

5.3 Project Fact Sheets

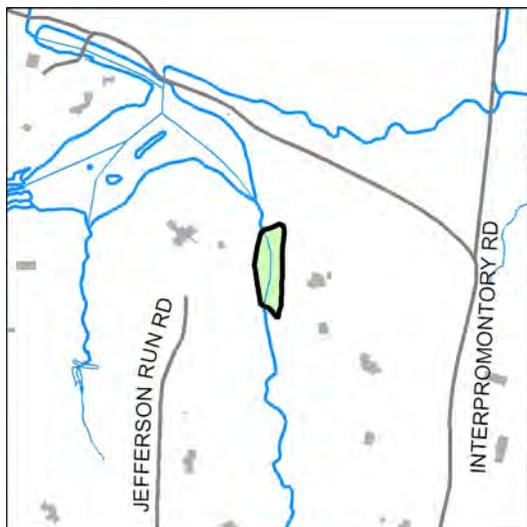
Project fact sheets for the 36 top ranked 10-year projects are provided in this section. Each fact sheet includes the following information:

- Project number
- Project location map and address
- Land owner
- Parcel ID numbers
- Stormwater control type
- Drainage area
- Receiving waters
- Project description
- Project area map showing proposed projects
- Project benefits
- Project design considerations
- Project costs

Fact sheets are organized numerically with Nichol Run watershed projects listed before Pond Branch watershed projects.

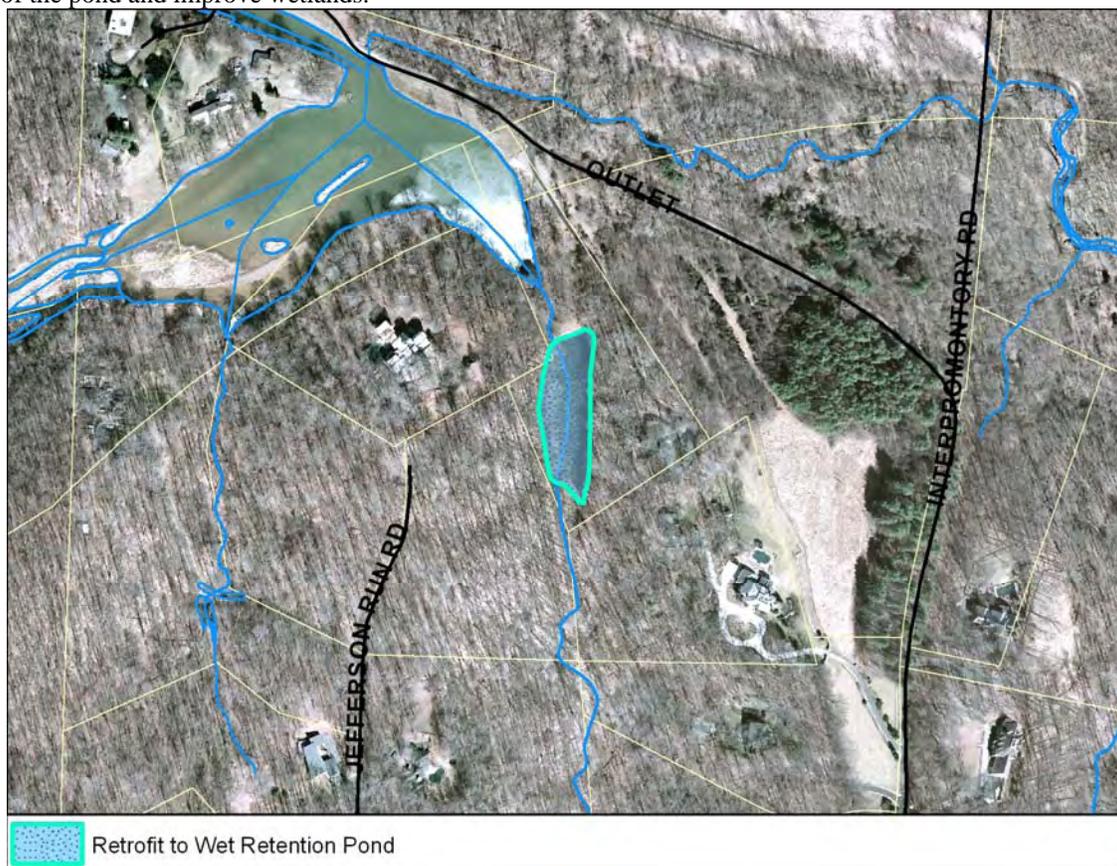
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NI9101 Stormwater Pond Retrofit



Address: 5 Jefferson Run Road
Location: Near the end of Jefferson Run Road
Land Owner: Private
PIN: 0032 02 0003G
Control Type: Quality/Quantity
Drainage Area: 66.2 acres
Receiving Waters: Nichol Run

Description: This area does not have existing stormwater treatment or controls. Improve existing wet pond (WP0200) by installing an outlet structure to increase capacity. Repair overflow spillway to prevent breach, vegetate sides of the pond and improve wetlands.



Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. This project will also repair the damaged spillway. An estimated 2,881 lbs/yr of total suspended solids, 34 lbs/yr of nitrogen, and 8 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. A dam safety permit may be necessary. Projects in RPAs may require exceptions or waivers. This is a privately owned pond, and will require a storm drainage easement. Accessibility is good from a nearby ingress-egress easement on park lands and the walking trail. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	100	\$35.00	\$3,500.00
Embankment	CY	200	\$50.00	\$10,000.00
Outflow Pipe	LF	30	\$125.00	\$3,750.00
RipRap Stabilization	SY	15	\$100.00	\$1,500.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$38,700.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$1,935.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$3,870.00
Base Construction Costs				\$44,505.00
<i>Mobilization (5%)</i>				<i>\$2,225.25</i>
Subtotal 1				\$46,730.25
<i>Contingency (25%)</i>				<i>\$11,682.56</i>
Subtotal 2				\$58,412.81
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				<i>\$26,285.77</i>
Total Costs				\$84,698.58
Estimated Project Costs				\$90,000.00

NI9106 Stormwater Pond Retrofit, BMP/LID



Address:	10440 New Ascot Drive
Location:	Finger Lakes Estates Subdivision
Land Owner:	County/Private
PIN:	0032 02 0003G
Control Type	Quality/Quantity
Drainage Area	73.31 acres
Receiving Waters	Nichol Run

Description: Finger Lakes Estates does not have any stormwater treatment. Improve two existing non-stormwater ponds to wet retention ponds, naturalize existing swales directing water to ponds and construct rain garden at the southern swale outlet.



Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. In addition, the rain garden will also reduce stormwater runoff volumes by promoting infiltration. An estimated 1,916 lbs/yr of total suspended solids, 23 lbs/yr of nitrogen, and 6 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. The proposed vegetated swales are located within or along an ingress-egress easement. The ponds are privately owned by multiple owners. Storm drainage easements will be necessary. Accessibility is excellent from New Ascot Drive. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Vegetated Swale	SY	130	\$50.00	\$6,500.00
Bioretention Filters & Basin	SY	275	\$150.00	\$41,250.00
Organic Compost Soil Amendment	CY	130	\$40.00	\$5,200.00
Plantings	AC	0.2	\$25,000.00	\$5,000.00
Clear and Grub	AC	0.2	\$8,500.00	\$1,700.00
Grading and Excavation	CY	150	\$35.00	\$5,250.00
Embankment	CY	250	\$50.00	\$12,500.00
Outflow Pipe	LF	50	\$125.00	\$6,250.00
RipRap Stabilization	SY	35	\$100.00	\$3,500.00
Structural BMP Retrofit and Incidentals (Med)	LS	2	\$15,000.00	\$30,000.00
Initial Project Costs				\$117,150.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$5,857.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$11,715.00
Base Construction Costs				\$134,722.50
<i>Mobilization (5%)</i>				\$6,736.13
Subtotal 1				\$141,458.63
<i>Contingency (25%)</i>				\$35,364.66
Subtotal 2				\$176,823.28
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$79,570.48
Total Costs				\$256,393.76
Estimated Project Costs				\$260,000.00

NI9111 Stormwater Pond Retrofit



Address: 10507 Patrician Woods Court
Location: Patrician Woods Subdivision,
Patrician Woods Court &
Springvale Road
County
Land Owner: Springvale Road
PIN: 0074 17 A, VDOT
Control Type Quality/Quantity
Drainage Area 29.44 acres
Receiving Waters Nichol Run

Description: Patrician Woods is in need of additional stormwater treatment. Improve existing dry pond (1412DP) to an enhanced extended detention dry pond including removal of concrete trickle ditch, introduction of wetland vegetation and new outlet structure.



Project Area Map

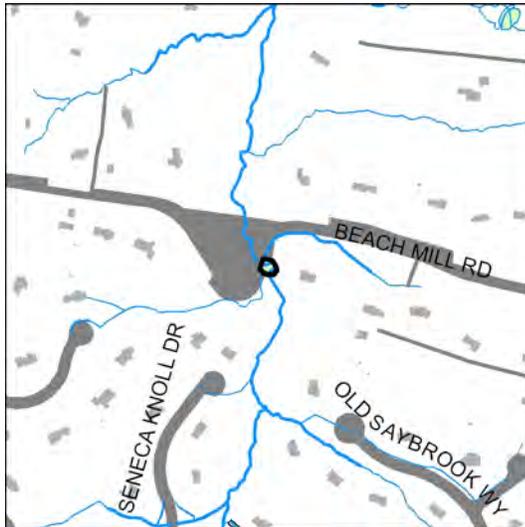
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. In addition, the new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. Removal of the trickle ditch will reduce stormwater velocities. An estimated 1,141 lbs/yr of total suspended solids, 13 lbs/yr of nitrogen, and 2 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Projects in RPAs may require exceptions or waivers. This is an existing county facility, and is located within a storm drainage easement. Accessibility is excellent from Patrician Woods Court or Springvale Road. There are no tree impacts or significant construction issues anticipated.

Costs:

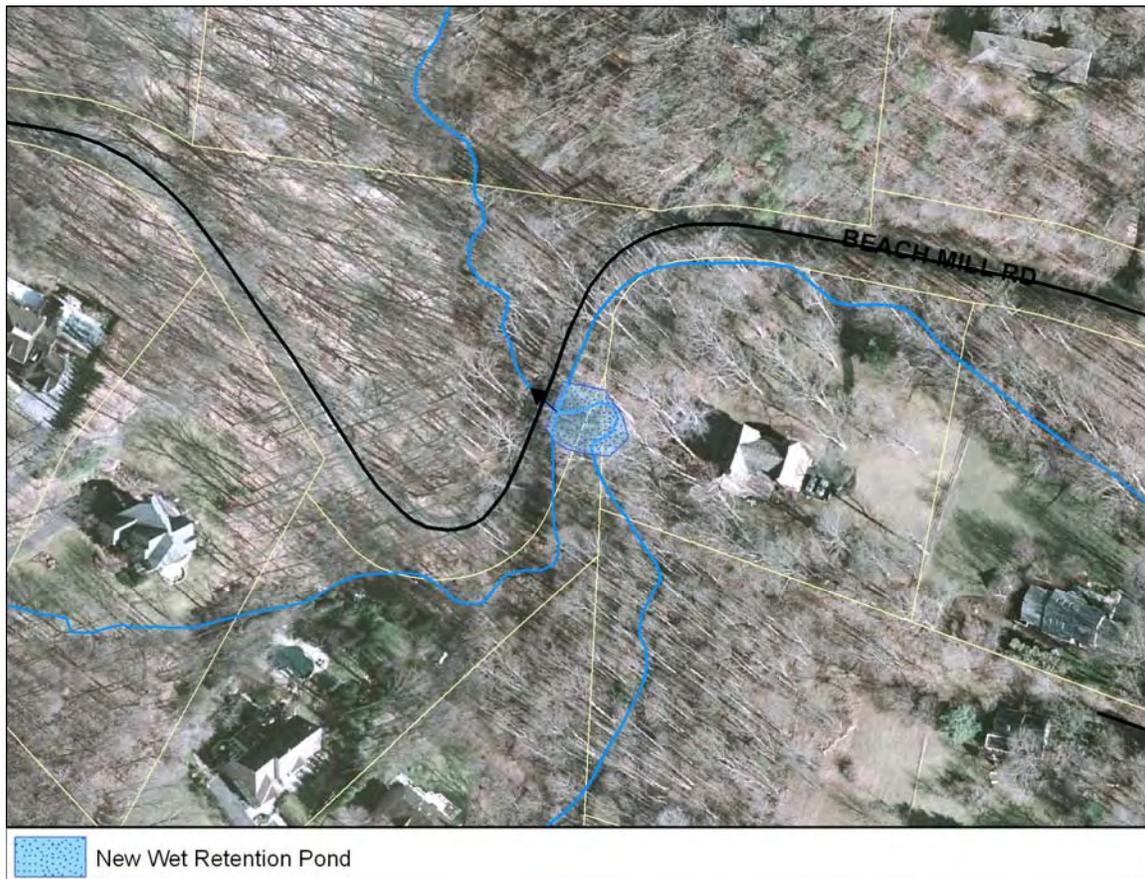
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	200	\$40.00	\$8,000.00
Plantings	AC	0.75	\$25,000.00	\$18,750.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	870	\$35.00	\$30,450.00
Embankment	CY	300	\$50.00	\$15,000.00
Outflow Pipe	LF	30	\$125.00	\$3,750.00
RipRap Stabilization	SY	20	\$100.00	\$2,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$93,800.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$4,690.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$9,380.00
Base Construction Costs				\$107,870.00
<i>Mobilization (5%)</i>				\$5,393.50
Subtotal 1				\$113,263.50
<i>Contingency (25%)</i>				\$28,315.88
Subtotal 2				\$141,579.38
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$63,710.72
Total Costs				\$205,290.09
Estimated Project Costs				\$210,000.00

NI9113 Culvert Retrofit



Address: 11295 Beach Mill Road
Location: Near Beach Mill Road & Pipestem
Land Owner: State/County/Private
PIN: 0024 01 0024A, 0024 07 0003A, VDOT
Control Type Quality/Quantity
Drainage Area 432 acres
Receiving Waters Jefferson Branch

Description: This culvert at Beach Mill Road is obstructed with debris, stream banks are eroding due to high energy storm flows through the culvert which may flood the road. Construct a micropool with an outlet structure upstream of the culvert in Beach Mill Road.



