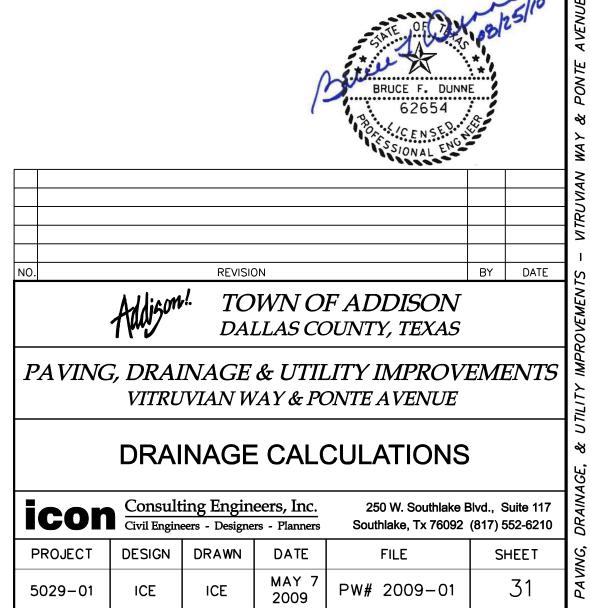
	TORM DRAIN CALCULATIONS - 100 YR													STORM DRAIN CALCULATIONS - 100 YR																					
	ATIONS - 10								HEA	D LOSS AT C	HANGE IN SE	ECTION			Elev Di	Difference		STORM D		ATIONS - 100							HEAD LO	DSS AT C	HANGE IN SI	ECTION			Elev Diffe	rence	
MH or INLET DESIGN POINT	DISTANCE	Peak Flow		FRICTIC		HYDRAULIC (V1	V2	V2(^2)	V1(^2)	Ki KiV1	(^2) Hi	Elev	1	G - HGL Des Pt	REMARKS		or INLET GN POINT	DISTANCE	Peak Flow		FRICTIONAL	HYDRAULIC ELEVA1		V1	\/2 \	2(42)	\/1/^2)	Kj <u>Kj</u> V1(^2) Hi	Elev	TC/FG - at Des		REMARKS
	Between	in Pipe	PIP					Flow	Flow	2g		coeff 2g	<u> </u>							Between	in Pipe	PIPE	SLOPE			Flow	Flow	2g		Coeff 2g	Head Loss				
UPSTRM DNSTRM STATION STATION	Points	"Q"	SIZ	E "Sf	'	UPSTRM	DNSTRM	IN	OUT		Of	Loss	Upstrea	m Hyd Grade	TC/FG	TC/FG - HGL			DNSTRM STATION	Points	"Q"	SIZE	"Sf"	UPSTRM	DNSTRM	IN	OUT		Of	of Loss	Upstream	Hyd Grade	TC/FG	TC/FG - HGL	
	(ft)	(cfs)	(in)) (ft / 1	ft)	(ft MSL)	(ft MSL)	(fps)	(fps)	(ft)	(ft) (cc	onst) (ft) (ft)	(ft MSL)		DIFF.				(ft)	(cfs)	(in)	(ft / ft)	(ft MSL)	(ft MSL)	(fps)	(fps)	(ft)	(ft) (c	const) (ft)	(ft)	(ft MSL)		DIFF.	
