STORM DRAIN DESIGN CALCULATIONS

FROM	REACH TO	INFLOW (INLETS & HEADWALLS) LENGTH (ft)	SOURCE	'CA'	INLET TIME (min)	TOTAL 'CA'	TIME AT UPSTREAM OF REACH (min)	DESIGN STORM FREQUENCY (yr)	RAINFALL INTENSITY 'I' (in/hr)	TOTAL FLOW 'Q' (cfs)	STORM DRAIN SIZE	VELOCITY (ft/sec)	SLOPE OF FRICTION GRADIENT (ft/ft)	STRUCTURE LOSS COEFF. 'Kj'	STRUCTURE LOSS AT UPSTREAM OF REACH (ft)	FLOW TIME IN DRAIN (min)	TIME AT DOWNSTREAM OF REACH (min)	H.G. AT UPSTREAM OF REACH (ft)	REMARKS
SYSTEM "A"																			
1+94.41	1+70.83	23.58	BUFFALO CRK	289.90	10.0	289.90	10.0	100	9.80	2841.0	9x9	8.8	0.0020	0.00	0.00	0.0	10.0	544.67	EXISTING STORM DRAIN
INLET A-3	1+70.83	54.85	INLET A-3	1.21	10.0	1.21	10.0	100	9.80	11.9	21	4.9	0.0056	1.25	0.48	0.2	10.2	545.41	
1+70.83	0+91.06	76.77	-	-	-	291.11	10.2	100	9.77	2844.1	9x9	8.8	0.0020	0.00	0.00	0.1	10.3	544.63	EXISTING STORM DRAIN
INLET A-4	13+55.71	16.26	INLET A-4	0.56	10.0	0.56	10.0	100	9.80	5.5	18	3.1	0.0027	1.25	0.19	0.0	10.0	565.94	EXISTING STORM DRAIN
13+55.71	11+76.18	179.53	-	-	-	0.56	10.0	100	9.80	5.5	18	3.1	0.0027	0.50	0.08	0.3	10.3	565.55	EXISTING STORM DRAIN
AREA A-4.1	11+76.18	29.73	AREA A-4.1	2.12	10.0	2.12	10.0	100	9.80	20.8	24	6.6	0.0085	0.00	0.00	0.0	10.0	561.82	FUTURE STORM DRAIN EXTENSTION
11+76.18	10+53.31	122.87	-	-	-	2.68	10.3	100	9.76	26.2	27	6.6	0.0072	0.30	0.63	0.2	10.5	561.33	EXISTING STORM DRAIN
INLET A-4.2	10+53.31	16.31	INLET A-4.2	0.47	10.0	0.47	10.0	100	9.80	4.6	18	2.6	0.0019	1.25	0.13	0.1	10.1	559.47	EXISTING STORM DRAIN
10+53.31	10+24.54	28.77	-	-	-	3.15	10.5	100	9.73	30.6	27	7.7	0.0098	0.30	0.72	0.1	10.6	559.31	EXISTING STORM DRAIN
INLET A-4.3	0+51.50	64.85	INLET A-4.3	0.55	10.0	0.55	10.0	100	9.80	5.4	18	3.1	0.0026	1.25	0.18	0.2	10.2	559.10	
0+51.50	10+24.54	51.5	-	-	-	0.55	10.2	100	9.77	5.4	18	3.1	0.0026	0.50	0.07	0.3	10.5	558.51	EXISTING STORM DRAIN
10+24.54	9+08.24	116.3	-	-	-	3.70	10.6	100	9.71	35.9	27	9.0	0.0134	0.30	0.98	0.2	10.8	558.31	EXISTING STORM DRAIN
INLET A-4.4	9+08.24	42.68	INLET A-4.4	1.67	10.0	1.67	10.0	100	9.80	16.4	24	5.2	0.0053	1.25	0.53	0.0	10.0	557.46	EXISTING STORM DRAIN
9+08.24	8+23.81	84.43	-	-	-	5.37	10.8	100	9.68	52.0	30	10.6	0.0161	0.30	1.37	0.1	10.9	555.77	EXISTING STORM DRAIN
INLET A-4.5	8+23.81	16.31	INLET A-4.5	0.53	10.0	0.53	10.0	100	9.80	5.2	18	2.9	0.0025	1.25	0.17	0.1	10.1	553.25	EXISTING STORM DRAIN
8+23.81	4+82.11	341.7	-	-	-	5.90	10.9	100	9.67	57.1	33	9.6	0.0117	0.30	0.91	0.6	11.5	553.04	EXISTING STORM DRAIN
INLET A-4.6	4+82.11	16.31	INLET A-4.6	0.65	10.0	0.65	10.0	100	9.80	6.4	18	3.6	0.0037	1.25	0.25	0.1	10.1	548.45	EXISTING STORM DRAIN
