

BAYER BECKER
6900 Tylersville Road, Suite A
Mason, Ohio 45040
(513) 336-6600

STORM SEWER CALCULATIONS

FORMULAE USED
 $Q_p = AC * I$ (required)
 $V_p = (1.486 / n) * R^{2/3} * S^{1/2}$
 $Q_p = A_p * V_p$
 $R = (\text{Pipe Dia.} / 4)$

Designed By: GJK
Reviewed By:
Date: 4/3/2012
Revised date: 5/14/2012

Project Name: Voice of America Park, Phase 1

Sheet: Job # 07N056.006

LOCATION		TOPOGRAPHY				TIME				DESIGN				TIME				REMARKS		
From	To	Area Number	Acres	"C" Value	"AC" for Area	"AC" Accumulate	Time To Inlet "T" (minutes)	Time In Pipe "Tp" (minutes)	Time of Concentration "Tc" (minutes)	Intensity "I" 10 Year Storm Event	"Q" Required (c.f.s.)	Pipe Size (inches)	"n" Value	Slope in %	Velocity (ft. / sec)	"Q" Provided (c.f.s.)	Length of Pipe (feet)	Time In Pipe "Tp" (minutes)	Inlet Invert Elev.	Outlet Invert Elev.
1	2	1	1.50	0.50	0.75	0.75	10.0		10.0	5.15	3.86	15	0.016	1.10	4.49	5.50	124.00	0.5	888.68	887.32
1a	2	1a	2.57	0.50	1.29	2.04	10.0		10.0	5.15	10.48	27	0.016	0.30	3.47	13.78	44.00	0.2	886.70	886.57
2	3	2	2.00	0.50	1.00	3.04	10.0	0.5	10.5	5.08	15.42	30	0.016	0.30	3.72	18.25	67.00	0.3	886.07	885.87
3	4	3	2.36	0.50	1.18	4.22	10.5	0.3	10.8	5.04	21.22	36	0.016	0.30	4.20	29.68	176.00	0.7	885.37	884.84
4	5	4	1.11	0.50	0.56	4.77	10.8	0.7	11.5	4.93	23.53	36	0.016	0.30	4.20	29.68	190.00	0.8	884.84	884.27
5a	5	5a	3.30	0.50	1.65	1.65	12.0		12.0	4.86	8.01	24	0.016	0.50	4.14	13.00	385.00	1.6	886.36	884.44
5	6	5	0.94	0.70	0.66	7.08	12.0	1.6	13.6	4.65	32.92	36	0.016	0.45	5.14	36.35	234.00	0.8	884.27	883.21
6a	6	6a	2.91	0.50	1.46	1.46	12.0		12.0	4.86	7.07	24	0.016	0.50	4.14	13.00	385.00	1.6	886.36	884.44
6	7	6	1.30	0.75	0.98	9.51	13.6	1.6	15.1	4.46	42.42	42	0.016	0.35	5.03	48.36	215.00	0.7	882.71	881.96
7	8	7	0.50	0.50	0.25	9.76	15.1	0.7	15.8	4.38	42.74	42	0.016	0.35	5.03	48.36	84.00	0.3	881.96	881.67
																				N Pool = 881.50
9a	9b	8a	3.75	0.50	1.88	1.88	12.0		12.0	4.86	9.11	24	0.016	0.50	4.14	13.00	365.00	1.5	889.93	888.11
9b	9	8b	3.76	0.50	1.88	3.76	12.0	1.5	13.5	4.66	17.50	30	0.016	0.50	4.80	23.57	381.00	1.3	887.61	885.70
9	10					3.76	13.5	1.3	14.8	4.50	16.89	30	0.016	0.50	4.80	23.57	234.00	0.8	885.70	884.53
10a	10b	8c	3.24	0.50	1.62	1.62	12.0		12.0	4.86	7.87	24	0.016	0.50	4.14	13.00	365.00	1.5	889.93	888.11
10b	10	8d	3.05	0.50	1.53	3.15	12.0	1.5	13.5	4.66	14.66	30	0.016	0.50	4.80	23.57	381.00	1.3	887.61	885.70
10	11					6.90	14.8	0.8	15.6	4.40	30.38	36	0.016	0.50	5.42	38.32	435.00	1.3	884.03	881.86
																				N Pool = 881.50
12	13	9	0.37	0.40	0.15	0.15	10.0		10.0	5.15	0.76	12	0.016	2.50	5.83	4.58	63.00	0.2	884.20	882.63
																				N Pool = 881.50
14	15	10	1.65	0.60	0.99	0.99	10.0		10.0	5.15	5.10	15	0.016	3.30	7.77	9.53	60.00	0.1	884.00	882.02
																				N Pool = 881.50
48	49	11	0.72	0.85	0.61	0.61	10.0		10.0	5.15	3.15	12	0.016	1.25	4.12	3.24	40.00	0.2	894.00	893.50
50	51	12	0.60	0.70	0.42	1.03	10.0		10.0	5.15	5.32	15	0.016	1.00	4.28	5.25	24.00	0.1	892.50	892.26
52	53	13	0.50	0.50	0.25	1.28	10.0		10.0	5.15	6.60	18	0.016	0.80	4.32	7.63	40.00	0.2	889.72	889.40
16	17	14	1.67	0.60	1.00	2.28	10.0		10.0	5.15	11.77	24	0.016	0.50	4.14	13.00	52.00	0.2	883.75	883.49
54	55	15	0.10	0.70	0.07	0.07	10.0		10.0	5.15	0.36	12	0.016	1.00	3.69	2.89	40.00	0.2	889.80	889.40
17	18	16	1.70	0.40	0.68	3.03	10.0	0.2	10.2	5.12	15.53	30	0.016	0.50	4.80	23.57	70.00	0.2	882.99	882.64
18	19	17	1.28	0.40	0.51	3.55	10.2	0.2	10.5	5.08	18.02	30	0.016	0.50	4.80	23.57	89.00	0.3	882.64	882.20
																				N Pool = 881.50
56	57	18	2.82	0.40	1.13	1.13	10.0		10.0	5.15	5.81	18	0.016	0.70	4.04	7.14	36.00	0.1	888.45	888.20
																				N Pool = 881.50
58	59	19	5.81	0.40	2.32	2.32	10.0		10.0	5.15	11.97	24	0.016	0.50	4.14	13.00	36.00	0.1	888.11	887.93
																				N Pool = 881.50
20		20	1.85	0.40	0.74	0.74	10.0		10.0	5.15	3.81	12	0.016	3.60	6.99	5.49	55.69	0.1	885.70	883.70
21	22	21	8.67	0.40	3.47	7.66	18.0		18.0	4.15	31.76	36	0.016	0.40	4.85	34.27	112.00	0.4	882.70	882.25
																				"AC" Accumulate=Sum of Areas 18,19,20 & 21