

Table 6-2
Selected Plan Cost Estimates - Stonepile Creek Watershed

Projects	Construction Cost	Construction Contingency (30%)	Subtotal Construction Cost	Design Contingency (15%)	Land Cost	Total Cost (x\$1,000)
Stonepile Creek Main Stem						
Detention						
Beltway Regional	\$ 3,159,552	\$ 947,866	\$ 4,107,417	\$ 616,113	\$ 104,045	\$ 4,828
Tributary 505 Detention	\$ 918,576	\$ 275,573	\$ 1,194,149	\$ 179,122	\$ -	\$ 1,373
Tributary 506 Detention	\$ 2,303,595	\$ 691,078	\$ 2,994,673	\$ 449,201	\$ 258,831	\$ 3,703
Tributary 503 Detention	\$ 681,055	\$ 204,317	\$ 885,372	\$ 132,806	\$ 191,432	\$ 1,210
Church Detention	\$ 1,264,282	\$ 379,285	\$ 1,643,567	\$ 246,535	\$ 7,342	\$ 1,897
Burlington Lake		\$ -	\$ -	\$ -	\$ 104,045	\$ 104
Burlington Ditch	\$ 531,147	\$ 159,344	\$ 690,491	\$ 103,574		\$ 794
Burlington Ditch Diversion Structure	\$ 49,000	\$ 14,700	\$ 63,700	\$ 9,555		\$ 73
Burlington Ditch @ Hannum	\$ 114,250	\$ 34,275	\$ 148,525	\$ 22,279		\$ 171
Burlington Lake Embankment Culvert	\$ 448,000	\$ 134,400	\$ 582,400	\$ 87,360		\$ 670
Burlington Lake Outlet	\$ 1,248,382	\$ 374,515	\$ 1,622,897	\$ 243,435		\$ 1,866
Subtotal - Burlington Lake	\$ 2,390,779	\$ 717,234	\$ 3,108,013	\$ 466,202	\$ 104,045	\$ 3,678
Subtotal - Detention						\$ 16,689
Channel Improvements						
BNSF Railroad to DP5-218	\$ 748,605	\$ 224,582	\$ 973,187	\$ 145,978		\$ 1,119
DP5-209 to BNSF Railroad	\$ 195,714	\$ 58,714	\$ 254,428	\$ 38,164		\$ 293
Burma to Warlow Road	\$ 200,158	\$ 60,047	\$ 260,205	\$ 39,031		\$ 299
Warlow Rd. to BNSF	\$ 201,520	\$ 60,456	\$ 261,976	\$ 39,296		\$ 301
Echeta to DP5-233	\$ 147,795	\$ 44,338	\$ 192,133	\$ 28,820		\$ 221
DP5-233 to DP5-236	\$ 154,067	\$ 46,220	\$ 200,287	\$ 30,043		\$ 230
Structure Improvements						
Garner Lake Road	\$ 228,500	\$ 68,550	\$ 297,050	\$ 44,558		\$ 342
Church Detention	\$ 193,000	\$ 57,900	\$ 250,900	\$ 37,635		\$ 289
BNSF Railroad	\$ 280,000	\$ 84,000	\$ 364,000	\$ 54,600		\$ 419
Burma Ave.	\$ 193,000	\$ 57,900	\$ 250,900	\$ 37,635		\$ 289
Commercial Dr.	\$ 252,500	\$ 75,750	\$ 328,250	\$ 49,238		\$ 377
Newton	\$ 300,500	\$ 90,150	\$ 390,650	\$ 58,598		\$ 449

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Projects	Construction Cost	Construction Contingency (30%)	Subtotal Construction Cost	Design Contingency (15%)	Land Cost	Total Cost (x\$1,000)
Private Drive	\$ 300,500	\$ 90,150	\$ 390,650	\$ 58,598		\$ 449
Stonepile Creek Main Stem - Total Cost	\$ 16,504,475	\$ 4,951,343	\$ 21,455,818	\$ 3,218,373	\$ 769,740	\$ 21,766

