential plant nutrients, nitrogen and phosphorus. Instead, narrative statements specify that waters "shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses." Nonetheless, the lack of numeric criteria does not preclude the identification of nutrient-related impairments and MassDEP analysts rely on a variety of indicators of nutrient enrichment in a weight-of-evidence approach when assessing water quality conditions. Biological "response" indicators of nutrient-related impacts include the presence of nuisance growths of algae or other aquatic plants – particularly those non-rooted forms, such as duckweed and watermeal that derive nutrients directly from the water column and may exhibit blooming conditions in enriched waters – or even changes in benthic macroinvertebrate community structure. These response indicators may be collectively represented by the pollutant "Nutrient/Eutrophication Biological Indicators" when listing waters impaired by nutrients. Excessive primary productivity may also be evidenced by diel fluctuations in physico-chemical variables, such as dissolved oxygen and pH. When available, phosphorus and nitrogen data are screened against 1986 EPA recommended "Gold Book" criteria (EPA 1986), but nutrient concentrations, alone, are not currently utilized to determine impairment due to nutrient overenrichment. Elevated nutrient levels may serve to corroborate the presence of "response" indicators, and may help to identify potential sources (e.g., release of phosphorus from anoxic sediments). Nutrient enrichment is not considered to be problematic when "response" indicators, as described above, are absent even if nutrient concentrations exceed their recommended "Gold Book" criteria. However, when a combination of "response" indicators considered in a weight-of-evidence scheme suggest the occurrence of nutrient pollution and nutrient concentration data exceed the applicable EPA criteria, that particular nutrient may also be identified as a cause of impairment. The following information pertaining to how the MassDEP identifies nutrient impairments in rivers, lakes and estuaries is adapted from the 2016 CALM Guidance Manual which should be consulted for more detailed information pertaining to all of these indicators.

Rivers: When nuisance growths of algae (e.g., blooms, algal mats, etc.) or macrophytes (particularly non-rooted forms) are observed on more than one site visit during the summer index period changes in physico-chemical data, such as dissolved oxygen (depletion and/or supersaturation), pH, and chlorophyll are also considered. If a combination of these indicator data strongly suggests high productivity/nutrient enrichment the aquatic life use is assessed as impaired. Total phosphorus is included as a cause of impairment if the concentrations exceed EPA's "Gold Book" criteria. For river segments with impoundments, a conservative evaluation of nutrient-related response indicators following the guidance described for lakes may be conducted.

Lakes: Indicators of nutrient enrichment in lakes typically include the occurrence of planktonic blooms (particularly cyanobacteria), extensive cover of non-rooted aquatic macrophytes, such as duckweed or watermeal, decreased Secchi disk transparency, oxygen depletion and/or supersaturation, elevated pH values and elevated chlorophyll concentrations. The frequent and persistent presence of a combination of these indicators typically results in a decision that the aquatic life use is impaired. Total phosphorus is included as a cause of impairment if the concentrations exceed EPA's "Gold Book" criteria.

Estuaries: MassDEP analysts currently utilize the areal coverage of seagrasses or other submerged aquatic vegetation and, where applicable, the habitat health indicator analysis developed for the Massachusetts Estuaries Project (MEP), to identify nutrient impairments in estuaries and coastal embayments (Howes *et al.* 2003). Because the ADB does not provide a specific cause code to apply to impaired seagrass populations, the MassDEP has chosen to use "Estuarine Bioassessments" for this purpose. Assessment decisions are based on whether or not the eelgrass meadows within the AU are stable or are diminishing. For embayments in southeastern Massachusetts the MEP has generated a significant amount of enrichment indicator data based on a weight-of-evidence approach that includes several response variables (e.g., eelgrass, macroalgae, chlorophyll, dissolved oxygen, Secchi disk and

total nitrogen). Since this project is intended to develop site-specific nutrient (nitrogen) thresholds for these coastal systems, their overall assessments of habitat health are utilized to make aquatic life use attainment decisions.

Biological Assessments

When determining the extent to which water bodies are supporting the aquatic life use, as designated in the SWQS, the MassDEP often relies on the results of biological surveys, with or without supplemental physico-chemical analyses. Macroinvertebrate, fish and periphyton (i.e., attached algae) communities, often in combination, are typically used for making this assessment. While these community assessments are invaluable for determining use impairment, they often do not provide insight pertaining to the cause or source of the apparent disturbance and, therefore, may not implicate "pollution" or "pollutants" as contributing factors. Nonetheless, the EPA guidance is clear with regard to the use of biological assessments for listing in Category 5 and, in most instances, the MassDEP lists those waters that exhibit impaired aquatic communities.

The MassDEP prefers to make aquatic life use determinations based on an assessment of more than one community, and waters exhibiting impaired fish and invertebrate communities, for example, are strong candidates for listing in Category 5. Nonetheless, an assessment based on a single community may also result in a decision that the aquatic life use is not supported. This depends, in part, on whether the assessment relies on a screening level of effort or a more intensive analysis. When making an aquatic life use-attainment determination from an assessment of the invertebrate community the MassDEP relies on the EPA Rapid Biomonitoring Protocol (RBP) III (Plafkin *et al.* 1989; Barbour *et al.* 1999). This protocol entails taxonomic identification to the genus and species level, thus providing more information pertaining to the environmental preferences and sensitivities to pollution and other stressors of individual taxa than is achievable by screening techniques that use only family- or order-level taxonomic resolution. The MassDEP has established the RBP III or equivalent analysis as a minimum requirement for purposes of listing waters in Category 5.

Cold Water Fisheries

The timely availability of new sources of instream temperature and fish population data, combined with increasing concern over the loss of *Salvelinus fontinalis* (brook trout) habitat in Massachusetts, resulted in the initiation of a concerted effort by MassDEP to better define the thermal requirements of cold water fishes, and to develop protocols to identify, protect, enhance, and/or restore cold water fisheries habitat. Guidance pertaining to the use of fisheries and thermal datasets to determine the use-attainment status of cold water fisheries was developed and described in the 2016 CALM. Designated and "Existing Use" cold waters were identified as impaired for the aquatic life use if cold water fish species populations were absent from them. These waters were also impaired if, despite the presence of cold water fish, recommended temperature criteria were exceeded, thus offering protection against any further loss of cold water habitat where anthropogenic influences can be minimized or mitigated.

Fish Consumption Advisories

The EPA provides guidance pertaining to the use of fish and shellfish consumption advisories when making s. 303(d) listing decisions. In short, the EPA considers a fish-consumption advisory as evidence that the fish consumption use is not supported when the advisory is based on actual fish tissue data collected from the specific water body in question. To date, the DPH has issued advisories pertaining to the presence of mercury, PCBs, PAHs, DDT and other contaminants in freshwater fish. A list and map of DPH site-specific fish consumption advisories can be found at http://www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/exposure-topics/fish-wildlife/fish/freshwater-fish-consumption-advisory-list-and-map.html. Waters subject to site-specific advisories, based on actual fish tissue analyses from those waters, are included on the 303(d) List. In 1994, the DPH issued a statewide consumption advisory due to widespread mercury contamination found in

freshwater fish. This advisory was revised in 2001. Because the statewide advisory encompasses all fresh waters, these waters cannot be considered as "fully supporting" the fish consumption use.

Waters Impaired by Mercury

Waters covered by the DPH statewide advisory, as well as site-specific mercury advisories, may be impaired by local sources of mercury or by atmospheric deposition from near- and far-field sources, or both. Massachusetts, along with other northeastern states and Canadian provinces, has taken a lead role in reducing mercury pollution despite the inherent complexity of the problem (Harvey and Smith 2004). See http://www.mass.gov/eea/agencies/massdep/toxics/sources/mercury-management-act-and-other-initiatives.html for information on the Massachusetts Mercury Management Act and other initiatives underway to reduce mercury emissions in Massachusetts and the Northeast.

In 2004 the MassDEP noticed for public review and comment a document entitled *A TMDL Alternative Regulatory Pathway Proposal for the Management of Selected Mercury-Impaired Waters (CN 176.0).* This proposal, prepared as a supplement to the 2004 IR, asserted that a combination of federal, regional and state controls on mercury was the most effective means of remediating the mercury impairment to air-impacted waters and that Massachusetts was effectively implementing a comprehensive plan to address in-state mercury sources. Therefore, the establishment of water body-specific TMDLs using the traditional approach was not considered to be a wise use of resources, and would not effectively address the problem. Thus, 90 lakes and ponds impaired solely by the atmospheric deposition of mercury were removed from Category 5 (i.e., the 303d list) and placed in Category 4b (i.e., impaired, but not requiring a TMDL) of the 2004 IR. In June, 2006 the EPA partially approved and partially disapproved the 2004 303(d) List (i.e., Category 5 of the 2004 IR). Specifically, the EPA disapproved Massachusetts' decision not to list the lakes and ponds impaired by atmospheric deposition as outlined in the alternative pathway document. In their review document the EPA indicated their intent, following public review and comment, to add the 90 lakes and ponds to the Massachusetts 303(d) List as impaired by mercury. As a result, the use of Category 4b was discontinued and all waters for which site-specific mercury health advisories were in force appeared in Category 5 of the 2004 IR.

With the return of the lakes and ponds impaired solely by the atmospheric deposition of mercury to the 303(d) List, the MassDEP embarked on a collaborative effort with the five other New England states, New York State and the New England Interstate Water Pollution Control Commission (NEIWPCC) to develop a regional TMDL for mercury (CTDEP *et al.* 2007). This effort resulted in a strategy for reducing mercury concentrations in fish from Northeast water bodies so that water quality standards can be met. The strategy calls for mercury reductions at sources within the Northeast region, in states outside of the region and from outside of the United States. In the Northeast, the majority of mercury pollution derives from atmospheric deposition. Therefore, the regional TMDL is based primarily on reducing atmospheric mercury by lowering anthropogenic mercury emissions. The *Northeast Regional Mercury Total Maximum Daily Load* can be accessed at http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html#multis. Following a public information meeting on April 11, 2007 and subsequent 60-day public review period, the regional mercury TMDL was submitted to the EPA on October 24, 2007. The EPA approved the TMDL on December 20, 2007, and the affected lakes and ponds were moved to Category 4a (i.e., water body impaired, but requisite TMDL is completed and approved) of the 2008 and subsequent lists unless they exhibited additional impairments. In a 2012 addendum to the original document, the northeast mercury TMDL was applied to 20 additional water bodies for which more recent DPH mercury advisories had been issued (MassDEP 2012).

Since 1994, MassDEP has carried out a series of research projects and long-term monitoring programs designed to measure, both spatially and temporally, the tissue burdens of mercury in fish as part of its larger efforts to understand and control the inputs and effects of mercury in the Massachusetts environment. Details pertaining to these monitoring programs are presented at http://www.mass.gov/eea/agencies/massdep/toxics/sources/environmental-monitoring-and-fish-consumption-advisories.html. Through the use of statistically-valid study designs, long-term trends in mercury concentration can be determined, thus providing a measure of the overall effectiveness of the

multiple programs aimed at the elimination or reduction of mercury releases to the environment. Results of long-term monitoring of 23 lakes exhibited significant declines in fish mercury concentrations concomitant with decreases in mercury emissions from municipal solid waste combustors and other sources (Hutcheson *et al.* 2014). MassDEP intends to continue monitoring mercury in fish tissue as resources allow.

Predictive Models and Evaluated Information

The EPA guidelines specify the kinds of data and information that should be used when making decisions to list waters in Category 5, and this information is not restricted to direct observations (i.e., monitoring data). Rather, waters should be included in Category 5 if evaluations such as dilution calculations or predictive simulation models forecast non-attainment of water quality standards. During the 1970s and 1980s the MassDEP used steady-state, low-flow stream models to calculate waste load allocations (WLA) for point discharges. Aimed primarily at reducing instream biochemical oxygen demand and ammonia loads, the WLA were adopted in 303(e) basin plans and incorporated in individual NPDES wastewater discharge permits. As a result, secondary or advanced waste treatment were implemented where necessary across Massachusetts, although occasional reviews are still needed to assess the adequacy of existing treatment in light of anticipated increases in wastewater flows. Because of the complex and site-specific nature of remaining water quality problems (e.g., nutrients, toxics, etc.) predictive models have limited value in identifying impaired waters. In fact most modeling is now carried out for waters where impairments have already been confirmed by actual water quality or biomonitoring data. Nonetheless, predictive models continue to be utilized in combination with actual field data to fully assess water quality conditions and to derive acceptable pollutant loadings from point and nonpoint sources. Model results are considered in the 303(d) listing process in cases where those models forecast unconfirmed water quality problems. For example, when making assessment and listing decisions waters receiving CSOs are projected to violate standards even though confirmatory field data may be unavailable.

PRIORITIZING WATERS FOR TMDL DEVELOPMENT

A key component of the 303(d) listing process is establishing timelines for TMDL development. It is recommended in EPA guidance "that States develop a schedule for establishing TMDLs as expeditiously as practicable" (EPA 2005). More specifically, states must identify which TMDLs will be developed in each of the two years leading up to the next listing (i.e., 2018), and the approximate number of TMDLs to be derived for each year thereafter. Furthermore, "States need not specifically identify each TMDL as high, medium or low priority. Instead the schedule itself can reflect the State's priority ranking." The TMDL schedule is intended to communicate the state's priorities to the public and the EPA and to assist with the allocation of resources to the TMDL development effort. The schedule is not subject to approval by the EPA.

A review of recent 303(d) List submittals will reveal that the major causes of surface water impairment in Massachusetts are ***bacteria*** and ***excess nutrients***. For this reason the MassDEP continues to place a high priority on developing and implementing TMDLs for these pollutants, and this is implicit in the TMDL schedule. During FY2017 – FY2018 the MassDEP will focus on several TMDLs and related projects that have been assigned high priority. These projects are tabulated and summarized in Table 4. Since many of these projects carry over from year to year, detailed schedules for beyond FY2018 cannot be developed at this time. It should be noted that the MassDEP's capacity to finalize TMDL documents is highly dependent upon the availability of both internal and external resources, such as staffing and funding.

Table 4. Total Maximum Daily Loads (TMDLs) scheduled by the MassDEP for development during FY2017 – FY2018.

