



STORMWATER MANAGEMENT PLAN

FOR

CITY OF BIDDEFORD, MAINE

For MS4 General Permit effective July 1, 2022
Initial Submittal to Maine DEP March 30, 2021

Table of Contents

1	INTRODUCTION.....	4
1.1	Overview of Regulatory Program.....	4
1.2	Cooperation Between Regulated Communities	4
1.3	Stormwater Management Plan.....	5
1.4	Water Quality and Discharges to Impaired Waters	6
1.4.1	State Water Quality Assessments	7
1.4.2	Biddeford Water Quality Status.....	9
1.4.3	Progress on addressing Impairments and approach to UIS BMP development.....	14
1.5	Priority Watersheds	18
1.6	Obtaining Coverage to Discharge.....	19
1.7	SWMP Availability	20
1.8	SWMP Modifications.....	20
1.9	Annual Compliance Report and Record Keeping	21
2	MINIMUM CONTROL MEASURES	23
2.1	MCM 1 Education/Outreach Program	23
2.1.1	BMP 1.1 – Outreach to Raise Awareness Campaign.....	23
2.1.2	BMP 1.2 – Outreach to Change Behavior Campaign	25
2.1.3	BMP 1.3 – Effectiveness Evaluation	27
2.1.4	BMP 1.4 – Additional Activities.....	28
2.2	MCM 2 Public Involvement and Participation	29
2.2.1	BMP 2.1 - Public Notice Requirement	29
2.2.2	BMP 2.2 - Host Public Events	29
2.2.3	BMP 2.3 – Additional Public Participation Activities.....	29
2.3	MCM 3 Illicit Discharge Detection and Elimination	31
2.3.1	BMP 3.1 – Continue to Implement the Non-Stormwater Discharge Ordinance	31
2.3.2	BMP 3.2 – Prepare and Maintain a Written IDDE Plan.....	31
2.3.3	BMP 3.3 - Maintain Storm Sewer System Infrastructure Map	32
2.3.4	BMP 3.4 – Conduct Infrastructure Inspections and Monitor Flowing Outfalls.....	32
2.3.5	BMP 3.5 – Conduct Investigations on suspect illicit discharges and flowing outfalls.....	33
2.3.6	BMP 3.6 – Significant Contributors of Pollutants	33
2.4	MCM 4 Construction Site Stormwater Runoff Control	35
2.4.1	BMP 4.1 – Erosion Sediment Control Ordinance	36
2.4.2	BMP 4.2 – Site Plan Review Procedures	37
2.4.3	BMP 4.3 – Procedures for notifying construction site developers and operators	37
2.4.4	BMP 4.4 –Conduct and Document Construction Site Inspections.....	38
2.5	MCM 5 Post-Construction Stormwater Management in New Development/ Redevelopment.	39
2.5.1	BMP 5.1 – Promote strategies to prevent or minimize water quality impacts	40
2.5.2	BMP 5.2 – Maintain Post Construction Ordinance or Similar Measure.....	40
2.6	MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations	42
2.6.1	BMP 6.1 – Operations at Municipally Owned Grounds and Facilities	42
2.6.2	BMP 6.2 – Training.....	42

2.6.3	BMP 6.3 – Continue Street Sweeping Program	42
2.6.4	BMP 6.4 – Cleaning of Catch Basins.....	42
2.6.5	BMP 6.5 – Maintenance and Upgrading of Storm water Conveyances and Outfalls	43
2.6.6	BMP 6.6 – Stormwater Pollution Prevention Plans (SWPPPs).....	43
2.7	Impaired Waters BMPs	45
2.7.1	BMP 7.1 – Minimize Chloride Contributions to Thacher Brook.....	45
2.7.2	BMP 7.2 – Targeted Behavior Change: YardScaping 2.0.....	46
2.7.3	BMP 7.3 – Implement Impervious Cover Disconnection or Stormwater Treatment	47
2.7.4	Optional BMP 7.4 – Enhanced Street Sweeping - To be implemented only in the event the Town deems BMP 7.3 to be infeasible.	47
3	GENERAL REQUIREMENTS	48
3.1	Certification.....	48

APPENDICES

- A. Urbanized Area Map**
- B. Notice of Intent and Permittee Specific DEP Order**
- C. Summary of Public Comments Received**
- D. Education & Outreach Tools, Levels of Effort, and Effectiveness Benchmarks**
- E. IDDE Plan and QAPP**
- F. Construction Inspection Form**

1 INTRODUCTION

1.1 Overview of Regulatory Program

The City of Biddeford is subject to the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) which was issued by the Maine Department of Environmental Protection (DEP) with an effective date of July 1, 2022. Because the permit is a Clean Water Act permit, it is limited to a duration of five (5) years and is due to expire on June 30, 2027. However, if the Maine DEP does not issue another Permit by June 30, 2026, the permit will be administratively continued, and the City may need to update this Stormwater Management Plan to show what activities it will complete during the continued time period.

Communities are regulated under this program when and if they are identified as having “Urbanized Areas” in their municipal boundary. An Urbanized Area is a U.S. Census-defined term, applied to a large area (50,000 people or more) that has a high population density and/or a high percentage of impervious cover (hard scape surfaces like parking lots or buildings). Both of these criteria (high population density and high percentage of impervious cover) cause an area to be at risk for adverse surface water quality impacts from polluted stormwater discharges.

The U.S. Environmental Protection Agency (USEPA) and Maine DEP began regulating communities for their stormwater discharges using the Urbanized Area criteria in 2003. The City of Biddeford became regulated in 2003 based on the 2000 census.

Once a community becomes regulated by the MS4 General Permit, only the Urbanized Area portions of the City are regulated. As each U.S. Census is published, if the Urbanized Area changes (based on changes to the population or impervious cover), additional areas can be added to the regulated area only after a new MS4 General Permit is issued. Once an Urbanized Area is regulated by the MS4 General Permit, it cannot be removed from regulation, even if a subsequent census identifies it is no longer classified as an Urbanized Area. So, the area regulated by the MS4 General Permit can either grow larger or stay the same size, but it cannot become smaller. Appendix A shows the Urbanized Area that is regulated by the 2022 MS4 General Permit for the City, which is based on the cumulative 2000 and 2010 U.S. Census Urbanized Area data. The 2022 MS4 General Permit specifically does not include any areas identified by the 2020 U.S. Census.

1.2 Cooperation Between Regulated Communities

There are 30 municipalities in the State of Maine that are subject to the 2022 MS4 General Permit. There are also two transportation agencies which are subject to their own MS4 General Permit, and eight state/federal agencies (which are called “nested” MS4s) that are

subject to a third MS4 General Permit. The regulated MS4s (municipal, transportation and state/federal) have a good history of cooperating on a state-wide basis to complete activities required by the General Permit such as public outreach and training as a cost saving measure and to improve the quality of compliance.

The City of Biddeford is a member of the Casco Bay Interlocal Stormwater Working Group (ISWG), pronounced *izzy-wig*. ISWG is a coalition of 14 MS4 municipalities in the greater Portland and Saco areas (Cape Elizabeth, Cumberland, Falmouth, Freeport, Gorham, Old Orchard Beach, Portland, Saco, Scarborough, South Portland, Westbrook, Windham, and Yarmouth) as well as the Southern Maine Community College and University of Southern Maine which are also regulated as MS4s under a separate permit. This coalition is facilitated by the Cumberland County Soil and Water Conservation District, which also assists in completing some of the permit requirements under contract to the coalition.

Similarly, the Bangor area MS4s have formed the Bangor Area Stormwater Working Group (BASWG), the Lewiston-Auburn area MS4s formed the Androscoggin Valley Stormwater Working Group (AVSWG), and the southern-most regulated MS4s formed the Southern Maine Stormwater Working Group (SMSWG). For some public education requirements, all of the stormwater working groups are working cooperatively as identified in this plan.

In implementing the 2022 MS4 General Permit, the City of Biddeford relies on the ISWG to complete some requirements, hires a third party-consultant to implement some requirements and implements other requirements using municipal staff. This plan describes which elements will be completed individually, regionally or as a state-wide effort.

1.3 Stormwater Management Plan

Though the MS4 General Permit is a Clean Water Act Permit, it does not specify numeric effluent limitations (concentrations that a stormwater discharge must meet). Instead, the MS4 General Permit specifies narrative effluent limitations, in the form of Minimum Control Measures (MCMs).

Each of the four MS4 General Permits (effective 2003, 2008, 2013 and 2022) have required that the regulated MS4s develop and implement a Stormwater Management Plan (SWMP or Plan) to coincide with the effective dates of the General Permit.

This SWMP describes how the City will implement Best Management Practices (BMPs) to meet the six MCMs, set forth in Part IV(C) of the 2022 MS4 General Permit. The six MCMs that are required to be addressed in this Plan are:

- 1 Education/Outreach Program
- 2 Public Involvement and Participation
- 3 Illicit Discharge Detection and Elimination Program
- 4 Construction Site Stormwater Runoff Control

- 5 Post-Construction Stormwater Management in New Development and Redevelopment
- 6 Pollution Prevention/Good Housekeeping for Municipal Operations

The 2022 MS4 General Permit requires that for each MCM, the City must: define appropriate BMPs; designate a person(s) responsible for implementing each BMP; define a date or timeline with milestones for implementation of each BMP; and define measurable goals for each BMP.

The prior MS4 General Permits also required that the SWMP address these six MCMs, but the specific requirements related to each MCM have changed with each permit. In many instances, the BMPs in this plan expand upon or continue BMPs that were developed under prior General Permits.

In addition to addressing the six (6) Minimum Control Measures, the City must address several impaired waters requirements. Sections 1.4 and 1.5 describe the water quality status in the City, and what watersheds are considered to be priorities. Sections 1.6 through 1.9 describe how permit coverage is obtained, how the SWMP is modified (when needed), when public notice is required and annual reporting requirements.

The Maine DEP will review this Stormwater Management Plan and determine if the City is controlling pollutants to the “Maximum Extent Practicable”. The term “Maximum Extent Practicable” is defined in the Clean Water Act. The term means available and feasible considering cost, existing technology, and logistics based on the overall purpose of the project. Effectively, the City is allowed to consider these concepts as they select Best Management Practices (BMPs) to meet permit requirements, but the Maine DEP decides if the City is meeting the “Maximum Extent Practicable” standard.

The SWMP is not an enforceable document and so some flexibility is built in to the BMPs to allow communities to engage in an adaptive management approach to mitigating or eliminating the discharge of pollutants to and from its regulated small MS4. This allows the City to adjust BMPs throughout the Permit Cycle if needed based on evaluations of their effectiveness, changing conditions, specific local concerns, or changes in other factors. Some SWMP Modifications require DEP review and approval and public notice. Section 1.6 Obtaining Coverage to Discharge, and Section 1.8 SWMP Modifications describe the requirements associated with modifying a SWMP.

1.4 Water Quality and Discharges to Impaired Waters

The 2022 MS4 General Permit contains the following requirements for discharges to waters that are not meeting their fishable and swimmable standards (a.k.a. impaired waters):

- (1) If the waterbody to which a point source discharge drains is impaired and has an EPA approved total maximum daily load (TMDL), then the SWMP must address compliance with the TMDL waste load allocation (“WLA”) and any

implementation plan. The GP does not authorize a direct discharge that is inconsistent with the WLA of an approved TMDL. This requirement applies only to TMDLs that were approved by EPA as of 10/13/2020.

- (2) If a TMDL is approved or modified by EPA after 10/13/2020, the Maine DEP will notify the permittee if any changes are needed to the SWMP and may take other actions regarding the approved TMDL as identified in the 2022 MS4 General Permit.
- (3) If an MS4 has a discharge to an Urban Impaired Stream, it must develop and implement three (3) BMPs to address the water's impairment, unless the DEP has determined the MS4 discharge is not causing or contributing to the impairment.

The Fact Sheet that was issued with the 2022 MS4 General Permit also contained a strongly worded recommendation for MS4s to consult with the Maine DEP Division of Environmental Assessment regarding impaired waters that do not have approved TMDLs. The consult would be focused on identifying the root cause of the impairment and developing a strategy to reduce the discharge of pollutants of concern if the permittee is causing or contributing to the impairment.

Section 1.4.1 describes generally how the State evaluates surface waters and describes TMDL documents and Urban Impaired Streams. Section 1.4.2 describes the status of the waters that receive discharges from the City's MS4. Section 1.4.3 describes how the City is addressing any impairments which have MS4 requirements.

1.4.1 State Water Quality Assessments

The State of Maine is required by the Clean Water Act to identify water quality classifications for each surface water in the State, and then to assess whether each of those waters is meeting its designated classification standards. Maine has four classifications for freshwater rivers, three classes for marine and estuarine waters, and one class for lakes and ponds. Each classification identifies a use and set of water quality standards for the water. The classifications, uses, and standards are described and assigned to the various waters in the Maine Statutes (Title 38, Sections 464 through 469).

Assessments as to whether each water is achieving its designated classification are based on data that is obtained from a number of sources depending on the type of water being assessed:

- Lake and ponds are assessed primarily through data obtained by the DEP and regional entities and lake associations. The regional and lake association data is coordinated through the Lake Stewards of Maine (Volunteer Lake Monitoring Program).
- Marine and Estuarine waters are assessed by evaluation of data obtained from the DEP, Maine Healthy Beaches, Department of Marine Resources, Marine Environment's Gulf

Watch, Gulf of Maine Council, and several other academic and non-profit organizations.

- Wetlands are assessed primarily using data obtained from the DEP Biomonitoring Program.
- Rivers and Streams are assessed using data from the DEP Biomonitoring Program, Surface Water Ambient Toxics (SWAT) Monitoring Program, the Atlantic Salmon Recovery Plan, Volunteer River Monitoring Program (VRMP) and through many other government agencies such as the Department of Inland Fisheries and Wildlife, EPA, United States Geologic Survey.

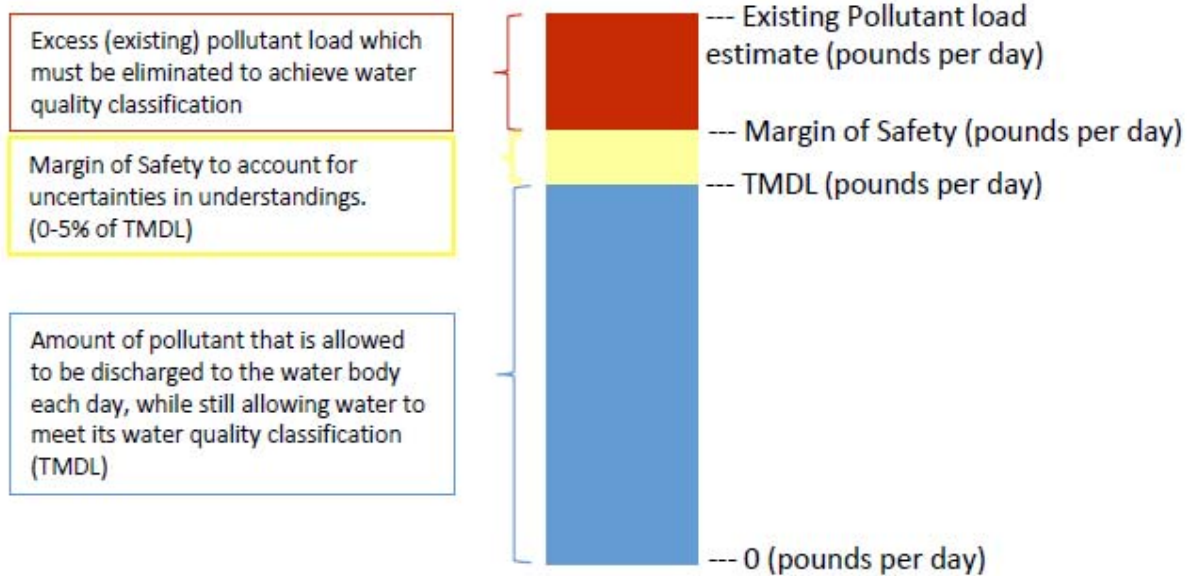
Every two years, the DEP publishes a report and list documenting the results of the assessments, and identifying which waters are meeting their designated classifications, and which are considered impaired. The report and list are called the Integrated Water Quality Report and are generally referred to by the Section of the Clean Water Act which requires them: the 305(b) report and/or the 303(d) list, respectively. There are five general status categories available for assignment to each water:

- Category 1: Attaining all designated uses and water quality standards, and no use is threatened.
- Category 2: Attains some of the designated uses; no use is threatened; and insufficient data or no data and information is available to determine if the remaining uses are attained or threatened (with presumption that all uses are attained).
- Category 3: Insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired).
- Category 4: Impaired or threatened for one or more designated uses but does not require development of a TMDL (Total Maximum Daily Load) report.
 - 4A means a TMDL has already been completed
 - 4B means other pollution control measures will address impairment, so no TMDL is required to be completed
 - 4C means the impairment is not caused by a pollutant and so does not require development of a TMDL (Total Maximum Daily Load) report.
- Category 5: Waters impaired or threatened for one or more designated uses by a pollutant(s), and a TMDL report is required.

In Maine, the most current 303(d) list approved by the EPA is from the 2016 data. The Maine DEP has indicated they will issue a combined 2018/2020/2022 303(d) list sometime in 2022.

A TMDL document identifies the source(s) of the impairments and recommendations to correct the impairments. In particular, a TMDL document identifies how much of a pollutant a water body can receive and still meet its water quality classification. Typically, the units are identified as pounds per day, which is the basis for the term “Total Maximum Daily Load”. TMDLs typically include a Margin of Safety between 2 and 5% of the TMDL to account for uncertainties or lack of knowledge about the relationship between the pollutant loading and

water quality.



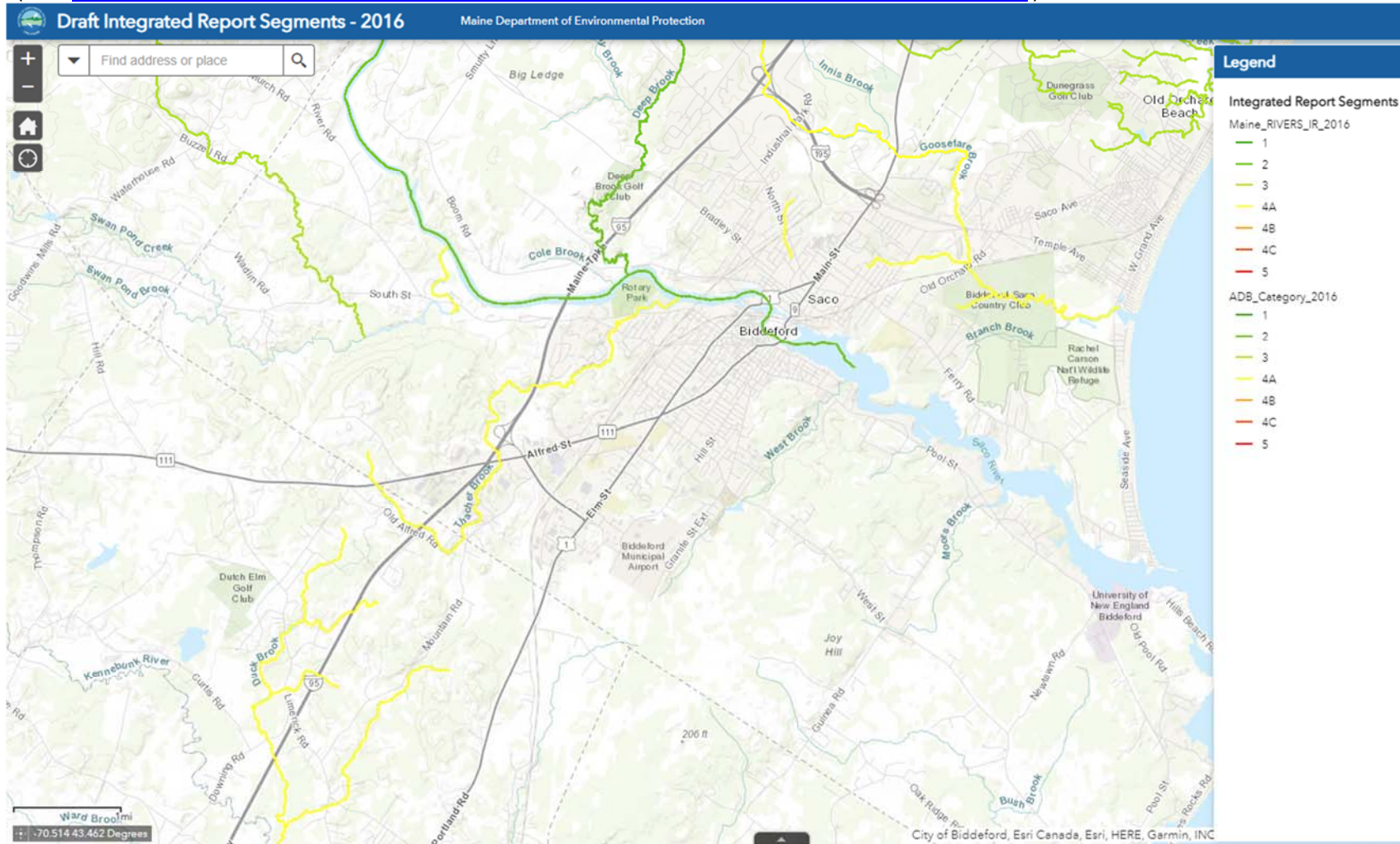
Total Maximum Daily Load (TMDL) Components

In addition to the Maine 305(b) report and 303(d) list, Maine has developed a special rule, Chapter 502, which has restrictions related to Direct Watersheds of Lakes Most at Risk from New Development and Urban Impaired Streams. This rule became effective in 1997 and has been modified several times over the years. The rule defines an Urban Impaired Stream as a stream that fails to meet its water quality standards because of effects of stormwater runoff from developed land. The rule imposes additional stormwater treatment controls on development in the watersheds of Urban Impaired Streams.

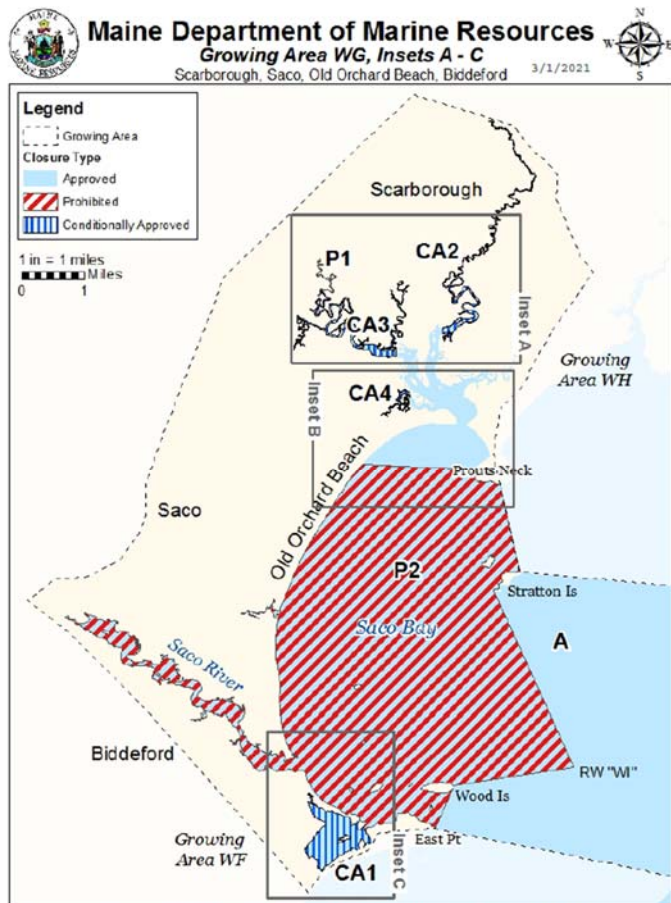
1.4.2 Biddeford Water Quality Status

The following is a summary of the waters in the City's Urbanized Area that receive point source discharges from the City's MS4 and each waterbody's TMDL and impairment status.

