Stormwater Management Plan

MA MS4 General Permit Requirements

EPA NPDES Permit Number: MAR041037

Prepared for:
Hanson, Massachusetts

June 2019

Natalie M. Pommersheim
Senior Project Scientist
### Stormwater Management Plan (SWMP) Revision History
**MS4 Materials that supplement the 2019 SWMP Document**

<table>
<thead>
<tr>
<th>Revision #</th>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6/2019</td>
<td>SWMP Published for Town Comment</td>
</tr>
<tr>
<td>1</td>
<td>9/2020</td>
<td>IDDE Plan, O&amp;M Plan included as Appendix K</td>
</tr>
</tbody>
</table>

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"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: **John F. Stanbrooke**  
Signature: **[Signature]**  
Date: **11/3/2020**
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HANSON SWMP REPORT - 2018
R160-1803
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)

☐ Publicly available at the website below

“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  Robert Brown, Highway Surveyor

Signature ____________________________  Date ____________________________
Small MS4 Authorization

The NOI was submitted on September 25, 2018

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

Authorization to Discharge was granted on February 14, 2019

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

February 14, 2019

Michael W. McCue
Town Administrator

And;

Robert Brown
Town Highway Surveyor
797 Indian Head Street
Hanson, MA. 02341
rbrown@hanson-ma.gov

Re: National Pollutant Discharge Elimination System Permit ID #: MAR041037, Town of Hanson

Dear Robert Brown:

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
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1. BACKGROUND

1.1 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.

1.2 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.

1.3 Stormwater Management Plan (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. The hyperlinks provided in Appendix A offer additional information and supporting documents related to the MS4 Permit and the aforementioned minimum control measures.

1.4 Town Specific MS4 Background

The Town must give special consideration to and meet eligibility requirements for their discharges to be able to apply for coverage under the General Permit. Eligibility will be determined based on three categories: Endangered Species Act, National Historic Preservation Act, and Water Quality Impaired Waters. The Town must establish that discharges from its storm drain system do not adversely impact endangered species, critical habitats, and historic properties in order to be covered by the General Permit. Furthermore, the Town must identify all receiving waters that have been classified as Water Quality Impaired Waters by the MA DEP. The Town of Hanson and its surrounding water bodies are shown on Figure 1: System Locus. The Hanson Notice of Intent (NOI) for coverage under the Small MS4 General Permit was submitted to EPA and MassDEP on September 25, 2018. A copy of the NOI is provided in Appendix B.
2. SWMP COMPONENTS

2.1 Parties Involved in Implementation

Stormwater programs in the Town of Hanson are currently a responsibility of the Town Highway Surveyor, Robert Brown. The Town has not yet created/staffed a dedicated stormwater management position or stormwater committee. The current staff involved in stormwater management are listed in the table below.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Brown</td>
<td>Highway Surveyor</td>
<td>Highway Department</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Board of Health</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Planning Department/Board</td>
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<tr>
<td></td>
<td></td>
<td>Conservation Commission</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Building Department</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IT Department</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appeals Board</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Additional Members*</td>
</tr>
</tbody>
</table>

A draft schedule has been developed in effort to comply with the NPDES Permit requirements and timelines as currently established. The draft schedule is attached as Appendix C.

2.2 Documentation Regarding Endangered Species

In order to comply with part 1.9.1 of the NPDES Permit, the Town has attached documentation in Appendix D supporting Hanson’s eligibility determination of Criterion C with regard to federal Endangered and Threatened Species and Critical Habitat Protection. Criterion C states that “the stormwater discharges and discharge related activities will have “no affect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service
(USFWS).” USFWS provided a letter in place of a concurrence letter for informal consultation.

The attachments in Appendix D include the aforementioned letter, as well as the results of the IPaC environmental review process. Using the IPaC environmental review process, one endangered species is within Hanson’s boundaries: the Northern Long-Eared Bat. The Northern Long-Eared Bat does not have critical habitats designated within the Town, and the MS4 Permit will not adversely affect the species.

2.3 Documentation Regarding Historic Properties

The Town has attached documentation in Appendix E supporting their eligibility determination regarding Historic Properties, in compliance with part 1.9.2 of the Permit. This document, Appendix D of the Massachusetts General MS4 Permit, includes information supporting Hanson’s determination as Criterion A, stating that the discharges do not have the potential to cause effects on historic properties.

Historic site considerations will be evaluated further as part of the design/permitting of new/retrofit BMPs proposed for implementation as part of MS4 compliance. Regarding the National Historic Preservation Act, under 36 CFR 800, this facility is an existing facility authorized by the previous Permit, and is not undertaking any activity involving subsurface land disturbance less than 1 acre. This MS4 Permit will have "no potential to cause effects," in accordance with 36 CFR 800.3(a)(1).

2.4 Documentation Regarding Discharges

Attached in Appendix F is the documentation for tracking any new or increased discharges granted by MassDEP in compliance with part 2.1.2 of the Permit. Increased discharges refer to increased pollutant loading(s) through the MS4 to waters of the US or to impaired waters listed in categories 5 or 4b on the Massachusetts Integrated Report of waters, pursuant to the Clean Water Act. The Permit states that “any authorization of an increased discharge by MassDEP shall be incorporated into the permittee’s SWMP.”

At this time, the Town of Hanson has no new and/or increased discharges. Hanson will document any new and/or increased discharges, including any newly located outfall
beyond what was listed in the NOI, any new constructed outfall, or any new development increasing flow to existing MS4 outfall structures. These discharges will be documented on the form provided in Appendix F and will include project specific information regarding best management practices implemented for those discharges. A sample discharges form is provided in Appendix F.

2.5 **Sanitary Sewer Overflow (SSO) Inventory**

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. The verbal notification should be followed up 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. In the Town of Hanson, there are only eight (8) properties with sewer service, and these properties are tied into the Whitman sewer system. Wastewater from these properties is sent to Whitman for treatment. Upon notification of any SSO or septic overflow, the Hanson Board of Health will take these appropriate measures to comply with Permit requirements.

As of December 2018, there are no known SSOs or septic overflows that discharge to the MS4. An inventory of all known locations where SSOs have discharged to the MS4 will be maintained by the Town, if any are found. This inventory shall include SSOs resulting from inadequate conveyance capacities, or where interconnectivity of the storm and sanitary sewer infrastructure allows for interconnection of flow between the systems. A sample inventory form is provided in Appendix G and includes the following information:

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.
2.6 IDDE Program and Bylaws

The Town’s IDDE plan will be developed during the first year of the new permit (i.e., by June 30, 2019). The IDDE program is detailed in section 3.3 of Minimum Control Measures. The Town’s Stormwater Management and Erosion Control Bylaw and current Illicit Discharge Bylaw are provided in Appendix H.

2.7 Sediment and Erosion Control Procedures

Written procedures for the Town’s site inspections and enforcement of sediment and erosion control procedures in accordance with part 2.3.5 of the Permit, Construction Site Stormwater Runoff Control, are detailed in sections 3.4 and 3.5 of Minimum Control Measures. This information includes the party responsible for site inspections and implementation of procedures.

2.8 Public Drinking Water Supply Sources Protection

The Town has developed practices in effort to avoid or minimize impacts to surface public drinking water supply sources. These efforts are detailed in Minimum Control Measures section 3.6, Good House Keeping and Pollution Prevention. The Town plans to prioritize the enforcement of existing stormwater pollution prevention plans.

2.9 Activities to Monitor Discharges

The Town will identify any discharges within public drinking water supply source areas and give priority to outfall inspections and screening required of the Minimum Control Measures in section 3.0.

2.10 Annual Program Evaluation

To comply with part 4.1 of the Permit, the Town annually self-evaluates compliance with the terms and conditions of the Permit and submits each self-evaluation as part of
the Fiscal Year annual report. The 2018 NPDES Phase II Small MS4 General Permit Annual Report is attached as Appendix I.
3. MINIMUM CONTROL MEASURES

In effort to reduce pollutants and comply with part 2.3 of the Permit, the Town focuses on the following minimum control measures. These sections describe the Town’s practices to comply with each control measure, the responsible person(s) or party of each practice, and the goal(s) for each BMP of each control measure. The BMPs for each of the six minimum control measures are outlined in the forms provided in Appendix J.

3.1 Public Education and Outreach

The permittee shall implement an education program that includes educational goals based on stormwater issues of significance within the MS4 area, further detailed in section 4.2. The ultimate objective of a public education program, permit part 2.3.2, is to increase knowledge and change behavior of the public so that the pollutants in stormwater are reduced.

The Town implemented a public education program as required by the 2003 permit and will continue that program and make the necessary adjustments to meet the additional requirements of the 2016 permit.

The program must include the education of the following four audiences: 1. residents, 2. businesses, institutions (churches, hospitals), and commercial facilities, 3. developers (construction), and 4. industrial facilities.

3.1.1 Background

The Town of Hanson has completed BMPs such as flyers, new resident information packets, stormwater alerts through the Water Smart program, pet waste control information distribution, and educational boards/signs in public open spaces to share information and increase awareness of stormwater issues. Though these BMPs are already completed, the Town continues to make the materials available to local residents and businesses.

3.1.2 Best Management Practices
I. Distribution of a minimum of two (2) educational messages over the permit term to the required audiences, as listed below.

A. Residents
1. Maintain stormwater website with hyperlinks to stormwater related bylaws.
   a) https://www.hanson-ma.gov/hanson-general-bylaws/pages/general-bylaw-article-3-21
   b) https://www.hanson-ma.gov/hanson-general-bylaws/pages/general-bylaw-article-3-22
2. Keep outreach materials at Library and Town Hall and publish on stormwater website once developed, utilizing materials from the DEP, EPA, and North & South River Watershed Association.
3. Distribute New Resident packets to residents within Wetland Protection Areas.
4. Distribute pet waste control information to residents when they (re)apply for a pet license.
5. Continue storm drain stenciling program

B. Businesses, Institutions, and Commercial Facilities
1. Include stormwater information in permit materials.
2. Make information available on stormwater website and at Town Hall.
3. Distribute information to septic maintenance contractors.

C. Developers (Construction)
1. Include stormwater information materials as appendix to building and site plan review permit applications.
2. Make information available on stormwater website and at Town Hall.
3. Distribute information to developers based on zoning and property use.

D. Industrial Facilities
1. Distribute stormwater information to industrial groups based on zoning and property use.
2. Make information available on stormwater website and at Town Hall.

3.2 Public Involvement and Participation

The objective of the public involvement and participation control measure, permit part 2.3.3., is for the Town to provide the public with opportunities to engage in activities that promote good stormwater practices. The public must also be given the chance to review the Stormwater Management Plan (SWMP) and its implementation.
3.2.1 Background

Copies of the Town's existing Stormwater Management Plan were made available for public review at the Town Library. Biannually, the Town also engages the public by holding Green Up Clean Up volunteer waterway clean-up days and household hazardous waste drop-off days. The Highway Department also works with the North & South Rivers Watershed Association to create handouts focusing on green initiatives.

3.2.2 Best Management Practices

I. Public Review
   A. Stormwater Management Plan Review (SWMP)
      1. Make SWMP available at least annually for public review.
      2. Create and use Stormwater Website to publish SWMP and annual reports. Website should contain a space for electronically soliciting public comments (e.g. stormwater specific e-mail, message board, etc.)
         a) Make physical copy available at Town Hall, Library, Highway Department, etc.

II. Public Participation
   A. Participate in local stormwater groups/associations (e.g. North & South Rivers Watershed Association).
   B. Maintain/Acquire membership with local stormwater/water quality committees (e.g. Stormwater Advisory Committee).

III. Continue to host hazardous waste collection days.

IV. Continue to hold Town clean-up days with various groups.

3.3 Illicit Discharge Detection and Elimination (IDDE) Program

The Town shall put an IDDE program, permit part 2.3.4, into place in order to find and eliminate non-stormwater discharge sources to its MS4 system. Procedures shall be implemented to fix any prevalent issues in the Town’s storm sewer system. As identified in the Notice of Intent (NOI), attached in Appendix B, the following 120 outfall structures listed in the table below discharge within the Town of Hanson’s MS4 area. These outfall structures are displayed on Figure 2: MS4 Urbanized Areas.
<table>
<thead>
<tr>
<th>Waterbody segment that receives flow from the MS4</th>
<th>Number of outfalls into receiving water segment</th>
<th>Chloride</th>
<th>Chromium</th>
<th>Copper</th>
<th>Lead</th>
<th>Zinc</th>
<th>DBP</th>
<th>Nitrogen</th>
<th>Phosphorus</th>
<th>Sediment TSS/</th>
<th>Turbidity</th>
<th>E. coli</th>
<th>Enterococci</th>
<th>Other pollutant(s) causing impairments</th>
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<td>☐</td>
<td>Mercury in Fish Tissue</td>
</tr>
<tr>
<td>Indian Head Brook</td>
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<td>Excess Algal Growth, Non-Native Aquatic Plants, Secchi Disk Transparency</td>
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<td>Non-Native Aquatic Plants</td>
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<td>Non-Native Aquatic Plants</td>
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<td>Non-Native Aquatic Plants</td>
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3.3.1 Background

As part of the IDDE program, the Town has continued connectivity, outfall, and catch basin mapping. The bylaw developed for illicit discharges has been reviewed and enforced after being presented at Town Meeting. The Town of Hanson is entirely on septic systems, aside from eight (8) properties which tie into the Whitman sewer system.

3.3.2 Best Management Practices

I. Legal Authority
   A. 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.

II. SSO Inventory
   A. Develop SSO Inventory Database within 1 year of effective permit date that logs historical SSOs that have occurred in the last 5 years, as discussed in further detail in section 2.5.
      1. Coordinate with Whitman Water/Sewer Division for tracking of any future SSOs from the eight (8) properties on their sewer system.

III. Storm Sewer System Map
   A. Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit.
      1. Make an electrical and physical copy of the map available to the public via the stormwater website and Town Hall.
      2. Map/verify 10% of system per year during permit years 1-10.
         a) Phase I will be focused on during Years 1 and 2, while Phase II will be focused on during Years 3 thru 10.
      3. Integrate system map updates with planned utility expansion projects.
      4. Cross reference drainage information to ensure mapping is as accurate as possible.
      5. Map/verify country drainage – (e.g. scuppers), in addition to outfall pipes.

IV. Written IDDE Program Development
   A. Develop and complete written IDDE program within 1 year of effective permit date. The IDDE program and permit attachments will be available within the Town Hall at 542 Liberty Street, Hanson, MA 02341.
1. The written plan will include but is not limited to the following:
   a) Outline of responsibilities
   b) Storm sewer map with locations of known outfalls, including information on relevant connectivity data gaps
   c) Systematic procedure/protocol to detect and eliminate illicit Discharges
   d) Assessment/ranking of catchments (based on complaints, past water quality data, adjacent failing septic/sewer systems, density, surrounding area, TMDL surface waters)
   e) Tracking mechanism to evaluate and report on the overall effectiveness of the IDDE program.

V. Implement IDDE Program
   A. Implement catchment investigations according to program and permit conditions within 15 months of effective permit date.
      1. Continue to enforce IDDE bylaw.
      2. Draft and implement stormwater management regulations.
      3. Coordinate water quality monitoring through dry weather screening
         a) The water quality monitoring practice should involve inspections for illicit discharge detection.

VI. Employee Training
   A. Coordinate annual stormwater training and incorporate with training required in Section 6.2.IV.B.

VII. Dry Weather Screening
   A. Conduct screening in accordance with outfall screening procedure and permit conditions, within 3 years of effective permit date.
      1. Screen 25% of outfalls per year during permit years 2-5.

VIII. Conduct Wet Weather Screening
   A. Conduct screening in accordance with outfall screening procedure and permit conditions as determined by dry weather screening results, within 10 years of effective permit date.
   B. To identify areas with higher potential for illicit connections, the permittee shall identify the presence of any of the following System Vulnerability Factors (SVFs):
      1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages;
      2. Common or twin-invert manholes serving storm and sanitary sewer alignments;
      3. Common trench construction serving both storm and sanitary sewer alignments;
      4. Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system;
      5. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
      6. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints;
      7. Areas formerly served by combined sewer systems;
8. 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.

IX. Conduct ongoing screening upon completion of the IDDE program.

X. IDDE Regulations
   A. Continue to eliminate illicit discharge violations in accordance with General bylaws Article 3-22 Discharges to Municipal Storm Drain System.

### 3.4 Construction Site Stormwater Runoff Control

The Town must implement a program focused on controlling stormwater runoff from construction sites. The program shall minimize or eliminate erosion on site and maintain the site so that the sediment is not transported in stormwater or allowed to discharge to a water of the U.S. through the permittee’s MS4, as stated in part 2.3.5 of the Permit.

#### 3.4.1 Background

The Town has developed and enforced the bylaws for construction site runoff after review by attorneys and town boards. Erosion and sedimentation control and drainage submittal requirements for site inspections were determined to be adequate.

#### 3.4.2 Best Management Practices

I. Site Inspection and Enforcement of Erosion and Sediment Control (ESC) Measures Procedures
   A. Complete written procedures of site inspections and enforcement procedures within 1 year of effective date of the permit.
      1. Recommend standards and practices for town inspection procedures. Seek input from relevant town groups (e.g. Conservation Commission, Highway Department, Building Department, etc.)
      2. Develop inspection form that includes ESC measures and integrate them with existing Town forms.

II. Site Plan Review Procedures
   A. Complete written procedures of site plan review and begin implementation within 1 year of the effective date of the Permit.
      1. Include site plan review workflow chart with permit applications.
2. Review current Town procedure regarding when a Construction General Permit (CGP) is needed.

III. Erosion and Sediment Control Ordinance
   A. Continue to enforce requirements for construction operators to implement a sediment and erosion control program within 1 year of the effective date of the Permit, in accordance with General bylaws Article 3-21.
   1. Set limit of 1 acre before project requires inspection by Town official.
      a) Coordinate limits and requirements with fill/extraction permits.
   2. Update all Town forms with erosion and sediment control checklist.
   3. Continue to implement Soil and Erosion Control bylaw.
   4. Continue to monitor all construction activities within the Town of Hanson for erosion and sediment control issues.

IV. Waste Control
   A. Continue to enforce requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes within 1 year of the effective date of the Permit, in accordance with General bylaws Article 3-21.
   1. Incorporate into Town’s general conditions for building permit and/or site plan review.
   2. Review and modify Town bylaw to meet new requirements.

V. Pre-Construction/Coordination Meetings
   A. Continue GIS mapping and develop protocol for submitting as-builts electronically.

3.5 Post Construction Stormwater Management in New Development and Redevelopment

   The objective of an effective post construction stormwater management program, part 2.3.6 of the Permit, 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.

3.5.1 Background

   The Town has reviewed and modified existing bylaws and regulations on post-construction stormwater runoff to ensure they meet US EPA requirements and MA DEP Stormwater Management Policy Standard 3. This bylaw was then distributed to local town boards and commissions for input and final revisions. Once construction projects are complete, the Town takes ownership of the drainage infrastructure in the new
developments and the Highway Department is responsible for the maintenance and operation of stormwater controls. These inspection practices were also enforced under the Towns Post Construction Site Runoff Control bylaw.

3.5.2 Best Management Practices

I. Post-Construction Ordinance
   A. The permittee shall modify and continue to enforce, as appropriate, an ordinance or other regulatory mechanism within two (2) years of the effective date of the permit.

II. As-Built Plans For On-Site Stormwater Control
   A. Require submission of electronic data for as-built drawings (e.g. PDF, AutoCAD, GIS) within 2 years of completed construction.
      1. O&M certification should include contact and contract information for contractors that perform O&M on the private BMPs.

III. Inventory and Priority Ranking of MS4-Owned Properties That May Be Retrofitted with BMPs
   A. Conduct detailed inventory of MS4 owned properties and rank for retrofit potential within 4 years of permit effective date.
      1. Inventory Town parcels for existing stormwater BMPs and identify opportunities for GI/LID retrofits.
         a) Include schools, parks, recreation facilities, police/fire/EMS, libraries, public works, and town administrative offices.

IV. Allow Green Infrastructure
   A. Within 4 years of permit effective date, develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist.
      1. Continue to review bylaws and applications in order to incorporate green infrastructure and low impact development language as needed.
      2. Educate the public on green infrastructure through existing BMP retrofits/demonstration projects.

V. Street Design and Parking Lot Guidelines
   A. Within 4 years of permit effective date, 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.
      1. Publish street design and parking lot guidelines on stormwater website.

VI. Ensure any stormwater controls or management practices for new development and redevelopment will prevent or minimize impacts to water quality.
   A. Within 2 years of permit effective date, adopt, amend, or modify regulation mechanisms to meet permit requirements.
1. Review rules and regulations and modify as needed. Include evaluation of subdivision/redevelopment requirements for long-term operations and management of private BMPs.
2. Continue to implement Post-Construction Site Runoff Control Bylaw.

3.6 Good House Keeping and Pollution Prevention for Permittee Owned Operations

The objective of this control measure, part 2.3.7 of the Permit, states that the permittee shall implement an operations and maintenance program for Town-owned operations that shall focus on preventing or reducing pollutant runoff and protecting water quality from Town operations.

3.6.1 Background

Annual street sweeping and continuous catch basin cleaning are part of the Town’s program for pollution prevention. Employees attended stormwater training seminars when available and the Town will continue to identify and attend appropriate training sessions.

3.6.2 Best Management Practices

I. Create written O&M procedures for parks and open spaces, buildings and facilities, and vehicles and equipment within 2 years of permit effective date.

II. Inventory all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment within 2 years of permit effective date.
   A. Develop a capital improvement plan that deals with flooding prevention measures and water quality improvements.
      1. Coordinate implementation with Section 5.2.II

III. Establish and implement program for repair and rehabilitation of MS4 infrastructure within 2 years of permit effective date.
   A. Inspect assets and assess condition to develop program
   B. Review annual budget to set aside funding.

IV. Stormwater Pollution Prevention Plan (SWPPP) for Maintenance Garages, Transfer Stations and Other Waste-Handling Facilities
   A. Develop plan within 2 years of permit effective date.
   B. Schedule annual employee training.
      1. Continue to look into workshop and speaking opportunities and seek formal training for all departments
C. Develop an asset management system to process complaints, permits, inspections, and maintenance.

D. Continue to implement recycling standards and requirements.

V. Catch Basin Cleaning
   A. Develop and maintain an annual cleaning schedule.
   B. Develop electronic data collection system for tracking, inspection, and maintenance.
      1. Update catch basin cleaning services RFP requirements to require electronic data collection that is compatible with the Town’s GIS and asset management system.

VI. Street Sweeping Program
   A. Continue to implement street sweeping program, sweeping streets a minimum of once annually in the spring.
   B. Include number of miles of streets cleaned per year, and volume or mass or material removed in each annual stormwater report (rural and uncurbed exceptions apply).

VII. Road Salt use Optimization Program/Winter Road Maintenance
   A. Continue working on salt reduction strategies.
      1. Continue to develop and implement winter road maintenance procedures including use and storage of salt and sand
      2. Continue to minimize the use of salts and ensure that snow is not disposed into water ways.
      3. Calibrate spreaders to reduce salt use.

VIII. Inspections and maintenance of stormwater treatment structures.
   A. Establish and implement inspection and maintenance procedures for annual inspections/maintenance.
4. WATER QUALITY BASED REQUIREMENTS

In compliance with the Clean Water Act (CWA), each state must administer a program to monitor and assess the quality of its surface water and ground water. Section 305(b) process of the CWA entails assessing each use for rivers, lakes, and coastal waters, and causes and sources of impairment are identified wherever possible. Section 303(d) of the CWA along with the regulations at 40 CFR 130.7 requires states to identify those water bodies that are not expected to meet surface water quality standards (SWQS) after the implementation of technology based controls, and prioritize 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. The 303(d) List of Impaired Waters (303(d) List) lists each water body in one of the following five categories:

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.

Waters listed in Category 5 constitute the 303(d) List and are to be reviewed and approved by the EPA. An abbreviated version of Table 1: Impaired Waters, TMDLs and Impairments is shown below, and is also represented in Appendix B, the Notice of Intent. The MS4 area and Town watersheds are shown on Figure 3: Town Watersheds, and an overall map of the Town of Hanson’s stormwater system is attached as Figure 4: Stormwater System Map.
4.1 Background

These best management practices aim to improve and mitigate stormwater water quality impairments. This program will focus on impaired waters requiring a TMDL (category 5) in the South Coastal and Taunton River Watersheds located in Hanson, shown on Figure 3.

The majority of the Town outfalls are located within the South Coastal Watershed. The South Coastal Watershed has a watershed-wide EPA approved TMDL requirement for pathogens. This impairment requires Hanson to follow the below requirements to mitigate pathogen discharges to the MS4. The Town should prioritize sampling their outfalls within the South Coastal Watershed for bacteria and pathogens.

Within the South Coastal Watershed portion of Town, there are three (3) water bodies listed as a category 5 water requiring a TMDL. These water bodies include 1) Factory Pond (MA94175), 2) Wampatuck Pond (MA94168) and 3) Indian Head River (MA94-04). Wampatuck Pond and Indian Head River are both subject to phosphorus requirements in addition to the watershed wide pathogen TMDL requirements for the South Coastal Watershed.

<table>
<thead>
<tr>
<th>Category</th>
<th>Name</th>
<th>Segment ID</th>
<th>Impairment Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factory Pond</td>
<td>MA94175</td>
<td>Mercury in Fish Tissue</td>
</tr>
<tr>
<td></td>
<td>Indian Head River</td>
<td>MA94-04</td>
<td>Oxygen, Dissolved</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Phosphorus (Total)</td>
</tr>
<tr>
<td></td>
<td>Wampatuck Pond</td>
<td>MA94168</td>
<td>Non-Native Aquatic Plants*</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Chlorophyll-a</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dissolved oxygen saturation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Excess Algal Growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Phosphorus (Total)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Secchi disk transparency</td>
</tr>
<tr>
<td></td>
<td>Monponsett Pond</td>
<td>MA62119</td>
<td>Non-Native Aquatic Plants*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Excess Algal Growth</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Phosphorus (Total)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Secchi disk transparency</td>
</tr>
<tr>
<td></td>
<td>Shumatuscacant River</td>
<td>MA62-33</td>
<td>Physical substrate habitat alterations*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fecal Coliform</td>
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<td>Oxygen, Dissolved</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Sedimentation/Siltation</td>
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<table>
<thead>
<tr>
<th>Category</th>
<th>Name</th>
<th>Segment ID</th>
<th>Impairment Cause</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Wampatuck Pond</td>
<td>MA94168</td>
<td>Excess Algal Growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Physical substrate habitat alterations*</td>
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<td></td>
<td></td>
<td></td>
<td>Secchi disk transparency</td>
</tr>
<tr>
<td></td>
<td>Monponsett Pond</td>
<td>MA62119</td>
<td>Secchi disk transparency</td>
</tr>
<tr>
<td></td>
<td>Shumatuscacant River</td>
<td>MA62-33</td>
<td>Secchi disk transparency</td>
</tr>
</tbody>
</table>

**5 - "Water Requiring a TMDL"**
The southwestern corner of Town is within the Taunton River Watershed. The Taunton River Watershed has a watershed-wide EPA approved TMDL requirement for pathogens. This requires Hanson to follow the requirements listed below in section 4.2.1 for bacteria and pathogens for all outfalls discharging to the Taunton River Watershed.

Monponsett Pond and Shumatuscacant River (Segment MA62-33) are located within the Taunton River Watershed portion of Hanson. Monponsett Pond has phosphorus impairments well, and therefore is subject to requirements for phosphorus. Segment MA62-33 of the Shumatuscacant River is impaired due to fecal coliform, and is subject to bacteria and pathogen requirements. These requirements are also listed below in section 4.2.1.

Sampling outfalls that discharge to these water bodies for fecal coliform and phosphorus should be a top priority for Hanson. As shown in Table 1 – Impaired Waters, TMDLs and Impairments, Indian Head River, Wampatuck Pond, Monponsett Pond and Shumatuscacant River also have impairments such as non-native aquatic plants, chlorophyll-a, secchi disk transparency, dissolved oxygen, mercury in fish tissue, and excess algal growth. The impairments for mercury in fish tissue and secchi disk transparency (solids) require the Town to adhere to the items listed in Appendix H (Part V) of the Permit. These requirements are also listed in Section 4.2 below. It should also be a priority that the Town sample outfalls to these water bodies for those impairments listed in Table 1.

4.2 Permit Requirements

4.2.1 Public Education and Outreach

a. Phosphorus

- Distribute an annual message in the spring (March/April) timeframe that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorus-free fertilizers.
- Distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate.
- Distribute an annual message in the fall (August/September/October) timeframe encouraging the proper disposal of leaf litter.
• Deliver an annual message on each of these topics, unless the permittee determines that one of more of these issues is not a significant contributor of phosphorus to discharges from the MS4.

b. Bacteria
• Distribute an annual message that encourages the proper management of pet waste, including noting any existing ordinances where appropriate.
• Disseminate educational materials to dog owners at the time of issuance or renewal of dog license, or other appropriate time.
• Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria or pathogens.

4.2.2 Stormwater Management in New Development and Redevelopment
a. Phosphorus
• Include a requirement that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal.
• Retrofit inventory and priority ranking under 2.3.6.1.b shall include consideration of BMPs that infiltrate stormwater where feasible.

b. Solids
• Incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or unexpected event.
• Require any stormwater management system designed to infiltrate stormwater on commercial or industrial sites to provide the level of pollutant removal equal to or greater than the level of pollutant removal provided through the use of biofiltration of the same volume of runoff to be infiltrated, prior to infiltration.

4.2.3 Good House Keeping and Pollution Prevention
a. Phosphorus
• Establish procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces.
• 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, once in the spring (following winter activities such as sanding) and at least once in the fall (September 1 - December 1; following leaf fall).

b. Solids
• Increase street sweeping frequency of all municipal owned streets and parking lots to a schedule determined by the permittee to target areas with potential for high pollutant loads.
• Prioritize inspection and maintenance for catch basins to ensure that no sump shall be more than 50 percent full. Each annual report shall include the street sweeping schedule determined by the permittee to target high pollutant loads.

4.2.4 Illicit Discharge

a. Bacteria, Nitrogen, Phosphorus, Solids
• Implement the illicit discharge program required by the Permit. Catchments draining to any water body impaired for any of the listed impairments shall be designated either Problem Catchments or HIGH priority in implementation of the IDDE program.

4.2.5 Additional Requirements (Nitrogen and Phosphorus)

a. Phosphorus
• Within four years of the permit effective date the permittee shall complete a Phosphorus Source Identification Report. The report shall include the following elements:
  o Calculation of total MS4 area draining to the water quality limited water segments or their tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to part 2.3.4.6
  o All screening and monitoring results pursuant to part 2.3.4.7.d, targeting the receiving water segment(s)
  o Impervious area and DCIA for the target catchment
  o Identification, delineation, and prioritization of potential catchments with high phosphorus loading
  o Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious areas
• The final Phosphorus Source Identification Report shall be submitted to EPA as part of the year 4 annual report.
• Within five years of the permit effective date, the permittee shall 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 permittee shall provide a listing of planned structural BMPs and a plan and schedule for implementation in the year 5 annual report.
• The permittee shall plan and install a minimum of one structural BMP as a demonstration project within the drainage area of the water quality limited water or its tributaries within six years of the permit effective date. The demonstration project shall be installed targeting a catchment with high phosphorus load potential.
• The permittee shall install the remainder of the structural BMPs in accordance with the plan and schedule provided in the year 5 annual report.
• Any structural BMPs listed in Table 3 of Attachment 3 to Appendix F 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 permittee shall document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in mass per year by the BMP in each annual report.

At any time during the permit term, the Town may be relieved of additional applicable requirements in Appendix H parts II and III when it is in compliance with the Permit requirements.
TABLE 1

IMPAIRED WATERS, TMDLS AND IMPAIRMENTS
## Impaired Waters

<table>
<thead>
<tr>
<th>Category</th>
<th>Name</th>
<th>Segment ID</th>
<th>Description</th>
<th>Size</th>
<th>Units</th>
<th>Impairment Cause</th>
<th>EPA TMDL NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factory Pond</td>
<td>MA94175</td>
<td>Hanson/Hanover</td>
<td>51.395</td>
<td>ACRES</td>
<td>Mercury in Fish Tissue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indian Head River</td>
<td>MA94-04</td>
<td>Outlet of Factory Pond, Hanover/Hanson to Curtis Crossing Dam (also called Ludhams Ford Dam) west of Elm Street, Hanover/Pembroke.</td>
<td>2.914</td>
<td>MILES</td>
<td>Mercury in Fish Tissue, Oxygen, Dissolved, Phosphorus (Total)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wampatuck Pond</td>
<td>MA94168</td>
<td>Hanson</td>
<td>62.879</td>
<td>ACRES</td>
<td>Non-Native Aquatic Plants*, Chlorophyll-a, Excess Algal Growth, Phosphorus (Total), Secchi disk transparency</td>
<td></td>
</tr>
<tr>
<td>5 - &quot;Water Requiring a TMDL&quot;</td>
<td>Wampatuck Pond</td>
<td>MA94168</td>
<td>Hanson</td>
<td>62.879</td>
<td>ACRES</td>
<td>Non-Native Aquatic Plants*, Chlorophyll-a, Excess Algal Growth, Phosphorus (Total), Secchi disk transparency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monponsett Pond</td>
<td>MA62119</td>
<td>[West Basin] Halifax/Hanson</td>
<td>282.79</td>
<td>ACRES</td>
<td>Non-Native Aquatic Plants*, Excess Algal Growth, Phosphorus (Total), Secchi disk transparency</td>
<td>61725</td>
</tr>
<tr>
<td></td>
<td>Shumatuscantic River</td>
<td>MA62-33</td>
<td>From a wetland just west of Vineyard Road, Abington to the confluence with Poor Meadow Brook, Hanson.</td>
<td>8.504</td>
<td>MILES</td>
<td>Physical substrate habitat alterations*, Fecal Coliform, Oxygen, Dissolved, Sedimentation/Siltation</td>
<td></td>
</tr>
</tbody>
</table>

* TMDL not required (Non-pollutant)
FIGURE 1

SYSTEM LOCUS
FIGURE 2

MS4 URBANIZED AREAS
FIGURE 3
TOWN WATERSHEDS
Figure 3: Town Watersheds
Hanson, Massachusetts
December 2018
FIGURE 4
STORMWATER SYSTEM MAP
APPENDIX A

MA MS4 HYPERLINKS AND REFERENCES
MA MS4 General Permit Hyperlinks

EPA MA MS4 Permit: https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit

DEP Permit Information: http://www.mass.gov/eea/agencies/massdep/water/wastewater/stormwater.html#8

Town Hyperlink: https://www.hanson-ma.gov/

MCM 1: Public Education and Outreach

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

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

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

MCM 4: Construction Site Stormwater Runoff Control

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

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

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

MCM 6: Good House Keeping and Pollution Prevention for Permittee Owned Operations

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 Pollution Prevention Plans can be found here: https://www.epa.gov/npdes-permits/stormwatertools-new-england#gh
## Notice of Intent (NOI) for coverage under Small MS4 General Permit

### Part I: General Conditions

#### General Information

- **Name of Municipality or Organization:** Town of Hanson
- **State:** MA
- **EPA NPDES Permit Number (if applicable):** MA041037

#### Primary MS4 Program Manager Contact Information

- **Name:** Robert Brown
- **Title:** Town Highway Surveyor
- **Street Address Line 1:** 797 Indian Head Street
- **City:** Hanson
- **State:** MA
- **Zip Code:** 02341
- **Email:** rbrown@hanson-ma.gov
- **Phone Number:** (781) 293-2822
- **Fax Number:** (781) 293-5763

### Other Information

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

### Eligibility Determination

- **Endangered Species Act (ESA) Determination Complete?** Yes
- **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?** 100%

- **Web address where MS4 map is published:** Paper Copy Attached

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

### Regulatory Authorities (if covered under the 2003 permit)

- **Illicit Discharge Detection and Elimination (IDDE) Authority Adopted?** Yes
- **Effective Date or Estimated Date of Adoption (MM/DD/YY):** 10/06/14

- **Construction/Erosion and Sediment Control (ESC) Authority Adopted?** Yes
- **Effective Date or Estimated Date of Adoption (MM/DD/YY):** 10/06/14

- **Post-Construction Stormwater Management Adopted?** Yes
- **Effective Date or Estimated Date of Adoption (MM/DD/YY):** 10/06/14
## 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 22.2.2.a of the permit. List any other pollutants in the last column, if applicable.

