

BILL NO. 1637

ORDINANCE NO. 1272-23-07

**AN ORDINANCE AMENDING TITLE IV, ZONING CODE, CREATING A NEW  
CHAPTER 430- STORMWATER RUNOFF MANAGEMENT**

WHEREAS, it is the policy of the city to protect and promote the public health, safety and general welfare. The management of stormwater will reduce the possibility of damage to public and private property, will reduce the erosion on land and creek channels, will assist in the attainment and maintenance of water quality standards, and will preserve and enhance the environmental quality of the watercourses in the city.

AND WHEREAS, after review, the City Council has determined that it is necessary and appropriate to further such goals to amend Title IV of the Zoning Code by creating a new Chapter 430 – Stormwater Runoff Management.

NOW THEREFORE, Be it Ordained by the City Council of the City of Palmyra:

**Section 1.** That the ordinances of the City of Palmyra are hereby amended to include a new Title IV, Chapter 430 – Stormwater Runoff Management.

**Section 2.** That said Chapter 430 is hereby enacted as follows:

**Chapter 430 - Stormwater Runoff Management**

**Sec. 430.010 - Purpose**

(a) It is the policy of the city to protect and promote the public health, safety and general welfare. The management of stormwater will reduce the possibility of damage to public and private property, will reduce the erosion on land and creek channels, will assist in the attainment and maintenance of water quality standards, and will preserve and enhance the environmental quality of the watercourses in the city.

(b) Stormwater management must be performed on a watershed basis. A stormwater management plan for each watershed shall be prepared.

**Sec. 430.020 - Administration, interpretation of article**

(a) The administration of this article shall be the responsibility of the city engineer, and/or the building inspector.

(b) In the interpretation and application of this article, the provisions expressed herein shall be held to be the minimum requirements, shall be liberally construed in favor of the city and shall not be deemed a limitation or repeal of any other powers granted by state statutes.

**Sec. 430.030 - Definitions**

For the purposes of this article, certain terms shall be used, interpreted and defined as set forth in this section. Unless the context clearly indicates to the contrary, terms used in the present tense include the future tense; terms used in the singular shall include the plural, and vice versa; the term, "these regulations" means "this article," and the term "shall" is always mandatory:

*10-year storm* means rainstorms of varying duration and intensities having a ten percent probability of being equaled or exceeded in any given year.

*25-year storm* means rainstorms of varying duration and intensities having a four percent probability of being equaled or exceeded in any given year.

*100-year storm* means rainstorms of varying duration and intensity having a one percent probability of being equaled or exceeded in any given year.

*Administrative officer* means the city engineer and/or the building inspector or his designated representative.

*Adverse impact* means any modifications, alterations, or effects on a feature or characteristic of surface waters, including its quality, quantity, hydrodynamics, surface area, species composition, living resources, aesthetics or usefulness for human or natural uses which are or may potentially be harmful or injurious to human health, welfare, safety or property, to biological productivity, diversity, or stability, or which unreasonably interferes with the enjoyment of life or property, including outdoor recreation. The term "adverse impact" includes secondary and cumulative, as well as direct impacts.

*Applicant* means the record owner, or his authorized representative, of a tract of land that is the site of development, or development activity within the scope of this article.

*Base flood* means the flood having a one percent probability of being equaled or exceeded in any given year (i.e., the 100-year flood).

*Bond* means any form of security for the completion and performance of a stormwater management plan or the maintenance of drainage improvements in an amount and form satisfactory to the city council.

*Detention basin* means any manmade area which serves as a means of controlling and temporarily storing stormwater runoff.

*Detention storage* means the temporary detaining or storage of stormwater in reservoirs, on rooftops, on parking lots and other areas under predetermined conditions.

*Development* means any change of land use or improvement on any parcel of land.

*Differential runoff* means the difference between the calculated volume or rate of stormwater

runoff discharged from a site after development, and the calculated volume and rate of stormwater runoff discharged from a site prior to development.

*Dry bottom basin* means a facility designed for the temporary storage of stormwater runoff.

*Forebay* means a device to trap silt before it enters a detention pond.

*Freeboard* means the difference in elevation between the top of the detention basin dam and the design surface water elevation.

*Greenway* means sodded or green area designed to carry stormwater flow.

