

Chapter 15.52

STORMWATER MANAGEMENT

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The development of land in any zoning district in the city shall require stormwater management as provided in this chapter. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1 (part))

Section 15.52.020 Short title.

This chapter shall be known and may be cited as the stormwater management ordinance. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1(A))

Section 15.52.030 Plan required before development.

Any person, firm, corporation or other entity proposing to construct buildings or develop land within any zoning district of the city shall prepare, for approval by the city engineer, a stormwater management plan that describes the manner in which erosion, sediment and runoff resulting from the development will be controlled and managed. No building or construction permits shall be issued by the city and no final plat and no improvement plans for a real estate development in the city shall be approved by the city until the stormwater management plan has been approved by the city engineer as meeting the requirements of this chapter, or the requirement for such stormwater management plan has been waived by the city engineer. Downstream property owners, watercourses, channels or conduits shall not receive stormwater runoff from proposed upstream developments at a higher peak flow rate than would have resulted from the same storm event occurring over the site of the proposed development with the land in its natural, undeveloped conditions, nor shall stormwater runoff exceed the capacity of the natural drainage system. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1(B))

Section 15.52.040 On-site detention facilities required.

A. Stormwater runoff resulting from a proposed development shall be detained on-site:

1. By wet or dry bottom reservoirs;
2. By underground reservoirs;

3. On flat roofs, parking lots or streets, or
4. By other detention methods approved by the city engineer.
- B. For purposes of designing adequate on-site detention facilities, the Illinois State Water Survey rainfall data for this region shall be used. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1(C), (D))

Section 15.52.050 Detention facilities--General design features.

A. Detention Basins. Basins may be constructed to temporarily detain the stormwater runoff so that the rate at which it is released is the same rate as before development. The following features shall be incorporated into the design of any detention basin:

1. Storage Volume.
 - a. The volume of storage provided shall be sufficient to store flows both during and immediately after the maximum storm event which can be expected to occur once every ten and one hundred (100) years.
 - b. After the storage volume has been determined as required above, a one-foot freeboard shall be added to the dam height.
2. Outlet Control Works.
 - a. Outlet works shall be designed to limit peak outflow rates from detention storage areas to or below peak flow rates that would have occurred prior to the proposed development.
 - b. Outlet works shall not include any mechanical components or devices and shall function without requiring attendance or control during operation.
3. Spillway. Emergency spillways shall be provided to permit the safe passage of runoff generated from a one hundred (100) year storm.
4. Maximum Depth. The maximum planned depth of stormwaters stored shall not normally exceed four feet.
5. Side Slopes. The maximum side slopes for grassed basins shall not exceed one foot vertical for two feet horizontal (2:1 slope) for basins less than or equal to four feet deep; for basins greater than four feet deep the maximum side slope shall not exceed three to one (3:1).
6. Limits of Ponding. In no case shall the limits of maximum ponding be closer than thirty (30) feet horizontally from any building and less than two feet vertically below the lowest sill elevation.
7. Interior Drainage. The basin bottom should be designed to drain expeditiously. If the bottom is to be grass, it should have a minimum slope of one percent.
8. Low Flow Channel. Small flows through the detention basin should be handled by paved ditches from inflow structure to outflow structure to minimize erosion.
9. Multipurpose Basins. If the detention basin is to have other uses, the design of the basin bottom should include underdrains to expedite drying of the bottom between runoff events.
10. Aesthetics. Designs should result in aesthetically pleasing configurations which will enhance public acceptability.

B. Detention Ponds. Detention ponds may also be used to temporarily detain the differential runoff from the development. In addition to the general design features enumerated above for detention basins, the following features should also be incorporated into the design of any detention pond:

1. Normal Pool Depth. In order to minimize weed growth, the normal pool depth should be four feet.
2. Depth for Fish. If fish are to be kept in the pond, at least one-quarter of the area of the permanent pool should have a minimum depth of ten feet.
3. Facilities for Emptying. In order to ease cleaning of the pond or shoreline

maintenance, the pond design should include provisions for emptying the pond.

4. Low Flow By-Pass. The design of any pond may include a low flow by-pass channel or pipeline to divert runoff that can be accommodated by downstream drainageways.

5. Bank Stabilization. In order to minimize the effects of waves or ice, some type of bank stabilization such as rip-rap or concrete should be placed along the normal pool shoreline.

6. Side Slopes Below Normal Pool. The side slopes below the normal pool elevation may exceed the maximum side slope permitted above normal pool. The design shall, however, include provisions for a safety ledge having a depth of water not greater than three feet immediately adjacent to the shoreline.

C. Rooftop Storage. Detention storage may be met in total or in part by detention on roofs. Details of such design, which shall be included in the building permit application, shall include the depth, the volume of storage, details of outlet devices and downdrains, elevations of overflow scuppers, design loadings for the roof structure and emergency overflow provisions. Direct connection of roof drains to sanitary sewers is prohibited.

D. Parking Lot Storage. Paved parking lots may be designed to provide temporary detention storage of stormwater on all or a portion of their surfaces. Outlets will be designed so as to slowly empty the stored waters and depths of storage must be limited so as to prevent damage to parked vehicles.

E. Other Detention Methods. All or a portion of the detention storage may also be provided in underground or surface detention facilities, to include basins, tanks or swales, etc. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1(E))

Section 15.52.060 Detention facilities--Safety features.

Designs of detention facilities shall incorporate safety features, particularly at outlets, on steep slopes, and at any attractive nuisances to include, as necessary, fencing, hand rails, lighting, steps, grills, signs and other protective or warning devices so as to restrict access during critical periods and to afford some measure of safety to both authorized and unauthorized persons. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1(F))

Section 15.52.070 Applicability of provisions.

The provisions of this chapter shall be applicable in the following areas:

A. Any development in a residential or agricultural zoning district having a gross bulk aggregate area of five acres or more; and

B. Any development in a residential or agricultural zoning district in the city of less than five acres with a fifty (50) percent impervious surface including roads, buildings, utility rights-of-way and other improvements; and

C. Any development in any other zoning district in the city (including but not limited to commercial, commercial park, business park, industrial and historical zoning districts) having a gross bulk aggregate area of one acre or more. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1(G))

Section 15.52.080 Construction of facilities.

The stormwater detention facilities shall be built in conjunction with the storm sewer installation and be fully operational after the clearing of vegetation.

A. Silt and debris connected with early construction shall be removed periodically from the detention area to maintain full storage capacity.

B. The maintenance responsibility of the detention area shall remain with the developer and/or contractor until final inspection and applicable construction performance guarantees are released.

C. Before final plat approval and before approval of subdivision improvement plans by the city, the developer shall submit his commitment for future maintenance responsibility of the detention area. The city may withhold final plat approval and approval of improvement plans unless adequate arrangements are made to provide for the future maintenance of the detention area by the developer or the property owners in the subdivision benefitted thereby. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1(H))

Section 15.52.090 Review by city engineer.

When applicable, the provisions of this chapter shall be reviewed by the city engineer to assure compliance. (Ord. 1320 § 1 (part), 1995: prior code § 5-7-1(I))