Virginia Stormwater BMP Clearinghouse Committee Meeting

Virginia Department of Forestry (DOF) Building, Board Room
Charlottesville, VA
April 18, 2011

Meeting minutes by Jane Walker

Committee Members Present
Joe Battiata, Center for Watershed Protection
Rishi Baral, Planning Department, Stafford County
Colleen Collins, Vanasse Hangen Brustlin, Inc. (VHB)
Lee Hill, Virginia Department of Conservation and Recreation (DCR)
Greg Johnson, Patton Harris Rust and Associates (PHR&A)
Mary Johnson, Thomas Jefferson Soil and Water Conservation District/Virginia Association of Soil and Water Conservation Districts
Chris Kuhn, Williamsburg Environmental Group (WEG)
Roy Mills, Virginia Department of Transportation (VDOT)
Madan Mohan, Department of Public Works, Prince William County
Craig Moore, Site and Infrastructure Development, Virginia Tech
David Powers, Department of Civil and Environmental Engineering, Virginia Tech
David Sample, Biological Systems Engineering and Occoquan Watershed Monitoring Laboratory, Virginia Tech
James Talian, City of Lynchburg
Jenny Tribo, Hampton Roads Planning District Commission
Joe Wilder, Department of Public Works, Frederick County

Department of Conservation and Recreation (DCR) Staff Present
John McCutcheon

Virginia Water Resources Research Center (VWRRC) Staff Present
Jane Walker

Others Present
Derek Berg, Contech
Tom Fitzpatrick, Filterra
Randy Hardman, Hanover County
Steve Kindy, VDOT, alternate for Roy Mills
John Olenik, VDOT
Steve Rossi, Concrete Spec.
Mindy Ruby, Filterra
Brian Rustia, ADS/StormTech
Terry Siviter, Contech
Chris Sonne, Civil and Environmental Services, LLC.
Mark Williams, Luck Stone
Dan Wilson, Imbrium Systems, alternate for Scott Perry

Call to Order and Introductions

Lee Hill of the DCR called the meeting to order and thanked everyone for coming. Each person introduced herself or himself. A special welcome was extended to those serving the 2011-2013 term -- Rishi Baral, Joe Battiata, Joanna Curran, Chris Kuhn, Craig Moore, David Powers, David Sample, and Joe Wilder.

Minutes from Meeting on January 24, 2011

No changes were suggested regarding the draft meeting minutes from the January 24, 2011 meeting. Once reviewed and approved by the director's office at DCR, the official minutes will be posted on the Virginia Regulatory Town Hall Website: http://townhall.virginia.gov/.

DCR and Stormwater Regulations Updates

DCR Update

Lee Hill announced that six managers at DCR will be retiring on May 31, 2011. Among those leaving:

- Jack Frye, division director, soil and water conservation;
- Lee Hill, assistant division director, stormwater management programs;
- Russ Perkinson, assistant division director, non-point source (NPS) programs;
- Mark Meador, director, conservation districts;
- Rick Hill, director, planning and policy; and
- Karl Huber, director, GIS/database program.

In addition, Jane Wells, program support technician for conservation programs, will be retiring. With the departure of these senior staff, the Agency is also taking this opportunity to restructure several divisions in the Agency based on the results of a management study commissioned by the DCR's director, David Johnson. The director has not yet put forth his restructuring plan but is expected to do so in the near future. The retirements are not forced; each was given the opportunity to retire early and made their decisions individually.

Many others at DCR are staying, including Doug Fritz, manager of MS4 program; Jan Briede, manager of stormwater outreach; Ved Malhotra, stormwater compliance specialist; and John McCutcheon, manager of erosion and sediment control. John will become the chair of the Clearinghouse Committee.

Stormwater Regulations Update

Lee Hill provided an update on the progress of developing new stormwater regulations. The proposed language is open for public comment until April 27, 2011. Lee encouraged everyone to review the proposed regulations (available at http://www.dcr.virginia.gov/lr2d.shtml) and offer comments. Lee explained that the regulations would be on the agenda for the next Soil and Water Conservation Board meeting, May 24, 2011. The new regulations will likely become effective on or before October 2011 and will be implemented July 1, 2014. The director is discussing with General Assembly members and localities the desire for DCR to vest implementation of stormwater management programs with localities statewide. DCR can then focus on program oversight and technical assistance. In response to a question by a Clearinghouse Committee member, Lee clarified that EPA does not need to approve the new regulations.