LINE A1																		LINE B2																	
1094.53 1094.53	0.00		66	6 0.006	61	566.39	566.39		0.00	0.00	0	0.50	0.00	566.39	566.80	0.41	EXISTING MANHOLE W / 90° BEND	98.45	98.45	0.00		18	0.0000	560.22	560.22		0.00	0.00			0.00	560.22	568.85	8.63	CURB INLET
1094.53 991.40	103.13	329.3	66	0.009	96	566.39	565.40	0.00	13.86	2.98	0.00 0	0.50 2.9	8 0.00	566.39	567.70	1.31	90° BEND	98.45	77.09	21.36	1.7	18	0.0003	560.21	560.20	0.00	0.96	0.01	0.00	1.25 0.01	0.02	560.22	568.85	8.63	CURB INLET
991.40 956.95	34.45	329.3	72	. 0.006	60	563.16	562.95	13.86	11.65	2.11	2.98 0	0.75 -0.1	3 2.24	565.40	567.70	2.30	45° WYE	77.09	57.45	19.64	1.7	18	0.0003	560.19	560.18	0.96	0.96	0.01	0.01 (0.75 0.00	0.01	560.20	568.90	8.70	60° BEND
956.95 920.40	36.55	343.1	72	. 0.006	66	561.90	561.66	11.65	12.13	2.29	2.11 0	0.50 1.2	3 1.05	562.95	567.70	4.75	MANHOLE W / 90° BEND	57.45	0.00	57.45	3.4	18	0.0010	560.18	560.12	0.96	1.92	0.06	0.01 (0.25 0.05	0.00	560.18	569.25	9.07	60° BEND
920.40 603.24	317.16	383.8	72	. 0.008	32	559.94	557.34	12.13	13.57	2.86	2.29 0	0.75 1.1	5 1.71	561.66	567.70	6.04	60° WYE	LINE C1																	
603.24 515.93	87.31	386.5	72	2. 0.008	33	555.91	555.18	13.57	13.67	2.90	2.86 0	0.50 1.4	7 1.43	557.34	561.50	4.16	MANHOLE W / 90° BEND	166.09	166.09	0.00		18	0.0000	555.57	555.57		0.00	0.00			0.00	555.57	566.60	11.03	CURB INLET
515.93 483.89	32.04	437.6	72	. 0.010	07	555.18	555.18	13.67	15.48	3.72	2.90	3.7	2 0.00	555.18	561.80	6.62	SUBMERGED 45° WYE	166.09	148.77	17.32	5.1	18	0.0024	555.41	555.37	0.00	2.89	0.13	0.00	1.25 0.13	0.16	555.57	566.60	11.03	CURB INLET
483.89 351.58	132.31	445.5	72	2 0.01	11	555.18	555.18	15.48	15.76	3.86	3.72	3.8	6 0.00	555.18	562.00	6.82	SUBMERGED MANHOLE	148.77	142.61	6.16	5.1	18	0.0024	555.32	555.30	2.89	2.89	0.13	0.13 (0.43 0.07	0.06	555.37	568.10	12.73	60° BEND
351.58 329.69	21.89	445.5	66	0.017	76	555.18	555.18	15.76	18.75	5.46	3.86	5.4	6 0.00	555.18	562.00	6.82	SUBMERGED 45° BEND	142.61	113.76	28.85	10.1	18	0.0092	555.20	554.94	2.89	5.72	0.51	0.13 (0.75 0.41	0.10	555.30	568.40	13.10	45° WYE
329.69 322.19	7.50	445.5	66	0.017	76	555.18	555.18	18.75	18.75	5.46	5.46	5.4	6 0.00	555.18	562.00	6.82	SUBMERGED 45° BEND	113.76	69.00	44.76	10.1	18	0.0092	554.71	554.30	5.72	5.72	0.51	0.51 (0.44 0.28	0.22	554.94	568.80	13.86	MANHOLE (Enlargement)
322.19 305.26	16.93	445.5	66	0.017	76	555.18	555.18	18.75	18.75	5.46	5.46	5.4	6 0.00	555.18	562.00	6.82	SUBMERGED OUTLET	LINE C2																	
LINE A2																		106.50	0.00	106.50	5.1	18	0.0024	552.25	552.00		2.89	0.13	/	1.25	0.16	552.41	552.50	0.09	CURB INLET
385.87 385.87	0.00		18	0.006	61	560.34	560.34		0.00	0.00			0.00	560.34	567.80	7.46	END & PLUG	LINE C3																	
