

APPENDIX H

Requirements Related to Discharges to Certain Water Quality Limited Waterbodies

I. Total Nitrogen	1
II. Total Phosphorus	6
III. Bacteria/Pathogens.....	10
IV. Chloride.....	12
V. Solids, Oil and Grease (Hydrocarbons), or Metals.....	15
VI. Mystic River Watershed Alternative Restoration Plan to Address Phosphorus.....	17

I. Total Nitrogen

In compliance with Part 2.2.2.a of the Permit, permittees that discharge to water quality limited waterbodies where nitrogen (Total Nitrogen) is the cause of the impairment, or their tributaries and for which there is no EPA approved TMDL must implement the requirements of this Part to reduce nitrogen discharges in the impaired catchment(s).

- A. In addition to the requirements of Part 2.3 of the Permit, permittees identified in Parts 2.2.2.a.i and 2.2.2.a.ii shall comply with the following requirements to address nitrogen:
 1. The permittee shall supplement the Public Education minimum control measures in Part 2.3.2 of the Permit with annual timed messages on the following specific topics:
 - a. The permittee shall distribute an annual message in the spring (April/May) timeframe that encourages the proper use and disposal of grass clippings and informs homeowners and landscape professionals about statewide standards at 330 CMR 31.00 for application of plant nutrients to non-agricultural turf and lawns.
 - b. The permittee shall distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate.
 - c. The permittee shall distribute an annual message in the Fall (August/September/October) timeframe encouraging the proper disposal of leaf litter.
 - d. The permittee shall deliver an annual message on each of these topics, unless the permittee determines that one or more of these issues is not a significant contributor of nitrogen to discharges from the MS4 and the permittee retains documentation of this finding in the SWMP. All public education messages can

be combined with requirements of Appendix H Parts I, II and III as well as Appendix F Parts I.C, I.E, II.A, II.B, and II.C where appropriate.

2. In addition to the Stormwater Management in New Development and Redevelopment minimum control measures in Part 2.3.6 of the Permit, the permittee shall continue to implement procedures requiring that new development and redevelopment stormwater management systems be optimized for nitrogen removal.
3. In addition to the Good Housekeeping and Pollution Prevention minimum control measures in Part 2.3.7 of the Permit, the permittee shall:
 - a. Prioritize nitrogen reductions when evaluating and installing SCM retrofits on permittee-owned property in compliance with Part 2.3.7.e of the Permit.
 - b. Implement requirements to ensure that fertilizer use on permittee owned property is in accordance with statewide standards at 330 CMR 31.00 for application of plant nutrients to non-agricultural turf and lawns, in addition to reducing and managing fertilizer use in compliance with Part 2.3.7.a of the Permit.
 - c. Continue to implement procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces.
 - d. Within 2 years of the effective date of the permit, establish and implement procedures for increased street sweeping at a frequency determined by the permittee for all municipal owned streets and parking lots within the impaired catchment to target areas with potential for high pollutant loads. The street sweeping schedule determined by the permittee to target high pollutant loads shall be documented in the SWMP and included in each annual report. The number of miles swept or the volume or mass of material removed as part of this requirement shall be combined with the street sweeping reporting required in Part 2.3.7.g.i.

B. Nitrogen Source Identification Report

1. Permittees subject to the requirements for water quality limited waters for the first time as of the issuance of this permit shall complete a Nitrogen Source Identification Report. The report shall be submitted to EPA as part of the annual report within 4 years of the effective date of the permit and include the following elements:
 - a. Calculation of total MS4 area draining to the water quality limited receiving water segment(s) or their tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to Part 2.3.4.g of the permit;
 - b. All screening and monitoring results for the receiving water segment(s) pursuant to Part 2.3.4 of the permit;
 - c. Impervious area and directly connected impervious area (DCIA) for the target catchment;

- d. Identification, delineation, and prioritization of catchments with high potential for nitrogen loading;
 - e. Identification of potential opportunities to retrofit structural SCMs, or install SCMs during redevelopment, including removal and/or disconnection of impervious area.
2. Potential Structural SCMs
- a. Within 5 years of the effective date of the permit, the permittee shall evaluate all permittee-owned properties identified as a potential opportunity to retrofit SCMs or install SCMs during redevelopment, including properties identified during the inventory under the MS4-2016 permit, that are within the drainage area of the water quality limited receiving water or its tributaries. The evaluation shall include:
 - i. The next planned infrastructure, resurfacing, or redevelopment activity planned for the property or planned retrofit date;
 - ii. The estimated cost of redevelopment or retrofit of SCMs; and
 - iii. The engineering and regulatory feasibility of redevelopment or retrofitting SCMs.
 - b. The permittee shall submit to EPA with the annual report a plan and schedule for implementation of structural SCMs identified in the evaluation above within 5 years of the effective date of the permit.
 - c. Within 6 years of the effective date of the permit, the permittee shall plan and install a demonstration project with a minimum of one SCM within the drainage area of the water quality limited water or its tributaries. The demonstration project shall be installed in a catchment with potential for high nitrogen load.
 - d. The permittee shall track all structural SCMs installed in the urbanized area by the permittee or its agents and document the type, total impervious area treated, the design storage volume, and the estimated nitrogen removed (in lbs/year) in the permittee's Asset Management Program in accordance with Part 2.3.6.d of the Permit. The permittee shall estimate the nitrogen removal for each by the BMP consistent with Attachment 3 to Appendix F. The permittee shall document the SCM type, total area treated by the SCM, the design storage volume of the SCM and the estimated nitrogen removed (in lbs/year) by the SCM in each annual report.

