

**FLOOD CONTROL DETENTION PLAN REVIEW CHECKLIST  
 April 2019**

Office Use: Case No: \_\_\_\_\_  
 Review Date: \_\_\_\_\_  
 Reviewer: \_\_\_\_\_

**DETENTION PLAN REVIEW CHECKLIST**

This Plan Review Checklist is designed as a tool to assist the design engineer and review engineer in submitting a complete set of plans for detention. This is not a standalone checklist and only covers items specifically related to stormwater detention. See other applicable checklists for Site Development or Public Improvements for additional plan information. This checklist is not intended to be a complete listing of all applicable requirements but is only a collection of the most commonly required items. It is the responsibility of the design engineer to obtain all applicable design standards and use good engineering judgment in preparing construction plans.

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## **SECTION 1 – APPLICABLE STANDARDS AND ORDINANCES APPLICABLE TO FLOOD CONTROL DETENTION FACILITIES**

### **1.1 Overland Park Municipal Code:**

- [Chapter 15.10](#) - Stormwater Management Program – Standards and Permitting - Ordinance Requirements for Stormwater Detention
- [Chapter 16.210](#) - Stormwater Treatment - Covers requirements for Flood Control Detention facilities that also include a stormwater treatment component.
- [Chapter 7.54.250 - Surface Drainage](#) - Covers requirements about stormwater discharges - This is applicable to detention basin discharge location that involve extended duration drawdown.

### **1.2 Other City Standards and Policies:**

- City of Overland Park Design and Construction Standards Manual - [Volume 1 Design Criteria](#)
- City of Overland Park [Standard and Supplementary Details](#)
- Stormwater Management Studies ([ES Policy #3-01](#))

### **1.3 Referenced Standards:**

- KC Metro APWA Division V – Design Criteria Section 5600 – Storm Drainage Systems and Facilities (APWA 5600)
- MARC and [KC Metro APWA Manual of Best Management Practices](#) for Stormwater Quality, March 2012

## **SECTION 2 – SUBMITTALS**

### **2.1 Submittals**

- \_\_\_\_\_ Submit plans as a Site Development Permit ([Site Development Permit Application](#)).  
If plans are incorporated into other site development plans, the detention plans shall be on separate sheets.

\_\_\_\_\_ Sealed Final Stormwater Management Report (sealed) 2 copies and one digital (pdf).  
If no changes, a letter indicating that there are no changes from the preliminary is acceptable.

\_\_\_\_\_ Work in Special Flood Hazard Areas – Submit separate [Floodplain Development Permit](#) application/checklist including one copy in a digital (pdf) format.

### **2.3 Fees Paid Prior to Permitting**

\_\_\_\_\_ Plan Review and [Permit Fee](#) based upon Resolution 4277

\_\_\_\_\_ Easement/legal document [recording fees](#) – if applicable

## **SECTION 3 – CONSTRUCTION PLANS**

**Stormwater Detention Components Only - See other plan review checklists for full requirements depending on the scope of the project.**

**3.2 Drainage Plan, Map, and Calculations - See Public Improvement Plan Review Checklist for requirements related to storm drainage system plan requirements.**

### **3.4 Detention Site Grading Plan**

\_\_\_\_\_ Scale (1"=50' or larger) and North arrow

\_\_\_\_\_ Setback requirements:

- ✓ Design water surface a minimum of 20 feet away from Buildings and Property Lines
- ✓ Dam Embankment out of ROW
- ✓ 15 foot access path provided w/5:1 or flatter slopes

\_\_\_\_\_ Contour lines:

- ✓ Existing/Proposed shown with different line weights
- ✓ Minimum of 50 feet beyond property line - or as necessary to show drainage patterns

\_\_\_\_\_ Detention Basin Slopes:

- ✓ Maximum 3:1, if side slopes exceed 5:1 then safety measures shall be provided – including but not limited to fence on all sides.

- ✓ Minimum drainage slopes:
  - o Grass areas, 2.5%
  - o Asphalt area, 1%
  - o Concrete areas, 0.5%
- ✓ Vertical retaining walls may be used if basin is fenced and a means of egress is provided for maintenance (5:1 or flatter slope for equipment).

\_\_\_\_\_ Dam Embankment fill soil compaction specified.

### 3.5 Detention Basin Design

\_\_\_\_\_ Final Stormwater Study and construction plan correspond for:

- ✓ Drainage plans correspond
- ✓ Basin stage-storage on the plans match the final study
- ✓ Orifice sizes match
- ✓ Unless the detention facility is a dual water quality / flood control basin or a wet pond, direct discharge into the basin is not permitted.

