

Appendix D
Unit Costs And Cost Opinions

Unit Costs for Stormwater Facility Improvements

Item Number	Item Description	Unit	1995 Dollars
A.	Pipe and Inlet (Enclosed) System		
1.	Curb and Gutter	lf	12.00
2.	Storm Sewer Inlets		
2.1	Curb Inlet	ea	775.00
2.2	Area Inlet	ea	680.00
3.	Reinforced Concrete Pipe *(1)		
3.1	6 inch RCP	lf	
3.2	12 inch RCP	lf	
3.3	15 inch RCP	lf	21.00
3.4	18 inch RCP	lf	25.00
3.5	21 inch RCP	lf	34.00
3.6	24 inch RCP	lf	37.00
3.7	27 inch RCP	lf	42.00
3.8	30 inch RCP	lf	47.00
3.9	36 inch RCP	lf	52.00
3.10	42 inch RCP	lf	66.00
3.11	48 inch RCP	lf	90.00
3.12	54 inch RCP	lf	110.00
3.13	60 inch RCP	lf	135.00
3.14	66 inch RCP	lf	200.00
3.15	72 inch RCP	lf	220.00
3.16	78 inch RCP	lf	250.00
3.17	84 inch RCP	lf	270.00
3.18	90 inch RCP	lf	286.00
3.19	96 inch RCP	lf	321.00
3.20	102 inch RCP	lf	357.00
3.21	108 inch RCP	lf	428.00
3.22	114 inch RCP	lf	518.00
3.23	120 inch RCP	lf	564.00
3.24	126 inch RCP	lf	612.00
3.25	132 inch RCP	lf	660.00
3.26	138 inch RCP	lf	670.00
3.27	144 inch RCP	lf	750.00
3.28	156 inch RCP	lf	820.00
4.	Reinforced Concrete Box Sections (Refer to Section B. Culverts, Items 3, 4, and 5)		
5.	Storm Sewer Manholes		
5.1	4 ft, 5 ft, and 6 ft Inside Diameter	ea	2,350.00
5.2	Greater than 6 ft Inside Diameter	ea	5,250.00
B.	Culverts		
1.	Excavation and Backfill	cy	4.00
2.	Reinforced Concrete Pipe Culverts *(1)		
2.1	12 inch RCP culvert	lf	15.00
2.2	15 inch RCP culvert	lf	20.00
2.3	18 inch RCP culvert	lf	21.00
2.4	21 inch RCP culvert	lf	25.00
2.5	24 inch RCP culvert	lf	28.00
2.6	27 inch RCP culvert	lf	32.00

Unit Costs for Stormwater Facility Improvements

Item Number	Item Description	Unit	1995 Dollars
2.7	30 inch RCP culvert	lf	47.00
2.8	36 inch RCP culvert	lf	65.00
2.9	42 inch RCP culvert	lf	77.00
2.10	48 inch RCP culvert	lf	91.00
2.11	54 inch RCP culvert	lf	110.00
2.12	60 inch RCP culvert	lf	135.00
2.13	66 inch RCP culvert	lf	158.00
2.14	72 inch RCP culvert	lf	175.00
2.15	78 inch RCP culvert	lf	216.00
2.16	84 inch RCP culvert	lf	255.00
2.17	90 inch RCP culvert	lf	282.00
2.18	96 inch RCP culvert	lf	305.00
2.19	102 inch RCP culvert	lf	359.00
2.20	108 inch RCP culvert	lf	403.00
2.21	114 inch RCP culvert	lf	425.00
2.22	120 inch RCP culvert	lf	448.00
2.23	126 inch RCP culvert	lf	483.00
2.24	132 inch RCP culvert	lf	530.00
2.25	138 inch RCP culvert	lf	580.00
2.26	144 inch RCP culvert	lf	630.00
3.	Reinforced Concrete Box Culverts, Single Cell (ASTM C789 & KDOT), Span x Rise *(2)		
	1 - 1.5 x 1.5 RCB	lf	160.00
	1 - 2 x 1.5 RCB	lf	170.00
	1 - 2 x 2 RCB	lf	180.00
	1 - 2.5 x 2 RCB	lf	190.00
	1 - 2.5 x 2.5 RCB	lf	200.00
3.1	1 - 3 X 2 RCB	lf	215.00
3.2	1 - 3 X 3 RCB	lf	240.00
3.3	1 - 4 X 2 RCB	lf	245.00
3.4	1 - 4 X 3 RCB	lf	270.00
3.5	1 - 4 X 4 RCB	lf	295.00
3.6	1 - 5 X 3 RCB	lf	320.00
3.7	1 - 5 X 4 RCB	lf	348.00
3.8	1 - 5 X 5 RCB	lf	380.00
3.9	1 - 5.5 X 5.5 RCB	lf	
3.10	1 - 6 X 3 RCB	lf	345.00
3.11	1 - 6 X 4 RCB	lf	355.00
3.12	1 - 6 X 5 RCB	lf	360.00
3.13	1 - 6 X 6 RCB	lf	366.00
3.14	1 - 7 X 4 RCB	lf	375.00
3.15	1 - 7 X 5 RCB	lf	384.00
3.16	1 - 7 X 6 RCB	lf	378.00
3.17	1 - 7 X 7 RCB	lf	395.00
3.18	1 - 8 X 4 RCB	lf	423.00
3.19	1 - 8 X 5 RCB	lf	437.00
3.20	1 - 8 X 6 RCB	lf	434.00
3.21	1 - 8 X 7 RCB	lf	445.00

Item Number	Item Description	Unit	1995 Dollars
3.22	1 - 8 X 8 RCB	If	
3.23	1 - 9 X 5 RCB	If	477.00
3.24	1 - 9 X 6 RCB	If	452.00
3.25	1 - 9 X 7 RCB	If	468.00
3.26	1 - 9 X 8 RCB	If	487.00
3.27	1 - 9 X 9 RCB	If	531.00
3.28	1 - 10 X 4 RCB	If	568.00
3.29	1 - 10 X 5 RCB	If	
3.30	1 - 10 X 6 RCB	If	497.00
3.31	1 - 10 X 7 RCB	If	501.00
3.32	1 - 10 X 8 RCB	If	506.00
3.33	1 - 10 X 9 RCB	If	530.00
3.34	1 - 10 X 10 RCB	If	569.00
3.35	1 - 11 X 4 RCB	If	591.00
3.36	1 - 11 X 6 RCB	If	526.00
3.37	1 - 11 X 8 RCB	If	552.00
3.38	1 - 11 X 10 RCB	If	581.00
3.39	1 - 11 X 11 RCB	If	671.00
3.40	1 - 12 X 4 RCB	If	723.00
3.41	1 - 12 X 6 RCB	If	563.00
3.42	1 - 12 X 8 RCB	If	577.00
3.43	1 - 12 X 9 RCB	If	646.00
3.44	1 - 12 X 10 RCB	If	
3.45	1 - 12 X 12 RCB	If	717.00
3.46	1 - 14 X 8 RCB	If	809.00
3.47	1 - 14 X 10 RCB	If	
3.48	1 - 14 X 12 RCB	If	827.00
3.49	1 - 14 X 14 RCB	If	952.00
3.50	1 - 15 X 8 RCB	If	1,055.00
3.51	1 - 15 X 10 RCB	If	
3.52	1 - 16 X 12 RCB	If	
3.53	1 - 16 X 14 RCB	If	775.00
3.54	1 - 16 X 16 RCB	If	829.00
3.55	1 - 17 X 10 RCB	If	883.00
3.56	1 - 18 X 14 RCB	If	
3.57	1 - 18 X 16 RCB	If	
3.58	1 - 18 X 18 RCB	If	
3.59	1 - 20 X 14 RCB	If	
3.60	1 - 20 X 16 RCB	If	
3.61	1 - 20 X 18 RCB	If	
3.62	1 - 20 X 20 RCB	If	
4.	Reinforced Concrete Box Culverts, Double Cell (KDOT), Span x Rise *(2)		
4.1	2 - 5 X 2 RCB	If	500.00
4.2	2 - 5 X 3 RCB	If	545.00
4.3	2 - 5 X 4 RCB	If	580.00
4.4	2 - 5 X 5 RCB	If	605.00
4.5	2 - 6 X 2 RCB	If	535.00

Item Number	Item Description	Unit	1995 Dollars
4.6	2 - 6 X 3 RCB	If	575.00
4.7	2 - 6 X 4 RCB	If	580.00
4.8	2 - 6 X 5 RCB	If	580.00
4.9	2 - 6 X 6 RCB	If	585.00
4.10	2 - 7 X 3 RCB	If	630.00
4.11	2 - 7 X 4 RCB	If	665.00
4.12	2 - 7 X 5 RCB	If	675.00
4.13	2 - 7 X 6 RCB	If	660.00
4.14	2 - 7 X 7 RCB	If	680.00
4.15	2 - 8 X 4 RCB	If	750.00
4.16	2 - 8 X 5 RCB	If	765.00
4.17	2 - 8 X 6 RCB	If	770.00
4.18	2 - 8 X 7 RCB	If	810.00
4.19	2 - 8 X 8 RCB	If	860.00
4.20	2 - 9 X 5 RCB	If	815.00
4.21	2 - 9 X 6 RCB	If	855.00
4.22	2 - 9 X 7 RCB	If	905.00
4.23	2 - 9 X 8 RCB	If	970.00
4.24	2 - 9 X 9 RCB	If	1,025.00
4.25	2 - 10 X 6 RCB	If	940.00
4.26	2 - 10 X 7 RCB	If	965.00
4.27	2 - 10 X 8 RCB	If	995.00
4.28	2 - 10 X 9 RCB	If	1,030.00
4.29	2 - 10 X 10 RCB	If	1,060.00
4.30	2 - 12 X 10 RCB	If	1,350.00
4.31	2 - 12 X 12 RCB	If	1,500.00
5.	Reinforced Concrete Box Culverts, Triple Cell (KDOT), Span x Rise *(2)		
5.1	3 - 6 X 2 RCB	If	775.00
5.2	3 - 6 X 3 RCB	If	830.00
5.3	3 - 6 X 4 RCB	If	825.00
5.4	3 - 6 X 5 RCB	If	820.00
5.5	3 - 6 X 6 RCB	If	825.00
5.6	3 - 7 X 3 RCB	If	835.00
5.7	3 - 7 X 4 RCB	If	880.00
5.8	3 - 7 X 5 RCB	If	890.00
5.9	3 - 7 X 6 RCB	If	885.00
5.10	3 - 7 X 7 RCB	If	925.00
5.11	3 - 8 X 4 RCB	If	985.00
5.12	3 - 8 X 5 RCB	If	1,020.00
5.13	3 - 8 X 6 RCB	If	1,015.00
5.14	3 - 8 X 7 RCB	If	1,040.00
5.15	3 - 8 X 8 RCB	If	1,085.00
5.16	3 - 9 X 4 RCB	If	970.00
5.17	3 - 9 X 5 RCB	If	1,020.00
5.18	3 - 9 X 6 RCB	If	1,060.00
5.19	3 - 9 X 7 RCB	If	1,106.00
5.20	3 - 9 X 8 RCB	If	1,165.00

Unit Costs for Stormwater Facility Improvements

Item Number	Item Description	Unit	1995 Dollars
5.21	3 - 9 X 9 RCB	lf	1,205.00
5.22	3 - 10 X 6 RCB	lf	1,120.00
5.23	3 - 10 X 7 RCB	lf	1,135.00
5.24	3 - 10 X 8 RCB	lf	1,150.00
5.25	3 - 10 X 9 RCB	lf	1,175.00
5.26	3 - 10 X 10 RCB	lf	1,190.00
5.27	3 - 12 X 10 RCB	lf	1,410.00
5.28	3 - 12 X 12 RCB	lf	1,555.00
5.29	3 - 14 X 10 RCB	lf	1,650.00
5.30	3 - 14 X 12 RCB	lf	1,775.00
5.31	3 - 14 X 14 RCB	lf	2,020.00
C.	Open Channel Improvements		
1.	Excavation & Embankments	cy	5.00
2.	Trapezoidal Channels		
2.1	Channel Bottom		
2.1.1	Gabion Mattress (6 inches)	sy	30.00
2.1.2	Gabion Mattress (12 inches)	sy	46.00
2.1.3	Gabion Mattress (18 inches)	sy	63.00
2.1.4	Paved Concrete	sy	31.00
2.2	Channel Banks (Lining Material)		
2.2.1	Seed	sy	1.00
2.2.2	Sod (Staked)	sy	
2.2.3	Erosion Control Blanket	sy	5.00
2.2.4	Riprap	sy	30.00
2.2.5	Grouted Riprap (3/8 to 1/4 cy pieces)	sy	50.00
2.2.6	Gabion Revetment (6 inches)	sy	30.00
2.2.7	Paved Concrete (6 inches)	sy	31.00
3.	Vertical Wall Channels		
3.1	Channel Bottom - Refer to Item 2.1		
3.2	Channel Walls		
3.2.1	Concrete	cy	300.00
3.2.2	Gabion Basket Channel Walls	cy	130.00
3.3	Channel Banks (Lining Materials Above Walls) - Refer to Item 2.2		
D.	Erosion Control - Refer to Section C. Open Channel Improvements		
E.	Detention/Retention Facilities	ac	
F.	Miscellaneous Costs Applicable to All Projects		
1.	Structure Removal (%)		20.00
1.1	Clear/Grub Small Trees & Light Brush	sy	1.00
1.2	Clear/Grub Large Trees & Heavy Brush	sy	1.00
1.3	Driveway and Sidewalk removal	sy	9.00
2.	Street Removal		
2.1	2-lane, Gravel	sy	4.00
2.2	2-lane, Asphalt, w/ C&G	sy	8.00
2.3	4-lane, Asphalt, w/ C&G	sy	9.00
3.	Site Restoration		
3.1	Seeding	sy	1.00
3.2	Sodding	sy	4.00

Leavenworth, Kansas			B&V P.N. 26529.110
Stormwater Master Plan			September 27, 1995
Unit Costs for Stormwater Facility Improvements			
Item	Item		
Number	Description	Unit	1995 Dollars
3.3	Driveway and Sidewalk replacement	sy	27.00
3.4	Street Replacement		
3.4.1	2-lane, Gravel	sy	10.00
3.4.2	2-lane, Asphalt, w/ C&G	sy	30.00
3.4.3	4-lane, Asphalt, w/ C&G	sy	35.00
G.	Additional Items as Percent of Total Construction Cost		
1.	Contingencies	%	15.00
2.	Utility Relocation Costs	%	2.00
3.	Engineering	%	15.00
4.	Legal & Admin. Costs	%	3.00
* (1)	Pipe cost assumes total installation cost with 4 ft cover		
* (2)	Box culvert cost assumes total installation cost with 8 ft cover		

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	1 L 3 Mile Creek				
NODE	92595 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1322 Parallel box added 0 inch RCP	LF	\$345.00	150	\$51,750.00
	Parallel street	width	length	sq ft	
		20	150	3000	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	333	\$14,666.67
NODE	86601 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1323 Parallel box added 0 inch RCP	LF	\$345.00	182	\$62,790.00
	Parallel street	width	length	sq ft	
		20	182	3640	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	404	\$17,795.56
NODE	86603 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1324 Parallel box added 0 inch RCP	LF	\$345.00	150	\$51,750.00
	Parallel street	width	length	sq ft	
		20	150	3000	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	333	\$14,666.67
NODE	86607 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1089 Parallel box added 0 inch RCP	LF	\$345.00	343	\$118,335.00
	Parallel street	width	length	sq ft	
		20	343	6860	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	762	\$33,537.78
NODE	92754 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	92593 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1311 Parallel box added 0 inch RCP	LF	\$240.00	186	\$44,640.00
	Parallel street	width	length	sq ft	
		20	186	3720	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	413	\$18,186.67
NODE	92594 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1316 Parallel box added 0 inch RCP	LF	\$320.00	291	\$93,120.00
	Parallel street	width	length	sq ft	
		20	291	5820	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	647	\$28,453.33
NODE	86605 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2323 Parallel box added 0 inch RCP	LF	\$320.00	175	\$56,000.00
	Parallel street	width	length	sq ft	
		20	175	3500	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	389	\$17,111.11
NODE	92595				

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86591 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1317 Parallel box added 0 inch RCP	LF	\$240.00	46	\$11,040.00
	Parallel street	width	length	sq ft	
		20	46	920	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	102	\$3,884.44
	Structural removal			\$20,174	\$4,034.89
NODE	86592 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1319 Parallel box added 0 inch RCP	LF	\$270.00	206	\$55,620.00
	Parallel street	width	length	sq ft	
		20	206	4120	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	458	\$17,395.56
	Structural removal			\$78,266	\$15,653.11
NODE	86606 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2373 Parallel box added 0 inch RCP	LF	\$270.00	79	\$21,330.00
	Parallel street	width	length	sq ft	
		20	79	1580	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	176	\$6,671.11
	Structural removal			\$33,251	\$6,650.22
NODE	86594 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2355 Parallel box added 0 inch RCP	LF	\$270.00	138	\$37,260.00
	Parallel street	width	length	sq ft	
		20	138	2760	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	307	\$11,653.33
	Structural removal			\$54,163	\$10,832.67
NODE	92595				

SUBTOTAL \$887,828.11

20% Contingency \$1,065,393.73

20% Engineering, legal and administrative \$1,278,472.48

PRELIMINARY COST ESTIMATE				DATE: 11/19/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JLF
ELEMENT #	3 MILE CREEK - 4 L				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.8	Pipe and Inlet (Enclosed) System, 30 inch RCP	475	LF	\$52.00	\$24,700
A.3.9	Pipe and Inlet (Enclosed) System, 36 inch RCP	124	LF	\$66.00	\$8,184
A.3.11	Pipe and Inlet (Enclosed) System, 48 inch RCP	449	LF	\$110.00	\$49,390
A.3.12	Pipe and Inlet (Enclosed) System, 54 inch RCP	1188	LF	\$135.00	\$160,380
A.3.13	Pipe and Inlet (Enclosed) System, 60 inch RCP	794	LF	\$200.00	\$158,800
A.3.14	Pipe and Inlet (Enclosed) System, 66 inch RCP	123	LF	\$220.00	\$27,060
A.5.2	Storm Sewer Manholes > 6ft Diameter	40	ea	\$5,250.00	\$210,000
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	284	sy	\$8.00	\$2,272
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	284	sy	\$30.00	\$8,520
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	89	sy	\$9.00	\$801
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	89	sy	\$35.00	\$3,115
TOTAL =					\$653,222
CONTINGENCY		20 PERCENT			\$130,644
SUB TOTAL =					\$783,866
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$156,773
TOTAL =					\$940,640

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	4 L 3 Mile Creek				
NODE	86910 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1529 Parallel pipe added 30 inch RCP	LF	\$52.00	181	\$9,412.00
NODE	86624 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1331 Parallel pipe added 30 inch RCP	LF	\$52.00	34	\$1,768.00
	Dakota Street Crossing 2-lane, Asphalt, w/ C&G	width 20 sy	length 32	sq ft 640	
			\$38.00	71	\$2,702.22
NODE	86625 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1333 Parallel pipe added 30 inch RCP	LF	\$52.00	260	\$13,520.00
NODE	86626 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2375 Parallel pipe added 36 inch RCP	LF	\$66.00	36	\$2,376.00
NODE	86628 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	86629 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1335 Parallel pipe added 36 inch RCP	LF	\$66.00	88	\$5,808.00
NODE	86633 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	92622 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1337 Parallel pipe added 48 inch RCP	LF	\$110.00	143	\$15,730.00
NODE	86634 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	86637 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3032 Pipe added 66 inch RCP	LF	\$220.00	123	\$27,060.00
NODE	86640 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1340 Parallel pipe added 48 inch RCP	LF	\$110.00	60	\$6,600.00
NODE	86639 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2383 Parallel pipe added 48 inch RCP	LF	\$110.00	89	\$9,790.00
NODE	86641 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86643 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2384 Parallel pipe added 48 inch RCP	LF	\$110.00	34	\$3,740.00
NODE	86644 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1343 Parallel pipe added 48 inch RCP	LF	\$110.00	108	\$11,880.00
NODE	92623 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2385 Parallel pipe added 48 inch RCP	LF	\$110.00	15	\$1,650.00
NODE	92624 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1346 Parallel pipe added 54 inch RCP	LF	\$135.00	142	\$19,170.00
NODE	86646 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	86646 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2387 Parallel pipe added 54 inch RCP	LF	\$135.00	30	\$4,050.00
NODE	92778 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1344 Parallel pipe added 54 inch RCP	LF	\$135.00	98	\$13,230.00
NODE	86647 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2388 Parallel pipe added 54 inch RCP	LF	\$135.00	37	\$4,995.00
NODE	92625 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1345 Parallel pipe added 54 inch RCP	LF	\$135.00	127	\$17,145.00
NODE	86648 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2389 Parallel pipe added 54 inch RCP	LF	\$135.00	36	\$4,860.00
	Osage Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$38.00	71	\$2,702.22
NODE	86649 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1347 Parallel pipe added 54 inch RCP	LF	\$135.00	136	\$18,360.00
NODE	92626 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	92627 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1607 Parallel pipe added 54 inch RCP	LF	\$135.00	112	\$15,120.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86652 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2392 Parallel pipe added	4.5 RCP			
	54 inch RCP	LF	\$135.00	34	\$4,590.00
	Miami Street Crossing	width	length	sq ft	
		20	32	640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
NODE	86653 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1349 Parallel pipe added	4.5 RCP			
	54 inch RCP	LF	\$135.00	29	\$3,915.00
NODE	86654 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1350 Parallel pipe added	4.5 RCP			
	54 inch RCP	LF	\$135.00	266	\$35,910.00
NODE	86655 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1351 Parallel pipe added	5 RCP			
	60 inch RCP	LF	\$200.00	35	\$7,000.00
	Seneca Street Crossing	width	length	sq ft	
		20	32	640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
NODE	86656 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1352 Parallel pipe added	5 RCP			
	60 inch RCP	LF	\$200.00	143	\$28,600.00
NODE	86657 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1353 Parallel pipe added	5 RCP			
	60 inch RCP	LF	\$200.00	141	\$28,200.00
NODE	86658 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2393 Parallel pipe added	5 RCP			
	60 inch RCP	LF	\$200.00	45	\$9,000.00
	Shawnee Street Crossing	width	length	sq ft	
		20	40	800	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	89	\$3,911.11
NODE	86659 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1354 Parallel pipe added	5 RCP			
	60 inch RCP	LF	\$200.00	170	\$34,000.00
NODE	86370 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1197 Parallel pipe added	5 RCP			
	60 inch RCP	LF	\$200.00	151	\$30,200.00
NODE	86371 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	86372 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1199 Parallel pipe added	5 RCP			
	60 inch RCP	LF	\$200.00	109	\$21,800.00
NODE	92705 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	92706 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1201 Parallel pipe added 54 inch RCP	LF	\$135.00	141	\$19,035.00
NODE	86373 Junction Structure	ea	\$5,250.00	1	\$5,250.00

