



CITY OF FRONTENAC

STORMWATER SYSTEM MASTER IMPROVEMENT PLAN



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0 200 400



SCALE

UPDATE NO. DATE

FIGURE NO. 3-4

City of Frontenac
Stormwater System Master Improvement Plan
CONCEPTUAL LEVEL ANALYSIS

Project Name: FIGURE 3-4 OVERLAND FLOW
Solutions By: EDM INC. **DATE:** 11-5-08

Problem: Erosion at Q143 -2 Country Estate and undersized culvert under Country Estates.

Strategy: 1) Replace existing culvert under Country Estates with new culvert 2) Add Rain Gardens to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1	2) Alternative 1 With
				Without BMP's	BMP's
Single Area Inlet	EA	2	\$1,750	\$3,500	\$3,500
12" RCP CLASS III	LF	90	\$116	\$10,445	\$10,445
12" FES	EA	2	\$1,100	\$2,200	\$2,200
Rain Garden	EA	1	\$10,000	\$0	\$10,000
Subtotal				\$16,145	\$26,145
Total Benefit Points				35	40
Individual Benefit Point Ratio				1.03	0.73
Estimated Increased Property Values				\$0	\$2,000

Problem: Yard Ponding at Q358 - 2 Portland Drive

Strategy: 1) Regrade yard around house

Description	Unit	Quantity	Unit Cost	1) Alternative 1	2) Alternative 1 With
				Without BMP's	BMP's
Regrade yard	LS	1	\$3,000	\$3,000	\$3,000
Subtotal				\$3,000	\$3,000
Total Benefit Points				30	30
Individual Benefit Point Ratio				4.77	4.77
Estimated Increased Property Values				\$1,000	\$1,000

Problem: Yard ponding at Q332 - 2600 N. Geyer Rd., Q316 - 2535 N Geyer Rd. and Q428 - 2 West Geyer Ln., (Q331), (Q88), and (Q208).

Strategy: 1) Install inlets and pipe system to collect water. Connect to existing stormsewer system and resized undersized stormsewer pipes. 2) Add Rain Gardens to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1	2) Alternative 1 With
				Without BMP's	BMP's
Single Inlet	EA	12	\$1,850	\$22,200	\$22,200
Manhole	EA	3	\$1,500	\$4,500	\$4,500
12" RCP CLASS III	LF	95	\$116	\$11,026	\$11,026
15" RCP CLASS III	LF	291	\$124	\$36,165	\$36,165
18" RCP CLASS III	LF	617	\$129	\$79,766	\$79,766
21" RCP CLASS III	LF	321	\$137	\$43,942	\$43,942
27" RCP CLASS III	LF	282	\$150	\$42,331	\$42,331
30" RCP CLASS III	LF	31	\$163	\$5,060	\$5,060
33" RCP CLASS III	LF	230	\$174	\$40,119	\$40,119
36" RCP CLASS III	LF	211	\$186	\$39,254	\$39,254
Rain Garden	EA	4	\$10,000	\$0	\$40,000
Subtotal				\$324,363	\$364,363
Total Benefit Points				55	75
Individual Benefit Point Ratio				0.08	0.10
Estimated Increased Property Values				\$12,000	\$16,000

Total **\$343,509** **\$393,509**

Utility Relocation	20%	\$68,702	\$78,702
Clearing	5%	\$17,175	\$19,675
Mobilization	4%	\$13,740	\$15,740
Total with Percent Allowances		\$443,126	\$507,626
Contingency	25%	\$110,782	\$126,907
Probable Construction Cost Estimate		\$553,908	\$634,533
Design Engineering and Geotechnical	30%	\$166,172	\$190,360
Total Conceptual Cost Estimate		\$721,000	\$825,000
Total Benefit Points		170	220
Total Benefit Point Ratio		0.24	0.27

Additional Comments:

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

FIGURE 3-4