

Stormwater Management Design Report Submittal Checklist

Satisfactory completion of the full list of items below, in addition to the required items indicated for Design Development phase on the Stormwater Control Plan Submittal Checklist are required prior to moving forward to the Contract Documents project phase.

GENERAL DESIGN CRITERIA

- SCMs must meet all Minimum Design Criteria (MDC) requirements.
- Flows higher than the design storm must bypass the SCM.

PEAK FLOWS

- The analysis point for the peak flow evaluation is the location(s) where the flow leaves the LOD.
- Peak flows for the 1-, 2-, and 10- yr storms must be within **2% of existing** peak flows or treatment is required.

NUTRIENT LOADING

- The site area for nutrient management evaluation is the LOD.
- The proposed built upon area (PR-BUA) from all new development is fully treated by a primary SCM. Infiltration, bioretention, and permeable paver SCMs assume full nitrogen treatment. For all other SCM types, nitrogen calculations use the SNAPTool v 4.2.0.
- Nitrogen buydown is used only after a primary SCM treats 100% of the PR-BUA.
- Runoff Volume does not increase by more than **2% over the existing** runoff volume for the runoff volume match.
- Runoff volume match for nutrient loading uses the 90th percentile storm event.

NARRATIVE

- Site description and project overview
- Goals and constraints of the project
- Proposed facility and rationale
- Vicinity map
- FEMA map with site area located
- Web Soil Survey Map with the site boundary
- NOAA Atlas 14 Point Precipitation Frequency Estimates and hydrographs
- Nutrient analysis results summary: BUA determination and nitrogen load and assumptions made.
- Peak Flow Analysis results summary discussion: peak flow comparisons and assumptions made.
- Summary table with existing and proposed 1-, 2-, and 10-yr peak flows
- Summary table with existing and proposed water surface elevations (1-, 2-, and 10- yr) inside the facility

- Hydrology method is NRCS Discrete Curve Method. The rational method may also be used for storm drains not draining to an SCM.
- Hydraulic controls used, methods of analysis.
- Summary table of required and proposed volume (WQv and Cpv) requirements
- Design volume(s) and corresponding event.
- SCM drawdown time, 3-days

NUTRIENT TREATMENT AREA MAP

- North arrow
- Scale
- Basemap includes physical and environmental features such as roads, buildings, streams, trees, SCMs, etc.
- LOD area is delineated.
- Existing Built Upon Areas (EX-BUA) within LOD are shown.
- Proposed Built Upon Areas (PR-BUA) within the LOD are shown.
- Legend with summary of area quantities

DRAINAGE AREA MAPS

- North arrow
- Scale
- Legend
- Contours
- Buildings and roads
- Natural channels
- Stormwater conveyance systems with structures labeled
- SCMs located and labeled
- Land Use/Land Cover boundaries labeled
- Soil boundaries labeled
- Delineated drainage area(s), including offsite areas of contributing stormwater runoff.
- Drainage areas are labeled.
- Points of Analysis (POAs) labeled and located at the downstream edges of the LOD.
- Segmented Time of Concentration (Tc) paths are shown and labeled with flow type and lengths.
- Overland flow paths are no longer than 100'.
- Summary chart with each drainage area and the total contributing acres.

ANALYSES AND COMPUTATIONS

- EX- and PR-BUA determination
- SNAPTool Spreadsheet (v 4.2.0) (Not required for bioretention, infiltration, or permeable paver SCMs)
- Curve number derivation
- Time of Concentration (Tc) Computations
- Routing computations, schematics, and control structure diagram
- Required volume computations
- Peak discharge computations with model inputs and output tables
- Stage/storage tables, forebay volume computations, storage/discharge tables
- Infiltration calculations
- Emergency spillway stability computations
- Outfall stability computations
- Anti-flotation computations
- Sliding and overturning computations if a weir wall is proposed

DAM BREACH MAP

- North arrow
- Scale
- Legend
- Property lines
- Basemap with physical and environmental features.
- Stormwater conveyance systems with structures labeled
- SCMs located and labeled
- Dam breach inundation area is delineated downslope from existing or proposed dams until the dam breach flood wave enters the floodplain at the confluence with a larger stream system, is captured by a closed storm drain system, or is reduced to a depth less than six inches.

GEOTECH REPORT, IF REQUIRED BY MDC OR IF A DAM 3 FT IN HEIGHT OR GREATER IS PROPOSED

- Dams must have a minimum of 2 boring samples: 1 along dam centerline in fill to the elevation of the bottom of the clay core and 1 in the SCM at deepest cut location.
- Boring locations map
- Boring log
- Unified Soil Classification (USC) determinations
- Presence of bedrock or groundwater noted
- Seasonal High-Water Table (SHWT) location
- Infiltration test

- Seepage potential
- Bearing strength determination
- Determination of soil/concrete friction coefficient, if weir wall is proposed

STORM DRAIN SYSTEM

- Calculations for each proposed storm drain pipe, inlet, and channel

Professional Engineer Signature

Date