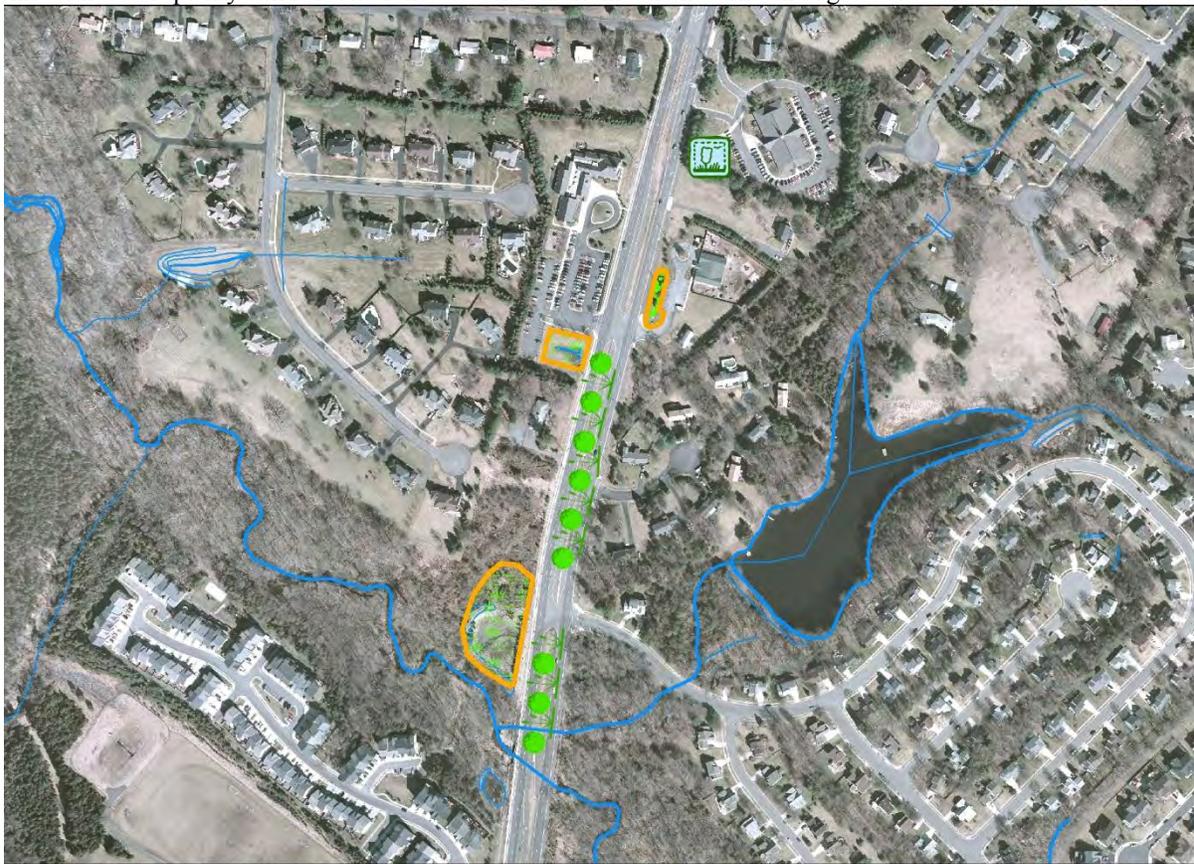


HC9121 Stormwater Pond Retrofit, BMP/LID



Address: 2800 Centreville Road
Location: Centreville Road & Lake Shore Drive
Land Owner: State/Park/Private
PIN: 0251-01-0027A, 0251-01-0034D, 0251-01-0035, 0251-01-0037
Control Type: Quality/Quantity
Drainage Area: 23 acres
Receiving Waters: Horsepen Run

Description: Three existing dry ponds (VDOT29068, DP0015, DP0015) provide only water quantity control. Improve basins with water quality controls and remove concrete trickle ditches. Install vegetated swales in road dividers.



 Retrofit to Enhanced ED Basin
 Rain Garden
 Vegetated Swale

Project Area Map

Project Benefits: By retrofitting these three dry detention basins, sediment and nutrient loadings will be reduced and water quality in downstream waterbodies will be improved. Additionally, peak stormwater flows for storms up to a 10-year event will be reduced, evapotranspiration will be increased and wildlife habitat will be created.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Projects in RPAs may require exceptions. There are two existing stormwater facilities on private land and one existing VDOT facility on County park land. The vegetated swales are located within the Centreville Road right-of-way. Storm drainage easements will be necessary. Accessibility is excellent from Centreville Road. No tree impacts or 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	925	\$50.00	\$46,250.00
Organic Compost Soil Amendment	CY	641	\$40.00	\$25,640.00
Plantings	AC	1.55	\$25,000.00	\$38,750.00
Clear and Grub	AC	0.33	\$8,500.00	\$2,805.00
Grading and Excavation	CY	2689	\$35.00	\$94,115.00
Embankment	CY	41	\$50.00	\$2,050.00
Outflow Pipe	LF	110	\$125.00	\$13,750.00
RipRap Stabilization	SY	30	\$100.00	\$3,000.00
Structural BMP Retrofit and Incidentals (Low)	LS	4	\$10,000.00	\$40,000.00
Initial Project Costs				\$266,360.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$13,318.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$26,636.00
Base Construction Costs				\$306,314.00
<i>Mobilization (5%)</i>				\$15,315.70
Subtotal 1				\$321,629.70
<i>Contingency (25%)</i>				\$80,407.43
Subtotal 2				\$402,037.13
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$180,916.71
Total Costs				\$582,953.83
Estimated Project Costs				\$590,000.00

HC9122 Stormwater Pond Retrofit



Address: 2711 Floris Lane
Location: Lake Shore Drive & Running Pump Lane
Land Owner: Private
PIN: 0251-04-0008B, 0251-04-0009A, 0251-06-B, 0253-08-C,
Control Type: Quality/Quantity
Drainage Area: 93 acres
Receiving Waters: Horsepen Run

Description: Retrofit existing non-stormwater pond (FM0014) to a stormwater wet pond. Draw down water level slightly to provide additional storage, install a proper outlet structure, vegetate banks and investigate and repair a seep in the dam.



 Retrofit to Wet Retention Pond

Project Area Map

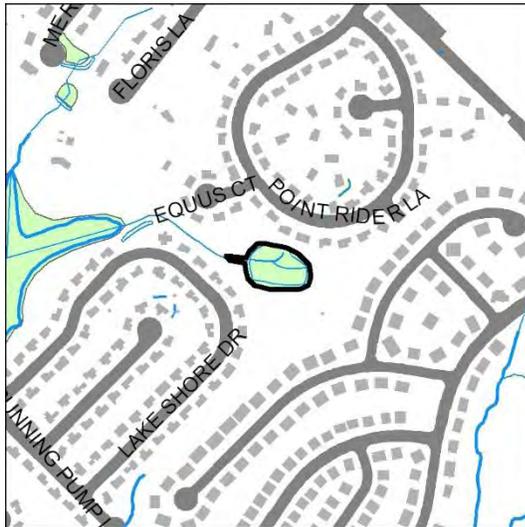
Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, increase storage volume, eliminate an existing seep in the dam of the pond, reduce peak stormwater flows for storms up to a 10-year event, and provide for evapotranspiration and wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a pond, wetland, or on a dam. Projects in RPAs may require exceptions. This is a privately owned pond. A storm drainage easement will be necessary. Accessibility is good from Lake Shore Drive. Tree impacts are anticipated. There are 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	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	100	\$35.00	\$3,500.00
Embankment	CY	20	\$50.00	\$1,000.00
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				\$29,400.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$1,470.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$2,940.00
Base Construction Costs				\$33,810.00
<i>Mobilization (5%)</i>				\$1,690.50
Subtotal 1				\$35,500.50
<i>Contingency (25%)</i>				\$8,875.13
Subtotal 2				\$44,375.63
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$19,969.03
Total Costs				\$64,344.66
Estimated Project Costs				\$70,000.00

HC9123 Stormwater Pond Retrofit



Address:	13348 Point Rider Lane
Location:	Near Point Rider Lane & Equus Court
Land Owner:	County
PIN:	0251-07-B
Control Type	Quality/Quantity
Drainage Area	25 acres
Receiving Waters	Horsepen Run

Description: Retrofit existing dry pond (0196DP) to an enhanced extended dry detention basin by removing a concrete trickle ditch, adding an outlet structure, restoring the downstream channel with vegetation and restoring access to the site.



