

ON-SITE RUNOFF CALCULATIONS PHASE 8A						
Drainage Area #	Area (Acres)	Runoff Coeff. "C"	Intensity (in./hr.) "I"	Time (conc. minutes) "T _c "	Discharge (c.f.s.) "Q"	Comment
STORM LINE A						
A1	1.35	0.5	9.80	10.0	6.62	Developed - Single Family
A2	0.99	0.5	9.80	10.0	4.85	Developed - Single Family
A3	1.29	0.5	9.80	10.0	6.32	
A4	1.47	0.5	9.80	10.0	7.20	Developed - Single Family
A5	2.87	0.5	9.80	10.0	14.06	
A6	1.61	0.5	9.80	10.0	7.89	Developed - Single Family
A7	0.94	0.5	9.80	10.0	4.61	Developed - Single Family
A8	0.82	0.5	9.80	10.0	4.02	Developed - Single Family
A9	2.48	0.5	9.80	10.0	12.15	Developed - Single Family
A10	0.72	0.5	9.80	10.0	3.53	Developed - Single Family
A11	1.29	0.5	9.80	10.0	6.32	Developed - Single Family
A12	0.44	0.5	9.80	10.0	2.16	Developed - Single Family
A13	0.82	0.5	9.80	10.0	4.51	Developed - Single Family
A14	0.47	0.5	9.80	10.0	2.30	Developed - Single Family
X1	0.71	0.5	9.80	10.0	3.48	From Phase 8A to off-site John King Blvd.
X2	0.50	0.5	9.80	10.0	2.45	From Phase 8A to off-site John King Blvd.
X3	0.22	0.5	9.80	10.0	1.08	From Phase 8A to off-site John King Blvd.

ON-SITE RUNOFF CALCULATIONS PHASE 8B						
B1	Area (Acres)	Runoff Coeff. "C"	Intensity (in./hr.) "I"	Time (conc. minutes) "T _c "	Discharge (c.f.s.) "Q"	Comment
B1	4.57	0.5	9.80	10.0	22.39	From future Phase 8B to 8A system

