

Stormwater Management Program (SWMP) Plan

MassBay Community College

**Prepared June 30, 2019
Revised June 30, 2022**

Prepared For:

MassBay College
50 Oakland Street
Wellesley Hills, MA 02481



Prepared By:

Comprehensive Environmental Inc.
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Bolton, MA 01740



Stormwater Management Program (SWMP) Plan Revision Log

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Stormwater Management Program (SWMP) Plan Certification

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

Name: _____ Title: _____

Signature: _____ Date: _____

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1 Introduction

MassBay Community College is one of a number of non-traditional Small Municipal Separate Storm Sewer Systems (MS4s) regulated under the Environmental Protection Agency's (USEPA) National Pollutant Discharge Elimination System (NPDES) Phase II rule (40 CFR 122). The rule requires regulated operators of MS4s to develop a Stormwater Management Program (SWMP) and Best Management Practices (BMPs) to reduce the impacts of stormwater discharges. The requirements are outlined in the NPDES General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts. The 2016 Massachusetts MS4 Permit was signed on April 4, 2016 with an effective date of July 1, 2018, and more recently updated on December 7, 2020 with an effective date of January 6, 2021.

This SWMP Plan describes and details the activities and measures that are being and are being implemented to meet the terms and conditions of the permit.

1.1 Regulatory Background

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

On May 1, 2003, EPA Region 1 issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (2003 MS4 Permit) consistent with the Phase II rule. The 2003 MS4 Permit covered "traditional" (i.e., cities and towns) and "non-traditional" (i.e., certain Federal and state agencies and/or facilities) MS4 Operators located in the states of Massachusetts and New Hampshire. This permit expired on May 1, 2008 but remained in effect until operators were authorized under the USEPA's 2016 NPDES General Permit for Stormwater Discharges from MS4 in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit", "2016 Permit", "MS4 Permit, and/or "2016 MS4 Permit" which replaces the 2003 MS4 Permit.

The 2016 Massachusetts MS4 Permit was signed on April 4, 2016 with an original effective date of July 1, 2017, however was postponed by 1 year to a new effective date of July 1, 2018. The permit was cosigned by the Massachusetts Department of Environmental Protection (MassDEP) and thus is jointly regulated by EPA and MassDEP for Massachusetts permittees. After several years of litigation, the permit was updated in December 2020 with

a revised effective date of January 6, 2021. Authorization to discharge was set to expire on July 1, 2022, however, was administratively continued by EPA. The 2016 Permit remains in force and effect until a general permit is reissued at a future time.

The following sections outline how MassBay Community College, hereafter referred to as “MassBay College” or “MassBay” is meeting Phase II regulatory and schedule requirements.

1.2 MS4 Program

As required by the 2016 MS4 Permit, MassBay College submitted a Notice of Intent (NOI) and required accompanying information, including endangered species, historic preservation, and an outfall map to EPA Region 1 by the September 28, 2018 deadline (**Appendix A**) requesting authorization to discharge under the new permit. MassBay received official authorization to discharge stormwater from its MS4 on February 14, 2019.

This Stormwater Management Program Plan has been developed by MassBay College to address the requirements of the 2016 MS4 Permit as a follow-up to the NOI. This SWMP Plan documents MassBay College’s program, including Best Management Practices, plans, activities, and measures that have been implemented to date, those that are ongoing, and those proposed for the future to comply with the 2016 MA MS4 Permit. This is a “living” document and should be updated and/or modified as required during the permit term as the permittee's activities are modified, changed or updated to meet permit conditions during the permit term.

This permit in part requires that each permittee, or regulated community, address 6 Minimum Control Measures. These measures include the following:

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

In addition to the 6 MCMs above, permittees must also address water quality impacts from waterbodies with approved Total Maximum Daily Loads (TMDLs) and certain impairments, generally known as water quality limited waterbodies.

It should be noted that MassBay College is a very small regulated entity, a small fraction of the size of a typical city or town regulated under the permit. Consequently, MassBay has far smaller public education and outreach needs, comparatively little stormwater infrastructure, and very minimal regulatory authority for which to meet some of the permit requirements. This SWMP Plan notes BMPs that cannot be met in their entirety due to MassBay’s status as a “non-traditional” permittee and/or propose alternate efforts as outlined in the NOI.

1.3 Regulated Area

Requirements of the 2016 MS4 Permit are limited to a regulated area, defined as the College's Urbanized Areas (UAs) which generally constitute the largest and most dense areas of settlement in a region. The Bureau of the Census determines UAs by applying a detailed set of published UA criteria to the latest decennial census data. Although the full UA definition is complex, the Bureau of the Census' general definition of a UA, based on population and population density, is provided below:

“An urbanized area (UA) is a densely settled core of census tracts and/or census blocks that have population of at least 50,000, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. It is a calculation used by the Bureau of the Census to determine the geographic boundaries of the most heavily developed and dense urban areas.”

The most recent UA maps are based on the 2010 which covers the entirety of the college in Wellesley. Also note that although MassBay College operates 3 separate campuses statewide, only the campus in Wellesley is regulated under the MS4 Permit. Thus, this plan only applies to the Wellesley location.

1.4 How to Use this Plan

For the purposes of the 2016 MS4 Permit and ease of use, the College's SWMP encompasses four separate written documents:

1. SWMP Plan (this document);
2. Discharge Detection and Elimination (IDDE) Plan (standalone document);
3. Facilities Operation and Maintenance (O&M) Plan (standalone document); and
4. Stormwater Pollution Prevention Plan (SWPPP) (standalone document).

This SWMP Plan is divided into several sections and includes the following components:

- | | |
|------------------|---|
| Section 2 | College Characteristics – Section 2 provides an overview of relevant characteristics, focusing on those aspects related to stormwater runoff and the water quality of surface waters. |
| Section 3 | MCM 1: Public Education and Outreach – regulated operators of MS4s are required to implement a public education program. |
| Section 4 | MCM 2: Public Participation and Involvement – regulated MS4s are required to obtain public participation throughout the stormwater management program. |
| Section 5 | MCM 3: Illicit Discharge, Detection, and Elimination – regulated MS4s must develop and implement an illicit discharge detection and elimination program and develop a regulation to prohibit illicit discharges to the storm drain system. |

- Section 6** **MCM 4: Construction Site Stormwater Runoff Control** – regulated MS4s are required to implement and enforce a program to reduce pollutants in stormwater runoff from construction activities that disturb 1 or more acres. Permittees are also responsible for inspections and enforcement.
- Section 7** **MCM 5: Stormwater Management in New Development and Redevelopment** – regulated MS4s are required to develop and enforce a program to require treatment of stormwater at sites where construction activities disturb 1 or more acres. The controls must also be maintained over the long-term.
- Section 8** **MCM 6: Good Housekeeping and Pollution Prevention** – regulated MS4s must review their operations at specific facilities and those that occur throughout the College (i.e., catch basin cleaning and street sweeping) and make improvements where needed to minimize pollution to stormwater runoff.
- Section 9** **TMDL and Impaired Waters Controls** – regulated MS4s are required to evaluate and address stormwater contributions to impaired waters.
- Section 10** **Annual Reporting** – Section 10 provides a summary of annual reporting requirements in order to meet the 2016 MS4 Permit.
- Section 11** **Program Documentation** – Section 11 provides a brief summary of ongoing documentation that should be completed.

1.5 Program Responsibilities

This plan is intended to be used by MassBay College staff whose job involves administering the MS4 permit and associated requirements. The College’s MS4 program is headed by the following:

Table 1-1. MS4 Responsible Personnel

Name	Title, Department	Contact
Joseph DeLisle	Director of Facilities	(781) 239-2571 jdelisle@massbay.edu

Table 1-1 provides a list of responsible departments and their general responsibilities within the MS4 program. The responsible person is the most senior person (e.g. department head, administrator, senior elected official, etc.) within each department listed below.

Table 1-2. Program Responsibilities

Department / Division	General Responsibilities
Marketing Department	Public education and participation
Facilities Department	Public education and participation; system mapping; IDDE program creation and implementation; employee training; regulation development; site plan review and inspection procedures; as-built submittal; target properties to reduce impervious areas and for BMP retrofit; inventory buildings and facilities; develop operation and maintenance procedures; SWPPP development and implementation; catch basin cleaning and street sweeping; road salt optimization program; BMP inspections and maintenance; TMDL and water quality limited requirements

2 College Characteristics

This section provides some background information on MassBay College, Massachusetts, useful in understanding the College's characteristics and resources to develop a tailored Stormwater Management Plan. College characteristics are described below.

2.1 Community Information

Founded in 1961, MassBay College is 1 of 15 publicly-funded community colleges in Massachusetts and serves approximately 6,000 full-time and part-time commuter students from the greater Boston and Metrowest region on 3 campuses – Wellesley Hills, Framingham, and Ashland. The subject of this SWMP, the Wellesley Hills campus is located in eastern Massachusetts in Norfolk County. Wellesley Hills is bordered to the east by Newton, the north by Weston, the west by Natick, and the south by Needham and Dover. Though located in the Town of Wellesley, MassBay College operates under its own MS4 permit and thus is not included in Wellesley's town program.

2.2 Demographics

Demographics play a role in developing a public education program that targets the appropriate audience through the most appropriate means. All students at MassBay College commute to campus so the public education program is targeted towards commuter students. Other target audiences include college campus operations and developers.

2.2 Land Use

The land uses within the regulated area of MassBay College are shown on **Figure 2-1** and provided below. Impervious area is shown on **Figure 2-2**.

- Forest and open space 57% (6.5 acres)
- Impervious 43% (4.9 acres)

The majority of MassBay's impervious area is disconnected, discharging to either leaching structures or sheet flowing onto undeveloped areas, with only an estimated 3 acres of impervious area discharging via closed drainage systems through conventional stormwater outfalls. Virtually all of this discharges to existing stormwater treatment BMPs.

2.3 303(d) Impaired Waterbodies

The ultimate goal of this Stormwater Management Plan is to outline a program to effectively maintain the College's stormwater infrastructure and to improve the water quality of receiving waters (waters which receive stormwater discharges from the MS4) in compliance with the 2016 MS4 Permit. 303(d) impaired waters are those surface waters identified by the MassDEP as priority waters that do not meet water quality criteria.

As per the 2016 Massachusetts Integrated List of Waters produced by MassDEP, there are no impaired waters located within the boundaries of MassBay College. However, MassBay is located within the phosphorus-impaired Charles River (MA72-07), discharging via Stony Brook (MA72-26). As noted in the NOI (**Appendix A**), MassBay College is meeting portions of the Upper/Middle Charles River phosphorus TMDL requirements on an abbreviated level as outlined in Section 9, as some of the requirements are not applicable to the college and MassBay's required total phosphorus reduction is expected to be minimal.

2.4 Endangered Species Act Determination

In order to be eligible to discharge stormwater under the 2016 MS Permit, MassBay College must certify that its stormwater system is not impacting federally listed rare or endangered species habitat or other critical environmental locations. This was completed in the summer of 2018 as meeting “Criterion C” on the Notice of Intent with the results documented in **Appendix A**. The Northern Long-eared Bat (*Myotis septentrionalis*) was the only species identified as potentially being present within MassBay College’s regulated area. No critical habitats were identified.

2.5 Measures to Protect Surface Drinking Water Supplies

All public drinking water for MassBay Community College is obtained from the City of Wellesley which in turn obtains its water from a series of wells and from the Massachusetts Water Resources Authority (MWRA). MWRA gets water from the Quabbin Reservoir, a surface water supply located approximately 50 miles due west of the College. There are no surface water supplies or tributaries within or adjacent to the College. MassBay Community College does not currently plan on using any surface waterbodies for public drinking water supplies in the near future and implementation of the SWMP helps protect water quality in all receiving waterbodies.

2.6 National Historic Preservation Act Determination

Regulated MS4s must also evaluate whether its discharges have the potential to affect historic properties. The MS4 Permit typically authorizes discharges from existing facilities and requires control of the pollutants discharged from the facility, however, EPA does not anticipate effects on historic properties from the pollutants in the authorized discharges. Thus, to the extent EPA’s issuance of the MS4 General Permit authorizes discharges of such constituents, confined to existing channels, outfalls or natural drainage areas, the permitting action does not have the potential to cause effects on historical properties. If there have been no relevant changes in operation of the MS4 since the 2003 MS4 General Permit, the discharge can still be considered to have no potential to have an effect on historic properties. This has been documented as “Criterion A” on the Notice of Intent (**Appendix A**) and thus no additional information is required for documentation.

Where there is disturbance of land through the construction and/or installation of control measures, there is a possibility that artifacts, records, or remains associated with historic properties could be impacted. In these cases, such as during construction of structural stormwater BMPs, the College will need to ensure that historic properties will not be impacted by their activities, or that they comply with a written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or other tribal representative that outlines all measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties. This will be completed as required during a later date(s).

3 MCM 1: Public Education and Outreach

3.1 Summary of Permit Requirements

3.1.1 Core Permit Requirements

Under MCM 1, permittees must develop an educational program, define educational goals, express specific messages, define the targeted audience for each message, and identify responsible parties for program implementation. At a minimum, the program must provide information concerning the impact of stormwater discharges on water bodies within the community, especially those waters that are impaired or identified as priority waters. The program must identify steps and/or activities that the public can take to reduce the pollutants in stormwater runoff and their impacts to the environment.

The College must address 4 core target audiences, unless 1 of these audiences is not present in the MS4 community:

1. Residents;
2. Businesses, Institutions, and Commercial facilities;
3. Developers and Construction; and
4. Industrial facilities.

As noted in the NOI (**Appendix A**), MassBay Community College has unique public education requirements that do not follow the typical 4 audiences as categorized by EPA. The College has no "Residents" in the traditional sense, as there is no on-campus housing. For the sake of this permit, "Residents" has been replaced by "Students". Additionally, as the College has no "Industrial" audience, this audience has been omitted from the Public Education and Outreach measure. At least 2 educational messages must be distributed to the remaining audiences over the permit term spaced at least a year apart. See sections below for more information.

3.1.2 TMDL & Impaired Waters Requirements

Public education and outreach programs must also address impaired waterbodies or those identified as priority waters. In MassBay, the only waterbody impairments listed as having specific requirements under the 2016 MS4 Permit is phosphorus under the Charles River, however does not require supplementary public education.

3.2 Objectives and Goals

MassBay College implements an education program that includes educational goals based on stormwater issues of significance within the MS4 area, increase knowledge, and change behavior of the public so that pollutants in stormwater are reduced.

3.3 Public Education Program

The following sections outline how MassBay is meeting the requirements of the 2016 MS4 Permit by completing targeted outreach to the 3 remaining audiences. As noted previously and in the NOI filing, the “Residential” audience has been replaced by “Students”. Additionally, “Industrial” audiences are not present in MassBay and are not being targeted.

3.3.1 Students

Informational Topics

The following topics are addressed under the Students public education and outreach program:

- Illicit storm drain dumping;
- Hazardous waste disposal;
- Use of environmentally friendly products;
- Effects of outdoor activities such as lawn care (use of pesticides, herbicides, and fertilizers) on water quality;
- Proper management of pet waste; and
- Maintenance of septic systems.

Note that many of the above requirements mirror those for the typical “Residential” audience, however, some change have been made to more closely tailor outreach materials to students.

Educational Message and Methods of Distribution

The following table shows the educational messages and methods of distribution for the above topics, along with responsible parties and measurable goals.

Table 3-1. BMP Description – Student Outreach

Message	Method of Distribution	Responsible Parties	Measurable Goal
Stormwater flyers and brochures	Distribute flyers regarding stormwater awareness and healthy lawns and landscapes, detailing pet waste disposal, lawn care, and the minimization or elimination of pesticide and fertilizer use.	Facilities Department	Continue to provide information at various campus locations. Distribute brochures to students.
Web page	Provide information related to illicit storm drain dumping, private septic system and well maintenance, proper hazardous waste disposal, and use of detergents, fertilizers, etc., and use of environmentally friendly products.	Facilities Department, Marketing Department	Continue to update and maintain the websites to include relevant stormwater information

Table 3-1 (continued). BMP Description – Student Outreach

Message	Method of Distribution	Responsible Parties	Measurable Goal
Social media outreach	Provide relevant information to different audiences via various social media platforms	Marketing Department	Follow statewide “Think Blue” campaign on social media platforms

Schedule

Topics are made available continuously via brochures, website, and social media.

3.3.2 Businesses, Institutions, and Commercial Facilities

Informational Topics

The following topics are addressed under the Business, Institutions, and Commercial public education and outreach program:

- Illicit storm drain dumping;
- Hazardous waste disposal;
- Use of environmentally friendly products;
- Effects of outdoor activities such as lawn care (use of pesticides, herbicides, and fertilizers) on water quality; and
- Proper management of pet waste.

Note that many of the above requirements mirror those for the typical topics, however, some changes have been made to more closely tailor outreach materials to college-related areas.

Educational Message and Methods of Distribution

The following table shows the educational messages and methods of distribution for the above topics, along with responsible parties and measurable goals. All informational topics are addressed on the College’s website.

Table 3-2. BMP Description – Businesses, Institutions, and Commercial Outreach

Message	Method of Distribution	Responsible Parties	Measurable Goal
Web page	Provide information related to illicit storm drain dumping, proper hazardous waste disposal, and use of detergents, fertilizers, etc., and use of environmentally friendly products.	Facilities Department, Marketing Department	Continue to update and maintain the websites to include relevant stormwater information
Social media outreach	Provide relevant information to different audiences via various social media platforms	Marketing Department	Follow statewide “Think Blue” campaign on social media platforms

Schedule

Information pertaining to the Business, Institutions, and Commercial public education and outreach program are made available continuously on the website and via social media.

3.3.3 Developers and Construction

Informational Topics

As required for all communities under the 2016 MS4 Permit, the following topics are addressed under the Developers and Construction public education and outreach program:

- Proper sediment and erosion control management practices;
- Information about Low Impact Development (LID) principles and technologies; and
- Information about EPA’s construction general permit (CGP).

Educational Message and Methods of Distribution

The following table shows the educational messages and methods of distribution for the above topics, along with responsible parties and measurable goals. All informational topics are addressed on the College’s website and via erosion control and fact sheets provided to developers when applying for applicable permits.

Table 3-3. BMP Description – Developers and Construction Outreach

Message	Method of Distribution	Responsible Parties	Measurable Goal
Web page	Provide information on website related to illicit storm drain dumping, proper hazardous waste disposal, and use of detergents, fertilizers, etc., and use of environmentally friendly products.	Facilities Department, Marketing Department	Continue to update and maintain the websites to include relevant stormwater information
Social media outreach	Provide relevant information to different audiences via various social media platforms	Marketing Department	Follow statewide “Think Blue” campaign on social media platforms

Schedule

Information pertaining to the Developers and Construction are made available continuously on the website and via social media.

3.4 Measuring Public Education Program Effectiveness

During completion of MassBay College’s annual report as detailed further under **Section 10**, the college briefly reviews the effectiveness of each message and the overall education program. Effectiveness varies by message, however is generally measured based on quantities of materials distributed. Educational messages and/or distribution techniques are modified as needed, should program managers determine that they are ineffective.

4 MCM 2: Public Participation & Involvement

4.1 Summary of Permit Requirements

Under MCM 2, permittees must provide annual opportunities for public participation in the review and implementation of the College's SWMP as part of a public education and involvement program. All public involvement activities must comply with state public notice requirements. The SWMP and annual reports must also be made available so that the public has opportunities to review and comment.

4.2 Objectives and Goals

MassBay implements a public participation and involvement program that provides opportunities for review and implementation of the College's SWMP. This helps support public education and outreach items under MCM 1.

4.3 Public Participation and Involvement Opportunities

4.3.1 Make Documents Publicly Available for Comment

MassBay makes this written SWMP Plan, annual reports, and other relevant documents available for review and comment via the College's website, along with the name, email address and/or phone number of a contact person from the College government to request additional information or submit comments. This allows the public to comment on the program at least once per year. An updated SWMP Plan is posted to the website as additional tasks are completed. The following table shows the BMP, responsible parties and measurable goals.

Table 4-1. BMP Description – Make Documents Publicly Available for Comment

BMP Description	Responsible Parties	Measurable Goal
Make SWMP Plan Available on Website	Facilities Department, Marketing Department	Annual review of stormwater management plan and posting on website. Allow public to comment on the plan at least annually.

5 MCM 3: Illicit Discharge, Detection, and Elimination

5.1 Summary of Permit Requirements

Under MCM 3, permittees must implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its MS4 and implement procedures to prevent such discharges. A summary of the required IDDE activities and timelines are provided below. See sections below for more information.

5.1.1 Legal Authority

The IDDE program shall include adequate legal authority in the form of a currently effective ordinance, bylaw, or other regulatory mechanism to prohibit, investigate, and eliminate illicit discharges.

5.1.2 Sanitary Sewer Overflow

Regulated communities must identify all known locations where sanitary sewer overflows (SSOs) have discharged to the MS4 during the previous 5-years and update it annually.

5.1.3 System Mapping

Regulated communities must complete a comprehensive map of their stormwater system in 2 phases. Phase 1 must be completed within 2 years and include infrastructure such as outfalls and preliminary catchment delineations, waterbodies, open channel conveyances, interconnections with other MS4s, and structural stormwater BMPs. Phase 2 must be completed within 10 years and include information such as outfalls with high accuracy GPS location and refined catchment delineations, catch basins, manholes, pipe connectivity, and sanitary or combined sewer systems as available/applicable.

5.1.4 Illicit Discharge, Detection, and Elimination Program

The 2016 MS4 Permit requires preparation of a comprehensive written IDDE Program or IDDE Plan that provides detailed procedures for assessment and priority ranking of outfalls and interconnections, dry and wet weather outfall sampling, catchment investigation procedures, system vulnerability factor (SVF) assessment, identification of an illicit discharge, illicit discharge removal, and ongoing screening requirements.

5.2 Objectives and Goals

MassBay College implements an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its MS4 and implement procedures to prevent such discharges. The ultimate goal is to remove sources of pollution and improve water quality in receiving waterbodies.

5.3 IDDE Program

The following sections outline how MassBay is meeting the requirements of the 2016 MS4 Permit to implement an IDDE program to locate, eliminate, and prohibit illicit discharges.

5.3.1 Establish Legal Authority

Permittees must develop an ordinance, bylaw or regulatory mechanism to prohibit illicit discharges, investigate suspected illicit discharges; eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system, and implement appropriate enforcement procedures and actions. As noted in the NOI (**Appendix A**), MassBay Community College has no regulatory authority, and thus no bylaws, ordinances, or other legal regulatory mechanisms will be enacted in response to the 2016 MS4 Permit.

5.3.2 Complete System Mapping

Requirements

The 2016 MS4 Permit requires the storm system map to be updated in 2 phases. Phase I mapping must be completed within 2 years of the effective date of the permit (July 1, 2020) and include the following information:

- Outfalls and receiving waters (previously required by the MS4-2003 permit);
- Open channel conveyances (swales, ditches, etc.);
- Interconnections with other MS4s and other storm sewer systems;
- College-owned stormwater treatment structures;
- Waterbodies identified by name with a list of impairments as identified on the most recent EPA approved Massachusetts Integrated List of Waters report; and
- Initial catchment delineations based on topography or contributing structures.

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

- Outfall locations (latitude and longitude with a minimum accuracy of +/-30 feet);
- Pipe connectivity;
- Manholes;
- Catch basins;
- Refined catchment delineations based on updated mapping information;
- College-owned sanitary sewer system; and
- College-owned combined sewer system.

Work to be Performed

MassBay College has largely completed mapping its stormwater system, however, will continue to update its stormwater mapping in GIS format by the required deadlines to include the above information. Where applicable, GIS information can be exported into other formats, such as Microsoft Excel, for use with annual reporting or tracking. Current stormwater mapping is provided in **Appendix B**. The following table shows the BMPs, responsible parties and measurable goals.

Table 5-1. BMP Description – Complete System Mapping

BMP Description	Responsible Parties	Measurable Goal
Phase I Storm Sewer System Map	Facilities Department	Complete preliminary system map within 2 years of effective date of permit
Phase II Storm Sewer System Map	Facilities Department	Complete full system map 10 years after effective date of permit

5.3.3 Complete Sanitary Sewer Overflow Inventory

The 2016 MS4 Permit requires permittees to prohibit illicit discharges, including SSOs, to the separate storm sewer system. SSOs are discharges of untreated sanitary wastewater from a permittees' sanitary sewer that can contaminate surface waters, cause serious water quality problems and property damage, and threaten public health. MassBay's campus relies on septic systems for wastewater management. Therefore, SSO considerations do not apply to the College's program, as noted in the NOI (**Appendix A**).

5.3.4 Develop and Implement Written IDDE Program

Requirements

MassBay College must develop an IDDE Program, the majority of which is contained in a written Illicit Discharge, Detection, and Elimination Plan, a standalone document separate from this SWMP Plan. The IDDE Plan must include a statement of responsibilities and detailed written procedures for the following:

- Assessment and priority ranking of outfalls and interconnections;
- Dry and wet weather outfall sampling;
- Catchment investigation procedures;
- System vulnerability factor (SVF) assessment;
- Identification of an illicit discharge;
- Illicit discharge removal; and
- Ongoing screening requirements.

Work to be Performed

MassBay has developed a written IDDE Plan as a separate standalone document to address the illicit discharge requirements of the 2016 MS4 Permit. MassBay is currently working towards implementing the IDDE Plan and program, according to the schedule set forth in the permit. The following table shows the BMPs, responsible parties and measurable goals.

Table 5-2. BMP Description – Written IDDE Program and Program Implementation

BMP Description	Responsible Parties	Measurable Goal
Written IDDE Program	Facilities Department	Create written IDDE program within 1 year of the effective date of the permit and update periodically
Outfall Inventory and Ranking	Facilities Department	Classify and rank outfalls and interconnections within 1 year of the effective date of the permit.
Implement IDDE Program	Facilities Department	Implement catchment investigations and complete within 10 years of the effective date of the permit

5.3.5 Perform Dry and Wet Weather Outfall Screening

Requirements

Outfalls and contributing catchment areas must be categorized into Problem, High, Low, and Excluded outfalls and then ranked within each category. The 2016 MS4 Permit then requires all outfalls classified as High and Low to be inspected for the presence of dry conditions within 3 years of the permit effective date. While completing screening, permittees must also document various physical indicators of the outfall and sample flowing outfalls. Additionally, outfalls with at least 1 SVF must also be sampled during wet weather. Depending on the results, additional screening and sampling may be required further up into the contributing catchment. Once dry and wet weather sampling is complete, additional ongoing screening shall be performed once every 5 years in accordance with the catchment prioritization and ranking. Both dry and wet weather outfall screening must be conducted in accordance with screening procedures outlined in the written IDDE Plan. All sampling results shall be reported in the permittee's annual report.

Work to be Performed

MassBay College prepared an outfall sampling program to sample known outfalls in accordance with the written procedures and schedules in the IDDE Plan. Known outfalls were evaluated during dry weather conditions during 2021 and did not note the presence of any likely sewer input indicators. Results are documented in the IDDE Plan. Additionally, the College currently does not have any outfalls with SVFs. Additional work is completed as noted in the standalone IDDE Plan. The following table shows the BMPs, responsible parties and measurable goals.

Table 5-3. BMP Description – Perform Dry and Wet Weather Outfall Screening

BMP Description	Responsible Parties	Measurable Goal
Dry Weather Screening	Facilities Department	Complete in accordance with outfall screening procedure within 3 years of the effective permit date
Wet Weather Screening	Facilities Department	Complete in accordance with outfall screening procedure within 10 years of the effective permit date
Ongoing Screening	Facilities Department	Conduct ongoing dry and wet weather outfall screening upon completion of the IDDE program

5.3.6 Perform Annual IDDE Training

The 2016 MS4 Permit requires annual IDDE training to be provided to all employees involved in the IDDE program. MassBay provides annual training that at a minimum include information on how to identify illicit discharges and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program. The Facilities Department is the sole department responsible for implementing the IDDE program, and thus training focuses on these departments. Frequency and type(s) of training is included in the annual report. The following table shows the BMP, responsible parties and measurable goals.

Table 5-4. BMP Description – Perform Annual IDDE Training

BMP Description	Responsible Parties	Measurable Goal
Perform IDDE Training	Facilities Department	Complete annual training

5.4 Measuring IDDE Program Effectiveness

The success of the IDDE Program is evaluated according to the following parameters:

- Storm system mapping progress;
- Number of illicit discharges identified and removed;
- Number of catchments evaluated using the catchment investigation procedures;
- Updated SVF and catchment inventory and ranking;
- Dry weather and wet weather screening and sampling results;
- Estimated volume or quantity of sewage removed; and
- Number of employees successfully trained on IDDE.