Retrofit to Enhanced ED Basin

Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, reduce peak stormwater flows for storms up to a 10-year event, provide for evapotranspiration and wildlife habitat, and stabilize existing stream banks. Additionally, removing the concrete trickle ditch will help to slow stormwater velocities and promote infiltration.

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 located within a storm drainage easement on private land, the storm drainage easement may need to be enlarged. Accessibility is good from Point Rider Lane between two parcels. No tree impacts or 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	225	\$40.00	\$9,000.00
Plantings	AC	1.1	\$25,000.00	\$27,500.00
Grading and Excavation	CY	231	\$35.00	\$8,085.00
Embankment	CY	11	\$50.00	\$550.00
Outflow Pipe	LF	20	\$125.00	\$2,500.00
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				\$64,635.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$3,231.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$6,463.50
Base Construction Costs				\$74,330.25
<i>Mobilization (5%)</i>				\$3,716.51
Subtotal 1				\$78,046.76
<i>Contingency (25%)</i>				\$19,511.69
Subtotal 2				\$97,558.45
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$43,901.30
Total Costs				\$141,459.76
Estimated Project Costs				\$150,000.00

HC9126 Stormwater Pond Retrofit



Address: 13076 Monterey Estates Drive
Location: Monterey Estates Drive & West Ox Road
Land Owner: County
PIN: 0251-12-A
Control Type: Quality/Quantity
Drainage Area: 7 acres
Receiving Waters: Horsepen Run

Description: Existing dry pond (0562DP) provides only water quantity control. Improve basin to an enhanced extended dry detention basin, enlarge size for more capacity, install a forebay to catch sediment and install an outlet structure.



Retrofit to Enhanced ED Basin

Project Area Map

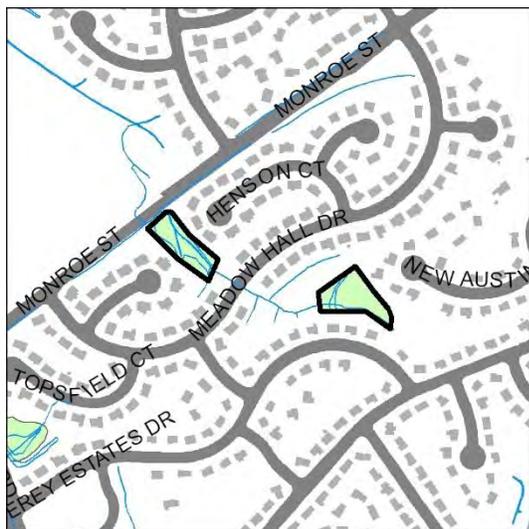
Project Benefits: This project will improve water quality by removing an estimated one ton/yr of total suspended solids, five lbs/yr of nitrogen, and one lb/yr of phosphorus. This project will also reduce peak stormwater flows for storms up to a 10 year event, provide for more storage volume, and provide for evapotranspiration and wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. This is an existing County facility located within a storm drainage easement on private land. Accessibility is excellent from West Ox Road. No tree impacts or 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	57	\$40.00	\$2,280.00
Plantings	AC	0.28	\$25,000.00	\$7,000.00
Clear and Grub	AC	0.05	\$8,500.00	\$425.00
Grading and Excavation	CY	1367	\$35.00	\$47,845.00
Embankment	CY	16	\$50.00	\$800.00
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				\$78,600.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$3,930.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$7,860.00
Base Construction Costs				\$90,390.00
<i>Mobilization (5%)</i>				\$4,519.50
Subtotal 1				\$94,909.50
<i>Contingency (25%)</i>				\$23,727.38
Subtotal 2				\$118,636.88
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$53,386.59
Total Costs				\$172,023.47
Estimated Project Costs				\$180,000.00

HC9127 Stormwater Pond Retrofit



Address: 2641 Meadow Hall Drive
Location: Near Meadow Hall Drive & New Carson Drive
Land Owner: County/Private
PIN: 0251-05-B, 0251-12-B
Control Type: Quality/Quantity
Drainage Area: 19 acres
Receiving Waters: Frying Pan Branch

Description: Existing dry ponds (0563DP and 0631DP) provide only water quantity control. Improve basins to enhanced extended dry detention basins with marsh areas including the removal of a concrete trickle ditch and the installation of proper outlet structures.



Retrofit to Enhanced ED Basin

Project Area Map

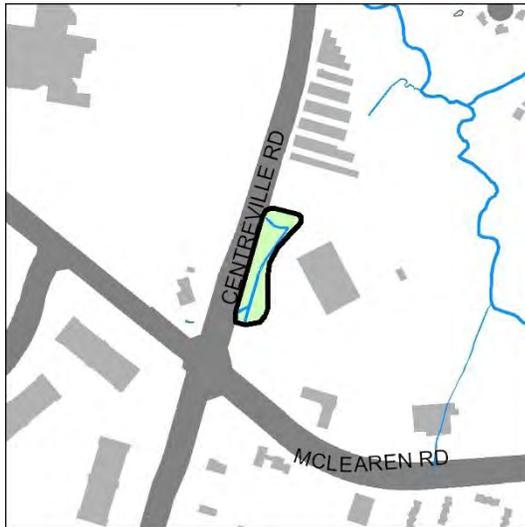
Project Benefits: This project will improve water quality by removing an estimated one ton/yr of total suspended solids, 25 lbs/yr of nitrogen, and four lbs/yr of phosphorus. This project will also reduce peak stormwater flows for storms up to a 10-year event and provide for evapotranspiration and wildlife habitat. By removing the concrete trickle ditches and naturalizing stream channels, stormwater velocities will be reduced.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. 0563DP is an existing County facility located within a storm drainage easement. A storm drainage easement will be necessary for 0631DP, which is located next to a Colonial Gas easement on private land. Accessibility to 0563DP is excellent from Meadow Hall Drive. Accessibility to 0631DP is excellent via the gas easement from either Monterey Estates Drive or New Austin Court. No tree impacts or 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	235	\$40.00	\$9,400.00
Plantings	AC	1.16	\$25,000.00	\$29,000.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	200	\$35.00	\$7,000.00
Embankment	CY	15	\$50.00	\$750.00
Outflow Pipe	LF	40	\$125.00	\$5,000.00
RipRap Stabilization	SY	22	\$100.00	\$2,200.00
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				\$79,200.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$3,960.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$7,920.00
Base Construction Costs				\$91,080.00
<i>Mobilization (5%)</i>				\$4,554.00
Subtotal 1				\$95,634.00
<i>Contingency (25%)</i>				\$23,908.50
Subtotal 2				\$119,542.50
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$53,794.13
Total Costs				\$173,336.63
Estimated Project Costs				\$180,000.00

HC9128 Stormwater Pond Retrofit



Address: 3001 Centreville Road
Location: Korean Orthodox Presbyterian Church, McLearen Road & Centreville Road
Land Owner: Private
PIN: 0253-01-0014
Control Type: Quality/Quantity
Drainage Area: 29 acres
Receiving Waters: Horsepen Run

Description: The Korean Orthodox Presbyterian dry pond (no StormNet ID) provides only water quantity control. Improve basin to an enhanced extended dry detention basin including the removal of a concrete trickle ditch and the addition of an outlet structure.



Retrofit to Enhanced ED Basin

Project Area Map

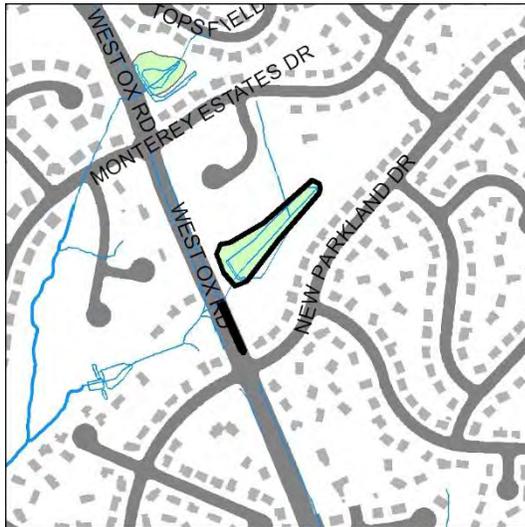
Project Benefits: This project will improve water quality by removing an estimated nine tons/yr of total suspended solids, 50 lbs/yr of nitrogen, and 10 lbs/yr of phosphorus. This project will also reduce peak stormwater flows for storms up to a 10-year event and provide for evapotranspiration and wildlife habitat. Stormwater velocities will be reduced by removing concrete trickle ditches and naturalizing channels.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. A storm drainage easement will be necessary. Accessibility is excellent from the Korean Orthodox Presbyterian driveway or Centreville Road. No tree impacts or 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	278	\$40.00	\$11,120.00
Plantings	AC	1.38	\$25,000.00	\$34,500.00
Clear and Grub	AC	0.05	\$8,500.00	\$425.00
Grading and Excavation	CY	3339	\$35.00	\$116,865.00
Embankment	CY	11	\$50.00	\$550.00
Outflow Pipe	LF	100	\$125.00	\$12,500.00
RipRap Stabilization	SY	11	\$100.00	\$1,100.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$192,060.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$9,603.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$19,206.00
Base Construction Costs				\$220,869.00
<i>Mobilization (5%)</i>				\$11,043.45
Subtotal 1				\$231,912.45
<i>Contingency (25%)</i>				\$57,978.11
Subtotal 2				\$289,890.56
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$130,450.75
Total Costs				\$420,341.32
Estimated Project Costs				\$430,000.00

