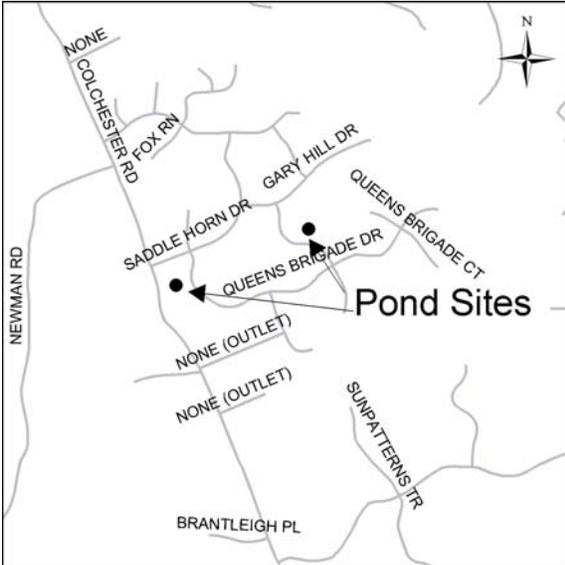


Appendix F: Stormwater Pond Retrofit Projects

Colchester Hunt Ponds

Facility Location: Colchester Hunt Subdivision
Type of Facility: Dry ponds.
Ownership: Public
Year Built: 1978
Tax Map Number: West: 0761 08 F; East: 0761 08 B
County Facility ID: West: 0123DP; East: 0019DP
Project ID: PH9130



Vicinity Map.



Pond Overview.



West pond



East pond

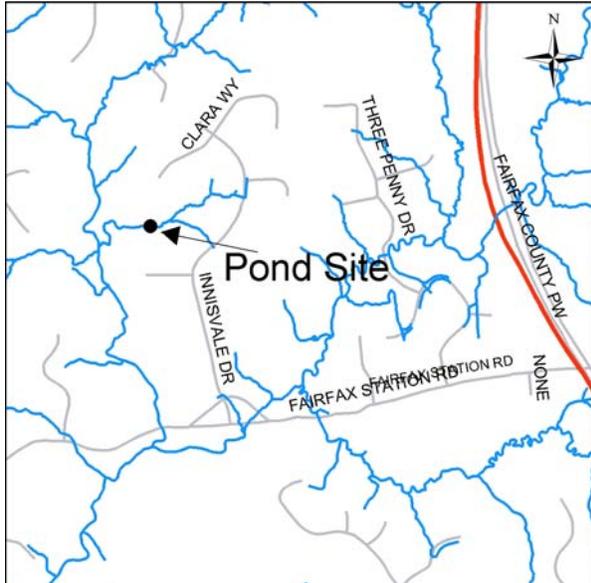
Drainage Area: 10 acres to east pond, 44 acres to west pond
Type of Control: Water quantity control.
Retrofit Possibilities: Modify outlet structures to provide water quality control.
Regrading and wetland plantings to enhance pollutant removal.
Benefit: Provide water quality control for uncontrolled areas.
Estimated Cost: \$140,000.

PLANNING COST ESTIMATES
PH9130 - Colchester Hunt Ponds

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Clear and Grub	1.0	AC	\$ 8,800.00	\$ 8,800.00
2	Excavation	1000	CY	\$ 26.50	\$ 26,500.00
3	Planting	0.50	AC	\$ 8,000.00	\$ 4,000.00
4	Principal spillway				
	Riser - concrete	12	CY	\$ 350.00	\$ 4,200.00
	Outflow Pipe	0	LF	\$ 60.00	\$ -
	Trash rack/ low flow orifice	2.0	EA	\$ 2,000.00	\$ 4,000.00
5	Outlet Protection	0	SY	\$ 46.00	\$ -
6	Fencing (dam embankment only)	0.0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	9000	SY	\$ 2.00	\$ 18,000.00
				Subtotal Construction Cost = \$	65,500.00
				Mobilization & Erosion Control (10%) = \$	6,550.00
				Subtotal 1 = \$	72,050.00
				Contingency (25%) = \$	18,013.00
				Subtotal 2 = \$	90,063.00
				Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) = \$	40,528.00
				Total = \$	130,591.00
				ESTIMATED PROJECT COST = \$	140,000.00

Innisvale Pond

Facility Location: West of Innisvale Road
 Type of Facility: Wet pond.
 Ownership: Fairfax County Park Authority.
 Year Built: Unknown.
 Tax Map Number: 0761 10 G2
 County Facility ID:
 Project ID: PH9131



Vicinity Map.