<table>
<thead>
<tr>
<th>Waterbody segment that receives flow from the MS4</th>
<th>Number of outfalls into receiving water segment</th>
<th>Chloride</th>
<th>Phosphorus</th>
<th>Nitrogen</th>
<th>Oil &amp; Grease/PAH</th>
<th>Solids/TSS</th>
<th>Turbidity</th>
<th>E. coli</th>
<th>Enterococcus</th>
<th>Other pollutant(s) causing impairments</th>
</tr>
</thead>
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<tr>
<td>Factory Pond (MA94175)</td>
<td>1</td>
<td>✜</td>
<td>✜</td>
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<td>✜</td>
<td>✜</td>
<td>✜</td>
<td>Mercury in Fish Tissue</td>
</tr>
<tr>
<td>Indian Head River (MA94-04)</td>
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<td>Excess Algal Growth, Non-Native Aquatic Plants, Secchi Disk Transparency</td>
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<td>Maquan Pond (MA94096)</td>
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<td>✜</td>
<td>✜</td>
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<td>Non-Native Aquatic Plants</td>
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<td>Chlorophylla, Excess Algal Growth, Non-Native Aquatic Plants, Secchi Disk Transparency</td>
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<td>White Oak Brook</td>
<td>7</td>
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<td>✜</td>
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<td>Unnamed Cranberry Bog near Indian Head Pond (42.05289,-70.85523)</td>
<td>2</td>
<td>✜</td>
<td>✜</td>
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<td>✜</td>
<td>Non-Native Aquatic Plants</td>
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<td>Unnamed Cranberry Bog to Chaffin Reservoir (42.02333, -70.84123)</td>
<td>4</td>
<td>✜</td>
<td>✜</td>
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<td>✜</td>
<td>✜</td>
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<td>Unnamed Tributary near White Oak Reservoir (42.03207, -70.84237)</td>
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<td>Non-Native Aquatic Plants</td>
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<td>✜</td>
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<td>Non-Native Aquatic Plants</td>
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<tr>
<td>Unnamed Tributary to Factory Pond (42.08543, -70.87854)</td>
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<td>Waterbody segment that receives flow from the MS4</td>
<td>Number of outfalls into receiving water segment</td>
<td>Chloride</td>
<td>Chlorophyll-a</td>
<td>Dissolved Oxygen/DO</td>
<td>Temperature</td>
<td>Nitrogen</td>
<td>Phosphorus</td>
<td>Oil &amp; Grease/PAH</td>
<td>Solids/TSS</td>
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<td>Unnamed Tributary to Indian Head Pond (42.04535, -70.85642)</td>
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<td>Unnamed Wetlands near Indian Head Brook (42.07903, -70.86212)</td>
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<td>Unnamed Wetlands near Rocky Run (42.08304, -70.84531)</td>
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<td>Unnamed Wetlands near White Oak Reservoir (42.03084, -70.8578)</td>
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<td>Unnamed Wetlands to Burrage Pond (42.03735, -70.8644)</td>
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<tr>
<td>Waterbody segment that receives flow from the MS4</td>
<td>Number of outfalls into receiving water segment</td>
<td>Chloride</td>
<td>Chlorophyll-a</td>
<td>Dissolved Oxygen</td>
<td>DO/Depletion</td>
<td>Nitrogen</td>
<td>Oil &amp; Grease/PAH</td>
<td>Phosphorus</td>
<td>Solids/TSS/Turbidity</td>
<td>E. coli</td>
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<td>Unnamed Wetlands to Burage Pond (42.03987, -70.86351)</td>
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<td>Unnamed Wetlands to Burage Pond (42.03978, -70.86807)</td>
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<td>Unnamed Wetlands to Burage Pond (42.03928, -70.86626)</td>
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<td>Unnamed Wetlands to Indian Head Brook (42.07718, -70.80222)</td>
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<td>Unnamed Wetlands to Unnamed Tributary to French Stream (42.08547, -70.90088)</td>
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<td>Unnamed Wetlands to White Oak Brook (42.03909, -70.84961)</td>
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<td>Unnamed Wetlands to White Oak Brook (42.03325, -70.85096)</td>
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<td>Unnamed Wetlands to White Oak Brook (42.02062, -70.85056)</td>
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</table>
## 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

<table>
<thead>
<tr>
<th>BMP Media/Category</th>
<th>BMP Description</th>
<th>Targeted Audience</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brochures/Paraphlets</td>
<td>Publish outreach materials; Distribute New Resident Packets within Wetland Protection Areas; Distribute pet waste control information; Install educational signs in public open spaces; Continue storm drain stenciling program</td>
<td>Residents</td>
<td>Highway Department</td>
<td>Distribute at least two educational messages within the permit term (5 Years)</td>
<td>2018</td>
</tr>
<tr>
<td>Brochures/Paraphlets</td>
<td>Publish outreach materials; Distribute information to septic maintenance contractors; Include information in permit application materials</td>
<td>Businesses, Institutions and Commercial Facilities</td>
<td>Highway Department, Board of Health</td>
<td>Distribute at least two educational messages within the permit term (5 Years)</td>
<td>2018</td>
</tr>
<tr>
<td>Brochures/Paraphlets</td>
<td>Publish outreach materials; Attach stormwater outreach materials as Appendix to building and sub-division permit applications</td>
<td>Developers (construction)</td>
<td>Highway Dept, Planning, ConCom, BOH, Building Dept, IT Dept</td>
<td>Distribute at least two educational messages within the permit term (5 Years)</td>
<td>2018</td>
</tr>
<tr>
<td>Brochures/Pamphlets</td>
<td>Publish outreach materials; Distribute information on industrial groups based on zoning and property use</td>
<td>Industrial Facilities</td>
<td>Highway Department, Planning Board, Building Department</td>
<td>Distribute at least two educational messages within the permit term (5 Years)</td>
<td>2018</td>
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<tr>
<td>Web Page</td>
<td>Develop stormwater website; Develop stormwater-specific social media account; Consider creating Resident Stormwater Alert System; Utilize materials publicly available from DEP, EPA, and North &amp; South Rivers Watershed Associations</td>
<td>Residents</td>
<td>Highway Dept, Planning, ConCom, BOH, Building Dept, IT Dept</td>
<td>Create/continue to maintain stormwater website</td>
<td>2018</td>
</tr>
<tr>
<td>Web Page</td>
<td>Develop stormwater website; Develop stormwater-specific social media account; Utilize materials publicly available from DEP, EPA, and North &amp; South Rivers Watershed Associations Watershed Associations</td>
<td>Businesses, Institutions and Commercial Facilities</td>
<td>IT Department, Highway Department</td>
<td>Create/continue to maintain stormwater website</td>
<td>2018</td>
</tr>
<tr>
<td>Web Page</td>
<td>Develop stormwater website; Utilize materials publicly available from DEP, EPA, and North &amp; South Rivers Watershed Associations Watershed Associations</td>
<td>Developers (construction)</td>
<td>IT Dept, Highway Dept, Planning Board, Building Dept.</td>
<td>Create/continue to maintain stormwater website</td>
<td>2018</td>
</tr>
<tr>
<td>Web Page</td>
<td>Develop stormwater website; Utilize materials publicly available from DEP, EPA, and North &amp; South Rivers Watershed Associations</td>
<td>Industrial Facilities</td>
<td>IT Department, Highway Department</td>
<td>Create/continue to maintain stormwater website</td>
<td>2018</td>
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### Notice of Intent (NOI) for coverage under Small MS4 General Permit

#### Part III: Stormwater Management Program Summary (continued)

#### MCM 2: Public Involvement and Participation

<table>
<thead>
<tr>
<th>BMP Categorization</th>
<th>Brief BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Additional Description/Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Review</td>
<td>SWMP Review</td>
<td>Highway Department</td>
<td>Allow annual review of stormwater management plan and posting of stormwater management plan on website</td>
<td>2018</td>
</tr>
<tr>
<td>Public Participation</td>
<td>SWMP Review</td>
<td>Highway Department</td>
<td>Allow public to comment on stormwater management plan annually</td>
<td>2018</td>
</tr>
<tr>
<td>Public Participation</td>
<td>Cleanups - Shoreline/Waterbody</td>
<td>Highway Department</td>
<td>Continue to conduct Green Up Clean Up community cleanup event biannually</td>
<td>2018</td>
</tr>
</tbody>
</table>
## 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)

<table>
<thead>
<tr>
<th>BMP Categorization (enter your own text to override the drop down menu)</th>
<th>BMP Description (enter your own text to override the drop down menu)</th>
<th>Responsible Department/Parties (all text can be overwritten)</th>
<th>Measurable Goal (all text can be overwritten)</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSO inventory</td>
<td>Develop SSO inventory in accordance of permit conditions</td>
<td>Highway Department</td>
<td>Complete within 1 year of effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Storm sewer system map</td>
<td>Create map and update during IDDE program completion</td>
<td>Highway Department</td>
<td>Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Written IDDE program</td>
<td>Create written IDDE program</td>
<td>Highway Department, Planning Board, Board of Health</td>
<td>Complete within 1 year of the effective date of permit and update as required</td>
<td>2018</td>
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<tr>
<td>Implement IDDE program</td>
<td>Implement catchment investigations according to program and permit conditions</td>
<td>Highway Department, Board of Health</td>
<td>Complete 10 years after effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Employee training</td>
<td>Train employees on IDDE implementation</td>
<td>Highway Department</td>
<td>Train annually</td>
<td>2018</td>
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<tr>
<td>Conduct dry weather screening</td>
<td>Conduct in accordance with outfall screening procedure and permit conditions</td>
<td>Highway Department</td>
<td>Complete 3 years after effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Conduct wet weather screening</td>
<td>Conduct in accordance with outfall screening procedure</td>
<td>Highway Department</td>
<td>Complete 10 years after effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Ongoing screening</td>
<td>Conduct dry weather and wet weather screening (as necessary)</td>
<td>Highway Department</td>
<td>Complete ongoing outfall screening upon completion of IDDE program</td>
<td>2018</td>
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<tr>
<td>IDDE Regulations</td>
<td>Comply with local bylaws, state and federal requirements</td>
<td>Highway Department, Planning Board, Board of Health, Conservation Co</td>
<td>Continue to eliminate illicit discharge violations</td>
<td>2018</td>
</tr>
<tr>
<td>BMP Categorization</td>
<td>BMP Description</td>
<td>Responsible Department/Parties</td>
<td>Measurable Goal</td>
<td>Beginning Year of BMP Implementation</td>
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</tr>
<tr>
<td>Site inspection and enforcement of Erosion and Sediment Control (ESC) measures</td>
<td>Complete written procedures of site inspections and enforcement procedures</td>
<td>Building Permitting and Enforcement, Conservation Commission</td>
<td>Complete within 1 year of the effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Site plan review</td>
<td>Complete written procedures of site plan review and begin implementation</td>
<td>Planning Board</td>
<td></td>
<td>2018</td>
</tr>
<tr>
<td>Erosion and Sediment Control</td>
<td>Adoption of requirements for construction operators to implement a sediment and erosion control program</td>
<td>Highway Department, Planning Board, Conservation Commission</td>
<td>Complete within 1 year of the effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Waste Control</td>
<td>Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes</td>
<td>Highway Dept., Conservation Commission, Board of Health, Building Dept.</td>
<td>Complete within 1 year of the effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Pre-Construction/Coordination Meetings</td>
<td>Improved as-built review</td>
<td>Building Department, Planning Board</td>
<td>Continue GIS mapping and develop protocol for submitting as-builts electronically</td>
<td>2018</td>
</tr>
</tbody>
</table>
### 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**

<table>
<thead>
<tr>
<th>BMP Categorization</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>As-built plans for on-site stormwater control</td>
<td>The procedures to require submission of as-built drawings and ensure long-term operation and maintenance will be a part of the SWMP.</td>
<td>Highway Dept, Planning, ConCom, BOH, Building Dept, Zoning Board of Appeals.</td>
<td>Require submission of as-built plans for completed projects.</td>
<td>2018</td>
</tr>
<tr>
<td>Target properties to reduce impervious areas</td>
<td>Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually.</td>
<td>Highway Dept, Planning, ConCom, BOH, Building Dept, Zoning Board of Appeals.</td>
<td>Complete 4 years after effective date of permit and report annually on retrofitted properties.</td>
<td>2018</td>
</tr>
<tr>
<td>Allow green infrastructure</td>
<td>Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist.</td>
<td>Highway Dept, Planning Board, ConCom, Zoning Board of Appeals.</td>
<td>Complete 4 years after effective date of permit and implement recommendations of report.</td>
<td>2018</td>
</tr>
<tr>
<td>Street design and parking lot guidelines</td>
<td>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.</td>
<td>Highway Dept, Planning Board, ConCom, Zoning Board of Appeals.</td>
<td>Complete 4 years after effective date of permit and implement recommendations of report.</td>
<td>2018</td>
</tr>
<tr>
<td>Town of Hanson</td>
<td>Adoption, amendment, or modification of a regulatory mechanism to meet permit requirements</td>
<td>Highway Department, Planning Board</td>
<td>Complete 2 years after effective date of permit</td>
<td>2018</td>
</tr>
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<td>--------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>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</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 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**

<table>
<thead>
<tr>
<th>BMP Categorization</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>O&amp;M procedures</td>
<td>Create written O&amp;M procedures including all requirements contained in 2.3.7.a.ii for parks and open spaces, buildings and facilities, and vehicles and equipment</td>
<td>Highway Department, Conservation Commission, Planning Board</td>
<td>Complete and implement 2 years after effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Inventory all permittee-owned parks and open spaces, buildings and facilities, and vehicles and equipment</td>
<td>Create inventory</td>
<td>Highway Department, Conservation Commission, Planning Board</td>
<td>Complete 2 years after effective date of permit and implement annually</td>
<td>2018</td>
</tr>
<tr>
<td>Infrastructure O&amp;M</td>
<td>Establish and implement program for repair and rehabilitation of MS4 Infrastructure</td>
<td>Highway Department</td>
<td>Complete 2 years after effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Stormwater Pollution Prevention Plan (SWPPP)</td>
<td>Create SWPPP for maintenance garages, transfer stations, and other waste-handling facilities</td>
<td>Highway Department, Board of Health</td>
<td>Complete and implement 2 years after effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>Catch basin cleaning</td>
<td>Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule</td>
<td>Highway Department</td>
<td>Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually</td>
<td>2018</td>
</tr>
<tr>
<td>Street sweeping program</td>
<td>Sweep all streets and permittee-owned parking lots in accordance with permit conditions</td>
<td>Highway Department</td>
<td>Sweep all streets and permittee-owned parking lots once per year in the spring</td>
<td>2018</td>
</tr>
<tr>
<td>Road salt use optimization program</td>
<td>Establish and implement a program to minimize the use of road salt</td>
<td>Highway Department</td>
<td>Implement salt use optimization during deicing season</td>
<td>2018</td>
</tr>
<tr>
<td>Inspections and maintenance of stormwater treatment structures</td>
<td>Establish and implement inspection and maintenance procedures and frequencies</td>
<td>Highway Department</td>
<td>Inspect and maintain treatment structures at least annually</td>
<td>2018</td>
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</table>
**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.**

<table>
<thead>
<tr>
<th>Applicable TMDL</th>
<th>Action Description</th>
<th>Responsible Department/Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taunton River Watershed (Bacteria/Pathogen)</td>
<td>Adhere to requirements in part A.III of Appendix F</td>
<td>Highway Department, Board of Health, Conservation Commission</td>
</tr>
<tr>
<td>South Coastal Watershed (Bacteria/Pathogen)</td>
<td>Adhere to requirements in part A.III of Appendix F</td>
<td>Highway Department, Board of Health, Conservation Commission</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Waterbody ID(s)</th>
<th>Action Description</th>
<th>Responsible Department/Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorus</td>
<td>MA94-04, MA94168, MA62119</td>
<td>Adhere to requirements in part II of Appendix H</td>
<td>Highway Department, Board of Health</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>MA62-33</td>
<td>Adhere to requirements in part III of Appendix H</td>
<td>Highway Department, Board of Health</td>
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<td>Adhere to requirements in part I of Appendix H</td>
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<td>Adhere to requirements in part I of Appendix H</td>
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<td>Adhere to requirements in part I of Appendix H</td>
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<tr>
<td></td>
<td></td>
<td>Adhere to requirements in part I of Appendix H</td>
<td></td>
</tr>
</tbody>
</table>
Use the space below to indicate the part(s) of 2.2.1 and 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.

Attachments:
Figure: MS4 Outfalls
Figure: Outfalls by Watershed
USFWS Correspondence

The outfalls included in Part II: Summary of Receiving Waters were selected based on a 100 foot distance from any waters of the U.S. Coordinates listed under unnamed water segments are based on the NAD 1983 StatePlane Massachusetts FIPS 2001 (US Feet) Coordinate System, and are listed as latitude/longitude in decimal degrees.

Regarding the ESA section 7 consultation, I agree that the MS4 Permit will not adversely affect the Northern Long-eared Bat.

Regarding the National Historic Preservation Act, under 36 CFR 800, this facility is an existing facility authorized by the previous Permit, and is not undertaking any activity involving subsurface land disturbance less than 1 acre. This MS4 Permit will have "no potential to cause effects," in accordance with 36 CFR 800.3(a)(1).
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: Michael W. McCue
Title: Town Administrator
Signature: [Signature]
Date: 25 SEP 18

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

PERMIT SCHEDULE
MS4 Permit
Draft Schedule
Town of Hanson, Massachusetts
December 5, 2018

July 2018 – MS4 Permit effective date to coincide with start of FY18

- **September 29, 2018** – Submit Updated NOI (within 90 days of effective date)

July 2019 – Items due within 1 year of effective date

- Submit Updated Stormwater Management Plan
- Additional Mapping – update stormwater system GIS for connectivity (as needed)
- Written IDDE Plan, identify catchments contributing to high priority areas such as contributing to public water supplies, public bathing beaches, or Inventory Town Facilities
- Develop O&M for Town Facilities – Highway facilities, Parks/Recreation, Town Hall, Schools
- Evaluate street sweeping and catch basin cleaning frequency
- Education/Outreach – Two educational messages to each of the 4 audiences over 5 years
- Additional Education/Outreach (x2 for Impaired Water Requirements)*
  - Phosphorus: Targeting disposal of grass clippings, slow release phosphorus-free fertilizers, pet waste management, and leaf litter disposal – Indian Head River, Wampatuck Pond, and Monponsett Pond
  - Bacteria and Pathogens: Targeting Dog Waste/Septic Systems - South Coastal Watershed
- Additional BMPS for Waterbodies with Impairments by Solids ** - Factory Pond, Indian Head River, Monponsett Pond, Wampatuck Pond, Shumatuscacant River
  - New or Redevelopment of Commercial Industrial properties draining to the waterbodies shall incorporate stormwater BMPs that can be shutdown/isolated in event of a spill/release. EPA encourages requirements for stormwater infiltration and pollutant removal BMPs.
  - Evaluate need for increased frequency of street sweeping of municipal streets and parking lots in areas with potential for higher pollutant loads.
  - Evaluate need for increased frequency of catch basin inspections and cleaning if excessive sediment/debris loadings observed.
- Public Participation
- Annual Training

July 2020 – Items due within 2 years of effective date

- SWPPP for Appropriate Facilities
- SPCC Plan where appropriate
- Parks Maintenance Plan
- Ongoing Outfall Sampling (wet & dry) / Inspections / Update Mapping
- Continue to evaluate street sweeping and catch basin cleaning frequency.

* Evaluate need for increased frequency of street sweeping of municipal streets and parking lots in areas with potential for higher pollutant loads.

** Evaluate need for increased frequency of catch basin inspections and cleaning if excessive sediment/debris loadings observed.
- Education/Outreach – Two educational messages to each of the 4 audiences over 5 years
- Additional Education/Outreach (*x2 for Impaired Water Requirements*)
  o Phosphorus: Targeting disposal of grass clippings, slow release phosphorus-free fertilizers, pet waste management, and leaf litter disposal – Indian Head River, Wampatuck Pond, and Monponsett Pond
  o Bacteria and Pathogens: Targeting Dog Waste/Septic Systems - South Coastal Watershed

- Public Participation
- Annual Training

**July 2021** – Items due within 3 years of effective date

- Revisions to Stormwater Bylaw - Construction Site Stormwater Runoff Control
- Draft regulations to promote green infrastructure – Post-Construction Management
- Ongoing Outfall Sampling (wet & dry) / Inspections / Update Mapping
- Continue to evaluate street sweeping and catch basin cleaning frequency.
- Education/Outreach – Two educational messages to each of the 4 audiences over 5 years
- Additional Education/Outreach (*x2 for Impaired Water Requirements*)
  o Phosphorus: Targeting disposal of grass clippings, slow release phosphorus-free fertilizers, pet waste management, and leaf litter disposal – Indian Head River, Wampatuck Pond, and Monponsett Pond
  o Bacteria and Pathogens: Targeting Dog Waste/Septic Systems - South Coastal Watershed
- Public Participation
- Annual Training

**July 2022** – Items due within 4 years of effective date

- Revisions to Stormwater Bylaw - Construction Site Stormwater Runoff Control
- Draft regulations to reduce impervious cover – Post-Construction Management
- Ongoing Outfall Sampling (wet & dry) / Inspections / Update Mapping
- Education/Outreach – Two educational messages to each of the 4 audiences over 5 years
- Continue to evaluate street sweeping and catch basin cleaning frequency.
- Phosphorus Source Identification Report*
- Additional Education/Outreach (*x2 for Impaired Water Requirements*)
  o Phosphorus: Targeting disposal of grass clippings, slow release phosphorus-free fertilizers, pet waste management, and leaf litter disposal – Indian Head River, Wampatuck Pond, and Monponsett Pond
  o Bacteria and Pathogens: Targeting Dog Waste/Septic Systems - South Coastal Watershed
- Public Participation
- Annual Training

**July 2023** – Permit Length (5 years)
• Inventory/Priority Ranking of LID retrofits on Town-Owned Property – Post-Construction Management
• Ongoing Outfall Sampling (wet & dry) / Inspections / Update Mapping
• Education/Outreach – Two educational messages to each of the 4 audiences over 5 years
• Continue to evaluate street sweeping and catch basin cleaning frequency.
• Evaluate all Properties for BMPs – Phosphorus removal*
• Plan and Scheduled for BMPs - Phosphorus removal*
• Additional Education/Outreach (*x2 for Impaired Water Requirements)*
  • Phosphorus: Targeting disposal of grass clippings, slow release phosphorus-free fertilizers, pet waste management, and leaf litter disposal – Indian Head River, Wampatuck Pond, and Monponsett Pond
  • Bacteria and Pathogens: Targeting Dog Waste/Septic Systems - South Coastal Watershed
• Public Participation
• Annual Training
APPENDIX D

ENDANGERED SPECIES AND CRITICAL HABITATS PROTECTION DOCUMENTS
United States Department of the Interior

FISH AND WILDLIFE SERVICE

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

January 8, 2018

To Whom It May Concern:

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


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

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

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office
In Reply Refer To: Consultation Code: 05E1NE00-2018-SLI-2420
Event Code: 05E1NE00-2018-E-05623
Project Name: Hanson MS4

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
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, 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

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Long-eared Bat Myotis septentrionalis</td>
<td>Threatened</td>
</tr>
</tbody>
</table>

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

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

Consultation Code: 05E1NE00-2018-SLI-2420
Event Code: 05E1NE00-2018-E-05623
Project Name: Hanson MS4
Project Type: ** OTHER **
Project Description: Hanson Stormwater

Project Location:
Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.056030523213906N70.8752977947386W

Counties: Plymouth, MA
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as trust resources) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Plymouth County, Massachusetts

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland
Appendix D
National Historic Preservation Act Guidance

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

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

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

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

In addition, the overwhelming majority of sources covered under this permit will be facilities that are seeking renewal of previous permit authorization. These existing dischargers should have already addressed NHPA issues in the previous general permit as they were required to certify that they were either not affecting historic properties or they had obtained written agreement from
the applicable SHPO or THPO regarding methods of mitigating potential impacts. To the extent this permit authorizes renewal of prior coverage without relevant changes in operations the discharge has no potential to have an effect on historic properties.

**Activities with Potential to Have an Effect on Historic Properties**

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

**Examples of Control Measures Which Involve Subsurface Disturbance**

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

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

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

**Certification**

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

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

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

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

**Screening Process**

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

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

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

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

*NO* - Go to Question 2.

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

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

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

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

- Completed Project Notification Form- forms available at [http://www.sec.state.ma.us/mhc/mhcfom/formidx.htm](http://www.sec.state.ma.us/mhc/mhcfom/formidx.htm)
• USGS map section with the actual project boundaries clearly indicated; and
• Scaled project plans showing existing and proposed conditions.

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

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

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

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

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

NEW OR INCREASED DISCHARGES
<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Proposed Use</th>
<th>Area</th>
<th>Contributing Area to MS4</th>
<th>BMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>**Example Rd</td>
<td>Housing Community</td>
<td>Residence</td>
<td>27 acres</td>
<td>9 acres</td>
<td>Stormceptor unit and detention pond</td>
</tr>
</tbody>
</table>

**Example of what would be written for a new or increased discharge**
**Sanitary Sewer Overflow (SSO) Inventory**
Hanson, MA

<table>
<thead>
<tr>
<th>Location</th>
<th>Discharge Location</th>
<th>In Discharge Entering MS4? (Y/N)</th>
<th>Date/Time of SSO Occurrence</th>
<th>Estimated Volume of SSO Occurrence</th>
<th>Known/Suspected Cause</th>
<th>Mitigation Measures Completed</th>
<th>Mitigation Implementation Date</th>
<th>Mitigation Measures Planned</th>
<th>Mitigation Implementation Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Example Rd</td>
<td>Enters into Example Pond</td>
<td>Yes</td>
<td>August 4, 2016 9:00 AM - August 5, 2016 3:00 PM</td>
<td>1,200 gallons</td>
<td>Illicit resident connection</td>
<td>Illicit connection removed</td>
<td>August 8, 2016</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The SSO occurrence listed above is an example*
APPENDIX H

CURRENT STORMWATER BYLAW
Sec. 1. PURPOSE

Regulation of discharges to the municipal separate storm sewer system (MS4) is necessary for the protection of the Town of Hanson’s water bodies and groundwater, and to safeguard the public health, safety, welfare and the environment. Increased and contaminated stormwater runoff associated with developed land uses and the accompanying increase in impervious surface are major causes of impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater.

A. The harmful impacts of soil erosion and sedimentation are:
   - Impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater;
   - Contamination of drinking water supplies;
   - Alteration or destruction of aquatic and wildlife habitat;
   - Flooding; and
   - Overloading or clogging of municipal catch basins and storm drainage systems.

B. The objectives of this Section are:
   - To require practices to control the flow of stormwater from new and redeveloped sites into the Town of Hanson’s storm drainage system in order to prevent flooding and erosion;
   - To protect groundwater and surface water from degradation;
   - To promote groundwater recharge;
   - To prevent pollutants from entering the Town of Hanson’s municipal separate storm sewer system (MS4) and to minimize discharge of pollutants from the MS4;
   - To ensure adequate long-term operation and maintenance of structural stormwater best management practices so that they work as designed;
   - To comply with state and federal statutes and regulations relating to stormwater discharges; and
   - To establish the Town of Hanson’s legal authority to ensure compliance with the provisions of this Section through inspection, monitoring, and enforcement.

Sec. 2. DEFINITIONS

ABUTTER: The owner(s) of land abutting the activity.

AGRICULTURE: The normal maintenance or improvement of land in agricultural or aquacultural use, as defined by the Massachusetts Wetlands Protection Act and its implementing regulations.
ALTERATION OF DRAINAGE CHARACTERISTICS: Any activity on an area of land that changes the water quality, force, direction, timing or location of runoff flowing from the area. Such changes include: change from distributed runoff to confined, discrete discharge, change in the volume of runoff from the area; change in the peak rate of runoff from the area; and change in the recharge to groundwater on the area.

APPLICANT: Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the Commonwealth or the Federal government to the extent permitted by law requesting a soil erosion and sediment control permit for proposed Construction Activity.

AUTHORIZED ENFORCEMENT AGENCY: The Planning Board (hereafter the Board), its employees or agents designated to enforce this Section.

BEST MANAGEMENT PRACTICE (BMP): An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

CLEARING: Any activity that removes the vegetative surface cover.

CONSTRUCTION ACTIVITY: Any activity that causes a change in the position or location of soil, sand, rock, gravel or similar earth material.

CONSTRUCTION SITE: The plot of land located within the Town on which the Construction Activity will occur.

CONSTRUCTION AND WASTE MATERIALS: Excess or discarded building or site materials, including but not limited to concrete truck washout, chemicals, litter and sanitary waste at a construction site that may adversely impact water quality.

DEVELOPMENT: The modification of land to accommodate a new use or expansion of use, usually involving construction.

GRADING: Changing the level or shape of the ground surface.

GRUBBING: The act of clearing land surface by digging up roots and stumps.

EROSION: The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment and transportation of soil particles.

EROSION AND SEDIMENTATION CONTROL PLAN: A document containing narrative, drawings and details developed by a qualified professional engineer (PE), which includes best management practices, or equivalent measures designed to control surface runoff, erosion and sedimentation during pre-construction and construction related activities.
ESTIMATED HABITAT OF RARE WILDLIFE AND CERTIFIED VERNAL POOLS: Habitats delineated for state-protected rare wildlife and certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00) and the Forest Cutting Practices Act Regulations (304 CMR 11.00).

IMPERVIOUS SURFACE: Any material or structure on or above the ground that prevents water infiltrating the underlying soil. Impervious surface includes without limitation roads, paved parking lots, sidewalks, and roof tops.

MASSACHUSETTS ENDANGERED SPECIES ACT: (G.L. c. 131A) and its implementing regulations at (321 CMR 10.00) which prohibit the “taking” of any rare plant or animal species listed as Endangered, Threatened, or of Special Concern.

MASSACHUSETTS STORMWATER MANAGEMENT POLICY: The Policy issued by the Department of Environmental Protection, and as amended, that coordinates the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 §. 40 and Massachusetts Clean Waters Act G.L. c. 21, §. 23-56. The Policy addresses stormwater impacts through implementation of performance standards to reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS: The Standards issued by the Massachusetts Department of Environmental Protection (DEP), codified in regulations at 310 CMR 10.05(6)(k)-(q) and further defined and specified in the Massachusetts Stormwater Handbook issued by the DEP. The Standards address stormwater impacts through implementation of performance standards that reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) or municipal storm drain system: The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Hanson.

NPDES: National Pollution Discharge Elimination System Construction General Permit issued by the Environment Protection Agency to the Applicant.

OPERATOR: The party associated with the Construction Activity that meets either of the following two criteria: (1) The party who has operational control over construction plans and specifications including the ability to make modifications to those plans and specifications or (2) The party who has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a Stormwater Pollution Prevention Plan for the site or other permit conditions.

OWNER: A person with a legal or equitable interest in property.
OUTFALL: The point at which stormwater flows out from a point source discernible, confined and discrete conveyance into waters of the Commonwealth.

OUTSTANDING RESOURCE WATERS (ORWs): Waters designated by Massachusetts Department of Environmental Protection as ORWs. These waters have exceptional sociologic, recreational, ecological and/or aesthetic values and are subject to more stringent requirements under both the Massachusetts Water Quality Standards (314 CMR 4.00) and the Massachusetts Stormwater Management Standards. ORWs include vernal pools certified by the Natural Heritage Program of the Massachusetts Department of Fisheries and Wildlife and Environmental Law Enforcement, all Class A designated public water supplies with their bordering vegetated wetlands, and other waters specifically designated.

PERSON: An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

POINT SOURCE: Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

POLLUTANTS: Include without limitation the following: Dredged spoil, solid waste, incinerator residue, filter back-wash, sewage, garbage, sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rocks, sand, animal or agricultural waste, oil, grease, gasoline or diesel fuel.

REDEVELOPMENT: Development, rehabilitation, expansion, demolition or phased projects that disturb the ground surface or increase the impervious area on previously developed sites.

PRE-CONSTRUCTION: All activity in preparation for construction.

PRIORITY HABITAT OF RARE SPECIES: Habitats delineated for rare plant and animal populations protected pursuant to the Massachusetts Endangered Species Act and its regulations.

RUNOFF: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

SEDIMENT: Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

SEDIMENTATION: The process or act of deposition of sediment.

SITE: Any lot or parcel of land or area of property where land-disturbing activities are, were, or will be performed.

SLOPE: The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.
SOIL: Any earth, sand, rock, gravel, or similar material.

STABILIZATION: The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or retard erosion.

STORMWATER: Storm water runoff, snow melt runoff, and surface water runoff and drainage.

STORMWATER DISCHARGES: Stormwater that runs off from the construction Site into the MS4 or otherwise into Waters of the U.S.

STORMWATER MANAGEMENT MEASURES: Infrastructure improvements that are constructed or installed during Construction Activity to prevent Pollutants from entering Stormwater Discharges or to reduce the quantity of Stormwater Discharges that will occur after Construction Activity has been completed. Examples include but are not limited to: on-site filtration, flow attenuation by vegetation or natural depressions, outfall velocity dissipation devices, retention structures and artificial wetlands, and water quality detention structures.

STORMWATER PERMIT: The permit issued by the Authorized Enforcement Agency to the Applicant which allows Construction Activity to occur as outlined by the Applicant in its application and Stormwater Pollution Prevention Plan.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP): That plan required of all Applicants in which they outline the Erosion and Sedimentation BMPs they will use, the BMPs they will use to control wastes generated on the Construction Site, the Stormwater Management Measures they will construct and their plan for long-term maintenance of these measures.

STRIP: Any activity which removes the vegetative ground surface cover, including tree removal, clearing, grubbing, and storage or removal of topsoil.

TSS: Total Suspended Solids.

VERNAL POOLS: Temporary bodies of freshwater which provide critical habitat for a number of vertebrate and invertebrate wildlife species.

WATERCOURSE: A natural or man-man channel through which water flows or a stream of water, including a river, brook, or underground stream.

WATERS OF THE US: These include:

- All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or
natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
  o That are or could be used by interstate or foreign travelers for recreational or other purposes;
  o From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  o That are used or could be used for industrial purposes by industries in interstate Commerce;

- All impoundments of waters otherwise defined as waters of the United States under this definition;
- Tributaries of waters identified in paragraphs 1 through 4 of this definition;
- The territorial sea; and
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs 1 through 6 of this definition.

WETLANDS: Tidal and non-tidal areas characterized by saturated or nearly saturated soils most of the year that are located between terrestrial (land-based) and aquatic (water-based) environments, including freshwater marshes around ponds and channels (rivers and streams), brackish and salt marshes; common names include marshes, swamps and bogs.

Sec. 3. AUTHORITY

This Section is adopted under authority granted by the Home Rule Amendment of the Massachusetts Constitution, the Home Rule statutes, and pursuant to the regulations of the federal Clean Water Act found at 40 CFR 122.34.

Sec. 4. APPLICABILITY

This Section shall apply to all activities that result in disturbance of one or more acres of land that drains to the municipal separate storm sewer system. Except as authorized by the Board in a Stormwater Permit or as otherwise provided in this Section, no person shall perform any activity that results in disturbance of an acre or more of land.

Normal maintenance and improvement of land in agricultural or aquacultural use, as defined by the Wetlands Protection Act regulation 310 CMR 10.4, are exempt. In addition, Construction Activities are exempt from needing a Stormwater Permit if the stormwater discharges resulting from them demonstrate compliance with the Massachusetts Stormwater Management Standards, either through a properly issued Order of Conditions, Site Plan Review, Special Permit/Variance or Subdivision Plan approval.

The Stormwater Permit does not exclude the requirement of filing a Construction General Permit with the Environmental Protection Agency.
Sec. 5. RESPONSIBILITY FOR ADMINISTRATION

A. The Board shall administer, implement and enforce this Section. Any powers granted to or duties imposed upon the Board may be delegated in writing by the Board to its employees or agents.

B. Waiver. The Board may waive strict compliance with any requirement of this Section or the rules and regulations promulgated hereunder, where:
   o Such action is allowed by federal, state and local statutes and/or regulations,
   o Is in the public interest, and
   o Is not inconsistent with the purpose and intent of this Section.

C. Rules and Regulations. The Board may adopt, and periodically amend rules and regulations to effectuate the purposes of this Section. Failure by the Board to promulgate such rules and regulations shall not have the effect of suspending or invalidating this Section.

Sec. 6. PERMITS and PROCEDURE

A. Application Procedure: Applicant must sign and file an Application for a Stormwater Permit on a form provided by the Town. The Application should be submitted to the Board and to be deemed complete must be accompanied by:
   o A Stormwater Permit Application Fee.
   o Identification of the Construction Site by book, page, and plot number in the records of the Assessor’s Office.
   o A narrative description of the Construction Activity intended, the proposed use of any improvements to be constructed and the construction timetable.
   o A Site Plan required by Section 7.
   o A list of abutters certified by the Assessor’s Office including addresses.
   o A Stormwater Pollution Prevention Plan required by Section 8.

B. Entry: Filing an application for a permit grants the Board or its agent, permission to enter the site to verify the information in the application and to inspect for compliance with permit conditions.

C. Other Boards: The Board shall notify the Town Clerk of receipt of the application, and shall give one copy of the application package to the Building Department, Conservation Commission and Highway Department.

D. Public Hearing: The Board shall hold a public hearing within twenty-one (21) days of the receipt of a complete application and shall take final action within twenty-one (21) days from the time of the close of the hearing unless such time is extended by agreement between the applicant and the Board. Notice of the public hearing shall be given by publication and posting and by first-class mailings to abutters at least seven (7) days prior to the hearing. The Board shall make the application available for inspection by the public during business hours at the Town of Hanson’s Planning Department Office.

E. Information requests: The applicant shall submit all additional information requested by the Board to issue a decision on the application.

F. Action by the Board: The Board may:
Approve the Stormwater Permit Application and issue a permit if it finds that the proposed plan will protect water resources and meets the objectives and requirements of this Section;

Approve the Stormwater Permit Application and issue a permit with conditions, modifications or restrictions that the Board determines are required to ensure that the project will protect water resources and meets the objectives and requirements of this Section;

Disapprove the Stormwater Permit Application and deny the permit if it finds that the proposed plan will not protect water resources or fails to meet the objectives and requirements of this Section.

G. **Failure of the Board to take final action:** Failure of the Board to take final action upon an Application within the time specified above shall be deemed to be approval of said Application. Upon certification by the Town Clerk that the allowed time has passed without the Board’s action, the Stormwater Permit shall be issued by the Board.

H. **Fee Structure:** Each application must be accompanied by the appropriate application fee as established by the Board. Applicants shall pay review fees as determined by the Board sufficient to cover any expenses connected with the public hearing and review of the Stormwater Permit Application before the review process commences. The Board is authorized to retain a Registered Professional Engineer or other professional consultant to advise the Board on any or all aspects of the Application.

I. **Project Changes:** The permittee, or their agent, must notify the Board in writing of any change or alteration of a land-disturbing activity authorized in a Stormwater Permit before any change or alteration occurs. If the Board determines that the change or alteration is significant, based on the design requirements listed in Section 8 and accepted construction practices, the Board may require that an amended Stormwater Permit application be filed and a public hearing held. If any change or alteration from the Stormwater Permit occurs during any land disturbing activities, the Board may require the installation of interim erosion and sedimentation control measures before approving the change or alteration.

**Sec. 7. SITE PLAN**

The Site Plan that is submitted must contain at least the following information:

A. Names, addresses and telephone numbers of the Person(s) or firm(s) preparing the plan.
B. Title, date, north arrow, scale, legend and locus map.
C. Location and description of natural features including watercourses and water bodies, wetland resource areas and all floodplain information including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map (or as calculated by a professional engineer for areas not assessed on those maps) located on or adjacent to the Construction Site.
D. A description and delineation of existing Stormwater conveyances and impoundments located on the Construction Site with their point of discharge noted.
E. Location and description of existing soils and vegetation including tree lines, shrub layer, ground cover and herbaceous vegetation and trees with a caliper twelve (12) inches or larger with run-off coefficient for each.
F. Habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species located on or adjacent to the Construction Site.

G. Lines of existing abutting streets showing drainage and driveway locations and curb cuts.

H. Surveyed property lines of the Construction Site showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire Construction Site and the delineation and number of square feet of the land area that is to be disturbed.

I. Proposed improvements including location of buildings or other structures and impervious surfaces (such as parking lots).

J. Topographical features including existing and proposed contours at intervals of no greater than two (2) feet with spot elevations provided when needed.

K. The existing site hydrology including drainage patterns and approximate slopes anticipated after major grading activities.

L. Location of the MS4 with relation to the Construction Site.

M. Identification of Outfalls which are located on the Construction Site.

N. Stormwater Discharge calculations prepared and certified by a Registered Professional Engineer describing the volume of Stormwater that presently discharges from the Construction Site and the estimated volume post-development.

O. Identification of any existing Stormwater Discharges emanating from the Construction Site and discharging into the MS4 for which a NPDES Permit has been issued (include Permit number).

P. A list of water bodies that will receive Stormwater Discharges from the Construction Site with the location of drains noted on the map. A brief description of known water quality impacts and whether the water bodies receiving such Stormwater Discharges have:
   1. Been assessed and reported in reports submitted by the Massachusetts Department of Environmental Protection to EPA pursuant to Section 305 (b) of CWA and
   2. Been listed as a Category 5 Water (Waters Requiring a Total Maximum Daily Load [TMDL]) by DEP under 303(d) of the CWA.

Sec. 8. STORMWATER POLLUTION PREVENTION PLAN REQUIREMENTS

Applicant must submit a Stormwater Pollution Prevention Plan (SWPPP) with its Application for a Stormwater Permit. The SWPPP must include the following: (1) a plan to control wastes generated by the Construction Activity on the Construction Site, (2) an Erosion and Sedimentation Control Plan, (3) a plan to construct Stormwater Management Measures, and (4) a plan for Operation and Maintenance of Stormwater Management Measures.

A. PLAN TO CONTROL WASTES - Applicant must list the construction and waste materials expected to be generated or stored on the Construction Site. These wastes include but are not limited to: discarded building materials, concrete truck washout, chemicals, litter, sanitary waste and material stockpiling. Applicant must also describe in narrative form the Best Management Practices it will utilize to reduce pollutants from these materials including storage practices to minimize exposure of the materials to Stormwater and spill prevention and response plans. If any structural BMPs are proposed,
they must be identified and located on the site plan. At a minimum, Applicant’s plan should provide for the following:
  o Areas designated and controlled for equipment storage, maintenance and repair.
  o Convenient locations for waste receptacles and a schedule for regular removal.
  o Wash down areas for vehicles selected to prevent contamination of Stormwater.
  o Covered storage areas for chemicals, paints, solvents, fertilizers and other toxic materials.
  o Adequately maintained sanitary facilities.

B. EROSION AND SEDIMENTATION CONTROL PLAN - Applicant must describe its plan for properly stabilizing the site before construction begins and the BMPs that it will use during construction to minimize erosion of the soil and sedimentation of the Stormwater. These BMPs should include both stabilization practices such as: seeding, mulching, preserving trees and vegetative buffer strips, and contouring and structural practices such as: earth dikes, silt fences, drainage swales, sediment traps, check dams, and subsurface or pipe slope drains. Applicant must locate structural BMPs on the site plan. Applicant must also provide details of construction including the timing, scheduling and sequencing of development including clearing, stripping, rough grading, construction, final grading and Final Site Stabilization. The design requirements of the Erosion and Sedimentation Control Plan are:
  o Minimize total area of disturbance;
  o Sequence activities to minimize simultaneous areas of disturbance;
  o Minimize peak rate of runoff in accordance with the Massachusetts Stormwater Policy;
  o Minimize soil erosion and control sedimentation during construction, provided that prevention of erosion is preferred over sedimentation control;
  o Divert uncontaminated water around disturbed areas;
  o Maximize groundwater recharge;
  o Install and maintain all Erosion and Sediment Control measures in accordance with the manufacturers specifications and good engineering practices;
  o Prevent off-site transport of sediment;
  o Protect and manage on and off-site material storage areas (overburden and stockpiles of dirt, borrow areas, or other areas used solely by the permitted project are considered a part of the project);
  o Comply with applicable Federal, State and local laws and regulations including waste disposal, sanitary sewer or septic system regulations, and air quality requirements, including dust control;
  o Prevent significant alteration of habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or Of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species from the proposed activities;
  o Institute interim and permanent stabilization measures, which shall be instituted on a disturbed area as soon as practicable but no more than 14 days after construction activity has temporarily or permanently ceased on that portion of the site;
  o Prevent off-site vehicle tracking of sediments.
C. PLAN TO CONSTRUCT STORMWATER MANAGEMENT MEASURES - The application for a Stormwater Permit shall include submittal of a Plan to Construct Stormwater Management Measures to the Board. This Plan shall contain sufficient information for the Board to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the applicant for reducing adverse impacts from stormwater. The Plan shall be designed to meet the Massachusetts Stormwater Management Standards and DEP Stormwater Management Handbook Volumes I and II. The Plan shall fully describe the project in drawings, and narrative. It shall include:

- A locus map,
- The existing zoning, and land use at the site,
- The proposed land use,
- The location(s) of existing and proposed easements,
- The location of existing and proposed utilities,
- The site’s existing & proposed topography with contours at 2 foot intervals,
- The existing site hydrology,
- A description & delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows,
- A delineation of 100-year flood plains, if applicable,
- Estimated seasonal high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration,
- The existing and proposed vegetation and ground surfaces with runoff coefficients for each,
- A drainage area map showing pre and post construction watershed boundaries, drainage area and stormwater flow paths,
- A description and drawings of all components of the proposed drainage system including:
  - locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization,
  - all measures for the detention, retention or infiltration of water,
  - all measures for the protection of water quality,
  - the structural details for all components of the proposed drainage systems and stormwater management facilities,
  - notes on drawings specifying materials to be used, construction specifications, and typicals, and
  - expected hydrology with supporting calculations.
- Proposed improvements including location of buildings or other structures, impervious surfaces, and drainage facilities, if applicable,
- Timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, and vegetative stabilization,
- A maintenance schedule for the period of construction, and
- Any other information requested by the Board.