The above are tracked throughout the year and reported as part of each annual report submitted to EPA each year by September 28.

6 MCM 4:

Construction Site Stormwater Runoff Control

6.1 Summary of Permit Requirements

Under MCM 4, permittees are required to implement and enforce a program to reduce pollutants in stormwater runoff discharged to the MS4 from all construction activities that result in a land disturbance of greater than or equal to 1 acre within the regulated area. This program shall also regulate disturbances less than 1 acre if they are part of a larger common plan of development or sale that would disturb 1 or more acres. A summary of the required Construction Site Stormwater Runoff Control Program activities and timelines are provided below:

6.1.1 Legal Authority

The Construction Site Stormwater Runoff Control Program shall include adequate legal authority in the form of a currently effective ordinance, bylaw, or other regulatory mechanism to require the use of sediment and erosion control practices at construction sites, and include controls for other wastes on construction sites.

6.1.2 Construction Site Stormwater Runoff Control Program

The 2016 MS4 Permit requires preparation of a written Construction Site Stormwater Runoff Control Program procedures that includes pre-construction site plan review and onsite construction inspections. Permittees must also establish requirements for developers to implement a Sediment and Erosion Control Program as part of its Construction Site Stormwater Runoff Control Program that includes BMPs to reduce pollutant sources from construction sites. This program should also include requirements for controlling other wastes during construction.

6.2 Objectives and Goals

MassBay College implements an effective construction stormwater runoff control program to minimize or eliminate erosion and maintain sediment onsite so that it is not transported in stormwater and allowed to discharge to a water of the U.S through the permittee's MS4.

6.3 Construction Site Stormwater Runoff Control Program

The following sections outline how MassBay is meeting the requirements of the 2016 MS4 Permit to establish a Construction Site Stormwater Runoff Control Program.

6.3.1 Establish Legal Authority

Permittees must develop an ordinance, bylaw or regulatory mechanism to require the use of sediment and erosion control practices at construction sites and include controls for other wastes on construction sites. As noted in the NOI (**Appendix A**), MassBay Community College has no regulatory authority, and thus has no bylaws, ordinances, or other legal regulatory mechanisms will be enacted in response to the 2016 MS4 Permit.

6.3.2 Establish Written Procedures for Site Plan Review

Requirements

The 2016 MS4 Permit requires establishing written procedures for pre-construction plan review of the site design, planned operations, planned BMPs during the construction phase, and planned BMPs to manage runoff after development that includes the following:

- Potential water quality impacts;
- Consideration of information submitted by the public; and
- Evaluation of opportunities for use of LID and green infrastructure (GI).

Work to be Performed

The College briefly reassessed its site plan review program for compliance with the 2016 MS4 Permit. MassBay College works closely with the Massachusetts Department of Capital Asset Management and Maintenance (DCAMM) on all construction projects that occur on-campus, with formal site plan reviews generally conducted by DCAMM and informal reviews conducted by the College. Note that due to the small size of the College, only infrequent development generally occurs at the college (less than 1 project per year). The following table shows the BMP, responsible parties and measurable goals.

Table 6-1. BMP Description – Establish Site Plan Review Procedures

BMP Description	Responsible Parties	Measurable Goal
Procedures for Site Plan Review	Facilities Department	Establish procedures for site plan review within 1 year of the effective date of the permit

6.3.3 Establish Procedures for Site Inspections and Enforcement

Requirements

The 2016 MS4 Permit requires the development of written procedures for site inspections and enforcement actions to take place both during construction of BMPs and after construction of BMPs is completed to ensure they are working as described in the approved plans. Procedures must define the following:

- Who is responsible for site inspections;
- Qualifications necessary to perform inspections;
- Who has authority to implement enforcement procedures;
- Ability to impose sanctions to ensure program compliance;

- The use of standardized inspection forms (if appropriate); and
- How to track the number inspections and enforcement actions for reporting in the Annual Report.

Work to be Performed

As noted previously, MassBay College works closely with DCAMM on construction projects and cooperates with DCAMM to develop and implement an inspection process within 1 year of the effective date to provide formal inspection procedures. The following table shows the BMP, responsible parties and measurable goals.

Table 6-2. BMP Description – Establish Site Inspections and Enforcement Procedures

BMP Description	Responsible Parties	Measurable Goal
Site Inspections and Enforcement	Facilities Department	Establish procedures for site inspections and enforcement within 1 year of the effective date of the permit

6.3.4 Establish a Sediment and Erosion Control Program

Requirements

Permittees must establish requirements for construction site operators performing land disturbance activities within the MS4 jurisdiction that result in stormwater discharges to the MS4 to implement a sediment and erosion control program that includes BMPs appropriate for the conditions at the construction site. Examples of sediment and erosion control measures for construction sites include local requirements to:

1. Minimize the amount of disturbed area and protect natural resources;
2. Stabilize sites when projects are complete or operations have temporarily ceased;
3. Protect slopes on the construction site;
5. Protect all storm drain inlets and armor all newly constructed outlets;
6. Use perimeter controls at the site;
7. Stabilize construction site entrances and exits to prevent off-site tracking;
8. Inspect stormwater controls at consistent intervals.

Work to be Performed

MassBay College worked with DCAMM to develop a sediment and erosion control program for compliance with the 2016 MS4 Permit within 1 year of the effective date in order to reduce the erosion of sediments on construction sites. The erosion control program is reviewed as part of the written procedures for site plan review by both DCAMM and MassBay College. The following table shows the BMP, responsible parties and measurable goals.

Table 6-3. BMP Description – Develop an Erosion and Sediment Control Program

BMP Description	Responsible Parties	Measurable Goal
Procedures for Erosion and Sediment Control	Facilities Department	Establish procedures for development of an erosion and sediment control program within 1 year of the effective date of the permit
Develop Procedures for Waste Control	Facilities Department	Establish requirements to control construction site wastes within 1 year of the effective date of the permit

7 MCM 5: Stormwater Management in New Development and Redevelopment

7.1 Summary of Permit Requirements

Under MCM 5, permittees shall develop, implement, and enforce a program to address post-construction stormwater runoff from new development and redevelopment sites that disturb 1 or more acres and discharge into an MS4 system. This program shall also regulate disturbances less than 1 acre if they are part of a larger common plan of development or sale that would disturb 1 or more acres. A summary of the required Stormwater Management in New Development and Redevelopment, also known as Post Construction Stormwater Management, activities and timelines are provided below:

7.1.1 Legal Authority

The Post Construction Stormwater Management Program shall include adequate legal authority in the form of a currently effective ordinance, bylaw, or other regulatory mechanism to require LID site planning and design strategies, meet many of the requirements of the Massachusetts Stormwater Handbook and stormwater standards, and incorporate runoff volume storage and/or pollutant removal requirements. Updates must be made within 3 years of the effective permit date.

7.1.2 As-Built Submittals

The permittee must require the submission of as-built drawings within 3 years after completion of construction projects and include structural and non-structural controls.

7.1.3 Operation and Maintenance

The program must include procedures to ensure adequate long-term operation and maintenance of BMPs are established after completion of a construction project, along with a dedicated funding source within 3 years of the effective permit date.

7.1.4 Regulatory Assessment

The permittee must complete an assessment of existing regulations that could affect creation of impervious cover to determine if changes are required to support LID. Additionally, the permittee must assess current regulations to ensure that green infrastructure is allowable. Any required changes must be completed within 4 years of the effective permit date.

7.1.5 Inventory of Potential Retrofit Sites

The permittee must complete an inventory within 4 years of the effective permit date to determine at least 5 permittee-owned properties that could be modified or retrofitted with stormwater BMP improvements.

7.2 Objectives and Goals

MassBay College implements and enforces a program to reduce pollutants in stormwater runoff discharged to the MS4 from all construction activities that result in a land disturbance greater than or equal to 1 acre within the regulated area.

7.3 Post-Construction Stormwater Management Program

The following sections outline how MassBay is meeting the requirements of the 2016 MS4 Permit to establish a Post-Construction Stormwater Management Program.

7.3.1 Establish Legal Authority

Under the 2016 MS4 Permit, permittees shall develop or modify an ordinance, bylaw, or other regulatory mechanism within 3 years of the effective date of the permit to require LID site planning and design strategies, meet many of the requirements of the Massachusetts Stormwater Handbook and stormwater standards, and incorporate runoff volume storage and/or pollutant removal requirements. As noted in the NOI (**Appendix A**), MassBay Community College has no regulatory authority, and thus has no bylaws, ordinances, or other legal regulatory mechanisms will be enacted in response to the 2016 MS4 Permit.

7.3.2 Require Submittal of As-Built Plans

MassBay College and DCAMM require the submission of as-built drawings that show structural and non-structural stormwater controls. The following table shows the BMP, responsible parties and measurable goals.

Table 7-1. BMP Description – Require Submittal of As-Built Plans

BMP Description	Responsible Parties	Measurable Goal
Require Stormwater As-Built Plan Submittal	Facilities Department	Require submittal of as-built plans for completed projects within 2 years of completion

7.3.3 Require Long Term Operation and Maintenance

As part of its Post Construction Stormwater Management Program, MassBay College worked with DCAMM to develop procedures to ensure that the adequate long-term operation and maintenance of BMPs is accounted for at the conclusion of a construction project, along with a dedicated funding source. Long-term O&M is typically performed by the College with outside assistance by contractors as required. The following table shows the BMP, responsible parties and measurable goals.

Table 7-2. BMP Description – Require Long Term Operation and Maintenance Plans

BMP Description	Responsible Parties	Measurable Goal
Require Long Term Operation and Maintenance	Facilities Department	Require submittal of operation and maintenance plans and dedicated funding to ensure long term maintenance within 2 years of the effective date of the permit

7.3.4 Complete Regulatory Assessment

Requirements

The 2016 MS4 permit requires permittees to complete a report that assesses current street design, parking lot guidelines, and other local requirements that could affect creation of impervious cover to determine if changes to existing design standards are required to support LID. If the assessment indicates that changes can be made, the assessment shall include recommendations and proposed schedules to incorporate policies and standards into relevant documents and procedures to minimize impervious cover. Any required changes to reduce mandatory creation of impervious cover in support of LID should be made within 4 years of the effective permit date.

Additionally, the permittee must complete a report that assesses current regulations to determine the feasibility of allowing green roofs, infiltration practices, porous/pervious pavement, and water harvesting/storage devices where feasible. The assessment must indicate if the practices are allowed in the MS4 area and under what circumstances they are allowed. If the practices are not allowed, the permittee shall determine what hinders the use of these practices, what changes in local regulations may be made to make them allowable, and provide a schedule for implementation of recommendations. Any required changes to allow for these BMPs must be completed within 4 years of the effective permit date.

Work to be Performed

As noted in the NOI (**Appendix A**), MassBay Community College has no regulatory authority, and thus has no bylaws, ordinances, or other legal regulatory mechanisms will be enacted in response to the 2016 MS4 Permit. Any required regulatory changes or updates will be addressed by DCAMM. The following table shows the proposed BMP, responsible parties and measurable goals.

Table 7-3. BMP Description – Complete LID and GI Regulatory Updates

BMP Description	Responsible Parties	Measurable Goal
Allow green infrastructure	Facilities Department	Complete regulatory updates within 4 years of the effective date of the permit
Street design and parking lot guidelines	Facilities Department	Complete regulatory updates within 4 years of the effective date of the permit

7.3.5 Complete Inventory of Potential BMP Retrofit Sites

Requirements

Permittees must complete an inventory of at least 5 existing permittee-owned properties that could be modified or retrofitted with structural stormwater BMP improvements to reduce the frequency, volume, and pollutant loads within 4 years of the effective permit date. The inventory provided in **Appendix C** should include properties with significant impervious cover such as parking lots, buildings, and maintenance yards, along with infrastructure such as existing rights-of-way, outfalls and stormwater conveyances such as swales or detention practices. The permittee should address potential site constraints that could hinder BMP construction, such as subsurface conditions, depth to water table, and utility impacts, and should ideally allow opportunities for public education. In addition, the inventory must consider BMPs to reduce phosphorus discharges because of the phosphorus impairment to the Charles River.

Beginning with the fifth annual report, should BMPs at 1 or more sites be constructed, the inventory should be updated so that it always contains at least 5 sites in the inventory for potential improvement. Additionally, the permittee must report on all properties that have been modified or retrofitted to mitigate impervious area.

Work to be Performed

As noted in the NOI, the entire campus is owned by MassBay Community College. Instead of identifying 5 facilities, MassBay attempted to identify five areas on campus that could be suitable for structural BMP modification or retrofit, along with a review of existing site conditions within 4 years of the effective date. Due to limited drainage infrastructure onsite, most of which already flows to a BMP, only 4 locations were identified. This inventory (**Appendix C**) will be updated continuously starting in Year 5. MassBay Community College then conducted a desktop analysis of all locations to assess them for potential BMP retrofit opportunities by reviewing relevant information such as available space, localized topography, soil types, opportunities to reroute existing drainage networks, etc. All locations were then evaluated in the field to further refine desktop assessments and were then ranked based on existing conditions and feasibility of retrofitting to improve water quality. The top five sites for potential BMP retrofit were then identified and pre-conceptual designs with costs were prepared for top sites. The following table shows the proposed BMP, responsible parties and measurable goals.

Table 7-4. BMP Description – Complete Inventory of Properties for BMP Retrofit

BMP Description	Responsible Parties	Measurable Goal
Target properties to reduce impervious areas	Facilities Department	Complete inventory within 4 years of the effective date of the permit and update annually on retrofitted properties

8 MCM 6: Good Housekeeping and Pollution Prevention

8.1 Summary of Permit Requirements

Under MCM 6, permittees shall develop and implement an operations and maintenance program to reduce stormwater pollution from permittee activities. This includes optimizing existing activities related to parks and open space, buildings and facilities, vehicles and equipment, and stormwater infrastructure maintenance. A summary of the required Good Housekeeping and Pollution Prevention for Permittee Owned Operations activities and timelines is provided below.

8.1.1 Operations and Maintenance Programs

Permittees shall develop written operations and maintenance procedures for parks and open space, buildings and facilities, vehicles and equipment, winter road maintenance, stormwater infrastructure, and structural stormwater BMPs within 2 years of the effective permit date. This program shall also optimize catch basin cleaning and street sweeping, along with establishing proper storage techniques for cleaning residuals. All maintenance activities, inspections, and training shall be logged for annual reporting.

8.1.2 Stormwater Pollution Prevention Plans

Develop and implement SWPPPs for permittee-owned maintenance garages within 2 years of the effective permit date.

8.2 Objectives and Goals

MassBay College implements an effective good housekeeping, pollution prevention, and operation and maintenance program with a goal of preventing or reducing pollutant runoff, protecting water quality from operations, and maintain its infrastructure in good working order.

8.3 Good Housekeeping and Pollution Prevention Program

The following sections outline how MassBay is meeting the requirements of the 2016 MS4 Permit to establish a Good Housekeeping and Pollution Prevention Program.

8.3.1 Complete Facilities O&M Procedures

Requirements

The permittee must complete an inventory of all parks and open space, buildings and facilities where pollutants are exposed to stormwater runoff, including those coming from vehicles and equipment, within 2 years of the permit effective date. The inventory must be reviewed annually and updated as necessary. Upon completion, the permittee must establish written procedures as part of an Operation and Maintenance Plan within 2 years of the permit effective date for the following items:

Parks and Open Space

- Proper use, storage, and disposal of pesticides, herbicides, and fertilizers;
- Lawn maintenance and landscaping activities to protect water quality, such as reducing mowing, lawn clippings handling, and use of alternative materials;
- Pet waste handling collection and disposal locations at all locations where pets are permitted, including signage;
- Control of waterfowl in areas where they congregate to reduce waterfowl droppings from entering the MS4s;
- Management of trash containers; and
- Addressing erosion or poor vegetative cover, particularly near a surface waterbody.

Buildings and Facilities

- Use, storage, and disposal of petroleum products and other potential pollutants.
- Materials handling training to applicable employees;
- Ensuring that Spill Prevention, Control, and Countermeasures (SPCC) Plans are in place if needed (aboveground petroleum storage greater than 1,320 gallons or underground petroleum storage greater than 42,000 gallons);
- Dumpsters and other waste management equipment; and
- Sweeping parking lots and keeping facility areas clean to reduce pollutants in runoff.

Vehicles and Equipment

- Storage of vehicles to prevent fluid leaks to stormwater;
- Fueling area evaluation, including feasibility of fueling under cover; and
- Preventing vehicle wash waters from entering surface waters or the MS4.

Work to be Performed

Although MassBay College does not have formal park areas, remaining items above, including open space and other campus green areas, have been incorporated into a detailed written Operation and Maintenance Plan, a standalone document separate from this SWMP Plan, to cover applicable College-owned facilities. This document also includes the inventory of relevant College-owned properties. The following table shows the BMP, responsible parties and measurable goals.

Table 8-1. BMP Description – Complete Written Facilities O&M Procedures

BMP Description	Responsible Parties	Measurable Goal
Inventory open spaces, buildings and facilities, and vehicles and equipment	Facilities Department	Complete inventory of open spaces, buildings and facilities, and vehicles and equipment within 2 years of the effective date of the permit
Establish Operation and Maintenance Procedures	Facilities Department	Create written O&M Plan for open spaces, buildings and facilities, and vehicles and equipment within 2 years of the effective date of the permit

8.3.2 Complete Infrastructure O&M Procedures

Requirements

The permittee must establish written procedures as part of an Operation and Maintenance Plan within 2 years of the permit effective date to ensure that MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4 for the following items:

Catch Basin Cleaning

- Prioritization of catch basins located near construction activities for more frequent inspection and maintenance;
- Establishing a schedule with a goal that at the time of maintenance, no catch basin is more than 50% full;
- For catch basins that are more than 50% full during 2 consecutive inspections or cleaning events, methods for investigating the contributing drainage area for sources of excessive sediment loads; and
- Establishing a plan for optimizing catch basin cleaning, inspections, and documentation (**Appendix D**).

Street Sweeping

- Sweeping all streets and permittee-owned parking lots, with the exception of rural uncurbed roads with no catch basins or high-speed limited access highways at least 1 per year in the spring following winter sanding events;
- More frequent sweeping of targeted areas based on inspections, land use, or known water quality impacts;
- For rural uncurbed roadways with no catch basins or limited access highways, either an evaluation to meet the minimum frequencies above or development and implementation of an inspection, documentation, and targeted sweeping plan within 2 years of the effective date and submitted with the Year 1 annual report.

Catch Basin and Street Sweeping Residuals Management

- Ensure proper storage of catch basins cleanings and street sweepings prior to disposal or reuse such that they are not discharged to receiving waters based on available MassDEP policies.

Winter Operation and Maintenance

- Establish and implement procedures for winter road maintenance including the use and storage of salt and sand
- Minimizing use of sodium chloride and other salts and evaluation of opportunities to use alternative materials; and
- Ensuring that snow disposal activities do not result in disposal of snow into waters of the United States.

Work to be Performed

The College updated its existing street sweeping, catch basin cleaning, and winter O&M procedures during Permit Year 1 in order to meet permit requirements. Street sweeping is expected to continue under the existing Street Sweeping Prioritization Plan provided in the O&M Plan. Catch basin prioritization is being completed according to the methodology and schedule outlined in the Catch Basin Optimization Plan provided in **Appendix D** and in the standalone O&M Plan. The following table shows the BMP, responsible parties and measurable goals.

Table 8-2. BMP Description – Complete Written Infrastructure O&M Procedures

BMP Description	Responsible Parties	Measurable Goal
Review Infrastructure O&M Procedures	Facilities Department	Create written O&M Plan for stormwater infrastructure within 2 years of the effective date of the permit
Catch Basin Cleaning	Facilities Department	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually
Street Sweeping	Facilities Department	Sweep all streets and parking lots at least annually
Road salt optimization program	Facilities Department	Implement salt use optimization during winter maintenance operations

8.3.3 Stormwater Pollution Prevention Plans

Requirements

The permittee must establish written Stormwater Pollution Prevention Plans for certain permittee-owned or operated facilities, such as maintenance garages or similar areas where pollutants are exposed to stormwater as determined by the permittee. SWPPPs must address a number of components, including the following:

- Pollution Prevention Team and facility description;
- Identification of potential pollutant sources, and stormwater controls;

- Stormwater management practices, spill prevention and response, erosion and sediment control, management of runoff, salt storage, employee training; and
- Procedures for site inspections and sampling.

Work to be Performed

MassBay College does not have any formal facilities as outlined in the permit, however, select areas of the college, including the salt storage shed, waste material storage areas, and vehicle maintenance areas, have been determined to fit the intent of the permit. Thus, MassBay College completed an abbreviated SWPPP meeting applicable permit requirements during Year 2 of the permit. The SWPPP is retained as a separate standalone document. Note that the College has no other maintenance garages or waste handling facilities. The following table shows the BMP, responsible parties and measurable goals.

Table 8-3. BMP Description – Prepare SWPPPs for Regulated Facilities

BMP Description	Responsible Parties	Measurable Goal
Assess regulated facilities to determine SWPPP eligibility	Facilities Department	Complete facilities assessment within 2 years of the effective date of permit.
Develop SWPPPs for applicable facilities	Facilities Department	Complete and implement within 2 years of the effective date of the permit
Spill Prevention and Response Training	Facilities Department	Train employees involved with spill prevention and response annually

8.3.4 Structural Stormwater BMP Inspections

Requirements

The permittee must establish and implement written inspection and maintenance procedures and frequencies for all stormwater treatment structures, such as infiltration and detention basins, proprietary stormwater treatment structures, gravel wetlands, etc. at least annually.

Work to be Performed

MassBay College developed an inventory (**Appendix E**) of known structural stormwater BMPs by the end of Year 2 as required by MCM 3, mapping requirements. A total of three permittee-owned BMPs were identified. BMP inspection Standard Operating Procedures (SOPs) and logs for BMP inspection and maintenance are provided in the standalone O&M Plan. BMPs are inspected annually with results provided in **Appendix E**. The following table shows the BMP, responsible parties and measurable goals.

Table 8-4. BMP Description – Inspect Structural BMPs Annually

BMP Description	Responsible Parties	Measurable Goal
Establish BMP O&M Procedures	Facilities Department	Create written O&M Plan for stormwater BMPs within 2 years of the effective date of the permit
Inspect and maintain stormwater BMPs	Facilities Department	Inspect and maintain treatment structures annually

BMP inspection Standard Operating Procedures (SOPs) and results are tracked under the standalone O&M Plan under separate cover.

9 TMDL and Impaired Waters Controls

9.1 Permit Requirements

The 2016 MS4 Permit requires regulated operators of MS4s to determine whether stormwater discharges from their MS4 contribute to any impaired waterbodies, including those subject to an approved TMDL and certain water quality limited waterbodies. Water quality limited waters are any waterbodies that do not meet applicable water quality standards, including waterbodies listed in categories “4a” and “5” on the Massachusetts Integrated List of Waters, also known as the “303(d) List”. MassDEP is responsible for preparing TMDLs for many of these listed waters to identify the problem pollutant and establish water quality goals. TMDLs are prepared based on the priority assigned to the waterbody and are being completed over the course of several years.

As outlined in Section 2.3, MassBay College is subject to the following TMDL and impaired waters requirements:

Table 9-1. TMDL and Impaired Waters Requirements

Waterbody Name	Impairment	2016 Permit Requirements
Charles River	Phosphorus	Appendix F, Part A.I

Thus, MassBay College must implement control measures for discharges to approved TMDL waters and to impaired waters without a TMDL as summarized in the sections below. MassBay College reviews the most recent approved list of impaired waters as it is released and outlines any additional requirements associated with the most recent list.

9.2 Charles River Phosphorus TMDL Requirements

As noted in the NOI, MassBay College is not specifically listed in the 2016 NPDES MS4 Permit, the Upper/Middle Charles River nutrient TMDL, or the Lower Charles River phosphorus TMDL as having to meet any TMDL requirements under the permit. As MassBay College is not specifically listed in the permit as being subject to the Charles River TMDL requirements, however, is still located within the watershed, the College is required to coordinate with the municipality (Wellesley) in which they are located to facilitate compliance with the phosphorus reduction applicable to the municipality as noted in section 5.1.5 of the Permit.

As part of the Year 4 annual report, MassBay College must provide the following information:

- Estimated current impervious area of permittee owned property,
- Land Use information for permittee owned property,
- Phosphorus removal in pounds per year for any structural BMP owned by the permittee, calculated in accordance with Appendix F Attachment 3

- Date of last maintenance activity for all structural BMPs for which phosphorus removal is calculated

Also as outlined in section 5.1.5, MassBay College must include planned phosphorus reduction activities onsite and coordination progress in each annual report.

Remaining Phosphorus Control Plan (PCP) requirements do not apply to the college. A memo documenting work performed as part of the phosphorus TMDL requirements is provided in **Appendix F**.

Table 9-2. TMDL Requirements – Charles River Phosphorus

BMP Description	Responsible Parties	Measurable Goal
TMDL Requirements – Charles River Phosphorus	Facilities Department	Adhere to requirements in part A.I of Appendix F

10 Annual Reporting

The permittee shall submit annual reports each year of the permit term. The reporting period is a one-year period commencing on the permit effective date, and subsequent anniversaries thereof, except that the first annual report under this permit shall also cover the period from May 1, 2018 to the permit effective date. The annual report is due 90 days from the close of each reporting period, or by September 28 of each year. The annual reports must contain the following relevant information which should be tracked throughout the year, and should be filed within **Appendix G**:

- A self-assessment review of compliance with the permit terms and conditions.
- An assessment of the appropriateness of the selected BMPs.
- The status of any plans or activities, including:
 - Identification of all discharges determined to be causing or contributing to an exceedance of water quality standards and description of response;
 - For discharges subject to TMDL or water quality limited waterbody requirements, identification of BMPs used to address the impairment and assessment of the BMPs effectiveness;
 - For discharges to water quality limited waters a description of each BMP and any deliverables required.
- An assessment of the progress towards achieving the measurable goals and objectives of each of the 6 minimum measures:
 - Evaluation of the public education program including a description of the targeted messages for each audience; method and dates of distribution; methods used to evaluate the program; and any changes to the program.
 - Description of the activities used to promote public participation including documentation of compliance with state public notice regulations.
 - Description of IDDE activities including: status of mapping and results of the ranking and assessment; identification of problem catchments; status of all IDDE Plan components; number and identifier of catchments evaluated; number and identifier of outfalls screened; number of illicit discharges located and removed; gallons of flow removed; identification of tracking indicators and measures of progress; and employee training.
 - Evaluation of construction runoff management including number of project plans reviewed; number of inspections; and number of enforcement actions.
 - Evaluation of stormwater management for new and redevelopment including status of bylaw development; review and status of the street design and barriers to green infrastructure assessment; and inventory status.
 - Status of the O&M Programs.
 - Status of SWPPPs, including inspection results.
- All outfall screening and monitoring data during the reporting period and cumulative for the permit term; and a description of any additional monitoring data received by the permittee during the reporting period.
- Description of activities for the next reporting cycle.
- Description of any changes in identified BMPs or measurable goals.
- Description of activities undertaken by any entity contracted for achieving any measurable goal or implementing any control measure.