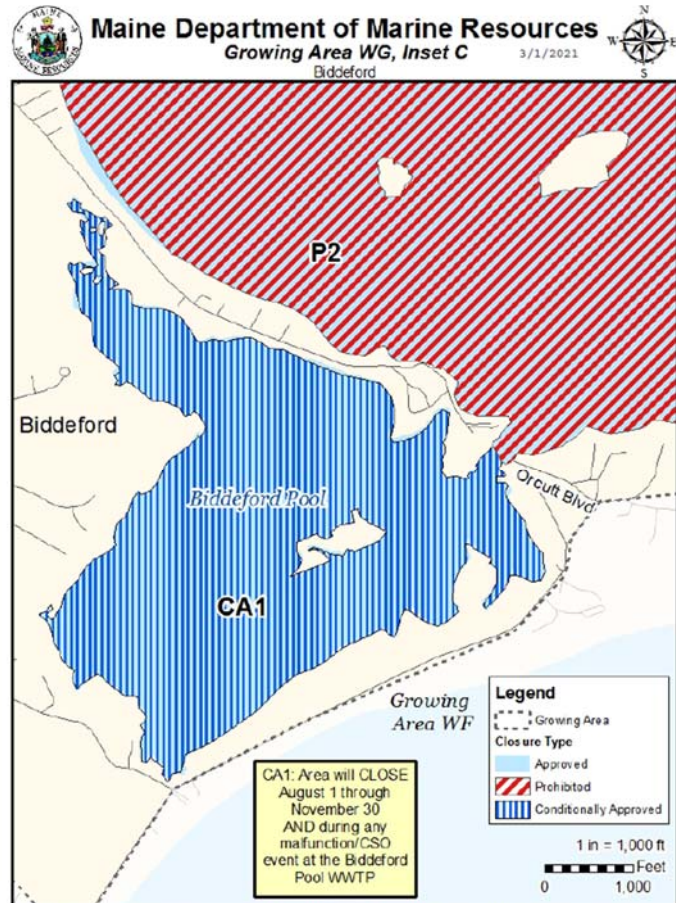
Figure 1 shows the locations of the fresh waters and their status according to the 2016 303(d) list from the Maine DEP GIS files. (from <https://maine.maps.arcgis.com/apps/webappviewer/index.html?id=dffb3d2b85904b18978d02fc9d913b5f>).



Figures 2a and 2b show the status of marine waters according to the Department of Marine Resources as of 3/1/2021. (from <https://www.maine.gov/dmr/shellfish-sanitation-management/closures/index.html>) Because DMR updated their designations and naming structure on 3/1/2021, the Figures reflect the new designations and naming structure and Table 1 shows both the new designation and the old DMR designation that was in effect when the 2022 MS4 General Permit was finalized on 10/15/2020. These areas are also listed under their old designations on the 2016 Maine DEP 303(d) list for elevated bacteria concentrations. The Maine DEP does not otherwise provide graphic representation of the locations of the marine/estuarine waters that are listed as impaired in the 2016 303(d) list.



This map is provided as a courtesy. Read the provided legal notice for closure details. Closures are not shown outside of the designated growing area. Maritime navigational aids are for reference only and are not suitable for maritime navigation.



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Table 1 shows the waters and their impairment status in table format, in particular, showing whether each water is part of a DMR area, is listed in a TMDL, is an Urban Impaired Stream, or has another non-TMDL listing in the 2016 2020(d) list.

Table 1 Status of Waterbodies Receiving MS4 Discharges – Biddeford Maine						
Water bodies with MS4 discharges (# outfalls as of February 2021)	Maine DEP classification and numeric designation	DMR Area	Completed TMDLs	Urban Impaired Streams (Chapter 502)	Non-TMDL listing in 2016 303(d) list	Watershed Management Plan / Other Water Quality Document
Atlantic Ocean (1 outfall) and Biddeford Pool (0 outfalls)	811 and 821 Class SB/SC	WG (Was 10)	None	No	Category 5-B-1 Impaired for Bacteria	
Saco River (8 outfalls)	ME0106000211_619R01 And 811-1 Class SB	WG (Was 10)	None	No	Category 5-B-1 Impaired for Bacteria	CSO Abatement is ongoing under 2009 Master Plan
Thacher Brook including Richardson Brook and unnamed tributaries and wetlands (59 outfalls)	ME0106000211_616R05 and V043 (wetland) Class B	None	Impervious Cover and Bacteria TMDLs	Yes	None	2015 Watershed Management Plan Note that many documents reference the spelling “Thatcher”
West Brook (12 outfalls)	No designation Class B	None	None	No	None	
Dungeon Brook (4 outfalls)	No designation Class B	None	None	No	None	
Unnamed wetlands or streams (13 outfalls)	No designation Class B	None	None	No	None	

The following text provides a general discussion of whether any MS4 requirements apply to each water body in Table 1.

Atlantic Ocean, Biddeford Pool and Saco River – These water bodies are estuarine/marine and are not subject to any TMDL, nor are they Urban Impaired Streams. Their only impairment according to the 2016 303(d) list is for elevated bacteria. These waters were previously listed as part of the 2009 Bacteria TMDL but were removed from that listing in 2016 until such time as the Maine DEP can update the TMDL. The TMDL was reviewed to assess if there were any actions that the City could take to address the impairment until the Bacteria TMDL can be updated. When the TMDL was written, these areas were considered Department of Marine Resources Pollution Area 10; now they are referred to as Growing Area WG for Shellfishing. The fecal coliform data from DMR presented in the 2009 Bacteria TMDL shows geometric mean concentrations acceptable to the NSSP (GM < 14 CFU/100 ml), but the 90th percentile concentrations exceed the standard for the River. The TMDL does not show an exceedance for Saco Bay, so it is unclear why Saco Bay is listed in this TMDL. The estuarine/marine discussions in this TMDL (appendix 2) do not contain any clear information regarding sources of bacteria or recommendations. The TMDL only provided example case studies of things that have been done in other areas. The TMDL does say that MS4 discharges to these waters need to meet the water quality criteria. As identified in the MS4 General Permit Fact Sheet, the City consulted with the DEP who confirmed that implementation of the IDDE elements of the MS4 General Permit (conducting outfall inspections, sampling outfalls during dry weather flow, and completing IDDE investigations to eliminate any bacterial sources), are sufficient to address the impairment until such time as the Bacteria TMDL document can be updated

Thacher Brook, Richardson Brook and other Tributaries to Thacher Brook (Class B) – Thacher Brook is listed in the Impervious Cover TMDL, Bacteria TMDL and is an Urban Impaired Stream. The Impervious Cover TMDL identifies the Thacher Brook Watershed has 13% impervious cover and needs to attain 9%. Appendix 1 of the Bacteria TMDL contains a detailed discussion of the sampling data that resulted in the listing and recommends additional evaluation before developing an action plan for correction of the impairment. The TMDL itself requires that MS4 discharges meet water quality criteria for Class B waters. A Watershed Management Plan was completed in 2015 to address both impervious cover and bacteria impairments, and implementation of the Watershed Management Plan is in progress. The Watershed Management Plan covers Richardson Brook and the other tributaries to Thacher Brook. Because of its status as an Urban Impaired Stream, the 2022 MS4 General Permit requires the City to implement 3 BMPs to address the water's impairment. The DEP has confirmed that no additional actions need to be taken to address the TMDLs for this water beyond the three BMPs for its status as an Urban Impaired Stream.

West Brook, Dungeon Brook and other unnamed waters and wetlands – No MS4 requirements pertain to these waters because they are not listed as impaired.

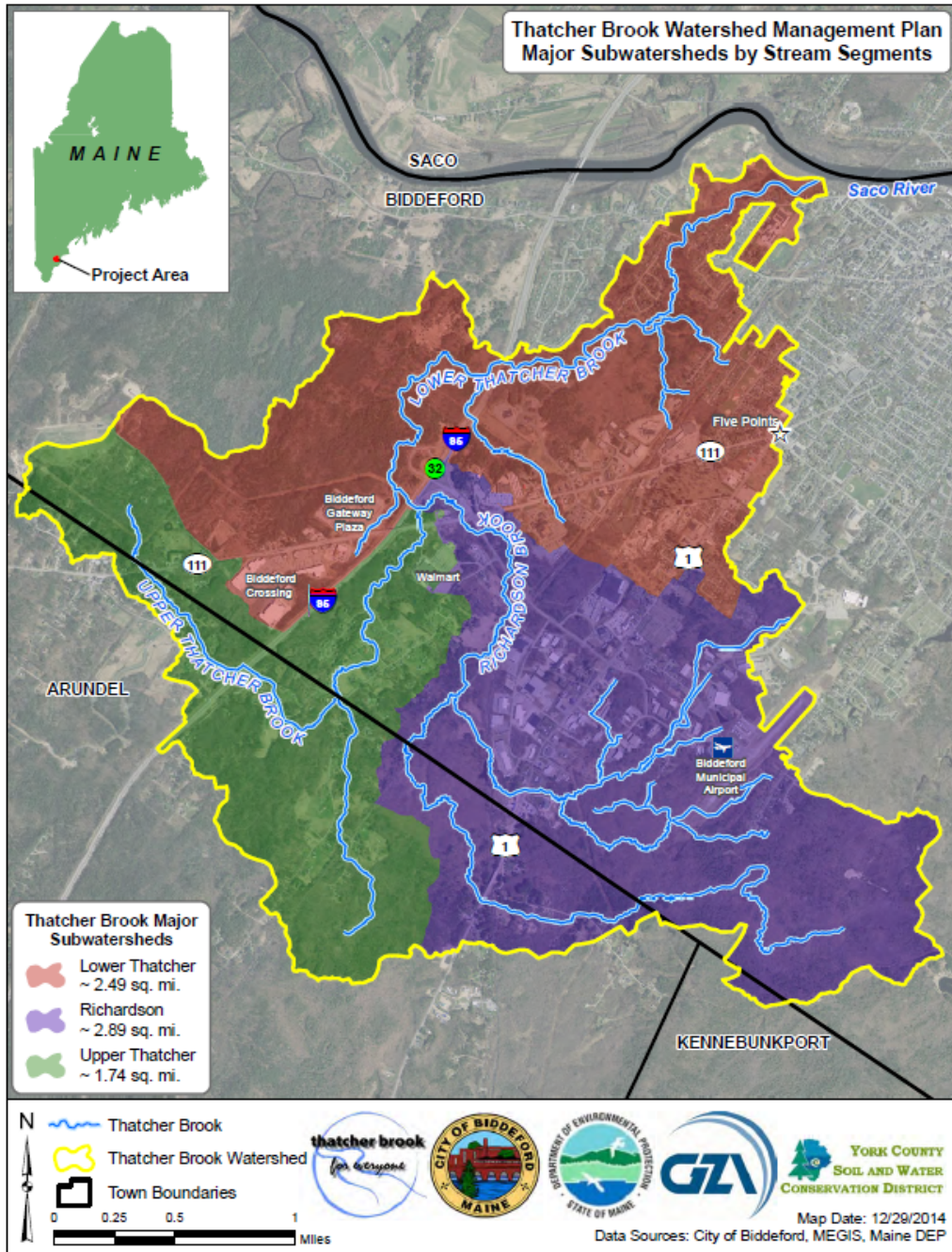
The following documents were reviewed in making these determinations:

- Statewide Bacteria TMDL (September 2009 and 2013 Addendum)
- Statewide Impervious Cover TMDL (September 2012)
- Statewide Non-Point Source TMDL (2015)
- Final 2016 Maine Integrated Water Quality Report and Appendices (a.k.a. Maine 305(b) Report and 303(d) list) Note that the DEP has indicated they will not issue a 2018 303(d) report, rather they will be issuing a combined 2018/2020/2022 303(d) report.
- USEPA and Maine DEP approved TMDL lists
- Chapter 502 Direct Watersheds of Lakes Most at Risk from New Development and Urban Impaired Streams

1.4.3 Progress on addressing Impairments and approach to UIS BMP development

As described in Section 1.4.2 of this SWMP, the only water that has additional requirements to address impairments is Thacher Brook.

The 2015 Thacher Brook Watershed Management Plan was prepared to address both impervious cover and bacteria impairments. The Plan identifies that 2.75 square miles of the watershed is in the MS4 area (compared to the total watershed area of 7.11 square miles). The Plan divides the watershed into three Subwatersheds: Upper Thacher Brook, Richardson Brook and Lower Thacher Brook as shown in the following graphic from the Plan:



Completion of the Watershed Management Plan included the following additional assessments which informed identification of stream stressors and an Action Plan for water quality improvement:

- additional sampling for macroinvertebrate species at 5 locations,
- temperature monitoring (opportunistically during other work) at 24 locations
- fish barrier assessments at 40 of the 51 stream crossings (6 were identified as barriers, and 31 were identified as potential barriers)
- a Rapid Geomorphic Assessment of 5 stream segments was conducted

- a Rapid Bioassessment for Habitat of the 5 stream segments
- sampling for temperature, chloride, phosphorous, metals and bacteria.

The Thacher Brook Action Plan is described in Section 8.3 and Table 27 of the Watershed Management Plan. Primary stressors were identified as stream channel alteration, elevated phosphorus, depressed dissolved oxygen, and habitat alteration. Elevated Chloride was identified as a potential secondary stressor. The Action Plan identified:

- 9 retrofits to address impervious cover reduction or treatment of stormwater runoff
- 11 projects related to habitat restoration
- community outreach opportunities, and
- Several recommendations related to potential ordinance changes, monitoring and chloride reduction

The Thacher Brook Workgroup prepared a Phase I Restoration Plan in 2017, received funding for the work, and completed the following work by December 2019:

- a. Retrofit #6 at Route 111 Alfred (with Maine DOT), near the entrance to the Maine Turnpike, consisted of regrading approximately 150 feet of road shoulder to encourage sheet flow runoff into an adjacent buffer (previously the grading allowed polluted gutter flow to directly discharge into the brook unbuffered).
- b. Instream Habitat Restoration at Sites A3 (NE of Gateway Plaza West of I-95) and B2 (Off Medical Center Drive) using “chop and drop” to add trees to the channel, improving pool diversity and enhancing microhabitat diversity.
- c. Additional Instream Habitat Restoration near B2 – A culvert and portion Medical Center Drive were removed, and the area was stabilized and replanted
- d. Technical letters were provided to 4 landowners on the benefits of mowing restrictions to allow re-vegetation of buffers (Buffer Sites 1 through 4)
- e. Installation of an underdrained soil filter at 20 Morin Street (no number in WMP)

Additional work completed by the City as part of the Phase I 319 Grant included:

1. Technical assistance to 7 properties in the Biddeford Industrial Park and creation of 7 Stormwater O&M Plans.
2. Biddeford Conservation Commission conducted in-class tutorials with Biddeford Middle and High School Students and held field trips (water quality sampling and education).
3. Ordinance change requiring submittal of salt management plans for all sites going through planning board.

A Phase II Restoration Plan was prepared in 2019, and grant funding was awarded under the Maine DEP 319 program for implementation. Under this grant the following work has been completed as of March 2021:

- a. UNE intern Dean Hernandez created a storymap to educate the public about the Thatcher Brook Watershed and the work that has been completed to improve

the watershed.

The following work is anticipated to be completed by December 2021 under the Phase II Restoration Project:

- a. Design and installation of three underdrain soil filters along Morin Street (the Biddeford Industrial Park) to provide additional stormwater filtration in an area of high impervious cover in the watershed and subsequent public site walk

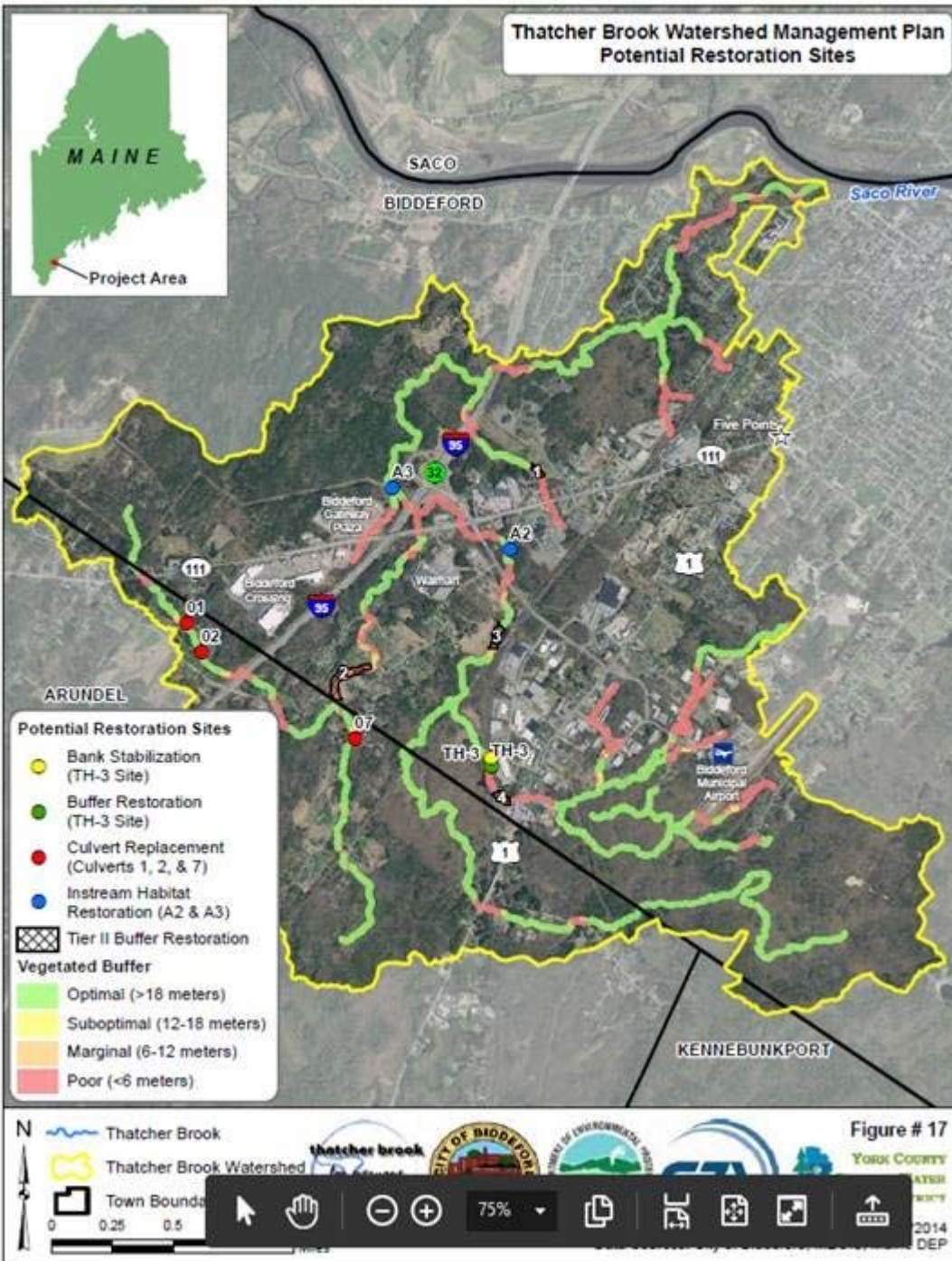
A Phase III Restoration Plan was prepared in 2020 and was awarded grant funding under the Maine DEP 319 program for implementation in 2021. The following projects are anticipated to be completed under this grant project:

- a. Bank stabilization at site B1 (26 Morin Street)
- b. Installation of Stormwater Retrofit 9 and an enhanced vegetative buffer at 26 Morin Street
- c. Installation of a tree box filter along Morin Street
- d. Installation of a vegetative BMP at 5 Morin Street
- e. Installation of a drainage swale and buffer plantings at 8 Morin Street
- f. Chop and drop project west of the Phase I project and subsequent public site walk organized by the Saco Watershed Collaborative
- g. A buffer workshop hosted by the City and YCSWCD in the Biddeford Industrial Park
- h. Painting of “No Dumping- Drains to Thatcher Brook” stencils adjacent to catch basins along Morin Street and the Industrial Park area
- i. Ordinance development to protect natural resources within the Thatcher Brook Watershed such as zoning changes, a pesticide and herbicide use ordinance, a Low Impact Development (LID) ordinance, encouraging redevelopment to reduce impervious cover and reestablish buffers, and/or creating landscape standards to minimize the need for non-residential application of chemical pesticides and fertilizers
- j. Water quality monitoring within the watershed near BMP sites

The City reviewed the remaining recommendations in the WMP and identified a structural BMP, which is described in Section 7.2 of this Stormwater Management Plan.

In addition to in stream and structural issues, the Watershed Management Plan for Thatcher Brook identified that chloride is a stressor to the Brook and would benefit from chloride reduction activities. The City and ISWG have developed a regional BMP that will be implemented for this UIS related to chloride reduction. That BMP is presented in Section 2.7 of this SWMP.

The Watershed Management Plan also identified implementation of the YardScaping program in residential areas as an action item. The City and ISWG have developed a regional BMP that will be implemented for this UIS related to YardScaping in residential areas. That BMP is presented in Section 2.7 of this SWMP.



1.5 Priority Watersheds

Previous MS4 General Permits required that regulated MS4s identify a Priority Watershed and

apply BMPs to that Watershed. The 2022 MS4 General Permit does not contain any specific requirements related to Priority Watersheds. However, it does require that an MS4 have a procedure in place to prioritize watersheds when addressing illicit discharges. The City uses this prioritization to identify where illicit discharge inspections are conducted first. The City may also use the prioritization for illicit discharge investigations in the event there were insufficient resources to address all potential illicit discharges simultaneously. The IDDE Plan describes in more detail how the prioritization is applied.

The Maine DEP maintains a list of waters that are vulnerable to non-point source pollution, which is then available to receive grant funding under Sections 308(b) and 319 of the Clean Water Act as long as the funding is not used to satisfy the conditions of a Clean Water Act Permit (such as the 2022 MS4 General Permit). The list includes the MS4's "Priority Watershed".

MS4s should keep in mind that they may not use 319 grant funding to implement any BMPs required by the MS4 General Permit.

The City's priority watershed is Thacher Brook because of its impairments.

1.6 Obtaining Coverage to Discharge

As required, a Notice of Intent (NOI) to comply with the 2022 MS4 General Permit was submitted to the Maine DEP with this SWMP. A copy of the City's NOI is provided in Appendix B.

30-day Public Notice was provided by both the Maine DEP and the City to allow the public to comment on the SWMP. A copy of the Public Notice provided by the City is contained in Appendix B.

Following review of the SWMP and NOI, and receipt of any public comments, the Maine DEP issues a permittee specific DEP Order, establishing terms and conditions that are enforceable in addition to the language in the 2022 MS4 General Permit which is also enforceable.

The permittee specific DEP Order is also subject to a 30-day public comment period, but only the DEP provides this public notice. DEP provides any updated information to the City at the end of the public comment period. If no comments are received, DEP provides notice to the City that they are authorized to discharge under the 2022 MS4 General Permit and the permittee specific DEP Order.

Once the DEP issues authorization to discharge, the City has 60 days to update the SWMP to reflect any new or changed requirements based on the DEP Order and any comments. At that time, the permittee specific DEP Order will be included in Appendix B. In addition, the permittee will include all comments received in Appendix C along with any notes on how the comments were addressed in the SWMP. The SWMP needs to be resubmitted to the DEP after

revision along with a narrative indicating how the SWMP has been modified to be consistent with the 2022 MS4 General Permit and permittee specific DEP Order unless the Department indicates in writing that resubmittal is not required. The new permit conditions do not take effect until 7/1/2022.

1.7 SWMP Availability

The SWMP must be made available to the public by publishing on the City Website. A copy must also be made available to the public at City Hall.

If any of the following entities request a copy, one must be made immediately available to them:

- a) USEPA or Maine DEP,
- b) Any interconnected or adjacent MS4,
- c) Any owner or operator of a water supply company where the MS4 discharges to a water supply watershed, or
- d) Members of the public.

1.8 SWMP Modifications

During the permit term (2022 to 2027), the SWMP must be kept current. As required by the 2022 MS4 General Permit, the City will amend the SWMP if the Maine DEP or the City determine that:

- a) The actions required by the BMPs fail to control pollutants to the meet the terms and conditions of the 2022 MS4 General Permit and the permittee specific DEP Order;
- b) The BMPs do not prevent the potential for a significant contribution of pollutants to waters of the State other than groundwater; or
- c) New information results in a shift in the SWMP's priorities.

Even though this SWMP is not an enforceable document, if any changes are made, the SWMP will be made available for 30-day public comment by posting the changes on the City's Website.

If the changes being made are not explicitly required by the 2022 MS4 General Permit or the permittee specific DEP Order, the opportunity for public comment will be made on the City's website annually and the DEP will be notified of the changes in the annual report following the permit year the changes were made.

If the changes being made are explicitly required by the 2022 MS4 General Permit or the permittee specific DEP order one of the following processes will be followed depending on who identified the need for the change:

- If the changes are initiated by the City, the Maine DEP will be notified prior to changing

any elements by filing a permit application with the DEP that includes a justification to formally modify the requirement;

- If the changes are initiated by the Maine DEP, it will notify the City, and the City must respond in writing within 30 days of the notice explaining how it will modify the SWMP. The City must then modify the SWMP within 90 calendar days of the City's written response, or within 120 calendar days of the DEP notice (whichever is less). Any such modification must be submitted to the DEP for final review.