The Plan shall meet the Standards of the Massachusetts Stormwater Management Policy, which are as follows:

- No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or water of the Commonwealth.
o Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.
o Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post-development site should approximate the annual recharge rate from the pre-development or existing site conditions, based on soil types.
o For new development, stormwater management systems must be designed to remove 80% of the average annual load (post development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:
  • Suitable nonstructural practices for source control and pollution prevention and implemented;
  • Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and
  • Stormwater management BMPs are maintained as designed.
o Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs (see Stormwater Management Volume I: Stormwater Policy Handbook). The use of infiltration practices without pretreatment is prohibited.
o Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas (see Stormwater Management Volume I: Stormwater Policy Handbook). Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold water fisheries and recharge areas for public water supplies.
o Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.
o Erosion and sediment controls must be implemented to prevent impacts during disturbance and construction activities.
o All stormwater management systems must have an operation and maintenance plan to ensure that systems function as designed.
o All illicit discharges to the stormwater management system are prohibited.
  o When one or more of the Standards cannot be met, an applicant may demonstrate that an equivalent level of environmental protection will be provided.

D. OPERATIONS AND MAINTENANCE PLAN - An Operation and Maintenance Plan (O&M Plan) is required at the time of application for all projects. The O&M plan shall be designed to ensure compliance with this Section and that the Massachusetts Surface Water Quality Standards, 314, CMR 4.00 are met in all seasons and throughout the life of the system. The Board shall make the final decision of what maintenance option is appropriate in a given situation. The Board will consider natural features, proximity of site to water bodies and wetlands, extent of impervious surfaces, size of the site, the types of stormwater management structures, and potential need for ongoing maintenance
activities when making this decision. The O&M Plan shall remain on file with the Board and shall be an ongoing requirement. The O&M Plan shall include:

- The name(s) of the owner(s) for all components of the system
- Maintenance agreements that specify:
  - The names and addresses of the person(s) responsible for operation and maintenance
  - The person(s) responsible for financing maintenance and emergency repairs.
  - A maintenance schedule for all drainage structures, including swales and ponds.
  - A list of easements with the purpose and location of each.
  - The signature(s) of the owner(s).
- Stormwater Management Easement(s). Stormwater management easements shall be provided by the property owner(s) as necessary for:
  - Access for facility inspections and maintenance,
  - Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event.
  - Direct maintenance access by heavy equipment to structures requiring regular cleanout.
  - The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.
  - Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Board.
  - Easements shall be recorded with the Plymouth County Registry of Deeds prior to issuance of a Certificate of Completion by the Board.
- Changes to Operation and Maintenance Plans
  - The owner(s) of the stormwater management system must notify the Board of changes in ownership or assignment of financial responsibility.
  - The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of this Section by mutual agreement of the Board and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational responsibility.

Sec. 9. PERMIT TERM

The Stormwater Permit shall be effective upon the date of issuance and remain in effect until the earlier to occur of: 1) a Certificate of Completion is issued by the Board indicating that all Construction Activity has ceased and Final Site Stabilization construction, inspection and approval by a representative of the Board has occurred, or 2) the date three years from the date of issuance of the Stormwater Permit has occurred without Applicant starting Construction Activity on the Construction Site.
Sec. 10. INSPECTION AND SITE SUPERVISION

A. Pre-construction Meeting: Prior to starting clearing, excavation, construction, or land disturbing activity the applicant, the applicant’s technical representative, the general contractor or any other person with authority to make changes to the project, shall meet with the Board, to review the permitted plans and their implementation.

B. Board Inspection: The Board or its designated agent shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with the Stormwater Permit as approved. The Permit and associated plans for grading, stripping, excavating, and filling work, bearing the signature of approval of the Board, shall be maintained at the site during the progress of the work. In order to obtain inspections, the permittee shall notify the Board at least two (2) working days before each of the following events:
   1. Erosion and sediment control measures are in place and stabilized;
   2. Site Clearing has been substantially completed;
   3. Rough Grading has been substantially completed;
   4. Final Grading has been substantially completed;
   5. Close of the Construction Season; and
   6. Final Landscaping (permanent stabilization) and project final completion.

C. Permittee Inspections: The permittee or his/her agent shall conduct and document inspections of all control measures) no less than weekly or as specified in the permit, and prior to and following anticipated storm events. The purpose of such inspections will be to determine the overall effectiveness of the control plan, and the need for maintenance or additional control measures. The permittee or his/her agent shall submit monthly reports to the Board or designated agent in a format approved by the Board.

D. Access Permission: To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Board its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under this Section and may make or cause to be made such examinations, surveys or sampling as the Board deems reasonably necessary to determine compliance with the permit.

Sec. 11. SURETY

The Board may require the permittee to post before the start of Construction Activity, a surety bond, irrevocable letter of credit, cash, or other acceptable security. The form of the bond shall be approved by town counsel, and be in an amount deemed sufficient by the Board to ensure that the work will be completed in accordance with the permit. If the project is phased, the Board may release part of the bond as each phase is completed in compliance with the permit but the bond may not be fully released until the Board has received the final report as required by Section 12 and issued a Certificate of Completion.

Sec. 12. FINAL REPORTS

Upon completion of the work, the permittee shall submit a report (including certified as-built construction plans) from a Professional Engineer (P.E.), surveyor, certifying that all erosion and sediment control devices, and approved changes and modifications, have been completed in
accordance with the conditions of the approved Stormwater Permit. Any discrepancies should be noted in the cover letter.

Sec. 13. ENFORCEMENT

A. The Board or an authorized agent of the Board shall enforce this Section, regulations, orders, violation notices, and enforcement orders, and may pursue all civil and criminal remedies for such violations.

B. Orders

1. The Board or an authorized agent of the Board may issue a written order to enforce the provisions of this Section or the regulations thereunder, which may include:
   - a requirement to cease and desist from the Construction Activity until there is compliance with the provisions of the land-disturbance permit;
   - maintenance, installation or performance of additional erosion and sediment control measures;
   - monitoring, analyses, and reporting;
   - remediation of erosion and sedimentation resulting directly or indirectly from the land-disturbing activity.

2. If the enforcing person determines that abatement or remediation of erosion and sedimentation is required, the order shall set forth a deadline by which such abatement or remediation must be completed. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town of Hanson may, at its option, undertake such work, and the property owner shall reimburse the Town of Hanson’s expenses.

3. Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner shall be notified of the costs incurred by the Town of Hanson, including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board within thirty (30) days of receipt of the notification of the costs incurred.

C. Any person that violates any provision of this Section may be punished, under MGL C. 40 s 21D as a noncriminal offense, by fines of:
   - First offense: $100
   - Second offense: $200
   - Additional offenses: $300 each
   - Or by criminal complaint at the appropriate venue. Each day or portion thereof during which a violation continues shall constitute a separate offense.

D. Appeals. The decisions or orders of the Board shall be final. Further relief shall be to a court of competent jurisdiction.

E. Remedies Not Exclusive. The remedies listed in this Section are not exclusive of any other remedies available under any applicable federal, state or local law.
Sec. 14. CERTIFICATE OF COMPLETION

The Board will issue a letter certifying completion upon receipt and approval of the final reports and/or upon otherwise determining that all work of the permit has been satisfactorily completed in conformance with this Section.

Sec. 15. SEVERABILITY

If any provision, paragraph, sentence, or clause of this Section shall be held invalid for any reason, all other provisions shall continue in full force and effect.
Sec. 1. PURPOSE

Increased and contaminated stormwater runoff is a major cause of impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater; contamination of drinking water supplies; alteration or destruction of aquatic and wildlife habitat; and flooding.

Regulation of illicit connections and discharges to the municipal storm drain system is necessary for the protection of the Town of Hanson’s water bodies and groundwater, and to safeguard the public health, safety, welfare and the environment.

The objectives of this by-law are:

- to prevent pollutants from entering the Town of Hanson’s municipal separate storm sewer system (MS4);
- to prohibit illicit connections and unauthorized discharges to the MS4;
- to require the removal of all such illicit connections;
- to comply with state and federal statutes and regulations relating to stormwater discharges; and
- to establish the legal authority to ensure compliance with the provisions of this by-law through inspection, monitoring, and enforcement.
- to establish the legal authority to prevent pollutants from entering the Town’s MS4 through regulation adopted by the Board of Health.

Sec. 2. DEFINITIONS

For the purposes of this by-law, the following shall mean:

AUTHORIZED ENFORCEMENT AGENCY: The Town of Hanson Board of Health (the Board), its employees or agents designated to enforce this by-law.

BEST MANAGEMENT PRACTICE (BMP): An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

DISCHARGE OF POLLUTANTS: The addition from any source of any pollutant or combination of pollutants into the municipal storm drain system or into the waters of the United States or Commonwealth from any source.

GROUNDWATER: Water beneath the surface of the ground.

ILlicit CONNECTION: A surface or subsurface drain or conveyance, which allows an illicit discharge into the municipal storm drain system, including without limitation sewage, process wastewater, or wash water and any connections from indoor drains, sinks, or toilets, regardless of whether said connection was previously allowed, permitted, or approved before the effective date of this by-law.

ILlicit DISCHARGE: Direct or indirect discharge to the municipal storm drain system that is not composed entirely of stormwater, except as exempted in Section 8. The term does not include a discharge in compliance with an NPDES Storm Water Discharge Permit or a Surface Water Discharge Permit, or resulting from firefighting activities exempted pursuant to Section 8, of this by-law.

IMPERVIOUS SURFACE: Any material or structure on or above the ground that prevents water infiltrating the underlying soil. Impervious surface includes without limitation roads, paved parking lots, sidewalks, and rooftops.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) or MUNICIPAL STORM DRAIN SYSTEM: The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Hanson.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER DISCHARGE PERMIT: A permit issued by United States Environmental Protection Agency or jointly with the State that authorizes the discharge of pollutants to waters of the United States.

NON-STORMWATER DISCHARGE: Discharge to the municipal storm drain system not composed entirely of stormwater.

PERSON: An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

POLLUTANT: Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or nonpoint source, that is or may be introduced into any sewage treatment works or waters of the Commonwealth. Pollutants shall include without limitation:
1. paints, varnishes, and solvents;
2. oil and other automotive fluids;
3. non-hazardous liquid and solid wastes and yard wastes;
4. refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnances, accumulations and floatables;
5. pesticides, herbicides, and fertilizers;
6. hazardous materials and wastes; sewage, fecal coliform and pathogens;
7. dissolved and particulate metals;
8. animal wastes;
9. rock, sand, salt, soils unless applied for the purpose of public safety during winter conditions;
10. construction wastes and residues; and
11. noxious or offensive matter of any kind.

**PROCESS WASTEWATER:** Water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any material, intermediate product, finished product, or waste product.

**RECHARGE:** The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

**STORMWATER:** Storm water runoff, snow melt runoff, and surface water runoff and drainage.

**SURFACE WATER DISCHARGE PERMIT:** A permit issued by the Department of Environmental Protection (DEP) pursuant to 314 CMR 3.00 that authorizes the discharge of pollutants to waters of the Commonwealth of Massachusetts.

**TOXIC OR HAZARDOUS MATERIAL or WASTE:** Any material, which because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as Toxic or Hazardous under M.G.L. Ch.21C and Ch.21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.000.

**WATERCOURSE:** A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

**WATERS OF THE COMMONWEALTH:** All waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and groundwater.

**WASTEWATER:** Any sanitary waste, sludge, or septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing, comes into direct contact with or results from
the production or use of any raw material, intermediate product, finished product, byproduct or waste product.

Sec. 3. APPLICABILITY

This by-law shall apply to flows entering the municipally owned storm drainage system.

Sec. 4. AUTHORITY

This by-law is adopted under the authority granted by the Home Rule Amendment of the Massachusetts Constitution and the Home Rule Procedures Act, and pursuant to the regulations of the federal Clean Water Act found at 40 CFR 122.34.

Sec. 5. RESPONSIBILITY FOR ADMINISTRATION

The Board shall administer, implement and enforce this by-law. Any powers granted to or duties imposed upon the Board may be delegated in writing by the Board to employees or agents of the Board.

Sec. 6. REGULATIONS

The Board may promulgate rules and regulations to effectuate the purposes of this by-law. Failure by the Board to promulgate such rules and regulations shall not have the effect of suspending or invalidating this by-law.

Sec. 7. PROHIBITED ACTIVITIES

**Illicit Discharges:** No person shall dump, discharge, cause or allow to be discharged any pollutant or non-stormwater discharge into the municipal separate storm sewer system (MS4), into a watercourse, or into the waters of the Commonwealth.

**Illicit Connections:** No person shall construct, use, allow, maintain or continue any illicit connection to the municipal storm drain system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.

**Obstruction of Municipal Storm Drain System:** No person shall obstruct or interfere with the normal flow of stormwater into or out of the municipal storm drain system without prior written approval from the Board.

Sec. 8. EXEMPTIONS

Discharge or flow resulting from firefighting activities.

The following non-stormwater discharges or flows are exempt from the prohibition of non-stormwaters provided that the source is not a significant contributor of a pollutant to the municipal storm drain system:
1. Waterline flushing;
2. Flow from potable water sources;
3. Springs;
4. Natural flow from riparian habitats and wetlands;
5. Diverted stream flow;
6. Rising groundwater;
7. Uncontaminated groundwater infiltration as defined in 40 CFR 35.2005(20), or uncontaminated pumped groundwater;
8. Water from exterior foundation drains, footing drains (not including active groundwater dewatering systems), crawl space pumps, or air conditioning condensation;
9. Discharge from landscape irrigation or lawn watering;
10. Water from individual residential car washing;
11. Discharge from dechlorinated swimming pool water (less than one ppm chlorine) provided the water is allowed to stand for one week prior to draining and the pool is drained in such a way as not to cause a nuisance;
12. Discharge from street sweeping;
13. Dye testing, provided verbal notification is given to the Board prior to the time of the test;
14. Non-stormwater discharge permitted under an NPDES permit or a Surface Water Discharge Permit, waiver, or waste discharge order administered under the authority of the United States Environmental Protection Agency or the Department of Environmental Protection, provided that the discharge is in full compliance with the requirements of the permit, waiver, or order and applicable laws and regulations; and
15. Discharge for which advanced written approval is received from the Board as necessary to protect public health, safety, welfare or the environment.

Sec. 9. EMERGENCY SUSPENSION OF STORM DRAINAGE SYSTEM ACCESS

The Board may suspend municipal storm drain system access to any person or property without prior written notice when such suspension is necessary to stop an actual or threatened discharge of pollutants that presents imminent risk of harm to the public health, safety, welfare or the environment. In the event any person fails to comply with an emergency suspension order, the Board may take all reasonable steps to prevent or minimize harm to the public health, safety, welfare or the environment.

Sec. 10. NOTIFICATION OF SPILLS

Notwithstanding other requirements of local, state or federal law, as soon as a person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of or suspects a release of materials at that facility or operation resulting in or which may result in discharge of pollutants to the municipal drainage system or waters of the Commonwealth, the person shall take all necessary steps to ensure containment, and cleanup of the release. In the event of a release of oil or hazardous materials, the person shall immediately notify the municipal fire and police departments. In the event of a release of non-hazardous material, the reporting person shall notify the Authorized Enforcement Agency no later than the next business day. The reporting person shall provide to the Authorized Enforcement Agency
written confirmation of all telephone, facsimile or in-person notifications within three business days thereafter. If the discharge of prohibited materials is from a commercial or industrial facility, the facility owner or operator of the facility shall retain on-site a written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

Sec. 11. ENFORCEMENT

The Board or an authorized agent of the Board shall enforce this by-law, regulations, orders, violation notices, and enforcement orders, and may pursue all civil and criminal remedies for such violations.

Civil Relief: If a person violates the provisions of this by-law, regulations, permit, notice, or order issued thereunder, the Board may seek injunctive relief in a court of competent jurisdiction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

Orders: The Board or an authorized agent of the Board may issue a written order to enforce the provisions of this by-law or the regulations thereunder, which may include: (a) elimination of illicit connections or discharges to the MS4; (b) performance of monitoring, analyses, and reporting; (c) that unlawful discharges, practices, or operations shall cease and desist; and (d) remediation of contamination in connection therewith.

If the enforcing person determines that abatement or remediation of contamination is required, the order shall set forth a deadline by which such abatement or remediation must be completed. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town of Hanson may, at its option, undertake such work, and expenses thereof shall be charged to the violator.

Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner will be notified of the costs incurred by the Town of Hanson including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board within thirty (30) days of receipt of the notification of the costs incurred.

Any person that violates any provision of this Section may be punished, under MGL C. 40 s 21D as a noncriminal offense, by fines of:

1. First offense: $100
2. Second offense: $200
3. Additional offenses: $300 each

Or by criminal complaint at the appropriate venue. Each day or portion thereof during which a violation continues shall constitute a separate offense.
Entry to Perform Duties Under this By-Law: To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Board, its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under this by-law and regulations and may make or cause to be made such examinations, surveys or sampling as the Board deems reasonably necessary.

Appeals: The decisions or orders of the Board shall be final. Further relief shall be to a court of competent jurisdiction.

Remedies Not Exclusive: The remedies listed in this by-law are not exclusive of any other remedies available under any applicable federal, state or local law.

Sec. 12. SEVERABILITY

The provisions of this by-law are hereby declared to be severable. If any provision, paragraph, sentence, or clause, of this by-law or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this by-law.

Sec. 13. TRANSITIONAL PROVISIONS

Residential property owners shall have 30 days from the effective date of the by-law to comply with its provisions provided good cause is shown for the failure to comply with the by-law during that period.
APPENDIX I

2018 ANNUAL REPORT SELF EVALUATION

ANNUAL EVALUATION FOR YEARS 1-5+
April 4, 2018

Glenda Velez
U.S. Environmental Protection Agency - Region 1
5 Post Office Square – OEP06-01
Boston, MA 02109-3912

Fred Civian, Stormwater Coordinator
Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108

RE: NPDES General Permit for Storm Water Discharges from Small MS4s
Annual Report for the Town of Hanson, Massachusetts (Permit Year 15)

EPA Permit Number: MA041037/MADEP Transmittal Number: X278224

Dear Madam/Sir:

The Town of Hanson, Massachusetts is pleased to provide you with the attached National Pollutant Discharge Elimination System (NPDES) Phase II Small MS4 General Permit Annual Report for the period from April 1, 2017 to March 31, 2018. In general, the Town has developed a stormwater management program and will continue to implement activities in accordance with regulatory requirements and as available funding will allow.

Should you have any questions, please do not hesitate to call me at (781) 293-2822.

Sincerely,

Robert Brown
Highway Surveyor

cc: James McGahan, Chairman of the Board of Selectman
Natalie Pommersheim, Environmental Partners Group, Inc.
Part I. General Information

Contact Person: Robert Brown
Title: Town Highway Surveyor
Telephone #: 781-293-2822
Email: hansonhighway@hotmail.com

Certification:

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

Signature: [Signature]

Printed Name: Michael McCue
Title: Town Administrator
Date: 4/4/18
Part II. Self-Assessment

In general, the Town of Hanson’s stormwater management activities for the fifteenth year of the General Permit (April 1, 2017 through March 31, 2018) were in conformance with the Notice of Intent (Massachusetts DEP form BRP WM 08A) and schedule submitted in July 2003. The Town developed a Stormwater Management Plan with program priorities for 2003-2008 including:

1. Achieving regulatory compliance, particularly EPA and DEP Phase II NPDES permit requirements;
2. Incorporating storm water protection measures into municipal activities;
3. Focusing activities on target pollution reduction (e.g. Section 303.d. waters and protecting the Town’s water supply);
4. Ensuring that the Program is current and innovative; and
5. Providing Program administration.

The Water Quality Stewardship element of the program will focus on the protection of the local water supply and addressing the State’s Section 303.d waters located within the Town. To this end, staff will continue to develop and improve the Program activities to reduce storm water pollution to the maximum extent practicable and eliminate prohibited non-storm water discharges, while facilitating understanding and involvement in storm water management by various Town departments. Program priorities will also focus on increased efforts to reduce target pollutants and restore local water bodies.

The Town is committed to working with local watershed associations to advance their goals and objectives. Another high priority of staff will be to keep abreast of the latest technology and approaches to achieve storm water management. Program activities will also strive to encourage environmental stewardship and continue to build on partnerships with other agencies, neighboring towns, and the community for active participation in accomplishing the Program mission.

The activities performed during Permit Year Thirteen and Fourteen focused on upgrading the Town’s local ordinances. Toward that end, a complete review of Town Bylaws was conducted, and two new bylaws were drafted for the prevention of illicit discharges and control of construction-related stormwater impairment. These bylaws were passed at Town Meeting during Permit Year Eleven.

During Permit Year Fifteen, the Town also continued with control measures that were initiated during the previous permit years, including improving local good housekeeping programs; and communicating the Town’s Plan to local watershed associations.
Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

<table>
<thead>
<tr>
<th>BMP ID #</th>
<th>BMP Description</th>
<th>Responsible Dept./Person Name</th>
<th>Measurable Goal(s)</th>
<th>Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)</th>
<th>Planned Activities – Permit Year 16 (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Partnership with local Watershed Associations</td>
<td>Con. Comm., DPW, BOH</td>
<td>Regular Meeting Attendance</td>
<td>Continued updating, investigating alternative funding opportunities (such as 604b and 319 grants).</td>
<td>Continue updating, seek alternative funding opportunities (such as 604b and 319 grants).</td>
</tr>
<tr>
<td>2</td>
<td>Develop Brochures</td>
<td>DPW</td>
<td>Quarterly Mailings</td>
<td>Water department mailings and water quality updates.</td>
<td>Continued mailings.</td>
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<tr>
<td>3</td>
<td>WEB Site Public Service Postings</td>
<td>IT Dept., DPW</td>
<td>WEB Site Publication &amp; Maintenance</td>
<td>NSRWA information transfer and publication of data, local WEB updates.</td>
<td>NSRWA information transfer and data publication of data, local WEB updates.</td>
</tr>
</tbody>
</table>

2. Public Involvement and Participation

<table>
<thead>
<tr>
<th>BMP ID #</th>
<th>BMP Description</th>
<th>Responsible Dept./Person Name</th>
<th>Measurable Goal(s)</th>
<th>Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)</th>
<th>Planned Activities – Permit Year 16 (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Water Quality Testing</td>
<td>DPW</td>
<td>2 Rounds of Water Quality Sampling of Priority Water Bodies</td>
<td>On hold pending issuance of new EPA General Permit.</td>
<td>Continue water quality testing in accordance with new EPA General Permit. Visual checks of outfalls are planned this year.</td>
</tr>
<tr>
<td>5</td>
<td>Community Cleanup Days</td>
<td>DPW</td>
<td>Bi-Annually</td>
<td>Conducted in Spring and Summer 2017 – Green Up Clean Up Held April 1, 2017 With added concentrated in Wetlands and Waterways areas</td>
<td>Next Green Up Clean Up Scheduled for April, 21, 2018. Concentrating in the Wampatuck Pond Watershed areas. New Disposal &amp; Recycling receptacles to be place at Town Facilities abutting the pond for the cleanup.</td>
</tr>
</tbody>
</table>
3. Illicit Discharge Detection and Elimination

<table>
<thead>
<tr>
<th>BMP ID #</th>
<th>BMP Description</th>
<th>Responsible Dept./Person Name</th>
<th>Measurable Goal(s)</th>
<th>Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)</th>
<th>Planned Activities – Permit Year 16 (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Catch Basin/Outfall and Receiving Water Mapping</td>
<td>DPW</td>
<td>GIS Mapping</td>
<td>Continued connectivity, outfall and catch basin mapping and completion of GIS mapping.</td>
<td>Continue connectivity, outfall and catch basin mapping and completion of GIS mapping.</td>
</tr>
<tr>
<td>9</td>
<td>Permit Enforcement</td>
<td>DPW, Planning Board, BOH, Con. Comm.</td>
<td>Illicit Discharge violations</td>
<td>Ongoing to comply with local bylaws, state and federal requirements. The Permit was enforced by the Town during Permit Year 15 and there were no violations.</td>
<td>Ongoing to comply with local bylaws, state and federal requirements.</td>
</tr>
<tr>
<td>10</td>
<td>Misconnection/Illegal Dumping and Correction</td>
<td>DPW, BOH</td>
<td>Connectivity Mapping, Bylaw Enforcement and Fines</td>
<td>Continue GIS mapping. The bylaw was enforced by the Town during Permit Year 15 and there were no violations.</td>
<td>Continue GIS mapping and local bylaw enforcement.</td>
</tr>
</tbody>
</table>
4. Construction Site Stormwater Runoff Control

<table>
<thead>
<tr>
<th>BMP ID #</th>
<th>BMP Description</th>
<th>Responsible Dept./Person</th>
<th>Measurable Goal(s)</th>
<th>Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)</th>
<th>Planned Activities – Permit Year 16 (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Permit Enforcement</td>
<td>DPW, Planning Board, BOH, Con. Comm.</td>
<td>Local Construction Site Oversight and Enforcement</td>
<td>Ongoing to comply with local bylaws, state and federal requirements. The Permit was enforced by the Town during Permit Year 15 and there were no violations.</td>
<td>Ongoing to comply with local bylaws, state and federal requirements.</td>
</tr>
<tr>
<td>13</td>
<td>Improved As-Built Review</td>
<td>DPW, Planning Board</td>
<td>Electronic As-Built Submittals on Town GIS System</td>
<td>Continued GIS mapping.</td>
<td>Continue GIS mapping and develop protocol for submitting as-buils electronically.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>BMP ID #</th>
<th>BMP Description</th>
<th>Responsible Dept./Person</th>
<th>Measurable Goal(s)</th>
<th>Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)</th>
<th>Planned Activities – Permit Year 16 (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Permit Enforcement</td>
<td>DPW, Planning Board, BOH, Con. Comm.</td>
<td>Local Construction Site Oversight and Enforcement</td>
<td>Ongoing to comply with local bylaws, state and federal requirements. The Permit was enforced by the Town during Permit Year 14 and there were no violations.</td>
<td>Ongoing to comply with local bylaws, state and federal requirements.</td>
</tr>
</tbody>
</table>
6. Pollution Prevention and Good Housekeeping in Municipal Operations

<table>
<thead>
<tr>
<th>BMP ID #</th>
<th>BMP Description</th>
<th>Responsible Dept./Person Name</th>
<th>Measurable Goal(s)</th>
<th>Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)</th>
<th>Planned Activities – Permit Year 16 (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Improved Street Sweepings</td>
<td>DPW</td>
<td></td>
<td>Street sweeping program in the Winter/Spring 2018 (62 miles of road).</td>
<td>Street sweeping program in the Winter/Spring 2018.</td>
</tr>
<tr>
<td>19</td>
<td>Drain Stenciling</td>
<td>DPW</td>
<td>Aquifer Protection Area</td>
<td>GIS Mapping continuing to locate catch basins and connectivity.</td>
<td>Complete GIS mapping and stencil drains in Aquifer Protection Area.</td>
</tr>
<tr>
<td>20</td>
<td>Employee Training</td>
<td>DPW</td>
<td>Seminar Attendance</td>
<td>Employee attended storm water training seminar held by UMTC at MASS DOT District 5, Taunton, MA on 3/25/18</td>
<td>Will continue to identify and attend appropriate training sessions.</td>
</tr>
</tbody>
</table>

6a. Additions

<table>
<thead>
<tr>
<th>BMP ID #</th>
<th>BMP Description</th>
<th>Responsible Dept./Person Name</th>
<th>Measurable Goal(s)</th>
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<th>Planned Activities – Permit Year 16 (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>HHHW drop off locations/days</td>
<td>Department of Public Works</td>
<td>Number of drop off locations</td>
<td>Participation in the South Shore Recycling Cooperative, where 14 local communities open up their local HHHW collection days to members of the cooperative.</td>
<td>Continue to participate in the South Shore Recycling Cooperative.</td>
</tr>
</tbody>
</table>
### 7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA)

<table>
<thead>
<tr>
<th>BMP ID #</th>
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<th>Responsible Dept./Person Name</th>
<th>Measurable Goal(s)</th>
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<th>Planned Activities — Permit Year 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>GIS Mapping</td>
<td>DPW</td>
<td>GIS Mapping of Priority Waters and Drainage Patterns</td>
<td>Mapping of drainage structures ongoing.</td>
<td>Continue drainage structure mapping and development of GIS mapping.</td>
</tr>
<tr>
<td>23</td>
<td>Water Quality Testing</td>
<td>DPW</td>
<td>Semi-Annual Water Quality Testing</td>
<td>On hold pending issuance of new EPA General Permit.</td>
<td>Continue water quality testing in accordance with new EPA General Permit. Outfalls to be visually checked this year.</td>
</tr>
<tr>
<td>24</td>
<td>Stormwater Modeling</td>
<td>DPW</td>
<td>Needs Assessment for Category 5 Water Bodies</td>
<td>14 Catch Basins were Repaired and 18 were Replaced.</td>
<td>Continue outfall and catch basin mapping, and connectivity.</td>
</tr>
<tr>
<td>25</td>
<td>Misc. Structural BMPs as Needed</td>
<td>DPW</td>
<td>i.e. Construction Improvements</td>
<td>None to date (scheduled for next year as needed).</td>
<td>To be determined.</td>
</tr>
<tr>
<td>26</td>
<td>Misc. Non-Structural BMPs as Needed</td>
<td>DPW</td>
<td>i.e. Bylaw Enforcement, Fees and Fines</td>
<td>None to date (scheduled for next year as needed).</td>
<td>To be determined.</td>
</tr>
</tbody>
</table>

### 7b. WLA Assessment

To date, the Town has focused on available funding sources. GIS mapping of the drainage system and receiving waters is ongoing and water quality testing began during Year 2. WLA assessment will follow.
Part IV. Summary of Information Collected and Analyzed

Permit Year 1 Activities and Information
During Permit Year 1, the Town reviewed the local, state and federal bylaws relative to stormwater and aquifer protection, and determined that they adequately regulated, and were in conformance with the Massachusetts Stormwater Management Policy. Minor revisions may be required for informing local project proponents of the Phase II one-acre NPDES requirement.

The Town received a project approval certificate from the Massachusetts Water Abatement Trust State Revolving Fund for $238,000 and continued the process of mapping its storm drainage system. The Town also began field screening of outfalls for both dry and wet conditions under the SRF program.

Permit Year 2 Activities and Information
During Permit Year 2, an outfall inspection program identified 170 outfall locations, and performed dry and wet weather field screening at 67 of the locations. These locations were field screened for the following:

1. pH;
2. Temperature;
3. Total Dissolved Solids;
4. Specific Conductance; and
5. Turbidity.

Based on the field data, 8 of the outfall locations were resampled for the following during 2004:

1. E-coli;
2. Total Phosphorous,
3. Dissolved Phosphorous,
4. Ammonia,
5. Surfactants, and

Of these samples, one location had elevated levels of e-coli above the State's Secondary Maximum Contaminant level of 126 (colonies/100 mL). Elevated levels of e-coli may be representative of warm blooded animals (such as humans) or cold blooded animals. Following the wet weather testing and further discussions with the Town, additional testing of Fecal Coliform bacteria or Fecal Strep may be recommended to ascertain potential sources.
The Town will continue to provide updates to the public through water bill mailings and postings on the local website, and will continue to work with local watershed associations on possible funding sources and ways in which to promote volunteerism. The Town has also taken part in employee training seminars sponsored by the Plymouth County Highway Association (PCHA), and will continue to improve its good housekeeping programs. An employee training seminar has been schedule by the PCHA for Summer 2004.

**Permit Year 3 Activities and Information**

During the Permit Year 3, the Town continued its review of local, state and federal bylaws relative to stormwater and aquifer protection, and determined that they continue to be adequately regulated and in conformance with the Massachusetts Stormwater Management Policy. The Town also continued it's long range GIS mapping of its storm drainage system and increased its public awareness efforts. Work was conducted under Massachusetts Water Abatement Trust State Revolving Funds.

The Town will continue to provide updates to the public through water bill mailings and postings on the local website, and will continue to work with local watershed associations on possible funding sources and ways in which to promote volunteerism. The Town has also taken part in employee training seminars sponsored by the Plymouth County Highway Association (PCHA), and will continue to improve its good housekeeping programs. An employee training seminar was conducted by the PCHA during the Summer 2005.

**Permit Year 4 Activities and Information**

During the Permit Year 4, the Town continued its review of local, state and federal bylaws relative to stormwater and aquifer protection, and determined that they continue to be adequately regulated and in conformance with the Massachusetts Stormwater Management Policy. The Town also continued it's long range GIS mapping of its storm drainage system and increased its public awareness efforts. The Town also closed its expenditures from the Massachusetts Water Abatement Trust State Revolving Fund for its project and is currently seeking alternative funding sources from Town Meeting.

The Town will continue to provide updates to the public through water bill mailings and postings on the local website, and will continue to work with local watershed associations on possible funding sources and ways in which to promote volunteerism. The Town has also taken part in employee training seminars sponsored by the Plymouth County Highway Association (PCHA), and will continue to improve its good housekeeping programs. An employee training seminar was conducted by the PCHA during the Summer 2006 and one has been scheduled for Summer 2007.
**Permit Year 5 and 6 Activities and Information**

During the Permit Years 5 and 6, the Town continued its review of local, state and federal bylaws relative to stormwater and aquifer protection, and determined that they continue to be adequately regulated and in conformance with the Massachusetts Stormwater Management Policy. The Town also continued its long range GIS mapping of its storm drainage system and increased its public awareness efforts. The Town also is currently seeking alternative funding sources from Town Meeting.

The Town will continue to provide updates to the public through water bill mailings and postings on the local website, and will continue to work with local watershed associations on possible funding sources and ways in which to promote volunteerism. The Town has also taken part in employee training seminars sponsored by the Plymouth County Highway Association (PCHA), and will continue to improve its good housekeeping programs. An employee training seminar was conducted by the PCHA during the Summer 2007 and 2008.

**Permit Years 7 - 14 Activities and Information**

During the Permit Years 7 through 14, the Town continued its review of local, state and federal bylaws relative to stormwater and aquifer protection, and determined that two new bylaws were required to be drafted. Those were drafted and underwent review by the Town Departments prior to presenting the Bylaws at Town Meeting. The bylaws were passed at Town Meeting during year 11. The Town also continued its long range GIS mapping of its storm drainage system and increased its public awareness efforts. Hanson DPW completed a directional drainage survey and mapping effort of 85% of the Town in March 2010. The Town also is currently seeking alternative funding sources from Town Meeting.

In Permit Year 14, the Town worked with the Plymouth County Mosquito Control Board to remove blockages, brush and other obstructions from ditches and streams to prevent overflows or stagnation.

The Town will continue to provide updates to the public through water bill mailings and postings on the local website, and will continue to work with local watershed associations on possible funding sources and ways in which to promote volunteerism. The Town has also taken part in employee training seminars sponsored by the Plymouth County Highway Association (PCHA), and will continue to improve its good housekeeping programs.
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: 

APPENDIX J

MINIMUM CONTROL MEASURES BMPs
<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Categorization</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Distribution of a minimum of two (2) educational messages over the permit term to each of the four (4) required audiences</td>
<td>Residents (1)</td>
<td>Highway Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Businesses, Institutions, and Commercial Facilities (2)</td>
<td>Highway Department, Board of Health</td>
<td>Distribute at least two educational messages to each audience within the permit term</td>
<td>2018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developers (construction) (3)</td>
<td>Highway Department, Planning Department, Conservation Commission, Board of Health, Building Department, IT Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Industrial Facilities (4)</td>
<td>Highway Department, Planning Department, Building Department</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Town of Hanson, Massachusetts
MA MS4 General Permit - Control Measures
CM #1 - Public Education and Outreach

Highway Department, Board of Health
<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Categorization</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Public Review</td>
<td>SWMP Review</td>
<td>Highway Department</td>
<td>Make SWMP available at least annually for public review</td>
<td>2020</td>
</tr>
<tr>
<td>R2</td>
<td>Public Participation</td>
<td>SWMP Review</td>
<td>Highway Department</td>
<td>Allow public to comment on stormwater management plan annually</td>
<td>2018</td>
</tr>
<tr>
<td>2A</td>
<td>Public Participation</td>
<td>Cleanups - Shoreline/Waterbody</td>
<td>Highway Department</td>
<td>Continue to conduct Green Up Clean Up community cleanup event</td>
<td>2018</td>
</tr>
<tr>
<td>BMP ID</td>
<td>BMP Categorization</td>
<td>BMP Description</td>
<td>Responsible Department/Parties</td>
<td>Measurable Goal</td>
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</tr>
<tr>
<td>--------</td>
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<td>---------------------------------</td>
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<td>---------------------------------</td>
</tr>
<tr>
<td>R1</td>
<td>SSO Inventory</td>
<td>Develop SSO inventory in accordance with permit conditions</td>
<td>Highway Department</td>
<td>Within 1 year of effective date develop inventory of historical SSOs that occurred within the MS4</td>
<td>2018</td>
</tr>
<tr>
<td>R2</td>
<td>Storm Sewer System Map</td>
<td>Create map and update during IDDE program completion</td>
<td>Highway Department</td>
<td>Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>R3</td>
<td>Written IDDE Program Development</td>
<td>Create written IDDE program</td>
<td>Highway Department, Planning Board, Board of Health</td>
<td>Complete within 1 year of the effective date of permit</td>
<td>2018</td>
</tr>
<tr>
<td>R4</td>
<td>Implement IDDE Program</td>
<td>Implement catchment investigations according to program and permit conditions</td>
<td>Highway Department, Board of Health</td>
<td>Implement catchment investigations according to program and permit conditions</td>
<td>2018</td>
</tr>
<tr>
<td>R5</td>
<td>Employee Training</td>
<td>Train employees on IDDE implementation</td>
<td>Highway Department</td>
<td>Train annually</td>
<td>2018</td>
</tr>
<tr>
<td>R6</td>
<td>Conduct Dry Weather Screening</td>
<td>Conduct in accordance with outfall screening procedure and permit conditions</td>
<td>Highway Department</td>
<td>Conduct in accordance with outfall screening procedure and permit conditions</td>
<td>2018</td>
</tr>
<tr>
<td>R6</td>
<td>Conduct Wet Weather Screening</td>
<td>Conduct in accordance with outfall screening procedure</td>
<td>Highway Department</td>
<td>Conduct in accordance with outfall screening procedure and permit conditions</td>
<td>2018</td>
</tr>
<tr>
<td>R7</td>
<td>Ongoing Screening</td>
<td>Conduct dry weather and wet weather screening as necessary</td>
<td>Highway Department</td>
<td>Conduct in accordance with outfall screening procedure and permit conditions</td>
<td>2018</td>
</tr>
<tr>
<td>R8</td>
<td>IDDE Regulations</td>
<td>Comply with local bylaws, state and federal requirements</td>
<td>Highway Department, Planning Board, Board of Health, Conservation Commission</td>
<td>Continue to eliminate illicit discharge violations</td>
<td>2018</td>
</tr>
</tbody>
</table>
# BMP Categorization

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R1</strong></td>
<td>Site inspection and enforcement of Erosion and Sediment Control (ESC) measures</td>
<td>Complete written procedures of site inspections and enforcement procedures</td>
<td>Within 1 year of effective date of the permit, develop written/electronic SOP for inspection/enforcement of ESC measures</td>
<td>2018</td>
</tr>
<tr>
<td><strong>R2</strong></td>
<td>Site plan review</td>
<td>Complete written procedures of site plan review and begin implementation</td>
<td>Complete within 1 year of the effective date of the permit</td>
<td>2018</td>
</tr>
<tr>
<td><strong>R3</strong></td>
<td>Erosion and Sediment Control</td>
<td>Adoption of requirements for construction operators to implement a sediment and erosion control program</td>
<td>Complete within 1 year of the effective date of the permit</td>
<td>2018</td>
</tr>
<tr>
<td><strong>R4</strong></td>
<td>Waste Control</td>
<td>Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes</td>
<td>Complete within 1 year of the effective date of the permit</td>
<td>2018</td>
</tr>
<tr>
<td><strong>R5</strong></td>
<td>Pre-Construction/Coordination Meetings</td>
<td>Improved as-built review</td>
<td>Continue GIS Mapping and develop protocol for submitting as-builts</td>
<td>2018</td>
</tr>
<tr>
<td>BMP ID</td>
<td>BMP Categorization</td>
<td>BMP Description</td>
<td>Responsible Department/Parties</td>
<td>Measurable Goal</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>R1</td>
<td>As-built plans for on-site stormwater control</td>
<td>The procedures to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP</td>
<td>Highway Dept, Planning, ConCom, BOH, Building Dept, Zoning Board of Appeals</td>
<td>Require submission of as-built plans for completed projects</td>
</tr>
<tr>
<td>R2</td>
<td>Inventory and priority ranking of MS4-owned properties that may be retrofitted with BMPs</td>
<td>Conduct detailed inventory of MS4 owned properties and rank for retrofit potential</td>
<td>Highway Dept, Planning, ConCom, BOH, Building Dept, Zoning Board of Appeals</td>
<td>Complete 4 years after permit effective date</td>
</tr>
<tr>
<td>R3</td>
<td>Allow green infrastructure</td>
<td>Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist</td>
<td>Highway Dept, Planning, ConCom, BOH, Building Dept, Zoning Board of Appeals</td>
<td>Complete 4 years after permit effective date</td>
</tr>
<tr>
<td>R4</td>
<td>Street design and parking lot guidelines</td>
<td>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</td>
<td>Highway Dept, Planning, ConCom, BOH, Building Dept, Zoning Board of Appeals</td>
<td>Complete 4 years after permit effective date</td>
</tr>
<tr>
<td>R5</td>
<td>Ensure any stormwater controls or management practices for new development and redevelopment will prevent or minimize impacts to water quality</td>
<td>Adoption, amendment or modification of a regulatory mechanism to meet permits requirements</td>
<td>Highway Dept, Planning Board</td>
<td>Complete 2 years after permit effective date</td>
</tr>
<tr>
<td>BMP ID</td>
<td>BMP Categorization</td>
<td>BMP Description</td>
<td>Responsible Department/Parties</td>
<td>Measurable Goal</td>
</tr>
<tr>
<td>--------</td>
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<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>R1</td>
<td>O&amp;M procedures</td>
<td>Create written O&amp;M procedures for parks and open spaces, buildings and facilities, and vehicles and equipment</td>
<td>Highway Department, Conservation Commission, Planning Board</td>
<td>Complete within 2 years after permit effective date</td>
</tr>
<tr>
<td>R2</td>
<td>Inventory all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment</td>
<td>Create inventory</td>
<td>Highway Department, Conservation Commission, Planning Board</td>
<td>Complete 2 years after permit effective date</td>
</tr>
<tr>
<td>R3</td>
<td>Infrastructure O&amp;M</td>
<td>Establish and implement program for repair and rehabilitation of MS4 infrastructure</td>
<td>Highway Department</td>
<td>Complete 2 years after permit effective date</td>
</tr>
<tr>
<td>R4</td>
<td>Stormwater Pollution Prevention Plan (SWPPP)</td>
<td>Create Stormwater Pollution Prevention Plan (SWPPP) for maintenance garages, transfer stations and other waste-handling facilities</td>
<td>Highway Department, Board of Health</td>
<td>Complete 2 years after permit effective date</td>
</tr>
<tr>
<td>R5</td>
<td>Catch Basin Cleaning</td>
<td>Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule</td>
<td>Highway Department</td>
<td>Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually</td>
</tr>
<tr>
<td>R6</td>
<td>Street Sweeping Program</td>
<td>Sweep all streets and permittee-owned parking lots in accordance with permit conditions</td>
<td>Highway Department</td>
<td>Sweep all streets and permittee-owned parking lots once per year in the spring</td>
</tr>
<tr>
<td>R7</td>
<td>Road Salt use optimization program</td>
<td>Establish and implement a program to minimize the use of road salt</td>
<td>Highway Department</td>
<td>Implement salt use optimization during deicing season</td>
</tr>
<tr>
<td>R8</td>
<td>Inspections and maintenance of stormwater treatment structures</td>
<td>Establish and implement inspection and maintenance procedures and frequencies</td>
<td>Highway Department</td>
<td>Inspect and maintain treatment structures at least annually</td>
</tr>
<tr>
<td>6A</td>
<td>Plymouth County Mosquito Control Project</td>
<td>Coordinate annual meeting</td>
<td>Highway Department</td>
<td>Contact annually</td>
</tr>
<tr>
<td>BMP ID</td>
<td>BMP Categorization</td>
<td>BMP Description</td>
<td>Responsible Department/Parties</td>
<td>Measurable Goal</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------</td>
<td>-----------------</td>
<td>---------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>R1</td>
<td>Public Education</td>
<td>Residents</td>
<td>Highway Department, Board of Health, Conservation Commission</td>
<td>Distribute annual message encouraging the proper management of pet waste</td>
</tr>
<tr>
<td>R2</td>
<td>Illicit Discharge</td>
<td></td>
<td>Highway Department, Board of Health, Conservation Commission</td>
<td>Prioritize catchment areas</td>
</tr>
<tr>
<td>BMP ID</td>
<td>BMP Description</td>
<td>Responsible Department/Parties</td>
<td>Measurable Goal</td>
<td>Beginning Year of Implementation</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------</td>
<td>--------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>R1</td>
<td>Lake Phosphorus Control Plan</td>
<td>Highway Department, Board of Health, Conservation Commission</td>
<td>Add LPCP as an attachment to SWMP when complete, and submit yearly progress reports with each annual report.</td>
<td>2018</td>
</tr>
<tr>
<td>R1</td>
<td>Phosphorus Control Plan - Phases 2&amp;3</td>
<td>Highway Department, Board of Health, Conservation Commission</td>
<td>Add PCP as an attachment to SWMP when complete.</td>
<td>2018</td>
</tr>
</tbody>
</table>
Illicit Discharge Detection and Elimination (IDDE) Plan

Hanson, MA

Version 1: June 2019
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Introduction

1.1 MS4 PROGRAM
This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed for The Town of Hanson to address the requirements of the United States Environmental Protection Agency’s (USEPA’s) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the “2016 Massachusetts MS4 Permit” or “MS4 Permit.”

