HC9007 Regional Pond Alternative Suite

Address:	(nearest) 2969 Mother Well Court
Location:	Between Ladybank Lane & Mother Well Court
Land Owner:	Park/Private
PIN:	0253-04-L, 0253-04-P, 0253-04-Q, 0351-02-E, 0351-02-K
Control Type	Quality/Quantity
Drainage Area	68 acres
Receiving Waters	Cedar Run

Description: HC-CR-0002 does not have any existing stormwater controls. Construct a new in-line enhanced extended detention basin (modified scope of RP H-07) and various energy dissipation and stream and habitat restoration projects throughout the subwatershed. Remove concrete channel (HC9007B) and improve drainage channels (HC9007B and HC9007C) with energy dissipation, minor regrading and buffer restoration. Construct rain garden (HC9907F) to intercept overland drainage along the gas easement. Larger projects are discussed below.

Project Area Map

Project Benefits: This project will improve water quality in downstream waterbodies by removing an estimated nine tons/yr of total suspended solids, 238 lbs/yr of nitrogen, and 33 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. Streambank stabilization projects will help to reduce erosion and will improve both terrestrial and aquatic habitats. Rain gardens will reduce stormwater peak flows for small storm events, reduce stormwater runoff volumes by promoting 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. Projects in RPAs may require exceptions. New extended detention basin and a stream and habitat restoration project are located on County park land. The remaining stream and habitat restoration and energy dissipation projects are located on private land. A new rain garden and a stream and habitat restoration project are located on an AT&T easement. Storm drainage easements will be necessary. Accessibility is good from Ladybank Lane, though not always close by. Tree impacts are expected. There are no significant construction issues anticipated.

Overall Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Bioretention Filters & Basin	SY	81	$150.00	$12,150.00
Organic Compost Soil Amendment	CY	473	$40.00	$18,920.00
Plantings	AC	3.1	$25,000.00	$77,500.00
Clear and Grub	AC	0.17	$8,500.00	$1,445.00
Grading and Excavation	CY	1726	$35.00	$60,410.00
Embankment	CY	25	$50.00	$1,250.00
RipRap Stabilization	SY	258	$100.00	$25,800.00
Construct New Channel	LF	390	$200.00	$78,000.00
Additional Cost (first 500LF)	LF	390	$200.00	$78,000.00
Structural BMP and Incidentals (Med)	LS	1	$15,000.00	$15,000.00
New Storm Pipe (Med)	LF	30	$200.00	$6,000.00
			Initial Project Costs	**$374,475.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$18,723.75
Erosion and Sediment Control: 10% of project costs				$37,447.50
			Base Construction Costs	**$430,646.25**
			Mobilization (5%)	$21,532.31
			Subtotal 1	**$452,178.56**
			Contingency (25%)	$113,044.64
			Subtotal 2	**$565,223.20**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$254,350.44
			Total Costs	**$819,573.64**
			Estimated Project Costs	***$820,000.00***

HC9007A

Description: A debris jam is located in the stream corridor with 4-5 foot eroded stream banks. The debris jam should be removed and eroded banks stabilized with boulder toes and sturdy vegetation.

Project Area Map

HC9007A Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Construct New Channel	LF	300	$200.00	$60,000.00
Additional Cost	LF	300	$200.00	$60,000.00
			Initial Project Costs	**$120,000.00**
Plantings: 5% of project costs (unless incl. as line item)				$6,000.00
Ancillary Items: 5% of project cost				$6,000.00
Erosion and Sediment Control: 10% of project costs				$12,000.00
			Base Construction Costs	**$144,000.00**
			Mobilization (5%)	$7,200.00
			Subtotal 1	**$151,200.00**
			Contingency (25%)	$37,800.00
			Subtotal 2	**$189,000.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$85,050.00
			Total Costs	**$274,050.00**
			Estimated Project Costs	***$275,000.00***

HC9007D

Description: Energy dissipation is needed below outfall where erosive flows are damaging the stream channel. Place riprap and rock below the outfall to dissipate the erosive flows, remove nuisance species and re-vegetate all damaged and eroded areas with quality riparian vegetation.

