

Definitions of BMP Categories and Types

These definitions will help you decide which BMP category your BMP data fits into. The Chesapeake Bay Program's Urban Storm Water Workgroup is currently finalizing these definitions.

BMP	Definition
Category A: Wet Ponds and Wetlands	Practices that have a combination of a permanent pool, extended detention or shallow wetland equivalent to the entire water quality storage volume. Practices that include significant shallow wetland areas to treat urban storm water but often may also incorporate small permanent pools and/or extended detention storage. (MD 2000)
Wet pond	A storm water management pond designed to obtain runoff and always contains water. (Prince George's LID Report)
Wet extended detention pond	Combines the pollutant removal effectiveness of a permanent pool of water with the flow reduction capabilities of an extended storage volume. (http://www.deq.state.id.us/water/stormwater_catalog/doc_bmp47.asp)
Multiple pond system	A group of ponds that collectively treat the water quality volume. (New York Stormwater Management Design Manual)
"Pocket" pond	A wetland that has such a small contributing drainage area that little or no baseflow is available to sustain water elevations during dry weather. Water elevations are highly influenced, and in some cases, maintained by a locally high water table. (Technical Note #77 from Watershed Protection Techniques. 2(2): 374-376)
Shallow wetland	A wetland that provides water quality treatment entirely in a wet shallow marsh. (New York Stormwater Management Design Manual)
Extended detention wetland	A wetland system that provides some fraction of the water quality volume by detaining storm flows above the marsh surface. (New York Stormwater Management Design Manual)
Pond/wetland system	A wetland system that provides a portion of the water quality volume in the permanent pool of a wet pond that precedes the marsh for a specified minimum detention time. (New York Stormwater Management Design Manual)
"Pocket" wetland	A storm water wetland design adapted for the treatment of runoff from small drainage areas (< 5 acres) and which has little or no baseflow available to maintain water elevations and relies on groundwater to maintain a permanent pool. (MD 2000)
Submerge gravel wetland	One or more treatment cells that are filled with crushed rock designed to support wetland plants. Stormwater flows subsurface through the root zone of the constructed wetland where pollutant removal takes place. (http://www.georgiastormwater.com/vol2/3-3-5.pdf)
Constructed wetland	Constructed wetlands are systems that perform a series of pollutant removal mechanisms including sedimentation, filtration, absorption, microbial decomposition and vegetative uptake to remove sediment, nutrients, oil and grease, bacteria and metals. Wetland systems reduce runoff velocity thereby promoting settling of solids. Plant uptake accounts for removal of dissolved constituents. In addition, plant material can serve as an effective filter medium and denitrification in the wetland can remove nitrogen. (EPA Handbook: Urban Runoff Pollution Prevention and Control Planning)
Retention pond (wet)	Surface pond with a permanent pool.
Wetland basin with open water surfaces	Similar to retention ponds except that a significant portion (usually 50% or more) of the permanent pool volume is covered by emergent wetland vegetation. (www.purdue.edu)
Retention Basin	Capture a volume and retain that volume until it is displaced in part or in total by the next runoff event. Maintains a significant permanent pool volume of water between runoff events. (EPA:

