

Chesapeake Bay Stormwater Training Partnership 

Webcast Series



Virginia Stormwater Management Program






The Chesapeake Bay Stormwater Training Partnership

Created to deliver targeted training on new tools and practices to improve the quality of stormwater runoff.



Visit: www.chesapeakestormwater.net

To learn how you can have access to:
 Free One-day design workshops
 Intensive master stormwater design seminars
 Direct on-site technical assistance
 Self guided web-based learning modules





Chesapeake Bay Stormwater Training Partnership 

Webcast Series

To Adjust How the Slides Appear on Your Screen – You can go to Full Screen under the Meeting Tab to make the slide area larger.

To Answer a Poll Question – Polling questions will appear throughout the webcast. To answer a poll question, click on the radio button to the left of your answer and click submit. Do not type your answer in the chat box.

To Ask a Question – The right corner of the screen contains a Q&A chat box. Type your question in the box and click on the send question icon to submit it. We will try to answer as many questions as possible during the webcast.



Chesapeake Bay Stormwater Training Partnership 

Webcast Team



Virginia (Ginny) Shead, P.E.
Office of Regulatory Programs Manager



Joan Salvati
Local Program & Guidance Development Manager



Scott Crafton
Special Projects Coordinator



Joe Battiata, P.E.
Center for Watershed Protection

Chesapeake Bay Stormwater Training Partnership 

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Poll Question #1

I work for a:

- a) Phase I community
- b) Phase II community
- c) State government
- d) Federal government
- e) Private consultant
- f) Nonprofit organization
- g) University
- h) Other (tell us in the chat box)

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Poll Question #2

How many people are participating today in the webcast at your location?

- a) Just me
- b) 2 to 5
- c) 6 to 10
- d) More than 10

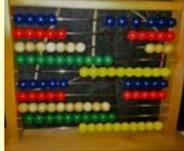
Chesapeake Bay Stormwater Training Partnership Webcast Series

CENTER FOR WATERSHED PROTECTION

Webcast Outline

- Introductions
- Regulatory Overview
- Local Program Adoption Tools
- Technical Criteria & Resources





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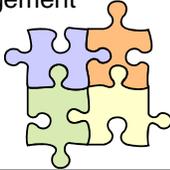
Commonwealth of Virginia Regulatory Update

Ginny Snead, PE
Stormwater Regulatory Programs Manager
June 7, 2012

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Reorganization

- Summer 2011
- Soil and Water and Chesapeake Bay Local Assistance combined to form Division of Stormwater Management
 - Office of Regulatory Programs
 - Office of Conservation and Restoration
 - Regional Offices



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Office of Regulatory Programs

- Erosion & Sediment Control Act: **10,000 sq ft**
- Chesapeake Bay Pres. Act: **2,500 sq ft**
- VA SW Management Permit (VSMP): **1 acre**
 - Construction General Permit
- Multiple Separate Storm Sewer System (MS4)
 - Phase I Individual Permits
 - Phase II (Small) General Permit
- Chesapeake Bay Total Maximum Daily Load (TMDL) Watershed Implementation Plan (WIP)

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Virginia Stormwater Management Program (VSMP)

- Currently State Run
- Compliance = Water Quality
 - Current Compliance @ 40%
 - Local vs. State confusion
- *Simplification:* Local Programs = Local Control = Improved Compliance
- *Consistency:* Facilitates uniform program oversight and enforcement.



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VSMP Regulations Timeline

- Virginia Soil and Water Conservation Board adopted regulations May 24, 2011
- Regulations became effective September 13, 2011 and Published on DCR website
- Implementation date July 1, 2014 through State Construction General Permit and Local Ordinances
- Before July 1, 2014, Local Programs Develop and Adopt Programs and Ordinances



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Statewide Implementation

■ Chesapeake Bay Preservation Act localities and Municipal Separate Storm Sewer System (MS4) permitted localities
■ Likely no stormwater program currently

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Local Programs

- Effective *September 13, 2011*
- Implementation Date *July 1, 2013*
 - One year extension to *July 1, 2014*
 - Compliance = Water Quality
- Local Program Development *NOW*
 - Outreach, Outreach, Outreach
 - Tool Development
 - Stormwater Local Government Advisory Committee (SLGAC)

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Revised Stormwater Management Regulations

