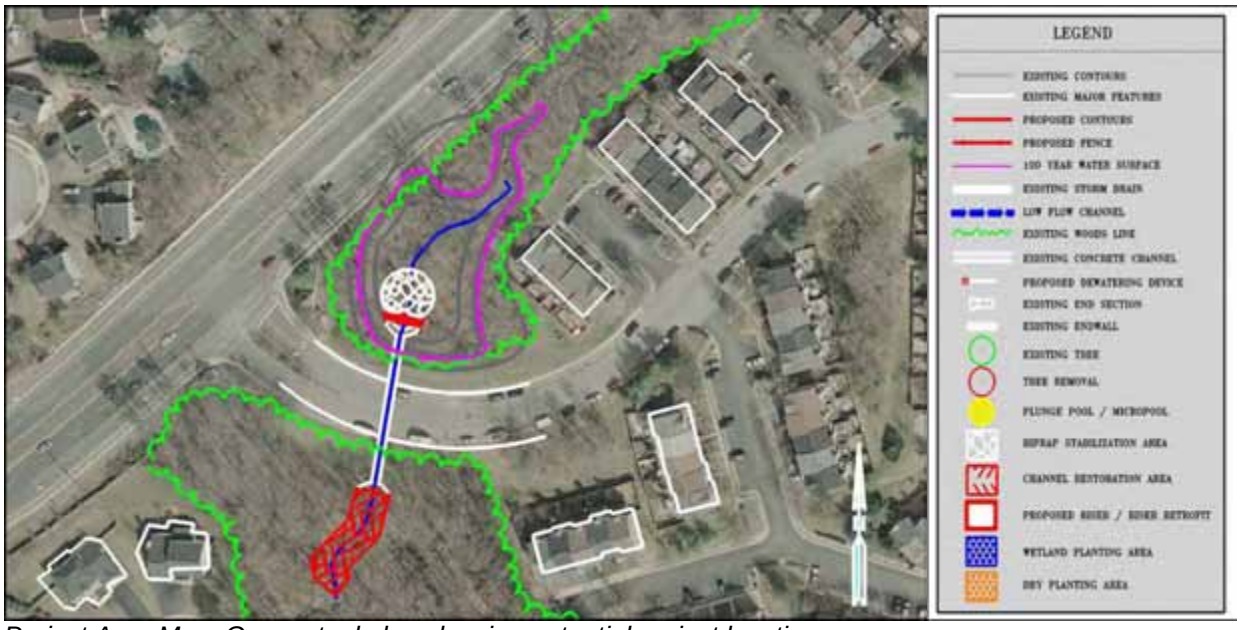
AC9101 - Pond Retrofit

Address:	Under Mount Air Drive, near the intersection of Telegraph Road
Location:	Village of Mount Air
Land Owner:	Private - HOA
PIN:	0994 06 C
Control Type	Water Quality and Quantity
Drainage Area	40.95 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This existing dry pond, 0629DP, is on the upstream side of the culvert underneath Mount Air Drive near Telegraph Road. This facility is located within a forested area in which a perennial stream channel flows through the culvert under Mount Air Drive. There is significant erosion on the downstream side of this culvert. The proposed facility will provide water quality treatment and control the 2-year storm event through the addition of a weir wall structure. The receiving stream on the downstream side of the culvert will also be stabilized to prevent further erosion.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project will handle the 2 year, 24-hour design storm with the addition of a control structure installed. Managing this frequent storm will help to reduce flow rates and discharge velocities back to pre-development conditions, which will reduce the potential for future downstream channel erosion. Installation of a control structure will also encourage the settling of suspended solids and floatables before they get to downstream channels, thus improving the health of the downstream channel. The addition of a control structure on the upstream side of the existing cross culvert will be necessary to achieve water quality and quantity goals for habitat improvement and prevention of downstream channel erosion. It is estimated that an annual total of 6,490 lbs of sediment, 63 lbs of total nitrogen and 12 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: The cross culvert underneath Mount Air Drive is located in a residential community with several townhouse buildings within close proximity. Coordination with residents and possibly an HOA will be necessary to retrofit this site since it is located on private land. Adding a control structure will cause water levels on the upstream side of the embankment to rise during a storm, it is recommned to include this possibility in the design. The base flow component of the control structure will require maintenance to prevent clogging. All components of the existing embankment and stream channel should be analyzed to ensure that it is designed to handle the impounded water. Environmental permitting issues are expected due to the in-stream location of this facility. Minimal tree loss is expected to obtain access and to clear the upstream embankment during construction. Existing utilities conflicts are not anticipated with this retrofit. Access is very good off of Mount Air Drive.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1	AC	$8,500.00	$8,500
New Riser	1	LS	$8,000.00	$8,000
Channel Stabilization	120	LF	$50.00	$6,000
Rip Rap Stabilization	80	SY	$100.00	$8,000
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$39,000**
Plantings	1	LS	5% of Project	$1,950
Ancillary Items	1	LS	5% of Project	$1,950
Erosion and Sediment Control	1	LS	10% of Project	$3,900
			Base Construction Costs	**$46,800**
			Mobilization (5%)	$2,340
			Subtotal 1	$49,140
			Contingency (25%)	$12,285
			Subtotal 2	$61,425
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$27,641
			Estimated Project Cost	**$89,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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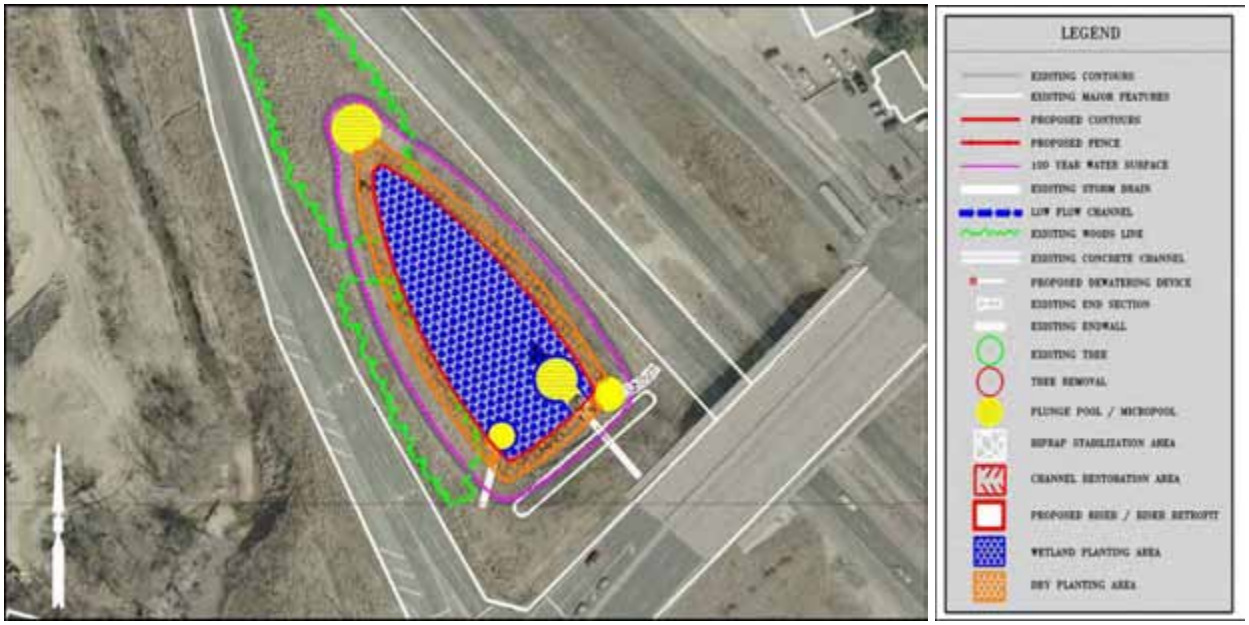
AC9102 - Pond Retrofit

Address:	Along off ramp from Fairfax County Parkway to Telegraph Road
Location:	Intersection of Telegraph Rd and Fairfax County Pkwy
Land Owner:	State - VDOT
PIN:	
Control Type	Water Quality
Drainage Area	21.29 acres
Receiving Waters	Long Branch

Description: This is an existing dry pond, owned by Virginia Department of Transportation (VDOT), that will be upgraded to a shallow wetland facility. Two and 10-year peak flow attenuation is provided within the existing facility. This project will consist of excavating for additional storage, plunge pools at the inflows, wetland and dry plantings and a new fence around the facility.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to meet the water quality treatment requirement by providing extended detention of the half-inch, 48 hour storm. Retrofitting this facility will encourage the removal of suspended solids and floatables to downstream channels, which will improve water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. It is estimated that an annual total of 7,050 lbs of sediment, 86 lbs of total nitrogen and 12 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is owned and maintained by VDOT, coordination with VDOT will be necessary to retrofit this facility. Based on a recent inspection of this facility, no baseflow was found; however, the presence of potential wetlands may present environmental permitting issues. No tree loss will occur with this retrofit. In a recent inspection of this facility, it appears as if there has been some recent maintenance or work performed on this pond. Access to this facility is very good from an access road off of Fairfax County Parkway. Overhead power lines are present over the access road; however, they appear to be relatively high and should not interfere with construction equipment. No other utility conflicts are not anticipated with this project.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.3	AC	$8,500.00	$11,050
Plungepool / Micropool	4	EA	$400.00	$1,600
Grading and Excavation	2591	CY	$35.00	$90,685
Fencing	1340	LF	$20.00	$26,800
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$138,635**
Plantings	1	LS	5% of Project	$6,932
Ancillary Items	1	LS	5% of Project	$6,932
Erosion and Sediment Control	1	LS	10% of Project	$13,864
			Base Construction Costs	**$166,363**
			Mobilization (5%)	$8,318
			Subtotal 1	$174,681
			Contingency (25%)	$43,670
			Subtotal 2	$218,351
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$98,258
			Estimated Project Cost	**$317,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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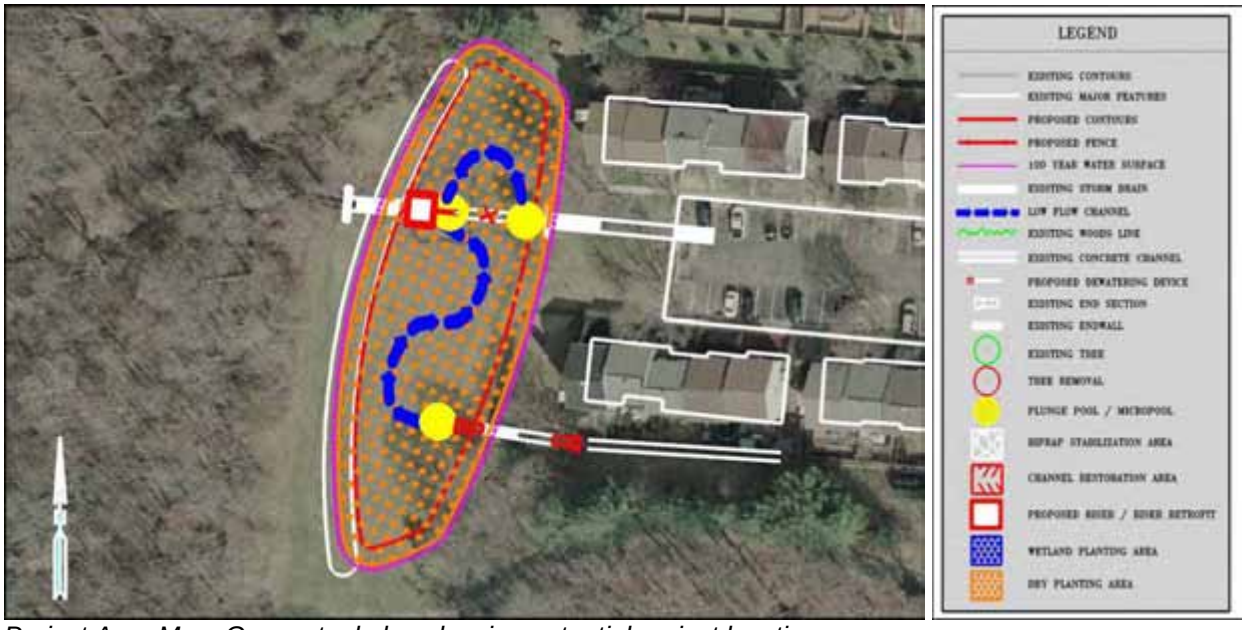
AC9105 - Pond Retrofit

Address:	At the end of Trestle Court
Location:	Pinewood Station
Land Owner:	Private - HOA
PIN:	0994 04 D1
Control Type	Water Quality and Quantity
Drainage Area	17.75 acres
Receiving Waters	Long Branch

Description: This is an existing dry pond that will be upgraded to an extended detention facility. There is an existing concrete channel from the inflow to the outfall. This project will consist of removing the existing headwalls and adding a riser structure, removing the concrete low-flow channels, adding a plunge pool at each inflow for energy dissipation into the facility and excavating for additional storage, including a meandering low flow channel.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement by providing extended detention of the half-inch, 48 hour storm. It would also likely meet the peak flow management requirements of the 2 and 10-year storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. The addition of a riser to the outlet pipe of this facility will allow the facility to achieve water quality and quantity goals for habitat improvement and prevention of downstream channel erosion. Peak flow rates, erosive velocities and channel sediment loads will be reduced by this project. It is estimated that an annual total of 2,990 lbs of sediment, 27 lbs of total nitrogen and seven lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a residential community, installing signs around the facility is recommended to improve public knowledge. Coordination with residents and the HOA will be necessary to retrofit this facility since it is located on private land. Environmental permitting issues may be encountered due to the presence of baseflow into this facility. No tree loss will occur with this retrofit. There is good access to this facility at the end of Trestle Court. Several underground utilities and sanitary sewer manholes were identified near the townhouses located at the end of Trestle Court; however, utility conflicts in the pond or on the pond embankment are not anticipated.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	50	LF	$30.00	$1,500
Plungepool / Micropool	3	EA	$400.00	$1,200
Excavate to create low-flow channel	220	LF	$25.00	$5,500
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	1229	CY	$35.00	$43,015
Remove Existing Headwall	1	EA	$300.00	$300
New Endwall	2	EA	$2,500.00	$5,000
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$73,515**
Plantings	1	LS	5% of Project	$3,676
Ancillary Items	1	LS	5% of Project	$3,676
Erosion and Sediment Control	1	LS	10% of Project	$7,352
			Base Construction Costs	**$88,219**
			Mobilization (5%)	$4,411
			Subtotal 1	$92,630
			Contingency (25%)	$23,158
			Subtotal 2	$115,788
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$52,105
			Estimated Project Cost	**$168,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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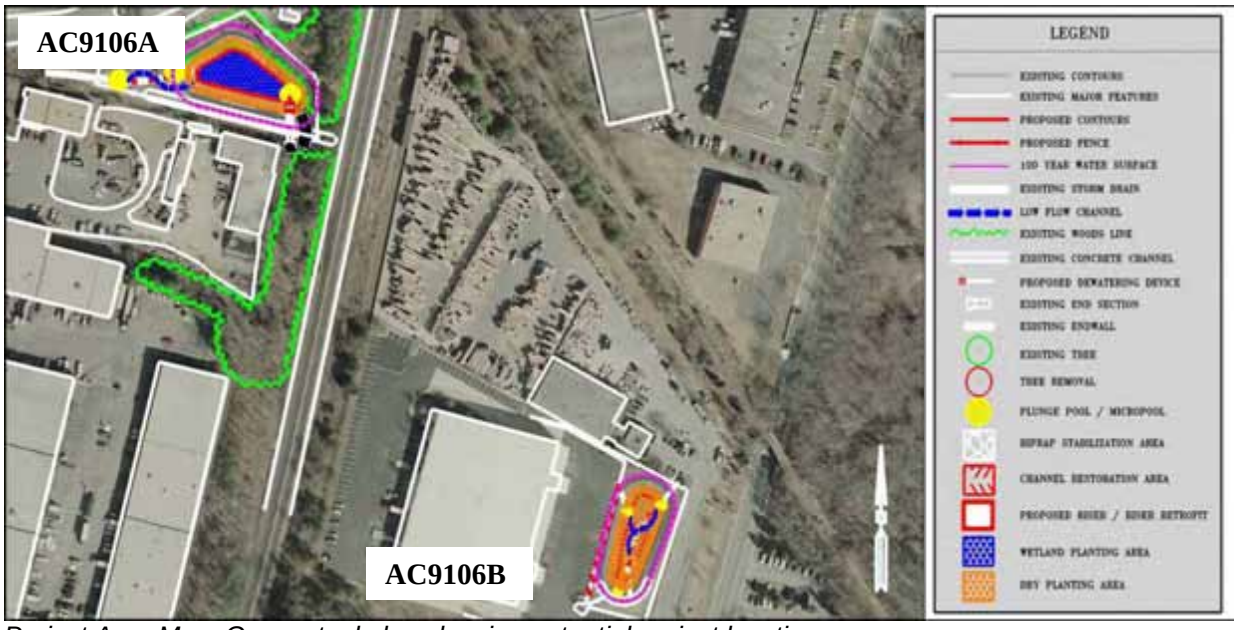
AC9106 - Pond Retrofit

Address:	Behind 8157 Backlick Road, In front of 8308 Cinderbed Road
Location:	
Land Owner:	State - VDOT, Private - Commercial
PIN:	0993 01 0038, 0994 01 0004B
Control Type	Water Quality and Quantity
Drainage Area	6.96 acres, 13.24 acres
Receiving Waters	Long Branch

Description: AC9106A is an existing dry pond, owned by Virginia Department of Transportation (VDOT), which will be upgraded to a shallow wetland facility. There is a concrete channel that carries runoff to the plunge pool. AC9106B is also an existing dry pond. There are two concrete low-flow channels within the pond that drain runoff from the surrounding industrial area. This project will consist of removing the concrete low-flow channels, incorporating a meandering low flow channel through each pond, and adding micropools or plungepools at each inflow. AC9106A will also receive a new riser and dewatering device and wetland plantings. AC9106B will also include modifications to the riser structure and removing curb and gutter along the parking lot to allow for sheetflow into the facility.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: These facilities have the potential to meet the water quality treatment requirement for the contributing drainage areas via extended detention of the one-half inch, 48 hour storm, as well as manage the peak flow of the 2-year and 10-year peak runoff volumes. Retrofitting these facilities will promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities, and channel sediment loads will be reduced by this project. It is estimated that an annual total of 14,360 lbs of sediment, 97 lbs of total nitrogen and 16 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Site AC9106A is owned and maintained by VDOT, so coordination with VDOT will be necessary to retrofit this facility. Baseflow and wetlands currently in AC9106A may present environmental permitting issues. Minimal tree loss will occur and existing utility conflicts are not anticipated with retrofitting this site. A fence would be placed around the retrofit pond due to the proximity to the road/parking area. Access to site AC9106A is very good from an access road off of Terminal Road. Currently, site AC9106B is located within a fenced, private industrial property. Coordination with the property owners will be necessary to retrofit this site. Other than the fence surrounding the entire property, access is good due to a gravel road leading to the riser from the parking lot. The storm drain may need to be adjusted to ensure the pond bottom remains stable. Retrofitting site AC9106B will require no tree loss. No environmental permitting issues or existing utilities conflicts are expected with retrofitting site AC9106B.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.4	AC	$8,500.00	$3,400
Paved Ditch Demolition & Haul Away	415	LF	$30.00	$12,450
Plungepool / Micropool	7	EA	$400.00	$2,800
Excavate to create low-flow channel	235	LF	$25.00	$5,875
New Riser	1	LS	$8,000.00	$8,000
Riser Retrofit	1	LS	$4,000.00	$4,000
Embedded Dewatering Pipe	2	EA	$500.00	$1,000
Grading and Excavation	838	CY	$35.00	$29,330
Fencing	870	LF	$20.00	$17,400
Curb-Gutter Removal	225	LF	$5.00	$1,125
Soil Borings	2	LS	$8,500.00	$17,000
			Initial Project Costs	**$102,380**
Plantings	1	LS	5% of Project	$5,119
Ancillary Items	1	LS	5% of Project	$5,119
Erosion and Sediment Control	1	LS	10% of Project	$10,238
			Base Construction Costs	**$122,856**
			Mobilization (5%)	$6,143
			Subtotal 1	$128,999
			Contingency (25%)	$32,250
			Subtotal 2	$161,249
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$72,562
			Estimated Project Cost	**$234,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Facility Overview

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AC9109 - Pond Retrofit

Address:	Between Parish Glebe Lane and Crestleigh Way
Location:	Island Creek
Land Owner:	County - FCPA
PIN:	0904 11 Z
Control Type	Water Quality and Quantity
Drainage Area	14.99 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This dry pond treats the runoff from a nearby residential area. The embankment is a paved walking trail. A small amount of baseflow was noted going through this facility during a recent inspection; however, this flow may not be occurring all the time. This project will retrofit the existing facility into an extended detention pond. The retrofit will consist of a new riser structure including a dewatering device, removing the concrete low-flow channels and replacing them with a meandering low flow channel, excavating for additional storage, tree removal and dry plantings.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement via extended detention of the one-half inch, 48 hour storm, as well as manage the 2-year and 10-year peak runoff volumes. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion by reducing peak flow rates and erosive velocities within the receiving waters. It is estimated that an annual total of 1,720 lbs of sediment, 13 lbs of total nitrogen and three lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is adjacent to residential communities with a walking trail on the embankment, installing signs around the facility is recommended to promote public awareness. Environmental permitting issues are expected due to the in-stream location of this facility. Some tree removal along the edges and in the upstream portion of the facility can be expected with this retrofit. Retrofitting this facility will require excavation and grading to achieve peak flow management. Access to this facility is very good due to the asphalt trail on that extends from Parish Glebe Lane to Crestleigh Way. Transmission power lines are present overtop the entire embankment of this facility. Underground electric lines connecting trail lights are also present on top of the embankment next to the asphalt trail. Design or construction constraints are not anticipated due to these utilities. Coordination with the transmission utility company will be necessary to retrofit this facility.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.2	AC	$8,500.00	$10,200
Paved Ditch Demolition & Haul Away	55	LF	$30.00	$1,650
Tree Removal	6	EA	$2,000.00	$12,000
Excavate to create low-flow channel	60	LF	$25.00	$1,500
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	903	CY	$35.00	$31,605
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$73,955**
Plantings	1	LS	5% of Project	$3,698
Ancillary Items	1	LS	5% of Project	$3,698
Erosion and Sediment Control	1	LS	10% of Project	$7,396
			Base Construction Costs	**$88,747**
			Mobilization (5%)	$4,437
			Subtotal 1	$93,184
			Contingency (25%)	$23,296
			Subtotal 2	$116,480
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$52,416
			Estimated Project Cost	**$169,000**

