

Hydrology and Hydraulics Design Criteria

This guide is provided to note key design criteria that EBR has encouraged to use and accepted for Stormwater Management Plans (SMP) and construction plan submittals. This document is intended to be used with the Storm Water Management and Floodplain Requirements FAQ sheet.

Hydrology and Discharge

Discharge Calculations

Size of Drainage Area (acres)	Discharge Calculation
Less than 1.0 acre	3.0 cfs/acre
1.0 - 299	EBRP Run-off Curves ¹
300 - 1,999	SCS method ²
2,000 or more	HEC-HMS or USGS procedures

1. Contact the Department of Development for run-off curves.
2. Use TR55 method for Time of Concentration, T_c .
3. Average lot size is calculated based on the area occupied by the buildable lots, not the total development area divided by the number of lots

EBRP Run-off Curve Categories

Land Use Category	Average Lot Size ³
Undeveloped	N/A
Low Density Residential	½ acre or more
High Density Residential	Less than ½ acre
Commercial	N/A

Design Rainfall Events

Return Interval	Design for 24-hour Rainfall Event
10-year	8.5 inches
25-year	9.5 inches
50-year	10.5 inches
100-year	12.6 inches

Drainage Design

Interior Drainage

- 10-year Hydraulic Grade Line (HGL) shall be below existing or proposed gutter elevation.
- When offsite adjacent areas contribute flow to the site proposed for development, accommodations for these areas must be considered.
- No sheet flow from paved parking areas on lots greater than one-third acre, but less than five acres, shall be allowed to drain directly into the street or street catch basins (15.21 I1).
- Sheet flow from paved parking areas on lots greater than five acres, shall be directed into a storm drain and catch basin system designed for this area (15.21 I2).

Cross Drain Design Frequency

Size of Drainage Area (acres)	Design Frequency
Less than 25	10-year
25 - 99	25-year
100 or more	50-year

Detention System

- Detention systems, if recommended, shall be designed for a 10 and 25-year storm. However, a 100-year storm routing is required for evaluation. (15.15 E3).
- Stormwater overflow from detention ponds shall maintain a sheet flow condition. (15.15 E4)

Servitude Requirements

- For piped storm sewers the width of servitude shall be a minimum of fifteen feet. Servitude adequacy to be determined by Department of Development.
- For open ditches and/or canals, the minimum servitudes shall conform to the following sections. Servitude adequacy to be determined by Department of Development and will require approval from Department of Transportation and Drainage for all ditch bottoms greater than 15 ft.

