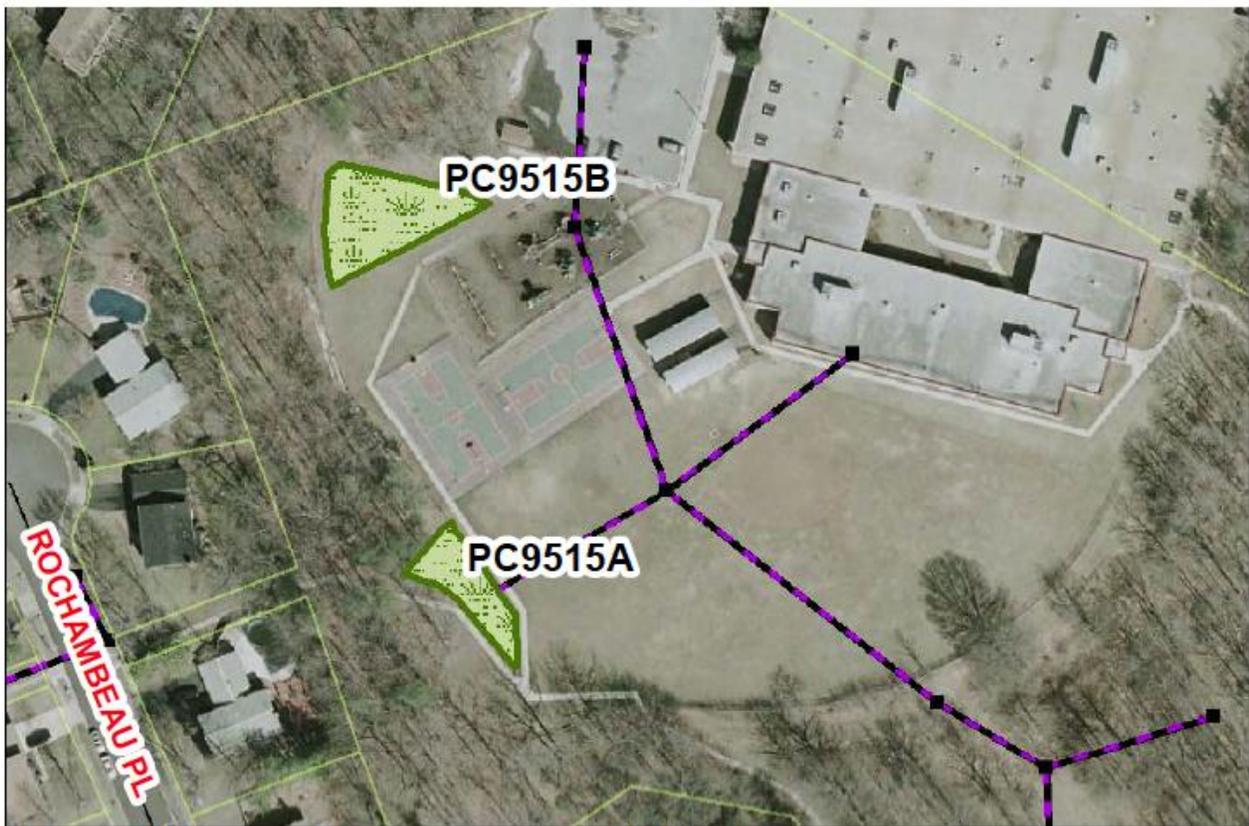


PC9515 BMP/ LID Suite



Address: 6820 Sydenstricker Rd., Springfield, Virginia
Location: Orange Hunt Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0882 07 A
Control Type: Water quality and quantity control
Drainage Area: 2.90 acres
Receiving Waters: Tributary of Middle Run

Description: This suite of projects proposes the creation of 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” of sand is placed below a mulch layer. During a storm, the runoff ponds 6-9”, rapidly filters to an underdrain, and outfalls into wooded area or infiltrates into the native soil. Indicators are pollutants including nitrogen, phosphorus and total suspended solids.



- Bioretention Area
- Storm Network
- Property Line

Project Benefits: Bioretention will capture sheet flow and create an ideal environment for filtration, biological uptake and microbial activity. The bioretention areas will promote infiltration and decrease runoff volume from the site. The bioretention areas also provide educational benefits at the school. Below are the bioretention area's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
0.20	4.88	1.13

Project Design Considerations: In order to maximize bioretention benefits, more impervious runoff should be directed to this area. Subproject A has an existing concrete swale (dry). This swale should be removed and the soil will need to be amended. The existing swale is behind a fence. A sign should be posted on the bioretention features to increase their educational benefits and to increase stormwater stewardship. Soil testing will be needed to verify infiltration rates. If the infiltration in the area proposed for subproject B is not good then an outfall pipe will need to be added to the cost.

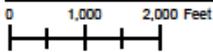
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Bioretention at Orange Hunt Elementary School				
Bioretention Filters and Basins	275	SY	\$150	\$41,250
Subproject B Bioretention at Orange Hunt Elementary School				
Bioretention Filters and Basins	480	SY	\$150	\$72,000
Common Items				
Plantings	1	LS	5%	\$5,663
Ancillary Items	1	LS	5%	\$5,663
Erosion and Sediment Control	1	LS	10%	\$11,325
Base Construction Cost				\$135,900
Mobilization (5%)				\$6,795
Subtotal 1				\$142,695
Contingency (25%)				\$35,674
Subtotal 2				\$178,369
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$80,266
Total				\$258,635
Estimated Project Cost				\$260,000

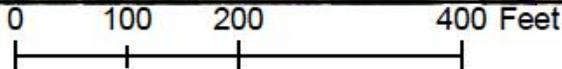
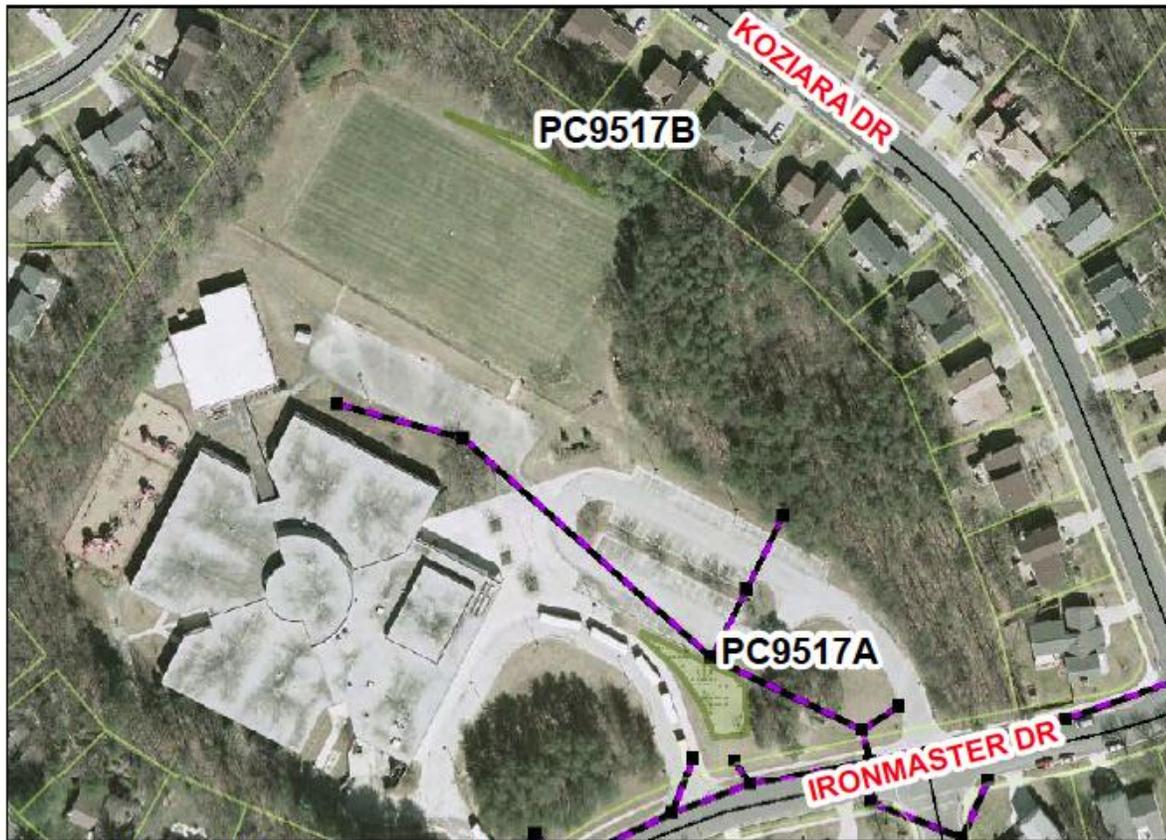
PC9517 BMP/ LID Suite



Address: 9732 Ironmaster Drive, Burke, VA
Location: Cherry Run Elementary School
Land Owner: Public/Local – Fairfax County Public School
PIN: 0881 07 L1
Control Type: Water quality and quantity control
Drainage Area: 0.86 acres
Receiving Waters: Tributary of Peyton Run



Description: This suite of projects proposes the creation of 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. (See project map). 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” of sand. During a storm, the runoff ponds 6-9” and rapidly filters to an underdrain and outfalls into wooded area or infiltrates into the native soil.