SUBTOTAL \$653,234.00

20% Contingency \$783,880.80

20% Engineering, legal and administrative \$940,656.96

PRELIMINARY COST ESTIMATE				DATE: 11/19/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JLF
ELEMENT #	3 MILE CREEK - 5 L				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System, 15 inch RCP	104	LF	\$25.00	\$2,600
A.3.4	Pipe and Inlet (Enclosed) System, 18 inch RCP	260	LF	\$34.00	\$8,840
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	231	sy	\$9.00	\$2,079
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	231	sy	\$35.00	\$8,085
A.5.1	Storm Sewer Manholes < 6ft Diameter	4	ea	\$2,350.00	\$9,400
C.3.2.1	Concrete - Wing walls and apron	4	cy	\$300.00	\$1,308
B.1	Excavation and Backfill	9	cy	\$4.00	\$35
TOTAL =					\$32,347
CONTINGENCY		20 PERCENT			\$6,469
SUB TOTAL =					\$38,816
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$7,763
TOTAL =					\$46,580

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	5 L 3 Mile Creek				
NODE	86364 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1194 Parallel pipe added 15 inch RCP	LF	\$25.00	58	\$1,450.00
	Cherokee St Street Crossing	width	length	sq ft	
		20	58	1160	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	129	\$5,671.11
NODE	86365 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1195 Parallel pipe added 18 inch RCP	LF	\$34.00	88	\$2,992.00
NODE	86368 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	1.5	1.5	RCP	
Pipe 2	1	1.5	1.5	RCP	
Wing walls	2	2.5	5	0.93	
Apron		5	5	0.93	
Face (less pipe opening)		2.5	5	0.33	
			Total	2.18	
Concrete	cy	\$300.00	2.18	\$655.17	
Excavation and Backfill	cy	\$4.00	4.37	\$17.47	
NODE	86366 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1256 Parallel pipe added 15 inch RCP	LF	\$25.00	46	\$1,150.00
	Cherokee St Street Crossing	width	length	sq ft	
		20	46	920	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	102	\$4,497.78
NODE	86367 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1196 Parallel pipe added 18 inch RCP	LF	\$34.00	172	\$5,848.00
NODE	86369 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	1.5	1.5	RCP	
Pipe 2	1	1.5	1.5	RCP	
Wing walls	2	2.5	5	0.93	
Apron		5	5	0.93	
Face (less pipe opening)		2.5	5	0.33	
			Total	2.18	
Concrete	cy	\$300.00	2.18	\$655.17	
Excavation and Backfill	cy	\$4.00	4.37	\$17.47	

SUBTOTAL \$32,354.18

20% Contingency \$38,825.02

20% Engineering, legal and administrative \$46,590.02

PRELIMINARY COST ESTIMATE				DATE:	11/19/96
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JLF
ELEMENT #	3 MILE CREEK - 6 L				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.5	Pipe and Inlet (Enclosed) System, 21 inch RCP	324	LF	\$37.00	\$11,988
A.3.6	Pipe and Inlet (Enclosed) System, 24 inch RCP	187	LF	\$42.00	\$7,854
A.3.7	Pipe and Inlet (Enclosed) System, 27 inch RCP	165	LF	\$47.00	\$7,755
A.3.9	Pipe and Inlet (Enclosed) System, 36 inch RCP	321	LF	\$66.00	\$21,186
A.3.11	Pipe and Inlet (Enclosed) System, 48 inch RCP	40	LF	\$110.00	\$4,400
B.3.4	Reinforced Concrete Box Culverts, 4 x 3	53	LF	\$270.00	\$14,310
	Structural Removal				\$6,705
A.5.1	Storm Sewer Manholes < 6ft Diameter	3	ea	\$2,350.00	\$7,050
A.5.2	Storm Sewer Manholes > 6ft Diameter	1	ea	\$5,250.00	\$5,250
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	1202	sy	\$8.00	\$9,616
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	1202	sy	\$30.00	\$36,060
F.2.1	Street Removal - 2-lane, Gravel	801	sy	\$4.00	\$3,204
F.3.4.1	Street Replacement - 2-lane, Gravel	801	sy	\$10.00	\$8,010
C.3.2.1	Concrete - Wing walls and apron	33	cy	\$300.00	\$9,924
B.1	Excavation and Backfill	66	cy	\$4.00	\$265
TOTAL =					\$153,576
CONTINGENCY		20 PERCENT			\$30,715
SUB TOTAL =					\$184,291
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$36,858
TOTAL =					\$221,150

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem 6 L 3 Mile Creek					
NODE	92601 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1541 Parallel pipe added	1.75 RCP			
	21 inch RCP	LF	\$37.00	324	\$11,988.00
		width	length	sq ft	
		20	324	6480	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	720	\$27,360.00
NODE	92602 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1542 Parallel pipe added	2.25 RCP			
	27 inch RCP	LF	\$47.00	165	\$7,755.00
		width	length	sq ft	
		20	165	3300	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	367	\$13,933.33
NODE	92603 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1543 Replacement Pipe	3 RCP			
	36 inch RCP	LF	\$66.00	321	\$21,186.00
		width	length	sq ft	
		20	321	6420	
	2-lane, Gravel	sy	\$14.00	713	\$9,986.67
	Structural removal			\$33,523	\$6,704.53
NODE	92604 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2499 Parallel box added	4 x 3 RCB			
	0 inch RCP	LF	\$270.00	53	\$14,310.00
		width	length	sq ft	
		20	20	400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	44	\$1,688.89
NODE	86944 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	3	4	RCB
	Pipe 2	1	2	2	RCP
	Wing walls	2	4	5	1.48
	Apron		5	8	1.48
	Face (less pipe opening)		4	8	0.59
				Total	3.56
	Concrete	cy	\$300.00	3.56	\$1,066.67
	Excavation and Backfill	cy	\$4.00	7.11	\$28.44
NODE	86664 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2	2	RCP
	Pipe 2	1	4.5	4.5	RCP
	Wing walls	2	5.5	5	2.04
	Apron		5	8.5	1.57
	Face (less pipe opening)		5.5	8.5	1.03
				Total	4.64
	Concrete	cy	\$300.00	4.64	\$1,391.16
	Excavation and Backfill	cy	\$4.00	9.27	\$37.10
CONDUIT	1363 Parallel pipe added	2 RCP			
	24 inch RCP	LF	\$42.00	127	\$5,334.00
		width	length	sq ft	
		20	20	400	
	2-lane, Gravel	sy	\$14.00	44	\$622.22

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86665 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	4.5	4.5	RCP
	Wing walls	2	5.5	5	2.04
	Apron		5	8.5	1.57
	Face (less pipe opening)		5.5	8.5	1.03
				Total	4.64
	Concrete	cy	\$300.00	4.64	\$1,391.16
	Excavation and Backfill	cy	\$4.00	9.27	\$37.10

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	92145 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	5	5	RCP
	Wing walls	2	6	5	2.22
	Apron		5	9	1.67
	Face (less pipe opening)		6	9	1.16
				Total	5.05
	Concrete	cy	\$300.00	5.05	\$1,513.59
	Excavation and Backfill	cy	\$4.00	10.09	\$40.36

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	1364 Parallel pipe added			2 RCB	
	24 inch RCP	LF	\$42.00	60	\$2,520.00
	Osage	width	length	sq ft	
		32	20	640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	92146 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	5	5	RCP
	Wing walls	2	6	5	2.22
	Apron		5	9	1.67
	Face (less pipe opening)		6	9	1.16
				Total	5.05
	Concrete	cy	\$300.00	5.05	\$1,513.59
	Excavation and Backfill	cy	\$4.00	10.09	\$40.36

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	92148 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	4	4	RCP
	Pipe 2	1	4.5	4.5	RCP
	Wing walls	2	5.5	5	2.04
	Apron		5	10.5	1.94
	Face (less pipe opening)		5.5	10.5	1.08
				Total	5.07
	Concrete	cy	\$300.00	5.07	\$1,519.77
	Excavation and Backfill	cy	\$4.00	10.13	\$40.53

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	1365 Parallel pipe added			4 RCB	
	48 inch RCP	LF	\$110.00	40	\$4,400.00
		width	length	sq ft	
		20	20	400	
	2-lane, Gravel	sy	\$14.00	44	\$622.22

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	92150 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	4	4	RCP
	Pipe 2	1	4.5	4.5	RCP
	Wing walls	2	5.5	5	2.04
	Apron		5	10.5	1.94
	Face (less pipe opening		5.5	10.5	1.08
				Total	5.07
	Concrete	cy	\$300.00	5.07	\$1,519.77
	Excavation and Backfill	cy	\$4.00	10.13	\$40.53

SUBTOTAL \$153,593.22

20% Contingency \$184,311.86

20% Engineering, legal and administrative \$221,174.23

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem 7L 3 Mile Creek					
NODE	86971 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1559 Replacement 24 inch RCP	LF	\$42.00	2 RCP 118	\$4,956.00
	Structural removal			\$7,306	\$1,461.20
NODE	86972 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	86973 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1565 Parallel pipe added 18 inch RCP	LF	\$34.00	1.5 RCP 295	\$10,030.00
		width	length	sq ft	
		20	295	5900	
	2-lane, Asphalt, w/ C&	sy	\$38.00	656	\$24,911.11
NODE	86975 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	92070 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	1.5	1.5	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.5	1.02
	Face (less pipe openin		3	5.5	0.43
			Total		2.56
	Concrete	cy	\$300.00	2.56	\$767.68
	Excavation and Backfill	cy	\$4.00	5.12	\$20.47
CONDUIT	1561 Parallel pipe added 18 inch RCP	LF	\$34.00	1.5 RCP 27	\$918.00
NODE	86975				

SUBTOTAL \$52,464.46

20% Contingency \$62,957.36

20% Engineering, legal and administrative \$75,548.83

PRELIMINARY COST ESTIMATE				DATE:	11/19/96
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHKD:	JWH
ELEMENT #	3 MILE CREEK - 8 L				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System, 15 inch RCP	69	LF	\$25.00	\$1,725
A.3.5	Pipe and Inlet (Enclosed) System, 21 inch RCP	120	LF	\$37.00	\$4,440
A.3.6	Pipe and Inlet (Enclosed) System, 36 inch RCP	92	LF	\$66.00	\$6,072
A.5.2	Storm Sewer Manholes > 6ft Diameter	1	ea	\$5,250.00	\$5,250
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	267	sy	\$8.00	\$2,136
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	267	sy	\$30.00	\$8,010
C.3.2.1	Concrete - Wing walls and apron	7	cy	\$300.00	\$1,956
B.1	Excavation and Backfill	13	cy	\$4.00	\$52
C.1	Embankments	6259	cy	\$5.00	\$31,295
C.3.2.1	Concrete lined channel	108	cy	\$300.00	\$32,400
TOTAL =					\$93,336
CONTINGENCY		20 PERCENT			\$18,667
SUB TOTAL =					\$112,003
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$22,401
TOTAL =					\$134,404

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	8 L 3 Mile Creek				
NODE	87016 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.25	0.97
	Face (less pipe opening)		3	5.25	0.42
			Total	2.50	
	Concrete	cy	\$300.00	2.50	\$751.46
	Excavation and Backfill	cy	\$4.00	5.01	\$20.04
CONDUIT	1584 Parallel pipe added			1.25 RCP	
	15 inch RCP	LF	\$25.00	69	\$1,725.00
NODE	87015 Junction Structure				
		ea	\$5,250.00	1	\$5,250.00
NODE	87013 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.75	1.75	RCP
	Pipe 2	1	0	0	RCP
	Wing walls	2	2.75	5	1.02
	Apron		5	3.75	0.69
	Face (less pipe opening)		2.75	3.75	0.29
			Total	2.01	
	Concrete	cy	\$300.00	2.01	\$601.75
	Excavation and Backfill	cy	\$4.00	4.01	\$16.05
CONDUIT	7777 New pipe			1.75 RCP	
	21 inch RCP	LF	\$37.00	120	\$4,440.00
	16th Street	width	length	sq ft	
	Street Crossing	20	120	2400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	267	\$10,133.33
NODE	87018 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.75	1.75	RCP
	Pipe 2	1	0	0	RCP
	Wing walls	2	2.75	5	1.02
	Apron		5	3.75	0.69
	Face (less pipe opening)		2.75	3.75	0.29
			Total	2.01	
	Concrete	cy	\$300.00	2.01	\$601.75
	Excavation and Backfill	cy	\$4.00	4.01	\$16.05
NODE	92038				
	Upstream of Node 92038, install detention basin w/ earthfill dam w/ 3:1 embankments, emergency spillway, and outflow piping				
CONDUIT	Install new pipe			3 RCP	
	36 inch RCP	LF	\$66.00	92	\$6,072.00
EMBANKMENTS	Concrete	cy	\$5.00	6259	\$31,295.00
	Concrete	cy	\$300.00	108.00	\$32,400.00

SUBTOTAL \$93,322.42

20% Contingency \$111,986.90

20% Engineering, legal and administrative \$134,384.28

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	9 L 3 Mile Creek				

NODE 87021 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	2	2	RCP	
Wing walls	2	3	5	1.11	
Apron		5	6	1.11	
Face (less pipe opening)		3	6	0.43	
			Total	2.66	
Concrete		cy	\$300.00	2.66	\$796.85
Excavation and Backfill		cy	\$4.00	5.31	\$21.25

CONDUIT 1587 Parallel pipe added					
	24 inch RCP	LF	\$42.00	29	\$1,218.00
	Metropolitan Street Crossing	width	length	sq ft	
	4-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$44.00	71	\$3,128.89

NODE 87022 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	2	2	RCP	
Wing walls	2	3	5	1.11	
Apron		5	6	1.11	
Face (less pipe opening)		3	6	0.43	
			Total	2.66	
Concrete		cy	\$300.00	2.66	\$796.85
Excavation and Backfill		cy	\$4.00	5.31	\$21.25

SUBTOTAL \$5,983.09

20% Contingency \$7,179.71

20% Engineering, legal and administrative \$8,615.66

PRELIMINARY COST ESTIMATE				DATE: 11/19/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JWH
ELEMENT #	3 MILE CREEK - 1R				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System, 15 inch RCP	623	LF	\$25.00	\$15,575
A.3.4	Pipe and Inlet (Enclosed) System, 18 inch RCP	1047	LF	\$34.00	\$35,598
A.3.9	Pipe and Inlet (Enclosed) System, 36 inch RCP	502	LF	\$66.00	\$33,132
A.3.10	Pipe and Inlet (Enclosed) System, 42 inch RCP	1417	LF	\$90.00	\$127,530
A.3.15	Pipe and Inlet (Enclosed) System, 72 inch RCP	540	LF	\$250.00	\$135,000
A.5.1	Storm Sewer Manholes < 6ft Diameter	10	ea	\$2,350.00	\$23,500
A.5.2	Storm Sewer Manholes > 6ft Diameter	23	ea	\$5,250.00	\$120,750
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	3009	sy	\$8.00	\$24,072
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	3009	sy	\$30.00	\$90,270
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	71	sy	\$9.00	\$639
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	71	sy	\$35.00	\$2,485
	Structural Removal				\$6,040
TOTAL =					\$614,591
CONTINGENCY		20 PERCENT			\$122,918
SUB TOTAL =					\$737,509
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$147,502
TOTAL =					\$885,011

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	1 R 3 Mile Creek				
NODE	86021 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	996 Parallel pipe added 18 inch RCP	LF	\$34.00	475	\$16,150.00
NODE	92740 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	999 Parallel pipe added 15 inch RCP	LF	\$25.00	471	\$11,775.00
	Kansas Street Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$38.00	71	\$2,702.22
NODE	86027 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	86034 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2091 Parallel pipe added 15 inch RCP	LF	\$25.00	47	\$1,175.00
	9th Street Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	47	940	
		sy	\$38.00	104	\$3,968.89
NODE	92741 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	86030 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1001 Parallel pipe added 18 inch RCP	LF	\$34.00	252	\$8,568.00
NODE	86042 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1002 Parallel pipe added 18 inch RCP	LF	\$34.00	192	\$6,528.00
	Charles Ave Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$38.00	71	\$2,702.22
NODE	86043 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1003 Parallel pipe added 42 inch RCP	LF	\$90.00	491	\$44,190.00
	Charles Ave Middle of Street	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	491	9820	
		sy	\$38.00	1091	\$41,462.22
NODE	86049 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1004 Parallel pipe added 36 inch RCP	LF	\$66.00	232	\$15,312.00
	Frank Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	50	1000	
		sy	\$38.00	111	\$4,222.22
NODE	86054 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	1005 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 270	\$17,820.00
NODE	86055 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1006 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 81	\$7,290.00
	Spruce Street Crossing	width 20	length 32	sq ft 640	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	71	\$3,128.89
NODE	92717 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1007 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 139	\$12,510.00
NODE	92718 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2118 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 64	\$5,760.00
	Broadway Street Crossing	width 20	length 64	sq ft 1280	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	142	\$5,404.44
NODE	86323 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2254 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 53	\$4,770.00
	Broadway Street Crossing	width 20	length 53	sq ft 1060	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	118	\$4,475.56
NODE	86324 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1169 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 26	\$2,340.00
NODE	92716 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1170 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 133	\$11,970.00
NODE	92777 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1171 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 121	\$10,890.00
NODE	92715 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1172 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 66	\$5,940.00
NODE	86015 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2116 Parallel pipe added 15 inch RCP	LF	\$25.00	1.25 RCP 31	\$775.00
	6th Street Crossing	width 20	length 32	sq ft 640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
NODE	86017 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	993 Parallel pipe added 15 inch RCP	LF	\$25.00	1.25 RCP 74	\$1,850.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86018 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	86020 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1173 Parallel pipe added 18 inch RCP	LF	\$34.00	128	\$4,352.00
	6th Street Middle of Street	width	length	sq ft	
		32	128	4096	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	455	\$17,294.22
NODE	86325 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1174 Parallel pipe added 42 inch RCP	LF	\$90.00	198	\$17,820.00
	Osage St Middle of Street	width	length	sq ft	
		32	198	6336	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	704	\$26,752.00
NODE	92713 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	92714 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2255 Parallel pipe added 42 inch RCP	LF	\$90.00	45	\$4,050.00
NODE	86328 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3170 Pipe added 72 inch RCP	LF	\$250.00	125	\$31,250.00
NODE	86330 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1176 Replacement pipe 72 inch RCP	LF	\$250.00	89	\$22,250.00
	Osage St Street Crossing	width	length	sq ft	
		20	32	640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
	Structural Removal			20 Percent	\$6,040.44
NODE	86331 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3169 Pipe added 72 inch RCP	LF	\$250.00	139	\$34,750.00
NODE	86333 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	86332 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3168 Pipe added 72 inch RCP	LF	\$250.00	73	\$18,250.00
NODE	92184 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86378 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3167 Pipe added 72 inch RCP	LF	\$250.00	6 RCP 114	\$28,500.00
NODE	92185 Junction Structure	ea	\$5,250.00	1	\$5,250.00

SUBTOTAL \$614,642.78

20% Contingency \$737,571.33

20% Engineering, legal and administrative \$885,085.60

PRELIMINARY COST ESTIMATE				DATE: 11/21/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	JLF
ENGINEER	BLACK & VEATCH			CHKCD:	JWH
ELEMENT #	3 MILE CREEK - 2R				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System, 15 inch RCP	313	LF	\$25.00	\$7,836
A.3.4	Pipe and Inlet (Enclosed) System, 18 inch RCP	108	LF	\$34.00	\$3,673
A.3.5	Pipe and Inlet (Enclosed) System, 21 inch RCP	135	LF	\$37.00	\$5,002
A.3.6	Pipe and Inlet (Enclosed) System, 24 inch RCP	1371	LF	\$42.00	\$57,593
A.3.7	Pipe and Inlet (Enclosed) System, 27 inch RCP	267	LF	\$47.00	\$12,552
A.3.8	Pipe and Inlet (Enclosed) System, 30 inch RCP	214	LF	\$52.00	\$11,151
A.3.9	Pipe and Inlet (Enclosed) System, 36 inch RCP	1673	LF	\$66.00	\$110,399
A.3.10	Pipe and Inlet (Enclosed) System, 42 inch RCP	778	LF	\$90.00	\$70,064
A.3.11	Pipe and Inlet (Enclosed) System, 48 inch RCP	743	LF	\$110.00	\$81,684
A.3.13	Pipe and Inlet (Enclosed) System, 60 inch RCP	40	LF	\$200.00	\$7,964
A.5.1	Storm Sewer Manholes < 6ft Diameter	16	ea	\$2,350.00	\$37,600
A.5.2	Storm Sewer Manholes > 6ft Diameter	24	ea	\$5,250.00	\$126,000
B.1	Excavation and Backfill	156	cy	\$4.00	\$622
B.3.0	Reinforced Concrete Box Culverts, 2 x 2	43	LF	\$180.00	\$7,826
B.3.1	Reinforced Concrete Box Culverts, 3 x 2	85	LF	\$215.00	\$18,275
C.3.2.1	Concrete - Wing walls and apron	78	cy	\$300.00	\$23,340
D.1	Structure Removal (20%)		LS		\$7,274
F.2.1	Street Removal - 2-lane, Gravel	471	sy	\$4.00	\$1,884
F.3.4.1	Street Replacement, 2-lane, Gravel	471	sy	\$10.00	\$4,710
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	2493	sy	\$8.00	\$19,944
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	2493	sy	\$30.00	\$74,790
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	3391	sy	\$9.00	\$30,519
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	3391	sy	\$35.00	\$118,685
TOTAL =					\$839,387
CONTINGENCY		20 PERCENT			\$167,877
SUB TOTAL =					\$1,007,264
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$201,453
TOTAL =					\$1,208,717