*Maintenance* means the act of maintaining or preserving, including, but not limited to, operation, construction and reconstruction.

*Overflow elevation* means design elevation of discharge structure at which point, or above which point, water leaks out, or bleeds out through a control device down to the control elevation.

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

*Post-development conditions* means those conditions which are expected to exist or do exist after alteration, resulting from human activity, of the natural topography, vegetation and rate, volume or direction of surface or subsurface flow.

*Predevelopment conditions* means those conditions which existed at the time the ordinance from which this article is derived becomes effective in terms of topography, vegetation and rate, volume or direction of surface or subsurface flow, as indicated by the best available historical data.

*Primary drainage (water management) systems* means and includes major waterways and appurtenant structures or systems whose total tributary area from origin to outfall exceeds or equals 50 acres.

*Professional engineer* means an engineer duly registered or otherwise authorized by the state to practice engineering.

*Rational method* means an empirical formula for calculating peak rates of runoff resulting from rainfall.

*Receiving bodies of water* means any water body or stream into which surface waters flow.

*Secondary drainage (water management) systems* means and includes minor waterways and appurtenant structures or systems whose total tributary area from origin to outfall is less than 50 acres.

*Site* means the area to be developed or altered.

*Site plan* means the plan, usually in map form, prepared pursuant to the city council's zoning, subdivision, building regulations and codes.

*Soil conservation service* method means a technique for calculating stormwater runoff volume and peak flow described in Soil Conservation Service (SCS) Technical Release 55.

*Stormwater management plan* means the drawings, computations, data, reports, etc., that identify how stormwater runoff is to be handled.

*Stormwater management system* includes all means, natural or manmade, used for conducting stormwater runoff to, through or from a drainage area to the point of outlet.

*Stormwater runoff* means water that results from precipitation, which is not absorbed by the soil, evaporated into the atmosphere or entrapped by ground surface depressions and vegetation.

*Structure* means any object constructed above or below ground.

*Swale* means a low-lying stretch of land either natural or manmade.

*Time of concentration* means the elapsed time for stormwater to flow from the most distant point in a drainage basin to the outlet or point in question.

*Tributary area* means all of the area that contributes stormwater runoff to a given point.

*Watercourse* means any natural or artificial stream, river, creek, channel, slough, gulch, ditch, canal, culvert, drain, waterway, gully, ravine, street roadway, reservoir, lake, pond, or natural or manmade drainageway; the swale or wash in which water flows, either continuously or intermittently, and which has a definite channel, bed or banks.

*Wet-bottom basin* means a detention basin intended to have a permanent pool.

#### **Sec. 430.040 - Applicability**

(a) Any person, business or government entity within the municipality shall submit a site plan and stormwater management plan for the development to the administrative officer for approval a stormwater management plan before commencing any development or development activity in any existing or proposed plat. Preliminary stormwater management plans shall accompany any preliminary plats. Owners of individual residential property for which a residence is being constructed on that property are exempt from the stormwater management plan requirement.

(b) Written notice of intent to commence development shall be delivered to the administrative officer prior to undertaking any development activity, whether exempt from plan provisions or not.

#### **Sec. 430.050 - Stormwater management required for all development**



Every development or alteration of land for a subdivision, commercial or industrial development, shall provide on-site stormwater management unless the City Engineer waives such requirement for the following reasons stated:

- (1) *Off-site facility, two or more developments.* If two or more developments, including that of the applicant, have provided for a common system.
- (2) *Contribution or participation by applicant.* If an off-site stormwater management system has been either constructed or identified for construction by the city, and the applicant has agreed to contribute to or participate in the construction thereof.
- (3) *Other management techniques.* Management techniques other than detention facilities may be utilized by the developer, provided that the techniques proposed meet the intent of this article and provide a benefit to the watershed that equals or exceeds the benefit that a detention facility would provide. These may include wetlands, rain gardens, bio-swales, and other environmentally friendly or natural means of stormwater management.
- (4) Drainage provisions for the project were previously approved and remain valid as a part of a final plat.
- (5) Isolated lots of record for single-family and two-family dwelling purposes unless the development involves changing in any way existing drainage facilities, degrades the quality of water, adversely affects any wetland or adversely affects any sinkhole, watercourse or water body.
- (6) Building construction which will not increase the amount of impervious area on the site and will not adversely impact an existing drainage area or drainage on adjoining properties.

