TABLE 9.1

Green Valley Special Utility District Statement of Probable Cost Proposed Capital Improvement Projects		
Project	**Description**	**Total Cost**
1	16" Pipe Line along Terminal Loop	$ 436,391
2	24" Pipe Line that Connects Plant 1 to Plant 9	$ 943,930
3	12" Pipe along Youngsford Road from Country Lane to Santa Clara	$ 681,482
4	GVSUD Take-Point Meter Station at Zuehl Road & IH10	$ 170,678
5	16" Pipe Line Along Green Valley Road, Plant 1 to Plant 2	$ 7,447,496
6	12" Pipe from Wells to Plant 1	$ 886,032
7	12" Pipe along FM 1518 from Abbott to Kusmierz	$ 416,671
8	GVSUD Take-Point Meter Station at Linne Road & IH10	$ 224,428
9	24" Pipe Line from Wells to Plant 9 Improvements	$ 4,579,792
10	12" Pipe Line Along FM 482	$ 2,573,630
11	24" Pipe Line IH-35 Crossing	$ 939,676
12	Well Side Booster Pump Station	$ 2,179,970
13	Plant 9 Improvements	$ 2,621,296
14	830' Elevated Storage Tank at Most Western FM 78	$ 2,347,485
15	12" Pipe Line along Marion Road from CRWA Pipe to GV Road	$ 1,054,146
16	12" Pipe Line along Tolle Road & Country Lane	$ 1,170,762
17	750' Elevated Water Storage Tank at McQueeney	$ 3,965,167
18	12" Pipe along Schwab & Wosnig	$ 1,490,904
19	Common Ground Storage Tank and Booster Pump Station	$ 2,524,067
20	24" Pipe Line connects Existing Wells	$ 1,576,310
21	750' Elevated Storage Tank at South of Plant 10	$ 3,960,167
22	12" Pipeline along Weil Road - BPS extension to Marion Road	$ 1,390,928
23	Pipeline along Klein Road - FM 1044 to FM 725	$ 2,589,869
24	830' EST @ Hardy Rd and Union Wine	$ 2,323,485
25	Pipeline from FM 725 to CRWA Lake Dunlap WTP	$ 568,875
26	16" Pipeline along FM 725 - Union Wine to Altwein	$ 687,853
27	16" Weil Road BPS Fill Pipeline - Youngsford to Weil Rd BPS	$ 1,666,082
28	830' EST @ Youngsford and Short Cut Rd	$ 2,365,485
29	12" Pipeline along N Santa Clara Rd - Weil Rd to Gerdes Rd	$ 2,368,355
30	16" Pipeline along Schumann Rd - Pioneer Rd to Plant 10	$ 1,948,936
31	16" Pipeline along Pioneer Rd (connect)	$ 255,999
32	8" Pipeline along Lower Valley Ln - Weir Rd to Haeckerville Rd	$ 580,557
33	8" Pipeline along Lower Seguin Rd (connect)	$ 431,657
34	8" Pipeline along Bolton Rd (connect)	$ 223,437
35	8" Pipeline along Schmoekel Rd - Stolte Rd to Santa Clara Rd	$ 922,623
36	GVSUD Take-Point Meter Station at Santa Clara Rd & IH10	$ 154,996
37	750' EST @ Gin Road	$ 2,365,485
38	8" Pipeline along FM 775 - Leissner School Rd to Beutnagel Ln	$ 1,177,803
39	12" Pipeline along Abbott Road - FM 1518 to FM 2538	$ 1,335,437
40	8" Pipeline along New Berlin Rd - Gable Ln to Miller Rd	$ 1,121,154
41	8" Pipeline along Engel Rd - Green Valley Rd to Service Boundary	$ 316,789
42	Plant 1 - 1MG Ground Storage Tank	$ 1,402,522
43	16" Pipeline along FM 1044 from Green Valley Rd to Youngsford	$ 3,524,957
44	16" Pipeline along Union Wine from FM 1044 to Sunshine Lane	$ 1,669,664
45	16" Pipeline along Youngsford from FM 1044 to FM 725	$ 3,708,914
46	16" Pipeline along FM 1044 from Youngsford to Wosnig Road	$ 2,488,966
47	830' EST @ Plant 3	$ 2,281,891
48	Trinity Well Development	$ 1,100,000
	Total	**$ 83,163,200**

10.0 CONCLUSIONS AND RECOMMENDATIONS

RCE has analyzed GVSUD's existing water conditions in preparing this report. This analysis involved using historical data and projections in order to predict future growth. Using Attachment 'A', existing pressure planes map, RCE was able to analyze the existing water system and make professional engineering decisions for the future of GVSUD. It was determined that GVSUD will experience a 5% increase in water connections each year and water use of 0.34 acre-feet/connection each year. These growth rates were projected out until the year 2034. TCEQ minimum requirements were then compared to GVSUD historical data and the more stringent requirement was used for future planning. It was determined that GVSUD will need to combine several pressure planes as shown in Attachment 'B', Proposed Pressure Planes map, in order to allow for a simpler, more efficient water system.

In order to meet future demands and move water sources around the CCN service area, GVSUD will need to build additional infrastructure and find additional water rights. The capital improvement projects are identified in Attachment 'C', Proposed Capital Improvements Map. Once infrastructure is built, GVSUD will have a stable, self-sufficient, redundant water system.

It is recommended that the district adopt the proposed pressure planes and proposed capital improvement projects as the future outlook for the GVSUD water system. GVSUD must monitor and prioritize the Capital Improvements Projects listed in this report on a routine basis. GVSUD may shuffle the priority of the proposed CIPs to meet their current needs as their priorities change and growth occurs.

The projections in this report are only intended to serve as a guide. Due to the Study Area's layout, possibility of service expansions through further annexation, and changing political and economic climates, projections beyond a five or ten year horizon involve a great deal of speculation. It is therefore essential that projected water demands and system limitations be evaluated and updated on a routine basis.

ATTACHMENT 1

DETAILED STATEMENT OF PROBABLE COST

Green Valley Special Utility District
16" Pipe Line along Terminal Loop

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare ROW	LF	2,100	$1.00	$2,100.00
2	Install 16" diameter PVC C905 pipe	LF	2,100	$100.00	$210,000.00
3	Install 16" diameter gate valves w/box	EA	2	$5,500.00	$11,000.00
4	Install 16" diameter tie-ins	EA	2	$4,000.00	$8,000.00
5	Ductile Iron Fittings	TON	2	$4,800.00	$9,600.00
6	Install Fire Hydrant Assembly	EA	3	$4,500.00	$13,500.00
7	Fencing Repair	LF	2,100	$1.00	$2,100.00
8	Final Grade & Seed	LF	2,100	$1.00	$2,100.00
9	16" PRV	EA	1	$25,000.00	$25,000.00
	TOTAL CONSTRUCTION				**$283,400.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$28,340.00
	Contingencies	10%			$28,340.00
	TOTAL				**$340,080.00**
	Easements	LF	2,100	$12.00	$25,200.00
	Easement Surveys and Acquisition Costs	LF	2,100	$5.00	$10,500.00
	Easement Acquisition Consultant	LF	2,100	$5.00	$10,500.00
	TOTAL EASEMENT COSTS				**$46,200.00**
	Basic Engineering	12%			$40,809.60
	Surveying	LF	2,100	$2.00	$4,200.00
	Construction Phase Services	1.5%			$5,101.20
	TOTAL ENGINEERING COSTS				**$50,110.80**
	TOTAL PROJECT				**$436,390.80**

Green Valley Special Utility District
24" Pipe Line that Connects Plant 1 to Plant 9

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare ROW	LF	4,100	$1.00	$4,100.00
2	Install 24" diameter Dip Water pipe	LF	4,100	$120.00	$492,000.00
3	Install 24" diameter valves w/box	EA	5	$12,500.00	$62,500.00
4	Install 24" diameter tie-ins	EA	2	$4,500.00	$9,000.00
5	Ductile Iron Fittings	TON	5	$4,500.00	$22,500.00
6	Install Fire Hydrant Assembly	EA	5	$4,500.00	$22,500.00
7	Fencing Repair	LF	4,100	$1.00	$4,100.00
8	Final Grade & Seed	LF	4,100	$1.00	$4,100.00
	TOTAL CONSTRUCTION				**$620,800.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$62,080.00
	Contingencies	10%			$62,080.00
	TOTAL				**$744,960.00**
	Easements	LF	4,100	$12.00	$49,200.00
	Easement Surveys and Acquisition Costs	LF	4,100	$5.00	$20,500.00
	Easement Acquisition Consultant	LF	4,100	$5.00	$20,500.00
	TOTAL EASEMENT COSTS				**$90,200.00**
	Basic Engineering	12%			$89,395.20
	Surveying	LF	4,100	$2.00	$8,200.00
	Construction Phase Services	1.5%			$11,174.40
	TOTAL ENGINEERING COSTS				**$108,769.60**
	TOTAL PROJECT				**$943,929.60**

Green Valley Special Utility District
12" Pipe along Youngsford Road from Country Lane to Santa Clara

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare ROW	LF	5,400	$1.00	$5,400.00
2	Install 12" diameter PVC C909 pipe	LF	5,400	$65.00	$351,000.00
3	Install 12" diameter gate valves w/box	EA	2	$2,500.00	$5,000.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
6	Install Fire Hydrant Assembly	EA	4	$4,500.00	$18,000.00
7	Fencing Repair	LF	5,400	$1.00	$5,400.00
8	Final Grade & Seed	LF	5,400	$1.00	$5,400.00
	TOTAL CONSTRUCTION				**$405,200.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$40,520.00
	Contingencies	10%			$40,520.00
	TOTAL				**$486,240.00**
	Easements	LF	5,400	$12.00	$64,800.00
	Easement Surveys and Acquisition Costs	LF	5,400	$5.00	$27,000.00
	Easement Acquisition Consultant	LF	5,400	$5.00	$27,000.00
	TOTAL EASEMENT COSTS				**$118,800.00**
	Basic Engineering	12%			$58,348.80
	Surveying	LF	5,400	$2.00	$10,800.00
	Construction Phase Services	1.5%			$7,293.60
	TOTAL ENGINEERING COSTS				**$76,442.40**
	TOTAL PROJECT				**$681,482.40**

Green Valley Special Utility District
GVSUD Take-Point Meter Station at Zuehl Road & IH10

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	0.25	$2,500.00	$625.00
2	8" Cla Val	EA	1	$25,000.00	$25,000.00
3	Install 16" diameter DIP Class 350 pipe	LF	100	$100.00	$10,000.00
4	Install 8" diameter DIP Class 350 pipe	LF	25	$60.00	$1,500.00
5	Install 16" diameter valves w/box	EA	1	$5,500.00	$5,500.00
6	Install 16" diameter tie-ins	EA	1	$4,000.00	$4,000.00
7	Ductile Iron Fittings	TON	1	$4,500.00	$2,250.00
8	Install Fire Hydrant Assembly	EA	0	$4,500.00	$0.00
9	Metering Station Concrete & Buidling	SF	288	$35.00	$10,080.00
10	Site Power	LS	1	$2,500.00	$2,500.00
11	Site Electrical	LS	1	$12,000.00	$12,000.00
12	Chemical Building and Chemical Yard Pipe	LS	1	$15,000.00	$15,000.00
13	Site Controls and Communication	LS	1	$15,000.00	$15,000.00
14	Driveway	SY	200	$45.00	$9,000.00
15	Fencing	LF	120	$12.00	$1,440.00
16	Landscaping	LS	1	$500.00	$500.00
	TOTAL CONSTRUCTION				**$114,395.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$11,439.50
	Contingencies	10%			$12,583.45
	TOTAL				**$138,417.95**
	Property	AC	0.25	$5,000.00	$1,250.00
	Easement Surveys and Acquisition Costs	LS	1.00	$5,000.00	$5,000.00
	Attorney	LS	1.00	$5,000.00	$5,000.00
	TOTAL EASEMENT COSTS				**$11,250.00**
	Basic Engineering	12%			$16,610.15
	Surveying	LS	1	$2,000.00	$2,000.00
	Geotechnical	LS	2	$1,200.00	$2,400.00
	TOTAL ENGINEERING COSTS				**$21,010.15**
	TOTAL PROJECT				**$170,678.10**

Green Valley Special Utility District
16" Pipe Line Along Green Valley Road, Plant 1 to Plant 2

Engineers Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	43,600	$1.00	$43,600.00
2	Install 16" diameter PVC C905 Pipe	LF	43,600	$100.00	$4,360,000.00
3	Install 16" diameter gate valves w/box	EA	22	$5,500.00	$121,000.00
4	Install 16" diameter tie-ins	EA	2	$4,000.00	$8,000.00
5	Ductile Iron Fittings	TON	10	$4,500.00	$45,000.00
6	Install Fire Hydrant Assembly	EA	22	$4,500.00	$99,000.00
7	Fencing Repair	LF	43,600	$1.00	$43,600.00
8	Final Grade & Seed	LF	43,600	$1.00	$43,600.00
	SUBTOTAL				**$4,763,800.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$476,380.00
	Contingencies	10%			$476,380.00
	TOTAL				**$5,716,560.00**
	Easements	LF	43,600	$12.00	$523,200.00
	Easement Surveys and Acquisition Costs	LF	43,600	$3.00	$130,800.00
	Easement Acquisition Consultant	LF	43,600	$5.00	$218,000.00
	TOTAL EASEMENT COSTS				**$872,000.00**
	Basic Engineering	12%			$685,987.20
	Surveying	LF	43,600	$2.00	$87,200.00
	Construction Phase Services	1.5%			$85,748.40
	TOTAL ENGINEERING COSTS				**$858,935.60**
	TOTAL PROJECT				**$7,447,495.60**

Green Valley Special Utility District
12" Pipe from Wells to Plant 1

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare ROW	LF	6,500	$1.00	$6,500.00
2	Install 12" diameter PVC C909 Pipe	LF	6,500	$65.00	$422,500.00
3	Install 12" diameter valves w/box	EA	10	$2,500.00	$25,000.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	TON	4	$4,500.00	$18,000.00
6	Install Fire Hydrant Assembly	EA	10	$4,500.00	$45,000.00
7	Fencing Repair	LF	6,500	$1.00	$6,500.00
8	Final Grade & Seed	LF	6,500	$1.00	$6,500.00
	TOTAL CONSTRUCTION				**$536,000.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$53,600.00
	Contingencies	10%			$53,600.00
	TOTAL				**$643,200.00**
	Easements	LF	6,500	$12.00	$78,000.00
	Easement Surveys and Acquisition Costs	LF	6,500	$5.00	$32,500.00
	Easement Acquisition Consultant	LF	6,500	$5.00	$32,500.00
	TOTAL EASEMENT COSTS				**$143,000.00**
	Basic Engineering	12%			$77,184.00
	Surveying	LF	6,500	$2.00	$13,000.00
	Construction Phase Services	1.5%			$9,648.00
	TOTAL ENGINEERING COSTS				**$99,832.00**
	TOTAL PROJECT				**$886,032.00**

Green Valley Special Utility District
12" Pipe along FM 1518 from Abbott to Kusmierz

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare ROW	LF	3,100	$1.00	$3,100.00
2	Install 12" diameter PVC C909 pipe	LF	3,100	$65.00	$201,500.00
3	Install 12" diameter gate valves w/box	EA	3	$2,500.00	$7,500.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
6	Install Fire Hydrant Assembly	EA	4	$4,500.00	$18,000.00
7	Fencing Repair	LF	3,100	$1.00	$3,100.00
8	Final Grade & Seed	LF	3,100	$1.00	$3,100.00
	TOTAL CONSTRUCTION				**$251,300.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$25,130.00
	Contingencies	10%			$25,130.00
	TOTAL				**$301,560.00**
	Easements	LF	3,100	$12.00	$37,200.00
	Easement Surveys and Acquisition Costs	LF	3,100	$5.00	$15,500.00
	Easement Acquisition Consultant	LF	3,100	$5.00	$15,500.00
	TOTAL EASEMENT COSTS				**$68,200.00**
	Basic Engineering	12%			$36,187.20
	Surveying	LF	3,100	$2.00	$6,200.00
	Construction Phase Services	1.5%			$4,523.40
	TOTAL ENGINEERING COSTS				**$46,910.60**
	TOTAL PROJECT				**$416,670.60**

Green Valley Special Utility District
GVSUD Take-Point Meter Station at Linne Road & IH10

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	0.25	$2,500.00	$625.00
2	8" Cla Val	EA	1	$25,000.00	$25,000.00
3	Install 16" diameter DIP Class 350 pipe	LF	100	$100.00	$10,000.00
4	Install 8" diameter DIP Class 350 pipe	LF	25	$60.00	$1,500.00
5	Install 16" diameter valves w/box	EA	1	$5,500.00	$5,500.00
6	Install 16" diameter tie-ins	EA	1	$4,000.00	$4,000.00
7	Ductile Iron Fittings	TON	1	$4,500.00	$2,250.00
8	Install Fire Hydrant Assembly	EA	0	$4,500.00	$0.00
9	Metering Station Concrete & Buidling	SF	288	$35.00	$10,080.00
10	Site Power	LS	1	$2,500.00	$2,500.00
11	Site Electrical	LS	1	$12,000.00	$12,000.00
12	Chemical Building and Chemical Yard Pipe	LS	1	$15,000.00	$15,000.00
13	Site Controls and Communication	LS	1	$15,000.00	$15,000.00
14	Driveway	SY	200	$45.00	$9,000.00
15	Fencing	LF	120	$12.00	$1,440.00
16	Landscaping	LS	1	$500.00	$500.00
	TOTAL CONSTRUCTION				**$114,395.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$11,439.50
	Contingencies	10%			$12,583.45
	TOTAL				**$138,417.95**
	Property	LS	1.00	$40,000.00	$40,000.00
	Easement Surveys and Acquisition Costs	LS	1.00	$20,000.00	$20,000.00
	Attorney	LS	1.00	$5,000.00	$5,000.00
	TOTAL EASEMENT COSTS				**$65,000.00**
	Basic Engineering	12%			$16,610.15
	Surveying	LS	1	$2,000.00	$2,000.00
	Geotechnical	LS	2	$1,200.00	$2,400.00
	TOTAL ENGINEERING COSTS				**$21,010.15**
	TOTAL PROJECT				**$224,428.10**

Green Valley Special Utility District
24" Pipe Line from Wells to Plant 9 Improvements

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	16,500	$1.00	$16,500.00
2	Install 24" diameter DIP	LF	16,500	$175.00	$2,887,500.00
3	Install 24" diameter valves w/box	EA	8	$7,750.00	$62,000.00
4	Install 24" diameter tie-ins	EA	4	$4,700.00	$18,800.00
5	Ductile Iron Fittings	TON	4	$4,500.00	$18,000.00
6	Install Fire Hydrant Assembly	EA	8	$4,500.00	$36,000.00
7	Fencing Repair	LF	16,500	$1.00	$16,500.00
8	Final Grade & Seed	LF	16,500	$1.00	$16,500.00
	TOTAL CONSTRUCTION				**$3,071,800.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$307,180.00
	Contingencies	10%			$307,180.00
	TOTAL				**$3,686,160.00**
	Easements	LF	16,500	$12.00	$198,000.00
	Easement Surveys and Acquisition Costs	LF	16,500	$5.00	$82,500.00
	Easement Acquisition Consultant	LF	16,500	$5.00	$82,500.00
	TOTAL EASEMENT COSTS				**$363,000.00**
	Basic Engineering	12%			$442,339.20
	Surveying	LF	16,500	$2.00	$33,000.00
	Construction Phase Services	1.5%			$55,292.40
	TOTAL ENGINEERING COSTS				**$530,631.60**
	TOTAL PROJECT				**$4,579,791.60**

Green Valley Special Utility District 10
12" Pipe Line Along FM 482

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	22,000	$1.00	$22,000.00
2	Install 12" diameter PVC C900 Pipe	LF	22,000	$65.00	$1,430,000.00
3	Install 12" diameter gate valves w/box	EA	11	$2,500.00	$27,500.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	TON	8	$4,500.00	$36,000.00
6	Install Fire Hydrant Assembly	EA	11	$4,500.00	$49,500.00
7	Fencing Repair	LF	22,000	$1.00	$22,000.00
8	Final Grade & Seed	LF	22,000	$1.00	$22,000.00
	TOTAL CONSTRUCTION				**$1,615,000.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$161,500.00
	Contingencies	10%			$161,500.00
	TOTAL				**$1,938,000.00**
	Easements	LF	22,000	$12.00	$264,000.00
	Easement Surveys and Acquisition Costs	LF	22,000	$2.00	$44,000.00
	Easement Acquisition Consultant	LF	22,000	$1.00	$22,000.00
	TOTAL EASEMENT COSTS				**$330,000.00**
	Basic Engineering	12%			$232,560.00
	Surveying	LF	22,000	$2.00	$44,000.00
	Construction Phase Services	1.5%			$29,070.00
	TOTAL ENGINEERING COSTS				**$305,630.00**
	TOTAL PROJECT				**$2,573,630.00**

Green Valley Special Utility District
24" Pipe Line IH-35 Crossing

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	2,500	$1.00	$2,500.00
2	Install 24" diameter DIP	LF	2,500	$175.00	$437,500.00
3	Install 24" diameter gate valves w/box	EA	2	$9,350.00	$18,700.00
4	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
5	Ductile Iron Fittings	TON	4	$4,500.00	$18,000.00
6	Install Fire Hydrant Assembly	EA	5	$4,500.00	$22,500.00
7	Fencing Repair	LF	2,500	$1.00	$2,500.00
8	Final Grade & Seed	LF	2,500	$1.00	$2,500.00
9	Bore	LF	250	$500.00	$125,000.00
	TOTAL CONSTRUCTION				**$642,200.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$64,220.00
	Contingencies	10%			$64,220.00
	TOTAL				**$770,640.00**
	Easements	LF	2,500	$12.00	$30,000.00
	Easement Surveys and Acquisition Costs	LF	2,500	$5.00	$12,500.00
	Easement Acquisition Consultant	LF	2,500	$5.00	$12,500.00
	TOTAL EASEMENT COSTS				**$55,000.00**
	Basic Engineering	12%			$92,476.80
	Surveying	LF	5,000	$2.00	$10,000.00
	Construction Phase Services	1.5%			$11,559.60
	TOTAL ENGINEERING COSTS				**$114,036.40**
	TOTAL PROJECT				**$939,676.40**

Note: 1. Unit prices were used from SAWS average unit price list revised October 2005.

