

5.0 Watershed Management Area Restoration Strategies

The Pohick Creek Watershed is divided into ten smaller watershed management areas (WMAs) based on terrain. Summaries of Pohick Creek’s ten WMAs are listed in the following WMA sections, including field reconnaissance findings, existing and future land use, stream conditions and stormwater infrastructure. For Fairfax County planning and management purposes the WMAs have been further subdivided into smaller subwatersheds. These areas, typically 100 – 300 acres, were used as the basic units for modeling and other evaluations. Each WMA was examined at the subwatershed level in order to capture as much data as possible. The subwatershed conditions were reviewed and problem areas were highlighted. Projects were proposed in problematic subwatersheds. The full *Pohick Creek Draft Watershed Workbook*, which contains detailed watershed characterizations, can be found in the Technical Appendices.

Pohick Creek has four major named tributaries (see **Map 3-1.1** in Chapter 3). In the northern portions of the watershed two main tributaries converge into Pohick Creek stream. The Rabbit Branch tributary begins in the highly developed areas of George Mason University and Fairfax City, while Sideburn Branch tributary begins in the highly developed area southwest of George Mason University. These two tributaries are considered Pohick Creek’s main contributors. The Middle Run tributary drains Huntsman Lake and moderately-developed residential areas. The South Run tributary drains Burke Lake and Lake Mercer, as well as the low-density southwestern portion of the watershed. Both Middle Run and South Run contribute substantially to the mainstem’s (Pohick Creek) volume.

The restoration strategies proposed to be implemented within the next ten years (0 – 10-year plan) consist of 90 structural projects. Project descriptions for these 90 structural projects and non-structural projects are included in each WMA Section. Additionally fact sheets for the 0 – 10-year projects are provided at the end of section five. The restoration projects proposed in this watershed management plan are distributed to the subwatersheds with poor conditions and/or greatest need, not necessarily evenly throughout the entire WMA. The Table 5-1 shows the number of structural (0 – 25-year projects) and non-structural projects proposed in each WMA.

Figure 5-1: Pohick Creek Watershed Management Areas

WMA:		Acres	10-Year Plan	25-Year Plan	Non-Structural
1.	Pohick - Lower	2,346.5	7	6	3
2.	Pohick - Lower South Run	1,947.7	3	1	2
3.	Pohick - Middle	3,014.6	12	17	7
4.	Pohick - Middle Run	2,540.2	7	5	6
5.	Pohick - Middle South Run	1,889.1	2	5	3
6.	Pohick - Potomac	1,532.4	0	0	0
7.	Pohick - Rabbit Branch	2,524.9	9	11	2
8.	Pohick - Sideburn Branch	2,307.9	24	5	9
9.	Pohick - Upper	3,104.7	19	9	4
10.	Pohick - Upper South Run	2,040.7	7	6	0
Totals		23,248.7	90	65	36

5.1 Pohick – Lower Watershed Management Area

The Pohick - Lower WMA has a total area of approximately 3.67 square miles and is comprised of 18 subwatersheds. It is bound to the north by Pohick Road and to the east by Fort Belvoir and Pohick Bay. Richmond Highway and Lorton Road both bisect the WMA. The upstream boundary is the Laurel Hill redevelopment area west of Interstate 95.

The WMA has approximately 16.28 miles of stream that flow from north to south, until ultimately discharging into Pohick Bay. The area has diverse uses, including many institutional, commercial and industrial properties. Residential development consists of single-family detached and multi-family. The WMA is mostly undeveloped east of Richmond Highway, primarily consisting of public institutional lands. Land cover west of Richmond Highway consists primarily of impervious surfaces associated with dense residential development (i.e., rooftops, sidewalks and roadways). Notable features include Pohick Bay Regional Park, Norman M. Cole Jr. Pollution Control Plant, an AMTRAK train station, and a Virginia Railway Express station.

The Lower WMA contains approximately 17 dry detention facilities that provide stormwater quantity control only. The most prevalent stream condition problems included disturbed stream buffers and stream channel widening, primarily in the mainstem of Pohick Creek upstream of Richmond Highway and immediately downstream of the Norman M. Cole Jr. Wastewater Treatment Plant. The projects proposed for this WMA include retrofitting the stormwater ponds that are good candidates for improvements, improving some of the existing streams and outfalls, implementing two street sweeping programs, and installing rain barrels at an elementary school for public education on stormwater. Below are descriptions of the 0 – 10-year-plan projects and non-structural projects. Also, a map of this WMA and a list of all the projects proposed in this WMA are provided. For more project-specific information see the 0 – 10-year-plan project fact sheets at the end of this section.

5.1.1 Structural Projects

PC9100 Stormwater Pond Retrofit

This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at the Lorton Athletic Fields near Richmond Highway in Lorton. Two forebays will be created around the inlet areas and the pond room for expansion on all sides, especially to the northeast. The pond's detention time will be increased by modifying the existing discharge structure and increasing the pond's storage. The primary indicators are pollutants, including phosphorus, nitrogen and total suspended solids. The pond collects runoff through a closed system from on-site fields and tennis courts, Richmond Highway and dense residential developments south of the site.

PC9101 Stormwater Pond Retrofit

This project proposes retrofitting of an existing pond to create an extended detention dry pond with a sediment forebay at 9409 Lorton Market St. (Lorton Marketplace Shopping Center). The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The existing discharge structure will be modified to increase the amount of time water is detained in the pond. The existing concrete pilot channels will be removed to promote infiltration of low flows, which can have high concentrations of pollutants.

PC9102 Stormwater Pond Retrofit

This project proposes the retrofit of an existing dry pond to create an extended detention basin with a sediment forebay at the Norman M. Cole Jr. Wastewater Treatment Plant. The retrofit will increase the detention time of stormwater runoff and will improve stormwater quality. The existing dry pond is located in the parking lot of the plant. The indicators were pollutants, including nitrogen, phosphorus and total suspended solids.

PC9103 Stormwater Pond Retrofit

This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at Gunston Plaza Shopping Center, northwest of Richmond Highway. The pond receives runoff from the shopping center and outfalls across Richmond Highway into a wooded area. The indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The sediment forebays will provide pretreatment of stormwater runoff.

PC9104 Stormwater Pond Retrofit

This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at Gunston Plaza Shopping Center south of Lorton Road and northwest of Richmond Highway. The pond receives runoff from the shopping center and Lorton Road. The indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The retrofit will modify the existing pond to provide adequate downstream channel protection. This will allow for better function of temporary ponding using a control structure, which enables particulate pollutants to settle out before entering the system.

PC9105 Stormwater Pond Retrofit

This project proposes the retrofit of an existing dry pond northwest of Lorton Station Boulevard to create an extended detention dry pond with a sediment forebay. The pond's existing discharge structure will be modified to increase the pond's detention time, and the pond's size will be enlarged to handle the longer detention time. Primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The pond collects runoff from dense residential development and highly impervious commercial areas. The pond outfalls to the north and is conveyed in a concrete swale under a railroad track before discharging into a wooded area. A large majority of the drainage area is impervious.

PC9701 Outfall Improvement

This project proposes the reconstruction of an outfall west of Milford Haven Drive to remove the concrete channel and replace it with a naturalized stream with an energy dissipation device. Currently, the concrete channel conveys runoff from pond 1158DP. This pond has a proposed stormwater pond retrofit project PC9105. This area consists of mostly open wooded area, highway and railroad tracks.

5.1.2 Non-Structural Projects

PC9504 BMP/LID

This project proposes the collection of runoff from downspouts in rain barrels or roof drains in underground cisterns for reuse in irrigation at the Lorton Station Elementary School, north of Lewis Chapel Road. The primary indicator is the total impervious area. The rain barrel program will capture, store and reuse rooftop runoff from downspouts. The rain barrels can be used by students as a hands-on educational program.

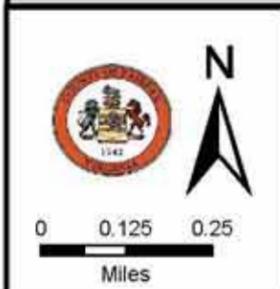
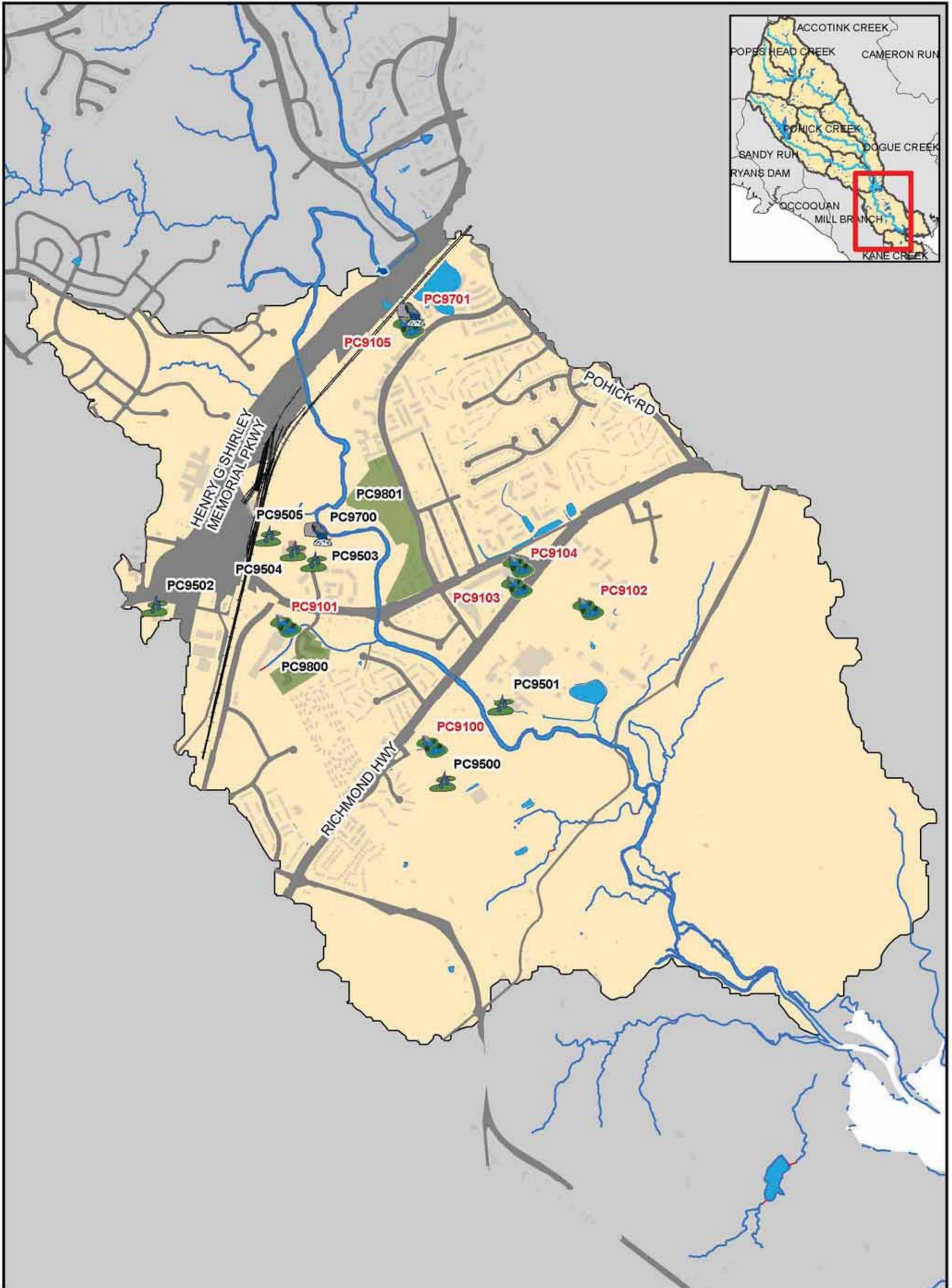
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PC9800 Street-Sweeping Program

This project proposes a street-sweeping program west of Lorton Marketplace Shopping Center to help reduce the amount of potential pollutants from entering the nearby streams and storm systems. The area is approximately 10 acres and is comprised of dense residential development. There is no existing stormwater quality treatment.

PC9801 Street-Sweeping Program

This project proposes a street-sweeping program in the Lorton Station development west of Lorton Station Boulevard. to help reduce the amount of potential pollutants from entering the nearby streams and storm systems. The area is approximately 25 acres and is comprised of dense residential development. There is no existing stormwater quality treatment.



- | | | |
|------------------------------|--------------------------|-------------------------------------|
| Stream Restoration | Outfall Improvement | Area-wide Drainage Improvement |
| BMP/LID | Stormwater Pond Retrofit | Community Outreach/Public Education |
| Culvert Retrofit | Other | Land Conservation Project |
| Dumpsite/Obstruction Removal | | Flood Protection/Mitigation |
| New Stormwater Pond | | Inspection/Enforcement Enhancement |
| | | Rain Barrel Program |
| | | Street Sweeping Program |
| | | Studies, Surveys and Assessments |

Map 5.1
Pohick - Lower VMA
Proposed Projects

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

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Table 5-1: Project List - WMA (Pohick - Lower Pohick)

Structural Projects¹						
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
PC9100	Stormwater Pond Retrofit	PC-PC-0007	9515 Richmond Hwy., Lorton Athletic Fields	Water quality and quantity control	Public/Local - Fairfax County	0-10
PC9101	Stormwater Pond Retrofit	PC-PC-0012	9409 Lorton Market St., Lorton Marketplace Shopping Center	Water quality and quantity control	Private - Commercial	0-10
PC9102	Stormwater Pond Retrofit	PC-PC-0009	9399 Richmond Hwy., Norman M. Cole WWTP	Water quality and quantity control	Public/Local - Fairfax County	0-10
PC9103	Stormwater Pond Retrofit	PC-PC-0009	7665 Lorton Rd., Gunston Shopping Plaza	Water quality and quantity control	Private - Commercial	0-10
PC9104	Stormwater Pond Retrofit	PC-PC-0009	7665 Lorton Rd., Gunston Shopping Plaza	Water quality and quantity control	Private - Commercial	0-10
PC9105	Stormwater Pond Retrofit	PC-PC-0019	Behind 7747 Milford Haven Ct.	Water quality and quantity control	Private - HOA	0-10
PC9701	Outfall Improvement	PC-PC-0019	7747 Milford Haven Ct.	Water quality control	Private - HOA	0-10
PC9500	BMP/LID	PC-PC-0007	9515 Richmond Hwy., Lorton Athletic Fields	Water quality and quantity control	Public/Local - FCPS	11-25
PC9501	BMP/LID	PC-PC-0007	9399 Richmond Hwy., Norman M. Cole WWTP	Water quality and quantity control	Public/Local - FCPS	11-25
PC9502	BMP/LID	PC-PC-0012	8101 Lorton Rd., Lorton Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9503	BMP/LID	PC-PC-0013	9290 Lewis Chapel Rd., Lorton Station Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9505	BMP/LID	PC-PC-0013	Lorton Station Center School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9700	Outfall Improvement	PC-PC-0013	9298 Lewis Chapel Rd., Lorton Station Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25

¹ Only 10-yr structural projects will have associated project fact sheets at the end of section 5.

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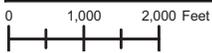
Non-Structural Projects¹					
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner
PC9504	BMP/LID	PC-PC-0012	9290 Lewis Chapel Rd., Lorton Station Elementary School	Water quality and quantity control	Public/Local - FCPS
PC9800	Street Sweeping Program	PC-PC-0012	Timarand Dr. and Inverary Ct.	Water quality control	Private - HOA
PC9801	Street Sweeping Program	PC-PC-0013	Lorton Station Blvd. & Stone Garden Dr.	Water quality control	Private - HOA

¹ Only 10-yr structural projects will have associated project fact sheets at the end of section 5.

PC9100 Stormwater Pond Retrofit



Address: 9515 Richmond Highway, Lorton, Virginia
Location: Lorton Athletic Fields
Land Owner: Public/Local – Fairfax County Government
PIN: 1074 01 0031
Control Type: Water quality and quantity control
Drainage Area: 11.50 acres
Receiving Waters: Tributary of Pohick Creek

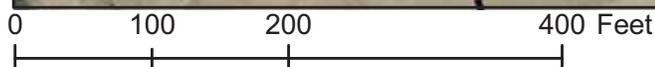


Description: This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at the Lorton Athletic Fields near Richmond Highway in Lorton. Two forebays will be created around the inlet areas and the pond can be expanded on all sides, especially to the northeast. The pond's detention time will be increased by modifying the existing discharge structure and increasing the pond's storage. The primary indicators are pollutants, phosphorus, nitrogen and total suspended solids. The pond collects runoff through a closed system from on-site fields and tennis courts, Richmond Highway, and dense residential developments south of the site.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal
- Sediment Forebay



Project Benefits: An estimated 1.30 lb/year of phosphorus will be removed. Increasing the time the water stays in the pond before outfalling into an adjacent wooded area, will provide better downstream channel protection and promote pollutant settlement. (See hatched area on project map.) Installing the sediment forebays will collect debris and sediment that can reduce a facility’s infiltration rate. This project will also increase the biological uptake of pollutants.

Project Design Considerations: This project is located on Fairfax County property. The pond is in a fenced in area and there is space available for expansion on every side, especially to the northwest, without impacting playing fields. The sediment forebays should account for approximately 10 percent of the pond area. The vegetative buffer should be 10-15 feet off of the top of bank. The pond expansion will preserve mature vegetation as much as possible.