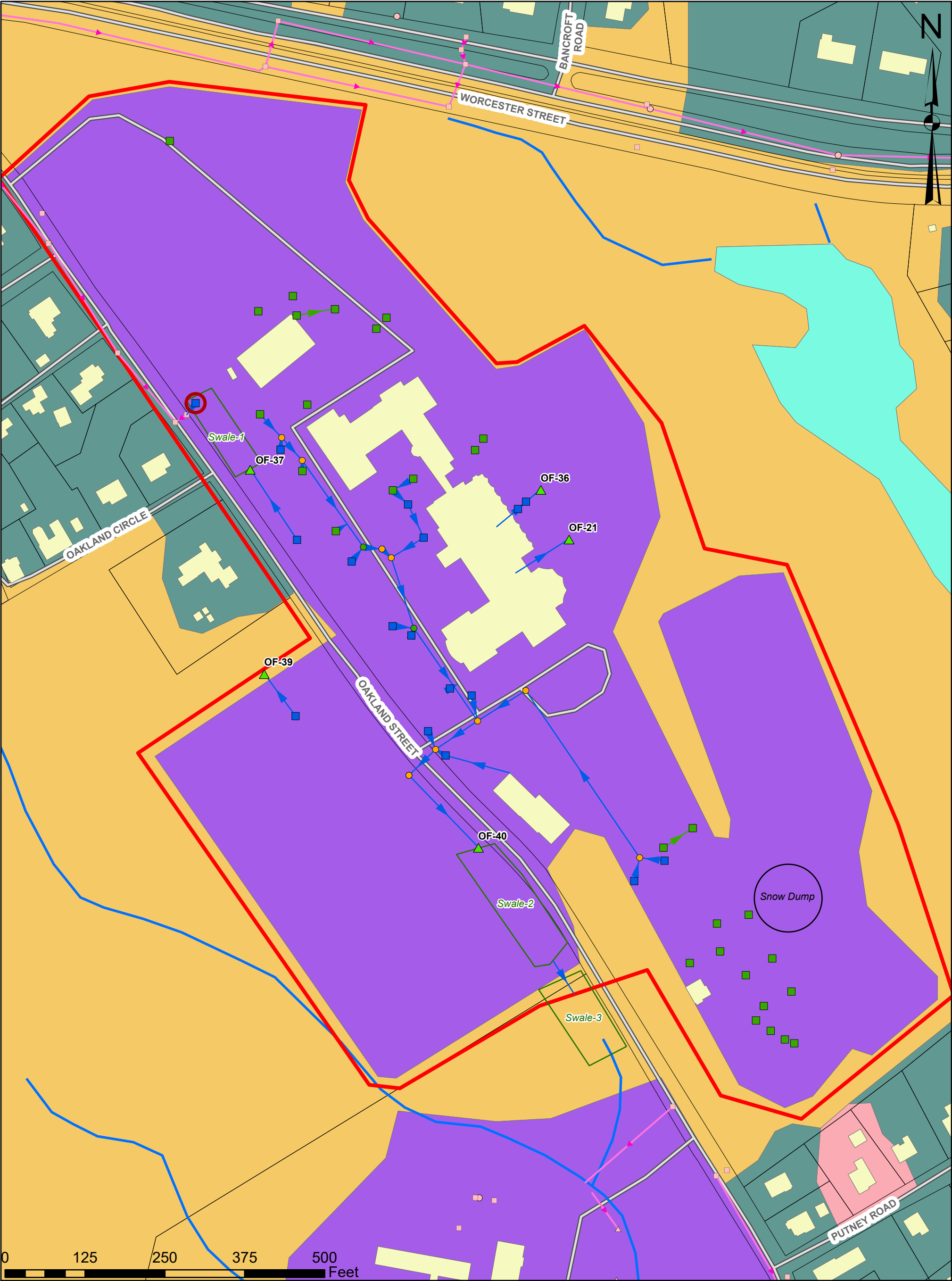
11 Program Documentation

In addition to the implementation activities outlined in this plan, the College also documents the following activities throughout the duration of the permit:

1. **Program Evaluation** – conduct annual evaluations of the Stormwater Management Program for compliance with permit conditions. The evaluation must include a determination of the appropriateness of the selected BMPs in efforts towards achieving the measurable goals.
2. **Record Keeping** – maintain records that pertain to the Stormwater Management Program for a period of at least 5 years. Records need to be made available to the public and the College may charge a reasonable fee for copying. Records need not be submitted to EPA or MassDEP unless specifically requested.
3. **Reporting** – submit an annual report to EPA and MassDEP, including the information as noted in Section 10.

Refer to the following link for a copy of the 2016 MA MS4 Permit:

<https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit>



Legend

- | | | | |
|------------------------|-------------------|------------------------|----------------------------|
| MassBay Outfall | Drain Pipe | Buildings | Forest |
| MassBay Catch Basin | Leach Drain Pipe | Approx. Regulated Area | Forested Wetland |
| MassBay Leaching Basin | Town Outfall | Streams | Medium Density Residential |
| MassBay Dry Well | Town CB | Road | Multi-Family Residential |
| MassBay DMH | Town DMH | Parcels | Open Land |
| Interconnection | Town Gravity Main | Cropland | Urban Public/Institutional |

Land Use Map

Mass Bay Community College
Wellesley, MA



Comprehensive
Environmental
Incorporated

Data Sources: MassGIS, MassBay Community College, CEI



Legend

- | | | |
|--------------------------|---------------------|--------------------------|
| ▲ MassBay Outfall | ➡ Drain Pipe | 🏠 Buildings |
| ■ MassBay Catch Basin | ➡ Leach Drain Pipe | 📏 Approx. Regulated Area |
| ■ MassBay Leaching Basin | ▲ Town Outfall | 🌊 Streams |
| ● MassBay Dry Well | ■ Town CB | 🛣️ Road |
| ● MassBay DMH | ● Town DMH | 🔴 Impervious Surface |
| ○ Interconnection | ➡ Town Gravity Main | 📐 Parcels |

Impervious Area Map

Mass Bay Community College
Wellesley, MA



Comprehensive
Environmental
Incorporated

Data Sources: MassGIS, MassBay Community College, CEI

Appendix A

Notice of Intent

Notice of Intent (NOI) for coverage under Small MS4 General Permit Page 1 of 19

Part I: General Conditions

General Information

Name of Municipality or Organization: State:

EPA NPDES Permit Number (if applicable):

Primary MS4 Program Manager Contact Information

Name: Title:

Street Address Line 1:

Street Address Line 2:

City: State: Zip Code:

Email: Phone Number:

Fax Number:

Other Information

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

Eligibility Determination

Endangered Species Act (ESA) Determination Complete?

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

National Historic Preservation Act (NHPA) Determination Complete?

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

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

MS4 Infrastructure (if covered under the 2003 permit)

Estimated Percent of Outfall Map Complete? If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY):

Web address where MS4 map is published:

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

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted? Effective Date or Estimated Date of Adoption (MM/DD/YY):

Construction/Erosion and Sediment Control (ESC) Authority Adopted? Effective Date or Estimated Date of Adoption (MM/DD/YY):

Post- Construction Stormwater Management Adopted? Effective Date or Estimated Date of Adoption (MM/DD/YY):

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

Part II: Summary of Receiving Waters

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

Massachusetts list of impaired waters: [Massachusetts 2014 List of Impaired Waters- http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf](http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf)

Check off relevant pollutants for discharges to impaired waterbodies (see above 303(d) lists) without an approved TMDL in accordance with part 2.2.2.a of the permit. List any other pollutants in the last column, if applicable.

[illegible]

Click to lengthen table

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

Part III: Stormwater Management Program Summary

Identify the Best Management Practices (BMPs) that will be employed to address each of the six Minimum Control Measures (MCMs). For municipalities/organizations whose MS4 discharges into a receiving water with an approved Total Maximum Daily Load (TMDL) and an applicable waste load allocation (WLA), identify any additional BMPs employed to specifically support the achievement of the WLA in the TMDL section at the end of part III.

For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be employed (public education and outreach BMPs also requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	BMP Description	Targeted Audience	Responsible Department/Parties (enter your own text to override the drop down menu)	Measurable Goal	Beginning Year of BMP Implementation
Brochures/Pamphlets	Distribute flyers regarding stormwater awareness and healthy lawns and landscapes, detailing pet waste disposal, lawn care, and the minimization or elimination of pesticide and fertilizer use.	Students	Facilities Department	Continue to provide information at various campus locations. Distribute brochures to students.	2018
Web Page	Provide information on website related to illicit storm drain dumping, private septic system and well maintenance, proper hazardous waste disposal, and use of detergents, fertilizers, etc., and use of environmentally friendly products.	Students	Facilities Department, Marketing	Continue to update and maintain the websites.	2018

[illegible]

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

Part III: Stormwater Management Program Summary (continued)

MCM 2: Public Involvement and Participation

[illegible]

[illegible]

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

Part III: Stormwater Management Program Summary (continued)

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

BMP Categorization (enter your own text to override the drop down menu)	BMP Description	Responsible Department/Parties (enter your own text to override the drop down menu)	Measurable Goal (all text can be overwritten)	Beginning Year of BMP Implementation
SSO inventory	Develop SSO inventory in accordance of permit conditions	Facilities Department	Complete within 1 year of effective date of permit	2018
Storm sewer system map	Create map and update during IDDE program completion	Facilities Department	Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit	2018
Written IDDE program	Create written IDDE program	Facilities Department	Complete within 1 year of the effective date of permit and update as required	2018
Implement IDDE program	Implement catchment investigations according to program and permit conditions	Facilities Department	Complete 10 years after effective date of permit	2020
Employee training	Train employees on IDDE implementation	Facilities Department	Train annually	2018
Conduct dry weather screening	Conduct in accordance with outfall screening procedure and permit conditions	Facilities Department	Complete 3 years after effective date of permit	2019
Conduct wet weather screening	Conduct in accordance with outfall screening procedure	Facilities Department	Complete 10 years after effective date of permit	2024
Ongoing screening	Conduct dry weather and wet weather screening (as necessary)	Facilities Department	Complete ongoing outfall screening upon completion of IDDE program	2024

[illegible]

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

Part III: Stormwater Management Program Summary (continued)

MCM 4: Construction Site Stormwater Runoff Control

BMP Categorization (enter your own text to override the drop down menu or entered text)	BMP Description	Responsible Department/Parties (enter your own text to override the drop down menu)	Measurable Goal (all text can be overwritten)	Beginning Year of BMP Implementation
Site inspection and enforcement of Erosion and Sediment Control (ESC) measures	Complete written procedures of site inspections and enforcement procedures	Facilities Department	Complete within 1 year of the effective date of permit	2018
Site plan review	Complete written procedures of site plan review and begin implementation	Facilities Department	Complete within 1 year of the effective date of permit	2018
Erosion and Sediment Control	Adoption of requirements for construction operators to implement a sediment and erosion control program	Facilities Department	Complete within 1 year of the effective date of permit	2018
Waste Control	Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes	Facilities Department	Complete within 1 year of the effective date of permit	2018

[illegible]

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

Part III: Stormwater Management Program Summary (continued)

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

BMP Categorization (enter your own text to override the drop down menu or entered text)	BMP Description	Responsible Department/Parties (enter your own text to override the drop down menu)	Measurable Goal (all text can be overwritten)	Beginning Year of BMP Implementation
As-built plans for on-site stormwater control	The procedures to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP	Facilities Department	Require submission of as-built plans for completed projects	2018
Target properties to reduce impervious areas	Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually	Facilities Department	Complete 4 years after effective date of permit and report annually on retrofitted properties	2020
Allow green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Facilities Department	Complete 4 years after effective date of permit and implement recommendations of report	2020
Street design and parking lot guidelines	Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.	Facilities Department	Complete 4 years after effective date of permit and implement recommendations of report	2020

[illegible]

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

Part III: Stormwater Management Program Summary (continued)

MCM 6: Municipal Good Housekeeping and Pollution Prevention

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

[illegible]

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

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

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

[illegible]

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

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

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

[illegible]

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

Part IV: Notes and additional information

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

Also, provide any additional information about your MS4 program below.

MassBay Community College obtained an official species list for threatened and endangered species via the IPaC system (Consultation Code: 05E1NE00-2018-SLI-2799) within the regulated urbanized area. Per the IPaC system, one species exists within the MS4 regulated area: the Northern Long-eared Bat (*Myotis septentrionalis*). Based on the habitat of this species, it is our opinion that the current stormwater discharges will have "no effect" on the listed species. As no construction is being conducted, there will be no disturbances to terrestrial habitats of the Long-eared Bat. Existing stormwater discharges will have no effect on these habitats, as they are to aquatic areas. If structural Best Management Practices (BMPs) not identified on the NOI are proposed for installation or construction during the course of the permit term, MassBay Community College agrees to conduct endangered species screening for the proposed site and contact USFWS if it is determined that the new activity "may affect" or is "not likely to adversely affect" listed species or critical habitat under jurisdiction of the USFWS.

MassBay Community College has unique public education requirements that do not follow the typical 4 audiences as categorized by EPA. The College has no "Residents" in the traditional sense, as there is no on-campus housing. For the sake of this permit, "Residents" has been replaced by "Students". Additionally, as the College has no "Industrial" audience, this audience has been omitted from the Public Education and Outreach measure.

MassBay Community College has no regulatory authority, and thus has no bylaws, ordinances, or other regulatory mechanisms.

For the BMP "SSO inventory", MassBay Community College has no sanitary sewer or sanitary sewer overflows (SSOs).

For the BMP "Target properties to reduce impervious areas", the entire campus is owned by MassBay Community College. Instead of identifying 5 facilities, MassBay will identify 5 potential areas on campus that could be suitable for structural BMP modification or retrofit.

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

Page 19 of 19

Part V: Certification

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

Name:

David Podell, Ph.D

Title:

President

Signature:

David Podell

Digitally signed by David Podell
Date: 2018.09.18 14:24:11 -04'00'

Date:

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

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



United States Department of the Interior

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



In Reply Refer To:

August 17, 2018

Consultation Code: 05E1NE00-2018-SLI-2799

Event Code: 05E1NE00-2018-E-06552

Project Name: MassBay Community College MS4 Endangered Species Review

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-2799

Event Code: 05E1NE00-2018-E-06552

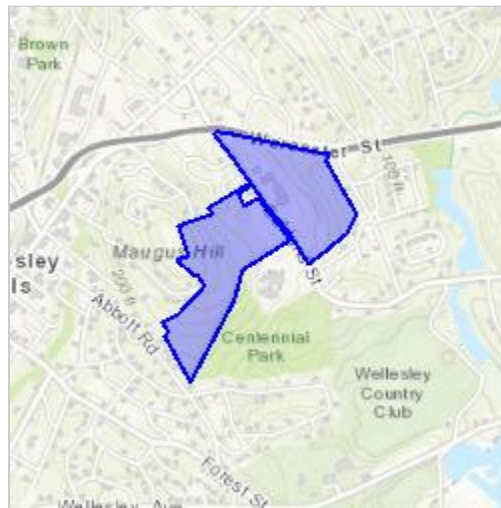
Project Name: MassBay Community College MS4 Endangered Species Review

Project Type: LAND - DRAINAGE

Project Description: Determination of impact of stormwater discharges and discharge related activities to threatened and endangered species per Appendix C of the MA MS4 General Permit. Stormwater discharge occurs from pre-existing outfalls within the regulated zone, as shown on the map.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/42.31206665252408N71.26241112593092W>



Counties: Norfolk, MA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Mammals

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

Critical habitats

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



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

VIA EMAIL

February 14, 2019

David Podell, Ph.D
President

And;

Joseph DeLisle
Director of Facilities
50 Oakland Street
Wellesley Hills, MA. 02481
jdelisle@massbay.edu

Re: National Pollutant Discharge Elimination System Permit ID #: MAR043003, MassBay
Community College

Dear Joseph DeLisle:

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

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

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

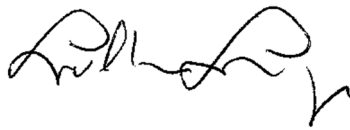
Information about the permit and available resources can be found on our website:
<https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit>. Should you have
any questions regarding this permit please contact Newton Tedder at tedder.newton@epa.gov or
(617) 918-1038.

Sincerely,



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

and;



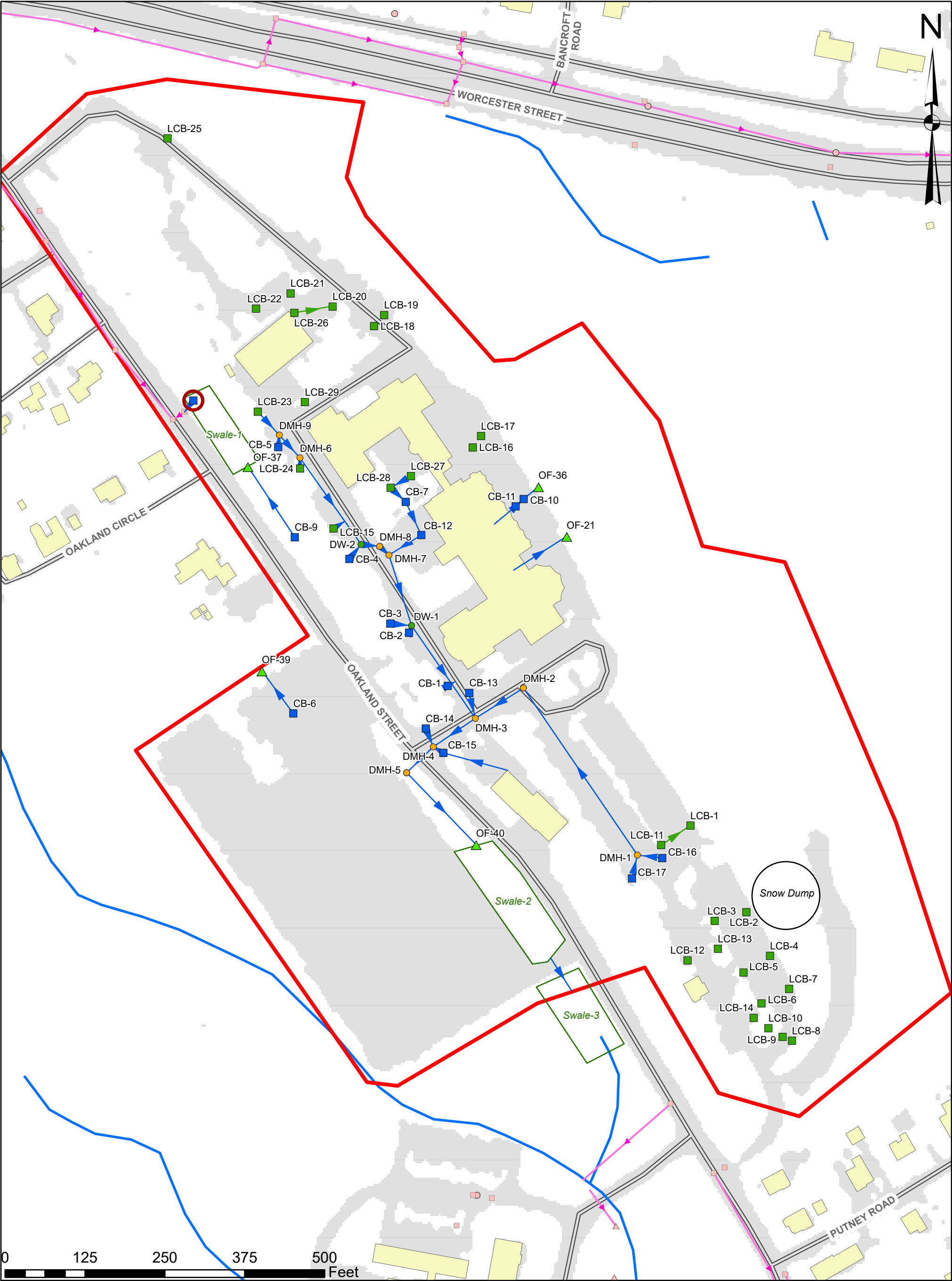
Lealdon Langley, Director
Wetlands and Wastewater Program
Bureau of Water Resources
Massachusetts Department of Environmental Protection

Appendix B

Stormwater System Mapping

Mapping Status

Requirement Summary	Status
Phase I – Must be Complete by July 1, 2020	
1. Outfalls and receiving waters	Complete
2. Open channel conveyances	Complete
3. Interconnections with other MS4s	Complete (not applicable)
4. Municipally owned structural BMPs	Complete
5. Waterbody names and impairments	Complete
6. Initial catchment delineations by topography	Complete
Phase II – Must be Complete by July 1, 2028	
1. Outfalls with spatial accuracy +/-30 feet	Complete
2. Pipe connectivity	Complete (updates ongoing)
3. Manholes	Complete (updates ongoing)
4. Catch basins	Complete (updates ongoing)
5. Refined catchment delineations	Not started
6. Municipal sanitary system	Not applicable
7. Municipal combined sewer system	Not applicable



Legend

- | | | |
|------------------------|-------------------|------------------------|
| MassBay Outfall | Town Outfall | Buildings |
| MassBay Catch Basin | Town CB | Approx. Regulated Area |
| MassBay Leaching Basin | Town DMH | Impervious Surface |
| MassBay Dry Well | Drain Pipe | Streams |
| MassBay DMH | Leach Drain Pipe | Road |
| Interconnection | Town Gravity Main | |

Stormwater Infrastructure Map

Mass Bay Community College
Wellesley, MA



Comprehensive
Environmental
Incorporated

Data Sources: MassGIS, MassBay Community College, CEI

Appendix C

Inventory and Ranking of Stormwater Retrofit Sites



STORMWATER BMP RETROFITS

1

To: Mr. Joe DeLisle, Director of Facilities, MassBay Community College
From: Nick Cristofori, P.E., Comprehensive Environmental Inc.
Date: June 30, 2022
Subject: Stormwater BMP Retrofits

Permit Requirements and Project Background

Under the Environmental Protection Agency's (EPA's) 2016 National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, as amended (Permit), MassBay Community College (MassBay) is required to complete an inventory and assessment of locations and existing stormwater infrastructure that could be retrofitted with stormwater Best Management Practices (BMPs) designed to reduce the frequency, volume and pollutant loads of stormwater discharges to its MS4 or an adjacent community-owned MS4 through the mitigation of impervious area. At a minimum, MassBay must consider sites with significant impervious cover that could be mitigated and open space and undeveloped land available to mitigate stormwater runoff from nearby areas.

The potential for retrofitting certain areas must consider, on a screening level and subject to availability, factors such as maintenance access; subsurface geology; depth to water table; site slope and elevation; and proximity to aquifers and subsurface infrastructure including sanitary sewers and septic systems. Sites must be priority ranked based on factors such as schedules for planned capital improvements to storm and sanitary sewer infrastructure and paving projects as available; current storm sewer level of service (if known); control of discharges to impaired or critical receiving waters; the complexity and cost of implementation; and opportunities for public use and education.

This memorandum outlines activities completed by Comprehensive Environmental Inc. (CEI) to assist MassBay with meeting the above Permit requirements. Beginning with the fifth year MS4 annual report and in each subsequent annual report, MassBay must report on sites that have been retrofitted with BMPs to mitigate impervious area and associated water quality impacts.

Desktop and Field Analysis

CEI first developed a BMP Retrofit Inspection map to be used to document existing conditions and field notes. This map showed an aerial view of the college, along with property lines, topography data, available drainage information, and other relevant information. Noah Parent of CEI conducted a field assessment on May 25, 2022, during which photographs, field notes, and sketches were compiled. The goal was to evaluate opportunities to reduce pollutant loads discharging to the MS4 or surface water bodies from the site through reduction or treatment of stormwater runoff from impervious surfaces. A summary of the existing conditions for each site is included as **Table 1**, with proposed retrofit conditions provided as **Table 2** the end of this memorandum.

Proposed BMP Selection

Proposed conceptual BMPs have been selected based largely on available space, soil types within the area, and proximity to wetland areas. For planning, pollutant removal, and cost estimating



STORMWATER BMP RETROFITS

purposes, locations with larger areas available for implementation were assigned BMPs with larger footprints such as infiltration basins, extended detention basins, or constructed wetlands, whereas smaller areas were assigned to rain gardens, trenches, or swales. Implementation areas with soils classified primarily as HSG C or D were assigned non-infiltrating BMP types such as extended detention basins. Areas located in close proximity to wetlands are assumed to have relatively high groundwater, and thus were assigned BMP types such as constructed wetlands. Actual BMP types and sizes are expected to be refined as part of future designs.

BMP Unit Costs

Costs for BMP design and construction were estimated based on a memorandum from EPA titled “Methodology for developing cost estimates for Opti-Tool” (**Attachment A**). This memorandum built on multiple previous studies dating as far back as 2010 to estimate total implementation costs for multiple types of stormwater BMPs on a dollars per cubic foot of constructed volume in 2016 dollars, which also assumed that 35% of the total cost would go towards engineering design and other contingencies. For the purposes of this memorandum, 2016 dollars were then converted to 2022 dollars by adding 18% to the total cost in order to account for inflation over the preceding six years. Total costs were then split into 65% for construction and 35% for engineering. A summary of costing data is provided in **Table 2** at the end of this memorandum. Note that actual engineering costs depend on many factors, and engineering for larger projects generally consist of a lower total percent of the construction cost, with the inverse being true for smaller projects (e.g., a \$250,000 construction project may have a \$50,000 engineering cost or 20% of construction, whereas a \$50,000 construction project may have a \$25,000 engineering cost or 50% of construction).

Costs outlined in this memorandum are for guidance and comparison purposes only, and do not incorporate any additional cost adjustment factors¹. Future design phases will further refine costs associated with all BMPs.

Pollutant Removal and Cost Summary

Based on calculations from the BATT calculator, implementation of all noted stormwater BMPs will remove a total of 3.63 pounds of phosphorus for a total engineering and construction cost of approximately \$173,000 at an average cost of \$47,500 per pound of phosphorus removed. Note that although the Permit required a minimum of five permittee-owned properties be identified, MassBay is much smaller than a typical regulated municipality and thus only four sites were identified.

Roadway Improvement Projects

Roadway improvement projects such as pavement resurfacing, reclamation, and/or roadway widening serve as an opportunity to coordinate drainage improvements with roadway improvements. It also provides an opportunity to incorporate water quality BMPs, however, such opportunities are often restricted to areas located within, or immediately adjacent to, the roadway.

¹ The Opti-Tool memorandum report referenced as Attachment B notes that cost adjustment factors may be incorporated to more accurately account for BMP site constraints associated with installation in a highly urban environment (e.g., 1.0 in undeveloped area, 1.5 in partially developed area, 2.0 in developed area, and 3.0 in highly urban setting). These factors were not applied, assuming a similar level of complexity at each site for consistency.



STORMWATER BMP RETROFITS

Example roadway intersection improvements for consideration are provided in **Attachment C**. Implementation of such BMPs requires evaluation on a case-by-case basis in consideration of the size of the ROW, soil type, surrounding drainage infrastructure and location of other utilities.

Recommendations and Next Steps

It is recommended that MassBay work with the Town of Wellesley on implementation of Total Maximum Daily Load (TMDL) phosphorus requirements for the Charles River. In part, both MS4s should construct stormwater BMPs to meet TMDL implementation requirements to reduce phosphorus loads in stormwater as outlined in the Permit. BMPs located on MassBay-owned parcel are outlined in **Table 1**. As noted above, these locations were identified to be of high priority as they have good opportunities for retrofit and have good public education opportunities. Pre-conceptual designs have been prepared and are included as **Attachment B**.

If you have any further questions or would like additional information, please feel free to contact me at 800.725.2550 x303 or ncristofori@ceiengineers.com. Thank you.