Project	TMDL Count	Req'd Public Mtg. Held?	Draft Tech Report[1]	Final Tech Report[1]	Draft TMDL	Projected EPA Approval of Final TMDL
Bacteria TMDLs						
Boston Harbor	33	yes	N/A	N/A	Completed	FY-17
Islands	15	yes	N/A	N/A	Completed	FY-18
Merrimack River	22	yes	N/A	N/A	Completed	FY-18
Ipswich River	9	yes	N/A	N/A	Completed	FY-18
Parker River	10	yes	N/A	N/A	Completed	FY-18
Blackstone	10	yes	N/A	N/A	Completed	TBD
Nashua	12	yes	N/A	N/A	Completed	TBD
SuAsCo	13	yes	N/A	N/A	Completed	TBD
Ten Mile River	5	no	N/A	N/A	To be completed	TBD
Connecticut	9	no	N/A	N/A	To be completed	TBD
Deerfield	3	no	N/A	N/A	To be completed	TBD
Hoosic	6	no	N/A	N/A	To be completed	TBD
Housatonic	6	no	N/A	N/A	To be completed	TBD
Westfield	3	no	N/A	N/A	To be completed	TBD
Chicopee	8	no	N/A	N/A	To be completed	TBD
F&Q	6	no	N/A	N/A	To be completed	TBD
Millers	9	no	N/A	N/A	To be completed	TBD
Subtotal Bacteria	179					
Massachusetts Estuaries Project (MEP) Nitrogen TMDLs						
Allens, Wychmere, Saquatucket Harbors, Harwich	3	yes	Completed	Completed	Completed	Approved[2]
Herring River, Harwich	1	yes	Completed	Completed	Completed	Approved[2]
Westport Rivers, Westport	3	yes	Completed	Completed	Completed	FY-17
Bass River,Yarmouth, Dennis	7	yes	Completed	Completed	In progress	FY-18
Slocums & Little Rivers, Dartmouth	2	no	Completed	Completed	In progress	FY-18
Swan Pond, Dennis	2	no	Completed	Completed	In progress	FY-18
Parkers River, Yarmouth	3	no	Completed	Completed	In progress	FY-18

Quisset Harbor, Falmouth	1	no	Completed	Completed	In progress	FY-18
Fiddlers Cove/Rands Harbor, Falmouth	3	no	Completed	Completed	In progress	TBD
Wild Harbor	3	no	Completed	Completed	In progress	TBD
Waquoit Bay/Eel River, Falmouth, Mashpee	5	no	Completed	Completed	In progress	TBD
Black Point Pond. Chilmark	1	no	Completed	Completed	In progress	TBD
Tisbury Great Pond, Tisbury	3	no	Completed	Completed	In progress	TBD
Megansett-Squeteague Harbor, Falmouth	2	no	Completed	Completed	In progress	TBD
Subtotal Nitrogen	39					
Lake Phosphorus TMDL						
Monponsett Pond	4	no	N/A	N/A	In progress	FY-18
Subtotal Phosphorus	4					
Grand Total TMDL	222					

[1] Applies to Massachusetts Estuaries Program (MEP) projects only
[2] AUs covered by these approved TMDLs will be reported as such for the first time in the 2018 IR

Bacteria TMDLs

In 2006 MassDEP began working closely with the EPA Region 1 to develop "bundled" bacteria cleanup plans for all of Massachusetts' major watersheds. Although the goal was to complete half those TMDLs in each of 2006 and 2007, they were delayed because of a court decision in Washington, DC (on an unrelated project) that necessitated a major revision to the original approach. Since 2007, MassDEP has received the EPA's approval of watershed-wide bacteria TMDLs for the Charles and Taunton watersheds and the Buzzards Bay, Cape Cod, Three Bays (Barnstable), Mount Hope/Narragansett Bay, North Shore and South Shore coastal drainage systems. The plan for FY2017 through FY2018 is to continue to work, as resources allow, toward the finalization of bacteria TMDLs for the following coastal watersheds: Merrimack, Ipswich, Parker and the Islands. A plan will also be developed to complete draft TMDLs to address the remainder of freshwater bacteria impairments.

The Massachusetts Estuaries Project (MEP)

The MassDEP continues to derive TMDLs for nutrient-impaired coastal embayments in southeastern Massachusetts through collaboration with the School of Marine Science and Technology (SMAST) at the University of Massachusetts at Dartmouth (UMass-Dartmouth) and several municipalities that have been targeted for this project. This effort, referred to as the MEP, was initiated in 2001 to determine existing nutrient loads and to assist in the evaluation of future nutrient load scenarios for 89 estuaries located in 32 coastal communities. A TMDL for nitrogen was to be established for each water body, in accordance with MassDEP and EPA requirements. In 2009, the number of estuaries to be included in the MEP was reduced to 70 due to a lack of local matching funds and/or other project delays.

A linked-model is utilized to quantify nitrogen inputs to targeted bays and estuaries and to develop the TMDLs. The TMDLs, in turn, form the basis of sound wastewater and watershed management and are implemented through the formulation of Comprehensive Wastewater Management Plans (CWMP). Comprehensive wastewater management planning is a locally managed, community-wide process that

evaluates current and future wastewater needs, compares alternative solutions, and selects a final plan based on cost-effectiveness and environmental results. The CWMP is a key step toward implementation of TMDLs for nitrogen in southeastern Massachusetts estuaries and many towns are currently in various stages of this planning process.

To date, a total of 83 individual nitrogen TMDLs for waters in the Buzzards Bay and Cape Cod coastal drainage systems and representing 32 of the 70 targeted MEP estuaries have been approved by the EPA. Technical evaluations have been completed for another 14 estuaries. Subject to the availability of state funding and personnel resources, MassDEP will continue to assess nutrient-impaired coastal waters and develop nitrogen TMDLs for priority embayments in southeastern Massachusetts.

Long Island Sound Nitrogen TMDL Implementation

Long Island Sound (LIS) suffers from low dissolved oxygen, with excess nitrogen loading identified as the primary cause. As a result, Connecticut and New York developed a TMDL in 2001 to establish nitrogen reductions needed to meet water quality standards. The TMDL specifies a 58.5 percent reduction from nitrogen loading sources in Connecticut and New York, and reductions in the upper basin (Massachusetts, New Hampshire, and Vermont) of 25 percent for point sources and 10 percent for nonpoint sources. Massachusetts has largely achieved the reduction targets for both point and nonpoint sources. Actions taken by the states, to date, have resulted in significant nitrogen reductions in the watershed; however the LIS still does not meet water quality standards for dissolved oxygen.

In December 2015, EPA Regions 1 and 2 announced a new Nitrogen Reduction Strategy for the LIS. The strategy includes development and application of nitrogen thresholds for each of three watershed groupings: 1) coastal watersheds that directly drain to embayments or nearshore waters, 2) tributary watersheds that drain inland reaches, and 3) western LIS watersheds with large, direct-discharging wastewater treatment facilities. MassDEP will continue to work with EPA and state partners and the regulated community as the details of the strategy and timeline for its implementation proceed.

Assabet River Phosphorus TMDL Implementation

A Final Nutrient (Total Phosphorus) TMDL Report for the Assabet River, completed in 2004, established nutrient targets for the restoration of water quality in the Assabet River (http://www.mass.gov/eea/docs/dep/water/resources/a-thru-m/anuttmdl.pdf). The goal of the TMDL was to decrease the instream concentration of total phosphorus to mitigate some of the ecological effects of eutrophication on the river; these effects were, for the most part, direct consequences of the excessive growth of aquatic macrophytes. In 2007, the USGS, in cooperation with the MassDEP, initiated studies to evaluate conditions in the Assabet River prior to the upgrading of municipal wastewater treatment plants (WWTPs) to remove more phosphorus from their effluents. The USGS effort, completed in 2008, implemented a visual monitoring plan to estimate the areal extent and biomass of the floating macrophyte *Lemna minor* in five impoundments and evaluated the potential for phosphorus flux from sediments in impounded and free-flowing reaches of the river (http://pubs.usgs.gov/sir/2011/5179/). The MassDEP assumed responsibility for the visual assessments and collected monitoring data from the summer of 2009 through 2013. In addition, the MassDEP funded the USGS to conduct water quality monitoring through April 2014 to capture changes in instream loading before and after the municipal WWTPs were upgraded. USGS expects to publish a report on this study in fall of 2016.

Monitoring and Related Activities for the Blackstone River

The MassDEP and the USGS have been working cooperatively since 2007 to collect water quality information pertaining to nutrient and trace metal loadings to the Blackstone River. The objectives of the study were to (1) quantify nutrient and trace metal loadings in several segments of the Blackstone River in Massachusetts and at the Massachusetts – Rhode Island state line; 2) assess and, if possible, quantify nitrogen attenuation throughout the river; and 3) evaluate and quantify, if possible, the re-suspension of both nutrients and metals in two impounded segments of the river (i.e., Riverdale Impoundment and Rice

City Pond). Water samples were collected using an innovative automated sampling device designed and built by the USGS. Results of this study are reported in Zimmerman, *et al.* (2015).

From 2012 through 2016, the USGS, in cooperation with the MassDEP, installed a continuous streamflow and water-quality monitoring station on the Blackstone River at a point approximately 0.9 miles upstream from the Massachusetts-Rhode Island state line at Millville. The goal was to document nutrient reductions resulting from WWTP upgrades. The station operated continuously during that time, recording river stage, water and air temperature, specific conductance, turbidity and chlorophyll concentrations. Streamflow was monitored at a nearby site and the data were used to determine intervals for flow-proportional sampling for the determination of total nitrogen, total phosphorus and dissolved trace-metal concentrations. USGS expects to publish the report in FY 17.

MassDEP staff members continue to work collaboratively with the watershed associations, the Upper Blackstone Water Pollution Abatement District (UBWPAD) and their consultants on an ambient monitoring program for the Blackstone River. Future activities will focus on building partnerships with interested parties at all levels of government, as well as the private citizenry, to manage point and nonpoint sources of pollution throughout the Blackstone Watershed.

Mitigating Cranberry Farming Impacts – TMDL Development and Implementation

The MassDEP worked with several interested parties to implement the nutrient TMDL for White Island Pond (Plymouth/Wareham). The resultant benefits to the water quality of this pond are summarized in the EPA s. 319 NPS success story "Reducing Nutrients from Cranberry Bogs Improves White Island Pond" (see https://www.epa.gov/sites/production/files/2015-10/documents/ma_whiteisland.pdf). Local sources report that the White Island Pond remains clear. MassDEP has now moved on to another high priority water body, Monponsett Pond in the towns of Halifax and Hanson. The East and West basins of the pond are both a water supply and a multi-use pond system into which commercial cranberry bogs discharge floodwaters.

West Monponsett Pond, in particular, is impaired by nutrients and has exhibited repeated cyanobacteria blooms during the summer and into the fall. The situation is complicated by a legally allowed diversion of water from the East Monponsett Pond into Silver Lake as a water supply for the city of Brockton. There are commercial cranberry bogs that are tributary to both sides of the pond. MassDEP has been sampling the ponds and the streams and two other ponds upstream of Monponsett beginning in 2001, and from 2009 up to the present. MassDEP has continued to work cooperatively with the UMass Cranberry Experiment Station and with the Cape Cod Cranberry Growers Association to provide funding for Monponsett Pond via EPA s. 319 grants focusing on low-phosphorus fertilizers and tests of experimental iron sand filters for the bogs. Results are very encouraging, with total phosphorus levels in the ponds showing a decline in concentrations. The town also funded small aluminum additions in 2013 and 2015, but blooms have continued.

MassDEP is in the process of developing phosphorus TMDLs for all four ponds in the Monponsett Pond watershed. These TMDLs are expected to be released as draft in calendar year 2016. In September of 2016 MassDEP awarded to the town of Halifax an EPA s. 319 grant for a larger aluminum treatment for Monponsett Pond. MassDEP expects to continue to monitor Monponsett Pond (both East and West) into 2018 to measure the effectiveness of the TMDL implementation.

Mystic River Phosphorus Loading Analysis

Findings published in MassDEP water quality assessment reports (1999, 2004-2008) indicate that the primary causes of use impairment in the Mystic River Watershed are nutrients and pathogens, and approximately 25 river miles and several ponds appear on the 303(d) List as impaired by those stressors. High bacteria and nutrient levels are attributed to CSOs, stormwater runoff from impervious surfaces, faulty septic systems, illegal/cross connections between sewer and stormdrain systems and sediment

resuspension. Excessive nutrients contribute to frequent cyanobacteria blooms, rapidly expanding populations of invasive plants and low levels of dissolved oxygen.

MassDEP is currently finalizing TMDLs for bacteria in watersheds draining to Boston Harbor that will include the Mystic sub-basin. To address the nutrient-related impairment, the Mystic River Watershed Association (MyRWA) is working collaboratively with MassDEP, EPA Region 1, USGS and the Massachusetts Water Resources Authority to collect data and information that will help guide management decisions to address these water quality concerns. Together the participating organizations are supporting a baseline water quality monitoring program that entails the collection of composite samples linked to streamflow so that annual loadings of phosphorus to the Mystic River can be estimated. Furthermore, the phosphorus loads will be related to response variables by measuring water-column total phosphorus, dissolved oxygen and chlorophyll concentrations in critical reaches of the watershed. These analyses will support efforts to calculate a phosphorus budget for the watershed, and to suggest target reductions in phosphorus inputs from various sources in order to improve water quality and ecosystem conditions in the Mystic River Watershed.

The CWA Section 303(d) Program Long-term Vision – 2016 - 2022

In 2013, the EPA announced a new framework for prioritizing and implementing TMDLs and related pollution control strategies (Vision). The guidance for this Vision, which can be found at http://www.epa.gov/sites/production/files/2015-07/documents/vision_303d_program_dec_2013.pdf, allows the states to adopt strategies for carrying out the requirements of s. 303(d) that are tailored to individual state water quality program goals and priorities. Furthermore, while the statutory and regulatory obligations to develop TMDLs for waters identified on 303(d) lists remain in place -- and TMDLs will continue to be the prevailing mechanisms for addressing those waters -- it is acknowledged in the Vision that under certain circumstances there are alternative restoration approaches that may be more immediately beneficial or practicable in achieving SWQS than pursuing the TMDL approach from the beginning. Regardless of whether states choose to derive TMDLs or opt for alternative approaches to restoring their impaired waters, the Vision guidance calls for the states to identify by 2016 their long-term 303(d) program priorities through Fiscal Year 2022 or beyond. This will provide states the opportunity to strategically focus their efforts and demonstrate progress over time in achieving environmental results. In addition, the Vision allows states to integrate 303(d) program priorities with other water quality programs. For example, integration with water quality monitoring programs can lay the groundwork for gathering the data needed to assess baseline conditions in priority waters, to develop TMDLs, watershed-based plans or other restoration and protection plans, and to determine progress in restoring or protecting those waters. In the fall of 2016 MassDEP initiated an outreach effort with the intention of working collectively with a varied group of stakeholders to formulate a long-term statewide vision. It is currently anticipated that this effort wil result in the development of a plan that will guide CWA programs.

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INTEGRATED LIST CATEGORIES

The following tables present the multi-part integrated list of waters developed in accordance with EPA guidance pertaining to sections 303(d), 305(b) and 314 of the Clean Water Act. The list contains Massachusetts water bodies (lakes, rivers, or estuaries) that have been monitored and assessed, either in past cycles or in the current cycle, and that fall into one of the categories listed below, depending upon the attainment status of their designated uses. Surface waters that have never been assessed do not appear in these tables and are considered Category 3 waters by default.

Category 1 – "Waters attaining all designated uses"
Category 2 – "Attaining some uses; other uses not assessed"
Category 3 – "No uses assessed"
Category 4a – "TMDL is completed"
Category 4b – "Impairment controlled by alternative pollution control requirements"
Category 4c – "Impairment not caused by a pollutant – TMDL not required"
Category 5 – "Waters requiring a TMDL" (i.e., the 303(d) List)

The Massachusetts Department of Public Health statewide advisory pertaining to the prohibitive consumption of finfish due to the risk of elevated mercury to sensitive populations precludes any waters from being in full support of the fish consumption use and, therefore, no waters appear in category 1.