1.9 Annual Compliance Report and Record Keeping

By September 15 of each year, the City will electronically submit an Annual Compliance Report for the Maine DEP's review using a standardized form provided by the Maine DEP. The Annual Compliance Report must be sent to:

Rhonda.poirier@maine.gov

**Municipal/Industrial Stormwater Coordinator
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017**

The Annual Compliance Report must include the following:

- a. The status of compliance with the terms and conditions of the 2022 MS4 General Permit and the City's permittee specific DEP Order, based on the implementation of the City's Plan for each permit year, an assessment of the effectiveness of the components of its stormwater management program, an assessment of the appropriateness of identified BMPs, progress towards achieving identified measurable goals for each of the MCMs and progress toward achieving the goal of reducing the discharge of pollutants to the MEP
- b. A summary of information collected and analyzed, including monitoring data, if any, during the reporting period.
- c. A summary of the stormwater activities the City intends to undertake pursuant to its Plan to comply with the terms and conditions of the 2022 MS4 General Permit and the City's permittee specific DEP Order during the next reporting cycle.
- d. A change in any identified BMPs or measurable goals that apply to the Plan.
- e. A description of the activities, progress, and accomplishments for each of the MCMs #1 through #6 including such items as the status of education and outreach efforts, public involvement activities, stormwater mapping efforts, the number of visual dry weather inspections performed, the number of inaccessible and new outfalls, dry weather flow sampling events and laboratory results, detected illicit discharges, detected illicit connections, illicit discharges that were eliminated, construction site inspections, number and nature of enforcement actions, post construction BMP status and inspections, the number of functioning post construction BMPs, the number of post construction sites requiring maintenance or remedial action, the status of the

permittee's good housekeeping/pollution prevention program including the percentage of catch basins cleaned, those catch basins cleaned multiple times and the number of catch basins that could not be evaluated for structural condition in a safe manner. Where applicable, the MS4 must quantify steps/measures/activities taken to comply with the 2022 MS4 General Permit and its Plan including reporting on the types of trainings presented, the number of municipal and contract staff that received training, the length of the training and training content delivered as well as any revisions to the SWPPP procedures and/or changes in municipal operations.

The Maine DEP will review the annual reports and provide comments to the MS4s. Changes to the report based on the Maine DEP's review comment(s) must be submitted to the Department within 60 days of the receipt of the comment(s).

The regulated MS4s must keep records required by the 2022 MS4 General Permit and permittee specific DEP Order for at least three (3) years following its expiration or longer if requested by the Maine DEP Commissioner. The regulated MS4s must make records, including this Plan, available to the public at reasonable times during regular business hours.

2 MINIMUM CONTROL MEASURES

2.1 MCM 1 Education/Outreach Program

The 2022 MS4 General Permit requires the MS4s develop two Education/Outreach Campaigns to address stormwater issues of significance:

1. An Outreach to Raise Awareness Campaign targeted at two audiences: one target audience must be the general public, and the second audience may be selected from: municipal, commercial, development/construction or institutions. A minimum of three tools must be directed at each audience each year.
2. An Outreach to Change Behavior Campaign promoting one behavior change targeted at two audiences. A minimum of three (3) outreach tools must be directed at each audience each year to promote and reinforce desirable behaviors (designed to reduce stormwater pollution).

In 2018, the ISWG executed a statewide survey to assess public awareness of a variety of stormwater issues and related behaviors. The survey results report¹ was included in the ISWG Permit Year 5 (2017-2018) annual reports. In addition, the ISWG communities reviewed regional water quality related to stormwater issues, examined the unique conditions within each of their communities, and evaluated the needs for public education around stormwater at five of their regional meetings (9/13/2018, 3/21/2019, 7/18/2019, 3/26/2020, 5/21/2020). Based on the survey results and the discussions at their regional meetings, the ISWG communities agreed on which issues of significance to address and what tools and messages might be effective. Each of the BMPs provides a brief introductory section describing the rationale for the selection of the BMP based on the ISWG members' understanding of their community. The BMPs are further structured to allow for adaptive education and outreach approaches to create a strong, diverse, and effective campaign over the duration of this permit.

The City will fulfill the requirements for Public Education/Outreach through participation in the ISWG and the City's provision of funding to the Cumberland County Soil & Water Conservation District (CCSWCD) for Public Education/Outreach services, as described in the following BMPs. The BMPs will be implemented according to their individual timelines over the term of the permit.

2.1.1 BMP 1.1 – Outreach to Raise Awareness Campaign

Responsible Party – City Engineer (with implementation assistance from a cooperative ISWG/SMSWG effort)

The 2022 MS4 General Permit requires the permittee to raise awareness of the public and one of the following groups: municipal, commercial, development/construction, or institutions. This

¹ http://thinkbluemaine.cumberlandswcd.com/wp-content/uploads/2018/07/Survey_Summary-FINAL.pdf

BMP describes the reasoning and measurable goals for the public audience and the selected second audience, development/construction.

Background for Measurable Goal 1.1a Public Audience: The Think Blue Maine campaign began in 2003 as a statewide effort to raise awareness of common stormwater pollutants and ways to prevent those pollutants. The Think Blue Maine campaign has been historically successful in increasing awareness of stormwater issues. The ISWG, Androscoggin Valley Stormwater Working Group (AVSWG), and Southern Maine Stormwater Working Group (SMSWG) coordinate their Think Blue Maine messaging and education efforts to provide consistent messaging in Southern Maine. In addition, the Massachusetts and New Hampshire small MS4s are using similar Think Blue campaigns, so there is some regionally consistent messaging in circulation.

In 2018, the ISWG executed a statewide survey around public awareness of stormwater issues and behaviors that impact stormwater. Ninety-four percent of survey respondents in the ISWG region ages 25 to 34 stated it was “very important to have clean water in the lakes and streams in [their] community”, and 86% of ISWG respondents ages 25 to 34 believe that stormwater runoff has a major impact or somewhat impacts water quality, but only 46% of ISWG respondents ages 25 to 34 were able to correctly describe what happens to stormwater at their residence. Because this age group has not been targeted before for education and has the potential to impact stormwater for many years into the future, the ISWG, AVSWG, and SMSWG communities will cooperatively use the Think Blue Maine campaign to raise awareness of the target audience to be more aware of stormwater issues and be more willing to change their behavior in the future.

Measurable Goal 1.1a – The City, through its participation in the ISWG, will raise 15%² of the target audience’s awareness of what happens to stormwater at their residence or place of work. According to the 2019 US Census Bureau, the ISWG region’s population for ages 25 to 34 is approximately 38,000 people and 15% of the target is approximately 6,000 people.

Target Audience: People 25-34 in the ISWG region

Overarching Message: “Water that lands on our roads, roofs, and other hard surfaces picks up pollutants and carries them to our local waterbodies without being treated.” This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience’s receptiveness to the method. Any tool used in a given year will be tailored to the message of the relevant target audience subset based on common characteristics and/or demographics.

² As recommended in the EPA’s “Getting in Step: A guide for conducting watershed outreach campaigns” (2003), when 15 to 20 percent of an audience adopts a new idea or behavior, it will be able to permeate to the rest of the audience.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators³ for each tool implemented that year and by tracking impact indicators⁴ where available (see Appendix D).

Implementation schedule: A minimum of three of the tools from Appendix D will be implemented each year for the duration of the permit.

Background for Measurable Goal 1.1b Development/Construction Audience: Evaluation of municipal stormwater programs, through annual meetings with municipal staff and officials, has revealed a large amount of effort required to comply with MCM 4 tasks. The ISWG communities identified opportunities to address common MCM 4 goals through coordinated regional and statewide stormwater education to developers and contractors to reduce development and construction-related stormwater pollutants that are not already required by MCM 4. Due to the cyclical nature of the development/construction sector, a baseline evaluation will be conducted in Permit Year 1 to establish contractor and developer awareness and the baseline target audience.

Measurable Goal 1.1b – The Municipality, through its participation in the ISWG, will raise awareness of developers and contractors by 15% from the Permit Year 1 established baseline audience of developers and contractors about construction-related stormwater pollutants and methods available to reduce discharge of those pollutants.

Target Audience: Developers and contractors who are located within the ISWG region.

Overarching Message: “Through proper design and site management, erosion and sediment control best management practices can reduce the potential to negatively impact local water bodies.”

This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience’s receptiveness to the method. Any tool used in a given year will be tailored to the message for the relevant target audience subset based on common characteristics and/or demographics.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators for each tool implemented that year and by tracking impact indicators where available (see Appendix D). Effectiveness will also be measured by the number of DEP certified contractors located in the ISWG region over the course of the permit term.

Implementation schedule: A minimum of three of the tools will be implemented each year for the duration of the permit.

2.1.2 BMP 1.2 – Outreach to Change Behavior Campaign

Responsible Party - City Engineer (with implementation assistance from ISWG)

³ Indicators related to the execution of the outreach program.

⁴ Indicators related to the achievement of the goals or objectives of the program.

The ISWG communities have focused on changing behavior to reduce nutrients into regional waterbodies in their MS4 permit for the past three permit cycles. The ISWG communities will continue their efforts to reduce sources of nutrients by promoting proper dog waste disposal to two target audiences this permit term for the following reasons:

1. Generally, excess nutrients in our waters are a nationally recognized water quality issue related to stormwater – there are multiple common sources of nutrients including sediments, pet waste, septic systems, and fertilizers.
2. The Statewide survey conducted in Permit Year 5 of the previous cycle identified that survey respondents are aware that nutrient sources (including dog waste) are a common stormwater pollutant and respondents expressed a willingness to take action to help reduce stormwater pollution. Eighty-four percent of 2018 survey respondents in the ISWG region ages 25 to 34 and 67% of 2018 survey respondents in the ISWG region ages 35 to 55 selected “picking up pet waste and putting it in the trash” as a practice they believed could reduce water pollution.
3. Most ISWG communities are part of the Casco Bay watershed. In the June 2019 Casco Bay Nutrient Council report, nutrients were identified as the main pollutant of concern for the health of Casco Bay. While there is discrepancy between nutrient models as to the contribution percentages of the three main sources of nutrients (stormwater, wastewater, and atmospheric deposition), stormwater runoff is believed to contribute between 24% and 64% of the nitrogen entering Casco Bay.
4. Several ISWG communities have encountered problems with dog waste not being picked up⁵ or not being properly disposed of in the trash, causing local water quality concerns⁶ and unsanitary conditions for the public and municipal staff.
5. Most ISWG communities have taken steps to discourage improper dog waste disposal through ordinances. However, there are currently still barriers to effectively educating and enforcing these types of ordinances.
6. Dog owners ages 25 to 64 are the least likely age group to pick up after their dog⁷. However, dog owners age 25 to 64 receive their information through different outreach methods⁸. In order to provide effective messaging on proper dog waste management, two audiences will be created to allow appropriate outreach tools to be used per age group.

A baseline evaluation will be conducted in Permit Year 1 to establish dog owner behavior of dog waste disposal and the baseline target audience within the ISWG region.

Measurable Goal 1.2a – The City, through its participation in the ISWG, will work towards changing the behavior of 15% of pet owners from the Permit Year 1 established baseline audience of dog owners so more will properly dispose of their pet waste.

⁵<https://www.pressherald.com/2019/03/21/south-portland-raises-a-red-flag-over-dog-waste-problem-at-hinckley-park/>

⁶<https://www.pressherald.com/2019/08/30/south-portland-park-tests-positive-for-algae-that-can-harm-dogs/>

⁷ Hall, S.L. (2006 June) Survey on Poop: Half don't scoop; neighborhoods seeking solutions. *The News & Observer*, pp. B1.

⁸ <https://umaine.edu/undiscoveredmaine/small-business/resources/marketing-for-small-business/social-media-tools/social-media-statistics-details/>

Target audience: Dog owners ages 25 to 34 within the ISWG region

Overarching Message: “Dispose of dog waste as a solid waste, so it does not end up in our stormwater. Once in the stormwater, dog waste contributes nutrients, bacteria, and pathogens to our ponds, lakes, streams, rivers, and bays, which can lower property values, harm our drinking water, and hinder recreational and economic opportunities.”

This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience’s receptiveness to the method. Any tool used in a given year will be tailored to the message of the relevant target audience subset based on common characteristics and/or demographics.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators for each tool implemented that year and by tracking impact indicators where available (see Appendix D). Effectiveness will also be evaluated by conducting visual (observational) surveys of dog waste disposal at public areas and tracking the presence of dog waste bags in catch basins.

Implementation schedule: A minimum of three of the tools will be implemented each year for the duration of the permit.

Measurable Goal 1.2b – The Municipality, through its participation in the ISWG, will work towards changing the behavior of 15% of pet owners from the Permit Year 1 established baseline audience of dog owners so more will properly dispose of their pet waste.

Target audience: Dog owners ages 35 to 55 within the ISWG region

Overarching Message: “Dispose of dog waste as a solid waste, so it does not end up in our stormwater. Once in the stormwater, dog waste contributes nutrients, bacteria, and pathogens to our ponds, lakes, streams, rivers, and bays, which can lower property values, harm our drinking water, and hinder recreational and economic opportunities.”

This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience’s receptiveness to the method. Any tool used in a given year will be tailored to the message for the relevant target audience subset based on common characteristics and/or demographics.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators for each tool implemented that year and by tracking impact indicators where available (see Appendix D). Effectiveness will also be evaluated by conducting visual (observational) surveys of dog waste disposal at public areas and tracking the presence of dog waste bags in catch basins.

Implementation schedule: A minimum of three of the tools will be implemented each year for the duration of the permit.

2.1.3 BMP 1.3 – Effectiveness Evaluation

Responsible Party - City Engineer

Measurable Goal 1.3a – The Municipality, through its participation in ISWG, will submit an annual report each year of the 2022 MS4 General Permit term documenting the implementation of each BMP. The annual report will include the message for each audience, the methods of distribution, the outreach tools used, the measures/methods used to determine on-going effectiveness of the campaigns, and any changes planned based on the measures of effectiveness.

Measurable Goal 1.3b – In Permit Year 5 of the 2022 MS4 General Permit the Municipality, through its participation in ISWG, will conduct an evaluation of the overall effectiveness of the Awareness and Behavior Change BMPs (BMPs 1.1 and 1.2). The evaluation will be a review of the annually reported benchmark values for the Awareness and Behavior Change BMPs as well as documentation of overall changes during the permit term. The evaluation will identify recommendations for future awareness and behavior change target audiences, messages, tools, and benchmarks. A comprehensive survey will be conducted for the ISWG region to evaluate the impact of the awareness campaigns.

2.1.4 BMP 1.4 – Additional Activities

Responsible Party - City Engineer (with implementation assistance from ISWG)

This BMP describes activities that are not required by the 2022 MS4 General Permit but are being conducted by the Municipality to supplement the Education/Outreach program.

Measurable Goal 1.4a – The City will continue to support the Cumberland County Soil & Water Conservation District's youth education curriculum to community schools as funding allows. Annual reports will include the total number of students reached, which schools were involved, and the lesson topics covered.

2.2 MCM 2 Public Involvement and Participation

The City will fulfill the requirements for Public Involvement and Participation through participation in the ISWG and the City’s provisions of funding to Cumberland County Soil & Water Conservation District for Public Involvement and Participation services, or through directly fulfilling the requirements, as described in this section of the plan.

2.2.1 BMP 2.1 - Public Notice Requirement

Responsible party – City Engineer (with implementation assistance by ISWG)

Measurable Goal 2.1a – The City will follow applicable state and local public notice requirements for their Stormwater Management Plans and Notices of Intent (NOIs) to comply with the MS4 General Permit. Copies of the NOIs and plans will be made available on the City’s website. The City will document public meetings related to their stormwater program and attendance of those meetings in their annual report.

Measurable Goal 2.1b – The ISWG members meet as a group 6 times per year to review issues associated with implementation of the Stormwater Management Plan and MS4 General Permit. These meetings will be publicized through the CCSWCD website, on ISWG member websites, and open to the public.

2.2.2 BMP 2.2 - Host Public Events

Responsible party – City Engineer (with implementation assistance by ISWG)

Measurable Goal 2.2a – The City will annually host, conduct, and/or participate in a public community event with a pollution prevention and/or water quality theme from the list included in the 2022 MS4 General Permit or another activity approved by the DEP. Stormwater stewardship and educational messages and activities will be incorporated into the event. The event will be advertised on the City’s website, through the City’s and CCSWCD’s social media accounts, and through local distribution. The annual report will include a description of the event and the estimated attendance/participation.

2.2.3 BMP 2.3 – Additional Public Participation Activities

Responsible party – City Engineer (with implementation assistance by ISWG)

Measurable Goal 2.3a Household Hazardous Waste Day – Though not required by the 2022 MS4 General Permit, the City will implement this Measurable Goal as time and budget allows. The City will continue to offer a minimum of 3 Household Hazardous Waste collection events each year to reduce the potential for illegal or inappropriate disposal of these items. Additionally, the City will continue to accept Universal Waste seven days a week year-round at the City’s Transfer

Station located adjacent to Public Works on Hill Street. This includes CRTS, TVs, fluorescent bulbs, electronics and batteries.

Measurable Goal 2.3b Leaf Collection - Though not required by the 2022 MS4 General Permit, the City will implement this Measurable Goal as time and budget allows. The City will continue to offer free curbside leaf collection to its residents in the fall annually and residential drop-off of leaves and may dispose of yard waste and brush at the Public Work Facility at no charge

Measurable Goal 2.3c Conservation Commission Earth Day Outreach - Though not required by the 2022 MS4 General Permit, the City will implement this Measurable Goal as time and budget allows. Each year at the Household Hazardous Waste drop off, the Biddeford Conservation Commission will set up a table and offer landscaping practice tips and soil test kits to homeowners.

2.3 MCM 3 Illicit Discharge Detection and Elimination

The City will continue to implement its Illicit Discharge Detection and Elimination (IDDE) program, which includes:

- A Watershed-based map of the stormwater infrastructure,
- A written IDDE Plan which describes:
 - Inspections of the infrastructure during dry weather (and monitoring of outfalls that flow during dry weather)
 - Investigations of potential illicit discharges,
 - Enforcement of the Ordinance that prohibits illicit discharges into the storm drain system,
 - A Quality Assurance Project Plan
- Development of a list of outfalls that have the potential to cause illicit discharges during wet weather.

The following BMPs will be implemented to meet this Minimum Control Measure. The City of Biddeford Ordinances are accessible through the following link: [City of Biddeford, ME Table of Contents \(ecode360.com\)](#)

2.3.1 BMP 3.1 – Continue to Implement the Non-Stormwater Discharge Ordinance

Responsible Party – City Engineer, Public Works Director, Wastewater Superintendent, and Code Enforcement Officer

Measurable Goal 3.1a – The Biddeford Ordinance Chapter 70 Utilities Section 70-73, prohibits the discharge of pollutants into the storm drain system and provides for the implementation of appropriate enforcement procedures and actions. This ordinance provides the Director of Public Works or their designee with the authority to issue letters of warning, notices of violation and/or fines for violations of the ordinance. The City will continue to enforce this ordinance throughout the permit cycle.

Measurable Goal 3.1b – The City will document the results of enforcement actions taken for illicit discharges on an excel spreadsheet.

2.3.2 BMP 3.2 – Prepare and Maintain a Written IDDE Plan

Responsible Party – City Engineer

Measurable Goal 3.2a - The City previously relied on written SOPs identifying how the City conducts inspections for illicit discharges during opportunistic inspections or standard televising. The prior SOPs have been updated and incorporated into a written IDDE Plan to address the elements required in the 2022 MS4 General Permit (Part IV.C.3.b.i through vi). The IDDE Plan is contained in Appendix E of this SWMP. The plan will be reviewed and updated annually to

reflect any changes to the program.

Measurable Goal 3.2b - The City will conduct a wet weather assessment in accordance with the 2022 MS4 General Permit Part IV.C.3.f and will incorporate the wet weather assessment into their IDDE Plan by the end of Permit Year 5 (6/30/2026).

2.3.3 BMP 3.3 - Maintain Storm Sewer System Infrastructure Map

Responsible Party – City Engineer and GIS Manager

Measurable Goal 3.3a – The City created a watershed-based map of the MS4 infrastructure during the first three permit cycles (2003-2022). The map shows the locations of stormwater catch basins, drain manholes, connecting surface and subsurface infrastructure showing the direction of pipe flow and the locations of stormwater outfalls. The infrastructure is documented in a Geographic Information System (GIS), which has the Sanitary and Storm Systems in the same layer, as directed by the Maine DEP during the 2015 MS4 Audit. The layer contains unique identifiers for outfalls and catch basins, as well as outfall material, size and receiving water. The City will continue to update the map as follows:

- The GIS Manager will maintain a master data base of the infrastructure
- The following staff will have the ability to make stormwater related changes to a staff-specific version: Wastewater Supervisor, City Engineering Technician, and the City Engineer,
- The GIS Manager will review and approve any staff generated changes before incorporating those changes into the master database.
- Changes to the infrastructure made by Public Works are communicated to the GIS Manager via paper mark-ups after the projects have been completed. The GIS manager incorporates those changes into the primary authoritative GIS geodatabase.
- Changes made as a result of design projects either for the City, or by a developer that are then accepted by the City after completion are documented in as-built drawings. The GIS Manager or staff with GIS change access (identified above) will incorporate the changes into the GIS.

2.3.4 BMP 3.4 – Conduct Infrastructure Inspections and Monitor Flowing Outfalls

Responsible Party – City Engineer, Wastewater Superintendent and Public Works Director

Measurable Goal 3.4a – The City Engineering staff will conduct infrastructure inspections for pollutants using the following frequency:

- One dry weather inspection will be conducted on each outfall at least once per permit cycle as required by the 2022 MS4 General Permit by the City Engineering Staff.
- Dry weather ditch inspections will be conducted opportunistically (whenever ditch maintenance work is conducted) by the Public Works Staff.

- Catch basins will be inspected for evidence of pollutants during their required sediment inspections by the Wastewater Division Staff (see BMP 6.4 for details).

The City’s IDDE Plan (contained in Appendix E) describes the information collected during infrastructure inspections. The Engineering Staff document the outfall inspections electronically using an iPad or other electronic device during the inspection.

Measurable Goal 3.4b – If an outfall is observed to be flowing during a dry weather inspection, the flow will be sampled and analyzed once per permit term using the methods described in the IDDE Plan unless it is exempt from dry weather investigations (as described in Part IV.C.3.e.vi of the 2022 MS4 General Permit). Outfalls sampled during dry weather will be handled as follows:

1. Outfalls where sampling and analysis reveals the potential for an illicit discharge: The City will investigate the catchment area associated with the outfall for potential illicit discharges as described under Measurable Goal 3.5a.
2. Outfalls where sampling and analysis does not reveal the potential for an illicit discharge: The City will document the dry weather flow as either uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge.

The City Engineering Staff will summarize the monitoring results and any investigation completed, or the exempt status, as applicable, in an Excel spreadsheet or GIS geodatabase.

2.3.5 BMP 3.5 – Conduct Investigations on suspect illicit discharges and flowing outfalls

Responsible Party – City Engineer

Measurable Goal 3.5a – Whenever the Engineering Department becomes aware of a potential illicit discharge, they will investigate to identify the source using methods described in the written IDDE Plan (Appendix E). The Engineering Department will track the status and outcome of the investigations using an excel spreadsheet.

2.3.6 BMP 3.6 – Significant Contributors of Pollutants

Responsible Party – City Engineer

Measurable Goal 3.6a - During the 2013-2022 Permit Cycle the Maine DEP identified that hydrant flushing was a potential contributor of pollutants to MS4s. The DEP published an issue profile providing water districts and departments guidance on how to meet ambient water quality standards for chlorine during hydrant flushing. The document was specifically designed for discharges to MS4s. In addition, the Maine Rural Water Association and Maine Water Utilities Association prepared a guidance document and training to show departments and districts how to meet the requirements of the issue profile.

The City previously made annual requests to the Maine Water Company to provide an annual report describing their hydrant flushing dechlorination processes, and the City will continue to

request that they provide the reports each year.

Measurable Goal 3.6b – If any of the following allowed non-stormwater discharges (in addition to hydrant flushing) are identified as significant contributors of pollutants to the MS4, the City will work with the responsible discharges to control these sources, so they are no longer significant contributors of pollutants.

- landscape irrigation
- diverted stream flows
- rising ground waters
- uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))
- uncontaminated pumped ground water
- uncontaminated flows from foundation drains
- air conditioning and compressor condensate
- irrigation water
- flows from uncontaminated springs
- uncontaminated water from crawl space pumps
- uncontaminated flows from footing drains
- lawn watering runoff
- flows from riparian habitats and wetlands
- residual street wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material has been removed and detergents are not used), and
- firefighting activity runoff (hydrant flushing is addressed in MG 3.6a)
- water line flushing and discharges from potable water sources
- individual residential car washing
- dechlorinated swimming pool discharges

2.4 MCM 4 Construction Site Stormwater Runoff Control

The City will update, implement and enforce its Construction Runoff Control Program for construction activities that disturb greater than or equal to one acre of land including projects less than one acre that are part of a larger common plan of development or sale as required by the 2022 MS4 General Permit through implementation of BMPs as described in this section.

The following City of Biddeford Municipal Ordinances contain standards relevant to the BMPs developed under this MCM:

- Part II Code of Ordinances: Chapter 66 Subdivisions
- Part III Land Development Regulations: Article VI Performance Standards
- Part III Land Development Regulations: Article XI Site Plan Review

The City of Biddeford Ordinances are accessible through the following link: [City of Biddeford, ME Table of Contents \(ecode360.com\)](#)

The following is a summary of the types of sites and development thresholds which are required to meet sediment and erosion control standards as part of their review and approval:

All Subdivisions – as described in Article III of Chapter 66, Subdivisions are required to meet the subdivision erosion control standards in Section 66-70 (which references the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices, as amended). The preliminary plan must include the locations and details for sediment and erosion control measures.

