Illicit Discharge Detection and Elimination (IDDE) Plan

Central Massachusetts Regional Stormwater Coalition

July 1, 2019

This project has been financed with Funds from the Massachusetts Department of Environmental Protection (the Department). The contents do not necessarily reflect the views and policies of the Department, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

Table of Contents

Illicit Discharge Detection and Elimination Plan
Central Massachusetts Regional Stormwater Coalition

1 Introduction 3
1.1 MS4 Program 3
1.2 Illicit Discharges 3
1.3 Allowable Non-Stormwater Discharges 4
1.4 Receiving Waters and Impairments 4
1.5 IDDE Program Goals, Framework, and Timeline 6
1.6 Work Completed to Date 8

2 Authority and Statement of IDDE Responsibilities 9
2.1 Legal Authority 9
2.2 Statement of Responsibilities 9

3 Stormwater System Mapping 11
3.1 Phase I Mapping 11
3.2 Phase II Mapping 12
3.3 Additional Recommended Mapping Elements 12

4 Sanitary Sewer Overflows (SSOs) 13

5 Assessment and Priority Ranking of Outfalls 16
5.1 Outfall Catchment Delineations 16
5.2 Outfall and Interconnection Inventory and Initial Ranking 16

6 Dry Weather Outfall Screening and Sampling 20
6.1 Weather Conditions 20
6.2 Dry Weather Screening/Sampling Procedure 20
6.2.1 General Procedure 20
6.2.2 Field Equipment 21
6.2.3 Sample Collection and Analysis 22
6.3 Interpreting Outfall Sampling Results 25
6.4 Follow-up Ranking of Outfalls and Interconnections 25

7 Catchment Investigations 26
7.1 System Vulnerability Factors 26
7.2 Dry Weather Manhole Inspections 29
7.3 Wet Weather Outfall Sampling 30
7.4 Source Isolation and Confirmation 31
7.4.1 Sandbagging 31
7.4.2 Smoke Testing 32

7.4.3 Dye Testing 32
7.4.4 CCTV/Video Inspection 32
7.4.5 Optical Brightener Monitoring 33
7.4.6 IDDE Canines 33
7.5 Illicit Discharge Removal 33
7.5.1 Confirmatory Outfall Screening 33
7.6 Ongoing Screening 34

8 Training 35

9 Progress Reporting 35

Tables

Table 1-1. Impaired Waters 5
Table 1-2. IDDE Program Implementation Timeline 7
Table 4-1. SSO Inventory 14
Table 5-1. Outfall Inventory and Priority Ranking Matrix 19
Table 6-1. Field Equipment – Dry Weather Outfall Screening and Sampling 21
Table 6-2. Sampling Parameters and Analysis Methods 22
Table 6-3. Required Analytical Methods, Detection Limits, Hold Times, and Preservatives[4] 23
Table 6-4. Benchmark Field Measurements for Select Parameters 25
Table 7-1. Outfall Catchment System Vulnerability Factor (SVF) Inventory 28

Figures

Figure 1-1. IDDE Investigation Procedure Framework 7

Appendices

Appendix A – Legal Authority (IDDE Bylaw or Ordinance)
Appendix B – Storm System Mapping
Appendix C – Field Forms, Sample Bottle Labels, and Chain of Custody Forms
Appendix D – Water Quality Analysis Instructions, User's Manuals and Standard Operating Procedures
Appendix E – IDDE Employee Training Record
Appendix F – Source Isolation and Confirmation Methods: Instructions, Manuals, and SOPs

1 Introduction

1.1 MS4 Program

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed by the City of Marlborough to address the requirements of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit" or "MS4 Permit."

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

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); and
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.

1.2 Illicit Discharges

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

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

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

connected to the storm drain system may be used inappropriately, such as for the disposal of floor washwater or old household products, in many cases due to a lack of understanding on the part of the homeowner.

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

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

1.3 Allowable Non-Stormwater Discharges

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

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

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

1.4 Receiving Waters and Impairments

Table 1-1 lists the "impaired waters" within the boundaries of Marlborough's regulated area based on the 2016 Massachusetts Integrated List of Waters produced by MassDEP every two years. Impaired waters are water bodies that do not meet water quality standards for one or more designated use(s) such as recreation or aquatic habitat.

Table 1-1. Impaired Waters

Marlborough, Massachusetts

Water Body Name	Segment ID	Category	Impairment(s)	Associated Approved TMDL
Sudbury Reservoir	MA82106	4a	Mercury in fish tissue	33880
Assabet River	MA82B-03	5	(Debris floatables/Trash)	
			(Non-Native Aquatic Plants)	
			Escherichia coli	
			Excess Algal Growth	35105
			Fecal Coliform	
			Nutrient/Eutrophication Biological Indicators	35105
			Phosphorus (Total)	35105
			Taste and Odor	
			Aquatic Macroinvertebrate Bioassessments	
			Aquatic Plants (Macrophytes)	35106
Fort Meadow Reservoir	MA82042	5	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
			Chlordane in Fish Tissue	
			Phosphorus (Total)	
Grist Mill Pond	MA82055	5	(Non-Native Aquatic Plants*)	
			Aquatic Plants (Macrophytes)	
			Dissolved oxygen saturation	
			Excess Algal Growth	
			Fecal Coliform	
			Phosphorus (Total)	
Hager Pond	MA82056	5	(Non-Native Aquatic Plants*)	
			Aquatic Plants (Macrophytes)	
			Dissolved oxygen saturation	
			Excess Algal Growth	
			Fecal Coliform	
			Phosphorus (Total)	
			Turbidity	
Unnamed Tributary	MA82A-15	5	Excess Algal Growth	
			Oxygen, Dissolved	
			Phosphorus (Total)	
			Total Suspended Solids (TSS)	

Unnamed Tributary	MA82A-16	5	Dissolved oxygen saturation	
			Excess Algal Growth	
			Oxygen, Dissolved	
			pH, High	
			Phosphorus (Total)	
			Total Suspended Solids (TSS)	

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

The City of Marlborough is located within the Assabet River Watershed. As part of the MS4 permit the City shall meet the requirements of Appendix F part A.V with respect to reduction of phosphorus discharges. Waterbodies listed above that are impaired due to phosphorus (Total Phosphorus) shall meet the requirements of Appendix H part II with respect to the control of phosphorus discharges from the MS4.

1.5 IDDE Program Goals, Framework, and Timeline

The goals of the IDDE program are to find and eliminate illicit discharges to 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

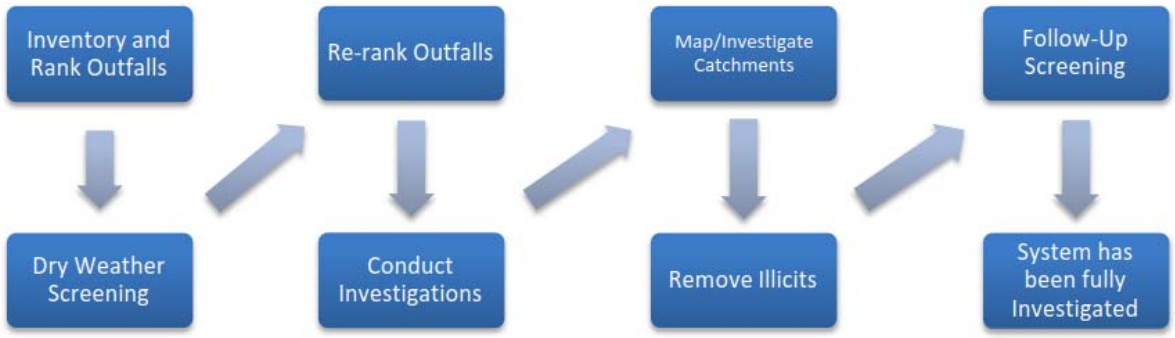


Table 1-2. IDDE Program Implementation Timeline

IDDE Program Requirement	Completion Date from Effective Date of Permit					
	1 Year	1.5 Years	2 Years	3 Years	7 Years	10 Years
Written IDDE Program Plan	X					
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

1.6 Work Completed to Date

The 2003 MS4 Permit required each MS4 community to develop a plan to detect illicit discharges using a combination of storm system mapping, adopting a regulatory mechanism to prohibit illicit discharges and enforce this prohibition, and identifying tools and methods to investigate suspected illicit discharges. Each MS4 community was also required to define how confirmed discharges would be eliminated and how the removal would be documented.

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

Instructions: Delete all activities that do not apply, and list and/or describe other related activities that have been completed.

- Developed a map of outfalls and receiving waters
- Adopted an IDDE bylaw or regulatory mechanism
- 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

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

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

2 Authority and Statement of IDDE Responsibilities

2.1 Legal Authority

The City of Marlborough has adopted an IDDE bylaw Chapter 511. Storm Sewers Article I. Illicit Discharges. A copy of Article I. Illicit Discharges is provided in **Appendix A**. Article I. Illicit Discharges provides the City of Marlborough 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 City of Marlborough has reviewed its current Article I. Illicit Discharges and related land use regulations and policies for consistency with the 2016 MS4 Permit.

2.2 Statement of Responsibilities

The Engineering Division is the lead municipal agency or department responsible for implementing the IDDE program pursuant to the provisions of Article I. Illicit Discharges. Other agencies or departments with responsibility for aspects of the program include:

- Engineering Division –
    - City Engineer has primary responsibility for coordinating compliance with the Phase II NPDES MS4 Stormwater Permit
    - GIS Administrator maintains a current and accurate map of the storm drain system, updating as necessary
    - Coordinates with other departments, including the Water & Sewer Division for new utility connections
    - Has primary responsibility for documenting suspected illicit discharges and providing for appropriate investigation, including but not limited to water quality monitoring, closed-circuit television inspection, smoke testing and dye testing.
    - Ensures that staff receives training in illicit discharge detection and elimination
- Water & Sewer Division –
    - Aides in documenting suspected illicit discharges and providing for appropriate investigation, including but not limited to water quality monitoring, closed-circuit television inspection, smoke testing and dye testing
    - Coordinates with Engineering Department for new utility connections
- Inspectional Services (Building Inspector, Code Enforcement, Licensed Plumbing Inspector) –
    - Reviews and inspects all building construction projects in accordance with local, state and federal codes.

  - Ensures public health, safety and welfare is secured
  - Enforces codes adopted by the City of Marlborough
  - Performs on-site inspections and field investigations to verify that building codes are met
  - Responds to concerns regarding possible infractions of building codes and permit procedures
  - Issues stop work orders to perpetrators who are conducting unauthorized work.
- Board of Health –
  - Investigates and report on all health hazards, complaints, and nuisances
  - Issue cease and desist orders for violations of sanitation code
  - Conducts health inspections of public places
  - Maintains records of onsite subsurface wastewater disposal systems
- Conservation Agent –
  - Responds to complaints, investigates potential violations and takes/recommends appropriate action/remediation

3 Stormwater System Mapping

The City of Marlborough originally developed mapping of its stormwater system to meet the mapping requirements of the 2003 MS4 Permit. A link to 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 Engineering Division is responsible for updating the stormwater system mapping pursuant to the 2016 MS4 Permit. The City of Marlborough will report on the progress towards completion of the storm system map in each annual report. Updates to the stormwater mapping will be included in the annual report.

3.1 Phase I Mapping

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

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

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

- Outfalls and receiving waters (previously required by the MS4-2003 permit) – Developed in 2003 updated monthly or as needed
- Open channel conveyances (swales, ditches, etc.) – Last updated in 2017
- Municipally owned stormwater treatment structures – Updated as needed
- 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 – Added in 2019 per the 2016 Massachusetts Integrated List of Waters
- Initial catchment delineations. Topographic contours and drainage system information may be used to produce initial catchment delineations.

The City of Marlborough is currently updating the receiving waters labels on the existing GIS as well as the impaired water bodies as identified on the 2016 EPA approved Massachusetts Integrates List of Waters report.

3.2 Phase II Mapping

Phase II mapping must be completed within ten (10) years of the effective date of the permit (July 1, 2027) and include the following information:

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

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

The City of Marlborough will continue to update its stormwater mapping as the stormwater system is updated as part of reconstruction projects or site projects for the duration of the MS4 permit.

Additional Recommended Mapping Elements
Although not a requirement of the 2016 MS4 Permit, Marlborough will include the following recommended elements in its storm system mapping:

- Storm sewer material, size (pipe diameter), age
- Sanitary sewer system material, size (pipe diameter), age
- Privately owned stormwater treatment structures
- Topography
- Orthophotography

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 City of Marlborough has completed an inventory of SSOs that have discharged to the MS4 within the five (5) years prior to the effective date of the 2016 MS4 Permit, based on review of available documentation pertaining to SSOs (**Table 4-1**). 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.

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

The inventory in **Table 4-1** will be updated by the Water & Sewer Division when new SSOs are detected. The SSO inventory will be included in the annual report, including the status of mitigation and corrective measures to address each identified SSO.