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Projects	Construction Cost	Construction Contingency (30%)	Subtotal Construction Cost	Design Contingency (15%)	Land Cost	Total Cost (x\$1,000)
Stonepile Creek Tributaries						
Tributary 501						
Storm Sewer Improvements						
Foothills Blvd. (DP5-240)	\$ 206,250	\$ 61,875	\$ 268,125	\$ 40,219		\$ 308
Bridger Rd. (DP5-235)	\$ 723,640	\$ 217,092	\$ 940,732	\$ 141,110		\$ 1,082
Tributary 502						
Storm Sewer Improvements						
Warlow Rd. (DP5-246)	\$ 116,320	\$ 34,896	\$ 151,216	\$ 22,682		\$ 174
8th and Rohan (DP5-224)	\$ 406,980	\$ 122,094	\$ 529,074	\$ 79,361		\$ 608
Channel Improvements						
U/S Warlow	\$ 66,567	\$ 19,970	\$ 86,537	\$ 12,981		\$ 100
Burma Ave. to 2nd St.	\$ 97,133	\$ 29,140	\$ 126,274	\$ 18,941		\$ 145
Tributary 503						
Structure Improvements						
Westover Rd. (DP5-234)	\$ 424,800	\$ 127,440	\$ 552,240	\$ 82,836		\$ 635
Tributary 506						
Structure Improvements						
Westover Rd. (DP5-237)	\$ 167,500	\$ 50,250	\$ 217,750	\$ 32,663		\$ 250
Tributary 504						
Storm Sewer Improvements						
Gillette Avenue (DP5-220)	\$ 612,800	\$ 183,840	\$ 796,640	\$ 119,496		\$ 916
Tributary 509						
Storm Sewer Improvements						
9th Street	\$ 137,600	\$ 41,280	\$ 178,880	\$ 26,832		\$ 206
Green Avenue and Outfall	\$ 1,015,000	\$ 304,500	\$ 1,319,500	\$ 197,925		\$ 1,517

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Projects	Construction Cost	Construction Contingency (30%)	Subtotal Construction Cost	Design Contingency (15%)	Land Cost	Total Cost (x\$1,000)
Projects	Construction Cost	Construction Contingency (30%)	Subtotal Construction Cost	Design Contingency (15%)	Land Cost	Total Cost (x\$1,000)
Tributary 510						
Structure Improvements						
I-90 (DP5-212)	\$ 628,000	\$ 188,400	\$ 816,400	\$ 122,460		\$ 939
SH 14/16 (DP5-210)	\$ 183,000	\$ 54,900	\$ 237,900	\$ 35,685		\$ 274
BNSF RR (DP5-211)	\$ 137,500	\$ 41,250	\$ 178,750	\$ 26,813		\$ 206
Tributary 511						
Channel Improvements						
DP5-211 to P5-9	\$ 66,000	\$ 19,800	\$ 85,800	\$ 12,870		\$ 99
Tributary 1102						
Structure Improvements						
BNSF RR & Echeta Rd. (DP11-212)	\$ 241,500	\$ 72,450	\$ 313,950	\$ 47,093		\$ 361
Centennial Dr. (DP11-210)	\$ 5,120	\$ 1,536	\$ 6,656	\$ 998		\$ 8
Tributary 1103						
Structure Improvements						
I-90 (DP11-203)	\$ 487,200	\$ 146,160	\$ 633,360	\$ 95,004		\$ 728
Tributary 1104						
Structure Improvements						
BNSF RR & Echeta Rd. (DP11-211)	\$ 14,950	\$ 4,485	\$ 19,435	\$ 2,915		\$ 22
Centennial Dr. (DP11-220)	\$ 12,400	\$ 3,720	\$ 16,120	\$ 2,418		\$ 19
Tributary 1106						
Structure Improvements						
BNSF RR & Echeta Rd. (DP11-221)	\$ 41,640	\$ 12,492	\$ 54,132	\$ 8,120		\$ 62
Stonepile Creek Tributaries - Total Cost	\$ 5,791,900	\$ 1,737,570	\$ 7,529,470	\$ 1,129,421	\$ -	\$ 8,659