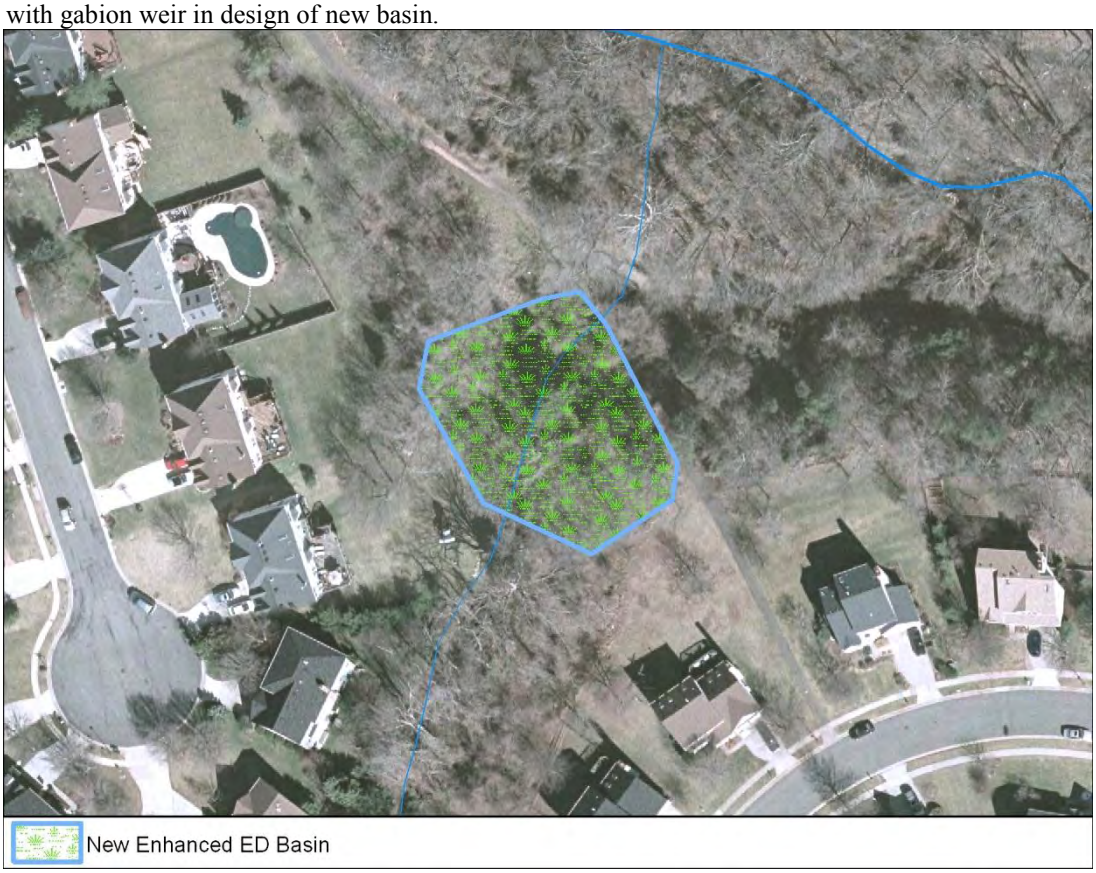
Project Area Map

HC9007D Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	400	$40.00	$16,000.00
Plantings	AC	2.77	$25,000.00	$69,250.00
RipRap Stabilization	SY	22	$100.00	$22,000.00
			Initial Project Costs	**$87,450.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$4,372.50
Erosion and Sediment Control: 10% of project costs				$8,745.00
			Base Construction Costs	**$100,567.50**
			Mobilization (5%)	$5,028.38
			Subtotal 1	**$105,595.88**
			Contingency (25%)	$26,398.97
			Subtotal 2	**$131,994.84**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$59,397.68
			Total Costs	**$191,392.52**
			Estimated Project Costs	***$192,000.00***

HC9007E

Description: Construct new in-line enhanced extended detention dry basin at proposed location of Regional Pond H-07 to address lack of stormwater management in subwatershed. Incorporate natural meandering stream channel and forebay with gabion weir in design of new basin.



Project Area Map

HC9007E Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	66	$40.00	$2,640.00
Plantings	AC	0.33	$25,000.00	$8,250.00
Clear and Grub	AC	0.17	$8,500.00	$1,445.00
Grading and Excavation	CY	1511	$35.00	$52,885.00
Embankment	CY	25	$50.00	$1,250.00
Structural BMP and Incidentals (Med)	LS	1	$15,000.00	$15,000.00
New Storm Pipe (Med)	LF	30	$200.00	$6,000.00
			Initial Project Costs	**$87,470.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$4,373.50
Erosion and Sediment Control: 10% of project costs				$8,747.00
			Base Construction Costs	**$100,590.50**
			Mobilization (5%)	$5,029.53
			Subtotal 1	**$105,620.03**
			Contingency (25%)	$26,405.01
			Subtotal 2	**$132,025.03**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$59,411.26
			Total Costs	**$191,436.30**
			Estimated Project Costs	***$192,000.00***

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HC9013 Regional Pond Alternative Suite

Address:	
Location:	Between Franklin Farm Road, West Ox Road & Ashburton Avenue
Land Owner:	County/Private
PIN:	0351-0411-D, 0352-05-B, 0352-0807-A, 0352-0811-B, 0352-0813-A, 0352-08-A, 0352-08-I, 0352-08-O1, 0352-14-A1, 0352-17-B, 0352-17-C
Control Type	Quality/Quantity
Drainage Area	291 acres
Receiving Waters	Cedar Run

Description: Subbasins HC-CR-0004 and 0005 have minimal stormwater controls. A combination of eighteen basin retrofits, wetlands, BMPs and outfall improvements will provide stormwater controls for more than two-thirds of the subbasins' 421 acres. Subprojects B and M include expanding existing natural wetlands. Suprojects I and N involve constructing new stormwater wetlands and SU9013J is the retrofit of an existing dry pond to an extended detention basin. The concrete swale at SU9013Q will be replaced with a vegetated swale and improved riparian buffer. These projects will provide improved stormwater controls, water quality and habitat. Larger projects are described below.

Project Area Map

Project Benefits: Through a combination of basin retrofits, wetlands, new BMPs and drainage improvements, this project will reduce sediment and nutrient loadings, improve water quality, reduce peak stormwater flows for storms up to a 10-year event, reduce stormwater runoff volumes, stabilize waterways, promote infiltration, and provide for evapotranspiration and wildlife habitat. The size of this project will also provide an educational opportunity for the community.