Table 4-1. SSO Inventory

Marlborough, Massachusetts
Revision Date: June 27, 2019

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]
198 Glen Street	The SSO discharged to the ground surface only	11/10/ 2018	12:05 pm	2:30 pm	3000 gallons	SMH damaged 4 days prior to overflow by contractor. Debris blocked main.	Lakeside sewerage pumped standing water and removed solids. Silt sacks were clean and reinstalled. Lime spread on affected gravel roadway	
180 Lakeside Avenue	The SSO discharged to the ground surface only	12/11/ 2018	2:30 pm	2:45 pm	100 gallons	The cause of the SSO event was a grease blockage.	Removed grease with sewer jet/vactor. Jetted the sewer line	

[1] Location (approximate street crossing/address and receiving water, if any)
[2] A clear statement of whether the discharge entered a surface water directly or entered the MS4
[3] Date(s) and time(s) of each known SSO occurrence (i.e., beginning and end of any known discharge)
[4] Estimated volume(s) of the occurrence

[5] Description of the occurrence indicating known or suspected cause(s)
[6] Mitigation and corrective measures completed with dates implemented
[7] Mitigation and corrective measures planned with implementation schedules

5 Assessment and Priority Ranking of Outfalls

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

5.1 Outfall Catchment Delineations

A catchment is the area that drains to an individual outfall[1] or interconnection.[2] The catchments for each of the MS4 outfalls will be delineated to define contributing areas for investigation of potential sources of illicit discharges. Catchments are typically delineated based on topographic contours and mapped drainage infrastructure, where available. As described in **Section 3**, initial catchment delineations will be completed as part of the Phase I mapping, and refined catchment delineations will be completed as part of the Phase II mapping to reflect information collected during catchment investigations

5.2 Outfall and Interconnection Inventory and Initial Ranking

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

The outfall and interconnection inventory will identify each outfall and interconnection discharging from the MS4, record its location and condition, and provide a framework for tracking inspections, screenings and other IDDE program activities.

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

1. **Problem Outfalls**: Outfalls/interconnections with known or suspected contributions of illicit discharges based on existing information shall be designated as Problem Outfalls. This shall include any outfalls/interconnections where previous screening indicates likely sewer input. Likely sewer input indicators are any of the following:

[1] **Outfall** means a point source as defined by 40 CFR § 122.2 as the point where the municipal separate storm sewer discharges to waters of the United States. An outfall does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels or other conveyances that connect segments of the same stream or other waters of the United States and that are used to convey waters of the United States. Culverts longer than a simple road crossing shall be included in the inventory unless the permittee can confirm that they are free of any connections and simply convey waters of the United States.

[2] **Interconnection** means the point (excluding sheet flow over impervious surfaces) where the permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is conveyed to waters of the United States or to another storm sewer system and eventually to a water of the United States.

- 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.

2. **High Priority Outfalls**: Outfalls/interconnections that have not been classified as Problem Outfalls and that are:

    - Discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds
    - Determined by the permittee as high priority based on the characteristics listed below or other available information.

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

4. **Excluded outfalls**: Outfalls/interconnections with no potential for illicit discharges may be excluded from the IDDE program. This category is limited to roadway drainage in undeveloped areas with no dwellings and no sanitary sewers; drainage for athletic fields, parks or undeveloped green space and associated parking without services; cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.

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

- **Past discharge complaints and reports.**

- **Poor receiving water quality** – the following guidelines are recommended to identify waters as having a high illicit discharge potential:
    - Exceeding water quality standards for bacteria
    - Ammonia levels above 0.5 mg/l
    - Surfactants levels greater than or equal to 0.25 mg/l

- **Density of generating sites** – Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples of these sites include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.

- **Age of development and infrastructure** – Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old will probably have a high illicit

discharge potential. Developments 20 years or younger will probably have a low illicit discharge potential.

- **Sewer conversion** – Contributing catchment areas that were once serviced by septic systems, but have been converted to sewer connections may have a high illicit discharge potential.

- **Surrounding density of aging septic systems** – Septic systems thirty years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.

- **Culverted streams** – Any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.

- **Water quality limited waterbodies** that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.

Table 5-1 provides a sample format for an outfall inventory and priority ranking matrix. Attached is a copy of the outfall inventory and priority ranking matrix.

Table 5-1. Outfall Inventory and Priority Ranking Matrix

Marlborough, Massachusetts
Revision Date: May 1, 2019

Outfall ID	Receiving Water	Previous Screening Results Indicate Likely Sewer Input? [1]	Discharging to Area of Concern to Public Health? [2]	Frequency of Past Discharge Complaints	Receiving Water Quality [3]	Density of Generating Sites [4]	Age of Development/ Infrastructure [5]	Historic Combined Sewers or Septic? [6]	Aging Septic? [7]	Culverted Streams? [8]	Additional Characteristics	Score	Priority Ranking
Information Source		Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0	TBD		
Sample 1	XYZ River	3	0	2	0	2	1	0	0	3	None	11	Problem
Sample 2	XYZ Lake	0	3	0	3	1	2	0	3	3	None	15	High Priority
Sample 3	XYZ Stream	0	0	2	0	1	1	0	0	0	None	4	Low Priority

Scoring Criteria:

[1] Previous screening results indicate likely sewer input if any of the following are true:

- 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

[2] Outfalls/interconnections that discharge to or in the vicinity of any of the following areas: public beaches, recreational areas, drinking water supplies, or shellfish beds

[3] Receiving water quality based on latest version of MassDEP Integrated List of Waters.

- Poor = Waters with approved TMDLs (Category 4a Waters) where illicit discharges have the potential to contain the pollutant identified as the cause of the impairment
- Fair = Water quality limited waterbodies that receive a discharge from the MS4 (Category 5 Waters)
- Good = No water quality impairments

[4] Generating sites are institutional, municipal, commercial, or industrial sites with a potential to contribute to illicit discharges (e.g., car dealers, car washes, gas stations, garden centers, industrial manufacturing, etc.)

[5] Age of development and infrastructure:

- High = Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old
- Medium = Developments 20-40 years old
- Low = Developments less than 20 years old

[6] Areas once served by combined sewers and but have been separated, or areas once served by septic systems but have been converted to sanitary sewers.

[7] Aging septic systems are septic systems 30 years or older in residential areas.

[8] Any river or stream that is culverted for distance greater than a simple roadway crossing.