Green Valley Special Utility District
Well Side Booster Pump Station

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.5	$2,500.00	$3,750.00
2	0.5 MG Composite Ground Storage Tank	EA	1	$500,000.00	$500,000.00
3	Install 24" diameter DIP Water pipe	LF	250	$175.00	$43,750.00
4	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
5	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
6	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
8	Pumps, Pump Pad, Appurtenances Facility	LS	1	$250,000.00	$250,000.00
9	MCC, MCC Building, and MCC Building Items	LS	1	$300,000.00	$300,000.00
10	Site Power	LS	1	$75,000.00	$75,000.00
11	Chemical Building and Chemical Yard Pipe	LS	1	$50,000.00	$50,000.00
12	Site Controls and Communication	LS	1	$75,000.00	$75,000.00
13	Driveway	SY	500	$45.00	$22,500.00
14	Fencing	LF	1,000	$12.00	$12,000.00
15	Landscaping	LS	1	$2,500.00	$2,500.00
16	Emergency Generator	LS	1	$200,000.00	$200,000.00
	TOTAL CONSTRUCTION				**$1,598,400.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$159,840.00
	Contingencies	10%			$175,824.00
	TOTAL				**$1,934,064.00**
	Property	AC	1.0	$28,000.00	$28,000.00
	Easement Surveys and Acquisition Costs	AC	1.0	$3,000.00	$3,000.00
	Attorney	LS	1.0	$7,500.00	$7,500.00
	TOTAL EASEMENT COSTS				**$38,500.00**
	Basic Engineering	10%			$193,406.40
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical	LS	1	$9,500.00	$9,500.00
	TOTAL ENGINEERING COSTS				**$207,406.40**
	TOTAL PROJECT				**$2,179,970.40**

Green Valley Special Utility District
Plant 9 Improvements

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$2,500.00	$2,500.00
2	1 MG Composite Elevated Storage Tank	EA	1	$1,500,000.00	$1,500,000.00
3	Install 24" diameter DIP Water pipe	LF	500	$175.00	$87,500.00
4	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
5	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
6	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
8	Emergency Generator	EA	1	$200,000.00	$200,000.00
9	Demo Existing Plant 9	LS	1	$75,000.00	$75,000.00
10	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$1,958,900.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$195,890.00
	Contingencies	10%			$215,479.00
	TOTAL				**$2,370,269.00**
	Easements		0	$12.00	$0.00
	Easement Surveys and Acquisition Costs		0	$2.00	$0.00
	Environmental Investigation		0	$1.00	$0.00
	TOTAL EASEMENT COSTS				**$0.00**
	Basic Engineering	10%			$237,026.90
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical Services	LS	1	$9,500.00	$9,500.00
	TOTAL ENGINEERING COSTS				**$251,026.90**
	TOTAL PROJECT				**$2,621,295.90**

Green Valley Special Utility District
830' Elevated Storage Tank at Most Western FM 78

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$45,000.00	$45,000.00
2	1 MG Composite Elevated Storage Tank	EA	1	$1,500,000.00	$1,500,000.00
3	Install 24" diameter DIP Water pipe	LF	550	$175.00	$96,250.00
4	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
5	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
6	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
8	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$1,735,150.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$173,515.00
	Contingencies	10%			$190,866.50
	TOTAL				**$2,099,531.50**
	Property	AC	1.0	$12,000.00	$12,000.00
	Easement Surveys and Acquisition Costs	LS	1.0	$4,500.00	$4,500.00
	Attorney	LS	1.0	$7,500.00	$7,500.00
	TOTAL EASEMENT COSTS				**$24,000.00**
	Basic Engineering	10%			$209,953.15
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical	LS	1	$9,500.00	$9,500.00
	TOTAL ENGINEERING COSTS				**$223,953.15**
	TOTAL PROJECT				**$2,347,484.65**

Green Valley Special Utility District
12" Pipe Line along Marion Road from CRWA Pipe to GV Road

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	8,000	$1.00	$8,000.00
2	Install 12" diameter PVC C909 Pipe	LF	8,000	$65.00	$520,000.00
3	Install 12" diameter gate valves w/box	EA	8	$2,500.00	$20,000.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	TON	6	$4,500.00	$27,000.00
6	Install Fire Hydrant Assembly	EA	8	$4,500.00	$36,000.00
7	Fencing Repair	LF	8,000	$1.00	$8,000.00
8	Final Grade & Seed	LF	8,000	$1.00	$8,000.00
	TOTAL CONSTRUCTION				**$633,000.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$63,300.00
	Contingencies	10%			$63,300.00
	TOTAL				**$759,600.00**
	Easements	LF	8,000	$12.00	$96,000.00
	Easement Surveys and Acquisition Costs	LF	8,000	$5.00	$40,000.00
	Easement Acquisition Consultant	LF	8,000	$5.00	$40,000.00
	TOTAL EASEMENT COSTS				**$176,000.00**
	Basic Engineering	12%			$91,152.00
	Surveying	LF	8,000	$2.00	$16,000.00
	Construction Phase Services	1.5%			$11,394.00
	TOTAL ENGINEERING COSTS				**$118,546.00**
	TOTAL PROJECT				**$1,054,146.00**

Green Valley Special Utility District

12" Pipe Line along Tolle Road & Country Lane

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	9,000	$1.00	$9,000.00
2	Install 12" diameter PVC C909 Pipe	LF	9,000	$65.00	$585,000.00
3	Install 12" diameter gate valves w/box	EA	8	$2,500.00	$20,000.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	TON	6	$4,500.00	$27,000.00
6	Install Fire Hydrant Assembly	EA	8	$4,500.00	$36,000.00
7	Fencing Repair	LF	9,000	$1.00	$9,000.00
8	Final Grade & Seed	LF	9,000	$1.00	$9,000.00
	TOTAL CONSTRUCTION				**$701,000.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$70,100.00
	Contingencies	10%			$70,100.00
	TOTAL				**$841,200.00**
	Easements	LF	9,000	$12.00	$108,000.00
	Easement Surveys and Acquisition Costs	LF	9,000	$5.00	$45,000.00
	Easement Acquisition Consultant	LF	9,000	$5.00	$45,000.00
	TOTAL EASEMENT COSTS				**$198,000.00**
	Basic Engineering	12%			$100,944.00
	Surveying	LF	9,000	$2.00	$18,000.00
	Construction Phase Services	1.5%			$12,618.00
	TOTAL ENGINEERING COSTS				**$131,562.00**
	TOTAL PROJECT				**$1,170,762.00**

Green Valley Special Utility District
750' Elevated Water Storage Tank at McQueeney

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$2,500.00	$2,500.00
2	1 MG Composite Elevated Storage Tank	EA	1	$1,500,000.00	$1,500,000.00
3	0.5 MG Concrete Ground Storage Tank	EA	1	$500,000.00	$500,000.00
4	Pumps, Pump Pad, Appurtenances, Chem	LS	1	$250,000.00	$250,000.00
5	MCC, Building, Site Power, SCADA	LS	1	$300,000.00	$300,000.00
6	Install 24" diameter DIP Water pipe	LF	550	$175.00	$96,250.00
7	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
8	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
9	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
10	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
11	Emergency Generator	EA	1	$200,000.00	$200,000.00
12	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$2,942,650.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$294,265.00
	Contingencies	10%			$323,691.50
	TOTAL				**$3,560,606.50**
	Property	LS	1	$12,000.00	$12,000.00
	Easement Surveys and Acquisition Costs	LS	1	$4,500.00	$4,500.00
	Attorney	LS	1	$7,500.00	$7,500.00
	TOTAL EASEMENT COSTS				**$24,000.00**
	Basic Engineering	10%			$356,060.65
	Surveying	LS	1	$9,500.00	$9,500.00
	Geotechnical Services	LS	1	$15,000.00	$15,000.00
	TOTAL ENGINEERING COSTS				**$380,560.65**
	TOTAL PROJECT				**$3,965,167.15**

Green Valley Special Utility District
12" Pipe along Schwab & Wosnig

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare ROW	LF	11,500	$1.00	$11,500.00
2	Install 12" diameter PVC C909 pipe	LF	11,500	$65.00	$747,500.00
3	Install 12" diameter gate valves w/box	EA	11	$2,500.00	$27,500.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	TON	6	$4,500.00	$27,000.00
6	Install Fire Hydrant Assembly	EA	11	$4,500.00	$49,500.00
7	Fencing Repair	LF	11,500	$1.00	$11,500.00
8	Final Grade & Seed	LF	11,500	$1.00	$11,500.00
	TOTAL CONSTRUCTION				**$892,000.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$89,200.00
	Contingencies	10%			$89,200.00
	TOTAL				**$1,070,400.00**
	Easements	LF	11,500	$12.00	$138,000.00
	Easement Surveys and Acquisition Costs	LF	11,500	$5.00	$57,500.00
	Easement Acquisition Consultant	LF	11,500	$5.00	$57,500.00
	TOTAL EASEMENT COSTS				**$253,000.00**
	Basic Engineering	12%			$128,448.00
	Surveying	LF	11,500	$2.00	$23,000.00
	Construction Phase Services	1.5%			$16,056.00
	TOTAL ENGINEERING COSTS				**$167,504.00**
	TOTAL PROJECT				**$1,490,904.00**

Green Valley Special Utility District
Common Ground Storage Tank and Booster Pump Station
Common to all Three wells

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$2,500.00	$2,500.00
2	1 MG Concrete Ground Storage Tank	EA	1	$900,000.00	$900,000.00
3	Pumps, Pump Pad, Appurtenances, Chem	LS	1	$250,000.00	$250,000.00
4	MCC, Building, Site Power, SCADA	LS	1	$300,000.00	$300,000.00
5	Install 24" diameter DIP Water pipe	LF	550	$175.00	$96,250.00
6	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
7	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
8	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
9	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
10	Emergency Generator	EA	1	$200,000.00	$200,000.00
11	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$1,842,650.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$184,265.00
	Contingencies	10%			$202,691.50
	TOTAL				**$2,229,606.50**
	Property	LS	1	$45,000.00	$45,000.00
	Easement Surveys and Acquisition Costs	LS	1	$5,000.00	$5,000.00
	Attorney	LS	1	$7,500.00	$7,500.00
	TOTAL EASEMENT COSTS				**$57,500.00**
	Basic Engineering	10%			$222,960.65
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical Services	LS	1	$9,500.00	$9,500.00
	TOTAL ENGINEERING COSTS				**$236,960.65**
	TOTAL PROJECT				**$2,524,067.15**

Green Valley Special Utility District
24" Pipe Line connects Existing Wells

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1	$2,500.00	$1,250.00
2	Install 24" diameter DIP	LF	5,700	$175.00	$997,500.00
3	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
4	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
5	Ductile Iron Fittings	EA	3	$4,500.00	$13,500.00
6	Install Fire Hydrant Assembly	EA	5	$4,500.00	$22,500.00
7	Fencing Repair	LF	5700	$1.00	$5,700.00
8	Final Grading & Seed	LF	5,700	$1.00	$5,700.00
	TOTAL CONSTRUCTION				**$1,096,550.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$109,655.00
	Contingencies	10%			$120,620.50
	TOTAL				**$1,326,825.50**
	Easements	LF	5,700	$12.00	$68,400.00
	Easement Surveys and Acquisition Costs	LF	5,700	$2.00	$11,400.00
	Easement Acquisition Consultant	LF	5,700	$1.00	$5,700.00
	TOTAL EASEMENT COSTS				**$85,500.00**
	Basic Engineering	10%			$132,682.55
	Surveying	LF	5,700	$2.00	$11,400.00
	Construction Phase Services	1.5%			$19,902.38
	TOTAL ENGINEERING COSTS				**$163,984.93**
	TOTAL PROJECT				**$1,576,310.43**

Green Valley Special Utility District
750' Elevated Storage Tank at South of Plant 10

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$2,500.00	$2,500.00
2	1 MG Composite Elevated Storage Tank	EA	1	$1,500,000.00	$1,500,000.00
3	0.5 MG Concrete Ground Storage Tank	EA	1	$500,000.00	$500,000.00
4	Pumps, Pump Pad, Appurtenances, Chem	LS	1	$250,000.00	$250,000.00
5	MCC, Building, Site Power, SCADA	LS	1	$300,000.00	$300,000.00
6	Install 24" diameter DIP	LF	550	$175.00	$96,250.00
7	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
8	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
9	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
10	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
11	Emergency Generator	EA	1	$200,000.00	$200,000.00
12	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$2,942,650.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$294,265.00
	Contingencies	10%			$323,691.50
	TOTAL				**$3,560,606.50**
	Property	LS	1	$12,000.00	$12,000.00
	Easement Surveys and Acquisition Costs	LS	1	$4,500.00	$4,500.00
	Attorney	LS	1	$7,500.00	$7,500.00
	TOTAL EASEMENT COSTS				**$24,000.00**
	Basic Engineering	10%			$356,060.65
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical Services	LS	1	$15,000.00	$15,000.00
	TOTAL ENGINEERING COSTS				**$375,560.65**
	TOTAL PROJECT				**$3,960,167.15**

Green Valley Special Utility District
12" Pipeline along Weil Road - BPS extension to Marion Road

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	11,600	$1.00	$11,600.00
2	Install 12" diameter C909 PVC Pipe	LF	11,600	$65.00	$754,000.00
3	Install 12" diameter valves w/box	EA	11	$2,500.00	$27,500.00
4	Install 12" diameter tie-ins	EA	1	$3,000.00	$3,000.00
5	Install 8" diameter tie-ins	EA	1	$2,500.00	$2,500.00
6	Ductile Iron Fittings	EA	4	$4,500.00	$18,000.00
7	Install Fire Hydrant Assembly	EA	10	$4,500.00	$45,000.00
8	Fencing Repair	LF	11,600	$1.00	$11,600.00
9	Final Grading & Seed	LF	11,600	$1.00	$11,600.00
	TOTAL CONSTRUCTION				**$884,800.00**
	Bonds, Mobilization & Insurance	10%			$88,480.00
	Contingencies	10%			$97,328.00
	TOTAL				**$1,070,608.00**
	Easements	LF	11,600	$12.00	$139,200.00
	Easement Surveys and Acquisition Costs	LF	11,600	$2.00	$23,200.00
	Easement Acquisition Consultant	LF	11,600	$1.00	$11,600.00
	TOTAL EASEMENT COSTS				**$174,000.00**
	Basic Engineering	10%			$107,060.80
	Surveying	LF	11,600	$2.00	$23,200.00
	Construction Phase Services	1.5%			$16,059.12
	TOTAL ENGINEERING COSTS				**$146,319.92**
	TOTAL PROJECT				**$1,390,927.92**

Green Valley Special Utility District
Pipeline along Klein Road - FM 1044 to FM 725

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	15,155	$1.00	$15,155.00
2	Install 16" diameter C905 PVC Pipe	LF	15,155	$100.00	$1,515,500.00
3	Install 16" diameter valves w/box	EA	15	$5,500.00	$82,500.00
4	Install 4" diameter tie-ins	EA	2	$885.00	$1,770.00
5	Install 8" diameter tie-ins	EA	5	$1,980.00	$9,900.00
6	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
7	Ductile Iron Fittings	EA	5	$4,500.00	$22,500.00
8	Install Fire Hydrant Assembly	EA	15	$4,500.00	$67,500.00
9	Fencing Repair	LF	15,155	$1.00	$15,155.00
10	Final Grading & Seed	LF	15,155	$1.00	$15,155.00
	TOTAL CONSTRUCTION				**$1,751,135.00**
	Bonds, Mobilization & Insurance	10%			$175,113.50
	Contingencies	10%			$192,624.85
	TOTAL				**$2,118,873.35**
	Easements	LF	15,155	$12.00	$181,860.00
	Easement Surveys and Acquisition Costs	LF	15,155	$2.00	$30,310.00
	Easement Acquisition Consultant	LF	15,155	$1.00	$15,155.00
	TOTAL EASEMENT COSTS				**$227,325.00**
	Basic Engineering	10%			$211,887.34
	Surveying	LF		$2.00	$0.00
	Construction Phase Services	1.5%			$31,783.10
	TOTAL ENGINEERING COSTS				**$243,670.44**
	TOTAL PROJECT				**$2,589,868.79**

Green Valley Special Utility District
830' EST @ Hardy Rd and Union Wine

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$45,000.00	$45,000.00
2	1 MG Composite Elevated Storage Tank	EA	1	$1,500,000.00	$1,500,000.00
3	Install 24" diameter DIP Water pipe	LF	550	$175.00	$96,250.00
4	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
5	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
6	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
8	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$1,735,150.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$173,515.00
	Contingencies	10%			$190,866.50
	TOTAL				**$2,099,531.50**
	Property	AC			$0.00
	Easement Surveys and Acquisition Costs	LS			$0.00
	Attorney	LS			$0.00
	TOTAL EASEMENT COSTS				**$0.00**
	Basic Engineering	10%			$209,953.15
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical	LS	1	$9,500.00	$9,500.00
	TOTAL ENGINEERING COSTS				**$223,953.15**
	TOTAL PROJECT				**$2,323,484.65**

Green Valley Special Utility District
Pipeline from FM 725 to CRWA Lake Dunlap WTP

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	3,340	$1.00	$3,340.00
2	Install 16" diameter C905 PVC Pipe	LF	3,340	$100.00	$334,000.00
3	Install 16" diameter valves w/box	EA	3	$5,500.00	$16,500.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	EA	2	$4,500.00	$9,000.00
6	Install Fire Hydrant Assembly	EA	2	$4,500.00	$9,000.00
7	Fencing Repair	LF	3,340	$1.00	$3,340.00
8	Final Grading & Seed	LF	3,340	$1.00	$3,340.00
	TOTAL CONSTRUCTION				**$384,520.00**
	Bonds, Mobilization & Insurance	10%			$38,452.00
	Contingencies	10%			$42,297.20
	TOTAL				**$465,269.20**
	Easements	LF	3,340	$12.00	$40,080.00
	Easement Surveys and Acquisition Costs	LF	3,340	$2.00	$6,680.00
	Easement Acquisition Consultant	LF	3,340	$1.00	$3,340.00
	TOTAL EASEMENT COSTS				**$50,100.00**
	Basic Engineering	10%			$46,526.92
	Surveying	LF		$2.00	$0.00
	Construction Phase Services	1.5%			$6,979.04
	TOTAL ENGINEERING COSTS				**$53,505.96**
	TOTAL PROJECT				**$568,875.16**

Green Valley Special Utility District
16" Pipeline along FM 725 - Union Wine to Altwein

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	3,900	$1.00	$3,900.00
2	Install 16" diameter C905 PVC Pipe	LF	3,900	$100.00	$390,000.00
3	Install 16" diameter valves w/box	EA	4	$5,500.00	$22,000.00
4	Install 16" diameter tie-ins	EA	1	$4,000.00	$4,000.00
5	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
6	Ductile Iron Fittings	EA	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	4	$4,500.00	$18,000.00
8	Fencing Repair	LF	3,900	$1.00	$3,900.00
9	Final Grading & Seed	LF	3,900	$1.00	$3,900.00
	TOTAL CONSTRUCTION				**$460,700.00**
	Bonds, Mobilization & Insurance	10%			$46,070.00
	Contingencies	10%			$50,677.00
	TOTAL				**$557,447.00**
	Easements	LF	3,900	$12.00	$46,800.00
	Easement Surveys and Acquisition Costs	LF	3,900	$2.00	$7,800.00
	Easement Acquisition Consultant	LF	3,900	$1.00	$3,900.00
	TOTAL EASEMENT COSTS				**$58,500.00**
	Basic Engineering	10%			$55,744.70
	Surveying	LF	3,900	$2.00	$7,800.00
	Construction Phase Services	1.5%			$8,361.71
	TOTAL ENGINEERING COSTS				**$71,906.41**
	TOTAL PROJECT				**$687,853.41**

Green Valley Special Utility District
16" Weil Road BPS Fill Pipeline - Youngsford to Weil Rd BPS

