BILL 2013-33

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AGENDA ITEM

TO: Mayor and City Council

FROM: Drew Bontrager, Public Works Director

DATE: July 1, 2013

RE: Amendments to the City Code, Chapter 10, Article VI, Stormwater Management

PURPOSE

The attached bill would amend Article VI, Storm Water Management, of the City Code Chapter 10.

DISCUSSION

We have been working with Transystems Engineering over the past year to update this code to remove inconsistencies and to provide the City with an up to date code that satisfies regulations, and protects the environment from undue stormwater runoff, pollutants, and erosion.
A public hearing was conducted at the regular May and June Planning and Zoning Meetings. The hearings were conducted to gather input from the public regarding input on the amendments to the Storm Water code.

The updated Code takes advantage of the design specifications developed by the Kansas City American
Public Works Association, which developers and contractors are very familiar with. We modified a few clauses to reflect the more rural context of the City. The code also includes a defined plan review fee to cover the City's costs for engineering reviews of development plans. This fee schedule is similar to other municipalities that impose a fee for various reviews of development plans.

This update to the Storm Water Management Code will be easier for developers to understand and follow, and better protect the City's natural resources. Both staff and Planning and Zoning recommend the City adopt the updates to this code.

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AN ORDINANCE FOR THE CITY OF CAMERON, CLINTON AND DeKALB COUNTIES, MISSOURI TO AMEND ARTICLE VI, STORM WATER MANAGEMENT, OF CHAPTER 10, SUBDIVISIONS, TO PROVIDE A NEW ARTICLE VI FOR THE STORM WATER MANAGEMENT CODE

WHEREAS, the current Storm Water Management Code has not had any updates since 1996; and

WHEREAS, City Staff and third party engineers have reviewed and updated the code to meet current regulations and protect the City's natural resources; and

WHEREAS, the Planning and Zoning Commission has reviewed, researched and conducted public hearings in April and May of this year relating to this matter.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CAMERON, CLINTON AND DeKALB COUNTIES, MISSOURI AS FOLLOWS:

Section 1. Repeal all of Article VI, Storm Water Management, of Chapter 10 of the Cameron City Code.

Section 2. Enact a new Article VI, Storm Water Management, of Chapter 10 of the Cameron City Code as follows:

DIVISION 1. - GENERAL PROVISIONS

Sec. 10-236. - Title; purpose.

(a) The provisions of this article shall constitute and be known as the "Storm Water Management Ordinance for the City of Cameron" hereby called the municipality.

(b) The purpose of this article is to protect, maintain, and enhance the public health, safety, and general welfare by establishing the minimum requirements and procedures to control the adverse effects of increased storm water runoff associated with both future land development and existing developed land within the municipality. Property management of storm water runoff will minimize damage to public and private property, ensure a functional drainage system, reduce the effects of development on land and stream channel erosion, assist in the attainment and maintenance of water quality standards, enhance the local environment associates with the drainage system, reduce local flooding, maintain as nearly as possible the pre-developed runoff characteristics of the area, and facilitate economic development while mitigating associated flooding and drainage impacts.

(c) The application of this article and the provisions expressed herein shall be the minimum storm water management requirements and shall not be deemed a limitation or repeal of any other powers granted by state statute. In addition, if site characteristics indicate that complying with these minimum requirements will not provide adequate designs or protection for local property or residents, it is the designer's responsibility to exceed the

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minimum requirements as necessary. The storm water management coordinator (SMC) shall be responsible for the coordination and enforcement of the provisions of this article.

Sec. 10-237. – Reserved

Sec. 10-238. – Scope of article.

No person shall develop any land without having provided for appropriate storm water management measures that control or manage runoff, in compliance with this article, unless exempted in Section 10-239, below.

Sec. 10-239. - Exemptions from requirements.

The following development activities are exempt from the provisions of this article and the requirements of providing storm water management measures:

(1) Land disturbing activities on agricultural land for production of plants and animals useful to man, including but not limited to: forages and sod crops, grains and feed crops, tobacco, cotton, and peanuts; dairy animals and dairy products; poultry and poultry products; livestock, including beef cattle, sheep, swine, horses, ponies, mules, or goats, including the breeding and grazing of these animals; bees; fur animals and aquaculture, except that the construction of an agricultural structure of one or more acres, such as broiler houses, machine sheds, repair shops and other major buildings and which required the issuance of a building permit shall require the submittal and approval of a storm water management plan prior to the start of the land disturbing activity.

(2) Land disturbing activities undertaken on forest land for the production and harvesting of timber and timber products.

Sec. 10-240. Storm water management design guide.

(a) The February 16, 2011 Section 5600-Storm Drainage Systems and Facilities of the Standard Specification and Design Criteria published by the Kansas City Metropolitan Chapter of the American Public Works Association (APWA) is hereby adopted as the standard and reference code for storm drainage infrastructure projects within the City of Cameron. Copies are to be kept on file with the City Clerk and City Public Works Director.

(b) The September 15, 2010 Section 5100 – Erosion and Sediment Control of the Standard Specifications and Design Criteria published by the Kansas City Metropolitan Chapter of the American Public Works Association (APWA) is hereby adopted as the standard and reference code for erosion control on projects within the City of Cameron. Copies are to be kept on file with the City Clerk and City Public Works Director.

(c) Use APWA approved material list, except where superseded by the City of Cameron. Copies of City of Cameron approved materials are to be kept on file with the City Clerk and City Public Works Director.

