Green Valley Special Utility District
Drainage Area G - 1 EDU
Pipe Flow Design Calculations

1 EDU G

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather				Pipe Design							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Wet Weather Flow (gpm)	Wet Weather Flow (cfs)	Cumulative Wet Weather Flow (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Pipe Length (ft)	Pipe Slope (ft)	Pipe Diameter Actual (inches)	Pipe Diameter 80% Full (inches)	Pipe Diameter Nominal (inches)	Pipe Velocity Actual (ft/sec)
Pipe GG	Upstream	CP GG-1	96	267	363	1.0	363	88,935	88,935	539,055	374	0.83	0.83								
Pipe GG	CP GG-1	CP GG-2	268	187	455	1.0	455	111,475	200,410	675,675	469	1.05	1.88	640	629	2,700	0.0050	10.75	13.44	15	3.73
Pipe GG	CP GG-2	CP GG-3	452	144	596	1.0	596	146,020	346,430	885,060	615	1.37	3.25	629	618	2,700	0.0050	13.20	16.50	18	4.21
Pipe GG	CP GG-3	CP GG-4	552	129	681	1.0	681	166,845	513,275	1,011,285	702	1.56	4.81	618	607	2,500	0.0050	15.30	19.13	21	4.67
Pipe GG	CP GG-4	CP GG-5	594	90	684	1.0	684	167,580	680,855	1,015,740	705	1.57	6.39	607	596	2,500	0.0050	17.01	21.26	21	4.67
Pipe GG	CP GG-5	CP GG-6	661	160	821	1.0	821	201,145	882,000	1,219,185	847	1.89	8.27	596	585	2,500	0.0050	18.74	23.43	24	5.11
Pipe GG	CP GG-6	CP GG-7	838	387	1225	1.0	1225	300,125	1,182,125	1,819,125	1263	2.81	11.09	585	573	2,800	0.0050	20.92	26.15	27	5.52
Pipe GG	CP GG-7	CP GG-8	600	563	1163	1.0	1163	284,935	1,467,060	1,727,055	1199	2.67	13.76	573	563	2,900	0.0050	22.69	28.36	30	5.92
Pipe GG	CP GG-8	CP GG-9	113	1410	1523	1.0	1523	373,135	1,840,195	2,261,655	1571	3.50	17.26	563	550	3,000	0.0050	24.70	30.87	33	6.31
Total			4174	3337	7511		7511	1,840,195		11,153,835	7,746	17.26				21,600	0.0050				

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD
Population per EDU =	3.5	capita/EDU
Development Average Density =	1	EDU/acre
Wastewater Demand =	70	GPD/capita
Maximum Flow Peak Factor =	3	
Inflow/Infiltration =	750	gallon/acres served

Average Dry Weather Flow =	245	GPD/EDU
Maximum Dry Weather Flow =	735	GPD/EDU
Maximum Wet Weather Flow =	1485	GPD/EDU

Manning's Roughness Coefficient =	0.013
Percent of Pipe Flowing Full =	80%

Green Valley Special Utility District
3 EDU/acre
Pipe Flow Design Summary

Pipe Diameter (in)	Basin A Pipe Length (ft)	Basin B Pipe Length (ft)	Basin C Pipe Length (ft)	Basin D Pipe Length (ft)	Basin E Pipe Length (ft)	Basin F Pipe Length (ft)	Basin G Pipe Length (ft)	Total Pipe Length (ft)
8								0
10								0
12								0
15	2,600							2,600
18	11,200	2,600	2,600				2,700	19,100
21	13,800	2,800	2,800				2,700	22,100
24	9,500	2,800	2,800		4,600	2,500	2,500	24,700
27	5,500	2,600	2,800	2,500	7,350	2,500	2,500	25,750
30	3,500	9,400	5,400		12,600	5,000	2,500	38,400
33			7,600	2,500	13,000	2,500	2,800	28,400
36	5,000			5,300	14,450	7,700	2,900	35,350
42	11,400			5,600	31,950	7,000	3,000	58,950
48					5,800			5,800
54								0
60					7,000			7,000
66					5,000			5,000
72					23,100			23,100
Total	62,500	20,200	24,000	15,900	124,850	27,200	21,600	296,250
							56	Miles

Green Valley Special Utility District
Drainage Area A - 3 EDU
Pipe Flow Design Calculations

3 EDU A

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather				Pipe Design							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Wet Weather Flow (gpm)	Wet Weather Flow (cfs)	Cumulative Wet Weather Flow (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Pipe Length (ft)	Pipe Slope (ft)	Pipe Diameter Actual (inches)	Pipe Diameter 80% Full (inches)	Pipe Diameter Nominal (inches)	Pipe Velocity Nominal (ft/sec)
Pipe AA1	Upstream	CP AA1-1	256	520	776	3.0	2328	570,360	570,360	2,293,080	1592	3.55	3.55								
Pipe AA1	CP AA1-1	CP AA1-2	177	144	321	3.0	963	235,935	806,295	948,555	659	1.47	5.02	600	585	2,500	0.0060	15.02	18.77	**18**	4.62
Pipe AA1	CP AA1-2	CP AA1-3	169	129	298	3.0	894	219,030	1,025,325	880,590	612	1.36	6.38	585	570	2,500	0.0060	16.43	20.54	**21**	5.12
Pipe AA1	CP AA1-3	CP AA1-4	175	114	289	3.0	867	212,415	1,237,740	853,995	593	1.32	7.70	570	555	2,500	0.0060	17.63	22.04	**24**	5.59
Pipe AA1	CP AA1-4	CP AA1-5	210	73	283	3.0	849	208,005	1,445,745	836,265	581	1.29	8.99	555	540	3,500	0.0050	19.34	24.18	**24**	5.11
1	**Total**		**987**	**980**	**1967**		**5901**	**1,445,745**		**5,812,485**	**4,036**	**8.99**				**11,000**	**0.0058**				
Pipe AA2	Upstream	CP AA2-1	931	71	1002	3.0	3006	736,470	736,470	2,960,910	2056	4.58	4.58								
Pipe AA2	CP AA2-1	CP AA2-2	486	287	773	3.0	2319	568,155	1,304,625	2,284,215	1586	3.53	8.12	590	578	3,500	0.0050	18.61	23.26	**24**	5.11
Pipe AA2	CP AA2-2	CP AA2-3	234	394	628	3.0	1884	461,580	1,766,205	1,855,740	1289	2.87	10.99	578	565	3,000	0.0050	20.85	26.06	**27**	5.52
Pipe AA2	CP AA2-3	CP AA2-4	131	119	250	3.0	750	183,750	1,949,955	738,750	513	1.14	12.13	565	553	2,500	0.0050	21.64	27.05	**27**	5.52
Pipe AA2	CP AA2-4	CP AA1-5	34	133	167	3.0	501	122,745	2,072,700	493,485	343	0.76	12.89	553	540	3,500	0.0050	22.14	27.67	**30**	5.92
2	**Total**		**1816**	**1004**	**2820**		**8460**	**2,072,700**		**8,333,100**	**5,787**	**12.89**				**12,500**	**0.0050**				
Pipe AA3	Upstream	CP AA3-1	93	246	339	3.0	1017	249,165	249,165	1,001,745	696	1.55	1.55								
Pipe AA3	CP AA3-1	CP AA3-2	127	195	322	3.0	966	236,670	485,835	951,510	661	1.47	3.02	600	581	2,600	0.0073	11.97	14.96	**15**	4.51
Pipe AA3	CP AA3-2	CP AA3-3	93	262	355	3.0	1065	260,925	746,760	1,049,025	728	1.62	4.65	581	563	2,700	0.0067	14.30	17.88	**18**	4.87
Pipe AA3	CP AA3-3	CP AA3-4	127	220	347	3.0	1041	255,045	1,001,805	1,025,385	712	1.59	6.23	563	545	2,800	0.0064	16.08	20.10	**21**	5.30
Pipe AA3	CP AA3-4	CP AA6-1	50	240	290	3.0	870	213,150	1,214,955	856,950	595	1.33	7.56	545	525	2,500	0.0080	16.59	20.74	**21**	5.91
3	**Total**		**490**	**1163**	**1653**		**4959**	**1,214,955**		**4,884,615**	**3,392**	**7.56**				**10,600**	**0.0071**				
Pipe AA4	Upstream	CP AA4-1	211	17	228	3.0	684	167,580	167,580	673,740	468	1.04	1.04								
Pipe AA4	CP AA4-1	CP AA4-2	314	69	383	3.0	1149	281,505	449,085	1,131,765	786	1.75	2.79	550	543	3,000	0.0050	12.48	15.60	**18**	4.21
Pipe AA4	CP AA4-2	CP AA4-3	252	36	288	3.0	864	211,680	660,765	851,040	591	1.32	4.11	543	536	3,000	0.0050	14.42	18.03	**18**	4.21
Pipe AA4	CP AA4-3	CP AA5-2	269	72	341	3.0	1023	250,635	911,400	1,007,655	700	1.56	5.67	536	530	6,000	0.0050	16.27	20.34	**21**	4.67
4	**Total**		**1046**	**194**	**1240**		**3720**	**911,400**		**3,664,200**	**2,545**	**5.67**				**12,000**	**0.0050**				
Pipe AA1	Upstream	CP AA1-5	987	980	1967	3.0	5901	1,445,745	1,445,745	5,812,485	4036	8.99	8.99								
Pipe AA2	Upstream	CP AA1-5	1816	1004	2820	3.0	8460	2,072,700	3,518,445	8,333,100	5787	12.89	21.89								
Pipe AA5	CP AA1-5	CP AA5-1	233	103	336	3.0	1008	246,960	3,765,405	992,880	690	1.54	23.42	540	535	2,500	0.0050	27.69	34.62	**36**	6.69
Pipe AA5	CP AA5-1	CP AA5-2	266	118	384	3.0	1152	282,240	4,047,645	1,134,720	788	1.76	25.18	535	530	2,500	0.0050	28.46	35.57	**36**	6.69
5	**Total**		**3302**	**2205**	**5507**		**16521**	**4,047,645**		**16,273,185**	**11,301**	**25.18**				**5,000**	**0.0050**				
Pipe AA4	Upstream	CP AA5-2	1046	194	1240	3.0	3720	911,400	911,400	3,664,200	2545	5.67	5.67								
Pipe AA5	CP AA1-5	CP AA5-2	3302	2205	5507	3.0	16521	4,047,645	4,959,045	16,273,185	11301	25.18	30.85								
Pipe AA6	CP AA5-2	CP AA6-1	181	62	243	3.0	729	178,605	5,137,650	718,065	499	1.11	31.96	530	525	4,500	0.0050	31.12	38.90	**42**	7.41
6	**Total**		**4529**	**2461**	**6990**		**20970**	**5,137,650**		**20,655,450**	**14,344**	**31.96**				**4,500**	**0.0050**				
Pipe AA3	Upstream	CP AA6-1	490	1163	1653	3.0	4959	1,214,955	1,214,955	4,884,615	3392	7.56	7.56								
Pipe AA6	CP AA5-2	CP AA6-1	4529	2461	6990	3.0	20970	5,137,650	6,352,605	20,655,450	14344	31.96	39.52								
Pipe AA7	CP AA6-1	CP AA7-1	208	92	300	3.0	900	220,500	6,573,105	886,500	616	1.37	40.89	525	510	4,900	0.0050	34.13	42.66	**42**	7.41
7	**Total**		**5227**	**3716**	**8943**		**26829**	**6,573,105**		**26,426,565**	**18,352**	**40.89**				**4,900**	**0.0050**				
Pipe AA7	CP AA6-1	CP AA7-1	5227	3716	8943	3.0	26829	6,573,105	6,573,105	26,426,565	18352	40.89	40.89								
Pipe AA8	CP AA7-1	CP AA8-1	253	15	268	3.0	804	196,980	6,770,085	791,940	550	1.23	42.12	510	495	2,000	0.0075	31.98	39.98	**42**	9.08
8	**Total**		**5480**	**3731**	**9211**		**27633**	**6,770,085**		**27,218,505**	**18,902**	**42.12**				**2,000**	**0.0075**				

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD
Population per EDU =	3.5	capita/EDU
Development Average Density =	3	EDU/acre
Wastewater Demand =	70	GPD/capita
Maximum Flow Peak Factor =	3	
Inflow/Infiltration =	750	gallon/acres served

Average Dry Weather Flow =	245	GPD/EDU
Maximum Dry Weather Flow =	735	GPD/EDU
Maximum Wet Weather Flow =	985	GPD/EDU

Manning's Roughness Coefficient =	0.013
Percent of Pipe Flowing Full =	80%

Green Valley Special Utility District
Drainage Area B - 3 EDU
Pipe Flow Design Calculations

3 EDU B

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather				Pipe Design							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Wet Weather Flow (gpm)	Wet Weather Flow (cfs)	Cumulative Wet Weather Flow (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Pipe Length (ft)	Pipe Slope (ft)	Pipe Diameter Actual (inches)	Pipe Diameter 80% Full (inches)	Pipe Diameter Nominal (inches)	Pipe Velocity Nominal (ft/sec)
Pipe BB	Upstream	CP BB-1	267	367	634	3.0	1902	465,990	465,990	1,873,470	1301	2.90	2.90								
Pipe BB	CP BB-1	CP BB-2	207	287	494	3.0	1482	363,090	829,080	1,459,770	1014	2.26	5.16	600	580	2,600	0.0077	14.48	18.10	18	5.23
Pipe BB	CP BB-2	CP BB-3	251	229	480	3.0	1440	352,800	1,181,880	1,418,400	985	2.19	7.35	580	560	2,800	0.0071	16.77	20.97	21	5.58
Pipe BB	CP BB-3	CP BB-4	366	216	582	3.0	1746	427,770	1,609,650	1,719,810	1194	2.66	10.01	560	540	2,800	0.0071	18.83	23.54	24	6.10
Pipe BB	CP BB-4	CP BB-5	384	190	574	3.0	1722	421,890	2,031,540	1,696,170	1178	2.62	12.64	540	520	2,600	0.0077	20.27	25.34	27	6.85
Pipe BB	CP BB-5	CP BB-6	206	285	491	3.0	1473	360,885	2,392,425	1,450,905	1008	2.25	14.88	520	490	4,400	0.0068	22.04	27.55	30	6.92
Pipe BB	CP BB-6	CP BB-7	209	306	515	3.0	1545	378,525	2,770,950	1,521,825	1057	2.35	17.24	490	470	2,500	0.0080	22.60	28.25	30	7.49
Pipe BB	CP BB-7	CP BB-8	704	216	920	3.0	2760	676,200	3,447,150	2,718,600	1888	4.21	21.44	470	450	2,500	0.0080	24.53	30.67	30	7.49
Total			2594	2096	4690		14070	3,447,150		13,858,950	9,624	21.44				20,200	0.0076				

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU		
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU	Manning's Roughness Coefficient =	0.013
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU	Percent of Pipe Flowing Full =	80%
Wastewater Demand =	70	GPD/capita					
Maximum Flow Peak Factor =	3						
Inflow/Infiltration =	750	gallon/acres served					

Green Valley Special Utility District
Drainage Area C - 3 EDU
Pipe Flow Design Calculations

3 EDU C

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather				Pipe Design							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Wet Weather Flow (gpm)	Wet Weather Flow (cfs)	Cumulative Wet Weather Flow (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Pipe Length (ft)	Pipe Slope (ft)	Pipe Diameter Actual (inches)	Pipe Diameter 80% Full (inches)	Pipe Diameter Nominal (inches)	Pipe Velocity Nominal (ft/sec)
Pipe CC	Upstream	CP CC-1	150	314	464	3.0	1392	341,040	341,040	1,371,120	952	2.12	2.12								
Pipe CC	CP CC-1	CP CC-2	173	365	538	3.0	1614	395,430	736,470	1,589,790	1104	2.46	4.58	600	580	2,600	0.0077	13.85	17.32	18	5.23
Pipe CC	CP CC-2	CP CC-3	192	373	565	3.0	1695	415,275	1,151,745	1,669,575	1159	2.58	7.16	580	560	2,800	0.0071	16.61	20.77	21	5.58
Pipe CC	CP CC-3	CP CC-4	271	331	602	3.0	1806	442,470	1,594,215	1,778,910	1235	2.75	9.92	560	540	2,800	0.0071	18.77	23.46	24	6.10
Pipe CC	CP CC-4	CP CC-5	332	233	565	3.0	1695	415,275	2,009,490	1,669,575	1159	2.58	12.50	540	520	2,800	0.0071	20.47	25.59	27	6.60
Pipe CC	CP CC-5	CP CC-6	457	259	716	3.0	2148	526,260	2,535,750	2,115,780	1469	3.27	15.77	520	500	2,800	0.0071	22.33	27.92	30	7.08
Pipe CC	CP CC-6	CP CC-7	584	203	787	3.0	2361	578,445	3,114,195	2,325,585	1615	3.60	19.37	500	480	2,600	0.0077	23.79	29.74	30	7.35
Pipe CC	CP CC-7	CP CC-8	520	119	639	3.0	1917	469,665	3,583,860	1,888,245	1311	2.92	22.29	480	460	2,600	0.0077	25.08	31.35	33	7.83
Pipe CC	CP CC-8	CP CC-9	405	152	557	3.0	1671	409,395	3,993,255	1,645,935	1143	2.55	24.84	460	440	2,500	0.0080	25.92	32.40	33	7.99
Pipe CC	CP CC-9	CP CC-10	194	9	203	3.0	609	149,205	4,142,460	599,865	417	0.93	25.77	440	420	2,500	0.0080	26.28	32.85	33	7.99
Total			3278	2358	5636		16908	4,142,460		16,654,380	11,566	25.77				24,000	0.0075				

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU		
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU	Manning's Roughness Coefficient =	0.013
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU	Percent of Pipe Flowing Full =	80%
Wastewater Demand =	70	GPD/capita					
Maximum Flow Peak Factor =	3						
Inflow/Infiltration =	750	gallon/acres served					

Green Valley Special Utility District
Drainage Area D - 3 EDU
Pipe Flow Design Calculations

3 EDU D

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather				Pipe Design							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Wet Weather Flow (gpm)	Wet Weather Flow (cfs)	Cumulative Wet Weather Flow (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Pipe Length (ft)	Pipe Slope (ft)	Pipe Diameter Actual (inches)	Pipe Diameter 80% Full (inches)	Pipe Diameter Nominal (inches)	Pipe Velocity Nominal (ft/sec)
Pipe DD	Upstream	CP DD-1	401	1068	1469	3.0	4407	1,079,715	1,079,715	4,340,895	3015	6.72	6.72								
Pipe DD	CP DD-1	CP DD-2	374	815	1189	3.0	3567	873,915	1,953,630	3,513,495	2440	5.44	12.15	570	562	2,500	0.0050	21.65	27.07	27	5.52
Pipe DD	CP DD-2	CP DD-3	411	725	1136	3.0	3408	834,960	2,788,590	3,356,880	2331	5.19	17.35	562	554	2,500	0.0050	24.75	30.93	33	6.31
Pipe DD	CP DD-3	CP DD-4	326	610	936	3.0	2808	687,960	3,476,550	2,765,880	1921	4.28	21.63	554	546	2,500	0.0050	26.88	33.60	36	6.69
Pipe DD	CP DD-4	CP DD-5	376	466	842	3.0	2526	618,870	4,095,420	2,488,110	1728	3.85	25.48	546	538	2,800	0.0050	28.58	35.73	36	6.69
Pipe DD	CP DD-5	CP DD-6	407	283	690	3.0	2070	507,150	4,602,570	2,038,950	1416	3.15	28.63	538	530	3,000	0.0050	29.86	37.33	42	7.41
Pipe DD	CP DD-6	CP DD-7	297	128	425	3.0	1275	312,375	4,914,945	1,255,875	872	1.94	30.58	530	522	2,600	0.0050	30.60	38.26	42	7.41
Total			2592	4095	6687		20061	4,914,945		19,760,085	13,722	30.58				15,900	0.0050				