Site Photo: Existing Facility and Embankment

Site Photo: Existing Control Structure

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AC9110 - Pond Retrofit

Address:	At the end of Briarleigh Way, Near the intersection of Birchleigh Way and Crestleigh Way
Location:	Amberleigh
Land Owner:	Private - HOA
PIN:	0904 10 L, 0904 10 F
Control Type	Water Quality and Quantity
Drainage Area	13.62 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This dry pond receives runoff from the high-density residential Amberleigh neighborhood. It is surrounded by woods with some small trees growing within the facility. The addition of a riser to the outlet pipe of this facility will be necessary to achieve water quality and quantity goals for habitat improvement and prevention of downstream channel erosion. This project will consist of removing the existing headwall and replacing it with a new riser structure including a dewatering device, a meandering low flow channel, a micropool and a plunge pool at the riser and the pond inflow and excavating for additional storage.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement for the contributing drainage area by providing extended detention of the half-inch, 48 hour storm. It also meets the peak flow management requirements of the 2 and 10-year storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, which will enhance downstream water quality and habitat. It is estimated that an annual total of 3,500 lbs of sediment, 38 lbs of total nitrogen and eight lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and an HOA will be necessary to retrofit this facility since it is located on private land. No environmental permitting issues are expected with this pond retrofit. Minimal tree loss is expected within the facility and on the embankment with this retrofit. No design or construction issues were identified at this site. Existing utility conflicts are not anticipated. Access to this facility is very good from an access road located at the end of Briarleigh Way.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.6	AC	$8,500.00	$5,100
Plungepool / Micropool	2	EA	$400.00	$800
Excavate to create low-flow channel	325	LF	$25.00	$8,125
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	1938	CY	$35.00	$67,830
Remove Existing Headwall	1	EA	$300.00	$300
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$99,155**
Plantings	1	LS	5% of Project	$4,958
Ancillary Items	1	LS	5% of Project	$4,958
Erosion and Sediment Control	1	LS	10% of Project	$9,916
			Base Construction Costs	**$118,987**
			Mobilization (5%)	$5,949
			Subtotal 1	$124,936
			Contingency (25%)	$31,234
			Subtotal 2	$156,170
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$70,277
			Estimated Project Cost	**$226,000**

Site Photo: Facility Inflow and Overall Facility

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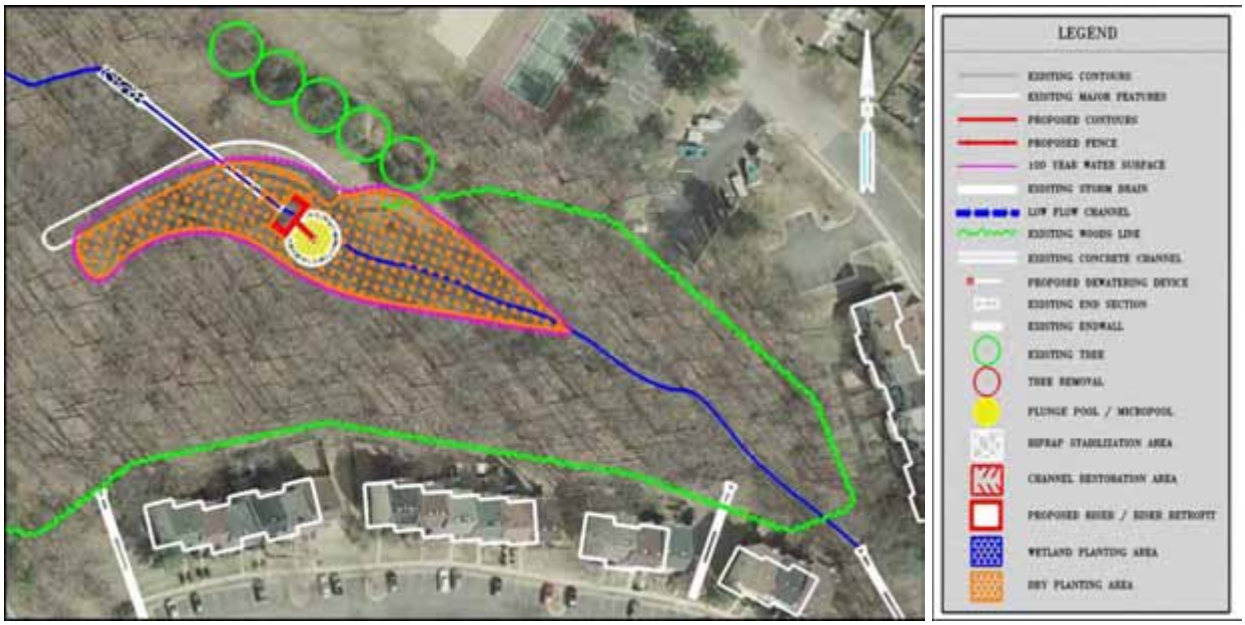
AC9111 - Pond Retrofit

Address:	Behind 6530 Birchleigh Way, Near the intersection of Birchleigh Way and Crestleigh Way
Location:	Amberleigh
Land Owner:	Private - HOA
PIN:	0904 10 F
Control Type	Water Quality and Quantity
Drainage Area	25.49 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This dry pond receives runoff from the high-density residential Amberleigh neighborhood and it's associated recreational areas. It has woods on three sides as well as some trees growing within the facility. The stream channel that flows into and within the facility is incised. The addition of a riser to the outlet pipe of this facility will allow the facility to achieve water quality and some quantity goals for habitat improvement and prevention of downstream channel erosion. This project will also consist of removing the existing headwall, tree removal, dry plantings and riprap stabilization at the riser.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement via extended detention of the one-half inch, 48 hour storm, as well as manage the 2-year peak runoff volume. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, which will improve water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities and channel sediment loads will be reduced by this project. It is estimated that an annual total of 6,120 lbs of sediment, 69 lbs of total nitrogen and 15 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a residential community, installing signs around the facility is recommended to increase public knowledge of the project. Coordination with residents and the HOA will be necessary to retrofit this facility since it is located on private land. Environmental permitting issues are expected due to the in-stream location of this facility. Significant tree loss is expected with this retrofit. In-stream construction will require base flow diversion. The base flow component of the replaced control structure will require monitoring to prevent clogging. Stabilization of the stream channel within the existing facility would be incorporated with this retrofit. Existing utility conflicts are not anticipated. Access to this facility will require traveling thru several hundred feet of recreational area located at the intersection of Crestleigh Way and Greenleigh Lane.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.4	AC	$8,500.00	$3,400
Tree Removal	3	EA	$2,000.00	$6,000
Plungepool / Micropool	1	EA	$400.00	$400
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Rip Rap Stabilization	55	SY	$100.00	$5,500
Remove Existing Headwall	1	EA	$300.00	$300
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$32,600**
Plantings	1	LS	5% of Project	$1,630
Ancillary Items	1	LS	5% of Project	$1,630
Erosion and Sediment Control	1	LS	10% of Project	$3,260
			Base Construction Costs	**$39,120**
			Mobilization (5%)	$1,956
			Subtotal 1	$41,076
			Contingency (25%)	$10,269
			Subtotal 2	$51,345
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$23,105
			Estimated Project Cost	**$74,000**

Site Photo: Existing Facility Inflow

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AC9112 - Pond Retrofit

Address:	Behind 6700 Springfield Center Drive
Location:	Springfield Industrial Park
Land Owner:	Private - Commercial
PIN:	0904 01 0011
Control Type	Water Quality and Quantity
Drainage Area	61.84 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This is an existing dry pond, which will be converted to a shallow wetland facility. Currently, the riser at this facility appears to be very old. Retrofitting this facility will require excavation, including accumulated sediment removal, and grading to achieve peak flow management. Redesigning and replacing the riser will be necessary to achieve water quality and quantity goals for habitat improvement and prevention of downstream channel erosion.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement for the contributing drainage area by providing extended detention of the half-inch, 48 hour storm. It will also meet the peak flow management requirements of the 2-year storm and also for a large portion of the 10-year storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. Retrofitting this facility would also help to prevent future downstream erosion by reducing peak flow rates and erosive velocities. It is estimated that an annual total of 13,280 lbs of sediment, 44 lbs of total nitrogen and 17 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a private commercial/industrial area, coordination with the property owner and railroad company will be necessary to retrofit this facility. An existing access road off of Springfield Center Drive will need to be used to access this facility. Access will be difficult to this facility and will require the removal of trees, the disturbance of a stream channel or floodplain, and steep slope modification. Significant modification to an existing stream channel that flows through this facility will be necessary, which will require permitting. This retrofit would address stabilization of the outfall of the barrel pipe, and the downstream channel due to erosion. In-stream construction will require base flow diversion. The base flow component of the replaced control structure will require constant monitoring to prevent clogging. Environmental permitting issues are expected due to the in-stream location of this facility. Significant tree removal within the facility and on the upstream side of the pond embankment can be expected with this retrofit. Overhead power lines, sanitary sewer markers, and gas and electric markers are all present within close proximity to the existing riser. These utilities may constrain the retrofit potential of this facility.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.8	AC	$12,000.00	$9,600
Plungepool / Micropool	2	EA	$400.00	$800
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Channel Stabilization	115	LF	$50.00	$5,750
Rip Rap Stabilization	175	SY	$100.00	$17,500
Grading and Excavation	2367	CY	$35.00	$82,845
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$133,495**
Plantings	1	LS	5% of Project	$6,675
Ancillary Items	1	LS	5% of Project	$6,675
Erosion and Sediment Control	1	LS	10% of Project	$13,350
			Base Construction Costs	**$160,195**
			Mobilization (5%)	$8,010
			Subtotal 1	$168,205
			Contingency (25%)	$42,051
			Subtotal 2	$210,256
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$94,615
			Estimated Project Cost	**$305,000**

Site Photo: Inside Existing Facility

Site Photo: Existing Control Structure

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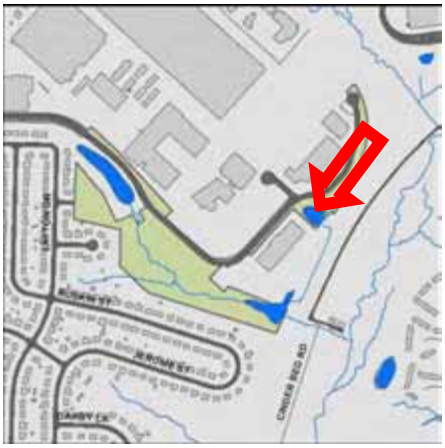
AC9113 - Pond Retrofit



Address:	Next to 6700 Springfield Center Drive
Location:	Springfield Industrial Park
Land Owner:	Private - Commercial
PIN:	0904 01 0011
Control Type	Water Quality and Quantity
Drainage Area	38.14 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This existing dry pond is located in a highly vegetated area near an industrial center. This facility is proposed to become a shallow wetland. The concrete riser of this facility was found to be in disrepair, so, as part of this retrofit, the current riser will be replaced to ensure water quality and quantity goals are met to the maximum extent practicable. Two plunge pools, wetland plantings and a new fence are also proposed as part of this retrofit.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to meet some of the water quality treatment requirement through extended detention of the half-inch, 48 hour storm. It will meet the peak flow management requirements of the 2-year storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities, and channel sediment loads will be reduced by this project. It is estimated that an annual total of 11,300 lbs of sediment, 101 lbs of total nitrogen and 19 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a private commercial/industrial area, coordination with the property owner will be necessary to retrofit this facility. Access to this facility is very good from a parking lot along Springfield Center Drive. Environmental permitting issues may be encountered due to the presence of wetlands within this facility. Moderate tree loss is expected with this pond retrofit due to clearing the pond embankment and from expanding the facility. Overhead power lines are present near the downstream embankment, but they appear to be relatively high and should not interfere with construction equipment. No other utility conflicts are anticipated with this project. No other design or construction issues were identified at this site.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$8,500.00	$2,550
Tree Removal	4	EA	$2,000.00	$8,000
Plungepool / Micropool	2	EA	$400.00	$800
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	1203	CY	$35.00	$42,105
Fencing	560	LF	$20.00	$11,200
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$81,655**
Plantings	1	LS	5% of Project	$4,083
Ancillary Items	1	LS	5% of Project	$4,083
Erosion and Sediment Control	1	LS	10% of Project	$8,166
			Base Construction Costs	**$97,987**
			Mobilization (5%)	$4,899
			Subtotal 1	$102,886
			Contingency (25%)	$25,722
			Subtotal 2	$128,608
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$57,874
			Estimated Project Cost	**$186,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structur

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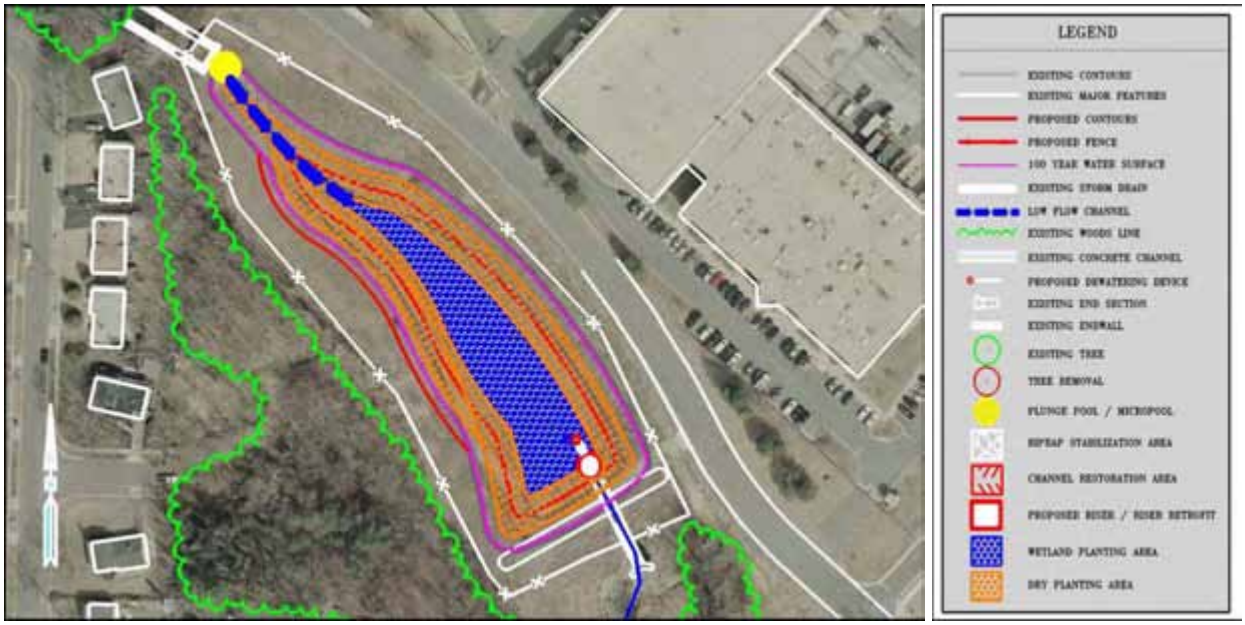
AC9114 - Pond Retrofit

Address:	Across from 6805 Springfield Center Drive
Location:	Springfield Industrial Park
Land Owner:	State - VDOT
PIN:	
Control Type	Water Quality and Quantity
Drainage Area	119.41 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This is an existing dry pond that will be converted to a shallow wetland facility. This facility has a large drainage area and does convey baseflow. This project will consist of a new riser structure including a dewatering device, excavating for additional storage, a plunge pool at the inflow and wetland plantings.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement through extended detention of the one-half inch, 48 hour storm. It will also manage the 2-year peak runoff volumes as well as the majority of the 10-year peak runoff volume. Retrofitting this facility would help to prevent future downstream erosion by reducing peak flow rates and erosive velocities. This retrofit will also promote the removal of suspended solids and floatables to downstream channels, which will enhance downstream water quality and habitat. It is estimated that an annual total of 15,900 lbs of sediment, 148 lbs of total nitrogen and 30 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is owned and maintained by VDOT, coordination with VDOT will be necessary to retrofit this facility. Access to this facility is very good from Springfield Center Drive. Environmental permitting issues may be encountered due to the presence of baseflow from twin 42" RCP pipes that discharge into this facility. Minimal tree loss is expected with this pond retrofit. Existing utilities conflicts are not anticipated. No design or construction issues were identified at this site. Currently, a chain link fence in good condition surrounds this facility.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.4	AC	$8,500.00	$11,900
Plungepool / Micropool	1	EA	$400.00	$400
Excavate to create low-flow channel	170	LF	$25.00	$4,250
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	8192	CY	$35.00	$286,720
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$320,270**
Plantings	1	LS	5% of Project	$16,014
Ancillary Items	1	LS	5% of Project	$16,014
Erosion and Sediment Control	1	LS	10% of Project	$32,027
			Base Construction Costs	**$384,325**
			Mobilization (5%)	$19,216
			Subtotal 1	$403,541
			Contingency (25%)	$100,885
			Subtotal 2	$504,426
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$226,992
			Estimated Project Cost	**$731,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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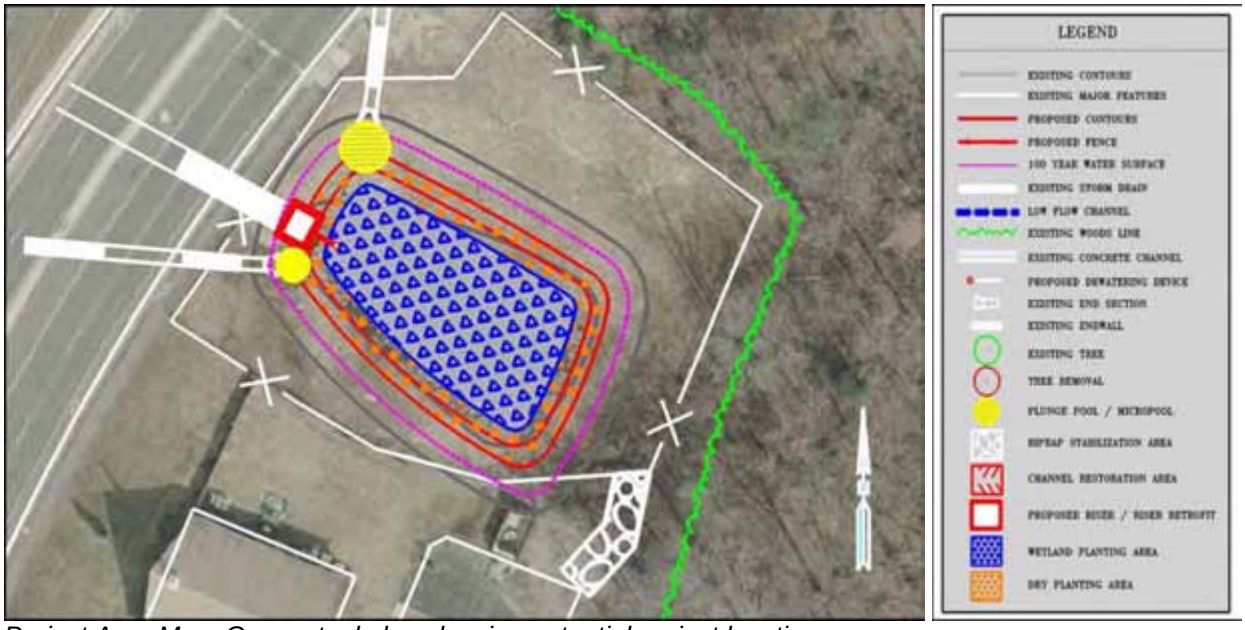
AC9115 - Pond Retrofit

Address:	Next to 7401 Beulah Street, Near the intersection of Beulah Street and Hillary Street
Location:	Next to Assembly of God Church
Land Owner:	State - VDOT
PIN:	0913 01 0053
Control Type	Water Quality and Quantity
Drainage Area	37.34 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This is an existing Virginia Department of Transportation (VDOT) dry pond, which will be converted to a shallow wetland facility. The facility drains to a closed storm drain system and does not have an emergency spillway. This project will consist of a new riser structure including a dewatering device, wetland and dry plantings, adding two plunge pools for energy dissipation,and excavating for additional storage.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement through extended detention of the one-half inch, 48 hour storm. It will also manage the 2-year and 10-year peak runoff volumes. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities, and channel sediment loads will be reduced by this project. It is estimated that an annual total of 3,040 lbs of sediment, 39 lbs of total nitrogen and nine lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is owned and maintained by VDOT, coordination with VDOT will be necessary to retrofit this facility. No baseflow seems to be present, but the presence of potential wetlands may present environmental permitting issues. No tree loss will occur and no utility conflicts are anticipated with this retrofit. The chain-link fence surrounding this facility was found to be in good condition except for the gate and one section of fence along Beulah Street.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Plungepool / Micropool	2	EA	$400.00	$800
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	804	CY	$35.00	$28,140
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$45,940**
Plantings	1	LS	5% of Project	$2,297
Ancillary Items	1	LS	5% of Project	$2,297
Erosion and Sediment Control	1	LS	10% of Project	$4,594
			Base Construction Costs	**$55,128**
			Mobilization (5%)	$2,756
			Subtotal 1	$57,884
			Contingency (25%)	$14,471
			Subtotal 2	$72,355
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$32,560
			Estimated Project Cost	**$105,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Inflow and Control Structur

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AC9116 - Pond Retrofit

Address:	At the end of Achilles Court
Location:	Devonshire Townhomes
Land Owner:	Private - HOA
PIN:	0911 11 B
Control Type	Water Quality and Quantity
Drainage Area	19.04 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This is a large existing dry pond that will be converted to an extended detention facility. There are concrete channels that carry the high-density residential runoff from the inflow points to the riser structure. This project will consist of modifying the riser structure including installing a new dewatering system, removing the concrete low-flow channels and replacing them with a meandering low flow channel, adding a fence around the facility and excavating for additional storage.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement by providing extended detention of the half-inch, 48 hour storm. It will also meet the peak flow management requirements of the 2 and 10-year storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion by reducing peak flows and erosive velocities. It is estimated that an annual total of 3,760 lbs of sediment, 33 lbs of total nitrogen and eight lbs of total phosphorus would be reduced by this project.