(d) These City standards supersede any existing APWA Section with which they may be in conflict.

Sec. 10-241. Amendments to Adopted Standard Specification and Design Criteria

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(a) Section 5601.2 Definitions
(supersedes)

As-Built Plan: shall mean a set of engineering or site drawings that delineate the specific permitted storm water management facility as actually constructed.

Design Report: shall mean the report that accompanies the storm water management plan and includes data used for engineering analysis, results of all analysis, design and analysis calculations (including results obtained from computer programs), and other engineering data that would assist the municipality in evaluating proposed storm water management facilities.

Land Disturbing Activity: shall mean any use of the land by any person that results in a change in the natural cover or topography that may cause erosion and contribute to sediment and alter the quality and/or quantity of storm water runoff.

Post-Development Conditions: shall mean the conditions which exist following the completion of the land disturbing activity in terms of topography, vegetation, land use and rate, volume or direction of storm water runoff.

Pre-Developed Conditions: shall mean those land use conditions that existed prior to the initiation of the land disturbing activity in terms of topography, vegetation, land use and rate, volume or direction of storm water runoff.

Storm Water Management Plan: shall mean the set of drawings and other documents that comprise all of the information and specifications for the drainage systems, structures, concepts and techniques that will be used to control storm water or required by this article and the storm water management design guide. Also included are the supporting engineering calculations and results of any computer analysis.

(b) Section 5601.8 Levels of Service.

(1) The capacity of the in-system conveyances, both enclosed and open channel elements, shall be sufficient to convey the theoretical peak discharge for the following design return storms. All other requirements of the storm water management design guide shall apply.

Parks, Greenbelts, etc.	10%
Residential Areas	10%
Non-Residential Areas	4%
All Enclosed Systems having an Upstream Tributary larger than 40 acres	4%
All Open Channels and Interconnecting Culverts	4%
Bridges, Pipes, and Culverts crossing Major Collector Streets	2%
Bridges, Pipes, and Culverts crossing Arterial Streets	1%
Floodway in FEMA-Designated Floodplains	1%

(c) Section 5604.2 Gutter Flow

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(This replaces Table 5604-2: Gutter Spread Criteria)

Street Classification	**Maximum Spread Width* (No Curb Overtopping)**
Local	Spread may reach crown of street.
Collector / Minor Arterial	
• 2 lane street	Spread must not encroach to within 8 ft of the centerline
• More than 2 lane street	Two 12 ft driving lanes clear of water, one in each direction
• One-way street	One 12 ft driving lane clear of water
Major Arterial	
• 2 lane street	Spread must not exceed 10 ft from the face of the curb
• More than 2 lane street	Two 12 ft driving lanes clear of water, one in each direction
• One-way street	Two 12 ft lanes clear of water

When an intake is necessary in a raised median, the flow spread should not exceed four feet from the face of the median curb for an inside lane.
*Spread may exceed these limits within 50 ft of a sump inlet.

(d) Section 5608.4 Performance Criteria
(supersedes)

(1) If accepted for municipal maintenance, the effects of existing upstream detention facilities can be considered in the hydrologic-hydraulic study.

(2) Where detention and retention structures are used, designs which consolidate these facilities into a limited number of large structures will be preferred over designs which utilize a large number of small structures.

(3) Storm water management plans can be rejected by the municipality if they incorporate structures and facilities that will demand considerable maintenance, will be difficult to maintain, or utilize numerous small structures if other alternatives are physically possible.

(4) The drainage system and all storm water management structures within the municipality (including both public and private portions) will be designed to the same engineering and technical criteria and standards. The municipality's review will be the same whether the portion of the drainage system will be under public or private control or ownership.

(e) Section 5608 Stormwater Detention and Retention
(This Replaces Section 5608)

(1) Storage facilities should be designed and analyzed using reservoir routing calculations.

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(2) Detention / Retention facilities are to be sized from the 10% post-development storm. The outlet structure is to be designed for the 50% pre-development storm.

(3) The volume of storage potential provided in detention facilities shall be sufficient to control the excess storm water runoff, as determined to be the difference between the storm water quantity from the site in its developed state and the storm water quantity from the site in its pre-development state.

(4) At no time during the design storm shall the storm water release rate exceed the allowable release rate. Change in release rate with increasing depth in basin must be considered.

(5) Storm water shall be released at a non-erosive rate. Open channels shall be protected by the use of countermeasures to reduce entering velocities to a non-erosive rate. In subsurface channels, the energy gradient shall not be increased beyond the slope of the channel.

(6) Detention facilities should be designed to drain all detention volume within 72 hours.

(7) Detention facilities shall be provided with obvious and effective control structures. Plan view and sections of the structure with adequate details shall be included in the plans. The design discharge shall not exceed the stipulated pre-development runoff rate.

(8) Sizing of the discharge pipe may be by inlet control or hydraulic gradient requirements as outlined in APWA.

(9) The discharge pipe shall not be less than six (6) inches in diameter, for minimizing operation and maintenance requirements. A bar screen on a minimum 2:1 slope shall be provided to reduce blockage by debris. Further safety measures may be required on large culverts.

<u>Storage Facility Design Criteria</u>

(1) Vegetated embankments must be less than 20 feet in height with side slopes no steeper than 3:1 (horizontal to vertical). Rip rap protected embankments shall be no steeper than 2:1.