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	2R 3 Mile Creek				
NODE	85488 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	723 Parallel pipe added	2 RCP			
	24 inch RCP	LF	\$42.00	27.67	\$1,162.14
		width	length	sq ft	
	Cross Klemp Street	20	20	400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	44	\$1,688.89
NODE	85489 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	724 Parallel pipe added	2 RCB			
	24 inch RCP	LF	\$42.00	148.01	\$6,216.42
NODE	85493 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	3.5	5	1.30
	Apron		5	6.5	1.20
	Face (less pipe opening		3.5	6.5	0.54
			Total		3.04
	Concrete	cy	\$300.00	3.04	\$913.33
	Excavation and Backfill	cy	\$4.00	6.09	\$24.36
NODE	85494 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.25	0.97
	Face (less pipe opening		3	5.25	0.42
			Total		2.50
	Concrete	cy	\$300.00	2.50	\$751.46
	Excavation and Backfill	cy	\$4.00	5.01	\$20.04
CONDUIT	726 Parallel pipe added	1.25 RCP			
	15 inch RCP	LF	\$25.00	54.63	\$1,365.75
		width	length	sq ft	
	Cross Klemp Street	20	20	400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	44	\$1,688.89
NODE	85495 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.25	0.97
	Face (less pipe opening		3	5.25	0.42
			Total		2.50
	Concrete	cy	\$300.00	2.50	\$751.46
	Excavation and Backfill	cy	\$4.00	5.01	\$20.04
NODE	85496 Junction Structure	ea	\$2,350.00	1	\$2,350.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST	
CONDUIT	728 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 150.96	\$9,963.36	
	Parallel Grand Ave.	width	length	sq ft		
	2-lane, Asphalt, w/ C&G	20	151	3019.2		
NODE	85497 Junction Structure	ea	\$2,350.00	1	\$2,350.00	
NODE	85456 Junction Structure	ea	\$2,350.00	1	\$2,350.00	
CONDUIT	702 Parallel pipe added 21 inch RCP	LF	\$37.00	1.75 RCP 28.81	\$1,065.97	
	Cross Forest Lane	width	length	sq ft		
	2-lane, Asphalt, w/ C&G	20	22	440		
NODE	85455 Junction Structure	ea	\$2,350.00	1	\$2,350.00	
CONDUIT	1901 Parallel pipe added 21 inch RCP	LF	\$37.00	1.75 RCP 29.11	\$1,077.07	
NODE	85457 Concrete Wing walls & Apron					
		Quantity	Height	Width		cu yd
	Pipe 1	1	2	2	RCP	
	Pipe 2	1	1.75	1.75	RCP	
	Wing walls	2	3	5	1.11	
	Apron		5	5.75	1.06	
	Face (less pipe opening)		3	5.75	0.43	
				Total	2.61	
	Concrete	cy	\$300.00	2.61	\$782.81	
	Excavation and Backfill	cy	\$4.00	5.22	\$20.88	
NODE	85479 Concrete Wing walls & Apron					
		Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP	
	Pipe 2	1	2	2	RCP	
	Wing walls	2	3	5	1.11	
	Apron		5	6	1.11	
	Face (less pipe opening)		3	6	0.43	
				Total	2.66	
	Concrete	cy	\$300.00	2.66	\$796.85	
	Excavation and Backfill	cy	\$4.00	5.31	\$21.25	
CONDUIT	715 Parallel pipe added 24 inch RCP	LF	\$42.00	2 RCP 56.13	\$2,357.46	
	Cross Michigan Street	width	length	sq ft		
	2-lane, Asphalt, w/ C&G	20	56	1122.6		
NODE	85480 Concrete Wing walls & Apron				\$4,739.87	
		Quantity	Height	Width		cu yd
	Pipe 1	1	2	2		RCP
	Pipe 2	1	2	2	RCP	
	Wing walls	2	3	5	1.11	
	Apron		5	6	1.11	
	Face (less pipe opening)		3	6	0.43	
				Total	2.66	
	Concrete	cy	\$300.00	2.66	\$796.85	
	Excavation and Backfill	cy	\$4.00	5.31	\$21.25	

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85498 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1487 Parallel pipe added 36 inch RCP	LF	\$66.00	146.62	\$9,676.92
NODE	92345 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1114 Parallel pipe added 36 inch RCP	LF	\$66.00	116.73	\$7,704.18
	Cross Ohio Street	width	length	sq ft	
	4-lane, Asphalt, w/ C&G	20	60	1200	
NODE	92346 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1115 Parallel pipe added 36 inch RCP	LF	\$66.00	142.12	\$9,379.92
	Parallel Kingman Street	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	142	2842.4	
NODE	92736 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2231 Parallel pipe added 36 inch RCP	LF	\$66.00	162.74	\$10,740.84
NODE	86228 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1116 Parallel pipe added 36 inch RCP	LF	\$66.00	177.45	\$11,711.70
NODE	85982 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	85976 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.75	1.75	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.75	1.06
	Face (less pipe opening)		3	5.75	0.43
				Total	2.61
	Concrete	cy	\$300.00	2.61	\$782.81
	Excavation and Backfill	cy	\$4.00	5.22	\$20.88
CONDUIT	980 Parallel pipe added 21 inch RCP	LF	\$37.00	77.27	\$2,858.99
NODE	85978 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.75	1.75	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.75	1.06
	Face (less pipe opening)		3	5.75	0.43
				Total	2.61
	Concrete	cy	\$300.00	2.61	\$782.81
	Excavation and Backfill	cy	\$4.00	5.22	\$20.88
NODE	92362 Junction Structure	ea	\$2,350.00	1	\$2,350.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	2688 Parallel pipe added			2.25 RCP	
	27 inch RCP	LF	\$47.00	267.06	\$12,551.82
		width	length	sq ft	
	Parallel Ohio Street	20	267	5341.2	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	593	\$26,112.53
NODE	92363 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2689 Parallel pipe added			3 RCP	
	36 inch RCP	LF	\$66.00	83.38	\$5,503.08
		width	length	sq ft	
	Parallel Ohio Street	20	83	1667.6	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	185	\$8,152.71
NODE	92364 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	694 Parallel pipe added			3 RCP	
	36 inch RCP	LF	\$66.00	194.77	\$12,854.82
		width	length	sq ft	
	Parallel Ohio Street	20	195	3895.4	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	433	\$19,044.18
NODE	92732 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3200 Parallel pipe added			3.5 RCP	
	42 inch RCP	LF	\$90.00	49.88	\$4,489.20
		width	length	sq ft	
	Parallel Ohio Street	20	50	997.6	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	111	\$4,877.16
NODE	92733 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3201 Parallel pipe added			3.5 RCP	
	42 inch RCP	LF	\$90.00	231.88	\$20,869.20
		width	length	sq ft	
	Parallel Ohio Street	20	232	4637.6	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	515	\$22,672.71
NODE	92734 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3202 Parallel pipe added			3.5 RCP	
	42 inch RCP	LF	\$90.00	52.72	\$4,744.80
		width	length	sq ft	
	Parallel Ohio Street	20	53	1054.4	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	117	\$5,154.84
NODE	92735 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3203 Parallel pipe added			3.5 RCP	
	42 inch RCP	LF	\$90.00	132.91	\$11,961.90
		width	length	sq ft	
	Parallel Ohio Street	20	133	2658.2	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	295	\$12,995.64
NODE	85487 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	716 Parallel pipe added			3 RCP	
	36 inch RCP	LF	\$66.00	44.62	\$2,944.92
		width	length	sq ft	
	Cross Ohio Street	20	30	600	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	67	\$2,933.33
NODE	85485 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85482 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	718 Parallel pipe added	2 RCP			
	24 inch RCP	LF	\$42.00	159.46	\$6,697.32
		width	length	sq ft	
	Parallel Ohio Street	20	159	3189.2	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	354	\$15,591.64
NODE	85484 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	720 Parallel pipe added	2.5 RCP			
	30 inch RCP	LF	\$52.00	214.44	\$11,150.88
		width	length	sq ft	
	Parallel Ohio Street	20	214	4288.8	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	477	\$20,967.47
NODE	85485				
CONDUIT	721 Parallel pipe added	3.5 RCP			
	42 inch RCP	LF	\$90.00	85.97	\$7,737.30
NODE	86233 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	85920 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	946 Parallel pipe added	2 RCP			
	24 inch RCP	LF	\$42.00	122.05	\$5,126.10
		width	length	sq ft	
	Cross 15th Street	20	60	1200	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	133	\$5,066.67
NODE	85922 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	3.5	5	1.30
	Apron		5	6.5	1.20
	Face (less pipe opening)		3.5	6.5	0.54
				Total	3.04
	Concrete	cy	\$300.00	3.04	\$913.33
	Excavation and Backfill	cy	\$4.00	6.09	\$24.36
NODE	86237 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	3	3	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	4	5	1.48
	Apron		5	6.25	1.16
	Face (less pipe opening)		4	6.25	0.62
				Total	3.26
	Concrete	cy	\$300.00	3.26	\$977.27
	Excavation and Backfill	cy	\$4.00	6.52	\$26.06
CONDUIT	1119 Parallel pipe added	1.25 RCP			
	15 inch RCP	LF	\$25.00	258.81	\$6,470.25
NODE	86238 Junction Structure	ea	\$2,350.00	1	\$2,350.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86303 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCB	
Pipe 2	0	0	0		
Wing walls	2	3	5	1.11	
Apron		5	3	0.56	
Face (less pipe opening)		3	3	0.19	
			Total	1.85	
Concrete	cy		\$300.00	1.85	\$555.56
Excavation and Backfill	cy		\$4.00	3.70	\$14.81
CONDUIT	1156 Replacement box added 2' x 2'				
2 ft x 2 ft	ft W x ft H	LF	\$180.00	43.48	\$7,826.40
	width	length	sq ft		
Cross Madison Street	20	22	440		
2-lane, Asphalt, w/ C&G	sy		\$38.00	49	\$1,857.78
Structural removal (20% subtotal)				\$10,255	\$2,050.91
NODE	86304 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCB	
Pipe 2	0	0	0		
Wing walls	2	3	5	1.11	
Apron		5	3	0.56	
Face (less pipe opening)		3	3	0.19	
			Total	1.85	
Concrete	cy		\$300.00	1.85	\$555.56
Excavation and Backfill	cy		\$4.00	3.70	\$14.81
NODE	86305 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	1.5	1.5	RCP	
Wing walls	2	3	5	1.11	
Apron		5	5.5	1.02	
Face (less pipe opening)		3	5.5	0.43	
			Total	2.56	
Concrete	cy		\$300.00	2.56	\$767.68
Excavation and Backfill	cy		\$4.00	5.12	\$20.47
CONDUIT	1157 Parallel pipe added				
18 inch RCP	LF		\$34.00	37.31	\$1,268.54
	width	length	sq ft		
Cross Washington St.	20	20	400		
2-lane, Asphalt, w/ C&G	sy		\$38.00	44	\$1,688.89
NODE	86306 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	1.5	1.5	RCP	
Wing walls	2	3	5	1.11	
Apron		5	5.5	1.02	
Face (less pipe opening)		3	5.5	0.43	
			Total	2.56	
Concrete	cy		\$300.00	2.56	\$767.68
Excavation and Backfill	cy		\$4.00	5.12	\$20.47

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86307 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.5	1.5	RCP
	Pipe 2	1	2.75	2.75	RCP
	Wing walls	2	3.75	5	1.39
	Apron		5	6.25	1.16
	Face (less pipe opening		3.75	6.25	0.58
				Total	3.13
	Concrete	cy	\$300.00	3.13	\$938.68
	Excavation and Backfill	cy	\$4.00	6.26	\$25.03
CONDUIT	1158 Parallel pipe added			2.75	RCP
	33 inch RCP	LF	\$66.00	225.13	\$14,858.58
NODE	92723 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	86285 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1147 Parallel pipe added			2	RCP
	24 inch RCP	LF	\$42.00	220.26	\$9,250.92
		width	length	sq ft	
	Parallel Franklin Street	20	220	4405.2	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	489	\$18,599.73
NODE	86289 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1149 Parallel pipe added			2	RCP
	24 inch RCP	LF	\$42.00	424.18	\$17,815.56
		width	length	sq ft	
	Parallel alley	10	424	4241.8	
	2-lane, Gravel	sy	\$14.00	471	\$6,598.36
NODE	92724 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2251 Parallel pipe added			2	RCP
	24 inch RCP	LF	\$42.00	43.36	\$1,821.12
NODE	86291 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1150 Parallel pipe added			2	RCP
	24 inch RCP	LF	\$42.00	65.64	\$2,756.88
		width	length	sq ft	
	Cross Klemp Street	20	30	600	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	67	\$2,533.33
NODE	86292 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3	3	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	4	5	1.48
	Apron		5	7	1.30
	Face (less pipe opening		4	7	0.66
				Total	3.44
	Concrete	cy	\$300.00	3.44	\$1,031.00
	Excavation and Backfill	cy	\$4.00	6.87	\$27.49

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86317 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	4	4	RCP
	Pipe 2	1	3.5	3.5	RCP
	Wing walls	2	5	5	1.85
	Apron		5	9.5	1.76
	Face (less pipe opening)		5	9.5	0.94
			Total	4.55	
	Concrete	cy	\$300.00	4.55	\$1,364.58
	Excavation and Backfill	cy	\$4.00	9.10	\$36.39
CONDUIT	1164 Parallel pipe added			3.5 RCP	
	42 inch RCP	LF	\$90.00	225.13	\$20,261.70
NODE	92731 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	92075 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3.5	3.5	RCP
	Pipe 2	1	1.5	1.5	RCP
	Wing walls	2	4.5	5	1.67
	Apron		5	7	1.30
	Face (less pipe opening)		4.5	7	0.74
			Total	3.71	
	Concrete	cy	\$300.00	3.71	\$1,112.35
	Excavation and Backfill	cy	\$4.00	7.42	\$29.66
CONDUIT	1166 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	70.71	\$2,404.14
NODE	86318 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1167 Parallel pipe added			2 RCP	
	24 inch RCP	LF	\$42.00	104.5	\$4,389.00
		width	length	sq ft	
	Cross Franklin Street	20	20	400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	44	\$1,688.89
NODE	86319 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	6	6	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	7	5	2.59
	Apron		5	10	1.85
	Face (less pipe opening)		7	10	1.43
			Total	5.87	
	Concrete	cy	\$300.00	5.87	\$1,762.05
	Excavation and Backfill	cy	\$4.00	11.75	\$46.99
NODE	86258 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	5.5	5.5	RCP
	Pipe 2	1	4	4	RCP
	Wing walls	2	6.5	5	2.41
	Apron		5	11.5	2.13
	Face (less pipe opening)		6.5	11.5	1.42
			Total	5.96	
	Concrete	cy	\$300.00	5.96	\$1,788.06
	Excavation and Backfill	cy	\$4.00	11.92	\$47.68

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	2236 Parallel pipe added 48 inch RCP	LF	\$110.00	4 RCP 116.96	\$12,865.60
		width	length	sq ft	
	Cross Newman Street	20	80	1600	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	178	\$6,755.56
NODE	86259 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1128 Parallel pipe added 48 inch RCP	LF	\$110.00	4 RCP 229.1	\$25,201.00
		width	length	sq ft	
	Parallel Quincy Street	20	229	4582	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	509	\$19,346.22
NODE	92729 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	92098 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	5	5	RCP
	Pipe 2	1	4	4	RCP
	Wing walls	2	6	5	2.22
	Apron		5	11	2.04
	Face (less pipe opening)		6	11	1.25
				Total	5.51
	Concrete	cy	\$300.00	5.51	\$1,653.32
	Excavation and Backfill	cy	\$4.00	11.02	\$44.09
CONDUIT	1135 Replacement pipe 60 inch RCP	LF	\$200.00	5 RCP 39.82	\$7,964.00
	Replacement pipe 48 inch RCP	LF	\$110.00	4 RCP 39.82	\$4,380.20
		width	length	sq ft	
	Cross Grand Avenue	20	30	600	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	67	\$2,533.33
	Structural removal (20% subtotal)			\$16,575	\$3,314.99
NODE	92728 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1136 Parallel pipe added 48 inch RCP	LF	\$110.00	4 RCP 356.7	\$39,237.00
NODE	92727 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	85996 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	3	3	RCP
	Pipe 2	1	3	3	RCP
	Wing walls	2	4	5	1.48
	Apron		5	8	1.48
	Face (less pipe opening)		4	8	0.66
				Total	3.62
	Concrete	cy	\$300.00	3.62	\$1,087.36
	Excavation and Backfill	cy	\$4.00	7.25	\$29.00
CONDUIT	1137 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 59.74	\$3,942.84
NODE	92725 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	2111 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 58.85	\$3,884.10
NODE	92726 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1138 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 109.6	\$7,233.60
	Cross 10th Avenue 4-lane, Asphalt, w/ C&G	width sy	length \$44.00	sq ft 50 111	\$4,888.89
NODE	85997 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	92721 No new construction				
CONDUIT	3178 Remove culvert 8' x 8.5' ft W x ft H	LF	\$477.00	8 X 8.5 20	\$1,908.00
NODE	92722 No new construction			20 Percent	\$1,908.00
NODE	86334 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
Pipe 1		1	2	2	RCP
Pipe 2		1	2	3	RCB
Wing walls	2	3	5	1.11	
Apron		5	7	1.30	
Face (less pipe opening)		3	7	0.44	
		Total		2.85	
Concrete	cy	\$300.00	2.85	\$853.98	
Excavation and Backfill	cy	\$4.00	5.69	\$22.77	
CONDUIT	1178 Parallel box added 3' x 2' ft W x ft H	LF	\$215.00	3 X 2 84.9	\$18,253.50
NODE	86335 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
Pipe 1		1	2	2	RCP
Pipe 2		1	2	3	RCB
Wing walls	2	3	5	1.11	
Apron		5	7	1.30	
Face (less pipe opening)		3	7	0.44	
		Total		2.85	
Concrete	cy	\$300.00	2.85	\$853.98	
Excavation and Backfill	cy	\$4.00	5.69	\$22.77	
NODE	92701 To be replaced by Larkin re-channelization project				
CONDUIT	3154 " " " " " "				
NODE	86357 " " " " " "				
CONDUIT	1192 " " " " " "				
NODE	86359 " " " " " "				
CONDUIT	1193 " " " " " "				
NODE	86360 " " " " " "				
CONDUIT	3157 " " " " " "				
NODE	92702 " " " " " "				

SUBTOTAL \$839,485.07

20% Contingency \$1,007,382.08

20% Engineering, legal and administrative \$1,208,858.50

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	5 R 3 Mile Creek				
NODE	92056 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	0	0	
	Wing walls	2	3.5	5	1.30
	Apron		5	4.5	0.83
	Face (less pipe opening		3.5	4.5	0.40
				Total	2.53
	Concrete	cy	\$300.00	2.53	\$759.35
	Excavation and Backfill	cy	\$4.00	5.06	\$20.25
CONDUIT	2581 Replacement			2.5 RCP	
	30 inch RCP	LF	\$52.00	129	\$6,708.00
	Channel Shaping				
	Excavation and Backfill	cy	\$4.00	278	\$1,111.11
	Structural removal			\$10,949	\$2,189.74
NODE	92304 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00

SUBTOTAL \$13,138.45

20% Contingency \$15,766.14

20% Engineering, legal and administrative \$18,919.37

PRELIMINARY COST ESTIMATE				DATE:	11/19/96
PROJECT:		EST:	VLD		
ENGINEER	BLACK & VEATCH	CHCKD:	JLF		
ELEMENT #	3 MILE CREEK - 6 R				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System, 15 inch RCP	237	LF	\$25.00	\$5,925
A.3.5	Pipe and Inlet (Enclosed) System, 21 inch RCP	457	LF	\$37.00	\$16,909
A.3.6	Pipe and Inlet (Enclosed) System, 24 inch RCP	686	LF	\$42.00	\$28,812
A.3.7	Pipe and Inlet (Enclosed) System, 27 inch RCP	1188	LF	\$47.00	\$55,836
A.3.8	Pipe and Inlet (Enclosed) System, 30 inch RCP	275	LF	\$52.00	\$14,300
A.3.9	Pipe and Inlet (Enclosed) System, 36 inch RCP	48	LF	\$66.00	\$3,168
A.3.10	Pipe and Inlet (Enclosed) System, 42 inch RCP	1412	LF	\$90.00	\$127,080
A.3.11	Pipe and Inlet (Enclosed) System, 48 inch RCP	325	LF	\$110.00	\$35,750
A.3.12	Pipe and Inlet (Enclosed) System, 54 inch RCP	983	LF	\$135.00	\$132,705
A.5.1	Storm Sewer Manholes < 6ft Diameter	16	ea	\$2,350.00	\$37,600
A.5.2	Storm Sewer Manholes > 6ft Diameter	19	ea	\$5,250.00	\$99,750
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	4468	sy	\$8.00	\$35,744
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	4468	sy	\$30.00	\$134,040
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	720	sy	\$9.00	\$6,480
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	720	sy	\$35.00	\$25,200
C.3.2.1	Concrete - Wing walls and apron	7	cy	\$300.00	\$2,004
B.1	Excavation and Backfill	13	cy	\$4.00	\$53
TOTAL =					\$761,356
CONTINGENCY		20 PERCENT			\$152,271
SUB TOTAL =					\$913,628
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$182,726
TOTAL =					\$1,096,353