C. Nitrogen Source Reductions

- 1. For permittees subject to the requirements for water quality limited waters in the 2016-MS4, beginning the second year following the effective date of the permit, the permittee shall install a minimum of one structural SCM per year in the urbanized area within the permittee's jurisdiction that discharges to a nitrogen limited waterbody or segment. Planned SCMs shall prioritize the catchments with high potential nitrogen loads identified in the permittee's Nitrogen Source Identification

Report. Permittees shall be informed by the analysis and schedule of planned SCMs identified in the permittee's Nitrogen Source Identification Report.

2. In the first annual report following the permit effective date, the permittee shall report:
 - a. Total impervious area and total directly connected impervious area (DCIA) in the urbanized area within the permittee's jurisdiction and which discharges to a nitrogen limited waterbody or segment;
 - b. Total nitrogen load (in lbs/year) from the impervious area and DCIA identified in (a) above calculated using the nitrogen export loading rates in Attachment 2 Table 2-2 of Appendix F;
 - c. The structural SCM installed by July 1, 2024 as a demonstration project including the type of SCM, location, total impervious area treated, design storage volume, and estimated nitrogen load removed (in lbs/year) calculated consistent with the methodology in Attachment 3 of Appendix F;
 - d. The estimated nitrogen load removed (in lbs/year) resulting from the implementation of non-structural SCMs in the urbanized area within the permittee's jurisdiction and which discharges to a nitrogen limited waterbody or segment. The permittee shall calculate the estimated nitrogen load removed consistent with the methodology in Attachment 2 of Appendix F;
 - e. An inventory of structural SCMs in the urbanized area within the permittee's jurisdiction and which discharges to a nitrogen limited waterbody or segment including the demonstration project reported in (c) above. The permittee shall report the SCM type, total impervious area treated by the SCM, the design storage volume, and the estimated nitrogen load removed (in lbs/year). The permittee shall calculate the nitrogen load removed consistent with the methodology in Attachment 3 to Appendix F; and
 - f. A list of a minimum of 4 planned structural SCMs that the permittee plans to install within a catchment with high nitrogen load potential, including a schedule for installation for five years following the effective date of the permit. Structural SCMs installed in compliance with this Part can be combined with applicable retrofit requirements in Part 2.3.6, Appendix F Parts I.B and II.B, and Appendix H Parts I and II where appropriate.
 - g. For each planned structural SCM identified in (f) above, the permittee shall identify the SCM type, total impervious area treated by the SCM, the design storage volume, and the estimated nitrogen load removed (in lbs/year). The permittee shall calculate the nitrogen load removed consistent with the methodology in Attachment 3 to Appendix F.
3. The permittee shall update the list of planned structural SCMs in annual reports for each alternate year beginning the third year after the effective date of the permit (i.e., Year 3, Year 5, etc.) to maintain a list of a minimum of 4 planned structural SCMs. The list of planned structural SCMs shall be updated to maintain a minimum of

4 SCMs unless all permittee-owned property has been retrofitted or additional retrofits are demonstrated to be infeasible.

4. The permittee shall track all structural SCMs installed in the urbanized area by the permittee or its agents and document the type, total impervious area treated, the design storage volume, maintenance schedule, and the estimated nitrogen removed (in lbs/year) in the permittee's Asset Management Program in accordance with Part 2.3.6.d of the Permit. The permittee shall estimate the nitrogen removal for each by the BMP consistent with Attachment 3 to Appendix F. The permittee shall document the SCM type, total area treated by the SCM, the design storage volume of the SCM and the estimated nitrogen removed (in lbs per year) by the SCM in each annual report. Permittees shall report that SCMs are properly maintained and inspected annually or more frequently in accordance with design or manufacturer specifications.
- D. Upon EPA or MassDEP notification that the permittee is discharging to a waterbody that is water quality limited due to nitrogen, the permittee shall update their SWMP within 90 days to incorporate the requirements of Appendix H Parts I.1 and I.2 and document the date of the SWMP update. The permittee shall identify in its SWMP all activities implemented in accordance with the requirements of Appendix H Part I to date to reduce nitrogen in their discharges including implementation schedules for non-structural BMPs and any maintenance requirements for structural BMPs. When notification occurs beyond the effective date of the permit, the compliance dates in Appendix H Part I.2 shall be extended based on the date of the required SWMP update rather than the permit effective date.
- E. At any time during the permit term the permittee may be relieved of the applicable requirements in Appendix H Parts I.1 and I.2 when in compliance with this Part.
1. The permittee is relieved of its additional requirements as of the date when one of the following criteria are met:
 - a. The receiving water and all downstream segments are determined to no longer be impaired due to nitrogen by MassDEP and EPA concurs with such determination.
 - b. An EPA approved TMDL for the receiving water or downstream receiving water indicates that no additional stormwater controls for the control of nitrogen are necessary for the permittee's discharge based on wasteload allocations as part of the approved TMDL.
 2. In such a case, the permittee shall document the date of the determination provided for in paragraph a, above, or the approved TMDL date in its SWMP and is relieved of any additional requirements of Appendix H Parts I.1 and I.2 as of the applicable date and the permittee shall continue to implement all applicable requirements of Appendix H Part I required to be implemented prior to the date of determination or

the date of the approved TMDL, including ongoing implementation of identified non-structural BMPs and routine maintenance and replacement of all structural SCMs in accordance with manufacturer or design specifications.

II. Total Phosphorus

In compliance with Part 2.2.2.b of the Permit, permittees that discharge to water quality limited waterbodies where phosphorus (Total Phosphorus) is the cause of the impairment, or their tributaries, and for which there is no EPA approved TMDL must implement the requirements of this Part to reduce nitrogen discharges in the impaired catchment(s).