(2) Emergency spillways shall be provided as a part of the detention basin to permit the safe passage of runoff generated from a high frequency rainfall. Spillways shall be either seeded, fertilized and mulched, sodded or paved. Emergency spillways must be designed for a 100 year storm.

(3) Detention facilities shall have adequate capacity to contain the storage volume required, with at least one (1) foot of vertical freeboard above the maximum spillway water surface elevation. The freeboard shall also be at an elevation of at least one (1) foot above the FEMA designated 100-year flood elevation.

(4) Impoundment depths greater than 20-feet are subject to the requirements of the Safe Dam Act, unless the facility is excavated to this depth.

(5) In no case shall the limits of maximum ponding elevation be closer than thirty (30) feet horizontally form any building and less than two (2) feet vertically below the

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lowest sill elevation. The entire reservoir shall be seeded, fertilized and mulched, sodded or paved. Any area susceptible to, or designed as, overflow by a higher design intensity rainfall shall be sodded or paved.

(6) Areas above the normal high water elevations of storage facilities should be sloped toward the facilities to allow drainage and to prevent standing water.

(7) The bottom area of the storage facilities should be sloped towards the outlet to prevent water from standing.

(8) A low flow or pilot channel constructed across the facility bottom from the inlet to the outlet is recommended to convey lo flows and prevent standing water conditions.

(9) Channel routing calculations shall proceed downstream to a point where the controlled land area is less than ten percent of the total drainage to that point, as needed.

(10) Detention is permitted in parking lots to a maximum depth of twelve (12) inches for unrequired parking areas only. In no case shall the maximum limits of ponding be designed closer than twenty (20) feet form a building unless waterproofing of the building and pedestrian accessibility are properly documented.

<u>Storm Water Channel Location</u>

Generally acceptable locations of storm water channels in the design of a subdivision may include but are not limited to the following:

(1) Adjacent 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, and maximum depth not to exceed 1 foot.

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

(4) In each of the foregoing cases, a drainage easement with sufficient width to facilitate maintenance and design flow shall be provided and shown on the plat.

a) Whenever the plans call for the passage and/or storage of storm water runoff along lot lines, the grading of all such lots shall be prescribed and established for the passage and/or storage of waters, and no structure of vegetation which would obstruct the flow of storm water shall be allowed, nor shall any change be made to the prescribed grades and contours for the specified storm water channels.

b) All utility sewer manholes constructed in an area designed for the storage or passage of storm water, shall be provided with either a water-tight manhole cover or be constructed with a rim elevation of a minimum of one (1) foot above the high water elevation of the design storm.

<u>General Design Procedure for Storage Routing</u>

(1) Inflow hydrographs for all selected design storms

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(2) Stage-storage curve for proposed storage facility.

(3) Stage-discharge curve for all outlet control structures.

Stage-Storage Curve

Stage Storage Curve defines the relationship between the depth of water and storage volume in a reservoir.

Stage-Discharge Curve

A stage-discharge curve defines the relationship between the depth of water and the discharge or outflow from a storage facility: The stage-discharge curve should take into account the discharge characteristics of both the principal and emergency spillways.

General Procedure

Step 1: Compute inflow hydrograph for runoff from the 50%, 10%, and 1% design storms. Both pre- and post-development hydrographs are required for the 50% and 10% design storms. Only the post-development hydrograph is required for runoff from the 1% design storm.

Step 2: Perform preliminary calculations to evaluate detention storage requirements for the hydrographs from Step 1. If storage requirements are satisfied for runoff from the 50% and 10% design storms, runoff from intermediate storms is assumed to be controlled.

Step 3: Determine the physical dimensions necessary to hold the estimated volume from Step 2, including freeboard. The maximum storage requirement calculated from Step 2 should be used. From the selected shape determine the maximum depth in the pond.

Step 4: Select the type of outlet and size the outlet structure. The estimated peak stage will occur for the estimated volume from Step 2. The outlet structure should be sized to convey the allowable discharge at this stage.

Step 5: Perform routing calculations using inflow hydrograph from Step 1 to check the preliminary design using the storage routing equations. If the routed post-development peak discharges from the 50% and 10% design storms exceed the pre-development peak discharges, or if the peak stage varies significantly from the estimated peak stage from Step 4, then revise the estimated volume and return to Step 3.

Step 6: Consider emergency overflow from runoff due to the 1% design storm and established freeboard requirements.

Step 7: If necessary, evaluate the downstream effects of detention outflow to ensure that the routed hydrograph does not cause downstream flooding problems. The exit hydrograph from the storage facility may need to be routed through the downstream channel system to the confluence point to where the drainage area being analyzed represents ten percent of the total drainage area.

Step 8: Evaluate the control structure outlet velocity and provide channel bank stabilization if the velocity will cause erosion problems downstream.

The 10% storm volume will determine the size of the pond while the 50% storm peak control need will determine the size of a minimum outlet structure. Thus the pond is sized for the 10% storm. Then the 50% storm is routed through the pond and the 50% outlet structure is sized.

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(f) Section 5609.8 Required Information for Plan and Profile Sheets (supersedes)

(1) Calculate and label the total disturbed area and clearly identify all areas within the site which will be included in the land disturbing activities.

(2) An anticipated starting and completion date of the various stages of land disturbing activities and the expected date the final stabilization will be completed.

