Plan of Work for
Improvement of Pond Watershed
at Avon Hall in Town of Washington, Virginia

by
Rappahannock Friends and Lovers of Our Watersheds

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Virginia Valentine, Biologist
Lou Verner, Aquatic Naturalist, VA DGIF
Greg Wichelns, Culpeper Soil & Water Conservation District

Updated April 26, 2013

For background to this project please see http://rappflow.org/projects/avon-hall/documents/avon-hall-pond.pdf

Soil analysis is at http://rappflow.org/projects/avon-hall/documents/Avon%20Hall%20soil%20Survey%20info_NRCS%20web%20soil%20survey.pdf

For questions please contact beverly@bevhunter.com or Marc Malik [marc.malik172@gmail.com] or John Fox Sullivan, Mayor of Washington

Outline

- Goals and Objectives
- Maps
- Work Schedule
- Maintenance

Goals and objectives of the Town of Washington and RappFLOW for the Avon Hall Pond Ecosystem Enhancement and "Turf to Native Plants" Project

Overall Goals (2013 – 2018)

- Showcase best management practices for a small urban pond watershed and stormwater management, especially those practices employing low-impact landscaping with native plants.
- Mitigate and filter stormwater runoff from the intensive-use County buildings and parking lots at the western side of the pond watershed, and from future expansion of County buildings.
- Enhance the aesthetics of the viewsheds from all four directions towards the pond environment.
- Increase biodiversity of the ecosystem of the pond watershed; monitor and document.
- Enhance water quality in and downstream of the pond.
- Serve as an educational demonstration and an educational resource for schoolchildren and teachers.
- Integrate pond watershed management practices with related public space projects and organizations within the Town of Washington Commons program (e.g. walking trails, butterfly gardens, sewage treatment plant, signage, etc).

Turf-to-Natives Objectives (2013 – 2014)

- Successfully convert designated area of previously mowed turf in the pond buffer to native grasses and forbs (state actual area in sq ft here).
- Enhance the viewshed of the pond from Warren Avenue.
- Demonstrate benefits to the pond health from buffer protection and other landscape practices, as measured by inventories of biodiversity and water quality measures over time.
- Minimize the active management required to maintain landscape improvements over time.
- Inform the Turf Conversion to Natives program (VA) and the public by documenting all processes, products, costs, and assessments and making all information accessible on the www.rappflow.org web site.
- Ensure that designed maintenance procedures are institutionalized.
- Provide signage and other methods for educating both casual and intentional learners concerning the features, methods, functions and benefits of the project practices, plants, and biodiversity.

Organizations involved to Date (since 2008)

RappFLOW (about 10 leader/volunteers to date); USGS (BJ Valentine); Culpeper Soil & Water Conservation District (Greg Wichelns); Town of Washington (Claudia Mitchell, John Sullivan, Dan Spethmann); Sunnyside Farm biologist (Sam Quinn); Bruce Jones, conservationist; VA Dept Game & Inland Fisheries (Lou Verner); Tim Bondelid, Hydrologist; VA Dept Health (Virginia Valentine); Old Rag Master Naturalists; VA Ag Extension (Kenner Love); Rappahannock County (John McCarthy)

The soil survey shows two map units in and around Avon Hall that are very promising if you want to grow wetland vegetation. Worsham is considered a hydric soil, which means it is capable of supporting hydrophytic vegetation and the map unit Meadowville under the right conditions can (i.e. poor soil structure, landscape position) could have a watertable within 20 inches of the surface (See Hydric Soil Section of report). And with the pond holding water fairly well we have good conditions to support the proposed buffer. Soil analysis is at http://rappflow.org/projects/avon-hall/documents/Avon%20Hall%20soil%20Survey%20info_NRCS%20web%20soil%20survey.pdf

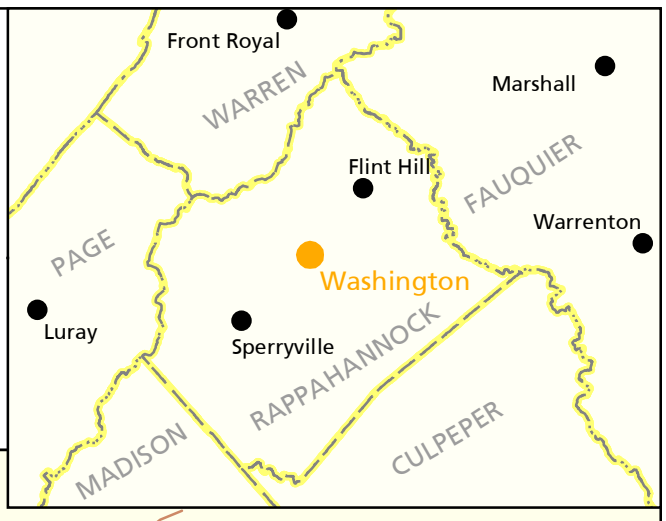
Avon Hall Pond

RappFLOW Plan

Buffers
Wetland (Seeded)
Dam Area (Shrub Planting)
1' - 2' Water (Emergent Plants)
Existing Turf
Buildings

0 50 100 Feet
Contour Interval: 2 Feet

N



Warren Ave.
Boardwalk
Native Wildflowers 570ft²
Existing Turf
Existing Wetland Meadow
Deck
Garden
650
-2
-4
-6
Buffer 36,920ft²
Existing Turf
Wetland 2,120ft²
Emergent Plants
Shrub Buffer 11,030ft²
640
660
670
680
New Meadow (Seeded)
Existing Turf
Rappahannock County
Town of Washington
Avon Hall

Map created from plans drawn by Marc Malik.
April 3, 2013 | Jonathan Marquisee

Piedmont Environmental Council

Avon Hall Pond Restoration Work Schedule

April - May 2013

Soil and Water tests will be conducted before any work is begun to establish a study baseline. We will test for soil pH & nutrients. Recommendations from the Agricultural Extension office regarding soil improvements will be followed. Water will be tested for E coli, pH, temperature, turbidity, nutrients, and macro invertebrates if possible. To track changes in biodiversity, ongoing observation and cataloging of flora and fauna will begin.

New Meadow / Buffer area (see map)

After the grass has been given a chance to grow, the area will be mowed to a consistent height of 3-4 inches.

The site will be prepared for the eventual planting of native grasses and wildflowers through the removal of non-native cool season grasses. This work will be done by a licensed herbicide applicator (April 25). Within three weeks, machine raking and leveling will be done to ensure seed contact with soil.

Following ground preparation, the site will be seeded by supervised volunteers with a temporary, annual cover crop of native oats and wildflowers. See attachment for species, sources, application rate, costs. The area will be lightly mulched with straw. The seeding and mulching will be done by volunteers, under the supervision of an experienced landscape gardener. In order to insure plant establishment, a temporary watering system will be implemented if there is insufficient rain-fall.

July - August 2013

If needed, the New Meadow / Buffer area will be mowed and prepared by removing any invasive warm season grasses that have come up in the buffer area. At this time there is no evidence of a heavy presence of non-native warm season grasses.

To mitigate stormwater runoff between the upland parking lot and the buffer area, grass in the mowed turf area will be mowed to a height of 3 – 4 inches rather than the previous practice of 1 – 2 inches.

Rappflow members and volunteers will work to remove the submerged culvert from the pond and conduct an area trash pick-up. Some of the dock posts will be sawn level with the water surface to serve as turtle-basks.

Emergent Plants (see map)

Volunteers will work to plant emergent aquatic vegetation along the shallow (up to 12” deep) water’s edge.

September - November 2013

New Meadow / Buffer area (see map)

April 26, 2013 1:33 pm

The area will be mowed to a consistent height of ~ 4” and the site will be prepared by removing non-native cool season grasses that come back in the Fall months. This work will be done by a licensed herbicide applicator. Some raking and leveling will be done to further prepare the ground. The area will be seeded with a temporary, annual cover crop of winter wheat and wildflowers. At this time we will also seed a mix of native perennial grasses and wildflowers that will establish as the permanent ground cover in the following spring. The area will be lightly mulched with straw. The seeding and mulching will be done by volunteers, under the supervision of an experienced landscape gardener. In order to insure plant establishment, a temporary watering system will be implemented if there is insufficient rain-fall.

April - May 2014

Shrub Buffer & Native Wildflowers (see map)

Under the guidance of an experienced landscape gardener, volunteers will plant the area along the dam of the pond with small, native, shrub plants and grasses. The Native Wildflower area along Warren Avenue will be planted with native wildflowers to increase its beauty. These areas will be prepared as necessary to remove problematic non-native species. Physical removal would probably be sufficient owing to the small size of the areas.

Some of the willows will be cut down and/or prunded along the North side of the pond to increase vistas along Warren Avenue.

Avon Hall Pond Watershed Maintenance Plan (5 yr.)

- 2013 -

Map Area	Maintenance Needs
Existing Turf	Throughout the growing season, the existing turf area will be maintained by regularly mowing the grass to a height of 3-4 inches. Barren areas will be repaired and seeded as needed
New Meadow / Buffer	As the annual cover on the meadow / buffer is establishing in Spring and Summer (and again in the Fall) the area will need to be watered if there is insufficient rainfall. There will also be a need to weed out any invasive species that return.
Shrub Buffer	Until planting takes place in Spring 2014 the area should be left to grow, and trimmed to a height of 10 inches. This will maintain the area as buffer until natives are installed.

- 2014 -

Map Area	Maintenance Needs
Existing Turf	Throughout the growing season, the existing turf area will be maintained by regularly mowing the grass to a height of 3-4 inches.
New Meadow / Buffer	As the perennial forbes & grass cover on the meadow / buffer is establishing in Spring and Summer the area will need to be watered if there is insufficient rainfall. There will also be a need to weed out any invasive species that return. During the growing season, the meadow / buffer area will need to be mowed once or twice to a height of 8-10 inches (This is to ensure that all of the plants get equal sunlight and opportunity to establish).
Shrub Buffer	After the shrub buffer has been planted, there will be a need to water these larger plants during their first 3-4 weeks. It will also be necessary to weed out invasive competition.
Native Wildflowers	During wildflower establishment it will be necessary to water and weed for invasive species.

- 2015 -

Map Area	Maintenance Needs
Existing Turf	Throughout the growing season, the existing turf area will be maintained by regularly mowing the grass to a height of 3-4 inches.
New Meadow / Buffer	Monitoring and weeding for invasive competition. The meadow / buffer area will need to be mowed to a height of 8-10 inches in mid-late June to aid in establishment and to prevent any vigorous invasive species from re-seeding.
Shrub Buffer	Monitoring and weeding for invasive competition.
Native Wildflowers	Monitoring and weeding for invasive competition.

- 2016 -

Map Area	Maintenance Needs
Existing Turf	Throughout the growing season, the existing turf area will be maintained by regularly mowing the grass to a height of 3-4 inches.
New Meadow / Buffer	Monitoring and weeding for invasive competition. In early spring, the meadow / buffer area should be maintained by a controlled burn. If burning is not feasible, the area can be mowed short (3-4”) and the chaff can be raked away to simulate burning.
Shrub Buffer	Monitoring and weeding for invasive competition.
Native Wildflowers	Monitoring and weeding for invasive competition.

- 2017 -

Map Area	Maintenance Needs
Existing Turf	Throughout the growing season, the existing turf area will be maintained by regularly mowing the grass to a height of 3-4 inches.
New Meadow / Buffer	Monitoring and weeding for invasive competition. In early spring, the meadow / buffer area should be maintained by a controlled burn. If burning is not feasible, the area can be mowed short (3-4”) and the chaff can be raked away to simulate burning.

Ernst Conservation Seeds Inc

8884 Mercer Pike
Meadville PA 16335-9275
Phone (814) 336-2404; (800) 873-3321; Fax (814) 336-5191
www.ernstseed.com
sales@ernstseed.com

Bill To:
The Farm at Sunnyside
201 Sunnyside Orchard Lane
Washington VA 22747

Quote	117781
Date	4/26/2013
Page	1

Phone (540) 675-9946 Ext. 0000
Fax (000) 000-0000 Ext. 0000
E-mail

Purchase Order No.	Customer ID	Shipping Method	UPS Shipper #	Payment Terms	Quote Expires	Salesperson ID
EM 042613 AW	FARM013	UPS GROUND RES		Credit Card	5/26/2013	

Quantity	UOM	Item Number	Description	Unit Price	Ext. Price
0	Each	MIX		$0.00	$0.00
0.90000	lb	LOLMUL01	Annual Ryegrass	$0.60000	$0.54
0.04000	lb	CHAFAS01	Partridge Pea, PA Ecotype	$10.00000	$0.40
0.02000	lb	CORLAN01	Lanceleaf Coreopsis, Coastal Plain NC Ecotype	$14.00000	$0.28
0.02000	lb	RUDHIR04	Blackeyed Susan	$24.00000	$0.48
0.02000	lb	ECHPUR01	Purple Coneflower	$28.00000	$0.56
0	Each	TOTAL		$0.00	$0.00

$2.37 per BULK lb. including a 5% custom mix charge.
Total: 100%

Subtotal	$2.26
Trade Discount	$0.00
Shipping/Handling	$0.00
Custom Mix Chg	$0.11
Tax	$0.00
Total US $	$2.37

PRICES QUOTED ARE FIRM FOR 30 DAYS AND ARE F.O.B. MEADVILLE.
ITEMS QUOTED ARE SUBJECT TO AVAILABILITY AT TIME OF DELIVERY.
RETURNS OF INDIVIDUAL ITEMS AND ERNST MIXES ARE SUBJECT TO 10% RESTOCKING FEE AND MUST BE MADE WITHIN 30 DAYS OF INVOICE DATE. NO RETURNS ON CUSTOM MIXES.
THERE IS A 25% RESTOCKING FEE ON CANCELLED OR RETURNED BIOENGINEERING ORDERS.

Virginia Cooperative Extension
Soil Test Report

Questions? Contact:
Rappahannock County Office
P.O. Box 119
Washington, VA 22747
540-675-3619

Virginia Tech Soil Testing Laboratory
145 Smyth Hall (0465)
Blacksburg, VA 24061
www.soiltest.vt.edu

SEE NOTES: 1 3

OWNER
HUNTER BEVERLY
130 MOSSIE LN

AMISSVILLE, VA 20106

COPY FOR

SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
1	1	Native or Unimproved Pasture (42)				WOA 100				IV

LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	S.Salts (ppm)
Result	20	76	753	168	13.0	16.0	1.4	73.1	0.2	
Rating	M-	M-	M-	H-	SUFF	SUFF	SUFF	SUFF	SUFF	

Analysis	Soil pH	Buffer Index	Est.-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	5.7	6.13	4.3	37.5	62.5	44.0	16.2	2.3	

FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Native or Unimproved Pasture (42)

Lime, TONS/AC	
Amount	Type
1.75	AG

Fertilizer, lb/A		
N	P205	K20
See Comment	90	90

825. If stand contains less than 25 percent clover, apply 40-60 lbs N/A.

131. If additional production is needed later on, apply 40 to 60 lbs/A of N during the grazing season. If you are planning to overseed a legume into the stand, omit the N recommendation.

123. P2O5 and K2O recommendations are for single applications made every 3 to 4 years. After this time, soils should be re-tested.

990. We are trying to improve our service. PLEASE take a moment to complete our brief, anonymous customer survey at tinyurl.com/soiltestsurvey

991. Numbered notes are viewable at http://www.soiltest.vt.edu/Files/publications.html