HC9129 Stormwater Pond Retrofit, BMP/LID



Address:	13142 New Parkland Drive
Location:	West Ox Road & New Parkland Drive
Land Owner:	County/State
PIN:	0253-09-A
Control Type	Quality/Quantity
Drainage Area	40 acres
Receiving Waters	Horsepen Run

Description: Improve existing dry pond (0568DP) to an enhanced extended dry detention basin with marsh areas, install a natural low flow channel and retrofit outlet structure. Concrete swales will be removed/vegetated and educational signage will be installed.



 Retrofit to Enhanced ED Basin  Vegetated Swale

Project Area Map

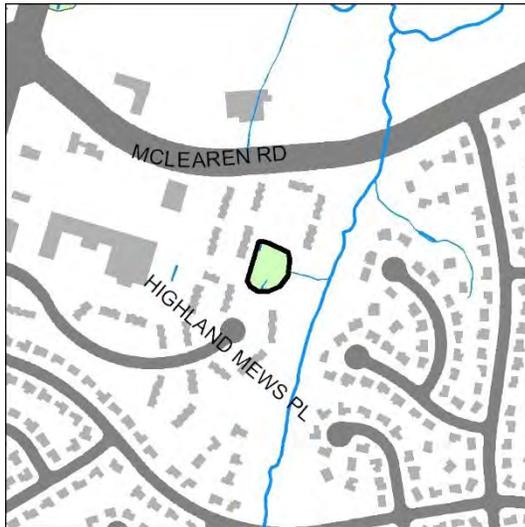
Project Benefits: This project will improve water quality by removing an estimated two tons/yr of total suspended solids, 38 lbs/yr of nitrogen, and eight lbs/yr of phosphorus. This project will also reduce peak stormwater flows for storms up to a 10-year event and provide for evapotranspiration and wildlife habitat. Removing the concrete trickle ditch will reduce stormwater velocities and naturalizing the ditches will improve wildlife habitat.

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 located within a storm drainage easement and adjacent to a Colonial Gas easement. Vegetated swales are located within the West Ox Road right-of-way and will require a storm drainage easement. Accessibility is excellent from West Ox Road, the Colonial Gas easement, or a storm drainage easement off of Cockerill Farm Lane. No tree impacts or 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	440	\$50.00	\$22,000.00
Organic Compost Soil Amendment	CY	300	\$40.00	\$12,000.00
Plantings	AC	1.49	\$25,000.00	\$37,250.00
Clear and Grub	AC	0.75	\$8,500.00	\$6,375.00
Grading and Excavation	CY	3600	\$35.00	\$126,000.00
Embankment	CY	15	\$50.00	\$750.00
Outflow Pipe	LF	20	\$125.00	\$2,500.00
RipRap Stabilization	SY	11	\$100.00	\$1,100.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$222,975.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$11,148.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$22,297.50
Base Construction Costs				\$256,421.25
<i>Mobilization (5%)</i>				\$12,821.06
Subtotal 1				\$269,242.31
<i>Contingency (25%)</i>				\$67,310.58
Subtotal 2				\$336,552.89
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$151,448.80
Total Costs				\$488,001.69
Estimated Project Costs				\$490,000.00

HC9132 Stormwater Pond Retrofit



Address: 3029 McMaster Court
Location: Highland Mews Subdivision,
Hutumn Court & Highland Mews
Court
Land Owner: Private
PIN: 0253-10-C1
Control Type: Quality/Quantity
Drainage Area: 23.3 acres
Receiving Waters: Horsepen Run

Description: Highland Mews existing dry pond (1055DP) provides only water quantity control. Improve basin to an enhanced extended dry detention basin, remove concrete trickle ditch, install an outlet structure and install riprap at outfalls for energy dissipation.



 Retrofit to Enhanced ED Basin

Project Area Map

Project Benefits: This project will improve water quality by reducing an estimated one ton/yr of total suspended solids, 25 lbs/yr of nitrogen, and four lbs/yr of phosphorus. This project will also reduce peak stormwater flows for storms up to a 10-year event and provide for evapotranspiration and wildlife habitat. Removing the concrete trickle ditch will reduce stormwater velocities and naturalizing the ditches will improve wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. This is an existing stormwater facility located on private land. A storm drainage easement will be necessary. Accessibility is excellent from Highland Mews Court. No tree impacts or 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	136	\$40.00	\$5,440.00
Plantings	AC	0.67	\$25,000.00	\$16,750.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	1633	\$35.00	\$57,155.00
Embankment	CY	8	\$50.00	\$400.00
Outflow Pipe	LF	20	\$125.00	\$2,500.00
RipRap Stabilization	SY	22	\$100.00	\$2,200.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$95,295.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$4,764.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$9,529.50
Base Construction Costs				\$109,589.25
<i>Mobilization (5%)</i>				\$5,479.46
Subtotal 1				\$115,068.71
<i>Contingency (25%)</i>				\$28,767.18
Subtotal 2				\$143,835.89
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$64,726.15
Total Costs				\$208,562.04
Estimated Project Costs				\$210,000.00

HC9133 Stormwater Pond Retrofit, BMP/LID, Stream Restoration



Address:	2914 Mother Well Court
Location:	Near Glen Taylor Lane & Mother Well Court
Land Owner:	Park/Private
PIN:	0253-04-P, 0253-09-R, 0253-04-N, 0253-04-R, 0253-04-Q, 0253-04-0710
Control Type	Quantity/Quality
Drainage Area	N/A
Receiving Waters	Cedar Run

Description: Retrofit existing dry pond (no StormNet ID) to enhanced extended dry detention basin including removal of paved ditch and intercepting additional upstream drainage. Improve channel downstream with energy dissipating structures and replace upstream paved ditches with vegetated swales.



Project Area Map

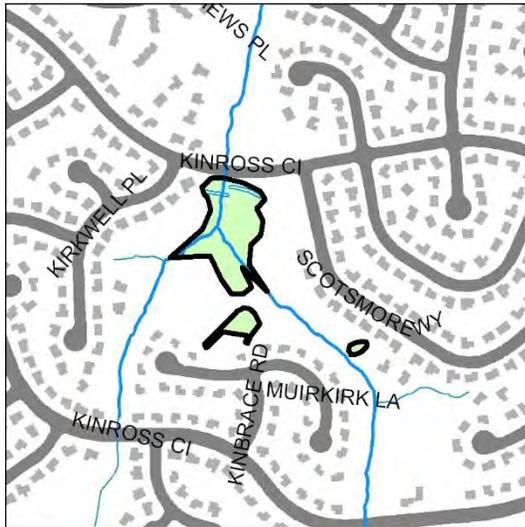
Project Benefits: This project will improve water quality by reducing an estimated two tons/yr of total suspended solids, 42 lbs/yr of nitrogen, and nine lbs/yr of phosphorus. This project will also reduce peak stormwater flows for storms up to a 10-year event and provide for evapotranspiration and wildlife habitat. Removing the concrete trickle ditch will reduce stormwater velocities and naturalizing the ditches will improve wildlife habitat. Installing energy dissipating structures will reduce downstream impacts.

