

# Derry Township

## Stormwater Management Study — 2nd Phase

December 9, 2008



[ BUILDING RELATIONSHIPS.  
DESIGNING SOLUTIONS. ]

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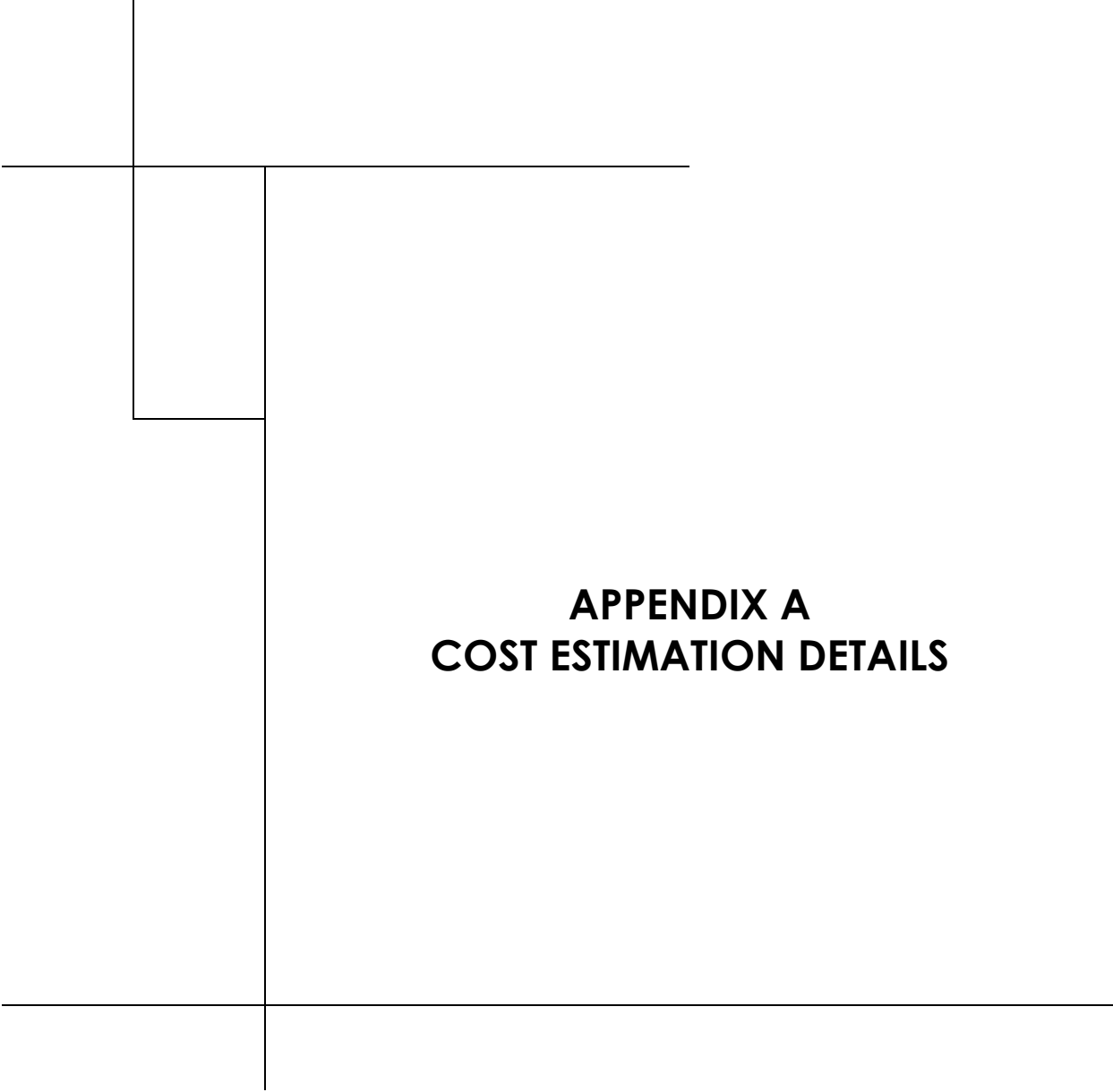
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**BUILDING RELATIONSHIPS.  
DESIGNING SOLUTIONS.**



