CHAPTER 162

STORM WATER RUNOFF CONTROL

162.01 PURPOSE.

The purpose of this chapter is to diminish threats to public health and safety caused by the runoff of excessive storm waters, reduce the possibilities of hydraulic overloading of the storm sewer system, reduce economic losses to individuals and the community at large, enhance broader social orderly development, and prevent victimizations and fraud. The provisions of this chapter further supplement:

1. Subdivision Regulations. The subdivision, layout, and improvement of lands located within the corporate limits of the City.

2. Excavating and Grading Regulations. The excavating, filling, and grading of lots and other parcels or areas.

3. Building Construction Regulations. The construction of buildings and the drainage of the sites on which those structures are located, to include parking and other paved areas.

4. Storm Water Drainage Systems. The design, construction, and maintenance of storm water drainage facilities and systems.

162.02 OTHER PERMITS.

Before starting any construction regulated by this chapter, an applicant shall comply with the requirements set forth in other applicable chapters of this Code of Ordinances with respect to the submission and approval of preliminary and final subdivision plats, improvement plans, building and zoning permits, inspections, appeals and similar matters, along with those set forth in this chapter and as may be required by State statutes and the regulations of any Department of the State of Iowa.

162.03 DEFINITIONS.

For the purposes of this chapter, the following definitions are adopted:

1. “Base flood elevation” means the elevation of delineating the flood level having a one-percent probability of being equaled or exceeded in any given year (also known as the 100-year flood), as determined from Flood Insurance Rate Maps (FIRMs) or the best available information.

2. “Capacity of a storm drainage facility” means the maximum capability of a storm drainage facility to convey storm water flows without causing damage to public or private property; and, in the case of a pipe, without surcharging.

3. “Channel” means a natural or manmade open watercourse with definite bed and banks which periodically or continuously contains moving water; or which forms a connecting link between two bodies of water.

4. “Compensatory storage” means an artificially excavated volume of storage within a floodplain used to balance the loss of natural flood storage capacity when artificial fill or structures are placed within the floodplain.

5. “Conduit” means any channel, pipe, sewer, or culvert used for the conveyance or movement of water, whether open or closed.

6. “Design standards for public improvements” means standards formally adopted by the City to which all designs, and the resulting public improvements, must conform.

7. “Detention basin” means a facility constructed or modified to restrict the flow of storm water to a prescribed maximum rate, and to concurrently detain the excess waters that accumulate behind the outlet.

8. “Detention storage” means the temporary detaining or storage of storm water in storage basin, on rooftops, in streets, parking lots, school yards, parks, open space, or other areas under predetermined and controlled conditions, with the rate of drainage therefrom regulated by appropriately installed devices.

9. “Development” means the change or improvement of any parcel of land for residential, commercial, industrial, institutional, recreational, or public utility purpose, said change or improvement to include but not be limited to erection of a new structure; expansion of an existing structure; construction of a new parking area; expansion of an existing parking area; or construction of a new access drive.

10. “Discharge” means the rate of outflow of water from any source.

11. “Drainage area” means the area from which water is carried off by a drainage system, i.e. a watershed or catchment area.

12. “Dry bottom detention basin” means a basin designed to be completely drained after having provided its planned detention of runoff during a storm event.

13. “Excess storm water runoff” means the volume and rate of flow of storm water discharged from an urbanized drainage area which is or will be in excess of that volume and rate which occurred before urbanization.

14. “Fifty-year, 24-hour storm” means a precipitation event of 24-hours’ duration, having a two percent chance of occurring in any one year.

15. “Floodplain” means the special flood hazard lands adjoining a watercourse, the surface elevation of which is lower than the base flood elevation and is subject to periodic inundation.

16. “Hydrograph” means a graph showing, for a stream or conduit, the runoff flowrate time.

17. “One hundred-year, 24-hour storm” means a precipitation event of 24-hours’ duration, having a one percent chance of occurring in any one year.

18. “Peak flow” means the maximum rate of flow of storm water at a given point in a channel or conduit resulting from a predetermined storm or flood.

19. “Retention basin” means a structure or feature designed to retain storm water over a period of time, with its release being positively controlled over a longer period of time than in a detention basin.

20. “SCS method” means a technique for calculating storm water runoff volume and peak flow described in Soil Conservation Service (SCS) Technical Release 55.

21. “Special use” means all conditional uses or accessory uses and any use not previously defined or contemplated in this chapter or in the Zoning Ordinance.

22. “Storm water drainage facility” means any element in a storm water drainage system which is made or improved by man.

23. “Storm water drainage system” means all means, natural or manmade, used for conducting storm water to, through, or from a drainage area to the point of final outlet, including (but not limited to) any of the following: open and closed conduits and appurtenant features, canals, channels, ditches, streams, swales, culverts, streets, and pumping stations.

24. “Storm water runoff” means the waters derived from precipitation within a tributary drainage area, flowing over the surface of the ground or collected in channels or conduits.

