



CITY OF FRONTENAC

STORMWATER SYSTEM MASTER IMPROVEMENT PLAN

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UPDATE NO. _____ DATE 11/12/08

 FIGURE NO. 6-3

City of Frontenac
Stormwater System Master Improvement Plan
CONCEPTUAL LEVEL ANALYSIS

Project Name: FIGURE 6-3 OVERLAND FLOW
Solutions By: EDM INC. **DATE:** 11-5-08

Problem: Yard erosion at Q176 - 10 Frontenac Estates Dr and Q178 - 18 Frontenac Estates Dr., and yard ponding at Q177 - 57 Frontenac Estates Dr. and Q175 - 61 Frontenac Estates Dr.

Strategy: 1) Add inlet and pipe system to collect water and connect to storm sewer system. Resized undersized storm sewer pipes. Add Rain Gardens to infiltrate runoff and protect natural channels. 2) Add Rain Gardens to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1	2) Alternative 1
				Without BMP's	With BMP's
Single Area Inlet	EA	14	\$1,750	\$24,500	\$24,500
12" RCP CLASS III	LF	266	\$116	\$30,872	\$30,872
15" RCP CLASS III	LF	127	\$124	\$15,784	\$15,784
18" RCP CLASS III	LF	915	\$129	\$118,291	\$118,291
21" RCP CLASS III	LF	275	\$137	\$37,645	\$37,645
24" RCP CLASS III	LF	309	\$144	\$44,342	\$44,342
30" RCP CLASS III	LF	84	\$163	\$13,712	\$13,712
30" RCP CLASS III	LF	72	\$163	\$11,753	\$11,753
33" RCP CLASS III	LF	345	\$174	\$60,178	\$60,178
33" FES	EA	1	\$2,000	\$2,000	\$2,000
New Berm	LF	62	\$15	\$930	\$930
Rain Garden	EA	2	\$10,000	\$20,000	\$20,000
Rain Garden	EA	2	\$10,000	\$0	\$20,000
Subtotal				\$380,007	\$400,007
Total Benefit Points				135	145
Individual Benefit Point Ratio				0.17	0.17
Estimated Increased Property Values				\$9,000	\$17,000

Problem: Erosion at entrance to Frontenac Estates Drive.

Strategy: 1) Provide erosion protection around existing inlet

Description	Unit	Quantity	Unit Cost	1) Alternative 1	2) Alternative 1
				Without BMP's	With BMP's
Line existing 8" CMP	LF	75	\$30	\$2,250	\$2,250
Grading	LS	1	\$2,000	\$2,000	\$2,000
Concrete Apron	LS	1	\$750	\$750	\$750
Subtotal				\$5,000	\$5,000
Total Benefit Points				30	30
Individual Benefit Point Ratio				2.86	2.86
Estimated Increased Property Values				\$0	\$0

Total **\$385,007** **\$405,007**

Utility Relocation	20%	\$77,001	\$81,001
Clearing	5%	\$19,250	\$20,250
Mobilization	4%	\$15,400	\$16,200

Total with Percent Allowances **\$496,659** **\$522,459**

Contingency 25% \$124,165 \$130,615

Probable Construction Cost Estimate **\$620,823** **\$653,073**

Design Engineering and Geotechnical 30% \$186,247 \$195,922

Total Conceptual Cost Estimate **\$808,000** **\$849,000**

Total Benefit Points **155** **175**

Total Benefit Point Ratio **0.19** **0.21**

Additional Comments: Unit prices based on MSD Unit Prices January 2006 Construction Costs
 Conceptual Cost are rounded to the nearest \$1000

City of Frontenac
Stormwater System Master Improvement Plan
CONCEPTUAL LEVEL ANALYSIS

Project Name: FIGURE 6-3 OVERLAND FLOW STRUCTURAL FLOODING
Solutions By: EDM INC. DATE: 11-5-08

Problem: Garage Flooding at Q174 - 9 Frontenac Estates Dr.
Strategy: 1) Regrade existing swale to direct water away from garage.

Description	Unit	Quantity	Unit Cost	1) Alternative 1 Without BMP's
New Swale	LF	237	\$10	\$2,370
Additional Grading and Restoration	LS	1	\$3,500	\$3,500

Subtotal	\$5,870
Total Benefit Points	120
Individual Benefit Point Ratio	9.75
Estimated Increased Property Values	\$1,000

Total **\$5,870**

Utility Relocation	20%	\$1,174
Clearing	5%	\$294
Mobilization	4%	\$235

Total with Percent Allowances **\$7,572**

Contingency 25% \$1,893

Probable Construction Cost Estimate **\$9,465**

Design Engineering and Geotechnical 30% \$2,840

Total Conceptual Cost Estimate **\$13,000**

Total Benefit Points **120**

Total Benefit Point Ratio **9.23**

Additional Comments: Unit prices based on MSD Unit Prices January 2006 Construction Costs
 Conceptual Cost are rounded to the nearest \$1000