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	9,500	$1.00	$9,500.00
2	Install 16" diameter C905 PVC Pipe	LF	9,500	$100.00	$950,000.00
3	Install 16" diameter valves w/box	EA	8	$5,500.00	$44,000.00
4	Install 16" diameter tie-ins	EA	2	$4,000.00	$8,000.00
5	Ductile Iron Fittings	EA	3	$4,500.00	$13,500.00
6	Install Fire Hydrant Assembly	EA	8	$4,500.00	$36,000.00
7	Fencing Repair	LF	9,500	$1.00	$9,500.00
8	Final Grading & Seed	LF	9,500	$1.00	$9,500.00
	TOTAL CONSTRUCTION				**$1,080,000.00**
	Bonds, Mobilization & Insurance	10%			$108,000.00
	Contingencies	10%			$118,800.00
	TOTAL				**$1,306,800.00**
	Easements	LF	9,500	$12.00	$114,000.00
	Easement Surveys and Acquisition Costs	LF	9,500	$4.00	$38,000.00
	Easement Acquisition Consultant	LF	9,500	$4.00	$38,000.00
	TOTAL EASEMENT COSTS				**$190,000.00**
	Basic Engineering	10%			$130,680.00
	Surveying	LF	9,500	$2.00	$19,000.00
	Construction Phase Services	1.5%			$19,602.00
	TOTAL ENGINEERING COSTS				**$169,282.00**
	TOTAL PROJECT				**$1,666,082.00**

Green Valley Special Utility District
830' EST @ Youngsford and Short Cut Rd

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$45,000.00	$45,000.00
2	1 MG Composite Elevated Storage Tank	EA	1	$1,500,000.00	$1,500,000.00
3	Install 24" diameter DIP Water pipe	LF	550	$175.00	$96,250.00
4	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
5	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
6	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
8	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$1,735,150.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$173,515.00
	Contingencies	10%			$190,866.50
	TOTAL				**$2,099,531.50**
	Property	AC	1.0	$30,000.00	$30,000.00
	Easement Surveys and Acquisition Costs	LS	1.0	$4,500.00	$4,500.00
	Attorney	LS	1.0	$7,500.00	$7,500.00
	TOTAL EASEMENT COSTS				**$42,000.00**
	Basic Engineering	10%			$209,953.15
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical	LS	1	$9,500.00	$9,500.00
	TOTAL ENGINEERING COSTS				**$223,953.15**
	TOTAL PROJECT				**$2,365,484.65**

Green Valley Special Utility District
12" Pipeline along N Santa Clara Rd - Weil Rd to Gerdes Rd

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	19,720	$1.00	$19,720.00
2	Install 12" diameter C909 PVC Pipe	LF	19,720	$65.00	$1,281,800.00
3	Install 12" diameter valves w/box	EA	19	$2,500.00	$47,500.00
4	Install 12" diameter tie-ins	EA	2	$3,000.00	$6,000.00
5	Ductile Iron Fittings	EA	6	$4,500.00	$27,000.00
6	Install Fire Hydrant Assembly	EA	19	$4,500.00	$85,500.00
7	Fencing Repair	LF	19,720	$1.00	$19,720.00
8	Final Grading & Seed	LF	19,720	$1.00	$19,720.00
	TOTAL CONSTRUCTION				**$1,506,960.00**
	Bonds, Mobilization & Insurance	10%			$150,696.00
	Contingencies	10%			$165,765.60
	TOTAL				**$1,823,421.60**
	Easements	LF	19,720	$12.00	$236,640.00
	Easement Surveys and Acquisition Costs	LF	19,720	$2.00	$39,440.00
	Easement Acquisition Consultant	LF	19,720	$1.00	$19,720.00
	TOTAL EASEMENT COSTS				**$295,800.00**
	Basic Engineering	10%			$182,342.16
	Surveying	LF	19,720	$2.00	$39,440.00
	Construction Phase Services	1.5%			$27,351.32
	TOTAL ENGINEERING COSTS				**$249,133.48**
	TOTAL PROJECT				**$2,368,355.08**

Green Valley Special Utility District 30
16" Pipeline along Schumann Rd - Pioneer Rd to Plant 10

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	11,350	$1.00	$11,350.00
2	Install 16" diameter C909 PVC Pipe	LF	11,350	$100.00	$1,135,000.00
3	Install 16" diameter valves w/box	EA	10	$5,500.00	$55,000.00
4	Install 16" diameter tie-ins	EA	2	$5,750.00	$11,500.00
5	Install 12" diameter tie-ins	EA	1	$3,000.00	$3,000.00
6	Ductile Iron Fittings	EA	4	$4,500.00	$18,000.00
7	Install Fire Hydrant Assembly	EA	10	$4,500.00	$45,000.00
8	Fencing Repair	LF	11,350	$1.00	$11,350.00
9	Final Grading & Seed	LF	11,350	$1.00	$11,350.00
	TOTAL CONSTRUCTION				**$1,301,550.00**
	Bonds, Mobilization & Insurance	10%			$130,155.00
	Contingencies	10%			$143,170.50
	TOTAL				**$1,574,875.50**
	Easements	LF	11,350	$12.00	$136,200.00
	Easement Surveys and Acquisition Costs	LF	11,350	$2.00	$22,700.00
	Easement Acquisition Consultant	LF	11,350	$1.00	$11,350.00
	TOTAL EASEMENT COSTS				**$170,250.00**
	Basic Engineering	10%			$157,487.55
	Surveying	LF	11,350	$2.00	$22,700.00
	Construction Phase Services	1.5%			$23,623.13
	TOTAL ENGINEERING COSTS				**$203,810.68**
	TOTAL PROJECT				**$1,948,936.18**

Green Valley Special Utility District
16" Pipeline along Pioneer Rd (connect)

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	1,330	$1.00	$1,330.00
2	Install 16" diameter C905 PVC Pipe	LF	1,330	$100.00	$133,000.00
3	Install 16" diameter valves w/box	EA	2	$5,500.00	$11,000.00
4	Install 16" diameter tie-ins	EA	2	$5,750.00	$11,500.00
5	Ductile Iron Fittings	EA	1	$4,500.00	$4,500.00
6	Install Fire Hydrant Assembly	EA	2	$4,500.00	$9,000.00
7	Fencing Repair	LF	1,330	$1.00	$1,330.00
8	Final Grading & Seed	LF	1,330	$1.00	$1,330.00
	TOTAL CONSTRUCTION				**$172,990.00**
	Bonds, Mobilization & Insurance	10%			$17,299.00
	Contingencies	10%			$19,028.90
	TOTAL				**$209,317.90**
	Easements	LF	1,330	$12.00	$15,960.00
	Easement Surveys and Acquisition Costs	LF	1,330	$2.00	$2,660.00
	Easement Acquisition Consultant	LF	1,330	$1.00	$1,330.00
	TOTAL EASEMENT COSTS				**$19,950.00**
	Basic Engineering	10%			$20,931.79
	Surveying	LF	1,330	$2.00	$2,660.00
	Construction Phase Services	1.5%			$3,139.77
	TOTAL ENGINEERING COSTS				**$26,731.56**
	TOTAL PROJECT				**$255,999.46**

Green Valley Special Utility District
8" Pipeline along Lower Valley Ln - Weir Rd to Haeckerville Rd

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	5,900	$1.00	$5,900.00
2	Install 8" diameter C909 PVC Pipe	LF	5,900	$50.00	$295,000.00
3	Install 8" diameter valves w/box	EA	5	$2,000.00	$10,000.00
4	Install 4" diameter tie-ins	EA	2	$885.00	$1,770.00
5	Ductile Iron Fittings	EA	2	$4,500.00	$9,000.00
6	Install Fire Hydrant Assembly	EA	5	$4,500.00	$22,500.00
7	Fencing Repair	LF	5,900	$1.00	$5,900.00
8	Final Grading & Seed	LF	5,900	$1.00	$5,900.00
	TOTAL CONSTRUCTION				**$355,970.00**
	Bonds, Mobilization & Insurance	10%			$35,597.00
	Contingencies	10%			$39,156.70
	TOTAL				**$430,723.70**
	Easements	LF	5,900	$12.00	$70,800.00
	Easement Surveys and Acquisition Costs	LF	5,900	$2.00	$11,800.00
	Easement Acquisition Consultant	LF	5,900	$1.00	$5,900.00
	TOTAL EASEMENT COSTS				**$88,500.00**
	Basic Engineering	10%			$43,072.37
	Surveying	LF	5,900	$2.00	$11,800.00
	Construction Phase Services	1.5%			$6,460.86
	TOTAL ENGINEERING COSTS				**$61,333.23**
	TOTAL PROJECT				**$580,556.93**

Green Valley Special Utility District
8" Pipeline along Lower Seguin Rd (connect)

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	4,300	$1.00	$4,300.00
2	Install 8" diameter C909 PVC Pipe	LF	4,300	$50.00	$215,000.00
3	Install 8" diameter valves w/box	EA	4	$2,000.00	$8,000.00
4	Install 4" diameter tie-ins	EA	1	$885.00	$885.00
5	Install 8" diameter tie-ins	EA	1	$1,980.00	$1,980.00
6	Ductile Iron Fittings	EA	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	4	$4,500.00	$18,000.00
8	Fencing Repair	LF	4,300	$1.00	$4,300.00
9	Final Grading & Seed	LF	4,300	$1.00	$4,300.00
	TOTAL CONSTRUCTION				**$265,765.00**
	Bonds, Mobilization & Insurance	10%			$26,576.50
	Contingencies	10%			$29,234.15
	TOTAL				**$321,575.65**
	Easements	LF	4,300	$12.00	$51,600.00
	Easement Surveys and Acquisition Costs	LF	4,300	$2.00	$8,600.00
	Easement Acquisition Consultant	LF	4,300	$1.00	$4,300.00
	TOTAL EASEMENT COSTS				**$64,500.00**
	Basic Engineering	10%			$32,157.57
	Surveying	LF	4,300	$2.00	$8,600.00
	Construction Phase Services	1.5%			$4,823.63
	TOTAL ENGINEERING COSTS				**$45,581.20**
	TOTAL PROJECT				**$431,656.85**

Green Valley Special Utility District
8" Pipeline along Bolton Rd (connect)

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	1,250	$1.00	$1,250.00
2	Install 8" diameter C909 PVC Pipe	LF	1,250	$50.00	$62,500.00
3	Install 8" diameter valves w/box	EA	2	$2,000.00	$4,000.00
4	Install 2" diameter tie-ins	EA	1	$500.00	$500.00
5	Install 8" diameter tie-ins	EA	1	$1,980.00	$1,980.00
6	Ductile Iron Fittings	EA	1	$4,500.00	$4,500.00
7	Install Fire Hydrant Assembly	EA	2	$4,500.00	$9,000.00
8	Fencing Repair	LF	1,250	$1.00	$1,250.00
9	Final Grading & Seed	LF	1,250	$1.00	$1,250.00
	TOTAL CONSTRUCTION				**$86,230.00**
	Bonds, Mobilization & Insurance	10%			$8,623.00
	Contingencies	10%			$9,485.30
	TOTAL				**$104,338.30**
	Easements	LF	6,300	$12.00	$75,600.00
	Easement Surveys and Acquisition Costs	LF	6,300	$2.00	$12,600.00
	Easement Acquisition Consultant	LF	6,300	$1.00	$6,300.00
	TOTAL EASEMENT COSTS				**$94,500.00**
	Basic Engineering	10%			$10,433.83
	Surveying	LF	6,300	$2.00	$12,600.00
	Construction Phase Services	1.5%			$1,565.07
	TOTAL ENGINEERING COSTS				**$24,598.90**
	TOTAL PROJECT				**$223,437.20**

Green Valley Special Utility District
8" Pipeline along Schmoekel Rd - Stolte Rd to Santa Clara Rd

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	9,300	$1.00	$9,300.00
2	Install 8" diameter C909 PVC Pipe	LF	9,300	$50.00	$465,000.00
3	Install 8" diameter valves w/box	EA	9	$2,000.00	$18,000.00
3	Install 4" diameter tie-ins	EA	2	$885.00	$1,770.00
5	Ductile Iron Fittings	EA	3	$4,500.00	$13,500.00
6	Install Fire Hydrant Assembly	EA	9	$4,500.00	$40,500.00
7	Fencing Repair	LF	9,300	$1.00	$9,300.00
8	Final Grading & Seed	LF	9,300	$1.00	$9,300.00
	TOTAL CONSTRUCTION				**$566,670.00**
	Bonds, Mobilization & Insurance	10%			$56,667.00
	Contingencies	10%			$62,333.70
	TOTAL				**$685,670.70**
	Easements	LF	9,300	$12.00	$111,600.00
	Easement Surveys and Acquisition Costs	LF	9,300	$2.00	$18,600.00
	Easement Acquisition Consultant	LF	9,300	$1.00	$9,300.00
	TOTAL EASEMENT COSTS				**$139,500.00**
	Basic Engineering	10%			$68,567.07
	Surveying	LF	9,300	$2.00	$18,600.00
	Construction Phase Services	1.5%			$10,285.06
	TOTAL ENGINEERING COSTS				**$97,452.13**
	TOTAL PROJECT				**$922,622.83**

Green Valley Special Utility District
GVSUD Take-Point Meter Station at Santa Clara Rd & IH10

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	0.25	$2,500.00	$625.00
2	8" Cla Val	EA	1	$25,000.00	$25,000.00
3	Install 16" diameter DIP Class 350 pipe	LF	100	$85.00	$8,500.00
4	Install 8" diameter DIP Class 350 pipe	LF	25	$70.00	$1,750.00
5	Install 16" diameter valves w/box	EA	1	$5,500.00	$5,500.00
6	Install 16" diameter tie-ins	EA	1	$4,000.00	$4,000.00
7	Ductile Iron Fittings	TON	1	$4,500.00	$2,250.00
8	Install Fire Hydrant Assembly	EA	0	$4,500.00	$0.00
9	Metering Station Concrete & Buidling	SF	288	$35.00	$10,080.00
10	Site Power	LS	1	$2,500.00	$2,500.00
11	Site Electrical	LS	1	$12,000.00	$12,000.00
12	Chemical Building and Chemical Yard Pipe	LS	1	$15,000.00	$15,000.00
13	Site Controls and Communication	LS	1	$15,000.00	$15,000.00
14	Driveway	SY	200	$45.00	$9,000.00
15	Fencing	LF	120	$12.00	$1,440.00
16	Landscaping	LS	1	$500.00	$500.00
	TOTAL CONSTRUCTION				**$113,145.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$11,314.50
	Contingencies	10%			$12,445.95
	TOTAL				**$136,905.45**
	Property	AC			$0.00
	Easement Surveys and Acquisition Costs	AC			$0.00
	Attorney	LS			$0.00
	TOTAL EASEMENT COSTS				**$0.00**
	Basic Engineering	10%			$13,690.55
	Surveying	LS	1	$2,000.00	$2,000.00
	Geotechnical	LS	2	$1,200.00	$2,400.00
	TOTAL ENGINEERING COSTS				**$18,090.55**
	TOTAL PROJECT				**$154,996.00**

Green Valley Special Utility District
750' EST @ Gin Road

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$45,000.00	$45,000.00
2	1 MG Composite Elevated Storage Tank	EA	1	$1,500,000.00	$1,500,000.00
3	Install 24" diameter DIP Water pipe	LF	550	$175.00	$96,250.00
4	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
5	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
6	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
8	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$1,735,150.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$173,515.00
	Contingencies	10%			$190,866.50
	TOTAL				**$2,099,531.50**
	Property	AC	1.0	$30,000.00	$30,000.00
	Easement Surveys and Acquisition Costs	LS	1.0	$4,500.00	$4,500.00
	Attorney	LS	1.0	$7,500.00	$7,500.00
	TOTAL EASEMENT COSTS				**$42,000.00**
	Basic Engineering	10%			$209,953.15
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical	LS	1	$9,500.00	$9,500.00
	TOTAL ENGINEERING COSTS				**$223,953.15**
	TOTAL PROJECT				**$2,365,484.65**

Green Valley Special Utility District
8" Pipeline along FM 775 - Leissner School Rd to Beutnagel Ln

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	11,900	$1.00	$11,900.00
2	Install 8" diameter C909 PVC Pipe	LF	11,900	$50.00	$595,000.00
3	Install 8" diameter valves w/box	EA	11	$2,000.00	$22,000.00
3	Install 16" diameter tie-ins	EA	1	$1,600.00	$1,600.00
4	Install 6" diameter tie-ins	EA	1	$5,750.00	$5,750.00
5	Ductile Iron Fittings	EA	3	$4,500.00	$13,500.00
6	Install Fire Hydrant Assembly	EA	11	$4,500.00	$49,500.00
7	Fencing Repair	LF	11,900	$1.00	$11,900.00
8	Final Grading & Seed	LF	11,900	$1.00	$11,900.00
	TOTAL CONSTRUCTION				**$723,050.00**
	Bonds, Mobilization & Insurance	10%			$72,305.00
	Contingencies	10%			$79,535.50
	TOTAL				**$874,890.50**
	Easements	LF	11,900	$12.00	$142,800.00
	Easement Surveys and Acquisition Costs	LF	11,900	$2.00	$23,800.00
	Easement Acquisition Consultant	LF	11,900	$1.00	$11,900.00
	TOTAL EASEMENT COSTS				**$178,500.00**
	Basic Engineering	10%			$87,489.05
	Surveying	LF	11,900	$2.00	$23,800.00
	Construction Phase Services	1.5%			$13,123.36
	TOTAL ENGINEERING COSTS				**$124,412.41**
	TOTAL PROJECT				**$1,177,802.91**

Green Valley Special Utility District
12" Pipeline along Abbott Road - FM 1518 to FM 2538

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	11,125	$1.00	$11,125.00
2	Install 12" diameter C909 PVC Pipe	LF	11,125	$65.00	$723,125.00
3	Install 12" diameter valves w/box	EA	11	$2,500.00	$27,500.00
3	Install 4" diameter tie-ins	EA	3	$885.00	$2,655.00
5	Ductile Iron Fittings	EA	3	$4,500.00	$13,500.00
6	Install Fire Hydrant Assembly	EA	11	$4,500.00	$49,500.00
7	Fencing Repair	LF	11,125	$1.00	$11,125.00
8	Final Grading & Seed	LF	11,125	$1.00	$11,125.00
	TOTAL CONSTRUCTION				**$849,655.00**
	Bonds, Mobilization & Insurance	10%			$84,965.50
	Contingencies	10%			$93,462.05
	TOTAL				**$1,028,082.55**
	Easements	LF	11,125	$12.00	$133,500.00
	Easement Surveys and Acquisition Costs	LF	11,125	$2.00	$22,250.00
	Easement Acquisition Consultant	LF	11,125	$1.00	$11,125.00
	TOTAL EASEMENT COSTS				**$166,875.00**
	Basic Engineering	10%			$102,808.26
	Surveying	LF	11,125	$2.00	$22,250.00
	Construction Phase Services	1.5%			$15,421.24
	TOTAL ENGINEERING COSTS				**$140,479.49**
	TOTAL PROJECT				**$1,335,437.04**

Green Valley Special Utility District

40

8" Pipeline along New Berlin Rd - Gable Ln to Miller Rd

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	11,345	$1.00	$11,345.00
2	Install 8" diameter C909 PVC Pipe	LF	11,345	$50.00	$567,250.00
3	Install 8" diameter valves w/box	EA	11	$2,000.00	$22,000.00
4	Install 4" diameter tie-ins	EA	2	$885.00	$1,770.00
5	Ductile Iron Fittings	EA	3	$4,500.00	$13,500.00
6	Install Fire Hydrant Assembly	EA	11	$4,500.00	$49,500.00
7	Fencing Repair	LF	11,345	$1.00	$11,345.00
8	Final Grading & Seed	LF	11,345	$1.00	$11,345.00
	TOTAL CONSTRUCTION				**$688,055.00**
	Bonds, Mobilization & Insurance	10%			$68,805.50
	Contingencies	10%			$75,686.05
	TOTAL				**$832,546.55**
	Easements	LF	11,345	$12.00	$136,140.00
	Easement Surveys and Acquisition Costs	LF	11,345	$2.00	$22,690.00
	Easement Acquisition Consultant	LF	11,345	$1.00	$11,345.00
	TOTAL EASEMENT COSTS				**$170,175.00**
	Basic Engineering	10%			$83,254.66
	Surveying	LF	11,345	$2.00	$22,690.00
	Construction Phase Services	1.5%			$12,488.20
	TOTAL ENGINEERING COSTS				**$118,432.85**
	TOTAL PROJECT				**$1,121,154.40**

Green Valley Special Utility District
8" Pipeline along Engel Rd - Green Valley Rd to Service Boundary

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	3,200	$1.00	$3,200.00
2	Install 8" diameter C909 PVC Pipe	LF	3,200	$50.00	$160,000.00
3	Install 8" diameter valves w/box	EA	3	$2,000.00	$6,000.00
4	Install 4" diameter tie-ins	EA	1	$885.00	$885.00
5	Ductile Iron Fittings	EA	1	$4,500.00	$4,500.00
6	Install Fire Hydrant Assembly	EA	3	$4,500.00	$13,500.00
7	Fencing Repair	LF	3,200	$1.00	$3,200.00
8	Final Grading & Seed	LF	3,200	$1.00	$3,200.00
	TOTAL CONSTRUCTION				**$194,485.00**
	Bonds, Mobilization & Insurance	10%			$19,448.50
	Contingencies	10%			$21,393.35
	TOTAL				**$235,326.85**
	Easements	LF	3,200	$12.00	$38,400.00
	Easement Surveys and Acquisition Costs	LF	3,200	$2.00	$6,400.00
	Easement Acquisition Consultant	LF	3,200	$1.00	$3,200.00
	TOTAL EASEMENT COSTS				**$48,000.00**
	Basic Engineering	10%			$23,532.69
	Surveying	LF	3,200	$2.00	$6,400.00
	Construction Phase Services	1.5%			$3,529.90
	TOTAL ENGINEERING COSTS				**$33,462.59**
	TOTAL PROJECT				**$316,789.44**