Table 1
Construction Cost Estimates Summary

Major Basin	Stonepile Creek	
Alternative	Conveyance	Detention
Item	Total Cost (\$)	Total Cost (\$)
Channels	15,465,160	2,531,304
Culverts	10,750,000	1,748,000
Drop Structures	906,900	221,000
Detention Facilities	-	8,457,859
Bridges	25,726,500	0
Leaves	-	-
Diversion Structure		49,000
Sub-Total (Rounded)	\$52,849,000	\$13,007,000
30% Construction Contingency	\$15,854,700	\$3,902,100
15% Engineering Contingency	\$7,927,350	\$1,951,050
Total (Rounded)	\$76,631,000	\$18,860,000



Table 7-1-CU
Bridge Cost Estimate
Stone Pile Creek Alternative - Conveyance

Design Point	Road Crossing	Channel and Reach	Future 100-yr Flow (cfs)	Road Class	Bridge Length (ft) ¹	Constructi on Area (ft ²)	Unit Cost (\$)	Total Cost (\$)
5-201	Garner Lake Rd.	Stonepile Creek	6129	Minor Arterial	120	9840	150	1,476,000
5-202	S. Boxelder Rd.	Stonepile Creek	6239	Minor Arterial	120	9840	150	1,476,000
5-204	I-90	Stonepile Creek	5608	Major Arterial	115	24380	150	3,657,000
5-205	El Camino Rd.	Stonepile Creek	6112	Local	125	8250	150	1,237,500
5-206	Butler Spaeth Rd.	Stonepile Creek	6119	Minor Arterial	125	10250	150	1,537,500
5-207	Church Ave.	Stonepile Creek	6113	Local	95	6270	150	940,500
5-217	Railroad	Stonepile Creek	5006	N/A, use price per lineal foot of track (3 tracks)	480	N/A	5,000	2,400,000
5-219	Railroad St.	Stonepile Creek	5409		160	10560	150	1,584,000
5-221	Warlow Dr.	Stonepile Creek	4472	Minor Arterial	135	11070	150	1,660,500
5-226	Burma Ave.	Stonepile Creek	4424	Minor Arterial	160	13120	150	1,968,000
5-228	Warlow Dr.	Stonepile Creek	3937	Minor Arterial	100	8200	150	1,230,000
5-229	Commerical Dr.	Stonepile Creek	3937	Local	105	6930	150	1,039,500
5-230	Echeta Rd.	Stonepile Creek	3939	Collector	115	7590	150	1,138,500
5-230	Railroad	Stonepile Creek	3939	Minor Arterial	115	9430	150	1,414,500
5-231	Hwy 14/16	Stonepile Creek	3861	Major Arterial	115	12190	150	1,828,500
5-232	Newton Rd.	Stonepile Creek	3573	Local	115	7590	150	1,138,500

¹ Length is based on Future Land Use Road widths

\$25,726,500

Table 7-2-CU
Bridge Cost Estimate
Stone Pile Creek Alternative - Detention

Design Point	Road Crossing	Channel and Reach	Future 100-yr Flow (cfs)	Road Class	Bridge Length (ft) ¹	Constructi on Area (ft ²)	Unit Cost (\$)	Total Cost (\$)

