

## CHAPTER 168

## STORM WATER MANAGEMENT

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**168.01 PURPOSE.** It is the purpose of this Ordinance to establish policies to manage and control Storm Water Runoff occurring from new Development of residential, commercial, and industrial areas. The goal is to reduce peak runoff caused by Development of the land. This will result in cost savings to the overall storm sewer collection system by reducing the size of improvements required. In addition, increased public safety and sediment and erosion control are the expected benefits.

**168.02 DEFINITIONS.** Wherever used in this Ordinance and printed with an initial capital letter, the terms listed below will have the meanings indicated. Words using the present tense shall include the future; the singular shall include the plural; the plural shall always include the singular. The term ‘shall’ is always mandatory, and the term ‘may’ is permissive.

1. “Capacity (of a Storm Water Facility)” means the maximum volume or rate of conveyance available in a storm water management facility, including freeboard, to store or convey storm water without damage to public or private property.
2. “City” means the City of Cascade, Iowa.
3. “City Administrator” means the City Administrator of the City of Cascade, Iowa.
4. “City Council” means the City Council of the City of Cascade, Iowa.
5. “Civil Engineer” means a professional engineer licensed in the State of Iowa to practice in the field of civil works.
6. “Control Structure” means part of a Storm Water Management Facility designed to regulate the Storm Water Runoff Release Rate.
7. “Design Storm” means a storm with characteristics of the average storm for the desired Return Frequency.
8. “Detention Basin” means a Storm Water Management Facility designed, constructed or modified to provide short term storage of storm

water runoff, which reduces the peak outflow to a rate less than the peak inflow.

9. “Development” means the changing of land from its existing state or an area of land use change, usually involving the building of infrastructure, housing, commercial, and/or industrial structures.

10. “Developed Condition” means the hydraulic and hydrologic site characteristics that occur upon completion of a Development.

11. “Drainage Area” means an area of land contributing to Storm Water Runoff.

12. “Green Infrastructure” means natural drainage ways, wet lands, infiltration systems, open green space, etc.

13. “Green Space” that area in and around a development which is covered with grass, trees, shrubs, and other natural plantings that naturally absorbs storm water.

14. “Ordinance” means the portion of the City Municipal Code entitled ‘Storm Water Management Ordinance’.

15. “Overflow Path” means the path taken by storm water runoff as a result of flows exceeding the capacity of the underground drainage system or Detention Basin. The path may include streets, channels, drainage ways, or areas of sheet flows, and be located on public property or private property within an easement.

16. “Pre-developed Condition” means the hydraulic and hydrologic site characteristics that occur prior to a proposed Development, including natural storage areas, drainage ways, drainage tiles, and highway drainage structures.

17. “Regional Storm Water Management Facilities” means those facilities designed to handle Storm Water Runoff from several lots which may include the entire subdivision, or multiple subdivisions, and may include existing developed areas.

18. “Return Frequency” means the statistic parameter that defines the average occurrence time for a storm of a given magnitude.

19. “Site” means a lot, parcel, or tract of land, or portion thereof, where Development is occurring, or has occurred, and may, or may not, require additional permits.

20. “Site Plan” means an overall plan of the area to be developed including, but not limited to: proposed building location(s), proposed parking and drive locations, proposed utilities including storm sewer components and subsurface drain tile, proposed ground elevations with

drainage patterns highlighted, roof drainage outlet locations, other underground utilities, and property boundaries.

21. “Storm Sewer System” means facilities for the conveyance of Storm Water Runoff, a series of conduits and appurtenances, to accommodate frequent storms not generating large peak discharges. These facilities usually include conduits, street gutters, and swales.

22. “Storm Water Management Facilities” means a Detention Basin and the associated appurtenances to make the system functional.

23. “Storm Water Management Plan” means a Site Plan, certified by a Civil Engineer, including materials, construction phasing, grading activities, and methods used for mitigation of increased Storm Water Runoff from the Site.

24. “Storm Water Runoff” means the flow of water resulting from precipitation upon a surface area, not absorbed by the soil or plant material.

25. “Subdivision” means the division of land for the purpose of transfer of ownership or building development, whether immediate or future.