**APPENDIX A  
COST ESTIMATION DETAILS**

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA ENGINEERING COST ESTIMATE SUMMARY**

PRIORITY AREA NO.	LOCATION	ESTIMATED COSTS (\$)							
		CONSTRUCTION	LAND COST	ENGINEERING	PERMITTING	CONST. MGMT.	SUBTOTAL	CONTINGENCY	TOTAL
1	Mill Street / Cherry Drive	\$832,800	N/A	\$83,280	\$41,640	\$41,640	\$999,360	\$249,840	\$1,249,200
2	Cocoa Avenue / Governor Road	\$376,450	\$20,400	\$39,690	\$19,840	\$19,840	\$476,220	\$119,060	\$595,280
3	Cocoa Avenue between Elm and Areba	\$190,850	\$16,100	\$19,090	\$9,540	\$9,540	\$229,020	\$57,260	\$286,280
4	Forest Avenue, Clark and Sand Hill Roads	\$92,700	\$99,999	\$9,270	\$4,640	\$4,640	\$111,250	\$27,810	\$139,060
5	Hershey Park Drive - Shopping Center	\$697,000	N/A	\$69,700	\$34,850	\$34,850	\$836,400	\$209,100	\$1,045,500
6	Wood Road At Bullfrog Valley Road	\$230,100	\$7,600	\$23,010	\$11,510	\$11,510	\$276,130	\$69,030	\$345,160
7	East Chocolate Avenue	\$18,350	N/A	\$1,840	\$920	\$920	\$22,030	\$5,510	\$27,540
8	Sunset Drive	\$207,200	\$35,600	\$20,720	\$10,360	\$10,360	\$248,640	\$62,160	\$310,800
9	Lucy Avenue	\$45,900	N/A	\$4,590	\$2,300	\$2,300	\$55,090	\$13,770	\$68,860
10	Mill Road Underpass	\$48,100	N/A	\$4,810	\$2,410	\$2,410	\$57,730	\$14,430	\$72,160
11	Palmdale Park and Route 422	\$299,620	\$59,900	\$29,960	\$14,980	\$14,980	\$359,540	\$89,890	\$449,430
12	West Chocolate at Swatara Avenue	\$22,850	N/A	\$2,290	\$1,140	\$1,140	\$27,420	\$6,860	\$34,280
13	Route 422 / 322 Interchange	\$432,120	N/A	\$43,210	\$21,610	\$21,610	\$518,550	\$129,640	\$648,190
14	Norfolk Southern Railroad near Sipe Avenue	\$282,500	\$9,000	\$28,250	\$14,130	\$14,130	\$339,010	\$84,750	\$423,760
15	Bindnagle Road	\$198,080	\$3,200	\$19,810	\$9,900	\$9,900	\$237,690	\$59,420	\$297,110
16	Highmeadow Camp Parking Lot	\$96,200	\$10,200	\$9,620	\$4,810	\$4,810	\$115,440	\$28,860	\$144,300
17	West Mansion Road	\$1,400,000	N/A	\$140,000	\$70,000	\$70,000	\$1,680,000	\$420,000	\$2,100,000
	<b>TOTALS</b>	<b>\$5,470,820</b>	<b>\$261,999</b>	<b>\$549,140</b>	<b>\$274,580</b>	<b>\$274,580</b>	<b>\$6,589,520</b>	<b>\$1,647,390</b>	<b>\$8,236,910</b>

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 1  
MILL STREET / CHERRY DRIVE**