- Quality Criteria
 - 0.41lbs/acre/yr TP
 - Runoff Reduction Method
 - LID/ESD/Infiltration Practices
- Quantity Criteria
 - Energy Balance Method

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Local Program Benefits

- **Developers**
 - Eliminates local vs. state confusion
 - Greater compliance=better protection of local natural resources
- **Local Control**
 - Speed of plan review and approval
 - Economic development advantage
 - Address local issues

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DCR Assistance Timeline

- Establish Local Government Advisory Team – Began March 2012
- Program Requirement Checklist – Final May 2012
- Model Ordinance Development – Underway
- Training Plan
- Administrative Tools

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Relevant 2012 Legislation

- Budget
- Integration Bill (HB1065, SB407)
 - Statewide and Streamline
- Nutrient Trading Bill (HB176, SB77)
 - Expansion of Current Programs
 - CAFOs, MS4s, Industrial SW
 - Cost Effective Compliance
 - Stormwater Offsets

 **General Permit Reissuance**

- Small MS4 General Permit
 - RAP Meetings June, July, August
 - Proposed Regs to Board Sept. 2012
 - Effective July 2013
- Construction General Permit
 - May 21 - June 20 Initial Public Comment
 - RAP Meetings August, September, October
 - Proposed Regs to Board December 2012
 - Effective July 2014



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 **Grandfathered Projects (4VAC50-60-48)**

Land-disturbing activities where the following was approved by a locality prior to July 1, 2012:

- a currently valid proffered or conditional zoning plan,
- preliminary or final subdivision plat,
- preliminary or final site plan or
- zoning with a plan of development,
- or any document determined by the locality as being equivalent

and

– Coverage under the Virginia Stormwater Management Program (VSMP) General Permit was not obtained prior to July 1, 2014.

The land disturbance activity must be complete by June 30, 2019 or portions not under construction shall become subject to the new design criteria.

 **Grandfathered Local, State and Federal Projects**

A local, state or federal project is grandfathered until June 30, 2019 when:

There has been an *obligation* of locality, state, or federal funding, in whole or in part, prior to July 1, 2012, or for which the department has approved a stormwater management plan prior to July 1, 2012

Additional discussion is required on what this means for state college and university master plans.

If bonds or public debt financing has been secured prior to July, 1 2012, projects shall be grandfathered

 **Time Limit on Applicability of Approvals (4VAC50-60-47.1)**

The approved post-development SWM design is valid for construction only for the remaining portion of the General Permit cycle under which it was originally permitted (up to 5-years) PLUS two additional permit cycles (10-years) *unless*:

- VSMP permit coverage lapses (failure to reapply)
- or
- Two additional permit cycles have passed



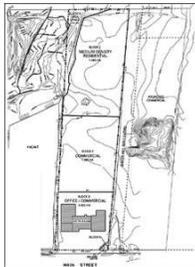
In that event, portions of the project not under construction are required to meet any new technical criteria adopted since the original permit coverage was issued.

 **Example Time Limit on an Approved Plan**

A sub-division registers under the VSMP General Permit on July 12, 2013.

The post-development criteria applicable to the sub-division remains applicable for the remaining portion of that permit cycle (until 2014) plus two additional (2014-19, 2019-24).

Any portions of the sub-division not under construction July 1, 2024 must meet the post-development design criteria in the regulations at that time



 **Question and Answer**



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Poll Question #3
How did you hear about the webcast?

- a) Chesapeake Stormwater Network/CWP
- b) DCR Staff
- c) Virginia Municipal League
- d) Virginia Association of Counties
- e) Sign tacked to a telephone pole down the street
- f) Other?

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Poll Question #4
 Where are you (which is your local DCR SW Office)?

- a) Christiansburg
- b) Abingdon
- c) Richmond
- d) Staunton
- e) Suffolk
- f) Warrenton
- g) Tappahannock



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Local Stormwater Program Adoption Elements
 Joan Salvati
 DCR Local Program & Guidance Development Manager

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Local VSMP Program Elements

- Ordinance adoption
- Plan Review process
- BMP maintenance assurance
- Inspections
- Compliance/Enforcement
- Collection of Fees
- Consistent Erosion & Sediment Control program




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Draft Ordinance Development

Required Elements

- Identification of authority for receipt of registration statements
- Provisions for review and approval of E & S control plans
- Requirements for compliance with stormwater, stormwater pollution prevention and pollution prevention plans



