

5 YR STORM CALCULATIONS

Existing Conditions		
Area	1.52	acres
Time (Tc)	20	minutes
C value	0.35	
I-5yr	4.9	in/hr
Q-5 yr	2.61	cfs

Onsite Proposed Conditions		
Area	1.38	acres
Time (Tc)	10	minutes
C value	0.90	
I-5yr	6.1	in/hr
Q-5 yr	7.58	cfs

Developed Runoff per Storm Event (Per City of Rockwall Chart - Figure 3.1)				
Time (min.)	I-5 yr	C value	Area (ac)	Runoff (cfs)
10	6.10	0.90	1.38	7.58
15	5.60	0.90	1.38	6.96
20	4.90	0.90	1.38	6.09
30	4.00	0.90	1.38	4.97
40	3.40	0.90	1.38	4.22
50	2.90	0.90	1.38	3.60
60	2.60	0.90	1.38	3.23
70	2.40	0.90	1.38	2.98
80	2.20	0.90	1.38	2.73
90	2.10	0.90	1.38	2.61
100	1.90	0.90	1.38	2.36
110	1.70	0.90	1.38	2.11

Inflow per Storm Event			
Storm Event	Runoff	Inflow (ft³/s)	
10	7.58	4,546	
15	6.96	4,260	
20	6.09	3,442	
30	4.97	2,760	
40	4.22	2,312	
50	3.60	2,005	
60	3.23	1,825	
70	2.98	1,659	
80	2.73	1,516	
90	2.61	1,484	
100	2.36	1,359	
110	2.11	1,205	

Outflow per Storm Event				
Storm Event	Time	Release	Outflow (ft³/s)	
10	20	1.84	1,104	
15	25	1.84	1,380	
20	30	1.84	1,656	
30	40	1.84	2,208	
40	50	1.84	2,760	
50	60	1.84	3,312	
60	70	1.84	3,864	
70	80	1.84	4,416	
80	90	1.84	4,968	
90	100	1.84	5,520	
100	110	1.84	6,072	
110	120	1.84	6,624	

DETENTION VOLUME			
Storm Event	Inflow	Outflow	Storage (ft³)
10	4,546	1,104	3,442
15	6,260	1,380	4,880
20	7,303	1,656	5,647
30	8,942	2,208	6,734
40	10,135	2,760	7,375
50	10,805	3,312	7,493
60	11,625	3,864	7,761
70	12,519	4,416	8,103
80	13,116	4,968	8,148
90	14,084	5,520	8,564
100	14,159	6,072	8,087
110	13,935	6,624	7,311

Detention Volume Required (ft³) **8,564**

10 YR STORM CALCULATIONS

Existing Conditions		
Area	1.52	acres
Time (Tc)	20	minutes
C value	0.35	
I-10yr	5.9	in/hr
Q10 yr	3.14	cfs

Onsite Proposed Conditions		
Area	1.38	acres
Time (Tc)	10	minutes
C value	0.90	
I-10yr	7.1	in/hr
Q10 yr	8.82	cfs

Developed Runoff per Storm Event (Per City of Rockwall Chart - Figure 3.1)				
Time (min.)	I-10 yr	C value	Area (ac)	Runoff (cfs)
10	7.10	0.90	1.38	8.82
15	6.50	0.90	1.38	8.07
20	5.90	0.90	1.38	7.33
30	4.90	0.90	1.38	6.09
40	4.00	0.90	1.38	4.97
50	3.40	0.90	1.38	4.22
60	3.00	0.90	1.38	3.73
70	2.80	0.90	1.38	3.48
80	2.60	0.90	1.38	3.23
90	2.40	0.90	1.38	2.98
100	2.20	0.90	1.38	2.73
110	2.00	0.90	1.38	2.48

Inflow per Storm Event			
Storm Event	Runoff	Inflow (ft³/s)	
10	8.82	5,291	
15	8.07	4,726	
20	7.33	4,260	
30	6.09	3,542	
40	4.97	2,964	
50	4.22	2,516	
60	3.73	2,228	
70	3.48	2,064	
80	3.23	1,916	
90	2.98	1,784	
100	2.73	1,639	
110	2.48	1,484	

Outflow per Storm Event				
Storm Event	Time	Release	Outflow (ft³/s)	
10	20	2.24	1,344	
15	25	2.24	1,680	
20	30	2.24	2,016	
30	40	2.24	2,688	
40	50	2.24	3,360	
50	60	2.24	4,032	
60	70	2.24	4,704	
70	80	2.24	5,376	
80	90	2.24	6,048	
90	100	2.24	6,720	
100	110	2.24	7,392	
110	120	2.24	8,064	

Detention Volume			
Storm Event	Inflow	Outflow	Storage (ft³)
10	5,291	1,344	3,947
15	7,268	1,680	5,588
20	8,793	2,016	6,777
30	10,954	2,688	8,266
40	11,923	3,360	8,563
50	12,668	4,032	8,638
60	13,414	4,704	8,710
70	14,006	5,376	8,630
80	15,500	6,048	9,452
90	16,096	6,720	9,376
100	16,394	7,392	9,002
110	16,394	8,064	8,330