Category 2 is the only list that presents the individual designated uses that are attained by each water body. However, it should be noted that waters appearing in categories 4a, 4c and 5, while impaired for one or more uses, may also be attaining some uses. The supported uses are not currently included in categories 4a, 4c and 5 due to space constraints.

Category 3 contains water bodies that are not assessed for any of their individual designated uses for the 2016 listing cycle unless those water bodies were listed as impaired in previous listing cycles. In that case they remain in categories 4a, 4c or 5.

Categories 4 and 5 contain water bodies that are impaired by one or more *pollutants,* requiring the development and implementation of TMDLs to restore them (listed in Category 5 – "303(d) List"), and/or *pollution* (i.e., non-pollutants), managed through alternative control measures (listed in Category 4c unless pollutants are also present). Water bodies are listed in Category 4a if all pollutants contributing to their impairment are addressed by one or more EPA-approved TMDLs. Impaired waters for which some TMDLs have been approved, but others are still needed, remain in Category 5 until TMDLs are completed for all pollutants. Non-pollutants (shown in parentheses) may occur in categories 4a, 4c or 5 depending on the presence and TMDL status of pollutants. Category 4b is reserved for waters impaired by one or more pollutants that are expected to attain their designated uses without TMDL implementation; however, Massachusetts is not including any waters in Category 4b for the 2016 listing cycle.

Appendices 1 – 3 are provided to assist the reader in navigating the multi-part list. Appendix 1 presents all water bodies on the integrated list, including a description of each water body, its size, and its category. Appendices 2 and 3 list, respectively, the impairments *added to* and *removed from* categories 4 and 5 and a brief explanation of why these changes occurred. The list categories and appendices are generated directly from the electronic database that stores all of the assessment information. Therefore, the impairment additions and removals presented in appendices 2 and 3 include minor clerical or "housekeeping" adjustments as well as more substantive changes informed by new data and information or by modifications to the assessment methodology. For example, changes in impairment names from "Chlordane" to "Chlordane in Fish Tissue", or "Mercury" to "Mercury in Fish Tissue" are listed as both removals and additions in the appendices, but do not represent actual changes in the status of the waters exhibiting these impairments. Likewise, an impairment that changed status from pollutant to non-pollutant (for example, "Aquatic Plants (Macrophytes)") appears in Appendix 3 as removal from category 5, yet the water body in question remains listed as impaired.

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Category 1 waters
"Waters attaining all designated uses"

Massachusetts is currently listing no waters in this category due to the issuance by the Massachusetts Department of Public Health of a statewide health advisory pertaining to the consumption of finfish. This advisory precludes any waters from being in full support of the fish consumption use. More information pertaining to fish consumption advisories and the assessment of the fish consumption use can be found in the section entitled "Development of the 2016 Integrated Report."

Category 2 waters listed alphabetically by major watershed
"Attaining some uses; other uses not assessed"

					Uses Attained*				
WATER BODY	SEGMENT ID	Description	SIZE	UNITS	Aesthetic	Fish, other Aquatic Life and Wildlife	Primary Contact Recreation	Secondary Contact Recreation	Shellfish Harvesting
Red Brook	MA96-25	From dam (NATID: MA01037) at Red Brook Road, Falmouth/Mashpee to mouth at inlet Hamblin Pond, Falmouth/Mashpee.	0.01	SQUARE MILES			X	X	X
Santuit River	MA96-91	Headwaters, outlet Santuit Pond, Mashpee to confluence with tidal portion south of Old Mill Road/Old Kings Road, Mashpee/Barnstable.	1.6	MILES	X	X	X	X	
Unnamed Tributary	MA96-105	Unnamed tributary to Herring River, headwaters outlet Walkers Pond, Harwich to outlet channelized wetland south of Great Western Road, Harwich.	3.3	MILES	X		X	X	
Upper Mill Pond	MA96324	Brewster.	249	ACRES	X	X	X	X	
Wellfleet Harbor	MA96-34	The waters north of an imaginary line drawn east from the southern tip of Jeremy Point, Wellfleet to Sunken Meadow, Eastham excluding the estuaries of Herring River, Duck Creek, Blackfish Creek, and Fresh Brook, Wellfleet (area within Cape Cod National Seashore designated as ORW).	8.4	SQUARE MILES			X	X	X
Charles									
Bogastow Brook	MA72-16	Headwaters, outlet Factory Pond, Holliston to mouth at inlet South End Pond, Millis.	9.4	MILES	X	X	X	X	
DOPPING BROOK	MA72-40	Headwater oulet small unnamed pond on Holliston/Sherborn border to mouth at confluence with Bogastow Brook, Holliston/Sherborn.	2.6	MILES	X		X	X	
Hammond Pond	MA72044	Newton.	22	ACRES		X			
MILL BROOK	MA72-39	Source wetlands, Pine Street, Medfield to mouth at confluence with the Charles River, Medfield.	3.7	MILES	X		X	X	
Stony Brook	MA72-26	Headwaters, outlet Beaver Pond, Lincoln to mouth at inlet Stony Brook Reservoir, Waltham/Weston.	5.1	MILES	X	X	X	X	
Unnamed Tributary	MA72-42	Unnamed tributary to the Charles River, from outlet unnamed pond north of South Street, Natick to mouth at confluence with the Charles River, Natick.	0.3	MILES	X		X	X	
Weld Pond	MA72131	Dedham.	27	ACRES		X			
Chicopee									
Asnacomet Pond	MA36005	Hubbardston.	126	ACRES	X		X	X	
Atherton Brook	MA36-30	Headwaters, confluence Town Farm and Osgood brooks, Shutesbury to mouth at inlet Quabbin Reservoir, Pelham.	1.9	MILES		X			

* Attained uses denoted by "X". The Fish Consumption use is not supported in any waters due to the DPH statewide health advisory.

Category 3 waters listed alphabetically by major watershed
"No uses assessed"

WATER BODY	SEGMENT ID	Description	SIZE	UNITS
Kinnacum Pond	MA96163	Wellfleet.	2	ACRES
Lake Elizabeth	MA96080	Barnstable.	6	ACRES
Long Pond	MA96180	Yarmouth.	54	ACRES
Miss Thachers Pond	MA96258	Yarmouth.	6	ACRES
North Pond	MA96225	Barnstable.	4	ACRES
Nye Pond	MA96228	Sandwich.	6	ACRES
Pilgrim Lake	MA96246	Orleans.	38	ACRES
Rushy Marsh Pond	MA96266	Barnstable.	14	ACRES
Scargo Lake	MA96279	Dennis.	54	ACRES
Schoolhouse Pond	MA96281	Chatham.	20	ACRES
Shallow Pond	MA96285	Barnstable.	76	ACRES
Shubael Pond	MA96293	Barnstable.	55	ACRES
Smith Pond	MA96301	Brewster.	11	ACRES
Village Pond	MA96329	Truro.	2	ACRES
Charles				
Brookline Reservoir	MA72010	Brookline.	21	ACRES
Cambridge Reservoir	MA72014	Waltham/Lincoln/Lexington.	531	ACRES
Chestnut Hill Reservoir	MA72023	Boston.	82	ACRES
Farm Pond	MA72039	Sherborn.	125	ACRES
Halls Pond	MA72043	Brookline.	0.6	ACRES
Jennings Pond	MA72053	Natick.	7	ACRES
Little Farm Pond	MA72064	Sherborn.	24	ACRES
Louisa Lake	MA72068	Milford.	8	ACRES
Norumbega Reservoir	MA72086	[North Basin] Weston.	14	ACRES
Norumbega Reservoir	MA72087	[South Basin] Weston.	38	ACRES
Sandy Pond	MA72105	Lincoln.	157	ACRES
South End Pond	MA72109	Millis.	30	ACRES
Stony Brook	MA72-37	Headwaters, outlet Turtle Pond, Boston to culvert entrance, Boston (two culverted portions totaling approximately 740 feet (0.14mile)).	1.6	MILES
Stony Brook Reservoir	MA72114	Waltham/Weston.	64	ACRES
Todd Pond	MA72117	Lincoln.	9	ACRES
Walker Pond	MA72126	Millis.	9	ACRES
Waseeka Sanctuary Pond	MA72155	Holliston.	17	ACRES
Weston Reservoir	MA72134	Weston.	59	ACRES
Weston Station Pond	MA72135	Weston.	38	ACRES
Chicopee				
Adams Pond	MA36001	Oakham.	30	ACRES
Bemis Road Pond	MA36012	Hubbardston.	16	ACRES
Bennett Street Pond	MA36014	Palmer.	6	ACRES
Bickford Pond	MA36015	Hubbardston/Princeton.	163	ACRES
Brigham Pond	MA36020	Hubbardston.	45	ACRES
Brooks Pond	MA36022	Petersham.	87	ACRES
Canesto Brook	MA36-36	Headwaters, perennial portion, northwest of Hubbardston State Forest near Hubbardston/Templeton town line to mouth at confluence with Ware River, Barre.	7.3	MILES
Carter Pond	MA36029	Petersham.	44	ACRES

Category 4a waters listed alphabetically by major watershed "TMDL is completed"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	POLLUTANTS ADDRESSED BY TMDL	EPA TMDL NO.
Wequaquet Lake	MA96333	Barnstable.	576	ACRES	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
West Bay	MA96-65	From south of the Bridge Street bridge, Barnstable outlet to Nantucket Sound including Eel River, Barnstable (excludes Seapuit River).	0.52	SQUARE MILES	Estuarine Bioassessments	33989
Charles						
Beaver Pond	MA72004	Bellingham/Milford.	87	ACRES	Mercury in Fish Tissue	42394
Cedar Swamp Pond	MA72016	locally known as "Milford Pond", Milford.	99	ACRES	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	42395
					Oxygen, Dissolved	40319
Charles River	MA72-01	Headwaters, outlet Echo Lake, Hopkinton to Dilla Street (just upstream of Cedar Swamp Pond), Milford.	2.5	MILES	(Low flow alterations*)	
					(Other flow regime alterations*)	
					Oxygen, Dissolved	40318
Charles River	MA72-33	From outlet Cedar Swamp Pond, Milford to the Milford WWTF discharge (NPDES: MA0100579), Hopedale (formerly part of segment MA72-02) (two culverted portions totaling approximately 1100 feet (0.21mile)).	2	MILES	(Physical substrate habitat alterations*)	
					Escherichia coli	32364
					Nutrient/Eutrophication Biological Indicators	40317
Cheese Cake Brook	MA72-29	Emerges south of Route 16, Newton to mouth at confluence with the Charles River, Newton.	1.4	MILES	(Alteration in stream-side or littoral vegetative covers*)	
					(Other anthropogenic substrate alterations*)	
					Dissolved oxygen saturation	40317
					Escherichia coli	32380
					Excess Algal Growth	40317
					Phosphorus (Total)	40317
Echo Lake	MA72035	Milford/Hopkinton.	72	ACRES	Mercury in Fish Tissue	33880
Factory Pond	MA72037	Holliston.	10	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	40319
Franklin Reservoir Northeast	MA72095	Franklin.	21	ACRES	Aquatic Plants (Macrophytes)	40319
					Turbidity	40319
Franklin Reservoir Southwest	MA72032	Franklin.	13	ACRES	Aquatic Plants (Macrophytes)	40319
					Turbidity	40319
Hardys Pond	MA72045	Waltham.	43	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	40319
					Phosphorus (Total)	40319
					Turbidity	40319
Houghton Pond	MA72050	Holliston.	17	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	40319
					Turbidity	40319
Lake Pearl	MA72092	Wrentham.	237	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					(Non-Native Aquatic Plants*)	
					Oxygen, Dissolved	40319
Linden Pond	MA72063	Holliston.	1	ACRES	Aquatic Plants (Macrophytes)	40319

Category 4a waters listed alphabetically by major watershed "TMDL is completed"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	POLLUTANTS ADDRESSED BY TMDL	EPA TMDL NO.
					Turbidity	40319
Lymans Pond	MA72070	Dover.	4	ACRES	Aquatic Plants (Macrophytes)	40319
					Turbidity	40319
Mirror Lake	MA72078	Wrentham/Norfolk.	62	ACRES	(Non-Native Aquatic Plants*)	
					Nutrient/Eutrophication Biological Indicators	40319
					Phosphorus (Total)	40319
					Secchi disk transparency	40319
Rosemary Brook	MA72-25	Headwaters, outlet Rosemary Lake, Needham to mouth at confluence with the Charles River, Wellesley.	3.3	MILES	Oxygen, Dissolved	40317
					Phosphorus (Total)	40317
South Meadow Brook	MA72-24	From emergence west of Parker Street, Newton to mouth at confluence with the Charles River, Newton (three culverted portions totaling approximately 2870 feet (0.54mile)).	1.7	MILES	(Bottom Deposits*)	
					(Debris/Floatables/Trash*)	
					(Physical substrate habitat alterations*)	
					Escherichia coli	32377
					Oxygen, Dissolved	40317
					Phosphorus (Total)	40317
					Turbidity	40317
Uncas Pond	MA72122	Franklin.	17	ACRES	(Non-Native Aquatic Plants*)	
					Oxygen, Dissolved	40319
Unnamed Tributary	MA72-32	Locally known as "Sawins Brook" - emerges east of Elm Street, Watertown to mouth at confluence with the Charles River, Watertown (one culverted portion approximately 360 feet (0.07mile)).	0.5	MILES	Escherichia coli	32382
Chicopee						
Lake Lashaway	MA36079	North Brookfield/East Brookfield.	274	ACRES	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Long Pond	MA36083	Springfield.	14	ACRES	Nutrient/Eutrophication Biological Indicators	722
Minechoag Pond	MA36093	Ludlow.	21	ACRES	Nutrient/Eutrophication Biological Indicators	3629
Mona Lake	MA36094	Springfield.	11	ACRES	Nutrient/Eutrophication Biological Indicators	3630
Pottapaug Pond	MA36125	Petersham/Hardwick.	568	ACRES	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Quabbin Reservoir	MA36129	Petersham/Pelham/Ware/Hardwick/Shutesbury/Belcher town/New Salem.	2401 2	ACRES	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Quacumquasit Pond	MA36131	Brookfield/East Brookfield/Sturbridge.	223	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Spectacle Pond	MA36142	Wilbraham.	9	ACRES	Nutrient/Eutrophication Biological Indicators	3631
Sugden Reservoir	MA36150	Spencer.	85	ACRES	Nutrient/Eutrophication Biological Indicators	3633
Wickaboag Pond	MA36166	West Brookfield.	316	ACRES	Turbidity	1332

* TMDL not required (Non-pollutant)

