

Stormwater and Land Disturbance Management Regulations

Town of Bedford, New Hampshire



Prepared By:

Town of Bedford

Based on [Post Construction Stormwater Management Standards for Site Plan Review Regulations](#) –
Created by Rockingham Planning Commission and UNH Stormwater Center for the Southeast Watershed
Alliance

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EPA NPDES Permit Number NHR041036

STORMWATER AND LAND DISTURBANCE MANAGEMENT REGULATIONS

1.01 Purpose and Goals

- A. The purpose of stormwater and land disturbance management standards is to provide reasonable guidance for the regulation of stormwater runoff, during planning, design, construction and post-construction phases, to protect local natural resources from degradation and prevent adverse impacts to adjacent and downstream land, property, facilities and infrastructure. These standards regulate discharges from stormwater and runoff from land disturbance projects and other construction activities to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff.

The goal of these standards is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public in the Town of Bedford. This regulation seeks to meet that goal through the following objectives:

1. Minimize increases in stormwater runoff from any land disturbance to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels.
2. Minimize increases in nonpoint source pollution caused by stormwater runoff from land disturbance which would otherwise degrade local water quality.
3. Minimize the total volume of surface water runoff which flows from any specific site during and following land disturbance to not exceed the pre-development hydrologic condition to the maximum extent practicable as allowable by site conditions.
4. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety or cause excessive municipal expenditures.
5. Protect the quality of groundwater resources, surface water bodies and wetlands.

1.02 Minimum Thresholds for Applicability

- A. The stormwater management standards apply to any development or redevelopment projects which are subject to Site Plan or Subdivision review/approval that disturb more than 20,000 square feet or disturb more than 10,000 square feet within 100 feet of a surface water body (any stream, river, natural water course of flowing water, lake or reservoir).
- B. These standards apply to disturbances of less than the limits above if that disturbance is part of a large common plan for development or subdivision that would disturb 20,000 SF or more.
- C. The Town Council may waive these regulations upon appropriate demonstration by the applicant as to why these regulations should not apply. The Town Council may refer the matter to the Planning Board for recommendation prior to deciding on the waiver.

1. All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or properly discharged to a naturally occurring or fully replanted and vegetated area with slopes of 15 percent or less and with adequate controls to prevent soil erosion and concentrated flow.
 2. Impervious surfaces for parking areas and roads shall be minimized to the extent possible.
- D. The following activities are considered exempt from these regulations:
1. Agricultural and forestry practices in accordance with BMPs published by the NH Department of Agriculture.
 2. Resurfacing and routine maintenance of roads and parking lots.
 3. Interior alterations and exterior maintenance to existing buildings and structures.
- E. Application
1. All construction activity subject to these standards requires the completion of the application form (see attached) and submittal of plans and other required documents as detailed in Section 105.E. Prior to commencement of land disturbance, the applicant must obtain written approval under this regulation. All waivers must be requested in writing.

F. Other Required Permits

In addition to local approval, copies of the following permits (current editions) shall be required if applicable:

1. RSA 485-A:17 requires a permit from the New Hampshire Department of Environmental Services (NHDES) Water Supply and Pollution Control Division for "...any person proposing to significantly alter the characteristic of the terrain, in such a manner as to impede natural runoff or create an unnatural runoff ..." Regulations require this permit for any project involving more than 100,000 contiguous square feet of disturbance or if such activity occurs in or on the border of the surface waters of the state. Consult NHDES for specific rules.
2. National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit. A permit issued by the EPA or by the State under authority delegated pursuant to 33 USC, section 1342 (b) that authorizes the discharge of pollutants to waters of the United States. For a cumulative disturbance of one (1) acre of land that EPA considers "construction activity," which includes, but is not limited to clearing, grading, excavation, and other activities that expose soil typically related to landscaping, demolition, and construction of structures and roads, a federal permit will be required. Consult EPA for specific rules. This EPA permit is in addition to any state or local permit required.

1.03 Design Standards for Stormwater Management for New Development

- A. All proposed stormwater management practices and treatment systems shall meet the following performance standards:
1. Stormwater management and erosion and sediment control practices shall not be located outside any wetland zones unless otherwise approved by the Planning Board.

