

CHAPTER 5: STORMWATER MANAGEMENT AND CONVEYANCE FACILITIES



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Commentary

Illustration 5-a. Swale with Check Dam



In Pennsylvania, local governments have the authority to establish standards for the design and construction of stormwater management facilities. In addition, Pennsylvania's Stormwater Management Act of 1978 (Act 167) requires that counties prepare stormwater management plans for designated watersheds. These plans include stormwater ordinances that must be adopted by the municipalities comprising each specific watershed. Stormwater ordinances based on watershed Act 167 Plans approved by the Department of Environmental Protection subsequent to July 2001 include provisions that address peak rate, volume, and water quality. The standards in these ordinances are based on specific watershed characteristics and, as such, supersede the more general requirements contained in section 5.3 of this document.

Recommended Standards

5.0 OVERVIEW

Stormwater facilities collect, convey, and manage surface runoff from a developed site. Collection and conveyance facilities include general site grading, inlets, pipes, and swales or channels that are designed to move water to stormwater management facilities or to discharge points at the property boundary. Stormwater management facilities include structural and non-structural practices intended to manage the volume, rate, and quality of stormwater runoff.

All land disturbance activities impact the magnitude and characteristics of stormwater discharged from a site. These changes can be positive or negative. Activities that reduce impervious area and the overall intensity of development can have a positive impact on the environment by reducing the volume and peak-rate of runoff, and improving the quality of runoff leaving the site. However, activities that increase impervious area and/or compact pervious areas increase the volume and peak-rate off, and reduce the overall quality of water leaving the site; these changes often result in flooding, surface erosion, streambank erosion, and environmental degradation of habitat within receiving waters. The goal of stormwater facilities, is to manage the quantity and quality of post development surface runoff, and to provide for the safe conveyance of surface flows to downstream receiving waters.

The recommended standards contained in this chapter comply with the Comprehensive Stormwater Management Policy issued by the Pennsylvania Department of Environmental Protection on September 28, 2002. The recommended standards are designed to be generally applicable on a Statewide basis. Stormwater ordinances based on unique watershed characteristics as defined by a stormwater management plan developed under Pennsylvania Act 167 and approved by the Department of Environmental Protection subsequent to July 2001 shall supersede the standards contained herein.

Recommended Standards

5.1 GENERAL PROVISIONS

5.1.1 Purpose

The purpose of these standards is to minimize stormwater impacts from development activities, and to promote the health, safety and welfare within the municipality through provisions designed to:

- a. Meet water quality requirements under State law, including regulations at Title 25, Chapter 93 of the Pennsylvania Code;
- b. To the extent possible, preserve natural drainage systems;
- c. Protect the quality and quantity of water resources within individual watersheds;
- d. Prevent erosion of stream banks and beds;
- e. Provide for proper operation and maintenance of stormwater facilities; and
- f. Provide standards to meet National Pollutant Discharge Elimination System (NPDES) permit requirements.

5.1.2 Authority

The municipality is empowered to regulate these activities by the authority of the following Acts:

- a. Act of July 31, 1968, P.L. 805, No. 247, "The Pennsylvania Municipalities Planning Code", as amended.
- b. Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. Section 680.1, et seq., as amended, the "Stormwater Management Act."

5.1.3 Applicability

All regulated activities and all activities that may affect stormwater runoff, including land de-

Commentary

The design of stormwater facilities and best management practices requires a high level of competence and scientific understanding in hydrology, hydraulics, soils, geology, and hydrogeology. Owing to the complexity of site level stormwater facility design, and the potential for significant down-gradient impacts if appropriate design practices are not employed, all elements of the proposed stormwater management plan must be certified to and sealed by an appropriately licensed design professional. This may require certifications by more than one professional to cover all aspects of the design (for example, a soil scientist and a professional engineer).

In accordance with state law, it is illegal for any licensed professional to certify or seal a design or analysis that is not within the professional's area of competent practice or experience. Appropriately licensed Civil Engineers have historically certified stormwater management plans owing to their expertise in surface water hydrology and hydraulics. However, these same design professionals may require additional education in soils, soil physics, and hydrogeology prior to being qualified to certify and seal stormwater management plans that include engineered infiltration practices.

In addition, since design liability lies with the certifying design professional(s) and not regulatory staff, regulatory reviews shall be limited to administrative and compliance issues. However, if operation and maintenance of stormwater facilities is to be the municipality's responsibility, regulatory staff may direct the design professional to evaluate alternate designs and comment on the appropriateness of said designs.

Municipal stormwater ordinances enacted under the provisions of PL 864 (Act 167) subsequent to July 2001, include provisions for stormwater peak,