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD
Population per EDU =	3.5	capita/EDU
Development Average Density =	3	EDU/acre
Wastewater Demand =	70	GPD/capita
Maximum Flow Peak Factor =	3	
Inflow/Infiltration =	750	gallon/acres served

Average Dry Weather Flow =	245	GPD/EDU
Maximum Dry Weather Flow =	735	GPD/EDU
Maximum Wet Weather Flow =	985	GPD/EDU

Manning's Roughness Coefficient =	0.013
Percent of Pipe Flowing Full =	80%

Green Valley Special Utility District
Drainage Area E - 3 EDU
Pipe Flow Design Calculations

3 EDU E

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather				Pipe Design							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Wet Weather Flow (gpm)	Wet Weather Flow (cfs)	Cumulative Wet Weather Flow (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Pipe Length (ft)	Pipe Slope (ft)	Pipe Diameter Actual (inches)	Pipe Diameter 80% Full (inches)	Pipe Diameter Nominal (inches)	Pipe Velocity Nominal (ft/sec)
Pipe EE1	Upstream	CP EE1-1	442	1455	1897	3.0	5691	1,394,295	1,394,295	5,605,635	3893	8.67	8.67								
Pipe EE1	CP EE1-1	CP EE1-2	311	476	787	3.0	2361	578,445	1,972,740	2,325,585	1615	3.60	12.27	830	811	2,750	0.0069	20.45	25.57	27	6.49
Pipe EE1	CP EE1-2	CP EE1-3	365	424	789	3.0	2367	579,915	2,552,655	2,331,495	1619	3.61	15.88	811	792	2,750	0.0069	22.53	28.16	30	6.96
Pipe EE1	CP EE1-3	CP EE1-4	419	383	802	3.0	2406	589,470	3,142,125	2,369,910	1646	3.67	19.55	792	773	2,750	0.0069	24.36	30.44	30	6.96
Pipe EE1	CP EE1-4	CP EE1-5	517	343	860	3.0	2580	632,100	3,774,225	2,541,300	1765	3.93	23.48	773	754	2,750	0.0069	26.09	32.61	33	7.42
Pipe EE1	CP EE1-5	CP EE1-6	58	302	360	3.0	1080	264,600	4,038,825	1,063,800	739	1.65	25.13	754	735	2,750	0.0069	26.76	33.45	33	7.42
Pipe EE1	CP EE1-6	CP EE1-7	625	267	892	3.0	2676	655,620	4,694,445	2,635,860	1830	4.08	29.20	735	716	2,750	0.0069	28.31	35.39	36	7.86
Pipe EE1	CP EE1-7	CP EE1-8	646	259	905	3.0	2715	665,175	5,359,620	2,674,275	1857	4.14	33.34	716	697	2,600	0.0073	29.44	36.80	36	8.09
Pipe EE1	CP EE1-8	CP EE1-9	471	255	726	3.0	2178	533,610	5,893,230	2,145,330	1490	3.32	36.66	697	678	2,600	0.0073	30.51	38.14	42	8.96
Pipe EE1	CP EE1-9	CP EE1-10	416	248	664	3.0	1992	488,040	6,381,270	1,962,120	1363	3.04	39.70	678	659	2,600	0.0073	31.43	39.29	42	8.96
Pipe EE1	CP EE1-10	CP EE1-11	381	224	605	3.0	1815	444,675	6,825,945	1,787,775	1242	2.77	42.46	659	640	2,600	0.0073	32.24	40.30	42	8.96
Pipe EE1	CP EE1-11	CP EE1-12	312	167	479	3.0	1437	352,065	7,178,010	1,415,445	983	2.19	44.65	640	621	2,600	0.0073	32.85	41.07	42	8.96
Pipe EE1	CP EE1-12	CP EE1-13	250	130	380	3.0	1140	279,300	7,457,310	1,122,900	780	1.74	46.39	621	600	3,100	0.0068	33.80	42.25	42	8.63
Total			5213	4933	10146		30438	7,457,310		29,981,430	20,820	46.39				32,600	0.0071				
Pipe EE2	Upstream	CP EE2-1	574	2297	2871	3.0	8613	2,110,185	2,110,185	8,483,805	5892	13.13	13.13								
Pipe EE2	CP EE2-1	CP EE2-2	347	519	866	3.0	2598	636,510	2,746,695	2,559,030	1777	3.96	17.09	700	692	2,500	0.0050	24.60	30.76	30	5.92
Pipe EE2	CP EE2-2	CP EE2-3	322	484	806	3.0	2418	592,410	3,339,105	2,381,730	1654	3.69	20.77	692	684	2,900	0.0050	26.47	33.09	33	6.31
Pipe EE2	CP EE2-3	CP EE2-4	279	464	743	3.0	2229	546,105	3,885,210	2,195,565	1525	3.40	24.17	684	676	2,550	0.0050	28.02	35.03	36	6.69
Pipe EE2	CP EE2-4	CP EE2-5	273	419	692	3.0	2076	508,620	4,393,830	2,044,860	1420	3.16	27.33	676	668	2,550	0.0050	29.35	36.68	36	6.69
Pipe EE2	CP EE2-5	CP EE2-6	266	406	672	3.0	2016	493,920	4,887,750	1,985,760	1379	3.07	30.41	668	660	2,550	0.0050	30.54	38.18	42	7.41
Pipe EE2	CP EE2-6	CP EE2-7	260	229	489	3.0	1467	359,415	5,247,165	1,444,995	1003	2.24	32.64	660	652	2,550	0.0050	31.36	39.21	42	7.41
Pipe EE2	CP EE2-7	CP EE2-8	253	151	404	3.0	1212	296,940	5,544,105	1,193,820	829	1.85	34.49	652	644	2,550	0.0050	32.02	40.02	42	7.41
Pipe EE2	CP EE2-8	CP EE2-9	247	135	382	3.0	1146	280,770	5,824,875	1,128,810	784	1.75	36.24	644	636	2,500	0.0050	32.62	40.77	42	7.41
Pipe EE2	CP EE2-9	CP EE2-10	232	142	374	3.0	1122	274,890	6,099,765	1,105,170	767	1.71	37.95	636	628	2,700	0.0050	33.19	41.48	42	7.41
Pipe EE2	CP EE2-10	CP EE2-11	183	161	344	3.0	1032	252,840	6,352,605	1,016,520	706	1.57	39.52	628	620	2,800	0.0050	33.70	42.12	42	7.41
Pipe EE2	CP EE2-11	CP EE2-12	140	151	291	3.0	873	213,885	6,566,490	859,905	597	1.33	40.85	620	612	2,800	0.0050	34.12	42.65	42	7.41
Pipe EE2	CP EE2-12	CP EE2-13	110	291	401	3.0	1203	294,735	6,861,225	1,184,955	823	1.83	42.68	612	604	4,400	0.0050	34.68	43.35	48	8.10
Pipe EE2	CP EE2-13	CP EE1-13	0	0	0	3.0	0	0	6,861,225	0	0	0.00	42.68	604	600	1,400	0.0050	34.68	43.35	48	8.10
Total			3486	5849	9335		28005	6,861,225		27,584,925	19,156	42.68				34,750	0.0050				
Pipe EE3	Upstream	CP EE3-1	1168	50	1218	3.0	3654	895,230	895,230	3,599,190	2499	5.57	5.57								
Pipe EE3	CP EE3-1	CP EE3-2	619	179	798	3.0	2394	586,530	1,481,760	2,358,090	1638	3.65	9.22	665	646	4,600	0.0050	19.52	24.40	24	5.11
Pipe EE3	CP EE3-2	CP EE3-3	477	32	509	3.0	1527	374,115	1,855,875	1,504,095	1045	2.33	11.55	646	627	4,600	0.0050	21.24	26.55	27	5.52
Pipe EE3	CP EE3-3	CP EE3-4	334	509	843	3.0	2529	619,605	2,475,480	2,491,065	1730	3.85	15.40	627	608	4,600	0.0050	23.66	29.58	30	5.92
Pipe EE3	CP EE3-4	CP EE3-5	192	628	820	3.0	2460	602,700	3,078,180	2,423,100	1683	3.75	19.15	608	589	4,600	0.0050	25.68	32.10	33	6.31
Pipe EE3	CP EE3-5	CP EE4-3	51	805	856	3.0	2568	629,160	3,707,340	2,529,480	1757	3.91	23.06	589	570	4,000	0.0050	27.53	34.42	36	6.69
Total			2841	2203	5044		15132	3,707,340		14,905,020	10,351	23.06				22,400	0.0050				
Pipe EE1	Upstream	CP EE1-13	5213	4933	10146	3.0	30438	7,457,310	7,457,310	29,981,430	20820	46.39	46.39								
Pipe EE2	Upstream	CP EE1-13	3486	5849	9335	3.0	28005	6,861,225	14,318,535	27,584,925	19156	42.68	89.07								
Pipe EE4	CP EE1-13	CP EE4-1	184	466	650	3.0	1950	477,750	14,796,285	1,920,750	1334	2.97	92.05	600	590	2,000	0.0050	46.27	57.83	60	9.40
Pipe EE4	CP EE4-1	CP EE4-2	106	414	520	3.0	1560	382,200	15,178,485	1,536,600	1067	2.38	94.42	590	580	2,500	0.0050	46.71	58.39	60	9.40
Pipe EE4	CP EE4-2	CP EE4-3	28	578	606	3.0	1818	445,410	15,623,895	1,790,730	1244	2.77	97.20	580	570	2,500	0.0050	47.22	59.03	60	9.40
Total			9017	12240	21257		63771	15,623,895		62,814,435	43,621	97.20				7,000	0.0050				
Pipe EE3	Upstream	CP EE4-3	2841	2203	5044	3.0	15132	3,707,340	3,707,340	14,905,020	10351	23.06	23.06								
Pipe EE4	CP EE1-13	CP EE4-3	9017	12240	21257	3.0	63771	15,623,895	19,331,235	62,814,435	43621	97.20	120.26								
Pipe EE5	CP EE4-3	CP EE5-1	925	607	1532	3.0	4596	1,126,020	20,457,255	4,527,060	3144	7.00	127.26	570	566	2,500	0.0050	52.24	65.31	66	10.02
Pipe EE5	CP EE5-1	CP EE5-2	1036	644	1680	3.0	5040	1,234,800	21,692,055	4,964,400	3448	7.68	134.94	566	561	2,500	0.0050	53.40	66.76	66	10.02
Pipe EE5	CP EE5-2	CP EE5-3	1003	585	1588	3.0	4764	1,167,180	22,859,235	4,692,540	3259	7.26	142.21	561	556	3,000	0.0050	54.46	68.08	72	10.62
Pipe EE5	CP EE5-3	CP EE5-4	801	67	868	3.0	2604	637,980	23,497,215	2,564,940	1781	3.97	146.17	556	551	3,500	0.0050	55.03	68.79	72	10.62
Pipe EE5	CP EE5-4	CP EE5-5	650	621	1271	3.0	3813	934,185	24,431,400	3,755,805	2608	5.81	151.99	551	546	3,500	0.0050	55.84	69.80	72	10.62
Pipe EE5	CP EE5-5	CP EE5-6	375	567	942	3.0	2826	692,370	25,123,770	2,783,610	1933	4.31	156.29	546	541	3,500	0.0050	56.43	70.54	72	10.62
Pipe EE5	CP EE5-6	CP EE5-7	17	665	682	3.0	2046	501,270	25,625,040	2,015,310	1400	3.12	159.41	541	536	4,400	0.0050	56.85	71.06	72	10.62
Pipe EE5	CP EE5-7	CP EE5-8	0	564	564	3.0	1692	414,540	26,039,580	1,666,620	1157	2.58	161.99	536	531	2,500	0.0050	57.19	71.49	72	10.62
Pipe EE5	CP EE5-8	CP EE5-9	0	191	191	3.0	573	140,385	26,179,965	564,405	392	0.87	162.86	531	526	2,700	0.0050	57.31	71.63	72	10.62
Total			16665	18954	35619		106857	26,179,965		#######	73,093	162.86				28,100	0.0050				

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD
Population per EDU =	3.5	capita/EDU
Development Average Density =	3	EDU/acre
Wastewater Demand =	70	GPD/capita
Maximum Flow Peak Factor =	3	
Inflow/Infiltration =	750	gallon/acres served

Average Dry Weather Flow =	245	GPD/EDU
Maximum Dry Weather Flow =	735	GPD/EDU
Maximum Wet Weather Flow =	985	GPD/EDU

Manning's Roughness Coefficient =	0.013
Percent of Pipe Flowing Full =	80%

Green Valley Special Utility District
Drainage Area F - 3 EDU
Pipe Flow Design Calculations

3 EDU F

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather				Pipe Design							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Wet Weather Flow (gpm)	Wet Weather Flow (cfs)	Cumulative Wet Weather Flow (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Pipe Length (ft)	Pipe Slope (ft)	Pipe Diameter Actual (inches)	Pipe Diameter 80% Full (inches)	Pipe Diameter Nominal (inches)	Pipe Velocity Nominal (ft/sec)
Pipe FF	Upstream	CP FF 1	233	614	847	3.0	2541	622,545	622,545	2,502,885	1738	3.87	3.87								
Pipe FF	CP FF 1	CP FF 2	343	379	722	3.0	2166	530,670	1,153,215	2,133,510	1482	3.30	7.17	650	645	2,500	0.0050	17.77	22.21	24	5.11
Pipe FF	CP FF 2	CP FF 3	291	389	680	3.0	2040	499,800	1,653,015	2,009,400	1395	3.11	10.28	645	640	2,500	0.0050	20.34	25.42	27	5.52
Pipe FF	CP FF 3	CP FF 4	229	451	680	3.0	2040	499,800	2,152,815	2,009,400	1395	3.11	13.39	640	635	2,500	0.0050	22.46	28.07	30	5.92
Pipe FF	CP FF 4	CP FF 5	239	500	739	3.0	2217	543,165	2,695,980	2,183,745	1516	3.38	16.77	635	630	2,500	0.0050	24.43	30.54	30	5.92
Pipe FF	CP FF 5	CP FF 6	229	452	681	3.0	2043	500,535	3,196,515	2,012,355	1397	3.11	19.89	630	625	2,500	0.0050	26.04	32.56	33	6.31
Pipe FF	CP FF 6	CP FF 7	284	313	597	3.0	1791	438,795	3,635,310	1,764,135	1225	2.73	22.61	625	620	2,500	0.0050	27.33	34.17	36	6.69
Pipe FF	CP FF 7	CP FF 8	233	295	528	3.0	1584	388,080	4,023,390	1,560,240	1084	2.41	25.03	620	615	2,500	0.0050	28.39	35.49	36	6.69
Pipe FF	CP FF 8	CP FF 9	89	363	452	3.0	1356	332,220	4,355,610	1,335,660	928	2.07	27.10	615	610	2,700	0.0050	29.25	36.56	36	6.69
Pipe FF	CP FF 9	CP FF 10	86	250	336	3.0	1008	246,960	4,602,570	992,880	690	1.54	28.63	610	605	3,600	0.0050	29.86	37.33	42	7.41
Pipe FF	CP FF 10	CP FF 11	171	82	253	3.0	759	185,955	4,788,525	747,615	519	1.16	29.79	605	600	3,400	0.0050	30.31	37.88	42	7.41
Total			2427	4088	6515		19545	4,788,525		19,251,825	13,369	29.79				27,200	0.0050				

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU		
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU	Manning's Roughness Coefficient =	0.013
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU	Percent of Pipe Flowing Full =	80%
Wastewater Demand =	70	GPD/capita					
Maximum Flow Peak Factor =	3						
Inflow/Infiltration =	750	gallon/acres served					

Green Valley Special Utility District
Drainage Area G - 3 EDU
Pipe Flow Design Calculations

3 EDU G

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather				Pipe Design							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Wet Weather Flow (gpm)	Wet Weather Flow (cfs)	Cumulative Wet Weather Flow (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Pipe Length (ft)	Pipe Slope (ft)	Pipe Diameter Actual (inches)	Pipe Diameter 80% Full (inches)	Pipe Diameter Nominal (inches)	Pipe Velocity Nominal (ft/sec)
Pipe GG	Upstream	CP GG-1	96	267	363	3.0	1089	266,805	266,805	1,072,665	745	1.66	1.66								
Pipe GG	CP GG-1	CP GG-2	268	187	455	3.0	1365	334,425	601,230	1,344,525	934	2.08	3.74	640	629	2,700	0.0050	13.92	17.40	18	4.21
Pipe GG	CP GG-2	CP GG-3	452	144	596	3.0	1788	438,060	1,039,290	1,761,180	1223	2.73	6.47	629	618	2,700	0.0050	17.09	21.36	21	4.67
Pipe GG	CP GG-3	CP GG-4	552	129	681	3.0	2043	500,535	1,539,825	2,012,355	1397	3.11	9.58	618	607	2,500	0.0050	19.80	24.76	24	5.11
Pipe GG	CP GG-4	CP GG-5	594	90	684	3.0	2052	502,740	2,042,565	2,021,220	1404	3.13	12.71	607	596	2,500	0.0050	22.02	27.52	27	5.52
Pipe GG	CP GG-5	CP GG-6	661	160	821	3.0	2463	603,435	2,646,000	2,426,055	1685	3.75	16.46	596	585	2,500	0.0050	24.26	30.33	30	5.92
Pipe GG	CP GG-6	CP GG-7	838	387	1225	3.0	3675	900,375	3,546,375	3,619,875	2514	5.60	22.06	585	573	2,800	0.0050	27.08	33.85	33	6.31
Pipe GG	CP GG-7	CP GG-8	600	563	1163	3.0	3489	854,805	4,401,180	3,436,665	2387	5.32	27.38	573	563	2,900	0.0050	29.36	36.70	36	6.69
Pipe GG	CP GG-8	CP GG-9	113	1410	1523	3.0	4569	1,119,405	5,520,585	4,500,465	3125	6.96	34.34	563	550	3,000	0.0050	31.97	39.96	42	7.41
Total			4174	3337	7511		22533	5,520,585		22,195,005	15,413	34.34				21,600	0.0050				

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU		
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU	Manning's Roughness Coefficient =	0.013
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU	Percent of Pipe Flowing Full =	80%
Wastewater Demand =	70	GPD/capita					
Maximum Flow Peak Factor =	3						
Inflow/Infiltration =	750	gallon/acres served					

Green Valley Special Utility District
Summary Costs
Proposed Main Wastewater Collection System
Engineer's Opinion of Probable Costs

Basin	Total Costs 1 (EDU/acre)	Total Costs 3 (EDU/acre)	Variance
A	$ 11,212,950.00	$ 13,229,734.00	$ 2,016,784.00
B	$ 3,379,449.00	$ 3,848,841.00	$ 469,392.00
C	$ 4,151,280.00	$ 4,773,440.00	$ 622,160.00
D	$ 3,072,068.00	$ 4,188,876.00	$ 1,116,808.00
E	$ 34,601,813.00	$ 43,682,177.00	$ 9,080,364.00
F	$ 5,230,109.00	$ 6,739,925.00	$ 1,509,816.00
G	$ 3,963,086.00	$ 4,673,334.00	$ 710,248.00
Total	**$ 65,610,755.00**	**$ 81,136,327.00**	$ 15,525,572.00

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Green Valley Special Utility District
Summary Drainage Basin A
Engineer's Opinion of Probable Costs