\_\_\_\_\_ Underground storage:

- ✓ Venting required to avoid a vapor lock condition
- ✓ Two points of access required (48" min dia manhole or equivalent at access points)
- ✓ Pretreatment system required
- ✓ Dewatering system required
- ✓ Cleanout level defined
- ✓ Construct with adequate setbacks from structures in case of collapse
- ✓ Gravel void space storage not permitted
- ✓ Structurally designed for H-20 loadings

\_\_\_\_\_ Wet bottom basins - Conform to [OPMC 15.10.300](#):

- ✓ Minimum maintained depth of 4 feet
- ✓ 2 acre minimum size for lakes connected to the storm drainage system
- ✓ Erosion control on banks at permanent pool elevation
- ✓ Provisions for draining pool within 72 hours
- ✓ [Private lake Agreement](#) required
  - o Sediment Forebay sized per KCAPWA Figure 5608-1 and MARC BMP Manual for Wet Extended Detention provided.
  - o Aeration provided

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- \_\_\_\_\_ Parking lot detention:
  - ✓ Maximum depth of 7" in parking lots
  
- \_\_\_\_\_ Required detention parameters provided on the plans:
  - ✓ Total site area, ac
  - ✓ Total area to basin, ac
  - ✓ Off-site area to basin, ac
  - ✓ Percent impervious of total site, Pre-developed, %
  - ✓ Percent impervious of total site, Post-developed, %
  - ✓ Percent impervious of area to basin, Post-developed, %
  - ✓ Percent impervious of off-site area to basin, Post-developed, %
  - ✓ Storage volume at overflow, cf
  - ✓ Water elevation at 100-year storm, cfs
  - ✓ Release rate, 2, 10, 100-year storm, cfs
  - ✓ 2, 10, 100-year Design storm, duration & distribution
  - ✓ 2, 10, 100-year Design storm, duration & distribution
  - ✓ Orifice type and area, sf
  
- \_\_\_\_\_ Stage-storage curve provided on the plans
  
- \_\_\_\_\_ Stage-outflow curve provided on the plans
  
- \_\_\_\_\_ Inflow and outflow hydrographs provided. Utilizes Modified Puls (aka storage-indication method) for reservoir routing. Other methods such as modified rational are not acceptable for final design.
  
- \_\_\_\_\_ Hydrograph - SCS Type II 24 Hour Storm used for Hydrograph routing (APWA 5602.4 - rainfall mass).
  
- \_\_\_\_\_ Orifice Design:
  - ✓ Orifice plate is stainless steel, aluminum, or ASTM A-123 galvanized with stainless steel fasteners, and sealant.
  - ✓ Accessible trash rack on orifices smaller than 8" diameter. No orifice shall be less than 3-inches in diameter (APWA 5608.4). See BMP Manual for alternative outlet designs under "WQv Outlet Trash Rack Design" to minimize clogging of smaller than 3-inch orifice is required.
  - ✓ Orifice is installed on the outlet pipe of the outlet structure.
  - ✓ Outlet orifice not impaired by tailwater
  - ✓ No mechanical devices used
  - ✓ Orifice plate can fit through access opening for future removal/replacement.

\_\_\_\_\_ Primary Spillway Design is sized to route the 1% storm through the detention basin with one half -foot of freeboard to the Auxiliary Spillway.

\_\_\_\_\_ Auxiliary Spillway Design:

- ✓ Auxiliary spillway sized to pass the full 1% storm with one-foot freeboard
- ✓ Between spillway WSE and top of berm assuming zero storage available in pond and zero flow through primary outlet..
- ✓ Erosion control provided on the auxiliary spillway when velocities exceed 5 fps.

### 3.6 Detail Sheet(s)

\_\_\_\_\_ Cross-section of Auxiliary Spillway including 1% storm design capacity, flowline elevation, 1% WSE, and top of berm elevation.

\_\_\_\_\_ Cross-section of dam including any compaction requirements, clay core, etc.

\_\_\_\_\_ Anti-seep collars - omit gravel bedding around storm sewer pipe as needed to prevent seepage along the outflow pipe.

### 3.7 Miscellaneous Items / Other Permits

\_\_\_\_\_ Easements - No public drainage easement for private detention facilities. [Detention Maintenance Agreement](#) required ONLY when the control structure is co-located in a public storm sewer system.

\_\_\_\_\_ [Certificate of Completion and Compliance - Stormwater Detention Facility](#) is required prior to issuance of a Certificate of Occupancy or Certificate of Compliance. (Copy of final cert forwarded to PW Engineering for inclusion in Detention pond GIS database).