Category 4c waters listed alphabetically by major watershed "Impairment not caused by a pollutant – TMDL not required"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT
Hills Pond	MA71018	Arlington.	2	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
Boston Harbor: Neponset					
Billings Street/East Street Pond	MA73065	Sharon.	2	ACRES	(Non-Native Aquatic Plants*)
Clark Pond	MA73008	Walpole.	7	ACRES	(Non-Native Aquatic Plants*)
Ellis Pond	MA73018	Norwood.	17	ACRES	(Non-Native Aquatic Plants*)
Farrington Pond	MA73040	Stoughton.	3	ACRES	(Non-Native Aquatic Plants*)
Glen Echo Pond	MA73022	Canton/Stoughton.	16	ACRES	(Non-Native Aquatic Plants*)
Jewells Pond	MA73026	Medfield.	4	ACRES	(Non-Native Aquatic Plants*)
Pinewood Pond	MA73039	Stoughton.	25	ACRES	(Aquatic Plants (Macrophytes)*) (Non-Native Aquatic Plants*)
Town Pond	MA73056	Stoughton.	8	ACRES	(Non-Native Aquatic Plants*)
Turner Pond	MA73058	Walpole.	18	ACRES	(Non-Native Aquatic Plants*)
Unnamed Tributary	MA73-34	Headwaters, outlet Clark Pond, Walpole to confluence with Neponset River, Walpole (locally considered part of Spring Brook) (excluding the approximately 0.2 miles through Diamond Pond and the approximately 0.2 miles through Memorial Pond segment MA73012).	0.8	MILES	(Debris/Floatables/Trash*)
Woods Pond	MA73055	Stoughton.	14	ACRES	(Non-Native Aquatic Plants*)
Boston Harbor: Weymouth & Weir					
Accord Brook	MA74-17	From water supply intake (4131000-02S Accord Brook) south of South Pleasant Street, Hingham to mouth at inlet Triphammer Pond, Hingham.	1.8	MILES	(Low flow alterations*)
Sunset Lake	MA74020	Braintree.	58	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
Buzzards Bay					
Federal Pond	MA95055	Carver/Plymouth.	122	ACRES	(Non-Native Aquatic Plants*)
Fresh Meadow Pond	MA95174	Carver/Plymouth.	59	ACRES	(Non-Native Aquatic Plants*)
Mill Pond	MA95105	Wareham.	149	ACRES	(Non-Native Aquatic Plants*)
White Island Pond, East Basin	MA95166	(East Basin) Plymouth/Wareham.	165	ACRES	(Non-Native Aquatic Plants*)
White Island Pond, West Basin	MA95173	(West Basin) Plymouth/Wareham.	123	ACRES	(Non-Native Aquatic Plants*)
Cape Cod					
HAWES RUN	MA96-101	Headwaters outlet small unnamed pond west of Higgins Crowell Road, Yarmouth to mouth at inlet Mill Pond, Yarmouth.	1.7	MILES	(Debris/Floatables/Trash*)
Long Pond	MA96184	Barnstable.	48	ACRES	(Non-Native Aquatic Plants*)
Charles					
Beaver Pond	MA72006	Franklin.	32	ACRES	(Non-Native Aquatic Plants*)
Dug Pond	MA72034	Natick.	50	ACRES	(Non-Native Aquatic Plants*)
Kingsbury Pond	MA72056	Norfolk.	15	ACRES	(Low flow alterations*)
Lake Archer	MA72002	Wrentham.	77	ACRES	(Non-Native Aquatic Plants*)
Lake Waban	MA72125	Wellesley.	109	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)

Category 4c waters listed alphabetically by major watershed "Impairment not caused by a pollutant – TMDL not required"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT
					(Non-Native Aquatic Plants*)
Morses Pond	MA72079	Wellesley/Natick.	112	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
					(Non-Native Aquatic Plants*)
Noannet Pond	MA72084	Westwood/Dover.	50	ACRES	(Non-Native Aquatic Plants*)
Nonesuch Pond	MA72085	Natick/Weston.	39	ACRES	(Non-Native Aquatic Plants*)
Scarboro Golf Course Pond	MA72107	Boston.	6	ACRES	(Non-Native Aquatic Plants*)
Unnamed Tributary	MA72-27	Headwaters, outlet Stony Brook Reservoir, Waltham/Weston to mouth at confluence with the Charles River, Waltham/Weston.	0.2	MILES	(Other flow regime alterations*)
					(Low flow alterations*)
Chicopee					
Beaver Lake	MA36010	Ware.	150	ACRES	(Non-Native Aquatic Plants*)
					(Eurasian Water Milfoil, Myriophyllum spicatum*)
Brooks Pond	MA36023	North Brookfield/New Braintree/Spencer/Oakham.	179	ACRES	(Non-Native Aquatic Plants*)
Dean Pond	MA36049	Brimfield/Monson.	10	ACRES	(Non-Native Aquatic Plants*)
Forest Lake	MA36063	Palmer.	45	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
Hardwick Pond	MA36066	Hardwick.	67	ACRES	(Non-Native Aquatic Plants*)
Long Pond	MA36082	Rutland.	167	ACRES	(Non-Native Aquatic Plants*)
Moosehorn Pond	MA36097	Hubbardston.	67	ACRES	(Non-Native Aquatic Plants*)
Old Reservoir	MA36114	Barre.	37	ACRES	(Other flow regime alterations*)
Turkey Hill Pond	MA36157	Rutland/Paxton.	90	ACRES	(Non-Native Aquatic Plants*)
Concord (SuAsCo)					
Bartlett Pond	MA82007	Northborough.	52	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
					(Non-Native Aquatic Plants*)
Batemans Pond	MA82008	Concord.	25	ACRES	(Non-Native Aquatic Plants*)
Chauncy Lake	MA82017	Westborough.	173	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
Fisk Pond	MA82038	Natick.	62	ACRES	(Non-Native Aquatic Plants*)
Framingham Reservoir #3	MA82046	Framingham.	222	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
Great Meadows Pond #3	MA82053	Concord.	53	ACRES	(Non-Native Aquatic Plants*)
Little Chauncy Pond	MA82070	Northborough.	43	ACRES	(Non-Native Aquatic Plants*)
Meadow Pond	MA82129	Carlisle.	12	ACRES	(Non-Native Aquatic Plants*)
Mill Brook	MA82A-20	Headwaters, outlet Crosby Pond, Concord to mouth at confluence with the Concord River, Concord.	2.7	MILES	(Habitat Assessment (Streams)*)
North Great Meadows	MA82084	Concord.	73	ACRES	(Non-Native Aquatic Plants*)
Rocky Pond	MA82095	Boylston.	62	ACRES	(Non-Native Aquatic Plants*)
Unnamed	MA82A-31	Unnamed tributary to River Meadow Brook, outlet Elm Street	3.7	MILES	(Other flow regime alterations*)

Category 5 waters listed alphabetically by major watershed
The 303(d) List – "Waters requiring a TMDL"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT	EPA TMDL NO.
Unnamed Tributary	MA96-97	Unnamed tributary to Hyannis Inner Harbor (referred to in TMDL as Inner Harbor Creek), from salt water portion north of Park Avenue, Yarmouth to mouth at inlet Hyannis Inner Harbor, Yarmouth.	0.001	SQUARE MILES	Nitrogen (Total)	
Upper Shawme Lake	MA96326	Sandwich.	21	ACRES	Nutrient/Eutrophication Biological Indicators	
Walkers Pond	MA96331	Brewster.	100	ACRES	Chlorophyll-a	
					Excess Algal Growth	
					Harmful Algal Bloom	
					Phosphorus (Total)	
					Secchi disk transparency	
					Turbidity	
Waquoit Bay	MA96-21	From mouths of Seapit River, Quashnet River (also known as Moonakis River), Falmouth and Great River, Mashpee to inlet of Vineyard Sound, Falmouth/Mashpee.	1.43	SQUARE MILES	Estuarine Bioassessments	
					Oxygen, Dissolved	
WHITES BROOK	MA96-102	Headwaters in channelized wetland south of Route 6A, Yarmouth to confluence with tidal portion north of Route 6A, Yarmouth.	0.3	MILES	Escherichia coli	
Wychmere Harbor	MA96-96	south of Route 28, Harwich outlet to Nantucket Sound, Harwich.	0.02	SQUARE MILES	Fecal Coliform	
Charles						
Alder Brook	MA72-22	Headwaters, perennial portion northwest of the Route 135 and South Street intersection, Needham to mouth at confluence with the Charles River, Needham.	0.3	MILES	Aquatic Macroinvertebrate Bioassessments	
					Nutrient/Eutrophication Biological Indicators	40317
Beaver Brook	MA72-12	Headwaters, outlet Beaver Pond, Bellingham to mouth at confluence with the Charles River, Bellingham.	1.4	MILES	Escherichia coli	
Beaver Brook	MA72-28	Headwaters, perennial portion north of Route 2, Lexington to mouth at confluence with the Charles River, Waltham (one culverted portion approximately 2900 feet (0.55mile)).	5.5	MILES	(Non-Native Aquatic Plants*)	
					(Other anthropogenic substrate alterations*)	
					(Other flow regime alterations*)	
					Escherichia coli	32379
					Excess Algal Growth	40317
					Organic Enrichment (Sewage) Biological Indicators	40317
					Oxygen, Dissolved	40317
					Phosphorus (Total)	40317
					Sedimentation/Siltation	
Bulloughs Pond	MA72011	Newton.	7	ACRES	Excess Algal Growth	
					Nutrient/Eutrophication Biological Indicators	
Cambridge Reservoir, Upper Basin	MA72156	Lincoln/Lexington.	44	ACRES	Aquatic Plants (Macrophytes)	
					Turbidity	
Chandler Pond	MA72017	Boston.	11	ACRES	Excess Algal Growth	

* TMDL not required (Non-pollutant)

Category 5 waters listed alphabetically by major watershed
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WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT	EPA TMDL NO.
					Nutrient/Eutrophication Biological Indicators	
					Phosphorus (Total)	
					Secchi disk transparency	
Charles River	MA72-03	From Milford WWTF discharge (NPDES: MA0100579), Hopedale to outlet Box Pond (formerly segment MA72008), Bellingham.	3.4	MILES	DDT in Fish Tissue	
					Dissolved oxygen saturation	40317
					Escherichia coli	32365
					Excess Algal Growth	40317
					Organic Enrichment (Sewage) Biological Indicators	40317
					Phosphorus (Total)	40317
Charles River	MA72-04	From outlet Box Pond, Bellingham to inlet Populatic Pond, Norfolk/Medway (one culverted portion approximately 350 feet (0.07mile)).	11.5	MILES	(Other flow regime alterations*)	
					Chlordane in Fish Tissue	
					DDT in Fish Tissue	
					Escherichia coli	32366
					Fishes Bioassessments	
					Mercury in Fish Tissue	
Charles River	MA72-05	From outlet Populatic Pond, Norfolk/Medway to South Natick Dam (NATID: MA00341), Natick.	18.1	MILES	(Non-Native Aquatic Plants*)	
					Aquatic Macroinvertebrate Bioassessments	
					Chlordane in Fish Tissue	
					DDT in Fish Tissue	
					Dissolved oxygen saturation	40317
					Excess Algal Growth	40317
					Mercury in Fish Tissue	
					Nutrient/Eutrophication Biological Indicators	40317
					Oxygen, Dissolved	40317
					Phosphorus (Total)	40317
					Turbidity	40317
Charles River	MA72-06	From South Natick Dam (NATID: MA00341), Natick to Chestnut Street, Needham/Dover.	8.2	MILES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					(Non-Native Aquatic Plants*)	
					(Other flow regime alterations*)	
					DDT in Fish Tissue	
					Excess Algal Growth	40317
					Fishes Bioassessments	
					Nutrient/Eutrophication Biological Indicators	40317
					PCB in Fish Tissue	
					Phosphorus (Total)	40317
Charles River	MA72-07	From Chestnut Street, Needham/Dover to Watertown Dam (NATID: MA00456), Watertown.	24	MILES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	

* TMDL not required (Non-pollutant)

Category 5 waters listed alphabetically by major watershed
The 303(d) List – "Waters requiring a TMDL"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT	EPA TMDL NO.
					(Fish-Passage Barrier*)	
					(Non-Native Aquatic Plants*)	
					(Other flow regime alterations*)	
					DDT in Fish Tissue	
					Escherichia coli	32370
					Fishes Bioassessments	
					Harmful Algal Bloom	40317
					Nutrient/Eutrophication Biological Indicators	40317
					PCB in Fish Tissue	
					Phosphorus (Total)	40317
Charles River	MA72-36	From Watertown Dam (NATID: MA00456), Watertown to the Boston University Bridge, Boston/Cambridge (formerly part of segment MA72-08).	6.1	MILES	(Fish-Passage Barrier*)	
					(Non-Native Aquatic Plants*)	
					(Other flow regime alterations*)	
					Chlorophyll-a	33826
					DDT in Fish Tissue	
					Escherichia coli	32371
					Fishes Bioassessments	
					Harmful Algal Bloom	33826
					Nutrient/Eutrophication Biological Indicators	33826
					Oil and Grease	
					Other (Unspecified Metals)	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					pH, High	
					Phosphorus (Total)	33826
					Secchi disk transparency	33826
					Sediment Bioassays – Acute Toxicity Freshwater	
Charles River	MA72-38	From Boston University Bridge, Boston/Cambridge to mouth at the New Charles River Dam (NATID: MA01092), Boston (formerly part of segment MA72-08).	3.1	MILES	(Other flow regime alterations*)	
					Chlorophyll-a	33826
					Combined Biota/Habitat Bioassessments	
					DDT in Fish Tissue	
					Dissolved oxygen saturation	33826
					Escherichia coli	32371
					Harmful Algal Bloom	33826
					Nutrient/Eutrophication Biological Indicators	33826
					Oil and Grease	
					Oxygen, Dissolved	

* TMDL not required (Non-pollutant)

Category 5 waters listed alphabetically by major watershed
The 303(d) List – "Waters requiring a TMDL"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT	EPA TMDL NO.
					PCB in Fish Tissue	
					Phosphorus (Total)	33826
					Salinity	
					Secchi disk transparency	33826
					Sediment Screening Value (Exceedence)	
					Taste and Odor	33826
					Temperature, water	
Chicken Brook	MA72-34	Source, outlet Waseeka Sanctuary Pond, Holliston to mouth at confluence with the Charles River, Medway.	7.4	MILES	Escherichia coli	
Crystal Lake	MA72030	Newton.	27	ACRES	Harmful Algal Bloom	
Fuller Brook	MA72-18	Headwater south of Route 135, Needham to mouth at confluence with Waban Brook, Wellesley (one culverted portion approximately 360 feet (0.07mile)).	4.3	MILES	(Physical substrate habitat alterations*)	
					Escherichia coli	32374
					Nutrient/Eutrophication Biological Indicators	40317
					Sedimentation/Siltation	
Hopping Brook	MA72-35	Source in Cedar Swamp, Holliston to mouth at confluence with the Charles River, Bellingham/Medway.	4.9	MILES	Escherichia coli	
Jamaica Pond	MA72052	Boston.	67	ACRES	Oxygen, Dissolved	
					Phosphorus (Total)	
Kendrick Street Pond	MA72055	Needham.	39	ACRES	Turbidity	
Lake Winthrop	MA72140	Holliston.	131	ACRES	(Non-Native Aquatic Plants*)	
					2,3,7,8-Tetrachlorodibenzo-p-dioxin (only)	
					Aquatic Plants (Macrophytes)	40319
Mill River	MA72-15	Headwaters, outlet Bush Pond, Norfolk to mouth at confluence with the Charles River, Norfolk.	3.5	MILES	Temperature, water	
Mine Brook	MA72-14	Headwaters in Franklin State Forest, Franklin to mouth at confluence with the Charles River, Franklin (through Mine Brook Pond, formerly MA72077) (HQW applies upstream of former Franklin WWTP discharge, approximately 4 miles upstream of mouth (note: Franklin WWTP tied into Medway (CRWPCD) on 15 January 1980)).	8.9	MILES	(Habitat Assessment (Streams)*)	
					Escherichia coli	
					Temperature, water	
Muddy River	MA72-11	Headwaters, outlet Ward Pond in Olmstead Park, Boston through Leverett Pond, Boston/Brookline to confluence with Charles River, Boston (four culverted portions totaling approximately 2200 feet (0.42mile)).	3.6	MILES	(Bottom Deposits*)	
					(Non-Native Aquatic Plants*)	
					(Other flow regime alterations*)	
					(Physical substrate habitat alterations*)	
					DDT in Fish Tissue	
					Escherichia coli	32383
					Oil and Grease	

