

Appendix B. BMP Pollutant Removal Efficiency

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis (March 2011 update)

Best Management Practice (BMP) removal efficiencies for total suspended solids (TSS), total nitrogen (TN), and total phosphorus (TP) for pollutant loading analysis, as well as percent runoff reduction (volume reduction) efficiencies are presented in the following table. These removal efficiencies are based on literature sources, data collected by the University of New Hampshire Stormwater Center, and best professional judgement based on literature values and general expectation of how values for different BMPs should relate to one another. The intent is to update this information to add BMPs and removal efficiencies for other parameters as more information and data become available.

NHDES will consider other BMP removal efficiencies if sufficient documentation is provided.

Please note that all BMPs must be designed in accordance with the specifications in the Alteration of Terrain (AoT) Program Administrative Rules (Env-Wq 1500), as described in this manual. If BMPs are not designed in accordance with the AoT Rules, NHDES may require lower removal efficiencies to be used in the analysis.

BMP in Series: When BMPs are placed in series, the BMP with the highest removal efficiency shall be the efficiency used in the model for computing annual loadings. Adding efficiency together is generally not allowed because removals typically decrease with decreasing influent concentration and, in the case of primary BMPs (i.e., stormwater ponds, infiltration and filtering practices), pre-treatment is usually part of the design and is therefore, most likely already accounted for the efficiencies cited for these BMPs.

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis					Values Accepted for Loading Analyses		
BMP Type	BMP	Notes	Lit. Ref.	Runoff Reduction Efficiency	TSS	TN	TP
Stormwater Ponds	Wet Pond		B, F, P	0%	70%	35%	45%
	Wet Extended Detention Pond		A, B, P	0%	80%	55%	68%
	Micropool Extended Detention Pond	TBA					
	Multiple Pond System	TBA					
	Pocket Pond	TBA					
Stormwater Wetlands	Shallow Wetland		A, B, F, I, P	0%	80%	55%	45%
	Extended Detention Wetland		A, B, F, I, P	0%	80%	55%	45%
	Pond/Wetland System	TBA					
	Gravel Wetland		H, P, Q	90%	99%	85%	64%
Infiltration Practices	Infiltration Trench (≥75 ft from surface water)		B, D, I, P	90%	90%	55%	60%
	Infiltration Trench (<75 ft from surface water)		B, D, I, P	90%	90%	10%	60%
	Infiltration Basin (≥75 ft from surface water)		A, F, B, D, I, P	90%	90%	60%	65%
	Infiltration Basin (<75 ft from surface water)		A, F, B, D, I, P	90%	90%	10%	65%
	Dry Wells		P	90%	90%	55%	60%
	Drip Edges		P	90%	90%	55%	60%
Filtering Practices	Aboveground or Underground Sand Filter that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I, P	0%	90%	60%	65%
	Aboveground or Underground Sand Filter that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I, P	0%	90%	10%	65%
	Aboveground or Underground Sand Filter with underdrain		A, I, F, G, H, P, Q	0%	51%	10%	33%
	Tree Box Filter	TBA	P, Q	15%	99%		
	Bioretention System		I, G, H, P, Q	80%	99%	65%	65%
	Permeable Pavement that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I, P	75%	90%	60%	65%
	Permeable Pavement that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I, P	75%	90%	10%	65%
	Permeable Pavement with underdrain		Use TN and TP values for sand filter w/ underdrain and outlet pipe, P	45%	90%	10%	45%