Timeline for local development

- Draft developed – July through December 2012
- Revise draft ordinance consistent with Construction General Permit – June 2013

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Program Administration

Required Elements

- Identify who accepts registration statements
- Provide details on fee collection process
- Develop policies and procedures for acceptance of bonds, reporting and record keeping
- Develop procedures for BMP maintenance

Timeline

- July through December 2012



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Plan Review Process

Required Elements

- Identify who undertakes plan reviews
- Develop procedures for plan review
- Include plan submittal criteria in appropriate section of local ordinance
- Develop checklist for stormwater management criteria on submitted plans

Timeline
 July through December 2012



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Inspection Process

Required Elements

- Identify staff responsible for inspections
- Draft inspection criteria within local ordinance
- Develop inspection process consistent with regulations

Timeline
 July through December 2012



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Compliance/Enforcement

Required Elements

- Identify who conducts enforcement
- Augment existing or create new enforcement criteria within local ordinance
- Develop clear compliance & enforcement processes including hearings, legal proceedings and fines

Timeline
 July through December 2012



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Funding & Staffing Plan

Required Elements

- Identify anticipated construction activity and compare to existing staff levels
- Determine level of increased staff time based on provisions of regulations
- Determine additional staff and other resources needed (computers, administrative)
- Identify budget to cover these costs for the long term (may include combination of fees & other funding sources such as general funds)

Timeline

- July through December 2012
- Include in local budget process – beginning Fall of 2012



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Submittal Timeframe

- Timeline for submittal of *draft* local stormwater programs – January 2013 through June of 2013
- Soil & Water Conservation Board can approve programs through June of 2014

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Local Adoption Tools

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Program Elements

- Ordinance adoption
- Plan Review process
- BMP maintenance assurance
- Inspections
- Compliance/Enforcement
- Collection of Fees
- Consistent Erosion & Sediment Control program



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Steps Taken to Identify DCR Tools for Program Development

- Program & Guidance Development staff reviewed existing local stormwater management programs to identify program elements & tools
- Brainstormed what tools commonly used by existing local programs
- Reviewed feed back from local governments during regulatory development process

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Surveys

- Virginia E-Permitting Survey – learn of existing IT capacity and needs. Survey completed results received in Mid May. Contact: Gerry Seeley
- Local Program Development Survey – learn of local program approach, capacity and resource needs. Contact: Joan Salvati

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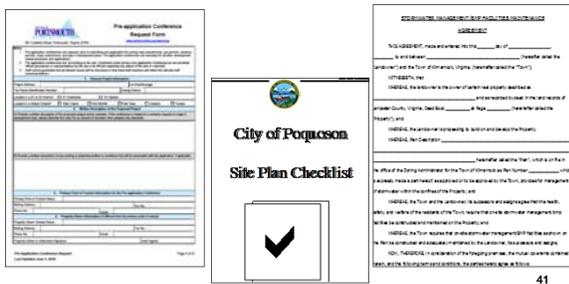
Identified Tools/Time Frame for Development

- Stormwater Management Required Elements checklist — April 24
- Pre Draft Model Ordinance — May 17
- Program Development & Submittal timeline; draft Local Government Survey — June 14
- Other administrative tools (not mandated)
 - Plan review checklist (E & S, Bay Act, Stormwater)
 - Template BMP maintenance agreements
 - "One-Stop-Shop" plan review team/pre-application processes
 - Template MOUs for regional partnerships

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Sample tools



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Cooperative programs are an option

The development of cooperative programs between local governments or with agencies can make local programs economically feasible.




§ 10.1-603.3. Delegated authorities may enter into agreements with soil and water conservation districts, adjacent localities, or other entities to carry out the responsibilities of this article.

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Training Plan

Audience	2012				2013				2014				Beyond 2014	
	Jan	Mar	May	July	Jan	Mar	May	July	Jan	Mar	May	July	Sept	Nov
Regional Staff	Level I													
Local Govt Staff														
Development Community														
Contributors														

Program Administration, Plan Review and Inspection, Certification

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Question and Answer



Introducing Runoff Volume Reduction

- The **Virginia Runoff Reduction Method (RRM)** was developed by the Center for Watershed Protection (CWP) and the Chesapeake Stormwater Network (CSN) for DCR.
- The method focuses on determining a BMP's capacity to capture/reduce the overall volume of runoff as well as mass pollutant removal.
- The method also incorporates built-in incentives for forest preservation and the minimization of impervious surfaces.
- The RRM is a tool for planning and measuring compliance. It is not a design tool.**




In this example, the BMP removes 50 kg or 50% of the "total load" of this pollutant. It does not reduce the volume of stormwater discharged.