Any request for waiver of the stormwater management requirements must be made in writing to the city engineer with justification of why the waiver is requested and how stormwater drainage will not be adversely affected. Only the planning and zoning commission may waive the stormwater management requirement.

**Sec. 430.060 - Stormwater management plan requirements**

- (a) The purpose of the stormwater management plan is to provide an organized framework for evaluating and acting upon proposals for development as they relate to stormwater management issues.
- (b) The stormwater management plan shall be prepared for each phase of the proposed project as each phase is developed.
- (c) It is the responsibility of an applicant to include sufficient information in the stormwater management plan to enable evaluation of the environmental quality of the affected area, the potential and predicted impacts of the proposed activity on affected waters and the effectiveness and acceptability of the measures proposed by the applicant

for preventing or reducing adverse impacts of stormwater runoff following the rainstorms which exceed the maximum allowable release rate and the capacity of the stormwater drainage system.

(d) The applicant shall furnish the administrative officer with two hard copies and one electronic copy of the stormwater management plan sealed by a professional engineer registered in the state. The plan shall include the following information:

(1) Preface information. The plan shall include as a preface the following information:

- a. The name, address, and telephone number of the applicant, and the owner, if different from the applicant.
- b. Name and address of the professional engineer.
- c. The legal description of the property and its acreage.

(2) Predevelopment site information. The plan shall also include maps at a minimum scale of one-inch equals 100 feet and other descriptive materials including the basis of computation, showing the following required predevelopment site information:

- a. Detailed location sketch showing the parcel and major adjacent roads.
- b. Topographic map of the site with maximum five feet contour intervals, except in floodplains or other areas of low relief where a smaller interval may be required.
- c. Where percolation or exfiltration systems are proposed, information as to the location and type of vegetative cover and soil types and characteristics representative of the design condition.
- d. Location of streams and other floodwater runoff channels, normal channels and the extent of the floodplains at the established high-water elevations, and the limits of the floodway.
- e. Location of lakes, ponds, swamps and detention basins indicating normal shorelines, floodplains and lines of inflow and outflow.
- f. Location of farm drains, inlets and outfalls, storm sanitary and combined sewers and outfalls, septic tank systems and outlets, if any, and seeps, springs and flowing and other wells.
- g. Location and description of nearby existing offsite water management facilities such as wells, lakes, drainageways, etc., which are potentially

directly affected by the proposed construction or development.

h. Concepts which will be considered within the site to handle all stormwater runoff, including the methods for detention or control of increased stormwater runoff generated by the development.

i. A general plan showing the extent and nature of the stormwater system planned to serve the site including preliminary calculations indicating the runoff which must be handled by such systems, the methods and criteria which have been utilized in calculating such runoff, and basic information regarding the receiving watercourse into which such system will discharge.

j. A general plan indicating the exterior perimeter of the site, the general development proposed for the project, and an indication by means of rough contours showing the terrain after grading of the site.

(3) For all existing drainage facilities which are to be maintained, altered, or enlarged as part of the stormwater management system. Provide information as to its size, slopes, depths, outfalls, receiving waters, elevations, cross sections, profiles, construction materials and other design details as applicable.

(4) Location of all new drainage facilities, including detention basins, to be constructed. Provide design details on each facility as applicable.

(5) Location and extent of existing and proposed impervious surfaces, roads, parking lots, buildings, etc., and their elevations. Provide grading and paving plans and specifications.

(6) Predevelopment and Post-development location of 100-year flood boundary, if applicable.

(7) Location and extent of rights-of-way and easements for the stormwater management system, including all areas to be dedicated for water management purposes. Rights-of-way and easements must be recorded and evidence provided by the developer to the Department of Public Works.

(8) Identification and description of any special or required maintenance procedures to keep the project functioning as designed.