Green Valley Special Utility District
Plant 1 - 1MG Ground Storage Tank

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.5	$2,500.00	$3,750.00
2	1MG Concrete Ground Storage Tank	EA	1	$750,000.00	$750,000.00
3	Install 24" diameter DIP Water pipe	LF	100	$75.00	$7,500.00
4	Install 24" diameter valves w/box	EA	2	$9,350.00	$18,700.00
5	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
6	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
8	Site Power	LS	1	$75,000.00	$75,000.00
9	Site Controls and Communication	LS	1	$60,000.00	$60,000.00
10	Driveway	SY	500	$45.00	$22,500.00
11	Fencing	LF	1,000	$12.00	$12,000.00
12	Landscaping	LS	1	$7,500.00	$7,500.00
13	Existing ROW Pipe Coordination	LS	1	$25,000.00	$25,000.00
14	DEMO existing Plant 1	LS	1	$25,000.00	$25,000.00
	TOTAL CONSTRUCTION				**$1,033,450.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$103,345.00
	Contingencies	10%			$113,679.50
	TOTAL				**$1,250,474.50**
	Property	AC			$0.00
	Easement Surveys and Acquisition Costs	AC			$0.00
	Attorney	LS			$0.00
	TOTAL EASEMENT COSTS				**$0.00**
	Basic Engineering	10%			$125,047.45
	Surveying	LS	1	$8,000.00	$8,000.00
	Geotechnical	LS	1	$19,000.00	$19,000.00
	TOTAL ENGINEERING COSTS				**$152,047.45**
	TOTAL PROJECT				**$1,402,521.95**

Green Valley Special Utility District
16" Pipeline along FM 1044 from Green Valley Rd to Youngsford

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	19,400	$1.00	$19,400.00
2	Install 16" diameter C905 PVC Pipe	LF	19,400	$100.00	$1,940,000.00
3	Install 16" diameter valves w/box	EA	20	$5,500.00	$110,000.00
4	Install 12" diameter tie-ins	EA	1	$3,000.00	$3,000.00
5	Install 8" diameter tie-ins	EA	2	$1,980.00	$3,960.00
6	Ductile Iron Fittings	EA	5	$4,500.00	$22,500.00
7	Install Fire Hydrant Assembly	EA	20	$4,500.00	$90,000.00
8	Fencing Repair	LF	19,400	$1.00	$19,400.00
9	Final Grading & Seed	LF	19,400	$1.00	$19,400.00
	TOTAL CONSTRUCTION				**$2,227,660.00**
	Bonds, Mobilization & Insurance	10%			$222,766.00
	Contingencies	10%			$245,042.60
	TOTAL				**$2,695,468.60**
	Easements	LF	19,400	$12.00	$232,800.00
	Easement Surveys and Acquisition Costs	LF	19,400	$5.00	$97,000.00
	Easement Acquisition Consultant	LF	19,400	$5.00	$97,000.00
	TOTAL EASEMENT COSTS				**$426,800.00**
	Basic Engineering	12%			$323,456.23
	Surveying	LF	19,400	$2.00	$38,800.00
	Construction Phase Services	1.5%			$40,432.03
	TOTAL ENGINEERING COSTS				**$402,688.26**
	TOTAL PROJECT				**$3,524,956.86**

Green Valley Special Utility District
16" Pipeline along Union Wine from FM 1044 to Sunshine Lane

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	9,200	$1.00	$9,200.00
2	Install 16" diameter C905 PVC Pipe	LF	9,200	$100.00	$920,000.00
3	Install 16" diameter valves w/box	EA	9	$5,500.00	$49,500.00
4	Install 12" diameter tie-ins	EA	1	$3,000.00	$3,000.00
5	Install 4" diameter tie-ins	EA	1	$885.00	$885.00
6	Ductile Iron Fittings	EA	3	$4,500.00	$13,500.00
7	Install Fire Hydrant Assembly	EA	9	$4,500.00	$40,500.00
8	Fencing Repair	LF	9,200	$1.00	$9,200.00
9	Final Grading & Seed	LF	9,200	$1.00	$9,200.00
	TOTAL CONSTRUCTION				**$1,054,985.00**
	Bonds, Mobilization & Insurance	10%			$105,498.50
	Contingencies	10%			$116,048.35
	TOTAL				**$1,276,531.85**
	Easements	LF	9,200	$12.00	$110,400.00
	Easement Surveys and Acquisition Costs	LF	9,200	$5.00	$46,000.00
	Easement Acquisition Consultant	LF	9,200	$5.00	$46,000.00
	TOTAL EASEMENT COSTS				**$202,400.00**
	Basic Engineering	12%			$153,183.82
	Surveying	LF	9,200	$2.00	$18,400.00
	Construction Phase Services	1.5%			$19,147.98
	TOTAL ENGINEERING COSTS				**$190,731.80**
	TOTAL PROJECT				**$1,669,663.65**

Green Valley Special Utility District
16" Pipeline along Youngsford from FM 1044 to FM 725

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	20,500	$1.00	$20,500.00
2	Install 16" diameter C905 PVC Pipe	LF	20,500	$100.00	$2,050,000.00
3	Install 16" diameter valves w/box	EA	20	$5,500.00	$110,000.00
4	Install 12" diameter tie-ins	EA	1	$3,000.00	$3,000.00
5	Install 4" diameter tie-ins	EA	1	$885.00	$885.00
6	Ductile Iron Fittings	EA	6	$4,500.00	$27,000.00
7	Install Fire Hydrant Assembly	EA	20	$4,500.00	$90,000.00
8	Fencing Repair	LF	20,500	$1.00	$20,500.00
9	Final Grading & Seed	LF	20,500	$1.00	$20,500.00
	TOTAL CONSTRUCTION				**$2,342,385.00**
	Bonds, Mobilization & Insurance	10%			$234,238.50
	Contingencies	10%			$257,662.35
	TOTAL				**$2,834,285.85**
	Easements	LF	20,500	$12.00	$246,000.00
	Easement Surveys and Acquisition Costs	LF	20,500	$5.00	$102,500.00
	Easement Acquisition Consultant	LF	20,500	$5.00	$102,500.00
	TOTAL EASEMENT COSTS				**$451,000.00**
	Basic Engineering	12%			$340,114.30
	Surveying	LF	20,500	$2.00	$41,000.00
	Construction Phase Services	1.5%			$42,514.29
	TOTAL ENGINEERING COSTS				**$423,628.59**
	TOTAL PROJECT				**$3,708,914.44**

Green Valley Special Utility District
16" Pipeline along FM 1044 from Youngsford to Wosnig Road

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	LF	13,800	$1.00	$13,800.00
2	Install 16" diameter C905 PVC Pipe	LF	13,800	$100.00	$1,380,000.00
3	Install 16" diameter valves w/box	EA	13	$5,500.00	$71,500.00
4	Install 4" diameter tie-ins	EA	2	$885.00	$1,770.00
5	Ductile Iron Fittings	EA	4	$4,500.00	$18,000.00
6	Install Fire Hydrant Assembly	EA	13	$4,500.00	$58,500.00
7	Fencing Repair	LF	13,800	$1.00	$13,800.00
8	Final Grading & Seed	LF	13,800	$1.00	$13,800.00
	TOTAL CONSTRUCTION				**$1,571,170.00**
	Bonds, Mobilization & Insurance	10%			$157,117.00
	Contingencies	10%			$172,828.70
	TOTAL				**$1,901,115.70**
	Easements	LF	13,800	$12.00	$165,600.00
	Easement Surveys and Acquisition Costs	LF	13,800	$5.00	$69,000.00
	Easement Acquisition Consultant	LF	13,800	$5.00	$69,000.00
	TOTAL EASEMENT COSTS				**$303,600.00**
	Basic Engineering	12%			$228,133.88
	Surveying	LF	13,800	$2.00	$27,600.00
	Construction Phase Services	1.5%			$28,516.74
	TOTAL ENGINEERING COSTS				**$284,250.62**
	TOTAL PROJECT				**$2,488,966.32**

Green Valley Special Utility District
830' EST @ Plant 3

Engineering Opinion of Probable Costs

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Prepare Site	AC	1.0	$45,000.00	$45,000.00
2	1 MG Composite Elevated Storage Tank	EA	1	$1,500,000.00	$1,500,000.00
3	Install 24" diameter DIP Water pipe	LF	200	$175.00	$35,000.00
4	Install 24" diameter valves w/box	EA	4	$9,350.00	$37,400.00
5	Install 24" diameter tie-ins	EA	2	$6,500.00	$13,000.00
6	Ductile Iron Fittings	TON	2	$4,500.00	$9,000.00
7	Install Fire Hydrant Assembly	EA	1	$4,500.00	$4,500.00
8	Driveway, Fencing, Landscape Site Dress Up	LS	1	$30,000.00	$30,000.00
9	DEMO Plant 3 EST	LS	1	$30,000.00	$30,000.00
	TOTAL CONSTRUCTION				**$1,703,900.00**
	Bonds, Mobilization, Prep ROW & Insurance	10%			$170,390.00
	Contingencies	10%			$187,429.00
	TOTAL				**$2,061,719.00**
	Property	AC			$0.00
	Easement Surveys and Acquisition Costs	LS			$0.00
	Attorney	LS			$0.00
	TOTAL EASEMENT COSTS				**$0.00**
	Basic Engineering	10%			$206,171.90
	Surveying	LS	1	$4,500.00	$4,500.00
	Geotechnical	LS	1	$9,500.00	$9,500.00
	TOTAL ENGINEERING COSTS				**$220,171.90**
	TOTAL PROJECT				**$2,281,890.90**

ATTACHMENT 2
GVSUD PUMP RECORDS

Water for a Better Life
Since 1963

GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD)

FACT SHEET

- Celebrated 50 years as a Superior Water System in 2013.
- Average Residential usage for YTD 2014 is 6,551 Gallons per Month.
- 10,046 Customers as of September 2014 in Guadalupe, Comal and Bexar County.
- Majority of GVSUD Customers are Residential and Light Commercial.
- Maximum day usage in past 12 months was 4,563,200 in Oct. 2013.
- Minimum day usage in past 12 months was 1,019,500 gallons in Nov. 2013.
- GVSUD currently has 4 sources of water including:
  - Edwards Aquifer
  - Trinity Aquifer
  - Lake Dunlap Surface Water
  - Carrizo Ground Water
- Average Annual growth system wide has been 4.45% over the past 10 years.
- Average Annual use per Residential connection has been 0.34 AF/connection. over the past 10 years, 2013 Average use was 0.28 AF/connection.
- GVSUD has a projected water connection total of 26,804 by the year 2034.
- GVSUD pumped 3052.5 AF of water in the past 12 months. They currently have contracts for 9,494 AF of water.
- GVSUD has an elected board with 3 current members in the City of New Braunfels city limits and ETJ.
- City of New Braunfels development and fire flow requirements are met prior to a potable water contract being presented to the Board. All subdivisions and distribution system projects have passed City and Fire Department Inspections.
- Recently TWDB projects have been completed to increase capacity to the system with over $2 million per year spent on infrastructure upgrades. The District has several priority projects identified to maintain their level of service into the future.

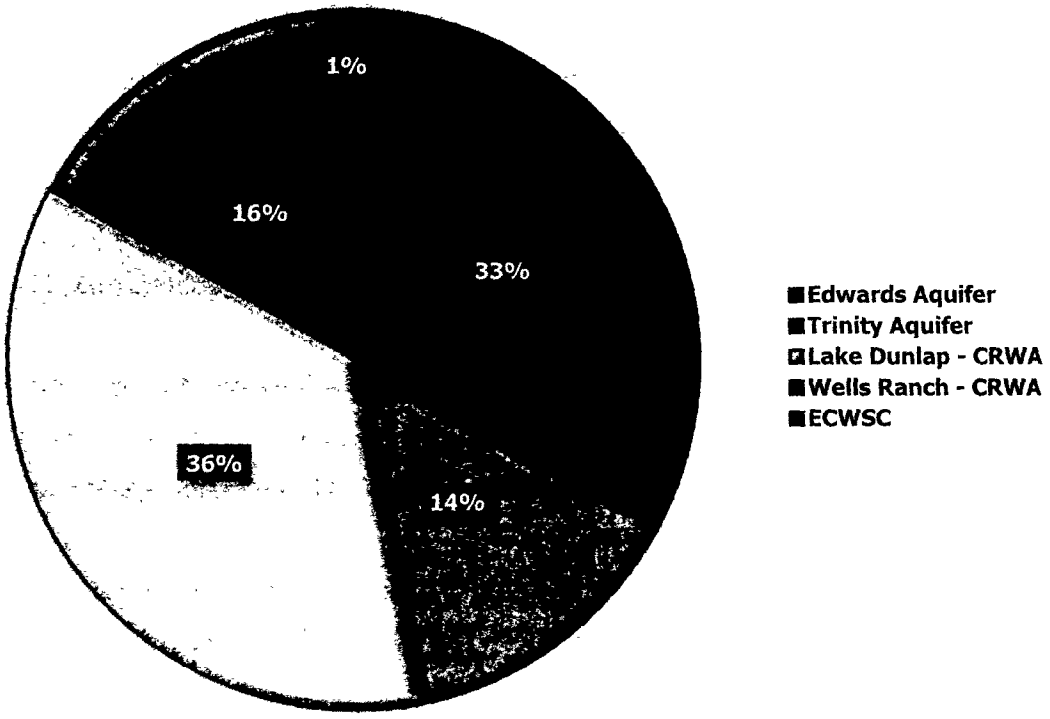
Water for a Better Life
Since 1963

GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD)

WATER SOURCES

SEPTEMBER 2014

Water Source	*Acre-feet*	*Percentage*
Edwards Aquifer	119.6743	33%
Trinity Aquifer	51.2044	14%
Lake Dunlap - CRWA	131.3146	36%
Wells Ranch - CRWA	56.9309	16%
ECWSC	4.4253	1%
Total AF Produced	***363.55***	



Green Valley SUD Operations Report October 2013 - September 2014

	October	November	December	January	February	March	April	May	June	July	August	September	
Edwards Aquifer	107.207	97.6103	98.8163	103.863	109.7035	71.3946	84.7473	78.8305	92.2293	76.3573	106.0976	119.6743	
Trinity Aquifer	0	0	0	0	7.887	38.6434	38.6434	51.6156	45.8492	43.36	45.8492	51.2044	
Lake Dunlap - CRWA	85.2322	70.1609	61.2489	70.6212	78.097	66.2327	69.4244	81.79	99.1926	96.3416	118.9808	131.3146	
Wells Ranch - CRWA	37.575	35.9029	55.396	54.172	59.9354	52.0146	36.4891	38.235	26.8742	28.1264	48.4148	56.9309	
ECWSC	3.996	1.347	0.2056	0.8562	2.3017	0.4634	0.4481	1.8996	2.8663	2.8449	2.5165	4.4253	
Total Gallons Produced	76,252,500	66,806,400	70,275,400	74,787,000	84,045,000	74,538,000	74,865,000	82,236,000	87,006,000	80,495,000	104,878,000	118,463,000	
Total AF Produced	234.0103	205.0213	215.6673	229.5129	257.9246	228.7487	229.7522	252.373	267.0116	247.0301	321.8588	363.5496	3052.46
Average Daily Use (gallons)	2,471,500	1,952,000	2,167,600	2,367,300	2,562,000	2,603,300	2,276,700	2,468,800	2,706,900	3,000,300	3,090,200	3,574,900	
Maximum Daily Use (gallons)	4,563,200	2,758,400	4,097,300	3,876,400	3,958,400	3,158,800	3,442,700	3,073,400	3,163,700	4,306,700	4,322,800	4,244,700	
Minimum Daily Use (gallons)	1,180,500	1,019,500	1,403,500	1,685,700	1,625,500	2,076,600	1,526,300	1,998,600	2,149,000	2,286,500	2,362,500	2,735,700	
Average Residential (gallons/month)	6,301	5,721	4,902	5,646	5,421	4,844	5,120	7,247	7,437	7,529	8,407	10,037	
Average Residential gallons/month for 12 month period			6,551										

September 2014 Water Sources

		Percentage
Edwards Aquifer	119.6743	33%
Trinity Aquifer	51.2044	14%
Lake Dunlap - CRWA	131.3146	36%
Wells Ranch - CRWA	56.9309	16%
ECWSC	4.4253	1%
Total AF Produced	363.5495	

ATTACHMENT 3
TCEQ (30 TAC §290.45)

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 290	PUBLIC DRINKING WATER
SUBCHAPTER D	RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS
RULE §290.45	**Minimum Water System Capacity Requirements**

(a) General provisions.

(1) The requirements contained in this section are to be used in evaluating both the total capacities for public water systems and the capacities at individual pump stations and pressure planes which serve portions of the system that are hydraulically separated from, or incapable of being served by, other pump stations or pressure planes. The capacities specified in this section are minimum requirements only and do not include emergency fire flow capacities for systems required to meet requirements contained in §290.46(x) and (y) of this title (relating to Minimum Acceptable Operating Practices for Public Drinking Water Systems).

(2) The executive director will require additional supply, storage, service pumping, and pressure maintenance facilities if a normal operating pressure of 35 pounds per square inch (psi) cannot be maintained throughout the system, or if the system's maximum daily demand exceeds its total production and treatment capacity. The executive director will also require additional capacities for a system that is unable to maintain a minimum pressure of 20 psi during fire fighting, line flushing, other unusual conditions, and systems that are required to provide fire flow as specified in §290.46(x) and (y) of this title.

(3) The executive director may establish additional capacity requirements for a public water system using the method of calculation described in subsection (g)(2) of this section if there are repeated customer complaints regarding inadequate pressure or if the executive director receives a request for a capacity evaluation from customers of the system.

(4) Throughout this section, total storage capacity does not include pressure tank capacity.

(5) The executive director may exclude the capacity of facilities that have been inoperative for the past 120 days and will not be returned to an operative condition within the next 30 days when determining compliance with the requirements of this section.

(6) The capacity of the treatment facilities shall not be less than the required raw water or groundwater production rate or the anticipated maximum daily demand of the system.

(7) If a public water system that is an affected utility fails to provide a minimum of 35 psi throughout the distribution system during emergency operations as soon as it is safe and practicable following the

occurrence of a natural disaster, a revised emergency preparedness plan or justification regarding pressure drop shall be submitted for review and approval within 180 days of the date normal power is restored. Based on the review of the revised emergency preparedness plan, the executive director may require additional or alternative auxiliary emergency facilities.

(b) Community water systems.

(1) Groundwater supplies must meet the following requirements.

(A) If fewer than 50 connections without ground storage, the system must meet the following requirements:

(i) a well capacity of 1.5 gallons per minute (gpm) per connection; and

(ii) a pressure tank capacity of 50 gallons per connection.

(B) If fewer than 50 connections with ground storage, the system must meet the following requirements:

(i) a well capacity of 0.6 gpm per connection;

(ii) a total storage capacity of 200 gallons per connection;

(iii) two or more service pumps having a total capacity of 2.0 gpm per connection; and

(iv) a pressure tank capacity of 20 gallons per connection.

(C) For 50 to 250 connections, the system must meet the following requirements:

(i) a well capacity of 0.6 gpm per connection;

(ii) a total storage capacity of 200 gallons per connection;

(iii) two or more pumps having a total capacity of 2.0 gpm per connection at each pump station or pressure plane. For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6 gpm per connection are required at each pump station or pressure plane. If only wells and elevated storage are provided, service pumps are not required; and

(iv) an elevated storage capacity of 100 gallons per connection or a pressure tank capacity of 20 gallons per connection.

(D) For more than 250 connections, the system must meet the following requirements:

(i) two or more wells having a total capacity of 0.6 gpm per connection. Where an interconnection is provided with another acceptable water system capable of supplying at least 0.35 gpm for each connection in the combined system under emergency conditions, an additional well will not be required as long as the 0.6 gpm per connection requirement is met for each system on an individual basis. Each water system must still meet the storage and pressure maintenance requirements on an individual basis unless the interconnection is permanently open. In this case, the systems' capacities will be rated as though a single system existed;

(ii) a total storage capacity of 200 gallons per connection;

(iii) two or more pumps that have a total capacity of 2.0 gpm per connection or that have a total capacity of at least 1,000 gpm and the ability to meet peak hourly demands with the largest pump out of service, whichever is less, at each pump station or pressure plane. For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6 gpm per connection are required at each pump station or pressure plane. If only wells and elevated storage are provided, service pumps are not required;

(iv) an elevated storage capacity of 100 gallons per connection or a pressure tank capacity of 20 gallons per connection. If pressure tanks are used, a maximum capacity of 30,000 gallons is sufficient for up to 2,500 connections. An elevated storage capacity of 100 gallons per connection is required for systems with more than 2,500 connections. Alternate methods of pressure maintenance may be proposed and will be approved if the criteria contained in subsection (g)(5) of this section are met; and

(v) emergency power for systems which serve more than 250 connections and do not meet the elevated storage requirement. Sufficient emergency power must be provided to deliver a minimum of 0.35 gpm per connection to the distribution system in the event of the loss of normal power supply. Alternately, an emergency interconnection can be provided with another public water system that has emergency power and is able to supply at least 0.35 gpm for each connection in the combined system. Emergency power facilities in systems serving 1,000 connections or greater must be serviced and maintained in accordance with level 2 maintenance requirements contained in the current National Fire Protection Association (NFPA 110 Standard). Although not required, compliance with NFPA 110 Standard is highly recommended for systems serving less than 1,000 connections. Logs of all emergency power use and maintenance must be maintained and kept on file for a period of not less than three years. These records must be made available, upon request, for executive director review.

