Noted Differences between Draft 2013/2014 Specifications and Adopted Clearinghouse Specifications

PARTICIPANT NOTE: *Please note that the adopted 2011 Virginia BMP Clearinghouse stormwater practice specifications are the only official specifications approved by DEQ at this time. There are many pending revisions to those specifications which are under consideration by DEQ.* ***For the purposes of examination, the 2011 Clearinghouse Specifications will be used.*** *That said, the Department feels it is important that plan reviewers are knowledgeable about the modification (mostly minor and mostly practically oriented) that are under consideration so that the review community understands the most current information, and can make better informed review decisions. These notes were prepared with the assistance of the Center for Watershed Protection, which has been actively working to improve the stormwater technology specifications.*

There was a general change in the description of how the Tv_{BMP} is determined for each BMP, including those in a treatment train. This is not a change to the computation, merely a change in how it is communicated (for clarity).

Design Spec No. 1: Rooftop Disconnection

1. Micro Bioretention Table (Table 4) is the new and updated version from spec 9 Bioretention. The new Spec 1: Disconnection eliminates the micro-bioretention design tables, and instead references to those micro-specs in order to avoid duplication.

Design Spec No. 2: Vegetated Filter Strip & Conserved Open Space

1. The geometry references of length and width were switched to be consistent with the Bay Program.
2. The Bay Program designates a maximum of 100 l.f.

Design Spec No. 3: Grass Channels

1. The 2011 spec uses 30% RR and a corresponding total mass load reduction of 41% for C & D soils with CA; which provides a greater credit than A/B soils. 2013/14 specs adjusted to 20% (as shown); with a Total Mass Load reduction = 32% (as shown).
2. The 2011 spec required a trapezoidal channel geometry with a minimum 4’ and maximum 8’ bottom width. Also required minimum flow characteristics of depth and velocity. 2013/14 specs rely on the minimum flow characteristics to determine the geometry – can go down to 2’ as a minimum as long as meet those flow criteria – allows for realistic applications.

Design Spec No. 4: Soil Amendments

1. 2013/14 spec provides updated material specs

Design Spec No. 5: Vegetated Roof

1. No change

Design Spec No. 6: Rainwater Harvesting

1. No change in credit or basics of design – however, a significant re-write to be consistent with the latest design guidance and new Harvesting (VA Cistern Design (VCD) Spreadsheet);
2. Important design element: requires year round use in order to qualify for an "annual" reduction credit – therefore, if irrigation is one of the uses (or only use), it will require a secondary RR practice (or soak-away-pit) designed to accept the anticipated drawdown discharge (a trickle versus a typical Type II 1" rainfall).
3. New spec provides a much better description of the types of uses and the types of configurations of tanks, and most importantly, a design example for the secondary RR practice.

Design Spec No. 7: Permeable Pavement

1. Change in the allowable 'run-on' ratio from 2:1 to 2.5:1
2. The equations were simplified, as follows:
   - eliminated the run-on ratio as part of the stone depth equation;
   - eliminated the infiltration while the stone reservoir is filling from the reservoir depth equation – this eliminated the assumption of how fast it fills (rainfall intensity – 2 hrs to fill?) and thereby the time for the relatively (much) slower infiltration.
   - Eliminated the outflow from the underdrain as part of the sizing design for water quality.
   - Fixed unit conflicts – some were "/hr with others as/ ft, or /days, etc.
3. The maximum depth of stone reservoir ($d_{stone\text{-}max}$) for infiltration or infiltration sump (L2) was defined;
4. 2013/14 spec was simplified with regard to L2 design:
   - Key point: for the volume of the infiltration sump to count for *Tv* storage, the field verified infiltration rate must be at least 0.5 inches per hour.
   - If the field verified infiltration rate is less than 0.5 inches per hour, the sump will still qualify as a Level 2 design, however, any additional storage needed to hold the *Tv* must be added above the sump through additional stone.

- As an option, the entire *Tv* can be drained by the underdrain with a design 48-hour drain time using a control structure on the underdrain outlet.

Design Spec No. 8: Infiltration Practices

1. No change to design;
2. Equations were simplified to maintain consistent units and unit conversions: in/hr, hrs, feet, ft/day, etc.
3. 2013/14 Spec provides a much more detailed soil testing specification (Appendix 8-A)

Design Spec No. 9: Micro-Bioretention, Bioretention, Urban Planters

1. Sizing of micro-bioretention changed from a % of the CDA, to a standard Tv sizing (eliminates conflict with urban planter and the potential for gamesmanship in selecting one or the other for beneficial sizing reasons). This is identified in slide no. 75
2. Bioretention design table changes:
   - 2011 version sizing was referred to as the 'SA' and not the practice volume; changed to reflect Tv_{BMP} consistent with all the other specs;
   - maximum filter media depth changed from 6 ft to 4 ft;
   - P-index for soil media changed to a mg/kg maximum;
3. Significant improvement in the soil media specifications based on input from vendors and VT soil scientists;
4. Urban Planter: Spec 9-A: sizing/design table changed:
   - Sizing revised to reflect the Tv_{BMP} and not a surface area);
   - Sizing revision also eliminates the allowed SA reduction by a factor of 2; Comparison of the math for given DA sizes, and compared to the micro-bioretention justified elimination of the Tv/2 factor;
   - Minimum filter media depth reduced to 18" consistent with micro bioretention – still requires the Tv_{BMP} sizing, but will allow for more use without the arbitrary depth requirement.

Design Spec No. 10: Dry Swale

1. No design criteria changes other than the logic in the design table (referenced for all specs);
2. Media specifications consistent with Bioretention; and
3. General clarification of design

Design Spec No. 11: Wet Swale:

1. No design criteria changes other than the logic in the design table (referenced for all specs); and
2. General clarification of design

Design Spec No. 12: Filtering Practices:

1. No design criteria changes other than the logic in the design table (referenced for all specs); and
2. General clarification of design

Design Spec No. 13: Constructed Wetlands

1. No design criteria changes other than the logic in the design table (referenced for all specs); and
2. General clarification of design

Design Spec No. 14: Wet Ponds

1. No design criteria changes other than the logic in the design table (referenced for all specs); and
2. General clarification of design

Design Spec No. 15: ED Ponds

1. No design criteria changes other than the logic in the design table (referenced for all specs); and
2. General clarification of design