(9) Provide stormwater management system design calculations as follows:

a. Design storms used.

b. Calculated hydrographs of inflow and outflow of design storms runoff for the project site under natural and undeveloped conditions.

c. Hydrographs of the runoff from the design storm for the project site under developed conditions.

d. For all detention basins, a plot or tabulation of storage volumes with corresponding water surface elevations and of the basin outflow rates for those water surface elevations.

e. Acreages and percentage of property proposed as:

1. Impervious surface;
2. Pervious surfaces, green areas;
3. Lakes, canals, detention areas, etc.;
4. Total acreage of project.

f. Runoff routing calculation showing discharge, elevations and volumes retained and/or detained during applicable storm event.

g. Calculation required for determination of minimum building floor and road elevations.

(10) Identify the entity responsible for operation and maintenance of the system.

(11) Basic information regarding the receiving watercourse into which the proposed stormwater system will discharge including the watercourse location, general cross section, existing downstream culverts and bridges and other waterway openings within a reasonable distance; any existing detention basins or lakes and other information required to determine, in final form, the effect which the proposed development will have on downstream drainage conditions.

(12) The stormwater management plan for minor development activities may consist of a certification from a professional engineer that the differential runoff equals zero.

(e) Stormwater management plans shall be reviewed by the city engineer. If it is determined that the proposed development will provide control of stormwater runoff in accordance with the purposes, design criteria and performance standards of these regulations and will not be detrimental to the public health, safety and general welfare, the city engineer shall approve the plan setting forth the conditions thereof. If it is determined that the proposed development will not control stormwater runoff in accordance with these regulations, the city engineer shall disapprove the stormwater management plan, and the plan shall be returned to the applicant for resubmittal.

**Sec. 430.070 - Project classification and fees**

(a) For purposes of evaluation, projects will be classified in three categories according to acreage:

| <b>Class</b>             | <b>Review Fee</b> |
|--------------------------|-------------------|
| A. Less than 25 acres    | \$100.00          |
| B. 25 acres to 200 acres | \$200.00          |
| C. Over 200 acres        | \$400.00          |

(b) The effective acreage for a project is not limited to a fractional part of the total concept, rather if a project is developed in phases or small plots, the total acreage of the conceptual project will be considered.

(c) The review fee shall be collected at the time the preliminary stormwater management plan is submitted to the administrative officer and will reflect the cost of the review process. These fees may be adjusted from time to time by the city council to reflect actual costs of administration and review.

**Sec. 430.080 - General design requirements**

(a) A stormwater management system shall be laid out in such a manner as to reduce the velocity of overland flow and allow the maximum opportunity for infiltration of stormwater into the ground, and to preserve and utilize natural streams, channels and detention basins, and wherever possible, to include streams and floodplains within parks or other public grounds.

(b) The maximum allowable release rate of stormwater after development shall not exceed the before-development rate based on a ten-year frequency storm. 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 bypassed or discharged via overflow spillway or other devices.

(c) The increased stormwater runoff resulting from the proposed development shall be detained onsite by appropriate detention techniques. The minimum volume of storage shall be sufficient to store the volume from a 25-year storm, under developed conditions. Control devices shall limit the discharge from storage to a rate no greater than the predevelopment rate. Downstream property, watercourses channels or conduits shall not receive stormwater runoff from proposed development at a higher peak flow rate than that which existed prior to the development for the ten-year frequency storm.

(d) Generally acceptable locations of the stormwater channels in the design of a subdivision may include, but are not limited to, the following:

- (1) Adjacent to roadways.

(2) In a depressed median of a double roadway, street or parkway, provided the median is wide enough to permit slopes of one-foot drop in six feet horizontal or flatter.

(3) Centered on the rear lot lines in block, or entirely within the rear yards of a single row of lots or parcels.

(e) Systems such as curb and gutter, drop inlets and storm sewers shall discharge through closed conduits, or paved ditches, into a detention basin or natural drainageway. Suitable methods of reducing velocities to limit erosion control shall be provided at the discharge of such enclosed conduits, or paved ditches.

(f) Drainage channels and swales forming the natural drainage system near a watershed divide may be relocated or eliminated and incorporated into the planned system of storm sewers and open channels.

(g) Flow toward streets. Any concentration of surface water flow in excess of two cubic feet-per-second (cfs) for the ten-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.

(h) Whenever the plans call for passage and/or storage of stormwater runoff along lot lines, the utility drainage easement shall be at least 20 feet wide and no structure or vegetation which would obstruct the flow of stormwater shall be allowed, nor shall any change be made to prescribed grades and contours of the specified stormwater channels. Easements must be written to prohibit buildings, fences, or other obstructions to be erected on them.

