

# Sanitary Sewer Master Plan

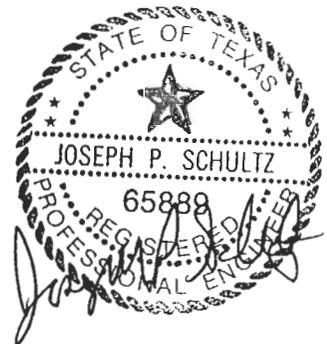
for

**Williams Creek Subdivision  
College Station, Texas**

July 2004

*Prepared By:*

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7-2-04

## 1.0 INTRODUCTION & DESCRIPTION

The Williams Creek Subdivision is a proposed rural residential subdivision located east of Rock Prairie Road and south of Greens Prairie Road in College Station, Texas. Sanitary sewer service is not available to serve this subdivision, so each of the lots will be 1.0 acre or greater in size and have On-Site Sewage Facilities (OSSF). These OSSF's will be designed and constructed in accordance with all TCEQ and Brazos County Health Department requirements.

## 2.0 SANITARY SEWER DESIGN CRITERIA

The sanitary sewer system plan was designed in accordance with the requirements of the Bryan/College Station Design Guidelines and the TCEQ. All lines will meet all applicable city, state, and federal regulations. The minimum finish floor elevations shown on the plan are 4 feet greater than the flow line elevation of the sanitary sewer main which serves the residential lot. Due to the steep topography found in portions of the subdivision, the sanitary sewer lines must be located in the rear portion of lots in order for gravity sewer service. This plan also assumes that an 8" diameter sewer line would be constructed by the City of College Station along Greens Prairie Road from Lick Creek to Rock Prairie Road as shown on the 2002 Area 5 Annexation Plan.

## 3.0 SANITARY SEWER MASTER PLAN

The sanitary sewer system presented in this master plan is shown on Exhibit A. The location of all manholes, gravity flow lines, lift stations and force mains are shown on this Exhibit. Also, it was assumed that the existing streams crossed by the sewer lines would be bored and cased due to COE permitting requirements. The location of these casing pipes is also shown on Exhibit A.

The proposed Williams Creek Subdivision has 111 residential lots. All of these lots would have gravity sanitary sewer service if the structures are constructed with the minimum finish floor elevations shown on Exhibit A and if the sanitary sewer facilities shown on this plan were constructed. All of the sewer lines within the subdivision are gravity flow. These lines discharge into Lift Station No. 2, which would lift the flow approximately 15 feet in elevation and discharge it into gravity lines that drain to Lift Station No. 1 located adjacent to Greens Prairie Road. Lift Station No. 1 lifts the flow and discharges into a 4-inch diameter force main, which conveys the flow to Manhole No. 60. Lift Station No. 1 and the force main lift the flow approximately 55 feet in elevation. The flow would then gravity flow to the existing sanitary sewer line near Lick Creek.

Table 1 is a summary of the design characteristics for each of the sanitary sewer manholes and lines. Table 2 shows the capacity of sanitary sewer line segment S60, which is an 8-inch diameter line at 0.4% slope. At its capacity, this line could serve 450 residential dwelling units, so this line can serve not only the proposed 111 lots in the Williams Creek Subdivision, but also some of the surrounding area.

The sanitary sewer system consists of the following:

Lift Stations	2 each
Manholes	61 each
6" Pipe	5,638 linear feet
8" Pipe	13,612 linear feet
4" Force Main	1,659 linear feet

#### **4.0 CONCLUSIONS**

This Sanitary Sewer Master Plan complies with Section 12-R.2 of the Rural Residential Subdivision Regulations, except that plan and profile layouts of the sewer system are not provided. A variance was approved by the Planning and Zoning Commission on June 17, 2004, that eliminated the requirement that plan and profile layouts be provided with this Master Plan.