(3) At the discretion of the municipality, for all portions of the drainage system which are expected to carry between fifty (50) and one hundred fifty (150) cfs for the 1% storm, show and label the 1% plus one (1) foot flood elevation limits. The municipality may determine if one of the following conditions exist.

a) The estimated runoff would create a hazard for adjacent property or residents.

b) The flood limits would be of such magnitude that adjacent residents should be informed of these limits.

(4) For all portions of the drainage system which are expected to carry one hundred fifty (150) cfs or more for the 1% storm, the 1% plus one (1) foot flood elevation analysis shall be completed and flood limits shall be shown on the storm water management plans.

(5) Restriction on easements shall include prohibiting all fences and structures which would interfere with access to the easement areas and/or the maintenance function of the drainage system.

(6) To improve the aesthetic aspects of the drainage system, a landscape plan for all portions of the drainage system shall be part of the storm water management plan. This landscape plan shall address the following.

a) Tree saving and planting plan.

b) Types of vegetation that will be used for stream bank stabilization, erosion control, sediment control, aesthetics and water quality improvement.

c) Any special requirements related to the landscaping of the drainage system and efforts necessary to preserve the natural aspects of the drainage system.

(7) To improve the water quality aspects of the drainage system, the storm water management plan shall include best management practices to control the water quality of the runoff during the land disturbing activities and during the life of the development. This requirement is in addition to the requirements of the Department of Natural Resources Storm Water Pollution Prevention Permit.

(8) The storm water management plans shall include all engineering calculations needed to design the system and associated structures including pre- and post-development velocities, peak rates of discharge, and inflow and outflow hydrographs of storm water runoff at all existing and proposed points of discharge from the site.

(9) If the storm water management plan and/or design report indicates that there may be a drainage or flooding problem at the exit to the proposed development or at any

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location between the exit point and the ten (10) percent downstream point, the municipality may require:

a) Water surface profiles plotted for the conditions of pre- and post-development for the 10% design storm;

b) Water surface profiles plotted for the conditions of pre- and post-development for the 1% design storm;

c) Elevations of all structures potentially damaged by 10% and/or 1% flows.

(10) The storm water management plan shall not be considered approved without the written documentation of approval by the City of Cameron Director of Public Works. The approval is solely an acknowledgement of satisfactory compliance with the requirements of these regulations. The approval does not constitute a representation or warranty to the applicant or any other person concerning the safety, appropriateness or effectiveness of any provision, or omission from the storm water management plan.

(11) Approved storm water management plans remain valid for two (2) years from the date of an approval. Extensions or renewals of the plan approvals will be granted by the municipality upon written request by the person responsible for the land disturbing activity. No fee will be assessed for extension or renewal, provided there are no changes to the approved storm water management plans, site conditions, or the Stormwater Management Code.

(g) Section 5101.4 Designer Qualifications
(This replaces Section 5101.4)
The design and plan preparation for erosion control drawings and written sequence shall be completed by, or under the direct supervision of a professional engineer.

Secs. 10-242—10-250. - Reserved.

DIVISION 2. - STORM WATER CONCEPT AND PRELIMINARY DEVELOPMENT PLANS

Sec. 10-251. - Scope of development plans.

(a) (1) In developing plans for a residential/commercial subdivision, individual lots in a residential/commercial subdivision development shall not be considered to be separate land disturbing activities and shall not require individual permits. Instead the residential/commercial subdivision development, as a whole, shall be considered to be a single land disturbing activity. Hydrologic parameters that reflect the ultimate subdivision development shall be used in all engineering calculations.

(2) If individual lots or sections in a residential/commercial subdivision are being developed by different property owners, all land disturbing activities related to the residential/commercial subdivision shall be covered by the approved storm water management plan for the residential/commercial subdivision.

(3) Developers shall carry out all activities in accordance with the approved storm

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water management plan for the development, and that all individual lot owners will be made fully aware of any requirements or stipulations on their individual lot or for the development as a whole due to storm water management.

(4) Individual lot owners shall ensure all activities are in compliance with the approved storm water management plan for the development of their property.

(5) Individual lot owners shall be aware of any requirements or stipulations on the individual lot or the development as a whole.

(6) Individual lot owners shall be aware of easements on their property, stipulations of these easements on their property and that these stipulations are stated within the deed of their property.

(7) Residential/commercial subdivisions which were approved prior to the effective date of these regulations are not required to make modifications of existing infrastructure to comply with the current requirement. Redevelopment or expansion of existing infrastructure, or development of new phases of existing subdivisions which were not previously approved, shall comply with the provisions of these regulations.

(b) For residential land disturbing activities involving two (2) acres or less of actual land disturbance which are not part of a larger common plan of development or sale, the person responsible for the land disturbing activity shall submit a simplified storm water management control plan meeting the requirements listed below. This simplified storm water management control plan does not require preparation of certification by the designers specified in Section 10-261. No plan is required if these activities do not result in changes to the existing drainage outfalls or flow characteristics.

(1) A narrative description of the storm water management facilities to be used.

(2) A general description of topographic and soil conditions of the development site.

(3) A sketch plan to accompany the narrative which shall contain:

a) A site location drawing of the proposed project, indicating the location of the proposed project in relation to roadways, jurisdictional boundaries, streams and rivers;

b) The boundary lines of the site on which the work is to be performed;

c) All areas within the site which will be included in the land disturbing activities shall be identified and the total disturbed area calculated;

d) A topographic map of the site;

e) Anticipated starting and completion dates of the various stages of land disturbing activities and the expected date the final stabilization will be completed;

f) The location of temporary and permanent vegetative and structural storm water management control measures.

