

Chapter 5 Comprehensive Stormwater Management: Non-Structural BMPs

5.1 Introduction

The terms “Low Impact Development” and “Conservation Design” refer to an environmentally sensitive approach to site development and stormwater management that minimizes the effect of development on water, land and air. This chapter emphasizes the integration of site design and planning techniques that preserve natural systems and hydrologic functions on a site through the use of Non-Structural BMPs. Non-Structural BMP deployment is not a singular, prescriptive design standard but a combination of practices that can result in a variety of environmental and financial benefits. Reliance on Non-Structural BMPs encourages the treatment, infiltration, evaporation, and transpiration of precipitation close to where it falls while helping to maintain a more natural and functional landscape. The BMPs described in this chapter preserve open space and working lands, protect natural systems, and incorporate existing site features such as wetlands and stream corridors to manage stormwater at its source. Some BMPs also focus on clustering and concentrating development, minimizing disturbed areas, and reducing the size of impervious areas. Appropriate use of Non-Structural BMPs will reflect the ten “Principles” presented in the Foreword to this manual, and will be an outcome of applying the procedures described in Chapter 4.

From a developer’s perspective, these practices can reduce land clearing and grading costs, reduce infrastructure costs, reduce stormwater management costs, and increase community marketability and property values. Blending these BMPs into development plans can contribute to desirability of a community, environmental health and quality of life for its residents. Longer term, they sustain their stormwater management capacity with reduced operation and maintenance demands.

Conventional land development frequently results in extensive site clearing, where existing vegetation is destroyed, and the existing soil is disturbed, manipulated, and compacted. All of this activity significantly affects stormwater quantity and quality. These conventional land development practices often fail to recognize that the natural vegetative cover, the soil mantle, and the topographic form of the land are integral parts of the water resources system that need to be conserved and kept in balance, even as land development continues to occur.

As described in Chapter 4, identifying a site’s natural resources and evaluating their values and functional importance is the first step in addressing the impact of stormwater generated from land development. Where they already exist on a proposed development site, these natural resources should be conserved and utilized as a part of the stormwater management solution. The term “green infrastructure” is often used to characterize the role of these natural system elements in preventing stormwater generation, infiltrating stormwater once it’s created, and then conveying and removing pollutants from stormwater flows. Many vegetation and soil-based structural BMPs are in fact “natural structures” that perform the functions of more “structural” systems (e.g., porous pavement with recharge beds). Because some of these “natural structures” can be designed and engineered, they are discussed in Chapter 6 as structural BMPs.

5.2 Non-Structural Best Management Practices

This Manual differentiates BMPs based on Non-Structural (Chapter 5) and Structural (Chapter 6) designations. Non-Structural BMPs take the form of broader planning and design approaches – even principles and policies – which are less “structural” in their form, although non-structural BMPs do have