Project Area Map

Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the micropool. An estimated 1,083 lbs/yr of total suspended solids and 13 lbs/yr of nitrogen will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. The micropool is located partially within a right-of-way, a conservation easement, and on private land. A storm drainage easement will be necessary. Accessibility is excellent from Beach Mill Road. There are minimal tree impacts and no significant construction issues anticipated.

Costs:

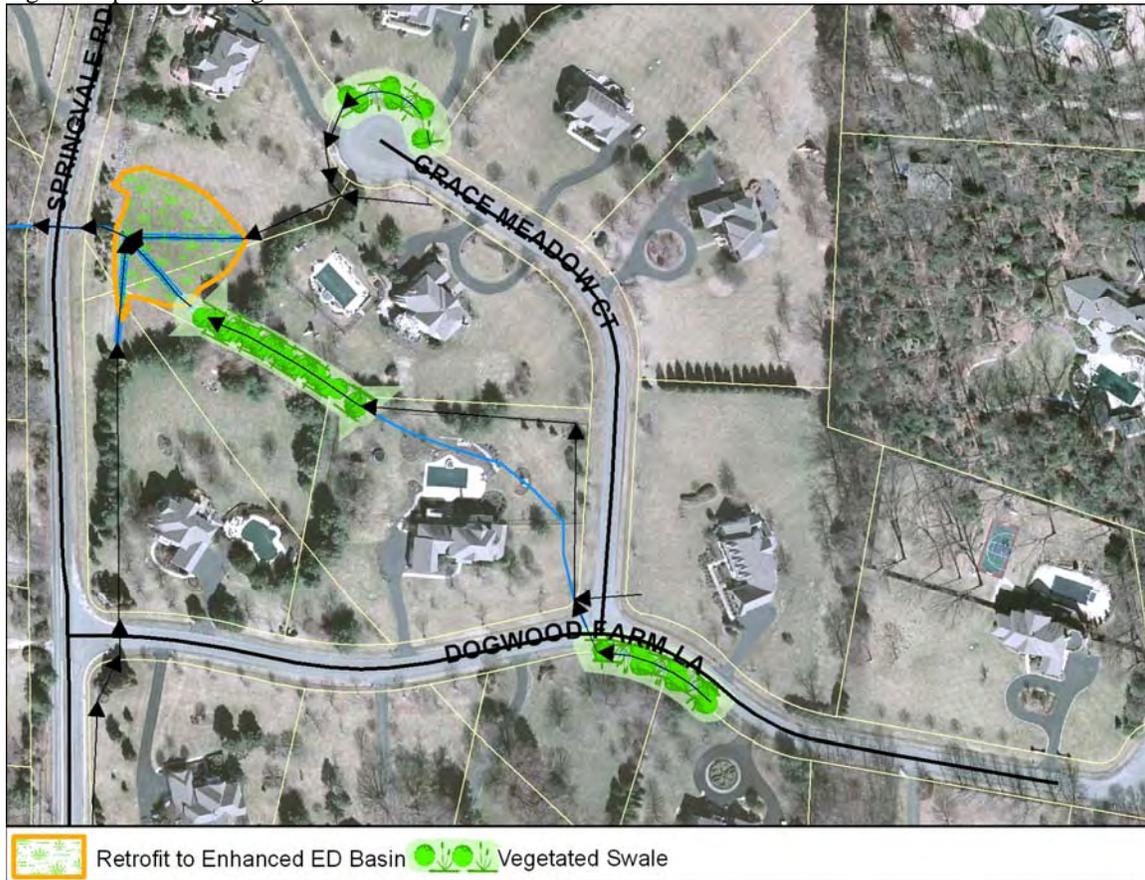
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	30	\$40.00	\$1,200.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.12	\$8,500.00	\$1,020.00
Grading and Excavation	CY	250	\$35.00	\$8,750.00
Earthen Berm	CY	100	\$35.00	\$3,500.00
Initial Project Costs				\$16,970.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$848.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$1,697.00
Base Construction Costs				\$19,515.50
<i>Mobilization (5%)</i>				\$975.78
Subtotal 1				\$20,491.28
<i>Contingency (25%)</i>				\$5,122.82
Subtotal 2				\$25,614.09
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$11,526.34
Total Costs				\$37,140.44
Estimated Project Costs				\$40,000.00

NI9118 Stormwater Pond Retrofit, BMP/LID



Address: 800 Grace Meadow Court
Location: Dogwood Farm Section 2
 Subdivision
Land Owner: County/Private
PIN: 0073 12 0010, 0073 12 0011,
 0073 12 0012, 0073 12 0014,
 0074 15 0003, 0074 15 0004,
 0074 15 0013, VDOT
Control Type Quality/Quantity
Drainage Area 23.45 acres
Receiving Waters Nichol Run

Description: Dogwood Farm subdivision is in need of water quality treatment. Retrofit existing dry pond (0857DP) to enhanced extended detention dry pond with low marsh areas and replace concrete trickle ditches within and draining to the pond with vegetated swales.



Project Area Map

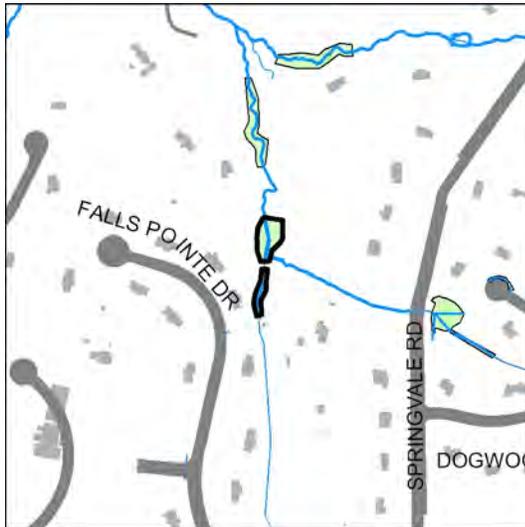
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. Removal of the trickle ditches will reduce stormwater velocities. An estimated 1,445 lbs/yr of total suspended solids, 16 lbs/yr of nitrogen, and 3 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. Dry pond 0857DP is an existing county facility, and is located in a storm drainage easement. Additional storm drainage easements will be necessary for the two trickle ditches located within or along the street rights-of-way. Accessibility is excellent from nearby roads. There are no tree impacts or significant construction issues anticipated.

Costs:

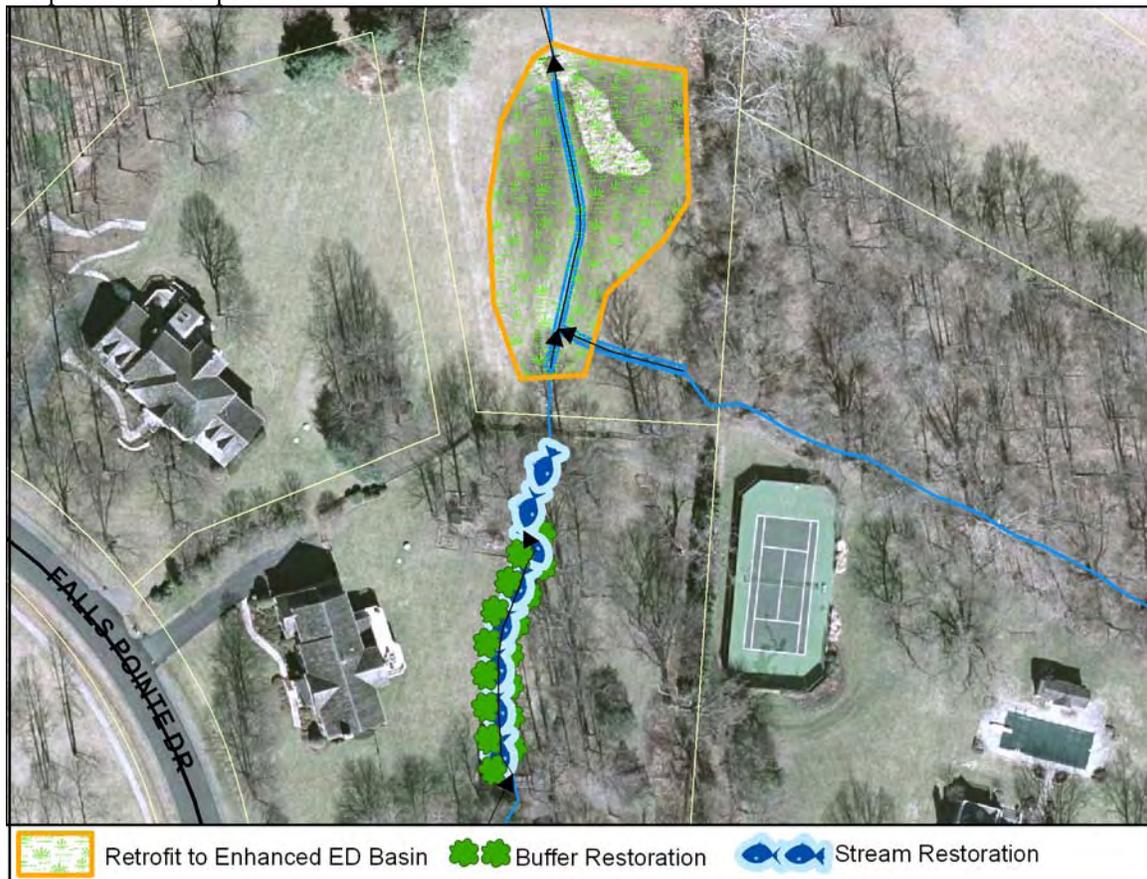
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Vegetated Swale	SY	805	\$50.00	\$40,250.00
Organic Compost Soil Amendment	CY	150	\$40.00	\$6,000.00
Plantings	AC	0.3	\$25,000.00	\$7,500.00
Clear and Grub	AC	0	\$8,500.00	\$0.00
Grading and Excavation	CY	650	\$35.00	\$22,750.00
Embankment	CY	100	\$50.00	\$5,000.00
Outflow Pipe	LF	30	\$125.00	\$3,750.00
RipRap Stabilization	SY	25	\$100.00	\$2,500.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$102,750.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$5,137.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$10,275.00
Base Construction Costs				\$118,162.50
<i>Mobilization (5%)</i>				\$5,908.13
Subtotal 1				\$124,070.63
<i>Contingency (25%)</i>				\$31,017.66
Subtotal 2				\$155,088.28
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$69,789.73
Total Costs				\$224,878.01
Estimated Project Costs				\$230,000.00

NI9119 Stormwater Pond Retrofit, Stream Restoration



Address:	10720 Falls Pointe Drive
Location:	Near Falls Pointe Drive cul-de-sac
	County
Land Owner:	0073 11 A, 0073 11 0016
PIN:	Quality/Quantity
Control Type	162.94 acres
Drainage Area	Nichol Run
Receiving Waters	

Description: Falls Point and Forestville Estates are in need of additional water quality treatment. Improve existing dry pond (0797DP) to enhanced extended detention dry pond with low marsh areas. Repair eroded streambanks and restore riparian buffers upstream.



Project Area Map

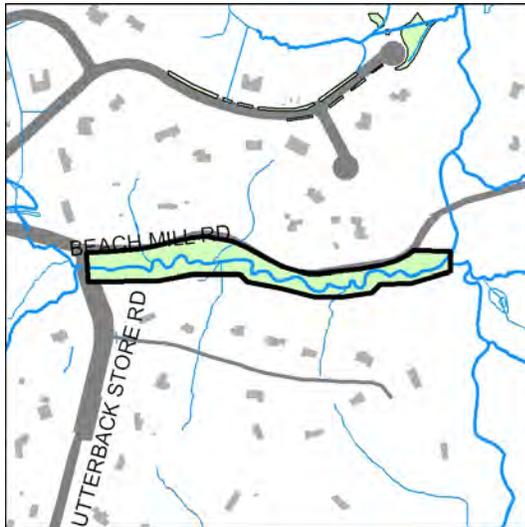
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. Removal of the trickle ditch will reduce stormwater velocities. This project will also repair the eroded streambanks. Restoring the riparian buffer will help to slow down stormwater velocities, improve water quality, reduce stream temperatures, and provide for additional evapotranspiration and wildlife habitat. An estimated 4,694 lbs/yr of total suspended solids, 54 lbs/yr of nitrogen, and 10 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This is an existing county facility, and is located within a storm drainage easement. Accessibility is good from Falls Pointe Drive. There are no tree impacts or significant construction issues anticipated.

Costs:

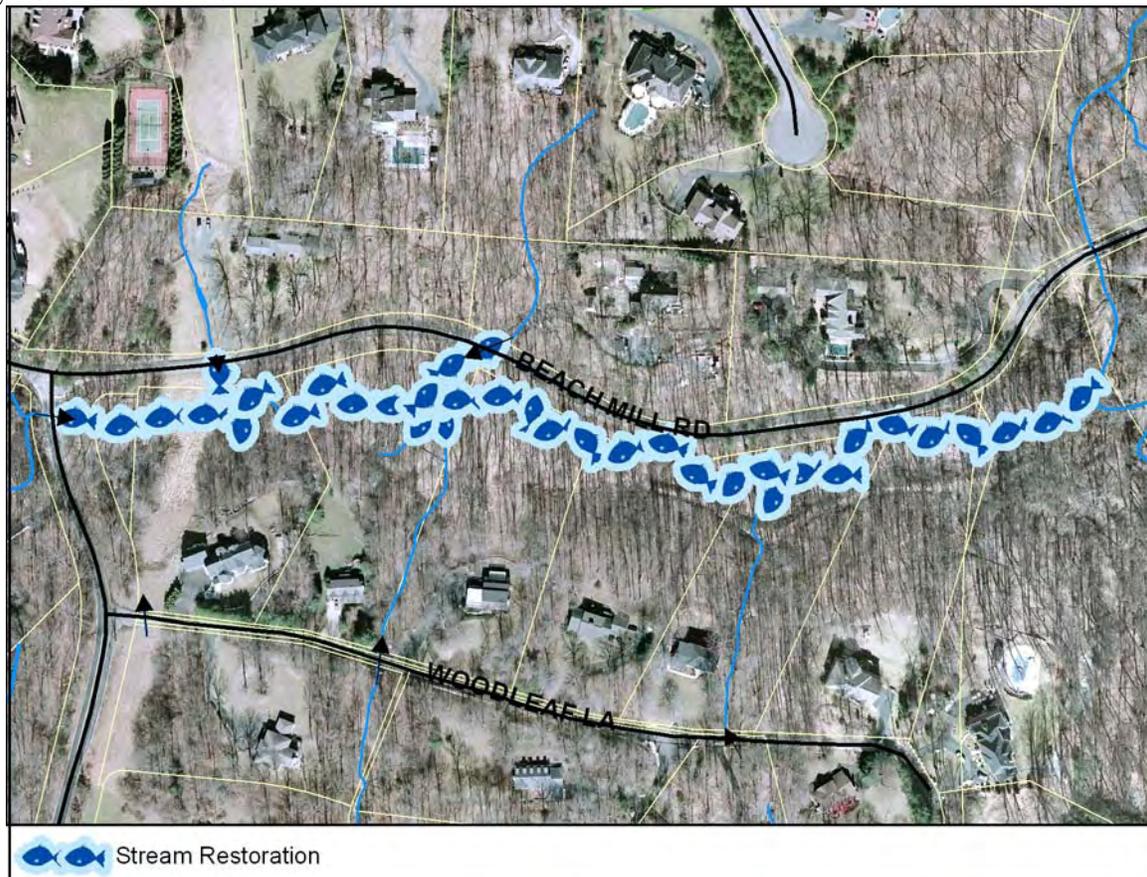
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	100	\$40.00	\$4,000.00
Plantings	AC	0.15	\$25,000.00	\$3,750.00
Clear and Grub	AC	0.2	\$8,500.00	\$1,700.00
Grading and Excavation	CY	800	\$35.00	\$28,000.00
Embankment	CY	150	\$50.00	\$7,500.00
Outflow Pipe	LF	30	\$125.00	\$3,750.00
RipRap Stabilization	SY	30	\$100.00	\$3,000.00
Construct New Channel	LF	210	\$200.00	\$42,000.00
Additional Cost (first 500LF)	LF	210	\$200.00	\$42,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$150,700.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$7,535.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$15,070.00
Base Construction Costs				\$173,305.00
<i>Mobilization (5%)</i>				\$8,665.25
Subtotal 1				\$181,970.25
<i>Contingency (25%)</i>				\$45,492.56
Subtotal 2				\$227,462.81
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$102,358.27
Total Costs				\$329,821.08
Estimated Project Costs				\$330,000.00