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT007-131	AMORY RD	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT017-130	BOLTON ST	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT030-231	BOLTON ST	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT076-141	BOUNDARY ST	Millham Reservoir	0	3	0	0	0	3	0	0	0	6	High Priority
OUT059-1298	GHILONI PARK	North Branch Mowry Brook	0	3	0	0	1	0	0	0	0	4	High Priority
OUT059-1299	GHILONI PARK	Morse Brook	0	3	0	0	1	0	0	0	0	4	High Priority
OUT115-1056	CEDAR HILL ST	Wachusett Aqueduct	0	3	0	0	0	3	0	0	0	6	High Priority
OUT046-1300	GHILONI PARK	Morse Brook	0	3	0	0	1	0	0		0	4	High Priority
OUT006-272	CULLINANE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT006-273	CULLINANE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT007-207	CULLINANE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT007-208	CULLINANE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT019-1322	CULLINANE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT019-209	CULLINANE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT006-866	GRAVES LN	Fort Meadow Reservoir	0	3	0	2	0	2	0	0	0	7	High Priority
OUT043-1331	KELBER DR	Fort Meadow Reservoir	0	3	0	2	0	1	3	3	0	12	High Priority
OUT006-270	LAKESHORE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT006-271	LAKESHORE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT017-117	LAKESHORE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT017-741	LAKESHORE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT018-74	LAKESHORE DR	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT080-1216	LAKESIDE AVE	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT080-1217	LAKESIDE AVE	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT080-1218	LAKESIDE AVE	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT080-1273	LAKESIDE AVE	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT080-1274	LAKESIDE AVE	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT080-794	LAKESIDE AVE	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT080-89	LAKESIDE AVE	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT080-90	LAKESIDE AVE	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT018-81	LAKESHORE DR	Fort Meadow Reservoir	0	3	0	2	0	3	0	3	0	11	High Priority
OUT007-1110	MEADOW STREET	Fort Meadow Reservoir	0	3	0	2	0	3	3	3	0	14	High Priority
OUT007-889	PAQUIN DR	Fort Meadow Reservoir	0	3	0	2	0	3	0	0	0	8	High Priority
OUT017-54	RESERVOIR ST	Fort Meadow Reservoir	0	3	0	2	0	3	0	0	0	8	High Priority
OUT017-55	RESERVOIR ST	Fort Meadow Reservoir	0	3	0	2	0	0	0	0	0	5	High Priority
OUT017-56	RESERVOIR ST	Fort Meadow Reservoir	0	3	0	2	0	0	0	0	0	5	High Priority
OUT017-57	RESERVOIR ST	Fort Meadow Reservoir	0	3	0	2	0	0	0	0	0	5	High Priority
OUT017-58	RESERVOIR ST	Fort Meadow Reservoir	0	3	0	2	0	0	0	0	0	5	High Priority
OUT017-59	RESERVOIR ST	Fort Meadow Reservoir	0	3	0	2	0	0	0	0	0	5	High Priority
OUT019-270	RIDGE RD	Fort Meadow Reservoir	0	3	0	2	0	3	0	0	0	8	High Priority
OUT007-1301	SPRING LN	Fort Meadow Reservoir	0	3	0	2	0	3	0	0	0	8	High Priority
OUT019-287	STEVENS ST	Fort Meadow Reservoir	0	3	0	2	0	3	3	0	0	11	High Priority
OUT080-481	WEST MAIN STREET	Lake Williams	0	3	0	0	0	3	0	0	0	6	High Priority
OUT091-1363	WILLIAMS ST	Lake Williams	0	3	0	0	0	0	3	3	0	9	High Priority
OUT080-1277	WILLIAMS ST (COURT HOUSE)	Lake Williams	0	3	0	0	0	0	3	3	0	9	High Priority
OUT102-1375	AHERN DR	Unnamed Trib. To Wachusett Aqueduct (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT102-1376	AHERN DR	Unnamed Trib. To Wachusett Aqueduct (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT052-1340	AHLGREN CIR	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT089-1362	AMES ST	0	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT089-450	AMES ST	Millham Brook		0	0	0	0	3	0	0	0	3	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT031-225	ANDERSON RD	Holts Grove	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT031-380	ANDREWS RD	Holts Grove	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT044-226	ANDREWS RD	Mowry Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT042-132	ASH ST	Sheep Fall Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT042-1329	ASH ST	Sheep Fall Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT042-1330	ASH ST	Sheep Fall Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT028-32	BACHER CIR	Flagg Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT020-187	BARNARD RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT031-210	BARRETT RD	Holts Grove	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT031-211	BARRETT RD	Holts Grove	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT031-212	BARRETT RD	Holts Grove	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT081-223	BEACH ST	Beach Street Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT018-275	BEAUREGARD CIR	Fort Meadow	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT022-345	BELMORE PL	Tributary to Hop Brook (1)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT022-347	BELMORE PL	Tributary to Hop Brook (1)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT082-215	BERKELEY ST	Sudbury Reservoir	0	0	0	3	0	2	0	0	0	5	Low Priority
OUT026-1325	BERLIN RD		0	0	0	0	0	3	3	3	0	9	Low Priority
OUT027-220	BERLIN RD	Tributary to Assabet River (2)	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT040-217	BERLIN RD	Howe Pond	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT041-218	BERLIN RD	North Branch Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT054-219	BERLIN RD	North Branch Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT055-1342	BERLIN RD	North Branch Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT094-1369	BEVERLY DR	Sudbury Reservoir	0	0	0	3	0	3	0	0	0	6	Low Priority
OUT039-415	BIGELOW ST	Unnamed Tributary to North Branch Brook (1)	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT040-413	BIGELOW ST	Unnamed Tributary to North Branch Brook (1)	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT053-224	BIGELOW ST	Howe Pond	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT053-385	BIGELOW ST	Unnamed Tributary to North Branch Brook (2)	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT010-300	BLANCHETTE DR	Tributary to Cranberry Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT094-1312	BOIVIN DR	Sudbury Reservoir	0	0	0	3	0	1	0	0	0	4	Low Priority
OUT030-1326	BOLTON ST	Fort Meadow Reservoir	0	0	0	2	0	3	3	3	0	11	Low Priority
OUT059-64	BOSTON POST RD	North Branch Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT078-199	BOSTON POST RD	Millham Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT034-229	BOUFFARD DR	Tributary to Hop Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT035-228	BOUFFARD DR	Tributary to Hop Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT092-232	BRACKEN DR	Beach Street Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT092-233	BRACKEN DR	Beach Street Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT019-7	BRADY WAY	Fort Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT052-213	BRAZEAU CIR	North Branch Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT091-754	BRIGHAM ST	Unnamed Trib. To Wachusett Aqueduct (2)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT103-454	BRIGHAM ST	Rock Meadow Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT103-455	BRIGHAM ST	Rock Meadow Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT104-248	BRIGHAM ST	Rock Meadow Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT104-461	BRIGHAM ST	Rock Meadow Brook	0	0	0	0	3	3	3	3	0	12	Low Priority
OUT114-129	BRIGHAM ST	Rock Meadow Brook	0	0	0	0	0	3	3	3	0	9	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT114-340	BRIGHAM ST	Rock Meadow Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT114A-1172	BRIGHAM ST	Rock Meadow Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT085-133	BROADMEADOW ST	Sudbury Reservoir	0	0	0	3	0	3	3	3	0	12	Low Priority
OUT085-962	BROADMEADOW ST	Sudbury Reservoir	0	0	0	3	0	3	3	3	0	12	Low Priority
OUT093-252	BROOK ST	Hardiman Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT115-1058	CEDAR HILL ST	Unnamed Trib. To Wachusett Aqueduct (5)	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT116-468	CEDAR HILL ST	Unnamed Trib. To Wachusett Aqueduct (3)	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT116-477	CEDAR HILL ST		0	0	0	0	3	0	0	0	0	3	Low Priority
OUT072-216	CLEARVIEW DR	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT066-410	CLEVERSY DR	Unnamed Tributary to Millham Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT044-167	CLINTON ST	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT044-5	CLINTON ST	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT057-168	CLINTON ST	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT057-169	CLINTON ST	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT081-185	CLOVERHILL ST	Beach Street Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT091-161	CLOVERHILL ST	Unnamed Trib. To Wachusett Aqueduct (2)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT021-190	COLLINS DR	Spoon Hill Pond	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT021-191	COLLINS DR	Spoon Hill Pond	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT010-149	CONCORD RD	Tributary to Cranberry Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT011-298	CONCORD RD	Unnamed Tributary to Cranberry Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT045-1333	CONCORD RD	North Branch Mowry Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT046-1334	CONCORD RD	Broadmeadow Brook	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT071-1245	COOK LANE	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT084-583	COUNTRY LANE	Broadmeadow Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT030-1316	CROSS COUNTRY	Fort Meadow	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT031-1284	POIRIER DR	Red Spring Brook	0	0	0	0	2	0	0	0	0	2	Low Priority
OUT047-946	EVERGREEN CEMETERY	River Meadow Brook	0	0	0	0	0	0	0	3	0	3	Low Priority
OUT047-947	EVERGREEN CEMETERY	River Meadow Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT047-948	EVERGREEN CEMETERY	River Meadow Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT056-429	HUDSON ST	Sheep Fall Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT058-750	POST ROAD PLAZA	Mowry Brook	0	0	0	0	2	0	0	0	0	2	Low Priority
OUT058-752	POST ROAD PLAZA	Mowry Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT070-485	MAPLE ST	Marlborough Brook	0	0	0	0	3	3	0	0	3	9	Low Priority
OUT073-420	HELEN DR	Rice Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT078-1027	RK CENTRE	Millham Brook	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT082-120	FLORENCE STREET	Hardiman Brook	0	0	0	0	0	3	0	0	3	6	Low Priority
OUT082-121	GARFIELD STREET	Hardiman Brook	0	0	0	0	1	3	0	0	3	7	Low Priority
OUT082-1356	MAPLE ST	Marlborough Brook	0	0	0	0	3	3	0	0	3	9	Low Priority
OUT082-890	FIRE STATION 1	Marlborough Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT092-1364	BEACH ST	Beach Street Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT100-1144	SIMARANO DR	Unnamed Trib. To Wachusett Aqueduct (5)	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT103-720	JERICHO HILL	Rock Meadow Brook	0	0	0	0	0	3	3	0	0	6	Low Priority
OUT103-721	JERICHO HILL	Rock Meadow Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT103-722	JERICHO HILL	Rock Meadow Brook	0	0	0	0	0	3	0	0	0	3	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT115-1055	CEDAR HILL ST	Unnamed Trib. To Wachusett Aqueduct (5)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT115-474	CEDAR HILL ST	Unnamed Trib. To Wachusett Aqueduct (5)	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT116-1266	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT118-1205	CEDAR HILL ST	Unnamed Trib. To Wachusett Aqueduct (3)	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT058-1190	CURTIS AVE	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT043-205	CUSELLA DR		0	0	0	0	0	1	0	0	0	1	Low Priority
OUT092-184	DALEY CIR	Beach Street Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT055-182	DALTON RD	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT118-50	DANGELO DR	Road Brook	0	0	0	0	2	2	0	0	0	4	Low Priority
OUT094-783	DANJOU DR	Sudbury Reservoir	0	0	0	3	0	3	0	0	0	6	Low Priority
OUT094-784	DANJOU DR	Sudbury Reservoir	0	0	0	3	0	3	0	0	0	6	Low Priority
OUT083-180	DARTMOUTH ST	Unnamed Tributary to Sudbury Reservoir (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT083-214	DARTMOUTH ST	Unnamed Tributary to Sudbury Reservoir (1)	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT008-355	DEAN RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	1	3	0	0	4	Low Priority
OUT010-382	DEMERS DR	Tributary to Cranberry Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT093-251	DESIMONE DR	Beach Street Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT103-265	DESIMONE DR	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT103-266	DESIMONE DR	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT104-247	DESIMONE DR	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT104-249	DESIMONE DR	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT104-250	DESIMONE DR	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT061-1349	DICENZO BLVD	Hop Brook	0	0	0	2	0	3	0	0	0	5	Low Priority
OUT061-254	DICENZO BLVD	Hop Brook	0	0	0	2	0	3	0	0	0	5	Low Priority
OUT061-485	DICENZO BLVD	Hop Brook	0	0	0	2	0	3	0	0	0	5	Low Priority
OUT074-400	DICENZO BLVD	Hop Brook	0	0	0	2	0	3	0	0	0	5	Low Priority
OUT074-410	DICENZO BLVD	Hop Brook	0	0	0	2	0	3	0	0	0	5	Low Priority
OUT039-410	DONAHUE DR	Unnamed Tributary to North Branch Brook (1)	0	0	0	0	0	0	0	3	0	3	Low Priority
OUT039-412	DONAHUE DR	Unnamed Tributary to North Branch Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT013-12	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT013-308	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT013-309	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT013-441	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT026-269	DONALD J LYNCH BLVD	Assabet River	0	0	0	2	0	2	0	0	0	4	Low Priority
OUT038-1328	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT051-267	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT051-268	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT051-386	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT051-387	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT051-388	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT051-390	DONALD J LYNCH BLVD	Tributary to Assabet River	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT039-406	DONAHUE DR	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT039-407	DONAHUE DR	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT039-408	DOUCETTE DR	Unnamed Tributary to North Branch Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT035-255	DOWLING LN	Tributary to Hop Brook (1)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT035-256	DOWLING LN	River Meadow Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT022-183	DRAPER CIR	Tributary to Hop Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT027-1231	DUFRESNE DR	Flagg Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT027-1236	DUFRESNE DR	Flagg Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT027-1247	DUFRESNE DR	Flagg Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT049-761	EASTERLY TREATMENT PLANT	Hop Brook	0	0	0	2	3	1	0	0	0	6	Low Priority
OUT061-755	EASTERLY TREATMENT PLANT	Hop Brook	0	0	0	2	3	3	0	0	0	8	Low Priority
OUT061-756	EASTERLY TREATMENT PLANT	Hop Brook	0	0	0	2	3	0	0	0	0	5	Low Priority
OUT061-757	EASTERLY TREATMENT PLANT	Hop Brook	0	0	0	2	3	3	0	0	0	8	Low Priority
OUT062-760	EASTERLY TREATMENT PLANT	Hop Brook	0	0	0	2	3	0	0	0	0	5	Low Priority
OUT083-235	EDINBORO ST	Unnamed Tributary to Sudbury Reservoir (1)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT065-1353	MILLHAM ST	Unnamed Tributary to Millham Brook	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT065-763	ELM ST	Unnamed Tributary to Millham Brook	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT066-1355	ELM ST	Unnamed Tributary to Millham Brook	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT088-1361	ELM ST	Unnamed Tributary to Millham Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT035-170	EMER RD	River Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT048-171	EMER RD	River Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT041-172	ETHIER CIR	Flagg Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT052-1339	EVELINA DR	North Branch Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT053-1341	EVELINA DR	North Branch Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT084-582	FARM RD	Mowry Brook	0	0	0	0	2	3	3	3	0	11	Low Priority
OUT094-1314	FARM RD	Sudbury Reservoir	0	0	0	3	0	3	3	3	0	12	Low Priority
OUT094-1366	FARM RD	Sudbury Reservoir	0	0	0	3	0	3	3	3	0	12	Low Priority
OUT094-1367	FARM RD	Sudbury Reservoir	0	0	0	3	0	3	3	3	0	12	Low Priority
OUT094-1368	FARM RD	Sudbury Reservoir	0	0	0	3	0	3	3	3	0	12	Low Priority
OUT084-125	FARMINGTON CIR	Sudbury Reservoir	0	0	0	3	0	3	0	0	0	6	Low Priority
OUT084-127	FARMINGTON CIR	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT036-1178	FARRINGTON LANE	Tributary to Hop Brook (2)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT036-163	FARRINGTON LN	Tributary to Hop Brook (2)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT036-164	FARRINGTON LN	Tributary to Hop Brook (2)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT036-165	FARRINGTON LN	Tributary to Hop Brook (2)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT036-334	FARRINGTON LN	Tributary to Hop Brook (2)	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT079-201	FELTON ST	Millham Brook	0	0	0	0	3	3	3	3	0	12	Low Priority
OUT082-479	FIRE STATION 1	Marlborough Brook	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT082-482	FIRE STATION 1	Marlborough Brook	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT082-519	FIRE STATION 1	Marlborough Brook	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT082-529	FIRE STATION 1	Marlborough Brook	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT029-381	FITCHBURG ST	Sheep Fall Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT049-335	FLINT DR	Tributary to Hop Brook (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT100-1270	FOREST ST	Unnamed Trib. To Wachusett Aqueduct (5)	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT101-576	FOREST ST	Millham Brook	0	0	0	0	2	3	0	0	0	5	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT111-1269	FOREST ST	Unnamed Trib. To Wachusett Aqueduct (5)	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT090-1103	FOREST STREET	Millham Brook	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT101-575	FOREST STREET	Millham Brook	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT101-888	FOREST STREET	Millham Brook	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT093-1359	FRAMINGHAM RD	Marlborough Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT105-193	FRAMINGHAM RD	Sudbury Reservoir	0	0	0	3	0	1	3	3	0	10	Low Priority
OUT105-1310	FRAMINGHAM RD	Sudbury Reservoir	0	0	0	3	0	1	3	3	0	10	Low Priority
OUT018-274	GAUCHER CIR	Fort Meadow	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT102-438	GIBBS PLACE	Unnamed Trib. To Wachusett Aqueduct (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT089-60	GLEN STREET	Millham Brook	0	0	0	0	0	3	0	0	3	6	Low Priority
OUT010-107	GOODALE ST	Tributary to Hop Brook (3)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT010-108	GOODALE ST	Tributary to Hop Brook (3)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT010-118	GOODALE ST	Tributary to Hop Brook (3)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT010-1159	GOODALE ST	Tributary to Hop Brook (3)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT104-124	GOODNOW LN	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT027-1234	GOODWIN ST	Flagg Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT027-1238	GOODWIN ST	Flagg Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT032-116	GRACE CIR	North Branch Mowry Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT036-332	GRAHAM PATH	Tributary to Hop Brook (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT036-333	GRAHAM PATH	Tributary to Hop Brook (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT071-426	GREENWOOD ST	Unnamed Tributary to Sudbury Reservoir (2)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT065-1354	GREGOIRE DR	North Branch Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT022-122	GROGAN PATH	Tributary to Hop Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT022-123	GROGAN PATH	Tributary to Hop Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT035-363	HAMILTON CIR	Tributary to Hop Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT035-364	HAMILTON CIR	Tributary to Hop Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT023-112	HANLON DR	Tributary to Hop Brook (2)	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT008-204	HARDY RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT023-367	HARPER CIR	Tributary to Hop Brook (2)	0	0	0	0	0	1	3	3	3	10	Low Priority
OUT036-253	HAWKINS LN	Tributary to Hop Brook (2)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT099-1370	HAYES MEMORIAL DR	Unnamed Trib. To Stirrup Brook	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT110-1371	HAYES MEMORIAL DR	Unnamed Trib. To Stirrup Brook	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT110-1373	HAYES MEMORIAL DR	Unnamed Trib. To Stirrup Brook	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT073-412	HELEN DR	Broadmeadow Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT047-1335	HEMENWAY ST	Broadmeadow Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT022-1323	HEMENWAY ST	Tributary to Hop Brook (1)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT022-302	HEMENWAY ST	Tributary to Hop Brook (1)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT047-1336	HEMENWAY ST	Broadmeadow Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT047-1337	HEMENWAY ST	Broadmeadow Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT046-1275	HIGHGATE RD	North Branch Mowry Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT007-23	HOSMER ST	Fort Meadow Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT030-69	HUDSON ST	Sheep Fall Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT040-542	INTERSTATE 495/BERLIN ROAD	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT054-509	INTERSTATE 495/ELM STREET	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT022-106	JACKSON CIR	Tributary to Hop Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT039-102	JACOBS RD	North Branch Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT039-103	JACOBS RD	North Branch Brook	0	0	0	0	0	2	0	0	0	2	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT052-101	JACOBS RD	North Branch Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT022-105	JEAN RD	Tributary to Hop Brook (1)	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT056-448	JEFFERSON ST	Hardiman Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT041-739	JOSEPH NORTH RD	Flagg Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT071-100	KANE DR	Mowry Brook	0	0	0	0	0	3	0		0	3	Low Priority
OUT102-92	KELLEHER ST	Unnamed Trib. To Wachusett Aqueduct (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT113-1193	KELLEHER ST	Unnamed Trib. To Wachusett Aqueduct (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT044-31	KINGS GRANT RD	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT033-52	KNIGHT WAY	North Branch Mowry Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT032-385	KOSMAS ST	North Branch Mowry Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT082-78	LACOMBE ST	Hardiman Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT031-1285	LAFRENIERE DRIVE	Red Spring Brook	0	0	0	0	2	0	0	0	0	2	Low Priority
OUT010-295	LAMARRE DR	Tributary to Cranberry Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT079-245	LANDRY ST	Millham Brook	0	0	0	0	3	0	0	3	0	6	Low Priority
OUT048-75	LANGELIER LN	River Meadow Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT048-76	LANGELIER LN	River Meadow Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT048-77	LANGELIER LN	River Meadow Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT092-80	LEOLEIS DR	Beach Street Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT023-338	LITTLEFIELD LN	Tributary to Hop Brook (2)	0	0	0	0	0	0	3	0	0	3	Low Priority
OUT023-343	LITTLEFIELD LN	Tributary to Hop Brook (1)	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT023-365	LITTLEFIELD LN	Tributary to Hop Brook (2)	0	0	0	0	0	0	3	0	0	3	Low Priority
OUT035-361	LITTLEFIELD LN	River Meadow Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT035-368	LITTLEFIELD LN	River Meadow Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT048-79	LITTLEFIELD LN	River Meadow Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT048-93	LITTLEFIELD LN	River Meadow Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT048-96	LITTLEFIELD LN	River Meadow Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT048-97	LITTLEFIELD LN	River Meadow Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT038-328	LITTLEFIELD LN	River Meadow Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT090-1297	LIZOTTE DR	Millham Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT053-386	LOCKE DR	Unnamed Tributary to North Branch Brook (2)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT053-785	LOCKE DR	Unnamed Tributary to North Branch Brook (2)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT054-1212	LOCKE DR	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT054-398	LOCKE DR	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT067-1228	LORD RD	Lake Williams	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT067-1229	LORD RD	Lake Williams	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT089-452	MACKAY ST	Millham Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT114-72	MACOMBER LN	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT114-73	MACOMBER LN	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT082-257	MAPLE ST	Marlborough Brook	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT093-1357	MAPLE ST	Marlborough Brook	0	0	2	0	3	3	0	0	0	8	Low Priority
OUT093-1365	MAPLE ST	Marlborough Brook	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT093-16	MAPLE ST	Hardiman Brook	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT104-13	MAPLE ST	Sudbury Reservoir	0	0	0	3	3	3	0	0	0	9	Low Priority
OUT104-14	MAPLE ST	Sudbury Reservoir	0	0	0	3	3	3	0	0	0	9	Low Priority
OUT104-17	MAPLE ST	Sudbury Reservoir	0	0	0	3	3	3	0	0	0	9	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT104-18	MAPLE ST	Sudbury Reservoir	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT055-29	MAPLEWOOD ST	Sheep Fall Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT043-27	MARIEN DR	Sheep Fall Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT028-30	MATHESON DR	Flagg Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT028-33	MATHESON DR	Flagg Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT028-66	MATHESON DR	Flagg Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT020-21	MCCABE DR	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT020-22	MCCABE DR	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT027-1233	MCDERMOT WAY	Flagg Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT040-69	MCDONOUGH DR	Flagg Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT041-70	MCDONOUGH DR	Flagg Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT021-152	MCNEIL CIR	Spoon Hill Pond	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT021-68	MCNEIL CIR	Spoon Hill Pond	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT056-1344	MECHANIC ST	Sheep Fall Brook	0	0	0	0	0	3	3	3	3	12	Low Priority
OUT067-67	MEMORY LN	North Branch Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT008-25	MIELE RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT008-26	MIELE RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT009-24	MIELE RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT023-20	MINEHAN LN	Tributary to Hop Brook (2)	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT113-28	MORRISSEY RD		0	0	0	0	0	2	0	0	0	2	Low Priority
OUT011-304	MOSHER LN	Unnamed Tributary to Cranberry Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT011-306	MOSHER LN	Unnamed Tributary to Cranberry Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT020-189	NAUGLER AVE	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT020-331	NAUGLER AVE	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT082-262	NEIL ST	Hardiman Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT082-227	NEWTON ST	Hardiman Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT082-227	NEWTON ST	Hardiman Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT113-143	NICHOLAS CIR	Unnamed Trib. To Wachusett Aqueduct (4)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT088-451	NICKERSON RD	Unnamed Trib. To Stirrup Brook (1)	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT089-443	NICKERSON RD	Millham Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT089-445	NICKERSON RD	Millham Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT089-455	NICKERSON RD	Millham Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT089-465	NICKERSON RD	Millham Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT089-474	NICKERSON RD	Millham Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT078-766	NORTHBORO RD	Millham Brook	0	0	0	0	0	3	0		0	3	Low Priority
OUT083-425	O'BRIEN	Unnamed Tributary to Sudbury Reservoir (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT083-815	OGRADY RD	Unnamed Tributary to Sudbury Reservoir (2)	0	0	0	0	0	2	0	0	0	2	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT083-810	OMALLEY RD	Unnamed Tributary to Sudbury Reservoir (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT083-811	OMALLEY RD	Unnamed Tributary to Sudbury Reservoir (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT083-816	OMALLEY RD	Unnamed Tributary to Sudbury Reservoir (2)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT081-437	ONAMOG STREET	Beach Street Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT042-1	OVERLOOK DR	Sheep Fall Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT054-4	PADULA DR	North Branch Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT033-49	PAGE CIR	North Branch Mowry Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT042-2	PERRY LN	Sheep Fall Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT058-3	PETERS AVE	Mowry Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT084-126	PHEASANT HILL RD	Sudbury Reservoir	0	0	0	3	0	3	0	0	0	6	Low Priority
OUT015-1320	PLEASANT ST	Flagg Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT015-310	PLEASANT ST	Flagg Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT015-311	PLEASANT ST	Flagg Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT028-312	PLEASANT ST	Flagg Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT029-313	PLEASANT ST	Flagg Brook	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT029-327	PLEASANT ST	Sheep Fall Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT029-380	PLEASANT ST		0	0	0	0	0	2	3	3	0	8	Low Priority
OUT030-1279	POIRIER DR	Trib. To Fort Meadow	0	0	0	0	2	0	0	0	0	2	Low Priority
OUT030-1280	POIRIER DR	Trib. To Fort Meadow	0	0	0	0	2	0	0	0	0	2	Low Priority
OUT031-1282	POIRIER DR	Trib. To Fort Meadow	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT031-1283	POIRIER DR	Red Spring Brook	0	0	0	0	2	0	0	0	0	2	Low Priority
OUT061-895	POMPHREY DRIVE	Hop Brook	0	0	0	2	0	3	0	0	0	5	Low Priority
OUT023-1315	PRENDIVILLE WAY	Tributary to Hop Brook (2)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT023-1324	PRENDIVILLE WAY	Tributary to Hop Brook (1)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT034-1378	RAYMOND RD	Tributary to Hop Brook (1)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT035-1377	RAYMOND RD	Tributary to Hop Brook (1)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT093-62	RIVER ST	Marlborough Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT033-158	ROBERTS RD	North Branch Mowry Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT033-61	ROBERTS RD	Morse Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT039-417	ROBIN HILL ST	Unnamed Tributary to North Branch Brook (1)	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT063-1350	ROBIN HILL ST	Assabet River	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT063-410	ROBIN HILL ST	Assabet River	0	0	0	2	0	0	3	3	0	8	Low Priority
OUT063-418	ROBIN HILL ST	Assabet River	0	0	0	2	0	0	3	3	0	8	Low Priority
OUT064-408	ROBIN HILL ST	Assabet River	0	0	0	2	0	0	3	3	0	8	Low Priority
OUT064-4352	ROBIN HILL ST	Assabet River	0	0	0	2	0	0	3	3	0	8	Low Priority
OUT076A-1351	ROBIN HILL ST	Assabet River	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT055-63	ROOSEVELT ST	North Branch Brook	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT055-1343	RUSSELL ST	Sheep Fall Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT055-427	RUSSELL ST	Sheep Fall Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT008-357	RUSSO DR	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT008-359	RUSSO DR	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT029-489	SASSEVILLE WAY	Flagg Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT029-491	SASSEVILLE WAY	Flagg Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT029-492	SASSEVILLE WAY	Flagg Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT023-320	SHEFFIELD TER	Tributary to Hop Brook (1)	0	0	0	0	0	2	3	3	0	8	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT023-350	SHEFFIELD TER	Tributary to Hop Brook (1)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT047-53	SHERIDAN RD	River Meadow Brook	0	0	0	0	0	1	3	0	0	4	Low Priority
OUT100-1271	SIMARANO DR	Unnamed Trib. To Wachusett Aqueduct (5)	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT100-1374	SIMARANO DR	Unnamed Trib. To Wachusett Aqueduct (5)	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT112-1401	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT112-1402	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT112-173	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT112-174	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT112-176	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT112-178	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT112-179	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT116-1263	SIMARANO DR	Road Brook	0	0	0	0	0	0	0	0	0	0	Low Priority
OUT116-489	SIMARANO DR	Road Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT116-500	SIMARANO DR	Road Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT065-34	SIMMONS ST	Unnamed Tributary to Millham Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT065-45	SIMMONS ST	Unnamed Tributary to Millham Brook	0	0	0	0	0	1	0	0	0	1	Low Priority
OUT008-271	SIMPSON RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT008-291	SIMPSON RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT051-389	SOLOMON POND MALL		0	0	0	0	0	0	0	0	0	0	Low Priority
OUT081-42	SOUTH ST	Beach Street Brook	0	0	0	0	0	3	3	0	0	6	Low Priority
OUT093-157	SOUTH ST	Beach Street Brook	0	0	0	0	0	3	3	0	0	6	Low Priority
OUT032-1327	SPOONHILL AVE	North Branch Mowry Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT033-47	SPOONHILL AVE	North Branch Mowry Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT055-1181	SPRING STREET	North Branch Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT019-10	STACEY RD	Fort Meadow Brook	0	0	0	0	2	3	0	0	0	5	Low Priority
OUT019-11	STACEY RD	Fort Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT019-48	STACEY RD	North Branch Mowry Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT019-8	STACEY RD	Fort Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT019-9	STACEY RD	Fort Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT113-44	STEARNS RD	Unnamed Trib. To Wachusett Aqueduct (4)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT113-460	STEARNS ROAD	Unnamed Trib. To Wachusett Aqueduct (4)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT031-128	STEVENS ST	Holts Grove	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT031-162	STEVENS ST	Holts Grove	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT031-377	STEVENS ST	Red Spring Brook	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT044-1411	STEVENS ST	Mowry Brook	0	0	0	0	1	2	3	0	0	6	Low Priority
OUT044-156	STEVENS ST	Mowry Brook	0	0	0	0	1	3	3	0	0	7	Low Priority
OUT057-39	STEVENS ST	Mowry Brook	0	0	0	0	0	0	3	0	0	3	Low Priority
OUT008-1318	STOW RD	Tributary to Fort Meadow Brook (1)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT020-46	STOW RD	Spoon Hill Pond	0	0	0	0	0	1	3	0	0	4	Low Priority
OUT021-160	STOW RD	Tributary to Fort Meadow Brook (2)	0	0	0	0	0	1	3	0	0	4	Low Priority
OUT045-1332	STOW RD	North Branch Mowry Brook	0	0	0	0	0	3	3	0	0	6	Low Priority