Cost:

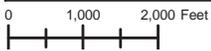
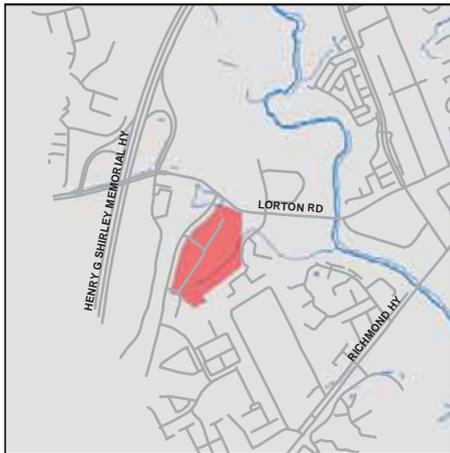
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	\$8,500	\$2,975
Grading and Excavation	2260	CY	\$35	\$79,100
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	280	CY	\$40	\$11,200
Plantings	1	LS	5%	\$6,439
Ancillary Items	1	LS	5%	\$6,439
Erosion and Sediment Control	1	LS	10%	\$12,878
Base Construction Cost				\$154,530
Mobilization (5%)				\$7,727
Subtotal 1				\$162,257
Contingency (25%)				\$40,564
Subtotal 2				\$202,821
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$91,269
Total				\$294,090
Estimated Project Cost				\$300,000



PC9100_1.jpg: Bird's eye view of existing pond

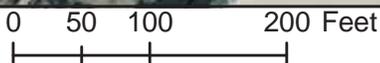
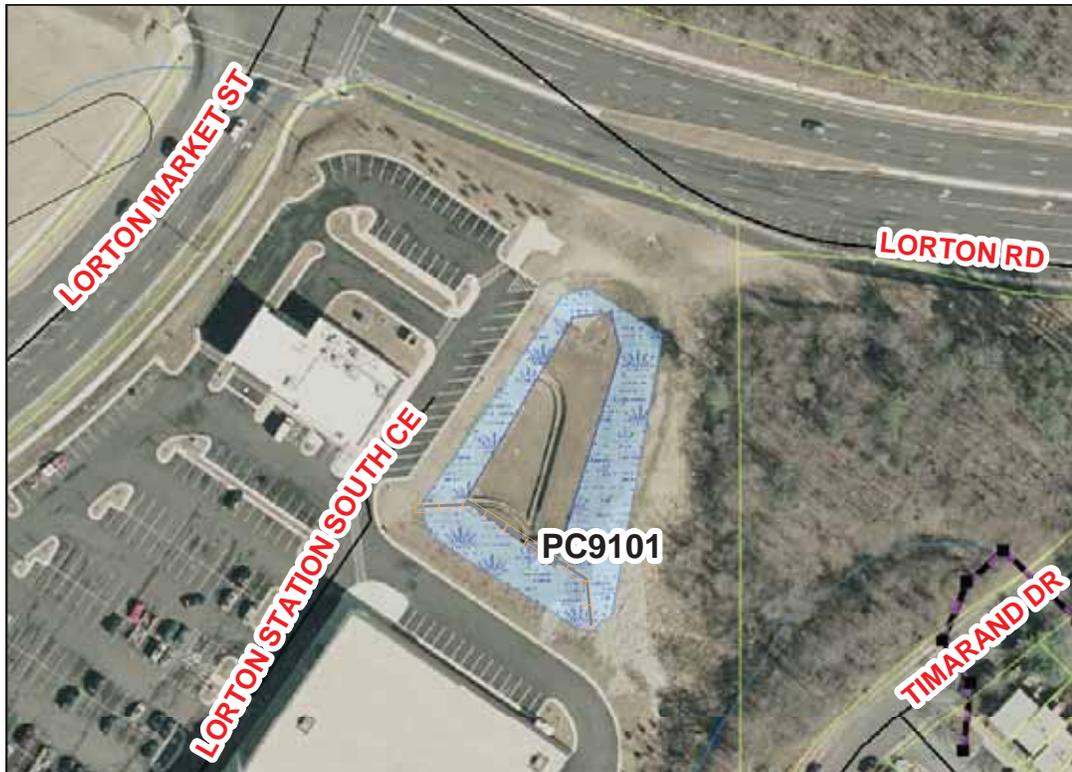
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PC9101 Stormwater Pond Retrofit



Address: 9409 Lorton Market St., Lorton, Virginia
Location: Lorton Marketplace Shopping Center
Land Owner: Private – Columbia Lorton Station Marketplace, LLC
PIN: 1074 23 E8
Control Type: Water quality and quantity control
Drainage Area: 7.60 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes retrofitting of an existing pond to create an extended detention dry pond with a sediment forebay at 9409 Lorton Market St. (Lorton Marketplace Shopping Center). The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The existing discharge structure will be modified to increase the amount of time water is detained in the pond. The existing concrete pilot channels will be removed to promote infiltration of low flows, which can have high concentrations of pollutants.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal
- Sediment Forebay

Project Benefits: An estimated 2.43 lb/year of phosphorus will be removed. Extending the pond detention time will provide better downstream channel protection and promote settlement of particulate pollutants. Installing the sediment forebay will reduce debris and coarse sediment in the pond, which will reduce pond maintenance. Installing the sediment forebay, removing the concrete pilot channels and improving the landscaping will improve the ponds infiltration.

Project Design Considerations: The pond receives direct runoff from shopping center area, and has room for expansion. (See the project map). County records show this pond’s name is to be determined (TBD). This might explain why GIS does not show an outfall from the pond. The pond is on private property but it is entirely within a storm drainage easement. The sediment forebay should account for approximately 10 percent of the pond area. The vegetative buffer should be 10-15 feet off of the top of bank. Efforts should be made to minimize impacts to existing mature vegetation.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.4	AC	\$8,500	\$3,400
Grading and Excavation	2000	CY	\$35	\$70,000
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	40	CY	\$50	\$2,000
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	300	CY	\$40	\$12,000
Plantings	1	LS	5%	\$5,870
Ancillary Items	1	LS	5%	\$5,870
Erosion and Sediment Control	1	LS	10%	\$11,740
Base Construction Cost				\$140,880
Mobilization (5%)				\$7,044
Subtotal 1				\$147,924
Contingency (25%)				\$36,981
Subtotal 2				\$184,905
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$83,207
Total				\$268,112
Estimated Project Cost				\$270,000



PC9101_1.jpg: View of existing pond



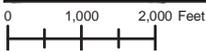
PC9101_2.jpg: View of existing pond

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PC9102 Stormwater Pond Retrofit



Address: 9399 Richmond Highway, Lorton, Virginia
Location: Norman M. Cole WWTP
Land Owner: Public/Local – Fairfax County Government
PIN: 1083 01 0023
Control Type: Water quality and quantity control
Drainage Area: 12.60 acres
Receiving Waters: Tributary of Pohick Creek

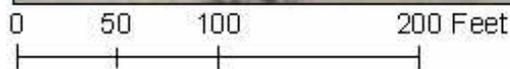


Description: This project proposes the retrofit of an existing dry pond to create an extended detention basin with a sediment forebay at the Norman M. Cole Jr. Wastewater Treatment Plant. The retrofit will increase the detention time of stormwater runoff and will improve stormwater quality. The existing dry pond is located in the parking lot for the plant. The indicators were pollutants, including nitrogen, phosphorus and total suspended solids.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal
- Sediment Forebay



Project Benefits: An estimated 5.03 lb/year of phosphorus will be removed. The retrofit will modify the existing pond to provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure. This will promote the settling of particulate pollutants before discharging into the system.

Project Design Considerations: The existing pond has concrete pilot channels. In smaller storms pollutants are concentrated in smaller flows and directed by the concrete channels to the outfall. This retrofit will remove the pilot channels, install sediment forebays, and add an aquatic bench. The two forebays will be approximately 10 percent of the pond area. The pond area will be expanded as shown on the project area map to allow the pond to provide extended detention of the stormwater to better treat the stormwater runoff. The soil will be amended to improve infiltration. The island is located in the plant’s main thoroughfare, so a plan to maintain traffic during construction will be required.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	\$8,500	\$2,550
Grading and Excavation	900	CY	\$35	\$31,500
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	25	CY	\$50	\$1,250
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	240	CY	\$40	\$9,600
Plantings	1	LS	5%	\$3,745
Ancillary Items	1	LS	5%	\$3,745
Erosion and Sediment Control	1	LS	10%	\$7,490
Base Construction Cost				\$89,880
Mobilization (5%)				\$4,494
Subtotal 1				\$94,374
Contingency (25%)				\$23,594
Subtotal 2				\$117,968
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$53,085
Total				\$171,053
Estimated Project Cost				\$180,000



PC9102_1.jpg: Bird's Eye View of Existing Pond

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PC9103 Stormwater Pond Retrofit



Address: 7665 Lorton Rd., Lorton, Virginia
Location: Gunston Shopping Plaza
Land Owner: Private – Gunston Station, LLC
PIN: 1074 03 0001B
Control Type: Water quality and quantity control
Drainage Area: 11.12 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at Gunston Plaza Shopping Center, northwest of Richmond Highway. The pond receives runoff from the shopping center and outfalls across Richmond Highway into a wooded area. The indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The sediment forebays will provide pretreatment of stormwater runoff.



Project Benefits: An estimated 2.07 lb/year of phosphorus will be removed. The retrofit will modify the existing pond to provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure, which enables particulate pollutants to settle out before entering the system and controls the outfall volume.

Project Design Considerations: Based on field observations, it appears the depth of the dry pond has significantly decreased due to sediment deposition in the pond area. The hatched area shown on the project map should have sediment removed to increase detention volume. The location has space limitations and no room for any expansion. All retrofitting will need to be inside of the existing pond area. The property is owned by Gunston Station, LLC. Records show no existing easements onsite. The area is too small to have sufficient vegetative buffer. The sediment forebays should account for approximately 10 percent of the pond area.

Cost:

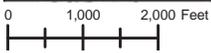
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.08	AC	\$8,500	\$680
Grading and Excavation	500	CY	\$35	\$17,500
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	40	CY	\$50	\$2,000
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	140	CY	\$40	\$5,600
Plantings	1	LS	5%	\$2,477
Ancillary Items	1	LS	5%	\$2,477
Erosion and Sediment Control	1	LS	10%	\$4,953
Base Construction Cost				\$59,436
Mobilization (5%)				\$2,972
Subtotal 1				\$62,408
Contingency (25%)				\$15,602
Subtotal 2				\$78,010
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$35,104
Total				\$113,114
Estimated Project Cost				\$120,000



PC9103_1.jpg: View of pond looking southwest

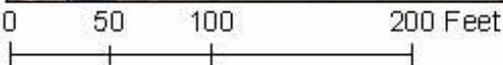
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PC9104 Stormwater Pond Retrofit



Address: 7665 Lorton Road, Lorton, Virginia
Location: Gunston Shopping Plaza
Land Owner: Private – Gunston Station, LLC.
PIN: 1074 03 0001B
Control Type: Water quality and quantity control
Drainage Area: 4.97 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at Gunston Plaza Shopping Center south of Lorton Road and northwest of Richmond Highway. The pond receives runoff from the shopping center and Lorton Road. The indicators are pollutants, nitrogen, phosphorus and total suspended solids. The retrofit will modify the existing pond to provide adequate downstream channel protection. This will allow for better function of temporary ponding using a control structure, which enables particulate pollutants to settle out before entering the system.



Legend

- Bioretention
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- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal
- Sediment Forebay

Project Benefits: This project will add a sediment forebay to the pond, which will reduce sediment and debris. Also, enlarging the pond and modifying the existing outfall structure will increase the stormwater detention time. This allows more time for pollutants to settle and will increase biological uptake. An estimated 0.98 lb/year of additional phosphorus will be removed after this retrofit.

Project Design Considerations: The pond receives runoff from a large parking lot and building. The pond has three inflows and will require two sediment forebays. The sediment forebays should be sized to be about 10 percent of the size of the pond area. The size of the pond is limited due to constraints on all four sides. The available head difference in the pond needs to be determined from the construction plans. The records show no storm drain easements. The construction of sediment forebays alone and regular maintenance will help improve stormwater quality.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	\$8,500	\$850
Grading and Excavation	630	CY	\$35	\$22,050
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	25	CY	\$50	\$1,250
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	80	CY	\$40	\$3,200
Plantings	1	LS	5%	\$2,555
Ancillary Items	1	LS	5%	\$2,555
Erosion and Sediment Control	1	LS	10%	\$5,110
Base Construction Cost				\$61,320
Mobilization (5%)				\$3,066
Subtotal 1				\$64,386
Contingency (25%)				\$16,097
Subtotal 2				\$80,483
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$36,217
Total				\$116,700
Estimated Project Cost				\$120,000



PC9104_1.jpg: View of pond inflow



PC9104_2.jpg: View of existing pond with grass bottom and low flow ditches

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PC9105 Stormwater Pond Retrofit



Address: Near intersection of Lorton Station Blvd. & Milford Haven Dr. (Behind 7747 Milford Haven Ct), Lorton, Virginia

Location: Stormwater Pond near Lorton Station Blvd. & Milford Haven Dr.

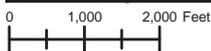
Land Owner: Private – Laurel Hill Site Center, LLC; Lorton Station Community Association; South Station, LLC

PIN: 1072 01 0048A, 1072 01 0048B, 1072 01 0049

Control Type: Water quality and quantity control

Drainage Area: 21.76 acres

Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the retrofit of an existing dry pond northwest of Lorton Station Boulevard to create an extended detention dry pond with a sediment forebay. The pond's existing discharge structure will be modified to increase the pond's detention time, and the pond's size will be enlarged to handle the longer detention time. The primary indicators are pollutants, nitrogen, phosphorus and total suspended solids. The pond collects runoff from dense residential development and highly impervious commercial areas. The pond outfalls to the north and is conveyed in a concrete swale under a railroad track before discharging into a wooded area. The large majority of the drainage area is impervious.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal
- Sediment Forebay



Project Benefits: An estimated 5.88 lb/year of phosphorus will be removed. Extending this pond’s detention time will provide better downstream channel protection, promote particulate pollutant settlement, increase stormwater infiltration and increase biological uptake of pollutants. Additional plantings will create a better functioning buffer to the pond. The forebay will prevent coarse sediments and debris from entering the pond and will reduce maintenance.

Project Design Considerations: Extending the detention time of the existng dry pond 1158DP will require expanding the pond into the wooded area. Efforts should be made to minimize impacts to existing mature vegetation. (See hatched area on map.) The sediment forebay should account for approximately 10 percent of the pond area. The vegetative buffer should be 10-15 feet off of the top of bank. The majority of the land the pond is located on is owned by Lorton Station Community Association, but pond is also located on land owned by Laurel Hill Site Center, LLC and South Station, LLC. Records show the pond is located in an existing storm drain easement. This easement will need to be enlarged for the pond retrofit. This project outfalls to another proposed project, outfall improvement PC9701. Coordination of these projects should be investigated to determine cost savings.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	\$8,500	\$2,975
Grading and Excavation	2300	CY	\$35	\$80,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	75	LF	\$125	\$9,375
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	290	CY	\$40	\$11,600
Plantings	1	LS	5%	\$6,623
Ancillary Items	1	LS	5%	\$6,623
Erosion and Sediment Control	1	LS	10%	\$13,245
Base Construction Cost				\$158,940
Mobilization (5%)				\$7,947
Subtotal 1				\$166,887
Contingency (25%)				\$41,722
Subtotal 2				\$208,609
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$93,874
Total				\$302,483
Estimated Project Cost				\$310,000



PC9105_1.jpg: View of pond

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PC9701 Outfall Improvement



Address: Along Lorton Station Blvd., adjacent to Milford Haven Dr., Lorton, Virginia
Location: Outfall near Lorton Station Blvd
Land Owner: Private – Lorton Station Community Association
PIN: 1072 01 0048B, 1072 01 0040
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the reconstruction of an outfall west of Milford Haven Drive to remove the concrete channel and replace it with a naturalized stream with an energy dissipation device. Currently the concrete channel conveys runoff from pond 1158DP. This pond has a proposed stormwater pond retrofit project PC9105. This area consists of mostly open wooded area, highway and railroad tracks.



Legend

- Biorelention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/ Obstruction Removal

Project Benefits: The outfall reconstruction will reduce erosive velocities and sediment loads at the outfalls, protecting downstream channels. The reconstruction will increase infiltration and reduce pollutant loads.

Project Design Considerations: The concrete channel drains to a stormwater pipe that flows under the Plantation Pine Line Easement and Henry G. Shirley Memorial Highway, before discharging into a stream. The concrete channel is on private property owned by Lorton Station Community Association; however, according to County records it is within a storm drainage easement. The area is accessible through a BMP access road. This project should be coordinated with pond retrofit project PC9105.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.15	AC	\$8,500	\$1,275
Grading and Excavation	900	CY	\$35	\$31,500
New Storm Pipe	0	LF	\$100	\$0
Erosion and Sediment Control	1	LS	10%	\$3,763
Ancillary Items	1	LS	5%	\$1,881
Plantings	1	LS	5%	\$1,881
Base Construction Cost				\$40,300
Mobilization (5%)				\$2,015
Subtotal 1				\$42,315
Contingency (25%)				\$10,579
Subtotal 2				\$52,894
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$23,802
Total				\$76,696
Estimated Project Cost				\$80,000



PC9701_1.jpg: View of outfall area

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5.2 Pohick – Lower South Run Watershed Management Area

Lower South Run Watershed Management Area has a total area of approximately 3.04 square miles and is comprised of 12 subwatersheds. It is located in the southern portion of the Pohick Creek watershed. It is bound to the north by Pohick Road/Fairfax County Parkway. The south is bound by Silverbrook Road and to the east by Pohick Road.

The WMA has approximately 23.81 miles of stream, which flow from west to southeast. The area consists mainly of single-family attached and detached residential homes. Land cover is primarily impervious surface associated with residential development (i.e., rooftops, sidewalks and roadways) and landscaping, including managed turf. The area is approximately 16.18 percent impervious. Notable features of the WMA are Newington Forest Elementary School and a large Virginia Power/Plantation pipeline easement.

In the Lower South Run WMA the most prevalent stream condition problems noted include disturbed stream buffers and stream channel erosion and/or widening. It should be noted, however, that with the Lower South Run WMA's wider stream valleys, the main stem of South Run and some of its tributaries have avoided the extreme widening and erosion/incision conditions plaguing other portions of the watershed. Channel widening and incision conditions are noted in the headwaters of the South Run main stem and Rocky Branch, a tributary, but the downstream main stem of South Run appears more stable. Stormwater pipe discharge into the WMA's streams have a demonstrated impact as well, as these pipes discharge runoff directly into the streams in many instances, contributing to the upstream widening and erosive conditions.