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. The stormwater pond retrofit and vegetated swales are located on private lands within an AT&T easement, the downstream channel improvement is located within County park land. Storm drainage easements will be necessary. Accessibility is good from Mother Well Ct or the AT&T easement. 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>
Clear and Grub	AC	0.23	\$8,500.00	\$1,955.00
Grading and Excavation	CY	2150	\$35.00	\$75,250.00
Plantings	AC	0.43	\$25,000.00	\$10,750.00
Organic Compost Soil Amendment	CY	90	\$40.00	\$3,600.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Embankment	CY	15	\$50.00	\$750.00
Outflow Pipe	LF	100	\$125.00	\$12,500.00
RipRap Stabilization	SY	30	\$100.00	\$3,000.00
Vegetated Swale	SY	105	\$50.00	\$5,250.00
Change Channel Type – Step Pools	LF	300	\$40.00	\$12,000.00
Initial Project Costs				\$140,055.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$7,002.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$14,005.50
Base Construction Costs				\$161,063.25
<i>Mobilization (5%)</i>				\$8,053.16
Subtotal 1				\$169,116.41
<i>Contingency (25%)</i>				\$42,279.10
Subtotal 2				\$211,395.52
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$95,127.98
Total Costs				\$306,523.50
Estimated Project Costs				\$310,000.00

HC9134 Stormwater Pond Retrofit, BMP/LID



Address:	13377 Scotsmore Way
Location:	Kinross Circle & Scotsmore Way
Land Owner:	Private
PIN:	0351-02-G
Control Type	Quality/Quantity
Drainage Area	236 acres
Receiving Waters	Horsepen Run

Description: Chantilly Highlands community does not have existing stormwater controls. Improve regional pond H-19 (0747DP) by adding a box weir to detain water and naturalize. Install small forebays at each outfall and naturalize swales to a new bioretention basin.



Project Area Map

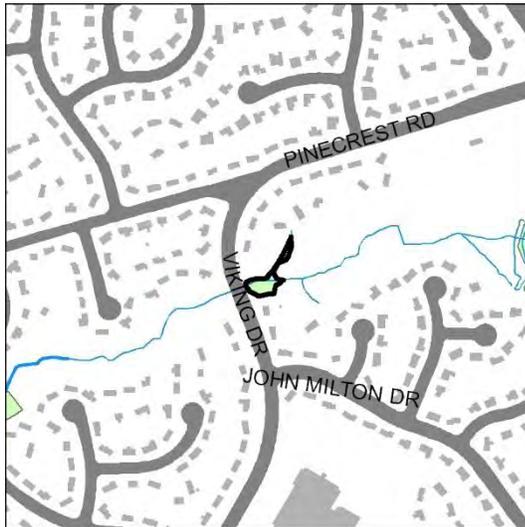
Project Benefits: This project will improve water quality by removing an estimated three tons/yr of total suspended solids, 161 lbs/yr of nitrogen, and 25 lbs/yr of phosphorus. This project will also reduce peak stormwater flows for storms up to a 10-year event, increase storage, and provide for evapotranspiration and wildlife habitat. Removing the concrete trickle ditch will reduce stormwater velocities and naturalizing the ditches will improve wildlife habitat. The new forebays will trap incoming sediments. The bioretention basin will reduce stormwater peak flows for small storm events, reduce stormwater runoff volumes by promoting infiltration and provide wildlife habitat.

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. 0747DP is an existing stormwater facility on private land. Storm drainage easements will be necessary. Accessibility is excellent for HC9134A&B from Kinross Circle or Muirkirk Lane. HC9134C access may be difficult, as it is surrounded by residential parcels and the stream. 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>
Bioretention Filters & Basin	SY	378	\$150.00	\$56,700.00
Organic Compost Soil Amendment	CY	275	\$40.00	\$11,000.00
Plantings	AC	1.03	\$25,000.00	\$25,750.00
Clear and Grub	AC	0.33	\$8,500.00	\$2,805.00
Grading and Excavation	CY	400	\$35.00	\$14,000.00
Embankment	CY	22	\$50.00	\$1,100.00
Outflow Pipe	LF	30	\$125.00	\$3,750.00
RipRap Stabilization	SY	20	\$100.00	\$2,000.00
Structural BMP Retrofit and Incidentals (High)	LS	1	\$20,000.00	\$20,000.00
Initial Project Costs				\$137,105.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$6,855.25
<i>Erosion and Sediment Control: 10% of project costs</i>				\$13,710.50
Base Construction Costs				\$157,670.75
<i>Mobilization (5%)</i>				\$7,883.54
Subtotal 1				\$165,554.29
<i>Contingency (25%)</i>				\$41,388.57
Subtotal 2				\$206,942.86
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$93,124.29
Total Costs				\$300,067.15
Estimated Project Costs				\$310,000.00

HC9136 Stormwater Pond Retrofit



Address:	2587 Viking Drive
Location:	Near Viking Drive & Pinecrest Road
Land Owner:	Private
PIN:	0252-06-H
Control Type	Quality/Quantity
Drainage Area	176 acres
Receiving Waters	Horsepen Run

Description: Fox Mill Estates' existing dry pond provides only water quantity control. Improve basin to a constructed wetland. Enlarge basin, install a low v-notch weir as an outlet structure, install a fence and educational signage.



New Constructed Wetland

Project Area Map

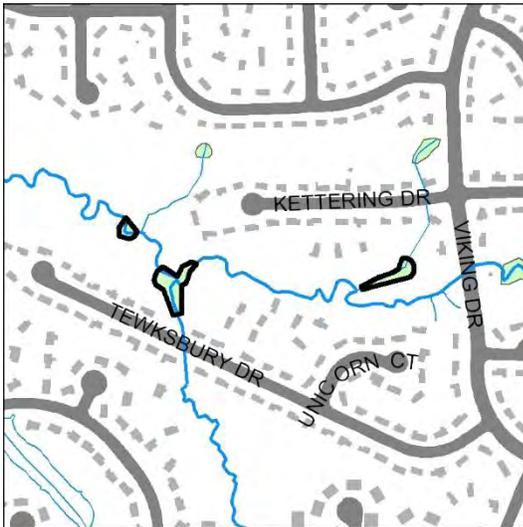
Project Benefits: This project will improve water quality by removing an estimated 38 lbs/yr of nitrogen and six lbs/yr of phosphorus. The constructed wetland will reduce stormwater peak flows and provide for evaporation, evapotranspiration and wildlife habitat. The educational signage will explain how the constructed wetland works to improve water quality and manage stormwater.

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 on private land and will require a storm drainage easement. Accessibility is excellent from Viking Drive. No tree impacts or significant construction issues are anticipated.

Costs:

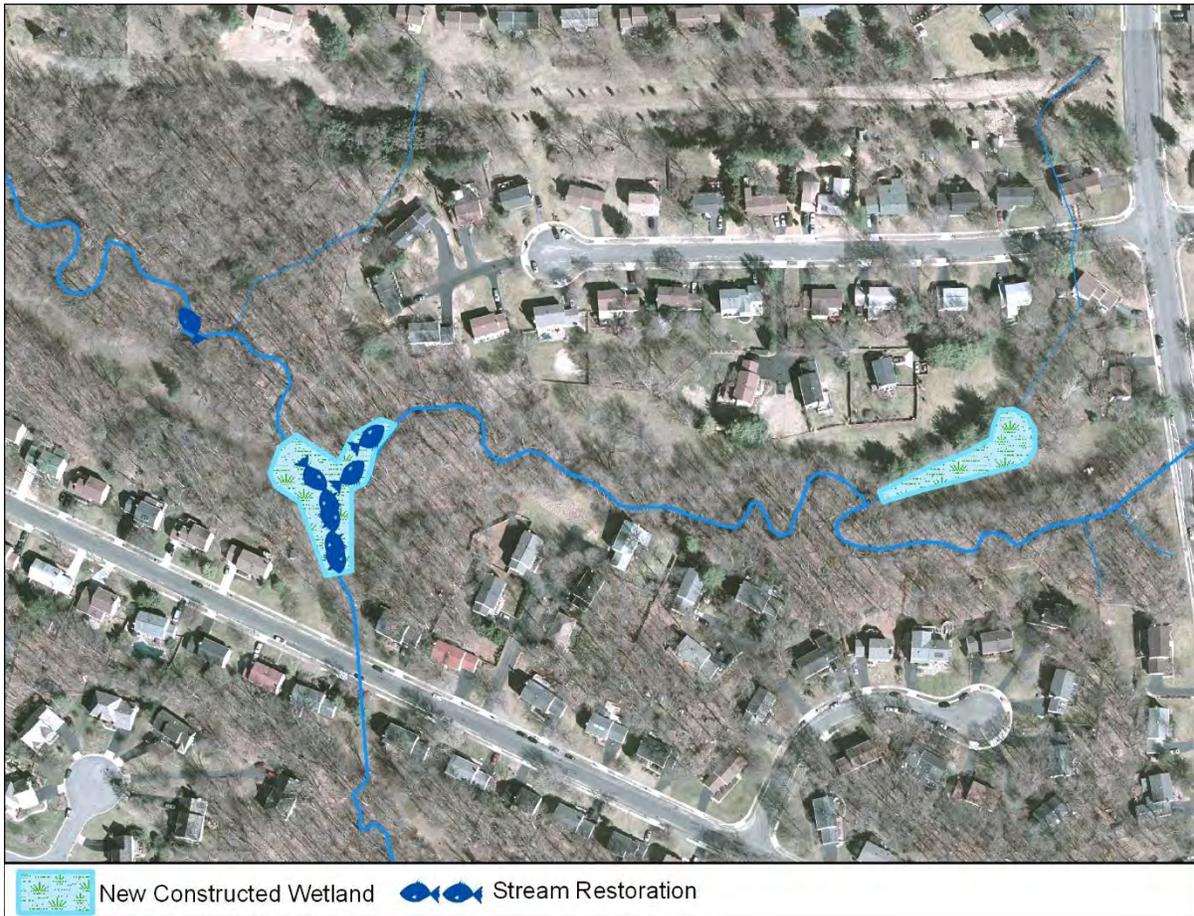
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	86	\$40.00	\$3,440.00
Plantings	AC	0.21	\$25,000.00	\$5,250.00
Clear and Grub	AC	0.21	\$8,500.00	\$1,785.00
Grading and Excavation	CY	1033	\$35.00	\$36,155.00
Embankment	CY	11	\$50.00	\$550.00
Outflow Pipe	LF	20	\$125.00	\$2,500.00
RipRap Stabilization	SY	11	\$100.00	\$1,100.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$65,780.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$3,289.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$6,578.00
Base Construction Costs				\$75,647.00
<i>Mobilization (5%)</i>				<i>\$3,782.35</i>
Subtotal 1				\$79,429.35
<i>Contingency (25%)</i>				<i>\$19,857.34</i>
Subtotal 2				\$99,286.69
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				<i>\$44,679.01</i>
Total Costs				\$143,965.70
Estimated Project Costs				\$150,000.00