- A. In addition to the requirements of Part 2.3 of the Permit, permittees identified in Parts 2.2.2.b.i and 2.2.2.b.ii shall comply with the following requirements to address phosphorus:
 1. The permittee shall supplement the Public Education minimum control measures in Part 2.3.2 of the Permit with annual timed messages on the following specific topics:
 - a. The permittee shall distribute an annual message in the spring (April/May) timeframe that encourages the proper use and disposal of grass clippings and informs homeowners and landscape professionals about statewide standards at 330 CMR 31.00 for application of plant nutrients to non-agricultural turf and lawns.
 - b. The permittee shall distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate.
 - c. The permittee shall distribute an annual message in the Fall (August/September/October) timeframe encouraging the proper disposal of leaf litter.
 - d. The permittee shall deliver an annual message on each of these topics, unless the permittee determines that one or more of these issues is not a significant contributor of nitrogen to discharges from the MS4 and the permittee retains documentation of this finding in the SWMP. All public education messages can be combined with requirements of Appendix H Part I, II and III as well as Appendix F Parts I.C, I.E, II.A, II.B, and II.C where appropriate.
 2. In addition to the Stormwater Management in New Development and Redevelopment minimum control measures in Part 2.3.6 of the Permit, the permittee shall continue to implement procedures requiring that new development and redevelopment stormwater management systems be optimized for phosphorus removal.
 3. In addition to the Good Housekeeping and Pollution Prevention minimum control measures in Part 2.3.7 of the Permit, the permittee shall:

- a. Prioritize phosphorus reductions when evaluating and installing SCM retrofits on permittee-owned property in compliance with Part 2.3.7.e of the Permit.
- b. Implement requirements to ensure that fertilizer use on permittee owned property is in accordance with statewide standards at 330 CMR 31.00 for application of plant nutrients to non-agricultural turf and lawns, in addition to reducing and managing fertilizer use in compliance with Part 2.3.7.a of the Permit.
- c. Continue to implement procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces.
- d. Within two years of the effective date of the permit, establish and implement procedures for increased street sweeping at a frequency determined by the permittee for all municipal owned streets and parking lots within the impaired catchment to target areas with potential for high pollutant loads. The street sweeping schedule determined by the permittee to target high pollutant loads shall be documented in the SWMP and included in each annual report. The number of miles swept or the volume or mass of material removed as part of this requirement shall be combined with the street sweeping reporting required in Part 2.3.7.g.i.

B. Phosphorus Source Identification Report

1. Permittees subject to the requirements for water quality limited waters for the first time as of the issuance of this permit shall complete a Phosphorus Source Identification Report. The report shall be submitted to EPA as part of the annual report within 4 years of the effective date of the permit and include the following elements:
 - a. Calculation of total MS4 area draining to the water quality limited receiving water segment(s) or their tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to Part 2.3.4.g of the permit;
 - b. All screening and monitoring results for the receiving water segment(s) pursuant to Part 2.3.4 of the permit;
 - c. Impervious area and directly connected impervious area (DCIA) for the target catchment;
 - d. Identification, delineation, and prioritization of catchments with high potential for phosphorus loading;
 - e. Identification of potential opportunities to retrofit structural SCMs, or install SCMs during redevelopment, including removal and/or disconnection of impervious area.
2. Potential Structural SCMs
 - a. Within 5 years of the effective date of the permit, the permittee shall evaluate all permittee-owned properties identified as a potential opportunity to retrofit SCMs or install SCMs during redevelopment, including properties identified

during the inventory under the MS4-2016 permit, that are within the drainage area of the water quality limited receiving water or its tributaries. The evaluation shall include:

- i. The next planned infrastructure, resurfacing, or redevelopment activity planned for the property or planned retrofit date;
 - ii. The estimated cost of redevelopment or retrofit of SCMs; and
 - iii. The engineering and regulatory feasibility of redevelopment or retrofitting SCMs.
- b. The permittee shall submit to EPA with the annual report a plan and schedule for implementation of structural SCMs identified in the evaluation above within 5 years of the effective date of the permit.
 - c. Within 6 years of the effective date of the permit, the permittee shall plan and install a demonstration project with a minimum of one SCM within the drainage area of the water quality limited water or its tributaries. The demonstration project shall be installed in a catchment with potential for high phosphorus load.
 - d. The permittee shall track all structural SCMs installed in the urbanized area by the permittee or its agents and document the type, total impervious area treated, the design storage volume, and the estimated nitrogen removed (in lbs/year) in the permittee's Asset Management Program in accordance with Part 2.3.6.d of the Permit. The permittee shall estimate the phosphorus removal for each by the BMP consistent with Attachment 3 to Appendix F. The permittee shall document the SCM type, total area treated by the SCM, the design storage volume of the SCM and the estimated phosphorus removed (in lbs/year) by the SCM in each annual report.

C. Phosphorus Source Reductions

1. Beginning the second year following the effective date of the permit, the permittee shall install a minimum of one structural SCM per year in the urbanized area within the permittee's jurisdiction that drains to the water quality limited receiving water segments or their tributaries. Planned SCMs shall prioritize the catchments with high potential phosphorus loads identified in the permittee's Phosphorus Source Identification Report. Permittees shall be informed by the analysis and schedule of planned SCMs identified in the permittee's Phosphorus Source Identification Report.
2. In the first annual report following the permit effective date, the permittee shall report:
 - a. Total impervious area and total directly connected impervious area (DCIA) in the urbanized area within the permittee's jurisdiction that drains to the water quality limited receiving water segments or their tributaries;
 - b. Total phosphorus load (in lbs/year) from the impervious area and DCIA identified in (a) above calculated using the nitrogen export loading rates in Attachment 2 Table 2-1 of Appendix F;

