

STORMWATER Report Requirements

The purpose of this document is to assist in the preparation of Preliminary and Final Stormwater Reports for the City of Lee's Summit. This is meant to provide a framework for the minimum information required. Unless noted otherwise, the following requirements are applicable for both preliminary and final reports. The City of Lee's Summit Unified Development Ordinance (UDO) and Design and Construction Manual (DCM) shall govern. Stormwater design is based on Section 5600 of the Kansas City Metropolitan Chapter of APWA Design Criteria, current edition, as referenced below.



COVER SHEET

- Study Name, including Project Name
- Project Location
- Developer Information (Prepared "For")
- Engineer Information (Prepared "By")
- Missouri PE Sealed & Signed
- Report Date (including any revisions dates)



TABLE OF CONTENTS

- Body of Report
 - General Information
 - Methodology
 - Existing Conditions Analysis
 - Proposed Conditions Analysis
 - Future Conditions Analysis (if project is phased)
 - Conclusions and Recommendations
- Figures / Maps / Exhibits
- Supporting Calculations



BODY OF REPORT

GENERAL INFORMATION

The general information section shall include a written project description clearly providing information for the site and proposed development. At a minimum, it should contain the following:

- Description of the existing site location, size, and proposed use
- General overview of drainage patterns
- FEMA Classification
- Floodplain issues (if any)
- Wetland and USACE issues (if any)
- Narrative summary of soil classification, including source, and table indicating classification name, slope, and hydrologic soil group for each soil present

METHODOLOGY (APWA 5602 AND 5608)

This section shall address the general design approach according to APWA Sections 5602 and 5608 and shall include:

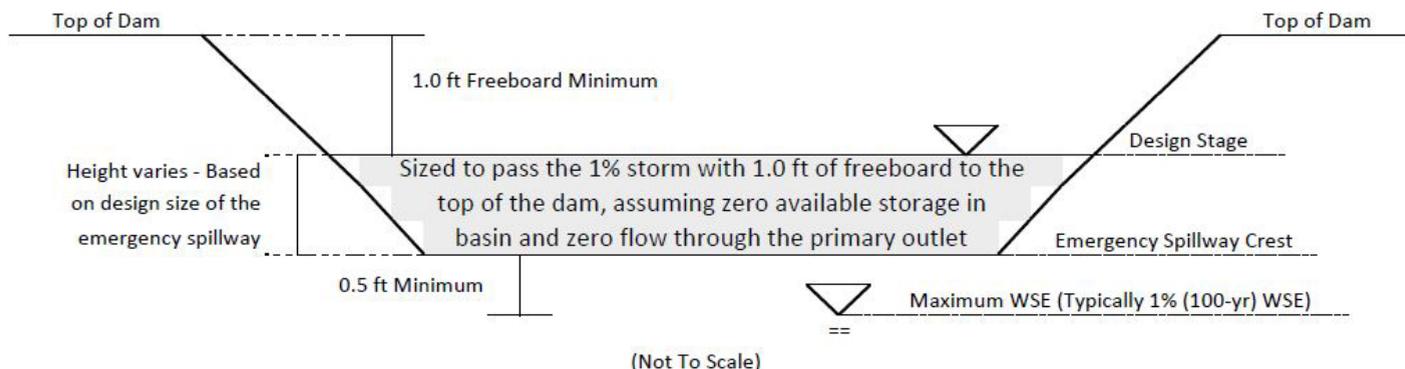
- Unit hydrograph modeling methods used (SCS TR-55, HEC-1, HEC-HMS, Pondpack, etc.)
- Computation methods for runoff determination (SCS, Type II, 24-hour rainfall)
- Design storm events used (with rainfall depths) and source of rainfall data

EXISTING CONDITIONS ANALYSIS

This section shall address the current condition of the proposed site and cover any natural features. According to APWA 5601.5.A.4.a and 5608.4, the “Comprehensive Control” release rate strategy is required. The analysis should include the following:

- Summary of comprehensive control requirements
- Existing Drainage Area Map - Including all on-site and off-site areas and outfall location Points of Interest (POIs) for each drainage area (may be referenced and included in appendix)
- Description of each drainage area – Including existing drainage pattern, size of sub-area, breakdown of on-site and off-site portions, and location of POI(s)
- Table summarizing input data – Including subarea, size, composite CN, and time of concentration
- Tables summarizing peak runoff data per subarea and per POI
- Table summarizing “allowable release rate” per POI
 - Explain the “accounting procedure” used in calculations
 - Off-site contributors to drainage area present in existing condition drainage area map for a POI
 - Table summarizing how these drainage areas were accounted in the calculation of the allowable peak flow rate at the various POIs

DETENTION/RETENTION BASIN OVERFLOW SPILLWAY SCHEMATIC



Note: Spillway length must be appropriate to site and approved by the City

Reference APWA Section 5608.4.F

PROPOSED CONDITIONS ANALYSIS

This section shall outline the proposal for the site. The analysis should include the following:

- All items provided in the Existing Conditions Analysis
 - Proposed drainage area map (may be referenced and included in appendix)
 - Narrative description of all proposed drainage areas and POIs, with comparison to existing conditions
 - Tables summarizing input data
 - Proposed peak runoff data per subarea and per POI

- Detention/Retention Analysis

Outline the proposal for any detention/retention components that will be required if the comprehensive control requirements can't be met. The analysis should include the following:

- Tables comparing allowable and proposed release rates for drainage areas and POIs
- Table summarizing detention/retention input data and results for all required storm events
- Maximum water surface elevation within the basin (typically the 100-year event)
- Undetained Drainage Areas – Explanation (such as fringe lots), locations shown on proposed drainage area map, existing vs proposed peak flow rate analysis and summary, and request for waiver from the DCM
- Water Quality Analysis
 - Outline the proposal for meeting water quality standards and requirements, according to APWA 5608.4 and Chapter 6 of the MARC/APWA BMP Manual, and shall include the following:
 - Requirements – 40-hour extended detention of runoff for the local 90% mean annual event (1.37"/24-hour rainfall)
 - Summary of water quality volume required and release rates proposed

FUTURE CONDITIONS ANALYSIS (IF PROJECT IS PHASED)

Same as Proposed Conditions Analysis, with comparisons to both existing and proposed.

CONCLUSIONS AND RECOMMENDATIONS

- Overview of the report – summarize existing vs proposed vs future conditions
- Include list of requested waivers to the DCM



APPENDICES

FIGURES / MAPS / EXHIBITS

List each with number and name.

SUPPORTING CALCULATIONS

- Preliminary Report
 - Time of Concentration calculations for drainage areas and POIs
 - Runoff Curve Number calculations for drainage areas and POIs
- Final Report
 - Time of Concentration calculations for drainage areas and POIs
 - Runoff Curve Number calculations for drainage areas and POIs
 - Elevation-Area-Volume curves per detention/retention basin
 - Inflow Hydrographs for all design storms (data required to run proposed model, but calculations not required until final report)
 - Stage-Discharge rating curves for each emergency spillway, primary outlet works, and combined outlets and overflows
 - Input data per basin outlet
 - Routing Curves for all design storms with time plotted as the abscissa and the following plotted as ordinates:
 - Cumulative inflow volume
 - Cumulative discharge
 - Stage elevation
 - Cumulative storage