Lee Hill highlighted some of the proposed changes to the language:

Definitions:

"Small construction activity" -- Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one acre and less than five acres. [REMOVED: "or equal to or greater than 2,500 square feet in all areas of the jurisdictions designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations adopted pursuant to the Chesapeake Bay Preservation Act,"] These smaller projects will still be subject to the requirements in the Stormwater Management Act and associated regulations but will not be subject to regulation under the Construction General Permit.

Grandfathering:

Beginning with the [Virginia Stormwater Management Program] VMSP General Permit for Discharges of Stormwater from Construction Activities issued July 1, 2009, all land disturbing activities that receive general permit coverage shall be conducted in accordance with the technical criteria under which permit coverage was issued and shall remain subject to those criteria for an additional two permits, except as otherwise provided for in the regulatory language. After the two additional permits have passed, or should permit coverage not be maintained, portions of the project not under construction shall become subject to any new technical criteria adopted since original permit coverage was issued. For land disturbing projects issued coverage under the July 1, 2009 permit and for which coverage was maintained, such projects shall remain subject to the technical criteria of Part II C for an additional two permits.

Stormwater Pollution Prevention Plan (SWPPP)

Lee Hill explained that effluent limitations guidelines (ELGs) must be addressed in the SWPPP. The wording currently includes:

The stormwater pollution prevention plan must address the following requirements, to the extent otherwise required by state law or regulations and any applicable requirements of a VSMP permit:

1. Control stormwater volume and velocity within the site to minimize soil erosion;
2. Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion;
3. Minimize the amount of soil exposed during construction activity;
4. Minimize the disturbance of steep slopes;
5. Minimize sediment discharges from the site. …
6. Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible;
7. Minimize soil compaction and, unless infeasible, preserve topsoil; and
8. Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have

permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days….

Water Quality Design Criteria Requirements
Lee Hill explained that the phosphorus load includes turf, forest, and impervious areas. The proposed language states the following:

New development. The total phosphorus load of new development projects shall not exceed 0.41 pounds per acre per year….

Lee Hill commented that there are several changes to the section on development on prior developed lands and in the channel and flood protection sections. He encouraged everyone to read these sections and pay attention to the changes proposed.

Lee Hill stressed that the Stormwater Best Management Practice (BMP) Clearinghouse is cited in the new regulations:

4VAC50-60-10. Definitions.
"Virginia Stormwater BMP Clearinghouse website" means a website that contains detailed design standards and specifications for control measures that may be used in Virginia to comply with the requirements of the Virginia Stormwater Management Act and associated regulations and that is jointly created by the department and the Virginia Water Resources Research Center subject to advice to the director from a permanent stakeholder advisory committee.

4VAC50-60-65. Water quality compliance.
A. Compliance with the water quality design criteria set out in subdivisions 1 and 2 of 4VAC50-60-63 shall be determined by utilizing the Virginia Runoff Reduction Method or another equivalent methodology that is approved by the board.
B. The BMPs listed below are approved for use as necessary to effectively reduce the phosphorus load and runoff volume in accordance with the Virginia Runoff Reduction Method. Other approved BMPs found on the Virginia Stormwater BMP Clearinghouse Website at http://www.vwrrc.vt.edu/swc may also be utilized. Design specifications and the pollutant removal efficiencies for all approved BMPs are found on the Virginia Stormwater BMP Clearinghouse Website .

1. Vegetated Roof (Version 2.3, March 1, 2011);
2. Rooftop Disconnection (Version 1.9, March 1, 2011);
3. Rainwater Harvesting (Version 1.9.5, March 1, 2011);
4. Soil Amendments (Version 1.8, March 1, 2011);;
5. Permeable Pavement (Version 1.8, March 1, 2011);
6. Grass Channel (Version 1.9, March 1, 2011);
7. Bioretention (Version 1.9, March 1, 2011);
8. Infiltration (Version 1.9, March 1, 2011);
9. Dry Swale (Version 1.9, March 1, 2011);
10. Wet Swale (Version 1.9, March 1, 2011);
11. Sheet Flow to Filter/Open Space (Version 1.9, March 1, 2011);

12. Extended Detention Pond (Version 1.9, March 1, 2011);
13. Filtering Practice (Version 1.8, March 1, 2011);
14. Constructed Wetland (Version 1.9, March 1, 2011); and
15. Wet Pond (Version 1.9, March 1, 2011).

