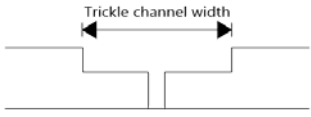


DESIGN PHASE MAINTENANCE CONSIDERATIONS FOR PUBLIC PERMANENT BMPs CHECKLIST

PROJECT NAME: _____ PROJECT LOCATION: _____

REVIEWER'S NAME: _____ APPROVAL DATE: _____

This criteria applies to developer built regional or sub-regional Permanent BMPs that will be publicly owned and maintained.

Item #	Item	DCM Criteria for Permanent BMPs	Criteria Specific to Public BMPs
1	Side Slopes	All excavated or embankment slopes from the pond bottom to the 100-year water surface elevation should be no steeper than 4 feet horizontally to 1 foot vertically (4H:1V) for stability when soils are saturated, ease of maintenance and access, especially within the WQCV and EURV. Steeper slopes, up to 3H:1V, may be allowed when the site is constrained.	No change
2	Benchmark	No criteria	Install depth gage at outlet structure.
3	Trickle Channel (Low-flow)	Policy Clarification on Low-Flow Channels: "Low-flow channels within an EDB shall be constructed of concrete on prepared subgrade and reinforced to withstand the expected loading conditions, expansion, contraction, and degradation due to seasonal freeze-thaw conditions."	The low-flow channel must be a minimum of 7 feet wide with a 6" curb head on one or both sides. The concrete bottom must be either 8" with fiber mesh reinforcement or 6" with #4 @ 15" O.C. rebar reinforcement.
4	Forebay/Micropool	Forebay designs must facilitate maintenance by providing adequate access and by having hard, stable bottoms. It is preferable to contain the micropool integral to the concrete portion of outlet structures.	<p>Forebays and micropools shall be constructed with a concrete bottom and concrete walls. The concrete bottoms must be either 8" with fiber mesh reinforcement or 6" with #4 @ 15" O.C. rebar reinforcement. A concrete ramp must be installed for access into the forebay/micropool. The concrete ramp must be connected to the access road (an earthen ramp on the outside of forebay is acceptable), be a minimum of 7 feet wide, and be sloped at 4:1 maximum. In smaller structures where a ramp is not practical, stairs may be substituted with O&M approval. A secondary weir must be located above the forebay notch in the forebay to direct larger flows towards the trickle channel.</p> 

5	Retention Ponds	Retention ponds are designed and operated like detention ponds, but include a permanent pool of water below the outlet invert elevation. These ponds also must be designed with attention to special maintenance and hazard considerations.	Public retention ponds will not be accepted due to water rights issues.
6	Rip-rap Placement	Figures 13-7, 13-8, and 13-9 show riprap beyond the limits of the forebay.	Loose riprap may not be used to armor around inlets or outlets within Public BMPs.
7	Underdrains	Slope the underdrain into a larger outlet structure.	Underdrains may not be placed below the access drive.
8	Diversion Structures	No criteria	Diversion structures (where approved) must have a manhole for access on each side of the weir. The manholes must be located out of the roadway pavement to allow access without blocking traffic.
9	Vehicle Access to BMPs	Maintenance access for all facilities must be adequate for the anticipated maintenance vehicles and equipment and shall be kept clear of impediments to flow and access. Access from public rights-of-way to the easement or tract shall also be provided in an easement or tract. The entrance to an access drive from a roadway or parking lot shall be located so that traffic safety is not compromised. A means of limiting public access to the site, such as bollards and a chain or a gate, shall be provided at the entrance to the access drive.	Vehicle access shall be limited by a locking gate or chain. Where access comes off of an existing road or parking lot, design and incorporate curb cuts and driveways for the access road entrance. Drive aprons and sidewalk sections must be 8" thick rebar reinforced concrete that will allow crossing of heavy equipment without concern for damage to the concrete structure. Landscaping or sprinkler systems shall never be placed between the curb cut and the access road.
10	Fencing Around BMPs	Handrails or fences shall permit vehicular access.	If the pond is to be fenced, use either two 12' sliding cantilever gates or a swinging gate. If a swinging gate must be used, the area under the arc of the gate swing must be paved and a center post should be installed that slides into a short pipe in the ground for stability.
11	Working Bench and Access Drive	The working bench and access drive shall slope no more than 15 percent, and be at least 10 feet wide for a centerline radius greater than 50 feet and at least 11 feet wide for a centerline radius between 30 and 50 feet. The minimum centerline radius shall be 30 feet.	Access roads to the bottom of Public BMPs must be at least 15 feet wide. In situations with constraints (vertical clearance, tighter turns), discuss access road with O&M.