NI9201 Stream Restoration



Address: 10894 Woodleaf Lane
Location: Woodleaf Subdivision
Land Owner: State/County/Private
PIN: 0033 01 0035A, 0033 11 0001,
0033 11 0002, 0033 11 0003,
0033 11 0004, 0033 11 0005,
0033 11 0006, 0033 11 0008,
VDOT
Control Type Quality
Drainage Area 176.11 acres
Receiving Waters Harkney Branch

Description: Stream is trying to lengthen and is actively eroding meanders, threatening Beach Mill Road between Utterback Store Road and its confluence with Nichol Run. Install cross vanes and J-hooks to direct stream energy away from Beach Mill Road.



Project Area Map

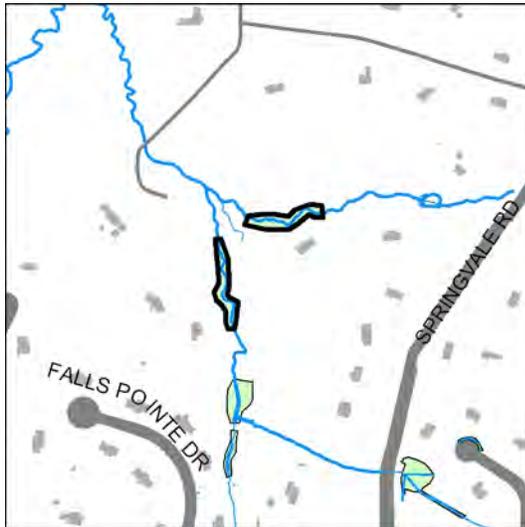
Project Benefits: This project will stabilize streambanks and improve water quality by reducing sediment and nutrient loadings. An estimated 72,260 lbs/yr of total suspended solids, 58 lbs/yr of nitrogen, and 22 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This project is located on private land and along or within a road right-of-way. A small portion of this project crosses a gas line easement. Accessibility is good from Beach Mill Road but may be difficult due to tree cover. Minimal tree impacts and no significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
RipRap Stabilization	SY	425	\$100.00	\$42,500.00
Initial Project Costs				\$43,350.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$2,167.50
<i>Ancillary Items: 5% of project cost</i>				\$2,167.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$4,335.00
Base Construction Costs				\$52,020.00
<i>Mobilization (5%)</i>				\$2,601.00
Subtotal 1				\$54,621.00
<i>Contingency (25%)</i>				\$13,655.25
Subtotal 2				\$68,276.25
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$30,724.31
Total Costs				\$99,000.56
Estimated Project Costs				\$100,000.00

NI9202 Stream Restoration



Address:	732 Springvale Road
Location:	Spring Valley Woods Subdivision
Land Owner:	Private
PIN:	0073 09 0003A, 0073 09 0004A
Control Type	Quality
Drainage Area	177.13 acres
Receiving Waters	Nichol Run

Description: Streambanks are eroded downstream of a culvert and driveway bridge. Install plunge pool below culvert and replace driveway bridge at 732 Springvale Road. Construct new stream channels with step pools and access to floodplain.



Project Area Map

Project Benefits: This project will stabilize streambanks and improve water quality by reducing sediment and nutrient loadings. The plunge pool will reduce stormwater velocities. An estimated 79,560 lbs/yr of total suspended solids, 64 lbs/yr of nitrogen, and 25 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. Storm drainage easements will be necessary. Accessibility is good from residential driveways. Tree impacts are expected. No significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Plantings	AC	0.3	\$25,000.00	\$7,500.00
Clear and Grub	AC	0.35	\$8,500.00	\$2,975.00
Construct New Channel	LF	750	\$200.00	\$150,000.00
Additional Cost (first 500LF)	LF	500	\$200.00	\$100,000.00
Initial Project Costs				\$260,475.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$13,023.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$26,047.50
Base Construction Costs				\$299,546.25
<i>Mobilization (5%)</i>				\$14,977.31
Subtotal 1				\$314,523.56
<i>Contingency (25%)</i>				\$78,630.89
Subtotal 2				\$393,154.45
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$176,919.50
Total Costs				\$570,073.96
Estimated Project Costs				\$580,000.00

NI9401 Culvert Retrofit



Address: 535 Springvale Road
Location: Down Patrick Farms Subdivision
Land Owner: Private
PIN: 0072 06 0009A3, 0072 15 0004, VDOT
Control Type: Quality/Quantity
Drainage Area: 99.93 acres
Receiving Waters: Nichol Run

Description: Sediment is collecting upstream of the culvert. Construct a micropool with outlet structure upstream of the culvert and encourage wetland vegetation growth.



Project Area Map

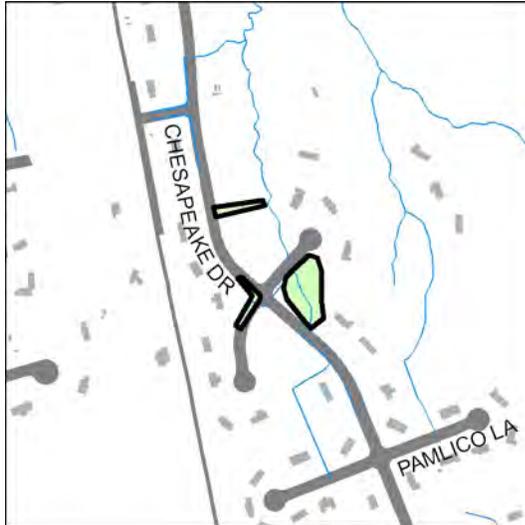
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reducing peak stormwater flows for storms up to the 10-year event, and providing for evapotranspiration and wildlife habitat. An estimated 1,134 lbs/yr of total suspended solids, 13 lbs/yr of nitrogen, and 3 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. Storm drainage easements will be necessary. Accessibility is excellent from Springvale Road. Minimal tree impacts and no significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.2	\$25,000.00	\$5,000.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	900	\$35.00	\$31,500.00
Access Road	SY	200	\$25.00	\$5,000.00
Access Road Gate	EA	1	\$2,500.00	\$2,500.00
Embankment	CY	100	\$50.00	\$5,000.00
Structural BMP and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
New Storm Pipe (Med)	LF	20	\$200.00	\$4,000.00
Initial Project Costs				\$70,450.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$3,522.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$7,045.00
Base Construction Costs				\$81,017.50
<i>Mobilization (5%)</i>				\$4,050.88
Subtotal 1				\$85,068.38
<i>Contingency (25%)</i>				\$21,267.09
Subtotal 2				\$106,335.47
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$47,850.96
Total Costs				\$154,186.43
Estimated Project Costs				\$160,000.00

PN9100 New Stormwater Pond, BMP/LID



Address: 9511 Neuse Way
Location: Riverside Manor Subdivision
Land Owner: State/Private
PIN: 0081 04 0011, 0081 04 0048C, 0081 04 0049, 0081 04 D, VDOT
Control Type: Quality/Quantity
Drainage Area: 20.12 acres
Receiving Waters: Clarks Branch

Description: Riverside Manor does not have any stormwater treatment. Install a new naturalized extended detention basin in existing depression with mature trees. Replace concrete trickle ditch and grass swale along Chesapeake Drive with vegetated swales.



 New Extended Detention Basin  Vegetated Swale

Project Area Map

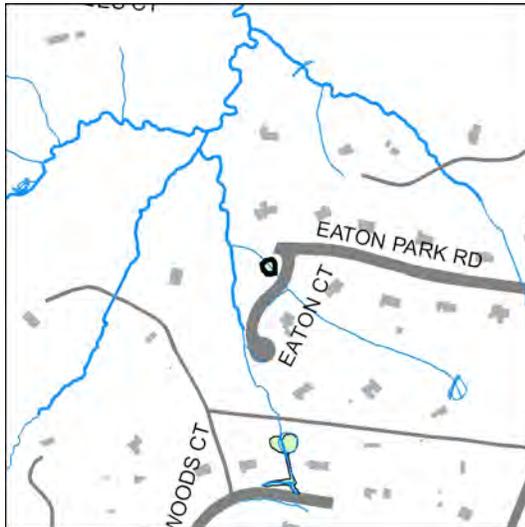
Project Benefits: Naturalized basins and swales will reduce sediment and nutrient loadings and slow runoff. An estimated 1,288 lbs/yr of total suspended solids, 16 lbs/yr of nitrogen, and 3 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. The new basin and grass swale are located on private land, the existing concrete trickle ditch is located within a right-of-way. Storm drainage easements will be necessary. Accessibility is excellent from Chesapeake Drive. Tree impacts are expected. No significant construction issues anticipated.

Costs:

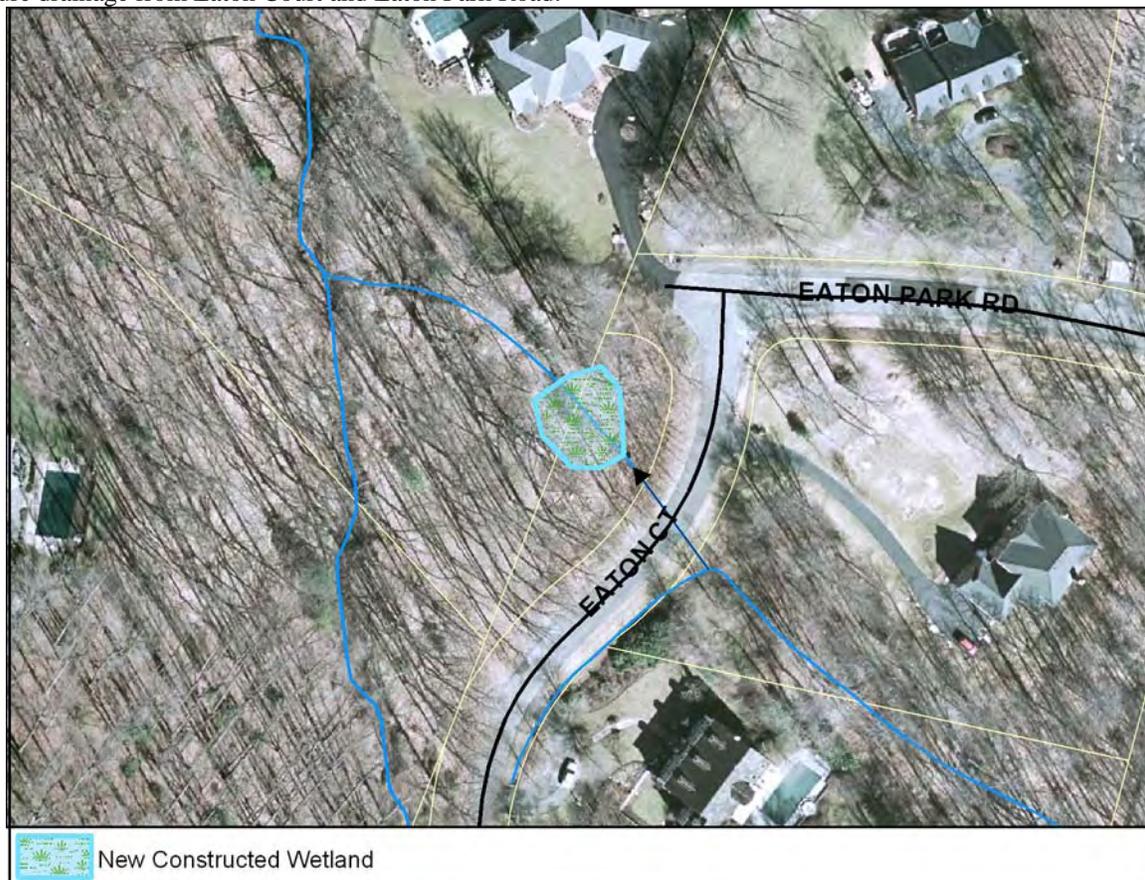
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Vegetated Swale	SY	540	\$50.00	\$27,000.00
Organic Compost Soil Amendment	CY	75	\$40.00	\$3,000.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	400	\$35.00	\$14,000.00
Access Road	SY	280	\$25.00	\$7,000.00
Access Road Gate	EA	1	\$2,500.00	\$2,500.00
Structural BMP and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
New Storm Pipe (Low)	LF	20	\$100.00	\$2,000.00
Embankment	CY	100	\$50.00	\$5,000.00
Initial Project Costs				\$73,850.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$3,692.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$7,385.00
Base Construction Costs				\$84,927.50
<i>Mobilization (5%)</i>				\$4,246.38
Subtotal 1				\$89,173.88
<i>Contingency (25%)</i>				\$22,293.47
Subtotal 2				\$111,467.34
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$50,160.30
Total Costs				\$161,627.65
Estimated Project Costs				\$170,000.00

PN9101 New Stormwater Pond



Address:	9106 Eaton Park Road
Location:	Eaton Court & Eaton Park Road
Land Owner:	Private
PIN:	0082 11 A, 0082 16 0003
Control Type	Quality
Drainage Area	15.06 acres
Receiving Waters	Clarks Branch

Description: Eaton Park subdivision has no existing stormwater treatment. Install a new constructed wetland to capture drainage from Eaton Court and Eaton Park Road.