Nick Cristofori, P.E., Project Manager

Attachments:

- Table 1: BMP Retrofits
- Table 2: BMP Costing
- Attachment A: Memorandum report on Methodology for developing cost estimates for Opti-Tool; February 20, 2016
- Attachment B: Pre-Conceptual Designs for Top Locations
- Attachment C: Example Roadway and Intersection BMP Improvements

Table 1: BMP Retrofits

ID	Existing Conditions	Catchment Area (acres)	Catchment IA (acres)	Land Use	HSG	Area For Treatment		Pollutant Loading			Pollutant Load Totals			Recommendations	Proposed BMPs	Proposed Reduction Estimates			Estimated Cost
						Impervious Area (acres)	Pervious Area (acres)	P Load (lbs/yr)	N Load (lbs/yr)	TSS Load (lbs/yr)	TP Load (lbs/yr)	TN Load (lbs/yr)	TSS Load (lbs/yr)			TP Reduction (lbs/yr)	TN Reduction (lbs/yr)	TSS Reduction (lbs/yr)	
Swale-1	The existing BMP known as "Swale-1", is a small grassed swale east of Oakland Street. This swale accepts stormwater from a small section of the schools drainage system. This swale provides very little storage and currently acts only as a conveyance swale.	0.40	0.03	Forest	B	-	0.08	0.01	0.04	1.96	0.10	0.68	56.89	Recommend extending the swale to the southeast, replacing the existing stone headwall with a precast concrete headwall, excavating the swale 1' deeper, raising the outlet structure, and installing check dams.	Grassed water quality swale with check dams	0.04	0.31	44.4	\$20,000
				Forest	C	-	0.04	0.01	0.02	1.00									
				Forest	C/D	-	0.17	0.02	0.09	4.23									
				Highway	C	0.02	-	0.03	0.24	41.42									
				Highway	C/D	0.00	-	0.00	0.04	6.12									
				Open	B	-	0.01	0.00	0.01	0.17									
				Open	C/D	-	0.08	0.02	0.25	1.99									
Swale-2	The existing BMP known as "Swale-2", is a medium sized swale between Oakland Street and the student parking lot. This swale accepts stormwater from a large section of the schools drainage system. Areas of erosion are present throughout the swale.	16.07	6.11	Forest	B	-	4.10	0.53	2.05	101.63	9.72	73.30	11176.14	Recommend changing swale construction to a 3-bay bioretention swale, reshaping the side slopes to be 3:1, installing check dams, installing new precast concrete headwalls at the inlet and outlet locations, and adding a catch basin on the parking lot curb line with outlet into the swale.	3-Bay Bioretention swale	2.35	11.4	7030	\$98,500
				Forest	C	-	3.42	0.44	1.71	84.69									
				Forest	C/D	-	0.69	0.09	0.34	17.07									
				Highway	C	0.25	-	0.33	2.58	439.03									
				Highway	C/D	5.87	-	7.86	61.61	10490.47									
				Open	C	-	0.58	0.12	1.39	14.36									
				Open	C/D	-	1.17	0.34	3.62	28.89									
Swale-3	The existing BMP known as "Swale-3", is a small swale down gradient of Swale-2. This swale does not provide storage, limiting its removal potential and has no defined outlet location.	1.21	0.24	Forest	C	-	0.33	0.04	0.16	8.07	0.47	3.39	445.04	Recommend installing a new precast concrete headwall and a plunge pool with a level spreader. Location is limited in space due to the proximity to the property line.	Plunge pool with level spreader	N/A	N/A	N/A	\$14,000
				Forest	C/D	-	0.47	0.06	0.24	11.75									
				Highway	C	0.04	-	0.06	0.44	75.76									
				Highway	C/D	0.19	-	0.26	2.03	345.07									
				Open	C	-	0.05	0.01	0.11	1.14									
				Open	C/D	-	0.13	0.04	0.41	3.25									
Basin-1	This area, north of the student parking lot, is currently wooded and the location of existing outfall OF-39. This outfall accepts water from a single catch basin in the center of the parking lot.	1.25	0.93	Forest	B	-	0.11	0.01	0.06	2.84	1.30	10.11	1676.47	Recommend the installation of an infiltration basin with sediment forebay to treat the water currently discharging from outfall OF-39.	Infiltration basin with sediment forebay	1.24	9.5	1376	\$40,000
				Forest	C/D	-	0.13	0.02	0.07	3.28									
				Highway	B	0.08	-	0.10	0.80	135.43									
				Highway	C/D	0.86	-	1.15	9.00	1533.31									
				Open	B	-	0.01	0.00	0.01	0.17									
				Open	C/D	-	0.06	0.02	0.18	1.43									

1. Pollutant loading calculated based on land use data through GIS sources.
2. Pollutant reduction estimates calculated through EPA's BATT calculator
3. Information on BMP costing can be seen in Table 2.

Table 2 - BMP Costing

Stormwater BMP Type	Unit	OptiTool BMP Estimates, 2016^{1,2}	OptiTool BMP Estimates, 2022³	Construction Estimate⁴	Engineering Estimate⁵
Biorentention / Rain Garden	per CF	\$15.46	\$18.24	\$11.86	\$6.38
Constructed Wetlands	per CF	\$6.80	\$8.02	\$5.22	\$2.81
Dry Detention Basin	per CF	\$6.80	\$8.02	\$5.22	\$2.81
Gravel Wetland	per CF	\$8.78	\$10.36	\$6.73	\$3.63
Infiltration Basin	per CF	\$6.24	\$7.36	\$4.79	\$2.58
Infiltration Trench	per CF	\$12.49	\$14.74	\$9.58	\$5.16
Porous Pavement	per CF	\$5.32	\$6.28	\$4.08	\$2.20
Sand Filter	per CF	\$17.94	\$21.17	\$13.76	\$7.41
Wet Detention Basin	per CF	\$5.88	\$6.94	\$4.51	\$2.43

1. Memorandum on Methodology for developing cost estimates for Opti-Tool is attached to this table.

2. Total includes a 35% fee for engineering.

3. 18% markup from 2016 dollars for inflation.

4. Assumes 65% of the 2022 total.

5. Assumes 35% of the 2022 total.



MUNICIPAL PROPERTY BMP RETROFITS

Attachment A:

BMP costing table and memorandum report on
Methodology for developing cost estimates for Opti-Tool;
February 20, 2016

MEMORANDUM

DATE: February 20, 2016
TO: Opti-Tool TAC
FROM: Karen Mateleska, EPA Region- I
SUBJECT: Methodology for developing cost estimates for Opti-Tool

Introduction

EPA – Region I offered to provide TetraTech with BMP cost information for the New England Stormwater Management Optimization Tool (Opti-Tool). The goal was to include the latest available information that would accurately reflect capital costs for select BMPs installed in the New England region. This document describes the approach used to determine these values.

The unit cost estimates originally developed as part of a 2010 study were used as the basis/starting-point for the cost estimates for the Opti-Tool. This study, entitled *Stormwater Management Plan for Spruce Pond Brook Subwatershed*, was produced by the Charles River Watershed Association (CRWA). The full report can be viewed at: http://www.crwa.org/hs-fs/hub/311892/file-636820515-pdf/Our_Work/Blue_Cities_Initiative/Scientific_and_Technical/CRWA_Franklin_Plan.pdf. This subwatershed in the Town of Franklin (in eastern Massachusetts) was selected, in part, because it represented one of the many communities in the watershed that would be required to reduce nutrient (phosphorus) loads in stormwater runoff as part of EPA's Phase II MS4 General Stormwater Permit and a TMDL for Nutrients in the Upper/Middle Charles River. The cost estimates developed in the study can predominantly be attributed to CRWA and both Rich Claytor and Nigel Pickering of Horsley Witten Group (CRWA *et al.* 2010). The development of these costs was based on a literature review of BMP cost information and Claytor's extensive experience working in this field with Massachusetts communities. These values were originally reported in Appendix B of the aforementioned CRWA document. Those cost estimates have also been used in additional stormwater studies supported by EPA – Region I, including the *Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin, and Milford, MA* (2011). (That report can be viewed at: <http://www.epa.gov/region1/npdes/charlesriver/pdfs/20110930-SWUtilityReport.pdf>)

Before simply relying on the CRWA cost estimates, additional research was conducted of publicly available (online) resources to determine if more recent BMP cost information for the New England region was available. These resources included:

- EPA's LID webpage: <http://water.epa.gov/polwaste/green/>
- EPA's 2013 Article: *Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs*: http://water.epa.gov/polwaste/green/upload/lid-gi-programs_report_8-6-13_combined.pdf

- New England Environmental Finance Center: <http://efc.muskie.usm.maine.edu/>
- UNC Environmental Finance Center's *Catalog of Finance Publications on Green Infrastructure Approaches to Stormwater Management* (This spreadsheet provides a catalog of 46 publications related on green infrastructure for stormwater management that have finance relevance; Several of the sources from the catalog were reviewed for this document) : <http://www.efc.sog.unc.edu/reslib/item/catalog-green-infrastructure-and-stormwater-finance-publications>
- Houle, *et al.* *Comparison of Maintenance Cost, Labor Demands, and System Performance for LID and Conventional Stormwater Management*: http://www.unh.edu/unhsc/sites/unh.edu.unhsc/files/Houle_JEE_July-2013.pdf
- University of New Hampshire Stormwater Center's *Forging the Link: Linking the Economic Benefits of LID and Community Decisions*: <http://www.unh.edu/unhsc/forging-link-topics>
- Center for Neighborhood Technology's *Green Values Stormwater Tool Box*: <http://greenvalues.cnt.org/> which included the Green Values Calculator: <http://greenvalues.cnt.org/national/calculator.php>
- Water Environment Research Foundation (WERF): User's Guide to the BMP and LID Whole Life Cost Models, Version 2.0: www.werf.org/bmpcost
- Low Impact Development Center: <http://www.lowimpactdevelopment.org/>
- ECONorthwest's *The Economics of Low-Impact Development: A Literature Review*: <http://www.econw.com/our-work/publications/the-economics-of-low-impact-development-a-literature-review/>
- Drexel University's Low Impact Development Rapid Assessment (LIDRA Model) <http://www.lidratool.org/home/publications.aspx>

A review of these resources did highlight the multitude of variables that can impact the cost of installing LID BMPs and the variety of cost analysis methods that can be used when assessing the cost effectiveness of various LID storm water controls. For example, many of the resources emphasized that costs tend to be site specific. Costs often differ significantly among different geographical locations, depending upon labor and material expenses and the constraints of a particular site. Unfortunately, most of the aforementioned resources highlighted projects outside of the New England region (with the exception of the articles by Houle of the UNHSC and New England Environmental Finance Center.)

EPA's recent (2013) report entitled *Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs* listed the 7 different types of economic analyses that were represented by the 13 case studies highlighted in the report. These ranged from the simplest form of economic analysis (i.e., the capital cost assessment) to more robust forms, including the life cycle cost assessment. Whole life-cycle costs would provide a more accurate estimate of the cost of installing, operating, maintaining, and replacing a project (i.e., BMP) throughout its expected lifetime. However this type of analysis requires solid estimates for capital, land purchase, O&M, and other related costs.

Ideally, the goal was to include a more advanced economic analysis (i.e. –life cycle costs) in the Opti-Tool while still maintaining some level of simplicity for the end user. However, such a robust economic analysis does not currently appear possible because the literary search for more recent BMP cost estimates, reflective of New England states, was largely unsuccessful. However, the search was not

entirely fruitless. Jamie Houle of the UNHSC did provide extremely valuable information on capital and maintenance costs for various BMPs that have been tested at the UNHSC. Cost estimates for a particular BMP available from *both* the CRWA study and UNHSC were discussed among Mark Voorhees of EPA, Jamie Houle of UNHSC, and Karen Mateleska of EPA, and a best professional judgment decision was made.

The recommendation at this time is to use a combination of the CRWA cost estimates **and** UNHSC costs estimates as the basis for the Opti-Tool BMP cost estimates, and to use a modified capital cost assessment (which includes a fixed percentage for Design and Contingency Costs) as well as a separate field for maintenance hours (from the UNHSC). The details supporting this approach are described below.

Overview of Scope and Approach

According to a draft memo, dated 6/20/14 from Tetra Tech to EPA Region I, the current SUSTAIN BMP Cost function has seven major individual components, using a formula that would likely be useful in a more detailed design mode. For purposes of simplicity, EPA Region I is proposing the following cost function formula for the tool's "planning" mode:

General Cost Function Formula = Storage Volume of BMP* (ft³) X Cost Estimate for BMP (\$/ft³) X Adjustment Factor
--

* Storage Volume of BMP is more accurately defined as (Design) Physical Storage Capacity of BMP; See Section A below for more details

Initially, the intention was to include the preliminary Operations and Maintenance (O&M) costs in the general formula (page 3) by simply multiplying the formula results by our Preliminary O & M costs. However, such an approach would only include **one year's worth** of operations and maintenance, which could have been misleading because it would not have reflected the true life cycle cost of the BMP (i.e., assume life cycle of 20 years). However, simply including the 20 year life cycle cost (O&M cost *20) in the above formula would have greatly increased the cost value and perhaps have created misconceptions about BMP use and affordability.

Therefore, the subcommittee decided to include the anticipated operation and maintenance **hours** required for each BMP per year instead. This parameter was included as a completely separate field in the Opti-Tool. The rationale was that Opti-Tool users need to understand that operation and maintenance impact the overall cost-effectiveness of BMPs and should be considered when selecting a BMP. Including O&M hours (instead of costs) as a separate field, would still highlight this important consideration for stormwater managers.

A. Storage Volume and Proposed Cost Estimate Values

As highlighted above, the general cost function formula used in the Opti-Tool consists of 3 factors: the BMP storage volume, the proposed BMP storage volume cost estimate, and the adjustment factor. The first two factors will be covered together in this memo because they are so closely linked. Table 1 below summarizes the proposed BMP cost estimates for the Opti-Tool.

Table 1: Proposed BMP Cost Estimates for Opti-Tool

BMP (From Opti-Tool)	Cost (\$/ft³) ¹	Cost (\$/ft³) – 2016 dollars⁶
Bioretention (Includes rain garden)	13.37 ^{2,4}	15.46
Dry Pond or detention basin	5.88 ^{2,4}	6.80
Enhanced Bioretention (aka-Bio-filtration Practice)	13.5 ^{2,3}	15.61
Infiltration Basin (or other Surface Infiltration Practice)	5.4 ^{2,3}	6.24
Infiltration Trench	10.8 ^{2,3}	12.49
Porous Pavement - Porous Asphalt Pavement	4.60 ^{2,4}	5.32
Porous Pavement - Pervious Concrete	15.63 ^{2,4}	18.07
Sand Filter	15.51 ^{2,4}	17.94
Gravel Wetland System (aka-subsurface gravel wetland)	7.59 ^{2,4}	8.78
Wet Pond or wet detention basin	5.88 ^{2,4}	6.80
Subsurface Infiltration/Detention System (aka-Infiltration Chamber)	54.54 ⁵	67.85

¹ Footnote: Includes 35% add on for design engineering and contingencies

² Costs in 2010 dollars

³ From CRWA Cost Estimates

⁴ From UNHSC Cost Estimates; Most of original costs were from 2004 and converted to 2010 dollars using U.S. Department of Labor (USDOL). (2012). Bureau of Labor Statistics consumer price index inflation calculator. http://www.bls.gov/data/inflation_calculator.htm

⁵ From Cost Estimate of MA TT Rizzo Project (2008 Dollars)

⁶ 2010 costs were converted to 2016 values to adjust for inflation. The ENR Cost Index Method was used for this conversion.

Table 1 includes all of the BMPs that are included in the Opti-Tool. The unit costs represent the dollar amount (\$) per cubic foot of storage volume (ft³), where the storage volume reflects the (design) physical static storage capacity that the relevant BMP can hold. This volume includes the volume of ponding water *and* the volume of water retained in the porous media or subbase materials if applicable. (This storage volume does *not* represent the *treated* volume of stormwater, which may be significantly higher than the physical storage volume of a BMP particularly for systems that are sized dynamically or

by a water quality flow rate as opposed to a water quality volume.) This unit cost per storage volume captured by a BMP differs from other (perhaps more traditional) methods that can be used. By choosing to use the unit cost per storage volume instead of volume of water treated, we are trying to eliminate confusion over what the actual dimensions of the BMP will be for the costs being estimated. Additionally, this use of the unit cost per storage volume is consistent with the approach used in developing the BMP performance curves (used in the Opti-Tool) where the x-axis is the actual **physical storage capacity** to hold water. Lastly, expressing the unit costs in this manner will benefit users who are simply interested in using the unit costs (outside of the Opti-Tool) by eliminating the step of modeling hydrology and routing the water through the BMP, which can yield widely varying results depending on modeling approach and supporting assumptions. Attachment A describes the method used in calculating the design storage volume for each of the selected BMPs.

Also, each unit cost per storage value represents the capital cost of construction/installation of the BMP and includes a 35% design/engineering/contingency (D & E) cost. This 35% fixed percentage of the total construction cost follows a general “rule of thumb,” often used by consulting firms. Based upon a conversation between Mark Voorhees and Jamie Houle (two members of the Opti-Tool cost subcommittee), a decision was made to include this D&E cost. The values in Table 1 do *not* include the cost of purchasing any land, nor does it include any O&M costs (which is discussed in more detail in a subsequent section). Therefore, each unit cost in Table 1 that was based on the CRWA’s 2010 values was calculated by multiplying the relevant BMP cost by 1.35.

Since the CRWA study did not include cost estimates for porous pavement or sand filters, which are BMPs included in the Opti-Tool, relevant data was obtained from Jamie Houle of the University of New Hampshire Stormwater Center (UNHSC). He also provided additional cost estimates (as denoted by Footnote 4 in Table 1) for some of the other BMPs included in the tool. UNHSC can provide valuable data because they have been directly involved with the engineering, design and construction of numerous LID controls, as well as evaluating multiple stormwater treatment systems over multiple years at their primary field research facility in Durham, N.H. Since they could provide cost information for both porous asphalt pavement and pervious concrete, separately, the general category of porous pavement was divided into the aforementioned two sub-categories.

It should be noted that the costs used for the Opti-tool *assume linearity*, which will both allow for *and* incentivize the scaling to smaller-sized systems. For example, EPA has estimated that *smaller* capacity designs for BMPs, rather than large-sized BMPs, can increase both the technical and economic feasibility of installing controls, particularly for retrofits. The assumption of linearity was made for the following reasons: 1) Limited data currently exists on the cost of small capacity systems. Until a larger pool of cost data becomes available which will allow for the development of a non-linear cost curve, the current method is the best available alternative; 2) As the installation of smaller systems becomes more widespread, it is likely that economies of scale will develop and cost savings will occur. For example, if one entity is contracted to install multiple small systems at once, materials can be bought in bulk and the installation process can become more efficient and less expensive; 3) An undersized system built to treat a large area can be a very cost effective approach. As an example, there should not be a significant cost difference between a 1-inch system treating 1 acre and a 1/10-inch-system that treats 10 acres, since the absolute capacity of the system is the same in both cases. This topic of linearity will be revisited in the future when more data is available.

Since UNHSC typically calculates the capital costs per cubic foot (ft³) *treated*, using WQv, Jamie Houle converted the costs to represent the capital costs per BMP storage volume (ft³). This was necessary so the capital cost data would be consistent with the method used in the Opti-Tool. Also, all of the costs were converted to 2010, and ultimately 2015, dollars. As with the CRWA costs, the UNHSC capital costs were already adjusted to include the 35% design/engineering/contingency (D & E) cost. Details of all of these calculations, and any other assumptions made, are presented in Attachment B.

When developing cost estimates, another topic for consideration was whether or not to address the issue of inflation. CRWA's BMP cost estimates were based on capital costs from 2010. As previously stated, UNHSW's cost estimates have also already been converted to constant 2010 dollars using consumer price index inflation rates [U.S. Department of Labor (USDOL) 2014].¹ Therefore, there was the option of converting all of these 2010 costs to 2016 costs, using the U.S. Department of Labor's consumer price index inflation calculator. However, another suggestion was made to use the ENR Cost Index method to adjust for inflation instead because it more closely tracks construction work. At least one New England state (i.e., Vermont) also uses the ENR Cost Index method, so this could provide some consistency, as well. Therefore, the decision was made to ultimately convert all of the costs to 2016 values using the ENR Cost Index method. These values are reflected in Table 1.

To use the index, one calculates the quotient of the current index number (based on the month and year of *current* date) divided by the index number from a given date (e.g., June of 2010). Since the month was not known for the 2010 costs, the month of June was used as an estimate. This assumption was used because it falls mid-way between the construction season and would likely provide a reasonable estimate. Once the quotient was calculated, it was multiplied by the construction cost (found in the middle column in Table 1, above) to provide the 2016 construction cost value

B. Cost Adjustment Factor

Since the cost of installing a BMP will vary depending on the specific site location, the TAC subcommittee believed it was important for the Opti-Tool to include a scalable cost adjustment factor. The proposed cost estimates for the Opti-Tool (in Table 1) are all based on a Cost Adjustment Factor of 1. However, each Opti-Tool user has the option to choose and enter into the tool a cost adjustment factor that is appropriate for their site. This will adjust the storage volume cost function in the Opti-Tool.

For example, the CRWA report included the cost factors summarized in Table 2.

¹ Reference: U.S. Department of Labor (USDOL). (2014). Bureau of Labor Statistics consumer price index inflation calculator." (http://www.bls.gov/data/inflation_calculator.htm)(Sep. 12, 2014)

Table 2: Example of Cost Adjustment Factors

BMP Type	**EXAMPLE** Cost Adjustment Factor
New BMP in undeveloped area	1
New BMP in partially developed area	1.5
New BMP in developed area	2
Difficult installation in highly urban settings	3

(Source: Table 4 of Appendix B of CRWA's Spruce Pond Brook Subwatershed Project for Town of Franklin)

The assumption made was that it would cost more to install a new BMP in a developed area (with more site constraints) than it would cost to install the same BMP in a previously undeveloped area. So in the above example, the cost adjustment factor would be 2 for installing a BMP in a previously developed area versus a cost adjustment factor of 1 for installing a BMP in an undeveloped area.

It should be noted that Table 2 (above) provides just *one example* of adjustment factors. The factor should be flexible enough so that another location (or Opti-Tool user) can adjust it, as needed. For example, the Charles River Watershed (in eastern Massachusetts) used an adjustment factor of 2 for installing a BMP in a developed area, while the State of Vermont uses an adjustment factor of 1.4 to estimate the cost of installing a BMP for existing development.

C. Maintenance (O&M) Costs

Originally, one goal was to include Operation and Maintenance (O&M) costs as part of the cost estimates for the Opti-Tool. These O&M costs would help to provide a more realistic reflection of the long-term expenses of structural storm water controls, which is obviously critical in the practical, real-world implementation of BMPs. However, it is difficult to obtain accurate maintenance costs and they will be highly variable depending on the size, location and equipment needed to perform long-term O&M.

This point was highlighted by a key finding in EPA's recent (2013) publication, *Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs*. The report indicated that only a small percentage of the entities that implement LID and GI approach for stormwater management conduct economic analyses due to the "uncertainties surrounding costs, operation and maintenance (O&M) requirements, budgetary constraints, and difficulties associated with quantifying the benefits provided by LID/GI" and the need "to obtain better estimates of the O&M costs associated with different types of LID/GI projects" was a key finding of the report.

As previously mentioned, one article entitled, *Comparison of Maintenance Cost, Labor Demands, and System Performance for LID and Conventional Stormwater Management* (Houle et al. 2013), did contain relevant information for BMP costs in the New England region. During initial discussions between EPA Region I (Mark Voorhees) and UNHSC (Jamie Houle), there was concern that not enough data existed on O&M costs to propose accurate values for each of the BMPs included in the Opti-Tool. There was also

the concern that the O&M costs were not scaleable. For example, initial O&M costs for each BMP were based on the cost of operation and maintenance per year per acre of IC treated. Scaled differences such as the annual O&M costs for treating 0.5 acres of IC or 2 acres of IC have **not** been evaluated and may or may **not** result in a simple linear relationship. Yet the Opti-Tool costs subcommittee also realized the importance of including some maintenance parameter in order to *initiate* the conversation on the importance of accounting for O&M to maintain the functionality of the BMPs. Therefore Table 3, below, presents these annual maintenance costs (in \$) for select BMPs, as well as the annual maintenance hours. Although the O&M costs have been presented in this memo, only the O&M **hours** will be included (as a separate field) in the Opti-Tool.

Table 3: Maintenance Costs (\$) and Hours per year for select BMPs – From UNHSC

BMP	Maintenance Cost (\$) per year	Annual Maintenance Hours
Bioretention	\$1,890.00	20.7
Chamber System	Not Assessed	Not Assessed
Detention Pond	\$2,380.00	24.0
Gravel Wetland	\$2,138.33	21.7
Porous Asphalt	\$1,080.00	6.0
Pervious Concrete	\$1,080.00	6.0
Retention Pond	\$3,060.00	28.0
Sand Filter	\$2,807.50	28.5

*Note: initial costs based on cost of maintenance per year per acre of IC treated

Annual maintenance strategies were evaluated by directly quantifying hours spent categorizing maintenance activities, and assessing difficulty of those activities. To better illustrate costs and anticipate maintenance burdens, activities were characterized into distinct categories and a standard cost structure was applied. This unit conversion can easily be adapted according to local conditions, current economic climate, and regional cost variations which is why we decided to go with maintenance **hours** as those were directly measured and should remain constant. These maintenance activity categories allow more accurate cost predictions and provide insight into the appropriate assignment of maintenance responsibilities.

Annual maintenance costs were normalized to 2012 dollars and calculated for all SCMs by both dollars and personnel hours per acre of IC treated per system per year. It is important to note that inflation was not considered in life cycle maintenance cost projections.



MUNICIPAL PROPERTY BMP RETROFITS

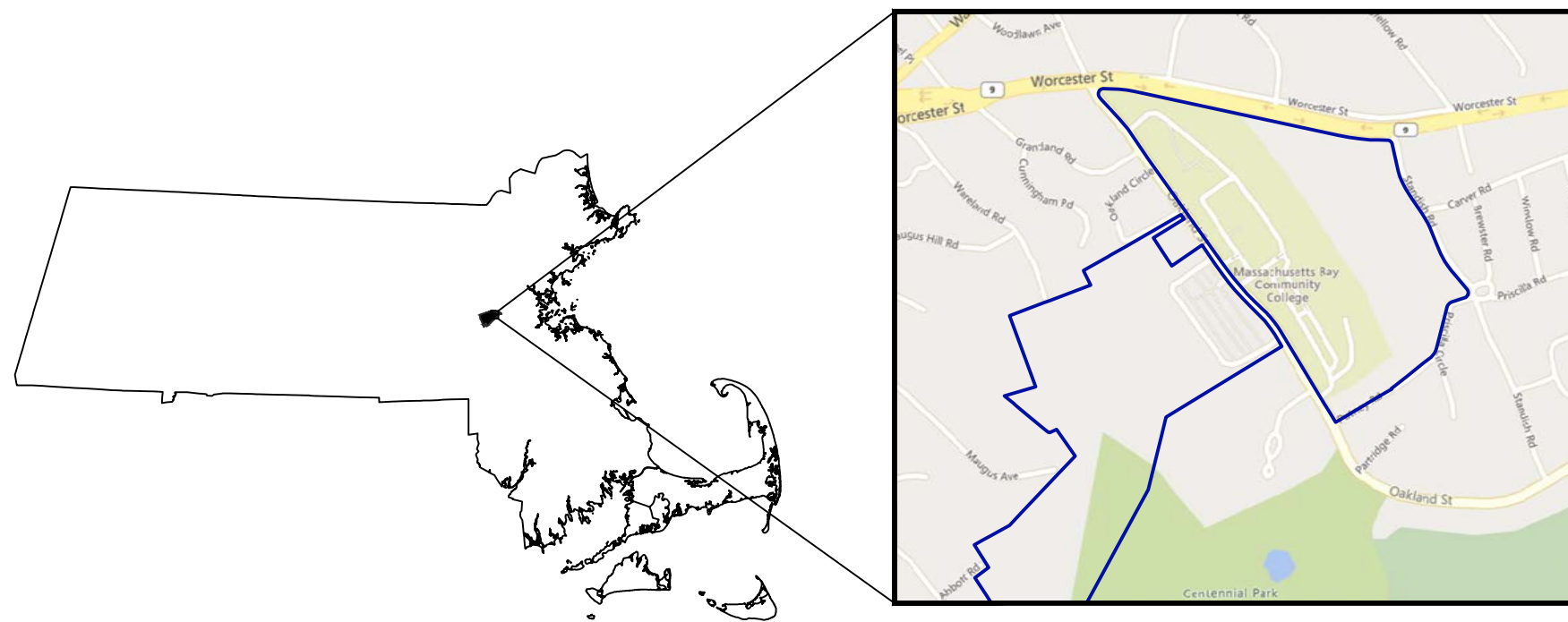
Attachment B:
Pre-Conceptual Designs

MASSBAY COMMUNITY COLLEGE - WELLESLEY, MA

BMP RETROFITS

MASSBAY COMMUNITY COLLEGE

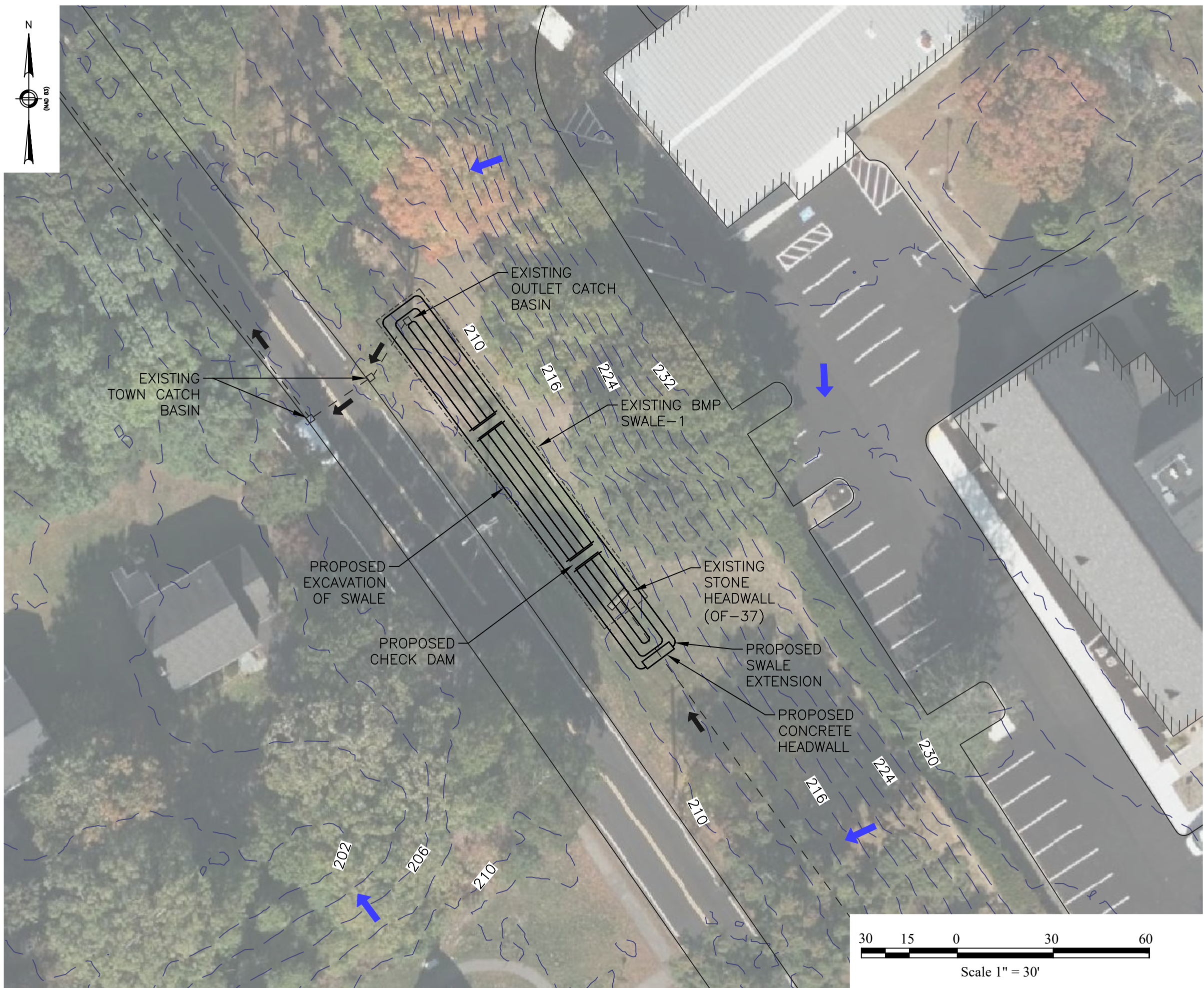
JUNE 2022



<u>SHEET</u>	<u>TITLE</u>
C-1	SWALE 1 - BMP RETROFIT
C-2	SWALE 2 - BMP RETROFIT
C-3	SWALE 3 - BMP RETROFIT
C-4	BASIN 1 - BMP RETROFIT