Detention Volume Required (ft³) **9,452**

25 YR STORM CALCULATIONS

Existing Conditions		
Area	1.52	acres
Time (Tc)	20	minutes
C value	0.35	
I-25yr	6.6	in/hr
Q25 yr	3.51	cfs

Onsite Proposed Conditions		
Area	1.38	acres
Time (Tc)	10.00	minutes
C value	0.90	
I-25yr	8.3	in/hr
Q25 yr	10.31	cfs

Developed Runoff per Storm Event (Per City of Rockwall Chart - Figure 3.1)				
Time (min.)	I-25 yr	C value	Area (ac)	Runoff (cfs)
10	8.30	0.90	1.38	10.31
15	7.40	0.90	1.38	9.19
20	6.80	0.90	1.38	8.45
30	5.50	0.90	1.38	6.83
40	4.70	0.90	1.38	5.84
50	4.00	0.90	1.38	4.97
60	3.50	0.90	1.38	4.35
70	3.30	0.90	1.38	4.10
80	3.10	0.90	1.38	3.85
90	2.80	0.90	1.38	3.48
100	2.60	0.90	1.38	3.23
110	2.40	0.90	1.38	2.98

Inflow per Storm Event			
Storm Event	Runoff	Inflow (ft³/s)	
10	10.31	6,185	
15	9.19	5,426	
20	8.45	4,960	
30	6.83	4,032	
40	5.84	3,472	
50	4.97	2,964	
60	4.35	2,516	
70	4.10	2,228	
80	3.85	1,984	
90	3.48	1,779	
100	3.23	1,639	
110	2.98	1,484	

Outflow per Storm Event				
Storm Event	Time	Release	Outflow (ft³/s)	
10	20.00	2.46	1,476	
15	25.00	2.46	1,845	
20	30.00	2.46	2,214	
30	40.00	2.46	2,952	
40	50.00	2.46	3,690	
50	60.00	2.46	4,428	
60	70.00	2.46	5,166	
70	80.00	2.46	5,904	
80	90.00	2.46	6,642	
90	100.00	2.46	7,380	
100	110.00	2.46	8,118	
110	120.00	2.46	8,856	

Detention Volume			
Storm Event	Inflow	Outflow	Storage (ft³)
10	6,185	1,476	4,709
15	8,272	1,845	6,427
20	10,135	2,214	7,921
30	12,296	2,952	9,344
40	14,010	3,690	10,320
50	14,904	4,428	10,476
60	15,649	5,166	10,483
70	17,214	5,904	11,310
80	18,481	6,642	11,839
90	18,779	7,380	11,399
100	19,375	8,118	11,257
110	19,673	8,856	10,817

Detention Volume Required (ft³) **11,839**

100 YR STORM CALCULATIONS

Existing Conditions		
Area	1.52	acres
Time (Tc)	20	minutes
C value	0.35	
I-100yr	8.3	in/hr
Q100 yr	4.42	cfs

Onsite Proposed Conditions		
Area	1.38	acres
Time (Tc)	10	minutes
C value	0.90	
I-100yr	9.8	in/hr
Q100 yr	12.17	cfs

Developed Runoff per Storm Event (Per City of Rockwall Chart - Figure 3.1)				
Time (min.)	I-100 yr	C value	Area (ac)	Runoff (cfs)
10	9.80	0.90	1.38	12.17
15	9.00	0.90	1.38	11.18
20	8.30	0.90	1.38	10.31
30	6.90	0.90	1.38	8.57
40	5.80	0.90	1.38	7.20
50	5.00	0.90	1.38	6.21
60	4.50	0.90	1.38	5.59
70	4.00	0.90	1.38	4.97
80	3.70	0.90	1.38	4.60
90	3.50	0.90	1.38	4.35
100	3.40	0.90	1.38	4.22
110	3.20	0.90	1.38	3.97

Inflow per Storm Event			
Storm Event	Runoff	Inflow (ft³/s)	
10	12.17	7,303	
15	11.18	6,624	
20	10.31	6,072	
30	8.57	5,166	
40	7.20	4,416	
50	6.21	3,864	
60	5.59	3,442	
70	4.97	3,072	
80	4.60	2,808	
90	4.35	2,592	
100	4.22	2,448	
110	3.97	2,272	

Outflow per Storm Event				
Storm Event	Time	Release	Outflow (ft³/s)	
10	20	3.18	1,908	
15	25	3.18	2,385	
20	30	3.18	2,862	
30	40	3.18	3,816	
40	50	3.18	4,770	
50	60	3.18	5,724	
60	70	3.18	6,678	
70	80	3.18	7,632	
80	90	3.18	8,586	
90	100	3.18	9,540	
100	110	3.18	10,494	
110	120	3.18	11,448	

Detention Volume			
Storm Event	Inflow	Outflow	Storage (ft³)
10	7,303	1,908	5,395
15	10,060	2,385	7,675
20	12,370	2,862	9,508
30	15,426	3,816	11,610
40	17,289	4,770	12,519
50	18,630	5,724	12,908
60	20,120	6,678	13,442
70	20,866	7,632	13,234
80	22,058	8,586	13,472
90	23,474	9,540	13,934
100	25,337	10,494	14,843
110	26,231	11,448	14,783