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. Two constructed wetland projects are located within existing storm drainage easements. All remaining sub-projects are located on private land and parts of the project are located in Transco gas easements. Additional storm drainage easements will be necessary. Accessibility is generally good, though some areas are surrounded by residential properties. Tree impacts are expected. There are no significant construction issues anticipated.

Overall Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Vegetated Swale	SY	150	$50.00	$7,500.00
Bioretention Filters & Basin	SY	440	$150.00	$66,000.00
Organic Compost Soil Amendment	CY	1045	$40.00	$41,800.00
Plantings	AC	3.39	$25,000.00	$84,750.00
Clear and Grub	AC	2.19	$8,500.00	$18,615.00
Grading and Excavation	CY	10973	$35.00	$384,055.00
Embankment	CY	35	$50.00	$1,750.00
Outflow Pipe	LF	90	$125.00	$11,250.00
RipRap Stabilization	SY	64	$100.00	$6,400.00
Construct New Channel	LF	1045	$200.00	$209,000.00
Additional Cost (first 500LF)	LF	500	$200.00	$100,000.00
Structural BMP Retrofit and Incidentals (Low)	LS	3	$10,000.00	$30,000.00
Structural BMP Retrofit and Incidentals (Med)	LS	1	$15,000.00	$15,000.00
			Initial Project Costs	**$976,120.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$48,806.00
Erosion and Sediment Control: 10% of project costs				$97,612.00
			Base Construction Costs	**$1,122,538.00**
			Mobilization (5%)	$56,126.90
			Subtotal 1	**$1,178,664.90**
			Contingency (25%)	$294,666.23
			Subtotal 2	**$1,473,331.13**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$662,999.01
			Total Costs	**$2,136,330.13**
			Estimated Project Costs	***$2,140,000.00***

HC9013A

Description: Install new rain garden around existing inlet

Project Area Map

HC9013A Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Bioretention Filters & Basin	SY	440	$150.00	$66,000.00
Organic Compost Soil Amendment	CY	35	$40.00	$1,400.00
			Initial Project Costs	**$67,400**
Plantings: 5% of project costs (unless incl. as line item)				$3,370.00
Ancillary Items: 5% of project cost				$3,370.00
Erosion and Sediment Control: 10% of project costs				$6,740.00
			Base Construction Costs	**$80,880.00**
			Mobilization (5%)	$4,044.00
			Subtotal 1	**$84,924.00**
			Contingency (25%)	$21,231.00
			Subtotal 2	**$106,155.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$47,769.75
			Total Costs	**$153,924.75**
			Estimated Project Costs	***$154,000.00***

HC9007C, HC9007E, HC9007O

Description: Remove concrete channels and restore natural stream channels. Create shallow marsh areas and new natural wetlands between channels and plant with wetland plantings.

Project Area Map

HC9013C, HC9013E, HC9013O Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	191	$40.00	$7,640.00.00
Plantings	AC	0.62	$25,000.00	$15,500.00
Grading and Excavation	CY	340	$35.00	$11,900.00
Earthen Berm	CY	24	$35.00	$840.00
RipRap Stabilization	SY	50	$100.00	$5,000.00
			Initial Project Costs	**$40,880**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$2,044.00
Erosion and Sediment Control: 10% of project costs				$4,088.00
			Base Construction Costs	**$47,012.00**
			Mobilization (5%)	$2,350.60
			Subtotal 1	**$49,362.60**
			Contingency (25%)	$12,340.65
			Subtotal 2	**$61,703.25**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$27,766.46
			Total Costs	**$89,469.71**
			Estimated Project Costs	***$90,000.00***

HC9013D & HC9013P

Description: Add rock to drainage channels for energy dissipation of erosive flows.

Project Area Map

HC9013D & HC9013P Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Construct New Channel	LF	460	$200.00	$92,000.00
Additional Cost (first 500LF)	LF	50	$200.00	$10,000.00
			Initial Project Costs	**$102,000.00**
Plantings: 5% of project costs (unless incl. as line item)				$5,100.00
Ancillary Items: 5% of project cost				$5,100.00
Erosion and Sediment Control: 10% of project costs				$10,200.00
			Base Construction Costs	**$122,400.00**
			Mobilization (5%)	$6,120.00
			Subtotal 1	**$128,520.00**
			Contingency (25%)	$32,130.00
			Subtotal 2	**$160,650.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$72,292.50
			Total Costs	**$232,942.50**
			Estimated Project Costs	***$233,000.00***

HC9013F

Description: Retrofit dry pond 0116DP to extended detention dry pond, install new outlet structure and allow basin to naturalize.

