

**CHAPTER 626: Stormwater Management Guidelines for the Village of Wardsville**

**SECTION 626.010** The Board of Trustees of the Village of Wardsville adopts the following sections of the City of Jefferson, Missouri Code of Regulations, as revised December 31, 2001: Sections 31-5;31-6;31-7;31-8;31-11;31-13;31-14(A);31-15 and 31-16, and all sections relied upon therein. Any references therein to personnel positions not existing within the Village of Wardsville shall be deemed and interpreted to reflect the Village Engineer and/or Public Works Director. All sections are incorporated herein by reference said all development, construction, and other land disturbances undertaken in the Village of Wardsville for the date of this Section forward shall add up storm water management as contemplated in the sections adopted herein.

**SECTION 626.020** Any person found guilty of violating the provisions of this Section shall, upon conviction, be fined not more than five hundred dollars (\$500.00) and in addition shall pay all costs and expenses incurred in bringing any project affected into compliance with the terms hereof. Each day such violation continues shall be considered a separate offense Nothing herein contained shall prevent the Village of Wardsville, or other appropriate authority, from taking such other lawful action as is necessary to prevent or remedy any violations.

**SECTION 626.030** Definitions: Unless specifically defined below, words or phrases in this section shall be interpreted so as to give them the meaning they have in common usages and to give this section its most reasonable application:

City: The City of Jefferson, Missouri

Council: The city council of the City of Jefferson, Missouri

Design year storm: The selected or established frequency or return period of rainfall time-duration for which drainage facilities are to be designed.

Detention basin: Any man-made area which serves as a means of controlling and storing stormwater runoff.

Developer: A person directing or participating in the direction of improvements on and/or to land, including, but not limited to, the owner of the land, a general contractor or a commercial agent engaged for such activity.

Development: Any change of land use or improvement on any parcel of land.

Director: The Director of Community Development or a delegated representative

**Drainage basin (watersheds):** The catchment area from which stormwater is carried off by a watercourse or storm drainage system. The area served by a drainage system receiving storm and other surface-borne water. The boundaries of a drainage basin are a product of natural topography and drainage system configuration.

**Drainage Facility:** A man-made structure or natural watercourse for the conveyance of stormwater runoff. Examples are channels, pipes, ditches, wales, catch basins and street gutters.

**Dwelling unit:** One or more rooms in a dwelling occupied or intended to be occupied as separate living quarters by a single family as defined herein.

**Family:** One or more persons related by blood, marriage or adoption, occupying a dwelling unit as an individual housekeeping organization. A family may not include more than two (2) persons not related by blood, marriage or adoption.

**Impervious surface:** Surfaces on real property where infiltration of storm water into the earth has been virtually eliminated by the works of man.

**Improved Land:** Land having improvements that are impervious to , or alter the flow of, stormwater within the limits of a platted, or otherwise distinguished, parcel of land.

**Improvement:** A structure on or other alteration of land.

**Low-density residential:** Individually platted lots containing two (2) or fewer dwelling unit.

**Owner:** Any person, firm, association, syndicate, partnership, corporation, trust, or any other entity having legal title to, or a sufficient proprietary interest to legally transfer, real property. Proprietary interest shall include, but not be limited to, estate administration, trusteeship, guardianship and actions under a valid power of attorney. Proprietary interest shall not include an agency or a bare employment relation.

**Person:** A natural person, corporation, partnership or other entity.

**Storm drain:** An improved storm drain is a closed conduit or paved open ditch for conducting collected stormwater. An unimproved storm drain is an open ditch, natural or specifically constructed for conveying collected stormwater.

**Storm drainage design manual:** A city manual for use by land developers in the design of storm drainage systems such as storm drains, culverts, streets, gutter flow hydraulics, natural drainage swales and storm inlets. The Storm drainage design manual may include drainage policy to be followed, standard design methods, computation forms and city standards.

Stormwater drainage system: All drainage facilities used for collecting and conducting stormwater to, through and from drainage areas to the points of final outlets including, but not limited to, any and all of the following: Conduits an appurtenant features, canals, ditches, streams, gullies, flumes, culverts, streets, gutters and pump stations.

Stormwater management plan: A city master plan describing the development of, and facilities required for, the stormwater drainage system and additional improvements and actions necessary to the management of stormwater drainage, entitled “City of Jefferson, Missouri Stormwater Management Plan,” as approved by the council and from time to time amended.

Swale: A relatively wide, shallow ditch around or between structures used to carry stormwater runoff.