Major Sites

Any site subject to Major Site Plan Review is required to meet the erosion control standards in Part III Article VI Section 26 which lists specific best management practices from the Soil Conservation Service (no document specified). The following projects are subject to Major Site Plan Review:

- Creation of any subdivision
- Any development activity within a 5-year period, in B-1, B-2 and industrial zones that results in construction of:
 - 10,000 square feet or more of new floor area or
 - 10,000 square feet or more of new impervious surface, or
 - 15,000 square feet of combined impervious surface and new floor area
 -
- Any development activity within a 5-year period in any zone (except for B-1, B-2 and industrial zones) that results in construction of:
 - 5,000 square feet or more of new floor area or
 - 5,000 square feet or more of new impervious surface, or
 - 7,500 square feet of combined impervious surface and new floor area

Minor Sites

The following sites, classified as minor development sites by the City may not trigger the 1 acre of disturbance criteria for this MCM, but these sites are subject to review by staff, and are required to meet the same sediment and erosion control standards that apply to Major Sites:

- Any development activity within a 5-year period, in B-1, B-2 and industrial zones that results in construction of:
 - 1,000 square feet to 4,999 square feet of new floor area or
 - 1,000 square feet to 4,999 of new impervious surface, or
 - Between 1,500 and 7,499 square feet of combined impervious surface and new floor area
 -
- Any development activity within a 5-year period any zone (except for B-1, B-2 and industrial zones) that results in construction of:
 - 2,000 square feet to 9,999 square feet of new floor area or
 - 2,000 square feet to 9,999 of new impervious surface, or
 - Between 3,000 and 14,999 square feet of combined impervious surface and new floor area
- Construction of multi family dwelling units containing between 3 and 5 units

The following additional sites require Planning Board Review, and submittal of Soil Erosion and Sediment Control Plans that meet the York County Soil and Water Conservation District and Maine Soil and Water Conservation District Commission Standards:

 Campgrounds and tenting grounds (Performance Standards Section 13)

 Excavation of more than 500 cubic yards of material, or 100 cubic yards of topsoil in any one year. (Performance Standards Section 30)

 Private Ways and Roads (Performance Standards Section 51)

 Timber Harvesting (Performance Standards Section 64)

 Planned Unit Developments (Performance Standards Section 73)

The following BMPs will be implemented to meet this Minimum Control Measure.

2.4.1 BMP 4.1 – Erosion Sediment Control Ordinance

Responsible Party - Planner and City Engineer

Measurable Goal 4.1a – This City’s ordinances contain requirements to control sediment and prevent erosion during construction sites in several different locations.

- The City’s Site Plan Review Procedures (Part III Land Development Regulations: Article XI Site Plan Review) specify that any Major or Minor Development conform to the Part III Land Development Regulations: Article VI Performance Standards, which contains Section 26 Erosion Control.
- The City’s Subdivision Ordinance requires that subdivisions meet the Part II Code of Ordinances: Chapter 66 Subdivisions, Section 70 Erosion and Sediment Control standards.
- In addition, Article VI Performance Standards contains several other references to

requirements for Sediment and Erosion Control for various other types of development (such as Campgrounds, Timber harvesting and Planned Unit Developments). Each of these sections contains either descriptive standards for sediment and erosion control or references a state or county document. Most references to state or county documents are dated 1991.

The City will review and update their Ordinances by 7/1/2023 to reference Erosion Control standards that are consistent with the applicable sections of Attachment C to the 2022 MS4 General Permit, (which are the same as the Maine DEP Stormwater Rule Chapter 500 Appendices A Erosion and Sediment Control, B Inspections and Maintenance, and C Housekeeping). In addition, the City will include a requirement for all development which disturbs one acre or more disturbance of land to be subject to Site Plan Review.

Measurable Goal 4.1b – Prior to updating the ordinances as described in Measurable Goal 4.1a, the City will develop either on its own, or regionally, a set of standards consistent with the construction site requirements contained in Attachment C to the 2022 MS4 General Permit, (which are the same as the Maine DEP Stormwater Rule Chapter 500 Appendices A Erosion and Sediment Control, B Inspections and Maintenance, and C Housekeeping).

The standards will include a requirement to control waste such as discarded building materials, concrete truck washouts, chemicals, litter and sanitary waste at the construction site that may cause adverse impacts to water quality if passed through the storm drain system.

2.4.2 BMP 4.2 – Site Plan Review Procedures

Responsible Party - Planner and City Engineer

Measurable Goal 4.2a – The City’s Site Plan Review Procedures (Part III Land Development Regulations: Article XI Site Plan Review), which contain the required elements listed in the 2022 MS4 General Permit (consideration of potential water quality impacts, erosion control, waste storage, the ability for the public to comment at publicly noticed meetings and procedures to consider information submitted by the public), will continue to be implemented.

2.4.3 BMP 4.3 – Procedures for notifying construction site developers and operators

Responsible Party - Planner and Code Enforcement Officer

Measurable Goal 4.3a – The City will continue notifying developers and contractors of requirements to obtain coverage under the MCGP and Chapter 500 for sites that disturb one or more acres of land using the following methods:

- Providing a check box on the Site Plan Review Application next to the signature requirement. The check box requires them to indicate if the proposed project will disturb one or more acres of land and instructs them they would need to apply for MCGP or Chapter 500 permit coverage.

- In discussions with applicants.

2.4.4 BMP 4.4 –Conduct and Document Construction Site Inspections

Responsible Party – City Engineer and Code Enforcement Officer

Measurable Goal 4.4a – The City will continue implementing its procedure for construction site inspections which will be formalized in a written document by 7/1/2022. The written procedure:

- Identifies that City Staff or third-party inspectors conduct these inspections
- Identifies that any third-party inspector will review any inspection deficiencies with the contractor during or at conclusion of the inspection to allow for BMP repairs to be done no later than the next workday, additional BMPs to be added within 7 calendar days, and significant repairs to be completed within 7 calendar days and prior to any storm event (rainfall) and that:
 - The inspection reports are provided to the City Engineer within 3 days of the inspection for any sites that require corrective measures, and within one week for any sites that do not require corrective measures.
- Requires three inspections during active earth-moving phase of construction
- Requires a minimum of one inspection annually until the project reaches substantial completion.
- Requires a final inspection at project completion to ensure that permanent stabilization has been achieved and all temporary erosion and sediment controls have been removed, and
- Includes use of one of the construction inspection forms (dependent upon size of project being inspected) provided in Appendix F.

Measurable Goal 4.4b. The City will document construction sites that trigger the ordinance using an excel spreadsheet each year. The spreadsheet will contain the site’s name, map and lot number, dates of inspections, and any enforcement actions and corrective actions taken.

2.5 MCM 5 Post-Construction Stormwater Management in New Development/ Redevelopment

The City will continue to implement its Post Construction Stormwater Management Program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the City's MS4 through implementation of the following BMPs.

The City's current Ordinances contain provisions to prevent or minimize water quality impacts from development in accordance with the requirements of the MS4 General Permit. The City of Biddeford Ordinances are accessible through the following link: [City of Biddeford, ME Table of Contents \(ecode360.com\)](#)

The following is a brief summary of the Zoning Ordinance contents' as they relate to the MCM 5 requirements:

Part II Code of Ordinances: Chapter 66 Subdivisions – Section 70 of the Subdivision ordinance requires that post development runoff rates be equal to or less than predevelopment runoff rates, Section 76 requires that the design show respect for natural features such as trees and streams, topography and other site assets.

Part III Land Development Regulations Article XI Site Plan Review requires that development must meet the Part III Land Development Regulations Article VI Performance Standards Section 61 for Stormwater Management. Section 61 requires that all new construction and development whether or not serviced by a stormwater collection and transportation system, shall be designed to reflect or resemble, as nearly as possible, natural runoff conditions in terms of volume, velocity and location of runoff. This section also states that whenever post development runoff exceeds predevelopment runoff conditions, the off-site impact must be evaluated and appropriated methods to reduce the impact must be employed.

Part II Code of Ordinances: Chapter 34 Environment, Article VI (adopted 8/4/2009) requires:

- Preparation and implementation of a Post Construction Stormwater Management Plan that meets the standards of Maine DEP Chapter 500 and 502 Rules and the practices in the Maine DEP Manual "Stormwater Management for Maine (January 2006)",
- Execution and filing of a Maintenance Agreement for any infrastructure that will remain under private control,
- Submittal of an annual report documenting that all on-site BMPs have been inspected by a qualified inspector and are either functioning as intended or if they require maintenance and repair, a list of deficiencies, and documentation once they are corrected.

The following BMPs will be implemented to meet this Minimum Control Measure.

2.5.1 BMP 5.1 – Promote strategies to prevent or minimize water quality impacts

Responsible Party - Planner and Code Enforcement Officer

Measurable Goal 5.1a – The City will rely on the Maine DEP Chapter 500 Stormwater Rules which provide stormwater treatment standards for sites that disturb one or more acres of land and are either: in the watershed of an Urban Impaired Stream or a lake most at risk that create 20,000 square feet of impervious cover, or in any other watershed that creates 1 acre or more of impervious cover or is in any watershed where 5 or more acres of land will be developed.

Measurable Goal 5.1b – The City’s current ordinances contain general provisions to prevent or minimize water quality impacts from development which includes notifying developers that they must consider Low Impact Development (LID) techniques in accordance with the requirements of the 2022 MS4 General Permit.

Specifically, Part III Land Development Regulations Article VI Performance Standards for Stormwater Section 61 requires that all new construction and development whether or not serviced by a stormwater collection and transportation system, shall be designed to reflect or resemble, as nearly as possible, natural runoff conditions in terms of volume, velocity and location of runoff. This section also states that whenever post development runoff exceeds predevelopment runoff conditions, the off-site impact must be evaluated and appropriated methods to reduce the impact must be employed.

The City will continue to implement this development requirement.

2.5.2 BMP 5.2 – Maintain Post Construction Ordinance or Similar Measure

Responsible Party - Planner and City Engineer

Measurable Goal 5.2a – During the 2008-2013 permit cycle, the City passed a Post Construction Discharge Ordinance (Part II Code of Ordinances: Chapter 34 Environment, Article VI ,adopted 8/4/2009) which requires that any site that disturbs more than one or more acres certify to the City annually by March 1 that they have inspected and maintained their stormwater BMPS. The City will continue to implement this ordinance and track:

- The cumulative number of sites that have post construction BMPs discharging into the permittee' s MS4;
- The number of sites that have post construction BMPs discharging into the permittee's MS4 that were reported to the City;
- The number of sites with documented functioning post construction BMPs; and
- The number of sites that required routine maintenance or remedial action to ensure that

the post construction BMP is functioning as intended.

Measurable Goal 5.2b – By 7/1/2023, the City’s Post Construction Ordinance (Chapter 34) will be updated to state that for any sites reporting that maintenance is required:

- Deficiencies will be corrected within 60 days of identification and a record of the corrective action taken will be provided to the City’s Enforcement Authority within that 60-day period.
- If it is not possible to correct the deficiency and notify the City within 60 days, the property owner will coordinate with the City Engineer to establish an expeditious schedule to correct the deficiency and will provide a record of the corrective actions taken.

The Chapter 34 definition of Urbanized Area will also be updated to reflect the 2022 MS4 General Permit requirements.

2.6 MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations

The objective of this MCM is to mitigate or eliminate pollutant runoff from municipal operations on property that is owned or managed by the permittee and located within the 2000-2010 Urbanized Area through implementation of the following BMPs.

2.6.1 BMP 6.1 – Operations at Municipally Owned Grounds and Facilities

Responsible Party – City Engineer and Public Works Director

Measurable Goal 6.1a – During the previous MS4 permit cycle, the City developed an inventory of municipal operations conducted in, on, or associated with facilities, buildings, golf courses, cemeteries, parks or open space owned or operated by the City that have the potential to cause or contribute to stormwater pollution. The City will review and update its inventory annually.

Measurable Goal 6.1b – During the previous MS4 permit cycle, the City developed and implemented Operation and Maintenance (O&M) Procedures for the municipal operations listed in their inventory that had the potential to cause or contribute to stormwater pollution. The City will continue to implement these O&M Procedures and will review and update the O&M Procedures annually to iteratively improve strategies and practices to eliminate or better control pollutant discharges.

2.6.2 BMP 6.2 – Training

Responsible Party – City Engineer and Public Works Director

Measurable Goal 6.2a – The City will conduct annual training as follows:

- a. train at least 80% of the Public Works (which includes transfer station and parks and recreation) employees in the Stormwater Pollution Prevention Plan and Grounds and Maintenance O&M Procedures.
- b. train at least 80% of the School Facilities personnel, Police and Fire employees annual in their respective O&M procedures

2.6.3 BMP 6.3 – Continue Street Sweeping Program

Responsible Party – Public Works Director

Measurable Goal 6.3a - Each permit year the City will continue to sweep all publicly accepted paved streets and publicly owned paved parking lots at least once a year as soon as possible after snowmelt.

2.6.4 BMP 6.4 – Cleaning of Catch Basins

Responsible Party – City Engineer and Wastewater Superintendent

Measurable Goal 6.4a – The City will inspect its catch basins for sediment content at least once every two years, but the City will continue to attempt to inspect each catch basin annually if time and municipal budget allows annually and will clean catch basins that accumulate more than three inches of sediment.

Measurable Goal 6.4b – The City will track which catch basins accumulate excess sediment (i.e., more than 50% of the sump contains sediment) to ensure those basins are inspected again the following year and cleaned if necessary. If a catch basin exhibits less than 25% sediment in its sump for two consecutive years, it is removed from the excess sediment list, and can be inspected again every two years.

Measurable Goal 6.4c – The City will continue to transport collected grit from catch basins to the Public Works facility. Fluids will continue to be decanted into a tank and treated at the City's Wastewater Treatment Plant. Solids are placed in a containment pile for drying and routine conducted even though this is no longer required by beneficial reuse regulations (Maine DEP Solid Waste Management Rule 418 Beneficial Use of Solid Waste). If samples are below thresholds (500 mg/l TPH), the grit is used in accordance with beneficial reuse practices. If samples are above the threshold, the grit is taken to a licensed facility for disposal.

2.6.5 BMP 6.5 – Maintenance and Upgrading of Storm water Conveyances and Outfalls

Responsible Party – Public Works Director

Measurable Goal 6.5a – The City will maintain and upgrade the stormwater conveyance systems based on the results of the catch basin, outfall, and ditch inspections, in accordance with the urgency of any needed repairs or maintenance. The City continues to perform systematic capital upgrades of the storm drain system in correlation with the road paving program for the City. The City also inspects and maintains its proprietary stormwater treatment systems using a qualified third-party inspector.

2.6.6 BMP 6.6 – Stormwater Pollution Prevention Plans (SWPPPs)

Responsible Party – Public Works Director

Measurable Goal 6.6a – During the last Permit Cycle, the City prepared a SWPPP for the Public Works Facility and Recycling Center. The City will amend the SWPPP to comply with the requirements specified in Part IV.C.6.d by 6/30/2022. In addition, the City will amend the SWPPP within 30 calendar days of completion of any of the following:

- A change in design, construction, operation or maintenance that may have a significant

effect on the discharge or potential for discharge of pollutants including the addition or reduction of industrial activity,

- Monitoring, inspections, or investigations by the City, local, state or federal officials which determine the SWPPP is ineffective in eliminating or significantly minimizing the intended pollutants,
- A discharge occurs that is determined by the Maine DEP to cause or have the reasonable potential to cause or contribute to the violation of an applicable water quality standard.

Measurable Goal 6.6b - The City will implement the plan throughout each Permit Year including conducting quarterly facility inspections using the City's own form and visual monitoring using forms that contain the information required in Appendix E of the 2022 MS4 General Permit.

2.7 Impaired Waters BMPs

The City's MS4 includes point source discharges to Thacher Brook which is classified as an Urban Impaired Stream in Maine DEP Rule Chapter 502 and is listed in the 2005 Maine Impervious Cover Total Maximum Daily Load document dated. A Watershed Management Plan was completed for Thacher Brook in 2015.

The Watershed Management Plan identified several restoration actions that will help the Brook meet its water quality classifications. The City applied for and completed a Phase I Restoration.

To meet the Urban Impaired Stream requirement of the 2022 MS4 General Permit, the City will implement the following three Best Management Practices.

2.7.1 BMP 7.1 – Minimize Chloride Contributions to Thacher Brook

Responsible Party – City Engineer (with implementation assistance from Cumberland County Soil & Water Conservation District)

As described in Section 1.4 of the City's SWMP, chlorides were identified as a stressor in the Watershed Management Plan.

The City has already taken several actions over the past few years to minimize their chloride contributions during deicing, will continue to implement the following chloride reduction practices which are also specified in the Maine BMP Manual for Snow and Ice Control, 2015:

- Annual review of appropriate application rates with crew at beginning of winter season
- Use of Ground Speed Control and Annual Equipment Calibration to ensure proper application rates
- Recalibration of equipment whenever major repairs are made
- Use of pavement temperature gauges to determine application rates
- Use of multi-section blades that adhere to shape of roads (or other kind of blade)
- Pretreatment of roads with brine when appropriate
- Use of liquid (prewetting) to improve performance and to reduce "bounce and scatter" when applying sodium chloride, and
- Use of road weather information cameras/sensors, real time conditions.

The City will implement the following Measurable Goals related to chloride reduction in both its UIS(s).

Measurable Goal 7.1a. At least one representative from the City Engineering Department and one from the Public Works Department will attend an annual regional training or roundtable to learn about new chloride reduction techniques coordinated by the ISWG or another organization.

Measurable Goal 7.1b. The City will complete the following actions to facilitate future reduction of chlorides through application by private contractors:

- In Permit Year 1, and alternating years thereafter until it passes, the City will provide educational outreach to legislators regarding limited liability legislation, provide comments on draft legislation, and provide testimony at the committee level once drafted. The information provided will identify how chlorides affect water quality and how limited liability legislation will support a training, data collection, and certification program like the New Hampshire “Green Snow Pro” program for private applicators.
- In years when limited liability legislation has not passed and is not active for procedural reasons, the City will provide winter maintenance education and outreach to the public. The messaging will be delivered using two tools per year selected from Appendix D.
- Should the legislation be successful:
 - The first year after it passes, the City will provide awareness of its passage in the form of a presentation to the Select Board/Council.
 - Beginning the second and subsequent years after passage, the City will educate property managers, private contractors, and/or the public on winter maintenance practices to maintain public safety and protect the environment. These practices will be delivered using two tools per year selected from Appendix D.

2.7.2 BMP 7.2 – Targeted Behavior Change: YardScaping 2.0

Responsible Party – City Engineer (with implementation assistance from Cumberland County Soil & Water Conservation District)

Measurable Goal 7.2a – As identified in Section 1.4 of the City’s SWMP, public education was identified as a recommendation in the Watershed Management Plan(s) for Thacher Brook. This BMP will provide targeted education to the residents living adjacent to the Urban Impaired Stream(s). The goal of the enhanced public education is to encourage the residents to improve their riparian zone by creating or improving and maintaining the riparian buffer with native species to minimize erosion and to implement one of the YardScaping concepts. This BMP will incorporate targeted and regional outreach with other ISWG municipalities that have urban impaired streams. Within the ISWG municipalities with urban impaired streams, the following items will occur each year:

- One digital and one print outreach to residents within the UIS area designated above about ways to create, improve, and maintain their riparian zone.
- Offer four regional workshops on YardScaping and buffer BMPs (workshops will alternate between communities with UIS each year).
- Product and plant recommendations will be identified at regional point of sale partners.

Surveys will be conducted immediately after workshops and then a follow up survey will be conducted after the next growing season to evaluate behavior changes of the target audience.

2.7.3 BMP 7.3 – Implement Impervious Cover Disconnection or Stormwater Treatment

Responsible Party – City Engineer

Review of the Watershed Management Plan recommendations related to Impervious Cover Disconnection or Stormwater Treatment revealed there are several catchment areas that may have retrofit or treatment opportunities. The City will investigate, assess, design and install either an impervious cover disconnection or stormwater treatment system in one of the catchment areas as described in the following measurable goals.

Implementation of BMP 7.3 will be contingent upon several factors including budget approvals and being able to obtain permits and easements on private property. Should BMP 7.3 prove to not be a viable BMP during any permit year, then the City will report that in their annual report and will begin to implement Optional BMP 7.4 in the following permit year.

Measurable Goal 7.3a – During Permit Year 1, the City will conduct site visits to at least 5 catchment, erosion, and inadequate buffer sites and evaluate them for current condition and potential for retrofits, repair and/or impervious cover disconnection. The intersection of Rt 111 and Precourt Road (retrofits sites 7 and 8) will be included as one of the five sites being evaluated. The City will write a memo summarizing the results of the evaluation and will select a site for design. The City will report on the recommended project in their annual report.

Measurable Goal 7.3b – During Permit Year 2, should the budget be approved, the City will prepare the design for the recommended project.

Measurable Goal 7.3c – During Permit Year 3, should the budget be approved, the City will attempt to obtain the necessary permits and easements to construct the recommended project.

Measurable Goal 7.3C – During Permit Year 4, If the budget is approved and necessary permits and easements are able to be obtained, the City will construct the project.

Measurable Goal 7.3d – During Permit Year 5 the City will begin inspection and maintenance on the completed project.

2.7.4 Optional BMP 7.4 – Enhanced Street Sweeping - To be implemented only in the event the Town deems BMP 7.3 to be infeasible.

Responsible Party – City Engineer and Public Works Director

Measurable Goal 7.5 – The City will conduct monthly street sweeping on the main roads in the Urban Impaired Stream between the months of May and October each year that this BMP is in effect.

3 GENERAL REQUIREMENTS

3.1 Certification

The General Permit requires that this Plan be certified by either a principal executive officer or ranking elected official. This section provides the necessary certification.

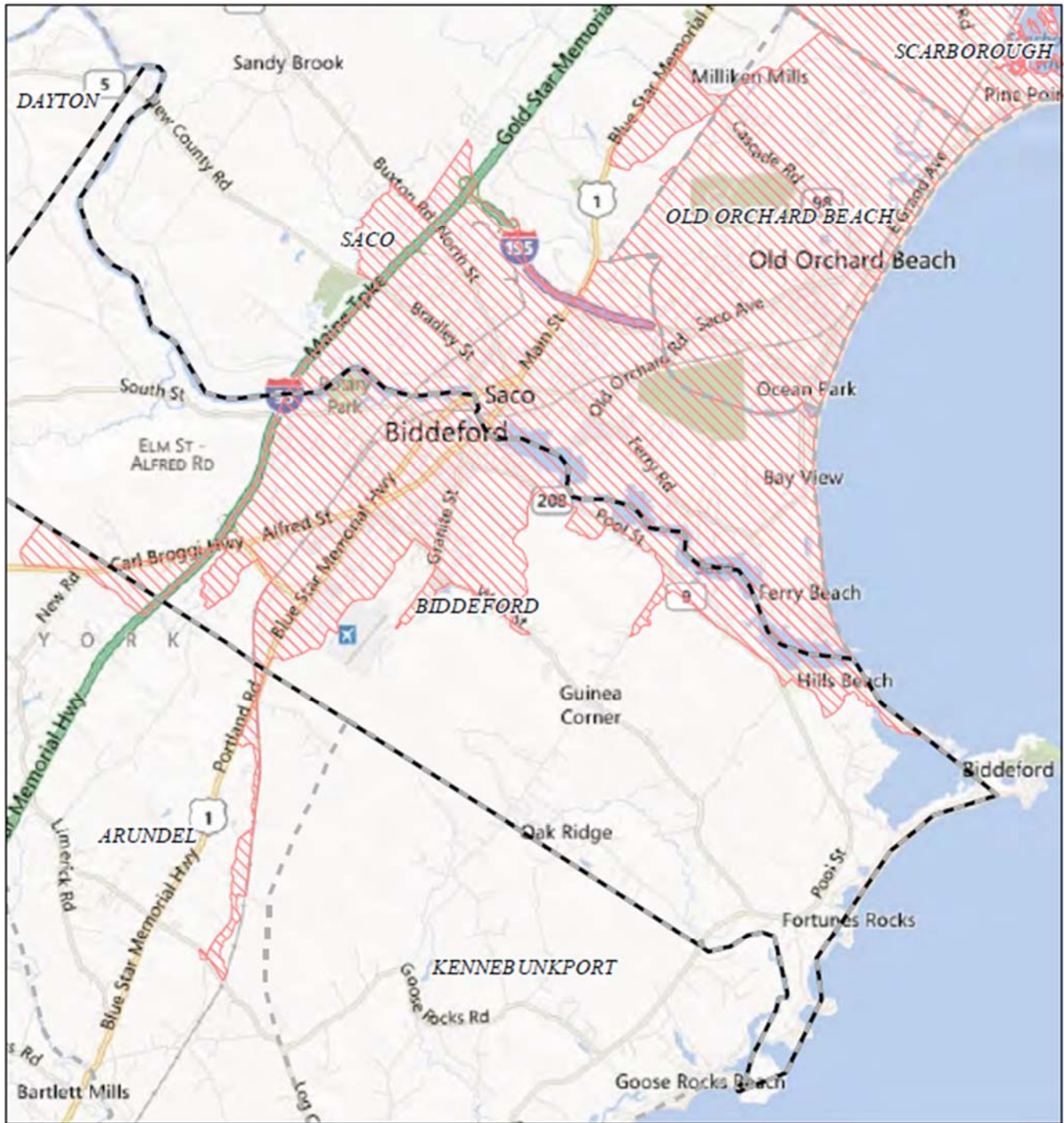
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage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

Signature:  Date: 3/25/21
Jeffrey Demers

Title: City Public Works Director

APPENDIX A

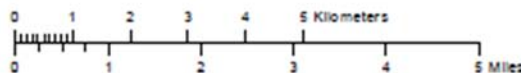
URBANIZED AREA MAP



NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas

Biddeford ME

 Regulated Area (2000 + 2010 Urbanized Area)



Town Population: **21057**
Regulated Population: **17187**
(Populations estimated from 2010 Census)



Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map © 2010 Microsoft Corporation
and its data suppliers

US EPA Region 1 G10 Center Map #8824, 11/19/2012

APPENDIX B

NOTICE OF INTENT and PERMITTEE SPECIFIC DEP ORDER

COURIER To Place Your Ad call **282-4337** or stop by our office **6 Digital Drive, Biddeford**
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GENERAL HELP
CLEANING SERVICES NEEDED
 Cape Porpoise Home for the Summer months June 12 - September 4 (Additional weeks may be needed) Weekly Saturday's 11am-4pm House with 3 bedrooms and 2 baths. Call Tom at 207-439-6191

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 AVX Tantalum, the leader in high reliability capacitor manufacturing has immediate openings on our 1st and 2nd Shifts. We are looking for people who have an eye for detail and can follow verbal and written instructions. No experience required.
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PUBLIC NOTICES
PUBLIC NOTICE

The Municipality of Biddeford will file a Notice of Intent (NOI) to comply with the Maine General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems issued 10/15/2020 (MER041000 W009170-SY-C-R) and an associated Stormwater Management Plan (SWMP) with the Maine Department of Environmental Protection. The NOI and SWMP will be filed on or about March 31, 2021. A copy may also be seen at the Biddeford City Hall Engineering Department and on the municipal website: Biddeford, ME | Official Website (biddefordmaine.org).