- Bioretention Area
- Storm Network
- Property Line

Project Benefits: These bioretention areas will capture sheet flow from impervious areas and create ideal environments for filtration, biological uptake and microbial activity. They will reduce runoff volume and increase groundwater recharge, by encouraging infiltration. Below are the bioretention areas' estimated pollutant removal amounts.

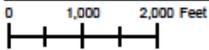
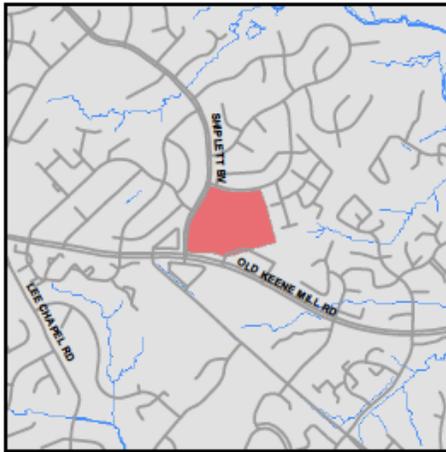
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.06	1.38	0.32

Project Design Considerations: The locations were chosen to cause minimal disturbance. Both locations are on school property. Coordination and sequencing of these projects should be considered to allow sharing of mobilization fees and staging areas. There is adequate room for construction in these two locations; however efforts should be made to minimize disturbance to existing mature vegetation.

Cost:

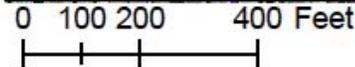
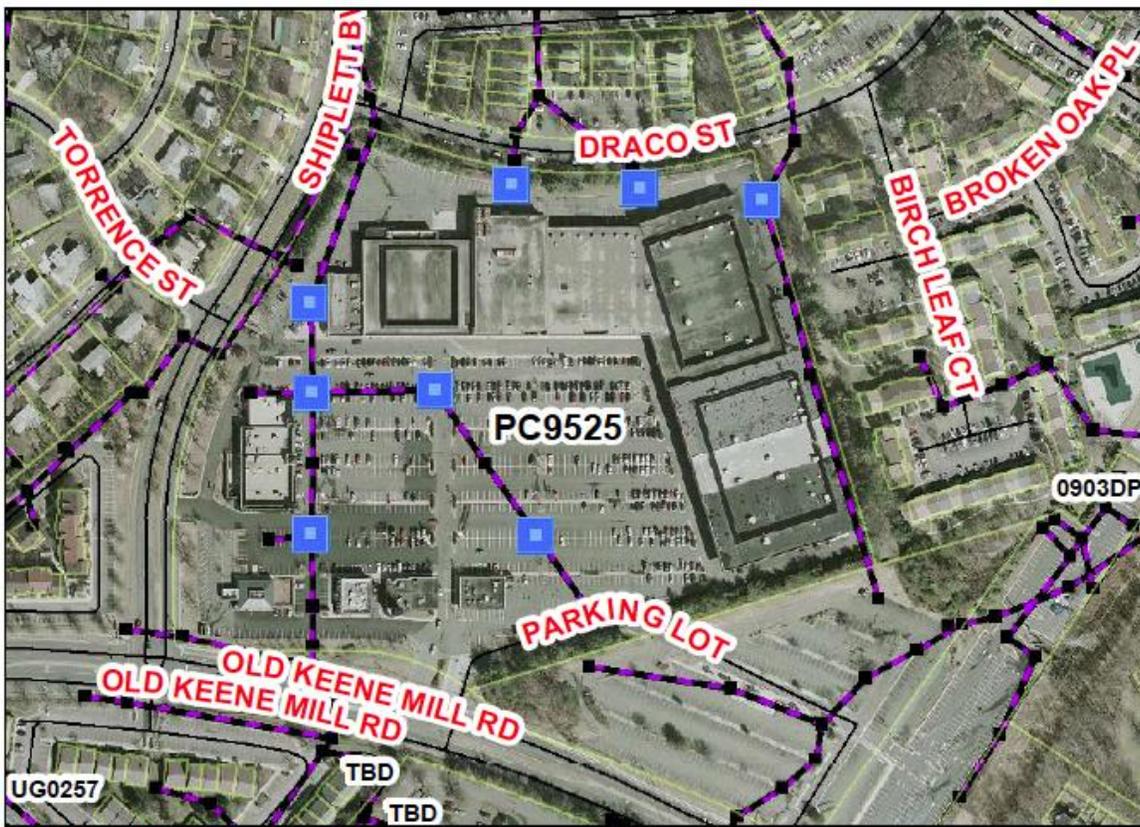
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Bioretention at Cherry Run Elementary School				
Bioretention Filters and Basins	350	SY	\$150	\$52,500
Subproject B Bioretention at Cherry Run Elementary School				
Bioretention Filters and Basins	100	SY	\$150	\$15,000
Common Items				
Plantings	1	LS	5%	\$3,375
Ancillary Items	1	LS	5%	\$3,375
Erosion and Sediment Control	1	LS	10%	\$6,750
Base Construction Cost				\$81,000
Mobilization (5%)				\$4,050
Subtotal 1				\$85,050
Contingency (25%)				\$21,263
Subtotal 2				\$106,313
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$47,841
Total				\$154,153
Estimated Project Cost				\$160,000

PC9525 BMP/LID



Address: 9230 Old Keene Mill Rd., Burke, Virginia
Location: Rolling Valley Mall
Land Owner: Private – Rolling Valley Mall, LLC
PIN: 0882 01 0004A
Control Type: Water quality control
Drainage Area: 18.46 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the incorporation of BMP inlet inserts or manufactured BMP filtration systems to provide pollutant removal at Rolling Valley Mall north of Old Keene Mill Road. Typical inserts act as baskets that collect sediment and larger debris such as trash and leaves. Filters should be selected to target the known pollutants. The filters need to be cleaned on a routine basis, typically every 6 months. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. Filtration will capture and treat stormwater runoff from highly impervious areas prior to entering the storm drain system.



- BMP Inlet Inserts
- Storm Network
- Property Line

Project Benefits: This shopping center has a high percentage of impervious cover, and stormwater is not treated before ultimately discharging into a stream. This project will help provide some treatment stormwater runoff before it leaves the site. This will greatly reduce the pollutants entering the stream from this site. This retrofit method is a good fit due to this site's space limitations. Below are this project's estimated pollutant removal amounts.

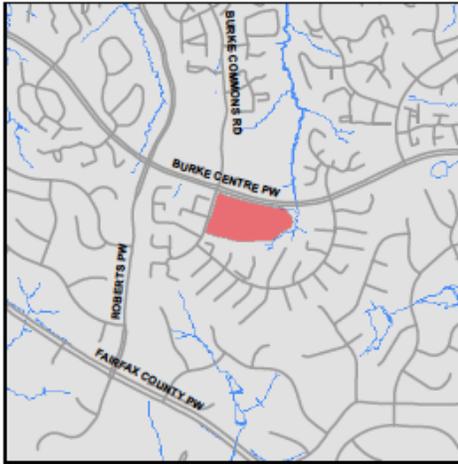
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
2.60	68.36	10.68

Project Design Considerations: Inserts should be placed at several inlets on site that will have the greatest benefit without exceeding the capacity of the system in place. In order to keep cost down, the existing system should be utilized to the greatest extent possible. A maintenance schedule will need to be enforced to ensure maximum benefits.