COMPREHENSIVE ENVIRONMENTAL INCORPORATED • BOLTON, MASSACHUSETTS



GENERAL NOTES

LEGEND

- PROJECT PARCEL
- PROPERTY LINE
- EXISTING CONTOUR (1')
- EXISTING DRAIN PIPE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW

COMPREHENSIVE ENVIRONMENTAL
INCORPORATED



41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS
SWALE-1
PLAN VIEW

MASSBAY COMMUNITY COLLEGE

Project No.: 734

Date: 6/13/2022

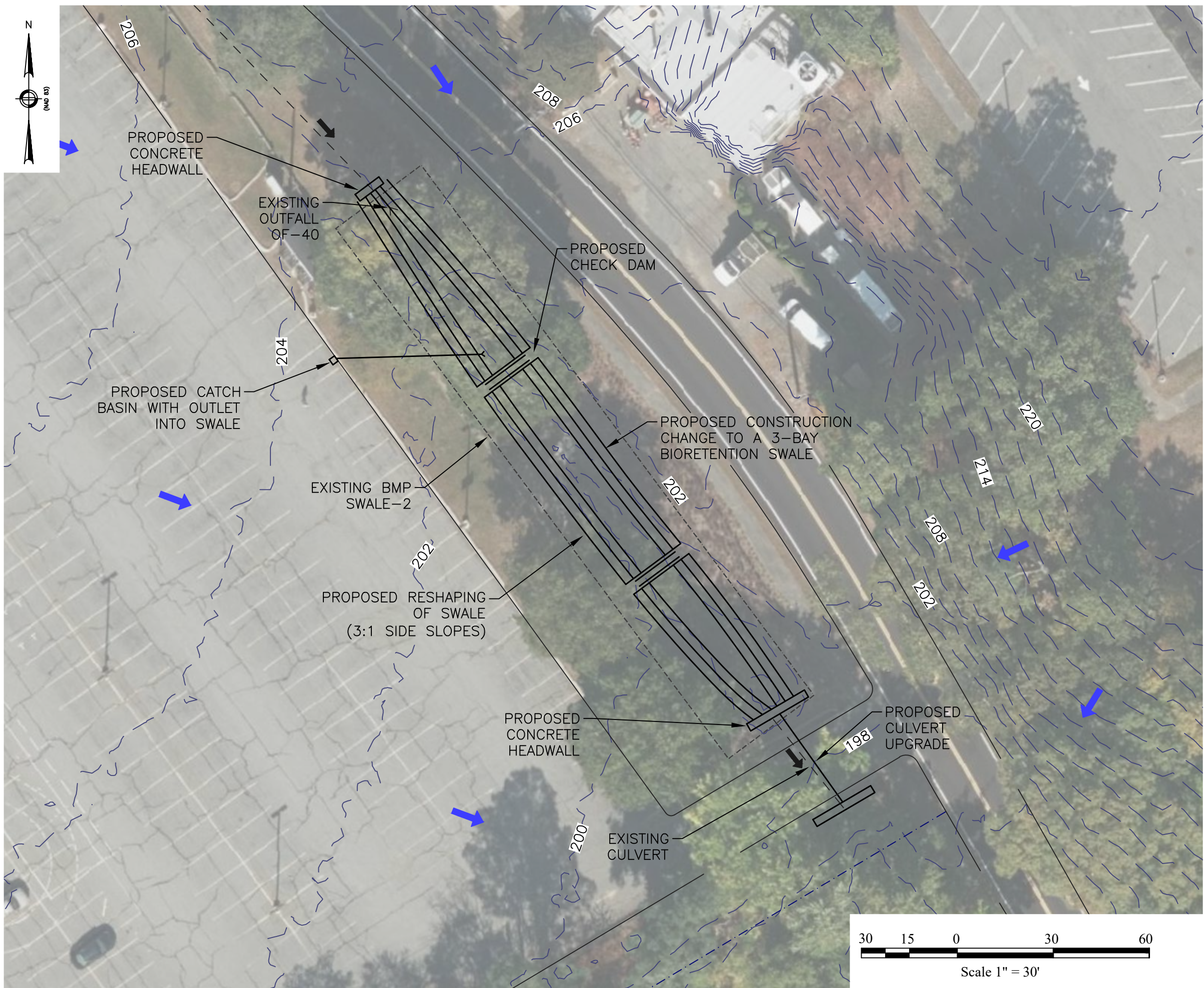
Drawn By: NP

Checked By: NC

Scale: AS SHOWN

Sheet

C-1



GENERAL NOTES

LEGEND

- PROJECT PARCEL
- PROPERTY LINE
- EXISTING CONTOUR (1')
- EXISTING DRAIN PIPE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW

COMPREHENSIVE ENVIRONMENTAL
INCORPORATED



41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS
SWALE-2
PLAN VIEW

MASSBAY COMMUNITY COLLEGE

Project No.: 734

Date: 6/13/2022

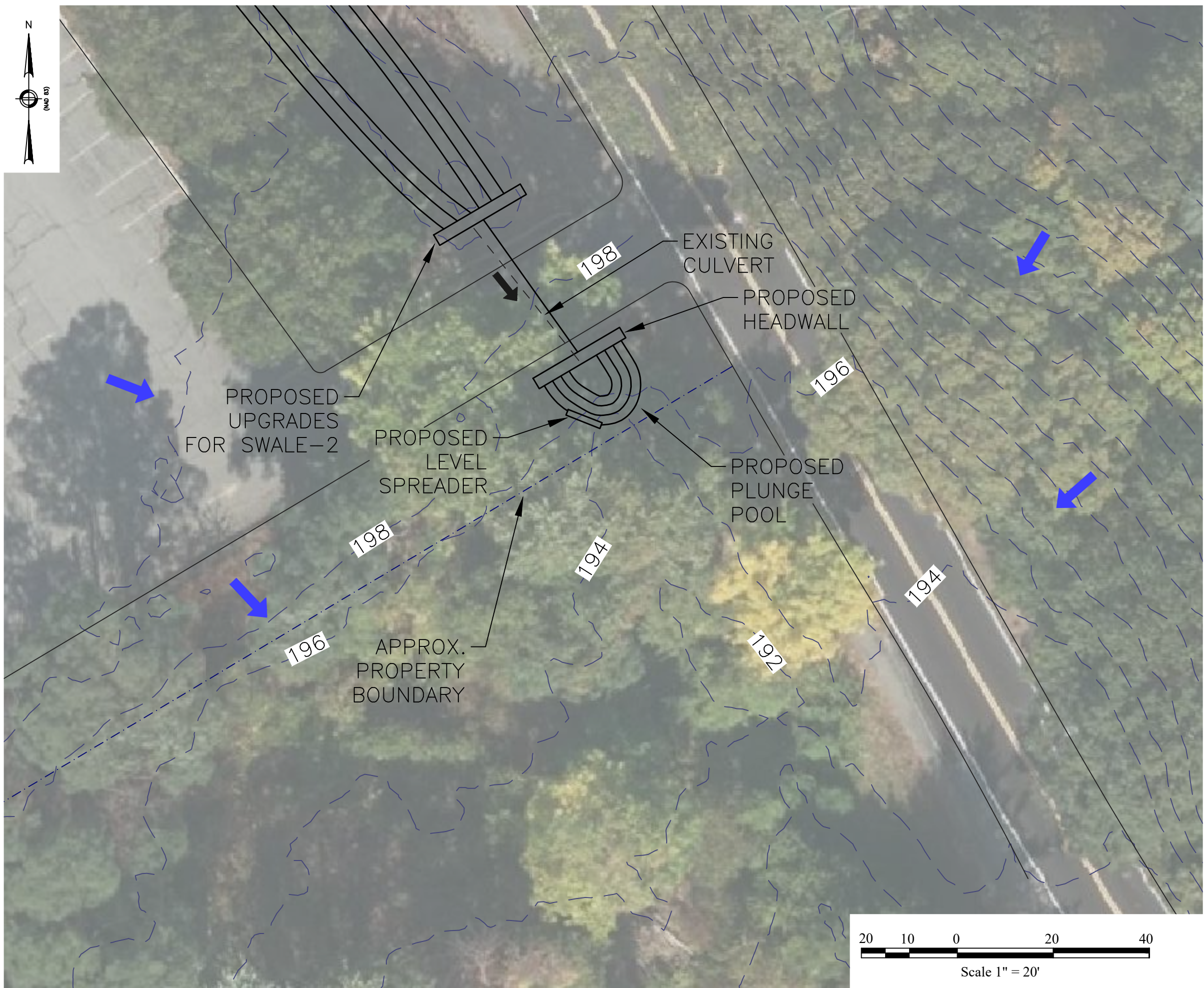
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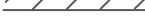
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C-2



GENERAL NOTES

LEGEND

-  PROJECT PARCEL
-  PROPERTY LINE
-  EXISTING CONTOUR (1')
-  EXISTING DRAIN PIPE
-  EXISTING CATCH BASIN
-  EXISTING DRAIN MANHOLE
-  EXISTING BUILDING
-  EDGE OF PAVEMENT
-  FLOW DIRECTION ARROW

COMPREHENSIVE ENVIRONMENTAL
INCORPORATED



41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS SWALE-3 PLAN VIEW

MASSBAY COMMUNITY COLLEGE

Project No.: 734

Date: 6/13/2022

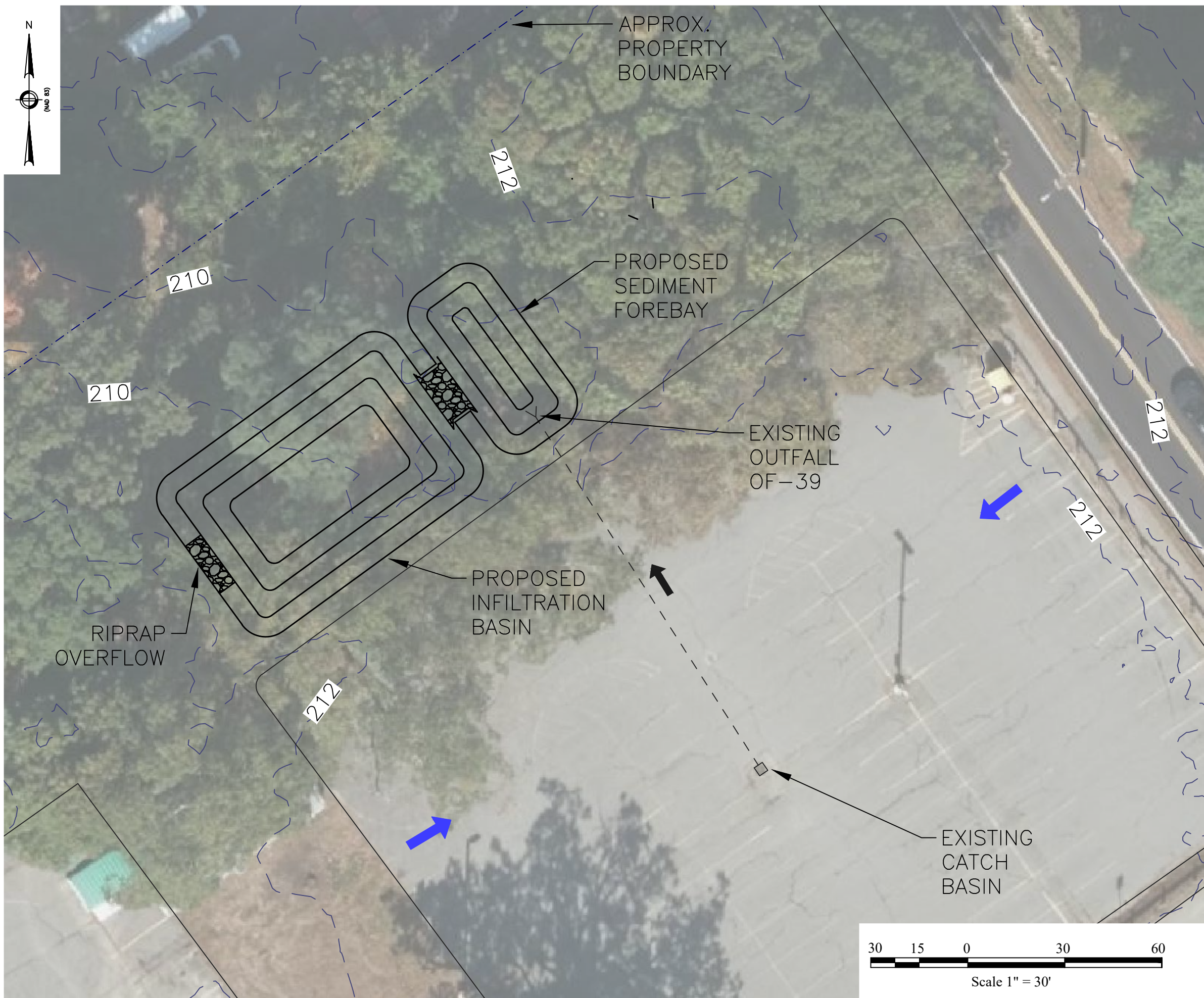
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C-3



GENERAL NOTES

LEGEND

- PROJECT PARCEL
- PROPERTY LINE
- EXISTING CONTOUR (1')
- EXISTING DRAIN PIPE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW

COMPREHENSIVE ENVIRONMENTAL
INCORPORATED



41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS
BASIN-1
PLAN VIEW

MASSBAY COMMUNITY COLLEGE

Project No.: 734

Date: 6/13/2022

Drawn By: NP

Checked By: NC

Scale: AS SHOWN

Sheet

C-4

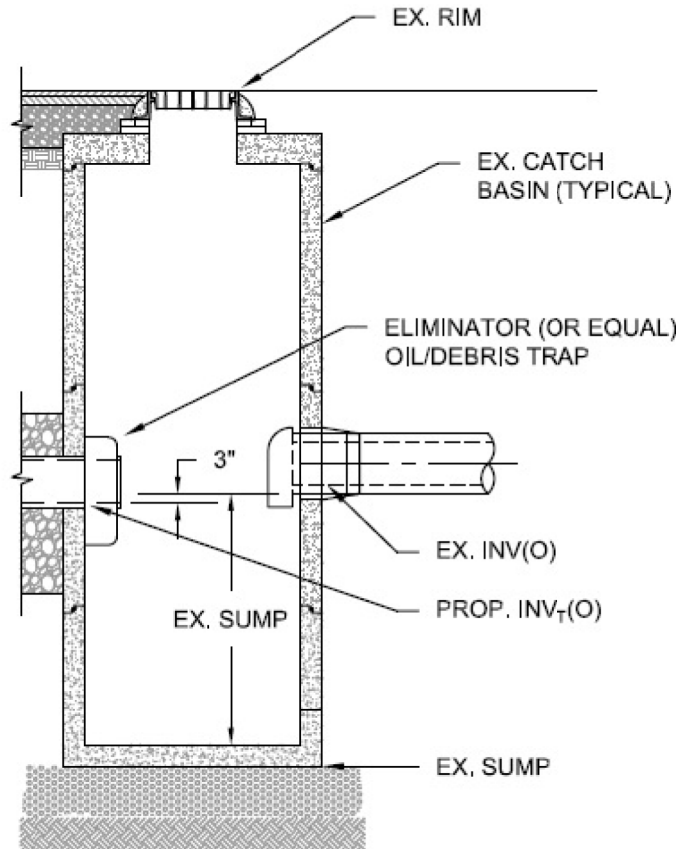
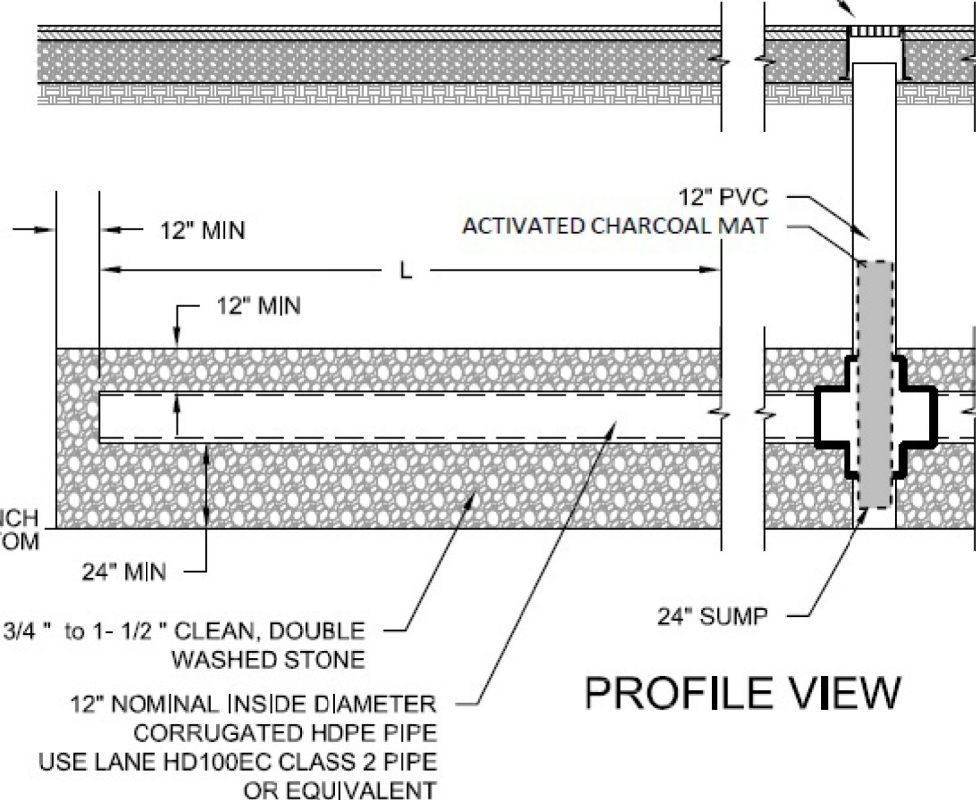
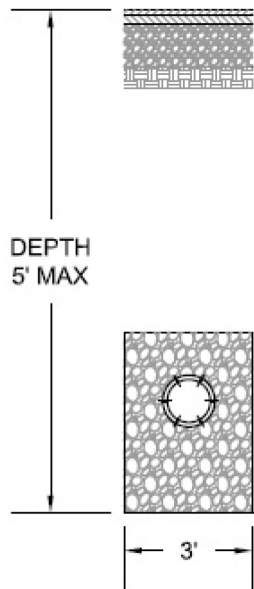
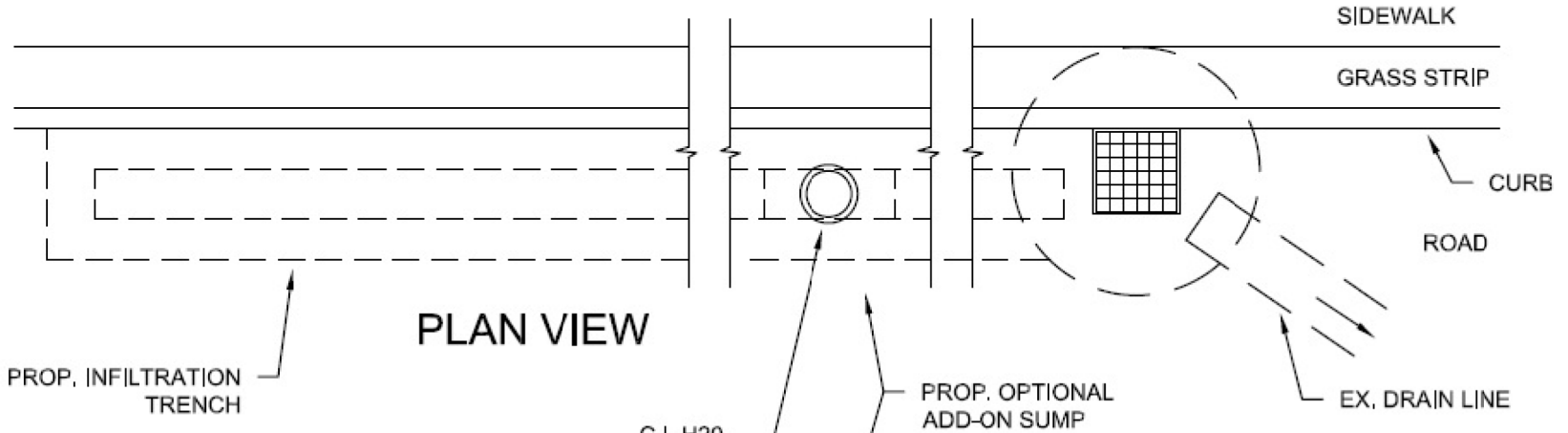


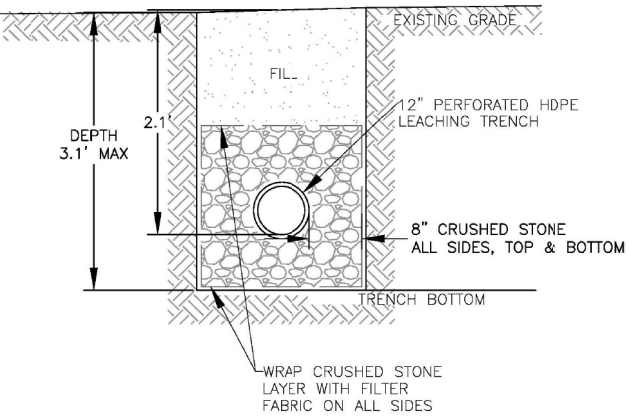
MUNICIPAL PROPERTY BMP RETROFITS

Attachment C:

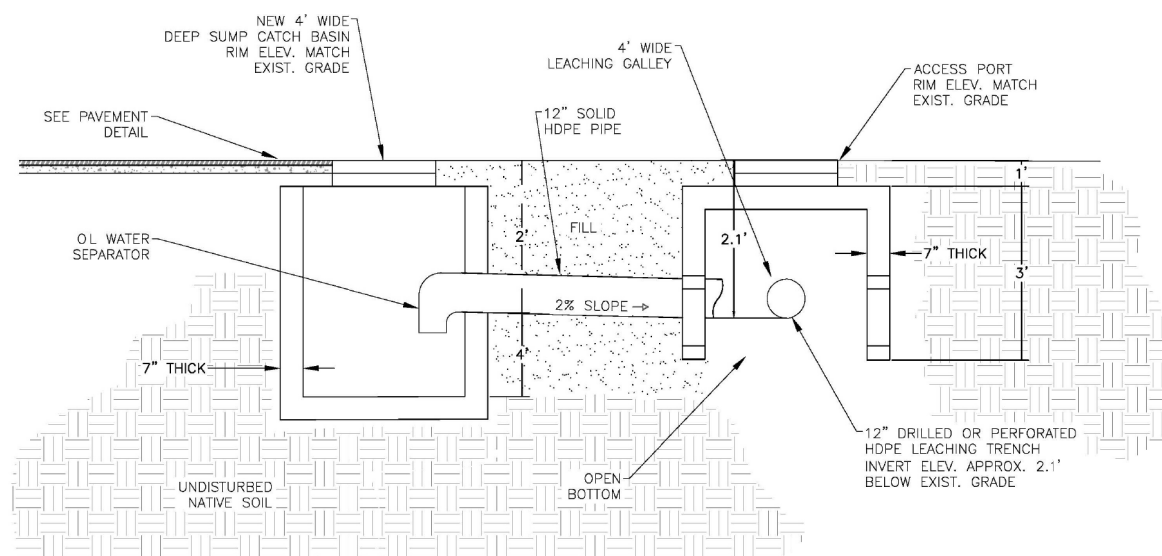
Example Roadway and Intersection BMP Improvements

TRENCH ID:
LOCATION:
EX. RIM:
EX. INV(0):
PROP INV _T (0):
TRENCH BOT:
EX. SUMP:

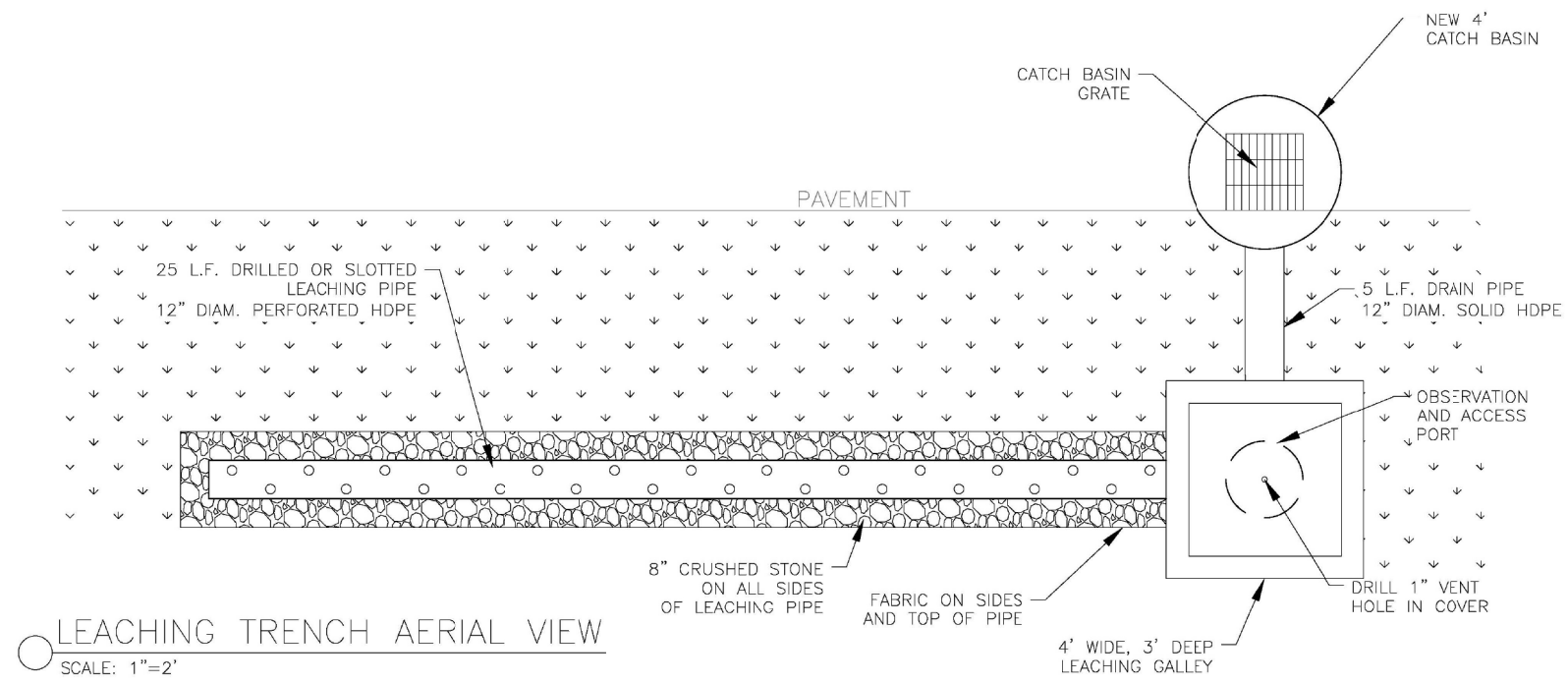




LEACHING TRENCH SECTION VIEW
SCALE: N.T.S.