A

Item	Description	Total Costs 1 (EDU/acre)	Total Costs 3 (EDU/acre)
1	12" SDR 35, PVC (0'-6' cut)	$ 336,000.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	$ 533,000.00	$ 169,000.00
3	18" SDR 35, PVC (0'-6' cut)	$ 1,386,000.00	$ 784,000.00
4	21" SDR 35, PVC (0'-6' cut)	$ 720,000.00	$ 1,104,000.00
5	24" SDR 35, PVC (0'-6' cut)	$ 315,000.00	$ 855,000.00
6	27" SDR 35, PVC (0'-6' cut)	$ 250,000.00	$ 550,000.00
7	30" SDR 35, PVC (0'-6' cut)	$ 275,000.00	$ 385,000.00
8	33" SDR 35, PVC (0'-6' cut)	$ 1,425,000.00	$ -
9	36" SDR 35, PVC (0'-6' cut)	$ -	$ 750,000.00
10	42", PVC (0'-6' cut)	$ -	$ 2,280,000.00
11	48", PVC (0'-6' cut)	$ -	$ -
12	54", PVC (0'-6' cut)	$ -	$ -
13	60", PVC (0'-6' cut)	$ -	$ -
14	66", PVC (0'-6' cut)	$ -	$ -
15	72", PVC (0'-6' cut)	$ -	$ -
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	$ 625,000.00	$ 625,000.00
17	Bore and Case Roadways	$ 406,250.00	$ 406,250.00
18	Bore and Case Creek Crossings	$ 250,000.00	$ 250,000.00
19	Trench Safety	$ 125,000.00	$ 125,000.00
20	Sewer Main Television Inspection	$ 1,625,000.00	$ 1,625,000.00
21	Erosion Control Devices	$ 62,500.00	$ 62,500.00
22	Sewer Junction Structure	$ 35,000.00	$ 35,000.00
23	Lift Station	$ 200,000.00	$ 200,000.00
	Total Construction	**$ 8,568,750.00**	**$ 10,205,750.00**
	Contingencies	$ 856,875.00	$ 1,020,575.00
	Total	**$ 9,425,625.00**	**$ 11,226,325.00**
	Easements	$ 312,500.00	$ 312,500.00
	Easements and Surveys and Acquisition Costs	$ 125,000.00	$ 125,000.00
	Environmental Investigation	$ 93,750.00	$ 93,750.00
	Total Easement Costs	**$ 531,250.00**	**$ 531,250.00**
	Basic Engineering	$ 942,562.50	$ 1,122,632.50
	Survey	$ 125,000.00	$ 125,000.00
	Construction Phase Services	$ 188,512.50	$ 224,526.50
	Total Engineering Costs	**$ 1,256,075.00**	**$ 1,472,159.00**
	Total Project Costs	**$ 11,212,950.00**	**$ 13,229,734.00**

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Green Valley Special Utility District
Drainage Basin A - 1 EDU/acre
Engineer's Opinion of Probable Costs

A

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	5,600	$ 60.00	$ 336,000.00
2	15" SDR 35, PVC (0'-6' cut)	LF	8,200	$ 65.00	$ 533,000.00
3	18" SDR 35, PVC (0'-6' cut)	LF	19,800	$ 70.00	$ 1,386,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	9,000	$ 80.00	$ 720,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	3,500	$ 90.00	$ 315,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 100.00	$ 250,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 110.00	$ 275,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	11,400	$ 125.00	$ 1,425,000.00
9	36" SDR 35, PVC (0'-6' cut)	LF	0	$ 150.00	$ -
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**62,500**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	125	$ 5,000.00	$ 625,000.00
17	Bore and Case Roadways	LF	3125	$ 130.00	$ 406,250.00
18	Bore and Case Creek Crossings	LF	2,500	$ 100.00	$ 250,000.00
19	Trench Safety	LF	62,500	$ 2.00	$ 125,000.00
20	Sewer Main Television Inspection	LF	62,500	$ 26.00	$ 1,625,000.00
21	Erosion Control Devices	LF	62,500	$ 1.00	$ 62,500.00
22	Sewer Junction Structure	EA	1	$ 35,000.00	$ 35,000.00
23	Lift Station	EA	1	$200,000.00	$ 200,000.00
	Total Construction				**$ 8,568,750.00**
	Contingencies	10%			$ 856,875.00
	Total				**$ 9,425,625.00**
	Easements	LF	62,500	$ 5.00	$ 312,500.00
	Easements and Surveys and Acquisition Costs	LF	62,500	$ 2.00	$ 125,000.00
	Environmental Investigation	LF	62,500	$ 1.50	$ 93,750.00
	Total Easement Costs				**$ 531,250.00**
	Basic Engineering	10%			$ 942,562.50
	Survey	LF	62,500	$ 2.00	$ 125,000.00
	Construction Phase Services	2%			$ 188,512.50
	Total Engineering Costs				**$ 1,256,075.00**
	Total Project Costs				**$11,212,950.00**

This cost estimate is based on River City Engineering's experience and qualifications, and represents River City Engineering's best judgment. This cost estimate was prepared for feasibility analysis purposes only. River City Engineering does not guarantee that the actual construction cost will not vary from this estimate. Unit prices were used from SAWS average unit price list revised October 2005. Units prices will not remain constraint and will vary due to market variations such as inflation.

Green Valley Special Utility District
Drainage Basin A - 3 EDU/acre
Engineer's Opinion of Probable Costs

A

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	2,600	$ 65.00	$ 169,000.00
3	18" SDR 35, PVC (0'-6' cut)	LF	11,200	$ 70.00	$ 784,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	13,800	$ 80.00	$ 1,104,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	9,500	$ 90.00	$ 855,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	5,500	$ 100.00	$ 550,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	3,500	$ 110.00	$ 385,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	0	$ 125.00	$ -
9	36" SDR 35, PVC (0'-6' cut)	LF	5,000	$ 150.00	$ 750,000.00
10	42" SDR 35, PVC (0'-6' cut)	LF	11,400	$ 200.00	$ 2,280,000.00
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**62,500**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	125	$ 5,000.00	$ 625,000.00
17	Bore and Case Roadways	LF	3125	$ 130.00	$ 406,250.00
18	Bore and Case Creek Crossings	LF	2,500	$ 100.00	$ 250,000.00
19	Trench Safety	LF	62,500	$ 2.00	$ 125,000.00
20	Sewer Main Television Inspection	LF	62,500	$ 26.00	$ 1,625,000.00
21	Erosion Control Devices	LF	62,500	$ 1.00	$ 62,500.00
22	Sewer Junction Structure	EA	1	$ 35,000.00	$ 35,000.00
23	Lift Station	EA	1	$200,000.00	$ 200,000.00
	Total Construction				**$10,205,750.00**
	Contingencies	10%			$ 1,020,575.00
	Total				**$11,226,325.00**
	Easements	LF	62,500	$ 5.00	$ 312,500.00
	Easements and Surveys and Acquisition Costs	LF	62,500	$ 2.00	$ 125,000.00
	Environmental Investigation	LF	62,500	$ 1.50	$ 93,750.00
	Total Easement Costs				**$ 531,250.00**
	Basic Engineering	10%			$ 1,122,632.50
	Survey	LF	62,500	$ 2.00	$ 125,000.00
	Construction Phase Services	2%			$ 224,526.50
	Total Engineering Costs				**$ 1,472,159.00**
	Total Project Costs				**$13,229,734.00**

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Green Valley Special Utility District
Summary Drainage Basin B
Engineer's Opinion of Probable Costs

B

Item	Description	Total Costs 1 (EDU/acre)	Total Costs 3 (EDU/acre)
1	12" SDR 35, PVC (0'-6' cut)	$ -	$ -
2	15" SDR 35, PVC (0'-6' cut)	$ 169,000.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	$ 392,000.00	$ 182,000.00
4	21" SDR 35, PVC (0'-6' cut)	$ 560,000.00	$ 224,000.00
5	24" SDR 35, PVC (0'-6' cut)	$ 450,000.00	$ 252,000.00
6	27" SDR 35, PVC (0'-6' cut)	$ -	$ 260,000.00
7	30" SDR 35, PVC (0'-6' cut)	$ -	$ 1,034,000.00
8	33" SDR 35, PVC (0'-6' cut)	$ -	$ -
9	36" SDR 35, PVC (0'-6' cut)	$ -	$ -
10	42", PVC (0'-6' cut)	$ -	$ -
11	48", PVC (0'-6' cut)	$ -	$ -
12	54", PVC (0'-6' cut)	$ -	$ -
13	60", PVC (0'-6' cut)	$ -	$ -
14	66", PVC (0'-6' cut)	$ -	$ -
15	72", PVC (0'-6' cut)	$ -	$ -
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	$ 202,000.00	$ 202,000.00
17	Bore and Case Roadways	$ 131,300.00	$ 131,300.00
18	Bore and Case Creek Crossings	$ 80,800.00	$ 80,800.00
19	Trench Safety	$ 40,400.00	$ 40,400.00
20	Sewer Main Television Inspection	$ 525,200.00	$ 525,200.00
21	Erosion Control Devices	$ 20,200.00	$ 20,200.00
22	Sewer Junction Structure	$ -	$ -
23	Lift Station	$ -	$ -
	Total Construction	**$ 2,570,900.00**	**$ 2,951,900.00**
	Contingencies	$ 257,090.00	$ 295,190.00
	Total	**$ 2,827,990.00**	**$ 3,247,090.00**
	Easements	$ 101,000.00	$ 101,000.00
	Easements and Surveys and Acquisition Costs	$ 40,400.00	$ 40,400.00
	Environmental Investigation	$ 30,300.00	$ 30,300.00
	Total Easement Costs	**$ 171,700.00**	**$ 171,700.00**
	Basic Engineering	$ 282,799.00	$ 324,709.00
	Survey	$ 40,400.00	$ 40,400.00
	Construction Phase Services	$ 56,559.80	$ 64,941.80
	Total Engineering Costs	**$ 379,758.80**	**$ 430,050.80**
	Total Project Costs	**$ 3,379,448.80**	**$ 3,848,840.80**

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Green Valley Special Utility District
Drainage Basin B - 1 EDU/acre
Engineer's Opinion of Probable Costs

B

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	2,600	$ 65.00	$ 169,000.00
3	18" SDR 35, PVC (0'-6' cut)	LF	5,600	$ 70.00	$ 392,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	7,000	$ 80.00	$ 560,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	5,000	$ 90.00	$ 450,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	0	$ 100.00	$ -
7	30" SDR 35, PVC (0'-6' cut)	LF	0	$ 110.00	$ -
8	33" SDR 35, PVC (0'-6' cut)	LF	0	$ 125.00	$ -
9	36" SDR 35, PVC (0'-6' cut)	LF	0	$ 150.00	$ -
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**20,200**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	40	$ 5,000.00	$ 202,000.00
17	Bore and Case Roadways	LF	1010	$ 130.00	$ 131,300.00
18	Bore and Case Creek Crossings	LF	808	$ 100.00	$ 80,800.00
19	Trench Safety	LF	20,200	$ 2.00	$ 40,400.00
20	Sewer Main Television Inspection	LF	20,200	$ 26.00	$ 525,200.00
21	Erosion Control Devices	LF	20,200	$ 1.00	$ 20,200.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$200,000.00	$ -
	Total Construction				**$ 2,570,900.00**
	Contingencies	10%			$ 257,090.00
	Total				**$ 2,827,990.00**
	Easements	LF	20,200	$ 5.00	$ 101,000.00
	Easements and Surveys and Acquisition Costs	LF	20,200	$ 2.00	$ 40,400.00
	Environmental Investigation	LF	20,200	$ 1.50	$ 30,300.00
	Total Easement Costs				**$ 171,700.00**
	Basic Engineering	10%			$ 282,799.00
	Survey	LF	20,200	$ 2.00	$ 40,400.00
	Construction Phase Services	2%			$ 56,559.80
	Total Engineering Costs				**$ 379,758.80**
	Total Project Costs				**$ 3,379,448.80**

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Green Valley Special Utility District
Drainage Basin B - 3 EDU/acre
Engineer's Opinion of Probable Costs

B

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	2,600	$ 70.00	$ 182,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	2,800	$ 80.00	$ 224,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	2,800	$ 90.00	$ 252,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	2,600	$ 100.00	$ 260,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	9,400	$ 110.00	$ 1,034,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	0	$ 125.00	$ -
9	36" SDR 35, PVC (0'-6' cut)	LF	0	$ 150.00	$ -
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**20,200**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	40	$ 5,000.00	$ 202,000.00
17	Bore and Case Roadways	LF	1010	$ 130.00	$ 131,300.00
18	Bore and Case Creek Crossings	LF	808	$ 100.00	$ 80,800.00
19	Trench Safety	LF	20,200	$ 2.00	$ 40,400.00
20	Sewer Main Television Inspection	LF	20,200	$ 26.00	$ 525,200.00
21	Erosion Control Devices	LF	20,200	$ 1.00	$ 20,200.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$200,000.00	$ -
	Total Construction				**$ 2,951,900.00**
	Contingencies	10%			$ 295,190.00
	Total				**$ 3,247,090.00**
	Easements	LF	20,200	$ 5.00	$ 101,000.00
	Easements and Surveys and Acquisition Costs	LF	20,200	$ 2.00	$ 40,400.00
	Environmental Investigation	LF	20,200	$ 1.50	$ 30,300.00
	Total Easement Costs				**$ 171,700.00**
	Basic Engineering	10%			$ 324,709.00
	Survey	LF	20,200	$ 2.00	$ 40,400.00
	Construction Phase Services	2%			$ 64,941.80
	Total Engineering Costs				**$ 430,050.80**
	Total Project Costs				**$ 3,848,840.80**

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Green Valley Special Utility District
Summary Drainage Basin C
Engineer's Opinion of Probable Costs

C

Item	Description	Total Costs 1 (EDU/acre)	Total Costs 3 (EDU/acre)
1	12" SDR 35, PVC (0'-6' cut)	$ -	$ -
2	15" SDR 35, PVC (0'-6' cut)	$ 169,000.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	$ 392,000.00	$ 182,000.00
4	21" SDR 35, PVC (0'-6' cut)	$ 448,000.00	$ 224,000.00
5	24" SDR 35, PVC (0'-6' cut)	$ 468,000.00	$ 252,000.00
6	27" SDR 35, PVC (0'-6' cut)	$ 500,000.00	$ 280,000.00
7	30" SDR 35, PVC (0'-6' cut)	$ -	$ 594,000.00
8	33" SDR 35, PVC (0'-6' cut)	$ -	$ 950,000.00
9	36" SDR 35, PVC (0'-6' cut)	$ -	$ -
10	42", PVC (0'-6' cut)	$ -	$ -
11	48", PVC (0'-6' cut)	$ -	$ -
12	54", PVC (0'-6' cut)	$ -	$ -
13	60", PVC (0'-6' cut)	$ -	$ -
14	66", PVC (0'-6' cut)	$ -	$ -
15	72", PVC (0'-6' cut)	$ -	$ -
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	$ 240,000.00	$ 240,000.00
17	Bore and Case Roadways	$ 156,000.00	$ 156,000.00
18	Bore and Case Creek Crossings	$ 96,000.00	$ 96,000.00
19	Trench Safety	$ 48,000.00	$ 48,000.00
20	Sewer Main Television Inspection	$ 624,000.00	$ 624,000.00
21	Erosion Control Devices	$ 24,000.00	$ 24,000.00
22	Sewer Junction Structure	$ -	$ -
23	Lift Station	$ -	$ -
	Total Construction	**$ 3,165,000.00**	**$ 3,670,000.00**
	Contingencies	$ 316,500.00	$ 367,000.00
	Total	**$ 3,481,500.00**	**$ 4,037,000.00**
	Easements	$ 120,000.00	$ 120,000.00
	Easements and Surveys and Acquisition Costs	$ 48,000.00	$ 48,000.00
	Environmental Investigation	$ 36,000.00	$ 36,000.00
	Total Easement Costs	**$ 204,000.00**	**$ 204,000.00**
	Basic Engineering	$ 348,150.00	$ 403,700.00
	Survey	$ 48,000.00	$ 48,000.00
	Construction Phase Services	$ 69,630.00	$ 80,740.00
	Total Engineering Costs	**$ 465,780.00**	**$ 532,440.00**
	Total Project Costs	**$ 4,151,280.00**	**$ 4,773,440.00**

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Green Valley Special Utility District
Drainage Basin C - 1 EDU/acre
Engineer's Opinion of Probable Costs

C

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	2,600	$ 65.00	$ 169,000.00
3	18" SDR 35, PVC (0'-6' cut)	LF	5,600	$ 70.00	$ 392,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	5,600	$ 80.00	$ 448,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	5,200	$ 90.00	$ 468,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	5,000	$ 100.00	$ 500,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	0	$ 110.00	$ -
8	33" SDR 35, PVC (0'-6' cut)	LF	0	$ 125.00	$ -
9	36" SDR 35, PVC (0'-6' cut)	LF	0	$ 150.00	$ -
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**24,000**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	48	$ 5,000.00	$ 240,000.00
17	Bore and Case Roadways	LF	1200	$ 130.00	$ 156,000.00
18	Bore and Case Creek Crossings	LF	960	$ 100.00	$ 96,000.00
19	Trench Safety	LF	24,000	$ 2.00	$ 48,000.00
20	Sewer Main Television Inspection	LF	24,000	$ 26.00	$ 624,000.00
21	Erosion Control Devices	LF	24,000	$ 1.00	$ 24,000.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$ 200,000.00	$ -
	Total Construction				**$ 3,165,000.00**
	Contingencies	10%			$ 316,500.00
	Total				**$ 3,481,500.00**
	Easements	LF	24,000	$ 5.00	$ 120,000.00
	Easements and Surveys and Acquisition Costs	LF	24,000	$ 2.00	$ 48,000.00
	Environmental Investigation	LF	24,000	$ 1.50	$ 36,000.00
	Total Easement Costs				**$ 204,000.00**
	Basic Engineering	10%			$ 348,150.00
	Survey	LF	24,000	$ 2.00	$ 48,000.00
	Construction Phase Services	2%			$ 69,630.00
	Total Engineering Costs				**$ 465,780.00**
	Total Project Costs				**$ 4,151,280.00**

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Green Valley Special Utility District
Drainage Basin C - 3 EDU/acre
Engineer's Opinion of Probable Costs

C

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	2,600	$ 70.00	$ 182,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	2,800	$ 80.00	$ 224,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	2,800	$ 90.00	$ 252,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	2,800	$ 100.00	$ 280,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	5,400	$ 110.00	$ 594,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	7,600	$ 125.00	$ 950,000.00
9	36" SDR 35, PVC (0'-6' cut)	LF	0	$ 150.00	$ -
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**24,000**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	48	$ 5,000.00	$ 240,000.00
17	Bore and Case Roadways	LF	1200	$ 130.00	$ 156,000.00
18	Bore and Case Creek Crossings	LF	960	$ 100.00	$ 96,000.00
19	Trench Safety	LF	24,000	$ 2.00	$ 48,000.00
20	Sewer Main Television Inspection	LF	24,000	$ 26.00	$ 624,000.00
21	Erosion Control Devices	LF	24,000	$ 1.00	$ 24,000.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$ 200,000.00	$ -
	Total Construction				**$ 3,670,000.00**
	Contingencies	10%			$ 367,000.00
	Total				**$ 4,037,000.00**
	Easements	LF	24,000	$ 5.00	$ 120,000.00
	Easements and Surveys and Acquisition Costs	LF	24,000	$ 2.00	$ 48,000.00
	Environmental Investigation	LF	24,000	$ 1.50	$ 36,000.00
	Total Easement Costs				**$ 204,000.00**
	Basic Engineering	10%			$ 403,700.00
	Survey	LF	24,000	$ 2.00	$ 48,000.00
	Construction Phase Services	2%			$ 80,740.00
	Total Engineering Costs				**$ 532,440.00**
	Total Project Costs				**$ 4,773,440.00**