The 2016 Massachusetts MS4 Permit requires that each permittee, or regulated community, address six Minimum Control Measures. These measures include the following:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination Program
- Construction Site Stormwater Runoff Control
- Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management); and
- Good Housekeeping and Pollution Prevention for Permittee Owned Operations.

Under Minimum Control Measure 3, the permittee is required to 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. The IDDE program must also be recorded in a written (hardcopy or electronic) document. This IDDE Plan has been prepared to address this requirement.

1.2 ILLICIT DISCHARGES
An “illicit discharge” is any discharge to a drainage system that is not composed entirely of stormwater, with the exception of discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire-fighting activities.

Illicit discharges may take a variety of forms. Illicit discharges may enter the drainage system through direct or indirect connections. Direct connections may be relatively obvious, such as cross-connections of sewer services to the storm drain system. Indirect illicit discharges may be more difficult to detect or address, such as failing septic systems that discharge untreated sewage to a ditch within the MS4, or a sump pump that discharges contaminated water on an intermittent basis.

Some illicit discharges are intentional, such as dumping used oil (or other pollutant) into catch basins, a resident or contractor illegally tapping a new sewer lateral into a storm drain pipe to avoid the costs of a sewer connection fee and service, and illegal dumping of yard wastes into surface waters.
Some illicit discharges are related to the unsuitability of original infrastructure to the modern regulatory environment. Examples of illicit discharges in this category include connected floor drains in old buildings, as well as sanitary sewer overflows that enter the drainage system. Sump pumps legally connected to the storm drain system may be used inappropriately, such as for the disposal of floor washwater or old household products, in many cases due to a lack of understanding on the part of the homeowner.

Elimination of some discharges may require substantial costs and efforts, such as funding and designing a project to reconnect sanitary sewer laterals. Others, such as improving self-policing of dog waste management, can be accomplished by outreach in conjunction with the minimal additional cost of dog waste bins and the municipal commitment to disposal of collected materials on a regular basis.

Regardless of the intention, when not addressed, illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to surface waters.

1.3 ALLOWABLE NON-STORMWATER DISCHARGES
The following categories of non-storm water discharges are allowed under the MS4 Permit unless the permittee, USEPA or Massachusetts Department of Environmental Protection (MassDEP) identifies any category or individual discharge of non-stormwater discharge as a significant contributor of pollutants to the MS4:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rising ground water
- Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))
- Uncontaminated pumped groundwater
- Discharge from potable water sources
- Foundation drains
- Air conditioning condensation
- Irrigation water, springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual resident car washing
- De-chlorinated swimming pool discharges
- Street wash waters
- Residential building wash waters without detergents

If these discharges are identified as significant contributors to the MS4, they must be considered an “illicit discharge” and addressed in the IDDE Plan (i.e., control these sources so they are no longer significant contributors of pollutants, and/or eliminate them entirely).

1.4 RECEIVING WATERS AND IMPAIRMENTS
Table 1-1 lists the “impaired waters” within the boundaries of Hanson’s regulated area based on the 2014 Massachusetts Integrated List of Waters produced by MassDEP every two years. Impaired waters are water bodies that do not meet water quality standards for one or more designated use(s) such as recreation or aquatic habitat.
### Table 1-1. Impaired Waters
Hanson, Massachusetts

<table>
<thead>
<tr>
<th>Water Body Name</th>
<th>Segment ID</th>
<th>Category</th>
<th>Impairment(s)</th>
<th>Associated Approved TMDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oldham Pond</td>
<td>MA94114</td>
<td>4c</td>
<td>• Non-Native Aquatic Plants</td>
<td></td>
</tr>
<tr>
<td>Factory Pond</td>
<td>MA94175</td>
<td>5</td>
<td>• Mercury in Fish Tissue</td>
<td></td>
</tr>
<tr>
<td>Indian Head River</td>
<td>MA94-04</td>
<td>5</td>
<td>• Mercury in Fish Tissue</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Oxygen, Dissolved</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Phosphorus (Total)</td>
<td></td>
</tr>
<tr>
<td>Wampatuck Pond</td>
<td>MA94168</td>
<td>5</td>
<td>• Non-Native Aquatic Plants</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Chlorophyll-a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Dissolved oxygen saturation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Excess Algal Growth</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Phosphorus (Total)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Secchi disk transparency</td>
<td></td>
</tr>
<tr>
<td>Monponsett Pond</td>
<td>MA62119</td>
<td>5</td>
<td>• Non-Native Aquatic Plants</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Excess Algal Growth</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Phosphorus (Total)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Secchi disk transparency</td>
<td></td>
</tr>
<tr>
<td>Shumatuscancat River</td>
<td>MA62-33</td>
<td>5</td>
<td>• Physical substrate habitat alterations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Fecal Coliform</td>
<td>40308</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Oxygen, Dissolved</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Sedimentation/Siltation</td>
<td></td>
</tr>
</tbody>
</table>

Category 4a Waters – impaired water bodies with a completed Total Maximum Daily Load (TMDL).
Category 4c Waters – impaired water bodies where the impairment is not caused by a pollutant. No TMDL required.
Category 5 Waters – impaired water bodies that require a TMDL.
“Approved TMDLs” are those that have been approved by EPA as of the date of issuance of the 2016 MS4 Permit.

In order to comply with the 2016 MS4 Permit Appendix H Parts II and III, the Town of Hanson must implement the illicit discharge program. Outfalls draining to Indian Head River, Wampatuck Pond, and Monponsett Pond (impaired for phosphorus (Part II) and outfalls draining to Shumatuscancat River (impaired for fecal coliform (Part III)) shall be designated either Problem Outfalls or HIGH priority in implementation of the IDDE program.

### 1.5 IDDE PROGRAM GOALS, FRAMEWORK, AND TIMELINE

The goals of the IDDE program are to find and eliminate illicit discharges to the municipal separate storm sewer system and to prevent illicit discharges from happening in the future. The program consists of the following major components as outlined in the MS4 Permit:

- Legal authority and regulatory mechanism to prohibit illicit discharges and enforce this prohibition
- Storm system mapping
- Inventory and ranking of outfalls
- Dry weather outfall screening
• Catchment investigations
• Identification/confirmation of illicit sources
• Illicit discharge removal
• Follow-up screening
• Employee training

The IDDE investigation procedure framework is shown in Figure 1-1. The required timeline for implementing the IDDE program is shown in Table 1-2.

**Figure 1-1. IDDE Investigation Procedure Framework**

![Diagram of IDDE Investigation Procedure Framework]

**Table 1-2. IDDE Program Implementation Timeline**

<table>
<thead>
<tr>
<th>IDDE Program Requirement</th>
<th>Completion Date from Effective Date of Permit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Year</td>
</tr>
<tr>
<td>Written IDDE Program Plan</td>
<td>X</td>
</tr>
<tr>
<td>SSO Inventory</td>
<td></td>
</tr>
<tr>
<td>Written Catchment Investigation Procedure</td>
<td></td>
</tr>
<tr>
<td>Phase I Mapping</td>
<td></td>
</tr>
<tr>
<td>Phase II Mapping</td>
<td></td>
</tr>
<tr>
<td>IDDE Regulatory Mechanism or By-law (if not already in place)</td>
<td></td>
</tr>
<tr>
<td>Dry Weather Outfall Screening</td>
<td></td>
</tr>
<tr>
<td>Follow-up Ranking of Outfalls and Interconnections</td>
<td></td>
</tr>
<tr>
<td>Catchment Investigations – Problem Outfalls</td>
<td></td>
</tr>
<tr>
<td>Catchment Investigations – all Problem, High and Low Priority Outfalls</td>
<td></td>
</tr>
</tbody>
</table>
1.6 WORK COMPLETED TO DATE
The 2003 MS4 Permit required each MS4 community to develop a plan to detect illicit discharges using a combination of storm system mapping, adopting a regulatory mechanism to prohibit illicit discharges and enforce this prohibition, and identifying tools and methods to investigate suspected illicit discharges. Each MS4 community was also required to define how confirmed discharges would be eliminated and how the removal would be documented.

The Town of Hanson has completed the following IDDE program activities consistent with the 2003 MS4 Permit requirements:

- Developed a map of outfalls and receiving waters
- Developed procedures for locating illicit discharges (i.e., visual screening of outfalls for dry weather discharges, dye or smoke testing)
- Developed procedures for locating the source of the discharge
- Developed procedures for removal of the source of an illicit discharge
- Developed procedures for documenting actions and evaluating impacts on the storm sewer system subsequent to removal

In addition to the 2003 MS4 Permit requirements, other IDDE-related activities that have been completed include:

- Additional storm system mapping, including the locations of catch basins, manholes and pipe connectivity

2 Authority and Statement of IDDE Responsibilities

2.1 LEGAL AUTHORITY
The Town of Hanson has adopted Article 3-21 Stormwater Management and Article 3-22 Discharges to the Municipal Storm Drain System to the General Town Bylaws (adopted May 2013). Copies of Article 3-21 and Article 3-22 are provided in Appendix A. These bylaws provide the Town of Hanson with 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
- Implement appropriate enforcement procedures and actions.

The Town of Hanson will review Article 3-21 and Article 3-21 bylaws and related land use regulations and policies for consistency with the 2016 MS4 Permit.

2.2 STATEMENT OF RESPONSIBILITIES
The Highway Department is the lead municipal agency or department responsible for implementing the IDDE program pursuant to the provisions of the Illicit Discharges to Storm Drainage System. Other agencies or departments with responsibility for aspects of the program include:

- Highway Department – Dave Hanlon
3 Stormwater System Mapping

The Town of Hanson originally developed mapping of its stormwater system to meet the mapping requirements of the 2003 MS4 Permit. A copy of the existing storm system map is provided in Appendix B. The 2016 MS4 Permit requires a more detailed storm system map than was required by the 2003 MS4 Permit. The revised mapping is intended to facilitate the identification of key infrastructure, factors influencing proper system operation, and the potential for illicit discharges.

The 2016 MS4 Permit requires the storm system map to be updated in two phases as outlined below. The Highway Department is responsible for updating the stormwater system mapping pursuant to the 2016 MS4 Permit. The Town of Hanson will report on the progress towards completion of the storm system map in each annual report. Updates to the stormwater mapping will be included in Appendix B.

3.1 PHASE I MAPPING

Phase I mapping must be completed within two (2) years of the effective date of the permit (July 1, 2020) and include the following information:

- Outfalls and receiving waters (previously required by the MS4-2003 permit)
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally owned stormwater treatment structures
- Water bodies identified by name and indication of all use impairments as identified on the most recent EPA approved Massachusetts Integrated List of Waters report
- Initial catchment delineations. Topographic contours and drainage system information may be used to produce initial catchment delineations.

The Town of Hanson has completed the following updates to its stormwater mapping to meet the Phase I requirements:

- Outfalls and receiving waters *(updated 2013)*
- Municipally owned stormwater treatment structures *(updated 2013)*
- Water bodies identified by name and indication of all use impairments as identified on the most recent EPA approved Massachusetts Integrated List of Waters report *(taken from USGS/MassDEP Hydrography data updated April 2017)*
- Initial catchment delineations. Any available system data and topographic information may be used to produce initial catchment delineations *(mapped 2019)*
The Town of Hanson will update its stormwater mapping by July 1, 2020 to include the remaining Phase I information:

- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems

The following table contains information regarding the total number of drainage structures mapped within the MS4 Urbanized Area in Hanson. It has been compiled using data collected by the Town.

<table>
<thead>
<tr>
<th>Structure Type</th>
<th>Number of Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfalls/Outlets</td>
<td>232</td>
</tr>
<tr>
<td>BMPs</td>
<td>28</td>
</tr>
<tr>
<td>Culverts</td>
<td>82</td>
</tr>
<tr>
<td>Catch Basins</td>
<td>1479</td>
</tr>
<tr>
<td>Drain Manholes</td>
<td>424</td>
</tr>
</tbody>
</table>

### 3.2 PHASE II MAPPING

Phase II mapping must be completed within ten (10) years of the effective date of the permit (July 1, 2028) and include the following information:

- Outfall spatial location (latitude and longitude with a minimum accuracy of +/-30 feet)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineations. Catchment delineations must be updated to reflect information collected during catchment investigations.
- Municipal Sanitary Sewer system (if available/applicable)
- Municipal Combined Sewer system (if applicable).

The Town of Hanson has completed the following updates to its stormwater mapping to meet the Phase II requirements:

- Outfall spatial location (latitude and longitude with a minimum accuracy of +/-30 feet)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineations. Catchment delineations must be updated to reflect information collected during catchment investigations
- Municipal Sanitary Sewer system (not applicable)
- Municipal Combined Sewer system (not applicable).

The Town of Hanson will continue updating its stormwater mapping by July 1, 2028 to include new applicable Phase II information.

### 3.3 ADDITIONAL RECOMMENDED MAPPING ELEMENTS

Although not a requirement of the 2016 MS4 Permit, the Town of Hanson will consider the following recommended elements in its storm system mapping:
Storm sewer material, size (pipe diameter), age
Sanitary sewer system material, size (pipe diameter), age (if/when applicable)
Privately owned stormwater treatment structures
Area where the permittee’s MS4 has received or could receive flow from septic system discharges
Seasonal high water table elevations impacting sanitary alignments
Topography
Orthophotography
Alignments, dates and representation of work completed of past illicit discharge investigations
Locations of suspected confirmed and corrected illicit discharges with dates and flow estimates.

4 Sanitary Sewer Overflows (SSOs)

The 2016 MS4 Permit requires municipalities to prohibit illicit discharges, including sanitary septic and sewer overflows (SSOs), to the separate storm sewer system. SSOs are discharges of untreated sanitary wastewater from a municipal sanitary sewer or septic that can contaminate surface waters, cause serious water quality problems and property damage, and threaten public health. SSOs can be caused by blockages, line breaks, sewer defects that allow stormwater and groundwater to overload the system, power failures, improper sewer design, and vandalism.

As of June 2019, the Town of Hanson does not have a municipal sewer system. The Town has completed an inventory of SSOs that have discharged to the MS4 within the five (5) years prior to the effective date of the 2016 MS4 Permit, based on review of available documentation pertaining to SSOs. The inventory included all SSOs that occurred during wet or dry weather resulting from inadequate conveyance capacities or where interconnectivity of the storm and sanitary sewer infrastructure allows for transfer of flow between systems. Between July 2014 and June 2019, there have been no known SSOs in Hanson. **Table 4-1** is provided below as reference for future use, if necessary.

Upon detection of an SSO, the Town of Hanson will eliminate it as expeditiously as possible and take interim measures to minimize the discharge of pollutants to and from its MS4 until the SSO is eliminated. Upon becoming aware of an SSO to the MS4, the Town of Hanson will provide oral notice to EPA within 24 hours and written notice to EPA and MassDEP within five (5) days of becoming aware of the SSO occurrence.

The inventory in **Table 4-1** will be updated by the Highway Department when new SSOs are detected. The SSO inventory will be included in the annual report, including the status of mitigation and corrective measures to address each identified SSO.
Table 4-1. SSO Inventory
Hanson, Massachusetts
Revision Date: June 2019

<table>
<thead>
<tr>
<th>SSO Location¹</th>
<th>Discharge Statement²</th>
<th>Date³</th>
<th>Time Start³</th>
<th>Time End³</th>
<th>Estimated Volume⁴</th>
<th>Description⁵</th>
<th>Mitigation Completed⁶</th>
<th>Mitigation Planned⁷</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

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
⁷ Mitigation and corrective measures planned with implementation schedules
5 Assessment and Priority Ranking of Outfalls

The 2016 MS4 Permit requires an assessment and priority ranking of outfalls in terms of their potential to have illicit discharges and SSOs and the related public health significance. The ranking helps determine the priority order for performing IDDE investigations and meeting permit milestones.

5.1 OUTFALL CATCHMENT DELINEATIONS

A catchment is the area that drains to an individual outfall or interconnection. The catchments for each of the MS4 outfalls will be delineated to define contributing areas for investigation of potential sources of illicit discharges. Catchments are typically delineated based on topographic contours and mapped drainage infrastructure, where available. As described in Section 3, initial catchment delineations will be completed as part of the Phase I mapping, and refined catchment delineations will be completed as part of the Phase II mapping to reflect information collected during catchment investigations.

5.2 OUTFALL AND INTERCONNECTION INVENTORY AND INITIAL RANKING

The Highway Department will complete an initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information. The initial inventory and ranking will 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 will be updated annually to include data collected in connection with dry weather screening and other relevant inspections.

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 IDDE program activities.

Outfalls and interconnections will be classified into one of the following categories:

1. **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. Likely sewer input indicators are any of the following:
   - Olfactory or visual evidence of sewage,
   - Ammonia $\geq 0.5$ mg/L, surfactants $\geq 0.25$ mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
   - Ammonia $\geq 0.5$ mg/L, surfactants $\geq 0.25$ mg/L, and detectable levels of chlorine.

Dry weather screening and sampling, as described in Section 6 of this IDDE Plan and Part 2.3.4.7.b of the MS4 Permit, is not required for Problem Outfalls.

2. **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.
3. **Low Priority Outfalls**: Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed below or other available information.

4. **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.

Outfalls will be ranked into the above priority categories (*except for excluded outfalls, which may be excluded from the IDDE program*) based on the following characteristics of the defined initial catchment areas, where information is available. Additional relevant characteristics, including location-specific characteristics, may be considered but must be documented in this IDDE Plan. The initial ranking is based upon response provided by the Town of Hanson in May 2019.

- **Previous screening results** – previous screening/sampling results indicate likely sewer input (see criteria above for Problem Outfalls).
  - 13 MS4 outfalls were sampled in 2004 – none indicate likely sewer input
  - 1 MS4 outfall was resampled in 2009 – did not indicate likely sewer input

- **Past discharge complaints and reports.**
  - None reported

- **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.
  - Gas station, car wash, garden center, car dealer, and/or industrial site present in the following catchments with MS4 outfalls: C, E, M, N, U, X, Y, AA, and AB

- **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.
  - Not applicable – Town has no municipal sewer system

- **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.
  - Not applicable – Town has no municipal sewer system
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.
  - Not applicable – Town has no municipal sewer system

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.
  - Aging septic systems were identified in catchments with “year built” data older than 30 years ago in the Level 3 parcel data

Culverted streams – Any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.
  - No culverted stream data available

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.
  - Factory Pond (MA94175) is impaired for mercury in fish tissue
  - Indian Head River (MA94-04) is impaired for dissolved oxygen and phosphorus
  - Wampatuck Pond (MA94168) is impaired for dissolved oxygen and phosphorus
  - Monponsett Pond (MA62119) is impaired for phosphorus
  - Shumatuscancat River (MA62-33) is impaired for fecal coliform and dissolved oxygen

Appendix C contains the initial outfall priority ranking matrix and catchment delineation mapping completed for the Town. Based on this initial ranking, the highest ranking catchments are associated with Indian Head Brook.

6 Dry Weather Outfall Screening and Sampling

Dry weather flow is a common indicator of potential illicit connections. The MS4 Permit requires all outfalls/interconnections (excluding Problem and excluded Outfalls) to be inspected for the presence of dry weather flow. The Highway Department is responsible for conducting dry weather outfall screening, starting with High Priority outfalls, followed by Low Priority outfalls, based on the initial priority rankings described in the previous section.

6.1 WEATHER CONDITIONS

Dry weather outfall screening and sampling may occur when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow melt is occurring. For purposes of determining dry weather conditions, program staff will use precipitation data from Forest Trail Station (Station ID KMAHANSO5). If Forest Trail Station is not available or not reporting current weather data, then Hanson Station (Station ID KMAHANSO9) will be used as a back-up.

6.2 DRY WEATHER SCREENING/SAMPLING PROCEDURE

6.2.1 General Procedure

The dry weather outfall inspection and sampling procedure consists of the following general steps:
1. Identify outfall(s) to be screened/sampled based on initial outfall inventory and priority ranking
2. Acquire the necessary staff, mapping, and field equipment (see Table 6-1 for list of potential field equipment)
3. Conduct the outfall inspection during dry weather:
   a. Mark and photograph the outfall
   b. Record the inspection information and outfall characteristics (using paper forms or digital form using a tablet or similar device) (see form in Appendix D)
   c. Look for and record visual/olfactory evidence of pollutants in flowing outfalls including odor, color, turbidity, and floatable matter (suds, bubbles, excrement, toilet paper or sanitary products). Also observe outfalls for deposits and stains, vegetation, and damage to outfall structures.
4. If flow is observed, sample and test the flow following the procedures described in the following sections.
5. If no flow is observed, but evidence of illicit flow exists (illicit discharges are often intermittent or transitory), 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. Other techniques can be used to detect intermittent or transitory flows including conducting inspections during evenings or weekends and using optical brighteners.
6. Input results from screening and sampling into spreadsheet/database. Include pertinent information in the outfall/interconnection inventory and priority ranking.
7. Include all screening data in the annual report.

Previous outfall screening/sampling conducted under the 2003 MS4 Permit may be used to satisfy the dry weather outfall/screening requirements of the 2016 MS4 Permit only if the previous screening and sampling was substantially equivalent to that required by the 2016 MS4 Permit, including the list of analytes outlined in Section 2.3.4.7.b.iii.4 of the 2016 permit.

6.2.2 Field Equipment

Table 6-1 lists field equipment commonly used for dry weather outfall screening and sampling.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Use/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clipboard</td>
<td>For organization of field sheets and writing surface</td>
</tr>
<tr>
<td>Field Sheets</td>
<td>Field sheets for both dry weather inspection and Dry weather sampling should be available with extras</td>
</tr>
<tr>
<td>Chain of Custody Forms</td>
<td>To ensure proper handling of all samples</td>
</tr>
<tr>
<td>Pens/Pencils/Permanent Markers</td>
<td>For proper labeling</td>
</tr>
<tr>
<td>Nitrile Gloves</td>
<td>To protect the sampler as well as the sample from contamination</td>
</tr>
<tr>
<td>Flashlight/headlamp w/batteries</td>
<td>For looking in outfalls or manholes, helpful in early mornings as well</td>
</tr>
<tr>
<td>Cooler with Ice</td>
<td>For transporting samples to the laboratory</td>
</tr>
<tr>
<td>Digital Camera</td>
<td>For documenting field conditions at time of inspection</td>
</tr>
<tr>
<td>Personal Protective Equipment (PPE)</td>
<td>Reflective vest, Safety glasses and boots at a minimum</td>
</tr>
</tbody>
</table>

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Equipment | Use/Notes
--- | ---
GPS Receiver | For taking spatial location data
Water Quality Sonde | If needed, for sampling conductivity, temperature, pH
Water Quality Meter | Hand held meter, if available, for testing for various water quality parameters such as ammonia, surfactants and chlorine
Test Kits | Have extra kits on hand to sample more outfalls than are anticipated to be screened in a single day
Label Tape | For labeling sample containers
Sample Containers | Make sure all sample containers are clean. Keep extra sample containers on hand at all times. Make sure there are proper sample containers for what is being sampled for (i.e., bacteria requires sterile containers).
Pry Bar or Pick | For opening catch basins and manholes when necessary
Sandbags | For damming low flows in order to take samples
Small Mallet or Hammer | Helping to free stuck manhole and catch basin covers
Utility Knife | Multiple uses
Measuring Tape | Measuring distances and depth of flow
Safety Cones | Safety
Hand Sanitizer | Disinfectant/decontaminant
Zip Ties/Duct Tape | For making field repairs
Rubber Boots/Waders | For accessing shallow streams/areas
Sampling Pole/Dipper/Sampling Cage | For accessing hard to reach outfalls and manholes

6.2.3 Sample Collection and Analysis

If flow is present during a dry weather outfall inspection, a sample will be collected and analyzed for the required permit parameters listed in Table 6-2. The general procedure for collection of outfall samples is as follows:

1. Fill out all sample information on sample bottles and field sheets (see Appendix D for Field Sheets)
2. Put on protective gloves (nitrile/latex/other) before sampling
3. Collect sample with dipper or directly in sample containers. If possible, collect water from the flow directly in the sample bottle. Be careful not to disturb sediments.
4. If using a dipper or other device, triple rinse the device with distilled water and then in water to be sampled (not for bacteria sampling)
5. Use test strips, test kits, and field meters (rinse similar to dipper) for most parameters (see Table 6-2)
6. Place laboratory samples on ice for analysis of bacteria and pollutants of concern
7. Fill out chain-of-custody form for laboratory samples
8. Deliver samples to Massachusetts state certified laboratory
9. Dispose of used test strips and test kit ampules properly
10. Decontaminate all testing personnel and equipment
In the event that an outfall is submerged, either partially or completely, or inaccessible, field staff will proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results. Field staff will continue to the next upstream structure until there is no longer an influence from the receiving water on the visual inspection or sampling.

Field test kits or field instrumentation are permitted for all parameters except indicator bacteria and any pollutants of concern. Field kits need to have appropriate detection limits and ranges. Table 6-2 lists various field test kits and field instruments that can be used for outfall sampling associated with the 2016 MS4 Permit parameters, other than indicator bacteria and any pollutants of concern.

Table 6-2. Field Screening Parameters and Analysis Methods

<table>
<thead>
<tr>
<th>Analyte or Parameter</th>
<th>Instrumentation (Portable Meter)</th>
<th>Field Test Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td>CHEMetrics™ V-2000 Colorimeter</td>
<td>CHEMetrics™ K-1410</td>
</tr>
<tr>
<td></td>
<td>Hach™ DR/890 Colorimeter</td>
<td>CHEMetrics™ K-1510 (series)</td>
</tr>
<tr>
<td></td>
<td>Hach™ Pocket Colorimeter™ II</td>
<td>Hach™ NI-SA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hach™ Ammonia Test Strips</td>
</tr>
<tr>
<td>Chlorine</td>
<td>CHEMetrics™ V-2000, K-2513</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Hach™ Pocket Colorimeter™ II</td>
<td></td>
</tr>
<tr>
<td>Conductivity</td>
<td>CHEMetrics™ I-1200</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>YSI Pro30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YSI EC300A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oakton 450</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>YSI Pro30</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>YSI EC300A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oakton 450</td>
<td></td>
</tr>
<tr>
<td>Salinity</td>
<td>YSI Pro30</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>YSI EC300A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oakton 450</td>
<td></td>
</tr>
<tr>
<td>Dissolved Oxygen</td>
<td>YSI Pro30</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>YSI EC300A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oakton 450</td>
<td></td>
</tr>
<tr>
<td>Turbidity</td>
<td>Hach™ 2100Q Portable Turbidimeter</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Oakton CON 150</td>
<td></td>
</tr>
</tbody>
</table>

Testing for indicator bacteria and any pollutants of concern must be conducted using analytical methods and procedures found in 40 CFR § 136. Samples for laboratory analysis must also be stored and preserved in accordance with procedures found in 40 CFR § 136. Table 6-3 lists analytical methods, detection limits, hold times, and preservatives for laboratory analysis of dry weather sampling parameters.
### Table 6-3. Required Analytical Methods, Detection Limits, Hold Times, and Preservatives

<table>
<thead>
<tr>
<th>Analyte or Parameter</th>
<th>Analytical Method</th>
<th>Detection Limit</th>
<th>Max. Hold Time</th>
<th>Preservative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td><strong>EPA</strong>: 350.2, <strong>SM</strong>: 4500-NH3C</td>
<td>0.05 mg/L</td>
<td>28 days</td>
<td>Cool ≤6°C, H2SO4 to pH &lt;2, No preservative required if analyzed immediately</td>
</tr>
<tr>
<td>Surfactants</td>
<td><strong>SM</strong>: 5540-C</td>
<td>0.01 mg/L</td>
<td>48 hours</td>
<td>Cool ≤6°C</td>
</tr>
<tr>
<td>Chlorine</td>
<td><strong>SM</strong>: 4500-Cl G</td>
<td>0.02 mg/L</td>
<td>Analyze within 15 minutes</td>
<td>None Required</td>
</tr>
<tr>
<td>Temperature</td>
<td><strong>SM</strong>: 2550B</td>
<td>NA</td>
<td>Immediate</td>
<td>None Required</td>
</tr>
<tr>
<td>Specific Conductance</td>
<td><strong>EPA</strong>: 120.1, <strong>SM</strong>: 2510B</td>
<td>0.2 µs/cm</td>
<td>28 days</td>
<td>Cool ≤6°C</td>
</tr>
<tr>
<td>Salinity</td>
<td><strong>SM</strong>: 2520</td>
<td>-</td>
<td>28 days</td>
<td>Cool ≤6°C</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand (BOD)</td>
<td><strong>EPA</strong>: 360.1</td>
<td><strong>EPA</strong>: 3 mg/L</td>
<td>48 hours</td>
<td>Cool ≤6°C</td>
</tr>
<tr>
<td>Dissolved Oxygen</td>
<td><strong>EPA</strong>: 365.1</td>
<td><strong>EPA</strong>: 1 mg/L</td>
<td>Immediate</td>
<td>Cool ≤6°C</td>
</tr>
<tr>
<td>Turbidity</td>
<td><strong>EPA</strong>: 160.2</td>
<td><strong>EPA</strong>: 1 NTU</td>
<td>48 hours</td>
<td>Cool ≤6°C</td>
</tr>
<tr>
<td>Indicator Bacteria:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>E.coli</em></td>
<td><strong>EPA</strong>: 1603</td>
<td></td>
<td>8 hours</td>
<td>Cool ≤10°C, 0.0008% Na2S2O3</td>
</tr>
<tr>
<td><em>Enterococcus</em></td>
<td><strong>EPA</strong>: 9221B, 9221F, 9223B, Colilert® Colilert-18®</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Fecal Coliform</em></td>
<td><strong>EPA</strong>: 1600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Other</em>: Colilert® Enterolert®</td>
<td><strong>SM</strong>: 9230 C, Enterolert® Fecal Coliform</td>
<td><strong>EPA</strong>: 1680</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td><strong>EPA</strong>: Manual-365.3, Automated Ascorbic acid digestion-365.1 Rev. 2, ICP/AES4-200.7 Rev. 4.4</td>
<td><strong>EPA</strong>: 0.01 mg/L</td>
<td>28 days</td>
<td>Cool ≤6°C, H2SO4 to pH &lt;2</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td><strong>EPA</strong>: Cadmium reduction (automated)-353.2 Rev. 2.0, <strong>SM</strong>: 4500-NO3 E-F</td>
<td><strong>EPA</strong>: 0.05 mg/L</td>
<td>28 days</td>
<td>Cool ≤6°C, H2SO4 to pH &lt;2</td>
</tr>
</tbody>
</table>

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### 6.3 INTERPRETING OUTFALL SAMPLING RESULTS

Outfall analytical data from dry weather sampling can be used to help identify the major type or source of discharge. **Table 6-4** shows values identified by the U.S. EPA and the Center for Watershed Protection as typical screening values for select parameters. These represent the typical concentration (or value) of each parameter expected to be found in stormwater. Screening values that exceed these benchmarks may be indicative of pollution and/or illicit discharges.

<table>
<thead>
<tr>
<th>Analyte or Parameter</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td>&gt;0.5 mg/L</td>
</tr>
<tr>
<td>Conductivity</td>
<td>&gt;2,000 μS/cm</td>
</tr>
<tr>
<td>Surfactants</td>
<td>&gt;0.25 mg/L</td>
</tr>
<tr>
<td>Chlorine</td>
<td>&gt;0.02 mg/L</td>
</tr>
<tr>
<td>(detectable levels per the 2016 MS4 Permit)</td>
<td></td>
</tr>
<tr>
<td>Indicator Bacteria:</td>
<td></td>
</tr>
<tr>
<td><em>E. coli</em></td>
<td></td>
</tr>
<tr>
<td><em>Enterococcus</em></td>
<td></td>
</tr>
<tr>
<td><em>E. coli</em>: the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml</td>
<td></td>
</tr>
<tr>
<td><em>Enterococcus</em>: the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61 colonies per 100 ml</td>
<td></td>
</tr>
</tbody>
</table>

### 6.4 FOLLOW-UP RANKING OF OUTFALLS AND INTERCONNECTIONS

The Town of Hanson will update and re-prioritize the initial outfall and interconnection rankings based on information gathered during dry weather screening. The rankings will be updated periodically as dry weather screening information becomes available, but will be completed within three (3) years of the effective date of the permit (July 1, 2021).

Outfalls/interconnections where relevant information was found indicating sewer input to the MS4 or sampling results indicating sewer input are highly likely to contain illicit discharges from sanitary sources.
Such outfalls/interconnections will be ranked at the top of the High Priority Outfalls category for investigation. Other outfalls and interconnections may be re-ranked based on any new information from the dry weather screening.

7 Catchment Investigations
Once stormwater outfalls with evidence of illicit discharges have been identified, various methods can be used to trace the source of the potential discharge within the outfall catchment area. Catchment investigation techniques include but are not limited to review of maps, historic plans, and records; manhole observation; dry and wet weather sampling; video inspection; smoke testing; and dye testing. This section outlines a systematic procedure to investigate outfall catchments to trace the source of potential illicit discharges. All data collected as part of the catchment investigations will be recorded and reported in each annual report.

7.1 SYSTEM VULNERABILITY FACTORS
The Highway Department will review relevant mapping and historic plans and records to identify areas within the catchment with higher potential for illicit connections. The following information will be reviewed:

- Plans related to the construction of the drainage network
- Plans related to the construction of the sewer network
- Prior work on storm drains or sewer lines
- Board of Health or other municipal data on septic systems
- Complaint records related to SSOs
- Septic system breakouts.

Based on the review of this information, the presence of any of the following System Vulnerability Factors (SVFs) will be identified for each catchment:

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
- Any 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).

Sanitary sewers are not present as of June 2019 and the following SVFs are therefore not applicable:

- 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
- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
- Any sanitary sewer infrastructure greater than 40 years old.

A SVF inventory will be documented for each catchment (see Appendix E), retained as part of this IDDE Plan, and included in the annual report.

### 7.2 DRY WEATHER MANHOLE INSPECTIONS

The Town of Hanson will implement a dry weather storm drain network investigation that involves systematically and progressively observing, sampling and evaluating key junction manholes in the MS4 to determine the approximate location of suspected illicit discharges or SSOs.

The Highway Department will be responsible for implementing the dry weather manhole inspection program and making updates as necessary. Infrastructure information will be incorporated into the storm system map, and catchment delineations will be refined based on the field investigation, where necessary. The SVF inventory will also be updated based on information obtained during the field investigations, where necessary.

Several important terms related to the dry weather manhole inspection program are defined by the MS4 Permit as follows:

- **Junction Manhole** is a manhole or structure with two or more inlets accepting flow from two or more MS4 alignments. Manholes with inlets solely from private storm drains, individual catch basins, or both are not considered junction manholes for these purposes.

- **Key Junction Manholes** are those junction manholes that can represent one or more junction manholes without compromising adequate implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the permittee's ability to determine the possible presence of an upstream illicit discharge. A permittee may exclude a junction manhole located upstream from another located in the immediate vicinity or that is serving a drainage alignment with no potential for illicit connections.

For all catchments identified for investigation, during dry weather, field crews will systematically inspect **key junction manholes** for evidence of illicit discharges. This program involves progressive inspection and sampling at manholes in the storm drain network to isolate and eliminate illicit discharges.

The manhole inspection methodology will be conducted in one of two ways (or a combination of both):
• By working progressively up from the outfall and inspecting key junction manholes along the way, or
• By working progressively down from the upper parts of the catchment toward the outfall.

For most catchments, manhole inspections will proceed from the outfall moving up into the system.

However, the decision to move up or down the system depends on the nature of the drainage system and the surrounding land use and the availability of information on the catchment and drainage system. Moving up the system can begin immediately when an illicit discharge is detected at an outfall, and only a map of the storm drain system is required. Moving down the system requires more advance preparation and reliable drainage system information on the upstream segments of the storm drain system, but may be more efficient if the sources of illicit discharges are believed to be located in the upstream portions of the catchment area. Once a manhole inspection methodology has been selected, investigations will continue systematically through the catchment.

Inspection of key junction manholes will proceed as follows:

1. Manholes will be opened and inspected for visual and olfactory evidence of illicit connections. A sample field inspection form is provided in Appendix D.

2. If flow is observed, a sample will be collected and analyzed at a minimum for ammonia, chlorine, and surfactants. Field kits can be used for these analyses. Sampling and analysis will be in accordance with procedures outlined in Section 6. Additional indicator sampling may assist in determining potential sources (e.g., bacteria for sanitary flows, conductivity to detect tidal backwater, etc.).

3. Where sampling results or visual or olfactory evidence indicate potential illicit discharges or SSOs, the area draining to the junction manhole will be flagged for further upstream manhole investigation and/or isolation and confirmation of sources.

4. Subsequent key junction manhole inspections will proceed until the location of suspected illicit discharges or SSOs can be isolated to a pipe segment between two manholes.