CATCH BASIN AND LEACHING GALLEY SECTION VIEW
SCALE: 1"=3'



LEACHING TRENCH AERIAL VIEW
SCALE: 1"=2'

Appendix D

Catch Basin Optimization Plan

Plan for Optimizing Catch Basin Cleaning

**MassBay Community College
Wellesley, MA**

June 30, 2019

Prepared For:

MassBay Community College
50 Oakland St
Wellesley Hills, MA 02481

Prepared by:

Comprehensive Environmental Inc.
41 Main Street
Bolton, MA 01740



Table of Contents

Plan for Optimizing Catch Basin Cleaning – MassBay College

1	Introduction	1
2	Permit Requirements	1
3	Existing Catch Basin Management Program	2
4	Plans to Refine Catch Basin Cleaning Optimization	2
4.1	Optimization Methodology	2
4.2	Catch Basin Cleaning Standard Operation Procedure (SOP).....	2
4.3	Catch Basin Cleanings Storage and Disposal.....	2

List of Appendices

- Appendix A. Map of Drainage Infrastructure
- Appendix B. Standard Operating Procedures for Catch Basin Cleaning and Inspection

1 Introduction

This Catch Basin Cleaning Optimization Plan has been prepared by MassBay Community College to address the catch basin inspection, cleaning and maintenance requirements of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 MS4 Permit."

The 2016 MS4 Permit requires the permittee to document its plan for optimizing catch basin cleaning, inspections, or its schedule for gathering information to develop the optimization plan. This plan documents the Town's existing catch basin cleaning program and its plans for gathering additional information to refine its program to meet the requirements of the permit.

2 Permit Requirements

This Catch Basin Cleaning Optimization Plan addresses Section 2.3.7.1.a.iii.2 of the 2016 MS4 Permit (Infrastructure Operations and Maintenance), which includes the following requirements:

- **Establish a schedule** with the goal that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full¹;
- **Prioritize** inspection and maintenance for catch basins:
 - located near construction activities². These should be cleaned more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings;
 - discharging to impaired waters where the pollutant of concern is E. coli or enterococcus; and
 - with sumps more than 50% full during consecutive inspections.
- **Establish proper documentation** of catch basin inspections to include:
 - the location and total number of catch basins;
 - the location and total number of catch basins cleaned or inspected; and
 - the total volume or mass of material removed from catch basin
- **Develop an optimization plan** for catch basin cleaning, inspection plans, or a schedule for gathering information to develop the optimization plan in the first annual report and in the SWMP.

¹ A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.

² Roadway construction; residential, commercial, or industrial development or redevelopment.

3 Existing Catch Basin Management Program

MassBay has approximately 40 catch basins to clean and maintain. Refer to the map in **Appendix A**. Given the expense of cleaning, all catch basins are cleaned approximately every other year by an outside contractor. Of the 40 known catch basins, approximately half are leaching structures with no overflow device. The contractor is responsible for disposing of materials offsite.

4 Plans to Refine Catch Basin Cleaning Optimization

4.1 Optimization Methodology

the college will continue to implement its existing catch basin cleaning schedule. During this time, it will collect data on the sump depth and sediment depth in each catch basin and evaluate leaching basins, but priority will be given to standard catch basins regarding inspections and maintenance activities. A spreadsheet will be used to track sediment depth at each location. The catch basin inspection form included with the standard operating procedure (SOP) in **Appendix B** will be used to document data collected during cleaning.

A minimum of two years of data will be collected and evaluated to determine the status of the catch basins and whether the sump was more than half full. The catch basins that are more than 50% full will be evaluated for potential factors that may have contributed to it being 50% full (i.e., smaller sump, nearby construction, etc.) The evaluation will be used to identify catch basins that require more frequent inspection and/or cleaning and to develop an optimization plan that prioritizes these structures accordingly.

4.2 Catch Basin Cleaning Standard Operation Procedure (SOP)

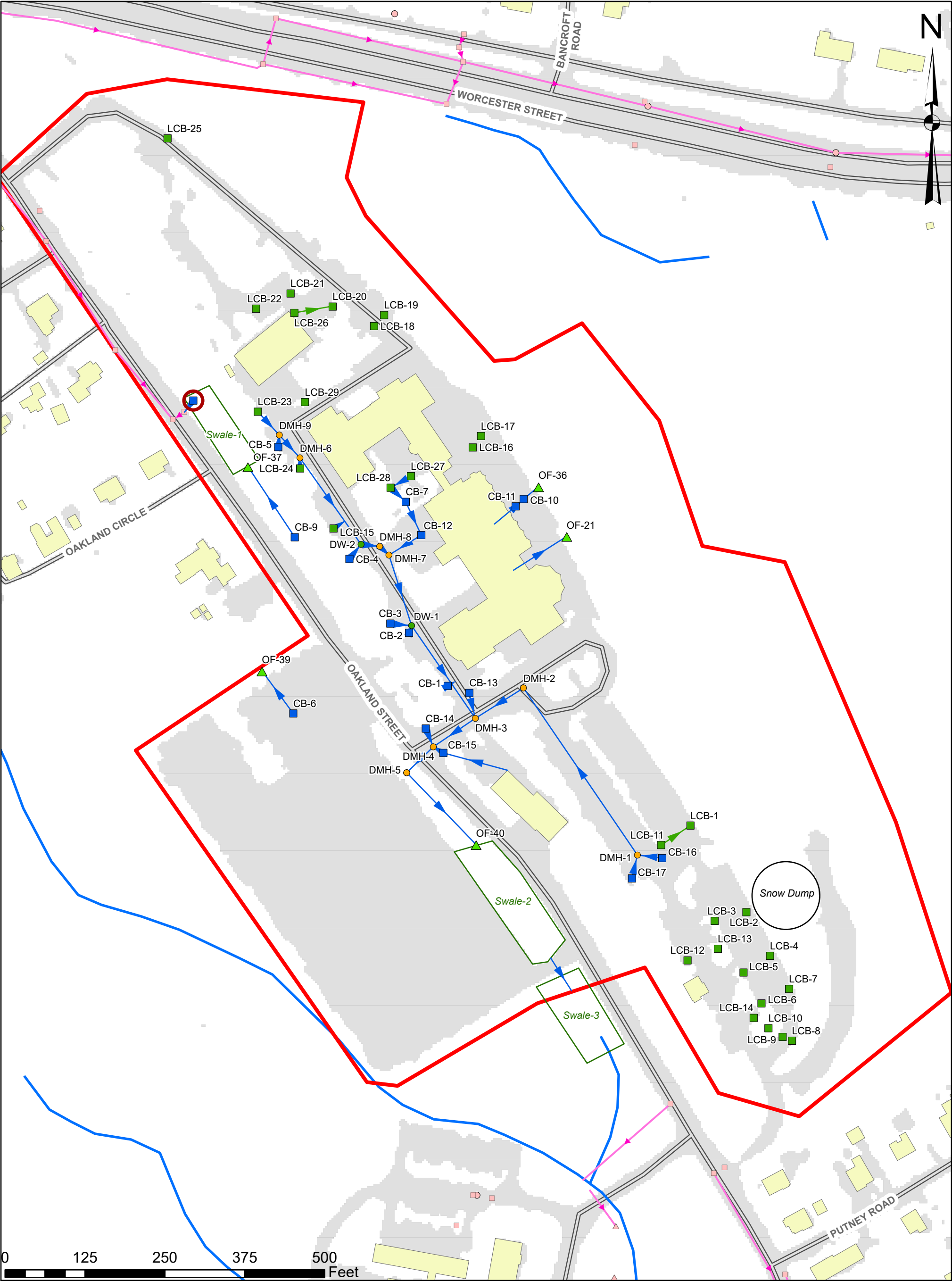
All catch basins will be inspected and cleaned following the standard operating procedures (SOP) provided in **Appendix B**.

4.3 Catch Basin Cleanings Storage and Disposal

MassBay College uses an outside contractor for catch basin cleanings and the contractor is responsible for removal, storage, and disposal of all materials. MassBay will explore possible beneficial uses for its collected catch basin cleanings.

Appendix A

Map of Drainage Infrastructure



Legend

- | | | |
|------------------------|-------------------|------------------------|
| MassBay Outfall | Town Outfall | Buildings |
| MassBay Catch Basin | Town CB | Approx. Regulated Area |
| MassBay Leaching Basin | Town DMH | Impervious Surface |
| MassBay Dry Well | Drain Pipe | Streams |
| MassBay DMH | Leach Drain Pipe | Road |
| Interconnection | Town Gravity Main | |

Stormwater Infrastructure Map

**Mass Bay Community College
Wellesley, MA**



Comprehensive
Environmental
Incorporated

Data Sources: MassGIS, MassBay Community College, CEI

Appendix B

Standard Operating Procedures for Catch Basin Cleaning and Inspection

MI-2, Catch Basin Cleaning & Inspection

Catch basin cleaning (CBC) is performed to remove sediments from structures before it is washed into waterways. The college has approximately 40 catch basins to clean and maintain. For additional information, see MassBay's Catch Basin Cleaning Optimization Plan.

Schedule

All catch basins are cleaned approximately every other year by an outside contractor. Of the 40 known catch basins, approximately half are leaching structures with no overflow device.

Procedures and Practices

1. Work upstream to downstream when cleaning catch basins within a drainage network.
2. Clean sediment and trash off grate before removing grate.
3. Inspect the outside of the grate and inside of the catch basin to determine cleaning needs and for structural integrity.
4. Either manually use a shovel to remove accumulated sediments, use a bucket loader to remove accumulated sediments, or use a high pressure washer to clean any remaining material out of the catch basin while capturing the slurry with a vacuum.
5. If necessary, after the catch basin is cleaned, use the rodder of a vacuum truck to clean downstream pipe and pull back sediment that might have entered downstream pipe.
6. After cleaning is finished, properly dispose of collected sediments (see below).
7. Collect and dispose of fluids during catch basin cleaning. Do not discharge fluids to a wetland or waterway.
8. If any suspected illicit discharges are observed or suspected, notify your supervisor.
9. At the end of each day, document location and number of catch basins cleaned, amount of waste collected, and disposal method for all screenings.

Storage and Disposal

Storage

- Store separately from street sweeping materials.
- Store materials on an impermeable surface away from areas that receive stormwater runoff.
- Cover piles with tarps to prevent rainwater from generating contaminated stormwater.
- Any employee handling the street sweepings should wear appropriate personal protective equipment, such as a dust mask, safety goggles, long-sleeved shirts and long pants at all times.

Disposal

The contractor is responsible for disposing of materials offsite. Catch basin cleanings must be disposed of at landfills as daily cover. Sampling of the catch basin cleaning materials is not required unless there is evidence that cleanings were contaminated by a spill or other means. No reuse is allowed without first obtaining a Beneficial Use Determination (BUD) from MassDEP



Inspection and Maintenance

- Clean catch basins to maintain sediment levels in sumps at less than 50% full.
- If catch basins are more than 50% full for two consecutive cleaning events, catch basins should either be cleaned more often or the contributing area should be investigated for sediment sources.
- Inspect catch basins for structural integrity and evidence of illicit discharges during cleaning.
- Inspect tarp to ensure pile is covered and no tears.
- Immediately abate any nuisance conditions (i.e., noise, dust, odor).
- Train employees on proper CBC procedures.

Recordkeeping and Reporting

- Use attached Catch Basin Inspection Form when inspecting catch basins. Employees should record:
 - Number of catch basins inspected.
 - Number of catch basins cleaned.
 - Log of catch basins cleaned or inspected.
 - Tons or cubic yards of catch basin cleaning materials generated.
- Use attached Catch Basin Maintenance/Repair Log to document CBC activities.



Catch Basin Inspection Procedures

Option 1: Inspection during Cleaning

1. Clean sediment and trash off of grate.
2. Remove grate.
3. Fill out **Catch Basin Inspection Form** with basin-specific information:
 - **Before cleaning:**
 - Do a visual inspection of outside of grate.
 - Do a visual inspection of the inside of the catch basin to determine cleaning needs and structural issues.
 - Measure depth from rim of catch basin to top of sediment.
 - Measure depth from rim of catch basin to the top of the outlet pipe.
 - Take photo of catch basin.
 - **Clean catch basin:**
 - For manual removal, place removed material in a location protected from potential runoff and place cleanings in a vehicle for transport to designated disposal area.
 - OR use a high-powered vac truck to remove sediment.
 - **After cleaning:**
 - Measure depth from rim to bottom of catch basin.
 - Measure depth of sum (outlet pipe to bottom of catch basin).
 - Note if the catch basin is more than 50% full with sediment.
 - Note if the catch basin requires maintenance or if there are pollutants present.
 - Take photo of catch basin.
4. If any illicit discharges are observed or suspected, notify supervisor.

Option 2: Interim Inspection between Cleaning Cycles

1. Clean sediment and trash off grate.
2. Remove grate.
3. Fill out **Catch Basin Inspection Form** with basin-specific information:
 - Do a visual inspection of outside of grate.
 - Do a visual inspection of the inside of the catch basin to determine cleaning needs and structural issues.
 - Measure depth from rim of catch basin to top of sediment.
 - Using sump depth collected during previous cleaning, note if the catch basin is more than 50% full with sediment.
 - Note if the catch basin requires maintenance or if there are pollutants present.
4. If any illicit discharges are observed or suspected, notify supervisor.



Catch Basin Inspection Form

Inspection Information									
Catch Basin ID									
Street Location				GPS Location					
Inspector's Name									
Date of Inspection				Time of Inspection					
Weather (circle)		Dry		Light Rain		Heavy Rain		Snow	
Catch Basin Information									
Location		Surface Type				Grate			
☐ Road/Curb ☐ Alley ☐ Ditch ☐ Parking Lot ☐ Driveway ☐ Sidewalk Other: _____		☐ Asphalt ☐ Gravel ☐ Concrete ☐ Grass/Dirt Other: _____				____ inches x ____ inches Material: _____ Shape: _____			
Catch Basin Condition									
CB Damage: No Yes		Comment:							
	Materials (circle)					Condition (circle)			
Grate	Cast Iron Brick Concrete Aluminum Fiberglass					Poor	Fair	Good	Excellent
Frame	Cast Iron Brick Concrete Aluminum Fiberglass					Poor	Fair	Good	Excellent
Chimney	Cast Iron Brick Concrete Aluminum Fiberglass					Poor	Fair	Good	Excellent
Walls	Cast Iron Brick Concrete Aluminum Fiberglass					Poor	Fair	Good	Excellent
Trap/Hood	Cast Iron Brick Concrete Aluminum Fiberglass					Poor	Fair	Good	Excellent
Sump	Cast Iron Brick Concrete Aluminum Fiberglass					Poor	Fair	Good	Excellent
Sediment Depth and IDDE (inches)									
A. Depth from Rim to Top of Sediment: _____ B. Depth from Rim to Bottom of Basin (after vac): _____ C. Sump Depth: _____ D. Depth of Sediment (B-A): _____ E. More than 50% Full of Sediment? (D/C): _____ CB Cleaned? No Yes Suspected illicit discharge? No Yes						Check those Present: __ Sanitary Waste/Smell __ Excessive Sediment __ Oil Sheen __ Floatables/Trash __ Pet Waste: Other: _____ Potential Source: _____			



Catch Basin Maintenance/Repair Log

[illegible]

Appendix E

List of Stormwater BMPs and Inspection/Maintenance Records



STORMWATER INSPECTION REPORT

To: Mr. Joe DeLisle

From: Nick Cristofori, P.E., Comprehensive Environmental Inc.

Date: June 7, 2021

Locations: MassBay Community College

Inspectors: Kevin Barbara & Noah Parent CEI

Inspection Dates: May 25, 2021

Under the Environmental Protection Agency's (EPA's) 2016 National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, regulated permittees, such as the Massachusetts Bay Community College, are required to annually inspect stormwater Best Management Practices (BMPs) within the regulated Urbanized Area (UA) and maintain as needed. In response, representatives from Comprehensive Environmental Inc. performed an inspection of stormwater BMPs at the identified locations on May 25, 2021 to evaluate the general condition and document recommended maintenance items for follow-up action in order to meet permit requirements.

Inspections

MassBay Community College previously identified 3 individual BMP, all comprised of swales, that serve to treat and convey stormwater runoff for the campus. BMP locations are identified by general location, with locations shown on an attached map. Table 1 below details the locations and individual BMPs that were inspected, while Table 2 summarizes maintenance needs for each location. Inspections are detailed in the inspection sheet attached to this report, along with representative photo documentation. At the time of the inspections the weather was approximately 75 degrees and sunny. Weather over a three-day period leading up to May 25th was in the upper 70s and lower 80s. Images of the structures were taken on May 25th in sunny, high 70's conditions. Kevin Barbara and Noah Parent inspected the following infrastructure:

Table 1 – Stormwater Infrastructure Inspected

BMP ID	Location	Stormwater BMP Type	Overall Condition	Requires Maintenance (Y/N)
Upper Swale (Swale 1)	Northeast side of Oakland Street	Grassed Swale	Fair	Yes
Mid Swale (Swale 2)	Southeast side of Oakland Street, north of student parking lot exit	Vegetated Swale	Poor	Yes
Lower Swale (Swale 3)	Southeast side of Oakland Street, south of student parking lot exit)	Vegetated Swale	Poor	Yes

Photographs of the BMPs that were inspected are provided at the end of this report, and inspection sheets are attached.



STORMWATER INSPECTION REPORT

Recommendations

As noted previously, the inspected BMPs are all located within the regulated UA or discharge to waters of the United States. Maintenance should be completed as soon as possible to prevent worsening condition and failure of BMPs. Additional notes regarding overall conditions outside of maintenance may be found in the “comments” tab of the attached inspection sheets. Based on CEI’s inspections, the following items are recommended for additional follow-up action:

Table 2 – Maintenance Recommendations

<u>BMP ID / Location</u>	<u>Recommendations</u>
Upper Swale (northeast side of Oakland Street)	Inlet pipe should be repaired or unearthed and headwall should be reconstructed as needed. The stone check dam should be moved so as to be perpendicular to the channel (see pictures).
Mid Swale (southeast side of Oakland Street, north of parking lot exit)	Banks are partially eroding and should be stabilized; small pools are forming from scour. Recommend to remove debris, sediment and leaf litter from bottom of swale. Some stones were observed to be displaced and should be relocated. Outlet pipe to Lower Swale was deformed, recommend to replace or repair. Erosion of side slopes and undercut present.
Lower Swale (southeast side of Oakland Street, south of parking lot exit)	Inlet pipe from Mid Swale seemed to free flow into wooded area. Leaf litter, sediment deposits, and woody debris were present and need to be removed. Banks are eroding and show evidence of undermining. Vegetation appears overgrown in areas and should be trimmed/ removed.

If you have any further questions or would like additional information, please feel free to contact me at 800.725.2550 x303 or ncristofori@ceiengineers.com. Thank you.

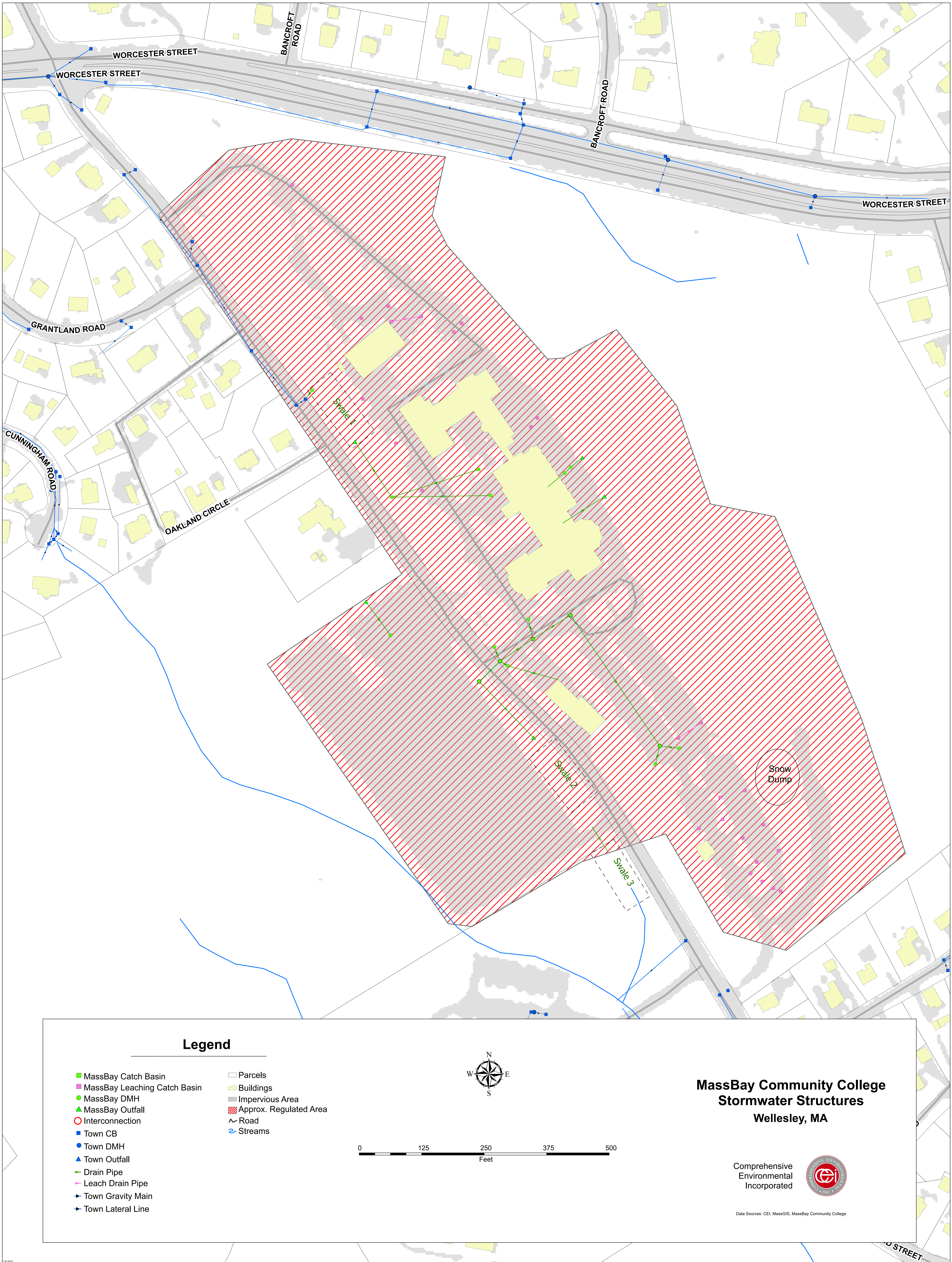
Sincerely,

COMPREHENSIVE ENVIRONMENTAL, INC.

Nick Cristofori, P.E.
Principal, Project Manager

Attachments:

- BMP location map
- Stormwater inspection checklists and inspection photographs



BMP Inspection Results



Inspection Information		
BMP ID: Upper Swale		Date/ Time: May 25, 2021 9:12 AM
Location Status: Found		Street: Oakland Street
Latitude: -71.47252		Longitude: 42.88194
BMP Type: Water Quality Swale		Year Built¹:
BMP Description: Grassed swale at the bottom of slope, before roadway		
Inspection Results		
Overgrown Vegetation on Side Slopes/Bottom: No (No action)		Displaced Riprap at Inlet, Outlet or Side Slope: N/A (Not applicable to this BMP)
Erosion on Side Slopes/Bottom: No (No action)		Hole/Depression on Side Slopes/Bottom: No (No action)
Dead Vegetation or Landscaping Up-keep Required: No (No action)		
Sediment Accumulation: Yes, <1/2 depth from bottom to invert (Inspect annually)	Debris Accumulation: Yes <1/2 depth from bottom to invert (Inspect annually)	Floatables Buildup: N/A (Not applicable to this BMP)
Infiltration Area Clogged: No (No action)	Clogged Inlet/Outlet Piping: Yes, Any portion of pipe clogged >1/4 capacity (Jet and clean pipe)	Blocked Outlet Grates: N/A (Not applicable to this BMP)
Earthen Embankment Present: No		
Overgrown Woody Vegetation on Earthen Embankment - <i>For BMPs less than 20 years old:</i> <i>For BMPs greater than 20 years old:</i>		
Erosion on Embankment:		Hole/Depression on Embankment:
Displaced Riprap on Emergency Spillway: N/A (Not applicable to this BMP)		Overgrown Woody Vegetation in Emergency Spillway: N/A (Not applicable to this BMP)
Presence of Invasive Species: No (No action)		

¹ If Year Built is unknown, field was left blank

BMP Inspection Results



Inspection Results (cont.)
Structural Damage: Yes, holes <3" in any dimension, OR <50% cross section covered in cracks (any size), OR exposed reinforcement steel without rusting/deterioration (Inspect annually)
Deficiency Comments:
Other Comments:
Maintenance Required: Yes

BMP Inspection Results



Photo Log

Photo 1: General Photo of BMP



Swale and headwall looking northwest.

Photo 2



Outfall 37 headwall at southern end of BMP

Photo 3



Outfall 37 filled with stagnant water/buried

Photo 4



Riprap along eastern side of swale,
potentially displaced check dam.

BMP Inspection Results



Photo 5



View of CB-8/Interconnection and swale.
View looking southeast.

Photo 6

BMP Inspection Results



Inspection Information		
BMP ID: Mid Swale		Date/ Time: May 27, 2021 3:56 PM
Location Status: Found		Street: Oakland Street
Latitude: -71.47254		Longitude: 42.88193
BMP Type: Water Quality Swale		Year Built¹:
BMP Description: Roadside water quality swale with inlet and culvert acting as outlet		
Inspection Results		
Overgrown Vegetation on Side Slopes/Bottom: No (No action)		Displaced Riprap at Inlet, Outlet or Side Slope: No (No action)
Erosion on Side Slopes/Bottom: Yes, erosion causing excess sedimentation OR undermining of BMP components (Repair erosion with compacted fill and stabilize with fabric and stone armoring or other methods)		Hole/Depression on Side Slopes/Bottom: No (No action)
Dead Vegetation or Landscaping Up-keep Required: Yes, loss of vegetation OR dead vegetation impacting function or aesthetics (Remove and replace vegetation as needed to maintain function or aesthetics)		
Sediment Accumulation: No (No action)	Debris Accumulation: No (No action)	Floatables Buildup: No (No action)
Infiltration Area Clogged: No (No action)	Clogged Inlet/Outlet Piping: No (No action)	Blocked Outlet Grates: No (No action)
Earthen Embankment Present: No		
Overgrown Woody Vegetation on Earthen Embankment - <i>For BMPs less than 20 years old:</i> <i>For BMPs greater than 20 years old:</i>		
Erosion on Embankment:		Hole/Depression on Embankment:
Displaced Riprap on Emergency Spillway: N/A (Not applicable to this BMP)		Overgrown Woody Vegetation in Emergency Spillway: N/A (Not applicable to this BMP)
Presence of Invasive Species: N/A (Not applicable to this BMP)		

¹ If Year Built is unknown, field was left blank

BMP Inspection Results



Inspection Results (cont.)
Structural Damage: N/A (Not applicable to this BMP)
Deficiency Comments: Removal of leaf litter and trash recommended.
Other Comments:
Maintenance Required: Yes

BMP Inspection Results



Photo Log	
Photo 1: General Photo of BMP  View of inlet riprap and length of swale. Undercut of side slopes present.	Photo 2  Excessive leaf litter around check dams
Photo 3  Channel erosion down side slopes	Photo 4  Sediment buildup before check dams

BMP Inspection Results



Photo 5



Side slope undercut and leaf litter

Photo 6



Channel erosion in bottom of swale

Photo 7



Disformed BMP outlet pipe (culvert under roadway) to BMP 3

Photo 8



Swale view looking northwest.