<b>ITEM NO.</b>	<b>ITEM</b>	<b>LOCATION</b>	<b>UNITS</b>	<b>UNIT PRICE</b>	<b>QUANTITY</b>	<b>COST</b>
1	24" HDPE	Cherry Drive to Governor Rd.	FT	\$55	1,800	\$99,000
2	30" HDPE	Governor Rd. to Cedar Avenue	FT	\$65	2,100	\$136,500
3	24" HDPE	Chestnut to Mill Street	FT	\$55	2,100	\$115,500
4	24" HDPE	Greenlea to Cherry Drive	FT	\$55	1,900	\$104,500
5	48" HDPE	Cedar Avenue to Route 422	FT	\$95	1,500	\$142,500
6	48" HDPE	Route 422 to Quarry Outfall	FT	\$95	1,100	\$104,500
7	RR Embankment Boring	Under Railroad Embankment	FT	\$120	700	\$84,000
8	Headwall - 60" Pipe	Quarry Outfall	EACH	\$4,500	1	\$4,500
9	Type "C" Inlets	Along storm sewer	Each	\$1,800	21	\$37,800
10	Construction Entrance		LS	\$2,000	1	\$2,000
11	E&S Controls		LS	\$2,000	1	\$2,000
<b>SUBTOTAL</b>						\$832,800
<b>ENGINEERING (15%)</b>						\$83,280
<b>PERMITTING (5%)</b>						\$41,640
<b>CONST. MGMT. (5%)</b>						\$41,640
<b>SUBTOTAL</b>						\$999,360
<b>CONTINGENCY (25%)</b>						\$249,840
<b>TOTAL</b>						\$1,249,200

**LAND COSTS**

- 1 No private property required for implementation. All pipes would be installed within existing right-of-way.

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 2  
COCOA AVENUE / GOVERNOR ROAD**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	48" CMP	Under Cocoa Ave. near Fulton Bank	Each	\$115	350	\$40,250
2	Headwall - 48" Pipe	U/S and D/S End of Pipe	Each	\$3,500	2	\$7,000
3	2 - 66" CMP	Under Private Driveway	Each	\$280	40	\$11,200
4	Headwall - 66" Double Pipe	U/S and D/S End of Pipe	Each	\$10,000	2	\$20,000
5	2 - 72" CMP	Under Governor Road	Each	\$340	800	\$272,000
6	Headwall - 72" Double Pipe	U/S and D/S End of Pipe	Each	\$11,000	2	\$22,000
7	Construction Entrance		LS	\$2,000	1	\$2,000
8	E&S Controls		LS	\$2,000	1	\$2,000
<b>SUBTOTAL</b>						\$376,450
<b>LAND COST</b>						\$20,400
<b>SUBTOTAL</b>						\$396,850
<b>ENGINEERING (15%)</b>						\$39,690
<b>PERMITTING (5%)</b>						\$19,840
<b>CONST. MGMT. (5%)</b>						\$19,840
<b>SUBTOTAL</b>						\$476,220
<b>CONTINGENCY (25%)</b>						\$119,060
<b>TOTAL</b>						\$595,280

**LAND COSTS**

	LENGTH (FT.)	WIDTH (FT.)	AREA (AC.)	COST (\$)
1 Right-of-way reqd. for channel work east of Cocoa Avenue.	2100	30	1.45	751
2 Right-of-way reqd. for storm sewer under E. Governor Road.	500	30	0.34	19,645
			<b>TOTAL</b>	<b>20,396</b>

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 3  
COCOA AVENUE BETWEEN ELM AND AREBA**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	24" HDPE	W. Areba to I St.	FT	\$55	330	\$18,150
2	24" HDPE	I St. from W. Areba to Maple Ave.	FT	\$55	360	\$19,800
3	24" HDPE	6th St. to I St.	FT	\$55	280	\$15,400
4	24" HDPE	Maple Ave. to Cocoa Ave.	FT	\$55	630	\$34,650
5	24" HDPE	Elm Ave. from Linden to Cocoa	FT	\$55	460	\$25,300
6	24" HDPE	Cocoa, Elm to Maple	FT	\$55	280	\$15,400
7	24" HDPE	Cocoa through ball fields	FT	\$55	390	\$21,450
8	Type "C" Inlets	Along storm sewer	Each	\$1,800	12	\$21,600
9	Construction Entrance		LS	\$2,000	1	\$2,000
10	E&S Controls		LS	\$1,000	1	\$1,000
<b>SUBTOTAL</b>						\$174,750
<b>LAND COST</b>						\$16,100
<b>SUBTOTAL</b>						\$190,850
<b>ENGINEERING (15%)</b>						\$19,090
<b>PERMITTING (5%)</b>						\$9,540
<b>CONST. MGMT. (5%)</b>						\$9,540
<b>SUBTOTAL</b>						\$229,020
<b>CONTINGENCY (25%)</b>						\$57,260
<b>TOTAL</b>						\$286,280