(4) The municipality reserves the right to require storm water management preparation

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as in sections 10-252—10-261 as it sees fit.

(c) For residential land disturbing activities disturbing more than two (2) acres, and all commercial land disturbing activities, except in the C-1 Central Commercial District the requirements of sections 10-252—10-261 shall apply unless a waiver is granted by the municipality.

Sec. 10-252. - Storm water concept and storm water management plans.

(a) A storm water concept plan for each development shall be submitted for review by the municipality prior to submission of the storm water management plan and construction plans for the entire development, or any portion thereof.

(b) All preliminary plats of the development shall be consistent with the storm water management concept plan required in subsection (a) of this section.

(c) Upon approval of the concept plan, the applicant shall submit a final storm water management plan (as part of the construction plans) to the municipality for review and approval. The storm water concept plan must identify the location and type of facilities to be constructed in sufficient detail to accurately enable the municipality to determine if a storm water management plan is needed. If the municipality determines a final storm water management plan is not needed, the storm water concept plan then becomes the storm water management plan for this development.

(d) Should any storm water management plan involve any storm water management facilities or land to be dedicated to public use, the same information shall also be submitted for review and approval to the department having jurisdiction over the land or other appropriate departments or agencies identified by the municipality for review and approval. This storm water management plan shall serve as the basis for all subsequent construction.

(e) The storm water plan may be reviewed, if needed, with the designer, after municipal review, where it will either be approved, approved with changes, or rejected. If rejected, changes, additional analysis, or other information needed to approve the next submittal of the concept plan shall be identified. After the receipt of the storm water management plan, the municipality shall issue a decision approving, rejecting or conditionally approving the plan with modification.

Sec. 10-253. - Permit requirements.

(a) No final occupancy permit shall be issued without the following:

(1) Recorded easements for storm water management facilities.

(2) Receipt of an as-built plan which includes a certification of the storm drainage system by an engineer or surveyor licensed in Missouri.

(b) No site grading permit shall be issued or modified without the following:

(1) Right of entry for emergency maintenance if necessary.

(2) Right of entry for inspections.

(3) Any off-site easements needed.

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(4) An approved storm water concept plan or storm water management plan, as appropriate.

(5) An approved storm water ownership and maintenance plan.

(c) All land clearing, construction, development and drainage will be done according to the storm water management plan or previously approved revisions and any requirements by DNR. Any and all site grading permits may be revoked at any time if the construction of storm water management facilities is not in strict accordance with approved plans.

(d) No person(s) shall, without prior written approval of the municipality, make subsurface connections (connection of roof downspouts, interior and exterior foundation drains, areaway drains, sump pumps, or other sources of surface runoff or groundwater to a building sewer or building drain), which in turn, is connected directly or indirectly to a public sanitary sewer.

(e) Subsurface connections to the public storm water system create the potential for maintenance issues and potential damages to private property. If subsurface connections of private storm drainage systems are proposed, the property owner shall be responsible for maintenance of this connection, and take full responsibility to all damages caused due to this connection, including flooding or broken connections. Property owner must obtain a "Connection to Public Storm Sewer Permit" from the municipality.

(f) In addition to the plans and permits required from the municipality, applicants shall obtain all state and federal permits required for the proposed development.

Sec. 10-254. - Fees.

A list of fees for plan review and other fees associated with this article can be obtained from the municipality.

Sec. 10-255. - Permit suspension and revocation.

(a) A site grading permit may be suspended or revoked if one or more of the following violations have been committed:

(1) Violation(s) of the conditions of the storm water management plan approval;

(2) Construction not in accordance with the intent of the approved plans;

(3) Non-compliance with correction notice(s) or stop work orders(s); or

(4) The existence of an immediate danger in a downstream area in the judgment of the municipality.

If one or more of these conditions is found, a written notice of violations shall be served upon the owner or authorized representative and an immediate stop-work order may be issued. The notice shall set forth the measures necessary to achieve compliance with the plan. Correction of these violations must be started immediately or the owner shall be deemed in violation of this article.

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Sec. 10-256. - Minimum runoff control requirements.

(a) A waiver for storm water detention and retention facilities, as described in the storm water management guide shall only be granted after a written request is submitted by the applicant containing descriptions, drawings, and any other information that is necessary to evaluate the proposed land disturbing activity. A separate written waiver request shall be required if there are subsequent additions, extensions, or modifications which would alter the approved storm water runoff characteristics to a land disturbing activity receiving a waiver. The municipality, or its designee, shall conduct a review of the request for a waiver, See Sec. 10-291

(b) If accepted for municipal maintenance, the effects of existing upstream detention facilities can be considered in the hydrologic-hydraulic study.

Sec. 10-257. - Storm water management facilities.

(a) Where detention and retention structures are used, designs which consolidate these facilities into a limited number of large structures will be preferred over designs which utilize a large number of small structures.

(b) Storm water management plans can be rejected by the municipality if they incorporate structures and facilities that will demand considerable maintenance will be difficult to maintain, or utilize numerous small structures if other alternatives are physically possible.

(c) The drainage system and all storm water management structures within the municipality (including both public and private portions) will be designed to the same engineering and technical criteria and standards. The municipality's review will be the same whether the portion of the drainage system will be under public or private control or ownership.