25. “Ten-year storm” means a precipitation event having a ten percent chance of occurring in any one year.

26. “Ten-year storm runoff” means the storm water runoff having a ten percent probability of occurring on any one year.

27. “Time of concentration” means the elapsed time for storm water to flow from the most distant point in a drainage area to the outlet or other predetermined point.

28. “Unprotected channel” means a channel which receives storm water discharge and which is not paved, rip-rapped, or otherwise improved by addition of manmade materials so as to reduce the potential for erosion.

29. “Urbanization” mean the development, change, or improvement of any parcel of land consisting of one or more lots for residential, commercial, industrial, institutional, recreational or public utility purposes.

30. “Water body” means any natural or artificial pond, lake, reservoir, or other area which ordinarily or intermittently contains water and which has a discernible shoreline.

31. “Watercourse” means any natural or artificial stream, river, creek, channel, ditch, canal, conduit, culvert, drain, waterway, gully, ravine, street, roadway, swale, or wash in which water flows in a definite direction, either continuously or intermittently, and which has a definite channel, bed, or banks.

32. “Wet bottom detention basin” means a basin designed to retain a permanent pool of storm water after having provided its planned detention of runoff during a storm event.

162.04 APPLICABILITY.

This chapter applies to any new development, subject to the following conditions:

1. Detention Storage Required. The City retains the right to require detention storage in all cases in which the proposed development will generate sufficient excess runoff from the design storm to adversely affect the carrying capacity of the receiving water body or water course.

2. One CFS/Acre Runoff. New developments generating less than one cubic foot per second (CFS)/acre runoff for the design storm shall not be required to provide detention storage, unless condition in subsection 1 is applicable.

162.05 DESIGN STORM EVENT.

Storage capacity of detention facilities and discharge rates therefrom shall be such that the runoff from the “after fully developed area” shall not exceed the rate of runoff generated by the development area prior to development during the five-year frequency storm. Storage capacity/volume shall be adequate to store the excess runoff generated by the fully developed area up to and including the 100-year rainfall event.

162.06 DETENTION OF EXCESS STORM WATER RUNOFF.

The increased storm water runoff resulting from the proposed development shall be detained by the provision of appropriate dry-bottom reservoir(s); by temporary storage on flat roofs, parking lots, or streets; or by other acceptable techniques. Capacity will be sufficient to control excess flows from the design storm.

162.07 DISCHARGE RATE.
Peak discharge rates from detention storage facilities shall not exceed the maximum pre-development peak discharge rate as calculated under Section 162.06.

162.08 DISCHARGE VELOCITY.
Detention facilities shall discharge storm water at a non-erosive velocity as measured in the unprotected channel. The non-erosive velocity shall be determined through consultation of appropriate handbooks and manuals; as approved by the City. Protected channels receiving detention discharge shall incorporate features to reduce velocity to non-erosive levels at the point such discharge enters the unprotected channel.

162.09 EMERGENCY SPILLWAY.
Emergency spillways shall be provided to permit the safe passage of runoff generated from rainfall events in excess of the 100-year rainfall event. Emergency spillways shall be designed on the assumption that the pipe outlet is discharging at full capacity for the spillway elevation.

162.10 FREEBOARD.
Detention storage areas shall have adequate capacity to contain the storage volume of tributary storm water runoff with at least one foot of freeboard above the water surface during the 100-year rainfall event. Top of spillway elevations shall be one foot below the freeboard elevation.

162.11 JOINT DEVELOPMENT OF CONTROL SYSTEMS.
Storm water control systems may be planned in coordination by two or more property owners as long as the potential for damage from storm water is not increased at intervening locations.

162.12 EARLY INSTALLATION OF CONTROL SYSTEMS.
Storm water control measures shall be installed as soon as possible during the course of site development. A schedule of construction shall be submitted by the owner(s)/developer(s) prior to initiation of construction to the City.

162.13 DETENTION FACILITIES IN FLOODPLAINS.
If detention storage is provided within a floodplain, only the net increase in storage volume above that which naturally existed on the floodplain shall be credited to the development. No credit will be granted for volumes below the base flood elevation at that location unless compensatory storage is also provided.

162.14 FLOWS FROM UPLAND AREAS.
The total drainage area must be used in calculating the allowable release rate. The required storage volume will be based on the project area only, with extraneous flows from upland areas being by-passed or discharged via overflow spillways or other devices.

162.15 PRELIMINARY AND FINAL PLAT REQUIREMENTS.
Accompanying the preliminary and final plats of each proposed subdivision or any applicable construction there shall be furnished information consistent with the requirements of the City's *Design Standards for Public Improvements*. All computations, plans, and specifications related to the implementation of this chapter must be prepared and sealed by a Professional Engineer registered in the State of Iowa.

162.16 DRAINAGE AND DETENTION DESIGN STANDARDS.
All subdivisions and other proposed improvements which fall under the applicability of requirements of Section 162.04 shall be required to incorporate design features in accordance with City Standards as defined in the Unified Development Code adopted by the City. Variation from these standards will be permitted only upon submittal of a petition describing in detail the rationale for the proposed design with subsequent review by the City Engineer and approval from the Council.