Project Area Map

HC9013F Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	70	$40.00	$2,800.00
Plantings	AC	0.18	$25,000.00	$4,500.00
Clear and Grub	AC	0.18	$8,500.00	$1,530.00
Grading and Excavation	CY	850	$35.00	$29,750.00
Embankment	CY	10	$50.00	$500.00
Outflow Pipe	LF	20	$125.00	$2,500.00
RipRap Stabilization	SY	15	$100.00	$1,500.00
Structural BMP Retrofit (Low)	LS	1	$10,000.00	$10,000.00
			Initial Project Costs	**$53,080.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$2,654.00
Erosion and Sediment Control: 10% of project costs				$5,308.00
			Base Construction Costs	**$61,042.00**
			Mobilization (5%)	$3,052.10
			Subtotal 1	**$64,094.10**
			Contingency (25%)	$16,023.53
			Subtotal 2	**$80,117.63**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$36,052.93
			Total Costs	**$116,170.56**
			Estimated Project Costs	***$117,000.00***

HC9013G

Description: Retrofit an existing non-stormwater wet pond to a stormwater wet pond. Draw down water level, install appropriate outlet structure and plant emergent vegetation

Project Area Map

HC9013G Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	160	$40.00	$6,400.00
Plantings	AC	0.49	$25,000.00	$12,250.00
Clear and Grub	AC	0.97	$8,500.00	$8,245.00
Grading and Excavation	CY	4700	$35.00	$164,500.00
Outflow Pipe	LF	20	$125.00	$2,500.00
Structural BMP Retrofit (Low)	LS	1	$10,000.00	$10,000.00
			Initial Project Costs	**$203,895.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$10,194.75
Erosion and Sediment Control: 10% of project costs				$20,389.50
			Base Construction Costs	**$234,479.25**
			Mobilization (5%)	$11,723.96
			Subtotal 1	**$246,203.21**
			Contingency (25%)	$61,550.80
			Subtotal 2	**$307,754.02**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$138,489.31
			Total Costs	**$446,243.32**
			Estimated Project Costs	***$447,000.00***

HC9013H & HC9013R

Description: Construct two new constructed wetlands and restore riparian buffers. Add rocks to channel for energy dissipation.

Project Area Map

HC9013H & HC9013R Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	25	$40.00	$1,000.00
Plantings	AC	0.12	$25,000.00	$3,000.00
Construct New Channel	LF	145	$200.00	$29,000.00
Additional Cost (first 500LF)	LF	100	$200.00	$20,000.00
			Initial Project Costs	**$53,000.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$2,650.00
Erosion and Sediment Control: 10% of project costs				$5,300.00
			Base Construction Costs	**$60,950.00**
			Mobilization (5%)	$3,047.50
			Subtotal 1	**$63,997.50**
			Contingency (25%)	$15,999.38
			Subtotal 2	**$79,996.88**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$35,998.59
			Total Costs	**$115,995.47**
			Estimated Project Costs	***$116,000.00***

HC9013K

Description: Retrofit existing non-stormwater wet pond to a stormwater wet pond. Draw down water level, install appropriate outlet structure and plant emergent vegetation along shorelines.

Project Area Map

HC9013K Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	360	$40.00	$14,400.00
Plantings	AC	0.99	$25,000.00	$24,750.00
Clear and Grub	AC	0.99	$8,500.00	$8,415.00
Grading and Excavation	CY	4768	$35.00	$166,880.00
Embankment	CY	15	$50.00	$750.00
Outflow Pipe	LF	30	$125.00	$3,750.00
RipRap Stabilization	SY	15	$100.00	$1,500.00
Structural BMP Retrofit (Med)	LS	1	$15,000.00	$15,000.00
			Initial Project Costs	**$235,445**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$11,772.25
Erosion and Sediment Control: 10% of project costs				$23,544.50
			Base Construction Costs	**$270,761.75**
			Mobilization (5%)	$13,538.09
			Subtotal 1	**$284,299.84**
			Contingency (25%)	$71,074.96
			Subtotal 2	**$355,374.80**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$159,918.66
			Total Costs	**$515,293.46**
			Estimated Project Costs	***$516,000.00***

HC9013L

Description: Install a new constructed wetland at pipe outfall; add rocks to channel and vegetation to banks.

Project Area Map

HC9013L Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	10	$40.00	$400.00
Plantings	AC	0.05	$25,000.00	$1,250.00
Construct New Channel	LF	125	$200.00	$25,000.00
Additional Cost (first 500LF)	LF	100	$200.00	$20,000.00
			Initial Project Costs	**$46,650.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$2,332.50
Erosion and Sediment Control: 10% of project costs				$4,665.00
			Base Construction Costs	**$53,647.50**
			Mobilization (5%)	$2,682.38
			Subtotal 1	**$56,329.88**
			Contingency (25%)	$14,082.47
			Subtotal 2	**$70,412.34**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$31,685.55
			Total Costs	**$102,097.90**
			Estimated Project Costs	***$103,000.00***

HC9102 New Stormwater Pond

Address:	13650 Legacy Circle
Location:	Legacy Circle & Sunrise Valley Drive
Land Owner:	Private
PIN:	0154-01-0022D3, 0154-01-0022E
Control Type	Quality/Quantity
Drainage Area	40 acres
Receiving Waters	Horsepen Run

Description: An existing swale with wetland vegetation is a prime location for a new enhanced extended detention dry pond with minimal grading required for low marsh areas and berm along tennis courts.