Sec. 10-258. - Reserved.

Sec. 10-259. - Reserved.

Sec. 10-260. - Plan water quality criteria.

(a) To improve the water quality aspects of the drainage system, the storm water management plan shall include best management practices to control the water quality of the runoff during the land disturbing activities and during the life of the development. This requirement is in addition to the requirements of the Department of Natural Resources Storm Water Pollution Prevention Permit.

Following are the criteria related to using storm water management facilities for water quality purposes.

(b) <u>Ponds, Lakes and Reservoirs</u>

(1) When the land disturbing activity consists of the construction of a pond, lake or reservoir which is singly built and not part of a permitted land disturbing activity, the following procedures will apply:

a) A storm water management plan will not be required if the pond, lake or

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reservoir is permitted under the State Dams and Reservoirs Safety Act or has received a certificate of exemption from the State Dams and Reservoirs Safety Act. Best management practices should be used to minimize the impact of erosion and sediment.

b) A storm water management plan will be required for the construction of all ponds, lakes or reservoirs not meeting the conditions in subsection (1)a., above, that otherwise meet the size requirements for storm water management plan approval.

(2) When ponds are used for water quality protection, the ponds shall be designed as both quantity and quality control structures. Sediment storage volume shall be calculated considering the clean out and maintenance schedules specified by the designer during the land disturbing activity. Sediment storage volumes may be predicted by the universal soil loss equation or methods acceptable to the municipality.

(3) Storm water runoff and drainage to a single outlet from land disturbing activities which disturb ten (10) acres or more shall be controlled during the land disturbing activity by a sediment basin where sufficient space and other factors allow these controls to be used until the final inspection. The sediment basin shall be designed and constructed to accommodate the anticipated sediment loading from the land-disturbing activity and meet a removal efficiency of eighty (80) percent suspended solids or one-half (0.5) ML/L peak settable solids concentration, whichever is less. The outfall device or system design shall take into account the total drainage area flowing through the disturbed area draining to the basin.

(4) Other practices may be acceptable to the municipality if they achieve an equivalent removal efficiency of eighty (80) percent for suspended solids or one-half (0.5) ML/L peak settable solids concentration, whichever is less. The efficiency shall be calculated for disturbed conditions for the 10-year 24-hour design storm event.

(5) Permanent water quality ponds having a permanent pool shall be designed to store and release the first one-half (½) inch of runoff from the site over a 24-hour period. The storage volume shall be designed to accommodate, at least, one-half (½) inch of runoff from the entire site.

(6) Permanent water quality ponds, not having a permanent pool, shall be designed to release the first inch of runoff from the site over a 24-hour period.

(7) The use of measures other than ponds to achieve water quality improvement are recommended on sites containing less than ten (10) disturbed acres.

(c) Infiltration Practices

(1) Permanent infiltration practices, when used, shall be designed to accept, at a minimum, the first inch of runoff from all impervious areas.

(2) Areas draining to infiltration practices must be established and vegetative filters established prior to runoff entering the system. Infiltration practices shall not be used if a suspended solids filter system does not accompany the practice. If vegetation is the intended filter, there shall be at least a 20-foot width of vegetative

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filter prior to storm water runoff entering the infiltration practice.

(3) The bottom of the infiltration practice shall be at least two (2) feet above the seasonal high water table, whether perched or regional, determined by direct piezometer measurements which can be demonstrated to be representative of the maximum height of the water table on an annual basis during years of normal precipitation, or by the depth in the soil at which mottling first occurs.

(4) The infiltration practice shall be designed to completely drain of water within seventy-two (72) hours.

(5) Soils must have adequate permeability to allow water to infiltrate. Infiltration practices are limited to soils having an infiltration rate of at least thirty-hundredths (0.30) inches per hour. Initial consideration will be based on a review of the appropriate soil survey, and the survey may serve as a basis for rejection. On-site soil borings and textural classifications must be accomplished to verify the actual site and seasonal high water table conditions when infiltration is to be utilized.

(6) Infiltration practice greater than three (3) feet deep shall be located at least ten (10) feet from basement walls.

(7) Infiltration practices designed to handle runoff from impervious parking areas shall be a minimum of one hundred fifty (150) feet from any public or private water supply well.

(8) The design of infiltration practice shall provide an overflow system with measures to provide a non-erosive velocity of flow along its length and at the outfall.

(9) The slope of the bottom of the infiltration practice shall not exceed five (5) percent. Also, the practice shall not be installed in fill material as piping along the fill/natural ground interface may cause slope failure.

(10) An infiltration practice shall not be installed on or atop a slope whose natural angle of incline exceeds twenty (20) percent.

(11) Clean outs will be provided, at a minimum, every one hundred (100) feet along the infiltration practice to allow for access and maintenance.

Sec. 10-261. - Professional registration requirements.

Storm water concept and storm water management plans and design reports that are incidental to the overall or ongoing site design shall be prepared, certified, and stamped/sealed by a qualified registered professional engineer, land surveyor or landscape architect, using acceptable engineering standards and practices. All other storm water concept and storm water management plans and design reports shall be prepared, certified, and stamped/sealed by a qualified registered professional engineer, using acceptable engineering standards and practices.