The DEP will review the submittal and assess if it is complete for processing within 60 days of submittal. Once it has been deemed complete for processing, it will be made available on the Maine DEP website for 30-day public comment: <https://www.maine.gov/dep/comment/index.html>. A request for public hearing or request that the Board of Environmental Protection assume jurisdiction over this application must be received by the DEP. In writing, no later than 20 days after the application is found acceptable for processing. Requests must indicate the interest of the person filing the request and specify the reasons why a hearing is warranted. Unless otherwise provided by law, a hearing is discretionary and may be held if the Commissioner or the Board finds significant public interest or there is conflicting technical information.

The NOI and SWMP are also available for viewing at the DEP Office in Augusta by scheduled appointment during normal business hours during the pandemic. Written public comments or requests for information may be made to the Division of Water Quality Management, Department of Environmental Protection, State House Station #17, Augusta, ME 04333-0017; telephone (207) 592-6233 and must include the name of the municipality filing the NOI and the Permit number provided above.

GARRETT PILLSBURY
ADMINISTRATIVE ASSISTANT / CUSTOMER SERVICE REPRESENTATIVE
 Garrett Pillsbury Plumbing and Heating in Kennebunk has an opening for an **Administrative Assistant / Customer Service Representative**. This position includes Customer Service for our Plumbing, Heating, A/C, Fuel and Billing Departments. Strong communication skills are a must. Microsoft Office experience is required. Quick Books is a plus. This is a full time position with excellent pay and a strong benefit package including employee discounts. Garrett Pillsbury has a strong office team that supports our construction, service and fuel departments. Interested candidates please email your resume to privard@garrettpillsbury.com

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*Sign-on bonus based on position. Restrictions apply.

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PUBLIC NOTICES
 PURSUANT TO THE ZONING LAWS OF THE TOWN OF OLD ORCHARD BEACH, MAINE, YOU ARE HEREBY NOTIFIED THAT THE ZONING BOARD OF APPEALS WILL HOLD A MEETING ON
MONDAY, MARCH 29, 2021 - 6:30PM
 IN THE TOWN COUNCIL CHAMBERS -FOR THE PURPOSE OF

PUBLIC NOTICES
LEGAL NOTICE & NOTICE OF HEARING
 Maine Department of Health & Human Services **MAINE DISTRICT COURT**
 IN RE: Kylie Floyd Doc. No.: BID-PC-19-37
 NOTICE IS HEREBY GIVEN TO SCOTTY LEE ADAMS and the UNKNOWN FATHER OF KYLIE FLOYD, whereabouts unknown.

PUBLIC NOTICES
LEGAL NOTICE & NOTICE OF HEARING
 Maine Department of Health & Human Services **MAINE DISTRICT COURT**
 IN RE: Julia Harrington Doc. No.: SPRDC-PC-19-39
 NOTICE IS HEREBY GIVEN TO UNKNOWN FATHER whereabouts unknown:
DISCUSS TO 22 M.R.S. 4401 of cur. the Miss

Clip of Public Notice provided in the Courier 3/11/2021



NOTICE OF INTENT TO COMPLY WITH MAINE GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER FROM MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4)

PLEASE TYPE OR PRINT IN BLACK INK ONLY

PERMITTEE INFORMATION					
MS4 Entity	City of Biddeford, Maine			Permittee ID #	MER041021
Name and title of chief elected official or principal executive officer	James A Bennett, City Manager				
Mailing Address	205 Main Street				
Town/City	Biddeford	State	ME	Zip Code	04005
Daytime Phone	207-571-0700	Email	james.bennett@biddefordmaine.org		
PRIMARY CONTACT PERSON FOR OVERALL STORMWATER MANAGEMENT PROGRAM (if different than PEO/CEO)					
Name and Title	Tom Milligan				
Mailing Address	205 Main Street				
Town/City	Biddeford	State	ME	Zip Code	04005
Daytime Phone	207-284-9118	Email	tom.milligan@biddefordmaine.org		
STORMWATER MANAGEMENT PLAN (SWMP)					
Urbanized Area (sq. mi.)	3.8				
I have attached our updated SWMP with ordinances, SOPs, forms. <input type="checkbox"/>					
Name of streams, wetlands, or waterbodies to which the regulated small MS4 discharges (<i>attach additional sheets as necessary</i>):					
Atlantic Ocean, Saco River, Thacher Brook (including Richardson Brook and unnamed tributaries and wetlands), West Brook, Dungeon Brook					
List of impaired waterbodies that receive stormwater from the regulated small MS4 (<i>attach additional sheets as necessary</i>):					
Thacher Brook, Atlantic Ocean and Saco River					
CERTIFICATION					
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.					
Signature of Permittee				Date	3.15.21

This NOI registration form must be filed with the Department at the following address:

Stormwater Program Manager
 Maine Department of Environmental Protection
 Bureau of Water Quality
 17 State House Station
 Augusta ME 04333-0017
Rhonda.Poirier@maine.gov

OFFICE USE ONLY					
Date Received		Staff		Date Accepted	
				Date Not Accepted	

APPENDIX C

SUMMARY OF PUBLIC COMMENTS RECEIVED

APPENDIX D

Education & Outreach Tools, Levels of Effort, and Effectiveness Benchmarks

Appendix D: Education & Outreach Tools, Levels of Effort, and Effectiveness Benchmarks

Below is a list of tools with their corresponding minimum level of effort and effectiveness benchmark that will be selected from each year to implement BMP 1.1 and 1.2.

Outreach Tool	Minimum Level of Effort	Effectiveness Benchmark
Poster	10 posters/municipality	Total number of posters distributed
Flyer	1 flyer	Total number of flyers distributed
Brochure	1 brochure	Total number of brochures distributed
Rack Card	1 rack card	Total number of rack cards distributed
Newsletter Article	2 newsletter articles	Total number of newsletters distributed
Post Card	1 post card	Total number of postcards distributed
Factsheet	1 factsheet	Total number of factsheets distributed
Sign	5 signs/municipality	Total number of signs distributed
Story Walk	1 story walk	Number of QR code (or similar technology) scans from signs
Story Map	1 regional story map	Number of visitors to webpage
Stormwater Geocaching	1 regional activity (14 sites)	Number of participants per site
Augmented Reality App	1 regional activity (14 sites)	Number of app downloads Number of engagements within the app
Municipal Electronic Message Board	3 messages	Amount of time message was displayed
Email Newsletter	4 email newsletters	Number of people reached with email Number of interactions with email (e.g., link clicks)
Municipal Website Content	Annual updates to website stormwater content	Number of visitors to stormwater webpage(s)
Think Blue Maine Website Content	Semiannual updates to website content	Number of visitors to website
Social Media Post (each platform counts as separate tool)	12 posts	Amount of post engagement (e.g., reactions, comments, shares, etc.)
Social Media Ad (each platform counts as separate tool)	Ad(s) run 90 days (multiple ads may be run for shorter durations to total 90 days)	Amount of ad engagement (e.g., reactions, comments, shares, link clicks, etc.) Number of people reached with ad
Social Media Video (each platform counts as separate tool)	3 videos	Amount of video engagement (e.g., views, reactions, comments, shares, etc.)
Online ad	Ad(s) run 90 days (multiple ads may be run for shorter durations to total 90 days)	Number of people reached with ad Amount of ad engagement (e.g., link clicks)
Radio Ad	1 radio ad	Number of people reached with ad

Radio Segment	1 radio segment	Number of people reached with segment
Television Ad (broadcast or streaming)	1 television ad	Number of people reached with ad
Television News Segment (broadcast or streaming)	1 television news segment	Number of people reached with segment
Newspaper Article	1 newspaper article	Number of people reached with article
Newspaper Ad	1 newspaper ad	Number of people reached with ad
Webinar/Workshop	7 hours of training offered (multiple webinars/workshops may be offered to reach 7 hours)	Number of workshop attendees
Social Gathering	3 events	Number of interactions
Tabling	3 events	Number of interactions
Outreach partnership with local retailer	50% of industry retailers in region participating	Number of local retailers participating
Outreach partnership with local organization	3 content shares by partner organization	Number of people reached
Item with branding/messaging	1 item with branding/messaging	Total number of items distributed
A DEP-approved tool	Minimum level of effort will be determined based on the tool	Effectiveness benchmark will be determined based on the tool

APPENDIX E

IDDE PLAN and QUALITY ASSURANCE PROJECT PLAN

Illicit Discharge Detection and Elimination Plan

For the

City of Biddeford, Maine

For the

General Permit for Storm Water Discharges from Municipal Separate Storm Sewer Systems

Version 1.0 March 2021

Prepared by
12 Farms Edge Road
Cape Elizabeth, ME 04107
PH: 207-415-5830



Table of Contents

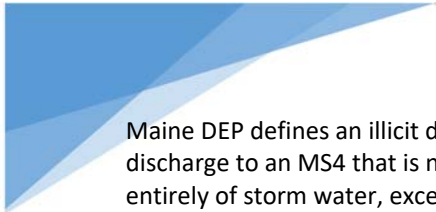
- 1.0 INTRODUCTION 1
 - 1.1 IDDE Responsibilities in the City of Biddeford 2
 - 1.2 Amendments and updates to the IDDE Plan..... 2
 - 1.3 Typical Illicit Discharges..... 3
 - 1.4 Overview of IDDE Plan Components..... 5
- 2.0 STORMWATER INFRASTRUCTURE MAP 6
 - 2.1 Infrastructure Naming Protocols 7
 - 2.2 Procedures to Update Map of Infrastructure 8
- 3.0 AUTHORITY TO PROHIBIT ILLICIT DISCHARGES..... 9
- 4.0 IDENTIFICATION OF PRIORITY AREAS 10
- 5.0 PROCEDURES TO LOCATE POTENTIAL ILLICIT DISCHARGES 10
 - 5.1 Catch Basin Cleaning Inspections 11
 - 5.2 Citizen Reports of Illicit Discharges..... 11
 - 5.3 Dry Weather Outfall Inspections 11
 - 5.4 Outfall Sampling and Analysis..... 12
 - 5.5 Ditch Inspections 13
 - 5.6 Septic System Inspections 14
 - 5.7 Cooperation with other MS4s 14
- 6.0 PROCEDURES TO INVESTIGATE ILLICIT DISCHARGES 14
- 7.0 PROCEDURES TO REMOVE ILLICIT DISCHARGES..... 15
- 8.0 PROCEDURES TO DOCUMENT ILLICIT DISCHARGES..... 17
- 9.0 NOTIFICATIONS DURING WORKING AND NON-WORKING HOURS..... 17
- 10.0 RECORDS RETENTION 18
- 11.0 REFERENCES 18

List of Attachments

- A. BIDDEFORD WATERSHED MAP
- B. INSPECTION FIELDS AND DOMAINS IN GIS
- C. QUALITY ASSURANCE PROJECT PLAN
- D. COORDINATION LETTERS WITH INTERCONNECTED MS4S

1.0 INTRODUCTION

The City of Biddeford is subject to the requirements of the Maine Department of Environmental Protection (Maine DEP) General Permit for Storm Water Discharges from Municipal Separate Storm Sewer Systems (hereafter referred to as the MS4 General Permit).



Maine DEP defines an illicit discharge as any discharge to an MS4 that is not composed entirely of storm water, except that the following are not considered illicit discharges:

- Discharges authorized under a Maine DEP permit (38 M.R.S §413.)
- Uncontaminated groundwater,
- Water from a natural resource (such as a wetland), or
- an allowable non-storm water discharge.

See Section 3.0 of this Plan for a list of allowed non-storm water discharges.

The MS4 General Permit requires permittees to address six Minimum Control Measures throughout the City's Urbanized Area:

1. Education/Outreach on Storm Water Impacts
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Storm Water Runoff Control
5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

The IDDE Plan described in this document fulfills the Minimum Control Measure 3 IDDE requirements specified in Part IV.C.3.b of the MS4 General Permit.

Though the MS4 General Permit applies only to the City's Urbanized Area, the City voluntarily implements most elements of this IDDE Plan City-wide to realize a greater benefit for water quality and public health.

1.1 IDDE Responsibilities in the City of Biddeford

The following is a summary of City personnel responsibilities related to implementation of this Plan:

City Engineer has overall responsibility for implementation of the IDDE Plan.

City Engineering staff conduct illicit discharge investigations, supported by the Code Enforcement Department, Public Works Department, Wastewater Division staff and third-party contractors where necessary.

Wastewater Division staff conduct catch basin inspections and monitoring

GIS Manager is responsible for organizing and supporting infrastructure mapping, assists in development of electronic data collection and management for inspections.

Planner facilitates any required ordinance changes related to non-stormwater discharges through Planning Board.

Code Enforcement Officer/Health Inspector assists City Engineer and Public Works staff in illicit discharge investigations when needed (e.g., if plumbing inspections are needed).

1.2 Amendments and updates to the IDDE Plan

The MS4 General Permits are designed to provide coverage for five-year periods. The first MS4 General Permit applicable to the City of Biddeford became effective in 2003 and expired in 2008. Subsequent General Permits were issued, providing the City with continuous coverage for their storm water discharges. Historically, the City has relied on Standard Operating Procedures to conduct inspections and investigations.

This IDDE Plan has been developed to meet the requirements of the 2022 MS4 General Permit.

This Plan will be updated if any of the following occur:

- a new permit is issued which changes the requirements described in this IDDE Plan

- document,
- the City of Biddeford identifies that the Plan is not effective,
- municipal operations change which need to be reflected in this Plan.

The City Engineer will either modify this IDDE Plan or engage a third party to update the document. Whenever changes are made to this Plan, the MS4 General Permit and the Biddeford-Specific Department Order will be reviewed to ensure the Plan is consistent with those requirements. In some instances, the changes may require Public Comment and re-submittal to the Maine DEP for review. Any changes that are made that do not require Public Comment and resubmittal to the DEP must be documented in the City’s Annual Stormwater Report.

The following table briefly summarizes the origin and amendments to this document, and whether the document amendments are subject to public comment or reported to the DEP in the Annual Report.

Date of Document	Description of changes	Change Type (Public Comment Process or Reported in Annual Report)
March 2021	Development of document from Stormwater Management Plan and Standard Operating Procedures	Provided to Maine DEP with SWMP for Public Comment

1.3 Typical Illicit Discharges

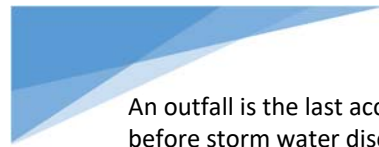
The Center for Watershed Protection (CWP) developed a comprehensive IDDE Manual in 2004 and provided an abbreviated update in 2011 which classifies illicit discharges into three categories related to frequency of discharge. This categorization allows communities to develop a comprehensive IDDE Plan that will address all kinds of illicit discharges. The three categories of illicit discharges identified in the CWP manual are described below along with examples of

the types of discharges that may be encountered:

1. Transitory illicit discharges are typically one-time events resulting from spills, breaks, dumping, or accidents. Examples of transitory illicit discharges include:
 - a. paint equipment rinse water
 - b. carpet cleaning water
 - c. sediment from construction sites
 - d. wash water from vehicles other than individual residential car washing by an owner
 - e. oil or gasoline spill from a vehicle crash or other source
 - f. yard waste
 - g. litter or pet waste

Transitory illicit discharges are often reported to an authority through a citizen complaint line or following observation by a municipal employee during regular duties. Because they are not recurring, they are the most difficult to investigate,

trace, and remove. The best method to reduce transitory discharges is through general public education, education of municipal personnel to minimize spills and accidents, tracking of discharge locations (to identify potential patterns associated with spills), and enforcement of an illicit discharge ordinance.



An outfall is the last accessible point before storm water discharges to a water body. Some things that are NOT outfalls include: driveway culverts that connect ditch segments, culverts that convey water bodies under roadways, and pipes that discharge to other storm water infrastructure elements.

2. Intermittent illicit discharges occur occasionally over a period of time (several hours per day, or a few days per year). Intermittent discharges can result from legal connections to the storm drain system, such as a legal sump pump connection that is illegally discharging washing machine water, a single home sanitary connection, or from illegal connections such as floor drains from industrial or commercial operations. Intermittent discharges can also result from activities such as excessive irrigation or wash down water from exterior areas. The 2022 General Permit requires that MS4s consider illicit discharges that might result from dumping. One example of this would be trash or litter dumped in/near stormwater structures might leak leachate into the system intermittently. Because intermittent discharges are longer lasting than transient, they are more likely to be discovered during an opportunistic or regularly scheduled inspection. They are less difficult to trace and remove than transitory discharges but can still present significant challenges. These discharges can have large or small impacts on water bodies depending on pollutant content.

3. Continuous illicit discharges are typically the result of a direct connection from a sanitary sewer, overflow from a malfunctioning septic system, or inflow from a nearby subsurface sanitary sewer that is malfunctioning. Continuous illicit discharges are usually easiest to trace and can have the greatest pollutant load but are typically the most costly and time consuming to correct because they likely involve construction and alteration of subsurface connections. (CWP and Robert Pitt 2004)

1.4 Overview of IDDE Plan Components

The MS4 General Permit requires an IDDE Plan be developed and implemented to assist the City in locating and eliminating Illicit Discharges. An overview of each component of the Plan is provided in this subsection, and the remaining sections of this document describe how the City of Biddeford is implementing each component.

- Development of a watershed-based map: The City is required to develop a watershed-based map of the storm sewer system infrastructure including catch basins, connecting surface and subsurface infrastructure, the direction of in-flow and out-flow pipes, and the locations of all discharges from the City's MS4 outfalls into any other interconnected MS4 or receiving water. The catch basins and outfalls must have unique identifiers. The following outfall information is included in the map system: the type of outfall (a connected pipe, a culvert, or a ditch), the material, its size, the name, and location of the nearest named water body to which it discharges. Section 2.0 of this document describes the City's watershed-based map.
- Authority to Prohibit Illicit Discharges: To the extent allowable under state or local law, the City must effectively prohibit, through an ordinance or other regulatory mechanism, non-storm water discharges into the system and implement appropriate enforcement procedures and actions. Section 3.0 of this document describes how the City prohibits illicit discharges in the storm drain system.
- Identification of High Priority Areas for Inspections: Prior MS4 General Permits required that the City identify priority areas that need to be protected from illicit discharges. The 2022 MS4 General Permit does not have this requirement, but it does require that the City have "Procedures for prioritizing watersheds". The City of Biddeford conducts inspections more frequently than the 2022 MS4 General Permit requires, so they continue to conduct inspections in the priority watershed first. The City's high priority

areas are described in Section 4.0 of this document, including a discussion of the basis for determining the high priority areas.

- Procedures to Locate Illicit Discharges (inspections): The City must develop procedures for locating illicit discharges by conducting dry weather outfall inspections and assessing catch basins for evidence of pollutants. The City also conducts opportunistic ditch inspections. The 2022 MS4 General Permit also requires monitoring be conducted on outfalls that are flowing during dry weather. Section 5.0 of this document describes the City's inspection Plan.
- Procedures to Investigate and Remove Illicit Discharges: The City must develop procedures for locating the source of the discharge and procedures for the removal of the source. Sections 6.0 and 7.0 of this document describes how the City investigates potential discharges to determine their sources and removes illicit discharges once the source is discovered.
- Procedures to Document Illicit Discharges: The City must develop procedures for documenting actions and evaluating impacts on the storm sewer system subsequent to the removal. Section 7.0 describes how the City documents illicit discharges.
- Emergency Notifications: Section 9.0 describes procedures for emergency notifications of illicit discharges outside of the hours when Public Works is open.

Section 10.0 of this document describes the record retention requirements of the MS4 General Permit and Section 11.0 of this document provide references.

2.0 STORMWATER INFRASTRUCTURE MAP

The City of Biddeford maintains storm water infrastructure information in Geographic Information System (GIS) format. Biddeford's storm water map was created from GPS data collection, review of subdivision and commercial development plans, review of Maine Department of Transportation plans, and from general knowledge of storm water infrastructure. Field verification has been used when needed to refine locations and infrastructure information.

The GIS Manager is the administrator for the GIS layers, which are maintained on a city server.

The City has combined sewers in some locations. To maintain connectivity of the infrastructure outfalls, catch basins, pipes, and drain manholes are located on the same layers, with a field that differentiates their type as Combined, Storm, Sewer or unknown.

The storm water infrastructure information is available to City Staff and should be available to the General Public by 2025, depending on implementation progress of a new set of servers and portal for the data, though this is not required by the MS4 General Permit. The following subsections provide general information on the infrastructure naming protocols and procedures in use that keep the maps updated.

2.1 Infrastructure Naming Protocols

The City of Biddeford names their infrastructure with a meaningful prefix and a multi-digit number as follows:

Manholes – MANXXXXX where the X is a 5-digit number such as 00064

Catch basins – CBSXXXXX where the X is a 5-digit number such as 00064

Sewer pipes - GMNXXXX for gravity mains, FMNXXXX for force mains where the X is a 5-digit number such as 00064,

Combined Outfalls – CSOXX_YY where the XX is a 2-digit number and the YY is a reference to the waterbody the outfall discharges to.

Separated Storm Drain outfalls - SWOXXXX_YY where the XXXX is a 4-digit number and the YY is a reference to the waterbody the outfall discharges to.

The following is the listing of watershed in use:

TB -Thacher Brook

TB_B – Thacher Brook Tributary B

RB – Richardson Brook

WB – West Brook

DB – Dungeon Brook

AT – Atlantic Ocean

If structures are moved or replaced, they are given a new number. These naming conventions provide some knowledge about the spatial location of outfalls relative to one another, but when structures are replaced, the sequence can be broken, so the GIS maps are always consulted for maintenance or investigation.

2.2 Procedures to Update Map of Infrastructure

The GIS Manager maintains a master data base of the infrastructure. The following staff have the ability to make stormwater related changes to a staff-specific version: the Wastewater Supervisor, City Engineering Technician, and the City Engineer. The GIS Manager reviews and approves any staff generated changes before incorporating those changes into the master database.

Changes to the infrastructure made by Public Works are communicated to the GIS Manager via paper mark-ups after the projects have been completed. The GIS manager incorporates those changes into the primary authoritative GIS geodatabase.

Changes made as a result of design projects either for the City, or by a developer that are then accepted by the City after completion are documented in as-built drawings. The GIS Manager or staff with GIS change access (identified above) will incorporate the changes into the GIS.

A third-party consultant may be used to update the infrastructure for large projects.

Paper maps are not typically needed because the data is available electronically to Biddeford

Staff, who can provide information to the public via paper when needed.