385.87 363.20	22.67	8.2	18	0.006	61	560.34	560.21	0.00	4.64	0.33	0.00 0	0.75 0.3	3 0.00	560.34	567.60	7.26	60° WYE	97.82	97.82	0.00		42	0.0000	553.27	553.27		0.00	0.00			0.00	553.27	553.90	0.63	
363.20 313.44	49.76	11.1	18	6 0.01 ²	12	560.49	559.93	4.64	6.28	0.61	0.33 0	0.25 0.5	3 0.08	560.57	567.60	7.03	60° BEND	97.82	87.41	10.41	73.3	42	0.0053	553.27	553.22	0.00	7.62	0.90	0.00	0.90	0.00	553.27	553.90	0.63	END & PLUG
313.44 303.32	10.12	11.1	24	0.002	24	559.95	559.93	4.64	3.53	0.19	0.33 0	0.75 -0.0	06 0.25	560.21	567.50	7.29	60° WYE	87.41	0.00	87.41	79.2	42	0.0062	552.54	552.00	7.62	8.23	1.05	0.90 (0.75 0.38	0.68	553.22	553.70	0.48	60° BEND
303.32 55.94	247.38	18.8	24	0.006	69	559.88	558.17	3.53	5.98	0.56	0.19 0	0.25 0.5	1 0.05	559.93	562.30	2.37	MANHOLE W / 90° BRANCH	LINE D1																	
55.94 0.00	55.94	51.1	24	0.05	10	558.03	555.18	5.98	16.27	4.11	0.56 0	0.25 3.9	7 0.14	558.17	561.50	3.33	MANHOLE W / 90° BRANCH	1068.38	1068.38	0.00		18	0.0000	551.20	551.20		0.00	0.00			0.00	551.20	556.05	4.85	
LINE A3																		1068.38	1057.88	10.50	5.6	18	0.0028	551.20	551.17	0.00	3.17	0.16	0.00	0.16	0.00	551.20	556.05	4.85	END & PLUG
64.94 64.94	0.00		24	0.000	61	559.47	559.47		0.00	0.00			0.00	559.47	562.00	2.53	END & PLUG	1057.88	1026.06	31.82	5.6	18	0.0028	551.11	551.02	3.17	3.17	0.16	0.16 (0.35 0.10	0.05	551.17	555.70	4.53	45° BEND
64.94 50.77	14.17	12.2	24	0.002	29	559.47	559.43	0.00	3.88	0.23	0.00 0	0.75 0.2	3 0.00	559.47	561.75	2.28	60° WYE	1026.06	962.38	63.68	5.6	18	0.0028	550.97	550.78	3.17	3.17	D.16	0.16 (0.35 0.10	0.05	551.02	555.50	4.48	45° BEND
50.77 45.90	4.87	17.6	24	0.006	61	559.26	559.23	3.88	5.60	0.49	0.23 0	0.75 0.3	1 0.18	559.43	561.75	2.32	60° WYE	962.38	925.56	36.82	10.7	18	0.0104	550.67	550.29	3.17	6.05	0.57	0.16 (0.75 0.45	0.12	550.78	554.70	3.92	60° WYE
45.90 0.00	45.90	32.3	24	0.020	04	559.11	558.17	5.60	10.28	1.64	0.49 0	0.25 1.5	2 0.12	559.23	562.30	3.07	MANHOLE W / 90° BRANCH	925.56	621.00	304.56	51.7	36	0.0060	550.14	548.31	6.05	7.31	0.83	0.57 (0.25 0.69	0.14	550.29	554.20	3.91	MANHOLE W / 90° BRANCH
LINE A4																		621.00	573.38	47.62	74.2	48	0.0027	548.11	547.98	7.31	5.90	0.54	0.83 (0.25 0.33	0.21	548.31	550.30	1.99	MANHOLE W / 90° BRANCH
55.00 55.00	0.00		24	0.006	61	561.70	561.70		0.00	0.00			0.00	561.70	567.50	5.80	END & PLUG	573.38	282.14	291.24	85.2	48	0.0035	547.57	546.55	5.90	6.78	D.71	0.54 (0.75 0.31	0.41	547.98	550.00	2.02	60° WYE
55.00 0.00	55.00	6.1	24	0.000	07	561.70	561.66	0.00	1.94	0.06	0.00 0	0.25 0.0	6 0.00	561.70	567.70	6.00	MANHOLE W / 90° BRANCH	282.14	264.78	17.36	91.7	48	0.0041	546.01	545.94	6.78	7.30	0.83	0.71 (0.75 0.29	0.54	546.55	548.30	1.75	60° WYE