FeatureID	StreetName	Receiving Water	Previous Screening Results Indicate Likely Sewer Input?	Discharging to Area of Concern to Public Health?	Frequency of Past Discharge Complaints	Receiving Water Quality	Density of Generating Sites	Age of Development / Infrastructure	Historic Combined Sewers or Septic?	Aging Septic?	Culverted Streams?	Score	Priority Ranking
Information Source			Outfall inspections and sample results	GIS Maps	Town Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Town Staff, GIS Maps	Land Use, Town Staff	GIS and Storm System Maps		
Scoring Criteria			Yes = 3 (problem outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
OUT023-51	SUDBURY ST	Tributary to Hop Brook (1)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT036-166	SUDBURY ST	Tributary to Hop Brook (2)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT036-419	SUDBURY ST	Tributary to Hop Brook (2)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT002-35	TAYLOR RD	Tributary to Hop Brook (3)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT103-154	THOMPSON DR	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT103-155	THOMPSON DR	Rock Meadow Brook	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT044-1278	THRESHER DR	Mowry Brook	0	0	0	0	1	3	0	0	0	4	Low Priority
OUT011-336	TURNER RIDGE RD	Unnamed Tributary to Cranberry Brook	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT011-369	TURNER RIDGE RD	Tributary to Hop Brook (2)	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT011-373	TURNER RIDGE RD	Unnamed Tributary to Cranberry Brook	0	0	0	0	0	0	3	3	0	6	Low Priority
OUT043-153	UNION ST	Fort Meadow Reservoir	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT082-149	VALLEY ST	Marlborough Brook	0	0	0	0	3	3	0	0	0	6	Low Priority
OUT082-889	VALLEY ST	Marlborough Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT028-147	VARLEY RD	Flagg Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT010-145	VEGA RD	Tributarty to Hop Brook (3)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT021-151	VEGA RD	Spoon Hill Pond	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT103-144	WALCOTT CIR	Rock Meadow Brook	0	0	0	0	0	3	0	0	0	3	Low Priority
OUT093-135	WALKER ST	Humphrey Pond	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT049-486	WAYSIDE INN RD	Hop Brook	0	0	0	2	0	0	3	3	0	8	Low Priority
OUT062-1338	WAYSIDE INN RD	Hop Brook	0	0	0	2	0	0	3	3	0	8	Low Priority
OUT083-1360	WELLINGTON ST	Unnamed Tributary to Sudbury Reservoir (2)	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT029-136	WEST HILL RD	Flagg Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT041-234	WEST HILL RD	Flagg Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT041-71	WEST HILL RD	Flagg Brook	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT104-472	WESTBORO RD	Rock Meadow Brook	0	0	0	0	0	3	3	3	0	9	Low Priority
OUT113-142	WILKENS WAY	Unnamed Trib. To Wachusett Aqueduct (4)	0	0	0	0	0	2	0	0	0	2	Low Priority
OUT102-453	WILLIAMS ST	Lake Williams	0	0	0	0	0	2	3	3	0	8	Low Priority
OUT036-366	WOODCOCK LN	Tributary to Hop Brook (2)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT009-146	WOODLAND DR	Tributary to Hop Brook (3)	0	0	0	0	0	1	3	3	0	7	Low Priority
OUT018-276	WORSTER DR	Fort Meadow	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT018-278	WORSTER DR	Fort Meadow	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT018-280	WORSTER DR	Fort Meadow	0	0	0	0	0	2	3	0	0	5	Low Priority
OUT054-400	WRIGHT DR	North Branch Brook	0	0	0	0	0	1	0	0	0	1	Low Priority