3.0 AUTHORITY TO PROHIBIT ILLICIT DISCHARGES

The Biddeford Ordinance Chapter 70 Utilities Section 70-73 prohibits the discharge of pollutants into the storm drain system and provides for the implementation of appropriate enforcement procedures and actions. This ordinance provides the Director of Public Works or their designee with the authority to issue letters of warning, notices of violation and/or fines for violations of the ordinance. Though the MS4 General Permit is only applicable to the Urbanized Area of City, the City implements the Stormwater Discharge Ordinance in all areas of City.

The Public Works Director has appointed the Industrial Pretreatment Coordinator (a staff member of the Wastewater Division) and the Code Enforcement Officer to administer and enforce the ordinance, including the ability to issue a notice of violation or fine if needed.

Although discharges of hydrant and water line flushing are allowed, they are required to be dechlorinated before being discharged to a portion of the MS4 system which discharges to a small stream. In accordance with the Maine DEP 11/18/2016 Issue Profile for Drinking Water System Discharges to Regulated Small MS4s, the Maine Water Company either aerates or dechlorinates during flushing to meet Total Residual Chlorine (TRC) acute water quality criteria as follows:

- Fresh water 19 ug/L (adjusted to 50 ug/L, per the Maine DEP as the reporting limit for available reliable and consistent test methods)
- Marine water 13 ug/L (adjusted to 50 ug/L, per the Maine DEP as the reporting limit for available reliable and consistent test methods)

The Maine Water Company flushes the system annually and provides an annual report to the City describing water dechlorination methods in use and testing results for any flushing

conducted.

4.0 IDENTIFICATION OF PRIORITY AREAS

Prior MS4 General Permits required that the City identify priority areas that need to be protected from illicit discharges. The 2022 MS4 General Permit does not have this requirement, but the City of Biddeford conducts inspections more frequently than the 2022 MS4 General Permit requires, so they continue to conduct inspections in the priority watershed first. The City may also use this prioritization for illicit discharge investigations in the event there are insufficient resources to address all potential illicit discharges simultaneously.

To identify areas within the City that are high priority for illicit discharge inspections, the City considered impaired waters (i.e., waters that are not meeting their designated classification) as highest priority.

The City of Biddeford identified Thacher Brook as its priority watershed.

5.0 PROCEDURES TO LOCATE POTENTIAL ILLICIT DISCHARGES

The City of Biddeford uses the following methods to locate illicit discharges:

1. Observations during catch basin cleaning
2. Citizen reports of illicit discharge issues
3. Dry weather outfall inspections
4. Outfall Sampling and Analysis (for flowing outfalls and to identify potential illicit discharge sources)
5. Opportunistic Ditch inspections
6. Opportunistic Inspections

Each of these methods is described in the following subsections. Historically, most inspections have been documented on paper forms, but the City has been developing electronic inspection

capability tied to the GIS as described in this section. The City expects this electronic inspection system to be fully implemented by 7/1/2022. Generally, the inspections are conducted using an iPad or phone, and stored with the GIS spatial data. The City has an enterprise license, so inspections are maintained in either Survey 123, or in related tables to the GIS (in the event Survey 123 is not accessible). Attachment B contains a table showing the minimum fields that are completed during outfall and catch basin inspections whether paper forms or the GIS are used.

5.1 Catch Basin Cleaning Inspections

As required by the 2022 MS4 General Permit, each year a Wastewater Division employee attempts to inspect half the City's accessible catch basins to assess which need to be cleaned. During this inspection process, the employee is also inspecting to assess if any oil, litter, sewage, or other evidence of illicit discharges is present as identified in Attachment B. If the employee sees any evidence of illicit discharges, the evidence is documented on paper or in the GIS and the City Engineer is notified if any further action needs to be taken.

5.2 Citizen Reports of Illicit Discharges

Citizen reports of illicit discharge issues received at the general City Hall phone number are typically routed to the Public Works Department, or the City Engineer who address the report.



Dry weather is defined in the permit as a time when:

- There has been no snow or ice melt for 72 hours or
- There has been no precipitation greater than ¼ inch for 72 hours

5.3 Dry Weather Outfall Inspections

Although the General Permit only requires an outfall be inspected once per permit cycle, the City attempts to inspect at least half of the piped and ditch outfalls every year, if time and resources allow in accordance with the following:

- Inspections will be performed during periods of dry weather whenever

possible.

- Inspections will be performed where field inspections may be performed in a safe and efficient manner;
- Inspections will be performed during periods of no or minimal snow cover and prior to the growth of vegetation (or after leaves have fallen) such that outfalls may be easily spotted;
- Observations will include the follow at a minimum: observations of sheen, discoloration, foaming, evidence of sanitary sewage, excessive algal growth and similar visual indicators, and detection of odor, and will be documented in the GIS geodatabase or on a paper form;
- Photographs may be taken at the time of inspection for either maintenance or illicit discharge documentation.
- MS4 outfalls will be inspected where the City has safe and legal access to the structure to be inspected.
- When maintenance issues are identified, the required maintenance will be documented in the notes of the GIS inspection form and at the end of the inspection event, the Public Works Director will be notified of all outfall maintenance that is needed so that he may prioritize the work with other required work for the City.
- When potential illicit discharge issues are identified, an attempt will be made to locate the source of the illicit discharge during the inspection event, and this information will be documented on paper or in the GIS so that Engineering Staff may prioritize the investigation work with other required work for the City.

5.4 Outfall Sampling and Analysis

Outfall sampling and analysis is required under the 2022 MS4 General permit when an outfall is observed to be flowing during dry weather conditions whether or not it has exhibited evidence of an illicit discharge.

Outfalls and/or other structures may also be sampled if other evidence of illicit discharges is observed during inspection. The Engineering Staff may solicit the assistance of a third-party contractor to collect a sample for field screening depending on the conditions encountered.

A Quality Assurance Project Plan (QAPP) has been developed to provide sampling personnel the information that will assist them in collecting samples and using field equipment, test kits and obtaining analyses. The QAPP describes the sampling procedures that should be used as well as the analytical methods and field equipment that are appropriate for use in investigating potential illicit discharges and flowing outfalls. The QAPP also provides guidance on interpretation of the results obtained so that investigators can make informed decisions about whether to continue investigating a potential source, or whether the results indicate a flowing outfall might be from a natural source. The QAPP is provided in Attachment C to this IDDE Plan.

Wet weather sampling is not required by the MS4 General Permit at this time, but the Engineering Staff may choose to conduct wet weather sampling if they suspect a discharge occurs only during wet weather (such as may be the case for failed septic systems).

5.5 Ditch Inspections

The 2022 MS4 General Permit does not require ditch inspections be completed. The City Public Works Department will conduct informal, opportunistic inspect of ditches for potential illicit discharges whenever maintenance work on ditches is being completed. The City follows these guidelines in conducting inspections:

- Field inspection will document whether the inspection has occurred during periods of dry weather where no significant precipitation has occurred in the preceding 72 hours;
- Inspections will be performed in a safe and efficient manner;
- When potential illicit discharge issues are identified, an attempt will be made to locate the source of the illicit discharge and this information will be documented communicated to the Engineering Staff so that they may document the illicit discharge and prioritize the investigation work with other required work for the City.

5.6 Septic System Inspections

As required by the 2013-2022 MS4 General Permit the City developed a list of aging (i.e., greater than 20 years old) septic systems in its highest priority watershed that might discharge to the MS4 if they were to fail. Thirty-eight properties were identified as having septic systems 20 years or older. Drive-by inspections were conducted by the Assessing Department and no potential illicit discharges were identified during the inspections. No further work was required based on this assessment.

Because these inspections did not yield useful information on septic system failures, it is no longer being conducted.

5.7 Cooperation with other MS4s

Because the Biddeford MS4 infrastructure has interconnections with other MS4s, it may be necessary to conduct cooperative investigations with other MS4s or to inform them of issues associated with the Biddeford infrastructure. The other MS4 contacts with which Biddeford has interconnections are the Maine Turnpike Authority and the Maine Department of Transportation (DOT).

The City has notified its interconnected MS4s of the interconnections, and has provided notification of who to contact in the event of an emergency as documented in Attachment D.

6.0 PROCEDURES TO INVESTIGATE ILLICIT DISCHARGES

Investigations of illicit discharge issues are conducted by the City Engineering staff with the assistance of the Wastewater Division, Public Works Department and Code Enforcement Office as needed. The City relies on visual observations of the location where the illicit discharge was reported as a first step in identifying the source of the illicit discharge. If the evidence of the illicit discharge is still present in the initial structure or location where it was reported, the City uses their knowledge of the infrastructure routing to systematically inspect other structures upstream

of the initial location until either the evidence of the illicit discharge is no longer present, or until they locate a potential source of the illicit discharge.

For example, if evidence of gray water were observed during catch basin cleaning of a separated storm drain system, the City Engineer would review as-built drawings, and the available GIS, and would inspect drain manholes and/or catch basins upstream of the initial observation until they could isolate one or more locations from which the gray water was likely emanating.

In the event visual observations of the structures cannot identify the source of an illicit discharge, the City Engineer may employ televising, systematic dye testing, or smoke testing to identify the source. The City Engineer could conduct dye testing but would need to hire a third-party contractor for smoke testing or televising. Sampling and analysis may also be conducted as described in subsection 5.4.

If no source can be located, the area may be re-inspected to assess if the illicit discharge was a one-time occurrence, or is a repeating occurrence, whereupon additional investigations may be conducted.

7.0 PROCEDURES TO REMOVE ILLICIT DISCHARGES

Once the potential source of the illicit discharge is identified, the City Engineer would identify and contact the responsible party in order to initiate removal or discontinuation of the illicit discharge.

If the illicit discharge is caused by a private entity, the City Engineer would work with the Code Enforcement or Wastewater Division to invoke the authority granted them under the Stormwater Discharge Ordinance (See section 3.0 of this IDDE Plan). The City Engineer typically provides initial verbal or email notice to any responsible party, then follows up with a Notice of Violation from Code Enforcement or the Wastewater Division. The Notice of Violation specifies the illicit discharge be removed within 60 days of its source identification but allows that if removal within

60 days is not possible, the responsible party must work with the City to establish a schedule to remove the illicit discharge as expeditiously as possible.

If the illicit discharge is caused by the City, the City Engineer would contact the department most responsible and work with them to remove or discontinue the illicit discharge within 60 calendar days of identification of the source or would develop a schedule to expedite elimination.

8.0 PROCEDURES TO DOCUMENT ILLICIT DISCHARGES

The City will document the progress of investigating and removing illicit discharges using an IDDE Tracking Sheet. The spreadsheet is maintained by the City Engineer. Each year, the City is required to complete an annual report summarizing the activities completed under the MS4 Plan. The City Engineer will print or retain an electronic copy of the IDDE Tracking Sheet for the year as back-up documentation of investigative and removal work completed.

9.0 NOTIFICATIONS DURING WORKING AND NON-WORKING HOURS

The following describes the notifications completed during working and non-working hours to ensure that those who need to know about illicit discharges are notified:

- During working hours, if an illicit discharge is detected by a Public Works employee (either during a routine inspection or opportunistic inspection), or Wastewater Division employee, the employee reports the information to their supervisor. The Supervisor then calls or sends an email to both the City Engineer to document the finding and ensure proper follow-up.
- Typically, illicit discharges identified by the public during non-working hours are routed to the police or fire department. For example, if a spill of petroleum or hazardous material were to occur, or a discovery of a sewage discharging from a pipe, the police and/or fire department would be notified and would respond to the incident using their emergency response procedures (which include proper notifications to Maine DEP if warranted). Police and Fire would address the immediate issue and contact the City Engineer the following business day to inform them of the event. The City Engineer and Public Works Director would ensure future follow up.
- As described previously, the City Engineer may need to coordinate with the Maine DOT or the Maine Turnpike Authority to resolve any illicit discharges that have interconnections with those entities. Attachment D contains contact information for other MS4

coordinators, and copies of the notices that have been provided to these entities in the event of a potential illicit discharge.

10.0 RECORDS RETENTION

The City Engineer will retain paper or electronic files of inspections and investigations including laboratory reports, for a minimum of three years after expiration of the MS4 General Permit Term. When the 2013 General Permit expires on June 30, 2022, the 2013 General Permit files may be discarded July 1, 2025.

11.0 REFERENCES

CWP and Robert Pitt 2004. *Illicit Discharge Detection and Elimination Manual – A Guidance Manual for Plan Development and Technical Assessments*. October 2004 Available:

<http://cfpub1.epa.gov/npdes/stormwater/idde.cfm>

Aquarion Engineering Services and Casco Bay Estuary Partnership 2004. *Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine*. Available:

<http://www.thinkbluemaine.org/docs/index.htm>

CWP and Robert Pitt 2011 Illicit Discharge Detection and Tracking Guide Available:

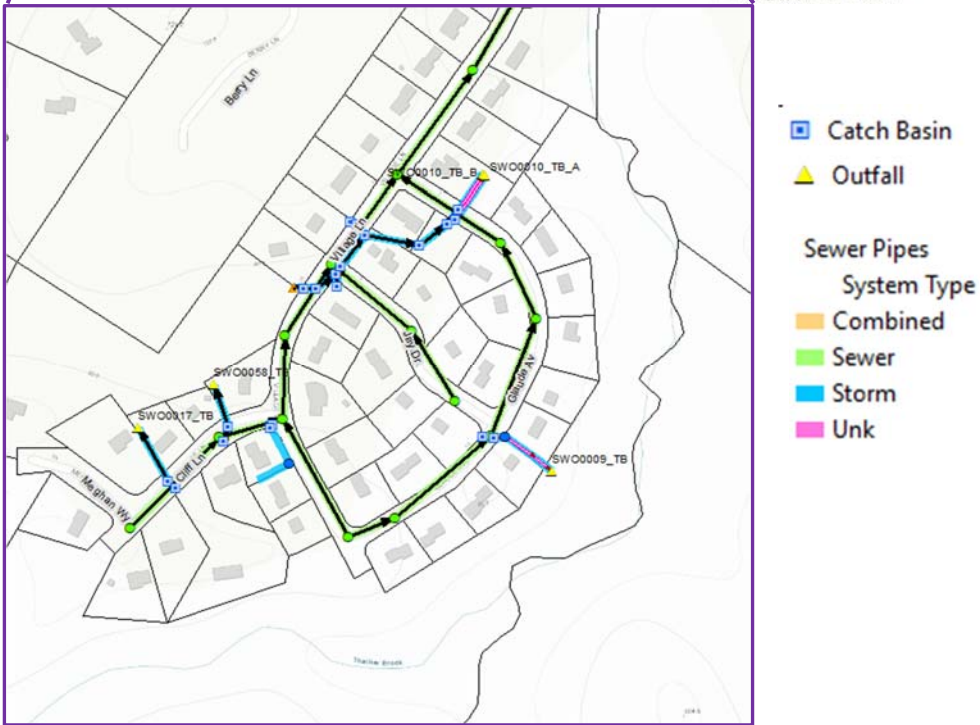
<http://www.cwp.org/2013-04-05-16-15-03/idde>

USEPA New England Bacterial Source Tracking Protocol 2012. Provided by USEPA to Integrated Environmental Engineering. Available [at](#)

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

ATTACHMENT A

BIDDEFORD WATERSHED MAP



CITY OF BIDDEFORD – OVERVIEW OF GIS INFRASTRUCTURE, AND EXAMPLE CLIP OF DATA AVAILABLE TO STAFF

ATTACHMENT B

INSPECTION FIELDS AND DOMAINS

The following is a summary of the elements of inspection of Catch Basins and Outfalls. These elements may be recorded on a paper form or in the GIS. Those items in BOLD are required as part of the MS4 General Permit. To keep the table short and focused, additional fields may be present in the GIS or on the paper form that are not required by the MS4 General Permit and are not shown in the table below.

MS4 INSPECTION	INFORMATION OBTAINED AS PART OF INSPECTION
Catch Basins	<p>FacilityID – Will be Auto populated from GIS as inspector clicks on structure, or inspector will select from a drop down list.</p> <p>Inspection Date – manually selected by program (auto select “today” and include time of inspection)</p> <p>Condition – Excellent, Good, Fair or Needs Attention</p> <p>Excess Sediment – Yes or No</p> <p>Depth of Sediment – (manually entered in inches)</p> <p>Pollution – None, OilSheen, Discoloration, Foam/Soap, algalgrowth, Sewage, Odor, Yard Waste, Pet Waste, Cig. Butts, or More Than One</p> <p>Accessible – Accessible, Paved Over, Unopenable, Buried, or Not Found (default should be accessible)</p> <p>Cleaned – Yes or No</p> <p>Cleaned Date – Manually selected</p> <p>Follow-up – Yes or No</p> <p>Comments – open text field</p> <p>Photos may be attached to inspection</p>
Outfalls (pipe and ditch)	<p>OutfallID – Auto populated</p> <p>Inspection Date and time - Manually selected</p> <p>Inspector (name provided from drop down list)</p> <p>Pollution – None, OilSheen, Discoloration, Foam/Soap, algalgrowth, Sewage, Odor, Yard Waste, Pet Waste, Cig. Butts, or More Than One</p> <p>Flow – None – trickly, steady, more than ¼ full</p> <p>Date Sampled – manual entry</p> <p>IDDE Follow-up – Yes or No</p> <p>Maintenance Follow-up – Yes or No</p> <p>Comments – open text field</p> <p>Photos can be attached to the inspection</p> <p>Receiving water is also included as an outfall primary attribute.</p>

ATTACHMENT C

QUALITY ASSURANCE PROJECT PLAN (QAPP)

Stormwater Monitoring Quality Assurance Project Plan City of Biddeford

1.0 Background and Scope

In Maine, there are 30 municipalities (permittees) regulated by the 2022 Maine General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4 General Permit). The MS4 General Permit requires that the municipalities conduct dry weather inspections on 100% of their outfalls during the 5-year term of the MS4 General Permit.

Under most conditions, if an outfall is observed to have dry weather flow, monitoring must be conducted to assess whether there is an illicit discharge associated with the flow. (Part IV(C)(3)(e)(vi) of the MS4 General Permit contains a few conditions under which flowing outfalls do not need to be monitored.)

The following monitoring needs to be conducted whether or not the outfall's dry weather flow exhibits evidence of an illicit discharge:

- E. coli, enterococci, total fecal coliform or human bacteroides;
- Ammonia, total residual chlorine, temperature, and conductivity; and
- Optical enhancers or surfactants.

The objective of the monitoring is to collect data that can be used to determine if there is an illicit discharge present in the flow, or if the flow is from uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge.

The purpose of this Quality Assurance Project Plan (QAPP) is to provide sampling personnel information that will assist them in collecting samples and analyzing the samples using field equipment/test kit(s) and/or laboratories in a manner that ensures sufficient accuracy and precision so that sampling personnel and regulators can be confident there is or is not an illicit discharge present in dry weather flow from an outfall. This QAPP provides information on several field equipment/test kit(s) and analytical methods available to permittees that can be used to comply with the requirements for Dry Weather Outfall Monitoring.

Illicit Discharge means any discharge to a regulated MS4 system that is not composed entirely of stormwater other than:

- discharges authorized pursuant to another permit issued pursuant to 38 M.R.S. §413;
- uncontaminated groundwater;
- water from a natural resource [such as a wetland]; or
- other Allowable Non-Stormwater Discharges identified in Part IV(C)(3)(h) of the MS4 General Permit.

Each municipality is required by the MS4 General Permit to prepare a written Illicit Discharge Detection and Elimination (IDDE) Plan. This QAPP has been developed to be an attachment to a municipality's IDDE Plan, and therefore does not contain all of the IDDE requirements associated with the MS4 General Permit. For example, some communities are conducting outfall inspections more frequently than once every 5 years. The IDDE Plan should be consulted to determine the municipality's frequency of inspections. In addition, if there is evidence of an illicit discharge, the municipality must conduct additional investigations to

identify the source and work with responsible parties to remove the source. The IDDE Plan describes the processes and procedures specific to a municipality for the subsequent investigations.

2.0 Sampling Procedures

Samples are required to be collected at outfalls that exhibit dry weather flow (defined as flow after there has been no precipitation greater than ¼ inch for 72 hours, and no melt water from snow or ice).

Personnel should be prepared to collect samples during any outfall inspection, because dry weather flow is sometimes intermittent, and if personnel need to return to the site later in the same day, or several days later, the dry weather flow may no longer be present.

Table 1 contains a list of equipment that should be prepared and available in order to conduct dry weather monitoring.

Samples will be collected from a flowing source only (not from stagnant water), and where the pipe outlet has at least 1 or 2 inches of free-flowing drop before any standing water or pool below it. Stagnant water should not be sampled unless the municipality deems it necessary for some reason.



This outfall, though in poor condition because it is cantilevered, provides a good opportunity for a clean catch of its discharge.



This outfall is partially submerged and a clean catch of its discharge is not possible. If tidal influences are strong, wait until low tide to sample. Additional options include: sampling upstream structures or using sand bags around the outfall to prevent contamination from backflow.

Table 1 provides a list of equipment that should be gathered and available for use in the event dry weather outfall monitoring needs to be conducted.

Table 1 Field Equipment for Monitoring

1 Gallon of Distilled or de-ionized water for rinsing
1 Roll Paper towels
3-5 clean plastic 250 ml beakers for water sample collection in Baggie marked “Clean” or disposable “whirl bags”
Garbage bags
1 long sampling pole and or sampling pump and tubing
Equipment to remove and access catch basin covers if needed (pull, hammer, crowbar)
Field equipment/test kits (see Table 2) and bottles for any laboratory samples or off-site field test kits. Ensure field test kits reagents have not expired typically keep bottles for 3-5 samples available
Non-latex gloves
Box of 1 gallon plastic bags
Cooler with ice
Camera or phone
Safety Vest
Steel toed boots, waterproof
scissors
Sun screen and bug spray
Clip board
3-5 Field Data Sheets (See Addendum 1)
Chain of Custody (Addendum 3)
Sharpies and water-proof pens
Packing tape and Duct tape
Sheet of blank labels for bottles
First aid kit
Small white board with pen to mark outfall ID, date, and time in photo

For each outfall sampled, a Field Data Sheet will be used to document the date, time, and location of sample(s) collected, weather conditions, any general observations related to the tests being performed, and results of any parameters analyzed using field equipment or test kits. Note that the Field Data Sheet has a place to document sample observations including odor, color, turbidity, presence of algae, etc. The observations can be documented in this location instead of, or in addition to the observations made during the normal outfall inspection (which should be conducted in accordance with the MS4’s IDDE Plan or SOP).

Sample bottles that will be taken away from the sampling site for analysis will be labelled with the date, time and sample location as well as the name of the sampler. Example labels are provided in Addendum 1 along with an example field data collection sheet.

When using a third-party laboratory for any off-site analysis, sample bottles should be obtained before the sampling event. Coordination with the laboratory is also recommended to ensure that sample hold times and preservation requirements are being met. If samples are being collected on a Friday, some laboratories need prior notice to meet short hold times. Analytical methods, hold times and other pertinent information is described in Section 3 of this QAPP.

After sampling events, any reusable sample collection containers will be cleaned with soap and water or trisodium phosphate and water. Cleaning will be completed in a location where wash water can be discharged to a licensed wastewater treatment plant, sanitary sewer, or septic system.

3.0 Analyses and Reporting limits

The MS4 General Permit does not require samples to be analyzed using Clean Water Act (CWA) Methods published in 40 Code of Federal Regulations Chapter 136. The use of field equipment/test kit(s) and laboratories are both allowed. The MS4 General Permit does not require samples to be analyzed by a laboratory that is certified by the Maine DEP. However, this QAPP specifies that when a commercial laboratory is used for a CWA method, it will be certified by the Maine DEP for the CWA method specified.

Use of a certified laboratory is specified in this QAPP because the data generated by a certified lab would be more likely to stand up in a court of law than data generated by a non-certified lab.

A list of commercial certified laboratories is available on the Maine DEP website at: <https://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml> . Note also that many Wastewater Treatment Plants conduct bacteria analysis for operational purposes. If there is a Wastewater Treatment Plant in the area, it can also be used for the bacteria screening.

This QAPP does not specify CWA methods or Maine DEP certification for use of field equipment/test kit(s).

Table 2 provides information related to sampling parameters, analysis methods, and sample preservation and holding times that may be used during dry weather outfall monitoring. Analysis methods specified in **Table 2** include CWA methods, field equipment, and test kits, where applicable. **Table 2** also provides information on when a given CWA Method, Field Equipment, or Test Kit might be preferable if there are multiple options for a given parameter.

User manual(s) and safety data sheets (SDS) for field equipment and/or test kit(s) that will be utilized for dry weather monitoring are included as Addendum 4 to this QAPP, or may be kept in a separate electronic or paper location as long as they are easily accessible to the field personnel who will be conducting the monitoring.

The City of Biddeford has modified Table 2 to show its preferred methods in the comment section of the table but may modify their method if they deem it necessary to do so.