(i) All storm sewer outfalls shall be so designed, by reason of elevation of the invert, or by other features, that when the receiving stream is in full flood, the storm sewers continue to drain the areas they are designed to serve, unless the provision is made for sewer backups into planned storage locations.

(j) Detention facilities shall release stormwater at a nonerosive velocity. Calculations for the velocity and the erosion control feature's ability to handle the velocity without eroding soil shall be provided as part of the stormwater management plan submittal to the city engineer. Protected channels receiving detention discharge shall incorporate features to reduce velocity to nonerosive levels at the point where such discharge enters the unprotected channel. If release is into a subsurface conduit, the energy gradient in the receiving facility shall not be increased beyond the slope of the conduit.

(k) All utility sewer manholes constructed in an area designed for the storage or passage of stormwater, shall be provided with either a watertight manhole cover or be constructed with a rim elevation of a minimum of one foot above the high water elevation of the

design storm.

(l) Projects that are to be developed in phases will require the submission of a master plan of the applicant's contiguous land holdings. Applications for individual project phases may be considered only when the phases are totally independent of, or make sufficient provisions for, adjacent lands.

(m) Emergency spillway. Emergency overflow facilities must be provided in all instances so stored waters will not exceed the safe capacity of the basin. At a minimum, the emergency spillway must be able to pass, without damage, the 100-year storm.

(n) Designs should result in aesthetically pleasing configurations which will enhance public acceptability.

**Sec. 430.090 - Hydraulic design considerations**

(a) Design storms. Stormwater systems will be designed with sufficient hydraulic capacity as a minimum for the following frequencies and durations:

| Type of Facility Design  | Frequency |
|--|-----------|
| Detention Basins   | 25 years  |
| Primary drainage systems   | 25 years  |
| Bridges and culverts   | 50 years  |
| Secondary drainage systems (i.e., crossdrains and ditches for internal subdivision drainage) | 10 years  |

(b) The administrative officer may require alternative designs or features to reduce the cost of long-term maintenance.

(c) In critical areas, the administrative officer may require additional hydraulic capacity above the minimums set forth in subsection (a) of this section, up to the 100-year frequency design.

**Sec. 430.100 - Method of evaluation**

Differential runoff evaluation consists of the determination of required volume of detention and verification of adequacy of discharge and control structures.

(1) Differential runoff rates shall be evaluated by the rational formula. The runoff coefficients from U.S. Weather Bureau Technical Paper No. 40, or other similar published documentation, shall be used. The durations analyzed shall be the following:

a. The duration approximately equivalent to the time of concentration for the site, but as a minimum, 20 minutes.

b. One hour.

c. Twenty-four hours.

(2) Volumes of detention shall be evaluated according to the following methods:

a. Projects of less than 200 acres shall be evaluated by the rational method or SCS TR-55.

b. If the site is larger than 200 acres or if another method is desired to be used, the applicant shall submit a proposed method of evaluation for the calculations to the city engineer for review and approval.

**Sec. 430.110 - Detention basin design**

(a) Dry-detention facilities.

(1) Side slopes of the facility shall not be steeper than 3:1 (horizontal to vertical).

(2) Provisions must be incorporated to facilitate complete interior drainage to dry-bottom basins.

(3) Multipurpose features may be designed to serve secondary purposes for recreation, open space or other types of use which will not be adversely affected by occasional or intermittent flooding.

(4) In no case shall the limits of maximum ponding elevation be closer than 25 feet horizontally from any building and less than two feet vertically below the lowest sill elevation.

(5) The entire reservoir area shall be seeded, fertilized and mulched, sodded or paved.

(6) Small flows through the detention basin should be handled by lined ditches from inflow structure to outflow structure to minimize erosion.

(7) The maximum planned depth of stormwater stored shall not normally exceed five feet.

(8) A plan describing the operation and maintenance required for the detention basin shall be submitted with the detention basin design.

(b) Wet-detention facilities. In addition to the general design features enumerated in subsection (a) of this section for dry-bottom basins, the following features should also be incorporated into the design of any wet-bottom basin:

(1) Control elevations should be no higher than 2.5 feet below the minimum road



centerline elevation in the area served by the control device in order to protect the road subgrade when structures are constructed near roads.