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Green Valley Special Utility District
Summary Drainage Basin D
Engineer's Opinion of Probable Costs

D

Item	Description	Total Costs 1 (EDU/acre)	Total Costs 3 (EDU/acre)
1	12" SDR 35, PVC (0'-6' cut)	$ -	$ -
2	15" SDR 35, PVC (0'-6' cut)	$ -	$ -
3	18" SDR 35, PVC (0'-6' cut)	$ -	$ -
4	21" SDR 35, PVC (0'-6' cut)	$ 200,000.00	$ -
5	24" SDR 35, PVC (0'-6' cut)	$ 225,000.00	$ -
6	27" SDR 35, PVC (0'-6' cut)	$ 530,000.00	$ 250,000.00
7	30" SDR 35, PVC (0'-6' cut)	$ 616,000.00	$ -
8	33" SDR 35, PVC (0'-6' cut)	$ -	$ 312,500.00
9	36" SDR 35, PVC (0'-6' cut)	$ -	$ 795,000.00
10	42", PVC (0'-6' cut)	$ -	$ 1,120,000.00
11	48", PVC (0'-6' cut)	$ -	$ -
12	54", PVC (0'-6' cut)	$ -	$ -
13	60", PVC (0'-6' cut)	$ -	$ -
14	66", PVC (0'-6' cut)	$ -	$ -
15	72", PVC (0'-6' cut)	$ -	$ -
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	$ 159,000.00	$ 159,000.00
17	Bore and Case Roadways	$ 103,350.00	$ 103,350.00
18	Bore and Case Creek Crossings	$ 63,600.00	$ 63,600.00
19	Trench Safety	$ 31,800.00	$ 31,800.00
20	Sewer Main Television Inspection	$ 413,400.00	$ 413,400.00
21	Erosion Control Devices	$ 15,900.00	$ 15,900.00
22	Sewer Junction Structure	$ -	$ -
23	Lift Station	$ -	$ -
	Total Construction	**$ 2,358,050.00**	**$ 3,264,550.00**
	Contingencies	$ 235,805.00	$ 326,455.00
	Total	**$ 2,593,855.00**	**$ 3,591,005.00**
	Easements	$ 79,500.00	$ 79,500.00
	Easements and Surveys and Acquisition Costs	$ 31,800.00	$ 31,800.00
	Environmental Investigation	$ 23,850.00	$ 23,850.00
	Total Easement Costs	**$ 135,150.00**	**$ 135,150.00**
	Basic Engineering	$ 259,385.50	$ 359,100.50
	Survey	$ 31,800.00	$ 31,800.00
	Construction Phase Services	$ 51,877.10	$ 71,820.10
	Total Engineering Costs	**$ 343,062.60**	**$ 462,720.60**
	Total Project Costs	**$ 3,072,067.60**	**$ 4,188,875.60**

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Green Valley Special Utility District
Drainage Basin D - 1 EDU/acre
Engineer's Opinion of Probable Costs

D

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	0	$ 70.00	$ -
4	21" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 80.00	$ 200,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 90.00	$ 225,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	5,300	$ 100.00	$ 530,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	5,600	$ 110.00	$ 616,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	0	$ 125.00	$ -
9	36" SDR 35, PVC (0'-6' cut)	LF	0	$ 150.00	$ -
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**15,900**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	32	$ 5,000.00	$ 159,000.00
17	Bore and Case Roadways	LF	795	$ 130.00	$ 103,350.00
18	Bore and Case Creek Crossings	LF	636	$ 100.00	$ 63,600.00
19	Trench Safety	LF	15,900	$ 2.00	$ 31,800.00
20	Sewer Main Television Inspection	LF	15,900	$ 26.00	$ 413,400.00
21	Erosion Control Devices	LF	15,900	$ 1.00	$ 15,900.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$200,000.00	$ -
	Total Construction				**$ 2,358,050.00**
	Contingencies	10%			$ 235,805.00
	Total				**$ 2,593,855.00**
	Easements	LF	15,900	$ 5.00	$ 79,500.00
	Easements and Surveys and Acquisition Costs	LF	15,900	$ 2.00	$ 31,800.00
	Environmental Investigation	LF	15,900	$ 1.50	$ 23,850.00
	Total Easement Costs				**$ 135,150.00**
	Basic Engineering	10%			$ 259,385.50
	Survey	LF	15,900	$ 2.00	$ 31,800.00
	Construction Phase Services	2%			$ 51,877.10
	Total Engineering Costs				**$ 343,062.60**
	Total Project Costs				**$ 3,072,067.60**

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Green Valley Special Utility District
Drainage Basin D - 3 EDU/acre
Engineer's Opinion of Probable Costs

D

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	0	$ 70.00	$ -
4	21" SDR 35, PVC (0'-6' cut)	LF	0	$ 80.00	$ -
5	24" SDR 35, PVC (0'-6' cut)	LF	0	$ 90.00	$ -
6	27" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 100.00	$ 250,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	0	$ 110.00	$ -
8	33" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 125.00	$ 312,500.00
9	36" SDR 35, PVC (0'-6' cut)	LF	5,300	$ 150.00	$ 795,000.00
10	42" SDR 35, PVC (0'-6' cut)	LF	5,600	$ 200.00	$ 1,120,000.00
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**15,900**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	32	$ 5,000.00	$ 159,000.00
17	Bore and Case Roadways	LF	795	$ 130.00	$ 103,350.00
18	Bore and Case Creek Crossings	LF	636	$ 100.00	$ 63,600.00
19	Trench Safety	LF	15,900	$ 2.00	$ 31,800.00
20	Sewer Main Television Inspection	LF	15,900	$ 26.00	$ 413,400.00
21	Erosion Control Devices	LF	15,900	$ 1.00	$ 15,900.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$200,000.00	$ -
	Total Construction				**$ 3,264,550.00**
	Contingencies	10%			$ 326,455.00
	Total				**$ 3,591,005.00**
	Easements	LF	15,900	$ 5.00	$ 79,500.00
	Easements and Surveys and Acquisition Costs	LF	15,900	$ 2.00	$ 31,800.00
	Environmental Investigation	LF	15,900	$ 1.50	$ 23,850.00
	Total Easement Costs				**$ 135,150.00**
	Basic Engineering	10%			$ 359,100.50
	Survey	LF	15,900	$ 2.00	$ 31,800.00
	Construction Phase Services	2%			$ 71,820.10
	Total Engineering Costs				**$ 462,720.60**
	Total Project Costs				**$ 4,188,875.60**

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Green Valley Special Utility District
Summary Drainage Basin E
Engineer's Opinion of Probable Costs

E

Item	Description	Total Costs 1 (EDU/acre)	Total Costs 3 (EDU/acre)
1	12" SDR 35, PVC (0'-6' cut)	$ -	$ -
2	15" SDR 35, PVC (0'-6' cut)	$ -	$ -
3	18" SDR 35, PVC (0'-6' cut)	$ -	$ -
4	21" SDR 35, PVC (0'-6' cut)	$ 588,000.00	$ -
5	24" SDR 35, PVC (0'-6' cut)	$ 1,548,000.00	$ 414,000.00
6	27" SDR 35, PVC (0'-6' cut)	$ 2,230,000.00	$ 735,000.00
7	30" SDR 35, PVC (0'-6' cut)	$ 1,699,500.00	$ 1,386,000.00
8	33" SDR 35, PVC (0'-6' cut)	$ 2,706,250.00	$ 1,625,000.00
9	36" SDR 35, PVC (0'-6' cut)	$ 870,000.00	$ 2,167,500.00
10	42", PVC (0'-6' cut)	$ -	$ 6,390,000.00
11	48", PVC (0'-6' cut)	$ 1,750,000.00	$ 1,450,000.00
12	54", PVC (0'-6' cut)	$ 5,550,000.00	$ -
13	60", PVC (0'-6' cut)	$ 3,360,000.00	$ 2,450,000.00
14	66", PVC (0'-6' cut)	$ -	$ 2,000,000.00
15	72", PVC (0'-6' cut)	$ -	$ -
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	$ 1,248,500.00	$ 1,017,500.00
17	Bore and Case Roadways	$ 811,525.00	$ 661,375.00
18	Bore and Case Creek Crossings	$ 499,400.00	$ 407,000.00
19	Trench Safety	$ 249,700.00	$ 203,500.00
20	Sewer Main Television Inspection	$ 3,246,100.00	$ 2,645,500.00
21	Erosion Control Devices	$ 124,850.00	$ 101,750.00
22	Sewer Junction Structure	$ 140,000.00	$ 140,000.00
23	Lift Station	$ 400,000.00	$ 400,000.00
	Total Construction	**$ 27,021,825.00**	**$ 34,589,125.00**
	Contingencies	$ 2,702,182.50	$ 3,458,912.50
	Total	**$ 29,724,007.50**	**$ 38,048,037.50**
	Easements	$ 624,250.00	$ 508,750.00
	Easements and Surveys and Acquisition Costs	$ 249,700.00	$ 203,500.00
	Environmental Investigation	$ 187,275.00	$ 152,625.00
	Total Easement Costs	**$ 1,061,225.00**	**$ 864,875.00**
	Basic Engineering	$ 2,972,400.75	$ 3,804,803.75
	Survey	$ 249,700.00	$ 203,500.00
	Construction Phase Services	$ 594,480.15	$ 760,960.75
	Total Engineering Costs	**$ 3,816,580.90**	**$ 4,769,264.50**
	Total Project Costs	**$ 34,601,813.40**	**$ 43,682,177.00**

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Green Valley Special Utility District
Drainage Basin E - 1 EDU/acre
Engineer's Opinion of Probable Costs

E

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	0	$ 70.00	$ -
4	21" SDR 35, PVC (0'-6' cut)	LF	7,350	$ 80.00	$ 588,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	17,200	$ 90.00	$ 1,548,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	22,300	$ 100.00	$ 2,230,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	15,450	$ 110.00	$ 1,699,500.00
8	33" SDR 35, PVC (0'-6' cut)	LF	21,650	$ 125.00	$ 2,706,250.00
9	36" SDR 35, PVC (0'-6' cut)	LF	5,800	$ 150.00	$ 870,000.00
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	7,000	$ 250.00	$ 1,750,000.00
12	54" SDR 35, PVC (0'-6' cut)	LF	18,500	$ 300.00	$ 5,550,000.00
13	60" SDR 35, PVC (0'-6' cut)	LF	9,600	$ 350.00	$ 3,360,000.00
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**124,850**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	250	$ 5,000.00	$ 1,248,500.00
17	Bore and Case Roadways	LF	6242.5	$ 130.00	$ 811,525.00
18	Bore and Case Creek Crossings	LF	4,994	$ 100.00	$ 499,400.00
19	Trench Safety	LF	124,850	$ 2.00	$ 249,700.00
20	Sewer Main Television Inspection	LF	124,850	$ 26.00	$ 3,246,100.00
21	Erosion Control Devices	LF	124,850	$ 1.00	$ 124,850.00
22	Sewer Junction Structure	EA	4	$ 35,000.00	$ 140,000.00
23	Lift Station	EA	2	$200,000.00	$ 400,000.00
	Total Construction				**$27,021,825.00**
	Contingencies	10%			$ 2,702,182.50
	Total				**$29,724,007.50**
	Easements	LF	124,850	$ 5.00	$ 624,250.00
	Easements and Surveys and Acquisition Costs	LF	124,850	$ 2.00	$ 249,700.00
	Environmental Investigation	LF	124,850	$ 1.50	$ 187,275.00
	Total Easement Costs				**$ 1,061,225.00**
	Basic Engineering	10%			$ 2,972,400.75
	Survey	LF	124,850	$ 2.00	$ 249,700.00
	Construction Phase Services	2%			$ 594,480.15
	Total Engineering Costs				**$ 3,816,580.90**
	Total Project Costs				**$34,601,813.40**

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Green Valley Special Utility District
Drainage Basin E - 3 EDU/acre
Engineer's Opinion of Probable Costs

E

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	0	$ 70.00	$ -
4	21" SDR 35, PVC (0'-6' cut)	LF	0	$ 80.00	$ -
5	24" SDR 35, PVC (0'-6' cut)	LF	4,600	$ 90.00	$ 414,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	7,350	$ 100.00	$ 735,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	12,600	$ 110.00	$ 1,386,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	13,000	$ 125.00	$ 1,625,000.00
9	36" SDR 35, PVC (0'-6' cut)	LF	14,450	$ 150.00	$ 2,167,500.00
10	42" SDR 35, PVC (0'-6' cut)	LF	31,950	$ 200.00	$ 6,390,000.00
11	48" SDR 35, PVC (0'-6' cut)	LF	5,800	$ 250.00	$ 1,450,000.00
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	7,000	$ 350.00	$ 2,450,000.00
14	66" SDR 35, PVC (0'-6' cut)	LF	5,000	$ 400.00	$ 2,000,000.00
15	72" SDR 35, PVC (0'-6' cut)	LF	23,100	$ 450.00	$ 10,395,000.00
	Total Length	**LF**	**101,750**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	204	$ 5,000.00	$ 1,017,500.00
17	Bore and Case Roadways	LF	5087.5	$ 130.00	$ 661,375.00
18	Bore and Case Creek Crossings	LF	4,070	$ 100.00	$ 407,000.00
19	Trench Safety	LF	101,750	$ 2.00	$ 203,500.00
20	Sewer Main Television Inspection	LF	101,750	$ 26.00	$ 2,645,500.00
21	Erosion Control Devices	LF	101,750	$ 1.00	$ 101,750.00
22	Sewer Junction Structure	EA	4	$ 35,000.00	$ 140,000.00
23	Lift Station	EA	2	$200,000.00	$ 400,000.00
	Total Construction				**$34,589,125.00**
	Contingencies	10%			$ 3,458,912.50
	Total				**$38,048,037.50**
	Easements	LF	101,750	$ 5.00	$ 508,750.00
	Easements and Surveys and Acquisition Costs	LF	101,750	$ 2.00	$ 203,500.00
	Environmental Investigation	LF	101,750	$ 1.50	$ 152,625.00
	Total Easement Costs				**$ 864,875.00**
	Basic Engineering	10%			$ 3,804,803.75
	Survey	LF	101,750	$ 2.00	$ 203,500.00
	Construction Phase Services	2%			$ 760,960.75
	Total Engineering Costs				**$ 4,769,264.50**
	Total Project Costs				**$43,682,177.00**

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Green Valley Special Utility District
Summary Drainage Basin F
Engineer's Opinion of Probable Costs

F

Item	Description	Total Costs 1 (EDU/acre)	Total Costs 3 (EDU/acre)
1	12" SDR 35, PVC (0'-6' cut)	$ -	$ -
2	15" SDR 35, PVC (0'-6' cut)	$ -	$ -
3	18" SDR 35, PVC (0'-6' cut)	$ 175,000.00	$ -
4	21" SDR 35, PVC (0'-6' cut)	$ 200,000.00	$ -
5	24" SDR 35, PVC (0'-6' cut)	$ 450,000.00	$ 225,000.00
6	27" SDR 35, PVC (0'-6' cut)	$ 500,000.00	$ 250,000.00
7	30" SDR 35, PVC (0'-6' cut)	$ 1,342,000.00	$ 550,000.00
8	33" SDR 35, PVC (0'-6' cut)	$ -	$ 312,500.00
9	36" SDR 35, PVC (0'-6' cut)	$ -	$ 1,155,000.00
10	42", PVC (0'-6' cut)	$ -	$ 1,400,000.00
11	48", PVC (0'-6' cut)	$ -	$ -
12	54", PVC (0'-6' cut)	$ -	$ -
13	60", PVC (0'-6' cut)	$ -	$ -
14	66", PVC (0'-6' cut)	$ -	$ -
15	72", PVC (0'-6' cut)	$ -	$ -
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	$ 272,000.00	$ 272,000.00
17	Bore and Case Roadways	$ 176,800.00	$ 176,800.00
18	Bore and Case Creek Crossings	$ 108,800.00	$ 108,800.00
19	Trench Safety	$ 54,400.00	$ 54,400.00
20	Sewer Main Television Inspection	$ 707,200.00	$ 707,200.00
21	Erosion Control Devices	$ 27,200.00	$ 27,200.00
22	Sewer Junction Structure	$ -	$ -
23	Lift Station	$ -	$ -
	Total Construction	**$ 4,013,400.00**	**$ 5,238,900.00**
	Contingencies	$ 401,340.00	$ 523,890.00
	Total	**$ 4,414,740.00**	**$ 5,762,790.00**
	Easements	$ 136,000.00	$ 136,000.00
	Easements and Surveys and Acquisition Costs	$ 54,400.00	$ 54,400.00
	Environmental Investigation	$ 40,800.00	$ 40,800.00
	Total Easement Costs	**$ 231,200.00**	**$ 231,200.00**
	Basic Engineering	$ 441,474.00	$ 576,279.00
	Survey	$ 54,400.00	$ 54,400.00
	Construction Phase Services	$ 88,294.80	$ 115,255.80
	Total Engineering Costs	**$ 584,168.80**	**$ 745,934.80**
	Total Project Costs	**$ 5,230,108.80**	**$ 6,739,924.80**

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Green Valley Special Utility District
Drainage Basin F - 1 EDU/acre
Engineer's Opinion of Probable Costs

F

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 70.00	$ 175,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 80.00	$ 200,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	5,000	$ 90.00	$ 450,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	5,000	$ 100.00	$ 500,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	12,200	$ 110.00	$ 1,342,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	0	$ 125.00	$ -
9	36" SDR 35, PVC (0'-6' cut)	LF	0	$ 150.00	$ -
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**27,200**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	54	$ 5,000.00	$ 272,000.00
17	Bore and Case Roadways	LF	1360	$ 130.00	$ 176,800.00
18	Bore and Case Creek Crossings	LF	1,088	$ 100.00	$ 108,800.00
19	Trench Safety	LF	27,200	$ 2.00	$ 54,400.00
20	Sewer Main Television Inspection	LF	27,200	$ 26.00	$ 707,200.00
21	Erosion Control Devices	LF	27,200	$ 1.00	$ 27,200.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$200,000.00	$ -
	Total Construction				**$ 4,013,400.00**
	Contingencies	10%			$ 401,340.00
	Total				**$ 4,414,740.00**
	Easements	LF	27,200	$ 5.00	$ 136,000.00
	Easements and Surveys and Acquisition Costs	LF	27,200	$ 2.00	$ 54,400.00
	Environmental Investigation	LF	27,200	$ 1.50	$ 40,800.00
	Total Easement Costs				**$ 231,200.00**
	Basic Engineering	10%			$ 441,474.00
	Survey	LF	27,200	$ 2.00	$ 54,400.00
	Construction Phase Services	2%			$ 88,294.80
	Total Engineering Costs				**$ 584,168.80**
	Total Project Costs				**$ 5,230,108.80**

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Green Valley Special Utility District
Drainage Basin F - 3 EDU/acre
Engineer's Opinion of Probable Costs