The engineer, surveyor, or landscape architect shall perform services only, in areas of his/her competence, and shall undertake to perform engineering or land surveying assignments only when qualified by education and/or experience in the specific technical field. In addition, the engineer, surveyor, or landscape architect must verify that the plans have been designed in accordance with this article and the standards and criteria stated or referred to in this article.

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Secs. 10-262—10-270. - Reserved.

DIVISION 3. - OWNERSHIP AND MUNICIPALITY PARTICIPATION

Sec. 10-271. - Ownership of storm water management facilities.

(a) All storm water management facilities shall be privately owned and maintained unless the municipality accepts the facility for municipality ownership and maintenance. The owner of all private facilities shall grant to the municipality, a perpetual, non-exclusive easement which allows for public inspection and emergency repair.

(b) All storm water management measures relying on designated vegetated areas or special site features shall be privately owned and maintained as defined on the storm water management plan.

(c) Most regional storm water management facilities will be publicly owned and/or maintained.

Sec. 10-272. - Municipality participation.

When the municipality determines that additional storage capacity beyond that required by the applicant for on-site storm water management is necessary in order to enhance or provide for the public health, safety and general welfare, to correct unacceptable or undesirable existing conditions or to provide protection in a more desirable fashion for future development, the municipality may:

(1) Require that the applicant grant any necessary easements over, through or under the applicant's property to provide access to or drainage for such a facility;

(2) Require that the applicant attempt to obtain from the owners of property over, through or under where the storm water management facility is to be located, any easements necessary for the construction and maintenance of same (and failing the obtaining of such easements the municipality may, at its option, assist in such matter by purchase, condemnation, dedication or otherwise, and subject to subsection (3) of this section, with any cost incurred thereby to be paid by the municipality); and/or

(3) Participate financially in the construction of such facility to the extent that such facility exceeds the required on-site storm water management as determined by the municipality.

To implement this provision both the municipality and developer must be in agreement with the proposed facility that includes the additional storage capacity and jointly develop a cost sharing plan which is agreeable to all parties.

Secs. 10-273—10-280. - Reserved.

DIVISION 4. - MAINTENANCE, CONSTRUCTION AND INSPECTION

Sec. 10-281. - Maintenance.

(a) Any storm water discharge control facility which services a single lot or commercial and

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industrial developments shall be privately owned and maintained; provided, however, the owner thereof shall grant to the municipality, a perpetual, non-exclusive easement which allows for public inspection and emergency repair, in accordance with the terms of the maintenance agreement set forth in Section 10-282

(b) The municipality has the right for emergency maintenance of any privately owned storm water management facility. All individual lot owners within the development shall be made aware of the City's right by the developer.

(c) All regional storm water discharge control facilities, identified on municipal storm water discharge control master plans, shall be publicly owned and/or maintained only if accepted for maintenance by the municipality.

(d) All other storm water discharge control facilities shall be publicly owned and/or maintained only if accepted for maintenance by the municipality.

(e) Private maintenance requirements shall be a part of the deed to the affected property.

Sec. 10-282. - Maintenance agreement (privately owned facilities only).

(a) A proposed inspection and maintenance agreement shall be submitted to the municipality for all private on-site storm water discharge control facilities prior to the approval of the storm water management plan. Such agreement shall be in form and content acceptable to the municipality and shall be the responsibility of the private owner. Such agreement shall provide for access to the facility by virtue of a non-exclusive perpetual easement in favor of the municipality at reasonable times for regular inspection by the municipality. The agreement will identify who will have the maintenance responsibility. Possible arrangements for this maintenance responsibility might include the following:

(1) Use of homeowner associations;

(2) Arrangements to pay the municipality for maintenance;

(3) Responsible party for inspection;

(4) Responsible party for maintenance;

(5) Private maintenance by development owner(s); or

(6) Contracts with private maintenance companies.

All maintenance agreements shall contain without limitation the following provisions:

a) A description of the property on which the storm water management facility is located and all easements from the site to the facility;

b) Size and configuration of the facility;

c) A statement that properties which will be served by the facility are granted rights to construction, use, reconstruct, repair, maintain, access to the facility;

d) A statement that each lot served by the facility is responsible for repairs and maintenance of the facility and any unpaid ad valorem taxes, public assessments for improvements and unsafe building and public nuisance

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abatement liens charged against the facility, including all interest charges together with attorney fees, cost of expenses of collection. If an association is delegated these responsibilities, then membership into the association shall be mandatory for each parcel served by the facility and any successive buyer, the association shall have the power to levy assessments for these obligations, and that all unpaid assessments levied by the association shall become a lien on the individual parcel; and

e) A statement that no amendments to the agreement will become effective unless approved by the municipality.

(b) The agreement shall provide that preventive maintenance inspections of storm water management facilities may be made by the municipality, at its option. Without limiting the generality of the foregoing, the municipality's inspection schedule may include an inspection during the first year of operation and once every year thereafter, and after major storm events (i.e. 4% or 10% floods).

(c) Inspection reports shall be maintained by the municipality.

(d) The agreement shall provide that if, after an inspection, the condition of a facility presents an immediate danger to the public health, safety or general welfare because of unsafe conditions or improper maintenance, the municipality shall have the right, but not the duty, to take such action as may be necessary to protect the public and make the facility safe. Any cost incurred by the municipality shall be paid by the owner.

(e) The agreement shall be recorded by the owner in the register of deeds prior to the final inspection and approval.