- c. The structural SCM installed by July 1, 2024 as a demonstration project including the type of SCM, location, total impervious area treated, design storage volume, and estimated phosphorus load removed (in lbs/year) calculated consistent with the methodology in Attachment 3 of Appendix F;
 - d. The estimated phosphorus load removed (in lbs/year) resulting from the implementation of non-structural SCMs in the urbanized area within the permittee's jurisdiction that drains to the water quality limited receiving water segments or their tributaries. The permittee shall calculate the estimated phosphorus load removed consistent with the methodology in Attachment 2 of Appendix F;
 - e. A list of all structural SCMs in the urbanized area within the permittee's jurisdiction that drains to the water quality limited receiving water segments or their tributaries including the demonstration project reported in (c) above. The permittee shall report the SCM type, total impervious area treated by the SCM, the design storage volume, and the estimated phosphorus load removed (in lbs/year). The permittee shall calculate the phosphorus load removed consistent with the methodology in Attachment 3 to Appendix F; and
 - f. A list of a minimum of 4 planned structural SCMs that the permittee plans to install within a catchment with high phosphorus load potential, including a schedule for installation for five years following the effective date of the permit. Structural SCMs installed in compliance with this Part can be combined with applicable retrofit requirements in Part 2.3.6, Appendix F Parts I.B and II.B, and Appendix H Parts I and II where appropriate.
 - g. For each planned structural SCM identified in (f) above, the permittee shall identify the SCM type, total impervious area treated by the SCM, the design storage volume, and the estimated phosphorus load removed (in lbs/year). The permittee shall calculate the phosphorus load removed consistent with the methodology in Attachment 3 to Appendix F.
3. The permittee shall update the list of planned structural SCMs in annual reports for each alternate year beginning the third year after the effective date of the permit (i.e., Year 3, Year 5, etc.) to maintain a list of a minimum of 4 planned structural SCMs. The list of planned structural SCMs shall be updated to maintain a minimum of 4 SCMs until all of the planned SCMs identified in the 2023 Annual Report have been implemented.
4. The permittee shall track all structural SCMs installed in the urbanized area by the permittee or its agents and document the type, total impervious area treated, the design storage volume, and the estimated phosphorus removed (in lbs/year) in the permittee's Asset Management Program in accordance with Part 2.3.6.d of the Permit. The permittee shall estimate the phosphorus removal for each by the SCM consistent with Attachment 3 to Appendix F. The permittee shall document the SCM type, total area treated by the SCM, the design storage volume of the SCM and the estimated phosphorus removed (in lbs per year) by the SCM in each annual report.

The permittee shall report that SCMs are properly maintained and inspected annually or more frequently in accordance with design or manufacturer specifications.

- C. Upon EPA or MassDEP notification that the permittee is discharging to a waterbody that is water quality limited due to phosphorus, the permittee shall update their SWMP within 90 days to incorporate the requirements of Appendix H Parts II.1 and II.2 and document the date of the SWMP update. The permittee shall identify in its SWMP all activities implemented in accordance with the requirements of Appendix H Part II to date to reduce phosphorus in their discharges including implementation schedules for non-structural BMPs and any maintenance requirements for structural BMPs. When notification occurs beyond the effective date of the permit, the compliance dates in Appendix H Part II.2 shall be extended based on the date of the required SWMP update rather than the permit effective date.
- D. At any time during the permit term the permittee may be relieved of the applicable requirements in Appendix H Parts II.1 and II.2 when in compliance with this Part.
 - 1. The permittee is relieved of its additional requirements as of the date when one of the following criteria are met:
 - a. The receiving water and all downstream segments are determined to no longer be impaired due to phosphorus by MassDEP and EPA concurs with such determination.
 - b. An EPA approved TMDL for the receiving water or downstream receiving water indicates that no additional stormwater controls for the control of phosphorus are necessary for the permittee's discharge based on wasteload allocations as part of the approved TMDL.
 - 2. In such a case, the permittee shall document the date of the determination provided for in paragraph a, above, or the approved TMDL date in its SWMP and is relieved of any additional requirements of Appendix H Parts II.1 and II.2 as of the applicable date and the permittee shall continue to implement all applicable requirements of Appendix H Part II required to be implemented prior to the date of determination or the date of the approved TMDL, including ongoing implementation of identified non-structural BMPs and routine maintenance and replacement of all structural SCMs in accordance with manufacturer or design specifications.

III. Bacteria/Pathogens

In compliance with Part 2.2.2.c of the Permit, permittees that discharge to water quality limited waterbodies where bacteria or pathogens (*E. Coli*, *Enterococcus*, or Fecal Coliform) is the cause of the impairment, and for which there is no EPA approved TMDL, must implement the requirements of this Part to reduce bacteria/pathogen discharges in the impaired catchment(s).

- A. In addition to the requirements of Part 2.3 of the Permit, permittees identified in Parts 2.2.2.c.i and 2.2.2.c.ii shall comply with the following requirements to address bacteria/pathogens:
1. In addition to the Public Education minimum control measures in Part 2.3.2 of the Permit, the permittee shall supplement the Residential program with an annual message encouraging the proper management of pet waste, including noting any existing ordinances where appropriate. The permittee or its agents shall disseminate educational materials to dog owners at the time of issuance or renewal of a dog license, or other appropriate time. Education materials shall describe the detrimental impacts of improper management of pet waste, requirements for waste collection and disposal, and penalties for non-compliance. The permittee shall also provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria or pathogens. All public education messages can be combined with requirements of Appendix H Part I, II and III as well as Appendix F Parts I.C, I.E, II.A, II.B, and II.C where appropriate.
 2. In addition to the Illicit Discharge minimum control measures in Part 2.3.4 of the Permit, permittees shall designate catchments draining to any waterbody impaired for bacteria or pathogens as either “Problem” or “High Priority” for the purposes of catchment investigations under the IDDE program.
- B. Upon EPA or MassDEP notification that the permittee is discharging to a waterbody that is water quality limited due to bacteria or pathogens, the permittee shall update their SWMP within 90 days to incorporate the requirements of Appendix H Part III.1 and document the date of the SWMP update. The permittee shall identify in its SWMP all activities implemented in accordance with the requirements of Appendix H Part III to date to reduce bacteria/pathogens in their discharges including implementation schedules for non-structural BMPs and any maintenance requirements for structural BMPs. When notification occurs beyond the effective date of the permit, the compliance dates in Appendix H Part III.1 shall be extended based on the date of the required SWMP update rather than the permit effective date.
- C. At any time during the permit term the permittee may be relieved of the applicable requirements in Appendix H Part III.1 when in compliance with this Part.
1. The permittee is relieved of its additional requirements as of the date when one of the following criteria are met:
 - a. The receiving water and all downstream segments are determined to no longer be impaired due to bacteria/pathogens by MassDEP and EPA concurs with such determination.
 - b. An EPA approved TMDL for the receiving water or downstream receiving water indicates that no additional stormwater controls for the control of

