DCR's perspective on the proposed VSMP regulations

A brief overview

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Stormwater Management Pre-2004

- **Administered by three state agencies and four citizen boards**
  - **DCR, DEQ, and Chesapeake Bay Local Assistance Department (formerly)**
  - **Soil and Water Conservation Board**
  - **Board of Conservation and Recreation**
  - **Chesapeake Bay Local Assistance Board**
  - **State Water Control Board**

- **House Bill 1177 (2004) created the VA Stormwater Management Program (VSMP), which consolidated stormwater management in DCR and the Virginia Soil and Water Conservation Board, with the concept of ultimately authorizing localities to administer construction stormwater management programs.**
  - Chesapeake Bay Preservation Act and MS4 localities required to adopt; others may opt-in or DCR will operate.

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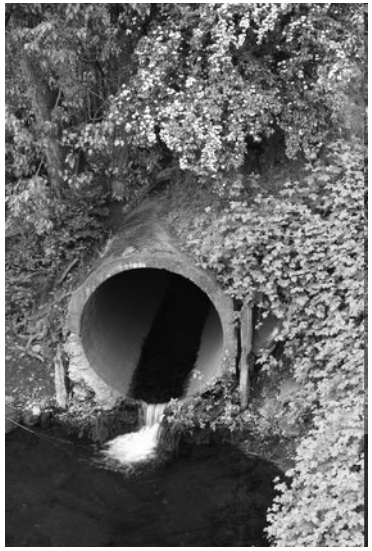
Impact of House Bill 1177 on Water Quality

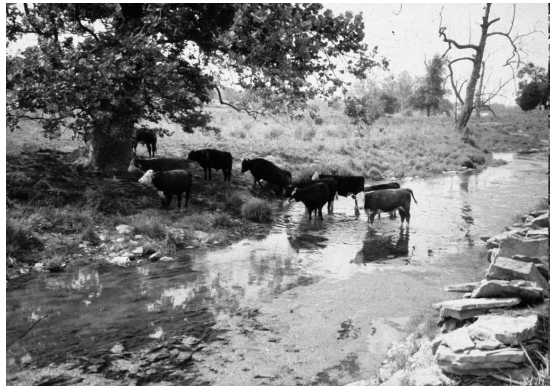


Point Source Discharge – DEQ

- Runoff from Industrial facilities
- Discharge from Industrial facilities
- Discharge from Wastewater Treatment Plants

Non-Point Source Discharge – DCR

- Erosion and Sediment Control
- Discharge from Construction Areas
- VSMP
- MS4
- Nutrient Management
- Agricultural BMPs



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What do amendments to the regulations need to address?

- **Water quality improvements**: Addressing stormwater management is a key component (along with impacts from agriculture, point sources, and air deposition) to improving water quality in Virginia's rivers, streams, lakes, and Chesapeake Bay.
- **Water quantity:** Today's standards still result in significant flooding and channel erosion.
- **Operation of a local stormwater management program**: Operated by a locality ("qualifying local program") or DCR.
- **Fee levels:** That will provide sufficient funding for local stormwater management programs and DCR oversight.

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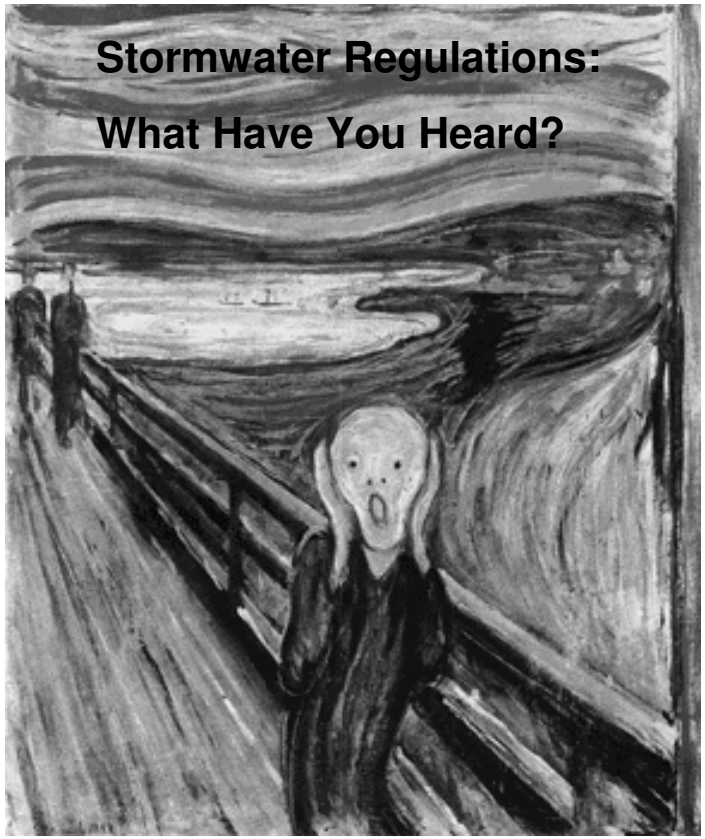
Process of adopting new regulations