The projects proposed for this WMA include retrofitting a stormwater pond and restoring two streams. Best management practices/low-impact development (BMP/LID) projects at the school site include bioretention landscaping features and installing rain barrels. Finally, a suite of obstruction removals are proposed. Descriptions of the 0 – 10-year-plan projects and non-structural projects follow. Also, a map of this WMA and a list of all the projects proposed in this WMA are provided. For more information see the 0 – 10-year-plan project fact sheets at the end of this section.

5.2.1 Structural Projects

PC9106 Stormwater Pond Retrofit

This wet pond retrofit is planned near South County Secondary School. The pond is set back from the main road. This project proposes creating wetland system with the construction of a sediment forebay and the addition of bench planting. The primary indicators are wetland habitat and pollutants, including nitrogen, phosphorus and total suspended solids.

PC9202 Stream Restoration Suite

Subproject A is a stream restoration that will repair bank and bed erosion in the stream west of Spring Creek Court and southeast of Willowdale Court. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment. Subproject B is a buffer repair near the downstream end of the stream restoration. This buffer will provide additional treatment for runoff from the adjacent townhouses. The indicators are stream bank buffer deficiencies in headwater riparian habitat.

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

PC9204 Stream Restoration

This project proposes daylighting a pipe from Rising Creek Court, farther upstream, with an energy dissipation device and construction of an open channel. The energy dissipation device consists of a series of step pools reinforced with either rocks or logs. The daylighting will help reduce the velocity of the water entering the stream. The primary problem indicator is poor channel morphology.

PC9508 BMP/LID Suite

This suite of projects proposes the creation of a bioretention landscaping features at Newington Forest Elementary School. The location is ideal because it will receive runoff from large impervious areas. The primary indicators are pollutants, including nitrogen, phosphorous and total suspended solids. The bioretention will capture sheet flow and create an ideal environment for filtration, biological uptake and microbial activity. It will also reduce the outflow to the storm sewer system and recharge groundwater.

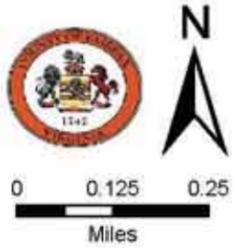
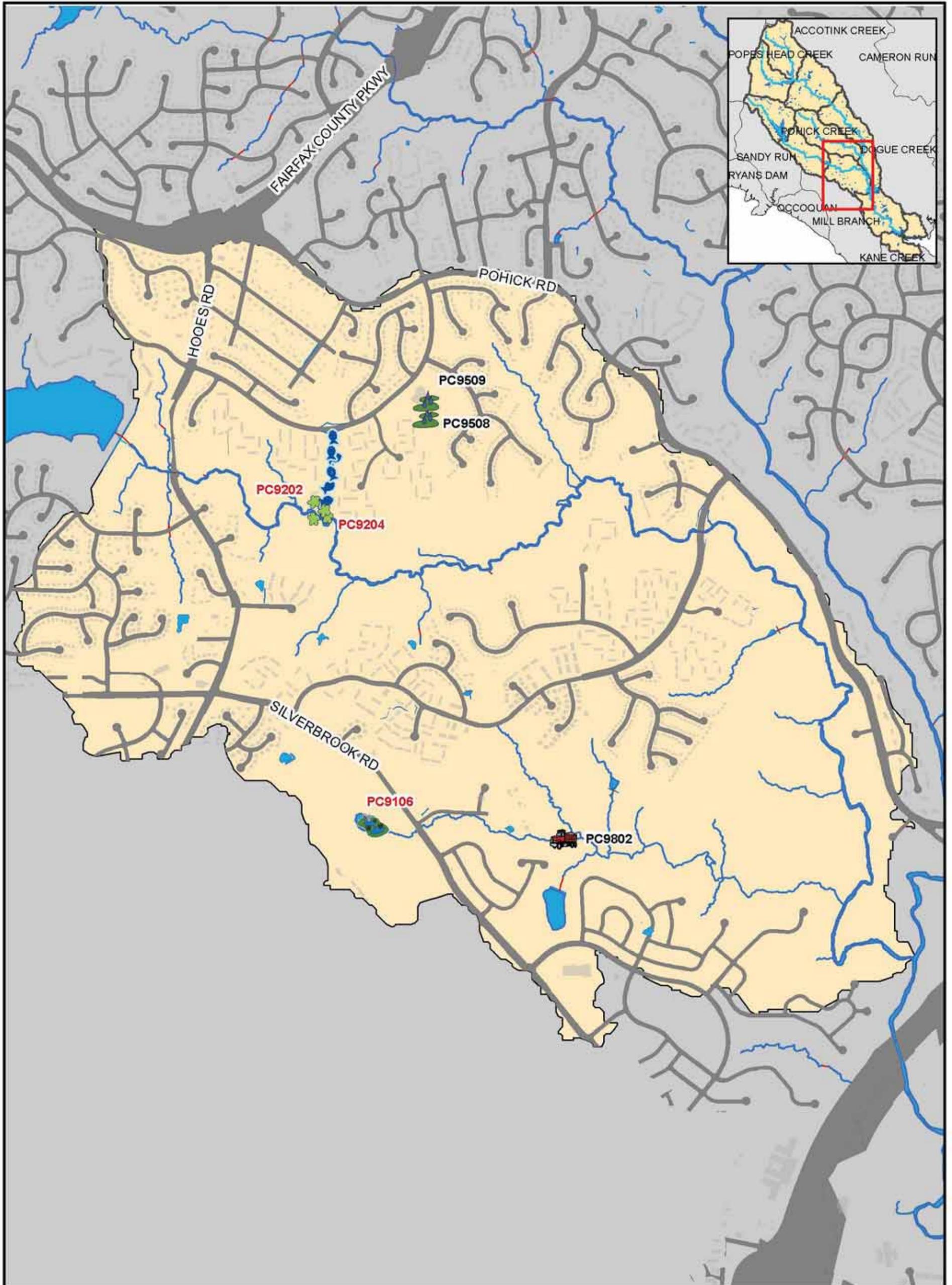
5.2.2 Non-Structural Projects

PC9509 BMP/LID

The project proposes a rain barrel/cistern at Newington Forest Elementary School southeast of Newington Forest Avenue. This will capture, store and reuse runoff from the rooftop. This project was proposed due to the large amount of high impervious areas directly connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9802 Dumpsite/Obstruction Removal Suite

This suite of projects involves the removal of two dumpsites from a stream north of Sego Lily Court. The indicators are flood complaints and field verification. These dumpsite removals will help restore the functions of the stream and alleviate flooding issues.



- | | | |
|------------------------------|--------------------------|-------------------------------------|
| Buffer Restoration | New Stormwater Pond | Area-wide Drainage Improvement |
| Stream Restoration | Outfall Improvement | Community Outreach/Public Education |
| BMP/LID | Stormwater Pond Retrofit | Land Conservation Project |
| Culvert Retrofit | Other | Flood Protection/Mitigation |
| Dumpsite/Obstruction Removal | | Inspection/Enforcement Enhancement |
| | | Rain Barrel Program |
| | | Street Sweeping Program |
| | | Studies, Surveys and Assessments |
- Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.2
Pohick - Lower South Run
Proposed Projects

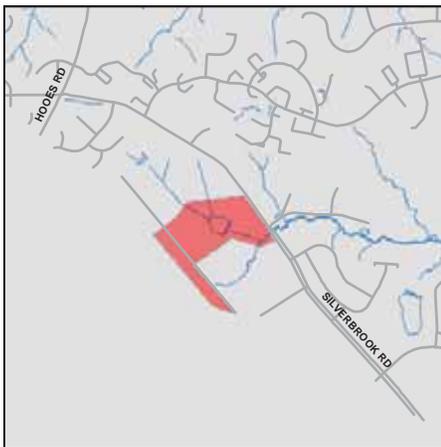
Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

Table 5-2: Project List - WMA (Pohick - Lower South Run)

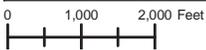
Structural Projects¹						
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
PC9106	Stormwater Pond Retrofit	PC-SL-0002	8501 Silverbrook Rd., South County Secondary School	Water quality and quantity control	Public/Local - FCPA	0-10
PC9202	Stream Restoration Suite	PC-SR-0007	Behind 8181 Willowdale Ct., South Run Stream Valley Park	Water quality control	Private - Residential, Public/Local - FCPA, Private - HOA	0-10
PC9204	Stream Restoration	PC-SR-0007	Next to 8661 Rising Creek Ct.	Water quality and quantity control	Private - HOA	0-10
PC9508	BMP/LID Suite	PC-SR-0005	8001 Newington Forest Ave., Newington Forest Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25
Non-Structural Projects¹						
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	
PC9509	BMP/LID	PC-SR-0004	8001 Newington Forest Ave., Newington Forest Elementary School	Water quality and quantity control	Public/Local - FCPS	
PC9802	Dumpsite/Obstruction Removal Suite	PC-SL-0001	Behind 8412 Segó Lilly Ct.	Water quality control	Public/Local - FCPA, Private - HOA	

¹ Only 10-yr structural projects will have associated project fact sheets at the end of section 5.

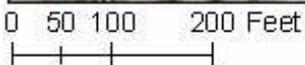
PC9106 Stormwater Pond Retrofit



Address: 8501 Silverbrook Road., Lorton, Virginia
Location: South County Secondary School
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 1073 01 0019
Control Type: Water quality and quantity control
Drainage Area: 40.23 acres
Receiving Waters: Tributary of Silver Brook



Description: Wet pond retrofit planned near South County Secondary School. Pond is set back from main road. This project proposes creating wetland system with the construction of a sediment forebay and the addition of bench planting. The primary indicators are wetland habitat and pollutants, including nitrogen, phosphorus and total suspended solids.



Legend

-  Bioretention
-  Bioswale
-  Buffer Restoration
-  Outfall Improvement
-  Green Roof
-  Flood Protection
-  Pervious Pavement
-  SW Pond Retrofit
-  Stream Restoration
-  Major Road
-  Property Line
-  Storm Pipes
-  Streams
-  Inlet Filter Inserts
-  Dumpsite/
Obstruction Removal
-  Sediment Forebay

Project Benefits: An estimated 15.80 lb/year of phosphorus will be removed. The retrofit will increase pollutant removal and provide adequate channel protection above the permanent pool. The retrofit will create a better functioning environment for gravitational settling, biological uptake and microbial reliable pollutant removal performance.

Project Design Considerations: Project is at an existing wet pond. The pond has an unpaved access road from the main road and is easily accessible. Construction should not impact existing mature vegetation, but efforts should be made to minimize disturbance. Forebay should be constructed at the northwest side and will be approximately 10 percent of the size of the pond. Forebay will be around both inlet pipes to the pond. A safety bench 10 to 15 feet outward and an aquatic bench 10 to 15 feet inward from the water’s edge should be constructed.

Cost:

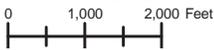
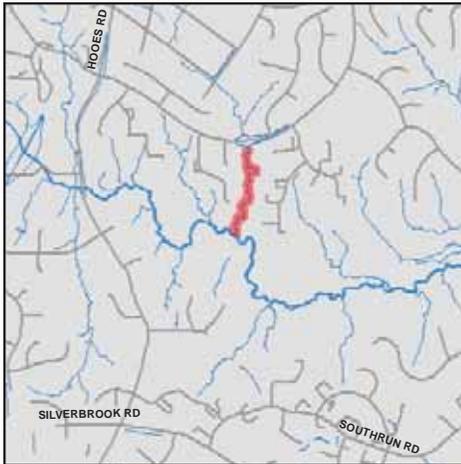
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.7	AC	\$8,500	\$5,950
Grading and Excavation	3500	CY	\$35	\$122,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	200	LF	\$125	\$25,000
Rip Rap Stabilization	50	SY	\$100	\$5,000
Organic Compost Soil Amendment	500	CY	\$40	\$20,000
Plantings	1	LS	5%	\$9,823
Ancillary Items	1	LS	5%	\$9,823
Erosion and Sediment Control	1	LS	10%	\$19,645
Base Construction Cost				\$235,740
Mobilization (5%)				\$11,787
Subtotal 1				\$247,527
Contingency (25%)				\$61,882
Subtotal 2				\$309,409
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$139,234
Total				\$448,643
Estimated Project Cost				\$450,000



PC9106_13: View of pond from dam

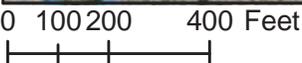
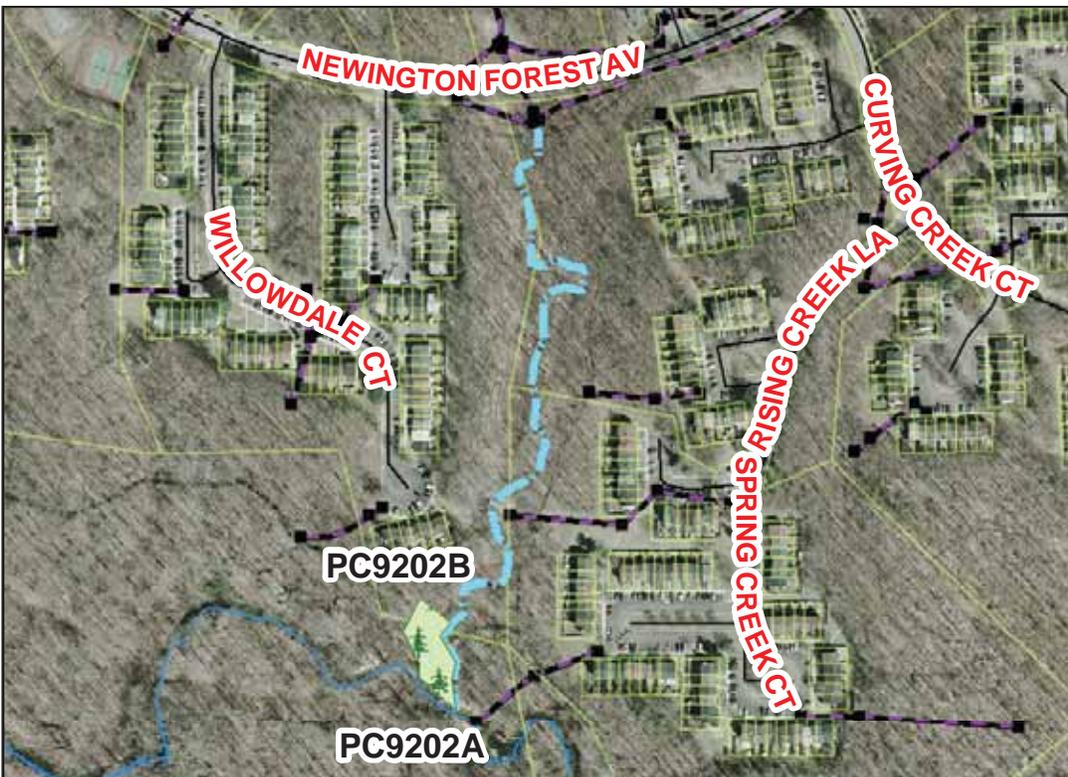
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PC9202 Stream Restoration Suite



Address: Behind 8181 Willowdale Court, Fairfax, Virginia
Location: Near South Run Stream Valley Park
Land Owner: Public/Private - Fairfax County Park Authority, Newington Forest Community Association
PIN: 0983 02 0001B, 0981 04 W, 0981 04 T, 0983 02 V
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of South Run

Description: Subproject A is a stream restoration and will repair bank and bed erosion in the stream west of Spring Creek Court and southeast of Willowdale Court. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment. Subproject B is a buffer repair near the downstream end of the stream restoration. This buffer will provide additional treatment for runoff from the adjacent townhouses. The indicators are stream bank buffer deficiencies in headwater riparian habitat.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal

Project Benefits: Stream stabilization will reduce sediment loads to the stream while maintaining capacity of the stream channel and controlling unwanted meander. The buffer repair will re-establish the riparian protection areat (RPA). Increasing vegetation will provide additional filtration of pollutants and will reduce runoff by intercepting water. This will increase surface storage, promote infiltration and minimize stream erosion.