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Bacteria - select one or more based on discharge environment	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Bacteria - E. coli	SM 9223 B (IDEXX Colilert Quanti-Tray) EPA 1603 (membrane filtration, MF) Or SM 9221 B (Most probable number, MPN)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to freshwater (with ammonia and either optical enhancers or surfactants) Use: Biddeford Preferred Vendor Or Biddeford Wastewater Treatment Plant with advance notice to staff
Bacteria - enterococcus	SM 9230 B, C or D, (MPN including IDEXX Enterolert, or MF) EPA 1600 (MF)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to salt water (with ammonia and either optical enhancers or surfactants) Use: Biddeford Preferred Vendor Or Biddeford Wastewater Treatment Plant with advance notice to staff
Bacteria – Fecal Coliform	SM 9222 D (MF CFU/100ml) Or SM 9221 C, E (Multitube MPN/100ml)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to salt or freshwater (with ammonia and either optical enhancers or surfactants) Use: Biddeford Preferred Vendor Or Biddeford Wastewater Treatment Plant with advance notice to staff
Bacteria – Human Bacteroides	Labs: EMSL (NJ), Microbial Insights (TN) or Source Molecular (FL) Or Dr. Steve Jones, UNH	Ice	To lab within 24 hours Analyze within 48 hours	1000 ml plastic bottle with sodium thiosulfate from lab (with insulated shipping box)	Use for discharges to salt or freshwater (with ammonia and either optical enhancers or surfactants). Not a CWA method, so Maine Laboratory certification not required. Use: Biddeford Preferred Vendor

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Ammonia (select one method)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Ammonia	Hach Ammonia Test Strips	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Use: Prefer this method
Ammonia	Laboratory Method EPA 350.1/350.2	H ₂ SO ₄ (pH <2) + Ice	28 days	250 ml plastic bottle from lab	
Ammonia	Hach DR300 Pocket Colorimeter Ammonia Nitrogen or LaMotte 3680-01 DC1200 Colorimeter test kit	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Reagent contains Mercury, Generates a Toxic Hazardous Waste (D009) instructional video (10 minutes): https://www.youtube.com/watch?v=hFiEEEAmWfo_
Total Residual Chlorine (select one method)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Chlorine	Field kit – Hach Colorimeter II low range	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Instructional video available at: https://www.youtube.com/watch?v=WTTUD0Hq1Vw
Chlorine	Industrial test Systems Ultra-Low Total Chlorine Test Strips and other mid range chlorine test strips	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	As of 6/2020, USEPA had not used Ultra low chlorine test strips (0.2 to 0.5 mg/L). Informal review shows these should be used simultaneously with a mid range (0.5 to 10 mg/l) test strips to double check range. Use: Prefer this method
Temperature and Conductivity (use both)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Temperature	Temperature/ Conductivity probe	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Use to distinguish between groundwater and surface water.
Conductivity	Temperature/ Conductivity probe	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Use to distinguish between salt water and fresh water.

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Optical Enhancers or Surfactants (select one)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Surfactants	SM5540C	Ice	To lab within 24 hours Analyze within 48 hours	500 ml plastic bottle from lab	Works on most soaps (laundry detergent, personal care products, dish soap)
Surfactants	TNT Anionic Surfactants by HACH	None	To lab within 24 hours Analyze within 48 hours	50 ml (analysis requires 2 ml)	Requires DR spectrophotometer DR6000, 3900, 3800,5000 or 1900. Prefer: perform at Biddeford WWTP with advance notice to staff
Surfactants	CheMetrics K-9400 field test kit (see Maine DEP guidance on handling and disposal in Addendum 2)	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Works on most soaps (laundry detergent, personal care products, dish soap). Contains alcohol and chloroform. Generates a Flammable (D001) and Toxic (D022) Hazardous Waste. Do not use test kit in the field unless licensed to transport hazardous wastes. Instructional Video available at: https://www.youtube.com/watch?v=6vwiZgWqa04 May use - perform at and manage waste at Biddeford WWTP
Optical brighteners \$500	VWR handheld UV lamp: UV-A: 360-365 nm, model number 89131-488	None	Analyze within 7 days	Unbleached cotton pad wetted with sample placed in sealed baggie	Works only on water with high to moderate laundry detergent. Provides only presence/absence.
Optical brighteners	Maine Healthy Beaches Fluorometer (\$15,000 unit)	None	Keep in a dark container, provide to MHB in 1-2 days, analyze within 7	Whirl bag or 100 ml plastic bottle.	Provides semi-quantitative numeric fluorescence of sample. Need to provide sample to MHB in bottle or whirl bag (in a box or cooler). One week hold time. Provide advanced notice to coordinate delivery to

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Other Optional Parameters	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Dissolved Oxygen	Hach DO Test kit Model OX-2P	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Waters of the state have Dissolved Oxygen standards. This test can show whether outfall contributions are affecting Dissolved Oxygen content of receiving waters.
Total Phosphorus	EPA 365.3	Sulfuric Acid (pH <2) + Ice (4°C)	28 days	250 ml glass bottle from lab.	Provides data regarding nutrient contributions to receiving waters which can originate from paved surfaces, fertilizers and eroding soils.
Other Optional Parameters (continued)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Personal Care Products	EPA 1694	Sulfuric Acid (pH <2) + Ice (4°C)	7 day to extraction 40 days after extraction	1000 ml amber jar	EPA Lab Chelmsford can run if capacity. Contact Todd Borci. Otherwise need to use a commercial laboratory. EPA recommends analyzing only for following subset: Caffeine, 1,7-DMX (metabolite of caffeine), Acetaminophen, Carbamazepine (anti-depressant), Primidone (anti-epilepsy drug), Atenolol (high Blood pressure med), Cotinine (metabolite of nicotine), urobilin (by product of hemoglobin breakdowns), Azithromycin (antibiotic)
Total Suspended Solids	EPA 160.2 or SM2549D	Ice	7 days	1000 ml plastic bottle from lab	
Biochemical Oxygen Demand	EPA 405.1 or SM5210B	Ice	To lab within 24 hours, analyze within 48 hours		Provides general water quality information.
Total Petroleum Hydrocarbons DRO and GRO	SW 8015C	Ice	7 Days to extraction 40 days after extraction	500 ml amber glass jar + 3 40 ml VOA containers from lab with	DRO is Diesel Range Organics (C10 to C28) GRO is Gasoline Range Organics (C5 to C10)

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

				sulfuric acid	
Nitrate + Nitrite	SM 4500 or EPA 300	Sulfuric Acid (pH <2) + Ice (4°C)	28 days	125 ml plastic bottle from lab	Provides data regarding nutrient contributions to receiving waters which can originate from paved surfaces, fertilizers, eroding soils or wastewaters. WWTP can run if time and budget allow
Total Kjeldahl Nitrogen	SM 4500 or EPA 300	Sulfuric Acid (pH <2) + Ice (4°C)	28 days	1000 ml amber glass bottle from lab	Provides data regarding nutrient contributions to receiving waters which can originate from paved surfaces, fertilizers, eroding soils or wastewaters. WWTP can run if time and budget allow

4.0 Quality Control

The following are the reporting limits required by the MS4 General Permit:

Ammonia: 0.5 mg/L
Surfactants: 0.25 mg/L
Total Residual Chlorine: 0.05 mg/L
E. coli bacteria 4 cfu/100 ml
Enterococcus 10 cfu/100 ml

To ensure the data collected meets the required reporting limits, the MS4 permittee will use either a Maine Certified Laboratory or one of the field equipment/test kit methods listed in **Table 2** to assess dry weather flow.

Each of the test kits listed in **Table 2** has a use range that is appropriate for the work being conducted, and which meets the MS4 required reporting limits.

Test kit reagents that have expired will not be used. Test kit and temperature/conductivity probes that have useful life limits will be replaced when they have reached the end of their useful lives.

Maine Certified Laboratories have standard reporting limits for the parameters that conform to the MS4 General Permit required reporting limits.

4.1 Equipment or Rinsate Blanks. For most instances, dedicated equipment and containers are used to collect samples, so that equipment and rinsate blanks are not required to be collected and analyzed. However, if equipment or collection containers are being used multiple times in the field for different sample locations, they should be cleaned in between samples, wash water should be collected in the field and disposed of when returning to office or lab spaces, and equipment or rinsate blanks should be collected and assessed. The USEPA Volunteer Monitor's Guide to Quality Assurance Project Plans has additional information on how to complete these tasks (EPA Document 841-B-96-003).

5.0 Field Data Sheets and Chain of Custody

As described in Sampling Procedures, Field Data Sheets will be used to document sample collection. Field Data sheets will document the type of field equipment or test kit(s) used and results of any in-situ analysis. Example Field Data Sheets are provided in Addendum 1 to this QAPP.

Whenever samples will be sent to a laboratory for analysis, a Chain of Custody will be used to document sample collection dates, times, analytical methods requested, and custody of the sample from the time it was collected, until the time it was analyzed. Example Chains of Custody are provided in **Addendum 3** to this QAPP.

6.0 Data Reports

Field data collection sheets shall constitute data reports for analyses using field equipment or test kits.

Whenever samples are sent to a laboratory for analysis, data reports are provided by the laboratory showing the sample location, date and time of collection, results of the analysis, the reporting limit, the person who conducted the analysis, the analytical method used.

7.0 Data Review and Follow up

Once all data has been received, it will be reviewed by a Stormwater Manager or Coordinator. Data shall also be stored electronically or in paper format for at least 3 years following the expiration date of the MS4 General Permit, as required by the MS4 General Permit.

If the person collecting the sample is the Stormwater Manager or Coordinator, they may opt to have another municipal staff person review the data, or a Stormwater Manager or Coordinator from another municipality if they deem it necessary to assist in the overall investigation. Data should be reviewed within 2 weeks of receipt and additional investigations should be implemented to identify the source of any potential illicit discharge if any of the thresholds in **Table 3** are exceeded.

Table 3 Thresholds for Additional Investigation

Parameter	Threshold Level for Additional Investigation	Notes/Discussion
E. coli	236 cfu/100 ml – discharges into freshwater rivers or streams	All classifications of flowing fresh surface water in Maine (AA, A, B and C) have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A fresh surface water is at risk of impairment if it is receiving significant discharges from human sources above this concentration.
E. coli	194 cfu/100 ml – discharges into freshwater ponds	Great Ponds and lakes less than 10 acres have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water of this type is at risk of impairment if it is receiving significant discharges from human sources above this concentration.
Enterococci	54 CFU/100 ml – discharges into saline/estuarine Class SA or SB	These waters have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water is at risk of impairment if it is receiving significant discharges from human sources above this concentration. (Note Maine Healthy Beaches threshold is 104 MPN/100 ml)
Enterococci	94 CFU/100 ml – discharges into saline/estuarine Class SC	These waters have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water is at risk of impairment if it is receiving significant discharges from human sources above this concentration. (Note Maine Healthy Beaches threshold is 104 MPN/100 ml)
Fecal Coliform	61 cfu/100 ml (2 times 31 cfu/100 ml for MF) to 100 cfu/100ml	The low end of this threshold is two times the 90 th percentile standards that DMR applies for approved (open) shellfish harvesting areas and is very conservative (90% of the samples collected from the area must be above these concentrations for the harvesting area to remain open and completely unrestricted for shellfish harvesting. See Addendum 2 for additional info from DMR)
Human Bacteroides	Any concentration may be indicative of human sewage, but MHB considers 4,200 col/100ml HB to be equivalent to the level of contamination that exceeds the EPA acceptable risk of gastrointestinal illness to swimmers. (Rothenheber and Jones, 2018 and Boehm, Soller and Shanks 2015)	Any concentration of human source of sewage should be investigated.
Ammonia	≥ 0.50 mg/L	This is the effective reporting limit of the Ammonia test

Parameter	Threshold Level for Additional Investigation	Notes/Discussion
		strips and was taken from USEPA Draft 2012 Bacteria Source Tracking Protocol.
Chlorine	≥ 0.05 mg/L	Limit of test kit and was taken from USEPA Draft 2012 Bacteria Source Tracking Protocol.
Surfactants	≥ 0.25 mg/L	Taken from USEPA Draft 2012 Bacteria Source Tracking Protocol.
Optical Brighteners	≥ 100 ug/L) (≥ 0.10 mg/L)	This is used by Maine Healthy Beaches as an actionable threshold. If using a handheld fluorometer, conduct further investigation if presence of optical brighteners is detected

MS4s should use the thresholds listed above and the following general guidance to make determinations whether an outfall requires additional investigation for illicit discharges:

Outfalls that have some visual evidence of an illicit discharge and exceed at least one of the above thresholds and should be investigated further using techniques described in the MS4s IDDE Plan.

Outfalls that do not have any visual evidence of an illicit discharge but exceed more than one of the above thresholds should be investigated further using techniques described in the MS4s IDDE Plan

As described in Section 1 of this QAPP, if the above thresholds are not exceeded, the MS4 may make the determination that the flow is from uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge.

Revisions:

1. Original document prepared for 2022 MS4 General Permit Submission to Maine DEP

Addenda

1. Example Field Data Collection Sheet and labels
2. References:
 - a. E-mail on Surfactant field kit handling of residuals from DEP staff
 - b. E-mail on Fecal Coliform thresholds from DMR listed in Table 3
3. Example Chains of Custody
4. User Manual(s) and Safety Data Sheets (SDS) for Field Equipment and/or Test Kit(s) (This is an optional addendum. The information must be located where field personnel can access electronically or in paper form, so this Addendum can be used as a place to describe where field personnel will find equipment, manuals and SDSs).

References:

Rothenheber and Jones 2018. *Enterococci Concentrations in a Coastal Ecosystem are a function of fecal source input*. Published in Applied Environmental Microbiology, July 13, 2018.

Boehm, Soller and Shanks 2015. *Human-Associated Fecal Quantitative Polymerase Chain Reaction Measurements and Simulated Risk of Gastrointestinal Illness in Recreational Waters Contaminated with Raw Sewage*. Published in Environmental Science and Technology Letters 2015, 2, 270-275.

Addendum 1

Example Field Data Collection Sheet and labels

Field Data Collection Sheet for Dry Weather Outfall Monitoring

Date _____	Project Name _____
Time _____	_____
Sampler's Name _____	Project Location _____
Weather: _____	
Sample Type: _____	
Sample Location/Sketch: _____	

Field Parameters to Monitor

Parameter	Result (units)	Equipment Used	Threshold triggering additional investigation (see QAPP)
Temperature (all flows)	C/F		No threshold. FYI: Temp. is dependent on season. Groundwater is typically 40-55 F. Surface water can be hotter or colder.
Conductivity (all flows)	µs		No threshold. FYI: Groundwater is typ. Less than 1000 µs. Freshwater can be as high as 2000 µs. Saltwater can be as high as 55,000 µs.
Ammonia (potential bacteria sources)	mg/L	Hach Test Strips	≥ 0.50 mg/L
Surfactants or Optical Brighteners (potential bacteria sources)			Surfactants ≥ 0.25 mg/L Optical Brighteners ≥ 100 ug/L or if present
Chlorine (potential chlorine sources)	mg/l	Hach Colorimeter II low range	≥ 0.05 mg/L (test kit limit)

Observations (unless already documented as part of outfall inspection: odor, color, turbidity, algae, etc): _____

Laboratory Analyses (see QAPP for thresholds)

Parameter	Method/ Lab Code	Comments
E. coli	SM 9223 B, EPA 1603, or SM 9221 B	For freshwaters
Enterococci	SM 9230 or EPA 1600	For marine/estuarine waters
Fecal Coliform	SM 9222 D or SM 9221 D, E	For fresh or marine/estuarine waters
Human Bacteriodes	qPCR	For fresh or marine/estuarine waters

Comments/Field Notes

This set of labels was designed to be used with Avery 5366 labels, but you can use any labels.

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Addendum 2

-Reference E-mails

Kristie Rabasca

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Sent: Thursday, October 31, 2019 4:46 PM
To: Kristie Rabasca; Wahle, Benjamin
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,

I did misunderstand the question. Unless there is a specific area of concern where we are collaborating on a special study with a town, we typically provide a yearly update for each station's geomean and P90 incorporating the most recent 30 sample scores. That annual trend is provided to towns so we are not usually contacting a town based on any one score to tell them that there might be a problem.

However- if trying to determine a trigger on a single sample, there is some subjectivity to the answer. I would suggest a value between 50-100 as a high value trigger. There is merit to your suggestion of using twice the 31 value as well since that is within that range. Often, our Scientists would use 100 as the high score value as their own flag to watch a station since an area that is already at risk of exceeding the approved standard based on the last 30 samples would likely go over a P90 of 31 with a 100 added. I think you would likely accomplish your goal by using any of the three values; 50, 62, or 100. I would recommend starting with 62 then re-evaluating after some data is built up to determine if that should be increased or decreased based on program needs.

Bryant Lewis
ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Thursday, October 31, 2019 2:42 PM
To: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

H Bryant,

I do a lot of illicit discharge investigations with and for the municipalities. Maybe I did not phrase my question properly.

For a single sample, at what concentration would DMR say to a municipality: "we think there might be a problem here". Is that concentration the 90th percentile number? 31? Or twice that?

Or do you wait until you see the GM or P90 number get close to its threshold for multiple samples?

Kristie L. Rabasca, P.E.
207-415-5830 (cell)

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Sent: Thursday, October 31, 2019 2:33 PM

To: Kristie Rabasca <krabasca@integratedenv.com>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>

Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,

I would suspect DEP and possibly the municipality should be contacted for possible illicit discharges.

We use DMR water quality stations to classify growing area waters. As part of our program, we also conduct surveys of the shoreline where we look for malfunctioning septic systems and other pollution sources and sample the mouths of streams entering growing area waters; however, we do not conduct investigations to determine the sources of contamination. Generally, it is up to the municipality to investigate degrading water quality while sometimes DEP can provide some additional assistance. If there is an area where water quality was degrading we would provide the municipality the information we have if they wished to investigate. The municipality would likely need to do additional work to locate the source of contamination but the information you are describing would likely be valuable in their effort.

Bryant Lewis

ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Kristie Rabasca <krabasca@integratedenv.com>

Sent: Wednesday, October 30, 2019 9:00 AM

To: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>

Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thanks so much for this. We are using it because some communities will be sampling outfalls that are discharging into marine environments for fecal coliform as a screening tool when looking for illicit discharges. The MS4 General Permit requires that the communities regulated for their stormwater discharges do sampling whenever an outfall is flowing after three days of dry weather. We are telling them to notify DMR of the results, and wanted to have some guidelines for when they should be concerned. I know that your scores are very conservative because they are all about the FDA and ingestion of shellfish.

I have attached a QAPP that we are using and you will see the table in the back has a "threshold" for additional investigation if the town is monitoring for fecal coliform. Please note that the samples they are collecting are discharges from outfalls into the water body – not from the water body.

Would you investigate further if the thresholds for 90th percentile for open areas were exceeded? Or would you use 2x that? Or some other number.

Hopefully you understand my question....

Kristie L. Rabasca, P.E.
207-415-5830 (cell)

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>

Sent: Monday, October 28, 2019 10:16 AM

To: Wahle, Benjamin <Benjamin.Wahle@maine.gov>; Kristie Rabasca <krabasca@integratedenv.com>

Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,

This webpage explains the classifications.

<https://www.maine.gov/dmr/shellfish-sanitation-management/programs/growingareas/howclassified.html>

The NSSP Model Ordinance dictates how we calculate water quality scores. A 90th percentile based on the most recent 30 samples providing a score of 31 or less is Approved, 32-163 is Restricted and above 163 is Prohibited. There is a link to the Model Ordinance on our website, if needed. It describes how to calculate scores for systematic random sampling using membrane filtration.

<https://www.maine.gov/dmr/shellfish-sanitation-management/programs/growingareas/index.html>

I have also attached a document summarizing what is in the Model Ordinance for calculating water quality station scores.

Bryant Lewis
ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Wahle, Benjamin
Sent: Monday, October 28, 2019 9:28 AM
To: Kristie Rabasca <krabasca@integratedenv.com>
Cc: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Hi Kristie,

I'm actually going to refer you to Bryant Lewis, who is the Western Region Growing Area Supervisor. He'll be better able to explain DMR's classification system.

-Ben

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Monday, October 28, 2019 8:03 AM
To: Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning Ben,

I worked with you in Eliot and Cape – and am looking on your website for a simple summary of the P90 concentrations that trigger the various restrictions on shellfishing.

Does such an animal exist? If so, could you share it?

I am working on a QAPP for the stormwater folks and want to provide them with a reference that is accurate and truthed by DMR for when they are sampling outfalls near shellfishing areas.

Thanks for any help you can provide.

DMR uses a membrane filtration (MF) method for fecal coliform analysis using mTEC agar with a two-hour resuscitation step. The geometric mean and the 90th percentile are calculated on a minimum of the most recent 30 data points.

Geometric Mean (Geomean):

The geometric mean, or geomean, is a type of averaging calculation. Unlike a simple average or arithmetic mean, the geomean takes into account the way bacteria grow. During bacterial growth, each bacterium doubles and reproduces itself i.e. one bacterium becomes two, two bacteria become four, four become eight and so on. There are low values at first and the rate of growth increases as the number of colonies increases. This is called exponential growth (Figure 1). This growth pattern means a fecal coliform dataset may have a few high scores and many low scores. The calculation for the geometric mean takes exponential growth into account by transforming the data into logarithms, taking the mean and then converting the number back to a log base 10 number. For example, the arithmetic mean of a fecal coliform score of 300, 150, 23 and 2 CFU/100ml is 119 CFU/100ml. Calculating the geomean, the result is 38 CFU/100ml.

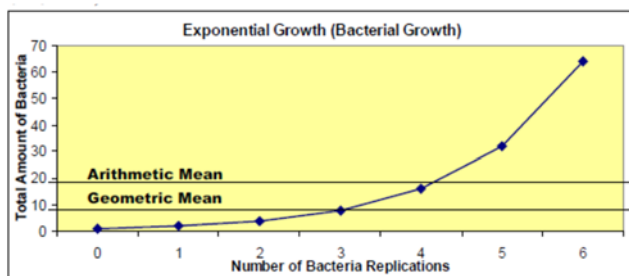
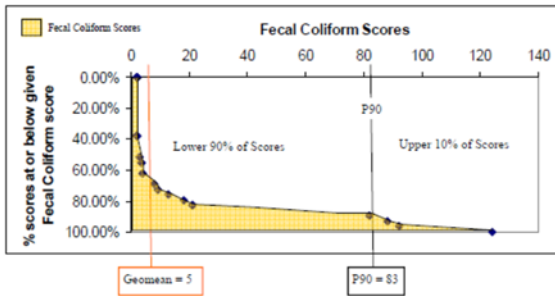
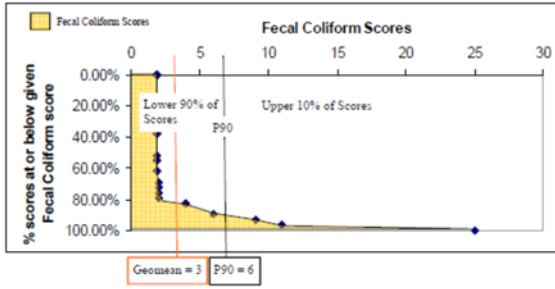


Figure 1. The graph illustrates exponential growth. The arithmetic mean for the scores is 18.1 while the geomean is 8.

90th Percentile (P90)

The other calculation used for shellfish growing area classification is the 90th percentile (P90). The P90 is the variability standard, meaning this value takes into account the variability of test readings. In any test measurement, successive readings of the same sample would produce slightly different scores each time due to precision of the equipment, human error, etc. This type of variability is a factor of the test method and equipment used and is true of all testing methods.

To account for the variability in the fecal coliform test, a standard has been established. Here again, since bacteria grows exponentially, the calculations are performed on a logarithmic scale. The P90 is based on the distribution of fecal coliform scores and means that 90% of scores are at or below the P90 and 10% scores are above (Figures 2a and 2b). As long as most of the other scores are low, a few high scores will not have a large impact on the P90 value. The P90 standard is the acknowledgment by the NSSP that a few high scores in data set may be due to the variability of the test method. If the area shows high fecal coliform scores intermittently due to pollution events such as rainfall, this may cause water quality to exceed the P90 standards because the shellfish are intermittently subject to polluted waters. For classification determinations, P90s are rounded to the nearest whole number. 0.1-0.49 are rounded down and 0.5-0.9 are rounded up to the next whole number.



Figures 2a and b. The lower 90% of the scores fall to the left of the P90 line and 10% of the scores fall to the right. 2a has a low P90 because there are many low scores and a few high scores. 2b has a larger number of high fecal coliform scores, so the P90 is shifted to the right. Although the geomean of 2b passes the approved standard, the area would not be classified as approved because the P90 score is above the threshold.

