

# Introduction



## Background and Purpose

The Wetland BMP Manual: Techniques for Avoidance and Minimization is a final product of a multi-year effort to improve the Department of Environmental Management's Groundwater and Freshwater Protection Program, prompted by recommendations of the Wetlands Task Force (2001) and by Program staff. The Program has completed many other projects based on those recommendations, including: restructuring the Rules and Regulations and the application instructions, developing outreach materials, and providing numerous training workshops for consultants and municipal officials. This Manual is intended to be used in conjunction with other available materials. The target audience for this Manual is applicants and professional consultants who prepare applications for submittal to the Rhode Island Wetlands Program, as well as builders and contractors.

The Wetland BMP Manual is a compilation of Best Management Practices (BMPs), including text, tips, and examples that were researched and compiled from staff input and from the DEM wetland files. The Manual is intended to help answer questions posed by Task Force members and applicants, namely "How does an applicant know what DEM wants?" and "How does an applicant know whether he or she is going to get a permit?" To help answer these questions and to help applicants "get it right the first time," this Manual provides examples of acceptable and permitted wetland-friendly designs and practices that could be used by applicants when designing projects. The Wetland BMP Manual is another tool to help applicants and consultants to prepare more complete applications, in order to adequately avoid and minimize impacts to wetlands and to facilitate applicants receiving speedier decisions from the Department. The Manual includes project-specific examples and details that are applicable to many project types that have been successfully permitted in Rhode Island or in nearby states.

## Guide to Using the Wetland BMP Manual

The Wetland BMP Manual can be approached in various ways. The authors recommend that the introductory pages and Chapter I be read first, before delving into the project-specific chapters.

A review of the Table of Contents reveals that, after the introductory pages, the Manual is largely organized around project types that are the subject of wetlands applications commonly submitted to the Wetlands Program. Each chapter begins with an introduction to the project type, followed by numerous bulleted tips on avoidance and minimization techniques and practices; and in many chapters the tips are followed by "before" and "after" example illustrations. The examples are not intended to be complete site plans, but rather they are simplified illustrations the readers will find helpful. The "before" examples depict proposed projects without consideration of wetland avoidance and minimization practices, and the "after" examples depict projects which were modified to include the consideration of avoidance and minimization. Bulleted lists accompany the "after" illustrations and describe how the initial proposal was improved with respect to wetland protection. Throughout the Manual the reader will also find helpful details that would be applicable to various project types.

Some of the "after" examples in Chapters 2 through 8 illustrate some remaining encroachment into regulated wetland areas, including Perimeter Wetland and Riverbank Wetland. Such encroachments have been permitted by the Program in the past, but only after the applicants have demonstrated to the Program that the alterations were truly unavoidable and that remaining impacts were not detrimental. These examples are included because they are based on real-world projects; however, applicants should keep in mind that decisions to permit encroachments are very site specific.

## **Chapter-by-Chapter Guide**

Chapter 1 is a primer on the importance of protecting Rhode Island's wetlands, whose functions and values the Department is charged with protecting according to Rhode Island General Law. This chapter lists various activities or alterations that may be posed in or near wetlands and that may adversely impact these functions and values both hydrologically and ecologically, especially over time. This builds the case for the critical need for (1) the avoidance of wetlands altogether and (2) the minimization of truly unavoidable impacts.

Chapters 2 through 8 focus on specific project types, beginning with Single-Family Lots and progressing to Utility Projects. Each chapter can stand alone, however, the reader will note some repetition in the text and in the bullets from chapter to chapter, since some common techniques and practices are pertinent to more than one project type. The reader may also find relevant examples and tips within specific chapters that may also apply to another project type (ex. lighting). A review of the list of examples will help the reader identify which examples may be of use to them and where to find them.

The authors recommend that all Manual users read the final three Chapters entirely, namely Chapter 9 - Wetland Crossings, Chapter 10 - Plantings, and Chapter 11 - Construction and Maintenance Tips, since these Chapters address activities that are common to many project types.

Chapter 9 describes wetland crossings. A crossing is rarely a stand-alone project type, but rather a common component of other projects and one of the more frequent alteration types resulting in direct wetland alteration and loss. Applicants will propose crossing wetlands, including rivers and streams, to gain access to upland portions of properties on which to build their projects. Chapter 9, largely through illustrations of culverts and bridges, emphasizes the importance of maximizing span width and maintaining the existing hydrology and substrates of the wetland proposed to be crossed. During the development of the Wetland "BMP" Manual, other New England states, under the direction of the U.S. Army Corps of Engineers New England Division, have developed wetland-crossing standards, including requirements for span width, opening size, etc. However, the Wetland Program prefers to maximize flexibility for applicants through case-by-case design and review.

## **Other DEM Resources**

This Wetland BMP Manual should be used by applicants and consultants in conjunction with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act and other guidance materials developed by the Program and the Department, including.

- What's the Scoop on Wetland's? Frequently Asked Questions about DEM's Freshwater Wetlands Program (revised 2008);
- The DEM Wetland Fact Sheet Series;

- Guidance for Preparation of Subwatershed Maps (2007);
- Hydrologic and Hydraulic Modeling Guidance (2007);
- Guidance for the Preparation of Stormwater Best Management Practices (BMP's) (2007); and
- Floodplain Impacts: Regulatory Provisions Pertaining to Floodplains and Floodways (2007).

Concurrent with the internal development of the Wetland BMP Manual, the DEM Office of Strategic Planning and Policy has developed the following colorful and informative land development guidance manuals, which when implemented should also result in improved wetland protection:

- The Rhode Island Conservation Development Manual: A Ten-Step Process for Planning and Design of Creative Development Projects (2003);
- Rhode Island Rural Design Manual (2000, rev. 2004); and
- Urban Environmental Design Manual (2005).

Currently, the Department and the Coastal Resources Management Council are updating the Rhode Island Stormwater Design and Installation Standards Manual, including Low Impact Development (LID) requirements. That Manual will become the over-arching development guide for many project types, and it is possible that some updates to this Wetland BMP Manual may become necessary once the Rhode Island Stormwater Manual is finalized. The Rhode Island Soil Erosion and Sediment Control Handbook (1989) which, while dated, is also a very relevant source of information for wetland applicants and consultants.

Finally, the Department would like to receive your feedback about the usefulness of this Manual. Do you find it helpful? What additional information would you like to see? Please send your comments to Wetland BMP Manual @ DEM Office of Water Resources, 235 Promenade Street, Providence, RI 02908 or via email to [waterresources@dem.ri.gov](mailto:waterresources@dem.ri.gov).