5. If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon completion of key junction manhole sampling.

7.3 WET WEATHER OUTFALL SAMPLING

Where a minimum of one (1) System Vulnerability Factor (SVF) is identified based on previous information or the catchment investigation, a wet weather investigation must also be conducted at the associated outfall. The Highway Department will be responsible for implementing the wet weather outfall sampling program and making updates as necessary.

Outfalls will be inspected and sampled 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.

Wet weather outfall sampling will proceed as follows:
1. At least one wet weather sample will be collected at the outfall for the same parameters required during dry weather screening.

2. Wet weather sampling will occur during or after a storm event of sufficient depth or intensity to produce a stormwater discharge at the outfall. There is no specific rainfall amount that will trigger sampling, although minimum storm event intensities that are likely to trigger sanitary sewer interconnections are preferred. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high.

3. If wet weather outfall sampling indicates a potential illicit discharge, then additional wet weather source sampling will be performed, as warranted, or source isolation and confirmation procedures will be followed as described in Section 7.4.

4. If wet weather outfall sampling does not identify evidence of illicit discharges, and no evidence of an illicit discharge is found during dry weather manhole inspections, catchment investigations will be considered complete.

7.4 SOURCE ISOLATION AND CONFIRMATION

Once the source of an illicit discharge is approximated between two manholes, more detailed investigation techniques will be used to isolate and confirm the source of the illicit discharge. The following methods may be used in isolating and confirming the source of illicit discharges

- Sandbagging
- Smoke Testing
- Dye Testing
- CCTV/Video Inspections
- Optical Brightener Monitoring
- IDDE Canines

These methods are described in the sections below. Instructions for these and other IDDE methods are provided in Appendix F.

Public notification is an important aspect of a detailed source investigation program. Prior to smoke testing, dye testing, or TV inspections, the Highway Department will notify property owners in the affected area. Smoke testing notification will include hanging notifications for single family homes, businesses and building lobbies for multi-family dwellings.

7.4.1 Sandbagging

This technique can be particularly useful when attempting to isolate intermittent illicit discharges or those with very little perceptible flow. The technique involves placing sandbags or similar barriers (e.g., caulking, weirs/plates, or other temporary barriers) within outlets to manholes to form a temporary dam that collects any intermittent flows that may occur. Sandbags are typically left in place for 48 hours, and should only be installed when dry weather is forecast. If flow has collected behind the sandbags/barriers after 48 hours it can be assessed using visual observations or by sampling. If no flow collects behind the sandbag, the upstream pipe network can be ruled out as a source of the intermittent discharge. Finding appropriate
durations of dry weather and the need for multiple trips to each manhole makes this method both time-consuming and somewhat limiting.

7.4.2 Smoke Testing

Smoke testing involves injecting non-toxic smoke into drain lines and noting the emergence of smoke from sanitary sewer vents in illegally connected buildings or from cracks and leaks in the system itself. Typically a smoke bomb or smoke generator is used to inject the smoke into the system at a catch basin or manhole and air is then forced through the system. Test personnel are placed in areas where there are suspected illegal connections or cracks/leaks, noting any escape of smoke (indicating an illicit connection or damaged storm drain infrastructure). It is important when using this technique to make proper notifications to area residents and business owners as well as local police and fire departments.

If the initial test of the storm drain system is unsuccessful then a more thorough smoke-test of the sanitary sewer lines can also be performed. Unlike storm drain smoke tests, buildings that do not emit smoke during sanitary sewer smoke tests may have problem connections and may also have sewer gas venting inside, which is hazardous.

It should be noted that smoke may cause minor irritation of respiratory passages. Residents with respiratory conditions may need to be monitored or evacuated from the area of testing altogether to ensure safety during testing.

7.4.3 Dye Testing

Dye testing involves flushing non-toxic dye into plumbing fixtures such as toilets, showers, and sinks and observing nearby storm drains and sewer manholes as well as stormwater outfalls for the presence of the dye. Similar to smoke testing, it is important to inform local residents and business owners. Police, fire, and local public health staff should also be notified prior to testing in preparation of responding to citizen phone calls concerning the dye and their presence in local surface waters.

A team of two or more people is needed to perform dye testing (ideally, all with two-way radios). One person is inside the building, while the others are stationed at the appropriate storm sewer and sanitary sewer manholes (which should be opened) and/or outfalls. The person inside the building adds dye into a plumbing fixture (i.e., toilet or sink) and runs a sufficient amount of water to move the dye through the plumbing system. The person inside the building then radios to the outside crew that the dye has been dropped, and the outside crew watches for the dye in the storm sewer and sanitary sewer, recording the presence or absence of the dye.

The test can be relatively quick (about 30 minutes per test), effective (results are usually definitive), and inexpensive. Dye testing is best used when the likely source of an illicit discharge has been narrowed down to a few specific houses or businesses.

7.4.4 CCTV/Video Inspection

Another method of source isolation involves the use of mobile video cameras that are guided remotely through stormwater drain lines to observe possible illicit discharges. IDDE program staff can review the videos and note any visible illicit discharges. While this tool is both effective and usually definitive, it can be costly and time consuming when compared to other source isolation techniques.
7.4.5 Optical Brightener Monitoring

Optical brighteners are fluorescent dyes that are used in detergents and paper products to enhance their appearance. The presence of optical brighteners in surface waters or dry weather discharges suggests there is a possible illicit discharge or insufficient removal through adsorption in nearby septic systems or wastewater treatment. Optical brightener monitoring can be done in two ways. The most common, and least expensive, methodology involves placing a cotton pad in a wire cage and securing it in a pipe, manhole, catch basin, or inlet to capture intermittent dry weather flows. The pad is retrieved at a later date and placed under UV light to determine the presence/absence of brighteners during the monitoring period. A second methodology uses handheld fluorometers to detect optical brighteners in water sample collected from outfalls or ambient surface waters. Use of a fluorometer, while more quantitative, is typically more costly and is not as effective at isolating intermittent discharges as other source isolation techniques.

7.4.6 IDDE Canines

Dogs specifically trained to smell human related sewage are becoming a cost-effective way to isolate and identify sources of illicit discharges. While not widespread at the moment, the use of IDDE canines is growing as is their accuracy. The use of IDDE canines is not recommended as a standalone practice for source identification; rather it is recommended as a tool to supplement other conventional methods, such as dye testing, in order to fully verify sources of illicit discharges.

7.5 ILLICIT DISCHARGE REMOVAL

When the specific source of an illicit discharge is identified, the Town of Hanson will exercise its authority as necessary to require its removal. The annual report will include the status of IDDE investigation and removal activities including the following information for each confirmed source:

- 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
- Estimate of the volume of flow removed.

7.5.1 Confirmatory Outfall Screening

Within one (1) year of removal of all identified illicit discharges within a catchment area, confirmatory outfall or interconnection screening will be conducted. The confirmatory screening will be conducted in dry weather unless System Vulnerability Factors have been identified, in which case both dry weather and wet weather confirmatory screening will be conducted. If confirmatory screening indicates evidence of additional illicit discharges, the catchment will be scheduled for additional investigation.

7.6 ONGOING SCREENING

Upon completion of all catchment investigations and illicit discharge removal and confirmation (if necessary), each outfall or interconnection will be re-prioritized for screening and scheduled for ongoing screening once every five (5) years. Ongoing screening will consist of dry weather screening and sampling consistent with the procedures described in Section 6 of this plan. Ongoing wet weather screening and
sampling will also be conducted at outfalls where wet weather screening was required due to System Vulnerability Factors and will be conducted in accordance with the procedures described in Section 7.3. All sampling results will be reported in the annual report.

8 Training
Annual IDDE training will be made available to all employees involved in the IDDE program. This training will at a minimum include information on how to identify illicit discharges and SSOs and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program. Training records will be maintained in Appendix G. The frequency and type of training will be included in the annual report.

9 Progress Reporting
The progress and success of the IDDE program will be evaluated on an annual basis. The evaluation will be documented in the annual report and will include the following indicators of program progress:

- Number of SSOs and illicit discharges identified and removed
- Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure
- Number of dry weather outfall inspections/screenings
- Number of wet weather outfall inspections/sampling events
- Number of enforcement notices issued
- All dry weather and wet weather screening and sampling results
- Estimate of the volume of sewage removed, as applicable
- Number of employees trained annually.

The success of the IDDE program will be measured by the IDDE activities completed within the required permit timelines.
Appendix A

Legal Authority (IDDE Bylaw or Ordinance)
TOWN OF HANSON
GENERAL BYLAWS

ARTICLE 3-21
STORMWATER MANAGEMENT

Sec. 1. PURPOSE

Regulation of discharges to the municipal separate storm sewer system (MS4) is necessary for the protection of the Town of Hanson’s water bodies and groundwater, and to safeguard the public health, safety, welfare and the environment. Increased and contaminated stormwater runoff associated with developed land uses and the accompanying increase in impervious surface are major causes of impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater.

A. The harmful impacts of soil erosion and sedimentation are:
   - Impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater;
   - Contamination of drinking water supplies;
   - Alteration or destruction of aquatic and wildlife habitat;
   - Flooding; and
   - Overloading or clogging of municipal catch basins and storm drainage systems.

B. The objectives of this Section are:
   - To require practices to control the flow of stormwater from new and redeveloped sites into the Town of Hanson’s storm drainage system in order to prevent flooding and erosion;
   - To protect groundwater and surface water from degradation;
   - To promote groundwater recharge;
   - To prevent pollutants from entering the Town of Hanson’s municipal separate storm sewer system (MS4) and to minimize discharge of pollutants from the MS4;
   - To ensure adequate long-term operation and maintenance of structural stormwater best management practices so that they work as designed;
   - To comply with state and federal statutes and regulations relating to stormwater discharges; and
   - To establish the Town of Hanson’s legal authority to ensure compliance with the provisions of this Section through inspection, monitoring, and enforcement.

Sec. 2. DEFINITIONS

ABUTTER: The owner(s) of land abutting the activity.

AGRICULTURE: The normal maintenance or improvement of land in agricultural or aquacultural use, as defined by the Massachusetts Wetlands Protection Act and its implementing regulations.
ALTERATION OF DRAINAGE CHARACTERISTICS: Any activity on an area of land that changes the water quality, force, direction, timing or location of runoff flowing from the area. Such changes include: change from distributed runoff to confined, discrete discharge, change in the volume of runoff from the area; change in the peak rate of runoff from the area; and change in the recharge to groundwater on the area.

APPLICANT: Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the Commonwealth or the Federal government to the extent permitted by law requesting a soil erosion and sediment control permit for proposed Construction Activity.

AUTHORIZED ENFORCEMENT AGENCY: The Planning Board (hereafter the Board), its employees or agents designated to enforce this Section.

BEST MANAGEMENT PRACTICE (BMP): An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

CLEARING: Any activity that removes the vegetative surface cover.

CONSTRUCTION ACTIVITY: Any activity that causes a change in the position or location of soil, sand, rock, gravel or similar earth material.

CONSTRUCTION SITE: The plot of land located within the Town on which the Construction Activity will occur.

CONSTRUCTION AND WASTE MATERIALS: Excess or discarded building or site materials, including but not limited to concrete truck washout, chemicals, litter and sanitary waste at a construction site that may adversely impact water quality.

DEVELOPMENT: The modification of land to accommodate a new use or expansion of use, usually involving construction.

GRADING: Changing the level or shape of the ground surface.

GRUBBING: The act of clearing land surface by digging up roots and stumps.

erosion: The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment and transportation of soil particles.

erosion and sedimentation control plan: A document containing narrative, drawings and details developed by a qualified professional engineer (PE), which includes best management practices, or equivalent measures designed to control surface runoff, erosion and sedimentation during pre-construction and construction related activities.
ESTIMATED HABITAT OF RARE WILDLIFE AND CERTIFIED VERNAL POOLS: Habitats delineated for state-protected rare wildlife and certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00) and the Forest Cutting Practices Act Regulations (304 CMR 11.00).

IMPERVIOUS SURFACE: Any material or structure on or above the ground that prevents water infiltrating the underlying soil. Impervious surface includes without limitation roads, paved parking lots, sidewalks, and roof tops.

MASSACHUSETTS ENDANGERED SPECIES ACT: (G.L. c. 131A) and its implementing regulations at (321 CMR 10.00) which prohibit the “taking” of any rare plant or animal species listed as Endangered, Threatened, or of Special Concern.

MASSACHUSETTS STORMWATER MANAGEMENT POLICY: The Policy issued by the Department of Environmental Protection, and as amended, that coordinates the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 §. 40 and Massachusetts Clean Waters Act G.L. c. 21, §. 23-56. The Policy addresses stormwater impacts through implementation of performance standards to reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS: The Standards issued by the Massachusetts Department of Environmental Protection (DEP), codified in regulations at 310 CMR 10.05(6)(k)-(q) and further defined and specified in the Massachusetts Stormwater Handbook issued by the DEP. The Standards address stormwater impacts through implementation of performance standards that reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) or municipal storm drain system: The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Hanson.

NPDES: National Pollution Discharge Elimination System Construction General Permit issued by the Environment Protection Agency to the Applicant.

OPERATOR: The party associated with the Construction Activity that meets either of the following two criteria: (1) The party who has operational control over construction plans and specifications including the ability to make modifications to those plans and specifications or (2) The party who has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a Stormwater Pollution Prevention Plan for the site or other permit conditions.

OWNER: A person with a legal or equitable interest in property.
OUTFALL: The point at which stormwater flows out from a point source discernible, confined and discrete conveyance into waters of the Commonwealth.

OUTSTANDING RESOURCE WATERS (ORWs): Waters designated by Massachusetts Department of Environmental Protection as ORWs. These waters have exceptional sociologic, recreational, ecological and/or aesthetic values and are subject to more stringent requirements under both the Massachusetts Water Quality Standards (314 CMR 4.00) and the Massachusetts Stormwater Management Standards. ORWs include vernal pools certified by the Natural Heritage Program of the Massachusetts Department of Fisheries and Wildlife and Environmental Law Enforcement, all Class A designated public water supplies with their bordering vegetated wetlands, and other waters specifically designated.

PERSON: An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

POINT SOURCE: Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

POLLUTANTS: Include without limitation the following: Dredged spoil, solid waste, incinerator residue, filter back-wash, sewage, garbage, sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rocks, sand, animal or agricultural waste, oil, grease, gasoline or diesel fuel.

REDEVELOPMENT: Development, rehabilitation, expansion, demolition or phased projects that disturb the ground surface or increase the impervious area on previously developed sites.

PRE-CONSTRUCTION: All activity in preparation for construction.

PRIORITY HABITAT OF RARE SPECIES: Habitats delineated for rare plant and animal populations protected pursuant to the Massachusetts Endangered Species Act and its regulations.

RUNOFF: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

SEDIMENT: Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

SEDIMENTATION: The process or act of deposition of sediment.

SITE: Any lot or parcel of land or area of property where land-disturbing activities are, were, or will be performed.

SLOPE: The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.
SOIL: Any earth, sand, rock, gravel, or similar material.

STABILIZATION: The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or retard erosion.

STORMWATER: Storm water runoff, snow melt runoff, and surface water runoff and drainage.

STORMWATER DISCHARGES: Stormwater that runs off from the construction Site into the MS4 or otherwise into Waters of the U.S.

STORMWATER MANAGEMENT MEASURES: Infrastructure improvements that are constructed or installed during Construction Activity to prevent Pollutants from entering Stormwater Discharges or to reduce the quantity of Stormwater Discharges that will occur after Construction Activity has been completed. Examples include but are not limited to: on-site filtration, flow attenuation by vegetation or natural depressions, outfall velocity dissipation devices, retention structures and artificial wetlands, and water quality detention structures.

STORMWATER PERMIT: The permit issued by the Authorized Enforcement Agency to the Applicant which allows Construction Activity to occur as outlined by the Applicant in its application and Stormwater Pollution Prevention Plan.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP): That plan required of all Applicants in which they outline the Erosion and Sedimentation BMPs they will use, the BMPs they will use to control wastes generated on the Construction Site, the Stormwater Management Measures they will construct and their plan for long-term maintenance of these measures.

STRIP: Any activity which removes the vegetative ground surface cover, including tree removal, clearing, grubbing, and storage or removal of topsoil.

TSS: Total Suspended Solids.

VERNAL POOLS: Temporary bodies of freshwater which provide critical habitat for a number of vertebrate and invertebrate wildlife species.

WATERCOURSE: A natural or man-made channel through which water flows or a stream of water, including a river, brook, or underground stream.

WATERS OF THE US: These include:

- All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or
natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
  o That are or could be used by interstate or foreign travelers for recreational or other purposes;
  o From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  o That are used or could be used for industrial purposes by industries in interstate Commerce;
• All impoundments of waters otherwise defined as waters of the United States under this definition;
• Tributaries of waters identified in paragraphs 1 through 4 of this definition;
• The territorial sea; and
• Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs 1 through 6 of this definition.

WETLANDS: Tidal and non-tidal areas characterized by saturated or nearly saturated soils most of the year that are located between terrestrial (land-based) and aquatic (water-based) environments, including freshwater marshes around ponds and channels (rivers and streams), brackish and salt marshes; common names include marshes, swamps and bogs.

Sec. 3. AUTHORITY

This Section is adopted under authority granted by the Home Rule Amendment of the Massachusetts Constitution, the Home Rule statutes, and pursuant to the regulations of the federal Clean Water Act found at 40 CFR 122.34.

Sec. 4. APPLICABILITY

This Section shall apply to all activities that result in disturbance of one or more acres of land that drains to the municipal separate storm sewer system. Except as authorized by the Board in a Stormwater Permit or as otherwise provided in this Section, no person shall perform any activity that results in disturbance of an acre or more of land.

Normal maintenance and improvement of land in agricultural or aquacultural use, as defined by the Wetlands Protection Act regulation 310 CMR 10.4, are exempt. In addition, Construction Activities are exempt from needing a Stormwater Permit if the stormwater discharges resulting from them demonstrate compliance with the Massachusetts Stormwater Management Standards, either through a properly issued Order of Conditions, Site Plan Review, Special Permit/Variance or Subdivision Plan approval.

The Stormwater Permit does not exclude the requirement of filing a Construction General Permit with the Environmental Protection Agency.
Sec. 5. RESPONSIBILITY FOR ADMINISTRATION

A. The Board shall administer, implement and enforce this Section. Any powers granted to or duties imposed upon the Board may be delegated in writing by the Board to its employees or agents.

B. Waiver. The Board may waive strict compliance with any requirement of this Section or the rules and regulations promulgated hereunder, where:
   o Such action is allowed by federal, state and local statutes and/or regulations,
   o Is in the public interest, and
   o Is not inconsistent with the purpose and intent of this Section.

C. Rules and Regulations. The Board may adopt, and periodically amend rules and regulations to effectuate the purposes of this Section. Failure by the Board to promulgate such rules and regulations shall not have the effect of suspending or invalidating this Section.

Sec. 6. PERMITS and PROCEDURE

A. Application Procedure: Applicant must sign and file an Application for a Stormwater Permit on a form provided by the Town. The Application should be submitted to the Board and to be deemed complete must be accompanied by:
   o A Stormwater Permit Application Fee.
   o Identification of the Construction Site by book, page, and plot number in the records of the Assessor’s Office.
   o A narrative description of the Construction Activity intended, the proposed use of any improvements to be constructed and the construction timetable.
   o A Site Plan required by Section 7.
   o A list of abutters certified by the Assessor’s Office including addresses.
   o A Stormwater Pollution Prevention Plan required by Section 8.

B. Entry: Filing an application for a permit grants the Board or its agent, permission to enter the site to verify the information in the application and to inspect for compliance with permit conditions.

C. Other Boards: The Board shall notify the Town Clerk of receipt of the application, and shall give one copy of the application package to the Building Department, Conservation Commission and Highway Department.

D. Public Hearing: The Board shall hold a public hearing within twenty-one (21) days of the receipt of a complete application and shall take final action within twenty-one (21) days from the time of the close of the hearing unless such time is extended by agreement between the applicant and the Board. Notice of the public hearing shall be given by publication and posting and by first-class mailings to abutters at least seven (7) days prior to the hearing. The Board shall make the application available for inspection by the public during business hours at the Town of Hanson’s Planning Department Office.

E. Information requests: The applicant shall submit all additional information requested by the Board to issue a decision on the application.

F. Action by the Board: The Board may:
Approve the Stormwater Permit Application and issue a permit if it finds that the proposed plan will protect water resources and meets the objectives and requirements of this Section;

Approve the Stormwater Permit Application and issue a permit with conditions, modifications or restrictions that the Board determines are required to ensure that the project will protect water resources and meets the objectives and requirements of this Section;

Disapprove the Stormwater Permit Application and deny the permit if it finds that the proposed plan will not protect water resources or fails to meet the objectives and requirements of this Section.

G. **Failure of the Board to take final action:** Failure of the Board to take final action upon an Application within the time specified above shall be deemed to be approval of said Application. Upon certification by the Town Clerk that the allowed time has passed without the Board’s action, the Stormwater Permit shall be issued by the Board.

H. **Fee Structure:** Each application must be accompanied by the appropriate application fee as established by the Board. Applicants shall pay review fees as determined by the Board sufficient to cover any expenses connected with the public hearing and review of the Stormwater Permit Application before the review process commences. The Board is authorized to retain a Registered Professional Engineer or other professional consultant to advise the Board on any or all aspects of the Application.

I. **Project Changes:** The permittee, or their agent, must notify the Board in writing of any change or alteration of a land-disturbing activity authorized in a Stormwater Permit before any change or alteration occurs. If the Board determines that the change or alteration is significant, based on the design requirements listed in Section 8 and accepted construction practices, the Board may require that an amended Stormwater Permit application be filed and a public hearing held. If any change or alteration from the Stormwater Permit occurs during any land disturbing activities, the Board may require the installation of interim erosion and sedimentation control measures before approving the change or alteration.

Sec. 7. **SITE PLAN**

The Site Plan that is submitted must contain at least the following information:

A. Names, addresses and telephone numbers of the Person(s) or firm(s) preparing the plan.
B. Title, date, north arrow, scale, legend and locus map.
C. Location and description of natural features including watercourses and water bodies, wetland resource areas and all floodplain information including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map (or as calculated by a professional engineer for areas not assessed on those maps) located on or adjacent to the Construction Site.
D. A description and delineation of existing Stormwater conveyances and impoundments located on the Construction Site with their point of discharge noted.
E. Location and description of existing soils and vegetation including tree lines, shrub layer, ground cover and herbaceous vegetation and trees with a caliper twelve (12) inches or larger with run-off coefficient for each.
F. Habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species located on or adjacent to the Construction Site.

G. Lines of existing abutting streets showing drainage and driveway locations and curb cuts.

H. Surveyed property lines of the Construction Site showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire Construction Site and the delineation and number of square feet of the land area that is to be disturbed.

I. Proposed improvements including location of buildings or other structures and impervious surfaces (such as parking lots).

J. Topographical features including existing and proposed contours at intervals of no greater than two (2) feet with spot elevations provided when needed.

K. The existing site hydrology including drainage patterns and approximate slopes anticipated after major grading activities.

L. Location of the MS4 with relation to the Construction Site.

M. Identification of Outfalls which are located on the Construction Site.

N. Stormwater Discharge calculations prepared and certified by a Registered Professional Engineer describing the volume of Stormwater that presently discharges from the Construction Site and the estimated volume post-development.

O. Identification of any existing Stormwater Discharges emanating from the Construction Site and discharging into the MS4 for which a NPDES Permit has been issued (include Permit number).

P. A list of water bodies that will receive Stormwater Discharges from the Construction Site with the location of drains noted on the map. A brief description of known water quality impacts and whether the water bodies receiving such Stormwater Discharges have:

1. Been assessed and reported in reports submitted by the Massachusetts Department of Environmental Protection to EPA pursuant to Section 305 (b) of CWA and

2. Been listed as a Category 5 Water (Waters Requiring a Total Maximum Daily Load [TMDL]) by DEP under 303(d) of the CWA.

**Sec. 8. STORMWATER POLLUTION PREVENTION PLAN REQUIREMENTS**

Applicant must submit a Stormwater Pollution Prevention Plan (SWPPP) with its Application for a Stormwater Permit. The SWPPP must include the following: (1) a plan to control wastes generated by the Construction Activity on the Construction Site, (2) an Erosion and Sedimentation Control Plan, (3) a plan to construct Stormwater Management Measures, and (4) a plan for Operation and Maintenance of Stormwater Management Measures.

A. **PLAN TO CONTROL WASTES** - Applicant must list the construction and waste materials expected to be generated or stored on the Construction Site. These wastes include but are not limited to: discarded building materials, concrete truck washout, chemicals, litter, sanitary waste and material stockpiling. Applicant must also describe in narrative form the Best Management Practices it will utilize to reduce pollutants from these materials including storage practices to minimize exposure of the materials to Stormwater and spill prevention and response plans. If any structural BMPs are proposed,
they must be identified and located on the site plan. At a minimum, Applicant’s plan should provide for the following:

- Areas designated and controlled for equipment storage, maintenance and repair.
- Convenient locations for waste receptacles and a schedule for regular removal.
- Wash down areas for vehicles selected to prevent contamination of Stormwater.
- Covered storage areas for chemicals, paints, solvents, fertilizers and other toxic materials.
- Adequately maintained sanitary facilities.

B. **EROSION AND SEDIMENTATION CONTROL PLAN** - Applicant must describe its plan for properly stabilizing the site before construction begins and the BMPs that it will use during construction to minimize erosion of the soil and sedimentation of the Stormwater. These BMPs should include both stabilization practices such as: seeding, mulching, preserving trees and vegetative buffer strips, and contouring and structural practices such as: earth dikes, silt fences, drainage swales, sediment traps, check dams, and subsurface or pipe slope drains. Applicant must locate structural BMPs on the site plan. Applicant must also provide details of construction including the timing, scheduling and sequencing of development including clearing, stripping, rough grading, construction, final grading and Final Site Stabilization. The design requirements of the Erosion and Sedimentation Control Plan are:

- Minimize total area of disturbance;
- Sequence activities to minimize simultaneous areas of disturbance;
- Minimize peak rate of runoff in accordance with the Massachusetts Stormwater Policy;
- Minimize soil erosion and control sedimentation during construction, provided that prevention of erosion is preferred over sedimentation control;
- Divert uncontaminated water around disturbed areas;
- Maximize groundwater recharge;
- Install and maintain all Erosion and Sediment Control measures in accordance with the manufacturers specifications and good engineering practices;
- Prevent off-site transport of sediment;
- Protect and manage on and off-site material storage areas (overburden and stockpiles of dirt, borrow areas, or other areas used solely by the permitted project are considered a part of the project);
- Comply with applicable Federal, State and local laws and regulations including waste disposal, sanitary sewer or septic system regulations, and air quality requirements, including dust control;
- Prevent significant alteration of habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or Of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species from the proposed activities;
- Institute interim and permanent stabilization measures, which shall be instituted on a disturbed area as soon as practicable but no more than 14 days after construction activity has temporarily or permanently ceased on that portion of the site;
- Prevent off-site vehicle tracking of sediments.
C. **PLAN TO CONSTRUCT STORMWATER MANAGEMENT MEASURES** - The application for a Stormwater Permit shall include submittal of a Plan to Construct Stormwater Management Measures to the Board. This Plan shall contain sufficient information for the Board to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the applicant for reducing adverse impacts from stormwater. The Plan shall be designed to meet the Massachusetts Stormwater Management Standards and DEP Stormwater Management Handbook Volumes I and II. The Plan shall fully describe the project in drawings, and narrative. It shall include:

- A locus map,
- The existing zoning, and land use at the site,
- The proposed land use,
- The location(s) of existing and proposed easements,
- The location of existing and proposed utilities,
- The site’s existing & proposed topography with contours at 2 foot intervals,
- The existing site hydrology,
- A description & delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows,
- A delineation of 100-year flood plains, if applicable,
- Estimated seasonal high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration,
- The existing and proposed vegetation and ground surfaces with runoff coefficients for each,
- A drainage area map showing pre and post construction watershed boundaries, drainage area and stormwater flow paths,
- A description and drawings of all components of the proposed drainage system including:
  - locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization,
  - all measures for the detention, retention or infiltration of water,
  - all measures for the protection of water quality,
  - the structural details for all components of the proposed drainage systems and stormwater management facilities,
  - notes on drawings specifying materials to be used, construction specifications, and typicals, and
  - expected hydrology with supporting calculations.
- Proposed improvements including location of buildings or other structures, impervious surfaces, and drainage facilities, if applicable,
- Timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, and vegetative stabilization,
- A maintenance schedule for the period of construction, and
- Any other information requested by the Board.
- The Plan shall meet the Standards of the Massachusetts Stormwater Management Policy, which are as follows:
  - No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or water of the Commonwealth.
o Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

o Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post-development site should approximate the annual recharge rate from the pre-development or existing site conditions, based on soil types.

o For new development, stormwater management systems must be designed to remove 80% of the average annual load (post development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:
  - Suitable nonstructural practices for source control and pollution prevention and implemented;
  - Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and
  - Stormwater management BMPs are maintained as designed.

o Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs (see Stormwater Management Volume I: Stormwater Policy Handbook). The use of infiltration practices without pretreatment is prohibited.

o Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas (see Stormwater Management Volume I: Stormwater Policy Handbook). Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold water fisheries and recharge areas for public water supplies.

o Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.

o Erosion and sediment controls must be implemented to prevent impacts during disturbance and construction activities.

o All stormwater management systems must have an operation and maintenance plan to ensure that systems function as designed.

o All illicit discharges to the stormwater management system are prohibited.

When one or more of the Standards cannot be met, an applicant may demonstrate that an equivalent level of environmental protection will be provided.

D. OPERATIONS AND MAINTENANCE PLAN - An Operation and Maintenance Plan (O&M Plan) is required at the time of application for all projects. The O&M plan shall be designed to ensure compliance with this Section and that the Massachusetts Surface Water Quality Standards, 314, CMR 4.00 are met in all seasons and throughout the life of the system. The Board shall make the final decision of what maintenance option is appropriate in a given situation. The Board will consider natural features, proximity of site to water bodies and wetlands, extent of impervious surfaces, size of the site, the types of stormwater management structures, and potential need for ongoing maintenance.
activities when making this decision. The O&M Plan shall remain on file with the Board and shall be an ongoing requirement. The O&M Plan shall include:
- The name(s) of the owner(s) for all components of the system
- Maintenance agreements that specify:
  - The names and addresses of the person(s) responsible for operation and maintenance
  - The person(s) responsible for financing maintenance and emergency repairs.
  - A maintenance schedule for all drainage structures, including swales and ponds.
  - A list of easements with the purpose and location of each.
  - The signature(s) of the owner(s).
- Stormwater Management Easement(s). Stormwater management easements shall be provided by the property owner(s) as necessary for:
  - Access for facility inspections and maintenance,
  - Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event.
  - Direct maintenance access by heavy equipment to structures requiring regular cleanout.
  - The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.
  - Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Board.
  - Easements shall be recorded with the Plymouth County Registry of Deeds prior to issuance of a Certificate of Completion by the Board.
- Changes to Operation and Maintenance Plans
  - The owner(s) of the stormwater management system must notify the Board of changes in ownership or assignment of financial responsibility.
  - The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of this Section by mutual agreement of the Board and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational responsibility.

Sec. 9. PERMIT TERM

The Stormwater Permit shall be effective upon the date of issuance and remain in effect until the earlier to occur of: 1) a Certificate of Completion is issued by the Board indicating that all Construction Activity has ceased and Final Site Stabilization construction, inspection and approval by a representative of the Board has occurred, or 2) the date three years from the date of issuance of the Stormwater Permit has occurred without Applicant starting Construction Activity on the Construction Site.
Sec. 10. INSPECTION AND SITE SUPERVISION

A. **Pre-construction Meeting:** Prior to starting clearing, excavation, construction, or land disturbing activity the applicant, the applicant’s technical representative, the general contractor or any other person with authority to make changes to the project, shall meet with the Board, to review the permitted plans and their implementation.

B. **Board Inspection:** The Board or its designated agent shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with the Stormwater Permit as approved. The Permit and associated plans for grading, stripping, excavating, and filling work, bearing the signature of approval of the Board, shall be maintained at the site during the progress of the work. In order to obtain inspections, the permittee shall notify the Board at least two (2) working days before each of the following events:
   1. Erosion and sediment control measures are in place and stabilized;
   2. Site Clearing has been substantially completed;
   3. Rough Grading has been substantially completed;
   4. Final Grading has been substantially completed;
   5. Close of the Construction Season; and
   6. Final Landscaping (permanent stabilization) and project final completion.

C. **Permittee Inspections:** The permittee or his/her agent shall conduct and document inspections of all control measures no less than weekly or as specified in the permit, and prior to and following anticipated storm events. The purpose of such inspections will be to determine the overall effectiveness of the control plan, and the need for maintenance or additional control measures. The permittee or his/her agent shall submit monthly reports to the Board or designated agent in a format approved by the Board.

D. **Access Permission:** To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Board its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under this Section and may make or cause to be made such examinations, surveys or sampling as the Board deems reasonably necessary to determine compliance with the permit.

Sec. 11. SURETY

The Board may require the permittee to post before the start of Construction Activity, a surety bond, irrevocable letter of credit, cash, or other acceptable security. The form of the bond shall be approved by town counsel, and be in an amount deemed sufficient by the Board to ensure that the work will be completed in accordance with the permit. If the project is phased, the Board may release part of the bond as each phase is completed in compliance with the permit but the bond may not be fully released until the Board has received the final report as required by Section 12 and issued a Certificate of Completion.

Sec. 12. FINAL REPORTS

Upon completion of the work, the permittee shall submit a report (including certified as-built construction plans) from a Professional Engineer (P.E.), surveyor, certifying that all erosion and sediment control devices, and approved changes and modifications, have been completed in
accordance with the conditions of the approved Stormwater Permit. Any discrepancies should be noted in the cover letter.

**Sec. 13. ENFORCEMENT**

A. The Board or an authorized agent of the Board shall enforce this Section, regulations, orders, violation notices, and enforcement orders, and may pursue all civil and criminal remedies for such violations.

B. Orders

1. The Board or an authorized agent of the Board may issue a written order to enforce the provisions of this Section or the regulations thereunder, which may include:
   - a requirement to cease and desist from the Construction Activity until there is compliance with the provisions of the land-disturbance permit;
   - maintenance, installation or performance of additional erosion and sediment control measures;
   - monitoring, analyses, and reporting;
   - remediation of erosion and sedimentation resulting directly or indirectly from the land-disturbing activity.

2. If the enforcing person determines that abatement or remediation of erosion and sedimentation is required, the order shall set forth a deadline by which such abatement or remediation must be completed. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town of Hanson may, at its option, undertake such work, and the property owner shall reimburse the Town of Hanson’s expenses.

3. Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner shall be notified of the costs incurred by the Town of Hanson, including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board within thirty (30) days of receipt of the notification of the costs incurred.

C. Any person that violates any provision of this Section may be punished, under MGL C. 40 s 21D as a noncriminal offense, by fines of:
   - First offense: $100
   - Second offense: $200
   - Additional offenses: $300 each
   - Or by criminal complaint at the appropriate venue. Each day or portion thereof during which a violation continues shall constitute a separate offense.

D. Appeals. The decisions or orders of the Board shall be final. Further relief shall be to a court of competent jurisdiction.

E. Remedies Not Exclusive. The remedies listed in this Section are not exclusive of any other remedies available under any applicable federal, state or local law.
Sec. 14. CERTIFICATE OF COMPLETION

The Board will issue a letter certifying completion upon receipt and approval of the final reports and/or upon otherwise determining that all work of the permit has been satisfactorily completed in conformance with this Section.

Sec. 15. SEVERABILITY

If any provision, paragraph, sentence, or clause of this Section shall be held invalid for any reason, all other provisions shall continue in full force and effect.
Sec. 1. PURPOSE

Increased and contaminated stormwater runoff is a major cause of impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater; contamination of drinking water supplies; alteration or destruction of aquatic and wildlife habitat; and flooding.

Regulation of illicit connections and discharges to the municipal storm drain system is necessary for the protection of the Town of Hanson’s water bodies and groundwater, and to safeguard the public health, safety, welfare and the environment.

The objectives of this by-law are:

- to prevent pollutants from entering the Town of Hanson’s municipal separate storm sewer system (MS4);
- to prohibit illicit connections and unauthorized discharges to the MS4;
- to require the removal of all such illicit connections;
- to comply with state and federal statutes and regulations relating to stormwater discharges; and
- to establish the legal authority to ensure compliance with the provisions of this by-law through inspection, monitoring, and enforcement.
- to establish the legal authority to prevent pollutants from entering the Town’s MS4 through regulation adopted by the Board of Health.

Sec. 2. DEFINITIONS

For the purposes of this by-law, the following shall mean:

**AUTHORIZED ENFORCEMENT AGENCY:** The Town of Hanson Board of Health (the Board), its employees or agents designated to enforce this by-law.

**BEST MANAGEMENT PRACTICE (BMP):** An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

**CLEAN WATER ACT:** The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) as hereafter amended.
**DISCHARGE OF POLLUTANTS:** The addition from any source of any pollutant or combination of pollutants into the municipal storm drain system or into the waters of the United States or Commonwealth from any source.

**GROUNDWATER:** Water beneath the surface of the ground.

**ILLEGIT CONNECTION:** A surface or subsurface drain or conveyance, which allows an illicit discharge into the municipal storm drain system, including without limitation sewage, process wastewater, or wash water and any connections from indoor drains, sinks, or toilets, regardless of whether said connection was previously allowed, permitted, or approved before the effective date of this by-law.

**ILLEGIT DISCHARGE:** Direct or indirect discharge to the municipal storm drain system that is not composed entirely of stormwater, except as exempted in Section 8. The term does not include a discharge in compliance with an NPDES Storm Water Discharge Permit or a Surface Water Discharge Permit, or resulting from firefighting activities exempted pursuant to Section 8, of this by-law.

**IMPERVIOUS SURFACE:** Any material or structure on or above the ground that prevents water infiltrating the underlying soil. Impervious surface includes without limitation roads, paved parking lots, sidewalks, and rooftops.

**MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) or MUNICIPAL STORM DRAIN SYSTEM:** The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Hanson.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER DISCHARGE PERMIT:** A permit issued by United States Environmental Protection Agency or jointly with the State that authorizes the discharge of pollutants to waters of the United States.

**NON-STORMWATER DISCHARGE:** Discharge to the municipal storm drain system not composed entirely of stormwater.

**PERSON:** An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

**POLLUTANT:** Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or nonpoint source, that is or may be introduced into any sewage treatment works or waters of the Commonwealth. Pollutants shall include without limitation:
1. paints, varnishes, and solvents;
2. oil and other automotive fluids;
3. non-hazardous liquid and solid wastes and yard wastes;
4. refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnances, accumulations and floatables;
5. pesticides, herbicides, and fertilizers;
6. hazardous materials and wastes; sewage, fecal coliform and pathogens;
7. dissolved and particulate metals;
8. animal wastes;
9. rock, sand, salt, soils unless applied for the purpose of public safety during winter conditions;
10. construction wastes and residues; and
11. noxious or offensive matter of any kind.

**PROCESS WASTEWATER:** Water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any material, intermediate product, finished product, or waste product.

**RECHARGE:** The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

**STORMWATER:** Storm water runoff, snow melt runoff, and surface water runoff and drainage.

**SURFACE WATER DISCHARGE PERMIT:** A permit issued by the Department of Environmental Protection (DEP) pursuant to 314 CMR 3.00 that authorizes the discharge of pollutants to waters of the Commonwealth of Massachusetts.

**TOXIC OR HAZARDOUS MATERIAL or WASTE:** Any material, which because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as Toxic or Hazardous under M.G.L. Ch.21C and Ch.21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.000.

**WATERCOURSE:** A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

**WATERS OF THE COMMONWEALTH:** All waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and groundwater.

**WASTEWATER:** Any sanitary waste, sludge, or septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing, comes into direct contact with or results from
the production or use of any raw material, intermediate product, finished product, byproduct or waste product.

Sec. 3. APPLICABILITY

This by-law shall apply to flows entering the municipally owned storm drainage system.

Sec. 4. AUTHORITY

This by-law is adopted under the authority granted by the Home Rule Amendment of the Massachusetts Constitution and the Home Rule Procedures Act, and pursuant to the regulations of the federal Clean Water Act found at 40 CFR 122.34.

Sec. 5. RESPONSIBILITY FOR ADMINISTRATION

The Board shall administer, implement and enforce this by-law. Any powers granted to or duties imposed upon the Board may be delegated in writing by the Board to employees or agents of the Board.

Sec. 6. REGULATIONS

The Board may promulgate rules and regulations to effectuate the purposes of this by-law. Failure by the Board to promulgate such rules and regulations shall not have the effect of suspending or invalidating this by-law.

Sec. 7. PROHIBITED ACTIVITIES

Illicit Discharges: No person shall dump, discharge, cause or allow to be discharged any pollutant or non-stormwater discharge into the municipal separate storm sewer system (MS4), into a watercourse, or into the waters of the Commonwealth.

Illicit Connections: No person shall construct, use, allow, maintain or continue any illicit connection to the municipal storm drain system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.

Obstruction of Municipal Storm Drain System: No person shall obstruct or interfere with the normal flow of stormwater into or out of the municipal storm drain system without prior written approval from the Board.

Sec. 8. EXEMPTIONS

Discharge or flow resulting from firefighting activities.