bacteria/pathogens are necessary for the permittee's discharge based on wasteload allocations as part of the approved TMDL.

- c. The permittee's discharge is determined to be below applicable water quality criteria and EPA agrees with such a determination. The permittee shall submit data to EPA that accurately characterizes the concentration of bacteria or pathogens in their discharge. The characterization shall include water quality and flow data sufficient to accurately assess the concentration of bacteria or pathogens in all seasons during storm events of multiple sizes and for the duration of the storm events including the first flush, peak storm flow and return to baseflow.
2. In such a case, the permittee shall document the date of the determination provided for in paragraph a, above, or the approved TMDL date in its SWMP and is relieved of any additional requirements of Appendix H Part III.1 as of the applicable date and the permittee shall continue to implement all applicable requirements of Appendix H Part III required to be implemented prior to the date of determination, date of the approved TMDL, or date of EPA concurrence that the discharge meets water quality criteria, including ongoing implementation of identified non-structural BMPs and routine maintenance and replacement of all structural SCMs in accordance with manufacturer or design specifications.

IV. Chloride

In compliance with Part 2.2.2.d of the Permit, permittees that discharge to water quality limited waterbodies where chloride is the cause of the impairment, or their tributaries, and for which there is no EPA approved TMDL, must implement the requirements of this Part to reduce chloride discharges in the impaired catchment(s).

- A. Permittees identified in Parts 2.2.2.d.i and 2.2.2.d.ii shall develop and implement a Salt Reduction Plan, including the BMPs in Part IV.2 below, that includes specific actions designed to achieve salt reduction on municipal roads and facilities, and on private facilities that discharge to its MS4 in the impaired catchment(s).
1. Permittees that discharge to a waterbody listed as impaired due to chloride during the MS4-2016 Permit shall continue to implement the Salt Reduction Plan.
 2. Permittees that have a Salt Reduction Plan in place and become aware during the permit term that there is a discharge to an additional waterbody that is impaired due to chloride must update their Salt Reduction Plan within 60 days of becoming aware of the situation to include salt reduction practices targeted at lowering chloride in discharges to the impaired waterbody.

3. New permittees or permittees that discharge to a waterbody listed as impaired due to chloride for the first time shall complete a Salt Reduction Plan within three years of the effective date of the permit to include the BMPs in Part IV.2. below. The Salt Reduction Plan shall be fully implemented five years after the effective date of the permit.
- B. The Salt Reduction Plan in accordance with Appendix H Part 1, above, must include the following stormwater control measures:
1. For municipally maintained surfaces:
 - a. Tracking of the types and amount of salt applied to all permittee owned and maintained surfaces and reporting of salt use beginning in the year of the completion of the Salt Reduction Plan in the permittee's annual reports;
 - b. Planned activities for salt reduction on municipally owned and maintained surfaces, which shall include but are not limited to the following unless the permittee determines one or more of the following is not applicable to its system and documents that determination as part of the Salt Reduction Plan:
 - i. Operational changes such as pre-wetting, pre-treating the salt stockpile, increasing plowing prior to de-icing, monitoring of road surface temperature, etc.;
 - ii. Implementation of new or modified equipment providing pre-wetting capability, better calibration rates, or other capability for minimizing salt use;
 - iii. Training for municipal staff and/or contractors engaged in winter maintenance activities;
 - iv. Adoption of guidelines for application rates for roads and parking lots¹;
 - v. Regular calibration of spreading equipment;
 - vi. Designation of no-salt and/or low salt zones;
 - vii. Measures to prevent exposure of salt stockpiles (if any) to precipitation and runoff; and
 - viii. An estimate of the total tonnage of salt reduction expected by each activity.
 2. For privately maintained facilities that discharge to the MS4:
 - a. Establish an ordinance, bylaw, or other regulatory mechanism requiring measures to prevent exposure of any salt stockpiles to precipitation and runoff at all commercial and industrial properties within the regulated area.
 - b. In addition to the Public Education minimum control measures in Part 2.3.2 of the Permit, the permittee shall supplement its Commercial/Industrial education

¹ For examples of application rates see the 2015 Minnesota Winter Parking Lot and Sidewalk Maintenance Manual available at https://stormwater.pca.state.mn.us/index.php/Winter_Parking_Lot_and_Sidewalk_Maintenance_Manual and the Minnesota Snow and Ice Control Field Handbook for Snowplow Operators (3rd Revision January 2022) (p.17) available at <https://mdl.mndot.gov/items/2022RIC01>.

program with an annual message to private road salt applicators and commercial and industrial site owners on the proper storage and application rates of winter deicing material. The educational materials shall be disseminated in the November/December timeframe and shall describe steps that can be taken to minimize salt use and protect local waterbodies.