C. BMPs differing from those listed above shall be reviewed and approved by the director in accordance with procedures established by the BMP Clearinghouse Committee and approved by the board.

D. A local stormwater management program may establish limitations on the use of specific BMPs following the submission of the proposed limitation and written justification to the department.

4VAC50-60-66. Water quantity.

Predevelopment and postdevelopment runoff characteristics and site hydrology shall be verified by site inspections, topographic surveys, available soil mapping or studies, and calculations consistent with good engineering practices. Guidance provided in the Virginia Stormwater Management Handbook and by the Virginia Stormwater BMP Clearinghouse shall be considered appropriate practices.

4VAC50-60-96. Water quality.

Other approved BMPs available on the Virginia Stormwater BMP Clearinghouse website at http://www.vwrrc.vt.edu/swc may also be utilized.

4VAC50-60-122. Exceptions.

Under no circumstance shall the stormwater program administrative authority grant an exception to the requirement that the land-disturbing activity obtain required VSMP permits nor approve the use of a BMP not found on the Virginia Stormwater BMP Clearinghouse Website.

One member of the Clearinghouse Committee commented that he was not happy to see specific versions of the standards and specifications listed for approved BMPs. He added that one of the main purposes of the Clearinghouse is to improve the efficiency of updating regulations. If the information is updated and listed on the Clearinghouse website, it should become the accepted practice. He proposed for example, listing "Version 1.9 or greater" so people can easily use newer versions. Lee Hill explained that the Attorney General's office requires that the accepted version be listed. No one can deny the use of those practices listed in the regulations. Localities can decide if they will allow the use of updated versions.

The same Clearinghouse Committee member requested that the link to information about the public comment period be included on the Clearinghouse website. He stressed that the language on the Clearinghouse website should encourage feedback.

Review of *Virginia Technology Assessment Protocol* (VTAP)

Jane Walker, with the VWRRC, distributed and reviewed a handout that summarizes the updates to the VTAP since the January 24, 2011 meeting (Appendix A). Lee Hill proposed that he planned to send the final version of the VTAP along with all the public comments received by February 11, 2011 to the DCR director.

One member stated that having three almost identical timelines for the three different certification levels was confusing. He proposed that the timelines be combined into one general format. He also found some confusing wording on page 11 (Section 3.2). The last paragraph on page 11 describes evaluations by two different stakeholders. He suggested clarifying the paragraph by stating that additional BMPs may not be installed until approved ("approved" replaces "evaluated"). In addition, he requested that proponents of technologies not granted a conditional-use designation (CUD) may request to have their BMP immediately considered at the pilot-use designation (PUD) ("may" replaces "must").

Another member asked what the linkage is between the VTAP and the stormwater regulations. Lee Hill explained that the VTAP is not specifically mentioned in the stormwater regulations but noted that the VTAP is the process by which BMPs will be added to the Clearinghouse website. The Clearinghouse website is cited in the stormwater regulations.

An observer questioned whether or not Table 3.1 had been changed. Lee Hill explained that it had not been changed. A member voiced that he thought the group had reached a consensus at the last meeting to change Table 3.1. Others did not recall such a consensus. This member requested that the Clearinghouse Committee make a recommendation to the director for what should be included in Table 3.1. Lee Hill offered that the updated version of the VTAP and the letters provided after the January 24, 2011 Clearinghouse Committee meeting will be given to the director to make a decision. Another member requested that the letters submitted be made public.

The member who first requested a vote on changing Table 3.1 continued that he thought the present form of the table would result in unintended consequences, whereby the proponents of BMPs would submit "old" studies. He proposed requiring one lab or field study in order to receive a PUD; one field study for the CUD; and two field studies for the general use designation (GUD). Later, this same individual suggested two field studies to receive the CUD. This individual voiced a lack of support for allowing total suspended solids (TSS) or suspended sediment concentration (SSC) or total phosphorus (TP) data to receive a CUD.

