



CITY OF FRONTENAC

STORMWATER SYSTEM MASTER IMPROVEMENT PLAN

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SCALE

UPDATE NO. \_\_\_\_\_ DATE \_\_\_\_\_



FIGURE NO. 4-2

**City of Frontenac**  
**Stormwater System Master Improvement Plan**  
**CONCEPTUAL LEVEL ANALYSIS**

**Project Name:** FIGURE 4-2 OVERLAND FLOW  
**Solutions By:** EDM INC. **DATE:** 11-5-08

**Problem:** Yard ponding at Q391 - 2815 Stonington Pl. and Q200 - 8 Georgian Acres, (Q202)

**Strategy:** 1) Add inlet and pipe system along Georian Acres to collect water and connect to existing system 2) Add Rain Gardens to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1 Without BMP's	2) Alternative 1 With BMP's
Single Area Inlet	EA	10	\$1,750	\$17,500	\$17,500
12" RCP CLASS III	LF	241	\$116	\$27,970	\$27,970
15" RCP CLASS III	LF	463	\$124	\$57,542	\$57,542
18" RCP CLASS III	LF	148	\$129	\$19,133	\$19,133
21" RCP CLASS III	LF	314	\$137	\$42,983	\$42,983
27" RCP CLASS III	LF	282	\$150	\$42,331	\$42,331
Rain Garden	EA	8	\$10,000	\$0	\$80,000
<b>Subtotal</b>				<b>\$207,460</b>	<b>\$287,460</b>
<b>Total Benefit Points</b>				<b>30</b>	<b>70</b>
<b>Individual Benefit Point Ratio</b>				<b>0.07</b>	<b>0.12</b>
<b>Estimated Increased Property Values</b>				<b>\$3,000</b>	<b>\$5,000</b>

**Problem:** Yard ponding at Q392 - 2828 Stonington Pl.

**Strategy:** 1) Add Rain Gardens to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1 Without BMP's	2) Alternative 1 With BMP's
Rain Garden	EA	1	\$10,000	\$10,000	\$10,000
<b>Subtotal</b>				<b>\$10,000</b>	<b>\$10,000</b>
<b>Total Benefit Points</b>				<b>35</b>	<b>35</b>
<b>Individual Benefit Point Ratio</b>				<b>1.67</b>	<b>1.67</b>
<b>Estimated Increased Property Values</b>				<b>\$2,000</b>	<b>\$2,000</b>

**Problem:** Yard ponding at Q99 - 10928 Clayton Rd.

**Strategy:** 1) Add yard drain and pipe system to collect runoff and pipe under driveway. 2) Add Rain Gardens to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1	2) Alternative 1 With
Yard Drain	EA	1	\$500	\$500	\$500
6" PVC	LF	75	\$15	\$1,125	\$1,125
Restoration	LS	1	\$3,000	\$3,000	\$3,000
Rain Garden	EA	1	\$10,000	\$0	\$10,000
<b>Subtotal</b>				<b>\$4,625</b>	<b>\$14,625</b>
<b>Total Benefit Points</b>				<b>30</b>	<b>35</b>
<b>Individual Benefit Point Ratio</b>				<b>3.09</b>	<b>1.14</b>
<b>Estimated Increased Property Values</b>				<b>\$0</b>	<b>\$2,000</b>

**Total** **\$222,085** **\$312,085**

Utility Relocation	20%	\$44,417	\$62,417
Clearing	5%	\$11,104	\$15,604
Mobilization	4%	\$8,883	\$12,483

**Total with Percent Allowances** **\$286,490** **\$402,590**

Contingency	25%	\$71,622	\$100,647
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**Probable Construction Cost Estimate** **\$358,112** **\$503,237**

Design Engineering and Geotechnical	30%	\$107,434	\$150,971
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**Total Conceptual Cost Estimate** **\$466,000** **\$655,000**

**Total Benefit Points** **160** **250**

**Total Benefit Point Ratio** **0.34** **0.38**

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