2. Low Impact Development (LID) site planning and design strategies shall be used to the maximum extent practicable (MEP) to reduce stormwater runoff volumes, protect water quality, and maintain predevelopment site hydrology. LID techniques with the goals of protecting water quality, maintaining predevelopment site hydrology, LID techniques that preserve existing vegetation, reduce the development footprint, minimize or disconnect impervious area, and use of enhanced stormwater BMP's (such as rain gardens, bioretention systems, tree box filters, and similar stormwater management landscaping techniques) shall be incorporated into landscaped areas. Capture and reuse of stormwater is strongly encouraged. The applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.
3. All stormwater treatment areas shall be planted with plantings appropriate for the site conditions: trees, grasses, shrubs and/or other plants in sufficient numbers and density to prevent soil erosion and to achieve the water quality treatment requirements of this section. Preference should be given to native plant materials or improved cultivars of native plants.
4. All stormwater installations and areas that receive rainfall runoff must be designed to drain within a maximum of 72 hours for vector control.
5. Snow storage and any salt storage areas must be shown on the plans. Salt storage areas shall be fully covered with permanent or semi-permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NH DES published guidance. Runoff from snow and salt storage areas shall enter treatment areas before being discharged to receiving waters or allowed to infiltrate into the groundwater.
6. Surface runoff shall be directed into appropriate stormwater control measures designed for treatment and/or filtration to the maximum extent practicable and/or captured and reused onsite.
7. All newly generated stormwater from new development shall be treated on the development site. A development plan shall include provisions to retain stormwater on the site by using the natural flow patterns.
8. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids (TSS) and at least 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual, Volumes 1 and 2, latest edition, or other equivalent means. Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual.
9. Measures shall be taken to control the post-development peak runoff rate so that it does not exceed pre-development runoff rate. Drainage analyses shall include calculations

comparing pre- and post-development stormwater runoff rates (cubic feet/second) for the 1-inch rainstorm and the 2-year, 10-year, 25-year, and 50-year 24-hour storm events. Similar measures shall be taken to control the post-development runoff volume to infiltrate the groundwater recharge volume (GR_v) in accordance with NHDES Alteration of Terrain requirements. For sites where infiltration is limited or not practicable, the applicant must demonstrate that the project will not create or contribute to water quality impairment.

10. The design of the stormwater drainage systems shall provide for the disposal of stormwater without flooding or functional impairment to streets, adjacent properties, downstream properties, soils, or vegetation.
11. The design of the stormwater management systems shall account for existing site hydrology, including flows originating from off-site.
12. Whenever practicable, native site vegetation shall be retained, protected, or supplemented. Any stripping of vegetation shall be done in a manner that minimizes soil erosion.

1.04 Design Standards for Stormwater Management for Redevelopment

- A. Redevelopment (as applicable to this stormwater regulation) means: Construction, alteration, or improvement that disturbs existing impervious area (including demolition and removal of road/parking lot materials down to the erodible subbase) or expands existing impervious cover, where the existing land use is commercial, industrial, institutional, governmental, recreational, or multifamily residential, and the area being disturbed or added reaches the threshold of the areas indicated in Section 1.02.
- B. The following activities are not considered redevelopment:
 - Interior and exterior building renovation, that doesn't change the building footprint or the impervious coverage.
 - Resurfacing of an existing paved surface (e.g. parking lot, walkway or roadway).
 - Pavement excavation and patching that is incidental to the primary project purpose, such as replacement of a collapsed storm drain.
 - Landscaping installation and maintenance.
- C. Redevelopment applications shall comply with the requirements of Sections 1.03.B - Submission Requirements for Stormwater Management Report and Plans, and 1.05.A - General Performance Criteria for Stormwater Management Plans.
- D. For sites meeting the definition of a redevelopment project and having less than 60% existing impervious surface coverage, the stormwater management requirements will be the same as other new development projects. The applicant must satisfactorily demonstrate that impervious area is minimized, and LID practices have been implemented on-site to the maximum extent practicable.
- E. For sites meeting the definition of a redevelopment project and having more than 60% existing impervious surface area, stormwater shall be managed for water quality in accordance with one or more of the following techniques, listed in order of preference:

1. Implement measures onsite that result in disconnection or treatment of 100% of the additional proposed impervious surface area and at least 30% of the existing impervious area and pavement areas, preferably using filtration and/or infiltration practices.
 2. If resulting in greater overall water quality improvement on the site, implement LID practices to the maximum extent practicable to provide treatment of runoff generated from at least 60% of the entire developed site area.
- F. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Volumes 1 and 2, December 2008, as amended, or other equivalent means. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual.
- G. All newly generated stormwater from redevelopment shall be treated on the development site.