Lee Hill clarified that if the studies submitted by the proponent do not strictly adhere to the VTAP but are strong enough to convince DCR's evaluator that they are acceptable –and DCR's evaluator approves them – then the Clearinghouse Committee will have an opportunity to evaluate them. Lee added that the two field studies used to receive a CUD would count towards the four field studies needed to reach the GUD. Thus, in reality, only two new studies would be needed to reach the GUD level. Others added that they interpreted the table such that if TSS or SSC data were used to obtain the CUD, the BMP proponent would need to complete four field tests that measure TP. Another member stated that a proponent who went from the PUD level based on lab data straight to the GUD level would need to conduct four field studies.

One observer remarked that he did not think any manufacturers would participate in the program if the GUD level was left at four field studies. He thought two field studies would be the limit for any vendor because of the expense of testing. One member suggested changing the CUD requirement so that at least one of the field studies must measure TP. Another person suggested

that the CUD level should not be required to meet the VTAP requirements. Another member asked what benchmark would be used for CUD testing if not required to follow the VTAP? In reply, the individual making the suggestion proposed that if the testing followed a protocol that was reviewed and approved elsewhere, it should be considered for acceptance at the CUD level in Virginia. He stated that some state approval programs are better than others. Another member proposed that the CUD could be obtained by either one field test that measures TP and follows the VTAP or two field tests that measure either TSS or SSC and follows a different state-approved protocol.

Another member of the Clearinghouse Committee stated that she wanted the group to come to a consensus. After more discussions, the group decided to allow the CUD row in Table 3.1 to stay the same. They suggested that wording in the document be added so that proponents know that testing performed under other approved protocols will be accepted in Virginia if acceptable to DCR's evaluator. The GUD row was changed to require two field studies that must measure TP and must follow the VTAP.

An observer asked when the Clearinghouse Committee would open the evaluation process. Lee Hill replied that the timing process is a decision for the DCR director to make.

Registry of BMPs in Virginia

Jane Walker distributed a handout for use in discussing the purpose and proposed questions to include in a registry of stormwater manufactured treatment devices (MTDs) to be posted on the Clearinghouse (Appendix B). One member suggested that he envisions the registry being used to provide basic information to localities so that localities can determine the appropriateness of using a particular MTD. Another member expressed his vision that the registry provide limited information, like a factsheet that localities can quickly review.

Lee Hill offered that instead of a registry, the Clearinghouse could simply host a list of all the MTDs out there until the VTAP goes into effect. At that time, the list can be closed and only those MTDs going through the VTAP process will be included on the Clearinghouse. Several members of the Clearinghouse Committee stated that they did not want a simple list of all MTDs. One member commented that he wanted the registry to remain active even after the evaluation process is in place. Another member commented that he likes the idea of having a termination date. As an alternative, he suggested sending an annual email to all MTD manufacturers listed on the registry telling them to update their information by a certain date or have it removed from the registry. Another member stressed that the burden should be on the vendor.

One member asked, "Will the registry form be available on the Clearinghouse?" Lee Hill explained that posting the form on the website is his understanding of the intent of the registry. Then the member asked if the Clearinghouse Committee was going to validate the information listed; otherwise, he suggested that a disclaimer is needed. Lee offered that each posted reply would have a disclaimer that the information is provided by the vendor and has not been validated by the DCR, VWRRC, or Clearinghouse Committee. Another member suggested that the disclaimer could be worded in terms of explaining the timeline for beginning the evaluation process. Thus, it would be apparent that the product does not have a PUD, CUD, or GUD.

Another member suggested that anyone could contact the Clearinghouse Committee if inaccuracies are found; such language could be added to the Clearinghouse registry page. Another member offered that a certification statement by the vendor should be required. There was general consensus for a certification statement.

A member expressed that he does not want the registry to serve as a "letter of intent" to enter the VTAP process. He voiced support for a catalogue of MTDs installed in Virginia. Most expressed that listing all site locations where MTDs are installed in Virginia would be too complex. One member voiced that he did not want the manufacturers to "cherry pick" the sites to highlight so commented that he liked the idea of listing all the MTDs installed in Virginia. One member asked if there is a way to tie the notice of termination for construction activity stormwater discharges to the Clearinghouse. The consensus was to just list county, city, and town categories. Vendors would be asked to list all localities where one or more of the particular MTD is installed in Virginia.

Jane Walker summarized that the purpose of the MTD registry is to provide a fact sheet of information expressed in a uniform manner. All sections of the questionnaire, including a certification statement, must be completed in order to list the information on the registry.