F

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	0	$ 70.00	$ -
4	21" SDR 35, PVC (0'-6' cut)	LF	0	$ 80.00	$ -
5	24" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 90.00	$ 225,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 100.00	$ 250,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	5,000	$ 110.00	$ 550,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 125.00	$ 312,500.00
9	36" SDR 35, PVC (0'-6' cut)	LF	7,700	$ 150.00	$ 1,155,000.00
10	42" SDR 35, PVC (0'-6' cut)	LF	7,000	$ 200.00	$ 1,400,000.00
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**27,200**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	54	$ 5,000.00	$ 272,000.00
17	Bore and Case Roadways	LF	1360	$ 130.00	$ 176,800.00
18	Bore and Case Creek Crossings	LF	1,088	$ 100.00	$ 108,800.00
19	Trench Safety	LF	27,200	$ 2.00	$ 54,400.00
20	Sewer Main Television Inspection	LF	27,200	$ 26.00	$ 707,200.00
21	Erosion Control Devices	LF	27,200	$ 1.00	$ 27,200.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$200,000.00	$ -
	Total Construction				**$ 5,238,900.00**
	Contingencies	10%			$ 523,890.00
	Total				**$ 5,762,790.00**
	Easements	LF	27,200	$ 5.00	$ 136,000.00
	Easements and Surveys and Acquisition Costs	LF	27,200	$ 2.00	$ 54,400.00
	Environmental Investigation	LF	27,200	$ 1.50	$ 40,800.00
	Total Easement Costs				**$ 231,200.00**
	Basic Engineering	10%			$ 576,279.00
	Survey	LF	27,200	$ 2.00	$ 54,400.00
	Construction Phase Services	2%			$ 115,255.80
	Total Engineering Costs				**$ 745,934.80**
	Total Project Costs				**$ 6,739,924.80**

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Green Valley Special Utility District
Summary Drainage Basin G
Engineer's Opinion of Probable Costs

G

Item	Description	Total Costs 1 (EDU/acre)	Total Costs 3 (EDU/acre)
1	12" SDR 35, PVC (0'-6' cut)	$ -	$ -
2	15" SDR 35, PVC (0'-6' cut)	$ 175,500.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	$ 189,000.00	$ 189,000.00
4	21" SDR 35, PVC (0'-6' cut)	$ 400,000.00	$ 216,000.00
5	24" SDR 35, PVC (0'-6' cut)	$ 225,000.00	$ 225,000.00
6	27" SDR 35, PVC (0'-6' cut)	$ 280,000.00	$ 250,000.00
7	30" SDR 35, PVC (0'-6' cut)	$ 319,000.00	$ 275,000.00
8	33" SDR 35, PVC (0'-6' cut)	$ 375,000.00	$ 350,000.00
9	36" SDR 35, PVC (0'-6' cut)	$ -	$ 435,000.00
10	42", PVC (0'-6' cut)	$ -	$ 600,000.00
11	48", PVC (0'-6' cut)	$ -	$ -
12	54", PVC (0'-6' cut)	$ -	$ -
13	60", PVC (0'-6' cut)	$ -	$ -
14	66", PVC (0'-6' cut)	$ -	$ -
15	72", PVC (0'-6' cut)	$ -	$ -
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	$ 216,000.00	$ 216,000.00
17	Bore and Case Roadways	$ 140,400.00	$ 140,400.00
18	Bore and Case Creek Crossings	$ 86,400.00	$ 86,400.00
19	Trench Safety	$ 43,200.00	$ 43,200.00
20	Sewer Main Television Inspection	$ 561,600.00	$ 561,600.00
21	Erosion Control Devices	$ 21,600.00	$ 21,600.00
22	Sewer Junction Structure	$ -	$ -
23	Lift Station	$ -	$ -
	Total Construction	**$ 3,032,700.00**	**$ 3,609,200.00**
	Contingencies	$ 303,270.00	$ 360,920.00
	Total	**$ 3,335,970.00**	**$ 3,970,120.00**
	Easements	$ 108,000.00	$ 108,000.00
	Easements and Surveys and Acquisition Costs	$ 43,200.00	$ 43,200.00
	Environmental Investigation	$ 32,400.00	$ 32,400.00
	Total Easement Costs	**$ 183,600.00**	**$ 183,600.00**
	Basic Engineering	$ 333,597.00	$ 397,012.00
	Survey	$ 43,200.00	$ 43,200.00
	Construction Phase Services	$ 66,719.40	$ 79,402.40
	Total Engineering Costs	**$ 443,516.40**	**$ 519,614.40**
	Total Project Costs	**$ 3,963,086.40**	**$ 4,673,334.40**

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Green Valley Special Utility District
Drainage Basin G - 1 EDU/acre
Engineer's Opinion of Probable Costs

G

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	2,700	$ 65.00	$ 175,500.00
3	18" SDR 35, PVC (0'-6' cut)	LF	2,700	$ 70.00	$ 189,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	5,000	$ 80.00	$ 400,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 90.00	$ 225,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	2,800	$ 100.00	$ 280,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	2,900	$ 110.00	$ 319,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	3,000	$ 125.00	$ 375,000.00
9	36" SDR 35, PVC (0'-6' cut)	LF	0	$ 150.00	$ -
10	42" SDR 35, PVC (0'-6' cut)	LF	0	$ 200.00	$ -
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**21,600**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	43	$ 5,000.00	$ 216,000.00
17	Bore and Case Roadways	LF	1080	$ 130.00	$ 140,400.00
18	Bore and Case Creek Crossings	LF	864	$ 100.00	$ 86,400.00
19	Trench Safety	LF	21,600	$ 2.00	$ 43,200.00
20	Sewer Main Television Inspection	LF	21,600	$ 26.00	$ 561,600.00
21	Erosion Control Devices	LF	21,600	$ 1.00	$ 21,600.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$200,000.00	$ -
	Total Construction				**$ 3,032,700.00**
	Contingencies	10%			$ 303,270.00
	Total				**$ 3,335,970.00**
	Easements	LF	21,600	$ 5.00	$ 108,000.00
	Easements and Surveys and Acquisition Costs	LF	21,600	$ 2.00	$ 43,200.00
	Environmental Investigation	LF	21,600	$ 1.50	$ 32,400.00
	Total Easement Costs				**$ 183,600.00**
	Basic Engineering	10%			$ 333,597.00
	Survey	LF	21,600	$ 2.00	$ 43,200.00
	Construction Phase Services	2%			$ 66,719.40
	Total Engineering Costs				**$ 443,516.40**
	Total Project Costs				**$ 3,963,086.40**

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Green Valley Special Utility District
Drainage Basin G - 3 EDU/acre
Engineer's Opinion of Probable Costs

G

Item	Description	Unit	Quantity	Unit Price	Total Costs
1	12" SDR 35, PVC (0'-6' cut)	LF	0	$ 60.00	$ -
2	15" SDR 35, PVC (0'-6' cut)	LF	0	$ 65.00	$ -
3	18" SDR 35, PVC (0'-6' cut)	LF	2,700	$ 70.00	$ 189,000.00
4	21" SDR 35, PVC (0'-6' cut)	LF	2,700	$ 80.00	$ 216,000.00
5	24" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 90.00	$ 225,000.00
6	27" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 100.00	$ 250,000.00
7	30" SDR 35, PVC (0'-6' cut)	LF	2,500	$ 110.00	$ 275,000.00
8	33" SDR 35, PVC (0'-6' cut)	LF	2,800	$ 125.00	$ 350,000.00
9	36" SDR 35, PVC (0'-6' cut)	LF	2,900	$ 150.00	$ 435,000.00
10	42" SDR 35, PVC (0'-6' cut)	LF	3,000	$ 200.00	$ 600,000.00
11	48" SDR 35, PVC (0'-6' cut)	LF	0	$ 250.00	$ -
12	54" SDR 35, PVC (0'-6' cut)	LF	0	$ 300.00	$ -
13	60" SDR 35, PVC (0'-6' cut)	LF	0	$ 350.00	$ -
14	66" SDR 35, PVC (0'-6' cut)	LF	0	$ 400.00	$ -
15	72" SDR 35, PVC (0'-6' cut)	LF	0	$ 450.00	$ -
	Total Length	**LF**	**21,600**		
16	48" dia. M.H. W.T. & Bolted (0'-6' cut)	EA	43	$ 5,000.00	$ 216,000.00
17	Bore and Case Roadways	LF	1080	$ 130.00	$ 140,400.00
18	Bore and Case Creek Crossings	LF	864	$ 100.00	$ 86,400.00
19	Trench Safety	LF	21,600	$ 2.00	$ 43,200.00
20	Sewer Main Television Inspection	LF	21,600	$ 26.00	$ 561,600.00
21	Erosion Control Devices	LF	21,600	$ 1.00	$ 21,600.00
22	Sewer Junction Structure	EA	0	$ 35,000.00	$ -
23	Lift Station	EA	0	$200,000.00	$ -
	Total Construction				**$ 3,609,200.00**
	Contingencies	10%			$ 360,920.00
	Total				**$ 3,970,120.00**
	Easements	LF	21,600	$ 5.00	$ 108,000.00
	Easements and Surveys and Acquisition Costs	LF	21,600	$ 2.00	$ 43,200.00
	Environmental Investigation	LF	21,600	$ 1.50	$ 32,400.00
	Total Easement Costs				**$ 183,600.00**
	Basic Engineering	10%			$ 397,012.00
	Survey	LF	21,600	$ 2.00	$ 43,200.00
	Construction Phase Services	2%			$ 79,402.40
	Total Engineering Costs				**$ 519,614.40**
	Total Project Costs				**$ 4,673,334.40**

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Green Valley Special Utility District
Wastewater impact Fees and Rates
Neighboring Utilities

Neighboring Utility	Wastewater Impact Fee	Wastewater Connection Fee	Cost of Treatment ($/1000 gal)	Monthly Service Fee
New Braunfels Utilities	$1,160	$655		
City of Seguin	$500	$470		
CCMA	$985		$1.60	
GBRA		$1,000		$32

Green Valley Special Utility District
Wastewater Impact Fees
Main Wastewater Collection System (Trunk Lines)

Drainage Basin	Total EDU 1 (EDU/acre)	Total EDU 3 (EDU/acre)	Dev Density of 1 EDU/acre		Dev Density of 3 EDU/acre	
			Total Costs	Potential Impact Fee	Total Costs	Potential Impact Fee
Drainage Basin A	9,211	27,633	$11,212,950	$1,217	$13,229,734	$479
Drainage Basin B	4,690	14,070	$3,379,449	$721	$3,848,841	$274
Drainage Basin C	5,636	16,908	$4,151,280	$737	$4,773,440	$282
Drainage Basin D	6,688	20,064	$3,072,068	$459	$4,188,876	$209
Drainage Basin E	35,618	106,854	$34,601,813	$971	$43,682,177	$409
Drainage Basin F	6,515	19,545	$5,230,109	$803	$6,739,925	$345
Drainage Basin G	7,511	22,533	$3,963,086	$528	$4,673,334	$207
Total	**75,869**	**227,607**	**$65,610,755**	**$865**	**$81,136,327**	**$356**

Green Valley Special Utility District
Wastewater Impact Fees
Wastewater Treatment Facility

Drainage Basin	Total EDU 1 (EDU/acre)	Total EDU 3 (EDU/acre)	Dev Density of 1 EDU/acre		Dev Density of 3 EDU/acre	
			Total Costs	Potential Impact Fee	Total Costs	Potential Impact Fee
Drainage Basin A	9,211	27,633	$7,898,433	$858	$20,310,255	$735
Drainage Basin B	4,690	14,070	$4,021,675	$858	$12,065,025	$858
Drainage Basin C	5,636	16,908	$4,832,870	$858	$14,498,610	$858
Drainage Basin D	6,688	20,064	$5,734,103	$857	$17,202,308	$857
Drainage Basin E	35,618	106,854	$26,179,965	$735	$39,269,948	$368
Drainage Basin F	6,515	19,545	$5,586,613	$858	$16,759,838	$858
Drainage Basin G	7,511	22,533	$6,440,683	$858	$16,561,755	$735
Total	**75,869**	**227,607**	**$60,694,342**	**$800**	**$136,667,739**	**$600**

Green Valley Special Utility District
Wastewater Impact Fees
Wastewater Treatment Facility

Drainage Basin	Dev Density of 1 EDU/acre			Dev Density of 3 EDU/acre		
	Wastewater Collection Impact fee	Wastewater Treatmrnt Impact fee	Total Impact Fee	Wastewater Collection Impact fee	Wastewater Treatmrnt Impact fee	Total Impact Fee
Drainage Basin A	$1,217	$858	**$ 2,075**	$479	$735	**$1,214**
Drainage Basin B	$721	$858	**$ 1,578**	$274	$858	**$1,131**
Drainage Basin C	$737	$858	**$ 1,594**	$282	$858	**$1,140**
Drainage Basin D	$459	$857	**$ 1,317**	$209	$857	**$1,066**
Drainage Basin E	$971	$735	**$ 1,706**	$409	$368	**$776**
Drainage Basin F	$803	$858	**$ 1,660**	$345	$858	**$1,202**
Drainage Basin G	$528	$858	**$ 1,385**	$207	$735	**$942**

Green Valley Special Utility District
Wastewater Treatment Capacity Summary
Most Downstream Drainage Basin Location

Design Flow	1 EDU/Acre	3 EDU/Acre
	Capacity (MGD)	Capacity (MGD)
Drainage Basin A	2.3	6.8
Drainage Basin B	1.1	3.4
Drainage Basin C	1.4	4.1
Drainage Basin D	1.6	4.9
Drainage Basin E	8.7	26.2
Drainage Basin F	1.6	4.8
Drainage Basin G	1.8	5.5

Green Valley Special Utility District
Wastewater Treatment Costs Summary
Most Downstream Drainage Basin Location

Design Flow	1 EDU/Acre	3 EDU/Acre
	Costs ($)	Costs ($)
Drainage Basin A	$ 7,898,433	$ 20,310,255
Drainage Basin B	$ 4,021,675	$ 12,065,025
Drainage Basin C	$ 4,832,870	$ 14,498,610
Drainage Basin D	$ 5,734,103	$ 17,202,308
Drainage Basin E	$ 26,179,965	$ 39,269,948
Drainage Basin F	$ 5,586,613	$ 16,759,838
Drainage Basin G	$ 6,440,683	$ 16,561,755

Development Density 3 EDU/acre

Green Valley Special Utility District
Drainage Area A **A**
Wastewater Treatment Plant Costs Study

Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP AA1-1	570,360	0.6	$4.00	$2,281,440
CP AA2-1	736,470	0.7	$4.00	$2,945,880
CP AA1-5	3,518,445	3.5	$3.50	$12,314,558
CP AA5-2	4,959,045	5.0	$3.50	$17,356,658
CP AA6-1	6,352,605	6.4	$3.00	$19,057,815
CP AA8-1	6,770,085	6.8	$3.00	$20,310,255

Development Density 1 EDU/acre

Green Valley Special Utility District
Drainage Area A **A**
Wastewater Treatment Plant Costs Study

Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP AA1-1	190,120	0.2	$4.00	$760,480
CP AA2-1	245,490	0.2	$4.00	$981,960
CP AA1-5	1,172,815	1.2	$3.50	$4,104,853
CP AA5-2	1,653,015	1.7	$3.50	$5,785,553
CP AA6-1	2,117,535	2.1	$3.50	$7,411,373
CP AA8-1	2,256,695	2.3	$3.50	$7,898,433

Green Valley Special Utility District
Drainage Area A
Wastewater Treatment Plant Capacity and Costs Calculations

3 EDU **A**

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe AA1	Upstream	**CP AA1-1**	256	520	776	3.0	2328	570,360	**570,360**	2,293,080	2,293,080	$4.00	**$2,281,440**
Pipe AA1	CP AA1-1	CP AA1-2	177	144	321	3.0	963	235,935	806,295	948,555	3,241,635	$4.00	$3,225,180
Pipe AA1	CP AA1-2	CP AA1-3	169	129	298	3.0	894	219,030	1,025,325	880,590	4,122,225	$3.50	$3,588,638
Pipe AA1	CP AA1-3	CP AA1-4	175	114	289	3.0	867	212,415	1,237,740	853,995	4,976,220	$3.50	$4,332,090
Pipe AA1	CP AA1-4	CP AA1-5	210	73	283	3.0	849	208,005	1,445,745	836,265	5,812,485	$3.50	$5,060,108
1	Total		987	980	1967		5901	1,445,745		5,812,485			
Pipe AA2	Upstream	**CP AA2-1**	931	71	1002	3.0	3006	736,470	**736,470**	2,960,910	2,960,910	$4.00	**$2,945,880**
Pipe AA2	CP AA2-1	CP AA2-2	486	287	773	3.0	2319	568,155	1,304,625	2,284,215	5,245,125	$3.50	$4,566,188
Pipe AA2	CP AA2-2	CP AA2-3	234	394	628	3.0	1884	461,580	1,766,205	1,855,740	7,100,865	$3.50	$6,181,718
Pipe AA2	CP AA2-3	CP AA2-4	131	119	250	3.0	750	183,750	1,949,955	738,750	7,839,615	$3.50	$6,824,843
Pipe AA2	CP AA2-4	CP AA1-5	34	133	167	3.0	501	122,745	2,072,700	493,485	8,333,100	$3.50	$7,254,450
2	Total		1816	1004	2820		8460	2,072,700		8,333,100			
Pipe AA3	Upstream	CP AA3-1	93	246	339	3.0	1017	249,165	249,165	1,001,745	1,001,745	$4.00	$996,660
Pipe AA3	CP AA3-1	CP AA3-2	127	195	322	3.0	966	236,670	485,835	951,510	1,953,255	$4.00	$1,943,340
Pipe AA3	CP AA3-2	CP AA3-3	93	262	355	3.0	1065	260,925	746,760	1,049,025	3,002,280	$4.00	$2,987,040
Pipe AA3	CP AA3-3	CP AA3-4	127	220	347	3.0	1041	255,045	1,001,805	1,025,385	4,027,665	$3.50	$3,506,318
Pipe AA3	CP AA3-4	CP AA6-1	50	240	290	3.0	870	213,150	1,214,955	856,950	4,884,615	$3.50	$4,252,343
3	Total		490	1163	1653		4959	1,214,955		4,884,615			
Pipe AA4	Upstream	CP AA4-1	211	17	228	3.0	684	167,580	167,580	673,740	673,740	$4.00	$670,320
Pipe AA4	CP AA4-1	CP AA4-2	314	69	383	3.0	1149	281,505	449,085	1,131,765	1,805,505	$4.00	$1,796,340
Pipe AA4	CP AA4-2	CP AA4-3	252	36	288	3.0	864	211,680	660,765	851,040	2,656,545	$4.00	$2,643,060
Pipe AA4	CP AA4-3	CP AA5-2	269	72	341	3.0	1023	250,635	911,400	1,007,655	3,664,200	$4.00	$3,645,600
4	Total		1046	194	1240		3720	911,400		3,664,200			
Pipe AA1	Upstream	CP AA1-5	987	980	1967	3.0	5901	1,445,745	1,445,745	5,812,485	5,812,485	$3.50	$5,060,108
Pipe AA2	Upstream	**CP AA1-5**	1816	1004	2820	3.0	8460	2,072,700	**3,518,445**	8,333,100	14,145,585	$3.50	**$12,314,558**
Pipe AA5	CP AA1-5	CP AA5-1	233	103	336	3.0	1008	246,960	3,765,405	992,880	15,138,465	$3.50	$13,178,918
Pipe AA5	CP AA5-1	CP AA5-2	266	118	384	3.0	1152	282,240	4,047,645	1,134,720	16,273,185	$3.50	$14,166,758
5	Total		3302	2205	5507		16521	4,047,645		16,273,185			
Pipe AA4	Upstream	CP AA5-2	1046	194	1240	3.0	3720	911,400	911,400	3,664,200	3,664,200	$4.00	$3,645,600
Pipe AA5	CP AA1-5	**CP AA5-2**	3302	2205	5507	3.0	16521	4,047,645	**4,959,045**	16,273,185	19,937,385	$3.50	**$17,356,658**
Pipe AA6	CP AA5-2	CP AA6-1	181	62	243	3.0	729	178,605	5,137,650	718,065	20,655,450	$3.00	$15,412,950
6	Total		4529	2461	6990		20970	5,137,650		20,655,450			
Pipe AA3	Upstream	CP AA6-1	490	1163	1653	3.0	4959	1,214,955	1,214,955	4,884,615	4,884,615	$3.50	$4,252,343
Pipe AA6	CP AA5-2	**CP AA6-1**	4529	2461	6990	3.0	20970	5,137,650	**6,352,605**	20,655,450	25,540,065	$3.00	**$19,057,815**
Pipe AA7	CP AA6-1	CP AA7-1	208	92	300	3.0	900	220,500	6,573,105	886,500	26,426,565	$3.00	$19,719,315
7	Total		5227	3716	8943		26829	6,573,105		26,426,565			
Pipe AA7	CP AA6-1	CP AA7-1	5227	3716	8943	3.0	26829	6,573,105	6,573,105	26,426,565	26,426,565	$3.00	$19,719,315
Pipe AA8	CP AA7-1	**CP AA8-1**	253	15	268	3.0	804	196,980	**6,770,085**	791,940	27,218,505	$3.00	**$20,310,255**
8	Total		5480	3731	9211		27633	6,770,085		27,218,505			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Green Valley Special Utility District
Drainage Area A
Wastewater Treatment Plant Capacity and Costs Calculations