Fecal Coliform Standards by Shellfish Growing Area Classification Category

Shellfish Growing Area Classification	Activity Allowed	Geometric mean FC/100ml	90 th Percentile (P90) FC/100ml
Approved	Harvesting allowed	≤ 14	≤ 31
Conditionally Approved	Harvesting allowed except during specified conditions	≤ 14 in open status	≤ 31 in open status
Restricted	Depuration harvesting or relay only	≤ 88 and >15	≤ 163 and >31
Conditionally Restricted	Depuration harvesting or relay allowed except during specified conditions	≤ 88 in open status	≤ 163 in open status
Prohibited	Aquaculture seed production only	>88	>163

Kristie Rabasca

From: Hudson, Michael S <Michael.S.Hudson@maine.gov>
Sent: Monday, October 7, 2019 11:51 AM
To: Kristie Rabasca
Cc: Plummer, Cherrie F; Poirier, Rhonda
Subject: FW: Proper handling and disposal of CheMetrics Surfactant field test kit residuals
Attachments: surfactants_CHEMetrics_k9400instructs.pdf; surfactants_CHEMetrics_k9400_SDSs.pdf; EIASOP-SWTestKits_REV1.pdf

Importance: High

In response to the questions posed regarding proper handling and disposal of CheMetrics Surfactant field test kit residuals:

1. Can the Towns mix the liquids from a. and b. in a single container for disposal as D001 and D022 waste? Or do they need to keep them separate to dispose of them?
Answer: Chloroform is miscible in alcohols such as n-propanol and is compatible. The Hazardous Waste Management Rules, 06-096 C.M.R. ch. 850 through 858, do not prohibit the mixing of compatible wastes. If mixed, the waste mixture should be coded as both D001 and D022. The town/generator could check with the licensed hazardous waste transporter it intends to use for the hazardous waste pick-up and disposal to determine if it is advisable or more cost effective to keep the wastes separate.
2. The n-propanol waste is super tough to get out of the vial – we pretty much just dispose of the whole vial. Is that okay? Or can we break the vial? And dispose of the empty glass as solid waste (as long as it is RCRA empty).
Answer: The whole vials containing n-propanol can be disposed of as hazardous waste. If the generator chooses to break the vial to dispose of the n-propanol as hazardous waste and the glass as a solid waste, then the generator must ensure the broken vials are RCRA-empty. Again, the town/generator could check with the licensed hazardous waste transporter it intends to use for the hazardous waste pick-up and disposal to determine if it is advisable or more cost effective to break and empty the vials to dispose of the glass and n-propanol separately. Of course, care and safety measures should be employed if breaking and handling glass vials.
3. Most of these towns are going to be SQGs (Maine Definition), and are going to be generating this waste while they are out in the field over a period of months. Then after each event, they are going to drive it back to the public works facility and set up a SQG haz waste storage area until they can get rid of it (either at HHWD collection, or have a specific pick up). They have 1 year to dispose of it. Have I missed any exemptions or special conditions for this? Is it okay that they are driving it around? Or should they be bringing the water samples back to public works and running the surfactant analysis on it at public works so they don't have to transport it. (its easier for them to run the sample right there while they are at the site).
Answer: It is preferable for the town/generator to bring samples back from field sites to its Public Works to do the test so that hazardous waste generated by the tests does not have to be transported from field sites. Under the rules, the town/generator would need hazardous waste licenses to transport or accept the hazardous wastes from off-site. Towns should set up a hazardous waste collection container for the hazardous wastes from the tests, with an appropriate size container, labeled as "Hazardous Waste" with an accumulation start date. If the town's Public Works is a Small Quantity Generator (SQG), i.e. it generates for all its hazardous wastes in aggregate no more than 27 gallons/month and accumulates no more than 55 gallon of all of its hazardous waste in aggregate, then the town/generator could accumulate the waste indefinitely until the container of hazardous waste from tests is full at which point the town/generator would have 180 days to ship

via licensed hazardous waste transporter. Town/ Public Works should not dispose of these waste through the Household HW collection programs because they are not household exempt wastes.

4. We are going to do a training of the use of this kit on 10/17 in Portland. I would really like for attendees to be able to practice use of the kit at that training. Do I need to schedule with NRCC or Clean Harbors to come pick up the waste that day (as a licensed transporter), or could one of the communities transport it back to their public works facility for storage until later disposal (during HHWD)?

Answer: Under the rules, the generator should arrange for waste pick-up at the site of generation. These hazardous wastes are not exempt under the household waste exclusion and are not acceptable at Household Hazardous Waste collections events.

The guidance above is based on the information provided below and the applicable rules, Hazardous Waste Management Rules, 06-096 C.M.R. ch. 850 through 858, without information on the number of test kits expected to be used, frequency of testing and volumes of anticipated waste accumulation. If you have questions or would like to discuss the specifics, please feel free to contact me at Michael.s.hudson@maine.gov or 207-287-7884, or Cherrie Plummer of the Hazardous Waste Management Unit. Cherrie's contact is Cherrie.F.Plummer@maine.gov and 207-287-7882.

Michael S. Hudson, Supervisor, Hazardous Waste Management Unit
Maine Department of Environmental Protection
17 State House Station, Augusta, ME 04333-0017
Tel. 207-287-7884
www.maine.gov/dep

From: Poirier, Rhonda
Sent: Monday, October 07, 2019 9:37 AM
To: Hudson, Michael S <Michael.S.Hudson@maine.gov>
Subject: Proper handling and disposal of CheMetrics Surfactant field test kit residuals
Importance: High

Hi Mike,

The sampling she's describing is required by one of the permits in my stormwater program. She is giving a workshop on it on 10/17 and would like to talk to the proper DEP person before that, for planning purposes. Can you help her?

Thank you,
Rhonda

Rhonda Poirier
MEPDES Stormwater Program Manager
Bureau of Water Quality
Maine Department of Environmental Protection
207-592-6233
www.maine.gov/dep

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Tuesday, October 01, 2019 4:02 PM
To: Poirier, Rhonda <Rhonda.Poirier@maine.gov>
Cc: Aimee Mountain (Aimee.Mountain@gza.com) <Aimee.Mountain@gza.com>; Damon Yakovleff <dyakovleff@cumberlandswcd.org>
Subject: Proper handling and disposal of CheMetrics Surfactant field test kit residuals

Hi Rhonda,

Thanks for taking my call.

I am developing a dry weather monitoring training session for the ISWG and SMSWG MS4s, and am developing a QAPP and some checklists.

We will need to use the CheMetrics K-9400 field test kit for surfactants. I have attached the instructions for the kit, and the Safety Data Sheets for the two reagents. Generally for each sample we will do the following:

1. Add 5 ml of water to a small plastic vial
2. Add 4ml of the double tipped reagent (SDS attached and it is flammable and contains 71% chloroform)
3. Shake
4. Use the 0.25 ml sealed glass ampule (which is 98% N-propanol) to draw the organic phase out of the plastic vial with the water and the first reagent.
5. Use colorimeter to check detergent concentration of sample.

So the two wastes we have when done are:

- a. The mixture of the 5 ml water and the 4 ml 71% chloroform (which is still flammable) in the plastic vial (minus about 1 ml extracted into the n-propanol vial)
- b. About 1 ml of the n-propanol and the chloroform organic phase in a very small glass ampule.

I am requesting the EPA SOP on this – but I do not think it has the detail I want.

When I have used this in the past, I have given it to the municipality where it was generated and told them it was a **Doo1 Flammable and D022 Tox-chloroform waste**, and they hand it to clean harbors during household hazardous waste day.

We are going to have a lot more people generating this waste – using these kits, and we need to handle it properly. As we provide them with guidance, we want to make sure it is right.

My questions are:

1. Can the Towns mix the liquids from a. and b. in a single container for disposal as Doo1 and Do22 waste? Or do they need to keep them separate to dispose of them?
2. The n-propanol waste is super tough to get out of the vial – we pretty much just dispose of the whole vial. Is that okay? Or can we break the vial? And dispose of the empty glass as solid waste (as long as it is RCRA empty)
3. Most of these towns are going to be SQGs (Maine Definition), and are going to be generating this waste while they are out in the field over a period of months. Then after each event, they are going to drive it back to the public works facility and set up a SQG haz waste storage area until they can get rid of it (either at HHWD collection, or have a specific pick up). They have 1 year to dispose of it. Have I missed any exemptions or special conditions for this? Is it okay that they are driving it around? Or should they be bringing the water samples back to public works and running the surfactant analysis on it at public works so they don't have to transport it. (its easier for them to run the sample right there while they are at the site).
4. We are going to do a training of the use of this kit on 10/17 in Portland. I would really like for attendees to be able to practice use of the kit at that training. Do I need to schedule with NRCC or Clean Harbors to come pick up the waste that day (as a licensed transporter), or could one of the communities transport it back to their public works facility for storage until later disposal (during HHWD)?

So many questions.... Perhaps I could talk with someone at Haz waste.... Thanks for any help you can provide.



Kristie L. Rabasca, P.E

Integrated Environmental Engineering, Inc.

12 Farms Edge Road

Cape Elizabeth, ME 04170

207-415-5830

Addendum 3

Example Chains of Custody



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number (Lab Use Only):

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 786-0262

Company :		EMSL-Bill to: <input type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different please note in Comments**					
Street:		Third Party Billing requires written authorization from third party					
City:	State/Province:	Zip/Postal Code:	Country:				
Report To (Name):		Fax #:					
Telephone #:		E-mail Address:					
Project Name/ Number:							
Please Provide Results: <input type="checkbox"/> Fax <input type="checkbox"/> E-mail		PO#	State Samples Taken:				
Turnaround Time (TAT) Options* - Please Check							
<input type="checkbox"/> 3 Hour	<input type="checkbox"/> 6 Hour	<input type="checkbox"/> 24 Hour	<input type="checkbox"/> 48 Hour	<input type="checkbox"/> 72 Hour	<input type="checkbox"/> 96 Hour	<input type="checkbox"/> 1 Week	<input type="checkbox"/> 2 Week
<small>*Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements.</small>							
Fungi		Bacteria		Insects			
<input type="checkbox"/> ERMI Panel (M180) Dust Only		<input type="checkbox"/> Human <i>Bacteroides</i> (M199)		<input type="checkbox"/> Bed Bug (<i>Cimex lectularius</i>) (M146)			
<input type="checkbox"/> EPA 36 Panel (M233) Air, Swab		<input type="checkbox"/> Total <i>Bacteroides</i> (M095)		<input type="checkbox"/> Tick - <i>Anaplasma phagocytophilum</i> Anaplasmosis (M261)			
<input type="checkbox"/> Water Damage 20 Panel (M181)		<input type="checkbox"/> <i>E. coli</i> O157:H7 (M140)		<input type="checkbox"/> Tick - <i>Babesia microti</i> Babesiosis (M260)			
<input type="checkbox"/> Wood Rot Fungi 10 Panel (M232)		<input type="checkbox"/> <i>E. coli</i> (M200)		<input type="checkbox"/> Tick - <i>Borrelia burgdorferi</i> Lyme disease (M196)			
<input type="checkbox"/> <i>Aspergillus</i> 15 Panel (M186)		<input type="checkbox"/> Total <i>Enterococcus</i> (M096)		Other			
<input type="checkbox"/> <i>Aspergillus</i> 6 Panel (M188)		<input type="checkbox"/> <i>Helicobacter pylori</i> (M207)		<input type="checkbox"/> <i>Acanthamoeba</i> spp. (M147)			
<input type="checkbox"/> <i>Penicillium</i> 13 Panel (M189)		<input type="checkbox"/> <i>Legionella pneumophila</i> (M103)		<input type="checkbox"/> <i>Cryptosporidium</i> spp. (M237)			
<input type="checkbox"/> Customized Fungi Panel (M100)		<input type="checkbox"/> <i>Legionella</i> 4 species-EPA (M162)		<input type="checkbox"/> <i>Giardia</i> spp. (M149)			
<input type="checkbox"/> <i>Penicillium</i> Mycotoxin 9 Panel (M190)		<input type="checkbox"/> <i>Legionella</i> Broad Screen (M163)		<input type="checkbox"/> Enterovirus RT-PCR (M142)			
Birds, Animal Droppings		<input type="checkbox"/> MRSA (M203)		<input type="checkbox"/> Food Authentication (F130)			
<input type="checkbox"/> <i>Chlamydomyphila psittaci</i> (M234)		<input type="checkbox"/> <i>Mycobacterium avium</i> (M144)		<input type="checkbox"/> GMO Analysis (F131)			
<input type="checkbox"/> <i>Cryptococcus neoformans</i> (M143)		<input type="checkbox"/> <i>Mycobacterium tuberculosis</i> (M159)		<input type="checkbox"/> DNA Barcode Analysis (M195)			
<input type="checkbox"/> <i>Histoplasma capsulatum</i> (M208)		<input type="checkbox"/> <i>Pseudomonas aeruginosa</i>		<input type="checkbox"/> DNA Sequencing Fungi/Bacteria Isolates (M192)			
<input type="checkbox"/> Raccoon Roundworm (M236)		<input type="checkbox"/> <i>Salmonella</i> spp. (M141)		<input type="checkbox"/> Special Request:			
<input type="checkbox"/> Rodent (Mouse, Rat) Dropping (M271)		<input type="checkbox"/> <i>Shigella</i> spp. (F122)					
Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected		
Client Sample # (s): -				Total # of Samples:			
Relinquished (Client):				Date:	Time:		
Received (Lab):				Date:	Time:		
Comments:							

Addendum 4

User Manual(s) and Safety Data Sheets (SDS) for Field Equipment and/or Test Kit(s)

(This is an optional addendum. The information must be located where field personnel can access electronically or in paper form, so this Addendum can be used as a place to describe where field personnel will find equipment, manuals and SDSs).

ATTACHMENT D

COORDINATION LETTERS WITH INTERCONNECTED MS4s

Interconnected MS4	Date of update	Contact	Phone	E-mail
Maine DOT	3/3/2021	Kerem Gungor	207-592-3489	Kerem.Gungor@maine.gov
Maine Turnpike Authority	3/3/2021	Sean Donohue	207-232-7130 (o) 207-232-7130 (c)	sdonohue@maineturnpike.com

Kristie Rabasca

From: Chekan, Craig <Craig.Chekan@Biddefordmaine.org>
Sent: Tuesday, March 9, 2021 12:23 PM
To: kerem.gungor@maine.gov; sdonohue@maineturnpike.com
Cc: Milligan, Tom; Demers, Jeff; Kristie Rabasca
Subject: Biddeford MS4 Illicit Discharge Coordination
Attachments: 2021-03-09_Biddeford MS4 Illicit Discharge Coordination Letter.pdf

Good Afternoon Mr. Gungor & Mr. Donohue,
 As a part of Biddeford's 2022 MS4 General Permit application, we are required to email you the attached coordination letter.

This letter confirms that each party shall notify the other if an illicit discharge into the shared MS4 system is observed.

Upon your review, can you confirm your receipt and notify us of any questions/comments?

Thank-you in advance,
 Craig Chekan

Craig Chekan, PE
 City of Biddeford | P.O. Box 586, Biddeford, ME 04005
 207-571-0636 | craig.chekan@biddefordmaine.org

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City of Biddeford, Maine

City of Biddeford

Public Works Department / Engineering Division
P.O. Box 586 • 205 Main Street, Suite 301
Biddeford, ME 04005
Phone: (207) 284-9118 • Fax: (207) 571-0662

March 9th, 2021

RE: MS4 Illicit Discharge Coordination

The City of Biddeford is regulated by the 2013 Maine General Permit for the Discharge of Stormwater from our Municipal Separate Storm Sewer System (MS4). Our mapping shows that we have cross connections (some of your MS4 system flows into ours and/or some of our MS4 system flows into yours).

With this letter we are acknowledging that you will notify us of any illicit discharges or spills in your MS4 that could affect our MS4. We will also notify you of any illicit discharges in our MS4 that may affect your MS4 system.

If you have any MS4 related issues, please contact me at (207) 284-9118 or tom.milligan@biddefordmaine.org during regular business hours. In the event of an emergency after hours, please contact 911 who will relay any pertinent information to me.

Also, the City intends to apply for coverage under the 2022 MS4 General Permit, and as such is preparing their Stormwater Management Plan and Illicit Discharge Detection and Elimination Plan. This letter constitutes notice that we are applying for continued coverage, and we will be providing formal public notice in March 2021.

Thank you for your consideration in this matter.

Regards,

A handwritten signature in blue ink that reads "Thomas Milligan, Jr." with a stylized flourish at the end.

Tom Milligan, Jr. PE

APPENDIX F

CONSTRUCTION INSPECTION FORMS

Construction Inspection Form for Sediment and Erosion Control (for small sites)

Site Name: Map/Lot:	Date of Inspection:
Inspector:	Inspection Time: AM/PM
Pictures Taken:	Weather:
Type of Inspection: Initial / Return / Winter Stabilization / Final Stabilization / Complaint / Other _____	

Inspection Parameters		Comments/Follow up Date
Description and estimate of construction area that is disturbed:		
Does contractor have Erosion and Sediment Control Plan, drawings, and inspection log on site?	Yes / No / NA	
Is the contractor or a third-party inspector conducting inspections after rain events and weekly as required by the Erosion and Sediment Control Plan for the site?	Yes / No / NA	
Is the construction entrance clean with no track out of sediment?	Yes / No	
Is waste properly managed (concrete washout disposed of properly, no liquids in waste container, waste containers closed)?	Yes / No	
Are there any petroleum or hazardous materials on site, and if so, are there spill controls in place?	Yes / No	

Review the site plan for sediment and erosion control requirements. Select "Pass" if structures are properly installed and functioning as required. Select "Fail" if contractor needs to make corrections or repairs and describe briefly repairs needed. Select "N/A" for "Not Applicable" if they do not apply at the site.

Catch Basin Protection	Pass / Fail / NA	
Silt Fence /Hay bales	Pass / Fail / NA	
Erosion Control Berm or Sock	Pass / Fail / NA	
Dust Control	Pass / Fail / NA	
Dewatering	Pass / Fail / NA	
Other: _____	Pass / Fail / NA	
Any Areas of Repeated Non-compliance that require MDEP Notification?	Yes / No	
Any other comments?		



TIER II: EROSION & SEDIMENTATION CONTROL INSPECTION REPORT

Part I: General Information	
Project Name:	
Project Address:	
Project Contact Person:	
Contact Phone Number:	
Contact Email:	

Part II: Inspection Details					
Inspection Date:					
Time:					
Weather at time of inspection:					
Date & Amount Last Precipitation: *					
Inspector Name:					
Inspector Phone Number:					
ESC Plan Available?	Yes	No	Modifications to ESC Plan Needed?	Yes	No
Note any changes needed to ESC Plan					
Previous Inspection Reports Available?	Yes	No	Previous Corrective Actions Required?	Yes	No
Note previous corrective actions					
O&M Plan Available?	Yes	No			

Part III: Certification	Initial Below
I attest that no sediment, trash, debris, or contaminated water is leaving the construction site.	
I attest that no sediment, trash, debris, contaminated water is entering a wetland or waterway.	

Part IV: Erosion & Sedimentation Controls				Notes - include location(s) of issue (picture #s)
Perimeter controls in place and in good condition	Yes	No	N/A	
Stockpiles properly managed (no signs of migration)	Yes	No	N/A	
Construction entrance(s) clean and free of tracking onto roadways	Yes	No	N/A	
Dewatering activity following ESC Plan	Yes	No	N/A	
Waste management in good condition (trash and debris)	Yes	No	N/A	
Dust control measures in place and effective	Yes	No	N/A	
Slopes stabilized and free of rills and gully erosion	Yes	No	N/A	
Infiltration areas protected from compaction	Yes	No	N/A	

Part V: Recommended Corrective Actions

Part VI: Re-Inspection						
Re-inspection required?	Yes	No	Recommended timeline for re-inspection	24 hrs	1 week	Other (specify)
Date of re-inspection:						
All issues have been corrected			Yes		No (Notice of violation or stop-work order may be considered)	



Erosion Sedimentation Control Inspection Report

Construction Sites ≥ 1 Acre

Part I: General Information			
Project Name			
Project Address			
Project Contact Person & Title			
Project Contact Phone Number			
Project Contact Email			
Project in Shoreland Zone?	Yes	No	
DEP ESC-Certified Inspector?	Yes	No	
DEP Permit Number (if known)			
Inspection Date & Time			
Inspector Name			
Inspector Phone Number			
Current Weather & Temperature °F			
Date & Amount Last Precipitation			
Part II: Previous Inspections			
ESC Plan Available on site?	Yes	No	
Self Inspection Reports Available?	Yes	No	
Previous third-party inspection reports reviewed?	Yes	No	
Note any outstanding issues from previous inspection reports below.			
	Fixed?	Yes	No
	Fixed?	Yes	No
	Fixed?	Yes	No
	Fixed?	Yes	No
	Fixed?	Yes	No



Erosion Sedimentation Control Inspection Report

Construction Sites ≥ 1 Acre

<i>M and F ratings require follow-up be noted in Part XIII</i>	M = Maintenance Needed (BMP is functioning, but needs attention) P = Pass (BMP is functioning and in good condition) F = Fail (BMP is not functioning and needs repair/replacement) N/A = Not Applicable				
Part III: Overall Site BMPs					
					Notes
Disturbed areas minimized	M	P	F	N/A	
Natural buffers protected	M	P	F	N/A	
Perimeter controls (required prior to construction)	M	P	F	N/A	
Part IV: Winter Stabilization (November 1 - April 15)					
					Notes
Hay mulch is applied at 2x standard application rate	M	P	F	N/A	
Areas brought to final grade are stabilized each day	M	P	F	N/A	
Areas W/1 75' of protected natural resource must be double row of barriers	M	P	F	N/A	
Part V: Sediment Barriers					
					Notes
Sediment barriers downgradient of disturbance(s)/stock piles	M	P	F	N/A	
Sediment barriers adjacent to drainage channels	M	P	F	N/A	
Sediment barriers functioning as intended; excess sediment removed	M	P	F	N/A	
Part VI: Temporary Site Stabilization					
					Notes
Disturbed but inactive area stabilized w/mulch or non-eroding cover	M	P	F	N/A	
Disturbed area within 75' of wetland stabilized w/in 48hrs of storm event	M	P	F	N/A	
No evidence of washing/rilling of topsoil	M	P	F	N/A	
Seeded areas protected with mulch or erosion control blanket	M	P	F	N/A	
Part VII: Permanent Site Stabilization					
					Notes
90% cover of healthy vegetation established on vegetated areas	M	P	F	N/A	
Binding of sod roots to soil; sod healthy and intact	M	P	F	N/A	
Mulched landscape areas totally covered with approved mulch materials	M	P	F	N/A	



Erosion Sedimentation Control Inspection Report

Construction Sites ≥ 1 Acre

Rip-rap backed by well-graded gravel or geo-textile	M	P	F	N/A	
Soil stable behind rip-rap	M	P	F	N/A	
Rip-rap appropriately sized to stay in place	M	P	F	N/A	
Placement of compacted subbase is complete on paved areas	M	P	F	N/A	
Roads & parking drain to stable area	M	P	F	N/A	
Runoff is evenly distributed to buffers	M	P	F	N/A	
Catch basin(s) are capturing run-off without by-pass to other areas	M	P	F	N/A	
Part VIII: Ditches, Channels, Swales					
					Notes
Well graded rip-rap lining or other non-erosive lining	M	P	F	N/A	
No evidence of undercutting of banks	M	P	F	N/A	
No evidence of down-cutting of channel	M	P	F	N/A	
No evidence of slumping of channel lining	M	P	F	N/A	
Stabilized with geotextile, gravel bed and stone lining	M	P	F	N/A	
Netting used to anchor mulch on 8% slopes unless;	M	P	F	N/A	
Erosion control blankets or erosion control mix is in place	M	P	F	N/A	
Stabilized for long-term erosion control	M	P	F	N/A	
Sized to handle runoff	M	P	F	N/A	
Constructed and completed w/in same day	M	P	F	N/A	
If delayed, diversion berms used	M	P	F	N/A	
Check dams installed appropriately and functioning as intended	M	P	F	N/A	
Temporary lining installed/prevent scour	M	P	F	N/A	
Channels, banks, and slopes free of erosion	M	P	F	N/A	
Part IX: Culverts					
					Notes
No evidence of overtopping or flooding	M	P	F	N/A	
Culvert outlet has apron or plunge pools installed	M	P	F	N/A	
Culvert inlets protected with appropriate materials to prevent erosion	M	P	F	N/A	
Aprons and plunge pools are functioning as intended	M	P	F	N/A	



Erosion Sedimentation Control Inspection Report

Construction Sites ≥ 1 Acre

Part X: Materials Storage / Good Housekeeping					
					Notes
Material storage areas is not exposed to the elements	M	P	F	N/A	
Spill prevention, containment, and response plan is on site	M	P	F	N/A	
A spill kit is on site to prevent petroleum from discharging	M	P	F	N/A	
Petroleum/ haz. materials not stored / handled where exposed to stormwater	M	P	F	N/A	
Litter and construction debris is enclosed /covered / not overfull	M	P	F	N/A	
Part XI: Dewatering					
					Notes
Discharge to a wooded buffer, sediment bag, or specifically designated BMP	M	P	F	N/A	
Discharge is not flowing across disturbed areas	M	P	F	N/A	
Part XII: Tracking & Dust Control					
					Notes
No evidence of tracking mud/soil onto public roadway	M	P	F	N/A	
Stabilized construction entrance installed and functioning	M	P	F	N/A	
Non-oil dust control used to minimize fugitive dust	M	P	F	N/A	
Weekly sweeping of roadways being conducted	M	P	F	N/A	
Part XIII: Corrections Needed					
					Compliance Deadline / Timeframe