The committee reviewed the questions proposed for the use-designation application form (Appendix C) as a starting point for developing questions to be used in the registry of MTDs. The committee requested that a new title be applied to the heading of the form, e.g., "Virginia Stormwater Manufactured Treatment Device Registry." The consensus of the group was to delete questions 2, 4, 11, 12, 13, and 15. The committee requested that question 5 (BMP History) be changed to "List locations in Virginia where one or more of this device is installed." The categories – town, county, or city – would be listed below the question. One member proposed merging questions 3 and 6, citing that question 6 is a subset of 3. The committee proposed changing the response to question 7 (Basis for Treatment) from "check one and fill in blanks" to "check all that apply and fill in blanks." The committee requested that a certification statement be added to the form. The certification statement should require the certifier's name (typed), title, phone number, and signature.

Subcommittee Formation

The consensus of the Clearinghouse Committee was to not form a subcommittee to develop the "Frequently Asked Questions" (FAQ) webpage at this time. Instead, it was proposed that the committee at large work on this page. Jane Walker stated that the original vision for this page was to provide information to the diverse stakeholders using the website, acknowledging that some may be new to stormwater management and have basic questions whereas others would have specific, more in-depth questions. It was suggested that the FAQ webpage allow questions to be directly submitted. Jane Walker offered to send out an email to the committee members requesting questions and answers from members for consideration for inclusion on the Clearinghouse Website.

Several committee members agreed to serve on a References and Tools Webpage Development Subcommittee, including Colleen Collins, Greg Johnson, Chris Kuhn, and David Powers. Jane Walker agreed to send out an email message so others can sign up to join this subcommittee.

The goal of the subcommittee is to identify what information is needed and available and provide links to the Websites with this information.

General Comments

An observer asked that with Lee's retirement from the DCR, would the committee continue? Lee reassured everyone that as far as knows, the committee will continue, and John McCutcheon will begin serving as the committee chair.

Next Meeting Dates

The next scheduled meetings of the Clearinghouse Committee include

July 25, 2011
October 24, 2011
January 23, 2012.

Meetings will begin at 10:00 a.m. and may continue until 3:00 p.m. The meeting location will be determined closer to the time of the meeting.

With no further business, the meeting was adjourned.

Appendix A

-- Summary of Updates to VTAP (March 31, 2011 version) since January 24, 2011 --

-- Removed “Recommended” from the section titles of several sections.

-- Added several abbreviations: BOD, COD, TOC, TDS, TPH, IR, and PAH
Removed SP from abbreviations

p. 3 – Added: “Pollutants other than phosphorus that are removed may be included in the standards and specifications posted on the Clearinghouse Website, but these removal efficiencies are not certified.”

P 10 & 12 – Added: “Information provided in the use-designation application, QAPP, and/or TER about the demonstration site will be used to help assess how well the site represents conditions in Virginia.”

P 12 – Changed: “BMPs seeking a **GUD** certification must have been field tested in at least four field sites that are representative of urban stormwater runoff in Virginia.”

P 14 – Updated Table 4.1.

P 16 – Updated Figure 4.1.

P 18, 19, and 20 – Changed several times within the assessment timelines for PUD, CUD, and GUD.

P 24 – Added several items to the bullets about the test site information to be included in the QAPP.

P 27 – Changed: “The proponent must submit a proposed methodology for use in selecting the size of the BMP in the test system based upon standard design criteria for the BMP, including but not limited to peak flow rate or water-quality treatment volume, drainage area, and predicted performance at that size in terms of total phosphorus load reduction.”

P 34 – Deleted last paragraph in Section 5.3.3 – “Additionally, some naturally-based materials and soil-based materials that have the ability to utilize sorption or produce chemical reactions with TSP may have a tendency to de-sorb or release TSP over time. Some waste materials may be successful with TSP capture but have proven to leach other toxic materials such as heavy metals or organics. These potential negative performance parameters should be quantified upfront.”

P 39 – Added SRP as a required parameter if the process uses sorption

P 40 – Changed: “Use volumetric sediment measurements and analyses to help determine maintenance requirements; calculate a solids or TP mass balance; and determine if the sediment quality and quantity are typical for the application.”

P 57 – Removed “Section 6.4 – Remediation Action Plan” and renumbered sections after Section 6.4.

