



STORMWATER SYSTEM MASTER IMPROVEMENT PLAN

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0 200 400



SCALE

UPDATE NO. DATE



11/12/08

FIGURE NO. 4-1

City of Frontenac
Stormwater System Master Improvement Plan
CONCEPTUAL LEVEL ANALYSIS

Project Name:	FIGURE 4-1 OVERLAND FLOW			
Solutions By:	EDM INC.		DATE: 11-5-08	
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Problem:	Yard ponding at Q193 - 1688 Frontenac Woods Lane and Yard Erosion at Q194-1673 Frontenac Woods Lane.			
Strategy:	1) Add Rain Garden to infiltrate runoff and protect natural channels and construct a dry creek bed to prevent erosion.			
			1) Alternative 1	2) Alternative 1
			Without BMP's	With BMP's
Description	Unit	Quantity	Unit Cost	
Construct Dry Creek Bed	LF	163	\$100	\$16,300
Grading	LS	1	\$5,000	\$5,000
Rain Garden	EA	1	\$10,000	\$10,000
Subtotal				\$31,300
Total Benefit Points				45
Individual Benefit Point Ratio				0.69
Estimated Increased Property Values				\$2,000
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Problem:	Yard ponding at Q84 - 10 Chipper Rd, Q82 - 7 Chipper Rd., and Q290-10420 Litzinger Road and Yard Erosion at Q198 - 10589 Frontenac Woods Ln.			
Strategy:	1) Install inlets pipes to collect stormwater. Replace undersized existing stormwater system 2) Add Rain Gardens to infiltrate runoff and protect natural channels.			
			1) Alternative 1	2) Alternative 1
			Without BMP's	With BMP's
Description	Unit	Quantity	Unit Cost	
Single Area Inlet	EA	4	\$1,750	\$7,000
Double Area Inlet	EA	1	\$3,050	\$3,050
Manhole	EA	1	\$1,500	\$1,500
12" RCP CLASS III	LF	261	\$116	\$30,292
18" RCP CLASS III	LF	783	\$129	\$101,226
36" RCP CLASS III	LF	201	\$186	\$37,394
Grading	LS	1	\$5,000	\$5,000
Rain Garden	EA	3	\$10,000	\$30,000
Subtotal				\$185,462
Total Benefit Points				65
Individual Benefit Point Ratio				0.17
Estimated Increased Property Values				\$12,000
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Problem:	Street ponding at Q384 - 2001 S. Lindbergh Blvd.			
Strategy:	1) Cleanout and rehabilitate detention area.			
			1) Alternative 1	2) Alternative 1
Description	Unit	Quantity	Unit Cost	
Rehilitate Detention Basin	EA	1	\$60,000	\$60,000
Subtotal				\$60,000
Total Benefit Points				5
Individual Benefit Point Ratio				0.04
Estimated Increased Property Values				\$2,000
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Total				\$276,762
				\$306,762

FIGURE 4-1

Utility Relocation	20%	\$55,352	\$61,352
Clearing	5%	\$13,838	\$15,338
Mobilization	4%	\$11,070	\$12,270
Total with Percent Allowances		\$357,023	\$395,723
Contingency	25%	\$89,256	\$98,931
Probable Construction Cost Estimate		\$446,279	\$494,654
Design Engineering and Geotechnical	30%	\$133,884	\$148,396
Total Conceptual Cost Estimate		\$581,000	\$644,000
Total Benefit Points		175	200
Total Benefit Point Ratio		0.30	0.31

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

FIGURE 4-1