* TMDL not required (Non-pollutant)

Category 5 waters listed alphabetically by major watershed
The 303(d) List – "Waters requiring a TMDL"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT	EPA TMDL NO.
Unnamed Tributary	MA72-30	Locally known as "Laundry Brook" - emerges north of California Street, Watertown to mouth at confluence with the Charles River, Watertown (stream not depicted on 1987 Newton USGS map).	0.02	MILES	(Physical substrate habitat alterations*)	
					Enterococcus	32381
					Escherichia coli	32381
					Phosphorus (Total)	
					Taste and Odor	
					Total Suspended Solids (TSS)	
					Turbidity	
Unnamed Tributary	MA72-31	Locally known as "Millers River" - from emergence near Route 93, Cambridge/Boston to mouth at confluence with the Charles River, Cambridge.	0.2	MILES	(Bottom Deposits*)	
					(Debris/Floatables/Trash*)	
					(Habitat Assessment (Streams)*)	
					Foam/Flocs/Scum/Oil Slicks	
					Other (Unspecified Metals)	
					Petroleum Hydrocarbons	
					Polychlorinated biphenyls	
					Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)	
					Sedimentation/Siltation	
					Taste and Odor	
					Turbidity	
Unnamed Tributary	MA72-41	Unnamed tributary to the Charles River, outlet Lymans Pond, Dover to mouth at confluence with the Charles River, Dover.	0.5	MILES	Escherichia coli	
Unnamed Tributary	MA72-43	Unnamed tributary to Morses Pond, headwaters outlet Reeds Pond, Wellesley to mouth at confluence with Morses Pond, Wellesley.	0.2	MILES	Escherichia coli	
Waban Brook	MA72-17	Headwaters, outlet Lake Waban, Wellesley to mouth at confluence with the Charles River, Wellesley.	0.7	MILES	Temperature, water	
Chicopee						
Abbey Brook	MA36-40	Headwaters west of Saint James Avenue, Springfield through Bemis Pond (formely reported as segment MA36011) to mouth at confluence with the Chicopee River, Chicopee.	1.5	MILES	Escherichia coli	
					Total Suspended Solids (TSS)	
Alden Pond	MA36003	Ludlow.	4	ACRES	Nutrient/Eutrophication Biological Indicators	
Brookhaven Lake	MA36021	West Brookfield.	34	ACRES	Turbidity	
Browning Pond	MA36025	Oakham/Spencer.	106	ACRES	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	
					Nutrient/Eutrophication Biological Indicators	3626
Chicopee Brook	MA36-21	Headwaters, east of Peaked Mountain, Monson (through Chicopee Brook Pond, formerly segment MA36031) to mouth at confluence with Quaboag River, Monson.	9.9	MILES	Escherichia coli	
Chicopee River	MA36-22	Source, confluence of Ware River and Quaboag River, Palmer	2.8	MILES	Escherichia coli	

* TMDL not required (Non-pollutant)

Category 5 waters listed alphabetically by major watershed
The 303(d) List – "Waters requiring a TMDL"

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT	EPA TMDL NO.
		(through Red Bridge Impoundment formerly segment MA36171) to Red Bridge Impoundment Dam (NATID: MA00723), Wilbraham/Ludlow.			Mercury in Fish Tissue	
Chicopee River	MA36-24	Wilbraham Pumping Station (old WWTP), Wilbraham/Ludlow to Chicopee Falls Dam (NATID: MA00719), Chicopee.	8.8	MILES	Escherichia coli	
					Fecal Coliform	
Chicopee River	MA36-25	Chicopee Falls Dam (NATID: MA00719), Chicopee to mouth at confluence with Connecticut River, Chicopee.	3	MILES	Escherichia coli	
DANFORTH BROOK	MA36-50	Headwaters, east of Charity Road, Hardwick to mouth at confluence with Ware River, Hardwick.	5.8	MILES	Escherichia coli	
Dean Pond	MA36050	Oakham.	64	ACRES	Excess Algal Growth	
					Turbidity	
Doane Pond	MA36054	North Brookfield.	28	ACRES	Aquatic Plants (Macrophytes)	
Eames Pond	MA36056	Paxton.	58	ACRES	Oxygen, Dissolved	
East Branch Ware River	MA36-01	Headwaters, outlet Bickford Pond, Hubbardston to mouth at confluence with West Branch Ware River (forming headwaters of Ware River), Barre.	12.4	MILES	Oxygen, Dissolved	
East Brookfield River	MA36-13	Headwaters, outlet Lake Lashaway, East Brookfield to mouth at inlet Quaboag Pond, East Brookfield.	2.4	MILES	(Non-Native Aquatic Plants*)	
					Oxygen, Dissolved	
Forget-Me-Not Brook	MA36-18	Headwaters, North Brookfield to North Brookfield WWTP discharge (NPDES: MA0101061), North Brookfield.	1.2	MILES	Escherichia coli	
Forget-Me-Not Brook	MA36-28	North Brookfield WWTP discharge (NPDES: MA0101061), North Brookfield to mouth at confluence with Dunn Brook, East Brookfield/Brookfield.	1.3	MILES	Aquatic Macroinvertebrate Bioassessments	
					Whole Effluent Toxicity (WET)	
Fuller Brook	MA36-41	From the Ludlow/Chicopee corporate boundary where the stream name changes from Higher Brook, to mouth at confluence with the Chicopee River, Chicopee.	1.9	MILES	Escherichia coli	
Lake Lorraine	MA36084	Springfield.	28	ACRES	(Non-Native Aquatic Plants*)	
					Enterococcus	
Lake Whittemore	MA36165	Spencer.	52	ACRES	Turbidity	
Prince River	MA36-08	Headwaters, outlet Hemingway Pond, Barre to mouth at confluence with Ware River, Barre (excluding approximately 0.6 miles through Old Reservoir, segment MA36114).	7.1	MILES	Escherichia coli	
Quaboag Pond	MA36130	Brookfield/East Brookfield.	544	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					(Non-Native Aquatic Plants*)	
					Excess Algal Growth	33846
					Mercury in Fish Tissue	
					Phosphorus (Total)	33846
Quaboag River	MA36-15	Route 67 bridge, West Brookfield to Warren WWTP discharge (NPDES: MA0101567), Warren.	6.2	MILES	Escherichia coli	
Quaboag River	MA36-16	Warren WWTP discharge (NPDES: MA0101567), Warren to Route 32 bridge, Palmer/Monson.	8.7	MILES	Escherichia coli	
					Fecal Coliform	
Quaboag River	MA36-17	Route 32 bridge, Palmer/Monson to mouth at confluence with Ware River (forming headwaters of Chicopee River), Palmer.	5.3	MILES	Escherichia coli	

* TMDL not required (Non-pollutant)

Appendix 1
Assessment units and integrated list categories presented alphabetically by major watershed

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	CATEGORY
Town Cove	MA96-68	Entire cove, Orleans/Eastham (including Rachael Cove and Woods Cove, Orleans) outlet to Nauset Harbor, Orleans (area within Cape Cod National Seashore designated as ORW).	0.79	SQUARE MILES	5
Uncle Harvey Pond	MA96319	Orleans.	6	ACRES	5
Unnamed Tributary	MA96-100	Unnamed tributary to Halls Creek, Barnstable from headwaters south of the intersection of Old Craigville and Old Town roads, Barnstable to confluene with tidal portion just south of Craigville Beach Road, Barnstable.	0.5	MILES	5
Unnamed Tributary	MA96-104	Unnamed tributary to Freemans Pond, Brewster from outlet of channelized wetland south of Lower Road, Brewster to mouth at inlet Freemans Pond, Brewster.	0.6	MILES	5
Unnamed Tributary	MA96-105	Unnamed tributary to Herring River, headwaters outlet Walkers Pond, Harwich to outlet channelized wetland south of Great Western Road, Harwich.	3.3	MILES	2
Unnamed Tributary	MA96-108	Unnamed tributary to Herring River, headwaters outlet Perch Pond, Wellfleet to mouth at confluence with Herring River, Wellfleet (area within Cape Cod National Seashore designated as ORW).	2	MILES	5
Unnamed Tributary	MA96-97	Unnamed tributary to Hyannis Inner Harbor (referred to in TMDL as Inner Harbor Creek), from salt water portion north of Park Avenue, Yarmouth to mouth at inlet Hyannis Inner Harbor, Yarmouth.	0.001	SQUARE MILES	5
Upper Mill Pond	MA96324	Brewster.	249	ACRES	2
Upper Shawme Lake	MA96326	Sandwich.	21	ACRES	5
Village Pond	MA96329	Truro.	2	ACRES	3
Wakeby Pond	MA96346	Mashpee/Sandwich.	353	ACRES	4A
Walkers Pond	MA96331	Brewster.	100	ACRES	5
Waquoit Bay	MA96-21	From mouths of Seapit River, Quashnet River (also known as Moonakis River), Falmouth and Great River, Mashpee to inlet of Vineyard Sound, Falmouth/Mashpee.	1.43	SQUARE MILES	5
Wellfleet Harbor	MA96-34	The waters north of an imaginary line drawn east from the southern tip of Jeremy Point, Wellfleet to Sunken Meadow, Eastham excluding the estuaries of Herring River, Duck Creek, Blackfish Creek, and Fresh Brook, Wellfleet (area within Cape Cod National Seashore designated as ORW).	8.4	SQUARE MILES	2
Wequaquet Lake	MA96333	Barnstable.	576	ACRES	4A
West Bay	MA96-65	From south of the Bridge Street bridge, Barnstable outlet to Nantucket Sound including Eel River, Barnstable (excludes Seapuit River).	0.52	SQUARE MILES	4A
WHITES BROOK	MA96-102	Headwaters in channelized wetland south of Route 6A, Yarmouth to confluence with tidal portion north of Route 6A, Yarmouth.	0.3	MILES	5
Wychmere Harbor	MA96-96	south of Route 28, Harwich outlet to Nantucket Sound, Harwich.	0.02	SQUARE MILES	5
Charles					
Alder Brook	MA72-22	Headwaters, perennial portion northwest of the Route 135 and South Street intersection, Needham to mouth at confluence with the Charles River, Needham.	0.3	MILES	5
Beaver Brook	MA72-12	Headwaters, outlet Beaver Pond, Bellingham to mouth at confluence with the Charles River, Bellingham.	1.4	MILES	5

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WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	CATEGORY
Factory Pond	MA72037	Holliston.	10	ACRES	4A
Farm Pond	MA72039	Sherborn.	125	ACRES	3
Franklin Reservoir Northeast	MA72095	Franklin.	21	ACRES	4A
Franklin Reservoir Southwest	MA72032	Franklin.	13	ACRES	4A
Fuller Brook	MA72-18	Headwater south of Route 135, Needham to mouth at confluence with Waban Brook, Wellesley (one culverted portion approximately 360 feet (0.07mile)).	4.3	MILES	5
Halls Pond	MA72043	Brookline.	0.6	ACRES	3
Hammond Pond	MA72044	Newton.	22	ACRES	2
Hardys Pond	MA72045	Waltham.	43	ACRES	4A
Hopping Brook	MA72-35	Source in Cedar Swamp, Holliston to mouth at confluence with the Charles River, Bellingham/Medway.	4.9	MILES	5
Houghton Pond	MA72050	Holliston.	17	ACRES	4A
Jamaica Pond	MA72052	Boston.	67	ACRES	5
Jennings Pond	MA72053	Natick.	7	ACRES	3
Kendrick Street Pond	MA72055	Needham.	39	ACRES	5
Kingsbury Pond	MA72056	Norfolk.	15	ACRES	4C
Lake Archer	MA72002	Wrentham.	77	ACRES	4C
Lake Pearl	MA72092	Wrentham.	237	ACRES	4A
Lake Waban	MA72125	Wellesley.	109	ACRES	4C
Lake Winthrop	MA72140	Holliston.	131	ACRES	5
Linden Pond	MA72063	Holliston.	1	ACRES	4A
Little Farm Pond	MA72064	Sherborn.	24	ACRES	3
Louisa Lake	MA72068	Milford.	8	ACRES	3
Lymans Pond	MA72070	Dover.	4	ACRES	4A
MILL BROOK	MA72-39	Source wetlands, Pine Street, Medfield to mouth at confluence with the Charles River, Medfield.	3.7	MILES	2
Mill River	MA72-15	Headwaters, outlet Bush Pond, Norfolk to mouth at confluence with the Charles River, Norfolk.	3.5	MILES	5
Mine Brook	MA72-14	Headwaters in Franklin State Forest, Franklin to mouth at confluence with the Charles River, Franklin (through Mine Brook Pond, formerly MA72077) (HQW applies upstream of former Franklin WWTP discharge, approximately 4 miles upstream of mouth (note: Franklin WWTP tied into Medway (CRWPCD) on 15 January 1980)).	8.9	MILES	5
Mirror Lake	MA72078	Wrentham/Norfolk.	62	ACRES	4A
Morses Pond	MA72079	Wellesley/Natick.	112	ACRES	4C
Muddy River	MA72-11	Headwaters, outlet Ward Pond in Olmstead Park, Boston through Leverett Pond, Boston/Brookline to confluence with Charles River, Boston (four culverted portions totaling approximately 2200 feet (0.42mile)).	3.6	MILES	5
Noannet Pond	MA72084	Westwood/Dover.	50	ACRES	4C
Nonesuch Pond	MA72085	Natick/Weston.	39	ACRES	4C
Norumbega Reservoir	MA72086	[North Basin] Weston.	14	ACRES	3
Norumbega Reservoir	MA72087	[South Basin] Weston.	38	ACRES	3
Populatic Pond	MA72096	Norfolk.	42	ACRES	5