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 Engineering Division is responsible for conducting dry weather outfall screening, starting with High Priority outfalls, followed by Low Priority outfalls, based on the initial priority rankings described in the previous section.

6.1 Weather Conditions

Dry weather outfall screening and sampling may occur when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow melt is occurring. For purposes of determining dry weather conditions, program staff will use precipitation data from measurements taken at the Marlborough Easterly Wastewater Treatment Plant. If these measurements are not available or not reporting current weather data, then accuweather.com will be used as a back-up.

6.2 Dry Weather Screening/Sampling Procedure

6.2.1 General Procedure

The dry weather outfall inspection and sampling procedure consists of the following general steps:

1. Identify outfall(s) to be screened/sampled based on initial outfall inventory and priority ranking
2. Acquire the necessary staff, mapping, and field equipment (see **Table 6-1** for list of potential field equipment)
3. Conduct the outfall inspection during dry weather:
    a. Mark and photograph the outfall
    b. Record the inspection information and outfall characteristics (using paper forms or digital form using a tablet or similar device) (see form in **Appendix C**)
    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 2013 MS4 Permit may be used to satisfy the dry weather outfall/screening requirements of the 2016 MS4 Permit only if the previous screening and sampling was substantially equivalent to that required by the 2016 MS4 Permit, including the list of analytes outlined in Section 2.3.4.7.b.iii.4 of the 2016 permit.

6.2.2 Field Equipment

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

Table 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 w/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	Hand held meter, if available, for testing for various water quality parameters such as ammonia, surfactants and chlorine
Test Kits	Have extra kits on hand to sample more outfalls than are anticipated to be screened in a single day
Label Tape	For labeling sample containers
Sample Containers	Make sure all sample containers are clean. Keep extra sample containers on hand at all times. Make sure there are proper sample containers for what is being sampled for (i.e., bacteria requires sterile containers).
Pry Bar or Pick	For opening catch basins and manholes when necessary
Sandbags	For damming low flows in order to take samples
Small Mallet or Hammer	Helping to free stuck manhole and catch basin covers
Utility Knife	Multiple uses
Measuring Tape	Measuring distances and depth of flow
Safety Cones	Safety
Hand Sanitizer	Disinfectant/decontaminant
Zip Ties/Duct Tape	For making field repairs

Equipment	Use/Notes
Rubber Boots/Waders	For accessing shallow streams/areas
Sampling Pole/Dipper/Sampling Cage	For accessing hard to reach outfalls and manholes

6.2.3 Sample Collection and Analysis

If flow is present during a dry weather outfall inspection, a sample will be collected and analyzed for the required permit parameters[3] 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 C** for Sample Labels and 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 (**Appendix C**) for laboratory samples
8. Deliver samples to ##NAME OF LABORATORY(s)
9. Dispose of used test strips and test kit ampules properly
10. Decontaminate all testing personnel and equipment

In the event that an outfall is submerged, either partially or completely, or inaccessible, field staff will proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results. Field staff will continue to the next upstream structure until there is no longer an influence from the receiving water on the visual inspection or sampling.

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

Table 6-2. Sampling Parameters and Analysis Methods

[3] Other potentially useful parameters, although not required by the MS4 Permit, include **fluoride** (indicator of potable water sources in areas where water supplies are fluoridated), **potassium** (high levels may indicate the presence of sanitary wastewater), and **optical brighteners** (indicative of laundry detergents).

Analyte or Parameter	Instrumentation (Portable Meter)	Field Test Kit
Ammonia	CHEMetrics™ V-2000 Colorimeter Hach™ DR/890 Colorimeter Hach™ Pocket Colorimeter™ II	CHEMetrics™ K-1410 CHEMetrics™ K-1510 (series) Hach™ NI-SA Hach™ Ammonia Test Strips
Surfactants (Detergents)	CHEMetrics™ I-2017	CHEMetrics™ K-9400 and K-9404 Hach™ DE-2
Chlorine	CHEMetrics™ V-2000, K-2513 Hach™ Pocket Colorimeter™ II	NA
Conductivity	CHEMetrics™ I-1200 YSI Pro30 YSI EC300A Oakton 450	NA
Temperature	YSI Pro30 YSI EC300A Oakton 450	NA
Salinity	YSI Pro30 YSI EC300A Oakton 450	NA
Temperature	YSI Pro30 YSI EC300A Oakton 450	NA
Indicator Bacteria: *E. coli* (freshwater) or Enterococcus (saline water)	EPA certified laboratory procedure (40 CFR § 136)	NA
Pollutants of Concern[1]	EPA certified laboratory procedure (40 CFR § 136)	NA

[1] Where the discharge is 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.[4] 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[4]

[4] 40 CFR § 136: http://www.ecfr.gov/cgi-bin/text-idx?SID=b3b41fdea0b7b0b8cd6c4304d86271b7&mc=true&node=pt40.25.136&rgn=div5

Analyte or Parameter	Analytical Method	Detection Limit	Max. Hold Time	Preservative
Ammonia	**EPA**: 350.2, **SM**: 4500-NH3C	0.05 mg/L	28 days	Cool ≤6°C, H_2SO_4 to pH <2, No preservative required if 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, **SM**: 2510B	0.2 µs/cm	28 days	Cool ≤6°C
Salinity	**SM**: 2520	-	28 days	Cool ≤6°C
Indicator Bacteria: *E.coli* Enterococcus	*E.coli* **EPA**: 1603 **SM**: 9221B, 9221F , 9223 B **Other**: Colilert®, Colilert-18® *Enterococcus* **EPA**: 1600 **SM**: 9230 C **Other**: Enterolert®	*E.coli* **EPA**: 1 cfu/100mL **SM**: 2 MPN/100mL **Other**: 1 MPN/100mL *Enterococcus* **EPA**: 1 cfu/100mL **SM**: 1 MPN/100mL **Other**: 1 MPN/100mL	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 **SM**: 4500-P E-F	**EPA**: 0.01 mg/L **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, **SM**: 4500-NO_3 E-F	**EPA**: 0.05 mg/L **SM** : 0.05 mg/L	28 days	Cool ≤6°C, H_2SO_4 to pH <2

SM = Standard Methods

Interpreting Outfall Sampling Results

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

Table 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 (detectable levels per the 2016 MS4 Permit)
Indicator Bacteria[5]: *E.coli* *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 *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

6.3 Follow-up Ranking of Outfalls and Interconnections

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

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

[5] Massachusetts Water Quality Standards: http://www.mass.gov/eea/docs/dep/service/regulations/314cmr04.pdf

7 Catchment Investigations

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

7.1 System Vulnerability Factors

The Engineering Division will review relevant mapping and historic plans and records to identify areas within the catchment with higher potential for illicit connections. The following information will be reviewed:

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

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

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
- 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
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations
- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
- Any sanitary sewer and storm drain infrastructure greater than 40 years old
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance)

- History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).

A SVF inventory will be documented for each catchment (see **Table 7-1**), retained as part of this IDDE Plan, and included in the annual report.

Table 7-1. Outfall Catchment System Vulnerability Factor (SVF) Inventory

Marlborough, Massachusetts
Revision Date: ##DATE OF LAST UPDATE

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

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)

7.2 Dry Weather Manhole Inspections

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

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

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

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

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

The manhole inspection methodology will be conducted in one of two ways (or a combination of both):

- By working progressively up from the outfall and inspecting key junction manholes along the way, or
- By working progressively down from the upper parts of the catchment toward the outfall.

For most catchments, manhole inspections will proceed from the outfall moving up into the system. However, the decision to move up or down the system depends on the nature of the drainage system and the surrounding land use and the availability of information on the catchment and drainage system. Moving up the system can begin immediately when an illicit discharge is detected at an outfall, and only a map of the storm drain system is required. Moving down the system requires more advance preparation and reliable drainage system information on the upstream segments of the storm drain system, but may be more efficient if the sources of illicit discharges are believed to be located in the

upstream portions of the catchment area. Once a manhole inspection methodology has been selected, investigations will continue systematically through the catchment.

Inspection of key junction manholes will proceed as follows:

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

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

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

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

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

7.3 Wet Weather Outfall Sampling

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

Outfalls will be inspected and sampled under wet weather conditions, to the extent necessary, to determine whether wet weather-induced high flows in sanitary sewers or high groundwater in areas served by septic systems result in discharges of sanitary flow to the MS4.

Wet weather outfall sampling will proceed as follows:

1. At least one wet weather sample will be collected at the outfall for the same parameters required during dry weather screening.

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

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

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

7.4 Source Isolation and Confirmation

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

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

These methods are described in the sections below. Instructions and Standard Operating Procedures (SOPs) for these and other IDDE methods are provided in **Appendix F**.

Public notification is an important aspect of a detailed source investigation program. Prior to smoke testing, dye testing, or TV inspections, the DPW Water & Sewer Division will notify property owners in the affected area. Smoke testing notification will include hanging notifications and blackboard connect messages (robocall) to single family homes, businesses and building lobbies for multi-family dwellings.

7.4.1 Sandbagging

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

7.4.2 Smoke Testing

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

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

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

7.4.3 Dye Testing

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

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

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

7.4.4 CCTV/Video Inspection

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

7.4.5 Optical Brightener Monitoring

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

7.4.6 IDDE Canines

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

7.5 Illicit Discharge Removal

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

- The location of the discharge and its source(s)
- A description of the discharge
- The method of discovery
- Date of discovery
- Date of elimination, mitigation or enforcement action OR planned corrective measures and a schedule for completing the illicit discharge removal
- Estimate of the volume of flow removed.

7.5.1 Confirmatory Outfall Screening

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

Ongoing Screening

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

8 Training

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

9 Progress Reporting

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

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

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

Appendix A

Legal Authority (IDDE Bylaw or Ordinance)

City of Marlborough, MA
Thursday, January 17, 2019

Chapter 511. Storm Sewers

Article I. Illicit Discharges

§ 511-1. Purpose.

A. This article complies with the requirements of Phase II of the National Pollutant Discharge Elimination System (NPDES) stormwater program promulgated on December 8, 1999, (and as may be subsequently amended) under the Federal Clean Water Act (CWA). Under the Phase II stormwater program, the United States Environmental Protection Agency (EPA) requires regulated municipalities to reduce the discharge of pollutants in stormwater to the maximum extent practicable and to adopt ordinances to address the control of sources of pollutants entering the municipal storm drain system.

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

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

§ 511-2. Objectives.

The objectives of this article are:

A. To prevent pollutants from entering the City of Marlborough's municipal storm drain system;

B. To prohibit illicit connections and unauthorized discharges to the municipal storm drain system;

C. To require the removal of all such illicit connections;

D. To comply with state and federal statutes and regulations relating to stormwater discharges; and

E. To establish the legal authority to ensure compliance with the provisions of this article through inspection, monitoring, and enforcement.

§ 511-3. Definitions.

The following definitions shall apply in the interpretation and enforcement of this article:

CLEAN WATER ACT
The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), as amended.

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

ENFORCEMENT AUTHORITY
The City Engineer shall be authorized to enforce this article.