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, 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. The project is located on private land and a storm drainage easement will be necessary. Accessibility is excellent from Sunrise Valley Drive and adjacent parking lots. It is unlikely that this project will cause tree impacts. There are no significant construction issues anticipated.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
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	0.1	$8,500.00	$850.00
Grading and Excavation	CY	456	$35.00	$15,960.00
Earthen Berm	CY	59	$35.00	$2,065.00
Access Road	SY	100	$25.00	$2,500.00
Structural BMP and Incidentals (Med)	LS	1	$15,000.00	$15,000.00
New Storm Pipe (Med)	LF	100	$200.00	$20,000.00
			Initial Project Costs	**$65,655.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$3,282.75
Erosion and Sediment Control: 10% of project costs				$6,565.50
			Base Construction Costs	**$75,503.25**
			Mobilization (5%)	$3,775.16
			Subtotal 1	**$79,278.41**
			Contingency (25%)	$19,819.60
			Subtotal 2	**$99,098.02**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$44,594.11
			Total Costs	**$143,692.12**
			Estimated Project Costs	***$150,000.00***

HC9106 Stormwater Pond Retrofit

Address:	2554 Centreville Road
Location:	Frying Pan Road & Centreville Road
Land Owner:	State/County/Private
PIN:	0242-01-0008, 0251-01-0002A
Control Type	Quality/Quantity
Drainage Area	67 acres
Receiving Waters	Frying Pan Branch

Description: The current outlet structure for dry pond 1288DP is a large five foot culvert. The pond will be improved by adding a box weir to the culvert with a low flow orifice, regrading the bottom of the pond for more capacity and replanting with native vegetation.

Project Area Map

Project Benefits: This detention basin retrofit 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, and provide for evapotranspiration and wildlife habitat. This project will also increase the storage capacity of the existing pond, and the improved outlet structure will allow for a more controlled stormwater discharge to enhance the performance of the basin.

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. This is an existing County facility. Parts of the project are located on a conservation easement, sanitary sewer easement, and utility right-of-way. Part of the project is located on a storm drainage easement, this may need to be enlarged. Accessibility is excellent from Centreville Road and Frying Pan Road and there is an access easement. Tree impacts are expected. There are no significant construction issues anticipated.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	173	$40.00	$6,920.00
Plantings	AC	0.74	$25,000.00	$18,500.00
Clear and Grub	AC	0.37	$8,500.00	$3,145.00
Grading and Excavation	CY	2500	$35.00	$87,500.00
Embankment	CY	20	$50.00	$1,000.00
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	**$137,315.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$6,865.75
Erosion and Sediment Control: 10% of project costs				$13,731.50
			Base Construction Costs	**$157,912.25**
			Mobilization (5%)	$7,895.61
			Subtotal 1	**$165,807.86**
			Contingency (25%)	$41,451.97
			Subtotal 2	**$207,259.83**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$93,266.92
			Total Costs	**$300,526.75**
			Estimated Project Costs	***$310,000.00***

HC9107 New Stormwater Pond

Address:	900 Palmer Drive
Location:	Palmer Drive & Dogwood Court
Land Owner:	Local
PIN:	0161-19-D1
Control Type	Quality/Quantity
Drainage Area	32 acres
Receiving Waters	Merrybrook Run

Description: The community around Arkansas Ave. and Palmer Dr. does not have existing stormwater controls. Construct new enhanced extended detention dry basin with marsh areas to collect stormwater runoff conveyed in storm sewers and swale outlet to stream channel.

Project Area Map

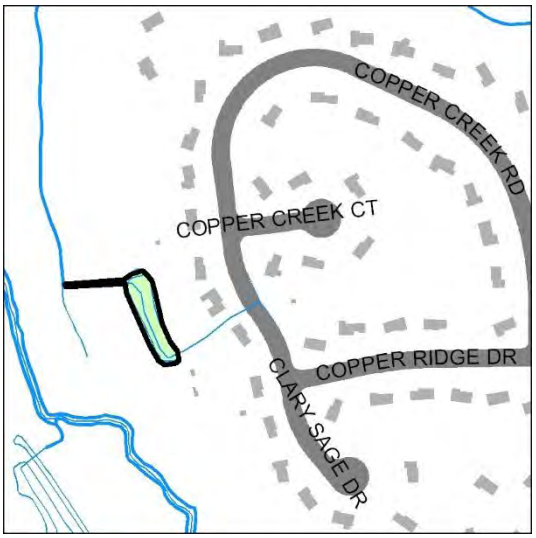
Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, reduce peak stormwater flows for storms up to a 10-year event, and provide for evapotranspiration and wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. The project is located on Town of Herndon property and a county storm drainage easement will be necessary. Accessibility is excellent from Palmer Drive. No tree impacts are expected. The basin must be deep enough to intercept piped storm sewers.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	65	$40.00	$2,600.00
Plantings	AC	0.16	$25,000.00	$4,000.00
Grading and Excavation	CY	1500	$35.00	$52,500.00
Embankment	CY	300	$50.00	$15,000.00
Structural BMP and Incidentals (Med)	LS	1	$15,000.00	$15,000.00
New Storm Pipe (Med)	LF	30	$200.00	$6,000.00
			Initial Project Costs	**$95,100.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$4,755.00
Erosion and Sediment Control: 10% of project costs				$9,510.00
			Base Construction Costs	**$109,365.00**
			Mobilization (5%)	$5,468.25
			Subtotal 1	**$114,833.25**
			Contingency (25%)	$28,708.31
			Subtotal 2	**$143,541.56**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$64,593.70
			Total Costs	**$208,135.27**
			Estimated Project Costs	***$210,000.00***

HC9108 Stormwater Pond Retrofit



Address:	2742 Copper Creek Road
Location:	Near Copper Creek Road & Copper Creek Court
Land Owner:	County/Park
PIN:	0242-04-A
Control Type	Quantity/Quality
Drainage Area	10 acres
Receiving Waters	Horsepen Run

Description: Retrofit existing dry pond 0426DP to an enhanced extended detention dry pond to improve quantity and quality functions. Improve and repair erosion to the inlet and downstream channel.