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	6 R 3 Mile Creek				
NODE	86842 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1477 Parallel pipe added 15 inch RCP	LF	\$25.00	32	\$800.00
	Osage St Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$38.00	71	\$2,702.22
NODE	86841 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2458 Parallel pipe added 15 inch RCP	LF	\$25.00	154	\$3,850.00
NODE	86843 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1-3033 Replace w/Pipe 21 inch RCP	LF	\$37.00	350	\$12,950.00
NODE	1-86843 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2-3033 Replace w/Pipe 24 inch RCP	LF	\$42.00	40	\$1,680.00
	20th Street Street Crossing	width	length	sq ft	
	4-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$44.00	71	\$3,128.89
NODE	2-86843 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	3-3033 Replace w/Pipe 24 inch RCP	LF	\$42.00	646	\$27,132.00
	Osage Street Parallel Street	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	646	12920	
		sy	\$38.00	1436	\$54,551.11
NODE	86819 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1463 Parallel Pipe added 27 inch RCP	LF	\$47.00	37	\$1,739.00
	Osage St Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$38.00	71	\$2,702.22
NODE	86820 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2456 Parallel Pipe added 27 inch RCP	LF	\$47.00	7	\$329.00
NODE	86821 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1464 Parallel Pipe added 27 inch RCP	LF	\$47.00	178	\$8,366.00
NODE	86817 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	86795 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2446 Parallel pipe added 15 inch RCP	LF	\$25.00	51	\$1,275.00
	Seneca St Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$38.00	71	\$2,702.22
NODE	86803 Junction Structure	ea	\$2,350.00	1	\$2,350.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86559 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	2.5	2.5	RCB
	Wing walls	2	3.5	5	1.30
	Apron		5	7	1.30
	Face (less pipe opening)	3.5		7	0.54
			Total	3.14	
	Concrete	cy	\$300.00	3.14	\$940.92
	Excavation and Backfill	cy	\$4.00	6.27	\$25.09
CONDUIT	2314 Parallel pipe added			2.5	RCP
	30 inch RCP	LF	\$52.00	24	\$1,248.00
NODE	92307 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1304 Parallel pipe added			2.5	RCP
	30 inch RCP	LF	\$52.00	41	\$2,132.00
	Shawnee St	width	length	sq ft	
	Street Crossing	20	32	640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
NODE	86556 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1303 Parallel pipe added			3	RCP
	36 inch RCP	LF	\$66.00	48	\$3,168.00
	20th Street	width	length	sq ft	
	Street Crossing	20	32	640	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	71	\$3,128.89
NODE	86558 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1455 Parallel pipe added			3.5	RCP
	42 inch RCP	LF	\$90.00	325	\$29,250.00
	20th Street	width	length	sq ft	
	Parallel Street	16	325	5200	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	578	\$25,422.22
NODE	86804 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1454 Parallel pipe added			3.5	RCP
	42 inch RCP	LF	\$90.00	296	\$26,640.00
	Seneca St	width	length	sq ft	
	Parallel St	16	296	4736	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	526	\$19,996.44
NODE	86806 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2448 Parallel pipe added			3.5	RCP
	42 inch RCP	LF	\$90.00	169	\$15,210.00
	Seneca St	width	length	sq ft	
	Parallel St	16	169	2704	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	300	\$11,416.89
NODE	86809 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1457 Parallel pipe added			3.5	RCP
	42 inch RCP	LF	\$90.00	361	\$32,490.00
	Miami St	width	length	sq ft	
	Street Crossing	20	32	640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
NODE	86810 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	1458 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 85	\$7,650.00
	Miami St Parallel Street	width	length	sq ft	
	16	85	1360		
	2-lane, Asphalt, w/ C&G	sy	\$38.00	151	\$5,742.22
NODE	86811 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2449 Parallel pipe added 42 inch RCP	LF	\$90.00	3.5 RCP 176	\$15,840.00
NODE	86814 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1460 Parallel pipe added 48 inch RCP	LF	\$110.00	4 RCP 325	\$35,750.00
NODE	86815 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2451 Parallel pipe added 54 inch RCP	LF	\$135.00	4.5 RCP 175	\$23,625.00
NODE	86816 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1461 Parallel pipe added 54 inch RCP	LF	\$135.00	4.5 RCP 25	\$3,375.00
NODE	86817 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1467 Parallel pipe added 54 inch RCP	LF	\$135.00	4.5 RCP 452	\$61,020.00
	Osage St Street Crossing	width	length	sq ft	
	20	50	1000		
	2-lane, Asphalt, w/ C&G	sy	\$38.00	111	\$4,222.22
NODE	86825 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1468 Parallel pipe added 54 inch RCP	LF	\$135.00	4.5 RCP 145	\$19,575.00
NODE	86757 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1420 Parallel pipe added 54 inch RCP	LF	\$135.00	4.5 RCP 41	\$5,535.00
	18th Street Street Crossing	width	length	sq ft	
	20	41	820		
	2-lane, Asphalt, w/ C&G	sy	\$38.00	91	\$3,462.22
NODE	86758 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1421 Parallel pipe added 54 inch RCP	LF	\$135.00	4.5 RCP 145	\$19,575.00
NODE	86759 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	86770 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1431 Parallel pipe added 21 inch RCP	LF	\$37.00	1.75 RCP 107	\$3,959.00
	Terry Street Parallel Street	width	length	sq ft	
	16	107	1712		
	2-lane, Asphalt, w/ C&G	sy	\$38.00	190	\$7,228.44
NODE	86776 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2425 Parallel pipe added 27 inch RCP	LF	\$47.00	2.25 RCP 134	\$6,298.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	86777 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1432 Parallel pipe added 27 inch RCP	LF	\$47.00	260	\$12,220.00
NODE	86778 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2426 Parallel pipe added 27 inch RCP	LF	\$47.00	122	\$5,734.00
	16th Street Parallel Street	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	217	\$8,241.78
NODE	86779 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2427 Parallel pipe added 27 inch RCP	LF	\$47.00	42	\$1,974.00
	Michael Street Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
NODE	86780 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1433 Parallel pipe added 27 inch RCP	LF	\$47.00	408	\$19,176.00
	16th Street Parallel	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	725	\$27,562.67
NODE	86781 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2428 Parallel pipe added 30 inch RCP	LF	\$52.00	83	\$4,316.00
	16th Street Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	184	\$7,008.89
NODE	86782 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1434 Parallel pipe added 30 inch RCP	LF	\$52.00	93	\$4,836.00
	Osage St Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	111	\$4,222.22
NODE	86783 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2585 Parallel pipe added 30 inch RCP	LF	\$52.00	34	\$1,768.00
NODE	86766 Concrete Wing walls & Apron				
	Pipe 1	Quantity	Height	Width	cu yd
	Pipe 2	1	3	3	RCP
	Wing walls	1	2.5	2.5	RCP
	Apron	2	4	5	1.48
	Face (less pipe opening)	5	7.5		1.39
		4	7.5		0.67
			Total		3.54
	Concrete	cy	\$300.00	3.54	\$1,061.36
	Excavation and Backfill	cy	\$4.00	7.08	\$28.30
				SUBTOTAL	\$761,439.12

20% Contingency \$913,726.94

20% Engineering, legal and administrative \$1,096,472.33

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem 7 R 3 Mile Creek					
NODE	86838 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2.5	2.5	RCP	
Pipe 2	1	1.25	1.25	RCP	
Wing walls	2	3.5	5	1.30	
Apron		5	5.75	1.06	
Face (less pipe opening		3.5	5.75	0.52	
			Total	2.88	
Concrete	cy		\$300.00	2.88	\$863.77
Excavation and Backfill	cy		\$4.00	5.76	\$23.03
CONDUIT	1474 Parallel pipe added 1.25 RCP				
	15 inch RCP	LF	\$25.00	29	\$725.00
	Ottawa St	width	length	sq ft	
	Parallel Street	16	29	464	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	52	\$2,268.44
NODE	92008 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	2461 Parallel box added 1.5 X 5.5 RCB				
	2 X 5 ft RCB	LF	\$275.00	21	\$5,775.00
	Ottawa St	width	length	sq ft	
	Parallel Street	16	21	336	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	37	\$1,642.67
NODE	86840 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1476 Parallel pipe added 3 RCP				
	36 inch RCP	LF	\$66.00	662	\$43,692.00
	20th Street	width	length	sq ft	
	Parallel Street	16	662	10592	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	1177	\$51,783.11
NODE	86830 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
NODE	86834 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1472 Parallel pipe added 1.25 RCP				
	15 inch RCP	LF	\$25.00	234	\$5,850.00
	20th Street	width	length	sq ft	
	Parallel Street	16	234	3744	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	416	\$18,304.00
NODE	86835 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
SUBTOTAL					\$142,677.02
20% Contingency					\$171,212.43
20% Engineering, legal and administrative					\$205,454.91

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
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Subsystem 8 R 3 Mile Creek

NODE 86844 Concrete Wing walls & Apron

	Quantity	Height	Width	cu yd
Pipe 1	1	2	2	RCP
Pipe 2	1	1.5	1.5	RCP
Wing walls	2	3	5	1.11
Apron		5	5.5	1.02
Face (less pipe opening)		3	5.5	0.43
			Total	2.56

Concrete	cy	\$300.00	2.56	\$767.68
Excavation and Backfill	cy	\$4.00	5.12	\$20.47

CONDUIT 1478 Parallel pipe added 1.5 RCP

18 inch RCP LF \$34.00 45.89 \$1,560.26

Ottawa St	width	length	sq ft
Street Crossing	20	32	640

4-lane, Asphalt, w/ C&G sy \$44.00 71 \$3,128.89

NODE 86845 Concrete Wing walls & Apron

	Quantity	Height	Width	cu yd
Pipe 1	1	2	2	RCP
Pipe 2	1	1.5	1.5	RCP
Wing walls	2	3	5	1.11
Apron		5	5.5	1.02
Face (less pipe opening)		3	5.5	0.43
			Total	2.56

Concrete	cy	\$300.00	2.56	\$767.68
Excavation and Backfill	cy	\$4.00	5.12	\$20.47

SUBTOTAL \$6,265.45

20% Contingency \$7,518.54

20% Engineering, legal and administrative \$9,022.25

PRELIMINARY COST ESTIMATE				DATE: 11/19/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHKD:	JWH
ELEMENT #	3 MILE CREEK - South Branch - 1 L				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System, 15 inch RCP	310	LF	\$25.00	\$7,750
A.3.4	Pipe and Inlet (Enclosed) System, 18 inch RCP	393	LF	\$34.00	\$13,362
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	170	sy	\$8.00	\$1,360
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	170	sy	\$30.00	\$5,100
F.2.1	Street Removal - 2-lane, Gravel	284	sy	\$4.00	\$1,136
F.3.4.1	Street Replacement - 2-lane, Gravel	284	sy	\$10.00	\$2,840
A.5.1	Storm Sewer Manholes < 6ft Diameter	5	ea	\$2,350.00	\$11,750
C.3.2.1	Concrete - Wing walls and apron	4	cy	\$300.00	\$1,239
B.1	Excavation and Backfill	8	cy	\$4.00	\$33
TOTAL =					\$44,570
CONTINGENCY		20 PERCENT			\$8,914
SUB TOTAL =					\$53,484
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$10,697
TOTAL =					\$64,181

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	1 L 3 Mile Creek, South Branch				
NODE	86462 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.25	1.25	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	2.25	5	0.83
	Apron		5	4.5	0.83
	Face (less pipe opening)		2.25	4.5	0.28
			Total Area	1.95	
	Concrete	cy	\$300.00	1.95	\$585.23
	Excavation and Backfill	cy	\$4.00	3.90	\$15.61
CONDUIT	1252 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	50	\$1,250.00
	Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	50	1000	
		sy	\$38.00	111	\$4,222.22
NODE	86463 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1253 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	144	\$3,600.00
NODE	86464 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	2279 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	116	\$2,900.00
	Gravel Alley	width	length	sq ft	
	Street Crossing	22	116	2552	
	Gravel Alley	sy	\$14.00	284	\$3,969.78
NODE	86465 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1254 Parallel pipe added		1.5	RCP	
	18 inch RCP	LF	\$34.00	152	\$5,168.00
NODE	86466 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	2280 Parallel pipe added		1.5	RCP	
	18 inch RCP	LF	\$34.00	33	\$1,122.00
	Cherokee Street	width	length	sq ft	
	Street Crossing	16	33	528	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	59	\$2,229.33
NODE	86467 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1255 Parallel pipe added		1.5	RCP	
	18 inch RCP	LF	\$34.00	208	\$7,072.00
NODE	86468 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.5	1.5	RCP
	Pipe 2	1	1.5	1.5	RCP
	Wing walls	2	2.5	5	0.93
	Apron		5	5	0.93
	Face (less pipe opening)		2.5	5	0.33
			Total Area	2.18	
	Concrete	cy	\$300.00	2.18	\$655.17
	Excavation and Backfill	cy	\$4.00	4.37	\$17.47
			SUBTOTAL		\$44,556.81
			20% Contingency		\$53,468.18
			20% Engineering, legal and administrative		\$64,161.81

PRELIMINARY COST ESTIMATE				DATE: 11/19/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHKD:	JWH
ELEMENT #	3 MILE CREEK - South Branch - 1 R				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
	10th St Crossing				
A.3.6.3	Pipe and Inlet (Enclosed) System, 15 inch RCP Parallel - 10th and Delaware	39	LF	\$25.00	\$975
A.3.6.5	Pipe and Inlet (Enclosed) System, 21 inch RCP	24	LF	\$37.00	\$888
F.2.3	Street Removal - 4-lane, Asfalt, w/ C&G	112	sy	\$9.00	\$1,008
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	112	sy	\$35.00	\$3,920
C.3.2.1	Concrete - Wing walls and apron	2	cy	\$300.00	\$588
B.1	Excavation and Backfill	4	cy	\$4.00	\$16
A.5.1	Storm Sewer Manholes < 6ft Diameter	2	ea	\$2,350.00	\$4,700
TOTAL =					\$12,092
CONTINGENCY		20 PERCENT			\$2,418
SUB TOTAL =					\$14,510
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$2,902
TOTAL =					\$17,412

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	1 R 3 Mile Creek, South Branch				
NODE	86444 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	1.25	1.25	RCP	
Pipe 2	1	1.25	1.25	RCP	
Wing walls	2	2.25	5	0.83	
Apron		5	4.5	0.83	
Face (less pipe opening		2.25	4.5	0.28	
			Total	1.95	
Concrete	cy		\$300.00	1.95	\$585.23
Excavation and Backfill	cy		\$4.00	3.90	\$15.61
CONDUIT	1241 Parallel pipe added		1.25 RCP		
	15 inch RCP	LF	\$25.00	39	\$975.00
	10th Street	width	length	sq ft	
	Street Crossing	16	39	624	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	69	\$3,050.67
NODE	86441 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	2287 Parallel pipe added		1.75 RCP		
	21 inch RCP	LF	\$37.00	24	\$888.00
	10th & Delaware	width	length	sq ft	
	Parallel Street	16	24	384	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	43	\$1,877.33
NODE	86442 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00

SUBTOTAL \$12,091.84

20% Contingency \$14,510.20

20% Engineering, legal and administrative \$17,412.24

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	3 L 3 Mile Creek, South Branch				

NODE 86512 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	1.5	1.5	RCP	
Pipe 2	1	1.5	6	RCB	
Wing walls	2	2.5	5	0.93	
Apron		5	9.5	1.76	
Face (less pipe opening)		2.5	9.5	0.48	
			Total	3.17	
Concrete		cy	\$300.00	3.17	\$949.81
Excavation and Backfill		cy	\$4.00	6.33	\$25.33

CONDUIT 1282 Parallel box added 1.5 X 6 RCB					
2 X 4	RCB	LF	\$245.00	54	\$13,230.00
18th Street		width	length	sq ft	
Street Crossing		20	32	640	
4-lane, Asphalt, w/ C&G		sy	\$44.00	71	\$3,128.89

NODE 86513 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	1.5	1.5	RCP	
Pipe 2	1	1.5	6	RCB	
Wing walls	2	2.5	5	0.93	
Apron		5	9.5	1.76	
Face (less pipe opening)		2.5	9.5	0.48	
			Total	3.17	
Concrete		cy	\$300.00	3.17	\$949.81
Excavation and Backfill		cy	\$4.00	6.33	\$25.33

SUBTOTAL \$18,309.16

20% Contingency \$21,971.00

20% Engineering, legal and administrative \$26,365.20

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	4 L 3 Mile Creek, South Branch				
NODE	92639 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	3055 Parallel pipe added			2 RCP	
	24 inch RCP	LF	\$42.00	171.43	\$7,200.06
	Street Crossing	width	length	sq ft	
	2-lane, Asphalt, w/ C&G	20	32	640	
		sy	\$38.00	71	\$2,702.22
NODE	92641 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	4	4	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	5	5	1.85
	Apron		5	8	1.48
	Face (less pipe opening)		5	8	0.90
				Total	4.23
	Concrete	cy	\$300.00	4.23	\$1,269.91
	Excavation and Backfill	cy	\$4.00	8.47	\$33.86

SUBTOTAL \$13,556.06

20% Contingency \$16,267.27

20% Engineering, legal and administrative \$19,520.72

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	5 R 3 Mile Creek, South Branch				

NODE	92014 Concrete Wing walls & Apron	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP	
	Pipe 2	1	2.25	2.25	RCP	
	Wing walls	2	3.25	5	1.20	
	Apron		5	6.25	1.16	
	Face (less pipe openin		3.25	6.25	0.49	
				Total Area	2.85	
	Concrete	cy		\$300.00	2.85	\$854.94
	Excavation and Backfill	cy		\$4.00	5.70	\$22.80

CONDUIT	938 Parallel pipe added	2.25 RCP			
	27 inch RCP	LF	\$47.00	91.33	\$4,292.51
	Spruce Street	width	length	sq ft	
	Street Crossing	20	32	640	
	4-lane, Asphalt, w/ C&	sy	\$44.00	71	\$3,128.89

NODE	85913 Concrete Wing walls & Apron	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP	
	Pipe 2	1	2.25	2.25	RCP	
	Wing walls	2	3.25	5	1.20	
	Apron		5	6.25	1.16	
	Face (less pipe openin		3.25	6.25	0.49	
				Total Area	2.85	
	Concrete	cy		\$300.00	2.85	\$854.94
	Excavation and Backfill	cy		\$4.00	5.70	\$22.80

SUBTOTAL \$9,176.88

20% Contingency \$11,012.26

20% Engineering, legal and administrative \$13,214.71

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	6 R 3 Mile Creek, South Branch				
NODE	92413 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2743 Parallel pipe added	LF	\$25.00	250	\$6,250.00
	15 inch RCP				
	leavenworth Twy	width	length	sq ft	
	Street Crossing	20	64	1280	
	4-lane, Asphalt, w/ C&	sy	\$44.00	142	\$6,257.78
NODE	92414 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	1.25	1.25	RCP	
Pipe 2	1	1.25	1.25	RCP	
Wing walls	2	2.25	5	0.83	
Apron		5	4.5	0.83	
Face (less pipe openin		2.25	4.5	0.28	
			Total	1.95	
Concrete	cy		\$300.00	1.95	\$585.23
Excavation and Backfill	cy		\$4.00	3.90	\$15.61

SUBTOTAL \$15,458.61

20% Contingency \$18,550.34

20% Engineering, legal and administrative \$22,260.40

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	7 R 3 Mile Creek, South Branch				
NODE	85909 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	1.75	1.75	RCP	
Wing walls	2	3	5	1.11	
Apron		5	5.75	1.06	
Face (less pipe opening		3	5.75	0.43	
			Total	2.61	
Concrete	cy		\$300.00	2.61	\$782.81
Excavation and Backfill	cy		\$4.00	5.22	\$20.88
CONDUIT	935 Parallel pipe added		1.75	RCP	
	21 inch RCP	LF	\$37.00	30	\$1,110.00
	21st Street	width	length	sq ft	
	Street Crossing	20	32	640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
NODE	85910 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	2	2	RCP	
Wing walls	2	3	5	1.11	
Apron		5	6	1.11	
Face (less pipe opening		3	6	0.43	
			Total	2.66	
Concrete	cy		\$300.00	2.66	\$796.85
Excavation and Backfill	cy		\$4.00	5.31	\$21.25
NODE	85896 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2067 Parallel pipe added		2	RCP	
	24 inch RCP	LF	\$42.00	33.04	\$1,387.68
	21st St Court	width	length	sq ft	
	Street Crossing	20	32	640	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	71	\$2,702.22
NODE	85897 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	923 Parallel pipe added		2	RCP	
	24 inch RCP	LF	\$42.00	201.72	\$8,472.24
NODE	85899 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	3.5	3.5	RCP	
Pipe 2	1	2	2	RCP	
Wing walls	2	4.5	5	1.67	
Apron		5	7.5	1.39	
Face (less pipe opening		4.5	7.5	0.78	
			Total	3.83	
Concrete	cy		\$300.00	3.83	\$1,149.86
Excavation and Backfill	cy		\$4.00	7.67	\$30.66
SUBTOTAL					\$29,676.68
20% Contingency					\$35,612.01
20% Engineering, legal and administrative					\$42,734.41

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	B R 3 Mile Creek, South Branch				

NODE 85904 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	1.5	1.5	RCP	
Wing walls	2	3	5	1.11	
Apron		5	5.5	1.02	
Face (less pipe opening)		3	5.5	0.43	
			Total Area	2.56	
Concrete	cy		\$300.00	2.56	\$767.68
Excavation and Backfill	cy		\$4.00	5.12	\$20.47

CONDUIT	931 Parallel pipe added		1.5	RCP	
	18 inch RCP	LF	\$34.00	138.17	\$4,697.78

NODE 85903 Junction Structure					
		ea	\$2,350.00	1	\$2,350.00

CONDUIT	929 Parallel pipe added		2.25	RCP	
	27 inch RCP	LF	\$47.00	70.75	\$3,325.25

NODE 85906 Junction Structure					
		ea	\$2,350.00	1	\$2,350.00

CONDUIT	932 Parallel pipe added		2 x 3.5	RCB	
	3 X 3 RCB	LF	\$245.00	100	\$24,500.00

NODE 85907 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	2	3.5	RCP	
Wing walls	2	3	5	1.11	
Apron		5	7.5	1.39	
Face (less pipe opening)		3	7.5	0.60	
			Total Area	3.10	
Concrete	cy		\$300.00	3.10	\$930.19
Excavation and Backfill	cy		\$4.00	6.20	\$24.80

SUBTOTAL \$38,966.17

20% Contingency \$46,759.41

20% Engineering, legal and administrative \$56,111.29

PRELIMINARY COST ESTIMATE				DATE: 11/12/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER:	BLACK & VEATCH			CHCKD:	JWH
ELEMENT #	5 MILE CREEK - 1 L				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.4	Pipe and Inlet (Enclosed) System - 18 inch RCP	785	LF	\$34.00	\$26,690
A.3.6	Pipe and Inlet (Enclosed) System - 24 inch RCP	397	LF	\$42.00	\$16,674
A.3.7	Pipe and Inlet (Enclosed) System - 27 inch RCP	64	LF	\$47.00	\$3,008
A.3.8	Pipe and Inlet (Enclosed) System - 30 inch RCP	67	LF	\$52.00	\$3,484
A.3.10	Pipe and Inlet (Enclosed) System - 42 inch RCP	387	LF	\$90.00	\$34,830
A.3.11	Pipe and Inlet (Enclosed) System - 48 inch RCP	260	LF	\$110.00	\$28,600
A.3.13	Pipe and Inlet (Enclosed) System - 60 inch RCP	460	LF	\$200.00	\$92,000
A.2.1	Storm Sewer Curb Inlet	16	ea	\$775.00	\$12,400
A.2.2	Storm Sewer Area Inlet	4	ea	\$680.00	\$2,720
C.3.2.1	Concrete - Wing walls and apron	9	cy	\$300.00	\$2,757
B.1	Excavation and Backfill	18	cy	\$4.00	\$74
A.5.1	Storm Sewer Manholes < 6ft Diameter	2	ea	\$2,350.00	\$4,700
A.5.2	Storm Sewer Manholes > 6ft Diameter	6	ea	\$5,250.00	\$31,500
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	64	sy	\$8.00	\$512
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	64	sy	\$30.00	\$1,920
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	2211	sy	\$9.00	\$19,899
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	2211	sy	\$35.00	\$77,385
F.1.3	Driveway and Sidewalk removal	112	sy	\$9.00	\$1,008
F.3.3	Driveway and Sidewalk replacement	112	sy	\$27.00	\$3,024
TOTAL =					\$363,185
CONTINGENCY		20 PERCENT			\$72,637
SUB TOTAL =					\$435,821
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$87,164
TOTAL =					\$522,986