GROUNDWATER
Water beneath the surface to the ground.

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

ILLICIT DISCHARGE
Direct or indirect discharge to the municipal storm drain system that is not composed entirely of stormwater, except as exempted in § **511-8** herein.

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

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

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

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

POLLUTANT
Any element or property of sewage, and any residential, municipal, 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

drainage system or waters of the commonwealth. Pollutants shall include, without limitation:

A. Paints, varnishes, and solvents;

B. Oil and other automotive fluids;

C. Non-hazardous liquid and solid wastes and yard wastes;

D. Refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnances, accumulations and floatables;

E. Pesticides, herbicides, and fertilizers;

F. Toxic or hazardous material or waste; sewage, fecal coliform, and pathogens;

G. Dissolved and particulate metals;

H. Animal wastes;

I. Rock, sand, salt, soils;

J. Construction wastes and residues; and

K. Noxious or offensive matter of any kind.

POLLUTION

A stormwater condition caused by or involving a pollutant.

PROCESS WASTEWATER

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

STORMWATER

Stormwater runoff, snowmelt runoff, and surface water runoff and drainage.

SURFACE WATER DISCHARGE PERMIT

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

TOXIC OR HAZARDOUS MATERIAL OR WASTE

Any material, which because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as toxic or hazardous under MGL c. 21C and c. 21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.0000.

WASTEWATER

A combination of the water-carried wastes from residences, business buildings, institutions and industrial establishments, together with such groundwaters, surface waters and stormwaters as may be present, which is contributed to or permitted to enter the publicly owned treatment works.

WATERCOURSE

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

WATERS OF THE COMMONWEALTH

All waters within the jurisdiction of the commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and groundwater.

§ 511-4. Authority.

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

§ 511-5. Applicability.

This article shall apply to all discharges of pollutants entering the municipal storm drain system.

§ 511-6. Administration; enforcement.

The City Engineer shall administer, implement and enforce this article. Any powers granted to or duties imposed upon the City Engineer may be delegated in writing by the City Engineer to another City department, commission or board to act as his/her authorized agent.

§ 511-7. Prohibited activities.

A. Illicit discharges. No person shall dump, discharge, cause or allow to be discharged any pollutant or non-stormwater discharge or wastewater into the municipal storm drain system, into a watercourse, or into the waters of the commonwealth.

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

C. Obstruction of municipal storm drain system. No person shall obstruct or interfere with the flow of stormwater into or out of the municipal storm drain system without prior written approval from the City Engineer.

§ 511-8. Exemptions.

The following are exempt activities:

A. Discharge or flow resulting from fire-fighting activities.

B.

The following non-stormwater discharges are exempt from the prohibitions of this article, provided that, in the opinion of the City Engineer, the source is not a significant contributor of a pollutant to the municipal storm drain system:

(1) Waterline flushing;

(2) Flow from potable water sources;

(3) Springs;

(4) Natural flow from riparian habitats and wetlands;

(5) Diverted stream flow;

(6) Rising groundwater;

(7) Uncontaminated groundwater infiltration as defined in 40 CFR 35.2005(20), or uncontaminated pumped groundwater;

(8) Water from exterior foundation drains, footing drains, crawl space pumps, or air-conditioning condensation;

(9) Discharge from landscape irrigation or lawn watering;

(10) Water from individual residential car washing;

(11) Discharge from dechlorinated swimming pool water (less than 1.0 ppm chlorine), provided that the water is allowed to stand for one week prior to draining and the pool is drained in such a way as not to cause a nuisance;

(12) Discharge from street sweeping;

(13) Dye testing, provided that verbal notification is given to the City Engineer prior to the time of the test;

(14) Non-stormwater discharge permitted under an NPDES permit or a surface water discharge permit, waiver, or waste discharge order administered under the authority of the United States Environmental Protection Agency or the Department of Environmental Protection, provided that the discharge is in full compliance with the requirements of the permit, waiver, or order and applicable laws and regulations; and

(15) Discharge for which advanced written approval is received from the City Engineer as necessary to protect public health, safety, welfare or the environment.

§ 511-9. Emergency suspension of storm drainage system access.

The City Engineer may suspend municipal storm drain system access to any person or property without prior notice when such suspension is necessary to stop an actual or threatened discharge of pollutants that presents imminent risk of harm to the public health, safety, welfare or the environment. In the event any person fails to comply with an

emergency suspension order, the enforcement authority may take all reasonable steps to prevent or minimize harm to the public health, safety, welfare or the environment.

§ 511-10. Notification of spills.

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

§ 511-11. Enforcement.

A. General. The City Engineer or his/her authorized agent shall enforce this article, orders, violation notices, and enforcement orders, and may pursue all civil and criminal remedies for such violations.

B. Civil relief. If the City Engineer finds that a person is in violation of the provisions of this article, or any permit, notice, or order issued thereunder, the City Engineer 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.

C. Orders.

(1) In order to enforce the provisions of this article, the City Engineer or his/her agent may issue a written order to the person found by the City Engineer to be in violation of this article. Such order may include:

(a) Elimination of illicit connections or discharges to the municipal storm drain system;

(b) Performance of monitoring, analyses, and reporting;

(c) Cessation of unlawful discharges, practices, or operations; and

(d) Remediation of pollution in connection therewith.

(2) If the City Engineer determines that abatement or remediation of pollution 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 City of Marlborough may, at its option, undertake such work, and that the expenses thereof shall be charged to the violator.

(3) Within 30 days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner will be notified of the costs incurred by the City of Marlborough, including administrative costs. Within 30 days of receipt of the notification of the costs incurred by the City, the violator or property owner may file with the City Engineer a written protest objecting to the amount or basis of those costs. If the amount due is not received by the expiration of the time in which to file a protest or within 30 days following a decision of the City Engineer affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in MGL c. 59, § 57 after the 31st day on which the costs first become due.

D. Criminal penalty. Any person who violates any provision of this article or any order issued hereunder shall be punished by a fine of $300. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

E. Noncriminal disposition. As an alternative to criminal prosecution or civil action, the City Engineer may elect to utilize the noncriminal disposition procedure set forth in MGL c. 40, § 21D, and Chapter **315** of the Code of the City of Marlborough. The penalty for the first violation shall be $100. The penalty for the second violation shall be $200. The penalty for the third and subsequent violations shall be $300. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

F. Entry to perform duties under this article. To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the City Engineer and his/her agents may enter upon privately owned property for the purpose of performing their duties under this article, and may make or cause to be made such examinations, surveys or sampling as the City Engineer deems reasonably necessary.

G. Appeals. The decisions or orders of the City Engineer shall be final. Further relief shall be to a court of competent jurisdiction.

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

Appendix B

Storm System Mapping

https://www.axisgis.com/MarlboroughMA/

Appendix C

Field Forms, Sample Bottle Labels, and Chain of Custody Forms

SOP 1: DRY WEATHER OUTFALL INSPECTION

Introduction

Outfalls from an engineered storm drain system can be in the form of pipes or ditches. Under current and pending regulations, it is important to inspect and document water quality from these outfalls under both dry weather and wet weather conditions. SOP 2, "Wet Weather Outfall Inspection", covers the objectives of that type of inspection. This SOP discusses the dry weather inspection objectives, and how they differ from wet weather inspection objectives.

During a dry weather period, it is anticipated that minimal flow from stormwater outfalls will be observed. Therefore, dry weather inspections aim to characterize any/all flow observed during a dry weather period and identify potential source(s) of an illicit discharge through qualitative testing; further described in SOP 13, "Water Quality Screening in the Field".

Objectives of Dry Weather Inspections

A dry weather period is a time interval during which less than 0.1 inch of rain is observed across a minimum of 72 hours. Unlike wet weather sampling, dry weather inspections are not intended to capture a "first flush" of stormwater discharge, rather they are intended to identify any/all discharges from a stormwater outfall during a period without recorded rainfall. The objective of inspections during a dry weather period is to characterize observed discharges and facilitate detection of illicit discharges.

Visual Condition Assessment

The attached Dry Weather Outfall Inspection Survey is a tool to assist in documenting observations related to the both quantitative and qualitative characteristics of any/all flows conveyed by the structure during a dry period.

For any visual observation of pollution in a stormwater outfall discharge, an investigation into the pollution source should occur, but the following are often true:

1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
2. Oil sheen: result of a leak or spill.
3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
4. Color or odor: Indicator of raw materials, chemicals, or sewage.
5. Excessive sediment: indicator or disturbed earth of other unpaved areas lacking adequate erosion control measures.
6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent and some toilet paper): indicators of illicit discharge.
7. Orange staining: indicator of high mineral concentrations.

Many of these observations are indicators of an illicit discharge. Examples of illicit discharges include: cross-connections of sewer services to engineered storm drain systems; leaking septic systems; intentional discharge of pollutants to catch basins; combined sewer overflows; connected floor drains; and sump pumps connected to the system (under some circumstances). Additional guidelines for illicit discharge investigations are included in SOP 10, "Locating Illicit Discharges".

The Wet Weather Outfall Inspection Survey includes fields where these and other specific observations can be noted. The inspector shall indicate the presence of a specific water quality indicator or parameter by marking "Yes". If "Yes" is marked, provide additional details in the comments section. If the indictor in question is not present mark "No".

Within the comments section, provide additional information with regard to recorded precipitation totals, or more detailed descriptions of observations made during the inspection and corrective actions taken.

Conditional and Qualitative Considerations

Although many of the parameters listed above are considered to be indicators of illicit discharge, the presence of a parameter is not absolute evidence of an illicit discharge.

Some of these indicators may occur naturally. Orange staining may be the result of naturally occurring iron, and therefore unrelated to pollution. Foam can be formed when the physical characteristics of water are altered by the presence of organic materials. Foam is typically found in waters with high organic content such as bog lakes, streams that originate from bog lakes, productive lakes, wetlands, or woody areas. To determine the difference between natural foam and foam cause by pollution, consider the following:

1. Wind direction or turbulence: natural foam occurrences on the beach coincide with onshore winds. Often, foam can be found along a shoreline and/or on open waters during windy days. Natural occurrences in rivers can be found downstream of a turbulent site.
2. Proximity to a potential pollution source: some entities including the textile industry, paper production facilities, oil industries, and fire fighting activities work with materials that cause foaming in water. If these materials are released to a water body in large quantities, they can cause foaming. Also, the presence of silt in water, such as from a construction site can cause foam.
3. Feeling: natural foam is typically persistent, light, not slimy to the touch.
4. Presence of decomposing plants or organic material in the water.

Some of the indicators can have multiple causes or sources. For example, both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear "blocky". Bacterial or naturally occurring sheens are usually silver or relatively dull in color and will break up into a number of small patches of sheen. The cause may be

presence of iron, decomposition of organic material or presence of certain bacteria. Bacterial sheen is not a pollutant but should be noted.

Optical enhancers at high concentrations are sometimes visible to the naked eye as a bluish-purple haze in the water. However, due to physiological variation of the human eye, not all inspectors may be able to identify the presence of these materials, and quantitative testing is the preferred method to confirm the presence of these compounds. Optical enhancers are typically detected through the use of clean, white cotton pads placed within the discharge for several days, dried, and viewed under a fluorometer. If the cotton pad fluoresces, optical enhancers are assumed to be present. The magnitude of the fluorescence, as measured in fluorescent units, can be used to correlate the concentration of optical enhancers in water to other samples collected locally.

Measuring Water Quality

Based on the results of the Visual Condition Assessment, it may be necessary to collect additional data about water quality. Water quality samples can be in the form of screening using field test kits and instrumentation, or by discrete analytical samples processed by a laboratory.

Information on selecting and using field test kits and instrumentation is included in SOP 13, "Water Quality Screening in the Field." The Inspection Survey also provides values for what can be considered an appropriate benchmark for a variety of parameters that can be evaluated in the field.

If the results of screening using field test kits indicate that the outfall's water quality exceeds the benchmarks provided, collection of discrete analytical samples should be considered.

Analytical Sample Collection

Sample collection methods may vary based on specific outfall limitations, but shall follow test procedures outlined in 40 CFR 136. A discrete manual or grab sample can classify water at a distinct point in time. These samples are easily collected and used primarily when the water quality of the discharge is expected to be homogeneous, or unchanging, in nature. A flow-weighted composite sample will classify water quality over a measured period of time. These samples are used when the water quality of the discharge is expected to be heterogeneous, or fluctuating, in nature. Grab samples are more common for dry weather outfall inspections due to the time-sensitive nature of the process.

Protocols for collecting a grab sample shall include the following:

1. Do not eat, drink or smoke during sample collection and processing.
2. Do not collect or process samples near a running vehicle.
3. Do not park vehicles in the immediate sample collection area, including both running and non-running vehicles.
4. Always wear clean, powder-free nitrile gloves when handling sample containers and lids.
5. Never touch the inside surface of a sample container or lid, even with gloved hands.