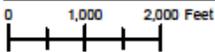
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	8	LS	\$10,000	\$80,000
Plantings	1	LS	5%	\$2,500
Ancillary Items	1	LS	5%	\$2,500
Erosion and Sediment Control	1	LS	10%	\$5,000
Base Construction Cost				\$90,000
Mobilization (5%)				\$4,500
Subtotal 1				\$94,500
Contingency (25%)				\$23,625
Subtotal 2				\$118,125
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$53,156
Total				\$171,281
Estimated Project Cost				\$180,000

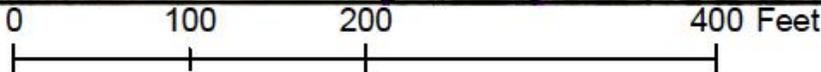
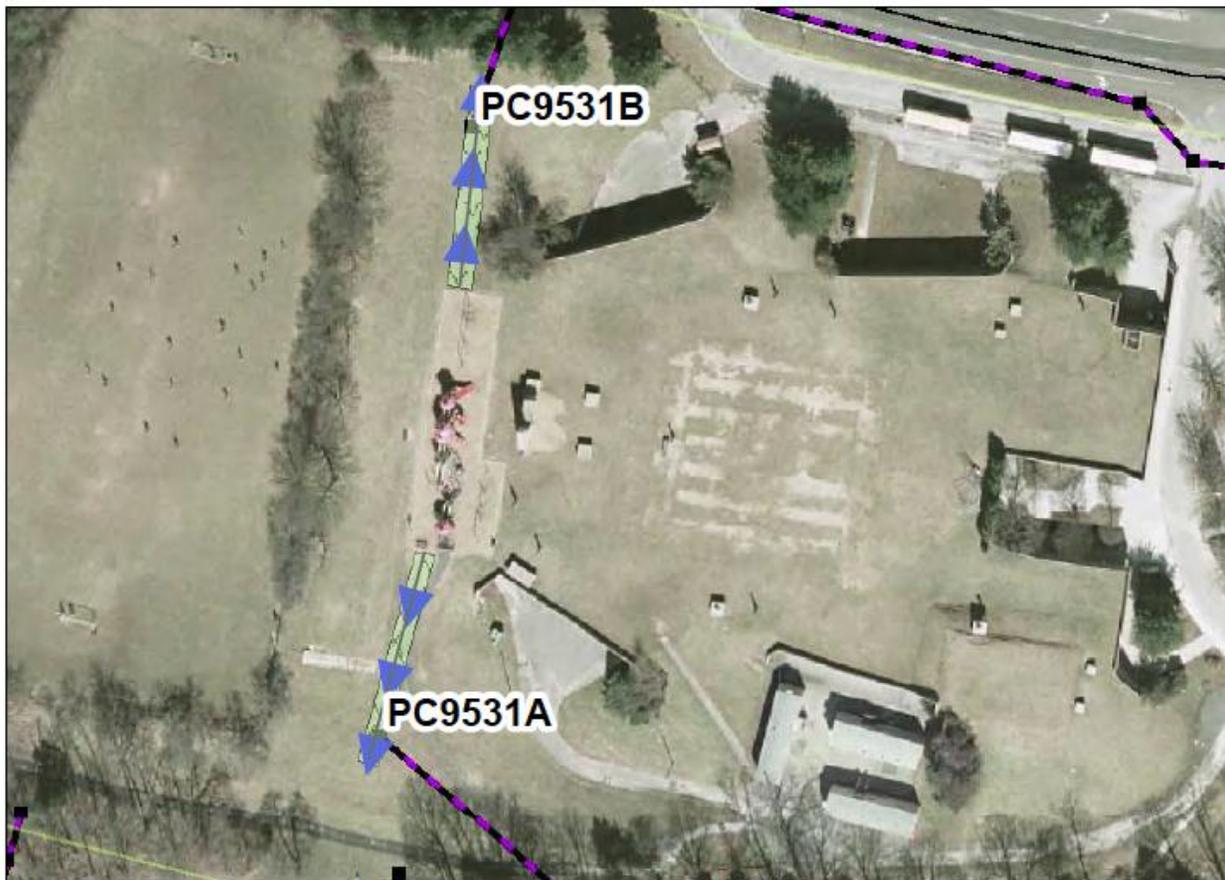
PC9531 BMP/ LID Suite



Address: 6000 Burke Centre Parkway, Burke, Virginia
Location: Terra Centre Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0774 01 0028A
Control Type: Water quality and quantity control
Drainage Area: 2.72 acres
Receiving Waters: Tributary of Sideburn Branch



Description: This suite of projects proposes creating bioswales near the back of a green roof at Terra Centre Elementary School. The bioswales will have a filter layer of sand to promote infiltration to native soils or to perforated underdrain. Primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. Runoff will enter a closed system and outfall directly into a nearby stormwater facility.



Project Benefits: The bioswales will reduce the pollutant loads and runoff into the stormwater system. The bioswales will capture the sheet flow and create an ideal environment for filtration, biological uptake and microbial activity, providing both pollutant removal and ground water recharge. Below are the bioswales' estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.18	4.36	1.01

Project Design Considerations: The bioswales would provide a good educational opportunity and would promote proper environmental and stormwater stewardship. Caution should be taken to not impact the student-grown garden near the vicinity of the project. Coordination and sequencing of these projects should be considered to allow sharing of mobilization fees and staging areas.

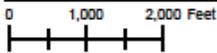
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Bioretention at Terra Centre Elementary School (South)				
Bioretention Filters and Basins	150	SY	\$150	\$22,500
Subproject B Bioretention at Terra Centre Elementary School (North)				
Bioretention Filters and Basins	175	SY	\$150	\$26,250
Common Items				
Plantings	1	LS	5%	\$2,438
Ancillary Items	1	LS	5%	\$2,438
Erosion and Sediment Control	1	LS	10%	\$4,875
Base Construction Cost				\$58,500
Mobilization (5%)				\$2,925
Subtotal 1				\$61,425
Contingency (25%)				\$15,356
Subtotal 2				\$76,781
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$34,552
Total				\$111,333
Estimated Project Cost				\$120,000

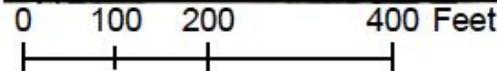
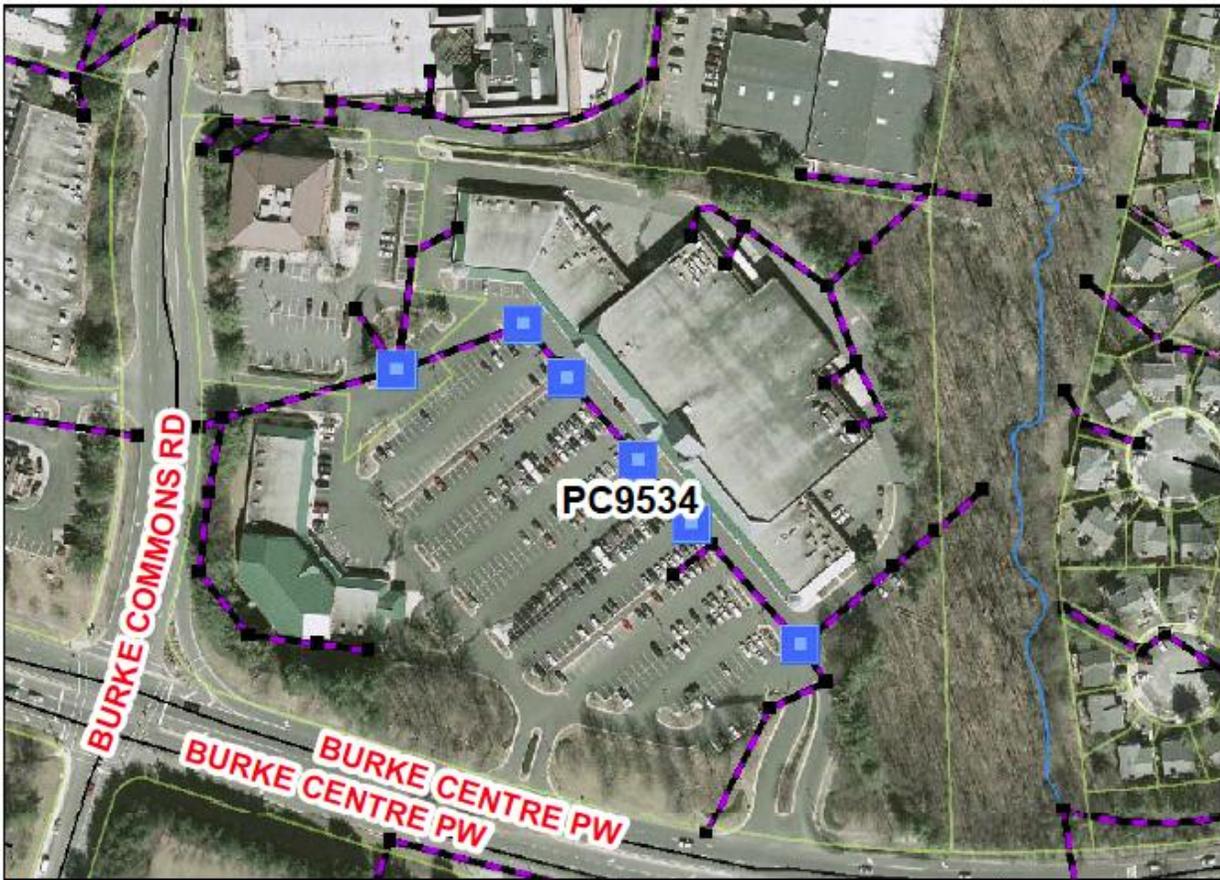
PC9534 BMP/LID