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem 1 L 5 Mile Creek					
NODE Area Inlet					
		ea	\$680.00	1	\$680.00
CONDUIT	780 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	750	\$25,500.00
NODE Storm Sewer Inlets					
		ea	\$775.00	2	\$1,550.00
CONDUIT	1441 Parallel pipe added			2 RCP	
	24 inch RCP	LF	\$42.00	31	\$1,302.00
	Evergreen	Width	Length	sq ft	
	Cross Street	12	24	288	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	32	\$1,216.00
NODE Storm Sewer Inlets					
		ea	\$775.00	2	\$1,550.00
CONDUIT	861 Parallel pipe added			2.25 RCP	
	27 inch RCP	LF	\$47.00	64	\$3,008.00
	Parking Lot	Width	Length	sq ft	
		12	64	768	
	Parking Lot removal & r	sy	\$36.00	85	\$3,072.00
NODE Area Inlet					
		ea	\$680.00	1	\$680.00
CONDUIT	2016 Parallel pipe added			2.5 RCP	
	30 inch RCP	LF	\$52.00	41	\$2,132.00
NODE Junction Structure					
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	862 Parallel pipe added			4 RCP	
	48 inch RCP	LF	\$110.00	135	\$14,850.00
	4 th St	Width	Length	sq ft	
	Street Crossing	22	135	2970	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	330	\$14,520.00
NODE Storm Sewer Inlets					
		ea	\$775.00	2	\$1,550.00
CONDUIT	2043 Parallel pipe added			4 RCP	
	48 inch RCP	LF	\$110.00	125	\$13,750.00
NODE Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	4	4	RCP	
Pipe 2	1	4.5	4.5	RCP	
Wing walls	2	5.5	5	2.04	
Apron		5	10.5	1.94	
Face (less pipe opening		5.5	10.5	1.08	
			Total	5.07	
Concrete	cy		\$300.00	5.07	\$1,519.77
Excavation and Backfill	cy		\$4.00	10.13	\$40.53
NODE Storm Sewer Inlets					
		ea	\$775.00	2	\$1,550.00
CONDUIT	765 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	35	\$1,190.00
	Rose St	Width	Length	sq ft	
	Street Crossing	12	24	288	

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
	2-lane, Asphalt, w/ C&G	sy	\$38.00	32	\$1,216.00
NODE	Storm Sewer Inlets	ea	\$775.00	1	\$775.00
NODE	Area Inlet	ea	\$680.00	1	\$680.00
CONDUIT	766 Parallel pipe added 24 inch RCP	LF	\$42.00	125	\$5,250.00
NODE	Storm Sewer Inlets	ea	\$775.00	1	\$775.00
NODE	Area Inlet	ea	\$680.00	1	\$680.00
CONDUIT	1937 Parallel pipe added 24 inch RCP	LF	\$42.00	112	\$4,704.00
NODE	Storm Sewer Inlets	ea	\$775.00	2	\$1,550.00
CONDUIT	768 Parallel pipe added 24 inch RCP	LF	\$42.00	129	\$5,418.00
	Driveway	Width	Length	sq ft	
	Driveway	12	20	240	
	Driveway	sy	\$36.00	27	\$960.00
NODE	Storm Sewer Inlets	ea	\$775.00	1	\$775.00
NODE	Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1938 Parallel pipe added 30 inch RCP	LF	\$52.00	26	\$1,352.00
NODE	Storm Sewer Inlets	ea	\$775.00	2	\$1,550.00
CONDUIT	1961 Parallel pipe added 60 inch RCP	LF	\$200.00	137	\$27,400.00
	4th St	Width	Length	sq ft	
	Parallel St	20	137	2740	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	304	\$13,395.56
NODE	Junction Structure	ea	\$5,250.00	2	\$10,500.00
CONDUIT	779 Parallel pipe added 60 inch RCP	LF	\$200.00	144	\$28,800.00
	4th St	Width	Length	sq ft	
	Parallel St	20	144	2880	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	320	\$14,080.00
NODE	Junction Structure	ea	\$5,250.00	2	\$10,500.00
CONDUIT	1964 Parallel pipe added 60 inch RCP	LF	\$200.00	69	\$13,800.00
	4th St	Width	Length	sq ft	
	Parallel St	20	69	1380	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	153	\$6,746.67
NODE	Junction Structure	ea	\$5,250.00	2	\$10,500.00
CONDUIT	2019 Parallel pipe added 60 inch RCP	LF	\$200.00	110	\$22,000.00
	4th St	Width	Length	sq ft	
	Parallel St	20	110	2200	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	244	\$10,755.56

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
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NODE	Storm Sewer Inlets				
		ea	\$775.00	1	\$775.00
CONDUIT	918 Parallel pipe added		3.5 RCP		
	42 inch RCP	LF	\$90.00	387	\$34,830.00
	Marion St	Width	Length	sq ft	
	Parallel St	20	387	7740	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	860	\$37,840.00

NODE	Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	3.5	3.5	RCP	
Pipe 2	1	3.5	3.5	RCP	
Wing walls	2	4.5	5	1.67	
Apron		5	9	1.67	
Face (less pipe opening)		4.5	9	0.79	
			Total	4.12	
Concrete	cy		\$300.00	4.12	\$1,236.20
Excavation and Backfill	cy		\$4.00	8.24	\$32.97

SUBTOTAL \$363,237.24

20% Contingency \$435,884.69

20% Engineering, legal and administrative \$523,061.62

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	2 L 5 Mile Creek				
NODE	85642 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	796 Parallel pipe added 15 inch RCP	LF	\$25.00	45	\$1,125.00
NODE	85643 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85510 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	1.25	1.25	RCP	
Pipe 2	1	2	2	RCP	
Wing walls	2	3	5	1.11	
Apron		5	5.25	0.97	
Face (less pipe opening)		3	5.25	0.42	
			Total	2.50	
	Concrete	cy	\$300.00	2.50	\$751.46
	Excavation and Backfill	cy	\$4.00	5.01	\$20.04
CONDUIT	752 Parallel pipe added 15 inch RCP	LF	\$25.00	563	\$14,075.00
NODE	85554 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	92339 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	820 Parallel pipe added 21 inch RCP	LF	\$37.00	46	\$1,702.00
	Cleveland Terr	Width	Length	sq ft	
	Cross Street	20	24	480	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	53	\$2,026.67
NODE	85698 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2649 Install Pipe 48 inch RCP	LF	\$110.00	420	\$46,200.00
NODE	85515 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	85541 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	743 Parallel pipe added 18 inch RCP	LF	\$34.00	587	\$19,958.00
	Second Ave	Width	Length	sq ft	
	Parallel Street	20	587	11740	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	1304	\$49,568.89
NODE	85543 Junction Structure	ea	\$2,350.00	1	\$2,350.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	1926 Parallel pipe added 24 inch RCP	LF	\$42.00	2 RCP 55	\$2,310.00
	Cleveland Terr Parallel Street	Width 20	Length 55	sq ft 1100	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	122	\$4,644.44
NODE	82310 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	746 Parallel pipe added 27 inch RCP	LF	\$47.00	2.25 RCP 175	\$8,225.00
	Cleveland Terr Parallel Street	Width 20	Length 175	sq ft 3500	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	389	\$14,777.78
NODE	85547 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	747 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 266	\$17,556.00
	Cleveland Terr Parallel Street	Width 20	Length 266	sq ft 5320	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	591	\$22,462.22
NODE	85550 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	749 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 106	\$6,996.00
	Cleveland Terr Parallel Street	Width 20	Length 106	sq ft 2120	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	236	\$8,951.11
NODE	85507 Junction Structure				
NODE	85792 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2004 Parallel pipe added 24 inch RCP	LF	\$42.00	2 RCP 74	\$3,108.00
	Sherman St Cross Street	Width 20	Length 24	sq ft 480	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	53	\$2,026.67
NODE	85793 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	870 Parallel pipe added 27 inch RCP	LF	\$47.00	2.25 RCP 259	\$12,173.00
	Alley Parallel	Width 20	Length 259	sq ft 5180	
	2-lane, Gravel	sy	\$14.00	576	\$8,057.78
NODE	85794 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2005 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 138	\$9,108.00
	Santa Fe St Parallel Street	Width 20	Length 138	sq ft 2760	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	307	\$11,653.33
NODE	85798 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	872 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 217	\$14,322.00
	Santa Fe St Parallel Street	Width	Length	sq ft	
		20	217	4340	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	482	\$18,324.44
NODE	85802 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	874 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 176	\$11,616.00
	Santa Fe St Parallel Street	Width	Length	sq ft	
		20	176	3520	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	391	\$14,862.22
NODE	85804 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2013 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 20	\$1,320.00
	Second Ave Parallel Street	Width	Length	sq ft	
		20	20	400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	44	\$1,688.89
NODE	85805 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2014 Parallel pipe added 36 inch RCP	LF	\$66.00	3 RCP 79	\$5,214.00
	Second Ave Cross Street	Width	Length	sq ft	
		20	36	720	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	80	\$3,040.00
NODE	92325 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	876 Parallel Box added 0 inch RCP	LF	\$255.00	3.5 x 3 RCB 68	\$17,340.00
NODE	85808 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	3	3.5	RCB
	Pipe 2	1	3	3	RCP
	Wing walls	2	4	5	1.48
	Apron		5	8.5	1.57
	Face (less pipe opening)	4		8.5	0.54
				Total	3.59
	Concrete	cy	\$300.00	3.59	\$1,077.78
	Excavation and Backfill	cy	\$4.00	7.19	\$28.74

SUBTOTAL \$432,860.46

20% Contingency \$519,432.55

20% Engineering, legal and administrative \$623,319.06

PRELIMINARY COST ESTIMATE				DATE: 11/12/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JWH
ELEMENT#	5 MILE CREEK - 3 L				
DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT	
A.3.3 Pipe and Inlet (Enclosed) System - 15 inch RCP	1538	LF	\$25.00	\$38,447	
A.3.4 Pipe and Inlet (Enclosed) System - 18 inch RCP	369	LF	\$34.00	\$12,551	
A.3.5 Pipe and Inlet (Enclosed) System - 21 inch RCP	120	LF	\$37.00	\$4,452	
A.3.6 Pipe and Inlet (Enclosed) System - 24 inch RCP	316	LF	\$42.00	\$13,252	
A.3.7 Pipe and Inlet (Enclosed) System - 27 inch RCP	245	LF	\$47.00	\$11,514	
A.3.8 Pipe and Inlet (Enclosed) System - 30 inch RCP	538	LF	\$52.00	\$27,960	
A.3.9 Pipe and Inlet (Enclosed) System - 36 inch RCP	476	LF	\$66.00	\$31,440	
A.3.10 Pipe and Inlet (Enclosed) System - 42 inch RCP	69	LF	\$90.00	\$6,224	
A.3.11 Pipe and Inlet (Enclosed) System - 48 inch RCP	280	LF	\$110.00	\$30,773	
A.3.13 Pipe and Inlet (Enclosed) System - 60 inch RCP	83	LF	\$200.00	\$16,556	
A.3.15 Pipe and Inlet (Enclosed) System - 72 inch RCP	177	LF	\$250.00	\$44,178	
Reinforced Concrete Box - 3 X 2	35	LF	\$215.00	\$7,622	
Reinforced Concrete Box - 3 X 2.5	724	LF	\$240.00	\$173,813	
Reinforced Concrete Box - 3.5 X 2	165	LF	\$245.00	\$40,427	
Reinforced Concrete Box - 4 X 2	229	LF	\$245.00	\$56,083	
Reinforced Concrete Box - 4 X 2.5	269	LF	\$270.00	\$72,565	
Reinforced Concrete Box - 5 X 3	122	LF	\$320.00	\$39,133	
Reinforced Concrete Box - 7 X 6	254	LF	\$378.00	\$95,853	
C.3.2.1 Concrete - Wing walls and apron	75	cy	\$300.00	\$22,602	
B.1 Excavation and Backfill	151	cy	\$4.00	\$603	
A.5.1 Storm Sewer Manholes < 6ft Diameter	16	ea	\$2,350.00	\$37,600	
A.5.2 Storm Sewer Manholes > 6ft Diameter	19	ea	\$5,250.00	\$99,750	
F.2.2 Street Removal - 2-lane, Asphalt, w/ C&G	7591	sy	\$8.00	\$60,727	
F.3.4.2 Street Replacement, 2-lane, Asphalt w/ C&G	7591	sy	\$30.00	\$227,727	
F.2.3 Street Removal - 4-lane, Asphalt, w/ C&G	5817	sy	\$9.00	\$52,353	
F.3.4.3 Street Replacement, 4-lane, Asphalt w/ C&G	5817	sy	\$35.00	\$203,596	
Structural Removal and Replacement				\$1,620	
B.1 Fill	54890	cy	\$4.00	\$219,560	
				TOTAL =	\$1,648,981
CONTINGENCY		20 PERCENT			\$329,796
				SUB TOTAL =	\$1,978,777
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$296,817
				TOTAL =	\$2,275,594

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	3 L 5 Mile Creek				
NODE	85463 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	708 Parallel pipe added			1.25 RCP	
	15 inch RCP	LF	\$25.00	603.81	\$15,095.25
	Halderman St	Width		Length	sq ft
	Parallel Street	20		604	12076.2
	2-lane, Asphalt, w/ C&G	sy	\$38.00	1342	\$50,988.40
NODE	92343 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1904 Parallel pipe added			3 RCP	
	36 inch RCP	LF	\$66.00	44.39	\$2,929.74
	Halderman St	Width		Length	sq ft
	Cross Street	20		44	887.8
	2-lane, Asphalt, w/ C&G	sy	\$38.00	99	\$3,748.49
NODE	92344 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	731 Parallel pipe added			3 RCP	
	36 inch RCP	LF	\$66.00	46.76	\$3,086.16
	10th Ave	Width		Length	sq ft
	Cross Street	20		47	935.2
	4-lane, Asphalt, w/ C&G	sy	\$44.00	104	\$4,572.09
NODE	85466 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	807 Parallel pipe added			3 RCP	
	36 inch RCP	LF	\$66.00	320.68	\$21,164.88
	Halderman St.	Width		Length	sq ft
	Parallel Street	20		321	6413.6
	2-lane, Asphalt, w/ C&G	sy	\$38.00	713	\$27,079.64
NODE	85669 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1977 Parallel pipe added			3.5 RCP	
	42 inch RCP	LF	\$90.00	69.16	\$6,224.40
	Lawrence Ave.	Width		Length	sq ft
	Cross Street	20		40	800
	2-lane, Asphalt, w/ C&G	sy	\$38.00	89	\$3,377.78
NODE	92155 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3.5	3.5	RCP
	Pipe 2	1	3	3	RCP
	Wing walls	2	4.5	5	1.67
	Apron		5	8.5	1.57
	Face (less pipe opening)		4.5	8.5	0.80
			Total Area	4.04	
	Concrete	cy	\$300.00	4.04	\$1,211.78
	Excavation and Backfill	cy	\$4.00	8.08	\$32.31
NODE	85470 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	711 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	40.04	\$1,361.36
	South St.	Width		Length	sq ft
	Cross St.	20		40	800.8
	2-lane, Asphalt, w/ C&G	sy	\$38.00	89	\$3,381.16

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85471 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	712 Parallel pipe added			2 RCP	
	24 inch RCP	LF	\$42.00	272.11	\$11,428.62
	10th Ave.	Width	Length	sq ft	
	Parallel Street	20	272	5442.2	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	605	\$26,606.31
NODE	85473 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1909 Parallel pipe added			2.25 RCP	
	27 inch RCP	LF	\$47.00	89.31	\$4,197.57
	10th Ave	Width	Length	sq ft	
	Cross Street	20	50	1000	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	111	\$4,888.89
NODE	85475 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1915 Parallel pipe added			2.25 RCP	
	27 inch RCP	LF	\$47.00	65.85	\$3,094.95
NODE	92342 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	809 Parallel pipe added			2.5 RCP	
	30 inch RCP	LF	\$52.00	147.17	\$7,652.84
NODE	85670 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	2.5	2.5	RCP
	Wing walls	2	3.5	5	1.30
	Apron		5	7	1.30
	Face (less pipe opening)		3.5	7	0.54
			Total Area	3.14	
	Concrete	cy	\$300.00	3.14	\$940.92
	Excavation and Backfill	cy	\$4.00	6.27	\$25.09
NODE	85668 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3	3	RCP
	Pipe 2	1	3	3	RCP
	Wing walls	2	4	5	1.48
	Apron		5	8	1.48
	Face (less pipe opening)		4	8	0.66
			Total Area	3.62	
	Concrete	cy	\$300.00	3.62	\$1,087.36
	Excavation and Backfill	cy	\$4.00	7.25	\$29.00
CONDUIT	808 Replace with Double			3 RCP	
	36 inch RCP	LF	\$66.00	32.27	\$2,129.82
	36 inch RCP	LF	\$66.00	32.27	\$2,129.82
	Halderman St.	Width	Length	sq ft	
	Cross Street	20	32	645.4	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	72	\$2,725.02
	Structural Removal and Replacement			20 Percent	\$1,620.20
NODE	85669 Concrete Wing walls & Apron				

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85162 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	6	6	RCP
	Pipe 2	1	6	6	RCP
	Wing walls	2	7	5	2.59
	Apron		5	14	2.59
	Face (less pipe opening)		7	14	1.54
			Total Area	6.72	
	Concrete	cy	\$300.00	6.72	\$2,016.13
	Excavation and Backfill	cy	\$4.00	13.44	\$53.76
CONDUIT	494 Parallel pipe added				
	72 inch RCP	LF	\$250.00	176.71	\$44,177.50
	Garland Ave.	Width	Length	sq ft	
	Cross Street	20	30	600	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	67	\$2,533.33
NODE	85163 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	6	6	RCP
	Pipe 2	1	6	6	RCP
	Wing walls	2	7	5	2.59
	Apron		5	14	2.59
	Face (less pipe opening)		7	14	1.54
			Total Area	6.72	
	Concrete	cy	\$300.00	6.72	\$2,016.13
	Excavation and Backfill	cy	\$4.00	13.44	\$53.76
NODE	85672 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	811 Parallel pipe added				
	18 inch RCP	LF	\$34.00	45.9	\$1,560.60
	Lawrence St	Width	Length	sq ft	
	Cross Street	20	46	918	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	102	\$3,876.00
NODE	85671 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	810 Parallel pipe added				
	21 inch RCP	LF	\$37.00	120.33	\$4,452.21
NODE	85673 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.5	1.5	RCP
	Pipe 2	1	1.75	1.75	RCP
	Wing walls	2	2.75	5	1.02
	Apron		5	5.25	0.97
	Face (less pipe opening)		2.75	5.25	0.38
			Total Area	2.37	
	Concrete	cy	\$300.00	2.37	\$711.28
	Excavation and Backfill	cy	\$4.00	4.74	\$18.97

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85659 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.5	1.5	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.5	1.02
	Face (less pipe opening)	3		5.5	0.43
			Total Area	2.56	
	Concrete	cy	\$300.00	2.56	\$767.68
	Excavation and Backfill	cy	\$4.00	5.12	\$20.47
CONDUIT	804 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	51.31	\$1,744.54
NODE	85660 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.5	1.5	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.5	1.02
	Face (less pipe opening)	3		5.5	0.43
			Total Area	2.56	
	Concrete	cy	\$300.00	2.56	\$767.68
	Excavation and Backfill	cy	\$4.00	5.12	\$20.47
NODE	85664 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1989 Parallel pipe added			2.25 RCP	
	27 inch RCP	LF	\$47.00	89.82	\$4,221.54
NODE	92165 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2.25	2.25	RCP
	Pipe 2	1	3	3	RCP
	Wing walls	2	4	5	1.48
	Apron		5	7.25	1.34
	Face (less pipe opening)	4		7.25	0.67
			Total Area	3.49	
	Concrete	cy	\$300.00	3.49	\$1,046.73
	Excavation and Backfill	cy	\$4.00	6.98	\$27.91
NODE	92334 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	476 Parallel pipe added			2 RCP	
	24 inch RCP	LF	\$42.00	43.41	\$1,823.22
NODE	85138 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	6	1.11
	Face (less pipe opening)	3		6	0.43
			Total Area	2.66	
	Concrete	cy	\$300.00	2.66	\$796.85
	Excavation and Backfill	cy	\$4.00	5.31	\$21.25

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	92331 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	468 Parallel box added 0 inch RCP	LF	7 X 6 \$378.00	RCB 171.01	\$64,641.78
NODE	92332 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1485 Parallel box added 0 inch RCP	LF	7 X 6 \$378.00	RCB 82.57	\$31,211.46
	Limit Street	Width	Length	sq ft	
	Cross Street	20	60	1200	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	133	\$5,866.67
NODE	92191 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	7	6	RCB	
Pipe 2	1	10	10	RCB	
Wing walls	2	11	5	4.07	
Apron		5	18	3.33	
Face (less pipe opening)		11	18	2.07	
			Total Area	9.48	
Concrete	cy		\$300.00	9.48	\$2,844.44
Excavation and Backfill	cy		\$4.00	18.96	\$75.85

NODE	85743 Junction Structure				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	3.5	RCB	
Pipe 2	1	2	2	RCP	
Wing walls	2	3	5	1.11	
Apron		5	7.5	1.39	
Face (less pipe opening)		3	7.5	0.43	
			Total Area	2.93	
Concrete	cy		\$300.00	2.93	\$877.78
Excavation and Backfill	cy		\$4.00	5.85	\$23.41

CONDUIT	1999 Parallel box added 0 inch RCP	LF	3.5 X 2 \$245.00	RCB 56.7	\$13,891.50
	Limit Street	Width	Length	sq ft	
	Remove & Replace	50	240	12000	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	1333	\$58,666.67
	Fill	cy	\$4.00	6240	\$24,960.00

NODE	85745 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	848 Parallel box added 0 inch RCP	LF	3.5 X 2 \$245.00	RCB 108.31	\$26,535.95

NODE	92329 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	3.5	RCB	
Pipe 2	1	2	2	RCP	
Wing walls	2	3	5	1.11	
Apron		5	7.5	1.39	
Face (less pipe opening)		3	7.5	0.43	
			Total Area	2.93	
Concrete	cy		\$300.00	2.93	\$877.78
Excavation and Backfill	cy		\$4.00	5.85	\$23.41

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85746 Junction Structure				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	4	RCB
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	8	1.48
	Face (less pipe opening)	3		8	0.44
			Total Area	3.04	
	Concrete	cy	\$300.00	3.04	\$911.11
	Excavation and Backfill	cy	\$4.00	6.07	\$24.30
CONDUIT	849 Parallel box added 4 X 2 RCB				
	0 inch RCP	LF	\$245.00	58.33	\$14,290.85
	Limit Street	Width	Length	sq ft	
	Remove and Replace	50	250	12500	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	1389	\$61,111.11
	2nd Avenue	Width	Length	sq ft	
	Remove and Replace	32	190	6080	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	676	\$25,671.11
	Fill	cy	\$4.00	48650	\$194,600.00
NODE	85747 Junction Structure				
		ea	\$5,250.00	1	\$5,250.00
CONDUIT	2002 Parallel box added 4 X 2 RCB				
	0 inch RCP	LF	\$245.00	170.58	\$41,792.10
NODE	92220 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	4	RCB
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	8	1.48
	Face (less pipe opening)	3		8	0.44
			Total Area	3.04	
	Concrete	cy	\$300.00	3.04	\$911.11
	Excavation and Backfill	cy	\$4.00	6.07	\$24.30
NODE	84959 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1783 Parallel pipe added 1.25 RCP				
	15 inch RCP	LF	\$25.00	70.22	\$1,755.50
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	70	1404.4	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	156	\$6,865.96
NODE	84957 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	337 Parallel pipe added 1.25 RCP				
	15 inch RCP	LF	\$25.00	352.53	\$8,813.25
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	353	7050.6	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	783	\$34,469.60
NODE	84956 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	471 Parallel pipe added 1.25 RCP				
	15 inch RCP	LF	\$25.00	135.99	\$3,399.75
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	136	2719.8	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	302	\$13,296.80