6. Never allow the inner surface of a sample container or lid to be contacted by any material other than the sample water.
7. Collect samples while facing upstream and so as not to disturb water or sediments in the outfall pipe or ditch.
8. Do not overfill sample containers, and do not dump out any liquid in them. Liquids are often added to sample containers intentionally by the analytical laboratory as a preservative or for pH adjustment.
9. Slowly lower the bottle into the water to avoid bottom disturbance and stirring up sediment.
10. Do not allow any object or material to fall into or contact the collected water sample.
11. Do not allow rainwater to drip from rain gear or other surfaces into sample containers.
12. Replace and tighten sample container lids immediately after sample collection.
13. Accurately label the sample with the time and location.
14. Document on the Wet Weather Outfall Inspection Survey that analytical samples were collected, specify parameters, and note the sample time on the Inspection Survey. This creates a reference point for samples.

Analytical Sample Quality Control and Assurance

Upon completion of successful sample collection, the samples must be sent or delivered to a MassDEP-approved laboratory for analytical testing. Quality control and assurance are important to ensuring accurate analytical test results.

Sample preservation is required to prevent contaminate degradation between sampling and analysis, and should be completed in accordance with 40 CFR 136.3.

Maximum acceptable holding times are also specified for each analytical method in 40 CFR 136.3. Holding time is defined as the period of time between sample collection and extraction for analysis of the sample at the laboratory. Holding time is important because prompt laboratory analysis allows the laboratory to review the data and if analytical problems are found, re-analyze the affected samples within the holding times.

Chain of custody forms are designed to provide sample submittal information and document transfers of sample custody. The forms are typically provided by the laboratory and must be completed by the field sampling personnel for each sample submitted to the lab for analysis. The document must be signed by both the person releasing the sample and the person receiving the sample every time the sample changes hands. The sampling personnel shall keep one copy of the form and send the remaining copies to the laboratory with the samples. Custody seals, which are dated, signed and affixed to the sample container, may be used if the samples are shipped in a cooler via courier or commercial overnight shipping.

Attachments

1. Dry Weather Outfall Inspection Survey

Related Standard Operating Procedures

1. SOP 2, Wet Weather Outfall Inspection
2. SOP 10, Locating Illicit Discharges
3. SOP 13, Water Quality Screening in the Field

Outfall ID: _____ **Town:** _____

Inspector: _____ **Date:** _____

Street Name _____

Last rainfall event _____

DRY WEATHER OUTFALL INSPECTION SURVEY

Type of Outfall (check one):		**Pipe Outfall** ☐	**Open Swale Outfall** ☐
Outfall Label:	**Stencil** ☐ **Ground Inset** ☐ **Sign** ☐ **None** ☐ **Other**_____		
Pipe Material:	Concrete ☐ Corrugated metal ☐ Clay Tile ☐ Plastic ☐ Other: _____ ☐	**Pipe Condition:**	Good ☐ Poor ☐ Fair ☐ Crumbling ☐
Swale Material:	Paved (asphalt) ☐ Concrete ☐ Earthen ☐ Stone ☐ Other: _____ ☐	**Swale Condition:**	Good ☐ Poor ☐ Fair ☐ Crumbling ☐

Shape of Pipe/Swale (check one)

Rounded Pipe/Swale	Rectangular Pipe/Swale	Triangular Swale	Trapezoidal Swale
☐ ☐	☐	☐	☐

Pipe Measurements:	**Swale Measurements:**	**Is there a headwall?**	**Location Sketch**
Inner Dia. (in): d= _____	Swale Width (in): T= _____	Yes ☐ No ☐	
Outer Dia. (in): D= _____	Flow Width (in): t = _____	**Condition:**	
Pipe Width (in): T= _____	Swale Height (in): H= _____	Good ☐ Poor ☐ Fair ☐ Crumbling ☐	
Pipe Height (in): H= _____	Flow Height (in): h= _____*		
Flow Width (in): h= _____*	Bottom Width (in): b=_____		

Description of Flow: Heavy ☐ Moderate ☐ Trickling ☐ Dry ☐

If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in):

Circle All Materials Present:

Odor:	Yes ☐ No ☐	Rip rap	Sheen: Bacterial
Optical enhancers suspected?	Yes ☐ No ☐	Excessive sediment	Sheen: Petroleum
Has channelization occurred?	Yes ☐ No ☐	Foam	Floatables
Has scouring occurred below the outlet?	Yes ☐ No ☐	Sanitary Waste	Algae
		Orange Staining	Excessive Vegetation

Required Maintenance: Tree Work ☐ Ditch Work ☐ Structural Corrosion ☐ N/A ☐ Remove Trash/Debris ☐ Blocked Pipe ☐ Erosion at Structure ☐ Other ☐

Comments:

Outfall I.D.: _____ **Date:** _____

Inspector: _____

Time of Inspection: _____

Street Name _____

Last rainfall event _____

WET WEATHER OUTFALL INSPECTION SURVEY

Visual Inspection:	**Yes**	**No**	**Comments (Include probable source of observed contamination):**
Color	☐	☐	
Odor	☐	☐	
Turbidity	☐	☐	
Excessive Sediment	☐	☐	
Sanitary Waste	☐	☐	
Pet Waste	☐	☐	
Floatable Solids	☐	☐	
Oil Sheen	☐	☐	
Bacterial Sheen	☐	☐	
Foam	☐	☐	
Algae	☐	☐	
Orange Staining	☐	☐	
Excessive Vegetation	☐	☐	
Optical Enhancers	☐	☐	
Other _____			

WET WEATHER OUTFALL INSPECTION SURVEY

Sample Parameters	Analytical Test Method	Benchmark	Field Screening Result	Full Analytical?
Ammonia[1]	EPA 350.2/SM4500-NH3C	>50.0 mg/L		☐ Yes ☐ No
Boron[1]	EPA 212.3	>35.0 mg/L		☐ Yes ☐ No
Chloride[2]	EPA 300.0	230 mg/L		☐ Yes ☐ No
Color[1]	EPA 110.1/110.2	>500 units		☐ Yes ☐ No
Detergents & Surfactants[3]	EPA 425.1/SM5540C	>0.25 mg/L		☐ Yes ☐ No
Fluoride[3]	EPA 300.0	>0.25 mg/L		☐ Yes ☐ No
Hardness[1]	EPA 130.2	<10 mg/L or >2,000 mg/L		☐ Yes ☐ No
pH[1]	EPA 150.1/SM 4500H	<5		☐ Yes ☐ No
Potassium[1]	EPA 200.7	>20 mg/L		☐ Yes ☐ No
Specific Conductance[1]	SM 2510B	>2,000 µS/cm		☐ Yes ☐ No
Turbidity[1]	EPA 180.1	>1,000 NTU		☐ Yes ☐ No
Comments:				

[1] – *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

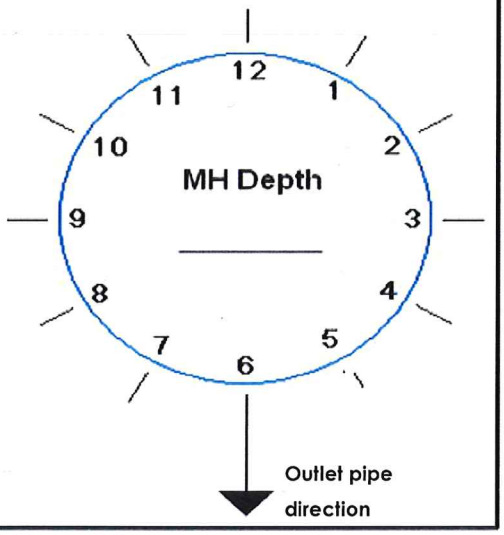
[2] – *Env –Ws 1703.21Water Quality Criteria for Toxic Substances,* State of New Hampshire Department of Surface Water Quality Regulations.

[2] – *Appendix I – Field Measurements, Benchmarks and Instrumentation*, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.

Manhole Inspection Form

Catchment ID	**Date/Time**
Structure ID	**Last Rain Date/Amount**
Location Description	
Inspector	

Circle direction(s) of incoming flow



Clock Position (1-12) Pipe Material (Concrete, HDPE, PVC, Ductile Iron, CMP)	Pipe Diameter (in.)	Invert Elevation (ft)	Upgradient Structure/Source (MH ID, CB, Priv, Unk)	Flow (Damp, Trickle, Moderate, High)

Cover Conditions: Diameter of clear opening (in.) ☐ Buried ☐ Cannot Inspect ☐ Cannot Locate

Evidence of Flow: ☐ Yes ☐ No **If Yes, Description of Flow:** ☐ Damp ☐ Trickle ☐ Moderate ☐ High

Visual Evidence of Illicit Discharge (select all that apply)

Visual Inspection: ☐ None ☐ Floatables ☐ Pet Waste ☐ Oily Sheen ☐ Sanitary Waste ☐ Algae ☐ Foam

Olfactory Evidence of Illicit Discharge (select all that apply)

Olfactory Inspection: ☐ None ☐ Sewage Smell ☐ Musty ☐ Rotten Eggs ☐ Ammonia ☐ Petroleum

Samples Taken and Sampling Results

Temp.	Conductivity	Salinity	Chlorine
Ammonia	Surfactants	Bacteria	Pollutant of Concern

COMMENTS:

Further investigation needed? ☐ Yes ☐ No

Appendix D

Water Quality Analysis Instructions, User's Manuals and Standard Operating Procedures

WATER QUALITY SCREENING FORM

Outfall I.D.			
Outfall Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Most Recent Storm Event			

FIELD WATER QUALITY SCREENING RESULTS

Sample Parameter	Field Test Kit or Portable Instrument Meter	Benchmark	Field Screening Result	Full Analytical Required?
Ammonia[1]		> 0.5 mg/L		☐ Yes ☐ No
Boron[1]		> 0.35 mg/L		☐ Yes ☐ No
Chloride[2]		230 mg/L		☐ Yes ☐ No
Color[1]		> 500 units		☐ Yes ☐ No
Specific Conductance[1]		> 2,000 µS/cm		☐ Yes ☐ No
Detergents & Surfactants[3]		> 0.25 mg/L		☐ Yes ☐ No
Fluoride[3]		> 0.25 mg/L		☐ Yes ☐ No
Hardness[1]		< 10 mg/L or > 2,000 mg/L		☐ Yes ☐ No
pH[1]		< 5		☐ Yes ☐ No
Potassium[1]		> 20 mg/L		☐ Yes ☐ No
Turbidity[1]		> 1,000 NTU		☐ Yes ☐ No

[1] – *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

[2] –*Env-Ws 1703.21 Water Quality Criteria for Toxic Substances*, State of New Hampshire Department Surface Water Quality Regulations.

[3] – *Appendix I – Field Measurements, Benchmarks and Instrumentation*, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.

CMRSWC

FULL ANALYTICAL TESTING WATER QUALITY RESULTS

Sample Parameter	Analytical Test Method	Sample Collection (Time/Date)	Testing Lab	Analytical Testing Result
Ammonia	EPA 350.2/SM4500-NH3C			
Bacteria	E coli: 1103.1; 1603 Enterococcus: 1106.1; 1600			
Boron	EPA 212.3			
Chloride	EPA 9251			
Color	EPA 110.2			
Specific Conductance	SM 2510B			
Detergents & Surfactants	EPA 425.1/SM5540C			
Fluoride	EPA 300.0			
Hardness	EPA 130.1/SM 2340B			
Optical Enhancers	N/A*			
pH	EPA 150.1/SM 4500H			
Potassium	EPA 200.7			
Turbidity	SM 2130B			

*- There is presently no USEPA Standard Method for analysis of optical enhancers. Typically, sample pads are described as with “Present” or “Not Present” for fluorescing dye when exposed to UV light or a fluorometer.

Appendix E

IDDE Employee Training Record

Illicit Discharge Detection and Elimination (IDDE)
Employee Training Record

Marlborough, Massachusetts

Date of Training: _____

Duration of Training: _____

Name	Title	Signature

Appendix F

Source Isolation and Confirmation Methods: Instructions, Manuals, and SOPs

SOP 10: LOCATING ILLICIT DISCHARGES

Introduction

An "illicit discharge" is any discharge to an engineered storm drain system that is not composed entirely of stormwater unless the discharge is defined as an allowable non-stormwater discharge under the 2003 Massachusetts MS4 Permit. Illicit discharges may enter the engineered storm drain system through direct or indirect connections, such as: cross-connections of sewer services to engineered storm drain systems; leaking septic systems; intentional discharge of pollutants to catch basins; combined sewer overflows; connected floor drains; and sump pumps connected to the system (under some circumstances). Illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to receiving streams.

Illicit discharges can be located by several methods, including routine dry weather outfall inspections and catch basin inspections, which are described in detail in SOP 1, "Dry Weather Outfall Inspection" and SOP 3, "Catch Basin Inspection and Cleaning", respectively, as well as from citizen reports.

This SOP assumes that the municipality has legal authority (i.e., a bylaw or ordinance) in place, per the requirements of the 2003 Massachusetts MS4 Permit, to prohibit the connection of non-stormwater discharges into the storm drain system. The authority or department for addressing illicit discharge reports would be clearly identified in the municipality's legal authority. In Massachusetts, this is typically a combination of the Board of Health, the Department of Public Works (or Highway Department), and the local sanitary sewer department or commission. In some communities, the Conservation Commission may also play a role. This SOP refers to "appropriate authority" generically to reflect differences in how municipalities have identified these roles.