P 73 – Changed: “Total Dissolved Phosphorus” to “Total Soluble Phosphorus”
Corrected typo: “Enterococci”

P 75—Changed: “Laboratories using laser diffraction will have to be notified not to sonicate these samples at any time during the analysis. This request is to be written on the chain-of-custody form that the analytical laboratory receives in order to assure that sonication is omitted.”

P 86 – Emphasized notes and changed “Soluble Phosphorus” to “Total Soluble Phosphorus.”

Appendix B

Purpose of Registry of Stormwater Manufactured Treatment Devices (MTDs)

In your opinion, which of the following possible purposes should the registry of stomwater MTDs meet? Consider listing other possible purposes of the registry.

Yes	No	Purpose
		-- Provide a source list from which to determine MTDs that may meet specific goals and/or match site conditions?
		-- Provide a uniform and consistent means of documenting information about listed MTDs?
		-- Provide "even playing field" to manufactures/vendors of MTDs (i.e., Open to all MTDs)?
		-- Serve as a "letter of intent" to go through the VTAP process (i.e., Limit registry to only MTDs planning to go through assessment process)?
		-- Identify example site locations where MTDs are installed in Virginia?
		-- Identify <u>all</u> site locations where listed MTDs are installed in Virginia?
		-- Provide contacts in localities where MTDs are installed?
		-- Provide performance data and specifics of test conditions?
		Other?

In your opinion, which of the following information sections included in the use-designation application form in the VTAP (see Appendix E) should the MTD registry also include? Provide additional questions to request in the registry.

Yes	No	
		-- Basic Technology Information
		-- Use Designation Currently Sought
		-- Treatment for which the Technology is Designed
		-- Warranty Information
		-- BMP History
		-- Technology Intended Application
		-- Basis for Treatment
		-- Water Quality Treatment Mechanisms
		-- Design Features of Interest
		-- Independent Performance Certification
		-- Vendor-initiated Performance Testing
		-- Results of Vendor-initiated Performance Testing
		-- Test Condition: Particle Size Distribution
		-- Maintenance Considerations
		-- Comments
		Other questions/comments?

Appendix C

Use Designation Application Form

Use Designation Application Form

Project Title:

MTD Name: Today's Date:

1 Basic Technology Information

Proponent of the BMP
Company name:
Address – Street: City: State: Zip:

Proponent Contact
Name (to whom questions should be addressed):
Address – Street: City: State: Zip:
Phone number:
Fax number:
E-mail address:

BMP Technology
BMP common (marketing) name:
Specific size/capacity of BMP assessed:
Drainage area ranges served by BMP:

2 Use Designation Currently Sought (check only one)

☐ Pilot Use (PUD)
☐ Conditional Use (CUD)
☐ General Use (GUD)

3 Treatment for which the Technology is Designed (check all that apply)

☐ Stormwater Runoff Volume Reduction
☐ Stormwater Runoff Peak Rate Control
☐ Stormwater Runoff Quality Control

4 Warranty Information (describe or attach details)

5 BMP History

How long has this specific model/design been on the market?

List several locations of this exact model/size installed in Virginia (provide town and county or city and permitting authority. If known, provide latitude & longitude):

List several locations of this exact model/size installed outside Virginia if testing was performed at the site (provide location, and if known, provide latitude & longitude):

6 Technology Intended Application (check all that apply)

☐ Pre-treatment for downgradient BMP
☐ Water quality treatment
☐ Flood control
☐ Channel protection
☐ Other:

7 Basis for Treatment (check one and fill in blanks)

☐ **Volume-based** (captures & treats Water Quality Volume [WQV]) – Specify WQV: cubic feet
☐ **Flow rate-based** (provides treatment up to a set rate of flow) – Specify treatment flow rates and hydrologic methods used. Specify the flow rates that are treated and provide documentation:
- ☐ i. All flows up to the year, 24-hour storm event.
- ☐ ii. Peak flows associated with water quality storm event (inches of rainfall; cfs)
- ☐ iii. Other (specify):

If flow rate-based system, specify design features to prevent resuspension of captured particles/pollutants:
☐ **Other** (describe):

8 Water Quality Treatment Mechanisms (check all that apply and provide brief description)

☐ Sedimentation/settling:
☐ Infiltration:
☐ Filtration (specify filter media):
☐ Adsorption/cation exchange:
☐ Chelation/precipitation:
☐ Chemical treatment:
☐ Biological uptake:
☐ Other (describe):

9 Design Features of Interest (answer each of the following questions.)

Pre-treatment/removal of larger particles achieved via which of the following?
☐ No pre-treatment
☐ Internal settling/sedimentation chamber
☐ Upgradient (separate) settling/sedimentation device
☐ Other (describe):

By-pass/diversion of larger flows (not designed for treatment) via which of the following?
☐ No by-pass/diversion
☐ Internal by-pass verified to prevent re-suspension captured particles/pollutants during larger flows
☐ Upgradient flow splitter used to divert water quality storm to device
☐ Other (describe):

10 Independent Performance Certification (check all that apply)

Has the BMP been "certified or performance verified" by any of the organizations below?

