

Bioretention

Trash Best Management Practices (BMP)

Minimum Specifications



Figure A: CA State University-Sacramento Bioretention BMP

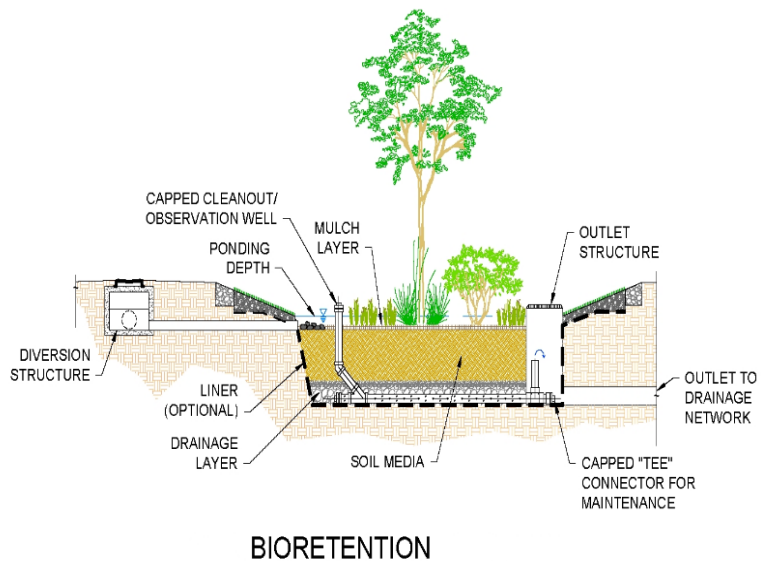


Figure B. Tetra Tech / CASQA

Description

Bioretention BMPs remove pollutants from storm water runoff through physical filtration as storm water passes through media layers. The treatment area consists of a ponding layer, a vegetated and mulched layer, an engineered soil layer, and a supporting bed layer of sand or gravel. Storm water entering the treatment area evapotranspires or gradually passes through the mulch/soil/gravel layers where it then infiltrates into native soil or collects in an underdrain that conveys to a discharge point. Bioretention BMPs vary in shapes and sizes. The Executive Director does not certify as trash Full Capture Systems any bioretention BMPs that have a permanent pool of water, such as wet ponds or wetlands.

Performance and Design

1. The bioretention BMP must trap trash particles that are 5 mm or greater, and include a screen¹ at the BMP inlet, overflow, or bypass outlet to trap these particles from either of the following:
 - a. The peak flow rate generated by the region specific one-year, one-hour storm event from the applicable subdrainage area, or
 - b. The flow capacity of the existing corresponding storm drain design.

A screen is not required if the BMP has capacity to treat either of these flows through media filtration or infiltration into native or amended soils;

2. The bioretention BMP must have a minimum treatment capacity for either of the flow rates described in 1.a. or b. above. State Water Board recommends using the Rational Equation method to calculate the peak flow rate for runoff from a small subdrainage area that is approximately 50 acres or less. The Rational Equation is expressed as $Q = CiA$, where
 - Q = design peak runoff rate, cfs,
 - C = runoff coefficient, dimensionless,
 - i = rainfall intensity as determined per the rainfall isohyetal map specific to each region, inches/hour, and
 - A = subdrainage area, acres.

State Water Board allows other calculation methods for drainage areas greater than 50 acres to accurately calculate and predict the peak flow rates; provided a registered California licensed professional engineer documents the calculations within the design plans.

3. The bioretention BMP design plans must be stamped and signed by a registered California licensed professional civil engineer (see Bus. & Prof. Code Section 6700, et seq.).

Maintenance

Regular maintenance is required to maintain adequate trash capture capacity and to ensure that trapped trash does not migrate offsite. The owner should establish a maintenance schedule based on site-specific factors, including the size of the bioretention BMP, storm frequency, and estimated or measured trash loading area.

¹ Upon approval by the Regional Water Quality Control Board Executive Officer, a 5mm screen will not be required if there is an external design feature or up-gradient structure designed to bypass flows exceeding the region specific one-year, one-hour storm event; or when the BMP's capacity to trap particles exceeds flows generated by the one-year, one-hour storm event.