PIPE HYDRAULICS

RUNOFF COLLECTION POINT (Inlet or Manhole)		INCREMENTAL DRAINAGE AREA					Time at Upstream Station	Design Storm Frequency (yrs.)	Intensity "I" (inches/hr)	Storm Water Runoff "Q"	Slope of Hydraulic Gradient "S"	No. of Pipes or Boxes	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V"	Head Loss Coeff. K _g	Velocity Head Loss at Upstream Station V ₁ ² /2g	Velocity Head Loss at Downstream Station V ₂ ² /2g	Velocity Head Loss (V ₁ ² /2g - V ₂ ² /2g)	Velocity Head Loss (V ₁ ² /2g - V ₂ ² /2g)	Total Velocity Headloss	Friction Loss = Sf x L	Upstream Hydraulic Grade	Downstream Hydraulic Grade	Flow Time in Sewer Distance / V x 60	Time of Downstream Station	Remarks	
UPSTREAM STATION	DOWNSTREAM STATION	Area No.	Drainage Area	Runoff Coeff. "C"	Accumulated "CA"																						
STA	STA	ft	acres			min	hrs	in/hr	cfs	ft/ft			in of ft	fps		ft	ft	ft	ft	ft	ft	ft	ft	min	min		
STM-A																											
693.34	482.61	210.73	A3	1.29	0.5	0.65	10	100	9.80	6.32	0.0036	1	18	3.59	1.25	0.20	0.25	0.20	0.200	0.76	515.41	514.65	0.98	10.98			
482.61	415.77	66.84	A4-A5	4.34	0.5	2.82	10.98	100	9.36	26.35	0.0136	1	24	8.41	0.6	1.10	0.66	0.85	0.849	0.91	513.80	512.89	0.13	11.11			
415.77	411.63	4.14	A2	0.99	0.5	3.31	11.11	100	9.30	30.79	0.0021	1	36	4.37	0.6	0.30	0.18	(0.36)	(0.363)	0.01	513.26	513.25	0.02	11.13			
411.63	321.43	90.2	A1	1.35	0.5	3.99	11.13	100	9.29	37.04	0.0031	1	36	5.25	0.6	0.43	0.26	0.25	0.251	0.28	513.00	512.72	0.29	11.41			
321.43	189.42	132.01	A6	1.61	0.5	4.79	11.41	100	8.17	43.91	0.0009	1	48	3.50	1.00	0.19	0.19	(0.07)	(0.067)	0.12	512.79	512.66	0.63	12.04			
189.42	100	89.42	A7-A8	12.65	0.5	11.12	12.04	100	8.89	98.76	0.0014	1	60	5.04	1.00	0.39	0.39	0.20	0.204	0.13	512.46	512.33	0.30	12.34			
STM-A2																											
950.04	923.32	26.72	A-17	1.40	0.5	0.70	10	100	9.80	6.86	0.0009	1	24	2.19	1.25	0.07	0.09	0.07	0.074	0.12	517.02	516.90	0.20	10.20			FUTURE
923.32	836.1	87.22	A-16	0.23	0.5	0.82	10.20	100	9.71	7.91	0.0012	1	24	2.53	0.6	0.10	0.06	0.01	0.006	0.11	517.01	516.90	0.58	10.78			FUTURE
836.1	687.54	148.56	A-15	1.21	0.5	1.42	10.78	100	9.45	13.42	0.0035	1	24	4.28	0.6	0.28	0.17	0.23	0.225	0.52	516.68	516.15	0.58	11.36			FUTURE
687.54	535.14	152.4	A-14 & A-13	2.29	0.5	2.57	11.36	100	9.19	23.58	0.0033	1	30	4.82	0.6	0.36	0.22	0.19	0.189	0.50	515.97	515.46	0.53	11.88			FUTURE
535.14	388.29	146.85	A12	0.44	0.5	2.79	11.88	100	8.96	24.94	0.0037	1	30	5.09	0.6	0.40	0.24	0.31	0.310	0.54	515.15	514.61	0.48	12.36			
388.29	233.36	154.93	A10-A11	1.75	0.5	3.66	12.36	100	8.74	31.99	0.0023	1	36	4.54	0.60	0.32	0.19	0.08	0.078	0.36	514.53	514.17	0.57	12.93			
233.36	210.12	23.24	A9	2.48	0.5	4.90	12.93	100	8.19	41.58	0.0039	1	36	5.90	0.60	0.54	0.32	0.35	0.348	0.09	513.83	513.74	0.07	13.00			
210.12	205	5.12	A14	0.47	0.5	5.14	13.00	100	8.46	43.42	0.0042	1	36	6.16	0.40	0.59	0.24	0.27	0.265	0.02	513.47	513.45	0.01	13.01			
205	100	105	A13	0.92	0.5	5.60	13.01	100	8.45	47.28	0.0050	1	36	6.71	0.40	0.70	0.28	0.46	0.463	0.53	512.99	512.46	0.26	13.27			
STM-A-3																											
83.23	34.87	48.36	A4	1.47	0.5	0.74	10	100	9.80	7.20	0.0047	1	18	4.09	1.25	0.26	0.32	0.26	0.259	0.23	514.71	514.48	0.20	10.20			
34.87	0	34.87	A5	2.87	0.5	2.17	10.20	100	9.71	21.07	0.0087	1	24	6.73	0.60	0.70	0.42	0.38	0.378	0.30	514.10	513.80	0.09	10.28			
STM-A-4																											
47.17	0	47.17	A6	1.61	0.5	0.81	10.00	100	9.80	7.89	0.0056	1	18	4.48	1.25	0.31	0.39	0.31	0.311	0.27	513.05	512.79	0.18	10.18			
STM-A-5																											
51.34	29.15	22.19	A8	0.82	0.5	0.41	10	100	9.80	4.02	0.0015	1	18	2.28	1.25	0.08	0.10	0.08	0.081	0.03	512.95	512.92	0.16	10.16			
29.15	0	29.15	A7	0.94	0.5	0.88	10.16	100	9.73	8.56	0.0066	1	18	4.86	0.60	0.37	0.22	0.27	0.265	0.19	512.65	512.46	0.10	10.26			
STM-A-6																											
45.93	0	45.93	A9	2.48	0.5	1.24	10.00	100	9.80	12.15	0.0134	1	18	6.90	1.25	0.74	0.92	0.74	0.738	0.61	514.44	513.83	0.11	10.11			
STM-A-7																											
60.68	26.8	33.88	A11	1.29	0.5	0.65	10	100	9.80	6.32	0.0036	1	18	3.59	1.25	0.20	0.25	0.20	0.200	0.12	515.11	514.99	0.16	10.16			
26.8	0	26.8	A10	0.72	0.5	1.01	10.16	100	9.73	9.78	0.0087	1	18	5.55	0.60	0.48	0.29	0.23	0.228	0.23	514.76	514.53	0.08	10.24			
STM-A-8																											
46.02	0	46.02	A12	0.44	0.5	0.22	10.00	100	9.80	2.16	0.0004	1	18	1.22	1.25	0.02	0.03	0.02	0.023	0.02	515.17	515.15	0.63	10.63			