- Held approximately 50 public meetings, including 25 meetings of the technical advisory committee and its associated subcommittees).
- Held design charrettes with over 400 attending.
- Developed the Runoff Reduction Methodology
- Revised the Stormwater Management Handbook
- Developed the BMP Clearinghouse
- Conduct an economic impact analysis
- Worked with an WEG to run a series of site design analyses
- Held public hearings
- Redeveloped the regulations



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Water Quality Standard

- <u>What we do now</u>
  - Total phosphorus (TP) as keystone
  - Most sites meet average land cover condition (0.45 lbs/acre/year)
  - Redevelopment requires 10% phosphorus reduction
- <u>What was proposed</u>
  - TP basis for compliance
  - Load limit tied to Tributary Strategy goals = 0.28 lbs/acre/year (TP)
  - Redevelopment requires 20% phosphorus reduction compared to predevelopment

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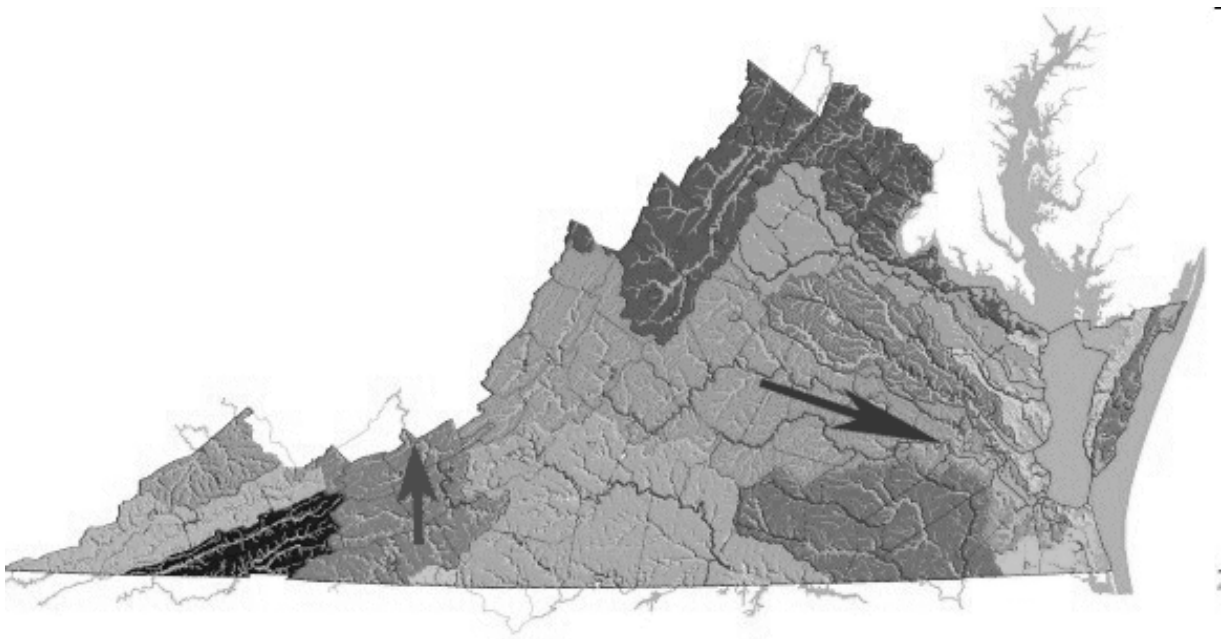
- <u>What is proposed</u>
  - TP basis for compliance
  - 0.28 lbs/acre/year for Bay watershed
  - 0.45 lbs/acre/year for non-Bay areas and sites <1 acre in Bay watershed
  - Redevelopment 10% P reduction on sites <1 acre, 20% P reduction on sites > 1 acre
  - UDA qualified local programs must establish standards between 0.28 and 0.45