Project Area Map

Project Benefits: This detention basin retrofit project will improve water quality by removing an estimated 0.76 tons/yr of total suspended solids, 29 lbs/yr of nitrogen, and four lbs/yr of phosphorus. Additionally, these projects will 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. Projects in RPAs may require exceptions. This is an existing County facility within a stormdrainage easement located on County park land. Access is good from Copper Creek Road, however an access easement may be required. Minimal tree impacts are expected. There are no significant construction issues anticipated.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	40	$40.00	$1,600.00
Plantings	AC	0.20	$25,000.00	$5,000.00
Grading and Excavation	CY	1300	$35.00	$45,500.00
Clear and Grub	AC	0.10	$8,500.00	$850.00
Embankment	CY	15	$50.00	$750.00
RipRap Stabilization	SY	73	$100.00	$7,300.00
Structural BMP and Incidentals (Low)	LS	1	$10,000.00	$10,000.00
Outflow Pipe	LF	80	$125.00	$10,000.00
			Initial Project Costs	**$81,000.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$4,050.00
Erosion and Sediment Control: 10% of project costs				$8,100.00
			Base Construction Costs	**$93,150.00**
			Mobilization (5%)	$4,657.50
			Subtotal 1	**$97,807.50**
			Contingency (25%)	$24,451.88
			Subtotal 2	**$122,259.38**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$55,016.72
			Total Costs	**$177,276.09**
			Estimated Project Costs	***$180,000.00***

HC9109 Stormwater Pond Retrofit

Address:	2486 Masons Ferry Drive
Location:	Between Coppermine Road, Thomas Jefferson Drive & Masons Ferry Drive
Land Owner:	Private
PIN:	0163-01-0037A
Control Type	Quality/Quantity
Drainage Area	39 acres
Receiving Waters	Frying Pan Branch

Description: Retrofit existing dry pond (0406DP) to an enhanced extended dry detention basin to improve quality and quantity treatment. Remove concrete trickle ditch, create a forebay at each inlet, install marsh areas and retrofit the outlet structure for extended detention.

Project Area Map

Project Benefits: This detention basin retrofit project will help to 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. Removal of the trickle ditch will help to reduce stormwater velocities and may allow for some infiltration.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. This is an existing stormwater facility on private land, a County storm drainage easement will be necessary. Accessibility is excellent from Masons Ferry Drive. No tree impacts are anticipated. There are no significant construction issues anticipated.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	158	$40.00	$6,320.00
Plantings	AC	0.78	$25,000.00	$19,500.00
Grading and Excavation	CY	3789	$35.00	$132,615.00
Embankment	CY	11	$50.00	$550.00
Outflow Pipe	LF	30	$125.00	$3,750.00
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	**$178,835.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$8,941.75
Erosion and Sediment Control: 10% of project costs				$17,883.50
			Base Construction Costs	**$205,660.25**
			Mobilization (5%)	$10,283.01
			Subtotal 1	**$215,943.26**
			Contingency (25%)	$53,985.82
			Subtotal 2	**$269,929.08**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$121,468.09
			Total Costs	**$391,397.16**
			Estimated Project Costs	***$400,000.00***

HC9110 New Stormwater Pond

Address:	409 Maple Court
Location:	Herndon Parkway & Campbell Way
Land Owner:	Private
PIN:	0162-21-C
Control Type	Quality/Quantity
Drainage Area	10 acres
Receiving Waters	Merrybrook Run

Description: The community around Palmer Drive does not have existing stormwater controls. Daylight piped storm sewers and construct new enhanced extended detention dry basin below new outfall.

Project Area Map

Project Benefits: This project will help to improve water quality by removing an estimated seven lbs/yr of nitrogen and two 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. This project is located on private property and a storm drainage easement will be necessary. Accessibility is excellent from Herndon Parkway. No tree impacts are anticipated. The basin must be deep enough to intercept piped storm sewers.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	60	$40.00	$2,400.00
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	1344	$35.00	$47,040.00
Access Road	SY	110	$25.00	$2,750.00
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	8	$50.00	$400.00
			Initial Project Costs	**$72,515.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$3,625.75
Erosion and Sediment Control: 10% of project costs				$7,251.50
			Base Construction Costs	**$83,392.25**
			Mobilization (5%)	$4,169.61
			Subtotal 1	**$87,561.86**
			Contingency (25%)	$21,890.47
			Subtotal 2	**$109,452.33**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$49,253.55
			Total Costs	**$158,705.88**
			Estimated Project Costs	***$160,000.00***

HC9114 Stormwater Pond Retrofit

Address:	2350 Woodland Pond Lane
Location:	Fox Mill Road & Cabin Creek Road
Land Owner:	Private
PIN:	0163-01-0025D1
Control Type	Quality/Quantity
Drainage Area	68 acres
Receiving Waters	Frying Pan Branch

Description: Retrofit existing dry pond (1416DP) to an enhanced extended dry detention basin to improve quality and quantity treatment. Install a forebay north of the walking path, re-grade the basin bottom with a meander and marsh areas and install a proper outlet structure.