Address: 6011 Burke Centre Parkway, Burke, Virginia
Location: Giant Supermarket
Land Owner: Private – Burke Town Center
PIN: 0774 19 0004E
Control Type: Water quality control
Drainage Area: 6.78 acres
Receiving Waters: Tributary of Sideburn Branch



Description: This BMP/ LID project will consist of inlet inserts being placed in the existing inlets to provide pollutant removal. Runoff from the parking lot at Giant Grocery Store is collected in a closed pipe system and discharged to the stream behind the building to the east. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. Depending on the existing inlet, the inserts will either be in the form of a basket or a cartridge. This method is ideal due to the high imperviousness and space constraints on the site.



- BMP Inlet Inserts
- Storm Network
- Property Line
- Streams

Project Benefits: Currently stormwater run-off from this site receives minimal treatment before outfalling into the adjacent stream. These inlet inserts will provide some pollutant removal of hydrocarbons, nitrogen and phosphorus before stormwater leaves the site. These inlet inserts are a good retrofit solution, because the inserts will not use any additional space. Below are this project’s estimated pollutant removal amounts.

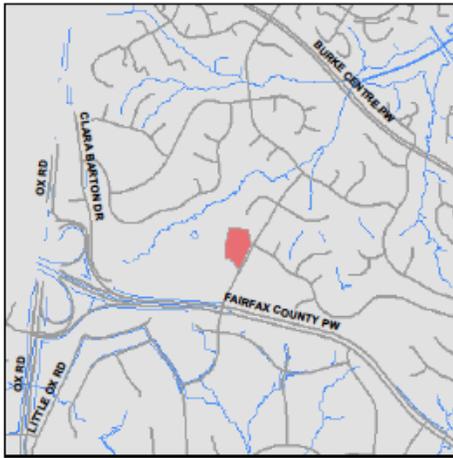
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
0.88	22.55	3.52

Project Design Considerations: Site is private property and County records show no existing storm drainage easements. Additional maintenance for cleaning/ replacing the filter inserts will have to be coordinated between the County and the shopping center. The shopping center’s stormwater construction documents will have to be reviewed to ensure that the inserts will not cause any adverse effects. The inserts will need to be placed to insure that any clogged filters will not cause adverse flooding.

Cost:

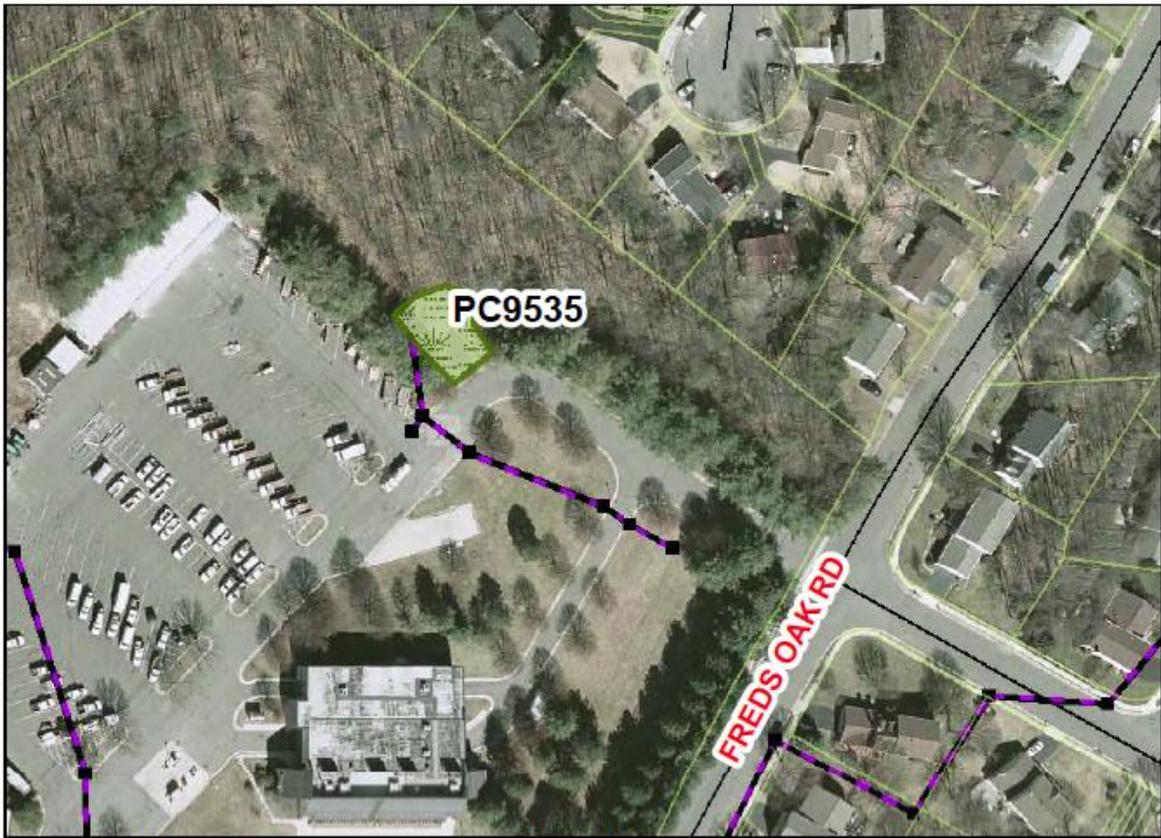
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	6	LS	\$10,000	\$60,000
Plantings	1	LS	5%	\$2,500
Ancillary Items	1	LS	5%	\$2,500
Erosion and Sediment Control	1	LS	10%	\$5,000
Base Construction Cost				\$70,000
Mobilization (5%)				\$3,500
Subtotal 1				\$73,500
Contingency (25%)				\$18,375
Subtotal 2				\$91,875
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$41,344
Total				\$133,219
Estimated Project Cost				\$140,000

PC9535 BMP/LID



Address: 6000 Fred's Oak Rd., Burke, Virginia
Location: FFC Wastewater Collection Division Office Bldg.
Land Owner: Public/Local – Fairfax County
PIN: 0773 01 0013
Control Type: Water quality and quantity control
Drainage Area: 3.09 acres
Receiving Waters: Tributary of Sideburn Branch

Description: A series of curb inlets collect runoff from the Fairfax County Wastewater Collection Division parking lot, which is conveyed in a closed system. Majority of the site outfalls into a pond on the north side of the site. However, a portion of the runoff is untreated. The primary indicators are pollutants, including phosphorus, nitrogen and total suspended solids. This project proposes a bioretention area at the northeast side of the parking lot. A filter layer made of 18-48" of sand is placed below a mulch layer. During a storm, the runoff ponds 6-9", rapidly filters to an underdrain, and outfalls into wooded area or infiltrates into the native soil.



-  Bioretention Area
-  Storm Network
-  Property Line

Project Benefits: The proposed bioretention area will reduce runoff rates and treat runoff before discharging into woods. The bioretention area will capture sheet flow and create an ideal environment for filtration, biological uptake and microbial activity. The bioretention area will promote infiltration and decrease runoff volume from the site. Below are the bioretention area’s estimated pollutant removal amounts.

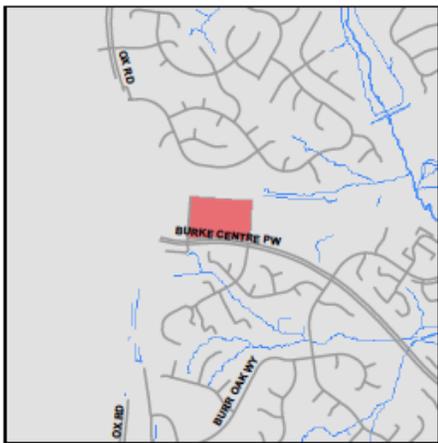
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.18	3.90	0.60

Project Design Considerations: The bioretention area is on Fairfax County property. Efforts should be made to minimize impacts to mature vegetation. Area should have enough space to construct bioretention area without having significant impacts. Pond retrofit (PC9129) proposed on site to treat remainder of site. Drainage area to proposed bioretention is currently untreated.

