# STORMWATER MANAGEMENT PLAN (SWMP)

Town of Freetown

September 2022

ENVIRONMENTAL PARTNERS

— An Apex Company —

## Stormwater Management Plan (SWMP) Revision History

**MS4 Materials that supplement the 2019 SWMP Document**

| Revision # | Date | Comments |
|---|---|---|
| 0 | 6/2019 | SWMP Published for Town Comment |
| 1 | 2/2022 | Updated Text, SSO Inventory, Impairments, and Figures; Attached Year 1, 2, and 3 Annual Reports |
| 2 | 9/2022 | Updated Text, SSO Inventory, Impairments, and Figures; Attached Year 4 MCM-5 Memos (Green Infrastructure Regulatory Assessment, Impervious Surface Regulatory Assessment, Municipal BMP Retrofit Analysis) |
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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

Signature _____ Date

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# SECTION 1 BACKGROUND

## SECTION 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 an effort by the Environmental Protection Agency (EPA) to preserve, protect, and improve the Nation's water resources from polluted stormwater runoff. The Phase II Rule expands the Phase I program by requiring additional programs and practices to control polluted stormwater runoff from small Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas and construction sites, through the use of National Pollution Discharge Elimination System (NPDES) permits. 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 U.S. Census-designated Urbanized Area are required to seek NPDES permit coverage for those stormwater discharges.

## SECTION 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" (e.g., cities and towns) and "non-traditional" (e.g., 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 small MS4 General Permit, which became effective on July 1, 2018.

## SECTION 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 2016 MS4 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. Additionally, MS4 reports (Operations and Maintenance Plan, Illicit Discharge Detection and Elimination Plan, etc.), annual reports, and inspection reports should be attached to the SWMP as appendices. Thus, the SWMP should act as a living document that records the permittee’s planned and completed progress toward meeting the MS4 Permit requirements.

The main elements, or minimum control measures (MCMs) 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.

## SECTION 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 Massachusetts Department of Environmental Protection. The Town of Freetown and its surrounding water bodies are shown on Figure 1: System Locus. The Notice of Intent (NOI) for coverage under the Small MS4 General Permit was submitted to EPA and MassDEP on September 27, 2018. A copy of the NOI is provided in Appendix B.

# SECTION 2 SWMP COMPONENTS

## SECTION 2.1 PARTIES INVOLVED IN IMPLEMENTATION

Stormwater programs in the Town of Freetown are currently primarily the responsibility of Deborah Pettey, Interim Town Administrator, and Victoria D'Antoni, Planning Board Technician. The Town has not yet created/staffed a stormwater management position. However, the current departments involved in stormwater management are listed in the table below:

**Table 2-1: List of Parties Responsible for SWMP Implementation**

| Name | Title | Department |
|---|---|---|
| Deborah L. Pettey | Interim Town Administrator | Town of Freetown |
| Victoria D'Antoni | Planning Technician | Planning Board |
| Charles Macomber | Highway Surveyor | Highway Department |
| Victoria King | Transfer Station Supervisor | Transfer Station |
| Keven V. Desmarais | Board of Health Agent | Board of Selectman/ Board of Health |
| Trevor Matthews | Board of Selectmen Chairman | Board of Selectman/ Board of Health |
| Jared Zager | Board of Health Chairman | Board of Selectman/ Board of Health |
| Nicolas Velozo | Zoning Board of Appeals Chairman | Zoning Board of Appeals |
| Jeffrey Chandler | Building Commissioner and Zoning Enforcement Agent | Building Department |
| S. Chandler | Senior Clerk | Water & Sewer Commission |
| Mike McCue | Open Space Consultant | Conservation Commission |

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.

## SECTION 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 Freetown's eligibility determination of Criterion C with regard to federal Endangered and Threatened Species and Critical Habitat Protection. Criterion C states that, "determination is made by EPA, or by the applicant and affirmed by EPA, that the stormwater discharges and discharge related activities will have "no affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS." In this case, 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 Information for Planning and Consultation (IPaC) environmental review process. Using the IPaC environmental review process, two endangered species have been identified within Freetown's boundaries: the Northern Long-Eared Bat and the Plymouth Redbelly Turtle. Neither the Northern Long-Eared Bat nor the Plymouth Redbelly Turtle's critical habitats are located within the Town. The MS4 Permit activities will not adversely affect these species within the MS4 area.

## SECTION 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 Freetown'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).

## SECTION 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 U.S. 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 Freetown has no new discharges. Moving forward, Freetown will continue to 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.

## SECTION 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 five

calendar days of the time you become aware of the overflow, bypass, or backup.

On, November 22, 2021, a sudden release of an estimated 25 gallons of diesel fuel occurred from a refrigeration tank on a parked tractor trailer located at a Stop- & Shop warehouse in Freetown. On site structures that were affected by the spill include the surrounding asphalt pavement and one (1) catch basin. Clean Harbors Environmental Services, Inc. (CHES) mitigated the spill by applying absorbents and pumping out the affected catch basin. CHES maintains that the diesel fuel did not contaminate any nearby soil, surface water, or the underlying groundwater aquifer, and that the site has been restored to pre-exiting conditions. The site is considered to be at a level of No Significant Risk with respect to human health and the environment.

The Town maintains an inventory of all known locations where SSOs have discharged to the MS4, 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 connection of flow between the systems. A SSO inventory form is provided in Appendix G and is updated annually. The inventory 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.

## SECTION 2.6 IDDE PROGRAM AND BYLAWS

The Town's IDDE plan was developed during the first year of the new permit (i.e., June 30, 2019). The IDDE program is detailed in section 3.3 of Minimum Control Measures. Draft Stormwater Management and Erosion Control Bylaw and Illicit Discharge Bylaw have been drafted, and once passed, the Bylaws will be attached as Appendix H. The Town has also developed Draft Regulations as well to accompany the Bylaw.

## SECTION 2.7 SEDIMENT AND EROSION CONTROL PROCEDURES

Written procedures for the Town's site inspections and enforcement of sediment and erosion control procedures are detailed in Minimum Control Measures sections 3.4 and 3.5 and are in accordance with part 2.3.5 of the MS4 Permit, Construction Site Stormwater Runoff Control. This information includes the party responsible for site inspections and implementation of procedures.

## SECTION 2.8 PUBLIC DRINKING WATER SUPPLY SOURCES PROTECTION

The Town has developed practices in an 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 Housekeeping and Pollution Prevention. The Town plans to prioritize the enforcement of the existing stormwater pollution prevention plans.

## SECTION 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.

## SECTION 2.10 ANNUAL PROGRAM EVALUATION

To comply with part 4.1 of the MS4 Permit, the Town annually self-evaluates compliance with the terms and conditions of the MS4 Permit and submits each self-evaluation as part of the Fiscal Year annual report. The NPDES Phase II Small MS4 General Permit Annual Reports for Fiscal Year 2018 through the most recent Fiscal Year are attached in Appendix I.

# SECTION 3 MINIMUM CONTROL MEASURES

In effort to reduce pollutants and comply with part 2.3 of the MS4 Permit, the Town focuses on the following six minimum control measures detailed in this section. 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 detailed in Appendix J.

## SECTION 3.1 PUBLIC EDUCATION AND OUTREACH

The Town implements an education program that includes educational goals based on stormwater issues of significance within the MS4 area. The ultimate objective of a public education program, MS4 Permit part 2.3.2, is to increase knowledge and change the behavior of the public so that pollutants in stormwater are reduced.

The Town implemented a public education program as required by the 2003 permit and continues that program with the necessary adjustments to meet the additional requirements of the 2016 MS4 Permit. The program includes education messages targeted to the following four audiences: (1) residents, (2) businesses, institutions (churches, hospitals), and commercial facilities, (3) developers (construction), and (4) industrial facilities.

### Section 3.1.1 Background

Public involvement and participation efforts are implemented by the Highway Department using educational materials from various sources, such as the EPA, Think Blue Massachusetts, and the Taunton River Watershed Alliance. On February 24, 2015, The Town posted an informational brochure on the "Stormwater and YOU" page of the Town website, titled "After the Storm, A Citizens Guide to Understanding Stormwater." This brochure, provided by the EPA, includes stormwater pollution prevention actions targeted to residents, commercial facilities, construction companies, as well as other industries, and remains available for ongoing reference. Supplemental educational material on the Town's website includes "A Homeowners Guide to Healthy Habits for Clean Water" which has also remained available for ongoing reference since the aforementioned date. In addition, The Town periodically shares educational messages from Think Blue Massachusetts on their Town of Freetown Facebook page, which as of September 2022 has 2,900 followers. These messages cover topics such as spring leaf clippings, fertilizer use, pet waste management, leaf litter collection and disposal, and septic system maintenance.

### Section 3.1.2 Best Management Practices

I. Distribution of a minimum of two educational messages over the permit term to the required audiences, as listed below. Implementation is ongoing.
    a. Residents
        i. Maintain stormwater website with hyperlinks to stormwater related bylaws.
            1. https://www.freetownma.gov/conservation-commission/pages/stormwater-and-you

ii. Keep outreach materials at Library and Town Hall and publish on stormwater website once developed, utilizing materials from the DEP, EPA, and Taunton River Watershed Association.
iii. Distribute New Resident packets to residents within Wetland Protection Areas.
iv. Distribute pet waste control information to residents when they (re)apply for a pet license.
v. Continue storm drain stenciling program.

b. Businesses, Institutions, and Commercial Facilities
   i. Include stormwater information in permit materials.
   ii. Make information available on stormwater website and at Town Hall.
   iii. Distribute information to septic maintenance contractors.

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

d. Industrial Facilities
   i. Distribute stormwater information to industrial groups based on zoning and property use.
   ii. Make information available on stormwater website and at Town Hall.

# SECTION 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 also is given the chance to review the SWMP and its implementation.

## Section 3.2.1 Background

Residents can get involved in stormwater management and pollution prevention by participating in the two Household Hazardous Waste (HHW) Days that are scheduled annually in cooperation with regional Towns, or the Taunton River Watershed Alliance annual Water Quality Monitoring Programs in which community volunteers engage in trash clean-up events, stormwater pollutant water quality testing, and other community-based events. The Town also supports local clean-ups of various community areas held by Freetown Lakeville Athletics Association and the Bristol County Sheriff's Department/Assonet Bay Shores Association.

Public meetings with watershed/waterbody associations are posted to the Town website along with events and activities for public involvement. Each year residents have the opportunity to review and provide input on the SWMP. Additionally, the Town plans to present revisions to the stormwater bylaw for public review at a future public meeting.

## Section 3.2.2 Best Management Practices

I. Public Review
   A. Stormwater Management Plan Review
      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).
         a) Make physical copy available at Town Hall, Library, Highway Department, etc.

II. Public Participation
   A. Participate in local stormwater groups/associations (e.g. Taunton River Watershed Alliance, Assonet Bay Shores Association).
   B. Maintain/Acquire membership with other local water quality committees.

III. Continue to host hazardous waste collection days.

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

V. Continue to post information on Town website to encourage participation in water monitoring activities in partnership with the Taunton River Watershed Association.

VI. Reestablish the poster contest in-house by soliciting sponsorships from local businesses to create stormwater awareness phone app.

# SECTION 3.3 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM

The Town has implemented an IDDE program, per MS4 Permit part 2.3.4, in order to find and eliminate non-stormwater discharge sources. Procedures have been implemented to fix any prevalent issues in the Town's storm sewer system. The following 33 outfall structures listed in the table below discharge to the Town of Freetown's MS4 area. These outfall structures are displayed on Figure 2: MS4 Urbanized Areas, and the Town's inventory of outfall structures are shown in Figure 4: Stormwater System Map. Below, Table 3-1 lists the Town's impaired waters, the impairments per waterbody, and any associated final Total Maximum Daily Load (TMDL) report numbers. Impairments will be discussed further in Section 4.

**Table 3-1: Impaired Waters, TMDLs, and Impairments**

| Waterbody Name | Segment ID | Category | Impairment(s) | Associated Approved TMDL* |
|---|---|---|---|---|
| Assonet River | MA62-20 | 4a | • Fecal Coliform | 40309 |
| | MA62-19 | 4c | • Fish Passage Barrier | |
| East Freetown Pond | MA62063 | 4c | • Non-Native Aquatic Plants | |
| Long Pond | MA62108 | 4c | • Fanwort<br>• Non-Native Aquatic Plants | |

| Waterbody Name | Segment ID | Category | Impairment(s) | Associated Approved TMDL* |
|---|---|---|---|---|
| Unnamed Tributary | MA62-42 | 5 | • Fish Bioassessments<br>• Benthic Macroinvertebrates | |

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 Massachusetts 2018/2020 List of Integrated Waters (February 2022).

## Section 3.3.1 Background

The Freetown IDDE bylaws have been developed and reviewed to include Town Meeting articles, and a procedure for non-stormwater discharges was established in bylaw amendments to mitigate illegal dumping (see article 27 of the Town bylaws, attached in Appendix H). Town stormwater infrastructure has been mapped in the geographic information systems (GIS) and will continue to be updated when new features are installed. The Town currently provides sanitary sewer service to the Stop & Shop Distribution Center off South Main Street and a small population of residents near the City of Fall River border. The Town has an existing inter-municipal agreement with the City of Fall River to convey untreated wastewater from the Town of Freetown into the City's sewer collection system for treatment at the Fall River Regional Wastewater Treatment Facility. Therefore, the focus for IDDE in Town is on failing septic systems and/or possible sanitary sewer connections to the municipal stormwater system.

## Section 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. This 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. The Bylaw and Accompany Regulations have been drafted.

II. SSO Inventory
   a. Develop SSO Inventory Database within one year of effective permit date that logs historical SSOs that have occurred in the last five years, as discussed in further detail in section 2.5. Inventory has been compiled and is updated annually.

III. Storm Sewer System Map
   a. Update map within two years of effective date of permit and complete full system map 10 years after effective date of permit. Initial mapping has been conducted throughout Town and it is continually improved and refined.
      i. Make an electronic and physical copy of the map available to the public via the stormwater website and Freetown Town Hall.

ii. Map/verify 10% of system per year during permit years three through ten.
    1. Phase I will be focused on during Years One and Two, while Phase II will be focused on during years three through ten.
iii. Integrate system map updates with planned sewer expansion projects.
iv. Cross reference drainage information to ensure mapping is as accurate as possible.
v. 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 one year of effective permit date. The IDDE program was written and is updated as needed. It is attached to as Appendix K and available at the Town Hall at 3 North Main Street P.O. Box 438 Assonet, MA 02702.
    i. The written plan includes but is not limited to the following:
        1. Outline of responsibilities.
        2. Storm sewer map with locations of known outfalls, including information on relevant connectivity data gaps.
        3. Systematic procedure/protocol to detect and eliminate illicit discharges.
        4. Assessment/ranking of catchments (based on complaints, past water quality data, adjacent failing septic/sewer systems, density, surrounding area, TMDL surface waters).
        5. 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 the effective date of the Permit.
    i. Continue to enforce IDDE bylaw.
    ii. Draft and implement stormwater management regulations.
    iii. Coordinate water quality monitoring through dry weather screening.
        1. 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. Regular annual training has been provided to the Town.

VII. Dry Weather Screening

Conduct screening in accordance with outfall screening procedure and permit conditions, within three years of the effective permit date. Screenings are complete.

VIII. Conduct Wet Weather Screening

a. Conduct screening in accordance with outfall screening procedure and permit conditions and as determined by dry weather screening results, within ten 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):

i. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages;
ii. Common or twin-invert manholes serving storm and sanitary sewer alignments;
iii. Common trench construction serving both storm and sanitary sewer alignments;
iv. Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system;
v. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
vi. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints;
vii. Areas formerly served by combined sewer systems; and/or
viii. 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 as necessary, and upon completion of the IDDE program.

X. IDDE Regulation

a. Continue to eliminate illicit discharge violations.

# SECTION 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 Waters of the U.S. through the Town's MS4, as stated in part 2.3.5 of the Permit.

## Section 3.4.1 Background

The local bylaws for construction site stormwater runoff control have been reviewed with amendments included. To publicize and adopt these changes, a presentation was made at Town Meeting to educate the public on the best management practices and stimulate public awareness. The Building Committee has also added "How Do I Get Stormwater Permit Coverage for my Construction Site" information to the building department webpage.

## Section 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 one 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 one year of the effective date of the Permit. Procedures have been drafted.

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. Adoption of requirements for construction operators to implement a sediment and erosion control program within one year of the effective date of the Permit. These requirements have been incorporated into the Draft Stormwater Management Bylaw.

1. Set limit of one 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 Freetown for erosion and sediment control issues.

IV. Waste Control

A. Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes within one year of the effective date of the Permit.

1. Incorporate into Town's general conditions for building permit and/or site plan review.
2. Continue to 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.

# SECTION 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.

## Section 3.5.1 Background

The local bylaws for construction site stormwater runoff control have been reviewed with amendments included. To publicize these changes, a presentation was made at Town Meeting to educate the public on the best management practices and stimulate public awareness. The Building Committee has also added "How Do I Get Stormwater Permit Coverage for my Construction Site" information to the Building Department webpage. Post-construction bylaw, ordinance, and other regulatory mechanism are still in the process of being developed.

## Section 3.5.2 Best Management Practices

I. Post-Construction Ordinance
   a. The Town shall develop or modify, as appropriate, an ordinance or other regulatory mechanism within two years of the effective date of the permit. A draft bylaw has been developed with these requirements.

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 two years of completed construction. As-built drawings are required.
      i. 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 four years of permit effective date. This ranking is complete.
      i. Inventory Town parcels for existing stormwater BMPs and identify opportunities for GI/LID retrofits.
         1. Include schools, parks, recreation facilities, police/fire/EMS, libraries, public works, and town administrative offices.

IV. Allow Green Infrastructure
   a. Within four 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. This assessment is complete.
      i. Review bylaws and applications in order to incorporate green infrastructure and low impact development language as needed.
      ii. Educate the public on green infrastructure through existing BMP retrofits/demonstration projects.

V. Street Design and Parking Lot Guidelines
   a. Within four 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. This assessment is complete.
      i. 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 two years of permit effective date, adopt, amend, or modify regulation mechanisms to meet permit requirements.
      i. Review rules and regulations and modify as needed. Include evaluation of subdivision/redevelopment requirements to keep stormwater runoff onsite and for long-term operations and management of private BMPs.
      ii. Continue to implement Post-Construction Site Runoff Control Bylaw.

VII. Continue to implement measures that encourage priority open space protection.

# SECTION 3.6 GOOD HOUSEKEEPING AND POLLUTION PREVENTION FOR TOWN OWNED PROPERTIES

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.

## Section 3.6.1 Background

In efforts to control stormwater pollution, the Town continues street sweeping and catch basin cleanings. The Assawompset Pond Complex Committee works with MassDEP and MassDOT to evaluate and mitigate regional flooding concerns. The Committee has made recommendations for maintenance and repair of culverts and other drainage structures in Freetown's drainage system. A historic flooding area has been removed from Narrows Road in Freetown, which has restored fish passage and will likely reduce the risk of flooding from severe storms in the future. The Highway Department submits annual operating and capital improvement budgets for maintenance and improvement of the drainage system in order to keep local officials informed. The Town inspects the Highway Department facility and Transfer Station facility quarterly as part of the Stormwater Pollution Prevent Plan (SWPPP).

## Section 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 two years of permit effective date.
    a. Develop standards of practice for O&M of each public facility and combine in Town O&M Manual.

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

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

IV. SWPPP For Maintenance Garages, Transfer Stations and Other Waste-Handling Facilities
    a. Develop plan within two years of permit effective date.
    b. Schedule annual employee training.
        i. 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. Inspect facilities quarterly, including one inspection per year during wet weather conditions.

    e. Continue to implement improved recycling standards and requirements.

V. Catch Basin Cleaning
    a. Develop and maintain an annual cleaning schedule. Implementation is ongoing.
    b. Develop electronic data collection system for tracking, inspection, and maintenance. Implementation is ongoing.
        i. 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 or twice a year within the Taunton River Watershed. Implementation is ongoing.
    b. Include number of miles of streets cleaned per year, and volume of mass or material removed in each annual stormwater report (rural and uncurbed exceptions apply). Implementation is ongoing.

VII. Road Salt Use Optimization Program/Winter Road Maintenance
    a. Continue working on salt reduction strategies.
        i. Continue to develop and implement winter road maintenance procedures including use and storage of salt and sand.
        ii. Continue to minimize the use of salts and ensure that snow is not disposed into water ways
        iii. 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.
    b. Continue documenting catch basin and outfall inspection/condition data. Implementation is ongoing.

# SECTION 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 and groundwater. 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 waterbody and still ensure attainment and maintenance of water quality standards. The 303(d) List of Impaired Waters (303(d) List) lists each waterbody in one of the following five categories:

| | |
|---|---|
| Category 1. | Unimpaired and not threatened for all designated uses; |
| Category 2. | Unimpaired for some uses and not assessed for others; |
| Category 3. | Insufficient information to make assessments for any uses; |
| Category 4. | Impaired or threatened for one or more uses, but not requiring the calculation of a TMDL; or |
| Category 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. Table 3-1: Impaired Waters, TMDLs and Impairments details the Town's Category 5 and 4 water bodies. An overall map of the Town of Freetown's impaired waters is attached as Figure 3: Town Watersheds.

## SECTION 4.1 BACKGROUND

These requirements aim to improve and mitigate stormwater water quality impairments. The Town of Freetown has 5 outfalls located within the Buzzards Bay Watershed and 28 outfalls located within the Taunton River Watershed. This program focuses on impaired waters requiring a TMDL (Category 5) in the Taunton River Watershed (impaired for Nitrogen), shown on Figure 3.

There is one (1) Category 5 water segment in Freetown requiring a TMDL. Unnamed Tributary (MA62-42) is a four mile long water segment, which has its headwaters south of Slab Bridge Road (in Cedar Swamp portion of Freetown-Fall River State Forest) and ends at the confluence with Cedar Swamp River. It has impairments for Benthic Macroinvertebrates and Fish Bio assessments. These parameters are considered non-pollutants and are managed through alternative control measures; they do not require additional MS4 Permit compliance.

The majority of the Town's outfalls, twenty-eight (28) outfalls, are located within the Taunton River Watershed. The Taunton River Watershed has a watershed-wide EPA Approved TMDL requirement for bacteria and pathogens. This impairment requires Freetown to follow the below requirements (see section 4.1.1 through 4.1.5) to mitigate pathogen discharges to the MS4. The Town should prioritize outfalls within the Taunton Watershed for sampling E.coli and fecal coliform in sampling procedures.

In addition to the Taunton River Watershed bacteria and pathogen requirements, all discharges in the Taunton River Watershed must also be tested for nitrogen and the Town must adhere to requirements listed in part I of Appendix H of the Permit.

The remaining five (5) outfalls in the Town are located within the Buzzards Bay watershed. This watershed also has a watershed-wide EPA-approved TMDL for bacteria and pathogens. This impairment requires Freetown to follow the requirements listed for bacteria and pathogens below to mitigate contaminated discharges to the MS4. The Town should sample these five (5) outfalls for E.coli and fecal coliform.

The Assonet River is a Category 4a waterbody in Freetown and is impaired due to fecal coliform and has a final TMDL. Outfalls discharging to this waterbody should be sampled for fecal coliform.

# SECTION 4.2 IMPAIRMENT REQUIREMENTS

## Section 4.2.1 Public Education and Outreach

A. Nitrogen (Implementation is ongoing.)
    1. Distribute an annual message in the spring (April/May) timeframe that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers.
    2. Distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate.
    3. Distribute an annual message in the fall (August/September/October) timeframe encouraging the proper disposal of leaf litter.
B. Bacteria or Pathogens (Implementation is ongoing.)
    1. Distribute an annual message that encourages the proper management of pet waste, including noting any existing ordinances where appropriate.
    2. Disseminate educational materials to dog owners at the time of issuance or renewal of dog license, or other appropriate time.
    3. Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a waterbody impaired for bacteria or pathogens.

## Section 4.2.2 Illicit Discharge Detection and Elimination

A. Bacteria or Pathogens
    1. Implement the illicit discharge program required by the Permit. Catchments draining to any waterbody impaired for bacteria or pathogens shall be designated either problem catchments or high priority in implementation of the IDDE program. IDDE Program implementation is ongoing.

## Section 4.2.3 Stormwater Management in New Development and Redevelopment

A. Nitrogen
   1. Include a requirement that new development and redevelopment stormwater management BMPs be optimized for nitrogen removal.
   2. Retrofit inventory and priority ranking under 2.3.6.1.b shall include consideration of BMPs to reduce nitrogen discharges.

## Section 4.2.4 Good Housekeeping and Pollution Prevention

A. Nitrogen
   1. Establish requirements for use of slow release fertilizers on permittee owned property currently using fertilizer, in addition to reducing and managing fertilizer use as provided in 2.3.7.1
   2. Establish procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces.
   3. 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 to December 1, following leaf fall). Implementation is ongoing.

## Section 4.2.5 Additional Requirements (Nitrogen)

A. Nitrogen
   1. Within four years of the permit effective date the permittee shall complete a Nitrogen Source Identification Report. This report is complete. The report includes the following elements:
      i. 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,
      ii. All screening and monitoring results pursuant to part 2.3.4.7.d, targeting the receiving water segment(s),
      iii. Impervious area and DCIA for the target catchment,
      iv. Identification, delineation, and prioritization of potential catchments with high nitrogen loading, and
      v. Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment.
   2. The final Nitrogen Source Identification Report shall be submitted to EPA and MassDEP as part of the year four annual report.
   3. 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

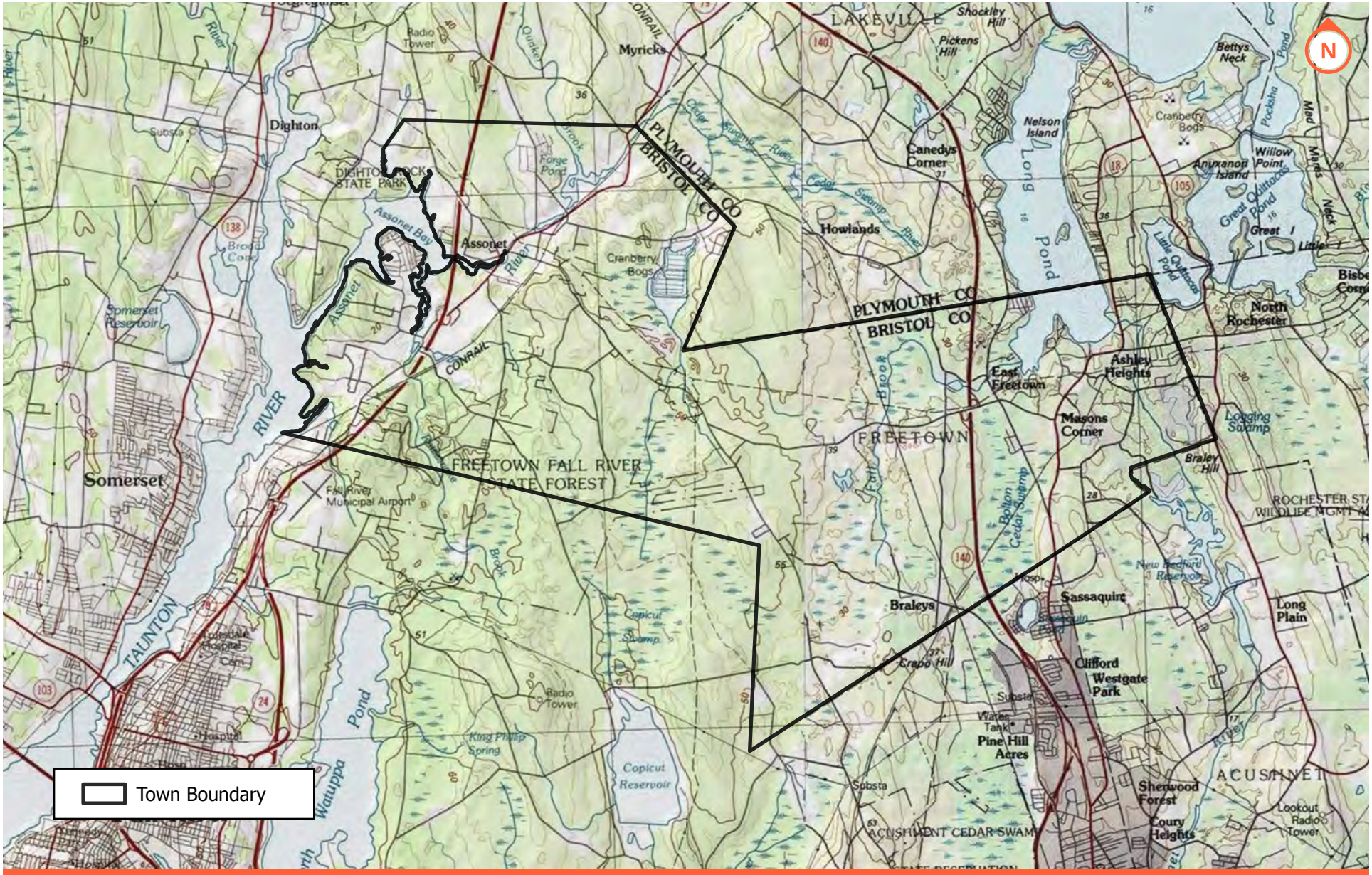
Nitrogen Source Identification Report that are within the drainage area of the impaired water or its tributaries.

4. The permittee shall provide a listing of planned structural BMPs and a plan and schedule for implementation in the year five annual report.
5. 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 nitrogen load potential.
6. The permittee shall install the remainder of the structural BMPs in accordance with the plan and schedule provided in the year five annual report.
7. Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents shall be tracked and the permittee shall estimate the nitrogen 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 nitrogen 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 I, II, III, and V when it is in compliance with the Permit requirements.