	http://www.epa.gov/ost/stormwater/usw_c.pdf)
<u>Category B: Dry Detention, Hydrodynamic Structure</u>	Practices used to moderate flows and remains dry between storm events.
Dry pond	Designed to moderate influence on peak flows and drains completely between storm events. (www.deq.state.id.us/water/stormwater_catalog/chapter5_5.asp)
Underground dry detention facility	Designed to dry out between storms and provides storage below ground in tanks and vaults. (www.deq.state.id.us/water/stormwater_catalog/chapter5_5.asp)
<u>Category C: Dry Extended Detention</u>	A storm water design feature that provides gradual release of volume of water in order to increase settling of pollutants and protects downstream channels from frequent storm events.
Dry extended detention pond (peak quantity control only)	Dry extended detention ponds (a.k.a. dry ponds, extended detention basins, detention ponds, extended detention ponds) are basins whose outlets are designed to detain the stormwater runoff from a water quality "storm" for some minimum duration (e.g., 24 hours) which allow sediment particles and associated pollutants to settle out. Unlike wet ponds, dry extended detention ponds do not have a permanent pool. However, dry extended detention ponds are often designed with small pools at the inlet and outlet of the pond, and can also be used to provide flood control by including additional detention storage above the extended detention level. (www.stormwatercenter.net)
Extended detention basin	An impoundment that temporarily stores runoff for a specified period and discharges it through a hydraulic outlet structure to a downstream conveyance system. An extended detention basin is usually dry during non-rainfall periods. (VA DCR website)
Enhanced extended detention basin	An enhanced extended detention basin has a higher efficiency than an extended detention basin because it incorporates a shallow marsh in the bottom. The shallow marsh provides additional pollutant removal and helps to reduce the resuspension of settled pollutants by trapping them. (VA DCR website)
<u>Group D: Infiltration Practices</u>	Practices that capture and temporarily store the water quality volume before allowing it to infiltrate into the soil. (MD 2000)
Infiltration Trench	An excavated trench that has been back filled with stone to form a subsurface basin. Storm water runoff is diverted into a trench and stored until it can be infiltrated into the soil. (Prince George's, LID Report)
Infiltration Basin	Relatively large, open depressions produced by either natural site topography or excavation. When runoff enters an infiltration basin, the water percolates through the bottom or the sides and the sediment is trapped in the basin. The soil where an infiltration basin is built must be permeable enough to provide adequate infiltration. Some pollutants other than sediment are also removed in infiltration basins. (epa.gov/owow/nps/education/runoff.html)
Porous Pavement	Pavement that allows storm water to infiltrate into underlying soils promoting pollutant treatment and recharge. (EPA LID Fact Sheet)
<u>Category E: Filtering Practices</u>	Practices that capture and temporarily store the water quality volume and pass it through a filter bed.
Filtering and Open Channel Practices	Practices that capture and temporarily store the water quality volume and pass it through a filter bed of sand, organic matter, soil or other media are considered to be filtering practices. Filtered runoff may be collected and returned to the conveyance system. Vegetated open channels that are explicitly designed to capture and treat the full water quality volume within dry or wet cells formed by checkdams or other means. (MD 2000)
Surface sand filter	Both the filter bed and the sediment chamber are above ground. The surface sand filter is designed as an off-line practice, where only the water quality volume is directed to the filter. (www.stormwatercenter.net)

Underground sand filter	A modification of the surface sand filter, where all of the filter components are underground. An off-line system that receives only the smaller water quality events. (www.stormwatercenter.net)
Perimeter sand filter	Includes the basic design elements of a sediment chamber and a filter bed. In this design, however, flow enters the system through grates, usually at the edge of a parking lot. The perimeter sand filter is the only filtering option that is on-line, with all flows entering the system, but larger events bypassing treatment by entering an overflow chamber. (www.stormwatercenter.net)
Organic media filter	Essentially the same as surface filters, with the sand media replaced with or supplemented with another medium. The assumption is that these systems will have enhanced pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. (www.stormwatercenter.net)
Pocket sand filter	Diverts runoff from the water quality volume into the filter by pipe where pretreatment is by means of concrete flow spreader, a grass filter strip and a plunge pool. The filter bed is comprised of a shallow basin containing the sand filter medium. The filter surface is a layer of soil and a grass cover. In order to avoid clogging the filter has a pea gravel "window" which directs runoff into the sand and a cleanout and observation well. (http://www.wcc.nrcs.usda.gov/watershed/UrbanBMPs/pdf/water/quality/pocketsandfilter.pdf)
Bioretention areas (a.k.a. Rain Gardens)	Primarily for water quality control. These are planting areas installed in shallow basins in which the storm water runoff is treated by filtering through the bed components, biological and biochemical reactions within the soil matrix and around the root zones of the plants and infiltration into the underlying soil strata (VA web site).
Swale	In general a swale (grass channel, dry swale, wet swale, water quality swale) refers to a series of vegetated open channel management practices designed specifically to treat and attenuate stormwater runoff for a specified water quality volume. It is treated through filtering by the vegetation in the channel, filtering through a subsoil matrix, and/or infiltration into the underlying soils. (EPA Fact Sheet)
Dry Swale	A type of grassed swale. Controls quality AND volume (Prince George's LID). An open drainage channel explicitly designed to detain and promote the filtration of storm water runoff through an underlying fabricated soil media. (MD 2000)
Infiltration Swale	Planted areas designed specifically to accept runoff from impervious areas (i.e. parking lots) providing temporary storage and onsite infiltration. (http://www.metrocouncil.org/environment/Watershed/bmp/CH3_RPPImpParking.pdf)
Wet Swale (a.k.a. Water Quality Swale)	A type of grassed swale. Uses residence time and natural growth to reduce peak discharge and provide water quality treatment before discharge to a downstream location (Prince George's LID). An open drainage channel or depression, explicitly designed to retain water or intercept groundwater for water quality treatment. (MD 2000)
Dry Wells	Dry well – small excavated pit, backfilled with aggregate, usually pea gravel or stone. Function as infiltration systems used to control runoff from building rooftops (Prince George's LID).
<u>Category F: Roadway Systems (sheet flow to median)</u>	
Sheet flow discharge to stream buffers	Sheet flow is water flowing in a thin layer of the ground surface. Filter strips are a strip of permanent vegetation above ponds, diversions and other structures to retard the flow of runoff, causing deposition of transported material, thereby reducing sedimentation. (MD 2000)