<b>LAND COSTS</b>		<b>LENGTH (FT.)</b>	<b>WIDTH (FT.)</b>	<b>AREA (AC.)</b>	<b>COST (\$)</b>
1	Right-of-way reqd. for sewer east of Cocoa Avenue.	663	30	0.46	16,072
2	All other storm sewers will be installed in roadway right-of-way.				

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 4  
FOREST AVENUE, CLARK AND SAND HILL ROADS**

<b>ITEM NO.</b>	<b>ITEM</b>	<b>LOCATION</b>	<b>UNITS</b>	<b>UNIT PRICE</b>	<b>QUANTITY</b>	<b>COST</b>
1	36" HDPE	Forest Avenue to Detention Pond	FT	\$75	1,100	\$82,500
2	Type "C" Inlets	At intersection and along storm sewer	Each	\$1,800	4	\$7,200
3	Construction Entrance		LS	\$2,000	1	\$2,000
4	E&S Controls		LS	\$1,000	1	\$1,000
<b>SUBTOTAL</b>						\$92,700
<b>ENGINEERING (15%)</b>						\$9,270
<b>PERMITTING (5%)</b>						\$4,640
<b>CONST. MGMT. (5%)</b>						\$4,640
<b>SUBTOTAL</b>						\$111,250
<b>CONTINGENCY (25%)</b>						\$27,810
<b>TOTAL</b>						\$139,060

**LAND COST**

- 1 No private property required for implementation. All pipes would be installed within existing right-of-way.



**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 5  
HERSHEY PARK DRIVE - SHOPPING CENTER**

<b>ITEM NO.</b>	<b>ITEM</b>	<b>LOCATION</b>	<b>UNITS</b>	<b>UNIT PRICE</b>	<b>QUANTITY</b>	<b>COST</b>
1	2 - 60" RCP	Under Railroad Embankment	FT	\$1,000	300	\$300,000
2	RR Embankment Boring	Under Railroad Embankment	FT	\$1,000	300	\$300,000
3	Headwall - 60" Double Pipe	U/S and D/S End of Pipe	Each	\$9,000	2	\$18,000
4	3 - 60" CMP	Under Matlack Road	FT	\$375	60	\$22,500
5	3 - 60" CMP	Under Camp Driveway	FT	\$375	60	\$22,500
6	Headwall - 60" Triple Pipe	U/S and D/S End of Pipe	Each	\$13,500	2	\$27,000
7	Construction Entrance		LS	\$2,000	1	\$2,000
8	E&S Controls		LS	\$5,000	1	\$5,000
<b>SUBTOTAL</b>						\$697,000
<b>ENGINEERING (15%)</b>						\$69,700
<b>PERMITTING (5%)</b>						\$34,850
<b>CONST. MGMT. (5%)</b>						\$34,850
<b>SUBTOTAL</b>						\$836,400
<b>CONTINGENCY (25%)</b>						\$209,100
<b>TOTAL</b>						\$1,045,500

<b>LAND COST</b>	<b>LENGTH (FT.)</b>	<b>WIDTH (FT.)</b>	<b>AREA (AC.)</b>	<b>COST (\$)</b>
1 Additional ROW under Norfolk Southern RR embankment	300	12	0.08	16,356