(E) Mobile home parks with a density of eight or more units per acre and apartment complexes which supply fewer than 100 connections without ground storage must meet the following requirements:

(i) a well capacity of 1.0 gpm per connection; and

(ii) a pressure tank capacity of 50 gallons per connection with a maximum of 2,500 gallons required.

(F) Mobile home parks and apartment complexes which supply 100 connections or greater, or fewer than 100 connections and utilize ground storage must meet the following requirements:

(i) a well capacity of 0.6 gpm per connection. Systems with 250 or more connections must have either two wells or an approved interconnection which is capable of supplying at least 0.35 gpm for each connection in the combined system;

(ii) a total storage of 200 gallons per connection;

(iii) at least two service pumps with a total capacity of 2.0 gpm per connection; and

(iv) a pressure tank capacity of 20 gallons per connection.

(2) Surface water supplies must meet the following requirements:

(A) a raw water pump capacity of 0.6 gpm per connection with the largest pump out of service;

(B) a treatment plant capacity of 0.6 gpm per connection under normal rated design flow;

(C) transfer pumps (where applicable) with a capacity of 0.6 gpm per connection with the largest pump out of service;

(D) a covered clearwell storage capacity at the treatment plant of 50 gallons per connection or, for systems serving more than 250 connections, 5.0% of daily plant capacity;

(E) a total storage capacity of 200 gallons per connection;

(F) a service pump capacity that provides each pump station or pressure plane with two or more pumps that have a total capacity of 2.0 gpm per connection or that have a total capacity of at least 1,000 gpm and the ability to meet peak hourly demands with the largest pump out of service, whichever is less. For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6 gpm per connection are required at each pump station or pressure plane;

(G) an elevated storage capacity of 100 gallons per connection or a pressure tank capacity of 20 gallons per connection. If pressure tanks are used, a maximum capacity of 30,000 gallons is sufficient for systems of up to 2,500 connections. An elevated storage capacity of 100 gallons per connection is required for systems with more than 2,500 connections. Alternate methods of pressure maintenance may be proposed and will be approved if the criteria contained in subsection (g)(5) of this section are met; and

(H) emergency power for systems which serve more than 250 connections and do not meet the elevated storage requirement. Sufficient emergency power must be provided to deliver a minimum of 0.35 gpm per connection to the distribution system in the event of the loss of normal power supply. Alternately, an emergency interconnection can be provided with another public water system that has emergency power and is able to supply at least 0.35 gpm for each connection in the combined system. Emergency power facilities in systems serving 1,000 connections or greater must be serviced and maintained in accordance with level 2 maintenance requirements contained in the current NFPA 110 Standard. Although not required, compliance with NFPA 110 Standard is highly recommended for systems serving less than 1,000 connections. Logs of all emergency power use and maintenance must be maintained and kept on file for a period of not less than three years. These records must be made available, upon request, for executive director review.

(3) Any community public water system that is an affected utility shall have an emergency preparedness plan approved by the executive director and must meet the requirements for emergency operations contained in subsection (h) of this section. This includes any affected utility that provides 100 gallons of elevated storage capacity per connection.

(c) Noncommunity water systems serving transient accommodation units. The following water capacity requirements apply to noncommunity water systems serving accommodation units such as hotel rooms, motel rooms, travel trailer spaces, campsites, and similar accommodations.

(1) Groundwater supplies must meet the following requirements.

(A) If fewer than 100 accommodation units without ground storage, the system must meet the following requirements:

(i) a well capacity of 1.0 gpm per unit; and

(ii) a pressure tank capacity of ten gallons per unit with a minimum of 220 gallons.

(B) For systems serving fewer than 100 accommodation units with ground storage or serving 100 or more accommodation units, the system must meet the following requirements:

(i) a well capacity of 0.6 gpm per unit;

(ii) a ground storage capacity of 35 gallons per unit;

(iii) two or more service pumps which have a total capacity of 1.0 gpm per unit; and

(iv) a pressure tank capacity of ten gallons per unit.

(2) Surface water supplies, regardless of size, must meet the following requirements:

(A) a raw water pump capacity of 0.6 gpm per unit with the largest pump out of service;

(B) a treatment plant capacity of 0.6 gpm per unit;

(C) a transfer pump capacity (where applicable) of 0.6 gpm per unit with the largest pump out of service;

(D) a ground storage capacity of 35 gallons per unit with a minimum of 1,000 gallons as clearwell capacity;

(E) two or more service pumps with a total capacity of 1.0 gpm per unit; and

(F) a pressure tank capacity of ten gallons per unit with a minimum requirement of 220 gallons.

(3) A noncommunity public water system that is an affected utility shall meet the requirements of subsection (h) of this section.

(d) Noncommunity water systems serving other than transient accommodation units.

(1) The following table is applicable to paragraphs (2) and (3) of this subsection and shall be used to determine the maximum daily demand for the various types of facilities listed.

Attached Graphic

(2) Groundwater supplies must meet the following requirements.

(A) Subject to the requirements of subparagraph (B) of this paragraph, if fewer than 300 persons per day are served, the system must meet the following requirements:

(i) a well capacity which meets or exceeds the maximum daily demand of the system during the hours of operation; and

(ii) a minimum pressure tank capacity of 220 gallons with additional capacity, if necessary, based on a sanitary survey conducted by the executive director.

(B) Systems which serve 300 or more persons per day or serve fewer than 300 persons per day and provide ground storage must meet the following requirements:

(i) a well capacity which meets or exceeds the maximum daily demand;

(ii) a ground storage capacity which is equal to 50% of the maximum daily demand;

(iii) if the maximum daily demand is less than 15 gpm, at least one service pump with a capacity of three times the maximum daily demand;

(iv) if the maximum daily demand is 15 gpm or more, at least two service pumps with a total capacity of three times the maximum daily demand; and

(v) a minimum pressure tank capacity of 220 gallons with additional capacity, if necessary, based on a sanitary survey conducted by the executive director.

(3) Each surface water supply or groundwater supply that is under the direct influence of surface water, regardless of size, must meet the following requirements:

(A) a raw water pump capacity which meets or exceeds the maximum daily demand of the system with the largest pump out of service;

(B) a treatment plant capacity which meets or exceeds the system's maximum daily demand;

(C) a transfer pump capacity (where applicable) sufficient to meet the maximum daily demand with the largest pump out of service;

(D) a clearwell capacity which is equal to 50% of the maximum daily demand;

(E) two or more service pumps with a total capacity of three times the maximum daily demand; and

(F) a minimum pressure tank capacity of 220 gallons with additional capacity, if necessary, based on a sanitary survey conducted by the executive director.

(4) A noncommunity public water system that is an affected utility shall meet the requirements of subsection (h) of this section.

(e) Water wholesalers. The following additional requirements apply to systems which supply wholesale treated water to other public water supplies.

(1) All wholesalers must provide enough production, treatment, and service pumping capacity to meet or exceed the combined maximum daily commitments specified in their various contractual obligations.

(2) For wholesale water suppliers, minimum water system capacity requirements shall be determined by calculating the requirements based upon the number of retail customer service connections of that wholesale water supplier, if any, fire flow capacities, if required by §290.46(x) and (y) of this title and adding that amount to the maximum amount of water obligated or pledged under all wholesale contracts.

(3) Emergency power is required for each portion of the system which supplies more than 250 connections under direct pressure and does not provide an elevated storage capacity of at least 100 gallons per connection. If emergency power is required, it must be sufficient to deliver 20% of the

minimum required service pump capacity in the event of the loss of normal power supply. When the wholesaler provides water through an air gap into the purchaser's storage facilities it will be the purchaser's responsibility to meet all minimum water system capacity requirements including emergency power.

(4) A wholesaler that is an affected utility must meet the requirements specified in subsection (h) of this section.

(f) Purchased water systems. The following requirements apply only to systems which purchase treated water to meet all or part of their production, storage, service pump, or pressure maintenance capacity requirements.

(1) The water purchase contract must be available to the executive director in order that production, storage, service pump, or pressure maintenance capacity may be properly evaluated. For purposes of this section, a contract may be defined as a signed written document of specific terms agreeable to the water purchaser and the water wholesaler, or in its absence, a memorandum or letter of understanding between the water purchaser and the water wholesaler.

(2) The contract shall authorize the purchase of enough water to meet the monthly or annual needs of the purchaser.

(3) The contract shall also establish the maximum rate at which water may be drafted on a daily and hourly basis. In the absence of specific maximum daily or maximum hourly rates in the contract, a uniform purchase rate for the contract period will be used.

(4) The maximum authorized daily purchase rate specified in the contract, or a uniform purchase rate in the absence of a specified daily purchase rate, plus the actual production capacity of the system must be at least 0.6 gpm per connection.

(5) For systems which purchase water under direct pressure, the maximum hourly purchase authorized by the contract plus the actual service pump capacity of the system must be at least 2.0 gpm per connection or provide at least 1,000 gpm and be able to meet peak hourly demands, whichever is less.

(6) The purchaser is responsible for meeting all production requirements. If additional capacity to meet increased demands cannot be attained from the wholesaler through a new or amended contract, additional capacity must be obtained from water purchase contracts with other entities, new wells, or surface water treatment facilities. However, if the water purchase contract prohibits the purchaser from securing water from sources other than the wholesaler, the wholesaler is responsible for meeting all production requirements.

(7) All other minimum capacity requirements specified in this section and §290.46(x) and (y) of this title shall apply.

(g) Alternative capacity requirements. Public water systems may request approval to meet alternative capacity requirements in lieu of the minimum capacity requirements specified in this section. Any water system requesting to use an alternative capacity requirement must demonstrate to the satisfaction of the executive director that approving the request will not compromise the public health or result in a degradation of service or water quality and comply with the requirements found in §290.46(x) and (y) of this title. Alternative capacity requirements are unavailable for groundwater systems serving fewer than

50 connections without total storage as specified in subsection (b)(1) of this section or for noncommunity water systems as specified in subsections (c) and (d) of this section.

(1) Alternative capacity requirements for public water systems may be granted upon request to and approval by the executive director. The request to use an alternative capacity requirement must include:

(A) a detailed inventory of the major production, pressurization, and storage facilities utilized by the system;

(B) records kept by the water system that document the daily production of the system. The period reviewed shall not be less than three years. The applicant may not use a calculated peak daily demand;

(C) data acquired during the last drought period in the region, if required by the executive director;

(D) the actual number of active connections for each month during the three years of production data;

(E) description of any unusual demands on the system such as fire flows or major main breaks that will invalidate unusual peak demands experienced in the study period;

(F) any other relevant data needed to determine that the proposed alternative capacity requirement will provide at least 35 psi in the public water system except during line repair or during fire fighting when it cannot be less than 20 psi; and

(G) a copy of all data relied upon for making the proposed determination.

(2) Alternative capacity requirements for existing public water systems must be based upon the maximum daily demand for the system, unless the request is submitted by a licensed professional engineer in accordance with the requirements of paragraph (3) of this subsection. The maximum daily demand must be determined based upon the daily usage data contained in monthly operating reports for the system during a 36 consecutive month period. The 36 consecutive month period must end within 90 days of the date of submission to ensure the data is as current as possible.

(A) Maximum daily demand is the greatest number of gallons, including groundwater, surface water, and purchased water delivered by the system during any single day during the review period. Maximum daily demand excludes unusual demands on the system such as fire flows or major main breaks.

(B) For the purpose of calculating alternative capacity requirements, an equivalency ratio must be established. This equivalency ratio must be calculated by multiplying the maximum daily demand, expressed in gpm per connection, by a fixed safety factor and dividing the result by 0.6 gpm per connection. The safety factor shall be 1.15 unless it is documented that the existing system capacity is adequate for the next five years. In this case, the safety factor may be reduced to 1.05. The conditions in §291.93(3) of this title (relating to Adequacy of Water Utility Service) concerning the 85% rule shall continue to apply to public water systems that are also retail public utilities.

(C) To calculate the alternative capacity requirements, the equivalency ratio must be multiplied by the appropriate minimum capacity requirements specified in subsection (b) of this section. Standard rounding methods are used to round calculated alternative production capacity requirement values to the nearest one-hundredth.

(3) Alternative capacity requirements which are proposed and submitted by licensed professional engineers for review are subject to the following additional requirements.

(A) A signed and sealed statement by the licensed professional engineer must be provided which certifies that the proposed alternative capacity requirements have been determined in accordance with the requirements of this subsection.

(B) If the system is new or at least 36 consecutive months of data is not available, maximum daily demand may be based upon at least 36 consecutive months of data from a comparable public water system. A licensed professional engineer must certify that the data from another public water system is comparable based on consideration of the following factors: prevailing land use patterns (rural versus urban); number of connections; density of service populations; fire flow obligations; and socio-economic, climatic, geographic, and topographic considerations as well as other factors as may be relevant. The comparable public water system shall not exhibit any of the conditions listed in paragraph (6)(A) of this subsection.

(4) The executive director shall consider requests for alternative capacity requirements in accordance with the following requirements.

(A) For those requests submitted under the seal of a licensed professional engineer, the executive director must mail written acceptance or denial of the proposed alternative capacity requirements to the public water system within 90 days from the date of submission. If the executive director fails to mail written notification within 90 days, the alternative capacity requirements submitted by a licensed professional engineer automatically become the alternative capacity requirements for the public water system.

(B) If the executive director denies the request:

(i) the executive director shall mail written notice to the public water system identifying the specific reason or reasons for denial and allow 45 days for the public water system to respond to the reason(s) for denial;

(ii) the denial is final if no response from the public water system is received within 45 days of the written notice being mailed; and

(iii) the executive director must mail a final written approval or denial within 60 days from the receipt of any response timely submitted by the public water system.

(5) Although elevated storage is the preferred method of pressure maintenance for systems of over 2,500 connections, it is recognized that local conditions may dictate the use of alternate methods utilizing hydropneumatic tanks and on-site emergency power equipment. Alternative capacity requirements to the elevated storage requirements may be obtained based on request to and approval by the executive director. Special conditions apply to systems qualifying for an elevated storage alternative capacity requirement.

(A) The system must submit documentation sufficient to assure that the alternate method of pressure maintenance is capable of providing a safe and uninterrupted supply of water under pressure to the distribution system during all demand conditions.

(i) A signed and sealed statement by a licensed professional engineer must be provided which certifies that the pressure maintenance facilities are sized, designed, and capable of providing a minimum pressure of at least 35 psi at all points within the distribution network at flow rates of 1.5 gpm per connection or greater. In addition, the engineer must certify that the emergency power facilities are capable of providing the greater of the average daily demand or 0.35 gpm per connection while maintaining distribution pressures of at least 35 psi, and that emergency power facilities powering production and treatment facilities are capable of supplying at least 0.35 gpm per connection to storage.

(ii) The system's licensed professional engineer must conduct a hydraulic analysis of the system under peak conditions. This must include an analysis of the time lag between the loss of the normal power supply and the commencement of emergency power as well as the minimum pressure that will be maintained within the distribution system during this time lag. In no case shall this minimum pressure within the distribution system be less than 20 psi. The results of this analysis must be submitted to the executive director for review.

(iii) For existing systems, the system's licensed professional engineer must provide continuous pressure chart recordings of distribution pressures maintained during past power failures, if available. The period reviewed shall not be less than three years.

(iv) A public water system that is an affected utility must conduct the modeling requirements contained in clauses (i) - (iii) of this subparagraph using the requirements specified in subsection (h) of this section.

(B) Emergency power facilities must be maintained and provided with necessary appurtenances to assure immediate and dependable operation in case of normal power interruption. A public water system that is an affected utility must meet the requirements specified in subsection (h) of this section.

(i) The facilities must be serviced and maintained in accordance with level 2 maintenance requirements contained in the current NFPA 110 Standard and the manufacturers' recommendations.

(ii) The switching gear must be capable of bringing the emergency power generating equipment on-line during a power interruption such that the pressure in the distribution network does not fall below 20 psi at any time.

(iii) The minimum on-site fuel storage capacity shall be determined by the fuel demand of the emergency power facilities and the frequency of fuel delivery. An amount of fuel equal to that required to operate the facilities under-load for a period of at least eight hours must always be maintained on site.

(iv) Residential rated mufflers or other means of effective noise suppression must be provided on each emergency power motor.

(C) Battery-powered or uninterrupted power supply pressure monitors and chart recorders which are configured to activate immediately upon loss of normal power must be provided for pressure maintenance facilities. These records must be kept for a minimum of three years and made available

for review by the executive director. Records must include chart recordings of all power interruptions including interruptions due to periodic emergency power under-load testing and maintenance.

(D) An emergency response plan must be submitted detailing procedures to be followed and individuals to be contacted in the event of loss of normal power supply.

(6) Any alternative capacity requirement granted under this subsection is subject to review and revocation or revision by the executive director. If permission to use an alternative capacity requirement is revoked, the public water system must meet the applicable minimum capacity requirements of this section.

(A) The following conditions, if attributable to the alternative capacity requirements, may constitute grounds for revocation or revision of established alternative capacity requirements or for denial of new requests, if the condition occurred within the last 36 months:

(i) documented pressure below 35 psi at any time not related to line repair, except during fire fighting when it cannot be less than 20 psi;

(ii) water outages due to high water usage;

(iii) mandatory water rationing due to high customer demand or overtaxed water production or supply facilities;

(iv) failure to meet a minimum capacity requirement or an established alternative capacity requirement;

(v) changes in water supply conditions or usage patterns which create a potential threat to public health; or

(vi) any other condition where the executive director finds that the alternative capacity requirement has compromised the public health or resulted in a degradation of service or water quality.

(B) If the executive director finds any of the conditions specified in subparagraph (A) of this paragraph, the process for revocation or revision of an alternative capacity requirement shall be as follows, unless the executive director finds that failure of the service or other threat to public health and safety is imminent under subparagraph (C) of this paragraph.

(i) The executive director must mail the public drinking water system written notice of the executive director's intent to revoke or revise an alternative capacity requirement identifying the specific reason(s) for the proposed action.

(ii) The public water system has 30 days from the date the written notice is mailed to respond to the proposed action.

(iii) The public water system has 30 days from the date the written notice is mailed to request a meeting with the agency's public drinking water program personnel to review the proposal. If requested, such a meeting must occur within 45 days of the date the written notice is mailed.

(iv) After considering any response from or after any requested meeting with the public drinking water system, the executive director must mail written notification to the public drinking water system

of the executive director's final decision to continue, revoke, or revise an alternative capacity requirement identifying the specific reason(s) for the decision.

(C) If the executive director finds that failure of the service or other threat to public health and safety is imminent, the executive director may issue written notification of the executive director's final decision to revoke or revise an alternative capacity requirement at any time.

(h) Affected utilities. This subsection applies to all affected utilities and is in addition to any other requirements pertaining to emergency power requirements found in this subchapter.

(1) Affected utilities must provide one of the following options of sufficient power to meet the capacity requirements of paragraph (1) or (2) of this subsection, whichever is applicable, and in accordance with the affected utility's approved emergency preparedness plan:

(A) the maintenance of automatically starting auxiliary generators;

(B) the sharing of auxiliary generator capacity with one or more affected utilities;

(C) the negotiation of leasing and contracting agreements, including emergency mutual aid agreements with other retail public utilities, exempt utilities, or providers, or conveyors of potable or raw water service, if the agreements provide for coordination with the division of emergency management in the governor's office;

(D) the use of portable generators capable of serving multiple facilities equipped with quick-connect systems;

(E) the use of on-site electrical generation or electrical distributed generation facilities;

(F) hardening of the electric transmission and electric distribution system against damage from natural disasters during an extended power outage;

(G) for existing facilities, the maintenance of direct engine or right angle drives; or

(H) any other alternative determined by the executive director to be acceptable.

(2) Each affected utility that supplies, provides, or conveys surface water to wholesale customers shall install and maintain automatically starting auxiliary generators or distributive generation facilities for each raw water intake pump station, water treatment plant, pump station, and pressure facility necessary to provide water to its wholesale customers.

(3) Emergency generators used as part of an approved emergency preparedness plan must be maintained, tested, and operated in accordance with the manufacturer's specifications.

(4) An affected utility may adopt and is encouraged to enforce limitations on water use while the utility is providing emergency operations.

