

## Proposed Project

Upper Little Patuxent Watershed

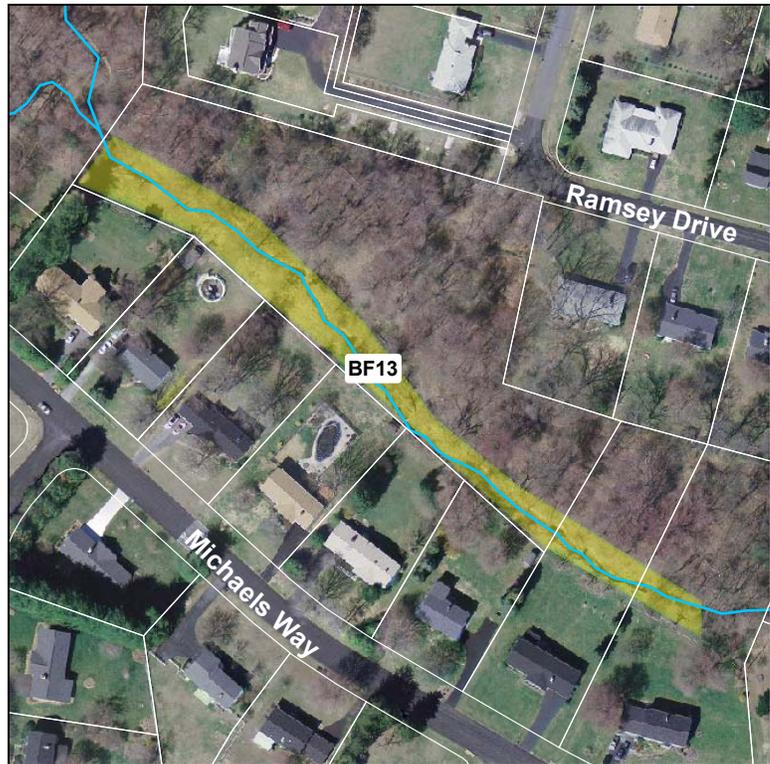
**Project Number:** BF13  
**Subwatershed:** Plumtree Branch 2

**Project Type:** Riparian Buffer Replacement  
**Project Size:** Approx. 800 feet in length / 0.72 acres

**Project Location:** Between Ramsey Drive and Michaels Way.

**Project Description:** The buffer along the right bank (facing downstream) in this area has been greatly reduced or is absent. The project would entail planting of native trees and shrubs to widen the existing buffer. There is an overhead utility line that runs adjacent to the stream that would limit the species that could be planted. Two properties are private property and would require homeowner cooperation.

Use of volunteer assistance for site preparation, planting and necessary maintenance and monitoring of the site could help reduce overall project cost.



### Project Benefits:

Stabilization	Additional trees and shrubs will help stabilize the stream bank.
Habitat	Planting here will provide some habitat improvement but is limited by the proximity of the houses and roadway.
Water Quality	A more established buffer will provide shading effects to reduce water temperature and will trap runoff and pollutants such as fertilizers from the adjacent properties.

### Project Constraints:

Environmental	No environmental/permitting constraints are present.
Property Ownership	This project lies on private property including 9306 & 9310 Michaels Way. The proximity of houses may be a constraint.
Facility Access	Excellent access to this site is obtained by way of an easement at the intersection of Michaels Way and Ramblewood Road.
Design / Construction	Overhead utility lines.

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### Cost Detail:

ITEM	QTY	UNITS	UNIT COST	TOTAL (Volunteer Labor)	TOTAL (Without Volunteer Labor)
<b>Riparian Buffer Replacement</b>					
Plant Material (trees)	0.72	AC	\$3,750.00	\$2,700	\$2,700
Plant Material (shrubs)	0.72	AC	\$2,725.00	\$1,962	\$1,962
Mulch, Tree Shelter	490	PLANTS	\$6.00	\$2,940	\$2,940
Cost to Plant	490	PLANTS	\$6.00	\$0	\$2,940
Site Preparation (volunteer)		AC	\$0.00	\$0	\$0
Basic Site Maintenance and Monitoring (volunteer)		AC	\$0.00	\$0	\$0
<b>Direct Construction Subtotal</b>				\$7,602	\$10,543
Base Construction Cost				\$7,602	\$10,543
Mobilization (10% of Directs or \$1,000)				\$0	\$0
<b>Subtotal</b>				\$7,602	\$10,543
Contingency (30%)				\$2,281	\$3,163
<b>Construction Subtotal</b>				\$9,883	\$13,705
Env't'l Studies / Permitting (5% of Construction or \$1,000)				\$0	\$0
Landscape Design and Surveys (25% of Construction or \$5,000)				\$0	\$0
<b>Total Capital Cost</b>				<b>\$9,883</b>	<b>\$13,705</b>
<b>Operations and Maintenance Costs</b>					
Annual Maintenance	5	Percent		\$380	\$527
Discount Rate	5	Percent			
Expected Life	5	Years			
<b>Net Present Value of Annual Costs</b>				\$1,646	\$2,282
<b>Life Cycle Cost</b>				<b>\$11,600</b>	<b>\$16,000</b>

### Cost Notes and Assumptions:

Project costs were derived for both volunteer and paid labor. In calculating costs for volunteer labor it is assumed that local volunteer organizations could accomplish the project with County assistance and oversight. Site preparation, planting and any necessary maintenance and monitoring would be conducted by volunteers.

Planting density is planned at 1 tree or shrub planted at 8 foot intervals for a total of 681 plants per acre.

Size and species of trees and shrub plant material is based on approved Howard County Recreation and Parks information and is typically a 3-4 foot plant. Use of more mature or more immature plant material would affect the planting density and cost per plant.

Cost of plant material is based on 2009 survey of local and regional wholesale native plant nurseries. Plant material (seedlings) may also be obtained from the Maryland Department of Natural Resources, State Forest Tree Nursery at a much reduced cost or through Howard County's Stream ReLeaf program at no cost.