BMP Inspection Results



Inspection Information		
BMP ID: Lower Swale		Date/ Time: May 25, 2021 9:40 AM
Location Status: Found		Street: Oakland Street
Latitude: -71.47253		Longitude: 42.88188
BMP Type: Water Quality Swale		Year Built¹:
BMP Description: "swale" receiving water from Mid Swale and roadside drainage through erosion channel		
Inspection Results		
Overgrown Vegetation on Side Slopes/Bottom: Yes, vegetation impacting BMP function/capacity, OR access (Cut and remove vegetation on side slopes as needed to maintain function and storage capacity)		Displaced Riprap at Inlet, Outlet or Side Slope: N/A (Not applicable to this BMP)
Erosion on Side Slopes/Bottom: Yes, erosion causing excess sedimentation OR undermining of BMP components (Repair erosion with compacted fill and stabilize with fabric and stone armoring or other methods)		Hole/Depression on Side Slopes/Bottom: No (No action)
Dead Vegetation or Landscaping Up-keep Required: Yes, loss of vegetation OR dead vegetation impacting function or aesthetics (Remove and replace vegetation as needed to maintain function or aesthetics)		
Sediment Accumulation: Yes, <1/2 depth from bottom to invert (Inspect annually)	Debris Accumulation: Yes <1/2 depth from bottom to invert (Inspect annually)	Floatables Buildup: No (No action)
Infiltration Area Clogged: No (No action)	Clogged Inlet/Outlet Piping: No (No action)	Blocked Outlet Grates: N/A (Not applicable to this BMP)
Earthen Embankment Present: No		
Overgrown Woody Vegetation on Earthen Embankment - <i>For BMPs less than 20 years old:</i> <i>For BMPS greater than 20 years old:</i>		
Erosion on Embankment:		Hole/Depression on Embankment:
Displaced Riprap on Emergency Spillway: No (No action)		Overgrown Woody Vegetation in Emergency Spillway: N/A (Not applicable to this BMP)
Presence of Invasive Species: N/A (Not applicable to this BMP)		

¹ If Year Built is unknown, field was left blank

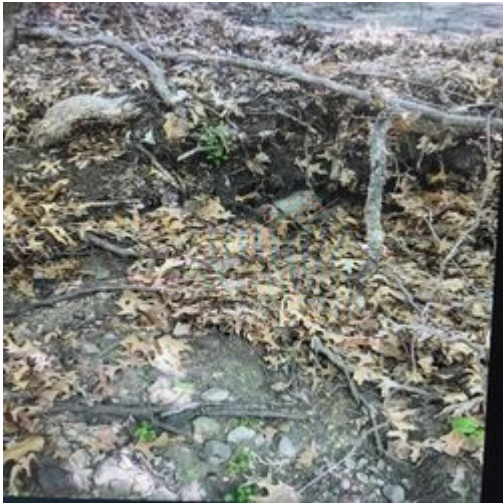
BMP Inspection Results



Inspection Results (cont.)	
Structural Damage:	No (No action)
Deficiency Comments:	
Other Comments:	No defined extents of swale, free flows from inlet pipe into wooded area
Maintenance Required:	Yes

BMP Inspection Results



Photo Log	
Photo 1: General Photo of BMP  Photo of Swale. View looking southeast	Photo 2  Sediment deposits, leaf litter buildup, woody debris and undercut side slope
Photo 3  Channel erosion from roadway	Photo 4  Inlet pipe with excessive leaf litter



STORMWATER INSPECTION REPORT

1

To: Mr. Joe DeLisle
From: Nick Cristofori, P.E., Comprehensive Environmental Inc.
Date: March 19, 2020
Locations: MassBay Community College
Inspectors: Elisha Musgraves CEI
Inspection Dates: November 19 & 25, 2019

Under the Environmental Protection Agency's (EPA's) 2016 National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, regulated permittees, such as the Massachusetts Bay Community College, are required to annually inspect stormwater Best Management Practices (BMPs) within the regulated Urbanized Area (UA) and maintain as needed. In response, Comprehensive Environmental Inc. performed an inspection of stormwater BMPs at the identified locations on November 19, 2019 to evaluate the general condition and document recommended maintenance items for follow-up action in order to meet permit requirements.

Inspections

MassBay Community College identified 3 individual BMP, all comprised of swales, that serve to treat and convey stormwater runoff for the campus. The inspections are detailed in the inspection sheet attached to this report, along with representative photo documentation. At the time of the inspections the weather was approximately 43 degrees and cloudy, with light rain. Weather over a three-day period leading up to November 19th was upper 20s to low 40s and rained within 12 hours prior to performing the site investigations. Images of the structures were taken on November 25th in sunny, high 40s conditions. Elisha Musgraves inspected the following infrastructure:

Table 1 – Stormwater Infrastructure Inspected

BMP ID	Location	Stormwater BMP Type	Overall Condition	Requires Maintenance (Y/N)
Swale 1	Northeast side of Oakland Street	Grassed Swale	Fair	Yes
Swale 2	Southeast side of Oakland Street, north of student parking lot exit	Vegetated Swale	Poor	Yes
Swale 3	Southeast side of Oakland Street, south of student parking lot exit)	Vegetated Swale	Poor	Yes

Photographs of the BMPs that were inspected are provided at the end of this report, and inspection sheets are attached.



STORMWATER INSPECTION REPORT

2

Recommendations

As noted previously, the inspected BMPs are all located within the regulated UA or discharge to waters of the United States. Maintenance should be completed as soon as possible to prevent worsening condition and failure of BMPs. Additional notes regarding overall conditions outside of maintenance may be found in the “comments” tab of the attached inspection sheets. Based on CEI’s inspections, the following items are recommended for additional follow-up action:

Table 2 – Maintenance Recommendations

BMP ID / Location	Recommendations
Swale 1 (northeast side of Oakland Street)	Inlet pipe should be repaired or unearthed and headwall should be reconstructed as needed. The stone check dam should be moved so as to be perpendicular to the channel (see pictures).
Swale 2 (southeast side of Oakland Street, north of parking lot exit)	Banks are partially eroding and should be stabilized; small pools are forming from scour. Due to the timing of inspection, leaf debris appeared to be partially inhibiting flow. Some stones were observed to be displaced and should be relocated. Outlet pipe to Swale 2 was fully submerged in sediment/debris and could not be located. Outlet pipe should be located and may need replacement, depending on condition.
Swale 3 (southeast side of Oakland Street, south of parking lot exit)	Inlet pipe from Swale 1 was not visible, could be submerged in sediment/organic debris. Depending on condition, inlet pipe may need replacement. Banks are eroding and beginning to show evidence of undermining. Due to the timing of inspection, leaf debris and sediment accumulation appeared to be partially inhibiting flow. Vegetation appears overgrown in areas and should be trimmed/removed. Outlet pipe is cracked and collapsing and should be replaced.

If you have any further questions or would like additional information, please feel free to contact me at 800.725.2550 x303 or ncristofori@ceiengineers.com. Thank you.

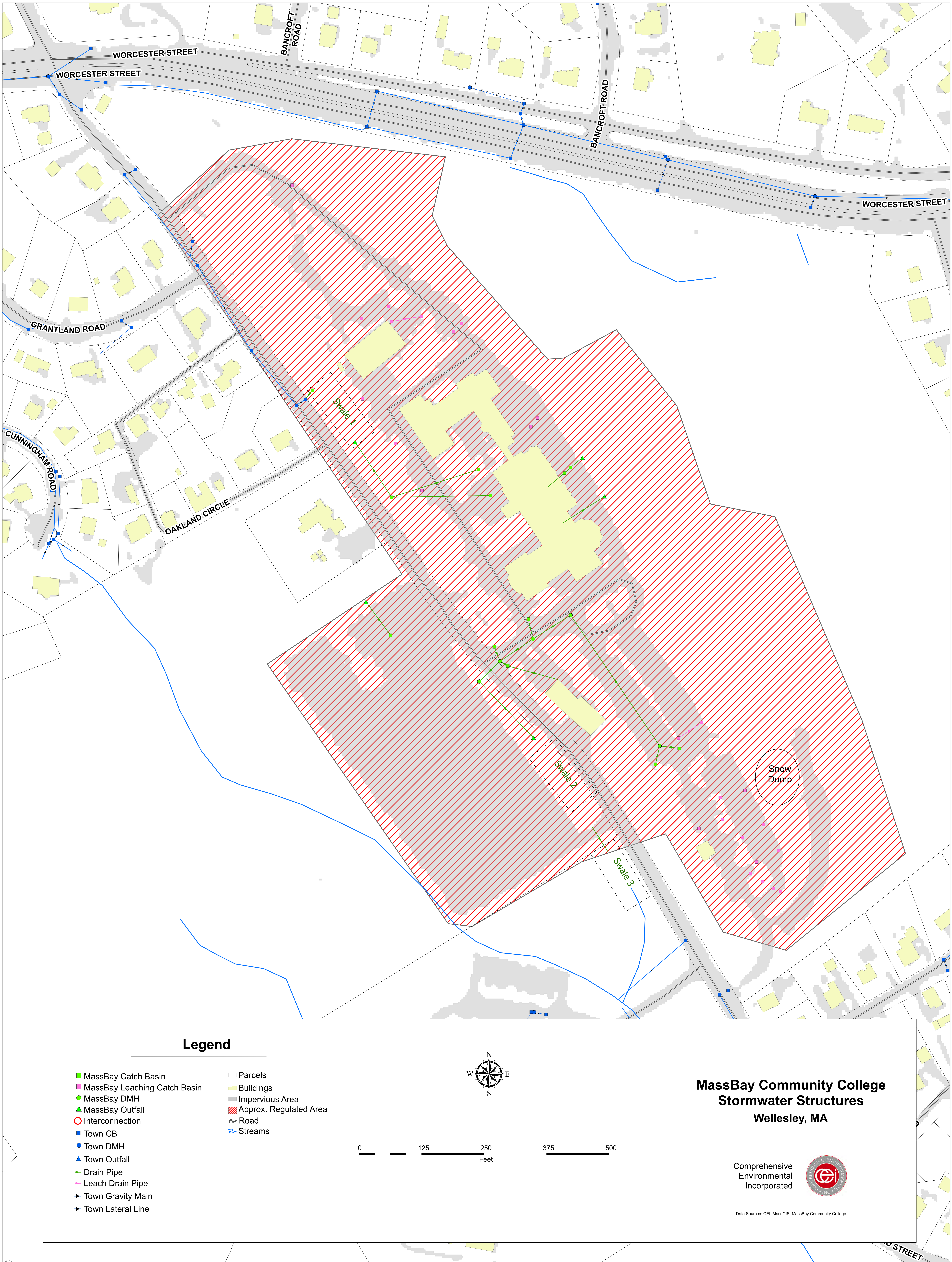
Sincerely,

COMPREHENSIVE ENVIRONMENTAL, INC.

Nick Cristofori, P.E.
Principal, Project Manager

Attachments:

- BMP location map
- Stormwater inspection checklists
- Inspection photographs



Instructions: complete for all stormwater BMPs.

Date: 11/19/2019	Weather Today: Light rain
Inspector Name: Elisha Musgraves	Weather over past 72 hours: light rain/dry

* Provide additional comments to describe the observations made for the category.



STORMWATER INSPECTION REPORT

Swale 1 (northeast side of Oakland Street)



Headwall for inlet pipe



Submerged/collapsed inlet pipe



Downstream view of swale



Displaced check dam



STORMWATER INSPECTION REPORT



Upstream view of swale



Outlet drain



STORMWATER INSPECTION REPORT

Swale 2 (southeast side of Oakland Street, north of parking lot exit)



Downstream view of swale



Inlet pipe and bank erosion



STORMWATER INSPECTION REPORT



Displaced check dam



Leaf debris buildup



STORMWATER INSPECTION REPORT



Scour/pooling and bank erosion



Channelization



STORMWATER INSPECTION REPORT

Swale 3 (southeast side of Oakland Street, south of parking lot exit)



Upstream view, unable to locate inlet from Swale 1



Channelization, leaf debris, sedimentation, and bank erosion



STORMWATER INSPECTION REPORT



Upstream view from outlet pipe; vegetation overgrowth, channelization, leaf debris.



Outlet pipe collapsing, bank erosion, leaf and sediment buildup



STORMWATER BMP INSPECTION REPORT

To: Mr. Joe DeLisle, Director of Facilities, MassBay College

From: Nick Cristofori, P.E., Comprehensive Environmental Inc.

Date: May 31, 2022

Locations: MassBay Community College

Inspectors: Kevin Barbara & Danica Cucchi, CEI

Inspection Dates: April 27, 2022

Under the Environmental Protection Agency's (EPA's) 2016 National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, regulated permittees, such as the Massachusetts Bay Community College, are required to annually inspect stormwater Best Management Practices (BMPs) within the regulated Urbanized Area (UA) and maintain as needed. In response, Comprehensive Environmental Inc. (CEI) performed an inspection of stormwater BMPs at the identified locations on April 27, 2022 to evaluate general conditions and document recommended maintenance items for follow-up action in order to meet permit requirements.

Inspections

MassBay Community College identified 3 individual BMP, all comprised of swales, that serve to treat and convey stormwater runoff for the campus. BMP locations are identified by general location, with locations shown on an attached map. Table 1 below details the locations and individual BMPs that were inspected, while Table 2 summarizes maintenance needs for each location. Inspections are detailed in the inspection sheet attached to this report, along with representative photo documentation. At the time of the inspections the weather was approximately 50 degrees and partly sunny. Weather over a three-day period leading up to April 27th was in the lower 50s and cloudy. Kevin Barbara and Danica Cucchi inspected the following infrastructure:

Table 1 – Stormwater Infrastructure Inspected

BMP ID	Location	Stormwater BMP Type	Overall Condition	Requires Maintenance?
Upper Swale	Northeast side of Oakland	Grassed Swale	Fair	Yes
Mid Swale	Southeast side of Oakland Street, north of student parking lot exit	Vegetated Swale	Poor	Yes
Lower Swale	Southeast side of Oakland Street, south of student parking lot exit	Vegetated swale	Poor	Yes



STORMWATER BMP INSPECTION REPORT

Recommendations

As noted previously, the inspected BMPs are all located within the regulated UA or discharge to waters of the United States. Maintenance should be completed as soon as possible to prevent worsening condition and failure of BMPs. Additional notes regarding overall conditions outside of maintenance may be found in the “comments” tab of the attached inspection sheets. Based on CEI’s inspections, the following items are recommended for additional follow-up action:

Table 2 – BMP Maintenance Recommendations

BMP ID / Location	Recommendations
Upper Swale (northeast side of Oakland Street)	• Repair erosion on side slope and outlet • Remove grass and debris that are clogging inlet
Mid Swale (southeast side of Oakland Street, north of parking lot exit)	• Remove debris accumulation • Remove sediment within the infiltration area and scarify bottom surface • Repair erosion and stabilize with fabric and stone armoring • Repair undercutting of swale • Replace or repair displaced riprap
Lower Swale (southeast side of Oakland Street, south of parking lot exit)	• Remove debris accumulation • Remove sediment within the infiltration area and scarify bottom surface • Remove sediment to restore storage capacity • Repair erosion and stabilize with fabric and stone armoring • Remove vegetation clogging outlet

If you have any further questions or would like additional information, please feel free to contact me at 800.725.2550 x303 or ncristofori@ceiengineers.com. Thank you.

Nick Cristofori, P.E.
Principal, Project Manager

Attachments:

- BMP location map
- Stormwater inspection reports and photograph



Legend

-  BMP
-  Approx. Regulated Area
-  Streams
-  Town Boundaries
-  Roads

Stormwater BMP Map

Mass Bay Community College
Wellesley, MA



Comprehensive
Environmental
Incorporated

Data Sources: MassGIS, MassBay Community College, CEI

BMP Inspection Results



Inspection Information		
BMP ID: Swale 1		Date/ Time: April 27, 2022 9:49 AM
Location Status: Found		Street: Oakland Street
Latitude: -71.26476240350982		Longitude: 42.3117527878306
BMP Type: Water Quality Swale		Year Built¹:
BMP Description: Grass swale at bottom of slope		
Inspection Results		
Overgrown Vegetation on Side Slopes/Bottom: No (No action)		Displaced Riprap at Inlet, Outlet or Side Slope: No (No action)
Erosion on Side Slopes/Bottom: Yes, erosion NOT causing excess sedimentation OR undermining of BMP components (Inspect annually)		Hole/Depression on Side Slopes/Bottom: No (No action)
Dead Vegetation or Landscaping Up-keep Required: No (No action)		
Sediment Accumulation: No (No action)	Debris Accumulation: No (No action)	Floatables Buildup: No (No action)
Infiltration Area Clogged: No (No action)	Clogged Inlet/Outlet Piping: No (No action)	Blocked Outlet Grates: No (No action)
Earthen Embankment Present: No		
Overgrown Woody Vegetation on Earthen Embankment - <i>For BMPs less than 20 years old:</i> <i>For BMPs greater than 20 years old:</i>		
Erosion on Embankment:		Hole/Depression on Embankment:
Displaced Riprap on Emergency Spillway: No (No action)		Overgrown Woody Vegetation in Emergency Spillway: No (No action)
Presence of Invasive Species: No (No action)		

¹ If Year Built is unknown, field was left blank

BMP Inspection Results



Inspection Results (cont.)
Structural Damage: No (No action)
Deficiency Comments: Grass and debris clogging inlet
Other Comments: Some erosion on side slope into outlet, also erosion in swale
Maintenance Required: Yes

BMP Inspection Results



Photo Log	
Photo 1: General Photo of BMP  BMP	Photo 2  Inlet
Photo 3  Outlet	Photo 4

BMP Inspection Results



Inspection Information		
BMP ID: Swale 2		Date/ Time: April 27, 2022 9:56 AM
Location Status: Found		Street: Oakland Street
Latitude: -71.2651294470497		Longitude: 42.31262517631269
BMP Type: Water Quality Swale		Year Built¹:
BMP Description: Roadside swale inlet and culvert		
Inspection Results		
Overgrown Vegetation on Side Slopes/Bottom: No (No action)		Displaced Riprap at Inlet, Outlet or Side Slope: Yes, loss of stone <12" any dimension (Inspect annually)
Erosion on Side Slopes/Bottom: Yes, erosion causing excess sedimentation OR undermining of BMP components (Repair erosion with compacted fill and stabilize with fabric and stone armoring or other methods)		Hole/Depression on Side Slopes/Bottom: No (No action)
Dead Vegetation or Landscaping Up-keep Required: No (No action)		
Sediment Accumulation: Yes, <1/2 depth from bottom to invert (Inspect annually)	Debris Accumulation: Yes <1/2 depth from bottom to invert (Inspect annually)	Floatables Buildup: No (No action)
Infiltration Area Clogged: No (No action)	Clogged Inlet/Outlet Piping: No (No action)	Blocked Outlet Grates: No (No action)
Earthen Embankment Present: No		
Overgrown Woody Vegetation on Earthen Embankment - <i>For BMPs less than 20 years old:</i> <i>For BMPS greater than 20 years old:</i>		
Erosion on Embankment:		Hole/Depression on Embankment:
Displaced Riprap on Emergency Spillway: N/A (Not applicable to this BMP)		Overgrown Woody Vegetation in Emergency Spillway: No (No action)
Presence of Invasive Species: No (No action)		

¹ If Year Built is unknown, field was left blank

BMP Inspection Results



Inspection Results (cont.)	
Structural Damage:	No (No action)
Deficiency Comments:	
Other Comments:	Sediment buildup through swale, undercutting
Maintenance Required:	Yes

BMP Inspection Results



Photo Log

Photo 1: General Photo of BMP



BMP

Photo 2



CMP outlet

Photo 3



Scour pool

Photo 4



Inlet

BMP Inspection Results



Inspection Information		
BMP ID: Swale 3		Date/ Time: April 27, 2022 10:07 AM
Location Status: Found		Street: Oakland Street
Latitude: -71.26354501589319		Longitude: 42.310895780140825
BMP Type: Water Quality Swale		Year Built¹:
BMP Description: Water quality swale receiving from road and swale 2		
Inspection Results		
Overgrown Vegetation on Side Slopes/Bottom: No (No action)		Displaced Riprap at Inlet, Outlet or Side Slope: No (No action)
Erosion on Side Slopes/Bottom: Yes, erosion causing excess sedimentation OR undermining of BMP components (Repair erosion with compacted fill and stabilize with fabric and stone armoring or other methods)		Hole/Depression on Side Slopes/Bottom: No (No action)
Dead Vegetation or Landscaping Up-keep Required: Yes, loss of vegetation OR dead vegetation impacting function or aesthetics (Remove and replace vegetation as needed to maintain function or aesthetics)		
Sediment Accumulation: Yes, >1/2 depth from bottom to invert (Remove sediment to restore storage capacity)	Debris Accumulation: Yes >1/2 depth from bottom to invert (Remove debris to restore storage capacity)	Floatables Buildup: No (No action)
Infiltration Area Clogged: Yes, <3/4 of bottom area covered by sediment (Inspect annually)	Clogged Inlet/Outlet Piping: Yes, Any portion of pipe clogged <1/4 capacity (Inspect annually)	Blocked Outlet Grates: No (No action)
Earthen Embankment Present: No		
Overgrown Woody Vegetation on Earthen Embankment - <i>For BMPs less than 20 years old:</i> <i>For BMPs greater than 20 years old:</i>		
Erosion on Embankment:		Hole/Depression on Embankment:
Displaced Riprap on Emergency Spillway: No (No action)		Overgrown Woody Vegetation in Emergency Spillway: No (No action)
Presence of Invasive Species: No (No action)		

¹ If Year Built is unknown, field was left blank

BMP Inspection Results



Inspection Results (cont.)	
Structural Damage:	No (No action)
Deficiency Comments:	Dead woody vegetation in conveyance
Other Comments:	Debris, dead woody vegetation, sedimentation, erosion
Maintenance Required:	Yes

BMP Inspection Results



Photo Log

Photo 1: General Photo of BMP



BMP

Photo 2



Roadside erosion conveyance into swale

Photo 3



Woody vegetation in conveyance after outlet

Photo 4



Leaf litter surrounding CMP outlet

Appendix F

Charles River Watershed Phosphorus Impairment Memo



CHARLES RIVER WATERSHED PHOSPHORUS IMPAIRMENT MEMO

1

To: Mr. Joe DeLisle, Director of Facilities

From: Nick Cristofori, P.E., Comprehensive Environmental Inc.

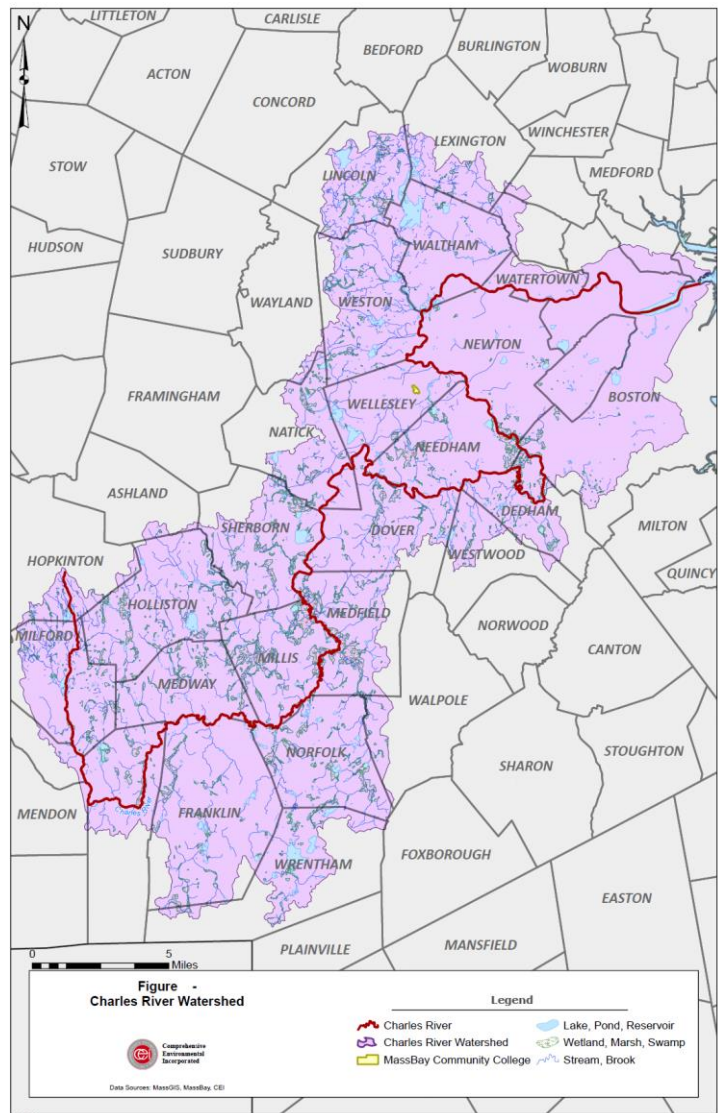
Date: May 26, 2022

MS4: MassBay Community College

Subject: Charles River Watershed Phosphorus Impairment Requirements

The Charles River watershed is addressed in the October 17, 2007 EPA-approved, Total Maximum Daily Load (TMDL) entitled the *Final TMDL for Nutrients in the Lower Charles River Basin* ([Lower Charles TMDL](#)) and the June 10, 2011 EPA-approved TMDL entitled the TMDL for Nutrients in the Upper/Middle Charles River ([Upper/Middle Charles TMDL](#)). According to the Environmental Protection Agency's (EPA's) 2016 National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, approximately thirty-five municipalities in Massachusetts lie inside the Charles River watershed and must address the discharge of phosphorus from its MS4 to the Charles River and its tributaries as described in Appendix F Part A.I of the Massachusetts MS4 Permit.

Though MassBay College (MassBay) is located within the Charles River watershed, it is not specifically listed in the 2016 NPDES MS4 Permit, the Upper/Middle Charles River nutrient TMDL, or the Lower Charles River phosphorus TMDL as having to meet any TMDL requirements under the permit as MassBay falls into the non-traditional MS4 category as defined in Section 5.0 of the 2016 MS4 Permit.



***The Charles River Watershed.
MassBay campus indicated in yellow.***



CHARLES RIVER WATERSHED PHOSPHORUS IMPAIRMENT MEMO

2

Non-traditional MS4s are MS4s owned and operated by the Commonwealth of Massachusetts and properties owned and operated by the United States within the Commonwealth of Massachusetts. The requirements for non-traditional MS4s are outlined in Section 5.1 of the 2016 MS4 Permit. Specific requirements for dischargers subject to Appendix F Part A.I (dischargers to a waterbody in the Charles River watershed) are described in Section 5.1.5 of the permit and include:

- Coordination with the municipality in which they are located to facilitate compliance with the phosphorus reduction applicable to the municipality.
- Submit planned phosphorus reduction activities on site and coordination with the municipality in each annual report.
- Submit additional information in the Year 4 Annual Report:
 - Estimated current impervious area of permittee owned property.
 - Land use information for permittee owned property.
 - Phosphorus removal in pounds per year for any structural BMP owned by the permittee, calculated in accordance with Appendix F, Attachment 3.
 - Date of last maintenance activity for all structural BMPs for which phosphorus removal is calculated.

This memo outlines the specific requirements listed above.

Town of Wellesley Reduction Requirements

Though MassBay does not have specific phosphorus reduction requirements listed in Appendix F, of the 2016 MS4 Permit, the Town of Wellesley (where MassBay College is located in its entirety) is required to meet TMDL requirements. As part of these requirements, the Town of Wellesley is required to develop a Phosphorus Control Plan (PCP) to address discharge of phosphorus from its MS4 to the Charles River and its tributaries as described in Appendix F Part A.I of the permit. Appendix F of the 2016 MS4 Permit outlines the estimated phosphorus reduction requirements for each town (listed in Tables F-2 and F-3, Appendix F of the permit) in the Charles River watershed including the Town of Wellesley. These reduction requirements are listed in Table 1.