1 EDU A

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (1 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe AA1	Upstream	**CP AA1-1**	256	520	776	1.0	776	190,120	**190,120**	1,152,360	1,152,360	$4.00	**$760,480**
Pipe AA1	CP AA1-1	CP AA1-2	177	144	321	1.0	321	78,645	268,765	476,685	1,629,045	$4.00	$1,075,060
Pipe AA1	CP AA1-2	CP AA1-3	169	129	298	1.0	298	73,010	341,775	442,530	2,071,575	$4.00	$1,367,100
Pipe AA1	CP AA1-3	CP AA1-4	175	114	289	1.0	289	70,805	412,580	429,165	2,500,740	$4.00	$1,650,320
Pipe AA1	CP AA1-4	CP AA1-5	210	73	283	1.0	283	69,335	481,915	420,255	2,920,995	$4.00	$1,927,660
	Total		987	980	1967		1967	481,915		2,920,995			
Pipe AA2	Upstream	**CP AA2-1**	931	71	1002	1.0	1002	245,490	**245,490**	1,487,970	1,487,970	$4.00	**$981,960**
Pipe AA2	CP AA2-1	CP AA2-2	486	287	773	1.0	773	189,385	434,875	1,147,905	2,635,875	$4.00	$1,739,500
Pipe AA2	CP AA2-2	CP AA2-3	234	394	628	1.0	628	153,860	588,735	932,580	3,568,455	$4.00	$2,354,940
Pipe AA2	CP AA2-3	CP AA2-4	131	119	250	1.0	250	61,250	649,985	371,250	3,939,705	$4.00	$2,599,940
Pipe AA2	CP AA2-4	CP AA1-5	34	133	167	1.0	167	40,915	690,900	247,995	4,187,700	$4.00	$2,763,600
	Total		1816	1004	2820		2820	690,900		4,187,700			
Pipe AA3	Upstream	CP AA3-1	93	246	339	1.0	339	83,055	83,055	503,415	503,415	$4.00	$332,220
Pipe AA3	CP AA3-1	CP AA3-2	127	195	322	1.0	322	78,890	161,945	478,170	981,585	$4.00	$647,780
Pipe AA3	CP AA3-2	CP AA3-3	93	262	355	1.0	355	86,975	248,920	527,175	1,508,760	$4.00	$995,680
Pipe AA3	CP AA3-3	CP AA3-4	127	220	347	1.0	347	85,015	333,935	515,295	2,024,055	$4.00	$1,335,740
Pipe AA3	CP AA3-4	CP AA6-1	50	240	290	1.0	290	71,050	404,985	430,650	2,454,705	$4.00	$1,619,940
	Total		490	1163	1653		1653	404,985		2,454,705			
Pipe AA4	Upstream	CP AA4-1	211	17	228	1.0	228	55,860	55,860	338,580	338,580	$4.00	$223,440
Pipe AA4	CP AA4-1	CP AA4-2	314	69	383	1.0	383	93,835	149,695	568,755	907,335	$4.00	$598,780
Pipe AA4	CP AA4-2	CP AA4-3	252	36	288	1.0	288	70,560	220,255	427,680	1,335,015	$4.00	$881,020
Pipe AA4	CP AA4-3	CP AA5-2	269	72	341	1.0	341	83,545	303,800	506,385	1,841,400	$4.00	$1,215,200
	Total		1046	194	1240		1240	303,800		1,841,400			
Pipe AA1	Upstream	CP AA1-5	987	980	1967	1.0	1967	481,915	481,915	2,920,995	2,920,995	$4.00	$1,927,660
Pipe AA2	Upstream	**CP AA1-5**	1816	1004	2820	1.0	2820	690,900	**1,172,815**	4,187,700	7,108,695	$3.50	**$4,104,853**
Pipe AA5	CP AA1-5	CP AA5-1	233	103	336	1.0	336	82,320	1,255,135	498,960	7,607,655	$3.50	$4,392,973
Pipe AA5	CP AA5-1	CP AA5-2	266	118	384	1.0	384	94,080	1,349,215	570,240	8,177,895	$3.50	$4,722,253
	Total		3302	2205	5507		5507	1,349,215		8,177,895			
Pipe AA4	Upstream	CP AA5-2	1046	194	1240	1.0	1240	303,800	303,800	1,841,400	1,841,400	$4.00	$1,215,200
Pipe AA5	CP AA1-5	**CP AA5-2**	3302	2205	5507	1.0	5507	1,349,215	**1,653,015**	8,177,895	10,019,295	$3.50	**$5,785,553**
Pipe AA6	CP AA5-2	CP AA6-1	181	62	243	1.0	243	59,535	1,712,550	360,855	10,380,150	$3.50	$5,993,925
	Total		4529	2461	6990		6990	1,712,550		10,380,150			
Pipe AA3	Upstream	CP AA6-1	490	1163	1653	1.0	1653	404,985	404,985	2,454,705	2,454,705	$4.00	$1,619,940
Pipe AA6	CP AA5-2	**CP AA6-1**	4529	2461	6990	1.0	6990	1,712,550	**2,117,535**	10,380,150	12,834,855	**$3.50**	**$7,411,373**
Pipe AA7	CP AA6-1	CP AA7-1	208	92	300	1.0	300	73,500	2,191,035	445,500	13,280,355	$3.50	$7,668,623
	Total		5227	3716	8943		8943	2,191,035		13,280,355			
Pipe AA7	CP AA6-1	CP AA7-1	5227	3716	8943	1.0	8943	2,191,035	2,191,035	13,280,355	13,280,355	$3.50	$7,668,623
Pipe AA8	CP AA7-1	**CP AA8-1**	253	15	268	1.0	268	65,660	**2,256,695**	397,980	13,678,335	**$3.50**	**$7,898,433**
	Total		5480	3731	9211		9211	2,256,695		13,678,335			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD
Population per EDU =	3.5	capita/EDU
Development Average Density =	1	EDU/acre
Wastewater Demand =	70	GPD/capita
Maximum Flow Peak Factor =	3	
Inflow/Infiltration =	750	gallon/acres served

Average Dry Weather Flow =	245	GPD/EDU
Maximum Dry Weather Flow =	735	GPD/EDU
Maximum Wet Weather Flow =	1485	GPD/EDU

Development Density 3 EDU/acre

Green Valley Special Utility District Drainage Area B Wastewater Treatment Plant Costs Study				B
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP BB-1	465,990	0.5	$4.00	$1,863,960
CP BB-4	1,609,650	1.6	$3.50	$5,633,775
CP BB-8	3,447,150	3.4	$3.50	$12,065,025

Development Density 1 EDU/acre

Green Valley Special Utility District Drainage Area B Wastewater Treatment Plant Costs Study				B
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP BB-1	155,330	0.2	$4.00	$621,320
CP BB-4	536,550	0.5	$4.00	$2,146,200
CP BB-8	1,149,050	1.1	$3.50	$4,021,675

Green Valley Special Utility District
Drainage Area B
Wastewater Treatment Plant Capacity and Costs Calculations

3 EDU B

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe BB	Upstream	**CP BB-1**	267	367	634	3.0	1902	465,990	**465,990**	1,873,470	1,873,470	$4.00	**$1,863,960**
Pipe BB	CP BB-1	CP BB-2	207	287	494	3.0	1482	363,090	829,080	1,459,770	3,333,240	$4.00	$3,316,320
Pipe BB	CP BB-2	CP BB-3	251	229	480	3.0	1440	352,800	1,181,880	1,418,400	4,751,640	$3.50	$4,136,580
Pipe BB	CP BB-3	**CP BB-4**	366	216	582	3.0	1746	427,770	**1,609,650**	1,719,810	6,471,450	$3.50	**$5,633,775**
Pipe BB	CP BB-4	CP BB-5	384	190	574	3.0	1722	421,890	2,031,540	1,696,170	8,167,620	$3.50	$7,110,390
Pipe BB	CP BB-5	CP BB-6	206	285	491	3.0	1473	360,885	2,392,425	1,450,905	9,618,525	$3.50	$8,373,488
Pipe BB	CP BB-6	CP BB-7	209	306	515	3.0	1545	378,525	2,770,950	1,521,825	11,140,350	$3.50	$9,698,325
Pipe BB	CP BB-7	**CP BB-8**	704	216	920	3.0	2760	676,200	**3,447,150**	2,718,600	13,858,950	$3.50	**$12,065,025**
Total			2594	2096	4690		14070	3,447,150		13,858,950			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Green Valley Special Utility District
Drainage Area B
Wastewater Treatment Plant Capacity and Costs Calculations

1 EDU B

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (1 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe BB	Upstream	**CP BB-1**	267	367	634	1.0	634	155,330	**155,330**	941,490	941,490	$4.00	**$621,320**
Pipe BB	CP BB-1	CP BB-2	207	287	494	1.0	494	121,030	276,360	733,590	1,675,080	$4.00	$1,105,440
Pipe BB	CP BB-2	CP BB-3	251	229	480	1.0	480	117,600	393,960	712,800	2,387,880	$4.00	$1,575,840
Pipe BB	CP BB-3	**CP BB-4**	366	216	582	1.0	582	142,590	**536,550**	864,270	3,252,150	$4.00	**$2,146,200**
Pipe BB	CP BB-4	CP BB-5	384	190	574	1.0	574	140,630	677,180	852,390	4,104,540	$4.00	$2,708,720
Pipe BB	CP BB-5	CP BB-6	206	285	491	1.0	491	120,295	797,475	729,135	4,833,675	$4.00	$3,189,900
Pipe BB	CP BB-6	CP BB-7	209	306	515	1.0	515	126,175	923,650	764,775	5,598,450	$4.00	$3,694,600
Pipe BB	CP BB-7	**CP BB-8**	704	216	920	1.0	920	225,400	**1,149,050**	1,366,200	6,964,650	$3.50	**$4,021,675**
Total			2594	2096	4690		4690	1,149,050		6,964,650			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	1	EDU/acre	Maximum Wet Weather Flow =	1485	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Development Density 3 EDU/acre

Green Valley Special Utility District Drainage Area C Wastewater Treatment Plant Costs Study				C
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP CC-1	341,040	0.3	$4.00	$1,364,160
CP CC-5	2,009,490	2.0	$3.50	$7,033,215
CP CC-10	4,142,460	4.1	$3.50	$14,498,610

Development Density 1 EDU/acre

Green Valley Special Utility District Drainage Area C Wastewater Treatment Plant Costs Study				C
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP CC-1	113,680	0.1	$4.00	$454,720
CP CC-5	669,830	0.7	$4.00	$2,679,320
CP CC-10	1,380,820	1.4	$3.50	$4,832,870

Green Valley Special Utility District
Drainage Area C
Wastewater Treatment Plant Capacity and Costs Calculations

3 EDU C

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe CC	Upstream	**CP CC-1**	150	314	**464**	3.0	**1392**	341,040	**341,040**	1,371,120	1,371,120	$4.00	**$1,364,160**
Pipe CC	CP CC-1	CP CC-2	173	365	538	3.0	1614	395,430	736,470	1,589,790	2,960,910	$4.00	$2,945,880
Pipe CC	CP CC-2	CP CC-3	192	373	565	3.0	1695	415,275	1,151,745	1,669,575	4,630,485	$3.50	$4,031,108
Pipe CC	CP CC-3	CP CC-4	271	331	602	3.0	1806	442,470	1,594,215	1,778,910	6,409,395	$3.50	$5,579,753
Pipe CC	CP CC-4	**CP CC-5**	332	233	**565**	3.0	**1695**	415,275	**2,009,490**	1,669,575	8,078,970	$3.50	**$7,033,215**
Pipe CC	CP CC-5	CP CC-6	457	259	716	3.0	2148	526,260	2,535,750	2,115,780	10,194,750	$3.50	$8,875,125
Pipe CC	CP CC-6	CP CC-7	584	203	787	3.0	2361	578,445	3,114,195	2,325,585	12,520,335	$3.50	$10,899,683
Pipe CC	CP CC-7	CP CC-8	520	119	639	3.0	1917	469,665	3,583,860	1,888,245	14,408,580	$3.50	$12,543,510
Pipe CC	CP CC-8	CP CC-9	405	152	557	3.0	1671	409,395	3,993,255	1,645,935	16,054,515	$3.50	$13,976,393
Pipe CC	CP CC-9	**CP CC-10**	194	9	**203**	3.0	**609**	149,205	**4,142,460**	599,865	16,654,380	$3.50	**$14,498,610**
	Total		3278	2358	5636		16908	4,142,460		16,654,380			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Green Valley Special Utility District
Drainage Area C
Wastewater Treatment Plant Capacity and Costs Calculations

1 EDU C

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe CC	Upstream	**CP CC-1**	150	314	**464**	1.0	**464**	113,680	**113,680**	689,040	689,040	$4.00	**$454,720**
Pipe CC	CP CC-1	CP CC-2	173	365	538	1.0	538	131,810	245,490	798,930	1,487,970	$4.00	$981,960
Pipe CC	CP CC-2	CP CC-3	192	373	565	1.0	565	138,425	383,915	839,025	2,326,995	$4.00	$1,535,660
Pipe CC	CP CC-3	CP CC-4	271	331	602	1.0	602	147,490	531,405	893,970	3,220,965	$4.00	$2,125,620
Pipe CC	CP CC-4	**CP CC-5**	332	233	**565**	1.0	**565**	138,425	**669,830**	839,025	4,059,990	$4.00	**$2,679,320**
Pipe CC	CP CC-5	CP CC-6	457	259	716	1.0	716	175,420	845,250	1,063,260	5,123,250	$4.00	$3,381,000
Pipe CC	CP CC-6	CP CC-7	584	203	787	1.0	787	192,815	1,038,065	1,168,695	6,291,945	$3.50	$3,633,228
Pipe CC	CP CC-7	CP CC-8	520	119	639	1.0	639	156,555	1,194,620	948,915	7,240,860	$3.50	$4,181,170
Pipe CC	CP CC-8	CP CC-9	405	152	557	1.0	557	136,465	1,331,085	827,145	8,068,005	$3.50	$4,658,798
Pipe CC	CP CC-9	**CP CC-10**	194	9	**203**	1.0	**203**	49,735	**1,380,820**	301,455	8,369,460	$3.50	**$4,832,870**
	Total		3278	2358	5636		5636	1,380,820		8,369,460			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	1	EDU/acre	Maximum Wet Weather Flow =	1485	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Development Density 3 EDU/acre

Green Valley Special Utility District Drainage Area D Wastewater Treatment Plant Costs Study				D
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP DD-1	1,079,715	1.1	$3.50	$3,779,003
CP DD-4	3,476,550	3.5	$3.50	$12,167,925
CP DD-7	4,914,945	4.9	$3.50	$17,202,308

Development Density 1 EDU/acre

Green Valley Special Utility District Drainage Area D Wastewater Treatment Plant Costs Study				D
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP DD-1	359,905	0.4	$4.00	$1,439,620
CP DD-4	1,158,850	1.2	$3.50	$4,055,975
CP DD-7	1,638,315	1.6	$3.50	$5,734,103

Green Valley Special Utility District
Drainage Area D
Wastewater Treatment Plant Capacity and Costs Calculations

3 EDU D

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe DD	Upstream	**CP DD-1**	401	1068	**1469**	3.0	**4407**	1,079,715	**1,079,715**	4,340,895	4,340,895	$3.50	**$3,779,003**
Pipe DD	CP DD-1	CP DD-2	374	815	1189	3.0	3567	873,915	1,953,630	3,513,495	7,854,390	$3.50	$6,837,705
Pipe DD	CP DD-2	CP DD-3	411	725	1136	3.0	3408	834,960	2,788,590	3,356,880	11,211,270	$3.50	$9,760,065
Pipe DD	CP DD-3	**CP DD-4**	326	610	**936**	3.0	**2808**	687,960	**3,476,550**	2,765,880	13,977,150	$3.50	**$12,167,925**
Pipe DD	CP DD-4	CP DD-5	376	466	842	3.0	2526	618,870	4,095,420	2,488,110	16,465,260	$3.50	$14,333,970
Pipe DD	CP DD-5	CP DD-6	407	283	690	3.0	2070	507,150	4,602,570	2,038,950	18,504,210	$3.50	$16,108,995
Pipe DD	CP DD-6	**CP DD-7**	297	128	**425**	3.0	**1275**	312,375	**4,914,945**	1,255,875	19,760,085	$3.50	**$17,202,308**
Total			2592	4095	6687		20061	4,914,945		19,760,085			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Green Valley Special Utility District
Drainage Area D
Wastewater Treatment Plant Capacity and Costs Calculations

1 EDU D

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (1 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe DD	Upstream	**CP DD-1**	401	1068	**1469**	1.0	**1469**	359,905	**359,905**	2,181,465	2,181,465	$4.00	**$1,439,620**
Pipe DD	CP DD-1	CP DD-2	374	815	1189	1.0	1189	291,305	651,210	1,765,665	3,947,130	$4.00	$2,604,840
Pipe DD	CP DD-2	CP DD-3	411	725	1136	1.0	1136	278,320	929,530	1,686,960	5,634,090	$4.00	$3,718,120
Pipe DD	CP DD-3	**CP DD-4**	326	610	**936**	1.0	**936**	229,320	**1,158,850**	1,389,960	7,024,050	$3.50	**$4,055,975**
Pipe DD	CP DD-4	CP DD-5	376	466	842	1.0	842	206,290	1,365,140	1,250,370	8,274,420	$3.50	$4,777,990
Pipe DD	CP DD-5	CP DD-6	407	283	690	1.0	690	169,050	1,534,190	1,024,650	9,299,070	$3.50	$5,369,665
Pipe DD	CP DD-6	**CP DD-7**	297	128	**425**	1.0	**425**	104,125	**1,638,315**	631,125	9,930,195	$3.50	**$5,734,103**
Total			2592	4095	6687		6687	1,638,315		9,930,195			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	1	EDU/acre	Maximum Wet Weather Flow =	1485	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Development Density 3 EDU/acre