The following non-stormwater discharges or flows are exempt from the prohibition of non-stormwaters provided that the source is not a significant contributor of a pollutant to the municipal storm drain system:
1. Waterline flushing;
2. Flow from potable water sources;
3. Springs;
4. Natural flow from riparian habitats and wetlands;
5. Diverted stream flow;
6. Rising groundwater;
7. Uncontaminated groundwater infiltration as defined in 40 CFR 35.2005(20), or uncontaminated pumped groundwater;
8. Water from exterior foundation drains, footing drains (not including active groundwater dewatering systems), crawl space pumps, or air conditioning condensation;
9. Discharge from landscape irrigation or lawn watering;
10. Water from individual residential car washing;
11. Discharge from dechlorinated swimming pool water (less than one ppm chlorine) provided the water is allowed to stand for one week prior to draining and the pool is drained in such a way as not to cause a nuisance;
12. Discharge from street sweeping;
13. Dye testing, provided verbal notification is given to the Board prior to the time of the test;
14. Non-stormwater discharge permitted under an NPDES permit or a Surface Water Discharge Permit, waiver, or waste discharge order administered under the authority of the United States Environmental Protection Agency or the Department of Environmental Protection, provided that the discharge is in full compliance with the requirements of the permit, waiver, or order and applicable laws and regulations; and
15. Discharge for which advanced written approval is received from the Board as necessary to protect public health, safety, welfare, or the environment.

Sec. 9. EMERGENCY SUSPENSION OF STORM DRAINAGE SYSTEM ACCESS

The Board may suspend municipal storm drain system access to any person or property without prior written notice when such suspension is necessary to stop an actual or threatened discharge of pollutants that presents imminent risk of harm to the public health, safety, welfare, or the environment. In the event any person fails to comply with an emergency suspension order, the Board may take all reasonable steps to prevent or minimize harm to the public health, safety, welfare, or the environment.

Sec. 10. NOTIFICATION OF SPILLS

Notwithstanding other requirements of local, state or federal law, as soon as a person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of or suspects a release of materials at that facility or operation resulting in or which may result in discharge of pollutants to the municipal drainage system or waters of the Commonwealth, the person shall take all necessary steps to ensure containment, and cleanup of the release. In the event of a release of oil or hazardous materials, the person shall immediately notify the municipal fire and police departments. In the event of a release of non-hazardous material, the reporting person shall notify the Authorized Enforcement Agency no later than the next business day. The reporting person shall provide to the Authorized Enforcement Agency
written confirmation of all telephone, facsimile or in-person notifications within three business days thereafter. If the discharge of prohibited materials is from a commercial or industrial facility, the facility owner or operator of the facility shall retain on-site a written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

**Sec. 11. ENFORCEMENT**

The Board or an authorized agent of the Board shall enforce this by-law, regulations, orders, violation notices, and enforcement orders, and may pursue all civil and criminal remedies for such violations.

**Civil Relief:** If a person violates the provisions of this by-law, regulations, permit, notice, or order issued thereunder, the Board may seek injunctive relief in a court of competent jurisdiction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

**Orders:** The Board or an authorized agent of the Board may issue a written order to enforce the provisions of this by-law or the regulations thereunder, which may include: (a) elimination of illicit connections or discharges to the MS4; (b) performance of monitoring, analyses, and reporting; (c) that unlawful discharges, practices, or operations shall cease and desist; and (d) remediation of contamination in connection therewith.

If the enforcing person determines that abatement or remediation of contamination is required, the order shall set forth a deadline by which such abatement or remediation must be completed. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town of Hanson may, at its option, undertake such work, and expenses thereof shall be charged to the violator.

Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner will be notified of the costs incurred by the Town of Hanson including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board within thirty (30) days of receipt of the notification of the costs incurred.

Any person that violates any provision of this Section may be punished, under MGL C. 40 s 21D as a noncriminal offense, by fines of:

1. First offense: $100
2. Second offense: $200
3. Additional offenses: $300 each

Or by criminal complaint at the appropriate venue. Each day or portion thereof during which a violation continues shall constitute a separate offense.
**Entry to Perform Duties Under this By-Law:** To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Board, its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under this by-law and regulations and may make or cause to be made such examinations, surveys or sampling as the Board deems reasonably necessary.

**Appeals:** The decisions or orders of the Board shall be final. Further relief shall be to a court of competent jurisdiction.

**Remedies Not Exclusive:** The remedies listed in this by-law are not exclusive of any other remedies available under any applicable federal, state or local law.

**Sec. 12. SEVERABILITY**

The provisions of this by-law are hereby declared to be severable. If any provision, paragraph, sentence, or clause, of this by-law or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this by-law.

**Sec. 13. TRANSITIONAL PROVISIONS**

Residential property owners shall have 30 days from the effective date of the by-law to comply with its provisions provided good cause is shown for the failure to comply with the by-law during that period.
Appendix B

Storm System Mapping
Appendix B.
Storm System Mapping
Hanson, Massachusetts
Appendix C

Catchment Delineation Mapping and Ranking Matrix
Appendix C.
Stormwater Catchment Delineation
Hanson, Massachusetts
Appendix C.
Stormwater Catchment Prioritization
Hanson, Massachusetts

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Outfalls discharging to Factory Pond, Indian Head River, Wampatuck Pond, Monponsett Pond, or Shumatuscacant River ranked High.
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## Stormwater Catchment Delineation
### Hanson, Massachusetts

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<td>3</td>
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*Note: Outfalls discharging to Factory Pond, Indian Head River, Wampatuck Pond, Monponsett Pond, or Shumatsacant River are ranked High.*
Appendix D

Field Forms and Hyperlinks to Laboratories and Field Services Companies
Hanson Storm Drain Mapping Form

Structure #: ____________________________________________

Map #: ________________________________________________

Street Name: __________________________________________

Nearest Structure: ______________________________________
(address, bldg, utility pole, etc)

Type of Structure: ______________________________________
(outfall, culvert, inlet, etc)

Headwall?: ____________________________________________
(Y/ N; concrete, stone, rip rap, none)

Material: _____________________________________________
(concrete, concrete FES, corrugated metal, plastic, pvc, clay,
cast iron, etc)

Size & Shape of Structure: ______________________________
(diameter, width/ height)

Invert (top of headwall to bottom inside of pipe): __________

Pipe Condition/ headwall condition: ______________________

Connectivity: _________________________________________
(from MH, CB, culvert, other)
Date: __________
Structure Number: __________

Is Crown (top inside of pipe) Above or Below Surface Water?: ____________________________________________

Dry Weather Flow Conditions: ________________________
(weather, ground condition, flowing?)

Description of Visual Characteristics or Odors: ___________ (aesthetics, deposits/stains, erosion, vegetation)

Field Screening Data:

pH: _______________________
Temperature: _______________________
Sp. Conduct.: _______________________
Turbidity: _______________________

Flag as Future Sample Location? (Y/N): ________________

Sample collected for lab analysis? ** (Y/N): ________________

Lab Sample ID: _______________________________________
Analyses: ____________________________________________
Sampling Date/Time: ____________________________________

** (ensure SOP for stormwater grab sampling has been followed, see Appendix F of IDDE Plan)

Additional comments/Sketch:
Appendix D – Links to Relevant Laboratories and Field Services Companies

Local Massachusetts State Certified Laboratories:

- ESS Laboratory; Cranston, RI [http://www.esslaboratory.com/]
- Alpha Analytical Labs; Westborough, MA [https://alphalab.com/]
- G&L Laboratories; Quincy, MA [http://www.gllab.com/]
- MassDEP Searchable Laboratory Certification Listing [https://eeaonline.eea.state.ma.us/DEP/Labcert/Labcert.aspx]

Local Field Equipment Suppliers

- U.S. Environmental; Waltham, MA [https://usenvironmental.com/]
- Pine Environmental; Woburn, MA [http://www.pine-environmental.com/locations/?list]
- Hach Company Analytical Instruments [https://www.hach.com/]

CCTV/Video Inspection Companies

- National Water Main Cleaning Co.; Canton, MA [https://nwmcc.com/]
- BMC Corp.; Billerica, MA [https://pipejetter.com/cctv-inspection.html]
- Inland Waters Inc.; Johnston, RI [http://www.inlandwatersinc.com/]
Appendix E

Outfall Catchment System Vulnerability Factor (SVF) Inventory
## Appendix E – Outfall Catchment System Vulnerability Factor (SVF) Inventory

Hanson, Massachusetts
Revision Date: July 2019

<table>
<thead>
<tr>
<th>Outfall ID</th>
<th>Receiving Water</th>
<th>1 History of SSOs</th>
<th>2 Common or Twin Invert Manholes</th>
<th>3 Common Trench Construction</th>
<th>4 Storm/Sanitary Crossings (Sanitary Above)</th>
<th>5 Sanitary Lines with Underdrains</th>
<th>6 Inadequate Sanitary Level of Service</th>
<th>7 Areas Formerly Served by Combined Sewers</th>
<th>8 Sanitary Infrastructure Defects</th>
<th>9 SSO Potential in Event of System Failures</th>
<th>10 Sanitary and Storm Drain Infrastructure &gt;40 years Old</th>
<th>11 Septic with Poor Soils or Water Table Separation</th>
<th>12 History of BOH Actions Addressing Septic Failure</th>
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</tbody>
</table>

### Presence/Absence Evaluation Criteria:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
2. Common or twin-invert manholes serving storm and sanitary sewer alignments
3. Common trench construction serving both storm and sanitary sewer alignments
4. Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
5. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system
6. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
7. Areas formerly served by combined sewer systems
8. 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
9. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
10. Any sanitary sewer and storm drain infrastructure greater than 40 years old
11. 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)
12. 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)
Appendix F

New England Interstate Water Pollution Control Commission IDDE Manual
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ILLICIT DISCHARGE DETECTION AND ELIMINATION MANUAL
A Handbook for Municipalities

Prepared by the
NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION
Boott Mills South
100 Foot of John Street
Lowell, Massachusetts 01852

Ronald F. Poltak, Executive Director

COMPACT MEMBER STATES
Connecticut
Maine
Massachusetts
New Hampshire
New York
Rhode Island
Vermont

Copies of this document may be downloaded from www.neiwpcc.org.

January 2003
ACKNOWLEDGEMENTS

This manual was developed by the New England Interstate Water Pollution Control Commission (NEIWPCC). NEIWPCC is a nonprofit interstate agency, established by an Act of Congress in 1947, that serves its member states (Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont) by providing coordination, public education, training, and leadership in the management and protection of water quality.

This project was initiated by NEIWPCC’s Storm Water Workgroup, which is composed of state and federal environmental agency staff. The group perceived a need for resources to help municipalities in NEIWPCC-member states that are regulated under the U.S. Environmental Protection Agency’s (EPA’s) Phase II storm water program comply with regulatory requirements. This manual is intended to help municipalities develop illicit discharge detection and elimination programs—one of the six minimum control measures under Phase II.

This manual was made possible by a grant from the U.S. Environmental Protection Agency. The contents do not necessarily reflect the views and policies of EPA or NEIWPCC’s member states, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

This manual was compiled and written by Rebekah Lacey, with assistance from Kim Starbuck and other NEIWPCC staff. Editing, graphic design, and layout were performed by Ellen Frye and Ricki Pappo of ENOSIS. Thelma Murphy served as the EPA Project Officer. NEIWPCC would like to thank Andrea Donlon, NHDES, for her many contributions to this document, which included providing information, comments, and photographs—most of the photographs in the manual were either provided by Andrea or taken by NEIWPCC staff while accompanying Andrea on field work.

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- Andrea Donlon, NHDES
- Tim Grover, City of Winooski, VT
- Charlie Jewell, BWSC
- Natalie Landry, NHDES
- Ginny Scarlet, MADEP

**Review**
- Jeff Andrews, NHDES
- Andrea Donlon, NHDES
- Bryant Firmin, MADEP
- Greg Goblick, RIDEM
- Tim Grover, City of Winooski, VT
- David Ladd, MEDEP
- Steve Lipman, MADEP
- Thomas Mahin, MADEP
- Thelma Murphy, USEPA
- Jim Pease, VTDEC
- Ginny Scarlet, MADEP
- Chris Stone, CTDEP
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### APPENDIX A: MODEL ILLICIT DISCHARGE AND CONNECTION STORM WATER ORDINANCE

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Although the quality of the nation’s waters has improved greatly since the passage of the Clean Water Act in 1972, many water bodies are still impaired by pollution. According to the U.S. Environmental Protection Agency’s (EPA’s) 2000 National Water Quality Inventory, 39 percent of assessed river and stream miles, 46 percent of assessed lake acres, and 51 percent of assessed estuarine square miles do not meet water quality standards. The top causes of impairment include siltation, nutrients, bacteria, metals (primarily mercury), and oxygen-depleting substances. Polluted storm water runoff, including runoff from urban/suburban areas and construction sites, is a leading source of this impairment. To address this problem, EPA has put into place a program that regulates certain storm water discharges.

In 1990, EPA promulgated Phase I of its storm water program under the National Pollutant Discharge Elimination System (NPDES) permit provisions of the Clean Water Act. Phase I addressed storm water runoff from “medium” and “large” municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater, construction activity that would disturb five or more acres of land, and 10 categories of industrial activity. To further reduce the adverse effects of storm water runoff, EPA instituted its Storm Water Phase II Final Rule on December 8, 1999.

**WHO ADMINISTERS THE PHASE II STORM WATER PROGRAM?**

The Phase II storm water program is part of EPA’s NPDES program, which in many states is delegated to state authorities to administer. Connecticut, Maine, New York, Rhode Island, and Vermont are authorized to serve as NPDES permitting authorities. EPA Region I serves as the permitting authority for Massachusetts and New Hampshire. EPA is also the permitting authority for all federally recognized Indian Country lands and for federal facilities in Massachusetts, New Hampshire, and Vermont.

**WHAT IS REGULATED UNDER PHASE II?**

Phase II regulates discharges from small MS4s located in “urbanized areas” (as delineated by the Census Bureau in the most recent census) and from additional small MS4s designated by the permitting authority. Phase II also regulates construction activities that would disturb between one and five acres of land. In addition, the Phase II Final Rule ends the temporary exemption from Phase I requirements for some municipally operated industrial activities and revises the “no exposure” provision for Phase I-regulated industrial activities.

MS4s are typically operated by municipalities, but the Phase II definition of “municipal separate storm sewer systems” includes storm sewer systems owned or operated by other public bodies (e.g., states, counties, Indian tribes, departments of transportation, universities). EPA also notes that an MS4 is not always just a system of underground pipes; it can include roads with drainage systems, gutters, and ditches.

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1 This temporary exemption was provided by the Intermodal Surface Transportation Act (ISTEA) of 1991.
The rules for determining which small MS4s are regulated under Phase II are somewhat complex; MS4 operators should consult the NPDES permitting authority for their state to determine whether their MS4s are regulated. Note also that requirements may be different if a municipality is located only partially within an urbanized area.

**WHERE DOES IDDE FIT IN?**

EPA’s Phase II rule specifies that permitting authorities must issue general permits for "automatically designated" small MS4s by December 9, 2002. The rule requires that operators of these automatically designated small MS4s apply for NPDES permit coverage within 90 days of permit issuance, and no later than March 10, 2003. To obtain this coverage, an MS4 operator must develop, implement, and enforce a storm water management program that is designed to reduce the discharge of pollutants to the maximum extent practicable, protect water quality, and satisfy the applicable water quality requirements of the Clean Water Act. EPA’s Storm Water Phase II Final Rule states that this storm water management program must include the following six minimum control measures:

- Public education and outreach on storm water impacts
- Public involvement and participation

➤ **Illicit discharge detection and elimination (IDDE)**
- Construction site storm water runoff control
- Post-construction storm water management in new development and redevelopment
- Pollution prevention and good housekeeping for municipal operations

As part of their applications for permit coverage, MS4 operators must identify the best management practices they will use to comply with each of the six minimum control measures and the measurable goals they have set for each measure.

**ABOUT THIS MANUAL**

This manual is intended to help municipalities in the New England states and New York develop illicit discharge detection and elimination (IDDE) programs required by EPA’s Phase II storm water program. EPA’s Phase II storm water regulations provide guidelines that are used by permitting authorities in writing their permits. This manual provides general information based on EPA’s Phase II storm water regulations; it is important to consult the permitting authority in your state (see Chapter 10) to find out about state-specific requirements.

Chapter 1 explains the IDDE requirement of EPA’s Phase II regulations. Chapters 2 through 8 describe the required elements of an IDDE program and provide information to help municipalities execute each of these elements. Chapter 9 provides information on best management practices and measurable goals for IDDEs. Chapter 10 lists additional resources and contacts that may be helpful in developing an IDDE program.

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There are some exceptions to this deadline; contact the permitting authority in your state for up-to-date official information.
As you set out to develop your illicit discharge detection and elimination (IDDE) program, you will need to start by making sure that you know the answers to two key questions: (1) What is an illicit discharge? and (2) What are the required elements of an IDDE program? In this chapter we’ll review the answers to these questions; we’ll provide supporting information and details in subsequent chapters.

WHAT IS AN ILICIT DISCHARGE?

The term “illicit discharge” is defined in EPA’s Phase II storm water regulations as “any discharge to a municipal separate storm sewer that is not composed entirely of storm water, except discharges pursuant to an NPDES permit and discharges resulting from fire-fighting activities.”

Illicit discharges can be categorized as either direct or indirect.

➤ Examples of direct illicit discharges:
  • sanitary wastewater piping that is directly connected from a home to the storm sewer
  • materials (e.g., used motor oil) that have been dumped illegally into a storm drain catch basin
  • a shop floor drain that is connected to the storm sewer
  • a cross-connection between the municipal sewer and storm sewer systems

➤ Examples of indirect illicit discharges:
  • an old and damaged sanitary sewer line that is leaking fluids into a cracked storm sewer line
  • a failing septic system that is leaking into a cracked storm sewer line or causing surface discharge into the storm sewer

WHAT ARE THE ELEMENTS OF AN IDDE PROGRAM?

EPA’s Phase II regulations state that an IDDE program must incorporate the following four elements.

➤ Develop (if not already completed) a storm sewer system map showing the location of all outfalls, and the names and location of all waters of the United States that receive discharges from those outfalls.

Illicit discharge
Any discharge to a municipal separate storm sewer that is not composed entirely of storm water, except discharges pursuant to an NPDES permit and discharges resulting from fire-fighting activities.
To the extent allowable under state, tribal, or local law, effectively prohibit through ordinance, or other regulatory mechanism, illicit discharges into the separate storm sewer system and implement appropriate enforcement procedures and actions as needed.

Develop and implement a plan to detect and address illicit discharges, including illegal dumping, to the system.

Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

For each of these mandatory elements, EPA suggests a variety of approaches that can help in creating a successful IDDE program. The mandatory elements and the suggested approaches will be discussed further in the next seven chapters.

**REFERENCES: CHAPTER 1**


The creation of a storm sewer map is the first mandatory element of an IDDE program. Phase II requires that the operator of a regulated MS4 develop a map of the MS4 that shows, at a minimum, the location of all outfalls and the names and locations of all waters of the United States that receive discharges from those outfalls. While many municipalities in the Northeast already have detailed maps of their storm sewer systems, others, typically those in older or more rural areas, have the information scattered in different locations. These municipalities will have the most work to do to comply with this requirement. If you need to develop a map, begin by collecting any existing information on outfall locations (e.g., review city records, drainage maps, storm drain maps, state or federal storm water permit files, state transportation maintenance maps), and then conduct field surveys to verify the locations.

CONDUCTING A FIELD SURVEY
A field survey of outfall locations will often be necessary to create a map or verify and update an existing map. The References section at the end of the chapter provides a Web link for a sample guide for conducting a storm drain mapping survey (MA DFWEL, 2002). Field outfall surveys generally include the following basic steps:

➤ Survey receiving waters on foot or by boat to look for all outfalls (i.e., wade small receiving waters or use a boat for larger receiving waters).

➤ Note the locations of outfalls on a map. The map scale should be such that outfalls can be located accurately.

➤ Assign a code or label to each outfall. Adopt a logical, easy-to-understand system (e.g., distance along the stream).

➤ Fill out a survey sheet for each outfall, noting characteristics such as dry weather discharge and deposits or stains.

MAPPING OPTIONS
For municipalities that do not already have a storm sewer map, it is important to determine the type of map (e.g., topographic, hand or computer drafted) that best fits your needs. Because there is no specific mapping standard in the Phase II rule, the goal of a mapping program should be functionality—find a way to map outfalls such that you and the permitting authority can locate any specific outfall to check on discharges.
(and the permitting authority) can locate any specific outfall to check on discharges. The most basic way to meet the mapping requirement is to use an existing map (e.g., a topographic map) that shows receiving waters. You can then mark outfall locations on the map by hand (using existing information augmented by a field survey). Make sure the names of receiving waters are shown on the map; for receiving waters that don’t have names, it is helpful to indicate the nearest named water body downstream. The graphic at the beginning of this chapter shows an example of a marked-up United States Geological Survey map (markings do not represent actual outfalls). The next step up is a more sophisticated paper map (e.g., blueprint-style). Figure 1 presents an example of a simple paper map showing outfalls and other key features of the storm sewer system.

In many municipalities, a paper map may be completely adequate for carrying out an IDDE program. However, if your MS4 has the resources, or if your municipality has a complex storm sewer system, you may want to make use of available computer technology in making your map.

Global Positioning System (GPS) technology can be used to obtain the coordinates (longitude and latitude) for each outfall. A GPS unit, which uses data from the U.S. Department of Defense’s constellation of GPS satellites to constantly update position, can be carried with you on your field survey. A particular position can be recorded and later downloaded into a Geographic Information System (GIS) database. Using GIS, the coordinates can be linked with other site-specific information, such as a picture and history of the outfall. GPS units can be purchased or rented.

There are various computerized mapping programs. A GIS program (e.g., ArcGIS) combines a georeferenced database with mapping capability, so that different geographical attributes (e.g., streets, outfalls, land use, monitoring data) can be mapped as

**CAN A DITCH BE AN OUTFALL?**

*The paragraph below is an excerpt from EPA’s Storm Water Phase II Final Rule (USEPA, 1999).*

The term “outfall” is defined in 40 CFR 122.26(b)(9) as “a point source at the point where a municipal separate storm sewer discharges to waters of the United States.” The term “municipal separate storm sewer” is defined at 40 CFR 122.26(b)(8) as “a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains).” Following the logic of these definitions, a “ditch” may be part of the municipal separate storm sewer, and at the point where the ditch discharges to waters of the United States, it is an outfall. As with any determination about jurisdictional provisions of the CWA, however, final decisions require case-specific evaluations of fact.
“layers” and displayed either separately or together. AutoCAD®, a design/drafting platform, is another program commonly used for storm sewer mapping.

If you plan to map via computer, decide if you want to make the mapping system compatible with other departments within your municipality and/or with other data sources (e.g., state agencies that provide GIS layers). Since storm sewer systems are often constructed in roadways, the use of the GIS road line data layer can be helpful in developing a map. If this layer is available, it is usually very accurate and frequently updated by state or regional agencies. Local or regional planning commissions may be able to provide assistance with GIS technology and map development. Once a particular software system has been chosen, it is helpful to require developers to submit compatible electronic updates for subsequent development to ensure that the map and data remain current after the initial mapping effort is finished.

**PRIORITIZING AREAS TO BE MAPPED**

You may find that practical considerations will dictate the need to conduct mapping in phases. In this case, it is best to prioritize your mapping agenda. For example, older developed areas are more likely to have illicit discharges than newer areas for various reasons (e.g., many municipalities have imposed inspection requirements on new construction that help to prevent illegal connections). Therefore, if your community has limited resources, you would benefit from mapping the older areas first to ensure that priority areas are mapped.

Other considerations in setting mapping priorities include land uses, reports of illicit discharges, and other information specific to each MS4. Although EPA’s Phase II regulations require that only outfalls be mapped, once an illicit discharge is detected at an outfall, it may be necessary to map the portion of the storm sewer system leading to the outfall so that you are able to locate the source of the discharge. If possible, mapping the entire storm sewer system may prove very helpful to your IDDE program.

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**You may find that practical considerations will dictate the need to conduct mapping in phases. In this case, it is best to prioritize your mapping agenda.**
REFERENCES: CHAPTER 2


The second mandatory element of a Phase II IDDE program requires that MS4 operators “to the extent allowable under State, Tribal, or local law, effectively prohibit through ordinance, or other regulatory mechanism, illicit discharges into the separate storm sewer system and implement appropriate enforcement procedures and actions as needed.”

**ILLICIT DISCHARGE ORDINANCES**

As EPA’s guidance specifies, a municipal ordinance created to comply with Phase II regulations must include a prohibition of illicit discharges and an enforcement mechanism. Note that it is also essential for the municipality to establish legal authority to inspect properties suspected of releasing contaminated discharges into the storm sewer system. Your municipality may already have a sewer use ordinance or similar bylaw that meets Phase II requirements, or that can be amended to meet the requirements. Consult with your town counsel and other municipal authorities to review your town’s existing bylaws and regulations and determine what changes or additions are needed and what the procedure is for making those changes. If you need to make changes, you may want to review the model bylaws and other guidance discussed below.

EPA’s nonpoint source pollution program Web site offers several examples of local ordinances for illicit discharges (USEPA, 2002). Appendix A of this manual presents EPA’s general model ordinance, which synthesizes a number of existing municipal ordinances. In using any of these ordinances as a model, a community should take into account the legal authority granted to it under state law, the Phase II permit requirements in that state, the enforcement methods it deems appropriate, and any other locality-specific considerations.

A workgroup chaired by Massachusetts Department of Environmental Protection (MADEP) staff has been working on developing model bylaws that municipalities in the state can use to help them comply with Phase II regulations. The products of this group’s work (model bylaws and associated guidance) are expected to be available on the MADEP Web site (see Chapter 10) by the time this manual is published. This group found that many of the available model ordinances did not fit well with the structure of Massachusetts government and, therefore, developed models that would work for towns in the state. The group also found that entry onto private property can be a tricky legal issue and should be treated carefully in any new or amended bylaws.

The Boston Water and Sewer Commission’s (BWSC’s) *Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains* are available on the Web ([http://www.bwsc.org](http://www.bwsc.org); click on “Engineering” then “Regulations”) and may serve as a useful local model. The regulations specify certain conditions under which BWSC...
representatives must be granted access to property; denial of access may lead to termination of water service.

Note that illicit discharges to storm sewers should be addressed hand-in-hand with the issue of illegal connections of extraneous water to sanitary sewers (typically referred to as infiltration/inflow or I/I programs); bylaws or regulations should make clear which discharges belong in which system.

REFERENCES: CHAPTER 3

http://www.bwsc.org

Personal communication from Ginny Scarlet, MADEP, November 29, 2002.


http://www.epa.gov/owow/nps/ordinance/discharges.htm
The process of identifying “priority areas” can be broken down into three steps:

➤ Use available information to identify potential hot spots
➤ Conduct dry-weather field screening to look for non-storm water discharges
➤ Conduct water quality tests to see if these non-storm water discharges seem to be illicit discharges

The following sections focus on each of these approaches.

IDENTIFYING POSSIBLE HOT SPOTS

“Hot spots” are areas that are considered to be likely sources of illicit discharges, based on available information. The following list provides examples of potential hot spots.

Commercial/industrial areas These areas have been found in some communities’ IDDE programs to (a) have significant numbers of illicit connections and/or (b) have discharges with a high potential to affect water quality (Tuomari, 1999 and Pitt et al., 1993). Specific business sectors can be prioritized (e.g., businesses subject to waste water pretreatment rules, businesses falling under certain Standard Industrial Classification [SIC] codes, or business sectors with a record of enforcement actions).

Older areas of town Older development may predate more stringent construction codes regarding illegal connections and may have deteriorating sewer and/or storm sewer infrastructure that can lead to infiltration problems.

DEVELOPING AND IMPLEMENTING AN IDDE PLAN: LOCATING PRIORITY AREAS

Developing and implementing a plan to detect and address illicit discharges is the third mandatory element of a Phase II IDDE program. EPA recommends that the plan include the following four components: locating priority areas; tracing the source of an illicit discharge; removing the source of an illicit discharge; and program evaluation and assessment. The first component, locating priority areas, is the subject of this chapter. Each of the other three components will be discussed in chapters five, six, and seven respectively.
Areas where there have been repeated complaints Areas where illegal dumping or apparently contaminated discharges have been reported are obvious priority targets. Geographic Information System (GIS) mapping can be useful for visualizing complaint locations. These maps can be overlain with other pertinent resource information (e.g., locations of facilities that have had compliance violations, water quality data for receiving waters).

Locations identified from ambient water quality sampling data The locations of high levels of particular contaminants (e.g., bacteria) can help to target priority outfalls. Good resources for this information are the periodic water quality assessment reports (“305(b) reports”) and lists of impaired waters (“303(d) lists”) that the Clean Water Act requires each state to prepare and submit to EPA. These reports are prepared by each state’s environmental agency and are available to the public, often on the state’s Web site. Also, local watershed groups monitor many water bodies, particularly those in more developed areas. In addition to providing sampling data, these groups can often serve as valuable resources for information about a particular water body and potential problem areas. Other possible sources of water quality data include local Boards of Health (in Massachusetts, they must test at beaches) and water districts or departments.

CONDUCTING DRY-WEATHER OUTFALL/MANHOLE SURVEYS

Once your general geographic priority areas have been determined, dry-weather surveys of outfalls and/or manholes can be undertaken to look for non-storm water flows.

EPA recommends that you make visual observations of outfalls during dry weather. Some operators have found that dry-weather manhole inspections can also be useful. The presence of flow in a storm sewer outfall or manhole during dry weather indicates a likely illicit discharge. (Other explanations for the presence of such flow include infiltrating ground water or the diversion of a surface stream into the storm sewer system.) Because illicit discharges are often intermittent, you should ideally check for discharges multiple times in a given location (particularly in a priority location). Please note that only those with confined-space training should enter a manhole or outfall. The observation and sampling strategies described below can typically be conducted without entering manholes or outfalls.

In implementing your dry-weather survey, consider adopting the following strategies.

➤ Combine this survey with the outfall mapping field survey (see Chapter 2) and/or water quality sampling of the discharges (discussed in the next section of this chapter).

➤ Enlist a watershed association or other volunteer organization to help with the outfall survey.

➤ Notify the public that the survey will be taking place (e.g., send notices to property owners in the area). Note that while it is desirable to keep the public informed...
about the presence of survey-takers to prevent undue alarm, notification may also tip off an illegal discharger to curtail discharges; use your judgment as to the most appropriate course of action. For example, you might just specify a very general time frame during which the survey will take place.

➤ Keep safety considerations at the forefront of survey procedures at all times. Likely hazards should be anticipated and discussed with the individuals carrying out the survey, and individuals should be instructed to use their judgment and err on the side of caution as they conduct the survey. The survey should be conducted in groups of two or more. If manholes are opened for inspection as part of the survey, staff should wear high-visibility safety vests and block off their work area with traffic cones; police presence can be helpful for safety and to allay public concerns that can be created by individuals opening manholes.

➤ Determine your criterion for “dry weather.” The working definition of dry weather used for sampling programs can vary depending on location-specific factors. Pitt et al. (1993) suggest that storm-runoff drainage ends in most urban areas no more than 12 hours after a storm event, but many programs (e.g., Boston, NH DES, San Diego) use a longer time period, such as no rain or no more than 1/10 inch of rain in the last 48 or 72 hours.

➤ Observe dry-weather flows for odor, color, turbidity, and floatable matter. Observe outfalls for deposits and stains, vegetation, and damage to outfall structures. This information can help identify contaminants present in the discharge and/or the likely nature of the discharge (e.g., sanitary, industrial). Some of the resources listed in Chapter 10 provide examples of data and observation sheets to be filled out for each outfall.

➤ Look up some of the resources listed in the references for this chapter for more detailed instructions for conducting dry-weather field surveys (e.g., MA DFWELE, 2002).

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**CASE STUDY: BOSTON WATER AND SEWER COMMISSION**

**USING SANDBAGS TO DETECT ILLICIT DISCHARGES**

The Boston Water and Sewer Commission has had success using sandbags to help detect illicit discharges. Sandbags are placed in storm drain outlets that empty into manholes and/or water bodies. The sandbags are small enough that they do not block the storm drain outlet. They must be placed in the outlet after 48 hours of dry weather (1/10 inch of rain or less). After the bag is placed in the outlet, another 48 hours of dry weather is needed (total of 96 hours of dry weather). The outlet is then observed, and any water buildup behind the sandbag is sampled. This method is very effective in narrowing down the manhole junctures that contain illicit discharges. Sandbags cost approximately $60 each and can be reused. The main difficulty in using this method is the need for 96-hour periods of dry weather.

*Information from an interview with Paul Barden, Deputy Director of Engineering Services, and Charlie Jewell, Project Director, Boston Water and Sewer Commission, August 15, 2002.*
CONDUCTING WATER QUALITY TESTS

When dry-weather flow is observed, visual or odor observations (e.g., observation of pieces of toilet paper, strongly colored or very muddy discharge, or the odor of sewage or chemicals) may provide enough information to determine that the discharge is illicit and to identify the likely source. If not, water quality sampling can be used to determine whether the flow is likely to have resulted from an illicit discharge.

Certain water quality parameters can serve as indicators of the likely presence or absence of a specific type of discharge. Some of these parameters can be measured in the field with probes or test kits; others must be analyzed for in the laboratory. A wide variety of water quality parameters can be measured in an IDDE program, and many references exist that describe these parameters. Some of the more commonly used and useful parameters are summarized in Table 1, which focuses on parameters suggested in Pitt et al. (1993) and the subset of those recommended in EPA’s Phase II regulations.

CASE STUDY: WINOOSKI, VERMONT

USE OF OPTICAL BRIGHTENERS

The city of Winooski, Vermont has found that testing for optical brighteners is an efficient, cheap way to determine the presence of a non-storm water discharge in a particular outfall. Optical brighteners are used in laundry detergents and thus serve as a marker for household or commercial laundry discharges. These tests are extremely sensitive to the presence of detergents.

To perform an optical-brightener test, an untreated cotton pad ($9/100 pads) surrounded by a mesh bag or a suet cage is placed in a storm drain outlet, manhole, or catch basin that has been found to have dry-weather discharge and left for a certain period of time (i.e., 5-7 days). The cotton pad is then brought back to the lab and placed under a UV lamp (approximately $200) in a dark room. A blue color indicates the presence of detergents, signifying either illegal dumping, a direct illicit connection, a leaking sewer, or leakage from a failed septic system. If the test is positive for detergents, further tests need to be performed to determine the source.

Information from an interview with Tim Grover, Water Pollution Control Facility Superintendent, City of Winooski, August 9, 2002.
## TABLE 1  
**WATER QUALITY TEST PARAMETERS AND USES**

<table>
<thead>
<tr>
<th>Water Quality Test</th>
<th>Use of Water Quality Test</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Conductivity             | Used as an indicator of dissolved solids                                                   | - Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter  
                        |                                                                           | - Typically measured in the field with a probe                                                                                                           |
| Ammonia                  | High levels can be an indicator of the presence of sanitary wastewater                    | - Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter  
                        |                                                                           | - Used very often and equipment is readily available; Boston, MA uses a field test kit (see case example)                                                                 |
| Surfactants              | Indicate the presence of detergent (e.g., laundry, car washing)                            | - Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter  
                        |                                                                           | - Boston, MA uses a field test kit (see case example)                                                                                                           |
| pH                       | Extreme pH values (low or high) may indicate commercial or industrial flows; not useful in determining the presence of sanitary wastewater (which, like uncontaminated baseflows, tends to have a neutral pH, i.e., close to 7) | - Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter  
                        |                                                                           | - Typically measured in the field or lab with a probe                                                                                                           |
| Temperature              | Sanitary wastewater and industrial cooling water can substantially influence outfall discharge temperatures. This measurement is most useful during cold weather. | - Pitt et al. 1993 suggested parameter  
                        |                                                                           | - Measured in the field with a thermometer or probe                                                                                                           |
| Hardness                 | Used to distinguish between natural and treated waters                                      | - Pitt et al. 1993 suggested parameter                                                                                                                                                                     |
| Total Chlorine           | Used to indicate inflow from potable water sources; not a good indicator of sanitary wastewater because chlorine will not exist in a “free” state in water for long (it will combine with organic compounds) | - Pitt et al. 1993 suggested parameter                                                                                                                                                                     |
| Fluoride                 | Used to indicate potable water sources in areas where water supplies are fluoridated      | - Pitt et al. 1993 suggested parameter                                                                                                                                                                     |
| Potassium                | High levels may indicate the presence of sanitary wastewater                                | - Pitt et al. 1993 suggested parameter                                                                                                                                                                     |
| Optical Brighteners (Fluorescence) | Used to indicate presence of laundry detergents (which often contain fabric whiteners, which cause substantial fluorescence) | - Pitt et al. 1993 suggested parameter  
                        |                                                                           | - Used by City of Winooski, VT (see case example)                                                                                                           |
| Bacteria (fecal coliform, E. coli, and/or enterococci) | Used to indicate the presence of sanitary wastewater                                       | - Used by NHDES (see case example in chapter 5)                                                                                                           |
REFERENCES: CHAPTER 4


Colorado’s Phase II Municipal Guidance: A guide to application requirements and program development  
for coverage under Colorado’s Phase II municipal storm water discharge permit.  
http://www.cdphe.state.co.us/wq/PermitsUnit/wqcdpmt.html

Hampshire Department of Environmental Services and New Hampshire Estuaries Project. R-WD-01-10.  
http://www.des.state.nh.us/wmb/was/nhep2000.pdf


Interview with Andrea Donlon, NHDES, July 29, 2002.

Interview with Tim Grover, City of Winooski, VT, August 9, 2002.

Presented at the Water Environment Federation Specialty Conference 2001 A Collection Systems Odyssey:  

Massachusetts Division of Fisheries, Wildlife, and Environmental Law Enforcement. Storm Drain Mapping  


EPA/600/R-92/238.

Connection/Illlicit Discharge (IC/ID) Detection and Elimination Model Program Guidance.  
http://www.projectcleanwater.org/html/model_programs.html

http://www.mvpc.org/services_sec/mass_bays/optical_handbook.htm

Tuomari, D. 1999. Dos and Don’ts on Implementing a Successful Illicit Connection Program.  

Pollution Control Program Addressing Storm Water Discharges; Final Rule. Federal Register Vol. 64 No.  
235 (December 8, 1999), pp. 68722-68851.

USEPA. 2002. Storm Water Phase II Menu of BMPs - Illicit Discharge Detection and Elimination: Identifying  
Once storm drain outlets with evidence of illicit discharges have been located, various methods can be used to pinpoint the exact source of the discharge. These techniques, many of which are already used by municipal sewer departments, include manhole observation, video inspection, smoke testing, dye testing, aerial infrared and thermal photography, and tracking illegal dumping.

MANHOLE OBSERVATIONS

A key tracing technique is to follow dry-weather flows upstream along the conveyance system to bracket the location of the source. This can be accomplished by taking the following steps:

➤ Consult the drainage system map.

➤ Check the next “upstream” manhole with a junction to see if there is evidence of discharge. You may wish to sample each manhole that has a discharge.

➤ Repeat these steps until a junction is found with no evidence of discharge; the discharge source is likely to be located between the junction with no evidence of discharge and the next downstream junction.

➤ Be aware of the surrounding areas and look for water in gutters and streets.

Note that the Boston Water and Sewer Commission has had success working in the opposite direction (i.e., upstream to downstream) (Jewell 2001). Manhole observations can be time-consuming, but they are generally a necessary step before conducting other tests.
VIDEO INSPECTION

Mobile video cameras can be guided remotely through storm sewer lines to observe possible illegal connections into storm sewer systems and record observations on a videocassette or DVD. Public works staff can observe the videos and note any visible illegal connections. This technique is time-consuming and expensive but thorough and usually definitive, and it does not require the intrusion on members of the public that some of the other methods do.

SMOKE TESTING

This technique involves injecting non-toxic smoke into storm sewer lines and then noting the emergence of smoke from sanitary sewer vents in illegally connected buildings or from cracks and leaks in the storm sewer lines. The injection is accomplished by placing a smoke bomb in the storm sewer manhole below ground and forcing air in after it. Smoke-generating machines can also be used. Test personnel should be stationed at points of suspected illegal connections or cracks/leaks, noting any escape of smoke (indicating an illicit connection or damaged storm sewer infrastructure). Prior to performing this test, it is necessary to inform building owners and occupants in the area in advance. It is also advisable to inform the police and fire departments.

For a more thorough smoke-test program, the sanitary sewer lines can also be smoked. For houses that do not emit smoke during either the sanitary sewer or the storm sewer system tests, sewer gas may be venting inside, which is hazardous. Interviews with various IDDE program staff suggest that the smoke-test method is more effective in infiltration/inflow investigations of the sanitary sewer system than in detecting illegal connections to the storm sewer system.

Smoke may cause minor irritation of respiratory passages; residents with respiratory conditions should receive special attention to determine if it is safe for them to be present for the testing. Smoke testing is typically used to survey an area all at once, in contrast to dye testing, which tests one building at a time.

DYE TESTING

This technique involves flushing non-toxic dye into toilets and sinks and observing storm sewer and sanitary sewer manholes and storm sewer outfalls for the presence of the dye. Prior to performing this test, it is necessary to inform building owners and occupants in advance and gain permission for entry. Local public health and state water quality staff should also be notified so that they will be prepared to respond to citizens calling about any dye observed in surface waters.