Appendix 1
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WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	CATEGORY
Powissett Brook	MA72-20	Headwaters, outlet Noannet Pond, Westwood to mouth at confluence with the Charles River, Dover.	1.9	MILES	5
Rock Meadow Brook	MA72-21	Headwaters, Fisher Meadow, Westwood to mouth at confluence with the Charles River, Dedham.	3.8	MILES	5
Rosemary Brook	MA72-25	Headwaters, outlet Rosemary Lake, Needham to mouth at confluence with the Charles River, Wellesley.	3.3	MILES	4A
Sandy Pond	MA72105	Lincoln.	157	ACRES	3
Sawmill Brook	MA72-23	Headwaters, Newton to mouth at confluence with the Charles River, Boston.	2.4	MILES	5
Scarboro Golf Course Pond	MA72107	Boston.	6	ACRES	4C
SEAVERNS BROOK	MA72-44	Headwaters outlet Norumbega Reservoir, Weston to mouth at confluence with the Charles River, Weston.	1.6	MILES	5
South End Pond	MA72109	Millis.	30	ACRES	3
South Meadow Brook	MA72-24	From emergence west of Parker Street, Newton to mouth at confluence with the Charles River, Newton (three culverted portions totaling approximately 2870 feet (0.54mile)).	1.7	MILES	4A
Stony Brook	MA72-26	Headwaters, outlet Beaver Pond, Lincoln to mouth at inlet Stony Brook Reservoir, Waltham/Weston.	5.1	MILES	2
Stony Brook	MA72-37	Headwaters, outlet Turtle Pond, Boston to culvert entrance, Boston (two culverted portions totaling approximately 740 feet (0.14mile)).	1.6	MILES	3
Stony Brook Reservoir	MA72114	Waltham/Weston.	64	ACRES	3
Stop River	MA72-09	Headwaters south of Route 1A, Wrentham to Norfolk-Walpole MCI discharge (NPDES: MA0102253), Norfolk (through Highland Lake formerly MA72047).	4.9	MILES	5
Stop River	MA72-10	From Norfolk-Walpole MCI discharge, Norfolk to confluence with Charles River, Medfield.	4.2	MILES	5
Todd Pond	MA72117	Lincoln.	9	ACRES	3
Trout Brook	MA72-19	Headwaters, outlet Channings Pond, Dover to mouth at confluence with the Charles River, Dover.	2.8	MILES	5
Uncas Pond	MA72122	Franklin.	17	ACRES	4A
Unnamed Tributary	MA72-27	Headwaters, outlet Stony Brook Reservoir, Waltham/Weston to mouth at confluence with the Charles River, Waltham/Weston.	0.2	MILES	4C
Unnamed Tributary	MA72-30	Locally known as "Laundry Brook" - emerges north of California Street, Watertown to mouth at confluence with the Charles River, Watertown (stream not depicted on 1987 Newton USGS map).	0.02	MILES	5
Unnamed Tributary	MA72-31	Locally known as "Millers River" - from emergence near Route 93, Cambridge/Boston to mouth at confluence with the Charles River, Cambridge.	0.2	MILES	5
Unnamed Tributary	MA72-32	Locally known as "Sawins Brook" - emerges east of Elm Street, Watertown to mouth at confluence with the Charles River, Watertown (one culverted portion approximately 360 feet (0.07mile)).	0.5	MILES	4A
Unnamed Tributary	MA72-41	Unnamed tributary to the Charles River, outlet Lymans Pond, Dover to mouth at confluence with the Charles River, Dover.	0.5	MILES	5
Unnamed Tributary	MA72-42	Unnamed tributary to the Charles River, from outlet unnamed pond north of South Street, Natick to mouth at confluence with the Charles River, Natick.	0.3	MILES	2

Appendix 1
Assessment units and integrated list categories presented alphabetically by major watershed

WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	CATEGORY
Unnamed Tributary	MA72-43	Unnamed tributary to Morses Pond, headwaters outlet Reeds Pond, Wellesley to mouth at confluence with Morses Pond, Wellesley.	0.2	MILES	5
Waban Brook	MA72-17	Headwaters, outlet Lake Waban, Wellesley to mouth at confluence with the Charles River, Wellesley.	0.7	MILES	5
Walker Pond	MA72126	Millis.	9	ACRES	3
Waseeka Sanctuary Pond	MA72155	Holliston.	17	ACRES	3
Weld Pond	MA72131	Dedham.	27	ACRES	2
Weston Reservoir	MA72134	Weston.	59	ACRES	3
Weston Station Pond	MA72135	Weston.	38	ACRES	3
Chicopee					
Abbey Brook	MA36-40	Headwaters west of Saint James Avenue, Springfield through Bemis Pond (formely reported as segment MA36011) to mouth at confluence with the Chicopee River, Chicopee.	1.5	MILES	5
Adams Pond	MA36001	Oakham.	30	ACRES	3
Alden Pond	MA36003	Ludlow.	4	ACRES	5
Asnacomet Pond	MA36005	Hubbardston.	126	ACRES	2
Atherton Brook	MA36-30	Headwaters, confluence Town Farm and Osgood brooks, Shutesbury to mouth at inlet Quabbin Reservoir, Pelham.	1.9	MILES	2
Beaver Lake	MA36010	Ware.	150	ACRES	4C
Bemis Road Pond	MA36012	Hubbardston.	16	ACRES	3
Bennett Street Pond	MA36014	Palmer.	6	ACRES	3
Bickford Pond	MA36015	Hubbardston/Princeton.	163	ACRES	3
BOTTLE BROOK	MA36-46	Headwaters, perennial portion, east of Dunhamtown Brimfield Road, Brimfield to mouth at confluence with Quaboag River, Brimfield.	2	MILES	2
Brigham Pond	MA36020	Hubbardston.	45	ACRES	3
Brookhaven Lake	MA36021	West Brookfield.	34	ACRES	5
Brooks Pond	MA36022	Petersham.	87	ACRES	3
Brooks Pond	MA36023	North Brookfield/New Braintree/Spencer/Oakham.	179	ACRES	4C
Browning Pond	MA36025	Oakham/Spencer.	106	ACRES	5
Burnshirt River	MA36-37	Headwaters, outlet Stone Bridge Pond, Templeton/Phillipston to mouth at confluence with Canesto Brook, Barre (through Williamsville Pond formerly segment MA36167).	8.6	MILES	2
Cadwell Creek	MA36-29	Headwaters east of Route 202 and northwest of Dodge Hill, Pelham to mouth at inlet Quabbin Reservoir, Belchertown.	3.2	MILES	2
Calkins Brook	MA36-26	Headwaters, perennial portion, southeast of Baptist Hill, Palmer to mouth at confluence with Twelvemile Brook, Wilbraham.	2.7	MILES	2
Canesto Brook	MA36-36	Headwaters, perennial portion, northwest of Hubbardston State Forest near Hubbardston/Templeton town line to mouth at confluence with Ware River, Barre.	7.3	MILES	3
Carter Pond	MA36029	Petersham.	44	ACRES	3
Chicopee Brook	MA36-21	Headwaters, east of Peaked Mountain, Monson (through Chicopee Brook Pond, formerly segment MA36031) to mouth at confluence with Quaboag River, Monson.	9.9	MILES	5
Chicopee Reservoir	MA36033	Chicopee.	22	ACRES	2

Appendix 1
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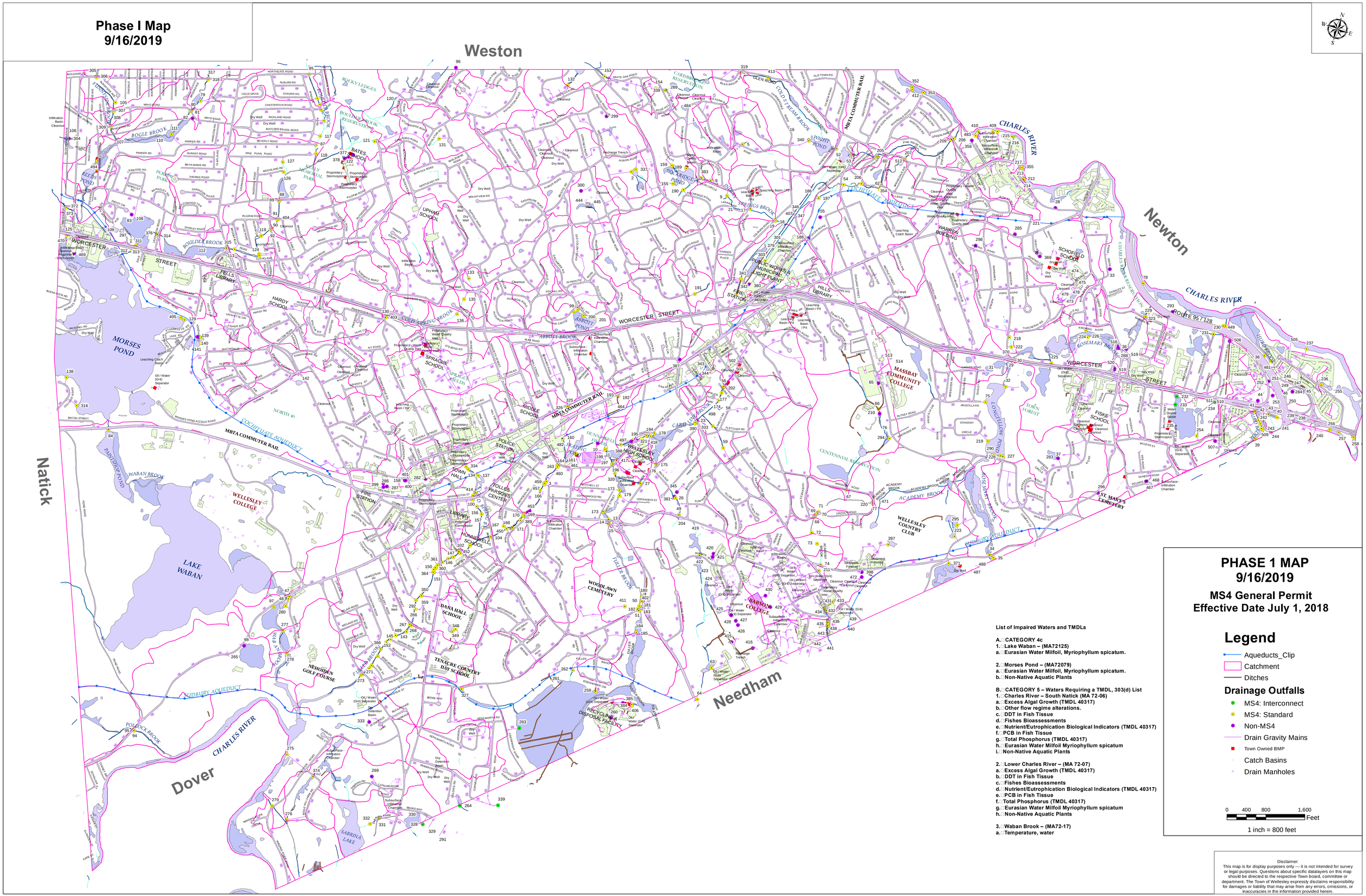
WATER BODY	SEGMENT ID	DESCRIPTION	SIZE	UNITS	CATEGORY
Fivemile Pond	MA36061	Springfield.	36	ACRES	3
Fivemile Pond South	MA36182	Springfield.	4	ACRES	3
Forest Lake	MA36063	Palmer.	45	ACRES	4C
Forget-Me-Not Brook	MA36-18	Headwaters, North Brookfield to North Brookfield WWTP discharge (NPDES: MA0101061), North Brookfield.	1.2	MILES	5
Forget-Me-Not Brook	MA36-28	North Brookfield WWTP discharge (NPDES: MA0101061), North Brookfield to mouth at confluence with Dunn Brook, East Brookfield/Brookfield.	1.3	MILES	5
Fuller Brook	MA36-41	From the Ludlow/Chicopee corporate boundary where the stream name changes from Higher Brook, to mouth at confluence with the Chicopee River, Chicopee.	1.9	MILES	5
Gaston Pond	MA36065	Barre.	15	ACRES	3
Hardwick Pond	MA36066	Hardwick.	67	ACRES	4C
Haviland Pond	MA36069	Ludlow.	25	ACRES	3
Higher Brook	MA36-42	Headwaters, perennial portion, south of Route 21, Ludlow through Harris Pond (formely reported as segment MA36067) to mouth at Ludlow/Chicopee corporate boundary where the stream name changes to Fuller Brook.	6.3	MILES	2
Hop Brook	MA36-32	Headwaters, perennial portion, upstream of West Street, New Salem to mouth at inlet Quabbin Reservoir, New Salem.	3.7	MILES	3
Horse Pond	MA36072	North Brookfield.	63	ACRES	3
JABISH BROOK	MA36-43	Headwaters, outlet Knights Pond, Belchertown to mouth at confluence with Swift River, Belchertown.	14	MILES	2
JOSLIN BROOK	MA36-44	Headwaters, outlet Lovewell Pond, Hubbardston to mouth at confluence with Mason Brook, Hubbardston.	3.3	MILES	2
KINGS BROOK	MA36-48	Headwaters, west of Saint John Street, Palmer to mouth at confluence with Quaboag River, Palmer.	3.3	MILES	2
Knights Pond	MA36077	Belchertown.	36	ACRES	3
Lake Lashaway	MA36079	North Brookfield/East Brookfield.	274	ACRES	4A
Lake Lorraine	MA36084	Springfield.	28	ACRES	5
Lake Whittemore	MA36165	Spencer.	52	ACRES	5
Long Pond	MA36082	Rutland.	167	ACRES	4C
Long Pond	MA36083	Springfield.	14	ACRES	4A
Lovewell Pond	MA36085	Hubbardston.	82	ACRES	3
Mare Meadow Reservoir	MA36090	Westminster/Hubbardston.	240	ACRES	3
Mare Meadow Reservoir North	MA36178	Westminster.	38	ACRES	3
Middle Branch Swift River	MA36-33	Headwaters just north of portions of Wendell and New Salem State Forests (south of the Swift River School), Wendell to mouth at inlet Quabbin Reservoir, New Salem.	6.9	MILES	3
Minechoag Pond	MA36093	Ludlow.	21	ACRES	4A
Mona Lake	MA36094	Springfield.	11	ACRES	4A
MOOSE BROOK	MA36-51	Headwaters, outlet small unnamed pond north of Route 32, Barre to mouth at confluence with Ware River, Hardwick.	8	MILES	2
Moose Hill Reservoir	MA36179	Spencer/Leicester.	52	ACRES	3
Moosehorn Pond	MA36097	Hubbardston.	67	ACRES	4C
Moulton Pond	MA36098	Rutland.	65	ACRES	3

Tab 13

Attachments

Phase I Map
9/16/2019



List of Impaired Waters and TMDLs

A. CATEGORY 4c
1. Lake Waban – (MA72125)
a. Eurasian Water Milfoil, Myriophyllum spicatum.

2. Morses Pond – (MA72079)
a. Eurasian Water Milfoil, Myriophyllum spicatum.
b. Non-Native Aquatic Plants

B. CATEGORY 5 – Waters Requiring a TMDL, 303(d) List
1. Charles River – South Natick (MA 72-06)
a. Excess Algal Growth (TMDL 40317)
b. Other flow regime alterations.
c. DDT in Fish Tissue
d. Fishes Bioassessments
e. Nutrient/Eutrophication Biological Indicators (TMDL 40317)
f. PCB in Fish Tissue
g. Total Phosphorus (TMDL 40317)
h. Eurasian Water Milfoil Myriophyllum spicatum
i. Non-Native Aquatic Plants

2. Lower Charles River – (MA 72-07)
a. Excess Algal Growth (TMDL 40317)
b. DDT in Fish Tissue
c. Fishes Bioassessments
d. Nutrient/Eutrophication Biological Indicators (TMDL 40317)
e. PCB in Fish Tissue
f. Total Phosphorus (TMDL 40317)
g. Eurasian Water Milfoil Myriophyllum spicatum
h. Non-Native Aquatic Plants