Green Valley Special Utility District Drainage Area E Wastewater Treatment Plant Costs Study				E
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP EE1-1	1,394,295	1.4	$3.50	$4,880,033
CP EE1-7	4,694,445	4.7	$3.50	$16,430,558
CP EE2-1	2,110,185	2.1	$3.50	$7,385,648
CP EE2-7	5,247,165	5.2	$3.00	$15,741,495
CP EE3-1	895,230	0.9	$4.00	$3,580,920
CP EE3-3	1,855,875	1.9	$3.50	$6,495,563
CP EE1-13	14,318,535	14.3	$2.50	$35,796,338
CP EE4-3	19,331,235	19.3	$2.00	$38,662,470
CP EE5-4	23,497,215	23.5	$1.75	$41,120,126
CP EE5-9	26,179,965	26.2	$1.50	$39,269,948

Development Density 1 EDU/acre

Green Valley Special Utility District Drainage Area E Wastewater Treatment Plant Costs Study				E
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP EE1-1	464,765	0.5	$4.00	$1,859,060
CP EE1-7	1,564,815	1.6	$3.50	$5,476,853
CP EE2-1	703,395	0.7	$4.00	$2,813,580
CP EE2-7	1,749,055	1.7	$3.50	$6,121,693
CP EE3-1	298,410	0.3	$4.00	$1,193,640
CP EE3-3	618,625	0.6	$4.00	$2,474,500
CP EE1-13	4,772,845	4.8	$3.50	$16,704,958
CP EE4-3	6,443,745	6.4	$3.00	$19,331,235
CP EE5-4	7,832,405	7.8	$3.00	$23,497,215
CP EE5-9	8,726,655	8.7	$3.00	$26,179,965

Green Valley Special Utility District
Drainage Area E
Wastewater Treatment Plant Capacity and Costs Calculations

3 EDU **E**

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe EE1	Upstream	**CP EE1-1**	442	1455	**1897**	3.0	**5691**	1,394,295	**1,394,295**	5,605,635	5,605,635	$3.50	**$4,880,033**
Pipe EE1	CP EE1-1	CP EE1-2	311	476	787	3.0	2361	578,445	1,972,740	2,325,585	7,931,220	$3.50	$6,904,590
Pipe EE1	CP EE1-2	CP EE1-3	365	424	789	3.0	2367	579,915	2,552,655	2,331,495	10,262,715	$3.50	$8,934,293
Pipe EE1	CP EE1-3	CP EE1-4	419	383	802	3.0	2406	589,470	3,142,125	2,369,910	12,632,625	$3.50	$10,997,438
Pipe EE1	CP EE1-4	CP EE1-5	517	343	860	3.0	2580	632,100	3,774,225	2,541,300	15,173,925	$3.50	$13,209,788
Pipe EE1	CP EE1-5	CP EE1-6	58	302	360	3.0	1080	264,600	4,038,825	1,063,800	16,237,725	$3.50	$14,135,888
Pipe EE1	CP EE1-6	**CP EE1-7**	625	267	**892**	3.0	**2676**	655,620	**4,694,445**	2,635,860	18,873,585	$3.50	**$16,430,558**
Pipe EE1	CP EE1-7	CP EE1-8	646	259	905	3.0	2715	665,175	5,359,620	2,674,275	21,547,860	$3.00	$16,078,860
Pipe EE1	CP EE1-8	CP EE1-9	471	255	726	3.0	2178	533,610	5,893,230	2,145,330	23,693,190	$3.00	$17,679,690
Pipe EE1	CP EE1-9	CP EE1-10	416	248	664	3.0	1992	488,040	6,381,270	1,962,120	25,655,310	$3.00	$19,143,810
Pipe EE1	CP EE1-10	CP EE1-11	381	224	605	3.0	1815	444,675	6,825,945	1,787,775	27,443,085	$3.00	$20,477,835
Pipe EE1	CP EE1-11	CP EE1-12	312	167	479	3.0	1437	352,065	7,178,010	1,415,445	28,858,530	$3.00	$21,534,030
Pipe EE1	CP EE1-12	CP EE1-13	250	130	380	3.0	1140	279,300	7,457,310	1,122,900	29,981,430	$3.00	$22,371,930
	Total		5213	4933	10146		30438	7,457,310		29,981,430			
Pipe EE2	Upstream	**CP EE2-1**	574	2297	**2871**	3.0	**8613**	2,110,185	**2,110,185**	8,483,805	8,483,805	$3.50	**$7,385,648**
Pipe EE2	CP EE2-1	CP EE2-2	347	519	866	3.0	2598	636,510	2,746,695	2,559,030	11,042,835	$3.50	$9,613,433
Pipe EE2	CP EE2-2	CP EE2-3	322	484	806	3.0	2418	592,410	**3,339,105**	2,381,730	13,424,565	$3.50	$11,686,868
Pipe EE2	CP EE2-3	CP EE2-4	279	464	743	3.0	2229	546,105	3,885,210	2,195,565	15,620,130	$3.50	$13,598,235
Pipe EE2	CP EE2-4	CP EE2-5	273	419	692	3.0	2076	508,620	4,393,830	2,044,860	17,664,990	$3.50	$15,378,405
Pipe EE2	CP EE2-5	CP EE2-6	266	406	672	3.0	2016	493,920	4,887,750	1,985,760	19,650,750	$3.50	$17,107,125
Pipe EE2	CP EE2-6	**CP EE2-7**	260	229	**489**	3.0	**1467**	359,415	**5,247,165**	1,444,995	21,095,745	$3.00	**$15,741,495**
Pipe EE2	CP EE2-7	CP EE2-8	253	151	404	3.0	1212	296,940	5,544,105	1,193,820	22,289,565	$3.00	$16,632,315
Pipe EE2	CP EE2-8	CP EE2-9	247	135	382	3.0	1146	280,770	5,824,875	1,128,810	23,418,375	$3.00	$17,474,625
Pipe EE2	CP EE2-9	CP EE2-10	232	142	374	3.0	1122	274,890	6,099,765	1,105,170	24,523,545	$3.00	$18,299,295
Pipe EE2	CP EE2-10	CP EE2-11	183	161	344	3.0	1032	252,840	6,352,605	1,016,520	25,540,065	$3.00	$19,057,815
Pipe EE2	CP EE2-11	CP EE2-12	140	151	291	3.0	873	213,885	6,566,490	859,905	26,399,970	$3.00	$19,699,470
Pipe EE2	CP EE2-12	CP EE2-13	110	291	401	3.0	1203	294,735	6,861,225	1,184,955	27,584,925	$3.00	$20,583,675
Pipe EE2	CP EE2-13	CP EE1-13	0	0	0	3.0	0	0	6,861,225	0	27,584,925	$3.00	$20,583,675
	Total		3486	5849	9335		28005	6,861,225		27,584,925			
Pipe EE3	Upstream	**CP EE3-1**	1168	50	**1218**	3.0	**3654**	895,230	**895,230**	3,599,190	3,599,190	$4.00	**$3,580,920**
Pipe EE3	CP EE3-1	CP EE3-2	619	179	798	3.0	2394	586,530	1,481,760	2,358,090	5,957,280	$3.50	$5,186,160
Pipe EE3	CP EE3-2	**CP EE3-3**	477	32	**509**	3.0	**1527**	374,115	**1,855,875**	1,504,095	7,461,375	$3.50	**$6,495,563**
Pipe EE3	CP EE3-3	CP EE3-4	334	509	843	3.0	2529	619,605	2,475,480	2,491,065	9,952,440	$3.50	$8,664,180
Pipe EE3	CP EE3-4	CP EE3-5	192	628	820	3.0	2460	602,700	3,078,180	2,423,100	12,375,540	$3.50	$10,773,630
Pipe EE3	CP EE3-5	CP EE4-3	51	805	856	3.0	2568	629,160	3,707,340	2,529,480	14,905,020	$3.50	$12,975,690
	Total		2841	2203	5044		15132	3,707,340		14,905,020			
Pipe EE1	Upstream	CP EE1-13	5213	4933	10146	3.0	30438	7,457,310	7,457,310	29,981,430	29,981,430	$3.00	$22,371,930
Pipe EE2	Upstream	**CP EE1-13**	3486	5849	**9335**	3.0	**28005**	6,861,225	**14,318,535**	27,584,925	57,566,355	$2.50	**$35,796,338**
Pipe EE4	CP EE1-13	CP EE4-1	184	466	650	3.0	1950	477,750	14,796,285	1,920,750	59,487,105	$2.50	$36,990,713
Pipe EE4	CP EE4-1	CP EE4-2	106	414	520	3.0	1560	382,200	15,178,485	1,536,600	61,023,705	$2.00	$30,356,970
Pipe EE4	CP EE4-2	CP EE4-3	28	578	606	3.0	1818	445,410	15,623,895	1,790,730	62,814,435	$2.00	$31,247,790
	Total		9017	12240	21257		63771	15,623,895		62,814,435			
Pipe EE3	Upstream	CP EE4-3	2841	2203	5044	3.0	15132	3,707,340	3,707,340	14,905,020	14,905,020	$3.50	$12,975,690
Pipe EE4	CP EE1-13	**CP EE4-3**	9017	12240	**21257**	3.0	**63771**	15,623,895	**19,331,235**	62,814,435	77,719,455	$2.00	**$38,662,470**
Pipe EE5	CP EE4-3	CP EE5-1	925	607	1532	3.0	4596	1,126,020	20,457,255	4,527,060	82,246,515	$1.75	$35,800,196
Pipe EE5	CP EE5-1	CP EE5-2	1036	644	1680	3.0	5040	1,234,800	21,692,055	4,964,400	87,210,915	$1.75	$37,961,096
Pipe EE5	CP EE5-2	CP EE5-3	1003	585	1588	3.0	4764	1,167,180	22,859,235	4,692,540	91,903,455	$1.75	$40,003,661
Pipe EE5	CP EE5-3	**CP EE5-4**	801	67	**868**	3.0	**2604**	637,980	**23,497,215**	2,564,940	94,468,395	$1.75	**$41,120,126**
Pipe EE5	CP EE5-4	CP EE5-5	650	621	1271	3.0	3813	934,185	24,431,400	3,755,805	98,224,200	$1.75	$42,754,950
Pipe EE5	CP EE5-5	CP EE5-6	375	567	942	3.0	2826	692,370	25,123,770	2,783,610	101,007,810	$1.50	$37,685,655
Pipe EE5	CP EE5-6	CP EE5-7	17	665	682	3.0	2046	501,270	25,625,040	2,015,310	103,023,120	$1.50	$38,437,560
Pipe EE5	CP EE5-7	CP EE5-8	0	564	564	3.0	1692	414,540	26,039,580	1,666,620	104,689,740	$1.50	$39,059,370
Pipe EE5	CP EE5-8	**CP EE5-9**	0	191	**191**	3.0	**573**	140,385	**26,179,965**	564,405	105,254,145	$1.50	**$39,269,948**
	Total		16665	18954	35619		106857	26,179,965		105,254,145			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Green Valley Special Utility District
Drainage Area E
Wastewater Treatment Plant Capacity and Costs Calculations

1 EDU E

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (1 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe EE1	Upstream	**CP EE1-1**	442	1455	**1897**	1.0	**1897**	464,765	**464,765**	2,817,045	2,817,045	$4.00	**$1,859,060**
Pipe EE1	CP EE1-1	CP EE1-2	311	476	787	1.0	787	192,815	657,580	1,168,695	3,985,740	$4.00	$2,630,320
Pipe EE1	CP EE1-2	CP EE1-3	365	424	789	1.0	789	193,305	850,885	1,171,665	5,157,405	$4.00	$3,403,540
Pipe EE1	CP EE1-3	CP EE1-4	419	383	802	1.0	802	196,490	1,047,375	1,190,970	6,348,375	$3.50	$3,665,813
Pipe EE1	CP EE1-4	CP EE1-5	517	343	860	1.0	860	210,700	1,258,075	1,277,100	7,625,475	$3.50	$4,403,263
Pipe EE1	CP EE1-5	CP EE1-6	58	302	360	1.0	360	88,200	1,346,275	534,600	8,160,075	$3.50	$4,711,963
Pipe EE1	CP EE1-6	**CP EE1-7**	625	267	**892**	1.0	**892**	218,540	**1,564,815**	1,324,620	9,484,695	$3.50	**$5,476,853**
Pipe EE1	CP EE1-7	CP EE1-8	646	259	905	1.0	905	221,725	1,786,540	1,343,925	10,828,620	$3.50	$6,252,890
Pipe EE1	CP EE1-8	CP EE1-9	471	255	726	1.0	726	177,870	1,964,410	1,078,110	11,906,730	$3.50	$6,875,435
Pipe EE1	CP EE1-9	CP EE1-10	416	248	664	1.0	**664**	162,680	2,127,090	986,040	12,892,770	$3.50	$7,444,815
Pipe EE1	CP EE1-10	CP EE1-11	381	224	605	1.0	605	148,225	2,275,315	898,425	13,791,195	$3.50	$7,963,603
Pipe EE1	CP EE1-11	CP EE1-12	312	167	479	1.0	479	117,355	2,392,670	711,315	14,502,510	$3.50	$8,374,345
Pipe EE1	CP EE1-12	CP EE1-13	250	130	380	1.0	380	93,100	2,485,770	564,300	15,066,810	$3.50	$8,700,195
	Total		5213	4933	10146		10146	2,485,770		15,066,810			
Pipe EE2	Upstream	**CP EE2-1**	574	2297	**2871**	1.0	**2871**	703,395	**703,395**	4,263,435	4,263,435	$4.00	**$2,813,580**
Pipe EE2	CP EE2-1	CP EE2-2	347	519	866	1.0	866	212,170	915,565	1,286,010	5,549,445	$4.00	$3,662,260
Pipe EE2	CP EE2-2	CP EE2-3	322	484	806	1.0	806	197,470	1,113,035	1,196,910	6,746,355	$3.50	$3,895,623
Pipe EE2	CP EE2-3	CP EE2-4	279	464	743	1.0	743	182,035	1,295,070	1,103,355	7,849,710	$3.50	$4,532,745
Pipe EE2	CP EE2-4	CP EE2-5	273	419	692	1.0	692	169,540	1,464,610	1,027,620	8,877,330	$3.50	$5,126,135
Pipe EE2	CP EE2-5	CP EE2-6	266	406	672	1.0	672	164,640	1,629,250	997,920	9,875,250	$3.50	$5,702,375
Pipe EE2	CP EE2-6	**CP EE2-7**	260	229	**489**	1.0	**489**	119,805	**1,749,055**	726,165	10,601,415	$3.50	**$6,121,693**
Pipe EE2	CP EE2-7	CP EE2-8	253	151	404	1.0	404	98,980	1,848,035	599,940	11,201,355	$3.50	$6,468,123
Pipe EE2	CP EE2-8	CP EE2-9	247	135	382	1.0	382	93,590	1,941,625	567,270	11,768,625	$3.50	$6,795,688
Pipe EE2	CP EE2-9	CP EE2-10	232	142	374	1.0	374	91,630	2,033,255	555,390	12,324,015	$3.50	$7,116,393
Pipe EE2	CP EE2-10	CP EE2-11	183	161	344	1.0	344	84,280	2,117,535	510,840	12,834,855	$3.50	$7,411,373
Pipe EE2	CP EE2-11	CP EE2-12	140	151	291	1.0	291	71,295	2,188,830	432,135	13,266,990	$3.50	$7,660,905
Pipe EE2	CP EE2-12	CP EE2-13	110	291	401	1.0	401	98,245	2,287,075	595,485	13,862,475	$3.50	$8,004,763
Pipe EE2	CP EE2-13	CP EE1-13	0	0	0	1.0	0	0	2,287,075	0	13,862,475	$3.50	$8,004,763
	Total		3486	5849	9335		9335	2,287,075		13,862,475			
Pipe EE3	Upstream	**CP EE3-1**	1168	50	**1218**	1.0	**1218**	298,410	**298,410**	1,808,730	1,808,730	$4.00	**$1,193,640**
Pipe EE3	CP EE3-1	CP EE3-2	619	179	798	1.0	798	195,510	493,920	1,185,030	2,993,760	$4.00	$1,975,680
Pipe EE3	CP EE3-2	**CP EE3-3**	477	32	**509**	1.0	**509**	124,705	**618,625**	755,865	3,749,625	$4.00	**$2,474,500**
Pipe EE3	CP EE3-3	CP EE3-4	334	509	843	1.0	843	206,535	825,160	1,251,855	5,001,480	$4.00	$3,300,640
Pipe EE3	CP EE3-4	CP EE3-5	192	628	820	1.0	820	200,900	1,026,060	1,217,700	6,219,180	$3.50	$3,591,210
Pipe EE3	CP EE3-5	CP EE4-3	51	805	856	1.0	856	209,720	1,235,780	1,271,160	7,490,340	$3.50	$4,325,230
	Total		2841	2203	5044		5044	1,235,780		7,490,340			
Pipe EE1	Upstream	CP EE1-13	5213	4933	10146	1.0	10146	2,485,770	2,485,770	15,066,810	15,066,810	$3.50	$8,700,195
Pipe EE2	Upstream	**CP EE1-13**	3486	5849	**9335**	1.0	**9335**	2,287,075	**4,772,845**	13,862,475	28,929,285	$3.50	**$16,704,958**
Pipe EE4	CP EE1-13	CP EE4-1	184	466	650	1.0	650	159,250	4,932,095	965,250	29,894,535	$3.50	$17,262,333
Pipe EE4	CP EE4-1	CP EE4-2	106	414	520	1.0	520	127,400	5,059,495	772,200	30,666,735	$3.00	$15,178,485
Pipe EE4	CP EE4-2	CP EE4-3	28	578	606	1.0	606	148,470	5,207,965	899,910	31,566,645	$3.00	$15,623,895
	Total		9017	12240	21257		21257	5,207,965		31,566,645			
Pipe EE3	Upstream	CP EE4-3	2841	2203	5044	1.0	5044	1,235,780	1,235,780	7,490,340	7,490,340	$3.50	$4,325,230
Pipe EE4	CP EE1-13	**CP EE4-3**	9017	12240	**21257**	1.0	**21257**	5,207,965	**6,443,745**	31,566,645	39,056,985	$3.00	**$19,331,235**
Pipe EE5	CP EE4-3	CP EE5-1	925	607	1532	1.0	1532	375,340	6,819,085	2,275,020	41,332,005	$3.00	$20,457,255
Pipe EE5	CP EE5-1	CP EE5-2	1036	644	1680	1.0	1680	411,600	7,230,685	2,494,800	43,826,805	$3.00	$21,692,055
Pipe EE5	CP EE5-2	CP EE5-3	1003	585	1588	1.0	1588	389,060	7,619,745	2,358,180	46,184,985	$3.00	$22,859,235
Pipe EE5	CP EE5-3	**CP EE5-4**	801	67	**868**	1.0	**868**	212,660	**7,832,405**	1,288,980	47,473,965	$3.00	**$23,497,215**
Pipe EE5	CP EE5-4	CP EE5-5	650	621	1271	1.0	1271	311,395	8,143,800	1,887,435	49,361,400	$3.00	$24,431,400
Pipe EE5	CP EE5-5	CP EE5-6	375	567	942	1.0	942	230,790	8,374,590	1,398,870	50,760,270	$3.00	$25,123,770
Pipe EE5	CP EE5-6	CP EE5-7	17	665	682	1.0	682	167,090	8,541,680	1,012,770	51,773,040	$3.00	$25,625,040
Pipe EE5	CP EE5-7	CP EE5-8	0	564	564	1.0	564	138,180	8,679,860	837,540	52,610,580	$3.00	$26,039,580
Pipe EE5	CP EE5-8	**CP EE5-9**	0	191	**191**	1.0	**191**	46,795	**8,726,655**	283,635	52,894,215	$3.00	**$26,179,965**
	Total		16665	18954	35619		35619	8,726,655		52,894,215			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245 GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735 GPD/EDU
Development Average Density =	1	EDU/acre	Maximum Wet Weather Flow =	1485 GPD/EDU
Wastewater Demand =	70	GPD/capita		
Maximum Flow Peak Factor =	3			
Inflow/Infiltration =	750	gallon/acres served		