# FIGURE 1

System Locus



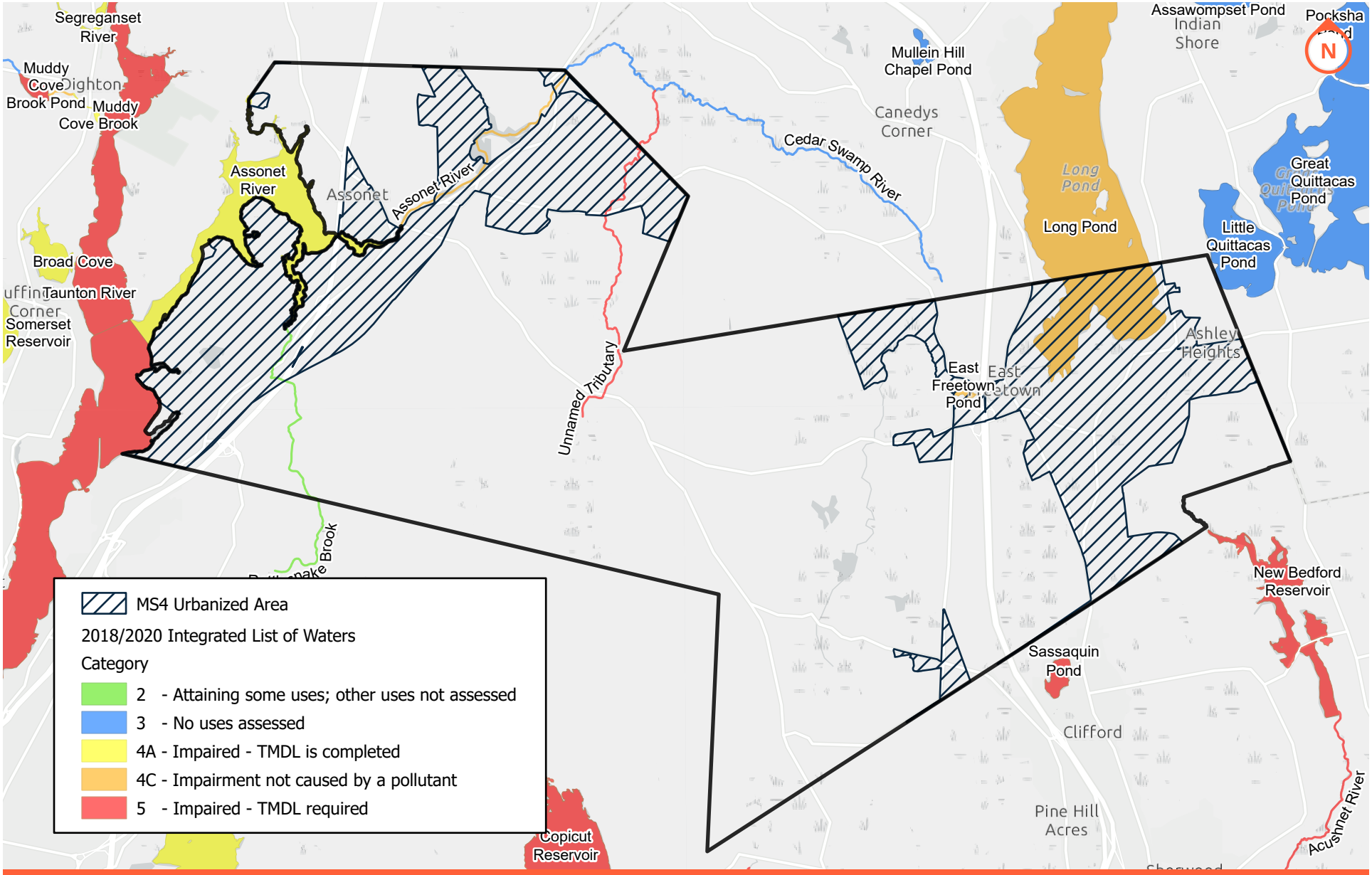

ENVIRONMENTAL PARTNERS
— An Apex Company —

**Figure 1**
**System Locus**
Freetown, MA
9/2/2022

0 2,500 5,000 10,000 Feet
1:100,000

# FIGURE 2

MS4 Urbanized Areas



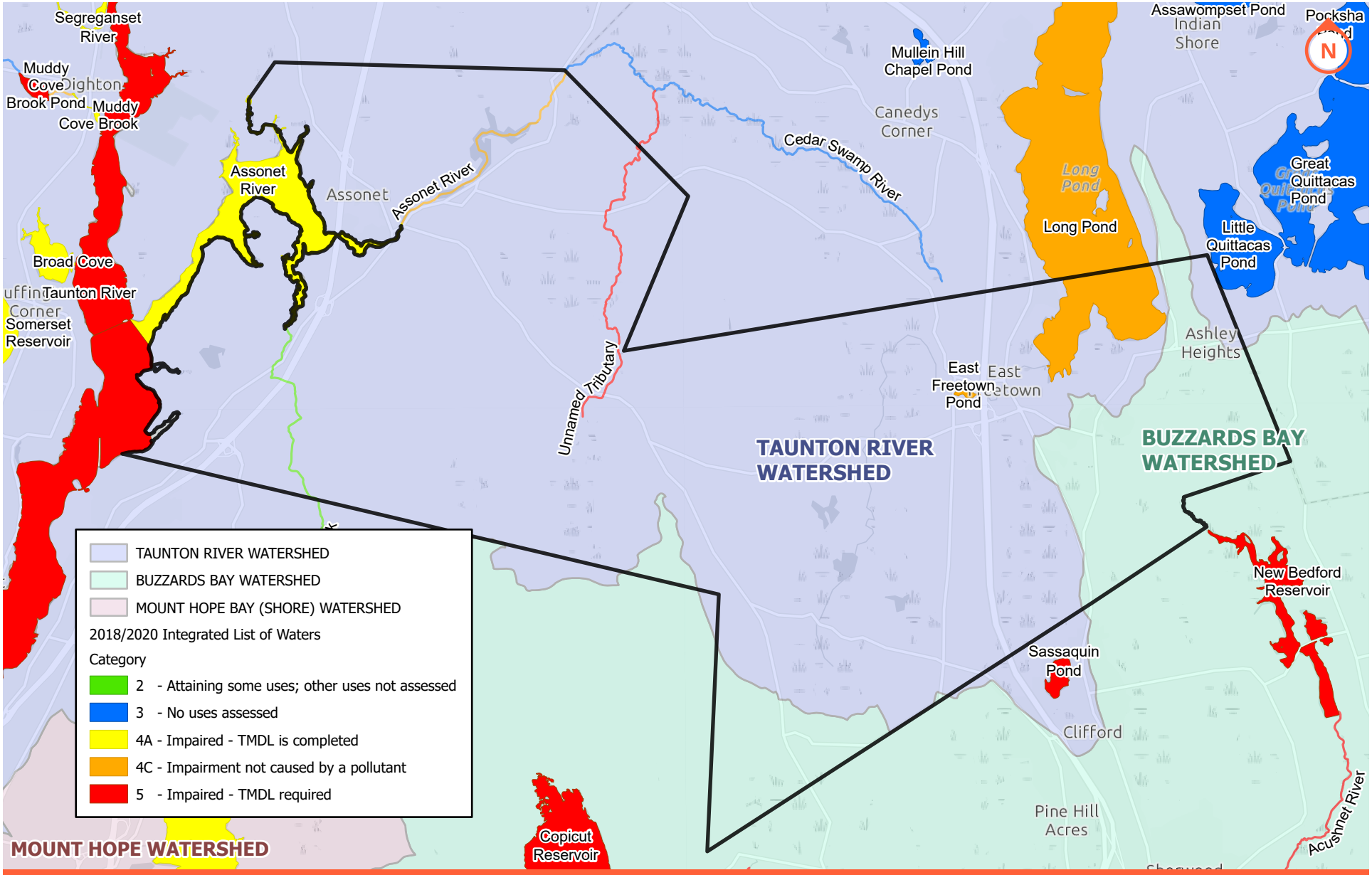

ENVIRONMENTAL PARTNERS
— An Apex Company —

**Figure 2**
**MS4 Urbanized Area**
Freetown, MA
9/2/2022

0 2,500 5,000 10,000 Feet
1:80,000

# FIGURE 3

Town Watersheds



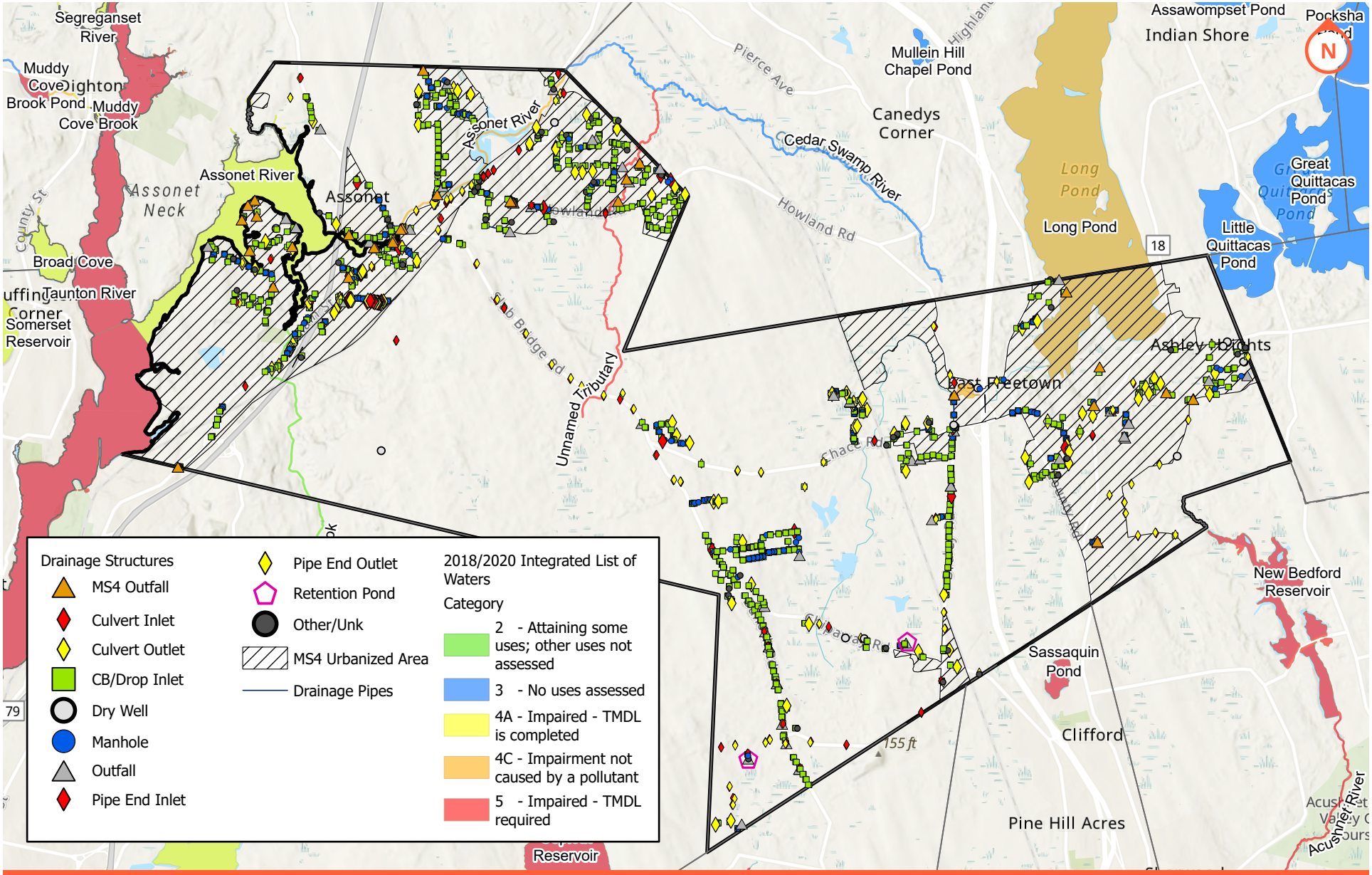

ENVIRONMENTAL PARTNERS
— An Apex Company —

**Figure 3**
**Town Watersheds**
Freetown, MA
9/2/2022

0 2,500 5,000 10,000 Feet
1:80,000

# FIGURE 4

Stormwater System Map




ENVIRONMENTAL PARTNERS
— An Apex Company —

**Figure 4**
**Stormwater System Map**
Freetown, MA
9/2/2022

0 2,500 5,000 10,000 Feet
1:80,000

# APPENDIX A

## MA MS4 Hyperlinks and References

# MA MS4 General Permit Hyperlinks

## General Hyperlinks

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

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

Town Hyperlink: https://www.freetownma.gov/

## MCM 1: Public Education and Outreach

EPA's Stormwater Education Toolbox, MassDEP's stormwater outreach materials, and 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, SOPs, and 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 Housekeeping 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/stormwater-tools-new-england#gh

# APPENDIX B

Notice of Intent

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



## Part I: General Conditions

### General Information

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

EPA NPDES Permit Number (if applicable): MAR041118

### Primary MS4 Program Manager Contact Information

Name: David DeManche Title: Town Administrator

Street Address Line 1: 3 North Main Street

Street Address Line 2:

City: Assonet State: MA Zip Code: 02702

Email: townadministrator@freetownma.gov Phone Number: (508) 644-2202

Fax Number: (508) 644-3342

### Other Information

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

### Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☐ A ☒ B ☐ C

National Historic Preservation Act (NHPA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☒ A ☐ B ☐ C

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

### MS4 Infrastructure (if covered under the 2003 permit)

**Estimated Percent of Outfall Map Complete?** *(Part II, III, IV or V, Subpart B.3.(a.) of 2003 permit)* 100%

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

Web address where MS4 map is published:

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

http://bit.ly/2CvQkd7

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

**Illicit Discharge Detection and Elimination (IDDE) Authority Adopted?** *(Part II, III, IV or V, Subpart B.3.(b.) of 2003 permit)* Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 11/20/06

**Construction/Erosion and Sediment Control (ESC) Authority Adopted?** *(Part II,III,IV or V, Subpart B.4.(a.) of 2003 permit)* Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 11/20/06

**Post- Construction Stormwater Management Adopted?** *(Part II, III, IV or V, Subpart B.5.(a.) of 2003 permit)* Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 11/20/06

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

## Part II: Summary of Receiving Waters

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

| Waterbody that receives flow from the MS4 and segment ID if applicable | Number of outfalls into receiving water segment | Chloride | Chlorophyll-a | Dissolved Oxygen/ DO Saturation | Nitrogen | Oil & Grease/ PAH | Phosphorus | Solids/ TSS/ Turbidity | E. coli | Enterococcus | Other pollutant(s) causing impairments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Assonet River (MA62-19, MA62-20) | 13 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Fecal Coliform |
| East Freetown Pond (MA62063) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Non-Native Aquatic Plants |
| Long Pond (MA62108) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Non-Native Aquatic Plants |
| Squinn Brook | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Cranberry Bog South of Long Pond (41.77648, -70.94120) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Pond South of Assonet River (41.78904, -71.07546) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Pond South of Long Pond (41.77132, -70.94224) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Pond West of Assonet River (41.78783, -71.08896) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Pond West of Squinn Brook (41.77297, -70.92930) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Tributary (MA62-42) | 3 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Aquatic Macroinvertebrate Bioassessments, Fishes Bioassessments |
| Unnamed Tributary North of Forge Pond (41.81671, -71.06192) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Tributary South of Long Pond (41.75294, -70.94174) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Tributary to Taunton River (41.76376, -71.10614) | 2 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Wetlands South of Assonet River (41.79729, -71.09184) | 1 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Unnamed Wetlands South of Forge Pond (41.79903, -71.04624) | 3 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |

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Click to lengthen 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

| **BMP Media/Category** (enter your own text to override the drop down menu) | **BMP Description** | **Targeted Audience** | **Responsible Department/Parties** (enter your own text to override the drop down menu) | **Measurable Goal** | **Beginning Year of BMP Imple-mentation** |
|---|---|---|---|---|---|
| Displays/Posters/Kiosks | Public education and awareness | Residents | Board of Selectmen, Town Administrator | Distribute at least two educational messages within the permit term (5 Years) | 2018 |
| Displays/Posters/Kiosks | Public education and awareness | Businesses, Institutions and Commercial Facilities | Board of Selectmen, Town Administrator | Distribute at least two educational messages within the permit term (5 Years) | 2018 |
| Displays/Posters/Kiosks | Public education and awareness | Developers (construction) | Board of Selectmen, Town Administrator | Distribute at least two educational messages within the permit term (5 Years) | 2018 |
| Displays/Posters/Kiosks | Public education and awareness | Industrial Facilities | Board of Selectmen, Town Administrator | Distribute at least two educational messages within the permit term (5 Years) | 2018 |
| Web Page | Posting stormwater management information on the Town website | Residents | Board of Selectmen, Town Administrator | Distribute at least two educational messages within the permit term (5 Years) | 2018 |
| Web Page | Posting stormwater management information on the Town website | Businesses, Institutions and Commercial Facilities | Board of Selectmen, Town Administrator | Distribute at least two educational messages within the permit term (5 Years) | 2018 |

| | | | | | |
|---|---|---|---|---|---|
| Web Page | Posting stormwater management information on the Town website | Developers (construction) | Board of Selectmen, Town Administrator | Distribute at least two educational messages within the permit term (5 Years) | 2018 |
| Web Page | Posting stormwater management information on the Town website | Industrial Facilities | Board of Selectmen, Town Administrator | Distribute at least two educational messages within the permit term (5 Years) | 2018 |
| School Curricula/Programs | Stormwater Presentations | Town Boards and Commissions, Students | Boards and Commissions, Board of Selectmen, Town Administrator | Continue participating in educational and informational workshop sessions | 2018 |
| Brochures/Pamphlets | Promotion of hazardous waste recycling | General Public | Board of Selectmen, Town Administrator | Continue distributing fliers for the HHW day, posting at Town Hall and on Town website | 2018 |
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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

| BMP Categorization | Brief BMP Description (enter your own text to override the drop down menu) | Responsible Department/Parties (enter your own text to override the drop down menu) | Additional Description/ Measurable Goal | Beginning Year of BMP Imple-mentation |
|---|---|---|---|---|
| Public Review | SWMP Review | Board of Selectmen, Town Administrator | Allow annual review of stormwater management plan and posting of stormwater management plan on website | 2019 |
| Public Participation | SWMP Review | Board of Selectmen, Town Administrator | Allow public to comment on stormwater management plan annually | 2019 |
| Public Participation | Public Meeting - Stormwater, Partnership - Advocacy Groups | Board of Selectmen, Town Administrator | Continue participation with watershed/waterbody associations, and post information about upcoming meetings on the Town website | 2019 |
| Public Participation | Cleanups - Shoreline/Waterbody | Board of Selectmen, Town Administrator | Continue to support annual cleanups with the Assonet Bay Shores Association | 2018 |
| Public Participation | Household haz. waste/used oil collection | Board of Selectmen, Town Administrator | Continue to host biannual hazardous waste collection days | 2018 |
| Public Participation | Water monitoring | Board of Selectmen, Town Administrator | Continue to post information on Town website to encourage participation in water monitoring activities in partnership with the Taunton River Watershed Alliance | 2018 |
| Public Participation | Poster Contest | Board of Selectmen, Town Administrator | Reestablish poster contest in-house by soliciting sponsorships from local businesses to create stormwater awareness practices | 2018 |

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

Part III: Stormwater Management Program Summary (continued)

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

| **BMP Categorization** (enter your own text to override the drop down menu) | **BMP Description** | **Responsible Department/Parties** (enter your own text to override the drop down menu) | **Measurable Goal** (all text can be overwritten) | **Beginning Year of BMP Imple-mentation** |
|---|---|---|---|---|
| SSO inventory | Develop SSO inventory in accordance of permit conditions | Board of Selectmen, Town Administrator | Complete within 1 year of effective date of permit | 2018 |
| Storm sewer system map | Create map and update during IDDE program completion | Board of Selectmen, Town Administrator | Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit | 2019 |
| Written IDDE program | Create written IDDE program | Board of Selectmen, Town Administrator | Complete within 1 year of the effective date of permit and update as required | 2018 |
| Implement IDDE program | Implement catchment investigations according to program and permit conditions | Board of Selectmen, Town Administrator | Complete 10 years after effective date of permit | 2019 |
| Employee training | Train employees on IDDE implementation | Board of Selectmen, Town Administrator | Train annually | 2018 |
| Conduct dry weather screening | Conduct in accordance with outfall screening procedure and permit conditions | Board of Selectmen, Town Administrator | Complete 3 years after effective date of permit | 2019 |
| Conduct wet weather screening | Conduct in accordance with outfall screening procedure | Board of Selectmen, Town Administrator | Complete 10 years after effective date of permit | 2019 |
| Ongoing screening | Conduct dry weather and wet weather screening (as necessary) | Board of Selectmen, Town Administrator | Complete ongoing outfall screening upon completion of IDDE program | 2018 |
| Public Awareness | Stimulate public awareness for reporting of illegal dumping | Board of Selectmen, Town Administrator | Continue to provide public contact information | 2018 |
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# Notice of Intent (NOI) for coverage under Small MS4 General Permit

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

### MCM 4: Construction Site Stormwater Runoff Control

| **BMP Categorization** (enter your own text to override the drop down menu or entered text) | **BMP Description** | **Responsible Department/Parties** (enter your own text to override the drop down menu) | **Measurable Goal** (all text can be overwritten) | **Beginning Year of BMP Imple-mentation** |
|---|---|---|---|---|
| Site inspection and enforcement of Erosion and Sediment Control (ESC) measures | Complete written procedures of site inspections and enforcement procedures | Board of Selectmen, Town Administrator | Complete within 1 year of the effective date of permit | 2018 |
| Site plan review | Complete written procedures of site plan review and begin implementation | Board of Selectmen, Town Administrator | Complete within 1 year of the effective date of permit | 2018 |
| Erosion and Sediment Control | Adoption of requirements for construction operators to implement a sediment and erosion control program | Board of Selectmen, Town Administrator | Complete within 1 year of the effective date of permit | 2018 |
| Waste Control | Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes | Board of Selectmen, Town Administrator | Complete within 1 year of the effective date of permit | 2018 |
| Website | Update the Building Department website as necessary | Building Commissioner | Continue to update website | 2018 |
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# Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

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

| **BMP Categorization** (enter your own text to override the drop down menu or entered text) | **BMP Description** | **Responsible Department/Parties** (enter your own text to override the drop down menu) | **Measurable Goal** (all text can be overwritten) | **Beginning Year of BMP Imple-mentation** |
|---|---|---|---|---|
| As-built plans for on-site stormwater control | The procedures to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP | Board of Selectmen, Town Administrator | Require submission of as-built plans for completed projects | 2018 |
| Target properties to reduce impervious areas | Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually | Board of Selectmen, Town Administrator | Complete 4 years after effective date of permit and report annually on retrofitted properties | 2019 |
| Allow green infrastructure | Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist | Board of Selectmen, Town Administrator | Complete 4 years after effective date of permit and implement recommendations of report | 2019 |
| Street design and parking lot guidelines | Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options. | Board of Selectmen, Town Administrator | Complete 4 years after effective date of permit and implement recommendations of report | 2019 |

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|---|---|---|---|---|
| Ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the permit and all applicable requirements of the Massachusetts Stormwater Handbook | Adoption, amendment, or modification of a regulatory mechanism to meet permit requirements | Board of Selectmen, Town Administrator | Complete 2 years after effective date of permit | 2019 |
| Open Space Plan | Develop a final open space plan | Board of Selectmen, Town Administrator | Continue to implement measures that encourage priority open space protection | 2018 |
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# Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 6: Municipal Good Housekeeping and Pollution Prevention

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

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| Inspections and maintenance of stormwater treatment structures | Establish and implement inspection and maintenance procedures and frequencies | Board of Selectmen, Town Administrator | Inspect and maintain treatment structures at least annually | 2018 |
| Record keeping of inspection data | Continue documenting catch basin and outfall inspection/condition data | Highway Surveyor | Continue recording data | 2018 |
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# Notice of Intent (NOI) for coverage under Small MS4 General Permit

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

### Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

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

| Applicable TMDL | Action Description | Responsible Department/Parties (enter your own text to override the drop down menu) |
|---|---|---|
| Buzzards Bay (Bacteria/Pathogen) | Adhere to requirements in part A.III of Appendix F | Highway Department |
| Taunton River Watershed (Bacteria/Pathogen) | Adhere to requirements in part A.III of Appendix F | Highway Department |
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# Notice of Intent (NOI) for coverage under Small MS4 General Permit

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

### Actions for Meeting Requirements Related to Water Quality Limited Waters

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

| Pollutant | Waterbody ID(s) | Action Description | Responsible Department/Parties (enter your own text to override the drop down menu) |
|---|---|---|---|
| Fecal Coliform | MA62-19 | Adhere to requirements in part III of Appendix H | Highway Department |
| E.Coli, Enterococcus, Fecal C | All Discharges in the Taunton River Watershed | Adhere to requirements in part III of Appendix H | Highway Department |
| E.Coli, Enterococcus, Fecal C | All Discharges in the Buzzards Bay Watershed | Adhere to requirements in part III of Appendix H | Highway Department |
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Part IV: Notes and additional information

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

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, nor the Plymouth Redbelly Turtle in the MS4 area. The USFWS Concurrence Letter is attached.

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).

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: Title:

Signature: Date:

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

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

# 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: | DAVID DEMANCHE | Title: | TOWN ADMINISTRATOR |
| Signature: | David Demanche | Date: | 9/28/18 |

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

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

# United States Department of the Interior

FISH AND WILDLIFE SERVICE

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


September 24, 2018

To whom it may concern:

The U.S. Fish and Wildlife Service (USFWS) reviewed the stormwater discharge activities associated with the 2016 National Pollutant Discharge and Elimination System (NPDES) Massachusetts (MA) Small Municipal Separate Storm Sewer System (MS4) general permit (MA MS4 General Permit) issued by the Environmental Protection Agency (EPA). We determined those activities may affect, but are not likely to adversely affect, certain species listed under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) when specific conditions are met. When these conditions are met, we do not need to review individual projects. These comments are provided in accordance with section 7 of the ESA and complement existing 2016 MA MS4 General Permit Appendix C Guidance. We understand the applicant is acting as a non-Federal representative of the EPA for the purpose of consultation under section 7. **This letter provides additional guidance for meeting Criterion B and should be submitted as part of your application package to the EPA.**

If the USFWS Information for Planning and Consultation website (https://ecos.fws.gov/ipac/) indicates your MA MS4 General Permit project action area may contain one or more of the following federally listed endangered species: roseate tern (*Sterna dougallii*), northern red-bellied cooter (*Pseudemys rubriventris*), dwarf wedgemussel (*Alasmidonta heterodon*), rusty patched bumble bee (*Bombus affinis*), northeastern bulrush (*Scirpus ancistrochaetus*), or American chaffseed (*Schwalbea americana*); threatened species: piping plover (*Charadrius melodus*), bog turtle (*Glyptemys muhlenbergii*), Puritan tiger beetle (*Cicindela puritana*), northeastern beach tiger beetle (*Cicindela dorsalis*), or red knot (*Calidris canutus rufa*); or their federally designated critical habitat; and the specific conditions listed below are met, you may submit this letter to complete the **MA MS4 General Permit Appendix C: Step 4** in place of a concurrence letter for informal consultation as documentation of ESA eligibility for **USFWS Criterion B**.

In addition, this letter also satisfies the requirement in the **MA MS4 General Permit Appendix C: Step 2 (3)** to contact the USFWS and obtain a concurrence letter, if you have not yet done so. If your project action area includes one or more of the above-listed species *and* one or more of the

species listed under **Criterion C,**[1] you may still use this letter to certify under **Criterion B**. All existing guidance regarding requirements for certifying eligibility according to the USFWS Criterion A, B, or C for coverage by the 2016 MS4 Permit (see MA MS4 General Permit Appendix C – Endangered Species Guidance) remains unchanged.

We have determined that proposed stormwater discharge activities covered under the 2016 MS4 Permit *may affect, but are not likely to adversely affect*, the above-listed species and the species' critical habitat when the following are true:

1. all stormwater discharges are pre-existing or previously permitted by EPA;
2. any planned operations and maintenance work covered by this permit will only affect previously disturbed areas where stormwater controls are already installed. In these situations the chance of encountering any of the subject species is discountable;
3. the project implements EPA MS4 Best Management Practices (BMPs) and meets Clean Water Act and Massachusetts Water Quality Standards. Although permitted discharges may reach the environment used by these species, BMPs reduce pollutants to the extent that discharges are not known to have measurable impacts on these species or their habitat;
4. no new construction or structural BMPs are proposed under this permit at this time; and
5. you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the Notice of Intent (NOI), you will re-initiate consultation with the USFWS as necessary (see **MA MS4 General Permit Appendix C: Step 2 (5)**).

If the above criteria are met, further consultation with the USFWS under section 7 of the ESA is not required at this time; however, if the proposed action changes in any way such that it may affect a listed species in a manner not previously analyzed or if new information reveals the presence of additional listed species that may be affected by the project, the applicant or the EPA should contact us immediately and suspend activities that may affect those species until the appropriate level of consultation is completed with our office. Thank you for your cooperation, and please contact David Simmons of this office at (603) 227-6425 if you have questions or need further assistance.

Sincerely yours,

Thomas R Chapman
Supervisor
New England Field Office

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[1] Criterion C includes guidance for project action areas that may contain species for which EPA has already made a determination. These species include the northern long-eared bat (*Myotis septentrionalis*), sandplain gerardia (*Agalinis acuta*), small whorled pogonia (*Isotria medeoloides*), and/or American burying beetle (*Nicrophorus americanus*) (MA MS4 General Permit Appendix C: Step 3 – Determine if You Can Meet Eligibility USFWS Criterion C).

| | |
|---|---|
| **From:** | Marissa A. Carvalho |
| **To:** | Vuto, Michelle |
| **Cc:** | Natalie Pommersheim; dmacedo@freetownma.gov; planning@freetownma.gov; highway@freetownma.gov |
| **Subject:** | RE: NOI Postings |
| **Date:** | Wednesday, May 22, 2019 8:26:36 AM |
| **Attachments:** | ATT00001.txt<br>Freetown NOI pg.18.pdf |

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Hi Michelle,

On behalf of the Town of Freetown, we can confirm that the Town will follow the requirements in part I of Appendix H of the permit for nitrogen for all discharges in the Taunton River Watershed.

See attached the updated page 18, including the nitrogen requirement addition.

Thank you,

**Marissa A. Carvalho**
Environmental Partners Group, Inc.
Environmental Scientist
O: 617.657.0284 | C: 404.790.2092
envpartners.com

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

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

### Actions for Meeting Requirements Related to Water Quality Limited Waters

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

| Pollutant | Waterbody ID(s) | Action Description | Responsible Department/Parties (enter your own text to override the drop down menu) |
|---|---|---|---|
| Fecal Coliform | MA62-19 | Adhere to requirements in part III of Appendix H | Highway Department |
| E.Coli, Enterococcus, Fecal C | All Discharges in the Taunton River Watershed | Adhere to requirements in part III of Appendix H | Highway Department |
| E.Coli, Enterococcus, Fecal C | All Discharges in the Buzzards Bay Watershed | Adhere to requirements in part III of Appendix H | Highway Department |
| Nitrogen | All Discharges in the Taunton River Watershed | Adhere to requirements in part I of Appendix H | Highway Department |
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# APPENDIX C

Permit Schedule

**MS4 Permit**
**Draft Schedule**
**Freetown, Massachusetts**
**FY22**

**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*)*
    - Bacteria and Pathogens: Targeting Dog Waste/Septic Systems for Buzzards Bay Watershed
- 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.
- Education/Outreach – Two educational messages to each of the 4 audiences over 5 years
- Additional Education/Outreach (*x2 for Impaired Water Requirements*)*
    - Bacteria and Pathogens: Targeting Dog Waste / Septic Systems for Assonet River, New or Redevelopment BMPs targeting solids
- 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*)*
    - Bacteria: Targeting Dog Waste / Septic Systems for – Buzzards Bay 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.
- Additional Education/Outreach (*x2 for Impaired Water Requirements*)*
    - Bacteria: Targeting Dog Waste / Septic Systems for – Buzzards Bay 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.
- Plan and Scheduled for BMPs - Nitrogen removal*
- Additional Education/Outreach (*x2 for Impaired Water Requirements*)*
    - Bacteria: Targeting Dog Waste / Septic Systems for – Buzzards Bay 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 St, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland


September 24, 2018

To whom it may concern:

The U.S. Fish and Wildlife Service (USFWS) reviewed the stormwater discharge activities associated with the 2016 National Pollutant Discharge and Elimination System (NPDES) Massachusetts (MA) Small Municipal Separate Storm Sewer System (MS4) general permit (MA MS4 General Permit) issued by the Environmental Protection Agency (EPA). We determined those activities may affect, but are not likely to adversely affect, certain species listed under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) when specific conditions are met. When these conditions are met, we do not need to review individual projects. These comments are provided in accordance with section 7 of the ESA and complement existing 2016 MA MS4 General Permit Appendix C Guidance. We understand the applicant is acting as a non-Federal representative of the EPA for the purpose of consultation under section 7. **This letter provides additional guidance for meeting Criterion B and should be submitted as part of your application package to the EPA.**

If the USFWS Information for Planning and Consultation website (https://ecos.fws.gov/ipac/) indicates your MA MS4 General Permit project action area may contain one or more of the following federally listed endangered species: roseate tern (*Sterna dougallii*), northern red-bellied cooter (*Pseudemys rubriventris*), dwarf wedgemussel (*Alasmidonta heterodon*), rusty patched bumble bee (*Bombus affinis*), northeastern bulrush (*Scirpus ancistrochaetus*), or American chaffseed (*Schwalbea americana*); threatened species: piping plover (*Charadrius melodus*), bog turtle (*Glyptemys muhlenbergii*), Puritan tiger beetle (*Cicindela puritana*), northeastern beach tiger beetle (*Cicindela dorsalis*), or red knot (*Calidris canutus rufa*); or their federally designated critical habitat; and the specific conditions listed below are met, you may submit this letter to complete the **MA MS4 General Permit Appendix C: Step 4** in place of a concurrence letter for informal consultation as documentation of ESA eligibility for **USFWS Criterion B**.

In addition, this letter also satisfies the requirement in the **MA MS4 General Permit Appendix C: Step 2 (3)** to contact the USFWS and obtain a concurrence letter, if you have not yet done so. If your project action area includes one or more of the above-listed species *and* one or more of the

species listed under **Criterion C,**[1] you may still use this letter to certify under **Criterion B**. All existing guidance regarding requirements for certifying eligibility according to the USFWS Criterion A, B, or C for coverage by the 2016 MS4 Permit (see MA MS4 General Permit Appendix C – Endangered Species Guidance) remains unchanged.

We have determined that proposed stormwater discharge activities covered under the 2016 MS4 Permit *may affect, but are not likely to adversely affect*, the above-listed species and the species' critical habitat when the following are true:

1. all stormwater discharges are pre-existing or previously permitted by EPA;
2. any planned operations and maintenance work covered by this permit will only affect previously disturbed areas where stormwater controls are already installed. In these situations the chance of encountering any of the subject species is discountable;
3. the project implements EPA MS4 Best Management Practices (BMPs) and meets Clean Water Act and Massachusetts Water Quality Standards. Although permitted discharges may reach the environment used by these species, BMPs reduce pollutants to the extent that discharges are not known to have measurable impacts on these species or their habitat;
4. no new construction or structural BMPs are proposed under this permit at this time; and
5. you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the Notice of Intent (NOI), you will re-initiate consultation with the USFWS as necessary (see **MA MS4 General Permit Appendix C: Step 2 (5)**).

If the above criteria are met, further consultation with the USFWS under section 7 of the ESA is not required at this time; however, if the proposed action changes in any way such that it may affect a listed species in a manner not previously analyzed or if new information reveals the presence of additional listed species that may be affected by the project, the applicant or the EPA should contact us immediately and suspend activities that may affect those species until the appropriate level of consultation is completed with our office. Thank you for your cooperation, and please contact David Simmons of this office at (603) 227-6425 if you have questions or need further assistance.

Sincerely yours,

Thomas R Chapman
Supervisor
New England Field Office

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[1] Criterion C includes guidance for project action areas that may contain species for which EPA has already made a determination. These species include the northern long-eared bat (*Myotis septentrionalis*), sandplain gerardia (*Agalinis acuta*), small whorled pogonia (*Isotria medeoloides*), and/or American burying beetle (*Nicrophorus americanus*) (MA MS4 General Permit Appendix C: Step 3 – Determine if You Can Meet Eligibility USFWS Criterion C).

Environmental Partners GROUP
A partnership for engineering solutions

1900 Crown Colony Drive, Suite 402
Quincy, MA 02169

September 17, 2018

To: U.S. Fish and Wildlife Service
New England Field Office
70 Commercial St., Suite 300
Concord, NH 03301

**RE:** Project Review Request, Stormwater MS4, Freetown, MA, 05E1NE00-2018-SLI-2941

We have reviewed the referenced project using the Environmental Protection Agency's (EPA) project review process for our Municipal Separate Storm Sewer System (MS4) and have followed all guidance and instructions in completing the review. We completed our review on August 31, 2018, and are submitting our project package in accordance with the instructions for further review. The U.S. Fish and Wildlife Service's (Service) Information for Planning and Consultation (IPaC) species list indicated these species may be present in the project area: Northern Long-eared Bat *Myotis septentrionalis*, and the Plymouth Redbelly Turtle *Pseudemys rubriventris bangsi*. We are submitting this letter as a non-Federal representative of the EPA pursuant to the requirements of the EPA's process for NPDES/MS4 permits.

Our proposed action consists of stormwater management projects including the evaluation for best management practices (BMPs) to reduce pollutant discharges and general pollutant load reduction through MS4 Permit implementation and enforcement. The Town of Freetown will be continuing stormwater maintenance and activities listed in the Year 15 NPDES PII Small MS4 General Permit Annual Report, which is included in the attachments. Planned activities within the MS4 area will not pose a disturbance to the habitats of the aforementioned species.

The location action area is identified on the enclosed map. This USGS topographic quadrangle displays the entirety of the Freetown MS4 project area. The MS4 area is designated using both the 2000 and 2010 U.S. census urbanized area.

Permit implementation will begin in the fall of 2018 and the permit has an expiration date of June 30, 2022.

This is a request for review by the Service pursuant to section 7 of the Endangered Species Act. We determined that the project may affect, but is not likely to adversely affect the above listed species, because:

- This project does not involve tree cutting or manipulating a structure that could be used by the Northern Long-eared Bat. For a variety of reasons, this project would have no effect on the Northern Long-eared Bat and no additional explanation is needed in this letter.
- Although discharges from the Freetown MS4 may reach the habitat of the Plymouth Redbelly Turtle, the project implements activities that would diminish pollutants to the extent that discharge is not known to adversely affect the Plymouth Redbelly Turtle.

The enclosed project package provides the information about the species and/or critical habitat

considered in our review, and we identified our determinations for the resources that may be affected by the project. We request you concur with our determination that the project may affect, but is not likely to adversely affect the species described above.

For additional information, please contact Eric Kelley at the address listed above, by phone at 617-657-0282, or eak@envpartners.com.