Pond Overview.



Pond view – looking downstream



Dam Breach

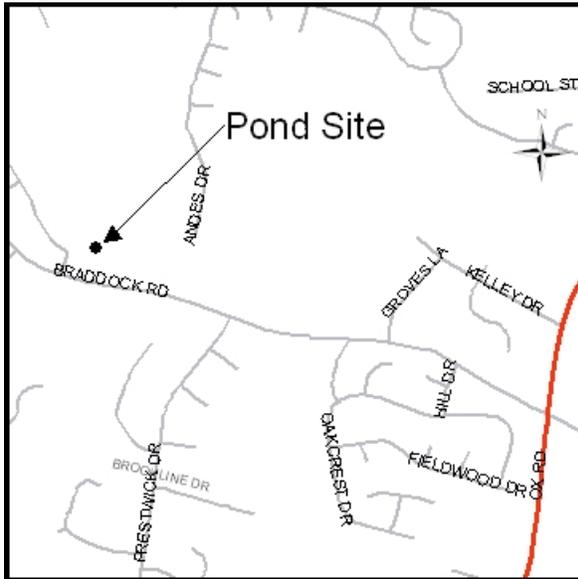
Drainage Area: 38 acres.
 Type of Control: Wet pond with no apparent outlet structure.
 Retrofit Possibilities: Coordinate with FCPA to repair dam – remove trees – provide outlet structure.
 Benefit: Provide constructed wetland.
 Estimated Cost: \$190,000.

PLANNING COST ESTIMATES
PH9131 - Innisvale

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Clear and Grub	1.0	AC	\$ 8,800.00	\$ 8,800.00
2	Excavation 130' x 10' x 20' dam	1500	CY	\$ 26.50	\$ 39,750.00
3	Planting	1	AC	\$ 8,000.00	\$ 4,000.00
4	Principal spillway				
	Riser - concrete	12	CY	\$ 350.00	\$ 4,200.00
	Outflow Pipe	60	LF	\$ 195.00	\$ 11,700.00
	Trash rack/ low flow orifice	1.0	EA	\$ 2,000.00	\$ 2,000.00
5	Outlet Protection	30	SY	\$ 46.00	\$ 1,380.00
6	Fencing (dam embankment only)	0.0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	11200	SY	\$ 2.00	\$ 22,400.00
Subtotal Construction Cost =					\$ 94,230.00
Mobilization & Erosion Control (10%) =					\$ 9,423.00
Subtotal 1 =					\$ 103,653.00
Contingency (25%) =					\$ 25,913.00
Subtotal 2 =					\$ 129,566.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) =					\$ 58,305.00
Total =					\$ 187,871.00
ESTIMATED PROJECT COST =					\$ 190,000.00

Braddock Road Pond

Facility Location:	Braddock Road Near Groves Lane.
Type of Facility:	Dry pond.
Ownership:	Public (VDOT)
Year Built:	
Tax Map Number:	N/A.
County Facility ID:	N/A.
Project ID:	PH9170 (EF-SP-1)



Vicinity Map



Pond Overview



Pond basin from dam



Pond riser

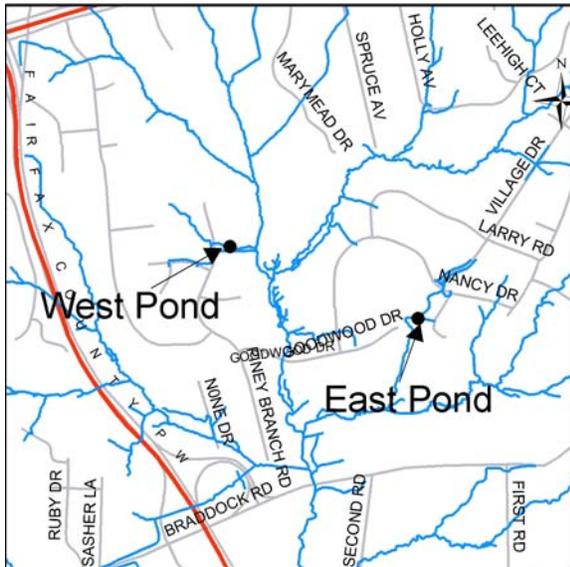
Drainage Area:	10 acres.
Type of Control:	BMP and water quantity control with riser.
Retrofit Possibilities:	Coordinate with VDOT to provide manufactured BMPs to treat runoff entering the pond and to ensure the pond is maintained. There is no space to enlarge or retrofit this pond.
Benefit:	Pond will function as designed and reduce peak flows.
Estimated Cost:	\$70,000.