- c. In addition to the Stormwater Management in New Development and Redevelopment minimum control measures in Part 2.3.6 of the Permit, the permittee shall establish procedures and requirements to minimize salt usage and require the use of salt alternatives where the permittee deems necessary.
3. The completed Salt Reduction Plan shall be submitted to EPA as an attachment to the first annual report following the Salt Reduction Plan's completion. Each subsequent annual report shall include an update on Plan implementation progress, any updates to the Salt Reduction Plan deemed necessary by the permittee, as well as the types and amount of salt applied to all permittee owned and maintained surfaces in pounds per season and as an application rate in pounds per lane mile treated. Permittees shall also include in its SWMP: the Salt Reduction Plan, updates to the Salt Reduction Plan, and all activities that have been implemented in accordance with the requirements to reduce chloride in its discharges of Appendix H Part IV including implementation schedules for non-structural BMPs.
- C. At any time during the permit term the permittee may be relieved of the applicable requirements in Appendix H Part IV.1 and IV.2 when in compliance with this Part.
 1. The permittee is relieved of its additional requirements as of the date when one of the following criteria are met:
 - a. The receiving water and all downstream segments are determined to no longer be impaired due to chloride by MassDEP and EPA concurs with such determination.
 - b. An EPA approved TMDL for the receiving water or downstream receiving water indicates that no additional stormwater controls for the control of chloride are necessary for the permittee's discharge based on wasteload allocations as part of the approved TMDL.
 - c. The permittee's discharge is determined to be below applicable water quality criteria and EPA agrees with such a determination. The permittee shall submit data to EPA that accurately characterizes the concentration of chloride in their discharge during the deicing season (November – March). The characterization shall include water quality and flow data sufficient to accurately assess the concentration of chloride in the deicing season during storm events of multiple sizes and for the duration of the storm events including the first flush, peak storm flow and return to baseflow and include all samples collected during deicing activities.

2. In such a case, the permittee shall document the date of the determination provided for in paragraph a., above, or the approved TMDL date in its SWMP and is relieved of any additional requirements of Appendix H Part IV as of the applicable date and the permittee shall continue to implement all applicable requirements of Appendix H Part IV required to be implemented prior to the date of determination, date of the approved TMDL, or date of EPA concurrence that the discharge meets water quality criteria, including ongoing implementation of identified non-structural BMPs.

V. Solids, Oil and Grease (Hydrocarbons), or Metals

In compliance with Part 2.2.2.e of the Permit, permittees that discharge to water quality limited waterbodies due to solids, oil and grease (hydrocarbons) or metals, or their tributaries, and for which there is no EPA approved TMDL, must implement the requirements of this Part to reduce solids, oil and grease (hydrocarbons) or metals discharges in the impaired catchment(s).

- A. In addition to the requirements of Part 2.3 of the Permit, permittees identified in Parts 2.2.2.e.i and 2.2.2.e.ii shall comply with the following requirements to address solids, oil and grease (hydrocarbons) or metals:
 1. In addition to the Stormwater Management in New Development and Redevelopment minimum control measures in Part 2.3.6 of the Permit, the permittee shall:
 - a. For waterbodies where oil and grease is listed as the cause of the impairment, establish procedures to ensure that stormwater management systems for areas with commercial and industrial land uses in catchments to the water quality limited waterbody incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event.
 - b. Include as a provision of the ordinance or other regulatory mechanism that stormwater management systems designed to infiltrate stormwater on commercial or industrial sites be designed in compliance with the stormwater standard for land uses with higher potential pollutant loads at 310 CMR 10.05(k)(5) as described in the 2008 Stormwater Handbook.
 2. In addition to the Good House Keeping and Pollution Prevention minimum control measures in Part 2.3.7 of the Permit, the permittee shall:
 - a. Establish procedures for increased street sweeping at a frequency determined by the permittee for all municipal owned streets and parking lots within the impaired catchment to target areas with potential for high pollutant loads. The street sweeping schedule determined by the permittee to target high pollutant loads shall be documented in the SWMP and included in each annual report. The number of miles swept or the volume or mass of material removed as part of

this requirement shall be combined with the street sweeping reporting required in Part 2.3.7.g.i.

- B. Upon EPA or MassDEP notification that the permittee is discharging to a waterbody that is water quality limited due to solids, oil and grease (hydrocarbons), or metals, the permittee shall update their SWMP within 90 days to incorporate the requirements of Appendix H Part V.1 and document the date of the SWMP update. The permittee shall identify in its SWMP all activities implemented in accordance with the requirements of Appendix H Part V to date to reduce TSS, oil and grease, and/or metals in their discharges including implementation schedules for non-structural BMPs and any maintenance requirements for structural SCMs. When notification occurs beyond the effective date of the permit, the compliance dates in Appendix H Part V.1 shall be extended based on the date of the required SWMP update rather than the permit effective date.
- C. At any time during the permit term the permittee may be relieved of the applicable requirements in Appendix H Part V.1 when in compliance with this Part.
 - 1. The permittee is relieved of its additional requirements as of the date when one of the following criteria are met:
 - a. The receiving water and all downstream segments are determined to no longer be impaired due to solids, oil and grease (hydrocarbons), or metals by MassDEP and EPA concurs with such determination.
 - b. An EPA approved TMDL for the receiving water or downstream receiving water indicates that no additional stormwater controls for the control of solids, oil and grease (hydrocarbons), or metals are necessary for the permittee's discharge based on wasteload allocations as part of the approved TMDL.
 - c. The permittee's discharge is determined to be below applicable water quality criteria and EPA agrees with such a determination. The permittee shall submit data to EPA that accurately characterizes the concentration solids, oil and grease (hydrocarbons), or metals. The characterization shall include water quality and flow data sufficient to accurately assess the concentration of solids, oil and grease (hydrocarbons), or metals in all seasons during storm events of multiple sizes and for the duration of the storm events including the first flush, peak storm flow and return to baseflow.
 - 2. In such a case, the permittee shall document the date of the determination provided for in paragraph a, above, or the approved TMDL date in its SWMP and is relieved of any additional requirements of Appendix H Part V.1 as of the applicable date and the permittee shall continue to implement all applicable requirements of Appendix H Part V required to be implemented prior to the date of determination, date of the approved TMDL, or date of EPA concurrence that the discharge meets water quality criteria, including ongoing implementation of identified non-structural BMPs and

routine maintenance and replacement of all structural SCMs in accordance with manufacturer or design specifications.