HC9137 Stream Restoration, New Stormwater Pond



Address: 12846 Tewksbury Drive
Location: Between Tewksbury Drive & Kettering Drive
Land Owner: Private
PIN: 0254-02-A, 0254-02-C
Control Type: Quality
Drainage Area: 433 acres
Receiving Waters: Horsepen Run

Description: Fox Mill Estates does not have existing stormwater controls. Install three constructed wetlands, redirect and meander channels, and restore streambank with grading, boulder toe and vegetation. Restore the riparian vegetated buffer.



Project Area Map

Project Benefits: This project will improve water quality by removing an estimated 28 tons/yr of total suspended solids, 76 lbs/yr of nitrogen, and 23 lbs/yr of phosphorus. The constructed wetlands will reduce stormwater peak flows, allow for evaporation and evapotranspiration, and provide for wildlife habitat. Streambank stabilization measures will eliminate a direct source of sediments. A restored riparian buffer will help to lower stream temperatures, provided for evapotranspiration and improve wildlife habitat.

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. Storm drainage easements will be necessary. Accessibility is good from Tewksbury Drive and Viking Drive, though not always close by. 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	193	\$40.00	\$7,720.00
Plantings	AC	0.77	\$25,000.00	\$19,250.00
Grading and Excavation	CY	1148	\$35.00	\$40,180.00
RipRap Stabilization	SY	10	\$100.00	\$1,000.00
Construct New Channel	LF	300	\$200.00	\$60,000.00
Additional Cost (first 500LF)	LF	300	\$200.00	\$60,000.00
Clear and Grub (Stream)	AC	0.77	\$10,000.00	\$7,700.00
Initial Project Costs				\$195,850.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$9,792.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$19,585.00
Base Construction Costs				\$225,227.50
<i>Mobilization (5%)</i>				\$11,261.38
Subtotal 1				\$236,488.88
<i>Contingency (25%)</i>				\$59,122.22
Subtotal 2				\$295,611.09
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$133,024.99
Total Costs				\$428,636.09
Estimated Project Costs				\$430,000.00

HC9140 Stormwater Pond Retrofit



Address:	2558 Huntington Drive
Location:	Huntington Drive cul-de-sac
Land Owner:	Private
PIN:	0252-10-G
Control Type	Quality/Quantity
Drainage Area	104 acres
Receiving Waters	Horsepen Run

Description: Fox Mill Estates' existing dry pond (0243DP) provides only water quantity control. Improve basin to an enhanced extended dry detention basin, install outlet structure, raise the emergency spillway and naturalize the basin.



Retrofit to Enhanced ED Basin

Project Area Map

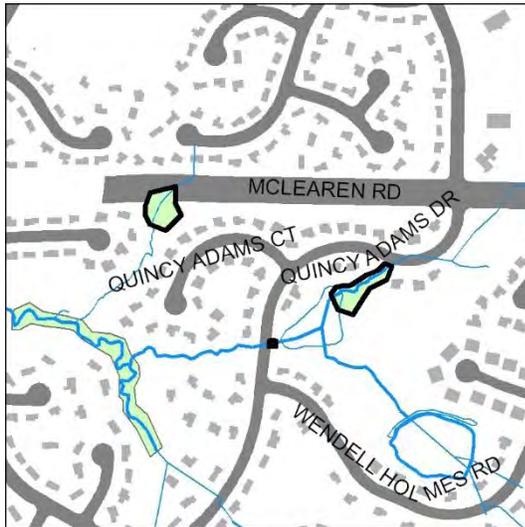
Project Benefits: This project will improve water quality by removing an estimated 52 lbs/yr of nitrogen and seven lbs/yr of phosphorus. This project will also reduce peak stormwater flows for storms up to a 10-year event and provide for evapotranspiration and wildlife habitat.

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 on private land a storm drainage easement will be necessary. Accessibility is excellent from Huntington Drive. No tree impacts or 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	218	\$40.00	\$8,720.00
Plantings	AC	1.08	\$25,000.00	\$27,000.00
Clear and Grub	AC	0.05	\$8,500.00	\$425.00
Grading and Excavation	CY	2622	\$35.00	\$91,770.00
Embankment	CY	44	\$50.00	\$2,200.00
Outflow Pipe	LF	80	\$125.00	\$10,000.00
RipRap Stabilization	SY	50	\$100.00	\$5,000.00
Structural BMP Retrofit and Incidentals (High)	LS	1	\$20,000.00	\$20,000.00
			Initial Project Costs	\$165,115.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$8,255.75
<i>Erosion and Sediment Control: 10% of project costs</i>				\$16,511.50
			Base Construction Costs	\$189,882.25
			<i>Mobilization (5%)</i>	\$9,494.11
			Subtotal 1	\$199,376.36
			<i>Contingency (25%)</i>	\$49,844.09
			Subtotal 2	\$249,220.45
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$112,149.20
			Total Costs	\$361,369.66
			Estimated Project Costs	\$370,000.00

HC9142 Stormwater Pond Retrofit, New Stormwater Pond



Address: 2627 Quincy Adams Drive
Location: Quincy Adams Drive & Quincy Adams Court
Land Owner: Private
PIN: 0254-08-A, 0254-08-B
Control Type: Quality/Quantity
Drainage Area: 110 acres
Receiving Waters: Horsepen Run

Description: Existing dry pond (0176DP) provides only water quantity control and upper edge of pond is eroding. Install forebay in eroded area and retrofit outlet structure, without disturbing existing pond bottom with high quality wetland vegetation. Install constructed wetland near Kettering Drive and install riprap in channel below outfall.



 Retrofit to Enhanced ED Basin  New Constructed Wetland

Project Area Map

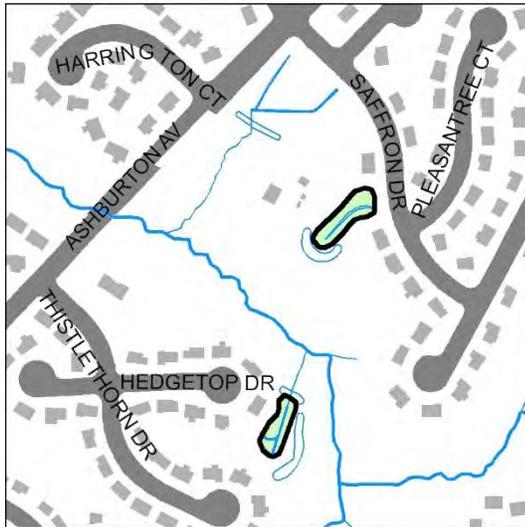
Project Benefits: This project will improve water quality by removing an estimated 16 tons/yr of total suspended solids, 58 lbs/yr of nitrogen, and 15 lbs/yr of phosphorus. This project will also reduce stormwater peak flows and provide for evapotranspiration and wildlife habitat.