¹ Length is based on Future Land Use Road widths

\$0

Table 7-1-CH
Channel Cost Estimates
Stonepile Creek Alternative - Conveyance

Channel and Reach	Existing 100-yr Flow (cfs)	Proposed 100-yr Flow (cfs)	Design Flow (cfs)	Channel Length	Channel Type	Material	Excavation (CY)	Unit Cost (\$)	Total Cost (\$)
Lower Stonepile Channel Capacity (I-90 to DP 5-203)	6152	6152	6,500	570	Flat Channel Design	Grass	28,120	472	269,024
Lower Stonepile Channel Capacity (El Camino Rd. to I90)	5571	5571	6,000	2000	Concrete Channel Design	Concrete	71,556	1,922	3,844,879
Lower Stonepile Channel Capacity (Butler Spaeth to El Camino Rd.)	6112	6112	6,500	600	Concrete Channel Design	Concrete	22,800	2,152	1,290,930
Lower Stonepile Channel Capacity (Church St. to Butler Spaeth)	6098	6098	6,500	700	Concrete Channel Design	Concrete	26,600	2,152	1,506,086
Lower Stonepile Channel Capacity (4th St to Church St.)	6113	6113	6,500	2800	Flat Channel Design	Grass	138,133	324	907,122
Lower Stonepile Channel Capacity (DP 5-215 to DP 5-209)	5890	5890	6,000	1250	Steep Channel Design	Grass	40,417	325	406,189
Lower Stonepile Channel Capacity (Brooks St. to Railroad)	4986	4986	5,000	2300	Concrete Channel Design	Concrete	67,978	1,600	3,680,296
Lower Stonepile Channel Capacity (Warlow Dr. to Railroad St.)	5354	5354	5,500	2650	Steep Channel Design	Grass	76,850	205	543,897
Lower Stonepile Channel Capacity (DP 5-225 to Warlow Dr.)	4464	4464	4,500	730	Steep Channel Design	Grass	20,298	275	200,464
Lower Stonepile Channel Capacity (DP 5-226 to DP 5-225)	4560	4560	5,000	1600	Flat Channel Design	Grass	61,156	253	405,306
Lower Stonepile Channel Capacity (DP 5-227 to Burma Ave.)	4424	4424	4,500	600	Flat Channel Design	Grass	19,600	316	189,593
Lower Stonepile Channel Capacity (Warlow Dr. to DP 5-227)	4067	4067	4,500	300	Flat Channel Design	Grass	9,800	316	94,796
Lower Stonepile Channel Capacity (Commercial Dr. to Warlow Dr.)	3937	3937	4,000	300	Flat Channel Design	Grass	9,133	295	88,557
Lower Stonepile Channel Capacity (Echeta Rd. to Commercial Dr.)	3937	3937	4,000	1400	Flat Channel Design	Grass	42,622	295	413,266
Lower Stonepile Channel Capacity (Hwy 14-16 to Echeta Rd)	3921	3921	4,000	430	Steep Channel Design	Grass	9,603	227	97,537
Lower Stonepile Channel Capacity (Newton Rd. to Hwy 14-16)	3571	3571	4,000	860	Steep Channel Design	Grass	19,207	227	195,074
Lower Stonepile Channel Capacity (DP 5-233 to Newton Rd)	3573	3573	4,000	360	Steep Channel Design	Grass	8,040	227	81,659
Lower Stonepile Channel Capacity (DP 5-236 to DP 5-233)	3542	3542	4,000	1850	Steep Channel Design	Grass	41,317	227	419,636
Lower Stonepile Channel Capacity (DP 5-239 to DP 5-236)	3348	3348	3,500	2500	Steep Channel Design	Grass	47,500	194	485,309
Upper Stonepile Creek Channel (DP 11-204 to DP 11-200)	3143	3143	3,500	1780	Steep Channel Design	Grass	33,820	194	345,540
Sub-Total									\$15,465,160

Table 7-2-CH
Channel Cost Estimates
Stonepile Alternative - Detention

Channel and Reach	Existing 100-yr Flow (cfs)	Proposed 100-yr Flow (cfs)	Design Flow (cfs)	Channel Length	Channel Type	Material	Excavation (CY)	Unit Cost (\$)	Total Cost (\$)
Lower Stonepile Channel Capacity (DP 5-215 to DP 5-209)	5890	1341	1,400	1250	Concrete Channel Design	Concrete	12,083	599	748,605
Lower Stonepile Channel Capacity (Brooks St. to Railroad)	4986	1163	1,200	2300	Concrete Channel Design	Concrete	17,633	489	1,125,353
Lower Stonepile Channel Capacity (DP 5-227 to Burma Ave.)	4424	2731	3,000	600	Flat Channel Design	Grass	13,600	222	133,439
Lower Stonepile Channel Capacity (Warlow Dr. to DP 5-227)	4067	2002	3,000	300	Flat Channel Design	Grass	6,800	222	66,719
Lower Stonepile Channel Capacity (Commercial Dr. to Warlow Dr.)	3937	1830	2,000	300	Flat Channel Design	Grass	5,133	170	51,121
Lower Stonepile Channel Capacity (Echeta Rd. to Commercial Dr.)	3937	1666	1,700	1400	Steep Channel Design	Grass	14,428	107	150,399
Lower Stonepile Channel Capacity (Newton Rd. to Hwy 14-16)	3571	1125	1,200	860	Steep Channel Design	Grass	6,689	83	71,620
Lower Stonepile Channel Capacity (DP 5-233 to Newton Rd)	3573	1125	1,200	360	Steep Channel Design	Grass	2,800	83	29,981
Lower Stonepile Channel Capacity (DP 5-236 to DP 5-233)	3542	1087	1,100	1850	Steep Channel Design	Grass	14,389	83	154,067
Lower Stonepile Channel Capacity (Hwy 14-16 to Echeta Rd)	3937	1644	1,700	430	Steep Channel Design	Grass	4,431	107	46,194
Sub-Total									\$2,531,304