(2) Side slopes shall not be steeper than a ratio of 3:1, horizontal to vertical, out to a depth of three feet below the control elevation, then as steep as soils stability will allow.

(3) If fish are to be used to help keep the basin clean, at least one-quarter of an area of the permanent pool must be a minimum depth of ten feet.

(4) For emergency purposes, cleaning or shoreline maintenance facilities shall be provided or plans prepared for the use of auxiliary equipment.

(5) In order to minimize weed growth, the normal pool depth shall be four feet minimum.

(6) The design of any pond may include a low flow bypass channel or pipeline to divert runoff that can be accommodated by downstream drainageways.

(7) In order to minimize the effects of waves or ice, some type of bank stabilization such as riprap or concrete shall be placed along the normal pool shoreline.

(8) In order to minimize siltation of the pond, a forebay shall be included in the design.

(9) A plan describing the operation and maintenance of the detention basin shall be submitted with the detention basin design.

(c) Impervious areas. Paved parking lots shall not be designed to provide detention storage of stormwater on all or a portion of its surfaces.

(d) Rooftop storage. Detention storage requirements may be met in total or in part by detention on flat roofs. Details of such designs to be included in the stormwater management plan shall include the depth and volume of storage, details of outlet devices and down drains, elevations of overflow scuppers, design loadings for the roof structure and emergency overflow provisions.

(e) Underground storage. All or a portion of the detention storage may also be provided for in underground facilities, as long as all applicable requirements of this article are met. Details of such designs are to include type of facility, depth and volume of storage, details of inlet and outlet devices and locations, emergency overflow provisions, measures to be used for surface and groundwater pollution control, and operation and maintenance plans.

(f) Design alternatives. The listing of design criteria outlined in this section is not

intended to preclude the use of other known state of the art methods and available best management practices and should not be construed as a mechanism to discourage innovative design concepts, so long as the intent and requirements of this chapter are met.

(g) Installation of stormwater runoff control measures. Positive stormwater runoff control shall be provided for during development. Stormwater management plans shall include a schedule for the installation, construction or modification of all drainage facilities. Erosion control measures and a schedule for their installation shall be shown on the stormwater management plan. Installation of drainage facilities and erosion control measures shall proceed as scheduled.

**Sec. 430.120 - Developments adjoining a floodplain**

Where a development adjoins or encompasses a portion of a floodplain for a 100-year flood, the following shall apply:

(1) The applicant shall show the floodplain and floodway on the stormwater management plan.

(2) The applicant shall include in the stormwater management plan, all other plans, plats, specifications, etc., required by federal, state, county and/or municipal law or regulations detailing such provisions or restrictions as are necessary to comply with the following:

a. All applicable zoning and subdivision requirements.

b. All applicable building code requirements.

c. All requirements of other federal, state or local agencies exercising jurisdiction over the area.

(3) The applicant shall not alter any channel in such a way that would prohibit any section of the channel from conveying, in its post-development state, the same amount of flow at the same or lower maximum water elevation that it conveyed in its predevelopment state.

(4) The applicant shall furnish, for the administrative officer's review and approval, the following information pertaining to proposed channel modifications or detention basins:

a. Typical cross sections of the existing and proposed channel.

b. Plan view of the channel showing the location of existing constrictions, obstructions and other nontypical areas.

c. Hydrographs and/or flood routing calculations and backwater curve profiles of the proposed waterway corresponding to a storm recurrence interval of 100 years.

d. Engineering evaluation of all potential increases in flood hazards to the

adjacent upstream or downstream private or public lands and facilities located thereon, showing provisions for eliminating any and all adverse impacts on said land and facilities at no public cost.

e. Minimum finished floor elevations which shall be set at or above the maximum water surface elevation as determined by either or both of the following:

1. The current flood insurance rate map published by the Federal Emergency Management Agency.
2. Backwater curve profiles of the proposed waterway due to a 100-year storm recurrence interval.

f. Designation on the final plan of all areas reserved for flood routing, detention or storage, together with the required wording pertaining to restrictions, dedications and maintenance responsibilities of such areas.

g. 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 elevation of the regulatory flood at that location unless compensatory storage is also provided.

h. Verification of adequacy. Analysis of all elements of design is to be verified by the engineer of record submitting the plan.