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. 0176DP is an existing stormwater facility on private land. Storm drainage easements will be necessary. Accessibility to pond retrofit is excellent from Quincy Adams Drive or the Transco Gas easement. Accessibility to constructed wetland, which is partially located on a right-of-way, may be difficult as it is mostly surrounded by residential properties; nearest access is right-of-way from Quincy Adams Drive or Viking 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	201	\$40.00	\$8,040.00
Plantings	AC	0.74	\$25,000.00	\$18,500.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	300	\$35.00	\$10,500.00
Embankment	CY	22	\$50.00	\$1,100.00
Outflow Pipe	LF	30	\$125.00	\$3,750.00
RipRap Stabilization	SY	15	\$100.00	\$1,500.00
Construct New Channel	LF	100	\$200.00	\$20,000.00
Additional Cost (first 500LF)	LF	100	\$200.00	\$20,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	\$15,000.00	\$15,000.00
Initial Project Costs				\$99,240.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$4,962.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$9,924.00
Base Construction Costs				\$114,126.00
<i>Mobilization (5%)</i>				\$5,706.30
Subtotal 1				\$119,832.30
<i>Contingency (25%)</i>				\$29,958.08
Subtotal 2				\$149,790.38
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$67,405.67
Total Costs				\$217,196.04
Estimated Project Costs				\$220,000.00

HC9143 Stormwater Pond Retrofit



Address: 12901 Hedgetop Drive
Location: Off of Ashburton Avenue, near Thistlethorn Drive & Saffron Drive
Land Owner: County
PIN: 0352-14-A, 0352-14-A1
Control Type: Quantity/Quality
Drainage Area: 29.6
Receiving Waters: Cedar Run

Description: Existing dry ponds 1001DP and 1116DP provide only water quantity control. Retrofit basins to enhanced extended detention basins to improve quality and quantity treatment. Remove concrete channels, raise outlet structure, and repair erosion at outfalls.



Project Area Map

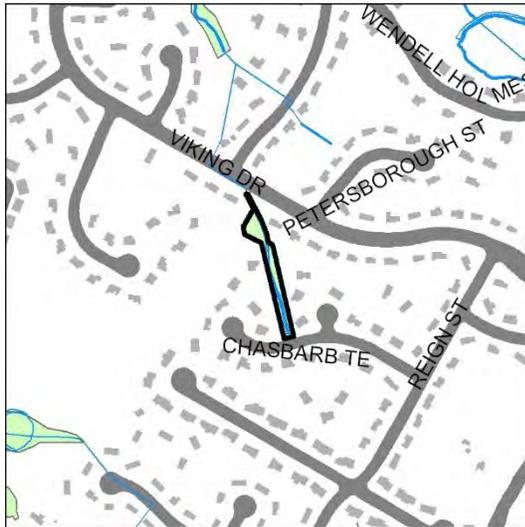
Project Benefits: This project will improve water quality by removing an estimated three tons/yr of total suspended solids, 55 lbs/yr of nitrogen, and 10 lbs/yr of phosphorus. This project will also reduce stormwater peak flows and provide for evapotranspiration and wildlife habitat.

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. 1001DP and 1116DP are existing County facilities located in storm drainage easements on private land. Accessibility to 1001DP is excellent from Saffron Drive. Accessibility to 1116DP is good from Hedgetop Drive. No tree impacts or significant construction issues are anticipated.

Costs:

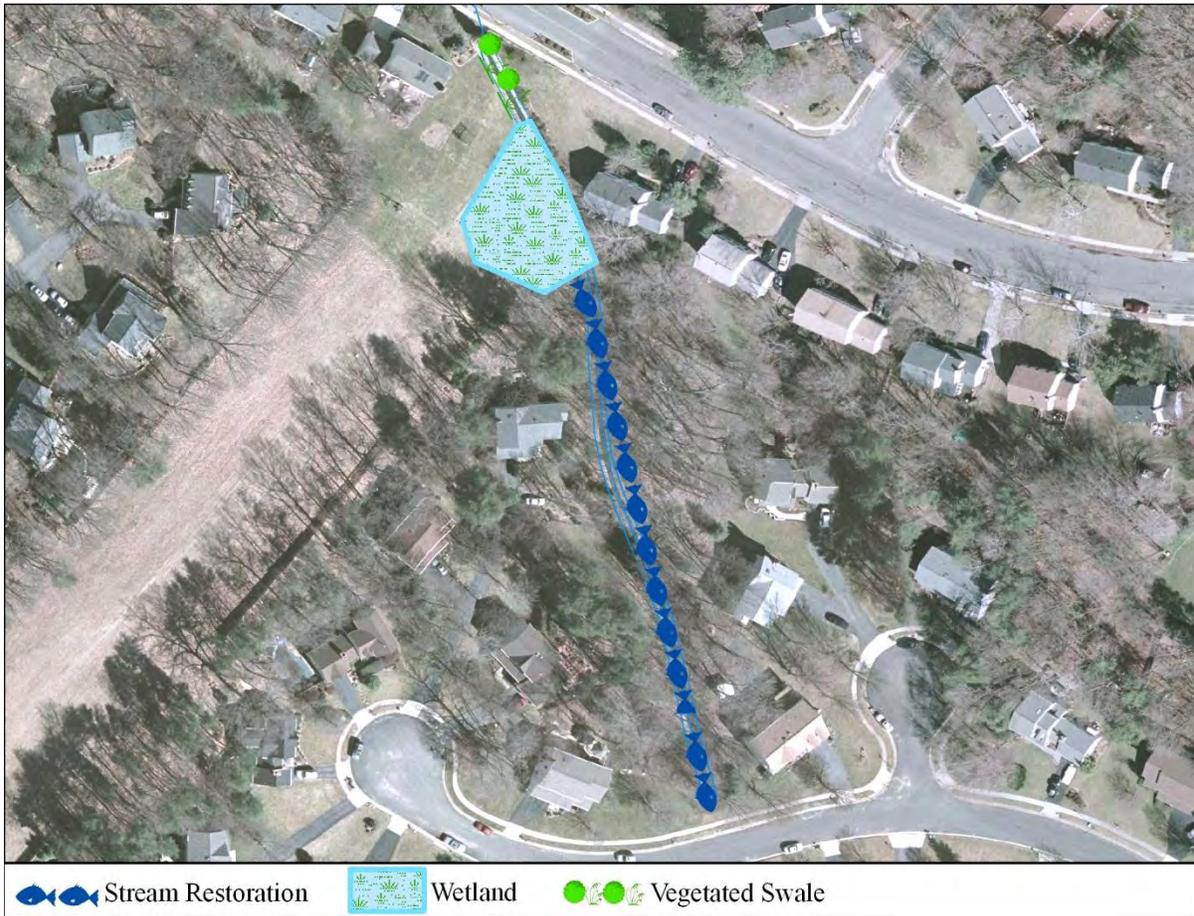
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	100	\$40.00	\$4,000.00
Plantings	AC	0.50	\$25,000.00	\$12,500.00
Grading and Excavation	CY	2500	\$35.00	\$87,500.00
Clear and Grub	AC	0.20	\$8,500.00	\$1,700.00
Embankment	CY	25	\$50.00	\$1,250.00
Structural BMP and Incidentals (Low)	LS	2	\$10,000.00	\$20,000.00
RipRap Stabilization	SY	35	\$100.00	\$3,500.00
Outflow Pipe	LF	60	\$125.00	\$7,500.00
			Initial Project Costs	\$137,950.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$6,897.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$13,795.00
			Base Construction Costs	\$158,642.50
			<i>Mobilization (5%)</i>	\$7,932.13
			Subtotal 1	\$166,574.63
			<i>Contingency (25%)</i>	\$41,643.66
			Subtotal 2	\$208,218.28
			<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>	\$93,698.23
			Total Costs	\$301,916.51
			Estimated Project Costs	\$310,000.00

HC9149 New Stormwater Pond



Address: 2824 Chasbarb Court
Location: Chasbarb Terrace & Chasbarb Court
Land Owner: Private
PIN: 0254-02-0037, 0254-11-K
Control Type: Quality
Drainage Area: 45 acres
Receiving Waters: Horsepen Run

Description: Remove existing concrete channel between Chasbarb Terrace and Viking Drive and vegetate. Install check dams in the channel for energy dissipation and install a constructed wetland in the lower portion of the channel.