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 6  
WOOD ROAD AT BULLFROG VALLEY ROAD**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	Diversion Weir	Upstream of Wood Road pond	LS	\$15,000	1	\$15,000
2	Bypass Channel	Wood Road Pond	CY	\$5	23,000	\$115,000
3	Improved Outlet Structure and Emergency Spillway	Wood Road Pond	LS	\$10,000	2	\$20,000
4	60" RCP	Under Wood Road	FT	\$500	60	\$30,000
5	Headwall - 60" Pipe	U/S and D/S End of Pipe Under Wood Rd	Each	\$4,500	2	\$9,000
6	Water Line Relocation	At Wood Road	FT	\$300	80	\$24,000
7	Remove Existing Pipe	Downstream of Wood Road	LS	\$2,500	1	\$2,500
8	Construction Entrance		LS	\$2,000	1	\$2,000
9	E&S Controls		LS	\$5,000	1	\$5,000
<b>SUBTOTAL</b>						\$222,500
<b>LAND COST</b>						\$7,600
<b>SUBTOTAL</b>						\$230,100
<b>ENGINEERING (15%)</b>						\$23,010
<b>PERMITTING (5%)</b>						\$11,510
<b>CONST. MGMT. (5%)</b>						\$11,510
<b>SUBTOTAL</b>						\$276,130
<b>CONTINGENCY (25%)</b>						\$69,030
<b>TOTAL</b>						\$345,160

<b>LAND COSTS</b>		<b>LENGTH (FT.)</b>	<b>WIDTH (FT.)</b>	<b>AREA (AC.)</b>	<b>COST (\$)</b>
1	No land purchase reqd. for culvert/ channel work at Wood Rd. pond.	N/A	N/A	N/A	N/A
2	Purchase right-of-way for channel work west of Bullfrog Valley Road.	2500	30	1.72	7,599

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 7  
EAST CHOCOLATE AVENUE**

<b>ITEM NO.</b>	<b>ITEM</b>	<b>LOCATION</b>	<b>UNITS</b>	<b>UNIT PRICE</b>	<b>QUANTITY</b>	<b>COST</b>
1	30" HDPE	Under East Chocolate Avenue	FT	\$65	170	\$11,050
2	Type "M" Inlet	U/S End of Pipe	Each	\$1,800	1	\$1,800
3	Headwall - 30" Pipe	D/S End of Pipe	Each	\$3,000	1	\$3,000
4	Construction Entrance		LS	\$2,000	1	\$2,000
5	E&S Controls		LS	\$500	1	\$500
<b>SUBTOTAL</b>						\$18,350
<b>ENGINEERING (15%)</b>						\$1,840
<b>PERMITTING (5%)</b>						\$920
<b>CONST. MGMT. (5%)</b>						\$920
<b>SUBTOTAL</b>						\$22,030
<b>CONTINGENCY (25%)</b>						\$5,510
<b>TOTAL</b>						\$27,540

**LAND COST**

- 1 No private property required for implementation. All pipes would be installed within existing right-of-way.

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 8  
SUNSET DRIVE**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	2 - 60" HDPE	Under Sunset Drive	FT	\$240	600	\$144,000
2	Type "C" Inlets	Along Sunset Drive	Each	\$1,800	2	\$3,600
3	Headwall - 60" Double Pipe	U/S and D/S End of Pipe	Each	\$9,000	2	\$18,000
4	Channelization	D/S of pipe	FT	\$5	500	\$2,500
5	Construction Entrance		LS	\$2,000	1	\$2,000
6	E&S Controls		LS	\$1,500	1	\$1,500
<b>SUBTOTAL</b>						\$171,600
<b>LAND COST</b>						\$35,600
<b>SUBTOTAL</b>						\$207,200
<b>ENGINEERING (15%)</b>						\$20,720
<b>PERMITTING (5%)</b>						\$10,360
<b>CONST. MGMT. (5%)</b>						\$10,360
<b>SUBTOTAL</b>						\$248,640
<b>CONTINGENCY (25%)</b>						\$62,160
<b>TOTAL</b>						\$310,800

<b>LAND COSTS</b>		<b>LENGTH (FT.)</b>	<b>WIDTH (FT.)</b>	<b>AREA (AC.)</b>	<b>COST (\$)</b>
1	Purchase right-of-way for storm sewer system in Sunset Dr.	700	30	0.48	29,696
2	Purchase right-of-way for storm sewer system through field.	500	30	0.34	5,910
				<b>TOTAL</b>	<b>35,606</b>

