BILL NO. 2013 – 74

ORDINANCE NO. 10112

AN ORDINANCE ADDING SECTION 22-56 AND REPEALING SECTIONS 22-48, 22-51, 22-53, 22-54 AND 22-55 OF THE CODE OF ORDINANCES RELATING TO SURFACE WATER RUNOFF MANAGEMENT.

NOW THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF SEDALIA, MISSOURI, AS FOLLOWS:

Section 1. Section 22-56 is added to read as follows:

"Section 22-56 - Design Criteria and Standards for Stormwater Management

(a). Authority

As set forth in the City of Sedalia's Code of Ordinances, the Director of Public Works is authorized to adopt minimum design criteria for stormwater management facilities. All stormwater management facilities within the City of Sedalia (City) falling under the jurisdiction of the Code of Ordinances shall be designed in accordance with the requirements of this Design Criteria.

(b) Adoption of the Mid-America Regional Council and American Public Works Association design criteria manuals ("Design Criteria") by Reference:

(1) Flood Control and Channel Protection Requirements:
Standard Specifications and Design Criteria, Section 5600, published by the Kansas City Metropolitan Chapter American Public Works Association (APWA 5600) is hereby adopted by reference as the Stormwater System Design Criteria for the City, except as amended in the following sections. This adoption shall apply to the most current (February 2011 at the time of this issuance) edition.

(2) Water Quality Requirements:
Manual of Best Management Practices, published by the Mid-America Regional Council (MARC BMP Manual), is hereby adopted by reference as the Water Quality Design Criteria for the City, except as amended in the following sections. This adoption shall apply to the most current edition (October 2012 at the time of this issuance).

(c) Amendments to APWA 5600 Manual

(1) 5601.5 – System Types and Applications

A.1.c. The requirement to provide 60 feet of clearance from an engineered channel to a building may be waived if existing site conditions prohibit achieving this requirement.

A.4. The City, through its Stormwater Master Plan, has defined the subsheds to which the detention strategies outlined in Part A.4.b shall be applied. This map is available at the Public Works Department and detention strategy requirements for any new development will be determined by the City at the pre-application meeting.

(2) 5601.6 - Waivers

Part A. replace "...in accordance with Section 5609..." with "...in accordance with the City's current checklist for Stormwater Management Studies..."

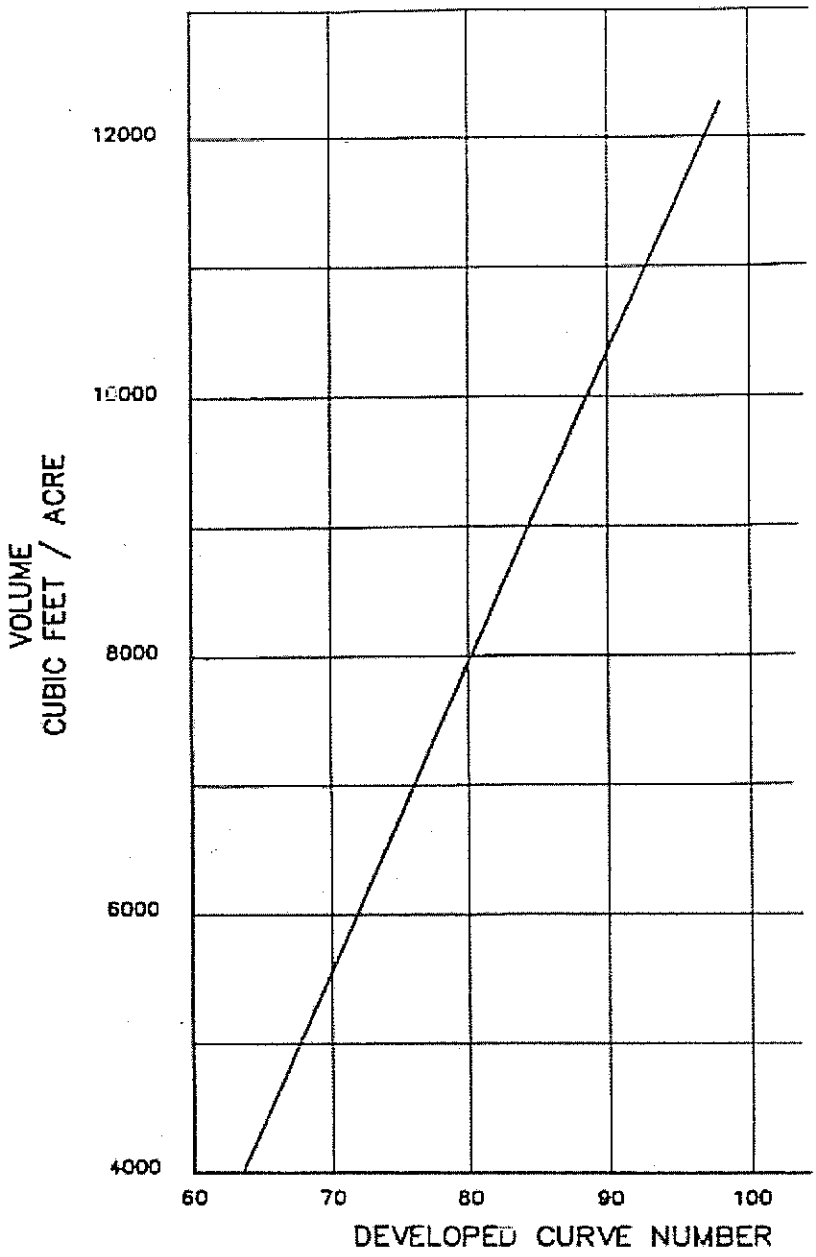
Add the following:

C. For developments in areas identified by the City as "Extreme Event Control Only" zones, requirements for 1% and 10% control may be waived and/or release rates other than those required by Section 2.8 may be approved when the developer makes satisfactory arrangements to improve or provide a downstream conveyance system of hydraulic capacity meeting this criteria for peak rates of discharge to the system including discharge from the developer's site. The City Engineer or Public Works Director may also permit combined downstream conveyance improvements and other detention combinations that provide an equal or better level of control.

(3) 5602.3, Table 5602-3: Gravel surfaces shall be assigned a Rational "C" value of 0.43 and a SCS Curve Number of 79.

(4) 5608.4.B. For developments less than 10 acres in total planned area, detention volume may be evaluated using the "Simplified Volume" chart below, provided:

a. the total tributary area above the facility, including the development property and off-site area, is less than 10 acres;
b. at least 90% of the development property is tributary to the facility;
c. the discharge rates from the facility comply with those required by Section 5608.4.C.



STORM WATER DETENTION
VOLUME REQUIREMENT
(SIMPLIFIED OPTION)

NOTES:

1. For Release Rates - See Section 5606.4.B.

2. The developed curve number for the site is to be determined in accordance with TR-55 "Urban Hydrology for Small Watersheds.

SIMPLIFIED VOLUME CHART
FOR DETENTION FACILITIES

(d) Amendments and Clarifications to MARC BMP Manual

The following amendments and clarifications to the MARC/APWA BMP Manual shall apply to stormwater treatment practices within the City:

1. Redevelopment sites smaller than 3 acres shall be required to meet a Level of Service no greater than 5.

2. For planned developments where construction will be phased, a Stormwater Management Plan for water quality treatment is required for the entire planned development. As development occurs, BMPs that receive runoff from the built areas shall be constructed with the new development in accordance with the Design Criteria.

3. Hydrodynamic separators (i.e. Hancor, Contech brand) and other proprietary systems providing a maximum effluent TSS of 20 mg/l shall be assigned a Value Rating of 5. These units shall only be used in high density developments with at least 75% impervious cover.

4. **Limited Application Stormwater Treatment Facilities within a required Stream Corridor.** It is recognized that Stormwater Treatment Facilities are intended to protect the health and quality of streams and riparian corridors, and thus should be implemented within development sites rather than within dedicated stream corridors. However, certain BMPs (described below) that maintain or enhance the character and function of a stream corridor may be included as part of the Stormwater Management Plan under the following conditions:

    i. Installation of wetland swales or native vegetation swales to convey stormwater to the main stream channel when it is not practical to convert such flows into sheet flow (as approved by the Director).

    ii. Installation of vegetated filter strips (ref. section D.1 above) to treat flows entering the stream corridor. Constructed filter strips shall be limited to the outer 1/3rd of required the minimum stream corridor width as defined under the Code of Ordinances. Generally, trees within the dedicated stream corridor should not be removed in order construct filter strips.

    iii. Value Ratings:

    Swales: Apply a value rating as indicated in the BMP manual to the total area treated by the swale – including areas treated by the swale within or outside of the stream corridor. No additional credit shall be taken for "native vegetation preserved or established" for the area including or treated by the swale.

    Vegetated Filter Strip: Apply the value rating as described above in section D.1.c to upland areas tributary to a vegetated filter strip.

5. Recommended Applications

    The table below is provided as a guide in selecting BMPs for various site development conditions.