PHASE 8A INLETS

INLET No.	Location	AREA RUNOFF Q=CIA							Upstream Inlet Bypass and Crossover (c.f.s.)	Total Gutter Flow (c.f.s.)	Gutter Capacity (c.f.s.)	Gutter Slope (%)	Crown Type	SELECTED INLET		Inlet Capacity (c.f.s.)	Cary-Over Downstream (c.f.s.)	Q100 Intercepted at Inlet (c.f.s.)
		Drainage Area No.	Design Storm Freq. (yrs.)	Time of Conc. (min.)	Intensity (in./hr.)	Runoff Coeff. "C"	Area (Ac.)	Q (c.f.s.)						Length "L" (Feet)	Type			
A1	9+24.55 PHELPS LAKE DRIVE	A1	100	10	9.80	0.5	1.35	6.62	6.62	9.77	0.75	6" PARABOLIC	10	SAG	17.5	0.00	6.6	
A2	9+24.55 PHELPS LAKE DRIVE	A2	100	10	9.80	0.5	0.99	4.85	5.6	OVERFLOW		6" PARABOLIC	10	SAG	17.5	0.00	10.4	
A3	1+36.90 ALLEY 1A	A3	100	10	9.80	0.5	1.29	6.32	6.32	11.49	2.38	5" INVERT	15	ON GRADE	9.0	0.00	6.3	
A4	10+78.07 CALLING CIRCLE	A4	100	10	9.80	0.5	1.47	7.20	7.20	10.43	3.17	6" PARABOLIC	15	ON GRADE	8.5	0.00	7.2	
A5	11+07.68 CALLING CIRCLE	A5	100	10	9.80	0.5	2.87	14.06	TO A2	14.06	10.43	3.17	6" PARABOLIC	15	ON GRADE	8.5	5.56	8.5
A6	1+38.40 ALLEY 2A	A6	100	10	9.80	0.5	1.61	7.89	7.89	13.16	3.12	5" INVERT	15	ON GRADE	9.0	0.00	7.9	
A7	1+53.63 LOCHNESS COURT	A7	100	10	9.80	0.5	0.94	4.61	4.61	13.10	5.00	6" PARABOLIC	10	ON GRADE	5.0	0.00	4.6	
A8	1+47.85 LOCHNESS COURT	A8	100	10	9.80	0.5	0.82	4.02	4.02	13.10	5.00	6" PARABOLIC	10	ON GRADE	5.0	0.00	4.0	
A9	1+42.80 ALLEY 3A	A9	100	10	9.80	0.5	2.48	12.15	TO A12	12.15	17.94	5.80	5" INVERT	15	ON GRADE	9.0	3.15	9.0
A10	1+47.35 GREAT LAKES COURT	A10	100	10	9.80	0.5	0.72	3.53	3.53	14.30	5.96	6" PARABOLIC	10	ON GRADE	5.0	0.00	3.5	
A11	1+52.88 GREAT LAKES COURT	A11	100	10	9.80	0.5	1.29	6.32	TO A13	6.32	14.30	5.96	6" PARABOLIC	10	ON GRADE	5.0	1.32	5.0
A12	1+42.86 ALLEY 4A	A12	100	10	9.80	0.5	0.44	2.16	2.16	16.77	5.07	5" INVERT	15	ON GRADE	9.0	0.00	2.2	
A13	12+74.63 PHELPS LAKE DRIVE	A13	100	10	9.80	0.5	0.92	4.51	4.5	8.98	11.02	0.75	6" PARABOLIC	10	SAG	21.0	0.00	9.0
A14	12+74.63 PHELPS LAKE DRIVE	A14	100	10	9.80	0.5	0.47	2.30	2.30	11.02	0.75	6" PARABOLIC	5	SAG	11.0	0.00	2.3</	