Sincerely,

Environmental Partners Group, Inc.
Eric A. Kelley, P.E.
Project Manager
P: (617) 657-0282
E: eak@envpartners.com

Enclosures:

1) IPaC Report
2) Year 15 NPDES PII Small MS4 General Permit Annual Report – Town of Freetown, MA
3) USGS Topographic Quadrangle – Town of Freetown, MA

# United States Department of the Interior

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


In Reply Refer To: August 31, 2018
Consultation Code: 05E1NE00-2018-SLI-2941
Event Code: 05E1NE00-2018-E-06933
Project Name: Freetown 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

# Project Summary

Consultation Code: 05E1NE00-2018-SLI-2941

Event Code: 05E1NE00-2018-E-06933

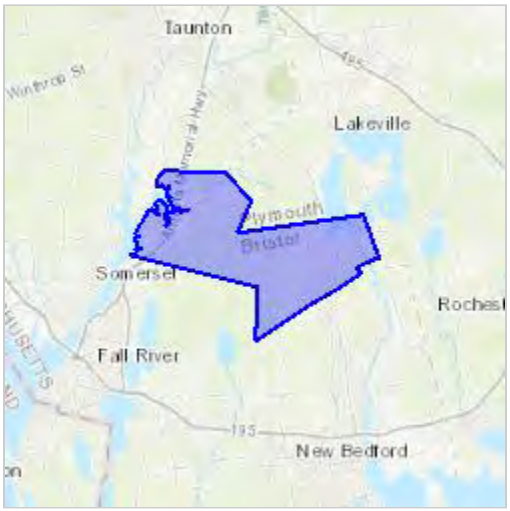
Project Name: Freetown MS4

Project Type: ** OTHER **

Project Description: Stormwater MS4

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.76478152450031N71.01012102132623W




Counties: Bristol, MA | Plymouth, MA

# Endangered Species Act Species

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

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

## Mammals

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

## Reptiles

| NAME | STATUS |
|---|---|
| Plymouth Redbelly Turtle *Pseudemys rubriventris bangsi*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/451 | Endangered |

## Critical habitats

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

# APPENDIX E

MA MS4 General Permit – Appendix D – Historic Properties Documents

# Appendix D
# National Historic Preservation Act Guidance

## Background

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

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

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

## Activities with No Potential to Have an Effect on Historic Properties

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

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

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

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

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

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

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

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

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

**Certification**

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

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

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

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

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

**Screening Process**

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

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

*YES* - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.
**The applicant should certify eligibility for this permit using Criterion A on their Notice of Intent for permit coverage.** The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has "no potential to cause effects" (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

*NO*- Go to Question 2.

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

*NO* - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.
**The applicant should certify eligibility for this permit using Criterion B on their Notice of Intent for permit coverage.** The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has "no potential to cause effects" (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

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

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

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

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

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

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

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

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

# APPENDIX F

## New or Increased Discharges Tracking Log

## New or Increased Discharges

**Freetown, MA**

| Location | Description | Proposed Use | Area | Contributing Area to MS4 | BMP |
|---|---|---|---|---|---|
| **Example Rd | Housing Community | Residence | 27 acres | 27 acres | Stormceptor unit and detention pond |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

** Example of what would be written for a new or increased discharge

# APPENDIX G

SSO Inventory

**SSO Inventory**
**Freetown, Massachusetts**
**Revision Date: September 2022**

| SSO Location[1] | Discharge Statement[2] | Date[3] | Time Start[3] | Time End[3] | Estimated Volume[4] | Description[5] | Mitigation Completed[6] | Mitigation Planned[7] |
|---|---|---|---|---|---|---|---|---|
| South Main Street at Route 24 | 50 gallons of diesel fuel discharged to MS4 system. | 8/5/21 | 7:38 | - | 50 gallons | 50 gallons of diesel fuel were discharged to 5 storm drains following a tractor trailer rollover. | Determination of No Significant Risk to human health or the environment was made by the Town's consultant. | A Permanent Statement with No Conditions, as described in 310 CMR 40.10141(1)(c )(2) has been achieved. No additional action was required. |
| 136 South Main Street | 25 gallons of diesel fuel discharged to the MS4 system. | 11/22/21 | 8:00 | - | 25 gallons | 25 gallons of diesel fuel were discharged to 1 storm drain following a sudden release from a refrigeration tank. | Site conditions have been restored and Determination of No Significant Risk to human health or the environment was made by Clean Harbors Environmental Services, Inc. | A Permanent Statement with No Conditions, as described in 310 CMR 40.10141(1)(c )(2) has been achieved. No additional action was required. |
| | | | | | | | | |
| | | | | | | | | |

[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

# APPENDIX H

Current Stormwater Bylaws

## ARTICLE 25 (25.3 cont.)

aforesaid. Said commanding officer or department head shall retain and safely preserve one copy and shall, at a time not later than the next court day after such delivery or mailing, deliver the other copy to the Clerk of Court before which the offender has been notified to appear.

The disposition of such notices by the Clerk of the Fall River District Court shall be in accordance with § 21D of Chapter 40 of the General Laws, and/or take any other action relative thereto. *ATM 5/7/90*

## ARTICLE 26
### APPROVAL, EFFECTIVE DATE OF BY LAWS

**26.1 Approval of By-Laws**
These by-laws shall take effect upon approval and publication in the manner required by law and shall be in lieu of all by-laws heretofore enforced except for the Soil Removal By-Law passed at the annual town meeting of 1956 which by-law shall be incorporated therein.

**26.2 Provision of By-Laws**
If any provision of these by-laws be held unlawful or shall not be approved it shall not effect any other provision of these by-laws or the enforcement thereof.

## ARTICLE 27
### NON-STORMWATER DISCHARGES TO THE MUNICIPAL STORM DRAINAGE SYSTEM OF THE TOWN OF FREETOWN *STM 11/20/06, ATM 5/7/07*

**Section 27-1. Objective/Intent.**
The objective of this by-law is to prevent non-stormwater discharges to the Town of Freetown's municipal storm drain system through the regulation of non-stormwater discharges to the storm drain system to the maximum extent practicable as required by federal and state law. Non-stormwater discharges are a major concern because they can impair the water quality of fresh water bodies, including streams, rivers and wetlands; contaminate drinking water supplies; alter or destroy aquatic habitant; and increase flooding.

This by-law seeks to prevent the introduction of pollutants into the municipal storm drain system in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process by:

Regulating the contribution of pollutants to the municipal storm drainage system from stormwater discharges by any user;

Prohibiting illicit connections and discharges to the municipal storm drainage system;

Establishing legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this by-law.

Prohibiting discharges into the municipal storm drainage system that may or can create a condition that is harmful to public safety and welfare.

**Section 27-2. Definitions.**
For the purposes of this by-law the following shall mean:

1. **Authorized Enforcement Agency**. The Building Commissioner and the employees and designees of the Town's Building Department are the Authorized Enforcement Agency designated to enforce this by-law.

2. **Best Management Practices(BMPS)**. Schedules of activities, prohibitions of practices, general good house keeping 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.

# ARTICLE 27 (21-2cont.)

3. **Clean Water Act.** The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

4. **Construction Activity**. Activities subject to NPDES Construction Permits. These include construction projects resulting in land disturbance of five (5) acres or more. Such activities include, but are not limited to, clearing and grubbing, grading, excavating, and demolition.

5. **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.

6. **Illicit Connections**. Any surface or subsurface drain or conveyance which allows an illegal discharge to enter the municipal 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, sinks or toilets, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency.

7. **Illegal Discharge**. Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in Section 7 of this by-law.

8. **Industrial Activity**. Activities subject to NPDES Industrial Permits as defined in 40 CFR 122.26 (b)(14).

9. **National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit.** A permit issued by EPA (or by the Commonwealth of Massachusetts 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.

10. **Non-Storm Water Discharge**. Any discharge to the municipal storm drain system that is not composed entirely of storm water.

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

12. **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 non-point source that is or may be introduced into any storm drain system, waters of the Commonwealth and/or waters of the United States. 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, by-laws, 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; rock, sand, salt and soils; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

13. **Premises**. Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

14. **Storm Drainage System**. A system used to collect and/or convey stormwater 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 owned or operated by the Town of Freetown.

15. **Storm Water**. Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

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

# ARTICLE 27 (21-2 cont.)

17. **Waters of The Commonwealth**. All waters within the jurisdiction of the Commonwealth of Massachusetts, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters and groundwater.

18. **Wastewater**. Any sanitary waste, sludge, septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing comes in direct contact with or results from the production or use of any raw material, intermediate product, by-product or waste product

## Section 27-3. Applicability.

This by-law shall apply to all water entering the Storm Drainage System owned or operated by the Town of Freetown unless explicitly exempted by the Building Commissioner.

## Section 27-4. 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 G.L. c.83, §1 and §10, as amended by St. 2004, c.149, §§135-140, and the Federal Clean Water Act, 40 CFR 122.34.

## Section 27-5. Responsibility for Administration.

The Building Commissioner as the Authorized Enforcement Agency shall administer, implement, and enforce the provisions of this by-law. Any powers granted or duties imposed upon the Building Commissioner may be delegated in writing by the Building Commissioner to persons or entities acting in the beneficial interest of or in the employ of the Town under the Building Commissioner.

## Section 27-6. Severability.

The provisions of this by-law are hereby declared to be severable. If any provision, clause, sentence, or paragraph 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.

## Section 27-7. Prohibited Activities.

**A.** Prohibition of Illegal Discharges.

No person shall discharge or cause to be discharged into the municipal Storm Drainage 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 Drainage System is prohibited except as provided as follows, and further provided that the exempt source is not a significant contributor of a Pollutant to the Storm Drainage System; not withstanding the last previous phrase, all fire fighting activities are exempt:

The following discharges are exempt from discharge prohibitions established by this by-law: 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 de-chlorinated), fire fighting activities, and any other water source not containing Pollutants.

Discharges specified in writing by the Building Commissioner, as the Authorized Enforcement Agency, as being necessary to protect public health , safety, welfare or the environment.

Dye testing is an allowable discharge, but requires a written notification to the Building Commissioner prior to the time of the test.

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 Drainage System.

# ARTICLE 27 (27-7 cont.)

**B. Prohibition of Illicit Connections.**

1. The construction, use, maintenance or continued existence of illicit Connections to the Storm Drainage 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.

   A person is considered to be in violation of this by-law if the person connects a line conveying sewage to the Storm Drainage System, or allows such a connection to continue.

**C. Time for Compliance**

Residential property owners shall have 90 days from the effective date of this by-law to comply with its provisions, provided good cause is shown for the failure to comply with the by-law during that period.

## Section 27-8. Suspension of Municipal Storm Drainage System Access.

**Suspension due to Illegal Discharges in Emergency Situations.**

The Building Commissioner, as the Authorized Enforcement Agency, may, without prior notice, suspend municipal Storm Drainage System discharge access to any person or property when such suspension is necessary to stop an actual or threatened discharge which presents or may present an imminent risk of harm to public health, safety or welfare; to the environment; to the municipal Storm Drainage System or Waters of the Commonwealth or the United States. If the violator fails to comply with an emergency suspension order, the Authorized Enforcement Agency may take such steps as deemed necessary to prevent or minimize damage to the municipal Storm Drainage System or Waters of the Commonwealth or the United States, and/or to minimize risk of harm to public health, safety or welfare or to the environment.

**Suspension due to the Detection of Illegal Discharge.**

Any person discharging to the Town's Storm Drainage System in violation of this by-law may have their access terminated if such termination would abate or reduce an Illegal discharge. The Building Commissioner, as the Authorized Enforcement Agency, shall notify a violator of the proposed termination of its Storm Drainage System access. The violator may petition the Building Commissioner for reconsideration and a hearing regarding such notice of termination.

A person commits an offense if the person reinstates municipal Storm Drainage System access to premises terminated pursuant to this Section, without the prior approval of the Building Commissioner.

## Section 27-9. 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 Building Commissioner prior to the allowing of discharges to the municipal Storm Drainage System.

## Section 27-10. Monitoring of Discharges.

**A. Applicability.**

This Section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

**B. Access to Facilities.**

1. The Building Commissioner, as the Authorized Enforcement Agency, shall be permitted to enter and inspect facilities subject to regulation under this by-law as often as may be necessary to determine compliance with this by-law. If a discharger has security measures in force that require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to the Building Commissioner or his/her authorized representatives.

2. Facility operators shall allow the Building Commissioner 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.

# ARTICLE 27 (27-10 cont.)

3. The Building Commissioner shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the Building Commissioner to conduct monitoring and/or sampling of the facility's storm water discharge.

4. The Building Commissioner has the right to require the discharger to install monitoring equipment as determined by the Building Commissioner. 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.

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 Building Commissioner and shall not be replaced. The costs of clearing such access shall be borne by the operator.

Unreasonable delays in allowing the Building Commissioner access to a permitted facility is a violation of a storm water discharge permit and of this by-law. 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 Building Commissioner reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this by-law.

If the Building Commissioner 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 by-law, 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 by-law or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the Building Commissioner may seek issuance of a search warrant from any court of competent jurisdiction.

## Section 27-11. Requirement to Prevent, Control, and Reduce Storm Water Pollutants by the Use of Best Management Practices.

The Building Commissioner, as the Authorized Enforcement Agency, shall adopt requirements identifying Best Management Practices (BMPs) for any activity, operation or facility which may cause or contribute to pollution or contamination of Storm Water, the Storm Drainage System, or Waters of the Commonwealth or the United States. 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 Drainage System or Watercourses through the use of these structural and non-structural BMPs.

Further, any person responsible for Premises, 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 Storm Drainage 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 compliant 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 27-12. Watercourse Protection.

Every person owning Premises through which a Watercourse passes, or such person's lessee, shall keep and maintain that part of the Watercourse within the Premises 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 27-13. Notification of Spills.

Notwithstanding other requirements of local, state or federal 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 Drainage System, or Waters of the Commonwealth and United States, said person shall take all necessary steps to ensure containment and cleanup of such release. In the event of such a release of oil or 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 Building Commissioner, as the Authorized Enforcement Agency, in person or by telephone or facsimile no later

# ARTICLE 27 (27-11 cont.)

than the next business day. Notifications in person or by telephone shall be confirmed by written notice addressed and mailed to the Building Commissioner within three business (3) days of the telephone 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 (3) years.

## Section 27-14. Enforcement.

The Building Commissioner, as the Authorized Enforcement Agency shall enforce this by-law, regulations, order, violation notices, and may pursue all criminal and civil remedies for such violations.

**A. Civil Relief.**

If a person violates the provisions of the by-law, regulations, permit, notice or order issued hereunder, the Building Commissioner 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. Civil penalties may be imposed to the maximum permitted by law, including up to $5,000 a day under Mass. G.L. c. 83, §10.

**B. Orders.**

The Building Commissioner may issue a written order to enforce provisions of this by-law or regulations thereunder, which may include (a) elimination of Illicit Connections or Illegal Discharges to the Storm Drainage System; (b) performance of monitoring, analyses and reporting; (c) an order to cease and desist Illicit Connections and/or Illegal Discharges, practices or operations; and (d) remediation of contamination in connection therewith. If the Building Commissioner 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 work may be done by a governmental agency or contractor, in which event such work and expenses thereof shall be charged to the violator.

**C. Criminal Penalty.**

Any person who violates any provision of this by-law, regulation, order or permit issued hereunder shall be punished by a fine of not more than $300.00 per day. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

**D. Non-Criminal Disposition.**

Whoever violates any provision of this by-law may be penalized by a non-criminal disposition as provided in Mass. G.L. Chapter 40, Section 21D and Article 25 of the Town's General By-Laws. The non-criminal method of disposition may also be used for violations of any rule or regulation of any municipal officer, board or department, which is subject to a specific penalty. Without intending to limit the foregoing, it is the intention of this section that the following by-laws and regulations be included within the scope of this subsection, that the specific penalties, as listed herein, shall apply in such cases and that, in addition to police officers, who shall in all cases be considered enforcing persons for the purpose of this section, the municipal personnel listed for each section, if any, shall also be enforcing persons for such section. The Building Commissioner, Town of Freetown Police Department, or any designated Agent of the Building Commissioner shall be considered an enforcing person for the purpose of this section.

A violation of the by-law and regulatory provisions may be dealt with in a non-criminal manner as provided by section (a) above. Each day on which any violations exist shall be deemed to be a separate offense.

The fine schedule is: First offense, $100.00, second offense, $200.00, third and subsequent offenses, $300.00.

**E. Appeals.**

The decision or order of the Building Commissioner, as the Authorized Enforcement Agency, may be appealed to the Planning Board within 20 days of the date of the decision or order. The Planning Board shall consider the request at a meeting after written notice is given to abutters, paid for by the Person appealing, at least seven (7) calendar days prior to the said meeting.

**F. Remedies Not Exclusive.**

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

# APPENDIX I

Annual Reports

# Year 1 Annual Report
## Massachusetts Small MS4 General Permit
## Reporting Period: May 1, 2018-June 30, 2019

***Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form***

*Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed.*

## Part I: Contact Information

Name of Municipality or Organization: Town of Freetown

EPA NPDES Permit Number: MAR04118

**Primary MS4 Program Manager Contact Information**

Name: David DeManche Title: Town Administrator

Street Address Line 1: 3 North Main Street

Street Address Line 2:

City: Assonet State: MA Zip Code: 02702

Email: townadministrator@freetownma.gov Phone Number: (508) 644-2202

Fax Number: (508) 644-3342

**Stormwater Management Program (SWMP) Information**

SWMP Location (web address): https://www.freetownma.gov/sites/freetownma/files/news/freetown_swmp_report_-_2019_for_comment.pdf

Date SWMP was Last Updated: Jun 26, 2019

If the SWMP is not available on the web please provide the physical address and an explanation of why it is not posted on the web:

# Part II: Self Assessment

*First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4.*

**Impairment(s)**

☒ Bacteria/Pathogens ☐ Chloride ☒ Nitrogen ☐ Phosphorus
☐ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

**TMDL(s)**

*In State:* ☐ Assabet River Phosphorus ☒ Bacteria and Pathogen ☐ Cape Cod Nitrogen
☐ Charles River Watershed Phosphorus ☐ Lake and Pond Phosphorus

*Out of State:* ☐ Bacteria/Pathogens ☐ Metals ☐ Nitrogen ☐ Phosphorus

Clear Impairments and TMDLs

*Next, check off all requirements below that have been completed.* ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 1 Requirements

- ☒ Develop and begin public education and outreach program
- ☒ Identify and develop inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years
  - ◉ The SSO inventory is attached to the email submission
  - ○ The SSO inventory can be found at the following website:
- ☒ Develop written IDDE plan including a procedure for screening and sampling outfalls
- ☒ IDDE ordinance complete
- ☒ Identify each outfall and interconnection discharging from MS4, classify into the relevant category, and priority rank each catchment for investigation
  - ◉ The priority ranking of outfalls/interconnections is attached to the email submission
  - ○ The priority ranking of outfalls/interconnections can be found at the following website:
- ☒ Construction/ Erosion and Sediment Control (ESC) ordinance complete
- ☒ Develop written procedures for site inspections and enforcement of sediment and erosion control measures
- ☒ Develop written procedures for site plan review
- ☒ Keep a log of catch basins cleaned or inspected
- ☒ Complete inspection of all stormwater treatment structures

Annual Requirements

- ☒ Annual opportunity for public participation in review and implementation of SWMP
- ☒ Comply with State Public Notice requirements
- ☒ Keep records relating to the permit available for 5 years and make available to the public
- ☒ Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- ☒ Annual training to employees involved in IDDE program
- ☒ All curbed roadways have been swept a minimum of one time per year

**Bacteria/ Pathogens** (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Annual message encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☐ Permittee or its agents disseminate educational material 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

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

**Nitrogen** (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☐ Distribute an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers
- ☒ Distribute an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

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

*Good Housekeeping and Pollution Prevention for Permittee Owned Operations*

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

*Potential structural BMPs*

- ☐ Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents shall be tracked and the permittee shall estimate the nitrogen removal by the BMP consistent with Attachment 1 to Appendix H. Document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP in each each annual report

Use the box below to input additional details on any unchecked boxes above or any additional information you would like to share as part of your self assessment:

Structural BMPs will be tracked and estimates for nutrient removal developed in accordance with Attachment 1 to Appendix H in the future.

In Year 2, the Town will complete the following public outreach and education:
- Pet waste information at the time of pet licensing (Appendices F and H)
- Septic maintenance information to septic maintenance contractors (Appendices F and H)

# Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

Yes ☐ No ☒

If yes, describe below, including any relevant impairments or TMDLs:

N/A

# Part IV: Minimum Control Measures

*Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.*

## MCM1: Public Education

Number of educational messages completed during the reporting period: 4

*Below, report on the educational messages completed during the first year. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.*

**BMP: Stormwater Information in Permitting Materials (Businesses, Institutions, Commercial Facilities)**

Message Description and Distribution Method:

Stormwater information is distributed as residents apply for permits, especially for DBAs.

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: Town Clerk

Measurable Goal(s):

Distribute at least two educational messages within the permit term (5 years).

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

---

**BMP: Stormwater Information in Permitting Materials (Residents)**

Message Description and Distribution Method:

Stormwater information is distributed as residents apply for permits, especially for DBAs.

Targeted Audience: Residents

Responsible Department/Parties: Town Clerk

Measurable Goal(s):

Distribute at least two educational messages within the permit term (5 years).

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

---

**BMP: Spring Messaging**

Message Description and Distribution Method:

Proper use and disposal of grass clippings and proper us of slow-release fertilizers annual messaging.

Targeted Audience: Residents

Responsible Department/Parties: Board of Health

Measurable Goal(s):

Distribute annual messaging in accordance with the Town's Nitrogen impairments.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

---

**BMP: Fall Messaging**

Message Description and Distribution Method:

Proper disposal of leaf litter annual messaging.

Targeted Audience: Residents

Responsible Department/Parties: Board of Health

Measurable Goal(s):

Distribute annual messaging in accordance with the Town's Nitrogen impairments.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

---

**BMP: Storm Drain Stencils**

Message Description and Distribution Method:

"Do Not Dump" storm drain stencils.

Targeted Audience: Residents

Responsible Department/Parties: Highway Department

Measurable Goal(s):

Distribute at least two educational messages within the permit term (5 years).

Message Date(s): Ongoing.

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

---

Add an Educational Message

## MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) during the reporting period:

Annual review and public comment of the SWMP and posting of plan on website.

Was this opportunity different than what was proposed in your NOI? Yes ☐ No ☒

Describe any other public involvement or participation opportunities conducted during the reporting period:

Water monitoring activities, biannual Household Hazardous Waste day (Fall 2018; May 4th, 2019), Shoreline/ Waterbody Cleanups and public meetings, State of the Taunton River Watershed Workshop (October 1, 2018).

## MCM3: Illicit Discharge Detection and Elimination (IDDE)

**Sanitary Sewer Overflows (SSOs)**

*Below, report on the number of SSOs identified in the MS4 system and removed during this reporting period.*

Number of SSOs identified: 0

Number of SSOs removed: 0

*Below, report on the total number of SSOs identified in the MS4 system and removed to date. At a minimum, report SSOs identified since 2013.*

Total number of SSOs identified: 0

Total number of SSOs removed: 0

**MS4 System Mapping**

Describe the status of your MS4 map, including any progress made during the reporting period (phase I map due in year 2):

The Town has completed the following updates to its stormwater mapping to meet the Phase I requirements:
- Outfalls and receiving waters (updated 2019)
- 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)

**Screening of Outfalls/Interconnections**

*If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.*

- ○ The outfall screening data is attached to the email submission
- ○ The outfall screening data can be found at the following website:

*Below, report on the number of outfalls/interconnections screened during this reporting period.*

Number of outfalls screened: 75

*Below, report on the percent of total outfalls/ interconnections screened to date.*

Percent of total outfalls screened: 100

**Catchment Investigations**

*If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.*

- ◯ The catchment investigation data is attached to the email submission
- ◯ The catchment investigation data can be found at the following website:

*Below, report on the number of catchment investigations completed during this reporting period.*

Number of catchment investigations completed this reporting period: 0

*Below, report on the percent of catchments investigated to date.*

Percent of total catchments investigated: 0

*Optional:* Provide any additional information for clarity regarding the catchment investigations below:

N/A

**IDDE Progress**

*If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.*

- ◯ The illicit discharge removal report is attached to the email submission
- ◯ The illicit discharge removal report can be found at the following website:

*Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed during this reporting period.*

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 Yards

*Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed since the effective date of the permit.*

Total number of illicit discharges identified: 0

Total number of illicit discharges removed: 0

*Optional:* Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

N/A

**Employee Training**

Describe the frequency and type of employee training conducted during the reporting period:

Annual IDDE implementation training and multiple MS4 meetings and education throughout the reporting period with the Town.

## MCM4: Construction Site Stormwater Runoff Control

*Below, report on the construction site plan reviews, inspections, and enforcement actions completed during this reporting period.*

Number of site plan reviews completed: 4

Number of inspections completed: 240

Number of enforcement actions taken: 2

## MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

**Ordinance Development**

Describe the status of the post-construction ordinance required to be complete in year 2 of the permit term:

The Town will be drafting this ordinance in Year 2, to finalize by the end of Year 2 of the permit term.

**As-built Drawings**

Describe the status of the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites required to be complete in year 2 of the permit term:

Nothing to date, due Year 2.

**Street Design and Parking Lots Report**

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

Nothing to date, due Year 4.

**Green Infrastructure Report**

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

Nothing to date, due Year 4.

**Retrofit Properties Inventory**

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

Nothing to date, due Year 4.

## MCM6: Good Housekeeping

**Catch Basin Cleaning**

Describe the status of the catch basin cleaning optimization plan:

All catch basins are cleaned when inspected. The Town uses standardized inspection sheets. During Year 1 of t

*If complete, attach the catch basin cleaning optimization plan or the schedule to gather information to develop the optimization plan:*

- ○ The catch basin cleaning optimization plan or schedule is attached to the email submission
- ○ The catch basin cleaning optimization plan or schedule can be found at the following website:

*Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins during this reporting period.*

Number of catch basins inspected:

Number of catch basins cleaned:

Total volume or mass of material removed from all catch basins: ~150 TONS

*Below, report on the total number of catch basins in the MS4 system, if known.*

Total number of catch basins: 770

*If applicable:*

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

These catch basins are checked following major storms.

**Street Sweeping**

Describe the status of the written procedures for sweeping streets and municipal-owned lots:

The Town sweeps the second week of March and covered 95% of streets this year.

*Report on street sweeping completed during the reporting period using one of the three metrics below.*

- ○ Number of miles cleaned: 107
- ○ Volume of material removed: [UNITS]
- ◉ Weight of material removed: 221 TONS

*If applicable:*

For rural uncurbed roadways with no catch basins, describe the progress of the inspection, documentation, and targeted sweeping plan:

The Town sweeps 95% of road every year, regardless of the presence of curbing or stormwater structures.

**Winter Road Maintenance**

Describe the status of the written procedures for winter road maintenance including the storage of salt and sand:

No written plan to date. The procedure depends on temperature. Trucks are calibrated at the start of every season with calcium chloride, salt or sand.

## Inventory of Permittee-Owned Properties

Describe the status of the inventory, due in year 2 of the permit term, of permittee-owned properties, including parks and open spaces, buildings and facilities, and vehicles and equipment, and include any updates:

Nothing to date.

## O&M Procedures for Parks and Open Spaces, Buildings and Facilities, and Vehicles and Equipment

Describe the status of the operation and maintenance procedures, due in year 2 of the permit term, of permittee-owned properties (parks and open spaces, buildings and facilities, vehicles and equipment) and include maintenance activities associated with each:

Nothing to date.

## Stormwater Pollution Prevention Plan (SWPPP)

Describe the status of any SWPPP, due in year 2 of the permit term, for permittee-owned or operated facilities including maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater:

The Town has hired a consulting company to complete its SWPPPs in Year 2.

*Below, report on the number of site inspections for facilities that require a SWPPP completed during this reporting period.*

Number of site inspections completed: 0

Describe any corrective actions taken at a facility with a SWPPP:

N/A

## O&M Procedures for Stormwater Treatment Structures

Describe the status of the written procedure for stormwater treatment structure maintenance:

No written procedure. Stormwater treatment structures cleaned as needed in Springtime.

# Additional Information

**Monitoring or Study Results**

*Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.*

- ◯ Not applicable
- ◯ The results from additional reports or studies are attached to the email submission
- ◯ The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

N/A

**Additional Information**

*Optional:* Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

N/A

**Activities Planned for Next Reporting Period**

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 2 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Complete system mapping Phase I
- Begin investigations of catchments associated with Problem Outfalls
- Develop or modify an ordinance or other regulatory mechanism for post-construction stormwater runoff from new development and redevelopment
- Establish and implement written procedures to require the submission of as-built drawings no later than two years after the completion of construction projects
- Develop, if not already developed, written operations and maintenance procedures
- Develop an inventory of all permittee owned facilities in the categories of parks and open space,

buildings and facilities, and vehicles and equipment; review annually and update as necessary
- Establish a written program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner
- Develop and implement a written SWPPP for maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater
- Enclose or cover storage piles of salt or piles containing salt used for deicing or other purposes
- Develop, if not already developed, written procedures for sweeping streets and municipal-owned lots
- Develop, if not already developed, written procedures for winter road maintenance including storage of salt and sand
- Develop, if not already developed, a schedule for catch basin cleaning
- Develop, if not already developed, a written procedure for stormwater treatment structure maintenance
- Develop a written catchment investigation procedure *(18 months)*

Annual Requirements
- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all uncurbed streets at least annually

Provide any additional details on activities planned for permit year 2 below:

The Town of Freetown has hired a consulting company to draft Operation and Maintenance Plans relating to:
- Inventory of all municipal facilities
- Catch Basin Cleaning Optimization Plan
- Street Sweeping Program
- Winter Road Maintenance Procedures
- Inspection/Maintenance frequencies and procedures for structural stormwater BMPs
- Parks & Open Spaces
- Stormwater Pollution Prevention Plan (SWPPP)

# Part V: Certification of Small MS4 Annual Report 2019

**40 CFR 144.32(d) 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: Title:

Signature: Date:

*[Signatory may be a duly authorized representative]*

# Year 2 Annual Report
## Massachusetts Small MS4 General Permit
## Reporting Period: July 1, 2019-June 30, 2020

***Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form***

*Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed. Please ONLY report on activities between July 1, 2019 and June 30, 2020 unless otherwise requested.*

## Part I: Contact Information

Name of Municipality or Organization: Town of Freetown

EPA NPDES Permit Number: MAR04118

**Primary MS4 Program Manager Contact Information**

Name: David Demanche Title: Town Administrator

Street Address Line 1: 3 North Main Street

Street Address Line 2:

City: Assonet State: MA Zip Code: 02702

Email: townadministrator@freetownma.gov Phone Number: (508) 644-2202

**Stormwater Management Program (SWMP) Information**

SWMP Location (web address): https://www.freetownma.gov/sites/g/files/vyhlif4441/f/news/freetown_swmp_report_-_2019_for_comment.pdf

Date SWMP was Last Updated: June 2019

If the SWMP is not available on the web please provide the physical address:

# Part II: Self-Assessment

*First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4. Make sure you are referring to the most recent EPA approved Section 303(d) Impaired Waters List which can be found here: https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state*

**Impairment(s)**

☒ Bacteria/Pathogens ☐ Chloride ☒ Nitrogen ☐ Phosphorus
☐ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

**TMDL(s)**

*In State:* ☐ Assabet River Phosphorus ☒ Bacteria and Pathogen ☐ Cape Cod Nitrogen
☐ Charles River Watershed Phosphorus ☐ Lake and Pond Phosphorus

*Out of State:* ☐ Bacteria/Pathogens ☐ Metals ☐ Nitrogen ☐ Phosphorus

Clear Impairments and TMDLs

*Next, check off all requirements below that have been completed.* ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 2 Requirements

- ☐ Completed Phase I of system mapping
- ☒ Developed a written catchment investigation procedure and added the procedure to the SWMP
- ☐ Developed written procedures to require the submission of as-built drawings and ensure the long term operation and maintenance of completed construction sites and added these procedures to the SWMP
- ☒ Enclosed or covered storage piles of salt or piles containing salt used for deicing or other purposes
- ☐ Developed written operations and maintenance procedures for parks and open space, buildings and facilities, and vehicles and equipment and added these procedures to the SWMP
- ☐ Developed an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment and added this inventory to the SWMP
- ☐ Completed a written program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- ☐ Developed written SWPPPs, included in the SWMP, for all of the following permittee owned or operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater

*Optional:* If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Year 2 requirements not completed during Year 2 will be completed in Year 3. The SWMP will be updated to include the Year 2 requirements in Year 3.

Annual Requirements

- ☒ Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- ☒ Kept records relating to the permit available for 5 years and made available to the public
- ☐ The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
  - ○ This is not applicable because we do not have sanitary sewer
  - ○ This is not applicable because we did not find any new SSOs
  - ○ The updated SSO inventory is attached to the email submission
  - ○ The updated SSO inventory can be found at the following website:
- ☒ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- ☐ Provided training to employees involved in IDDE program within the reporting period
- ☒ All curbed roadways were swept at least once within the reporting period
- ☐ Updated outfall and interconnection inventory and priority ranking as needed

*Optional:* If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above annual requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Year 2 requirements not completed will be completed in Year 3.

**Bacteria/ Pathogens** (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☐ Annual message was distributed encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Permittee or its agents disseminated educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time
- ☐ Provided information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

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

*Optional:* If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

In Year 3, the Town of Freetown will provide the messaging required under the permit.

**Nitrogen** (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☐ Distributed an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers
- ☐ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☐ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

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

*Good Housekeeping and Pollution Prevention for Permittee Owned Operations*

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

*Potential structural BMPs*

- ☐ Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents was tracked and the nitrogen removal by the BMP was estimated consistent with Attachment 1 to Appendix H. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP were documented.
  - ○ The BMP information is attached to the email submission
  - ○ The BMP information can be found at the following website:

*Optional:* If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

*Optional:* Use the box below to provide any additional information you would like to share as part of your self-assessment:

# Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

- (●) Yes
- ( ) No

If yes, describe below, including any relevant impairments or TMDLs:

The SWMP listed an unnamed tributary (MA62-42) as requiring a TMDL based on the Massachusetts Year 2014 List of Integrated Waters. The 2016 List of Integrated Waters lists East Freetown Pond (MA62063) as category 4c as being impaired for non-native aquatic plants, Long Pond (MA62108) as category 4c as being impaired for non-aquatic plants, unnamed tributary (MA62-42) as being impaired for Benthic Microinvertebrates and Fish Bioassessments.

# Part IV: Minimum Control Measures

*Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.*

## MCM1: Public Education

Number of educational messages completed **during this reporting period**:

*Below, report on the educational messages completed **during this reporting period**. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.*

**BMP:School Curriculum, Programs, press release, social media post**

Message Description and Distribution Method:

Targeted Audience: Residents

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP:Press release, social media post, flyer, web page**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP: Special Event, Festival, Fairs**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP:Brochures and Pamphlets, social media posts**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP:Social media posts**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP:Social media posts**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP:Brochures and Pamphlets, social media posts, press release**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP:Press release, social media post, web page, brochure**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP:Social media posts**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ○

If yes, describe why the change was made:

---

**BMP:Brochure to be handed out with permits in towns**

Message Description and Distribution Method:

"Stormwater Management for Small Businesses" and "Pollution Prevention for Businesses" were provided to anyone applying to the Town Clerk's office for a new or renewed Business Certificate

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: Town Clerk's office

Measurable Goal(s):

Providing businesses, institutions, and commercial facilities with storm water information

Message Date(s): Year around

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

---

**BMP:Press release, social media post, web page**

Message Description and Distribution Method:

Targeted Audience: Residents

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ◉ No ○

If yes, describe why the change was made:

---

**BMP:[Message name here]**

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ○

If yes, describe why the change was made:

---

Add an Educational Message

## MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) **during this reporting period**:

The Town of Freetown has posted the SWMP online for public review and comment. Hard copies of the SWMP are also available at the Town Hall.

