

Storm Sewer Calculations																								
Line or Lateral Name	Runoff Collection Point (Inlet or Manhole)		Distance Between Collection Points	Incremental Drainage Area				Accumulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (years)	Intensity "I" (in/hr)	Storm Water Runoff "Q" (cfs)	Slope of Hydraulic Gradient "S" (ft/ft)	Selected Storm Water Size	Velocity in Sewer Between Connection Points "V" (fps)	Velocity Head Loss at Upstream Station	Inlet, Manhole, Bends, Lateral, or Junction Box Losses	Head Loss Coeff. K <sub>j</sub>	Velocity Head Loss at Downstream Station	Flow Time in Sewer (minutes)	Time at Downstream Station (minutes)	Hydraulic Grade Line Elevation Upstream (elev)	Hydraulic Grade Line Elevation Downstream (elev)	Remarks
	Upstream Station	Downstream Station		Area No.	Drainage Area "A" (acres)	Runoff Coeff. "C"	Incremental "CA"																	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
B	38.00	0.00	38	2,3,4,5,6,7,8,10	2.413	0.9	2.1717	2.1717	10	100	8.74	18.981	0.0008	36	2.69	0.112	Lateral	0.6	0.13	0.24	10.24	638.92	638.89	
B																			0.01				639.75	
pvc	392.50	237.50	155	3,(1/2)7	0.1995	0.9	0.17955	0.17955	10	100	8.74	1.569	0.0002	18	0.89	0.012	Lateral	0.6	0.10	2.91	12.91	639.74	639.71	
pvc	237.50	198.50	39	4,5,6,(1/2)7,8	1.0985	0.9	0.98865	1.1682	100	100	8.74	10.210	0.0011	27	2.57	0.102	Lateral	0.6	0.14	0.25	13.16	639.61	639.57	
Lat B-1	198.50	107.50	91	2	0.517	0.9	0.4653	1.6335	100	100	8.74	14.277	0.0021	27	3.59	0.200	Lateral	0.6	0.11	0.42	13.58	639.43	639.24	
pvc	107.50	0.00	107.5	10	0.598	0.9	0.5382	2.1717	100	100	8.74	18.981	0.0021	30	3.87	0.232	Lateral	0.6	-0.03	0.46	14.05	639.12	638.89	
B-1																								
	6.00	0.00	6	2	0.517	0.9	0.4653	0.4653	10	100	8.74	4.067	0.0015	18	2.30	0.082	Inlet	1.5	0.15	0.04	10.04	639.59	639.58	
C																			0.04				637.17	
pvc	281.66	50.59	231.07	9,(1/2)12	0.6165	0.9	0.55485	0.55485	10	100	8.74	4.849	0.0009	21	2.02	0.063	Lateral	0.6	0.07	1.91	11.91	637.13	636.91	
pvc	50.59	0.00	50.59	(1/2)12	0.2045	0.9	0.18405	0.7389	100	100	8.74	6.458	0.0017	21	2.68	0.112	Lateral	0.6	0.01	0.31	12.22	636.84	636.75	
D																			0.11				639.01	
Line A	344.34	319.42	24.92	25	3.823	0.9	3.4407	3.4407	10	100	8.74	30.072	0.0024	2-27	3.78	0.222	Box	0.5	0.08	0.11	10.11	638.89	638.84	
	319.42	278.92	40.5	2,3,4,5,6,7,8,10	2.413	0.9	2.1717	5.6124	100	100	8.74	49.052	0.0014	2-36	3.47	0.187	Box	0.5	0.12	0.19	10.30	638.76	638.70	
	278.92	194.73	84.19			0.9	0	5.6124	100	100	8.74	49.052	0.0014	2-36	3.47	0.187	Bend	0.35	0.16	0.40	10.71	638.58	638.47	
E																			0.53				637.72	
	428.00	397.69	30.31	Detention Pond Out	4.792779	0.9	4.3135011	4.313501144	10	100	8.74	37.700	0.0032	36	5.33	0.442	Headwall	1.2	0.29	0.09	10.09	637.19	637.09	
	397.69	367.43	30.26		0	0.9	0	4.313501144	100	100	8.74	37.700	0.0032	36	5.33	0.442	Bend	0.35	-0.19	0.09	10.19	638.80	638.70	
	367.43	53.02	314.41		0	0.9	0	4.313501144	100	100	8.74	37.700	0.0004	2-42	1.96	0.060	Box	0.5	0.05	2.67	12.86	636.90	636.79	
Line C	53.02	36.24	16.78	9,12	0.821	0.9	0.7389	5.052401144	100	100	8.74	44.158	0.0005	2-42	2.29	0.082	Lateral	0.6	0.06	0.12	12.99	636.74	636.73	
Lat E1	36.24	0.00	36.2393	19	0.814	0.9	0.7326	5.785001144	100	100	8.74	50.561	0.0006	2-42	2.63	0.107	Lateral	0.6	0.44	0.23	10.42	636.67	636.65	
															8.01	0.996	Box	0.5						
E-1																			0.08				636.84	
	18.00	0.00	18	19	0.814	0.9	0.7326	0.7326	10	100	8.74	6.403	0.0009	18	1.81	0.051	Inlet	1.5	0.08	0.17	10.17	636.77	636.75	
F																			0.13				638.44	
Line D	47.00	28.50	18.5	2,3,4,5,6,7,8,10,13,14,15,16,17,18,25	7.258	0.9	6.5322	6.5322	10	100	8.74	57.091	0.0018	2-36	4.04	0.253	Box	0.5	0.13	0.08	10.08	638.31	638.28	
Lat F1	28.50	0.00	28.5	20	0.452	0.9	0.4068	6.939	100	100	8.74	60.647	0.0021	2-36	4.29	0.286	Lateral	0.6	0.34	0.11	10.19	638.14	638.08	
															0.00	0.000	Headwall	1.2						
F-1																			0.02				638.45	
	25.00	0.00	25	20	0.452	0.9	0.4068	0.4068	10	100	8.74	3.555	0.0003	18	1.01	0.016	Inlet	1.5	0.28	0.41	10.41	638.43	638.42	
G																			0.63				639.45	
Line H	62.00	0.00	62	22,23	1.748	0.9	1.5732	1.5732	10	100	8.74	13.750	0.0075	21	5.72	0.507	Manhole	1.25	0.61	0.18	10.18	638.82	638.35	
															0.00	0.000	Headwall	1.2						
H																			0.29				640.69	
	320.05	0.00	320.05	23	0.874	0.9	0.7866	0.7866	10	100	8.74	6.875	0.0043	18	3.89	0.235	Manhole	1.25	0.21	1.37	11.37	640.40	639.03	

