

CHAPTER 5 - DESIGN STANDARDS FOR STORM DRAINS

5.1 GENERAL REQUIREMENTS

5.1.01 Stormwater management and conveyance system(s) are required for every development, including redevelopment. Such systems shall include: stormwater quantity & quality treatment and Low Impact Development (LID) measures as required.

5.1.02 Partial or phased developments shall submit, and receive approval, of a Stormwater Concept Plan for the complete total development, prior to submitting construction plans for partial phases.

5.1.03 Storm drains are to have no connections with the sanitary sewer system.

5.2 TECHNICAL DESIGN

5.2.01 System Layout

- A. The overall layout and general design shall conform to the parameters set forth in the Approved Engineering Report.
- B. All Storm Drains shall be located in street rights-of-way or legally established permanent easements for such purpose.
- C. All storm drain shall be continuous in line and grade between drainage structures.
- D. Mains and structures shall be a minimum of 10' horizontally from any building or structure.

5.2.02 System Design

- A. The overall design shall be in accordance with the provisions of the approved Engineering Report and in accordance with 1.1.02 "Engineering Report" of these Standards.
- B. The overall design must comply with the requirements of Title 13 of the City Code.

5.2.03 Capacity Design

- A. Inlets shall be designed for the 2-year storm, except in those situations where potential property damage exists, in which case the design will be for a 10-year storm.
- B. The storm drain conveyance system shall be designed to carry a minimum 10 year storm except when in the judgment of the City a 25 year storm design is required to prevent property damage. Minimum pipe size shall be 15".
- C. Culvert and bridge design for "local" streets shall be designed to carry a minimum of a 10 year storm. Streets classified as "collector" or "arterial" shall be designed to carry a minimum 25 year storm.
- D. Stormwater management facilities, including LID measures, shall be designed in accordance with Title 13 of the City Code.

5.3 DRAWINGS

In addition to requirements in Chapter 1.6 "Drawing Organization and Format" of these Standards, drawings shall include:

- A. Pipe lines shall be stationed and identified with pipe size, material, direction of flow, grade and distance between center lines of structures.
- B. All inlets & manholes shall be numbered and identified with top, inverts-in and invert-out elevations clearly shown.
- C. Water and sanitary mains shall be shown and profiles shall indicate points where crossings occur, clearly indicating vertical clearance between utilities. All storm drains shall be under water lines at crossings.
- D. Plans shall show the location of erosion control devices on the plans. These devices shall be in conformance with the Virginia Erosion and Sediment Control Handbook and Chapter 7 of these Standards.

5.4 MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES

Refer to Title 13 of the City Code.