Project Area Map

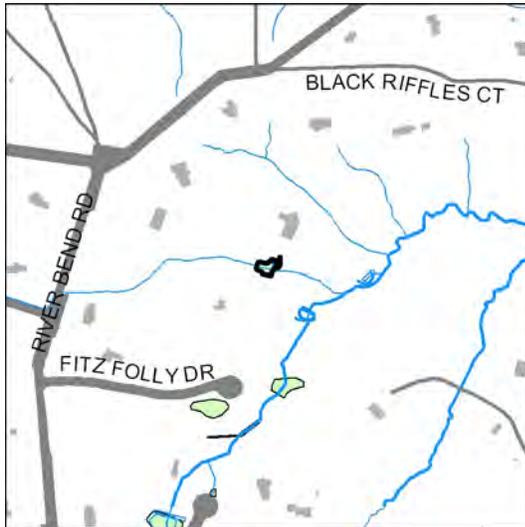
Project Benefits: The constructed wetlands will reduce stormwater peak flows for small storm events, reduce sediment and nutrient loadings, and provide for evaporation, evapotranspiration and wildlife habitat. An estimated 1,328 lbs/yr of total suspended solids, 17 lbs/yr of nitrogen, and 3 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. A storm drainage easement will be necessary. Accessibility is excellent from Eaton Court. Tree impacts are expected. No significant construction issues are anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.09	\$25,000.00	\$2,250.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	100	\$35.00	\$3,500.00
Access Road	SY	225	\$25.00	\$5,625.00
Access Road Gate	EA	1	\$2,500.00	\$2,500.00
Structural BMP and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
New Storm Pipe (Low)	LF	20	\$100.00	\$2,000.00
Embankment	CY	100	\$50.00	\$5,000.00
Initial Project Costs				\$33,325.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$1,666.25
<i>Erosion and Sediment Control: 10% of project costs</i>				\$3,332.50
Base Construction Costs				\$38,323.75
<i>Mobilization (5%)</i>				\$1,916.19
Subtotal 1				\$40,239.94
<i>Contingency (25%)</i>				\$10,059.98
Subtotal 2				\$50,299.92
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$22,634.96
Total Costs				\$72,934.89
Estimated Project Costs				\$80,000.00

PN9102 Stormwater Pond Retrofit



Address: 207 River Bend Road
Location: Near River Bend Road & Oak Falls Court
Land Owner: Private
PIN: 0082 01 0011D1, 0082 01 0012A1
Control Type Quality
Drainage Area 15.32 acres
Receiving Waters Clarks Branch

Description: The area around River Bend Road and Oak Falls Court has no existing stormwater treatment. Retrofit breached farm pond to a new constructed wetland. Repair earthen dam, install outlet structure and vegetate with wetland plants.



Project Area Map

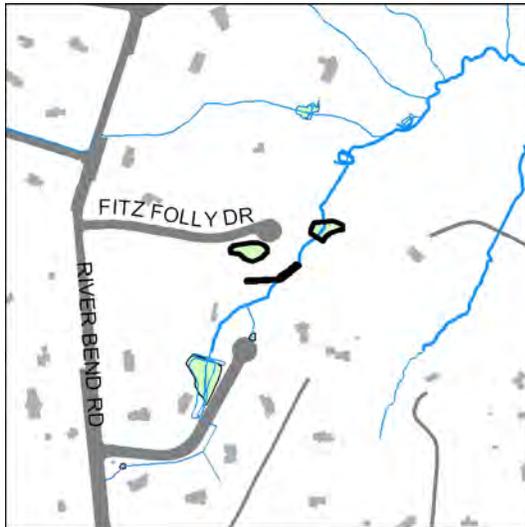
Project Benefits: The constructed wetlands will reduce stormwater peak flows for small storm events, reduce sediment and nutrient loadings, and provide for evaporation, evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the wetland. This project will also repair the earthen dam. An estimated 774 lbs/yr of total suspended solids, 9 lbs/yr of nitrogen, and 2 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. A dam safety permit may be necessary. This is a privately owned pond, and will require a storm drainage easement. Accessibility may be difficult due to space constraints and tree cover. Minimal tree impacts and no significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	20	\$40.00	\$800.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.13	\$8,500.00	\$1,105.00
Grading and Excavation	CY	1000	\$35.00	\$35,000.00
Embankment	CY	75	\$50.00	\$3,750.00
Outflow Pipe	LF	20	\$125.00	\$2,500.00
RipRap Stabilization	SY	20	\$100.00	\$2,000.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$57,655.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$2,882.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$5,765.50
Base Construction Costs				\$66,303.25
<i>Mobilization (5%)</i>				\$3,315.16
Subtotal 1				\$69,618.41
<i>Contingency (25%)</i>				\$17,404.60
Subtotal 2				\$87,023.02
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$39,160.36
Total Costs				\$126,183.37
Estimated Project Costs				\$130,000.00

PN9103 New Stormwater Pond, BMP/LID, Stream Restoration



Address:	9303 Fitz Folly Drive
Location:	Fitz Folly Farms Subdivision
Land Owner:	County/Private
PIN:	0082 17 0003, 0082 17 0004, 0082 01 0019E, 0082 17 0002
Control Type	Quality/Quantity
Drainage Area	45.94 acres
Receiving Waters	Clarks Branch

Description: Fitz Folly Farms is in need of additional water quality treatment. Construct enhanced extended detention dry pond in empty lot and terraced rain gardens on steeper slopes. Intercept overland flow and stabilize overland and in-stream erosion impacts.



Project Area Map

Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The rain garden will also reduce stormwater runoff volumes by promoting infiltration. This project will also repair erosion and stabilize the streambanks. An estimated 308 lbs/yr of total suspended solids, 4 lbs/yr of nitrogen, and 1 lb/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. Part of the project is located within storm drainage easements. An additional storm drainage easement will be necessary for the new dry pond. Accessibility is excellent from Fitz Folly Drive. Minimal tree impacts and no significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Bioretention Filters & Basin	SY	650	\$150.00	\$97,500.00
Organic Compost Soil Amendment	CY	120	\$40.00	\$4,800.00
Plantings	AC	0.31	\$25,000.00	\$7,750.00
Clear and Grub	AC	0.2	\$8,500.00	\$1,700.00
Grading and Excavation	CY	1025	\$35.00	\$35,875.00
Access Road	SY	185	\$25.00	\$4,625.00
Access Road Gate	EA	1	\$2,500.00	\$2,500.00
Embankment	CY	125	\$50.00	\$6,250.00
Construct New Channel	LF	245	\$200.00	\$49,000.00
Additional Cost (first 500LF)	LF	245	\$200.00	\$49,000.00
Structural BMP and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
New Storm Pipe (Med)	LF	25	\$200.00	\$5,000.00
Initial Project Costs				\$279,000.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$13,950.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$27,900.00
Base Construction Costs				\$320,850.00
<i>Mobilization (5%)</i>				\$16,042.50
Subtotal 1				\$336,892.50
<i>Contingency (25%)</i>				\$84,223.13
Subtotal 2				\$421,115.63
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$189,502.03
Total Costs				\$610,617.66
Estimated Project Costs				\$620,000.00

PN9104 Stormwater Pond Retrofit, BMP/LID



Address:	250 Golden Woods Court
Location:	Golden Woods Subdivision
Land Owner:	County
PIN:	0082 12 0004, 0082 12 0005
Control Type	Quality/Quantity
Drainage Area	29.59 acres
Receiving Waters	Clarks Branch

Description: Golden Woods and Crampton subdivisions are in need of additional water quality treatment. Enlarge and retrofit dry pond (0649DP) to enhanced extended detention dry pond with low marsh areas. Replace concrete swale with vegetated swale and check dams.



Project Area Map

Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. This project will also increase the storage capacity for the existing pond. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. Removal of the trickle ditch will reduce stormwater velocities. An estimated 1,987 lbs/yr of total suspended solids, 24 lbs/yr of nitrogen, and 5 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. This is an existing county facility, and is located within a storm drainage easement. Accessibility is excellent from Golden Woods Court. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Vegetated Swale	SY	500	\$50.00	\$25,000.00
Organic Compost Soil Amendment	CY	75	\$40.00	\$3,000.00
Plantings	AC	0.15	\$25,000.00	\$3,750.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	925	\$35.00	\$32,375.00
Embankment	CY	100	\$50.00	\$5,000.00
Outflow Pipe	LF	20	\$125.00	\$2,500.00
RipRap Stabilization	SY	30	\$100.00	\$3,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$90,475.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$4,523.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$9,047.50
Base Construction Costs				\$104,046.25
<i>Mobilization (5%)</i>				\$5,202.31
Subtotal 1				\$109,248.56
<i>Contingency (25%)</i>				\$27,312.14
Subtotal 2				\$136,560.70
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$61,452.32
Total Costs				\$198,013.02
Estimated Project Costs				\$200,000.00

PN9105 Stormwater Pond Retrofit, BMP/LID



Address:	9306 Morison Lane
Location:	Morison Estate Subdivision
Land Owner:	County/Private
PIN:	0082 15 0007A, 0082 15 0009, 0082 15 0002
Control Type	Quality/Quantity
Drainage Area	26.34 acres
Receiving Waters	Clarks Branch

Description: The Morrison Estate is in need of additional water quality treatment. Retrofit existing dry pond (0677DP) to enhanced extended detention dry pond with low marsh areas. Install rain gardens in two natural drainage areas.



Project Area Map

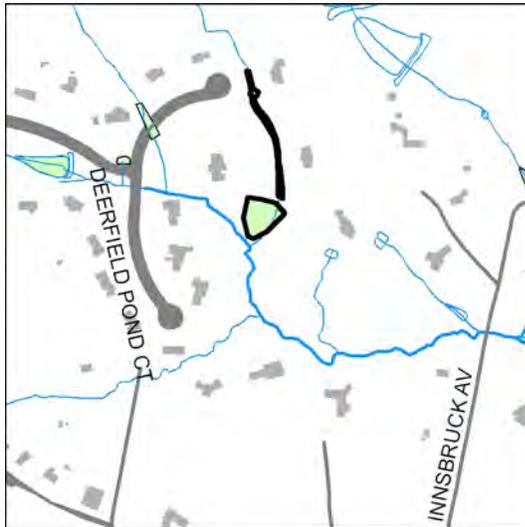
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reducing peak stormwater flows for storms up to the 10-year event, and providing for evapotranspiration and wildlife habitat. The improved outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. Removal of the trickle ditch will reduce stormwater velocities. The rain gardens will also reduce stormwater runoff volumes by promoting infiltration. An estimated 1,690 lbs/yr of total suspended solids, 21 lbs/yr of nitrogen, and 4 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This is an existing county facility, and is located within a storm drainage easement. The rain garden located at the end of Morison Lane is located on private land and will require an additional storm drainage easement. Accessibility is excellent from Morison Lane. There are no tree impacts or significant construction issues anticipated.

Costs:

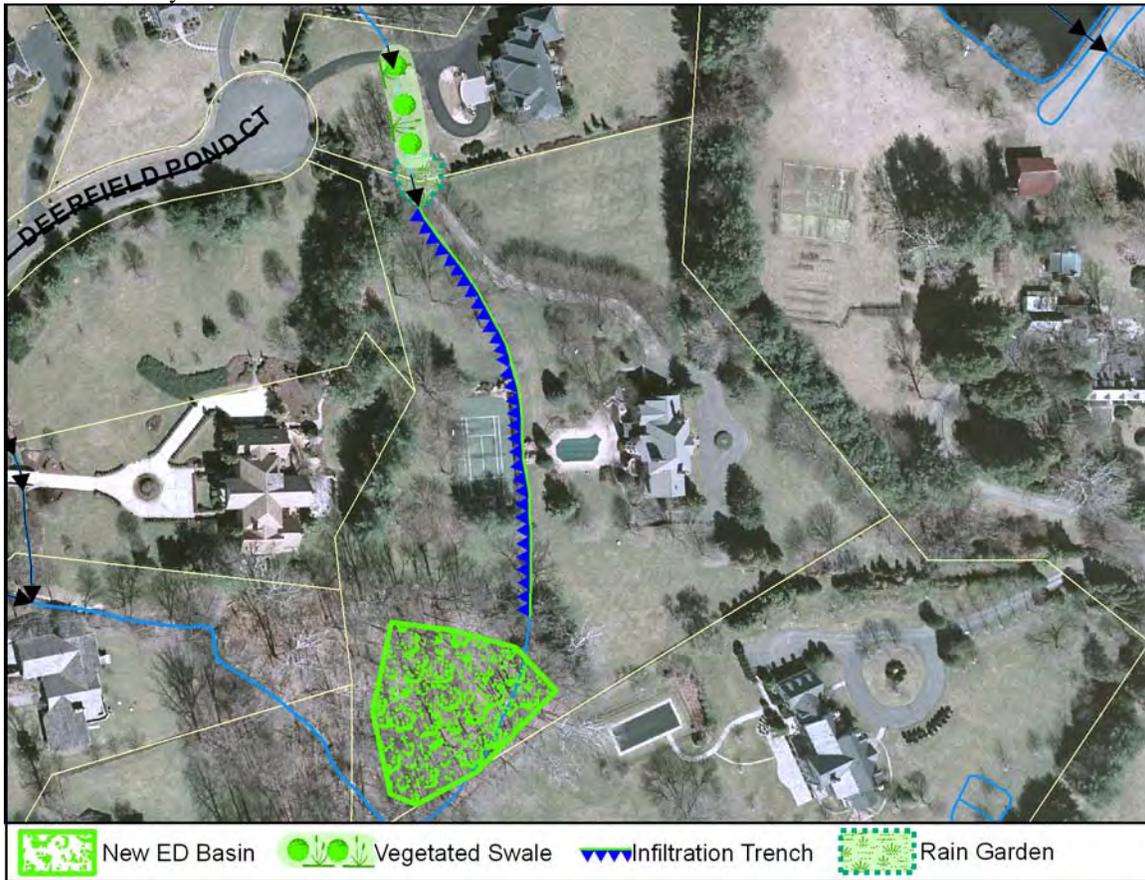
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Bioretention Filters & Basin	SY	80	\$150.00	\$12,000.00
Organic Compost Soil Amendment	CY	120	\$40.00	\$4,800.00
Plantings	AC	0.5	\$25,000.00	\$12,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	950	\$35.00	\$33,250.00
Embankment	CY	100	\$50.00	\$5,000.00
Outflow Pipe	LF	30	\$125.00	\$3,750.00
RipRap Stabilization	SY	20	\$100.00	\$2,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$89,150.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$4,457.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$8,915.00
Base Construction Costs				\$102,522.50
<i>Mobilization (5%)</i>				\$5,126.13
Subtotal 1				\$107,648.63
<i>Contingency (25%)</i>				\$26,912.16
Subtotal 2				\$134,560.78
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$60,552.35
Total Costs				\$195,113.13
Estimated Project Costs				\$200,000.00

PN9108 New Stormwater Pond, BMP/LID



Address: 601 Deerfield Pond Court
Location: Near northern Deerfield Court cul-de-sac
Land Owner: County/Private
PIN: 0083 13 0020, 0083 14 0019, 0083 14 0029
Control Type Quality/Quantity
Drainage Area 25.29 acres
Receiving Waters Mine Run Branch

Description: This area is in need of additional water quality treatment. Construct new enhanced extended detention dry pond. Replace rip-rap swale with vegetated infiltration trench and check dams and install a new rain garden upstream of driveway culvert.



