



ENGINEERING A BETTER TOMORROW

ENGINEERING / SITE WORK / LAND SURVEYING

PIPE CAPACITY CALCULATIONS

10 YEAR STORM EVENT													
Pipe Description				Drainage Area (Acres)			Comp. C-Value	CA	Time of Concentration (min)			I (in./hr)	Qc=CIA (cfs)
Length #	DA #	From	To	Total	Imperv. C=0.90	Pervious C=0.30			Inlet	Drain	Total		
DRAINAGE PIPES													
1	CB-2	CB-1		0.195	0.185	0.010	0.87	0.170	10	0.09	10.09	4.3	0.73
2	CB-1	FE-1		1.140	1.005	0.135	0.83	0.945	10	0.04	10.04	4.3	4.06
3	CB-3	DMH-1		0.117	0.108	0.009	0.85	0.100	10	0.05	10.05	4.3	0.43
4	CB-4	DMH-1		0.188	0.150	0.038	0.78	0.146	10	0.05	10.05	4.3	0.63
5	DMH-1	DMH-2		0.305	0.258	0.047	0.81	0.246	10	1.04	11.04	4.3	1.06
6	BASIN-4	DMH-2										0.97	(HYDROCAD)
7	DMH-2	DMH-3		0.305	0.258	0.047	0.81	0.246	10	0.35	10.35	4.3	2.03
8	DMH-3	DMH-4		0.305	0.258	0.047	0.81	0.246	10	0.55	10.55	4.3	2.03
9	CB-5	DMH-4		0.349	0.349	0.000	0.90	0.314	10	0.01	10.01	4.3	2.32
10	DMH-4	FE-7		0.654	0.607	0.047	0.86	0.560	10	0.20	10.20	4.3	3.38
11	CB-6	DMH-7		1.193	1.193	0.000	0.90	1.074	10	0.01	10.01	4.3	4.62
12	CB-7	DMH-7		0.088	0.088	0.000	0.90	0.079	10	0.01	10.01	4.3	0.34
13	DMH-7	DMH-6		1.281	1.281	0.000	0.90	1.153	10	0.99	10.99	4.3	4.96
14	DMH-6	DMH-5		1.281	1.281	0.000	0.90	1.153	10	0.35	10.35	4.3	4.96
15	DMH-23	DMH-24		0.280	0.280	0.000	0.90	0.252	10	0.25	10.25	4.3	1.08
16	DMH-24	DMH-25		0.280	0.280	0.000	0.90	0.252	10	0.21	10.21	4.3	1.08
17	TR. GR.-2	DMH-25		0.123	0.123	0.000	0.90	0.111	10	0.04	10.04	4.3	0.48
18	DMH-25	DMH		0.403	0.403	0.000	0.90	0.363	10	0.23	10.23	4.3	1.56
19	DMH	DMH		0.403	0.403	0.000	0.90	0.363	10	0.18	10.18	4.3	1.56
20	DMH	DMH-5		0.403	0.403	0.000	0.90	0.363	10	0.10	10.10	4.3	1.56
21	DMH-5	FE-10		1.684	1.684	0.000	0.90	1.516	10	0.33	10.33	4.3	6.52
22	DMH-11	DMH-12		0.111	0.111	0.000	0.90	0.100	10	0.37	10.37	4.3	0.43
23	DMH-12	DMH-13		0.111	0.111	0.000	0.90	0.100	10	0.45	10.45	4.3	0.43
24	DMH-13	DMH-14		0.111	0.111	0.000	0.90	0.100	10	0.66	10.66	4.3	0.43
25	DMH-14	DMH-15		0.111	0.111	0.000	0.90	0.100	10	0.95	10.95	4.3	0.43
26	DMH-15	FE-8		0.111	0.111	0.000	0.90	0.100	10	0.47	10.47	4.3	0.43
27	TR. GR.-1	DMH-16		0.831	0.736	0.095	0.83	0.691	10	0.02	10.02	4.3	2.97
28	DMH-16	DMH-17		0.831	0.736	0.095	0.83	0.691	10	0.01	10.01	4.3	2.97
29	DMH-17	DMH-18		2.134	2.039	0.095	0.87	1.864	10	0.21	10.21	4.3	8.01
30	DMH-18	DMH-19		2.134	2.039	0.095	0.87	1.864	10	0.23	10.23	4.3	8.01
31	DMH-22	DMH-21		1.333	1.333	0.000	0.90	1.200	10	0.14	10.14	4.3	5.16
32	DMH-21	DMH-20		1.791	1.791	0.000	0.90	1.612	10	0.48	10.48	4.3	6.93
33	SRC	DMH-20								0.24		0.00	(HYDROCAD)
34	DMH-20	DMH-19		1.791	1.791	0.000	0.90	1.612	10	0.46	10.46	4.3	6.93
35	DMH-19	FE-9		3.925	3.830	0.095	0.89	3.476	10	0.28	10.28	4.3	14.94