1.05 Stormwater Management Plan General Performance Criteria and Site Inspections

- A. General Performance Criteria for Stormwater Management Plans:
1. All applications shall apply site design practices to reduce the generation of stormwater during construction and in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize and discharge of stormwater to the municipal stormwater management system.
 2. Water Quality Protection
 - a. No stormwater runoff generated from new development or redevelopment shall be discharged directly into a jurisdictional wetland or surface water body without adequate treatment.
 - b. All developments shall provide adequate management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment.
 3. Onsite groundwater recharge rates shall be maintained by promoting infiltration through use of structural and non-structural methods. Capture and reuse of stormwater runoff is encouraged in instances where groundwater recharge is limited by site conditions. All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge. This shall include, but not be limited to:
 - a. Maximizing flow paths from collection points to outflow points.
 - b. Use of multiple best management practices.
 - c. Retention of and discharge to fully vegetated areas.
 - d. Maximizing use of infiltration practices.

- e. Stormwater System Design Performance Standards.
4. Stormwater system design, performance standards and protection criteria shall be provided as prescribed in the NHDES Alteration of Terrain program. Calculations shall include sizing of all structures and best management practices, including sizing of emergency overflow structures based on assessment of the 50-year 24-hour frequency storm discharge rate.
 5. The sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at <http://precip.eas.cornell.edu/>.
 6. All stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscape plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation. The use of native plantings appropriate for site conditions is strongly encouraged for these types of stormwater treatment areas. The landscape plan must be prepared by a licensed landscape architect, or another qualified professional.
- B. The applicant shall provide that all stormwater management and treatment practices have an Inspection and Maintenance Plan in place and agreement to ensure the system will continue to function as designed. This agreement will include all maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater system. The operations and maintenance plan shall specify the parties responsible for the proper maintenance of all stormwater treatment practices and frequency of inspections. The Operations and Maintenance Plan shall be provided to the Planning Board as part of the application prior to issuance of any local permits for land disturbance and construction activities.
 - C. The applicant shall provide legally binding documents for filing with the Registry of Deeds, which demonstrate that the obligation for maintenance of stormwater best management practices and infrastructure runs with the land and that the Town has legal access to inspect the property to ensure their proper function or maintain onsite stormwater infrastructure when necessary to address emergency situations or conditions.
 - D. The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of these regulations and as approved by the Planning Board, including emergency repairs completed by the Town.
 - E. Submission Requirements for Stormwater and Land Disturbance Management Report and Plans.
 1. All applications required under Section 1.02.A, shall include a comprehensive Stormwater and Land Disturbance Management Plan (SLDMP). The SLDMP shall include a narrative description and an Existing Conditions Site Plan showing all pre-development impervious surfaces, buildings and structures; surface water bodies and wetlands; drainage patterns, sub-catchment and watershed boundaries; building setbacks and buffers, locations of various hydrologic group soil types, mature vegetation, land topographic contours with

minimum 2-foot intervals and spot grades where necessary for sites that are flat.

2. The SLDMP shall include a narrative description and a Proposed Conditions Site Plan showing all post-development proposed impervious surfaces, buildings and structures; temporary and permanent stormwater management elements and best management practices (BMP), including BMP GIS coordinates and GIS files; important hydrologic features created or preserved the site; drainage patterns, sub-catchment and watershed boundaries; building setbacks and buffers; proposed tree clearing and topographic contours with minimum 2-foot intervals. The plans shall provide calculations and identification of the total area of disturbance proposed on the site (and off site if applicable) and total area of new impervious surface created. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms at each of the outlet locations shall be included. For residential subdivisions meeting the threshold for applicability in Section 1.02, an allowance for individual lot development shall be included in the drainage calculations, including an allowance for impervious area as a result of lot development, and hydrologic changes as a result of ground cover changes.
3. The SLDMP shall describe the general approach and strategies implemented, and the facts relied upon, to meet the goals of Section 1.01 and 1.03. The SMP shall include design plans and/or graphical sketch(es) of all proposed above ground LID practices.
4. The SLDMP shall include calculations of the change in impervious area, removal rates for each best management practice, and GIS files containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretention areas, piping).
5. The SLDMP shall include a description and a proposed Site Plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES Stormwater Manual Volume 3 (most recent version) as well as a construction site inspection plan including temporary water quality measures, phased installation of best management practices and final inspection upon completion of construction (see Section 1.07).
6. The SLDMP shall include a long-term stormwater management BMP Inspection and Management Plan (see Section 1.05) that describes the responsible parties and contact information for the qualified individuals who will perform future BMP inspections. Required inspections, inspection frequency, maintenance schedule and reporting protocols shall be included.
7. The SLDMP shall describe and identify locations of any proposed deicing chemical and/or snow storage areas. SMP will describe how deicing chemical use will be minimized or used most efficiently.
8. In urbanized areas that are subject to the EPA MS4 Stormwater Permit and will drain to chloride-impaired waters, any new developments and redevelopment projects shall submit a description of measures that will be used to minimize salt usage, and track and report amounts applied using the UNH Technology Transfer Center online tool (<http://www.roadsalt.unh.edu/Salt/>) in accordance with Appendix H of the NH MS4 Permit.
9. Three complete copies of the application and all supporting documentation shall be submitted to the DPW and one additional full copy shall be provided with the Planning