Development Density 3 EDU/acre

Green Valley Special Utility District Drainage Area F Wastewater Treatment Plant Costs Study				F
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP FF 1	622,545	0.6	$4.00	$2,490,180
CP FF 6	3,196,515	3.2	$3.50	$11,187,803
CP FF 11	4,788,525	4.8	$3.50	$16,759,838

Development Density 1 EDU/acre

Green Valley Special Utility District Drainage Area F Wastewater Treatment Plant Costs Study				F
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP FF 1	207,515	0.2	$4.00	$830,060
CP FF 6	1,065,505	1.1	$3.50	$3,729,268
CP FF 11	1,596,175	1.6	$3.50	$5,586,613

Green Valley Special Utility District
Drainage Area F
Wastewater Treatment Plant Capacity and Costs Calculations

3 EDU F

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe FF	Upstream	**CP FF 1**	233	614	**847**	3.0	**2541**	622,545	**622,545**	2,502,885	2,502,885	$4.00	**$2,490,180**
Pipe FF	CP FF 1	CP FF 2	343	379	722	3.0	2166	530,670	1,153,215	2,133,510	4,636,395	$3.50	$4,036,253
Pipe FF	CP FF 2	CP FF 3	291	389	680	3.0	2040	499,800	1,653,015	2,009,400	6,645,795	$3.50	$5,785,553
Pipe FF	CP FF 3	CP FF 4	229	451	680	3.0	2040	499,800	2,152,815	2,009,400	8,655,195	$3.50	$7,534,853
Pipe FF	CP FF 4	CP FF 5	239	500	739	3.0	2217	543,165	2,695,980	2,183,745	10,838,940	$3.50	$9,435,930
Pipe FF	CP FF 5	**CP FF 6**	229	452	**681**	3.0	**2043**	500,535	**3,196,515**	2,012,355	12,851,295	$3.50	**$11,187,803**
Pipe FF	CP FF 6	CP FF 7	284	313	597	3.0	1791	438,795	3,635,310	1,764,135	14,615,430	$3.50	$12,723,585
Pipe FF	CP FF 7	CP FF 8	233	295	528	3.0	1584	388,080	4,023,390	1,560,240	16,175,670	$3.50	$14,081,865
Pipe FF	CP FF 8	CP FF 9	89	363	452	3.0	1356	332,220	4,355,610	1,335,660	17,511,330	$3.50	$15,244,635
Pipe FF	CP FF 9	CP FF 10	86	250	336	3.0	1008	246,960	4,602,570	992,880	18,504,210	$3.50	$16,108,995
Pipe FF	CP FF 10	**CP FF 11**	171	82	**253**	3.0	**759**	185,955	**4,788,525**	747,615	19,251,825	$3.50	**$16,759,838**
Total			2427	4088	6515		19545	4,788,525		19,251,825			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Green Valley Special Utility District
Drainage Area F
Wastewater Treatment Plant Capacity and Costs Calculations

1 EDU F

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (1 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe FF	Upstream	**CP FF 1**	233	614	**847**	1.0	**847**	207,515	**207,515**	1,257,795	1,257,795	$4.00	**$830,060**
Pipe FF	CP FF 1	CP FF 2	343	379	722	1.0	722	176,890	384,405	1,072,170	2,329,965	$4.00	$1,537,620
Pipe FF	CP FF 2	CP FF 3	291	389	680	1.0	680	166,600	551,005	1,009,800	3,339,765	$4.00	$2,204,020
Pipe FF	CP FF 3	CP FF 4	229	451	680	1.0	680	166,600	717,605	1,009,800	4,349,565	$4.00	$2,870,420
Pipe FF	CP FF 4	CP FF 5	239	500	739	1.0	739	181,055	898,660	1,097,415	5,446,980	$4.00	$3,594,640
Pipe FF	CP FF 5	**CP FF 6**	229	452	**681**	1.0	**681**	166,845	**1,065,505**	1,011,285	6,458,265	$3.50	**$3,729,268**
Pipe FF	CP FF 6	CP FF 7	284	313	597	1.0	597	146,265	1,211,770	886,545	7,344,810	$3.50	$4,241,195
Pipe FF	CP FF 7	CP FF 8	233	295	528	1.0	528	129,360	1,341,130	784,080	8,128,890	$3.50	$4,693,955
Pipe FF	CP FF 8	CP FF 9	89	363	452	1.0	452	110,740	1,451,870	671,220	8,800,110	$3.50	$5,081,545
Pipe FF	CP FF 9	CP FF 10	86	250	336	1.0	336	82,320	1,534,190	498,960	9,299,070	$3.50	$5,369,665
Pipe FF	CP FF 10	**CP FF 11**	171	82	**253**	1.0	**253**	61,985	**1,596,175**	375,705	9,674,775	$3.50	**$5,586,613**
Total			2427	4088	6515		6515	1,596,175		9,674,775			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	1	EDU/acre	Maximum Wet Weather Flow =	1485	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Development Density 3 EDU/acre

Green Valley Special Utility District Drainage Area G Wastewater Treatment Plant Costs Study				G
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP GG-1	266,805	0.3	$4.00	$1,067,220
CP GG-5	2,042,565	2.0	$3.50	$7,148,978
CP GG-9	5,520,585	5.5	$3.00	$16,561,755

Development Density 1 EDU/acre

Green Valley Special Utility District Drainage Area G Wastewater Treatment Plant Costs Study				G
1	2	3	4	5
Collection Point ID	Average Dry Weather Flow (GPD)	Treatment Plant Capacity (MGD)	Unit Costs (dollars/GPD)	Total Costs (dollars)
CP GG-1	88,935	0.1	$4.00	$355,740
CP GG-5	680,855	0.7	$4.00	$2,723,420
CP GG-9	1,840,195	1.8	$3.50	$6,440,683

Green Valley Special Utility District
Drainage Area G
Wastewater Treatment Plant Capacity and Costs Calculations

3 EDU G

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (3 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe GG	Upstream	**CP GG-1**	96	267	**363**	3.0	**1089**	266,805	**266,805**	1,072,665	1,072,665	$4.00	**$1,067,220**
Pipe GG	CP GG-1	CP GG-2	268	187	455	3.0	1365	334,425	601,230	1,344,525	2,417,190	$4.00	$2,404,920
Pipe GG	CP GG-2	CP GG-3	452	144	596	3.0	1788	438,060	1,039,290	1,761,180	4,178,370	$3.50	$3,637,515
Pipe GG	CP GG-3	CP GG-4	552	129	681	3.0	2043	500,535	1,539,825	2,012,355	6,190,725	$3.50	$5,389,388
Pipe GG	CP GG-4	**CP GG-5**	594	90	**684**	3.0	**2052**	502,740	**2,042,565**	2,021,220	8,211,945	$3.50	**$7,148,978**
Pipe GG	CP GG-5	CP GG-6	661	160	821	3.0	2463	603,435	2,646,000	2,426,055	10,638,000	$3.50	$9,261,000
Pipe GG	CP GG-6	CP GG-7	838	387	1225	3.0	3675	900,375	3,546,375	3,619,875	14,257,875	$3.50	$12,412,313
Pipe GG	CP GG-7	CP GG-8	600	563	1163	3.0	3489	854,805	4,401,180	3,436,665	17,694,540	$3.50	$15,404,130
Pipe GG	CP GG-8	**CP GG-9**	113	1410	**1523**	3.0	**4569**	1,119,405	**5,520,585**	4,500,465	22,195,005	$3.00	**$16,561,755**
	Total		4174	3337	7511		22533	5,520,585		22,195,005			

Design Parameters:

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	3	EDU/acre	Maximum Wet Weather Flow =	985	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Green Valley Special Utility District
Drainage Area G
Wastewater Treatment Plant Capacity and Costs Calculations

1 EDU G

Sewer Main Location			Contributing Area			Population		Average Dry Weather Flow		Maximum Wet Weather		Wastewater Treatment Plant Costs	
1	2	3	4	5	6	7	8	9	10	11	14	15	16
Pipe ID	Up Stream Collection Point	Down Stream Collection Point	Left Side Area (acres)	Right Side Area (acres)	Total Area (acres)	Development Density (1 EDU/acre)	Total EDU (EDU)	Dry Weather Flow (GPD)	Cumulative Dry Weather Flow (GPD)	Wet Weather Flow (GPD)	Cumulative Wet Weather Flow (GPD)	Unit Costs ($/GPD)	Total Costs ($)
Pipe GG	Upstream	**CP GG-1**	96	267	**363**	1.0	**363**	88,935	**88,935**	539,055	539,055	$4.00	**$355,740**
Pipe GG	CP GG-1	CP GG-2	268	187	455	1.0	455	111,475	200,410	675,675	1,214,730	$4.00	$801,640
Pipe GG	CP GG-2	CP GG-3	452	144	596	1.0	596	146,020	346,430	885,060	2,099,790	$4.00	$1,385,720
Pipe GG	CP GG-3	CP GG-4	552	129	681	1.0	681	166,845	513,275	1,011,285	3,111,075	$4.00	$2,053,100
Pipe GG	CP GG-4	**CP GG-5**	594	90	**684**	1.0	**684**	167,580	**680,855**	1,015,740	4,126,815	$4.00	**$2,723,420**
Pipe GG	CP GG-5	CP GG-6	661	160	821	1.0	821	201,145	882,000	1,219,185	5,346,000	$4.00	$3,528,000
Pipe GG	CP GG-6	CP GG-7	838	387	1225	1.0	1225	300,125	1,182,125	1,819,125	7,165,125	$3.50	$4,137,438
Pipe GG	CP GG-7	CP GG-8	600	563	1163	1.0	1163	284,935	1,467,060	1,727,055	8,892,180	$3.50	$5,134,710
Pipe GG	CP GG-8	**CP GG-9**	113	1410	**1523**	1.0	**1523**	373,135	**1,840,195**	2,261,655	11,153,835	$3.50	**$6,440,683**
	Total		4174	3337	7511		7511	1,840,195		11,153,835			

Residential Single Family Units (EDU) =	245	GPD	Average Dry Weather Flow =	245	GPD/EDU
Population per EDU =	3.5	capita/EDU	Maximum Dry Weather Flow =	735	GPD/EDU
Development Average Density =	1	EDU/acre	Maximum Wet Weather Flow =	1485	GPD/EDU
Wastewater Demand =	70	GPD/capita			
Maximum Flow Peak Factor =	3				
Inflow/Infiltration =	750	gallon/acres served			

Attachment 3
Existing Wastewater Permits

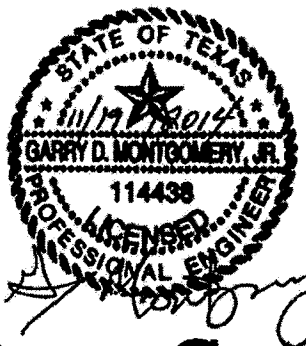
• Exhibit 1	CCMA	Expired Permit No. 11269-001 **Current Permit No. WQ0011269001**
• Exhibit 2	GBRA (Lake Dunlap)	Expired Permit No. 11378-001 **Current Permit No. WQ0011378001**
• Exhibit 3	City of Marion	Expired Permit No. 10048-001 **Current Permit No. WQ0010048001**
• Exhibit 4	Harvest Hills	**Current Permit No. WQ0014037001**
• Exhibit 5	GBRA (Northcliff)	Expired Permit No. 11751-001,002
• Exhibit 6	Meadow View park	Expired Permit No. 14153-001

Quality Service Since 1963

2014 WATER MASTER PLAN

Green Valley Special Utility District

P.O. Box 99, Marion, Texas 78124
(830) 914-2332
www.gvsud.org



RIVER CITY ENGINEERING
Civil, Environmental and Surveying
Texas Engineering Firm F-1548 Texas Survey Firm 10193949
3801 S. First Street, Austin, TX 78704 (512) 442-3008
1011 W. County Line Road, New Braunfels, TX 78130 (830) 626-3588

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1.0 INTRODUCTION AND BACKGROUND

Since the inception of the Green Valley Water Service Company and its conversion to Green Valley Special Utility District (GVSUD), GVSUD has earned a respected reputation for excellent water quality and friendly customer service. GVSUD started as a rural water supply corporation back in 1963. Over the past 50-years, GVSUD service area has experienced a steady increase of residential growth. Through the years, GVSUD has gained significant experience managing and servicing this extensive growth. In an effort to continue serving its customers with superior water service, GVSUD has authorized River City Engineering (RCE) to update this Water Master Plan and to prioritize proposed future Capital Improvement Projects (CIPs). This strategic plan will ensure adequate water supplies and infrastructure to meet the continued rapid growth of the area.

This master plans purpose is to analyze GVSUD's existing conditions, estimate future water demands, determine the necessary capital improvement projects to meet those demands, estimate proposed project costs and schedules, and recognize long-term water opportunities and provide the utility the operation options to move different water sources around the CCN service area and efficiently utilize all water sources where necessary. This document shall serve as a long-term adaptable guide to be used as needed to manage future service area development and projected water needs.

2.0 WATER CONNECTIONS

A water connection is defined as the average demand used by a single-family residence. GVSUD historically has not provided for many commercial meters and has not experienced a great deal of commercial growth since the 2008 study was completed. Therefore, for the convenience of this report, all of GVSUD's existing and proposed water connections are considered equal to a single-family residential meter. This assumption will need to be re-evaluated if GVSUD sees an increase in commercial development in the future. We are starting to see signs of industrial and commercial growth along the IH 10 Corridor, however the developments that have made application for service most recently align well with residential type demands.

3.0 HISTORICAL WATER CONNECTIONS AND WATER USE

Many different factors affect growth and development within an area. These include but are not limited to, the local and regional economy, development restrictions, environmental constraints, the current housing inventory, and existing and proposed roadways. GVSUD does not control any of these factors, and therefore, projecting the impact of these factors into the future is difficult.

Table 3.0 shows the total quantity of connections for each of the years from 2003 to 2013.

TABLE 3.0

Green Valley Special Utility District Historical Connection Growth				
1	2	3	4	5
Year	**Historical Water Connections**	**Historical Annual Water Pumped (acre-feet)**	**Historical Annual Growth (%)**	**Historical Annual Water Pumped (acre-feet/Connection)**
2003	6,500	2310		0.36
2004	6,800	2334	4.62%	0.34
2005	7,500	2776	10.29%	0.37
2006	8,000	3091	6.67%	0.39
2007	8,302	2577	3.78%	0.31
2008	8,453	3235	1.82%	0.38
2009	8,650	3042	2.33%	0.35
2010	8,829	2742	2.07%	0.31
2011	8,995	3289	1.88%	0.37
2012	9,274	2737	3.10%	0.30
2013	9,621	2739	3.74%	0.28

Historical Average Annual Water Connections Percent Growth (%) =	**4.45%**
Historical Average Annual Water Usage (acre-feet/EDU) =	**0.34**

Note:
1. All historical data was provided by GVSUD.

The district has experienced an annual growth rate average of 4.45% and average water usage of 0.34 acre-feet/connection. Pockets of higher growth may exist within certain areas of the District's CCN, requiring a detailed study of each pressure plane. As shown in the table above, the variance in annual growth in 2005 and 2008 could be contributed to the completion of several residential developments in 2005. From the historical data provided, it is safe to assume an average connection growth rate of 5% to predict connection quantity in the future. GVSUD historically uses 0.34 acre-feet/connection/year which will suffice to predict future water usage due to the conservative connection growth value.

As shown in Table 3.1 on the following page, Guadalupe County and the City of New Braunfels are experiencing similar growth to GVSUD.

TABLE 3.1

Surrounding Area Historical Growth				
1	2	3	4	5
Year	**Guadalupe County Population**	**Guadalupe County Growth (%)**	**New Braunfels Population**	**New Braunfels Growth (%)**
2003	96,445		42,489	
2004	99,038	2.69%	44,596	4.96%
2005	102,313	3.31%	46,577	4.44%
2006	107,670	5.24%	49,514	6.31%
2007	112,581	4.56%	52,056	5.13%
2008	117,341	4.23%	53,975	3.69%
2009	121,432	3.49%	55,867	3.51%
2010	132,409	9.04%	58,226	4.22%
2011	135,757	2.53%	59,590	2.34%
2012	139,841	3.01%	60,761	1.97%
Average		**4.23%**		**4.06%**

- Connection Growth Rate = 4.45%
- Water Demand per Connection = 0.34 Acre-feet/Connection/Year

CHART 3.2

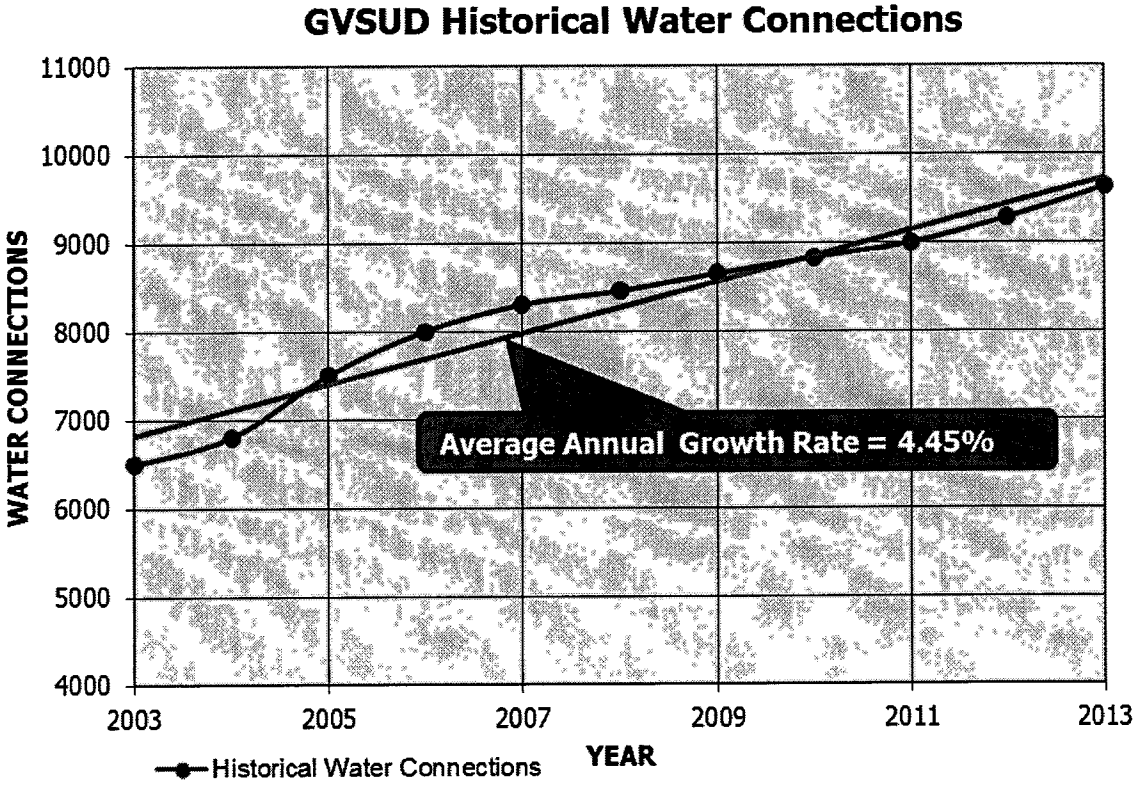

Chart 3.2 above displays the historical water connections for the years 2003 to 2013. An average historical growth rate of 4.45% was experienced in the past ten years. It is assumed that the growth rate will remain steady into the future and a growth rate of 5% will be used for projected connection quantity into the future.