Cost:

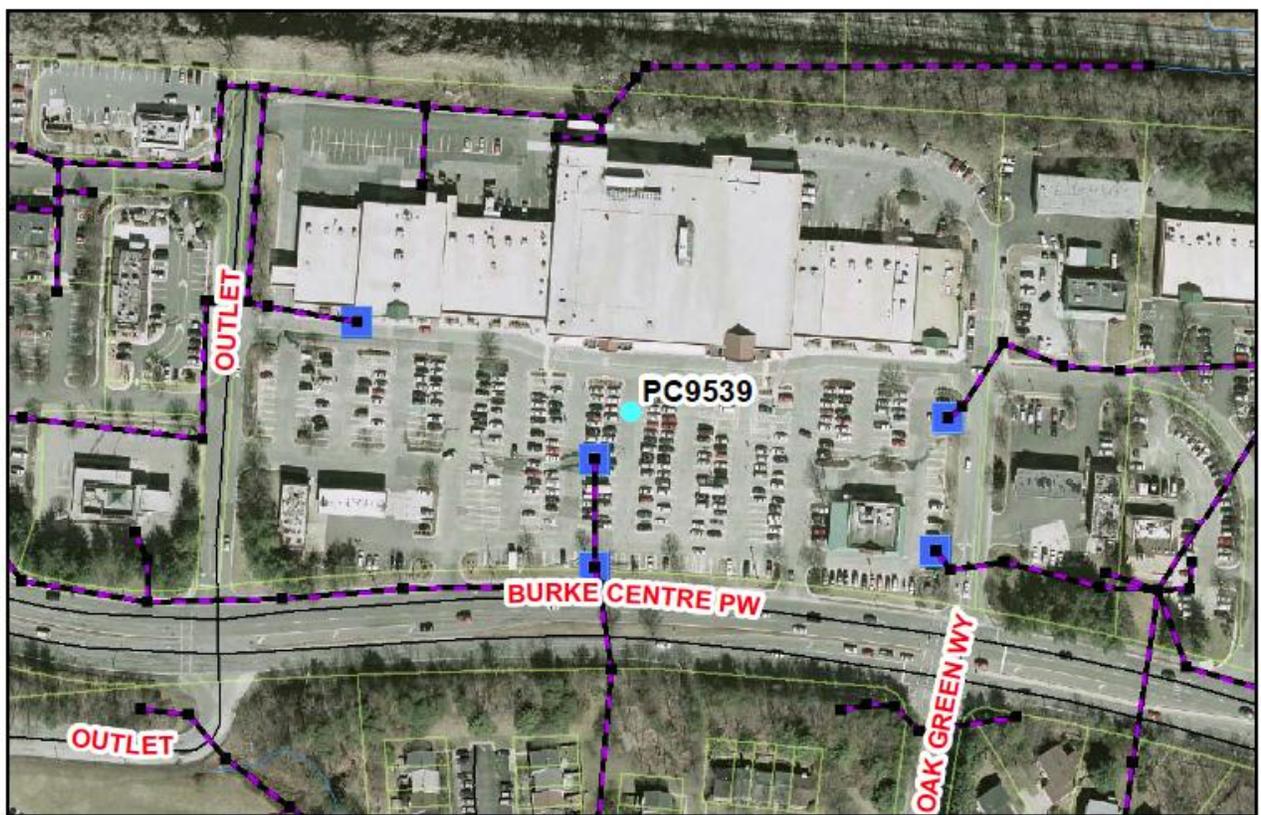
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Filters and Basins	375	SY	\$150	\$56,250
Plantings	1	LS	5%	\$2,813
Ancillary Items	1	LS	5%	\$2,813
Erosion and Sediment Control	1	LS	10%	\$5,625
Base Construction Cost				\$67,500
Mobilization (5%)				\$3,375
Subtotal 1				\$70,875
Contingency (25%)				\$17,719
Subtotal 2				\$88,594
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$39,867
Total				\$128,461
Estimated Project Cost				\$130,000

PC9539 BMP/LID



Address: 5727 Burke Center Parkway, Burke, Virginia
Location: Burke Center Shopping Center
Land Owner: Private – Steuart Burke Centre Shopping Center LLC
PIN: 0771 01 0063
Control Type: Water quality control
Drainage Area: 9.72 acres
Receiving Waters: Tributary of Sideburn Branch

Description: This project is located at the shopping center near the intersection of Burke Centre Parkway and Oak Green Way. The storm system collects runoff from the shopping center and outfalls to stream along railroad tracks. A portion of the parking lot is conveyed in a closed system in the adjacent shopping center to the east and west and the remaining is conveyed by a closed system to a stream to the south. This project proposes incorporating BMP inlet inserts or manufactured BMP filtration systems to provide pollutant removal before outfalling into stream.



0 100 200 400 Feet

- BMP Inlet Inserts
- Storm Network
- Property Line

Project Benefits: Currently, trash, parking lot debris, and hydrocarbons flow directly into the surrounding waterways. Any stormwater treatment that can be implemented for this high traffic shopping center would be beneficial. The BMP inlet inserts would help to filter out pollutants and would not require additional space. Below are this project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
1.31	34.49	5.39

Project Design Considerations: The storm inlets appear to be catch basins in sag conditions. The four inlets chosen are at the farthest upstream ends of the storm system. The storm system needs to be examined to determine whether there is hydraulic head available to make cartridge filters work or if less effective basket filters will need to be used. The records show no existing storm easements. The installation and maintenance of these inserts will need to be coordinated with the shopping center. The inserts will receive runoff from a large amount of untreated impervious area, so maintenance will be more important than normal.

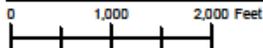
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	5	LS	\$10,000	\$50,000
Plantings	1	LS	5%	\$2,500
Ancillary Items	1	LS	5%	\$2,500
Erosion and Sediment Control	1	LS	10%	\$5,000
Base Construction Cost				\$60,000
Mobilization (5%)				\$3,000
Subtotal 1				\$63,000
Contingency (25%)				\$15,750
Subtotal 2				\$78,750
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$35,438
Total				\$114,188
Estimated Project Cost				\$120,000

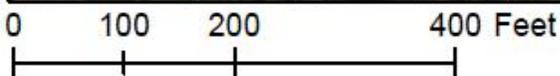
PC9544 BMP/LID Suite



Address: 9450 Lake Braddock Dr., Burke, Virginia
Location: Lake Braddock Park
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0693 06 P
Control Type: Water quality and quantity control
Drainage Area: 0.96 acres
Receiving Waters: Tributary of Pohick Creek



Description: This suite of projects proposes the installation of bioswales at Lake Braddock Park near the game fields. The bioswales would receive sheet flow from the fields and would increase infiltration and reduce pollutants, such as excessive fertilizer, grass clippings or animal waste. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.



Project Benefits: These bioswales will capture sheet flow and create an ideal environment for filtration, biological uptake and microbial activity, providing both pollutant removal and groundwater recharge. Below are this project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.27	6.74	1.51

Project Design Considerations: There appears to be adequate open space for construction of the bioswales. These bioswales would provide a good education opportunity. The existing storm pipes are not in easements, but the park is owned by Fairfax County Park Authority. Two stream restoration projects are in the vicinity, projects PC9251 and PC9252. Coordination and sequencing of these projects should be considered to allow sharing of mobilization fees and staging areas.