LINE A5																		264.78	0.00	264.78	101.5	48	0.0050	545.32	544.00	7.30	8.08	1.01	0.83 (0.75 0.39	0.62	545.32	548.00	2.68	60° WYE
81.00 81.00	0.00		24	0.000	00	563.58	563.58		0.00	0.00			0.00	563.58	570.00	6.42	END & PLUG	LINE D2																	
81.00 53.00	28.00	26.9	24	0.014	41	563.58	563.18	0.00	8.56	1.14	0.00 0	0.75 1.1	4 0.00	563.58	569.30	5.72	60° WYE	145.00	145.00	0.00		24	0.0000	544.68	544.68		0.00	0.00	'	1.25	0.00	544.68	547.00	2.32	DROP INLET
53.00 0.00	53.00	34.6	24	0.023	34	562.90	561.66	8.56	11.01	1.88	1.14 0	0.25 1.6	0 0.28	563.18	567.70	4.52	MANHOLE W / 90° BRANCH	145.00	50.00	95.00	15.4	24	0.0046	544.68	544.24	0.00	4.90	0.37	0.00 (0.75 0.37	0.00	544.68	547.00	2.32	45° WYE
LINE B1																		50.00	26.36	23.64	15.4	24	0.0046	544.11	544.00	4.90	4.90	0.37	0.37 (0.35 0.24	0.13	544.24	546.85	2.61	45° BEND
759.86 759.86	0.00		48	0.000	00	567.94	567.94		0.00	0.00			0.00	567.94	566.60	-1.34	TEMPORARY EXISTING FLOW	LINE D3																	
759.86 741.86		126.0				567.94	567.80		10.03		0.00		6 0.00					177.37	177.37	0.00		24	0.0000	550.42	550.42		0.00	0.00			0.00	550.42	552.00	1.58	CONNECT TO EXISTING
741.86 673.93		126.0	48			567.80	567.28	10.03	10.03		1.56			567.80			TEMPORARY EXISTING FLOW	177.37	170.92	6.45	12.8	24	0.0032	550.42	550.40	0.00	4.07	0.26	0.00 (0.35 0.26	0.00	550.42	551.90	1.48	45° BEND
	29.41					567.28	567.15		8.22	1.05	1.56		5 0.00				PIPE SIZE CHANGE	170.92	70.00	100.92	16.8	24	0.0055	550.34	549.78	4.07	5.35	0.44	0.26 (0.25 0.38	0.06	550.40	550.70	0.30	MANHOLE W / 90° BRANCH
644.52 635.86						566.36							0 0.79				60° WYE	170.92	48.92	122.00	16.8	24	0.0055	549.59	548.91	4.07	5.35	0.44	0.26	0.75 0.25	0.19	549.78	550.35	0.57	60° WYE
	87.84					565.51			8.49								45° WYE	48.92	0.00		22.7	24	0.0101	548.80	548.31	5.35	7.23			0.25 0.70		548.91	550.35	1.44	MANHOLE W / 90° BRANCH
548.02 467.81		138.4	54			564.25	563.85						4 0.84				60° WYE	LINE D4																	
467.81 459.14						562.97		8.70					3 0.88				60° WYE		90.50	0.00		24	0.0000	550.79	550.79		0.00	0.00			0.00	550.79	554.40	3.61	END & PLUG
459.14 354.25						562.02		8.83									45° WYE				15.4	24		550.79			4.90		0.00 (45° WYE
354.25 145.77						561.16		8.97					4 0.31				MANHOLE W / 90° BRANCH		0.00		15.4	30	0.0014	550.47		4.90				0.25 0.06				3.64	MANHOLE W / 90° BRANCH
		142.6				554.30							0 0.55				MANHOLE (Enlargement)																		

							IP		LCULAT	IONS				
			DRAINAGE	E CALCS				ROADWAY	SECTION					
	INLET		100	YR										COMMENTS
			AREA	PEAK	CARRY	TOTAL	CROSS	LONG.	MAX	SPREAD	LENGTH	INLET	CARRY	