3. Waban Brook – (MA72-17)
a. Temperature, water

PHASE 1 MAP
9/16/2019

MS4 General Permit
Effective Date July 1, 2018

Legend

- Aqueducts_Clip
- Catchment
- Ditches

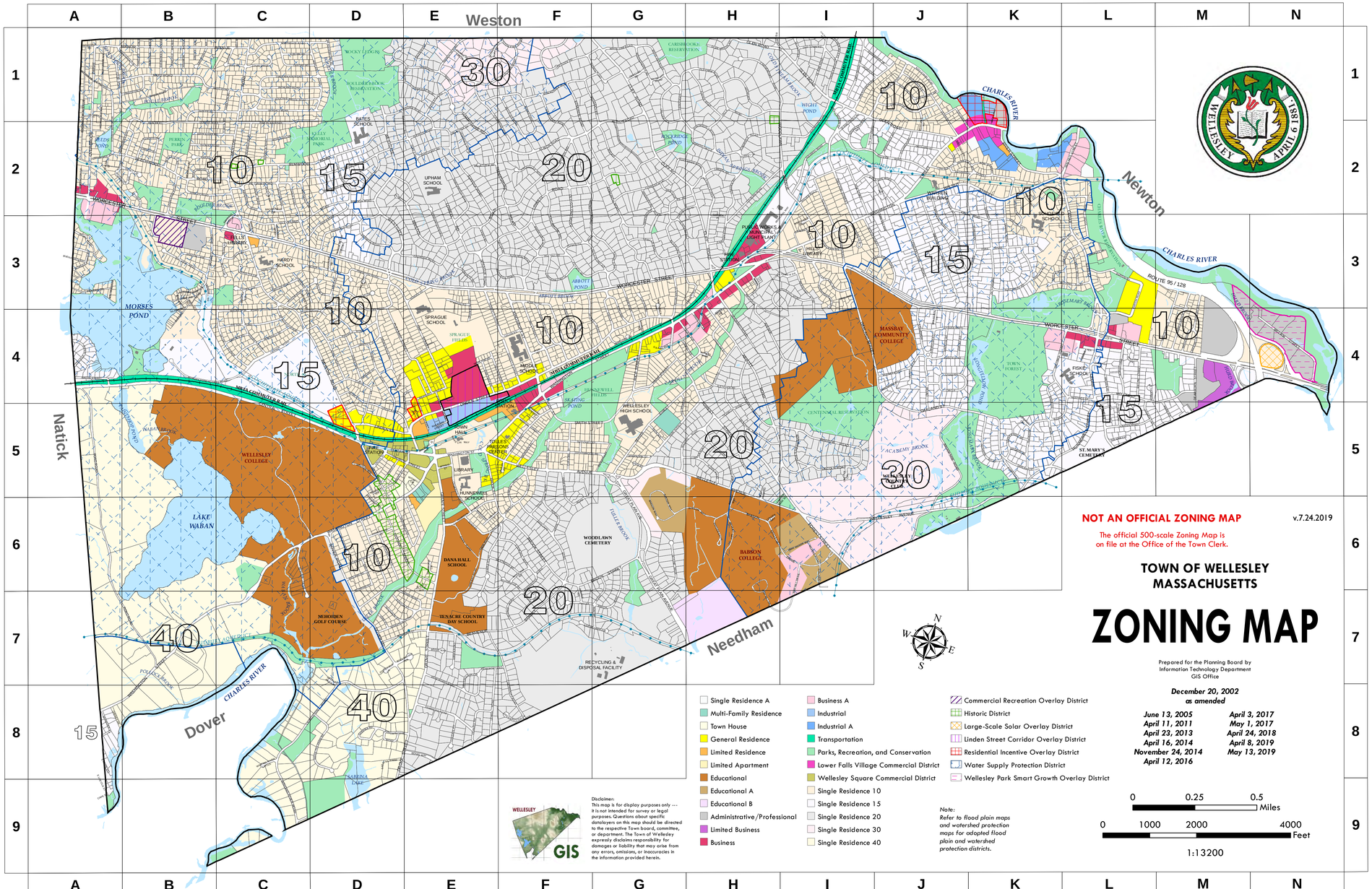
Drainage Outfalls

- MS4: Interconnect
- MS4: Standard
- Non-MS4
- Drain Gravity Mains
- Town Owned BMP
- Catch Basins
- Drain Manholes

0 400 800 1,600 Feet

1 inch = 800 feet

Disclaimer:
This map is for display purposes only --- it is not intended for survey or legal purposes. Questions about specific datalayers on this map should be directed to the respective Town board, committee or department. The Town of Wellesley expressly disclaims responsibility for damages or liability that may arise from any errors, omissions, or inaccuracies in the information provided herein.



NOT AN OFFICIAL ZONING MAP

The official 500-scale Zoning Map is on file at the Office of the Town Clerk.

v.7.24.2019

TOWN OF WELLESLEY
MASSACHUSETTS

ZONING MAP

Prepared for the Planning Board by
Information Technology Department
GIS Office

December 20, 2002
as amended

June 13, 2005
April 11, 2011
April 23, 2013
April 16, 2014
November 24, 2014
April 12, 2016
April 3, 2017
May 1, 2017
April 24, 2018
April 8, 2019
May 13, 2019

- Single Residence A
- Multi-Family Residence
- Town House
- General Residence
- Limited Residence
- Limited Apartment
- Educational
- Educational A
- Educational B
- Administrative/Professional
- Limited Business
- Business
- Business A
- Industrial
- Industrial A
- Transportation
- Parks, Recreation, and Conservation
- Lower Falls Village Commercial District
- Wellesley Square Commercial District
- Single Residence 10
- Single Residence 15
- Single Residence 20
- Single Residence 30
- Single Residence 40
- Commercial Recreation Overlay District
- Historic District
- Large-Scale Solar Overlay District
- Linden Street Corridor Overlay District
- Residential Incentive Overlay District
- Water Supply Protection District
- Wellesley Park Smart Growth Overlay District

Note:
Refer to flood plain maps and watershed protection maps for adopted flood plain and watershed protection districts.

0 0.25 0.5 Miles

0 1000 2000 4000 Feet

1:13200

WELLESLEY GIS

Disclaimer:
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A
ABBOTT ROAD....H3-I5
ABBOTT STREET....D5-E5
ABERDEEN ROAD....F5
ALBA ROAD....F3-F4
ALBION ROAD....E2-G2
ALDEN ROAD....H5
ALHAMBRA ROAD....G3
ALSEN ROAD....H3
AMHERST AVENUE....E2-C3
AMHERST ROAD....F3-F4
APPIAN DRIVE....F1-F2
APPLEBY ROAD....D6
ARDEN ROAD....E7
ARGYLE AVENUE....B1
ARLINGTON ROAD....H4-I5
ARNOLD ROAD....F2-G3
ASHMONT ROAD....L4-L5
ATWOOD STREET....F5
AUBURN ROAD....C1-D1
AUDUBON ROAD....E3-F3
AVON ROAD....C4-D4
AYER ROAD....F4

B
BACON STREET....A4
BANCROFT ROAD....I3-J3
BARNSTABLE ROAD....F3
BARTON ROAD....L3-L4
BAY ROAD....B3
BAY STATE ROAD....I2-J2
BAY VIEW ROAD....B3
BEACH ROAD....B3-B4
BEARD WAY....D8-E8
BEEBE WAY....E7
BEECHWOOD ROAD....H2-C2
BELCHWOOD TERRACE....D6
BELL ROAD....D8
BELLEVUE ROAD....F1-F2
BEMIS ROAD....H3-H4
BENTON STREET....D7-E7
BENVENUE STREET....D7-F7
BERKELEY ROAD....B2
BERKSHIRE ROAD....H5
BERNARD ROAD....F3-F4
BETHEL ROAD....L3
BEVERLY ROAD....C1-D1
BIRCH ROAD....D6
BIRD HILL AVENUE....J2-J3
BLUEBIRD ROAD....L3
BOGGLINK ROAD....L3
BOULDER BROOK ROAD....C1-D1
BOULDER ROAD....A8
BOULDER ROAD EXTENSION....I1
BOULEVARD ROAD....J1
BOW STREET....K2
BOWDOIN ROAD....D2
BRADFORD ROAD....G3
BRADLEY AVENUE....C3-C4
BREWSTER ROAD....J4
BRISTOL ROAD....D2-F2
BROOK STREET....E5-G6
BROOKDALE AVENUE....B1
BROOKFIELD CIRCLE....C2
BROOKFIELD ROAD....C2
BROOKHAVEN ROAD....G2-H2
BROOKSIDE ROAD....D5-J6
BRYN MAWR ROAD....B2-C2
BUCKINGHAM TERRACE....D7-E7
BUCKNELL ROAD....D1-E2
BUENA VISTA ROAD....A3
BURKE LANE....L4
BURNETT LANE....L4

C
CALVIN ROAD....F4
CAMERON STREET....E5-E6
CAPE STREET....A9
CARISBROOKE ROAD....H1-I1
CARLTON ROAD....E6-F6
CAROLINE STREET....A4
CARTWRIGHT ROAD....E7-F8
CARVER ROAD....J4-K4
CAVANAGH ROAD....C2
CEDAR BROOK ROAD....A2
CEDAR STREET....K2-L5
CEDAR TERRACE....L4
CENTRAL STREET....A4-E5
CHAPEL PLACE....I3
CHARLES RIVER COURT....D7-D8
CHARLES STREET....L3
CHATHAM CIRCLE....K3
CHATHAM ROAD....A3-B8
CHESTERTON ROAD....G1-G2
CHESTNUT STREET....G2-H3
CHILTERN ROAD....F2
CHURCH STREET....D5-E5
CLAFLIN ROAD....C1-C2
CLARK ROAD....H5
CLEVELAND ROAD....C3-D3
CLIFF ROAD....F1-H3
CLIFFORD STREET....F5
CLIFTON ROAD....G3-G4
CLOCK TOWER DRIVE....H3-I3
CLOVELLY ROAD....H4
COLBURN ROAD....H2-I2
COLBY ROAD....A1
COLGATE ROAD....E8
COLLEGE ROAD....A4
COLUMBIA STREET....J1-K2
COMEAU STREET....K5
COMMONWEALTH PARK....J2
CORNELL ROAD....E8
COTTAGE STREET....D6-E6
COTTONWOOD ROAD....F5-G5
CRANMORE ROAD....E1-F2
CRESCENT STREET....J2
CREST ROAD....E5-E5
CRESTWOOD DRIVE....I1
CROSS STREET....D5
CROTON STREET....I1-I3
CROWN RIDGE ROAD....H4
CUNNINGHAM ROAD....I4
CURTIS STREET....D4-D5
CUSHING ROAD....E2-H2
CYPRESS ROAD....G2

D
DALE STREET....B2-B3
DARBIN ROAD....K2-K3
DANA ROAD....E6
DEAN ROAD....I1
DEARBORN STREET....M4-M5
DEERFIELD ROAD....E2
DELANSON CIRCLE....E5
DELL STREET....C1
DENNIS ROAD....I1-J1
DENTON ROAD....D6-E6
DEWING PATH....F7
DEXTER ROAD....F5
DINSMORE ROAD....G2
DONIZETTI STREET....E3-F4
DORSET LANE....C3-C4
DOVER ROAD....D6-E8
DUDLEY ROAD....J4
DUKES ROAD....E2
DUNEDIN ROAD....L5
DURANT ROAD....B2-C2
DUXBURY ROAD....M3-M4

E
EARLE ROAD....C2-C3
EATON COURT....H3
EDGE HILL ROAD....G1
EDGEMOOR AVENUE....A1-A2
EDGEMOOR CIRCLE....A2
EDGEMATER DRIVE....I1-J1
EDMUNDS ROAD....F1-G1
EISENHOWER CIRCLE....F7-G7
ELIOT STREET....E6
ELM STREET....I2-I3
ELMWOOD ROAD....C2-D2
EMERSON ROAD....K2-K4
ESSEX ROAD....E3
EVERETT STREET....E4-E5
EVERGREEN AVENUE....B1

F
FAIRBANKS AVENUE....J2-K3
FALMOUTH CIRCLE....E1
FALMOUTH ROAD....E1
FARM ROAD....E6
FELLS CIRCLE....I1
FELLS ROAD....B3-C3
FENMERE AVENUE....B1
FIFE ROAD....L5
FIRST AVENUE....L5
FISKE ROAD....C3-K3
FLETCHER ROAD....A4
FOREST STREET....G4-I6
FOX HILL ROAD....F3-G3
FRANKAR ROAD....G4-G5
FRANCIS ROAD....E3-E4
FRANKLIN ROAD....H4-H5
FROST CIRCLE....A2-B2
FULLER BROOK ROAD....F7-G7
FULLER ROAD....I2

G
GARDEN PLACE....H3
GARDEN ROAD....H2-H3
GARRISON ROAD....B2-C2
GERALDINE DRIVE....G4
GILSON ROAD....G3-H3
GLEN BROOK ROAD....K1
GLEN CROSS ROAD....I1-I2
GLEN ROAD....K1-J2
GRANITE STREET....G4
GRANT AVENUE....G4
GRANTLAND ROAD....I3
GRANTLAND ROAD EXTENSION....I3
GREAT PLAIN AVENUE....G5-H7
GREENHEDGE LANE....J4
GREENLAWN AVENUE....J1
GREENWOOD ROAD....E2-G3
GREYLOCK ROAD....F1
GROVE STREET....D8-E8

H
HALSEY AVENUE....C3-C4
HAMILTON ROAD....C1
HAMPDEN STREET....E6
HAMPSHIRE ROAD....E1-F3
HARDY ROAD....C3
HARRIS AVENUE....H3-M4
HARVARD STREET....D4
HASTINGS STREET....K4-L4
HAVEN ROAD....C3-D3
HAWTHORNE ROAD....G2-H2
HAYDEN PLACE....L4
HECKLE STREET....I3-J3
HEWINS FARM ROAD....H5-H6
HICKORY ROAD....C3-D3
HIGH RIDGE AVENUE....A1-A2
HIGH MEADOW CIRCLE....D4
HIGHGATE ROAD....E4
HIGHLAND ROAD....E4
HILL TOP ROAD....E4-F4
HILLCROFT ROAD....K1
HILLSIDE ROAD....I2-J2
HOBART ROAD....F6
HODGES AVENUE....C4
HOLLIS STREET....E4-E5
HOMESTEAD ROAD....D6
HOPKINSON STREET....G5
HOWE STREET....D4-D5
HUNDREDS CIRCLE....H2
HUNDREDS ROAD....H2-I2
HUNNEWELL STREET....K5-L5
HUNTING CIRCLE....K3
HUNTING STREET....K2-K3

I
INDIAN SPRINGS WAY....I1-I2
INGERSOLL ROAD....C2
INGLESIDE ROAD....A1
INGRAHAM ROAD....D7-E7
INTERVALE ROAD....I1
INVERNESS ROAD....I5
IVY CIRCLE....D4
IVY ROAD....D3-D4

J
JACKSON ROAD....K5
JEFFERSON ROAD....K5
JUNIPER ROAD....F6-F7

K
KENDALL ROAD....B3
KENILWORTH CIRCLE....E7-E8
KENILWORTH ROAD....E7-F7
KIMLO ROAD....G3-H3
KINGSBURY STREET....F3-F4
KIPLING ROAD....J2-K3
KIRKLAND CIRCLE....G3-G4