Was this opportunity different than what was proposed in your NOI? Yes ○ No ◉

Describe any other public involvement or participation opportunities conducted **during this reporting period**:

All scheduled public involvement were canceled due to COVID-19.

## MCM3: Illicit Discharge Detection and Elimination (IDDE)

**Sanitary Sewer Overflows (SSOs)**

*Check off the box below if the statement is true.*

☐ This SSO section is NOT applicable because we DO NOT have sanitary sewer

*Below, report on the number of SSOs identified in the MS4 system and removed* ***during this reporting period****.*

Number of SSOs identified: 0

Number of SSOs removed: 0

**MS4 System Mapping**

*Below, check all that apply.*

The following elements of the Phase I map have been completed:

☒ Outfalls and receiving waters

- ☐ Open channel conveyances
- ☐ Interconnections
- ☐ Municipally-owned stormwater treatment structures
- ☒ Waterbodies identified by name and indication of all use impairments
- ☒ Initial catchment delineations

*Optional:* Describe any additional progress you made on your map during this reporting period or provide additional status information regarding your map:

**Screening of Outfalls/Interconnections**

*If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.*

- ◉ The outfall screening data is attached to the email submission
- ○ The outfall screening data can be found at the following website:

*Below, report on the number of outfalls/interconnections screened* ***during this reporting period****.*

Number of outfalls screened: 0

**Catchment Investigations**

*If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.*

- ○ The catchment investigation data is attached to the email submission
- ○ The catchment investigation data can be found at the following website:

*Below, report on the number of catchment investigations completed* ***during this reporting period****.*

Number of catchment investigations completed this reporting period: 0

*Below, report on the percent of catchments investigated* ***to date.***

Percent of total catchments investigated: 0

*Optional:* Provide any additional information for clarity regarding the catchment investigations below:

N/A

**IDDE Progress**

*If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.*

- ○ The illicit discharge removal report is attached to the email submission
- ○ The illicit discharge removal report can be found at the following website:

*Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed* ***during this reporting period.***

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 gallons/day

*Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed* ***since the effective date of the permit (July 1, 2018)****.*

Total number of illicit discharges identified: 0

Total number of illicit discharges removed: 0

*Optional:* Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

N/A

**Employee Training**

Describe the frequency and type of employee training conducted **during the reporting period**:

## MCM4: Construction Site Stormwater Runoff Control

*Below, report on the construction site plan reviews, inspections, and enforcement actions completed* ***during this reporting period****.*

Number of site plan reviews completed: 9

Number of inspections completed: 3

Number of enforcement actions taken: 0

*Optional:* Enter any additional information relevant to construction site plan reviews, inspections, and enforcement actions:

Site Plan reviews include Copart, Doctor Braley Road Solar, Quarry Drive Solar, High Street Solar, Braley Road Borrego Solar, Quanapoag Rd Borrego Solar, Woodland Estates Subdivision, Christy Lane Subdivision, Fallbrook Subdivision

## MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

**Ordinance or Regulatory Mechanism**

*Below, select the option that describes your ordinance or regulatory mechanism progress.*

- ○ Bylaw, ordinance, or regulations are updated and adopted consistent with permit requirements
- ○ Bylaw, ordinance, or regulations are updated consistent with permit requirements but are not yet adopted
- ◉ Bylaw, ordinance, or regulations have not been updated or adopted

**As-built Drawings**

Describe the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites:

**Street Design and Parking Lots Report**

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

No progress to date.

**Green Infrastructure Report**

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

No progress to date.

**Retrofit Properties Inventory**

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

## MCM6: Good Housekeeping

**Catch Basin Cleaning**

*Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins* ***during this reporting period****.*

Number of catch basins inspected: 600

Number of catch basins cleaned: 600

Total volume or mass of material removed from all catch basins: 750 cubic yards

*Below, report on the total number of catch basins in the MS4 system.*

Total number of catch basins: 770

*If applicable:*

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

These catch basins are checked following major storms.

**Street Sweeping**

*Report on street sweeping completed* ***during this reporting period*** *using one of the three metrics below.*

- ○ Number of miles cleaned: 107
- ◉ Volume of material removed: 750 cubic yards
- ○ Weight of material removed: [Select Units]

**O&M Procedures and Inventory of Permittee-Owned Properties**

*Below, check all that apply.*

The following permittee-owned properties have been inventoried:

- ☐ Parks and open spaces
- ☐ Buildings and facilities
- ☐ Vehicles and equipment

The following O&M procedures for permittee-owned properties have been completed:

- ☐ Parks and open spaces
- ☐ Buildings and facilities
- ☐ Vehicles and equipment

**Stormwater Pollution Prevention Plan (SWPPP)**

*Below, report on the number of site inspections for facilities that require a SWPPP completed* ***during this reporting period****.*

Number of site inspections completed:

Describe any corrective actions taken at a facility with a SWPPP:

## Additional Information

**Monitoring or Study Results**

*Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.*

- ◉ Not applicable
- ○ The results from additional reports or studies are attached to the email submission
- ○ The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

**Additional Information**

*Optional:* Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

**COVID-19 Impacts**

*Optional:* If any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Field work required to complete some Year 2 requirements were delayed due to COVID-19 safety concerns.

**Activities Planned for Next Reporting Period**

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 3 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Inspect all outfalls/ interconnections (excluding Problem and Excluded outfalls) for the presence of dry weather flow
- Complete follow-up ranking as dry weather screening becomes available

Annual Requirements

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected

- Sweep all uncurbed streets at least annually
- Continue investigations of catchments associated with Problem Outfalls
- Review inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; update if necessary

Provide any additional details on activities planned for permit year 3 below:

Year 2 requirements not completed during Year 2 will be completed during Year 3.

# Part V: Certification of Small MS4 Annual Report 2020

**40 CFR 144.32(d) 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: Title:

Signature: Date:

*[Signatory may be a duly authorized representative]*

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

## Annual Report Submission

*Please submit the form electronically via email to both EPA and MassDEP by clicking on one of the links below or using the email addresses listed below. Please ensure that all required attachments are included in the email and not attached to this PDF.*

EPA: stormwater.reports@epa.gov MassDEP: laura.schifman@mass.gov

**Paper Signature:**

*If you did not sign electronically above, you can print the signature page by clicking the button below.*

Print Signature Page

*Optional: If you did not sign electronically above, you may lock the form by clicking the "Lock Form" button below which will prompt you to save the locked version of the form. Save this locked version under a new file name.*

Lock Form

# Year 3 Annual Report
## Massachusetts Small MS4 General Permit
## Reporting Period: July 1, 2020-June 30, 2021

***Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form***

*Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed. Please ONLY report on activities between July 1, 2020 and June 30, 2021 unless otherwise requested.*

## Part I: Contact Information

Name of Municipality or Organization: Town of Freetown

EPA NPDES Permit Number: MAR04118

**Primary MS4 Program Manager Contact Information**

Name: Deborah Pettey Title: Interim Town Administrator

Street Address Line 1: 3 North Main Street, 2nd Floor

Street Address Line 2: N/A

City: Assonet State: MA Zip Code: 02702

Email: townadministrator@freetownma.gov Phone Number: (508) 644-2202

**Stormwater Management Program (SWMP) Information**

SWMP Location (web address): https://www.freetownma.gov/sites/g/files/vyhlif4441/f/news/freetown_swmp_report_-_2019_for_comment.pdf

Date SWMP was Last Updated: June 2019

If the SWMP is not available on the web please provide the physical address:

N/A

# Part II: Self-Assessment

*First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4. Make sure you are referring to the most recent EPA approved Section 303(d) Impaired Waters List which can be found here: https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state*

**Impairment(s)**

☒ Bacteria/Pathogens ☐ Chloride ☒ Nitrogen ☐ Phosphorus
☐ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

**TMDL(s)**

*In State:* ☐ Assabet River Phosphorus ☒ Bacteria and Pathogen ☐ Cape Cod Nitrogen
☐ Charles River Watershed Phosphorus ☐ Lake and Pond Phosphorus

*Out of State:* ☐ Bacteria/Pathogens ☐ Metals ☐ Nitrogen ☐ Phosphorus

Clear Impairments and TMDLs

*Next, check off all requirements below that have been completed.* ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 3 Requirements

- ☐ Inspected and screened all outfalls/interconnections (excluding Problem and Excluded outfalls)
- ☐ Updated outfall/interconnection priority ranking based on the information collected during the dry weather inspections as necessary
- ☐ Post-construction bylaw, ordinance, or other regulatory mechanism was updated and adopted consistent with permit requirements

*Optional:* If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above year 3 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

The Town plans to screen their MS4 outfalls in fall 2021. Additionally, the Town is in the process of evaluating its stormwater regulations for consistency with the 2016 MS4 Permit.

Annual Requirements

- ☒ Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- ☒ Kept records relating to the permit available for 5 years and made available to the public
- ☒ The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
  - ○ This is not applicable because we do not have sanitary sewer
  - ◉ This is not applicable because we did not find any new SSOs

- ◯ The updated SSO inventory is attached to the email submission
- ◯ The updated SSO inventory can be found at the following website:

N/A

- ☒ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- ☒ Provided training to employees involved in IDDE program within the reporting period
- ☒ All curbed roadways were swept at least once within the reporting period
- ☐ Updated system map due in year 2 as necessary
- ☒ Enclosed all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt
- ☐ Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities
- ☐ Updated inventory of all permittee owned facilities as necessary
- ☐ O&M programs for all permittee owned facilities have been completed and updated as necessary
- ☐ Implemented all maintenance procedures for permittee owned facilities in accordance with O&M programs
- ☐ Implemented program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- ☒ Inspected all permittee owned treatment structures (excluding catch basins)

*Optional:* If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above annual requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

N/A

**Bacteria/ Pathogens** (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Annual message was distributed encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Permittee or its agents disseminated educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time
- ☒ Provided information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

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

*Optional:* If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

N/A

**Nitrogen** (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Distributed an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers
- ☒ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

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

*Good Housekeeping and Pollution Prevention for Permittee Owned Operations*

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

*Potential structural BMPs*

- ☐ Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents was tracked and the nitrogen removal by the BMP was estimated consistent with Attachment 1 to Appendix H. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP were documented.
  - ○ The BMP information is attached to the email submission
  - ○ The BMP information can be found at the following website:

    N/A

*Optional:* If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

N/A

*Optional:* Use the box below to provide any additional information you would like to share as part of your self-assessment:

N/A

# Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

- ○ Yes
- ◉ No

If yes, describe below, including any relevant impairments or TMDLs:

N/A

# Part IV: Minimum Control Measures

*Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.*

## MCM1: Public Education

Number of educational messages completed **during this reporting period**: 17

*Below, report on the educational messages completed **during this reporting period**. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.*

**BMP: After The Storm Brochure: What is Stormwater Runoff?**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of the Town website, titled "After the Storm, A Citizens Guide to Understanding Stormwater." This brochure explains what stormwater runoff is, covers the effects of pollution, describes why stormwater runoff is a problem, and highlights stormwater solutions. The brochure was originally published by the EPA.

Targeted Audience: Residents

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

This brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

---

**BMP: After The Storm Brochure: Auto Care**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of the Town website, titled "After the Storm, A Citizens Guide to Understanding Stormwater." This brochure includes a segment on how to properly wash your car, make repairs, and dispose of auto fluids in order to protect our water resources. The brochure was originally published by the EPA.

Targeted Audience: Residents

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

This brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:After The Storm Brochure: Lawn Care**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" which includes a segment on the problem with using excess fertilizers, properly disposing of grass clippings and leaves, avoiding over-watering your lawn, composting yard waste, and covering dirt piles. The brochure was originally published by the EPA.

Targeted Audience: Residents

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:After The Storm Brochure: Septic Systems**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" which includes a segment on septic system maintenance, inspection, and how to properly dispose of household hazardous waste. The brochure was originally published by the EPA.

Targeted Audience: Residents

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:After The Storm Brochure: Pet Waste**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" which includes a segment on the problem with leaving pet waste on the ground, and advises residents to pick up after their dogs. The brochure was originally published by the EPA.

Targeted Audience: Residents

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:After The Storm Brochure: Residential Landscaping**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" which includes a segment on tips for residential landscaping to help reduce the impacts of stormwater, such as installing permeable pavement, using rain barrels to collect water, planting rain gardens and grassy swales, and building vegetated filter strips. The brochure was originally published by the EPA.

Targeted Audience: Residents

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:After The Storm Brochure: Commercial**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" which includes a segment on how dirt, oil, and debris collect in parking lots and ultimately get washed into stormwater sewers, and offers advice on sweeping up litter, covering grease storage and dumpsters, and reporting chemical spills. The brochure was originally published by the EPA.

Targeted Audience: Residents, Commercial Businesses/Facilities

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:After The Storm Brochure: Construction**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A citizens Guide to Understanding Stormwater" which includes a segment on utilization of erosion

controls on construction sites, such as diverting stormwater, installation and maintenance of erosion controls, preventing erosion through seeding and mulching. The brochure was originally published by the EPA.

Targeted Audience: Residents, Contractors

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:After The Storm Brochure: Agriculture**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" which includes a segment on how lack of vegetation due to agriculture can lead to erosion, how excess fertilizers and pesticides can poison aquatic wildlife, and the problem with livestock waste.

Targeted Audience: Residents, Farm Industry

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:After The Storm Brochure: Forestry**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After

the Storm, A Citizens Guide to Understanding Stormwater" which includes a segment on how improperly managed logging operations can lead to erosion and sedimentation. The brochure was originally published by the EPA.

Targeted Audience: Residents, Logging Industry

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP: After The Storm Brochure: Automotive Industries**

Message Description and Distribution Method:

The Town posted an informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" which includes a segment on how to properly maintain fueling stations, clean up spills, provide cover/retrofit for fueling islands, properly maintain fleet vehicles, and install oil/water separators. The brochure was originally published by the EPA.

Targeted Audience: Automotive Facilities

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational brochure on the "Stormwater and YOU" page of their website, titled "After the Storm, A Citizens Guide to Understanding Stormwater" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP: A Homeowners Guide to Healthy Habits for Clean Water**

Message Description and Distribution Method:

The Town posted an informational guide on the "Stormwater and YOU" page of their website, titled "Healthy Household Habits for Clean Water: A Homeowners Guide to Healthy Habits for Clean Water" which provides homeowners with tips for vehicles and garages, lawn and gardens, home repair and improvement, pet care, swimming pools and spas, and septic system use and maintenance. The brochure was originally published by the EPA.

Targeted Audience: Residents

Responsible Department/Parties: The Town of Freetown, EPA

Measurable Goal(s):

The informational guide on the "Stormwater and YOU" page of their website, titled "Healthy Household Habits for Clean Water: A Homeowners Guide to Healthy Habits for Clean Water" is always available for residents to reference.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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**BMP:Water Quality Monitoring Volunteer Opportunity**

Message Description and Distribution Method:

The Town posted a Water Quality Monitoring Volunteer Opportunity held by the Taunton River Watershed Alliance, which involves measuring how clean the river is by taking samples once a month from several different locations to test for stormwater pollutants and learn how to mitigate them.

Targeted Audience: Residents

Responsible Department/Parties: The Town of Freetown, the Taunton River Watershed Alliance

Measurable Goal(s):

The volunteer opportunity is still posted on Freetown's "Stormwater and YOU" page of their website, and it is still accepting volunteers. Contact information for this opportunity is posted alongside the message.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

---

**BMP:Spring Leaf Clippings & Fertilizer Use**

Message Description and Distribution Method:

Think Blue Massachusetts shared posts on Facebook in the spring encouraging the proper use and disposal of grass clippings and encouraged the proper use of slow-release fertilizers.

Targeted Audience: Residents

Responsible Department/Parties: Think Blue Massachusetts and the Town of Freetown

Measurable Goal(s):

Distributed in accordance with the Town of Freetown's nitrogen impairment requirements.

Message Date(s): 4/1/21, 4/6/21, 4/7/21, 4/8/21, 4/9/21, 4/15/21

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

---

**BMP: Summer Dog Waste Message**

Message Description and Distribution Method:

Think Blue Massachusetts shared posts on Facebook in summer to encourage proper pet waste management.

Targeted Audience: Residents

Responsible Department/Parties: Think Blue Massachusetts and the Town of Freetown

Measurable Goal(s):

Distributed in accordance with the Town of Freetown's nitrogen and bacteria/pathogen impairment requirements and bacteria/pathogen TMDL requirements.

Message Date(s): 3/16/21, 3/30/21, 4/15/21, 4/20/21, 6/17/21, 6/30/21

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ○

If yes, describe why the change was made:

N/A

---

**BMP: Fall Leaf Litter Message**

Message Description and Distribution Method:

Think Blue Massachusetts shared posts on Facebook in fall to encourage proper management of leaf litter.

Targeted Audience: Residents

Responsible Department/Parties: Think Blue Massachusetts and the Town of Freetown

Measurable Goal(s):

Distributed in accordance with the Town of Freetown's nitrogen impairment requirements.

Message Date(s): 10/5/20

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

---

**BMP: Septic System Message**

Message Description and Distribution Method:

Think Blue Massachusetts shared posts on Facebook regarding Septic Smart week to provide information to owners of septic systems about proper maintenance.

Targeted Audience: Residents

Responsible Department/Parties: Think Blue Massachusetts and the Town of Freetown

Measurable Goal(s):

Distributed in accordance with the Town of Freetown's bacteria/pathogen TMDL requirements.

Message Date(s): 9/16/20

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

N/A

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Add an Educational Message

## MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) **during this reporting period**:

The Town of Freetown has posted the SWMP online for public review and comment. Hard copies of the SWMP are also available at the Town Hall.

Was this opportunity different than what was proposed in your NOI? Yes ○ No ◉

Describe any other public involvement or participation opportunities conducted **during this reporting period**:

Two Household Hazardous Waste (HHW) Days are scheduled annually. A HHW Day was organized for May 15, 2021 at the Crapo Hill Landfill in New Bedford.

The Taunton River Watershed Alliance runs yearly Water Quality Monitoring Programs with community volunteers, trash clean-up events, and other community-based events.

## MCM3: Illicit Discharge Detection and Elimination (IDDE)

**Sanitary Sewer Overflows (SSOs)**

*Check off the box below if the statement is true.*

☐ This SSO section is NOT applicable because we DO NOT have sanitary sewer

*Below, report on the number of SSOs identified in the MS4 system and removed* ***during this reporting period****.*

Number of SSOs identified: 0

Number of SSOs removed: 0

**MS4 System Mapping**

*Optional:* Provide additional status information regarding your map:

MS4 mapping will be progressed in Year 4.

**Screening of Outfalls/Interconnections**

*If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses. Please also include the updated inventory and ranking of outfalls/interconnections based on monitoring results.*

- (●) No outfalls were inspected
- ( ) The outfall screening data is attached to the email submission
- ( ) The outfall screening data can be found at the following website:

N/A

*Below, report on the number of outfalls/interconnections screened* ***during this reporting period****.*

Number of outfalls screened: 0

*Below, report on the percent of outfalls/interconnections screened* ***to date****.*

Percent of outfalls screened: 0

*Optional:* Provide additional information regarding your outfall/interconnection screening:

Outfalls/interconnections are planned to be screened in fall 2021.

**Catchment Investigations**

*If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.*

- (●) No catchment investigations were conducted
- ( ) The catchment investigation data is attached to the email submission
- ( ) The catchment investigation data can be found at the following website:

N/A

*Below, report on the number of catchment investigations completed* ***during this reporting period****.*

Number of catchment investigations completed this reporting period: 0

*Below, report on the percent of catchments investigated* ***to date.***

Percent of total catchments investigated: 0

*Optional:* Provide any additional information for clarity regarding the catchment investigations below:

N/A

**IDDE Progress**

*If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.*

- (●) No illicit discharges were found
- ( ) The illicit discharge removal report is attached to the email submission
- ( ) The illicit discharge removal report can be found at the following website:

*Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed* ***during this reporting period.***

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 gallons/day

*Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed* ***since the effective date of the permit (July 1, 2018)***.

Total number of illicit discharges identified: 0

Total number of illicit discharges removed: 0

*Optional:* Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

The Town did not identify any illicit discharges during Year 3.

On August 5, 2021 (MS4 Permit Year 4), approximately 50 gallons of oil was released on South Main Road, Freetown. The event later received a Permanent Solutions Statement with No Conditions. This discharge will be reported in the MS4 Year 4 Annual Report.

**Employee Training**

Describe the frequency and type of employee training conducted **during this reporting period**:

Annual IDDE employee training was completed.

## MCM4: Construction Site Stormwater Runoff Control

*Below, report on the construction site plan reviews, inspections, and enforcement actions completed* ***during this reporting period***.

Number of site plan reviews completed: 7

Number of inspections completed: 0

Number of enforcement actions taken: 0

*Optional:* Enter any additional information relevant to construction site plan reviews, inspections, and enforcement actions:

N/A

## MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

**As-built Drawings**

*Below, report on the number of as-built drawings received* ***during this reporting period****.*

Number of as-built drawings received: 1

*Optional:* Enter any additional information relevant to the submission of as-built drawings:

N/A

**Street Design and Parking Lots Report**

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

To be completed in Year 4 of the Permit.

**Green Infrastructure Report**

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

To be completed in Year 4 of the Permit.

**Retrofit Properties Inventory**

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

To be completed in Year 4 of the Permit.

# MCM6: Good Housekeeping

## Catch Basin Cleaning

*Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins* ***during this reporting period****.*

Number of catch basins inspected: 1,200

Number of catch basins cleaned: 1,200

Total volume or mass of material removed from all catch basins: 250 cubic yards

*Below, report on the total number of catch basins in the MS4 system.*

Total number of catch basins: 772

*If applicable:*

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

The Town inspected and cleaned 1200 catch basins throughout the Town, including catch basins outside the MS4 area. The Town does not specifically track cleanings conducted within the MS4 areas of Town. The total volume of material removed from catch basins also includes catch basin cleanings from outside the MS4 area.

## Street Sweeping

*Report on street sweeping completed* ***during this reporting period*** *using one of the three metrics below.*

- (●) Number of miles cleaned: 80
- ( ) Volume of material removed: [Select Units]
- ( ) Weight of material removed: [Select Units]

## Stormwater Pollution Prevention Plan (SWPPP)

*Below, report on the number of site inspections for facilities that require a SWPPP completed* ***during this reporting period****.*

Number of site inspections completed: 0

Describe any corrective actions taken at a facility with a SWPPP:

N/A

# Additional Information

**Monitoring or Study Results**

*Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.*

- (●) Not applicable
- ( ) The results from additional reports or studies are attached to the email submission
- ( ) The results from additional reports or studies can be found at the following website(s):

N/A

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

N/A

**Additional Information**

*Optional:* Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

N/A

**COVID-19 Impacts**

*Optional:* If any of the above year 3 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

N/A

**Activities Planned for Next Reporting Period**

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 4 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Develop a report assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover
- Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist
- Identify a minimum of 5 permittee-owned properties that could potentially be modified or retrofitted with BMPs to reduce impervious areas

Annual Requirements

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all curbed streets at least annually
- Continue investigations of catchments associated with Problem Outfalls
- Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities
- Review inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; update if necessary
- Review O&M programs for all permittee owned facilities; update if necessary
- Implement all maintenance procedures for permittee owned facilities in accordance with O&M programs
- Implement program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- Enclose all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt
- Review as-built drawings for new and redevelopment to ensure compliance with post construction bylaws, regulations, or regulatory mechanism consistent with permit requirements
- Inspect all permittee owned treatment structures (excluding catch basins)

Provide any additional details on activities planned for permit year 4 below:

In Year 4, the Town plans to update the SWMP, complete dry weather outfall screening, and evaluate the

Town's existing land development regulations for compliance with the MS4 Permit.

# Part V: Certification of Small MS4 Annual Report 2021

**40 CFR 144.32(d) 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: Title:

Signature: Date:

*[Signatory may be a duly authorized representative]*

# APPENDIX J

## Minimum Control Measures BMPs

# Town of Freetown, Massachusetts

## MA MS4 General Permit - Control Measures

## CM #1 - Public Education and Outreach

| BMP ID | BMP Categorization | BMP Description | Responsible Department/Parties | Measurable Goal | Beginning Year of Implementation |
|---|---|---|---|---|---|
| R1 | **Distribution of a minimum of two (2) educational messages over the permit term to each of the four (4) required audiences** | Residents (1) | Board of Selectmen, Town Administrator | Distribute at least two educational messages to each audience within the permit term | 2018 |
| | | Businesses, Institutions, and Commercial Facilities (2) | Board of Selectmen, Town Administrator | | |
| | | Developers (construction) (3) | Board of Selectmen, Town Administrator | | |
| | | Industrial Facilities (4) | Board of Selectmen, Town Administrator | | |

# Town of Freetown, Massachusetts
## MA MS4 General Permit - Control Measures
## CM #2 - Public Involvement and Participation

| BMP ID | BMP Categorization | BMP Description | Responsible Department/Parties | Measurable Goal | Beginning Year of Implementation |
|---|---|---|---|---|---|
| **R1** | **Public Review** | SWMP Review | Board of Selectmen, Town Administrator | Make SWMP available at least annually for public review | 2020 |
| **R2** | **Public Participation** | SWMP Review | Board of Selectmen, Town Administrator | Allow public to comment on stormwater management plan annually | 2018 |
| 2A | Public Participation | Cleanups - Shoreline/Waterbody | Board of Selectmen, Town Administrator | Continue to support annual cleanups with the Assonet Bay Shores Association | 2018 |
| 2B | Public Participation | Household Hazardous Waste | Board of Selectmen, Town Administrator | Continue to host biannual hazardous waste collection days | 2018 |
| 2C | Public Participation | Water Monitoring | Board of Selectmen, Town Administrator | Continue to post information on Town website | 2018 |
| 2D | Public Participation | Poster Contest | Board of Selectmen, Town Administrator | Reestablish poster contest in-house | 2018 |

# Town of Freetown, Massachusetts

## MA MS4 General Permit - Control Measures

## CM #3 - Illicit Discharge Detection and Elimination (IDDE) Program

| BMP ID | BMP Categorization | BMP Description | Responsible Department/Parties | Measurable Goal | Beginning Year of Implementation |
|---|---|---|---|---|---|
| **R1** | **SSO Inventory** | Develop SSO inventory in accordance with permit conditions | Board of Selectmen, Town Administrator | Within 1 year of effective date develop inventory of historical SSOs that occurred within the MS4 in | 2018 |
| **R2** | **Storm Sewer System Map** | Create map and update during IDDE program completion | Board of Selectmen, Town Administrator | Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit | 2018 |
| **R3** | **Written IDDE Program Development** | Create written IDDE program | Board of Selectmen, Town Administrator | Complete within 1 year of the effective date of permit | 2018 |
| **R4** | **Implement IDDE Program** | Implement catchment investigations according to program and permit conditions | Board of Selectmen, Town Administrator | Implement catchment investigations according to program and permit conditions | 2018 |
| **R5** | **Employee Training** | Train employees on IDDE implementation | Board of Selectmen, Town Administrator | Train annually | 2018 |
| **R6** | **Conduct Dry Weather Screening** | Conduct in acordance with outfall screening procedure and permit conditions | Board of Selectmen, Town Administrator | Conduct in accordance with outfall screening procedure and permit conditions | 2018 |
| **R6** | **Conduct Wet Weather Screening** | Conduct in acordance with outfall screening procedure | Board of Selectmen, Town Administrator | Conduct in accordance with outfall screening procedure and permit conditions | 2018 |
| **R7** | **Ongoing Screening** | Conduct dry weather and wet weather screening as necessary | Board of Selectmen, Town Administrator | Conduct in accordance with outfall screening procedure and permit conditions | 2018 |
| **R8** | **Public Awareness** | Stimulate public awareness for reporting of illegal dumping | Board of Selectmen, Town Administrator | Continue to provide public contact information | 2018 |

# Town of Freetown, Massachusetts

## MA MS4 General Permit - Control Measures

## CM #4 - Construction Site Stormwater Runoff Control

| BMP ID | BMP Categorization | BMP Description | Responsible Department/Parties | Measurable Goal | Beginning Year of Implementation |
|---|---|---|---|---|---|
| **R1** | **Site inspection and enforcement of Erosion and Sediment Control (ESC) measures** | Complete written procedures of site inspections and enforcement procedures | Board of Selectmen, Town Administrator, Building Commissioner | Within 1 year of effective date of the permit, develop written/electronic SOP for inspection/enforcement of ESC measures | 2018 |
| **R2** | **Site plan review** | Complete written procedures of site plan review and begin implementation | | Complete within 1 year of the effective date of the permit | 2018 |
| **R3** | **Erosion and Sediment Control** | Adoption of requirements for construction operators to implement a sediment and erosion control program | | Complete within 1 year of the effective date of the permit | 2018 |
| **R4** | **Waste Control** | Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes | | Complete within 1 year of the effective date of the permit | 2018 |
| **R5** | **Website** | Update the Building Department Website | | Continue to update website | 2018 |

# Town of Freetown, Massachusetts

## MA MS4 General Permit - Control Measures

## CM #5 - Stormwater Management in New Development and Redevelopment

| BMP ID | BMP Categorization | BMP Description | Responsible Department/Parties | Measurable Goal | Beginning Year of Implementation |
|---|---|---|---|---|---|
| **R1** | **As-built plans for on-site stormwater control** | The procedures to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP | Board of Selectmen, Town Administrator | Require submission of as-built plans for completed projects | 2018 |
| **R2** | **Inventory and priority ranking of MS4-owned properties that may be retrofitted with BMPs** | Conduct detailed inventory of MS4 owned properties and rank for retrofit potential | Board of Selectmen, Town Administrator | Complete 4 years after permit effective date | 2018 |
| **R3** | **Allow green infrastructure** | Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist | Board of Selectmen, Town Administrator | Complete 4 years after permit effective date | 2018 |
| **R4** | **Street design and parking lot guidelines** | Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options | Board of Selectmen, Town Administrator | Complete 4 years after permit effective date | 2018 |
| **R5** | **Ensure any stormwater controls or management practices for new development and redevelopment will prevent or minimize impacts to water quality** | Adoption, amendment or modification of a regulatory mechanism to meet permits requirements | Board of Selectmen, Town Administrator | Complete 2 years after permit effective date | 2018 |
| **R6** | **Open Space Plan** | Develop a final open space plan | Board of Selectmen, Town Administrator | Continue to implement measures that encourage priority open space protection | 2018 |

# Town of Freetown, Massachusetts

## MA MS4 General Permit - Control Measures

### CM #6 - Good House Keeping and Pollution Prevention for Permittee Owned Operations

| BMP ID | BMP Categorization | BMP Description | Responsible Department/Parties | Measurable Goal | Beginning Year of Implementation |
|---|---|---|---|---|---|
| **R1** | **O&M procedures** | Create written O&M procedures for parks and open spaces, buildings and facilities, and vehicles and equipment | Board of Selectmen, Town Administrator | Complete within 2 years after permit effective date | 2019 |
| **R2** | **Inventory all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment** | Create inventory | Board of Selectmen, Town Administrator | Complete 2 years after permit effective date | 2019 |
| **R3** | **Infrastructure O&M** | Establish and implement program for repair and rehabilitation of MS4 infrastructure | Board of Selectmen, Town Administrator | Complete 2 years after permit effective date | 2019 |
| **R4** | **Stormwater Pollution Prevention Plan (SWPPP)** | Create Stormwater Pollution Prevention Plan (SWPPP) for maintenance garages, transfer stations and other waste- handling facilities | Board of Selectmen, Town Administrator | Complete 2 years after permit effective date | 2019 |
| **R5** | **Catch Basin Cleaning** | Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule | Board of Selectmen, Town Administrator | Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually | 2018 |
| **R6** | **Street Sweeping Program** | Sweep all strets and permitee-owned parking lots in accordance with permit conditions | Board of Selectmen, Town Administrator | Sweep all streets and permitee-owned parking lots once per year in the spring | 2018 |
| **R7** | **Road Salt use optimization program** | Establish and implement a program to minimize the use of road salt | Board of Selectmen, Town Administrator | Implement salt use optimization during deicing season | 2018 |
| **R8** | **Inspections and maintenance of stormwater treatment structures** | Establish and implement inspection and maintenance procedures and frequencies | Board of Selectmen, Town Administrator | Inspect and maintain treatment structures at least annually | 2018 |
| 6A | Record keeping of inspection data | Continue documenting catch basin and outfall inspection/condition data | Highway Surveyor | Continue recording data | 2019 |

# Town of Freetown, Massachusetts

## MA MS4 General Permit - In State Water Quality Impairments

## Buzzards Bay Watershed - Bacteria and Pathogens

| BMP ID | BMP Categorization | BMP Description | Responsible Department/Parties | Measurable Goal | Beginning Year of Implementation |
|---|---|---|---|---|---|
| **R1** | **Public Education** | Residents | Highway Department | Distribute annual message encouraging the proper management of pet waste | 2018 |
| **R2** | **Illicit Discharge** | | Highway Department | Prioritize catchment areas | 2018 |

# APPENDIX K

## Illicit Discharge Detection and Elimination (IDDE) Plan

# ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PLAN

Town of Freetown

September 2022

ENVIRONMENTAL PARTNERS

— An Apex Company —

## Illicit Discharge Detection and Elimination (IDDE) Plan Revision History

**MS4 Materials that supplement the 2019 IDDE Document**

| Revision # | Date | Comments |
|---|---|---|
| 0 | 6/2019 | IDDE Plan published for Town comments |
| 2 | 9/2022 | Updated text, Appendix B, and Appendix C; attached new sampling reports to Appendix E |
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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

Signature _____ Date

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# SECTION 1 INTRODUCTION

## SECTION 1.1 MS4 PROGRAM

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed for The Town of Freetown 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 and 2020 Permit Modifications require that each permittee, or regulated community, address six Minimum Control Measures. These measures include the following:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination Program
4. Construction Site Stormwater Runoff Control
5. Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management)
6. 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. Originally, the Town published this Plan in 2019, and since then, the Town has updated the Plan as needed.

## SECTION 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 outdated building and construction practices. Examples of illicit discharges in this category include floor drains in old buildings that are connected to the storm drain system, 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 reconfiguring a sanitary sewer connection from a municipal storm to a sanitary sewer drain. Other beneficial strategies, such as reducing dog waste, can be accomplished through public outreach in conjunction with installing dog waste bins.

Regardless of the situation, illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to surface waters.

## SECTION 1.3 ALLOWABLE NON-STORMWATER DISCHARGES

The following categories of non-stormwater 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 the sources entirely).

# SECTION 1.4 RECEIVING WATERS AND IMPAIRMENTS

**Table 1-1** lists the "impaired waters" within the boundaries of Freetown's MS4 regulated area. 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. The inventory is based on the Massachusetts 2018/2020 Integrated List of Waters finalized by MassDEP in February 2022 and updated every two years. The first draft of this IDDE Plan, published in 2019, and the Town's Notice of Intent (NOI), published in 2018, used the previous Massachusetts 2014 Integrated List of Waters.