Project Area Map

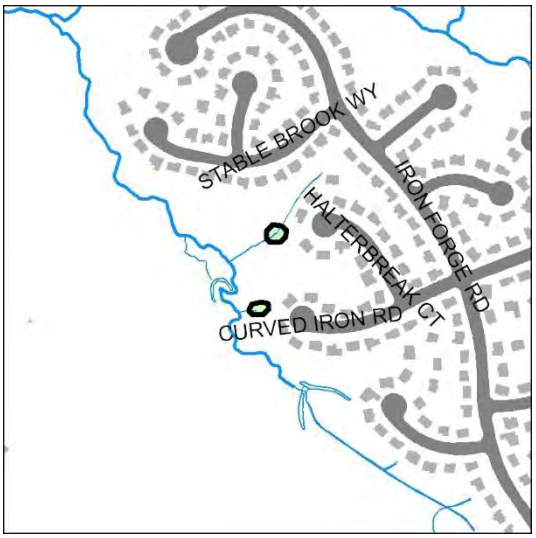
Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality in downstream waterbodies, reduce peak stormwater flows for storms up to a 10-year event, provide for evaporation and evapotranspiration, and improve wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. Part of the project is located on or adjacent to a sanitary sewer easement, a storm drainage easement and restrictive planting easement. An additional or expanded storm drainage easement may be necessary. Accessibility is excellent from Fox Mill Road, Sunrise Valley Drive, and adjacent parking lots. No tree impacts are anticipated. There are no significant construction issues anticipated.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	359	$40.00	$14,360.00
Plantings	AC	1.78	$25,000.00	$44,500.00
Clear and Grub	AC	0.05	$8,500.00	$425.00
Grading and Excavation	CY	2150	$35.00	$75,250.00
Embankment	CY	20	$50.00	$1,000.00
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	**$154,135.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$7,706.75
Erosion and Sediment Control: 10% of project costs				$15,413.50
			Base Construction Costs	**$177,255.25**
			Mobilization (5%)	$8,862.76
			Subtotal 1	**$186,118.01**
			Contingency (25%)	$46,529.50
			Subtotal 2	**$232,647.52**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$104,691.38
			Total Costs	**$337,338.90**
			Estimated Project Costs	***$340,000.00***

HC9116 New Stormwater Pond



Address:	13136 Curved Iron Road
Location:	Near Halterbreak Court & Curved Iron Road culs-de sac
Land Owner:	Park
PIN:	0251-14-F, 0251-14-G
Control Type	Quality
Drainage Area	16 acres
Receiving Waters	Frying Pan Branch

Description: Sycamore Ridge area does not have existing stormwater controls. The drainage channels show signs of erosion. Construct new pocket wetlands at outfalls to slow stormwater and increase nutrient uptake. Repair drainage channels with rock and vegetation.

Project Area Map

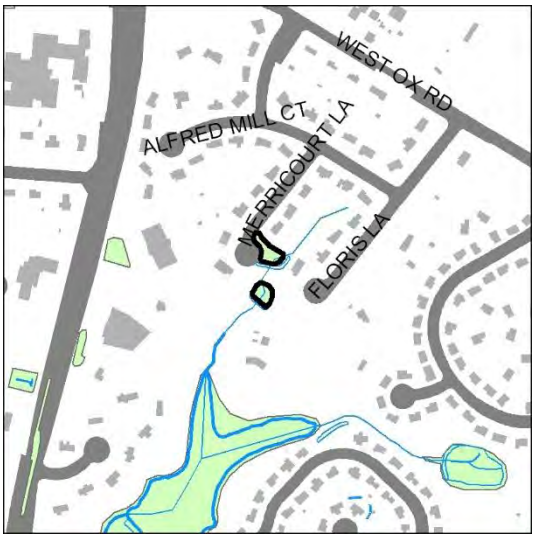
Project Benefits: This project will improve water quality by removing an estimated one ton/yr of total suspended solids, 31 lbs/yr of nitrogen, and six lbs/yr of phosphorus. The pocket wetlands will reduce stormwater peak flows, reduce sediment and nutrient loadings, and provide for evaporation, evapotranspiration and wildlife habitat. Stabilization of the drainage channels will reduce sediment loadings.

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 project is located on County park land and storm drainage easements may be necessary. Accessibility is excellent from Curved Iron Road and Halterbreak Court culs-de-sac. Tree impacts are anticipated. There are no significant construction issues anticipated.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	85	$40.00	$3,400.00
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	200	$35.00	$7,000.00
Construct New Channel	LF	200	$200.00	$40,000.00
Additional Cost (first 500LF)	LF	200	$200.00	$40,000.00
			Initial Project Costs	**$97,435.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$4,871.75
Erosion and Sediment Control: 10% of project costs				$9,743.50
			Base Construction Costs	**$112,050.25**
			Mobilization (5%)	$5,602.51
			Subtotal 1	**$117,652.76**
			Contingency (25%)	$29,413.19
			Subtotal 2	**$147,065.95**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$66,179.68
			Total Costs	**$213,245.63**
			Estimated Project Costs	***$220,000.00***

HC9118 Stormwater Pond Retrofit



Address:	2714 Floris Lane
Location:	Between Floris Lane & Merricourt Lane culs-de-sac
Land Owner:	Private
PIN:	0251-04-0008B, 0251-16-B
Control Type	Quality/Quantity
Drainage Area	27 acres
Receiving Waters	Horsepen Run

Description: Existing dry basins (0803DP and unnamed dry basin) provide only water quantity control. The basins will be improved to enhanced extended dry detention basins by retrofitting existing or installing new outlet structures and planting native vegetation.