Identifying Illicit Discharges

The following are often indicators of an illicit discharge from stormwater outfall:

1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
2. Oil sheen: result of a leak or spill.
3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
4. Color or odor: Indicator of raw materials, chemicals, or sewage.
5. Excessive sediment: indicator of disturbed earth of other unpaved areas lacking adequate erosion control measures.
6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent): indicator of the cross-connection of a sewer service.
7. Orange staining: indicator of high mineral concentrations.

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in

a swirl pattern; a sheen caused by bacteria will separate and appear "blocky". Bacterial sheen is not a pollutant but should be noted.

Citizen Call in Reports

Reports by residents and other users of a water body can be effective tools in identifying the presence of illicit discharges. Many communities have set up phone hotlines for this purpose, or have provided guidance to local police departments and dispatch centers to manage data reported in this manner. Municipal employees and the general public should receive education to help identify the signs of illicit discharges and should be informed how to report such incidents.

When a call is received about a suspected illicit discharge, the attached IDDE Incident Tracking Sheet shall be used to document appropriate information. Subsequent steps for taking action to trace, document, and eliminate the illicit discharge are described in the following sections.

Potential illicit discharges reported by citizens should be reviewed on an annual basis to locate patterns of illicit discharges, identify high-priority catchments, and evaluate the call-in inspection program.

Tracing Illicit Discharges

Whenever an illicit discharge is suspected, regardless of how it was identified, the attached IDDE Incident Tracking Sheet should be utilized. The Incident Tracking Sheet shall be provided to the appropriate authority (i.e., Board of Health, Department of Public Works, etc.), which shall promptly investigate the reported incident.

If the presence of an illicit discharge is confirmed by the authority, but its source is unidentified, additional procedures to determine the source of the illicit discharge should be completed.

1. Review and consider information collected when illicit discharge was initially identified, for example, the time of day and the weather conditions for the previous 72 hours. Also consider and review past reports or investigations of similar illicit discharges in the area.
2. Obtain storm drain mapping for the area of the reported illicit discharge. If possible, use a tracking system that can be linked to your system map, such as GIS.
3. Document current conditions at the location of the observed illicit discharge point, including odors, water appearance, estimated flow, presence of floatables, and other pertinent information. Photograph relevant evidence.
4. If there continues to be evidence of the illicit discharge, collect water quality data using the methods described in SOP 13, "Water Quality Screening in the Field". This may include using field test kits or instrumentation, or collecting analytical samples for full laboratory analysis.
5. Move upstream from the point of observation to identify the source of the discharge, using the system mapping to determine infrastructure, tributary pipes, and drainage areas that contribute. At each point, survey the general area and surrounding properties to identify potential sources of the illicit discharge. Document observations at each point on the IDDE Incident Tracking Sheet as well as with photographs.
6. Continue this process until the illicit discharge is no longer observed, which will define the boundaries of the likely source. For example if the illicit discharge is present in catch basin 137

but not the next upstream catch basin, 138, the source of the illicit discharge is between these two structures.

If the source of the illicit discharge could not be determined by this survey, consider using dye testing, smoke testing, or closed-circuit television inspection (CCTV) to locate the illicit discharge.

Dye Testing

Dye testing is used to confirm a suspected illicit connection to a storm drain system. Prior to testing, permission to access the site should be obtained. Dye is discharged into the suspected fixture, and nearby storm drain structures and sanitary sewer manholes observed for presence of the dye. Each fixture, such as sinks, toilets, and sump pumps, should be tested separately. A third-party contractor may be required to perform this testing activity.

Smoke Testing

Smoke testing is a useful method of locating the source of illicit discharges when there is no obvious potential source. Smoke testing is an appropriate tracing technique for short sections of pipe and for pipes with small diameters. Smoke added to the storm drain system will emerge in connected locations. A third-party contractor may be required to perform this testing activity.

Closed Circuit Television Inspection (CCTV)

Televised video inspection can be used to locate illicit connections and infiltration from sanitary sewers. In CCTV, cameras are used to record the interior of the storm drain pipes. They can be manually pushed with a stiff cable or guided remotely on treads or wheels. A third-party contractor may be required to perform this testing activity.

If the source is located, follow steps for removing the illicit discharge. Document repairs, new sanitary sewer connections, and other corrective actions required to accomplish this objective. If the source still cannot be located, add the pipe segment to a future inspection program.

This process is demonstrated visually on the last page of this SOP.

Removing Illicit Discharges

Proper removal of an illicit discharge will ensure it does not recur. Refer to Table SOP 10-1, attached for, for examples of the notification process.

In any scenario, conduct a follow up inspection to confirm that the illicit discharge has been removed. Suspend access to the storm drain system if an “imminent and substantial danger” exists or if there is a threat of serious physical harm to humans or the environment.

Attachments

1. Illicit Discharge Incident Tracking Sheet

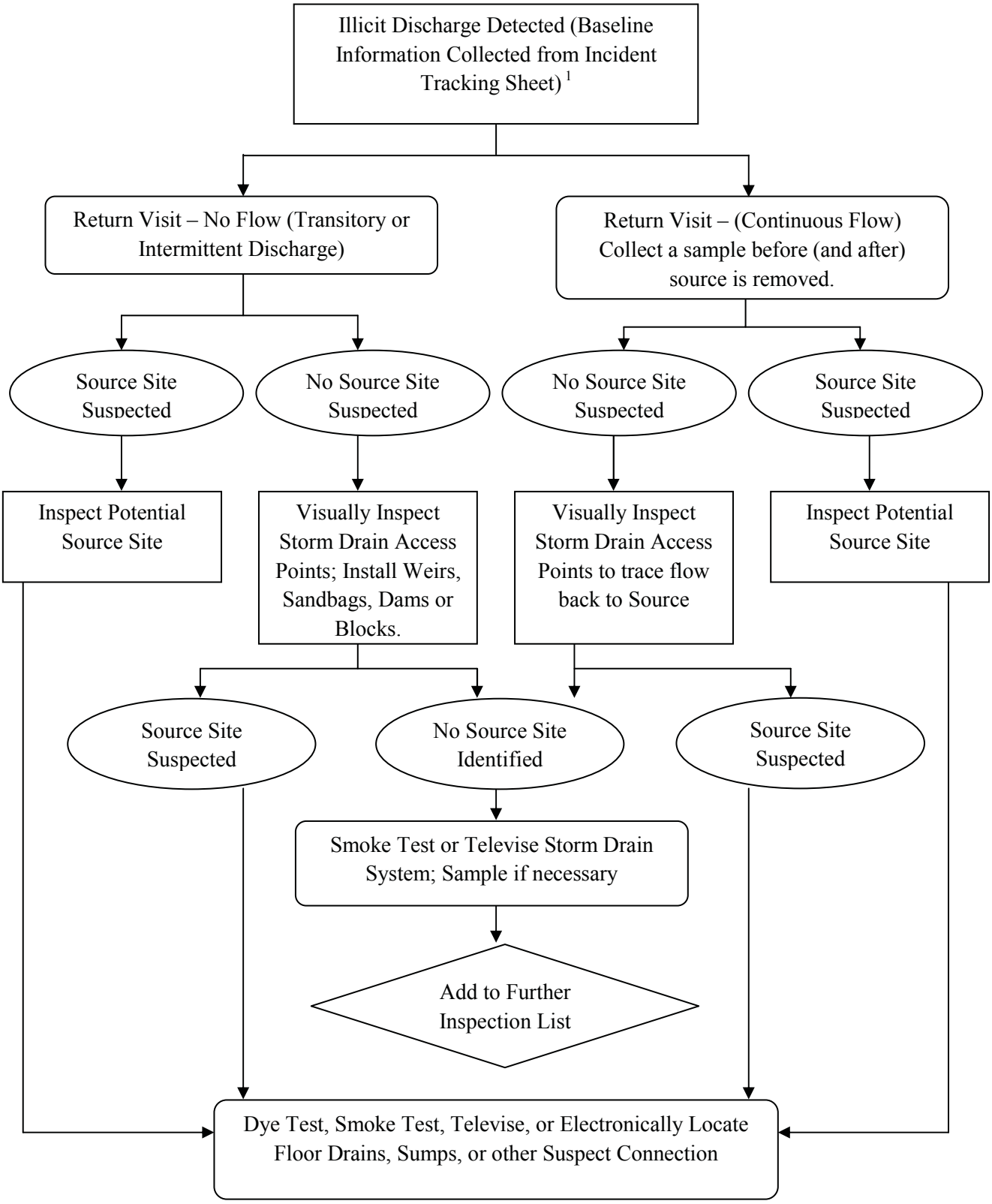
Related Standard Operating Procedures

1. SOP 1: Dry Weather Outfall Inspection
2. SOP 2: Wet Weather Outfall Inspection
3. SOP 3: Catch Basin Inspection
4. SOP 13: Using Field Test Kits For Outfall Screening
5. SOP 15: Private Drainage Connections

Table SOP 10-1

Notification and Removal Procedures for Illicit Discharges into the Municipal Separate Storm Sewer System

Financially Responsible	Source Identified	Enforcement Authority	Procedure to Follow
Private Property Owner	One-time illicit discharge (e.g. spill, dumping, etc.)	Ordinance enforcement authority (e.g. Code Enforcement Officer)	• Contact Owner • Issue Notice of Violation • Issue fine
Private Property Owner	Intermittent or continuous illicit discharge from legal connection	Ordinance enforcement authority (e.g. Code Enforcement Officer)	• Contact Owner • Issue Notice of Violation • Determine schedule for removal • Confirm removal
Private Property Owner	Intermittent or continuous illicit discharge from illegal connection or indirect (e.g. infiltration or failed septic)	Plumbing Inspector or ordinance enforcement authority	• Notify Plumbing Inspector or ordinance enforcement authority
Municipal	Intermittent or continuous illicit discharge from illegal connection or indirect (e.g. failed sewer line)	Ordinance enforcement authority (e.g. Code Enforcement Officer)	• Issue work order • Schedule removal • Remove connection • Confirm removal
Exempt 3rd Party	Any	USEPA	• Notify exempt third party and USEPA of illicit discharge


Illicit Discharge Detected (Baseline Information Collected from Incident Tracking Sheet) [1]
Return Visit – No Flow (Transitory or Intermittent Discharge)
Return Visit – (Continuous Flow) Collect a sample before (and after) source is removed.
Source Site Suspected
No Source Site Suspected
No Source Site Suspected
Source Site Suspected
Inspect Potential Source Site
Visually Inspect Storm Drain Access Points; Install Weirs, Sandbags, Dams or Blocks.
Visually Inspect Storm Drain Access Points to trace flow back to Source
Inspect Potential Source Site
Source Site Suspected
No Source Site Identified
Source Site Suspected
Smoke Test or Televise Storm Drain System; Sample if necessary
Add to Further Inspection List
Dye Test, Smoke Test, Televise, or Electronically Locate Floor Drains, Sumps, or other Suspect Connection

[1] – *Guidelines and Standard Operating Procedures: Illicit Discharge Detection and Elimination and Pollution Prevention/Good Housekeeping for Stormwater Phase II Communities in New Hampshire,* New Hampshire Estuary Project, 2006, p. 25, Figure 2-1.

Illicit Discharge Incident Tracking Sheet

Incident ID:				
Responder Information (for Citizen-Reported issues)				
Call Taken By:		Call Date:		
Call Time:		Precipitation (inches) in past 24-48 hours:		
Observer Information				
Date and Time of Observation:		Observed During Regular Maintenance or Inspections? ☐ Yes ☐ No		
Caller Contact Information (optional) or Municipal Employee Information:				
Observation Location: (complete one or more below)				
Latitude and Longitude:				
Stream Address or Outfall #:				
Closest Street Address:				
Nearby Landmark:				
Primary Location Description	**Secondary Location Description:**			
☐Stream Corridor (In or adjacent to stream)	☐Outfall	☐In-stream Flow	☐Along Banks	
☐Upland Area (Land not adjacent to stream)	☐Near Storm Drain	☐Near other water source (stormwater pond, wetland, ect.):		
Narrative description of location:				
Upland Problem Indicator Description				
☐Dumping	☐Oil/Solvents/Chemicals	☐Sewage		
☐Detergent, suds, etc.	☐Other:_____			
Stream Corridor Problem Indicator Description				
Odor	☐None	☐Sewage	☐Rancid/Sour	☐Petroleum (gas)
	☐Sulfide (rotten eggs); natural gas	☐Other: Describe in "Narrative" section		
Appearance	☐"Normal"	☐Oil Sheen	☐Cloudy	☐Foam
	☐Optical enhancers	☐ Discolored		
	☐Other: Describe in "Narrative" section			
Floatables	☐None	☐Sewage (toilet paper, etc)	☐Algae	☐Trash or debris
	☐Other: Describe in "Narrative" section			
Narrative description of problem indicators:				
Suspected Source (name, personal or vehicle description, license plate #, address, etc.):				

CMRSWC