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Water Quantity Standard

- <u>What we do now</u>
  - Minimum Standard-19 (MS-19)
  - 10-year storm or local code
- <u>What was proposed</u>
  - 4 point of discharge options + 1% rule
  - Local equivalent program
  - Analysis of sheet flow
  - Align MS-19 (in future)

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What is proposed

- 4 point of discharge options + 1% rule
  - Discharge to man-made system
  - Discharge to restored system
  - Discharge to stable natural system
    - Energy (developed) ≤ Energy (pre-development)
  - Discharge to unstable natural system
    - Energy (developed) ≤ Energy (Good pasture) (1-yr storm)
    - Q_{10} post to pre (Good pasture)
    - Exceptions for <5 acres on prior developed land & <1 acre for new development
    - Post-development erosion and flooding must be less than pre-development
- Local equivalent program
- Analysis of sheet flow
- Align MS-19 (in future)

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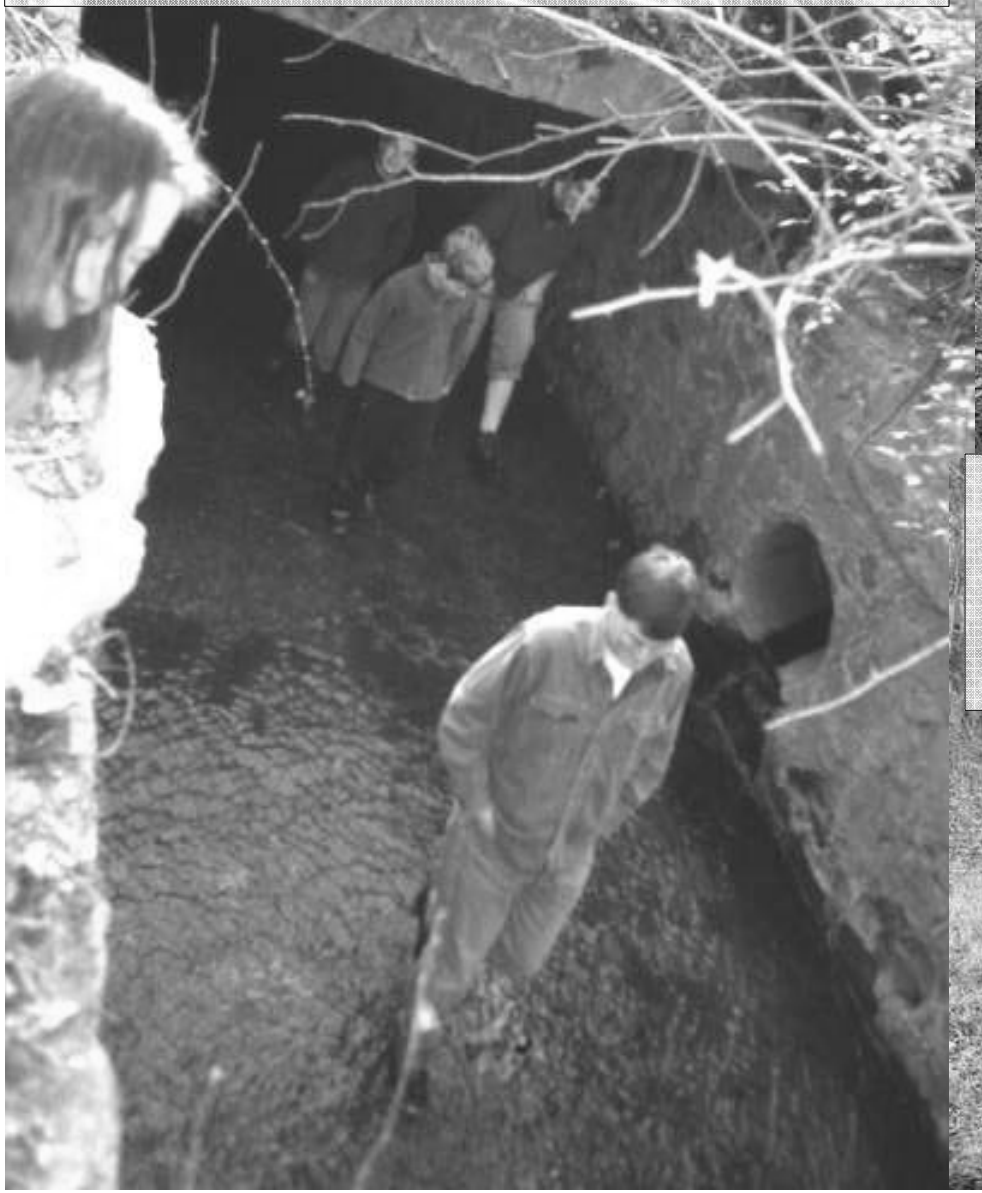
1. Man-made – Stable
Channel: 2-year/24-hour storm with no erosion
Flood: 10-yr Peak confined within System