(5) As soon as safe and practicable following the occurrence of a natural disaster, an affected utility must operate in accordance with its approved emergency preparedness plan, which may include using elevated storage. An affected utility may meet the requirements of Texas Water Code, §13.1395, including having a currently approved emergency preparedness plan, in lieu of any other rules regarding elevated storage requirements, provided that, under normal operating conditions, the

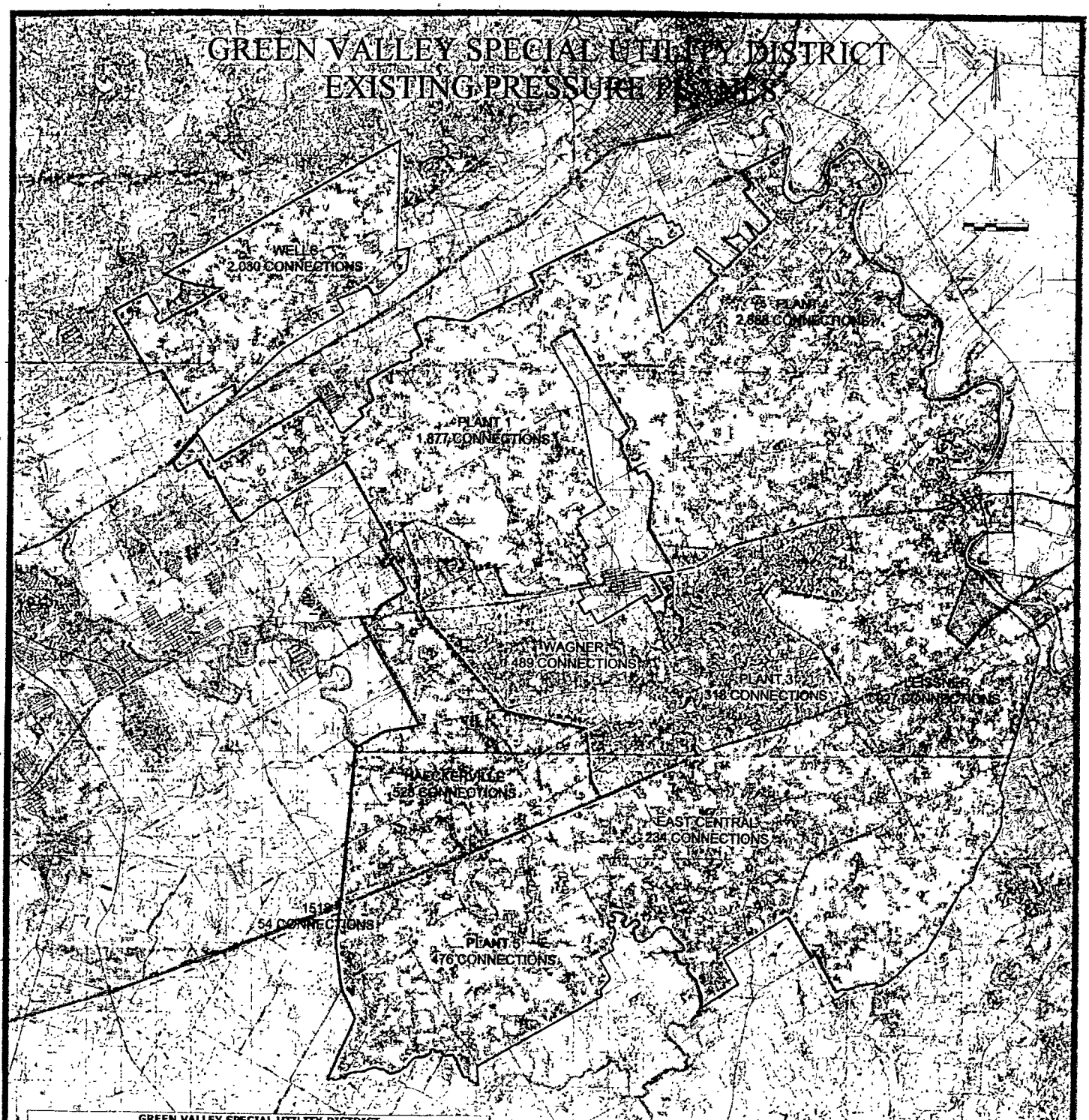
affected utility continues to meet the pressure requirements of §290.46(r) of this title and the production, treatment, total storage and service pump capacity requirements of this subchapter.

(6) An affected utility must maintain on-site, or make readily available during emergency operations, an amount of fuel necessary to operate any required emergency power equipment necessary to maintain emergency operations.

Source Note: The provisions of this §290.45 adopted to be effective October 1, 1992, 17 TexReg 6455; amended to be effective November 3, 1995, 20 TexReg 8620; amended to be effective February 4, 1999, 24 TexReg 731; amended to be effective September 13, 2000, 25 TexReg 8880; amended to be effective May 16, 2002, 27 TexReg 4127; amended to be effective January 30, 2003, 28 TexReg 697; amended to be effective February 19, 2004, 29 TexReg 1373; amended to be effective January 9, 2008, 33 TexReg 198; amended to be effective December 10, 2009, 34 TexReg 8744; amended to be effective September 11, 2014, 39 TexReg7145

ATTACHMENT A
EXISTING PRESSURE PLANES MAP

GREEN VALLEY SPECIAL UTILITY DISTRICT
EXISTING PRESSURE PLANES



GREEN VALLEY SPECIAL UTILITY DISTRICT
EXISTING EQUIPMENT

Plane Name		Overflow Elevation	Connections	GST Capacity (gallons)	EST Capacity (gallons)	Pneumatic Tank (gallons)	Booster Pumps	Well Pumps
Plant 1 Pressure Plane		1008	1877	200,000	1,000,000	5,000	3 @ 450 gpm	
Plant 2 Pressure Plane		897	0	127,000 80,000	100,000		4 @ 450 gpm	
Plant 3 Pressure Plane		830	318	127,000 80,000	100,000		4 @ 450 gpm	
Plant 4 Pressure Plane		830	2,688		500,000			
Plant 5 Pressure Plane			476	60,000		3,000	2 @ 225 gpm	
Wells Pressure Plane	Plant 7		2,030	200,000		5,000	2 @ 800 gpm 2 @ 50 gpm 1 @ 800 gpm 1 @ 600 gpm	
	Plant 7, Well #2							1 @ 800 gpm
	Plant 7, Well #3							1 @ 1,600 gpm
	Plant 7, Well #4							1 @ 600 gpm
	Plant 8			200,000		5,000	1 @ 800 gpm 2 @ 450 gpm	
	Plant 8, Well #1							1 @ 3,200 gpm
	Plant 9			200,000 80,000	300,000		2 @ 500 gpm 2 @ 1,000 gpm	
Plant 10 Pressure Plane			0	250,000 250,000		13,000	3 @ 500 gpm	
1518 Pressure Plane		880	54					
Leissner Pressure Plane			927					
Haeckerville Pressure Plane			528					
Wagner Pressure Plane			480					
East Central Pressure Plane			234					
TOTAL			9,621	1,854,000	2,000,000	31,000	14,700 gpm	4,200
Capacity per Connection				192.70	207.88		1.53	0.44

TOTAL CONNECTIONS
9,621

LEGEND

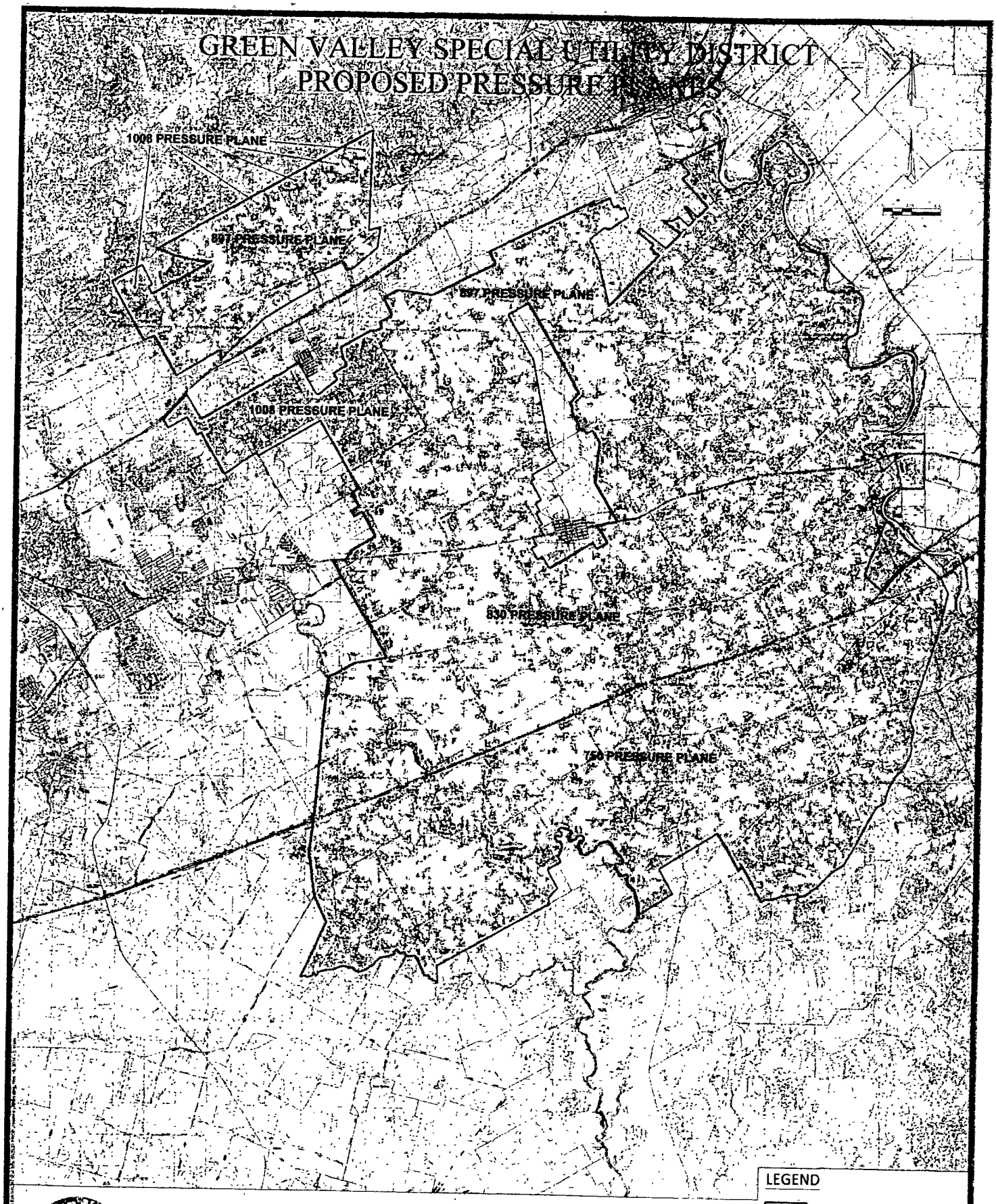
- PLANT 1
- PLANT 3
- PLANT 4
- PLANT 5
- WELLS
- 1518
- LEISSNER
- HAECKERVILLE
- WAGNER
- EAST CENTRAL

Green Valley Special Utility District
Water for a Better Life
Since 1969

RIVER CITY ENGINEERING
Civil, Environmental and Surveying

ATTACHMENT B
PROPOSED PRESSURE PLANES MAP

GREEN VALLEY SPECIAL UTILITY DISTRICT
PROPOSED PRESSURE PLANES



LEGEND

- GVSUD CCN BOUNDARY
- 750 PRESSURE PLANE
- 830 PRESSURE PLANE
- 897 PRESSURE PLANE
- 1008 PRESSURE PLANE

Water for a Better Life
Since 1985

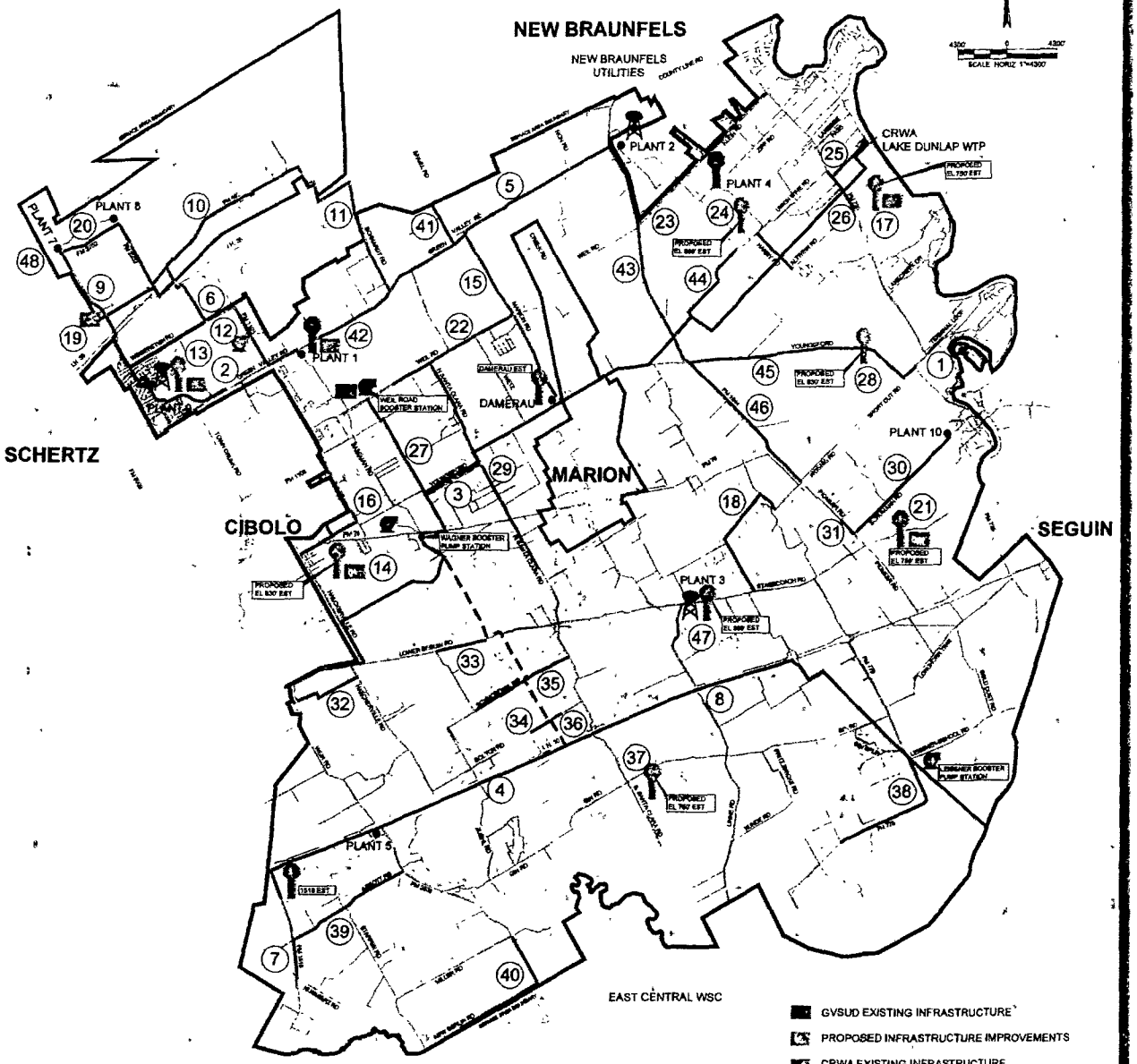
RIVER CITY ENGINEERING
Civil, Environmental and Surveying

ATTACHMENT B:
PROPOSED PRESSURE PLANES

ATTACHMENT C
PROPOSED CAPITAL IMPROVEMENTS MAP

GREEN VALLEY SPECIAL UTILITY DISTRICT

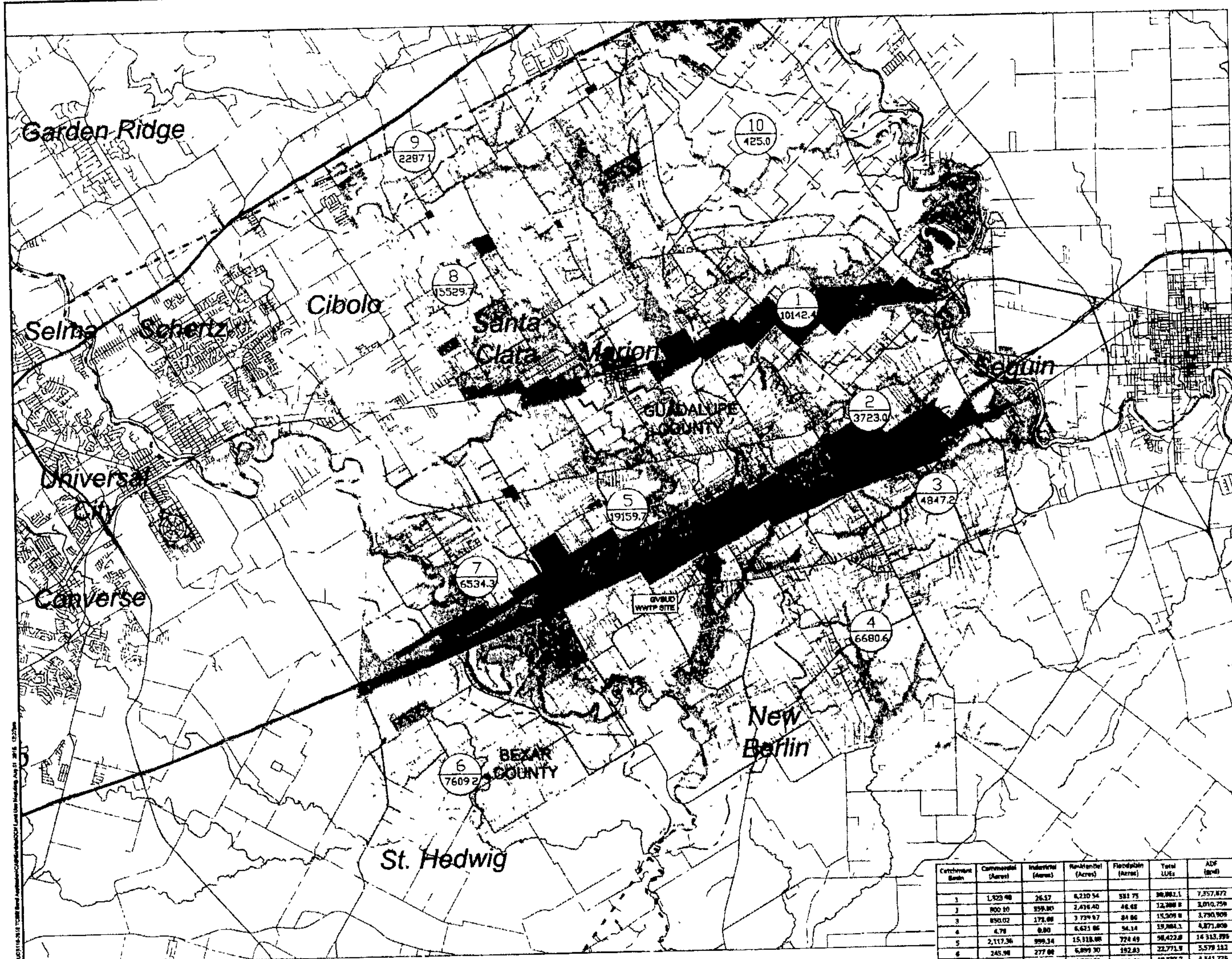
RIVER CITY ENGINEERING
Civil, Environmental and Surveying



Project	Description	Total Cost
1	16" Pipe Line along Terminal Loop	$ 436,391
2	24" Pipe Line that Connects Plant 1 to Plant 9	$ 843,930
3	12" Pipe along Youngsford Road from Country Lane to Santa Clara	$ 681,482
4	GVSUD Take-Point Meter Station at Zuehl Road & IH30	$ 170,678
5	16" Pipe Line Along Green Valley Road, Plant 1 to Plant 2	$ 7,447,496
6	12" Pipe from Wells to Plant 1	$ 886,032
7	12" Pipe along FM 1518 from Abbott to Kusmierz	$ 416,671
8	GVSUD Take-Point Meter Station at Linne Road & IH30	$ 224,428
9	24" Pipe Line from Wells to Plant 9 Improvements	$ 4,579,792
10	12" Pipe Line Along FM 482	$ 2,373,630
11	24" Pipe Line IH-35 Crossing	$ 939,676
12	Well Side Booster Pump Station	$ 2,179,970
13	Plant 9 Improvements	$ 2,621,296
14	830' Elevated Storage Tank at Most Western FM 78	$ 2,347,485
15	12" Pipe Line along Marion Road from CRWA Pipe to GV Road	$ 1,054,146
16	12" Pipe Line along Tolle Road & Country Lane	$ 1,170,762
17	750' Elevated Water Storage Tank at McQueeney	$ 3,965,167
18	12" Pipe along Schwab & Wosnig	$ 1,490,904
19	Common Ground Storage Tank and Booster Pump Station	$ 2,524,067
20	24" Pipe Line connects Existing Wells	$ 1,576,310
21	750' Elevated Storage Tank at South of Plant 10	$ 3,960,167
22	12" Pipeline along Weil Road - BPS extension to Marion Road	$ 1,390,928
23	Pipeline along Klein Road - FM 1044 to FM 725	$ 2,589,869
24	830' EST @ Hardy Rd and Union Wine	$ 2,323,485