(f) The agreement shall provide that the municipality shall notify the owner(s) of the facility of any violation, deficiency or failure to comply with this article. The agreement shall also provide that upon a failure to correct violations requiring maintenance work, within thirty (30) days after notice thereof, the municipality may provide for all necessary work to place the facility in proper working conditions. The owner(s) of the facility shall be assessed the costs of the work performed by the municipality pursuant to this subsection and subsection (d), above, and there shall be a lien on all property of the owner which property utilizes or will utilize such facility in achieving discharge control, which lien, when filed in the register of deeds, shall have the same status and priority as liens for ad valorem taxes. Should such a lien be filed, portions of the affected property may be released by the municipality following the payments by the owner of such owner's pro-rata share of the lien amount based upon the acreage to be released with such release amount to be determined by the municipality, in its reasonable discretion.

(g) The municipality, at its sole discretion, may accept the certification of a registered engineer in lieu of any inspection required by this article.

Sec. 10-283. - Construction and inspection.

(a) Prior to the approval of the storm water management plan, the applicant shall submit a proposed staged construction and inspection control schedule. This plan shall indicate a phase line for approval; otherwise the construction and inspection control schedule will be for the entire drainage system.

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(b) No stage work, related to the construction of storm water management facilities, shall proceed until the next preceding stage of work, according to the sequence specified in the approved staged construction and inspection control schedule, is inspected and approved.

(c) The municipality shall be granted access to development located in the City of Cameron, Missouri in order to conduct on-site inspections for compliance with the storm water management plan.

(d) The municipality has the right for entry for inspections on any privately owned storm water management facility. All individual lot owners within the development shall be made aware of the City's right by the developer.

(e) Any portion of the work which does not comply with the storm water management plan shall be promptly corrected by the permittee.

(f) The permittee shall notify the municipality before commencing any work to implement the storm water management plan and upon completion of the work.

(g) The permittee shall provide an "as-built" plan certified by a registered professional (as outlined in Section 10-261) to be submitted upon completion of the storm water management facilities included in the storm water management plan. The registered professional shall certify that:

The facilities have been constructed as shown on the "as-built" plan; and

The facilities meet the approved storm water management plan and specification or achieve the function for which they were designed.

(h) A final inspection shall be conducted by the municipality upon completion of the work included in the approved storm water management plan to determine if the completed work is constructed in accordance with the plan.

(i) The municipality shall maintain a file of inspection reports and provide copies of all inspection reports of the storm water management facility to the permittee that include the following.

1) The date and location of the site inspection.

2) Whether the approved plans have been properly implemented.

3) Any approved plan deficiencies and any actions taken.

4) Time period granted to correct violation(s).

(j) The municipality will notify the person responsible for the land disturbing activity in writing when violations are observed describing the following.

1) Nature of the violation.

2) Required corrective actions.

3) The time period for violation correction.

4) Applicable fine or jail sentence.

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Secs. 10-284—10-290. - Reserved.

DIVISION 5. - MISCELLANEOUS PROVISIONS

Sec. 10-291. - Variances from requirements.

(a) The municipality may grant a variance from the requirement of this article if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of the article will result in unnecessary hardship and not fulfill the intent of the article.

(b) A written request for a variance shall be required and shall state the specific variance sought and the reasons, with supporting data, for their granting. The request shall include descriptions, drawings, calculations and any other information that is necessary to evaluate the proposed variance.

(c) Any substantial variance from the storm water management plan or concept plan shall be referred to all agencies which reviewed the original plan.

(d) The municipality will conduct a review of the request for a variance.

Sec. 10-292. - Appeals.

Any person aggrieved by a decision of the municipality (including any decision with reference to the granting or denial of a variance from the terms of this article) may appeal same to the board of adjustment by following the procedures and time limitations found in Article 28 of the Municipality's zoning ordinance. The board of adjustment shall operate under the same rules and regulations found in Article 28 of the zoning ordinance as it would for an appeal under the zoning ordinance in ruling on appeals to it under this article.

Appeals may be made from any decision of the board of adjustment in the same manner as is found in Section 9 of Article 28 of the zoning ordinance.

Sec. 10-293. - Penalties.

(a) Upon determination that a violation of this article has occurred the owner shall be given a written notice of the violations and the time in which to correct the deficiencies.

(b) If construction violations of the approved plan are occurring, an immediate stop-work order may be issued by the municipality. If the municipality issues a stop work order, the municipality must show cause within forty-eight (48) hours.

(c) Any person violating this article or any part thereof, including failing to stop work upon order, shall upon conviction thereof be guilty of an offense punishable under Section 1-9 of this Code. Each separate interval of twenty-four (24) hours, or every day, such violations shall be continued, committed or existing, shall constitute a new and separate offense and be punished, as aforesaid, for each separate period of violation.

(d) The municipal attorney may institute injunctive, mandamus or other appropriate action or proceedings at law or equity for the enforcement of this article or to correct violations of this article, and any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

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Sec. 10-294. - Reserved

Section 3. The Mayor is authorized to sign this Ordinance approving it on behalf of the City of Cameron.

Section 4. The City Clerk is hereby directed to attest to the Mayor's signature.

Section 6 This Ordinance shall be in full force and effect from and after its passage.

Passed and approved on first reading this 19th day of August 2013.
Passed and approved on second reading this 11th day of September 2013.
Passed and approved on third and final reading this 30th day of September 2013.

_____
Mayor Dennis M. Clark

ATTEST:

_____
City Clerk/Finance Clerk

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