

Appendix I Operations and Maintenance Requirements

In accordance with Section 2.1.1.B.c.iv, the draft CII GP requires the documentation of proper operation and maintenance of structural and nonstructural controls. The sections below provide detail on what information, at a minimum, the Permittee should include in this documentation within their SPCP.

Section 1 shall address operations and maintenance procedures for structural SCMs to ensure that all SCMs function as designed.

1.1. The Draft CII GP lays out the following minimum attributes for maintaining records and inventories of structural SCMs in the O&M Plan:

- 1.1.1. Location (street address or GPS location with accuracy of +/- 30 feet)
- 1.1.2. Age or date of installation or retrofit, if known
- 1.1.3. Condition, if applicable
- 1.1.4. Ownership and party responsible for maintenance
- 1.1.5. Type of SCM with the naming convention found (if applicable);
- 1.1.6. Drainage area in acres;
- 1.1.7. Impervious area, described in terms of acres draining to the SCM;
- 1.1.8. Design Storage Volume of the SCM (if applicable);
- 1.1.9. The estimated pollutant reduction achieved by the SCMs based on the methodology described in Appendix F of this Permit if applicable;
- 1.1.10. Date of last maintenance activity for the treatment device;
- 1.1.11. Whether the physical extent of the SCM intersects with the FEMA Special Flood Hazard Area (SFHA)¹ using FEMA's Flood Service Center² or the 1% chance storm in 2030 MC-FRM ("current" conditions) using the MassCZM Sea Level Rise and Coastal Flooding Viewer³ ;
- 1.1.12. Whether the physical extent of the SCM intersects with the FEMA X (shaded) or B zones⁴ using FEMA's Flood Service Center⁵ or the 0.2% chance storm in 2030 MC-

¹ An area having special flood, mudflow or flood-related erosion hazards and shown on a Flood Hazard Boundary Map (FHBM) or a Flood Insurance Rate Map (FIRM) Zone A, AO, A1-A30, AE, A99, AH, AR, AR/A, AR/AE, AR/AH, AR/AO, AR/A1-A30, V1-V30, VE or V. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. For the purpose of determining Community Rating System (CRS) premium discounts, all AR and A99 zones are treated as non-SFHAs. <https://www.fema.gov/glossary/special-flood-hazard-area-sfha>

² <https://msc.fema.gov/portal/home>

³ <https://experience.arcgis.com/experience/23d861b79aed450eb8972013dd28579b/page/MA-Coast-Flood-Risk-Model/?views=2030-Flooding>

⁴ Area of moderate flood hazard, usually the area between the limits of the 100- year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile. <https://www.fema.gov/glossary/zone-b-and-x-shaded>

⁵ <https://msc.fema.gov/portal/home>

- FRM (“future” conditions) using the MassCZM Sea Level Rise and Coastal Flooding Viewer⁶;
- 1.1.13. A maintenance schedule for all treatment system components and related appurtenances. All Permittee-owned stormwater assets and SCMs shall be inspected annually at a minimum; and
- 1.1.14. On-site records of the completion of regular maintenance activities in accordance with Part 3.1.3. This shall include, at a minimum:
- 1.1.14.A. The plan shall include an inventory of all existing and new SCMs. The inventory shall include, at a minimum, basic information about the SCMs including:
- 1.1.14.B. Location (street address or GPS location with accuracy of +/- 30 feet
- 1.1.14.C. Age or date of installation or retrofit, if known
- 1.1.14.D. Condition, if applicable
- 1.1.14.E. Ownership and party responsible for maintenance
- 1.1.14.F. Type of SCM with the naming convention found (if applicable);
- 1.1.14.G. Drainage area in acres;
- 1.1.14.H. Impervious area, described in terms of acres draining to the SCM;
- 1.1.14.I. Design Storage Volume of the SCM (if applicable);
- 1.1.14.J. The estimated pollutant reduction achieved by the SCMs based on the methodology described in Appendix F of this Permit if applicable;
- 1.1.14.K. Date of last maintenance activity for the treatment device;
- 1.1.14.L. Whether the physical extent of the SCM intersects with the FEMA Special Flood Hazard Area (SFHA)⁷ using FEMA’s Flood Service Center⁸ or the 1% chance storm in 2030 MC-FRM (“current” conditions) using the MassCZM Sea Level Rise and Coastal Flooding Viewer⁹;
- 1.1.14.M. Whether the physical extent of the SCM intersects with the FEMA X (shaded) or B zones¹⁰ using FEMA’s Flood Service Center¹¹ or the 0.2% chance