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 9  
LUCY AVENUE**

<b>ITEM NO.</b>	<b>ITEM</b>	<b>LOCATION</b>	<b>UNITS</b>	<b>UNIT PRICE</b>	<b>QUANTITY</b>	<b>COST</b>
1	36" HDPE	Lucy Avenue to Rte. 422 Ramp	FT	\$75	500	\$37,500
2	Type "C" Inlets	At Lucy Avenue and Driveway to Isaacs Restaurant	Each	\$1,800	3	\$5,400
3	Construction Entrance		LS	\$2,000	1	\$2,000
4	E&S Controls		LS	\$1,000	1	\$1,000
<b>SUBTOTAL</b>						\$45,900
<b>ENGINEERING (15%)</b>						\$4,590
<b>PERMITTING (5%)</b>						\$2,300
<b>CONST. MGMT. (5%)</b>						\$2,300
<b>SUBTOTAL</b>						\$55,090
<b>CONTINGENCY (25%)</b>						\$13,770
<b>TOTAL</b>						\$68,860

**LAND COST**

- 1 No private property required for implementation. All pipes would be installed within existing right-of-way.

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 10  
MILL ROAD UNDERPASS**

<b>ITEM NO.</b>	<b>ITEM</b>	<b>LOCATION</b>	<b>UNITS</b>	<b>UNIT PRICE</b>	<b>QUANTITY</b>	<b>COST</b>
1	48" HDPE	RR Overpass to Stream Outfall	FT	\$95	400	\$38,000
2	Headwall - 48" Pipe	Stream Outfall	Each	\$3,500	1	\$3,500
3	Type "C" Inlets	Beneath underpass	Each	\$1,800	2	\$3,600
4	Construction Entrance		LS	\$2,000	1	\$2,000
5	E&S Controls		LS	\$1,000	1	\$1,000
<b>SUBTOTAL</b>						\$48,100
<b>ENGINEERING (15%)</b>						\$4,810
<b>PERMITTING (5%)</b>						\$2,410
<b>CONST. MGMT. (5%)</b>						\$2,410
<b>SUBTOTAL</b>						\$57,730
<b>CONTINGENCY (25%)</b>						\$14,430
<b>TOTAL</b>						\$72,160

**LAND COST**

- 1 No private property required for implementation. All pipes would be installed within existing right-of-way.

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 11  
PALMDALE PARK AND ROUTE 422**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	Excavation and filling for detention pond and embankment	Pond site	CY	\$5	45,215	\$226,070
2	Outlet structure and emergency spillway	Downstream end of proposed detention pond	Each	\$3,500	2	\$7,000
3	Channelization	From embankment to Route 422	FT	\$5	730	\$3,650
4	Construction Entrance		LS	\$2,000	1	\$2,000
5	E&S Controls		LS	\$1,000	1	\$1,000
<b>SUBTOTAL</b>						\$239,720
<b>LAND COST</b>						\$59,900
<b>SUBTOTAL</b>						\$299,620
<b>ENGINEERING (15%)</b>						\$29,960
<b>PERMITTING (5%)</b>						\$14,980
<b>CONST. MGMT. (5%)</b>						\$14,980
<b>SUBTOTAL</b>						\$359,540
<b>CONTINGENCY (25%)</b>						\$89,890
<b>TOTAL</b>						\$449,430

NOTE: Does not include land costs

<b>LAND COSTS</b>		<b>LENGTH (FT.)</b>	<b>WIDTH (FT.)</b>	<b>AREA (AC.)</b>	<b>COST (\$)</b>
1	Purchase land for flood control pond.	800	400	7.35	59,867

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 12  
WEST CHOCOLATE AT SWATARA AVENUE**