**TABLE 1**  
**Sanitary Sewer Summary**

SANITARY SEWER SEGMENT No.	SEGMENT LENGTH (ft)	PIPE DIAMETER (in)	PIPE SLOPE (%)	LIFT STATION/ MH No.	MH FL OUT (ft)	MH FL IN (ft)	MANHOLE RIM ELEVATION (ft)
S-1	428	8	0.40	1	-	203.65	218.3
S-2	358	8	0.40	3	205.36	205.46	218.3
S-3	255	8	0.40	4	206.87	206.97	214.4
S-4	353	8	0.94	5	207.98	208.08	212.3
				2	211.38	196.00	215.7
S-5	453	8	0.40	2	211.38	196.00	215.6
S-6	383	8	0.40	6	197.80	197.90	218.7
S-7	235	8	0.40	7	199.42	199.52	214.8
S-8	499	8	0.40	8	200.50	200.55	216.3
S-9	450	8	0.40	9	202.53	202.63	213.3
S-10	450	8	0.40	10	204.41	204.51	210.8
S-11	387	8	0.40	11	206.29	206.39	210.3
S-12	452	8	0.40	12	207.92	208.02	212.5
S-13	453	8	0.40	13	209.81	209.91	216.7
S-14	378	8	2.73	14	211.71	213.71	225.5
S-15	323	8	3.20	15	223.91	224.01	231.3
S-16	173	8	0.40	16	234.22	234.32	243.7
S-17	270	8	3.34	17	235.00	235.10	244.0
S-18	248	8	2.19	18	244.00	247.42	254.7
S-19	276	8	2.20	19	252.77	252.87	263.5
S-20	268	8	0.40	20	258.85	258.95	267.9
S-21	250	8	0.40	21	260.00	260.10	268.6
S-22	500	8	0.89	22	261.08	261.18	268.4
S-23	497	8	0.40	23	265.59	265.69	274.0
S-24	498	8	0.40	24	267.66	267.76	281.2
S-25	371	8	0.40	25	269.74	269.84	282.0
S-26	251	8	0.40	26	271.31	271.41	280.8
				27	272.40		279.2
S-27	223	8	3.14	6	197.80	211.44	218.8
S-28	416	8	0.40	28	218.31	218.41	234.6
S-29	364	8	0.40	29	220.06	220.16	230.9
S-30	215	8	3.06	30	221.60	226.44	234.2
S-31	291	8	1.55	31	232.89	232.99	240.3
S-32	330	6	4.95	32	237.45	247.21	254.6
S-33	176	6	4.52	33	263.32	263.42	270.7
S-34	309	6	0.80	34	271.21	271.31	278.6
				35	273.76		280.9
S-35	152	8	0.40	30	221.60	221.70	233.2
S-36	294	8	0.40	36	224.79	228.49	236.5
S-37	303	8	0.40	37	229.69	229.79	244.6
S-38	165	8	0.40	38	230.95	231.92	242.9
S-39	166	6	0.80	39	232.56	232.66	243.5
				40	233.95	233.95	243.2

**TABLE 1, continued**  
**Sanitary Sewer Summary**

SANITARY SEWER SEGMENT No.	SEGMENT LENGTH (ft)	PIPE DIAMETER (in)	PIPE SLOPE (%)	LIFT STATION/ MH No.	MH FL OUT (ft)	MH FL IN (ft)	MANHOLE RIM ELEVATION (ft)
S-40	384	8	0.40	32	237.45	237.55	254.4
S-41	338	8	0.40	41	239.07	239.17	249.6
				42	240.51	240.51	247.3
S-42	410	6	1.65	7	199.42	207.53	214.8
S-43	344	6	1.89	43	214.25	216.05	222.7
				44	222.46	222.46	230.3
S-44	369	6	2.91	8	200.50	209.62	216.5
S-45	450	6	0.80	45	220.24	220.34	235.4
S-46	282	6	0.80	46	223.90	224.00	236.9
S-47	375	6	0.80	47	226.23	226.33	235.0
S-48	278	6	0.80	48	229.30	231.20	237.6
S-49	270	6	0.80	49	233.39	233.49	250.5
S-50	310	6	5.32	50	235.62	235.72	242.4
				51	252.00	252.00	263.2
S-51	223	6	5.52	16	234.22	235.11	243.8
S-52	238	6	5.67	52	247.20	247.30	254.7
S-53	112	6	2.15	53	260.58	260.68	268.1
				54	263.00	263.00	270.3
S-54	233	6	1.07	20	258.85	260.44	267.9
				55	262.90	262.90	270.2
S-55	142	6	0.80	36	224.79	224.89	236.4
				56	226.00	226.00	230.3
S-56	125	6	0.80	37	229.69	231.03	244.6
				57	232.00	232.00	236.4
S-57	123	6	0.80	38	230.95	231.05	242.8
				58	232.00	232.00	236.3
S-58	373	6	6.32	39	232.56	236.21	243.5
				59	259.51	259.51	264.0
S-59	376	8	0.91	63	251.00	251.10	260.8
S-60	435	8	0.40	62	251.87	251.97	259.5
S-61	196	8	0.40	61	253.70	255.60	263.0
				60	259.00	259.10	266.3
S-62	1659	4*					

\* FORCE MAIN

**TABLE 2**  
**Peak Flow Determination**

Land-Use Method – Residential – 2.67 persons per unit

Average Flow = 100 gpd/cap

Peak Flow = (Average Flow) \* 4

Peak Flow per unit =

2.67 cap/D.U. \* 100 gpd = 267 gpd \* 4 = 1,068 gpd

= 0.74 gpm = 0.0017 cfs per unit

8" diameter pipe, slope = 0.4%, n = 0.013

Full Flow Rate = 0.7643 cfs

(0.7643 cfs / 0.0017 cfs/unit) = 450 units