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PIPE CAPACITY CALCULATIONS

Length #	Pipe Diameter (in)	Pipe Material (n-value)	Slope (ft./ft.)	Length (ft)	Full Flow			Current Flow			Pipe capacity
					Vf (ft/sec)	Qf (cfs)	Vc (ft/sec)	Qc (cfs)	Qc/Qf	d/D (in.)	
DRAINAGE PIPES											
1	12	0.013	0.0059	17	3.48	2.74	3.02	0.73	0.27	0.3	4.2 <b>OK!</b>
2	12	0.013	0.0190	16	6.25	4.91	7.13	4.06	0.83	0.7	8.1 <b>OK!</b>
3	12	0.013	0.0300	14	7.86	6.17	4.55	0.43	0.07	0.2	2.1 <b>OK!</b>
4	12	0.013	0.0330	15	8.24	6.47	5.35	0.63	0.10	0.2	2.5 <b>OK!</b>
5	12	0.013	0.0046	190	3.08	2.42	3.04	1.06	0.44	0.5	5.4 <b>OK!</b>
6	12	0.013	0.0100	36	4.54	3.56	3.96	0.97	0.27	0.4	4.2 <b>OK!</b>
7	12	0.013	0.0044	72	3.01	2.36	3.45	2.03	0.86	0.7	8.3 <b>OK!</b>
8	18	0.013	0.0016	79	2.38	4.20	2.41	2.03	0.48	0.5	8.6 <b>OK!</b>
9	12	0.013	0.1170	7	15.52	12.19	12.34	2.32	0.19	0.3	3.6 <b>OK!</b>
10	12	0.013	0.0103	64	4.60	3.62	5.36	3.38	0.93	0.7	8.9 <b>OK!</b>
11	12	0.013	0.0900	7	13.61	10.69	13.39	4.62	0.43	0.4	5.4 <b>OK!</b>
12	12	0.013	0.1340	5	16.61	13.04	6.83	0.34	0.03	0.1	1.2 <b>OK!</b>
13	18	0.013	0.0029	218	3.20	5.66	3.69	4.96	0.88	0.7	12.6 <b>OK!</b>
14	18	0.013	0.0057	103	4.49	7.93	4.86	4.96	0.63	0.6	10.2 <b>OK!</b>
15	12	0.013	0.0047	47	3.11	2.44	3.08	1.08	0.44	0.5	5.4 <b>OK!</b>
16	12	0.013	0.0042	38	2.94	2.31	2.96	1.08	0.47	0.5	5.6 <b>OK!</b>
17	6	0.013	0.0688	16	7.50	1.47	6.83	0.48	0.32	0.4	2.3 <b>OK!</b>
18	12	0.013	0.0053	49	3.30	2.59	3.54	1.56	0.60	0.6	6.6 <b>OK!</b>
19	12	0.013	0.0118	51	4.93	3.87	4.76	1.56	0.40	0.4	5.2 <b>OK!</b>
20	12	0.013	0.0273	40	7.50	5.89	6.49	1.56	0.26	0.3	4.2 <b>OK!</b>
										0.0	
21	18	0.013	0.0085	120	5.48	9.68	6.03	6.52	0.67	0.6	10.7 <b>OK!</b>
22	18	0.013	0.0103	64	6.03	10.66	2.87	0.43	0.04	0.1	2.3 <b>OK!</b>
23	18	0.013	0.0103	77	6.03	10.66	2.87	0.43	0.04	0.1	2.3 <b>OK!</b>
24	18	0.013	0.0103	113	6.03	10.66	2.87	0.43	0.04	0.1	2.3 <b>OK!</b>
25	18	0.013	0.0103	163	6.03	10.66	2.87	0.43	0.04	0.1	2.3 <b>OK!</b>
26	18	0.013	0.0103	81	6.03	10.66	2.87	0.43	0.04	0.1	2.3 <b>OK!</b>
27	12	0.013	0.0410	11	9.19	7.21	8.92	2.97	0.41	0.4	5.2 <b>OK!</b>
28	12	0.013	0.0540	5	10.54	8.28	9.87	2.97	0.36	0.4	4.8 <b>OK!</b>
29	18	0.013	0.0103	85	6.03	10.66	6.77	8.01	0.75	0.6	11.5 <b>OK!</b>
30	18	0.013	0.0103	94	6.03	10.66	6.77	8.01	0.75	0.6	11.5 <b>OK!</b>
31	18	0.013	0.0047	38	4.08	7.20	4.54	5.16	0.72	0.6	11.1 <b>OK!</b>
32	24	0.013	0.0013	86	2.60	8.16	2.97	6.93	0.85	0.7	16.5 <b>OK!</b>
33	8	0.013	0.0833	35	9.99	3.49	2.45	0.00	0.00	0.0	0.4 <b>OK!</b>
34	24	0.013	0.0021	101	3.30	10.37	3.62	6.93	0.67	0.6	14.2 <b>OK!</b>
35	30	0.013	0.0044	99	5.54	27.21	5.82	14.94	0.55	0.5	15.6 <b>OK!</b>