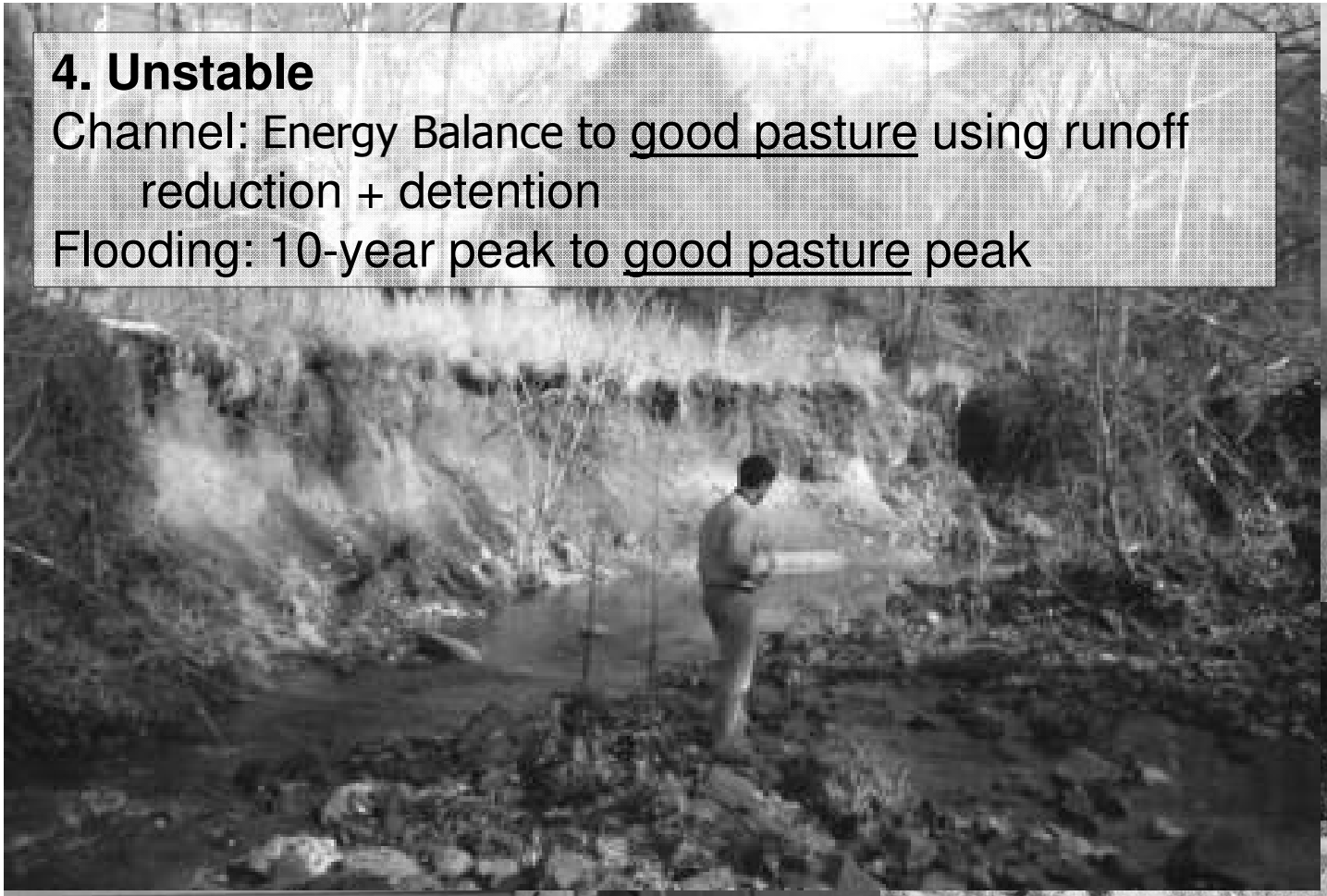
2. Restored – Meets Design
Channel: No Instability
Flood: Confines10-yr within system