Project Design Considerations: This facility is located on private land, so coordination with residents and the HOA will be necessary to retrofit this facility. Access to this facility is very good from the end of Achilles Court or the end of Judith Avenue. An existing sanitary sewer manhole is located within the facility near the riser, which may constrain design. No other utility conflicts are anticipated. Moderate landscaping and tree removal is required for this retrofit. No environmental permitting issues are anticipated with this retrofit.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	375	LF	$30.00	$11,250
Plungepool / Micropool	6	EA	$400.00	$2,400
Excavate to create low-flow channel	315	LF	$25.00	$7,875
Riser Retrofit	1	LS	$4,000.00	$4,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	923	CY	$35.00	$32,305
Fencing	880	LF	$20.00	$17,600
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$84,430**
Plantings	1	LS	5% of Project	$4,222
Ancillary Items	1	LS	5% of Project	$4,222
Erosion and Sediment Control	1	LS	10% of Project	$8,443
			Base Construction Costs	**$101,317**
			Mobilization (5%)	$5,066
			Subtotal 1	$106,383
			Contingency (25%)	$26,596
			Subtotal 2	$132,979
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$59,841
			Estimated Project Cost	**$193,000**

Site Photo: Existing Control Structure and Concrete Low Flow Channels

Site Photo: Existing Facility Overview

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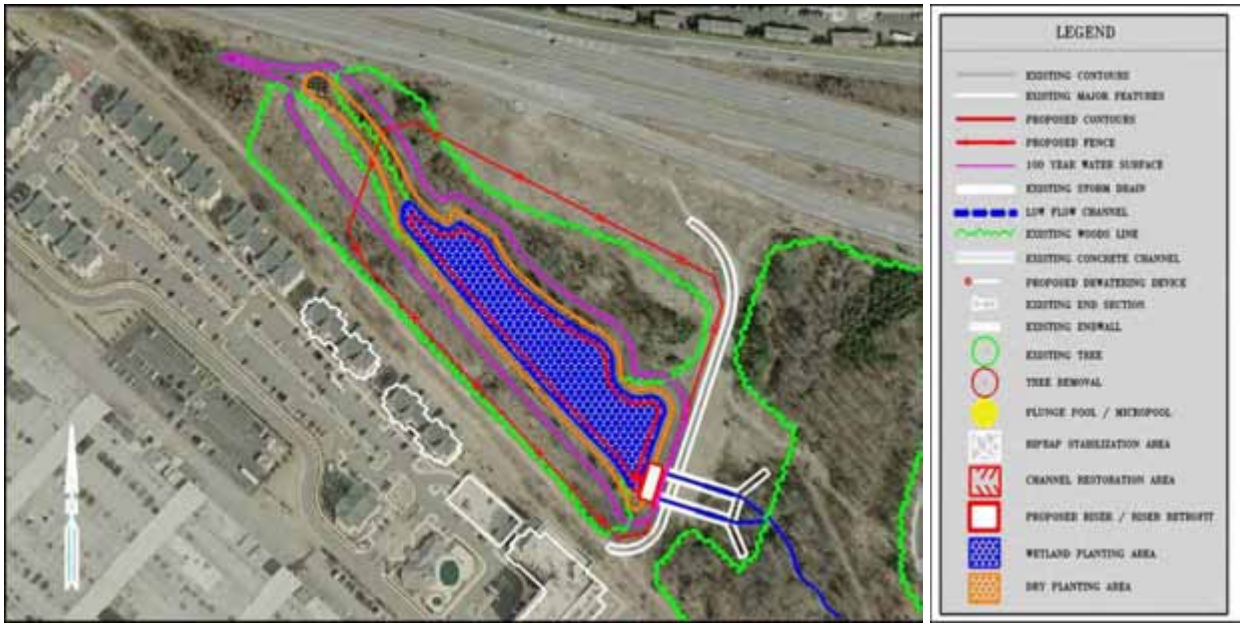
AC9120 - Pond Retrofit

Address:	Behind 6700 Metropolitan Center Drive, At the end of Metropolitan Center Drive
Location:	
Land Owner:	Private
PIN:	0902 01 0060
Control Type	Water Quality and Quantity
Drainage Area	277.87 acres
Receiving Waters	Long Branch

Description: This in-stream facility currently treats the runoff from a high-density residential area near the Springfield Metro Station. The pond has a significant amount of trash and debris around the riser with overgrown vegetation throughout the facility. This project is an detention pond that will be converted to a shallow wetland by modifying the spillway characteristics of the existing riser, installing a new dewatering system and excavating to create a permanent wet storage element.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Incorporating a permanent wet storage component into this facility will provide approximately 50 percent of the water quality treatment volume requirement for the contributing drainage area. The available storage volume above the permanent pool has potential to provide peak flow management of the 2-year storm. Retrofitting this facility will promote uptake of nutrients, removal of pollutants, suspension of floatables and overall increases in water quality and habitat. Peak flow rates, erosive velocities and channel sediment loads can also be reduced by this project. It is estimated that an annual total of 14,440 lbs of sediment, 119 lbs of total nitrogen and 27 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Due to the large drainage area contributing to this facility, it is unlikely that peak flow management of the 10-year storm can be achieved through retrofit. Access to this facility is good due to an existing paved road on top of the pond embankment that originates from Franconia Springfield Parkway. Coordination with the owner will be necessary to retrofit this facility since it is located on private land. Existing utility conflicts are not anticipated. Environmental permitting issues are expected due to the in-stream location of this facility. This retrofitted facility would require a tree removal, impact existing stream channels, and require a large amount of excavation and grading to achieve the required volume. In-stream construction will require base flow diversion.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.9	AC	$12,000.00	$10,800
Riser Retrofit	1	LS	$4,000.00	$4,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	21248	CY	$35.00	$743,680
Fencing	2307	LF	$20.00	$46,140
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$813,620**
Plantings	1	LS	5% of Project	$40,681
Ancillary Items	1	LS	5% of Project	$40,681
Erosion and Sediment Control	1	LS	10% of Project	$81,362
			Base Construction Costs	**$976,344**
			Mobilization (5%)	$48,817
			Subtotal 1	$1,025,161
			Contingency (25%)	$256,290
			Subtotal 2	$1,281,451
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$576,653
			Estimated Project Cost	**$1,858,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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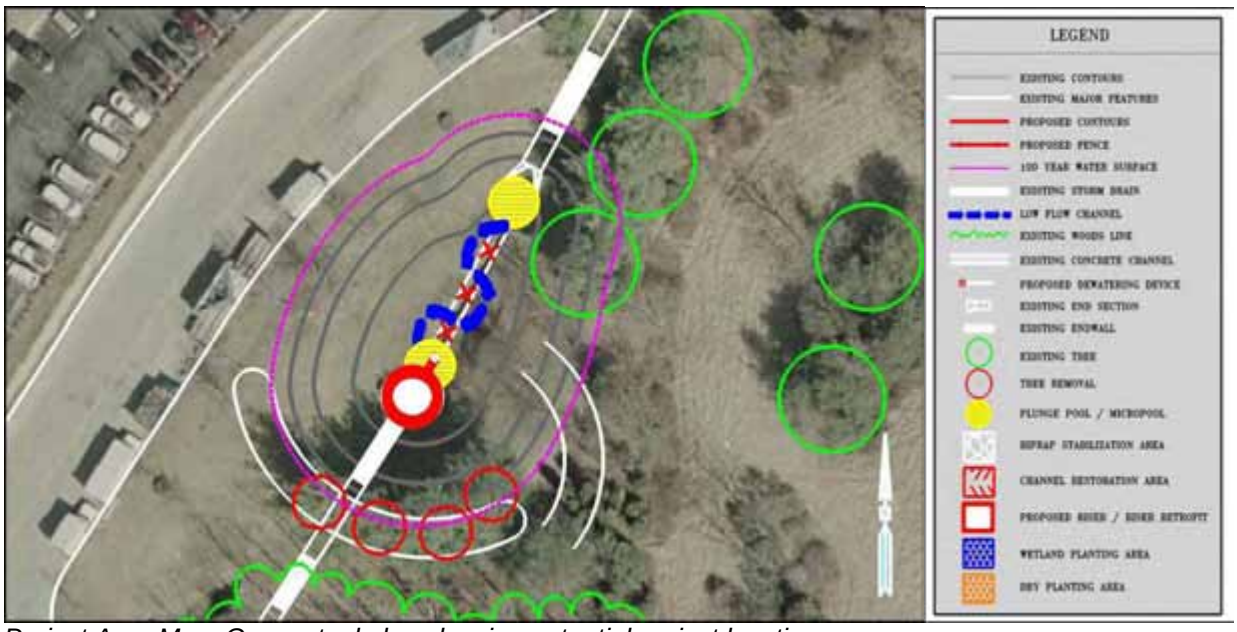
AC9123 - Pond Retrofit

Address:	At the end of 8500 block of Cinderbed Road, Next to 8581 Cinder Bed Road
Location:	Gateway 95 Business Park
Land Owner:	Private - Commercial
PIN:	0993 04 B
Control Type	Water Quality
Drainage Area	17.55 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: The existing facility on Cinder Bed Road currently provides 2- and 10-year storm peak flow reduction. There are three inflows into the pond, one of which uses a concrete channel to convey flows to the riser structure. It appears that there used to be riprap outfall protection at each of the inflows, but it has since been washed away. To retrofit this pond, the concrete channel will be removed, a micropool and plunge pool will be provided and the riser will be modified. The riser modification will allow the pond to provide full water quality treatment as well as manage the 2-year storm. Some reduction of the 10-year peak flow would also be provided.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement for the contributing drainage area by providing extended detention of the half-inch, 48 hour storm. Retrofitting this facility will promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. In particular, retrofitting this facility would help to contain oil that was present in the low flow concrete pilot channel during a field inspection of this site. The proposed improvements would also help prevent future downstream channel erosion by reducing peak flows and erosive velocities. It is estimated that an annual total of 6,190 lbs of sediment, 40 lbs of total nitrogen and 8 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a private commercial/industrial area (Gateway 95 Business Park), coordination with the property owner will be necessary to retrofit this facility. Access to this facility is very good off of Cinder Bed Road. Environmental permitting issues may be encountered due to the presence of baseflow from a 42" RCP inflow into this facility. Minimal tree loss is expected on the downstream side of the embankment with this pond retrofit, although a few trees need to removed along the embankment. Existing utilities conflicts are not anticipated. Due to the commercial/industrial drainage area to this facility, stormwater controls for oil and grease, sediment, and trash should all be incorporated in the retrofit.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	95	LF	$30.00	$2,850
Tree Removal	4	EA	$2,000.00	$8,000
Plungepool / Micropool	2	EA	$400.00	$800
Excavate to create low-flow channel	90	LF	$25.00	$2,250
Riser Retrofit	1	LS	$4,000.00	$4,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$26,900**
Plantings	1	LS	5% of Project	$1,345
Ancillary Items	1	LS	5% of Project	$1,345
Erosion and Sediment Control	1	LS	10% of Project	$2,690
			Base Construction Costs	**$32,280**
			Mobilization (5%)	$1,614
			Subtotal 1	$33,894
			Contingency (25%)	$8,474
			Subtotal 2	$42,368
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$19,066
			Estimated Project Cost	**$61,000**

Site Photo: Existing Control Structure

Site Photo: Concrete Low Flow Channel and Embankment

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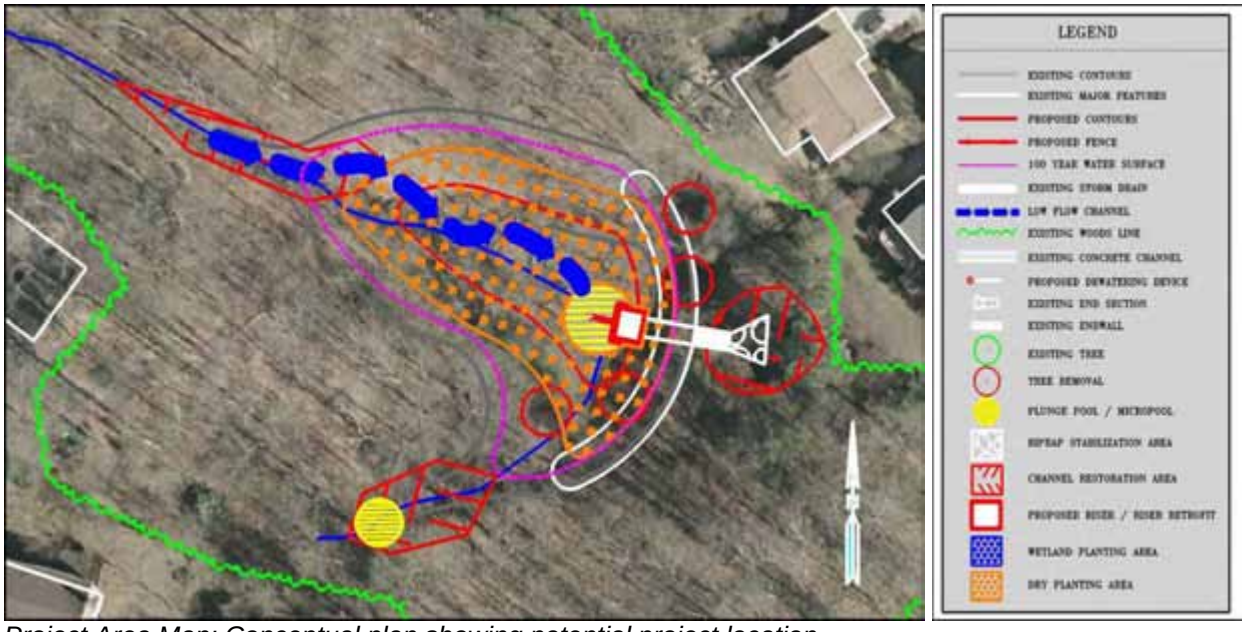
AC9125 - Pond Retrofit

Address:	Between the 8400 block of Chillum Court and the 8400 block of Terra Woods Drive, Behind 8402 Terra Woods Drive
Location:	Terra Grande
Land Owner:	Private - HOA
PIN:	0993 02 N
Control Type	Water Quality and Quantity
Drainage Area	27.10 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: Upon inspection, this existing dry pond seems to be functioning well except for the deposition of sediment within the facility. There are two inflows into the facility, both of which need to be stabilized with riprap along with the outfall. Some channel stabilization is also proposed at the outfall. To ensure the pond continues to function as designed, no excavation is proposed beyond removal of the accumulated sediment, To meet the extended detention water quality volume, a new riser structure with a dewatering orifice is proposed to replace the existing control structure. The addition of a micropool and plunge pool in front of the new riser structure is proposed with this retrofit.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement, via extended detention, of the one-half inch, 48 hour storm, as well as peak flow management of the 2-year peak runoff volume. There would also be some reduction of the 10-year peak flow. Outfall and channel stabilization will help reduce erosion downstream of this facility, which will further reduce the amount of sediment that is transported downstream. Channel stabilization at the outfall will also help prevent future channel erosion by reducing peak flows and erosive velocities in the downstream channel. Retrofitting this facility will promote the removal of floatables to downstream channels, which will improve downstream water quality and habitat. It is estimated that an annual total of 9 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and an HOA will be necessary to retrofit this facility since it is located on private land. Environmental permitting issues are expected due to the presence of wetlands and stream channels with baseflow within this facility. Some tree removal is expected along the embankment and possibly within the facility to remove accumulated sediment. Access to this facility is limited due the surrounding neighborhood. No utility conflicts are anticipated with this retrofit.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.4	AC	$8,500.00	$3,400
Tree Removal	4	EA	$2,000.00	$8,000
Plungepool / Micropool	2	EA	$400.00	$800
Excavate to create low-flow channel	175	LF	$25.00	$4,375
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Channel Stabilization	245	LF	$50.00	$12,250
Rip Rap Stabilization	25	SY	$100.00	$2,500
			Initial Project Costs	**$39,825**
Plantings	1	LS	5% of Project	$1,991
Ancillary Items	1	LS	5% of Project	$1,991
Erosion and Sediment Control	1	LS	10% of Project	$3,983
			Base Construction Costs	**$47,790**
			Mobilization (5%)	$2,390
			Subtotal 1	$50,180
			Contingency (25%)	$12,545
			Subtotal 2	$62,725
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$28,226
			Estimated Project Cost	**$91,000**

Site Photo: Existing Facility

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AC9126 - Pond Retrofit

Address:	Near the 8400 block of Alban Road, Behind 8400 Alban Road
Location:	Alban Industrial Center
Land Owner:	Private - Commercial
PIN:	0993 01 0006D
Control Type	Water Quality
Drainage Area	21.45 acres
Receiving Waters	Accotink Creek

Description: This existing dry pond, DP0338, provides little to no treatment due to the large size of the outlet pipe. There are two inflows into the facility that carry runoff through concrete channels to the outlet pipe. To provide water quality treatment, the pond would be excavated, the concrete channels would be removed, and a new riser structure with a dewatering orifice would be installed.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility would meet the water quality treatment requirement for the contributing drainage area by providing extended detention of the half-inch, 48 hour storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, thus improving water quality and habitat. Retrofitting this facility would also help to prevent future downstream erosion by reducing peak flow rates and erosive velocities. It is estimated that an annual total of 7,760 lbs of sediment, 51 lbs of total nitrogen and 9 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in an industrial area off of Alban Road, coordination with the property owner will be necessary to retrofit the facility. Access to this facility is very good from a parking lot off of Alban Road. No environmental permitting issues or tree losses are expected with this retrofit. The addition of a riser would help this facility achieve water quality improvement goals for habitat improvement and prevention of downstream channel erosion. No other design or construction issues were identified at this site. No existing utility conflicts are anticipated.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.7	AC	$12,000.00	$8,400
Paved Ditch Demolition & Haul Away	125	LF	$30.00	$3,750
Plungepool / Micropool	3	EA	$400.00	$1,200
Excavate to create low-flow channel	260	LF	$25.00	$6,500
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	523	CY	$35.00	$18,305
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$55,155**
Plantings	1	LS	5% of Project	$2,758
Ancillary Items	1	LS	5% of Project	$2,758
Erosion and Sediment Control	1	LS	10% of Project	$5,516
			Base Construction Costs	**$66,187**
			Mobilization (5%)	$3,309
			Subtotal 1	$69,496
			Contingency (25%)	$17,374
			Subtotal 2	$86,870
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$39,092
			Estimated Project Cost	**$126,000**

Site Photo: Existing Facility and Concrete Low Flow Channels

Site Photo: Existing Facility

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AC9127 - Pond Retrofit

Address:	Near the 7400 block of Alban Station Boulevard, Behind 7432 Alban Station Boulevard
Location:	Alban Industrial Center
Land Owner:	Private - Commercial
PIN:	0993 01 0008
Control Type	Water Quality
Drainage Area	11.67 acres
Receiving Waters	Accotink Creek

Description: This existing pond is functioning as a dry facility, although the original design is unknown due to heavy sediment and debris accumulation. There does not appear to be a great amount of storage depth within the facility. To meet the water quality requirements, heavy clearing of debris and excavation, including two micropools or plungepools, is necessary to provide storage volume. A new riser structure and dewatering device is also proposed to ensure that the water quality volume is met.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement via extended detention of the one-half inch, 48 hour storm. Retrofitting this facility will promote the removal of suspended solids and floatables, thus improving water quality and habitat in downstream channels. Peak flow rates, erosive velocities, and channel sediment loads will be reduced by this project. These proposed improvements will also help prevent future downstream channel erosion. It is estimated that an annual total of 12,590 lbs of sediment, 82 lbs of total nitrogen and 15 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a private industrial area, coordination with the property owner will be necessary to retrofit the facility. Access to this facility is very good and can be accessed from a parking lot off of Alban Road. No environmental permitting issues are anticipated with this retrofit. Some tree removal may occur within the facility and on the embankment. The addition of a riser to this facility would help achieve water quality goals for habitat improvement and prevention of downstream channel erosion. During a recent field survey, many white PVC pipes were found sticking out of the ground in and around this facility, indicating either current or future work may take place. No utility conflicts are anticipated.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$12,000.00	$3,600
Plungepool / Micropool	2	EA	$400.00	$800
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	426	CY	$35.00	$14,910
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$36,310**
Plantings	1	LS	5% of Project	$1,816
Ancillary Items	1	LS	5% of Project	$1,816
Erosion and Sediment Control	1	LS	10% of Project	$3,631
			Base Construction Costs	**$43,573**
			Mobilization (5%)	$2,179
			Subtotal 1	$45,752
			Contingency (25%)	$11,438
			Subtotal 2	$57,190
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$25,736
			Estimated Project Cost	**$83,000**

Site Photo: Existing Facility Inflow

Site Photo: Existing Control Structure

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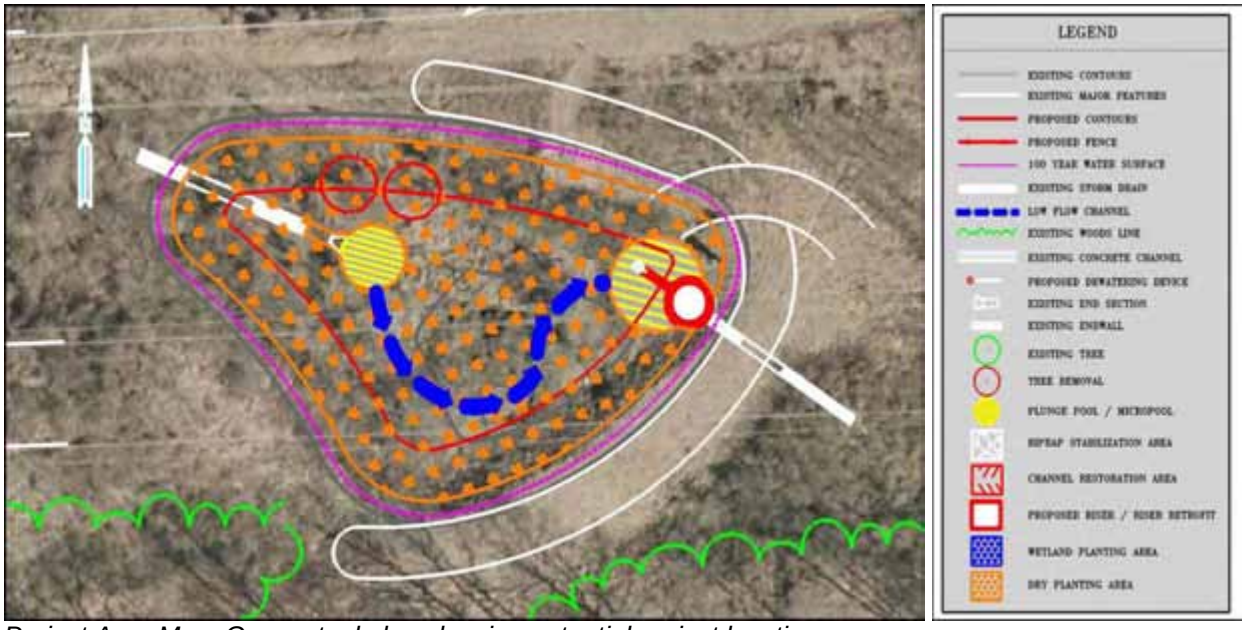
AC9128 - Pond Retrofit

Address:	Between the 7500 block of Woodstown Drive and the 7600 block of Springfield Hills Drive, Behind 7590 Woodstown Road
Location:	Terra Grande
Land Owner:	Private - HOA
PIN:	0993 02 E
Control Type	Water Quality and Quantity
Drainage Area	26.39 acres
Receiving Waters	Accotink Creek

Description: This facility is located in a utility easement between Springfield Hills Drive and Woodstown Drive. To meet the extended detention water quality volume, some excavation is needed along with a new riser structure and dewatering device. The existing low flow channel is incised and should be stabilized. To control future erosion, a plunge pool or micropool would be placed at the inflow within the facility and at the new riser structure.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement for the contributing drainage area by providing extended detention of the half-inch, 48 hour storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, thus improving water quality and habitat. Outfall and channel stabilization will help reduce erosion within this facility, which will further reduce the amount of sediment that drains to downstream receiving waters. Modifications to the existing outlet structure will also help prevent future downstream channel erosion by reducing peak flows and erosive velocities. It is estimated that an annual total of 2,830 lbs of sediment, 27 lbs of total nitrogen and 6 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents or appropriate HOA's and the utility company will be necessary to retrofit this facility since it is located on private land (utility easement) and is within close proximity to several residential buildings. Environmental permitting issues are expected due to the presence of baseflow and wetlands in this facility. Tree removal along the embankment is anticipated with this retrofit. Storm drain outfall and channel modifications will be necessary with this retrofit to correct eroded conditions in the upstream portions of this facility. A new control structure will enable this pond to achieve water quality and quantity goals for habitat improvement and reducing erosion. Access to this facility would likely occur through the utility easement. There are existing utilities in the area, including a gas line on the southern edge of the utility easement along Woodstown Drive and the overhead power lines, which may present construction and vegetative growth conflicts.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$8,500.00	$2,550
Tree Removal	2	EA	$2,000.00	$4,000
Plungepool / Micropool	2	EA	$400.00	$800
Excavate to create low-flow channel	110	LF	$25.00	$2,750
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	554	CY	$35.00	$19,390
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$46,490**
Plantings	1	LS	5% of Project	$2,325
Ancillary Items	1	LS	5% of Project	$2,325
Erosion and Sediment Control	1	LS	10% of Project	$4,649
			Base Construction Costs	**$55,789**
			Mobilization (5%)	$2,789
			Subtotal 1	$58,578
			Contingency (25%)	$14,645
			Subtotal 2	$73,223
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$32,950
			Estimated Project Cost	**$106,000**

Site Photo: Existing Facility Inflow

Site Photo: Inside Existing Facility

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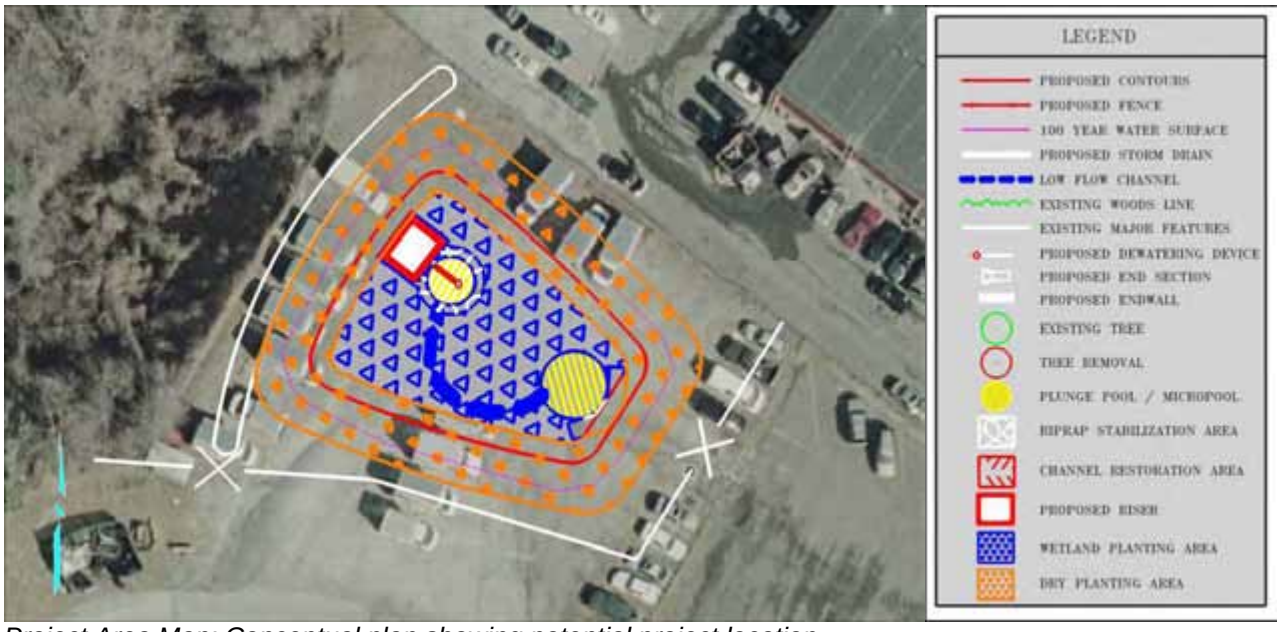
AC9130 - New Pond

Address:	Behind 7722 Blacklick Road
Location:	
Land Owner:	Private - Commercial
PIN:	0991 01 0023A
Control Type	Water Quality and Quantity
Drainage Area	7.59 acres
Receiving Waters	Field Lark Branch

Description: This car dealership on Backlick Road is a large paved area with no stormwater treatment. The proposed extended detention facility is located at the northeast corner of the parking/storage lot and will require removal of some parking spots. There is an existing storm drain system in the area that will be modified for the proposed facility. The existing storm drain pipes, which drain the parking lot and run underneath this section of parking lot, would be cut so as to outfall into the new facility and function as the principal spillway out of the facility. The depth of these pipes will need to be verified to ensure this is possible. This facility would also receive surface runoff from a large portion of the parking lot. A fence will be provided due to vehicles driving nearby and the easy access for pedestrians.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project would provide water quantity management of 2- and 10-year peak runoff volumes and water quality treatment, through extended detention, of the half-inch, 48 hour storm. This facility would treat the largely unpaved parking area, reducing the suspended sediment, oil, grease, and other pollutants that would otherwise travel into downstream waters. The excavation of the extended detention facility would also remove some impervious cover. A pretreatment forebay will also provide additional pollutant and sediment removal. All of these pollutants and suspended solids removed from the water will improve the habitat in the receiving waters. An estimated 1,880 lbs of sediment, 11 lbs of total nitrogen and three lbs of total phosphorus would be reduced by this project.