There are two minor changes to Freetown's impairments between the 2014 and 2018/2020 Integrated Lists of Waters. In this period, MassDEP completed the evaluation of the Assonet River segment MA62-19 and identified a fish passage barrier impairment; this evaluation re-categorized the segment from Category 2 (not all uses assessed) to Category 4c (impairment not caused by a pollutant). Additionally, a fanwort impairment was identified in Long Pond (MA62108). These two changes impose no new requirements on the Town of Freetown's MS4 program.

**Table 1-1 Impaired Waters**

| Waterbody Name | Segment ID | Category | Impairment(s) | Associated Approved TMDL * |
|---|---|---|---|---|
| Assonet River | MA62-20 | 4a | • Fecal Coliform | 40309 |
| | MA62-19 | 4c | • Fish Passage Barrier | |
| East Freetown Pond | MA62063 | 4c | • Non-Native<br>• Aquatic Plants | |
| Long Pond | MA62108 | 4c | • Non-Native Aquatic Plants<br>• Fanwort | |
| Unnamed Tributary | MA62-42 | 5 | • Benthic Macroinvertebrates<br>• Fish Bioassessments | |

Category 4a Waters – TMDL is complete.
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 the EPA as of the date of issuance of the Massachusetts 2018/2020 List of Integrated Waters (February 2022).

These impairments require additional sampling in accordance with Appendix G of the MS4 Permit. The Town must sample for fecal coliform and e. coli at outfalls discharging to segment MA62-20 of the Assonet River. Due to the TMDL for pathogens in the Buzzards Bay and Taunton River Watersheds, the Town must sample all outfalls for fecal coliform and e. coli. All waterbodies within the Taunton River Watershed have a nitrogen impairment, which requires Freetown to also sample for total nitrogen at outfalls within the Taunton River Watershed.

In order to comply with the 2016 MS4 Permit Appendix H, the Town of Freetown must implement the illicit discharge program. Catchments draining to Category 4a, 4c, and 5 waters shall be designated either Problem Catchments or High Priority Catchments in implementation of the IDDE program.

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

The goals of the IDDE program are to find and eliminate illicit discharges to the Town's 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.**

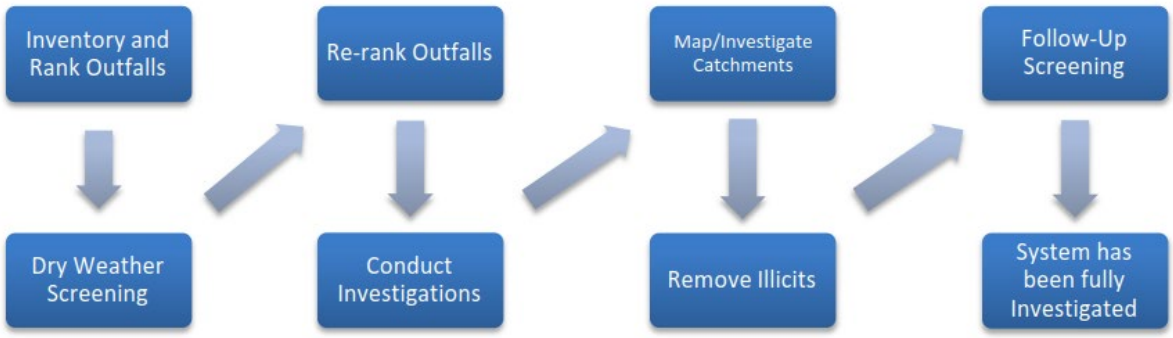


**Figure 1-1 IDDE Investigation Procedure Framework**

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

| IDDE Program Requirement | Completion Date from Effective Date of Permit | | | | | |
|---|---|---|---|---|---|---|
| | 1 Year (June 2019) | 1.5 Years (Dec. 2019) | 2 Years (June 2020) | 3 Years (June 2021) | 7 Years (June 2025) | 10 Years (June 2028) |
| Written IDDE Program Plan | ***X*** | | | | | |
| Sanitary Sewer Overflow (SSO) Inventory | ***X*** | | | | | |
| Written Catchment Investigation Procedure | | ***X*** | | | | |
| Phase I Mapping | | | ***X*** | | | |
| Phase II Mapping | | | | | | ***X*** |
| IDDE Regulatory Mechanism or By-law (if not already in place) | | | | ***X*** | | |
| Dry Weather Outfall Screening | | | | ***X*** | | |
| Follow-up Ranking of Outfalls and Interconnections | | | | ***X*** | | |
| Catchment Investigations – Problem Outfalls | | | | | ***X*** | |
| Catchment Investigations – all Problem, High and Low Priority Outfalls | | | | | | ***X*** |

# SECTION 1.6 WORK COMPLETED UNDER THE 2003 MS4 PERMIT

The 2003 MS4 Permit required each MS4 community to develop a plan to detect illicit discharges using a combination of mapping of the storm system, 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 their removal would be documented.

The Town of Freetown 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, the Town completed other IDDE-related activities prior to the 2016 MS4 Permit:

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

# SECTION 2 AUTHORITY AND STATEMENT OF IDDE RESPONSIBILITIES

## SECTION 2.1 LEGAL AUTHORITY

The Town of Freetown has adopted Non-Stormwater Discharges to the Municipal Storm Drainage System of the Town of Freetown (May 2017), Article 27 of the Town Bylaws. A copy of the bylaws is provided in **Appendix A**. The Illicit Discharge Bylaw provides the Town of Freetown 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 Freetown is in the process of reviewing its current Illicit Discharge By-Law and related land use regulations and policies for consistency with the 2016 MS4 Permit and 2020 Permit Modifications.

## SECTION 2.2 STATEMENT OF RESPONSIBILITIES

The Freetown Town Planner is the lead municipal agencies 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:

- Interim Town Administrator – Deborah L. Pettey
- Planning Technician – Victoria D'Antoni
- Highway Department – Charles Macomber
- Transfer Station – Victoria King
- Health Department – Keven V. Desmarais
- Board of Selectmen – Trevor Matthews
- Board of Health – Jared Zager
- Building Department – Jeffrey Chandler
- Zoning Board of Appeals – Nicolas Velozo
- Water & Sewer Commission – Robert S. Parker
- Open Space Consultant – Mike McCue

# SECTION 3 STORMWATER SYSTEM MAPPING

The Town of Freetown 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 are responsible for updating the stormwater system mapping pursuant to the 2016 MS4 Permit. The Town of Freetown reports on the progress towards completion of the storm system map in each annual report. Updates to the stormwater mapping are included in **Appendix B**.

## SECTION 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 USEPA 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 Freetown has completed following updates to its stormwater mapping to meet the Phase I requirements:

- Outfalls and receiving waters
- 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 *(attached as Attachment D and further developed in Section 5.1)*
- Municipally owned stormwater treatment structures

The Town of Freetown is in the process of updating its stormwater mapping to include the remaining Phase I information:

- Interconnections with other MS4s and other storm sewer systems

- Open channel conveyances

The following table, Table 3-1, contains information regarding the total number of drainage structures mapped within the MS4 Urbanized Area in Freetown. It has been compiled using data collected by the Town.

**Table 3-1 Summary of Mapped MS4 Structures**

| Structure Type | Number of Structures |
|---|---|
| Outfalls | 34 |
| Catch Basin | 777 |
| Manholes | 204 |
| Dry Wells | 10 |
| Pipe End Inlet | 20 |
| Pipe End Outlet | 72 |
| Other Outlet | 28 |
| Temporary/Unknown/Other | 42 |
| Stormwater BMPs | 0 |
| Culvert Inlet/outlets | 114 |
| Drain Pipes | 959 |

## SECTION 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
- Municipal combined sewer system (not applicable)

The Town of Freetown 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
- Municipal Sanitary Sewer System

Updates to the Phase II mapping, including updated spatial information for outfalls, manholes, catch basins, and refined catchment delineations will continue during catchment investigations.

The Town of Freetown will continue to update its stormwater mapping by July 1, 2028 to include the remaining Phase II information.

## SECTION 3.3 ADDITIONAL RECOMMENDED MAPPING ELEMENTS

Although not a requirement of the 2016 MS4 Permit, the Town of Freetown 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

# SECTION 4 SANITARY SEWER OVERFLOWS (SSOs)

The 2016 MS4 Permit requires municipalities to prohibit illicit discharges, including sanitary sewer overflows (SSOs), to the separate storm sewer system. SSOs are discharges of untreated sanitary wastewater from a municipal sanitary sewer 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.

The Town of Freetown has completed an inventory of SSOs that have discharged to the MS4 since five (5) years prior to the effective date of the 2016 MS4 Permit, based on a review of available documentation pertaining to SSOs. The inventory includes 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. **Table 4-1** is provided below as reference for future use, if necessary.

Upon detection of an SSO, the Town of Freetown eliminates it as expeditiously as possible and takes 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 Freetown provides oral notice to USEPA within 24 hours and written notice to USEPA and MassDEP within five (5) days of becoming aware of the SSO occurrence.

The inventory in **Table 4-1** is updated by the Board of Health when new SSOs are detected. The SSO inventory is included in the annual report, including the status of mitigation and corrective measures to address each identified SSO.

**Table 4-1 SSO Inventory**
**Freetown, Massachusetts**
**Revision Date: September 2022**

| SSO Location[1] | Discharge Statement[2] | Date[3] | Time Start[3] | Time End[3] | Estimated Volume[4] | Description[5] | Mitigation Completed[6] | Mitigation Planned[7] |
|---|---|---|---|---|---|---|---|---|
| South Main Street at Route 24 | 50 gallons of diesel fuel discharged to MS4 system. | 8/5/21 | 7:38 | - | 50 gallons | 50 gallons of diesel fuel were discharged to 5 storm drains following a tractor trailer rollover. | Determination of No Significant Risk to human health or the environment was made by the Town's consultant. | A Permanent Statement with No Conditions, as described in 310 CMR 40.10141(1)(c )(2) has been achieved. No additional action was required. |
| 136 South Main Street | 25 gallons of diesel fuel discharged to the MS4 system. | 11/22/21 | 8:00 | - | 25 gallons | 25 gallons of diesel fuel were discharged to 1 storm drain following a sudden release from a refrigeration tank. | Site conditions have been restored and Determination of No Significant Risk to human health or the environment was made by Clean Harbors Environmental Services, Inc. | A Permanent Statement with No Conditions, as described in 310 CMR 40.10141(1)(c )(2) has been achieved. No additional action was required. |
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[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

# SECTION 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 contain illicit discharges and SSOs. The ranking helps determine the priority order for performing IDDE investigations and meeting permit milestones.

## SECTION 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 have been 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 were 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.

## SECTION 5.2 OUTFALL AND INTERCONNECTION INVENTORY AND INITIAL RANKING

Freetown has completed an initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information. The initial inventory and ranking was completed within one (1) year from the effective date of the permit. An updated inventory and ranking is provided in each annual report. The inventory is updated annually to include data collected in connection with dry weather screening and other relevant inspections.

The outfall and interconnection inventory identifies each outfall and interconnection discharging from the MS4, records the structure location and condition, and provides a framework for tracking inspections, screenings, and other IDDE program activities.

Outfalls and interconnections are 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 ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
    - Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

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.

*Freetown has no 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

    *Freetown has 22 High Priority Outfalls*

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

    *Freetown has 11 Low Priority Outfalls*

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; and cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.

    *Freetown has no Excluded Outfalls*

Outfalls are ranked into the above priority categories (<u>except for excluded outfalls, which are excluded from the IDDE program</u>) 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 was based upon response provided by the Town of Freetown in May 2019. The initial characteristics considered include:

- **Previous screening results** – Previous screening/sampling results indicate likely sewer input (see criteria above for Problem Outfalls).
    - 4 MS4 outfalls screened in 2008
        - 253 outfall/outlet locations field-verified in Spring/Summer 2008
        - 4 of 253 locations have since been categorized as "MS4 Outfalls"
    - 63 MS4 outfalls screened in 2021
- **Past discharge complaints and reports**
    - No complaints provided.
- **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, or
    - 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 stations, car washes, garden centers, car dealerships, and industrial areas were found within catchments: AA, B, K, M, and O.
- **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 may have a high illicit discharge potential. Developments 20 years or younger may have a low illicit discharge potential.
    - Year built data provided in Level 3 Parcels database.
- **Sewer conversion** – Contributing catchment areas that were once serviced by septic systems, but have since been converted to sewer connections may have a high illicit discharge potential.
    - No sewer conversion data available.
- **Historic combined sewer systems** – Contributing areas that were once serviced by a combined sewer system, but have since been separated may have a high illicit discharge potential.
    - No combined sewer systems.
- **Surrounding density of aging septic systems** – Septic systems 30 years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.
    - No known septic problem areas.
- **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 water bodies** – Impaired waters and/or waters with approved TMDL(s) that receive discharge from the MS4 have a high illicit discharge potential if the discharges could contain the pollutant identified as the cause of the water quality impairment.
    - Impaired water bodies are listed in **Table 1-1**.

**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 the Assonet River, East Freetown Pond, Long Pond, and Unnamed Tributary (MA62-42).

# SECTION 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, or hired representatives, are 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.

## 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 use precipitation data from Lakeview Heights Station (Station ID KMALAKEV8). If Lakeview Heights Station is not available or not reporting current weather data, then Freetown Lakeville Station (Station ID KMALAKEV178) is used as a back-up.

## SECTION 6.2 DRY WEATHER SCREENING/SAMPLING PROCEDURE

### Section 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.

## Section 6.2.2 Field Equipment

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

**Table 6-1 Field Equipment – Dry Weather Outfall Screening and Sampling**

| Equipment | Use/Notes |
|---|---|
| Clipboard | For organization of field sheets and writing surface |
| Field Sheets | Field sheets for both dry weather inspection and dry weather sampling should be available with extras |
| Chain of Custody Forms | To ensure proper handling of all samples |
| Pens/Pencils/Permanent Markers | For proper labeling |
| Nitrile Gloves | To protect the sampler as well as the sample from contamination |
| Flashlight/headlamp with Batteries | For looking in outfalls or manholes, helpful in early mornings as well |
| Cooler with Ice | For transporting samples to the laboratory |
| Digital Camera | For documenting field conditions at time of inspection |
| Personal Protective Equipment (PPE) | Reflective vest, safety glasses, and boots at a minimum |
| GPS Receiver | For taking spatial location data |
| Water Quality Sonde | If needed, for sampling conductivity, temperature, pH |
| Water Quality Meter | Handheld 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.<br>Keep extra sample containers on hand at all times.<br>Make sure there are proper sample containers for what is being sampled for (e.g., bacteria requires sterile containers) |
| Pry Bar or Pick | For opening catch basins and manholes when necessary |

| Equipment | Use/Notes |
|---|---|
| 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 |

## Section 6.2.3 Sample Collection and Analysis

If flow is present during a dry weather outfall inspection, a sample must 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 can proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results. Field staff must 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**

| Analyte or Parameter [1] | Instrumentation (Portable Meter) | Field Test Kit |
|---|---|---|
| Ammonia | CHEMetrics™ V-2000 Colorimeter<br>Hach™ DR/890 Colorimeter<br>Hach™ Pocket Colorimeter™ II | CHEMetrics™ K-1410<br>CHEMetrics™ K-1510 (series)<br>Hach™ NI-SA<br>Hach™ Ammonia Test Strips |
| Surfactants (Detergents) | CHEMetrics™ I-2017 | CHEMetrics™ K-9400 and K-9404 Hach™ DE-2 |
| Chlorine | CHEMetrics™ V-2000, K-2513<br>Hach™ Pocket Colorimeter™ II | NA |
| Conductivity | CHEMetrics™ I-1200<br>YSI Pro30<br>YSI EC300A<br>Oakton 450 | NA |
| Temperature | YSI Pro30<br>YSI EC300A<br>Oakton 450 | NA |
| Salinity | YSI Pro30<br>YSI EC300A<br>Oakton 450 | NA |
| Dissolved Oxygen | YSI Pro30<br>YSI EC300A<br>Oakton 450 | NA |
| Turbidity | Hach™ 2100Q Portable Turbidimeter<br>Oakton CON 150 | NA |

[1] Where the stormwater discharges directly into a water quality limited water or a water subject to an approved TMDL, the sample must be analyzed for the pollutant(s) of concern identified as the cause of the water quality impairment.

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**

| Analyte or Parameter | Analytical Method | Detection Limit | Max. Hold Time | Preservative |
|---|---|---|---|---|
| Ammonia | **EPA**: 350.2<br>**SM**: 4500-NH3C | 0.05 mg/L | 28 days | Cool ≤6°C, $H_2SO_4$ to pH <2, No preservative required if |

| Analyte or Parameter | Analytical Method | Detection Limit | Max. Hold Time | Preservative |
|---|---|---|---|---|
| | | | | analyzed immediately |
| Surfactants | **SM**: 5540-C | 0.01 mg/L | 48 hours | Cool ≤6°C |
| Chlorine | **SM**: 4500-Cl G | 0.02 mg/L | Analyze within 15 minutes | None Required |
| Temperature | **SM**: 2550B | *NA* | Immediate | None Required |
| Specific Conductance | **EPA**: 120.1<br>**SM**: 2510B | 0.2 µs/cm | 28 days | Cool ≤6°C |
| Salinity | **SM**: 2520 | - | 28 days | Cool ≤6°C |
| Biochemical Oxygen Demand (BOD) | **EPA:** 360.1 | **EPA:** 3 mg/L | 48 hours | Cool ≤6°C |
| Dissolved Oxygen | **EPA:** 365.1 | **EPA:** 1 mg/L | Immediate | Cool ≤6°C |
| Turbidity | **EPA:** 160.2 | **EPA:** 1 NTU | 48 hours | Cool ≤6°C |
| Indicator Bacteria:<br>*E.coli*<br>*Enterococcus*<br>*Fecal Coliform* | *E.coli*<br>**EPA**: 1603<br>**SM**: 9221B, 9221F , 9223 B<br>**Other**: Colilert®, Colilert-18®<br>*Enterococcus*<br>**EPA**: 1600<br>**SM**: 9230 C<br>**Other**: Enterolert®<br>*Fecal Coliform*<br>**EPA:** 1680 | *E.coli*<br>**EPA**: 1 cfu/100mL<br>**SM**: 2 MPN/100mL<br>**Other**: 1 MPN/100mL<br>*Enterococcus*<br>**EPA**: 1 cfu/100mL<br>**SM**: 1 MPN/100mL<br>**Other**: 1 MPN/100mL<br>*Fecal Coliform*<br>**EPA:** 1 ctu | 8 hours | Cool ≤10°C, 0.0008% $Na_2S_2O_3$ |
| Total Phosphorus | **EPA**: Manual-365.3, Automated Ascorbic acid digestion-365.1 Rev. 2, ICP/AES4-200.7 Rev. 4.4<br><br>**SM**: 4500-P E-F | **EPA**: 0.01 mg/L<br>**SM** : 0.01 mg/L | 28 days | Cool ≤6°C, $H_2SO_4$ to pH <2 |
| Total Nitrogen (Ammonia + Nitrate/Nitrite, methods are for Nitrate-Nitrite and need to be combined with Ammonia listed above.) | **EPA**: Cadmium reduction (automated)-353.2 Rev. 2.0,<br>**SM**: 4500-$NO_3$ E-F | **EPA**: 0.05 mg/L<br>**SM** : 0.05 mg/L | 28 days | Cool ≤6°C, $H_2SO_4$ to pH <2 |

40 CFR § 136: http://www.ecfr.gov/cgi-bin/text idx?SID=b3b41fdea0b7b0b8cd6c4304d86271b7&mc=true&node=pt40.25.136&rgn=div5
SM = Standard Methods

# SECTION 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 USEPA 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 6-4 Benchmark Field Measurements for Select Parameters**

| Analyte or Parameter | Benchmark |
|---|---|
| Ammonia | >0.5 mg/L |
| Conductivity | >2,000 µS/cm |
| Surfactants | >0.25 mg/L |
| Chlorine | >0.02 mg/L<br>(detectable levels per the 2016 MS4 Permit) |
| Indicator Bacteria:<br>*E.coli*<br>*Enterococcus* | *E.coli*: 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<br><br>*Enterococcus:* 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 |

# SECTION 6.4 DRY WEATHER WORK COMPLETED TO DATE

The Town's outfall inventory contained 33 outfalls when the NOI was submitted in 2018. In 2021, the Town's hired consultants screened all mapped outfalls and inventoried one (1) new municipal outfall. Five outfalls were found to be flowing during dry weather and sampled for field and laboratory analysis. The updated outfall inventory for the Town of Freetown includes 34 Town-owned outfalls. Screening and sampling results are attached in **Appendix E**.

# SECTION 6.5 FOLLOW-UP RANKING OF OUTFALLS AND INTERCONNECTIONS

The Town of Freetown is responsible for updating the ranking of outfalls and interconnections. Outfalls/interconnections where relevant information is 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 are 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.

The Town updated and re-prioritized the initial outfall and interconnection rankings based on information gathered during dry weather screening over the first three (3) years of the permit term (June 30, 2021). The dry weather outfall sampling results from 2021 showed no evidence of illicit sewer connections and thus the Town continues to have no problem outfalls. Still, the re-prioritized ranking table has a notable change. In 2019, one outfall was ranked as high. In the updated ranking, 22 outfalls are ranked as high because the water quality of receiving waters was updated. The updated ranking table is attached as **Appendix C**.

# SECTION 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 is recorded and reported in each annual report.

## SECTION 7.1 SYSTEM VULNERABILITY FACTORS

The Highway Department is in the process of reviewing relevant mapping and historic plans and records to identify areas within the catchment with higher potential for illicit connections. The following information shall 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 **System Vulnerability Factors (SVFs)** will be identified for each catchment. The following are required SVFs to be considered:

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
- Common or twin-invert manholes serving storm and sanitary sewer alignments
- Common trench construction serving both storm and sanitary sewer alignments
- Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
- Areas formerly served by combined sewer systems
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations

The following are optional SVFs the EPA recommends considering:

- 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)
- 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.

An SVF inventory is in the process of being developed for each catchment (see **Appendix F**) and will continue to be filled out for each catchment as SVFs are identified. The SVF inventory will be included in each annual report.

## SECTION 7.2 DRY WEATHER MANHOLE INSPECTIONS

The Town of Freetown plans to begin catchment investigations in Year 5. During which, staff 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 is 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.

## SECTION 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 is responsible for implementing the wet weather outfall sampling program and making updates as necessary. In Freetown, wet weather sampling has not yet been started.

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.

## SECTION 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 G**.

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 and posting notifications in businesses and building lobbies of multi-family dwellings.

### Section 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 forecasted. 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 sandbags/barriers, 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.

### Section 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.

### Section 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 (e.g., 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.

### Section 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.

### Section 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.

### Section 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 the canines' 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.

# SECTION 7.5 ILLICIT DISCHARGE REMOVAL

When the specific source of an illicit discharge is identified, the Town of Freetown 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

## Section 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.

# SECTION 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.

# SECTION 8 TRAINING

Annual IDDE training is made available to all employees involved in the IDDE program. This training includes 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 are and will continue to be maintained. A training attendance log is included in **Appendix H**. The frequency and type of training is included in the annual report.

# SECTION 9 PROGRESS REPORTING

The progress and success of the IDDE program is evaluated on an annual basis. The evaluation is documented in the annual report and includes 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 is measured by the IDDE activities completed within the required permit timelines.

# APPENDIX A

## Legal Authority (IDDE By-law or Ordinance)

## ARTICLE 25 (25.3 cont.)

aforesaid. Said commanding officer or department head shall retain and safely preserve one copy and shall, at a time not later than the next court day after such delivery or mailing, deliver the other copy to the Clerk of Court before which the offender has been notified to appear.

The disposition of such notices by the Clerk of the Fall River District Court shall be in accordance with § 21D of Chapter 40 of the General Laws, and/or take any other action relative thereto. *ATM 5/7/90*

## ARTICLE 26
### APPROVAL, EFFECTIVE DATE OF BY LAWS

**26.1 Approval of By-Laws**
These by-laws shall take effect upon approval and publication in the manner required by law and shall be in lieu of all by-laws heretofore enforced except for the Soil Removal By-Law passed at the annual town meeting of 1956 which by-law shall be incorporated therein.

**26.2 Provision of By-Laws**
If any provision of these by-laws be held unlawful or shall not be approved it shall not effect any other provision of these by-laws or the enforcement thereof.

## ARTICLE 27
### NON-STORMWATER DISCHARGES TO THE MUNICIPAL STORM DRAINAGE SYSTEM OF THE TOWN OF FREETOWN *STM 11/20/06, ATM 5/7/07*

**Section 27-1. Objective/Intent.**
The objective of this by-law is to prevent non-stormwater discharges to the Town of Freetown's municipal storm drain system through the regulation of non-stormwater discharges to the storm drain system to the maximum extent practicable as required by federal and state law. Non-stormwater discharges are a major concern because they can impair the water quality of fresh water bodies, including streams, rivers and wetlands; contaminate drinking water supplies; alter or destroy aquatic habitant; and increase flooding.

This by-law seeks to prevent the introduction of pollutants into the municipal storm drain system in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process by:

Regulating the contribution of pollutants to the municipal storm drainage system from stormwater discharges by any user;

Prohibiting illicit connections and discharges to the municipal storm drainage system;

Establishing legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this by-law.

Prohibiting discharges into the municipal storm drainage system that may or can create a condition that is harmful to public safety and welfare.

**Section 27-2. Definitions.**
For the purposes of this by-law the following shall mean:

1. **Authorized Enforcement Agency**. The Building Commissioner and the employees and designees of the Town's Building Department are the Authorized Enforcement Agency designated to enforce this by-law.

2. **Best Management Practices(BMPS)**. Schedules of activities, prohibitions of practices, general good house keeping 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.

# ARTICLE 27 (21-2cont.)

3. **Clean Water Act.** The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

4. **Construction Activity**. Activities subject to NPDES Construction Permits. These include construction projects resulting in land disturbance of five (5) acres or more. Such activities include, but are not limited to, clearing and grubbing, grading, excavating, and demolition.

5. **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.

6. **Illicit Connections**. Any surface or subsurface drain or conveyance which allows an illegal discharge to enter the municipal 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, sinks or toilets, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency.

7. **Illegal Discharge**. Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in Section 7 of this by-law.

8. **Industrial Activity**. Activities subject to NPDES Industrial Permits as defined in 40 CFR 122.26 (b)(14).

9. **National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit.** A permit issued by EPA (or by the Commonwealth of Massachusetts 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.

10. **Non-Storm Water Discharge**. Any discharge to the municipal storm drain system that is not composed entirely of storm water.

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

12. **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 non-point source that is or may be introduced into any storm drain system, waters of the Commonwealth and/or waters of the United States. 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, by-laws, 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; rock, sand, salt and soils; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

13. **Premises**. Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

14. **Storm Drainage System**. A system used to collect and/or convey stormwater 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 owned or operated by the Town of Freetown.

15. **Storm Water**. Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

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

# ARTICLE 27 (21-2 cont.)

17. **Waters of The Commonwealth**. All waters within the jurisdiction of the Commonwealth of Massachusetts, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters and groundwater.

18. **Wastewater**. Any sanitary waste, sludge, septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing comes in direct contact with or results from the production or use of any raw material, intermediate product, by-product or waste product

## Section 27-3. Applicability.

This by-law shall apply to all water entering the Storm Drainage System owned or operated by the Town of Freetown unless explicitly exempted by the Building Commissioner.

## Section 27-4. 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 G.L. c.83, §1 and §10, as amended by St. 2004, c.149, §§135-140, and the Federal Clean Water Act, 40 CFR 122.34.

## Section 27-5. Responsibility for Administration.

The Building Commissioner as the Authorized Enforcement Agency shall administer, implement, and enforce the provisions of this by-law. Any powers granted or duties imposed upon the Building Commissioner may be delegated in writing by the Building Commissioner to persons or entities acting in the beneficial interest of or in the employ of the Town under the Building Commissioner.

## Section 27-6. Severability.

The provisions of this by-law are hereby declared to be severable. If any provision, clause, sentence, or paragraph 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.

## Section 27-7. Prohibited Activities.

**A.** Prohibition of Illegal Discharges.

No person shall discharge or cause to be discharged into the municipal Storm Drainage 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 Drainage System is prohibited except as provided as follows, and further provided that the exempt source is not a significant contributor of a Pollutant to the Storm Drainage System; not withstanding the last previous phrase, all fire fighting activities are exempt:

The following discharges are exempt from discharge prohibitions established by this by-law: 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 de-chlorinated), fire fighting activities, and any other water source not containing Pollutants.

Discharges specified in writing by the Building Commissioner, as the Authorized Enforcement Agency, as being necessary to protect public health , safety, welfare or the environment.

Dye testing is an allowable discharge, but requires a written notification to the Building Commissioner prior to the time of the test.

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 Drainage System.

# ARTICLE 27 (27-7 cont.)

**B. Prohibition of Illicit Connections.**

1. The construction, use, maintenance or continued existence of illicit Connections to the Storm Drainage 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.

   A person is considered to be in violation of this by-law if the person connects a line conveying sewage to the Storm Drainage System, or allows such a connection to continue.

**C. Time for Compliance**

Residential property owners shall have 90 days from the effective date of this by-law to comply with its provisions, provided good cause is shown for the failure to comply with the by-law during that period.

## Section 27-8. Suspension of Municipal Storm Drainage System Access.

**Suspension due to Illegal Discharges in Emergency Situations.**

The Building Commissioner, as the Authorized Enforcement Agency, may, without prior notice, suspend municipal Storm Drainage System discharge access to any person or property when such suspension is necessary to stop an actual or threatened discharge which presents or may present an imminent risk of harm to public health, safety or welfare; to the environment; to the municipal Storm Drainage System or Waters of the Commonwealth or the United States. If the violator fails to comply with an emergency suspension order, the Authorized Enforcement Agency may take such steps as deemed necessary to prevent or minimize damage to the municipal Storm Drainage System or Waters of the Commonwealth or the United States, and/or to minimize risk of harm to public health, safety or welfare or to the environment.

**Suspension due to the Detection of Illegal Discharge.**

Any person discharging to the Town's Storm Drainage System in violation of this by-law may have their access terminated if such termination would abate or reduce an Illegal discharge. The Building Commissioner, as the Authorized Enforcement Agency, shall notify a violator of the proposed termination of its Storm Drainage System access. The violator may petition the Building Commissioner for reconsideration and a hearing regarding such notice of termination.

A person commits an offense if the person reinstates municipal Storm Drainage System access to premises terminated pursuant to this Section, without the prior approval of the Building Commissioner.

## Section 27-9. 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 Building Commissioner prior to the allowing of discharges to the municipal Storm Drainage System.

## Section 27-10. Monitoring of Discharges.

**A. Applicability.**

This Section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

**B. Access to Facilities.**

1. The Building Commissioner, as the Authorized Enforcement Agency, shall be permitted to enter and inspect facilities subject to regulation under this by-law as often as may be necessary to determine compliance with this by-law. If a discharger has security measures in force that require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to the Building Commissioner or his/her authorized representatives.

2. Facility operators shall allow the Building Commissioner 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.

# ARTICLE 27 (27-10 cont.)

3. The Building Commissioner shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the Building Commissioner to conduct monitoring and/or sampling of the facility's storm water discharge.

4. The Building Commissioner has the right to require the discharger to install monitoring equipment as determined by the Building Commissioner. 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.

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 Building Commissioner and shall not be replaced. The costs of clearing such access shall be borne by the operator.

Unreasonable delays in allowing the Building Commissioner access to a permitted facility is a violation of a storm water discharge permit and of this by-law. 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 Building Commissioner reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this by-law.

If the Building Commissioner 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 by-law, 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 by-law or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the Building Commissioner may seek issuance of a search warrant from any court of competent jurisdiction.

## Section 27-11. Requirement to Prevent, Control, and Reduce Storm Water Pollutants by the Use of Best Management Practices.

The Building Commissioner, as the Authorized Enforcement Agency, shall adopt requirements identifying Best Management Practices (BMPs) for any activity, operation or facility which may cause or contribute to pollution or contamination of Storm Water, the Storm Drainage System, or Waters of the Commonwealth or the United States. 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 Drainage System or Watercourses through the use of these structural and non-structural BMPs.

Further, any person responsible for Premises, 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 Storm Drainage 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 compliant 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 27-12. Watercourse Protection.

Every person owning Premises through which a Watercourse passes, or such person's lessee, shall keep and maintain that part of the Watercourse within the Premises 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 27-13. Notification of Spills.

Notwithstanding other requirements of local, state or federal 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 Drainage System, or Waters of the Commonwealth and United States, said person shall take all necessary steps to ensure containment and cleanup of such release. In the event of such a release of oil or 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 Building Commissioner, as the Authorized Enforcement Agency, in person or by telephone or facsimile no later

# ARTICLE 27 (27-11 cont.)

than the next business day. Notifications in person or by telephone shall be confirmed by written notice addressed and mailed to the Building Commissioner within three business (3) days of the telephone 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 (3) years.

## Section 27-14. Enforcement.

The Building Commissioner, as the Authorized Enforcement Agency shall enforce this by-law, regulations, order, violation notices, and may pursue all criminal and civil remedies for such violations.

**A. Civil Relief.**

If a person violates the provisions of the by-law, regulations, permit, notice or order issued hereunder, the Building Commissioner 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. Civil penalties may be imposed to the maximum permitted by law, including up to $5,000 a day under Mass. G.L. c. 83, §10.

**B. Orders.**

The Building Commissioner may issue a written order to enforce provisions of this by-law or regulations thereunder, which may include (a) elimination of Illicit Connections or Illegal Discharges to the Storm Drainage System; (b) performance of monitoring, analyses and reporting; (c) an order to cease and desist Illicit Connections and/or Illegal Discharges, practices or operations; and (d) remediation of contamination in connection therewith. If the Building Commissioner 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 work may be done by a governmental agency or contractor, in which event such work and expenses thereof shall be charged to the violator.

**C. Criminal Penalty.**

Any person who violates any provision of this by-law, regulation, order or permit issued hereunder shall be punished by a fine of not more than $300.00 per day. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

**D. Non-Criminal Disposition.**

Whoever violates any provision of this by-law may be penalized by a non-criminal disposition as provided in Mass. G.L. Chapter 40, Section 21D and Article 25 of the Town's General By-Laws. The non-criminal method of disposition may also be used for violations of any rule or regulation of any municipal officer, board or department, which is subject to a specific penalty. Without intending to limit the foregoing, it is the intention of this section that the following by-laws and regulations be included within the scope of this subsection, that the specific penalties, as listed herein, shall apply in such cases and that, in addition to police officers, who shall in all cases be considered enforcing persons for the purpose of this section, the municipal personnel listed for each section, if any, shall also be enforcing persons for such section. The Building Commissioner, Town of Freetown Police Department, or any designated Agent of the Building Commissioner shall be considered an enforcing person for the purpose of this section.

A violation of the by-law and regulatory provisions may be dealt with in a non-criminal manner as provided by section (a) above. Each day on which any violations exist shall be deemed to be a separate offense.

The fine schedule is: First offense, $100.00, second offense, $200.00, third and subsequent offenses, $300.00.