1. For all projects, regardless of size, submittal of routing calculation or tabulated proof of adequacy of tributary runoff for detention, including:

- (i) Volume of detention for the total project.
- (ii) Tributary (Q) peak runoff to basin.
- (iii) Balanced maximum outflow rate from the low-flow structure.
- (iv) Ratios of inflow to outflow rates.
- (v) Sizing of the overflow facilities.
- (vi) Stability of detention dikes.
- (vii) Safety features.
- (viii) Maintenance features.

**Sec. 430.130 - Rights-of-way and easements**

(a) All stormwater management facilities shall be constructed within an easement or right-of-way dedicated for stormwater management use and connected to a public road or other location from which operation and maintenance is legally available. Minimum right-of-way and maintenance easements shall be provided by instrument or plat dedication for all waterways used to convey or detain runoff. The minimum widths of rights-of-way and easements shall be as follows:

| Facility                          | Maintenance Access Width             |
|-----------------------------------|--------------------------------------|
| Open drainage channel or facility | 15 feet each side from top of bank   |
| Greenways                         | Width of greenway                    |
| Pipes and culverts                | 20 feet, centered                    |
| Detention areas                   | 20 feet continuous around total area |
| Connecting access                 | 20 feet                              |

(b) Easements must include the top of the bank width and the maintenance access width.

(c) The maintenance access width begins at the point of the bank or slope of the facility.

(d) Additional maintenance access width may be required by the administrative officer in special circumstances.

**Sec. 430.140 - Maintenance responsibilities for stormwater management facilities**

(a) Detention facilities, when mandatory, are to be built in conjunction with the storm sewer installation and/or grading. Since these facilities are intended to control increased runoff, they must be partially or fully operational soon after the clearing of the vegetation. Silt and debris connected with early construction shall be removed periodically from the detention area and control structure in order to maintain close to full storage capacity.

(b) The responsibility for maintenance of stormwater management facilities in single lot development projects shall remain with the owner, developer and general contractor until final inspection is performed and approved. After legal occupancy of the project, the maintenance shall be vested with the owner of the project.

(c) The responsibility for maintenance of stormwater management facilities shall remain with the developer until such time as responsibility is transferred, under appropriate legal arrangements, to the private individual owners or such other maintenance entity.

(d) The growth of noxious weeds, the creation of conditions which support the growth of mosquitoes and other insects, and the decrease in available storage by accumulated sediments shall be controlled. The cleanup of accumulated debris, flotsam and other materials after runoff events have subsided shall be ensured.

(e) All privately owned detention storage facilities will be inspected by the developer not less often than once every three years. A certified report will be submitted to the board of public works covering the physical conditions, required storage capacity and operational conditions of key elements of the facility.

(f) If deficiencies are found by the inspector, the owner of the detention facility will be required to take the necessary measures to eliminate nuisances and correct structural deficiencies. If the owner fails to do so, the city may undertake the work necessary and recover all expenses from the owner.

**Sec. 430.150 - Performance bond; escrow**

Upon approval of the final plans for any stormwater management system, but before the issuance of any permits, the city engineer shall require the applicant to post an acceptable form of performance security for the monetary value of the work to be done pursuant to the approved stormwater management plans. This performance security shall not be fully released by the city engineer until a final inspection has been made and the facility has been found to be in compliance with the approved plans, and provisions have been made to ensure perpetual maintenance in accordance with the operation and maintenance plan.

**Sec. 430.160 - Plan adherence**

The applicant shall be required to adhere strictly to the stormwater management plan as approved. Any changes or amendments to the plan must be approved by the administrative officer in accordance with the procedures set forth in this article for obtaining stormwater management plan approval. Enforcement officials shall be granted inspection rights and right-of-entry privileges in order to ensure compliance with the requirements of this article.

**Sec. 430.170 - Notice of violation; additional remedies**

(a) *Enforcement.* If it is determined that the project is not being carried out in accordance with an approved stormwater management plan, or is being carried out without approval, the administrative officer is authorized to do the following:

(1) *Written notice.* Issue written notice to the applicant or owner, specifying the nature and location of the alleged noncompliance, with a description of the remedial actions necessary to bring the project into compliance within ten days.