Unimproved land: Land in its natural state

Watercourse: A stream, usually flowing in a particular direction (though it need not flow continuously in a definite channel), having a bed or banks and usually discharging into some other stream or body of water.

#### **Sect. 626.040. Permit required**

- A. No stormwater drainage facility shall be constructed, altered or reconstructed without first obtaining a permit. All such construction shall comply with the general requirements and design procedures, as set forth in this chapter, and the criteria of the Storm Drainage Design Manual. Stormwater drainage facilities shall comport with the stormwater management plan. No clearing, grading, borrowing or filling of land shall be done without obtaining a permit from the director.
- B. No clearing, grading, borrowing or filling of land shall be done without obtaining a permit from the director. All such work shall comport with the stormwater management plan. No permit may be issued pursuant to this subsection for clearing, grading, borrowing or filling of land on tracts greater than five (5) acres except in conjunction with a building permit issued in accordance with the provision of Chapter 8 of the Code of the City of Jefferson, Missouri, or in conjunction with an approved site development plan under C-4, M-3 or PUD zoning. Every permit issued under this subsection for clearing, grading, borrowing or filling of land not in conjunction with a building permit shall expire within one (1) year from the date of issuance.
- C. The director shall promulgate rules and regulations governing the issuance of the permits required by this section.

#### **SECTION 626.050. Duties of property owners and developers; detailed plan required.**

- A. Prior to the issuance by the city of a building permit for any low-density residential construction, the staff of the Department of Community Development

and the department of planning and code enforcement shall visit the site and prepare the permit nothing any special conditions to be met for storm drainage. This shall be accomplished within three (3) working days after receipt of the application.

- B. Prior to the issuance by the city of a building permit for any other type of construction, the property owner, the developer or their agent shall have a detailed drainage plan approved by the director in accordance with this chapter. The property owner, developer or their agent shall, at this own expense, submit necessary plans, designs and specifications to the director for review and approval.
- C. Provisions of this section for plan requirement shall be waived provided no land is disturbed and no trees, shrubs, grass or vegetation is destroyed or removed for construction, reconstruction, repair or alteration of any building provided the improvement does not alter or increase the flow of water.

#### **SECTION 626.060. Inspection.**

The director or his designated representative may periodically inspect the development site. Through such periodic inspections the director shall ensure that the drainage plan is properly implemented and that the improvements are maintained by the developer or owner until such time if any maintenance is taken over by the city.

#### **SECTION 626.070. Easements and maintenance.**

Whenever improvements to land are made, easements for the stormwater drainage system shall be provided across private property. Easements through existing developments may be obtained as deemed necessary by the director. Drainage easements shall include access from a convenient public street. Maintenance of stormwater sewers, lined drainage channels, and related facilities located within public drainage easements shall be the responsibility of the city. The city may undertake all maintenance activities, deemed necessary by the director, of natural watercourses and other unlined drainage channels located within public drainage easements; however, assumption of such maintenance activities does not relieve the property owner of the responsibility for normal maintenance including debris removal, cutting vegetation, repair of erosion and removal of silt. Maintenance of stormwater facilities located on private property and not within any public drainage easements shall be the responsibility of the property owners and shall include debris removal and cleaning, cutting of vegetation, repair of erosion, removal of silt and maintenance of structural facilities.

#### **SECTION 626.080. General requirements.**

The following shall be complied with in any development:

- A. Stormwater. Stormwater shall be carried in enclosed storm conduits or open channels on the basis of criteria established in this section, subject to final