Project Design Considerations: This project would be located on private property, so coordination with the owner or manager would be required before the design can be started. There are storm drain pipes and structures in the area of the proposed facility. Some of these would need to be modified or removed all together. Access is excellent from the parking area, but permission would need to be granted by the property owner or manager. No environmental permitting issues are anticipated with this project and no tree removal is required. Maintenance will be important once the pond is constructed due to the large amount of sediment that will wash off of the parking lot and into the facility.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$8,500.00	$2,550
Plungepool / Micropool	2	EA	$400.00	$800
Excavate to create low-flow channel	65	LF	$25.00	$1,625
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Rip Rap Stabilization	20	SY	$100.00	$2,000
Grading and Excavation	2234	CY	$35.00	$78,190
Embankment	559	CY	$50.00	$27,950
Fencing	270	LF	$20.00	$5,400
New Endwall	1	EA	$2,500.00	$2,500
Pavement Removal	2652	SY	$30.00	$79,560
Exisitng Pipe Removal	90	LF	$30.00	$2,700
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$220,275**
Plantings	1	LS	5% of Project	$11,014
Ancillary Items	1	LS	5% of Project	$11,014
Erosion and Sediment Control	1	LS	10% of Project	$22,028
			Base Construction Costs	**$264,331**
			Mobilization (5%)	$13,217
			Subtotal 1	$277,548
			Contingency (25%)	$69,387
			Subtotal 2	$346,935
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$156,121
			Estimated Project Cost	**$503,000**

Site Photo: Proposed Facility Drainage Area

Site Photo: Proposed Facility Location

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AC9133 - Pond Retrofit

Address:	Between the 7200 block of Gentian Court and the 7800 block of Wintercress Lane
Location:	Hunter Village
Land Owner:	Private - HOA
PIN:	0894 15 N
Control Type	Water Quality and Quantity
Drainage Area	48.11 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This existing facility, located on the upstream side of Hunter Village Drive, has the potential for increased water quality treatment. The existing riser structure is mostly buried under debris and sediment. To improve the treatment provided at this site, excavation and clearing are proposed to provide extended detention water quality. A new riser structure and dewatering device are also proposed to improve treatment. A micropool would be placed at the new riser for the settling of sediment and other pollutants before being discharged into the downstream channel. A small portion of the channel in the upper portion of the facility would also be stabilized to prevent further erosion. This project is located downstream of the proposed pond retrofit AC9134.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: The replacement of the existing control structure would provide water quality treatment and peak flow management for the contributing drainage area. Retrofitting this facility would promote the removal of suspended solids, pollutants, and floatables to downstream channels, which would improve water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion by reducing peak flow rates and erosive velocities. It is estimated that an annual total of 9,500 lbs of sediment, 104 lbs of total nitrogen and 22 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and an HOA will be necessary to retrofit this facility as it is located on private land. Access to this facility is very good from Hunter Village Drive. Existing utility conflicts are possible due to a sanitary sewer manhole adjacent to the stream channel. Minimal tree removal will be required on the upstream side of the embankment. Environmental permitting issues are expected with this retrofit due to the in-stream location of this facility.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$12,000.00	$3,600
Plungepool / Micropool	1	EA	$400.00	$400
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Channel Stabilization	130	LF	$50.00	$6,500
Rip Rap Stabilization	35	SY	$100.00	$3,500
Grading and Excavation	449	CY	$35.00	$15,715
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$46,715**
Plantings	1	LS	5% of Project	$2,336
Ancillary Items	1	LS	5% of Project	$2,336
Erosion and Sediment Control	1	LS	10% of Project	$4,672
			Base Construction Costs	**$56,059**
			Mobilization (5%)	$2,803
			Subtotal 1	$58,862
			Contingency (25%)	$14,716
			Subtotal 2	$73,578
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$33,110
			Estimated Project Cost	**$107,000**

Site Photo: Existing Facility

Site Photo: Existing Control Structure

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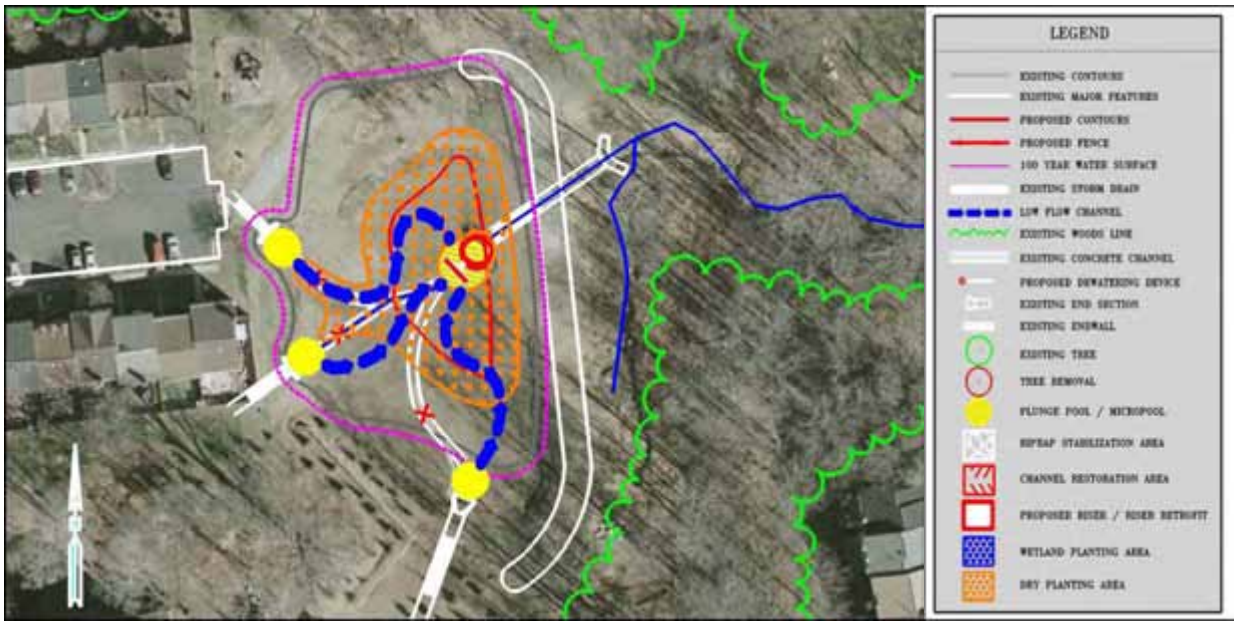
AC9134 - Pond Retrofit

Address:	At the end of Birchtree Court
Location:	Rolling Forest
Land Owner:	Private - HOA
PIN:	0894 08 E
Control Type	Water Quality
Drainage Area	26.47 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This existing facility is a large dry pond that receives runoff from a high density residential neighborhood. There are three inflows into the pond, each with its own concrete channel that flows to the low flow orifice and riser structure. To provide additional treatment, the concrete channels would be removed, a micropool or plunge pool would be provided at each inflow to the pond and at the riser structure, and the pond bottom would be excavated for additional storage. The existing riser structure would also be retrofit to provide extended detention for water quality treatment.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility would meet the water quality treatment requirement through extended detention of the half-inch, 48 hour storm. Retrofitting this facility would promote the removal of suspended solids and floatables, thus improving water quality and habitat within the facility and also downstream of the facility. These proposed improvements will also help prevent future downstream channel erosion. It is estimated that an annual total of 2,970 lbs of sediment, 42 lbs of total nitrogen and 8 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a residential community, installing signs around the facility is recommended to promote public knowledge. Coordination with residents and an HOA will be necessary to retrofit this facility since it is located on private land. Access to this facility is very good from Birchtree Court. Existing utility conflicts are anticipated due to the presence of several sanitary sewer manholes near the access road on the interior side of the pond embankment. No tree removal is required for this retrofit. Storm drain modifications may be needed due to the large difference in elevation between the outfall inverts and the pond bottom to maintain stability. A substantial amount of groundwater is present at the bottom of this facility, possibly from groundwater seeps or a spring head, which may present environmental permitting issues.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	300	LF	$30.00	$9,000
Plungepool / Micropool	4	EA	$400.00	$1,600
Excavate to create low-flow channel	330	LF	$25.00	$8,250
Riser Retrofit	1	LS	$4,000.00	$4,000
Grading and Excavation	545	CY	$35.00	$19,075
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$50,425**
Plantings	1	LS	5% of Project	$2,521
Ancillary Items	1	LS	5% of Project	$2,521
Erosion and Sediment Control	1	LS	10% of Project	$5,043
			Base Construction Costs	**$60,510**
			Mobilization (5%)	$3,026
			Subtotal 1	$63,536
			Contingency (25%)	$15,884
			Subtotal 2	$79,420
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$35,739
			Estimated Project Cost	**$115,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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AC9136 - Pond Retrofit

Address:	At the end of Kenwood Avenue Near 8311 Kenwood Avenue
Location:	Kenwood Oaks
Land Owner:	Private - HOA
PIN:	0891 14 0004, 0891 14 0005, 0891 14 0006
Control Type	Water Quality
Drainage Area	37.10 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing dry pond that will be converted to a shallow wetland. There are concrete channels that carry runoff as well as baseflow from the inflow point to the outlet structure. This project will consist of modifying the spillway characteristics of the riser structure, installing a new dewatering system, and removing the concrete low-flow channels and excavating for additional storage.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility would provide some of the water quality treatment required for the contributing drainage area by providing extended detention of the half-inch, 48 hour storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. It is estimated that an annual total of 5,800 lbs of sediment, 57 lbs of total nitrogen and 12 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: As this facility is located on private land, coordination with local landowners will be necessary to retrofit this facility. Access to this facility is very good from a shared driveway along Kenwood Avenue. Existing utility conflicts are not anticipated and minimal tree removal is required for this retrofit. Environmental permitting issues may be encountered due to the presence of baseflow.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.4	AC	$8,500.00	$3,400
Paved Ditch Demolition & Haul Away	90	LF	$30.00	$2,700
Riser Retrofit	1	LS	$4,000.00	$4,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Rip Rap Stabilization	45	SY	$100.00	$4,500
Grading and Excavation	704	CY	$35.00	$24,640
Fencing	610	LF	$20.00	$12,200
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$60,440**
Plantings	1	LS	5% of Project	$3,022
Ancillary Items	1	LS	5% of Project	$3,022
Erosion and Sediment Control	1	LS	10% of Project	$6,044
			Base Construction Costs	**$72,528**
			Mobilization (5%)	$3,626
			Subtotal 1	$76,154
			Contingency (25%)	$19,039
			Subtotal 2	$95,193
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$42,837
			Estimated Project Cost	**$138,000**

Site Photo: Existing Facility Overview

Site Photo: Concrete Low Flow Channel and Control Structure

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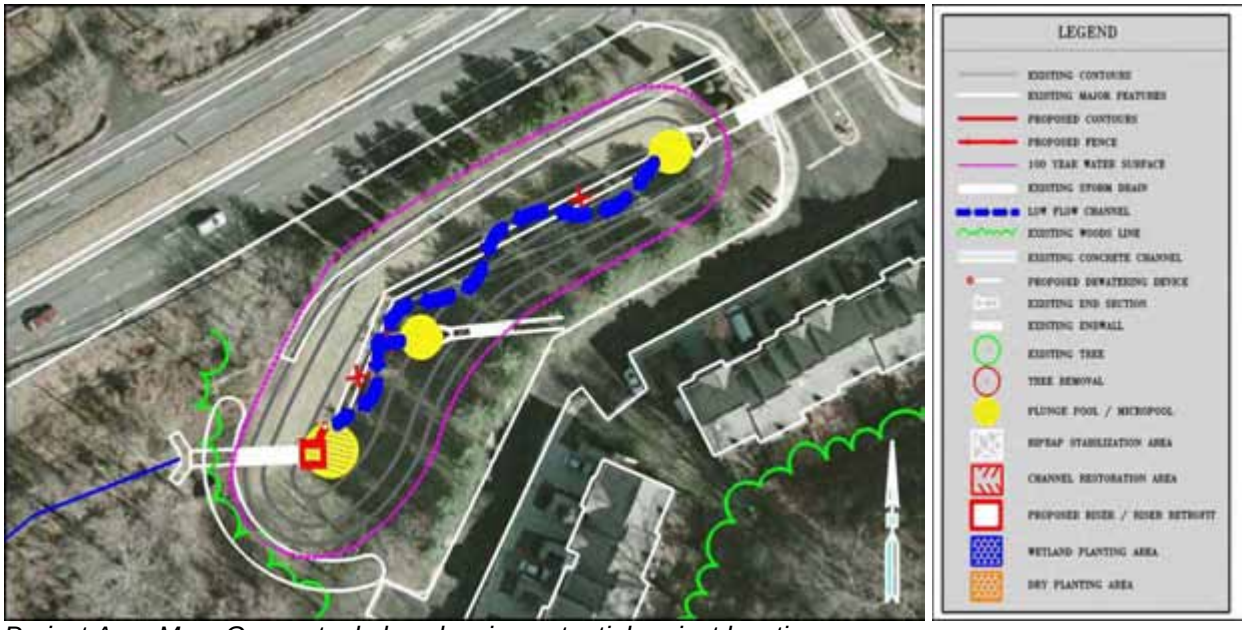
AC9139 - Pond Retrofit

Address:	Near the intersection of Old Keene Mill Road and Westmore Drive
Location:	Westhaven
Land Owner:	Private - HOA
PIN:	0901 18 C
Control Type	Water Quality
Drainage Area	31.68 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing dry pond, 0935DP, which will be converted to an extended detention facility. There is a concrete channel that carries runoff as well as baseflow from the inflow point to the outlet structure. This project will consist of modifying the spillway characteristics of the riser structure, installing a new dewatering device, removing the concrete low-flow channels and replacing them with meandering channels, and adding a micropool or plungepool at each inflow into the facility.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to meet the water quality treatment requirement for the contributing drainage area via extended detention of the one-half inch, 48 hour storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities, and channel sediment loads will be reduced by this project. It is estimated that an annual total of 3,750 lbs of sediment, 37 lbs of total nitrogen and 9 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and an HOA will be necessary to retrofit this facility since it is located on private land. Access to this facility is good; however, no existing access road is present. Access is possible down a relatively steep slope at the end of Westmore Drive. A portion of the embankment has an asphalt pedestrian trail on top; however, the top width of the embankment is too narrow for construction vehicles. Overhead power lines and underground utilities are present on the interior embankment adjacent to Westmore Drive at the upstream end of the facility. Minimal tree removal is required for this retrofit. Environmental permitting issues may be encountered due to the presence of baseflow from a 33" RCP inflow into this facility.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	265	LF	$30.00	$7,950
Plungepool / Micropool	3	EA	$400.00	$1,200
Excavate to create low-flow channel	215	LF	$25.00	$5,375
Riser Retrofit	1	LS	$4,000.00	$4,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$27,525**
Plantings	1	LS	5% of Project	$1,376
Ancillary Items	1	LS	5% of Project	$1,376
Erosion and Sediment Control	1	LS	10% of Project	$2,753
			Base Construction Costs	**$33,030**
			Mobilization (5%)	$1,652
			Subtotal 1	$34,682
			Contingency (25%)	$8,671
			Subtotal 2	$43,353
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$19,509
			Estimated Project Cost	**$63,000**

Site Photo: Existing Facility and Control Structure

Site Photo: Existing Facility

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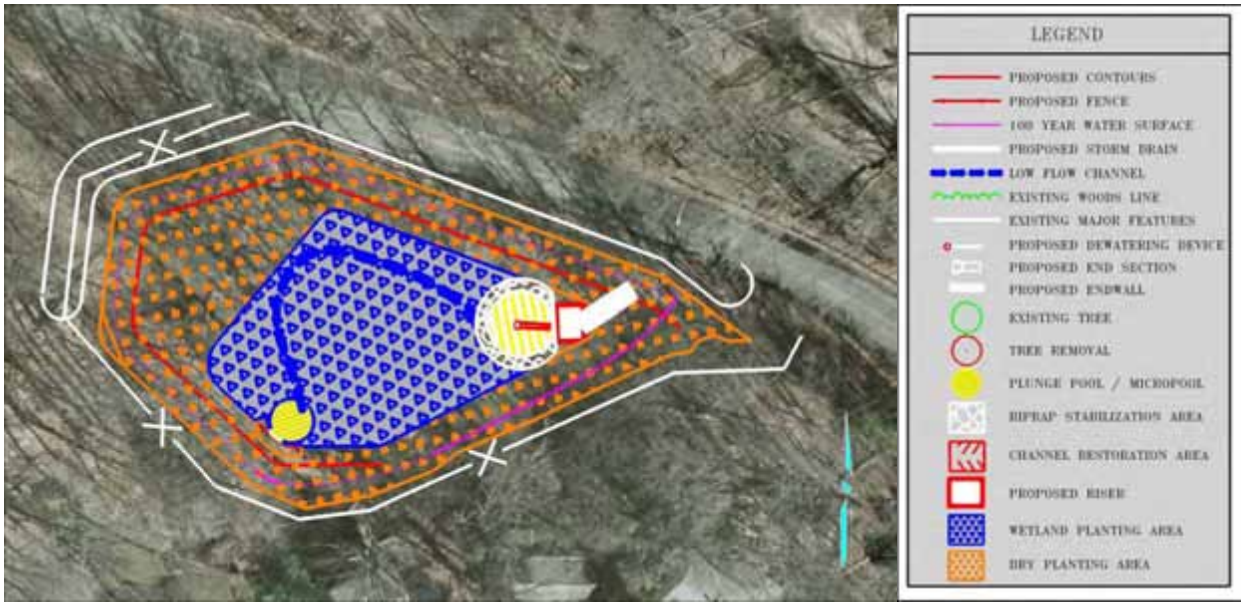
AC9144 - New Pond

Address:	Along Danbury Forest Drive, South of the intersection of Danbury Forest Drive and Braddock Road
Location:	Kings Park
Land Owner:	County - FCPA
PIN:	0703 04 A
Control Type	Water Quality and Quantity
Drainage Area	11.38 acres
Receiving Waters	Long Branch

Description: The proposed facility between Danbury Forest Drive and Thames Street is an extended detention facility. This facility will provide water quality and water quantity treatment at the outfall of the existing storm drain system, before it crosses under the road and into the floodplain. The existing storm drain and culvert would be modified as little as possible. The new riser structure would connect to the existing culvert under Danbury Forest Drive to avoid having to close the road and perform roadway work.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project would provide water quality treatment via extended detention of the half-inch, 48 hour storm and water quantity management of 2- and 10-year peak runoff volumes. The erosion at the outfall will be corrected and a forebay provided, which will reduce the amount of sediment flowing downstream to the next storm drain structure and into receiving waters. This will improve the habitat through reduction of suspended sediment and various other nutrients. The new facility will have a new riser structure to detain water before it enters Accotink Creek. It is estimated that a total of 860 lbs of sediment, nine lbs of total nitrogen and two lbs of total phosphorus would be reduced by this project.