⁶ <https://experience.arcgis.com/experience/23d861b79aed450eb8972013dd28579b/page/MA-Coast-Flood-Risk-Model/?views=2030-Flooding>

⁷ <https://www.fema.gov/glossary/special-flood-hazard-area-sfha>

⁸ <https://msc.fema.gov/portal/home>

⁹ <https://experience.arcgis.com/experience/23d861b79aed450eb8972013dd28579b/page/MA-Coast-Flood-Risk-Model/?views=2030-Flooding>

¹⁰ Area of moderate flood hazard, usually the area between the limits of the 100- year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.

<https://www.fema.gov/glossary/zone-b-and-x-shaded>

¹¹ <https://msc.fema.gov/portal/home>

storm in 2030 MC-FRM (“future” conditions) using the MassCZM Sea Level Rise and Coastal Flooding Viewer¹²;

- 1.1.14.N. A maintenance schedule for all treatment system components and related appurtenances. All Permittee-owned stormwater assets and SCMs shall be inspected annually at a minimum, and;
- 1.1.14.O. On-site records of the completion of regular maintenance activities in accordance with Part 3.1.3.

Section 2 shall address operations and maintenance procedures for nonstructural SCMs and site infrastructure, such as catch basins. This shall include an inventory of the nonstructural controls and site infrastructure that is being maintained.

- 2.1. The Draft CII GP lays out the following minimum requirements for maintaining records and inventories of nonstructural SCMs in the O&M Plan:
 - 2.1.1. Documented procedures and protocols for good housekeeping practices and/or control measures that maintain areas that are potential sources of pollutants. This includes maintaining:
 - 2.1.1.A. parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by the Permittee, and waste transfer stations; and
 - 2.1.1.B. procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge soil, accumulated sediments, floatables, and other debris).
 - 2.1.2. Documented procedures for inspection and maintenance of catch basins
 - 2.1.2.A. Prioritize inspection and maintenance for catch basins located near construction activities. Clean catch basins in such areas more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
 - 2.1.2.B. Prioritize inspection and maintenance for catch basins that may be prone to flooding in major storm and flood events.
 - 2.1.3. Establish and update as necessary a schedule with a goal that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full.
 - 2.1.3.A. If a catch basin sump is more than 50 percent full during two consecutive routine inspections/cleaning events, the Permittee shall document that finding, investigate the contributing drainage area for sources of excessive sediment loading, and to the extent practicable, abate contributing sources.

¹² <https://experience.arcgis.com/experience/23d861b79aed450eb8972013dd28579b/page/MA-Coast-Flood-Risk-Model/?views=2030-Flooding>

- 2.1.3.B. For the purposes of this part, an excessive sediment or debris loading is a catch basin sump more than 50 percent full. 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.
- 2.1.4. Drainback water resulting from catch basin cleaning shall be discharged to the sanitary sewer or other facility designed for the treatment and disposal of catch basin drainback water. No catch basin cleaning drainback water shall be discharged to the drainage system (MS4, private storms sewer system, or to the receiving water) unless discharge to a sanitary sewer or treatment facility is infeasible.
- 2.1.5. The Permittee shall keep a log of catch basins cleaned or inspected as part of the plan. At a minimum, this log shall include the sump depth, last cleaning or maintenance, and estimated volume of sediment removed at last cleaning, and whether the catch basin is located within a flood zone under current and future conditions as defined in Part 2.1.1.B.d.2.
- 2.1.6. On-site records of the completion of regular maintenance activities in accordance with Part. 3.1.3 of the Draft CII GP.
- 2.1.6.A. The inventory shall include, at a minimum, basic information including:
- a. Documented procedures and protocols for good housekeeping practices and/or control measures that maintain areas that are potential sources of pollutants. This includes maintaining:
 - b. parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by the Permittee, and waste transfer stations; and
 - c. procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge soil, accumulated sediments, floatables, and other debris).
 - d. Documented procedures for inspection and maintenance of catch basins
 - i. Prioritize inspection and maintenance for catch basins located near construction activities. Clean catch basins in such areas more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
 - ii. Prioritize inspection and maintenance for catch basins that may be prone to flooding in major storm and flood events.
 - e. On sites that are prone to flooding, the permittee should also consider the implementation of additional best practices that may include, but are not limited to:
 - i. When a delivery of exposed materials, i.e., mulch, salt, or sand, is expected, and a storm is anticipated within 48 hours, delay delivery