NO.	STATION	TYPE	NO.	FLOW	OVER	FLOW	SLOPE	SLOPE	DEPTH	OF FLOW	PROV.	FLOW	OVER	
				(CFS)	(CFS)	(CFS)	(FT/FT)	(FT/FT)	(FT)	(FT)	(FT)	(CFS)	(CFS)	
1	31+XX.XX	CO-D	A22	2.9	0.00	2.90	0.0208	0.0240	0.19	9.4	10.0	2.43	0.47	FUTURE ROADWAY ALIGNMENT
2	28+24.66	CO-D	A20	3.6	0.47	4.07	0.0208	0.0240	0.19	9.4	10.0	3.00	1.07	
3	20+50.00	CO-D	A35	2.9	0.00	2.90	0.0208	0.0075	0.50	24.3	10.0	2.90	0.00	
4	23+77.39	CO-S	A33	7.2	1.07	8.27	0.0208	0.0060	0.41	19.8	10.0	8.27	0.00	
5	32+XX.XX	CO-D	A23	2.9	0.00	2.90	0.0208	0.0240	0.19	9.4	10.0	2.43	0.47	FUTURE ROADWAY ALIGNMENT
6	28+24.66	CO-D	A27	4.3	0.47	4.77	0.0208	0.0240	0.19	9.4	10.0	3.00	1.07	
7	20+50.00	CO-D	A36	2.9	0.00	2.90	0.0208	0.0075	0.50	24.3	10.0	2.90	0.00	
8	23+77.39	CO-S	A38	7.9	1.07	8.97	0.0208	0.0060	0.43	20.9	10.0	8.97	0.00	
9 1	18+84.00, 80'RT	D-S	B1-Ex/2	63.0	0.00	63.00	0.2500	0.1667	1.90	11.2	16.0	63.00	0.00	TEMPORARY INLET
10 1	19+00.00, 80'RT	D-S	B1-Ex/2	63.0	0.00	63.00	0.2500	0.1667	1.90	11.2	16.0	63.00	0.00	TEMPORARY INLET
11	16+30.00	CO-S	B23	1.7	0.00	1.70	0.0208	0.0075	0.18	8.7	6.0	1.70	0.00	
12	16+30.00	CO-S	B24	1.7	0.00	1.70	0.0208	0.0075	0.18	8.7	6.0	1.70	0.00	
13	20+88.75	CO-S	B27/2	2.1	0.00	2.10	0.0208	0.0090	0.21	10.0	6.0	2.10	0.00	
14	20+88.75	CO-S	B27/2	2.1	0.00	2.10	0.0208	0.0090	0.21	10.0	6.0	2.10	0.00	
15	26+32.50	CO-S	C18/2	5.1	0.00	5.05	0.0208	0.0060	0.38	18.1	6.0	5.10	0.00	

	INLET CALCULATIONS													
			DRAINAGE	CALCS				ROADWA	SECTION					
	INLET		100	YR										
			AREA	PEAK	CARRY	TOTAL	CROSS	LONG.	MAX	SPREAD	LENGTH	INLET	CARRY	
NO.	STATION	TYPE	NO.	FLOW	OVER	FLOW	SLOPE	SLOPE	DEPTH	OF FLOW	PROV.	FLOW	OVER	
				(CFS)	(CFS)	(CFS)	(FT/FT)	(FT/FT)	(FT)	(FT)	(FT)	(CFS)	(CFS)	
16	26+32.50	CO-S	C18/2	5.1	0.00	5.05	0.0208	0.0060	0.38	18.1	6.0	5.10	0.00	
17	10+30.54	CO-D	D8	5.1	0.00	5.10	0.0208	0.0133	0.24	11.4	10.0	3.78	1.32	
18	6+65.00	CO-D	D12	5.9	1.32	7.22	0.0208	0.0133	0.27	12.9	10.0	4.63	2.59	
19	3+85.00	CO-D	D16	3.4	2.59	5.99	0.0208	0.0060	0.29	14.0	10.0	4.72	1.27	
20	1+05.00	CO-S	D20	4.2	1.27	5.47	0.0208	0.0060	0.22	10.4	20.0	5.47	0.00	
21	10+30.54	CO-D	D6	5.1	0.00	5.10	0.0208	0.0133	0.24	11.4	10.0	3.78	1.32	
22	6+65.00	CO-D	D13-14	11.0	1.32	12.32	0.0208	0.0133	0.33	15.8	20.0	10.38	1.94	
23	3+85.00	CO-D	D15, D17	7.5	1.94	9.44	0.0208	0.0060	0.35	16.6	10.0	6.20	3.24	
24	1+10.51	CO-S	D21-22	5.1	3.24	8.34	0.0208	0.0060	0.29	13.8	20.0	8.34	0.00	EXISTING
25	0+89.94, 122' LT	D-S	D4-6-Ex	47.4	0.00	47.40	0.2500	0.0120	1.88	77.0	16.0	47.40	0.00	TEMPOR
26	19+11.75	CO-S	B20/2	2.1	0.00	2.10	0.0208	0.0090	0.21	10.0	6.0	2.10	0.00	
27	19+11.75	CO-S	B20/2	2.1	0.00	2.10	0.0208	0.0090	0.21	10.0	6.0	2.10	0.00	



COMMENTS

ING INLET ORARY INLET

RECORD DRAWINGS 08/25/10