<b>ITEM NO.</b>	<b>ITEM</b>	<b>LOCATION</b>	<b>UNITS</b>	<b>UNIT PRICE</b>	<b>QUANTITY</b>	<b>COST</b>
1	30" HDPE	Under West Chocolate Avenue	FT	\$65	250	\$16,250
2	Type "C" Inlet	U/S End of Pipe	Each	\$1,800	2	\$3,600
3	Construction Entrance		LS	\$2,000	1	\$2,000
4	E&S Controls		LS	\$1,000	1	\$1,000
<b>SUBTOTAL</b>						\$22,850
<b>ENGINEERING (15%)</b>						\$2,290
<b>PERMITTING (5%)</b>						\$1,140
<b>CONST. MGMT. (5%)</b>						\$1,140
<b>SUBTOTAL</b>						\$27,420
<b>CONTINGENCY (25%)</b>						\$6,860
<b>TOTAL</b>						\$34,280

**LAND COST**

- 1 No private property required for implementation. All pipes would be installed within existing right-of-way.



**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 13  
ROUTE 422 / 322 INTERCHANGE**

<b>ITEM NO.</b>	<b>ITEM</b>	<b>LOCATION</b>	<b>UNITS</b>	<b>UNIT PRICE</b>	<b>QUANTITY</b>	<b>COST</b>
1	2 - 48" RCP	Under Route 322 Ramp	FT	\$514	85	\$43,690
2	Channelization	Rte. 322 Ramp to Rte. 422	FT	\$5	230	\$1,150
3	2 - 48" RCP	Under Route 322/422	FT	\$514	135	\$69,390
4	Channelization	Rte 422 to Rte 422 Ramp	FT	\$5	270	\$1,350
5	2 - 48" RCP	Under Route 422 Ramp	FT	\$514	200	\$102,800
6	1 - 48" RCP	Along 322 east of 422	FT	\$257	260	\$66,820
7	1 - 48" RCP	Under 322 from Bullfrog Valley	FT	\$257	310	\$79,670
8	Headwall - 48" DoublePipe	U/S and D/S End of Pipe	Each	\$7,000	8	\$56,000
9	Channelization	Between Route 422 & Mae St.	FT	\$5	850	\$4,250
10	Construction Entrance		LS	\$2,000	1	\$2,000
11	E&S Controls		LS	\$5,000	1	\$5,000
<b>SUBTOTAL</b>						\$432,120
<b>ENGINEERING (15%)</b>						\$43,210
<b>PERMITTING (5%)</b>						\$21,610
<b>CONST. MGMT. (5%)</b>						\$21,610
<b>SUBTOTAL</b>						\$518,550
<b>CONTINGENCY (25%)</b>						\$129,640
<b>TOTAL</b>						\$648,190

**LAND COST**

- 1 No private property required for implementation. All pipes would be installed on highway right-of-way.

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 14  
NORFOLK SOUTHERN RR NEAR SIPE AVENUE**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	54" RCP	Under Railroad Embankment	FT	\$375	350	\$131,250
2	RR Embankment boring	Under Railroad Embankment	FT	\$375	350	\$131,250
3	Headwall - 54" Pipe	U/S and D/S End of Pipe	Each	\$4,000	2	\$8,000
4	Construction Entrance		LS	\$2,000	1	\$2,000
5	E&S Controls		LS	\$1,000	1	\$1,000
<b>SUBTOTAL</b>						\$273,500
<b>LAND COST</b>						\$9,000
<b>SUBTOTAL</b>						\$282,500
<b>ENGINEERING (15%)</b>						\$28,250
<b>PERMITTING (5%)</b>						\$14,130
<b>CONST. MGMT. (5%)</b>						\$14,130
<b>SUBTOTAL</b>						\$339,010
<b>CONTINGENCY (25%)</b>						\$84,750
<b>TOTAL</b>						\$423,760

<b>LAND COSTS</b>		<b>LENGTH (FT.)</b>	<b>WIDTH (FT.)</b>	<b>AREA (AC.)</b>	<b>COST (\$)</b>
1	Right-of-way for storm sewer.	50	30	0.03	2,082
2	Right-of-way for storm sewer.	100	30	0.07	1,172
3	Right-of-way for storm sewer.	250	30	0.17	5,754
<b>TOTAL</b>					<b>9,008</b>