PLANNING COST ESTIMATES
Braddock Road

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Stormceptor at Road Inlet	1	LS	\$ 30,000.00	\$ 30,000.00
2	Excavation	0	CY	\$ 26.50	\$ -
3	Planting	1	AC	\$ 8,000.00	\$ 4,000.00
4	Principal spillway				
	Riser	0	CY	\$ 350.00	\$ -
	Outflow Pipe	0	LF	\$ 60.00	\$ -
	Trash rack/ low flow orifice	0	EA	\$ 2,000.00	\$ -
5	Outlet Protection	0	SY	\$ 46.00	\$ -
6	Fencing	0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	0	SY	\$ 2.00	\$ -
				Subtotal Construction Cost = \$	34,000.00
				Mobilization & Erosion Control (10%) = \$	3,400.00
				Subtotal 1 = \$	37,400.00
				Contingency (25%) = \$	9,350.00
				Subtotal 2 = \$	46,750.00
				Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) = \$	21,038.00
				Total = \$	67,788.00
				ESTIMATED PROJECT COST = \$	70,000.00

Brentwood Ponds

Facility Location:	West Pond: East of Piney Branch Road; East Pond: East of Goodwood Drive
Type of Facility:	West pond: Dry; East Pond: Wet pond.
Ownership:	West pond: Public; East Pond: FCPA
Year Built:	Unknown.
Tax Map Number:	West: 0563 09 F; East:: 0563 06 V
County Facility ID:	West: 0150DP; East: Unknown
Project ID:	PH9180



Vicinity Map.



Pond Overview.



West pond – looking downstream



East pond – from dam looking upstream

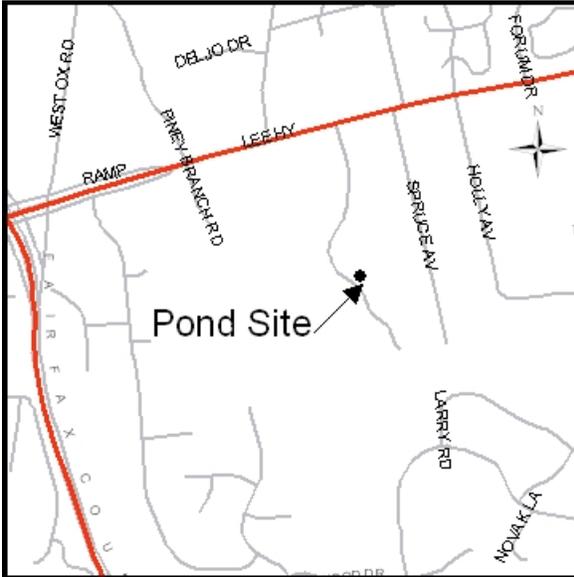
Drainage Area:	West pond: 21 acres; East pond: 24 acres.
Type of Control:	West pond: pipe-no riser; East pond- no control structure.
Retrofit Possibilities:	West pond: provide riser and regrade for water quality control – add wetland plantings. East pond: Coordinate with FCPA to remove dam vegetation, add wetland plantings and sediment forebay to enhance pollutant removal efficiency
Benefit:	Increase pollutant removal efficiency.
Estimated Cost:	\$140,000.

PLANNING COST ESTIMATES
PH9180 - Brentwood Ponds

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Clear and Grub	0.50	AC	\$ 8,800.00	\$ 4,400.00
2	Excavation	1000	CY	\$ 26.50	\$ 26,500.00
3	Planting	0.2	AC	\$ 8,000.00	\$ 1,600.00
4	Principal spillway				
	Riser - concrete	20	CY	\$ 350.00	\$ 7,000.00
	Outflow Pipe	120	LF	\$ 60.00	\$ 7,200.00
	Trash rack/ low flow orifice	2.0	EA	\$ 2,000.00	\$ 4,000.00
5	Outlet Protection	10	SY	\$ 46.00	\$ 460.00
6	Fencing (dam embankment only)	0.0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	9000	SY	\$ 2.00	\$ 18,000.00
				Subtotal Construction Cost = \$	69,160.00
				Mobilization & Erosion Control (10%) = \$	6,916.00
				Subtotal 1 = \$	76,076.00
				Contingency (25%) = \$	19,019.00
				Subtotal 2 = \$	95,095.00
				Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) = \$	42,793.00
				Total = \$	137,888.00
				ESTIMATED PROJECT COST = \$	140,000.00

Marymead Pond

Facility Location: 4805 Marymead Dr.
Type of Facility: Dry pond.
Ownership: Public.
Year Built: 1984.
Tax Map Number: 0563-11-E.
County Facility ID: 0268DP.
Project ID: PH9190 (PB-SP-3)



Vicinity Map.



Pond Overview.



Pond Overall.



Eroding stream channel to pond.

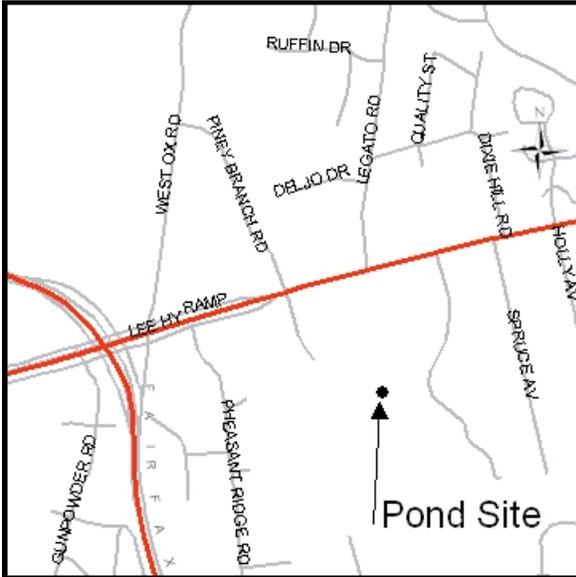
Drainage Area: 60 acres.
Type of Control: Quantity control with no structure.
Retrofit Possibilities: Add water quantity control – 1-year extended drawdown. Increase surface area of pond. Increase vegetated buffer around pond and along stream channel.
Benefit: Add pollutant removal to pond, increase pollutant filtering through buffers.
Estimated Cost: \$560,000.

PLANNING COST ESTIMATES
PH9190 - Marymead Pond

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Clear and Grub	2.0	AC	\$ 8,800.00	\$ 17,600.00
2	Excavation	8500	CY	\$ 26.50	\$ 225,250.00
3	Planting	1	AC	\$ 8,000.00	\$ 8,000.00
4	Principal spillway				
	Riser - concrete	10	CY	\$ 350.00	\$ 3,500.00
	Outflow Pipe	0	LF	\$ 60.00	-
	Trash rack/ low flow orifice	1.0	EA	\$ 2,000.00	\$ 2,000.00
5	Outlet Protection	0	SY	\$ 46.00	-
6	Fencing (dam embankment only)	0.0	FT	\$ 20.00	-
7	Seeding & Mulching	10000	SY	\$ 2.00	\$ 20,000.00
				Subtotal Construction Cost = \$	276,350.00
				Mobilization & Erosion Control (10%) = \$	27,635.00
				Subtotal 1 = \$	303,985.00
				Contingency (25%) = \$	75,996.00
				Subtotal 2 = \$	379,981.00
				Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) = \$	170,991.00
				Total = \$	550,972.00
				ESTIMATED PROJECT COST = \$	560,000.00

Merrifield Gardens Pond

Facility Location: Route 29, on the back of the Merrifield Gardens property.
 Type of Facility: Wet pond.
 Ownership: Private.
 Year Built: 1987.
 Tax Map Number: 0563-01-0013.
 County Facility ID: N/A.
 Project ID: PH9191 (PB-SP-4)



Vicinity Map.



Pond Overview.



Looking at pond and dam.



Looking from dam, note trucks on pond edge.