BMP Applicability Guide

Land Use	Rain Gardens & Bioretention	Native Veg. & Filter Strips	Vegetated Swales	Pervious Pavement	Wet & Dry Detention, Wetlands	Hydro-dynamic Separators
Commercial & Industrial	0	-	-	+	+	+
High Density Residential	+	0	0	0	+	0
Low Density Residential	0	+	+	-	+	-
Notes	*Tend to catch trash and debris requiring frequent removal and maintenance. Good P & N removal.*	*Larger areas required for installation. Low maintenance.*	*Swales typically work well into single-family development drainage design, less so in high density.*	*Best used on sites where space is a premium, minimal sediment runoff and tree debris.*	*Highly applicable for any site type if space is available. Pre-treatment required to control sedimentation.*	*Often clog when overloaded with tree and lawn debris; best for high density applications.*
Legend - Not Recommended 0 Somewhat Applicable + Highly Applicable						

6. Signage

   Informational signage is recommended at readily visible locations along the perimeter of preserved or established native vegetation defined as effective elements of the Stormwater Management Plan (i.e. filter strips, restored or enhanced stream corridors, swales, bioretention areas) in order to prevent routine mowing and other practices not in conformance with the approved Maintenance Plan for the site. If signage is to be provided, locations should be shown on the Stormwater Management Plan.

7. Minimum Easement and Setback Requirements:

   Maintenance/access easements shall be provided per Code of Ordinances for all stormwater treatment facilities. In addition, minimum setbacks from buildings shall be provided to ensure desirable site designs and to prevent potential water damage to buildings. The following establishes minimum easement and setback dimensions for BMPs installed under the Code:

   a. **Setbacks for Infiltration Facilities:** Any facility that causes water to pond and infiltrate into the subsurface after a rainfall event shall be located a minimum of 20 feet away from any residential structure, measured from the design WQv pool elevation to the outside face of the structure. Representative BMPs include bioretention cells and infiltration basins. Rain gardens installed to treat stormwater from individual residential building lots shall generally be located a minimum of 10 feet away from any residential structure and located on the downslope side of the building.

b. **Setbacks for Natural Conveyance Swales:** The design WQv pool elevation shall be located a minimum of 20 feet from any residential structure.

c. **Access Route:** All stormwater treatment facilities shall maintain a minimum 15-foot wide access route from a paved public access route.

d. **Easements for Basins and Ponds:** A 15-foot wide maintenance access strip with a maximum 5:1 slope, shall be provided around the perimeter of ponds and basin-type stormwater treatment facilities (see examples below). Additionally, a 20-foot minimum setback shall be provided from the 1% design storm water surface elevation in such facilities to all residential structures. Examples of ponds and basin-type stormwater treatment facilities as defined in the MARC/APWA BMP Manual include:
   - Extended Detention Wetlands
   - Extended Wet Detention
   - Extended Dry Detention Basins
   - Wet Ponds

e. **Setbacks on Non-Residential Developments:** The City recognizes that higher density developments (office, retail, mixed-use, etc.) may require stormwater treatment facilities to be placed closer to buildings than noted above for residential construction. In these cases, the Design Engineer shall show that the facilities are completely separated from the building foundation to address geotechnical and structural concerns, including but not limited to sub-drainage, differential movement and shrink/swell factors.

f. **Protection of Property:** In addition to the above setback requirements, the 1% design storm shall be routed through all stormwater treatment systems to ensure minimum freeboard requirements are met as described in Section D.4.a of the Design Criteria – Stormwater Conveyance Facilities.

(e) Construction Specifications and Details

All storm drainage construction performed pursuant to these design criteria shall utilize construction specifications and details provided in the MARC/APWA BMP Manual and as approved by the City.

(f) Modifications to Allow Alternate Compliance

Waivers or modifications of specific requirements from these Standards shall conform with the requirements of the Sedalia Code of Ordinances. Variance requests must be made to the Governing Body or by such process as the Governing Body has established.

Section 2. Sections 22-48, 22-51, 22-53, 22-54 and 22-55 of the Code of Ordinances are repealed in their entirety.

Section 3. This ordinance shall be in full force and effect from and after its passage and approval.

Read two times by title, copies of the proposed ordinance having been made available for public inspection prior to the time the bill is under consideration by the Council and passed by the Council of the City of Sedalia, Missouri this 19th day of August, 2013.

Mary Elaine Horn
Presiding Officer of the Council

Approved by the Mayor of said City this 19th day of August, 2013.

Mary Elaine Horn
Mary Elaine Horn, Mayor

ATTEST:

Arlene Silvey MRCC
Arlene Silvey, MRCC
City Clerk

To: Gary Edwards
From: Bill Beck
Date: August 14, 2013
Subject: Stormwater Design Criteria

I would like to recommend the Council approve the revised Stormwater Design Criteria. This will replace the design criteria that was approved in 1991.
Updating these criteria is critical to keeping the city in compliance with the changing state and federal stormwater regulations.

Thank you.