4+82.11	4+03.46	78.65	-	-	-	6.55	11.5	100	9.57	62.7	36	8.9	0.0088	0.30	0.80	0.1	11.6	548.13	EXISTING STORM DRAIN
INLET A-4.7	0+55	68.26	INLET A-4.7	0.66	10.0	0.66	10.0	100	9.80	6.5	18	3.7	0.0038	1.25	0.26	0.3	10.3	547.37	
0+55	4+03.46	55	-	-	-	0.66	10.3	100	9.76	6.4	18	3.6	0.0037	0.00	0.00	0.3	10.6	546.84	EXISTING STORM DRAIN
4+03.46	1+75	228.46	-	-	-	7.21	11.6	100	9.56	68.9	42	7.2	0.0047	0.30	0.44	0.5	12.1	546.64	EXISTING STORM DRAIN
1+75	1+46.87	28.13	-	-	-	7.21	12.1	100	9.49	68.4	42	7.1	0.0046	0.00	0.00	0.1	12.2	545.13	EXISTING STORM DRAIN
INLET A-4.8	1+46.87	16.26	INLET A-4.8	1.14	10.0	1.14	10.0	100	9.80	11.2	24	3.6	0.0025	1.25	0.25	0.1	10.1	545.29	EXISTING STORM DRAIN
1+46.87	0+91.06	48.9	-	-	-	8.35	12.2	100	9.47	79.1	48	6.3	0.0030	0.30	0.38	0.1	12.3	545.00	EXISTING STORM DRAIN
INLET A-5	7+35.89	16.23	INLET A-5	0.43	10.0	0.43	10.0	100	9.80	4.2	18	2.4	0.0016	1.25	0.11	0.0	10.0	566.08	EXISTING STORM DRAIN
7+35.89	5+38.11	197.78	-	-	-	0.43	10.0	100	9.80	4.2	18	2.4	0.0016	0.50	0.04	0.3	10.3	565.41	EXISTING STORM DRAIN
INLET A-5.1	5+38.11	128.85	INLET A-5.1	0.47	10.0	0.47	10.0	100	9.80	4.6	18	2.6	0.0019	1.25	0.13	0.2	10.2	561.15	
5+38.11	5+18.87	19.24	-	-	-	0.90	10.3	100	9.76	8.8	18	5.0	0.0070	0.30	0.36	0.1	10.4	557.50	EXISTING STORM DRAIN
INLET A-5.2	5+18.87	16.26	INLET A-5.2	0.36	10.0	0.36	10.0	100	9.80	3.5	18	2.0	0.0011	1.25	0.08	0.1	10.1	557.10	EXISTING STORM DRAIN
5+18.87	3+40.87	178	-	-	-	1.26	10.4	100	9.74	12.3	18	7.0	0.0137	0.30	0.64	0.2	10.6	557.00	EXISTING STORM DRAIN
INLET A-5.3	3+40.87	126.57	INLET A-5.3	0.41	10.0	0.41	10.0	100	9.80	4.0	18	2.3	0.0015	1.25	0.10	0.3	10.3	552.56	
3+40.87	2+68.87	72	-	-	-	1.67	10.6	100	9.71	16.2	18	9.2	0.0238	0.30	1.09	0.1	10.7	550.79	EXISTING STORM DRAIN
INLET A-5.4	2+68.87	16.26	INLET A-5.4	0.32	10.0	0.32	10.0	100	9.80	3.1	18	1.8	0.0009	1.25	0.06	0.0	10.0	547.84	EXISTING STORM DRAIN
2+68.87	1+90.87	78	-	-	-	1.99	10.7	100	9.70	19.3	24	6.1	0.0073	0.30	0.18	0.1	10.8	547.58	EXISTING STORM DRAIN
INLET A-5.5	1+90.87	126.57	INLET A-5.5	0.27	10.0	0.27	10.0	100	9.80	2.6	18	1.5	0.0006	1.25	0.04	0.3	10.3	547.32	
1+90.87	0+91.06	92.9	-	-	-	2.26	10.8	100	9.68	21.9	24	7.0	0.0094	0.30	0.59	0.2	11.0	545.93	EXISTING STORM DRAIN
0+91.06	0+74.41	16.65	-	-	-	301.72	12.3	100	9.46	2854.3	9x9	8.8	0.0020	0.00	0.00	0.0	12.3	544.47	EXISTING STORM DRAIN

RECORD PLANS
AUGUST 29, 2008

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PHASE II S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN
DESIGN CALCULATIONS

STATE OF TEXAS
PHILIP L. GRAHAM
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LICENSED
PROFESSIONAL ENGINEER
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