- until after the storm or store materials as appropriate (refer to emergency procedures); and
- ii. Temporarily reduce or eliminate outdoor storage.

Section 3 shall address how the Permittee carries out lawn maintenance and landscaping activities that are protective of water quality.

- 3.1. Establish procedures to address erosion or poor vegetative cover when the Permittee becomes aware of it, especially if the erosion is within 50 feet of a surface water.
- 3.2. Establish procedures for management of trash containers on site. At a minimum, procedures must include proper cleaning schedules and sufficient number of containers.
- 3.3. Within 24 months of the date of authorization, Permittees must comply with 330 CMR 31.00 Plant nutrient application requirements for agricultural land and non-agricultural turf and lawns.

Section 4 Winter Maintenance Plan

- 4.1. EPA recognizes the use of deicing chemicals during the winter season is often necessary. For this reason, the Draft CII GP does not prohibit the use of salts as the preferred deicing agent but focuses instead on reducing the amount of chloride applied to various sources (driveways, parking lots, storage, etc.) through the use of calibration, low salt zones, application rate standards, and other SCMs designed to control the amount of road salt applied without compromising public safety. As part of the Site Management Plan, all Permittees must develop a Winter Maintenance Plan aimed at reducing the total amount of chloride applied to the site. The Winter Maintenance Plan can be optimized to meet the needs of the permittee as long as the total amount of chloride applied is reduced on site. The Permittee shall consider the following components of the Winter Maintenance Plan:
 - 4.1.1. Permittees must track and report the total amount of salt used per season and the application rate (in pounds per acre) in the annual report. Information that may be relevant to create a plan to help document this information includes, but is not limited to:
 - 4.1.1.A. Description of the CII site. Linear feet of roadways or sidewalks, main features and layout of the site including stormwater runoff /topography, as well as vegetation and shaded areas. Including a general map of the development that identifies these features is helpful.
 - 4.1.1.B. Operations Plan – Outline how winter operators are making informed decisions as to when and to what extent materials are applied to private roadways, sidewalks, and parking lots.
 - 4.1.1.C. Equipment Calibration– Outline how winter operators will calibrate all chloride application winter equipment. Typically, a 25% reduction in salt use can be achieved simply by calibrating equipment, and is the single most important aspect to achieving salt use reductions.

- 4.1.1.D. Mechanical Removal – Describe mechanical removal practices such as where snow should be stored and how often plowing should occur. Include goals, such as practices that minimize snow- and icepack to reduce the need for abrasives, salt and or brine applicants.
- 4.1.1.E. Salt Storage, Usage Evaluation, and Monitoring – Describe how salt will be stored on site to prevent exposure of salt stockpiles to precipitation and runoff, if applicable, and how salt usage will be documented and how salt use will be monitored and evaluated.
- 4.1.1.F. Analysis of Alternative De-icing Materials, Site Design Considerations and Watershed Offsets – The Permittee is encouraged to evaluate alternative de-icing materials (calcium magnesium acetate, e.g.) that could be used for winter maintenance activities. More detail on alternative methods is available at: NHDES WMB-4: Road Salt and Water Quality Fact Sheet (2021)
<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/wmb-4.pdf>