- "Traditional" BMP pollutant removal efficiencies do not take into account the removal that occurs when the runoff volume is reduced.
- Many BMPs, such as ponds and filters, do not reduce runoff volume at all.



In this example, the BMP removes 75 kg or 75% of the "total load" of this pollutant. The "true" performance of this BMP is only apparent when we factor in the impact of volume reduction and calculate the total load of the pollutant.

- Using BMPs that also provide volume reduction provides greater overall pollutant (mass load) removal
- This reflects a "Mass Balance" Approach

The Key Differences in Application

Existing Rules	Land Use(s)	Modified Rules
Impervious Surface (IC) only	IC + Forest/Open Space + Managed Turf	
0.5 inches of <i>Runoff</i> from the IC only	Event	1.0 inches of <i>Rainfall</i> from the whole site
Average land condition/technology based	New Design Criteria	0.41 lbs./ac/yr TP
10% reduction TP	Redevelopment Criteria	<1 acre = 10% red. TP, >1 acre = 20% red. TP
Simple Method	Compliance Methodology	Runoff Reduction Method (RRM – enhanced Simple Method)

0.41 lbs/ac/yr Total Phosphorus Threshold associated with the Impervious Cover Model

Statewide requirement based on three types of land cover and NRCS hydrologic soil groups of soil on site

Threshold assumes 10% impervious cover, 30% turf, 60% forest

The Impervious Cover Model focuses on protecting water quality in *local* streams.

Use Environmental Site Design
(Think about this early in the design process)

- Fit the design to terrain
- Locate development in less sensitive areas
- Reduce the limits of clearing and grading
- Use open space design (clustering) techniques
- Reduce impervious cover

If designers wait until site plans are completed and then apply SWM solutions afterwards, SWM solutions are likely to be more constrained, less effective, and more costly.

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Typical Development Site Plan

15 Acres
25 0.6 acre lots
Treatment Volume = 18,100 cubic feet

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Example Runoff Reduction Site Plan

15 Acres
25 ¼ acre lots
Treatment Volume = 13,600 cubic feet

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Water Quantity Control

The new paradigm is Volume-Based Hydrology (VBH), focused on:

- Volume
- Peak Flow
- Velocity
- Flooding

Channel Protection Criteria are now Situational

Manmade Stormwater Conveyance Systems

Restored Stormwater Conveyance Systems

Natural Stormwater Conveyance Systems

The Energy Balance Method

- The new **ENERGY BALANCE METHOD** is based on the interaction of both flow volume and peak discharge, which determine the stream channel configuration

Runoff Reduction Method Spreadsheet

Compliance tool, NOT a design tool:

- Calculates treat. volume & pollutant reduction requirement
- Tracks & totals BMP pollutant removals
- CN adjustments for quantity control

Resources Available in the New (Revised and Updated) Virginia Stormwater Management Handbook

Background

- The existing Virginia SWM Handbook (nicknamed the “Blue Book”) was released in 1999.
- Many new technologies, practices, and design techniques developed since then, but NOT reflected in the existing Handbook.
- New Handbook reflects quantum leaps in research and in knowledge of how to do SWM well.

Handbook Organization

- The Handbook organized in 3 Parts.
 - Part 1: Laws, Regulations and Program Implementation (Chapters 1-3)
 - Part 2: Understanding Stormwater Management (Chapters 4-7)
 - Part 3: Tools, Methods and Examples (Chapters 8-14)
- Most chapters have multiple Appendices that provide specific guidance, useful tools, case studies, etc.
- Handbook has many more helpful photos and graphics.

Virginia Stormwater BMP Clearinghouse

Design standards and specifications of BMPs approved for use in Virginia to control the quality and/or quantity of stormwater runoff.