VI. Mystic River Watershed Alternative Restoration Plan to Address Phosphorus

On May 14, 2020, EPA accepted the *Mystic River Watershed Alternative TMDL Development for Phosphorus Management – Final Report* as an alternative restoration plan for the Mystic River.² Permittees that operate regulated MS4s (traditional and non-traditional) that discharge to the Mystic River or its tributaries must reduce phosphorus discharges to support achievement of phosphorus load reductions as evaluated in the Alternative Restoration Plan. Permittees listed in Table H-1 is subject to the requirements of this Part.

- A. Permittees shall develop a Phosphorus Control Plan (PCP) designed to reduce the baseline phosphorus load from impervious area in stormwater discharges from its MS4 to the Mystic River or its tributaries by a minimum of 20% within six years of the effective date of the Permit. Table H-1 identifies the MS4 baseline phosphorus load from impervious area and Year 6 phosphorus load reduction requirement corresponding to a minimum 20% reduction from impervious area for the portion of the Mystic River watershed within each municipality.

Municipality	Baseline Impervious Phosphorus Load (lbs/year)	Phase I Phosphorus Load Reduction Requirement (lbs/year)
Arlington	2065	413
Belmont	1326	265
Burlington	649	130
Cambridge	1344	269
Everett	654	131
Lexington	566	113
Malden	1687	337
Medford	3194	639
Melrose	1080	216
Reading	498	100
Somerville	1966	393
Stoneham	1504	301
Wakefield	79	16
Watertown	188	38
Wilmington	231	46
Winchester	1597	319

² The January 2020 Alternative Restoration Plan Report and EPA's Approval Document are available at <https://www.epa.gov/tmdl/tmdl-report-and-approval-documents-mystic-river-watershed-ma>.

Woburn	4310	862
--------	------	-----

Table H-1: Annual Average Phosphorus Load Reduction by Permittee for the Mystic River Watershed

1. Implementation of Phosphorus Control

- a. Phosphorus Source Identification Annual Report Update – In the first Annual Report submitted after the effective date of the permit, the permittee shall provide an update based on the requirements for discharges to water quality-limited waters in Appendix H of the 2016 MA MS4 Permit. The Update shall list all structural SCMs installed and operated on permittee-owned property within its jurisdiction in the Mystic River watershed since July 1, 2018, including the types, locations, impervious area treated, design storage volumes, and estimated phosphorus load removed (in lbs/year) calculated consistent with the methodology in Attachment 3 of Appendix F. The permittee shall identify which structural SCM was installed by July 1, 2024 as a demonstration project in compliance with the requirement of the 2016 MA MS4 Permit. The permittee shall also provide an estimate of the phosphorus load removed (in lbs/year) resulting from the implementation of existing non-structural controls in the Mystic River watershed. The estimated load removed shall be calculated consistent with the methodology in Attachment 2 of Appendix F.
- b. Interim Milestone – Within three years of the effective date of the permit, the permittee shall implement a minimum of two structural SCMs. The SCMs must be installed within the two catchment areas identified as having the highest potential phosphorus loads in the Phosphorus Source Identification Report (from Appendix H Part II.1.b of the 2016 MA MS4 Permit). The permittee may install both SCMs in the same catchment or one in each of the two top ranking catchments. The permittee shall report the location and type of SCM and estimate the phosphorus load removed (in lbs/year) consistent with the methodology in Attachment 3 of Appendix F in the Annual Report for the third reporting year after the effective date of the permit.
- c. Written Phosphorus Control Plan – With the third Annual Report submitted after the effective date of the permit, the permittee shall submit a complete, written Phosphorus Control Plan (PCP) for the Mystic River watershed that includes all components listed below. The permittee shall make the PCP available to the public for public comment during development. The permittee must post the PCP online (e.g., on the MS4's stormwater management site) to facilitate public involvement. The PCP shall document all non-structural and structural controls used to achieve compliance with the phosphorus load reduction requirement, including: the type of control,

location where the control is implemented, and annual phosphorus reductions achieved through implementation.

- i. Legal Analysis and Funding Source Assessment – The permittee shall review existing regulatory mechanisms, such as by-laws, ordinances, and procedures, and describe any changes necessary to effectively implement the PCP. The permittee shall adopt necessary regulatory changes by the end of the permit term. The permittee shall also estimate the cost for implementing the PCP to achieve the required phosphorus reduction in Part IV.1 of Appendix H, evaluate anticipated funding mechanisms, and describe the steps it will take to implement the funding plan.
 - ii. Implementation Schedule – The permittee shall develop a schedule for implementing non-structural BMPs and structural SCMs to achieve the minimum phosphorus load reduction (equal to 20% of the baseline phosphorus load from impervious cover) presented in Table H-1 as soon as possible but, at a minimum, within 6 years of the effective date of the permit. The schedule shall consider, as appropriate, planning for funding, training, purchasing, construction, inspection, monitoring, O&M and other assessment and evaluation components of implementation.
 - iii. Operation and Maintenance Program – The permittee shall establish an Operation and Maintenance (O&M) Program for all non-structural and structural SCMs implemented to achieve the phosphorus load reduction requirement in Table H-1, including existing SCMs at the time of development of the PCP and new SCMs implemented after the effective date of the permit. The O&M Program must also account for SCMs implemented by a third party if the phosphorus reduction from the third-party SCM is used to achieve the phosphorus load reduction requirement. The O&M Program shall include: (1) the inspection and maintenance schedule for each structural SCM consistent with design or manufacturer specifications and (2) the party responsible for structural SCM inspection and maintenance. O&M schedules for each structural SCM shall be included as part of the Asset Management requirements in Part 2.3.7.d of the Permit.
- d. Performance Evaluation – In the Annual Report due 6 years following the effective date of the permit, the permittee must demonstrate that the implementation of structural and non-structural controls under the PCP, accounting for the increase in phosphorus load from impervious cover on new development, achieves an annual average phosphorus load reduction (in lbs/yr) equal to or greater than the required reduction listed in Table H-1. As