  

Future Storm Sewer Calculations																								
Line or Lateral Name	Upstream Station	Downstream Station	Distance Between Collection Points	Area No.	Drainage Area "A" (acres)	Runoff Coeff. "C"	Incremental "CA"	Accumulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (years)	Intensity "I" (in/hr)	Storm Water Runoff "Q" (cfs)	Slope of Hydraulic Gradient "S" (ft/ft)	Selected Storm Water Size	Velocity in Sewer Between Connection Points "V" (fps)	Velocity Head Loss at Upstream Station	Inlet, Manhole, Bends, Lateral, or Junction Box Losses	Head Loss Coeff. K <sub>j</sub>	Velocity Head Loss at Downstream Station	Flow Time in Sewer (minutes)	Time at Downstream Station (minutes)	Hydraulic Grade Line Elevation Upstream (elev)	Hydraulic Grade Line Elevation Downstream (elev)	Remarks
B (Alt)*	38.00	0.00	38	2,3,4,5,6,7,8,10	2.413	0.9	2.1717	2.1717	10	100	8.74	18.981	0.0008	36	2.69	0.112	Lateral	0.6	0.13	0.24	10.24	637.95	637.92	
B (Alt)*																			0.01					638.77
pvc	392.50	237.50	155	3,(1/2)7	0.1995	0.9	0.17955	0.17955	10	100	8.74	1.569	0.0002	18	0.89	0.012	Lateral	0.6	0.10	2.91	12.91	638.77	638.73	
pvc	237.50	198.50	39	4,5,6,(1/2)7,8	1.0985	0.9	0.98865	1.1682	100	100	8.74	10.210	0.0011	27	2.57	0.102	Lateral	0.6	0.14	0.25	13.16	638.64	638.59	
Lat B1	198.50	107.50	91	2	0.517	0.9	0.4653	1.6335	100	100	8.74	14.277	0.0021	27	3.59	0.200	Lateral	0.6	0.11	0.42	13.58	638.46	638.26	
pvc	107.50	0.00	107.5	10	0.598	0.9	0.5382	2.1717	100	100	8.74	18.981	0.0021	30	3.87	0.232	Lateral	0.6	-0.03	0.46	14.05	638.15	637.92	
C (Alt)*																								
pvc	281.66	50.59	231.07	9,(1/2)12	0.6165	0.9	0.55485	0.55485	10	100	8.74	4.849	0.0009	21	2.02	0.063	Lateral	0.6	0.07	1.91	11.91	636.58	636.36	
pvc	50.59	0.00	50.59	(1/2)12	0.2045	0.9	0.18405	0.7389	100	100	8.74	6.458	0.0017	21	2.68	0.112	Lateral	0.6	0.28	0.31	12.22	636.28	636.20	
D (Alt)*																			0.11					638.00
Line A*	344.34	319.42	24.92	25	3.823	0.9	3.4407	3.4407	10	100	8.74	30.072	0.0009	2-27	3.78	0.222	Box	0.5	0.08	0.11	10.11	637.88	637.86	
	319.42	278.92	40.5	2,3,4,5,6,7,8,10	2.413	0.9	2.1717	5.6124	100	100	8.74	49.052	0.0014	2-36	3.47	0.187	Box	0.5	0.12	0.19	10.30	637.79	637.73	
	278.92	194.73	84.19		0	0.9	0	5.6124	100	100	8.74	49.052	0.0014	2-36	3.47	0.187	Bend	0.35	0.16	0.40	10.71	637.61	637.49	
Lat F-1*	194.73	156.00	38.73	13,14,15,16,17,18,23,25	1.021	0.9	0.9189	6.5313	100	100	8.74	57.084	0.0018	2-36	4.04	0.253	Box	0.5	0.13	0.16	10.87	637.34	637.26	
	156.00	0.00	156	20	0.452	0.9	0.4068	6.9381	100	100	8.74	60.639	0.0021	2-36	4.29	0.286	Lateral	0.6	0.16	0.61	11.47	637.13	636.81	
E (Alt)*																								
Line D*	367.43	53.02	314.41	2,3,4,5,6,7,8,10,13,14,15,16,17,18,20,21,22,23,25	10.815	0.9	9.7335	9.7335	100	100														