Project Area Map

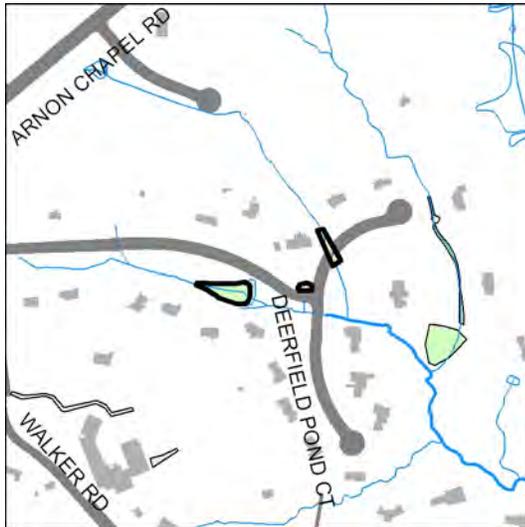
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The rain garden and infiltration trench will also reduce stormwater runoff volumes by promoting infiltration. An estimated 2,500 lbs/yr of total suspended solids, 38 lbs/yr of nitrogen, and 7 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. The majority of the project is located within a storm drainage easement, which may need to be enlarged to include the entirety of the new dry basin. Accessibility is good from Deerfield Pond Court, but may be difficult due to residential properties, access easements will be needed for future maintenance. Minimal tree impacts and no significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Vegetated Swale	SY	120	\$50.00	\$6,000.00
Percolation/Infiltration Trench	SY	500	\$75.00	\$37,500.00
Organic Compost Soil Amendment	CY	155	\$40.00	\$6,200.00
Plantings	AC	0.5	\$25,000.00	\$12,500.00
Clear and Grub	AC	0.75	\$8,500.00	\$6,375.00
Grading and Excavation	CY	2000	\$35.00	\$70,000.00
Access Road	SY	775	\$25.00	\$19,375.00
Access Road Gate	EA	1	\$2,500.00	\$2,500.00
Embankment	CY	120	\$50.00	\$6,000.00
Structural BMP and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
New Storm Pipe (Med)	LF	25	\$200.00	\$5,000.00
Initial Project Costs				\$186,450.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$9,322.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$18,645.00
Base Construction Costs				\$214,417.50
<i>Mobilization (5%)</i>				\$10,720.88
Subtotal 1				\$225,138.38
<i>Contingency (25%)</i>				\$56,284.59
Subtotal 2				\$281,422.97
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$126,640.34
Total Costs				\$408,063.30
Estimated Project Costs				\$410,000.00

PN9109 New Stormwater Pond, Stormwater Pond Retrofit, BMP/LID



Address: 9903 Deerfield Pond Drive
Location: Deerfield Pond Subdivision
Land Owner: County/Private
PIN: 0083 13 B, 0083 13 0006, 0083 13 0007, 0083 13 0018A, 0083 13 0022
Control Type: Quality/Quantity
Drainage Area: 92.88 acres
Receiving Waters: Mine Run Branch

Description: Retrofit existing non-stormwater pond to wet retention pond with increased storage. Improve wetland vegetation above road culvert and add outlet structure to create a new constructed wetland. Install a rain garden around existing inlet on corner.



Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The rain garden will also reduce stormwater runoff volumes by promoting infiltration. An estimated 2,025 lbs/yr of total suspended solids, 24 lbs/yr of nitrogen, and 6 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. The existing pond and new constructed wetland are located within storm drainage easements. The rain garden at the corner of Deerfield Pond Court and Deerfield Pond Drive is located on private land and will require an additional storm drainage easement. Accessibility is excellent from nearby roads. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Bioretention Filters & Basin	SY	200	\$150.00	\$30,000.00
Organic Compost Soil Amendment	CY	80	\$40.00	\$3,200.00
Plantings	AC	0.16	\$25,000.00	\$4,000.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	925	\$35.00	\$32,375.00
Access Road	SY	150	\$25.00	\$3,750.00
Access Road Gate	EA	1	\$2,500.00	\$2,500.00
New Storm Pipe (Low)	LF	20	\$100.00	\$2,000.00
Embankment	CY	175	\$50.00	\$8,750.00
Outflow Pipe	LF	30	\$125.00	\$3,750.00
RipRap Stabilization	SY	30	\$100.00	\$3,000.00
Structural BMP and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
			Initial Project Costs	\$124,175.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$6,208.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$12,417.50
			Base Construction Costs	\$142,801.25
			<i>Mobilization (5%)</i>	\$7,140.06
			Subtotal 1	\$149,941.31
			<i>Contingency (25%)</i>	\$37,485.33
			Subtotal 2	\$187,426.64
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$84,341.99
			Total Costs	\$271,768.63
			Estimated Project Costs	\$280,000.00

PN9110 BMP/LID, Education



Address:	701 Walker Road
Location:	Great Falls Elementary School
Land Owner:	County
PIN:	0074 01 0055A, 0074 14 0003A
Control Type	Quality
Drainage Area	3.84 acres
Receiving Waters	Mine Run Branch

Description: Install a bioretention area behind the Great Falls Elementary School, along the lower end of the basketball courts. Install educational signage and institute educational programs.



Project Area Map

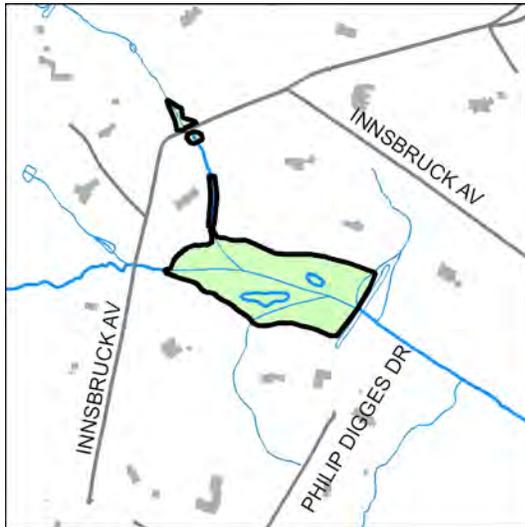
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce stormwater peak flows for small storm events, reduce stormwater runoff volumes by promoting infiltration, and provide for evapotranspiration and wildlife habitat. An estimated 1,080 lbs/yr of total suspended solids, 13 lbs/yr of nitrogen, and 3 lbs/yr of phosphorus will be removed. This project provides an excellent opportunity for educational programs.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. A portion of the project is located in a Transco Gas easement. The property is owned by the county, so no storm drainage easements are necessary. Accessibility is excellent from the parking lot. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Percolation/Infiltration Trench	SY	0	\$75.00	\$0.00
Bioretention Filters & Basin	SY	250	\$150.00	\$37,500.00
Organic Compost Soil Amendment	CY	15	\$40.00	\$600.00
Initial Project Costs				\$38,100.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$1,905.00
<i>Ancillary Items: 5% of project cost</i>				\$1,905.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$3,810.00
Base Construction Costs				\$45,720.00
<i>Mobilization (5%)</i>				\$2,286.00
Subtotal 1				\$48,006.00
<i>Contingency (25%)</i>				\$12,001.50
Subtotal 2				\$60,007.50
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$27,003.38
Total Costs				\$87,010.88
Estimated Project Costs				\$90,000.00

PN9111 Stormwater Pond (New/Retrofit), Culvert Retrofit, Stream Restoration



Address: 619 Innsbruck Avenue
Location: Marmota Farm Subdivision
Land Owner: Private
PIN: 0083 12 0011, 0083 08 B3, 0083 08 0002, 0083 08 0003, 0083 08 0004, 0131 06 A, 0131 06 0005, 0083 08 0001
Control Type: Quality/Quantity
Drainage Area: 485.29 acres
Receiving Waters: Mine Run Branch

Description: Retrofit existing non-stormwater wet pond (WP0209) to wet retention pond by installing proper outlet structure, constructing sediment forebay in western inlet and lowering water level slightly to provide storage. Repair stream erosion above pond. Install a micropool upstream of road culvert and a constructed wetland below culvert.



Project Area Map

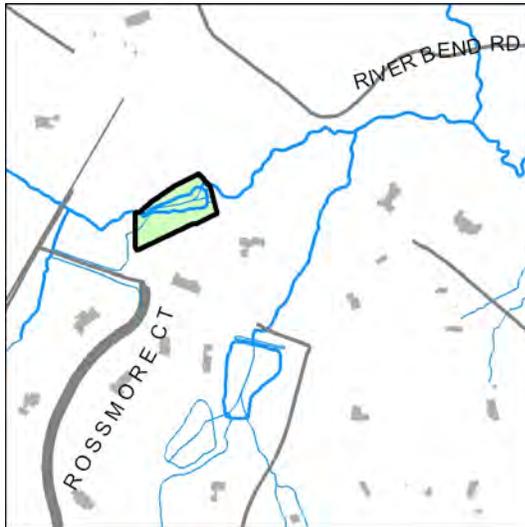
Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. Aeration increases the level of dissolved oxygen to balance normal biological processes, circulates water to deter algae, and improves water quality within a pond. This project will also repair eroded streambanks. An estimated 2,500 lbs/yr of total suspended solids, 38 lbs/yr of nitrogen, and 7 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This is an existing stormwater facility but is not located within a County storm drainage easement. Storm drainage easements will be necessary. Accessibility is excellent from Insbruck Avenue. Tree impacts are expected. No significant construction issues are anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	95	\$40.00	\$3,800.00
Plantings	AC	0.3	\$25,000.00	\$7,500.00
Clear and Grub	AC	0.4	\$8,500.00	\$3,400.00
Grading and Excavation	CY	4030	\$35.00	\$141,050.00
Access Road	SY	400	\$25.00	\$10,000.00
Access Road Gate	EA	2	\$2,500.00	\$5,000.00
Embankment	CY	500	\$50.00	\$25,000.00
Outflow Pipe	LF	100	\$125.00	\$12,500.00
RipRap Stabilization	SY	100	\$100.00	\$10,000.00
Construct New Channel	LF	240	\$200.00	\$48,000.00
Additional Cost (first 500LF)	LF	240	\$200.00	\$48,000.00
Structural BMP and Incidentals (Med)	LS	2	\$15,000.00	\$30,000.00
New Storm Pipe (Med)	LF	70	\$200.00	\$14,000.00
Structural BMP Retrofit and Incidentals (High)	LS	1	\$20,000.00	\$20,000.00
Initial Project Costs				\$378,250.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$18,912.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$37,825.00
Base Construction Costs				\$434,987.50
<i>Mobilization (5%)</i>				\$21,749.38
Subtotal 1				\$456,736.88
<i>Contingency (25%)</i>				\$114,184.22
Subtotal 2				\$570,921.09
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$256,914.49
Total Costs				\$827,835.59
Estimated Project Costs				\$830,000.00

PN9112 Stormwater Pond Retrofit



Address:	9638 Georgetown Pike
Location:	Near Rossmore Court cul-de-sac
Land Owner:	Private
PIN:	0131 01 0050B, 0131 05 0023A
Control Type	Quality/Quantity
Drainage Area	98.31 acres
Receiving Waters	Mine Run Branch

Description: This area does not have existing stormwater treatment. Retrofit existing farm pond to a wet retention pond and enlarge pond for additional storage capacity. Restore riparian buffer around pond and upstream.



Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. This project will also increase the storage capacity for the existing pond. Restoring the riparian buffer will also reduce stream temperatures. An estimated 4,660 lbs/yr of total suspended solids, 56 lbs/yr of nitrogen, and 13 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This is a privately owned pond, and will require a storm drainage easement. Accessibility is excellent via an ingress-egress easement.. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	25	\$40.00	\$1,000.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	2200	\$35.00	\$77,000.00
Embankment	CY	150	\$50.00	\$7,500.00
Outflow Pipe	LF	40	\$125.00	\$5,000.00
RipRap Stabilization	SY	25	\$100.00	\$2,500.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$106,350.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$5,317.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$10,635.00
Base Construction Costs				\$122,302.50
<i>Mobilization (5%)</i>				\$6,115.13
Subtotal 1				\$128,417.63
<i>Contingency (25%)</i>				\$32,104.41
Subtotal 2				\$160,522.03
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$72,234.91
Total Costs				\$232,756.95
Estimated Project Costs				\$240,000.00

PN9113 New Stormwater Pond



Address:	550 Innsbruck Avenue
Location:	Arnon Lake Subdivision
Land Owner:	Private
PIN:	0083 01 0032, 0083 10 0021
Control Type	Quality
Drainage Area	10.05 acres
Receiving Waters	Mine Run Branch

Description: This area does not have existing stormwater treatment. Install a new constructed wetland in a low clearing within the forested area adjacent to a private driveway.



Project Area Map

Project Benefits: The constructed wetlands will reduce stormwater peak flows for small storm events, reduce sediment and nutrient loadings, and provide for evaporation, evapotranspiration and wildlife habitat. An estimated 1,993 lbs/yr of total suspended solids, 24 lbs/yr of nitrogen, and 6 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. A storm drainage easement will be necessary. Accessibility is excellent from an ingress-egress easement along a private driveway. Tree impacts are anticipated. No significant construction issues are anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	50	\$40.00	\$2,000.00
Plantings	AC	0.2	\$25,000.00	\$5,000.00
Clear and Grub	AC	0.2	\$8,500.00	\$1,700.00
Grading and Excavation	CY	250	\$35.00	\$8,750.00
Access Road	SY	170	\$25.00	\$4,250.00
Access Road Gate	EA	1	\$2,500.00	\$2,500.00
Structural BMP and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
New Storm Pipe (Low)	LF	25	\$100.00	\$2,500.00
Embankment	CY	100	\$50.00	\$5,000.00
Initial Project Costs				\$41,700.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$2,085.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$4,170.00
Base Construction Costs				\$47,955.00
<i>Mobilization (5%)</i>				\$2,397.75
Subtotal 1				\$50,352.75
<i>Contingency (25%)</i>				\$12,588.19
Subtotal 2				\$62,940.94
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$28,323.42
Total Costs				\$91,264.36
Estimated Project Costs				\$100,000.00

PN9114 Stormwater Pond Retrofit, BMP/LID



Address: 501 Arnon Ridge Court
Location: Arnon Ridge Subdivision
Land Owner: County/Private
PIN: 0083 11 0002, 0083 11 0009, 0083 11 0010
Control Type: Quality/Quantity
Drainage Area: 12 acres
Receiving Waters: Mine Run Branch

Description: The Arnon Ridge area is in need of additional water quality treatment. Retrofit naturalized dry pond (0182DP) to enhanced extended detention dry pond by installing outlet structure. Replace concrete and grass swales with vegetated swales and check dams.



Project Area Map

Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. Removal of the trickle ditch will also reduce stormwater velocities. An estimated 1,156 lbs/yr of total suspended solids, 14 lbs/yr of nitrogen, and 2 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. This is a county facility, and is located within a storm drainage easement. Additional storm drainage easements will be necessary. Parts of the project are located along or within road rights-of-way. Accessibility is excellent from adjacent roads. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Vegetated Swale	SY	1040	\$50.00	\$52,000.00
Organic Compost Soil Amendment	CY	130	\$40.00	\$5,200.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	100	\$35.00	\$3,500.00
Embankment	CY	100	\$50.00	\$5,000.00
Outflow Pipe	LF	20	\$125.00	\$2,500.00
RipRap Stabilization	SY	15	\$100.00	\$1,500.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$83,050.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$4,152.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$8,305.00
Base Construction Costs				\$95,507.50
<i>Mobilization (5%)</i>				\$4,775.38
Subtotal 1				\$100,282.88
<i>Contingency (25%)</i>				\$25,070.72
Subtotal 2				\$125,353.59
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$56,409.12
Total Costs				\$181,762.71
Estimated Project Costs				\$190,000.00

PN9116 Stormwater Pond Retrofit, Culvert Retrofit



Address: 10223 Beach Mill Road
Location: Near Beach Mill Road & Springvale Road
Land Owner: County/Private
PIN: 0034 01 0034A, 0034 01 0034B, 0034 04 A, 0034 04 0062
Control Type: Quality/Quantity
Drainage Area: 278.83 acres
Receiving Waters: Pond Branch

Description: Flooding is overtopping Beach Mill Road and causing erosion at two road culverts. Install outlet structure in wet pond (WP0202) to provide storage. Raise the road bed, install larger culverts, and stabilize streambanks above and below the culverts.



Project Area Map

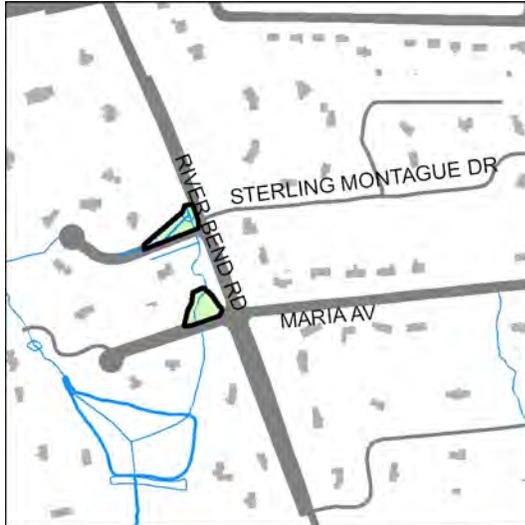
Project Benefits: The constructed wetlands will reduce stormwater peak flows for small storm events, reduce sediment and nutrient loadings, and provide for evaporation, evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. This project will also reduce flooding caused by undersized culverts, and will repair and stabilize streambank damage caused by flooding. An estimated 2,423 lbs/yr of total suspended solids, 29 lbs/yr of nitrogen, and 7 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This is an existing private facility that is not located within a storm drainage easement. Storm drainage easements will be necessary. The two culverts are located within the road rights-of-way. Accessibility is excellent from Beach Mill Road. There are no tree impacts or significant construction issues anticipated.

Costs:

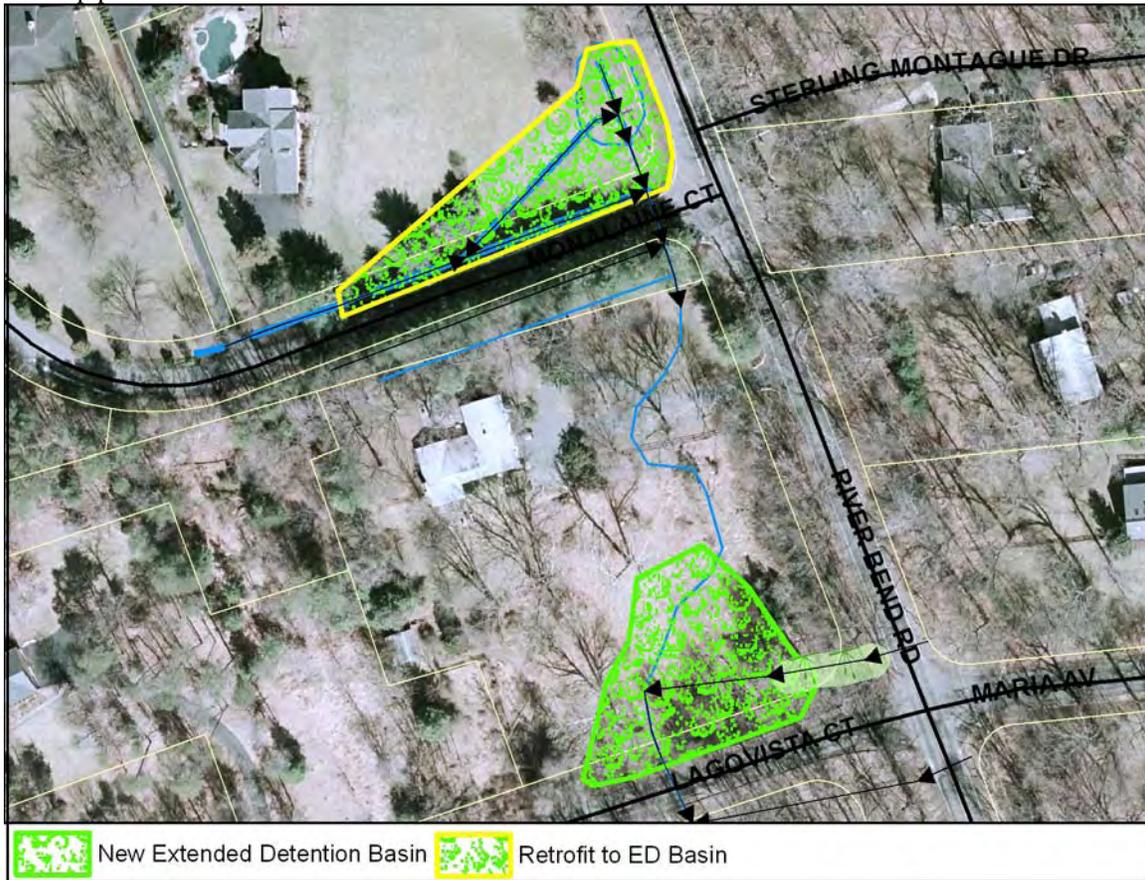
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	75	\$40.00	\$3,000.00
Plantings	AC	0.2	\$25,000.00	\$5,000.00
Clear and Grub	AC	0.2	\$8,500.00	\$1,700.00
Grading and Excavation	CY	2400	\$35.00	\$84,000.00
Earthen Berm	CY	150	\$35.00	\$5,250.00
Embankment	CY	150	\$50.00	\$7,500.00
Outflow Pipe	LF	100	\$125.00	\$12,500.00
RipRap Stabilization	SY	80	\$100.00	\$8,000.00
New Storm Pipe (Med)	LF	200	\$200.00	\$40,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$181,950.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$9,097.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$18,195.00
Base Construction Costs				\$209,242.50
<i>Mobilization (5%)</i>				\$10,462.13
Subtotal 1				\$219,704.63
<i>Contingency (25%)</i>				\$54,926.16
Subtotal 2				\$274,630.78
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$123,583.85
Total Costs				\$398,214.63
Estimated Project Costs				\$400,000.00

PN9117 New Stormwater Pond, Stormwater Pond Retrofit



Address: 414 River Bend Road
Location: Monalaine Court & River Bend Road
Land Owner: County/Private
PIN: 0084 01 0013E, 0084 10 0001
Control Type: Quality/Quantity
Drainage Area: 33.96 acres
Receiving Waters: Mine Run Branch

Description: Expand existing dry pond (0303DP) to intercept drainage from McNalane Court; retrofit to naturalized extended detention dry pond. Construct new naturalized extended detention basin in existing depression; daylight stormwater pipe from Riverbend Road.



Project Area Map

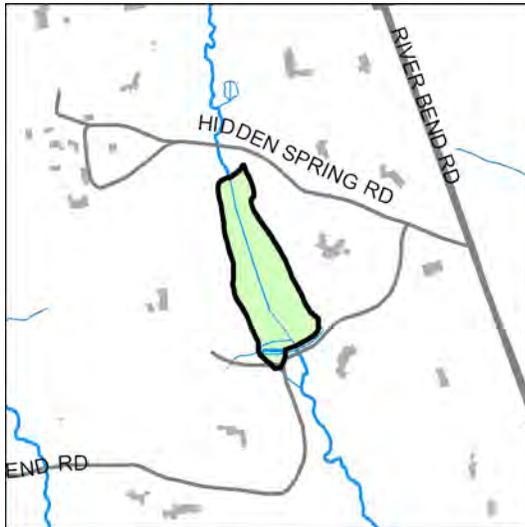
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. This project will also increase the storage capacity of the existing pond. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. Removal of the trickle ditch will also reduce stormwater velocities. An estimated 978 lbs/yr of total suspended solids, 11 lbs/yr of nitrogen, and 2 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. A storm drainage easement will be necessary for the privately-owned existing stormwater basin. Part of the proposed enhanced extended detention dry pond is located within a storm drainage easement which may need to be enlarged. Accessibility is excellent from River Bend Road. No tree impacts are anticipated. Existing storm sewer must be daylighted. The dry ponds must be deep enough to intercept piped storm sewers.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	85	\$40.00	\$3,400.00
Plantings	AC	0.3	\$25,000.00	\$7,500.00
Clear and Grub	AC	0.33	\$8,500.00	\$2,805.00
Grading and Excavation	CY	2050	\$35.00	\$71,750.00
Access Road	SY	300	\$25.00	\$7,500.00
Access Road Gate	EA	1	\$2,500.00	\$2,500.00
Embankment	CY	225	\$50.00	\$11,250.00
Outflow Pipe	LF	75	\$125.00	\$9,375.00
RipRap Stabilization	SY	30	\$100.00	\$3,000.00
Structural BMP and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
New Storm Pipe (Med)	LF	60	\$200.00	\$12,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$161,080.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$8,054.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$16,108.00
Base Construction Costs				\$185,242.00
<i>Mobilization (5%)</i>				\$9,262.10
Subtotal 1				\$194,504.10
<i>Contingency (25%)</i>				\$48,626.03
Subtotal 2				\$243,130.13
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$109,408.56
Total Costs				\$352,538.68
Estimated Project Costs				\$360,000.00

PN9118 Stormwater Pond Retrofit, Culvert Retrofit



Address: 456 River Bend Road
Location: Near River Bend Road & Hidden Springs Road
Land Owner: Private
PIN: 0084 01 0020, 0084 01 0021, 0084 01 0025, 0084 01 0028, 0084 01 0034Z, 0084 01 0036, 0084 09 0012
Control Type: Quality/Quantity
Drainage Area: 181.34 acres
Receiving Waters: Mine Run Branch

Description: Retrofit existing farm pond (FM0002) to wet retention pond; install outlet structure and lower water level for additional storage. Repair and stabilize erosion impacts to spillway and downstream channel and culvert at River Bend Road.



Project Area Map

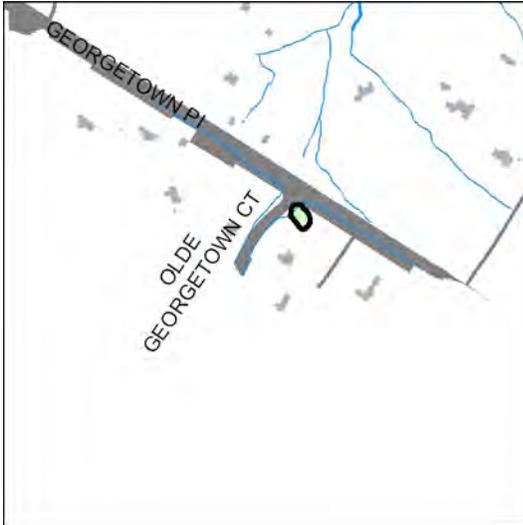
Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. This project will also repair damage to the spillway. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. This project will also repair damage to River Bend Road and stabilize the channel. An estimated 1,612 lbs/yr of total suspended solids, 19 lbs/yr of nitrogen, and 5 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. The farm pond is privately owned by multiple owners. A storm drainage easement will be necessary. Accessibility is excellent via an ingress-egress easement from nearby roads. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	250	\$35.00	\$8,750.00
Embankment	CY	150	\$50.00	\$7,500.00
Outflow Pipe	LF	50	\$125.00	\$6,250.00
RipRap Stabilization	SY	75	\$100.00	\$7,500.00
Structural BMP Retrofit and Incidentals (High)	LS	1	\$20,000.00	\$20,000.00
Initial Project Costs				\$54,950.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$2,747.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$5,495.00
Base Construction Costs				\$63,192.50
<i>Mobilization (5%)</i>				\$3,159.63
Subtotal 1				\$66,352.13
<i>Contingency (25%)</i>				\$16,588.03
Subtotal 2				\$82,940.16
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$37,323.07
Total Costs				\$120,263.23
Estimated Project Costs				\$130,000.00

PN9119 Stormwater Pond Retrofit



Address:	801 Olde Georgetown Court
Location:	Fallswood Subdivision
Land Owner:	Private
PIN:	0132 07 0009
Control Type	Quality/Quantity
Drainage Area	3.45 acres
Receiving Waters	Mine Run Branch

Description: Fallswood subdivision is in need of additional water quality treatment. Retrofit existing dry pond (1443DP) to naturalized extended detention dry pond with a new outlet structure and naturalized vegetation.



Project Area Map

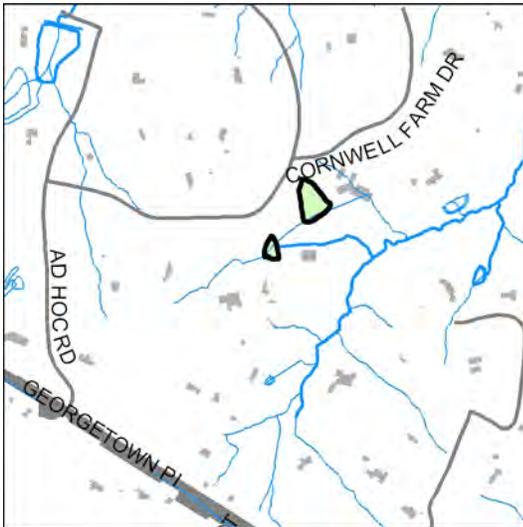
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. An estimated 229 lbs/yr of total suspended solids, 3 lbs/yr of nitrogen, and 1 lb/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. This is an existing stormwater facility that is not within a storm drainage easement. A storm drainage easement will be necessary. Accessibility is excellent from Olde Georgetown Court. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.15	\$25,000.00	\$3,750.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	360	\$35.00	\$12,600.00
Embankment	CY	100	\$50.00	\$5,000.00
Outflow Pipe	LF	55	\$125.00	\$6,875.00
RipRap Stabilization	SY	15	\$100.00	\$1,500.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$42,175.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$2,108.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$4,217.50
Base Construction Costs				\$48,501.25
<i>Mobilization (5%)</i>				\$2,425.06
Subtotal 1				\$50,926.31
<i>Contingency (25%)</i>				\$12,731.58
Subtotal 2				\$63,657.89
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$28,646.05
Total Costs				\$92,303.94
Estimated Project Costs				\$100,000.00

PN9120 Stormwater Pond Retrofit



Address:	9401 Cornwell Farm Drive
Location:	Cornwell Farm Subdivision
Land Owner:	Private
PIN:	0132 06 0005A, 0132 06 0004A
Control Type	Quality/Quantity
Drainage Area	17.05 acres
Receiving Waters	Mine Run Branch

Description: This area of Cornwell Farm subdivision does not have existing stormwater treatment. Retrofit two existing ponds to wet retention ponds; install outlet structures and lower water levels for additional storage, plant emergent and riparian vegetation.



Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structures will allow for a more controlled stormwater discharge to enhance the performance of the ponds. An estimated 2,150 lbs/yr of total suspended solids, 26 lbs/yr of nitrogen, and 6 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. These ponds are privately owned and will require storm drainage easements. Accessibility is excellent from Cornwell Farm Drive. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	50	\$40.00	\$2,000.00
Plantings	AC	0.15	\$25,000.00	\$3,750.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	350	\$35.00	\$12,250.00
Embankment	CY	175	\$50.00	\$8,750.00
Outflow Pipe	LF	130	\$125.00	\$16,250.00
RipRap Stabilization	SY	45	\$100.00	\$4,500.00
Structural BMP Retrofit and Incidentals (Low)	LS	2	\$10,000.00	\$20,000.00
Initial Project Costs				\$68,350.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$3,417.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$6,835.00
Base Construction Costs				\$78,602.50
<i>Mobilization (5%)</i>				\$3,930.13
Subtotal 1				\$82,532.63
<i>Contingency (25%)</i>				\$20,633.16
Subtotal 2				\$103,165.78
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$46,424.60
Total Costs				\$149,590.38
Estimated Project Costs				\$150,000.00

PN9122 Stormwater Pond Retrofit, Stream Restoration



Address:	528 River Bend Road
Location:	Jackson Hills Subdivision
Land Owner:	Private
PIN:	0132 04 B
Control Type	Quality/Quantity
Drainage Area	76.58 acres
Receiving Waters	Mine Run Branch

Description: Mine Run streambanks are incised and undercut. Re-grade and stabilize erosion impacts upstream of Riverbend Road. Retrofit nearby farm pond to wet retention pond to provide storage and water quality treatment for homes along Riverbend Road.



Project Area Map

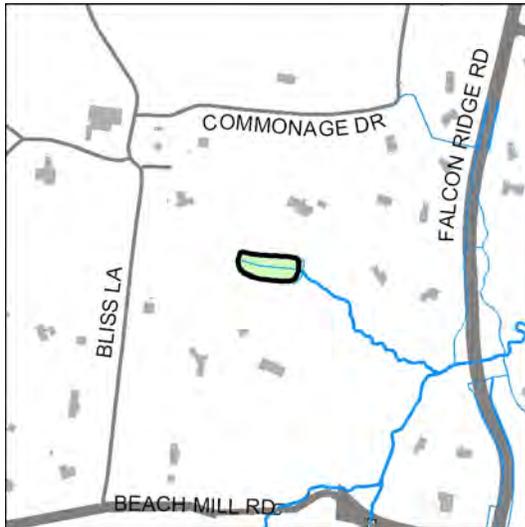
Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. This project will also stabilize and restore the streambanks. An estimated 23,176 lbs/yr of total suspended solids, 21 lbs/yr of nitrogen, and 8 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This is a privately owned pond, and will require a storm drainage easement. Accessibility is excellent from River Bend Road. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.05	\$8,500.00	\$425.00
Grading and Excavation	CY	150	\$35.00	\$5,250.00
Embankment	CY	100	\$50.00	\$5,000.00
Outflow Pipe	LF	50	\$125.00	\$6,250.00
RipRap Stabilization	SY	30	\$100.00	\$3,000.00
Construct New Channel	LF	470	\$200.00	\$94,000.00
Additional Cost (first 500LF)	LF	470	\$200.00	\$94,000.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$222,025.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$11,101.25
<i>Erosion and Sediment Control: 10% of project costs</i>				\$22,202.50
Base Construction Costs				\$255,328.75
<i>Mobilization (5%)</i>				\$12,766.44
Subtotal 1				\$268,095.19
<i>Contingency (25%)</i>				\$67,023.80
Subtotal 2				\$335,118.98
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$150,803.54
Total Costs				\$485,922.53
Estimated Project Costs				\$490,000.00

PN9123 Stormwater Pond Retrofit



Address: 221 Bliss Lane
Location: Near Bliss Lane & Commonage Drive
Land Owner: Private
PIN: 0034 01 0008A
Control Type: Quality/Quantity
Drainage Area: 28.9 acres
Receiving Waters: Pond Branch

Description: This area of Southdown Farm subdivision does not have existing stormwater treatment. Retrofit existing pond to a wet retention pond; install outlet structure and lower the water level for additional storage, and plant emergent and riparian vegetation.



Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. An estimated 1,742 lbs/yr of total suspended solids, 22 lbs/yr of nitrogen, and 5 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This is a privately owned pond, and will require a storm drainage easement. Accessibility is good via an ingress-egress easement from Bliss Lane, the access easement may need to be extended directly to the pond for future maintenance. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.05	\$8,500.00	\$425.00
Grading and Excavation	CY	100	\$35.00	\$3,500.00
Embankment	CY	100	\$50.00	\$5,000.00
Outflow Pipe	LF	85	\$125.00	\$10,625.00
RipRap Stabilization	SY	20	\$100.00	\$2,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$40,650.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$2,032.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$4,065.00
Base Construction Costs				\$46,747.50
<i>Mobilization (5%)</i>				<i>\$2,337.38</i>
Subtotal 1				\$49,084.88
<i>Contingency (25%)</i>				<i>\$12,271.22</i>
Subtotal 2				\$61,356.09
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$27,610.24
Total Costs				\$88,966.34
Estimated Project Costs				\$90,000.00

PN9124 Stormwater Pond Retrofit



Address:	531 Falls Road
Location:	Jackson Hills Subdivision
Land Owner:	Private
PIN:	0132 04 0009, 0132 04 0010B
Control Type	Quality/Quantity
Drainage Area	16.6 acres
Receiving Waters	Mine Run Branch

Description: This area of Jackson Hills does not have existing stormwater treatment. Retrofit existing pond to a wet retention pond; install outlet structure and lower the water level for additional storage, and plant emergent and riparian vegetation.



Project Area Map

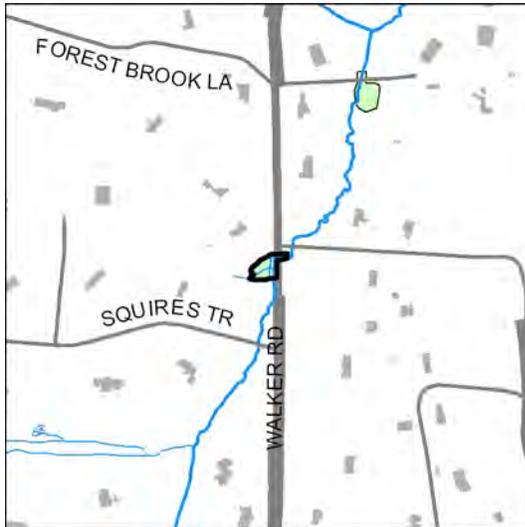
Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. An estimated 1,063 lbs/yr of total suspended solids, 13 lbs/yr of nitrogen, and 3 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This pond is privately owned by multiple owners. A storm drainage easement will be necessary. Accessibility is good from Falls Road through a clearing on private property, access easements will be needed for future maintenance. There are no tree impacts or significant construction issues anticipated.

Costs:

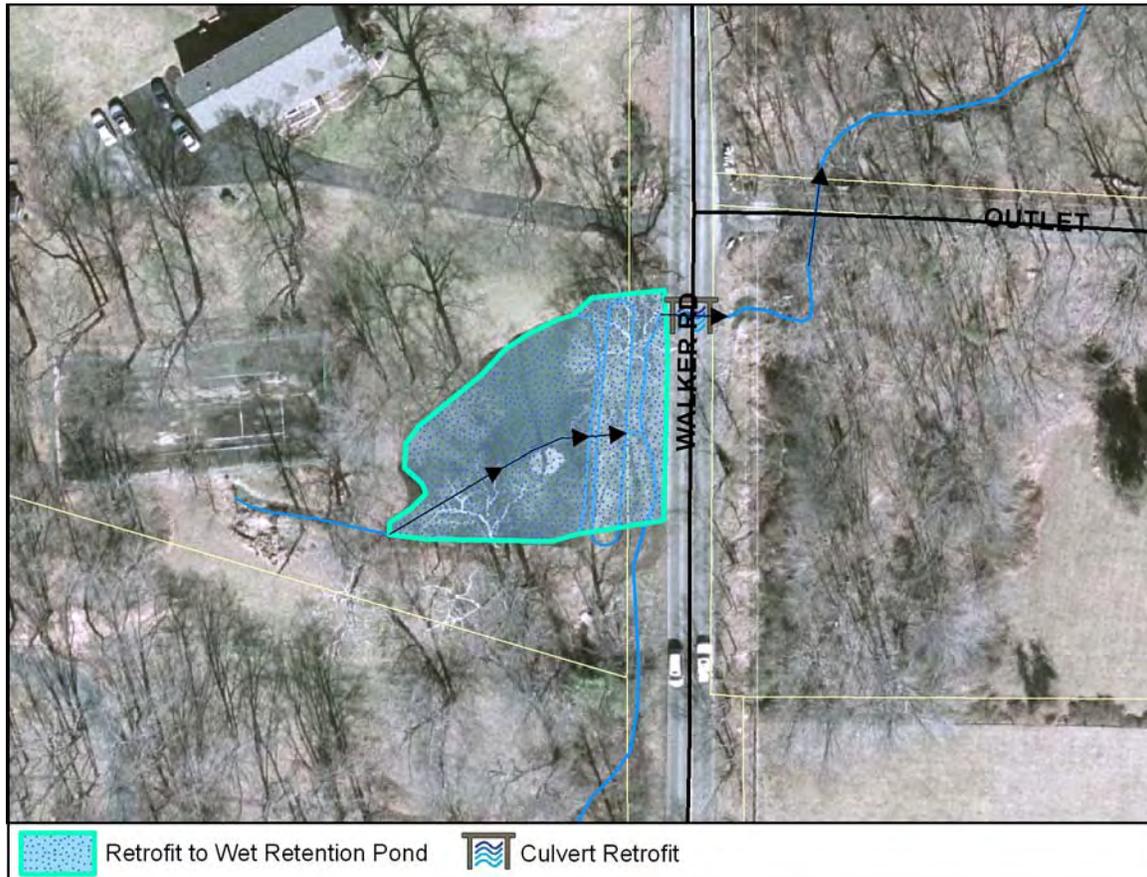
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	100	\$35.00	\$3,500.00
Embankment	CY	100	\$50.00	\$5,000.00
Outflow Pipe	LF	55	\$125.00	\$6,875.00
RipRap Stabilization	SY	20	\$100.00	\$2,000.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$32,325.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$1,616.25
<i>Erosion and Sediment Control: 10% of project costs</i>				\$3,232.50
Base Construction Costs				\$37,173.75
<i>Mobilization (5%)</i>				\$1,858.69
Subtotal 1				\$39,032.44
<i>Contingency (25%)</i>				\$9,758.11
Subtotal 2				\$48,790.55
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$21,955.75
Total Costs				\$70,746.29
Estimated Project Costs				\$80,000.00

PN9126 Stormwater Pond Retrofit



Address: 502 Walker Road
Location: Squire's Haven Section 2 Subdivision
Land Owner: Private
PIN: 0074 03 0021B, 0074 04 A
Control Type: Quality/Quantity
Drainage Area: 3.68 acres
Receiving Waters: Clarks Branch

Description: The culvert under Walker Road is collapsed or completely blocked with sediment. Replace road culvert and retrofit upstream pond to a wet retention pond to provide storage and water quality treatment for Squire's Haven subdivision.



Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, reduce peak stormwater flows up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the pond. This project will also repair the damaged culvert. An estimated 8,375 lbs/yr of total suspended solids, 98 lbs/yr of nitrogen, and 24 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This is a privately owned pond, and will require a storm drainage easement. Accessibility is excellent from Walker Road. There are no tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	40	\$40.00	\$1,600.00
Plantings	AC	0.1	\$25,000.00	\$2,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	2000	\$35.00	\$70,000.00
Embankment	CY	150	\$50.00	\$7,500.00
Outflow Pipe	LF	120	\$125.00	\$15,000.00
RipRap Stabilization	SY	40	\$100.00	\$4,000.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$111,450.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$5,572.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$11,145.00
Base Construction Costs				\$128,167.50
<i>Mobilization (5%)</i>				\$6,408.38
Subtotal 1				\$134,575.88
<i>Contingency (25%)</i>				\$33,643.97
Subtotal 2				\$168,219.84
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$75,698.93
Total Costs				\$243,918.77
Estimated Project Costs				\$250,000.00

PN9127 Stormwater Pond Retrofit, BMP/LID



Address: 354 Club View Drive
Location: Eagon Hills & River Bend Estates Subdivision
Land Owner: County/Private
PIN: 0081 05 A, 0081 05 0019, 0083 17 0003, 0081 11 0001, 0083 16 0003, 0083 16 0004
Control Type: Quality/Quantity
Drainage Area: 61.68 acres
Receiving Waters: Clarks Branch

Description: Riverbend Esates and Dogwood Hills are in need of water quality treatment. Retrofit two dry ponds to enhanced extended detention dry ponds. Install rain garden around existing inlet. Daylight storm sewer and install vegetated swale with check dams.



Project Area Map

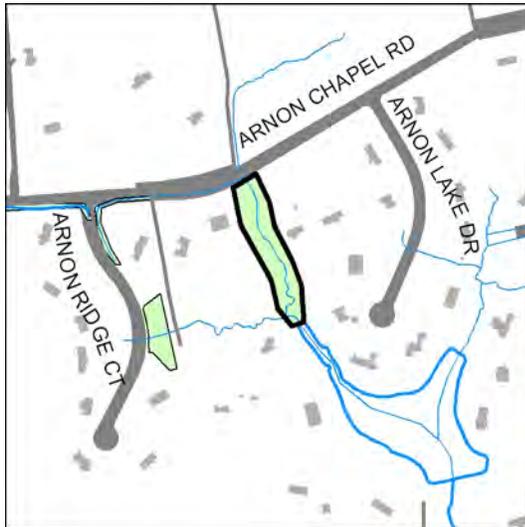
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. The new/improved outlet structures will allow for a more controlled stormwater discharge to enhance the performance of the ponds. The rain garden will also reduce stormwater runoff volumes by promoting infiltration. An estimated 2,832 lbs/yr of total suspended solids, 30 lbs/yr of nitrogen, and 6 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Existing pond 0086DP is located within a storm drainage easement; DP0892 is a privately-owned facility and will require a stormwater easement. Additional storm drainage easements will also be necessary for the rain garden and daylighting of the stream. Accessibility is good from Club View Drive or Lindsay Blake Lane. Access to 0892DP may be difficult due to tree cover. There are minimal tree impacts or significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	155	\$40.00	\$6,200.00
Plantings	AC	0.5	\$25,000.00	\$12,500.00
Clear and Grub	AC	0.5	\$8,500.00	\$4,250.00
Grading and Excavation	CY	2200	\$35.00	\$77,000.00
Embankment	CY	150	\$50.00	\$7,500.00
Outflow Pipe	LF	125	\$125.00	\$15,625.00
RipRap Stabilization	SY	40	\$100.00	\$4,000.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$152,075.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$7,603.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$15,207.50
Base Construction Costs				\$174,886.25
<i>Mobilization (5%)</i>				\$8,744.31
Subtotal 1				\$183,630.56
<i>Contingency (25%)</i>				\$45,907.64
Subtotal 2				\$229,538.20
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$103,292.19
Total Costs				\$332,830.39
Estimated Project Costs				\$340,000.00

PN9200 Stream Restoration



Address: 9697 Arnon Chapel Road
Location: Arnon Lake Subdivision
Land Owner: Private
PIN: 0083 10 0010, 0083 10 0011,
0083 10 0015, 0083 10 0018
Control Type Quality
Drainage Area 107.86 acres
Receiving Waters Mine Run Branch

Description: Stream is lengthening and eroding meanders. Re-construct stream channel to start meander below Arnon Chapel Road and lengthen stream more evenly to reduce potential for erosion at downstream tight meanders and sediment deposition in the downstream pond.



Project Area Map

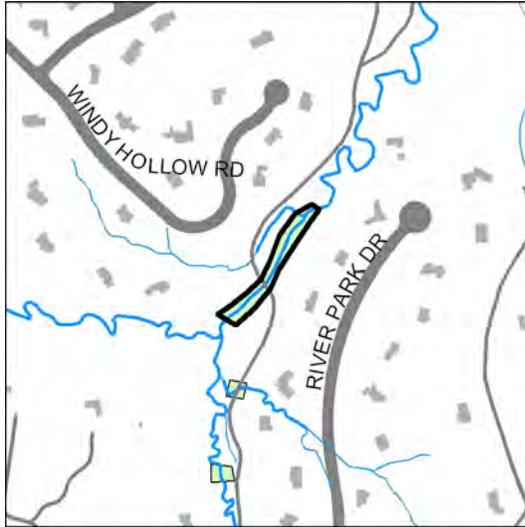
Project Benefits: This project will stabilize streambanks and improve water quality by reducing sediment and nutrient loadings. An estimated 5,960 lbs/yr of total suspended solids, 5 lbs/yr of nitrogen, and 2 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. Accessibility is excellent from Arnon Chapel Road. Tree impacts are expected. No significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
RipRap Stabilization	SY	120	\$100.00	\$12,000.00
Construct New Channel	LF	350	\$200.00	\$70,000.00
Additional Cost (first 500LF)	LF	350	\$200.00	\$70,000.00
Initial Project Costs				\$152,000.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$7,600.00
<i>Ancillary Items: 5% of project cost</i>				\$7,600.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$15,200.00
Base Construction Costs				\$182,400.00
<i>Mobilization (5%)</i>				\$9,120.00
Subtotal 1				\$191,520.00
<i>Contingency (25%)</i>				\$47,880.00
Subtotal 2				\$239,400.00
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$107,730.00
Total Costs				\$347,130.00
Estimated Project Costs				\$350,000.00

PN9201 Stream Restoration



Address: 174 River Park Drive
Location: Riverbend Knolls Subdivision
Land Owner: County/Private
PIN: 0043 09 0006, 0043 09 0007,
0043 09 0008, 0043 09 0009,
0043 10 0003, 0043 10 0004,
0043 10 0005
Control Type Quality
Drainage Area 644.7 acres
Receiving Waters Pond Branch

Description: High energy stormflows and obstructions have caused severe erosion and washed out a pedestrian bridge near River Park Drive. Replace bridge; stabilize banks; install step pools and instream structures to dissipate energy and direct energy away from banks.



Project Area Map

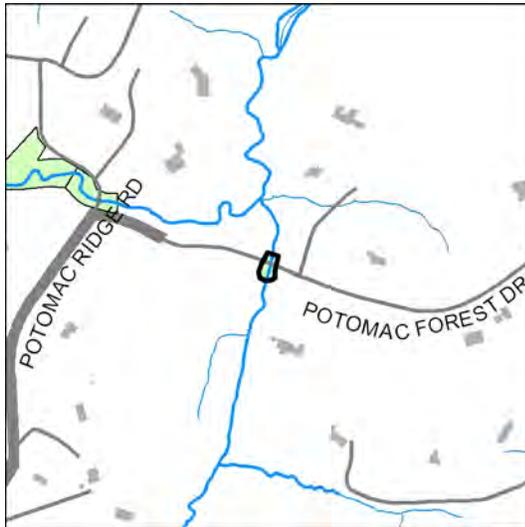
Project Benefits: Step pools will protect streambanks, reduce sediment and nutrient loadings, reduce stormwater peak flows, and provide for aquatic wildlife habitats. This project will also repair and stabilize streambanks. The washed out bridge will be replaced. An estimated 91,800 lbs/yr of total suspended solids, 73 lbs/yr of nitrogen, and 28 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. The majority of this project is located on a conservation easement with an ingress-egress easement crossing the site at the location of a washed out bridge. Bridge may be rebuilt for pedestrian/horse use only. Additional easements may be required in order to include the entire project area. Accessibility is excellent from River Park Drive. Existing trees are being actively impacted by receding streambanks, minimal additional tree impacts and no significant construction issues anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
RipRap Stabilization	SY	50	\$100.00	\$5,000.00
Construct New Channel	LF	100	\$200.00	\$20,000.00
Additional Cost (first 500LF)	LF	100	\$200.00	\$20,000.00
Change Channel Type - Step Pools	LF	550	\$40.00	\$22,000.00
Initial Project Costs				\$67,000.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$3,350.00
<i>Ancillary Items: 5% of project cost</i>				\$3,350.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$6,700.00
Base Construction Costs				\$80,400.00
<i>Mobilization (5%)</i>				\$4,020.00
Subtotal 1				\$84,420.00
<i>Contingency (25%)</i>				\$21,105.00
Subtotal 2				\$105,525.00
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$47,486.25
Total Costs				\$153,011.25
Estimated Project Costs				\$160,000.00

PN9400 Culvert Retrofit



Address:	9111 Potomac Forest Drive
Location:	Potomac Forest Subdivision
Land Owner:	County/Private
PIN:	0082 04 0011A
Control Type	Quality/Quantity
Drainage Area	318.7 acres
Receiving Waters	Clarks Branch

Description: Culvert at Potomac Forest Drive is clogging with debris and causing severe erosion downstream. Install micropool with control structure to reduce clogging upstream; install energy dissipation and stabilize stream banks downstream.



Project Area Map

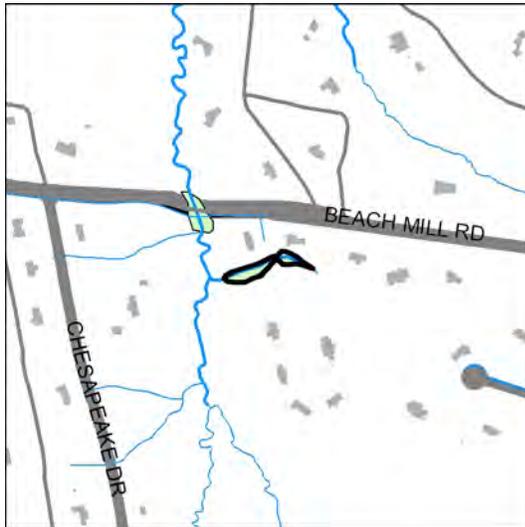
Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. Streambanks downstream of culvert will be stabilized. Energy dissipation will reduce stormwater velocities. An estimated 5,487 lbs/yr of total suspended solids, 65 lbs/yr of nitrogen, and 16 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. This project is located within the ingress-egress easement of Potomac Forest Drive. A storm drainage easement will be necessary. Accessibility is excellent from Potomac Forest Drive. Tree impacts are expected. No significant construction issues are anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	25	\$40.00	\$1,000.00
Plantings	AC	0.05	\$25,000.00	\$1,250.00
Clear and Grub	AC	0.05	\$8,500.00	\$425.00
Grading and Excavation	CY	550	\$35.00	\$19,250.00
Earthen Berm	CY	150	\$35.00	\$5,250.00
RipRap Stabilization	SY	50	\$100.00	\$5,000.00
Structural BMP and Incidentals (High)	LS	1	\$20,000.00	\$20,000.00
New Storm Pipe (High)	LF	0	\$300.00	\$0.00
Initial Project Costs				\$52,175.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$2,608.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$5,217.50
Base Construction Costs				\$60,001.25
<i>Mobilization (5%)</i>				\$3,000.06
Subtotal 1				\$63,001.31
<i>Contingency (25%)</i>				\$15,750.33
Subtotal 2				\$78,751.64
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$35,438.24
Total Costs				\$114,189.88
Estimated Project Costs				\$120,000.00

PN9408 Stream Restoration



Address: 9499 Beach Mill Road
Location: Fitz Folly Farms Subdivision & Riverside Manor Subdivision
Land Owner: Private
PIN: 0081 04 0050, 0081 04 0051, 0081 04 0052, 0081 10 0014
Control Type Quality/Quantity
Drainage Area 25.46 acres
Receiving Waters Clarks Branch

Description: Stream is eroded below a shared driveway culvert. Construct micropool above culvert; replace culvert and direct pipe toward new stream channel. Relocate stream channel below culvert away from steep bank; stabilize banks with boulder toe and live stakes.



Project Area Map

Project Benefits: This project will improve water quality by reducing sediment and nutrient loadings, reduce peak stormwater flows for storms up to the 10-year event, and provide for evapotranspiration and wildlife habitat. This project will also repair and stabilize streambanks. An estimated 7,088 lbs/yr of total suspended solids, 84 lbs/yr of nitrogen, and 20 lbs/yr of phosphorus will be removed.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. Projects in RPAs may require exceptions or waivers. Part of this project is located within an ingress egress easement. A storm drainage easement will be necessary. Accessibility is good from the ingress egress easement from Beach Mill Road, though it may be difficult due to tree cover. Tree impacts are expected. No significant construction issues are anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Vegetated Swale	SY	50	\$50.00	\$2,500.00
Organic Compost Soil Amendment	CY	90	\$40.00	\$3,600.00
Plantings	AC	0.35	\$25,000.00	\$8,750.00
Clear and Grub	AC	0.35	\$8,500.00	\$2,975.00
Grading and Excavation	CY	2300	\$35.00	\$80,500.00
Earthen Berm	CY	100	\$35.00	\$3,500.00
RipRap Stabilization	SY	250	\$100.00	\$25,000.00
Construct New Channel	LF	160	\$200.00	\$32,000.00
Additional Cost (first 500LF)	LF	160	\$200.00	\$32,000.00
Structural BMP and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
New Storm Pipe (Med)	LF	135	\$200.00	\$27,000.00
Initial Project Costs				\$232,825.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$11,641.25
<i>Erosion and Sediment Control: 10% of project costs</i>				\$23,282.50
Base Construction Costs				\$267,748.75
<i>Mobilization (5%)</i>				\$13,387.44
Subtotal 1				\$281,136.19
<i>Contingency (25%)</i>				\$70,284.05
Subtotal 2				\$351,420.23
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$158,139.11
Total Costs				\$509,559.34
Estimated Project Costs				\$510,000.00