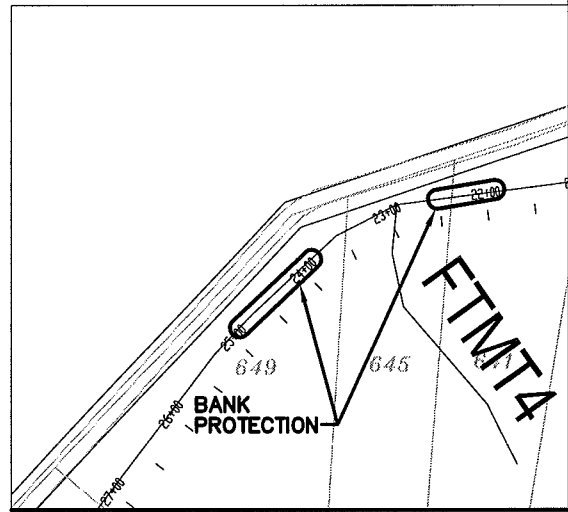
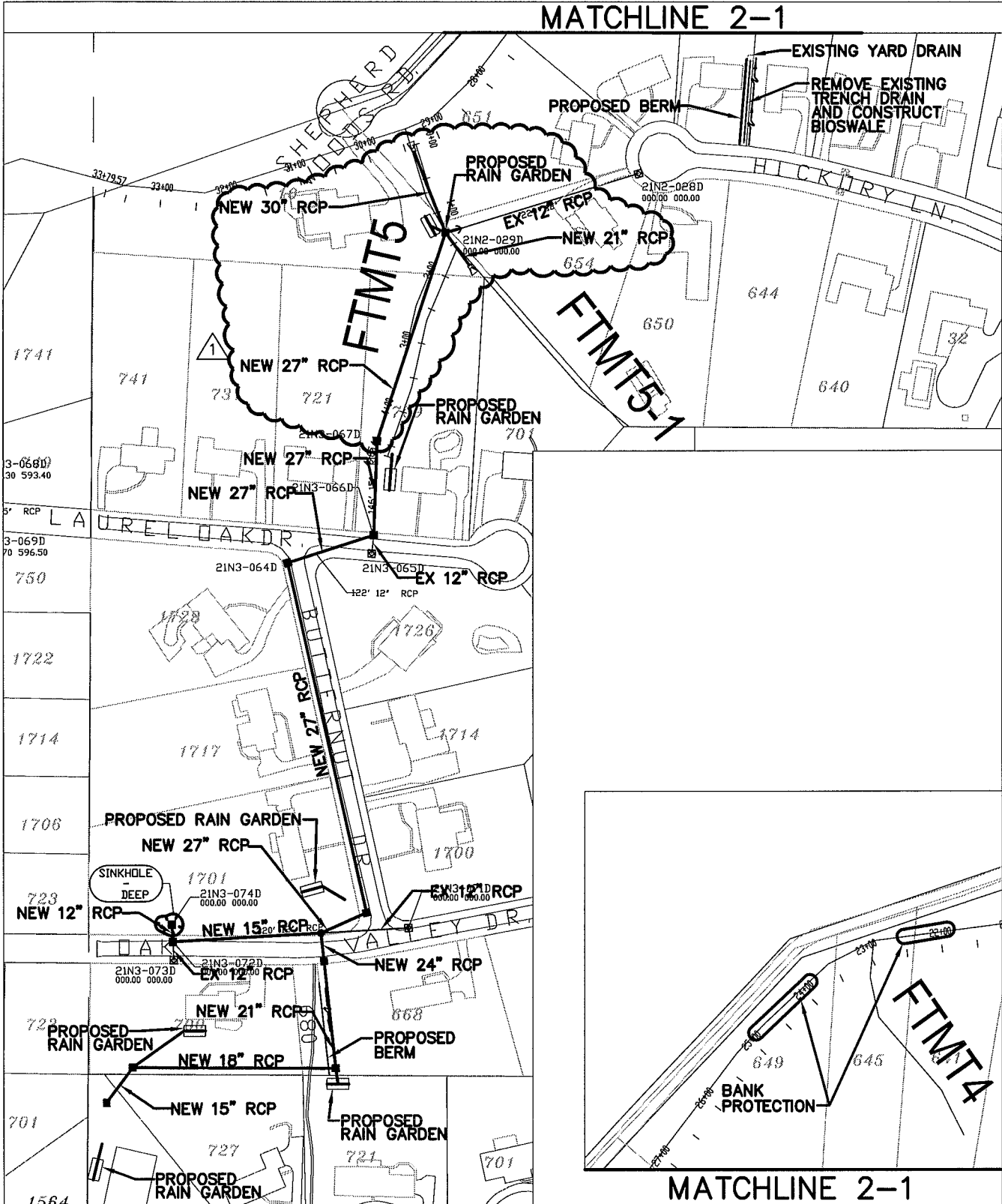


MATCHLINE 2-1



MATCHLINE 2-1

CITY OF FRONTENAC

STORMWATER SYSTEM MASTER IMPROVEMENT PLAN

EDM EDM Incorporated
Consulting Engineers

220 Mansion House Center
St. Louis, Missouri 63102
Phone (314) 231-5485 Fax (314) 231-8167
edm@edm-inc.com



0 200 400



SCALE

UPDATE NO. DATE



11/12/08

FIGURE NO. 2-1

City of Frontenac
Stormwater System Master Improvement Plan
CONCEPTUAL LEVEL ANALYSIS