(2) *Stop work order.* Issue a stop work order directing the applicant or owner to cease and desist all or any portion of the work which violates the provisions of this article, if the remedial work identified in the written notice is not completed within the specified time.

(b) *Revocation of approval.* Should the applicant or owner not bring the project into compliance with the written notice and stop work order, he shall then be subject to immediate revocation of his stormwater management plan approval and to the penalties described in section 9-201.

(c) *Appeal.* Any notice, order or revocation issued pursuant to this section shall become final unless the person named therein requests, in writing, no later than ten days after the date such notice, order or revocation is served, a hearing before the planning and zoning commission.

**Sec. 430.180 - Violation; penalties**

(a) Violation of the provisions of this article or failure to comply with any of its requirements, including conditions and safeguards established in connection with variances or special use permits, shall constitute a misdemeanor. Any person who violates this article or fails to comply with any of its requirements shall upon conviction thereof, be fined not more than \$500.00 or imprisoned for not more than three months, or both, and in addition, shall pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense.

(b) Nothing herein contained shall prevent the city from taking such other lawful action as is necessary to prevent or remedy any violation. All such costs connected therewith shall accrue to the person responsible.

**Sec. 430.190 - Vested rights**

This article shall not in any way limit or modify the vested rights of any person to complete any development or improvements to lands based upon prior law, where a previous permit or authorization has been granted or applied for and where such previous permit or authorization remains in effect. The city may acknowledge vested rights in other circumstances where it is equitable and just.

**Sec. 430.200 - Conflict with other ordinances and codes**

In case of conflict with this article or any part thereof, and the whole or part of any other existing or future ordinance or code of the city, the most restrictive in each case shall apply.

**Sec. 430.210 - Compliance with other regulations required**

Before starting any work regulated by this article, an applicant shall comply with the requirements set forth in all other applicable ordinances with respect to the submission and approval of preliminary and final subdivision plats, site plans for construction and rezoning improvement plans, and building, grading, and zoning permits, along with those set forth in this article and as may be required by state statutes and the regulations of any department of the state.

**Sec. 430.220 - Disclaimer of liability**

The performance standards and design criteria set forth herein establish minimum requirements which must be implemented with good engineering practices and workmanship. Use of the requirements contained herein shall not constitute a representation, guarantee, or warranty of any kind by the municipality or its officers and employees of the adequacy or safety of any drainage management structure or use of land. Nor shall the approval of a stormwater management plan and the issuance of a permit imply that land uses permitted will be free from damages caused by stormwater runoff. The degree of protection required by these regulations is considered reasonable for regulatory purposes and is based on historical records, engineering and scientific

methods of study. Larger storms may occur or stormwater runoff heights may be increased by manmade or natural causes. Enforcement of these provisions, therefore, shall not create liability on the part of the municipality or any officer of the municipality with respect to any legislative or administrative decision lawfully made hereunder, nor shall compliance relieve an owner, developer, and/or permittee from responsibility under any circumstances where liability would otherwise exist.

**Section 3.** It hereby is declared to be the intention of the City Council that each and every part, portion and sub-portion of this Ordinance shall be separate and severable from each and every other part, portion or sub-portion hereof and that the City Council intends to adopt each said part, portion or sub-portion separately and independently of any other part, portion or sub-portion. In the event that any part of this Ordinance shall be determined to be or to have been unlawful or unconstitutional, the remaining parts, portions and sub-portions shall be and remain in full force and effect.

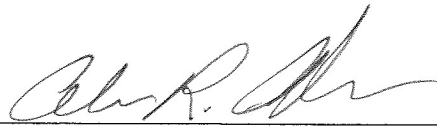
**Section 4.** All ordinances and parts of ordinances in conflict with this ordinance, in so far as they conflict, are hereby repealed.

**Section 5.** That this Ordinance shall be in full force and effect from and after its passage and approval.

**FIRST READING** March 16, 2023

**SECOND READING** April 13, 2023

**APPROVED** April 13, 2023



Alan R. Adrian, Mayor

Attest: 

Deena L. Parsons, City Clerk