- determination and approval of the director. It shall be understood that the requirements outlined in these standards are only minimum requirements.
- B. Open Channels. Open channels shall be located in drainage easements designed to provide a fifty-year floodplain. The developer may be required to pave a channel if such paving is necessary to attain ultimate design capacity or to stabilize the embankments and channel flowline. If the channel extends between buildings, consideration must be given to provide adequate protective measures such as paving the channel invert and side slopes, bank protection or fencing. Open channels in residential areas shall generally be located along the rear or side lot lines.
  - C. Side line drainage. Storm drainage along the side lot lines of residential property for pipe sizes through twenty-four inch diameter shall be in conduit for the full length of the side lot line or the nearest natural drainage way of a larger tributary stream. Discharge protection shall be provided to minimize erosion and disperse flow.
    - 1. Storm drainage along the side lot lines of residential property for pipe sizes above twenty-four through forty-eight-inch diameter shall be in conduit to a point thirty (30) feet to the rear of the front building line or ten (10) feet beyond the rear line of the structure, whichever is greater. Extension of the system shall then be continued from this point the full length of the side lot line or to the nearest natural drainage way of a larger tributary stream with a stable ditch section.
    - 2. Storm drainage along the side lot line of residential property for pipe sizes above forty-eight-inch diameter shall be designed with a stable ditch section.
    - 3. In all instances, a surface swale shall be provided over the drainage system to contain at least a fifty (50)- year storm.
  - D. Under roadways. Where culverts are placed under roadways, they shall extend to the limits of right-of-way or the toe of the roadway embankment if that distance is greater, and proper hydraulic structures shall be provided for dissipation of velocity to prevent erosion. Embankments shall be protected by riprapping or some other approved method to prevent erosion against a fifty (50)- year frequency storm.
  - E. Future connections. Pipe drains or culverts constructed to intercept the flow of ditches or channels, which may be enclosed in a conduit at a future time, shall be laid at the required depth to permit their extension at the same required depth.
  - F. Intersections. Curb inlets shall be installed at or near intersections where they are deemed necessary for the safety of pedestrian and vehicular traffic. Curb inlets shall be placed so as to intercept the stormwater before it reaches the crosswalks and no curb inlet shall be located within a crosswalk. The above is particularly important in commercially zoned areas and other areas of high pedestrian traffic and is considered desirable in all other areas.
  - G. Drainage onto sidewalks. Tributary areas where sidewalks exist or are proposed, and which drain across a public sidewalk, must not exceed three thousand (3,000) square feet of impervious area, including roofs discharging upon paved areas, or nine thousand (9,000) square feet of sodded areas, or in proportional amounts for a combination of such areas. Paved, roofed or other impervious areas exceeding

three thousand (3,000) square feet shall be provided with drains for discharge into storm conduit, channels, or street gutters.

- H. Downspouts. Downspouts shall be connected to the drainage system when possible by a method approved by the director. Where no system exists they shall not be directed to adjacent lots or structures. They shall not be discharged directly onto sidewalks or entrance ways.
- I. Flow toward streets. Any concentration of surface flow in excess of two (2) cubic feet per second (cfs) for the ten (10)-year frequency rain shall be intercepted before reaching the street right-of-way and shall be carried by an enclosed storm drain to connect with a drainage structure at the low point in the street right-of-way or to discharge to a watercourse.
- J. Parking lots and garages. Adequate provisions shall be made for the disposal of stormwater from parking lots and garages. Plans shall be submitted for approval to the director to ensure measures are taken to limit the flow of water onto adjoining property or adjacent sidewalks or streets in a quantity that would be detrimental to or inconvenient to persons using the streets or sidewalks.
- K. Detention basins. Detention basins shall be designed using state-of-the-art methods acceptable to the director. Detention basins shall be designed by a registered professional engineer or architect, authorized to practice in the State of Missouri, who shall provide a statement as to the characteristics of the achieved stormwater flow restrictions. If the basin is to be owned, operated or maintained by the city, only a registered professional engineer authorized to practice in the State of Missouri shall design such a basin and he shall be required to affix his seal, set forth I section 31-7(d)(8), but substituting the word “detention basin” for the word “drainage design,” to such a design.
- L. Easements. The minimum width of easements for stormwater drainage shall be fifteen (15) feet. Where a storm drain consists of a closed conduit, the width shall be the greater of fifteen (15) feet or the sum of the conduit.

#### **SECTION 626.090. Plan requirements.**

Drainage plans shall include the following:

- A. A boundary survey for unplatted parcels by a licensed surveyor.
- B. Detail defining the alignment, boundary and acreage of any natural drainage course, drainage facility or sub drainage area on the land in question.
- C. Detail drawing of profiles and specifications for construction of channels, conduits, detention ponds, culverts, bridges and all other drainage facilities reasonable necessary to ensure that flood and stormwaters, including drainage from other lands which will contribute runoff to the subject property, will be adequately drained, stores or otherwise controlled. Included in the drainage plan shall be a schedule containing the estimated dates of completion of construction for all stormwater drainage facilities shown on the drainage plan. If the drainage plan is approved and the building permit issued, the applicant shall comply with said schedule.
- D. Specific plan details shall include the following:

1. Plan sizes shall be twenty-four (24) inch by thirty-six (36) or twenty-two (22) inch by thirty-four (34) inch plan and profile. Minimum horizontal scale of 1" = 50' and vertical scale of 1"=10'
2. The cover sheet key map of the entire project to scale 1"= 200', showing storm drains and facilities, both existing and to be constructed.
3. Plans and profiles of each storm drain, showing location, size, design flow, flowline elevations, gradients, and materials; boring information and rock elevations along the proposed storm drain anywhere applicable; location, depths and sizes of adjacent or crossing wastewater lines and utilities; and special construction requirements such concrete cradle or encasement, backfill, size and class of pipe, etc.
4. All elevations shall be based upon USGS datum with location noted of bench mark used.
5. Typical cross-sections of swales, ditches, or channels.
6. Details of special structures, culverts transitions, headwalls, aprons and junction chambers, all adequately detailed and dimensioned including placement of steel. Unless otherwise indicated, standard city structures are assumed where applicable.
7. For all detention basin, if any, a plot of storage volumes with corresponding water surface elevations and of the basin outflow rates for those water surface elevations.
8. The cover sheet shall contain the following certified statement by a registered professional engineer or architect.

I, a (registered professional engineer) (registered architect) authorized to practice in the State of Missouri, hereby certify that this plan for the drainage design of \_\_\_\_\_ was prepared by me or under my direct supervision in accordance with provisions of the Stormwater Drainage Design Manual for the owners thereof and I have hereto affixed my seal.

- E. A drainage area map showing topography shall be furnished for the development. For low-density residential development, this shall be in conformance with platting procedures. For any other development a drainage area map showing topography shall be furnished for the development. The scale of such maps to be as follows:

<u>Acreage</u>	<u>Horizontal scale</u>	<u>Contour interval</u>
0-10		1"=50'
Over 10	1"=100'	

- F. Design. The following basic design criteria shall be included:
1. Frequency of rainfall
  2. Percentage of imperviousness
  3. Runoff for drainage area.
  4. Time of concentration.

- 5. Loadings.
- 6. Other pertinent design criteria
- G. Design computations. The engineer or architect shall have detailed design computations available to support his design and shall submit them to, or review them with, the director.
- H. Drainage plans for property to be owned, operated or maintained by the city shall only be designed by a registered professional engineer who shall affix his seal to the plan as required by subsection (d) of this section

**SECTION 626.100. Design procedures.**

- A. The design procedures stipulated in the latest edition of the Storm Drainage Design Manual shall be followed insofar as they are applicable. Written justification for all deviations must be prepared and submitted in accordance with the variances procedures set forth in this chapter.
- B. All drainage plans shall meet the design requirements of any city ordinance regulating floodwater control and subdivision of land.

**SECTION 626.150. Construction requirements.**

- A. Location of structures. In addition to any other requirements set forth by ordinance for construction in designated flood hazard areas, the following restrictions for construction adjacent to all watercourses and other drainage facilities shall apply:
  - 1. NO house or building and no other structure which is not floodproofed shall be constructed within thirty(30) feet of the top of the bank of a watercourse or other drainage facility nor shall any such structure be constructed with openings at an elevation below four (4) feet above the highest bank of a watercourse or top of other drainage facilities which traverse or are adjacent to the parcel being developed.
  - 2. The director may vary the above requirements upon visiting the building site for low-density residential construction or reviewing plans for any other construction should such revisions not diminish the overall intent of this chapter.
- B. Existing storm drains. No cuts shall be made nor fill deposited over existing storm drains nor shall existing storm rains be altered without the approval of the director.

**SECTION 626.200. Developments.**

- A. Conformance with stormwater management plan. Drainage plans submitted by developers must be developed in conformance with the stormwater management plan in effect at the time of the submission.
- B. Restriction of runoff. The city may require that storm drainage systems for tributary area upstream of existing storm drainage facilities include on-site stormwater detention facilities limiting the peak discharge to that which would have occurred for the existing land use type prior to a zoning change or prior to



- development of the area. The city may waive such requirements for detention facilities when the developer makes satisfactory arrangements to improve or provide a downstream drainage system of adequate hydraulic capacity for peak rates of discharge to the system, including discharge from the developer's site, to a point downstream where the rate of total runoff from the site is ten (10) percent or less of the less of the total runoff rate conveyed by the downstream system measured at the time of system peak rate. The city may, at its option, also permit downstream system improvements and detention combinations that provide the same level of control.
- C. Stormwater management plan facilities. Drainage plans and facilities constructed by developers for developments encompassing more than forty-three thousand five hundred sixty (43,560) square feet in total area including areas not directly subject to improvements, must include any improvements not previously constructed, which are planned as part of the stormwater drainage system on the affected property pursuant to the stormwater management plan. For purposes of this paragraph, the stormwater management plan in effect at the time of submission of the drainage plan shall govern. Also for purposes of this paragraph, the affected property shall include any adjacent property under common ownership with, and within one hundred (100) feet of the limits of, the parcel of property being developed. Were the cost of such stormwater-related improvements exceeds ten (10) percent of the total cost of the development, excluding the cost of land , the developer may petition for city participation in financing and/or contribution to the funding of the improvements.
- D. Alternative improvements. In reviewing petitions for variances from the requirements of this section, the city with consider alternative improvements or types of improvements proposed by developers which the city deems to be equivalent for the purpose of stormwater management.