Project Design Considerations: Stream banks are steep and stream access is obstructed. Trees were hanging into the stream and there were many sediment deposits creating "islands." Areas were dammed. The degraded buffer area is surrounded by vegetation; therefore its deficiency is minimized. The degraded area could act as a staging point for the stream restoration. Records show no existing easements, and stream appears to be in HOA open space. Project should be coordinated with outfall improvement project PC9204 (located just west of Rising Creek Court) to try and maximize the project benefits.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Stream restoration west of Spring Creek Ct.				
Construct New Channel	1520	LF	\$200	\$304,000
Clear and Grub	1.75	AC	\$10,000	\$17,500
Plantings	1.75	AC	\$25,000	\$43,750
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Subproject B Stream Buffer Behind Willow dale Ct.				
Plantings	0.27	AC	\$25,000	\$6,750
Organic Compost Soil Amendment	870	CY	\$40	\$34,800
Invasive Plant Eradication	1	LS	10%	\$4,155
Common Items				
Ancillary Items	1	LS	5%	\$25,548
Erosion and Sediment Control	1	LS	10%	\$51,096
Base Construction Cost				\$587,598
Mobilization (5%)				\$29,380
Subtotal 1				\$616,978
Contingency (25%)				\$154,245
Subtotal 2				\$771,223
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$347,050
Total				\$1,118,273
Estimated Project Cost				\$1,120,000



PC9202_1.jpg: View of stream section



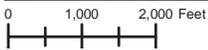
PC9202_2.jpg: View of debris in the buffer

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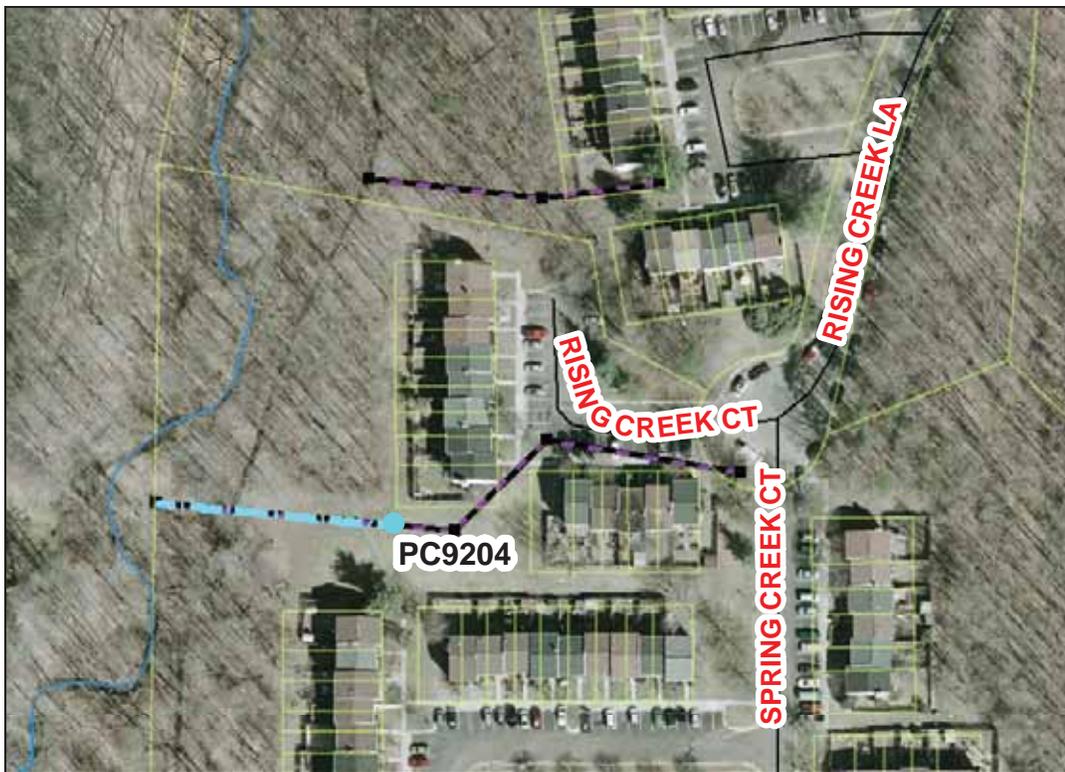
PC9204 Stream Restoration



Address: Next to 8661 Rising Creek Court, Springfield, Virginia
Location: West of townhouses on Rising Creek Court
Land Owner: Private – Newington Forest Community Association
PIN: 0983 02 V
Control Type: Water quality control
Drainage Area: 0.74 acres
Receiving Waters: Tributary of South Run

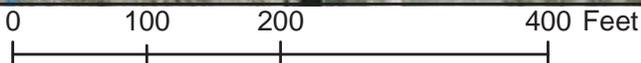


Description: This project proposes daylighting a pipe from Rising Creek Court farther upstream with an energy dissipation device and construction of an open channel. The energy dissipation device consists of a series of step pools reinforced with either rocks or logs. The daylighting will help reduce the velocity of the water entering the stream. The primary problem indicator is poor channel morphology.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal



Project Benefits: Redirecting a closed system back to an aboveground channel will return the water to its natural state sooner. This will reduce runoff rates and volumes, which will help minimize stream erosion.

Project Design Considerations: The high density townhouses have a high percentage of impervious area. Much of the outfall run to be daylighted is not vegetated. The number of step pools required will be determined by the slope and length of pipe daylighted. Records do not show an existing stormwater easement, but the pipe and stream are located in the community open space. This project discharges into the stream that will be restored in project PC9202. Sequencing should be coordinated to combine efforts and minimize additional disturbances.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	180	LF	\$200	\$36,000
Clear and Grub	0.21	AC	\$10,000	\$2,100
Plantings	0.21	AC	\$25,000	\$5,250
Additional Cost, First 500 LF	180	LF	\$200	\$36,000
Erosion and Sediment Control	1	LS	10%	\$7,935
Ancillary Items	1	LS	5%	\$3,968
Base Construction Cost				\$91,253
Mobilization (5%)				\$4,563
Subtotal 1				\$95,815
Contingency (25%)				\$23,954
Subtotal 2				\$119,769
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$53,896
Total				\$173,665
Estimated Project Cost				\$180,000



PC9204_1.jpg: Grassed area above pipe to be daylighted

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5.3 Pohick – Middle Watershed Management Area

Middle Pohick Watershed Management Area has a total area of approximately 4.71 square miles and is comprised of 19 subwatersheds. It is bound on the west by portions of Sydenstricker Road and Pohick Road and on the south by Interstate 95. A portion of the eastern boundary is Rolling Road. It is bisected on the upstream end by Old Keene Mill Road and in the center by Fairfax County Parkway.

The WMA has approximately 29.84 miles of stream which flow from north to south. The area consists mainly of single-family attached and detached residences. Land cover is primarily associated with residential development such as, rooftops, sidewalks, roadways and landscaping including managed turf. The area is approximately 26 percent impervious. Notable features include West Springfield High School and several elementary schools.

In the Middle WMA the most prevalent stream condition problems noted include disturbed stream buffers and stream channel widening and erosion/incision. In addition, pipe and ditch discharge into the WMA's streams have a significant impact on this WMA, including some severe impacts on the WMA headwaters and the main stem of Pohick Creek. These pipes and ditches discharge stormwater runoff directly into the streams in many instances, contributing to the observed widening and erosion conditions. The more severe pipe, ditch, obstruction and crossing impacts appear upstream of the Fairfax County Parkway.

The watershed restoration projects for this WMA include a host of projects, such as retrofitting stormwater ponds, restoring streams, and BMP/LID projects at school sites, including bioretention landscaping features and installing rain barrels. Finally, a dumpsite/obstruction removal and two buffer restoration projects are proposed. Descriptions of the 0 – 10-year-plan projects and non-structural projects follow. Also, a map of this WMA and a list of all the projects proposed in it are provided. For more information see the 0 – 10-year-plan project fact sheets at the end of this section.

5.3.1 Structural Projects

PC9107 Stormwater Pond Retrofit

A dry pond at Saratoga Elementary School receives runoff from a school parking lot and driveway. This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The sediment forebays will provide pretreatment of stormwater runoff.

PC9122 Stormwater Pond Retrofit

This project proposes the retrofit of an existing pond north of Old Keene Mill Road and east of Field Master Drive, which receives runoff from adjacent roads and neighborhoods. The existing dry pond will be retrofitted to create an extended detention dry pond with a sediment forebay. The pond receives runoff from a large drainage area consisting of dense residential development, roadways and wooded areas. The pond outfalls to the adjacent stream in the wooded area to the east.

PC9201 Stream Restoration

This stream restoration is located west of Matisse Way and east of Godolphin Drive, and is located on Fairfax County Park Authority land. This project proposes repairing bank and bed erosion, restoring channel morphology and reducing excessive channel meander. Stream

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

stabilization will reduce sediment loads to the stream while maintaining capacity of the channel and controlling unwanted meander.

PC9203 Stream Restoration

The project area is the stream southwest of Lake Pleasant Drive, north of Kings Point Court. This project proposes repairing bank and bed erosion to restore channel morphology. The primary indicator is poor channel morphology. Stream stabilization will help to reduce sediment loads to the stream channel and control unwanted meander.

PC9205 Stream Restoration

A closed system collects runoff from Kings Point Court and one other cul-de-sac. The system outfalls into a stream to the northwest. This project proposes daylighting the outfall pipe farther upstream. The primary problem indicator is poor channel morphology. This project returns the water to its natural state before entering the stream, allowing more time for the water to infiltrate and the flow velocities to decrease.

PC9206 Stream Restoration

This project proposes restoring stream just northeast of Lake Pleasant drive. The current stream has bank and bed erosion and poor channel morphology. The stream stabilization will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander. This stream segment is steep and receives runoff from townhomes and a roadway outfall. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabric, and rapid vegetation establishment.

PC9211 Stream Restoration

Subproject A is proposed to daylight a pipe that collects runoff at the end of Middlewood Place and pipes it south into a stream. The primary indicator is channel morphology. The pipe leading into the stream is very steep, the outflow is at potentially erosive velocities. Subproject B is proposed to re-plant upland buffer area and provide reforestation. The existing stream buffer is deficient. This project will increase vegetation for filtration of pollutants and will reduce runoff by intercepting the water and increasing surface storage and infiltration.

PC9222 Stream Restoration

This stream flows northeast towards Old Keene Mill Road. The stream collects runoff from several adjacent neighborhoods. This project proposes repairing bank and bed erosion to restore channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander. The primary indicator is poor channel morphology. The stream is located on Fairfax County Park Authority land.

PC9225 Stream Restoration

The stream is located southwest of Huntsman Boulevard. It receives runoff from adjacent neighborhoods. This project is proposed to repair bank and bed erosion to restore channel morphology. The primary indicator is poor channel morphology. The stream conveys runoff from dense residential development. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.

PC9226 Stream Restoration

The stream is located northeast of Hillside Road. Stream receives stormwater runoff as sheet flow from adjacent neighborhoods and three closed systems from the Red Fox Estates neighborhood. Stream restoration is proposed to repair bank and bed erosion to restore channel morphology. Primary indicator is poor channel morphology. The stream stabilization will reduce sediment loads while maintaining capacity of the stream and controlling unwanted meander.

PC9229 Stream Restoration

This project is proposed to restore the stream northeast of Hillside Road and will consist of repairing bank and bed erosion. The primary indicator is poor channel morphology. The stream receives runoff from sheet flow and closed systems from adjacent residential neighborhoods. Stream stabilization will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander.

PC9231 Stream Restoration

Runoff is collected behind houses on Garden Road and enters a closed system. The primary indicator is poor channel morphology. This project is proposed to daylight the pipe farther upstream. Daylighting the pipe will allow the water to return to its natural state and create an open channel. This will reduce flow rates and minimize stream erosion.

5.3.2 Non-Structural Projects

PC9507 BMP/LID

The project is proposed to install a rain barrel/cistern at Saratoga Elementary School, east of Northumberland Road. This system will capture, store and reuse runoff from the rooftop. The primary indicators are high impervious areas directly connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9514 BMP/LID

This project is proposed to install a rain barrel/cistern at Hunt Valley Elementary School. This system will capture, store and reuse runoff from the rooftop. The primary indicators are high impervious areas directly connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9516 BMP/LID

This project is proposed to install a rain barrel/cistern at Orange Hunt Elementary School. This system will capture, store and reuse runoff from the rooftop. The primary indicators are high impervious areas directly connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9520 BMP/LID

This project is proposed to install a rain barrel/cistern at Rolling Valley Elementary School. This system will capture, store and reuse runoff from the rooftop. The primary indicators are high impervious areas directly connected to the stormwatersystem. The rain barrels can be used by students for hands-on educational programs.

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

PC9804 Dumpsite/Obstruction Removal

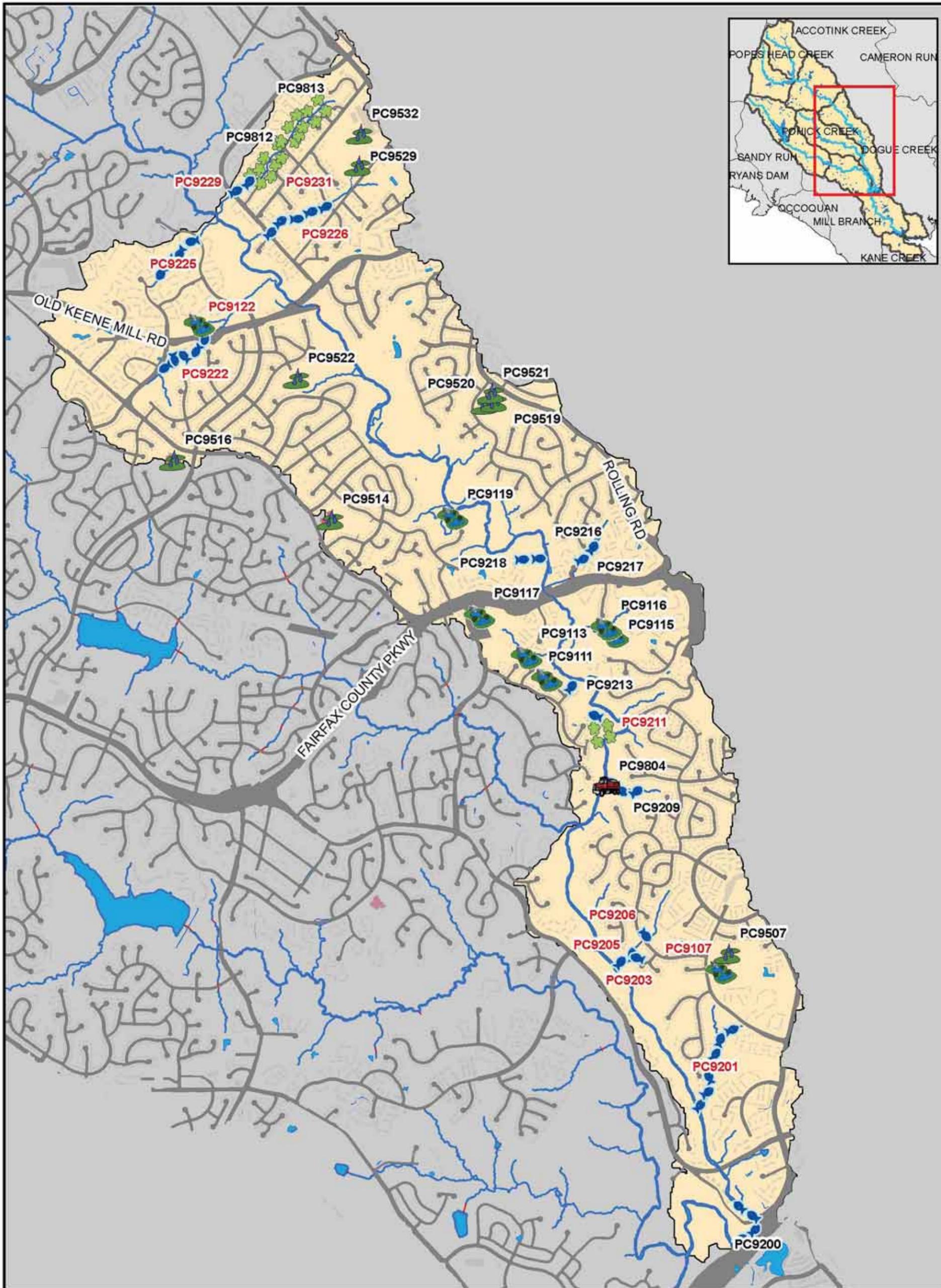
There is a stream obstruction southeast of Ships Curve Lane. Primary indicators are flood complaints. The obstruction has been field verified as concrete and debris. This project is proposed to remove the obstructions blocking the stream channel in order to restore natural conditions and the function of the stream.

PC9812 Buffer Restoration

The stream buffer northwest of Lee-Brooke Place has deficiencies in headwater riparian habitat. This project proposes re-planting the buffer to re-establish the resource protection area (RPA). Increased vegetation from buffer repair will provide additional stream buffer for filtration of pollutants and will reduce runoff by intercepting the water, thereby increasing surface storage and infiltration.

PC9813 Buffer Restoration

The stream northwest of Beatrice Court had indications of stream bank buffer deficiency in headwater riparian habitat. Runoff comes from adjacent neighborhoods both by sheet flow and through a closed system. This project is proposed to re-plant the stream buffer to re-establish the RPA. Increased vegetation from buffer repair will provide additional stream buffer for filtration of pollutants and will reduce runoff by intercepting the water, thereby increasing surface storage and infiltration.



- | | | |
|------------------------------|--------------------------|-------------------------------------|
| Buffer Restoration | New Stormwater Pond | Area-wide Drainage Improvement |
| Stream Restoration | Outfall Improvement | Community Outreach/Public Education |
| BMP/LID | Stormwater Pond Retrofit | Land Conservation Project |
| Culvert Retrofit | Other | Flood Protection/Mitigation |
| Dumpsite/Obstruction Removal | | Inspection/Enforcement Enhancement |
| | | Street Sweeping Program |
| | | Studies, Surveys and Assessments |
- Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.3
 Pohick - Middle
 VMA
 Proposed Projects

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

Table 5-3: Project List - WMA (Pohick – Middle Pohick)

Structural Projects¹						
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
PC9107	Stormwater Pond Retrofit	PC-PC-0021	8111 Northumberland Rd., Saratoga Elementary School	Water quality and quantity control	Public/Local - FCPS, FCPA	0-10
PC9122	Stormwater Pond Retrofit	PC-PC-0034	Between Field Master Dr. & Huntsman Blvd.	Water quality and quantity control	Private - HOA	0-10
PC9201	Stream Restoration	PC-PC-0021	Behind 7756 Matisse Way	Water quality control	Public/Local - FCPA	0-10
PC9203	Stream Restoration	PC-PC-0023	8100 Lake Pleasant Dr.	Water quality control	Public/Local - FCPA	0-10
PC9205	Stream Restoration	PC-PC-0023	Behind 8106 Kings Point Ct.	Water quality and quantity control	Public/Local - FCPA	0-10
PC9206	Stream Restoration	PC-PC-0023	Next to 8021 Lake Pleasant Dr.	Water quality control	Private - HOA	0-10
PC9211	Stream Restoration Suite	PC-PC-0025	Near 8000 Middlewood Pl.	Water quality and quantity control	Public/Local - FCPA	0-10
PC9222	Stream Restoration	PC-PC-0033	Behind 8817 Bridle Wood Dr.	Water quality control	Public/State - VDOT, Public/Local - FCPA, Private - Residential	0-10
PC9225	Stream Restoration	PC-PC-0036	Next to 6297 Kerrydale Dr.	Water quality control	Private - HOA	0-10
PC9226	Stream Restoration	PC-PC-0035	Behind 6321 Hillside Rd.	Water quality control	Private - Residential, Private - HOA	0-10
PC9229	Stream Restoration	PC-PC-0037	Behind 8901 Winding Hollow Way	Water quality control	Private - HOA	0-10
PC9231	Stream Restoration	PC-PC-0037	Behind 6126 Garden Rd.	Water quality and quantity control	Private - HOA	0-10
PC9111	Stormwater Pond Retrofit	PC-PC-0026	8110 Deer Creek Pl.	Water quality and quantity control	Private - HOA	11-25

¹ Only 10-yr structural projects will have associated project fact sheets at the end of section 5.