Project Area Map

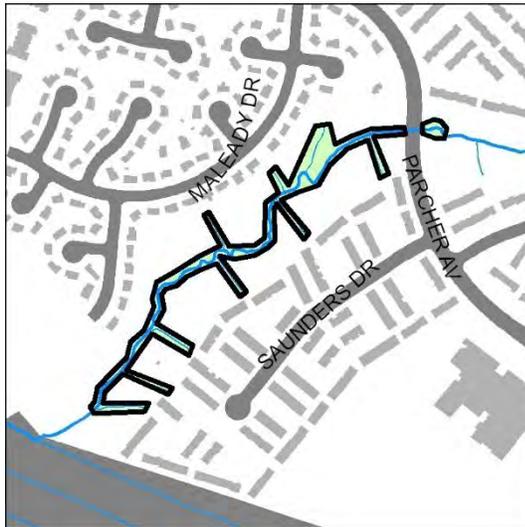
Project Benefits: This project will improve water quality by removing an estimated 17 tons/yr of total suspended solids, 46 lbs/yr of nitrogen, and 14 lbs/yr of phosphorus. This project will also reduce stormwater peak flows, promote infiltration, and provide for evapotranspiration and wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Additional permitting may be required for a project within a stream or wetland. This project is located partially in a Transco Gas easement and on private property. A storm drainage easement will be necessary. Accessibility is excellent from Viking Drive and Chasbarb Terrace. 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	143	\$40.00	\$5,720.00
Plantings	AC	0.71	\$25,000.00	\$17,750.00
Grading and Excavation	CY	241	\$35.00	\$8,435.00
Construct New Channel	LF	220	\$200.00	\$44,000.00
Additional Cost (first 500LF)	LF	220	\$200.00	\$44,000.00
Clear and Grub (Stream)	AC	0.1	\$10,000.00	\$1,000.00
Initial Project Costs				\$120,905.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$6,045.25
<i>Erosion and Sediment Control: 10% of project costs</i>				\$12,090.50
Base Construction Costs				\$139,040.75
<i>Mobilization (5%)</i>				\$6,952.04
Subtotal 1				\$145,992.79
<i>Contingency (25%)</i>				\$36,498.20
Subtotal 2				\$182,490.98
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$82,120.94
Total Costs				\$264,611.93
Estimated Project Costs				\$270,000.00

HC9200 Stream Restoration, Culvert Retrofit



Address: 13351 Parcher Avenue
Location: Near Parcher Avenue & Monaghan Drive, next to the Reflection Lake pool
Land Owner: Private
PIN: 0161-08-C, 0161-08-G, 0161-08-H, 0161-13-K, 0161-14-N
Control Type: Quality
Drainage Area: 265 acres
Receiving Waters: Horsepen Run

Description: Horsepen Creek streambanks are eroded and incised in a park-like area below Parcher Avenue. Retrofit culvert with micro pool above Parcher Ave. and install small basin below athletic court to control stormwater flows. Re-grade and stabilize stream banks, vegetate stone drainage channels and install check dams, restore buffer and install educational signage.



Project Area Map

Project Benefits: This new pond will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, reduce peak stormwater flows for storms up to a 10-year event, and provide for evapotranspiration and wildlife habitat. Stabilizing streambanks will reduce sediment loading and improve wildlife habitat. Restoring the riparian buffer will help to slow down stormwater velocities, improve water quality, reduce stream temperatures and improve wildlife habitat. Installing check dams will reduce stormwater peak flows, improve water quality and promote infiltration.

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. WP0219 is an existing stormwater facility located on private land. Storm drainage easements will be necessary. Accessibility is good from Parcher Avenue, Maleady Drive, Farougi Court, Apgar Place, and nearby parking lots (though not always close by). 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	240	\$40.00	\$9,600.00
Plantings	AC	1.35	\$25,000.00	\$33,750.00
Clear and Grub	AC	0.16	\$8,500.00	\$1,360.00
Grading and Excavation	CY	978	\$35.00	\$34,230.00
Earthen Berm	CY	50	\$35.00	\$1,750.00
Construct New Channel	LF	1975	\$200.00	\$395,000.00
Clear and Grub (Stream)	AC	0.91	\$10,000.00	\$9,100.00
Initial Project Costs				\$484,790.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$24,239.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$48,479.00
Base Construction Costs				\$557,508.50
<i>Mobilization (5%)</i>				\$27,875.43
Subtotal 1				\$585,383.93
<i>Contingency (25%)</i>				\$146,345.98
Subtotal 2				\$731,729.91
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$329,278.46
Total Costs				\$1,061,008.36
Estimated Project Costs				\$1,070,000.00

HC9201 Stream Restoration



Address: 2604 Claxton Drive
Location: Between Claxton Drive & Conquest Place culs-de-sac
Land Owner: Private
PIN: 0254-02-J
Control Type: Quality
Drainage Area: 267 acres
Receiving Waters: Horsepen Run

Description: The Fox Mill Estates community does not have existing stormwater controls. Regrade eroded streambanks and vegetate with floodplain vegetation. Restore channel with several rock vanes.



  Stream Restoration

Project Area Map

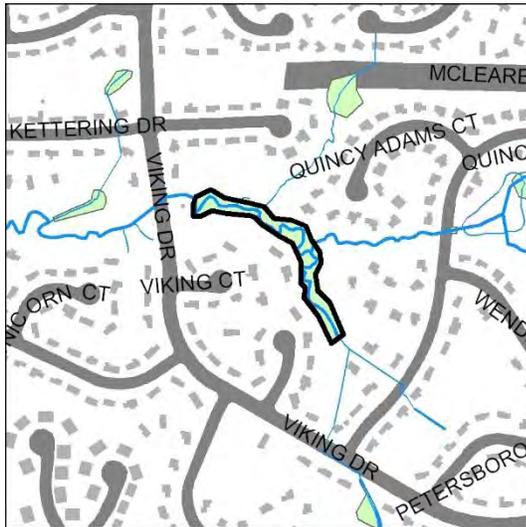
Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, stabilize streambanks, and improve both terrestrial and aquatic wildlife habitats.

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. Accessibility may be difficult, as the project is surrounded by residential properties. No tree impacts or significant construction issues are anticipated.

Costs:

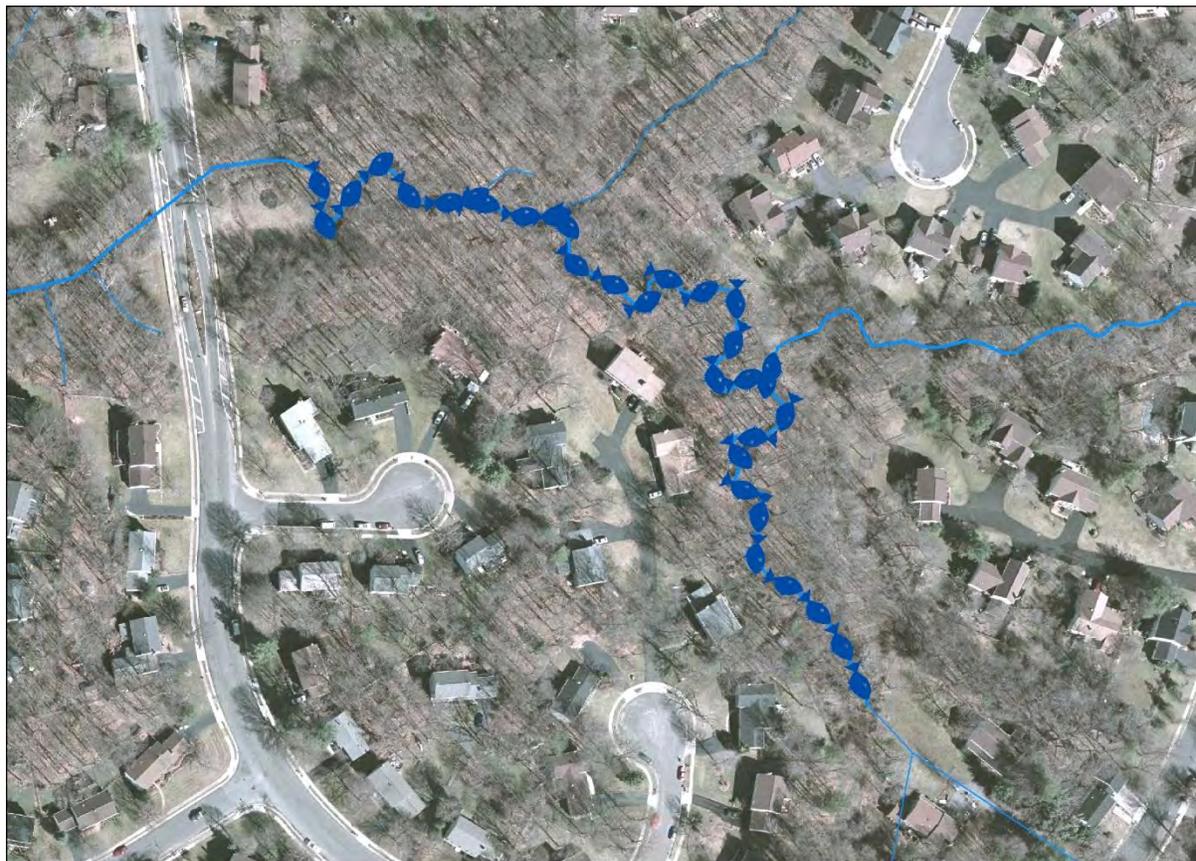
<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Organic Compost Soil Amendment	CY	125	\$40.00	\$5,000.00
Plantings	AC	0.63	\$25,000.00	\$15,750.00
Construct New Channel	LF	200	\$200.00	\$40,000.00
Additional Cost (first 500LF)	LF	200	\$200.00	\$40,000.00
Clear and Grub (Stream)	AC	0.1	\$10,000.00	\$1,000.00
			Initial Project Costs	\$101,750.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$5,087.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$10,175.00
			Base Construction Costs	\$117,012.50
			<i>Mobilization (5%)</i>	\$5,850.63
			Subtotal 1	\$122,863.13
			<i>Contingency (25%)</i>	\$30,715.78
			Subtotal 2	\$153,578.91
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$69,110.51
			Total Costs	\$222,689.41
			Estimated Project Costs	\$230,000.00