Project Design Considerations: This project would be located behind a residential community with easy access to the site, desing should include this into consideration. The eroded outfall is located at the edge of a forest, so the new facility would impact some mature trees. Environmental and forestry permitting will likely be required. Access is available along the storm drain easement between houses.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.7	AC	$15,000.00	$10,500
Plungepool / Micropool	2	EA	$400.00	$800
Excavate to create low-flow channel	175	LF	$25.00	$4,375
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
New Endwall	1	EA	$2,500.00	$2,500
Outfall Pipe	35	LF	$300.00	$10,500
Rip Rap Stabilization	65	SY	$100.00	$6,500
Grading and Excavation	7000	CY	$35.00	$245,000
Embankment	1750	CY	$50.00	$87,500
Fencing	600	LF	$20.00	$12,000
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$396,675**
Plantings	1	LS	5% of Project	$19,834
Ancillary Items	1	LS	5% of Project	$19,834
Erosion and Sediment Control	1	LS	10% of Project	$39,668
			Base Construction Costs	**$476,011**
			Mobilization (5%)	$23,801
			Subtotal 1	$499,812
			Contingency (25%)	$124,953
			Subtotal 2	$624,765
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$281,144
			Estimated Project Cost	**$906,000**

Site Photo: Storm Drain Outfall to Proposed Facility

Site Photo: Proposed Facility Location

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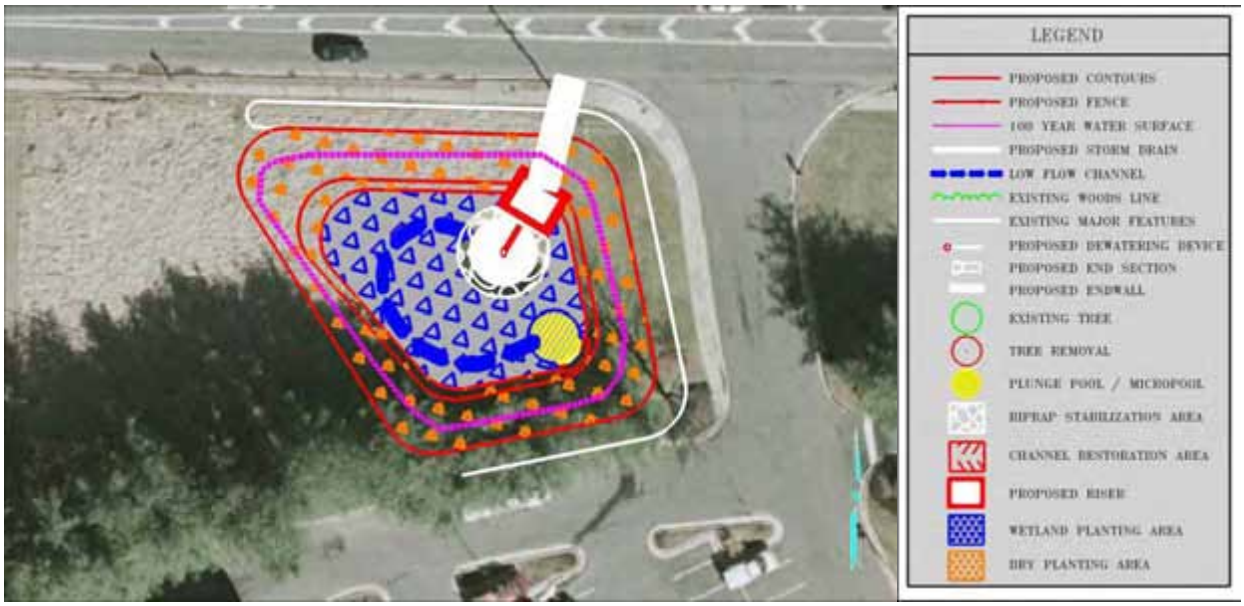
AC9147 - New Pond

Address:	Near the intersection of Burke Lake Road and Braddock Road
Location:	
Land Owner:	Private - Commercial
PIN:	
Control Type	Water Quality and Quantity
Drainage Area	3.95 acres
Receiving Waters	Unknown tributarty of Long Branch

Description: There are several grassy medians along Braddock Road and behind the Kings Park Shopping Center. One in particular has the storm drains from the Shopping Center draining underneath it before crossing Braddock Road and outfalling into the stream. This project requires modification of the storm drain system to outfall into the median for water quality and quantity treatment before crossing the road. The proposed riser would connect to the existing storm drain under Braddock Road to avoid road work.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project would provide water quantity management of 2- and 10-year peak runoff and water quality treatment, through extended detention, of the half-inch, 48 hour storm. A micropool will remove suspended sediment, oil, grease, and other pollutants commonly found on parking lots. The main chamber of the facility will provide peak flow attenuation, which will reduce the erosion and sedimentation within this system. This will improve both water quality and habitat within the receiving waters. An estimated 660 lbs of sediment, seven lbs of total nitrogen and one lb of total phosphorus would be reduced by this project.

Project Design Considerations: There are most likely no utilities in the project area besides the overhead lines, although there should still be an investigation to be certain. No environmental constraints or permitting issues are anticipated. Access to the site is excellent from the road and parking lot. The adjacent land use is commercial, so safety should not be an issue.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.2	AC	$15,000.00	$3,000
Plungepool / Micropool	2	EA	$400.00	$800
Excavate to create low-flow channel	105	LF	$25.00	$2,625
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Outfall Pipe	35	LF	$300.00	$10,500
New Endwall	1	EA	$2,500.00	$2,500
Rip Rap Stabilization	30	SY	$100.00	$3,000
Grading and Excavation	1447	CY	$35.00	$50,645
Embankment	362	CY	$50.00	$18,100
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$108,170**
Plantings	1	LS	5% of Project	$5,409
Ancillary Items	1	LS	5% of Project	$5,409
Erosion and Sediment Control	1	LS	10% of Project	$10,817
			Base Construction Costs	**$129,805**
			Mobilization (5%)	$6,490
			Subtotal 1	$136,295
			Contingency (25%)	$34,074
			Subtotal 2	$170,369
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$76,666
			Estimated Project Cost	**$247,000**

Site Photo: Proposed Facility Location

Site Photo: Proposed Facility Drainage Area

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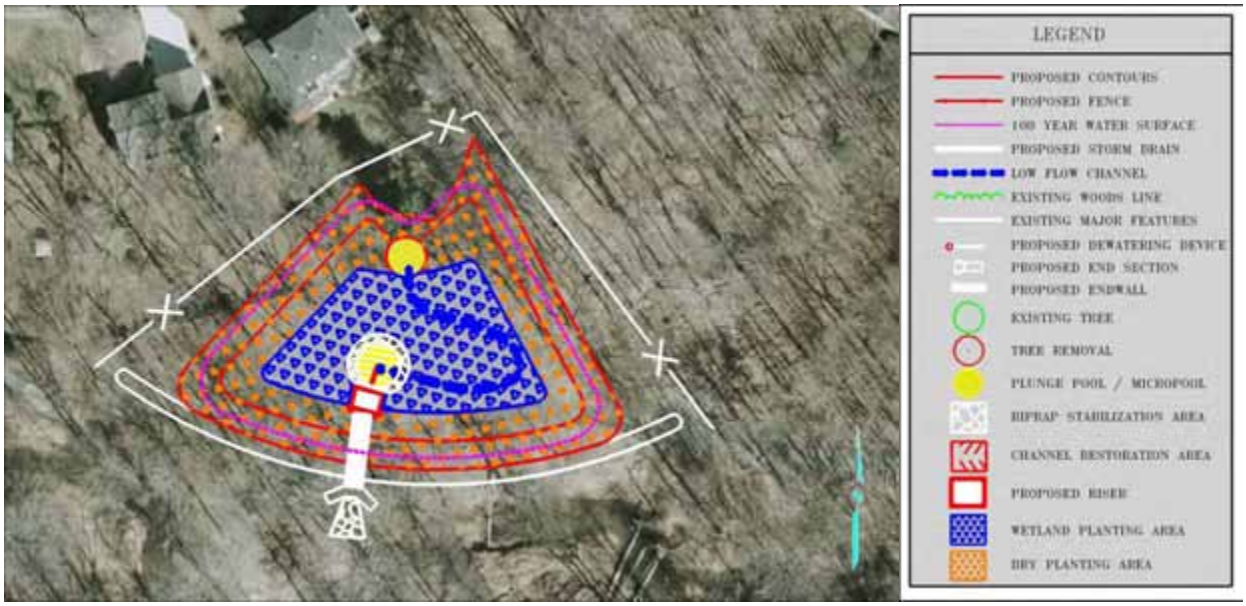
AC9148 - New Pond

Address:	Behind 4808 Springbrook Drive, At the end of Hurcules Court
Location:	Long Branch
Land Owner:	County - FCPA
PIN:	0694 12 B
Control Type	Water Quality and Quantity
Drainage Area	35.66 acres
Receiving Waters	Unknown tributarty of Long Branch

Description: This proposed facility is located at the existing storm drain outfall behind the houses on Springbrook Drive. An extended detention dry facility is proposed to treat both the water quality and quantity of the runoff from this residential neighborhood. A riser structure and embankment will be used to provide treatment before the runoff enters the stream. A fence would be necessary due to proximity of the houses. The outfall of the facility would need to be under the pedestrian path so as to allow the path to remain in use. It may be necessary to move the pedestrian path in some places to allow for construction of the embankment.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project would provide water quality treatment via extended detention of the half-inch, 48 hour storm and water quantity management of 2- and 10-year peak runoff volumes. The storm drain at this location does not convey baseflow, only storm water, so this is an excellent location for an extended detention stormwater facility. A micropool will enhance the treatment of a stormwater facility at this location and increase the removal of suspended sediment and nutrients. This facility will also improve the habitat and reduce erosion in the downstream receiving waters through peak flow attenuation. An estimated 2,630 lbs of sediment, 29 lbs of total nitrogen and six lbs of total phosphorus would be reduced by this project.

Project Design Considerations: There are likely no utilities in the project area, although this should still be investigated to be sure. The removal of some tree would be required, although many of the trees in the area are already dead. No permitting is anticipated. There is an existing pedestrian path between the proposed facility and the main channel. This provides easy access to the site for construction equipment as well as for residents, so the area should have properly signalization.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.5	AC	$15,000.00	$7,500
Plungepool / Micropool	2	EA	$400.00	$800
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Rip Rap Stabilization	40	SY	$100.00	$4,000
Grading and Excavation	6398	CY	$35.00	$223,930
Embankment	1600	CY	$50.00	$80,000
Outfall Pipe	40	LF	$300.00	$12,000
Outlet Protection	1	EA	$8,000.00	$8,000
New Endwall	1	EA	$2,500.00	$2,500
Excavate to create low-flow channel	170	LF	$25.00	$4,250
Fencing	455	LF	$20.00	$9,100
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$369,080**
Plantings	1	LS	5% of Project	$18,454
Ancillary Items	1	LS	5% of Project	$18,454
Erosion and Sediment Control	1	LS	10% of Project	$36,908
			Base Construction Costs	**$442,896**
			Mobilization (5%)	$22,145
			Subtotal 1	$465,041
			Contingency (25%)	$116,260
			Subtotal 2	$581,301
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$261,585
			Estimated Project Cost	**$843,000**

Site Photo: Storm Drain Outfall to Proposed Facility

Site Photo: Proposed Facility Location

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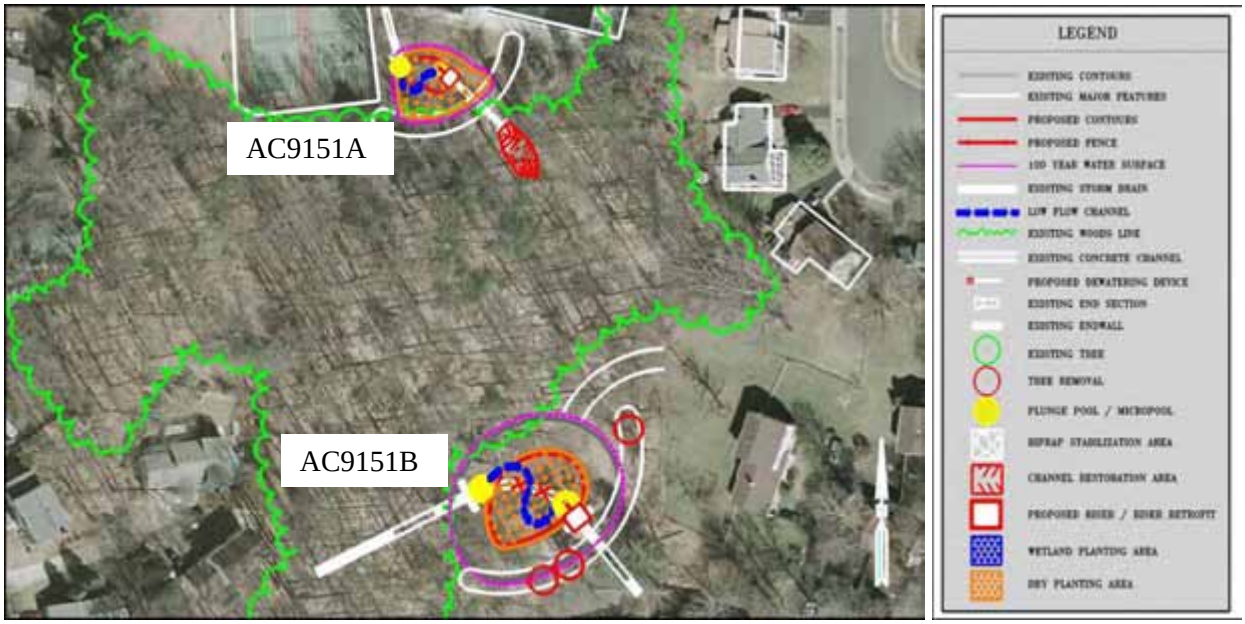
AC9151 - Pond Retrofit

Address:	At the end of Burnetta Drive
Location:	Long Branch Swim and Raquet Club
Land Owner:	Private
PIN:	0694 01 0011
Control Type	Water Quantity
Drainage Area	9.38 acres
Receiving Waters	Unknown tributary of Long Branch

Description: AC9151A is a dry pond with sediment and woody debris with the facility and clogging the riser structure. AC9151B is a dry facility with a concrete channel and lots of herbaceous plants. This project consists of two existing in-stream culverts basins to be converted to detention facilities by replacing the existing control structures with new risers and new dewatering systems, adding plunge pools at each concentrated inflow location and micropools at the base of each riser, excavating to maximize the available storage volume and incorporating meandering low flow channels to maximize the flow paths within each facility. Channel stabilization measures are also recommended in the receiving channel located downstream of Site AC9151A.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: The limited available storage capacity limits the retrofit capabilities of each of these facilities. The recommended improvements will provide peak flow management of the 2-year storm, respectively. This will help prevent future downstream erosion by reducing peak flow rates and erosive velocities. It is estimated that an annual total of 3,140 lbs of sediment, 32 lbs of total nitrogen and seven lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Due to the limited storage volume available within each facility, no water quality improvement feature (beyond the characteristics of the existing stream channel) is recommended at this location and peak flow management of the 10-year storm is not obtainable. These facilities are located in a private residential community with walking trails, recreational areas, and buildings in close proximity . No environmental permitting issues are expected at either Site and minimal tree removal is required. Access to Site AC9151B is limited and will require the use of a private driveway that leads to several houses off of Claytonia Lane near King David Boulevard. Access to Site AC9151A will require an access road between the tennis courts and swimming pool on the Longbranch Swim & Racquet Club property off of Burnetta Drive. Existing utility conflicts are not anticipated at either site. During a recent inspection of Site AC9151A, a large amount of residential yard waste was evident in this facility. Downstream channel erosion was also noted between the riser outfall pipe of Site AC9151A and a stormdrain inlet behind a residence along Mignonette Court.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.4	AC	$8,500.00	$3,400
Paved Ditch Demolition & Haul Away	90	LF	$30.00	$2,700
Tree Removal	3	EA	$2,000.00	$6,000
Plungepool / Micropool	4	EA	$400.00	$1,600
Excavate to create low-flow channel	140	LF	$25.00	$3,500
New Riser	2	LS	$8,000.00	$16,000
Embedded Dewatering Pipe	2	EA	$500.00	$1,000
Channel Stabilization	50	LF	$50.00	$2,500
Grading and Excavation	96	CY	$35.00	$3,360
Remove Existing Headwall	2	EA	$300.00	$600
Soil Borings	2	LS	$8,500.00	$17,000
			Initial Project Costs	**$57,660**
Plantings	1	LS	5% of Project	$2,883
Ancillary Items	1	LS	5% of Project	$2,883
Erosion and Sediment Control	1	LS	10% of Project	$5,766
			Base Construction Costs	**$69,192**
			Mobilization (5%)	$3,460
			Subtotal 1	$72,652
			Contingency (25%)	$18,163
			Subtotal 2	$90,815
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$40,867
			Estimated Project Cost	**$132,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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AC9158 - Pond Retrofit

Address:	At the end of Ceralene Drive
Location:	Somerset South
Land Owner:	Private - HOA
PIN:	0691 10 K
Control Type	Water Quality and Quantity
Drainage Area	37.21 acres
Receiving Waters	Unknown tributary of Long Branch

Description: This dry pond treats runoff from a portion of Calvary Memorial Park. Most of the facility is forested or a wetland area. This project consists of an existing detention basin to be converted to an extended detention basin by replacing the existing riser with a new riser and dewatering system, adding plunge pools at each concentrated inflow location and micropool at the base of the riser and creating a meandering low flow channel to maximize the flow path through the facility. Channel stabilization measures are also recommended in the 21" RCP stormdrain outfall channel located off of Ceralene Drive.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project can meet the water quality treatment requirement for the contributing drainage area via extended detention of the one-half inch, 48 hour storm, as well as provide peak flow management of the 2-year and 10-year peak runoff volumes. Retrofitting this facility will help prevent future downstream erosion that is currently taking place in the receiving channel from this facility. Peak flow rates, erosive velocities, and channel sediment loads will all be reduced by this project. Other benefits include the removal of suspended solids and floatables to downstream channels, pollutant removal and nutrient uptake in wetland areas and overall increases in downstream water quality and habitat. It is estimated that an annual total of 4,790 lbs of sediment, 38 lbs of total nitrogen and 10 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Environmental permitting issues are expected due to the in-stream location and the presence of wetlands in this facility. Access to this facility is good from either Fairfax Memorial Park property or between Ceralene Drive and Dansk Court within the residential community. In-stream construction will require base flow diversion. Existing utilities conflicts are not anticipated.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.2	AC	$8,500.00	$10,200
Tree Removal	5	EA	$2,000.00	$10,000
Plungepool / Micropool	4	EA	$400.00	$1,600
Excavate to create low-flow channel	435	LF	$25.00	$10,875
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Channel Stabilization	135	LF	$50.00	$6,750
Remove Existing Headwall	1	EA	$300.00	$300
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$56,725**
Plantings	1	LS	5% of Project	$2,836
Ancillary Items	1	LS	5% of Project	$2,836
Erosion and Sediment Control	1	LS	10% of Project	$5,673
			Base Construction Costs	**$68,070**
			Mobilization (5%)	$3,404
			Subtotal 1	$71,474
			Contingency (25%)	$17,869
			Subtotal 2	$89,343
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$40,204
			Estimated Project Cost	**$130,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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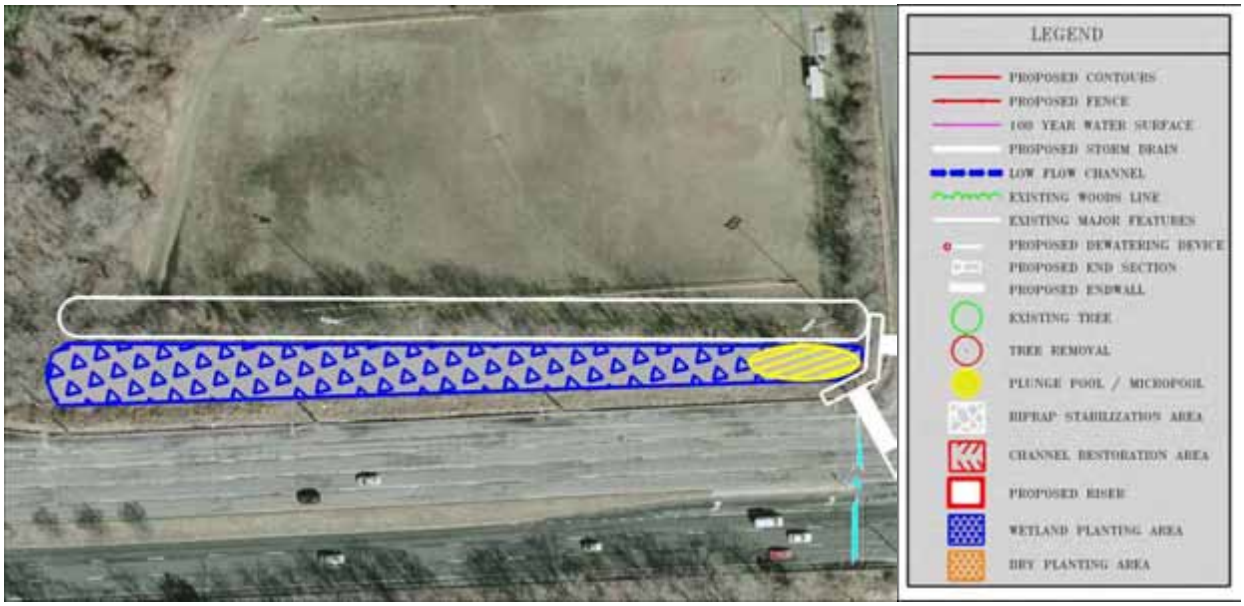
AC9159 - New Pond

Address:	Near the intersection of Glen Park Road and Braddock Road, along Braddock Road
Location:	Townes of Wakefield
Land Owner:	County - FCPA
PIN:	0703 15 B
Control Type	Water Quality and Quantity
Drainage Area	11.66 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: Along Braddock Road near the intersection with Glen Park Road, there is a swale that currently receives runoff from the recreation fields and from the storm drain system in the nearby high density residential neighborhood. To increase the treatment provided by this swale, a berm will be built along the south side of the recreation field. High and low marshes will be created along the length of the swale to provide water quality treatment. The culvert under Braddock Road would need to be modified for increased storage. A micropool would also be provided at the entrance to the culvert under Braddock Road for sediment removal.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This proposed facility would provide water quality treatment through the use of wetland plantings and marshes as well as manage the 2- and 10-year peak flow volumes. This facility would promote the removal of suspended solids through settling and vegetative uptake, which would prevent the transport of sediment into the downstream channel. It is estimated that a total of 1,160 lbs of sediment, 10 lbs of total nitrogen and two lbs of total phosphorus would be reduced by this project.