**Table 7-1-CU
Culvert Cost Estimate
Stonepile Alternative - Conveyance**

Facility Number	Road Crossing	Channel and Reach	Existing Size	Future 100-yr Flow (cfs)	Necessary Facility for Future 100-year Flow	Number of Culverts	Culvert Length (ft) ¹	Unit Cost (\$)	End Section Unit Cost (\$)	Total Cost (\$)
5-209	E 2nd St	Stonepile Creek	CBC 3 - 8' x 9.5'	5890	add CBC 9-12' x 8', L=850'	9	850	1,400	40,000	10,750,000

¹ Length is based on Future Land Use Road widths

Sub-Total \$10,750,000

**Table 7-2-CU
Culvert Cost Estimate
Stonepile Alternative - Detention**

Facility Number	Road Crossing	Channel and Reach	Existing Size	Future 100-yr Flow (cfs)	Necessary Facility for Future 100-year Flow	Number of Culverts	Culvert Length (ft) ¹	Unit Cost (\$)	End Section Unit Cost (\$)	Total Cost (\$)
5-207	Church Ave	Stonepile Creek	2-48" CMP	1173	CBC 3 - 10' x 3.5'	3	60	850	40,000	193,000
5-217	BNSF RR	Stonepile Creek	None	266	Add 2-72" RCP to Bridge	2	160	750	40,000	280,000
5-226	Burma Ave	Stonepile Creek	CMP 4-66"	2808	Add CBC 9'x7' and CBC 10'x5'	2	90	850	40,000	193,000
5-229	Commercial Dr	Stonepile Creek	CBC 10'x4'	1642	CBC 2 - 10'x5'	2	125	850	40,000	252,500
5-232	Newton Rd	Stonepile Creek	RCP 1 - 48" Arch	1122	CBC 6 - 10'x4'	6	110	850	40,000	601,000
5-201	S. Garner Lake Rd.	Stonepile Creek	BCB 2 - 12'x6'	1483	CBC 12'x6'	1	145	1,300	40,000	228,500

¹ Length is based on Future Land Use Road widths

Sub-Total \$1,748,000



Table 7-2-D
Detention Facility Construction Cost Estimates
Stonepile Creek Alternative Detention I

Detention Name	Storage Volume (ac-ft)	Excavation (CY)	Excavation Cost (\$)	Embankment (CY)	Embankment Cost (\$)	Reveg. Area (SF)	Topsoil (CY)	Topsoil Cost at 4" Thick (\$)	Seeding Cost (\$)	Low Level Outlet Intake Structure/EA (\$)	Low Level Outlet Conveyance Structure Type	Length of Low Level Outlet Conveyance Structure (ft)	Cost Low Level Outlet Conveyance Structure (\$)	Low Level Outlet Conveyance End Treatment Type	Low Level Outlet Conveyance End Treatment Cost (\$)	Spillway Flow Rate (cfs)	Spillway Cost (\$)	Total Cost (\$)
Unit costs		<10,000CY :	8.00		22.00			20.00	2400	5800								
		>10,000CY :	5.00															
Church Detention	90	152,628	763,142	1,224	26,930	928,243	11,448	228,967	51,143	5,800	14.5'x 6' CBC	80	112,000	HW & WW	40,000	1154	36,300	1,264,282
Tributary 505 Detention	27.00	23,487	117,436	26285.85	578,289	344,918	4,254	85,080	19,004	5,800	18" RCP	60	92,400	HW & WW	5,000	17	15,567	918,576
Tributary 506 Detention	29.92	374,619	1,873,093	9313.77	204,903	648,461	7,998	159,954	35,728	5,800	24" RCP	60	3,550	HW & WW	5,000	39	15,567	2,303,595
Tributary 503 Detention	27.00	16,642	83,210	15034.00	330,748	211,354	2,607	52,134	11,645	5,800	2-7'x4' CBC	100	140,000	HW & WW	40,000	473	17,518	681,055
Upper Beltway	201.00	152,904	764,518	92990.00	2,045,780	838,029	10,336	206,714	46,172	5,800	5'x 3' CBC	100	35,000	HW & WW	40,000	237.00	15,567	3,159,552
Burlington Lake	543	0	0	0	0	0	0	0	0	5,800	9'x5' CBC	100	85,000	HW & WW	40,000			130,800
Sub-Total																		\$8,457,859

