

Chapter 1

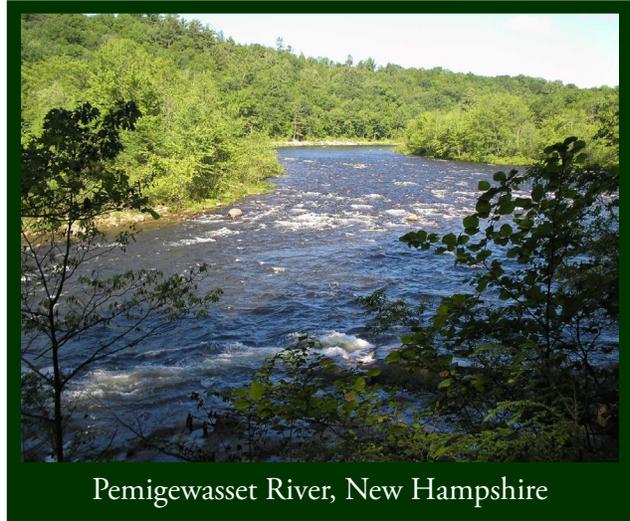
Introduction

New Hampshire's surface waters are a valuable natural resource. Through their function and beauty, they power industry, provide vital habitat, supply drinking water, and offer recreational opportunities to residents and visitors throughout the state. However, as the population grows and development pressures increase to provide needed housing and services, it is becoming increasingly difficult to protect and maintain the quality of our surface waters for the fishing, swimming, and recreational activities that we are so used to enjoying in New Hampshire.

The responsibility falls on us all - federal, state, and local governments, developers, and private citizens - to plan and act responsibly and in a manner that protects and works with the landscape to meet both water quality and land use goals. Development and natural resource protection do not need to be at odds. Existing scientific knowledge and technology in the field of stormwater management provide us with tools that can minimize the impacts of development and balance the needs of a healthy environment with those of social and economic growth.

The New Hampshire Department of Environmental Services (NHDES) has developed this New Hampshire Stormwater Manual to provide communities, developers, designers, and regulatory personnel with a reference guide for the selection, design, and application of measures to manage stormwater from newly developed and redeveloped properties, while meeting environmental objectives in the New Hampshire regulatory setting. These measures include source controls, design techniques (including low impact development (LID) design approaches), structural practices, and construction practices designed to minimize adverse hydrologic and water quality impacts, protecting and enhancing the functions of our natural wetlands and waterways.

The remainder of this Chapter presents an overview of the three-volume New Hampshire Stormwater Manual, and summarizes the contents and organization of information presented in Volume 1.



Pemigewasset River, New Hampshire

1-1. About the New Hampshire Stormwater Manual



Odiorne State Park, Rye, New Hampshire

The New Hampshire Stormwater Manual is intended as a planning tool for the communities, developers, designers, and members of regulatory boards, commissions, and agencies involved in stormwater programs in New Hampshire. The Manual addresses measures to manage stormwater runoff through site design, pollutant source controls, structural Best Management Practices (including associated operation and maintenance measures), and construction-phase practices. These practices are expected to be applied to meet specific objectives under current state and federal regulatory programs. However, if any discrepancies are found between this manual and the New Hampshire Code of Administrative Rules for the programs discussed here, the Rules should be followed.

The Manual is issued in three volumes:

Volume 1: Stormwater and Antidegradation presents an overview of New Hampshire’s stormwater program together with related federal program requirements, describes New Hampshire’s “Antidegradation Provisions” with respect to controlling water quality

impacts due to stormwater discharges, and provides an introduction to the non-structural and structural measures for managing stormwater.

Volume 2: Post-Construction Best Management Practices Selection and Design presents a detailed description of the structural Best Management Practices (BMPs) applicable for use in New Hampshire for the prevention, control, and treatment of stormwater. Volume 2 describes information applicable to the screening, selection, design, and application of particular post-construction BMPs.

