



County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods, and diverse communities of Fairfax County

DATE: March 19, 2009

TO: All Design Professionals, Builders, Contractors, and Developers
Working in Fairfax County

SUBJECT: **Letter #09-04** Filterra[®] – Use under the Innovative Best Management Practices (BMP) Provisions of the Public Facilities Manual

On March 12, 2007, the Board of Supervisors adopted amendments to the Public Facilities Manual (PFM) incorporating design and construction standards, plan submission requirements, and requirements for the release of bonds and conservation escrows for 6 Low Impact Development (LID) practices. The approved LID practice for tree box filters included an option for use of a flow rate based design subject to approval by the Director. This option was intended to address use of manufactured systems such as the Filterra[®] that utilize flow rate based designs. A prior Letter-to-Industry dated July 16, 2007, discussed elements of these PFM amendments related to facility design, plan review, plan processing, and construction including a sizing requirement for the Filterra[®] system different from the manufacturer's recommended sizing.

Additional analyses of the system's hydraulic performance utilizing continuous simulation modeling and rainfall records from Reagan National and Dulles airports have been performed. Based on these analyses, the prior guidance on facility sizing is being rescinded and replaced with the sizing rules in this letter which were developed specifically for use in Fairfax County. It also has been decided that because of some other specific differences with the materials, construction, testing, and inspection requirements for tree box filters, it is more appropriate to treat the Filterra[®] system as an innovative Best Management Practices (BMP) rather than under the current PFM provisions for tree box filters. Henceforth, we will return to reviewing these facilities under the innovative BMP provisions of the PFM (Section 6-0402.4) as outlined below (See October 2, 2001 Letter-to-Industry #01-11 for additional information).

The guidance contained herein is for the manufacturer's current design, construction, and filter media specifications. Any changes to these specifications that may impact the system's hydraulic performance or phosphorus removal capability must be evaluated by the County prior to use.

Submission Process:

Requests for approval to use Filterra[®] systems, as provided for under PFM Section 6-0402.4, may be included in plan submissions rather than by separate letter of request. In order to

**Department of Public Works and Environmental Services
Land Development Services**

12055 Government Center Parkway, Suite 444
Fairfax, VA 22035

Phone: 703-324-1780, TTY: 703-324-1877, Fax: 703-324-1847
www.fairfaxcounty.gov/dpwes



facilitate the tracking of requests and evaluation of the performance of these systems, a copy of the Innovative BMP Tracking form http://www.fairfaxcounty.gov/dpwes/forms/bmp_tracking.pdf shall be filled out and attached to the plan.

In accordance with PFM Section 6-0402.4, requests incorporated into plans must include the following site-specific information:

- Maintenance consideration and program (private maintenance required).
- Special construction details and specifications if needed.
- Estimated construction cost.
- Estimated 20-year maintenance cost.

Certain information normally required for requests to use innovative BMPs has been deleted from the list because it is either not applicable or was evaluated during preparation of this letter.

Location and Siting:

In residential areas, Filtterra[®] systems must be located on Home Owner Association (HOA) (or “common”) property and may not be located on individual buildable single-family attached or detached residential lots or any part thereof. Filtterra[®] systems may be located in the right-of-way subject to approval by VDOT. Filtterra[®] systems may not be located in the vicinity of loading docks, vehicle maintenance areas, or outdoor storage areas, where there is the potential for high concentrations of hydrocarbons, toxics, or heavy metals in stormwater runoff unless effective pre-treatment is provided to reduce the concentrations.

Maintenance:

Filtterra[®] systems must be privately maintained and a private maintenance agreement must be executed before the construction plan is approved. Filtterra[®] systems may not be located in County storm drainage easements. Maintenance access must be provided for all facilities. Maintenance access routes must be depicted on plans for all facilities not located in parking lots or along streets. Per 2001 Letter-to-Industry #01-11, for innovative BMPs located in residential areas that will be maintained by HOAs, the developer must transfer sufficient funds to the HOA prior to bond release to cover a 20 year maintenance cycle. These funds shall not be available for use until after bond release.

General Design Requirements:

Designs and construction of Filtterra[®] systems should generally conform to the manufacturer’s specifications as contained in the Engineering Design Assistance Kit (v05b; 2008) except as noted herein. Sizing of Filtterra[®] facilities shall be based on the table below. Please note that the maximum allowable drainage area to the facility now includes both impervious and pervious areas. The assigned phosphorus removal efficiency is 55%. Facilities shall be sited to adequately address bypass flow.

Allowable Drainage Area for Filtterra® Units

Size of Filtterra Unit (feet x feet)	Maximum Drainage Area ¹ (acres)
6 x 4	0.11
8 x 4	0.15
6 x 6	0.16
6 x 8	0.23
10 x 6	0.28
12 x 6	0.34
13 x 7	0.44

1. Includes both impervious and pervious areas.

Materials Specifications:

The filter media shall be per the manufacturer's specifications. Materials certifications from the manufacturer for the filter media shall be submitted to Department of Public Works and Environmental Services prior to bond release. Materials certifications must be based on batch test results performed by the manufacturer as part of a quality control/quality assurance program.

Inspections:

A final inspection of the installed facility shall be performed by a licensed professional (In accordance with standard practice, the actual inspections may be performed by an individual under responsible charge of the licensed professional). The licensed professional shall certify that the facility was installed in accordance with the approved plans. The licensed professional's certification along with any material delivery tickets and certifications from the material suppliers and results of the tests and inspections shall be submitted to the County prior to bond release. For projects requiring as-built plans, the required certification and supporting documents shall be submitted with or incorporated in the as-built plans. For projects that do not require as-built plans, the required certification and supporting documents shall be submitted with the Residential Use Permit (RUP) or non-RUP request.

If you have any questions, please contact a Stormwater Engineer with the Stormwater and Geotechnical Section, Environmental and Site Review Division, at **703-324-1720, TTY 711.**

Sincerely,

James W. Patteson, P.E.
Director

cc: Jimmie D. Jenkins, Director, Department of Public Works and Environmental Services