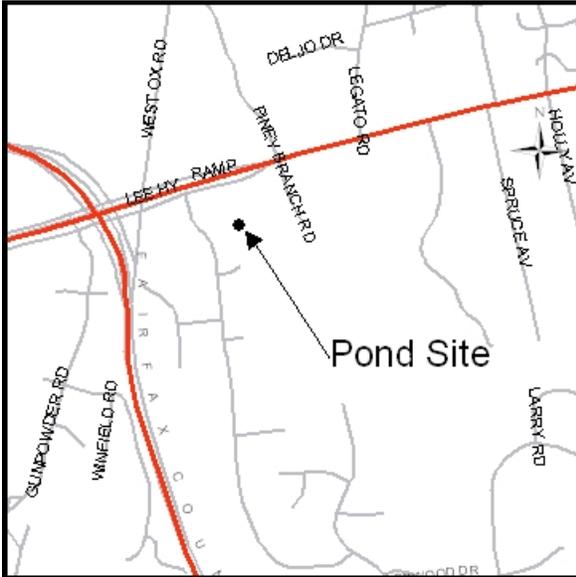
Drainage Area : 48 acres – 33 acres controlled.
 Type of Control: BMP and water quantity control with riser.
 Retrofit Possibilities: Increase and vegetate buffer around pond and inflow channel.
 Install filtering device for oil/fuel/sediments draining to pond.
 Add wetland plantings to pond.
 Benefit: Increase pollutant removal efficiency of facility, remove oil and other urban pollutants before entering pond.
 Estimated Cost: \$70,000.

PLANNING COST ESTIMATES
PH9191 - Merrifield Gardens Pond

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Stormceptor or other manufactured BMP at inlet or in p	1	LS	\$ 30,000.00	\$ 30,000.00
2	Concrete Removal	0	CY	\$ 95.00	\$ -
3	Planting	0.5	AC	\$ 8,000.00	\$ 4,000.00
4	Principal spillway				
	Riser	0	CY	\$ 350.00	\$ -
	Outflow Pipe	0	LF	\$ 60.00	\$ -
	Trash rack/ low flow orifice	0	EA	\$ 2,000.00	\$ -
5	Outlet Protection	0	SY	\$ 46.00	\$ -
6	Fencing	0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	0	SY	\$ 2.00	\$ -
				Subtotal Construction Cost = \$	34,000.00
				Mobilization & Erosion Control (10%) = \$	3,400.00
				Subtotal 1 = \$	37,400.00
				Contingency (25%) = \$	9,350.00
				Subtotal 2 = \$	46,750.00
				Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) = \$	21,038.00
				Total = \$	67,788.00
				ESTIMATED PROJECT COST = \$	70,000.00

FCPA-Piney Branch Park Pond

Facility Location: Piney Branch Stream Valley Park (Route 29 & Pheasant Ridge Rd).
 Type of Facility: Dry pond.
 Ownership: Public (VDOT)
 Year Built:
 Tax Map Number: 0563-01-0012.
 County Facility ID: N/A.
 Project ID: PH9192 (PB-SP-2)



Vicinity Map.



Pond Overview.



Pond and riser structure.



Pond basin.

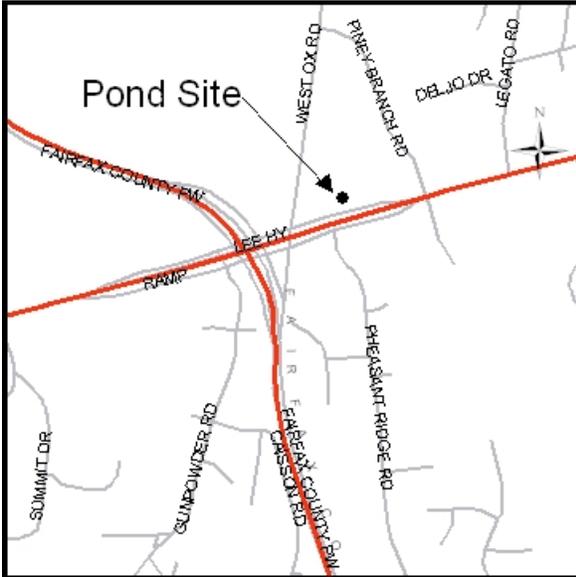
Drainage Area: 64 acres – can be regraded to capture additional 22 acres.
 Type of Control: BMP and water quantity control with riser.
 Retrofit Possibilities: Coordinate with FCPA and VDOT to pursue project. Install sediment forebay at inflow point. Convert to stormwater wetland system. Install micropool at riser structure. VDOT should provide the appropriate maintenance to prevent clogging.
 Benefit: Increase pollutant removal efficiency of facility by 15%.
 Estimated Cost: \$720,000.

PLANNING COST ESTIMATES
PH9192 - FCPA / VDOT Pond

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Clear and Grub	1.5	AC	\$ 8,800.00	\$ 13,200.00
2	Grading	12000	CY	\$ 26.50	\$ 318,000.00
3	Planting	0.5	AC	\$ 8,000.00	\$ 4,000.00
4	Principal spillway				
	Riser	10	CY	\$ 350.00	\$ 3,500.00
	Outflow Pipe	40	LF	\$ 60.00	\$ 2,400.00
	Trash rack/ low flow orifice	1.0	EA	\$ 2,000.00	\$ 2,000.00
5	Outlet Protection	10	SY	\$ 46.00	\$ 460.00
6	Fencing	0.0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	6700	SY	\$ 2.00	\$ 13,400.00
				Subtotal Construction Cost = \$	356,960.00
				Mobilization & Erosion Control (10%) = \$	35,696.00
				Subtotal 1 = \$	392,656.00
				Contingency (25%) = \$	98,164.00
				Subtotal 2 = \$	490,820.00
				Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) = \$	220,869.00
				Total = \$	711,689.00
				ESTIMATED PROJECT COST = \$	720,000.00

Sports Authority Pond

Facility Location: South side of Sports Authority in the Costco Plaza.
 Type of Facility: Wet pond.
 Ownership: Private.
 Year Built: 1991.
 Tax Map Number: 0563-01-0005-D.
 County Facility ID: N/A.
 Project ID: PH9193 (PB-SP-6)



Vicinity Map.



Pond Overview.



Pond basin from dam.



Location of water level control structure.

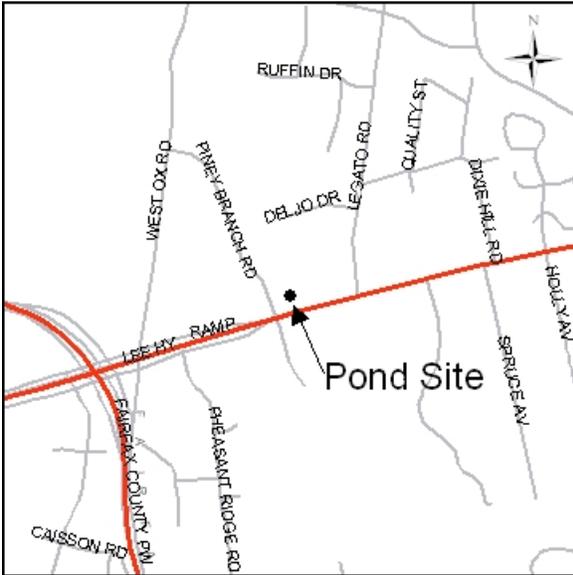
Drainage Area: 38 acres.
 Type of Control: Quantity control with riser, BMP in pond.
 Retrofit Possibilities: Pretreatment of parking lot runoff – 2 manufactured BMPs.
 Benefit: Remove oil and other urban pollutants before entering pond.
 Estimated Cost: \$120,000.

PLANNING COST ESTIMATES
PH9193 - Sports Authority

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Stormceptor at inlets	2	LS	\$ 30,000.00	\$ 60,000.00
2	Concrete Removal	0	CY	\$ 95.00	\$ -
3	Planting	0	AC	\$ 8,000.00	\$ -
4	Principal spillway				
	Riser	0	CY	\$ 350.00	\$ -
	Outflow Pipe	0	LF	\$ 60.00	\$ -
	Trash rack/ low flow orifice	0	EA	\$ 2,000.00	\$ -
5	Outlet Protection	0	SY	\$ 46.00	\$ -
6	Fencing	0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	0	SY	\$ 2.00	\$ -
Subtotal Construction Cost =					\$ 60,000.00
Mobilization & Erosion Control (10%) =					\$ 6,000.00
Subtotal 1 =					\$ 66,000.00
Contingency (25%) =					\$ 16,500.00
Subtotal 2 =					\$ 82,500.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) =					\$ 37,125.00
Total =					\$ 119,625.00
ESTIMATED PROJECT COST =					\$ 120,000.00

Piney Branch Road Extension Pond

Facility Location: Piney Branch Road & Route 29.
 Type of Facility: Dry pond.
 Ownership: Private.
 Year Built: 1991.
 Tax Map Number: 0561-16-B2.
 County Facility ID: N/A.
 Project ID: PH9194 (PB-SP-5)



Vicinity Map.



Pond Overview.



Pond Riser.



Looking at pond from Riser.

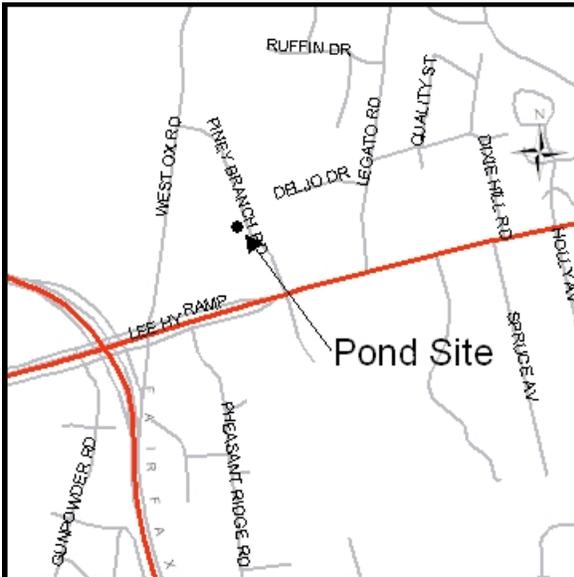
Drainage Area: 23 acres.
 Type of Control: BMP and water quantity control with riser.
 Retrofit Possibilities: Pretreatment of road and parking lot runoff – 2 manufactured BMPs.
 Benefit: Remove oil and other urban pollutants before entering pond.
 Estimated Cost: \$120,000.

PLANNING COST ESTIMATES
PH9194 - Piney Branch Road

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Stormceptor at inlets	2	LS	\$ 30,000.00	\$ 60,000.00
2	Concrete Removal	0	CY	\$ 95.00	\$ -
3	Planting	0	AC	\$ 8,000.00	\$ -
4	Principal spillway				
	Riser	0	CY	\$ 350.00	\$ -
	Outflow Pipe	0	LF	\$ 60.00	\$ -
	Trash rack/ low flow orifice	0	EA	\$ 2,000.00	\$ -
5	Outlet Protection	0	SY	\$ 46.00	\$ -
6	Fencing	0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	0	SY	\$ 2.00	\$ -
Subtotal Construction Cost =					\$ 60,000.00
Mobilization & Erosion Control (10%) =					\$ 6,000.00
Subtotal 1 =					\$ 66,000.00
Contingency (25%) =					\$ 16,500.00
Subtotal 2 =					\$ 82,500.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) =					\$ 37,125.00
Total =					\$ 119,625.00
ESTIMATED PROJECT COST =					\$ 120,000.00

Costco East Pond

Facility Location: East of Costco in the Costco Plaza.
Type of Facility: Dry pond.
Ownership: Private.
Year Built: 1991.
Tax Map Number: 0561-01-0005-C.
County Facility ID: N/A.
Project ID: PH9195 (PB-SP-1)



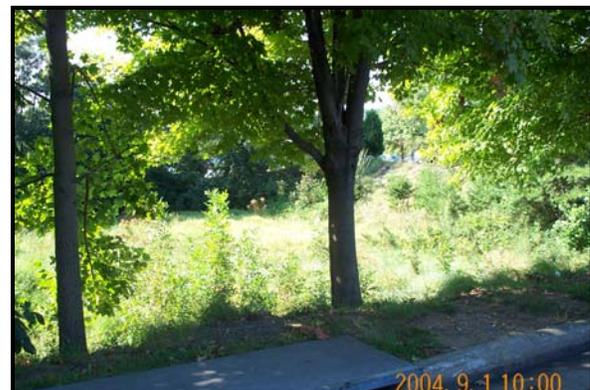
Vicinity Map.



Pond Overview.



Pond basin.



Pond from parking lot.

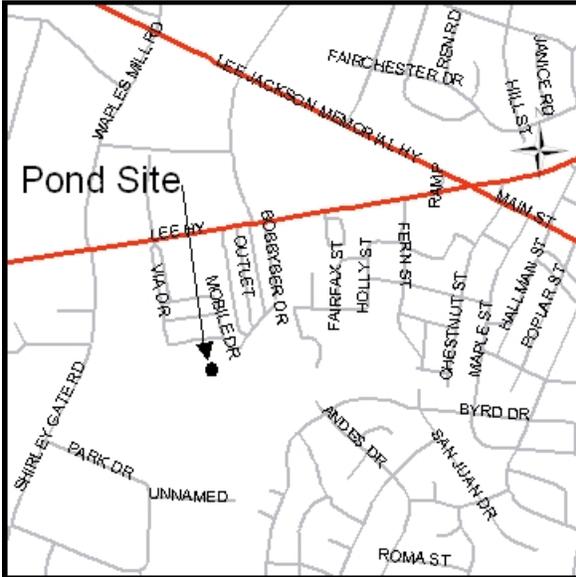
Drainage Area: 7 acres.
Type of Control: BMP and water quantity control with riser.
Retrofit Possibilities: Pretreatment of parking lot runoff – 2 manufactured BMPs .
Benefit: Remove oil and other urban pollutants before entering pond.
Estimated Cost: \$120,000.

PLANNING COST ESTIMATES
PH9195 - Costco East Pond

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Stormceptor at Parking Lot Inlets	2	LS	\$ 30,000.00	\$ 60,000.00
2	Excavation	0	CY	\$ 26.50	\$ -
3	Planting	0	AC	\$ 8,000.00	\$ -
4	Principal spillway				
	Riser	0	CY	\$ 350.00	\$ -
	Outflow Pipe	0	LF	\$ 60.00	\$ -
	Trash rack/ low flow orifice	0	EA	\$ 2,000.00	\$ -
5	Outlet Protection	0	SY	\$ 46.00	\$ -
6	Fencing	0	FT	\$ 20.00	\$ -
7	Seeding & Mulching	0	SY	\$ 2.00	\$ -
Subtotal Construction Cost =					\$ 60,000.00
Mobilization & Erosion Control (10%) =					\$ 6,000.00
Subtotal 1 =					\$ 66,000.00
Contingency (25%) =					\$ 16,500.00
Subtotal 2 =					\$ 82,500.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) =					\$ 37,125.00
Total =					\$ 119,625.00
ESTIMATED PROJECT COST =					\$ 120,000.00

Waples Mobile Home Park Pond

Facility Location: Waples Mobile Home Park, on Via Drive.
 Type of Facility: Dry pond.
 Ownership: Private.
 Year Built: 1993.
 Tax Map Number: 0562-01-0046.
 County Facility ID: WP0047.
 Project ID: PHP9196 (UP-SP-1)



Vicinity Map.



Pond Overview.



Riser basin (recently maintained).



Pond from riser structure.

Drainage Area: 62 acres.
 Type of Control: BMP and water quantity control with riser.
 Retrofit Possibilities: Install sediment forebay. Provide 1-year extended detention.
 Install micropool at riser.
 Convert to stormwater wetland system.
 Benefit: Increase pollutant removal efficiency of facility by 15%.
 Estimated Cost: \$930,000.

PLANNING COST ESTIMATES
PH9196 - Waples Mobile Home Park Pond

No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Clear and Grub	3.5	AC	\$ 8,800.00	\$ 30,800.00
2	Excavation	13438	CY	\$ 26.50	\$ 356,107.00
3	Planting	1.5	AC	\$ 8,000.00	\$ 12,000.00
4	Principal spillway				
	Riser	0	CY	\$ 350.00	\$ -
	Outflow Pipe	0	LF	\$ 60.00	\$ -
	Trash rack/ low flow orifice	1.0	EA	\$ 2,000.00	\$ 2,000.00
5	Outlet Protection	0	SY	\$ 46.00	\$ -
6	Fencing	1200.0	FT	\$ 20.00	\$ 24,000.00
7	Seeding & Mulching	19444	SY	\$ 2.00	\$ 38,888.00
				Subtotal Construction Cost = \$	463,795.00
				Mobilization & Erosion Control (10%) = \$	46,380.00
				Subtotal 1 = \$	510,175.00
				Contingency (25%) = \$	127,544.00
				Subtotal 2 = \$	637,719.00
				Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%) = \$	286,974.00
				Total = \$	924,693.00
				ESTIMATED PROJECT COST = \$	930,000.00