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	84954 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	472 Parallel pipe added	1.25 RCP			
	15 inch RCP	LF	\$25.00	173.22	\$4,330.50
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	173	3464.4	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	385	\$16,937.07
NODE	85124 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	473 Parallel pipe added	1.25 RCP			
	15 inch RCP	LF	\$25.00	174.6	\$4,365.00
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	175	3492	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	388	\$17,072.00
NODE	85125 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1816 Parallel pipe added	1.25 RCP			
	15 inch RCP	LF	\$25.00	27.5	\$687.50
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	28	550	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	61	\$2,688.89
NODE	85126 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85160 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	5	5	RCP
	Pipe 2	1	5	5	RCP
	Wing walls	2	6	5	2.22
	Apron		5	12	2.22
	Face (less pipe opening)		6	12	1.21
			Total Area	5.66	
	Concrete	cy	\$300.00	5.66	\$1,697.00
	Excavation and Backfill	cy	\$4.00	11.31	\$45.25
CONDUIT	493 Parallel pipe added	5 RCP			
	60 inch RCP	LF	\$200.00	82.78	\$16,556.00
	Garland Ave	Width	Length	sq ft	
	Cross Street	20	24	480	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	53	\$2,026.67
NODE	85161 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	5	5	RCP
	Pipe 2	1	5	5	RCP
	Wing walls	2	6	5	2.22
	Apron		5	12	2.22
	Face (less pipe opening)		6	12	1.21
			Total Area	5.66	
	Concrete	cy	\$300.00	5.66	\$1,697.00
	Excavation and Backfill	cy	\$4.00	11.31	\$45.25
NODE	85251 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	554 Parallel box added		3 X 2	RCB	
	0 inch RCP	LF	\$215.00	35.45	\$7,621.75
	Grand Ave	Width	Length	sq ft	
	Cross Street	20	35	709	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	79	\$2,993.56
NODE	85253 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	555 Parallel box added		3 X 2.5	RCB	
	0 inch RCP	LF	\$240.00	348.4	\$83,616.00
	Marion Street	Width	Length	sq ft	
	Parallel Street	20	348	6968	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	774	\$29,420.44
NODE	85257 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	556 Parallel box added		3 X 2.5	RCB	
	0 inch RCP	LF	\$240.00	375.82	\$90,196.80
	Kingman Street	Width	Length	sq ft	
	Parallel Street	20	376	7516.4	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	835	\$31,735.91
NODE	85261 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	558 Parallel box added		4 X 2.5	RCB	
	0 inch RCP	LF	\$270.00	268.76	\$72,565.20
	Kingman Street	Width	Length	sq ft	
	Parallel Street	20	269	5375.2	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	597	\$22,695.29
NODE	85247 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85230 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1850 Parallel pipe added		1.5	RCP	
	18 inch RCP	LF	\$34.00	231.91	\$7,884.94
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	232	4638.2	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	515	\$19,583.51
NODE	92347 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	543 Parallel pipe added		2.5	RCP	
	30 inch RCP	LF	\$52.00	390.52	\$20,307.04
	Sherman Street	Width	Length	sq ft	
	Parallel Street	20	391	7810.4	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	868	\$32,977.24
NODE	85247 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	553 Parallel pipe added		4	RCP	
	48 inch RCP	LF	\$110.00	125.37	\$13,790.70
	Sherman Street	Width	Length	sq ft	
	Parallel Street	20	125	2507.4	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	279	\$10,586.80
NODE	85248 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	552 Parallel pipe added		4	RCP	
	48 inch RCP	LF	\$110.00	68.4	\$7,524.00
	Sherman Street	Width	Length	sq ft	
	Parallel Street	20	68	1368	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	152	\$5,776.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85249 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1602 Parallel pipe added	4 RCP			
	48 inch RCP	LF	\$110.00	85.98	\$9,457.80
	Sherman Street	Width	Length	sq ft	
	Parallel Street	20	86	1719.6	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	191	\$7,260.53
NODE	85154 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	488 Parallel box added	5 X 3 RCB			
	0 inch RCP	LF	\$320.00	122.29	\$39,132.80
	10th Ave	Width	Length	sq ft	
	Cross Street	20	30	600	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	67	\$2,933.33
NODE	85155 Junction Structure				
	Quantity	Height	Width	cu yd	
Pipe 1	1	5	3	RCB	
Pipe 2	1	4	4	RCP	
Wing walls	2	6	5	2.22	
Apron		5	9	1.67	
Face (less pipe opening)		6	9	0.85	
			Total Area	4.74	
Concrete	cy	\$300.00	4.74	\$1,422.22	
Excavation and Backfill	cy	\$4.00	9.48	\$37.93	

SUBTOTAL \$1,648,989.33

20% Contingency \$1,978,787.20

20% Engineering, legal and administrative \$2,374,544.64

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	4 L 5 Mile Creek				
NODE	84946 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	331 Parallel pipe added 15 inch RCP	LF	\$25.00	31	\$775.00
	Virginia Circle Street Crossing	Width	Length	sq ft	
	2-lane, Asphalt, w/ C&G	20	31	620	
		sy	\$38.00	69	\$2,617.78
NODE	92503 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	332 Parallel pipe added 15 inch RCP	LF	\$25.00	185	\$4,625.00
NODE	84947 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.5	1.5	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	2.5	5	0.93
	Apron		5	4.75	0.88
	Face (less pipe opening)		2.5	4.75	0.33
			Total Area	2.13	
	Concrete	cy	\$300.00	2.13	\$640.34
	Excavation and Backfill	cy	\$4.00	4.27	\$17.08
NODE	84944 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2.5	5	RCB
	Pipe 2	1	2.5	5	RCB
	Wing walls	2	3.5	5	1.30
	Apron		5	12	2.22
	Face (less pipe opening)		3.5	12	0.63
			Total Area	4.15	
	Concrete	cy	\$300.00	4.15	\$1,244.44
	Excavation and Backfill	cy	\$4.00	8.30	\$33.19
CONDUIT	330 Replace w/Double Box 0 inch RCP	LF	\$545.00	42	\$22,890.00
	Shrine Park Rd Parallel Street	Width	Length	sq ft	
	4-lane, Asphalt, w/ C&G	20	42	840	
		sy	\$44.00	93	\$4,106.67
NODE	84945 Junction Structure	ea	\$5,250.00	1	\$5,250.00
	Structural Removal & Replacement			20 Percent	\$6,704.86
CONDUIT	2843 Replace w/Double Box 0 inch RCP	LF	\$545.00	218	\$118,810.00
	Shrine Park Rd Parallel Street	Width	Length	sq ft	
	4-lane, Asphalt, w/ C&G	20	218	4360	
		sy	\$44.00	484	\$21,315.56
NODE	84942 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	329 Parallel Box 0 inch RCP	LF	\$320.00	58	\$18,560.00
	Shrine Park Rd Parallel Street	Width	Length	sq ft	
	4-lane, Asphalt, w/ C&G	20	58	1160	
		sy	\$44.00	129	\$5,671.11

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	84943 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2844 Replace w/Double Box 0 inch RCP	5 X 2.5 RCB LF	\$545.00	159	\$86,655.00
	Shrine Park Rd	Width	Length	sq ft	
	Parallel Street	20	159	3180	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	353	\$15,546.67
NODE	84941 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	328 Parallel Box 0 inch RCP	5 X 2.5 RCB LF	\$320.00	25	\$8,000.00
	Shrine Park Rd	Width	Length	sq ft	
	Parallel Street	20	25	500	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	56	\$2,444.44
NODE	84940 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2845 Replace w/Double Box 0 inch RCP	5 X 2.5 RCB LF	\$545.00	106	\$57,770.00
	Shrine Park Rd	Width	Length	sq ft	
	Parallel Street	20	106	2120	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	236	\$10,364.44
NODE	84937 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	327 Replace w/Double Box 0 inch RCP	5 X 2.5 RCB LF	\$545.00	165	\$89,925.00
	Shrine Park Rd	Width	Length	sq ft	
	Parallel Street	20	165	3300	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	367	\$16,133.33
NODE	92504 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2.5	5	RCB
	Pipe 2	1	2.5	5	RCB
	Wing walls	2	3.5	5	1.30
	Apron		5	12	2.22
	Face (less pipe opening)		3.5	12	0.63
				Total Area	4.15
	Concrete	cy	\$300.00	4.15	\$1,244.44
	Excavation and Backfill	cy	\$4.00	8.30	\$33.19
	Structural Removal & Replacement			20 Percent	\$22,517.19

SUBTOTAL \$554,844.73

20% Contingency \$665,813.67

20% Engineering, legal and administrative \$798,976.41

PRELIMINARY COST ESTIMATE				DATE: 11/12/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JWH
ELEMENT #	5 MILE CREEK - 5 L				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System - 15 inch RCP	65	LF	\$25.00	\$1,625
A.3.4	Pipe and Inlet (Enclosed) System - 18 inch RCP	673	LF	\$34.00	\$22,882
A.3.5	Pipe and Inlet (Enclosed) System - 21 inch RCP	191	LF	\$37.00	\$7,067
A.3.6	Pipe and Inlet (Enclosed) System - 24 inch RCP	226	LF	\$42.00	\$9,492
A.3.8	Pipe and Inlet (Enclosed) System - 30 inch RCP	170	LF	\$52.00	\$8,840
A.3.10	Pipe and Inlet (Enclosed) System - 42 inch RCP	224	LF	\$90.00	\$20,160
B.3.1	Reinforced Concrete Box Culverts - 3 x 2	286	LF	\$215.00	\$61,490
B.3.1	Reinforced Concrete Box Culverts - 4 x 2	70	LF	\$245.00	\$17,150
A.5.1	Storm Sewer Manholes < 6ft Diameter	7	ea	\$2,350.00	\$16,450
A.5.2	Storm Sewer Manholes > 6ft Diameter	7	ea	\$5,250.00	\$36,750
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	379	sy	\$8.00	\$3,032
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	379	sy	\$30.00	\$11,370
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	3518	sy	\$9.00	\$31,662
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	3518	sy	\$35.00	\$123,130
C.3.2.1	Concrete - Wing walls and apron - 2	15	cy	\$300.00	\$4,536
B.1	Excavation and Backfill	30	cy	\$4.00	\$121
TOTAL =					\$375,757
CONTINGENCY		20 PERCENT		\$75,151	
SUB TOTAL =					\$450,908
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT		\$90,182	
TOTAL =					\$541,090

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	5 L 5 Mile Creek				
NODE	85183 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	506 Parallel pipe added 15 inch RCP	LF	\$25.00	34	\$850.00
	Holman Street Street Crossing	width	length	sq ft	
		20	34	680	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	76	\$2,871.11
NODE	85184 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	507 Parallel pipe added 18 inch RCP	LF	\$34.00	71	\$2,414.00
	10 th Ave Street Crossing	width	length	sq ft	
		20	71	1420	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	158	\$6,942.22
NODE	85185 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	508 Parallel pipe added 18 inch RCP	LF	\$34.00	134	\$4,556.00
	10 th Ave Parallel Street	width	length	sq ft	
		24	134	3216	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	357	\$15,722.67
NODE	85186 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	509 Parallel pipe added 18 inch RCP	LF	\$34.00	206	\$7,004.00
	10 th Ave Parallel Street	width	length	sq ft	
		24	206	4944	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	549	\$24,170.67
NODE	84973 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1776 Parallel pipe added 24 inch RCP	LF	\$42.00	48	\$2,016.00
	10 th Ave & Cross Limit Parallel Street	width	length	sq ft	
		24	48	1152	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	128	\$5,632.00
NODE	84975 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	350 Parallel pipe added 24 inch RCP	LF	\$42.00	178	\$7,476.00
	10 th Ave Parallel Street	width	length	sq ft	
		24	178	4272	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	475	\$20,885.33
NODE	84977 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1778 Parallel pipe added 42 inch RCP	LF	\$90.00	224	\$20,160.00
	10 th Ave Parallel Street	width	length	sq ft	
		24	224	5376	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	597	\$26,282.67

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	84979 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	3.5	3.5	RCP
	Wing walls	2	4.5	5	1.67
	Apron		5	8	1.48
	Face (less pipe opening)		4.5	8	0.80
			Total Area	3.94	
	Concrete	cy	\$300.00	3.94	\$1,183.00
	Excavation and Backfill	cy	\$4.00	7.89	\$31.55
NODE	92482 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	377 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	174	\$5,916.00
NODE	85015 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	378 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	35	\$1,190.00
	Meadow Rd	width	length	sq ft	
	Street Crossing	20	35	700	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	78	\$2,955.56
NODE	92481 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	379 Parallel pipe added			2.5 RCP	
	30 inch RCP	LF	\$52.00	170	\$8,840.00
NODE	85014 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	2.5	2.5	RCP
	Wing walls	2	3.5	5	1.30
	Apron		5	7	1.30
	Face (less pipe opening)		3.5	7	0.54
			Total Area	3.14	
	Concrete	cy	\$300.00	3.14	\$940.92
	Excavation and Backfill	cy	\$4.00	6.27	\$25.09
NODE	84982 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.5	1.5	RCP
	Pipe 2	1	1.5	1.5	RCP
	Wing walls	2	2.5	5	0.93
	Apron		5	5	0.93
	Face (less pipe opening)		2.5	5	0.33
			Total Area	2.18	
	Concrete	cy	\$300.00	2.18	\$655.17
	Excavation and Backfill	cy	\$4.00	4.37	\$17.47
CONDUIT	352 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	53	\$1,802.00
	10 th Ave	width	length	sq ft	
	Cross Street	20	53	1060	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	118	\$5,182.22
NODE	84983 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	353 Parallel box added 0 inch RCP	LF	\$215.00	286	\$61,490.00
	10 th Ave Parallel Street	width	length	sq ft	
		24	286	6864	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	763	\$33,557.33
NODE	84981 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	351 Parallel box added 0 inch RCP	LF	\$245.00	70	\$17,150.00
	10 th Ave Cross Street	width	length	sq ft	
		48	70	3360	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	373	\$16,426.67
NODE	84981 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	2	4	RCB	
Wing walls	2	3	5	1.11	
Apron		5	8	1.48	
Face (less pipe opening)		3	8	0.66	
			Total Area	3.25	
Concrete	cy	\$300.00	3.25	\$974.63	
Excavation and Backfill	cy	\$4.00	6.50	\$25.99	
NODE	84989 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1786 Parallel pipe added 15 inch RCP	LF	\$25.00	31	\$775.00
	Brookside St Street Crossing	width	length	sq ft	
		20	31	620	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	69	\$2,617.78
NODE	84990 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	356 Parallel pipe added 21 inch RCP	LF	\$37.00	191	\$7,067.00
	Brookside St Street Crossing	width	length	sq ft	
		20	70	1400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	156	\$5,911.11
NODE	84988 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2	2	RCP	
Pipe 2	1	1.75	1.75	RCP	
Wing walls	2	3	5	1.11	
Apron		5	5.75	1.06	
Face (less pipe opening)		3	5.75	0.43	
			Total Area	2.61	
Concrete	cy	\$300.00	2.61	\$782.81	
Excavation and Backfill	cy	\$4.00	5.22	\$20.88	

SUBTOTAL \$375,720.84

20% Contingency \$450,865.01

20% Engineering, legal and administrative \$541,038.02

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	6 L 5 Mile Creek				
NODE	85202 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	519 Parallel pipe added			2 RCP	
	24 inch RCP	LF	\$42.00	306	\$12,852.00
	14 th Street	Width	Length	sq ft	
	Parallel Street	16	306	4896	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	544	\$20,672.00
NODE	85206 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1830 Parallel pipe added			2.5 RCP	
	30 inch RCP	LF	\$52.00	66	\$3,432.00
	14 th Street	Width	Length	sq ft	
	Parallel Street	16	66	1056	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	117	\$4,458.67
NODE	85208 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	525 Parallel pipe added			2.5 RCP	
	30 inch RCP	LF	\$52.00	313	\$16,276.00
	14 th Street	Width	Length	sq ft	
	Parallel Street	16	313	5008	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	556	\$21,144.89
NODE	85035 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1795 Parallel box added			3 x 3 RCB	
	0 inch RCP	LF	\$240.00	74	\$17,760.00
	Limit Street	Width	Length	sq ft	
	Parallel Street	16	74	1184	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	132	\$5,788.44
NODE	85038 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	397 Parallel box added			3.5 x 3 RCB	
	0 inch RCP	LF	\$240.00	273	\$65,520.00
	14 th Street	Width	Length	sq ft	
	Parallel Street	16	273	4368	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	485	\$18,442.67
NODE	85041 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	85043 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	405 Parallel pipe added			4 RCP	
	48 inch RCP	LF	\$110.00	103	\$11,330.00
	Revolutionary Ct	Width	Length	sq ft	
	Parallel Street	16	103	1648	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	183	\$6,958.22
NODE	85045 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1800 Parallel pipe added			4 RCP	
	48 inch RCP	LF	\$110.00	222	\$24,420.00
	Lakeview Dr.	Width	Length	sq ft	
	Parallel Street	16	222	3552	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	395	\$14,997.33

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85046 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	85047 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	407 Parallel pipe added 48 inch RCP	LF	\$110.00	237	\$26,070.00
NODE	85048 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	4	4	RCP
	Pipe 2	1	4	4	RCP
	Wing walls	2	5	5	1.85
	Apron		5	10	1.85
	Face (less pipe opening)		5	10	0.92
				Total Area	4.62
	Concrete	cy	\$300.00	4.62	\$1,387.41
	Excavation and Backfill	cy	\$4.00	9.25	\$37.00
NODE	85027 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	387 Parallel pipe added 15 inch RCP	LF	\$25.00	147	\$3,675.00
NODE	85028 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85029 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	389 Parallel pipe added 15 inch RCP	LF	\$25.00	152	\$3,800.00
NODE	85031 Junction Structure	ea	\$2,350.00	1	\$2,350.00

SUBTOTAL \$335,121.63

20% Contingency \$402,145.96

20% Engineering, legal and administrative \$482,575.15

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	7L 5 Mile Creek				
NODE	85370 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	669 Parallel pipe added 15 inch RCP	LF	\$25.00	32.28	\$807.00
	18th Street Street Crossing	Width	Length	sq ft	
		20	28	560	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	62	\$2,364.44
NODE	85371 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85386 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	647 Parallel pipe added 15 inch RCP	LF	\$25.00	185	\$4,625.00
	Evergreen St Parallel Street	Width	Length	sq ft	
		15	185	2775	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	308	\$11,716.67
NODE	85388 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	649 Parallel pipe added 24 inch RCP	LF	\$42.00	113	\$4,746.00
	Evergreen Street Parallel Street	Width	Length	sq ft	
		15	113	1695	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	188	\$7,156.67
NODE	92016 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85407 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	658 Parallel pipe added 15 inch RCP	LF	\$25.00	144.04	\$3,601.00
	Thornton St Cross Street	Width	Length	sq ft	
		20	50	1000	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	111	\$4,888.89
NODE	85405 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85406 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	661 Parallel pipe added 36 inch RCP	LF	\$66.00	70	\$4,620.00
	Cambridge St Parallel Street	Width	Length	sq ft	
		15	70	1050	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	117	\$4,433.33

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85408 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	4.5	4.5	RCP
	Pipe 2	1	3	3	RCP
	Wing walls	2	5.5	5	2.04
	Apron		5	9.5	1.76
	Face (less pipe opening)		5.5	9.5	1.08
			Total Area	4.88	
	Concrete	cy	\$300.00	4.88	\$1,464.19
	Excavation and Backfill	cy	\$4.00	9.76	\$39.05
NODE	85362 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	631 Parallel pipe added		1.25 RCP		
	15 inch RCP	LF	\$25.00	102	\$2,550.00
CONDUIT	631 Repair adverse slope		2 RCP		
	Excavation and Backfill	cy	\$4.00	408	\$1,632.00
	117 st terr	Width	Length	sq ft	
	Parallel Street	15	102	1530	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	170	\$6,460.00
NODE	85365 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	634 Parallel pipe added		1.25 RCP		
	15 inch RCP	LF	\$25.00	263	\$6,575.00
	117 st terr	Width	Length	sq ft	
	Parallel Street	15	263	3945	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	438	\$16,656.67
NODE	85366 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85328 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	611 Parallel pipe added		2 RCP		
	24 inch RCP	LF	\$42.00	212	\$8,904.00
NODE	84590 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	4.5	4.5	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	5.5	5	2.04
	Apron		5	8.5	1.57
	Face (less pipe opening)		5.5	8.5	1.03
			Total Area	4.64	
	Concrete	cy	\$300.00	4.64	\$1,391.16
	Excavation and Backfill	cy	\$4.00	9.27	\$37.10
NODE	92356 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	589 Parallel pipe added		3 RCP		
	36 inch RCP	LF	\$66.00	312	\$20,592.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85294 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	5	5	RCP
	Pipe 2	1	3	3	RCP
	Wing walls	2	6	5	2.22
	Apron		5	10	1.85
	Face (less pipe opening)		6	10	1.23
			Total Area	5.31	
	Concrete	cy	\$300.00	5.31	\$1,592.18
	Excavation and Backfill	cy	\$4.00	10.61	\$42.46
NODE	85336 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	617 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	113	\$2,825.00
	Marion St	Width	Length	sq ft	
	Parallel Street	15	50	750	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	83	\$3,166.67
NODE	85337 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1870 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	33	\$825.00
	Francis St Court	Width	Length	sq ft	
	Cross Street	20	33	660	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	73	\$2,786.67
NODE	85338 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1871 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	21	\$525.00
	Marion St	Width	Length	sq ft	
	Parallel Street	15	21	315	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	35	\$1,330.00
NODE	85339 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	618 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	270	\$6,750.00
	Marion St	Width	Length	sq ft	
	Parallel Street	15	270	4050	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	450	\$17,100.00
NODE	85342 Junction Structure	ea	\$2,350.00	1	\$2,350.00
NODE	85311 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	2799 Parallel pipe added		4	RCP	
	48 inch RCP	LF	\$110.00	34	\$3,740.00
	16th St	Width	Length	sq ft	
	Cross Street	20	34	680	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	76	\$2,871.11
NODE	92464 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	601 Parallel pipe added		4	RCP	
	48 inch RCP	LF	\$110.00	128	\$14,080.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85307 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	4	4	RCP
	Pipe 2	1	4	4	RCP
	Wing walls	2	5	5	1.85
	Apron		5	10	1.85
	Face (less pipe opening)		5	10	0.92
			Total Area	4.62	
	Concrete	cy	\$300.00	4.62	\$1,387.41
	Excavation and Backfill	cy	\$4.00	9.25	\$37.00
NODE	85086 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	1805 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	170	\$4,250.00
	16th St	Width	Length	sq ft	
	Cross Street	20	28	560	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	62	\$2,737.78
NODE	85262 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3	3	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	4	5	1.48
	Apron		5	6.25	1.16
	Face (less pipe opening)		4	6.25	0.62
			Total Area	3.26	
	Concrete	cy	\$300.00	3.26	\$977.27
	Excavation and Backfill	cy	\$4.00	6.52	\$26.06
NODE	84778 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.25	0.97
	Face (less pipe opening)		3	5.25	0.42
			Total Area	2.50	
	Concrete	cy	\$300.00	2.50	\$751.46
	Excavation and Backfill	cy	\$4.00	5.01	\$20.04
CONDUIT	227 Parallel pipe added		1.25	RCP	
	15 inch RCP	LF	\$25.00	61	\$1,525.00
NODE	84777 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.25	1.25	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.25	0.97
	Face (less pipe opening)		3	5.25	0.42
			Total Area	2.50	
	Concrete	cy	\$300.00	2.50	\$751.46
	Excavation and Backfill	cy	\$4.00	5.01	\$20.04