3. Natural – No instability
Channel: Energy (peak flow rate) 1-yr to pre-development
Flood: Confines 10-yr within system

4. Unstable

Channel: Energy Balance to good pasture using runoff reduction + detention

Flooding: 10-year peak to good pasture peak



Energy ~ Volume x Peak Discharge

Offsite Compliance Option

- Qualifying local program (Comprehensive Watershed Stormwater Management Plan)
- Buy down program

In Bay watershed 0.45 minimum with buy down to 0.28 lbs/acre/year ($23,900 or $15,000 in UDAs)

- Payment based on the nearest 0.01 lbs of P.
- Mitigation area (“bank”?)

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Grandfathering

- Projects that obtain local permits by January 1, 2010, and VSMP permit coverage by July 1, 2010 then grandfathered to June 30, 2014.
- If continuously maintained grandfathered to June 30, 2019

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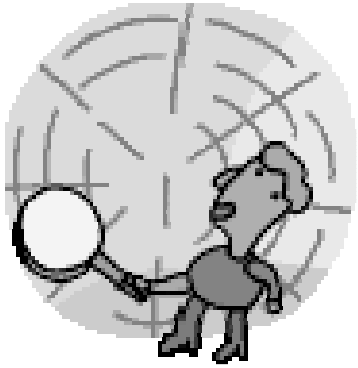
Inspection/Maintenance

- No maintenance requirement on facilities on individual residential lots in maintenance is addressed through deed restrictions or other mechanisms
- Owner inspections limited to facilities requiring maintenance
- Authorizes local programs to develop a strategy for maintenance of facilities on individual lots, but no inspection requirements every 5 years



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Items that were not changed

- Stormwater BMP Choices
- Treating Impervious Cover & Managed Turf Areas
- Spreadsheet Compliance Tool
- Establishment of Locality-Administered Stormwater Management Programs (Section III)
- Revision to the Stormwater Fees (Part XIII)

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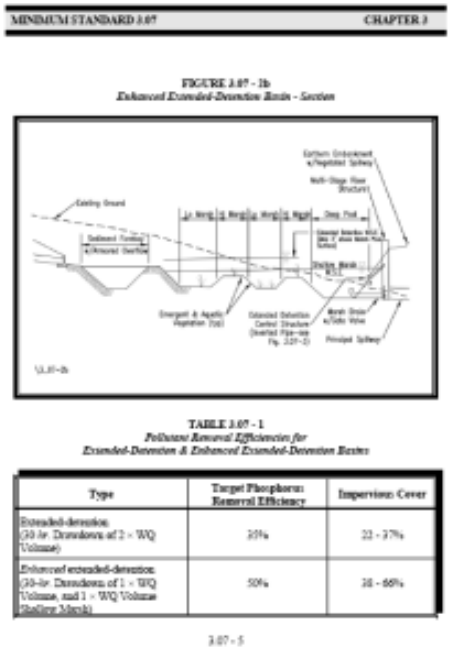
New Stormwater BMP Paradigm

- <u>How do we address the current stormwater regulations?</u>
  - Blue Book method unless locality is more restrictive



MINIMUM STANDARD 3.07 CHAPTER 3

FIGURE 3.07 - 3b
Enhanced Extended-Detention Basin - Section

TABLE 3.07 - 1
Pollutant Removal Efficiencies for Extended-Detention & Enhanced Extended-Detention Basins