Project Design Considerations: There is existing access to this area, but it is an unpaved path from Kimscott Court, which may be too steep for the use of construction equipment. There are overhead utility lines along Braddock Road, although it is not anticipated that they would pose a conflict. Wetland plants are also present along the length of Braddock Road and there would need to be some tree removal for construction of this project. These two factors, combined with the presence of baseflow, may present environmental permitting issues.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.6	AC	$8,500.00	$5,100
Plungepool / Micropool	1	EA	$400.00	$400
Grading and Excavation	4954	CY	$35.00	$173,390
Embankment	1239	CY	$50.00	$61,950
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$249,340**
Plantings	1	LS	5% of Project	$12,467
Ancillary Items	1	LS	5% of Project	$12,467
Erosion and Sediment Control	1	LS	10% of Project	$24,934
			Base Construction Costs	**$299,208**
			Mobilization (5%)	$14,960
			Subtotal 1	$314,168
			Contingency (25%)	$78,542
			Subtotal 2	$392,710
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$176,720
			Estimated Project Cost	**$569,000**

Site Photo: Existing Ditch Along Braddock Road

Site Photo: Existing Culvert Inflow Under Braddock Road

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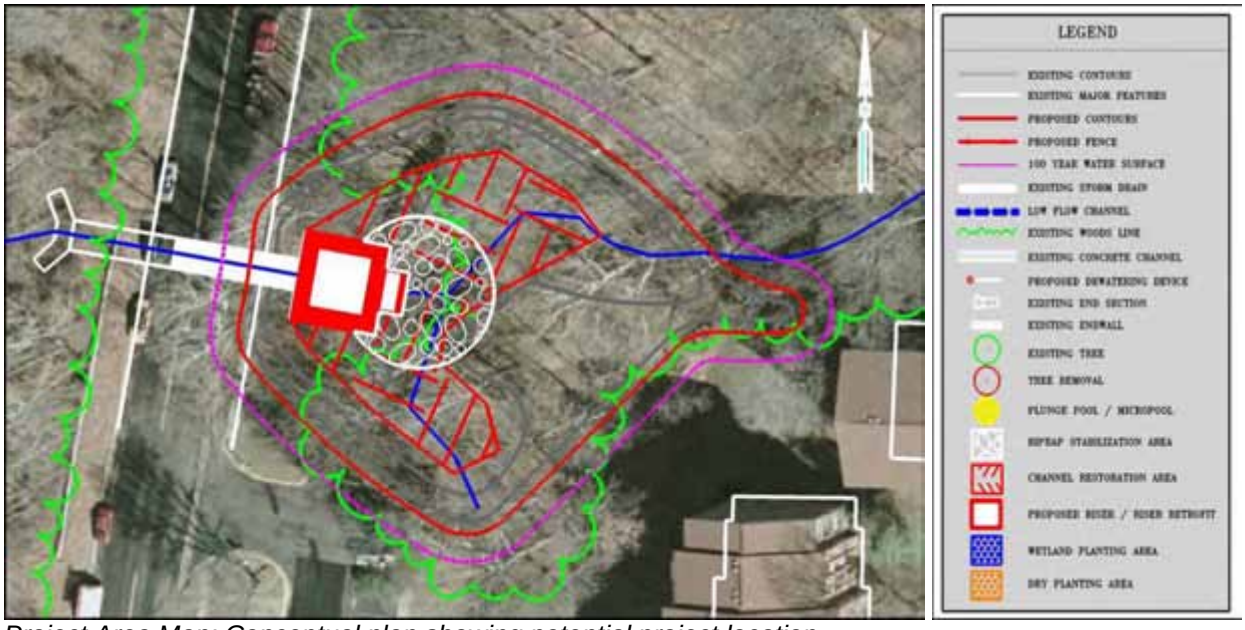
AC9161 - Pond Retrofit

Address:	Near the intersection of Americana Drive and Commons Drive
Location:	
Land Owner:	Private - HOA
PIN:	0702 01 0026
Control Type	Water Quality and Quantity
Drainage Area	80.55 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing dry pond, 0294DP, which will be upgraded to a detention facility. The existing riser structure is failing, which is leading to erosion inside and outside the facility. This project will consist of a new riser structure, removal of accumulated sediment, and riprap stabilization.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: The replacement of the existing control structure located on the upstream side embankment of Americana Drive has potential to provide water quality treatment and peak flow management for the contributing drainage area. Replacing the current riser and enlarging the facility will promote the removal of pollutants, floatables, and suspended solids thus improving water quality and habitat downstream. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities, and channel sediment loads will be reduced by this project. It is estimated that an annual total of 7,580 lbs of sediment, 75 lbs of total nitrogen and 14 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with the apartment complex owners will be necessary to retrofit this facility since it is located on private land. Access to this facility is very good from Americana Drive. Existing utility conflicts are not anticipated with this retrofit. Environmental permitting issues are expected due to the in-stream location of this facility. Retrofitting this facility will require a large amount of excavation and grading to achieve peak flow management. A significant amount of tree removal and modifications to an existing stream channel that flows to this facility will be necessary. In-stream construction will require base flow diversion. The base flow component of the replaced control structure will require constant monitoring to prevent clogging.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.5	AC	$12,000.00	$6,000
New Riser	1	LS	$8,000.00	$8,000
Rip Rap Stabilization	150	SY	$100.00	$15,000
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$37,500**
Plantings	1	LS	5% of Project	$1,875
Ancillary Items	1	LS	5% of Project	$1,875
Erosion and Sediment Control	1	LS	10% of Project	$3,750
			Base Construction Costs	**$45,000**
			Mobilization (5%)	$2,250
			Subtotal 1	$47,250
			Contingency (25%)	$11,813
			Subtotal 2	$59,063
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$26,578
			Estimated Project Cost	**$86,000**

Site Photo: Existing Facility Embankment

Site Photo: Existing Facility and Control Structure

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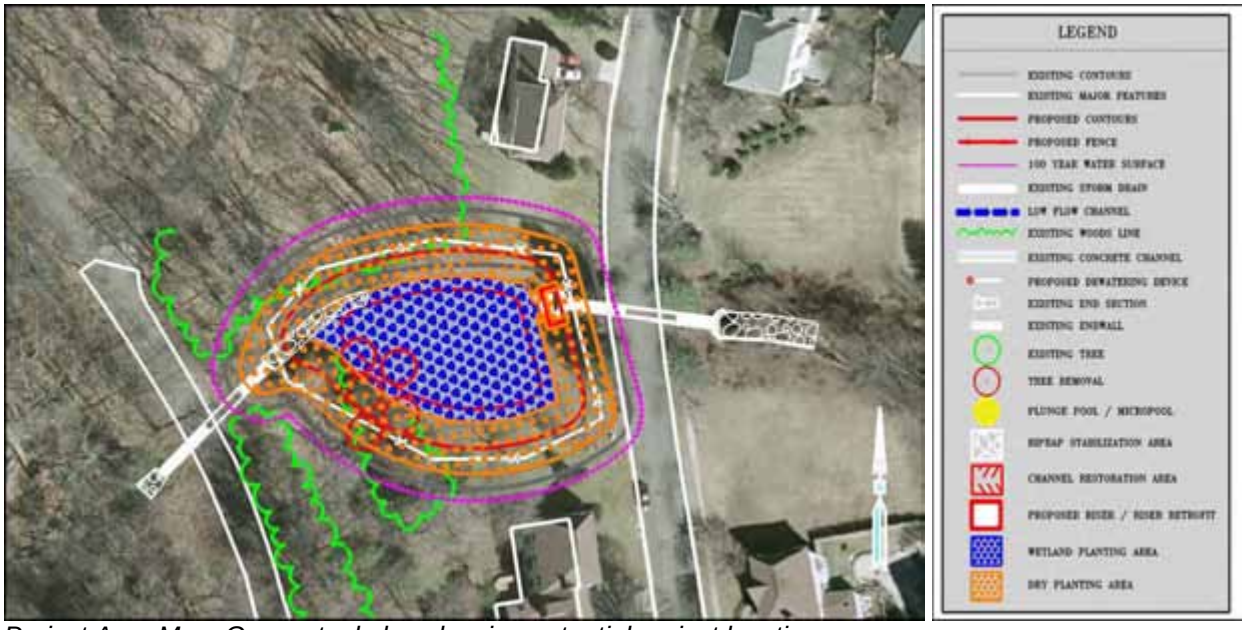
AC9165 - Pond Retrofit

Address:	South of the intersection of Frost Way and Whitman Road
Location:	Camelot Greens
Land Owner:	Private - HOA
PIN:	0593 20 A
Control Type	Water Quality
Drainage Area	128.59 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing dry pond, 0102DP, which will be converted to a shallow wetland facility. Currently, there is no detention within the facility except for larger storm events. This project will consist of a new riser structure in place of the existing headwall, tree removal within the facility, and excavating for additional storage.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to meet some of the water quality treatment requirement through extended detention of the half-inch, 48 hour storm. Retrofitting this facility would help to prevent future downstream erosion by reducing peak flow rates and erosive velocities. This retrofit will also promote the removal of suspended solids and floatables to downstream channels, which will enhance downstream water quality and habitat. It is estimated that an annual total of 1,470 lbs of sediment, 14lbs of total nitrogen and 3 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and an HOA will be necessary to retrofit this facility since it is located on private land. Environmental permitting issues are expected due to the in-stream location and the presence of wetlands in this facility. Significant tree removal along the edges and in the upstream portion of the facility can be expected with this retrofit. A large amount of excavation and grading would be required to achieve some peak flow management. The addition of a riser to the outlet pipe of this facility would provide water quality treatment for habitat improvement and prevention of downstream channel erosion. Access to this facility is very good off of Whitman Road. An existing sanitary sewer manhole and an underground cable/electric utility are present on the interior of this facility. Overhead power lines are also present at the most upstream point of this facility.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.7	AC	$8,500.00	$5,950
Tree Removal	5	EA	$2,000.00	$10,000
New Riser	1	LS	$8,000.00	$8,000
Grading and Excavation	3565	CY	$35.00	$124,775
Fencing	525	LF	$20.00	$10,500
Remove Existing Headwall	1	EA	$300.00	$300
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$168,025**
Plantings	1	LS	5% of Project	$8,401
Ancillary Items	1	LS	5% of Project	$8,401
Erosion and Sediment Control	1	LS	10% of Project	$16,803
			Base Construction Costs	**$201,630**
			Mobilization (5%)	$10,082
			Subtotal 1	$211,712
			Contingency (25%)	$52,928
			Subtotal 2	$264,640
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$119,088
			Estimated Project Cost	**$384,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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AC9166 - Pond Retrofit

Address:	Between the 7700 block of Donnybrook Court and the 4300 block of Americana Drive, Behind 7759 Donnybrook Court
Location:	Lafayette Forest
Land Owner:	Private - HOA
PIN:	
Control Type	Water Quality and Quantity
Drainage Area	83.08 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This project is an existing in-stream pond, 0627DP, which will be converted to a shallow wetland by replacing the existing riser with a new riser and dewatering system and excavating to maximize the volume available for wet storage. A stream restoration, AC9216, is proposed downstream of this project.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to provide approximately one-third of the water quality treatment volume for the contributing drainage in the permanent pool and may be able to provide peak flow management of the 2-year design storm. This retrofit will promote the removal of suspended solids and floatables to downstream channels, which will enhance downstream water quality and habitat. It is estimated that an annual total of 5,180 lbs of sediment, 47 lbs of total nitrogen and 11 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Due to the large drainage area contributing to this facility, it is unlikely that peak flow management of the 10-year storm can be achieved through retrofit. This facility is located in a large apartment complex with several walking trails nearby. Coordination with the apartment complex owners/management will be necessary to retrofit this facility since it is located on private land. Access to this facility is very good from an asphalt paved road on Americana Drive that extends directly to the pond embankment. Existing utility conflicts are not anticipated with this retrofit. Environmental permitting issues are expected due to the in-stream location of this facility and tree removal required within the facility and on the embankment. In-stream construction will require base flow diversion.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$12,000.00	$3,600
Tree Removal	5	EA	$2,000.00	$10,000
Plungepool / Micropool	1	EA	$400.00	$400
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	1092	CY	$35.00	$38,220
Fencing	615	LF	$20.00	$12,300
Remove Existing Headwall	1	EA	$300.00	$300
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$81,820**
Plantings	1	LS	5% of Project	$4,091
Ancillary Items	1	LS	5% of Project	$4,091
Erosion and Sediment Control	1	LS	10% of Project	$8,182
			Base Construction Costs	**$98,184**
			Mobilization (5%)	$4,909
			Subtotal 1	$103,093
			Contingency (25%)	$25,773
			Subtotal 2	$128,866
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$57,990
			Estimated Project Cost	**$187,000**

Site Photo: Existing Control Structure

Site Photo: Existing Facility

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AC9168 - Pond Retrofit

Address:	At the intersection of Championship Drive and Championship Court, Next to 4098 Championship Court
Location:	Adams Walk
Land Owner:	Private - HOA
PIN:	0594 20 A2
Control Type	Water Quality and Quantity
Drainage Area	7.55 acres
Receiving Waters	Coon Branch

Description: This is an existing dry pond that will be converted to an extended detention facility. This project will consist of removing and replacing the riser structure including a new dewatering system, excavation for increased storage including accumulated sediment removal, tree removal on the embankment, and micropools or plungepools at the inflows and at the riser for increased settlement and energy dissipation.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to meet the water quality treatment requirement for the contributing drainage area by providing extended detention of the half-inch, 48 hour storm and peak flow management of the 2-year storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities and channel sediment loads will be reduced by this project. It is estimated that an annual total of 1,250 lbs of sediment, 13 lbs of total nitrogen and two lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a residential community, installing signs around the facility is recommended for public awareness. Coordination with residents and an HOA will be necessary to retrofit this facility since it is located on private land. No environmental permitting issues are expected with this pond retrofit. This facility is completely overgrown with Japanese knotweed, which is an invasive species and should be removed during construction. Some tree loss will occur with this retrofit. No design or construction issues were identified at this site. Existing utilities conflicts are not anticipated.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	$12,000.00	$1,200
Tree Removal	5	EA	$2,000.00	$10,000
Plungepool / Micropool	3	EA	$400.00	$1,200
Excavate to create low-flow channel	75	LF	$25.00	$1,875
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	34	CY	$35.00	$1,190
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$32,465**
Plantings	1	LS	5% of Project	$1,623
Ancillary Items	1	LS	5% of Project	$1,623
Erosion and Sediment Control	1	LS	10% of Project	$3,247
			Base Construction Costs	**$38,958**
			Mobilization (5%)	$1,948
			Subtotal 1	$40,906
			Contingency (25%)	$10,227
			Subtotal 2	$51,133
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$23,010
			Estimated Project Cost	**$74,000**

Site Photo: Inside Existing Facility

Site Photo: Existing Control Structure

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AC9170 - Pond Retrofit

Address:	Next to 3719 Mount Airey Lane, Between Byrds Nest Pass and Mount Airey Lane
Location:	Lafayette Village
Land Owner:	Private - HOA
PIN:	0594 18 A
Control Type	Water Quality and Quantity
Drainage Area	18.67 acres
Receiving Waters	Coon Branch

Description: This is an existing dry pond that will be converted to an extended detention facility by modifying the riser structure. This facility is located in a heavily vegetated area and has two ephemeral channels feeding it. Stabilization of theephemeral channels that drain into and away from this facility will be incorporated into this retrofit. This project will also consist of removing the existing headwall and replacing it with a new riser structure including a dewatering device, and tree removal.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement by providing extended detention of the half-inch, 48 hour storm and will also manage the peak flow requirements of the 2 and 10-year storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, which will improve water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities and channel sediment loads will be reduced by this project. It is estimated that an annual total of 2,080 lbs of sediment, 20 lbs of total nitrogen and four lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is surrounded by several residential communities, installing signs around this facility is recommended to promote public awareness. Coordination with residents and appropriate HOA's will be necessary to retrofit this facility since it is located on private land. Environmental permitting issues are not expected with this retrofit. Significant tree loss will occur along the embankment as well as along the downstream and upstream ephemeral channels. The addition of a riser to the outlet pipe of this facility will allow this pond to meet water quality and quantity goals for habitat improvement and prevention of downstream channel erosion. Access to this facility is limited between townhouse buildings located along Mount Airey Lane. Utility conflicts are not anticipated with this retrofit.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.5	AC	$8,500.00	$4,250
Tree Removal	5	EA	$2,000.00	$10,000
New Riser	1	LS	$8,000.00	$8,000
Channel Stabilization	225	LF	$50.00	$11,250
Remove Existing Headwall	1	EA	$300.00	$300
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$42,300**
Plantings	1	LS	5% of Project	$2,115
Ancillary Items	1	LS	5% of Project	$2,115
Erosion and Sediment Control	1	LS	10% of Project	$4,230
			Base Construction Costs	**$50,760**
			Mobilization (5%)	$2,538
			Subtotal 1	$53,298
			Contingency (25%)	$13,325
			Subtotal 2	$66,623
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$29,980
			Estimated Project Cost	**$97,000**

Site Photo: Existing Facility and Embankment

Site Photo: Existing Control Structure

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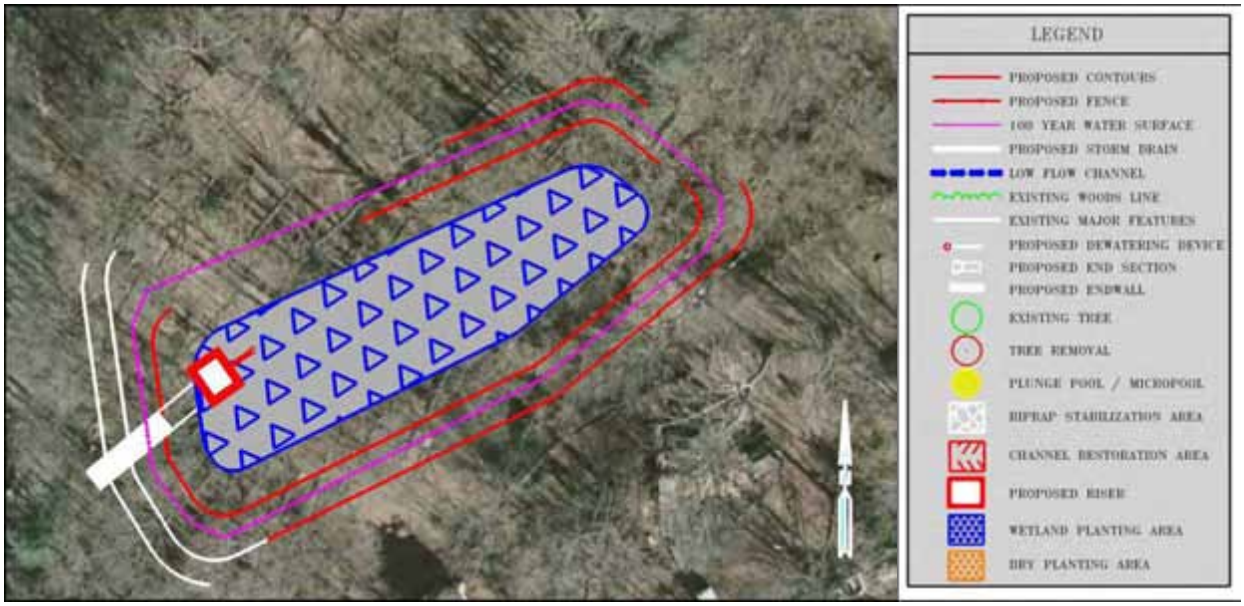
AC9172 - New Pond

Address:	Next to 7820 Libeau Lane, At the end of Libeau Lane
Location:	
Land Owner:	Private - Residential
PIN:	0592 01 0033
Control Type	Water Quality and Quantity
Drainage Area	10.77 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: On the east side of Wheatwheel Lane, there is an existing flood control structure, which does not provide any water quality treatment and only provides water quantity treatment for larger storms. To provide water quality and water quantity treatment at this location, an extended detention facility will be built upstream of the flood control structure. The proposed facility would be set back from the existing control structure to ensure that it does not impact the flood control function.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project will provide water quality treatment via extended detention of the half-inch, 48 hour storm and water quantity management of 2- and 10-year peak runoff volumes. An additional impoundment structure would provide an area for settlement of pollutants and suspended sediments. Plantings within the impoundment area would provide additional nutrient uptake. Attenuation of peak flows would be provided by the secondary impoundment structure as well as the existing flood control structure. It is estimated that a total of 1,000 lbs of sediment, 10 lbs of total nitrogen and two lbs of total phosphorus would be reduced by this project.

Project Design Considerations: The presence of utilities in the project area would need to be determined before the final design can be implemented. Both existing wetlands and forest would be impacted and would require permitting. Access to the site is possible from Wheatwheel Lane. Maintenance on the site, once completed, would be important because of the amount of leaves and debris that originate from the forested area.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.8	AC	$15,000.00	$12,000
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	8120	CY	$35.00	$284,200
Embankment	2030	CY	$50.00	$101,500
Outfall Pipe	60	LF	$300.00	$18,000
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$432,700**
Plantings	1	LS	5% of Project	$21,635
Ancillary Items	1	LS	5% of Project	$21,635
Erosion and Sediment Control	1	LS	10% of Project	$43,270
			Base Construction Costs	**$519,240**
			Mobilization (5%)	$25,962
			Subtotal 1	$545,202
			Contingency (25%)	$136,301
			Subtotal 2	$681,503
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$306,676
			Estimated Project Cost	**$988,000**

Site Photo: Existing Flood Control Structure

Site Photo: Existing Channel Into Flood Control Structure

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AC9174 - Pond Retrofit

Address:	Behind 8900 Little River Turnpike
Location:	Greater Washington Jewish Community Foundation
Land Owner:	Private
PIN:	0584 01 0065A
Control Type	Water Quality
Drainage Area	9.01 acres
Receiving Waters	Unknown tributary of Crook Branch

Description: This facility is an existing dry pond that will be converted to a extended detention facility. There are two existing concrete channels that carry flow through the facility from three different inflows. This project will consist of modifying the riser structure, removing the concrete low-flow channels and replacing them with meandering low flow channels, and excavating for additional storage.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement for the contributing drainage area by providing extended detention of the half-inch, 48 hour storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels, which will improve water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. It is estimated that an annual total of 1,400 lbs of sediment, 75 lbs of total nitrogen and 15 lbs of total phosphorus would be reduced by this project. Since this facility is located behind a large community center, retrofitting the pond will provide an environmental education/stewardship opportunity for residents within the community.

Project Design Considerations: Coordination with the Jewish Community Center of Northern Virginia will be necessary to retrofit this facility since it is located on private property. No environmental permitting issues or tree loss is expected with this pond retrofit. No design or construction issues were identified at this site. Existing utilities conflicts are not anticipated. Access is good from the eastern parking lot.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	140	LF	$30.00	$4,200
Plungepool / Micropool	4	EA	$400.00	$1,600
Excavate to create low-flow channel	125	LF	$25.00	$3,125
Riser Retrofit	1	LS	$4,000.00	$4,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	268	CY	$35.00	$9,380
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$31,305**
Plantings	1	LS	5% of Project	$1,565
Ancillary Items	1	LS	5% of Project	$1,565
Erosion and Sediment Control	1	LS	10% of Project	$3,131
			Base Construction Costs	**$37,566**
			Mobilization (5%)	$1,878
			Subtotal 1	$39,444
			Contingency (25%)	$9,861
			Subtotal 2	$49,305
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$22,187
			Estimated Project Cost	**$71,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure and Concrete Low Flow Channels

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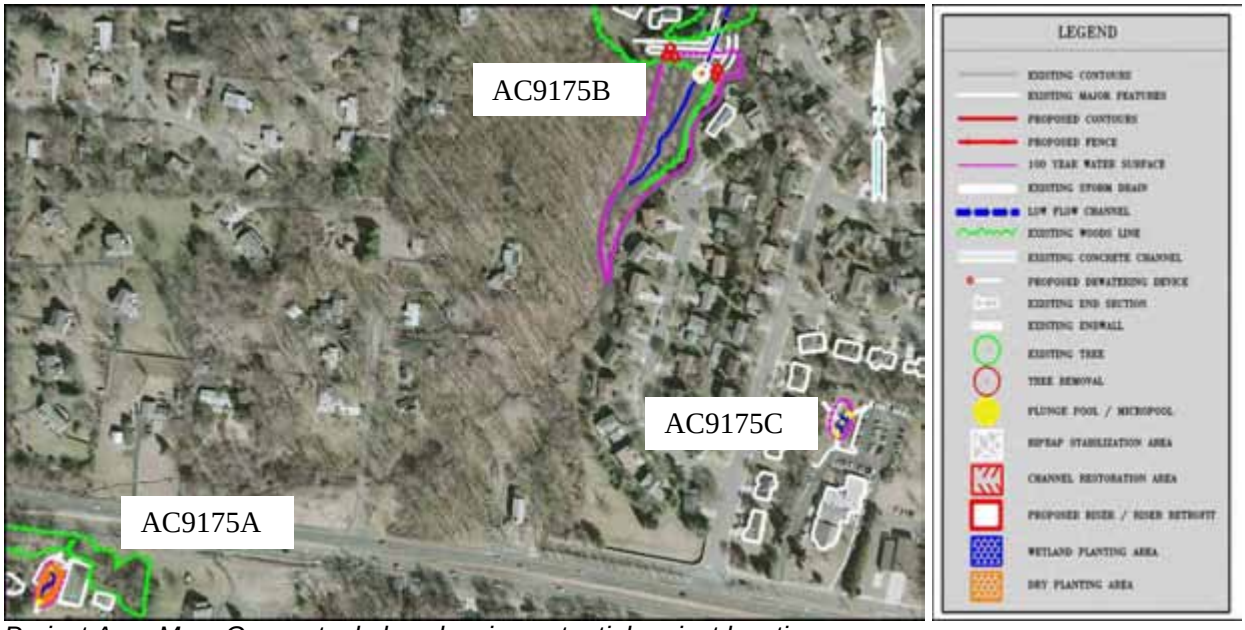
AC9175 - Pond Retrofit