SUBTOTAL \$249,227.75

20% Contingency \$299,073.31

20% Engineering, legal and administrative \$358,887.97

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	8 L 5 Mile Creek				
NODE	92451 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	427 Parallel pipe added 15 inch RCP	LF	\$25.00	234	\$5,850.00
	Candlewood Parallel Street	width	length	sq ft	
		20	234	4680	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	520	\$19,760.00
NODE	85066 Junction Structure	ea	\$2,350.00	1	\$2,350.00

SUBTOTAL \$30,310.00

20% Contingency \$36,372.00

20% Engineering, legal and administrative \$43,646.40

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	9 L 5 Mile Creek				
NODE	92438 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2769 Parallel pipe added 15 inch RCP	LF	\$25.00	200	\$5,000.00
NODE	92439 Junction Structure	ea	\$2,350.00	1	\$2,350.00
SUBTOTAL					\$9,700.00
20% Contingency					\$11,640.00
20% Engineering, legal and administrative					\$13,968.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	10 L 5 Mile Creek				

NODE 85111 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	2.5	2.5	RCP	
Pipe 2	1	4	4	RCP	
Wing walls	2	5	5	1.85	
Apron		5	8.5	1.57	
Face (less pipe openin		5	8.5	0.93	
			Total Area	4.35	
Concrete	cy		\$300.00	4.35	\$1,305.83
Excavation and Backfill	cy		\$4.00	8.71	\$34.82

CONDUIT 458 Parallel pipe added					
	Quantity	Unit	Unit Cost	Quantity	Total Cost
30 inch RCP	LF		\$52.00	77	\$4,004.00
Limit & 22nd Street Crossing	width	length	sq ft		
	20	32	640		
2-lane, Asphalt, w/ C&	sy		\$38.00	71	\$2,702.22

NODE 85112 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	2.5	2.5	RCP	
Pipe 2	1	4	4	RCP	
Wing walls	2	5	5	1.85	
Apron		5	8.5	1.57	
Face (less pipe openin		5	8.5	0.93	
			Total Area	4.35	
Concrete	cy		\$300.00	4.35	\$1,305.83
Excavation and Backfill	cy		\$4.00	8.71	\$34.82

NODE 85376 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	3	3	RCP	
Pipe 2	1	3	3	RCP	
Wing walls	2	4	5	1.48	
Apron		5	8	1.48	
Face (less pipe openin		4	8	0.66	
			Total Area	3.62	
Concrete	cy		\$300.00	3.62	\$1,087.36
Excavation and Backfill	cy		\$4.00	7.25	\$29.00

CONDUIT 639 Parallel pipe added					
	Quantity	Unit	Unit Cost	Quantity	Total Cost
36 inch RCP	LF		\$66.00	67	\$4,422.00
Limit & 22nd Street Crossing	width	length	sq ft		
	15	40	600		
2-lane, Asphalt, w/ C&	sy		\$38.00	67	\$2,533.33

NODE 85377 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	3	3	RCP	
Pipe 2	1	3	3	RCP	
Wing walls	2	4	5	1.48	
Apron		5	8	1.48	
Face (less pipe openin		4	8	0.66	
			Total Area	3.62	
Concrete	cy		\$300.00	3.62	\$1,087.36
Excavation and Backfill	cy		\$4.00	7.25	\$29.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85375 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.75	1.75	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.75	1.06
	Face (less pipe openin		3	5.75	0.43
			Total Area	2.61	
	Concrete	cy	\$300.00	2.61	\$782.81
	Excavation and Backfill	cy	\$4.00	5.22	\$20.88
CONDUIT	638 Parallel pipe added		1.75	RCP	
	21 inch RCP	LF	\$37.00	44	\$1,628.00
	Vilas West of 19th Terr	width	length	sq ft	
	Street Crossing	10	32	320	
	2-lane, Asphalt, w/ C&	sy	\$38.00	36	\$1,351.11
NODE	85374 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	1.75	1.75	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.75	1.06
	Face (less pipe openin		3	5.75	0.43
			Total Area	2.61	
	Concrete	cy	\$300.00	2.61	\$782.81
	Excavation and Backfill	cy	\$4.00	5.22	\$20.88

SUBTOTAL \$23,162.07

20% Contingency \$27,794.49

20% Engineering, legal and administrative \$33,353.38

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem 1 R 5 Mile Creek					
NODE	85870 Storm Sewer Inlets	ea	\$775.00	2	\$1,550.00
CONDUIT	903 Parallel pipe added	LF	\$66.00	227	\$14,982.00
	36 inch RCP				
	Marion St	Width	Length	sq ft	
	Parallel Street	10	227	2270	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	252	\$11,097.78
	Structural Removal			20 Percent	\$5,525.96
NODE	85873 Storm Sewer Inlets	ea	\$775.00	2	\$1,550.00
CONDUIT	905 Parallel pipe added	LF	\$90.00	324	\$29,160.00
	42 inch RCP				
	Marion St	Width	Length	sq ft	
	Parallel Street	10	324	3240	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	360	\$15,840.00
	Structural Removal			20 Percent	\$9,310.00
NODE	85876 Storm Sewer Inlets	ea	\$775.00	2	\$1,550.00
CONDUIT	908 Parallel pipe added	LF	\$90.00	246	\$22,140.00
	42 inch RCP				
	Marion St	Width	Length	sq ft	
	Parallel Street	10	246	2460	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	273	\$12,026.67
	Structural Removal			20 Percent	\$7,143.33
NODE	85878 Storm Sewer Inlets	ea	\$775.00	1	\$775.00
CONDUIT	909 Parallel pipe added	LF	\$90.00	89	\$8,010.00
	42 inch RCP				
	Marion St	Width	Length	sq ft	
	Parallel Street	10	89	890	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	99	\$4,351.11
NODE	92250 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3.5	3.5	RCP
	Pipe 2	1	0	0	RCP
	Wing walls	2	4.5	5	1.67
	Apron		5	5.5	1.02
	Face (less pipe opening)		4.5	5.5	0.56
			Total	3.25	
	Concrete	cy	\$300.00	3.25	\$973.65
	Excavation and Backfill	cy	\$4.00	6.49	\$25.96
	Structural Removal			20 Percent	\$2,672.15

SUBTOTAL \$148,683.61

20% Contingency \$178,420.33

20% Engineering, legal and administrative \$214,104.40

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	2 R 5 Mile Creek				
NODE	92278 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	3	4	RCB	
Pipe 2	0	0	0	RCP	
Wing walls	2	4	5	1.48	
Apron		5	5	0.93	
Face (less pipe opening)	4		5	0.30	
			Total	2.70	
	Concrete	cy	\$300.00	2.70	\$811.11
	Excavation and Backfill	cy	\$4.00	5.41	\$21.63
CONDUIT	3240 Replace with culvert	4 X 3	RCB		
	4' x 3' L x W RCP	LF	\$270.00	194	\$52,380.00
	VA entrance drive	Width	Length	sq ft	
	Cross Street	20	70	1400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	156	\$5,911.11
	Structural Removal and Replacement			20 Percent	\$11,824.77
NODE	84666 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	148 Replace with culvert	4 X 3	RCB		
	4' x 3' L x W RCP	LF	\$270.00	414	\$111,780.00
	Structural Removal and Replacement			20 Percent	\$22,826.00
NODE	92276 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	2883 Install culvert	4 X 3	RCB		
	4' x 3' L x W RCP	LF	\$270.00	111	\$29,970.00
NODE	84673 Junction Structure				
		ea	\$5,250.00	2	\$10,500.00
CONDUIT	2885 Install culvert	4 X 3	RCB		
	4' x 3' L x W RCP	LF	\$270.00	266	\$71,820.00
NODE	92273 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	154 Replace with culvert	4 X 3	RCB		
	4' x 3' L x W RCP	LF	\$270.00	182	\$49,140.00
	Structural Removal and Replacement			20 Percent	\$10,298.00
NODE	84683 Junction Structure				
		ea	\$5,250.00	1	\$5,250.00
CONDUIT	155 Replace with culvert	4 X 3	RCB		
	4' x 3' L x W RCP	LF	\$270.00	56	\$15,120.00
	Structural Removal and Replacement			20 Percent	\$4,074.00
NODE	84684 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	3	4	RCB	
Pipe 2	0	0	0	RCP	
Wing walls	2	4	5	1.48	
Apron		5	5	0.93	
Face (less pipe opening)	4		5	0.30	
			Total	2.70	
	Concrete	cy	\$300.00	2.70	\$811.11
	Excavation and Backfill	cy	\$4.00	5.41	\$21.63

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	84685 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	5	5	RCP
	Pipe 2	1	4	4	RCP
	Wing walls	2	6	5	2.22
	Apron		5	11	2.04
	Face (less pipe opening)		6	11	1.25
			Total	5.51	
	Concrete	cy	\$300.00	5.51	\$1,653.32
	Excavation and Backfill	cy	\$4.00	11.02	\$44.09
CONDUIT	156 Parallel pipe added				
	48 inch RCP	LF	\$110.00	127	\$13,970.00
	Saint Mary Street	Width	Length	sq ft	
	Cross Street	20	50	1000	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	111	\$4,222.22
NODE	84689 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	5	5	RCP
	Pipe 2	1	4	4	RCP
	Wing walls	2	6	5	2.22
	Apron		5	11	2.04
	Face (less pipe opening)		6	11	1.25
			Total	5.51	
	Concrete	cy	\$300.00	5.51	\$1,653.32
	Excavation and Backfill	cy	\$4.00	11.02	\$44.09
NODE	84804 No new construction				
CONDUIT	258 Remove culvert				
	4' x 3' L x W RCP	LF	\$270.00	24	
	Structural Removal and Replacement			20 Percent	\$1,296.00
NODE	84803 No new construction				
NODE	84823 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	5	5	RCP
	Pipe 2	1	4	4	RCP
	Wing walls	2	6	5	2.22
	Apron		5	11	2.04
	Face (less pipe opening)		6	11	1.25
			Total	5.51	
	Concrete	cy	\$300.00	5.51	\$1,653.32
	Excavation and Backfill	cy	\$4.00	11.02	\$44.09
CONDUIT	266 Parallel pipe added				
	48 inch RCP	LF	\$110.00	99	\$10,890.00
	Ash Street	Width	Length	sq ft	
	Cross Street	20	60	1200	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	133	\$5,066.67

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	84824 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	5	5	RCP
	Pipe 2	1	4	4	RCP
	Wing walls	2	6	5	2.22
	Apron		5	11	2.04
	Face (less pipe opening)		6	11	1.25
			Total	5.51	
	Concrete	cy	\$300.00	5.51	\$1,653.32
	Excavation and Backfill	cy	\$4.00	11.02	\$44.09

NODE	84815 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	3	RCB
	Pipe 2	0	0	0	RCB
	Wing walls	2	3	5	1.11
	Apron		5	4	0.74
	Face (less pipe opening)		3	4	0.22
			Total	2.07	
	Concrete	cy	\$300.00	2.07	\$622.22
	Excavation and Backfill	cy	\$4.00	4.15	\$16.59

CONDUIT	263 Replace with culvert	3 X 2	RCB		
	3' x 2' L x W RCP	LF	\$215.00	132	\$28,380.00
	Frontage Rd. entrance	Width	Length	sq ft	
	Cross Street	20	80	1600	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	178	\$6,755.56
	Structural Removal and Replacement			20 Percent	\$7,154.87

NODE	84816 Junction Structure	ea	\$2,350.00	1	\$2,350.00
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CONDUIT	2891 Install culvert	3 X 2	RCB		
	3' x 2' L x W RCP	LF	\$215.00	220	\$47,300.00

NODE	84806 Junction Structure	ea	\$5,250.00	1	\$5,250.00
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CONDUIT	259 Replace with culvert	3 X 2	RCB		
	3' x 2' L x W RCP	LF	\$215.00	72	\$15,480.00
	Structural Removal and Replacement			20 Percent	\$4,146.00

NODE	84808 Junction Structure	ea	\$2,350.00	1	\$2,350.00
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CONDUIT	260 Replace with culvert	3 X 2	RCB		
	3' x 2' L x W RCP	LF	\$215.00	72	\$15,480.00
	Saint Mary Street	Width	Length	sq ft	
	Cross Street	20	40	800	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	89	\$3,377.78
	Structural Removal and Replacement			20 Percent	\$4,241.56

NODE	84807 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	3	RCB
	Pipe 2	0	0	0	RCB
	Wing walls	2	3	5	1.11
	Apron		5	4	0.74
	Face (less pipe opening)		3	4	0.22
			Total	2.07	
	Concrete	cy	\$300.00	2.07	\$622.22
	Excavation and Backfill	cy	\$4.00	4.15	\$16.59

NODE	84795 Concrete Wing walls & Apron				
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ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	2	2	RCB
	Wing walls	2	3	5	1.11
	Apron		5	6	1.11
	Face (less pipe opening)		3	6	0.40
			Total	2.62	
	Concrete	cy	\$300.00	2.62	\$787.32
	Excavation and Backfill	cy	\$4.00	5.25	\$21.00
CONDUIT	250 Parallel pipe added		2 X 2	RCB	
	2' x 2' L x W RCP	LF	\$180.00	42	\$7,560.00
	Wilson Ave.	Width	Length	sq ft	
	Cross Street	20	20	400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	44	\$1,688.89
NODE	84794 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	2	2	RCB
	Wing walls	2	3	5	1.11
	Apron		5	6	1.11
	Face (less pipe opening)		3	6	0.40
			Total	2.62	
	Concrete	cy	\$300.00	2.62	\$787.32
	Excavation and Backfill	cy	\$4.00	5.25	\$21.00
NODE	84793 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.75	1.75	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.75	1.06
	Face (less pipe opening)		3	5.75	0.43
			Total	2.61	
	Concrete	cy	\$300.00	2.61	\$782.81
	Excavation and Backfill	cy	\$4.00	5.22	\$20.88
CONDUIT	249 Parallel pipe added		1.75	RCP	
	21 inch RCP	LF	\$37.00	33	\$1,221.00
	Wilson Ave.	Width	Length	sq ft	
	Cross Street	20	20	400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	44	\$1,688.89
NODE	84802 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	2	RCP
	Pipe 2	1	1.75	1.75	RCP
	Wing walls	2	3	5	1.11
	Apron		5	5.75	1.06
	Face (less pipe opening)		3	5.75	0.43
			Total	2.61	
	Concrete	cy	\$300.00	2.61	\$782.81
	Excavation and Backfill	cy	\$4.00	5.22	\$20.88

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	85825 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3	3	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	4	5	1.48
	Apron		5	7	1.30
	Face (less pipe opening)		4	7	0.66
			Total	3.44	
	Concrete	cy	\$300.00	3.44	\$1,031.00
	Excavation and Backfill	cy	\$4.00	6.87	\$27.49
CONDUIT	886 Parallel pipe added				
	24 inch RCP	LF	\$42.00	32	\$1,344.00
	Alley	Width	Length	sq ft	
	Cross Street	20	15	300	
	2-lane, Gravel	sy	\$14.00	33	\$466.67
NODE	85826 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3	3	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	4	5	1.48
	Apron		5	7	1.30
	Face (less pipe opening)		4	7	0.66
			Total	3.44	
	Concrete	cy	\$300.00	3.44	\$1,031.00
	Excavation and Backfill	cy	\$4.00	6.87	\$27.49
NODE	84791 Junction Structure				
		ea	\$5,250.00	1	\$5,250.00
CONDUIT	304 Parallel pipe added				
	2' x 2' L x W RCP	LF	\$180.00	273	\$49,140.00
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	273	5460	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	607	\$26,693.33
NODE	84897 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1756 Parallel pipe added				
	24 inch RCP	LF	\$42.00	343	\$14,406.00
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	343	6860	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	762	\$33,537.78
NODE	84899 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	308 Parallel pipe added				
	24 inch RCP	LF	\$42.00	307	\$12,894.00
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	307	6140	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	682	\$30,017.78
NODE	84902 Junction Structure				
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1442 Parallel pipe added				
	24 inch RCP	LF	\$42.00	142	\$5,964.00
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	142	2840	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	316	\$13,884.44

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	84903 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	309 Parallel pipe added			2 RCP	
	24 inch RCP	LF	\$42.00	181	\$7,602.00
	Limit Street	Width	Length	sq ft	
	Parallel Street	20	181	3620	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	402	\$17,697.78
NODE	84904 Junction Structure	ea	\$5,250.00	1	\$5,250.00

SUBTOTAL \$846,434.81

20% Contingency \$1,015,721.77

20% Engineering, legal and administrative \$1,218,866.12

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem 3 R 5 Mile Creek					
NODE	85845 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	893 Parallel pipe added	1.25 RCP			
	15 inch RCP	LF	\$25.00	88	\$2,200.00
	4 th Avenue	Width	Length	sq ft	
	Parallel Street	20	88	1760	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	196	\$8,604.44
NODE	85847 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2037 Parallel pipe added	1.25 RCP			
	15 inch RCP	LF	\$25.00	90	\$2,250.00
	4 th Avenue	Width	Length	sq ft	
	Parallel Street	20	90	1800	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	200	\$8,800.00
NODE	85848 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	894 Parallel pipe added	2 RCP			
	24 inch RCP	LF	\$42.00	255	\$10,710.00
	4 th Avenue	Width	Length	sq ft	
	Parallel Street	20	255	5100	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	567	\$24,933.33
NODE	85850 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2038 Parallel pipe added	2.25 RCP			
	27 inch RCP	LF	\$47.00	88	\$4,136.00
	4 th Avenue	Width	Length	sq ft	
	Parallel Street	20	88	1760	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	196	\$8,604.44
NODE	86466 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	2280 Parallel pipe added	2.25 RCP			
	27 inch RCP	LF	\$47.00	270	\$12,690.00
	4 th Avenue	Width	Length	sq ft	
	Parallel Street	20	270	5400	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	600	\$26,400.00
NODE	85855 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	2.25	2.25	RCP	
Pipe 2	1	2.5	2.5	RCP	
Wing walls	2	3.5	5	1.30	
Apron		5	6.75	1.25	
Face (less pipe opening)		3.5	6.75	0.55	
			Total Area	3.09	
Concrete	cy	\$300.00		3.09	\$927.67
Excavation and Backfill	cy	\$4.00		6.18	\$24.74

SUBTOTAL \$122,030.63

20% Contingency \$146,436.75

20% Engineering, legal and administrative \$175,724.11

PRELIMINARY COST ESTIMATE				DATE: 11/12/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JWH
ELEMENT #	5 MILE CREEK - 4 R				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.13	Pipe and Inlet (Enclosed) System- 60 inch RCP	574	LF	\$200.00	\$114,800
A.3.15	Pipe and Inlet (Enclosed) System - 72 inch RCP	267	LF	\$250.00	\$66,750
A.5.2	Storm Sewer Manholes > 6ft Diameter	4	ea	\$5,250.00	\$21,000
C.3.2.1	Concrete - Wing walls and apron	5	cy	\$300.00	\$1,530
B.1	Excavation and Backfill	10	cy	\$4.00	\$41
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	242	sy	\$9.00	\$2,178
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	242	sy	\$35.00	\$8,470
	Parking lot removal	222	sy	\$9.00	\$2,000
	Parking lot replacement	222	sy	\$27.00	\$6,000
	Structural Replacement				\$44,556
TOTAL =					\$267,325
CONTINGENCY		20 PERCENT			\$53,465
SUB TOTAL =					\$320,790
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$64,158
TOTAL =					\$384,948

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	4 R 5 Mile Creek				
NODE	84876 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	845 Replace Pipe 60 inch RCP	LF	\$200.00	339	\$67,800.00
	Parallel Street	Width	Length	sq ft	
		20	60	1200	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	133	\$5,866.67
	Parking Lot	Width	Length	sq ft	
		20	100	2000	
	Parking Lot Remove/Re	sy	\$36.00	222	\$8,000.00
NODE	85738 Replace Pipe	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1479 Parallel pipe added 60 inch RCP	LF	\$200.00	186	\$37,200.00
NODE	85739 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	847 Replace Pipe 60 inch RCP	LF	\$200.00	49	\$9,800.00
	Parallel Street	Width	Length	sq ft	
		20	49	980	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	109	\$4,791.11
NODE	85740 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	853 Replace Pipe 72 inch RCP	LF	\$250.00	267	\$66,750.00
NODE	93328 Concrete Wing walls & Apron				
	Pipe 1	Quantity	Height	Width	cu yd
		1	6	6	RCP
	Pipe 2	1	0	0	RCP
	Wing walls	2	7	5	2.59
	Apron		5	8	1.48
	Face (less pipe opening)		7	8	1.03
			Total Area		5.10
	Concrete	cy	\$300.00	5.10	\$1,530.29
	Excavation and Backfill	cy	\$4.00	10.20	\$40.81
	Strucural Replacement			20 Percent	\$44,555.77
				SUBTOTAL	\$267,334.64
				20% Contingency	\$320,801.57
				20% Engineering, legal and administrative	\$384,961.89

PRELIMINARY COST ESTIMATE				DATE: 11/12/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JWH
ELEMENT #	5 MILE CREEK - 5 R				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System- 15 inch RCP	35	LF	\$25.00	\$875
A.3.7	Pipe and Inlet (Enclosed) System- 27 inch RCP	297	LF	\$47.00	\$13,959
A.3.8	Pipe and Inlet (Enclosed) System- 30 inch RCP	185	LF	\$52.00	\$9,620
A.3.9	Pipe and Inlet (Enclosed) System- 36 inch RCP	50	LF	\$66.00	\$3,300
A.2.1	Storm Sewer Curb Inlet	4	ea	\$775.00	\$3,100
C.3.2.1	Concrete - Wing walls and apron	4	cy	\$300.00	\$1,086
B.1	Excavation and Backfill	7	cy	\$4.00	\$29
F.2.2	Street Removal - 2-lane. Asphalt, w/ C&G	469	sy	\$8.00	\$3,752
F.3.4.2	Street Replacement, 2-lane. Asphalt w/ C&G	469	sy	\$30.00	\$14,070
F.2.3	Street Removal - 4-lane. Asphalt, w/ C&G	660	sy	\$9.00	\$5,940
F.3.4.3	Street Replacement, 4-lane. Asphalt w/ C&G	660	sy	\$35.00	\$23,100
A.5.1	Storm Sewer Manholes < 6ft Diameter	2	ea	\$2,350.00	\$4,700
TOTAL =					\$83,531
CONTINGENCY		20 PERCENT			\$16,706
SUB TOTAL =					\$100,237
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$20,047
TOTAL =					\$120,285