**SECTION 626.250. Interference and damage.**

No person shall damage or discharge or place any substance into the drainage system which will or may cause obstruction to flow or other interference with the operation of the stormwater drainage system. Any person violating this section or damaging the stormwater drainage system shall be liable to the city for all expense, loss or damage incurred by the city due to such violation or damage, in addition to any other penalties set forth herein.

**SECTION 626.300. Remedial work.**

If it is determined that development is not proceeding in accordance with the approved drainage plan, the director shall issue a written stop-work order to the developer detailing the nature and location of the noncompliance and specifying what remedial work is necessary to bring the project into compliance. The developer shall immediately stop work on all aspects of the development except the required remedial action, which shall begin. The developer shall complete the remedial work within a reasonable time after receipt of said order. Upon satisfactory completion of the remedial work, the director shall issue a notice of compliance and the development may proceed.

### **SECTION 626.350. Variances.**

A. General provisions. Where undue hardships or practical difficulties may result from strict compliance with this chapter, the developer may petition for a variance. The director may recommend, and the council may approve, variances so that substantial justice may be done and the public interest secured; provided, that any such variance shall not have the effect of nullifying the intent and purpose of this chapter; and further provided, that the council shall not grant variances unless they find and determine that:

1. The granting of the variance will not be detrimental to the public safety, health or welfare, or injurious to other property or improvements.

2. The conditions upon which the request for a variance is based are unique to the property for which the variance is sought, are not applicable generally to other property and are not self-imposed.

3. Because of the particular physical surroundings, shape or topographical conditions of the specific property involved, a particular hardship to the owner would result, as distinguished from a more inconvenience, if this chapter was strictly interpreted and carried out.

B. Conditions. In recommending variances and exceptions, the director may recommend and the council may require such conditions as will, in the judgment of each, secure substantially the objectives of the standards or requirements of this chapter.

C. Procedures. A petition for a variance shall be submitted at the time of filing for a preliminary plat or for application for building permit. The petition shall state fully the grounds for the request and all facts relied upon by the practitioner.

### **SECTION 626.400. Enforcement, violations, penalties.**

A. Administering agency. The provisions of this chapter shall be administered and enforced by the director. The director shall prescribe forms for attainment of the purposes of this chapter and of the proper enforcement thereof. The director may delegate the administration of this chapter, or any part thereof, subject to limitations of the ordinances of the city, to duly qualified employees, deputies or agents of the city.

B. Violations and penalties. Any person found guilty of violating the provisions of this chapter shall upon conviction be fined not more than five hundred dollars (\$500.00) and in addition shall pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the City of Jefferson, Missouri, or other appropriate authority, from taking such other lawful actions as is necessary to prevent or remedy any violation.

### **SECTION 626.450. Limitations on liability.**

Floods from stormwater runoff may occur which exceed the capacity of stormwater drainage facilities constructed and maintained under this chapter. This chapter does not guarantee that property will always be free from stormwater flooding or flood damage. This chapter shall not create a liability on the part of, or cause of action against, the city or any officer or employee thereof for any flood damage. Neither does this chapter purport to reduce the need or the necessity for obtaining flood insurance.

**SECTION 626.500. Conditions, interpretation, conflict.**

A. Conditions. Regulation of stormwater drainage and the attachment of reasonable conditions thereto is an exercise of the valid police power delegated by the State of Missouri to the city. Property owners have the duty of compliance with reasonable policies, regulations, standards and conditions established by the city for design, constructions, improvement and restrictive use of the land so as to conform to the physical and economical development of the city, and to promote the health, safety and general welfare of the community at large.

B. Interpretation. The provisions of this chapter shall be the minimum requirements for the protection of the public health, safety and general welfare.

C. Conflict. Conflict with public and private provisions:

1. Public Provisions. Where any provision of this chapter imposes restrictions different from those imposed by any other law or regulation, whichever is more restrictive or imposes a higher standard shall control.

2. Private Provisions. This chapter is not intended to abrogate any easement, covenant, or any other private agreement or restrictions; provided, that where the provisions of this chapter are more restrictive or impose higher standards or regulations that such easement, covenant, or other private agreement or restriction, the requirements of this chapter shall govern.

(Source: Ord. No. 145)