**E. Appeals.**

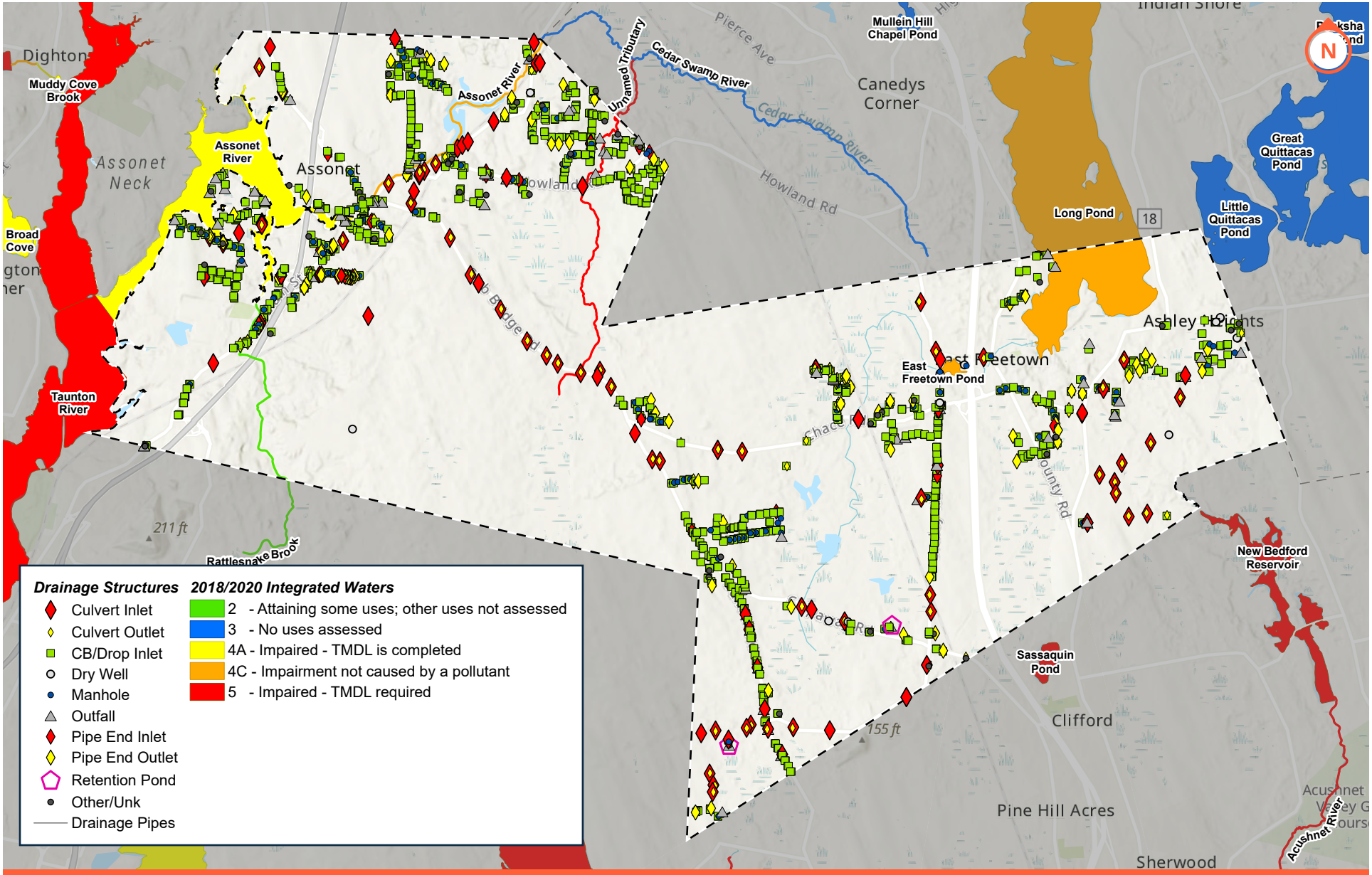
The decision or order of the Building Commissioner, as the Authorized Enforcement Agency, may be appealed to the Planning Board within 20 days of the date of the decision or order. The Planning Board shall consider the request at a meeting after written notice is given to abutters, paid for by the Person appealing, at least seven (7) calendar days prior to the said meeting.

**F. Remedies Not Exclusive.**

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

# APPENDIX B

## Stormwater System Mapping




ENVIRONMENTAL PARTNERS
— An Apex Company —

**Appendix B**

**Stormwater System Mapping**

Freetown, MA

8/8/2022

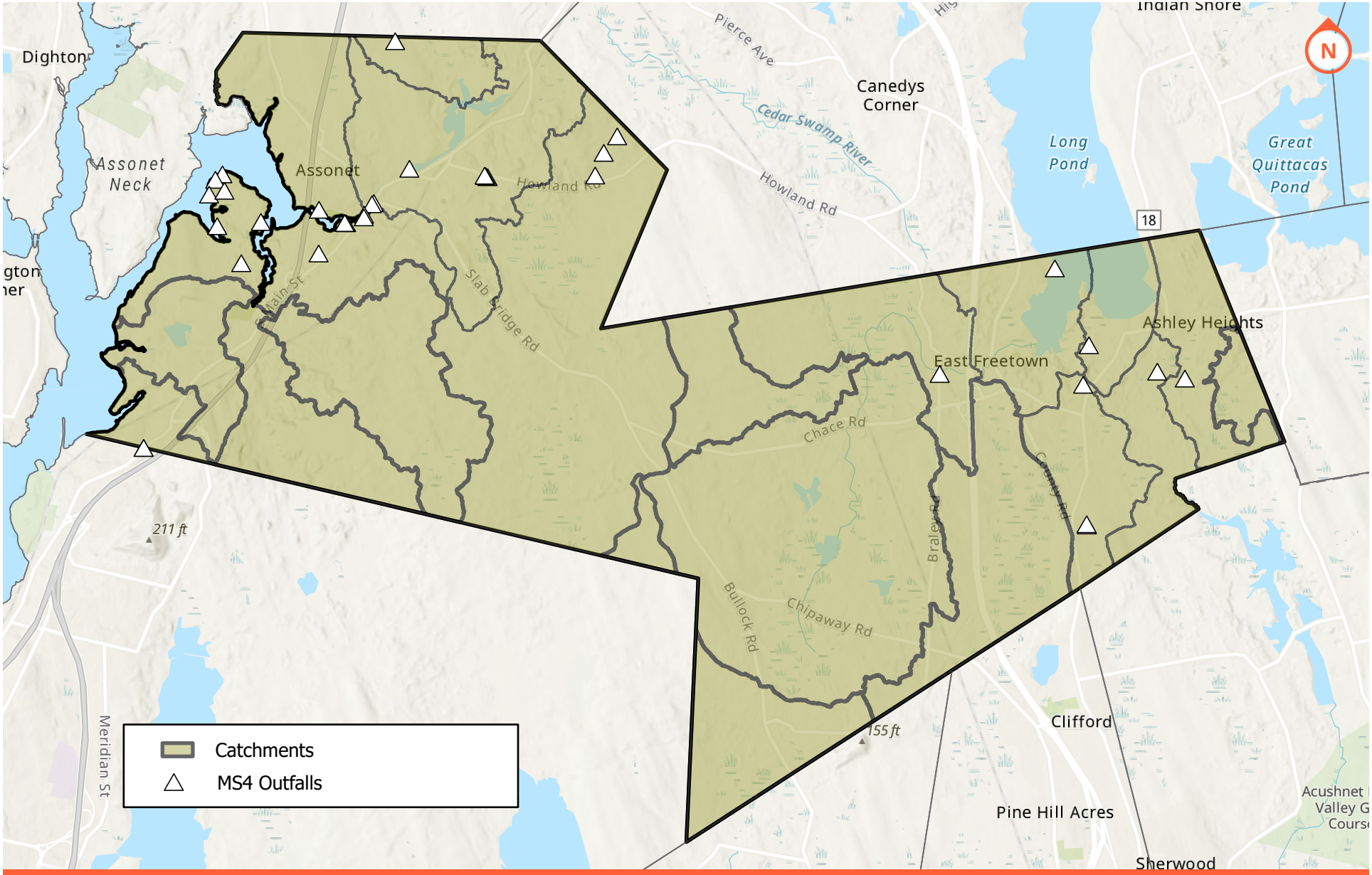
0 2,500 5,000 10,000 Feet

1:6,500

*I:\Freetown.295\Stormwater\FY22 MS4 support\04 BMP Inventory\GIS*

# APPENDIX C

## Catchment Delineation Mapping and Ranking Matrix




ENVIRONMENTAL PARTNERS
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**Appendix C**

**Catchment Delineation**

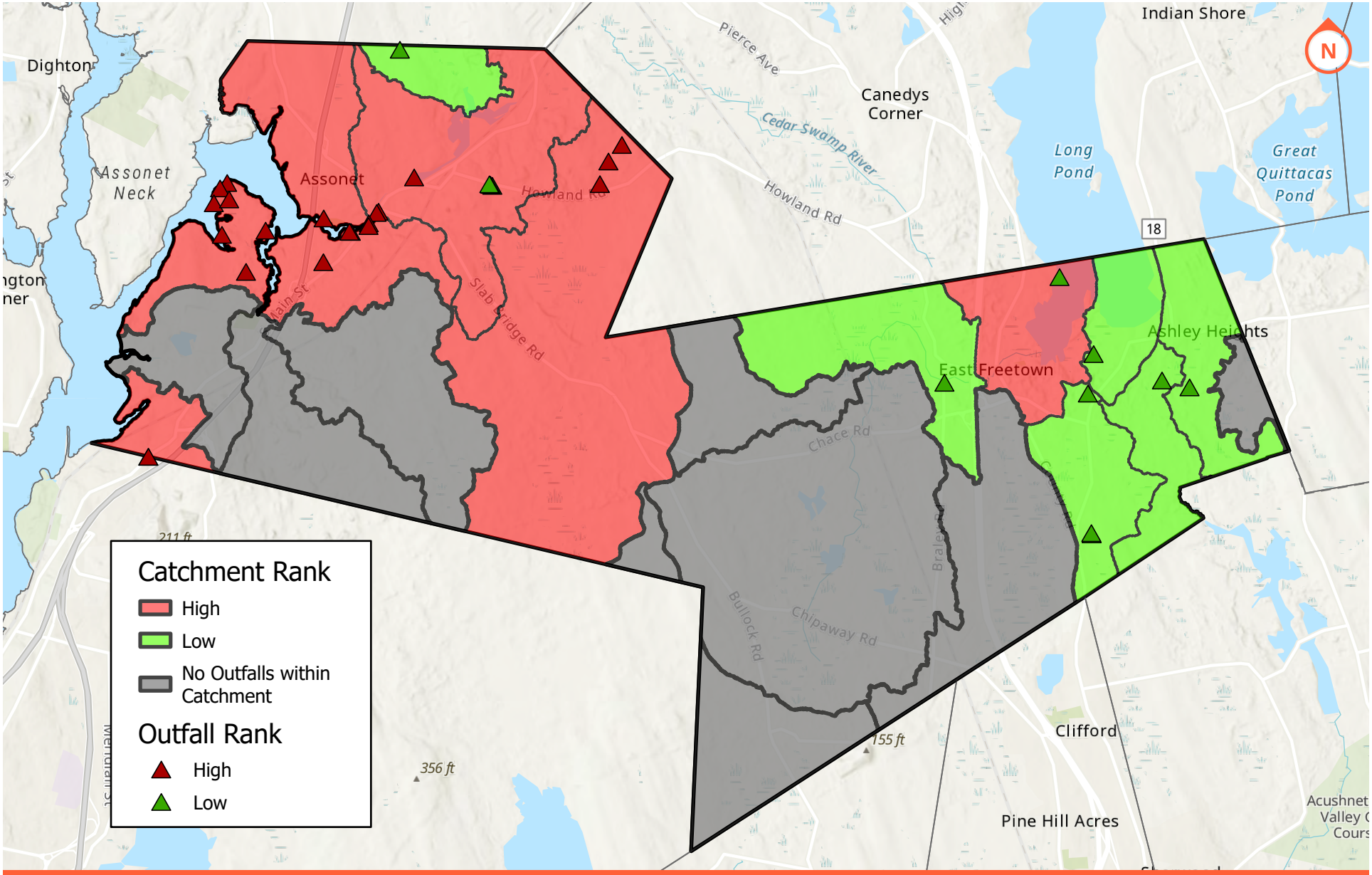
Freetown, MA

8/8/2022

0 2,500 5,000 10,000 Feet

1:6,500

I:\Freetown.295\Stormwater\FY22 MS4 support\04 BMP Inventory\GIS




ENVIRONMENTAL PARTNERS
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**Appendix C**

**Catchment Ranking**

Freetown, MA

8/8/2022

0 2,500 5,000 10,000 Feet

1:6,500

I:\Freetown.295\Stormwater\FY22 MS4 support\04 BMP Inventory\GIS

# Catchment Ranking Matrix
## Freetown, Massachusetts

| | | | | Catchment Scores | | | | | | | Outfall Scores | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Catchment ID** | **Subcatchment ID** | **Receiving Water** | **Outfall ID** | **Density of Generating Sites** | **Age of Development/ Infrastructure** | **Historic Combined Sewers or Septic?** | **Aging Septic?** | **Receiving Water Quality** | **Culverted Streams?** | **Discharging to Area of Concern to Public Health? (Catchment)** | **Previous Screening Results Indicate Likely Sewer Input?** | **Receiving Water Quality** | **Frequency of Past Discharge Complaints** | **Discharging to Area of Concern to Public Health? (Outfall)** | **Outfall Sampled** | **Catchment Score** | **Outfall Score** | **Catchment Ranking** | **Outfall Ranking** |
| Information Source | | | | Land Use/GIS Maps, Aerial Photography, Google Earth | Land Use Information, Town Input | Town Input, GIS Maps | Parcel Age | Impaired Waters List | GIS and Storm System Maps | GIS Maps, Town Input | Outfall inspections and sample results | Impaired Waters List | Town Input | GIS Maps, Town Input | Sampling Results | | | | |
| Scoring Criteria | | | | High = 2<br>Medium = 1<br>Low = 0 | Older = 2<br>Medium = 1<br>Newer = 0 | Yes = 2<br>No Data = 1<br>No = 0 | Older = 2<br>Medium = 1<br>Newer = 0 | Category 4a = 2<br>Category 5 = 1<br>Others = 0 | Yes = 2<br>No Data = 1<br>No = 0 | Yes = 2<br>No Data = 1<br>No = 0 | Yes = 2<br>No Data = 1<br>No = 0 | Category 4a = 2<br>Category 5 = 1<br>Others = 0 | Frequent = 2<br>Occasional = 1<br>None = 0 | Yes = 2<br>No Data = 1<br>No = 0 | Yes<br>No<br>Dry | | | | |
| N | 165 | Assonet River | OF-17 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| N | 165 | Assonet River | OF-18 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| N | 134 | Assonet River | OF-525 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 191 | Assonet River | OF-25 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 191 | Assonet River | OF-28 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 419 | Assonet River | OF-231 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 428 | Assonet River | OF-251 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 428 | Assonet River | OF-255 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 428 | Assonet River | OF-258 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 428 | Assonet River | OF-289 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| I | 473 | Unnamed Tributary South of Long Pond | OF-2001 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | | 2 | 0 | Low | Low |
| O | 191 | Assonet River | OF-425 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 191 | Assonet River | OF-428 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| O | 89 | Assonet River | OF-466 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| C | 570 | East Freetown Pond | OF-1643 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 3 | 0 | Low | Low |
| G | 120 | Long Pond | OF-1681 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | No | 2 | 2 | Low | High |
| K | 42 | Squinn Brook | OF-1822 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 2 | 0 | Low | Low |
| H | 267 | Unnamed Cranberry Bog South of Long | OF-1791 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 2 | 0 | Low | Low |
| O | 95 | Unnamed Pond South of Assonet River (2) | OF-405 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| I | 72 | Unnamed Pond South of Long Pond | OF-1787 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 2 | 0 | Low | Low |
| O | 419 | Unnamed Pond West of Assonet River | OF-163 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| J | 115 | Unnamed Pond West of Squinn Brook | OF-1813 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 2 | 0 | Low | Low |
| A | 15 | Unnamed Tributary (MA62-42) | OF-873 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 6 | 2 | High | High |
| A | 394 | Unnamed Tributary (MA62-42) | OF-954 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 6 | 2 | High | High |
| A | 15 | Unnamed Tributary (MA62-42) | OF-958 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 6 | 2 | High | High |
| M | 55 | Unnamed Tributary North of Forge Pond | OF-666 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 2 | 0 | Low | Low |
| I | 473 | Unnamed Tributary South of Long Pond | OF-1732 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 2 | 0 | Low | Low |
| R | 393 | Unnamed Tributary to Taunton River | OF-139 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 8 | 2 | High | High |
| R | 393 | Unnamed Tributary to Taunton River | OF-140 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 8 | 2 | High | High |
| O | 428 | Unnamed Wetlands South of Assonet River | OF-262 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | No | 5 | 2 | High | High |
| N | 78 | Unnamed Wetlands South of Forge Pond | OF-990 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 3 | 0 | Low | Low |
| N | 436 | Unnamed Wetlands South of Forge Pond | OF-995 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 3 | 0 | Low | Low |
| N | 436 | Unnamed Wetlands South of Forge Pond | OF-997 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | No | 3 | 0 | Low | Low |

Note: Outfall IDs were generated using ObjectIDs from Freetown's DrainageStructures shapefile

# APPENDIX D

## Field Forms and Hyperlinks to Laboratories and Field Services Companies

Date: _____

Weather Observations: _____

Staff Onsite: _____

Photos: _____

# Freetown 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)**

**<u>Field Screening Data:</u>**

**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)**

**<u>Additional comments/Sketch:</u>**

## 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 Sampling Results

ENVIRONMENTAL PARTNERS
— An Apex Company —

# MEMORANDUM

**Date:** February 20, 2022

**To** Deb Pettey – Interim Town Administrator, Town of Freetown

**From** Scott Turner, P.E. – Director of Planning, Environmental Partners

**CC** Annie Tucker – Environmental Scientist, Environmental Partners

**Subject** Dry Weather Outfall Sampling Results - MS4 General Permit Assistance

This memorandum summarizes the Year 4 Dry Weather Outfall Screenings, outlined in Task 2 of the Agreement for Professional Engineering Services – Municipal Separate Storm Sewer Systems (MS4) General Permit Assistance for the Town of Freetown.

Under this task, Environmental Partners Group, LLC (EP) conducted outfall screening and sampling as part of the Town of Freetown's Illicit Discharge Detection and Elimination (IDDE) Program. A total of 34 outfalls were screened, of which 5 were found to be flowing during dry weather. This work completes the MS4 General Permit requirement to screen during dry weather all MS4 outfalls.

## Outfall Sampling

On December 13, 2021, EP staff visited all 32 outfalls within the Town's mapped outfall inventory. Additionally, EP identified and inventoried 2 new outfalls, one Town-owned and one private. The new outfall inventory for the Town of Freetown includes **33 Town-owned outfalls**. The locations of all screened outfalls are shown on Figure 1: Outfall Sampling Locations and listed in Table 1: Outfall Sampling Locations.

All outfalls were successfully screened for presence of dry weather flow. EP observed 5 outfalls to be flowing during dry weather and sampled the flow for field and laboratory analysis. The water quality sampling results are summarized in Table 2: Stormwater Field Sampling and Laboratory Results. Also, EP could not locate 4 outfalls. Those outfalls were screened for presence of flow at the nearest upstream structure. However, the Town should locate those outfall structures to ensure that

stormwater is being properly managed. Field notes from each location are documented in Table 3: Outfalls that Could Not Be Located, which also clarifies what Town actions are needed.

## Sampling Results

A total of 5 outfalls were sampled for field measurements and laboratory analysis. Field parameters sampled for include temperature, specific conductance, salinity, pH, and dissolved oxygen. Laboratory parameters include ammonia, chlorine, E. coli, total phosphorous, total nitrogen, and surfactants. Laboratory tests were performed at a State-certified laboratory, Alpha Analytical Inc. in Westborough, MA. Outfalls OF-28, OF-163, OF-425, and OF-466 required additional laboratory analysis for fecal coliform due to the receiving water's (Assonet River) fecal coliform impairment.

Outfall sampling results were all lower than regulatory thresholds, except for 2 field pH hits. At OF-466 and OF-873, sampling results showed pH levels slightly outside of the accepted pH range.

Total phosphorus and total nitrogen lack regulatory thresholds approved by the Massachusetts Department of Environmental Protection (MassDEP) that apply to the sampling conducted in this work. Therefore, no clear conclusions can be made about the phosphorus and nitrogen results. However, to put Freetown's sampling results into context, it can be helpful to compare the results to regulated thresholds established for nearby waterbodies or watersheds. During this sampling round, total nitrogen ranged from 0.85 to 3.2 mg/L, and total phosphorus ranged from non-detect to 0.079 mg/L. Within the Cape Cod Watershed, some waterbodies have a total nitrogen threshold of 0.38 mg/L or less. The Blackstone Watershed has a total phosphorus threshold of 0.01 mg/L in some waterbodies and as high as 0.05 mg/L in others. Similarly, the Connecticut River Basin has a total phosphorus threshold of 0.015 mg/L to 0.03 mg/L, depending on the specific waterbody. Thus, Freetown's concentrations of nitrogen and phosphorus are relatively high compared to nearby thresholds. However, these results alone do not suggest the presence of an illicit discharge or trigger extensive follow-up.

As stated above, the MassDEP has not established applicable nutrient thresholds for the waters in Freetown, and thus the Town is not expected to know what comprises a high nutrition concentration. These outfalls all discharge flow from a medium to large stormwater network within residential communities. Therefore, the nutrient concentrations may be from fertilizers or other non-illicit residential activities.

## Recommendations

Moving forward, EP recommends the following:

- Locate the 4 outfalls that could not be located.
- As follow-up to the relatively high nutrient concentrations in the sampled outfalls, consider re-examining these results when prioritizing areas for upcoming BMP retrofit projects. Continue implementing the MS4 public education and outreach program, especially around fertilizer use, leaf litter disposal, and pet waste disposal.

- If not already completed, inventory and map interconnection locations with other MS4s (DOT, neighboring Towns, etc.). Those structure will then need to be screened during dry weather in accordance with the IDDE Program.
- The Town should update its outfall catchment ranking and prioritization table to reflect these sampling results. The updated table was due at the end of Year 3 (June 30, 2021), and thus should be completed as soon as possible.
- Begin IDDE catchment investigations, starting with the high priority outfalls and high priority catchments.
- Perform wet weather outfall sampling at outfalls within catchments that have at least 1 System Vulnerability Factor (SVF) identified.

## Attachments

Figure 1: Outfall Screening Locations

Table 1: Outfall Screening Locations

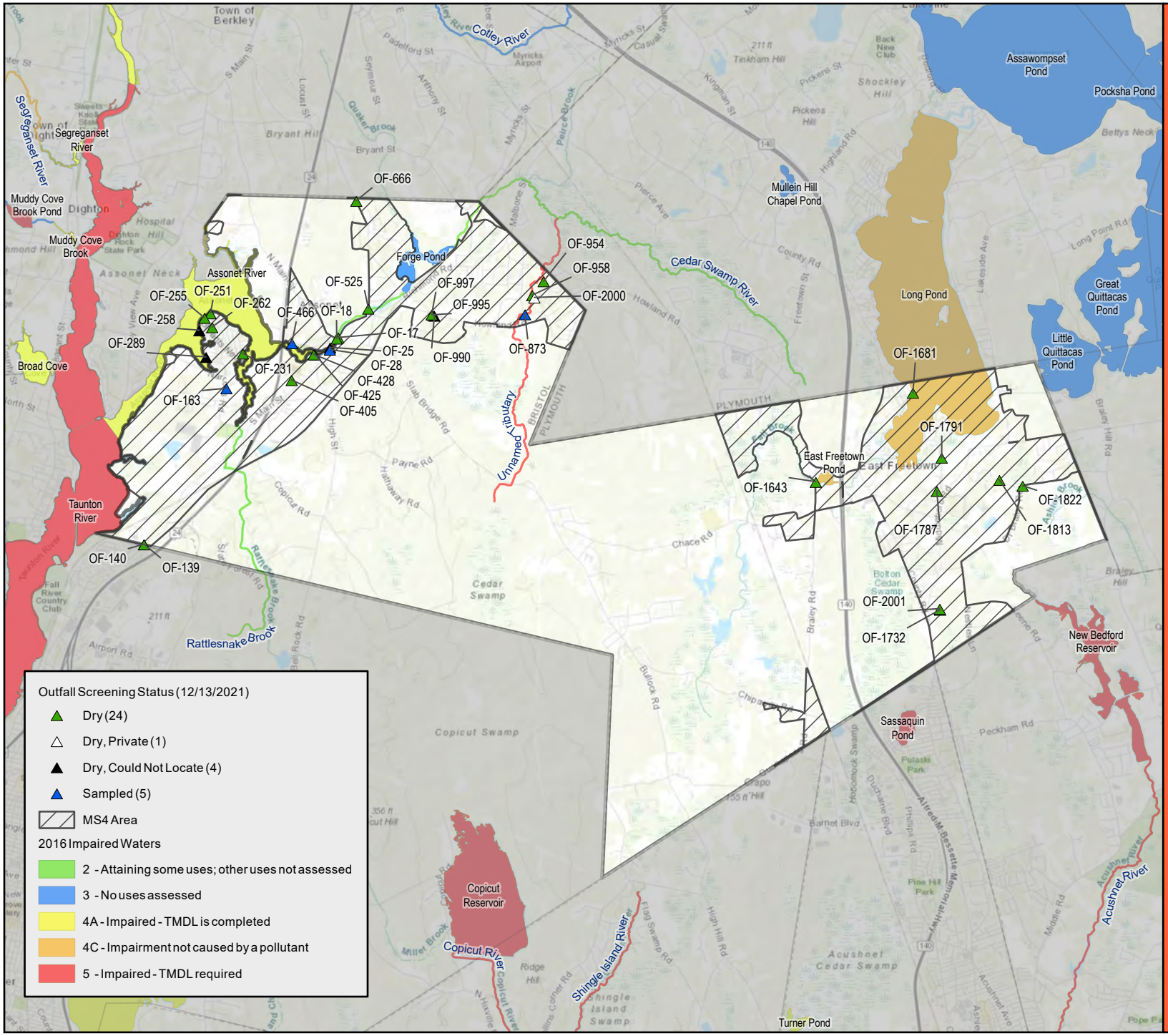
Table 2: Stormwater Field Screening and Analytical Results

Table 3: Outfalls that Could Not Be Located

Laboratory Results

MS4 Certification Page

# FIGURE 1: OUTFALL SCREENING LOCATIONS




# Figure 1: Outfall Screening Locations

Freetown, Massachusetts

# TABLE 1: OUTFALL SCREENING LOCATIONS

## Table 1: Outfall Screening Locations

Freetown, MA

| Receiving Waterbody | Outfall ID | Approximate Street Address | Screening Date | Outfall Sampling Status |
|---|---|---|---|---|
| Assonet River | OF-25 | 10 South Main Street | 12/13/2021 | Could not Locate (Dry) |
| Assonet River | OF-258 | 69 Cliff Drive | 12/13/2021 | Could not Locate (Dry) |
| Assonet River | OF-289 | 22 South Hillside Street | 12/13/2021 | Could not Locate (Dry) |
| Unnamed Wetlands South of Forge Pond | OF-990 | 25 Howland Road | 12/13/2021 | Could not Locate (Dry) |
| Unnamed Tributary to Taunton River | OF-139 | 238 South Main Street | 12/13/2021 | Dry |
| Unnamed Tributary to Taunton River | OF-140 | 238 South Main Street | 12/13/2021 | Dry |
| East Freetown Pond | OF-1643 | 23 Gurney Road | 12/13/2021 | Dry |
| Long Pond | OF-1681 | 17 Estelle Avenue | 12/13/2021 | Dry |
| Assonet River | OF-17 | 10 Elm Street | 12/13/2021 | Dry |
| Unnamed Tributary South of Long Pond | OF-1732 | 6 Pinewood Court | 12/13/2021 | Dry |
| Unnamed Pond South of Long Pond | OF-1787 | 1 Tanglewood Drive | 12/13/2021 | Dry |
| Unnamed Cranberry Bog South of Long Pond | OF-1791 | 27 Beech Bluff Road | 12/13/2021 | Dry |
| Assonet River | OF-18 | 7 Elm Street | 12/13/2021 | Dry |
| Unnamed Pond West of Squinn Brook | OF-1813 | 21 Rounsevell Drive | 12/13/2021 | Dry |
| Squinn Brook | OF-1822 | 97 Doctor Braley Road | 12/13/2021 | Dry |
| Unnamed Tributary South of Long Pond | OF-2001 | 7 Pinewood Court | 12/13/2021 | Dry |
| Assonet River | OF-231 | 8 Cove Lane | 12/13/2021 | Dry |
| Assonet River | OF-251 | 49 Cliff Drive | 12/13/2021 | Dry |
| Assonet River | OF-255 | 55 Cliff Drive | 12/13/2021 | Dry |
| Unnamed Wetlands South of Assonet River | OF-262 | 2 Valley Street | 12/13/2021 | Dry |
| Unnamed Pond South of Assonet River (2) | OF-405 | 56 South Main Street | 12/13/2021 | Dry |
| Assonet River | OF-428 | 7 The Lane | 12/13/2021 | Dry |
| Assonet River | OF-525 | 5 Locust Street | 12/13/2021 | Dry |
| Unnamed Tributary North of Forge Pond | OF-666 | 40 Algerine Street | 12/13/2021 | Dry |
| Unnamed Tributary (MA62-42) | OF-954 | 22 Joaquin Avenue | 12/13/2021 | Dry |
| Unnamed Tributary (MA62-42) | OF-958 | 8 Marianno Avenue | 12/13/2021 | Dry |
| Unnamed Wetlands South of Forge Pond | OF-995 | 25 Howland Road | 12/13/2021 | Dry |
| Unnamed Wetlands South of Forge Pond | OF-997 | 22 Howland Road | 12/13/2021 | Dry |
| Unnamed Tributary (MA62-42) | OF-2000 | 8 Marianno Avenue | 12/13/2021 | Dry (private) |
| Unnamed Pond West of Assonet River | OF-163 | 51 Narrows Road | 12/13/2021 | Sampled |
| Assonet River | OF-28 | 13 South Main Street | 12/13/2021 | Sampled |
| Assonet River | OF-425 | 5 The Lane | 12/13/2021 | Sampled |
| Assonet River | OF-466 | 41 Water Street | 12/13/2021 | Sampled |
| Unnamed Tributary (MA62-42) | OF-873 | 97 Howland Road | 12/13/2021 | Sampled |

# TABLE 2: STORMWATER FIELD SCREENING AND ANALYTICAL RESULTS

**Table 2: Stormwater Field Screening and Analytical Results**
Freetown, MA

| **Outfall Identification** | | OF-28 | OF-163 | OF-425 | OF-466 | OF-873 |
|---|---|---|---|---|---|---|
| **Discharge Waterbody** | | Assonet River | Unnamed Pond West of Assonet River | Assonet River | Assonet River | Unnamed Tributary (MA62-42) |
| **Date Sampled** | | 12/13/2021 | 12/13/2021 | 12/13/2021 | 12/13/2021 | 12/13/2021 |
| **Sample Time** | | 12:45 PM | 1:00 PM | 1:30 PM | 2:00 PM | 12:20 PM |
| **Field Test Results** | **Threshold** | | | | | |
| Temperature (˚C) | | 9 | 10.6 | 7.9 | 12.1 | 10.5 |
| pH | 6.5-8.0 | 6.71 | 6.77 | 7.01 | **6.14** | **8.23** |
| DO (mg/L) | | 8.83 | 8.73 | 8.86 | 8.34 | 9.64 |
| Specific Conductance (µS/cm) | 2,000 | 144.5 | 255 | 466.9 | 166.2 | 320.4 |
| Salinity (ppt) | | 0.07 | 0.12 | 0.23 | 0.08 | 0.15 |
| **Analytical Results** | | | | | | |
| Total Residual Chlorine, TRC (mg/L) | | ND | ND | ND | ND | ND |
| Nitrogen, Ammonia (mg/L) | 0.5 | ND | ND | ND | 0.139 | 0.127 |
| Nitrogen, Nitrate/Nitrite (mg/L) | | 0.49 | 3.2 | 2.2 | 1.4 | 0.41 |
| Nitrogen, Total (mg/L) | | 1.1 | 3.2 | 2.2 | 1.4 | 0.85 |
| Nitrogen, Total Kjeldahl (mg/L) | | 0.579 | ND | ND | ND | 0.443 |
| Phosphorus, Total (mg/L) | | 0.079 | 0.015 | ND | 0.015 | 0.029 |
| Surfactants, MBAS (mg/L) | 0.25 | ND | ND | ND | ND | ND |
| Coliform, Fecal, MF (col/100ml) | | 78 | 3.0 | 150 | ND | - |
| E. coli (MPN/100 mL) | 236 | 101.44 | 9.79 | 228.18 | 1 | 60.15 |

Notes:
- : Not Tested
ND: Non-detect
**Bold Values exceed contaminant criteria**

# TABLE 3: OUTFALLS THAT COULD NOT BE LOCATED

**Table 3: Outfalls that Could Not Be Located**
Freetown, MA

| Outfall ID | Approximate Street Address | Screening Date | Notes | Town Action Needed |
|---|---|---|---|---|
| OF-25 | 10 South Main Street | 12/13/2021 | Unable to locate outlet beneath leaves. Outlet is likely located beneath leaf litter. Upstream catch basin is full of water and potentially clogged | Town to expose outlet, remove any debris from drainline, and ensure system is properly functioning |
| OF-258 | 69 Cliff Drive | 12/13/2021 | Unable to locate outlet beneath leaves. Outlet is likely located beneath leaf litter | Town to remove debris and expose outlet |
| OF-289 | 22 South Hillside Street | 12/13/2021 | Unable to locate outlet beneath leaves. Outlet is likely located beneath leaf litter | Town to remove debris and expose outlet |
| OF-990 | 25 Howland Road | 12/13/2021 | Outlet is likely fully submerged. A new rip rap apron around the pond suggests drainage may have been altered | Town to expose outlet and ensure it is properly functioning; notify EP if drainage has changed |

# LABORATORY RESULTS

# ANALYTICAL REPORT

| | |
|---|---|
| Lab Number: | L2168384 |
| Client: | Environmental Partners<br>1900 Crown Colony Drive<br>Suite 402 4th Floor<br>Quincy, MA 02169 |
| ATTN: | Annie Tucker |
| Phone: | (617) 657-0973 |
| Project Name: | FREETOWN OUTFALLS |
| Project Number: | 295.2010 |
| Report Date: | 01/03/22 |



Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

**Project Name:** FREETOWN OUTFALLS
**Project Number:** 295.2010

**Lab Number:** L2168384
**Report Date:** 01/03/22

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|---|---|---|---|---|---|
| L2168384-01 | OF-873 | WATER | FREETOWN, MA | 12/13/21 12:20 | 12/13/21 |
| L2168384-02 | OF-28 | WATER | FREETOWN, MA | 12/13/21 12:45 | 12/13/21 |
| L2168384-03 | OF-425 | WATER | FREETOWN, MA | 12/13/21 13:00 | 12/13/21 |
| L2168384-04 | OF-466 | WATER | FREETOWN, MA | 12/13/21 13:30 | 12/13/21 |
| L2168384-05 | OF-163 | WATER | FREETOWN, MA | 12/13/21 14:00 | 12/13/21 |

| | | | |
|---|---|---|---|
| **Project Name:** | FREETOWN OUTFALLS | **Lab Number:** | L2168384 |
| **Project Number:** | 295.2010 | **Report Date:** | 01/03/22 |

## Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

| | | | |
|---|---|---|---|
| **Project Name:** | FREETOWN OUTFALLS | **Lab Number:** | L2168384 |
| **Project Number:** | 295.2010 | **Report Date:** | 01/03/22 |

**Case Narrative (continued)**

Coliform, Fecal (MF)

L2168384-05: The sample has an elevated detection limit due to the dilution required by the method.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich

Title: Technical Director/Representative

Date: 01/03/22

**Project Name:** FREETOWN OUTFALLS
**Project Number:** 295.2010

**Lab Number:** L2168384
**Report Date:** 01/03/22

## SAMPLE RESULTS

Lab ID: L2168384-01
Client ID: OF-873
Sample Location: FREETOWN, MA

Date Collected: 12/13/21 12:20
Date Received: 12/13/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **Microbiological Analysis - Westborough Lab** | | | | | | | | | | |
| E. Coli (MPN) | 60.15 | | MPN/100ml | 1 | NA | 1 | - | 12/13/21 18:30 | 121,9223B | JW |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Chlorine, Total Residual | ND | | mg/l | 0.02 | -- | 1 | - | 12/13/21 20:53 | 121,4500CL-D | AS |
| Nitrogen, Ammonia | 0.127 | | mg/l | 0.075 | -- | 1 | 12/30/21 03:06 | 12/30/21 21:31 | 121,4500NH3-BH | AT |
| Nitrogen, Nitrate/Nitrite | 0.41 | | mg/l | 0.10 | -- | 1 | - | 12/28/21 04:30 | 44,353.2 | MR |
| Total Nitrogen | 0.85 | | mg/l | 0.30 | -- | 1 | - | 01/03/22 10:52 | 107,- | JO |
| Nitrogen, Total Kjeldahl | 0.443 | | mg/l | 0.300 | -- | 1 | 12/27/21 14:45 | 12/28/21 12:33 | 121,4500NH3-H | AT |
| Phosphorus, Total | 0.029 | | mg/l | 0.010 | -- | 1 | 12/22/21 08:10 | 12/22/21 13:17 | 121,4500P-E | SD |
| Surfactants, MBAS | ND | | mg/l | 0.050 | -- | 1 | 12/15/21 02:15 | 12/15/21 07:12 | 121,5540C | KA |

**Project Name:** FREETOWN OUTFALLS
**Project Number:** 295.2010

**Lab Number:** L2168384
**Report Date:** 01/03/22

## SAMPLE RESULTS

Lab ID: L2168384-02
Client ID: OF-28
Sample Location: FREETOWN, MA

Date Collected: 12/13/21 12:45
Date Received: 12/13/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **Microbiological Analysis - Westborough Lab** | | | | | | | | | | |
| Coliform, Fecal (MF) | 78 | | col/100ml | 2.0 | NA | 2 | - | 12/13/21 19:00 | 121,9222D | JW |
| E. Coli (MPN) | 101.44 | | MPN/100ml | 1 | NA | 1 | - | 12/13/21 18:30 | 121,9223B | JW |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Chlorine, Total Residual | ND | | mg/l | 0.02 | -- | 1 | - | 12/13/21 20:53 | 121,4500CL-D | AS |
| Nitrogen, Ammonia | ND | | mg/l | 0.075 | -- | 1 | 12/30/21 03:06 | 12/30/21 21:32 | 121,4500NH3-BH | AT |
| Nitrogen, Nitrate/Nitrite | 0.49 | | mg/l | 0.10 | -- | 1 | - | 12/28/21 04:32 | 44,353.2 | MR |
| Total Nitrogen | 1.1 | | mg/l | 0.30 | -- | 1 | - | 01/03/22 10:52 | 107,- | JO |
| Nitrogen, Total Kjeldahl | 0.579 | | mg/l | 0.300 | -- | 1 | 12/27/21 14:45 | 12/28/21 12:33 | 121,4500NH3-H | AT |
| Phosphorus, Total | 0.079 | | mg/l | 0.010 | -- | 1 | 12/22/21 08:10 | 12/22/21 13:20 | 121,4500P-E | SD |
| Surfactants, MBAS | ND | | mg/l | 0.050 | -- | 1 | 12/15/21 02:15 | 12/15/21 07:13 | 121,5540C | KA |

**Project Name:** FREETOWN OUTFALLS
**Project Number:** 295.2010

**Lab Number:** L2168384
**Report Date:** 01/03/22

## SAMPLE RESULTS

Lab ID: L2168384-03
Client ID: OF-425
Sample Location: FREETOWN, MA

Date Collected: 12/13/21 13:00
Date Received: 12/13/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **Microbiological Analysis - Westborough Lab** | | | | | | | | | | |
| Coliform, Fecal (MF) | 3.0 | | col/100ml | 2.0 | NA | 2 | - | 12/13/21 19:00 | 121,9222D | JW |
| E. Coli (MPN) | 9.79 | | MPN/100ml | 1 | NA | 1 | - | 12/13/21 18:30 | 121,9223B | JW |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Chlorine, Total Residual | ND | | mg/l | 0.02 | -- | 1 | - | 12/13/21 20:53 | 121,4500CL-D | AS |
| Nitrogen, Ammonia | ND | | mg/l | 0.075 | -- | 1 | 12/30/21 03:06 | 12/30/21 21:33 | 121,4500NH3-BH | AT |
| Nitrogen, Nitrate/Nitrite | 3.2 | | mg/l | 0.10 | -- | 1 | - | 12/28/21 04:33 | 44,353.2 | MR |
| Total Nitrogen | 3.2 | | mg/l | 0.30 | -- | 1 | - | 01/03/22 10:52 | 107,- | JO |
| Nitrogen, Total Kjeldahl | ND | | mg/l | 0.300 | -- | 1 | 12/27/21 14:45 | 12/28/21 12:34 | 121,4500NH3-H | AT |
| Phosphorus, Total | 0.015 | | mg/l | 0.010 | -- | 1 | 12/22/21 08:10 | 12/22/21 13:21 | 121,4500P-E | SD |
| Surfactants, MBAS | ND | | mg/l | 0.050 | -- | 1 | 12/15/21 02:15 | 12/15/21 07:15 | 121,5540C | KA |

**Project Name:** FREETOWN OUTFALLS
**Project Number:** 295.2010

**Lab Number:** L2168384
**Report Date:** 01/03/22

## SAMPLE RESULTS

Lab ID: L2168384-04
Client ID: OF-466
Sample Location: FREETOWN, MA

Date Collected: 12/13/21 13:30
Date Received: 12/13/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **Microbiological Analysis - Westborough Lab** | | | | | | | | | | |
| Coliform, Fecal (MF) | 150 | | col/100ml | 2.0 | NA | 2 | - | 12/13/21 19:00 | 121,9222D | JW |
| E. Coli (MPN) | 228.18 | | MPN/100ml | 1 | NA | 1 | - | 12/13/21 18:30 | 121,9223B | JW |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Chlorine, Total Residual | ND | | mg/l | 0.02 | -- | 1 | - | 12/13/21 20:53 | 121,4500CL-D | AS |
| Nitrogen, Ammonia | ND | | mg/l | 0.075 | -- | 1 | 12/30/21 03:06 | 12/30/21 21:34 | 121,4500NH3-BH | AT |
| Nitrogen, Nitrate/Nitrite | 2.2 | | mg/l | 0.10 | -- | 1 | - | 12/28/21 04:34 | 44,353.2 | MR |
| Total Nitrogen | 2.2 | | mg/l | 0.30 | -- | 1 | - | 01/03/22 10:52 | 107,- | JO |
| Nitrogen, Total Kjeldahl | ND | | mg/l | 0.300 | -- | 1 | 12/27/21 14:45 | 12/28/21 12:35 | 121,4500NH3-H | AT |
| Phosphorus, Total | ND | | mg/l | 0.010 | -- | 1 | 12/22/21 08:10 | 12/22/21 13:25 | 121,4500P-E | SD |
| Surfactants, MBAS | ND | | mg/l | 0.050 | -- | 1 | 12/15/21 02:15 | 12/15/21 07:15 | 121,5540C | KA |

**Project Name:** FREETOWN OUTFALLS
**Project Number:** 295.2010

**Lab Number:** L2168384
**Report Date:** 01/03/22

## SAMPLE RESULTS

Lab ID: L2168384-05
Client ID: OF-163
Sample Location: FREETOWN, MA

Date Collected: 12/13/21 14:00
Date Received: 12/13/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **Microbiological Analysis - Westborough Lab** | | | | | | | | | | |
| Coliform, Fecal (MF) | ND | | col/100ml | 2.0 | NA | 2 | - | 12/13/21 19:00 | 121,9222D | JW |
| E. Coli (MPN) | 1 | | MPN/100ml | 1 | NA | 1 | - | 12/13/21 18:30 | 121,9223B | JW |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Chlorine, Total Residual | ND | | mg/l | 0.02 | -- | 1 | - | 12/13/21 20:53 | 121,4500CL-D | AS |
| Nitrogen, Ammonia | 0.139 | | mg/l | 0.075 | -- | 1 | 12/30/21 03:06 | 12/30/21 21:36 | 121,4500NH3-BH | AT |
| Nitrogen, Nitrate/Nitrite | 1.4 | | mg/l | 0.10 | -- | 1 | - | 12/28/21 04:35 | 44,353.2 | MR |
| Total Nitrogen | 1.4 | | mg/l | 0.30 | -- | 1 | - | 01/03/22 10:52 | 107,- | JO |
| Nitrogen, Total Kjeldahl | ND | | mg/l | 0.300 | -- | 1 | 12/27/21 14:45 | 12/28/21 12:36 | 121,4500NH3-H | AT |
| Phosphorus, Total | 0.015 | | mg/l | 0.010 | -- | 1 | 12/22/21 08:10 | 12/22/21 13:26 | 121,4500P-E | SD |
| Surfactants, MBAS | ND | | mg/l | 0.050 | -- | 1 | 12/15/21 02:15 | 12/15/21 07:16 | 121,5540C | KA |

# CERTIFICATION PAGE

# 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

Signature _____ Date

# APPENDIX F

## System Vulnerability Factor (SVF) Inventory

**Appendix F – Outfall Catchment System Vulnerability Factor (SVF) Inventory**
**Freetown, Massachusetts**

| Outfall ID | Receiving Water | 1 History of SSOs | 2 Common or Twin Invert Manholes | 3 Common Trench Construction | 4 Storm/Sanitary Crossings (Sanitary Above) | 5 Sanitary Lines with Underdrains | 6 Inadequate Sanitary Level of Service | 7 Areas Formerly Served by Combined Sewers | 8 Sanitary Infrastructure Defects | 9 SSO Potential In Event of System Failures | 10 Sanitary and Storm Drain Infrastructure >40 years Old | 11 Septic with Poor Soils or Water Table Separation | 12 History of BOH Actions Addressing Septic Failure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample 1 | XYZ River | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No |
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**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)

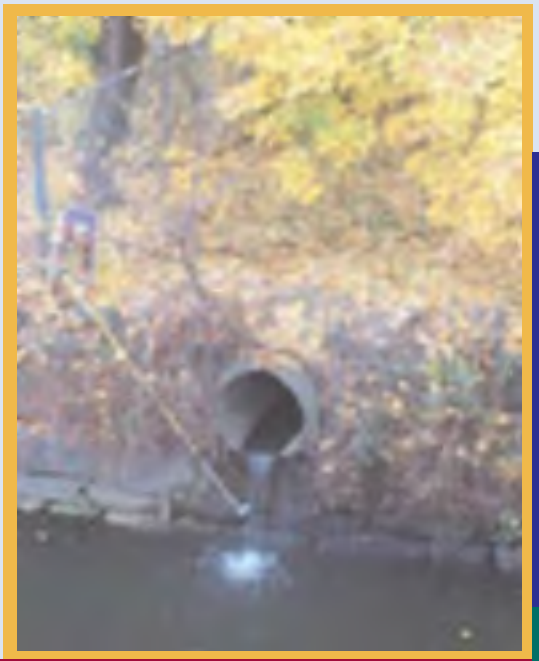
# APPENDIX G

## New England Interstate Water Pollution Control Commission

## IDDE Manual

# ILLICIT DISCHARGE DETECTION AND ELIMINATION MANUAL

## A Handbook for Municipalities

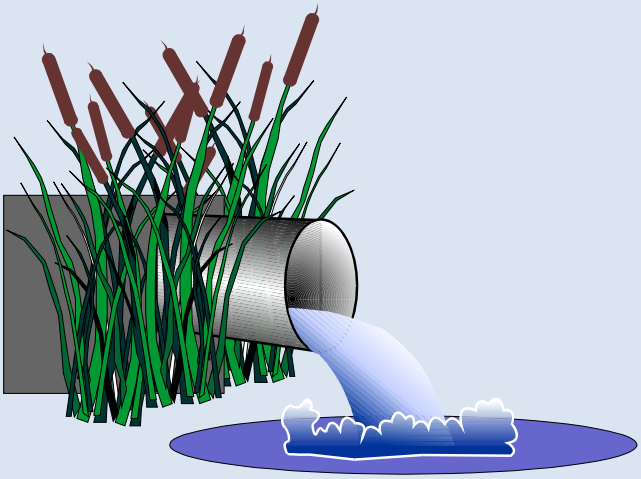


NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION

January 2003

# 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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Chris Stone, CTDEP

# CONTENTS

# ACRONYMS

| | |
|---|---|
| **BMP** | Best Management Practice |
| **BWSC** | Boston Water and Sewer Commission |
| **GIS** | Geographic Information System |
| **GPS** | Global Positioning System |
| **IDDE** | Illicit Discharge Detection and Elimination |
| **MS4** | Municipal Separate Storm Sewer System |
| **NPDES** | National Pollutant Discharge Elimination System |
| **NOV** | Notice of Violation |
| **SIC** | Standard Industrial Classification |

---

| | |
|---|---|
| **EPA** | U.S. Environmental Protection Agency |
| **CTDEP** | Connecticut Department of Environmental Protection |
| **MEDEP** | Maine Department of Environmental Protection |
| **MADEP** | Massachusetts Department of Environmental Protection |
| **NHDES** | New Hampshire Department of Environmental Services |
| **NYSDEC** | New York State Department of Environmental Conservation |
| **RIDEM** | Rhode Island Department of Environmental Management |
| **VTDEC** | Vermont Department of Environmental Conservation |

# INTRODUCTION

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.

***Polluted storm water runoff, including runoff from urban/suburban areas and construction sites, is a leading source of water quality 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 1 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[1] 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.

[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[2]. 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.

***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 to find out about state-specific requirements.***

[2] There are some exceptions to this deadline; contact the permitting authority in your state for up-to-date official information.

# 1 GETTING STARTED WITH YOUR IDDE PROGRAM

***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 ILLICIT 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

***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.***

## 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.

## NON-STORM WATER DISCHARGES THAT YOUR IDDE PROGRAM MAY NOT NEED TO ADDRESS

According to EPA's Phase II storm water regulations, an illicit discharge detection and elimination program need only address the following categories of non-storm water discharges if the operator of a small MS4 identifies them as significant contributors of pollutants to the MS4:

- water line flushing
- landscape irrigation
- diverted stream flows
- rising ground waters
- uncontaminated ground water infiltration
- uncontaminated pumped ground water
- discharges from potable water sources
- foundation drains
- air conditioning condensation
- irrigation water
- springs
- water from crawl space pumps
- footing drains
- lawn watering
- individual residential car washing
- flows from riparian habitats and wetlands
- dechlorinated swimming pool discharges
- street wash water

- 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

USEPA. 1999. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. *Federal Register* Vol. 64 No. 235 (December 8, 1999), pp. 68722-68851. *http://www.epa.gov/npdes/regulations/phase2.pdf*

USEPA. 2000. EPA Storm Water Phase II Final Rule Fact Sheet 2.5: *Illicit Discharge Detection and Elimination Minimum Control Measure.* EPA 833-F-00-007. January 2000. *http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm*

# 2 DEVELOPING A STORM SEWER MAP

***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 DFWELE, 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

***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.***

## 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.

(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

"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.

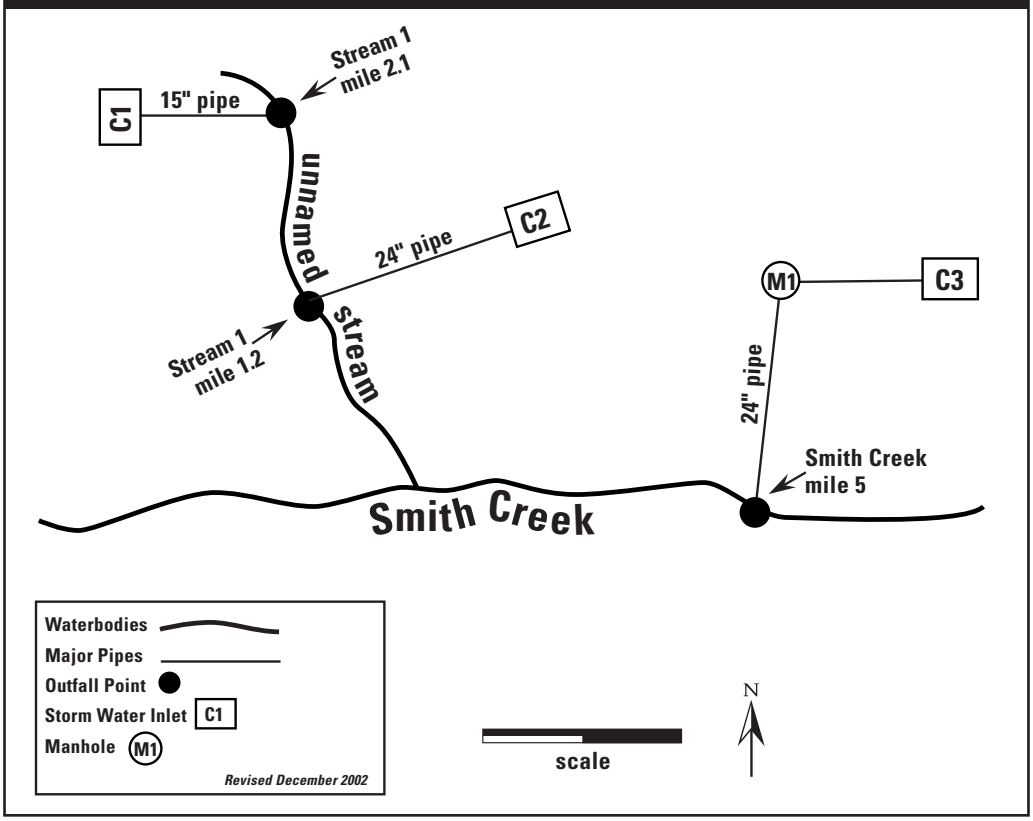
## PRIORITIZING AREAS TO BE MAPPED

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.

***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.***

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.

**Figure 1 SAMPLE MAP**



## REFERENCES: CHAPTER 2

Colorado Department of Public Health and Environment, Water Quality Control Division. 2001. *Colorado's Phase II Municipal Guidance: A guide to application requirements and program development for coverage under Colorado's Phase II municipal stormwater discharge permit.* *http://www.cdphe.state.co.us/wq/PermitsUnit/wqcdpmt.html*

Massachusetts Division of Fisheries, Wildlife, and Environmental Law Enforcement. 2002. *Storm Drain Mapping Project Field Manual* (Draft). *http://www.state.ma.us/dfwele/River/pdf/rivstormdrainmanual.pdf*

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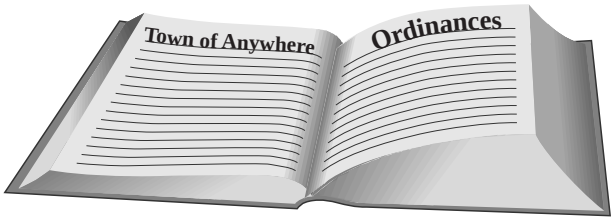
Rohrer, C.A., and Beckley, R.J. Undated. *Using GIS Tools to Implement an Illicit Discharge Elimination Program in Livonia, Michigan.* Rouge River Demonstration Project. *http://www.rougeriver.com/proddata*

USEPA. 1999. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. *Federal Register* Vol. 64 No. 235 (December 8, 1999), pp. 68722-68851. *http://www.epa.gov/npdes/regulations/phase2.pdf*

# 3 PROHIBITING ILLICIT DISCHARGES

***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 municipal ordinance created to comply with Phase II regulations must include a prohibition of illicit discharges and an enforcement mechanism.***

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; 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

BWSC. 2002. *Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains.* *http://www.bwsc.org*

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

USEPA. 1999. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. *Federal Register* Vol. 64 No. 235 (December 8, 1999), pp. 68722-68851.

USEPA. 2002. *Model Ordinances to Protect Local Resources: Illicit Discharges.* *http://www.epa.gov/owow/nps/ordinance/discharges.htm*

# 4 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.***

## THE IDDE PLAN

- ➤ **Locating priority areas**
- **Tracing the source of an illicit discharge**
- **Removing the source of an illicit discharge**
- **Program evaluation and assessment**

***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.

***Hot spots***
***Areas that are considered to be likely sources of illicit discharges, based on available information.***

**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.

***IMPORTANT NOTE:***
***Only those with confined-space training should enter a manhole or outfall.***

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).

### *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**

| Water Quality Test | Use of Water Quality Test | Comments |
|---|---|---|
| **Conductivity** | Used as an indicator of dissolved solids | - Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter<br>- 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<br>- 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<br>- 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<br>- 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<br>- 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<br>-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

Clark County (WA) Public Works. 2000. *Illicit Discharge Screening Project: Annual Summary 2000.* *http://www.co.clark.wa.us/site/clean/download/2000rept.pdf*

Colorado Department of Public Health and Environment, Water Quality Control Division. October 2001. *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*

Donlon, A. 2001. *2000 Coastal Illicit Connection Remediation Grant Program: Final Report.* New 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 Paul Barden and Charlie Jewell, BWSC, August 15, 2002.

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

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

Jewell, C. 2001. A Systematic Methodology for Identification and Remediation of Illegal Connections. Presented at the Water Environment Federation Specialty Conference *2001 A Collection Systems Odyssey: Combining Wet Weather and O&M Solutions.* *http://www.wef.org*

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San Diego Stormwater Copermittees Jurisdictional Urban Runoff Management Program. 2001. *Illicit Connection/Illicit Discharge (IC/ID) Detection and Elimination Model Program Guidance.* *http://www.projectcleanwater.org/html/model_programs.html*

Sargent, D. and W. Castonguay. 1998. *An Optical Brightener Handbook.* *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*. Rouge River Demonstration Project. *http://www.rougeriver.com/proddata*

USEPA. 1999. National Pollutant Discharge Elimination System – Regulations for Revision of the Water 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 Illicit Connections.* *http://cfpub.epa.gov/npdes/stormwater/menuofbmps/illi_2.cfm*

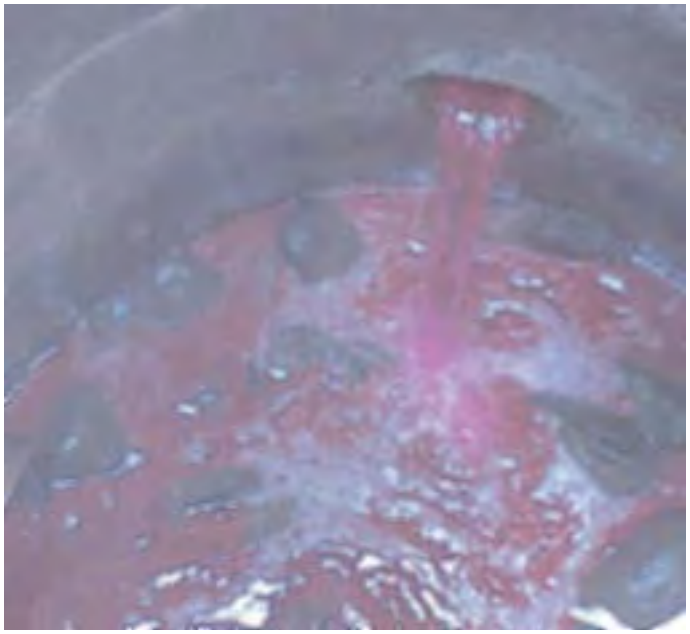
# 5 DEVELOPING AND IMPLEMENTING AN IDDE PLAN: TRACING THE SOURCE OF AN ILLICIT DISCHARGE

***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 second component, tracing the source of an illicit discharge, is the subject of this chapter.***

## THE IDDE PLAN

- Locating priority areas
- ➤ Tracing the source of an illicit discharge
- Removing the source of an illicit discharge
- Program evaluation and assessment

***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.

***A key tracing technique is to follow dry-weather flows upstream along the conveyance system to bracket the location of the source.***

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.

***Smoke testing 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.***

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

### *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.

*Landry, N. 1999. Elimination of Illicit Connections in Coastal New Hampshire Spurs Cooperation and Controversy: A Final Report to the New Hampshire Estuaries Project. New Hampshire Department of Environmental Services.*

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:

- 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

***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 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.

***Developing a coordinated system for collecting and tracking reports of illegal dumping can help pinpoint this difficult-to-find source of illicit discharges.***

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.

## REFERENCES: CHAPTER 5

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# 6 DEVELOPING AND IMPLEMENTING AN IDDE PLAN: REMOVING THE SOURCE OF AN ILLICIT DISCHARGE

***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 third component, removing the source of an illicit discharge, is the subject of this chapter.***

**THE IDDE PLAN**

- Locating priority areas
- Tracing the source of an illicit discharge
- ➤ Removing the source of an illicit discharge
- Program evaluation and assessment

***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-

untary 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.

***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.***

### 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.

*Information from Tuomari, D. 1999.* Dos and Don'ts on Implementing a Successful Illicit Connection Program. *Technical Report of the Rouge River Demonstration Project.* ***http://www.rougeriver.com/proddata***

### *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 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***

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.

## 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

California Coastal Commission. 2002. *Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities.* http://www.coastal.ca.gov/la/murp.html

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USEPA. 2002. *Model Ordinances to Protect Local Resources: Illicit Discharges.* http://www.epa.gov/owow/nps/ordinance/discharges.htm

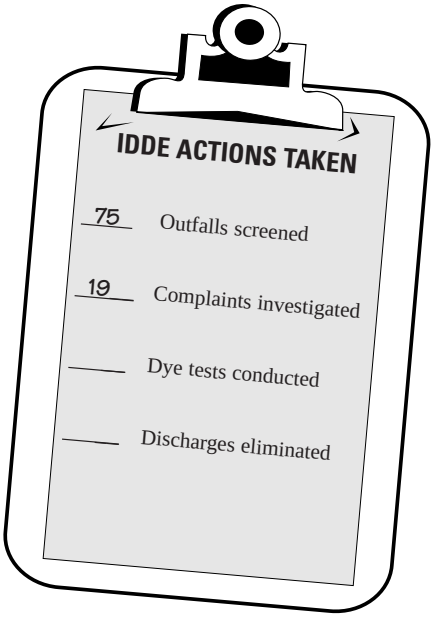
# 7 DEVELOPING AND IMPLEMENTING AN IDDE PLAN: EVALUATION OF THE IDDE PROGRAM

***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.***

**THE IDDE PLAN**

- **Locating priority areas**
- **Tracing the source of an illicit discharge**
- **Removing the source of an illicit discharge**
- ➤ **Program evaluation and assessment**

***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.)

***Evaluation procedures should include documentation of actions taken to locate and eliminate illicit discharges.***

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

USEPA. 1999. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. *Federal Register* Vol. 64 No. 235 (December 8, 1999), pp. 68722-68851. *http://www.epa.gov/npdes/regulations/phase2.pdf*

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USEPA New England. 2002. *NPDES General Permit for Storm Water Discharges from Regulated Small Municipal Separate Storm Sewer Systems (MS4s*) (Draft). September 27, 2002. *http://www.epa.gov/region01/npdes/ms4.html*

# 8 OUTREACH TO EMPLOYEES, BUSINESSES, AND THE GENERAL PUBLIC

***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.

***Many public employees can play an important role as partners in the detection and/or prevention of illicit discharges.***

## 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.

*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.*

- 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

*If made aware of environmental issues, the general public can help mitigate or prevent problems.*

- 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

Chesterfield County (VA). Undated. *Household Guide to Chesterfield County's Illicit Discharge Ordinance.* *http://www.chesterfield.gov/CommunityDevelopment/Engineering/HouseholdFactSheet.pdf*

North Central Texas Council of Governments. 2002. *Storm Water Management in North Central Texas: Illicit Discharge Detection and Elimination.* *http://www.dfwstormwater.com/Storm_Water_BMPs/illicit.html*

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USEPA. 2000. EPA Storm Water Phase II Final Rule Fact Sheet 2.3: *Public Education and Outreach Minimum Control Measure.* EPA 833-F-00-005. January 2000. *http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm*

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USEPA. 2002. Storm Water Phase II Menu of BMPs – *Public Education and Outreach on Storm Water Impacts: Proper Disposal of Household Hazardous Wastes.* *http://cfpub.epa.gov/npdes/stormwater/menuofbmps/edu_5.cfm*

# 9 BMPS AND MEASURABLE GOALS FOR IDDE

***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

***EPA allows MS4 operators a great deal of flexibility in determining what BMPs are most appropriate for their storm water programs.***

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

North Central Texas Council of Governments. 2002. *Storm Water Management in North Central Texas: Illicit Discharge Detection and Elimination.* *http://www.dfwstormwater.com/Storm_Water_BMPs/illicit.html*

USEPA. 1999. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. *Federal Register* Vol. 64 No. 235 (December 8, 1999), pp. 68722-68851. *http://www.epa.gov/npdes/regulations/phase2.pdf*

USEPA. 2000. *Storm Water Phase II Compliance Assistance Guide.* EPA 833-R-00-002. Office of Water. *http://www.epa.gov/npdes/pubs/comguide.pdf*

USEPA. 2000. EPA Storm Water Phase II Final Rule Fact Sheet 2.9: *Permitting and Reporting: The Process and Requirements.* EPA 833-F-011. January 2000. *http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm*

USEPA. 2002. *National Menu of Best Management Practices for Storm Water Phase II.* *http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm*

USEPA. 2002. *Measurable Goals Guidance for Phase II Small MS4s.* *http://cfpub.epa.gov/npdes/stormwater/measurablegoals/index.cfm*

# 10 RESOURCES

## WEB SITES AND PUBLICATIONS

### 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*
*http://www.epa.gov/npdes/pubs/comguide.pdf*

*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/npdes/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

California Coastal Commission. 2002. *Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities.* *http://www.coastal.ca.gov/la/murp.html*

Colorado Department of Public Health and Environment, Water Quality Control Division. October 2001. *Colorado's Phase II Municipal Guidance: A guide to application requirements and program development for coverage under Colorado's Phase II municipal stormwater discharge permit.*
*http://www.cdphe.state.co.us/wq/PermitsUnit/wqcdpmt.html*

## IDDE Manuals

San Diego Stormwater Copermittees Jurisdictional Urban Runoff Management Program. 2001. *Illicit Connection/Illicit Discharge (IC/ID) Detection and Elimination Model Program Guidance.*
*http://www.projectcleanwater.org/html/model_programs.html*

Pitt, R., M. Lalor, R. Field, D.D. Adrian, and D. Barbe. 1993. *Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems: A User's Guide.* USEPA Office of Research and Development. EPA/600/R-92/238. (Available on the Web via EPA's National Environmental Publications Information System, *http://www.epa.gov/clariton*.)

North Central Texas Council of Governments. 2002. *Storm Water Management in North Central Texas: Illicit Discharge Detection and Elimination.*
*http://www.dfwstormwater.com/Storm_Water_BMPs/illicit.html*

## 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/masscptc/Tips_on_Drafting.html*

**Optical Brighteners**
Sargent, D. and W. Castonguay. 1998. *An Optical Brightener Handbook.* Available at:
*http://www.mvpc.org/services_sec/mass_bays/optical_handbook.htm* and
*http://www.naturecompass.org/8tb/sampling/*

**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**
Massachusetts Division of Fisheries, Wildlife, and Environmental Law Enforcement. Storm Drain Mapping Project Field Manual (Draft). January 2002. *http://www.state.ma.us/dfwele/River/pdf/rivstormdrainmanual.pdf*

Jewell, C. 2001. A Systematic Methodology for Identification and Remediation of Illegal Connections. Presented at the Water Environment Federation Specialty Conference *2001 A Collection Systems Odyssey: Combining Wet Weather and O&M Solutions.* (Available for purchase via the WEF Web site, *http://www.wef.org*.)

**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/*

  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*

  Resources for storm drain stenciling programs in New Hampshire:

  - Coordinated by Julia Peterson of UNH-Cooperative Extension in the coastal watershed *http://ceinfo.unh.edu/Common/Documents/gsc5401.htm*. Also described at *http://www.seagrant.unh.edu/extension.htm*
  - Coordinated by the NH Coastal Program (part of the Office of State Planning) *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* (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*. 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; *ginny.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[1]

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 house keeping 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.

Clean Water Act. The federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

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:

[1] USEPA. 2002. *Model Ordinances to Protect Local Resources: Illicit Discharges.* http://www.epa.gov/owow/nps/ordinance/discharges.htm

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.

2. Access to Facilities.

(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.

(7) 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:

# APPENDIX H

## IDDE Employee Training Record

**Illicit Discharge Detection and Elimination (IDDE)**

**Employee Training Record**

**Freetown, Massachusetts**

**Date of Training:** _____

**Duration of Training:** _____

| Name | Title | Signature |
|---|---|---|
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ENVIRONMENTAL PARTNERS

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# APPENDIX L

Year 4 MCM-5 Memos

ENVIRONMENTAL PARTNERS
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# MEMORANDUM

**Date:** August 30, 2022

**To** Deborah Pettey - Interim Town Administrator, Town of Freetown

**From** Scott Turner, PE, AICP, LEED AP ND – Director of Planning, Environmental Partners

**CC** Victoria D'Antoni – Planning Board Technician and Zoning Board Clerk, Town of Freetown

**Subject** **Massachusetts Small Municipal Separate Storm Sewer System (MS4) Permit Green Infrastructure Memorandum**

## Introduction

This memorandum is regarding Section 2.3.6.c of the Massachusetts Small Municipal Separate Storm Sewer System (MS4) Permit. This section requires permittees to "develop a report assessing local regulations to determine the feasibility of making, at a minimum, the following practices allowable when appropriate site conditions exist:

i. Green roofs;
ii. Infiltration practices such as rain gardens, curb extensions, planter gardens, porous and pervious pavements, and other designs to manage stormwater using landscaping and structured or augmented soils; and
iii. Water harvesting devices such as rain barrels and cisterns, and the use of stormwater for non-potable uses.