Project	Description	Total Cost
25	Pipeline from FM 725 to CRWA Lake Dunlap WTP	$ 568,875
26	16" Pipeline along FM 725 - Unjen Wine to Altwein	$ 687,853
27	16" Weil Road BPS Fill Pipeline - Youngsford to Weil Rd BPS	$ 1,666,082
28	830' EST @ Youngsford and Short Cut Rd	$ 2,365,485
29	12" Pipeline along N Santa Clara Rd - Weil Rd to Gerdes Rd	$ 2,368,355
30	16" Pipeline along Schumann Rd - Pioneer Rd to Plant 10	$ 1,948,936
31	16" Pipeline along Pioneer Rd (connect)	$ 255,899
32	8" Pipeline along Lower Valley Ln - Weir Rd to Haeckenville Rd	$ 580,557
33	8" Pipeline along Lower Seguin Rd (connect)	$ 431,657
34	8" Pipeline along Bolton Rd (connect)	$ 223,437
35	8" Pipeline along Schmoekel Rd - Stolte Rd to Santa Clara Rd	$ 922,623
36	GVSUD Take-Point Meter Station at Santa Clara Rd & IH10	$ 154,996
37	750' EST @ Gin Road	$ 2,365,485
38	8" Pipeline along FM 775 - Leissner School Rd to Beutnagel Ln	$ 1,177,803
39	12" Pipeline along Abbott Road - FM 1518 to FM 2538	$ 1,335,437
40	8" Pipeline along New Berlin Rd - Gable Ln to Miller Rd	$ 1,121,154
41	8" Pipeline along Engel Rd - Green Valley Rd to Service Boundary	$ 316,789
42	Plant 1 - 2MG Ground Storage Tank	$ 1,402,522
43	16" Pipeline along FM 1044 from Green Valley Rd to Youngsford	$ 3,524,957
44	16" Pipeline along Union Wine from FM 1044 to Sunshine Lane	$ 1,689,664
45	16" Pipeline along Youngsford from FM 1044 to FM 725	$ 3,708,914
46	16" Pipeline along FM 1044 from Youngsford to Wosnig Road	$ 2,486,966
47	830' EST @ Plant 3	$ 2,281,891
48	Trinity Well Development	$ 1,100,000

PROPOSED CAPITAL IMPROVEMENTS MAP



LINE LEGEND

- GVSUD WASTEWATER CCN
- COUNTY BOUNDARY
- DRAINAGE AREA BOUNDARY
- DRAINAGE AREA NUMBER / DRAINAGE AREA IN ACRES

CITY LIMITS LEGEND

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- FLOODPLAIN

Catchment Basin	Commercial (Acres)	Industrial (Acres)	Residential (Acres)	Floodplain (Acres)	Total LUEs	ADF (gpd)	PDWF (gpd)	PWF (gpd)
1	1,923.40	26.17	6,210.54	531.75	30,881.1	7,357,872	18,384,679	25,714,586
2	800.10	359.80	2,416.40	46.48	12,[illegible]	3,010,759	7,526,[illegible]	10,674,967
3	850.02	178.08	3,739.97	84.86	15,309.8	3,730,909	9,377,274	13,124,640
4	4.78	0.00	6,621.86	94.14	19,884.1	4,871,000	12,179,014	16,838,446
5	2,117.36	999.34	15,318.08	724.49	58,422.0	14,313,396	35,783,491	50,385,447
6	245.98	277.08	6,899.30	192.83	22,771.9	5,579,112	13,947,780	19,504,014
7	495.09	433.34	4,937.83	664.46	18,587.7	4,541,726	11,356,915	16,198,989
8	734.99	98.59	13,394.30	461.35	43,985.6	10,769,177	26,922,817	37,427,387
9	6.72	8.06	2,268.73	8.56	6,850.3	1,678,322	4,195,806	5,808,305
10	1.27	26.64	397.07	0.00	1,302.9	319,287	798,017	1,117,206
Total	6,000.00	2,361.24	64,993.20	2,856.11	229,395.29	[illegible]	[illegible]	196,796,[illegible]

0 5,000 10,000

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY GARRY D. MONTGOMERY, JR., LICENSED P.E. NO. 114438, August 31, 2015. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT

NO.	REVISIONS	APP'D	DATE

DESIGNED BY: TJC
DRAWN BY: TJC
CHECKED BY: VB
SCALE:
DATE: 31 August, 2015
PROJECT NO: 6086-118

RIVER CITY ENGINEERING
CIVIL, ENVIRONMENTAL & CONSULTING

GREEN VALLEY SPECIAL UTILITY DISTRICT

EXHIBIT-1
GVSUD LAND USE MAP

SHEET NO 1 OF 1 SHEETS

GVSUD 100256

Texas Commission on Environmental Quality

NOTICE OF APPLICATION AND PRELIMINARY DECISION FOR TPDES PERMIT FOR MUNICIPAL WASTEWATER NEW

PERMIT NO. WQ0015360001

APPLICATION AND PRELIMINARY DECISION. Green Valley Special Utility District, P.O. Box 99, Marion, Texas 78124, has applied to the Texas Commission on Environmental Quality (TCEQ) for new Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0015360001, to authorize the discharge of treated domestic wastewater at an annual average flow not to exceed 5,000,000 gallons per day. TCEQ received this application on April 1; 2015.

The facility will be located at 3930 Linne Road, Seguin, in Guadalupe County, Texas 78155. The treated effluent will be discharged to Santa Clara Creek; thence to Lower Cibolo Creek in Segment No. 1902 of the Guadalupe River Basin. The unclassified receiving water use is high aquatic life use for Santa Clara Creek. The designated uses for Segment No. 1902 are high aquatic life use and primary contact recreation. In accordance with 30 Texas Administrative Code Section 307.5 and the TCEQ implementation procedures (June 2010) for the Texas Surface Water Quality Standards, an antidegradation review of the receiving waters was performed. A Tier 1 antidegradation review has preliminarily determined that existing water quality uses will not be impaired by this permit action. Numerical and narrative criteria to protect existing uses will be maintained. A Tier 2 review has preliminarily determined that no significant degradation of water quality is expected in Santa Clara Creek, which has been identified as having high aquatic life use. Existing uses will be maintained and protected. The preliminary determination can be reexamined and may be modified if new information is received.

The TCEQ Executive Director has completed the technical review of the application and prepared a draft permit. The draft permit, if approved, would establish the conditions under which the facility must operate. The Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The permit application, Executive Director's preliminary decision, and draft permit are available for viewing and copying at Marion City Hall, 303 South Center Street, Marion, in Guadalupe County, Texas. This link to an electronic map of the site or facility's general location is provided as a public courtesy and is not part of the application or notice. For the exact location, refer to the application. http://www.tceq.texas.gov/assets/public/hb610/index.html?lat=29.5253&lng=-98.114166&zoom=13&type=r

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting about this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ holds a public meeting if the Executive Director determines that there is a significant degree of public interest in the application or if requested by a local legislator. A public meeting is not a contested case hearing.

OPPORTUNITY FOR A CONTESTED CASE HEARING. After the deadline for submitting public comments, the Executive Director will consider all timely comments and prepare a response to all relevant and material, or significant public comments. **Unless the application is directly referred for a contested case hearing, the response to comments will be mailed to everyone who submitted public comments and to those persons who are on the mailing list for this application. If comments are received, the mailing will also provide instructions for requesting a contested case hearing or reconsideration of the Executive Director's decision.** A contested case hearing is a legal proceeding similar to a civil trial in a state district court.

TO REQUEST A CONTESTED CASE HEARING, YOU MUST INCLUDE THE FOLLOWING ITEMS IN YOUR REQUEST: your name; address, phone number; applicant's name and permit number; the location and distance of your property/activities relative to the facility; a specific description of how you would be adversely affected by the facility in a way not common to the general public; and the statement "I/we request a contested case hearing." If the request for contested case hearing is filed on behalf of a group or association, the request must designate the group's representative for receiving future correspondence; identify an individual member of the group who would be adversely affected by the proposed facility or activity; provide the information discussed above regarding the affected member's location and distance from the facility or activity; explain how and why the member would be affected; and explain how the interests the group seeks to protect are germane to the group's purpose.

Following the close of all applicable comment and request periods, the Executive Director will forward the application and any requests for reconsideration or for a contested case hearing to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

The Commission will only grant a contested case hearing on disputed issues of fact that are relevant and material to the Commission's decision on the application. Further, the Commission will only grant a hearing on issues that were raised in timely filed comments that were not subsequently withdrawn.

EXECUTIVE DIRECTOR ACTION. The Executive Director may issue final approval of the application unless a timely contested case hearing request or request for reconsideration is filed. If a timely hearing request or request for reconsideration is filed, the Executive Director will not issue final approval of the permit and will forward the application and request to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

MAILING LIST. If you submit public comments, a request for a contested case hearing or a reconsideration of the Executive Director's decision, you will be added to the mailing list for this specific application to receive future public notices mailed by the Office of the Chief Clerk. In addition, you may request to be placed on: (1) the permanent mailing list for a specific applicant name and permit number; and/or (2) the mailing list for a specific county. If you wish to be placed on the permanent and/or the county mailing list, clearly specify which list(s) and send your request to TCEQ Office of the Chief Clerk at the address below.

All written public comments and public meeting requests must be submitted to the Office of the Chief Clerk, MC 105, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, TX 78711-3087 or electronically at www.tceq.texas.gov/about/comments.html within 30 days from the date of newspaper publication of this notice.

AGENCY CONTACTS AND INFORMATION. If you need more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040. General information about the TCEQ can be found at our web site at www.TCEQ.texas.gov.

Further information may also be obtained from Green Valley Special Utility District at the address stated above or by calling Mr. Pat Allen at 830-914-2330.

Issuance Date: October 12, 2015

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

For draft Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0015360001, TX0136352, to discharge to water in the state.

Issuing Office:	Texas Commission on Environmental Quality P.O. Box 13087 Austin, Texas 78711-3087
Applicant:	Green Valley Special Utility District P.O. Box 99 Marion, Texas 78124
Prepared By:	Larry Diamond Municipal Permits Team Wastewater Permitting Section (MC 148) Water Quality Division (512) 239-0037
Date:	August 13, 2015 and October 2, 2015
Permit Action:	New Permit

1. EXECUTIVE DIRECTOR RECOMMENDATION

The Executive Director has made a preliminary decision that this permit, if issned, meets all statutory and regulatory requirements. The draft permit includes an expiration date of **March 1, 2020,** according to 30 Texas Administrative Code (TAC) § 305.71, Basin Permitting.

2. APPLICANT ACTIVITY

The applicant has applied to the Texas Commission on Environmental Quality (TCEQ) for a new permit to authorize the discharge of treated domestic wastewater at an annual average flow not to exceed 0.25 million gallons per day (MGD) in the Interim I phase, an annual average flow not to exceed 2.5 MGD in the Interim II phase, and an annual average flow not to exceed 5.0 MGD in the Final phase. The proposed wastewater treatment facility will serve proposed developments in the Santa Clara Creek watershed in Guadalupe County, Texas.

3. FACILITY AND DISCHARGE LOCATION

The plant site will be located at 3930 Linne Road, Seguin, in Guadalupe County, Texas 78155.

The treated effluent will be discharged to Santa Clara Creek; thence to Lower Cibolo Creek in Segment No. 1902 of the Guadalupe River Basin. The unclassified receiving water use is high aquatic life use for Santa Clara Creek. The designated uses for Segment No. 1902 are high aquatic life use and primary contact recreation.

4. TREATMENT PROCESS DESCRIPTION AND SEWAGE SLUDGE DISPOSAL

The Santa Clara Creek No. 1 Wastewater Treatment Facility will be an activated sludge process plant operated in the extended aeration mode. Treatment units in the Interim I phase will include a lift station, bar screen, equalization basin, aeration basin, final clarifier, sludge digester, a belt filter press, a chlorine contact chamber, and disk filter. Treatment units in the Interim II and Final phase will include a lift station, bar screen, two sequencing batch reactor basins, equalization basin, sludge digester, a belt filter press, a UV disinfection system, and disk filter. The facility has not been constructed.

The draft permit also authorizes the disposal of sludge at a TCEQ-authorized land application site, co-disposal landfill, or wastewater treatment facility.

5. INDUSTRIAL WASTE CONTRIBUTION

The draft permit includes pretreatment requirements that are appropriate for a facility of this size and complexity. The Green Valley Special Utility District facility is not yet constructed and does not appear to receive significant industrial wastewater contributions upon time of operation.

6. SUMMARY OF SELF-REPORTED EFFLUENT ANALYSES

Self-reporting data is not available since the facility is not yet constructed.

7. DRAFT PERMIT CONDITIONS AND MONITORING REQUIREMENTS

The effluent limitations and monitoring requirements for those parameters that are limited in the draft permit are as follows:

A. INTERIM I PHASE EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The daily average flow of effluent shall not exceed 0.25 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 521 gallons per minute (gpm).

Parameter	30-Day Average		7-Day Average	Daily Maximum
	mg/l	lbs/day	mg/l	mg/l
$CBOD_5$	10	21	15	25
TSS	15	31	25	40
NH_3-N	3	6.3	6	10
Total Phosphorus (P)	0.5	1.0	1	2
DO (minimum)	4.0	N/A	N/A	N/A
E. coli, colony-forming units (CFU) or most probable number (MPN) per 100 ml	126	N/A	N/A	N/A

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per month by grab sample. There shall be no

discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

The effluent shall contain a chlorine residual of at least 1.0 mg/l and shall not exceed a chlorine residual of 4.0 mg/l after a detention time of at least 20 minutes (based on peak flow), and shall be monitored five times per week by grab sample. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.

Parameter	Monitoring Requirement
Flow, MGD	Continuous
$CBOD_5$	One/week
TSS	One/week
NH_3-N	One/week
Total P	One/week
DO	One/week
E. coli	One/month

B. INTERIM II PHASE EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The annual average flow of effluent shall not exceed 2.5 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 5,208 gpm.

Parameter	30-Day Average		7-Day Average	Daily Maximum
	mg/l	lbs/day	mg/l	mg/l
$CBOD_5$	7	146	12	22
TSS	15	313	25	40
NH_3-N	2	42	5	10
Total Phosphorus	0.5	10	1	2
DO (minimum)	6.0	N/A	N/A	N/A
E. coli, CFU or MPN/100 ml	126	N/A	N/A	399

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per week by grab sample. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

The permittee shall utilize an Ultraviolet Light (UV) system for disinfection purposes. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.

Parameter	Monitoring Requirement
Flow, MGD	Continuous
$CBOD_5$	Two/week
TSS	Two/week
NH_3-N	Two/week
Total P	Two/week
DO	Two/week
E. coli	Daily

C. FINAL PHASE EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The annual average flow of effluent shall not exceed 5.0 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 10, 417 gpm.

Parameter	30-Day Average		7-Day Average	Daily Maximum
	mg/l	lbs/day	mg/l	mg/l
$CBOD_5$	5	209	10	20
TSS	5	209	10	20
NH_3-N	1.8	75	5	10
Total Phosphorus	0.5	21	1	2
DO (minimum)	6.0	N/A	N/A	N/A
E. coli, CFU or MPN/100 ml	126	N/A	N/A	399

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored five times per week by grab sample. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

The permittee shall utilize an Ultraviolet Light (UV) system for disinfection purposes. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.

Parameter	Monitoring Requirement
Flow, MGD	Continuous
$CBOD_5$	Five/week
TSS	Five/week
NH_3-N	Five/week
Total P	Five/week
DO	Five/week
E. coli	Daily

D. SEWAGE SLUDGE REQUIREMENTS

The draft permit includes Sludge Provisions according to the requirements of 30 TAC Chapter 312, Sludge Use, Disposal, and Transportation. The draft permit also authorizes the disposal of sludge at a TCEQ-authorized land application site, co-disposal landfill, or wastewater treatment facility.

E. PRETREATMENT REQUIREMENTS

Permit requirements for pretreatment are based on TPDES regulations contained in 30 TAC Chapter 315, which references 40 Code of Federal Regulations (CFR) Part 403; "General Pretreatment Regulations for Existing and New Sources of Pollution" *[rev. Federal Register/ Vol. 70/ No. 198/ Friday, October 14, 2005/ Rules and Regulations, pages 60134-60798].* The permit includes specific

requirements that establish responsibilities of local government, industry, and the public to implement the standards to control pollutants which pass through or interfere with treatment processes in publicly owned treatment works or which may contaminate the sewage sludge. This permit has appropriate pretreatment language for a facility of this size and complexity.

F. WHOLE EFFLUENT TOXICITY (BIOMONITORING) REQUIREMENTS

(1) The draft permit includes 7-day chronic freshwater biomonitoring requirements as follows. The permit requires five dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 31%, 42%, 56%, 74%, and 99%. The low-flow effluent concentration (critical dilution) is defined as 99% effluent.

(a) Chronic static renewal 7-day survival and reproduction test using the water flea (*Ceriodaphnia dubia*). The frequency of the testing is once per quarter for at least the first year of testing, after which the permittee may apply for a testing frequency reduction.

(b) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*). The frequency of the testing is once per quarter for at least the first year of testing, after which the permittee may apply for a testing frequency reduction.

(2) The draft permit includes the following minimum 24-hour acute freshwater biomonitoring requirements at a frequency of once per six months:

(a) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*).

(b) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*).

G. BUFFER ZONE REQUIREMENTS

The permittee shall comply with the requirements of 30 TAC § 309.13(a) through (d). In addition, by ownership of the required buffer zone area, the permittee shall comply with the requirements of 30 TAC § 309.13(e).

H. SUMMARY OF CHANGES FROM APPLICATION

None.

I. SUMMARY OF CHANGES FROM EXISTING PERMIT

Standard Permit Conditions, Sludge Provisions, Other Requirements, Pretreatment Requirements, and Biomonitoring sections have been included in the draft permit.

E. coli bacteria limits have been added to the draft permit in accordance with the recent amendments to 30 TAC Chapters 309 and 319.

SECTION IV, REQUIREMENTS APPLYING TO SLUDGE TRANSPORTED TO ANOTHER FACILITY FOR FURTHER PROCESSING, has been added to the Sludge Provisions of the draft permit to allow the transportation of sludge to another facility.

The Standards Implementation Team recommends the inclusion of a total phosphorus limit of 0.5 mg/L for all phases of the proposed facility. This should help to insure that no significant degradation of water quality will occur.

8. DRAFT PERMIT RATIONALE

A. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Regulations promulgated in Title 40 CFR require that technology-based limitations be placed in wastewater discharge permits based on effluent limitations guidelines, where applicable, or on best professional judgment (BPJ) in the absence of guidelines.

Effluent limitations for maximum and minimum pH are in accordance with 40 CFR § 133.102(c) and 30 TAC § 309.1(b).

B. WATER QUALITY SUMMARY AND COASTAL MANAGEMENT PLAN

(1) WATER QUALITY SUMMARY

The treated effluent is discharged to Santa Clara Creek; thence to Lower Cibolo Creek in Segment No. 1902 of the Guadalupe River Basin. The unclassified receiving water use is high aquatic life use for Santa Clara Creek. The designated uses for Segment No. 1902 are high aquatic life use and primary contact recreation. The effluent limitations in the draft permit will maintain and protect the existing instream uses. In accordance with 30 TAC § 307.5 and the TCEQ implementation procedures (June 2010) for the Texas Surface Water Quality Standards, an antidegradation review of the receiving waters was performed. A Tier 1 antidegradation review has preliminarily determined that existing water quality uses will not be impaired by this permit action: Numerical and narrative criteria to protect existing uses will be maintained. A Tier 2 review has preliminarily determined that no significant degradation of water quality is expected in Santa Clara Creek, which has been identified as having high aquatic life use. Existing uses will be maintained and protected. The preliminary determination can be reexamined and may be modified if new information is received.

The discharge from this permit action is not expected to have an effect on any federal endangered or threatened aquatic or aquatic dependent species or proposed species or their critical habitat. This determination is based on the United States Fish and Wildlife Service's (USFWS's) biological opinion on the State of Texas authorization of the TPDES (September 14, 1998; October 21, 1998, update). To make this determination for TPDES permits, TCEQ and EPA only considered aquatic or aquatic dependent species occurring in watersheds of critical

concern or high priority as listed in Appendix A of the USFWS biological opinion. The determination is subject to reevaluation due to subsequent updates or amendments to the biological opinion. The permit does not require EPA review with respect to the presence of endangered or threatened species.

Segment 1902 is currently listed on the State's inventory of impaired and threatened waters (the 2012 Clean Water Act Section 303(d) list). The listing is for elevated bacteria levels and impaired fish community in various reaches. The bacteria impairment extends from the lower Segment boundary upstream to the confluence with Clifton Branch (AUs 1902_01, 1902_02, 1902_03). The impaired fish community listing is restricted to a reach extending from 5 miles upstream of the confluence with the San Antonio River to FM 541 (AU 1902_02). This facility is designed to provide adequate disinfection and when operated properly should not add to the bacterial impairment of the segment. In addition, in order to ensure that the proposed discharge meets the stream bacterial standard, an effluent limitation of 126 colony forming units (CFU) or most probable number (MPN) of *E. coli* per 100 ml has been added to the draft permit. The proposed plant will serve a planned residential development. Effluent limits including nutrients limits for ammonia-nitrogen and Total Phosphorus have been included in the draft permit and have been modeled to be protective of Texas Surface Water Quality Standards for aquatic and human health. The facility is not expected to add to the impaired fish community.

The effluent limitations and conditions in the draft permit comply with the Texas Surface Water Quality Standards (TSWQS), 30 TAC §§ 307.1 - 307.10.

(2) CONVENTIONAL PARAMETERS

Effluent limitations for the conventional effluent parameters (i.e., Biochemical Oxygen Demand or Carbonaceous Biochemical Oxygen Demand, Ammonia Nitrogen, etc.) are based on stream standards and waste load allocations for water quality-limited streams as established in the TSWQS and the State of Texas Water Quality Management Plan (WQMP).

The effluent limits recommended above have been reviewed for consistency with the WQMP. The proposed limits are not contained in the approved WQMP. However, these limits will be included in the next WQMP update.

The effluent limitations in the draft permit meet the requirements for secondary treatment and the requirements for disinfection according to 30 TAC Chapter 309, Subchapter A: Effluent Limitations.

(3) COASTAL MANAGEMENT PLAN

The facility is not located in the Coastal Management Program boundary.