Address:	Between Hunting Pines Court and Hunting Pines Place, Behind 3901 Bentwood Court, Behind 8922 Little River Turnpike
Location:	Hunters Glen, Ridgelea Hills, Bethlehem Lutheran Church
Land Owner:	Private - HOA
PIN:	0584 32 B, 0584 28 D, 0584 01 0061
Control Type	Water Quality
Drainage Area	15.32 acres, 107.01 acres, 3.55 acres
Receiving Waters	Unknown tributary of Crook Branch

Description: AC9175A is an existing dry pond that treats the runoff from a nearby neighborhood. The facility is surrounded by tennis courts, playgrounds, and community areas, so there is no room to expand the pond. There is a concrete channel within the facility that carries runoff to the outfall structure. AC9175B is also an existing dry pond that provides flood control for large storms. It is located in a heavily forested area between residential neighborhoods. AC9175C is an existing dry pond at Bethlehem Church. The concrete channel within the facility directs runoff from the inflow directly to the riser structure. This project will consist of a new riser/control structure including a dewatering device, excavating for additional storage, and adding a micropool to each riser structure and a plunge pool to each inflow. Tree removal and concrete channel removal may also be needed.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Site AC9175A and Site AC9175C will meet the water quality treatment requirement via extended detention of the one-half inch, 48 hour storm. Retrofitting these facilities will promote the removal of suspended solids and floatables to downstream channels and will also help prevent future downstream channel erosion. Site AC9175B has the potential to attenuate peak runoff volumes for high-frequency design storms with the addition of a control structure on the upstream side of the existing culvert. At site AC9175B, a control structure on the upstream side of the culvert will allow the pond to achieve water quality goals for habitat improvement and prevent downstream erosion. It is estimated that an annual total of 16.130 lbs of sediment, 172 lbs of total nitrogen and 41 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Site AC9175B is located between cul-de-sacs in a residential community with several homeowner buildings within close proximity to this facility. Coordination with residents and an HOA will be necessary to retrofit sites AC9175A and AC9175B since they are located on private land. For site AC9175C, coordination with the church will be required. The storm drains that drain to Sites AC9175A and AC9175C may need to be adjusted to maintain stability within the facilities. Adding a control structure at AC9175B would cause water levels to rise on the upstream side of the embankment, it is recommended to consider this in the design phase. All existing components of site AC9175B should be analyzed to ensure their integrity. Environmental permitting issues, utility conflicts, and tree impacts are not anticipated with sites AC9175A and AC9175C. At Site AC9175B, environmental permitting issues are anticipated due to the in-stream location of this facility and moderate tree loss, although existing utilities conflicts are not anticipated. Access to Site AC9175A is good from Hunting Pines Place. Access to Site AC9175C is very good from the Bethlehem Lutheran Church. Access to Site AC9175B is difficult and will either need to occur from the end of Autumn Leaf Court or Bentwood Court.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.7	AC	$8,500.00	$14,450
Paved Ditch Demolition & Haul Away	100	LF	$30.00	$3,000
Tree Removal	5	EA	$2,000.00	$10,000
Plungepool / Micropool	6	EA	$400.00	$2,400
Excavate to create low-flow channel	150	LF	$25.00	$3,750
New Riser	3	LS	$8,000.00	$24,000
Embedded Dewatering Pipe	3	EA	$500.00	$1,500
Remove Existing Headwall	1	EA	$300.00	$300
Rip Rap Stabilization	55	SY	$100.00	$5,500
Grading and Excavation	50	CY	$35.00	$1,750
Soil Borings	3	LS	$8,500.00	$25,500
			Initial Project Costs	**$92,150**
Plantings	1	LS	5% of Project	$4,608
Ancillary Items	1	LS	5% of Project	$4,608
Erosion and Sediment Control	1	LS	10% of Project	$9,215
			Base Construction Costs	**$110,581**
			Mobilization (5%)	$5,529
			Subtotal 1	$116,110
			Contingency (25%)	$29,028
			Subtotal 2	$145,138
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$65,312
			Estimated Project Cost	**$210,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Facility Overview

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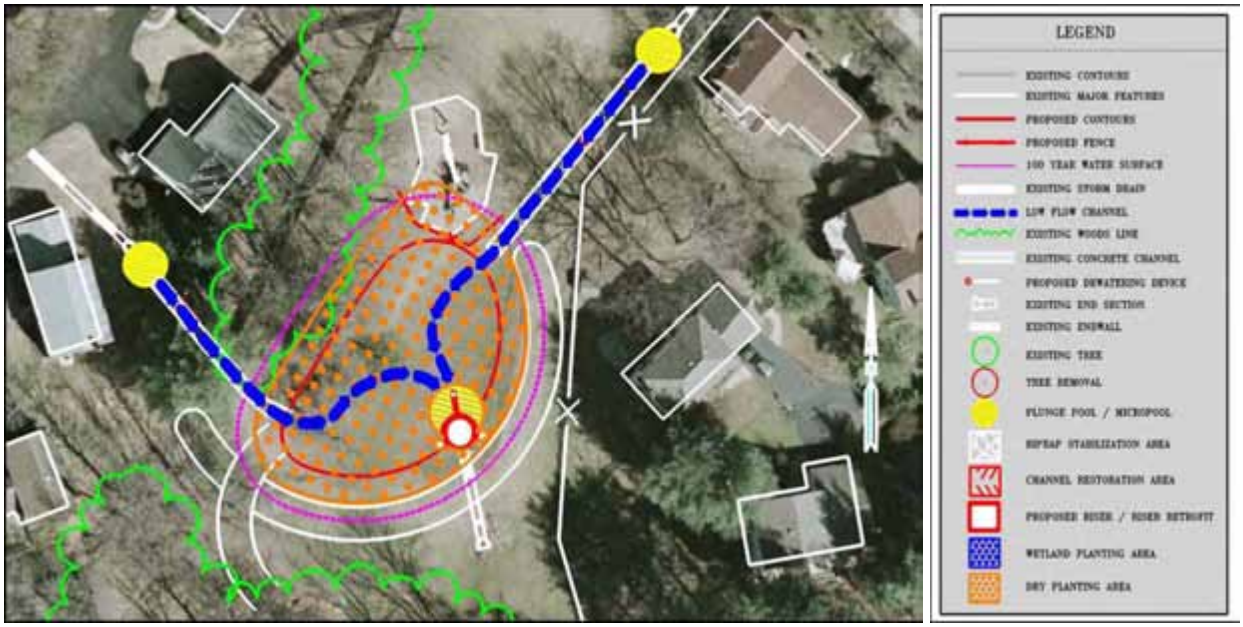
AC9177 - Pond Retrofit

Address:	Between the 3400 block of Monarch Lane and the 3300 block of Taleen Court, Behind 3420 Monarch Lane
Location:	Prosperity Heights
Land Owner:	Private - HOA
PIN:	0591 27 A
Control Type	Water Quality and Quantity
Drainage Area	9.27 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing dry pond, 0304DP, which will be converted to an extended detention facility. There are concrete channels that carry runoff into the pond. There is a playground just on the outskirts of this facility. This project will consist of removing the existing headwall and replacing it with a new riser structure including a dewatering device, adding a meandering low flow channel, excavating for additional storage, riprap at the outfall, and a fence around the facility.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility would meet the water quality treatment requirement providing extended detention of the half-inch, 48 hour storm. It also meets the peak flow management requirements of the 2 and 10-year storm. Retrofitting this facility would help to prevent future downstream erosion by reducing peak flow rates and erosive velocities. This retrofit will also promote the removal of suspended solids and floatables to downstream channels, which will enhance downstream water quality and habitat. It is estimated that an annual total of 830 lbs of sediment, 9 lbs of total nitrogen and 2 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and HOA will be necessary to retrofit this facility since it is located on private land. No tree removal or environmental permitting issues are expected with this pond retrofit. The addition of a riser to the outlet pipe of this facility will achieve water quality and quantity goals for habitat improvement and prevention of downstream channel erosion. Currently, a small head cut is forming near Tobin Road due to the pond's outflow, so this area would be stabilized. Access to this facility is very good off of Tobin Road or Monarch Lane. Existing utility conflicts are not anticipated for this retrofit.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	415	LF	$30.00	$12,450
Plungepool / Micropool	3	EA	$400.00	$1,200
Excavate to create low-flow channel	335	LF	$25.00	$8,375
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	474	CY	$35.00	$16,590
Fencing	65	LF	$20.00	$1,300
Soil Borings	1	LS	$8,500.00	$8,500
Remove Existing Headwall	1	EA	$300.00	$300
Rip Rap Stabilization	140	SY	$100.00	$14,000
			Initial Project Costs	**$71,215**
Plantings	1	LS	5% of Project	$3,561
Ancillary Items	1	LS	5% of Project	$3,561
Erosion and Sediment Control	1	LS	10% of Project	$7,122
			Base Construction Costs	**$85,459**
			Mobilization (5%)	$4,273
			Subtotal 1	$89,732
			Contingency (25%)	$22,433
			Subtotal 2	$112,165
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$50,474
			Estimated Project Cost	**$163,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure

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AC9178 - Pond Retrofit

Address:	Near the intersection of Monarch Lane and Happy Heart Lane, Next to 3351 Monarch Lane
Location:	Prosperity Heights
Land Owner:	Private - HOA
PIN:	0591 27 D
Control Type	Water Quality and Quantity
Drainage Area	25.79 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This facility is an existing dry pond that will be converted to a wetland facility. This project will consist of a removing the existing headwall and replacing with a new riser structure including a new dewatering system, riprap stabilization and a new fence in addition to the signals.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility would meet the water quality treatment requirement for the contributing drainage area via extended detention of the one-half inch, 48 hour storm, as well as peak flow management of the 2-year peak runoff volume. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities, and channel sediment loads would be reduced by this project. It is estimated that an annual total of 7,360 lbs of sediment, 60 lbs of total nitrogen and 16 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and HOA will be necessary to retrofit this facility since it is located on private land. Environmental permitting issues are expected due to the in-stream location and the presence of wetlands in this facility. Some tree removal along the sides of the facility and modifications to an existing stream channel that flows to this facility will be necessary. In-stream construction will require base flow diversion. Existing utilities conflicts are not anticipated. Access to this facility is very good as it is located directly off of Monarch Lane.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.5	AC	$8,500.00	$4,250
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Rip Rap Stabilization	160	SY	$100.00	$16,000
Grading and Excavation	3941	CY	$35.00	$137,935
Fencing	780	LF	$20.00	$15,600
Remove Existing Headwall	1	EA	$300.00	$300
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$191,085**
Plantings	1	LS	5% of Project	$9,554
Ancillary Items	1	LS	5% of Project	$9,554
Erosion and Sediment Control	1	LS	10% of Project	$19,109
			Base Construction Costs	**$229,302**
			Mobilization (5%)	$11,465
			Subtotal 1	$240,767
			Contingency (25%)	$60,192
			Subtotal 2	$300,959
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$135,432
			Estimated Project Cost	**$436,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Facility Inflow and Control Structure

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AC9180 - Pond Retrofit

Address:	Near the intersection of Hilltop Road and Lee Highway, Behind Professional Hill Drive
Location:	
Land Owner:	Private - Commercial
PIN:	0493 01 0080A
Control Type	Water Quality and Quantity
Drainage Area	12.63 acres, 15.17 acres
Receiving Waters	Unknown tributary of Long Branch

Description: Dry pond AC9180A currently receives runoff from an old movie theater parking lot. The facility is full of overgrown vegetation, which is blocking all or part of each inflow into the pond. Dry pond AC9180B receives runoff from the abandoned shopping center on Eskridge Road. This project consists of two existing detention basins, DP0108 and DP0080, to be converted to extended detention basins by replacing the existing risers with new risers and dewatering systems and adding plunge pools at each concentrated inflow location within each facility. Site AC9180A will also require excavation to maximize the available storage volume.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: These projects will meet the water quality treatment requirement for the contributing drainage areas via extended detention of the one-half inch, 48 hour storm, as well as provide peak flow management of the 2-year and 10-year peak runoff volumes, respectively. Retrofitting these facilities will promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities, and channel sediment loads will be reduced by this project. It is estimated that an annual total of 11,470 lbs of sediment, 123 lbs of total nitrogen and 23 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since these facilities are located on private land, coordination with the land owners will be necessary to retrofit each facility. Baseflow and wetlands currently at Site AC9180A may present environmental permitting issues. No environmental permitting issues are expected at Site AC9180B. At Site AC9180A, the alignment of a pipe outfall located in the corner of the Multiplex Theatres parking lot will need to be modified to allow for replacement of the riser. At Site AC9180B, the outlet pipe is rusted and may require replacement to prevent future stability issues. Several of the pipe outfalls at Site AC9180A are full of sediment and require maintenance. Evidence of a recent field survey at Site AC9180B was found during a field visit, indicating that future work may occur. Access to both facilities is good from an abandoned Multiplex Theaters parking lot off of Lee Highway and off of Hilltop Road. Existing utility conflicts are not anticipated at either site.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Removal	4	EA	$2,000.00	$8,000
Plungepool / Micropool	6	EA	$400.00	$2,400
New Riser	2	LS	$8,000.00	$16,000
Embedded Dewatering Pipe	2	EA	$500.00	$1,000
Grading and Excavation	1945	CY	$35.00	$68,075
Remove Existing Headwall	2	EA	$300.00	$600
New Endwall	1	EA	$2,500.00	$2,500
Soil Borings	2	LS	$8,500.00	$17,000
			Initial Project Costs	$115,575
Plantings	1	LS	5% of Project	$5,779
Ancillary Items	1	LS	5% of Project	$5,779
Erosion and Sediment Control	1	LS	10% of Project	$11,558
			Base Construction Costs	$138,691
			Mobilization (5%)	$6,935
			Subtotal 1	$145,626
			Contingency (25%)	$36,407
			Subtotal 2	$182,033
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$81,915
			Estimated Project Cost	$264,000

Site Photo: Existing Facility Overview

Site Photo: Existing Facility Overview

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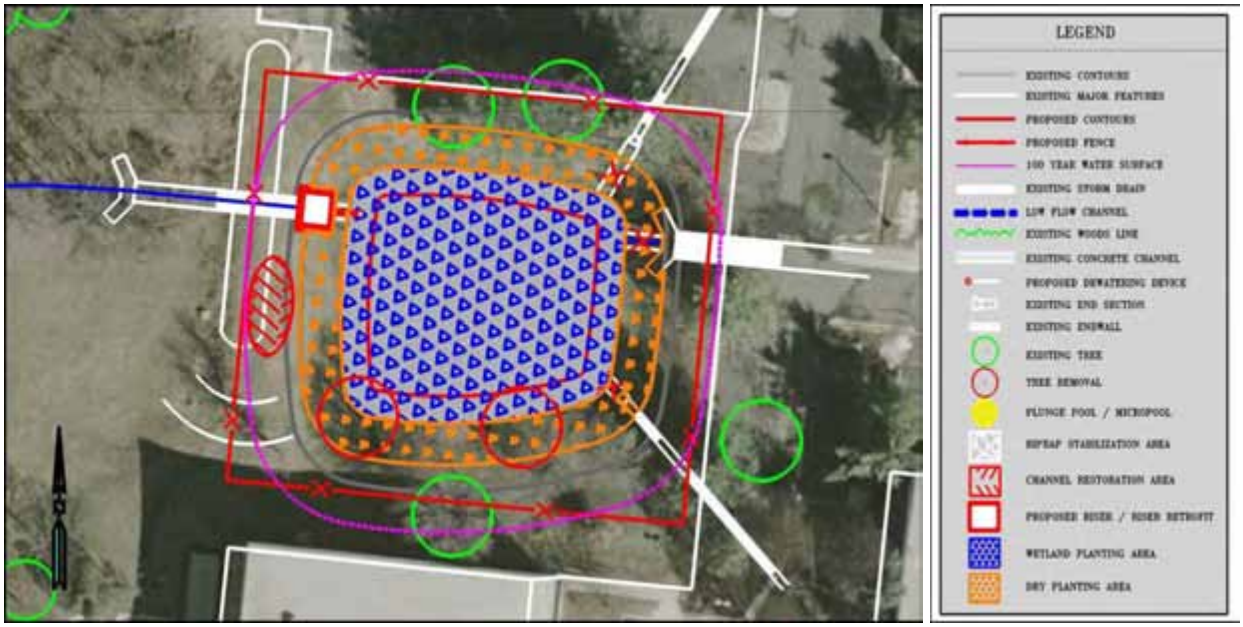
AC9181 - Pond Retrofit

Address:	Behind 2720 Prosperity Avenue
Location:	Prosperity Business Campus
Land Owner:	Private - Commercial
PIN:	0491 19 G
Control Type	Water Quality and Quantity
Drainage Area	43.61 acres
Receiving Waters	Unknown tributary of Long Branch

Description: Dry pond DP0146 receives runoff from the nearby business park. There are several concrete channels that convey runoff from the inflows to the riser structure. This project is an existing dry detention pond that will be converted to a shallow wetland by removing the existing concrete channels, excavating to create a permanent wet storage element and replacing the existing riser with a new riser and dewatering system.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to meet approximately one third of the water quality treatment requirement for the contributing drainage area in the form of permanent wet storage volume and may provide peak flow management of the 2-year storm. Retrofitting this facility would promote the removal of suspended solids and floatables to downstream channels thus improving water quality and habitat. These proposed improvements will also help prevent future downstream channel erosion by reducing peak flows and erosive velocities. It is estimated that an annual total of 10,190 lbs of sediment, 110 lbs of total nitrogen and 20 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: The proposed wet storage element in the facility is not capable of meeting 100 percent of the water quality volume requirement for the contributing drainage area. It is unlikely that the available storage volume above the permanent pool is sufficient to provide 10-year peak flow management. Since this facility is located in a private commercial/industrial area, coordination with the property owner will be necessary. Converting this facility to a wetland will create a permanent pool that is below the invert of the existing outlet pipe and, therefore, will not positively drain. Access to this facility is good and can be accessed from three different parking lots that surround this facility. Environmental permitting issues may be encountered due to the presence of baseflow from several storm drain inflows into this facility. Existing utilities conflicts are not anticipated.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	235	LF	$30.00	$7,050
Tree Removal	2	EA	$2,000.00	$4,000
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	2271	CY	$35.00	$79,485
Fencing	635	LF	$20.00	$12,700
Slope Stabilization	1	LS	$1,200.00	$1,200
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$121,435**
Plantings	1	LS	5% of Project	$6,072
Ancillary Items	1	LS	5% of Project	$6,072
Erosion and Sediment Control	1	LS	10% of Project	$12,144
			Base Construction Costs	**$145,723**
			Mobilization (5%)	$7,286
			Subtotal 1	$153,009
			Contingency (25%)	$38,252
			Subtotal 2	$191,261
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$86,067
			Estimated Project Cost	**$277,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure and Concrete Low Flow Channels

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AC9182 - Pond Retrofit

Address:	At the end of Readsborough Court
Location:	Chesterfield Meadows Section 1
Land Owner:	County - FCPA
PIN:	0484 18 D
Control Type	Water Quantity
Drainage Area	9.57 acres
Receiving Waters	Bear Branch

Description: This is an existing wet pond, which will be retrofited to provide peak flow management. There is a small baseflow through the facility with existing wetlands within and downstream of the facility. The existing wetlands and stream provide some water quality improvement and will be disturbed as little as possible. This project will consist of a new weir or control structure and riprap stabilization on both the upstream and downstream side of the existing culvert.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to meets the peak flow management requirements of the 2 and 10-year storm. Retrofitting this facility will promote removal of suspended solids and floatables and help prevent future erosion of downstream channels. It is estimated that an annual total of 1,360 lbs of sediment, five lbs of total nitrogen and two lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a residential community, installing signs around the facility is recommended for public awareness. Little coordination will be necessary to retrofit this facility since it is located on County land. Access to this facility is good from either the end of Eakin Park Court or Readsborough Courts and will require minimal tree removal. Several underground utilities and sanitary sewer manholes were identified behind the houses at the end of Eakin Park Court. Utility conflicts on the pond embankment or near the outlet pipe are not anticipated. Except for the embankment, this facility is all woods with pockets wetlands. Due to this, environmental permitting issues and significant amounts of tree removal could be expected with this retrofit.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.2	AC	$12,000.00	$2,400
New Riser	1	LS	$8,000.00	$8,000
Rip Rap Stabilization	45	SY	$100.00	$4,500
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$23,400**
Plantings	1	LS	5% of Project	$1,170
Ancillary Items	1	LS	5% of Project	$1,170
Erosion and Sediment Control	1	LS	10% of Project	$2,340
			Base Construction Costs	**$28,080**
			Mobilization (5%)	$1,404
			Subtotal 1	$29,484
			Contingency (25%)	$7,371
			Subtotal 2	$36,855
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$16,585
			Estimated Project Cost	**$53,000**

Site Photo: Existing Facility Overview

Site Photo: Inflow into Facility

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AC9183 - New Pond

Address:	9001 Arlington Boulevard
Location:	Kena Shriners
Land Owner:	Private - Temple
PIN:	0484 01 0042A
Control Type	Water Quality and Quantity
Drainage Area	9.02 acres
Receiving Waters	Bear Branch

Description: The Kena Shriner Temple has a lot of curbed, paved area with storm drains and no treatment. The proposed facility would be located in the grassy area on the southwest portion of the site. Part of the existing storm drain system runs underneath this area. The existing pipe will be cut so that it outfalls into the proposed facility for treatment. A riser structure will be used to provide detention before the water is discharged into the stream. Water quality will also be provided within the proposed facility. Although the whole paved area will not reach the proposed facility, the treatment provided within the facility is enough for all of the impervious on site.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project would provide water quality treatment of the half-inch, 48 hour storm as well as management of the 2-year peak flow volume. This large parking lot, which is currently untreated, likely contributes oil, grease, sediment, and pollutants to the forested area on the downstream side. A new facility will remove most of the nutrients and suspended solids from the runoff before it reaches the stream, which would help improve the water quality and habitat. It is estimated that a total of 1,230 lbs of sediment, 15 lbs of total nitrogen and four lbs of total phosphorus would be reduced by this project.