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Traditional Runoff Treatment BMPs

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Runoff Volume Reduction/LID BMPs

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Manufactured (Proprietary) BMPs

Clearinghouse website disseminates the results of Virginia's process to evaluate and certify the performance claims of manufactured/proprietary BMPs using the Virginia Technology Assessment Protocol (VTAP)

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LEED Credits for BMP Use

- Site Reforestation: SS5.1, SS5.2, SS6.2; maybe SS7.1, WE1.1, WE1.2
- Rooftop Disconnection: SS6.1, SS6.2; maybe WE1.1, WE1.2
- Filter Strips: SS5.2, SS6.1, SS6.2; maybe WE1.1, WE1.2
- Grass Channel: SS5.1, SS5.2, SS6.1, SS6.2
- Vegetated Roofs: EA pre-1 & EA1; maybe SS5.1 and/or SS5.2 if get SS2; maybe SS6.1, SS6.2, SS7.1, WW7.2
- Rainwater Harvesting: SS6.1, SS6.2, WE1.1 & WE1.2 or WE2 or WE3
- Permeable Pavement: SS6.1, SS6.2; maybe SS5.1, SS7.1, WE credits, MR credits
- Infiltration: SS6.1, SS6.2
- Bioretention: SS5.1, SS5.2, SS6.1, SS6.2, WE1.1, WE1.2
- Wet Swale/Wet Ponds: SS5.1; maybe SS5.2, SS6.1, SS6.2
- Filtering Practices: SS6.2; maybe SS5.1, SS6.1
- Constructed Wetlands: SS5.1; maybe SS5.2, SS6.1, SS6.2

KEY: SS = sustainable sites; WE = water efficient landscaping;
EA = energy and atmosphere; MR = materials and resources

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Additional Information

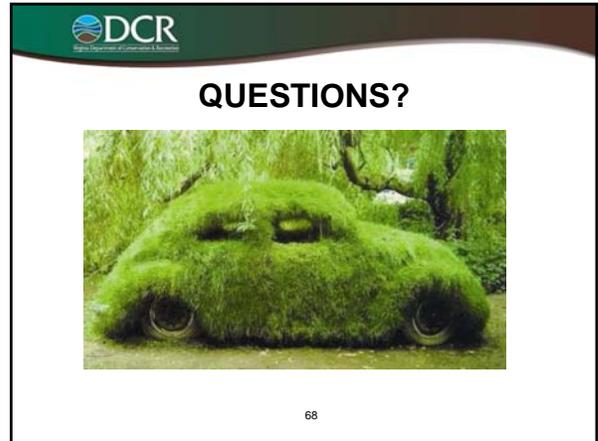
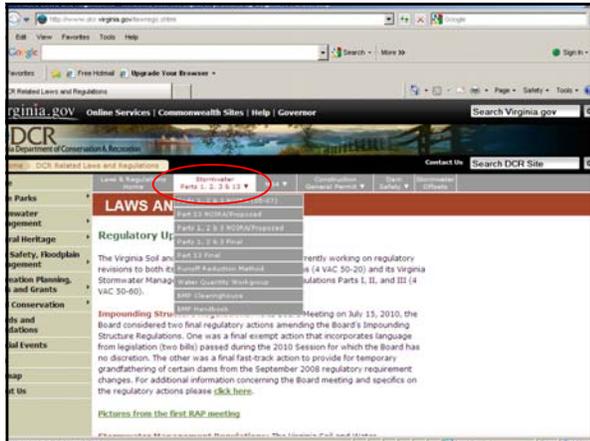
Draft Stormwater Handbook
<http://www.dcr.virginia.gov/lr2i.shtml>

BMP Clearinghouse Website
<http://wvrrc.vt.edu/swc/>

Runoff Reduction Methodology
<http://www.dcr.virginia.gov/lr2f.shtml>

Modified Regulations
<http://lis.virginia.gov/000/reg/TOC04050.HTM#C0060>

Stormwater Local Government Advisory Committee (SWLGAC) Information
<http://www.dcr.virginia.gov/lrswlgac01.shtml>



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Take Home Points

- Integration and local implementation of Stormwater Management requirements;
- Implementation Schedule (the future is now)!
- Guidance tools are being developed – you can participate in the process (surveys) while you ramp up.
- Virginia DCR & BMP Clearinghouse websites

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Webcast Archive

www.chesapeakestormwater.net

Living Lightly on the Bay: Native Plants in Back Gardens

Stormwater News: Adding Stormwater: Erosion, Sediment Control Panel