

Drainage Policy for Development

Section 343.20 of the City of Hamilton Subdivision Regulations, "Requirement for Storm Drainage System", stipulates that "every development shall be provided with a storm drainage system that provides adequate, complete and satisfactory drainage service for the entire area being platted for all projected land uses and otherwise meeting the approval of the officials having jurisdiction." This section stipulates that the City Engineer must finally approve the drawings, plans and specifications for the drainage system. Natural streams and water courses should be left as undisturbed as practical. **All natural streams and water courses shall be inspected by the City Engineer and the Developer's Engineer prior to final plan approval. Any necessary stabilization and erosion protection deemed necessary by the City Engineer shall be included in the development plans.**

It is the responsibility of the developer's engineer to design this drainage system and it is the responsibility of the City Engineer to judge the adequacy of the design. The following has been written to clarify the standards that will be judged by the City Engineer as adequate. These should be considered minimum standards and certain conditions may require exceeding these standards. The Ohio Department of Natural Resources "Rainwater and Land Development" manual is a comprehensive source of general standards to use to avoid, minimize, or compensate for impacts to water resources. The manual is available at the City of Hamilton Public Works web site under Drainage Policy for Development or from ODNR: <http://www.dnr.state.oh.us/water/rainwater/default/tabid/9186/Default.aspx>

General Principles

- A. Every development shall have an adequate drainage system to provide complete drainage for the entire development.
- B. The development shall be graded so that each building site is protected from damage due to storm water run-off from adjacent lots.
- C. The development shall be constructed so that the new construction does not increase the risk of flooding to downstream property.

Storm Sewer Design Policy

- A. Storm sewers and open ditches are to be designed for a 10-year storm.
- B. Roadway culverts are to be designed for a 25-year storm. Minimum floor elevations shall be shown for any lot which may be subject to flooding from the headwater upstream from a culvert.
- C. In all locations where the potential exists for flooding and property damage, drainage facilities shall be designed for 50-year storms.
- D. The Rational Method shall be used to estimate run-off for drainage areas of 250 acres or less. The "rainfall intensity-duration-frequency curves" Plate No. 1 attached to this document shall be used for determining the rainfall intensity factor in the Rational Method formula.

Grassed Channels	0.03
Paved Channels (concrete or asphalt)	0.015

- L. Open channels shall be properly lined to prevent erosion. All ditches having a velocity of 5-feet per second or less shall be sodded, except that ditches may be seeded if the velocity is under 2-feet per second. All ditches with a velocity over 5-feet per second shall be lined.

Storm Water Detention

- A. In general, no development shall discharge a greater peak stormwater run-off than the peak rate of run-off from the same area prior to development. In order to control this peak discharge it will be necessary to detain or retain a portion of the storm water run-off temporarily on the site.
- B. For the purposes of this section a development will be defined as a subdivision, a major condominium project, a major commercial or industrial facility or any other new construction which the City Engineer judges as appropriate for inclusion.
- C. A plan shall be submitted to the City Engineer for approval for every development showing the method for detaining storm water unless a written waiver is approved as stated below.
- D. All plans submitted must show the location and size of detention facilities and must be accompanied by calculations used to determine the design of the facilities. All calculations shall be based on the methods described in the United States Soil Conservation Service Publication TR-55. In using this method, the 50-year post development peak discharge shall not exceed the 10-year pre-development peak discharge. Emergency spillways shall be designed for 50- year storms.
- E. Detention facilities will typically be dry-bed basins. Fencing will be required around all basins which are within lots to be deeded to the City or within easements to be granted to the City.
- F. Retention basins which are partially filled with water during dry weather will be permitted where future ownership and all maintenance responsibilities rest with an individual, a private company, a Condominium Association or some other private organization.
- G. A waiver of the requirements for detention facilities may be granted by the City engineer for the following:
1. Very small increases in run-off due to the development.
 2. The presence of adequate existing downstream storm sewers and channels capable of handling the increased run-off.
 3. Unusual and abnormal conditions making it impossible to construct the proper facilities.

Erosion and Sediment Control

In order to control pollution of streams and public waters the design engineer shall include in the construction plans sufficient requirements to control erosion and sedimentation during development. These requirements may include a designated sequence of operations, limits on area of surface to be disturbed, and temporary or permanent erosion control devices such as settling ponds or silt traps. The developer and his contractor(s) shall abide by the requirements set forth in the Ohio Department of Natural Resources Division of soil and water districts "Urban Sediment Pollution Abatement Rules" chapter 1501: 15-1-03, 15-1-04 and 15-1-05 of the Ohio Revised Code (Dated 11-1-79)

- Plate 1, Rainfall Intensity Chart
- ODNR Rainwater and Land Development Manual