Project Design Considerations: This facility would require the modification of the storm drain system to discharge the runoff within the open space next to the parking lot. As the property is privately owned, coordination and input from the owner will be required for this project. No environmental permitting issues are anticipated with this project and little to no tree removal is required. Access to the facility is excellent from the parking area. There are no anticipated conflicts with utilities, but the presence of any utility on the property should be verified during design.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$8,500.00	$2,550
Plungepool / Micropool	1	EA	$400.00	$400
Excavate to create low-flow channel	95	LF	$25.00	$2,375
Outlet Protection	1	EA	$8,000.00	$8,000
Outfall Pipe	65	LF	$300.00	$19,500
New Endwall	2	EA	$2,500.00	$5,000
Grading and Excavation	1546	CY	$35.00	$54,110
Embankment	387	CY	$50.00	$19,350
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$119,785**
Plantings	1	LS	5% of Project	$5,989
Ancillary Items	1	LS	5% of Project	$5,989
Erosion and Sediment Control	1	LS	10% of Project	$11,979
			Base Construction Costs	**$143,742**
			Mobilization (5%)	$7,187
			Subtotal 1	$150,929
			Contingency (25%)	$37,732
			Subtotal 2	$188,661
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$84,897
			Estimated Project Cost	**$274,000**

Site Photo: Existing Parking Area

Site Photo: Open Space For Proposed Facility

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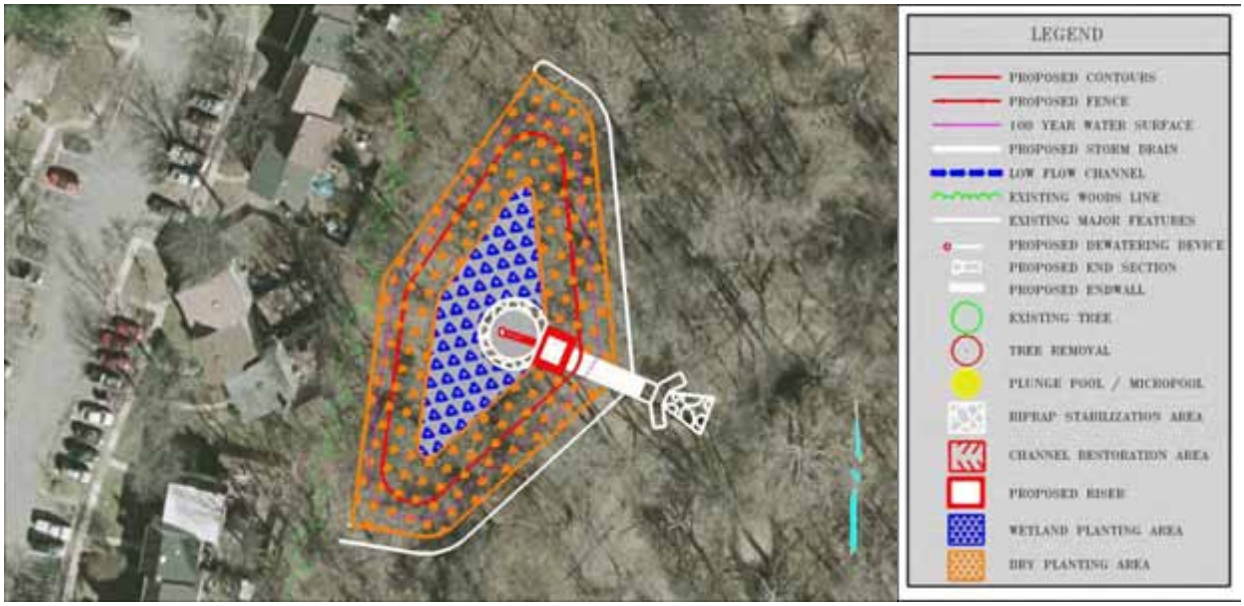
AC9185 - New Pond

Address:	Behind 3015 Silent Valley Drive
Location:	Covington
Land Owner:	Private - HOA
PIN:	0484 17 D
Control Type	Water Quality and Quantity
Drainage Area	19.02 acres
Receiving Waters	Unknown tributary of Bear Branch

Description: This proposed facility is located at the existing storm drain outfall behind the houses on Silent Valley Drive. An extended detention dry facility is proposed to treat both the water quality and quantity of the runoff from this high density residential neighborhood. This project would require work within the floodplain of the stream. A riser structure and embankment will be used to provide treatment.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project would provide water quantity management of 2-year peak runoff volume and water quality treatment, through extended detention, of the half- inch, 48 hour storm. Partial management of the 10-year peak runoff volume would also be achieved. This facility would help stabilize the channel and reduce erosion by managing peak flows, thus reducing erosive forces on the downstream banks. A micropool will provide pretreatment of the incoming flows to reduce sediment and some pollutants from the runoff before it enters the main chamber of the facility. This will not only improve the water quality within the receiving waters, but also improve the habitat. An estimated 3,010 lbs of sediment, 15 lbs of total nitrogen and seven lbs of total phosphorus would be reduced by this project.

Project Design Considerations: The location of this facility may require the impoundment or felling of many trees, some of which are larger than 36 inches in diameter. Environmental and forestry permitting would likely be required. Access is available along the storm drain easement between the residences, but it may impact existing parking areas. This site is close to a neighborhood with moderate ease of access for the residents and should be considered during the design and construction phases. However, this would also be an opportunity for educational signs to inform the residents of the environmental benefits of this feature.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$15,000.00	$4,500
Plungepool / Micropool	1	EA	$400.00	$400
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Outfall Pipe	45	LF	$300.00	$13,500
New Endwall	1	EA	$2,500.00	$2,500
Outlet Protection	1	EA	$8,000.00	$8,000
Rip Rap Stabilization	40	SY	$100.00	$4,000
Grading and Excavation	1889	CY	$35.00	$66,115
Embankment	472	CY	$50.00	$23,600
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$139,615**
Plantings	1	LS	5% of Project	$6,981
Ancillary Items	1	LS	5% of Project	$6,981
Erosion and Sediment Control	1	LS	10% of Project	$13,962
			Base Construction Costs	**$167,539**
			Mobilization (5%)	$8,377
			Subtotal 1	$175,916
			Contingency (25%)	$43,979
			Subtotal 2	$219,895
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$98,953
			Estimated Project Cost	**$319,000**

Site Photo: Storm Drain Outfall to Proposed Facility

Site Photo: Existing Floodplain

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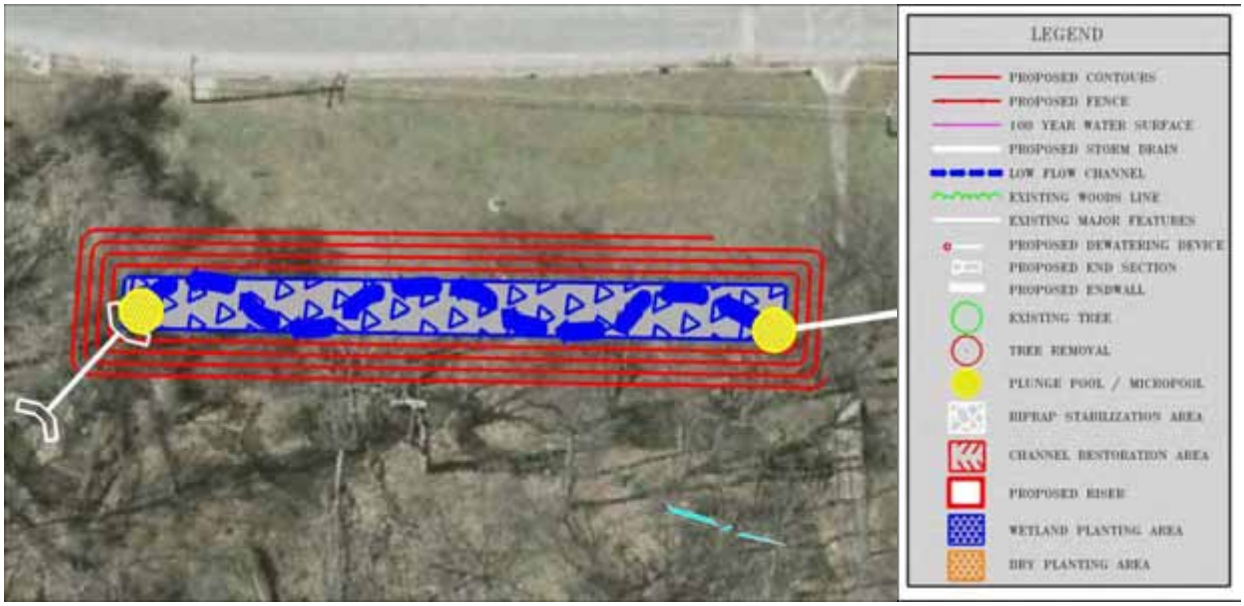
AC9189 - New Pond

Address:	Next to 9821 Five Oaks Road, Near the intersection of Five Oaks Road and Water Oak Drive
Location:	
Land Owner:	County - FCPA
PIN:	0483 01 0017B
Control Type	Water Quality
Drainage Area	306.98 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: Mosby Woods Park is located on the south side of Five Oaks Road. A wetland is proposed in the open space to the west of the stream in this park. This project would route storm flow from the culvert through the use of a flow splitter or other structure and into the wetland for water quality treatment. A sanitary sewer line and overhead power lines are present in the area, which constrains the outer limits of the proposed facility, although some treatment is possible. No detention is proposed at this site.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This project would provide water quality treatment for a portion of the drainage area. The wetland area would promote the removal of suspended solids and floatables. Pollutant removal would be enhanced by the vegetative uptake of nutrients of the wetland plantings. It is estimated that a total of 2,970 lbs of sediment, 30 lbs of total nitrogen and seven lbs of total phosphorus would be reduced by this project.

Project Design Considerations: The facility would be located directly adjacent to a sanitary sewer line. Coordination with the utility owners would be necessary to ensure there are no conflicts with the proposed facility. The land is owned by the County and access is excellent from the road. No permitting issues are anticipated for this project. A modification or addition to the storm drain system or culvert would be necessary to route storm runoff into the facility.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.2	AC	$15,000.00	$3,000
Plungepool / Micropool	2	EA	$400.00	$800
Excavate to create low-flow channel	170	LF	$25.00	$4,250
Grading and Excavation	762	CY	$35.00	$26,670
Embankment	191	CY	$50.00	$9,550
New Endwall	2	EA	$2,500.00	$5,000
Outfall Pipe	30	LF	$300.00	$9,000
New Drain Pipe	55	LF	$125	$6,875
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$73,645**
Plantings	1	LS	5% of Project	$3,682
Ancillary Items	1	LS	5% of Project	$3,682
Erosion and Sediment Control	1	LS	10% of Project	$7,365
			Base Construction Costs	**$88,374**
			Mobilization (5%)	$4,419
			Subtotal 1	$92,793
			Contingency (25%)	$23,198
			Subtotal 2	$115,991
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$52,196
			Estimated Project Cost	**$168,000**

Site Photo: Downstream of Existing Culvert Crossing

Site Photo: Open Space Along Underground and Overhead Utilities

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AC9192 - Pond Retrofit

Address:	Behind 10005 Lochalsh Lane, Near the intersection of Lochalsh Lane and Strathaven Place
Location:	Edgemoore
Land Owner:	Private - HOA
PIN:	0481 35 B
Control Type	Water Quality
Drainage Area	19.88 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing dry pond that will be converted to an extended detention facility. This pond currently provides 2- and 10-year peak flow reduction, but not water quality treatment. This project will consist of removing the existing headwall and replacing it with a new riser structure including a dewatering device, removing the concrete low-flow channels and replacing them with a meandering low flow channel and excavating for additional storage.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement for the contributing drainage area via extended detention of the one-half inch, 48 hour storm. This retrofit will promote the removal of suspended solids and floatables to downstream channels, which will enhance downstream water quality and habitat. It is estimated that an annual total of 2,670 lbs of sediment, 25 lbs of total nitrogen and six lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a residential community with open access by residents, installing signs is recommended to promote public awareness. This facility is located on private land, so coordination with residents and the HOA will be necessary. Access to this facility is very good from an existing access road at the end of Strathaven Place. No tree loss will occur with this retrofit. The addition of a riser to the outlet pipe of this facility will be necessary to achieve water quality/quantity goals for habitat improvement and prevention of downstream channel erosion. Existing utility conflicts and environmental permitting issues are not expected with this retrofit.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	170	LF	$30.00	$5,100
Plungepool / Micropool	3	EA	$400.00	$1,200
Excavate to create low-flow channel	135	LF	$25.00	$3,375
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	783	CY	$35.00	$27,405
Remove Existing Headwall	1	EA	$300.00	$300
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$54,380**
Plantings	1	LS	5% of Project	$2,719
Ancillary Items	1	LS	5% of Project	$2,719
Erosion and Sediment Control	1	LS	10% of Project	$5,438
			Base Construction Costs	**$65,256**
			Mobilization (5%)	$3,263
			Subtotal 1	$68,519
			Contingency (25%)	$17,130
			Subtotal 2	$85,649
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$38,542
			Estimated Project Cost	**$124,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure and Embankment

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AC9195 - Pond Retrofit

Address:	Between the 10100 block of Turnberry Place and the 10100 block of Ebenshire Court, Across from 10141 Valentino Drive
Location:	Oakton Village
Land Owner:	Private - HOA
PIN:	0474 09 B, 0474 21 L, 0472 21 C, 0474 21 G
Control Type	Water Quality and Quantity
Drainage Area	30.19 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing dry pond, 0935DP, which will be converted to an extended detention facility. There is a concrete channel that carries runoff as well as baseflow from the inflow point to the outlet structure. This project will consist of a new riser structure including a dewatering device, removing the concrete low-flow channels and replacing them with a meandering low flow channel and adding a plunge pool to each inflow into the facility.

Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility will meet the water quality treatment requirement via extended detention of the one-half inch, 48 hour storm. Retrofitting this facility would help to prevent future downstream erosion by reducing peak flow rates and erosive velocities. This retrofit will also promote the removal of suspended solids and floatables to downstream channels, which will enhance downstream water quality and habitat. It is estimated that an annual total of 3,960 lbs of sediment, 39 lbs of total nitrogen and 9 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and the Concord Village HOA will be necessary to retrofit this facility as it is located on private land. A chain-link fence surrounding this facility was found to be in good condition except for one section of fence near Valentino Drive. Environmental permitting issues may be encountered due to the presence of baseflow. No tree loss is expected with this pond retrofit. The addition of a riser to the outlet pipe of this facility will enable the pond to achieve water quality goals for habitat improvement and prevention of downstream channel erosion. Existing utilities conflicts are not anticipated. Access to this facility is very good from Valentino Drive.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Paved Ditch Demolition & Haul Away	195	LF	$30.00	$5,850
Plungepool / Micropool	3	EA	$400.00	$1,200
Excavate to create low-flow channel	195	LF	$25.00	$4,875
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$28,925**
Plantings	1	LS	5% of Project	$1,446
Ancillary Items	1	LS	5% of Project	$1,446
Erosion and Sediment Control	1	LS	10% of Project	$2,893
			Base Construction Costs	**$34,710**
			Mobilization (5%)	$1,736
			Subtotal 1	$36,446
			Contingency (25%)	$9,112
			Subtotal 2	$45,558
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				$20,501
			Estimated Project Cost	**$66,000**

Site Photo: Existing Facility Inflow and Control Structure

Site Photo: Existing Facility Overview

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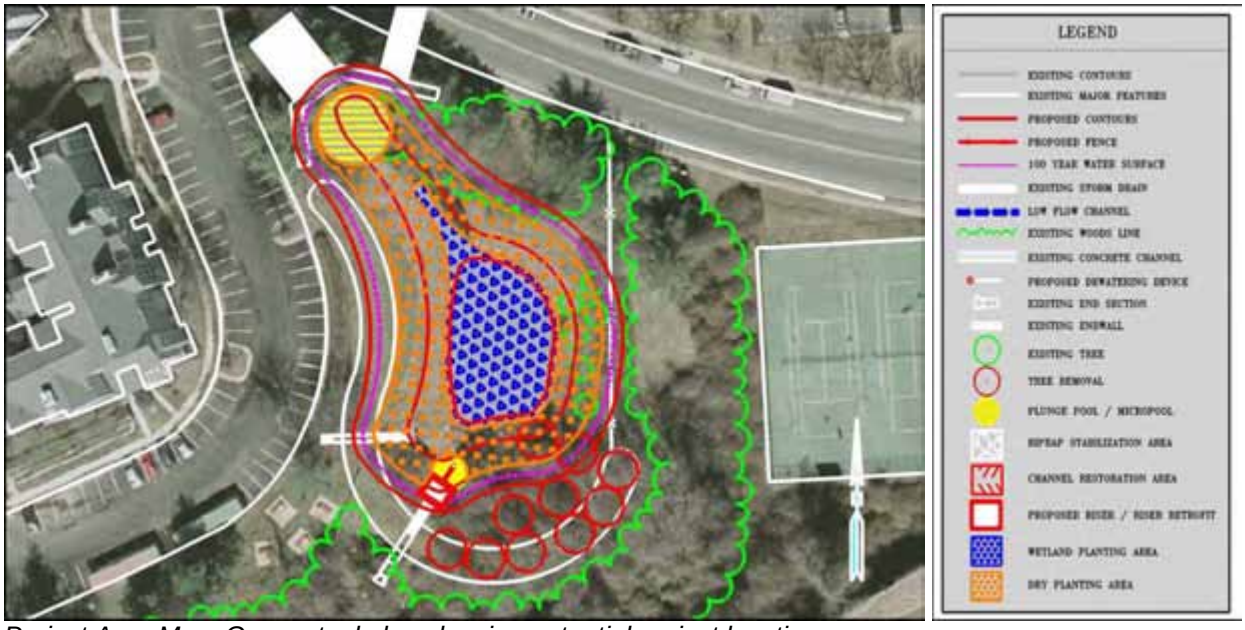
AC9196 - Pond Retrofit

Address:	Near the intersection of Appalachian Circle and Bushman Drive
Location:	Four Winds at Oakton Condominium
Land Owner:	Private - HOA
PIN:	
Control Type	Water Quality and Quantity
Drainage Area	30.19 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing wet pond that will be converted to a wetland facility. This retrofit will include a new riser with a dewatering orifice to allow baseflow. The outlet pipe from this facility is moderately eroded and would be stabilized during this retrofit. This project will consist of a new riser structure including a dewatering device, excavating for additional storage, tree removal, and a micropool and plunge pool at the riser and inflow, respectively.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Retrofitting the existing control structure located on the upstream side embankment of this facility has the potential to provide water quality treatment and some peak flow management. Installing a new riser and enlarging the facility will promote the removal of pollutants, floatables and suspended solids, thus improving water quality and habitat downstream. These proposed improvements will also help prevent future downstream channel erosion. Peak flow rates, erosive velocities and channel sediment loads will be reduced by this project. It is estimated that an annual total of 9,580 lbs of sediment, 94 lbs of total nitrogen and 20 lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Since this facility is located in a residential community and is adjacent to recreational areas and parking lots, installing signs around the facility is recommended to promote public awareness. Coordination with residents and The Four Winds at Oakton HOA will be necessary to retrofit this facility since it is located on private land. Environmental permitting issues are expected due to the presence of extensive wetlands and the in-stream location of this facility. The addition of a riser to the outlet pipe of this facility will allow for habitat improvement and prevention of downstream channel erosion. In-stream construction will require base flow diversion. Significant tree loss is expected on the embankment, around the edges, and at the upstream end of this facility. Existing utility conflicts are not anticipated. Access to this facility is very good from parking areas located along Appalachian Circle.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.6	AC	$8,500.00	$5,100
Tree Removal	10	EA	$2,000.00	$20,000
Plungepool / Micropool	2	EA	$400.00	$800
New Riser	1	LS	$8,000.00	$8,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	976	CY	$35.00	$34,160
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$77,060**
Plantings	1	LS	5% of Project	$3,853
Ancillary Items	1	LS	5% of Project	$3,853
Erosion and Sediment Control	1	LS	10% of Project	$7,706
			Base Construction Costs	**$92,472**
			Mobilization (5%)	$4,624
			Subtotal 1	$97,096
			Contingency (25%)	$24,274
			Subtotal 2	$121,370
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$54,617
			Estimated Project Cost	**$176,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Facility Inflow

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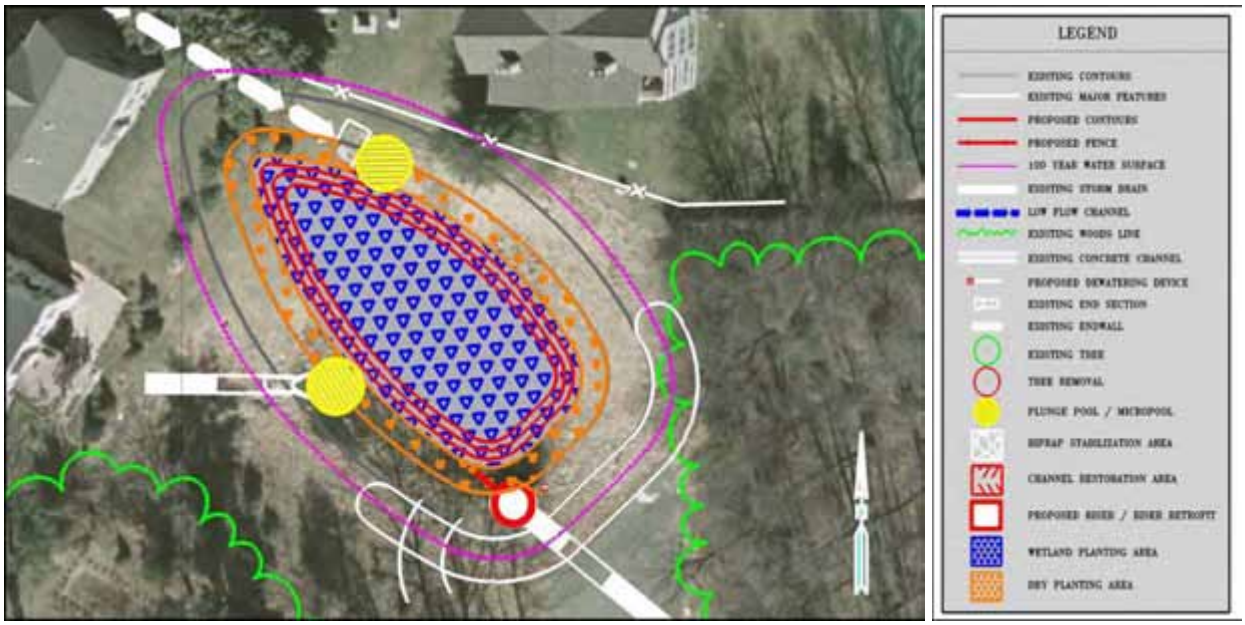
AC9199 - Pond Retrofit

Address:	At the end of Arrowhead Circle, Behind 10695 Dudley Heights Court
Location:	Rosehaven Estates
Land Owner:	Private - HOA
PIN:	0473 18 C
Control Type	Water Quality
Drainage Area	32.65 acres
Receiving Waters	Unknown tributary of Accotink Creek

Description: This is an existing wet pond, which will be modified to provide a greater water quality volume and peak flow reduction. The bottom of the pond is mostly wetland plantings, so it is not worth disturbing the established wetland to create additional storage. This project will consist of modifying the existing riser structure including adding a dewatering device, excavating for additional storage, installing plunge pool and a micropool for energy dissipation and settling, wetland and dry plantings and a new fence around the facility.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: This facility has the potential to meet some of the water quality treatment requirement by providing extended detention of the half-inch, 48 hour storm. The permanent wet storage will promote uptake of nutrients and the removal of suspended solids and pollutants from the downstream channel. Retrofitting this facility would help to prevent future downstream erosion by reducing peak flow rates and erosive velocities. It is estimated that an annual total of 3,210 lbs of sediment, 30 lbs of total nitrogen and seven lbs of total phosphorus would be reduced by this project.

Project Design Considerations: Coordination with residents and appropriate HOA's will be necessary to retrofit this facility since it is located on private land. Environmental permitting issues are expected due to the presence of extensive wetlands and baseflow from an inflow pipe. Minimal tree loss is expected with this retrofit. Existing utility conflicts are not anticipated. There is an access road that leads to this pond located off of Rosehaven Street near the intersection with Spruce Street.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.4	AC	$8,500.00	$3,400
Tree Removal	5	EA	$2,000.00	$10,000
Plungepool / Micropool	3	EA	$400.00	$1,200
Riser Retrofit	1	LS	$4,000.00	$4,000
Embedded Dewatering Pipe	1	EA	$500.00	$500
Grading and Excavation	8	CY	$35.00	$280
Fencing	425	LF	$20.00	$8,500
Soil Borings	1	LS	$8,500.00	$8,500
			Initial Project Costs	**$36,380**
Plantings	1	LS	5% of Project	$1,819
Ancillary Items	1	LS	5% of Project	$1,819
Erosion and Sediment Control	1	LS	10% of Project	$3,638
			Base Construction Costs	**$43,656**
			Mobilization (5%)	$2,183
			Subtotal 1	$45,839
			Contingency (25%)	$11,460
			Subtotal 2	$57,299
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	$25,785
			Estimated Project Cost	**$83,000**

Site Photo: Existing Facility Overview

Site Photo: Existing Control Structure