To perform the test, you need a crew of two or more people (ideally, all with two-way radios). One person is inside the building; the others are stationed at the appropriate storm sewer and sanitary sewer manholes (which...
should be opened) and/or outfalls. The inside person drops dye into a plumbing fixture (i.e., toilet or sink) and runs a sufficient amount of water to move the dye through the plumbing system. The inside person then radios to the outside crew that the dye has been dropped, and the outside crew watches for the dye in the storm sewer and sanitary sewer, recording the presence or absence of the dye.

The test is relatively quick (about 30 minutes per test), effective (results are usually definitive), and cheap. Dye testing is best used when the likely source of an illicit discharge has been narrowed down to a few specific houses or businesses.

**AERIAL INFRARED AND THERMAL PHOTOGRAPHY**

Aerial infrared and/or thermal photography can be used to locate illicit discharges from outfalls and failing septic systems using temperature and vegetation as markers. This technique requires knowledge of aerial photo interpretation. Using aerial infrared or thermal photographs, do the following:

CASE STUDY: NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

**LOCATING AND TRACING ILLICIT DISCHARGES IN NEW HAMPSHIRE COASTAL COMMUNITIES**

In 1996, the New Hampshire Department of Environmental Services (NHDES) began a program of investigating and eliminating illicit connections to storm drainage systems in coastal communities to reduce bacterial contamination in coastal waters. The following excerpt from the NHDES report on the first phase of the project describes the process used to detect and trace illicit discharges.

Beginning in the summer of 1996, the coastal shorelines were surveyed by foot or canoe at low tide for potential pollution sources. All pipes, seeps, streams, and swales with flow were sampled for bacteria. In addition, temperature was measured, and observations related to the condition of the pipe (stained or structurally damaged), odor, evidence of untreated wastewater (e.g., toilet paper), turbidity, color, debris, estimated flow, and any other observations were noted. Dry pipes were rechecked on several occasions for intermittent flow. Evidence indicating the presence of wastewater and/or elevated bacteria levels prompted further investigation of these locations.

Upstream catch basins and manholes associated with the outfall pipes that were identified by the screening process were surveyed for evidence of wastewater and sampled for bacteria. Smoke testing (using non-toxic smoke blown into catch basins) was then used to identify buildings connected to the storm drainage system by canvassing the neighborhood for vents emitting smoke. Final confirmation of an illicit connection from the buildings that emitted smoke was accomplished by dye testing indoor plumbing and observing the storm drainage and sewer systems for the presence or absence of the dye.

Feeder streams were surveyed for outfall pipes with dry-weather flow. Other potential bacteriological sources (e.g., pigeon roosting sites on bridges) were bracketed with water quality sampling stations. Where contaminated seeps and swales were suspected, the drainage area was surveyed for potential sources, such as broken sewer mains.

For outfalls
- Note if discharge has a higher temperature than that of the stream
- Note if algae growth is concentrated near an outfall

For potentially failing septic systems
- Note evidence of increased moisture in surrounding soil
- Observe vegetation located close to the potentially failing septic system, and note any increase in vegetation compared to the surrounding area
- Observe any increase in temperature readings at the septic system location

This is still a developing technology and not commonly used for IDDE programs. You may still need further tests to determine specific houses/businesses with illegal connections. This technique has been used primarily for the detection of failing septic systems, which are only considered “illicit discharges” under the Phase II Storm Water program if they discharge into the storm sewer system.

**TRACKING ILLEGAL DUMPING**

Developing a coordinated system for collecting and tracking reports of illegal dumping can help pinpoint this difficult-to-find source of illicit discharges. Suggestions for tracking illegal dumping include the following:

➤ Create a hotline that can be used to report any illegal-dumping behavior (i.e., who illegally dumped and where illegal dumping occurred).

➤ Observe the materials that have been illegally dumped and trace the potential sources of the materials.

➤ Note where dumping occurs most often, record patterns of time of day and day of the week, and note common responsible parties.

Challenges in addressing illegal dumping include the difficulty of catching dumpers in the act and the significant staff time needed to receive, respond to, and track complaints.

**Aerial infrared and/or thermal photography can be used to locate illicit discharges from outfalls and failing septic systems using temperature and vegetation as markers.**

**Developing a coordinated system for collecting and tracking reports of illegal dumping can help pinpoint this difficult-to-find source of illicit discharges.**
REFERENCES: CHAPTER 5

Center for Watershed Protection. *Pollution Prevention Fact Sheet: Illegal Dumping Control.*  
http://www.stormwatercenter.net/Pollution_Prevention_Factsheets/IllegalDumpingControl.htm

http://www.ci.cambridge.ma.us/~TheWorks/dye.html


http://www.rougeriver.com/proddata

http://www.co.pierce.wa.us/pwc/services/home/environ/water/swm/sppman/bmps1.htm

http://www.projectcleanwater.org/html/model_programs.html


http://www.epa.gov/reg5rcra/wptdiv/illegal_dumping/
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Because there are various sources of illicit discharges to the storm sewer system, there are different kinds of actions municipalities may have to take to remove those sources and prevent future illicit discharges. This section groups those actions into three categories: compliance assistance and enforcement for illegal connections to homes and businesses; proper construction and maintenance of MS4s; and responding to and preventing illegal dumping.

**COMPLIANCE ASSISTANCE AND ENFORCEMENT FOR ILLEGAL CONNECTIONS TO HOMES AND BUSINESSES**

There is a range of ways in which municipalities may wish to handle the removal of illegal connections between homes or businesses and the storm sewer system. Enforcement measures should be spelled out in the required IDDE ordinance (see Chapter 3), but the MS4 operator will normally be allowed to use judgment about what mix of compliance assistance and enforcement actions is appropriate in a given situation. Typically, a municipality responds to the discovery of an illegal connection in a graduated manner, beginning with efforts to obtain voluntary compliance and escalating to increasingly severe enforcement actions if compliance is not obtained.

**Voluntary Compliance**

Often, home or business owners are not aware of the existence of illegal connections between their buildings and the storm sewer systems. In these cases, providing the responsible party with information about the connection, its environmental consequences, the applicable regulations, and how to remedy it may be enough to secure vol-
Voluntary compliance. The cost of removing the connection and reconnecting it to the sanitary sewer system can be an obstacle. Recognizing this, some localities (e.g., Boston and coastal New Hampshire) have chosen to provide assistance with these costs, using municipal public works funds or state or federal grants.

Enforcement

EPA’s model illicit discharge ordinance (Appendix A) provides an example of the enforcement steps that might be specified in a typical local ordinance. These steps are summarized below.

➤ The authorized enforcement agency sends the property owner a Notice of Violation (NOV), which may require the violator to take steps such as monitoring, elimination of an illicit connection or discharge, or payment of a fine.

➤ The person receiving the NOV may appeal it.

➤ If the person receiving the NOV does not appeal or loses the appeal and fails to correct the violation, the enforcement agency may “take any and all measures necessary to abate the violation and/or restore the property.” The agency then may require reimbursement from the violator for the cost of the abatement, including administrative costs.

➤ The authorized enforcement agency also has the ability to seek an injunction against the violator “restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.”

If the municipality has not yet obtained enforcement authority (e.g., because a local ordinance has not yet been passed), it may be possible for the municipality to seek enforcement action from state or federal authorities. Involvement of state or federal

CASE STUDY: WAYNE COUNTY, MICHIGAN

ENFORCEMENT PROCEDURE

Wayne County, Michigan, began its illicit discharge detection and elimination program by targeting certain industrial and commercial facilities for site inspections—starting at the other end of the pipe from the outfall survey approach. County personnel visited the facilities, dye tested a representative number of plumbing fixtures, and observed general “housekeeping” practices.

If no violations were found, a thank you letter was sent to the facility acknowledging staff participation and closing the file. If a facility was found to have an illicit connection, a violation letter was sent, giving the facility 30 to 90 days to correct it. If a facility failed to comply with the request, the municipal plumbing inspector or building department became involved. If the municipality was not able to gain compliance, the facility was referred to the Michigan Department of Environmental Quality. When an illicit connection was eliminated, the county provided confirmation. Once a correction was confirmed, a confirmation/thank you letter was sent to facility management, thanking them for their participation and closing the file.


Typically, a municipality responds to the discovery of an illegal connection in a graduated manner, beginning with efforts to obtain voluntary compliance and escalating to increasingly severe enforcement actions if compliance is not obtained.
developing an IDDE Plan: Removing the Source of an Illicit Discharge

authorities may also be necessary if the source of an illicit discharge is located outside of the municipality’s boundaries. Examples of enforcement procedures implemented in Wayne County, Michigan, and St. Louis, Missouri, are included in this section.

PROPER CONSTRUCTION AND MAINTENANCE OF MS4s

Some illicit discharge problems may be the responsibility of the MS4 operator. These problems include cross-connections between the sanitary sewer and storm sewer systems and infiltration into damaged or deteriorating storm sewer pipes.

Cross-connections between a municipality’s sanitary sewer and storm sewer systems may exist by mistake, because of deterioration over time, or as part of the design in an antiquated system. Complete and accurate maps of the sewer and storm sewer systems can help identify these cross-connections and prevent them during any new construction that takes place.

Contamination can infiltrate into a cracked or leaking MS4 from leaking sanitary sewer pipes, failing septic systems, or contaminated groundwater. To help prevent this, both MS4s and sanitary sewer systems should be inspected periodically and maintained properly to keep them in good repair.

CASE STUDY: ST. LOUIS, MISSOURI

ENFORCEMENT PROCEDURE

The Metropolitan St. Louis Sewer District has a comprehensive ordinance regulating users who discharge into the sanitary sewer and storm sewer systems. Upon discovery of a violation of this ordinance, the Sewer District notifies the user of the nature of the violation and directs that actions be taken to remedy the non-compliance. Within 30 days of receipt of the notice, the user must submit a plan for correction of the violation to the Sewer District. If a violation is found within the house or business that appears to present an immediate danger to human health or welfare, a verbal notification is given immediately by telephone or visit, directing the user to take immediate action to discontinue or reduce the discharge to safe levels. A written notice is sent within five days of the verbal notification.

The Sewer District has the power to issue the following Administrative Orders: Cease and Desist Order (directing the user to stop the violating action), Compliance Order (directing the user to take action to correct violation), Show Cause Order (directing the user to show cause why a proposed enforcement action should not be taken), and Consent Order (establishing an agreement with a user to correct a violation).

If the violator does not take action within the time allotted, the Sewer District has the right to eliminate the illicit discharge at the expense of the violator. Legal actions can be taken against, and penalties imposed on, any violator that does not comply.

Information from Metropolitan St. Louis Sewer District Ordinance No. 8472, on EPA’s nonpoint source pollution Web site at http://www.epa.gov/owow/nps/ordinance/discharges.htm
PREVENTING AND RESPONDING TO ILLEGAL DUMPING

It is often difficult to identify and locate the individuals responsible for illegal dumping; therefore, a program to address illegal dumping should focus on prevention, backed up by enforcement to the extent possible.

EPA Region 5 has prepared an *Illegal Dumping Prevention Guidebook* that suggests the following key strategies that can be used to prevent illegal dumping.

➤ **Site maintenance and controls** Measures should be taken to clean up areas where illegal dumping has taken place, and controls such as signs or access restrictions should be used, as appropriate, to prevent further dumping.

➤ **Community outreach and involvement** Outreach is the linchpin of an illegal-dumping prevention program and can include the following components:
  
  • Educating businesses, municipal employees, and the general public about the environmental and legal consequences of illegally disposing of waste into the storm sewer system
  
  • Providing and publicizing ways for citizens to properly dispose of waste
  
  • Providing opportunities for citizens to get involved in preventing and reporting illegal dumping

➤ **Targeted enforcement** This strategy should include a prohibition against illegal dumping via ordinance or another similar measure, backed up by trained law-enforcement personnel and possibly field operations.

➤ **Program measurement** Tracking and evaluation methods should be used to measure the impact of illegal-dumping prevention efforts and determine whether goals are being met.

Although the EPA Region 5 guidebook is targeted more to land dumping of solid waste, these strategies can also be applied to illegal dumping into the storm drain system. Some specific methods that municipalities can use to implement these strategies include the following:

➤ **Site maintenance and controls**
  
  • Storm-drain stenciling program
  
  • Spill-response plans for hazardous-waste spills

➤ **Community outreach and involvement**
  
  • An illegal-dumping reporting hotline
  
  • Outreach to business sectors that handle hazardous materials and/or have a history of illegal-dumping problems; outreach should include information on Best Management Practices for spill prevention and proper waste disposal
• Printed outreach materials for the public
• Publicizing of waste-disposal options, such as used oil recycling and household hazardous waste collections

➤ Targeted enforcement
• An illegal-dumping ordinance (or section of IDDE ordinance)
• Surveillance of known illegal-dumping locations
• Business facility inspections
• Training of municipal employees, police officers, and other local entities to be on lookout

➤ Program measurement
• Tracking of incident locations
• Compilation of statistics (e.g., annual cleanup costs, facility compliance, arrests, convictions, fines, complaints)

REFERENCES: CHAPTER 6


Interview with Andrea Donlon, NHDES, July 29, 2002.


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Developing and implementing a plan to detect and address illicit discharges is the third mandatory element of a Phase II IDDE program. EPA recommends that the plan include the following four components: (1) locating priority areas; (2) tracing the source of an illicit discharge; (3) removing the source of an illicit discharge; and (4) program evaluation and assessment. The fourth component, program evaluation and assessment, is the subject of this chapter.

EPA recommends that the IDDE plan include procedures for program evaluation and assessment. Program evaluation is the time to step back, look at what has been done, determine what worked and what didn’t, and make adjustments to planned future actions as appropriate. In this final component of your IDDE plan, you outline how you will go about evaluating your program.

**Evaluation Strategy**

Evaluation procedures should include documentation of actions taken to locate and eliminate illicit discharges. Such documentation might include numbers of outfalls screened, complaints taken and investigated, feet of storm sewers videotaped, numbers of discharges eliminated, or number of dye or smoke tests conducted. Note that this component of the IDDE plan fits in with the overall Phase II requirements for identifying measurable goals for each Best Management Practice (BMP) and reporting on progress toward achieving those goals. (Chapter 9 discusses BMPs and measurable goals in more detail.) Annual reports are necessary during the first permit term (typically five years), and in years two and four in subsequent terms. (For more information on reporting requirements, see EPA’s Fact Sheet 2.9.)

Determining the impact of these actions is more of a challenge, but it is an important part of the overall process because EPA allows for adjustments to the storm water management program over the life of the permit. Assessment of what worked and what didn’t provides the information needed to make these adjustments to your IDDE program. EPA’s Phase II regulations do not specify exactly how to evaluate your IDDE program, so check whether your permitting authority has made any particular specifications, and brainstorm from there.
Here are few suggestions for assessing the effectiveness of various IDDE strategies:

- Evaluate the number of possible illicit discharges that were detected using different detection methods. This can help you determine which detection methods are most effective.

- Evaluate the number of discharges and/or quantity of discharges eliminated using different possible enforcement and compliance measures.

- If you have access to monitoring data for receiving waters, evaluate changes in the water quality of receiving waters.

- Program evaluation might also include procedures for considering efficiency and feasibility. Questions you might want to ask include:
  - How much staff time and expense did it take to achieve a given result?
  - Were practical difficulties encountered with this approach? What were they, and how much of a problem did they present?

The strategies listed above are only suggestions. Because you are allowed a great deal of flexibility in determining what procedures you will use for program evaluation and assessment, you can decide what procedures will be most helpful in providing the information that you will need to move forward with your IDDE program.

REFERENCES: CHAPTER 7


The fourth mandatory element of an IDDE program calls for the MS4 operator to “inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.” As noted in the Introduction, the requirement for public education and outreach on storm water impacts is also one of the six minimum control measures in the storm water management program. Therefore, fulfilling the outreach requirement for IDDE helps the MS4 to comply with this mandatory element; IDDE outreach can be integrated into the broader storm water outreach program.

Some suggestions for conducting IDDE outreach to the different community sectors are presented below. Many examples of storm water outreach materials, including some that are intended to be modified and used by anyone, are available on the Web; some useful Web sites are listed in Chapter 10. Operators of regulated small MS4s may want to work together with other operators in their area in developing outreach materials and campaigns to share ideas and save money.

PUBLIC EMPLOYEES

While it is clear that public works employees should receive specific technical training on the requirements of the IDDE program and the techniques that will be used to carry it out, other municipal departments should also be targeted for training.

A training program for municipal employees on pollution prevention techniques is required under the “Pollution Prevention/Good Housekeeping for Municipal Operations” minimum control measure. Preventing non-storm water discharges into the storm sewer system from municipal operations can be one part of this training.

Many public employees can play an important role as partners in the detection and/or prevention of illicit discharges. For example, highway department staff who maintain catch basins can look for signs of illicit discharges. Municipal building inspectors can help ensure that illegal connections to the storm sewer system do not take place in construction and renovation projects. Police officers, public works employees, and other municipal staff whose jobs keep them outside and mobile can help spot illegal dumpers. Fire and police department personnel who respond to hazardous material spills can help keep these spills out of the storm sewer system and adjacent water bodies.
BUSINESSES

Most businesses are willing to comply with environmental requirements and take proactive steps to prevent pollution if they understand the issues and the possible solutions. Here are some steps you can take to reach out to businesses.

➤ Create a general brochure and presentation to inform businesses about the IDDE program. This information can be presented and/or made available at Chamber of Commerce meetings and other business forums.

➤ Conduct compliance assistance outreach (e.g., visits, group training, and/or printed materials) for specific business types (e.g., auto repair shops, mobile carpet cleaning, restaurants).

➤ Provide contractors and developers with information on preventing illegal connections (in coordination with training on construction and post-construction storm water requirements).

GENERAL PUBLIC

There are many ways in which the general public can be made aware of environmental issues and the things they can do to help mitigate or prevent problems. Here are some things you can do to inform and involve the public.

➤ Work with citizen groups to conduct storm-drain stenciling (e.g., “Don’t Dump – Drains to River”) and outfall surveys.

  • In conducting these activities, you should:
    - Educate the groups about their activity (either informally or via a video or other presentation)
    - Make sure volunteers understand constraints associated with storm-drain stenciling activities (e.g., heavy traffic use areas, historic districts)
    - Have volunteers sign liability forms, if necessary

  • You may also wish to:
    - Publicize the activities through the media
    - Give volunteers brochures to hand out to the public with who they interact
    - Repeat stenciling periodically (due to paint wear off), unless placards are used—stenciling on curbs lasts longer than on street surfaces
    - See Chapter 10 for information on storm-drain stenciling resources

➤ Create a program to promote, publicize, and facilitate public reporting of illicit connections or discharges (e.g., a hotline). Some considerations in running a hotline include:

  • Callers should be able to at least leave a message at any time of day
  • It may be helpful to have the hotline staffed during business hours
  • A system should be created for monitoring the hotline so that staff can follow up quickly on reports of discharges
• The municipality may wish to offer a small reward for callers that provide information leading to the detection of an illicit discharge source

➤ Distribute (by mail and by making available at various locations and events) printed outreach materials. A general flyer about illicit discharges might include information on the following:

• Background information on water pollution
• A definition of what constitutes an illicit discharge
• Measures to prevent illicit discharges
• Information about the municipality’s illicit discharge ordinance

➤ Create Public Service Announcements for radio and/or television.

➤ Work with the local access cable station and local newspapers to develop features on illicit discharge prevention.

➤ Create and publicize a household hazardous waste disposal/recycling program.

➤ Provide classroom speakers and/or printed information for schools.

REFERENCES: CHAPTER 8


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As mentioned in the Introduction, operators of regulated small MS4s generally must submit applications for Phase II storm water general permits by March 10, 2003. As part of their application, they must identify best management practices (BMPs) that they will use to comply with each of the six minimum control measures, and the measurable goals that they will use to demonstrate BMP implementation. Within the first permit term, the operators have to fully implement their storm water management programs.

GETTING STARTED

EPA allows MS4 operators a great deal of flexibility in determining what BMPs are most appropriate for their storm water programs. The agency has developed the following materials to assist operators in identifying appropriate BMPs:

➤ A National Menu of Best Management Practices for Storm Water Phase II, which includes a toolkit of example BMPs for each of the Phase II minimum control measures (available on the Web)

➤ Measurable Goals Guidance for Small MS4s

➤ A Storm Water Phase II Compliance Guide, which offers examples of BMPs and measurable goals for each of the six minimum measures

Others, including states, regional agencies, trade associations, and non-profit organizations have also developed BMP information.

A sample list of IDDE BMPs and measurable goals is presented below. This list draws from BMP and measurable goal recommendations that have been offered by EPA and others. The list has not been officially endorsed by EPA or state agencies; it is intended to serve as a starting point to help municipalities think about the BMPs and measurable goals that are appropriate to their IDDE programs. BMPs are listed in bold, followed by the measurable goals for each BMP. (The BMPs are organized according to the four elements required in an IDDE program.)

STORM SEWER MAP

➤ Create a storm sewer map
  • Map a certain percentage of outfalls (adding up to 100% by the end of the permit term) or of the area of the town
■ ORDINANCE

➤ Pass an illicit discharge ordinance
  • Draft an IDDE ordinance (or storm water ordinance with IDDE component) or an amendment to existing bylaws
  • Pass an ordinance or amendment

■ IDDE PLAN

➤ Prepare an IDDE plan
  • Complete a final plan and obtain the signature of the person overseeing the plan

➤ Conduct dry weather field screening of outfalls
  • Screen a certain percentage of outfalls (adding up to 100% by the end of the permit term)

➤ Trace the source of potential illicit discharges
  • Trace the source of a certain percentage of continuous flows (adding up to 100% by the end of the permit term)
  • Trace the source of a certain percentage of intermittent flows and illegal dumping reports (100% may never be an achievable goal in this case)

➤ Eliminate illicit discharges
  • Eliminate a certain number of discharges and/or a certain volume of flow, or a certain percentage of discharges whose source is identified (adding up to 100% by the end of the permit term)

■ OUTREACH

➤ Implement and publicize a household hazardous waste collection program
  • Hold a periodic (e.g., annual) hazardous waste collection day
  • Mail flyers about the hazardous waste collection program to all town residences

➤ Create and distribute an informational flyer for homeowners about IDDE
  • Mail the flyer to town residences
  • Print the flyer as a doorknob hanger and have water-meter readers distribute it

➤ Create and distribute an informational flyer for businesses about IDDE
  • Mail the flyer to targeted businesses

➤ Work with community groups to stencil storm drains
  • Stencil a certain percentage of drains
Create and publicize an illicit discharge reporting hotline

- Put the hotline in place
- Include an announcement of the hotline in sewer bills
- Follow up on all hotline reports within 48 hours

REFERENCES: CHAPTER 9


Key Information Available on EPA's Storm Water Web Site

Entry Point and General Information
http://www.epa.gov/npdes
➔ click on “Storm Water”
➔ click on “Municipal Separate Storm Sewer Systems” or “Phase II”

Storm Water Phase II Final Rule
http://www.epa.gov/npdes/regulations/phase2.pdf
IDDE section of the Phase II Final Rule: see section II(H)(3)(b)(iii), pp. 68756-68758.

EPA’s Fact Sheet Series
http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm

Overview
1.0 Storm Water Phase II Final Rule: An Overview

Small MS4 Program
2.0 Small MS4 Storm Water Program Overview
2.1 Who’s Covered? Designation and Waivers of Small Regulated MS4s
2.2 Urbanized Areas: Definition and Description

Minimum Control Measures
2.3 Public Education and Outreach
2.4 Public Participation/Involvement
2.5 Illicit Discharge Detection and Elimination
2.6 Construction Site Runoff Control
2.7 Post-Construction Runoff Control
2.8 Pollution Prevention/Good Housekeeping
2.9 Permitting and Reporting: The Process and Requirements
2.10 Federal and State-Operated MS4s: Program Implementation

Construction Program
3.0 Construction Program Overview
3.1 Construction Rainfall Erosivity Waiver

Industrial “No Exposure”
4.0 Conditional No Exposure Exclusion for Industrial Activity

Documents
Storm Water Phase II Compliance Assistance Guide

National Menu of BMPs for Storm Water Phase II
http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm
Measurable Goals Guidance for Phase II Small MS4s
http://cfpub.epa.gov/nepdes/stormwater/measurablegoals/index.cfm

Storm Water Web Sites

The Rouge River National Wet Weather Demonstration Project
http://www.rougeriver.com
(See specific information on IDDE at http://www.rougeriver.com/techtop/illicit/overview.html.)

Center for Watershed Protection’s Storm Water Manager’s Resource Center
http://www.stormwatercenter.net

The University of Tennessee’s Municipal Technical Advisory Service NPDES Phase II Storm Water Management BMP Toolkit
http://www.mtas.utk.edu/bmptoolkit.htm
The Illicit Discharge section provides a number of useful web links and downloadable PDFs.

Organization Web Sites

Water Environment Federation
http://www.wef.org

American Public Works Association
http://www.apwa.net

Local Government Environmental Assistance Network
http://www.lgean.org

Center for Watershed Protection
http://www.cwp.org

The Boston Water and Sewer Commission
(the Web site includes the BWSC’s regulations, outreach information, and other useful items)
http://www.bwsc.org

Storm Water Manuals


IDDE Manuals


**Information on Specific Topics**

**Ordinances**

*USEPA’s Model Ordinances to Protect Local Resources: Illicit Discharges.*

http://www.epa.gov/owow/nps/ordinance/discharges.htm

(The same information can be found at http://www.stormwatercenter.net.)

Boston Water and Sewer Commission’s *Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains*. http://www.bwsc.org

The Massachusetts Citizen Planner Training Collaborative offers “Tips on Drafting Bylaws” for Massachusetts municipalities: http://www.umass.edu/masseptc/Tips_on_Drafting.html

**Optical Brighteners**


**Dye Testing**

Dye supplier used by a reviewer of this manual: NORLAB, Inc., Amherst, OH. 1-800-247-9422; http://www.norlabdyes.com

**Smoke Testing**

Smoke testing equipment supplier used by a reviewer of this manual: Hurco Technologies, Inc., 1-800-888-1436; http://www.hurcotech.com

**Outfall/Manhole Surveys**


**Outreach**

- **Household Hazardous Waste Collection**

  Household hazardous waste collection days in New Hampshire can be viewed online at http://www.des.state.nh.us/hhw/hhwevent.htm.

  Environmental Depot, Burlington VT. http://www.cswd.net/facilities/hazardous_waste.shtml
• **Storm-Drain Stenciling**

Earthwater Stencils, an organization that does storm drain stenciling: [http://www.earthwater-stencils.com/](http://www.earthwater-stencils.com/)

The Ocean Conservancy’s Storm Drain Sentries program has a goal of having volunteers stencil one million storm drains with educational pollution prevention messages. The Ocean Conservancy supplies volunteers with a fact sheet about nonpoint source pollution, tips on conducting a stenciling project, and stencils for volunteer organizations to use. In return, stenciling project leaders are asked to submit data about the number of storm drains they stenciled, the types of pollutants found near the storm drains, and potential pollutant sources. This information is added to a growing database maintained by the Ocean Conservancy. Contact the Ocean Conservancy’s Office of Pollution Prevention and Monitoring at 757-496-0920 or stormdrain@oceanconservancyva.org.

[http://www.oceanconservancy.org/dynamic/getInvolved/events/sentries/sentries.htm](http://www.oceanconservancy.org/dynamic/getInvolved/events/sentries/sentries.htm)

Resources for storm drain stenciling programs in New Hampshire:
- Coordinated by the NH Coastal Program (part of the Office of State Planning) [http://www.state.nh.us/coastal/CoastalEducation/marinedebris.htm](http://www.state.nh.us/coastal/CoastalEducation/marinedebris.htm)
- Description of Manchester’s storm drain stenciling on EPA’s Web site describing the SEPP [http://www.epa.gov/region1/eco/csoman/sepp.html](http://www.epa.gov/region1/eco/csoman/sepp.html) (See #1 and #6)

• **Outreach Materials**

EPA is preparing educational materials on different water topics each month as part of the year-long celebration of the 30th anniversary of the Clean Water Act. April 2003 will be Storm Water Month. The public education kit is expected to include:

- General Storm Water Awareness brochure
- Homeowner Guide (car washing, vehicle fluids changing, lawn & garden care, pet waste, septic system management)
- Small Construction Guide poster
- Press release
- Public service announcement for the radio
- Stickers
- Door hanger with illicit discharge message
- PowerPoint presentation

These items will be available for download or order on EPA’s Year of Clean Water Web site, [http://www.epa.gov/water/yearofcleanwater/month.html](http://www.epa.gov/water/yearofcleanwater/month.html). Before the materials are available on the Web site, you can contact EPA’s contractor, TetraTech, to be on the mailing list for the materials. Email Kathryn Phillips at tetratech1@earthlink.net or kathryn.phillips@tetratech-ffx.com.
CONTACTS

USEPA-New England is the NPDES permitting authority for Massachusetts and New Hampshire. The other five NEIWPCC member states serve as NPDES permitting authorities for the storm water program. Contact information below was taken from the EPA-New England Web site http://www.epa.gov/region01/npdes/stormwater/administration.html, the EPA NPDES Web site http://www.epa.gov/npdes, and the New York State Department of Environmental Conservation Web site http://www.dec.state.ny.us.

U.S. EPA

**EPA Region 1, New England**
Regional Storm Water Coordinator
Thelma Murphy 617-918-1615; murphy.thelma@epa.gov

Regional Storm Water Assistance Team
Ann Herrick 617-918-1560; herrick.ann@epa.gov
Shelly Puleo 617-918-1545; puleo.shelly@epa.gov
Olga Vergara 617-918-1519, vergara.olga@epa.gov

Massachusetts Assistance
Dave Gray 617-918-1577; gray.davidj@epa.gov

**EPA Region 2**
Regional Storm Water Coordinator
Karen O’Brien 212-637-3717; obrien.karen@epa.gov

STATES

**Connecticut**
Connecticut Department of Environmental Protection
Bureau of Water Management
Permitting, Enforcement, and Remediation Division
http://www.dep.state.ct.us
Contact: Chris Stone 860-424-3850; chris.stone@po.state.ct.us

**Maine**
Maine Department of Environmental Protection
Bureau of Land and Water Quality
http://www.state.me.us/dep/blwq/stormwtr/index.htm
Contact: David Ladd 207-287-5404; david.ladd@state.me.us

**Massachusetts**
Massachusetts Department of Environmental Protection
Division of Watershed Management
http://www.state.ma.us/dep/brp/stormwtr/stormhom.htm
Contacts: Ginny Scarlet 508-767-2797; ginne.scarlet@state.ma.us
Linda Domizio 508-849-4005; linda.domizio@state.ma.us
New Hampshire
New Hampshire Department of Environmental Services
Storm Water Fact Sheet: http://www.des.state.nh.us/factsheets/wwt/web-8.htm
Storm Water Web Site: http://www.des.state.nh.us/StormWater
Contacts: Jeff Andrews 603-271-2984
Public Information and Permitting Office 603-271-2975

New York
New York State Department of Environmental Conservation
Division of Water
http://www.dec.state.ny.us/website/dow/mainpage.htm
Contact: Mike Rafferty 518-402-8094; mrraffer@gw.dec.state.ny.us

Rhode Island
Rhode Island Department of Environmental Management
Water Resources – Permitting
http://www.state.ri.us/dem/programs/benviron/water/permits/ripdes/stwater/index.htm
Contacts: Margarita Chatterton 401-222-4700 x7605; mchatter@dem.state.ri.us
Greg Goblick 401-222-4700 x7265; ggoblick@dem.state.ri.us

Vermont
Vermont Department of Environmental Conservation
Water Quality Division
http://www.anr.state.vt.us/dec/waterq/stormwater.htm
Contact: Peter LaFlamme 802-241-3765; petel@dec.anr.state.vt.us
APPENDIX A

Model Illicit Discharge and Connection
Stormwater Ordinance

ORDINANCE NO. ______

SECTION 1. PURPOSE/INTENT.
The purpose of this ordinance is to provide for the health, safety, and general welfare of the citizens of (______________________________) through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this ordinance are:

1) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by stormwater discharges by any user.
2) To prohibit Illicit Connections and Discharges to the municipal separate storm sewer system.
3) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this ordinance.

SECTION 2. DEFINITIONS.
For the purposes of this ordinance, the following shall mean:

Authorized Enforcement Agency: employees or designees of the director of the municipal agency designated to enforce this ordinance.

Best Management Practices (BMPs): schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.


Construction Activity: Activities subject to NPDES Construction Permits. Currently these include construction projects resulting in land disturbance of 5 acres or more. Beginning in March 2003, NPDES Storm Water Phase II permits will be required for construction projects resulting in land disturbance of 1 acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

Hazardous Materials: Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal Discharge: Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in Section X of this ordinance.

Illicit Connections: An illicit connection is defined as either of the following:


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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-storm water 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 an authorized enforcement agency or,

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 approved by an authorized enforcement agency.

Industrial Activity. Activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).

National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit means a permit issued by 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-Storm Water Discharge. Any discharge to the storm drain system that is not composed entirely of storm water.

Person. means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner’s agent.

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, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Premises. Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Storm Drainage System. Publicly-owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Storm Water. Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

Stormwater Pollution Prevention Plan. A document which describes the Best Management Practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to Stormwater, Stormwater Conveyance Systems, and/or Receiving Waters to the Maximum Extent Practicable.

Wastewater means any water or other liquid, other than uncontaminated storm water, discharged from a facility.

SECTION 3. APPLICABILITY.

This ordinance shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

SECTION 4. RESPONSIBILITY FOR ADMINISTRATION.

The [authorized enforcement agency] shall administer, implement, and enforce the provisions of this ordinance. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the Director of the authorized enforcement agency to persons or entities acting in the beneficial interest of or in the employ of the agency.

SECTION 5. SEVERABILITY.

The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this Ordinance or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this Ordinance.
SECTION 6. ULTIMATE RESPONSIBILITY.
The standards set forth herein and promulgated pursuant to this ordinance are minimum standards; therefore this ordinance does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

SECTION 7. DISCHARGE PROHIBITIONS.
Prohibition of Illegal Discharges.
No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.
The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:
(1) The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flows, swimming pools (if dechlorinated - typically less than one PPM chlorine), fire fighting activities, and any other water source not containing Pollutants.
(2) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.
(3) Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.
(4) The prohibition shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

Prohibition of Illicit Connections.
(1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.
(2) 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.
(3) A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

SECTION 8. SUSPENSION OF MS4 ACCESS.
Suspension due to Illicit Discharges in Emergency Situations
The ___________________________ [authorized enforcement agency] may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or Waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the MS4 or Waters of the United States, or to minimize danger to persons.

Suspension due to the Detection of Illicit Discharge
Any person discharging to the MS4 in violation of this ordinance may have their MS4 access terminated if such
termination would abate or reduce an illicit discharge. The authorized enforcement agency will notify a violator of the proposed termination of its MS4 access. The violator may petition the authorized enforcement agency for a reconsideration and hearing.

A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of the authorized enforcement agency.

SECTION 9. INDUSTRIAL OR CONSTRUCTION ACTIVITY DISCHARGES.
Any person subject to an industrial or construction activity NPDES storm water discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the ____________________________ [authorized enforcement agency] prior to the allowing of discharges to the MS4.

SECTION 10. MONITORING OF DISCHARGES.

1. Applicability.
   This section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

   (1) The ____________________________ [authorized enforcement agency] shall be permitted to enter and inspect facilities subject to regulation under this ordinance as often as may be necessary to determine compliance with this ordinance. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.

   (3) Facility operators shall allow the ____________________________ [authorized enforcement agency] ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge storm water, and the performance of any additional duties as defined by state and federal law.

   (3) The ____________________________ [authorized enforcement agency] shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency to conduct monitoring and/or sampling of the facility’s storm water discharge.

   (4) The ____________________________ [authorized enforcement agency] has the right to require the discharger to install monitoring equipment as necessary. The facility’s sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.

   (5) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the [authorized enforcement agency] and shall not be replaced. The costs of clearing such access shall be borne by the operator.

   (6) Unreasonable delays in allowing the ____________________________ [authorized enforcement agency] access to a permitted facility is a violation of a storm water discharge permit and of this ordinance. A person who is the operator of a facility with a NPDES permit to discharge storm water associated with industrial activity commits an offense if the person denies the authorized enforcement agency reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this ordinance.
If the [authorized enforcement agency] has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the authorized enforcement agency may seek issuance of a search warrant from any court of competent jurisdiction.

SECTION 11. REQUIREMENT TO PREVENT, CONTROL, AND REDUCE STORM WATER POLLUTANTS BY THE USE OF BEST MANAGEMENT PRACTICES.

[Authorized enforcement agency] will adopt requirements identifying Best Management Practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm drain system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMPs. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, may be required to implement, at said person’s expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of storm water associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section. These BMPs shall be part of a stormwater pollution prevention plan (SWPP) as necessary for compliance with requirements of the NPDES permit.

SECTION 12. WATERCOURSE PROTECTION.

Every person owning property through which a watercourse passes, or such person’s lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

SECTION 13. NOTIFICATION OF SPILLS.

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into storm water, the storm drain system, or water of the U.S. said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the authorized enforcement agency in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the [authorized enforcement agency] within three business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

SECTION 14. ENFORCEMENT.

1. Notice of Violation.

Whenever the [authorized enforcement agency] finds that a
person has violated a prohibition or failed to meet a requirement of this Ordinance, the authorized enforcement agency may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:
(a) The performance of monitoring, analyses, and reporting;
(b) The elimination of illicit connections or discharges;
(c) That violating discharges, practices, or operations shall cease and desist;
(d) The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; and
(e) Payment of a fine to cover administrative and remediation costs; and
(f) The implementation of source control or treatment BMPs.
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. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

SECTION 15. APPEAL OF NOTICE OF VIOLATION.
Any person receiving a Notice of Violation may appeal the determination of the authorized enforcement agency. The notice of appeal must be received within ___ days from the date of the Notice of Violation. Hearing on the appeal before the appropriate authority or his/her designee shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the municipal authority or their designee shall be final.

SECTION 16. ENFORCEMENT MEASURES AFTER APPEAL.
If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, or, in the event of an appeal, within ___ days of the decision of the municipal authority upholding the decision of the authorized enforcement agency, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

SECTION 17. COST OF ABATEMENT OF THE VIOLATION.
Within ___ days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within ___ days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the city by reason of such violation. The liability shall be paid in not more than 12 equal payments. Interest at the rate of ___ percent per annum shall be assessed on the balance beginning on the ___st day following discovery of the violation.

SECTION 18. INJUNCTIVE RELIEF.
It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Ordinance. If a person has violated or continues to violate the provisions of this ordinance, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

SECTION 19. COMPENSATORY ACTION.
In lieu of enforcement proceedings, penalties, and remedies authorized by this Ordinance, the authorized enforcement agency may impose upon a violator alternative compensatory actions, such as storm drain stenciling, attendance at compliance workshops, creek cleanup, etc.
SECTION 20. VIOLATIONS DEEMED A PUBLIC NUISANCE.
In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Ordinance is 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, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

SECTION 21. CRIMINAL PROSECUTION.
Any person that has violated or continues to violate this ordinance shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to a criminal penalty of ______ dollars per violation per day and/or imprisonment for a period of time not to exceed ____ days.
The authorized enforcement agency may recover all attorney’s fees court costs and other expenses associated with enforcement of this ordinance, including sampling and monitoring expenses.

SECTION 22. REMEDIES NOT EXCLUSIVE.
The remedies listed in this ordinance are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies.

SECTION 23. ADOPTION OF ORDINANCE.
This ordinance shall be in full force and effect __ days after its final passage and adoption. All prior ordinances and parts of ordinances in conflict with this ordinance are hereby repealed.

PASSED AND ADOPTED this ____ day of ___________, 19__, by the following vote:
Illicit Discharge Detection and Elimination (IDDE)
Employee Training Record
Hanson, Massachusetts

Date of Training: ______________________

Duration of Training: _________________

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Town of Hanson, Massachusetts
MS4 Maintenance and Operations Manual

May 2013
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Figure 2 – Storage Location of Salt and Sand Supplies

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   Town of Hanson Map of Impaired Waterbodies/TMDL Data
Appendix B: Catch Basin Inspection Form Template
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Appendix D: Outfall Inspection Form Template
Appendix E: Standard Operating Procedures (SOPs)

LIST OF ATTACHMENTS
Attachment 1: Town of Hanson Map Book (Stand-alone 11x17 set of Maps)
1.0 INTRODUCTION

This Stormwater Operation & Maintenance (O&M) Plan has been developed as a requirement of the NPDES Phase II MS4 stormwater permit program. The NPDES Phase II General Permit (General Permit) which was issued in 2003, required Hanson to develop, implement, and enforce a stormwater management plan (SWMP). A SWMP was first published by the Town on June 26, 2003, and will be updated after the General Permit is re-issued (scheduled for Fall, 2013). The objectives of the SWMP are to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA. These objectives are accomplished through the implementation of six (6) minimum control measures (MCM) required by the Phase II regulations:

- Public Education and Outreach (MCM #1)
- Public Involvement/Participation (MCM #2)
- Illicit Discharge Detection and Elimination (IDDE) (MCM #3)
- Construction Site Stormwater Runoff Control (MCM #4)
- Post-Construction Stormwater Management in New Development and Redevelopment (MCM #5)
- Pollution Prevention/Good Housekeeping for Municipal Operations (MCM #6)

As part of MCM #6, Pollution Prevention/Good Housekeeping for Municipal Operations, Section II.B.6 of the General Permit, this O&M Plan has been developed. In 2010, the EPA issued a draft General Permit for Stormwater Discharges from Small MS4’s in Massachusetts Interstate, Merrimack and South Coastal Watersheds (draft Permit). The draft Permit, which was to replace the 2004 General Permit, outlined the requirements for municipal MS4 O&M Plans. The O&M Plan for the Town of Hanson includes a description of structural and non-structural BMP’s under municipal control as well as recommended maintenance schedules and operations for all municipal stormwater structures. Long term operation and maintenance of stormwater BMP’s, when accepted by the municipality, become the responsibility of the Town of Hanson’s Highway Department (Hanson Highway). The Town may enter into a services agreement with a qualified outside party to perform the required maintenance of the BMP’s as well as providing the inspection records and maintenance logs of activity.