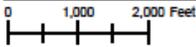
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Bioswale Near Lake Braddock Dr. (Upper Field)				
Percolation/Infiltration Trench	125	SY	\$75	\$9,375
Subproject B Bioswale Near Lake Braddock Dr. (Lower Field North)				
Percolation/Infiltration Trench	290	SY	\$75	\$21,750
Subproject C Bioswale Near Lake Braddock Park (Lower Field South)				
Percolation/Infiltration Trench	230	SY	\$75	\$17,250
Common Items				
Plantings	1	LS	5%	\$2,419
Ancillary Items	1	LS	5%	\$2,419
Erosion and Sediment Control	1	LS	10%	\$4,838
Base Construction Cost				\$58,050
Mobilization (5%)				\$2,903
Subtotal 1				\$60,953
Contingency (25%)				\$15,238
Subtotal 2				\$76,191
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$34,286
Total				\$110,476
Estimated Project Cost				\$120,000

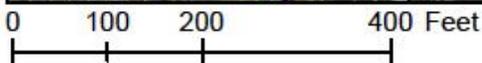
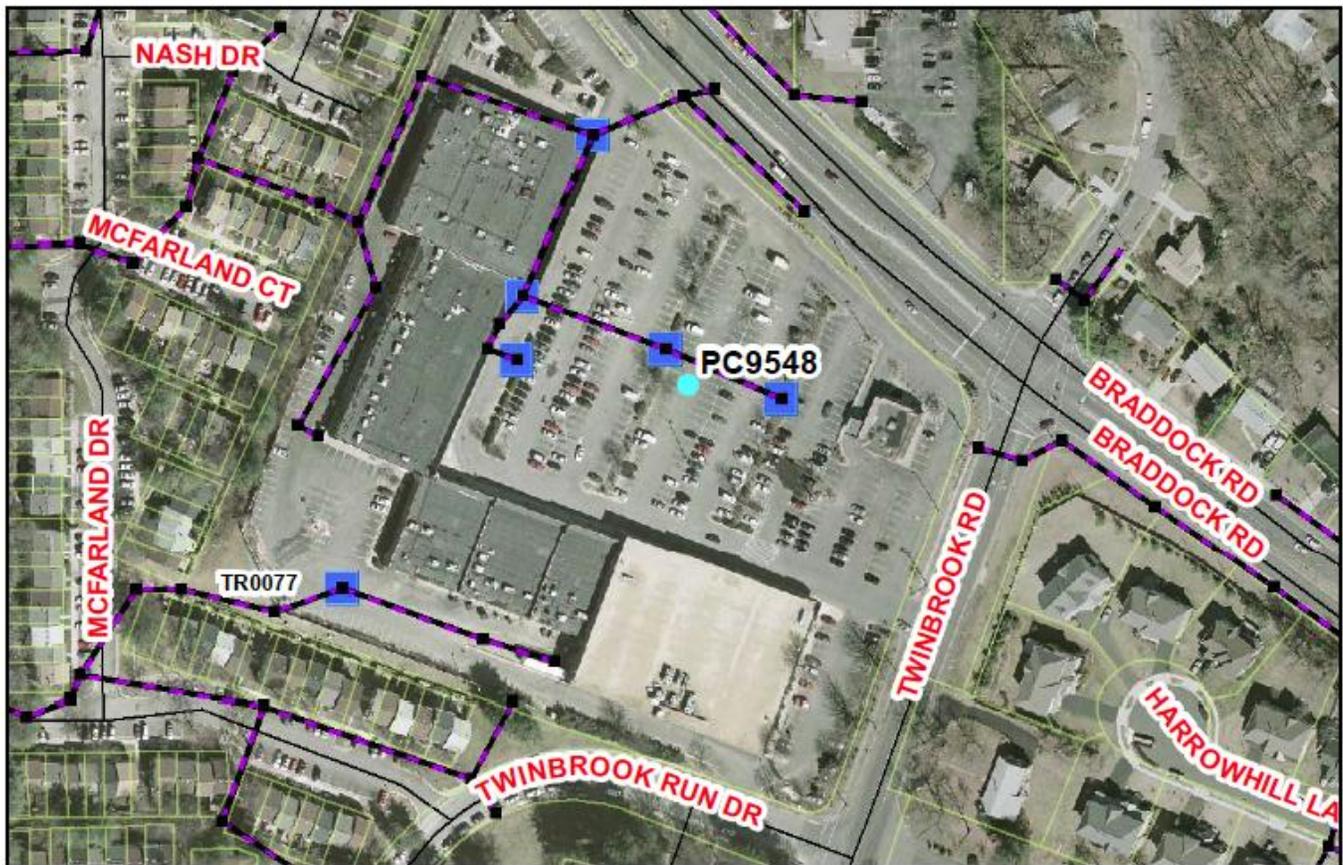
PC9548 BMP/LID



Address: 9525 Braddock Road, Fairfax, Virginia
Location: Twinbrook Shopping Center
Land Owner: Private – Twinbrook Associates
PIN: 0693 01 0018A
Control Type: Water quality control
Drainage Area: 9.99 acres
Receiving Waters: Tributary of Rabbit Branch



Description: This project proposes installing manufactured BMP filtration systems into existing storm inlets to provide pollutant removal at Twinbrook Shopping Centre, southwest of Braddock Road. A typical insert acts as a basket that collects sediment and larger debris such as trash and leaves. Filters should be selected to target the known pollutants. The filters need to be cleaned on a routine basis, typically every 6 months. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids.



-  BMP Inlet Inserts
-  Storm Network
-  Property Line
-  Streams

Project Benefits: Currently stormwater run-off from this site receives minimal treatment before discharging off-site. These inlet inserts will provide some pollutant removal of hydrocarbons, nitrogen and phosphorus before stormwater leaves the site. These inlet inserts are a good retrofit solution, because the inserts will not use any additional space. Below are this project’s estimated pollutant removal amounts.

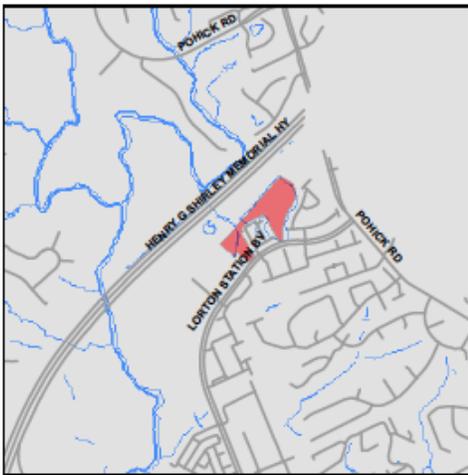
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.32	34.69	5.42

Project Design Considerations: Site is on private property. Additional maintenance for cleaning/ replacing the filter inserts will have to be coordinated between the County and the shopping center. The shopping center’s stormwater construction documents will have to be reviewed to ensure that the inserts will not cause any adverse effects. The inserts will need to be designed and modeled to insure that any clogged filters will not cause adverse flooding.

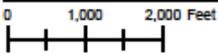
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	6	LS	\$10,000	\$60,000
Plantings	1	LS	5%	\$2,500
Ancillary Items	1	LS	5%	\$2,500
Erosion and Sediment Control	1	LS	10%	\$5,000
Base Construction Cost				\$70,000
Mobilization (5%)				\$3,500
Subtotal 1				\$73,500
Contingency (25%)				\$18,375
Subtotal 2				\$91,875
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$41,344
Total				\$133,219
Estimated Project Cost				\$140,000

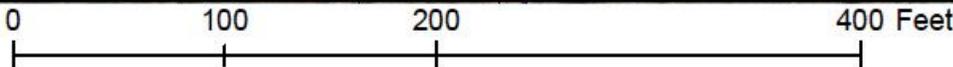
PC9701 Outfall Improvement



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 improving the outfall west of Milford Haven Drive by replacing the existing concrete channel with a naturalized stream and an energy dissipation device. The concrete channel conveys runoff from pond 1158DP. This pond has a proposed stormwater pond retrofit project PC9105. The concrete channel discharges to a culvert under Henry G Shirley Memorial Highway. The surrounding area consists of mostly townhomes, open wooded area, highway and railroad tracks.



- Outfall Improvement
- Storm Network
- Property Line

Project Benefits: The outfall reconstruction will reduce erosive velocities and sediment loads at the outfalls, protecting downstream channels. Improving the outfall will reduce instream sediment and its associated pollutants in the eroded stream on the downstream side of the highway (northwest of site). This outfall improvement will increase infiltration and reduce pollutant loads. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project implementation.

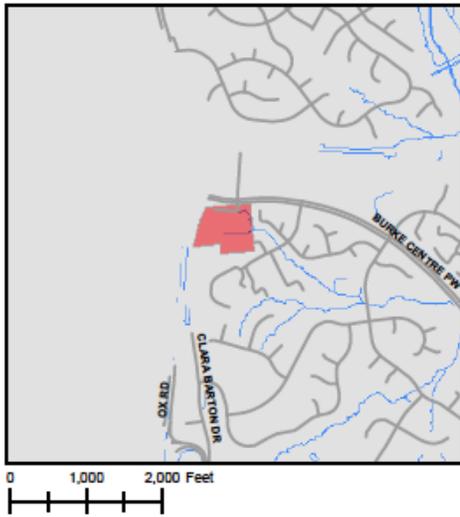
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
3.11	4.24	1.64

Project Design Considerations: 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. Area is accessible through a BMP access road. This project should be coordinated with pond retrofit project PC9105.