162.17 ROOFTOP, PARKING LOT, AND OTHER DETENTION STORAGE.
Designs for rooftop detention storage, parking lot storage, and detention storage in underground tanks, surface swales, oversized storm sewers, or other facilities shall be submitted to the City Engineer for approval.

162.18 CERTIFICATION AND MAINTENANCE.
Detention facilities must be designed in accordance with City Standards as defined in the Unified Development Code adopted by the City. The growth of obnoxious weeds, the creation of conditions which support the growth of mosquitoes and other insects, and the decrease in available storage by accumulated sediments shall all be controlled. The cleanup of accumulated debris, flotsam, and other materials after runoff events have subsided shall be assured. Assignment of responsibility for certifying and maintaining facilities serving more than one lot or property holding will be documented and recorded by appropriate covenants to property deeds unless responsibility is formally assigned to and accepted by a public body.

1. Certifications. The development owner (equitable titleholder) of a privately owned detention storage facility ("Facility") must file with the City Clerk a certification signed by a licensed Iowa professional engineer ("Certification"). The Certification must certify the Facility's current storage volume and release rate, as well as the storage volume and release rate for which the Facility was initially designed. A newly constructed Facility shall be certified at the completion of the construction of that Facility. For those Facilities located on a lot for which a certificate of occupancy is issued, the construction of that Facility shall be deemed completed when the first certificate of occupancy is issued for that lot.

2. Maintenance Responsibility. The development owner (equitable titleholder) shall be responsible for all future grading, repairs, and maintenance to the said storm drainage and storm water facilities subject to the following conditions:

A. That said development owner (equitable titleholder) shall protect, defend and hold the City, harmless from any and all damages or claims for damages that might arise or accrue as a result of flooding, erosion from flooding, deposits of sediment in said areas.

B. The development owner (equitable titleholder) shall to not place fill material, to erect no buildings, obstructions, or other improvements on the area reserved for private storm water purposes.

C. The development owner (equitable titleholder) shall provide a re-certification by a Licensed Iowa Professional Engineer, every subsequent five years. A facility that is exclusively constructed, located and maintained on a paved surface is exempt from the re-certification requirements of this chapter. The certification shall include the following:

(1) The storm water facility's storage volume, as approved by the City, has not decreased.

(2) The storm water facility's release rate, as approved by the City, has not increased.

3. Corrective Measures. If deficiencies are found by the inspector, the development owner (equitable titleholder) shall be required to take the necessary measures to eliminate nuisances and correct structural deficiencies within a reasonable amount of time. If the development owner (equitable titleholder) fails to do so, the City may cause the work to be completed and shall collect the cost therefore from the development owner (equitable titleholder) taking appropriate action as necessary.

162.19 SAFETY FEATURES.

Designs of detention facilities shall incorporate safety features; particularly at inlets, outlets, on steep slopes, and at any attractive nuisances. These features shall include, but not limited to, fencing, hand rails, lighting, steps, grills, signs, and other protective or warning devices.

162.20 ADMINISTRATION.

The administration of this chapter shall be the responsibility of the Building Official and the City Engineer.

1. Creation. The City of Hiawatha Storm Water Advisory Committee is hereby created.

2. Members. The Storm Water Advisory Committee will consist of at least three members. Members shall be residents of the City of Hiawatha and shall serve without compensation. Members will be qualified by knowledge or experience to act in matters pertaining to the development of storm water policies. Members shall not hold any elected office in City government.

3. Removal of Members. Members of the Storm Water Advisory Committee may be removed by the City Council for such cause as the City Council may determine necessary.

4. Duties. The Storm Water Advisory Committee will have such duties as set forth in this chapter or as prescribed by the City Council. Specifically the duties will include:

A. Develop and recommend storm water policies.

B. Advise City Council in regards to needed storm water capital improvement projects.

C. Review any public input regarding storm water drainage or erosion control.

D. Make such reports to the City Council as may be requested from time to time.

E. Recommend best management practices for development of storm water management and water quality.

5. Meetings. Meetings will be scheduled quarterly. All meetings are open to the public. Meetings may be cancelled if there are no agenda items.

162.21 VARIANCES.

No variance shall be issued without the review and recommendation of the Planning and Zoning Commission and approval of the Council.

162.22 SPECIAL USE PERMIT.

No special use permit shall be issued without the prior concurrence of the City Engineer and approval by the Council.

162.23 OFFICIAL MAPS AND PROFILES.

Responsibility for all changes to official maps and profiles is conferred to the City Engineer.

162.24 INTERPRETATION.

In the interpretation and application of this chapter, the provisions expressed herein shall be held to be the minimum requirements and shall be liberally construed in favor of the City; and shall not be deemed a limitation or repeal of any other powers granted by the *Code of Iowa*.