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem 5 R 5 Mile Creek					
NODE Inlet Structures					
		ea	\$775.00	2	\$1,550.00
CONDUIT	170 Replace Pipe			2.25 RCP	
	27 inch RCP	LF	\$47.00	297	\$13,959.00
	Parallel Street	Width	Length	sq ft	
		20	297	5940	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	660	\$29,040.00
NODE Inlet Structures					
		ea	\$775.00	2	\$1,550.00
CONDUIT	170 Replace Pipe			1.25 RCP	
	15 inch RCP	LF	\$25.00	35	\$875.00
	Parallel Street	Width	Length	sq ft	
		15	35	525	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	58	\$2,216.67
NODE 92517 Junction Structure					
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1481 Replace Pipe			2.5 RCP	
	30 inch RCP	LF	\$52.00	185	\$9,620.00
	Parallel Street	Width	Length	sq ft	
		20	185	3700	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	411	\$15,622.22
NODE 92516 Junction Structure					
		ea	\$2,350.00	1	\$2,350.00
CONDUIT	1665 Replace Pipe			3 RCP	
	36 inch RCP	LF	\$66.00	50	\$3,300.00
NODE 93328 Concrete Wing walls & Apron					
	Quantity	Height	Width	cu yd	
Pipe 1	1	3	3	RCP	
Pipe 2	1	3	3	RCP	
Wing walls	2	4	5	1.48	
Apron		5	8	1.48	
Face (less pipe opening)		4	8	0.66	
			Total Area	3.62	
Concrete		cy	\$300.00	3.62	\$1,087.36
Excavation and Backfill		cy	\$4.00	7.25	\$29.00

SUBTOTAL \$83,549.25

20% Contingency \$100,259.10

20% Engineering, legal and administrative \$120,310.92

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	6 R 5 Mile Creek				
NODE	84741 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	2.5	2.5	RCP
	Wing walls	2	3.5	5	1.30
	Apron		5	7	1.30
	Face (less pipe opening)		3.5	7	0.54
			Total Area	3.14	
	Concrete	cy	\$300.00	3.14	\$940.92
	Excavation and Backfill	cy	\$4.00	6.27	\$25.09
CONDUIT	196 Parallel pipe added			2.5 RCP	
	30 inch RCP	LF	\$52.00	58.38	\$3,035.76
	Lakeview Drive	Width	Length	sq ft	
	Street Crossing	20	20	400	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	44	\$1,688.89
NODE	84740 Junction Structure				
		ea	\$5,250.00	1	\$5,250.00
CONDUIT	197 Parallel pipe added			2.5 RCP	
	30 inch RCP	LF	\$52.00	145.54	\$7,568.08
NODE	92524 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3	3	RCP
	Pipe 2	1	2.5	2.5	RCP
	Wing walls	2	4	5	1.48
	Apron		5	7.5	1.39
	Face (less pipe opening)		4	7.5	0.67
			Total Area	3.54	
	Concrete	cy	\$300.00	3.54	\$1,061.36
	Excavation and Backfill	cy	\$4.00	7.08	\$28.30

SUBTOTAL \$19,598.40

20% Contingency \$23,518.08

20% Engineering, legal and administrative \$28,221.70

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	7 R 5 Mile Creek				
NODE	92497 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	201 Parallel pipe added			1.5 RCP	
	18 inch RCP	LF	\$34.00	100	\$3,400.00
	Deerfiels	Width	Length	sq ft	
		20	15	300	
	Driveway	sy	\$36.00	33	\$1,200.00
NODE	84749 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	84722 Junction Structure	ea	\$2,350.00	1	\$2,350.00
CONDUIT	221 Parallel pipe added			4.5 RCP	
	54 inch RCP	LF	\$135.00	70	\$9,450.00
	Fawncreek	Width	Length	sq ft	
	Parallel Street	30	70	2100	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	233	\$8,866.67
NODE	82501 Junction Structure	ea	\$2,350.00	1	\$2,350.00

SUBTOTAL \$38,116.67

20% Contingency \$45,740.00

20% Engineering, legal and administrative \$54,888.00

PRELIMINARY COST ESTIMATE				DATE: 11/12/96	
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHKD:	JLF
ELEMENT #	5 MILE CREEK - 8 R				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.3	Pipe and Inlet (Enclosed) System - 15 inch RCP	136	LF	\$25.00	\$3,400
A.3.6	Pipe and Inlet (Enclosed) System- 24 inch RCP	250	LF	\$42.00	\$10,500
A.3.7	Pipe and Inlet (Enclosed) System- 27 inch RCP	900	LF	\$47.00	\$42,280
A.3.8	Pipe and Inlet (Enclosed) System- 30 inch RCP	713	LF	\$52.00	\$37,069
A.3.9	Pipe and Inlet (Enclosed) System- 36 inch RCP	64	LF	\$66.00	\$4,224
B.3.2	Reinforced Concrete Box Culverts - 3.5 x 2	186	LF	\$245.00	\$45,680
A.2.2	Area Inlet	2	ea	\$680.00	\$1,360
A.5.1	Storm Sewer Manholes < 6ft Diameter	2	ea	\$2,350.00	\$4,700
A.5.2	Storm Sewer Manholes > 6ft Diameter	15	ea	\$5,250.00	\$78,750
C.3.2.1	Concrete - Wing walls and apron	37	cy	\$300.00	\$10,995
B.1	Excavation and Backfill	73	cy	\$4.00	\$293
F.2.2	Street Removal - 2-lane, Asphalt, w/ C&G	611	sy	\$8.00	\$4,888
F.3.4.2	Street Replacement, 2-lane, Asphalt w/ C&G	611	sy	\$30.00	\$18,330
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	939	sy	\$9.00	\$8,451
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	939	sy	\$35.00	\$32,865
TOTAL =					\$303,789
CONTINGENCY		20 PERCENT		\$60,758	
SUB TOTAL =					\$364,547
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT		\$72,909	
TOTAL =					\$437,457

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
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Subsystem 8 R 5 Mile Creek

NODE 84591 Concrete Wing walls & Apron

	Quantity	Height	Width	cu yd
Pipe 1	1	3	3	RCP
Pipe 2	1	3.5	3.5	RCP
Wing walls	2	4.5	5	1.67
Apron		5	8.5	1.57
Face (less pipe opening)		4.5	8.5	0.80
			Total Area	4.04

Concrete	cy	\$300.00	4.04	\$1,211.78
Excavation and Backfill	cy	\$4.00	8.08	\$32.31

CONDUIT 87 Parallel pipe added 3 RCP

36 inch RCP	LF	\$66.00	64	\$4,224.00
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Eisenhower Street Crossing	width	length	sq ft
	20	24	480

4-lane, Asphalt, w/ C&G	sy	\$44.00	53	\$2,346.67
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NODE 84590 Concrete Wing walls & Apron

	Quantity	Height	Width	cu yd
Pipe 1	1	3	3	RCP
Pipe 2	1	3.5	3.5	RCP
Wing walls	2	4.5	5	1.67
Apron		5	8.5	1.57
Face (less pipe opening)		4.5	8.5	0.80
			Total Area	4.04

Concrete	cy	\$300.00	4.04	\$1,211.78
Excavation and Backfill	cy	\$4.00	8.08	\$32.31

NODE 84593 Concrete Wing walls & Apron

	Quantity	Height	Width	cu yd
Pipe 1	1	3	3	RCP
Pipe 2	1	1.25	1.25	RCP
Wing walls	2	4	5	1.48
Apron		5	6.25	1.16
Face (less pipe opening)		4	6.25	0.62
			Total Area	3.26

Concrete	cy	\$300.00	3.26	\$977.27
Excavation and Backfill	cy	\$4.00	6.52	\$26.06

CONDUIT 88 Parallel pipe added 1.25 RCP

15 inch RCP	LF	\$25.00	66	\$1,650.00
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Eisenhower Street Crossing	width	length	sq ft
	20	24	480

4-lane, Asphalt, w/ C&G	sy	\$44.00	53	\$2,346.67
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NODE 84592 Concrete Wing walls & Apron

	Quantity	Height	Width	cu yd
Pipe 1	1	3	3	RCP
Pipe 2	1	1.25	1.25	RCP
Wing walls	2	4	5	1.48
Apron		5	6.25	1.16
Face (less pipe opening)		4	6.25	0.62
			Total Area	3.26

Concrete	cy	\$300.00	3.26	\$977.27
Excavation and Backfill	cy	\$4.00	6.52	\$26.06

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	84595 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3	3	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	4	5	1.48
	Apron		5	7	1.30
	Face (less pipe opening)		4	7	0.66
			Total Area	3.44	
	Concrete	cy	\$300.00	3.44	\$1,031.00
	Excavation and Backfill	cy	\$4.00	6.87	\$27.49
CONDUIT	89 Parallel pipe added				
	24 inch RCP	LF	\$42.00	69	\$2,898.00
	Eisenhower Street Crossing	width	length	sq ft	
		20	24	480	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	53	\$2,346.67
NODE	84594 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	3	3	RCP
	Pipe 2	1	2	2	RCP
	Wing walls	2	4	5	1.48
	Apron		5	7	1.30
	Face (less pipe opening)		4	7	0.66
			Total Area	3.44	
	Concrete	cy	\$300.00	3.44	\$1,031.00
	Excavation and Backfill	cy	\$4.00	6.87	\$27.49
NODE	84621 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
	Pipe 1	1	2	3	RCB
	Pipe 2	1	2	2	RCP
	Wing walls	2	3	5	1.11
	Apron		5	7	1.30
	Face (less pipe opening)		3	7	0.41
			Total Area	2.81	
	Concrete	cy	\$300.00	2.81	\$844.44
	Excavation and Backfill	cy	\$4.00	5.63	\$22.52
CONDUIT	104 Parallel box added				
	0 inch RCP	LF	\$245.00	126.05	\$30,882.25
	Parkway Drive Parallel Street	width	length	sq ft	
		14	126	1764.7	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	196	\$7,450.96
NODE	84622 Junction Structure				
		ea	\$5,250.00	1	\$5,250.00
CONDUIT	1647 Parallel box added				
	0 inch RCP	LF	\$245.00	60.4	\$14,798.00
	Parkway Drive Street Crossing	width	length	sq ft	
		20	28	560	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	62	\$2,364.44
NODE	84623 Junction Structure				
		ea	\$5,250.00	1	\$5,250.00
CONDUIT	105 Parallel pipe added				
	24 inch RCP	LF	\$42.00	181.08	\$7,605.36
	Parallel Street	width	length	sq ft	
		14	181	2534	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	282	\$10,699.11

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
NODE	84624 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	84609 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	97 Parallel pipe added 27 inch RCP	LF	2.25 RCP \$47.00	54	\$2,538.00
	10 th Ave Street Crossing	width	length	sq ft	
		20	48	960	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	107	\$4,693.33
NODE	84608 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	1643 Parallel pipe added 27 inch RCP	LF	2.25 RCP \$47.00	22	\$1,034.00
NODE	84612 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	2.25	2.25	RCP
	Wing walls	2	3.5	5	1.30
	Apron		5	6.75	1.25
	Face (less pipe opening)		3.5	6.75	0.55
			Total Area		3.09
	Concrete	cy	\$300.00	3.09	\$927.67
	Excavation and Backfill	cy	\$4.00	6.18	\$24.74
NODE	84625 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	109 Parallel pipe added 27 inch RCP	LF	2.25 RCP \$47.00	319.58	\$15,020.26
NODE	84628 Junction Structure	ea	\$5,250.00	1	\$5,250.00
NODE	92859 Area Inlet	ea	\$680.00	1	\$680.00
CONDUIT	3316 Parallel pipe added 27 inch RCP	LF	2.25 RCP \$47.00	118	\$5,546.00
NODE	92857 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3317 Parallel pipe added 27 inch RCP	LF	2.25 RCP \$47.00	37	\$1,739.00
	Muncie Street Crossing	width	length	sq ft	
		20	24	480	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	53	\$2,346.67
NODE	92856 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3318 Parallel pipe added 27 inch RCP	LF	2.25 RCP \$47.00	239	\$11,233.00
	Muncie Parallel	width	length	sq ft	
		20	239	4780	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	531	\$23,368.89
NODE	92854 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	3320 Parallel pipe added 27 inch RCP	LF	2.25 RCP \$47.00	110	\$5,170.00
	Muncie Parallel 4-lane, Asphalt, w/ C&G	width 20 sy	length 40	sq ft 800	
NODE	92563 Concrete Wing walls & Apron				\$3,911.11
		Quantity	Height	Width	cu yd
	Pipe 1	1	2.25	2.25	RCP
	Pipe 2	1	2.5	2.5	RCP
	Wing walls	2	3.5	5	1.30
	Apron		5	6.75	1.25
	Face (less pipe opening)		3.5	6.75	0.55
			Total Area	3.09	
	Concrete	cy	\$300.00	3.09	\$927.67
	Excavation and Backfill	cy	\$4.00	6.18	\$24.74
NODE	92855 Concrete Wing walls & Apron				
		Quantity	Height	Width	cu yd
	Pipe 1	1	2.5	2.5	RCP
	Pipe 2	1	2.5	2.5	RCP
	Wing walls	2	3.5	5	1.30
	Apron		5	7	1.30
	Face (less pipe opening)		3.5	7	0.54
			Total Area	3.14	
	Concrete	cy	\$300.00	3.14	\$940.92
	Excavation and Backfill	cy	\$4.00	6.27	\$25.09
CONDUIT	3319 Parallel pipe added 30 inch RCP	LF	2.5 RCP \$52.00	15	\$780.00
NODE	92860 Area Inlet	ea	\$680.00	1	\$680.00
CONDUIT	3321 Parallel pipe added 30 inch RCP	LF	2.5 RCP \$52.00	114.87	\$5,973.24
NODE	92861 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3322 Parallel pipe added 30 inch RCP	LF	2.5 RCP \$52.00	122.5	\$6,370.00
NODE	92862 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3323 Parallel pipe added 30 inch RCP	LF	2.5 RCP \$52.00	40	\$2,080.00
NODE	92863 Junction Structure	ea	\$5,250.00	1	\$5,250.00
CONDUIT	3324 Parallel pipe added 30 inch RCP	LF	2.5 RCP \$52.00	31	\$1,612.00
	Parkway Cross Street 2-lane, Asphalt, w/ C&G	width 20 sy	length 32	sq ft 640	
NODE	92864 Junction Structure	ea	\$38.00	71	\$2,702.22
CONDUIT	3325 Parallel pipe added 30 inch RCP	LF	2.5 RCP \$52.00	89.5	\$4,654.00
NODE	92865 Junction Structure	ea	\$5,250.00	1	\$5,250.00

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
CONDUIT	3326 Parallel pipe added 30 inch RCP	LF	\$52.00	2.5 RCP 300	\$15,600.00

NODE	DESCRIPTION	Quantity	Height	Width	cu yd	
	92564 Junction Structure					
	Pipe 1	1	2.5	2.5	RCP	
	Pipe 2	1	2	2	RCP	
	Wing walls	2	3.5	5	1.30	
	Apron		5	6.5	1.20	
	Face (less pipe opening)		3.5	6.5	0.54	
				Total Area	3.04	
	Concrete	cy		\$300.00	3.04	\$913.33
	Excavation and Backfill	cy		\$4.00	6.09	\$24.36

NODE	92565 Junction Structure	ea	\$2,350.00	1	\$2,350.00
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CONDUIT	2946 Parallel pipe added 15 inch RCP	LF	\$25.00	1.25 RCP 70	\$1,750.00
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NODE	92566 Junction Structure	ea	\$2,350.00	1	\$2,350.00
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SUBTOTAL \$303,831.14

20% Contingency \$364,597.37

20% Engineering, legal and administrative \$437,516.85

PRELIMINARY COST ESTIMATE				DATE:	11/12/96
PROJECT:	LEAVENWORTH, KANSAS STORMWATER MASTER PLAN			EST:	VLD
ENGINEER	BLACK & VEATCH			CHCKD:	JWH
ELEMENT #	5 MILE CREEK - 9 R				
	DESCRIPTION	QUANT.	UNIT	U. PRICE	AMOUNT
A.3.10	Pipe and Inlet (Enclosed) System - 42 inch RCP	81	LF	\$90.00	\$7,290
B3.20	Reinforced Concrete Box Culverts - 8 X 6	420	LF	\$434.00	\$182,280
C.3.2.1	Concrete - Wing walls and apron	22	cy	\$300.00	\$6,648
B.1	Excavation and Backfill	44	cy	\$4.00	\$177
F.2.3	Street Removal - 4-lane, Asphalt, w/ C&G	435	sy	\$9.00	\$3,915
F.3.4.3	Street Replacement, 4-lane, Asphalt w/ C&G	435	sy	\$35.00	\$15,225
	Structural Removal				\$40,608
TOTAL =					\$256,143
CONTINGENCY		20 PERCENT			\$51,229
SUB TOTAL =					\$307,372
ENGINEERING, LEGAL AND ADMINISTRATIVE		20 PERCENT			\$61,474
TOTAL =					\$368,846

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	9 R 5 Mile Creek				
NODE	84782 Junction Structure				
	Quantity	Height	Width	cu yd	
Pipe 1	1	6	8	RCB	
Pipe 2	1	6	8	RCB	
Wing walls	2	7	5	2.59	
Apron		5	18	3.33	
Face (less pipe opening)		7	18	1.11	
			Total Area	7.04	
Concrete	cy		\$300.00	7.04	\$2,111.11
Excavation and Backfill	cy		\$4.00	14.07	\$56.30
CONDUIT	244 Double Replacement	8 X 6	RCP		
	LF		\$434.00	210	\$91,140.00
	LF		\$434.00	210	\$91,140.00
	10th Ave	width	length	sq ft	
	Parallel Street	16	210	3360	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	373	\$16,426.67
NODE	84783 Junction Structure				
	Quantity	Height	Width	cu yd	
Pipe 1	1	6	8	RCB	
Pipe 2	1	6	8	RCB	
Wing walls	2	7	5	2.59	
Apron		5	18	3.33	
Face (less pipe opening)		7	18	1.11	
			Total Area	7.04	
Concrete	cy		\$300.00	7.04	\$2,111.11
Excavation and Backfill	cy		\$4.00	14.07	\$56.30
Structural Removal			20 Percent		\$40,608.30
NODE	84633 Junction Structure				
	Quantity	Height	Width	cu yd	
Pipe 1	1	3.5	3.5	RCP	
Pipe 2	1	3	3	RCP	
Wing walls	2	4.5	5	1.67	
Apron		5	8.5	1.57	
Face (less pipe opening)		4.5	8.5	0.80	
			Total Area	4.04	
Concrete	cy		\$300.00	4.04	\$1,211.78
Excavation and Backfill	cy		\$4.00	8.08	\$32.31
CONDUIT	112 Parallel pipe added	3.5	RCP		
	42 inch RCP	LF	\$90.00	81	\$7,290.00
	Eisenhower	width	length	sq ft	
	Cross Street	20	28	560	
	4-lane, Asphalt, w/ C&G	sy	\$44.00	62	\$2,737.78
NODE	84632 Junction Structure				
	Quantity	Height	Width	cu yd	
Pipe 1	1	3.5	3.5	RCP	
Pipe 2	1	3	3	RCP	
Wing walls	2	4.5	5	1.67	
Apron		5	8.5	1.57	
Face (less pipe opening)		4.5	8.5	0.80	
			Total Area	4.04	
Concrete	cy		\$300.00	4.04	\$1,211.78
Excavation and Backfill	cy		\$4.00	8.08	\$32.31

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
				SUBTOTAL	\$256,165.75
				20% Contingency	\$307,398.90
				20% Engineering, legal and administrative	\$368,878.67

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
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Subsystem 10 R 5 Mile Creek

NODE 92470 Concrete Wing walls & Apron

	Quantity	Height	Width	cu yd
Pipe 1	1	2.5	2.5	RCP
Pipe 2	1	3	3	RCP
Wing walls	2	4	5	1.48
Apron		5	7.5	1.39
Face (less pipe opening)		4	7.5	0.67
			Total Area	3.54

Concrete	cy	\$300.00	3.54	\$1,061.36
Excavation and Backfill	cy	\$4.00	7.08	\$28.30

CONDUIT 2806 Parallel pipe added 2.5 RCP

30 inch RCP	LF	\$52.00	321	\$16,692.00
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West Leavenworth Rd	width	length	sq ft
Street Crossing	20	80	1600

4-lane, Asphalt, w/ C&G	sy	\$44.00	178	\$7,822.22
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NODE 86215 Concrete Wing walls & Apron

	Quantity	Height	Width	cu yd
Pipe 1	1	2.5	2.5	RCP
Pipe 2	1	3	3	RCP
Wing walls	2	4	5	1.48
Apron		5	7.5	1.39
Face (less pipe opening)		4	7.5	0.67
			Total Area	3.54

Concrete	cy	\$300.00	3.54	\$1,061.36
Excavation and Backfill	cy	\$4.00	7.08	\$28.30

SUBTOTAL \$26,693.55

20% Contingency \$32,032.27

20% Engineering, legal and administrative \$38,438.72

ITEM No	ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST
Subsystem	11 L 5 Mile Creek				

NODE	86214 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	4	4	RCP	
Pipe 2	1	3	3	RCP	
Wing walls	2	5	5	1.85	
Apron		5	9	1.67	
Face (less pipe opening)		5	9	0.94	
			Total Area	4.46	
Concrete	cy		\$300.00	4.46	\$1,337.39
Excavation and Backfill	cy		\$4.00	8.92	\$35.66

CONDUIT	1113 Parallel pipe added				
	48 inch RCP	LF	\$110.00	254	\$27,940.00
	Hebbeln Rd	width	length	sq ft	
	Street Crossing	20	24	480	
	2-lane, Asphalt, w/ C&G	sy	\$38.00	53	\$2,026.67

NODE	86215 Concrete Wing walls & Apron				
	Quantity	Height	Width	cu yd	
Pipe 1	1	4	4	RCP	
Pipe 2	1	3	3	RCP	
Wing walls	2	5	5	1.85	
Apron		5	9	1.67	
Face (less pipe opening)		5	9	0.94	
			Total Area	4.46	
Concrete	cy		\$300.00	4.46	\$1,337.39
Excavation and Backfill	cy		\$4.00	8.92	\$35.66

SUBTOTAL \$32,712.77

20% Contingency \$39,255.33

20% Engineering, legal and administrative \$47,106.39