**168.03 AREAS REQUIRING STORM WATER MANAGEMENT PLAN.** A Storm Water Management Plan shall be required for the following:

1. All new residential, commercial, industrial developments and subdivision 4-acres in size and larger. Phased residential, commercial, and industrial developments whose combined total is 4-acres and larger. Residential, commercial, and industrial developments under 4-acres in size shall maintain a minimum of 20% green space.
2. In Developments where the natural drainage is divided into more than one watershed, the individual watershed Drainage Areas must meet the criteria mentioned above before storm water management is required.
3. Other Developments may be required to submit a Storm Water Management Plan at the discretion of the City Council. No subdivision or development plan will be approved unless adequate drainage will be provided to an appropriate storm sewer, drainage watercourse, or Storm Water Management Facility.
4. At the discretion of the City Council, a fee may be charged the developer in lieu of providing Storm Water Management Facilities. This may be utilized when the City is constructing a larger Regional Storm Water Management Facility to handle multiple existing or proposed Developments.

**168.04 STORM WATER MANAGEMENT REQUIREMENTS.** The Storm Water Management Plan shall include, but not be limited to, the following information:

1. Peak discharges for Pre-Developed and Developed conditions based upon the design storms.
2. Individual parameters used for determining discharges shall be listed.
3. Hydraulic capacity of storm sewer inlets, pipes, open channels, or other means of conveying water.
4. Green Space calculations to meet the 20% minimum requirement.
5. Detention Basin design with Capacity listed.
6. Control Structure/outlet design.
7. Review of existing or proposed downstream conveyance capacities.
8. The SCS TR-55 computerized runoff volume program or other technically proven method shall be utilized for runoff calculations.

**168.05 MANAGEMENT PLAN DESIGN REQUIREMENTS.** The design requirements of the Storm Water Management Plan shall include:

1. Developments requiring storm water management shall be required to detain the difference between the 10-year Pre-Developed storm and the 100-year Developed storm.
2. The maximum release rate for storms up to an expected Return Frequency of 100-years shall be the 10-year Pre-Developed storm. A safe overflow path shall be designed for storms exceeding the capacity of the Detention Basin.
3. Regional Storm Water Management Facilities are encouraged. Wet basins are also encouraged because they enhance water quality, add aesthetic value, and increase property value.
4. For residential developments, storm water detention is not allowed within any front or side yard setbacks required by zoning code, or within 25 feet from the estimated rear building line.
5. Dry-bottomed Detention Basins shall be oversized by 10% to help offset anticipated sedimentation. An alternative to oversizing, is the construction of a series of sediment trapping forebays in the basin with firm bottoms which allow routine remove of sediment.
6. Maximum side slopes of Detention Basins shall not exceed 3.5:1.
7. Provisions shall be made to keep the bottom of the Detention Basin dry unless a permanent pond or lake is being utilized for detention.

**168.06 SUBMISSION AND APPROVAL OF PLAN.** A Site Plan shall be a required attachment to a proposed Storm Water Management Plan, all of which is to be submitted to the City Administrator for review. The Storm Water Management Plan, including proposed storm water detention facilities, shall be reviewed and approved by the City Administrator (or those chosen by the City Administrator) prior to the issuance of any building permit for the proposed Development. The City may inspect the site at any time to determine compliance with this Ordinance. Upon determination that a site is not in compliance with this Ordinance, the City may issue a stop work order until compliance is achieved. The order shall describe the problem, specify a completion date, and indicate the penalties to be assessed for further noncompliance.

**168.07 OWNERSHIP BY CITY.** Regional Storm Water Management Facilities which are of sufficient size may be deeded to and be maintained by the City. The conditions for City ownership will be reviewed on a case by case basis. The City is under no obligation to accept ownership of the facility. If the City elects to obtain ownership of the facility, the property owner shall dedicate to the City any property on which public storm sewer Detention Basins will be located with a 50-foot perimeter to establish and maintain a vegetative buffer. Ingress-egress easements for maintenance of public facilities shall be provided prior to final approval.

**168.08 PRIVATE OWNERSHIP.** For sites on which privately owned storm water detention facilities are located, the property owner will be responsible for the following:

1. All future grading, repairs, and maintenance.
2. Maintenance of the minimum storm water detention Capacity, as originally designed.
3. Maintenance of the Detention Basin Control Structure(s) and discharge pipe(s) to insure the maximum theoretical design release rate is not increased.
4. The property owner shall not place fill material, or erect any buildings, obstructions, or other improvements on the area reserved for storm water detention purposes, unless approved in writing by the City.

**168.09 FURTHER REQUIREMENTS.** Compliance with this ordinance does not relieve the developer or property owner of other responsibilities relating to storm water discharge. This includes, but is not limited to NPDES storm water discharge permits regulated by Iowa department of natural resources, and other state of Iowa and federal requirements.