L
LAFAYETTE CIRCLE....C3
LAKE ROAD....B3
LAMARK ROAD....H2
LANTERN LANE....M4
LARCH ROAD....D3
LATHROP ROAD....F7
LAUREL AVENUE....G4-H4
LAUREL TERRACE....G4-H4
LAWRENCE ROAD....C3-D3
LEDGEWAYS....G1-H2
LEDGEWOOD STREET....G1-H2
LEEWOOD ROAD....H2-I2
LEHIGH ROAD....E7-E8
LEIGHTON ROAD....D6-D7
LEXINGTON ROAD....B2
LILAC CIRCLE....D3
LINCOLN CIRCLE....I5
LINCOLN ROAD....I5
LINDEN STREET....D5-G4
LINWOOD ROAD....D2
LIVERMORE ROAD....H4-H5
LIVINGSTON ROAD....C8-D8
LOCUST ROAD....I1
LONGFELLOW ROAD....J2-J3
LONGMEADOW ROAD....D8-E8
LOUIS DRIVE....C1
LOVEWELL ROAD....D5-D6
LOWELL ROAD....E2-G2

M
MACARTHUR ROAD....C3-C4
MADISON ROAD....K4-K5
MAHOR AVENUE....A1-C1
MANSFIELD ROAD....D3
MAPLE ROAD....M4
MARIGOLD AVENUE....B1
MARSHALL ROAD....G4
MARTIN ROAD....C2-C3
MASSASOIT ROAD....F5-F6
MASSASOIT ROAD....G2-I2
MAUGUS AVENUE....G2-I4
MAUGUS HILL ROAD....H3-I4
MAURICE ROAD....D4
MAYO ROAD....K1-C1
MCLAREN ROAD....B3
MCLEAN STREET....L4-M4
MEADOW LANE....B2
MEADOWBROOK ROAD....D1
MELLON ROAD....C3
MICA LANE....K1-K2
MIDDLESEX STREET....E6
MIDLAND ROAD....D6
MINUTEMAN LANE....M4
MONADNOCK ROAD....E1-G1
MONROE ROAD....K5
MONTVALE ROAD....I1-J2
MORRILL CIRCLE....C3
MORSES POND ACCESS ROAD....B4-C4
MORSES POND ROAD....A3
MORTON STREET....H2-K2
MOUNTVIEW ROAD....E2
MULHERIN LANE....J4
MUNICIPAL WAY....H3-I3

N
NANTUCKET ROAD....E2
NORSCOT ROAD....B2
NORFOLK TERRACE....B5
NORTHGATE ROAD....C1-D1
NORWICH ROAD....D2-D3

O
OAK STREET....D3-E4
OAKCLIFF ROAD....G1
OAKDALE AVENUE....B1
OAKENCROFT ROAD....D5-E5
OAKLAND CIRCLE....I3-I4
OAKLAND STREET....I3-L5
OAKRIDGE ROAD....D3-E3
OLD COLONY ROAD....F2-G3
OLD FARM ROAD....G1-H1
OLD TOWN ROAD....I1
ORCHARD STREET....G2
ORDWAY ROAD....H5
ORIOLE ROAD....K3-L3
OTTAWAY CIRCLE....B2
OVERBROOK DRIVE....A1-A2
OX BOW ROAD....I1
OXFORD ROAD....C1-D1

P
PAINE STREET....G4
PARK AVENUE....G5-H5
PARKER ROAD....B1-C1
PARKSIDE ROAD....I1
PATTON ROAD....C4
PECK AVENUE....G5
PEIRCE ROAD....F1-G1
PEMBROKE ROAD....E8
PICKEREL ROAD....A3
PICKEREL TERRACE....A3
PILGRIM CIRCLE....C2
PILGRIM ROAD....C2-D2
PINE PLAIN ROAD....C1-D1

P (cont'd)
PINE RIDGE ROAD....J1
PINE STREET....I2-I3
PINE TREE ROAD....E4
PINEVALE AVENUE....B1
PINEWOOD CIRCLE....D3
PINEWOOD ROAD....D3
PLEASANT STREET....D5-E4
PLYMOUTH ROAD....F3-G3
POND ROAD....A4
POND ROAD....A4-B2
POPLAR ROAD....G2-D4
PRESCOTT STREET....H4
PRINCETON ROAD....A1-B1
PRISCILLA CIRCLE....J4
PRISCILLA ROAD....J4
PROSPECT STREET....J2-K2
PUTNEY ROAD....J4

R
RADCLIFFE ROAD....F6
RAILROAD AVENUE....E5
RAILROAD STREET....E5
RAVINE ROAD....H1
REDWING ROAD....K3-L3
REGIS ROAD....J2
RICE STREET....G4-G5
RICHLAND ROAD....C1-D1
RIDGE HILL FARM ROAD....D8
RIDGEWAY ROAD....H1-I1
RIVER GLEN ROAD....I1-J1
RIVER RIDGE....I2-L1-L3
RIVER STREET....K2
RIVERDALE ROAD....E1-I1
ROANOKE ROAD....D6-D7
ROBERTS ROAD....E3
ROCKLEDGE STREET....G3-G4
ROCKRIDGE ROAD....G2-G2
ROUTE 128....L2-M4
ROYALSTON ROAD....E1-F1
RUSSELL ROAD....B3-B4
RUTGERS ROAD....D2

S
SABRINA FARM....D8
SABRINA ROAD....D8
SAGAMORE ROAD....F2-F3
SALEM ROAD....E1
SAUNDERS TERRACE....I3
SAWYER PARK ROAD....H6-I6
SAWYER ROAD....G3
SCHALLER STREET....K3
SCHOOL STREET....E3
SCOTCH PINE CIRCLE....E1-F1
SCOTCH PINE ROAD....F1
SEAVER STREET....G4-H4
SEAWARD ROAD....H3-H4
SERVICE DRIVE....C6-C7
SERVICE ROAD....C3
SESSIONS STREET....F5
SHADOW LANE....B3
SHAW ROAD....E3-G4
SHEEHAN CIRCLE....I1
SHELBURNE ROAD....E2
SHERIDAN ROAD....E2
SHERIDAN CIRCLE....K5
SHERIDAN ROAD....K5-L5
SHIRLEY ROAD....B2-C2
SHORE ROAD....A3
SIMPSON ROAD....C4
SKYLINE DRIVE....G6-G7
SMITH STREET....F5-G5
SOLON STREET....E6-F6
SOUTH LINCOLN STREET....A9
SOUTH RIVER STREET....A8
SOUTH WOODSIDE AVENUE....A2-B2
SOUTHGATE ROAD....F5-F6
SOUTHWICK CIRCLE....G3-G4
SPRAGUE ROAD....G3
SPRING STREET....E5
SPRINGDALE AVENUE....J2
SPRUCE PARK....H4
SQUIRREL ROAD....I2
STANDISH CIRCLE....J4
STANDISH ROAD....J3-J5
STANFORD ROAD....D1-E2
STATE STREET....F4-F5
STEARNS ROAD....E3
STERLING ROAD....E6-F6
STEVENS STREET....A2
STONECLEAVE ROAD....B3
STONEFIELD LANE....D7
STONEHEDGE ROAD....D3-G4
STURBRIDGE ROAD....D1-E1
SUFFOLK ROAD....E2
SUFFOLK ROAD....D2-E2
SUMMIT ROAD....D4-D5
SUMNER ROAD....G5-H5
SUNNYSIDE AVENUE....A1-B1
SUNSET ROAD....D4
SURREY LANE....H2
SWARTHMORE ROAD....F2-G5
SYLVAN ROAD....J2
SYLVESTER TERRACE....G4

T
TANGLEWOOD ROAD....E2-E3
TAPPAN ROAD....D6-E7
TAYLOR ROAD....F3
TEMPLE ROAD....E6-F6
TENNYSON ROAD....I2-J3
THACKERAY ROAD....K3
THOMAS ROAD....B2-C2
TRINITY COURT....D2-E2
TURNER ROAD....E1
TWITCHELL STREET....F5-G5

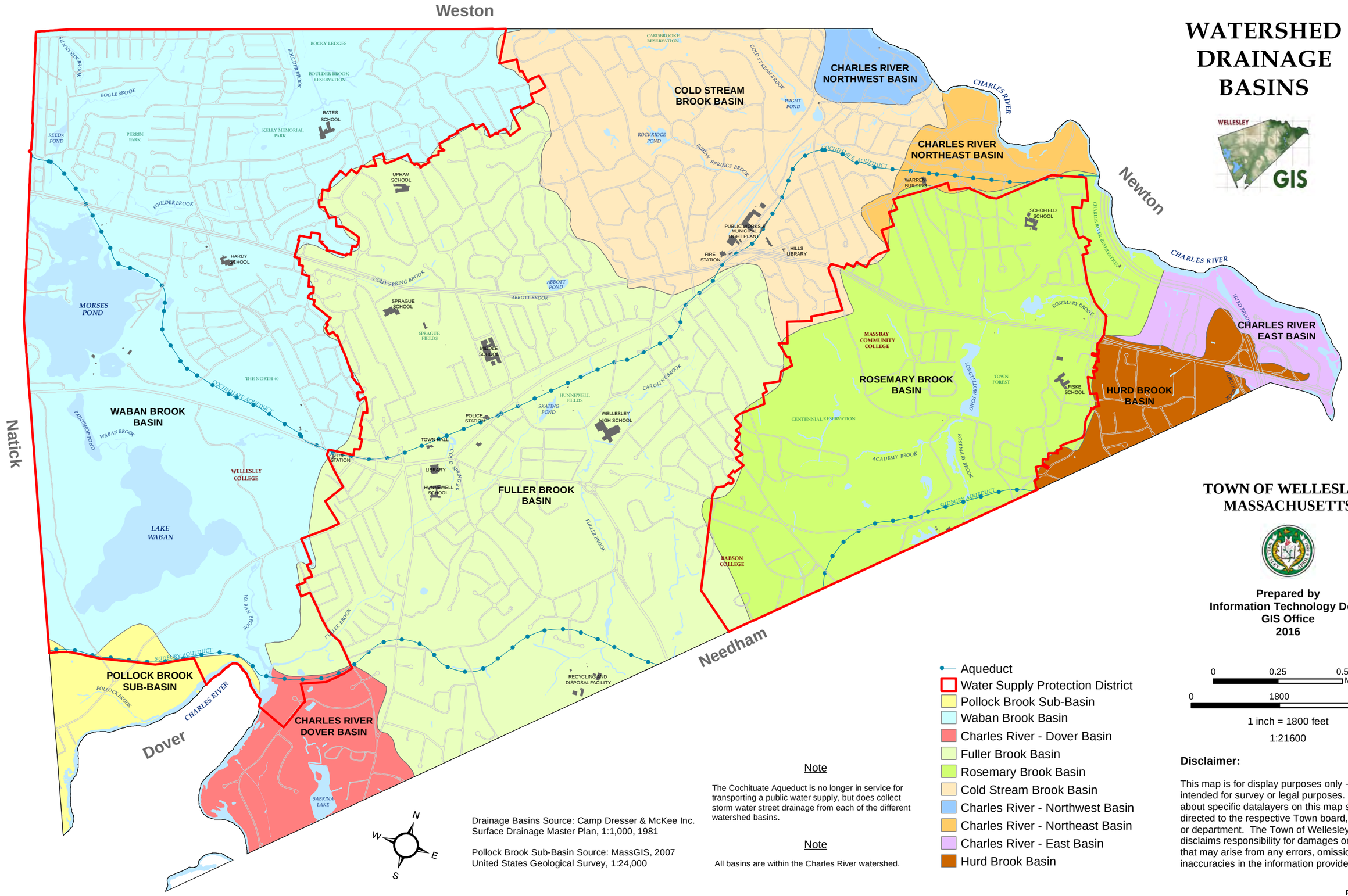
U
UPLAND ROAD....D6
UPSON ROAD....A1-B1
UPWEY ROAD....F3-G4

V
VALLEY ROAD....H1-I1
VANE STREET....D7
VINCENT ROAD....E6-E7
VISTA ROAD....G5

W
WABAN STREET....D5
WACHUSETT ROAD....F1-F2
WAKELIN WAY....E5
WALL STREET....F3-F4
WALNUT PLACE....K2
WALNUT STREET....I2-L2
WARELAND ROAD....I3-I4
WASHBURN AVENUE....I2-J3
WASHINGTON COURT....J2
WASHINGTON STREET....H2-K2
THE WATERWAY....I2-J2
WEBB AVENUE....H4-H5
WEDGWOOD ROAD....D2
WELLESLEY AVENUE....E5-K6
WEST RIDGING....E6
WESTERLY STREET....B2
WESTGATE....D1-D3
WESTMINSTER CIRCLE....D3
WESTON ROAD....C1-D6
WESTOVER TERRACE....E3
WESTWOOD ROAD....E6-F6
WHITE OAK ROAD....G1
WHITING ROAD....G5-H5
WHITTIER ROAD....J2-K3
WILDE ROAD....C2
WILDON ROAD....G6-G7
WILLOW CIRCLE....L4
WILLIAM STREET....N4
WILLOW PARK....L4
WILLOW ROAD....C3-D3
WILSON CIRCLE....L4
WILSON STREET....F5
WINDEMERE LANE....F4
WINDEMERE ROAD....F3-F4
WINDING RIVER CIRCLE....C6
WINDING RIVER ROAD....C8-C9
WINDSOR ROAD....H5-I5
WINGATE ROAD....D1
WINSLOW ROAD....J4
WINTHROP ROAD....D7
WISMALL CIRCLE....E5
WOODBINE ROAD....D3
WOODCHESTER ROAD....D3
WOODCLIFF ROAD....F1-G2
WOODFIELD ROAD....C1
WOODLAND ROAD....C2
WOODLAWN AVENUE....I2-I3
WOODLAWN OVAL....I3
WOODRIDGE ROAD....F6-F7
WOODSIDE AVENUE....A1-A2
WOODWAY ROAD....F6
WORCESTER STREET....A2-N4
WYNNEWOOD ROAD....E2-E3

Y
YARMOUTH ROAD....D1-E1

WATERSHED DRAINAGE BASINS



TOWN OF WELLESLEY, MASSACHUSETTS

Prepared by
Information Technology Dept.
GIS Office
2016

- Aqueduct
- Water Supply Protection District
- Pollock Brook Sub-Basin
- Waban Brook Basin
- Charles River - Dover Basin
- Fuller Brook Basin
- Rosemary Brook Basin
- Cold Stream Brook Basin
- Charles River - Northwest Basin
- Charles River - Northeast Basin
- Charles River - East Basin
- Hurd Brook Basin

0 0.25 0.5 Miles

0 1800 3600 Feet

1 inch = 1800 feet

1:21600

Drainage Basins Source: Camp Dresser & McKee Inc.
Surface Drainage Master Plan, 1:1,000, 1981

Pollock Brook Sub-Basin Source: MassGIS, 2007
United States Geological Survey, 1:24,000

Note

The Cochituate Aqueduct is no longer in service for transporting a public water supply, but does collect storm water street drainage from each of the different watershed basins.

Note

All basins are within the Charles River watershed.

Disclaimer:

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