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

Structural Projects¹						
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
PC9113	Stormwater Pond Retrofit	PC-PC-0026	Behind 7439 Quincy Hall Ct.	Water quality and quantity control	Private - HOA, Private - Residential	11-25
PC9115	Stormwater Pond Retrofit	PC-PC-0026	Behind 8032 Bethelen Woods La.	Water quality and quantity control	Private - Residential, Public/Local - FCPA	11-25
PC9116	Stormwater Pond Retrofit	PC-PC-0026	Behind 73919 Walnut Knoll Dr.	Water quality and quantity control	Public/Local - FCPA, Private - Residential	11-25
PC9117	Stormwater Pond Retrofit	PC-PC-0026	Across from 7320 Gambrill Rd., Commuter lot	Water quality and quantity control	Public/State - VDOT	11-25
PC9119	Stormwater Pond Retrofit	PC-PC-0028	Behind 7106 Hadlow Ct.	Water quality and quantity control	Public/Local - FCPA	11-25
PC9200	Stream Restoration	PC-PC-0020	Behind 7800 Creekside View La.	Water quality control	Public/State - VDOT	11-25
PC9209	Stream Restoration	PC-PC-0025	Behind 8154 Ships Curve La.	Water quality control	Public/Local - FCPA, Private - HOA	11-25
PC9213	Stream Restoration	PC-PC-0026	Behind 7500 Ridgebrook Dr.	Water quality and quantity control	Public/Local - FCPA	11-25
PC9216	Stream Restoration	PC-PC-0027	Behind 8098 Whitlers Creek Ct.	Water quality control	Private - HOA, Private - Residential	11-25
PC9217	Stream Restoration	PC-PC-0027	Behind 8084 Whitlers Creek Rd.	Water quality and quantity control	Private - HOA	11-25
PC9218	Stream Restoration	PC-PC-0027	Behind 7211 Olde Lantern Way	Water quality and quantity control	Public/Local - FCPA	11-25
PC9519	BMP/LID Suite	PC-PC-0028	6703 Barnack Dr., Rolling Valley Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9521	BMP/LID	PC-PC-0029	6703 Barnack Dr., Rolling Valley Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9522	BMP/LID	PC-PC-0031	8600 Bridle Wood Dr., Orange Hunt Pool	Water quality and quantity control	Private - Residential	11-25

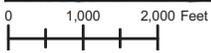
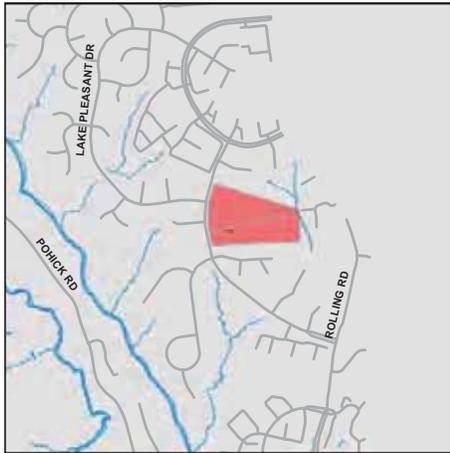
¹ Only 10-yr structural projects will have associated project fact sheets at the end of section 5.

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

Structural Projects¹						
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
PC9529	BMP/LID	PC-PC-0035	6100 Rolling Rd., West Springfield High School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9532	BMP/LID	PC-PC-0035	6100 Rolling Rd., West Springfield High School	Water quality and quantity control	Public/Local - FCPS	11-25
Non-Structural Projects¹						
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	
PC9507	BMP/LID	PC-PC-0021	8111 Northumberland Rd., Saratoga Elementary School	Water quality and quantity control	Public/Local - FCPS	
PC9514	BMP/LID	PC-PC-0028	7107 Sydenstricker Rd., Hunt Valley Elementary School	Water quality and quantity control	Public/Local - FCPS	
PC9516	BMP/LID	PC-PC-0033	6820 Sydenstricker Rd., Orange Hunt Elementary School	Water quality and quantity control	Public/Local - FCPS	
PC9520	BMP/LID	PC-PC-0029	6703 Barnack Dr., Rolling Valley Elementary School	Water quality and quantity control	Public/Local - FCPS	
PC9804	Dumpsite/ Obstruction Removal	PC-PC-0025	Between Cliffside Ct. & Richfield Rd. (7927 Richfield Rd.)	Water quality control	Public/Local - FCPS	
PC9812	Buffer Restoration	PC-PC-0037	Behind 6102 Lee Brooke Pl.	Water quality control	Private - HOA	
PC9813	Buffer Restoration	PC-PC-0037	Behind 8586 Beatrice Ct.	Water quality control	Private - HOA	

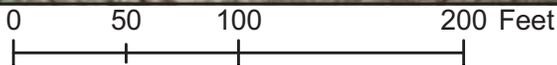
¹ Only 10-yr structural projects will have associated project fact sheets at the end of section 5.

PC9107 Stormwater Pond Retrofit



Address: 8111 Northumberland Rd., Springfield, Virginia
Location: Saratoga Elementary School
Land Owner: Public/Local – Fairfax County Public School, Fairfax County Park Authority
PIN: 0984 04 S, 0984 11 B
Control Type: Water quality and quantity control
Drainage Area: 5.97 acres
Receiving Waters: Tributary of Pohick Creek

Description: Dry pond at Saratoga Elementary School receives runoff from a school parking lot and driveway. This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The sediment forebays will provide pretreatment of stormwater runoff.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal
- Sediment Forebay

Project Benefits: An estimated 1.07 lbs/year of phosphorus will be removed. Extending the pond’s detention time will provide better downstream channel protection and will promote the settlement of particulate pollutants. Installing the sediment forebays will reduce debris and coarse sediment in the pond which will help reduce maintenance and will increase infiltration.

Project Design Considerations: Pond is partially on property owned by School Board of Fairfax County and partially on property owned by Fairfax County Park Authority. The pond size will need to be increased to accommodate the greater detention volume. Efforts should be made to minimize impacts to existing mature vegetation. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15’ off of the top of bank.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.2	AC	\$8,500	\$1,700
Grading and Excavation	1300	CY	\$35	\$45,500
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	20	CY	\$50	\$1,000
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	50	SY	\$100	\$5,000
Organic Compost Soil Amendment	170	CY	\$40	\$6,800
Plantings	1	LS	5%	\$3,813
Ancillary Items	1	LS	5%	\$3,813
Erosion and Sediment Control	1	LS	10%	\$7,625
Base Construction Cost				\$91,500
Mobilization (5%)				\$4,575
Subtotal 1				\$96,075
Contingency (25%)				\$24,019
Subtotal 2				\$120,094
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$54,042
Total				\$174,136
Estimated Project Cost				\$180,000



PC9107_1.jpg: View of existing pond area

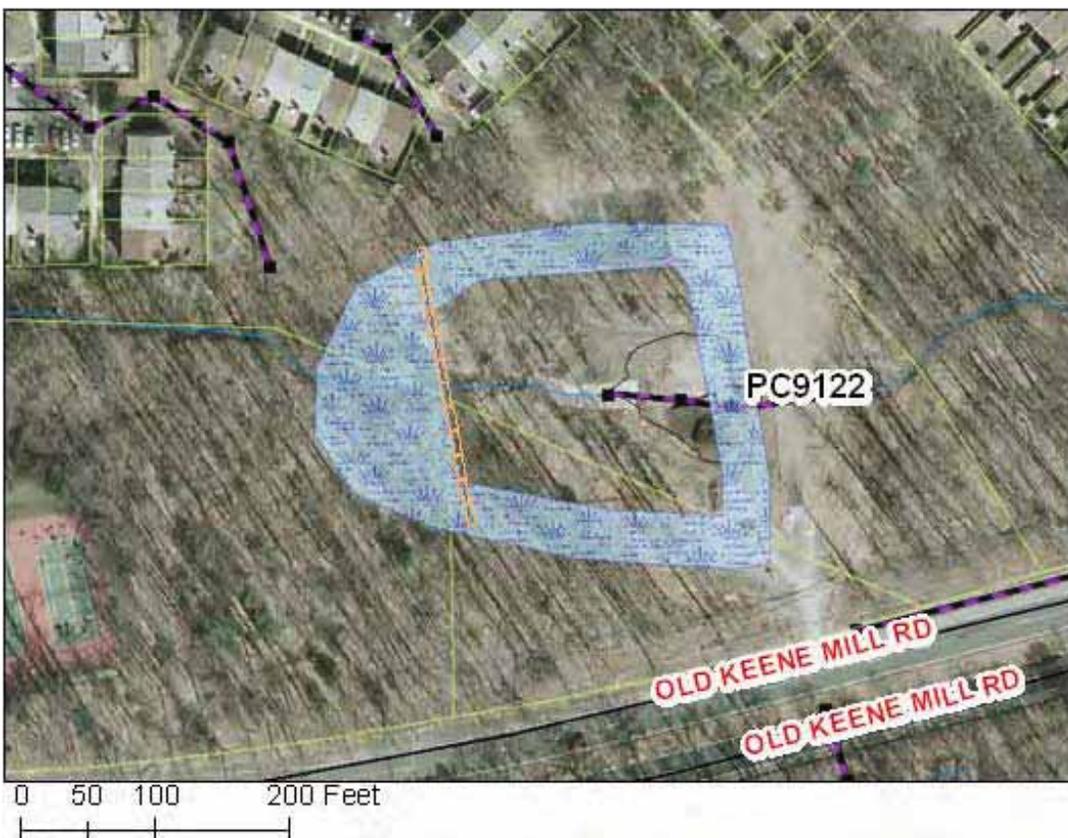
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PC9122 Stormwater Pond Retrofit



Address: Field Master Dr. & Old Keene Mill Road, Springfield, Virginia
Location: Pond along Old Keene Mill Road (access road)
Land Owner: Private – Keene Mill Village Two Homeowners Association, III Keene Mill Village Homeowners Association, Keene Mill Village Recreation Association
PIN: 0882 13 B, 0882 1303 D, 0882 13 E
Control Type: Water quality and quantity control
Drainage Area: 40.47 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the retrofit of an existing pond north of Old Keene Mill Road and east of Field Master Drive, which receives runoff from adjacent roads and neighborhoods. The existing dry pond will be retrofitted to create an extended detention dry pond with a sediment forebay. Pond receives runoff from a large drainage area consisting of dense residential development, roadways and wooded areas. Pond outfalls to the adjacent stream in the wooded area to the east.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal
- Sediment Forebay

Project Benefits: An estimated 8.35 lbs/year of phosphorus will be removed. Extending the pond’s detention time will help prevent downstream channel erosion and will increase pollutant settlement in the pond. The forebay will collect the majority of the roadway fines and help maintain the infiltration capacity of the pond and reduce major maintenance repairs.

Project Design Considerations: This project is on private property owned by Keene Mill Village Two Homeowners Association. Records show no easements near the site. The sediment forebay should account for approximately 10% of pond area. The existing concrete pilot channel should be removed, and the existing discharge structure will need to be modified to extend the pond’s detention time. Due to the addition of the sediment forebay and the extended detention time, the pond size will probably have to be increased as shown on the project area map. The pond is in a heavily wooded area, and efforts should be made to minimize impacts to existing mature vegetation. The landscaping plan should allow the pond to mature into a native forest in the right places yet keep mowable turf along the embankment and all access areas. The pond has its own access road off of the main road.

Cost:

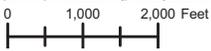
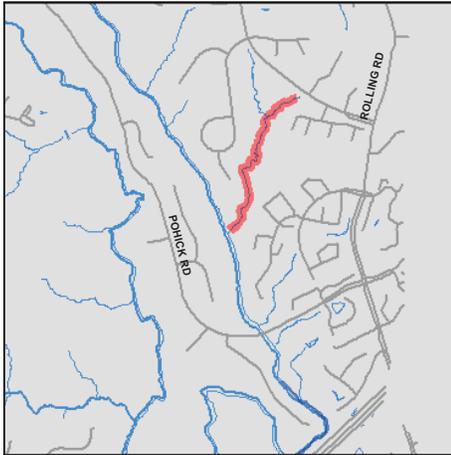
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.9	AC	\$8,500	\$7,650
Grading and Excavation	2500	CY	\$35	\$87,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	65	CY	\$50	\$3,250
Outflow Pipe	150	LF	\$125	\$18,750
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	700	CY	\$40	\$28,000
Plantings	1	LS	5%	\$8,508
Ancillary Items	1	LS	5%	\$8,508
Erosion and Sediment Control	1	LS	10%	\$17,015
Base Construction Cost				\$204,180
Mobilization (5%)				\$10,209
Subtotal 1				\$214,389
Contingency (25%)				\$53,597
Subtotal 2				\$267,986
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$120,594
Total				\$388,580
Estimated Project Cost				\$390,000



PC9122_1.jpg Existing control structure

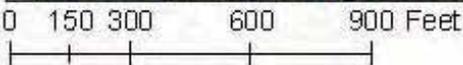
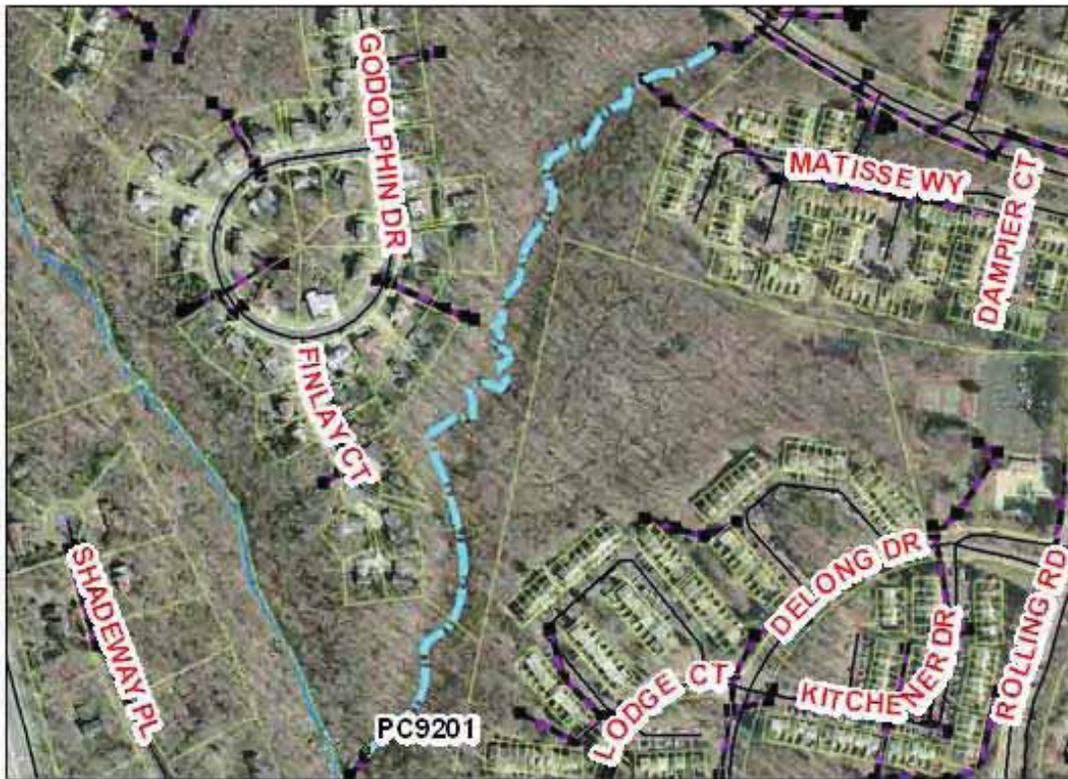
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PC9201 Stream Restoration



Address: Behind 7756 Matisse Way, Springfield, Virginia
Location: Stream behind Matisse Way
Land Owner: Public/Local – FCPA
PIN: 0984 06 E, 0984 06 C
Control Type: Water quality control
Drainage Area:
Receiving Waters: Tributary of Pohick Creek

Description: This stream restoration is located west of Matisse Way and east of Godolphin Dr., and is located on Fairfax County Park Authority land. This project proposes repairing bank and bed erosion, restoring channel morphology, and reducing excessive channel meander. Stream stabilization will reduce sediment loads to the stream while maintaining capacity of the channel and controlling unwanted meander.



- Legend**
- Bioretention
 - Bioswale
 - Buffer Restoration
 - Outfall Improvement
 - Green Roof
 - Flood Protection
 - Pervious Pavement
 - SW Pond Retrofit
 - Stream Restoration
 - Major Road
 - Property Line
 - Storm Pipes
 - Streams
 - Inlet Filter Inserts
 - Dumpsite/Obstruction Removal

Project Benefits: Restoring 2,390 feet of this stream will help eliminate erosion from this portion of the stream and reduce the amount of instream sediment. This will result in an estimated 26.75 lbs/year of phosphorus being removed from the stream.