Project Area Map

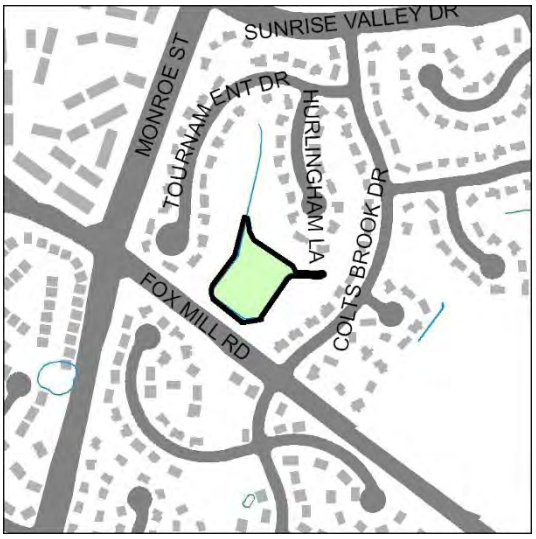
Project Benefits: These detention basin retrofit projects will improve water quality by removing an estimated one ton/yr of total suspended solids, 19 lbs/yr of nitrogen, and four lbs/yr of phosphorus. Additionally, these projects will reduce peak stormwater flows for storms up to a 10-year event and provide for evapotranspiration and wildlife habitat.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. These basins are existing stormwater facilities located on private land, storm drainage easements will be necessary. Accessibility is excellent from Merricourt Lane and Floris Lane. No tree impacts are anticipated. There are no significant construction issues anticipated.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	70	$40.00	$2,800.00
Plantings	AC	0.34	$25,000.00	$8,500.00
Clear and Grub	AC	0.1	$8,500.00	$850.00
Grading and Excavation	CY	200	$35.00	$7,000.00
Embankment	CY	11	$50.00	$550.00
Outflow Pipe	LF	40	$125.00	$5,000.00
RipRap Stabilization	SY	20	$100.00	$2,000.00
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	**$51,700.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$2,585.00
Erosion and Sediment Control: 10% of project costs				$5,170.00
			Base Construction Costs	**$59,455.00**
			Mobilization (5%)	$2,972.75
			Subtotal 1	**$62,427.75**
			Contingency (25%)	$15,606.94
			Subtotal 2	**$78,034.69**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$35,115.61
			Total Costs	**$113,150.30**
			Estimated Project Costs	***$120,000.00***

HC9119 Stormwater Pond Retrofit



Address:	2322 Colts Brook Drive
Location:	Colts Brook Drive & Fox Mill Road
Land Owner:	County
PIN:	0164-091B-A
Control Type	Quality/Quantity
Drainage Area	35 acres
Receiving Waters	Frying Pan Branch

Description: Existing dry pond (0610DP) provides only water quantity control. Improve basin to an enhanced extended detention dry basin, disconnect three upstream outfalls, install two small forebays and an outlet structure.

Project Area Map

Project Benefits: This project will reduce sediment and nutrient loadings, improve water quality, reduce peak stormwater flows for storms up to a 10-year event, and provide for evapotranspiration and wildlife habitat. Removing the concrete trickle ditches will help to slow stormwater velocities and possibly promote infiltration. A small park area with educational signage can be integrated along the walking path.

Project Design Considerations: Minimal environmental permitting requirements are anticipated. This is an existing County facility and is located within a storm drainage easement on private land, the storm drainage easement may need to be enlarged. Accessibility is excellent from Colts Brook Drive or Fox Mill Road. There are no tree impacts or significant construction issues anticipated.

Costs:

Item	*Units*	*Quantity*	*Unit Cost*	*Total*
Organic Compost Soil Amendment	CY	316	$40.00	$12,640.00
Plantings	AC	1.57	$25,000.00	$39,250.00
Clear and Grub	AC	0.05	$8,500.00	$425.00
Grading and Excavation	CY	3790	$35.00	$132,650.00
Embankment	CY	12	$50.00	$600.00
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	**$204,165.00**
Plantings: 5% of project costs (unless incl. as line item)				$0.00
Ancillary Items: 5% of project cost				$10,208.25
Erosion and Sediment Control: 10% of project costs				$20,416.50
			Base Construction Costs	**$234,789.75**
			Mobilization (5%)	$11,739.49
			Subtotal 1	**$246,529.24**
			Contingency (25%)	$61,632.31
			Subtotal 2	**$308,161.55**
			Engineering Design, Surveys, Land Acquisition, Utility Relocation and Permits (45%)	$138,672.70
			Total Costs	**$446,834.24**
			Estimated Project Costs	***$450,000.00***