explained in Part H.VI.A.3, below, the permittee shall document interim progress towards meeting the phosphorus reduction requirement through implementation of non-structural and structural SCMs consistent with the schedule in the written PCP in each Annual Report.

2. Public Education Supplement for Plant Nutrient Management

In addition to the Public Education minimum control measures in Part 2.3.2 of the Permit, the permittee shall supplement with an annual message informing residential homeowners and lawn care professionals about statewide standards for the application of plant nutrients to non-agricultural turf and lawns at 330 CMR 31.00. Public education messages can be combined with requirements of Appendix H Parts I, II and III as well as Appendix F Parts I.D, I.E, II.A, II.B, and II.C where appropriate.

3. Reporting

The permittee shall report on the planning and implementation of the PCP in each annual report, including reporting periods during which the permit is administratively continued. Following submission of the complete written PCP (within 3 years after the permit effective date), the permittee shall include the following in each annual report submitted pursuant to Part 4.4 of the Permit:

- a. A list of non-structural BMPs implemented during the reporting year along with the phosphorus reduction (P_{NSred}) in lbs/yr calculated consistent with Attachment 2 to Appendix F.
- b. A list of structural SCMs implemented during the reporting year including:
 - i. Location information of structural SCMs including waterbody and GPS coordinates or street address;
 - ii. Phosphorus reduction for each structural SCMs implemented to date (P_{Sred}) in lbs/yr calculated consistent with Attachment 3 to Appendix F;
 - iii. Date of last completed maintenance for each structural SCM.
- c. Phosphorus load increase due to development (P_{DEVinc}) during the reporting period. P_{DEVinc} shall be calculated as the difference between the pre-development and post-development phosphorus load from new impervious cover based on the land use (if necessary, using the crosswalk of 2016 MassGIS land use categories in Table F1-4 in Attachment 1 of Appendix F) and the corresponding phosphorus load export rate from Table F1-2 Attachment 1 to Appendix F. P_{DEVinc} reported in the first Annual Report after the effective date of the permit must estimate the phosphorus load increase due to development since 2016.
- d. Estimated cumulative annual phosphorus load reduction calculated using Equation 2, below. Equation 2 calculates the cumulative annual phosphorus reduction (in lbs/yr)

as the annual phosphorus reduction achieved through implementation of non-structural and structural SCMs minus the increase in phosphorus load due to development to date. This equation shall be used to demonstrate compliance with the phosphorus reduction target (equal to 20% of the impervious area phosphorus load) required in Part VI.1.

$$P_{red} \left(\frac{lbs}{yr} \right) = \left(P_{Sred} \left(\frac{lbs}{yr} \right) + P_{NSred} \left(\frac{lbs}{yr} \right) \right) - P_{DEVinc} \left(\frac{lbs}{yr} \right)$$

P_{red} = Cumulative phosphorus reduction.

P_{Sred} = Annual phosphorus reduction from implemented structural controls implemented to date.

P_{NSred} = Annual phosphorus reduction from implemented non-structural controls implemented to date.

P_{DEVinc} = Annual phosphorus increase resulting from development since 2016 (the baseline load year for the estimate in Table H-1).

- e. Certification that all structural SCMs are being inspected and maintained according to the O&M program specified as part of the PCP. The certification statement shall be:

I certify under penalty of law that all source control and treatment Best Management Practices being claimed for phosphorus reduction credit have been inspected, maintained and repaired in accordance with manufacturer or design specification. I certify that, to the best of my knowledge, all Best Management Practices being claimed for a phosphorus reduction credit are performing as originally designed.

- g. Certification that all municipally owned and maintained turf grass areas are being managed in accordance with Massachusetts Regulation 331 CMR 31 pertaining to proper use of fertilizers on turf grasses (see <http://www.mass.gov/courts/docs/lawlib/300-399cmr/330cmr31.pdf>). Upon certification, the permittee may include a non-structural phosphorus SCM credit equal to 3% of the baseline phosphorus load in Table H-1.

4. At any time during the permit term the permittee may be relieved of the applicable requirements in Appendix H Part IV when in compliance with this Part.

- a. The permittee is relieved of its additional requirements as of the date when one of the following criteria are met:
- The receiving water and all downstream segments are determined to no longer be impaired due to phosphorus by MassDEP and EPA concurs with such determination.
 - An EPA approved TMDL for the receiving water or downstream receiving water indicates that no additional stormwater controls for the control of phosphorus are necessary for the permittee's discharge based on wasteload allocations as part of the approved TMDL.

- b. In such a case, the permittee shall document the date of the determination provided for in paragraph a, above, or the approved TMDL date in its SWMP and is relieved of any additional requirements of Appendix H Part IV as of the applicable date and the permittee shall continue to implement all applicable requirements of Appendix H Part IV required to be implemented prior to the date of determination or the date of the approved TMDL, including ongoing implementation of identified non-structural BMPs and routine maintenance and replacement of all structural SCMs in accordance with manufacturer or design specifications.