Project Design Considerations: The stream receives runoff from two closed storm systems at its upstream end. These outfalls are from dense townhouses with no stormwater treatment. Installing settling basins and boulder clusters would help roadway sediment settle out and reduce erosive velocities. Other measures include using streambank shaping, erosion control fabrics, and vegetation establishment.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2390	LF	\$200	\$478,000
Clear and Grub	2.74	AC	\$10,000	\$27,400
Plantings	2.74	AC	\$25,000	\$68,500
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$67,390
Ancillary Items	1	LS	5%	\$33,695
Base Construction Cost				\$774,985
Mobilization (5%)				\$38,749
Subtotal 1				\$813,734
Contingency (25%)				\$203,434
Subtotal 2				\$1,017,168
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$457,726
Total				\$1,474,893
Estimated Project Cost				\$1,480,000



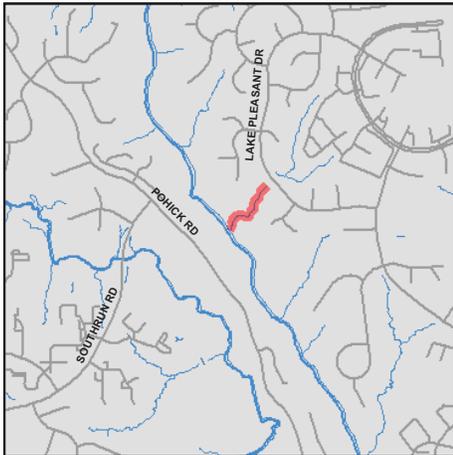
PC9201_1.jpg Bird's Eye view of stream looking from the north



PC9201_2.jpg View sediment buildup along inside edge of bend

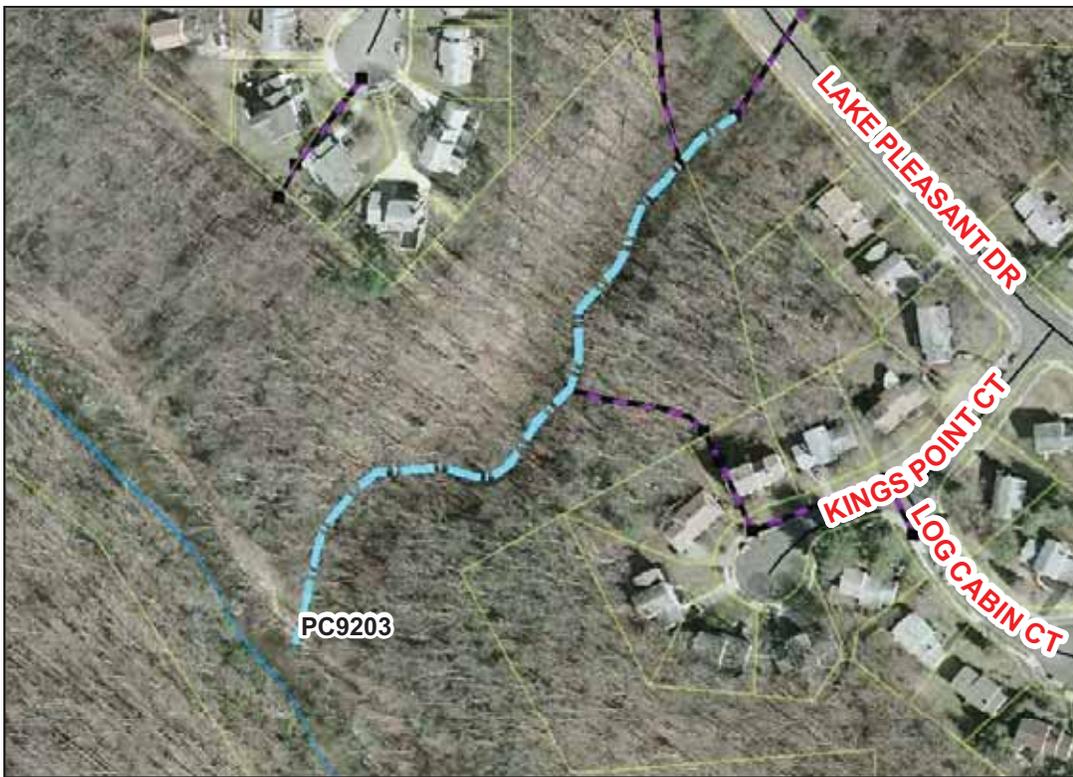
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PC9203 Stream Restoration



Address: 8100 Lake Pleasant Dr. (Adj. to Kings Point Ct.), Springfield, Virginia
Location: Stream along Lake Pleasant Dr.
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0982 06 B2, 0982 06 A2
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: Stream is southwest of Lake Pleasant Drive and north of Kings Point Court. The stream conveys runoff from adjacent residential neighborhoods and flows southwest. This project proposes repairing bank and bed erosion to restore channel morphology. The primary indicator is poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal

Project Benefits: An estimated 5.64 lbs/year of phosphorus will be removed. Stream stabilization will help to reduce sediment loads to the stream channel and control unwanted meander. Stabilization will help in reducing stream erosion over time. Replanting will help reduce pollutant loads.

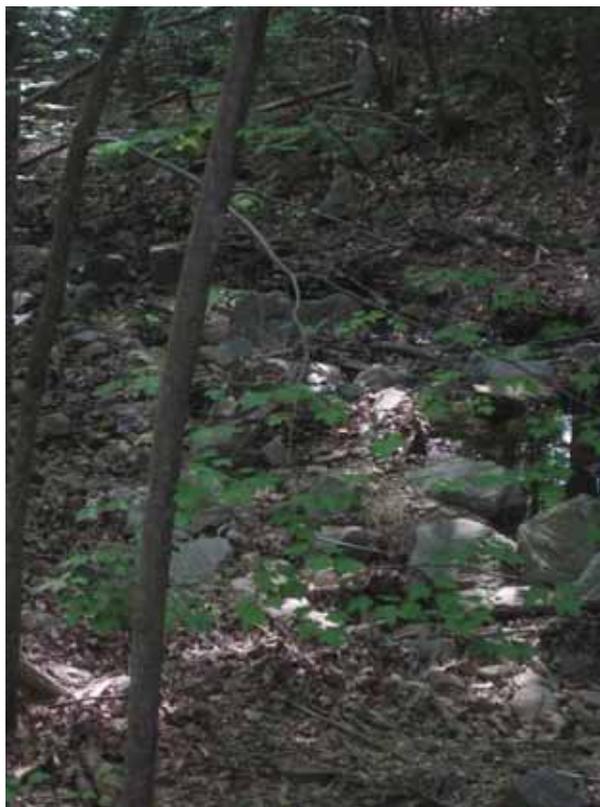
Project Design Considerations: While there is significant contributing impervious area, the buffer area appears well maintained. Efforts should be made to minimize the impact to this existing vegetation. A majority of the land is owned by Fairfax County Park Authority; however the farthest upstream portion is on property owned by Saratoga Community Association. No easements exist on site according to the County-provided GIS data.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2025	LF	\$200	\$405,000
Clear and Grub	2.32	AC	\$10,000	\$23,200
Plantings	2.32	AC	\$25,000	\$58,000
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$58,620
Ancillary Items	1	LS	5%	\$29,310
Base Construction Cost				\$674,130
Mobilization (5%)				\$33,707
Subtotal 1				\$707,837
Contingency (25%)				\$176,959
Subtotal 2				\$884,796
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$398,158
Total				\$1,282,954
Estimated Project Cost				\$1,290,000



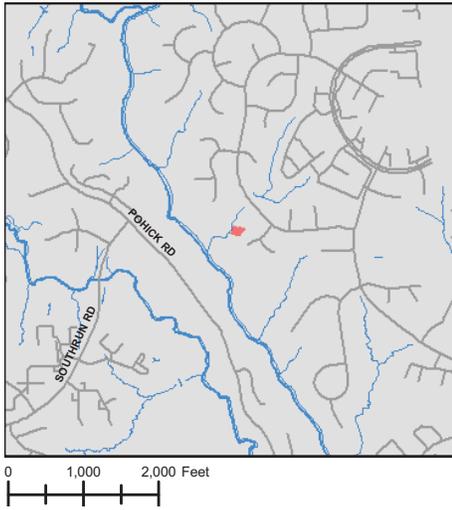
PC9203_1 View of Stream at Culvert



PC9203_2.jpg View of Stream

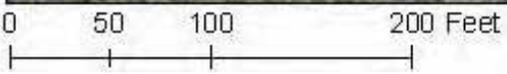
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PC9205 Stream Restoration



Address: Behind 8106 Kings Point Court, Springfield, Virginia
Location: Stream near Kings Point Court
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0982 06 B2
Control Type: Water quality and quantity control
Drainage Area: 3.32 acres
Receiving Waters: Tributary of Pohick Creek

Description: Closed system collects runoff from Kings Point Court and one other cul-de-sac. The systems outfalls into a stream to the northwest. This project proposes daylighting the outfall pipe farther upstream. The primary problem indicator is poor channel morphology. This project returns the water to its natural state before entering the stream, allowing more time for the water to infiltrate and the flow velocities to decrease.



Project Benefits: Daylighting this section of the storm pipe will allow for the creation of step pools, which provides a reduction of energy in the stormwater discharge and allows for settling of some of the stormwater sediment. These measures will result in an estimated 1.05 lbs/year of phosphorus reduction. This project will also encourage more infiltration.

Project Design Considerations: This project discharges into a proposed stream restoration (PC9203). This daylighting project should be coordinated with the stream restoration project to help facilitate access to the pipe, since the pipe is located behind a single family home owned by Thomas Lambert. The slope of the land over the existing pipe is approximately 20%. A number of stepping pools will need to be used to reduce velocity of the discharge. The number of stepping pools will depend on the invert elevations of the storm pipe at the start and end of the daylighting.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	170	LF	\$200	\$34,000
Clear and Grub	0.2	AC	\$10,000	\$2,000
Plantings	0.2	AC	\$25,000	\$5,000
Additional Cost, First 500 LF	170	LF	\$200	\$34,000
Erosion and Sediment Control	1	LS	10%	\$7,500
Ancillary Items	1	LS	5%	\$3,750
Base Construction Cost				\$86,250
Mobilization (5%)				\$4,313
Subtotal 1				\$90,563
Contingency (25%)				\$22,641
Subtotal 2				\$113,203
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$50,941
Total				\$164,145
Estimated Project Cost				\$170,000



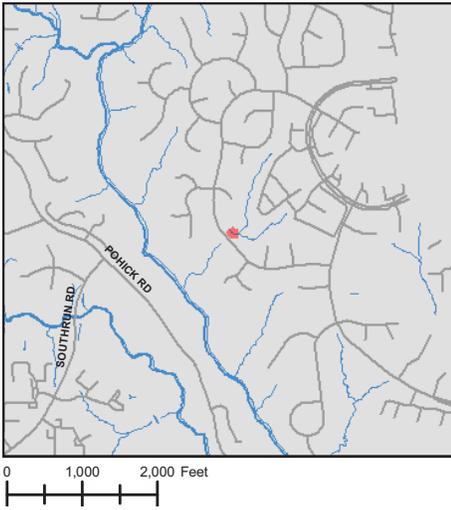
PC9205_1.jpg View of Upstream of daylighting area



PC9205_2.jpg View of downstream of daylighting Area

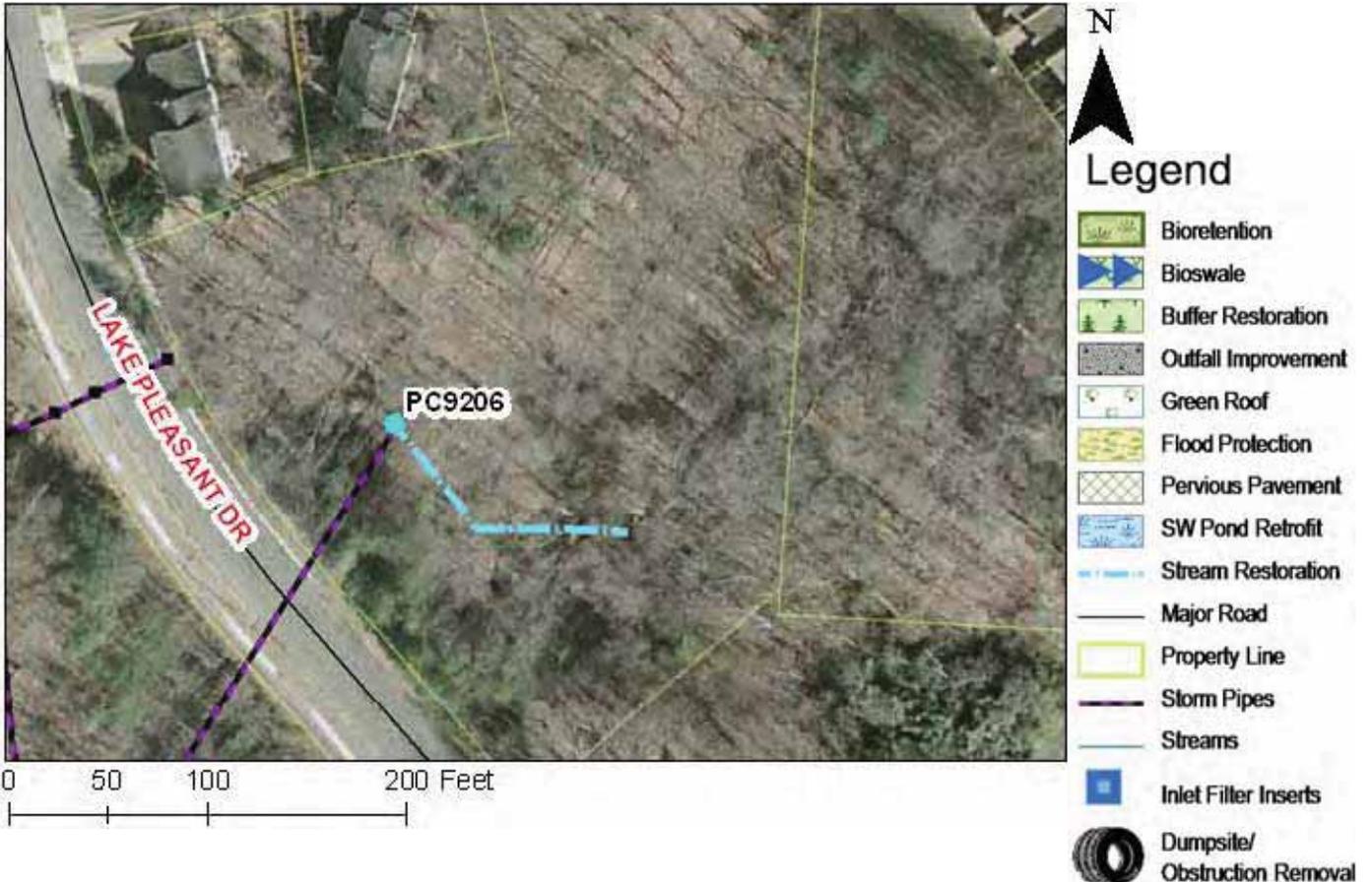
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PC9206 Stream Restoration



Address: Next to 8021 Lake Pleasant Drive, Springfield, Virginia
Location: Stream near Lake Pleasant Dr.
Land Owner: Private – Saratoga Community Association
PIN: 0982 06 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: The project proposes restoring the stream just northeast of Lake Pleasant drive. The current stream has bank and bed erosion and poor channel morphology. The stream stabilization will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander. This stream segment is steep and receives runoff from townhomes and a roadway outfall. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabric, and rapid vegetation establishment.



Project Benefits: Restoring 140 feet of this stream will reduce erosion and instream sediment. This will result in an estimated 0.92 lbs/year of phosphorus removal.

Project Design Considerations: This short stream segment receives flow from two branches upstream. To the north, the stream receives runoff from a row of townhouses. To the east, a cul-de-sac drains across a single family lot into the stream. The contours show the stream has a slope of approximately 7.1%. To address this steep slope, grade control measures and bank reinforcement will be required.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	140	LF	\$200	\$28,000
Clear and Grub	0.16	AC	\$10,000	\$1,600
Plantings	0.16	AC	\$25,000	\$4,000
Additional Cost, First 500 LF	140	LF	\$200	\$28,000
Erosion and Sediment Control	1	LS	10%	\$6,160
Ancillary Items	1	LS	5%	\$3,080
Base Construction Cost				\$70,840
Mobilization (5%)				\$3,542
Subtotal 1				\$74,382
Contingency (25%)				\$18,596
Subtotal 2				\$92,978
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$41,840
Total				\$134,817
Estimated Project Cost				\$140,000



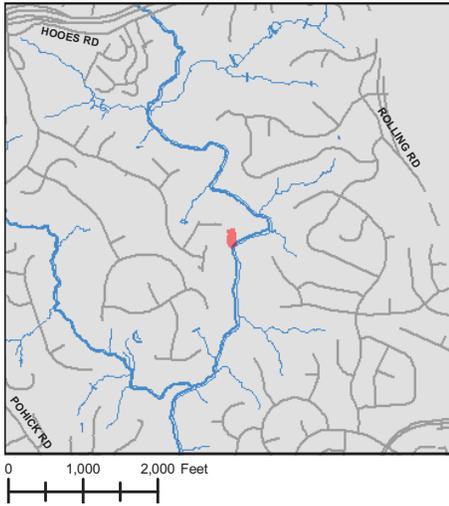
PC9206_1.jpg View of stream at culvert



PC9206_2.jpg View of stream looking upstream

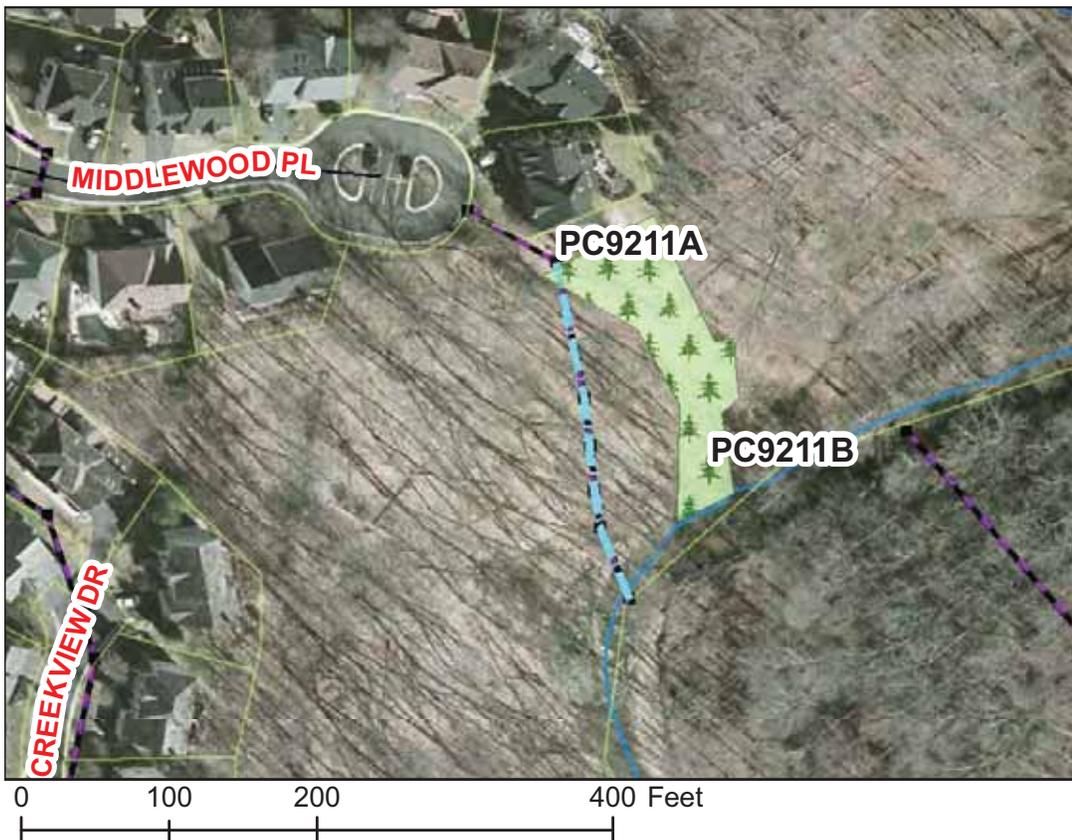
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PC9211 Stream Restoration Suite



Address: Near 8000 Middlewood Place, Springfield, Virginia
Location: Stream/Buffer near Middlewood Place
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0894 24 A
Control Type: Water quality control
Drainage Area: 0.71 acres
Receiving Waters: Tributary of Pohick Creek

Description: Subproject A proposes to daylight a pipe that collects runoff at the end of Middlewood Place and pipes it south into a stream. The primary indicator is channel morphology. The pipe leading into the stream is very steep, outfalling runoff at potentially erosive velocities. Subproject B proposes re-planting upland buffer area and providing reforestation. This project was proposed due to the existing stream buffer being deficient.



