

Memo re: Stormwater Performance Standards and Retrofits for Phase 6 Watershed Model

Reviewed and Approved by WTWG on June 4, 2015

Note that decision will not be final until approved by WTWG and Urban Stormwater Workgroup.

Detailed practice information was required for the Phase 5 Watershed Model to ensure that stormwater performance standards and retrofits were not double-counted when submitted for credit. Since the approval of the report, many jurisdictions have expressed concern with the reporting requirements, and very few practices have been submitted to the Chesapeake Bay Program. The potential for double-counting performance standard practices will decrease substantially in the Phase 6 Watershed Model as all existing stormwater practices will be limited to no more than 10 years worth of credit before requiring maintenance. For these reasons, the Urban Stormwater Workgroup is asked to review the following changes to stormwater performance standard and retrofit reporting requirements.

Revised Reporting Practice Names

In Phase 5, jurisdictions report the predominant practice at each site (e.g., wet pond), and NEIEN and Scenario Builder automatically credit that practice as a performance standard wet pond BMP with stormwater treatment. In Phase 6, jurisdictions should report sites treated by performance standard practice as such (e.g., there will be no need to report “wet pond”). The BMP names listed below will be credited in Scenario Builder using the efficiency reductions derived from the stormwater performance standard and retrofit adjuster curves found in the expert panel’s report located at: http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2012/10/Final-CBP-Approved-Expert-Panel-Report-on-Stormwater-Performance-Standards-SHORT_0120151.pdf.

Stormwater Treatment (ST) – All constructed wetlands, constructed filters, sand filters, stormwater filtering systems, wet ponds and wet swales implemented on new or re-developed or retrofitted sites which meet a state performance standard for the year in which they were implemented.

States may report either “New ST” or “Retrofit ST” to NEIEN.

Runoff Reduction (RR) – All landscape restoration, rooftop disconnection, PA 2006 non-structural BMPs, 2007 MD ESD practices, bioretention, rain garden, dry swale, expanded tree pits, grass channels, green roofs, green streets, infiltration, permeable pavement and rainwater harvesting practices implemented on new or re-developed or retrofitted sites which meet a state performance standard for the year in which they were implemented.

States may report either “New RR” or “Retrofit RR” to NEIEN.

Many states may still be tracking the individual practice names (e.g., wet pond). Table 4 found below and in the expert panel’s report includes a list of individual practices that qualify for either ST or RR credit.

Table 4 Classification of BMPs based on Runoff reduction capability¹	
<i>Runoff Reduction (RR) Practices</i>	<i>Stormwater Treatment (ST) Practices ²</i>
<i>Non-Structural Practices</i>	
Landscape Restoration/Reforestation	Constructed Wetlands
Riparian Buffer Restoration	Filtering Practices (aka Constructed Filters, Sand Filters, Stormwater Filtering Systems)
Rooftop Disconnection (aka Simple Disconnection to Amended Soils, to a Conservation Area, to a Pervious Area, Non-Rooftop Disconnection)	Proprietary Practices (aka Manufactured BMPs)
Sheetflow to Filter/Open Space* (aka Sheetflow to Conservation Area, Vegetated Filter Strip)	Wet Ponds (aka Retention Basin)
Non-Structural BMPs, PA 2006 BMP Manual, Chapter 5	Wet Swale
<i>Practices</i>	
All ESD practices in MD 2007	
Bioretention or Rain Garden (Standard or Enhanced)	
Dry Channel Regenerative Stormwater Conveyance (aka Step Pool Storm Conveyance)	
Dry Swale	
Expanded Tree Pits	
Grass Channels (w/ Soil Amendments, aka Bioswale, Vegetated Swale)	
Green Roof (aka Vegetated Roof)	
Green Streets	
Infiltration (aka Infiltration Basin, Infiltration Bed, Infiltration Trench, Dry Well/Seepage Pit, Landscape Infiltration)	
Permeable Pavement (aka Porous Pavement)	
Rainwater Harvesting (aka Capture and Re-use)	
*May include a berm or a level spreader ¹ Refer to DC, MD, PA, VA or WV State Stormwater Manuals for more information ² Dry ED ponds have limited removal capability , their efficiency is calculated using rates in Table B-4, Appendix B	