<u>Category G: Impervious Surface Reduction</u>	Using a BMP to reduce the total area impervious area and therefore encouraging stormwater infiltration.
Natural area conservation	Maintaining areas such as forests, grasslands and meadows that encourage stormwater infiltration.
Disconnection of rooftop runoff	Disconnecting the rooftop drainage pipe and allowing it to infiltrate into the pervious surface thereby reducing the impervious area.
Disconnection of non-rooftop impervious area	Directing sheet flow from impervious surfaces, i.e. driveways and sidewalks, to pervious surfaces instead of stormwater drains.
Rain Barrels	Rain barrels retain a predetermined volume of rooftop runoff (Prince George's LID).
Green Roofs	A multi-layer construction material consisting of a vegetative layer that effectively reduces urban storm water runoff by reducing the percentage of impervious surfaces in urban areas. (EPA LID Fact Sheet)
<u>Category H: Street Sweeping, Catch Basin Inserts</u>	A variety of BMPs that provide stormwater treatment for trash, litter, coarse sediment, oil and other debris before proceeding through the stormwater system.
On-line storage in the storm drain network	A management system designed to control storm water in the storm drain network. (MD 2000)
Catch basin inserts	Small, passive, gravity-powered devices that are fitted below the grate of a drain inlet. Intercept and contain significant amounts of litter, vegetation, petroleum hydrocarbons and coarse sediments. (www.kristar.com)
Oil/grit separators	Oil/grit separators – systems designed to remove trash, debris and some amount of sediment, oil and grease from storm water runoff based on the principles of sedimentation for the grit and phase separation for the oil. (www.metrocouncil.org/environment/watershed/bmp/CH3_STDetOilGrit.pdf)
Hydrodynamic Structures	A variety of products for storm water inlets known as swirl separators, or hydrodynamic structures are modifications of the traditional oil-grit separator and include an internal component that creates a swirling motion as storm water flows through a cylindrical chamber. These designs allow sediment to settle out as storm water moves in this swirling path. Additional compartments or chambers are sometimes present to trap oil and other floatables. (www.epa.gov/npdes/stormwater/menuofbmps)
Water quality inlets	Also known as oil and grit separators, provide removal of floatable wastes and suspended solids through the use of a series of settling chambers and separation baffles. (EPA Handbook: Urban Runoff Pollution Prevention and Control Planning)
Street sweeping	Seeks to remove the buildup of pollutants that have been deposited along the street or curb, using a vacuum assisted sweeper truck.
Deep sump catch basins	Storm drain systems designed to catch debris and coarse sediment. (www.lapa-west.org/NPSPollution3.pdf)
<u>Category I: Stream Restoration</u>	A BMP used to restore the natural ecosystem by restoring the stream hydrology and natural landscape.
Stream Restoration	Return of an ecosystem to a close approximation of its condition prior to disturbance. The establishment of predisturbance aquatic functions and related physical, chemical and biological characteristics. A holistic process. (NRC, 1999, <i>Restoration of Aquatic ecosystems</i> www.epa.gov/owow/)