Cost:

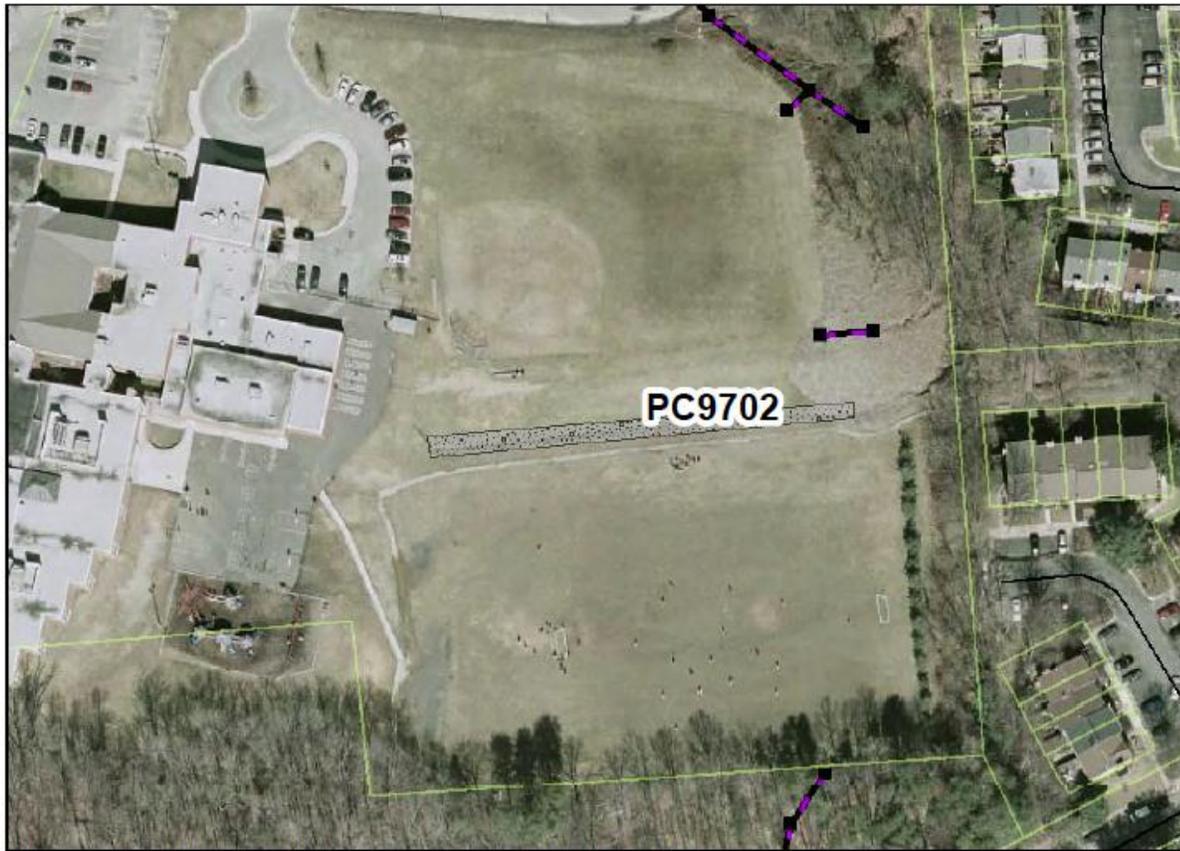
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.25	AC	\$8,500	\$2,125
Grading and Excavation	800	CY	\$35	\$28,000
New Storm Pipe	0	LF	\$100	\$0
Erosion and Sediment Control	1	LS	10%	\$3,763
Ancillary Items	1	LS	5%	\$1,881
Plantings	1	LS	5%	\$1,881
Base Construction Cost				\$37,650
Mobilization (5%)				\$1,883
Subtotal 1				\$39,533
Contingency (25%)				\$9,883
Subtotal 2				\$49,416
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$22,237
Total				\$71,653
Estimated Project Cost				\$80,000

PC9702 Outfall Improvement



Address: 5815 Ox Road, Fairfax Station, Virginia
Location: Fairview Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0771 01 0046
Control Type: Water quality and quantity control
Drainage Area: 1.32 acres
Receiving Waters: Tributary of Sideburn Branch

Description: Swale reconstruction is proposed in the fields behind Fairview Elementary School. An existing grass swale discharges into the stream adjacent to the school. The swale is located between two playing fields. The project proposes adding energy dissipation devices to the swale, such as check dams and increased planting, to decrease velocities, increase infiltration, and improve stormwater quality.



- Outfall Improvement
- Storm Network
- Property Line

Project Benefits: The proposed project will reduce erosive velocities in the swale. Decreasing velocities in the swale will promote infiltration and pollutant removal before discharge. This will also increase groundwater recharge and downstream channel protection. The swale is between fields at a school and excessive erosion could have negative impacts to the fields. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project implementation.

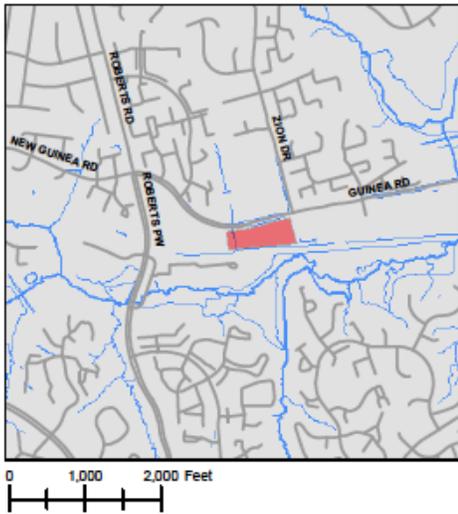
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
3.10	4.95	1.92

Project Design Considerations: The drainage area of the swale is the adjacent fields. The Watershed Advisory Group (WAG) supports these low cost projects that will improve water quality and educate students. Swale needs to be retrofitted in such a way as to minimize potential impacts after construction. Due to its location, the outfall improvement will have a substantial amount of traffic. In order to insure the project will function properly, foot traffic should be directed to cross at stabilized check dams, and directed away from infiltration areas.

Cost:

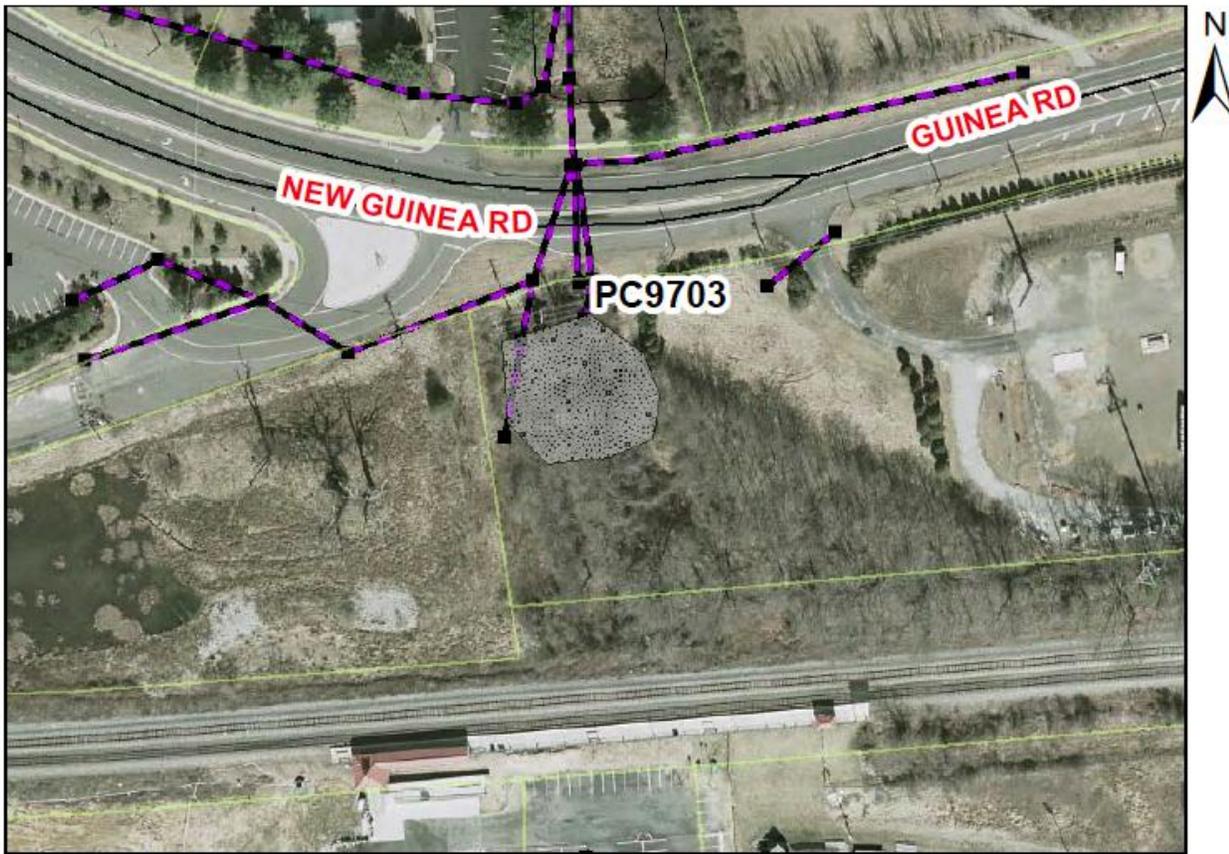
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Percolation/Infiltration Trench	450	SY	\$75	\$33,750
Plantings	1	LS	5%	\$1,688
Ancillary Items	1	LS	5%	\$1,688
Erosion and Sediment Control	1	LS	10%	\$3,375
Base Construction Cost				\$40,500
Mobilization (5%)				\$2,025
Subtotal 1				\$42,525
Contingency (25%)				\$10,631
Subtotal 2				\$53,156
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$23,920
Total				\$77,077
Estimated Project Cost				\$80,000