Volume 3: Erosion and Sediment Controls During Construction provides a selection of practices applicable during the construction of projects, to prevent adverse impacts to water resources as a result of the land-disturbance activities typically associated with development and redevelopment projects.

NHDES intends the New Hampshire Stormwater Manual to serve as:

- A living document with the ability to be updated as needed to accommodate the changes in stormwater management as the wealth of information in this area grows, and as technology and research broaden its scope and our perspective.
- A resource for developers and engineers in site planning, source control, and pollution prevention measures, as well as the selection

and application of stormwater Best Management Practices (BMPs) to protect the surface waters of the state from potential adverse impacts of construction and post-construction stormwater runoff.

- A resource to local and state government officials, such as planning and zoning boards, town engineers, planners, conservation commissions, and New Hampshire state agencies involved in project review or approval to ensure that state and federal stormwater requirements are met, and that projects are reviewed in a consistent manner.
- A source of information on state and federal stormwater programs and their requirements that apply to development projects in New Hampshire, and a resource for selecting management measures to meet those requirements, including:
 - Stormwater management techniques commonly used, including BMPs and better site design techniques. Using better site design techniques in combination with traditional BMPs will result in more effective stormwater management systems to more easily meet the runoff volume and pollutant removal requirements of federal and state stormwater programs.
 - Selection criteria to assist in the selection of appropriate management techniques for a site and in the preparation of Stormwater Pollution Prevention Plans (SWPPPs) and other stormwater management planning documents.
 - Summaries of stormwater management techniques including the target pollutants, general site requirements, removal mechanisms, and pollutant removal efficiencies.
 - An explanation of various modeling tools that can be used as a surrogate to water quality monitoring to verify that pollutant loading requirements will be met in the post-development condition.

1-2. About Volume 2

Within this context, Volume 2 presents information to assist in the selection and design of Best Management Practices (BMPs) for controlling stormwater. This volume discusses Best Management Practice design criteria, screening and selection of BMPs to meet these stormwater management objectives, specific design guidance for a range of BMPs, and operation and maintenance considerations. The chapters are organized as follows:

Chapter 2: Design Criteria presents the design criteria for sizing Best Management Practices (BMPs) in the State of New Hampshire to protect New Hampshire waters from adverse impacts of development. Land

development projects should include measures to control peak runoff rates, provide stormwater quality treatment, use stormwater for groundwater recharge, and provide for stream channel protection. This chapter presents specific parameters for sizing BMPs to meet these objectives. NHDES recommends these criteria for application by developers and municipalities on all projects, as well as those projects that must comply with the Alteration of Terrain (AoT) regulations (Chapter Env-Wq 1500).

Chapter 3: Screening and Selecting Best Management Practices provides guidance in selecting BMPs to meet New Hampshire's stormwater management objectives, including protection against water quality impacts during construction, post-construction pollutant removal, recharge, channel protection, peak runoff control, and protection of water quality. The chapter provides a matrix of BMPs and identifies BMP capabilities to meet the stormwater objectives. The Chapter also discusses screening and selecting BMPs based not only on BMP capabilities, but also on site specific factors such as land use, physical feasibility, watershed resources, community and environmental factors, and operation and maintenance considerations.

Chapter 4: Designing Best Management Practices presents a selection of Best Management Practices and provides a brief description of each BMP and lists key information for the design of the BMP to meet New Hampshire stormwater management objectives. While the BMP "fact sheets" summarize the criteria for designing BMPs, they are meant to provide an overview of the measures discussed. NHDES expects engineers to consult a diverse array of design references currently considered as accepted practice, in the development of designs for stormwater management facilities for projects in New Hampshire.

Chapter 5: Preparing for Stormwater System Operation, Maintenance, Inspection and Source Control affirms the importance of ongoing inspection, operation, maintenance, and repair and restoration activity to the effectiveness of stormwater facilities. The Chapter discusses general operation and maintenance (O&M) considerations for successfully meeting stormwater management objectives.