Project Name: FIGURE 2-1 OVERLAND FLOW
Solutions By: EDM INC. **DATE:** 11-5-08

Problem: Yard ponding at Q266 - 645 Hickory Ln.
Strategy: 1) Remove existing trench drain and install berm to direct water towards existing inlet. 2) Add Bioswale to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1	2) Alternative 1
				Without BMP's	With BMP's
New Berm	LF	118	\$15	\$1,770	\$1,770
Regrade Yard	LS	1	\$2,000	\$2,000	\$2,000
Bioswale	LF	115	\$30	\$0	\$3,450
Subtotal				\$3,770	\$7,220
Total Benefit Points				30	42
Individual Benefit Point Ratio				3.80	2.74
Estimated Increased Property Values				\$2,000	\$3,000

Problem: Yard ponding at Q435 - 1637 Woodgate Dr., Q413 - 727 Twin Fawn Dr., Q345 - 700 Oak Valley Dr., Q346 - 668 Oak Valley Dr., and FR8 - 1701 Butter Nut Dr.
Strategy: 1) Install berm to catch overland flow and direct to inlet and pipe system. Place inlets at two existing sink holes and pipe downstream. 2) Add Bioswale and 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	10	\$1,750	\$17,500	\$17,500
Manhole	EA	1	\$1,500	\$1,500	\$1,500
12" RCP CLASS III	LF	24	\$116	\$2,785	\$2,785
15" RCP CLASS III	LF	267	\$124	\$33,183	\$33,183
18" RCP CLASS III	LF	282	\$129	\$36,457	\$36,457
21" RCP CLASS III	LF	235	\$137	\$32,169	\$32,169
24" RCP CLASS III	LF	39	\$144	\$5,597	\$5,597
27" RCP CLASS III	LF	1132	\$150	\$169,925	\$169,925
30" RCP CLASS III	LF	122	\$163	\$19,915	\$19,915
21" FES	EA	1	\$1,500	\$1,500	\$1,500
30" FES	EA	1	\$1,900	\$1,900	\$1,900
Junction Chamber	LS	1	\$15,000	\$15,000	\$15,000
Erosion Protection	LS	1	\$5,000	\$5,000	\$5,000
Asphalt	SY	1380	\$65	\$89,700	\$89,700
Rain Garden	EA	6	\$10,000	\$0	\$60,000
Subtotal				\$432,131	\$492,131
Total Benefit Points				75	105
Individual Benefit Point Ratio				0.08	0.10
Estimated Increased Property Values				\$26,000	\$32,000

Total **\$435,901** **\$499,351**

FIGURE 2-1

Utility Relocation	20%	\$87,180	\$99,870
Clearing	5%	\$21,795	\$24,968
Mobilization	4%	\$17,436	\$19,974
Total with Percent Allowances		\$562,312	\$644,162
Contingency	25%	\$140,578	\$161,041
Probable Construction Cost Estimate		\$702,890	\$805,203
Design Engineering and Geotechnical	30%	\$210,867	\$241,561
Total Conceptual Cost Estimate		\$914,000	\$1,047,000
Total Benefit Points		135	202
Total Benefit Point Ratio		0.15	0.19

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

FIGURE 2-1

City of Frontenac
Stormwater System Master Improvement Plan
CONCEPTUAL LEVEL ANALYSIS

Project Name: Figure 2-1 CHANNEL FTMT5 and Two-Mile Creek
Solutions By: EDM INC. **DATE:** 11/5/2008

Problem: Creek erosion and yard flooding at Q286 - 709 Laurel Oaks Drive. Creek erosion (yard and street) and street and yard flooding Q387, MSD 25 - 10 Shepherd Woods Drive.

Strategy: 1) Install bank protection on FTMT5 from station 0+00 to 4+65, install bank protection on 90LF at Two-Mile Drive at 10 Shepherd Woods Drive. Clean out creek east of gabion wall at 10 Shepherd Woods Drive.

Description	Unit	Quantity	Unit Cost	ALT 1	ALT 2
Hard stabilization (S)	LF	465	\$225	\$104,625	\$0
Soft stabilization (S)	LF	465	\$125	\$0	\$58,125
Geomorphic Study	Ea.	1	\$10,000	\$0	\$10,000
Hard stabilization (L)	LF	90	\$300	\$27,000	\$0
Soft stabilization (L)	LF	90	\$200	\$0	\$18,000
Geomorphic Study	Ea.	1	\$10,000	\$0	\$10,000
Clean out creek	Ea.	1	\$10,000	\$10,000	\$10,000
Subtotal				\$141,625	\$106,125

Total				\$141,625	\$106,125
Utility Relocation			20%	\$28,325	\$21,225
Clearing			5%	\$7,081	\$5,306
Mobilization			4%	\$5,665	\$4,245
Total with Percent Allowances				\$182,696	\$136,901
Contingency			25%	\$45,674	\$34,225
Probable Construction Cost Estimate				\$228,370	\$171,127
Design Engineering and Geotechnical			30%	\$68,511	\$51,338
Total Conceptual Cost Estimate				\$297,000	\$223,000
Benefit Points				110	290
Benefit/Cost Ratio				0.37	1.30

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