Table 1: Charles River Watershed Phosphorus Requirements for Wellesley, MA

Phosphorus Requirement	Phosphorus Reduction (kg P/yr)
Baseline Phosphorus Load	1,431
Phosphorus Load Reduction Requirement	821 (57%)
Allowable Phosphorus Load	609



MassBay College Charles River Watershed Phosphorus Requirements

As noted, MassBay is considered a non-traditional MS4 and thus, does not have specific reduction requirements to address phosphorus discharge to the Charles River watershed. In addition to coordination with the Town of Wellesley, MassBay must submit additional information in the Year 4 Annual Report as described below.

Impervious Area and Land Use Data

MassBay must submit an estimate of impervious area and land use data for their facility. As shown in Table 2, total impervious area for the MassBay campus is approximately 4.94 hectares. Land use information is also provided in Table 2.

Table 2: Land Use and Impervious Area Data for MassBay College

Land Use Category	Impervious Area (ha)	Pervious Area (ha)	Total Area (ha)
Forest	--	4.03	4.03
Highway	4.94	--	4.94
LDR	0.00	0.00	0.01
Open	--	2.43	2.43
Total	4.94	6.46	11.40

Structural BMP Phosphorus Removal and Maintenance

MassBay has three individual BMPs, all comprised of swales, that serve to treat and convey stormwater runoff for the campus. The upper-swale treated the northeast side of Oakland Street on the upper part of campus. The mid-swale and lower-swale are part of the same BMP (as the mid-swale flows into the lower-swale) and address stormwater on the lower part of campus. A summary of the locations of each BMP, BMP type, overall condition, and maintenance requirements are shown in Table 3. Maintenance requirements are based on an inspection conducted on April 27, 2022 and are outlined in detail in a separate memo (2022 BMP Inspections Memo dated May 9, 2022).

Phosphorus reductions from the BMPs were estimated using the EPA BMP Accounting and Tracking Tool (BATT) as part of the MS4 permit requirements and in accordance with Appendix F, Attachment 3. As the mid-swale and lower-swale are part of the same BMP, the reduction was calculated together. The annual phosphorus removal from these three BMPs was calculated to be 0.036 kg./year (Table 3).



CHARLES RIVER WATERSHED PHOSPHORUS IMPAIRMENT MEMO

4

Table 3: Stormwater BMP Locations and Recent Inspection at MassBay

BMP ID	Location	Stormwater BMP Type	Phosphorus Reduction (kg/yr)	Overall Condition	Requires Maintenance?
Upper Swale	Northeast side of Oakland	Grassed Swale	0.001	Fair	Yes
Mid Swale	Southeast side of Oakland Street, north of student parking lot exit	Vegetated Swale	0.034	Poor	Yes
Lower Swale	Southeast side of Oakland Street, south of student parking lot exit	Vegetated swale		Poor	Yes
Total Reduction			0.036	--	--

Next Steps

The following items are recommended as follow-up actions:

- Follow the maintenance recommendations for the three structural BMPs outlined in the 2022 BMP Inspections Memo dated May 9, 2022.
- Determine additional phosphorus reduction activities that could be implemented on site.
- Continue coordination with the Town of Wellesley.

If you have any further questions or would like additional information, please feel free to contact me at 800.725.2550 x303 or ncristofori@ceiengineers.com. Thank you.

Nick Cristofori, P.E.
Principal, Project Manager

Appendix G

Annual Reports

Year 2 Annual Report

Massachusetts Small MS4 General Permit

Reporting Period: July 1, 2019-June 30, 2020

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

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

Part I: Contact Information

Name of Municipality or Organization: MassBay Community College

EPA NPDES Permit Number: MAR043003

Primary MS4 Program Manager Contact Information

Name: Joseph DeLisle

Title: Director of Facilities

Street Address Line 1: 50 Oakland Street

Street Address Line 2:

City: Wellesley Hills

State: MA

Zip Code: 02481

Email: jdelisle@massbay.edu

Phone Number: (781) 239-2571

Stormwater Management Program (SWMP) Information

SWMP Location (web address): <https://www.massbay.edu/facilities>

Date SWMP was Last Updated: June 30, 2019

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

<https://www.massbay.edu/facilities>

Part II: Self-Assessment

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

Impairment(s)

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

TMDL(s)

- In State: ☐ Assabet River Phosphorus
 ☐ Bacteria and Pathogen
 ☐ Cape Cod Nitrogen
☒ Charles River Watershed Phosphorus
 ☐ Lake and Pond Phosphorus
 Out of State: ☐ Bacteria/Pathogens
 ☐ Metals
 ☐ Nitrogen
 ☐ Phosphorus

Clear Impairments and TMDLs

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

Year 2 Requirements

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

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

As-Built and Long-Term O&M - as noted in the College's NOI, MassBay is not responsible for this item as there are no subdevelopers constructing within the MassBay campus and all projects are for the college itself. MassBay and DCAMM are jointly responsible for long-term operation and maintenance.

Facility Inventory - note that the entire college property is permittee-owned. A comprehensive Operation and Maintenance Plan was developed that pertains to different college functions and actions undertaken there.

Annual Requirements

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

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

IDDE Training - training was not performed during this permit year due to COVID-19 social distancing requirements and limited staff availability.

Charles River Watershed Phosphorus TMDL

- ☒ Completed Legal Analysis

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

As noted in the NOI, MassBay Community College has no regulatory authority, and thus no bylaws, ordinances, or other legal regulatory mechanisms will be enacted or updated under the 2016 MS4 Permit. Consequently, MassBay does not have any authority over any regulatory mechanisms that may be necessary to effectively implement the Phosphorus Control Plan.

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

Part III: Receiving Waters/Impaired Waters/TMDL

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

☐ Yes

☒ No

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

Part IV: Minimum Control Measures

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

MCM1: Public Education

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

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

BMP: Stormwater Education Flyer

Message Description and Distribution Method:

Provide an educational stormwater flyer on lawn care, pet waste disposal, and fertilizer/pesticide usage at various locations on campus.

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Provide flyers for pickup in at least one location on campus.

Message Date(s):

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

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

If yes, describe why the change was made:

[Add an Educational Message](#)

MCM2: Public Participation

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

SWMP Plan for Download - MassBay has posted the SWMP Plan on its website along with contact information to allow for public comment.

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

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

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Check off the box below if the statement is true.

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

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

Number of SSOs identified:

Number of SSOs removed:

MS4 System Mapping

Below, check all that apply.

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

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

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

MassBay has completed all mapping requirements under the 2016 Permit. Catch basins, manholes, outfalls, pipe connectivity, interconnections with other MS4s, structural stormwater BMPs, and receiving waterbodies, along with catchment delineations, have been mapped.

Screening of Outfalls/Interconnections

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

- ☒ The outfall screening data is attached to the email submission

- ☐ The outfall screening data can be found at the following website:

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

Number of outfalls screened:

Catchment Investigations

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

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

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

Number of catchment investigations completed this reporting period:

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

Percent of total catchments investigated:

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

IDDE Progress

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

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

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

Number of illicit discharges identified:

Number of illicit discharges removed:

Estimated volume of sewage removed: gallons/day

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

Total number of illicit discharges identified:

Total number of illicit discharges removed:

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

N/A, none found to date

Employee Training

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

Training was not performed during this permit year due to COVID-19 social distancing requirements and limited staff availability.

MCM4: Construction Site Stormwater Runoff Control

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

Number of site plan reviews completed:

Number of inspections completed:

Number of enforcement actions taken:

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

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

Ordinance or Regulatory Mechanism

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

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

As-built Drawings

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

Not Applicable. As noted in the College's NOI, MassBay is not responsible for this item as there are no subdevelopers constructing within the MassBay campus and all projects are for the college itself. MassBay and DCAMM are jointly responsible for long-term operation and maintenance.

Street Design and Parking Lots Report

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

As noted in the College's NOI, this item is not applicable.

Green Infrastructure Report

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

As noted in the College's NOI, this item is not applicable.

Retrofit Properties Inventory

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

As noted in the NOI, the entire campus is owned by MassBay Community College. Instead of identifying 5 facilities, MassBay will identify 5 potential areas on campus that could be suitable for structural BMP modification or retrofit. This will be completed during future permit years.

MCM6: Good Housekeeping

Catch Basin Cleaning

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

Number of catch basins inspected: Number of catch basins cleaned: Total volume or mass of material removed from all catch basins:

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

Total number of catch basins:

If applicable:

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

Not yet applicable.

Street Sweeping

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

- ☐ Number of miles cleaned:
- ☒ Volume of material removed:
- ☐ Weight of material removed:

O&M Procedures and Inventory of Permittee-Owned Properties

Below, check all that apply.

The following permittee-owned properties have been inventoried:

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

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

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

Stormwater Pollution Prevention Plan (SWPPP)

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

Number of site inspections completed:

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

Not applicable, no corrective actions have been taken to date. Note that a SWPPP for the facility was completed on June 30, 2020. Quarterly site inspections will begin during Year 3.

Additional Information

Monitoring or Study Results

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

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

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

N/A, not started yet.

Additional Information

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

Stormwater BMPs - MassBay's three stormwater BMPs were inspected in November 2019 and maintenance performed during spring 2020. Maintenance generally included removal of debris, adding a filter sock to prevent erosion, and reestablishing plantings.

COVID-19 Impacts

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

Public Education and Participation - flyers were made available at the college have been unavailable for approximately 6 months due to COVID-19 requiring closure of the college.

IDDE Training - training was not performed during this permit year due to COVID-19 social distancing requirements and limited staff availability.

Catch Basin Cleaning - catch basins were not cleaned during this permit year due to COVID-19 social distancing requirements and limited staff availability.

Activities Planned for Next Reporting Period

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

Yes, I agree ☒

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

Annual Requirements

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

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

The SWMP Plan and IDDE Plan will be updated during FY-21 to address all work performed through Year 3. This will include incorporating the above items into the SWMP Plan and/or IDDE Plan as necessary, incorporate results from outfall dry weather screening, as well as documenting results of other annual activities below such as BMP inspections.

Part V: Certification of Small MS4 Annual Report 2020

40 CFR 144.32(d) Certification

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

Name:

Marcus Edward

Title:

Assistant VP for Finance

Signature:

Marcus Edward

Digitally signed by Marcus
Edward
Date: 2020.09.25 09:03:14 -04'00'

Date:

09/25/20

*[Signatory may be a duly authorized
representative]*

Year 1 Annual Report

Massachusetts Small MS4 General Permit

Reporting Period: May 1, 2018-June 30, 2019

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

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

Part I: Contact Information

Name of Municipality or Organization: MassBay Community College

EPA NPDES Permit Number: MAR043003

Primary MS4 Program Manager Contact Information

Name: Joseph DeLisle

Title: Director of Facilities

Street Address Line 1: 50 Oakland Street

Street Address Line 2:

City: Wellesley Hills

State: MA

Zip Code: 02481

Email: jdelisle@massbay.edu

Phone Number: (781) 239-2571

Fax Number:

Stormwater Management Program (SWMP) Information

SWMP Location (web address): <https://www.massbay.edu/facilities>

Date SWMP was Last Updated: June 30, 2019

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

Part II: Self Assessment

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

Impairment(s)

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

TMDL(s)

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

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

Clear Impairments and TMDLs

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

Year 1 Requirements

- ☒ Develop and begin public education and outreach program
☐ Identify and develop inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years
 - ☐ The SSO inventory is attached to the email submission
 - ☐ The SSO inventory can be found at the following website:

N/A, facility is served by a septic system.

☒ Develop written IDDE plan including a procedure for screening and sampling outfalls
☐ IDDE ordinance complete
☒ Identify each outfall and interconnection discharging from MS4, classify into the relevant category, and priority rank each catchment for investigation
 - ☐ The priority ranking of outfalls/interconnections is attached to the email submission
 - ☒ The priority ranking of outfalls/interconnections can be found at the following website:

<https://www.massbay.edu/facilities; IDDE Plan, Appendix B>

☐ Construction/ Erosion and Sediment Control (ESC) ordinance complete
☐ Develop written procedures for site inspections and enforcement of sediment and erosion control measures
☐ Develop written procedures for site plan review
☒ Keep a log of catch basins cleaned or inspected
☐ Complete inspection of all stormwater treatment structures

Annual Requirements

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

Charles River Watershed Phosphorus TMDL

- ☐ Begin Phase 1 Phosphorus Control Plan (PCP)

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

IDDE and Construction/ Erosion and Sediment Control ordinances - As noted in the NOI, MassBay Community College has no regulatory authority, and thus no bylaws, ordinances, or other legal regulatory mechanisms will be enacted under the 2016 MS4 Permit.

Written Procedures for Site Inspections and Site Plan Review - MassBay does not review site plans for construction projects. Instead, the Massachusetts Department of Capital Asset Management and Maintenance (DCAMM) who manages college development is responsible for reviewing all site plans prior to construction and establishing written procedures for inspections.

Stormwater BMP Inspections - MassBay has developed an inventory of its facility-owned Stormwater BMPs. Inspections will occur during fall 2019, with maintenance performed as needed.

IDDE Training - An employee IDDE Training program will be developed during Year 2, with annual training to be performed starting in Year 2.

PCP Phase 1 - MassBay will begin preparation of its PCP during Year 2, beginning with a legal analysis in accordance with permit schedule requirements.

Part III: Receiving Waters/Impaired Waters/TMDL

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

Yes ☐ No ☒

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

Part IV: Minimum Control Measures

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

MCM1: Public Education

Number of educational messages completed during the reporting period:

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

BMP: Stormwater Education Flyer

Message Description and Distribution Method:

Provide an educational stormwater flyer on lawn care, pet waste disposal, and fertilizer/pesticide usage at various locations on campus.

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Provide flyers for pickup in at least one location on campus.

Message Date(s):

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

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

If yes, describe why the change was made:

[Add an Educational Message](#)

MCM2: Public Participation

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

SWMP Plan for Download - MassBay has posted the SWMP Plan on its website along with contact information to allow for public comment.

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

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

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

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

Number of SSOs identified:

Number of SSOs removed:

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

Total number of SSOs identified:

Total number of SSOs removed:

MS4 System Mapping

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

MassBay has completed all mapping requirements under the 2016 Permit. Catch basins, manholes, outfalls, pipe connectivity, interconnections with other MS4s, structural stormwater BMPs, and receiving waterbodies, along with catchment delineations, have been mapped.

Screening of Outfalls/Interconnections

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

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

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

Number of outfalls screened:

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

Percent of total outfalls screened:

Catchment Investigations

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

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

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

Number of catchment investigations completed this reporting period:

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

Percent of total catchments investigated:

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

IDDE Progress

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

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

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

Number of illicit discharges identified:

Number of illicit discharges removed:

Estimated volume of sewage removed:

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

Total number of illicit discharges identified:

Total number of illicit discharges removed:

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

N/A

Employee Training

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

An employee IDDE Training program will be developed during Year 2, with annual training to be performed starting in Year 2.

MCM4: Construction Site Stormwater Runoff Control

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

Number of site plan reviews completed:

Number of inspections completed:

Number of enforcement actions taken:

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

Ordinance Development

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

As noted in the NOI, MassBay Community College has no regulatory authority, and thus no bylaws, ordinances, or other legal regulatory mechanisms will be enacted under the 2016 MS4 Permit.

As-built Drawings

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

MassBay is not responsible for this item. Instead, DCAMM is responsible for ensuring long-term operation and maintenance and the submittal of as-built drawings.

Street Design and Parking Lots Report

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

N/A, DCAMM is responsible for this item. To be completed during future permit years.

Green Infrastructure Report

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

N/A, DCAMM is responsible for this item. To be completed during future permit years.

Retrofit Properties Inventory

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

As noted in the NOI, the entire campus is owned by MassBay Community College. Instead of identifying 5 facilities, MassBay will identify 5 potential areas on campus that could be suitable for structural BMP modification or retrofit. This will be completed during future permit years.

MCM6: Good Housekeeping

Catch Basin Cleaning

Describe the status of the catch basin cleaning optimization plan:

MassBay developed a Catch Basin Cleaning Optimization Plan during Year 1 as a component of its SWMP Plan.

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

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

<https://www.massbay.edu/facilities; SWMP Plan, Appendix D>

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

Number of catch basins inspected:

Number of catch basins cleaned:

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

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

Total number of catch basins:

If applicable:

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

Not yet applicable, pending collection of a second round of catch basin inspections. Note that material quantity tracking will begin during Year 2.

Street Sweeping

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

MassBay developed a Street Sweeping Optimization Plan during Year 1 as a component of its SWMP Plan. This consists of a map displaying sweeping requirements throughout the College and a Standard Operating Procedure (SOP) for completing the sweeping. All impervious roadways and parking areas are required to be swept twice per year.

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

☒ Number of miles cleaned:

☐ Volume of material removed:

☐ Weight of material removed:

If applicable:

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

Not applicable, all MassBay roads and parking areas are swept.

Winter Road Maintenance

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

MassBay developed SOPs for winter road maintenance during Year 1. These SOPs will be included as part of a larger comprehensive Operation and Maintenance (O&M) Plan during Year 2 that covers other facility operations and stormwater infrastructure.

Inventory of Permittee-Owned Properties

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

MassBay is currently developing an inventory of its permittee-owned areas, to be completed by the end of Year 2.

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

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

MassBay is currently developing O&M Procedures for its Open Spaces, Buildings and Facilities, and Vehicles and Equipment, to be completed by the end of Year 2. Note that MassBay does not have any formal park areas.

Stormwater Pollution Prevention Plan (SWPPP)

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

MassBay does not have any formal facilities such as maintenance garages or waste handling facilities as outlined in the permit, however, areas of the college, such as the salt storage shed and surrounding area do require preparation of a SWPPP. MassBay will complete a SWPPP meeting applicable permit requirements by the end of Year 2.

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

Number of site inspections completed:

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

N/A, not yet started.

O&M Procedures for Stormwater Treatment Structures

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

MassBay is currently developing an inventory of its facility-owned Stormwater BMPs. Once complete, MassBay will inspect all regulated stormwater BMPs annually and perform maintenance as needed.

Additional Information**Monitoring or Study Results**

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

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

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

N/A, not yet started.

Additional Information

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

Activities performed during Year 1 include submittal of a Notice of Intent, development of a comprehensive Stormwater Management Program (SWMP) Plan which in part also included development of a Catch Basin Cleaning Optimization Plan and Street Sweeping Optimization Plan, development of a comprehensive Illicit Discharge Detection and Elimination (IDDE) Plan which in part included creation of procedures for identifying and removing illicit discharges along with classifying, prioritizing, and delineating catchment areas. Other activities completed included development of winter operation and maintenance procedures.

Activities Planned for Next Reporting Period

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

Yes, I agree ☒

- Complete system mapping Phase I

- Begin investigations of catchments associated with Problem Outfalls
- Develop or modify an ordinance or other regulatory mechanism for post-construction stormwater runoff from new development and redevelopment
- Establish and implement written procedures to require the submission of as-built drawings no later than two years after the completion of construction projects
- Develop, if not already developed, written operations and maintenance procedures
- Develop an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; review annually and update as necessary
- Establish a written program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner
- Develop and implement a written SWPPP for maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater
- Enclose or cover storage piles of salt or piles containing salt used for deicing or other purposes
- Develop, if not already developed, written procedures for sweeping streets and municipal-owned lots
- Develop, if not already developed, written procedures for winter road maintenance including storage of salt and sand
- Develop, if not already developed, a schedule for catch basin cleaning
- Develop, if not already developed, a written procedure for stormwater treatment structure maintenance
- Develop a written catchment investigation procedure (*18 months*)

Annual Requirements

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

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

Part V: Certification of Small MS4 Annual Report 2019**40 CFR 144.32(d) Certification**

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

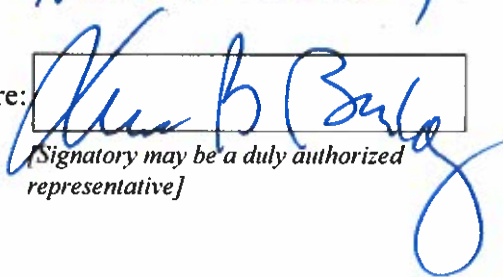
Name:

NEIL G. BUCKLEY

Title:

VP/CFO

Signature:


[Signatory may be a duly authorized representative]

Date:

5/30/19

Year 3 Annual Report

Massachusetts Small MS4 General Permit

Reporting Period: July 1, 2020-June 30, 2021

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

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

Part I: Contact Information

Name of Municipality or Organization: MassBay Community College

EPA NPDES Permit Number: MAR043003

Primary MS4 Program Manager Contact Information

Name: Joseph DeLisle

Title: Director of Facilities

Street Address Line 1: 50 Oakland Street

Street Address Line 2:

City: Wellesley Hills

State: MA

Zip Code: 02481

Email: jdelisle@massbay.edu

Phone Number: (781) 239-2571

Stormwater Management Program (SWMP) Information

SWMP Location (web address): <https://www.massbay.edu/facilities>

Date SWMP was Last Updated: June 30, 2021

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

Part II: Self-Assessment

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

Impairment(s)

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

TMDL(s)

- In State: ☐ Assabet River Phosphorus
 ☐ Bacteria and Pathogen
 ☐ Cape Cod Nitrogen
☒ Charles River Watershed Phosphorus
 ☐ Lake and Pond Phosphorus
 Out of State: ☐ Bacteria/Pathogens
 ☐ Metals
 ☐ Nitrogen
 ☐ Phosphorus

Clear Impairments and TMDLs

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

Year 3 Requirements

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

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

Dry Weather Outfall Screening - Over the past 2 years, MassBay attempted to inspect all 5 known stormwater outfalls within the urbanized area during dry weather to investigate for potential illicit discharges. Of the 5 known stormwater outfalls that were attempted to be inspected, 4 were located, 2 of which were flowing. The 2 flowing outfalls were sampled and did not meet the permit criteria for being highly likely to contain illicit discharges. The remaining outfall that could not be located was instead investigated at the immediate upgradient structure for potential illicit discharge indicators, of which none were observed.

Update Outfall Inventory and Priority Ranking - Outfall inventory and priority ranking was conducted concurrent with a comprehensive update of the SWMP and IDDE Plans, completed on June 30, 2021. MassBay will continue to locate and inspect additional stormwater infrastructure during future permit years.

Construction and Post-Construction Bylaw - As noted in the NOI, MassBay Community College has no regulatory authority, and thus no bylaws, ordinances, or other legal regulatory mechanisms will be enacted or

updated under the 2016 MS4 Permit.

Annual Requirements

- ☒ Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- ☒ Kept records relating to the permit available for 5 years and made available to the public
- ☒ The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
 - ☒ This is not applicable because we do not have sanitary sewer
 - ☐ This is not applicable because we did not find any new SSOs
 - ☐ The updated SSO inventory is attached to the email submission
 - ☐ The updated SSO inventory can be found at the following website:
- ☒ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- ☒ Provided training to employees involved in IDDE program within the reporting period
- ☒ All curbed roadways were swept at least once within the reporting period
- ☒ Updated system map due in year 2 as necessary
- ☒ Enclosed all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt
- ☒ Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities
- ☒ Updated inventory of all permittee owned facilities as necessary
- ☒ O&M programs for all permittee owned facilities have been completed and updated as necessary
- ☒ Implemented all maintenance procedures for permittee owned facilities in accordance with O&M programs
- ☒ Implemented program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- ☒ Inspected all permittee owned treatment structures (excluding catch basins)

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

Charles River Watershed Phosphorus TMDL

- ☒ Completed the funding source assessment

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

As noted in the NOI, MassBay Community College has no regulatory authority, and thus no bylaws, ordinances, or other legal regulatory mechanisms will be enacted or updated under the 2016 MS4 Permit. Consequently, MassBay does not have any authority over any regulatory mechanisms that may be necessary to effectively implement the Phosphorus Control Plan.

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

Part III: Receiving Waters/Impaired Waters/TMDL

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

☐ Yes

☒ No

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

Part IV: Minimum Control Measures

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

MCM1: Public Education

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

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

BMP:[Message name here]

Message Description and Distribution Method:

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

Message Date(s):

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

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

If yes, describe why the change was made:

Add an Educational Message

MCM2: Public Participation

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

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

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

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Check off the box below if the statement is true.

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

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

Number of SSOs identified:

Number of SSOs removed:

MS4 System Mapping

Optional: Provide additional status information regarding your map:

MassBay has completed all mapping requirements under the 2016 Permit. Catch basins, manholes, outfalls, pipe connectivity, interconnections with other MS4s, structural stormwater BMPs, and receiving waterbodies, along with catchment delineations, have been mapped.

Screening of Outfalls/Interconnections

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

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

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

Number of outfalls screened:

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

Percent of outfalls screened:

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

Over the past 2 years, MassBay attempted to inspect all 5 known stormwater outfalls within the urbanized area during dry weather to investigate for potential illicit discharges. Of the 5 known stormwater outfalls that were attempted to be inspected, 4 were located, 2 of which were flowing. The 2 flowing outfalls were sampled and did not meet the permit criteria for being highly likely to contain illicit discharges. The remaining outfall that could not be located was instead investigated at the immediate upgradient structure for potential illicit discharge indicators, of which none were observed.

Catchment Investigations

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

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

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

Number of catchment investigations completed this reporting period:

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

Percent of total catchments investigated:

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

IDDE Progress

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

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

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

Number of illicit discharges identified:

Number of illicit discharges removed: Estimated volume of sewage removed: gallons/day

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

Total number of illicit discharges identified: Total number of illicit discharges removed:

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

Employee Training

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

An on-site IDDE training session was held on June 23, 2021 with applicable college staff. This session also provided training on Stormwater Pollution Prevention Plan (SWPPP) implementation and inspections at the facility.

MCM4: Construction Site Stormwater Runoff Control

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

Number of site plan reviews completed: Number of inspections completed: Number of enforcement actions taken:

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

As noted in the NOI, MassBay Community College has no regulatory authority, and thus no bylaws, ordinances, or other legal regulatory mechanisms will be enacted or updated under the 2016 MS4 Permit. Consequently, MassBay does not have any authority over any regulatory mechanisms that may be necessary to effectively implement the Phosphorus Control Plan.

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

As-built Drawings

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

Number of as-built drawings received:

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

Not Applicable. As noted in the College's NOI, MassBay is not responsible for this item as there are no subdevelopers constructing within the MassBay campus and all projects are for the college itself. MassBay and DCAMM are jointly responsible for long-term operation and maintenance.

Street Design and Parking Lots Report

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

As noted in the College's NOI, this item is not applicable.

Green Infrastructure Report

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

As noted in the College's NOI, this item is not applicable.

Retrofit Properties Inventory

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

As noted in the NOI, the entire campus is owned by MassBay Community College. Instead of identifying 5 facilities, MassBay will identify 5 potential areas on campus that could be suitable for structural BMP modification or retrofit. This will be completed during Permit Year 4.

MCM6: Good Housekeeping

Catch Basin Cleaning

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

Number of catch basins inspected:

Number of catch basins cleaned:

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

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

Total number of catch basins:

If applicable:

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

Street Sweeping

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

☐ Number of miles cleaned:

☒ Volume of material removed:

☐ Weight of material removed:

Stormwater Pollution Prevention Plan (SWPPP)

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

Number of site inspections completed:

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

Not applicable, no corrective actions have been taken to date.

Additional Information

Monitoring or Study Results

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

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

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

Additional Information

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

COVID-19 Impacts

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

MassBay is open but the majority of classes on the Wellesley campus are being held remotely. We have no conducted any public education etc. during the time we have been remote.

Since late March, 2020 the Wellesley Campus has had just 3-5% of the work staff on campus and approximately 15% of class offerings held on-site. The traffic flow has been drastically reduced which has a positive effect on our catch basins and street sweeping etc. We foresee a slight increase in on campus classes for the fall semester.

Activities Planned for Next Reporting Period

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

Yes, I agree ☒

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

Annual Requirements

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

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

Part V: Certification of Small MS4 Annual Report 2021

40 CFR 144.32(d) Certification

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

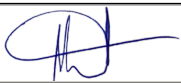
Name:

Marcus Edward

Title:

Assistant VP for Finance

Signature:



Date:

09/15/2021

[Signatory may be a duly authorized representative]

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

Annual Report Submission

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

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

Paper Signature:

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

[Print Signature Page](#)

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

[Lock Form](#)