Inspection form templates are included to record observations and corrective actions taken for specific BMP’s. The completed inspection forms should be kept on file for a minimum of 3 years and the information used to update the O&M Plan as necessary. For example, if a particular catch basin is scheduled for annual inspection / cleaning and each time is found to contain accumulated sediments to within one (1) foot of the outlet, the inspection frequency should be revised accordingly. Information obtained from prior maintenance activities, inspection reports, citizen complaints as well as reports provided by Town departments such as the Conservation Commission among others, will be used to determine the appropriate priority level.
2.0 PERMIT REQUIREMENT ELEMENTS

The draft Permit details the requirements of an O&M Plan for stormwater infrastructure and includes the elements listed in Section 2.4.7.d.i through 2.4.7.d.f of the draft Permit, as detailed below. EPA Maps and corresponding TMDL Data are attached to this report as Appendix A.

- **Catch Basin Cleaning Program** – “the permittee shall optimize routine inspections, cleaning and maintenance of catch basins such that the following conditions are met:
  - …no sump shall be more than 50 percent full for any catch basins serving catchments draining to impaired waters where the pollutant of concern is sedimentation/siltation, Nitrogen (total) or Phosphorus (total).
  - Note: For the Town of Hanson, the only listed water body where the pollutant of concern is one of the above is the Shumatuscacant River, with siltation listed (see Appendix A).
  - …prioritize inspection and maintenance for catch basins located near construction activities…
  - …establish, for other catch basins, a schedule that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full…
  - …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…
  - …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 volume or mass of material removed from catch basins draining to impaired waters and the total volume or mass of material removed from all catch basins…”

- **Street Sweeping Program** – “the permittee shall establish and implement procedures for sweeping and/or cleaning streets, and permittee-owned parking lots… 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…The permittee shall report in each annual report the number of miles cleaned and the volume or mass of material removed.”

- **Outfall Maintenance** – “All permittee-owned outfalls shall be inspected annually at a minimum.”

- **Storage of Catch Basin Cleanings & Street Sweepings** – “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.”

- **Winter Road Maintenance** – “the permittee shall establish and implement procedures for winter road maintenance including the 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 surface waters…”

- **BMP Maintenance & Inspection Procedures** – “the permittee shall establish and
implement inspection and maintenance frequencies and procedures for the storm drain systems and 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.”

- **Reporting** – “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… and the maintenance activities associated with each…the permittee shall keep a written record of all required activities but not limited to maintenance activities, inspections and training…”

### 3.0 CATCH BASIN CLEANING PROGRAM

Traditional municipal storm drain systems were designed to quickly collect and convey runoff to receiving waters. The purpose of catch basin, inlet and storm drain cleanouts is to prevent blockages, flooding and reduce pollution.

Fine particles and pollutants from run-on, atmospheric deposition, vehicle emissions, breakup of street surface materials, littering, and sanding can accumulate along the curbs of roads in between rainfall events. This results in the accumulation of pollutants such as sediment, nutrients, metals, hydrocarbons, bacteria, pesticides, trash and toxic chemicals. Storm drain maintenance is often the last opportunity to remove pollutants before they enter the storm drain system. Because they effectively trap these pollutants, catch basins need to be cleaned out periodically to prevent those materials from being transported by high stormwater flows into the Town’s waterways and water resources.

The catch basin maintenance schedule should begin annually after the last spring snowfall. Inspection is to include the condition of the inlet structure grate, brick or concrete risers, oil hoods and inlet and outlet pipes. As applicable, each stormwater inlet should include a public awareness message (e.g. “drains to pond” or “only rain in this drain”) stenciled or otherwise marked near the drain. Catch basins with illegible or missing labels should be noted on the inspection report and be re-labeled before the next scheduled inspection. Damage or deterioration threatening the structural integrity of any component, conveyance or facility should be repaired as soon as possible but no longer than before the next scheduled inspection.

#### 3.1 Existing Catch Basin Cleaning Program

The Hanson Highway Department currently runs their catch basin cleaning program once per year, visiting all of their catch basins annually, typically in the early Spring. The Town performs the catch basin cleanings using a clam-shell device and also with manual labor for catch basins that have sumps that are too small for the clam-shell to enter. Historically, Hanson has not had issues with sediment build-up in their catch basin structures, and has not allowed sediment to build up in their catch basins beyond 50% full. This is primarily due to the Town’s mandate that all town catch basins are cleaned annually. Also, the Town cleans out manhole structures that have historic sediment buildup.

#### 3.2 Catch Basin Mapping and Inspections

There are 1,477 catch basins throughout Hanson have been previously mapped in the MS4 area (2000 + 2010 Census) in Geographic Information System (GIS) format using historic aerial
flyover data, handheld GPS units, and Highway Department employee knowledge. A town-wide mapbook has been prepared showing unique catch basin identifiers (CB-1001) to aid in accurately recording and cataloging data from field inspections. The mapbook is included with this report as Attachment 1 (stand-alone 11x17 set of maps).

In the event that there are additional catch basin structures visited in the field that have not been mapped, the field crew will sketch in the approximate location, and label with a temporary ID for future entry into the system. This will allow for the field crew to generate a historic record in the logging system for the new structures characteristics. The locations of the new catch basin structures will be captured in the future using a hand-held GPS unit.

During the catch basin cleaning program, the field crew will utilize the mapbook and a field inspection form in order to create a historic log for each structure. Items to be noted will include: condition of the grate cover, volume of sediment accumulated in the structure, date inspected/cleaned, marking paint condition, etc. The inspection form template for the catch basins is attached as Appendix B.

### 3.3 Catch Basin Structure Priority Ranking

This section of the O&M Plan is to be used in future years if the Town of Hanson decides due to budget or other constraints, to reduce the scope of their annual catch basin cleaning program (i.e., not cleaning every catch basin every year).

In that event, using the data collected during the field inspection program, the Town’s stormwater catch basins will be assigned a priority maintenance schedule according to the following criteria:

- **Priority A** – Catch basins that are designated as consistently generating the highest volumes of trash, sediment and/or debris
- **Priority B** – Catch basins that are designated as consistently generating moderate volumes of trash, sediment and/or debris
- **Priority C** – Catch basins that are designated as generating low volumes of trash, sediment and/or debris

The future inspection/cleaning schedule assignments would be as follows:

<table>
<thead>
<tr>
<th>BMP</th>
<th>Activity</th>
<th>Frequency</th>
</tr>
</thead>
</table>
| Catch Basin| Inspection / Cleaning| Priority A – one (1) time / year
|           |                     | Priority B – one (1) time / 2-years
|           |                     | Priority C – one (1) time / 3-years or as needed |
The catch basin is to be cleaned of accumulated sediments and debris either by mechanical methods when its depth is equal to or greater than 1/3 the depth from the bottom of the basin to the invert of the lowest outlet pipe. If a hydrocarbon sheen is noted on the surface of the water in the basin it shall be removed using absorbent pads; these pads will be allowed to dry prior to disposal in a solid waste dumpster pursuant to DEP’s “1-drip” policy.

The materials removed from the catch basin shall not re-enter the stormwater system. Non-hazardous sediments are to be disposed of at an approved solid waste landfill and used as daily cover in accordance with Massachusetts DEP policy and regulations. In cases where an inspection reveals sediments with abnormal, non-natural discoloration or detects strong petroleum and/or chemical odors, the crew performing the catch basin cleanings should notify the Hanson Fire Department for proper handling of hazardous materials. Also, a Licensed Site Professional (LSP) registered in the State of Massachusetts pursuant to MGL c.21A, §§ 19 through 19J shall be responsible for managing the disposal of such material in accordance with 310 CMR 40.0000 the Massachusetts Contingency Plan. Refer to Section 7.0 for proper catch basin cleaning material storage protocol.

4.0 STREET SWEEPING PROGRAM

Street and parking lot sweeping is a practice that most municipalities initially conducted for aesthetic purposes. However, the water quality benefits are now widely recognized. Street sweeping also prevents particulate matter associated with road dust from accumulating on public streets and washing into storm drains.

A number of factors impact the effectiveness of a street sweeping program. The first factor is the type of equipment used. When equipment needs to be replaced, high-performance sweepers are purchased preferentially. Street sweeping has traditionally been more effective at removing large-sized particles, but new equipment has been developed to remove smaller, fine-grained particles. Mechanical sweepers (broom-type) are usually the least expensive and are better suited to pick up large-grained sediment. Vacuum and regenerative air sweepers are better at removing fine-grained articles, but they are more expensive. Removal efficiency can be improved through tandem sweeping (i.e. two sweepers sweeping the same route, with one following the other to pick up missed material), or if the street sweeper makes multiple passes on a street.

The second factor influencing street sweeping effectiveness is the way in which the equipment is operated. That equipment must be operated according to the manufacturers’ operating instructions by operators who have been properly trained to sweep in order to protect water quality.

The third determining factor is the degree to which parked cars or similar blockages can impede a sweater’s access to the curb.

4.1 Existing Street Sweeping Program

The Hanson Highway Department currently runs their street sweeping program once per year, sweeping 62 miles of roads annually in the early Spring. The Town typically hires a Subcontractor to perform the street sweeping, and a Town Employee supervises the operations.
continuously. The department currently utilizes a “sweeper log” to track the date, number of loads taken, start/end times, names of streets swept, etc.

4.2 Street Sweeping Priority Ranking
The permittee shall establish and implement procedures for sweeping and/or cleaning streets, and permittee-owned parking lots. All streets with the exception of high speed limited access highways should 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 targets 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, impaired 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 and the volume or mass of material removed.

For uncurbed, limited access highways, the permittee shall either meet the minimum frequencies above, or develop and implement an inspection, documentation and targeted sweeping plan within one year of the effective date of the permit, and submit such plan with its year one annual report.

This schedule applies only to streets and municipal parking lots with curb/gutter construction. Other municipal roadways and parking lots will be prioritized according to the previous schedule and will include trash and litter control as well as hand sweeping and collection. Sweepings collected during sweeping activities are currently stockpiled at High Street and are targeted for use by the Town for the landfill capping activities. A Town-Wide GIS map will be drafted to display the designated priority zones to aid the Town in street sweeping optimization and planning for future activities. Refer to Section 7.0 for proper street sweeping material storage protocol.

5.0 BMP MAINTENANCE
An essential component of a successful municipal stormwater system is the ongoing operation and maintenance of the various components of the stormwater drainage and conveyance systems. Failure to provide effective maintenance can reduce the hydraulic capacity and the pollutant removal efficiency of stormwater practices. Ideally, a program should address operation and maintenance concerns proactively instead of reacting to problems that occur such as flooding or water quality degradation associated with erosion, clogging or outright failure of one or more practices.

There are two key components to adequately maintaining a stormwater management infrastructure:

1. Periodic and scheduled inspections, and

5.1 Subsurface Separators
Subsurface Separators provide a greater ability to trap and contain stormwater borne pollutants than standard catch basins. They are fitted with baffles and chambers that create a hydrodynamic separation of floatable and non-floatable particles. The Town does not have any subsurface
separators within its MS4 System at this time, but will adhere to the inspection process detailed within if a subsurface separator is to be installed in the future.

Subsurface Separators under operational control of the Town will be maintained annually.

Inspection of the subsurface separator will include the operational condition of any baffles and filters contained within the structure. The depth of sediment collected in the separator will also be measured. All floatable trash will be removed from the separator during each inspection. If a hydrocarbon sheen is noted on the surface of the water in the separator it shall be removed using absorbent pads; these pads will be allowed to dry prior to disposal in a solid waste dumpster pursuant to DEP’s “1-drip” policy. If the accumulated sediment is within 18 inches of the outlet elevation, it will be removed by vacuum or mechanical means. Disposal of all collected sediments will conform to the procedures described herein for disposal of sediments collected from municipal catch basins.

5.2 Water Detention/Retention Basins

Open stormwater detention/retention basins under operational control by the “Town” will be maintained annually.

The stormwater basins shall be inspected / cleaned annually to ensure proper operation of the system and all components. The basin inspection includes observing the condition of the inlet and outlet structures, the accumulation of sediment within the basin, evidence of oil/gas sheen, the accumulation of trash within the basin and the condition of vegetation within the basin. Any erosion noted must be repaired as soon as possible but no later than the next scheduled inspection. Repairs may include the replacement of displaced rip-rap and the repair of eroded banks. Repairs to vegetated banks will be stabilized with erosion control mats until sufficient vegetation has been established as evidenced by 75% new seeding growth. Sediment collecting in the basin will be removed when its depth reaches 6-inches anywhere in the basin. Disposal of all collected sediments will conform with the procedures described herein for disposal of sediments collected from municipal catch basins.

During the growing season, the basin will be mowed. All tree saplings will be removed from embankments and basin bottoms. Materials removed from the basin shall not re-enter the stormwater system. Vegetation collected from the basin will be transported to the Town’s composting facility.

The Town estimates that it has approximately 20 detention/retention basins within its MS4 System, specifically in newer developments. They are mapped on the attached Inspection Mapbook (Attachment 1) on pages 31, 32, 45, 47, 56, 73, 74, 82, 91, 96, 101, 102, 108, 114, 115, 116, and 118.

5.3 Water Quality Swales

Water Quality Swales under operational control by the town will be maintained annually.

The maintenance objective for this practice includes preserving the hydraulic and removal efficiency of the channel and maintaining a dense, healthy vegetative cover. The following
activities are recommended: mowing and litter and debris removal, stabilization of eroded side slopes and bottom, nutrient and pesticide use management, and de-thatching swale bottom.

Every five years, scraping of the channel bottom and removal of sediment to restore original cross section and infiltration rate, and seeding to restore ground cover is recommended.

Dry swales should be inspected on an annual basis and after storms of greater than or equal to the 1-year precipitation event. Both the structural and vegetative components should be inspected and repaired. Trash and debris should be removed and properly disposed of.

Wet swales should be inspected annually and after storms of greater than or equal to the 1-year precipitation event. During inspection, the structural components of the system, including trash racks, valves, pipes, and spillway structures should be checked for proper function. Any clogged openings should be cleaned out and repairs should be made where necessary. Sediment should be removed from the bottom of the swale.

6.0 OUTFALL MAINTENANCE

Pursuant to the draft Permit requirements, the Town will be required to visit every outfall (within the MS4 Area) to conduct field water quality screening and sampling events, as well as to conduct an inspection and to permanently identify each of the outfall structures (with tag or signage). The Town has already mapped and cataloged 195 outfalls within its MS4 System.

During the initial mapping and cataloging that took place between 2004 and 2010, there were a number of outfall structures that were deemed to be in “fair” or “poor” condition, 14 and 39 respectively, as stated in the Outfall Summary Report provided by Environmental Partners Group on January 26, 2005. As the Town visits each of the outfall structures, these historic records should be brought along and field-verified, to assess if any additional structures have deteriorated since the last inspection and need further attention. An Outfall Inspection Form Template is provided as Appendix D.

During the inspections, the outfalls should be cleared of any sediment buildup, trash or debris should be disposed of, as well as yard waste and/or tree limbs cleared, etc.

Once the Town has developed a list of outfall structures in need of repair, these repairs should be prioritized and scheduled for maintenance.

7.0 STORAGE OF CATCH BASIN CLEANINGS & STREET SWEEPINGS

This section of the report describes the storage of the Town’s Catch Basin Cleanings and Street Sweeping materials which are permanently stored at a Town-owned property off of High Street (see Figure 1). The procedures for properly managing these materials are further described in the SOP’s attached as Appendix E.

7.1 Street Sweepings

The Municipality’s street sweeping operations are mainly conducted once per year in the spring. The street sweepings are subsequently brought back to the Town-owned property off of High Street to the designated street sweeping stockpile area (Figure 1) and is currently being stored
there for future use as capping materials at the Hanson Landfill which is scheduled to be capped in the next few years. The annual amount generated is approximately 200-300 cubic yards.

7.2 Catch Basin Cleanings

The Municipality’s catch basin cleaning operations are conducted once per year in the spring. The cleanings are subsequently brought back to the Town-owned property off High Street to the catch basin cleanings stockpile area (Figure 1). The annual amount generated is approximately 100 cubic yards.

Figure 1 also shows the location of the High Street storage area and the proximity to localized wetlands and waterbodies surrounding the storage area; the areas are largely bermed; there is no direct route to discharge these materials to any receiving waters. Furthermore, the Highway Department has constructed a berm system surrounding the materials, to ensure no washout occurs.

8.0 Winter Road Maintenance

Municipalities justifiably want their roads to be as safe as possible. Because of this, the tendency to think that “more sand/salt is better” can be difficult to overcome. But several recent studies have shown that by using new techniques, equipment, and chemicals, roads can actually be safer with less salt use.

Winter maintenance teams can benefit from a program known as the “4 R’s.”

1. Use the Right Material. Stop using sand, except for low-speed intersections, curves and hills. Use a chemical that is effective at current road surface temperatures. Consider using alternate chemicals on bridges and in source water protection areas.
2. Use the Right Amount. The number one factor in applying salt is the surface temperature. Warmer roads need less salt. Consider purchasing inexpensive infrared thermometers for spreading trucks.
3. Apply at the Right Place. Put salt down where it will do most good. Hills, curves/corners, shaded sections of road, bridges, etc., need special attention. A section of road with surface temp below 10°F will not benefit from rock salt. Use another chemical instead. Designate sensitive areas as low or no salt zones.
4. Apply at the Right Time. Apply as early as possible! Obtain and use the most up-to-date weather forecasts. Do not wait until snow is falling to get started. It takes much more salt to melt accumulated snow than it does to prevent accumulation. Factor in expected traffic, approaching day/night change in temperatures, etc. Brine can be applied very early, forming a bond with the road that can be effective for days in the right conditions.

8.1 Sand Use

The Hanson Highway department has recently decreased the amount of sand used in their deicing operations by 50%. Their mix is typically all salt, or 75% salt and 25% sand. It is applied using Town-owned trucks.
8.2 Deicing Chemical Use
Hanson Highway uses salt for deicing, but not any other deicing chemicals at this time, only a mix of Salt and Sand. Their mix is typically all salt, or 75% salt, 25% sand. It is applied using Town-owned trucks.

8.3 Storage of Sand and Deicing Chemicals
Improper storage techniques can cause some of the most severe environmental damage from winter maintenance materials because they can result in highly concentrated runoff. Salt is the big offender, but because sand is mixed with salt, sand piles should also be included in a proper storage program.

Deicing chemicals (i.e. salt, calcium chloride, etc.) shall be stored in storage sheds or tanks in a manner that minimizes the potential for runoff. All deicing chemicals shall be covered when not in use. Sand piles shall be bermed to minimize runoff. During handling, sand and salt which fall outside of the storage areas will be swept back to the storage areas within 48 hours of the activity, to minimize runoff.

A properly stored salt/sand pile is:
  - Located away from source water protection areas, floodplains and wetlands
  - Sited on an impermeable (paved) pad, with a drain that directs runoff to proper treatment
  - Covered with a roof on at least 3 sides

During regular inspections, the sand and deicing chemical storage areas shall be inspected by the Highway Department to ensure that runoff is minimized. All findings during an inspection shall be sent to the Highway Surveyor.

Figure 2 shows the location of the sand and salt storage areas and the proximity to localized wetlands and waterbodies surrounding the storage area. Wamputuck Pond is approximately 500-feet away through a heavily wooded area; therefore, there is no direct route to discharge these materials to any receiving waters.

8.4 Snow Disposal Activities
The Town of Hanson does not perform any snow-removal activities; all snow is plowed to the side of the roads, and left to melt. There is no centralized snow storage facility where snow is trucked/stockpiled.

9.0 REPORTING AND RECORDKEEPING
The tracking and documentation of MS4 Maintenance and Operations is a required part of the permit program. All inspection forms will be recorded and stored at the Highway Office to ensure that the proper documentation is maintained and reported on the annual reports and that the relevant data is added to the Town’s GIS system database.

All catch basin and BMP inspections will be recorded on field forms (see Appendices B, C & D). Documentation of investigative, corrective and enforcement actions will be maintained by the Highway Surveyor who will ensure that these records are added to the GIS system database.
The Town plans to collect the data using the paper forms during the first year of inspections, and possibly transferring over to a digital format in the coming years.

10.0 TRAINING
This component of the O&M Plan establishes the procedures for identifying, planning, delivering and tracking training. The training is provided to Highway Department staff as necessary to maintain knowledge and skills that help ensure that they understand their roles and responsibilities and can adequately perform their duties as they relate to supporting the standard operating procedures outlined in this O&M Plan. Training is provided to Highway Department employees through three basic means: 1) Annual Environmental Awareness Training; 2) Right-to-Know Training; 3) Regulatory Specific Training (e.g., Stage II vapor recovery equipment inspections).

The Highway Surveyor is responsible for identifying the personnel that require training based upon job duties and how those duties relate to environmental compliance. It is not mandatory that all inspectors be trained engineers, but they should have some knowledge or experience with stormwater systems. In general, trained stormwater engineers should, however, direct them. Inspections by registered engineers should be performed where routine inspection has revealed a question of structural or hydraulic integrity affecting public safety.

10.1 Training Lead
For those staff responsible for implementing the O&M program, on the job training will be managed by the Highway Surveyor. He will manage and assign training as described below.

The Town shall, at a minimum, annually train all public works employees or other employees involved in the implementation of the O&M program about the program. The Town shall report on the frequency and type of employee training in the annual report.

10.2 Training Plan
Training will be assigned to those individuals specifically involved in the O&M procedures.

Note that the Town may elect to retain consultants for development of the O&M structure database, and associated mapping tasks. Preliminary training activities, a schedule and identification of those to receive training are listed in the following table:

<table>
<thead>
<tr>
<th>Training Topic</th>
<th>Attendees</th>
<th>Estimated number of Attendees</th>
<th>Training Type and Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O&amp;M – Program field staff</td>
<td>Any staff responsible for CBs, BMPS and/or outfalls</td>
<td>2</td>
<td>In-field training</td>
<td>This training is for staff that will be responsible for field assessment of structures</td>
</tr>
</tbody>
</table>
| O&M/IDDE – General           | All field staff                        | 10                           | Lunch-and-Learn Session     | This training will explain the **Environmental Partners Group, Inc.**
11.0 MEASUREMENT OF SUCCESS
The success of the O&M program will be measured by each of the elements outlined in the previous sections. Specifically, the following benchmarks will be used:
- # of Catch Basins cleaned annually:
- Amount of material removed from catch basins discharging to sensitive waters:
- # of street miles of street sweepings conducted annually:
- Amount of material removed from streets adjacent to sensitive waters:
- # of BMPs maintained:
- # of Outfalls repaired:
- Training: # of Employees trained

12.0 REFERENCES

Environmental Protection Agency, Draft General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts Interstate, Merrimack and South Coastal Watersheds, October 2010.


FIGURES

Figure 1 – Storage Location of Street Sweepings and Catch Basin Cleanings
Figure 2 – Storage Location of Salt and Sand Supplies
Figure 1: Storage Location of CB Cleanings & Street Sweepings
MS4 O&M Manual
Town of Hanson, MA
April 2013
Figure 2: Storage Location of Salt & Sand Supplies
MS4 O&M Manual
Town of Hanson, MA
April 2013
APPENDIX A

Town of Hanson Urbanized Area Map
Town of Hanson TMDL Map/Data
NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas

Hanson, Massachusetts

Area of Focus:

- Hanson Town Boundary
- Regulated Area (2000 Urbanized Area)

Town Population: 9,495
Regulated Population: 8,863

# Summary of Waterbody Assessment and TMDL Status in Massachusetts

**Hanson, MA**

<table>
<thead>
<tr>
<th>ID</th>
<th>Waterbody Name</th>
<th>Watershed Name</th>
<th>Category</th>
<th>Acres [In Town - Total]</th>
<th>Miles [In Town - Total]</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA62-33_2008</td>
<td>Shumatuscacant River</td>
<td>Taunton</td>
<td>5</td>
<td>1.4</td>
<td>8.5</td>
<td>Organic enrichment/Low DO</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other habitat alterations* Pathogens Siltation</td>
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<tr>
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<td>Poor Meadow Brook</td>
<td>Taunton</td>
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<td>4.8</td>
<td>6.9</td>
<td>Metals Nutrients</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Organic enrichment/Low DO</td>
</tr>
<tr>
<td>MA94-04_2008</td>
<td>Indian Head River</td>
<td>South Coastal</td>
<td>5</td>
<td>0.4</td>
<td>2.9</td>
<td>Metals Nutrients</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Organic enrichment/Low DO</td>
</tr>
<tr>
<td>MA62119_2008</td>
<td>Monponsett Pond</td>
<td>Taunton</td>
<td>5</td>
<td>8.52</td>
<td>282.79</td>
<td>Exotic species* Mercury</td>
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<td></td>
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<td></td>
<td></td>
<td>Noxious aquatic plants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nutrients Turbidity</td>
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<td>MA62157_2008</td>
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<td>Taunton</td>
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<td>13.2</td>
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<td>Noxious aquatic plants</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nutrients Turbidity</td>
</tr>
</tbody>
</table>

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1) Adapted from Final Massachusetts Year 2008 Integrated List of Waters (CN 281.1, 12/2008); available at [http://www.mass.gov/dep/water/resources/08list2.pdf](http://www.mass.gov/dep/water/resources/08list2.pdf)
2) For additional information on TMDLs and to view reports, see: [http://www.mass.gov/dep/water/resources/tmdls.htm](http://www.mass.gov/dep/water/resources/tmdls.htm)
3) For Massachusetts Surface Water Quality Standards, and waterbody classes and uses, see: [http://www.mass.gov/dep/service/regulations/314cmr04.pdf](http://www.mass.gov/dep/service/regulations/314cmr04.pdf)

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**Assessment of Waterbody Segment**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 2</td>
<td>Attaining some uses; other uses not assessed</td>
</tr>
<tr>
<td>Category 3</td>
<td>Insufficient information to make assessments for any use</td>
</tr>
<tr>
<td>Category 4a</td>
<td>TMDL is completed</td>
</tr>
<tr>
<td>Category 4c</td>
<td>Impairment not caused by a pollutant</td>
</tr>
<tr>
<td>Category 5</td>
<td>Impaired or threatened for one or more uses and requiring a TMDL</td>
</tr>
</tbody>
</table>

**Note:** The accuracy of mileage and acreage estimates is limited for waterbodies that serve as or span municipal boundaries.
### Summary of Waterbody Assessment and TMDL Status in Massachusetts

**Hanson, MA**

<table>
<thead>
<tr>
<th>ID</th>
<th>Waterbody Name</th>
<th>Watershed Name</th>
<th>Category</th>
<th>Acres In Town - Total</th>
<th>Miles In Town - Total</th>
<th>Cause</th>
<th>TMDL</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Maquan Pond</td>
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<td>Oldham Pond</td>
<td>South Coastal</td>
<td>4c</td>
<td>43.32</td>
<td>231.86</td>
<td>Organic enrichment/Low DO</td>
<td>Turbidity</td>
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<tr>
<td>MA94168_2008</td>
<td>Wampatuck Pond</td>
<td>South Coastal</td>
<td>5</td>
<td>62.88</td>
<td>62.88</td>
<td>Nutrients</td>
<td></td>
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<tr>
<td>MA94175_2008</td>
<td>Factory Pond</td>
<td>South Coastal</td>
<td>5</td>
<td>1.16</td>
<td>51.4</td>
<td>Metals</td>
<td></td>
</tr>
</tbody>
</table>

1) Adapted from Final Massachusetts Year 2008 Integrated List of Waters (CN 281.1, 12/2008); available at [http://www.mass.gov/dep/water/resources/08list2.pdf](http://www.mass.gov/dep/water/resources/08list2.pdf)
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**Assessment of Waterbody Segment**

- **Category 2** - Attaining some uses; other uses not assessed
- **Category 3** - Insufficient information to make assessments for any use
- **Category 4a** - TMDL is completed
- **Category 4c** - Impairment not caused by a pollutant
- **Category 5** - Impaired or threatened for one or more uses and requiring a TMDL

**Note:** The accuracy of mileage and acreage estimates is limited for waterbodies that serve as or span municipal boundaries.
APPENDIX B

Catch Basin Inspection Form Template
## Catch Basin Inspection Form

### General Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS CB ID</td>
<td>(To be provided by the Mapbook)</td>
</tr>
<tr>
<td>GIS Grid Page #</td>
<td>(To be provided by the Mapbook)</td>
</tr>
<tr>
<td>Inspector Name</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td></td>
</tr>
<tr>
<td>Street Address</td>
<td></td>
</tr>
</tbody>
</table>

### Inspection Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather</td>
<td>Dry</td>
</tr>
<tr>
<td>Location</td>
<td>Road Curbside</td>
</tr>
<tr>
<td></td>
<td>Driveway</td>
</tr>
</tbody>
</table>

### CB Surface Type

<table>
<thead>
<tr>
<th>Surface Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt</td>
<td></td>
</tr>
<tr>
<td>Gravel</td>
<td></td>
</tr>
<tr>
<td>Concrete</td>
<td></td>
</tr>
<tr>
<td>Grass/Dirt</td>
<td></td>
</tr>
</tbody>
</table>

### Grate Size

<table>
<thead>
<tr>
<th>Size</th>
<th>ft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X ft</td>
</tr>
</tbody>
</table>

### Cleaned

<table>
<thead>
<tr>
<th>Cleaned</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

### Depth of Sediment

<table>
<thead>
<tr>
<th>Depth</th>
<th>1/4</th>
<th>1/2</th>
<th>3/4</th>
<th>Full</th>
</tr>
</thead>
</table>

### Materials

<table>
<thead>
<tr>
<th>Grate</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cast Iron</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame</td>
<td></td>
</tr>
<tr>
<td>Collar</td>
<td></td>
</tr>
<tr>
<td>Cone/Flat Top</td>
<td></td>
</tr>
<tr>
<td>Riser/Walls</td>
<td></td>
</tr>
<tr>
<td>Trap/Hood</td>
<td></td>
</tr>
<tr>
<td>Sump</td>
<td></td>
</tr>
</tbody>
</table>

### Area of Impaired Water Body

<table>
<thead>
<tr>
<th>Area of Impaired Water Body</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

### Nearby Construction Activities

<table>
<thead>
<tr>
<th>Nearby Construction Activities</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

### Catch Basin Marking Paint

<table>
<thead>
<tr>
<th>Catch Basin Marking Paint</th>
<th>Good Condition</th>
<th>Needs Repainting</th>
<th>No Paint</th>
</tr>
</thead>
</table>
APPENDIX C

BMP Inspection Form Template
# Stormwater Controls Site Inspection Report

<table>
<thead>
<tr>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS BMP ID</td>
</tr>
<tr>
<td>(To be provided by mapbook)</td>
</tr>
<tr>
<td>GIS Grid Page #</td>
</tr>
<tr>
<td>(To be provided by mapbook)</td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Location/Street Name/Address</td>
</tr>
<tr>
<td>Date of Inspection</td>
</tr>
<tr>
<td>Inspector’s Name(s)</td>
</tr>
<tr>
<td>Inspector’s Title(s)</td>
</tr>
<tr>
<td>Inspector’s Contact Information</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Inspection:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Regular</td>
</tr>
<tr>
<td>☐ Pre-storm event</td>
</tr>
<tr>
<td>☐ During storm event</td>
</tr>
<tr>
<td>☐ Post-storm event</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weather Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather at time of this inspection?</td>
</tr>
<tr>
<td>☐ Clear</td>
</tr>
<tr>
<td>☐ Cloudy</td>
</tr>
<tr>
<td>☐ Rain</td>
</tr>
<tr>
<td>☐ Sleet</td>
</tr>
<tr>
<td>☐ Fog</td>
</tr>
<tr>
<td>☐ Snowing</td>
</tr>
<tr>
<td>☐ High Winds</td>
</tr>
<tr>
<td>☐ Other:</td>
</tr>
<tr>
<td>Temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BMP Maintenance Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Yes</td>
</tr>
<tr>
<td>☐ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Corrective Actions Needed and Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D

Outfall Inspection Form Template
## Outfall Pipe Inspection Report

### General Information

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<thead>
<tr>
<th>GIS Outfall ID</th>
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</thead>
<tbody>
<tr>
<td>(To be provided by mapbook)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>GIS Grid Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>(To be provided by mapbook)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location/Street Name/Address</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Date of Inspection</th>
<th>Start/End Time</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Inspector’s Name(s)</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Inspector’s Title(s)</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Inspector’s Contact Information</th>
<th></th>
</tr>
</thead>
</table>

### Type of Inspection:

- [ ] Regular
- [ ] Pre-storm event
- [ ] During storm event
- [ ] Post-storm event

### Weather Information

<table>
<thead>
<tr>
<th>Weather at time of this inspection?</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Clear</td>
</tr>
<tr>
<td>[ ] Rain</td>
</tr>
<tr>
<td>[ ] Fog</td>
</tr>
<tr>
<td>[ ] High Winds</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature:</th>
<th></th>
</tr>
</thead>
</table>

### Outfall Structure Information

<table>
<thead>
<tr>
<th>Type of Structure</th>
<th></th>
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</table>

<table>
<thead>
<tr>
<th>Pipe Condition</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pipe Submerged</th>
<th>Material</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Headwall Type</th>
<th>Headwall Condition</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Visual Characteristics (aesthetics, deposits/stains, erosion, vegetation)</th>
<th></th>
</tr>
</thead>
</table>

| Maintenance Required | [ ] Yes | [ ] No |
| Repair Required      | [ ] Yes | [ ] No |

### Corrective Actions Needed and Additional Notes

<p>| | |</p>
<table>
<thead>
<tr>
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<th></th>
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<table>
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<p>| | |</p>
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<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
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<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
APPENDIX E

Standard Operating Procedures (SOPs)
Sand & Deicing Chemicals
Catch Basin Cleanings
Street Sweeping Material Storage
SUBJECT: Management of Sand and Deicing Chemicals at Highway Facilities

PURPOSE
To ensure that sand and deicing chemicals are managed consistent with environmental regulations.

RESPONSIBILITY
It is the responsibility of the Highway Division General Foreman to report leaks in sheds/tanks and other problems to the Director of Operations. It is the Highway Division’s General Foreman’s responsibility to ensure that spilled deicing chemicals are cleaned up and put back to the storage area within 48 hours.

The Director of Operations is responsible for ensuring regular inspections of the sand and deicing chemical storage areas during regular inspections.

POLICY
Deicing chemicals (i.e. salt, calcium chloride, etc.) shall be stored in storage sheds or tanks in a manner that minimizes the potential for runoff. All deicing chemicals shall be covered when not in use. Sand piles shall be bermed to minimize runoff. During handling, sand and salt which fall outside of the storage areas will be swept back to the storage areas within 48 hours of the activity, to minimize runoff.

During regular inspections, the sand and deicing chemical storage areas shall be inspected by the Highway Division General Foreman or designee to ensure that runoff is minimized. All findings during an inspection shall be sent to the Highway Director of Operations.
SUBJECT: The Handling and Storage of Catch Basin Cleanings at Highway Yard

PURPOSE
To provide guidance on the handling and storage of catch basin cleanings.

This policy does not cover cleanings collected by highway contractors. Highway contractors are fully responsible for the reuse and/or disposal of sweepings according to Department of Environmental Protection (DEP) policy. Under no circumstances are private contractors allowed to dump cleanings on Highway property.

RESPONSIBILITY
It is responsibility of the Highway Division General Foreman to ensure that cleanings are handled in compliance with this policy and other applicable state and federal regulations.

POLICY
Catch basin cleanings are solid materials such as leaves, sand and twigs removed from storm water collection systems during cleaning operations and are typically classified as a solid waste.

Stockpiles of Catch Basin Cleanings are to be stored in a labeled accumulation area at the Highway Yard that ensures the prevention of dust, erosion, and off-site migration. This is generally accomplished by marking the perimeter of the stockpile of Catch Basin Cleanings with signage and linked jersey barriers/berms, and locating the stockpile in an area where the grades do not allow for the on-site run-on or off-site migration of stormwater from the stockpile.

The cleanings must not be stored within the 100-foot Buffer Zone of a Wetland, within a Wetland Resource Area or within the 200 foot Riverfront Area.

Except as explained below, catch basin cleanings from storm water-only drainage systems may be disposed at any landfill that is permitted by DEP to accept solid waste.

DEP does not routinely require storm water only catch basin cleanings to be tested before disposal, unless there is evidence that they have been contaminated by a spill or some other means. Contaminated catch basin cleanings must be evaluated in accordance with the Hazardous Waste Regulations, 310 CMR 30.000, and handled as Hazardous Waste if appropriate.
SUBJECT: The Handling and Storage of Catch Basin Cleanings at Highway Yard

Landfill Restrictions

MassDEP regulations found at 310 CMR 19.130(7) prohibit Massachusetts landfills from accepting materials that contain free draining liquids. When there is no free water in a truck used to transport catch basin cleanings, the material is considered to be sufficiently dry.

One way to remove liquids is to use a hydraulic lift truck during catch basin cleaning operations so that the material can be decanted at the site. After material from several catch basins along the same system is loaded, the truck may be elevated so that any free draining liquid is allowed to flow back into the drainage structure.

DEP may approve catch basin cleanings for use as grading and shaping material at landfills undergoing closure. Catch basin cleanings may be used as daily cover or grading material at active landfills only with specific DEP approval of the proposed use.

BUD?? Does Hanson have this?
SUBJECT: The Handling and Storage of Street Sweepings at Highway Yard

PURPOSE
To provide guidance on the handling and storage of street sweepings.

Street sweepings are defined as sand and soil generated during the routine cleaning of roadways. Street sweepings may also contain leaves and other miscellaneous solid waste. Street sweepings do not include the material swept from the road surface that has resulted from hazardous materials spills or material cleaned from other roadway structures such as catch basins or other drainage structures.

This policy does cover sweepings collected by DPW contractors. Highway contractors are fully responsible for the reuse and/or disposal of sweepings according to Department of Environmental Protection (DEP) policy. Under no circumstances are private contractors allowed to store sweepings on Highway property.

RESPONSIBILITY
It is responsibility of the Highway Division General Foreman and his designee (Loader Operator) to ensure that sweepings are handled in compliance with this policy and other applicable state and federal regulations.

POLICY
This policy is based upon the DEP Policy #94.092 “Reuses and Disposal of Street Sweepings.” The DEP policy is attached and must be followed as part of this policy.

Street Sweepings are to be stored in a labeled accumulation area at the Highway Yard that ensures the prevention of dust, erosion, and off-site migration. This is generally accomplished by marking the perimeter of the stockpile of Sweepings with signage and linked jersey barriers/berms, and locating the stockpile in an area where the grades do not allow for the off-site migration of stormwater from the stockpile.

The sweepings must not be stored within the 100-foot Buffer Zone of a Wetland, within a Wetland Resource Area or within the 200 foot Riverfront Area.

Sweepings collected from urbanized areas (non-residential areas) should be stockpiled separately from sweepings collected from other areas. These two types of street sweepings should be stored in separate accumulation areas so that non-urbanized sweepings can be more
SUBJECT: The Handling and Storage of Street Sweepings at Highway Yard

Easily reused. Storage of street sweepings is temporary. Street sweepings should not be stored for longer than one year.

Street Sweeping Reuse and Disposal: As indicated in the DEP policy, there are options for reuse that require no analytical testing or DEP oversight. Options for reuse (construction fill, compost additive, reaplication, etc.) will be evaluated on a case by case basis by the DPW Director of Operations.

Disposal of street sweepings as solid waste or as cover material is allowed at permitted solid waste landfills.

Street sweepings collected from urban areas must have analytical testing conducted before reuse. If testing is required for disposal or reuse, each stockpile of sweepings must be tested (1 sample/1000 cubic yards).
ATTACHMENT 1

Town of Hanson Map Book
Note: Additional Catch Basins and BMP Structures may exist. Please add missing structures to mapbook for future digitization.

1 inch = 200 feet
Note: Additional Catch Basins and BMP Structures may exist. Please add missing structures to mapbook for future digitization.

1 inch = 200 feet
Legend

- MS4 Area CB
- Other CB
- MS4 Area BMP
- Other BMP
- Manholes
- Stormdrain Pipes
- Headwalls
- No Drainage
- Leaching System
- MS4 Area - 2010 Census
- Town Line
- Easements
- Marshes
- Ponds

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- MS4 Area BMP
- Other BMP
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- Headwalls
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- Leaching System
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Town of Hanson, MA
CB & BMP O&M Inspection
Mapbook - May 2013

Environmental 22 Partners
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Legend
- MS4 Area CB
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Town of Hanson, MA CB & BMP O&M Inspection Mapbook - May 2013
Environmental Partners

Page 043
Indian Head Pond

Indian Island Pond

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Legend
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- Headwalls
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- Leaching System
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