Measurement Units

States are currently asked to report the following measurements for each new development or retrofit site:

- volume of water treated at a site
- impervious acres treated by the practice(s)
- total site acres treated by the practice(s)

There will be no change in measurement units needed to calculate this practice. All jurisdictions should be able to calculate the volume of water treated at each retrofitted or new development site by multiplying a state-specific engineering parameter by 12 (inches). Directions for calculating the state-specific engineering parameters can be found using the Table 3 (included below) from the expert panel report.

Table 3 How to Define Runoff Capture for New Development in Each Bay State		
	Specific Engineering Parameter (EP) Defining Runoff Volume Captured	Source
DC	Divide SWRv (stormwater retention volume, cubic feet) by 43,560 and insert into Equation X	Cell C-30 in 2012 DDOE Compliance Spreadsheet
DE	Runoff Reduction Depth (inches)	Directly from DE DURMM v. 2 Model Output
FED	D (95% rainfall depth, inches) less initial abstraction for predevelopment condition	EPA, 2009 and DOD, 2010
MD	Divide ESD Runoff Volume (cubic feet) by 43,560 and insert into Equation X	Cell C-66 in MD ESD TO MEP Spreadsheet (2012)
NY	Insert WQv (water quality volume, acre-feet) into Equation X	See 2010 Design Manual
PA	Divide 2-year Volume Increase of Runoff Volume between the proposed conditions and the existing conditions (cubic feet) by 43,560 and insert into Equation X	Cell C-51 in Tab WS4 of 2012 CSN PA Stormwater Spreadsheet
VA	Post Development treatment volume (acre-feet) inserted into Equation X	Cell B-49 on Site Data page (tab 1) in 2012 VA DCR Compliance Spreadsheet
WV	Target Tv (treatment volume, acre-feet) inserted into Equation X	Cell A-80 in 2011 WVDEP Compliance Spreadsheet
<p>Equation X is a site specific conversion factor equation:</p> $= \frac{(12 * EP)}{IA}$ <p>Where: EP = State-Specific Engineering Parameter (in acre-feet) IA = Impervious Area (acres)</p>		

BMP Category

Currently, states are asked to report to NEIEN one of the following “BMP Categories” for each stormwater performance standard record:

- New Development
- Re-Development
- New Retrofit
- Converted Retrofit

- Enhanced Retrofit
- Restored Retrofit

These categories were necessary in Phase 5 to avoid double-counting of existing BMPs which would not be removed by multiple event status codes (e.g., for a failed inspection) or by exceeding the BMP's credit duration. In Phase 6, credit durations and multiple event status codes make it possible for jurisdictions to track how stormwater performance standard practices have changed over time at each site. For example, if a jurisdiction converts a dry pond to a wet pond, they may now report that the existing dry pond was retired (RET) on June 1, 2012, and that a Stormwater Treatment practice (wet pond) was implemented (IMP) on the same date of June 1, 2012.

NEIEN Appendix Example for Wet Ponds

States may submit a wet pond (or other BMPs that qualify as stormwater treatment) as New ST or Retrofit ST for Phase 6. Both types of BMPs will map to the Scenario Builder BMP, ST which includes all constructed wetlands, constructed filters, sand filters, stormwater filtering systems, wet ponds and wet swales implemented on new or re-developed or retrofitted sites which meet a state performance standard for the year in which they were implemented.

BMP Name	DefaultSBLandUse Group	Measurement Name	Unit Name	Scenario Builder BMP
New ST	UrbanWithCss	Volume	ACRE-FEET	ST
New ST	UrbanWithCss	Site Area	ACRE	ST
New ST	UrbanWithCss	Impervious Area	ACRE	ST
Retrofit ST	UrbanWithCss	Volume	ACRE-FEET	ST
Retrofit ST	UrbanWithCss	Site Area	ACRE	ST
Retrofit ST	UrbanWithCss	Impervious Area	ACRE	ST