Table X
Drop Structure Cost Estimate
Stonepile Creek Alternative Conveyance

Design Point	Channel	Existing 100-yr Flow (cfs)	Proposed 100-yr Flow (cfs)	Design Flow (cfs)	Channel Length (ft)	Existing Slope	Proposed Slope	Elevation Change (ft)	No. of Drops	Unit Cost (\$)	Total Cost (\$)
5-209	5-215 to 5-209	5890	5890	6,000	1,250	0.80%	0.25%	6.875	2	84,100	168,200
5-219	Lower Stonepile Channel Capacity (Warlow Dr. to Railroad St.)	5354	5354	5,500	2,650	0.50%	0.20%	7.95	2	76,500	153,000
5-221	5-225 to Warlow	5354	4464	4,500	730	0.30%	0.20%	0.73	1	66,200	66,200
5-230	Hwy 14-16 to Echeta	3937	3921	4,000	430	0.70%	0.30%	1.72	1	61,100	61,100
5-231	Newton Rd. to Hwy 14-16	3571	3571	4,000	431	0.70%	0.30%	1.724	1	61,100	61,100
5-232	5-233 to Newton Rd	3573	3573	4,000	360	0.68%	0.30%	1.368	1	61,100	61,100
5-233	Lower Stonepile Channel Capacity (DP 5-236 to DP 5-233)	3542	3542	4,000	1,850	0.65%	0.30%	6.475	2	61,100	122,200
5-236	Lower Stonepile Channel Capacity (DP 5-239 to DP 5-236)	3348	3348	3,500	2,500	0.56%	0.35%	5.25	2	53,500	107,000
11-200	Upper Stonepile Creek Channel (DP 11-204 to DP 11-200)	3143	3143	3,500	1,780	0.68%	0.30%	6.8	2	53,500	107,000

Sub-Total \$906,900

Table X
Drop Structure Cost Estimate
Stonepile Creek Alternative Detention

Design Point	Channel	Existing 100-yr Flow (cfs)	Proposed 100-yr Flow (cfs)	Design Flow (cfs)	Channel Length (ft)	Existing Slope	Proposed Slope	Elevation Change (ft)	No. of Drops	Unit Cost (\$)	Total Cost (\$)
5-233	Lower Stonepile Channel Capacity (DP 5-236 to DP 5-233)	3542	1087	1,100	1850	0.65%	0.30%	6.475	2	32,800	65,600
5-232	Dp-233 to Newton Rd.		1,125	1,200	360	0.68%	0.30%	1.368	1	38,800	38,800
5-231	Newton Rd. to Hwy 14-16		1125	1200	860	0.007	0.30%	3.44	1	38,800	38,800
5-230	Highway 14-16 to Echeta		1644	1700	430	0.007	0.30%	1.72	1	38,900	38,900
5-229	Echeta to Comercial		1666	1700	1400	0.0053	0.30%	3.22	1	38,900	38,900

Sub-Total \$221,000

Design Point	Channel	Existing 100-yr Flow (cfs)	Proposed 100-yr Flow (cfs)	Design Flow (cfs)	Channel Length (ft)	Existing Slope	Proposed Slope	Elevation Change (ft)	No. of Drops	Unit Cost (\$)	Total Cost (\$)
5-225	Diversion Structure	4500	2897	3,000	NA	NA	NA	5.1	1	49,000	49,000

Sub-Total \$49,000