Project Benefits: An estimated 2.99 lbs/year of phosphorus will be removed. Daylighting will help poor channel morphology by redirecting a closed system back to an aboveground channel, returning the water to its natural state. This will reduce velocities entering the stream and minimize stream erosion. Buffer restoration will increase vegetation for filtration of pollutants and reduce runoff by intercepting the water and increasing surface storage and infiltration. Buffers can also help provide food and temperature control for organisms in and around the stream.

Project Design Considerations: Projects proposed on are Fairfax County Park Authority property. Projects should be built in conjunction with one another. The number of step pools required will be determined by the slope and length of pipe daylighted. Efforts should be made to minimize impacts to mature vegetation. Buffer area to be replanted is steep (approximately 4%). Plants should be chosen for the buffer replanting that can survive at this slope. Diameter of pipe to be daylighted is 15”.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Daylight East of Middlewood Pl.				
Construct New Channel	240	LF	\$200	\$48,000
Clear and Grub	0.28	AC	\$10,000	\$2,800
Plantings	0.28	AC	\$25,000	\$7,000
Additional Cost, First 500 LF	240	LF	\$200	\$48,000
Subproject B Stream Buffers Adjacent to Middlewood Pl.				
Plantings	0.22	AC	\$25,000	\$5,500
Organic Compost Soil Amendment	650	CY	\$40	\$26,000
Invasive Plan Eradication	1	LS	10%	\$3,150
Common Items				
Erosion and Sediment Control	1	LS	10%	\$13,730
Ancillary Items	1	LS	5%	\$6,865
Base Construction Cost				\$161,045
Mobilization (5%)				\$8,052
Subtotal 1				\$169,097
Contingency (25%)				\$42,274
Subtotal 2				\$211,372
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$95,117
Total				\$306,489
Estimated Project Cost				\$310,000



PC9211_1.jpg Buffer restoration area



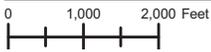
PC9211_2.jpg Daylighting area

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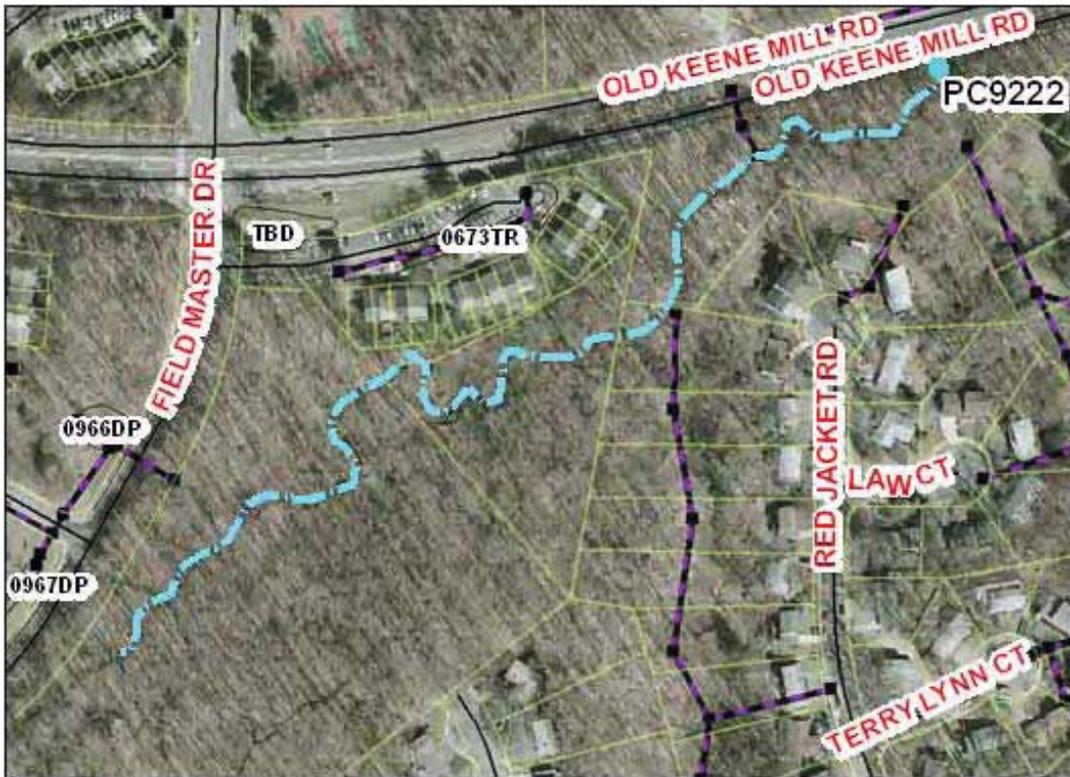
PC9222 Stream Restoration



Address: Behind 8817 Bridle Wood Drive, Springfield, Virginia
Location: Stream near Old Keene Mill Road
Land Owner: Public/Private – Virginia Department of Transportation, Fairfax County Park Authority and Private Owner
PIN: 0882 09 A, 0882 22 A, 0882 22 B, 0882 04 0148
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

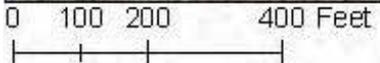


Description: Stream flowing northeast towards Old Keene Mill Road. Stream collects runoff from several adjacent neighborhoods. This project proposes repairing bank and bed erosion to restore channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander. The primary indicators are poor channel morphology. The stream is located on Fairfax County Park Authority land.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/Obstruction Removal



Project Benefits: Reducing bed and bank erosion from 1980 feet of stream will reduce instream sediment and will result in an estimated 24.63 lbs/year of phosphorus reduction. This project will also help ensure a stream buffer next to the townhouses.

Project Design Considerations: This project starts just downstream of two roadway stormwater systems. This project is mostly located on Fairfax County Park Authority land, but a section of the stream crosses the northwest corner of Philip Hodges single family home lot. An easement will be needed for this section. Additionally, another section of the stream meanders near the back of a townhouse. This section should be stabilized and the buffer well vegetated. The stream receives discharge from a stormwater system that drains the houses to the west of Red Jacket Rd. This project will help reduce erosive velocities around this outfall.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1980	LF	\$200	\$396,000
Clear and Grub	2.27	AC	\$10,000	\$22,700
Plantings	2.27	AC	\$25,000	\$56,750
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$57,545
Ancillary Items	1	LS	5%	\$28,773
Base Construction Cost				\$661,768
Mobilization (5%)				\$33,088
Subtotal 1				\$694,856
Contingency (25%)				\$173,714
Subtotal 2				\$868,570
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$390,856
Total				\$1,259,426
Estimated Project Cost				\$1,260,000



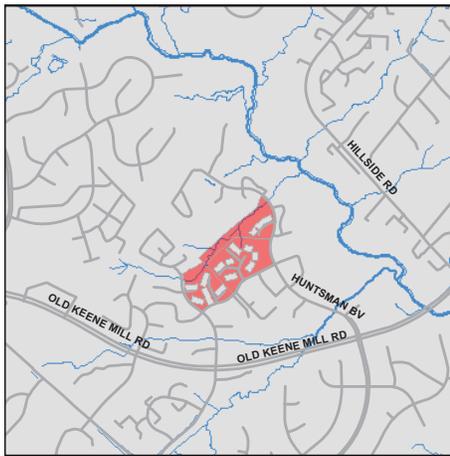
PC9222_1.jpg View of streambed



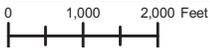
PC9222_2.jpg View of stream erosion

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PC9225 Stream Restoration



Address: Next to 6297 Kerrydale Drive, Springfield, Virginia
Location: Stream near Kerrydale Drive
Land Owner: Private – Shannon Station Townhouse Association, Four Keene Mill Village Homeowners Association
PIN: 0784 21 M, 0882 1304 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: Stream is located southwest of Huntsman Boulevard. Receives runoff from adjacent neighborhoods. This project proposes repairing bank and bed erosion to restore channel morphology. The primary indicator is poor channel morphology. Stream conveys runoff from dense residential development. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/ Obstruction Removal

Project Benefits: An estimated 47.13 lbs/year of phosphorus will be removed. Stream stabilization will reduce sediment loads while maintaining the capacity of the stream and controlling unwanted meander. Measures will be put in place to repair existing erosion and prevent future erosion over time.

Project Design Considerations: The majority of the site is on property owned by Shannon Townhouse Association. A small portion of the site is on property owned by Four Keene Mill Village Homeowners Association. Per County-provided GIS, there are no existing easements on site. Efforts should be taken to minimize impacts to mature vegetation.

Cost:

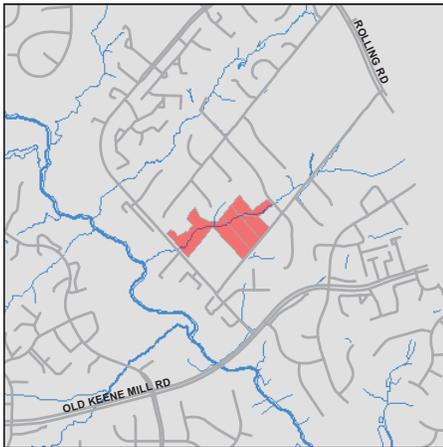
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1355	LF	\$200	\$271,000
Clear and Grub	1.55	AC	\$10,000	\$15,500
Plantings	1.55	AC	\$25,000	\$38,750
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$42,525
Ancillary Items	1	LS	5%	\$21,263
Base Construction Cost				\$489,038
Mobilization (5%)				\$24,452
Subtotal 1				\$513,489
Contingency (25%)				\$128,372
Subtotal 2				\$641,862
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$288,838
Total				\$930,699
Estimated Project Cost				\$940,000



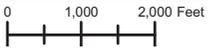
PC9225_1.jpg View of stream

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PC9226 Stream Restoration



Address: Behind 6321 Hillside Road, Springfield, Virginia
Location: Stream near Hillside Road
Land Owner: Public/ Private – Virginia Department of Transportation, Red Fox Estate Homeowners Association, Private Owners
PIN: 0793 36 A, 0793 04 0017, 0793 04 0016, 0793 04 0015A, 0793 07 0020A
Control Type: Water quality control
Drainage Area: NA
Receiving Waters: Tributary of Pohick Creek

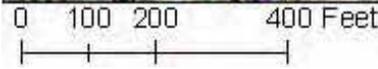


Description: The stream is located northeast of Hillside Road. The stream receives stormwater runoff as sheet flow from adjacent neighborhoods and three closed systems from the Red Fox Estates neighborhood. Stream restoration proposes repairing bank and bed erosion to restore channel morphology. The primary indicator is poor channel morphology. Stream stabilization will reduce sediment loads while maintaining capacity of the stream and controlling unwanted meander.



Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/ Obstruction Removal



Project Benefits: Stabilizing 1490 feet of this stream will reduce erosion and instream sediment. This will result in an estimated reduction of 13.78 lbs/year of phosphorus. The restoration will also improve the stream habitat.

Project Design Considerations: Measures to stabilize this stream should include improving the three stormwater outfalls. This stream section is located on the Red Fox Estate HOA open space and the private property of four single family house lots. Construction easements will need to be secured for the private properties. Possible stream stabilization improvements include: grade control measures, streambank shaping, boulder revetments, erosion control fabric, and vegetation establishment.

Cost:

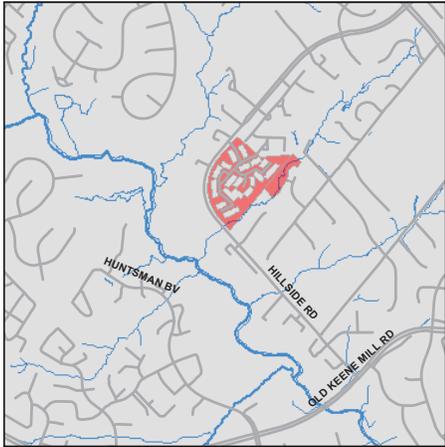
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1490	LF	\$200	\$298,000
Clear and Grub	1.71	AC	\$10,000	\$17,100
Plantings	1.71	AC	\$25,000	\$42,750
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$45,785
Ancillary Items	1	LS	5%	\$22,893
Base Construction Cost				\$526,528
Mobilization (5%)				\$26,326
Subtotal 1				\$552,854
Contingency (25%)				\$138,213
Subtotal 2				\$691,067
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$310,980
Total				\$1,002,048
Estimated Project Cost				\$1,010,000



PC9226_1 Stormwater outfall to stream

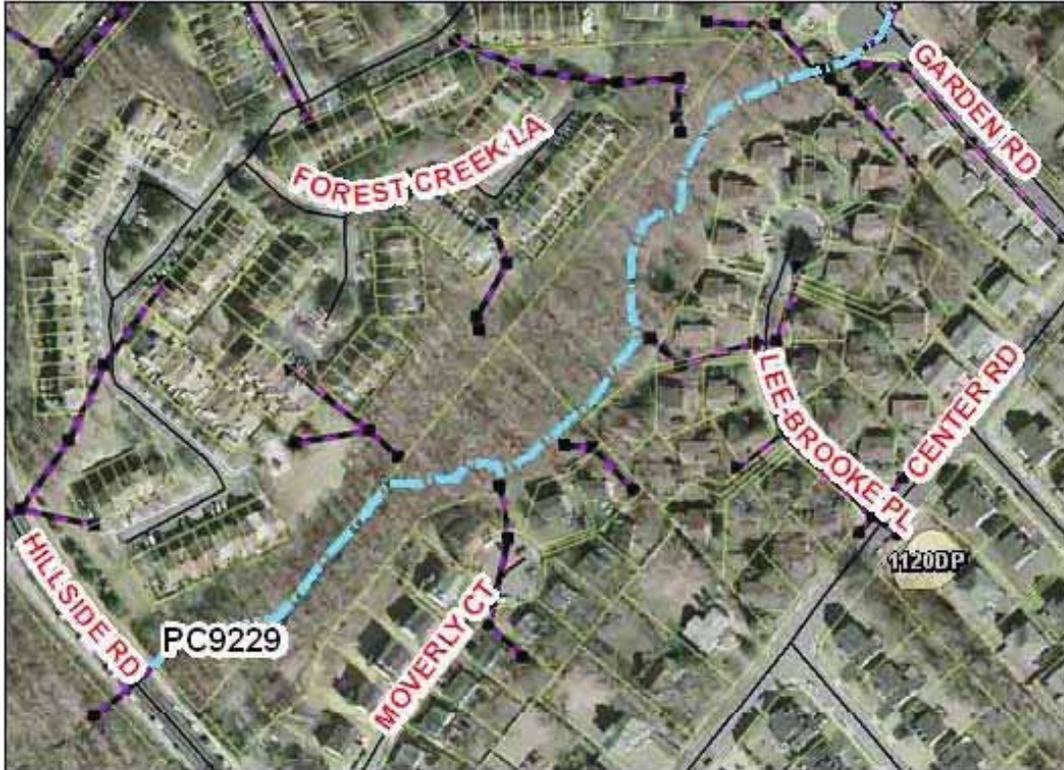
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PC9229 Stream Restoration



Address: Behind 8901 Winding Hollow Way, Springfield, Virginia
Location: Stream near Winding Hollow Way
Land Owner: Private – Lee Brooke Homeowners Association, Timbers Homeowners Association
PIN: 0793 22 A, 0784 17 J
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes restoration of the stream northeast of Hillside Road and will consist of repairing bank and bed erosion. The primary indicator is poor channel morphology. Stream receives runoff from sheet flow and closed systems from adjacent residential neighborhoods. Stream stabilization will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander.



Project Benefits: Restoring 2540 feet of stream will reduce erosion and instream sediment, resulting in an estimated phosphorus reduction of 22.13 lbs/year. Providing settling basins for the stormwater outfalls will help reduce the roadway fines from the untreated stormwater runoff.

Project Design Considerations: The stream is behind single family homes and townhouses. The upstream section is located on Lee Brook HOA open space and the downstream section is located on Timber HOA open space. The longitudinal slope of the stream is approximately 1.6%. Grade control measures should be investigated to prevent stream incision. A culvert draining Garden Road is Upstream. The stream receives untreated runoff from nine stormwater outfalls. Stream stabilization around these outfalls will help reduce erosion. Trees are leaning into the stream due to erosion. A stream restoration project (PC9231) is also proposed upstream of Garden Road and a buffer restoration project (PC9812) is proposed northwest of the Lee Brooke PL cul-de-sac. Coordination of these projects should be investigated for cost savings.