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS/CONDITIONS

(1) GENERAL COMMENTS

The Texas Surface Water Quality Standards (30 TAC Chapter 307) state that surface waters will not be toxic to man, or to terrestrial or aquatic life. The methodology outlined in the "Procedures to Implement the Texas Surface Water Quality Standards, June 2010" is designed to ensure compliance with 30 TAC Chapter 307. Specifically, the methodology is designed to ensure that no source will be allowed to discharge any wastewater that: (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical state water quality standard; (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation that threatens human health.

(2) AQUATIC LIFE CRITERIA

(a) SCREENING

Water quality-based effluent limitations are calculated from freshwater aquatic life criteria found in Table 1 of the Texas Surface Water Quality Standards (30 TAC Chapter 307).

Acute freshwater criteria are applied at the edge of the zone of initial dilution (ZID), and chronic freshwater criteria are applied at the edge of the aquatic life mixing zone. The ZID for this discharge is defined as 20 feet upstream and 60 feet downstream from the point where the discharge enters Lower Cibolo Creek. The aquatic life mixing zone for this discharge is defined as 100 feet upstream and 300 feet downstream from the point where the discharge enters Lower Cibolo Creek.

TCEQ uses the mass balance equation to estimate dilutions at the edges of the ZID and aquatic life mixing zone during critical conditions. The estimated dilution at the edge of the aquatic life mixing zone is calculated using the final permitted flow of 5.0 MGD and the 7-day, 2-year (7Q2) flow of 0.10 cfs for Lower Cibolo Creek. The estimated dilution at the edge of the ZID is calculated using the final permitted flow of 5.0 MGD and 25% of the 7Q2 flow. The following critical effluent percentages are being used:

Acute Effluent %: 99.68% Chronic Effluent %: 98.72%

Wasteload allocations (WLAs) are calculated using the above estimated effluent percentages, criteria outlined in the Texas Surface Water Quality Standards, and partitioning coefficients for metals (when appropriate and designated in the implementation procedures). The WLA is the end-of-pipe effluent concentration that can be discharged when, after mixing in the receiving stream, instream numerical criteria will not be exceeded. From the WLA, a long-term average (LTA) is calculated using a log normal probability distribution, a given coefficient of variation (0.6), and a 90th percentile confidence level. The LTA is the long-term average effluent concentration for which the WLA will never be exceeded using a

selected percentile confidence level. The lower of the two LTAs (acute and chronic) is used to calculate a daily average and daily maximum effluent limitation for the protection of aquatic life using the same statistical considerations with the 99th percentile confidence level and a standard number of monthly effluent samples collected (12). Assumptions used in deriving the effluent limitations include segment values for hardness, chlorides, pH, and total suspended solids (TSS) according to the segment-specific values contained in the TCEQ guidance document "Procedures to Implement the Texas Surface Water Quality Standards, June 2010." The segment values are 257 mg/l for hardness (as calcium carbonate), 100 mg/l chlorides, 7.6 standard units for pH, and 8.8 mg/l for TSS. For additional details on the calculation of water quality-based effluent limitations, refer to the TCEQ guidance document.

TCEQ practice for determining significant potential is to compare the reported analytical data against percentages of the calculated daily average water quality-based effluent limitation. Permit limitations are required when analytical data reported in the application exceeds 85% of the calculated daily average water quality-based effluent limitation. Monitoring and reporting is required when analytical data reported in the application exceeds 70% of the calculated daily average water quality-based effluent limitation.

(b) PERMIT ACTION

No analytical data is available for screening against water quality-based effluent limitations because the facility is not in operation.

(3) AQUATIC ORGANISM BIOACCUMULATION CRITERIA

(a) SCREENING

Water quality-based effluent limitations for the protection of human health are calculated using criteria for the consumption of freshwater fish tissue found in Table 2 of the Texas Surface Water Quality Standards (30 TAC Chapter 307). Freshwater fish tissue bioaccumulation criteria are applied at the edge of the human health mixing zone. The human health mixing zone for this discharge is identical to the aquatic life mixing zone. TCEQ uses the mass balance equation to estimate dilution at the edge of the human health mixing zone during average flow conditions. The estimated dilution at the edge of the human health mixing zone is calculated using the final permitted flow of 5.0 MGD and the harmonic mean flow of 0.20 cfs for Lower Cibolo Creek. The following critical effluent percentage is being used:

Human Health Effluent %: 97.48%

Water quality-based effluent limitations for human health protection against the consumption of fish tissue are calculated using the same procedure as outlined for calculation of water quality-based effluent

limitations for aquatic life protection. A 99th percentile confidence level in the long-term average calculation is used with only one long-term average value being calculated.

Significant potential is again determined by comparing reported analytical data against 70% and 85% of the calculated daily average water quality-based effluent limitation.

(b) PERMIT ACTION

No analytical data is available for screening against water quality-based effluent limitations because the facility is not in operation.

(4) DRINKING WATER SUPPLY PROTECTION

(a) SCREENING

Water Quality Segment No. 1902, which receives the discharge from this facility, is not designated as a public water supply. Screening reported analytical data of the effluent against water quality-based effluent limitations calculated for the protection of a drinking water supply is not applicable.

(b) PERMIT ACTION

None.

(5) WHOLE EFFLUENT TOXICITY (BIOMONITORING) CRITERIA

(a) SCREENING

TCEQ has determined that there may be pollutants present in the effluent that may have the potential to cause toxic conditions in the receiving stream. Whole effluent biomonitoring is the most direct measure of potential toxicity that incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity.

A reasonable potential (RP) determination was performed in accordance with 40 CFR §122.44(d)(1)(ii) to determine whether the discharge will reasonably be expected to cause or contribute to an exceedance of a state water quality standard or criterion within that standard. Each test species is evaluated separately. The RP determination is based on representative data from the previous five years of chronic WET testing. The table below identifies the number of test failures required to necessitate that a WET limit be placed in the permit or the consideration of additional Best Professional Judgment (BPJ) factors, such as the duration and magnitude of the failures.

WET Reasonable Potential Determination Thresholds
More than 3 failures in the past five years = WET limit
3 failures with 2 or 3 occurring in the past 3 years = WET limit
1 to 3 failures in the past five years but 1 or less in last 3 years = BPJ
0 failures = No limit

With zero failures, a determination of no RP was made for both test species. With no RP, additional WET limits are not required and both test species are eligible for the testing frequency reduction.

The permit includes 7-day chronic freshwater biomonitoring requirements. The facility has yet to be constructed. Therefore, there is no WET testing history to review.

The applicant is not currently monitoring whole effluent toxicity because the requirements do not take effect until the Final phase.

(b) PERMIT ACTION

The test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge. This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body.

No analytical data is available because the facility is not in operation.

(6) WHOLE EFFLUENT TOXICITY CRITERIA (24-HOUR ACUTE)

(a) SCREENING

The existing permit includes 24-hour acute freshwater biomonitoring language. The facility has yet to be constructed. Therefore, there is no WET testing history to review.

(b) PERMIT ACTION

The draft permit includes 24-hour 100% acute biomonitoring tests for the life of the permit to begin in the Final phase. The applicant is not currently monitoring whole effluent toxicity because the requirements do not take effect until the Final phase.

9. WATER QUALITY VARIANCE REQUESTS

No variance requests have been received.

10. PROCEDURES FOR FINAL DECISION

When an application is declared administratively complete, the Chief Clerk sends a letter to the applicant advising the applicant to publish the Notice of Receipt of Application and Intent to Obtain Permit in the newspaper. In addition, the Chief Clerk instructs the applicant to place a copy of the application in a public place for review and copying in the county where the facility is or will be located. This application will be in a public place throughout the comment period. The Chief Clerk also mails this notice to any interested persons and, if required, to landowners identified in the permit application. This notice informs the public about the application, and provides that an interested person may file comments on the application or request a contested case hearing or a public meeting.

Once a draft permit is completed, it is sent, along with the Executive Director's preliminary decision, as contained in the technical summary or fact sheet, to the Chief Clerk. At that time, the Notice of Application and Preliminary Decision will be mailed to the same people and published in the same newspaper as the prior notice. This notice sets a deadline for making public comments. The applicant must place a copy of the Executive Director's preliminary decision and draft permit in the public place with the application. This notice sets a deadline for public comment.

Any interested person may request a public meeting on the application until the deadline for filing public comments. A public meeting is intended for the taking of public comment, and is not a contested case proceeding.

After the public comment deadline, the Executive Director prepares a response to all significant public comments on the application or the draft permit raised during the public comment period. The Chief Clerk then mails the Executive Director's response to comments and final decision to people who have filed comments, requested a contested case hearing, or requested to be on the mailing list. This notice provides that if a person is not satisfied with the Executive Director's response and decision, they can request a contested case hearing or file a request to reconsider the Executive Director's decision within 30 days after the notice is mailed.

The Executive Director will issue the permit unless a written hearing request or request for reconsideration is filed within 30 days after the Executive Director's response to comments and final decision is mailed. If a hearing request or request for reconsideration is filed, the Executive Director will not issue the permit and will forward the application and request to the TCEQ Commissioners for their consideration at a scheduled Commission meeting. If a contested case hearing is held, it will be a legal proceeding similar to a civil trial in state district court.

If the Executive Director calls a public meeting or the Commission grants a contested case hearing as described above, the Commission will give notice of the date, time, and place of the meeting or hearing. If a hearing request or request for reconsideration is made, the Commission will consider all public comments in making its decision and shall either adopt the Executive Director's response to public comments or prepare its own response.

For additional information about this application, contact Larry Diamond at (512) 239-0037.

11. ADMINISTRATIVE RECORD

The following items were considered in developing the draft permit:

A. APPLICATION

Application received on April 1, 2015, and additional information received on May 4, 2015, May 8, 2015, and September 3, 2015.

B. MEMORANDA

Interoffice memoranda from the Water Quality Assessment Section of the TCEQ Water Quality Division. Interoffice memorandum from the Stormwater & Pretreatment Team of the TCEQ Water Quality Division.

C. MISCELLANEOUS

Federal Clean Water Act, § 402; Texas Water Code § 26.027; 30 TAC Chapters 30, 305, 309, 312, 319,; Commission policies; and U.S. Environmental Protection Agency guidelines.

Texas Surface Water Quality Standards, 30 TAC §§ 307.1 - 307.10.

Procedures to Implement the Texas Surface Water Quality Standards (IP), Texas Commission on Environmental Quality, June 2010, as approved by theU.S. Environmental Protection Agency, and the IP, January 2003, for portions of the 2010 IP not approved by the U.S. Environmental Protection Agency.

Texas 2012 Clean Water Act Section 303(d) List, Texas Commission on Environmental Quality, February 21, 2013; approved by the U.S. Environmental Protection Agency on May 9, 2013.

TNRCC Guidance Document for Establishing Monitoring Frequencies for Domestic and Industrial Wastewater Discharge Permits, Document No. 98-001.000-OWR-WQ, May 1998.

TPDES PERMIT NO.
WQ0015360001
[For TCEQ office use only - EPA I.D. No. TX0136352]

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

PERMIT TO DISCHARGE WASTES
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

Green Valley Special Utility District

whose mailing address is

P.O. Box 99
Marion, Texas 78124

is authorized to treat and discharge wastes from the Santa Clara Creek No. 1 Wastewater Treatment Facility, SIC Code 4952

located at 3930 Linne Road, Seguin in Guadalupe County, Texas 78155

to Santa Clara Creek; thence to Lower Cibolo Creek in Segment No. 1902 of the Guadalupe River Basin

only according to effluent limitations, monitoring requirements, and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation, or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit shall expire at midnight, **March 1, 2020.**

ISSUED DATE:

For the Commission

INTERIM I EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

1. During the period beginning upon the date of issuance and lasting through completion of expansion to the 2.5 million gallons per day (MGD) facility, the permittee is authorized to discharge subject to the following effluent limitations:

   The daily average flow of effluent shall not exceed 0.25 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 521 gallons per minute (gpm).

Effluent Characteristic	Discharge Limitations				Min. Self-Monitoring Requirements	
	Daily Avg mg/l (lbs/day)	7-day Avg mg/l	Daily Max mg/l	Single Grab mg/l	Report Daily Avg. & Max. Single Grab Measurement Frequency	Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	10 (21)	15	25	35	One/week	Grab
Total Suspended Solids	15 (31)	25	40	60	One/week	Grab
Ammonia Nitrogen	3 (6.3)	6	10	15	One/week	Grab
Total Phosphorus	0.5 (1.0)	1	2	3	One/week	Grab
E. coli, colony forming units or most probable number per 100 ml	126	N/A	N/A	399	One/month	Grab

2. The effluent shall contain a chlorine residual of at least 1.0 mg/l and shall not exceed a chlorine residual of 4.0 mg/l after a detention time of at least 20 minutes (based on peak flow), and shall be monitored five times per week by grab sample. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.
3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per month by grab sample.
4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.
6. The effluent shall contain a minimum dissolved oxygen of 4.0 mg/l and shall be monitored once per week by grab sample.

INTERIM II EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Outfall Number 001

1. During the period beginning upon the completion of expansion to the 2.5 million gallons per day (MGD) facility and lasting through the completion of expansion to the 5.0 MGD facility, the permittee is authorized to discharge subject to the following effluent limitations:

   The annual average flow of effluent shall not exceed 2.5 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 5,208 gpm.

Effluent Characteristic	Discharge Limitations				Min. Self-Monitoring Requirements	
	Daily Avg mg/l (lbs/day)	7-day Avg mg/l	Daily Max mg/l	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	7 (146)	12	22	32	Two/week	Composite
Total Suspended Solids	15 (313)	25	40	60	Two/week	Composite
Ammonia Nitrogen	2 (42)	5	10	15	Two/week	Composite
Total Phosphorus	0.5 (10)	1	2	3	Two/week	Composite
E. coli, colouy forming units or most probable number per 100 ml	126	N/A	399	N/A	Daily	Grab

2. The permittee shall utilize an Ultraviolet Light (UV) system for disinfectiou purposes. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.
3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per week by grab sample.
4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.
6. The effluent shall contain a minimum dissolved oxygen of 6.0 mg/l and shall be monitored twice per week by grab sample.
7. The annual average flow and maximum 2-hour peak flow shall be reported monthly.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

1. During the period beginning upon the completion of expansion to the 5.0 million gallons per day (MGD) facility and lasting through the date of permit expiration, the permittee is authorized to discharge subject to the following effluent limitations:

   The annual average flow of effluent shall not exceed 5.0 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 10,417 gpm.

Effluent Characteristic	Discharge Limitations				Min. Self-Monitoring Requirements	
	Daily Avg mg/l (lbs/day)	7-day Avg mg/l	Daily Max mg/l	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	5 (209)	10	20	30	Five/week	Composite
Total Suspended Solids	5 (209)	10	20	30	Five/week	Composite
Ammonia Nitrogen	1.8 (75)	5	10	15	Five/week	Composite
Total Phosphorus	0.5 (21)	1	2	3	Five/week	Composite
E. coli, colony forming units or most probable number per 100 ml	126	N/A	399	N/A	Daily	Grab

2. The permittee shall utilize an Ultraviolet Light (UV) system for disinfection purposes. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.
3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored five per week by grab sample.
4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.
6. The effluent shall contain a minimum dissolved oxygen of 6.0 mg/l and shall be monitored five per week by grab sample.
7. The annual average flow and maximum 2-hour peak flow shall be reported monthly.

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 30 Texas Administrative Code (TAC) Chapter 305, certain regulations appear as standard conditions in waste discharge permits. 30 TAC § 305.121 - 305.129 (relating to Permit Characteristics and Conditions) as promulgated under the Texas Water Code (TWC) §§ 5.103 and 5.105, and the Texas Health and Safety Code (THSC) §§ 361.017 and 361.024(a), establish the characteristics and standards for waste discharge permits, including sewage sludge, and those sections of 40 Code of Federal Regulations (CFR) Part 122 adopted by reference by the Commission. The following text includes these conditions and incorporates them into this permit. All definitions in TWC § 26.001 and 30 TAC Chapter 305 shall apply to this permit and are incorporated by reference. Some specific definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

   a. Annual average flow - the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder and limited to major domestic wastewater discharge facilities with one million gallons per day or greater permitted flow.

   b. Daily average flow - the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.

   c. Daily maximum flow - the highest total flow for any 24-hour period in a calendar month.

   d. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.

   e. 2-hour peak flow (domestic wastewater treatment plants) - the maximum flow sustained for a two-hour period during the period of daily discharge. The average of multiple measurements of instantaneous maximum flow within a two-hour period may be used to calculate the 2-hour peak flow.

   f. Maximum 2-hour peak flow (domestic wastewater treatment plants) - the highest 2-hour peak flow for any 24-hour period in a calendar month.

2. Concentration Measurements

   a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.

      i. For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.

ii. For all other wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.

b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.

c. Daily maximum concentration - the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.

d. Daily discharge - the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the sampling day.

The daily discharge determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the daily discharge determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that day.

e. Bacteria concentration (*E. coli* or Enterococci) - Colony Forming Units (CFU) or Most Probable Number (MPN) of bacteria per 100 milliliters effluent. The daily average bacteria concentration is a geometric mean of the values for the effluent samples collected in a calendar month. The geometric mean shall be determined by calculating the nth root of the product of all measurements made in a calendar month, where n equals the number of measurements made; or, computed as the antilogarithm of the arithmetic mean of the logarithms of all measurements made in a calendar month. For any measurement of bacteria equaling zero, a substituted value of one shall be made for input into either computation method. If specified, the 7-day average for bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.

f. Daily average loading (lbs/day) - the arithmetic average of all daily discharge loading calculations during a period of one calendar month. These calculations must be made for each day of the month that a parameter is analyzed. The daily discharge, in terms of mass (lbs/day), is calculated as (Flow, MGD x Concentration, mg/l x 8.34).

g. Daily maximum loading (lbs/day) - the highest daily discharge, in terms of mass (lbs/day), within a period of one calendar month.

3. Sample Type

a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (b).

b. Grab sample - an individual sample collected in less than 15 minutes.

4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.

5. The term "sewage sludge" is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids that have not been classified as hazardous waste separated from wastewater by unit processes.

6. Bypass - the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING AND REPORTING REQUIREMENTS

1. Self-Reporting

Monitoring results shall be provided at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 30 TAC §§ 319.4 - 319.12. Unless otherwise specified, a monthly effluent report shall be submitted each month, to the Enforcement Division (MC 224), by the 20th day of the following month for each discharge which is described by this permit whether or not a discharge is made for that month. Monitoring results must be reported on an approved self-report form that is signed and certified as required by Monitoring and Reporting Requirements No. 10.

As provided by state law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Clean Water Act (CWA); TWC §§ 26, 27, and 28; and THSC § 361, including but not limited to knowingly making any false statement, representation, or certification on any report, record, or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, or falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

2. Test Procedures

a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§ 319.11 - 319.12. Measurements, tests, and calculations shall be accurately accomplished in a representative manner.

b. All laboratory tests submitted to demonstrate compliance with this permit must meet the requirements of 30 TAC § 25, Environmental Testing Laboratory Accreditation and Certification.

3. Records of Results

a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.

b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period

of at least five years (or longer as required by 40 CFR Part 503), monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, records of all data used to complete the application for this permit, and the certification required by 40 CFR § 264.73(b)(9) shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, application or certification. This period shall be extended at the request of the Executive Director.

c. Records of monitoring activities shall include the following:

i. date, time and place of sample or measurement;

ii. identity of individual who collected the sample or made the measurement.

iii. date and time of analysis;

iv. identity of the individual and laboratory who performed the analysis;

v. the technique or method of analysis; and

vi. the results of the analysis or measurement and quality assurance/quality control records.

The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in the calculation and reporting of the values submitted on the approved self-report form. Increased frequency of sampling shall be indicated on the self-report form.

5. Calibration of Instruments

All automatic flow measuring or recording devices and all totalizing meters for measuring flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be retained at the facility site and/or shall be readily available for review by a TCEQ representative for a period of three years.

6. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the Regional Office and the Enforcement Division (MC 224).

7. Noncompliance Notification

a. In accordance with 30 TAC § 305.125(9) any noncompliance which may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the Regional Office and the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. The written submission shall contain a description of the noncompliance and its canse; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

b. The following violations shall be reported under Monitoring and Reporting Requirement 7.a.:

i. Unauthorized discharges as defined in Permit Condition 2(g).

ii. Any unanticipated bypass that exceeds any effluent limitation in the permit.

iii. Violation of a permitted maximum daily discharge limitation for pollutants listed specifically in the Other Requirements section of an Industrial TPDES permit.

c. In addition to the above, any effluent violation which deviates from the permitted effluent limitation by more than 40% shall be reported by the permittee in writing to the Regional Office and the Enforcement Division (MC 224) within 5 working days of becoming aware of the noncompliance.

d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Enforcement Division (MC 224) as promptly as possible. For effluent limitation violations, noncompliances shall be reported on the approved self-report form.

8. In accordance with the procedures described in 30 TAC §§ 35.301 - 35.303 (relating to Water Quality Emergency and Temporary Orders) if the permittee knows in advance of the need for a bypass, it shall submit prior notice by applying for such authorization.

9. Changes in Discharges of Toxic Substances

All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the Regional Office, orally or by facsimile transmission within 24 hours, and both the Regional Office and the Enforcement Division (MC 224) in writing within five (5) working days, after becoming aware of or having reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":