Board submittal.

1.06 Stormwater Management Plan Recordation

- A. Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved site/subdivision plan and the approved plans shall be recorded at the Hillsborough County Registry of Deeds, and shall reference the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. Further, these documents shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the Planning Board.

- B. Easements
 - 1. Where a development is traversed by or requires the construction of a watercourse or a drainage way, an easement to the Town of adequate size to enable construction, reconstruction and required maintenance shall be provided for such purpose. Easements to the Town shall also be provided for the purpose of periodic inspection of drainage facilities and BMPs should such inspections by the Town become necessary. All easements shall be recorded at the Hillsborough County Registry of Deeds. Where stormwater management or treatment facilities are constructed outside of public rights of way, a permanent easement to the town shall be recorded to allow construction, maintenance or inspection of the facility, as well as flowage rights.

1.07 Stormwater Management During Construction

- A. Applicant must implement erosion, sediment and good housekeeping controls as prescribed in the comprehensive Stormwater and Land Disturbance Management Plan (SLDMP) (see Section 1.05) and reduce potential pollutants during construction activities. Best Management Practices (BMP) must be followed and shall include management of non-stormwater discharges and materials, minimization of disturbed area, phased construction activity, good housekeeping practices, containment of materials and waste, perimeter controls, control for dust and particulate generating activities, street sweeping and the protection of all storm drain inlets and slopes.
- B. Controls must be regularly inspected and maintained per schedule established in SLDMP but in case shall be less than every seven days and within 24 hours after a storm of 0.25 inches or greater. Any deficiencies noted shall be corrected within 24 hours.
- C. Records of inspections any corrective actions and construction activities must be maintained on site and submitted electronically to the DPW as requested.
- D. SLDMP shall be updated if necessary during construction.
- E. Site must achieve final site stabilization.

1.08 Inspection and Maintenance Responsibility During and After Construction

- A. Municipal staff or their designated agent shall be granted site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the

landowner.

1. If permission to inspect is denied by the landowner, municipal staff or their designated agent may secure an administrative inspection warrant from the district or superior court under RSA 595-B Administrative Inspection Warrants.
 2. The cost of inspections and related expenses shall be the responsibility of the applicant/property owner.
 3. If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector shall provide a report documenting these violations or non-compliance including recommended corrective actions. The Town shall notify the property owner in writing of these violations or non-compliance and corrective actions necessary to bring the property into full compliance. The Town may, at their discretion, issue a stop work order if corrective actions are not completed within 10 days.
 4. If corrective actions are not completed within a period of 30 days from notification, the Town may exercise its jurisdiction under RSA 676:4-a Revocation of Recorded Approval.
- B. The applicant shall bear final responsibility for the installation, construction, inspection, and disposition of all stormwater management and erosion control measures as required by this regulation. Site development shall not begin before the Stormwater and Land Disturbance Management Plan receives written approval of the permit.
- C. The municipality retains the right, though accepts no responsibility, to repair or maintain stormwater infrastructure if: a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly.
- D. Landowners subject to an approved Stormwater Management Plan shall be responsible for submitting an annual report to the DPW by January 31, each year, by a qualified professional that all stormwater management and erosion control measures are functioning per the approved stormwater and land disturbance management plan. The annual report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater and land disturbance management plan, the landowner shall report on the malfunction in their annual report and include detail regarding when the infrastructure shall be repaired and functioning as approved.
- E. If no report is filed by January 31, municipal staff or their designated agent shall be granted site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.
- F. All projects shall be subject to a final inspection prior to issuance of a certificate of occupancy.
- F. For any commercial project or subdivision, approved by the Planning Board shall submit as-built drawings of the constructed stormwater management system to the Department of Public Works following construction.