Cost:

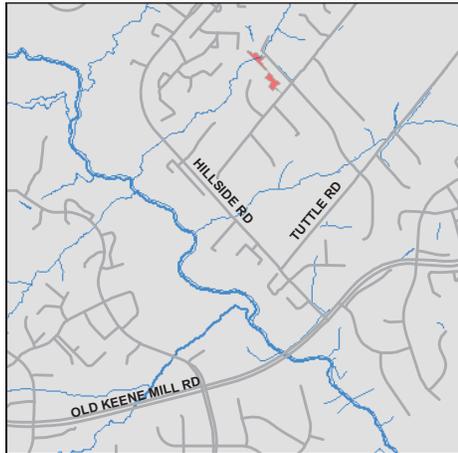
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2540	LF	\$200	\$508,000
Clear and Grub	2.92	AC	\$10,000	\$29,200
Plantings	2.92	AC	\$25,000	\$73,000
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$71,020
Ancillary Items	1	LS	5%	\$35,510
Base Construction Cost				\$816,730
Mobilization (5%)				\$40,837
Subtotal 1				\$857,567
Contingency (25%)				\$214,392
Subtotal 2				\$1,071,958
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$482,381
Total				\$1,554,339
Estimated Project Cost				\$1,560,000



PC9229_1.jpg View of stream

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PC9231 Stream Restoration



Address: Behind 6126 Garden Rd., Springfield, Virginia
Location: Stream near Garden Rd.
Land Owner: Private – Lee Brooke Section Two Homeowners Association
PIN: 0793 22 B
Control Type: Water quality and quantity control
Drainage Area: 0.30 acres
Receiving Waters: Tributary of Pohick Creek

Description: Runoff is collected behind houses on Garden Road and enters a closed system. The primary indicator is poor channel morphology. This project proposes daylighting the pipe farther upstream. Daylighting the pipe will allow the water to return to its natural state and create an open channel. This will reduce flow rates and minimize stream erosion.



N

Legend

- Bioretention
- Bioswale
- Buffer Restoration
- Outfall Improvement
- Green Roof
- Flood Protection
- Pervious Pavement
- SW Pond Retrofit
- Stream Restoration
- Major Road
- Property Line
- Storm Pipes
- Streams
- Inlet Filter Inserts
- Dumpsite/
Obstruction Removal

0 50 100 200 Feet

Project Benefits: This project will remove an estimated 0.63 lb/year of phosphorus. Daylighting redirects a closed system back to an aboveground channel, returning the water to its natural state and helping reduce runoff rates which will help minimize stream erosion. Runoff will also travel through the buffer and reduce pollutant loads.

Project Design Considerations: This project has a small contributing drainage area. Area to be daylighted is private land owned by Lee Brooke Section Two Homeowners Association. Channel should be constructed and replanted in such a way that future erosion is minimized due to proximity to homes. Replantings should create an effective buffer for pollutant removal and velocity reduction. The existing slope is approximately 8%. A structure at the downstream end conveys runoff through a closed system. Proposed channel should be diverted as to not enter this inlet and closed system.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	80	LF	\$200	\$16,000
Clear and Grub	0.09	AC	\$10,000	\$900
Plantings	0.09	AC	\$25,000	\$2,250
Additional Cost, First 500 LF	80	LF	\$200	\$16,000
Erosion and Sediment Control	1	LS	0.1	\$3,515
Ancillary Items	1	LS	0.05	\$1,758
Base Construction Cost				\$40,423
Mobilization (5%)				\$2,021
Subtotal 1				\$42,444
Contingency (25%)				\$10,611
Subtotal 2				\$53,055
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$23,875
Total				\$76,929
Estimated Project Cost				\$80,000



PC9231_1.jpg View of existing inlet at downstream end of daylighting



PC9231_2.jpg View of area to be daylighted

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5.4 Pohick – Middle Run Watershed Management Area

Middle Run Watershed Management Area has a total area of approximately 3.97 square miles and is comprised of 12 subwatersheds. It is bound to the north by Old Keene Mill Road and to the roughly by Sydenstricker Road to the northeast. Fairfax County Parkway bisects to the east and Lee Chapel Road bisects to the west.

The WMA has approximately 20.23 miles of stream that flow northwest to southeast. The area consists mainly of single-family attached and detached residential homes. Land cover is primarily impervious surface associated with residential development (i.e., rooftops, sidewalks and roadways) and landscaping, including managed turf. The area is approximately 28 percent impervious. Notable features of the WMA are Huntsman Lake, several elementary schools, a park and ride facility along Fairfax County Parkway and several churches.

Stormwater infrastructure consists primarily of curb and gutter stormwater collection leading to a piped network of storm drains discharging to either dry detention basins or directly into Middle Run and its associated stream valleys and tributaries. The Middle Run WMA contains approximately 37 dry detention facilities designed to manage stormwater quantity. In addition, the WMA contains two underground chambers and one infiltration trench for water quality management. In the Middle Run WMA the most prevalent stream condition features noted include disturbed stream buffers and stream channel widening. The pipes discharging directly into the WMA's streams have a demonstrated impact.

The watershed restoration projects for this WMA include retrofitting stormwater ponds, restoring streams, and BMP/LID projects at school sites, including bioretention landscaping features and installing rain barrels. Finally, two dumpsite/obstruction removals and two buffer restoration projects are proposed. Descriptions of the 0 – 10-year-plan projects and non-structural projects follow. Also, a map of this WMA and a list of all the projects proposed in it are provided. For more information see the 0 – 10-year-plan project fact sheets at the end of this section.

5.4.1 Structural Projects

PC9109 Stormwater Pond Retrofit

This stormwater pond retrofit is located at St. Raymond's Penafort Catholic Church east of Fairfax County Parkway and north of Pohick Road. The pond receives runoff from the church and the parking lot. This project proposes modifying the existing discharge structure and expanding the pond to create an extended detention dry pond with a sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.

PC9114 Stormwater Pond Retrofit

This project is proposed as a pond retrofit at Sangster Elementary School, northwest of Reservation Drive. Stormwater runoff is collected in a closed system and outfalls into a dry pond near the school's entrance. The pond outfalls across Reservation Drive into a wooded area and ultimately into a stream. This project proposes removing the pond's existing pilot channel and retrofitting the pond to create a wetland system with sediment forebays for the two inflows and bench planting to help increase pollutant uptake. The primary indicators are wetland habitat, nitrogen, phosphorus and total suspended solids.

PC9118 Stormwater Pond Retrofit

A large dry pond west of Lee Chapel Road and east of Shipwright Drive receives runoff from a stream in a wooded area and from adjacent neighborhoods. This project is proposed to retrofit

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

the existing pond to create an extended detention dry pond with a sediment forebay. The retrofit will modify the discharge structure to increase the time stormwater stays in the pond. The pond will be increased in size to handle the larger volume and an aquatic bench of wetland plants will be added to treat pollutants. Primary problem indicators are pollutants nitrogen, phosphorus and total suspended solids.

PC9120 Stormwater Pond Retrofit

This project is proposed to create an extended detention dry pond with a sediment forebay. The existing dry pond northwest of Lee Chapel Road and southwest of Southern Cross Lane receives runoff from these roads as well as Ebttide Lane. Due to the presence of pollutants such as phosphorous, nitrogen and total suspended solids, a retrofit is proposed. This will allow for better downstream channel protection and allow for better function of temporary ponding, as well as promote the settlement of particulate pollution. The pond has easy access and room for expansion.

PC9214 Stream Restoration

This stream is between Arley Drive and Golden Ball Tavern Court. The project is proposed to repair bank and bed erosion, thereby restoring channel morphology. The primary indicator is poor channel morphology. Stream stabilization will reduce sediment loads to the stream, maintaining the capacity of the stream channel and controlling unwanted meander.

PC9515 BMP/LID Suite

This suite of projects is proposed to create bioretention landscaping features to receive runoff from areas at Orange Hunt Elementary School. Both projects are on the west side of the school. Bioretention areas would receive runoff from the fields and blacktops. A filter layer made of 18 – 48 inches of sand is placed below a mulch layer. During a storm the runoff ponds 6 – 9 inches, rapidly filters to an underdrain and outfalls into a wooded area or infiltrates into the native soil. Indicators are pollutants, including nitrogen, phosphorus and total suspended solids.

PC9517 BMP/LID Suite

This suite of projects is proposed to create a bioretention area to receive runoff at Cherry Run Elementary School. The subproject A site is on the south side of the school near the entrance. The subproject B site is on the far north side of the athletic fields. Primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The bioretention areas will be created by grading a depressed area, with a cover layer of mulch and a filter layer of 18 – 48 inches of sand. During a storm the runoff ponds 6 – 9 inches, rapidly filters to an underdrain and outfalls into a wooded area or infiltrates into the native soil.

5.4.2 Non-Structural Projects

PC9512 BMP/LID

This project is proposed to install a rain barrel/cistern at Sangster Elementary School, northwest of Reservation Drive. This system will capture, store and reuse runoff from the rooftop. The primary indicators are high impervious areas directly connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9518 BMP/LID

This project is proposed to install a rain barrel/cistern at Cherry Run Elementary School, northwest of Raftelis Road. This will capture, store and reuse runoff from the rooftop. The

primary indicators are high impervious areas directly connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9807 Buffer Restoration

The buffer area has deficiencies at the entrance to a wooded area upstream of a culvert on the north side of Shadowlake Way. This project is proposed to replant to reestablish the RPA. Increased vegetation from buffer repair will provide additional filtration and reduce runoff by intercepting the water, thereby increasing surface storage and infiltration.

PC9808 Dumpsite/Obstruction Removal

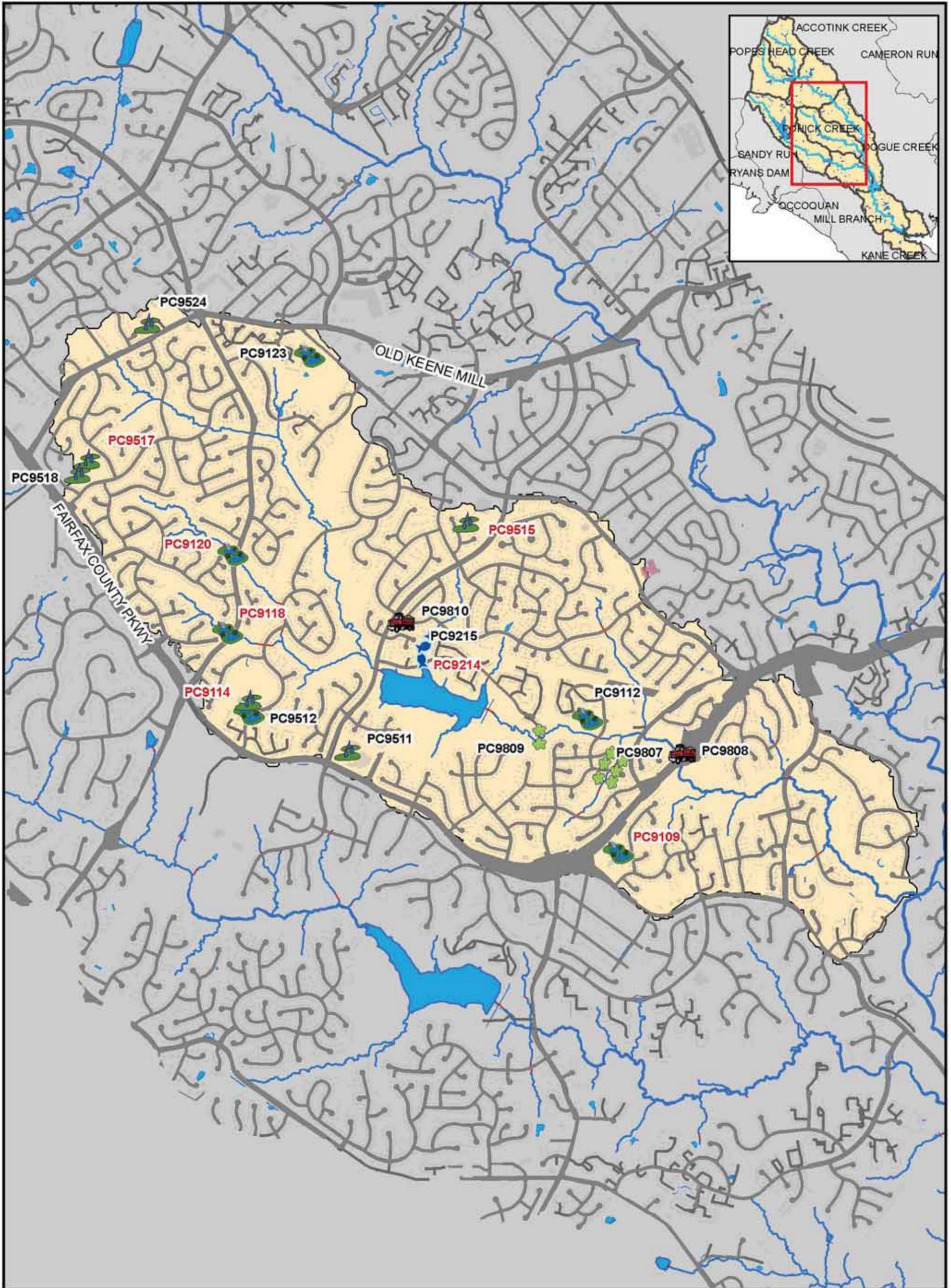
An obstruction is located between the northbound and southbound overpasses on the Fairfax County Parkway, west of Wild Spruce Drive. The primary indicators are flood complaints. The obstruction was field verified as concrete. This project is proposed to remove the obstructions and restore the stream channel to its natural conditions. This will also improve the function of the stream.

PC9809 Buffer Restoration

This project is proposed to re-plant stream buffer west of Sea Brook Lane in order to re-establish the RPA. The primary indicators are stream bank buffer deficiency and headwater riparian habitat. Increased vegetation from buffer repair will provide additional stream buffer for filtration of pollutants and will reduce runoff by intercepting the water, thereby increasing surface storage and filtration. The stream receives direct runoff from untreated sources, so the buffer is an important feature for water quality and quantity.

PC9810 Dumpsite/Obstruction Removal Suite

This project contains two subprojects. Subproject A involves the removal of an obstruction in the stream south of Gutman Court, west of Sea Brook Lane. This project is proposed to restore natural conditions. The primary indicators are flood complaints. This obstruction has been field verified as a beaver dam. Removal of this obstruction will eliminate flood complaints and help restore the natural shape and function of the stream. Subproject B will address erosion in the stream behind Cottontail Swim and Racquet Club, which has caused trees and other natural debris to build up in the stream, causing potential damming. This project is proposed to remove obstructions to restore natural conditions. This obstruction was also field verified as a beaver dam, and has a high impact score. This will help restore the function of the stream.



0 0.125 0.25
Miles

- | | | |
|------------------------------|--------------------------|-------------------------------------|
| Buffer Restoration | New Stormwater Pond | Area-wide Drainage Improvement |
| Stream Restoration | Outfall Improvement | Community Outreach/Public Education |
| BMP/LID | Stormwater Pond Retrofit | Land Conservation Project |
| Culvert Retrofit | Other | Flood Protection/Mitigation |
| Dumpsite/Obstruction Removal | | Inspection/Enforcement Enhancement |
| | | Rain Barrel Program |
| | | Street Sweeping Program |
| | | Studies, Surveys and Assessments |

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.4

Pohick - Middle Run
VMA
Proposed Projects

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

Table 5-4: Project List - WMA (Pohick - Middle Run)

Structural Projects¹						
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
PC9109	Stormwater Pond Retrofit	PC-MR-0002	8750 Pohick Rd., St. Raymond's - Penafort Catholic Church	Water quality and quantity control	Private - Church	0-10
PC9114	Stormwater Pond Retrofit	PC-PR-0001	7420 Reservation Dr., Sangster Elementary School	Water quality and quantity control	Public/Local - FCPS	0-10
PC9118	Stormwater Pond Retrofit	PC-SB-0001	Behind 9500 Shipwright Dr.	Water quality and quantity control	Private - HOA	0-10
PC9120	Stormwater Pond Retrofit	PC-PR-0002	Behind 9505 Southern Cross La.	Water quality and quantity control	Private - HOA	0-10
PC9214	Stream Restoration	PC-MR-0005	Behind 7309 Gist Ct.	Water quality control	Public/Local - FCPA	0-10
PC9515	BMP/LID Suite	PC-MR-0006	6820 Sydenstricker Rd., Orange Hunt Elementary School	Water quality and quantity control	Public/Local - FCPS	0-10
PC9517	BMP/LID Suite	PC-PR-0002	9732 Ironmaster Dr., Cherry Run Elementary School	Water quality and quantity control	Public/Local - FCPS	0-10
PC9112	Stormwater Pond Retrofit	PC-MR-0004	Behind 8874 Eagle Rock La.	Water quality and quantity control	Private - HOA	11-25
PC9123	Stormwater Pond Retrofit	PC-CY-0002	6450 Sydenstricker Rd., near Pohick Regional Library	Water quality and quantity control	Public/Local - FCPS	11-25
PC9215	Stream Restoration	PC-MR-0005	Behind 9111 Beachway La.	Water quality and quantity control	Public/Local - FCPA	11-25
PC9511	BMP/LID	PC-MR-0005	7500 Huntsman Blvd., Huntsman Square Shopping Center	Water quality control	Private - Commercial	11-25
PC9524	BMP/LID	PC-CY-0003	6938 Nativity La., School of the Nativity (Church)	Water quality and quantity control	Private - Church	11-25

¹ Only 10-yr structural projects will have associated project fact sheets at the end of section 5.

Pohick Creek Watershed Management Plan
Section 5: Watershed Management Area Restoration Strategies

Non-Structural Projects¹					
Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner
PC9512	BMP/LID	PC-PR-0001	7420 Reservation Dr., Sangster Elementary School	Water quality and quantity control	Public/Local - FCPS
PC9518	BMP/LID	PC-PR-0002	9732 Ironmaster Dr., Cherry Run Elementary School	Water quality and quantity control	Public/Local - FCPS
PC9807	Buffer Restoration	PC-MR-0004	Next to 8800 Shadowlake Way	Water quality control	Private - HOA
PC9808	Dumpsite/Obstruction Removal	PC-MR-0002	Northeast of intersection of Hooes Rd. & Fairfax County Pkwy.	Water quality control	Public/State - VDOT
PC9809	Buffer Restoration	PC-MR-0004	Behind 7410 Seabrook La.	Water quality control	Public/Local - FCPA
PC9810	Dumpsite/Obstruction Removal Suite	PC-MR-0004	Behind 8903 Gutman Ct. & 7000 Cottontail Ct.	Water quality control	Public/Local - FCPA

¹ Only 10-yr structural projects will have associated project fact sheets at the end of section 5.