

11. STORM DRAINAGE

11.1 General

The general design and construction requirements for storm drainage in the City of Des Moines shall be those contained in the Standard Specifications for Road, Bridge, and Municipal Construction, Washington State Department of Transportation and American Public Works Association, Washington State Chapter, latest edition; the Uniform Plumbing Code as adopted by the Washington State Building Code Council, latest edition; and the Standards and Specifications as set forth in the King County, Washington, Surface Water Design Manual, published by King County Department of Natural Resources and Parks Stormwater Services Division, latest edition—unless superseded or amended by the City of Des Moines Street Design and Construction Standards.

No drainage from downspouts, splash blocks, etc. shall discharge across a sidewalk, walkway, or roadway. Structures shall be placed and constructed as shown in the Standard Drawings. Materials, construction, and testing are specified in the WSDOT/APWA Standard Specifications.

The Public Works Director may amend, delete, or add specifications or Standard Drawings as described in Chapter 1 of these Standards. Where technical conflicts may occur between this document and the other documents referenced herein, the Public Works Director shall decide which document governs.

The following sections outline the requirements specific to the City of Des Moines that shall be used in conjunction with the other design principles identified herein.

11.2 Stormwater Detention/Retention Requirements

The latest edition of the King County Surface Water Design Manual outlines approved methods, criteria, and details for hydraulic analysis and design of flow control facilities. Flow control facilities, as described in this manual, are detention or infiltration facilities engineered to meet a specified discharge performance.

Three terms are commonly used to describe flow control facilities in King County: detention facilities, retention facilities, and infiltration facilities. A detention facility, by definition, temporarily stores surface water runoff and discharges it at a reduced rate. A retention facility stores water longer and effectively has no surface outflow (outflow occurs by evaporation or soaking into the ground). Infiltration facilities are retention facilities that rely entirely on the soaking of collected surface water into the ground.

Flow control BMPs, also known as low impact development BMPs, are methods and designs for dispersing, infiltrating, or otherwise reducing or preventing development-related increases in runoff at or near the sources of those increases. Flow control BMPs include, but are not limited to, preservation and use of native vegetated surfaces to fully disperse runoff; use of other pervious surfaces to disperse runoff; roof downspout infiltration; permeable pavements; bioretention; and reduction of development footprint.

11.3 Stormwater Quality

The latest edition of the King County Surface Water Design Manual outlines approved methods, criteria, and details for water quality facilities. Water quality menus, as described in this manual, are basic, enhanced basic, and high use, engineered to meet a specified water quality standard.

Commercial and industrial operations that discharge into the city stormwater system shall be responsible for compliance with the requirements of the federal National Pollutant Discharge Elimination System (NPDES) General Permit program. The Washington State Department of Ecology manages the General Permit program. City of Des Moines building permits may be issued only upon proof of submittals to the Washington State Department of Ecology.

11.4 Conveyance Systems

The latest edition of the King County Surface Water Design Manual outlines approved methods for the hydraulic analysis and design of conveyance systems. A conveyance system includes all portions of the surface water system, either natural or human-made, that transports surface and stormwater runoff. Components of the surface water system include pipes, outfalls, pumps, culverts, bridges, open channels, floodplains, and floodways.

This manual contains the detailed design criteria, methods of analysis, and standard details for all components of the conveyance system. In some cases, reference is made to other adopted or accepted design standards and criteria, such as the King County Road Design and Construction Standards (KCRDCS) the WSDOT/APWA Standard Specifications for Road, Bridge, and Municipal Construction (most recent edition); and a King County supplement to the WSDOT/APWA standards called the General Special Provisions.