Type	Target Phosphorus Removal Efficiency	Impervious Cover
Extended-detention (30-hr. Drawdown of 2 × WQ Volume)	20%	22 - 37%
Enhanced extended-detention (30-hr. Drawdown of 1 × WQ Volume, and 1 × WQ Volume Shallow Marsh)	50%	38 - 66%

3.07 - 5

- <u>How should we address the stormwater regulations in the future?</u>
  - <u>Do not</u>: design a site and try to (retro-)fit/shoehorn stormwater management in after-the-fact
  - Use site design, conventional BMPs (revised Blue Book), BMP Clearinghouse, and Run-off Reduction Techniques
  - Use of “treatment train”
  - BMP performance = Runoff reduction + Pollutant removal

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New Stormwater BMP Paradigm

Microsoft Excel - swmnewdevelopment.xls [Read-Only]

File Edit View Insert Format Tools Data Window Help

A1 DRAFT Virginia Runoff Reduction Method Worksheet -- Beta Version -- 03/04/09

	A	B	C	D	E	F
1	**DRAFT Virginia Runoff Reduction Method Worksheet -- Beta Version -- 03/04/09**					
2	**Site Data**					
3						
4	**Site Name:**					
5						
6		data input cells				
7		calculation cells				
8		constant values				
9						
10	**1. Post-Development Project & Land Cover Information**					
11						
12	**Constants**					
13						
14	Annual Rainfall (inches)	43				
15	Target Rainfall Event (inches)	1.00				
16	Phosphorus EMC (mg/L)	0.26				
17	Target Phosphorus Load (lb/acre/yr)	0.28				
18	Pj	0.90				
19						
20	**Land Cover (acres)**					
21		**A soils**	**B Soils**	**C Soils**	**D Soils**	**Totals**
22	Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00
23	Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	0.00	0.00
24	Impervious Cover (acres)	0.00	0.00	0.00	0.00	0.00
25					**Total**	0.00
26						
27	**Rv Coefficients**					
28		**A soils**	**B Soils**	**C Soils**	**D Soils**	
29	Forest/Open Space	0.02	0.03	0.04	0.05	
30	Managed Turf	0.15	0.20	0.22	0.25	
31	Impervious Cover	0.95	0.95	0.95	0.95	
32						
33						
34						
35	**Land Cover Summary**					
36	Forest/Open Space Cover (acres)	0.00				
37	Weighted Rv(forest)	0.00				
38	% Forest	#DIV/0!				
39	Managed Turf Cover (acres)	0.00				
40	Weighted Rv(turf)	0.00				
41	% Managed Turf	#DIV/0!				
42	Impervious Cover (acres)	0.00				
43	Rv(impervious)	0.95				
44	% Impervious	#DIV/0!				
45	**Total Site Area (acres)**	0.00				
46	**Site Rv**	#DIV/0!				
47						
48	Post-Development Treatment Volume (acre-ft)	#DIV/0!				
49	Post-Development Treatment Volume (cubic feet)	#DIV/0!				
50	Post_Development Load (TP) (lb/yr)	#DIV/0!				
51	Total Load (TP) Reduction Required (lb/yr)	#DIV/0!				
52						
53						
54						

- What is proposed
  - Runoff Reduction
  - Use of all the new and standard tools (including spreadsheet tool).
  - Localities have other options if they can prove to the Board that these tools are equivalent.
  - Be innovative!

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Rainwater Re-Use

Green Roof

Pervious Parking

Bioretention

How did we get there and what is next?

- The regulatory actions began in 2005
- Had two Technical Advisory Committees
  1. The first committee (May 2006 – Aug. 2007) established the 0.28 water quality criterion
  2. The second committee (2008) continues work on Parts II, III and XIII and developed the quantity requirements.
- Public comment closed
- Revised proposed regulation to Board on 9/17, adoption in October

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How did we get there and what is next?

- 30-day Public Comment Period, which run from October 16 to November 25
- Only those comments are accepted that address the changes made to the June 1009 document after the first comment period
- Response to comments and final approval by the board during meeting of December 9 or 10
- Approval by Governor and EPA by December
- Effective no sooner than July 1, 2010
- Local Program adoption October 2011-April 2012, with a possible 1 year extension

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For More Info:

Visit the DCR website:

See the Stormwater Parts 1,2,3, and 13 tab

at: **http://www.dcr.virginia.gov/lawregs.shtml**

or contact

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