HC9202 Stream Restoration



Address: 2783 Prince Harold Court
Location: Between Quincy Adams Court,
Viking Court & Prince Harold
Court culs-de-sac
Land Owner: Private
PIN: 0254-02-B, 0254-08-A
Control Type Quality
Drainage Area 238 acres
Receiving Waters Horsepen Run

Description: This area has significant erosion. Regrade streambanks to connect to the floodplain and vegetate with floodplain vegetation. Install check dams to dissipate energy.



  Stream Restoration

Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality, stabilize stream banks and improve the floodplain.

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. Accessibility is good from Viking Drive and Prince Harold Court, though not always close by. 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	430	\$40.00	\$17,200.00
Plantings	AC	2.13	\$25,000.00	\$53,250.00
RipRap Stabilization	SY	100	\$100.00	\$10,000.00
Construct New Channel	LF	1160	\$200.00	\$232,000.00
Additional Cost (first 500LF)	LF	500	\$200.00	\$100,000.00
Clear and Grub (Stream)	AC	2.13	\$10,000.00	\$21,300.00
Initial Project Costs				\$433,750.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$21,687.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$43,375.00
Base Construction Costs				\$498,812.50
<i>Mobilization (5%)</i>				\$24,940.63
Subtotal 1				\$523,753.13
<i>Contingency (25%)</i>				\$130,938.28
Subtotal 2				\$654,691.41
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$294,611.13
Total Costs				\$949,302.54
Estimated Project Costs				\$950,000.00

HC9500 BMP/LID



Address: 13665 Stratford Glen Place
Location: Wellesley Subdivision, Stratford Glen Place
Land Owner: Private
PIN: 0154-03-C
Control Type: Quality
Drainage Area: 9 acres
Receiving Waters: Horsepen Run

Description: Install rain garden at the entrance of Sutters Mill Drive with curb cuts in the existing curbing. Regrade and vegetate existing basin bottom. Cut existing outlet pipe and fit with a raised yard drain outlet structure.



 Rain Garden

Project Area Map

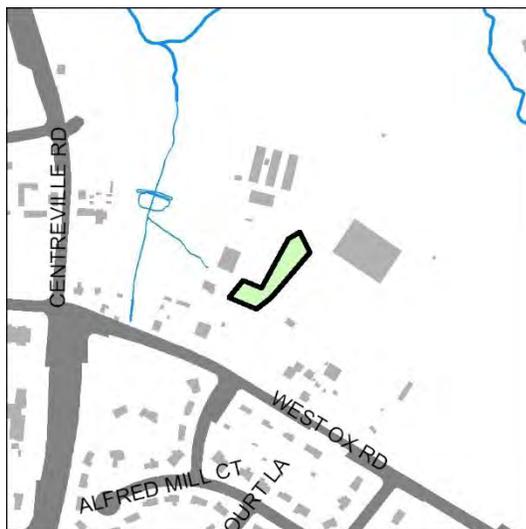
Project Benefits: This project will reduce stormwater peak flows for small storm events, reduce stormwater runoff volumes by promoting infiltration and evapotranspiration, and provide for wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. This project is partially located on a Dominion Electric easement and on private land. A storm drainage easement will be necessary. Accessibility is excellent from River Birch Road, Stratford Glen Place, Saint Johns Wood Place. No tree impacts or significant construction issues are anticipated.

Costs:

<i>Item</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total</i>
Bioretention Filters & Basin	SY	511	\$150.00	\$76,650.00
Organic Compost Soil Amendment	CY	142	\$40.00	\$5,680.00
Plantings	AC	0.25	\$25,000.00	\$6,250.00
Clear and Grub	AC	0.1	\$8,500.00	\$850.00
Grading and Excavation	CY	200	\$35.00	\$7,000.00
Embankment	CY	8	\$50.00	\$400.00
Outflow Pipe	LF	20	\$125.00	\$2,500.00
RipRap Stabilization	SY	11	\$100.00	\$1,100.00
Structural BMP Retrofit and Incidentals (Low)	LS	1	\$10,000.00	\$10,000.00
Initial Project Costs				\$110,430.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$5,521.50
<i>Erosion and Sediment Control: 10% of project costs</i>				\$11,043.00
Base Construction Costs				\$126,994.50
<i>Mobilization (5%)</i>				\$6,349.73
Subtotal 1				\$133,344.23
<i>Contingency (25%)</i>				\$33,336.06
Subtotal 2				\$166,680.28
<i>Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)</i>				\$75,006.13
Total Costs				\$241,686.41
Estimated Project Costs				\$250,000.00

HC9503 BMP/LID



Address: 2717 West Ox Road
Location: Frying Pan Park/Kidwell Farm
Land Owner: Park
PIN: 0251-01-0009
Control Type: Quality
Drainage Area: 9 acres
Receiving Waters: Frying Pan Branch

Description: Frying Pan Park/Kidwell Farm does not have existing stormwater controls. Install vegetated swale along east side of horse ring to intercept overland flow from parking lot and divert to new bioretention area south of horse ring. Install educational signage.



 Rain Garden  Vegetated Swale

Project Area Map

Project Benefits: This project will reduce stormwater peak flows, reduce sediment and nutrient loadings, improve water quality, promote infiltration, and provide for evapotranspiration and wildlife habitat. In addition, the new bioretention area will reduce stormwater peak flows for small storm events, reduce stormwater runoff volumes by promoting infiltration and evapotranspiration, and provide for wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. This project is located in a County park. A storm drainage easement will be necessary. Accessibility is excellent from the parking lot off of West Ox Road. No tree impacts or 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	478	\$50.00	\$23,900.00
Organic Compost Soil Amendment	CY	101	\$40.00	\$4,040.00
Plantings	AC	0.5	\$25,000.00	\$12,500.00
Initial Project Costs				\$40,440.00
<i>Plantings: 5% of project costs (unless incl. as line item)</i>				\$0.00
<i>Ancillary Items: 5% of project cost</i>				\$2,022.00
<i>Erosion and Sediment Control: 10% of project costs</i>				\$4,044.00
Base Construction Costs				\$46,506.00
<i>Mobilization (5%)</i>				\$2,325.30
Subtotal 1				\$48,831.30
<i>Contingency (25%)</i>				\$12,207.83
Subtotal 2				\$61,039.13
<i>Engineering Design, Surveys, Land Acquisition, Utility</i>				
<i>Relocation and Permits (45%)</i>				\$27,467.61
Total Costs				\$88,506.73
Estimated Project Costs				\$90,000.00