The assessment should indicate if the practices are allowed in the MS4 jurisdiction and under what circumstances are they allowed. If the practices are not allowed, the permittee shall determine what hinders the use of these practices, what changes in local regulations may be made to make them allowable, and provide a schedule for implementation of recommendations. The permittee shall implement all recommendations, in accordance with the schedules, contained in the assessment."

Environmental Partners, at the request of the Town of Freetown, has reviewed Freetown's existing local regulations and performed an assessment regarding the viability of implementing or allowing the above-described green infrastructure practices. Specifically, Environmental Partners reviewed the following development regulations:

- *Article 11, Zoning Bylaws as of 10/28/20.*
- *Town of Freetown, Massachusetts Rules & Regulations of the Planning Board Governing the Subdivision of Land, dated April, 2003.*
- *Rules and Regulations of the Planning Board as Special Permits Granting Authority, no date.*
- *Freetown Planning Board Rules and Regulations Governing Development within the Planned Mixed Use Development Overlay District, dated October 8, 2019.*
- *Town of Freetown, Massachusetts Rules & Regulations of the Planning Board as Site Plan Review Authority, adopted August 30, 2016.*
- *Town of Freetown Wetlands Protection Bylaw, as approved at Town Meeting 5/5/03.*
- *Town of Freetown Wetlands Protection Rules and Regulations dated 8/4/08.*
- *Article 27 Non-Stormwater Discharges to the Municipal Storm Drain System of the Town of Freetown.*

With regard to the items listed in Section 2.3.6.c of the MS4 Permit, we have the following comments.

## Green Roofs

Although green roofs serve a stormwater management function, their design and construction is typically regulated under State and local building codes. After reviewing the articles and regulations listed above, there are no specific references to Green Roofs in Freetown's current articles and regulations.

Additional requirements or promotion of green roofs in Freetown would likely include an additional article or regulation specific to green roofs. Requirements for the use of green roofs as a stormwater management practice would most likely require additional specific language regarding green roofs in existing regulations, or the development of a New Stormwater Management Bylaw developed for consistency with the MS4 Permit. Due to the complex nature of constructing green roofs, including impacts to the design of building structural and rooftop elements, specific guidance would need to be developed for the design, construction, and maintenance of these structures.

## Infiltration Practices

The Town of Freetown's Article's, Bylaws, and Regulations contain limited references to infiltrative stormwater practices.

Section 11.29.J.9 of Freetown's Zoning Bylaws requires the incorporation of Low Impact Development strategies in mixed-use developments. There is no description of specific Low Impact Development practices, such as infiltrative practices.

The Rules and Regulations of the Planning Board Governing the Subdivision of Land does not specifically mention infiltrative stormwater management practices. Section IV.B.2 Table 1 of the Regulations allows the inclusion of a landscaped island in the center of cul-de-sacs. However, there is no specific language regarding how this landscaped island should be designed or whether it

should be used for stormwater management. Section IV.D provides requirements for Drainage and Runoff control. Section IV.D.2.c describes the use of gutters, inlets, culverts, catch basins, manholes, subsurface piping, surface channels, natural waterways, and open detention basins. These items are closed drainage system elements. Section IV.D.2.d requires stormwater to be piped underground, which is also a closed drainage system strategy. Section IV.D.2.e-g provides guidance for design of pipes. Section IV.D.2.m provides design guidance for traditional detention ponds.

Section IV.D.5 provides construction specifications for design of drainage systems. This section provides specifications for catch basins, manholes, pipes, and culverts, which are traditional stormwater management strategies.

Section II.C.3 of the Rules and Regulations of the Planning Board as Site Plan Review Authority provides design standards for surface drainage. This section requires that proposed projects should not result in an increase of rate and volume of stormwater leaving the site. This section encourages the use of Low Impact Development (LID) techniques. It all requires increases in surface runoff to be recharged on site. This section references the Massachusetts Department of Environmental Protection Standards.

In general, additional Bylaws and/or Regulations are necessary to require the use of infiltrative practices.

## Rainwater Harvesting

Rainwater harvesting is the collection, storage, and eventual reuse of rainwater for use as irrigation or industrial process water. Rainwater reuse systems can be used on small scales, such as collecting water from residential home downspouts, or on a much larger scale including collecting water from large industrial buildings.

We did not see any additional specific references to rainwater harvesting or reuse in the Articles, Bylaws, and Regulations listed above. Section II.C.3 of the Rules and Regulations of the Planning Board as Site Plan Review Authority encourages, but does not require, the use of Low Impact Development (LID) techniques. This section did not specifically mention rainwater harvesting.

## Conclusions

Section 2.3.6.c of the Massachusetts Small MS4 Permit requires communities to assess their regulation for allowing and encouraging green roofs, infiltration/LID practices, and rainwater harvesting.

The Rules and Regulations of the Planning Board as Site Plan Review Authority encourages – but does not require - the use of LID strategies. These Regulations require that all increases in surface runoff be recharged into the ground. We recommend these Regulations be amended to allow Low Impact Development strategies without a waiver.

We recommend the Subdivision Regulations be amended to require the use of Low Impact Development strategies. We also recommend the Town develop a Stormwater Management Bylaw consistent with the requirements of the MS4 Permit, that allow the inclusion of green roofs, infiltration/LID practices, and rainwater harvesting as described above.

Please call or email us if you have any questions regarding these recommendations.

ENVIRONMENTAL PARTNERS
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# MEMORANDUM

**Date:** August 30, 2022

**To** Deborah Pettey – Interim Town Administrator, Town of Freetown

**From** Scott Turner, PE, AICP, LEED AP ND – Director of Planning, Environmental Partners

**CC** Victoria D'Antoni – Planning Board Technician and Zoning Board Clerk, Town of Freetown

**Subject** **Massachusetts Small Municipal Separate Storm Sewer System (MS4) Permit Impervious Surface Memorandum**

## Introduction

This memorandum is regarding Section 2.3.6.b of the Massachusetts Small Municipal Separate Storm Sewer System (MS4) Permit. This section requires permittees to "develop a report assessing local current street design and parking lot guidelines that affect the creation of impervious cover. This assessment shall be used to provide information to allow the permittee to determine if changes to design standards for streets and parking lots can be made to support low impact design options."

Environmental Partners, at the request of the Town of Freetown, has reviewed Freetown's existing local regulations that affect the creation of impervious cover. Specifically, Environmental Partners reviewed the following development regulations:

- *Article 11, Zoning Bylaws as of 10/28/20.*
- *Town of Freetown, Massachusetts Rules & Regulations of the Planning Board Governing the Subdivision of Land, dated April, 2003.*
- *Rules and Regulations of the Planning Board as Special Permits Granting Authority, no date.*
- *Freetown Planning Board Rules and Regulations Governing Development within the Planned Mixed Use Development Overlay District, dated October 8, 2019.*
- *Town of Freetown, Massachusetts Rules & Regulations of the Planning Board as Site Plan Review Authority, adopted August 30, 2016.*
- *Town of Freetown Wetlands Protection Bylaw, as approved at Town Meeting 5/5/03.*
- *Town of Freetown Wetlands Protection Rules and Regulations dated 8/4/08.*
- *Article 27 Non-Stormwater Discharges to the Municipal Storm Drain System of the Town of Freetown.*

With regard to the items listed in Section 2.3.6.b of the MS4 Permit, we have the following comments.

Design guidelines and performance standards that affect the creation of impervious cover in Freetown are generally included in the Zoning Bylaws, Town of Freetown, Massachusetts Rules & Regulations of the Planning Board Governing the Subdivision of Land, Rules and Regulations of the Planning Board as Special Permits Granting Authority, Freetown Planning Board Rules and Regulations Governing Development within the Planned Mixed Use Development Overlay District, and Town of Freetown, Massachusetts Rules & Regulations of the Planning Board as Site Plan Review Authority. The Wetlands Protection Bylaw, Wetlands Protection Rules and Regulations, and Article 27 Non-Stormwater Discharges to the Municipal Strom Drain System of the Town of Freetown generally do not pertain to the creation of impervious surfaces.

## Zoning Bylaw

The Freetown Zoning Bylaw is amended through October 28, 2020. Consistent with most municipalities in Massachusetts, parking standards and requirements are addressed in the Zoning Bylaw. Section 11.31 of the bylaw provides design standards for off-street parking. Section 11.31.F tabulates the minimum parking requirements for each use. This section includes parking minimums for each use, which often can result in the construction of more parking spaces – and impervious surfaces – than are necessary. Some municipalities in Massachusetts establish parking maximums. In these cases, applicants typically demonstrate they can provide the parking described in the Zoning Bylaw but are only permitted to construct the parking that is needed to support and service the development.

To address the potential development of excessive parking, Section 11.31.B. of the Zoning Bylaw gives the Planning Board flexibility to reduce the number of required parking spaces. If the applicant of a proposed development can demonstrate a special circumstance such as shared parking for uses having peak parking demands at staggered times or other characteristics of prospective site users such as frequent carpooling, then the Planning Board may issue a waiver to allow a parking reduction. Such relief is contingent upon the applicant providing evidence that the site has a sufficient reserve area suitable for eventual conversion to parking to meet the requirements, if needed in the future.

Section 11.31.E. allows parking to be allocated in a combined parking lot when two or more buildings on the same or directly adjacent lots will continue to be available for the buildings' uses. This is an effective method to reduce the generation of excessive impervious cover.

Section 11.31.F includes a Table of Off-Street Parking Regulations which provides parking minimums. As described above, Section 11.31.B allows for a waiver from this section.

Section 11.31.G includes a Table of Off-Street Loading Facilities which include loading space minimums. Although not specifically stated, presumably the Planning Board could waive the minimum number of loading areas.

Section 11.31.I.7. requires standard parking spaces to be 10 feet wide by 18 feet long. Many municipalities in Massachusetts have standard parking space dimensions of 9 feet wide by 18 feet long.

Section 11.31.I.12. requires access driveways to be equal to or less than 24 feet wide when it intersects the front lot line. An exception is allowed for service stations and fire stations, in which the width may be increased to 40 feet. Capping driveway widths at 24 feet for most uses is an effective strategy to limit excessive pavement.

Section 11.31.I.13. pertains to off-street parking areas, access ways, and maneuvering areas. A minimum drive aisle width of 24 feet is required for these areas. Many municipalities allow for internal two-way circulation road widths to be 22 feet wide. This strategy could be used to limit pavement.

Section 11.29 pertains to the Planned Mixed Use Overlay District. Section 11.29.K. allows parking requirements for commercial uses in the overlay district to be reduced up to 15% when an applicant provides the Planning Board acceptable information relative to the ability to share parking within the development.

Section 11.3.E. contains maximum coverage allowances for structures in each zoning district. Proposed structures on a lot are not permitted to exceed a given percentage of that lot's area, according to the following schedule: 30% in the Residential District, 65% in the Village Residential District, 70% in the General Use District, 50% in the Business Use District, and 80% in the Industrial District.

Section 11.18.E. of the Zoning Bylaw pertains specifically to industrial districts and prohibits more than 80% of an industrial lot from being covered by all impervious surfaces. This appears to contradict the maximum structure coverage allowances in Section 11.3.E.

Section 11.6. pertains to multi-unit residential dwellings. Section 11.6.H. requires a lot to contain a minimum of 15 times the residential floor space as open lawn area. This is an effective measure to prevent excessive impervious surface on residential lots. However, it can result in additional clearing of land to construct lawn.

In general, the Freetown Zoning Bylaw provides some flexibility to reduce the generation of impervious area in some of the Town's zoning districts. We have developed several recommendations for the Town in the Conclusions section below to evaluate and amend the Zoning Bylaw in a manner that is consistent with the objectives of the Massachusetts MS4 Permit.

## Rules and Regulations of the Planning Board as Special Permit Granting Authority

These Regulations apply when projects are seeking a Special Permit from the Planning Board. These Regulations are similar to those found in the Zoning Bylaws with some exceptions.

Section II.B.4.d allows projects seeking special permits to combine parking facilities for multiple buildings of the same or adjacent lots. This section does not specifically mention reducing the overall number of parking spaces. This section contains the same parking ratios described in Section 11.31 of the Zoning Bylaw.

Section II.B.4.h.2 requires parking and loading spaces to be bituminous or concrete materials. There is no mention of utilizing porous or pervious pavements for parking spaces.

Section II.B.4.h.16 allows parking spaces to be 9 feet by 18 feet, which is smaller than described in the Zoning Bylaw.

Generally, these Regulations mimic the Parking and Loading standards described in the Zoning Bylaw with the exception of the size of parking spaces.

## Freetown Planning Board Rules and Regulations Governing Development within the Planned Mixed Use Development Overlay District

These Regulations were established to provide procedures for the review of Special Permit Applications of proposed projects in the Planned Mixed Use Development overlay district. These Regulations do not contain significant references to design standards that impact the amount of impervious coverage. However, section 6.4.h allows for a reduction in overall parking space requirements up to 15%.

## Subdivision Regulations

The latest version of the Freetown Subdivision Regulations is dated April 2003, which is after the initial promulgation of the Massachusetts Stormwater Management Standards but prior to the revised Standards that were issued in 2008. Prior to the initial promulgation of the State stormwater standards, stormwater management still consisted primarily of collection and conveyance infrastructure with little stormwater treatment or infiltration. Planning trends, such as reducing impervious surfaces for purposes of reducing stormwater runoff or pervious pavement, were generally not considered. Many municipalities in Massachusetts have increasingly implemented sustainable planning trends in recent amendments to their Bylaws and Regulations to better attenuate and treat stormwater and limit impervious area. The following sections of Freetown's Subdivision Regulations pertain to impervious surfaces:

Section IV.B.2. contains requirements for dead-end streets. The length of dead-end streets is limited to 750 feet and if no future connection with another street is intended, the Planning Board may require a cul-de-sac at the closed end having a minimum outside road diameter of 140 feet. A circular landscaped island with a radius of 20 feet at the center of the cul-de-sac is allowed but not be required. We recommend the landscaped island be required and designed to accept stormwater. We recommend the Town consider increasing the size of the landscaped island to include a 30 foot radius.

Section IV.B.4.h contains requirements for roadway pavement widths. Major Streets – which are defined as those carrying a heavy volume of traffic generally exceeding 1,500 vehicles per day – are required to be 30 feet wide. Primary Streets – which are defined as those connecting two existing major streets – must be at least 40 feet wide. Secondary Streets – which are defined as carrying volumes of traffic of generally over 400 vehicles per day – must be at least 30 feet wide. Minor

streets – which are defined as streets not used for through traffic but primarily to provide access to abutting lots – must be at least 24 feet wide. These required pavement widths are generally consistent with those of neighboring municipalities and do not appear to be excessive.

There are generally no references within the Subdivision Regulations to pervious pavements. All references are to standard concrete or bituminous concrete pavement. Section IV.B.7. describes the required surface treatment for installation of sidewalks and does mention porous or pervious pavements.

In summary, the Subdivision Regulations contain several measures to limit impervious cover in definitive subdivisions in Freetown. Recommendations to further reduce impervious cover are included in the Conclusions section below.

# Conclusions

Section 2.3.6.b of the Massachusetts Small Municipal Separate Storm Sewer System (MS4) Permit requires permittees to "develop a report assessing local current street design and parking lot guidelines that affect the creation of impervious cover. This assessment shall be used to provide information to allow the permittee to determine if changes to design standards for streets and parking lots can be made to support low impact design options."

We recommend the Town revise its standard parking space dimensions in Section 11.31.I.7. of the Zoning Bylaw such that the required width is reduced from 10 feet to 9 feet. Doing so will reduce pavement in parking areas for future development projects.

There are no allowances for compact parking spaces in Freetown's Bylaws and Regulations. Compact parking provisions for specific uses are being adopted by many municipalities in Massachusetts. The incorporation of compact parking spaces limits impervious coverage in parking lots and compact spaces are especially effective for uses with minimal parking turnover. Some Towns allow for compact parking spaces as small as 8 feet by 16 feet. We recommend the Town allow a limited number of compact parking spaces for appropriate uses with limited parking turnover.

In our opinion, the internal circulation pavement width allowed for two-way roads in Section 11.31.I.13. should be reduced to prevent excessive pavement. A minimum width of 24 feet is required for internal site roadways. We recommend allowing two-way internal road widths as low as 22 feet.

Section 11.31.K. of the Zoning Bylaw contains some landscaping requirements relative to side and rear yard buffers, as well as landscaping requirements surrounding parking areas to provide screening to adjacent uses. Additionally, a 10-foot-wide median is required for every two bays of parking to provide landscaping. In addition, we recommend the Zoning Bylaw be revised to include minimum landscaping requirements internal to parking areas. Many municipalities are now requiring 10 to 15 percent of the area internal to parking lots to be landscaped. In addition to potentially reducing excessive pavement, this requirement often incentivizes applicants to incorporate green infrastructure strategies into their proposed stormwater designs, in the form of raingardens or biofiltration areas.

We recommend the Town consider reducing the maximum lot coverage requirements for structures in Section 11.3.E. of the Zoning Ordinance. Many zoning districts such as residential, business, and industrial districts are allowed to have structures covering more than 65% of the lot's area, which may incentivize the generation of excessive building space and/or roof area. Comparatively, many Towns in Massachusetts have lower maximum coverage requirements for buildings, such as Milford, which has a 25% maximum across all five of its residential districts, lower than a 40% maximum for three of its four commercial districts, and 50% or less for all three of its industrial districts.

We recommend that pervious pavement strategies be used for all sidewalks, including definitive subdivisions, site developments, and complete streets strategies consistent with the stormwater objectives of Section IV.D. of the Subdivision Regulations and Article 27 of the Freetown General and Zoning Bylaws. We recommend the Town allow the use of porous or pervious pavements in off-street parking spaces.

We recommend the Town revise its parking requirements to include parking maximums and not minimums, allowing applicants to provide justification for the appropriate amount of parking and not simply providing the number of spaces described in the Zoning Bylaw.

We recommend the Town revise the Rules and regulations of the Planning Board Governing the Subdivision of Land to allow or require porous or pervious pavements for sidewalks. We also recommend the Town consider revising these regulations to require landscaped islands in the center of cul-de-sacs to manage stormwater.

With regard to the timing of these changes, we defer to the Town officials. We understand that many of these suggestions and/or recommendations have implications beyond stormwater management and therefore require considerable study.

Please call or email us if you have any questions regarding these recommendations.

ENVIRONMENTAL PARTNERS
— An Apex Company —

# MEMORANDUM

**Date:** August 30, 2022

**To** Deborah Pettey – Interim Town Administrator, Town of Freetown

**From** Scott Turner – Director of Planning, Environmental Partners

**CC** Victoria D'Antoni – Planning Board Technician and Zoning Board Clerk, Town of Freetown

**Subject** Minimum Control Measure No. 5 BMP Retrofit Analysis and Priority Municipal Properties

This memorandum summarizes the work completed by Environmental Partners Group, LLC (Environmental Partners) for the Town of Freetown, MA in accordance with Task 6c of the Agreement for Professional Engineering Services – Municipal Separate Storm Sewer System (MS4) General Permit Assistance for the Town of Freetown, endorsed May 5, 2022.

In accordance with MS4 General Permit section 2.3.6.d, the Town of Freetown is required to develop an inventory of Town-owned properties that could be modified or retrofitted with constructed stormwater best management practices (BMPs). Beginning with the MS4 Year 4 annual report, the Town will need to maintain an inventory of five (5) permittee-owned properties that are candidates for BMP retrofits. The Town will also need to provide a status update of any progress made on all properties that have been modified or retrofitted with BMPs to mitigate impervious cover for each subsequent report submittal. In this memorandum, Environmental Partners evaluated all Town-owned properties and developed the initial inventory of five priority permittee-owned properties identified for BMP retrofit opportunities.

## IDENTIFICATION OF POTENTIAL BMP LOCATIONS

Section 2.3.6.d of the MS4 Permit requires that permittees identify a minimum of five (5) permittee-owned properties that could potentially be modified of retrofitted with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges to and from its MS4. The MS4 Permit requires that permittees consider properties with significant impervious cover as well as

access to maintenance, subsurface geology, depth to water table, proximity to aquifers, and subsurface infrastructure.

The Town of Freetown maintains the municipal properties inventoried in Table 1, below. This inventory includes only properties that are located within the MS4 Urbanized Area and receive stormwater from on site and/or nearby roadways. Therefore only some of the Town's conservation land and vacant lots were included for consideration for BMP retrofits. The majority of the facilities evaluated are located in Assonet; only three facilities (Long Pond Town Beach and Hilltop Park, Fire Station #2, and the VWF Post Parking Lot) are located in East Freetown.

**Table 1: List of Town-owned Properties**

| Facility name | Address |
|---|---|
| Assonet Burying Ground | 46 South Main Street |
| Assonet Village School | 5 North Main Street |
| Empty Lot | Copicut Road & South Main Street |
| Empty Lot | End of Sassamon Drive and Matawa Drive |
| Empty Lot | Corner of North Main Street and Elm Street |
| Empty Lot | End of South Main Street near Innovation Way |
| Empty Lots | Coast and of Bryant's Neck |
| Fire Station #1 | 3 Elm Street |
| Fire Station #2 | 157 Country Road |
| Freetown Common | 5 South Main Street |
| Guilford H. Hathaway Library | 6 North Main Street |
| Hathaway Park | 28 Water Street |
| Kenswood Estate | Joaquin Ave |
| Kenneth R. Rezendes (KRR) Baseball Complex | 9 Narrows Road |
| Long Pond Town Beach & Hilltop Park | Long Pond Road |
| Town Hall | 3 North Main Street |
| Transfer Station | 49 Howland Road |
| VWF Post Parking Lot | 89 Middleboro Road |

# RANKING OF POTENTIAL BMP LOCATIONS

Environmental Partners performed a high level analysis of the facilities listed above. This analysis included site visits to all of the facilities to observe site conditions and occurrence of any stormwater management systems or facilities. EP also used the Natural Resources Conservation Service (NRCS) Soil Survey data to assess soil conditions at each facility in order to understand if the soils are appropriate for the installation of stormwater best management practices. Specifically, EP reviewed the mapped soil consistency, hydrologic soil group, and estimated seasonal high groundwater depth. EP reviewed online Geographic Information System (GIS) data layers stored on the Town of Freetown GIS system as well as MassGIS. Specifically, EP reviewed whether each site was located

within a regulated area, such as a Zone I or Zone II Area of a public drinking water supply or a wellhead protection area. EP reviewed the amount of impervious surface on site, including the number of parking spaces, to understand the amount of vehicle trips that may be generated by each site. EP also compared each location based on the Town of Freetown catchment rankings determined as part of the development of the Town's Illicit Discharge Detection and Elimination (IDDE) Plan, last updated in 2019. Land use, the intensity of development, and the potential to generate pollutants were also considered.

In accordance with Appendix H Part I.1.a.i.2, the Town must also include consideration of BMPs to reduce nitrogen discharges, due to the Taunton River Watershed's nitrogen impairment. Nitrogen export calculations for each outfall-catchment was completed in the Town's Nitrogen Source Identification Report (NSIR). That report studies outfall-catchments within the Taunton River Watershed for siting BMP retrofits and includes evaluation of private properties, whereas this report looks at municipal properties throughout the Town. These two plans should be considered distinct and different in aim, but complementary.

EP prepared a ranking matrix incorporating the factors described above. Based on current drainage GIS, no facilities listed above currently have stormwater management BMPs. Approximately half the properties discharge runoff to the impaired Assonet River. Additionally, approximately half of the facilities are located within a public water supply protection zone for groundwater or surface water. Most facilities have no previously mapped piped drainage, and only one property (empty lots on Bryant's Neck) receives discharge from an MS4 Outfall, and that MS4 Outfall is ranked as medium priority in the Town's IDDE Program. Soil conditions throughout Town, based on the NRCS Soil Survey, generally are mixed between hydrologic groups A, B, D, and dual soils. The majority (83 percent) of facilities contain some well-draining group A soils and have a seasonal high groundwater of greater than 80 inches below ground surface, according to NRCS estimates. Therefore, suitable soils generally exist throughout Town for the installation of stormwater management facilities. Soil infiltrative characteristics and groundwater conditions require further investigation to confirm suitability for stormwater BMPs.

EP made judgements regarding whether a particular property contained a high, medium, or low potential to generate pollutants. The Transfer Station was rated as high due to the facility's operations, presence of stockpiles, and vehicle travel and storage. The remainder of the facilities were either rated as having a medium or low potential to generate pollutants based on the amount of impervious surface, vehicular traffic, drainage discharging from nearby roadways, property operations, and open space that is maintained, irrigated, fertilized, and chemically treated.

Based on the criteria described above, EP has prioritized the following facilities for the development of stormwater Best Management Practices. The list is ordered from highest to lowest priority for BMP retrofits.

1. Transfer Station,
2. Town Hall,
3. Kenneth R. Rezendes (KRR) Baseball Complex,
4. Fire Station No. 2, and
5. Hathaway Park.

Please see the accompanying spreadsheet in Attachment 1 to review the considerations and criteria used to determine this ranking. These locations are also shown in Attachment 2.

**Attachments**

Attachment 1: Table of Priority Ranking of Municipal Properties for BMP Retrofits

Attachment 2: Figure of All Municipal Properties and Five Priority Properties for BMP Retrofits

Attachment 1: Priority Ranking of Municipal Properties for BMP Retrofits

| Facility name | Address | Outfall-catchment priority | Receiving water | Potential pollutant loading | Subsurface geology | Hydrologic Soil Group | Estimated depth to water table (in) | Proximity to public water supply zones | Existing stormwater BMPs | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| Transfer Station | 49 Howland Road | N/A | Unnamed Wetlands | High | Gloucester-Hinckley complex - A<br>Charlton-Rock outcrop-Paxton complex - B<br>Ridgebury fine sandy loam - D<br>Whitman fine sandy loam - D | A, B, D | > 80, 3, 0 | None | None | Stormwater currently sheetflows to wetlands |
| Town Hall | 3 North Main Street | Medium | Assonet River | Medium | Merrimac fine sandy loam | A | > 80 | IWPA * | None | High vehicular traffic |
| Kenneth R. Rezendes (KRR) Baseball Complex | 9 Narrows Road | N/A | Rattlesnake Brook to Assonet River | Medium | Hinckley loamy sand - A<br>Scarboro mucky fine sandy loam - A/D<br>Sudbury fine sandy loam - B<br>Pits, udorthents complex - Unknown | A, A/D, B, Unknown | > 80, 27, 0 | None | None | Directly discharges to impaired water<br>Large parking area<br>Site appears not to be used regularly |
| Fire Station #2 | 157 Country Road | N/A | Unnamed Wetlands | Medium | Windsor loamy sand | A | > 80 | SWPA Zone B ** | None | Large paved area |
| Hathaway Park | 28 Water Street | Medium | Assonet River | Medium | Merrimac fine sandy loam - A<br>Pawcatuck and Ipswich peats - A/D<br>Sudbury fine sandy loam - B | A, A/D, B | >80, 27, 0 | IWPA | None | Directly discharges to impaired water<br>Receives discharge directly from an MS4 Outfall<br>High groundwater may limit a BMP retrofit |
| Empty Lots | Coast and of Bryant's Neck | Medium | Assonet River | Medium | Hinckley loamy sand - A<br>Pawcatuck and Ipswich peats - A/D | A, A/D | > 80, 0 | None | None | Directly discharges to impaired water<br>Receives discharge directly from an MS4 Outfall and roadway drainage<br>Space may be limited |
| Long Pond Town Beach & Hilltop Park | Long Pond Road | N/A | Long Pond | Low | Hinckley loamy sand - A<br>Freetown muck - B/D<br>Pits, Udorthents complex - Unknown | A, B/D, Unknown | > 80, 0 | SWPA Zone A ** | None | Large parking area that is not striped |
| Fire Station #1 | 3 Elm Street | Medium | Assonet River | Medium | Merrimac fine sandy loam - A<br>Sudbury fine sandy loam - B | A, B | > 80, 27 | IWPA | None | Lot and impervious area is small |
| Guilford H. Hathaway Library | 6 North Main Street | Medium | Assonet River | Medium | Merrimac fine sandy loam | A | > 80 | IWPA * | None | No paved area |
| Empty Lot | Copicut Road & South Main Street | N/A | Terry Brook to Rattlesnake Brook to Assonet River | Medium | Hinckley loamy sand - A<br>Sudbury fine sandy loam - B<br>Walpole sandy loam - B/D | A, B, B/D | > 80, 27, 2 | None | None | Site could host BMP that treats roadway drainage |

Attachment 1: Priority Ranking of Municipal Properties for BMP Retrofits

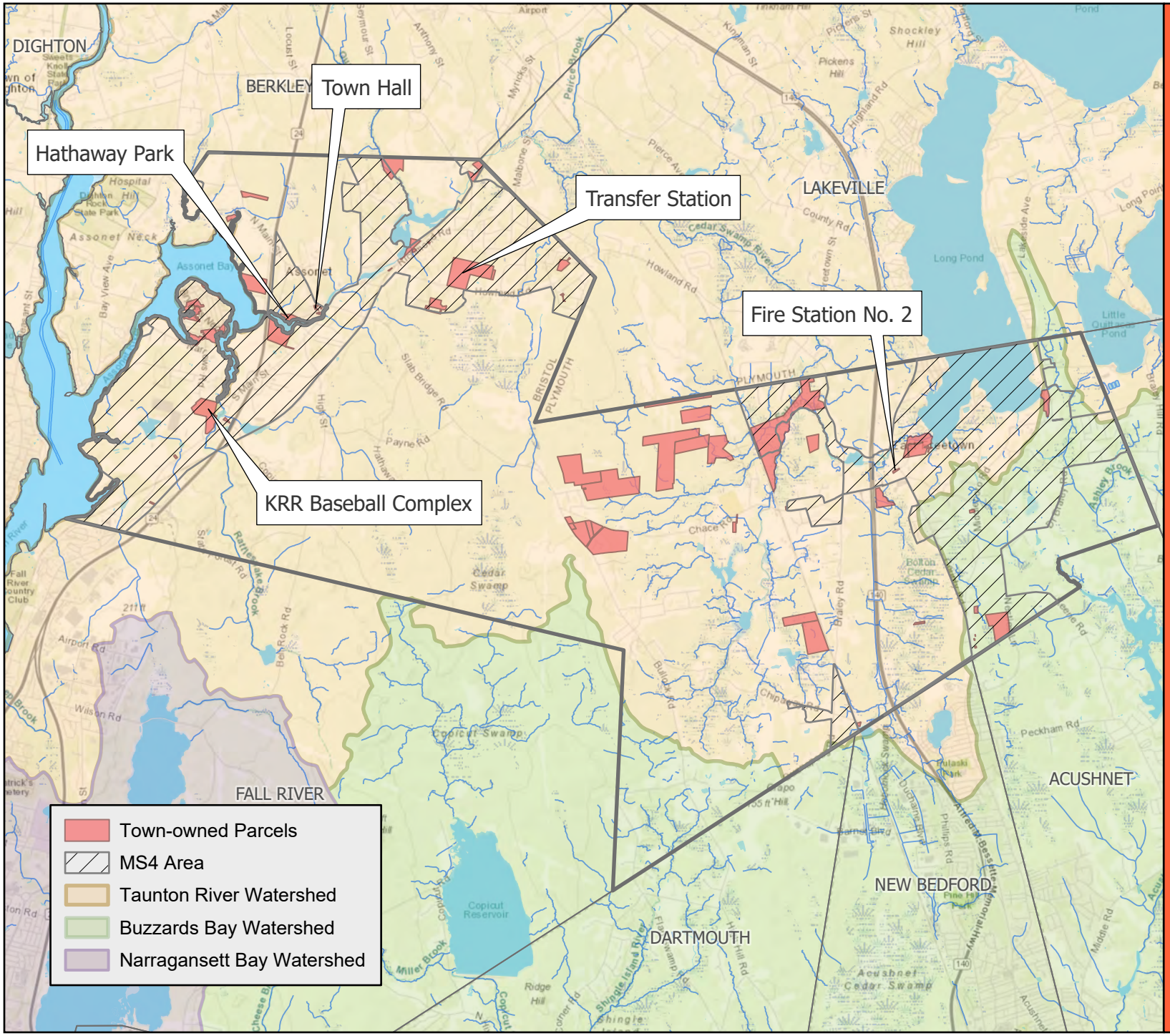
| Facility name | Address | Outfall-catchment priority | Receiving water | Potential pollutant loading | Subsurface geology | Hydrologic Soil Group | Estimated depth to water table (in) | Proximity to public water supply zones | Existing stormwater BMPs | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| Empty Lot | End of Sassamon Drive and Matawa Drive | N/A | Unnamed Wetlands to Forge Pond | Low | Scarboro mucky fine sandy loam - A/D<br>Charlton-Paxton complex - B<br>Charlton-Rock outcrop-Paxton complex - B<br>Woodbridge fine sandy loam - C/D<br>Whitman fine sandy loam - D | A/D, B, C/D, D | > 80, 20, 0 | None | None | Site could host BMP that treats roadway drainage |
| Empty Lot | Corner of North Main Street and Elm Street | Medium | Assonet River | Medium | Merrimac fine sandy loam | A | > 80 | IWPA | None | Site could host BMP that treats roadway drainage |
| VWF Post Parking Lot | 89 Middleboro Road | N/A | Unnamed Wetlands | Low | Windsor loamy sand | A | > 80 | None | None | |
| Kenswood Estate | Joaquin Ave | N/A | Unnamed Wetlands | Low | Hinckley loamy sand - A<br>Sudbury fine sandy loam - B<br>Walpole sandy loam - B/D<br>Freetown muck - B/D<br>Ninigret fine sandy loam - C | A, B, B/D, C | > 80, 27, 2, 0 | None | None | |
| Freetown Common | 5 South Main Street | Medium | Assonet River | Low | Sudbury fine sandy loam - B<br>Walpole sandy loam - B/D | B, B/D | 27, 2 | IWPA | None | Directly discharges to impaired water |
| Assonet Village School | 5 North Main Street | Medium | Assonet River | Low | Merrimac fine sandy loam | A | > 80 | None | None | Small lot |
| Empty Lot | End of South Main Street near Innovation Way | N/A | Unnamed Wetlands | Low | Paxton fine sandy loam | C | 25 | None | None | Site could host BMP that treats roadway drainage |
| Assonet Burying Ground | 46 South Main Street | None | Assonet River | Low | Hinckley loamy sand<br>Windsor loamy sand | A | > 80 | None | None | Directly discharges to impaired water |

Properties are listed in order of priority for BMP retrofits

All properties except the VWF Post Parking Lot are located within the Taunton River Watershed and thus are subject to Appendix H of the MS4 Permit and associated Nitrogen-reduction requirements

* "IWPA" means Interim Wellhead Protection Area

** "SWPA" means Surface Water Protection Area




# Figure of All Municipal Properties and Five Priority Properties for BMP Retrofits

Freetown, Massachusetts

N

0 0.5 1 Miles

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