PC9703 Outfall Improvement



Address: 5637 Guinea Road, Fairfax, Virginia
Location: Outfall Near Power Company Facility
Land Owner: Private - Electric & Power Co., VA
PIN: 0772 01 0034
Control Type: Water quality and quantity control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: This project proposes improving the outfall located in open space east of a shopping center and west of the power company facility along Guinea Road. The project proposes to construct an energy dissipation device at the outfall. This project will help address the existing erosion problem in the downstream channel. This outfall conveys discharge from dry pond 0175DP and the roadway drainage system for New Guinea Rd.



0 100 200 400 Feet

Outfall Improvement
 Storm Network
 Property Line

Project Benefits: This project will improve the outfall area by installing a settling basin to lower the velocity of the stormwater exiting the storm system. This will decrease erosion downstream. The modifications to the outfall will also allow for more pollutant removal. Water volumes and velocities will be reduced before the water discharges to the wooded area and ultimately into a stream. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project's implementation.

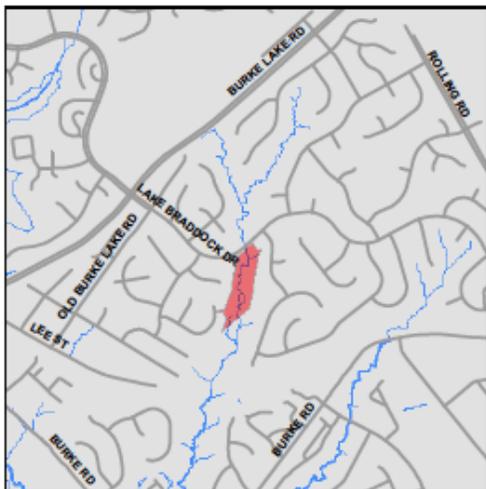
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.73	2.77	1.08

Project Design Considerations: The project map shows three pipes near this area. Additional survey information will be necessary to clarify these pipes' flow directions. Records show that the two eastern pipe ends are located in a small storm drain easement. This easement will need to be enlarged for the project. The area proposed for the outfall improvement area is currently very well vegetated. Efforts should be made to minimize impacts to mature existing vegetation when possible.

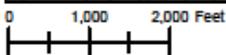
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.05	AC	\$8,500	\$8,925
Grading and Excavation	1000	CY	\$35	\$35,000
Plantings	1	LS	5%	\$2,196
Ancillary Items	1	LS	5%	\$2,196
Erosion and Sediment Control	1	LS	10%	\$4,393
Base Construction Cost				\$52,710
Mobilization (5%)				\$2,636
Subtotal 1				\$55,346
Contingency (25%)				\$13,836
Subtotal 2				\$69,182
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$31,132
Total				\$100,314
Estimated Project Cost				\$110,000

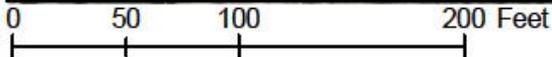
PC9704 Outfall Improvement



Address: Next to 9199 Lake Braddock Drive, Burke, Virginia
Location: Outfall near Lake Braddock Drive
Land Owner: Private – Southport Homeowner’s Association
PIN: 0782 19 B1
Control Type: Water quality and quantity control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the construction of a new storage and treatment area below the outfall of a closed system from Lake Braddock Drive. The improvement will include an energy dissipation device and wetland plantings. The primary indicators include instream sediment. Outfall storage will reduce erosive velocities and sediment loads at the outfall and improve downstream habitats.



- Outfall Improvement
- Storm Network
- Property Line

Project Benefits: The new storage and treatment area will reduce the velocity of runoff entering the stream and help reduce erosion downstream. The settling basin will decrease the debris and sediment contributed to the stream by the untreated runoff from the closed stormwater collection system. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project implementation.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
1.64	2.63	1.02

Project Design Considerations: This project is located in Southport open space. The project is located in Southport HOA open space. Records show no existing stormwater easements. This area receives flow from two stormwater pipes. One pipe conveys the runoff from Lake Braddock Dr. and has no prior stormwater quality or quantity management. The pipe is a culvert to convey water under Lake Braddock Dr. This project would consist of a settling basin and possible level spreader. The area of the proposed project is relatively flat.

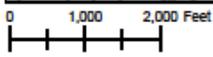
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	\$8,500	\$850
Grading and Excavation	6700	CY	\$35	\$234,500
Plantings	1	LS	5%	\$11,768
Ancillary Items	1	LS	5%	\$11,768
Erosion and Sediment Control	1	LS	10%	\$23,535
Base Construction Cost				\$282,420
Mobilization (5%)				\$14,121
Subtotal 1				\$296,541
Contingency (25%)				\$74,135
Subtotal 2				\$370,676
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$166,804
Total				\$537,481
Estimated Project Cost				\$540,000

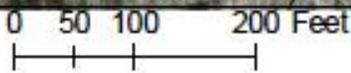
PC9705 Outfall Improvement



Address: Next to pool at 5601 Snowy Owl Drive, Fairfax, Virginia
Location: Outfall near Snowy Owl Dr.
Land Owner: Private Fairfax Club Estates Homeowners Association
PIN: 0771 12 G
Control Type: Water quality and quantity control
Drainage Area: N/A
Receiving Waters: Sideburn Branch



Description: This project proposes improving the outfall area where dry pond 0233DP and the closed system along John Ayres Dr. discharges. This improvement will create an energy dissipation basin inline with the stream to help lessen erosive velocities. Plants with good nutrient uptake will be installed along the banks of the stream to reduce pollutant loading from the untreated stormwater runoff. Primary indicators are stream bank buffer deficiency in headwater riparian habitat. This improvement will be integrated into the surrounding vegetation.



- SW Pond Retrofit
- Storm Network
- Sediment Forebay
- Property Line
- Streams

Project Benefits: This outfall improvement will reduce the velocity of runoff directly discharging from the two roadway storm pipes. The energy dissipation basin will create a better transition to the natural stream bed, by changing the shallow high velocity stormwater discharge to deeper slower moving channel flow. This improvement will help minimize erosion downstream. The settling basin will decrease the debris and sediment contributed to the stream by the untreated runoff from the closed stormwater collection system. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project implementation.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
7.86	12.58	4.87

Project Design Considerations: This area receives flow from three stormwater pipes. Two of the stormwater pipes drain areas that have no prior stormwater quality or quantity management. This area is highly visible, since it is near the Fairfax Club Estates clubhouse. Special care should be taken to integrate this improvement into the surrounding area and to make this improvement an asset to the neighborhood. Signage should be included to encourage the public to participate in good watershed stewardship, since stewardship is one of the County’s watershed planning final objectives. Records show no existing stormwater easement. Project would occur on the Fairfax Club Estates open space.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	\$8,500	\$850
Grading and Excavation	875	CY	\$35	\$30,625
Plantings	1	LS	5%	\$1,574
Ancillary Items	1	LS	5%	\$1,574
Erosion and Sediment Control	1	LS	10%	\$3,148
Base Construction Cost				\$37,770
Mobilization (5%)				\$1,889
Subtotal 1				\$39,659
Contingency (25%)				\$9,915
Subtotal 2				\$49,573
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$22,308
Total				\$71,881
Estimated Project Cost				\$80,000