

Verification of Urban BMPs



**Why do we care
about verification ?**

**Because Rich Batiuk
Does!**



R.B. 1972

Except for a few cases, Urban BMPs are Not Perpetual !



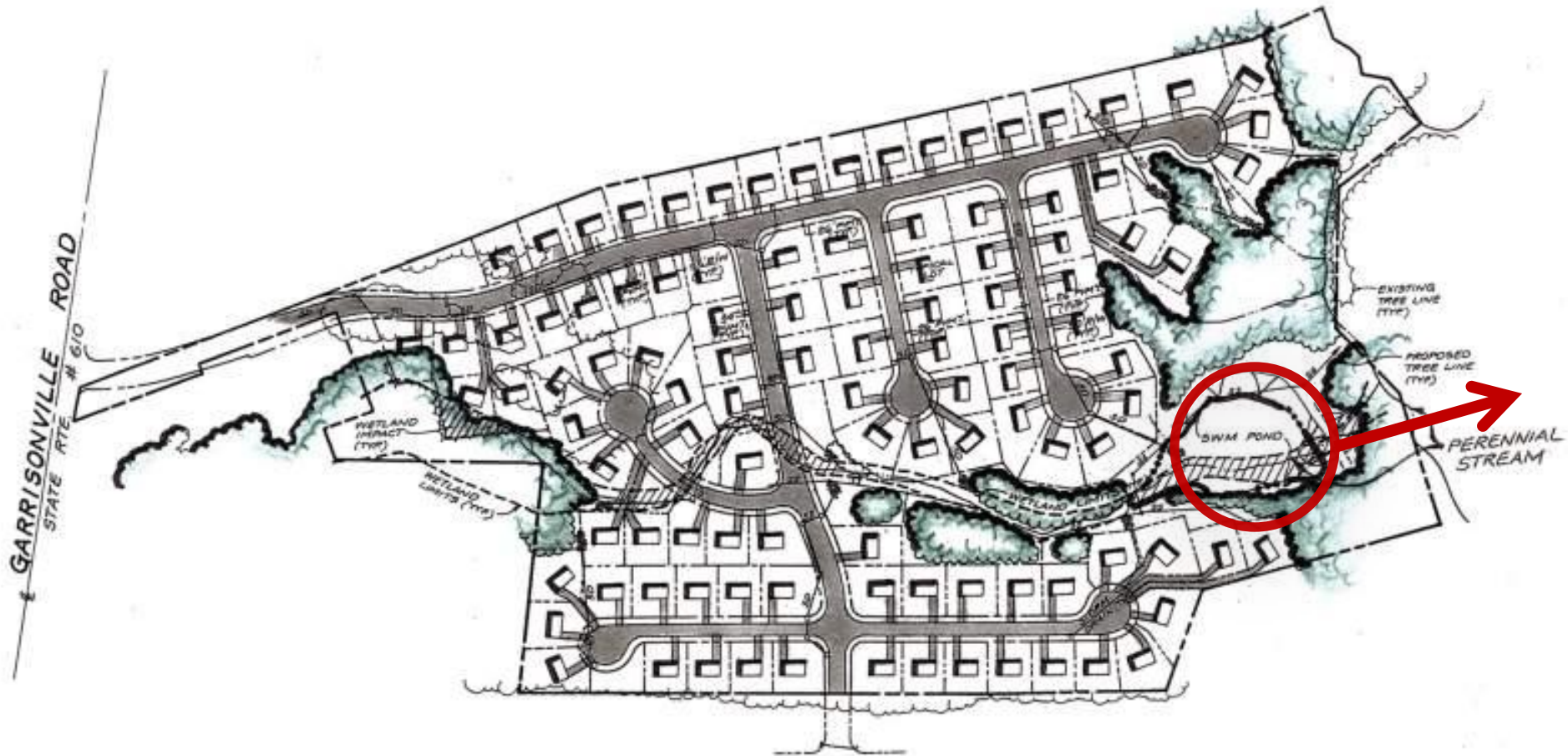
Source: Kenneth Wright, WWE



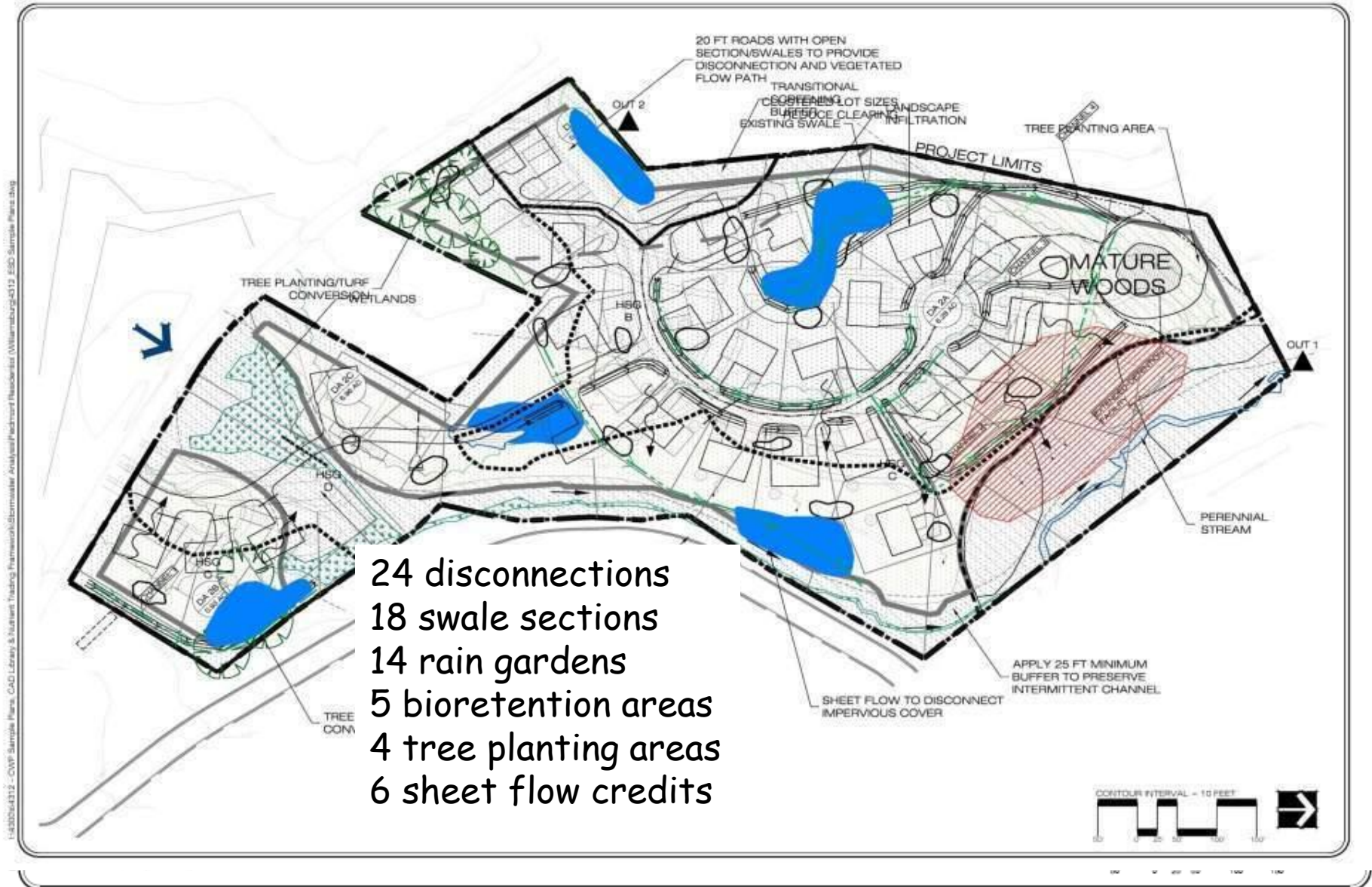
BMP
Performance
Is
Inextricably
Linked
To
Maintenance
(which is not very
sexy)

Our Old Approach to Urban BMPs

One big pond



Our New LID Model

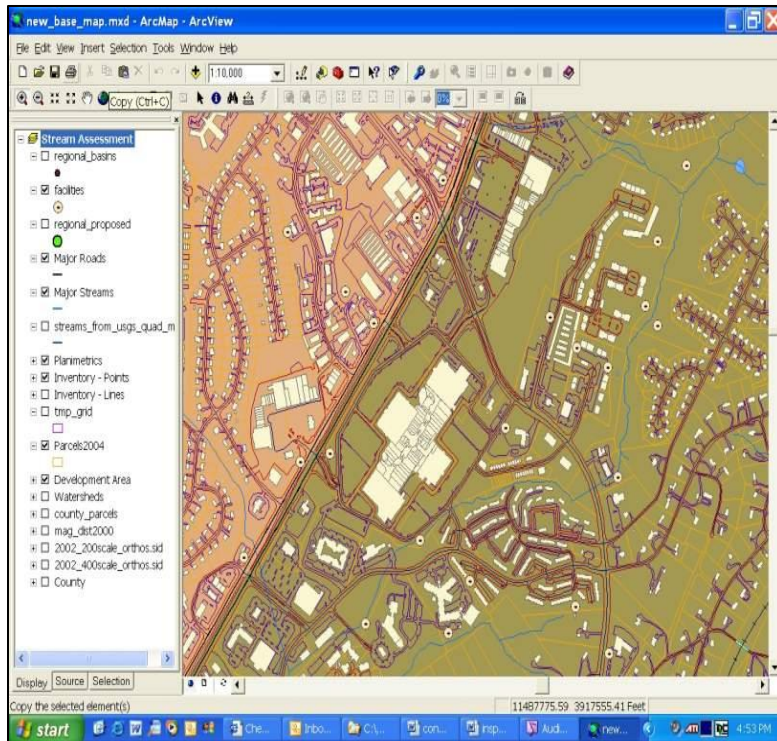




Visual inspections needed to confirm BMP performance



A lot of BMP information to track



Microsoft Access - [Inspections_Complete_Table]

File Edit View Insert Format Records Tools Window Help

MS Sans Serif 8 B I U

StructureID: **RG388**
Date: 11/2/2004
General BMP Type: Ponds
Inspector: Gouganitula
PDF File: RG389-1.PDF
Latitude Deg: 38 Latitude Min: 21.566
Longitude Deg: 77 Longitude Min: 31.943
Status: Complete
Location: Regional Pond 4A

Residential? ☒ Under Bond? ☐
Parcel Key: 49213
Parcel ID: 44R H
LRSN: 26940
HUC: 208104
Discharges To: Rocky Pen Run
Retrofit Potential:
As-Built Plans? ☐ Maintenance Agreement? ☒
How Often Maintained? See Agreement
Acres Treated: 165.58
Condition: Good
Comments/Notes:

Stormwater BMP Master Database
Stafford County, Virginia
Stafford County Department of
Code Administration

Photo Filename

Filename
RG389-1.JPG
RG389-2.JPG
RG389-3.JPG
RG389-4.JPG

Record: 11 of 1

Ponds | Filtration | Initiation | Manufactured/Underground | Miscellaneous | U/D

Pond Type	Accessibility	Emergency Spillway	Outfall Structure
Wet Pond	<input type="checkbox"/> Inaccessible	<input type="checkbox"/> ES Eroding	<input type="checkbox"/> Outfall Undamaged
Pond Length (ft)	<input type="checkbox"/> Dam Embankment	<input type="checkbox"/> ES Obstructed	<input type="checkbox"/> Outfall Separated
700	<input type="checkbox"/> Overgrown	<input type="checkbox"/> ES Non-Operational	<input type="checkbox"/> Outfall Channel
Pond Average Width (ft)	<input type="checkbox"/> Trees	<input type="checkbox"/> No ES	<input type="checkbox"/> Channel Blocked
120	<input type="checkbox"/> Shrubbery	<input type="checkbox"/> Riser	<input type="checkbox"/> Channel Eroding
Spillway Depth (ft)	<input type="checkbox"/> Scrub Brush	<input type="checkbox"/> Low-Flow Blocked	<input type="checkbox"/> Impoundment Area
<input type="checkbox"/>	<input type="checkbox"/> Inadequate Cover	<input type="checkbox"/> BMP Damaged	<input type="checkbox"/> Large Debris
BMP Depth (ft)	<input type="checkbox"/> Erosion	<input type="checkbox"/> BMP Missing	<input type="checkbox"/> Unhealthy
<input type="checkbox"/>	<input type="checkbox"/> Settlement	<input type="checkbox"/> Riser Blocked	<input checked="" type="checkbox"/> No Riparian Buffer
Pond Water Depth (ft)	<input type="checkbox"/> Piping	<input type="checkbox"/> Riser Damaged	<input type="checkbox"/> Shore Erosion
7	<input type="checkbox"/> Slippage	<input type="checkbox"/> Principal Spillway	<input type="checkbox"/> Silted In
<input type="checkbox"/>	<input type="checkbox"/> Burrow Holes	<input type="checkbox"/> Pipe (PSP)	<input type="checkbox"/> Low-Flow Ditch Blocked
Pond Treatment Volume (cf)	<input type="checkbox"/> PSP Blocked	<input type="checkbox"/> Low-Flow Ditch Damage	<input type="checkbox"/> Forebay Silted In
270480	<input type="checkbox"/> PSP Joints Leaking	<input type="checkbox"/> PSP Failure	<input type="checkbox"/> PSP Settlement

Record: 11 of 386 of 658
Form View
Start | Inbox - Microsoft... | FINAL Stormwat... | Inspections_C... | Microsoft Power...

9:03 AM

How to deal with our Legacy BMPs ?

Thirty Years of BMPs. The BMP Inventory in a Maryland County (2006)			
<i>Potentially High Performers</i>		<i>Known Low Performers</i>	
Bioretention/Dry Swales	49	Underground Detention	270
Sand Filters	279	Dry Ponds	528
Wet pond	212	Oil Grit Separators	805
Pond Wetland	98	Proprietary Practices	239
Infiltration Basin	58	Flow Splitter	321
Infiltration Trench	459	Other (plunge pools)	30
Grand Total			3350

Studies show some of the old BMPs are not working



A few of our new BMPs don't perform well, either



Some Urban BMPs have unique verification issues



We have an existing system in place to report, track and verify urban BMPs, but it needs some tweaks to assure actual BMP performance



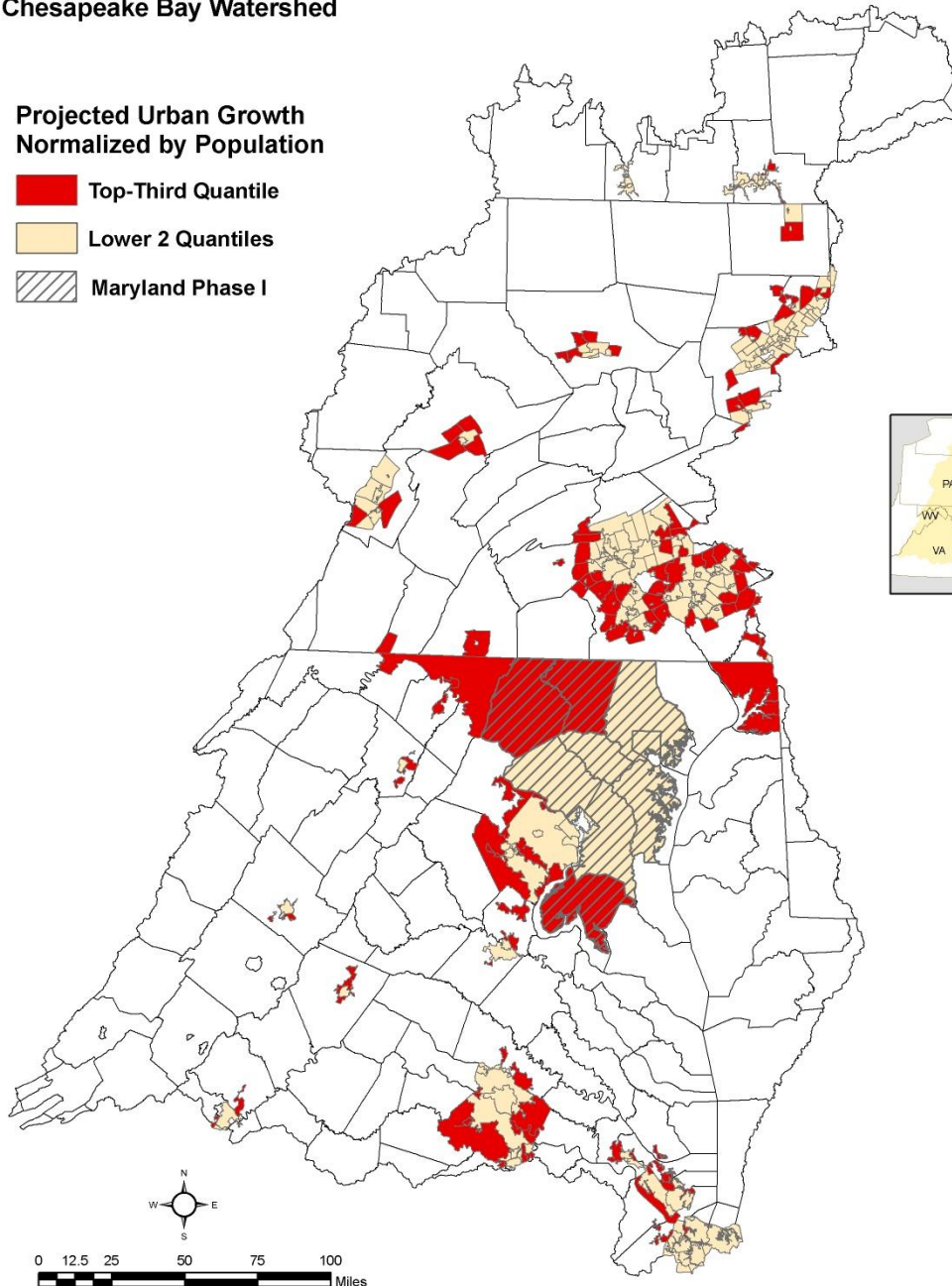
Projected Fastest Growing MS4 Areas: 2000 - 2030



Chesapeake Bay Watershed

Projected Urban Growth
Normalized by Population

- Top-Third Quantile
- Lower 2 Quantiles
- Maryland Phase I



Ability to Verify
is Often Linked to
Whether a
community has a
MS4 permit or
not

A photograph of a turtle, likely a Galapagos tortoise, in a grassy field. The turtle is facing forward, with its head and front legs visible. It has a dark, scaly shell and thick, wrinkled skin. The background is a mix of green grass and dry, yellowish-brown straw or twigs. Overlaid on the image are five white text boxes with black borders, each containing a line of text. The boxes are arranged in a vertical column on the left side of the image, and one box is on the bottom right.

Progress Made by Urban Sector in BMP Verification

First Draft of Principles
and Protocols in December

Second Draft in March

Third and Fourth Draft in April

Urban BMP Verification
Committee Established In May