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 15  
BINDNAGLE ROAD**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	Road Relocation	Bindnagle Road	FT	\$70	2,500	\$175,000
2	18" HDPE	At Low Point	FT	\$42	70	\$2,940
3	Headwall - 18" Pipe	U/S and D/S End of Pipe	Each	\$2,500	2	\$5,000
4	18" HDPE	At Low Point	FT	\$42	70	\$2,940
5	Headwall - 18" Pipe	U/S and D/S End of Pipe	Each	\$2,500	2	\$5,000
6	Construction Entrance		LS	\$2,000	1	\$2,000
7	E&S Controls		LS	\$2,000	1	\$2,000
<b>SUBTOTAL</b>						\$194,880
<b>LAND COST</b>						\$3,200
<b>SUBTOTAL</b>						\$198,080
<b>ENGINEERING (15%)</b>						\$19,810
<b>PERMITTING (5%)</b>						\$9,900
<b>CONST. MGMT. (5%)</b>						\$9,900
<b>SUBTOTAL</b>						\$237,690
<b>CONTINGENCY (25%)</b>						\$59,420
<b>TOTAL</b>						\$297,110

<b>LAND COSTS</b>	<b>LENGTH (FT.)</b>	<b>WIDTH (FT.)</b>	<b>AREA (AC.)</b>	<b>COST (\$)</b>
1 Right-of-way for Bindnagle Road relocation.	3000	150	10.33	3,198

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 16  
HIGHMEADOW CAMP PARKING LOT**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	36" HDPE	Under parking lot	FT	\$75	1,000	\$75,000
2	Channelization	Hershey Park Drive to Swatara Creek	FT	\$5	800	\$4,000
3	Construction Entrance		LS	\$2,000	1	\$2,000
4	E&S Controls		LS	\$5,000	1	\$5,000
<b>SUBTOTAL</b>						\$86,000
<b>LAND COST</b>						\$10,200
<b>SUBTOTAL</b>						\$96,200
<b>ENGINEERING (15%)</b>						\$9,620
<b>PERMITTING (5%)</b>						\$4,810
<b>CONST. MGMT. (5%)</b>						\$4,810
<b>SUBTOTAL</b>						\$115,440
<b>CONTINGENCY (25%)</b>						\$28,860
<b>TOTAL</b>						\$144,300

<b>LAND COSTS</b>		<b>LENGTH (FT.)</b>	<b>WIDTH (FT.)</b>	<b>AREA (AC.)</b>	<b>COST (\$)</b>
1	Right-of-way for channelization work.	1600	30	1.10	10,194

**DERRY TOWNSHIP  
STORMWATER MANAGEMENT STUDY**

**PRIORITY AREA NO. 17  
WEST MANSION ROAD**

ITEM NO.	ITEM	LOCATION	UNITS	UNIT PRICE	QUANTITY	COST
1	Relocate Pipes At RR Embankment Culvert	RR Embankment at Chocolate Plant	LS	\$50,000	1	\$50,000
2	Enlarge 2 roadway bridge spans	Park Avenue & Park Boulevard	LS	\$500,000	2	\$1,000,000
3	Enlarge 3 small walkway bridges	Hershey Park crossings	LS	\$50,000	3	\$150,000
4	Construct 1 Flood Control Dam	D/S of Crest Lane & east of Spring Creek Manor Dr.	LS	\$200,000	1	\$200,000
<b>SUBTOTAL</b>						\$1,400,000
<b>ENGINEERING (15%)</b>						\$140,000
<b>PERMITTING (5%)</b>						\$70,000
<b>CONST. MGMT. (5%)</b>						\$70,000
<b>SUBTOTAL</b>						\$1,680,000
<b>CONTINGENCY (25%)</b>						\$420,000
<b>TOTAL</b>						\$2,100,000

NOTE: Item 3 unit price does not include land cost.

**LAND COST**

- 1 No private property required for implementation. All bridge replacement would be installed within existing right-of-way.