☐ **No** (skip to next question)
☐ **Yes**; Continue below and include date of certification.

- ☐ **State Agency** (list):
  - ☐ Approved (date awarded:)
  - ☐ Performance certified (date certified:)
  - ☐ Status pending
  - ☐ Other (explain):
- ☐ **TARP** (NJ only)
  - ☐ Approved:
    - ☐ Tier I (date awarded:)
    - ☐ Tier II (date awarded:)
  - ☐ Performance verifiedvia NJCAT:
  - ☐ Other (explain):
- ☐ **TAPE** (WA State only)
  - ☐ Approved:
    - ☐ PLD - Pilot Level Designation (date awarded:)
    - ☐ CUD - Conditional Use Designation (date awarded:)
    - ☐ GULD - General Use Level Designation (date awarded:)
  - ☐ Performance Certified (date certified:)
  - ☐ Status pending
  - ☐ Other (explain):
- ☐ **Other** (provide documentation of testing protocol, status of BMP and results of testing):

11 Vendor-initiated Performance Testing (check all that apply):

Has the BMP been tested and its performance reported?

☐ **Laboratory Tested**

- ☐ Manufacturer (directly tested)
- ☐ Contractor retained by manufacturer (Contact name and organization:)
- ☐ Tested by third party (e.g., not associated or tied financially to manufacturer) (Contact name and organization:)

☐ **Field Tested**

- ☐ Manufacturer (directly tested)
- ☐ Contractor retained by manufacturer (Contact name and organization:)
- ☐ Tested by third party (e.g., not associated or tied financially to manufacturer) (Contact name and organization:)

12 Results of Vendor-initiated Performance Testing

Has the BMP been tested for pollutants of concern? (Check all that apply) **Note: Water quality certification in Virginia is awarded only for TP removal at this time.**

☐ **Phosphorus**; please specify if lab or field results and then summarize the results:
Removal rates for phosphorus based upon measured:
- ☐ Total Phosphorus (TP)
  - ☐ Particulate Phosphorus (PP)
  - ☐ Total Soluble Phosphorus (TSP)
    - ☐ Soluble Reactive Phosphorus (SRP)
    - ☐ Soluble Unreactive Phosphorus (SUP)
  - ☐ Check here if reported % removal, load reduction, and/or effluent concentrations are provided over a range of influent concentrations, and list the range of influent concentrations:

Note: The information about the following pollutants will not be used to determine water quality certification in Virginia. Water quality certification in Virginia is awarded only for TP removal at this time.

☐ **Sediment**; please specify if lab or field results and then summarize the results:
Removal rates for sediment based upon:
- ☐ Total Suspended Solids (TSS)
- ☐ Suspended Sediment Concentration (SSC)
  - ☐ Check here if reported % removal, load reduction, and/or effluent concentrations are provided over a range of influent concentrations, and list the range of influent concentrations:

☐ **Nitrogen**; please specify if lab or field results and then summarize the results:
Specify what form(s) of nitrogen the removal rates are based upon (e.g., Total Nitrogen [TN], Total Kjeldahl nitrogen [TKN], Total Ammonia-N, Nitrate-N, Nitrite-N, etc.):
- ☐ Check here if reported % removal, load reduction, and/or effluent concentrations are provided over a range of influent concentrations, and list the range of influent concentrations:

☐ **Oil/Grease**; please specify if lab or field results and then summarize the results:
- ☐ Check here if reported % removal, load reduction, and/or effluent concentrations are provided over a range of influent concentrations, and list the range of influent concentrations:

☐ **Heavy metals**; please specify if lab or field results and then summarize the results:
- ☐ Check here if reported % removal, load reduction, and/or effluent concentrations are provided over a range of influent concentrations, and list the range of influent concentrations:

☐ **Bacteria**; please specify if lab or field results and then summarize the results:
- ☐ Check here if reported % removal, load reduction, and/or effluent concentrations are provided over a range of influent concentrations, and list the range of influent concentrations:

☐ **Organic toxicants**; please specify if lab or field results and then summarize the results:
- ☐ Check here if reported % removal, load reduction, and/or effluent concentrations are provided over a range of influent concentrations, and list the range of influent concentrations:

☐ **Other**; please specify if lab or field results and then summarize the results:
- ☐ Check here if reported % removal, load reduction, and/or effluent concentrations are provided over a range of influent concentrations, and list the range of influent concentrations:

13 Particle-Size Distribution (PSD)

If laboratory test results are included and TSS/SSC results are reported, was Sil-Co-Sil 106 used in the test runs?
☐ Yes
☐ No -- If no, explain what was used instead:

If laboratory test results are included and TSS/SSC results are reported, was the NJDEP PSD (1 to 1,000 micron PSD) used in the test runs?
☐ Yes
☐ No -- If no, explain what was used instead:

What method and equipment were used to determine PSD?
If the method or equipment used to determine PSD differed for any lab test/storm where PSD was measured, provide the date of the test/storm and describe the change.

If laboratory test results are included, were the influent and effluent analyzed for PSD and reported for at least five (5) test runs?
☐ Yes
☐ No -- If no, explain why not:

If field test results are included, were the influent and effluent analyzed for PSD and reported for at least five (5) storms?
☐ Yes
☐ No -- If no, explain why not:

If field test results are included, did the PSD measurements that were reported include at least one storm that had 10 or more consecutive dry days before the storm?
☐ Yes
☐ No -- If no, explain why not:

If field test results are included, did the PSD measurements that were reported include at least one storm that had only 1-dry day before the storm?
☐ Yes
☐ No -- If no, explain why not:

Did the influent contain at least 50% of its particles in the 10-60 µm size range for lab tests/storms where PSD was measured?
☐ Yes – Provide the percentage of particles in the 10-60 µm size range:
☐ No -- Provide date(s) and characteristics of lab test/storms not meeting this target and list the percentage of particles in the 10-60 µm size range for the influent:

Did the effluent contain less than 10% of its particles between 10-60 µm in size for any lab tests/storms where PSD was measured?
☐ Yes – Provide the percentage of particles in the 10-60 µm size range:
☐ No -- Provide date(s) and characteristics of storms not meeting this target and list the percentage of particles in the 10-60 µm size range for the effluent:

14 Maintenance Considerations (check all that apply and briefly explain maintenance procedures/standards)

What is the generic inspection and maintenance plan/procedure? (attach necessary documents):

Is there a maintenance track record/history that can be documented?
☐ No, no track record.
☐ Yes, track record exists; (provide list of local or regional BMPs currently in use and maintenance track record info):

What is the expected maintenance frequency, per year?

i. Total life expectancy of BMP and, if relevant, media:

ii. For media or amendments functioning based on cation exchange or adsorption, how long will the media last before breakthrough (indicator capacity is nearly reached) occurs?

iii. For media or amendments functioning based on cation exchange or adsorption, how has the longevity of the media or amendments been quantified prior to breakthrough (attach necessary performance data or documents)?

Maintenance contract and associated costs offered by:
☐ Vendor – Provide current costs:
☐ Other commercial entities -- Provide range of current costs:

Is the maintenance procedure and/or are materials/components proprietary?
☐ Yes, proprietary;
- ☐ BMP lends itself to competitive bidding for maintenance
- ☐ Recourse / options exist if the vendor goes out of business

☐ No, not proprietary;
- Are local certified contractors available?
  - ☐ Yes; provide a list of companies and cities where located.
  - ☐ No; local contactors are not available
- Does the BMP lend itself to competitive bidding for maintenance?
  - ☐ Yes; provide a list of local, certified, maintenance companies and cities where located.
  - ☐ No; local competitive bidding not possible because only one maintenance company certified locally.

Maintenance complexity (Check all that apply):
☐ Confined space training required for maintenance
☐ Liquid pumping and transportation
- Specify method:
- Specify certified disposal locations:

☐ Solids removal and disposal
- Specify method:
- Specify certified disposal locations:

Other noteworthy maintenance parameter (describe):

15 Comments

Include any additional explanations or comments: