Structure Report

SCM #5 10-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	YI 501	DropGrate	350.87	Rect	4.00	4.00	30	Cir	347.15	30	Cir	347.35
2	YI 501A	DropGrate	351.17	Rect	4.00	4.00	30	Cir	347.41	30 15	Cir Cir	347.61 347.82
3	CB 502	Combination	357.04	Rect	4.00	4.00	30	Cir	350.66	24 15	Cir Cir	351.06 353.30
4	CB 504	Combination	366.04	Rect	4.00	4.00	24	Cir	361.17	18 15	Cir Cir	361.37 362.27
5	CB 505	Combination	367.77	Rect	4.00	4.00	18	Cir	361.85	18 15	Cir Cir	362.35 362.69
6	CB 506	Combination	367.48	Rect	4.00	4.00	18	Cir	362.49	15	Cir	362.69
7	CB 507	Combination	367.00	Rect	8.00	4.00	15	Cir	362.94	15	Cir	363.14
8	CB 508	Combination	367.00	Rect	4.00	4.00	15	Cir	363.28	15	Cir	363.48
9	CB 514	Combination	374.03	Rect	4.00	4.00	15	Cir	369.95	15	Cir	370.15
10	CB 515	Combination	374.10	Rect	4.00	4.00	15	Cir	370.43			
11	CB 511	Combination	368.61	Rect	4.00	4.00	15	Cir	363.12	15 15	Cir Cir	363.62 364.00
12	CB 517	Combination	371.62	Rect	4.00	4.00	15	Cir	366.59	15	Cir	367.09
13	CB 516	Combination	371.63	Rect	4.00	4.00	15	Cir	367.50	15	Cir	367.70
14	FES 516A	OpenHeadwall	369.81	n/a	n/a	n/a	15	Cir	368.29			
15	CB 510	Combination	368.57	Rect	4.00	4.00	15	Cir	364.24			
16	CB 513	Combination	368.66	Rect	4.00	4.00	15	Cir	363.16	15	Cir	363.36
17	YI 513A	DropGrate	367.63	Rect	4.00	4.00	15	Cir	363.95			
18	CB 503	Combination	357.04	Rect	4.00	4.00	15	Cir	353.44			
19	YI 501B	DropGrate	351.81	Rect	4.00	4.00	15	Cir	348.35	15	Cir	348.45
20	YI 501C	DropGrate	353.72	Rect	4.00	4.00	15	Cir	349.18			

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

Digitally signed by Jakob Klein
Date: 2025.04.01 17:05:20-04'00'

Project File: SCM#5.stm | Number of Structures: 20 | Run Date: 3/28/2025

Storm Sewer Summary Report

SCM #5 10-YEAR REPORT

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (39)	21.02	30	Cir	45.553	346.92	347.15	0.505	348.95	349.01	0.54	349.56	End	DropGrate
2	Pipe - (38) (1)	18.63	30	Cir	11.310	347.35	347.41	0.530	349.56	348.87	0.91	348.87	1	DropGrate
3	Pipe - (38)	15.99	30	Cir	152.248	347.61	350.66	2.003	348.87	352.01	n/a	352.01	2	Combination
4	Pipe - (37)	13.81	24	Cir	215.399	351.06	361.17	4.694	352.01	362.51	0.82	362.51	3	Combination
5	Pipe - (36)	7.70	18	Cir	48.260	361.37	361.85	0.995	362.51	362.92	n/a	362.92 j	4	Combination
6	Pipe - (35)	3.86	18	Cir	27.000	362.35	362.49	0.518	363.11	363.25	0.33	363.58	5	Combination
7	Pipe - (34)	2.60	15	Cir	49.032	362.69	362.94	0.510	363.58	363.65	0.22	363.87	6	Combination
8	Pipe - (33)	2.03	15	Cir	27.000	363.14	363.28	0.518	363.87	363.90	0.26	364.16	7	Combination
9	Pipe - (31)	1.25	15	Cir	184.905	363.48	369.95	3.499	364.16	370.39	n/a	370.39 j	8	Combination
10	Pipe - (30)	0.40	15	Cir	27.526	370.15	370.43	1.017	370.39	370.67	0.09	370.67	9	Combination
11	Pipe - (44)	6.37	15	Cir	64.208	362.27	363.12	1.324	363.16	364.14	0.75	364.14	4	Combination
12	Pipe - (150)	5.99	15	Cir	98.954	363.62	366.59	3.001	364.27	367.58	0.77	367.58	11	Combination
13	Pipe - (28)	5.57	15	Cir	27.000	367.09	367.50	1.519	367.86	368.46	n/a	368.46	12	Combination
14	Pipe - (176)	5.12	15	Cir	36.500	367.70	368.29	1.616	368.46	369.21	0.44	369.21	13	OpenHeadwall
15	Pipe - (43)	0.22	15	Cir	27.000	364.00	364.24	0.889	364.16	364.42	0.06	364.42	11	Combination
16	Pipe - (42)	3.15	15	Cir	94.508	362.69	363.16	0.497	363.45	363.92	0.38	364.30	5	Combination
17	Pipe - (168)	2.71	15	Cir	117.000	363.36	363.95	0.504	364.30	364.61	0.26	364.87	16	DropGrate
18	Pipe - (40)	1.23	15	Cir	27.001	353.30	353.44	0.519	353.74	353.88	0.16	354.04	3	Combination
19	Pipe - (183)	2.59	15	Cir	106.328	347.82	348.35	0.498	348.87	349.06	0.20	349.26	2	DropGrate
20	Pipe - (182)	1.66	15	Cir	145.494	348.45	349.18	0.502	349.26	349.69	n/a	349.69 j	19	DropGrate

Project File: SCM#5.stm | Number of lines: 20 | Run Date: 3/28/2025

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

Inlet Report

SCM #5 10-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	YI 501	2.67	0.00	2.67	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.19	21.19	0.19	21.19	0.0	Off
2	YI 501A	0.47	0.11	0.58	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.07	9.27	0.07	9.27	0.0	1
3	CB 502	1.37	0.06	1.32	0.11	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.16	4.23	0.06	1.08	0.0	2
4	CB 504	0.14	0.00	0.14	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.07	1.19	0.00	0.00	0.0	3
5	CB 505	0.90	0.10	0.97	0.03	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.15	3.29	0.04	0.63	0.0	Off
6	CB 506	1.37	0.00	1.27	0.10	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.16	4.10	0.06	1.02	0.0	5
7	CB 507	0.61	0.01	0.62	0.00	Comb	6.0	1.50	0.00	6.00	2.50	0.054	2.00	0.060	0.020	0.013	0.12	2.16	0.00	0.00	0.0	6
8	CB 508	0.87	0.01	0.86	0.01	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.14	2.96	0.03	0.46	0.0	7
9	CB 514	0.87	0.00	0.86	0.01	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.14	2.93	0.03	0.45	0.0	8
10	CB 515	0.40	0.00	0.40	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.10	1.73	0.00	0.00	0.0	7
11	CB 511	0.22	0.00	0.22	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.08	1.38	0.00	0.00	0.0	4
12	CB 517	0.43	0.00	0.43	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.11	1.79	0.00	0.00	0.0	11
13	CB 516	0.47	0.00	0.47	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.11	1.84	0.00	0.00	0.0	15
14	FES 516A	5.12	0.00	5.12	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.060	0.020	0.013	0.00	0.00	0.00	0.00	0.0	13
15	CB 510	0.22	0.00	0.22	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.08	1.38	0.00	0.00	0.0	Off
16	CB 513	0.51	0.00	0.51	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.11	1.90	0.00	0.00	0.0	5
17	YI 513A	2.71	0.00	2.71	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.19	21.36	0.19	21.36	0.0	Off
18	CB 503	1.23	0.00	1.16	0.06	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.16	3.81	0.05	0.88	0.0	3
19	YI 501B	1.01	0.00	1.01	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.10	12.27	0.10	12.27	0.0	Off
20	YI 501C	1.66	0.00	1.66	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.14	16.11	0.14	16.11	0.0	Off

Project File: SCM#5.stm | Number of lines: 20 | Run Date: 3/28/2025

NOTES: Inlet N-Values = 0.016; Intensity = 74.09 / (Inlet time + 12.50) ^ 0.81; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

Hydraulic Grade Line Computations

SCM #5 10-YEAR REPORT

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	30	21.02	346.92	348.95	2.03	4.27	4.92	0.38	349.33	0.267	45.553	347.15	349.01	1.86	3.92	5.36	0.45	349.46	0.321	0.294	0.134	1.22	0.54
2	30	18.63	347.35	349.56	2.21	2.98	4.06	0.61	350.16	0.000	11.310	347.41	348.87	1.46**	2.98	6.25	0.61	349.48	0.000	0.000	n/a	1.50	0.91
3	30	15.99	347.61	348.87	1.26	2.48	6.44	0.54	349.42	0.000	152.248	350.66	352.01	1.35**	2.70	5.92	0.54	352.55	0.000	0.000	n/a	1.50	n/a
4	24	13.81	351.06	352.01	0.95	1.47	9.40	0.60	352.60	0.000	215.399	361.17	362.51	1.34**	2.23	6.19	0.60	363.10	0.000	0.000	n/a	1.38	0.82
5	18	7.70	361.37	362.51	1.14	1.35	5.36	0.50	363.01	0.000	48.260	361.85	362.92 j	1.07**	1.35	5.69	0.50	363.43	0.000	0.000	n/a	1.49	0.75
6	18	3.86	362.35	363.11	0.76*	0.88	4.30	0.29	363.40	0.518	27.000	362.49	363.25	0.76**	0.90	4.31	0.29	363.54	0.521	0.520	0.140	1.13	0.33
7	15	2.60	362.69	363.58	0.88	0.93	2.80	0.12	363.70	0.224	49.032	362.94	363.65	0.71	0.72	3.59	0.20	363.85	0.418	0.321	0.157	1.08	0.22
8	15	2.03	363.14	363.87	0.73	0.74	2.72	0.12	363.99	0.237	27.000	363.28	363.90	0.62	0.60	3.36	0.18	364.07	0.412	0.325	0.088	1.50	0.26
9	15	1.25	363.48	364.16	0.68	0.39	1.84	0.16	364.32	0.000	184.905	369.95	370.39 j	0.44**	0.39	3.23	0.16	370.55	0.000	0.000	n/a	1.48	0.24
10	15	0.40	370.15	370.39	0.24	0.17	2.38	0.09	370.48	0.000	27.526	370.43	370.67	0.24**	0.17	2.35	0.09	370.76	0.000	0.000	n/a	1.00	0.09
11	15	6.37	362.27	363.16	0.89*	0.94	6.80	0.55	363.71	0.000	64.208	363.12	364.14	1.02**	1.07	5.96	0.55	364.69	0.000	0.000	n/a	1.36	0.75
12	15	5.99	363.62	364.27	0.65*	0.65	9.27	0.51	364.79	0.000	98.954	366.59	367.58	0.99**	1.04	5.75	0.51	368.09	0.000	0.000	n/a	1.50	0.77
13	15	5.57	367.09	367.86	0.77*	0.79	7.01	0.48	368.34	0.000	27.000	367.50	368.46	0.96**	1.01	5.54	0.48	368.93	0.000	0.000	n/a	0.50	n/a
14	15	5.12	367.70	368.46	0.76	0.78	6.61	0.44	368.89	0.000	36.500	368.29	369.21	0.92**	0.96	5.31	0.44	369.65	0.000	0.000	n/a	1.00	0.44
15	15	0.22	364.00	364.16	0.16*	0.09	2.33	0.06	364.22	0.000	27.000	364.24	364.42	0.18**	0.11	2.00	0.06	364.48	0.000	0.000	n/a	1.00	0.06
16	15	3.15	362.69	363.45	0.76*	0.79	4.00	0.25	363.70	0.497	94.508	363.16	363.92	0.76	0.78	4.01	0.25	364.17	0.500	0.498	0.471	1.50	0.38
17	15	2.71	363.36	364.30	0.94	0.66	2.74	0.12	364.41	0.211	117.000	363.95	364.61	0.66**	0.66	4.10	0.26	364.87	0.578	0.394	0.461	1.00	0.26
18	15	1.23	353.30	353.74	0.44*	0.38	3.20	0.16	353.90	0.518	27.001	353.44	353.88	0.44**	0.39	3.18	0.16	354.04	0.513	0.516	0.139	1.00	0.16
19	15	2.59	347.82	348.87	1.05	1.10	2.35	0.09	348.96	0.154	106.328	348.35	349.06	0.71	0.72	3.58	0.20	349.26	0.417	0.286	0.304	0.98	0.20
20	15	1.66	348.45	349.26	0.81	0.47	1.98	0.06	349.32	0.117	145.494	349.18	349.69 j	0.51**	0.47	3.52	0.19	349.88	0.538	0.328	n/a	1.00	0.19

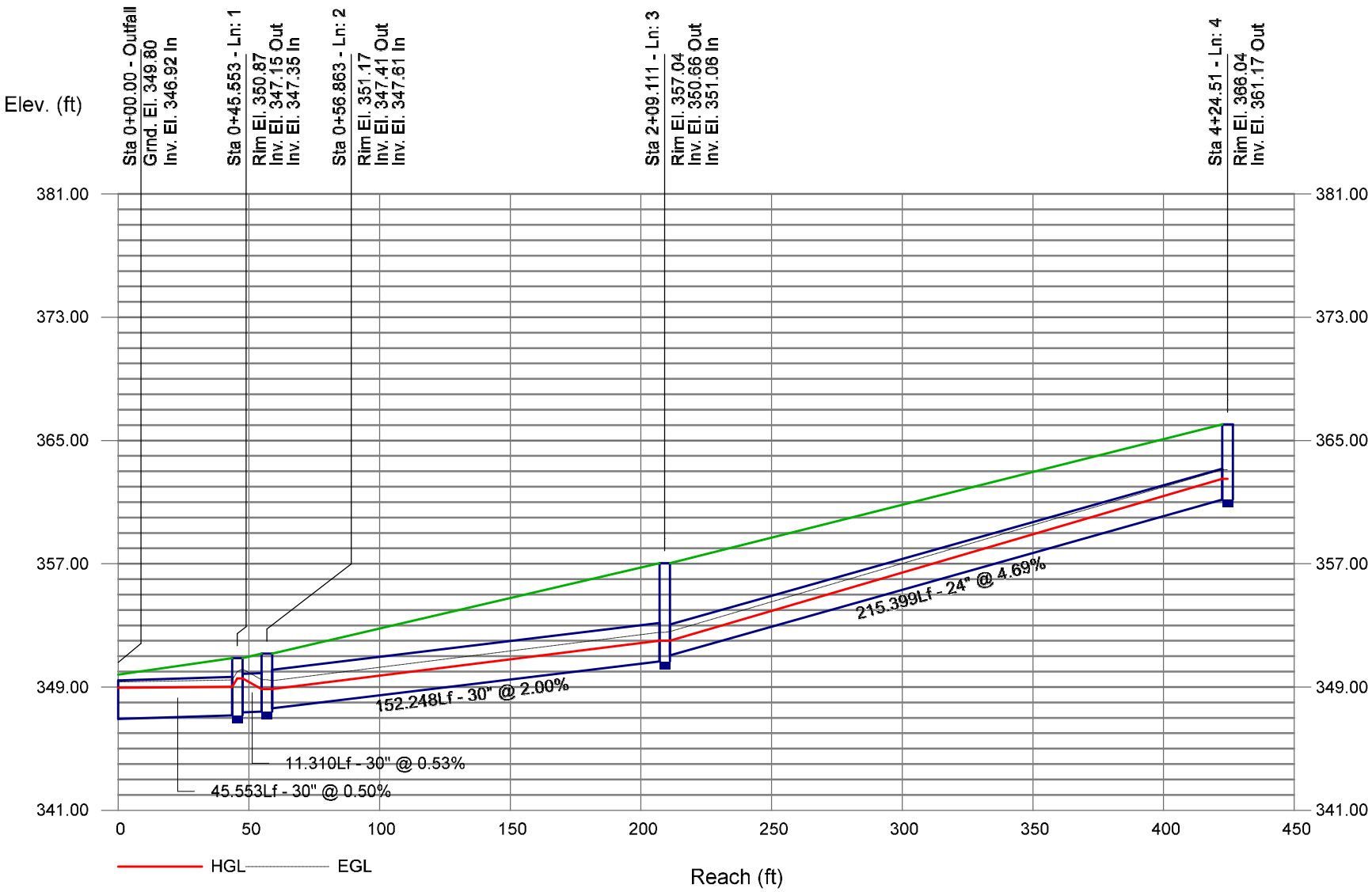
Project File: SCM#5.stm | Number of lines: 20 | Run Date: 3/28/2025

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

SCM #5 10-YEAR PROFILE 1-4

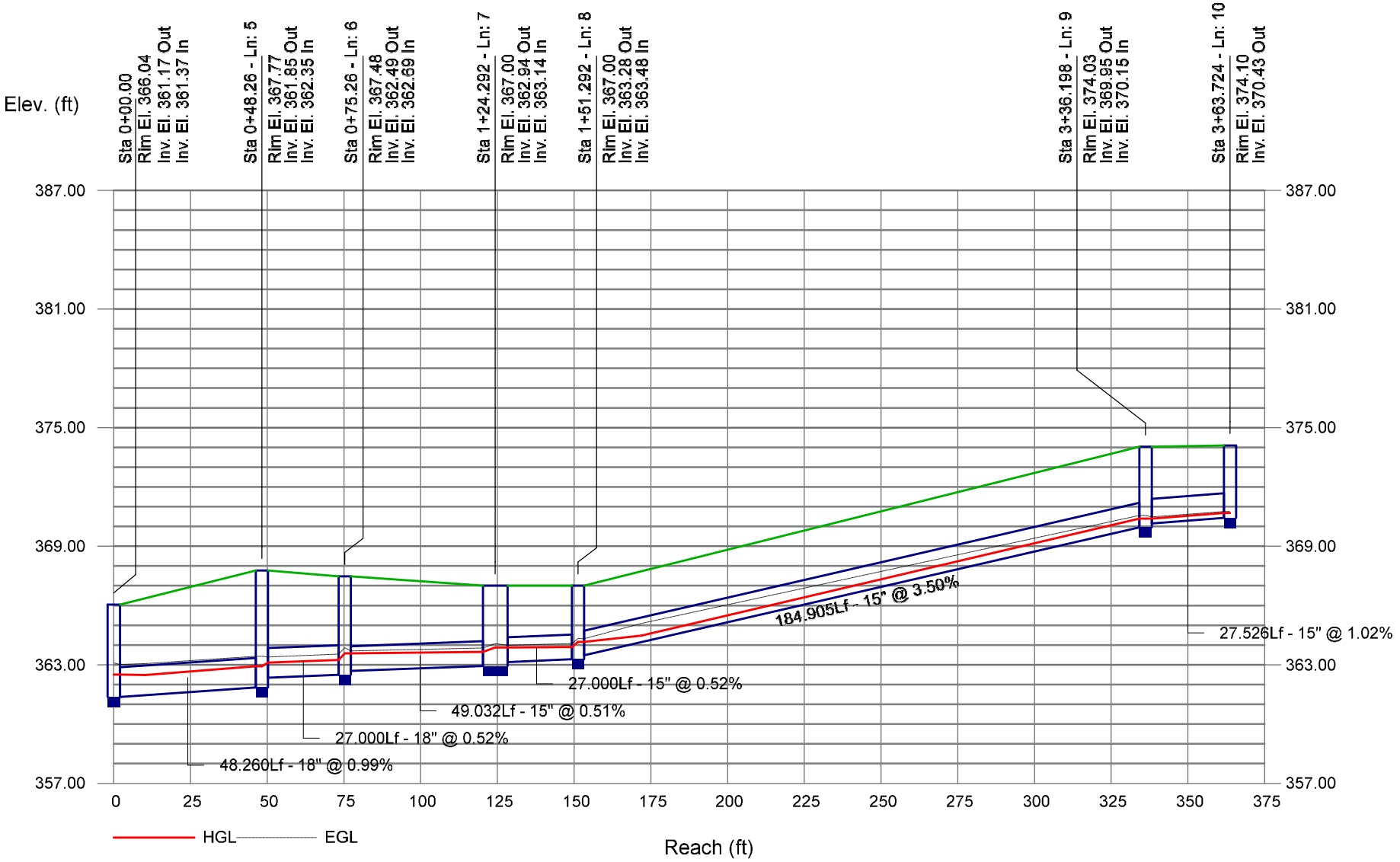
Proj. file: SCM#5.stm



Storm Sewer Profile

SCM #5 10-YEAR PROFILE 5-10

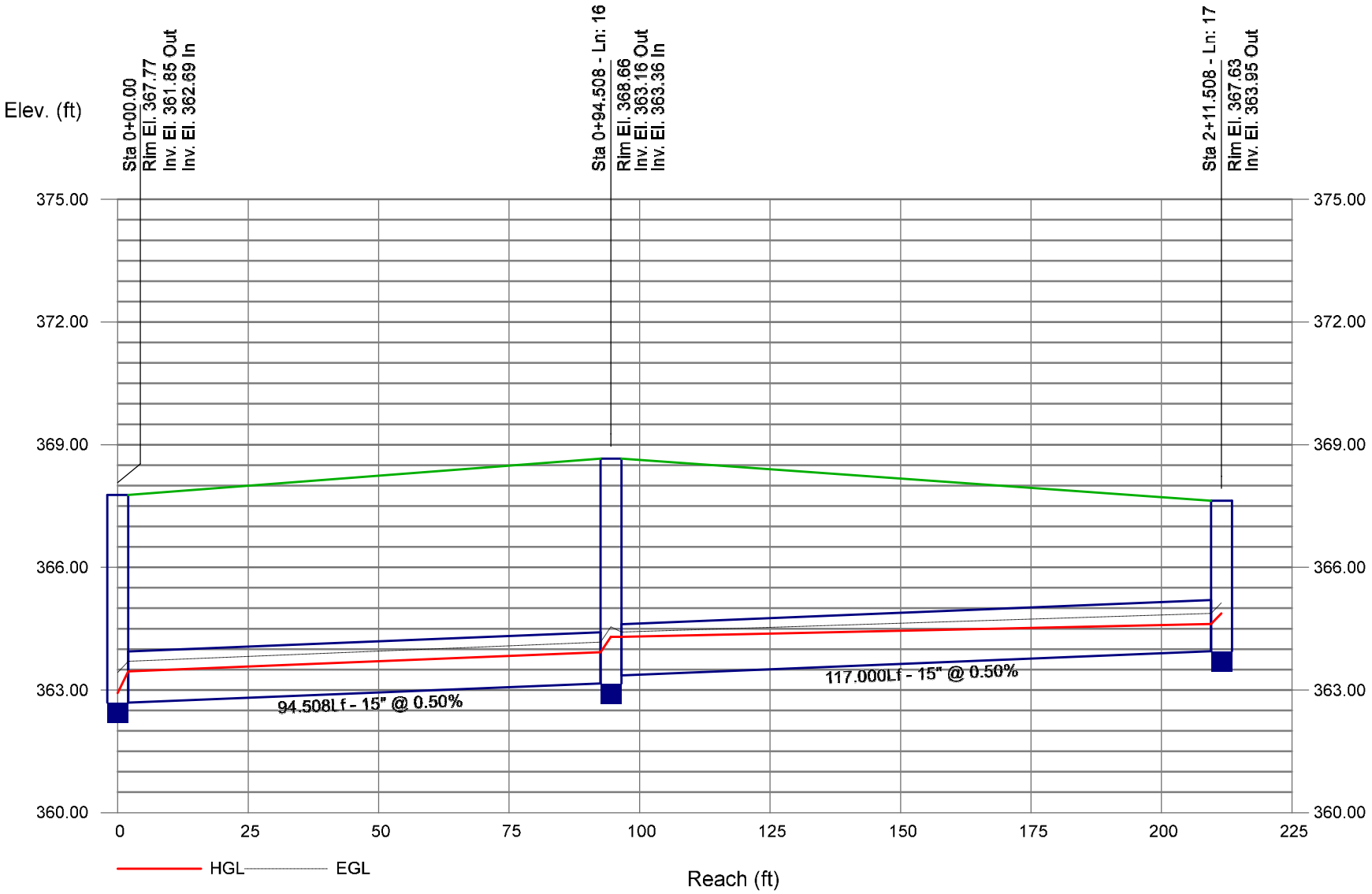
Proj. file: SCM#5.stm



Storm Sewer Profile

SCM #5 10-YEAR PROFILE 16-17

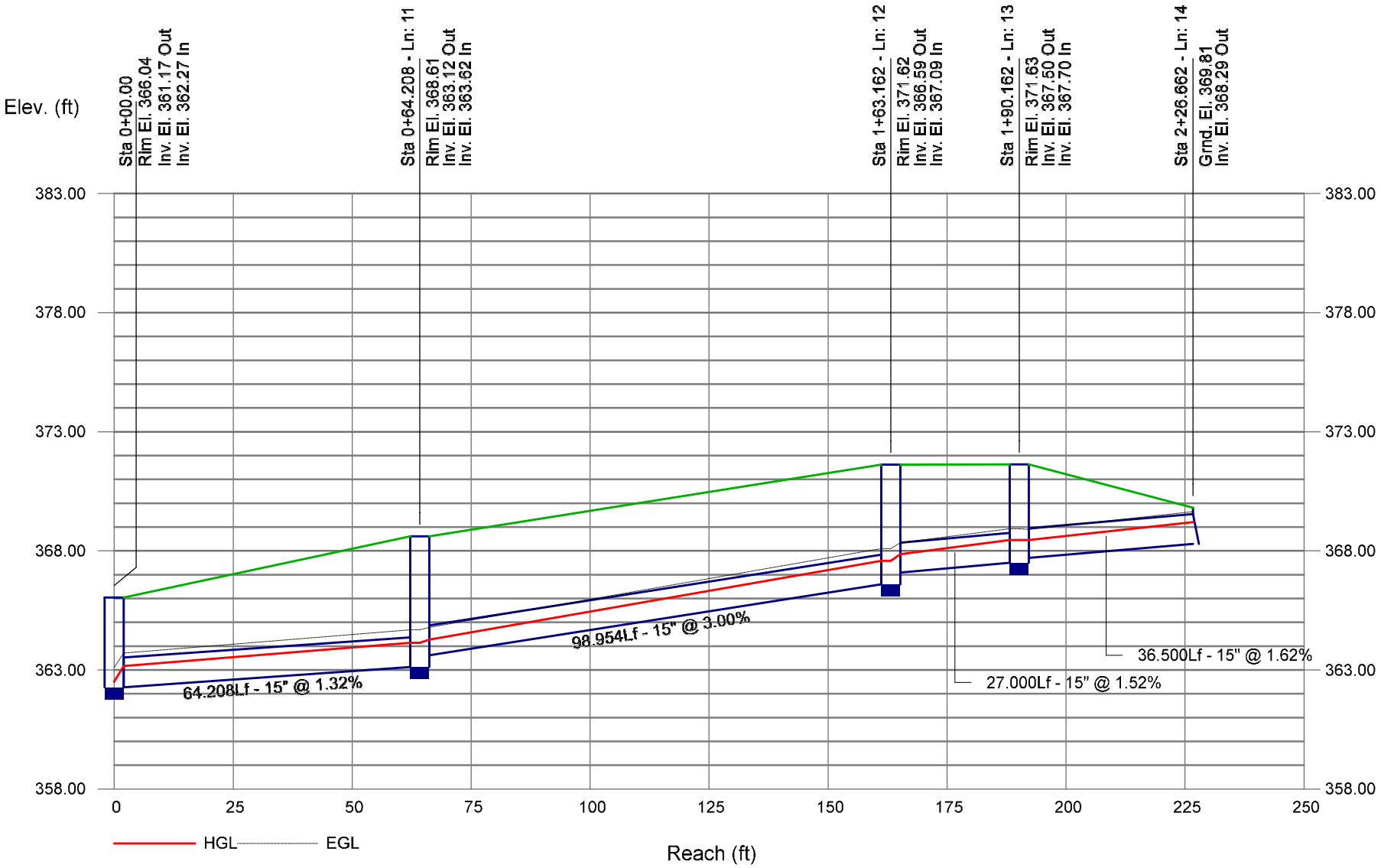
Proj. file: SCM#5.stm



Storm Sewer Profile

SCM #5 10-YEAR PROFILE 11-14

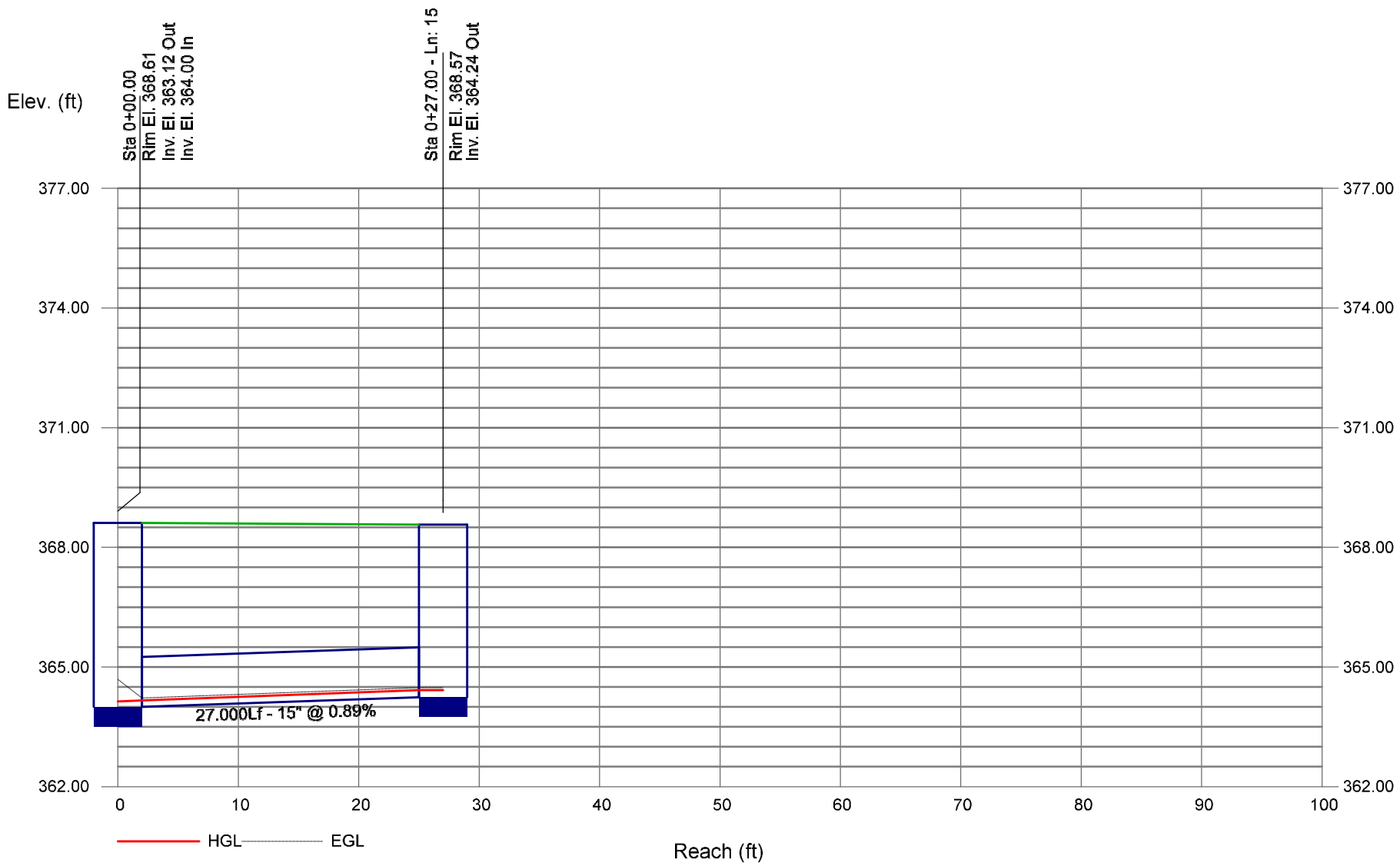
Proj. file: SCM#5.stm



Storm Sewer Profile

SCM #5 10-YEAR PROFILE 15-15

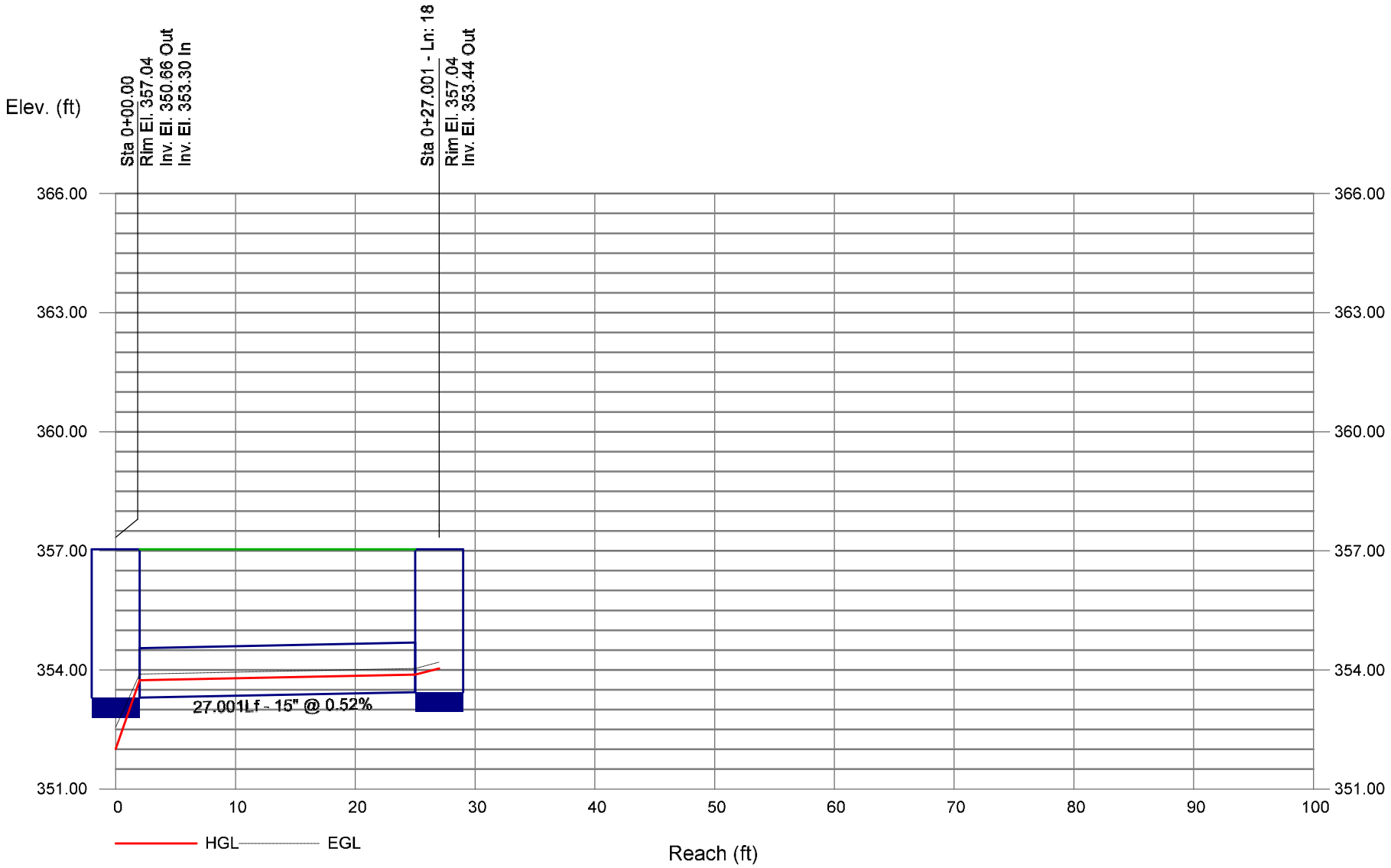
Proj. file: SCM#5.stm



Storm Sewer Profile

SCM #5 10-YEAR PROFILE 18-18

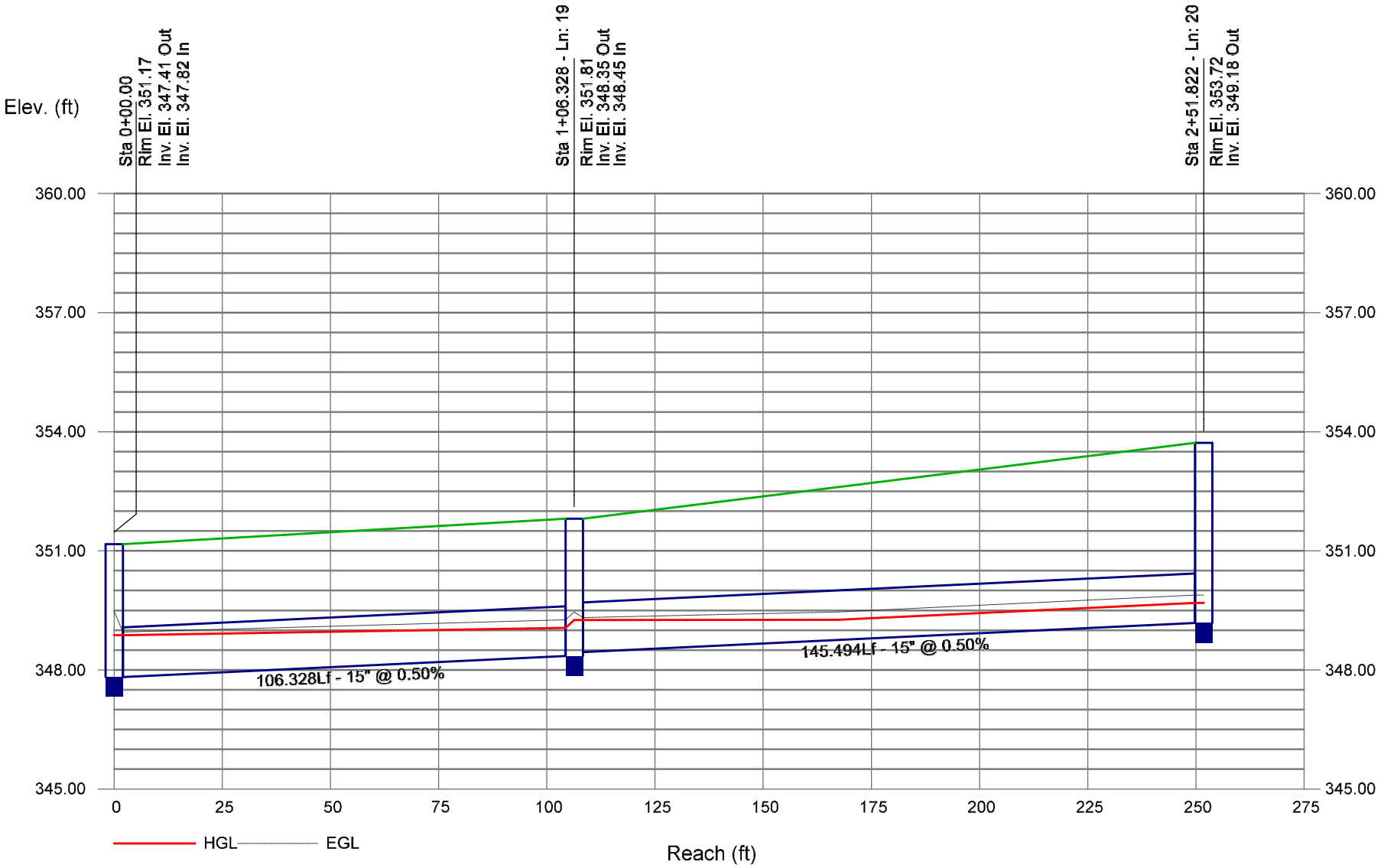
Proj. file: SCM#5.stm



Storm Sewer Profile

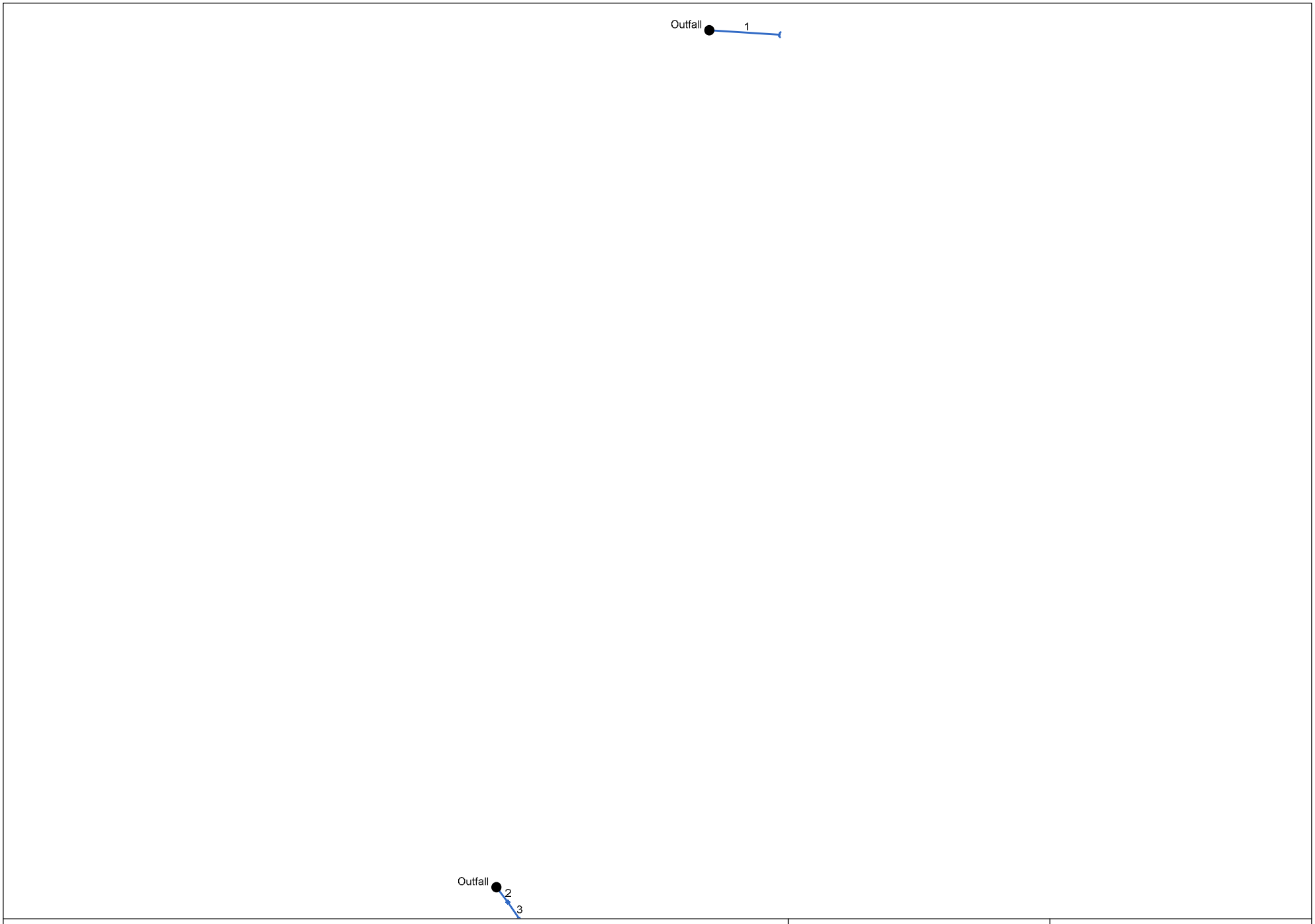
SCM #5 10-YEAR PROFILE 19-20

Proj. file: SCM#5.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan

BYPASS 10-YEAR REPORT



Project File: Bypass.stm	Number of lines: 3	Date: 3/28/2025

Storm Sewer Inventory Report

BYPASS 10-YEAR REPORT

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	93.420	3.619	Hdwl	0.00	1.58	0.60	10.0	364.86	5.50	370.00	18	Cir	0.013	1.00	371.79	Pipe - (27)
2	End	24.870	52.575	Comb	0.00	0.08	0.60	10.0	356.16	0.48	356.28	15	Cir	0.013	0.50	360.04	Pipe - (26)
3	2	27.000	3.159	Comb	0.00	0.09	0.60	10.0	356.41	0.52	356.55	15	Cir	0.013	1.00	360.04	Pipe - (25)

Project File: Bypass.stm | Number of lines: 3 | Date: 3/28/2025

Structure Report

BYPASS 10-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	FES INLET 601	OpenHeadwall	371.79	n/a	n/a	n/a	18	Cir	370.00			
2	CB 421	Combination	360.04	Rect	4.00	4.00	15	Cir	356.28	15	Cir	356.41
3	CB 422	Combination	360.04	Rect	4.00	4.00	15	Cir	356.55			

Project File: Bypass.stm | Number of Structures: 3 | Run Date: 3/28/2025

Storm Sewer Summary Report

BYPASS 10-YEAR REPORT

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (27)	5.69	18	Cir	93.420	364.86	370.00	5.502	365.78	370.92	0.39	370.92	End	OpenHeadwall
2	Pipe - (26)	0.61	15	Cir	24.870	356.16	356.28	0.482	356.48	356.59	0.05	356.64	End	Combination
3	Pipe - (25)	0.32	15	Cir	27.000	356.41	356.55	0.518	356.64	356.77	0.07	356.85	2	Combination

Project File: Bypass.stm | Number of lines: 3 | Run Date: 3/28/2025

NOTES: Return period = 10 Yrs.

Inlet Report

BYPASS 10-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	FES INLET 601	5.69	0.00	5.69	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	CB 421	0.29	0.00	0.29	0.00	Comb	6.0	3.00	7.50	3.00	2.50	Sag	2.00	0.060	0.020	0.013	0.00	1.14	0.16	1.14	2.0	Off
3	CB 422	0.32	0.00	0.32	0.00	Comb	6.0	3.00	7.50	3.00	2.50	Sag	2.00	0.060	0.020	0.013	0.01	1.22	0.17	1.22	2.0	Off

Project File: Bypass.stm

Number of lines: 3

Run Date: 3/28/2025

NOTES: Inlet N-Values = 0.016; Intensity = 74.09 / (Inlet time + 12.50) ^ 0.81; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

Hydraulic Grade Line Computations

BYPASS 10-YEAR REPORT

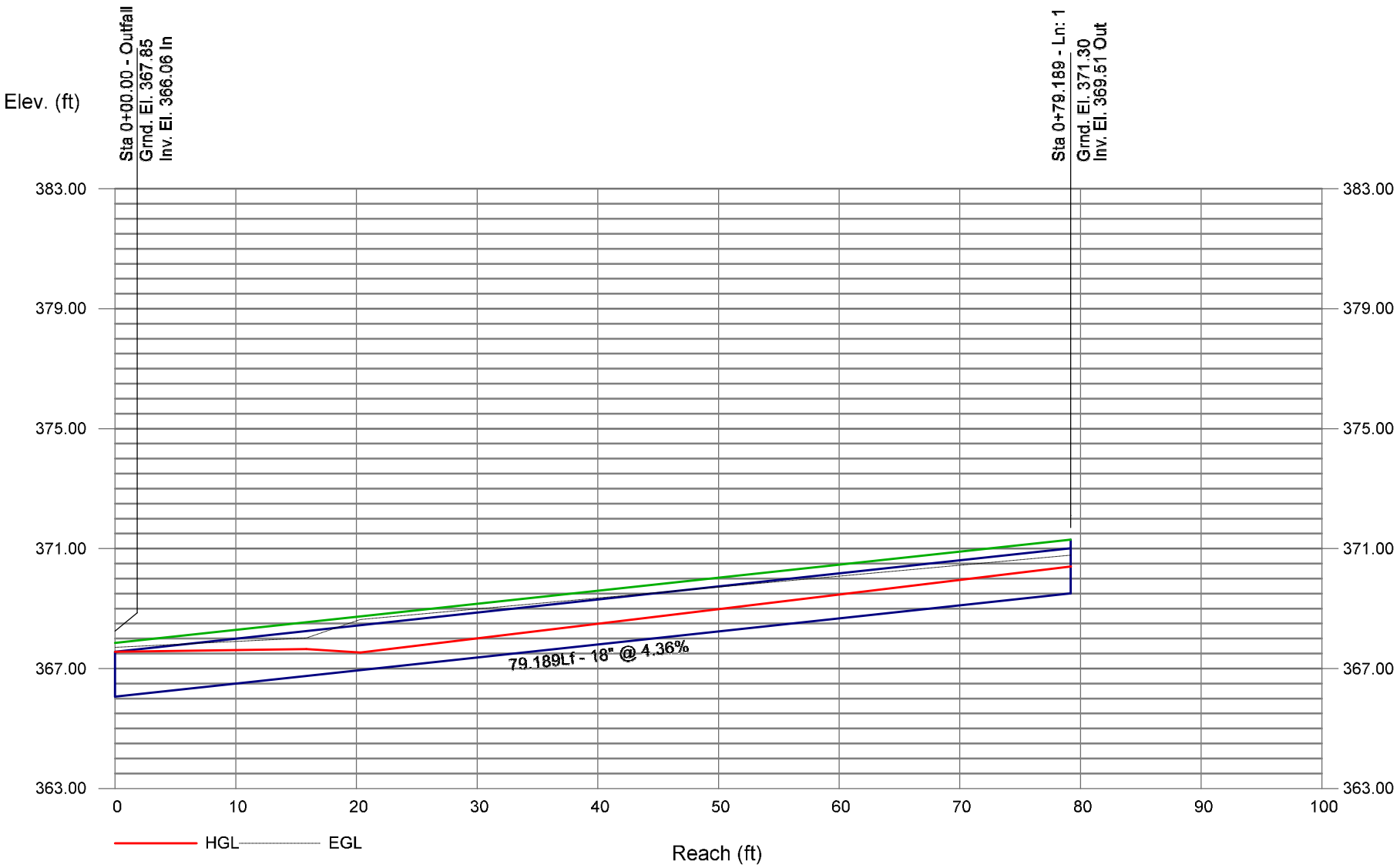
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	5.69	364.86	365.78	0.92	1.14	5.01	0.39	366.17	0.000	93.420	370.00	370.92	0.92**	1.14	5.01	0.39	371.31	0.000	0.000	n/a	1.00	0.39
2	15	0.61	356.16	356.48	0.32	0.23	2.45	0.09	356.57	0.431	24.870	356.28	356.59	0.31**	0.23	2.60	0.11	356.69	0.508	0.470	0.117	0.50	0.05
3	15	0.32	356.41	356.64	0.23	0.15	2.10	0.07	356.71	0.466	27.000	356.55	356.77	0.22**	0.15	2.19	0.07	356.85	0.526	0.496	0.134	1.00	0.07

Project File: Bypass.stm | Number of lines: 3 | Run Date: 3/28/2025

Notes: ; ** Critical depth. ; c = cir e = ellip b = box

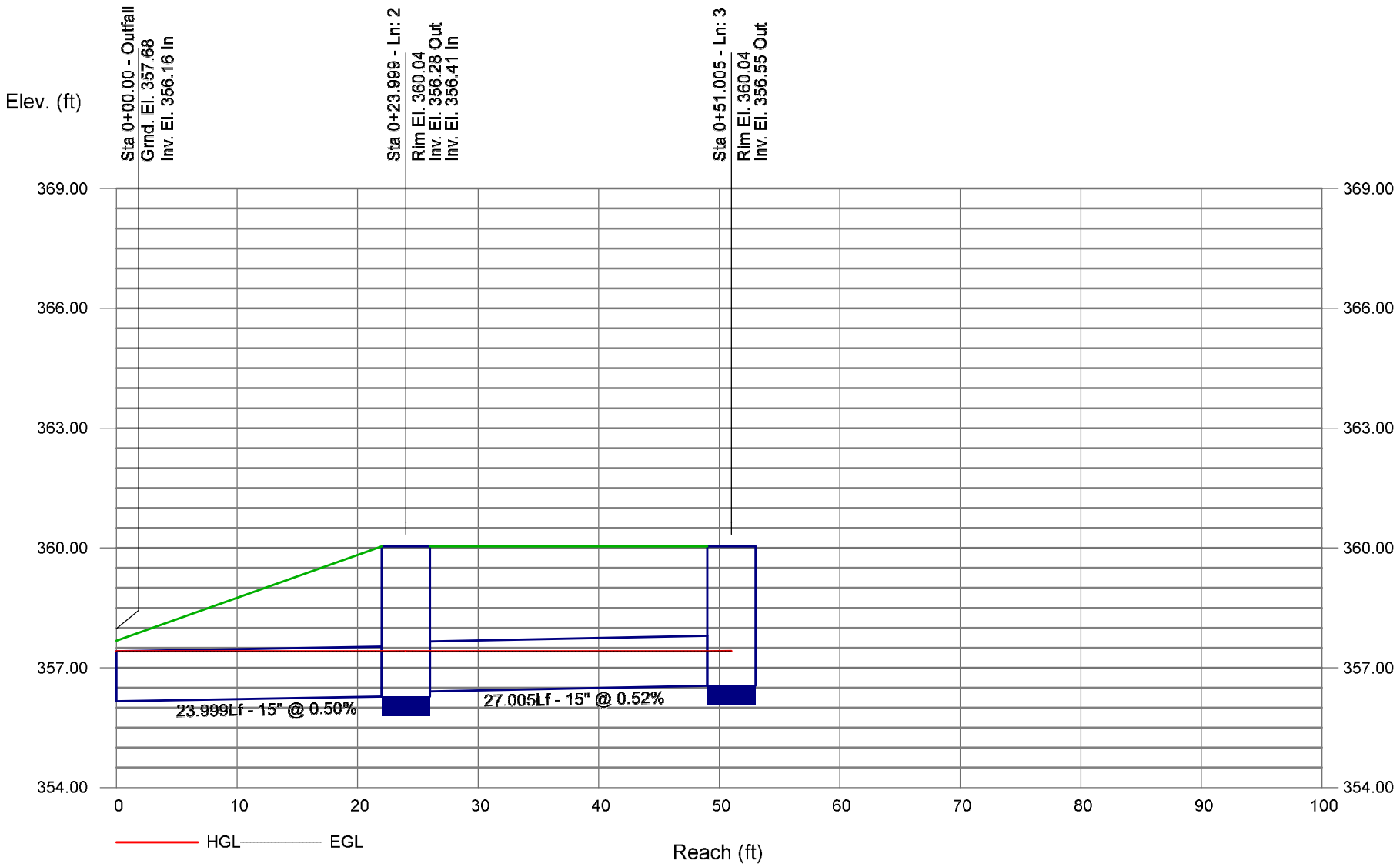
Storm Sewer Profile

10-Year Bypass Profile 1-1 Proj. file: Bypass.stm

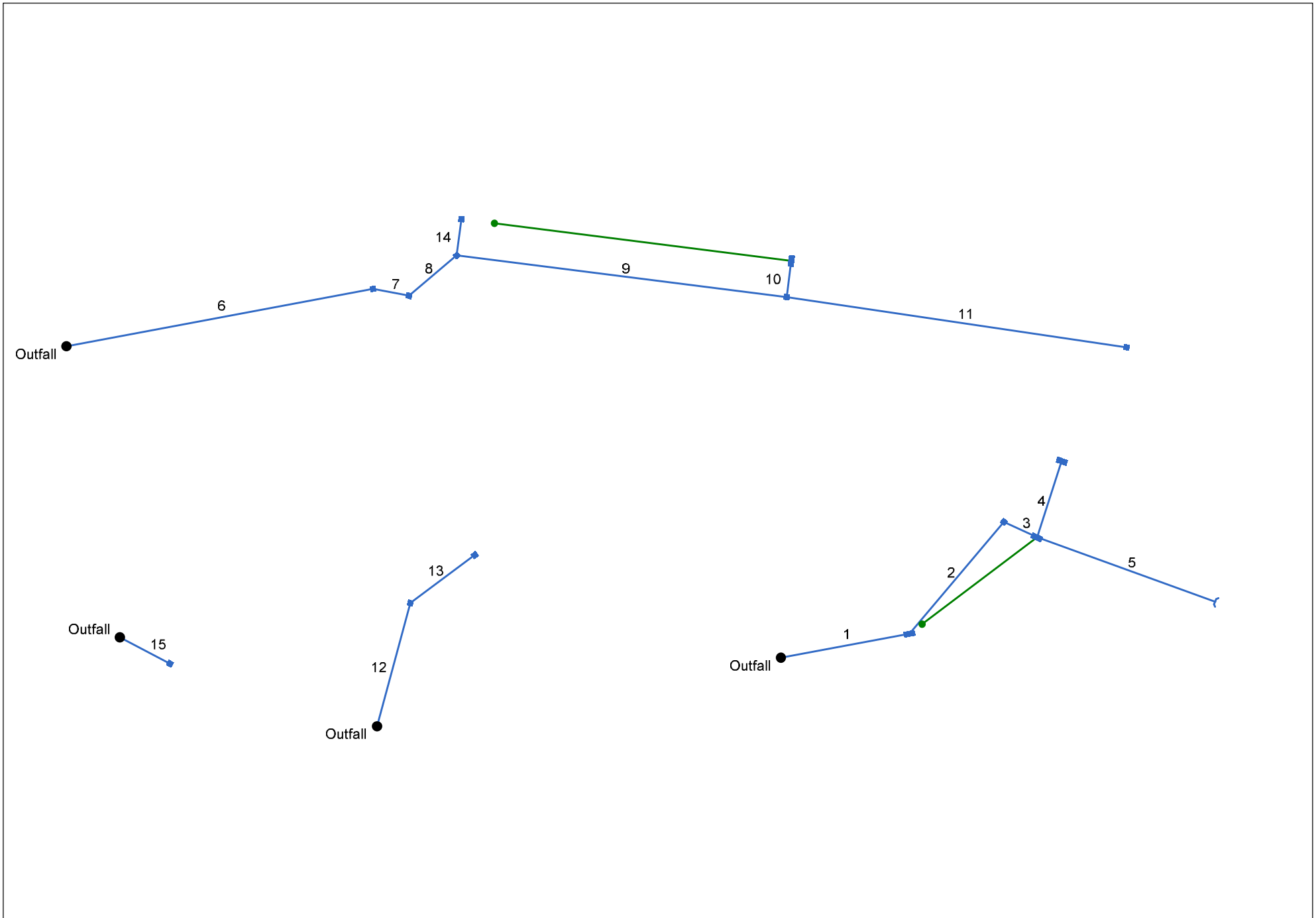


Storm Sewer Profile

10-Year Bypass Profile 2-3 Proj. file: Bypass.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan SCM #1 25-YEAR REPORT



Project File: SCM#1.stm	Number of lines: 15	Date: 3/27/2025

Storm Sewer Inventory Report

SCM #1 25-YEAR REPORT

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	96.027	-10.617	Comb	0.00	0.74	0.60	10.0	380.50	0.58	381.06	18	Cir	0.013	1.03	386.00	Pipe - (97)
2	1	107.815	-39.453	Comb	0.00	0.19	0.60	10.0	381.26	1.00	382.34	15	Cir	0.013	1.46	387.03	Pipe - (95)
3	2	26.999	75.004	Comb	0.00	0.10	0.60	10.0	382.54	0.52	382.68	15	Cir	0.013	1.82	387.04	Pipe - (94)
4	3	59.003	-96.968	Comb	0.00	0.18	0.60	10.0	382.88	0.51	383.18	15	Cir	0.013	1.00	387.89	Pipe - (93)
5	3	139.352	-4.932	Hdwl	0.00	0.86	0.60	15.0	382.78	0.50	383.48	15	Cir	0.013	1.00	385.00	Pipe - (175)
6	End	229.120	-10.656	Comb	0.00	0.19	0.60	10.0	363.00	2.20	368.04	18	Cir	0.013	0.63	373.98	Pipe - (86)
7	6	27.000	21.423	Comb	0.00	0.18	0.60	10.0	368.14	0.52	368.28	18	Cir	0.013	1.22	373.87	Pipe - (85)
8	7	45.912	-51.157	Comb	0.00	0.20	0.60	10.0	368.48	3.27	369.98	18	Cir	0.013	1.62	375.04	Pipe - (84)
9	8	244.371	47.632	Comb	0.00	0.19	0.60	10.0	370.18	2.92	377.31	15	Cir	0.013	1.50	382.61	Pipe - (83)
10	9	27.044	-90.017	Comb	0.00	0.74	0.60	10.0	378.23	0.63	378.40	15	Cir	0.013	1.00	382.57	Pipe - (88)
11	9	252.428	1.235	Comb	0.00	0.20	0.60	10.0	377.41	2.98	384.92	15	Cir	0.013	1.00	390.04	Pipe - (82)
12	End	94.321	-74.896	Comb	0.00	0.52	0.60	10.0	369.93	0.51	370.41	15	Cir	0.013	1.00	374.00	Pipe - (92)
13	12	59.044	38.083	Comb	0.00	0.22	0.60	10.0	370.61	0.49	370.90	15	Cir	0.013	1.00	374.05	Pipe - (91)
14	8	27.000	-42.459	Comb	0.00	0.15	0.60	10.0	370.18	0.52	370.32	15	Cir	0.013	1.00	375.04	Pipe - (87)
15	End	41.513	27.855	Comb	0.00	3.90	0.60	10.0	363.50	0.51	363.71	24	Cir	0.013	1.00	366.59	Pipe - (89)

Project File: SCM#1.stm | Number of lines: 15 | Date: 3/27/2025

Structure Report

SCM #1 25-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	CB 111	Combination	386.00	Rect	8.00	4.00	18	Cir	381.06	15	Cir	381.26
2	CB 114	Combination	387.03	Rect	4.00	4.00	15	Cir	382.34	15	Cir	382.54
3	CB 115	Combination	387.04	Rect	8.00	4.00	15	Cir	382.68	15 15	Cir Cir	382.88 382.78
4	CB 116	Combination	387.89	Rect	4.00	8.00	15	Cir	383.18			
5	FES 115	OpenHeadwall	385.00	n/a	n/a	n/a	15	Cir	383.48			
6	CB 101	Combination	373.98	Rect	4.00	4.00	18	Cir	368.04	18	Cir	368.14
7	CB 102	Combination	373.87	Rect	4.00	4.00	18	Cir	368.28	18	Cir	368.48
8	CB 103	Combination	375.04	Rect	4.00	4.00	18	Cir	369.98	15 15	Cir Cir	370.18 370.18
9	CB 105	Combination	382.61	Rect	4.00	4.00	15	Cir	377.31	15 15	Cir Cir	378.23 377.41
10	CB 106	Combination	382.57	Rect	8.00	4.00	15	Cir	378.40			
11	CB 107	Combination	390.04	Rect	4.00	4.00	15	Cir	384.92			
12	CB 121	Combination	374.00	Rect	4.00	4.00	15	Cir	370.41	15	Cir	370.61
13	CB 122	Combination	374.05	Rect	4.00	4.00	15	Cir	370.90			
14	CB 104	Combination	375.04	Rect	4.00	4.00	15	Cir	370.32			
15	DI 126	Combination	366.59	Rect	4.00	4.00	24	Cir	363.71			

Project File: SCM#1.stm | Number of Structures: 15 | Run Date: 3/27/2025

Storm Sewer Summary Report

SCM #1 25-YEAR REPORT

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (97)	6.78	18	Cir	96.027	380.50	381.06	0.583	381.58	382.11	0.43	382.53	End	Combination
2	Pipe - (95)	4.41	15	Cir	107.815	381.26	382.34	1.002	382.53	383.19	n/a	383.19 j	1	Combination
3	Pipe - (94)	3.79	15	Cir	26.999	382.54	382.68	0.518	383.40	383.54	0.50	384.04	2	Combination
4	Pipe - (93)	0.72	15	Cir	59.003	382.88	383.18	0.508	384.04	384.05	0.01	384.06	3	Combination
5	Pipe - (175)	2.93	15	Cir	139.352	382.78	383.48	0.502	384.04	384.33	0.17	384.50	3	OpenHeadwall
6	Pipe - (86)	6.64	18	Cir	229.120	363.00	368.04	2.200	364.50	369.04	n/a	369.04 j	End	Combination
7	Pipe - (85)	5.98	18	Cir	27.000	368.14	368.28	0.518	369.15	369.28	0.43	369.71	6	Combination
8	Pipe - (84)	5.36	18	Cir	45.912	368.48	369.98	3.267	369.71	370.87	n/a	370.87 j	7	Combination
9	Pipe - (83)	4.19	15	Cir	244.371	370.18	377.31	2.918	370.87	378.14	n/a	378.14	8	Combination
10	Pipe - (88)	2.95	15	Cir	27.044	378.23	378.40	0.629	378.91	379.09	n/a	379.09	9	Combination
11	Pipe - (82)	0.80	15	Cir	252.428	377.41	384.92	2.975	378.14	385.27	n/a	385.27 j	9	Combination
12	Pipe - (92)	2.88	15	Cir	94.321	369.93	370.41	0.509	370.88	371.12	0.25	371.37	End	Combination
13	Pipe - (91)	0.88	15	Cir	59.044	370.61	370.90	0.491	371.37	371.39	0.06	371.45	12	Combination
14	Pipe - (87)	0.60	15	Cir	27.000	370.18	370.32	0.519	370.87	370.87	0.02	370.89	8	Combination
15	Pipe - (89)	15.53	24	Cir	41.513	363.50	363.71	0.506	365.50	365.69	0.38	366.07	End	Combination

Project File: SCM#1.stm | Number of lines: 15 | Run Date: 3/27/2025

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

Inlet Report

SCM #1 25-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	CB 111	2.95	0.00	2.40	0.55	Comb	6.0	1.50	0.00	6.00	2.50	0.054	2.00	0.060	0.020	0.013	0.21	6.30	0.12	1.96	0.0	Off
2	CB 114	0.76	0.00	0.75	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.61	0.02	0.26	0.0	1
3	CB 115	0.40	0.00	0.40	0.00	Comb	6.0	1.50	0.00	6.00	2.50	0.054	2.00	0.060	0.020	0.013	0.10	1.74	0.00	0.00	0.0	1
4	CB 116	0.72	0.00	0.72	0.00	Comb	6.0	1.50	0.00	6.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.48	0.01	0.18	0.0	3
5	FES 115	2.93	0.00	2.93	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.060	0.020	0.013	0.00	0.00	0.00	0.00	0.0	3
6	CB 101	0.76	0.00	0.76	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.61	0.02	0.25	0.0	Off
7	CB 102	0.72	0.00	0.72	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.48	0.01	0.20	0.0	6
8	CB 103	0.80	0.00	0.79	0.01	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.74	0.02	0.34	0.0	Off
9	CB 105	0.76	0.00	0.76	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.62	0.02	0.26	0.0	8
10	CB 106	2.95	0.00	2.40	0.55	Comb	6.0	1.50	0.00	6.00	2.50	0.054	2.00	0.060	0.020	0.013	0.21	6.30	0.12	1.95	0.0	14
11	CB 107	0.80	0.00	0.79	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.73	0.02	0.32	0.0	9
12	CB 121	2.07	0.01	1.76	0.32	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.19	5.26	0.10	1.59	0.0	Off
13	CB 122	0.88	0.00	0.86	0.01	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.14	2.96	0.03	0.46	0.0	12
14	CB 104	0.60	0.55	1.10	0.05	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.15	3.63	0.05	0.80	0.0	Off
15	DI 126	15.53	0.00	6.82	8.71	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.34	13.09	0.29	10.31	0.0	Off

Project File: SCM#1.stm | Number of lines: 15 | Run Date: 3/27/2025

NOTES: Inlet N-Values = 0.016; Intensity = 62.86 / (Inlet time + 11.00) ^ 0.74; Return period = 25 Yrs. ; * Indicates Known Q added.All curb inlets are throat.

Hydraulic Grade Line Computations

SCM #1 25-YEAR REPORT

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	6.78	380.50	381.58	1.08	1.36	4.98	0.39	381.97	0.554	96.027	381.06	382.11	1.05	1.32	5.16	0.41	382.52	0.602	0.578	0.555	1.03	0.43
2	15	4.41	381.26	382.53	1.25	0.89	3.59	0.20	382.73	0.466	107.815	382.34	383.19 j	0.85**	0.89	4.96	0.38	383.57	0.719	0.592	n/a	1.46	0.56
3	15	3.79	382.54	383.40	0.86*	0.90	4.22	0.28	383.67	0.518	26.999	382.68	383.54	0.86	0.90	4.22	0.28	383.81	0.518	0.518	0.140	1.82	0.50
4	15	0.72	382.88	384.04	1.16	1.19	0.60	0.01	384.05	0.011	59.003	383.18	384.05	0.87	0.91	0.79	0.01	384.06	0.018	0.014	0.008	1.00	0.01
5	15	2.93	382.78	384.04	1.25	1.23	2.38	0.09	384.13	0.205	139.352	383.48	384.33	0.85	0.89	3.30	0.17	384.50	0.319	0.262	0.365	1.00	0.17
6	18	6.64	363.00	364.50	1.50*	1.25	3.76	0.22	364.72	0.400	229.120	368.04	369.04 j	1.00**	1.25	5.33	0.44	369.48	0.658	0.529	n/a	0.63	n/a
7	18	5.98	368.14	369.15	1.01*	1.26	4.74	0.35	369.50	0.518	27.000	368.28	369.28	1.00	1.26	4.75	0.35	369.64	0.521	0.520	0.140	1.22	0.43
8	18	5.36	368.48	369.71	1.23	1.09	3.45	0.37	370.09	0.000	45.912	369.98	370.87 j	0.89**	1.09	4.90	0.37	371.24	0.000	0.000	n/a	1.62	n/a
9	15	4.19	370.18	370.87	0.69	0.70	6.02	0.37	371.24	0.000	244.371	377.31	378.14	0.83**	0.86	4.85	0.37	378.50	0.000	0.000	n/a	1.50	n/a
10	15	2.95	378.23	378.91	0.68*	0.68	4.32	0.28	379.19	0.000	27.044	378.40	379.09	0.69**	0.69	4.25	0.28	379.37	0.000	0.000	n/a	1.00	n/a
11	15	0.80	377.41	378.14	0.73	0.28	1.07	0.13	378.26	0.000	252.428	384.92	385.27 j	0.35**	0.28	2.84	0.13	385.39	0.000	0.000	n/a	1.00	0.13
12	15	2.88	369.93	370.88	0.95	1.00	2.88	0.13	371.01	0.232	94.321	370.41	371.12	0.71	0.72	4.03	0.25	371.37	0.532	0.382	0.361	1.00	0.25
13	15	0.88	370.61	371.37	0.76	0.78	1.12	0.02	371.39	0.039	59.044	370.90	371.39	0.49	0.45	1.96	0.06	371.45	0.173	0.106	0.063	1.00	0.06
14	15	0.60	370.18	370.87	0.69	0.70	0.86	0.01	370.88	0.025	27.000	370.32	370.87	0.55	0.52	1.14	0.02	370.89	0.052	0.038	0.010	1.00	0.02
15	24	15.53	363.50	365.50	2.00*	3.14	4.94	0.38	365.88	0.472	41.513	363.71	365.69	1.98	3.13	4.95	0.38	366.07	0.432	0.452	0.188	1.00	0.38

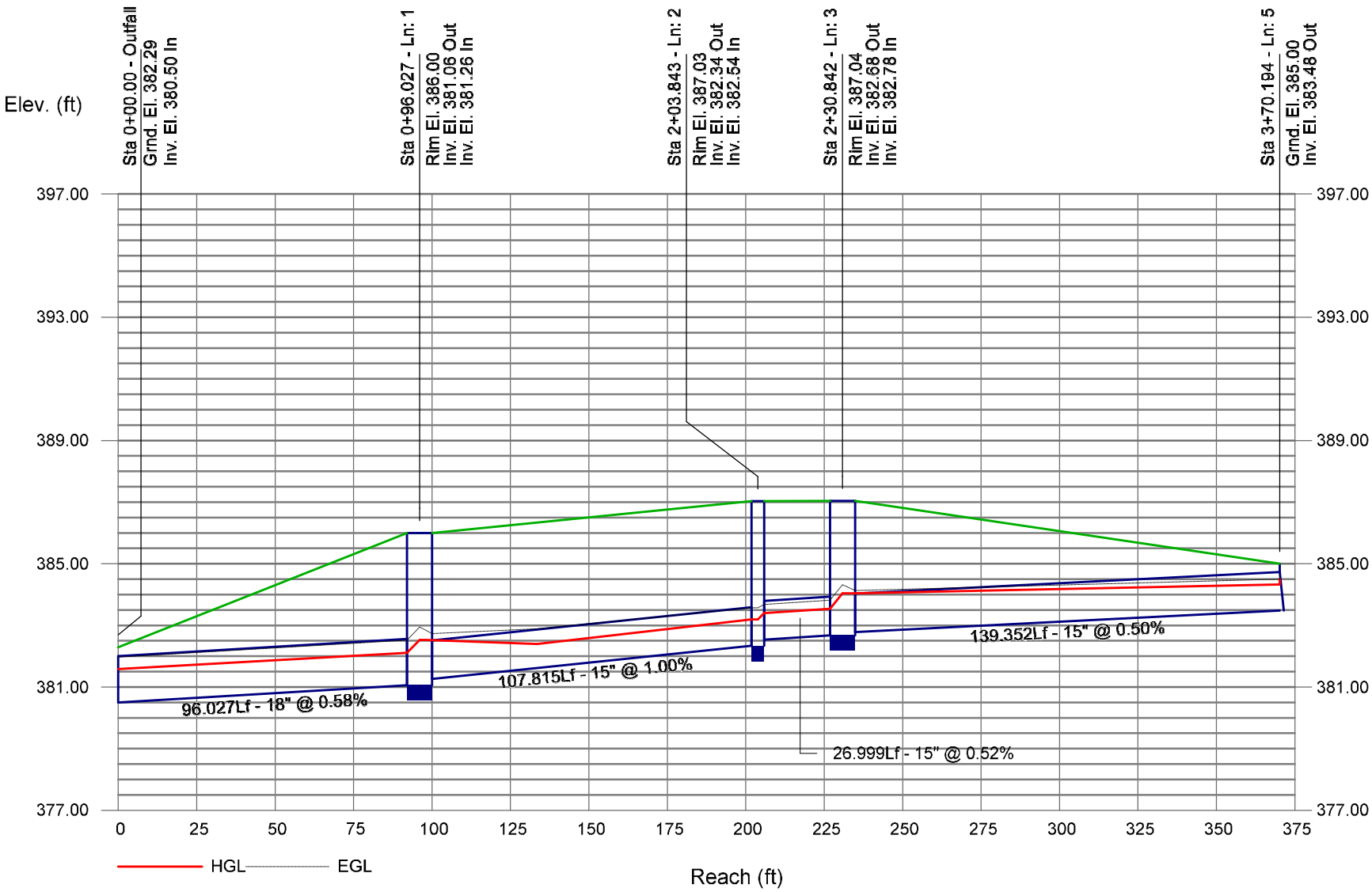
Project File: SCM#1.stm | Number of lines: 15 | Run Date: 3/27/2025

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

SCM #1 25-YEAR PROFILE 1-5

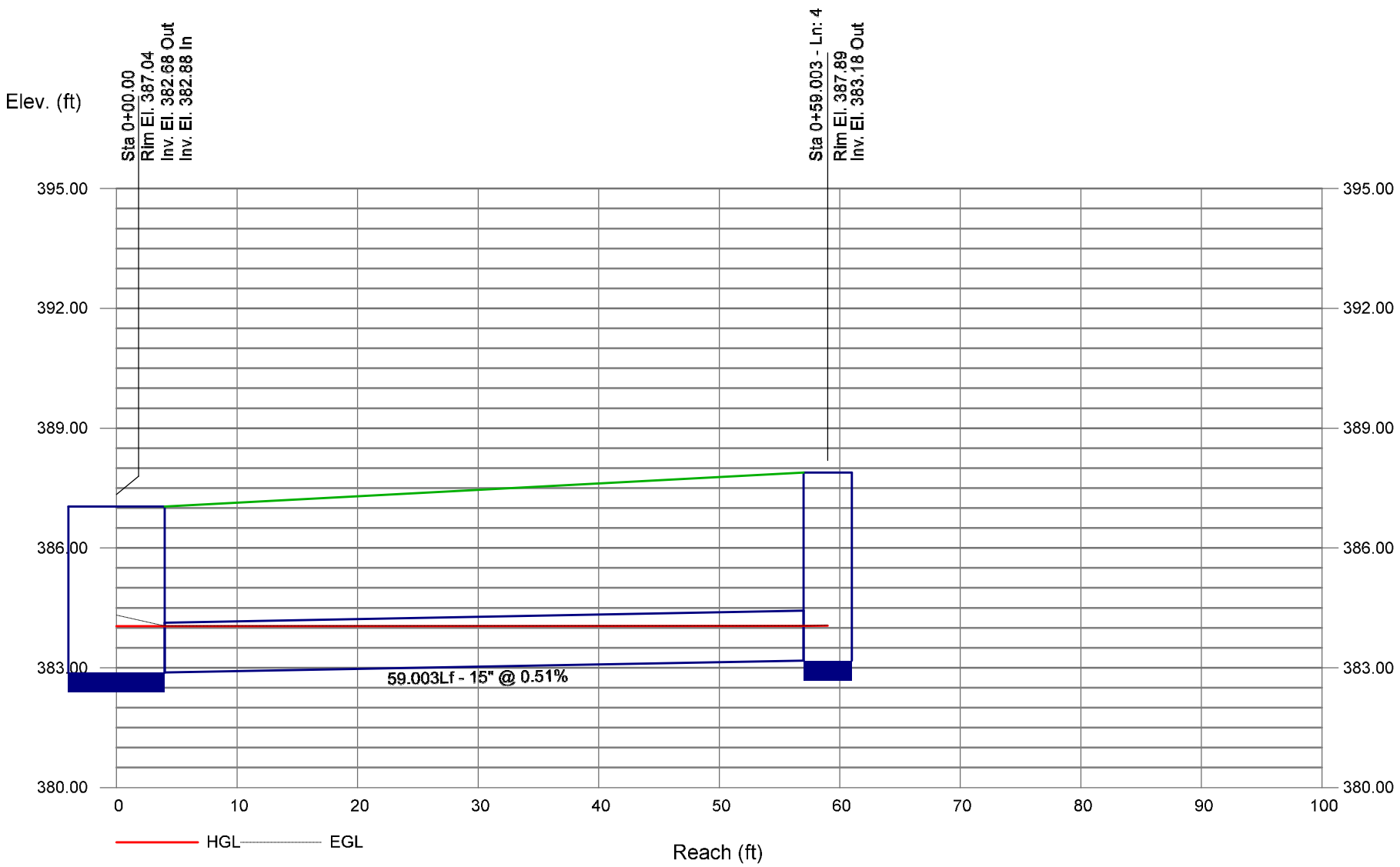
Proj. file: SCM#1.stm



Storm Sewer Profile

SCM #1 25-YEAR PROFILE 4-4

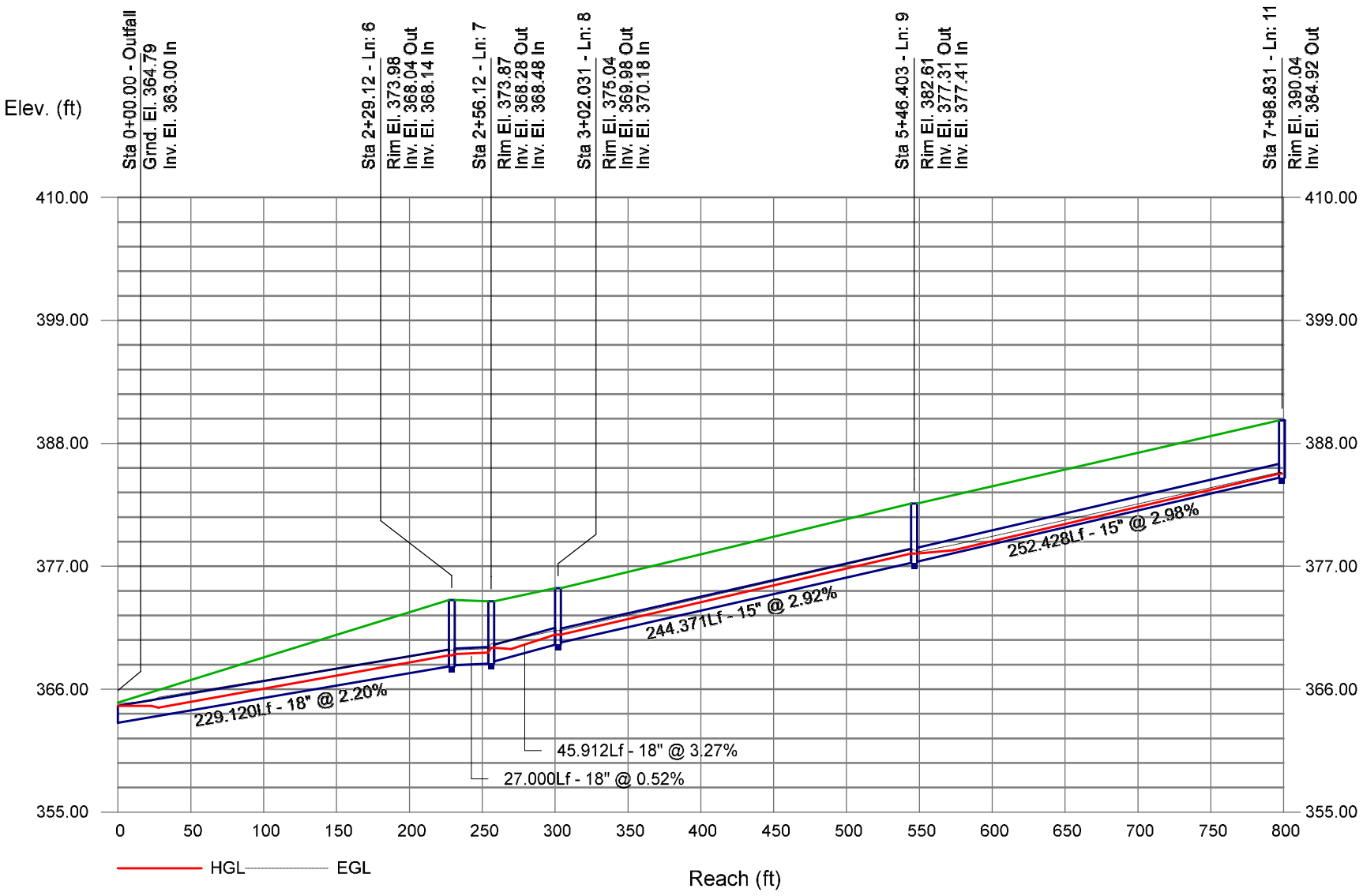
Proj. file: SCM#1.stm



Storm Sewer Profile

SCM #1 25-YEAR PROFILE 6-11

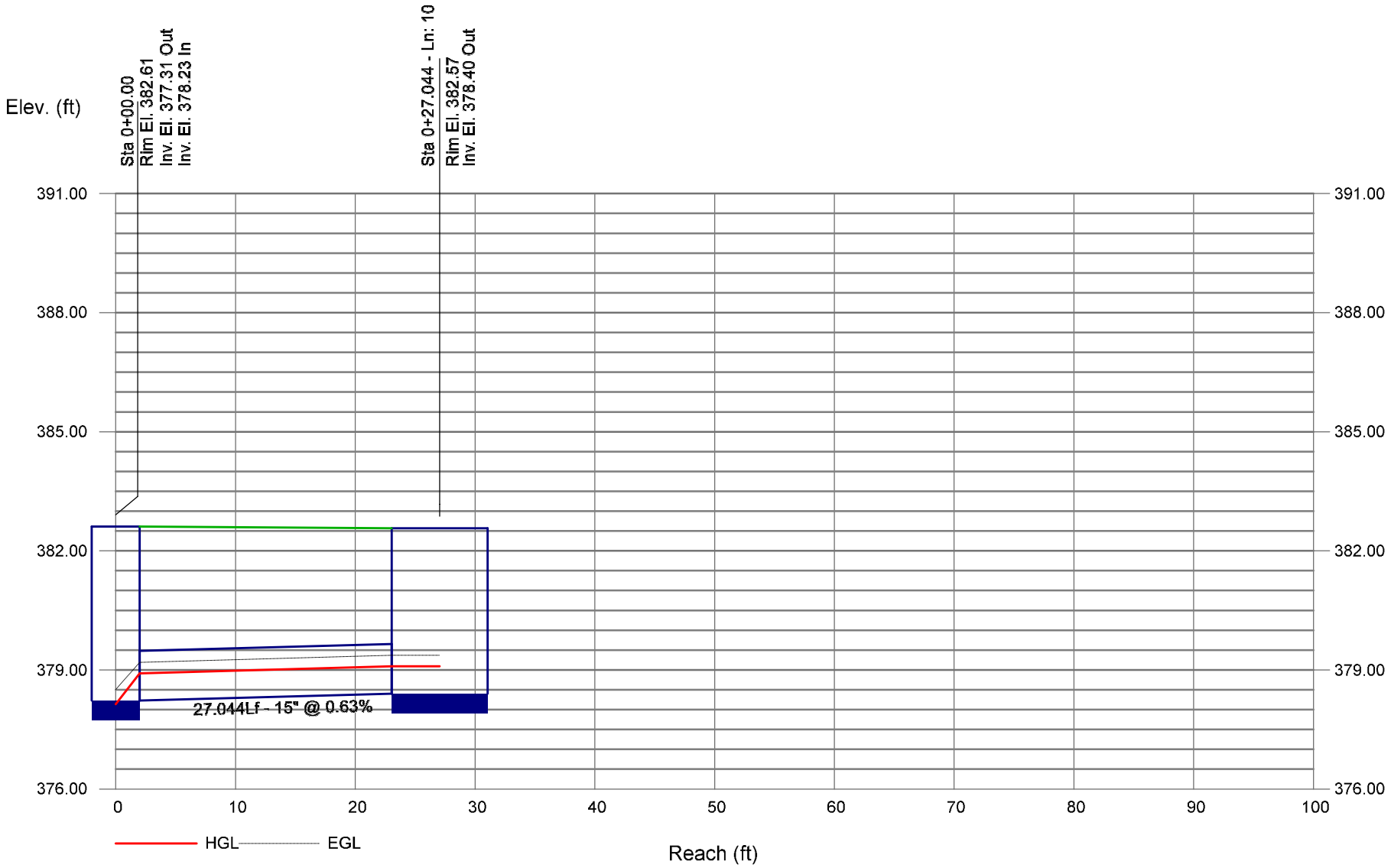
Proj. file: SCM#1.stm



Storm Sewer Profile

SCM #1 25-YEAR PROFILE 10-10

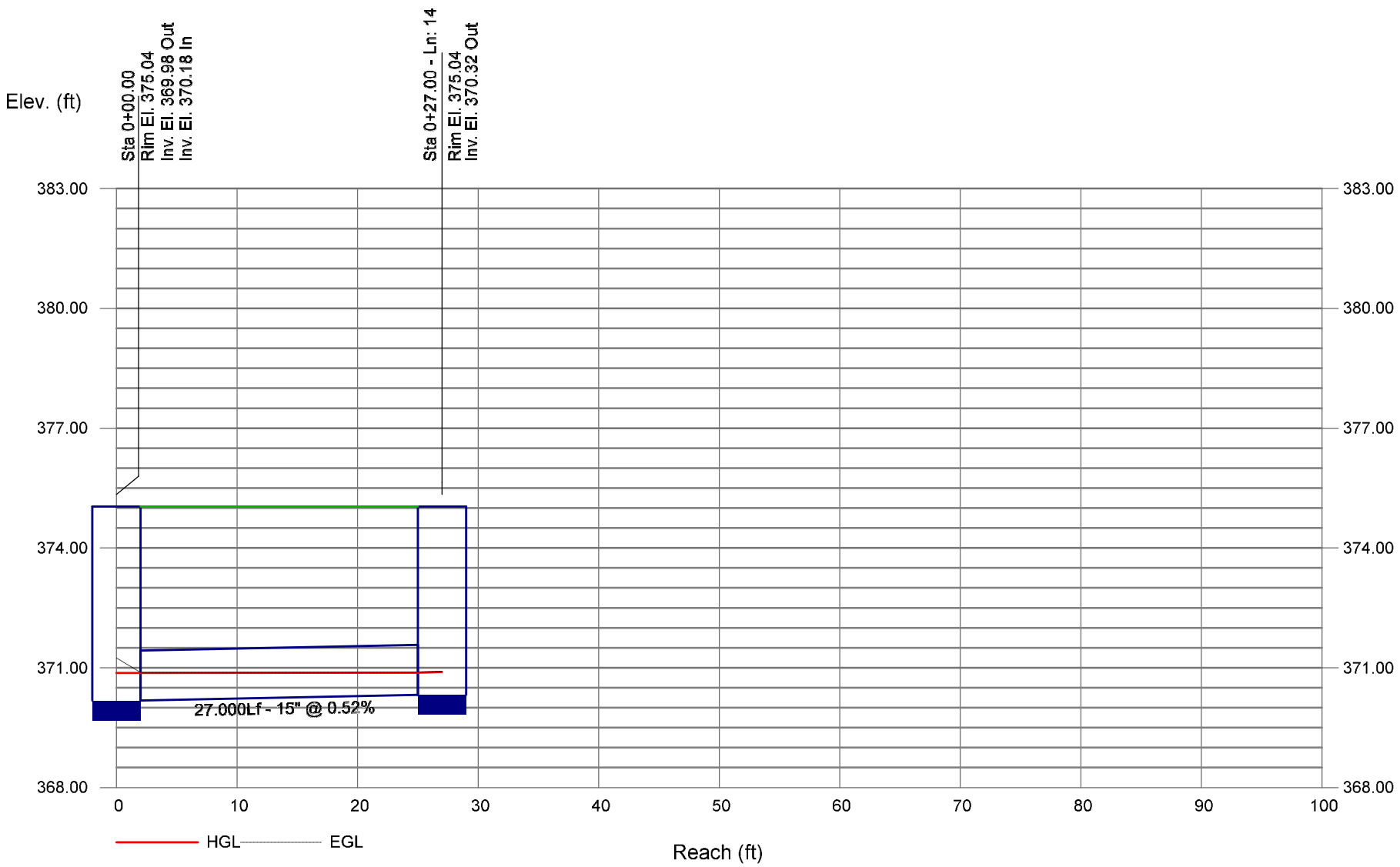
Proj. file: SCM#1.stm



Storm Sewer Profile

SCM #1 25-YEAR PROFILE 14-14

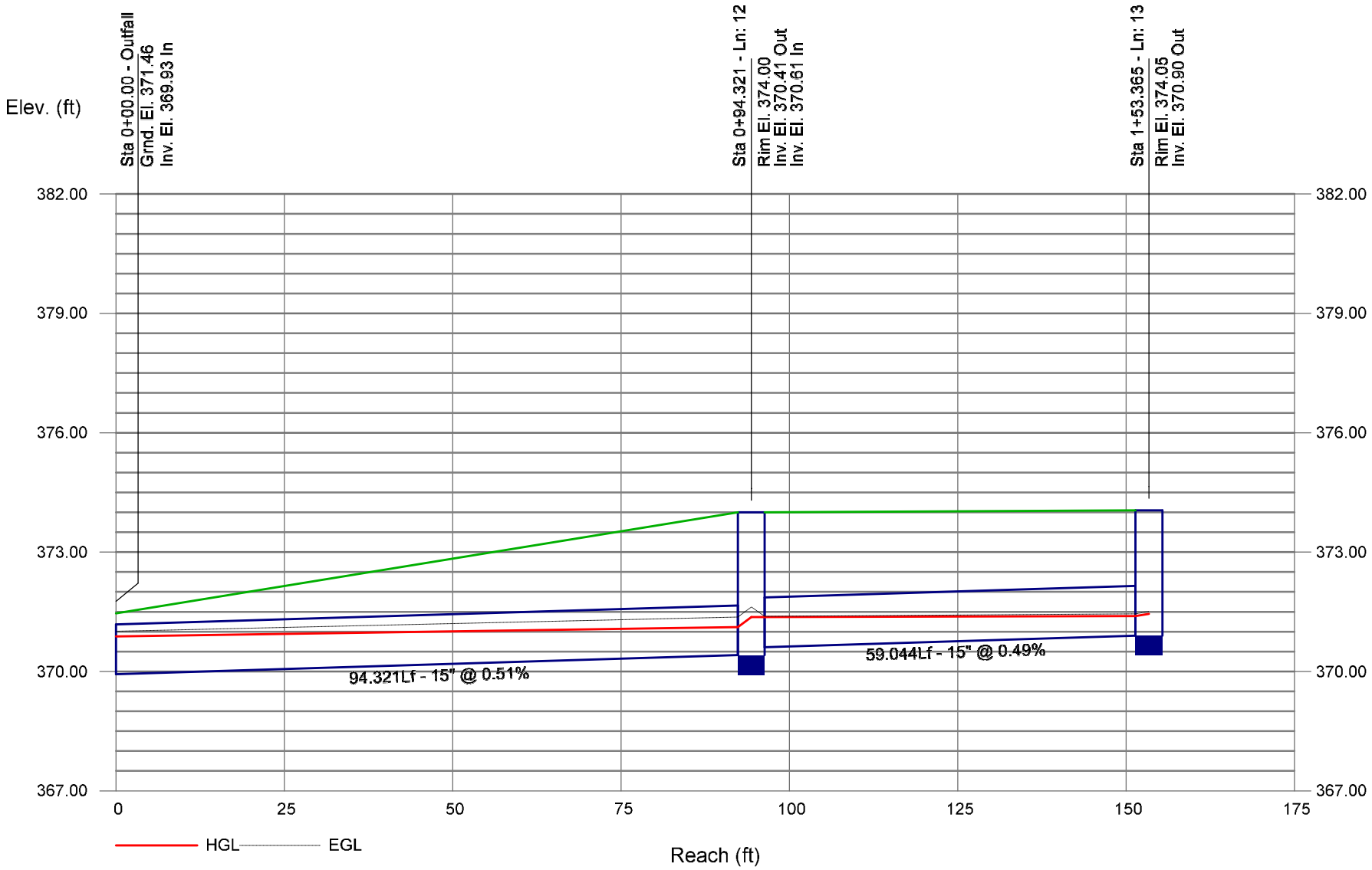
Proj. file: SCM#1.stm



Storm Sewer Profile

SCM #1 25-YEAR PROFILE 12-13

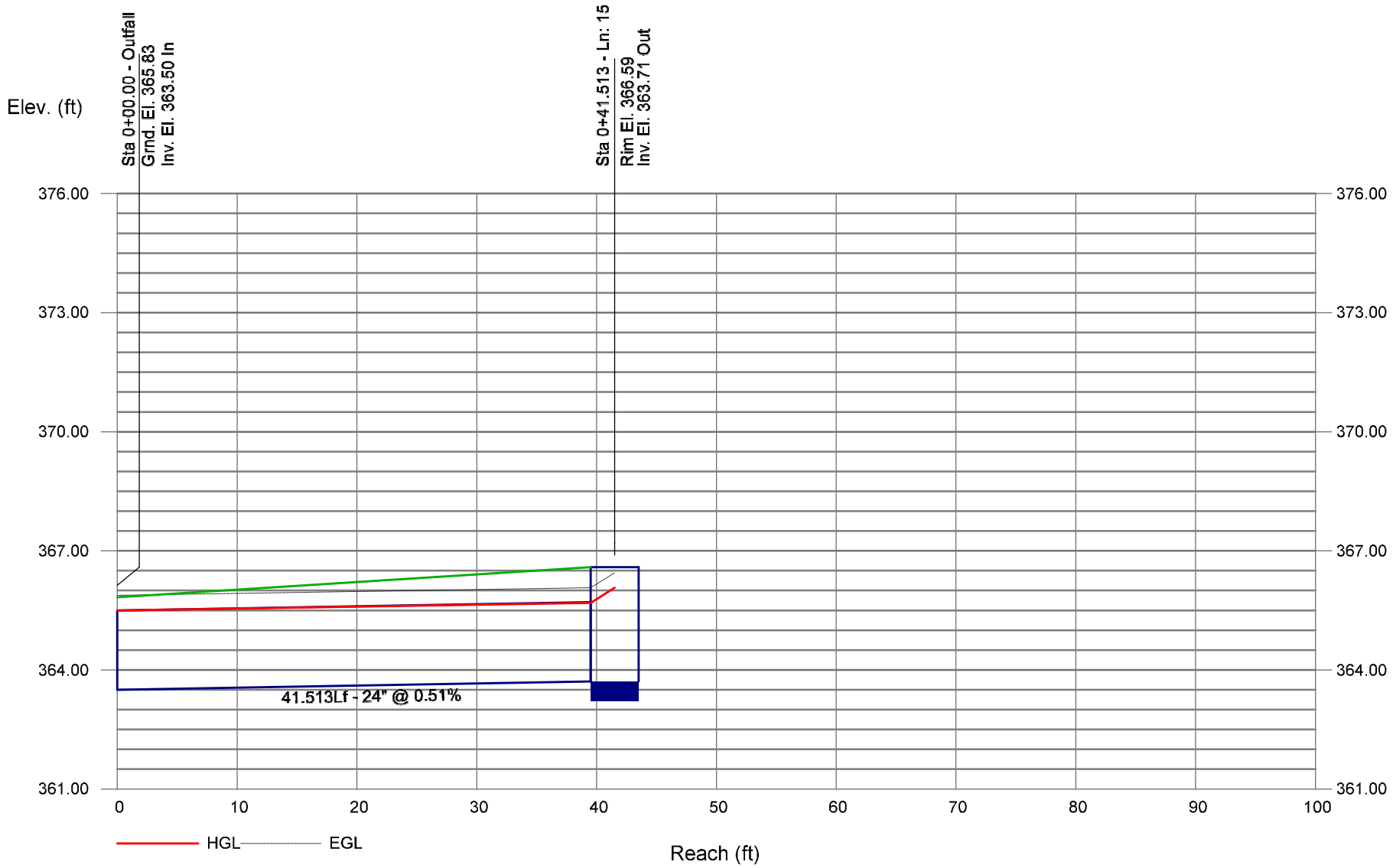
Proj. file: SCM#1.stm



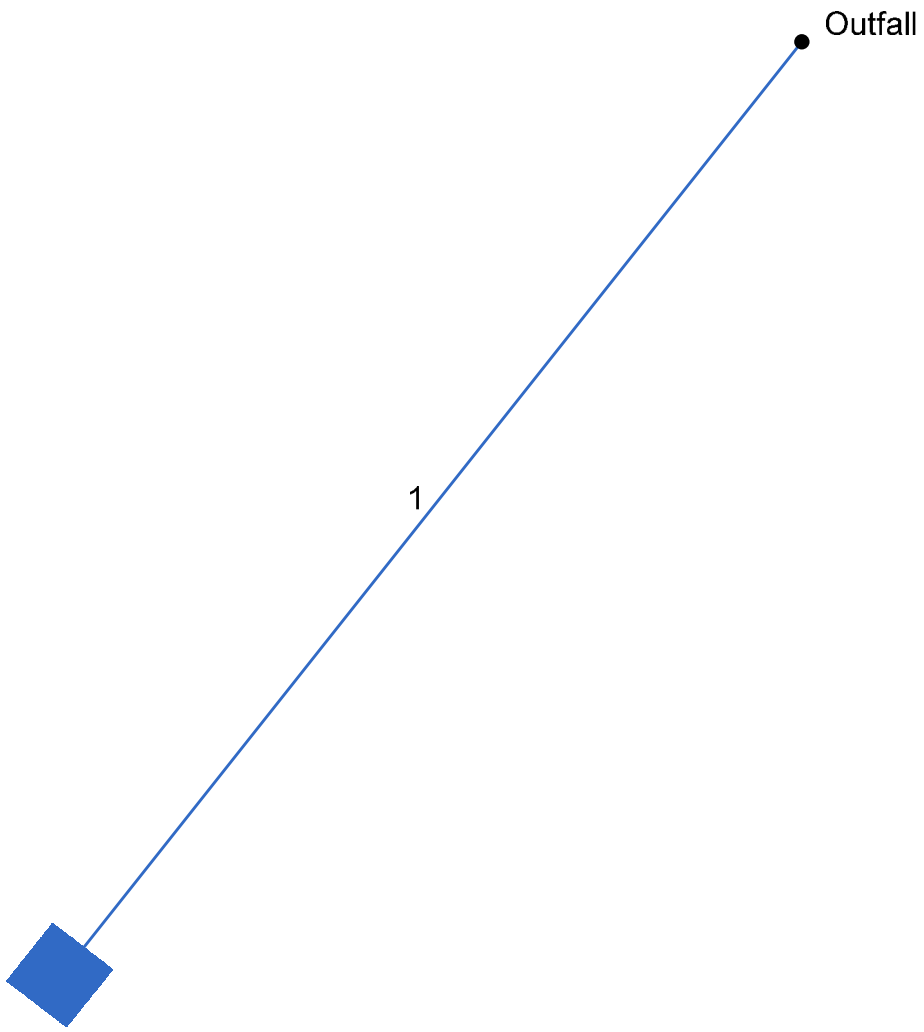
Storm Sewer Profile

SCM #1 25-YEAR PROFILE 15-15

Proj. file: SCM#1.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan SCM #2 25-YEAR REPORT



Project File: SCM#2.stm	Number of lines: 1	Date: 3/27/2025

Storm Sewer Inventory Report

SCM #2 25-YEAR REPORT

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	64.790	128.444	DrGrt	0.00	0.76	0.60	10.0	361.50	1.16	362.25	18	Cir	0.013	1.00	366.26	Pipe - (164)

Project File: SCM#2.stm | Number of lines: 1 | Date: 3/27/2025

Structure Report

SCM #2 25-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	YI 204	DropGrate	366.26	Rect	4.00	4.00	18	Cir	362.25			

Project File: SCM#2.stm | Number of Structures: 1 | Run Date: 3/27/2025

Storm Sewer Summary Report

SCM #2 25-YEAR REPORT

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (164)	3.03	18	Cir	64.790	361.50	362.25	1.158	362.56	362.91	n/a	362.91 j	End	DropGrate

Project File: SCM#2.stm | Number of lines: 1 | Run Date: 3/27/2025

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

Inlet Report

SCM #2 25-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	YI 204	3.03	0.00	3.03	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.20	22.82	0.20	22.82	0.0	Off

Project File: SCM#2.stm | Number of lines: 1 | Run Date: 3/27/2025

NOTES: Inlet N-Values = 0.016; Intensity = 62.86 / (Inlet time + 11.00) ^ 0.74; Return period = 25 Yrs. ; * Indicates Known Q added.All curb inlets are throat.

Hydraulic Grade Line Computations

SCM #2 25-YEAR REPORT

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	3.03	361.50	362.56	1.06	0.75	2.27	0.25	362.81	0.000	64.790	362.25	362.91 j	0.66**	0.75	4.03	0.25	363.16	0.000	0.000	n/a	1.00	0.25

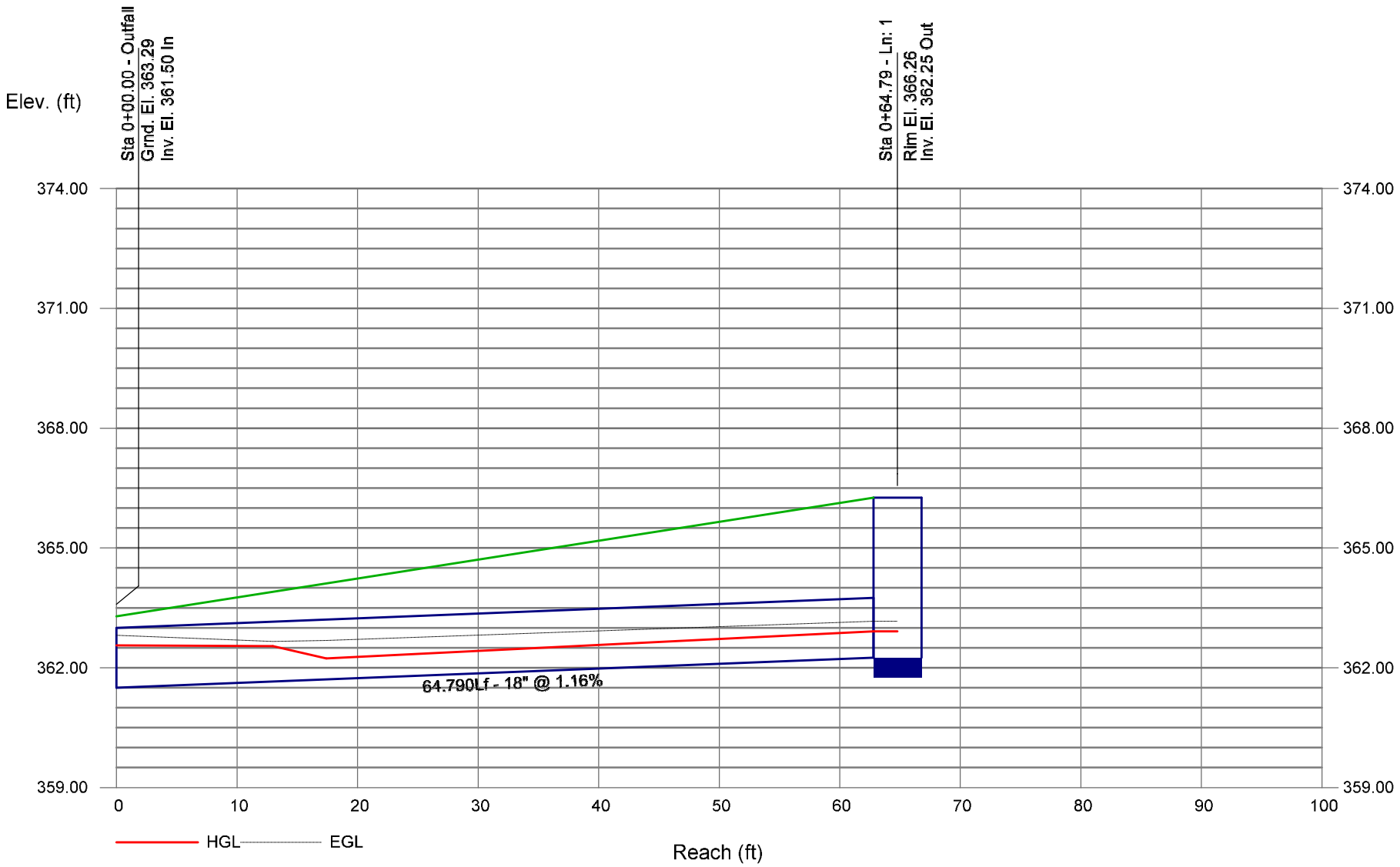
Project File: SCM#2.stm | Number of lines: 1 | Run Date: 3/27/2025

Notes: ; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

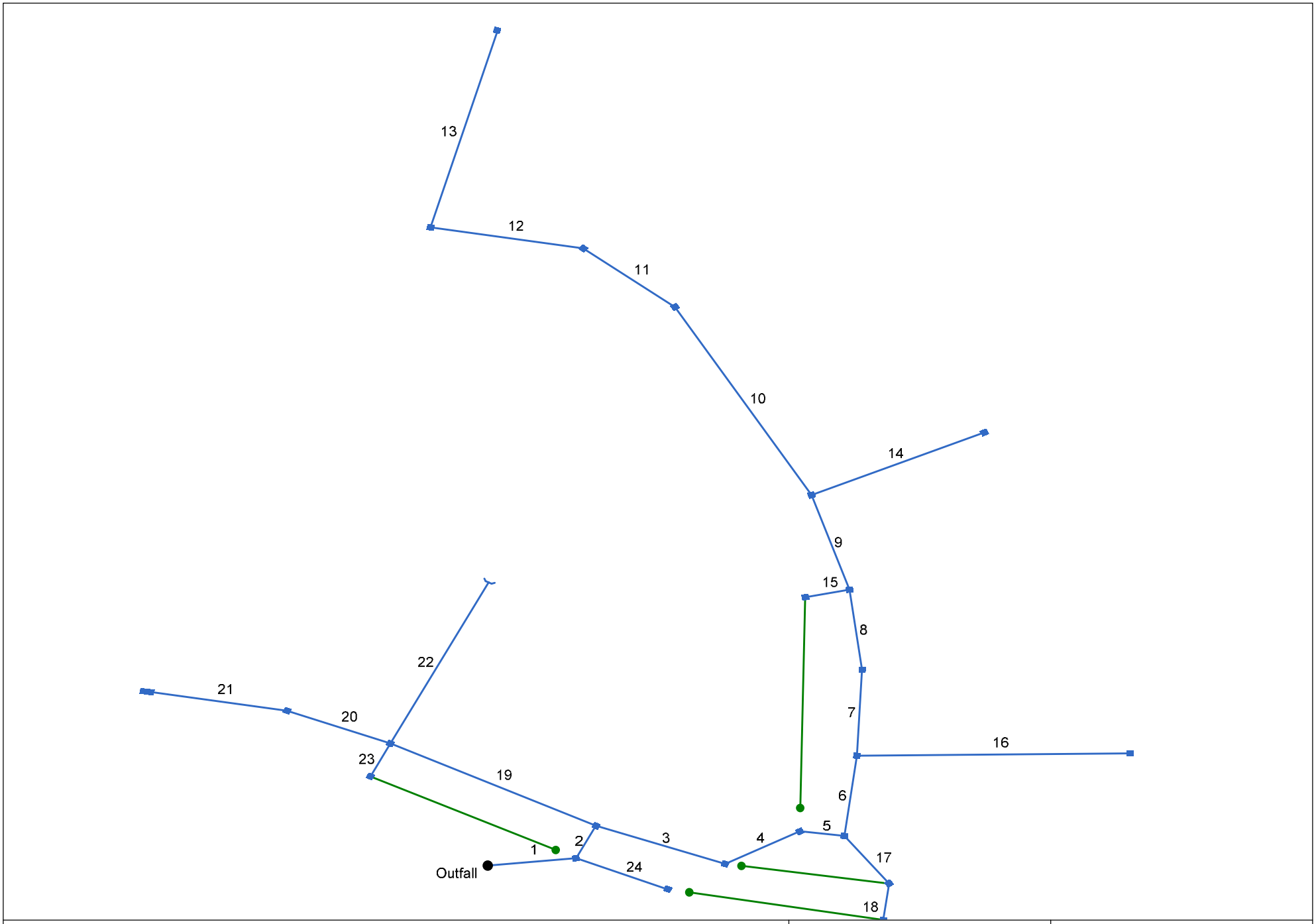
Storm Sewer Profile

SCM #2 25-YEAR PROFILE 1-1

Proj. file: SCM#2.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan SCM #3 25-YEAR REPORT



Project File: SCM#3Revised.stm	Number of lines: 24	Date: 3/31/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	53.315	-5.817	Comb	0.00	0.12	0.60	10.0	360.94	0.51	361.21	36	Cir	0.013	1.31	366.00	Pipe - (51)
2	1	26.578	-57.823	Comb	0.00	0.48	0.60	10.0	361.31	0.49	361.44	36	Cir	0.013	1.50	366.04	Pipe - (50)
3	2	82.337	83.564	Comb	0.00	0.07	0.60	10.0	361.64	0.50	362.05	30	Cir	0.013	1.17	366.98	Pipe - (49) (1)
4	3	50.862	-48.069	Comb	0.00	0.13	0.60	10.0	362.25	0.49	362.50	24	Cir	0.013	0.95	367.04	Pipe - (68)
5	4	27.000	35.381	Comb	0.00	0.21	0.60	10.0	362.70	0.52	362.84	24	Cir	0.013	1.70	367.03	Pipe - (67)
6	5	59.521	-90.000	Comb	0.00	0.10	0.60	10.0	363.34	2.91	365.07	24	Cir	0.013	1.49	370.03	Pipe - (66)
7	6	63.410	-4.578	Comb	0.00	0.07	0.60	10.0	365.17	2.96	367.05	18	Cir	0.013	0.50	373.00	Pipe - (65)
8	7	59.348	-9.943	Comb	0.00	0.09	0.60	10.0	367.25	2.83	368.93	18	Cir	0.013	1.50	374.74	Pipe - (64)
9	8	73.131	-10.753	Comb	0.00	0.57	0.60	10.0	369.03	1.55	370.16	18	Cir	0.013	1.49	375.97	Pipe - (63)
10	9	160.765	-12.581	Comb	0.00	0.29	0.60	10.0	370.94	0.50	371.75	18	Cir	0.013	0.62	377.13	Pipe - (61)
11	10	69.865	-21.142	Comb	0.00	0.19	0.60	10.0	373.45	0.79	374.00	15	Cir	0.013	0.80	378.00	Pipe - (60) (1)
12	11	92.962	-28.715	Comb	0.00	0.08	0.60	10.0	374.60	0.50	375.07	15	Cir	0.013	1.50	378.78	Pipe - (59)
13	12	150.515	95.984	DrGrt	0.00	0.72	0.60	10.0	375.27	0.50	376.03	15	Cir	0.013	1.00	379.46	Pipe - (177)
14	9	113.000	84.063	DrGrt	0.00	0.59	0.60	10.0	371.88	1.18	373.21	15	Cir	0.013	1.00	376.09	Pipe - (178)
15	8	27.000	-94.816	Comb	0.00	0.29	0.60	10.0	369.94	0.67	370.12	15	Cir	0.013	1.00	374.73	Pipe - (71)
16	6	163.438	82.157	DrGrt	0.00	0.58	0.60	10.0	365.80	1.00	367.43	15	Cir	0.013	1.00	370.35	Pipe - (70)
17	5	44.000	45.555	Comb	0.00	0.12	0.60	10.0	363.24	0.50	363.46	24	Cir	0.013	1.12	368.91	Pipe - (56) (1)
18	17	27.000	44.445	Comb	0.00	0.17	0.60	10.0	364.58	1.15	364.89	15	Cir	0.013	1.00	368.93	Pipe - (56)
19	2	137.219	-90.157	Comb	0.00	0.12	0.60	10.0	361.64	0.50	362.33	24	Cir	0.013	2.25	367.00	Pipe - (49)
20	19	66.365	-4.859	Comb	0.00	0.13	0.60	10.0	363.00	0.50	363.33	24	Cir	0.013	0.50	367.90	Pipe - (48)
21	20	85.141	-11.831	Comb	0.00	0.46	0.60	10.0	363.53	0.51	363.96	18	Cir	0.013	1.00	368.63	Pipe - (47)
22	19	132.305	90.179	Hdwl	0.00	2.66	0.60	10.0	363.12	0.50	363.78	24	Cir	0.013	1.00	366.12	Pipe - (53)
23	19	27.000	-89.981	Comb	0.00	0.28	0.60	10.0	363.50	0.52	363.64	18	Cir	0.013	1.00	367.03	Pipe - (54)

Project File: SCM#3Revised.stm

Number of lines: 24

Date: 3/31/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
24	1	59.390	28.452	Comb	0.00	0.07	0.60	10.0	362.30	0.51	362.60	24	Cir	0.013	1.00	366.75	Pipe - (58)

Project File: SCM#3Revised.stm

Number of lines: 24

Date: 3/31/2025

Structure Report

SCM #3 25-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	CB 301	Combination	366.00	Rect	4.00	4.00	36	Cir	361.21	36 24	Cir Cir	361.31 362.30
2	CB 302	Combination	366.04	Rect	4.00	4.00	36	Cir	361.44	30 24	Cir Cir	361.64 361.64
3	CB 304	Combination	366.98	Rect	4.00	4.00	30	Cir	362.05	24	Cir	362.25
4	CB 307	Combination	367.04	Rect	4.00	4.00	24	Cir	362.50	24	Cir	362.70
5	CB 308	Combination	367.03	Rect	4.00	4.00	24	Cir	362.84	24 24	Cir Cir	363.34 363.24
6	CB 309	Combination	370.03	Rect	4.00	4.00	24	Cir	365.07	18 15	Cir Cir	365.17 365.80
7	CB 311	Combination	373.00	Rect	4.00	4.00	18	Cir	367.05	18	Cir	367.25
8	CB 312	Combination	374.74	Rect	4.00	4.00	18	Cir	368.93	18 15	Cir Cir	369.03 369.94
9	CB 315	Combination	375.97	Rect	4.00	4.00	18	Cir	370.16	18 15	Cir Cir	370.94 371.88
10	CB 319	Combination	377.13	Rect	4.00	4.00	18	Cir	371.75	15	Cir	373.45
11	CB 321	Combination	378.00	Rect	4.00	4.00	15	Cir	374.00	15	Cir	374.60
12	CB 325	Combination	378.78	Rect	4.00	4.00	15	Cir	375.07	15	Cir	375.27
13	YI 325A	DropGrate	379.46	Rect	4.00	4.00	15	Cir	376.03			
14	YI 316B	DropGrate	376.09	Rect	4.00	4.00	15	Cir	373.21			
15	CB 313	Combination	374.73	Rect	4.00	4.00	15	Cir	370.12			
16	YI 310	DropGrate	370.35	Rect	4.00	4.00	15	Cir	367.43			
17	CB 306	Combination	368.91	Rect	4.00	4.00	24	Cir	363.46	15	Cir	364.58
18	CB 305	Combination	368.93	Rect	4.00	4.00	15	Cir	364.89			
19	CB 330	Combination	367.00	Rect	4.00	4.00	24	Cir	362.33	24 24 18	Cir Cir Cir	363.00 363.12 363.50

Project File: SCM#3Revised.stm | Number of Structures: 24 | Run Date: 3/31/2025

Structure Report

SCM #3 25-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
20	CB 333	Combination	367.90	Rect	4.00	4.00	24	Cir	363.33	18	Cir	363.53
21	CB 334	Combination	368.63	Rect	8.00	4.00	18	Cir	363.96			
22	FES INLET 331	OpenHeadwall	366.12	n/a	n/a	n/a	24	Cir	363.78			
23	CB 332	Combination	367.03	Rect	4.00	4.00	18	Cir	363.64			
24	CB 303	Combination	366.75	Rect	4.00	4.00	24	Cir	362.60			

Project File: SCM#3Revised.stm | Number of Structures: 24 | Run Date: 3/31/2025

Storm Sewer Summary Report

SCM #3 25-YEAR REPORT

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (51)	30.84	36	Cir	53.315	360.94	361.21	0.506	363.29	363.01	n/a	363.01	End	Combination
2	Pipe - (50)	30.22	36	Cir	26.578	361.31	361.44	0.489	363.07	363.22	n/a	363.22	1	Combination
3	Pipe - (49) (1)	15.48	30	Cir	82.337	361.64	362.05	0.498	363.22	363.38	n/a	363.38 j	2	Combination
4	Pipe - (68)	15.30	24	Cir	50.862	362.25	362.50	0.492	363.83	364.08	0.49	364.57	3	Combination
5	Pipe - (67)	14.87	24	Cir	27.000	362.70	362.84	0.518	364.57	364.65	0.65	365.30	4	Combination
6	Pipe - (66)	13.12	24	Cir	59.521	363.34	365.07	2.907	365.30	366.37	n/a	366.37 j	5	Combination
7	Pipe - (65)	10.67	18	Cir	63.410	365.17	367.05	2.965	366.37	368.30	0.36	368.30	6	Combination
8	Pipe - (64)	10.46	18	Cir	59.348	367.25	368.93	2.831	368.30	370.17	n/a	370.17	7	Combination
9	Pipe - (63)	9.11	18	Cir	73.131	369.03	370.16	1.545	370.17	371.33	n/a	371.33	8	Combination
10	Pipe - (61)	4.87	18	Cir	160.765	370.94	371.75	0.504	371.82	372.64	0.19	372.83	9	Combination
11	Pipe - (60) (1)	3.80	15	Cir	69.865	373.45	374.00	0.787	374.19	374.79	0.27	374.79	10	Combination
12	Pipe - (59)	3.11	15	Cir	92.962	374.60	375.07	0.500	375.36	375.82	0.38	376.20	11	Combination
13	Pipe - (177)	2.87	15	Cir	150.515	375.27	376.03	0.502	376.20	376.71	0.27	376.98	12	DropGrate
14	Pipe - (178)	2.35	15	Cir	113.000	371.88	373.21	1.177	372.38	373.82	0.24	373.82	9	DropGrate
15	Pipe - (71)	1.15	15	Cir	27.000	369.94	370.12	0.667	370.34	370.54	0.15	370.54	8	Combination
16	Pipe - (70)	2.31	15	Cir	163.438	365.80	367.43	0.997	366.37	368.04	0.24	368.04	6	DropGrate
17	Pipe - (56) (1)	1.14	24	Cir	44.000	363.24	363.46	0.500	365.30	365.31	0.00	365.31	5	Combination
18	Pipe - (56)	0.68	15	Cir	27.000	364.58	364.89	1.148	365.31	365.21	0.11	365.21	17	Combination
19	Pipe - (49)	14.08	24	Cir	137.219	361.64	362.33	0.503	363.22	363.77	1.19	364.95	2	Combination
20	Pipe - (48)	2.32	24	Cir	66.365	363.00	363.33	0.497	364.95	363.86	0.09	363.86	19	Combination
21	Pipe - (47)	1.83	18	Cir	85.141	363.53	363.96	0.505	364.04	364.47	0.19	364.47	20	Combination
22	Pipe - (53)	10.59	24	Cir	132.305	363.12	363.78	0.499	364.95	365.16	0.33	365.49	19	OpenHeadwall
23	Pipe - (54)	1.12	18	Cir	27.000	363.50	363.64	0.519	364.95	364.03	n/a	364.03	19	Combination
24	Pipe - (58)	0.28	24	Cir	59.390	362.30	362.60	0.505	363.01	363.01	0.01	363.02	1	Combination

Project File: SCM#3Revised.stm | Number of lines: 24 | Run Date: 3/31/2025

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

Inlet Report

SCM #3 25-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	CB 301	0.48	0.04	0.52	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.12	1.92	0.00	0.00	0.0	Off
2	CB 302	1.91	0.00	1.65	0.26	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.18	5.01	0.09	1.47	0.0	Off
3	CB 304	0.28	0.00	0.28	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.52	0.00	0.00	0.0	2
4	CB 307	0.52	0.06	0.58	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.12	1.99	0.00	0.00	0.0	3
5	CB 308	0.84	0.00	0.83	0.01	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.14	2.85	0.02	0.40	0.0	4
6	CB 309	0.40	0.00	0.40	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.10	1.73	0.00	0.00	0.0	5
7	CB 311	0.28	0.00	0.28	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.52	0.00	0.00	0.0	6
8	CB 312	0.36	0.41	0.76	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.64	0.02	0.30	0.0	7
9	CB 315	2.27	0.05	1.91	0.41	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.19	5.57	0.11	1.75	0.0	8
10	CB 319	1.15	0.00	1.11	0.05	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.15	3.66	0.05	0.80	0.0	9
11	CB 321	0.76	0.00	0.75	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.61	0.02	0.26	0.0	10
12	CB 325	0.32	0.00	0.32	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.10	1.59	0.00	0.00	0.0	11
13	YI 325A	2.87	0.00	2.87	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.20	22.10	0.20	22.10	0.0	Off
14	YI 316B	2.35	0.00	2.35	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.17	19.66	0.17	19.66	0.0	Off
15	CB 313	1.15	0.00	1.10	0.05	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.15	3.66	0.05	0.80	0.0	4
16	YI 310	2.31	0.00	2.31	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.17	19.47	0.17	19.47	0.0	Off
17	CB 306	0.48	0.00	0.48	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.11	1.86	0.00	0.00	0.0	3
18	CB 305	0.68	0.00	0.68	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.34	0.01	0.11	0.0	24
19	CB 330	0.48	0.00	0.48	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.11	1.86	0.00	0.00	0.0	2
20	CB 333	0.52	0.18	0.70	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.42	0.01	0.18	0.0	19
21	CB 334	1.83	0.00	1.65	0.18	Comb	6.0	1.50	0.00	6.00	2.50	0.054	2.00	0.060	0.020	0.013	0.18	4.89	0.08	1.30	0.0	20
22	FES INLET 331	10.59	0.00	10.59	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.060	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
23	CB 332	1.12	0.00	1.07	0.04	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.15	3.57	0.05	0.76	0.0	1

Project File: SCM#3Revised.stm | Number of lines: 24 | Run Date: 3/31/2025

NOTES: Inlet N-Values = 0.016; Intensity = 62.86 / (Inlet time + 11.00) ^ 0.74; Return period = 25 Yrs. ; * Indicates Known Q added.All curb inlets are throat.

Inlet Report

SCM #3 25-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
24	CB 303	0.28	0.00	0.28	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.52	0.00	0.00	0.0	1

Project File: SCM#3Revised.stm

Number of lines: 24

Run Date: 3/31/2025

NOTES: Inlet N-Values = 0.016; Intensity = 62.86 / (Inlet time + 11.00) ^ 0.74; Return period = 25 Yrs. ; * Indicates Known Q added.All curb inlets are throat.

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	36	30.84	360.94	363.29	2.35	4.42	5.19	0.76	364.05	0.000	53.315	361.21	363.01	1.80**	4.42	6.97	0.76	363.76	0.000	0.000	n/a	1.31	n/a
2	36	30.22	361.31	363.07	1.76*	4.31	7.02	0.74	363.81	0.000	26.578	361.44	363.22	1.78**	4.37	6.92	0.74	363.96	0.000	0.000	n/a	1.50	n/a
3	30	15.48	361.64	363.22	1.58	2.65	4.74	0.53	363.75	0.000	82.337	362.05	363.38 j	1.33**	2.65	5.85	0.53	363.91	0.000	0.000	n/a	1.17	n/a
4	24	15.30	362.25	363.83	1.58*	2.66	5.75	0.51	364.34	0.491	50.862	362.50	364.08	1.58	2.66	5.75	0.51	364.59	0.492	0.492	0.250	0.95	0.49
5	24	14.87	362.70	364.57	1.87	3.05	4.87	0.37	364.94	0.374	27.000	362.84	364.65	1.81	2.99	4.97	0.38	365.04	0.378	0.376	0.101	1.70	0.65
6	24	13.12	363.34	365.30	1.96	2.17	4.19	0.57	365.88	0.000	59.521	365.07	366.37 j	1.30**	2.17	6.06	0.57	366.94	0.000	0.000	n/a	1.49	n/a
7	18	10.67	365.17	366.37	1.20	1.52	7.03	0.71	367.08	0.000	63.410	367.05	368.30	1.25**	1.58	6.77	0.71	369.02	0.000	0.000	n/a	0.50	0.36
8	18	10.46	367.25	368.30	1.05	1.33	7.89	0.69	369.00	0.000	59.348	368.93	370.17	1.24**	1.56	6.68	0.69	370.87	0.000	0.000	n/a	1.50	n/a
9	18	9.11	369.03	370.17	1.14	1.44	6.31	0.59	370.77	0.000	73.131	370.16	371.33	1.17**	1.47	6.18	0.59	371.92	0.000	0.000	n/a	1.49	n/a
10	18	4.87	370.94	371.82	0.88*	1.08	4.50	0.31	372.14	0.504	160.765	371.75	372.64	0.89	1.09	4.49	0.31	372.95	0.502	0.503	0.808	0.62	0.19
11	15	3.80	373.45	374.19	0.74*	0.76	4.99	0.34	374.53	0.000	69.865	374.00	374.79	0.79**	0.81	4.67	0.34	375.13	0.000	0.000	n/a	0.80	0.27
12	15	3.11	374.60	375.36	0.76*	0.78	4.00	0.25	375.61	0.500	92.962	375.07	375.82	0.76	0.78	4.01	0.25	376.07	0.503	0.501	0.466	1.50	0.38
13	15	2.87	375.27	376.20	0.93	0.68	2.94	0.13	376.33	0.244	150.515	376.03	376.71	0.68**	0.69	4.18	0.27	376.98	0.588	0.416	0.626	1.00	0.27
14	15	2.35	371.88	372.38	0.50*	0.46	5.14	0.24	372.62	0.000	113.000	373.21	373.82	0.61**	0.60	3.93	0.24	374.06	0.000	0.000	n/a	1.00	0.24
15	15	1.15	369.94	370.34	0.40*	0.34	3.44	0.15	370.49	0.000	27.000	370.12	370.54	0.42**	0.37	3.16	0.15	370.70	0.000	0.000	n/a	1.00	0.15
16	15	2.31	365.80	366.37	0.57	0.55	4.22	0.24	366.61	0.000	163.438	367.43	368.04	0.61**	0.59	3.91	0.24	368.27	0.000	0.000	n/a	1.00	0.24
17	24	1.14	363.24	365.30	2.00	3.14	0.36	0.00	365.31	0.003	44.000	363.46	365.31	1.85	3.03	0.38	0.00	365.31	0.002	0.002	0.001	1.12	0.00
18	15	0.68	364.58	365.31	0.73	0.25	0.91	0.11	365.42	0.000	27.000	364.89	365.21	0.32**	0.25	2.71	0.11	365.33	0.000	0.000	n/a	1.00	0.11
19	24	14.08	361.64	363.22	1.58	2.66	5.29	0.44	363.65	0.416	137.219	362.33	363.77	1.44	2.42	5.82	0.53	364.30	0.516	0.466	0.640	2.25	1.19
20	24	2.32	363.00	364.95	1.95	0.66	0.74	0.19	365.14	0.000	66.365	363.33	363.86	0.53**	0.66	3.49	0.19	364.05	0.000	0.000	n/a	0.50	0.09
21	18	1.83	363.53	364.04	0.51*	0.52	3.49	0.19	364.22	0.000	85.141	363.96	364.47	0.51**	0.53	3.46	0.19	364.66	0.000	0.000	n/a	1.00	0.19
22	24	10.59	363.12	364.95	1.83	3.02	3.51	0.19	365.15	0.191	132.305	363.78	365.16	1.38	2.31	4.58	0.33	365.49	0.325	0.258	0.341	1.00	0.33

Project File: SCM#3Revised.stm | Number of lines: 24 | Run Date: 3/31/2025

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
23	18	1.12	363.50	364.95	1.45	0.37	0.64	0.14	365.09	0.000	27.000	363.64	364.03	0.39**	0.37	3.01	0.14	364.18	0.000	0.000	n/a	1.00	n/a
24	24	0.28	362.30	363.01	0.71	1.00	0.28	0.00	363.01	0.002	59.390	362.60	363.01	0.41	0.46	0.60	0.01	363.02	0.018	0.010	0.006	1.00	0.01

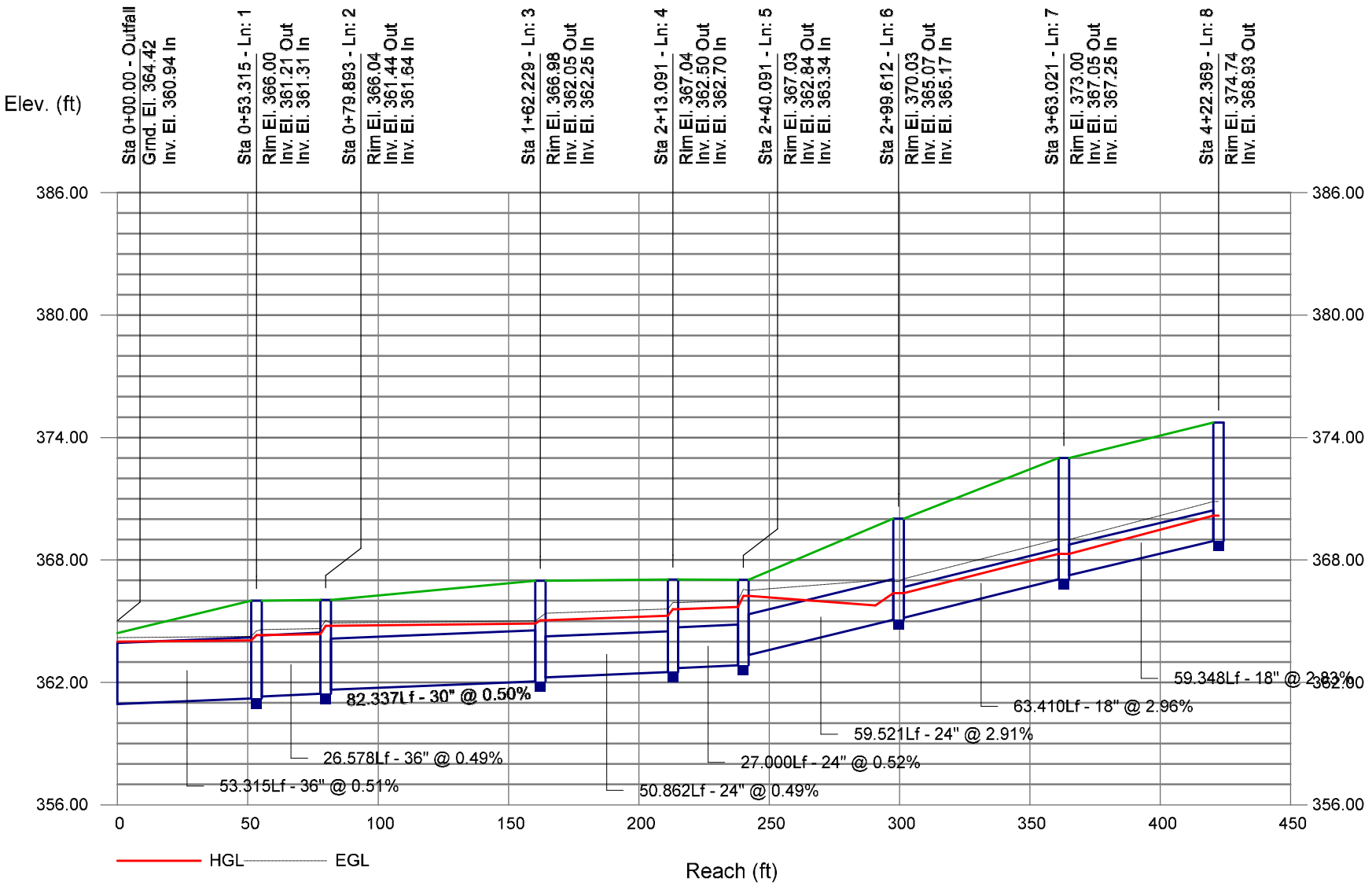
Project File: SCM#3Revised.stm | Number of lines: 24 | Run Date: 3/31/2025

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

SCM #3 25-YEAR PROFILE 1-8

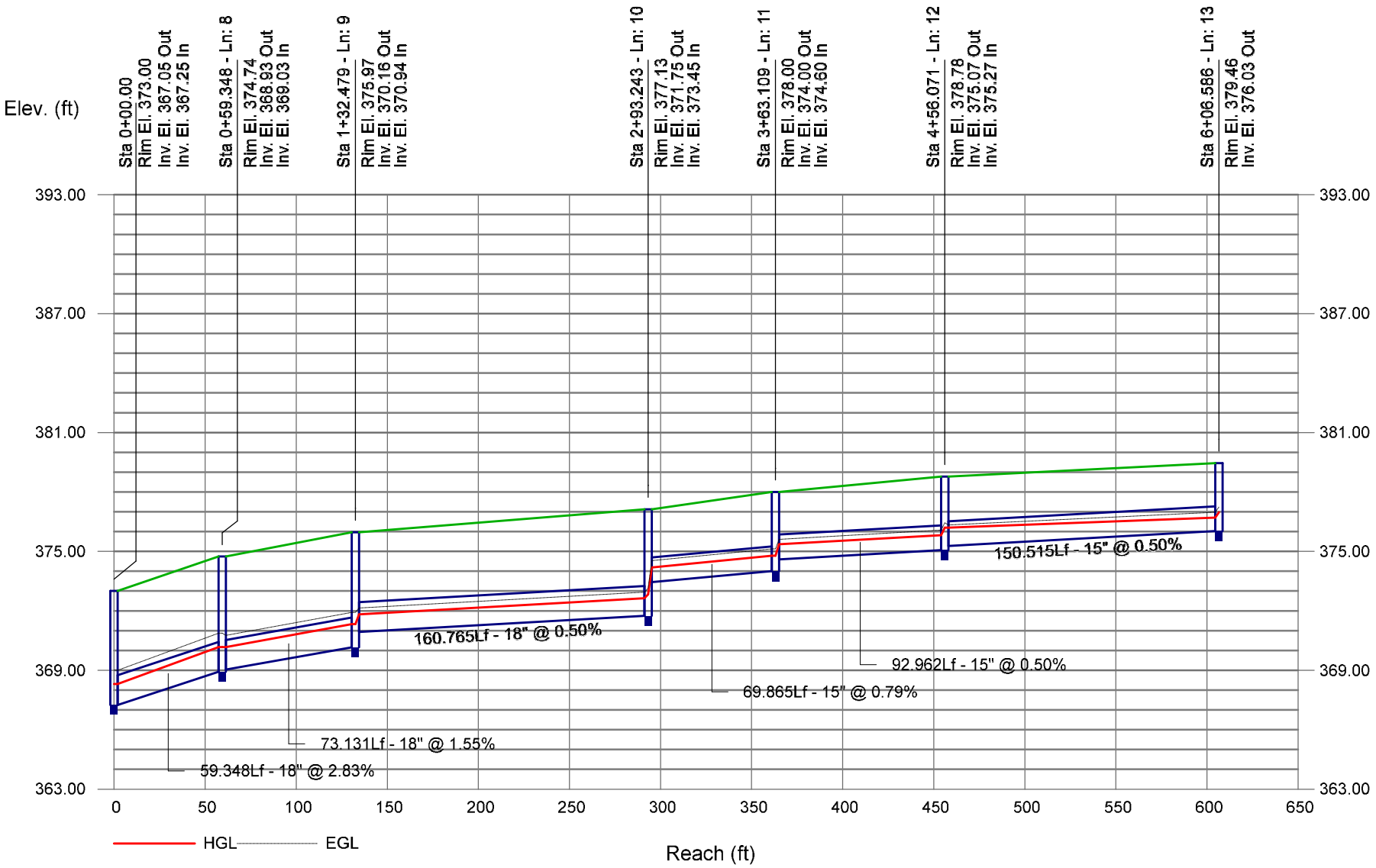
Proj. file: SCM#3Revised.stm



Storm Sewer Profile

SCM #3 25-YEAR PROFILE 8-13

Proj. file: SCM#3Revised.stm



Storm Sewer Profile

SCM #3 25-YEAR PROFILE 19-21

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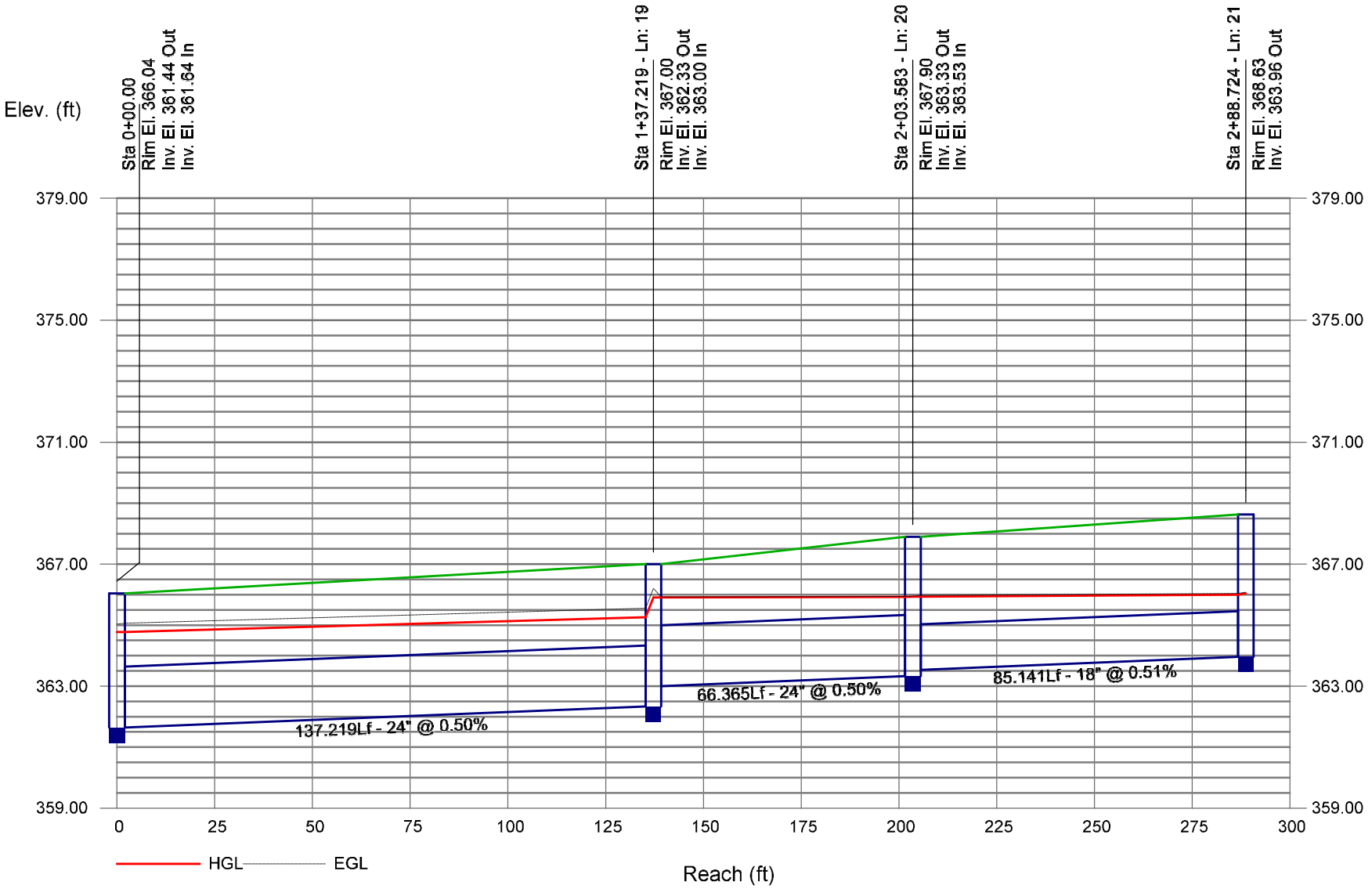

Storm Sewer Profile

SCM #3 25-YEAR PROFILE 22-23

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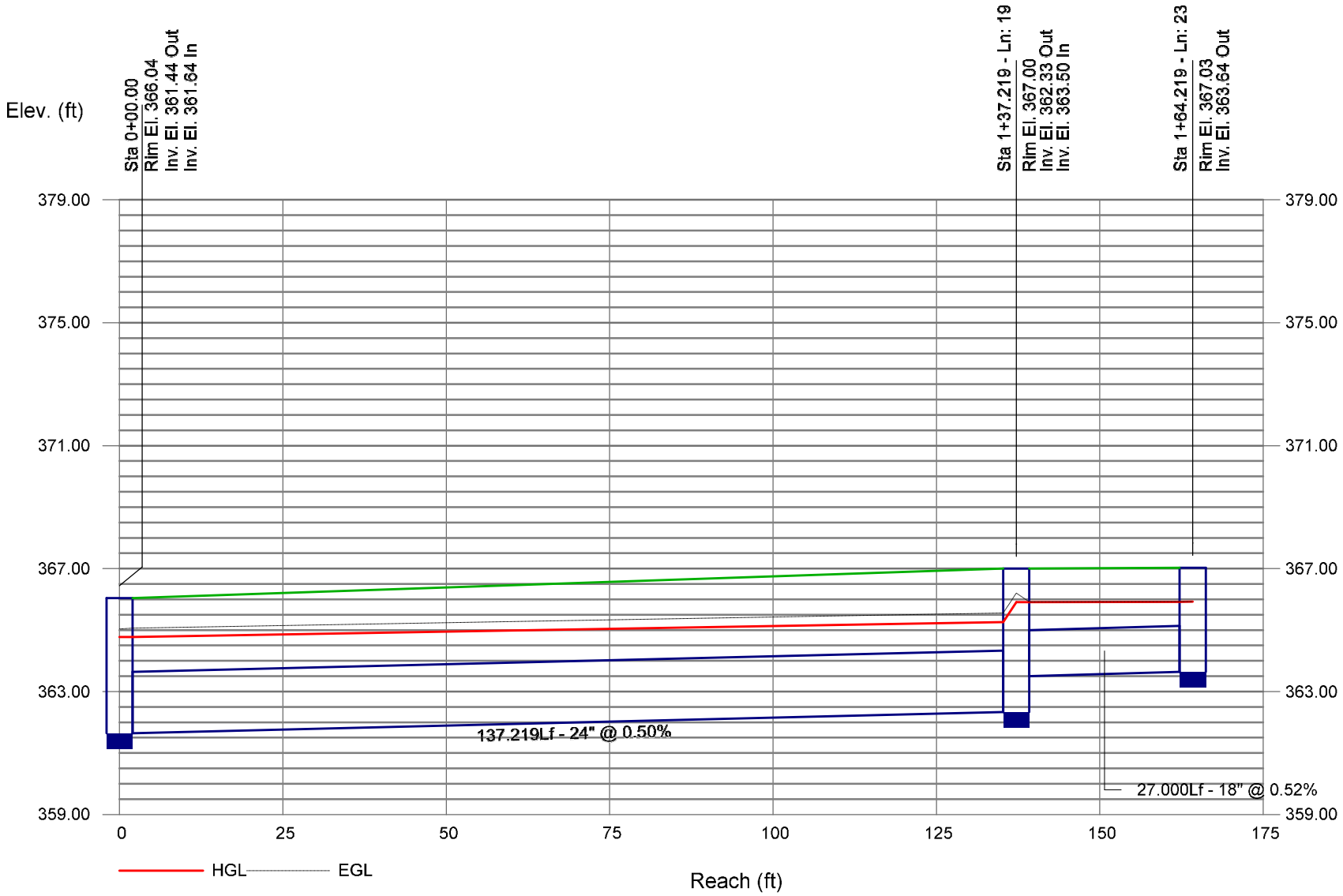

Storm Sewer Profile

SCM #3 25-YEAR PROFILE 24-24

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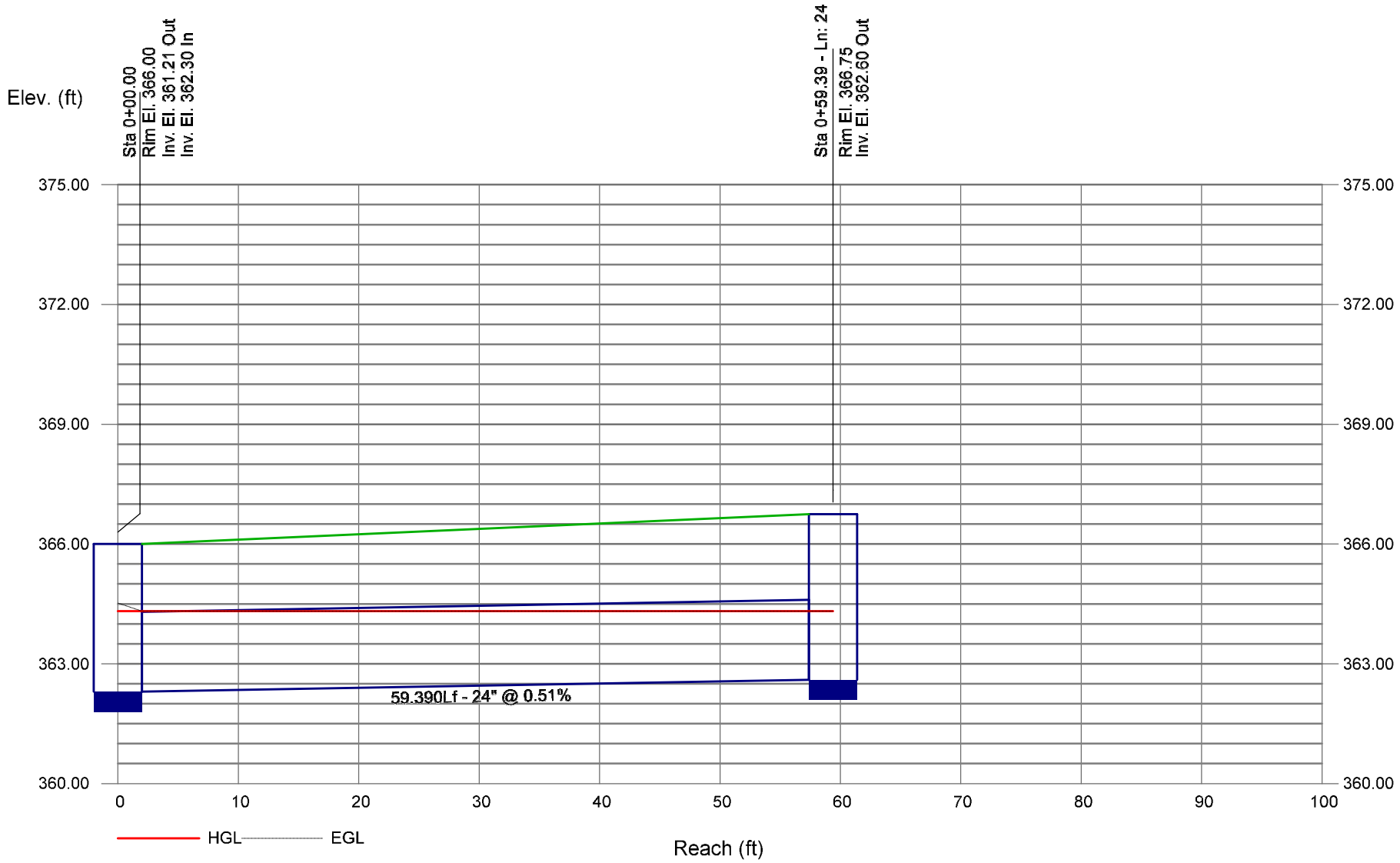
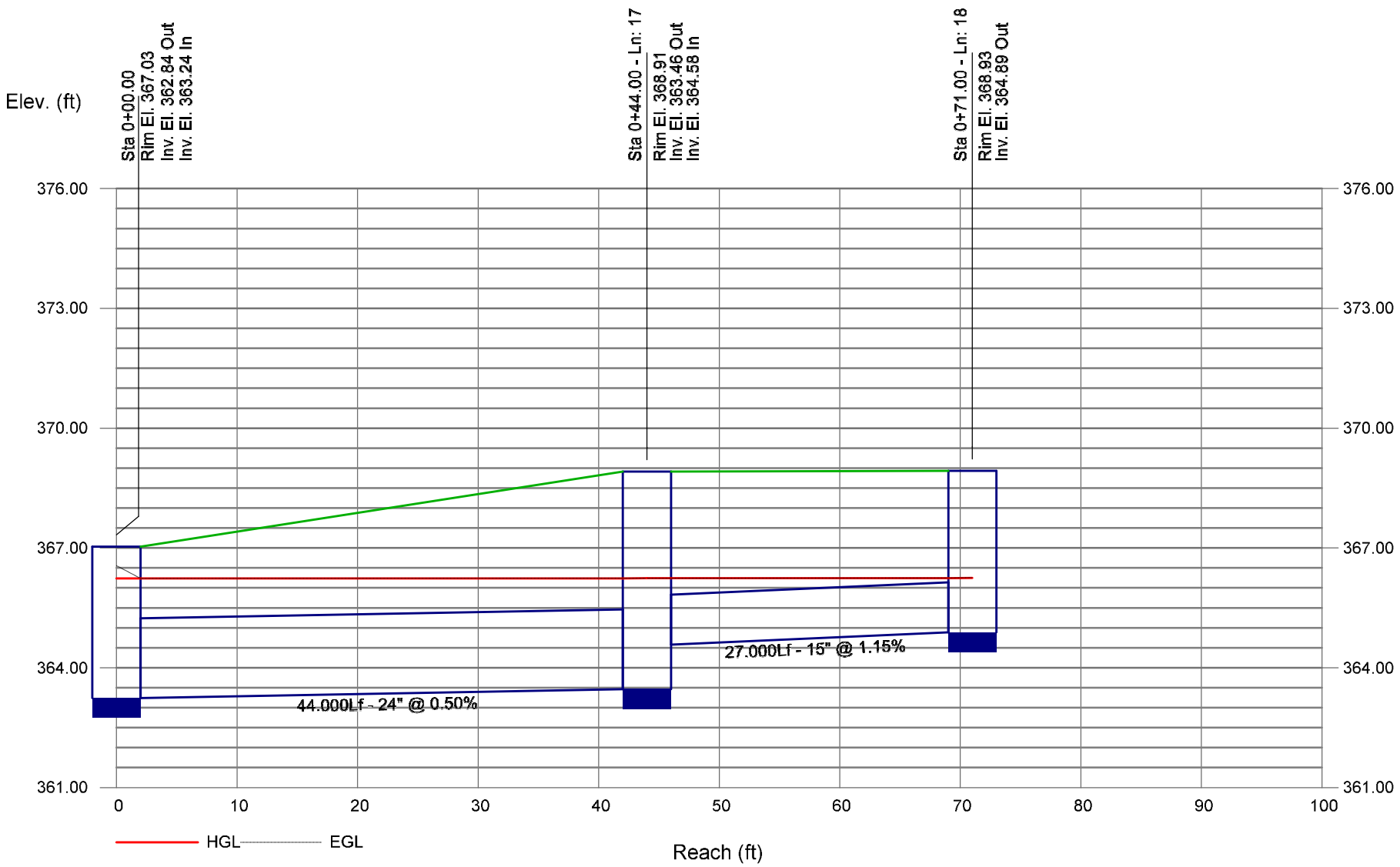


Storm Sewer Profile

SCM #3 25-YEAR PROFILE 17-18

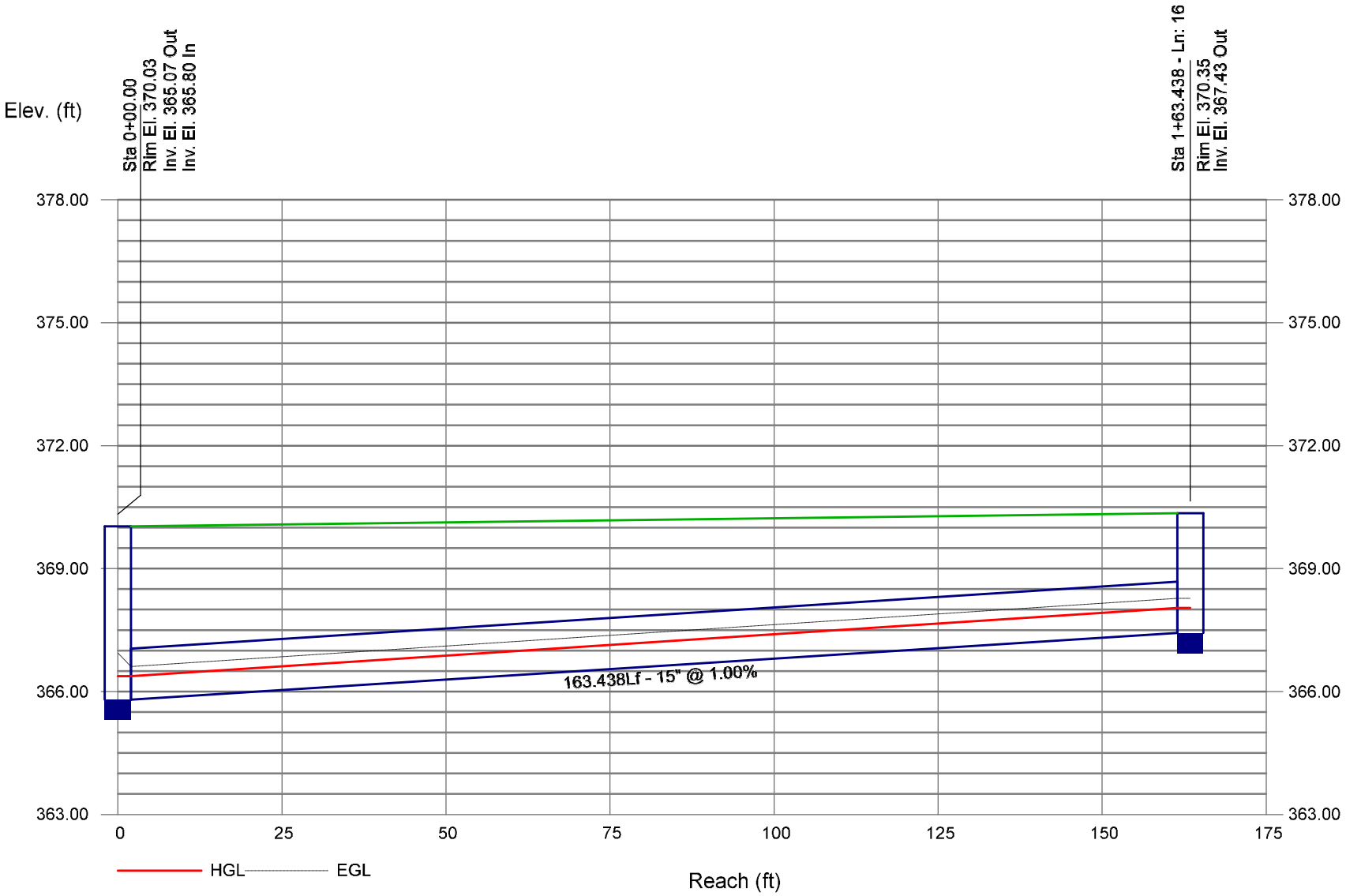
Proj. file: SCM#3Revised.stm



Storm Sewer Profile

SCM #3 25-YEAR PROFILE 16-16

Proj. file: SCM#3Revised.stm



Storm Sewer Profile

SCM #3 25-YEAR PROFILE 15-15

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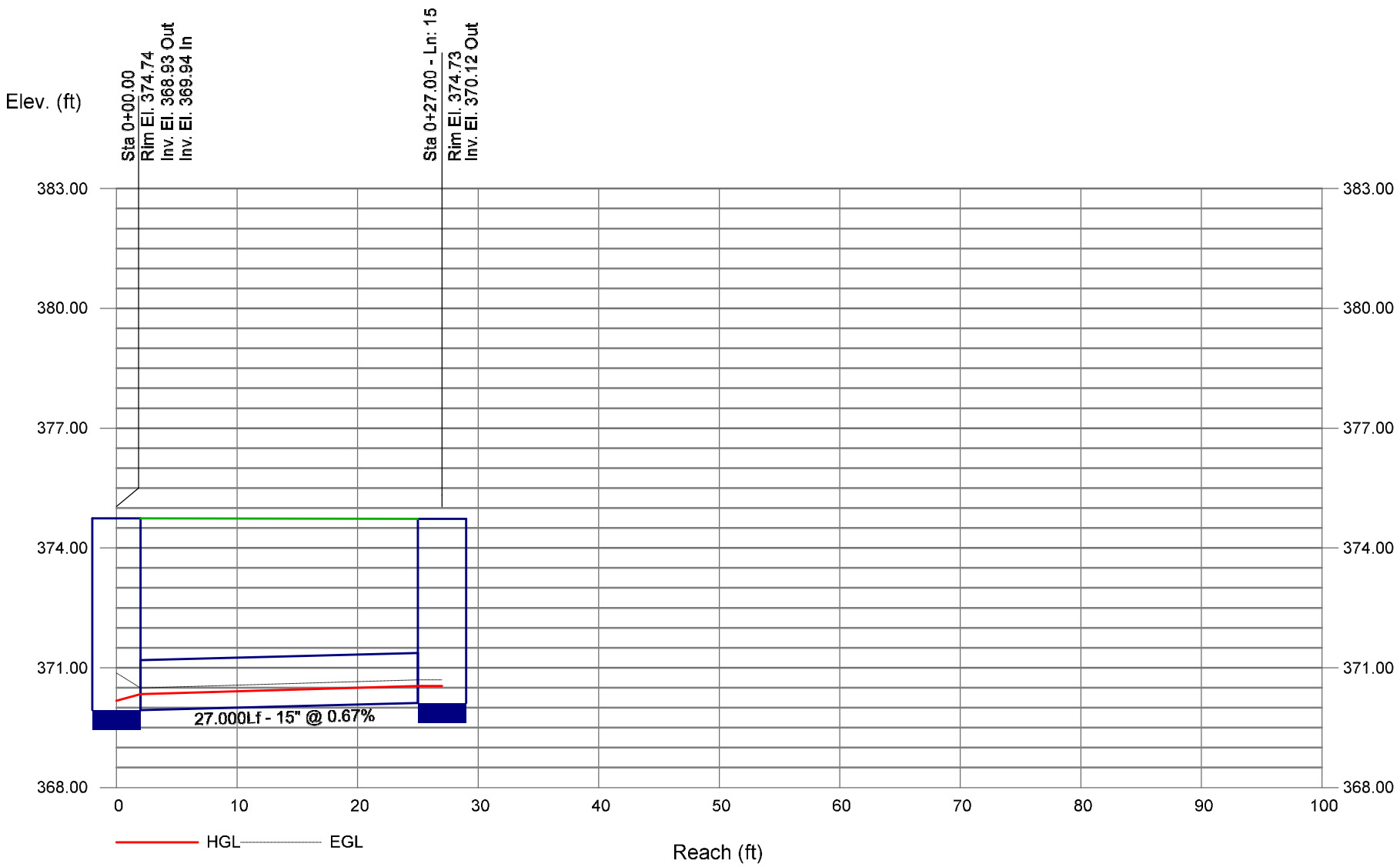
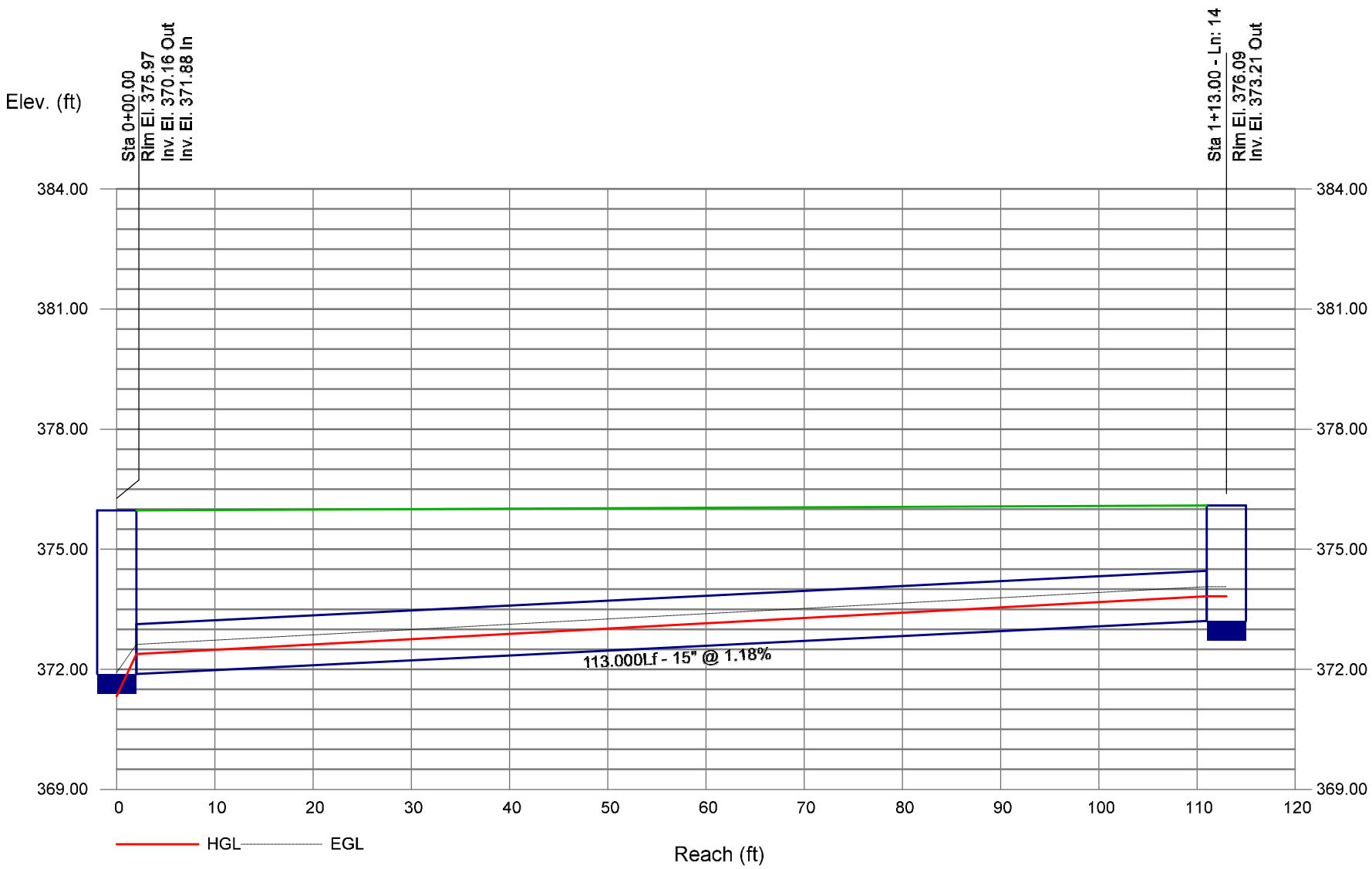


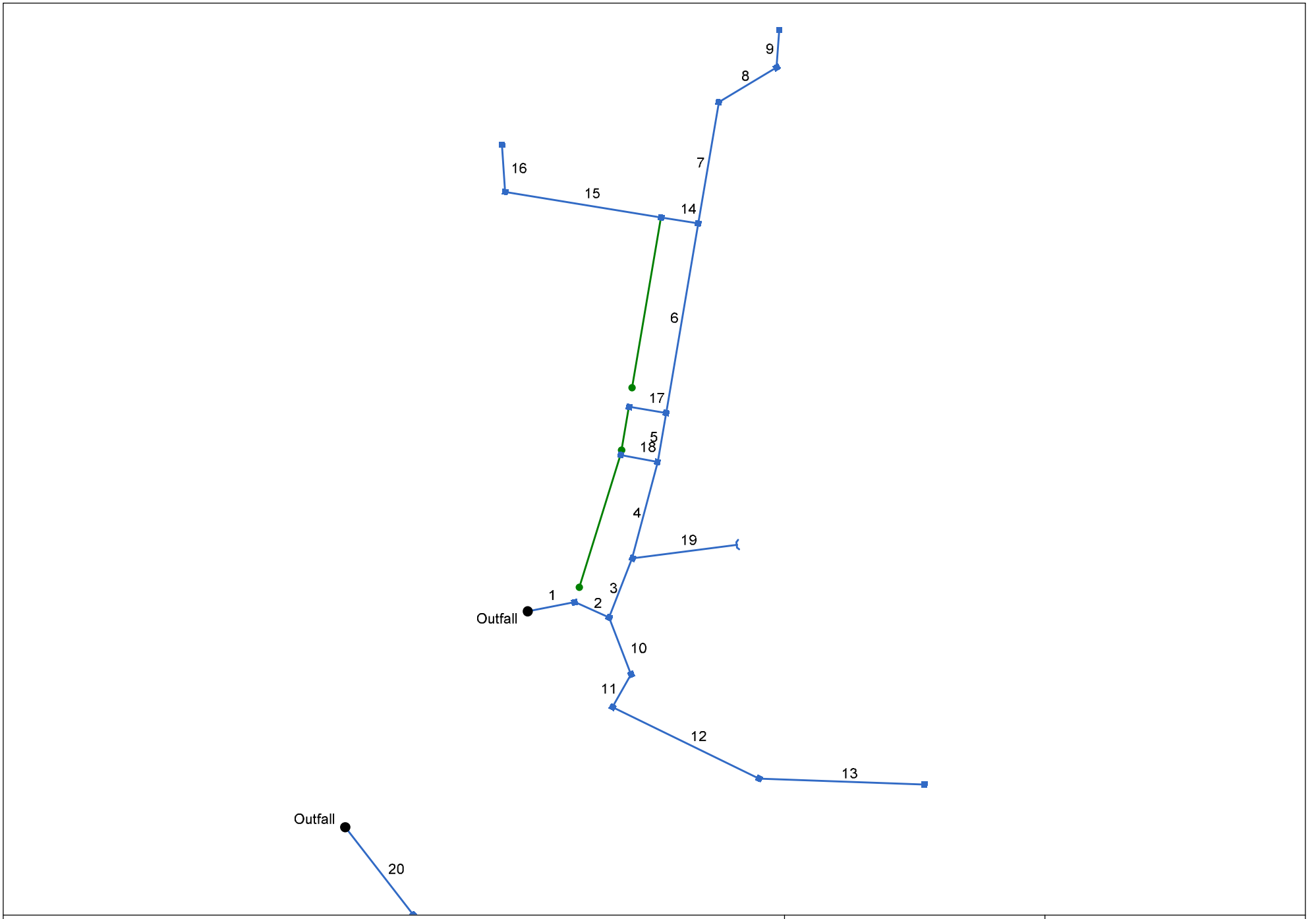
Storm Sewer Profile

SCM #3 25-YEAR PROFILE 14-14

Proj. file: SCM#3Revised.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan SCM #4 25-YEAR REPORT



Project File: SCM#4.stm	Number of lines: 20	Date: 3/28/2025

Storm Sewer Inventory Report

SCM #4 25-YEAR REPORT

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	34.253	-11.231	Comb	0.00	0.07	0.60	10.0	357.00	0.50	357.17	30	Cir	0.013	0.95	363.04	Pipe - (14)
2	1	27.000	35.364	Comb	0.00	0.04	0.60	10.0	357.27	0.52	357.41	24	Cir	0.013	1.68	363.02	Pipe - (19)
3	2	45.598	-92.825	Comb	0.00	0.03	0.60	10.0	357.60	0.50	357.83	24	Cir	0.013	1.35	362.81	Pipe - (13) (1)
4	3	71.733	-6.548	Comb	0.00	0.06	0.60	10.0	357.93	0.50	358.29	24	Cir	0.013	1.50	362.39	Pipe - (13)
5	4	35.770	-5.010	Comb	0.00	0.07	0.60	10.0	358.49	0.50	358.67	18	Cir	0.013	1.50	362.56	Pipe - (12)
6	5	138.243	-0.182	Comb	0.00	0.06	0.60	10.0	358.87	1.00	360.25	18	Cir	0.013	1.50	365.52	Pipe - (11)
7	6	88.557	0.022	Comb	0.00	0.02	0.60	10.0	360.58	4.21	364.31	15	Cir	0.013	1.19	368.85	Pipe - (9)
8	7	48.252	49.402	Comb	0.00	0.17	0.60	10.0	364.51	0.50	364.75	15	Cir	0.013	1.27	369.03	Pipe - (8)
9	8	26.989	-54.988	Comb	0.00	0.52	0.60	10.0	364.95	0.52	365.09	15	Cir	0.013	1.00	369.03	Pipe - (7)
10	2	43.911	44.750	Comb	0.00	0.15	0.60	10.0	357.60	0.50	357.82	24	Cir	0.013	1.21	362.71	Pipe - (18)
11	10	27.000	50.538	Comb	0.00	0.19	0.60	10.0	358.02	1.00	358.29	18	Cir	0.013	1.50	362.73	Pipe - (17)
12	11	116.822	-93.303	Comb	0.00	0.07	0.60	10.0	358.79	3.00	362.29	15	Cir	0.013	0.69	368.09	Pipe - (16)
13	12	118.495	-24.005	Comb	0.00	0.25	0.60	10.0	363.30	3.00	366.85	15	Cir	0.013	1.00	372.03	Pipe - (15)
14	6	26.980	-90.285	Comb	0.00	0.16	0.60	10.0	360.45	0.48	360.58	15	Cir	0.013	0.50	365.51	Pipe - (10)
15	14	113.243	0.000	MH	0.00	0.00	0.60	10.0	360.69	0.50	361.26	15	Cir	0.013	0.98	366.21	Pipe - (181)
16	15	34.087	76.970	DrGrt	0.00	0.68	0.60	10.0	361.36	0.50	361.53	15	Cir	0.013	1.00	363.50	Pipe - (180)
17	5	27.000	-90.174	Comb	0.00	0.07	0.60	10.0	358.97	0.52	359.11	15	Cir	0.013	1.00	361.82	Pipe - (20)
18	4	27.000	-94.006	Comb	0.00	0.08	0.60	10.0	358.68	0.74	358.88	15	Cir	0.013	1.00	361.65	Pipe - (21)
19	3	75.640	61.294	Hdwl	0.00	1.03	0.60	10.0	358.53	0.50	358.91	18	Cir	0.013	1.00	360.20	Pipe - (163)
20	End	79.656	52.362	DrGrt	0.00	1.73	0.60	10.0	356.95	0.50	357.35	18	Cir	0.013	1.00	359.68	Pipe - (24)(0)

Project File: SCM#4.stm | Number of lines: 20 | Date: 3/28/2025

Structure Report

SCM #4 25-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	CB 401	Combination	363.04	Rect	4.00	4.00	30	Cir	357.17	24	Cir	357.27
2	CB 402	Combination	363.02	Rect	4.00	4.00	24	Cir	357.41	24 24	Cir Cir	357.60 357.60
3	CB 407	Combination	362.81	Rect	4.00	4.00	24	Cir	357.83	24 18	Cir Cir	357.93 358.53
4	CB 408	Combination	362.39	Rect	4.00	4.00	24	Cir	358.29	18 15	Cir Cir	358.49 358.68
5	CB 409	Combination	362.56	Rect	4.00	4.00	18	Cir	358.67	18 15	Cir Cir	358.87 358.97
6	CB 410	Combination	365.52	Rect	4.00	4.00	18	Cir	360.25	15 15	Cir Cir	360.58 360.45
7	CB 411	Combination	368.85	Rect	4.00	4.00	15	Cir	364.31	15	Cir	364.51
8	CB 412	Combination	369.03	Rect	4.00	4.00	15	Cir	364.75	15	Cir	364.95
9	CB 413	Combination	369.03	Rect	4.00	4.00	15	Cir	365.09			
10	CB 403	Combination	362.71	Rect	4.00	4.00	24	Cir	357.82	18	Cir	358.02
11	CB 404	Combination	362.73	Rect	4.00	4.00	18	Cir	358.29	15	Cir	358.79
12	CB 405	Combination	368.09	Rect	4.00	4.00	15	Cir	362.29	15	Cir	363.30
13	CB 406	Combination	372.03	Rect	4.00	4.00	15	Cir	366.85			
14	CB 410A	Combination	365.51	Rect	4.00	4.00	15	Cir	360.58	15	Cir	360.69
15	JB 410B	Manhole	366.21	Rect	4.00	4.00	15	Cir	361.26	15	Cir	361.36
16	YI 410C	DropGrate	363.50	Rect	4.00	4.00	15	Cir	361.53			
17	CB 409A	Combination	361.82	Rect	4.00	4.00	15	Cir	359.11			
18	CB 408A	Combination	361.65	Rect	4.00	4.00	15	Cir	358.88			
19	FES 407A	OpenHeadwall	360.20	n/a	n/a	n/a	18	Cir	358.91			
20	YI 421	DropGrate	359.68	Rect	4.00	4.00	18	Cir	357.35			

Project File: SCM#4.stm | Number of Structures: 20 | Run Date: 3/28/2025

Storm Sewer Summary Report

SCM #4 25-YEAR REPORT

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (14)	13.44	30	Cir	34.253	357.00	357.17	0.496	359.00	358.40	0.46	358.40	End	Combination
2	Pipe - (19)	13.22	24	Cir	27.000	357.27	357.41	0.519	358.64	358.78	0.87	359.65	1	Combination
3	Pipe - (13) (1)	10.76	24	Cir	45.598	357.60	357.83	0.504	359.65	359.74	0.25	359.99	2	Combination
4	Pipe - (13)	7.01	24	Cir	71.733	357.93	358.29	0.502	359.99	360.05	0.13	360.18	3	Combination
5	Pipe - (12)	6.52	18	Cir	35.770	358.49	358.67	0.503	360.18*	360.32*	0.32	360.64	4	Combination
6	Pipe - (11)	6.24	18	Cir	138.243	358.87	360.25	0.998	360.64	361.21	n/a	361.21 j	5	Combination
7	Pipe - (9)	2.79	15	Cir	88.557	360.58	364.31	4.212	361.21	364.98	0.32	364.98	6	Combination
8	Pipe - (8)	2.73	15	Cir	48.252	364.51	364.75	0.497	365.21	365.45	0.30	365.75	7	Combination
9	Pipe - (7)	2.07	15	Cir	26.989	364.95	365.09	0.519	365.75	365.77	0.15	365.91	8	Combination
10	Pipe - (18)	2.48	24	Cir	43.911	357.60	357.82	0.501	359.65	359.65	0.01	359.67	2	Combination
11	Pipe - (17)	1.94	18	Cir	27.000	358.02	358.29	1.000	359.67	359.67	0.03	359.70	10	Combination
12	Pipe - (16)	1.25	15	Cir	116.822	358.79	362.29	2.996	359.70	362.73	n/a	362.73 j	11	Combination
13	Pipe - (15)	1.00	15	Cir	118.495	363.30	366.85	2.996	363.55	367.24	0.14	367.24	12	Combination
14	Pipe - (10)	3.27	15	Cir	26.980	360.45	360.58	0.482	361.24	361.37	0.12	361.50	6	Combination
15	Pipe - (181)	2.69	15	Cir	113.243	360.69	361.26	0.503	361.50	361.92	0.25	362.18	14	Manhole
16	Pipe - (180)	2.71	15	Cir	34.087	361.36	361.53	0.499	362.18	362.25	0.21	362.46	15	DropGrate
17	Pipe - (20)	0.28	15	Cir	27.000	358.97	359.11	0.518	360.64*	360.64*	0.00	360.64	5	Combination
18	Pipe - (21)	0.32	15	Cir	27.000	358.68	358.88	0.741	360.18*	360.18*	0.00	360.18	4	Combination
19	Pipe - (163)	4.10	18	Cir	75.640	358.53	358.91	0.502	359.99	360.07	0.12	360.19	3	OpenHeadwall
20	Pipe - (24)(0)	6.89	18	Cir	79.656	356.95	357.35	0.502	358.45	358.76	0.25	359.01	End	DropGrate

Project File: SCM#4.stm | Number of lines: 20 | Run Date: 3/28/2025

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Inlet Report

SCM #4 25-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	CB 401	0.28	0.00	0.28	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.52	0.00	0.00	0.0	Off
2	CB 402	0.16	0.00	0.16	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.07	1.23	0.00	0.00	0.0	Off
3	CB 407	0.12	0.00	0.12	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.07	1.10	0.00	0.00	0.0	2
4	CB 408	0.24	0.00	0.24	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.43	0.00	0.00	0.0	Off
5	CB 409	0.28	0.00	0.28	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.52	0.00	0.00	0.0	4
6	CB 410	0.24	0.00	0.24	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.43	0.00	0.00	0.0	5
7	CB 411	0.08	0.02	0.10	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.06	1.05	0.00	0.00	0.0	6
8	CB 412	0.68	0.32	0.97	0.02	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.15	3.27	0.04	0.61	0.0	7
9	CB 413	2.07	0.00	1.76	0.32	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.18	5.24	0.10	1.59	0.0	8
10	CB 403	0.60	0.00	0.60	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.12	2.05	0.00	0.00	0.0	2
11	CB 404	0.76	0.00	0.75	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.61	0.02	0.26	0.0	Off
12	CB 405	0.28	0.03	0.30	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.57	0.00	0.00	0.0	11
13	CB 406	1.00	0.00	0.97	0.03	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.15	3.28	0.04	0.62	0.0	12
14	CB 410A	0.64	0.00	0.64	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.12	2.20	0.00	0.00	0.0	17
15	JB 410B	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.060	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
16	YI 410C	2.71	0.00	2.71	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.19	21.37	0.19	21.37	0.0	Off
17	CB 409A	0.28	0.00	0.28	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.52	0.00	0.00	0.0	18
18	CB 408A	0.32	0.00	0.32	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.10	1.59	0.00	0.00	0.0	1
19	FES 407A	4.10	0.00	4.10	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.060	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
20	YI 421	6.89	0.00	6.89	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.35	37.68	0.35	37.68	0.0	Off

Project File: SCM#4.stm | Number of lines: 20 | Run Date: 3/28/2025

NOTES: Inlet N-Values = 0.016; Intensity = 62.86 / (Inlet time + 11.00) ^ 0.74; Return period = 25 Yrs. ; * Indicates Known Q added.All curb inlets are throat.

Hydraulic Grade Line Computations

SCM #4 25-YEAR REPORT

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	30	13.44	357.00	359.00	2.00	2.41	3.19	0.48	359.48	0.000	34.253	357.17	358.40	1.23**	2.41	5.58	0.48	358.89	0.000	0.000	n/a	0.95	0.46
2	24	13.22	357.27	358.64	1.37*	2.29	5.77	0.52	359.16	0.518	27.000	357.41	358.78	1.37	2.29	5.77	0.52	359.30	0.518	0.518	0.140	1.68	0.87
3	24	10.76	357.60	359.65	2.00	3.14	3.43	0.18	359.83	0.226	45.598	357.83	359.74	1.91	3.09	3.48	0.19	359.93	0.196	0.211	0.096	1.35	0.25
4	24	7.01	357.93	359.99	2.00	3.14	2.23	0.08	360.07	0.096	71.733	358.29	360.05	1.76	2.92	2.40	0.09	360.14	0.087	0.091	0.065	1.50	0.13
5	18	6.52	358.49	360.18	1.50	1.77	3.69	0.21	360.39	0.386	35.770	358.67	360.32	1.50	1.77	3.69	0.21	360.53	0.386	0.386	0.138	1.50	0.32
6	18	6.24	358.87	360.64	1.50	1.20	3.53	0.19	360.83	0.353	138.248	360.25	361.21 j	0.96**	1.20	5.19	0.42	361.63	0.636	0.495	n/a	1.50	n/a
7	15	2.79	360.58	361.21	0.63	0.63	4.46	0.27	361.48	0.000	88.557	364.31	364.98	0.67**	0.67	4.17	0.27	365.25	0.000	0.000	n/a	1.19	0.32
8	15	2.73	364.51	365.21	0.70*	0.70	3.88	0.23	365.44	0.497	48.252	364.75	365.45	0.70	0.70	3.88	0.23	365.68	0.499	0.498	0.240	1.27	0.30
9	15	2.07	364.95	365.75	0.79	0.82	2.52	0.10	365.84	0.191	26.989	365.09	365.77	0.68	0.68	3.06	0.15	365.91	0.316	0.254	0.069	1.00	0.15
10	24	2.48	357.60	359.65	2.00	3.14	0.79	0.01	359.66	0.012	43.911	357.82	359.65	1.83	3.02	0.82	0.01	359.66	0.010	0.011	0.005	1.21	0.01
11	18	1.94	358.02	359.67	1.50	1.77	1.10	0.02	359.69	0.034	27.000	358.29	359.67	1.38	1.70	1.14	0.02	359.69	0.030	0.032	0.009	1.50	0.03
12	15	1.25	358.79	359.70	0.91	0.39	1.31	0.16	359.87	0.000	116.822	362.29	362.73 j	0.44**	0.39	3.24	0.16	362.89	0.000	0.000	n/a	0.69	0.11
13	15	1.00	363.30	363.55	0.25*	0.18	5.62	0.14	363.69	0.000	118.495	366.85	367.24	0.39**	0.33	3.03	0.14	367.38	0.000	0.000	n/a	1.00	0.14
14	15	3.27	360.45	361.24	0.79*	0.82	3.98	0.25	361.49	0.482	26.980	360.58	361.37	0.79	0.82	3.99	0.25	361.62	0.482	0.482	0.130	0.50	0.12
15	15	2.69	360.69	361.50	0.81	0.65	3.22	0.16	361.66	0.312	113.248	361.26	361.92	0.66**	0.66	4.09	0.26	362.18	0.577	0.444	0.503	0.98	0.25
16	15	2.71	361.36	362.18	0.82	0.85	3.19	0.16	362.33	0.304	34.087	361.53	362.25	0.72	0.73	3.71	0.21	362.46	0.445	0.374	0.128	1.00	0.21
17	15	0.28	358.97	360.64	1.25	1.23	0.23	0.00	360.64	0.002	27.000	359.11	360.64	1.25	1.23	0.23	0.00	360.64	0.002	0.002	0.001	1.00	0.00
18	15	0.32	358.68	360.18	1.25	1.23	0.26	0.00	360.18	0.002	27.000	358.88	360.18	1.25	1.23	0.26	0.00	360.18	0.002	0.002	0.001	1.00	0.00
19	18	4.10	358.53	359.99	1.46	1.76	2.34	0.08	360.08	0.135	75.640	358.91	360.07	1.16	1.47	2.79	0.12	360.19	0.170	0.153	0.116	1.00	0.12
20	18	6.89	356.95	358.45	1.50*	1.77	3.90	0.24	358.69	0.431	79.656	357.35	358.76	1.41	1.72	4.00	0.25	359.01	0.372	0.401	0.320	1.00	0.25

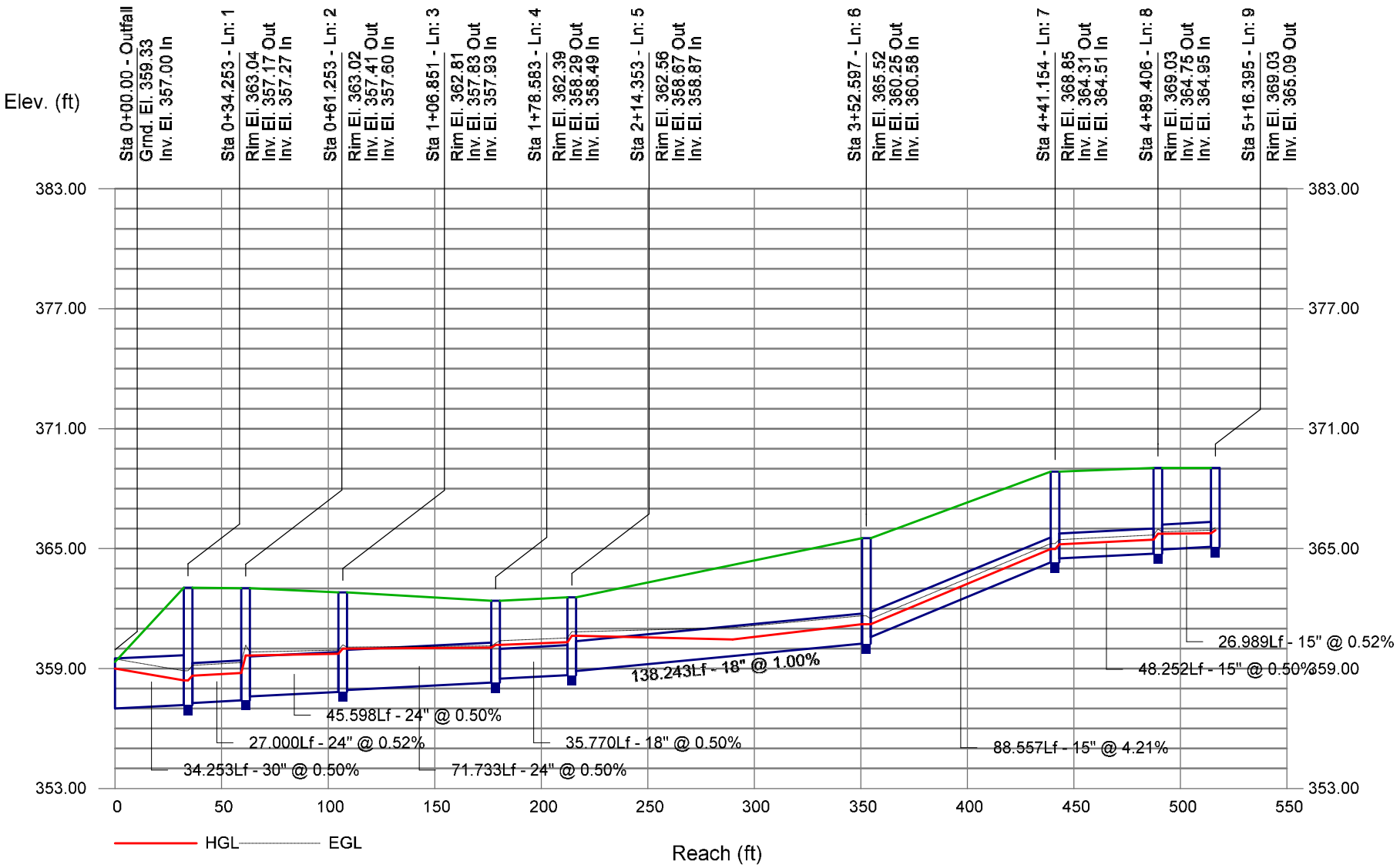
Project File: SCM#4.stm | Number of lines: 20 | Run Date: 3/28/2025

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

SCM #4 25-YEAR PROFILE 1-9

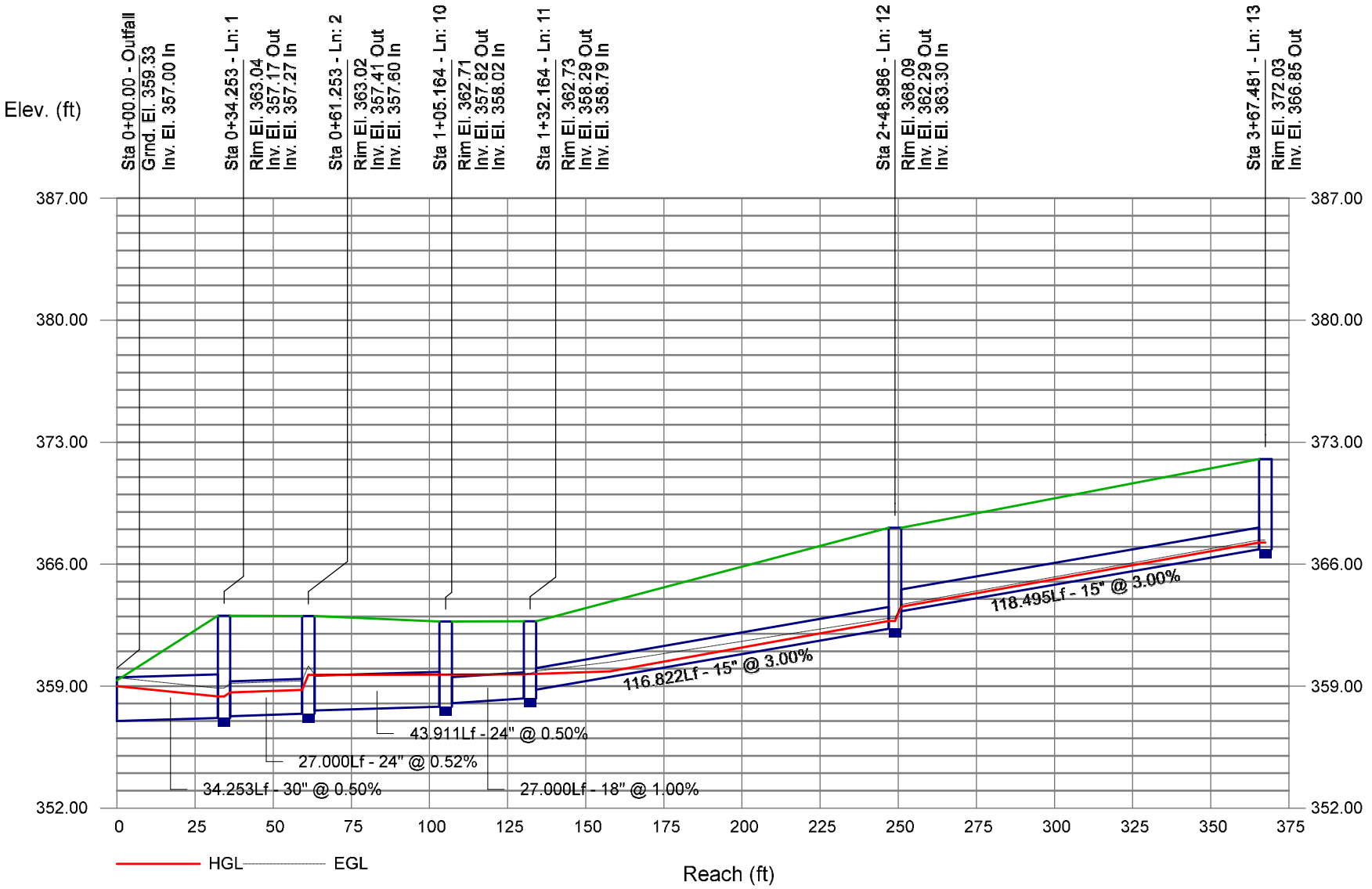
Proj. file: SCM#4.stm



Storm Sewer Profile

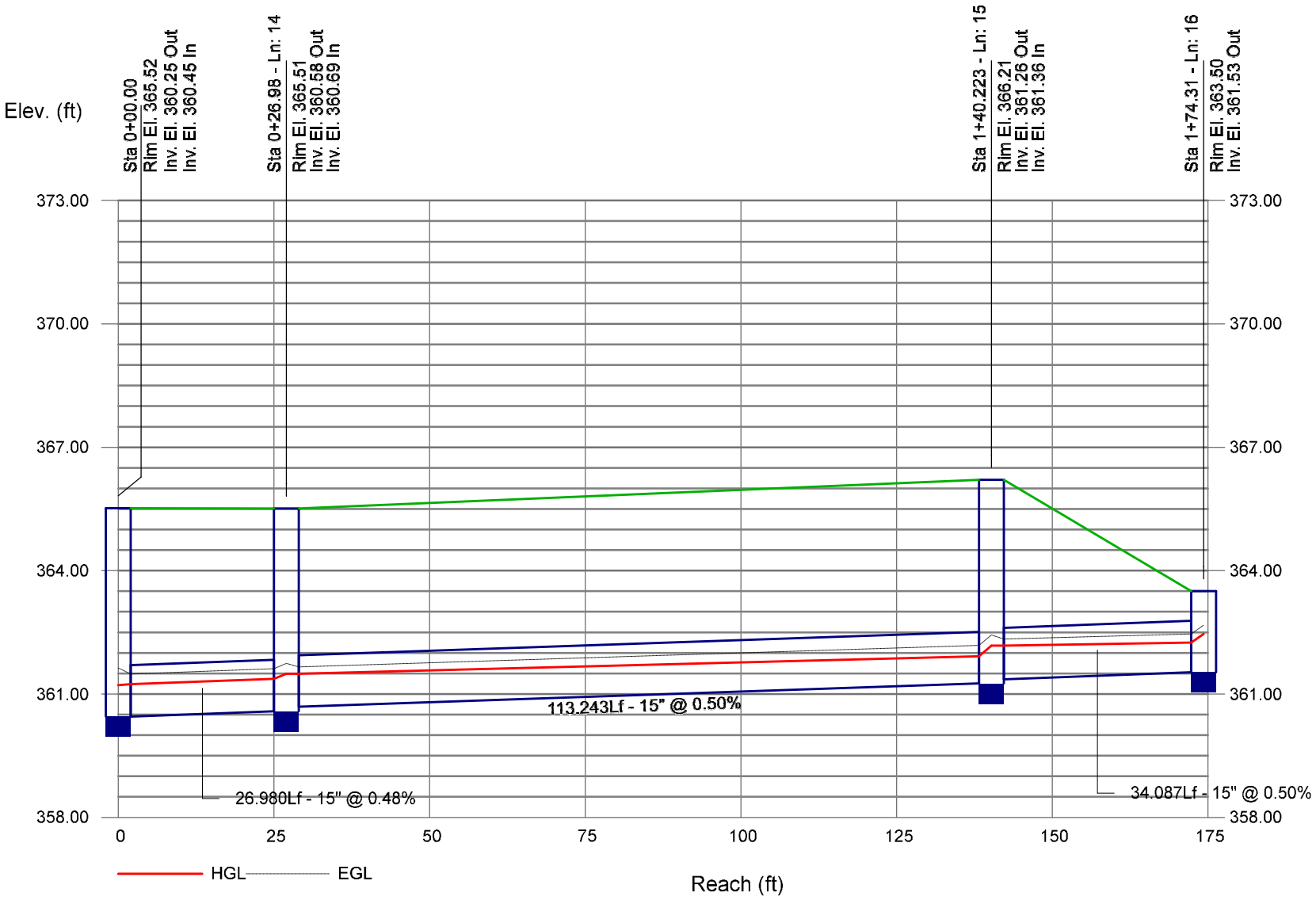
SCM #4 25-YEAR PROFILE 1-13

Proj. file: SCM#4.stm



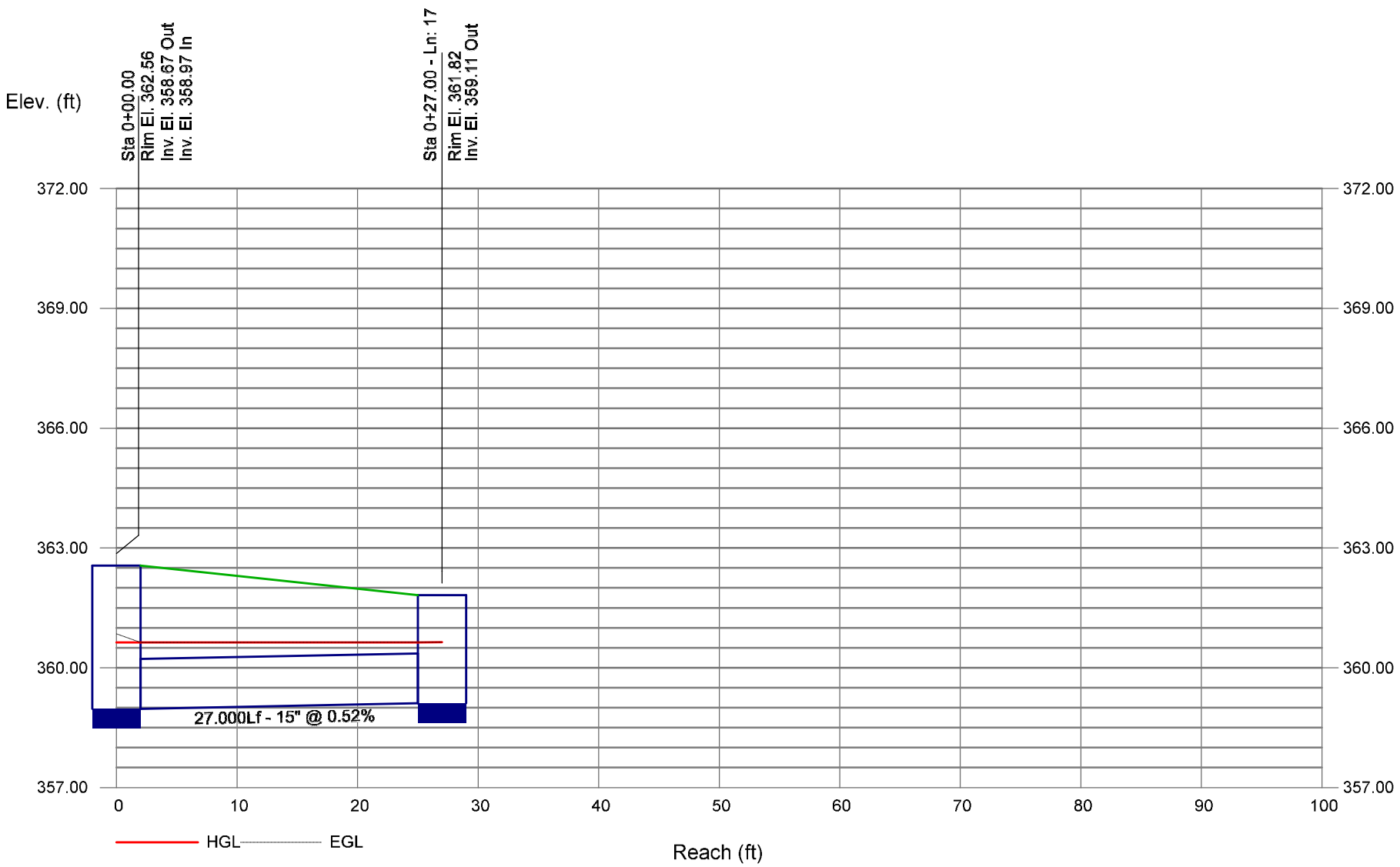
Storm Sewer Profile

SCM #4 25-YEAR PROFILE 14-16 Proj. file: SCM#4.stm



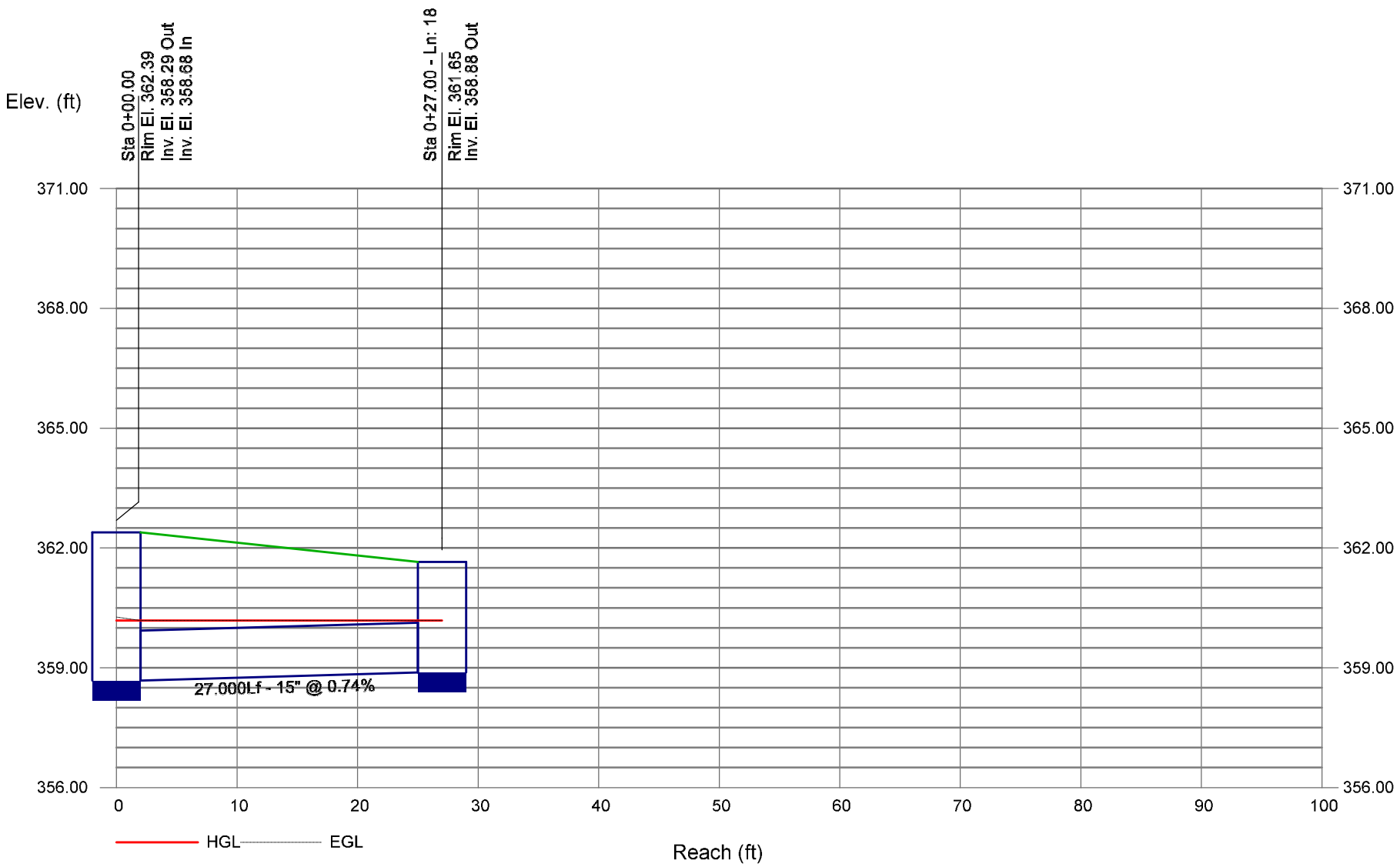
Storm Sewer Profile

SCM #4 25-YEAR PROFILE 17-17 Proj. file: SCM#4.stm



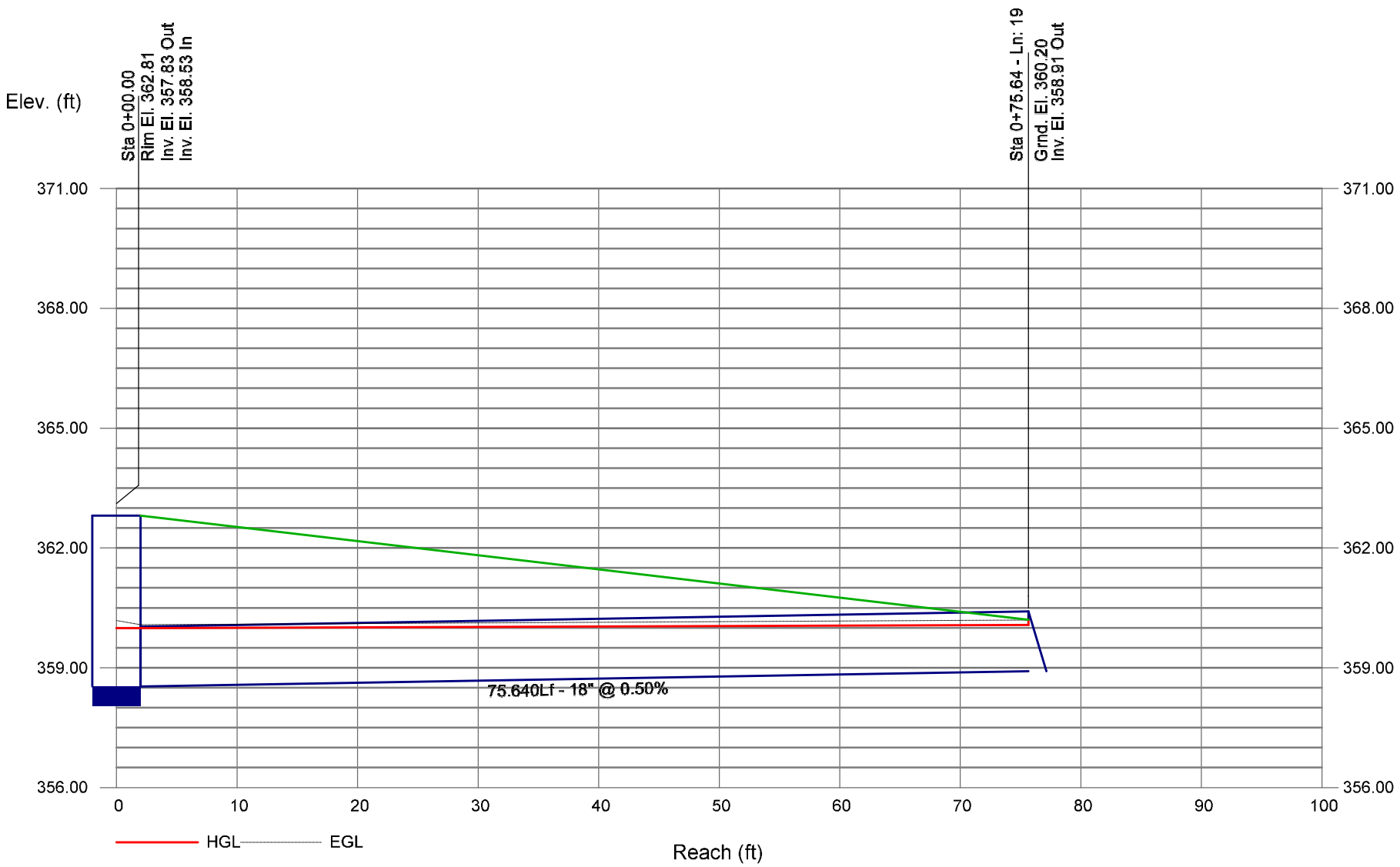
Storm Sewer Profile

SCM #4 25-YEAR PROFILE 18-18 Proj. file: SCM#4.stm



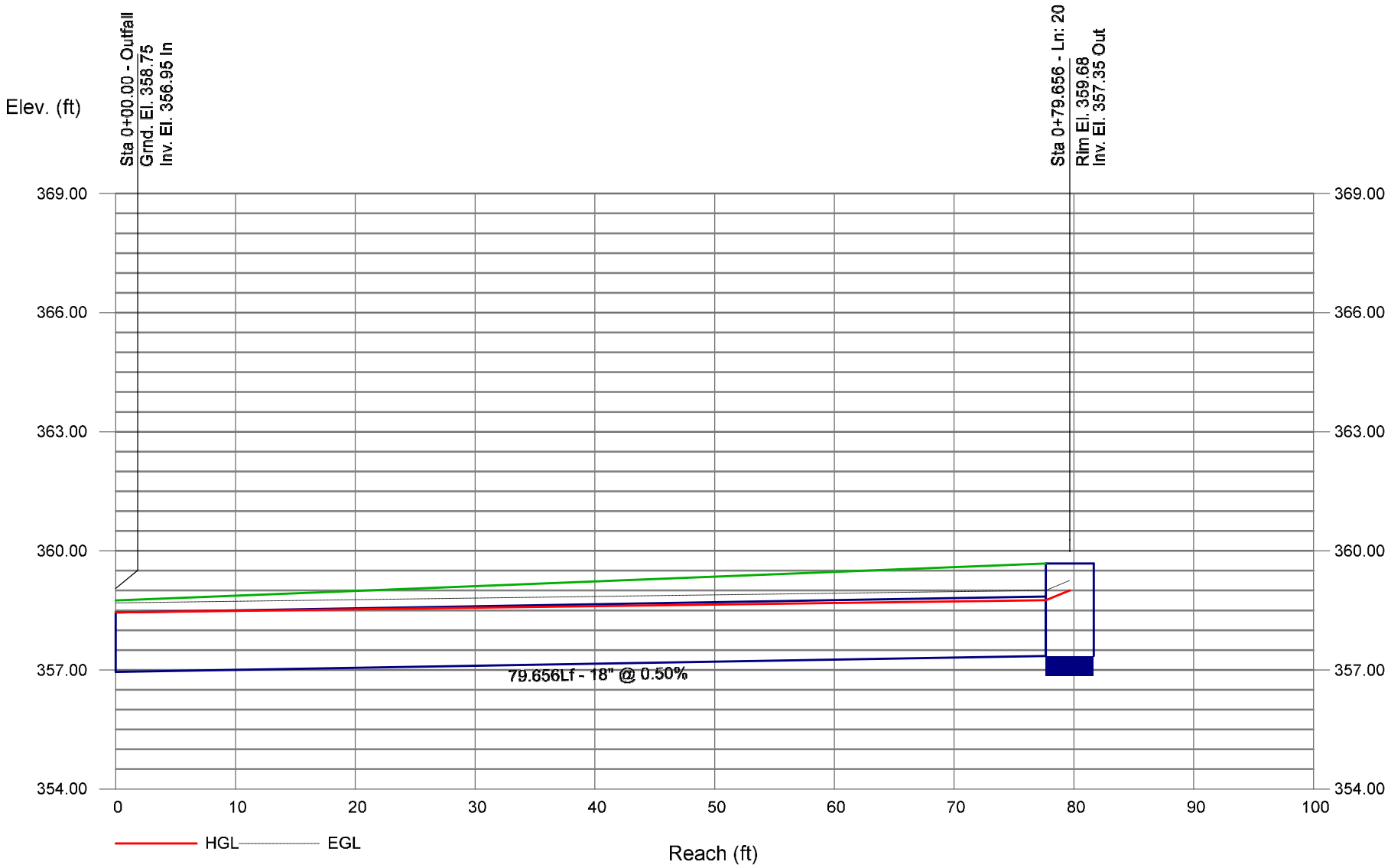
Storm Sewer Profile

SCM #4 25-YEAR PROFILE 19-19 Proj. file: SCM#4.stm

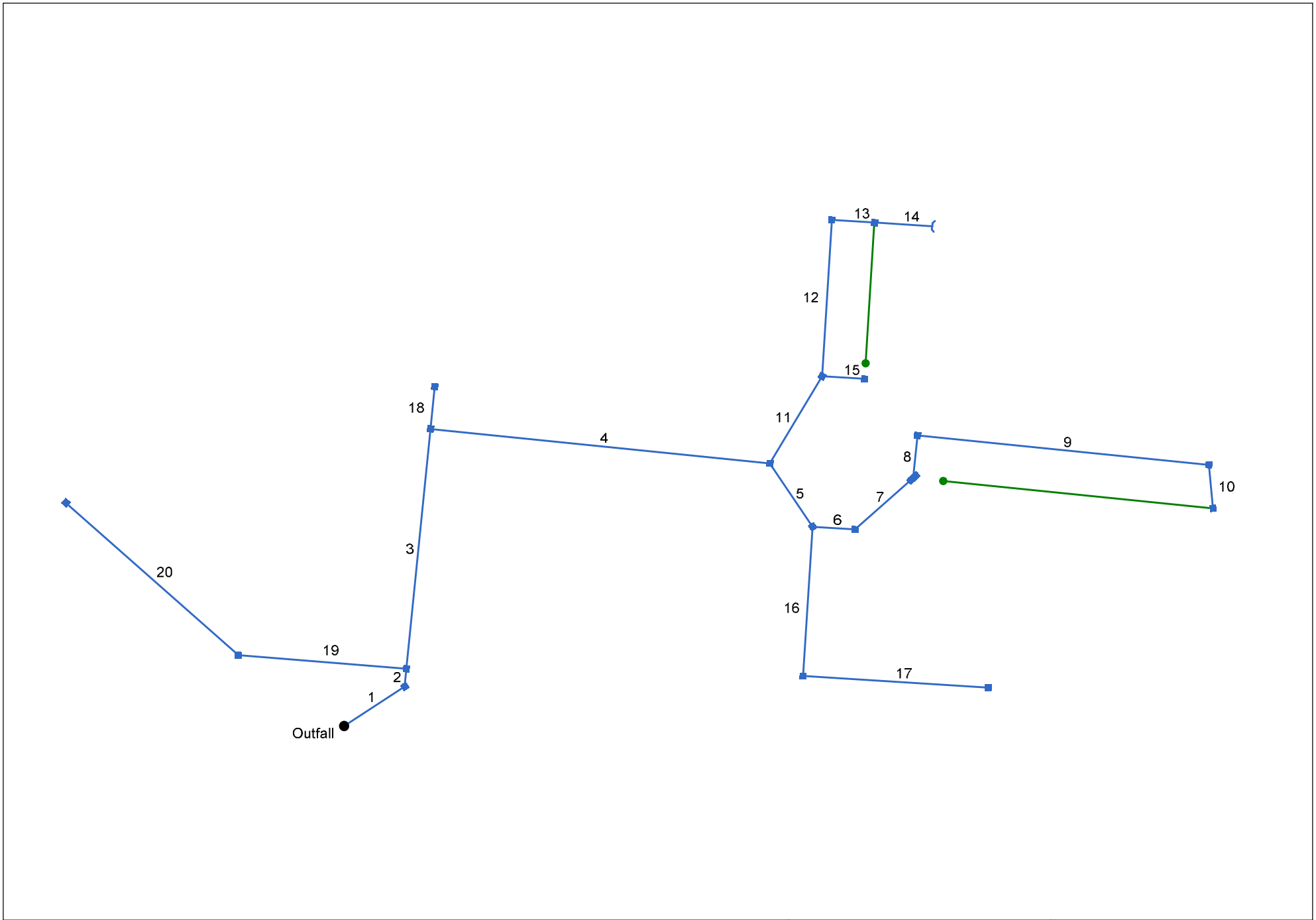


Storm Sewer Profile

SCM #4 25-YEAR PROFILE 20-20 Proj. file: SCM#4.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan SCM #5 25-YEAR REPORT



Project File: SCM#5.stm	Number of lines: 20	Date: 3/28/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	45.553	-33.168	DrGrt	0.00	0.74	0.60	10.0	346.92	0.50	347.15	30	Cir	0.013	1.22	350.87	Pipe - (39)
2	1	11.310	-51.139	DrGrt	0.00	0.13	0.60	10.0	347.35	0.53	347.41	30	Cir	0.013	1.50	351.17	Pipe - (38) (1)
3	2	152.248	0.000	Comb	0.00	0.38	0.60	10.0	347.61	2.00	350.66	30	Cir	0.013	1.50	357.04	Pipe - (38)
4	3	215.399	90.101	Comb	0.00	0.04	0.60	10.0	351.06	4.69	361.17	24	Cir	0.013	1.38	366.04	Pipe - (37)
5	4	48.260	50.241	Comb	0.00	0.25	0.60	10.0	361.37	0.99	361.85	18	Cir	0.013	1.49	367.77	Pipe - (36)
6	5	27.000	-52.412	Comb	0.00	0.38	0.60	10.0	362.35	0.52	362.49	18	Cir	0.013	1.13	367.48	Pipe - (35)
7	6	49.032	-45.200	Comb	0.00	0.17	0.60	10.0	362.69	0.51	362.94	15	Cir	0.013	1.08	367.00	Pipe - (34)
8	7	27.000	-42.628	Comb	0.00	0.24	0.60	10.0	363.14	0.52	363.28	15	Cir	0.013	1.50	367.00	Pipe - (33)
9	8	184.905	90.000	Comb	0.00	0.24	0.60	10.0	363.48	3.50	369.95	15	Cir	0.013	1.48	374.03	Pipe - (31)
10	9	27.526	78.789	Comb	0.00	0.11	0.60	10.0	370.15	1.02	370.43	15	Cir	0.013	1.00	374.10	Pipe - (30)
11	4	64.208	-64.883	Comb	0.00	0.06	0.60	10.0	362.27	1.32	363.12	15	Cir	0.013	1.36	368.61	Pipe - (44)
12	11	98.954	-27.289	Comb	0.00	0.12	0.60	10.0	363.62	3.00	366.59	15	Cir	0.013	1.50	371.62	Pipe - (150)
13	12	27.000	90.000	Comb	0.00	0.13	0.60	10.0	367.09	1.52	367.50	15	Cir	0.013	0.50	371.63	Pipe - (28)
14	13	36.500	0.000	Hdwl	0.00	1.42	0.60	10.0	367.70	1.62	368.29	15	Cir	0.013	1.00	369.81	Pipe - (176)
15	11	27.000	62.711	Comb	0.00	0.06	0.60	10.0	364.00	0.89	364.24	15	Cir	0.013	1.00	368.57	Pipe - (43)
16	5	94.508	37.588	Comb	0.00	0.14	0.60	10.0	362.69	0.50	363.16	15	Cir	0.013	1.50	368.66	Pipe - (42)
17	16	117.000	-90.000	DrGrt	0.00	0.75	0.60	10.0	363.36	0.50	363.95	15	Cir	0.013	1.00	367.63	Pipe - (168)
18	3	27.001	0.467	Comb	0.00	0.34	0.60	10.0	353.30	0.52	353.44	15	Cir	0.013	1.00	357.04	Pipe - (40)
19	2	106.328	-91.098	DrGrt	0.00	0.28	0.60	10.0	347.82	0.50	348.35	15	Cir	0.013	0.98	351.81	Pipe - (183)
20	19	145.494	36.855	DrGrt	0.00	0.46	0.60	10.0	348.45	0.50	349.18	15	Cir	0.013	1.00	353.72	Pipe - (182)

Project File: SCM#5.stm | Number of lines: 20 | Date: 3/28/2025

Structure Report

SCM #5 25-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	YI 501	DropGrate	350.87	Rect	4.00	4.00	30	Cir	347.15	30	Cir	347.35
2	YI 501A	DropGrate	351.17	Rect	4.00	4.00	30	Cir	347.41	30 15	Cir Cir	347.61 347.82
3	CB 502	Combination	357.04	Rect	4.00	4.00	30	Cir	350.66	24 15	Cir Cir	351.06 353.30
4	CB 504	Combination	366.04	Rect	4.00	4.00	24	Cir	361.17	18 15	Cir Cir	361.37 362.27
5	CB 505	Combination	367.77	Rect	4.00	4.00	18	Cir	361.85	18 15	Cir Cir	362.35 362.69
6	CB 506	Combination	367.48	Rect	4.00	4.00	18	Cir	362.49	15	Cir	362.69
7	CB 507	Combination	367.00	Rect	8.00	4.00	15	Cir	362.94	15	Cir	363.14
8	CB 508	Combination	367.00	Rect	4.00	4.00	15	Cir	363.28	15	Cir	363.48
9	CB 514	Combination	374.03	Rect	4.00	4.00	15	Cir	369.95	15	Cir	370.15
10	CB 515	Combination	374.10	Rect	4.00	4.00	15	Cir	370.43			
11	CB 511	Combination	368.61	Rect	4.00	4.00	15	Cir	363.12	15 15	Cir Cir	363.62 364.00
12	CB 517	Combination	371.62	Rect	4.00	4.00	15	Cir	366.59	15	Cir	367.09
13	CB 516	Combination	371.63	Rect	4.00	4.00	15	Cir	367.50	15	Cir	367.70
14	FES 516A	OpenHeadwall	369.81	n/a	n/a	n/a	15	Cir	368.29			
15	CB 510	Combination	368.57	Rect	4.00	4.00	15	Cir	364.24			
16	CB 513	Combination	368.66	Rect	4.00	4.00	15	Cir	363.16	15	Cir	363.36
17	YI 513A	DropGrate	367.63	Rect	4.00	4.00	15	Cir	363.95			
18	CB 503	Combination	357.04	Rect	4.00	4.00	15	Cir	353.44			
19	YI 501B	DropGrate	351.81	Rect	4.00	4.00	15	Cir	348.35	15	Cir	348.45
20	YI 501C	DropGrate	353.72	Rect	4.00	4.00	15	Cir	349.18			

Project File: SCM#5.stm | Number of Structures: 20 | Run Date: 3/28/2025

Storm Sewer Summary Report

SCM #5 25-YEAR REPORT

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (39)	23.30	30	Cir	45.553	346.92	347.15	0.505	348.95	349.05	0.65	349.69	End	DropGrate
2	Pipe - (38) (1)	20.65	30	Cir	11.310	347.35	347.41	0.530	349.69	348.95	0.98	348.95	1	DropGrate
3	Pipe - (38)	17.71	30	Cir	152.248	347.61	350.66	2.003	348.95	352.08	n/a	352.08	2	Combination
4	Pipe - (37)	15.29	24	Cir	215.399	351.06	361.17	4.694	352.08	362.58	0.90	362.58	3	Combination
5	Pipe - (36)	8.52	18	Cir	48.260	361.37	361.85	0.995	362.58	362.98	n/a	362.98 j	4	Combination
6	Pipe - (35)	4.27	18	Cir	27.000	362.35	362.49	0.518	363.16	363.30	0.34	363.64	5	Combination
7	Pipe - (34)	2.87	15	Cir	49.032	362.69	362.94	0.510	363.64	363.72	0.21	363.93	6	Combination
8	Pipe - (33)	2.24	15	Cir	27.000	363.14	363.28	0.518	363.93	363.96	0.25	364.21	7	Combination
9	Pipe - (31)	1.38	15	Cir	184.905	363.48	369.95	3.499	364.21	370.41	n/a	370.41 j	8	Combination
10	Pipe - (30)	0.44	15	Cir	27.526	370.15	370.43	1.017	370.41	370.69	n/a	370.69 j	9	Combination
11	Pipe - (44)	7.04	15	Cir	64.208	362.27	363.12	1.324	363.24	364.18	0.85	364.18	4	Combination
12	Pipe - (150)	6.61	15	Cir	98.954	363.62	366.59	3.001	364.31	367.62	n/a	367.62	11	Combination
13	Pipe - (28)	6.15	15	Cir	27.000	367.09	367.50	1.519	367.92	368.50	0.27	368.50	12	Combination
14	Pipe - (176)	5.66	15	Cir	36.500	367.70	368.29	1.616	368.50	369.25	n/a	369.25	13	OpenHeadwall
15	Pipe - (43)	0.24	15	Cir	27.000	364.00	364.24	0.889	364.18	364.43	0.07	364.43	11	Combination
16	Pipe - (42)	3.48	15	Cir	94.508	362.69	363.16	0.497	363.51	363.98	0.39	364.37	5	Combination
17	Pipe - (168)	2.99	15	Cir	117.000	363.36	363.95	0.504	364.37	364.68	0.25	364.93	16	DropGrate
18	Pipe - (40)	1.35	15	Cir	27.001	353.30	353.44	0.519	353.76	353.90	0.17	354.07	3	Combination
19	Pipe - (183)	2.86	15	Cir	106.328	347.82	348.35	0.498	348.95	349.14	0.19	349.33	2	DropGrate
20	Pipe - (182)	1.83	15	Cir	145.494	348.45	349.18	0.502	349.33	349.72	n/a	349.72 j	19	DropGrate

Project File: SCM#5.stm | Number of lines: 20 | Run Date: 3/28/2025

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

Inlet Report

SCM #5 25-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	YI 501	2.95	0.00	2.95	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.20	22.46	0.20	22.46	0.0	Off
2	YI 501A	0.52	0.16	0.68	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.07	10.00	0.07	10.00	0.0	1
3	CB 502	1.51	0.09	1.45	0.16	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.17	4.53	0.07	1.23	0.0	2
4	CB 504	0.16	0.00	0.16	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.07	1.23	0.00	0.00	0.0	3
5	CB 505	1.00	0.13	1.08	0.05	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.15	3.60	0.05	0.77	0.0	Off
6	CB 506	1.51	0.00	1.38	0.13	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.17	4.37	0.07	1.15	0.0	5
7	CB 507	0.68	0.02	0.70	0.00	Comb	6.0	1.50	0.00	6.00	2.50	0.054	2.00	0.060	0.020	0.013	0.13	2.42	0.01	0.12	0.0	6
8	CB 508	0.96	0.02	0.95	0.02	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.14	3.23	0.04	0.60	0.0	7
9	CB 514	0.96	0.00	0.94	0.02	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.14	3.18	0.03	0.57	0.0	8
10	CB 515	0.44	0.00	0.44	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.11	1.80	0.00	0.00	0.0	7
11	CB 511	0.24	0.00	0.24	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.43	0.00	0.00	0.0	4
12	CB 517	0.48	0.00	0.48	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.11	1.86	0.00	0.00	0.0	11
13	CB 516	0.52	0.00	0.52	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.11	1.91	0.00	0.00	0.0	15
14	FES 516A	5.66	0.00	5.66	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.060	0.020	0.013	0.00	0.00	0.00	0.00	0.0	13
15	CB 510	0.24	0.00	0.24	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.09	1.43	0.00	0.00	0.0	Off
16	CB 513	0.56	0.00	0.56	0.00	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.12	1.97	0.00	0.00	0.0	5
17	YI 513A	2.99	0.00	2.99	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.20	22.64	0.20	22.64	0.0	Off
18	CB 503	1.35	0.00	1.26	0.09	Comb	6.0	1.50	0.00	3.00	2.50	0.054	2.00	0.060	0.020	0.013	0.16	4.07	0.06	1.01	0.0	3
19	YI 501B	1.12	0.00	1.12	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.10	12.94	0.10	12.94	0.0	Off
20	YI 501C	1.83	0.00	1.83	0.00	DrGrt	0.0	0.00	7.50	3.00	2.50	Sag	2.00	0.020	0.020	0.013	0.15	17.04	0.15	17.04	0.0	Off

Project File: SCM#5.stm | Number of lines: 20 | Run Date: 3/28/2025

NOTES: Inlet N-Values = 0.016; Intensity = 62.86 / (Inlet time + 11.00) ^ 0.74; Return period = 25 Yrs. ; * Indicates Known Q added.All curb inlets are throat.

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	30	23.30	346.92	348.95	2.03	4.27	5.46	0.46	349.41	0.328	45.553	347.15	349.05	1.90	4.00	5.83	0.53	349.58	0.378	0.353	0.161	1.22	0.65
2	30	20.65	347.35	349.69	2.34	3.18	4.32	0.66	350.35	0.000	11.310	347.41	348.95	1.54**	3.18	6.50	0.66	349.61	0.000	0.000	n/a	1.50	0.98
3	30	17.71	347.61	348.95	1.34	2.68	6.60	0.59	349.54	0.000	152.248	350.66	352.08	1.42**	2.89	6.14	0.59	352.67	0.000	0.000	n/a	1.50	n/a
4	24	15.29	351.06	352.08	1.02	1.62	9.45	0.65	352.73	0.000	215.399	361.17	362.58	1.41**	2.36	6.47	0.65	363.23	0.000	0.000	n/a	1.38	0.90
5	18	8.52	361.37	362.58	1.21	1.43	5.59	0.55	363.13	0.000	48.260	361.85	362.98 j	1.13**	1.43	5.97	0.55	363.53	0.000	0.000	n/a	1.49	0.83
6	18	4.27	362.35	363.16	0.81*	0.97	4.41	0.30	363.46	0.518	27.000	362.49	363.30	0.81	0.97	4.41	0.30	363.60	0.520	0.519	0.140	1.13	0.34
7	15	2.87	362.69	363.64	0.95	1.00	2.87	0.13	363.77	0.232	49.032	362.94	363.72	0.78	0.81	3.56	0.20	363.92	0.387	0.309	0.152	1.08	0.21
8	15	2.24	363.14	363.93	0.79	0.82	2.72	0.12	364.05	0.225	27.000	363.28	363.96	0.68	0.68	3.27	0.17	364.13	0.361	0.293	0.079	1.50	0.25
9	15	1.38	363.48	364.21	0.73	0.42	1.85	0.17	364.38	0.000	184.905	369.95	370.41 j	0.46**	0.42	3.33	0.17	370.59	0.000	0.000	n/a	1.48	0.26
10	15	0.44	370.15	370.41	0.26	0.18	2.31	0.09	370.50	0.000	27.526	370.43	370.69 j	0.26**	0.18	2.41	0.09	370.78	0.000	0.000	n/a	1.00	n/a
11	15	7.04	362.27	363.24	0.97*	1.02	6.89	0.62	363.86	0.000	64.208	363.12	364.18	1.06**	1.11	6.33	0.62	364.81	0.000	0.000	n/a	1.36	0.85
12	15	6.61	363.62	364.31	0.69*	0.70	9.49	0.58	364.89	0.000	98.954	366.59	367.62	1.03**	1.09	6.09	0.58	368.20	0.000	0.000	n/a	1.50	n/a
13	15	6.15	367.09	367.92	0.83*	0.86	7.16	0.53	368.45	0.000	27.000	367.50	368.50	1.00**	1.05	5.84	0.53	369.03	0.000	0.000	n/a	0.50	0.27
14	15	5.66	367.70	368.50	0.80	0.83	6.81	0.48	368.98	0.000	36.500	368.29	369.25	0.96**	1.01	5.58	0.48	369.74	0.000	0.000	n/a	1.00	n/a
15	15	0.24	364.00	364.18	0.18	0.11	2.17	0.07	364.25	0.000	27.000	364.24	364.43	0.19**	0.12	2.05	0.07	364.49	0.000	0.000	n/a	1.00	0.07
16	15	3.48	362.69	363.51	0.82*	0.85	4.08	0.26	363.77	0.497	94.508	363.16	363.98	0.82	0.85	4.08	0.26	364.24	0.497	0.497	0.470	1.50	0.39
17	15	2.99	363.36	364.37	1.01	1.06	2.82	0.12	364.49	0.221	117.000	363.95	364.68	0.73	0.74	4.04	0.25	364.93	0.526	0.373	0.437	1.00	0.25
18	15	1.35	353.30	353.76	0.46*	0.41	3.28	0.17	353.93	0.518	27.001	353.44	353.90	0.46**	0.41	3.28	0.17	354.07	0.517	0.518	0.140	1.00	0.17
19	15	2.86	347.82	348.95	1.13	1.17	2.45	0.09	349.05	0.172	106.328	348.35	349.14	0.79	0.82	3.49	0.19	349.33	0.369	0.270	0.287	0.98	0.19
20	15	1.83	348.45	349.33	0.88	0.50	1.99	0.06	349.39	0.114	145.494	349.18	349.72 j	0.54**	0.50	3.63	0.20	349.92	0.545	0.330	n/a	1.00	0.20

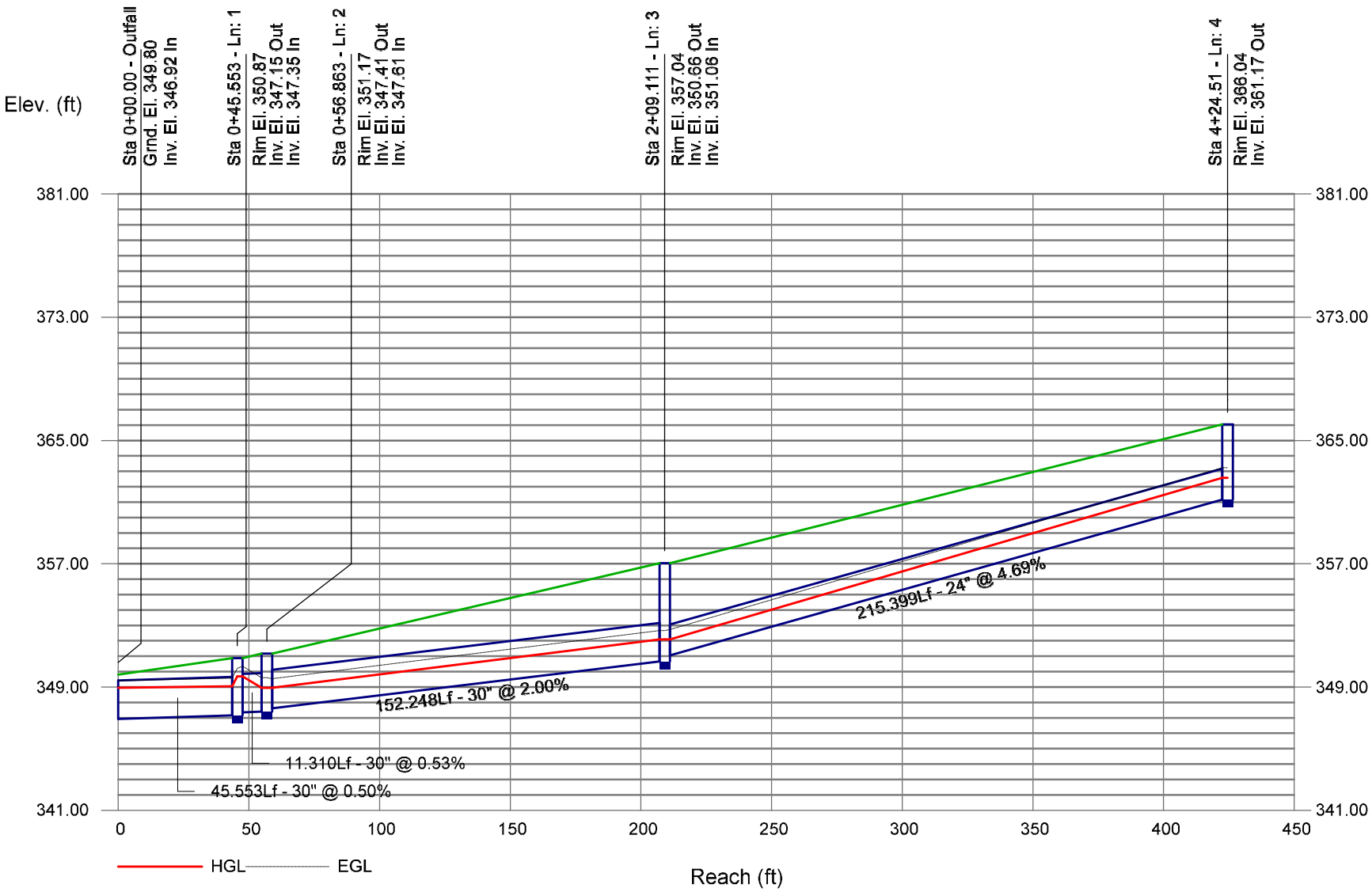
Project File: SCM#5.stm | Number of lines: 20 | Run Date: 3/28/2025

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

SCM #5 25-YEAR PROFILE 1-4

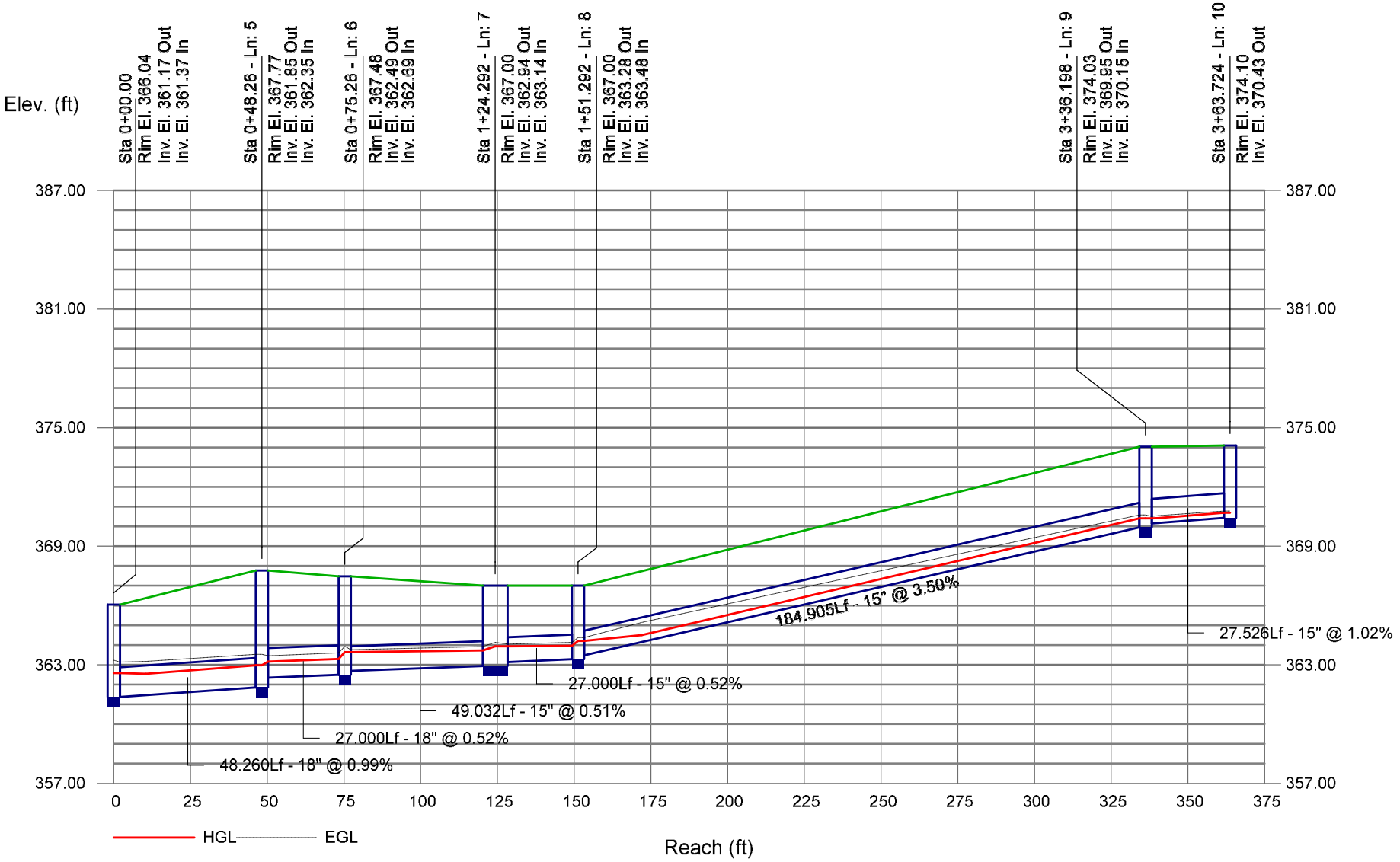
Proj. file: SCM#5.stm



Storm Sewer Profile

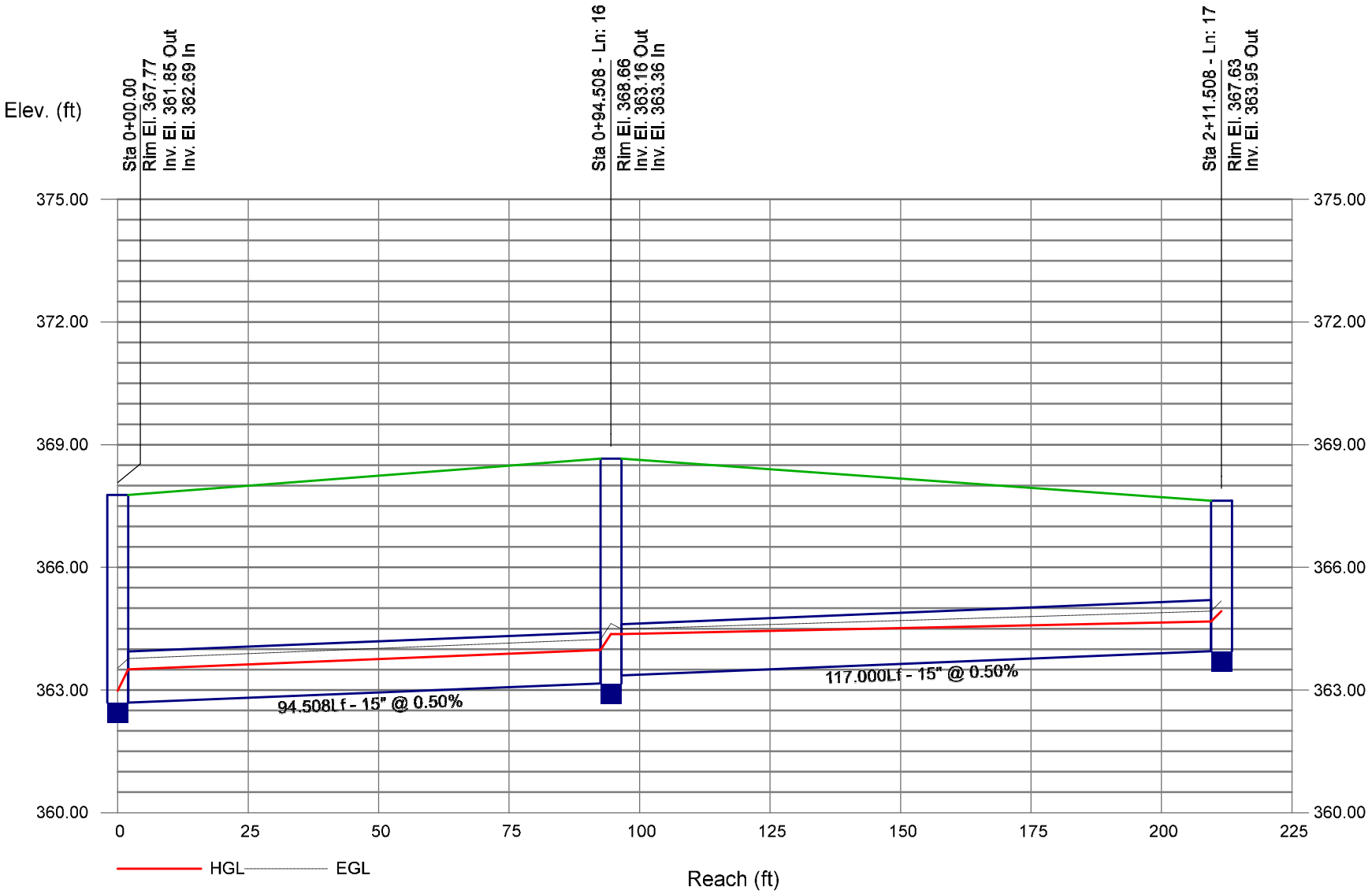
SCM #5 25-YEAR PROFILE 5-10

Proj. file: SCM#5.stm



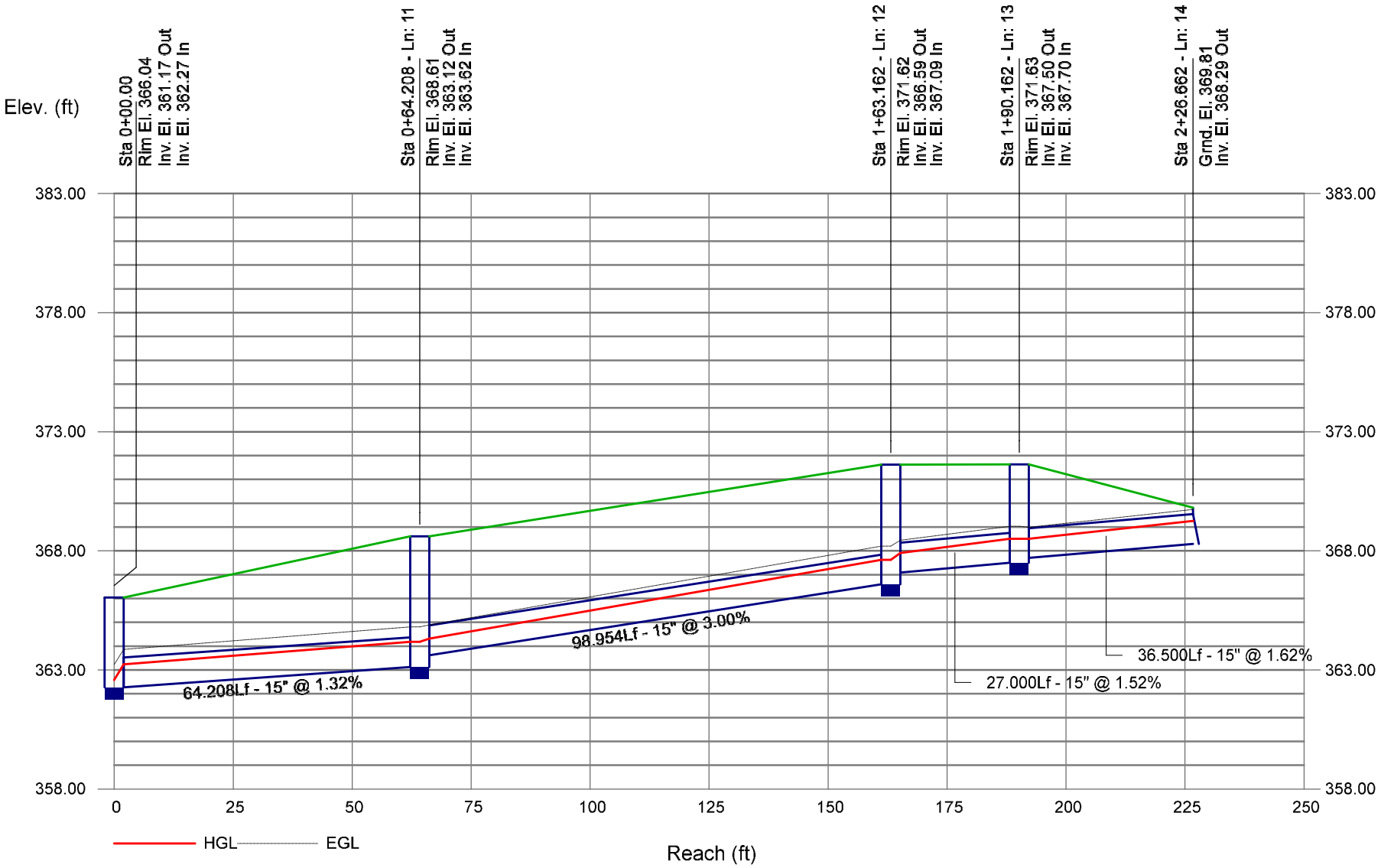
Storm Sewer Profile

SCM #5 25-YEAR PROFILE 16-17 Proj. file: SCM#5.stm



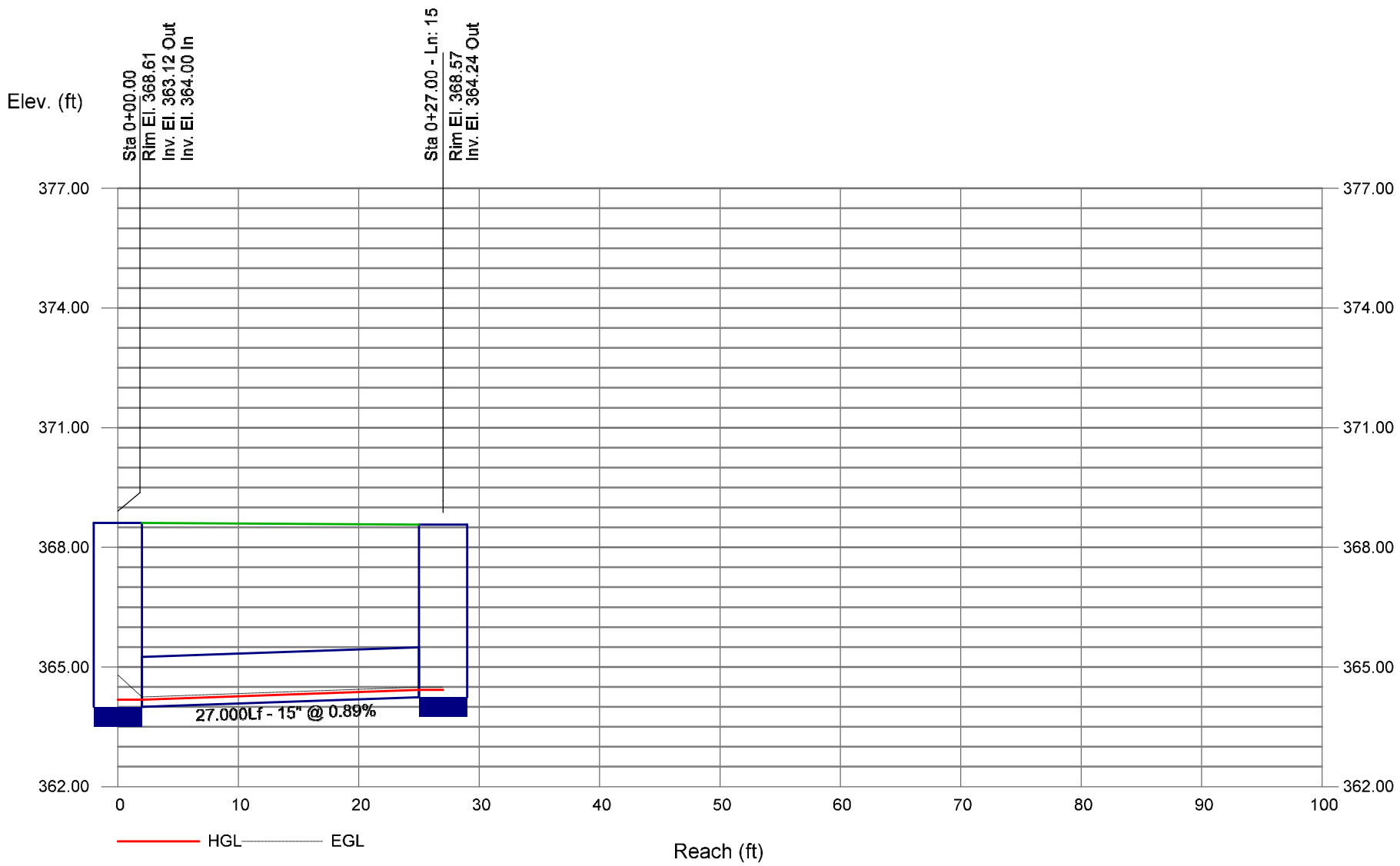
Storm Sewer Profile

SCM #5 25-YEAR PROFILE 11-14 Proj. file: SCM#5.stm



Storm Sewer Profile

SCM #5 25-YEAR PROFILE 15-15 Proj. file: SCM#5.stm



Storm Sewer Profile

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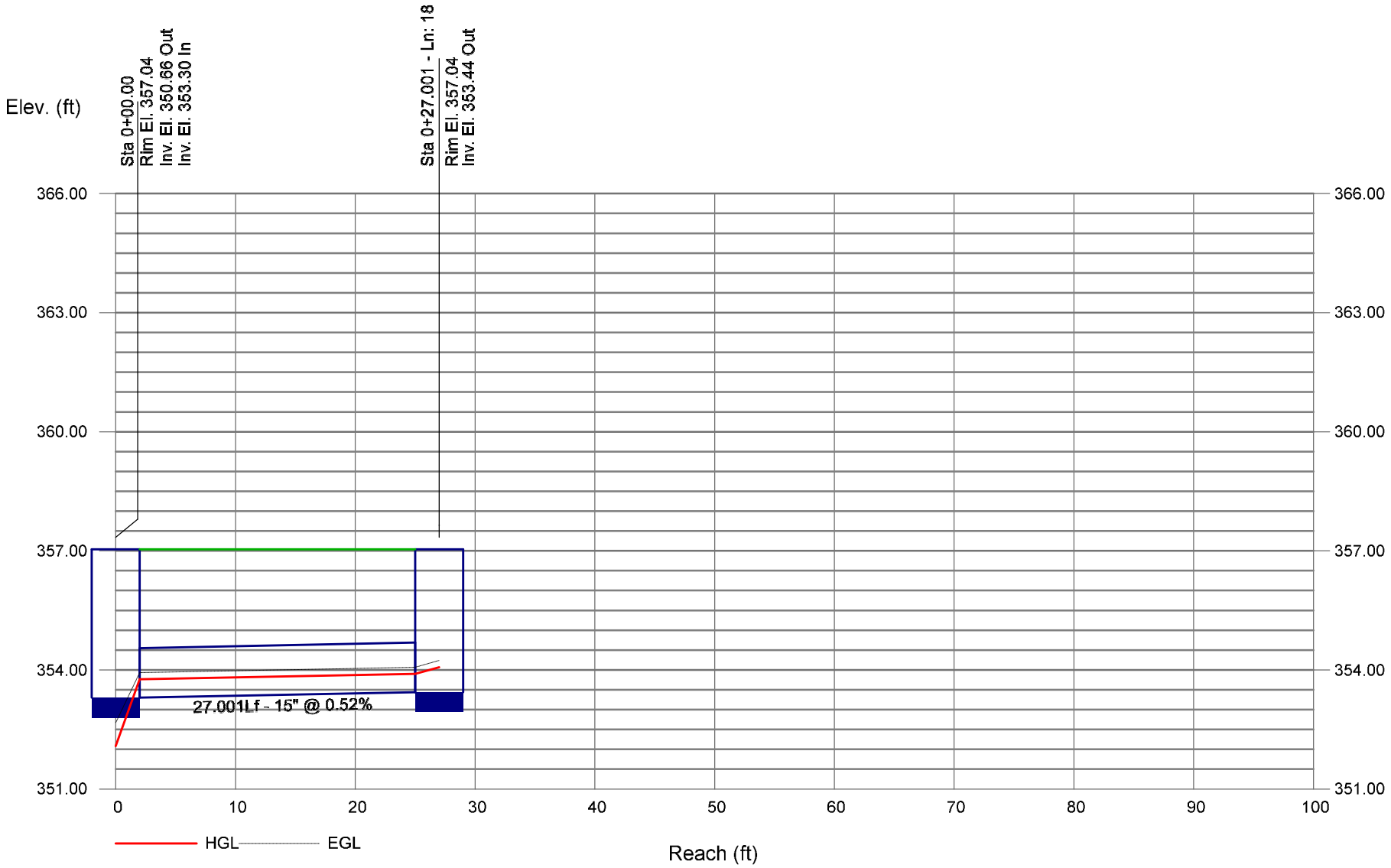
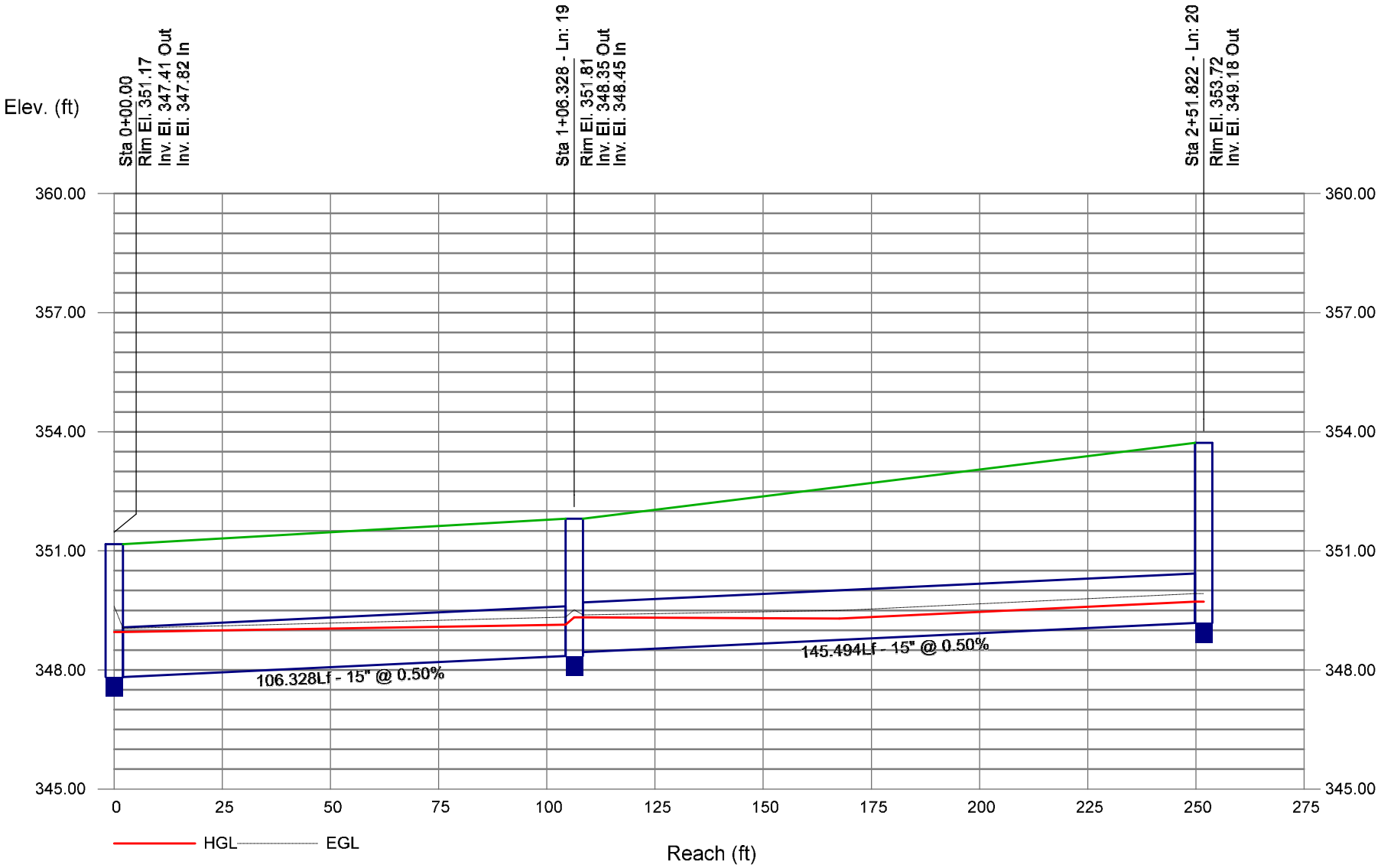
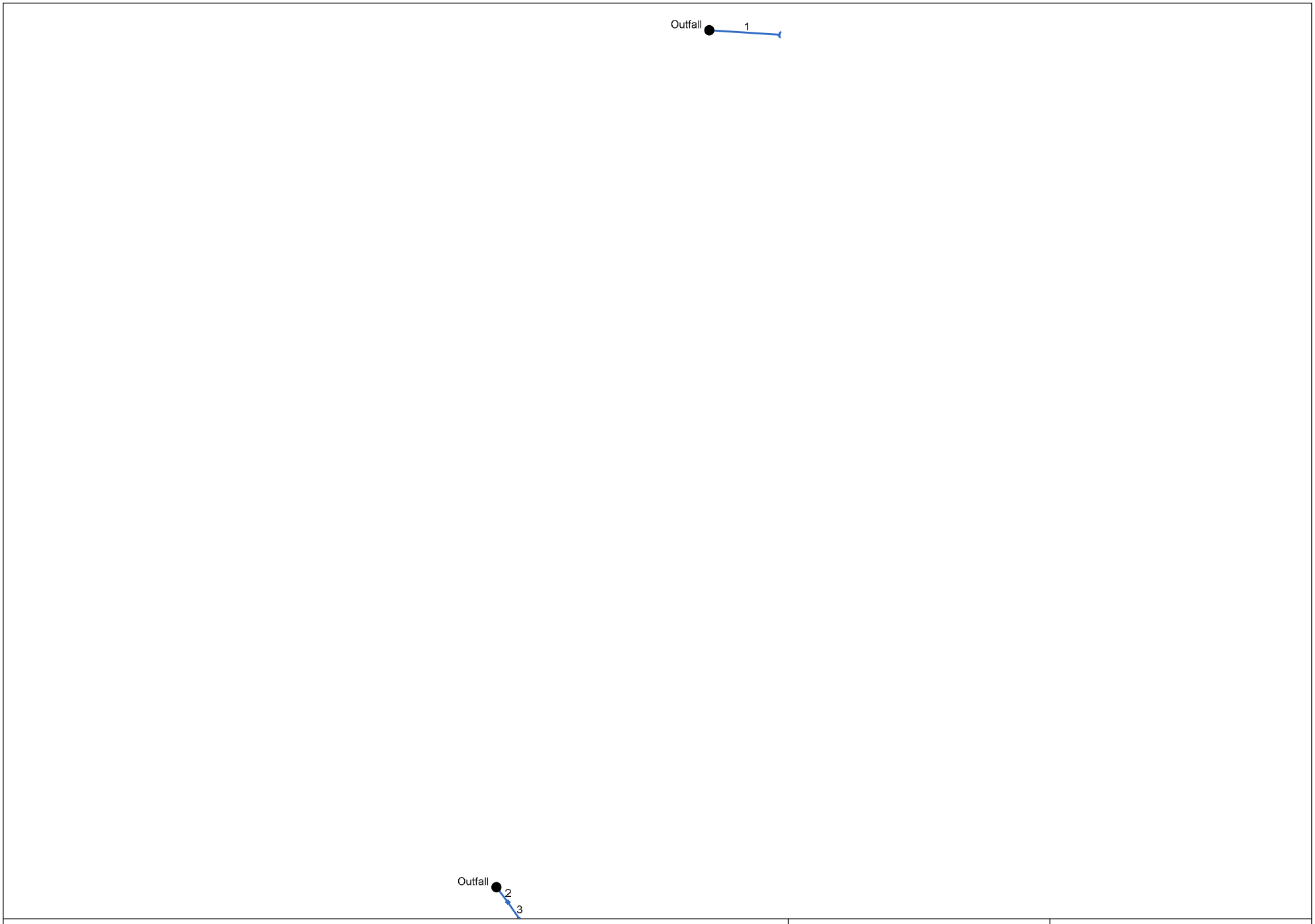


Storm Sewer Profile

SCM #5 25-YEAR PROFILE 19-20 Proj. file: SCM#5.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan BYPASS 25-YEAR REPORT



Project File: Bypass.stm	Number of lines: 3	Date: 3/28/2025

Storm Sewer Inventory Report

BYPASS 25-YEAR REPORT

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	93.420	3.619	Hdwl	0.00	1.58	0.60	10.0	364.86	5.50	370.00	18	Cir	0.013	1.00	371.79	Pipe - (27)
2	End	24.870	52.575	Comb	0.00	0.08	0.60	10.0	356.16	0.48	356.28	15	Cir	0.013	0.50	360.04	Pipe - (26)
3	2	27.000	3.159	Comb	0.00	0.09	0.60	10.0	356.41	0.52	356.55	15	Cir	0.013	1.00	360.04	Pipe - (25)

Project File: Bypass.stm

Number of lines: 3

Date: 3/28/2025

Structure Report

BYPASS 25-YEAR REPORT

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	FES INLET 601	OpenHeadwall	371.79	n/a	n/a	n/a	18	Cir	370.00			
2	CB 421	Combination	360.04	Rect	4.00	4.00	15	Cir	356.28	15	Cir	356.41
3	CB 422	Combination	360.04	Rect	4.00	4.00	15	Cir	356.55			

Project File: Bypass.stm | Number of Structures: 3 | Run Date: 3/28/2025

Storm Sewer Summary Report

BYPASS 25-YEAR REPORT

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (27)	6.28	18	Cir	93.420	364.86	370.00	5.502	365.78	370.97	0.42	370.97	End	OpenHeadwall
2	Pipe - (26)	0.67	15	Cir	24.870	356.16	356.28	0.482	356.48	356.61	0.05	356.66	End	Combination
3	Pipe - (25)	0.36	15	Cir	27.000	356.41	356.55	0.518	356.66	356.78	0.08	356.86	2	Combination

Project File: Bypass.stm | Number of lines: 3 | Run Date: 3/28/2025

NOTES: Return period = 25 Yrs.

Inlet Report

BYPASS 25-YEAR REPORT

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	FES INLET 601	6.28	0.00	6.28	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	CB 421	0.32	0.00	0.32	0.00	Comb	6.0	3.00	7.50	3.00	2.50	Sag	2.00	0.060	0.020	0.013	0.01	1.20	0.17	1.20	2.0	Off
3	CB 422	0.36	0.00	0.36	0.00	Comb	6.0	3.00	7.50	3.00	2.50	Sag	2.00	0.060	0.020	0.013	0.02	1.28	0.18	1.28	2.0	Off

Project File: Bypass.stm

Number of lines: 3

Run Date: 3/28/2025

NOTES: Inlet N-Values = 0.016; Intensity = 62.86 / (Inlet time + 11.00) ^ 0.74; Return period = 25 Yrs. ; * Indicates Known Q added.All curb inlets are throat.

Hydraulic Grade Line Computations

BYPASS 25-YEAR REPORT

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	6.28	364.86	365.78	0.92	1.14	5.53	0.42	366.20	0.000	93.420	370.00	370.97	0.97**	1.21	5.21	0.42	371.39	0.000	0.000	n/a	1.00	0.42
2	15	0.67	356.16	356.48	0.32*	0.25	2.71	0.11	356.59	0.526	24.870	356.28	356.61	0.33	0.26	2.55	0.10	356.72	0.445	0.485	0.121	0.50	0.05
3	15	0.36	356.41	356.66	0.25	0.16	2.00	0.06	356.73	0.374	27.000	356.55	356.78	0.23**	0.16	2.25	0.08	356.86	0.521	0.448	0.121	1.00	0.08

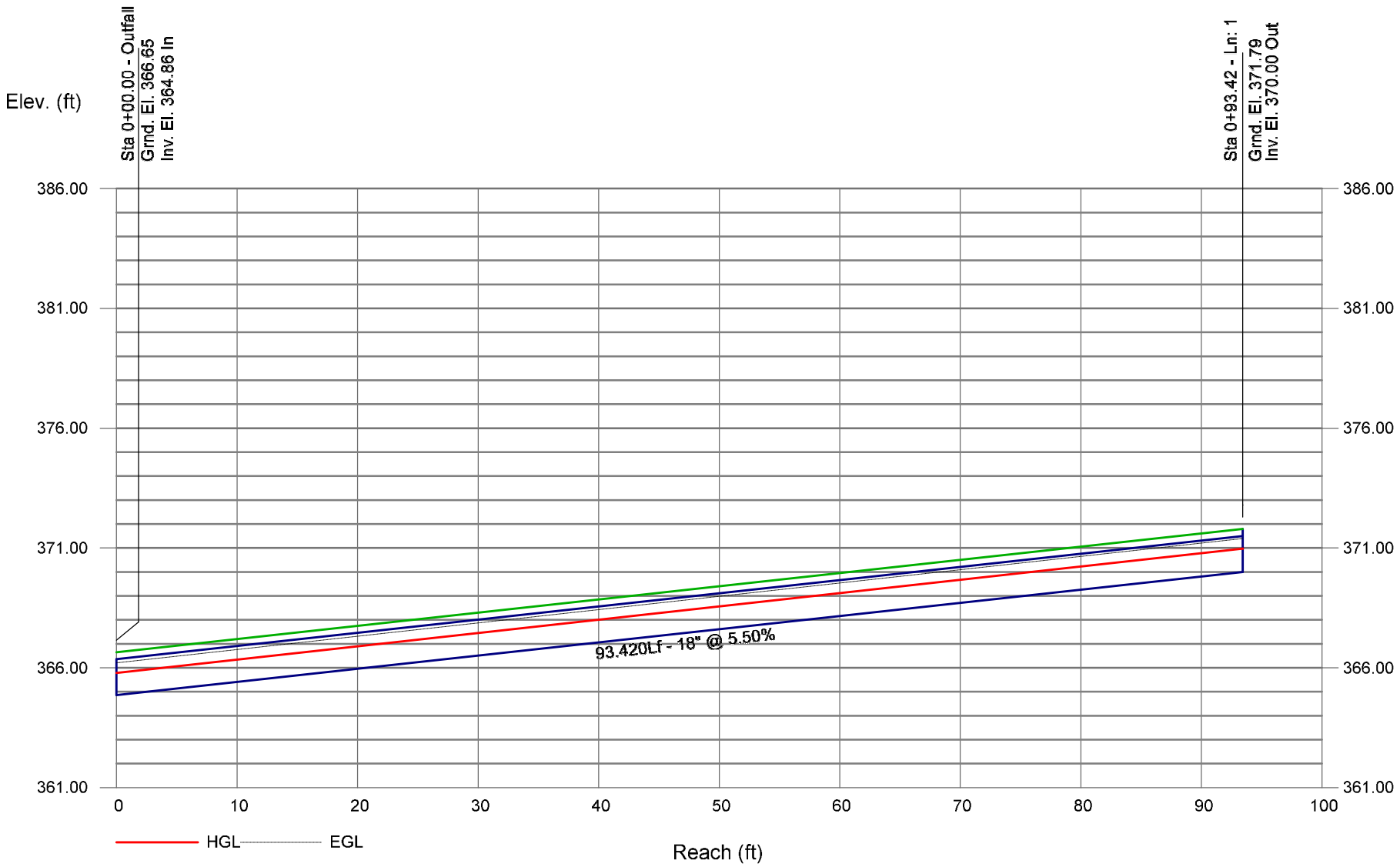
Project File: Bypass.stm | Number of lines: 3 | Run Date: 3/28/2025

Notes: * depth assumed; ** Critical depth. ; c = cir e = ellip b = box

Storm Sewer Profile

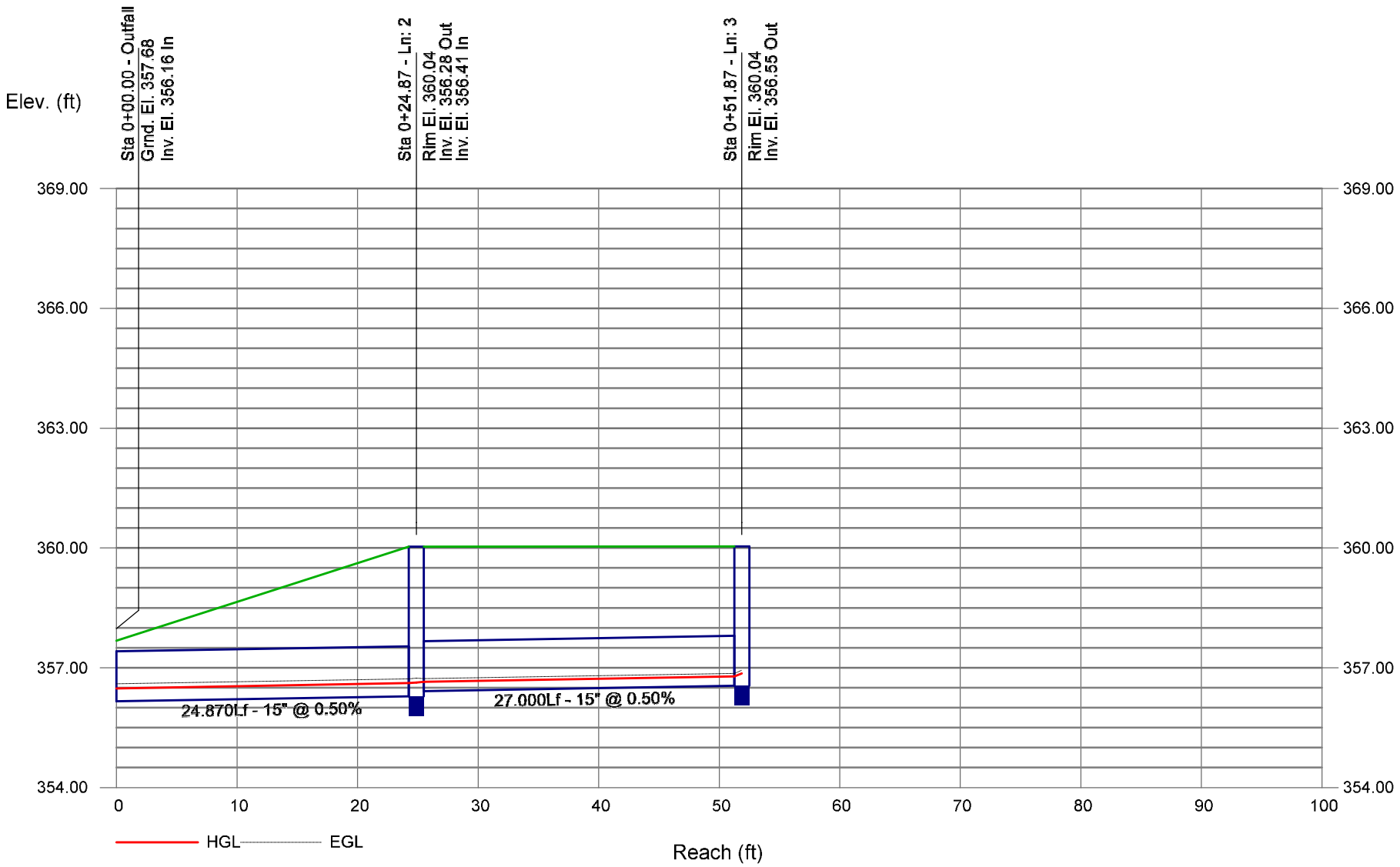
BYPASS 25-YEAR PROFILE 1-1

Proj. file: Bypass.stm



Storm Sewer Profile

BYPASS 25-YEAR PROFILE 2-3 Proj. file: Bypass.stm



APPENDIX D

STORMWATER CONTROL MEASURE CALCULATIONS

Project Information

Complete this sheet if required by your reviewing authority.
Contact them for any questions. Grey boxes/text are optional.

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LOCATION

Project Name (optional):	Moody Development		Parcel ID (optional):	1767284304 & 1767284925	
Submission Date (optional):	12/16/2024	date	Nutrient Management Watershed:	Neuse	menu
Local Jurisdiction / Reviewing Agency:	Wake County	menu	Subwatershed:	Neuse-Upper	menu
Project Latitude Coordinates (optional):		N	Phosphorus Delivery Zone:	Neuse - Upper 03020201	menu
Project Longitude Coordinates (optional):		W	Nitrogen Delivery Zone:	Neuse - Upper 03020201	menu

PROJECT DETAILS

Development Land Use Type:	Single Family Residential	menu	Disturbed Area:	827,640	ft^2
Part of Common Development Plan?	no	y/n	Project Activity:	New Development	menu
Designated Downtown Area?	no	y/n	Project Drains to SA Waters?	no	y/n
Public Linear Road/Sidewalk Project?	no	y/n	Pre-Project Land Use:	crops	menu
Project Owner Type:	Private	menu	Project Description (optional):		

STORMWATER DETAILS

(Falls ONLY) Onsite Reduction % Req.		%	Project Uses LID/Runoff Volume Match?	no	y/n
Existing BUA/Development Onsite?	yes	y/n	Local Gov't nutrient req's same as State?	yes	y/n
Local Gov't cutoff date for Existing BUA:		date	Project Drains to Regional SCM?	no	y/n
Nitrogen Export Rate Target:	3.60	lb/ac/yr	Total Nitrogen Offset Credits Needed:		lb/yr
Phosphorus Export Rate Target:		lb/ac/yr	Total Phosphorus Offset Credits Needed:		lb/yr

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Project Area and Offsite Land Cover Characteristics

Precipitation Station:	**Raleigh**

Copy & Paste VALUES ONLY for Best Results

Click here to scroll down to error messages on this sheet.

PROJECT AREA LAND COVERS	TN EMC (mg/L)	TP EMC (mg/L)	**Pre-Project Area (ft^2)**	**Post-Project Area (ft^2)**	*Change pre-to-post (ft^2)*
Roof	1.18	0.11		324,522	*324,522*
Roadway	1.64	0.34		169,884	*169,884*
Parking/Driveway/Sidewalk	1.42	0.18		120,661	*120,661*
Protected Forest	0.97	0.03	198,564	198,564	*0*
Managed Pervious/Landscaping	2.48	1.07	1,908,895	1,243,734	*-665,161*
Offsite or Existing Roof	1.18	0.11	6,411	6,411	*0*
Offsite or Existing Roadway	1.64	0.34			*0*
Offsite or Existing Parking/Driveway/Sidewa	1.42	0.18	24,233	24,233	*0*
Offsite Protected Forest	0.97	0.03			*0*
Offsite Managed Pervious	2.48	1.07			*0*
CUSTOM LAND COVER 1					*0*
CUSTOM LAND COVER 2					*0*
CUSTOM LAND COVER 3					*0*
LAND TAKEN UP BY SCM	1.18	0.11		50,094	*50,094*
	Total (Regulated & UnReg) Area		***2,138,103.00***	***2,138,103.00***	
	Project (Regulated) Area		***2,107,459.00***	***2,107,459.00***	

Stormwater Control Measure (SCM) Characteristics

Click here to go to SCM101's Land Cover Data | Click here to review Errors | Click here to go to Summary Data | Click here to go back to the top

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Copy & Paste VALUES ONLY for Best Results

Catchment ID	1	Drains to	1	Drains to	1	2	Drains to	2	Drains to	2	3	Drains to	3	Drains to	3	4	Drains to	4	Drains to	4	5	Drains to	5	Drains to	5	6	Drains to	6	Drains to	6
SCM ID	101		102		103	201		202		203	301		302		303	401		402		403	501		502		503	601		602		603
Type of SCM	Wet Pond					Wet Pond					Wet Pond					Wet Pond					Wet Pond									
Hydrologic soil group at SCM location	B					C					C					C					C									
SCM Description	SCM #1					SCM #2					SCM #3					SCM #4					SCM #5									
Design Storm Size (inches/24hrs)	0.13					0.13					0.13					0.13					0.13									
Percent of Full Size	100%					100%					100%					100%					100%									
% Annual Effluent	68%	0%	0%			72%	0%	0%			72%	0%	0%			72%	0%	0%			72%	0%	0%			0%	0%	0%		
% Annual Overflow	16%	0%	0%			16%	0%	0%			16%	0%	0%			16%	0%	0%			16%	0%	0%			0%	0%	0%		
% Annual ET/Infiltrated	17%	0%	0%			13%	0%	0%			13%	0%	0%			13%	0%	0%			13%	0%	0%			0%	0%	0%		
Custom % Annual Effluent																														
Custom % Annual Overflow																														
Custom % Annual ET/Infiltrated																														
SCM Effluent TP EMC (mg/L)	0.13	0.00	0.00			0.13	0.00	0.00			0.13	0.00	0.00			0.13	0.00	0.00			0.13	0.00	0.00			0.00	0.00	0.00		
SCM Effluent TN EMC (mg/L)	0.86	0.00	0.00			0.86	0.00	0.00			0.86	0.00	0.00			0.86	0.00	0.00			0.86	0.00	0.00			0.00	0.00	0.00		
Custom Effluent TP EMC																														
Custom Effluent TN EMC																														
SCM Land Cover TP EMC (mg/L)	0.11	0.00	0.00			0.11	0.00	0.00			0.11	0.00	0.00			0.11	0.00	0.00			0.11	0.00	0.00			0.00	0.00	0.00		
SCM Land Cover TN EMC (mg/L)	1.18	0.00	0.00			1.18	0.00	0.00			1.18	0.00	0.00			1.18	0.00	0.00			1.18	0.00	0.00			0.00	0.00	0.00		
This SCM Drains to Numbered SCM	0	0	0			0	0	0			0	0	0			0	0	0			0	0	0			0	0	0		
Catchment Routing	**Catchments Draining to SCM 101**	**Catchments Draining to SCM 102**	**Catchments Draining to SCM 103**			**Catchments Draining to SCM 201**	**Catchments Draining to SCM 202**	**Catchments Draining to SCM 203**			**Catchments Draining to SCM 301**	**Catchments Draining to SCM 302**	**Catchments Draining to SCM 303**			**Catchments Draining to SCM 401**	**Catchments Draining to SCM 402**	**Catchments Draining to SCM 403**			**Catchments Draining to SCM 501**	**Catchments Draining to SCM 502**	**Catchments Draining to SCM 503**			**Catchments Draining to SCM 601**	**Catchments Draining to SCM 602**	**Catchments Draining to SCM 603**		
Catchment 1																														
Catchment 2																														
Catchment 3																														
Catchment 4																														
Catchment 5																														
Catchment 6																														
Error Check - Missing SCM Area:																														
Error Check - Min/Max Size:																														
Error Check - Hydrology:																														
Error Check - Missing SCM Info:																														
Error Check - Drainage Data w/o SCM:																														
Error Checks - SCM Type:																														

SCM ID:	101	102	103	201	202	203	301	302	303	401	402	403	501	502	503	601	602	603			
SCM Drainage Area Land Covers	**Area Draining Directly to SCM 101 (ft2)**	**Area Draining Directly to SCM 102 (ft2)**	**Area Draining Directly to SCM 103 (ft2)**	**Area Draining Directly to SCM 201 (ft2)**	**Area Draining Directly to SCM 202 (ft2)**	**Area Draining Directly to SCM 203 (ft2)**	**Area Draining Directly to SCM 301 (ft2)**	**Area Draining Directly to SCM 302 (ft2)**	**Area Draining Directly to SCM 303 (ft2)**	**Area Draining Directly to SCM 401 (ft2)**	**Area Draining Directly to SCM 402 (ft2)**	**Area Draining Directly to SCM 403 (ft2)**	**Area Draining Directly to SCM 501 (ft2)**	**Area Draining Directly to SCM 502 (ft2)**	**Area Draining Directly to SCM 503 (ft2)**	**Area Draining Directly to SCM 601 (ft2)**	**Area Draining Directly to SCM 602 (ft2)**	**Area Draining Directly to SCM 603 (ft2)**	**Total Land Use Area Treated By All SCMs (ft^2)**	**Allowable Total Land Use Area to be Treated Based on Post-Project Areas (ft^2)**	**Post-Project Untreated Land Area (ft^2)**
Roof	72,745			13,939			86,249			42,689			74,488						290,110	324,522	34,412
Roadway	43,560						43,124			36,590			41,818						165,092	169,884	4,792
Parking/Driveway/Sidewalk	26,572			871			21,345			16,553			50,530						115,871	120,661	4,790
Protected Forest							6,970			871			2,178						10,019	198,564	188,545
Managed Pervious/Landscaping	265,280			60,113			216,493			116,305			124,146						782,337	1,243,734	461,397
Offsite or Existing Roof																			0	6,411	6,411
Offsite or Existing Roadway																			0	0	0
Offsite or Existing Parking/Driveway/Sidewalk																			0	24,233	24,233
Offsite Protected Forest																			0	0	0
Offsite Managed Pervious																			0	0	0
CUSTOM LAND COVER 1																			0	0	0
CUSTOM LAND COVER 2																			0	0	0
CUSTOM LAND COVER 3																			0	0	0
LAND TAKEN UP BY SCM	17,424			8,712			7,405			6,534			10,019						50,094	50,094	0
TOTAL AREA DRAINING TO SCM (ft^2):	**425,581**	**0**	**0**	**83,635**	**0**	**0**	**381,586**	**0**	**0**	**219,542**	**0**	**0**	**303,179**	**0**	**0**	**0**	**0**	**0**	**1,413,523**	**2,138,103**	**724,580**
CATCHMENT AREA (ft^2):	**425,581**			**83,635**			**381,586**			**219,542**			**303,179**			**0**					

Nutrient Export Summary

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Landcover & SCM Data Review

		Errors / Advisories
Avg Annual precip (in) =	46.22	
Total (Regulated + Unregulated) Area (ft^2) =	2,138,103	
Project (Regulated) Area (ft^2) =	2,107,459	
Net BUA (Project Area BUA only ft^2) =	615,067	Net BUA indicates new development or expansion.
Custom Landcovers are present:	no	
Total Nitrogen Export Target Scaled to Project Area (lb/yr):	174.17	

		Errors / Advisories
SCM Area (ft^2) =	50,094	
SCM Treated Area (ft^2) =	1,413,523	
Catchment Routing:	No errors	
Treating Runoff from Existing BUA or Offsite:	no	
Disturbed Area (ft^2) =	827,640	
Total Phosphorus Export Target Scaled to Project Area (lb/yr):	0.00	

Nutrient Export Summary	Total Area (Onsite + Offsite) Pre-Project	Project Area (Onsite Only) Pre-Project	Total Area Post-Project before Treatment	Project Area Post-Project before Treatment	Total Area Post-Project after Treatment	Project Area Post-Project after Treatment	Total Area Post-Project SCM-Treated Area Only	Project Area Post-Project SCM-Treated Area Only	Total Area Post-Project Untreated Areas	Project Area Post-Project Untreated Areas
Area (All Landcover Types) (acres)	49.0841	48.3806	49.0841	48.3806	49.0841	48.3806	32.4500	32.4500	16.6341	15.9306
Percent Built-Upon Area (BUA) (%)	1%	0%	30%	29%	30%	29%	40%	40%	10%	6%
Built-Upon Area (BUA) (sqft)	30,644	0	645,711	606,252	645,711	606,252	571,073	571,073	74,638	43,994
Annual Runoff Volume (ft^3/yr)	466,191	365,275	2,550,076	2,449,160	2,248,200	2,147,284	1,889,752	1,889,752	358,447	257,531
Annual Runoff % Change			447%	570%	382%	488%				
Total Runoff Change (cuft/yr)			2,083,885	2,083,885	1,782,008	1,782,008				
Total Nitrogen EMC (mg/L)	2.13	1.86	1.43	1.44	1.05	1.04	0.96	0.96	1.54	1.60
Total Nitrogen Load Leaving Site (lb/yr)	**61.95**	**53.32**	**228.16**	**219.53**	**147.43**	**138.80**	113.07	113.07	34.36	25.73
Total Nitrogen Loading Rate (lb/ac/yr)	*1.26*	*1.10*	*4.65*	*4.54*	*3.00*	*2.87*	*3.48*	*3.48*	*2.07*	*1.62*
Total Nitrogen % Change Pre-to-Post			268%	312%	138%	160%				
Total Nitrogen Change (lb/yr) Pre-to-Post			166.21	166.21	85.48	85.48				
Total Phosphorus EMC (mg/L)	0.80	0.77	0.25	0.26	0.18	0.18	0.15	0.15	0.35	0.42
Total Phosphorus Load Leaving Site (lb/yr)	**23.21**	**22.17**	**40.39**	**39.34**	**25.35**	**24.31**	17.61	17.61	7.74	6.70
Total Phosphorus Loading Rate (lb/ac/yr)	*0.47*	*0.46*	*0.82*	*0.81*	*0.52*	*0.50*	*0.54*	*0.54*	*0.47*	*0.42*
Total Phosphorus % Change Pre-to-Post			74%	77%	9%	10%				
Total Phosphorus Change (lb/yr)Pre-to-Post			17.17	17.17	2.14	2.14				

SCM/Catchment Summary

SCM ID and Type	Volume Reduction (%)	TN Reduction (%)	TP Reduction (%)	*TN Out (lbs/ac/yr)*	*TP Out (lbs/ac/yr)*
Catchment 1	16.88%	44.06%	50.02%	*2.96*	*0.47*
101: Wet Pond	16.88%	44.06%	50.02%	*2.96*	*0.47*
102: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
103: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
Catchment 2	12.66%	38.48%	42.93%	*2.40*	*0.37*
201: Wet Pond	12.66%	38.48%	42.93%	*2.40*	*0.37*
202: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
203: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
Catchment 3	12.66%	40.89%	45.85%	*3.34*	*0.52*
301: Wet Pond	12.66%	40.89%	45.85%	*3.34*	*0.52*
302: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
303: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
Catchment 4	12.66%	41.82%	47.51%	*3.73*	*0.59*
401: NA	12.66%	41.82%	47.51%	*3.73*	*0.59*
402: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
403: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
Catchment 5	12.66%	40.37%	41.27%	*4.53*	*0.69*
501: NA	12.66%	40.37%	41.27%	*4.53*	*0.69*
502: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
503: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
Catchment 6	0.00%	0.00%	0.00%	*0.00*	*0.00*
601: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
602: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*
603: NA	0.00%	0.00%	0.00%	*0.00*	*0.00*

Falls Lake ONLY: Onsite Reduction Compliance Check	Nitrogen	Phosphorus
Onsite % Reduction Requirement		
Export Target Scaled to Area (lb/yr)	**174.17**	
Export Load Post-Project Before Treatment	**219.53**	**39.34**
Total Reduction Need (lb/yr)		
Onsite Reduction Need (lb/yr)		
Onsite Export Target (lb/yr)		
Project Area Post-Project After Treatment	**138.80**	**24.31**

Nutrient Management Strategy Watershed - Nutrient Offset Credit Reporting Form

SNAP v4.2.0

Please complete and submit the following information to the local government permitting your development project to characterize it and assess the need to purchase nutrient offset credits. Contact and rule implementation information can be found online at:

http://deq.nc.gov/about/divisions/water-resources/planning/nonpoint-source-management/nutrient-offset-information

PROJECT INFORMATION

Applicant Name:	Caruso Homes		
Project Name:	Moody Development		
Project Address:	0 Rolesville RD & 0 Amazon Trail		
Date: *(mm/dd/yyyy)*	12/3/2024	**Development Land Use Type:**	Single Family Residential
County:	Wake	**Project Activity Type:**	New Development
Project Area (sqft):	2,107,459	**Project Latitude:**	0.000000
Post-Project Built-Upon Area %:	28.77%	**Project Longitude:**	0.000000

WATERSHED INFORMATION

Nutrient Management Watershed:	Neuse	**N Target Export Rate (lb/ac/yr):**	3.60
Subwatershed:	Neuse-Upper	**P Target Export Rate (lb/ac/yr):**	0.00
Nitrogen Delivery Zone:	Neuse - Upper 03020201	**Nitrogen Delivery Factor:**	100%
Phosphorus Delivery Zone:	Neuse - Upper 03020201	**Phosphorus Delivery Factor:**	100%

PERMANENT NUTRIENT OFFSET REQUEST

Post-Project Nitrogen Calculations - Projects with No Offsite or Built-Upon Area

(A)	(B)	(C)	(D)		(F)	(G)	*(Where Applicable)*	
TN Untreated Load (lb/yr)	TN Export Target Load (lb/yr)	TN Treated Load (lb/yr)	TN Remaining Reduction Need (lb/yr)		TN Delivery Factor (%)	TN Permanent Offsets Required (lb/yr)	Additional Local Gov't Offsets (lb/yr)	**Total TN Permanent Offsets to Buy (lb/yr)**
219.5	174.2	138.8	0.0		100.0%	0.0		**0.0**

Post-Project Phosphorus Calculations - Projects with No Offsite or Built-Upon Area

(A)	(B)	(C)	(D)		(F)	(G)	*(Where Applicable)*	
TP Untreated Load (lb/yr)	TP Export Target Load (lb/yr)	TP Treated Load (lb/yr)	TP Remaining Reduction Need (lb/yr)		TP Delivery Factor (%)	TP Permanent Offsets Required (lb/yr)	Additional Local Gov't Offsets (lb/yr)	**Total TP Permanent Offsets to Buy (lb/yr)**
								0.0

LOCAL GOVERNMENT AUTHORIZATION

Local Government Name:			
Staff Name:		**Phone:**	
Staff Email:		**Date:**	
Local Government Authorizing Signature:			

SITE DATA

Project Information	
Project Name:	**The Preserve at Moody Farm**
Applicant:	American Engineeinrg
Applicant Contact Name:	Jakob Klein
Applicant Contact Number:	(919) 469-1101
Contact Email:	jklein@american-ea.com
Municipal Jurisdiction (Select from dropdown menu):	Rolesville
Last Updated:	Monday, March 31, 2025
Site Data:	
Total Site Area (Ac):	48.28
Existing Lake/Pond Area (Ac):	1.49
Proposed Disturbed Area (Ac):	40.00
Impervious Surface Area (acre):	15.13
Type of Development (Select from Dropdown menu):	Residential
Percent Built Upon Area (BUA):	31%
Project Density:	High
Is the proposed project a site expansion?	No
Number of Drainage Areas on Site:	2
NOAA **1-Year, 24-Hour Storm (inches) (See NOAA Website):**	2.86
2-Year, 24-Hour Storm (inches) (See NOAA Website):	3.46
10-Year, 24-Hour Storm (inches) (See NOAA Website):	5.06
Lot Data (if applicable):	
Total Acreage in Lots:	24.38
Number of Lots:	82
Average Lot Size (SF):	10000.00
Total Impervious Surface Area on Lots (SF):	402666.00
Average Impervious Surface Area Per Lot (SF):	4910.56

Stormwater Narrative (limit to 1,200 characters - attach additional pages with submittal if necessary):

See project Stormwater Impact Analysis Report for detailed narrative and calculations. The Moody project will have five (5) SCM's which the cumalitive areas are post-development POD 2. Hydrograph modeling for the project shows peak flows being attenuated for the 1-year and 10-year storm events. Although the Wake County tool calculations show 5.56 lb/ac/yr as the nitrogen loading rate on site, the NCDEQ SNAP Tool was implemented as well for for nitrogen removal and shows no offets required as the site is currently below the traget Nitrogen export rate of 3.6 lb/ac/yr. Thank you.

Project Name: **The Preserve at Moody Farm**

DRAINAGE AREA 1
STORMWATER PRE-POST CALCULATIONS
POD #1 BYPASS

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT			
Drainage Area (Acres)=	9.68				5.30			
Site Acreage within Drainage=	6.54				2.13			
One-year, 24-hour rainfall (in)=	2.86							
Two-year, 24-hour rainfall (in)=	3.46							
Ten-year, 24-hour storm (in)=	5.06							
Total Lake/Pond Area (Acres)=	0.00				0.00			
Lake/Pond Area not in the Tc flow path (Acres)=	0.00				0.00			
Site Land Use (acres):	A	B	C	D	A	B	C	D
Pasture								
Woods, Poor Condition								
Woods, Fair Condition		1.23	4.84	0.01				
Woods, Good Condition								
Open Space, Poor Condition								
Open Space, Fair condition		0.12	0.16					
Open Space, Good Condition			3.14				4.39	0.40
Reforestation (in dedicated OS)								
Connected Impervious			0.18				0.51	
Disconnected Impervious								

SITE FLOW	PRE-DEVELOPMENT T_c	POST-DEVELOPMENT Tc
Sheet Flow		
Length (ft)=	Kirpich Used, *See SCM Sizing & Calcs*	Kirpich Used, *See SCM Sizing & Calcs*
Slope (ft/ft)=		
Surface Cover:		
n-value=		
T_t (hrs)=		
Shallow Flow		
Length (ft)=		
Slope (ft/ft)=		
Surface Cover:		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Channel Flow 1		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft^2)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft^2)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft^2)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Tc (hrs)=	6.67	6.67

RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
Composite Curve Number=	72	77
Disconnected Impervious Adjustment		
Disconnected impervious area (acre) =		
$CN_{adjusted\ (1\text{-}year)}$=	**77**	
High Density Only		
Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft^3) =	2,628	
1-year, 24-hour storm (Peak Flow)		
Runoff (inches) = $Q^*_{1\text{-year}}$=	0.73	0.96
Volume of runoff (ft^3) =	17,445	7,440
Volume change (ft^3) =		
Peak Discharge (cfs)= $Q_{1\text{-year}}$=	0.830	0.595
2-year, 24-hour storm (LID)		
Runoff (inches) = $Q^*_{2\text{-year}}$=	1.11	1.39
Volume of runoff (ft^3) =	26,250	10,710
Peak Discharge (cfs)= $Q_{2\text{-year}}$=	1.249	0.856
10-year, 24-hour storm (DIA)		
Runoff (inches) = $Q^*_{10\text{-year}}$=	2.26	2.65
Volume of runoff (ft^3) =	53,651	62,959
Peak Discharge (cfs)= $Q_{10\text{-year}}$=	2.552	1.640

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 2
STORMWATER PRE-POST CALCULATIONS
DA #2 and #3 equal hydrograph modeling POD 2
Thru SCM's

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT			
Drainage Area (Acres)=	31.72				32.99			
Site Acreage within Drainage=	31.72				32.29			
One-year, 24-hour rainfall (in)=	2.86							
Two-year, 24-hour rainfall (in)=	3.46							
Ten-year, 24-hour storm (in)=	5.06							
Total Lake/Pond Area (Acres)=	0.68				0.68			
Lake/Pond Area not in the Tc flow path (Acres)=	0.68				0.68			
Site Land Use (acres):	A	B	C	D	A	B	C	D
Pasture			0.35		0.00	0.00	0.00	0.00
Woods, Poor Condition								
Woods, Fair Condition		1.72	10.03	2.82				
Woods, Good Condition						0.17	0.00	
Open Space, Poor Condition								
Open Space, Fair condition		2.07	10.09	4.07				
Open Space, Good Condition						3.61	14.34	1.00
Reforestation (in dedicated OS)								
Connected Impervious		0.14	0.39	0.05			13.87	
Disconnected Impervious								

SITE FLOW	PRE-DEVELOPMENT T_c	POST-DEVELOPMENT Tc
Sheet Flow		
Length (ft)=	100.00	100.00
Slope (ft/ft)=	0.030	0.028
Surface Cover:	Grass	Grass
n-value=	0.240	0.240
T_t (hrs)=	0.214	0.220
Shallow Flow		
Length (ft)=	530.00	150.00
Slope (ft/ft)=	0.030	0.030
Surface Cover:	Unpaved	Unpaved
Average Velocity (ft/sec)=	2.79	2.79
T_t (hrs)=	0.05	0.01
Channel Flow 1		
Length (ft)=	1600.00	550.00
Slope (ft/ft)=	0.020	0.050
Cross Sectional Flow Area (ft^2)=	2.50	1.77
Wetted Perimeter (ft)=	5.00	2.90
Channel Lining:	Weeds	Concrete, finished
n-value=	0.040	0.012
Hydraulic Radius (ft)=	0.50	0.61
Average Velocity (ft/sec)=	3.32	19.98
T_t (hrs)=	0.13	0.01
Channel Flow 2		
Length (ft)=		20.00
Slope (ft/ft)=		0.020
Cross Sectional Flow Area (ft^2)=		2.00
Wetted Perimeter (ft)=		6.13
Channel Lining:		Gravel Bottom/riprap sides
n-value=		0.033
Hydraulic Radius (ft)=		0.33
Average Velocity (ft/sec)=		3.03
T_t (hrs)=		0.00
Channel Flow 3		
Length (ft)=		1350.00
Slope (ft/ft)=		0.025
Cross Sectional Flow Area (ft^2)=		12.00
Wetted Perimeter (ft)=		12.65
Channel Lining:		Weeds
n-value=		0.040
Hydraulic Radius (ft)=		0.95
Average Velocity (ft/sec)=		5.69
T_t (hrs)=		0.07
Tc (hrs)=	0.25	0.31

RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
Composite Curve Number=	76	83
Disconnected Impervious Adjustment		
Disconnected impervious area (acre) =		
$CN_{adjusted\ (1\text{-}year)}$=	**83**	
High Density Only		
Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft^3) =	51,301	
1-year, 24-hour storm (Peak Flow)		
Runoff (inches) = $Q^*_{1\text{-year}}$=	0.94	1.32
Volume of runoff (ft^3) =	108,264	154,517
Volume change (ft^3) =	46,253	
Peak Discharge (cfs)= $Q_{1\text{-year}}$=	25.457	39.377
2-year, 24-hour storm (LID)		
Runoff (inches) = $Q^*_{2\text{-year}}$=	1.36	1.81
Volume of runoff (ft^3) =	156,432	211,681
Peak Discharge (cfs)= $Q_{2\text{-year}}$=	36.783	53.944
10-year, 24-hour storm (DIA)		
Runoff (inches) = $Q^*_{10\text{-year}}$=	2.62	3.20
Volume of runoff (ft^3) =	301,152	368,920
Peak Discharge (cfs)= $Q_{10\text{-year}}$=	70.812	95.716

Post-development peak flow exceeds pre-development peak flow for this DA!

VALUE PRIOR TO SCM ATTENUATION

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 3
STORMWATER PRE-POST CALCULATIONS
DA #2 and #3 equal hydrograph modeling POD 2
Bypass

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT			
Drainage Area (Acres)=	10.26				13.92			
Site Acreage within Drainage=	10.26				13.92			
One-year, 24-hour rainfall (in)=	2.86							
Two-year, 24-hour rainfall (in)=	3.46							
Ten-year, 24-hour storm (in)=	5.06							
Total Lake/Pond Area (Acres)=								
Lake/Pond Area not in the Tc flow path (Acres)=								
Site Land Use (acres):	A	B	C	D	A	B	C	D
Pasture			0.13					
Woods, Poor Condition								
Woods, Fair Condition		0.67	2.75	1.10				
Woods, Good Condition							0.07	1.74
Open Space, Poor Condition								
Open Space, Fair condition		0.80	3.03	1.58				
Open Space, Good Condition							6.06	5.30
Reforestation (in dedicated OS)								
Connected Impervious		0.05	0.12	0.02			0.75	
Disconnected Impervious								
SITE FLOW	**PRE-DEVELOPMENT T_c**				**POST-DEVELOPMENT Tc**			
Sheet Flow								
Length (ft)=	Minimum 5 min Tc used				Minimum 5 min Tc used			
Slope (ft/ft)=								
Surface Cover:								
n-value=								
T_t (hrs)=								
Shallow Flow								
Length (ft)=								
Slope (ft/ft)=								
Surface Cover:								
Average Velocity (ft/sec)=								
T_t (hrs)=								
Channel Flow 1								
Length (ft)=								
Slope (ft/ft)=								
Cross Sectional Flow Area (ft^2)=								
Wetted Perimeter (ft)=								
Channel Lining:								
n-value=								
Hydraulic Radius (ft)=								
Average Velocity (ft/sec)=								
T_t (hrs)=								

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 3
STORMWATER PRE-POST CALCULATIONS
DA #2 and #3 equal hydrograph modeling POD 2
Bypass

Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft^2)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft^2)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Tc (hrs)=	5.00	5.00
RESULTS	**PRE-DEVELOPMENT**	**POST-DEVELOPMENT**
Composite Curve Number=	76	78
Disconnected Impervious Adjustment		
Disconnected impervious area (acre) =		
$CN_{adjusted\ (1\text{-}year)}$=	**78**	
High Density Only		
Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft^3) =	4,977	
1-year, 24-hour storm (Peak Flow)		
Runoff (inches) = $Q^*_{1\text{-}year}$=	0.94	1.03
Volume of runoff (ft^3) =	35,195	51,860
Volume change (ft^3) =	16,665	
Peak Discharge (cfs)= $Q_{1\text{-}year}$=	1.424	2.465
2-year, 24-hour storm (LID)		
Runoff (inches) = $Q^*_{2\text{-}year}$=	1.36	1.46
Volume of runoff (ft^3) =	50,816	73,892
Peak Discharge (cfs)= $Q_{2\text{-}year}$=	2.056	3.513
10-year, 24-hour storm (DIA)		
Runoff (inches) = $Q^*_{10\text{-}year}$=	2.62	2.76
Volume of runoff (ft^3) =	97,722	102,699
Peak Discharge (cfs)= $Q_{10\text{-}year}$=	3.955	6.621

Post-development peak flow exceeds pre-development peak flow for this DA!

TO ENABLE DATA TO PROPERLY BE INPUT INTO THIS SPREADSHEET, POD 2 WAS BROKEN INTO BYPASS AREA AND SCM AREAS. THE ADDITIONAL POST-DEV CFS IS DUE TO SEVERAL ROOFS ADDED TO THE DRAINAGE AREA. MODELING SEEN WITHIN THE PROJECT SIA REPORT PROVES THAT POD 2 ATTENUATION IS IMPROVED IN POST-DEV.

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 4
STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT			
Drainage Area (Acres)=	13.94				13.94			
Site Acreage within Drainage=	0.00				0.00			
One-year, 24-hour rainfall (in)=	2.86							
Two-year, 24-hour rainfall (in)=	3.46							
Ten-year, 24-hour storm (in)=	5.06							
Total Lake/Pond Area (Acres)=	0.79				0.79			
Lake/Pond Area not in the Tc flow path (Acres)=	0.79				0.79			
Site Land Use (acres):	A	B	C	D	A	B	C	D
Pasture								
Woods, Poor Condition								
Woods, Fair Condition								
Woods, Good Condition		1.61	2.90	0.97		1.61	2.90	0.97
Open Space, Poor Condition								
Open Space, Fair condition								
Open Space, Good Condition		2.35	4.54	0.26		2.35	4.54	0.26
Reforestation (in dedicated OS)								
Connected Impervious			0.52	0.79			0.52	0.79
Disconnected Impervious								

SITE FLOW	PRE-DEVELOPMENT T_c	POST-DEVELOPMENT Tc
Sheet Flow		
Length (ft)=	From Culvert Tc Calculations	From Culvert Tc Calculations
Slope (ft/ft)=		
Surface Cover:		
n-value=		
T_t (hrs)=		
Shallow Flow		
Length (ft)=		
Slope (ft/ft)=		
Surface Cover:		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Channel Flow 1		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft^2)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T_t (hrs)=		

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 4
STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft^2)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft^2)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T_t (hrs)=		
Tc (hrs)=	34.70	34.70
RESULTS	**PRE-DEVELOPMENT**	**POST-DEVELOPMENT**
Composite Curve Number=	71	71
Disconnected Impervious Adjustment		
Disconnected impervious area (acre) =		
$CN_{adjusted\ (1\text{-}year)}$=	**71**	
High Density Only		
Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft^3) =	6,809	
1-year, 24-hour storm (Peak Flow)		
Runoff (inches) = $Q^*_{1\text{-}year}$=	0.70	0.70
Volume of runoff (ft^3) =		
Volume change (ft^3) =		
Peak Discharge (cfs)= $Q_{1\text{-}year}$=	0.185	0.185
2-year, 24-hour storm (LID)		
Runoff (inches) = $Q^*_{2\text{-}year}$=	1.06	1.06
Volume of runoff (ft^3) =	0	
Peak Discharge (cfs)= $Q_{2\text{-}year}$=	0.282	0.282
10-year, 24-hour storm (DIA)		
Runoff (inches) = $Q^*_{10\text{-}year}$=	2.19	2.19
Volume of runoff (ft^3) =	0	
Peak Discharge (cfs)= $Q_{10\text{-}year}$=	0.583	0.583

Project Name: The Preserve at Moody Farm

DA SITE SUMMARY
STORMWATER PRE-POST CALCULATIONS

SITE SUMMARY

DRAINAGE AREA SUMMARIES

DRAINAGE AREA:	DA1	DA2	DA3	DA4	DA5	DA6	DA7	DA8	DA9	DA10
Pre-Development (1-year, 24-hour storm)										
Runoff (in) = $Q_{pre,1\text{-}year}$ =	0.73	0.94	0.94	0.70						
Peak Flow (cfs)=$Q_{1\text{-}year}$ =	0.830	25.457	1.424	0.185						
Post-Development (1-year, 24-hour storm)										
Proposed Impervious Surface (acre) =	0.51	13.87	0.75							
Runoff (in)=$Q_{1\text{-}year}$ =	0.96	1.32	1.03	0.70						
Peak Flow (cfs)=$Q_{1\text{-}year}$ =	0.595	39.377	2.465	0.185						
Increase in volume per DA (ft^3)_1-yr storm=		46,253	16,665	0						
Minimum Volume to be Managed for DA HIGH DENSITY REQUIREMENT = (ft^3) =	2,628	51,301	4,977	6,809						

VALUE PRIOR TO SCM ATTENUATION

TARGET CURVE NUMBER (TCN)

Site Data

SITE \SOIL COMPOSITION

HYDROLOGIC SOIL GROUP	Site Area	%	Target CN
A	0.00	0%	N/A
B	4.65	9%	N/A
C	36.22	74%	N/A
D	8.05	16%	N/A

Total Site Area (acres) =	48.92
Percent BUA (Includes Existing Lakes/Pond Areas) =	30%
Project Density =	High
Target Curve Number (TCN) =	N/A
$CN_{adjusted\ (1\text{-}year)}$=	80
Minimum Volume to be Managed (Total Site) Per TCN Requirement= ft^3 =	N/A

Site Nitrogen Loading Data

HSG	TN export coefficient (lbs/ac/yr)	Site Acreage	N Export
Pasture	1.2	0.00	0.00
Woods, Poor Condition	1.6	0.00	0.00
Woods, Fair Condition	1.2	0.00	0.00
Woods, Good Condition	0.8	7.46	5.97
Open Space, Poor Condition	1.0	0.00	0.00
Open Space, Fair Condition	0.8	0.00	0.00
Open Space, Good Condition	0.6	42.25	25.35
Reforestation (in dedicated OS)	0.6	0.00	0.00
Impervious	21.2	16.44	348.53
SITE NITROGEN LOADING RATE (lbs/ac/yr)=	5.74		
Nitrogen Load (lbs/yr)=	379.84		

Site Nitrogen Loading Data For Expansions Only

	Existing	New
Impervious(acres)=	NA	NA
"Expansion Area" (acres=)		
Nitrogen Load (lbs/yr)=	NA	NA
SITE NITROGEN LOADING RATE (lbs/ac/yr)=	NA	NA
Total Site loading rate (lbs/ac/yr)		
TOTAL SITE NITROGEN TO MITIGATE (lbs/yr)=	NA	

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 1
BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AND ADJUSTMENTS

DA1 Site Acreage=	2.13			
DA1 Off-Site Acreage=	3.17			
Total Required Storage Volume for Site TCN Requirement (ft^3)=	N/A			
Total Required Storage Volume for DA1 1" Rainfall for High Density (ft^3)=	2,628			
Will site use underground detention/cistern?	No	Enter % of the year water will be reused=	0%	Note: Supporting information/details should be submitted to demonstrate water usage.

ENTER ACREAGE FOR ALL SUB-DRAINAGE AREAS IN DA

HSG	Sub-DA1(a) (Ac)		Sub-DA1(b) (Ac)		Sub-DA1(c) (Ac)		Sub-DA1(d) (Ac)		Sub-DA1(e) (Ac)	
	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Pasture										
Woods, Poor Condition										
Woods, Fair Condition										
Woods, Good Condition										
Open Space, Poor Condition										
Open Space, Fair Condition										
Open Space, Good Condition	1.62	3.17								
Reforestation (in dedicated OS)										
Impervious	0.51									

Sub-DA1(a) BMP(s)

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
N/A		2,628		0%	13.69	0.00	
				0%	13.69	0.00	
				0%	13.69	0.00	
				0%	13.69	0.00	
				0%	13.69	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):			**13.69**				

Sub-DA1(b) BMP(s)

If Sub-DA1(b) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Sub-DA1 (c) BMP(s)

If Sub-DA1(c) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Sub-DA1(d) BMP(s)

If Sub-DA1(d) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Sub-DA1(e) BMP(s)

If Sub-DA1(e) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

DA1 BMP SUMMARY

Total Volume Treated (ft^3)=	4,107
Nitrogen Mitigated(lbs)=	
1-year, 24-hour storm	
Post BMP Volume of Runoff (ft^3)$_{1\text{-year}}$=	3,333
Post BMP Runoff (inches) = $Q'_{1\text{-year}}$=	0.43
Post BMP $CN_{1\text{-year}}$=	64
Post BMP Peak Discharge (cfs)= $Q_{1\text{-year}}$=	0.84
2-year, 24-hour storm (LID)	
Post BMP Volume of Runoff (ft3)$_{2\text{-year}}$=	6,603
Post BMP Runoff (inches) = $Q'_{2\text{-year}}$=	0.85
Post BMP $CN_{2\text{-year}}$=	67
Post BMP Peak Discharge (cfs)= $Q_{2\text{-year}}$=	
10-year, 24-hour storm (DIA)	
Post BMP Volume of Runoff (ft^3)$_{10\text{-year}}$=	58,852
Post BMP Runoff (inches) = $Q'_{10\text{-year}}$=	7.61
Post BMP $CN_{10\text{-year}}$=	98
Post BMP Peak Discharge (cfs)= $Q_{10\text{-year}}$=	

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 2
BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AND ADJUSTMENTS

DA2 Site Acreage=	32.29			
DA2 Off-Site Acreage=	0.70			
Total Required Storage Volume TCN Requirement (ft^3)=	N/A			
Total Required Storage Volume for DA2 1" Rainfall for High Density ($ft3$)=	51,301			
Will site use underground detention/cistern?	No	Enter % of the year water will be reused=	0%	Note: Supporting information/details should be submitted to demonstrate water usage.

ENTER ACREAGE FOR ALL SUB-DRAINAGE AREAS IN DA

HSG	Sub-DA2(a) (Ac)		Sub-DA2(b) (Ac)		Sub-DA2(c) (Ac)		Sub-DA2(d) (Ac)		Sub-DA2(e) (Ac)	
	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Pasture										
Woods, Poor Condition										
Woods, Fair Condition										
Woods, Good Condition					0.17					
Open Space, Poor Condition										
Open Space, Fair Condition										
Open Space, Good Condition	5.18	0.70	0.93		4.87		3.21		4.06	
Reforestation (in dedicated OS)										
Impervious	3.58		0.45		3.68		2.82		3.34	

Sub-DA1(a) BMP(s)

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
WP#1	Wet Detention Basin	5,071	5,071	25%	79.42	19.86	69
				0%	59.57	0.00	
				0%	59.57	0.00	
				0%	59.57	0.00	
				0%	59.57	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):			**59.57**				

Sub-DA1(b) BMP(s)

If Sub-DA1(b) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
WP#2	Wet Detention Basin	312	312	25%	10.10	2.52	73
				0%	7.57	0.00	
				0%	7.57	0.00	
				0%	7.57	0.00	
				0%	7.57	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):			**7.57**				

Sub-DA1 (c) BMP(s)

If Sub-DA1(c) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
WP#3	Wet Detention Basin	4,761	4,761	25%	81.07	20.27	85
				0%	60.81	0.00	
				0%	60.81	0.00	
				0%	60.81	0.00	
				0%	60.81	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):			**60.81**				

Sub-DA1(d) BMP(s)

If Sub-DA1(d) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
WP#4	Wet Detention Basin	2,778	2,778	25%	61.71	15.43	65
				0%	46.28	0.00	
				0%	46.28	0.00	
				0%	46.28	0.00	
				0%	46.28	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):			**46.28**				

Sub-DA1(e) BMP(s)

If Sub-DA1(e) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
WP#5	Wet Detention Basin	3,791	3,791	25%	73.24	18.31	54
				0%	54.93	0.00	
				0%	54.93	0.00	
				0%	54.93	0.00	
				0%	54.93	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):			**54.93**				

DA2 BMP SUMMARY

Total Volume Treated (ft^3)=	16,713
Nitrogen Mitigated(lbs)=	76.39
1-year, 24-hour storm	
Post BMP Volume of Runoff (ft^3)$_{1\text{-year}}$=	137,804
Post BMP Runoff (inches) = $Q'_{1\text{-year}}$=	1.18
Post BMP CN$_{1\text{-year}}$=	80
Post BMP Peak Discharge (cfs)= $Q_{1\text{-year}}$=	11.05
2-year, 24-hour storm (LID)	
Post BMP Volume of Runoff ($ft3$)$_{2\text{-year}}$=	194,968
Post BMP Runoff (inches) = $Q'_{2\text{-year}}$=	1.66
Post BMP CN$_{2\text{-year}}$=	80
Post BMP Peak Discharge (cfs)= $Q_{2\text{-year}}$=	
10-year, 24-hour storm (DIA)	
Post BMP Volume of Runoff (ft^3)$_{10\text{-year}}$=	352,207
Post BMP Runoff (inches) = $Q'_{10\text{-year}}$=	3.00
Post BMP CN$_{10\text{-year}}$=	95
Post BMP Peak Discharge (cfs)= $Q_{10\text{-year}}$=	

WAKE COUNTY
NORTH CAROLINA

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 3
BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AND ADJUSTMENTS				
DA3 Site Acreage=	13.92			
DA3 Off-Site Acreage=				
Total Required Storage Volume TCN Requirement (ft^3)=	N/A			
Total Required Storage Volume for DA3 1" Rainfall for High Density (ft3)=	4,977			
Will site use underground detention/cistern?	No	Enter % of the year water will be reused=	0%	Note: Supporting information/details should be submitted to demonstrate water usage.

ENTER ACREAGE FOR ALL SUB-DRAINAGE AREAS IN DA

HSG	Sub-DA3(a) (Ac)		Sub-DA3(b) (Ac)		Sub-DA3(c) (Ac)		Sub-DA3(d) (Ac)		Sub-DA3(e) (Ac)	
	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Pasture										
Woods, Poor Condition										
Woods, Fair Condition	0.04				0.34					
Woods, Good Condition	0.87				0.27					
Open Space, Poor Condition										
Open Space, Fair Condition										
Open Space, Good Condition	5.36		0.12		6.05					
Reforestation (in dedicated OS)										
Impervious	0.57		0.12		0.18					

Sub-DA1(a) BMP(s)

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
N/A (BYPASS)		2,157	2,157	0%	16.04	0.00	
				0%	16.04	0.00	
				0%	16.04	0.00	
				0%	16.04	0.00	
				0%	16.04	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):		**16.04**					

Sub-DA1(b) BMP(s)

If Sub-DA1(b) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
N/A (BYPASS)		50	50	0%	2.62	0.00	
				0%	2.62	0.00	
				0%	2.62	0.00	
				0%	2.62	0.00	
				0%	2.62	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):		**2.62**					

Sub-DA1 (c) BMP(s)

If Sub-DA1(c) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
N/A (BYPASS)		1,530	1,530	0%	8.07	0.00	
				0%	8.07	0.00	
				0%	8.07	0.00	
				0%	8.07	0.00	
				0%	8.07	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):		**8.07**					

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 3
BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

DA3 BMP SUMMARY	
Total Volume Treated (ft^3)=	3,737
Nitrogen Mitigated(lbs)=	
1-year, 24-hour storm	
Post BMP Volume of Runoff (ft^3)$_{(1\text{-year})}$=	48,123
Post BMP Runoff (inches) = $Q^*_{(1\text{-year})}$=	0.95
Post BMP $CN_{(1\text{-year})}$=	76
Post BMP Peak Discharge (cfs)= $Q_{1\text{-year}}$=	2.47
2-year, 24-hour storm (LID)	
Post BMP Volume of Runoff (ft3)$_{(2\text{-year})}$=	70,155
Post BMP Runoff (inches) = $Q^*_{(2\text{-year})}$=	1.39
Post BMP $CN_{(2\text{-year})}$=	76
Post BMP Peak Discharge (cfs)= $Q_{(2\text{-year})}$=	
10-year, 24-hour storm (DIA)	
Post BMP Volume of Runoff (ft^3)$_{(10\text{-year})}$=	98,962
Post BMP Runoff (inches) = $Q^*_{(10\text{-year})}$=	1.96
Post BMP $CN_{(10\text{-year})}$=	84
Post BMP Peak Discharge (cfs)= $Q_{(10\text{-year})}$=	

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 4
BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AND ADJUSTMENTS				
DA4 Site Acreage=				
DA4 Off-Site Acreage=	13.94			
Total Required Storage Volume TCN Requirement (ft^3)=	N/A			
Total Required Storage Volume for DA4 1" Rainfall for High Density (ft3)=	6,809			
Will site use underground detention/cistern?		Enter % of the year water will be reused=		Note: Supporting information/details should be submitted to demonstrate water usage.

ENTER ACREAGE FOR ALL SUB-DRAINAGE AREAS IN DA

HSG	Sub-DA4(a) (Ac)		Sub-DA4(b) (Ac)		Sub-DA4(c) (Ac)		Sub-DA4(d) (Ac)		Sub-DA4(e) (Ac)	
	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Pasture										
Woods, Poor Condition										
Woods, Fair Condition										
Woods, Good Condition		5.48								
Open Space, Poor Condition										
Open Space, Fair Condition										
Open Space, Good Condition		7.15								
Reforestation (in dedicated OS)										
Impervious		1.31								

Sub-DA1(a) BMP(s)

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
		6,809		0%	36.44	0.00	
				0%	36.44	0.00	
				0%	36.44	0.00	
				0%	36.44	0.00	
				0%	36.44	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):		**36.44**					

Sub-DA1(b) BMP(s)

If Sub-DA1(b) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Sub-DA1 (c) BMP(s)

If Sub-DA1(c) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

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DRAINAGE AREA 4
BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

DA4 BMP SUMMARY	
Total Volume Treated (ft^3)=	
Nitrogen Mitigated(lbs)=	
1-year, 24-hour storm	
Post BMP Volume of Runoff (ft^3)$_{(1\text{-year})}$=	
Post BMP Runoff (inches) = $Q^*_{(1\text{-year})}$=	0.70
Post BMP $CN_{(1\text{-year})}$=	71
Post BMP Peak Discharge (cfs)= $Q_{1\text{-year}}$=	0.19
]	
Post BMP Volume of Runoff (ft3)$_{(2\text{-year})}$=	0
Post BMP Runoff (inches) = $Q^*_{(2\text{-year})}$=	
Post BMP $CN_{(2\text{-year})}$=	
Post BMP Peak Discharge (cfs)= $Q_{(2\text{-year})}$=	
10-year, 24-hour storm (DIA)	
Post BMP Volume of Runoff (ft^3)$_{(10\text{-year})}$=	0
Post BMP Runoff (inches) = $Q^*_{(10\text{-year})}$=	
Post BMP $CN_{(10\text{-year})}$=	
Post BMP Peak Discharge (cfs)= $Q_{(10\text{-year})}$=	

Project Name: The Preserve at Moody Farm

DRAINAGE AREA 5
BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AND ADJUSTMENTS				
DA5 Site Acreage=				
DA5 Off-Site Acreage=				
Total Required Storage Volume TCN Requirement (ft^3)=	N/A			
Total Required Storage Volume for DA5 1" Rainfall for High Density (ft3)=				
Will site use underground detention/cistern?		Enter % of the year water will be reused=		Note: Supporting information/details should be submitted to demonstrate water usage.

ENTER ACREAGE FOR ALL SUB-DRAINAGE AREAS IN DA

HSG	Sub-DA5(a) (Ac)		Sub-DA5(b) (Ac)		Sub-DA5(c) (Ac)		Sub-DA5(d) (Ac)		Sub-DA5(e) (Ac)	
	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Pasture										
Woods, Poor Condition										
Woods, Fair Condition										
Woods, Good Condition										
Open Space, Poor Condition										
Open Space, Fair Condition										
Open Space, Good Condition										
Reforestation (in dedicated OS)										
Impervious										

Sub-DA1(a) BMP(s)

Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Sub-DA1(b) BMP(s)

If Sub-DA1(b) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Sub-DA1 (c) BMP(s)

If Sub-DA1(c) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft^3)	Provided Volume that will drawdown 2-5 days (ft^3)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							

Project Name: The Preserve at Moody Farm

DA SITE SUMMARY
BMP CALCULATIONS

BMP SUMMARY										
DRAINAGE AREA SUMMARIES										
DRAINAGE AREA:	DA1	DA2	DA3	DA4	DA5	DA6	DA7	DA8	DA9	DA10
Pre-Development (1-year, 24-hour storm)										
Runoff (in)=$Q^*_{1\text{-year}}$ =	0.73	0.94	0.94	0.70						
Peak Flow (cfs)=$Q_{1\text{-year}}$ =	0.830	25.457	1.424	0.185						
Post-Development (1-year, 24-hour storm)										
Target Curve Number (TCN) =					NA					
Post BMP Runoff (inches) = $Q^*_{(1\text{-year})}$=	0.43	1.18	0.95	0.70						
Post BMP Peak Discharge (cfs)= $Q_{1\text{-year}}$=	0.842	11.053	2.470	0.185						
Post BMP $CN_{(1\text{-year})}$=					78					
Post-BMP Nitrogen Loading										
TOTAL SITE NITROGEN MITIGATED (lbs)=					76.39					
SITE NITROGEN LOADING RATE (lbs/ac/yr)=					4.59					
TOTAL SITE NITROGEN LEFT TO MITIGATE_Wendell Only (lbs)=					**65.32**					

OVERALL POST-DEV PEAK FLOW IMPROVED FROM PRE-DEV (ALSO SEE SIA REPORT).

PRE: 27.90 cfs
POST: 14.55 cfs

Moody: Supplemental & Supporting Info for Hydrograph Generation

PreDev POD Calcs Roman Cook 3/28/2025

PreDev_POD #1:		285072	**S.F.**	**6.54**	**Ac**
	Land Use	Area	CN	Wtd. CN	
	Pasture (Fair) - B Soils	0.12	69	1.25	
	Pasture (Fair) - C Soils	0.16	79	1.96	
	Pasture (Fair) - D Soils	0.00	84	0.00	
	Woods/Wetlands (Fair) -B Soils	1.23	60	11.28	
	Woods/Wetlands (Fair) -C Soils	5.02	73	56.02	
	Woods/Wetlands (Fair) -D Soils	0.01	79	0.08	
	Roofs	0.00	98	0.00	
	Roadway	0.00	98	0.00	
	Open Water	0.00	98	0.00	
	Total (Check):	**6.54**	Composite "CN"	**70.6**	
	Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**	
	Tc, min.= 60*.000132*L^.77/S^.385	**1299**	**46**	**6.67**	Minutes

PreDev_POD #2		1918625	**S.F.**	**44.05**	**Ac**
	Land Use	Area	CN	Wtd. CN	
	Pasture (Fair) - B Soils	2.87	69	4.50	
	Pasture (Fair) - C Soils	13.78	79	24.72	
	Pasture (Fair) - D Soils	1.85	84	3.53	
	Woods/Wetlands (Fair) -B Soils	2.39	60	3.25	
	Woods/Wetlands (Fair) -C Soils	12.44	73	20.62	
	Woods/Wetlands (Fair) -D Soils	6.46	79	11.59	
	Roof	0.15	98	0.33	
	Roadway	0.56	98	1.24	
	Open Water	1.49	98	3.32	
	Total (Check):	**41.98**	Composite "CN"	**73.1**	
	Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**	
	Tc, min.= 60*.000132*L^.77/S^.385	**2427**	**38**	**14.78**	Minutes

Moody: Supplemental & Supporting Info for Hydrograph Generation

PostDev POD 1 - bypass

Roman Cook 3/28/2025

PostDev POD 1 - Bypass	92708	S.F.	2.13	Ac
Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**	
Roadways + C&G (not Sidewalks)	0.00	98	0.00	
Roofs	0.48	98	22.20	
Driveways	0.03	98	1.25	
Sidewalks	0.00	98	0.00	
Openspace- B Soils	0.00	61	0.00	
Openspace- C Soils	1.22	74	42.53	
Openspace- D Soils	0.40	80	14.88	
Woods/Wetlands-B Soils	0.00	55	0.00	
Woods/Wetlands-C Soils	0.00	70	0.00	
Woods/Wetlands-D Soils	0.00	77	0.00	
Lands Taken Up by BMP	0.00	98	0.00	
Open Water (Exist'g or Proposed Ponds)	0.00	98	0.00	
Total (Check):	**2.13**	Composite "CN"	**80.9**	
	Percent Impervious		24%	
Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**	
Tc, min.= 60*.000132*L^.77/S^.385	**605**	**30**	**3.25**	Minutes
Percent Impervious		24%		

Moody: Supplemental & Supporting Info for Hydrograph Generation

Post Dev - POD 2A #1 (SCM #1) Roman Cook 3/28/2025

Post Dev - POD 2A #1 (SCM #1)		412092	S.F.	9.46	Ac	
	Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**		
	Roadways + C&G (not Sidewalks)	0.93	98	9.64		
	Roofs	1.67	98	17.34		
	Driveways/Parking	0.39	98	4.05		
	Sidewalks	0.19	98	1.95		
	Openspace- A Soils	0.00	39	0.00		
	Openspace- B Soils	1.48	61	9.55		
	Openspace- C Soils	4.11	74	32.19		
	Openspace- D Soils	0.28	80	2.40		
	Woods-A Soils	0.00	30	0.00		
	Woods-B Soils	0.00	55	0.00		
	Woods-C Soils	0.00	70	0.00		
	Woods-D Soils	0.00	77	0.00		
	Lands Taken Up by BMP	0.40	98	4.11		
	Open Water (Exist'g or Proposed Ponds)	0.00	98	0.00		
	Total (Check):	**9.46**	Composite "CN"	**81.2**		
		Percent Impervious		37.8%		
	Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**		
	Tc, min.= 60*.000132*L^.77/S^.385	**1083**	**27**	**6.64**	Minutes	
	Percent Impervious		37.8%			
		Pond Design Depth, ft.:	3.50			
SCM #1 Design Elements:	SA/DA Factor:		1.30	From NCDEQ SA/DA Char		D Avg, ft
Davg = VPP-Vshelf /A shelf bottom	Min.SCM Surface Area:		5357	S.F.		3.43
		VPP, c.f.	Perimeter, ft.	Vshelf, c.f.	Abottom, s.f.	**3.50**
Treatment Volume Requirement:		43,409	605	7,259.00	10,525	
	(From HydraFlow Attachment)			Design Pond Depth, ft.=		
Rv=0.05-.009*(%Impervious)						
Total Runoff for 1" Event= S in Ac	DA to SCM:	9.46	Ac.			
Treatment "S" in Cu. Ft. =	Composite % Impervious (Above) =	38%				
Treatment Volume to Be Stored:	Rv=0.05+.009*(%Impervious)	0.39	inch/inch			
Treatment Volume Provided, Cu.	Total Runoff for 1" Event= S in Ac-Ft:	0.31	S=1"*Rv*Drainage Area/12			
	Treatment "S" in Cu. Ft. =	13414.80				
	Treatment Volume to Be Stored:	13415	Cu. FT			
	Volume Achieved at Elev.	364.26	Orifice Dia	2.00	Inch Drawdown Pipe	
	Drawdown Pipe Elev.	363.5	Elev Diff, H., ft.	0.76		

Permanent Pool Surface Area (no forebay):	11540	sf
Forebay Volume (Total):	6440	cf
Permanent Pool Volume (Total):	36969	cf
Forebay Size (Volume):	17	%

Table 1: Piedmont and Mountain SA/DA Table (Adapted from Driscoll, 1986)

Percent Impervious Cover	Permanent Pool Average Depth (ft)					
	3.0	4.0	5.0	6.0	7.0	≥8.0
10%	0.51	0.43	0.37	0.30	0.27	0.25
20%	0.84	0.69	0.61	0.51	0.44	0.40
30%	1.17	0.94	0.84	0.72	0.61	0.56
40%	1.51	1.24	1.09	0.91	0.78	0.71
50%	1.79	1.51	1.31	1.13	0.95	0.87
60%	2.09	1.77	1.49	1.31	1.12	1.03
70%	2.51	2.09	1.80	1.56	1.34	1.17
80%	2.92	2.41	2.07	1.82	1.62	1.40
90%	3.25	2.64	2.31	2.04	1.84	1.59
100%	3.55	2.79	2.52	2.34	2.04	1.75

	3	4	
30%	1.17	0.94	
40%	1.51	1.24	
37.6% (interpolation)	1.43	1.17	1.30 SA/DA

Moody: Supplemental & Supporting Info for Hydrograph Generation

Post Dev - POD 2A #2 (SCM #2) Roman Cook 3/28/2025

Post Dev - POD 2A #2 (SCM #2)		59917	S.F.	1.38	Ac	
	Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**		
	Roadways + C&G (not Sidewalks)	0.00	98	0.00		
	Roofs	0.19	98	13.74		
	Driveways/Parking	0.03	98	1.97		
	Sidewalks	0.00	98	0.00		
	Openspace- A Soils	0.00	39	0.00		
	Openspace- B Soils	0.15	61	6.56		
	Openspace- C Soils	0.60	74	32.08		
	Openspace- D Soils	0.21	80	12.21		
	Woods-A Soils	0.00	30	0.00		
	Woods-B Soils	0.00	55	0.00		
	Woods-C Soils	0.00	70	0.00		
	Woods-D Soils	0.00	77	0.00		
	Lands Taken Up by BMP	0.20	98	14.32		
	Open Water (Exist'g or Proposed Ponds)	0.00	98	0.00		
	Total (Check):	**1.38**	Composite "CN"	**80.9**		
		Percent Impervious		30.6%		
	Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**		
	Tc, min.= 60*.000132*L^.77/S^.385	**390**	**19**	**2.34**	Minutes	use 5 min. minimum
	Percent Impervious		30.6%			
		Pond Design Depth, ft.:	3.50			

SCM #1 Design Elements:	SA/DA Factor:		1.00	From NCDEQ SA/DA Char		D Avg, ft	
Davg = VPP-Vshelf /A shelf bottom	Min.SCM Surface Area:		599	S.F.		4.40	
		VPP, c.f.	Perimeter, ft.	Vshelf, c.f.	Abottom, s.f.	**3.50**	
Treatment Volume Requirement:		15,908	517	3,197.00	2,888		
	(From HydraFlow Attachment)			Design Pond Depth, ft.=		**3.50**	
Rv=0.05-.009*(%Impervious)							
Total Runoff for 1" Event= S in Ac	DA to SCM:	1.38	Ac.				
Treatment "S" in Cu. Ft. =	Composite % Impervious (Above) =	31%					
Treatment Volume to Be Stored:	Rv=0.05+.009*(%Impervious)	0.33	inch/inch				
Treatment Volume Provided, Cu.	Total Runoff for 1" Event= S in Ac-Ft:	0.04	S=1"*Rv*Drainage Area/12				
	Treatment "S" in Cu. Ft. =	1626.50					
	Treatment Volume to Be Stored:	1627	Cu. FT				
	Volume Achieved at Elev.	361.71	Orifice Dia	1.00	Inch Drawdown Pipe		
	Drawdown Pipe Elev.	361.5	Elev Diff, H., ft.	0.21			

Permanent Pool Surface Area (no forebay):	5547	sf
Forebay Volume (Total):	2567	cf
Permanent Pool Volume (Total):	13341	cf
Forebay Size (Volume):	19	%

Table 1: Piedmont and Mountain SA/DA Table (Adapted from Driscoll, 1986)

Percent Impervious Cover	Permanent Pool Average Depth (ft)					
	3.0	4.0	5.0	6.0	7.0	≥8.0
10%	0.51	0.43	0.37	0.30	0.27	0.25
20%	0.84	0.69	0.61	0.51	0.44	0.40
30%	1.17	0.94	0.84	0.72	0.61	0.56
40%	1.51	1.24	1.09	0.91	0.78	0.71
50%	1.79	1.51	1.31	1.13	0.95	0.87
60%	2.09	1.77	1.49	1.31	1.12	1.03
70%	2.51	2.09	1.80	1.56	1.34	1.17
80%	2.92	2.41	2.07	1.82	1.62	1.40
90%	3.25	2.64	2.31	2.04	1.84	1.59
100%	3.55	2.79	2.52	2.34	2.04	1.75

		3	4	
20%		0.84	0.69	
30%		1.17	0.94	
28.0% (interpolation)		1.10	0.89	1.00 SA/DA

Moody: Supplemental & Supporting Info for Hydrograph Generation

Post Dev - POD 2A #3 (SCM #3) Roman Cook 3/28/2025

Post Dev - POD 2A #3 (SCM #3)		385162	S.F.	8.84	Ac	
	Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**		
	Roadways + C&G (not Sidewalks)	1.08	98	11.95		
	Roofs	1.91	98	21.18		
	Driveways/Parking	0.28	98	3.08		
	Sidewalks	0.24	98	2.66		
	Openspace- A Soils	0.00	39	0.00		
	Openspace- B Soils	1.51	61	10.45		
	Openspace- C Soils	2.80	74	23.43		
	Openspace- D Soils	0.75	80	6.77		
	Woods-A Soils	0.00	30	0.00		
	Woods-B Soils	0.10	55	0.62		
	Woods-C Soils	0.00	70	0.00		
	Woods-D Soils	0.00	77	0.00		
	Lands Taken Up by BMP	0.17	98	1.92		
	Open Water (Exist'g or Proposed Ponds)	0.00	98	0.00		
	Total (Check):	**8.84**	Composite "CN"	**82.1**		
		Percent Impervious		41.6%		
	Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**		
	Tc, min.= 60*.000132*L^.77/S^.385	**1140**	**25**	**7.25**	Minutes	
	Percent Impervious		41.6%			
		Pond Design Depth, ft.:	3.50			
SCM #1 Design Elements:	SA/DA Factor:		1.20	From NCDEQ SA/DA Char		D Avg, ft
Davg = VPP-Vshelf /A shelf bottom	Min.SCM Surface Area:		4622	S.F.		3.72
		VPP, c.f.	Perimeter, ft.	Vshelf, c.f.	Abottom, s.f.	**3.50**
Treatment Volume Requirement:		16,418	354	2,957.00	3,619	
	(From HydraFlow Attachment)			Design Pond Depth, ft.=		**3.50**
Rv=0.05-.009*(%Impervious)						
Total Runoff for 1" Event= S in Ac	DA to SCM:	8.842	Ac.			
Treatment "S" in Cu. Ft. =	Composite % Impervious (Above) =	42%				
Treatment Volume to Be Stored:	Rv=0.05+.009*(%Impervious)	0.42	inch/inch			
Treatment Volume Provided, Cu.	Total Runoff for 1" Event= S in Ac-Ft:	0.31	S=1"*Rv*Drainage Area/12			
	Treatment "S" in Cu. Ft. =	13627.82				
	Treatment Volume to Be Stored:	13628	Cu. FT			
	Volume Achieved at Elev.	363.13	Orifice Dia	2.00	Inch Drawdown Pipe	
	Drawdown Pipe Elev.	361.5	Elev Diff, H., ft.	1.63		

Permanent Pool Surface Area (no forebay):	4788	sf
Forebay Volume (Total):	3009	cf
Permanent Pool Volume (Total):	16422	cf
Forebay Size (Volume):	18	%

Table 1: Piedmont and Mountain SA/DA Table (Adapted from Driscoll, 1986)

Percent Impervious Cover	Permanent Pool Average Depth (ft)					
	3.0	4.0	5.0	6.0	7.0	≥8.0
10%	0.51	0.43	0.37	0.30	0.27	0.25
20%	0.84	0.69	0.61	0.51	0.44	0.40
30%	1.17	0.94	0.84	0.72	0.61	0.56
40%	1.51	1.24	1.09	0.91	0.78	0.71
50%	1.79	1.51	1.31	1.13	0.95	0.87
60%	2.09	1.77	1.49	1.31	1.12	1.03
70%	2.51	2.09	1.80	1.56	1.34	1.17
80%	2.92	2.41	2.07	1.82	1.62	1.40
90%	3.25	2.64	2.31	2.04	1.84	1.59
100%	3.55	2.79	2.52	2.34	2.04	1.75

	4	5	
40%	1.24	1.09	
50%	1.51	1.31	
41.5% (interpolation)	1.28	1.12	1.20 SA/DA

Hawthorne Trail: Supplemental & Supporting Info for Hydrograph Generation

Post Dev POD 2A #4 - Bypass

Roman Cook 3/28/2025

Post Dev POD 2A #4 - Bypass	297989	S.F.	6.84	Ac
Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**	
Roadways + C&G (not Sidewalks)	0.00	98	0.00	
Roofs	0.57	98	8.18	
Driveways	0.00	98	0.00	
Sidewalks	0.00	98	0.00	
Openspace- B Soils	0.00	61	0.00	
Openspace- C Soils	1.13	74	12.17	
Openspace- D Soils	3.53	80	41.33	
Woods/Wetlands-B Soils	0.00	55	0.00	
Woods/Wetlands-C Soils	0.04	70	0.38	
Woods/Wetlands-D Soils	0.87	77	9.81	
Lands Taken Up by BMP	0.00	98	0.00	
Open Water (Exist'g or Proposed Ponds)	0.70	98	10.05	
Total (Check):	**6.84**	Composite "CN"	**81.9**	
	Percent Impervious		19%	
Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**	
Tc, min.= 60*.000132*L^.77/S^.385	**11.50 min TR-55 calcs, see Tc onsite bypass in SIA for culverts.**			
Percent Impervious		18.6%		

Hawthorne Trail: Supplemental & Supporting Info for Hydrograph Generation

Post Dev POD 2B #1 - Bypass Roman Cook 3/28/2025

Post Dev POD 2B #1 - Bypass	10275	S.F.	0.24	Ac
Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**	
Roadways + C&G (not Sidewalks)	0.10	98	40.70	
Roofs	0.00	98	0.00	
Driveways	0.00	98	0.00	
Sidewalks	0.02	98	7.94	
Openspace- B Soils	0.00	39	0.00	
Openspace- C Soils	0.12	74	37.27	
Openspace- D Soils	0.00	80	0.00	
Woods/Wetlands-B Soils	0.00	30	0.00	
Woods/Wetlands-C Soils	0.00	70	0.00	
Woods/Wetlands-D Soils	0.00	77	0.00	
Lands Taken Up by BMP	0.00	98	0.00	
Open Water (Exist'g or Proposed Ponds)	0.00	98	0.00	
Total (Check):	**0.24**	Composite "CN"	**85.9**	
	Percent Impervious		50%	
Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**	
Tc, min.= 60*.000132*L^.77/S^.385	**143**	**11**	**0.90**	Minutes
Percent Impervious		49.6%		

Moody: Supplemental & Supporting Info for Hydrograph Generation

Post Dev - POD 2B #2 (SCM #4) Roman Cook 3/28/2025

Post Dev - POD 2B #2 (SCM #4)		257434 S.F.		5.91 Ac		
	Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**		
	Roadways + C&G (not Sidewalks)	0.81	98	13.39		
	Roofs	1.40	98	23.24		
	Driveways/Parking	0.29	98	4.83		
	Sidewalks	0.14	98	2.38		
	Openspace- A Soils	0.00	39	0.00		
	Openspace- B Soils	0.77	61	7.90		
	Openspace- C Soils	2.26	74	28.35		
	Openspace- D Soils	0.04	80	0.60		
	Woods-A Soils	0.00	30	0.00		
	Woods-B Soils	0.02	55	0.18		
	Woods-C Soils	0.00	70	0.00		
	Woods-D Soils	0.00	77	0.00		
	Lands Taken Up by BMP	0.17	98	2.86		
	Open Water (Exist'g or Proposed Ponds)	0.00	98	0.00		
	Total (Check):	**5.91**	Composite "CN"	**84**		
		Percent Impervious		47.7%		
	Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**		
	Tc, min.= 60*.000132*L^.77/S^.385	**710**	**2.5**	**10.19**	Minutes	use 10 min. minimum
	Percent Impervious		47.7%			
		Pond Design Depth, ft.:	3.50			
SCM #1 Design Elements:	SA/DA Factor:		1.55	From NCDEQ SA/DA Char		D Avg, ft
Davg = VPP-Vshelf /A shelf bottom	Min.SCM Surface Area:		3990	S.F.		4.94
		VPP, c.f.	Perimeter, ft.	Vshelf, c.f.	Abottom, s.f.	**3.50**
Treatment Volume Requirement:		12,515	537	2,661.00	1,995	
	(From HydraFlow Attachment)			Design Pond Depth, ft.=		**3.50**
Rv=0.05-.009*(%Impervious)						
Total Runoff for 1" Event= S in Ac	DA to SCM:	5.910	Ac.			
Treatment "S" in Cu. Ft. =	Composite % Impervious (Above) =	48%				
Treatment Volume to Be Stored:	Rv=0.05+.009*(%Impervious)	0.48	inch/inch			
Treatment Volume Provided, Cu.	Total Runoff for 1" Event= S in Ac-Ft:	0.24	S=1"*Rv*Drainage Area/12			
	Treatment "S" in Cu. Ft. =	10273.87				
	Treatment Volume to Be Stored:	10274	Cu. FT			
	Volume Achieved at Elev.	358.82	Orifice Dia	1.50	Inch Drawdown Pipe	
	Drawdown Pipe Elev.	357.5	Elev Diff, H., ft.	1.32		

Permanent Pool Surface Area (no forebay):	4279	sf
Forebay Volume (Total):	2387	cf
Permanent Pool Volume (Total):	12515	cf
Forebay Size (Volume):	19	%

Table 1: Piedmont and Mountain SA/DA Table (Adapted from Driscoll, 1986)

Percent Impervious Cover	Permanent Pool Average Depth (ft)					
	3.0	4.0	5.0	6.0	7.0	≥8.0
10%	0.51	0.43	0.37	0.30	0.27	0.25
20%	0.84	0.69	0.61	0.51	0.44	0.40
30%	1.17	0.94	0.84	0.72	0.61	0.56
40%	1.51	1.24	1.09	0.91	0.78	0.71
50%	1.79	1.51	1.31	1.13	0.95	0.87
60%	2.09	1.77	1.49	1.31	1.12	1.03
70%	2.51	2.09	1.80	1.56	1.34	1.17
80%	2.92	2.41	2.07	1.82	1.62	1.40
90%	3.25	2.64	2.31	2.04	1.84	1.59
100%	3.55	2.79	2.52	2.34	2.04	1.75

		3	4	
40%		1.51	1.24	
50%		1.79	1.51	
46.4% (interpolation)		1.69	1.41	1.55 SA/DA

Hawthorne Trail: Supplemental & Supporting Info for Hydrograph Generation

Post Dev POD 2B #3 - Bypass Roman Cook 3/28/2025

Post Dev POD 2B #3 - Bypass	262581	S.F.	6.03	Ac
Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**	
Roadways + C&G (not Sidewalks)	0.00	98	0.00	
Roofs	0.08	98	1.34	
Driveways	0.01	98	0.19	
Sidewalks (+Pump Station)	0.00	98	0.00	
Openspace- A Soils	0.00	39	0.00	
Openspace- C Soils	3.55	74	43.60	
Openspace- D Soils	1.77	80	23.46	
Woods/Wetlands-A Soils	0.00	30	0.00	
Woods/Wetlands-C Soils	0.27	70	3.17	
Woods/Wetlands-D Soils	0.34	77	4.37	
Lands Taken Up by BMP	0.00	98	0.00	
Open Water (Exist'g or Proposed Ponds)	0.00	98	0.00	
Total (Check):	**6.03**	Composite "CN"	**76.1**	
	Percent Impervious		2%	
Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**	
Tc, min.= 60*.000132*L^.77/S^.385	**931**	**15**	**6.99**	Minutes
Percent Impervious		2%		

Moody: Supplemental & Supporting Info for Hydrograph Generation

Post Dev - POD 2B #4 (SCM #5) Roman Cook 3/28/2025

Post Dev - POD 2B #4 (SCM #5)		322273	S.F.	7.40	Ac	
	Land Use	**Area, Ac.**	**"CN"**	**Wtd'd "CN"**		
	Roadways + C&G (not Sidewalks)	0.95	98	12.65		
	Roofs	1.67	98	22.09		
	Driveways/Parking	0.23	98	3.09		
	Sidewalks	0.26	98	3.45		
	Openspace- A Soils	0.00	39	0.00		
	Openspace- B Soils	0.59	61	4.89		
	Openspace- C Soils	3.41	74	34.12		
	Openspace- D Soils	0.00	80	0.00		
	Woods-A Soils	0.00	30	0.00		
	Woods-B Soils	0.05	55	0.37		
	Woods-C Soils	0.00	70	0.00		
	Woods-D Soils	0.00	77	0.00		
	Lands Taken Up by BMP	0.23	98	3.03		
	Open Water (Exist'g or Proposed Ponds)	0.00	98	0.00		
	Total (Check):	**7.40**	Composite "CN"	**84**		
		Percent Impervious		45.2%		
	Tc (Kirpich):	**Length**	**Elev Delta**	**Tc=**		
	Tc, min.= 60*.000132*L^.77/S^.385	**1195**	**12**	**10.16**	Minutes	
	Percent Impervious		45.2%			
		Pond Design Depth, ft.:	3.50	(4.5' w/ 0.5' Sediment Storage)		
SCM #1 Design Elements:	SA/DA Factor:		1.87	From NCDEQ SA/DA Char		D Avg, ft
Davg = VPP-Vshelf /A shelf bottom	Min.SCM Surface Area:		6027	S.F.		4.04
		VPP, c.f.	Perimeter, ft.	Vshelf, c.f.	Abottom, s.f.	**3.50**
Treatment Volume Requirement:		19,680	537	3,760.00	3,945	
	(From HydraFlow Attachment)			Design Pond Depth, ft.=		**3.50**
Rv=0.05-.009*(%Impervious)						
Total Runoff for 1" Event= S in Ac	DA to SCM:	7.398	Ac.			
Treatment "S" in Cu. Ft. =	Composite % Impervious (Above) =	45%				
Treatment Volume to Be Stored:	Rv=0.05+.009*(%Impervious)	0.46	inch/inch			
Treatment Volume Provided, Cu.	Total Runoff for 1" Event= S in Ac-Ft:	0.28	S=1"*Rv*Drainage Area/12			
	Treatment "S" in Cu. Ft. =	12269.18				
	Treatment Volume to Be Stored:	12269	Cu. FT			
	Volume Achieved at Elev.	348.7	Orifice Dia	2.00	Inch Drawdown Pipe	
	Drawdown Pipe Elev.	347.5	Elev Diff, H., ft.	1.2		

Permanent Pool Surface Area (no forebay):	5760	sf
Forebay Volume (Total):	3881	cf
Permanent Pool Volume (Total):	19680	cf
Forebay Size (Volume):	20	%

Table 1: Piedmont and Mountain SA/DA Table (Adapted from Driscoll, 1986)

Percent Impervious Cover	Permanent Pool Average Depth (ft)					
	3.0	4.0	5.0	6.0	7.0	≥8.0
10%	0.51	0.43	0.37	0.30	0.27	0.25
20%	0.84	0.69	0.61	0.51	0.44	0.40
30%	1.17	0.94	0.84	0.72	0.61	0.56
40%	1.51	1.24	1.09	0.91	0.78	0.71
50%	1.79	1.51	1.31	1.13	0.95	0.87
60%	2.09	1.77	1.49	1.31	1.12	1.03
70%	2.51	2.09	1.80	1.56	1.34	1.17
80%	2.92	2.41	2.07	1.82	1.62	1.40
90%	3.25	2.64	2.31	2.04	1.84	1.59
100%	3.55	2.79	2.52	2.34	2.04	1.75

	3	4		
50%	1.79	1.51		
60%	2.09	1.77		
57.7% (interpolation)	2.02	1.71	1.87	SA/DA

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Monday, 03 / 31 / 2025

Pond No. 1 - SCM #1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 360.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	360.00	10,525	0	0
1.00	361.00	11,518	11,017	11,017
2.00	362.00	12,558	12,033	23,050
3.00	363.00	13,653	13,100	36,150
3.50	363.50	15,404	7,259	43,409
4.00	364.00	17,281	8,166	51,575
5.00	365.00	19,287	18,273	69,848
6.00	366.00	21,423	20,344	90,192
7.00	367.00	23,693	22,546	112,738
8.00	368.00	26,063	24,866	137,604

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	2.00	6.00	0.00
Span (in)	= 24.00	2.00	24.00	0.00
No. Barrels	= 1	1	3	0
Invert El. (ft)	= 360.00	363.50	365.75	0.00
Length (ft)	= 50.00	0.50	0.50	0.00
Slope (%)	= 0.50	0.50	0.50	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

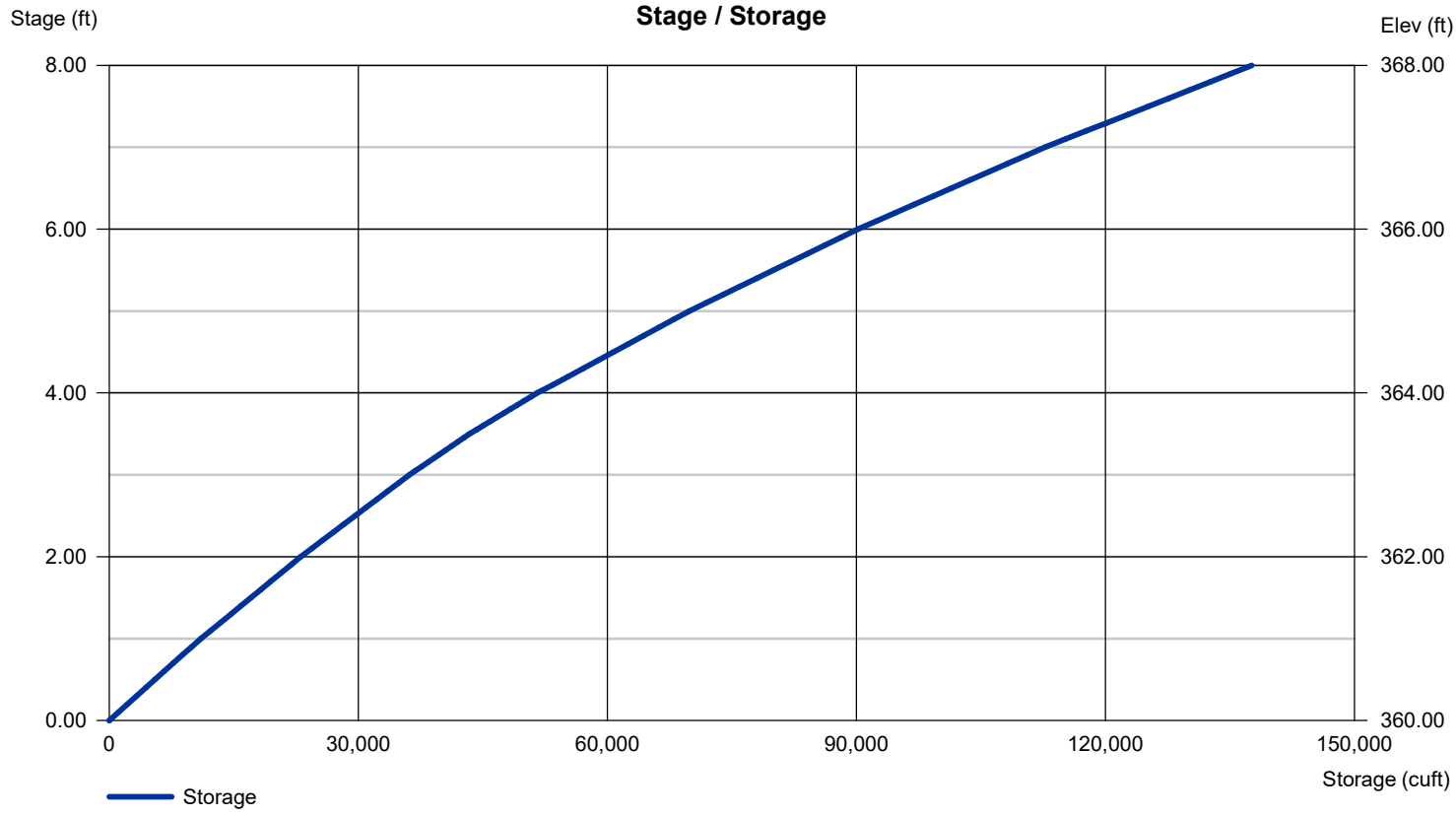
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 14.00	24.00	0.00	0.00
Crest El. (ft)	= 366.25	366.75	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 04 / 1 / 2025

Pond No. 2 - SCM #2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 358.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	358.00	2,888	0	0
1.00	359.00	3,772	3,320	3,320
2.00	360.00	4,695	4,225	7,545
3.00	361.00	5,655	5,167	12,712
3.50	361.50	7,163	3,197	15,908
4.00	362.00	8,755	3,972	19,881
5.00	363.00	10,430	9,579	29,460
6.00	364.00	12,189	11,297	40,757
7.00	365.00	14,033	13,099	53,856

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	1.00	6.00	0.00
Span (in)	= 18.00	1.00	12.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 358.00	361.50	362.75	0.00
Length (ft)	= 100.00	0.50	0.50	0.00
Slope (%)	= 0.50	0.50	0.50	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

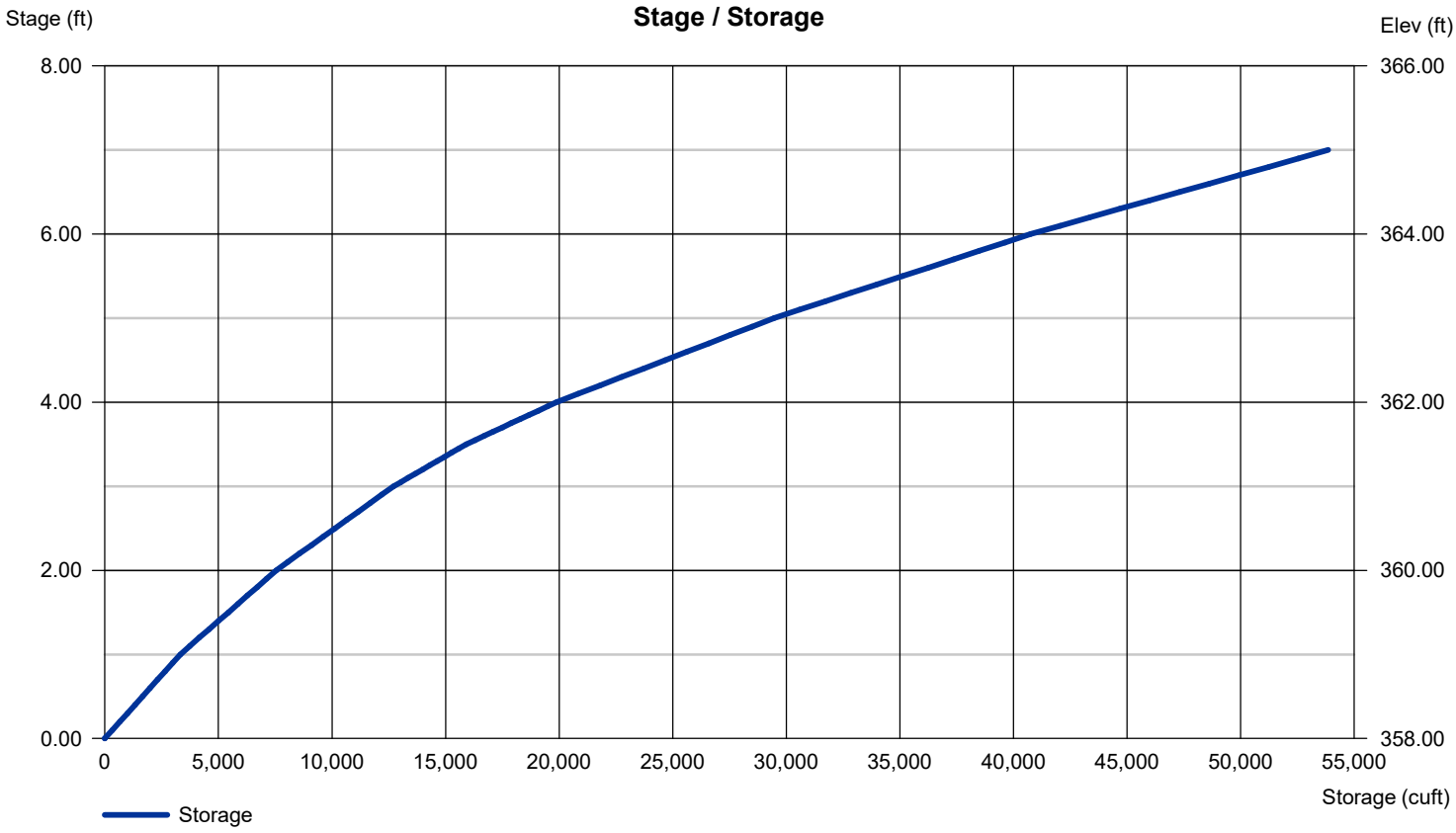
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 14.00	12.00	0.00	0.00
Crest El. (ft)	= 363.25	363.75	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 04 / 1 / 2025

Pond No. 3 - SCM #3

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 357.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	357.00	2,465	0	0
1.00	358.00	3,606	3,036	3,036
2.00	359.00	4,169	3,888	6,923
3.00	360.00	4,767	4,468	11,391
4.00	361.00	5,401	5,084	16,475
4.50	361.50	6,424	2,956	19,431
5.00	362.00	7,528	3,488	22,919
6.00	363.00	8,717	8,123	31,042
7.00	364.00	9,993	9,355	40,397
8.00	365.00	11,354	10,674	51,070

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	2.00	6.00	0.00
Span (in)	= 24.00	2.00	42.00	0.00
No. Barrels	= 1	1	3	0
Invert El. (ft)	= 358.00	361.50	362.75	0.00
Length (ft)	= 0.00	0.00	0.50	0.00
Slope (%)	= 0.00	0.00	0.50	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

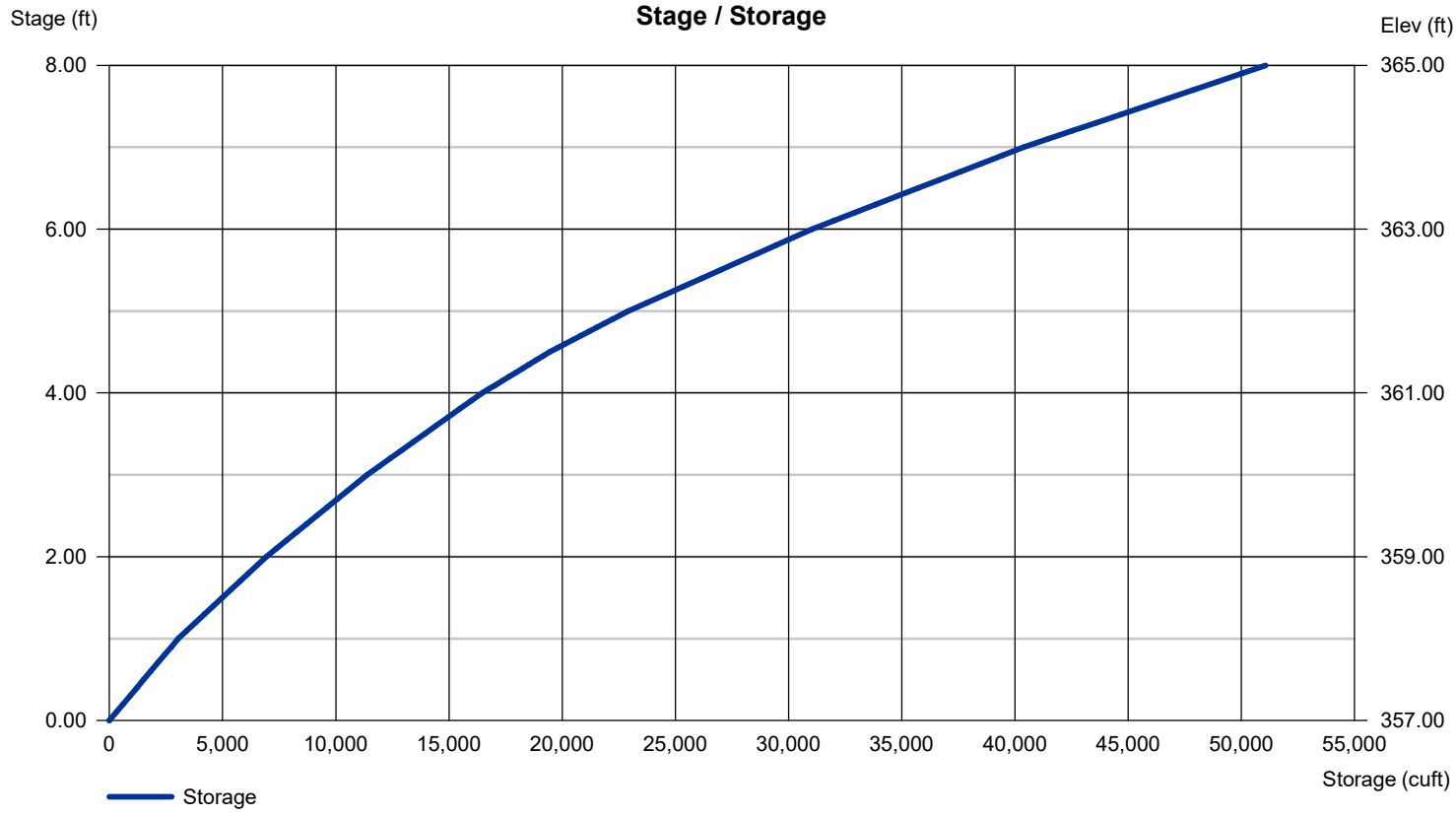
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 22.00	24.00	0.00	0.00
Crest El. (ft)	= 363.25	363.90	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 04 / 1 / 2025

Pond No. 5 - SCM #4

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 354.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	354.00	1,995	0	0
1.00	355.00	2,838	2,417	2,417
2.00	356.00	3,711	3,275	5,691
3.00	357.00	4,615	4,163	9,854
3.50	357.50	6,029	2,661	12,515
4.00	358.00	7,511	3,385	15,900
5.00	359.00	9,061	8,286	24,186
6.00	360.00	10,681	9,871	34,057
7.00	361.00	12,369	11,525	45,582

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.50	6.00	0.00
Span (in)	= 24.00	1.50	30.00	0.00
No. Barrels	= 1	1	3	0
Invert El. (ft)	= 354.00	357.50	358.75	0.00
Length (ft)	= 100.00	0.00	0.50	0.00
Slope (%)	= 0.50	0.00	0.50	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

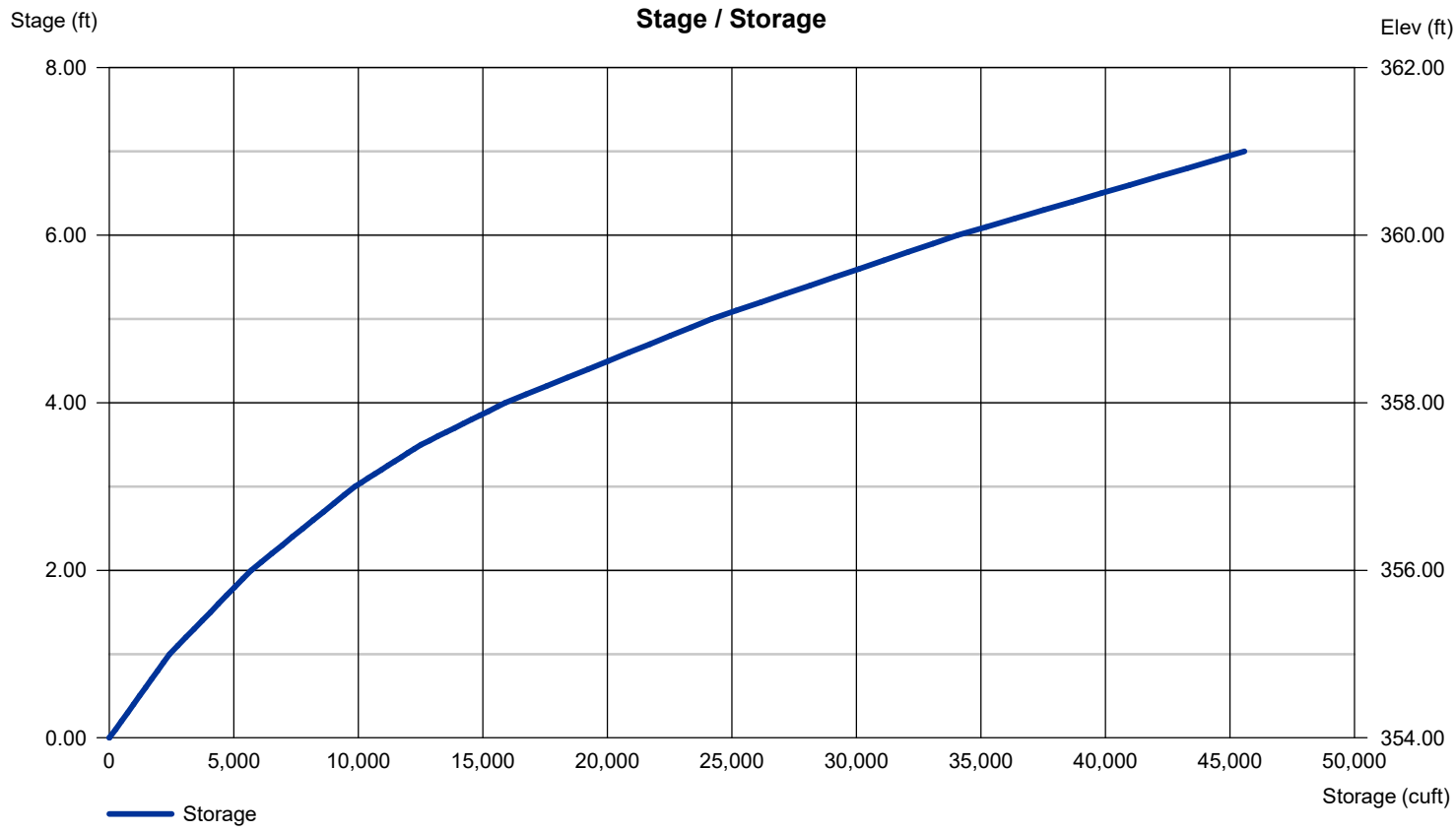
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 22.00	24.00	0.00	0.00
Crest El. (ft)	= 359.25	360.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 04 / 1 / 2025

Pond No. 4 - SCM #5

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 344.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	344.00	3,945	0	0
1.00	345.00	4,823	4,384	4,384
2.00	346.00	5,755	5,289	9,673
3.00	347.00	6,738	6,247	15,920
3.50	347.50	8,303	3,760	19,680
4.00	348.00	9,952	4,564	24,244
5.00	349.00	11,681	10,817	35,060
6.00	350.00	13,490	12,586	47,646
7.00	351.00	15,379	14,435	62,080
8.00	352.00	17,348	16,364	78,444

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	2.00	6.00	0.00
Span (in)	= 24.00	2.00	24.00	0.00
No. Barrels	= 1	1	3	0
Invert El. (ft)	= 344.00	347.50	350.00	0.00
Length (ft)	= 100.00	0.50	0.50	0.00
Slope (%)	= 0.50	0.50	0.50	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

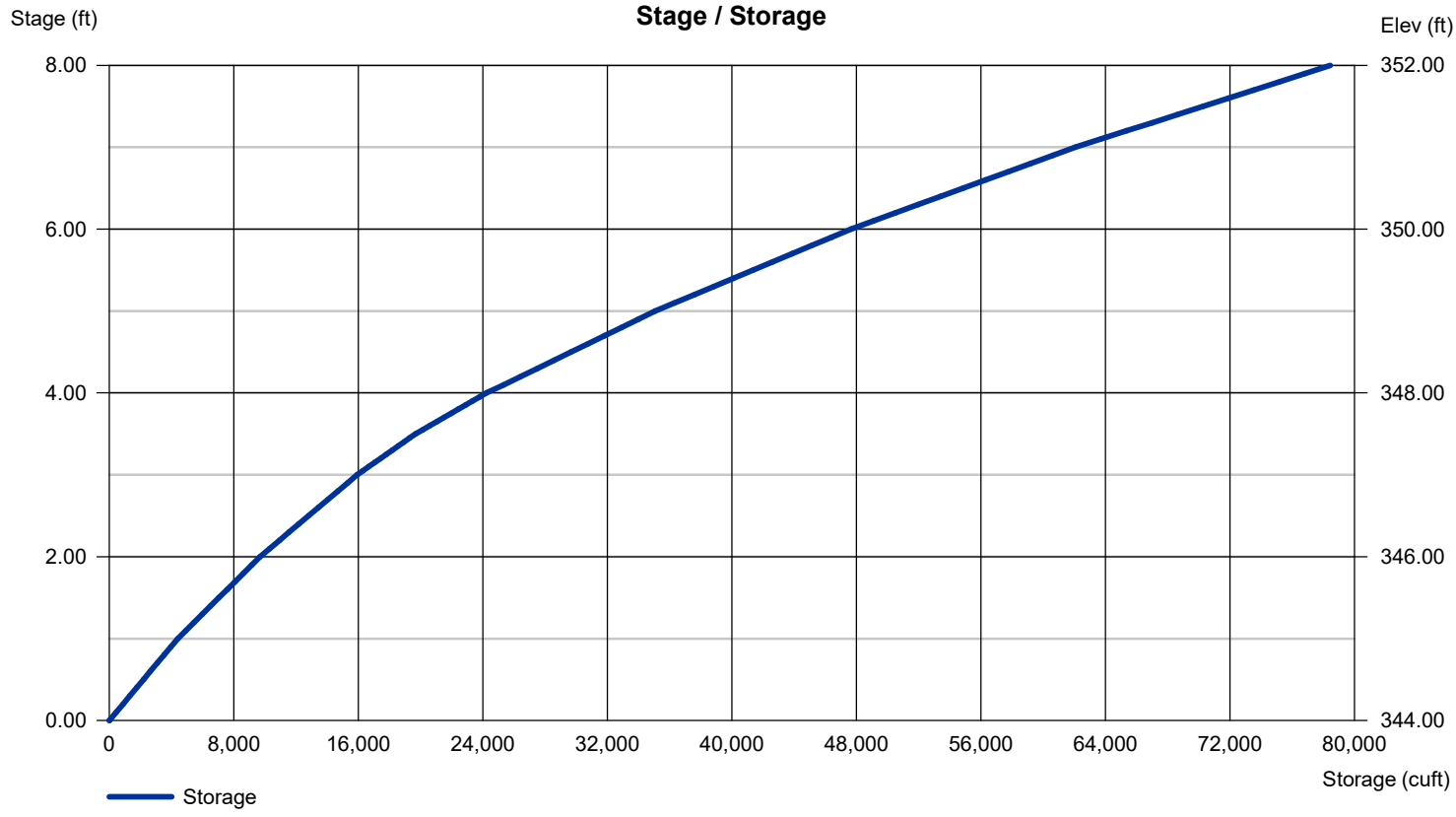
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 14.00	24.00	0.00	0.00
Crest El. (ft)	= 350.50	351.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



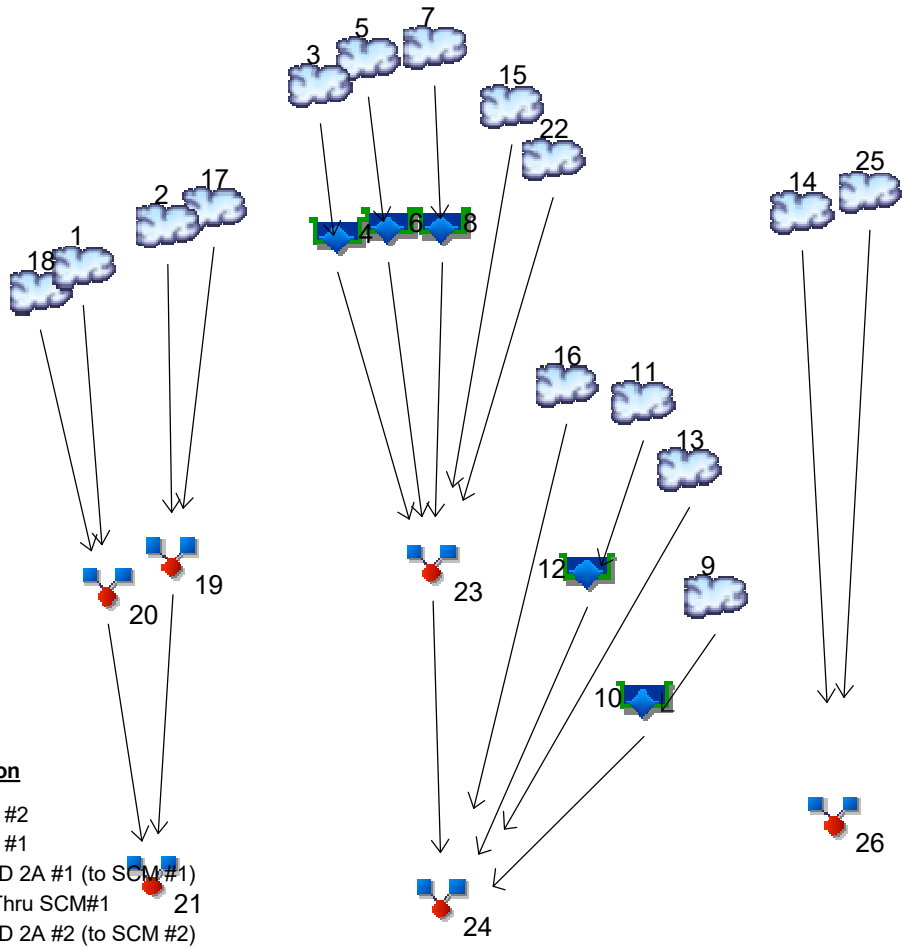
Hydraflow Table of Contents

20250124 SCM Modeling.gpw

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Monday, 03 / 31 / 2025

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	PRE POD #2
2	SCS Runoff	PRE POD #1
3	SCS Runoff	POST POD 2A #1 (to SCM#1)
4	Reservoir	PostDev Thru SCM#1
5	SCS Runoff	POST POD 2A #2 (to SCM #2)
6	Reservoir	Route PostDev SCM #2
7	SCS Runoff	POST POD 2A #3 (to SCM #3)
8	Reservoir	Route PostDev @ SCM#3
9	SCS Runoff	POST POD 2B #4 (to SCM #5)
10	Reservoir	Route PostDev SCM#5
11	SCS Runoff	POST POD 2B #2 (to SCM #4)
12	Reservoir	Route PostDev SCM #4
13	SCS Runoff	POST POD 2B #3 (BYPASS)
14	SCS Runoff	POST POD #1 (BYPASS)
15	SCS Runoff	POST POD 2A #4 (BYPASS)
16	SCS Runoff	POST POD 2B #1 (BYPASS)
17	SCS Runoff	PRE POD #1 OFFSITE AREA
18	SCS Runoff	PRE OFFSITE AREA #4
19	Combine	PRE POD #1 TOTAL
20	Combine	PRE POD #2 TOTAL
21	Combine	PRE POD GRAND TOTAL
22	SCS Runoff	POST POD AREA A (OFFSITE BYPASS)
23	Combine	POST POD 2A TOTAL
24	Combine	POST POD 2 GRAND TOTAL
25	SCS Runoff	POST POD AREA C & B OFFSITE BYPASS
26	Combine	POST POD 1 GRAND TOTAL

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)							Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	42.90	-------	-------	-------	121.51	-------	-------	230.07	PRE POD #2
2	SCS Runoff	------	7.331	-------	-------	-------	21.78	-------	-------	42.19	PRE POD #1
3	SCS Runoff	------	19.90	-------	-------	-------	45.07	-------	-------	76.81	POST POD 2A #1 (to SCM #1)
4	Reservoir	3	0.150	-------	-------	-------	7.801	-------	-------	58.18	PostDev Thru SCM#1
5	SCS Runoff	------	3.057	-------	-------	-------	6.893	-------	-------	11.74	POST POD 2A #2 (to SCM #2)
6	Reservoir	5	0.020	-------	-------	-------	0.074	-------	-------	0.730	Route PostDev SCM #2
7	SCS Runoff	------	19.41	-------	-------	-------	43.19	-------	-------	72.90	POST POD 2A #3 (to SCM #3)
8	Reservoir	7	10.84	-------	-------	-------	33.43	-------	-------	67.90	Route PostDev @ SCM#3
9	SCS Runoff	------	16.19	-------	-------	-------	34.78	-------	-------	57.71	POST POD 2B #4 (to SCM #5)
10	Reservoir	9	0.550	-------	-------	-------	18.85	-------	-------	50.37	Route PostDev SCM#5
11	SCS Runoff	------	12.93	-------	-------	-------	27.78	-------	-------	46.09	POST POD 2B #2 (to SCM #4)
12	Reservoir	11	6.542	-------	-------	-------	25.84	-------	-------	37.38	Route PostDev SCM #4
13	SCS Runoff	------	9.688	-------	-------	-------	24.50	-------	-------	44.33	POST POD 2B #3 (BYPASS)
14	SCS Runoff	------	4.718	-------	-------	-------	10.64	-------	-------	18.12	POST POD #1 (BYPASS)
15	SCS Runoff	------	13.49	-------	-------	-------	30.35	-------	-------	51.51	POST POD 2A #4 (BYPASS)
16	SCS Runoff	------	0.667	-------	-------	-------	1.362	-------	-------	2.205	POST POD 2B #1 (BYPASS)
17	SCS Runoff	------	4.826	-------	-------	-------	12.60	-------	-------	23.29	PRE POD #1 OFFSITE AREA
18	SCS Runoff	------	9.181	-------	-------	-------	25.99	-------	-------	49.11	PRE OFFSITE AREA #4
19	Combine	2, 17,	11.80	-------	-------	-------	34.24	-------	-------	65.08	PRE POD #1 TOTAL
20	Combine	1, 18,	48.86	-------	-------	-------	138.98	-------	-------	263.30	PRE POD #2 TOTAL
21	Combine	19, 20	56.68	-------	-------	-------	163.83	-------	-------	310.97	PRE POD GRAND TOTAL
22	SCS Runoff	------	9.181	-------	-------	-------	25.99	-------	-------	49.11	POST POD AREA A (OFFSITE BYP
23	Combine	4, 6, 8, 15, 22	28.97	-------	-------	-------	82.80	-------	-------	208.45	POST POD 2A TOTAL
24	Combine	10, 12, 13, 16, 23	39.89	-------	-------	-------	137.28	-------	-------	329.46	POST POD 2 GRAND TOTAL
25	SCS Runoff	------	4.872	-------	-------	-------	12.72	-------	-------	23.52	POST POD AREA C & B OFFSITE B
26	Combine	14, 25	9.590	-------	-------	-------	23.36	-------	-------	41.64	POST POD 1 GRAND TOTAL

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

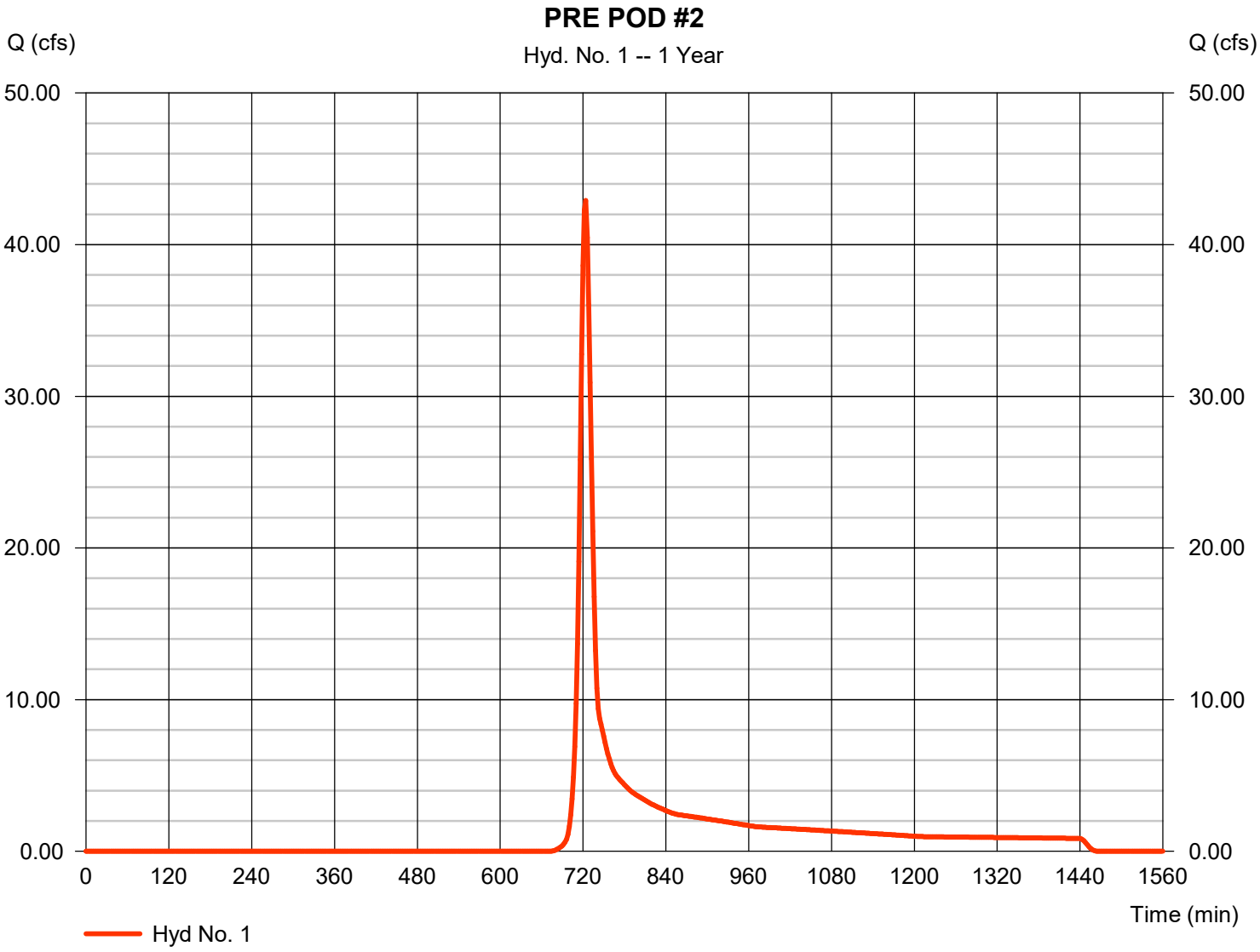
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	42.90	2	724	128,128	------	------	------	PRE POD #2
2	SCS Runoff	7.331	2	720	17,610	------	------	------	PRE POD #1
3	SCS Runoff	19.90	2	720	45,549	------	------	------	POST POD 2A #1 (to SCM #1)
4	Reservoir	0.150	2	1446	35,663	3	365.63	82,682	PostDev Thru SCM#1
5	SCS Runoff	3.057	2	718	6,138	------	------	------	POST POD 2A #2 (to SCM #2)
6	Reservoir	0.020	2	1442	4,751	5	362.14	21,206	Route PostDev SCM #2
7	SCS Runoff	19.41	2	718	44,464	------	------	------	POST POD 2A #3 (to SCM #3)
8	Reservoir	10.84	2	726	41,381	7	363.20	32,889	Route PostDev @ SCM#3
9	SCS Runoff	16.19	2	720	42,003	------	------	------	POST POD 2B #4 (to SCM #5)
10	Reservoir	0.550	2	906	40,370	9	350.06	48,504	Route PostDev SCM#5
11	SCS Runoff	12.93	2	720	33,546	------	------	------	POST POD 2B #2 (to SCM #4)
12	Reservoir	6.542	2	730	33,138	11	359.15	25,654	Route PostDev SCM #4
13	SCS Runoff	9.688	2	720	22,339	------	------	------	POST POD 2B #3 (BYPASS)
14	SCS Runoff	4.718	2	718	9,474	------	------	------	POST POD #1 (BYPASS)
15	SCS Runoff	13.49	2	720	35,139	------	------	------	POST POD 2A #4 (BYPASS)
16	SCS Runoff	0.667	2	716	1,352	------	------	------	POST POD 2B #1 (BYPASS)
17	SCS Runoff	4.826	2	718	9,705	------	------	------	PRE POD #1 OFFSITE AREA
18	SCS Runoff	9.181	2	736	45,436	------	------	------	PRE OFFSITE AREA #4
19	Combine	11.80	2	718	27,315	2, 17,	------	------	PRE POD #1 TOTAL
20	Combine	48.86	2	724	173,564	1, 18,	------	------	PRE POD #2 TOTAL
21	Combine	56.68	2	722	200,879	19, 20	------	------	PRE POD GRAND TOTAL
22	SCS Runoff	9.181	2	736	45,436	------	------	------	POST POD AREA A (OFFSITE BYP
23	Combine	28.97	2	724	162,371	4, 6, 8, 15, 22	------	------	POST POD 2A TOTAL
24	Combine	39.89	2	724	259,570	10, 12, 13, 16, 23	------	------	POST POD 2 GRAND TOTAL
25	SCS Runoff	4.872	2	718	9,798	------	------	------	POST POD AREA C & B OFFSITE B
26	Combine	9.590	2	718	19,272	14, 25	------	------	POST POD 1 GRAND TOTAL

Hydrograph Report

Hyd. No. 1

PRE POD #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	42.90 cfs
Storm frequency	=	1 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	128,128 cuft
Drainage area	=	41.980 ac	Curve number	=	73.1
Basin Slope	=	1.4 %	Hydraulic length	=	4320 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

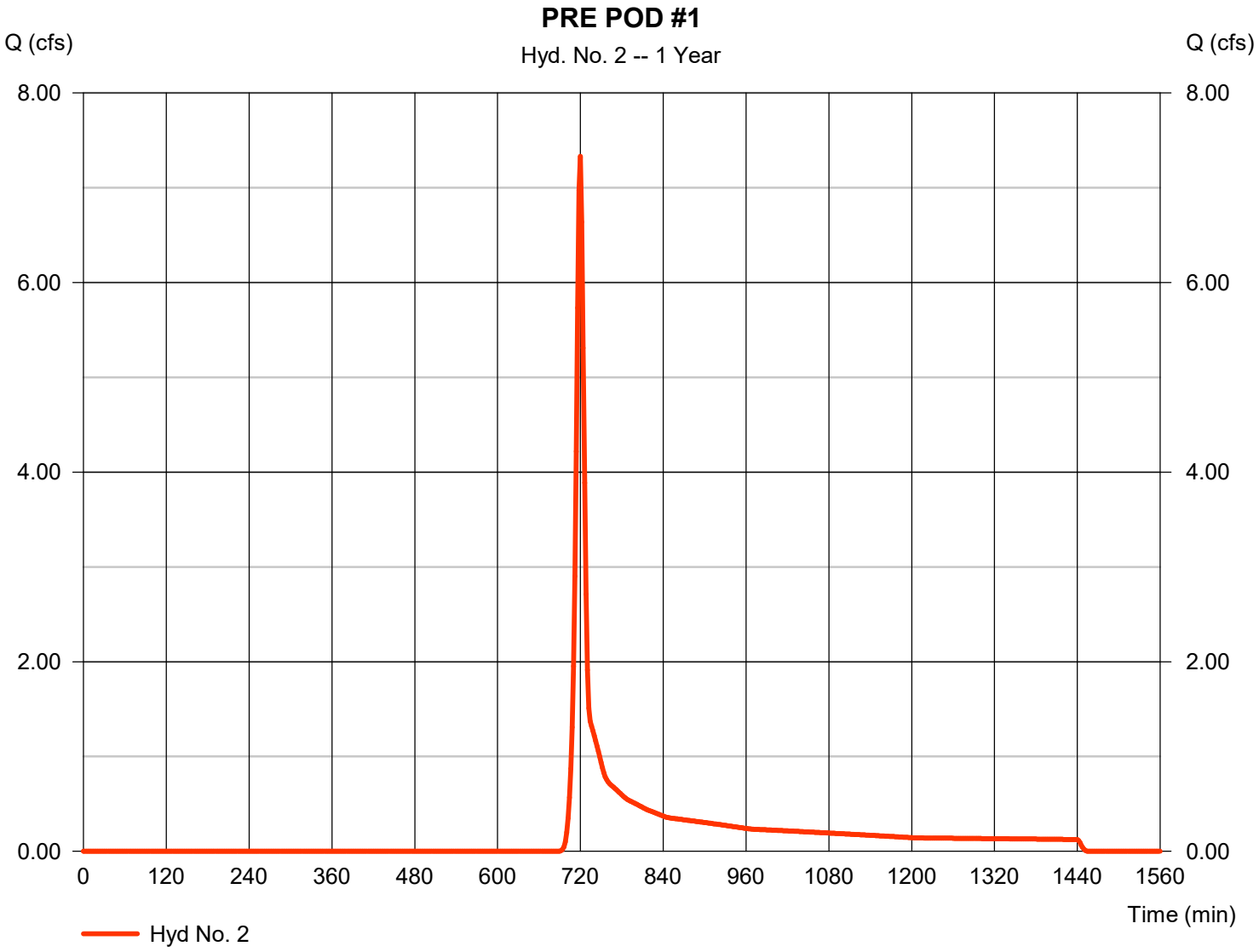


Hydrograph Report

Hyd. No. 2

PRE POD #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.331 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	17,610 cuft
Drainage area	=	6.540 ac	Curve number	=	70.6
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.70 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

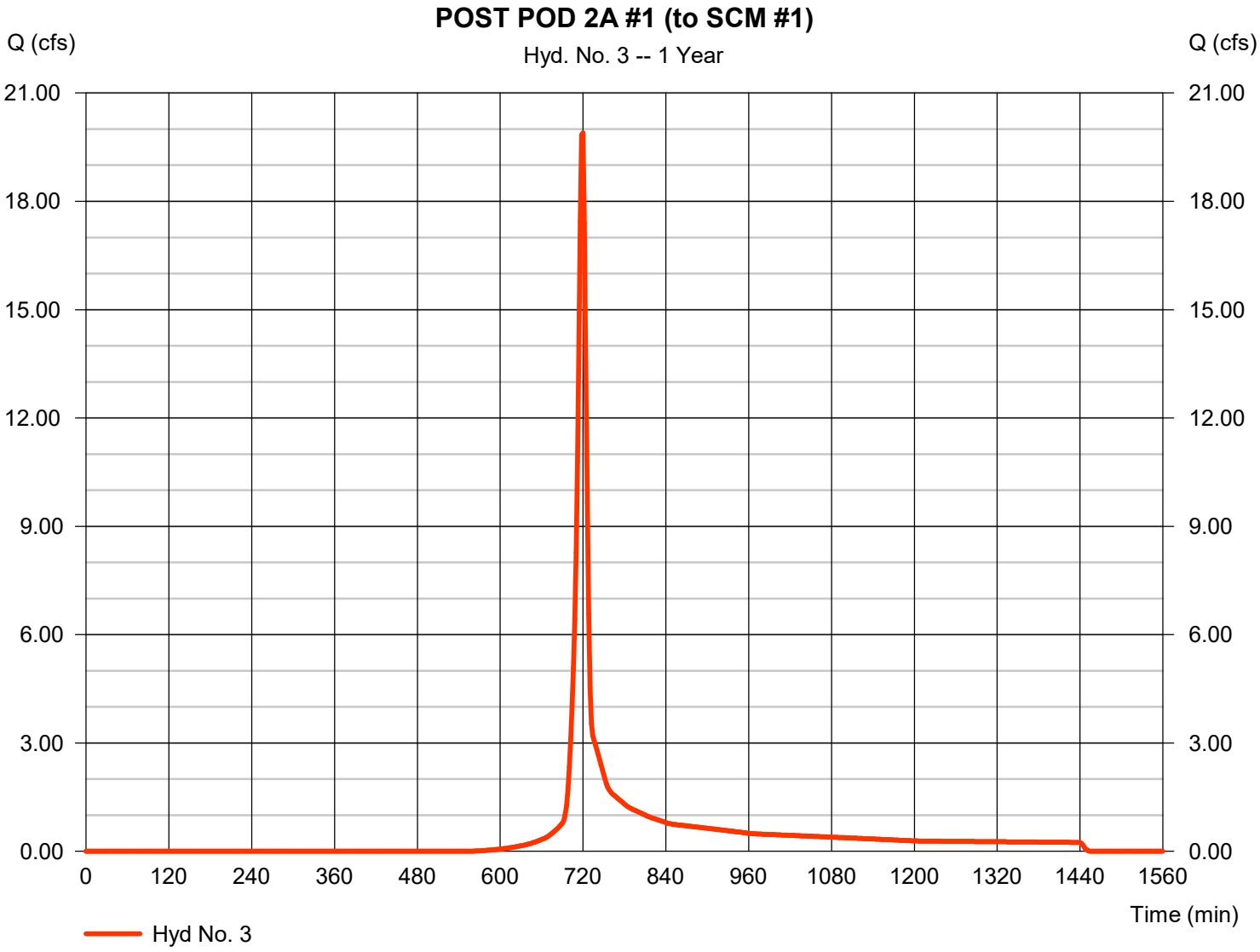


Hydrograph Report

Hyd. No. 3

POST POD 2A #1 (to SCM #1)

Hydrograph type	= SCS Runoff	Peak discharge	= 19.90 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 45,549 cuft
Drainage area	= 9.460 ac	Curve number	= 81.2
Basin Slope	= 2.4 %	Hydraulic length	= 1000 ft
Tc method	= User	Time of conc. (Tc)	= 6.60 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



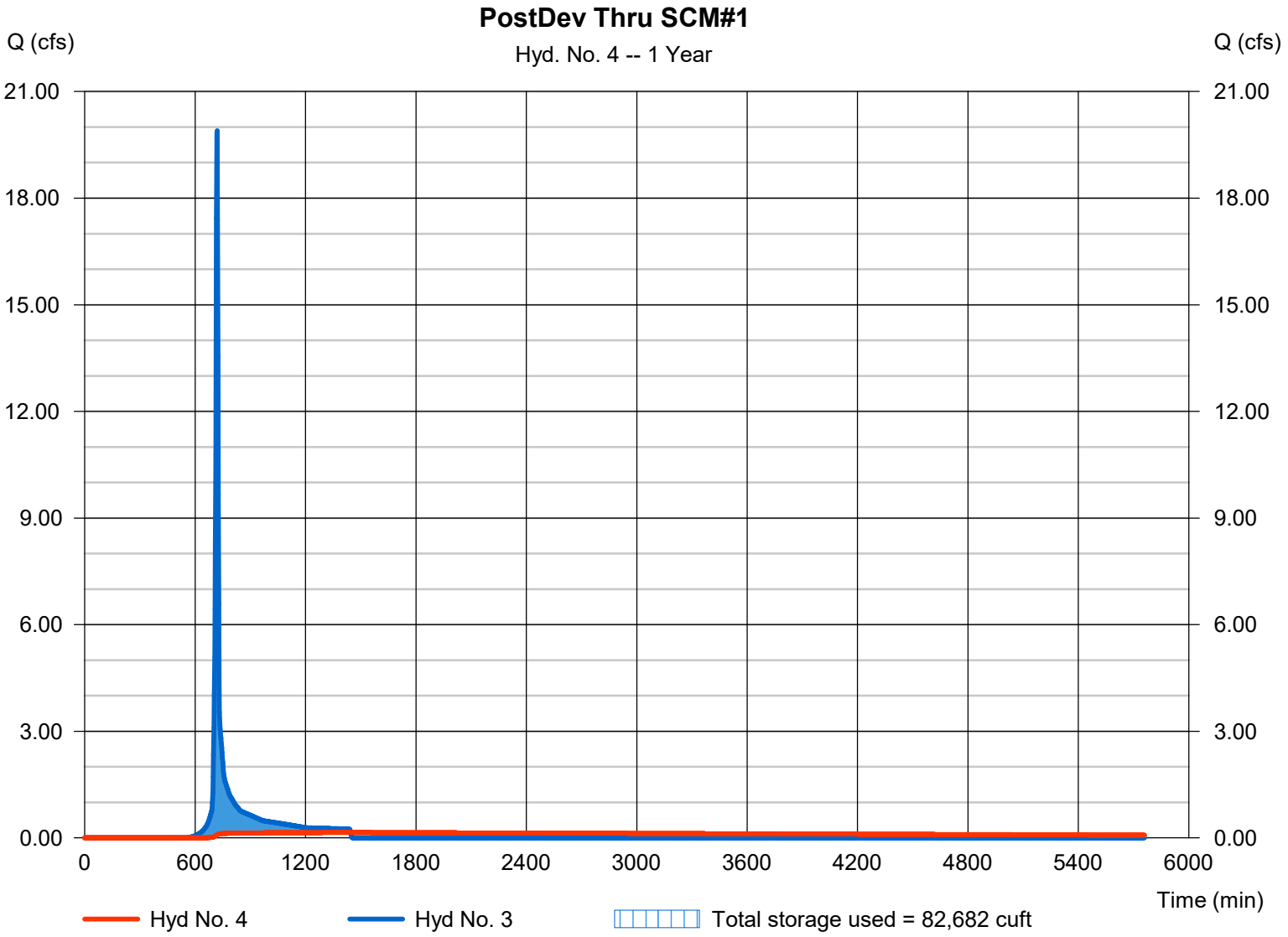
Hydrograph Report

Hyd. No. 4

PostDev Thru SCM#1

Hydrograph type	=	Reservoir	Peak discharge	=	0.150 cfs
Storm frequency	=	1 yrs	Time to peak	=	1446 min
Time interval	=	2 min	Hyd. volume	=	35,663 cuft
Inflow hyd. No.	=	3 - POST POD 2A #1 (to SCM #1)	Max. Elevation	=	365.63 ft
Reservoir name	=	SCM #1	Max. Storage	=	82,682 cuft

Storage Indication method used. Wet pond routing start elevation = 363.50 ft.

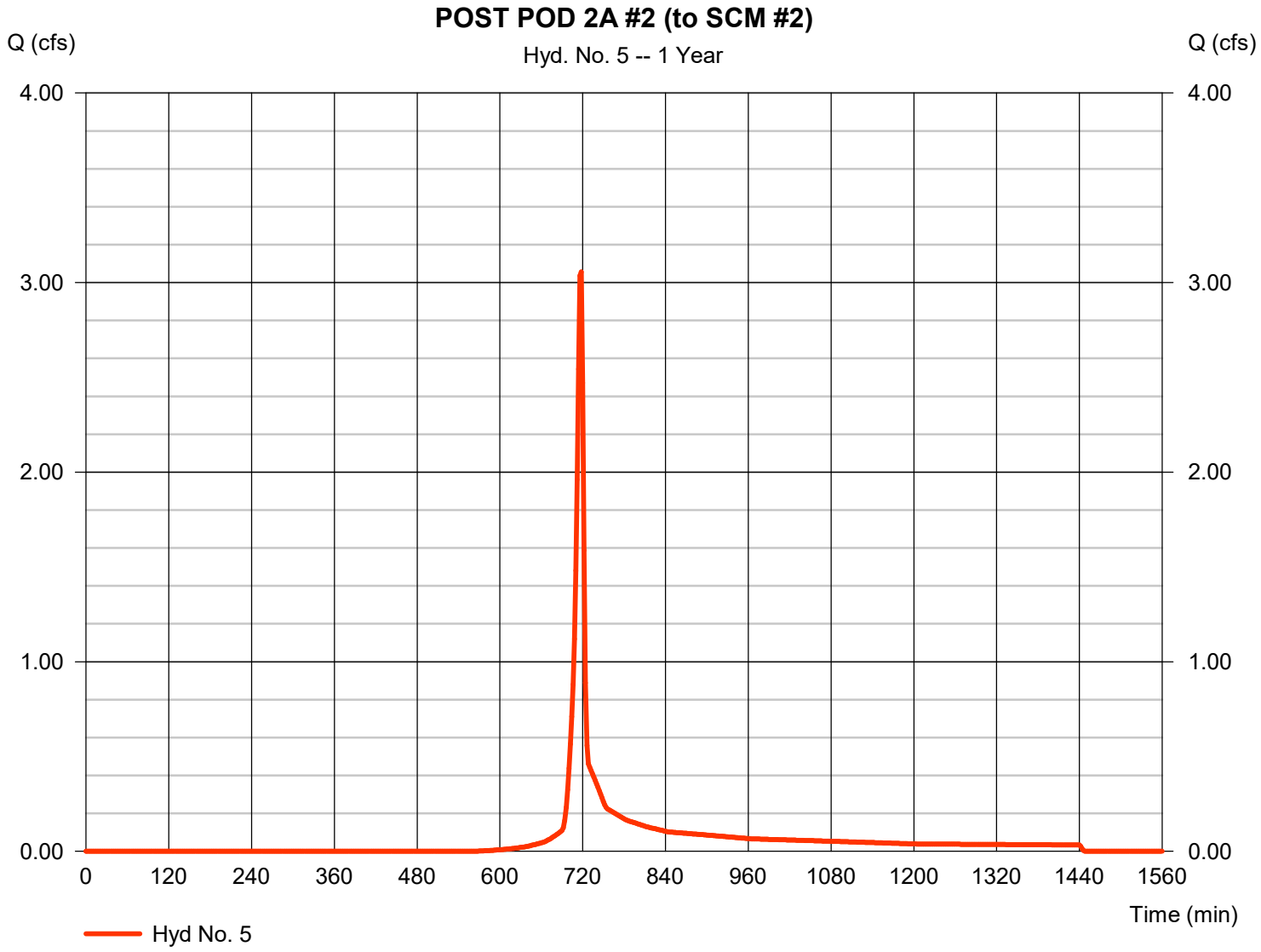


Hydrograph Report

Hyd. No. 5

POST POD 2A #2 (to SCM #2)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.057 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 6,138 cuft
Drainage area	= 1.380 ac	Curve number	= 80.9
Basin Slope	= 0.5 %	Hydraulic length	= 450 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



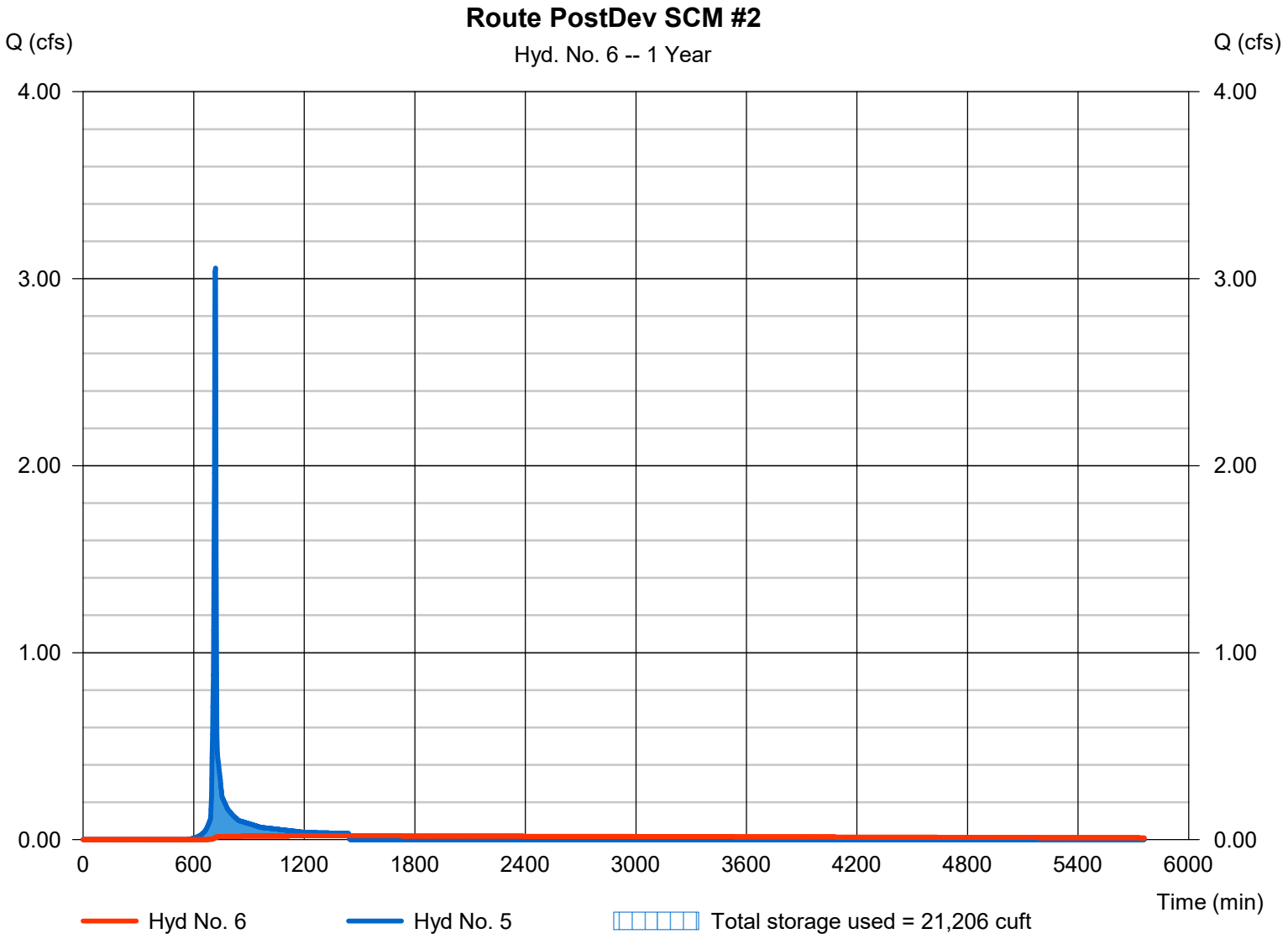
Hydrograph Report

Hyd. No. 6

Route PostDev SCM #2

Hydrograph type	=	Reservoir	Peak discharge	=	0.020 cfs
Storm frequency	=	1 yrs	Time to peak	=	1442 min
Time interval	=	2 min	Hyd. volume	=	4,751 cuft
Inflow hyd. No.	=	5 - POST POD 2A #2 (to SCM #2)	Max. Elevation	=	362.14 ft
Reservoir name	=	SCM #2	Max. Storage	=	21,206 cuft

Storage Indication method used. Wet pond routing start elevation = 361.50 ft.

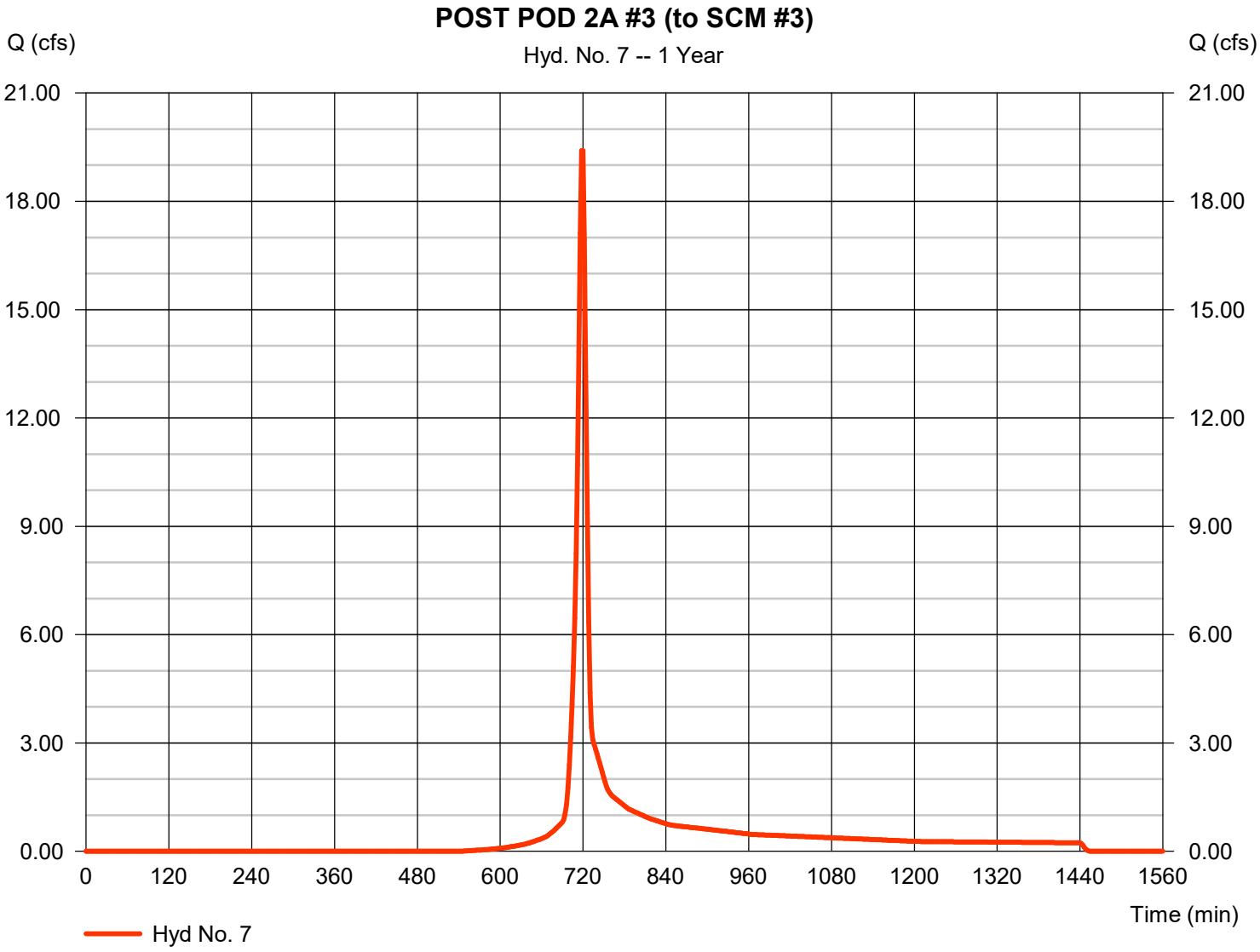


Hydrograph Report

Hyd. No. 7

POST POD 2A #3 (to SCM #3)

Hydrograph type	= SCS Runoff	Peak discharge	= 19.41 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 44,464 cuft
Drainage area	= 8.840 ac	Curve number	= 82.1
Basin Slope	= 2.6 %	Hydraulic length	= 1120 ft
Tc method	= User	Time of conc. (Tc)	= 7.30 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



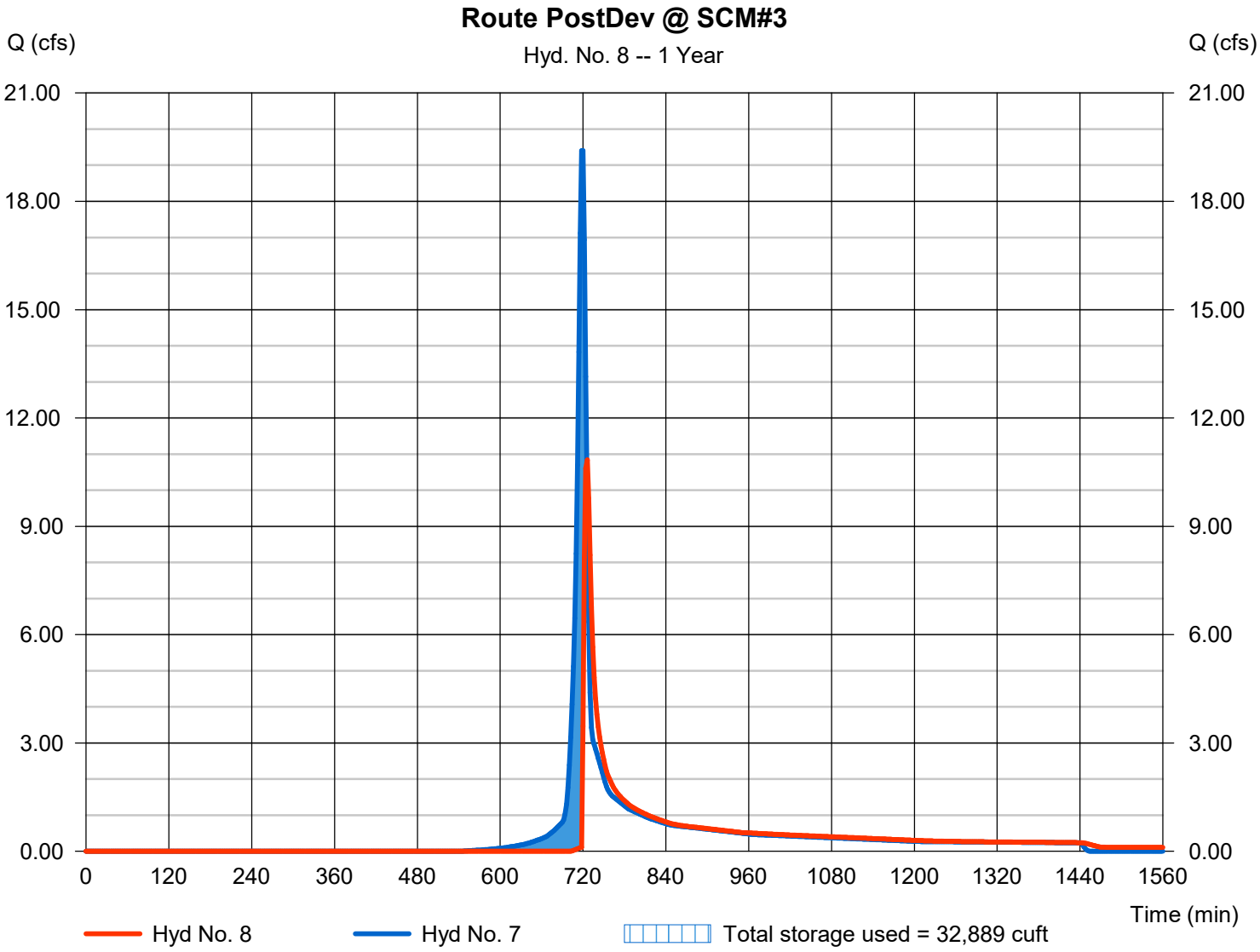
Hydrograph Report

Hyd. No. 8

Route PostDev @ SCM#3

Hydrograph type	=	Reservoir	Peak discharge	=	10.84 cfs
Storm frequency	=	1 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	41,381 cuft
Inflow hyd. No.	=	7 - POST POD 2A #3 (to SCM#3)	Max. Elevation	=	363.20 ft
Reservoir name	=	SCM #3	Max. Storage	=	32,889 cuft

Storage Indication method used. Wet pond routing start elevation = 361.00 ft.

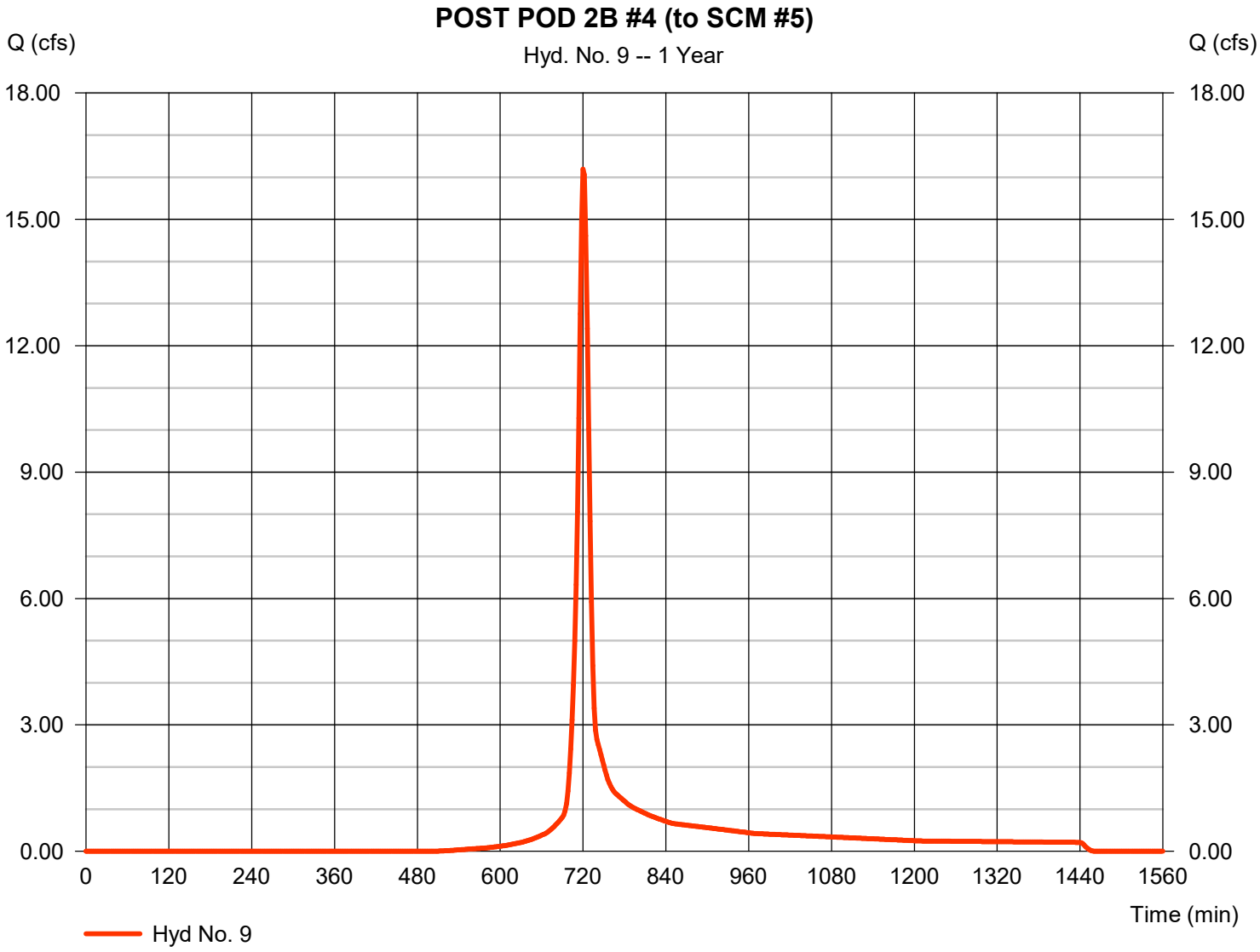


Hydrograph Report

Hyd. No. 9

POST POD 2B #4 (to SCM #5)

Hydrograph type	= SCS Runoff	Peak discharge	= 16.19 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 42,003 cuft
Drainage area	= 7.400 ac	Curve number	= 84
Basin Slope	= 3.2 %	Hydraulic length	= 1270 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



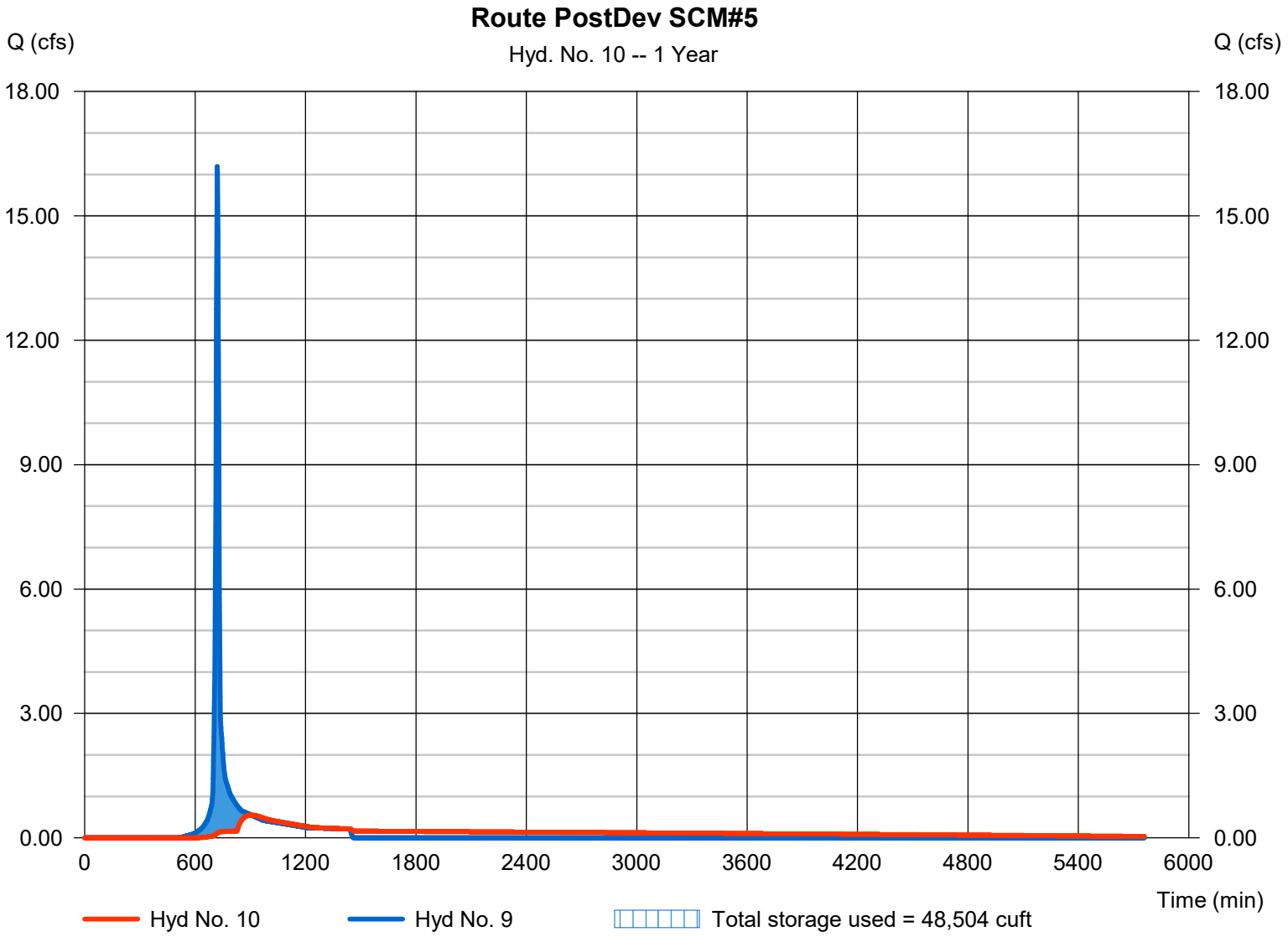
Hydrograph Report

Hyd. No. 10

Route PostDev SCM#5

Hydrograph type	= Reservoir	Peak discharge	= 0.550 cfs
Storm frequency	= 1 yrs	Time to peak	= 906 min
Time interval	= 2 min	Hyd. volume	= 40,370 cuft
Inflow hyd. No.	= 9 - POST POD 2B #4 (to SCM #5)	Max. Elevation	= 350.06 ft
Reservoir name	= SCM #5	Max. Storage	= 48,504 cuft

Storage Indication method used. Wet pond routing start elevation = 347.50 ft.

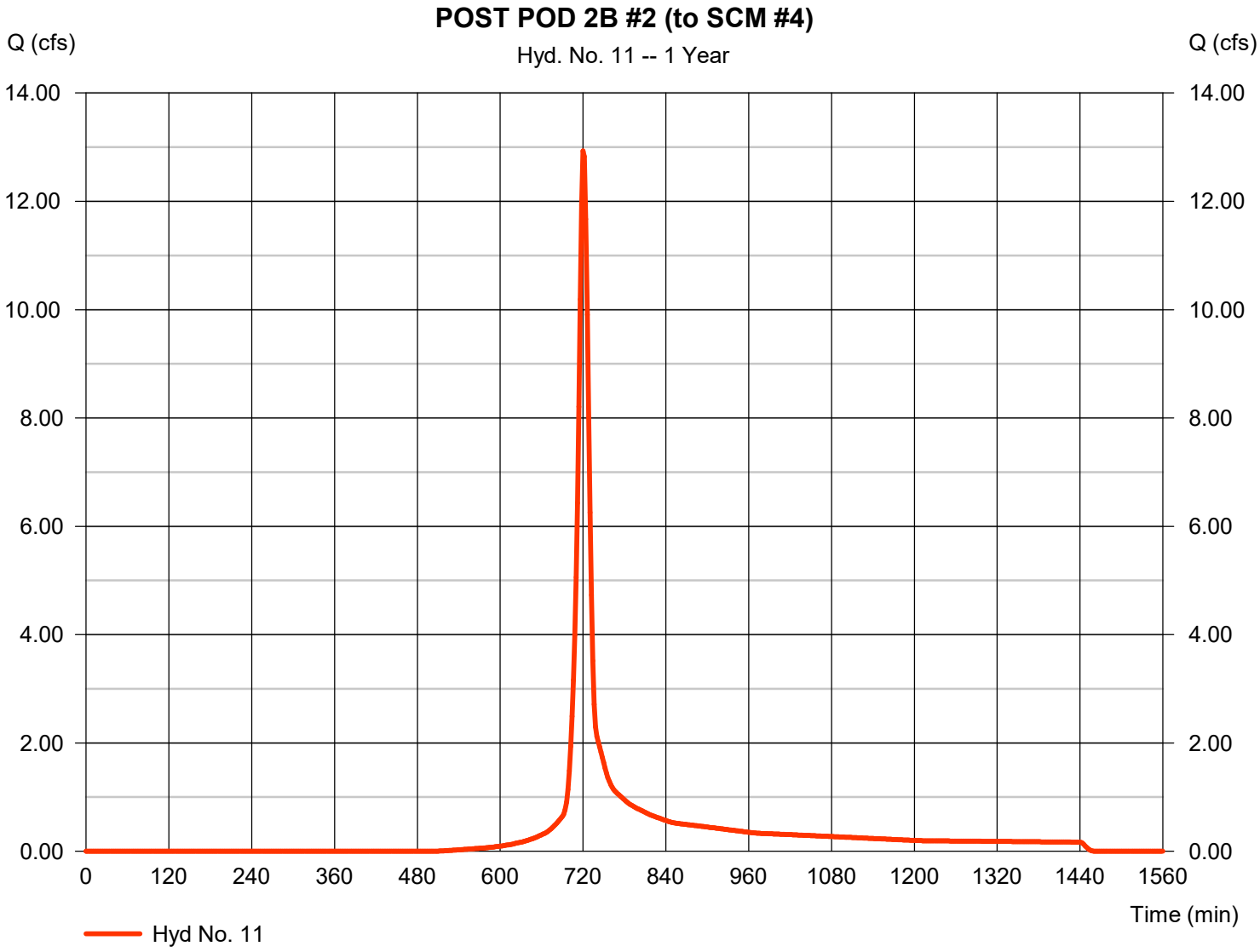


Hydrograph Report

Hyd. No. 11

POST POD 2B #2 (to SCM #4)

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.93 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	33,546 cuft
Drainage area	=	5.910 ac	Curve number	=	84
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



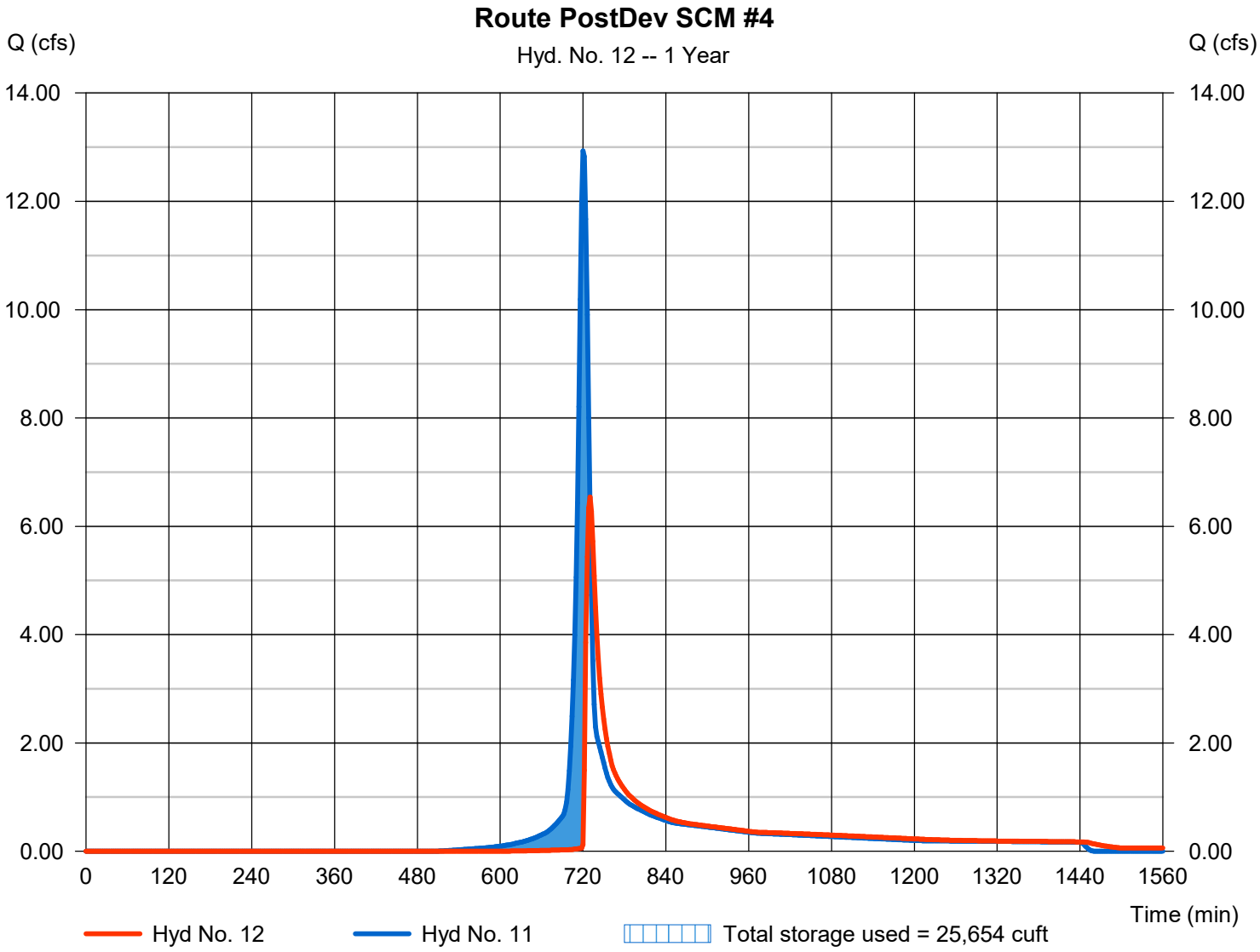
Hydrograph Report

Hyd. No. 12

Route PostDev SCM #4

Hydrograph type	=	Reservoir	Peak discharge	=	6.542 cfs
Storm frequency	=	1 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	33,138 cuft
Inflow hyd. No.	=	11 - POST POD 2B #2 (to SCM #4)	Max. Elevation	=	359.15 ft
Reservoir name	=	SCM #4	Max. Storage	=	25,654 cuft

Storage Indication method used. Wet pond routing start elevation = 357.50 ft.

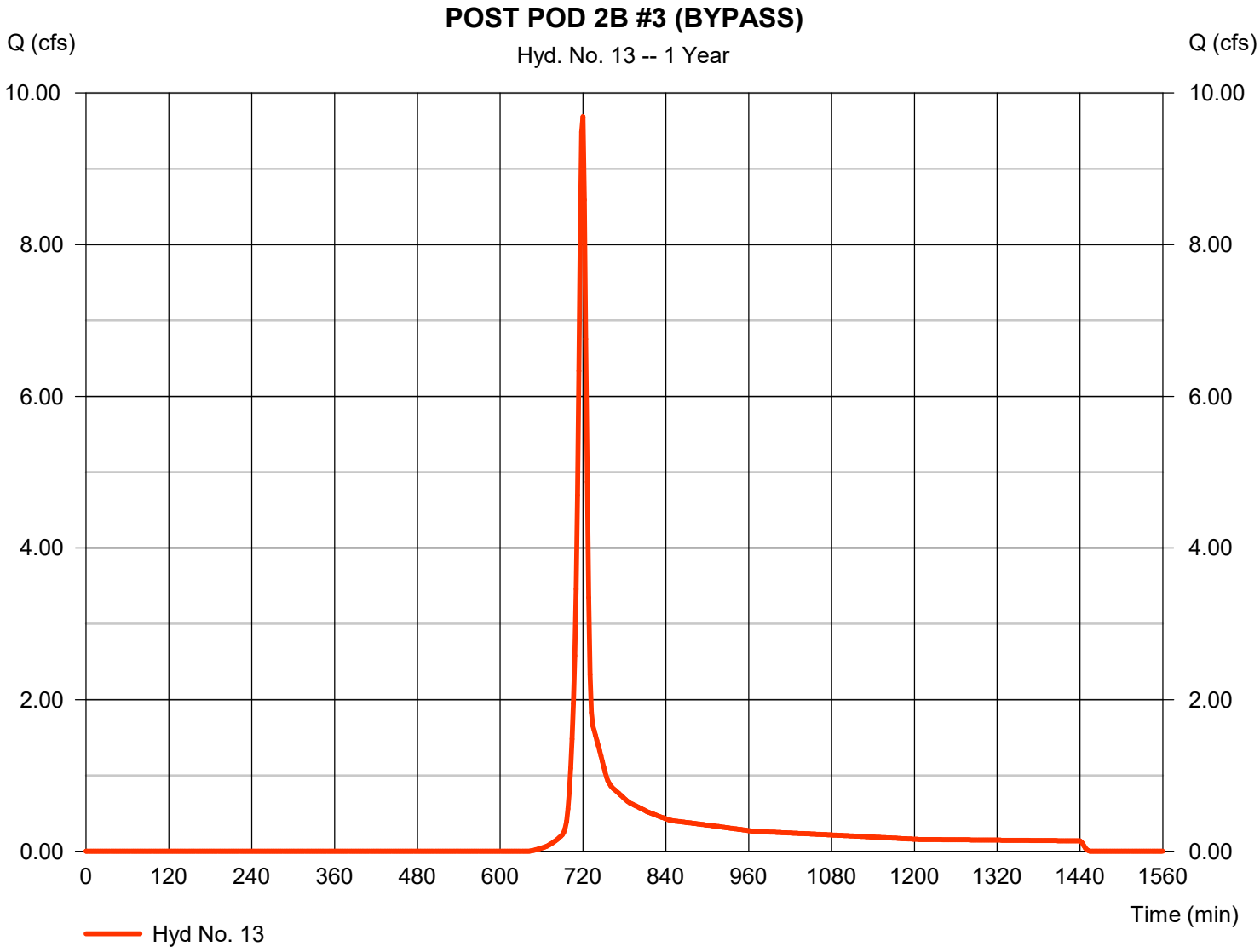


Hydrograph Report

Hyd. No. 13

POST POD 2B #3 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 9.688 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 22,339 cuft
Drainage area	= 6.030 ac	Curve number	= 76.1
Basin Slope	= 1.3 %	Hydraulic length	= 4170 ft
Tc method	= User	Time of conc. (Tc)	= 7.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

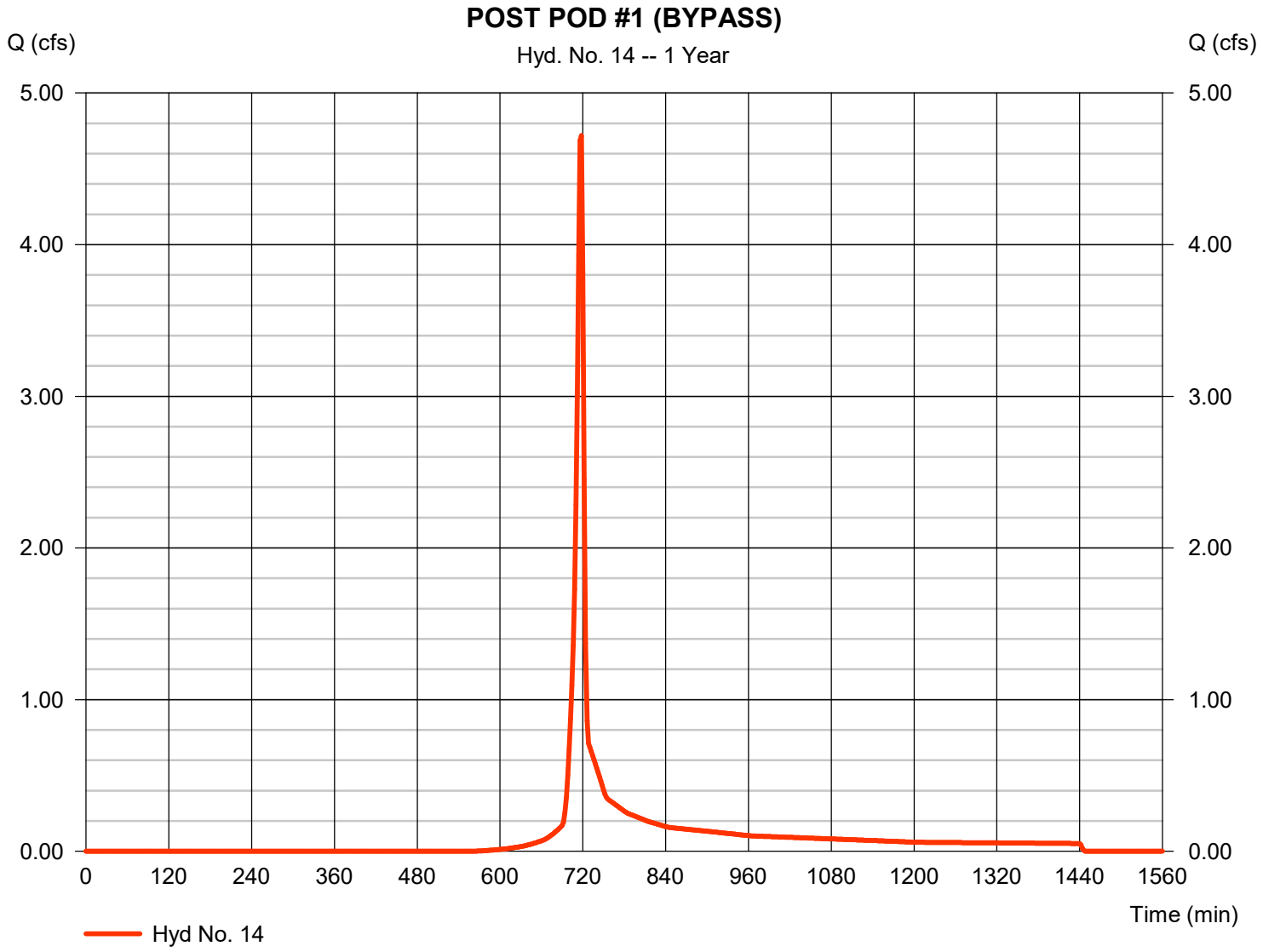


Hydrograph Report

Hyd. No. 14

POST POD #1 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 4.718 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 9,474 cuft
Drainage area	= 2.130 ac	Curve number	= 80.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

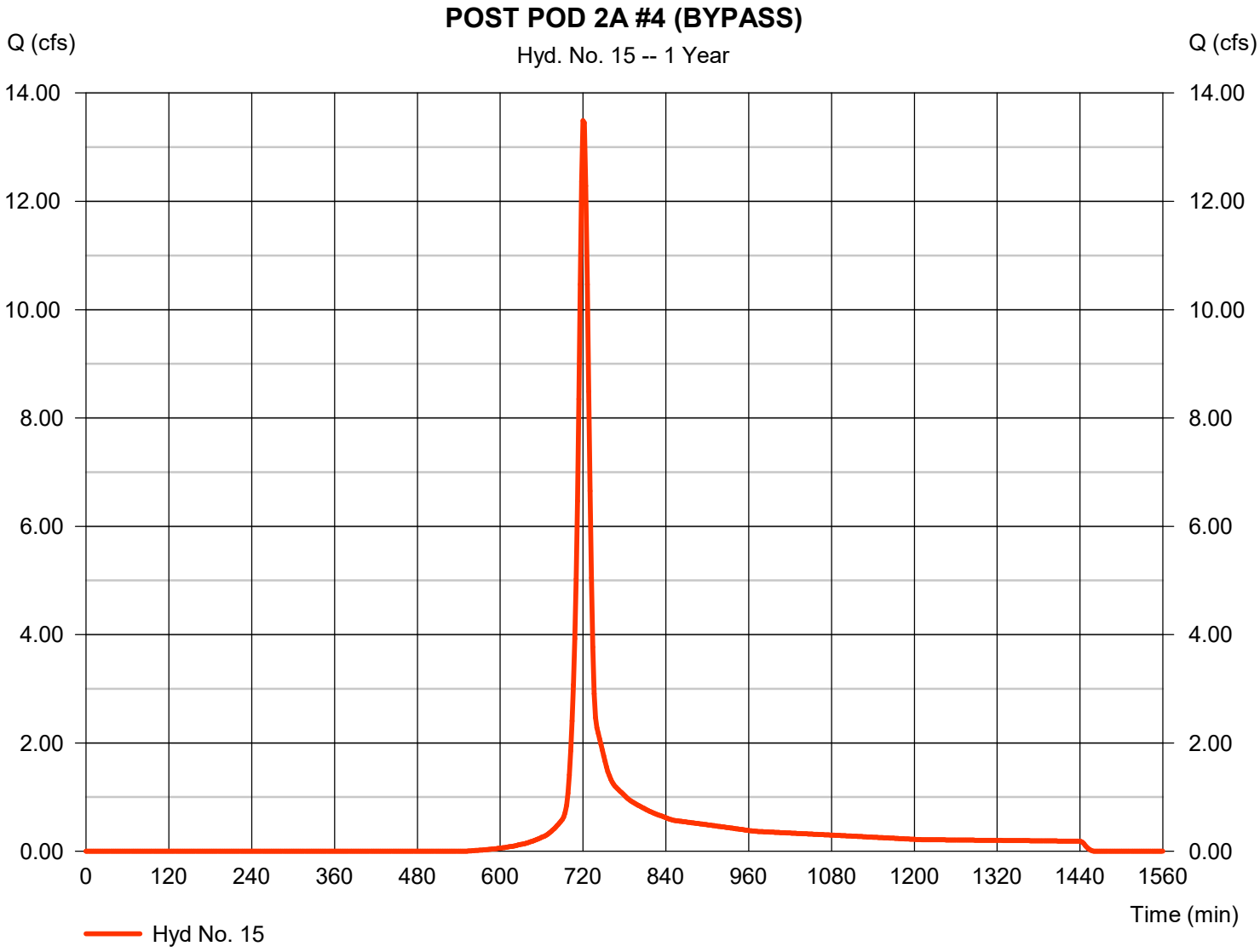


Hydrograph Report

Hyd. No. 15

POST POD 2A #4 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 13.49 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 35,139 cuft
Drainage area	= 6.840 ac	Curve number	= 81.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 11.50 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

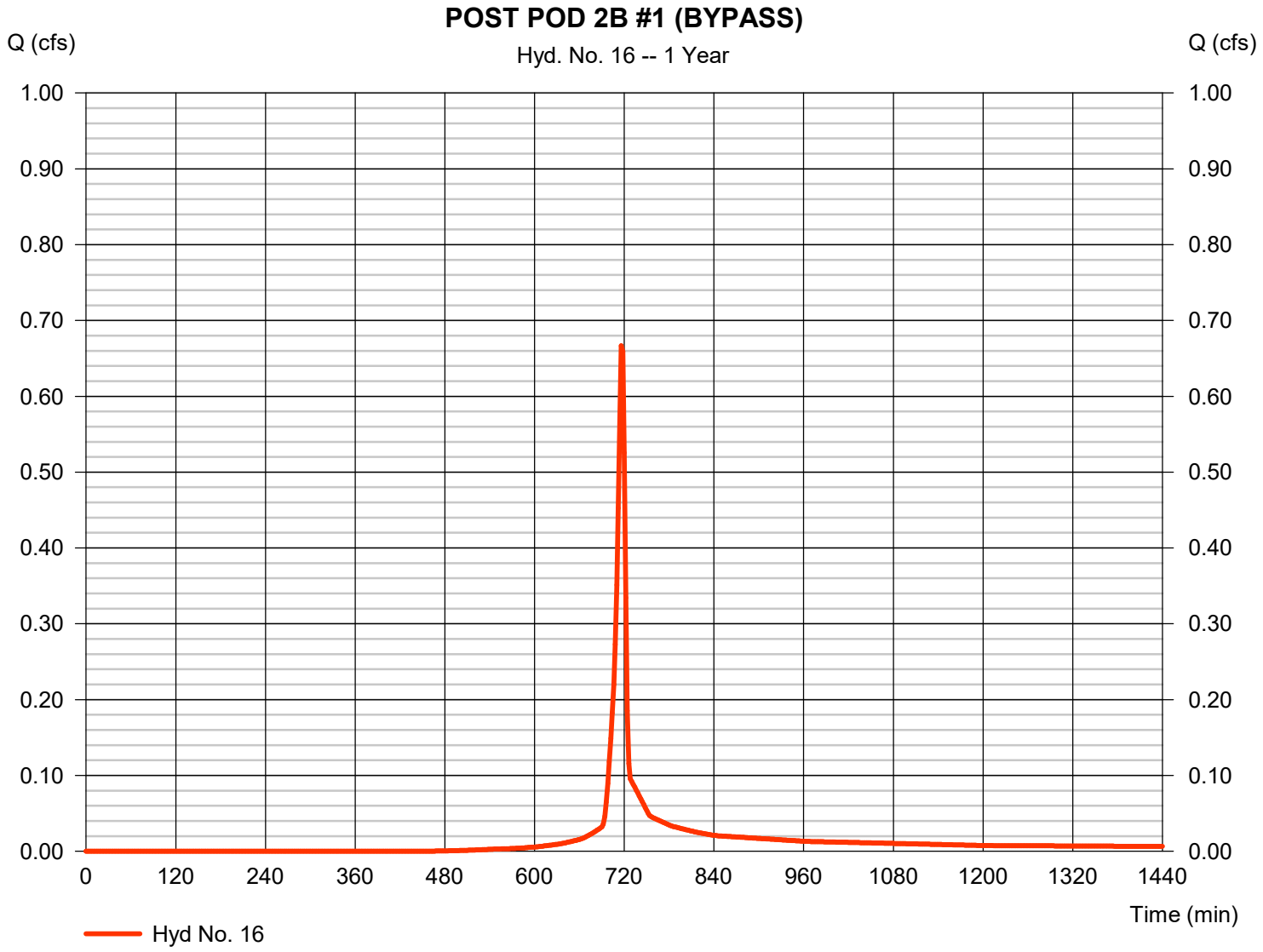


Hydrograph Report

Hyd. No. 16

POST POD 2B #1 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.667 cfs
Storm frequency	= 1 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 1,352 cuft
Drainage area	= 0.240 ac	Curve number	= 85.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

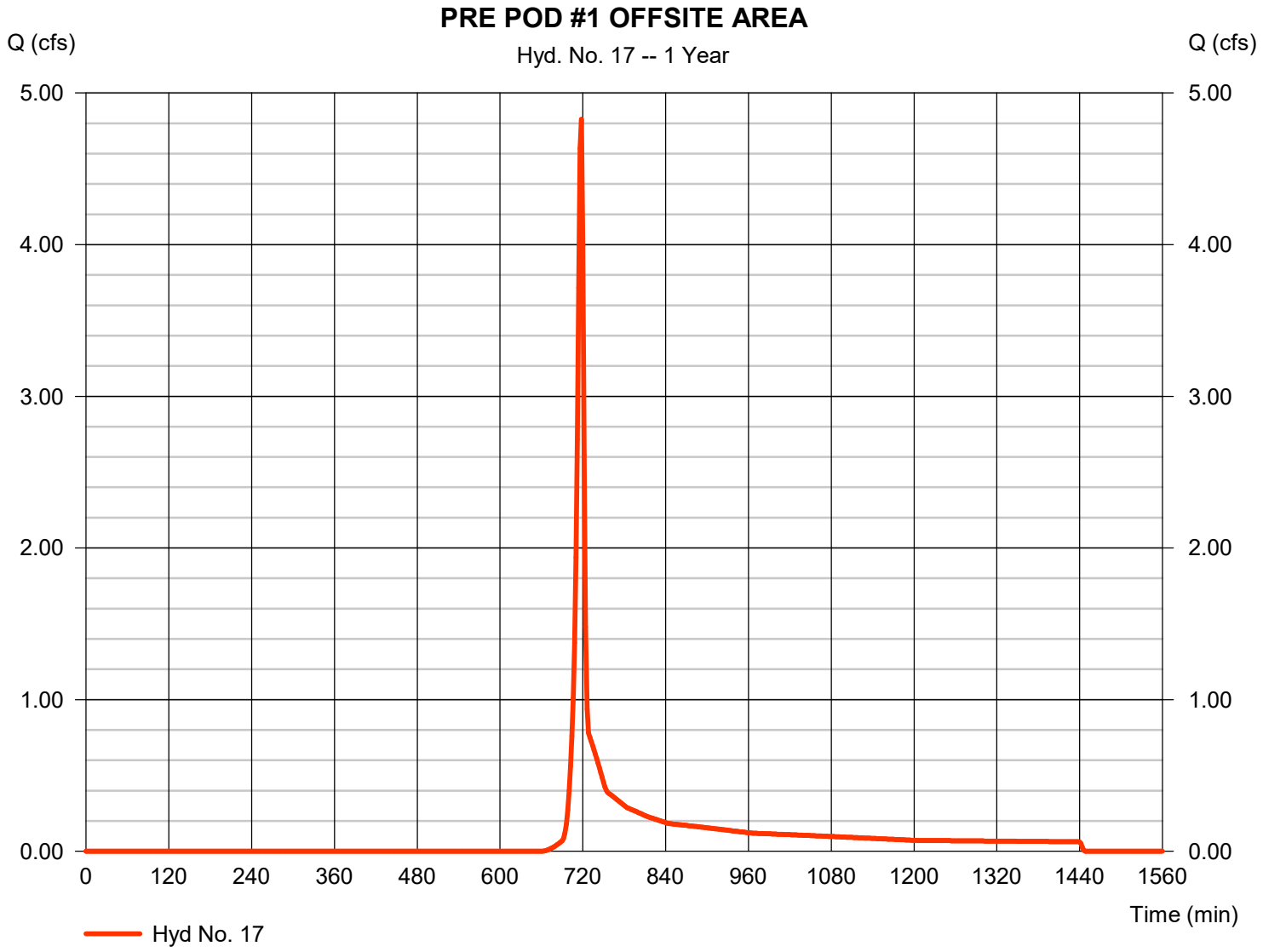


Hydrograph Report

Hyd. No. 17

PRE POD #1 OFFSITE AREA

Hydrograph type	= SCS Runoff	Peak discharge	= 4.826 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 9,705 cuft
Drainage area	= 3.140 ac	Curve number	= 74
Basin Slope	= 4.5 %	Hydraulic length	= 1030 ft
Tc method	= KIRPICH	Time of conc. (Tc)	= 5.38 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

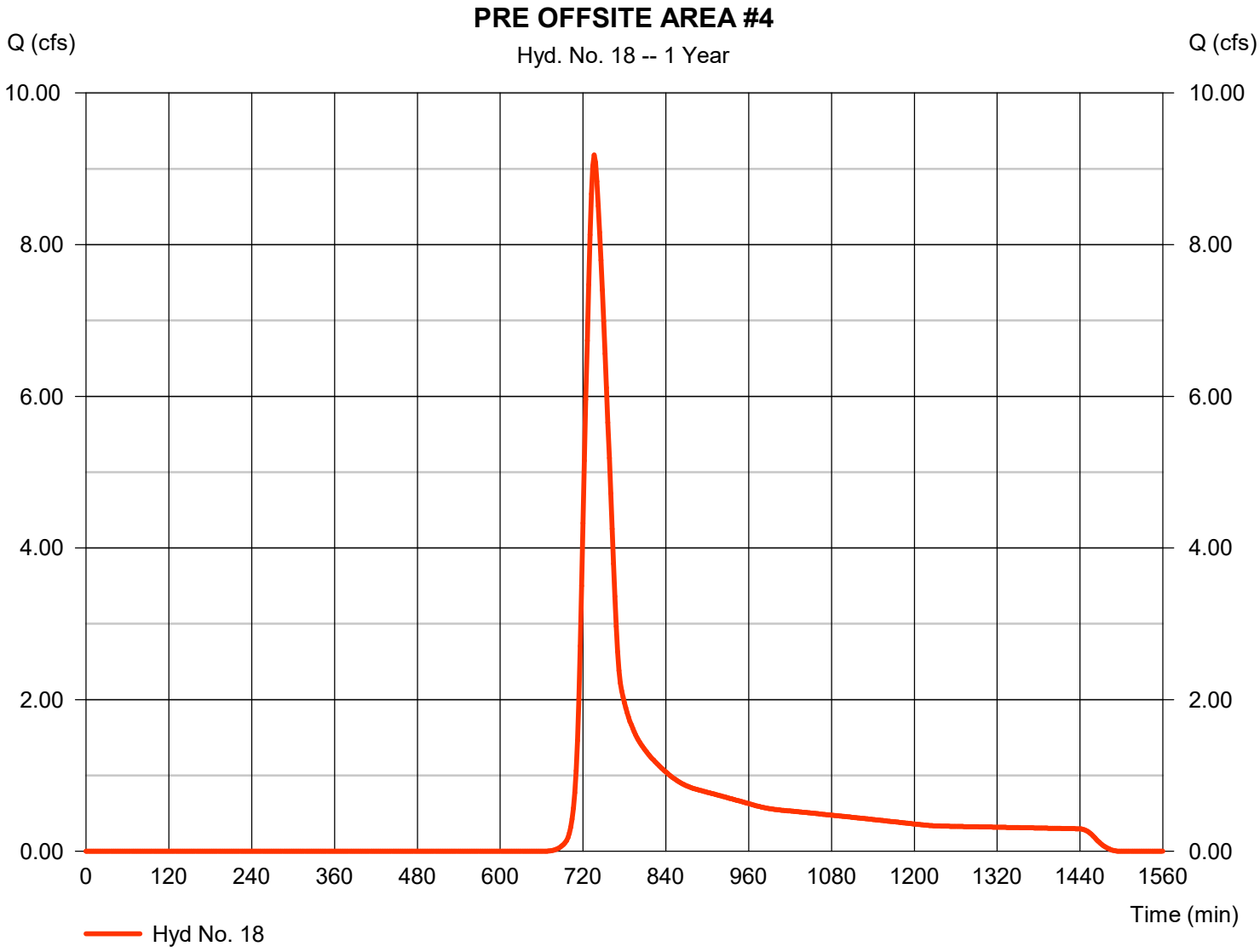


Hydrograph Report

Hyd. No. 18

PRE OFFSITE AREA #4

Hydrograph type	= SCS Runoff	Peak discharge	= 9.181 cfs
Storm frequency	= 1 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 45,436 cuft
Drainage area	= 13.940 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 34.70 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

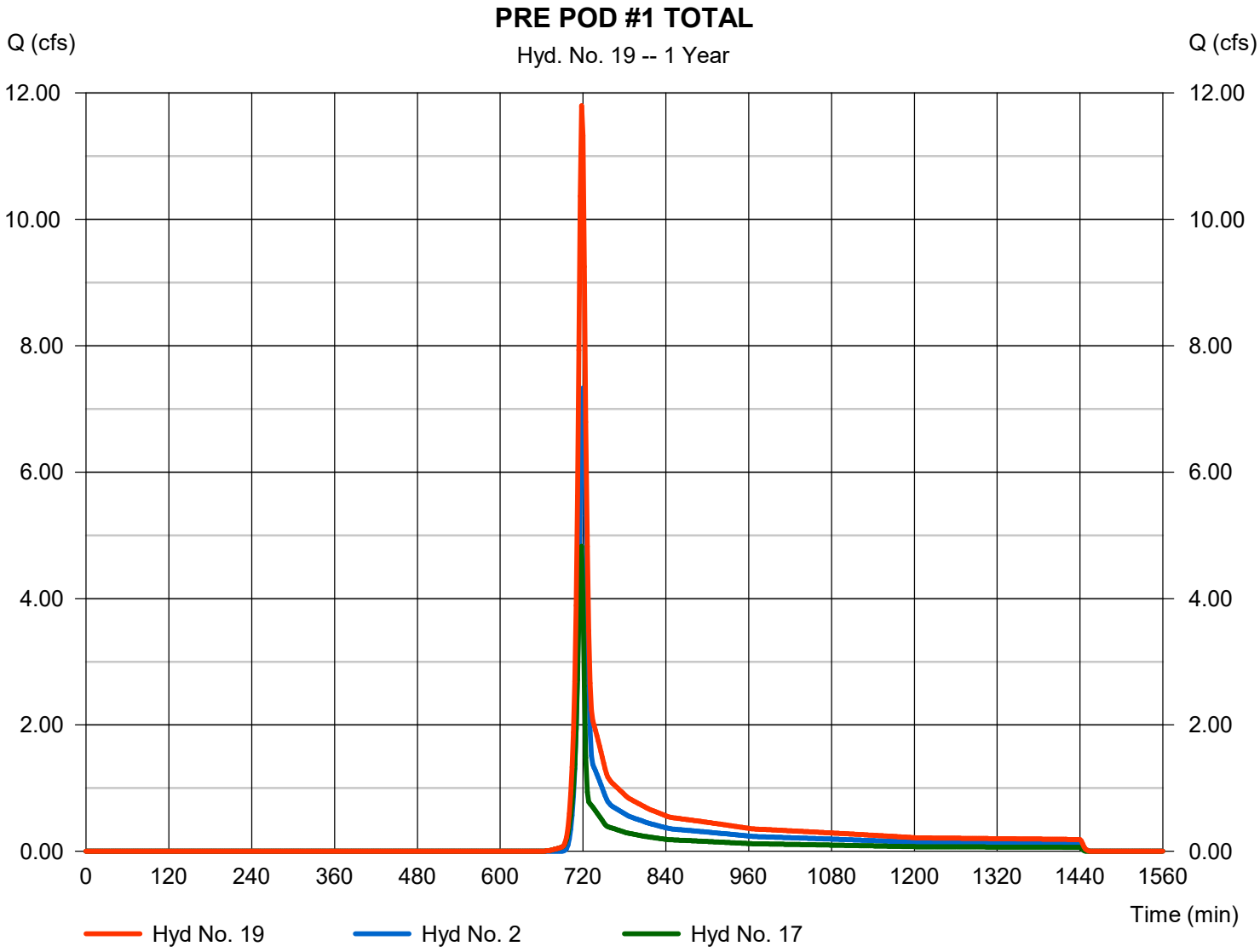


Hydrograph Report

Hyd. No. 19

PRE POD #1 TOTAL

Hydrograph type	= Combine	Peak discharge	= 11.80 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 27,315 cuft
Inflow hyds.	= 2, 17	Contrib. drain. area	= 9.680 ac

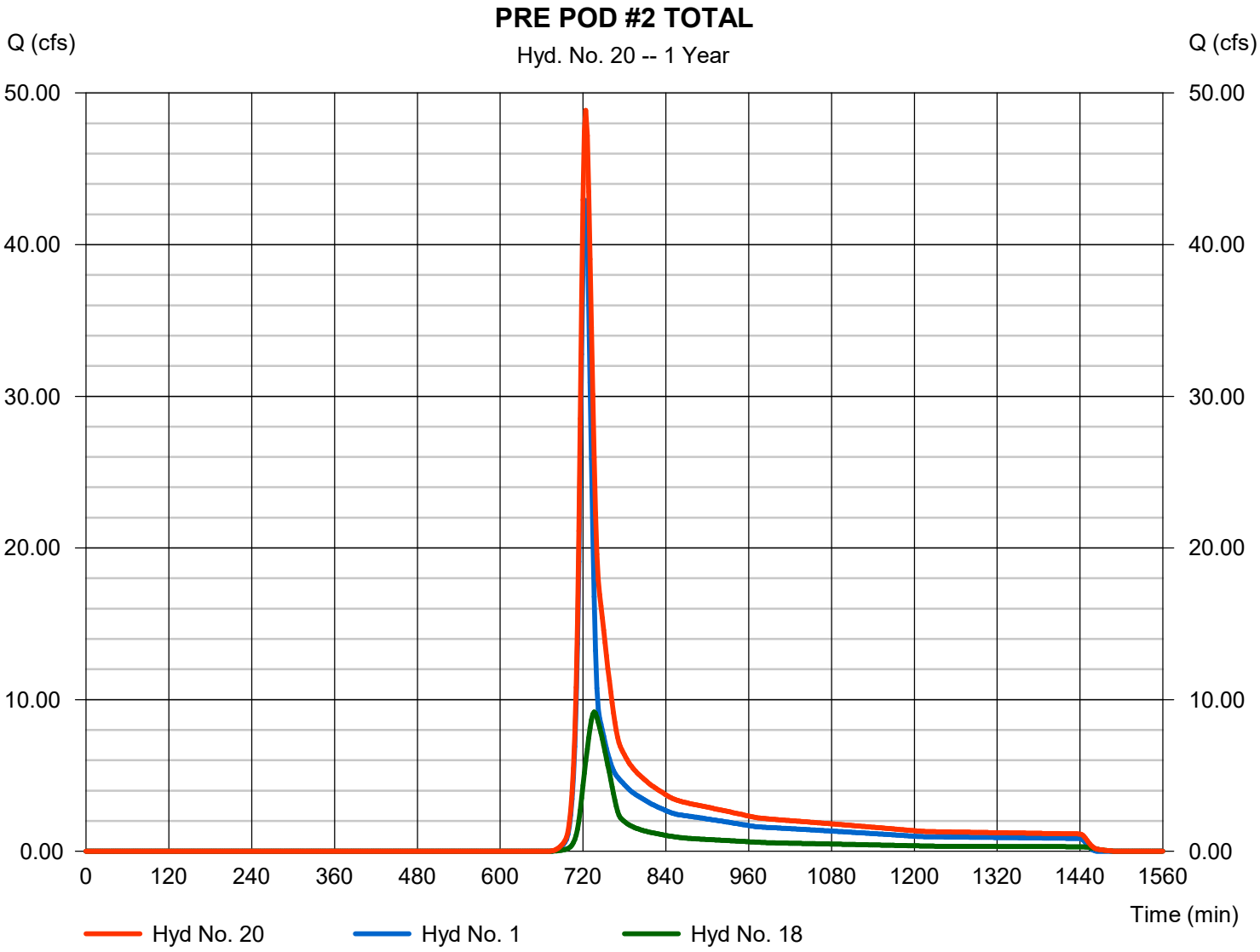


Hydrograph Report

Hyd. No. 20

PRE POD #2 TOTAL

Hydrograph type	= Combine	Peak discharge	= 48.86 cfs
Storm frequency	= 1 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 173,564 cuft
Inflow hyds.	= 1, 18	Contrib. drain. area	= 55.920 ac

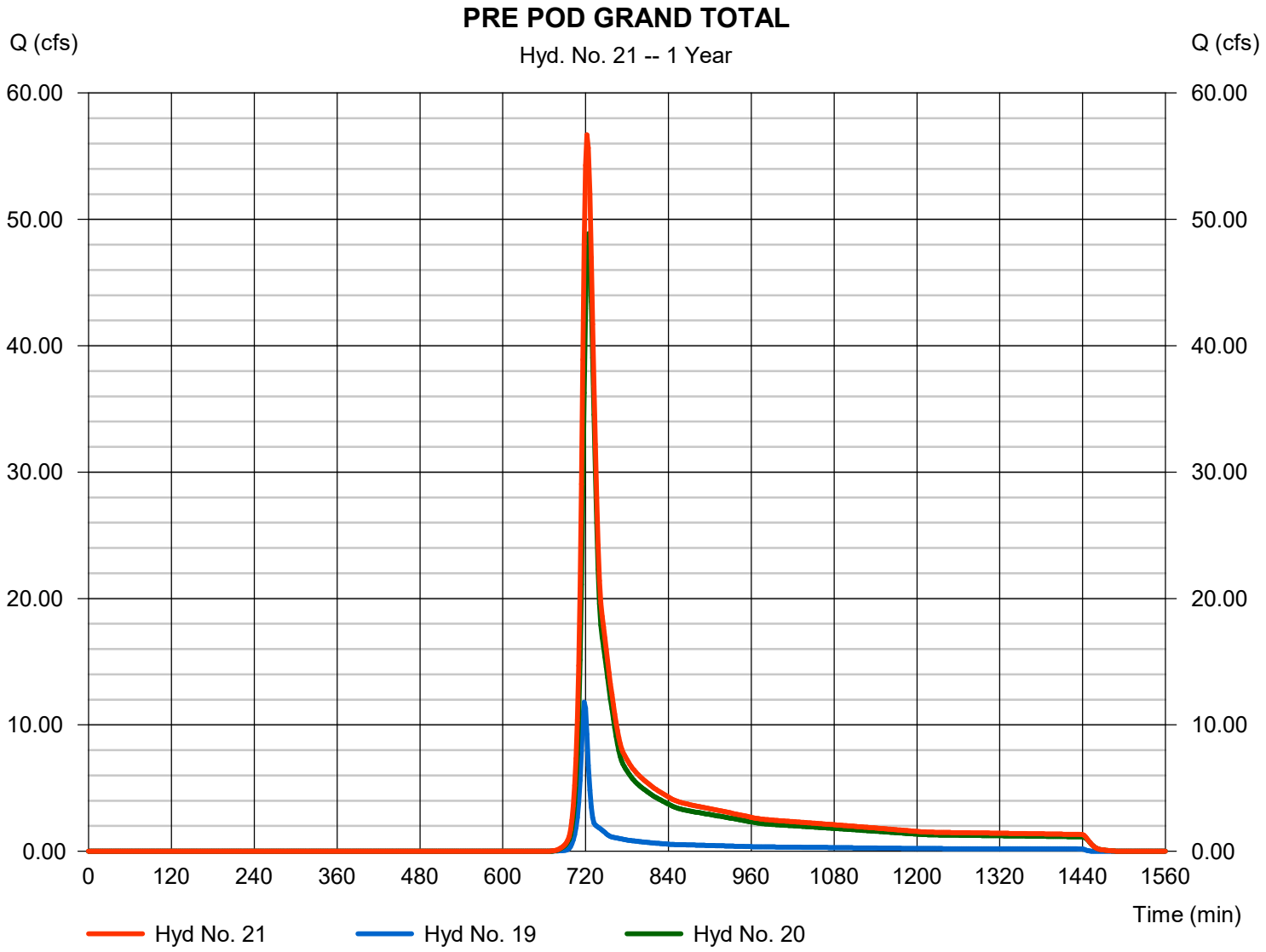


Hydrograph Report

Hyd. No. 21

PRE POD GRAND TOTAL

Hydrograph type	=	Combine	Peak discharge	=	56.68 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	200,879 cuft
Inflow hyds.	=	19, 20	Contrib. drain. area	=	0.000 ac

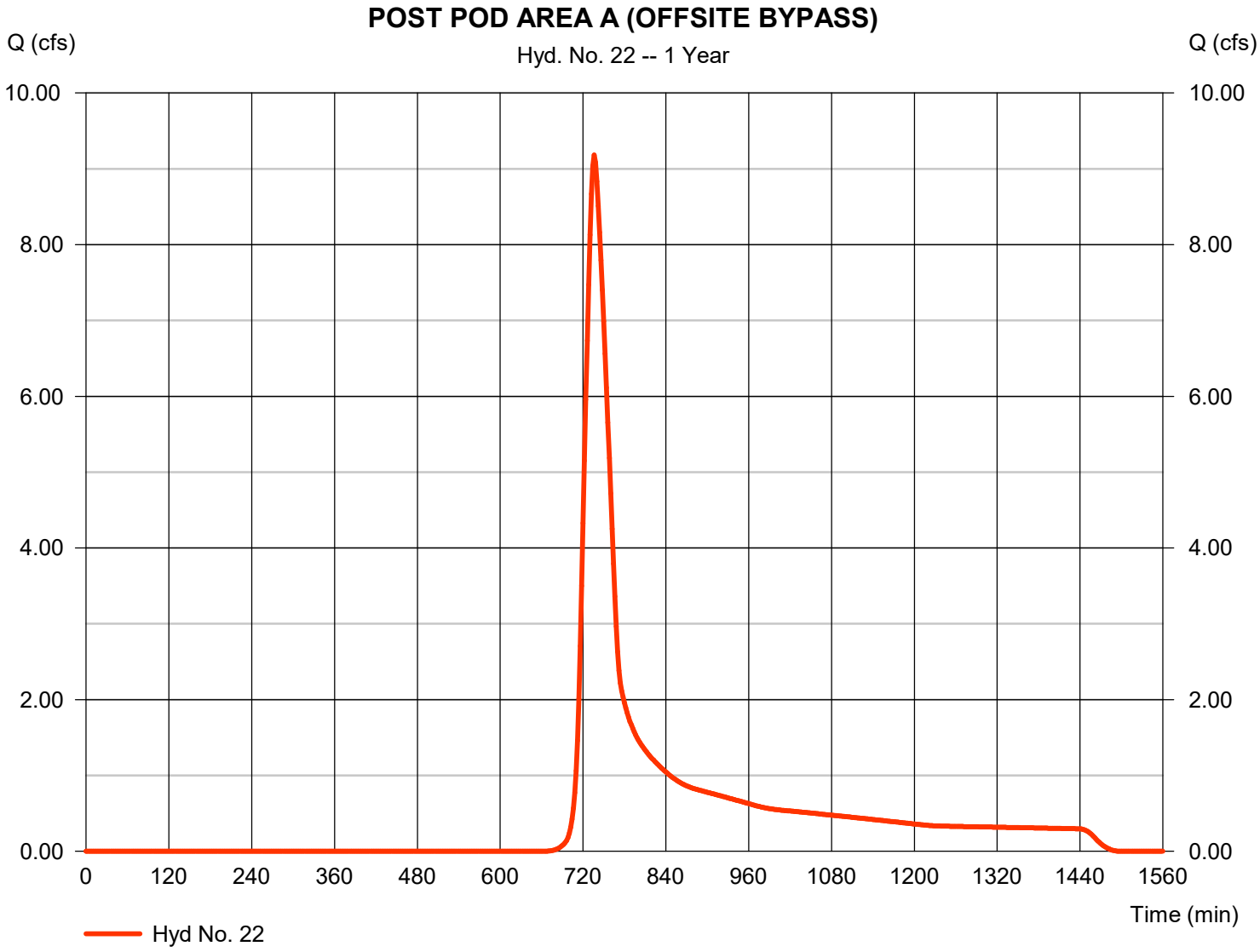


Hydrograph Report

Hyd. No. 22

POST POD AREA A (OFFSITE BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.181 cfs
Storm frequency	=	1 yrs	Time to peak	=	736 min
Time interval	=	2 min	Hyd. volume	=	45,436 cuft
Drainage area	=	13.940 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	34.70 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

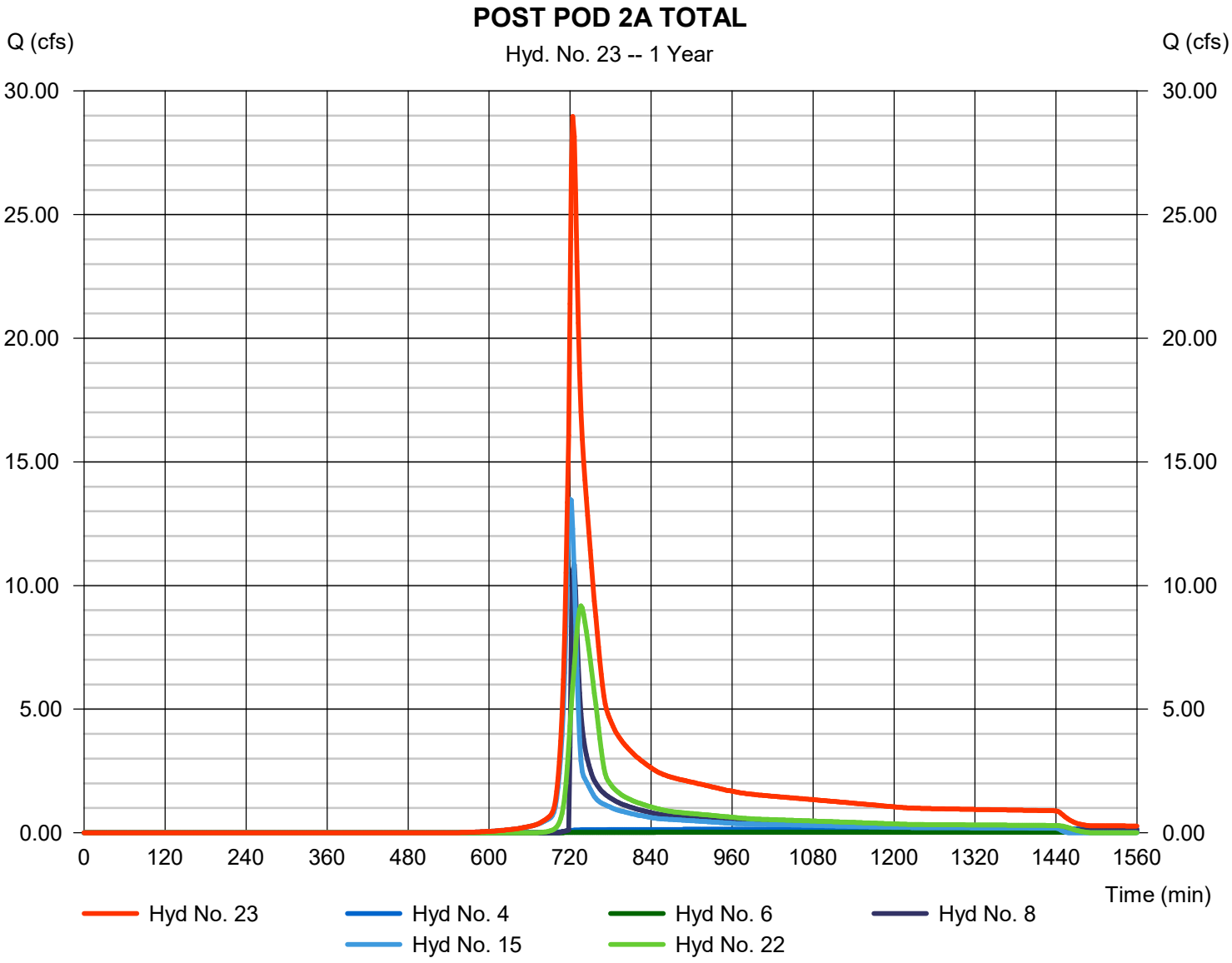


Hydrograph Report

Hyd. No. 23

POST POD 2A TOTAL

Hydrograph type	=	Combine	Peak discharge	=	28.97 cfs
Storm frequency	=	1 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	162,371 cuft
Inflow hyds.	=	4, 6, 8, 15, 22	Contrib. drain. area	=	20.780 ac

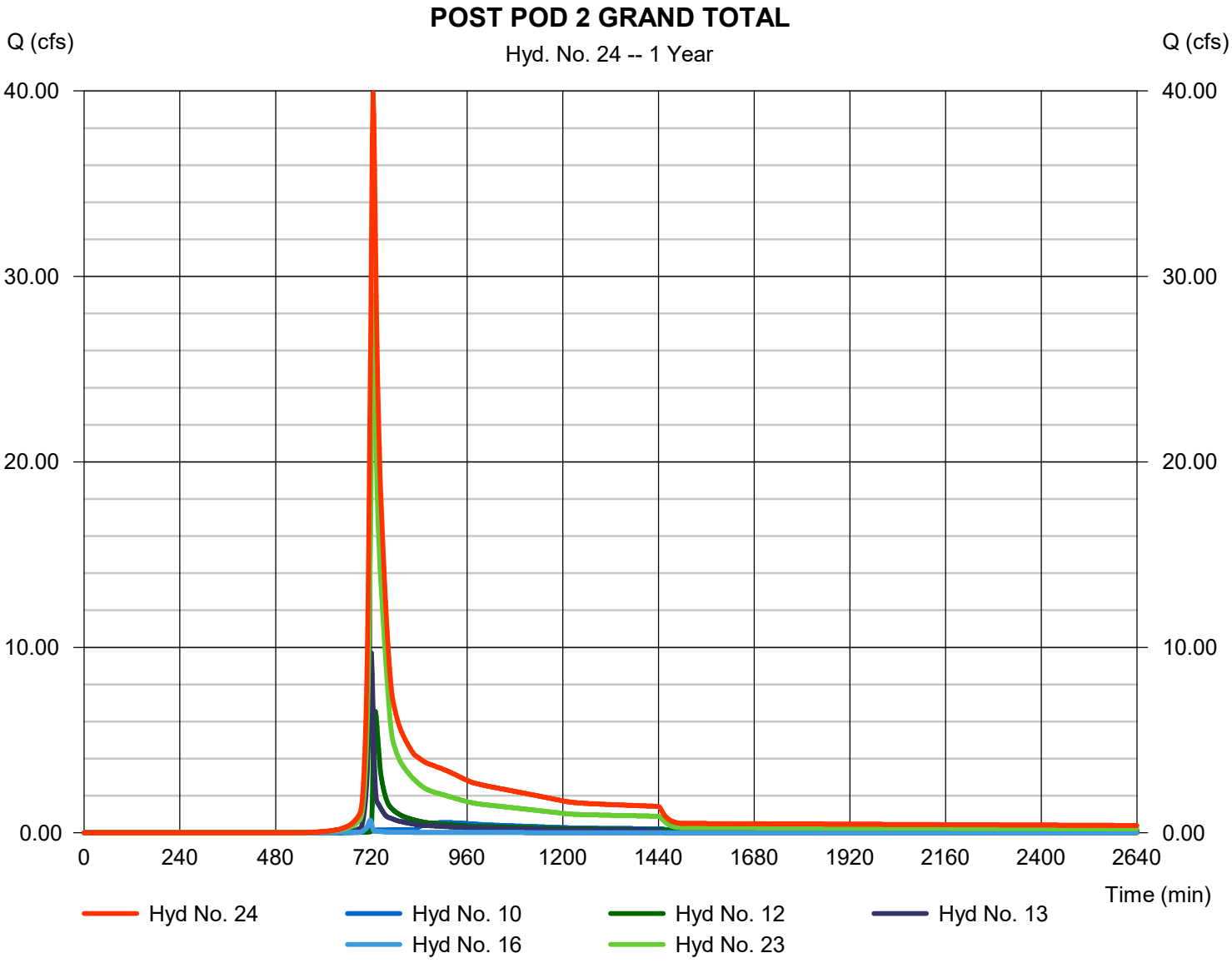


Hydrograph Report

Hyd. No. 24

POST POD 2 GRAND TOTAL

Hydrograph type	=	Combine	Peak discharge	=	39.89 cfs
Storm frequency	=	1 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	259,570 cuft
Inflow hyds.	=	10, 12, 13, 16, 23	Contrib. drain. area	=	6.270 ac

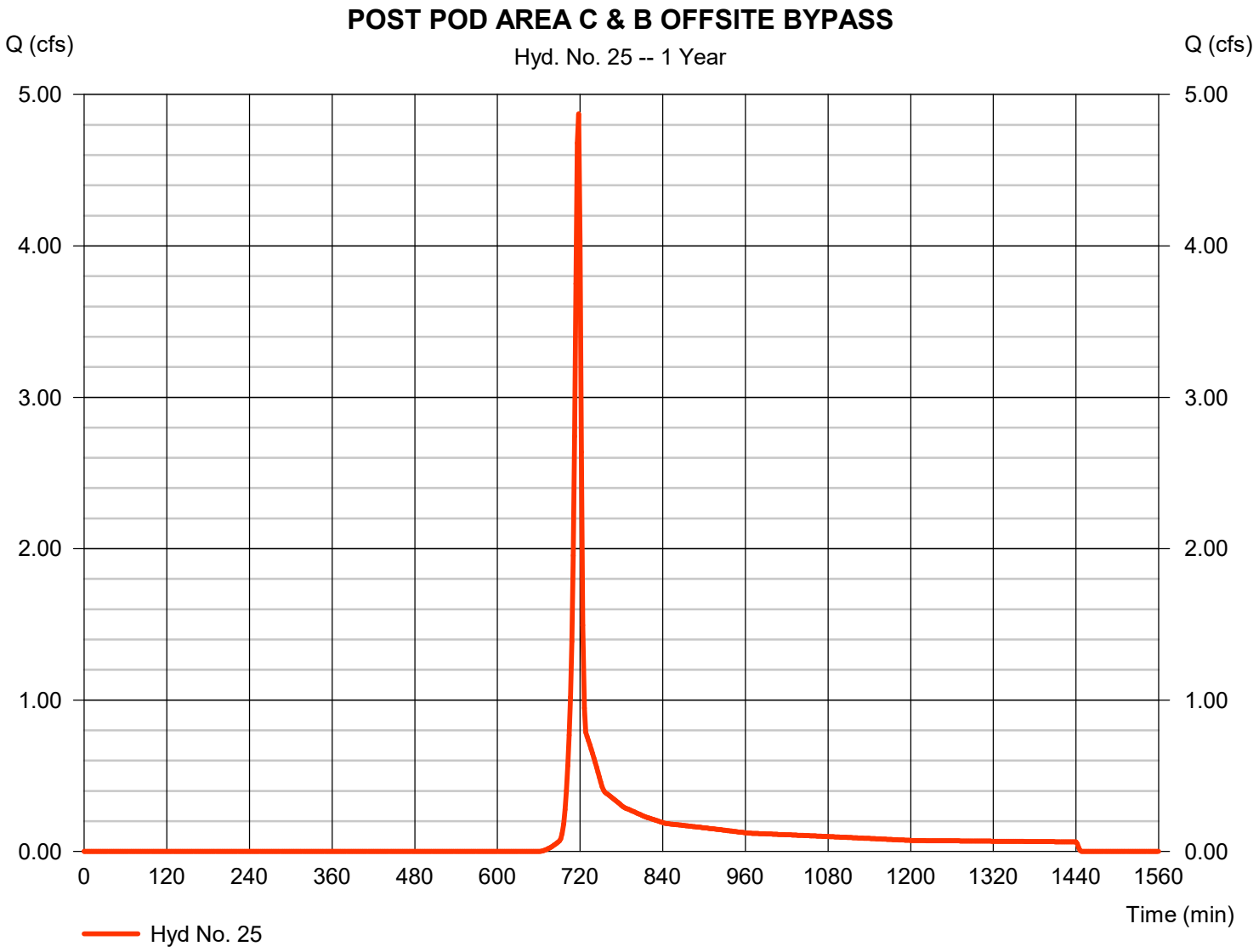


Hydrograph Report

Hyd. No. 25

POST POD AREA C & B OFFSITE BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.872 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	9,798 cuft
Drainage area	=	3.170 ac	Curve number	=	74
Basin Slope	=	4.5 %	Hydraulic length	=	1030 ft
Tc method	=	KIRPICH	Time of conc. (Tc)	=	5.38 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

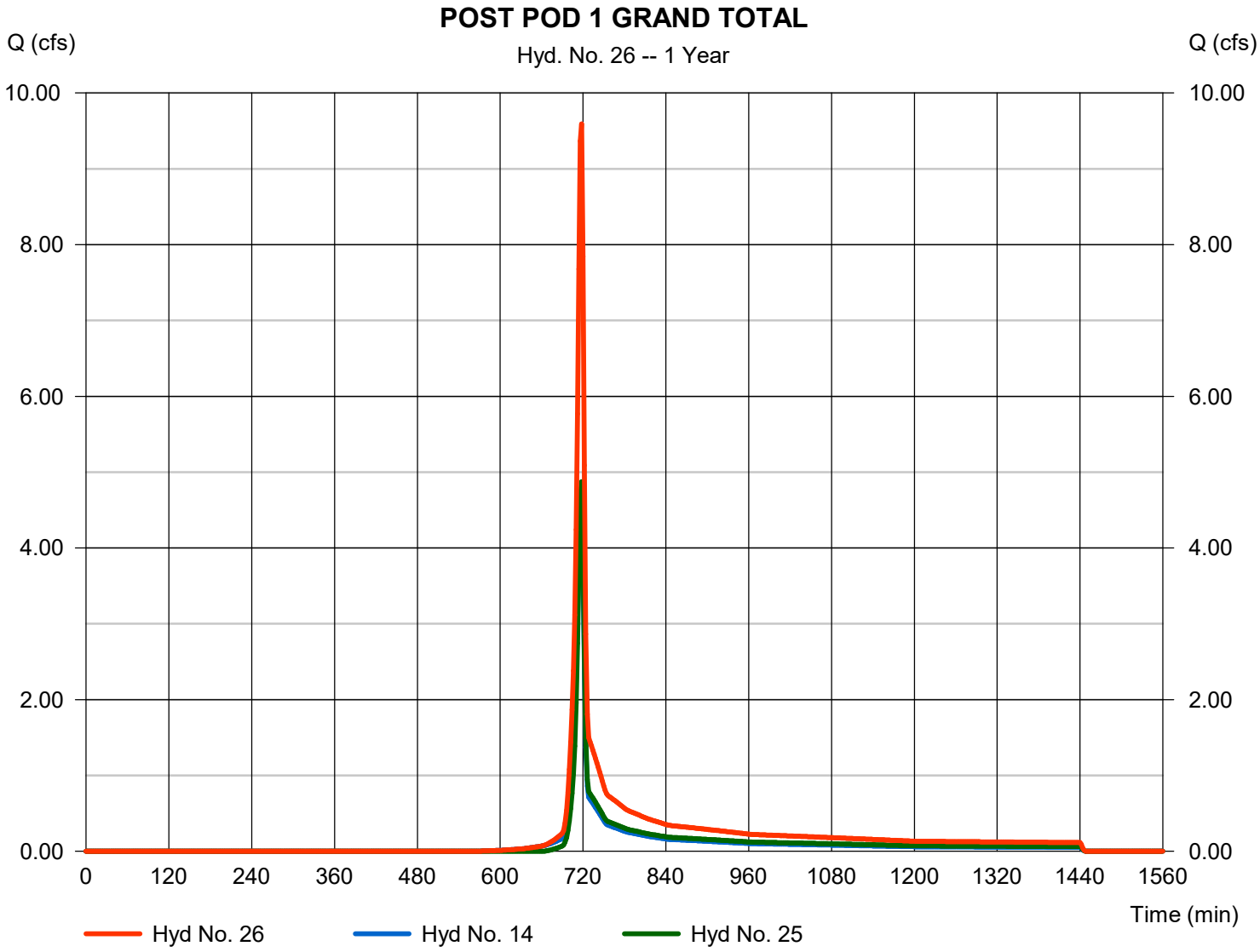


Hydrograph Report

Hyd. No. 26

POST POD 1 GRAND TOTAL

Hydrograph type	= Combine	Peak discharge	= 9.590 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 19,272 cuft
Inflow hyds.	= 14, 25	Contrib. drain. area	= 5.300 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

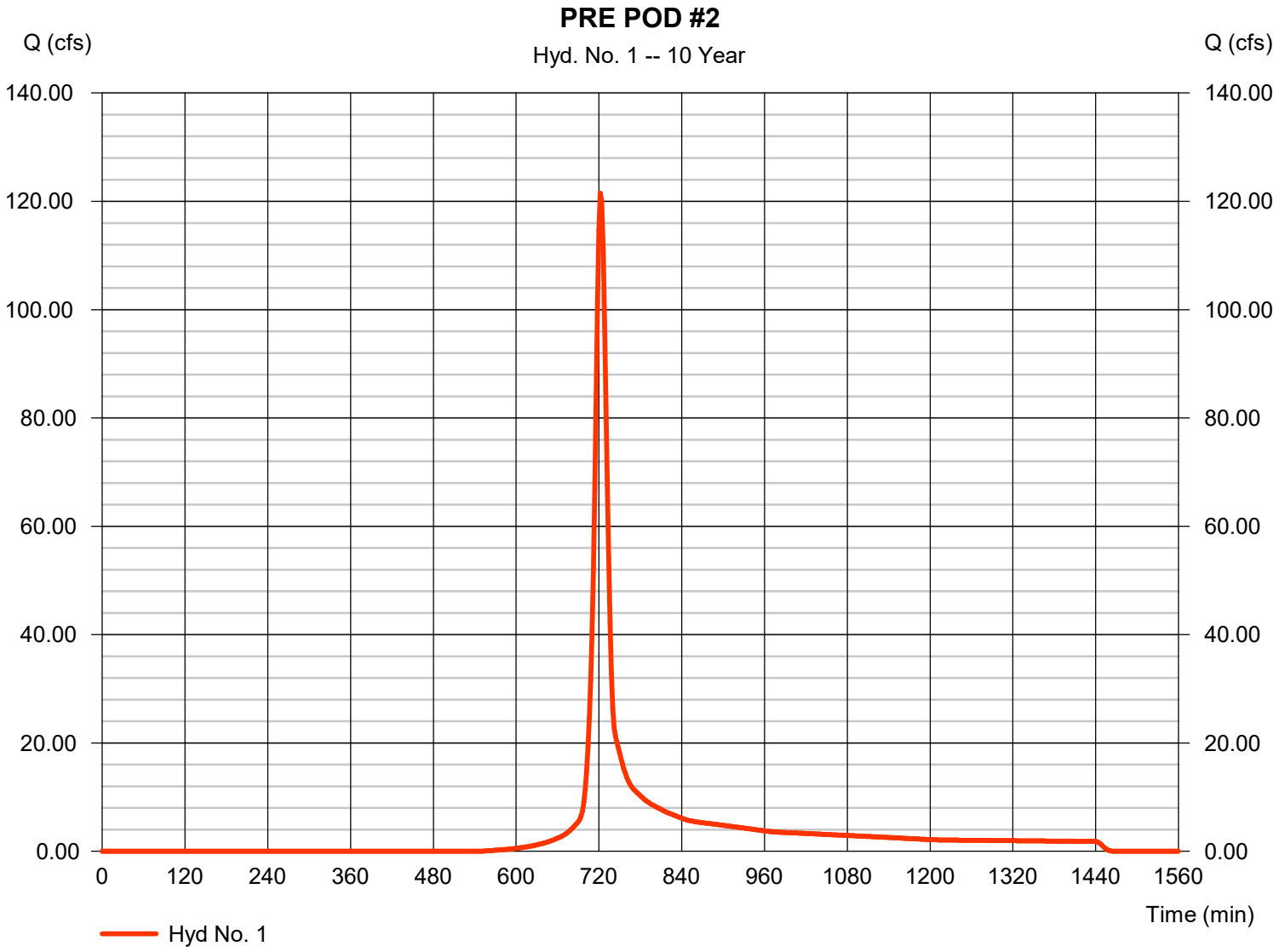
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	121.51	2	722	342,397	------	------	------	PRE POD #2
2	SCS Runoff	21.78	2	720	49,838	------	------	------	PRE POD #1
3	SCS Runoff	45.07	2	718	103,764	------	------	------	POST POD 2A #1 (to SCM #1)
4	Reservoir	7.801	2	732	92,501	3	366.26	96,156	PostDev Thru SCM#1
5	SCS Runoff	6.893	2	716	14,059	------	------	------	POST POD 2A #2 (to SCM #2)
6	Reservoir	0.074	2	1204	9,082	5	362.80	27,586	Route PostDev SCM #2
7	SCS Runoff	43.19	2	718	99,683	------	------	------	POST POD 2A #3 (to SCM #3)
8	Reservoir	33.43	2	722	96,598	7	363.91	39,587	Route PostDev @ SCM#3
9	SCS Runoff	34.78	2	720	91,102	------	------	------	POST POD 2B #4 (to SCM #5)
10	Reservoir	18.85	2	728	89,424	9	350.81	59,275	Route PostDev SCM#5
11	SCS Runoff	27.78	2	720	72,759	------	------	------	POST POD 2B #2 (to SCM #4)
12	Reservoir	25.84	2	724	72,342	11	359.56	29,687	Route PostDev SCM #4
13	SCS Runoff	24.50	2	718	56,051	------	------	------	POST POD 2B #3 (BYPASS)
14	SCS Runoff	10.64	2	716	21,700	------	------	------	POST POD #1 (BYPASS)
15	SCS Runoff	30.35	2	720	79,056	------	------	------	POST POD 2A #4 (BYPASS)
16	SCS Runoff	1.362	2	716	2,839	------	------	------	POST POD 2B #1 (BYPASS)
17	SCS Runoff	12.60	2	718	25,435	------	------	------	PRE POD #1 OFFSITE AREA
18	SCS Runoff	25.99	2	736	119,076	------	------	------	PRE OFFSITE AREA #4
19	Combine	34.24	2	718	75,272	2, 17,	------	------	PRE POD #1 TOTAL
20	Combine	138.98	2	724	461,473	1, 18,	------	------	PRE POD #2 TOTAL
21	Combine	163.83	2	722	536,745	19, 20	------	------	PRE POD GRAND TOTAL
22	SCS Runoff	25.99	2	736	119,076	------	------	------	POST POD AREA A (OFFSITE BYP
23	Combine	82.80	2	724	396,313	4, 6, 8, 15, 22	------	------	POST POD 2A TOTAL
24	Combine	137.28	2	724	616,968	10, 12, 13, 16, 23	------	------	POST POD 2 GRAND TOTAL
25	SCS Runoff	12.72	2	718	25,678	------	------	------	POST POD AREA C & B OFFSITE B
26	Combine	23.36	2	716	47,378	14, 25	------	------	POST POD 1 GRAND TOTAL

Hydrograph Report

Hyd. No. 1

PRE POD #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	121.51 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	342,397 cuft
Drainage area	=	41.980 ac	Curve number	=	73.1
Basin Slope	=	1.4 %	Hydraulic length	=	4320 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	5.02 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

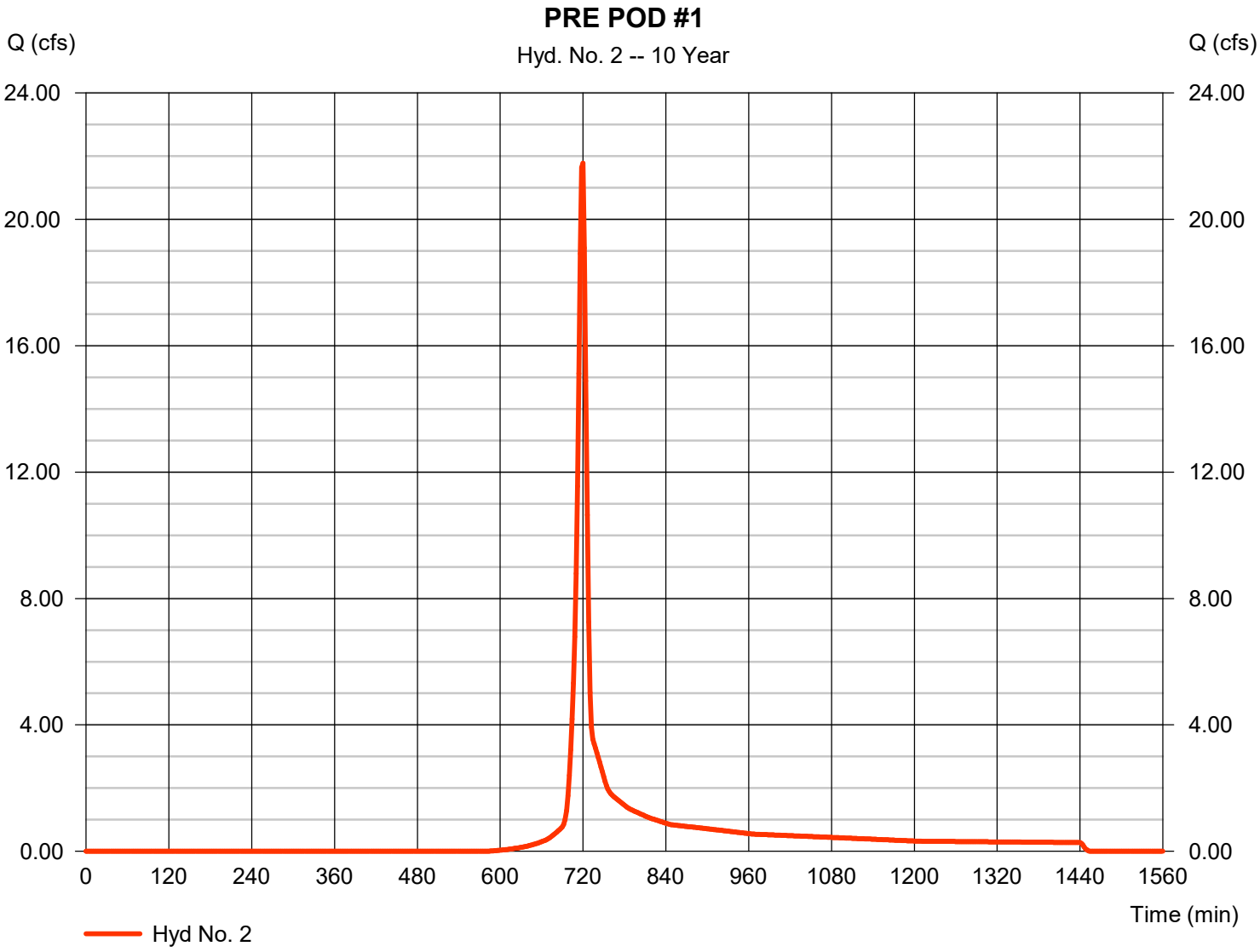


Hydrograph Report

Hyd. No. 2

PRE POD #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	21.78 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	49,838 cuft
Drainage area	=	6.540 ac	Curve number	=	70.6
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.70 min
Total precip.	=	5.02 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

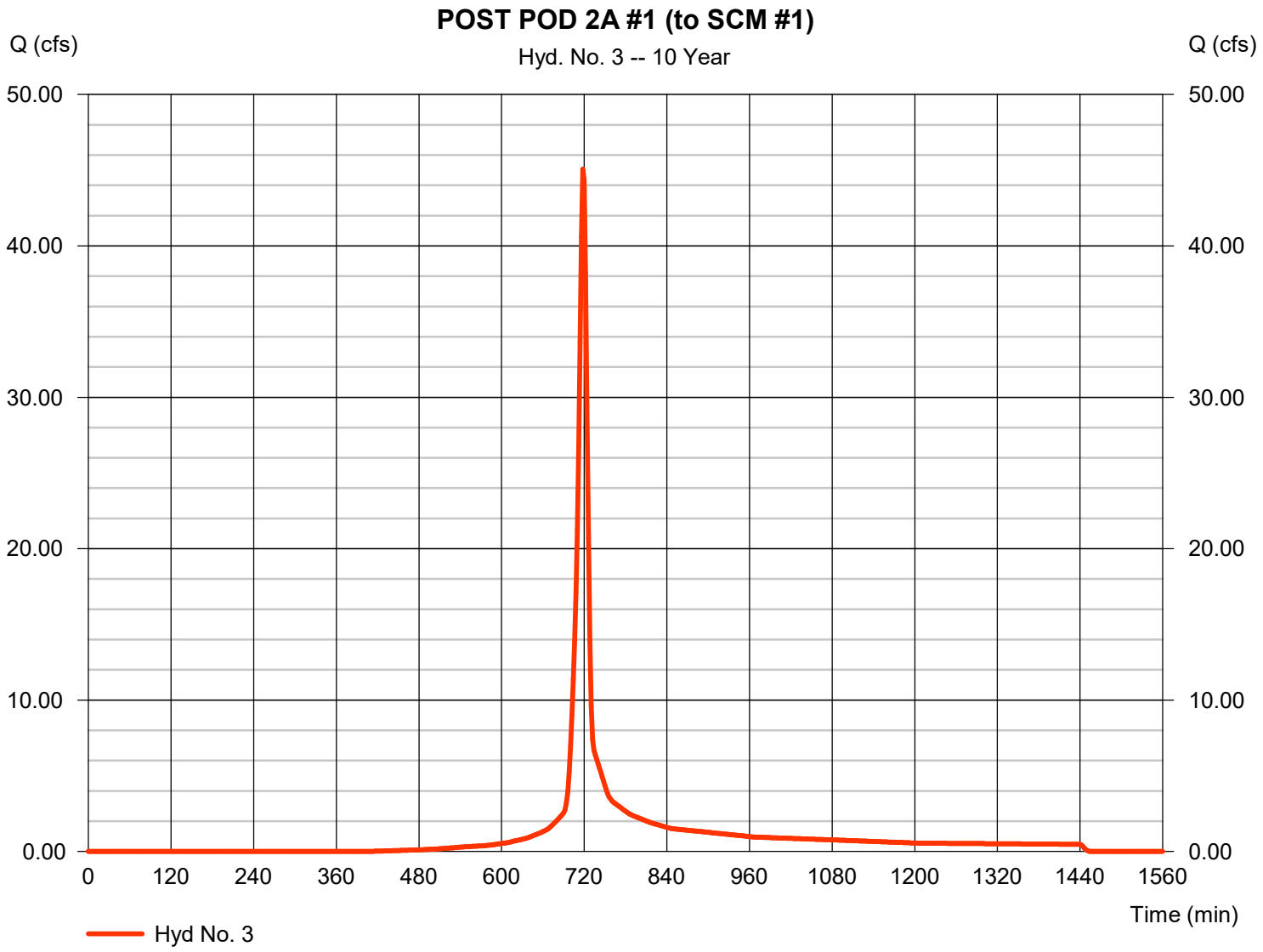


Hydrograph Report

Hyd. No. 3

POST POD 2A #1 (to SCM #1)

Hydrograph type	= SCS Runoff	Peak discharge	= 45.07 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 103,764 cuft
Drainage area	= 9.460 ac	Curve number	= 81.2
Basin Slope	= 2.4 %	Hydraulic length	= 1000 ft
Tc method	= User	Time of conc. (Tc)	= 6.60 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



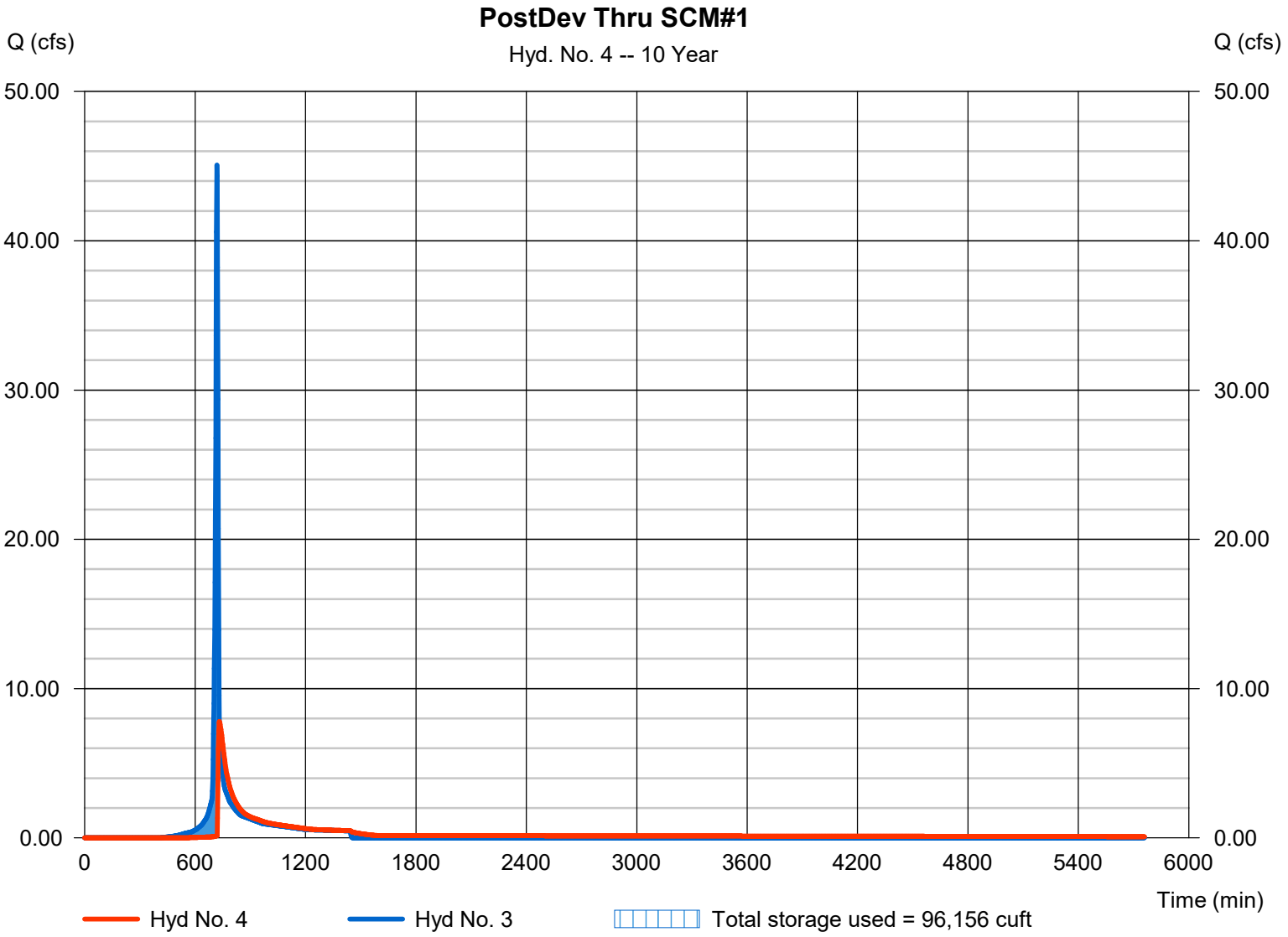
Hydrograph Report

Hyd. No. 4

PostDev Thru SCM#1

Hydrograph type	=	Reservoir	Peak discharge	=	7.801 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	92,501 cuft
Inflow hyd. No.	=	3 - POST POD 2A #1 (to SCM #1)	Max. Elevation	=	366.26 ft
Reservoir name	=	SCM #1	Max. Storage	=	96,156 cuft

Storage Indication method used. Wet pond routing start elevation = 363.50 ft.

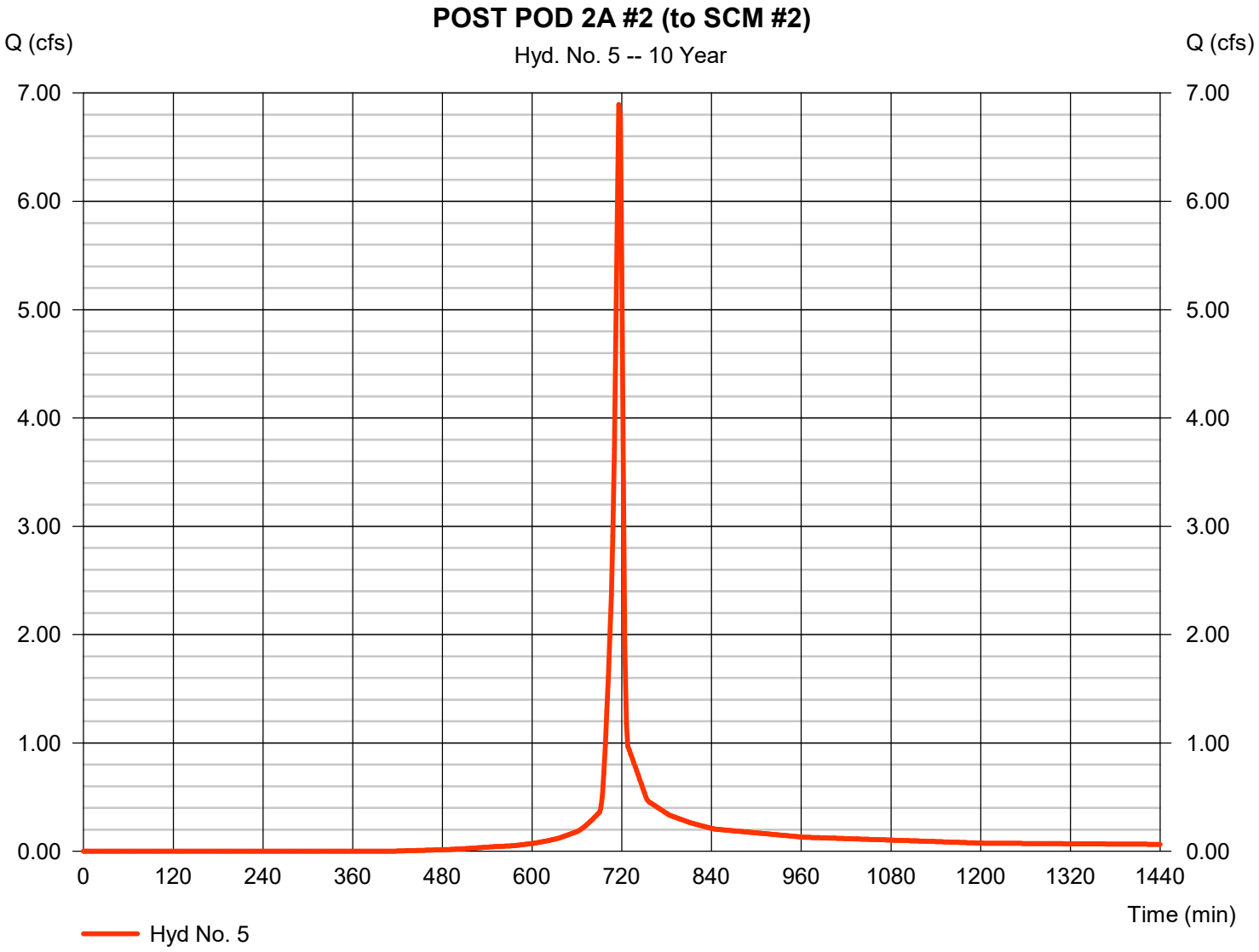


Hydrograph Report

Hyd. No. 5

POST POD 2A #2 (to SCM #2)

Hydrograph type	= SCS Runoff	Peak discharge	= 6.893 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 14,059 cuft
Drainage area	= 1.380 ac	Curve number	= 80.9
Basin Slope	= 0.5 %	Hydraulic length	= 450 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



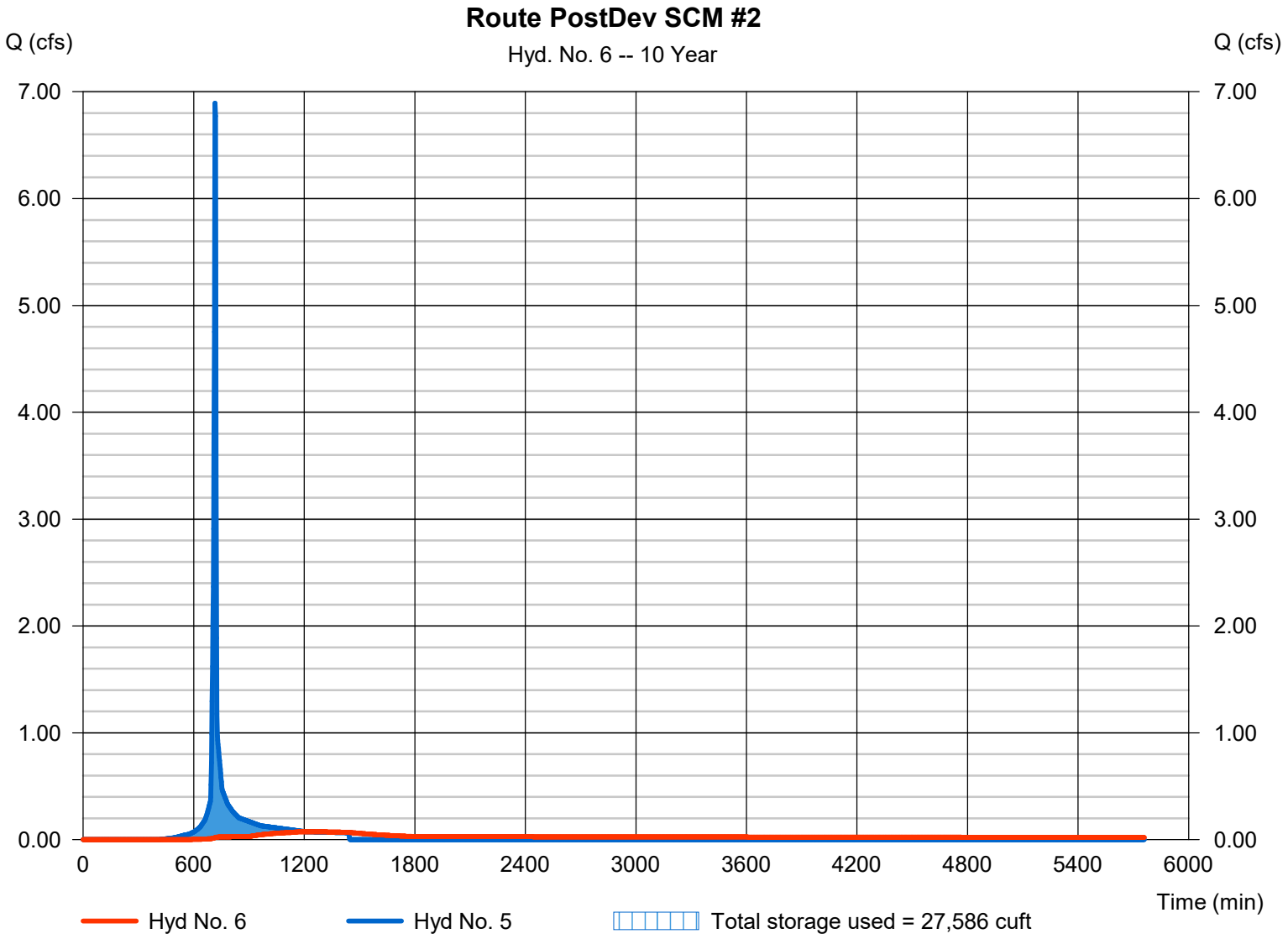
Hydrograph Report

Hyd. No. 6

Route PostDev SCM #2

Hydrograph type	=	Reservoir	Peak discharge	=	0.074 cfs
Storm frequency	=	10 yrs	Time to peak	=	1204 min
Time interval	=	2 min	Hyd. volume	=	9,082 cuft
Inflow hyd. No.	=	5 - POST POD 2A #2 (to SCM #2)	Max. Elevation	=	362.80 ft
Reservoir name	=	SCM #2	Max. Storage	=	27,586 cuft

Storage Indication method used. Wet pond routing start elevation = 361.50 ft.

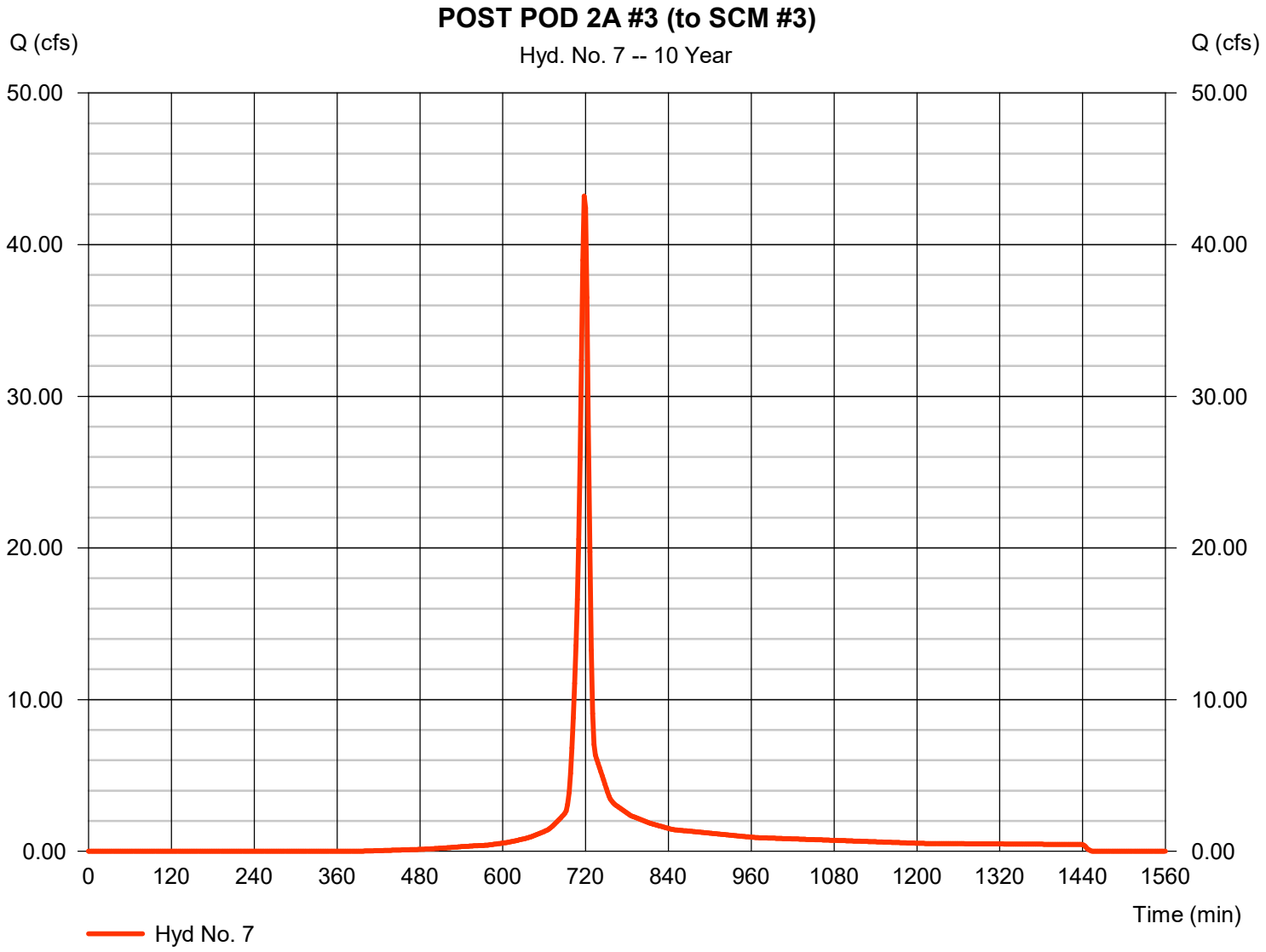


Hydrograph Report

Hyd. No. 7

POST POD 2A #3 (to SCM #3)

Hydrograph type	= SCS Runoff	Peak discharge	= 43.19 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 99,683 cuft
Drainage area	= 8.840 ac	Curve number	= 82.1
Basin Slope	= 2.6 %	Hydraulic length	= 1120 ft
Tc method	= User	Time of conc. (Tc)	= 7.30 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



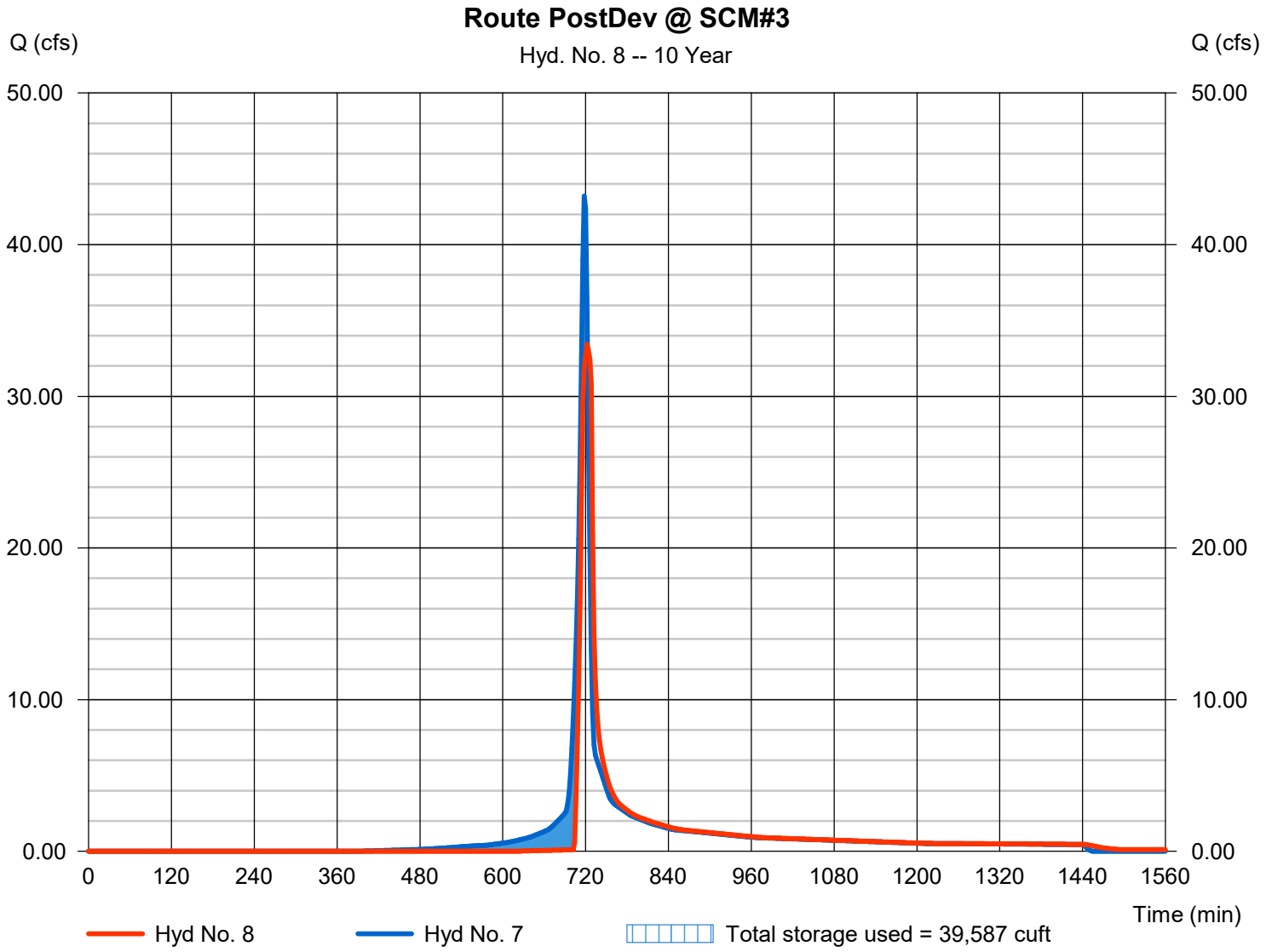
Hydrograph Report

Hyd. No. 8

Route PostDev @ SCM#3

Hydrograph type	=	Reservoir	Peak discharge	=	33.43 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	96,598 cuft
Inflow hyd. No.	=	7 - POST POD 2A #3 (to SCM#3)	Max. Elevation	=	363.91 ft
Reservoir name	=	SCM #3	Max. Storage	=	39,587 cuft

Storage Indication method used. Wet pond routing start elevation = 361.00 ft.

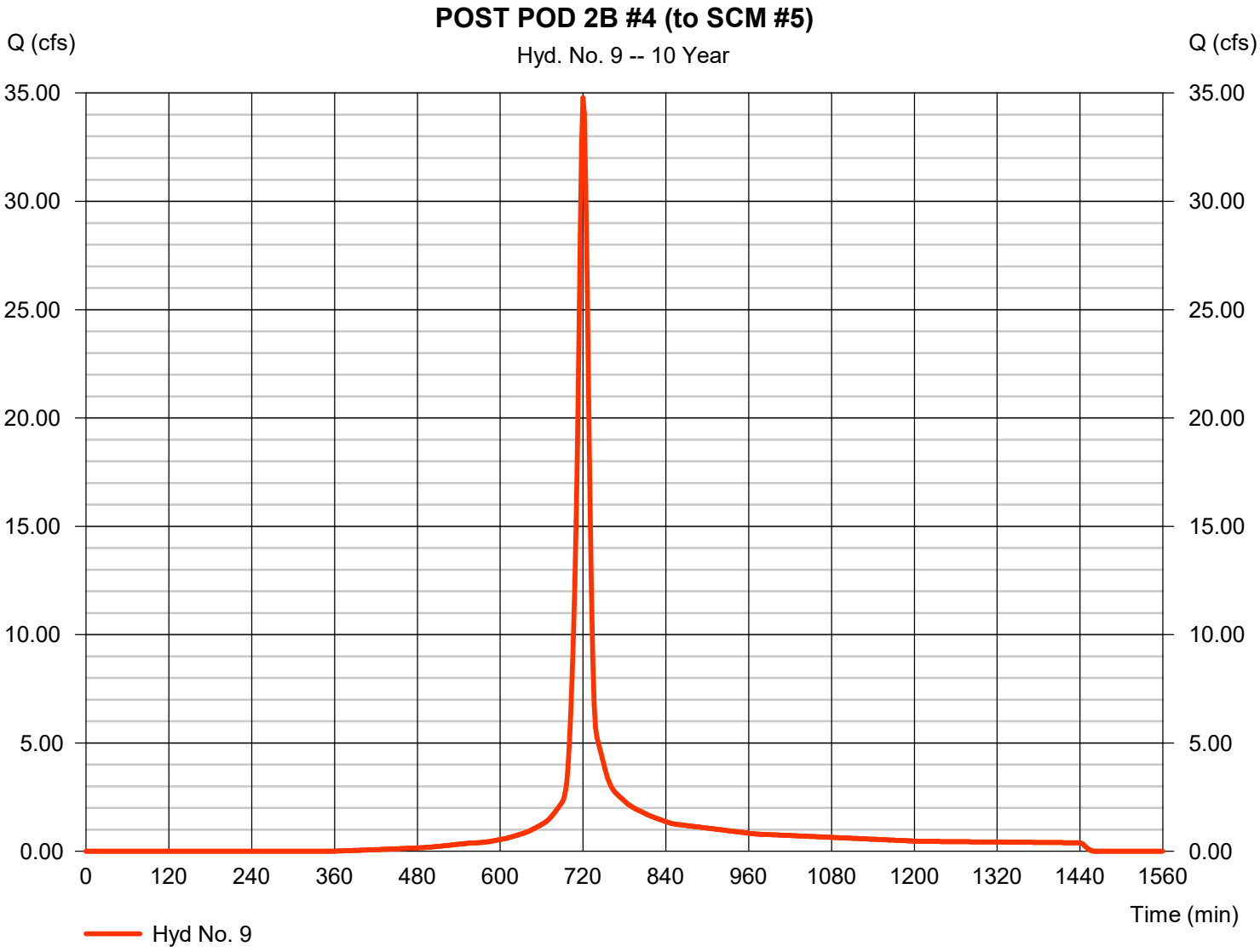


Hydrograph Report

Hyd. No. 9

POST POD 2B #4 (to SCM #5)

Hydrograph type	= SCS Runoff	Peak discharge	= 34.78 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 91,102 cuft
Drainage area	= 7.400 ac	Curve number	= 84
Basin Slope	= 3.2 %	Hydraulic length	= 1270 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



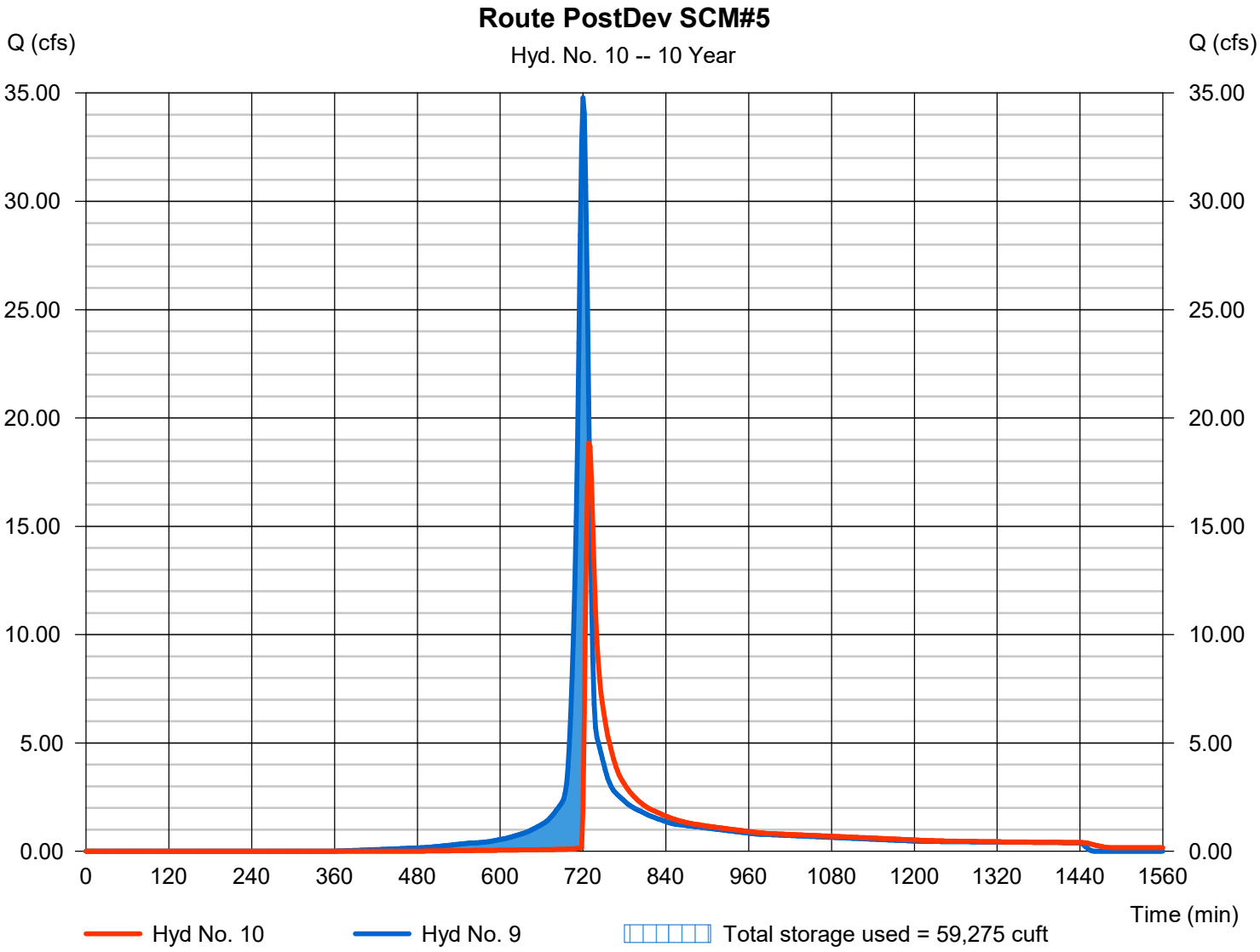
Hydrograph Report

Hyd. No. 10

Route PostDev SCM#5

Hydrograph type	=	Reservoir	Peak discharge	=	18.85 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	89,424 cuft
Inflow hyd. No.	=	9 - POST POD 2B #4 (to SCM #5)	Max. Elevation	=	350.81 ft
Reservoir name	=	SCM #5	Max. Storage	=	59,275 cuft

Storage Indication method used. Wet pond routing start elevation = 347.50 ft.

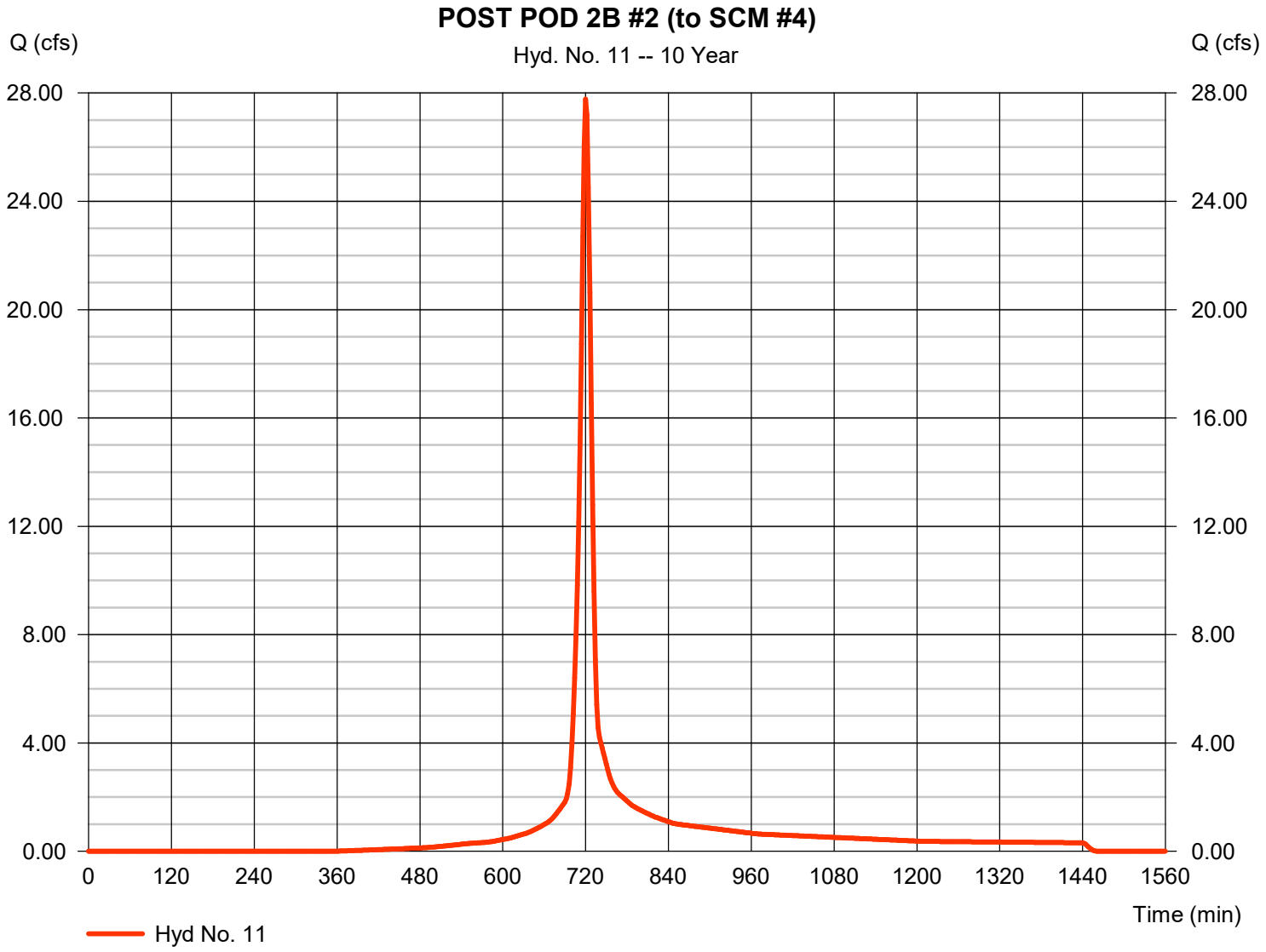


Hydrograph Report

Hyd. No. 11

POST POD 2B #2 (to SCM #4)

Hydrograph type	= SCS Runoff	Peak discharge	= 27.78 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 72,759 cuft
Drainage area	= 5.910 ac	Curve number	= 84
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



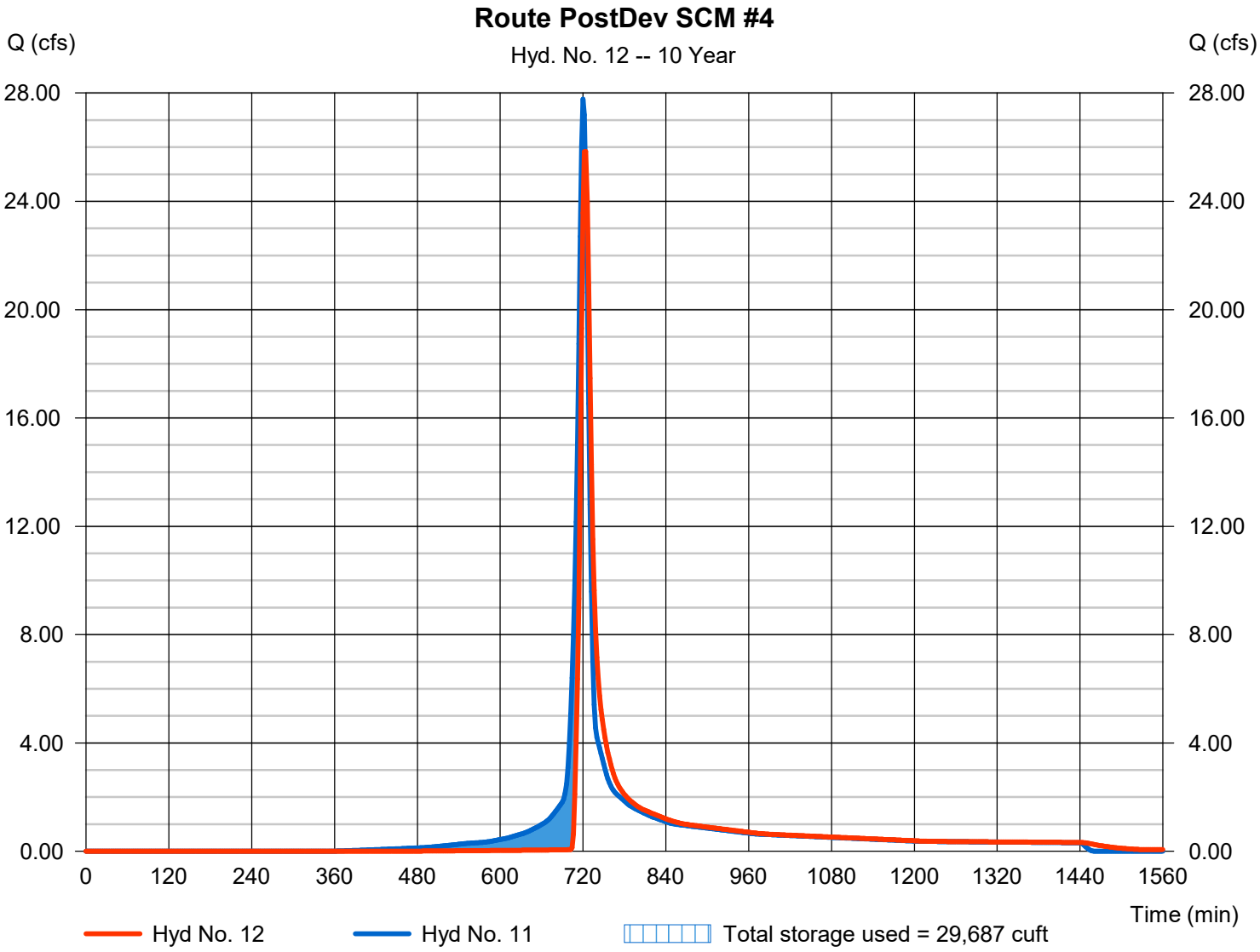
Hydrograph Report

Hyd. No. 12

Route PostDev SCM #4

Hydrograph type	=	Reservoir	Peak discharge	=	25.84 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	72,342 cuft
Inflow hyd. No.	=	11 - POST POD 2B #2 (to SCM #4)	Max. Elevation	=	359.56 ft
Reservoir name	=	SCM #4	Max. Storage	=	29,687 cuft

Storage Indication method used. Wet pond routing start elevation = 357.50 ft.

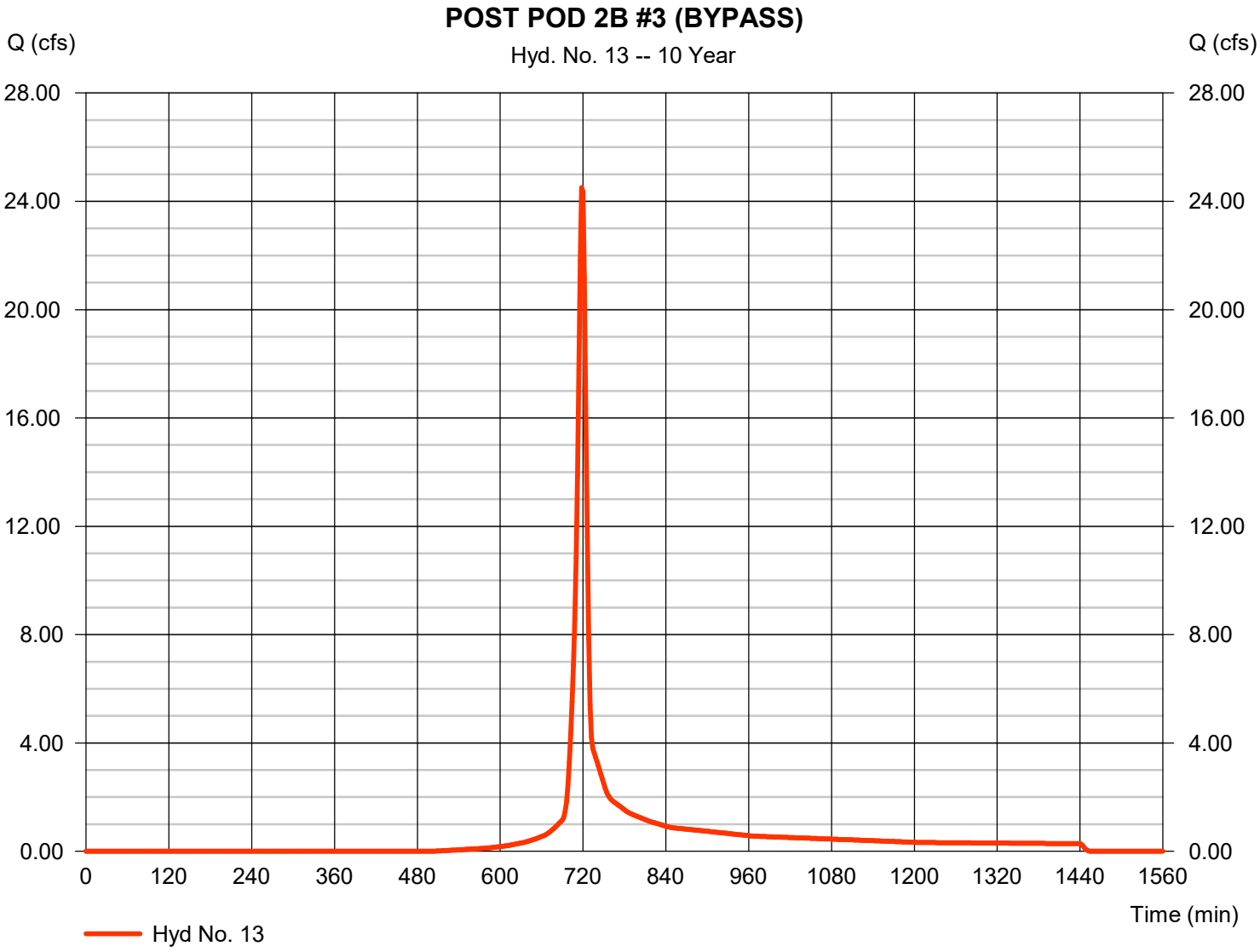


Hydrograph Report

Hyd. No. 13

POST POD 2B #3 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 24.50 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 56,051 cuft
Drainage area	= 6.030 ac	Curve number	= 76.1
Basin Slope	= 1.3 %	Hydraulic length	= 4170 ft
Tc method	= User	Time of conc. (Tc)	= 7.00 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

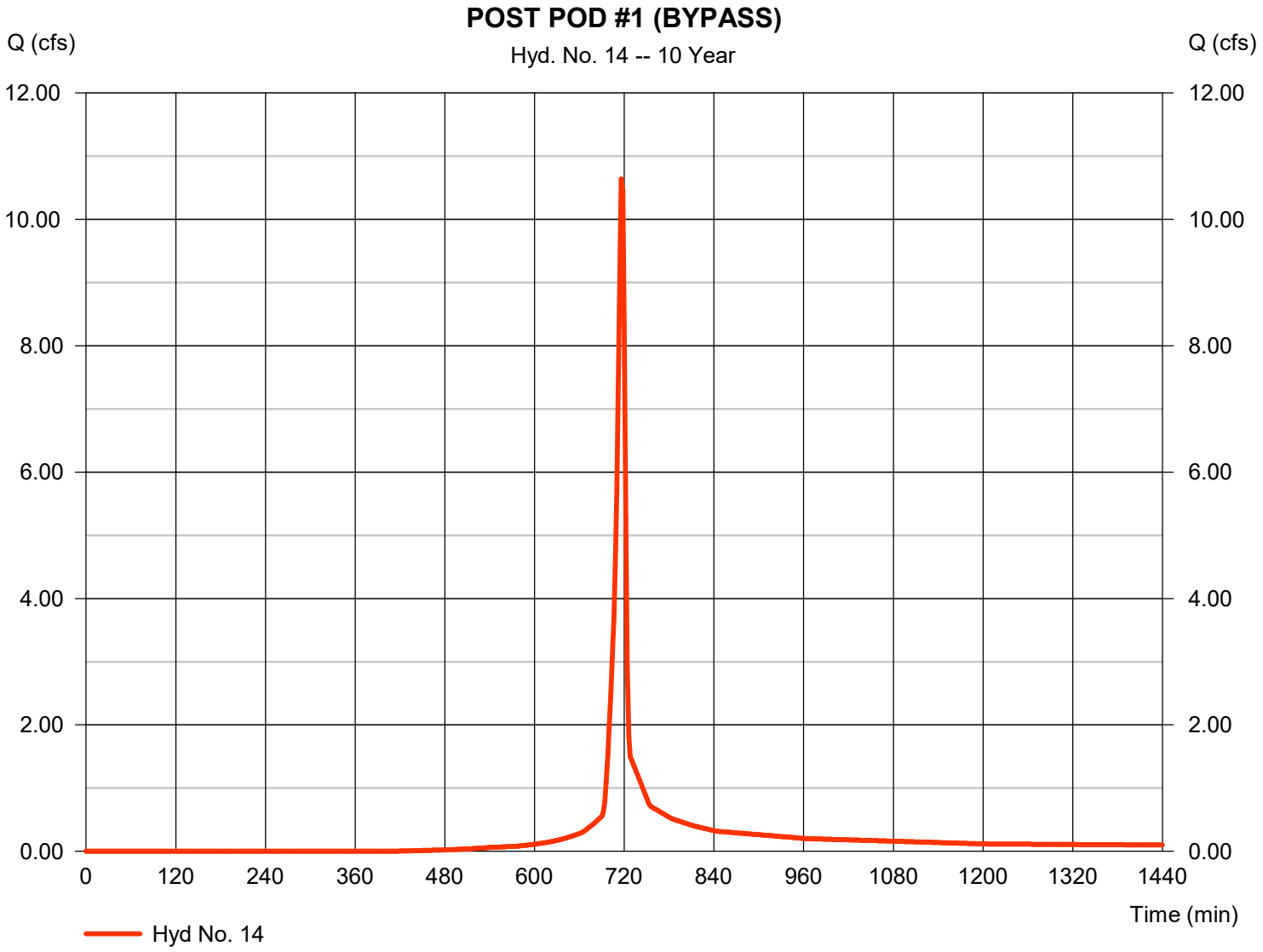


Hydrograph Report

Hyd. No. 14

POST POD #1 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.64 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	21,700 cuft
Drainage area	=	2.130 ac	Curve number	=	80.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.02 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

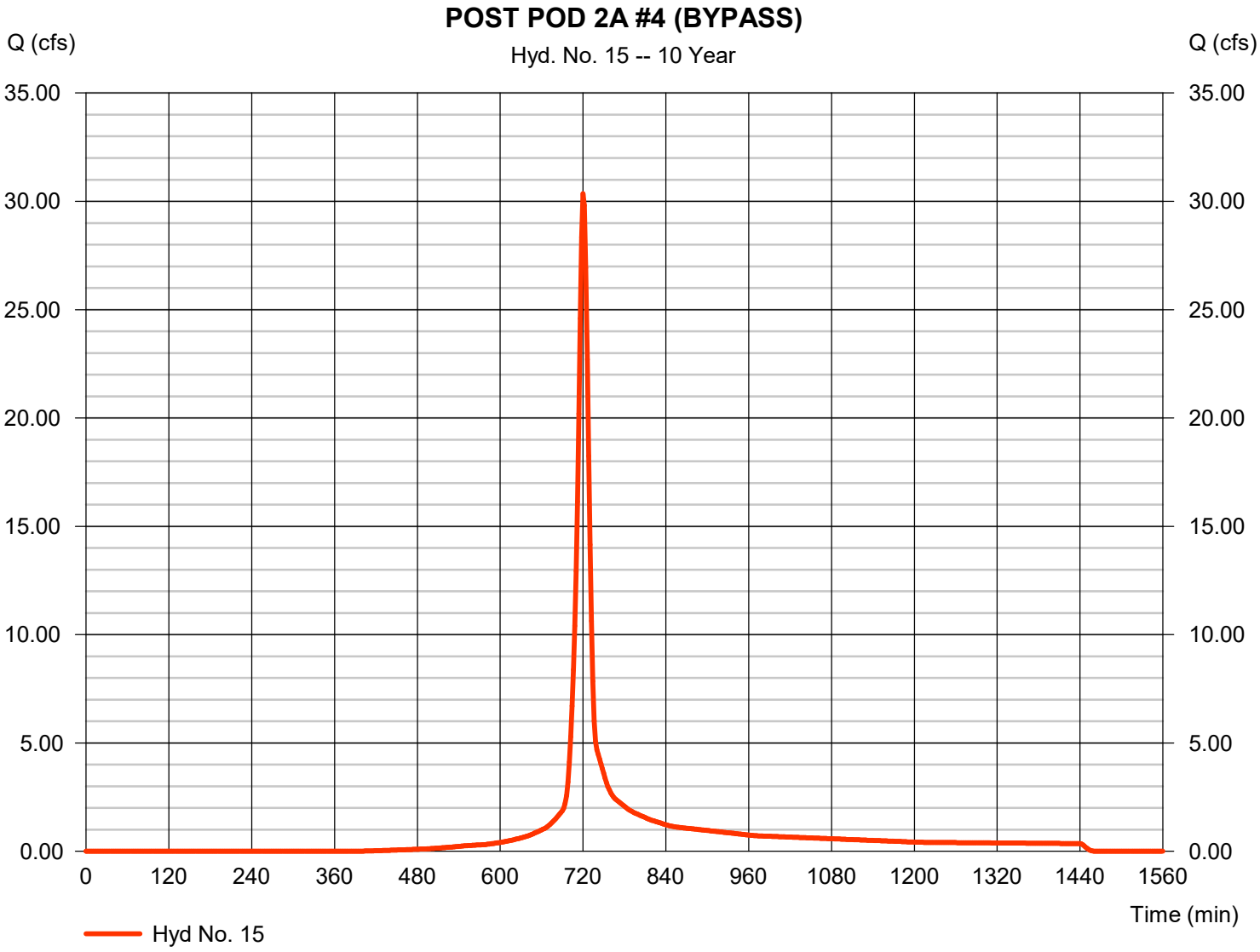


Hydrograph Report

Hyd. No. 15

POST POD 2A #4 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.35 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	79,056 cuft
Drainage area	=	6.840 ac	Curve number	=	81.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.50 min
Total precip.	=	5.02 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

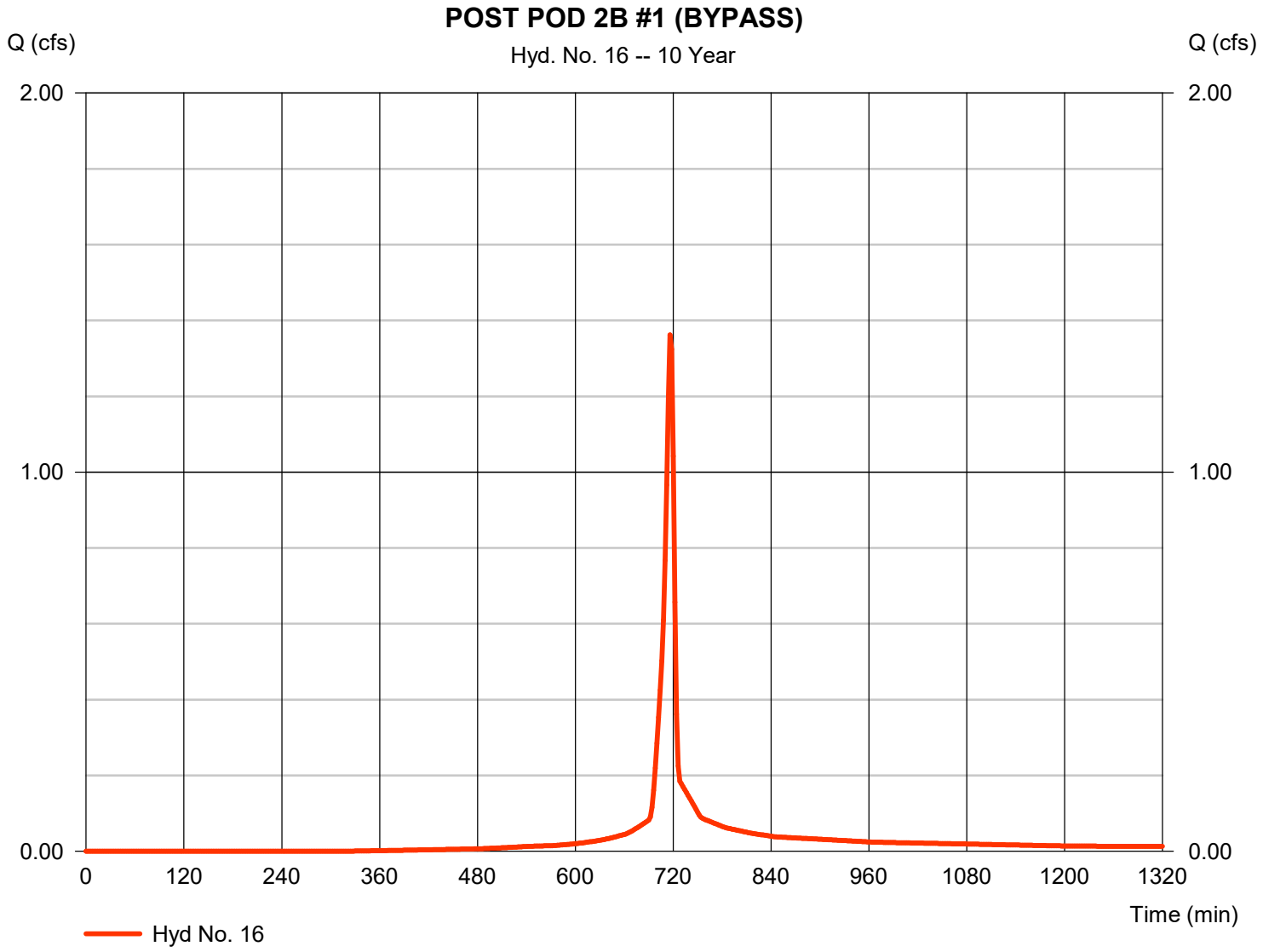


Hydrograph Report

Hyd. No. 16

POST POD 2B #1 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.362 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 2,839 cuft
Drainage area	= 0.240 ac	Curve number	= 85.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

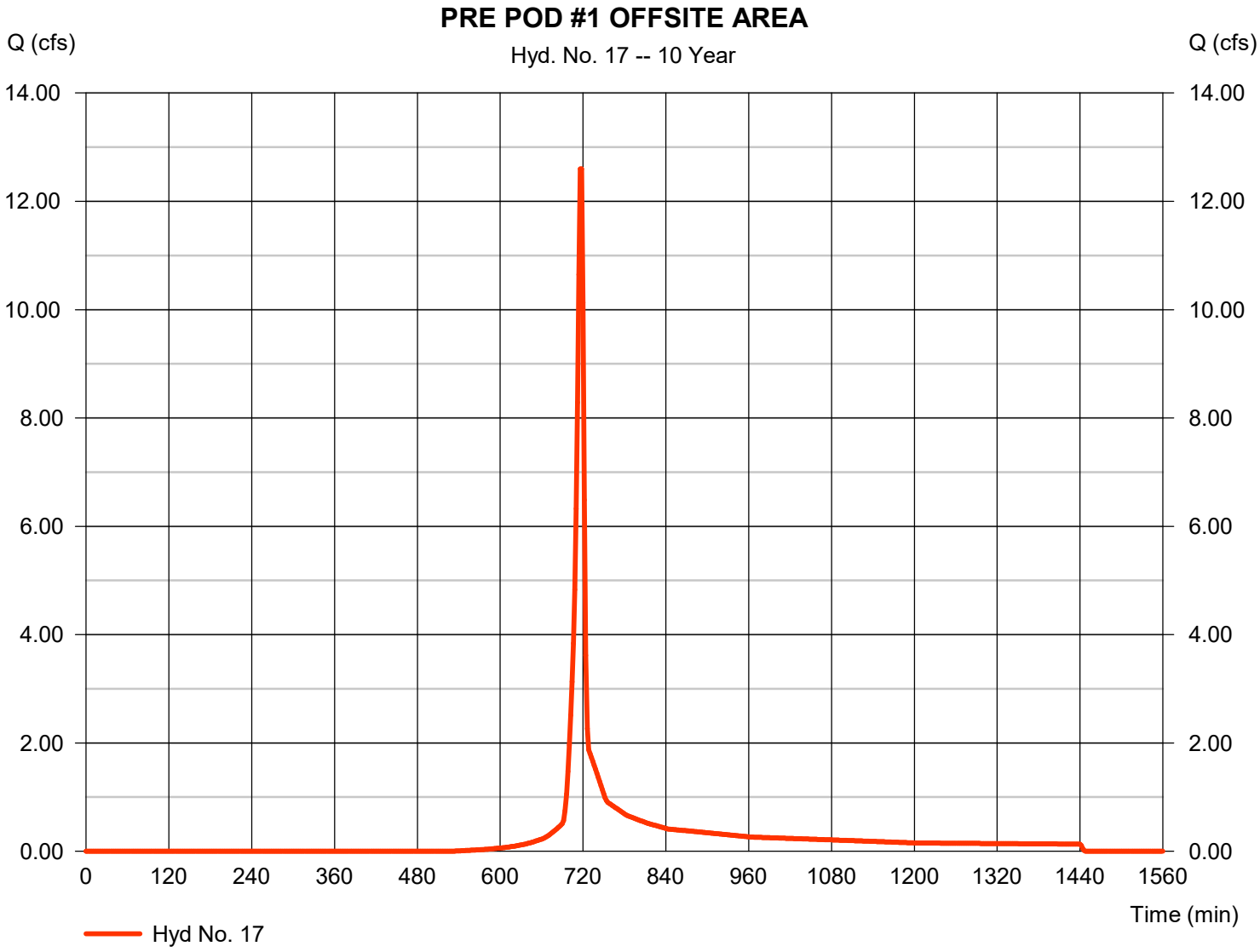


Hydrograph Report

Hyd. No. 17

PRE POD #1 OFFSITE AREA

Hydrograph type	= SCS Runoff	Peak discharge	= 12.60 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 25,435 cuft
Drainage area	= 3.140 ac	Curve number	= 74
Basin Slope	= 4.5 %	Hydraulic length	= 1030 ft
Tc method	= KIRPICH	Time of conc. (Tc)	= 5.38 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

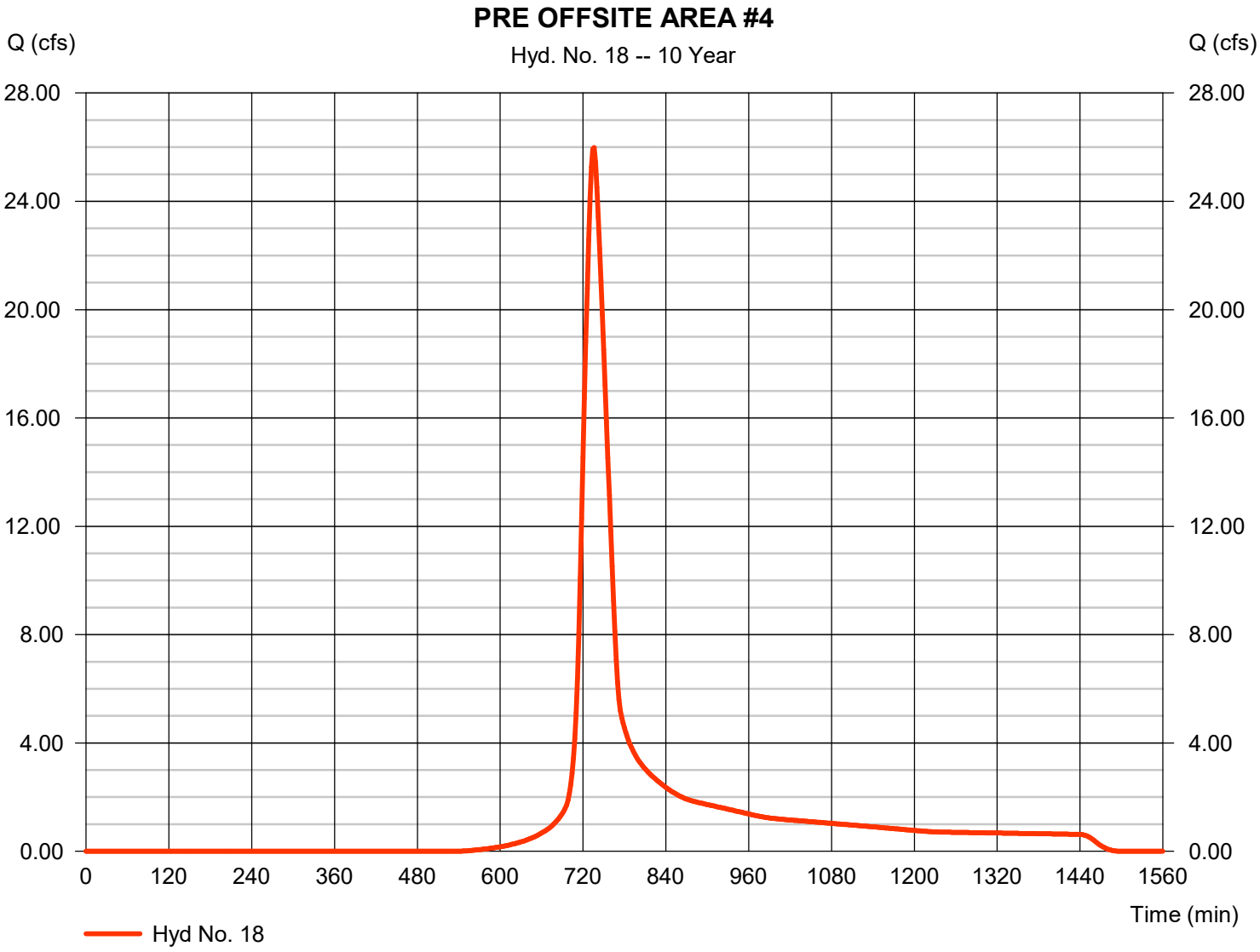


Hydrograph Report

Hyd. No. 18

PRE OFFSITE AREA #4

Hydrograph type	= SCS Runoff	Peak discharge	= 25.99 cfs
Storm frequency	= 10 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 119,076 cuft
Drainage area	= 13.940 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 34.70 min
Total precip.	= 5.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

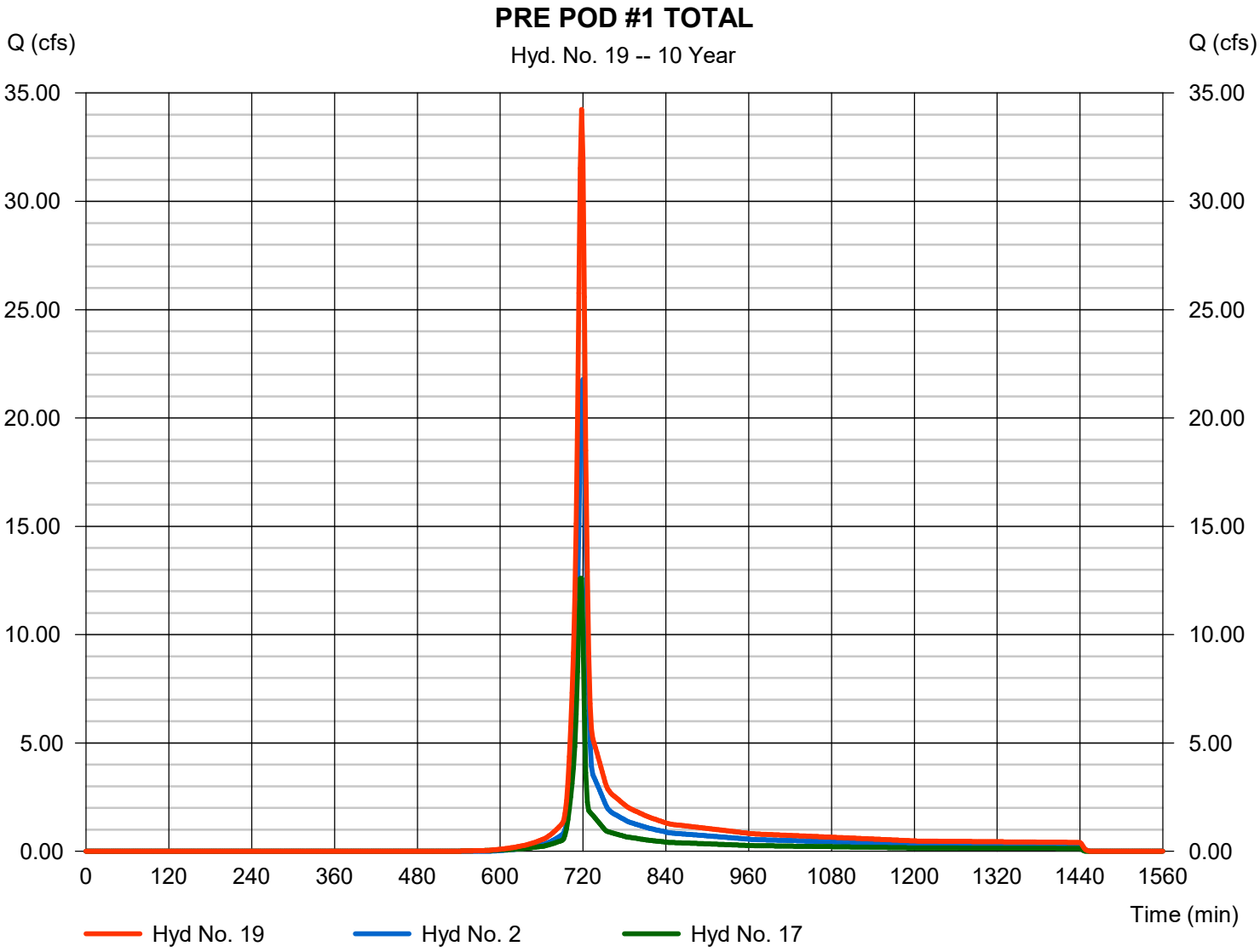


Hydrograph Report

Hyd. No. 19

PRE POD #1 TOTAL

Hydrograph type	=	Combine	Peak discharge	=	34.24 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	75,272 cuft
Inflow hyds.	=	2, 17	Contrib. drain. area	=	9.680 ac

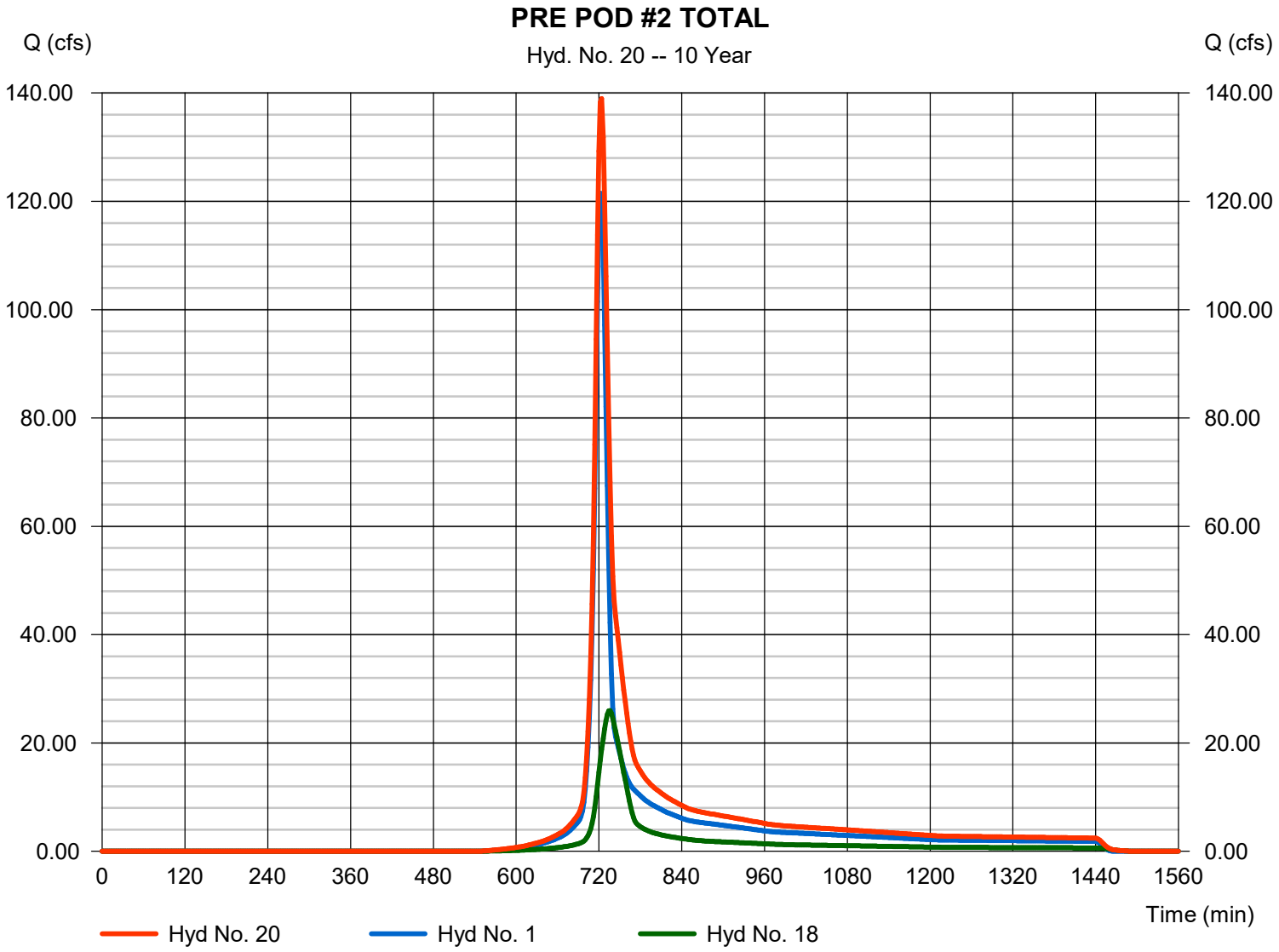


Hydrograph Report

Hyd. No. 20

PRE POD #2 TOTAL

Hydrograph type	= Combine	Peak discharge	= 138.98 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 461,473 cuft
Inflow hyds.	= 1, 18	Contrib. drain. area	= 55.920 ac

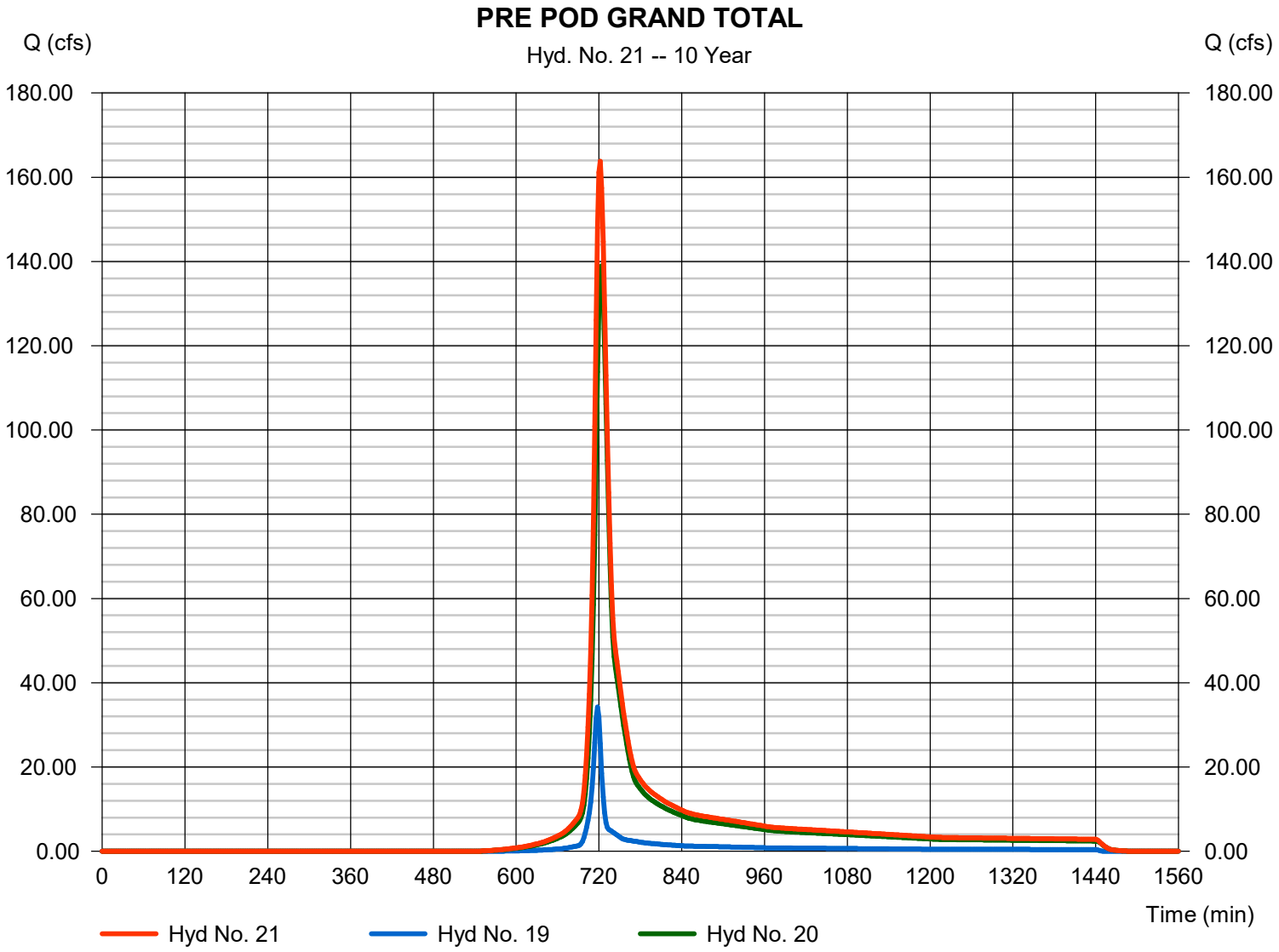


Hydrograph Report

Hyd. No. 21

PRE POD GRAND TOTAL

Hydrograph type	= Combine	Peak discharge	= 163.83 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 536,745 cuft
Inflow hyds.	= 19, 20	Contrib. drain. area	= 0.000 ac

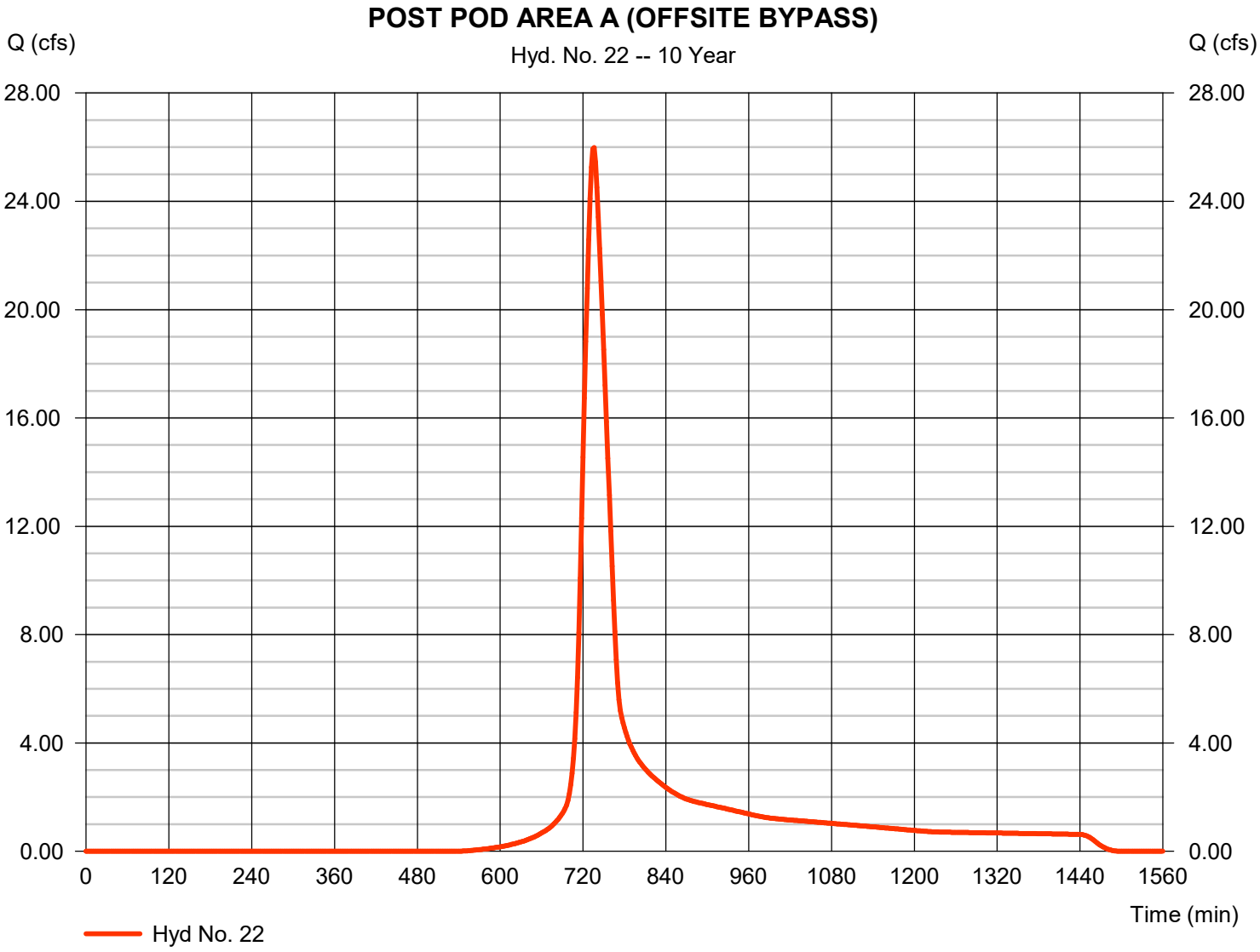


Hydrograph Report

Hyd. No. 22

POST POD AREA A (OFFSITE BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	25.99 cfs
Storm frequency	=	10 yrs	Time to peak	=	736 min
Time interval	=	2 min	Hyd. volume	=	119,076 cuft
Drainage area	=	13.940 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	34.70 min
Total precip.	=	5.02 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

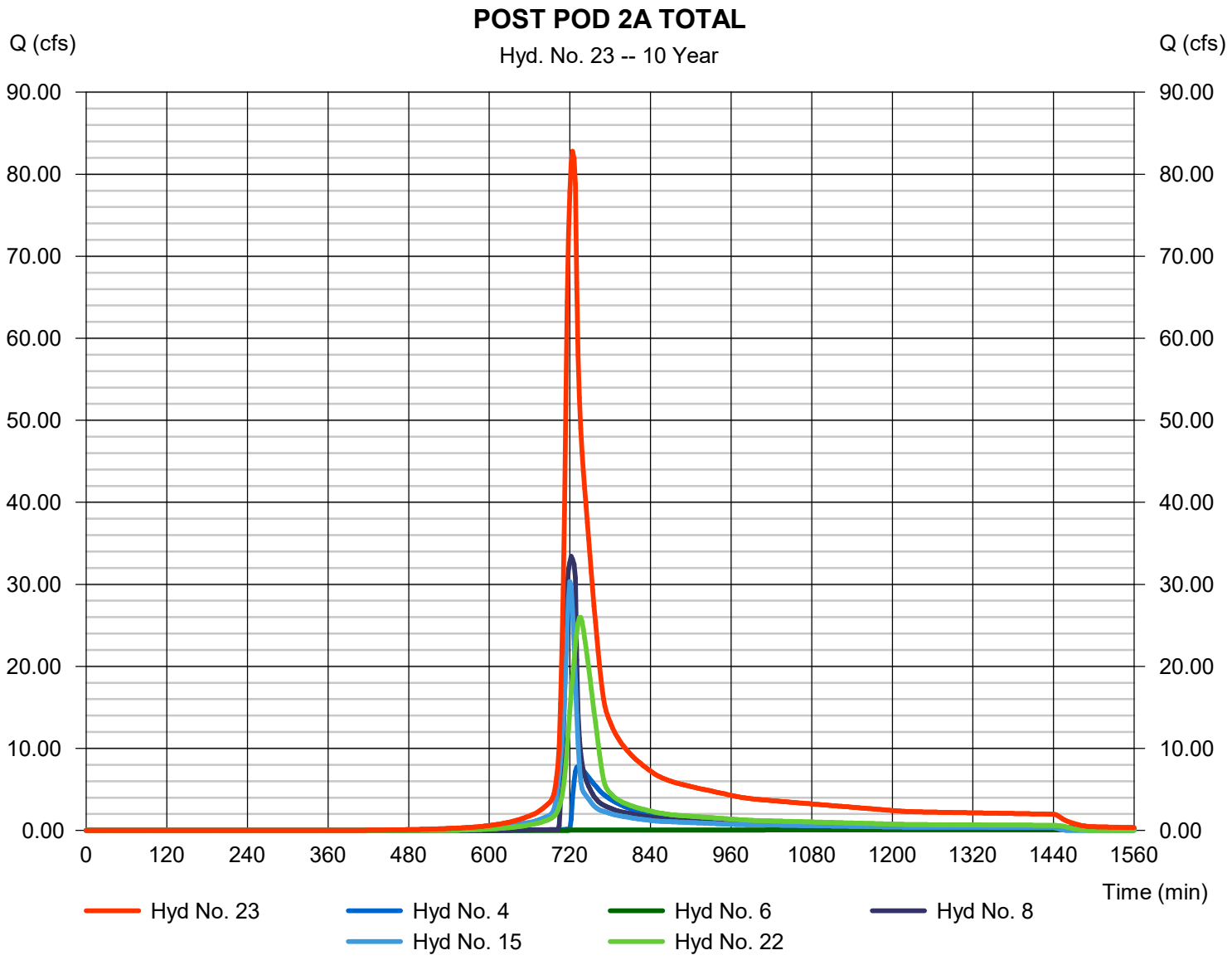


Hydrograph Report

Hyd. No. 23

POST POD 2A TOTAL

Hydrograph type	=	Combine	Peak discharge	=	82.80 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	396,313 cuft
Inflow hyds.	=	4, 6, 8, 15, 22	Contrib. drain. area	=	20.780 ac

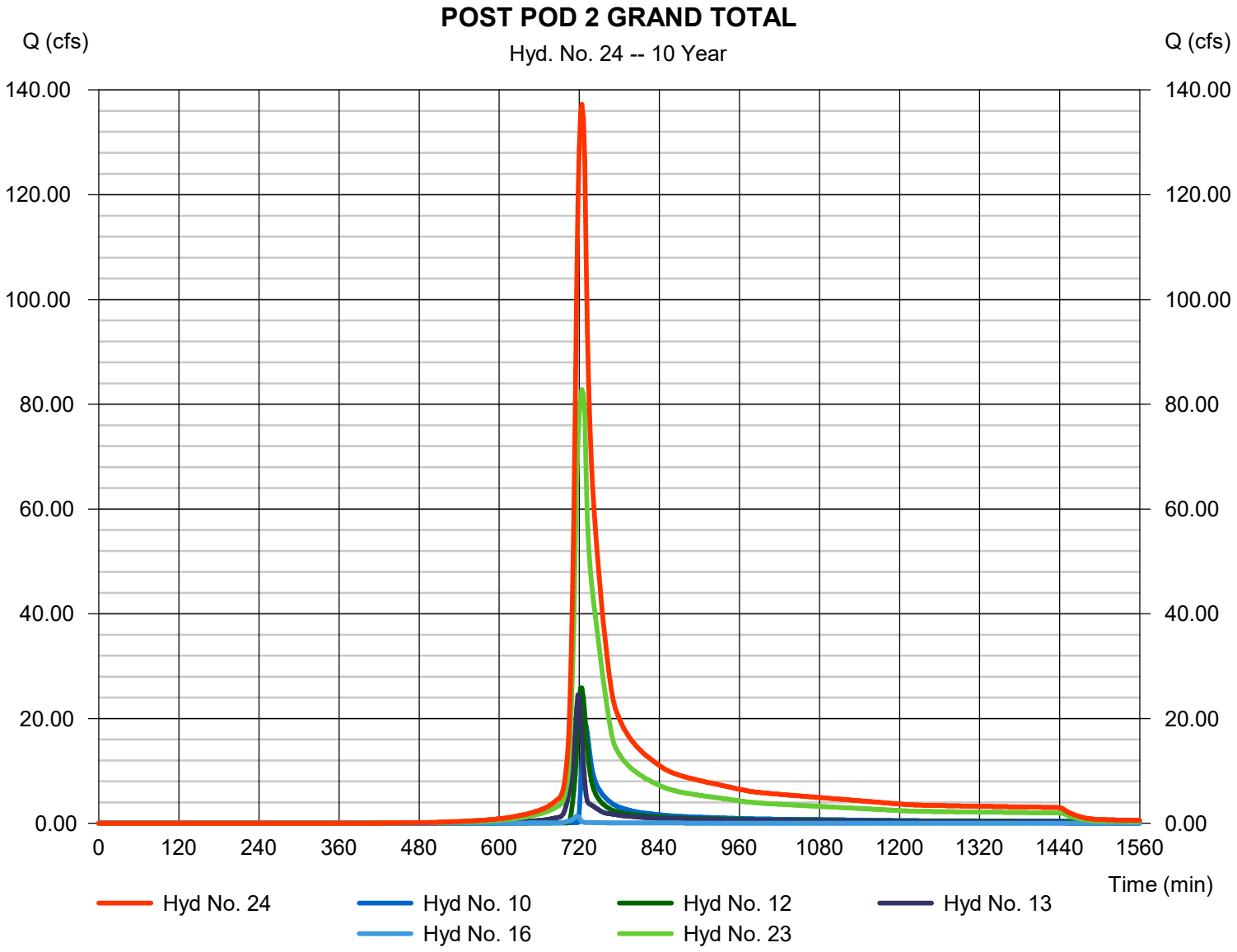


Hydrograph Report

Hyd. No. 24

POST POD 2 GRAND TOTAL

Hydrograph type	= Combine	Peak discharge	= 137.28 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 616,968 cuft
Inflow hyds.	= 10, 12, 13, 16, 23	Contrib. drain. area	= 6.270 ac

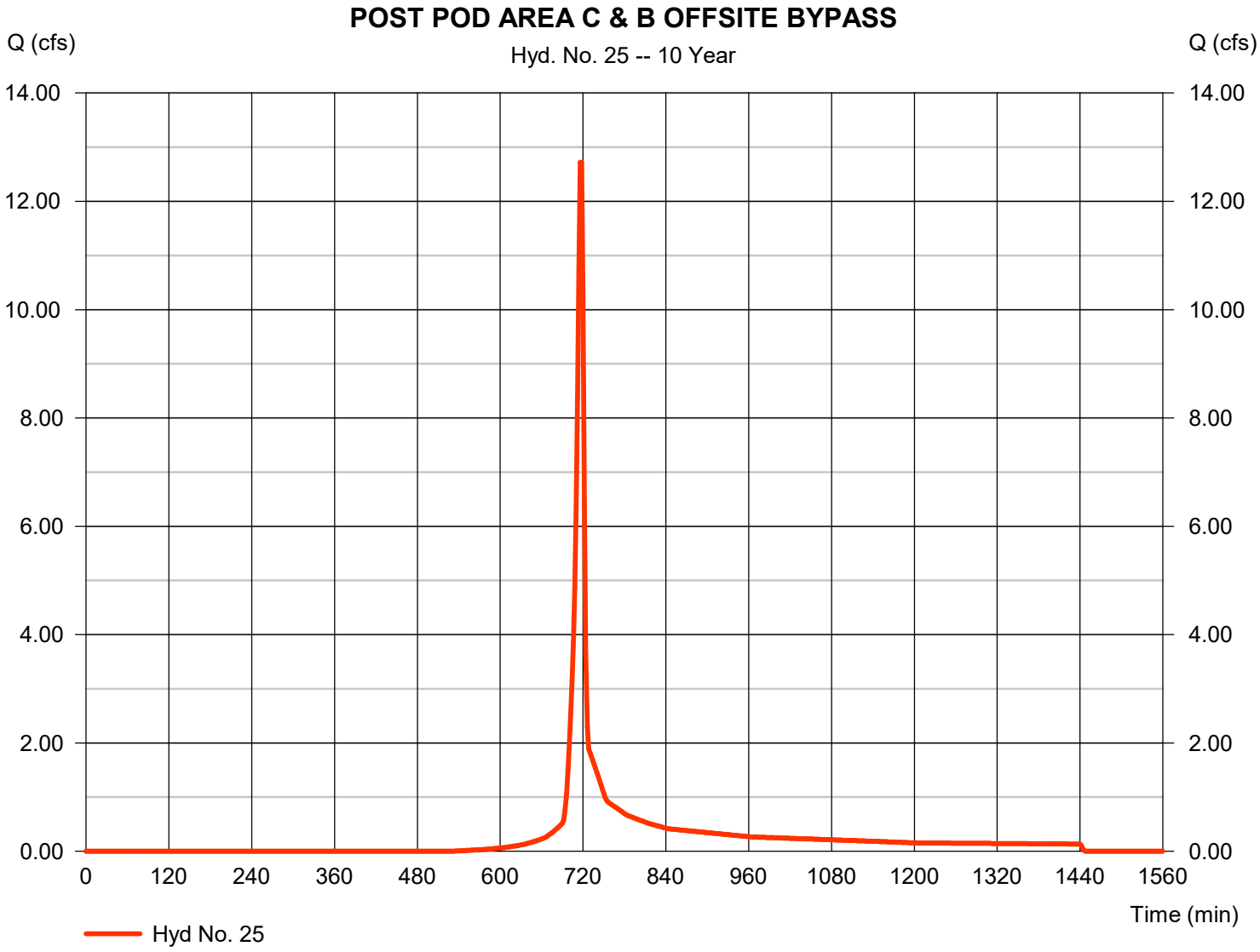


Hydrograph Report

Hyd. No. 25

POST POD AREA C & B OFFSITE BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.72 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	25,678 cuft
Drainage area	=	3.170 ac	Curve number	=	74
Basin Slope	=	4.5 %	Hydraulic length	=	1030 ft
Tc method	=	KIRPICH	Time of conc. (Tc)	=	5.38 min
Total precip.	=	5.02 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

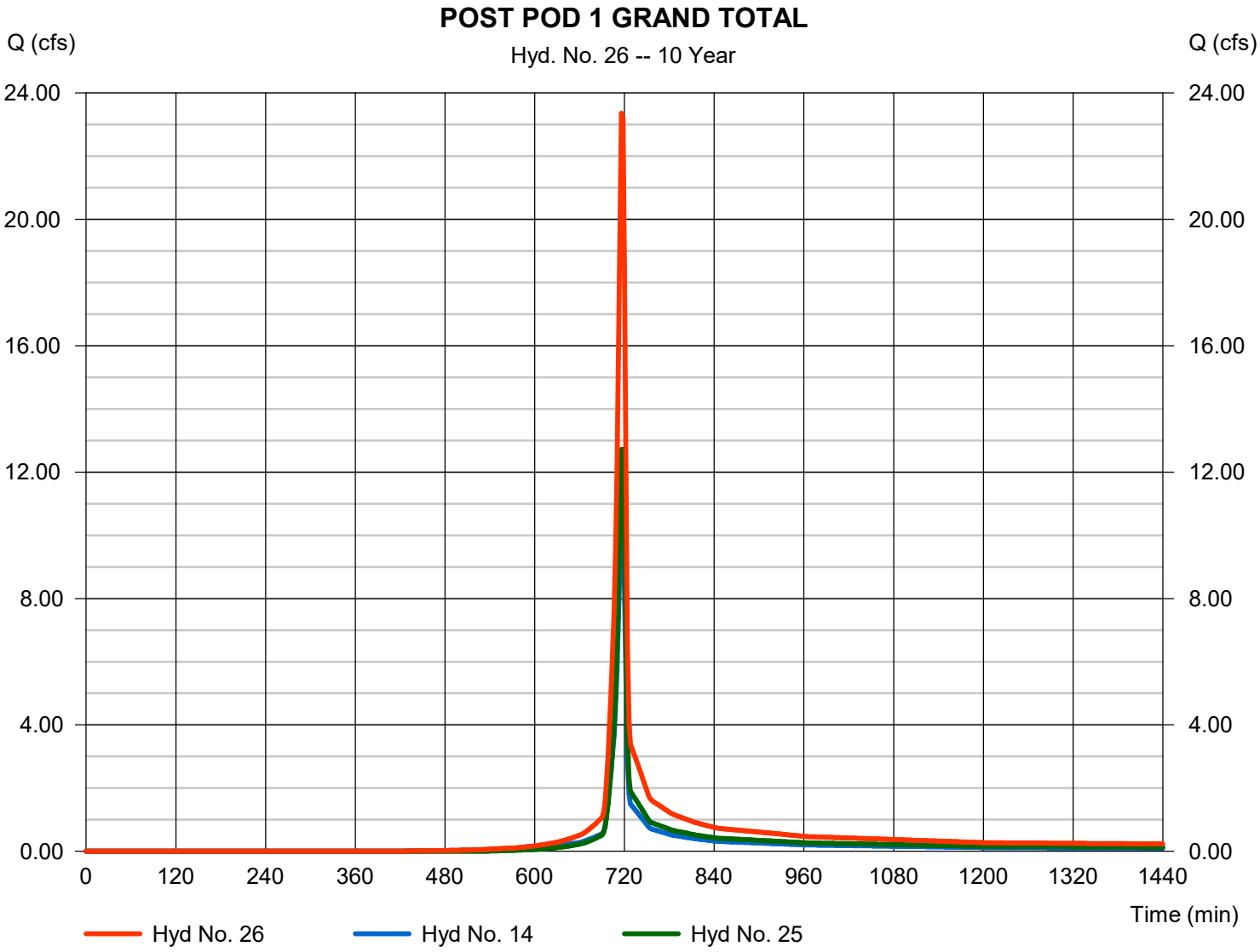


Hydrograph Report

Hyd. No. 26

POST POD 1 GRAND TOTAL

Hydrograph type	= Combine	Peak discharge	= 23.36 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 47,378 cuft
Inflow hyds.	= 14, 25	Contrib. drain. area	= 5.300 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

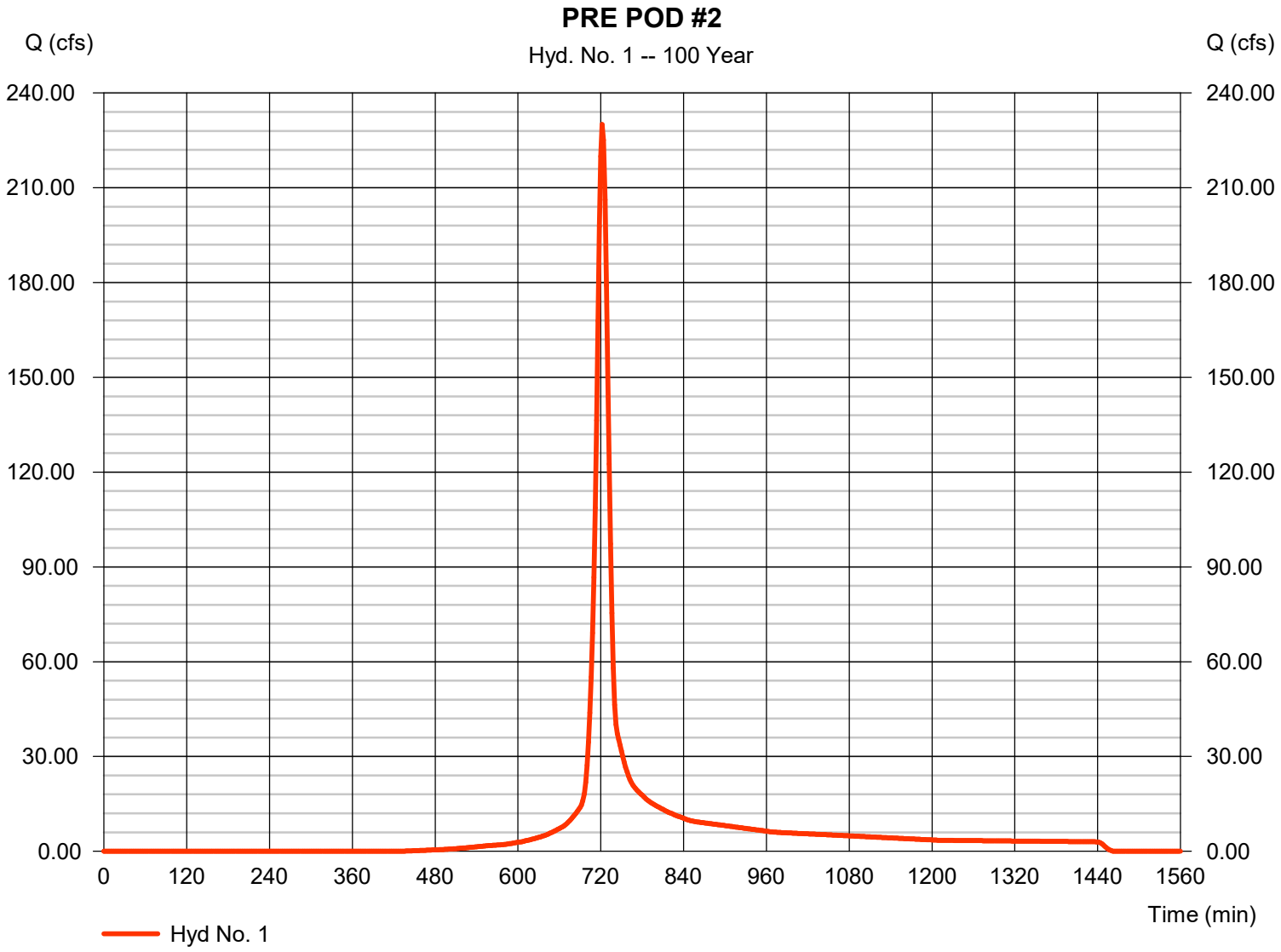
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	230.07	2	722	645,677	------	------	------	PRE POD #2
2	SCS Runoff	42.19	2	718	96,618	------	------	------	PRE POD #1
3	SCS Runoff	76.81	2	718	180,535	------	------	------	POST POD 2A #1 (to SCM #1)
4	Reservoir	58.18	2	722	169,194	3	367.02	113,357	PostDev Thru SCM#1
5	SCS Runoff	11.74	2	716	24,529	------	------	------	POST POD 2A #2 (to SCM #2)
6	Reservoir	0.730	2	758	19,495	5	363.10	30,558	Route PostDev SCM #2
7	SCS Runoff	72.90	2	718	172,002	------	------	------	POST POD 2A #3 (to SCM #3)
8	Reservoir	67.90	2	720	168,917	7	364.45	45,205	Route PostDev @ SCM#3
9	SCS Runoff	57.71	2	720	154,522	------	------	------	POST POD 2B #4 (to SCM #5)
10	Reservoir	50.37	2	724	152,811	9	351.32	67,340	Route PostDev SCM#5
11	SCS Runoff	46.09	2	720	123,409	------	------	------	POST POD 2B #2 (to SCM #4)
12	Reservoir	37.38	2	724	122,989	11	360.15	35,770	Route PostDev SCM #4
13	SCS Runoff	44.33	2	718	102,447	------	------	------	POST POD 2B #3 (BYPASS)
14	SCS Runoff	18.12	2	716	37,861	------	------	------	POST POD #1 (BYPASS)
15	SCS Runoff	51.51	2	720	136,661	------	------	------	POST POD 2A #4 (BYPASS)
16	SCS Runoff	2.205	2	716	4,735	------	------	------	POST POD 2B #1 (BYPASS)
17	SCS Runoff	23.29	2	716	47,506	------	------	------	PRE POD #1 OFFSITE AREA
18	SCS Runoff	49.11	2	734	222,406	------	------	------	PRE OFFSITE AREA #4
19	Combine	65.08	2	718	144,124	2, 17,	------	------	PRE POD #1 TOTAL
20	Combine	263.30	2	722	868,083	1, 18,	------	------	PRE POD #2 TOTAL
21	Combine	310.97	2	722	1,012,207	19, 20	------	------	PRE POD GRAND TOTAL
22	SCS Runoff	49.11	2	734	222,406	------	------	------	POST POD AREA A (OFFSITE BYP
23	Combine	208.45	2	722	716,674	4, 6, 8, 15, 22	------	------	POST POD 2A TOTAL
24	Combine	329.46	2	722	1,099,656	10, 12, 13, 16, 23	------	------	POST POD 2 GRAND TOTAL
25	SCS Runoff	23.52	2	716	47,960	------	------	------	POST POD AREA C & B OFFSITE B
26	Combine	41.64	2	716	85,820	14, 25	------	------	POST POD 1 GRAND TOTAL

Hydrograph Report

Hyd. No. 1

PRE POD #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	230.07 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	645,677 cuft
Drainage area	=	41.980 ac	Curve number	=	73.1
Basin Slope	=	1.4 %	Hydraulic length	=	4320 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	7.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

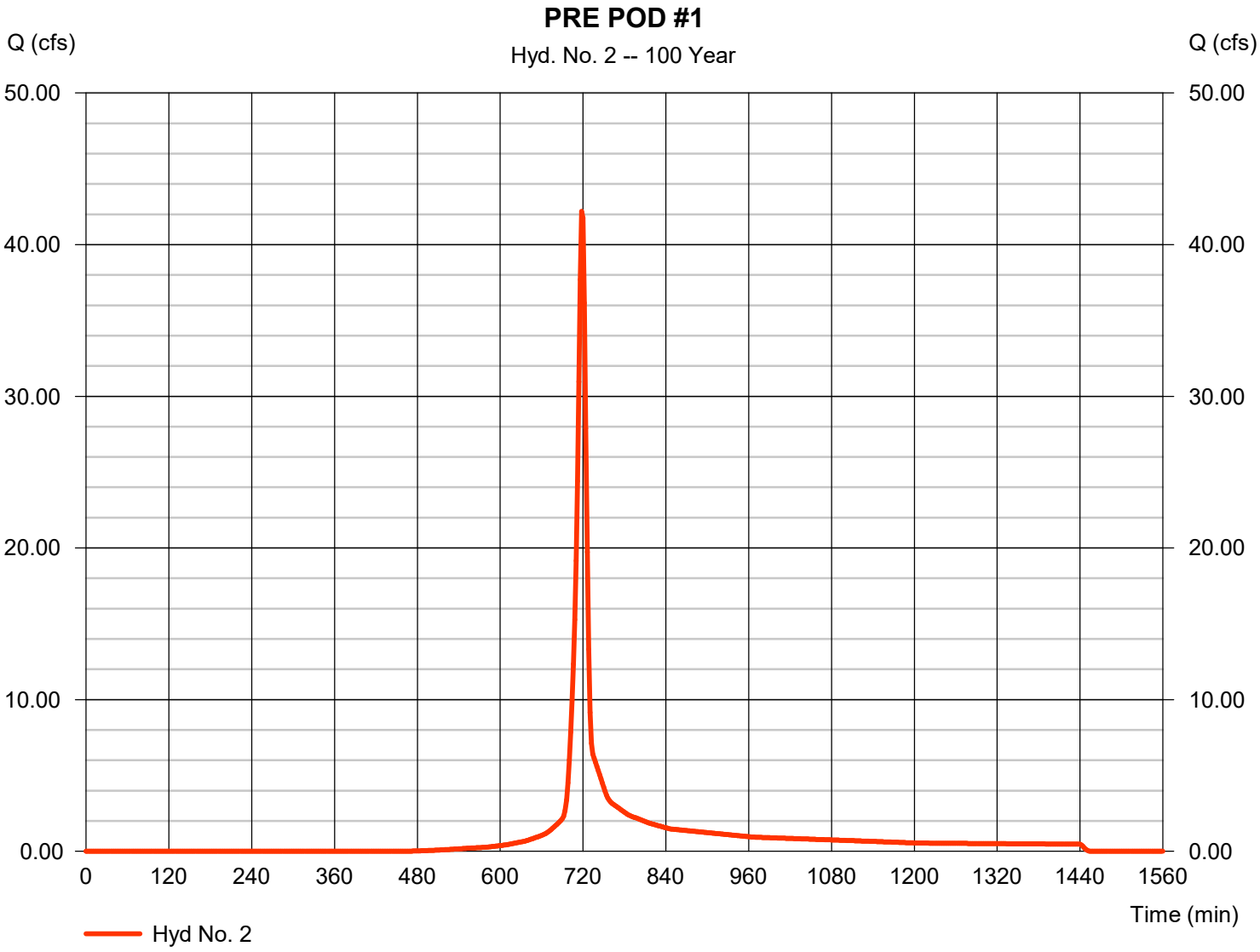


Hydrograph Report

Hyd. No. 2

PRE POD #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	42.19 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	96,618 cuft
Drainage area	=	6.540 ac	Curve number	=	70.6
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.70 min
Total precip.	=	7.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

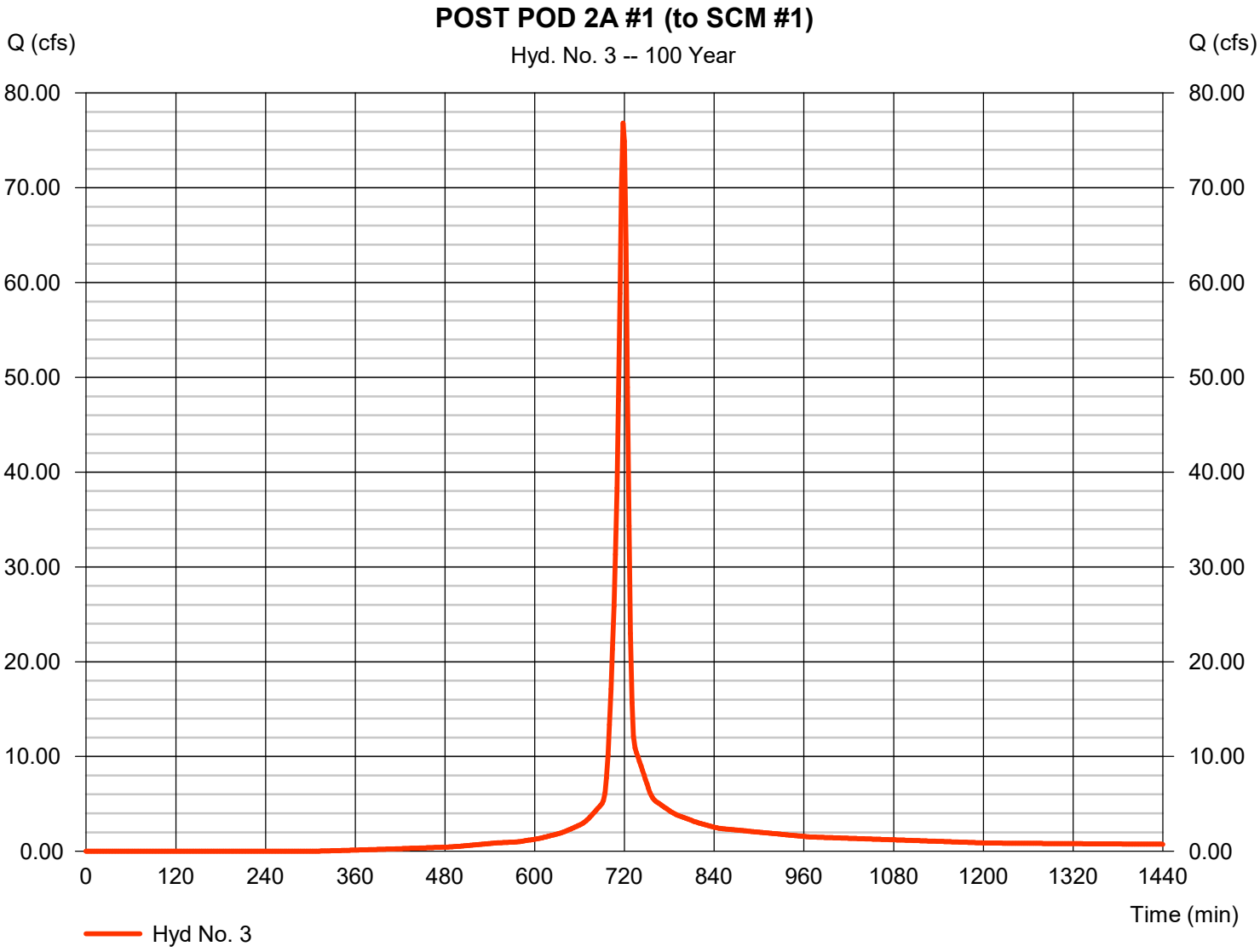


Hydrograph Report

Hyd. No. 3

POST POD 2A #1 (to SCM #1)

Hydrograph type	=	SCS Runoff	Peak discharge	=	76.81 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	180,535 cuft
Drainage area	=	9.460 ac	Curve number	=	81.2
Basin Slope	=	2.4 %	Hydraulic length	=	1000 ft
Tc method	=	User	Time of conc. (Tc)	=	6.60 min
Total precip.	=	7.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



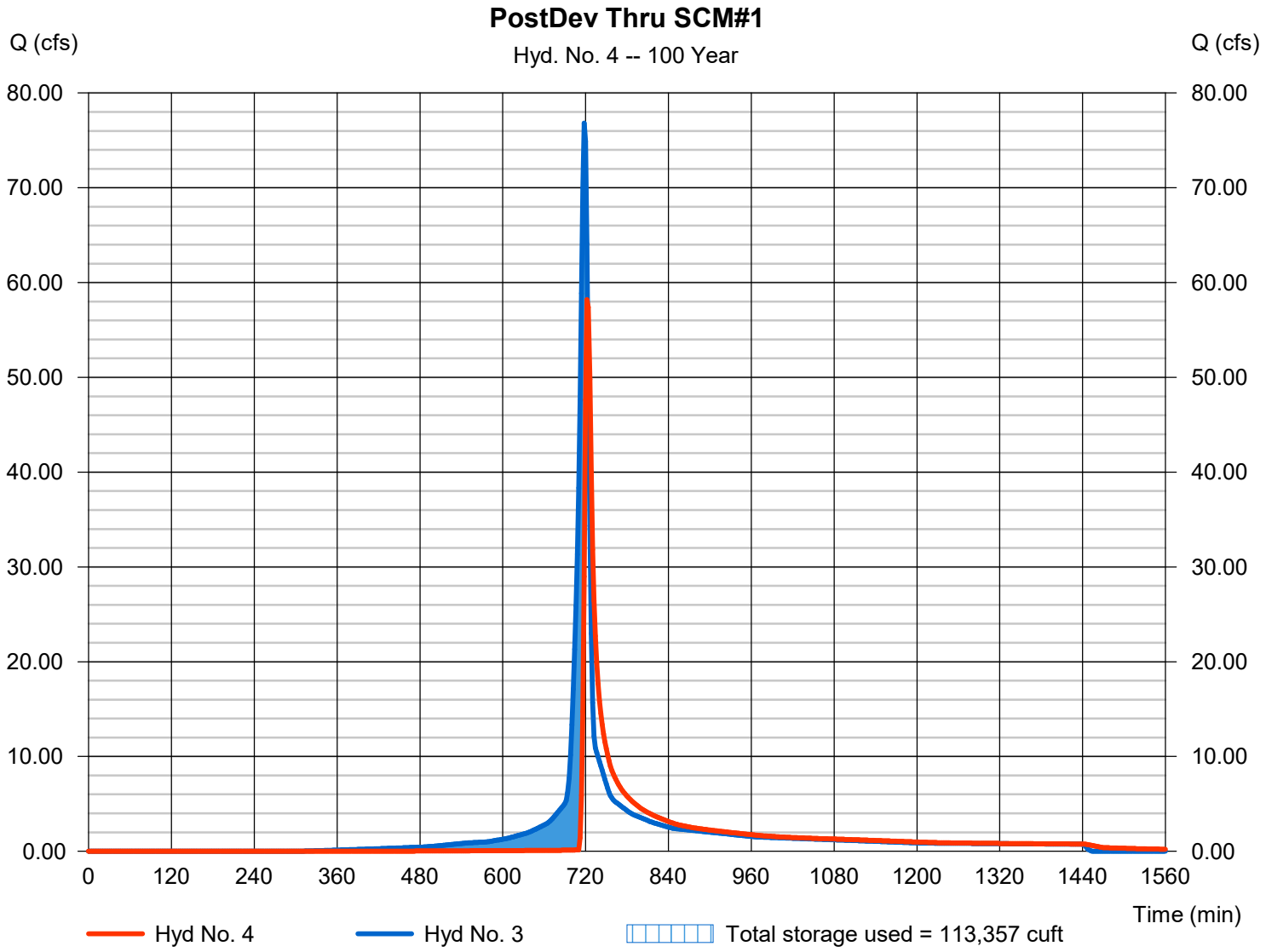
Hydrograph Report

Hyd. No. 4

PostDev Thru SCM#1

Hydrograph type	=	Reservoir	Peak discharge	=	58.18 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	169,194 cuft
Inflow hyd. No.	=	3 - POST POD 2A #1 (to SCM #1)	Max. Elevation	=	367.02 ft
Reservoir name	=	SCM #1	Max. Storage	=	113,357 cuft

Storage Indication method used. Wet pond routing start elevation = 363.50 ft.

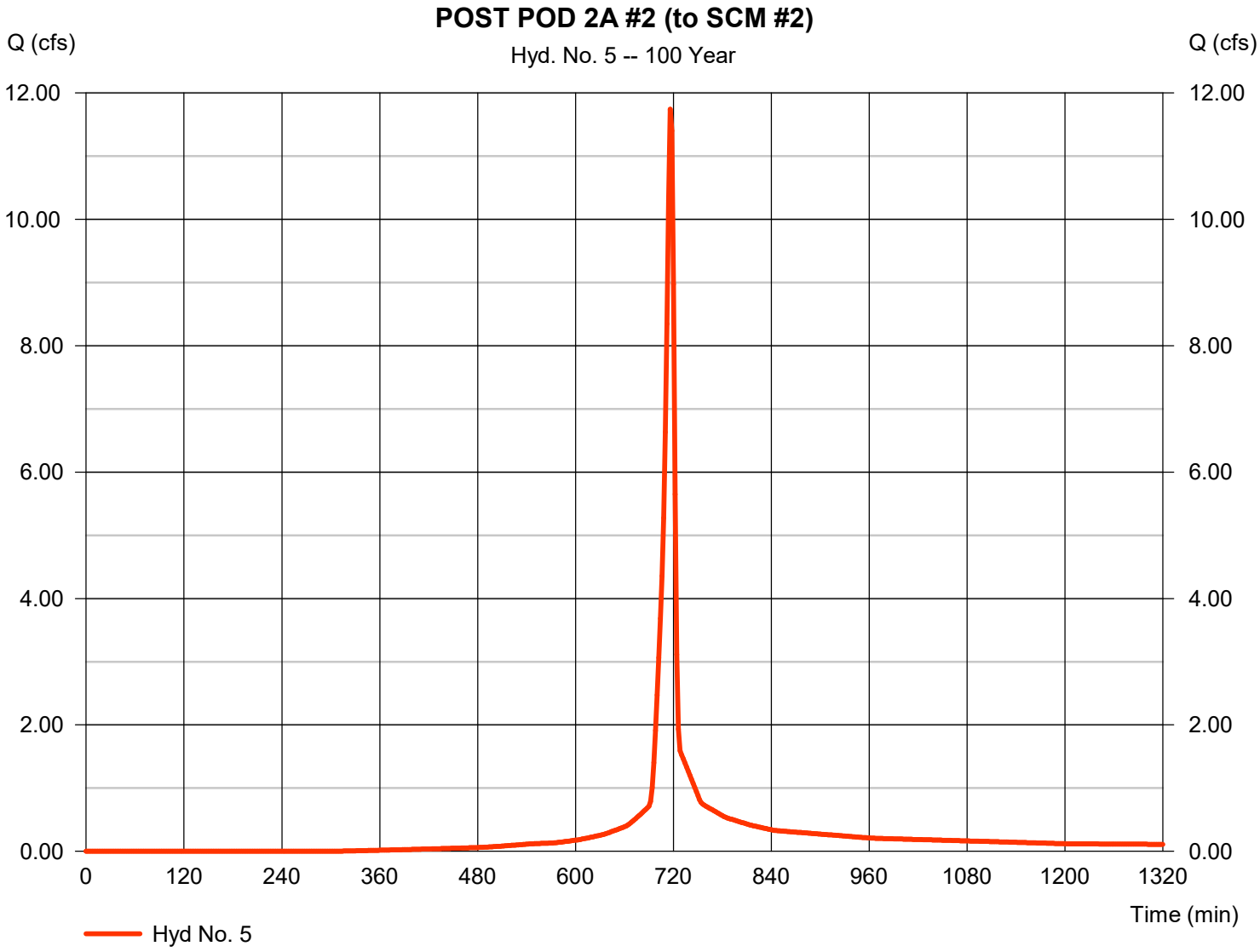


Hydrograph Report

Hyd. No. 5

POST POD 2A #2 (to SCM #2)

Hydrograph type	= SCS Runoff	Peak discharge	= 11.74 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 24,529 cuft
Drainage area	= 1.380 ac	Curve number	= 80.9
Basin Slope	= 0.5 %	Hydraulic length	= 450 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



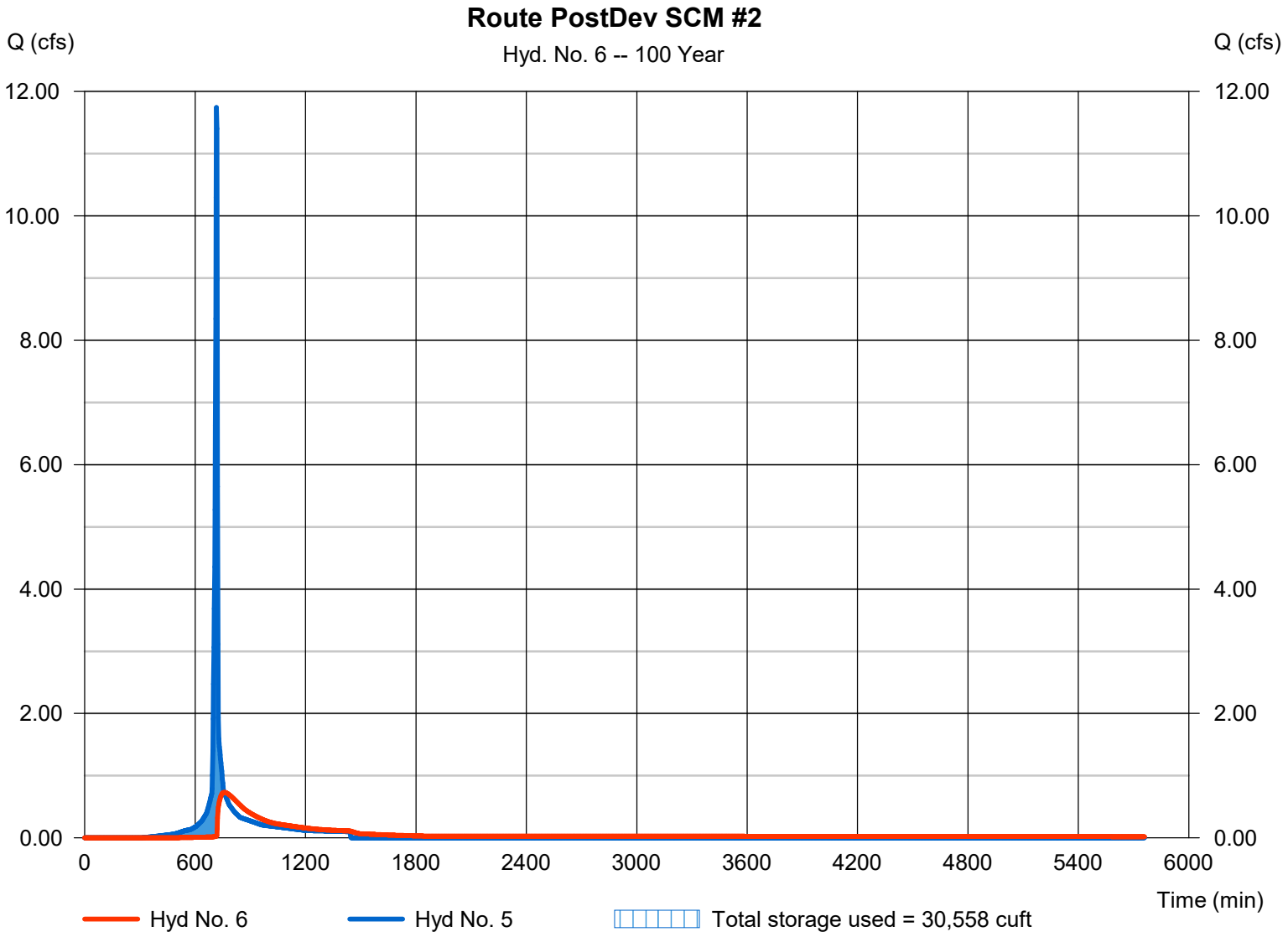
Hydrograph Report

Hyd. No. 6

Route PostDev SCM #2

Hydrograph type	=	Reservoir	Peak discharge	=	0.730 cfs
Storm frequency	=	100 yrs	Time to peak	=	758 min
Time interval	=	2 min	Hyd. volume	=	19,495 cuft
Inflow hyd. No.	=	5 - POST POD 2A #2 (to SCM #2)	Max. Elevation	=	363.10 ft
Reservoir name	=	SCM #2	Max. Storage	=	30,558 cuft

Storage Indication method used. Wet pond routing start elevation = 361.50 ft.

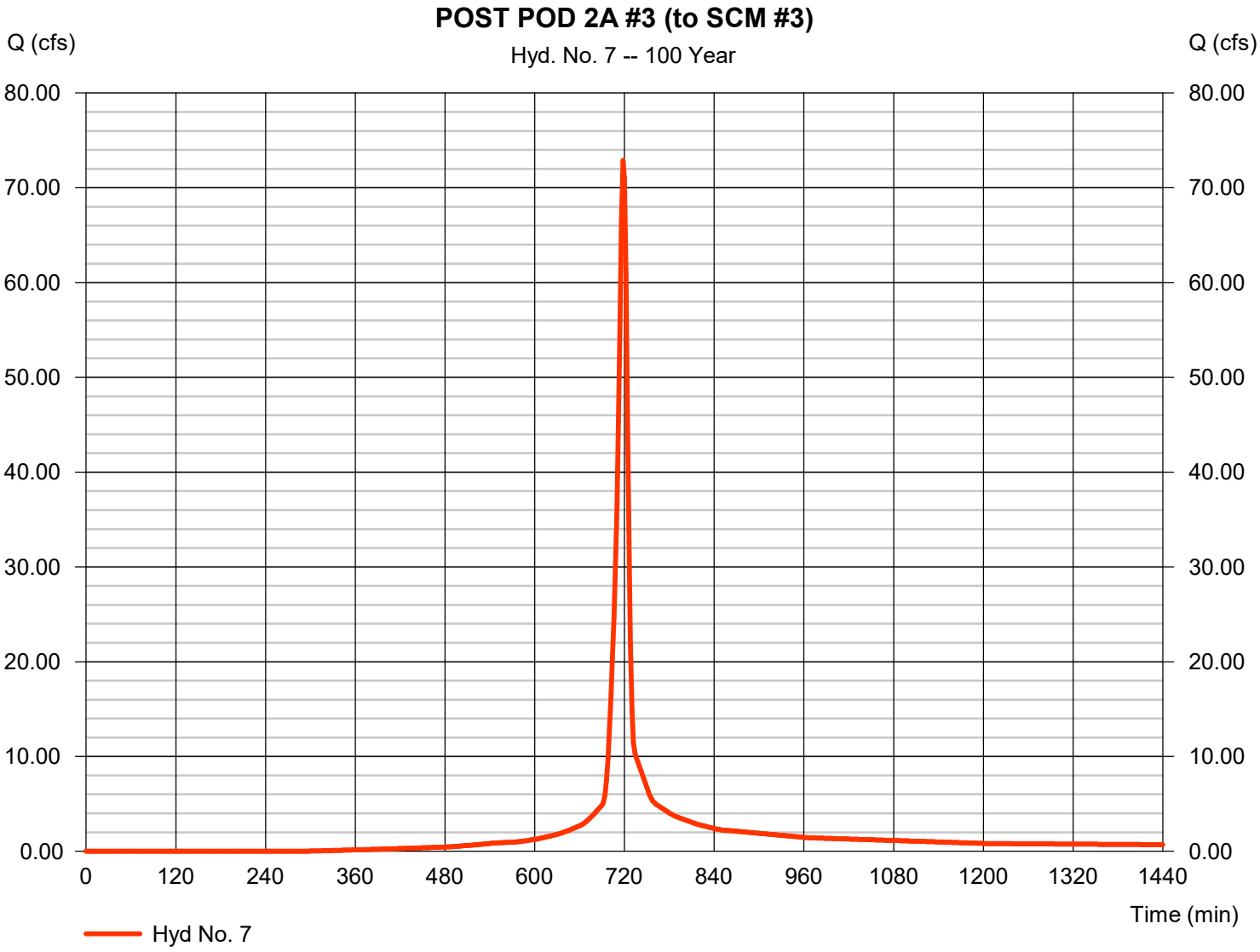


Hydrograph Report

Hyd. No. 7

POST POD 2A #3 (to SCM #3)

Hydrograph type	=	SCS Runoff	Peak discharge	=	72.90 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	172,002 cuft
Drainage area	=	8.840 ac	Curve number	=	82.1
Basin Slope	=	2.6 %	Hydraulic length	=	1120 ft
Tc method	=	User	Time of conc. (Tc)	=	7.30 min
Total precip.	=	7.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



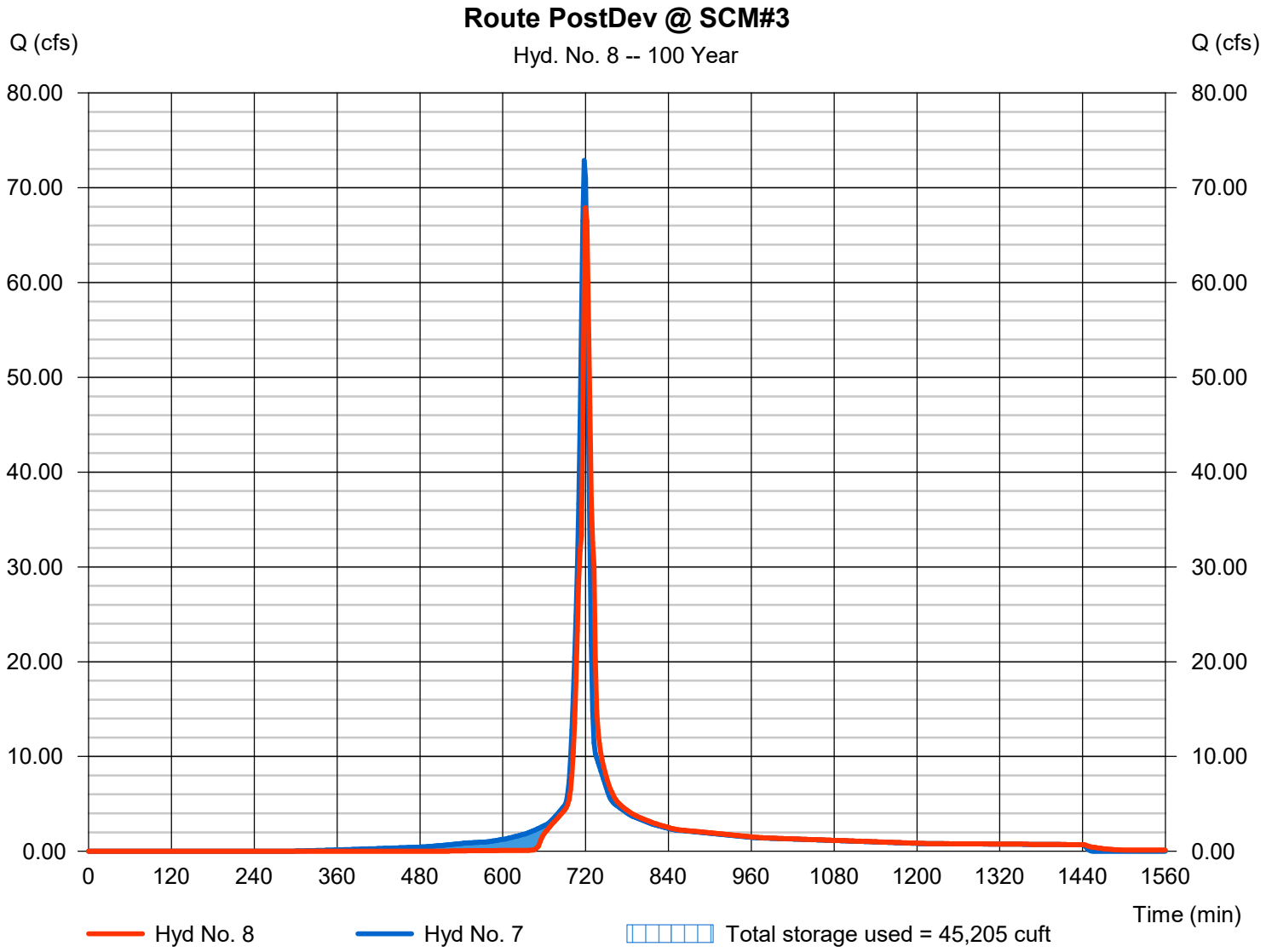
Hydrograph Report

Hyd. No. 8

Route PostDev @ SCM#3

Hydrograph type	=	Reservoir	Peak discharge	=	67.90 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	168,917 cuft
Inflow hyd. No.	=	7 - POST POD 2A #3 (to SCM#3)	Max. Elevation	=	364.45 ft
Reservoir name	=	SCM #3	Max. Storage	=	45,205 cuft

Storage Indication method used. Wet pond routing start elevation = 361.00 ft.

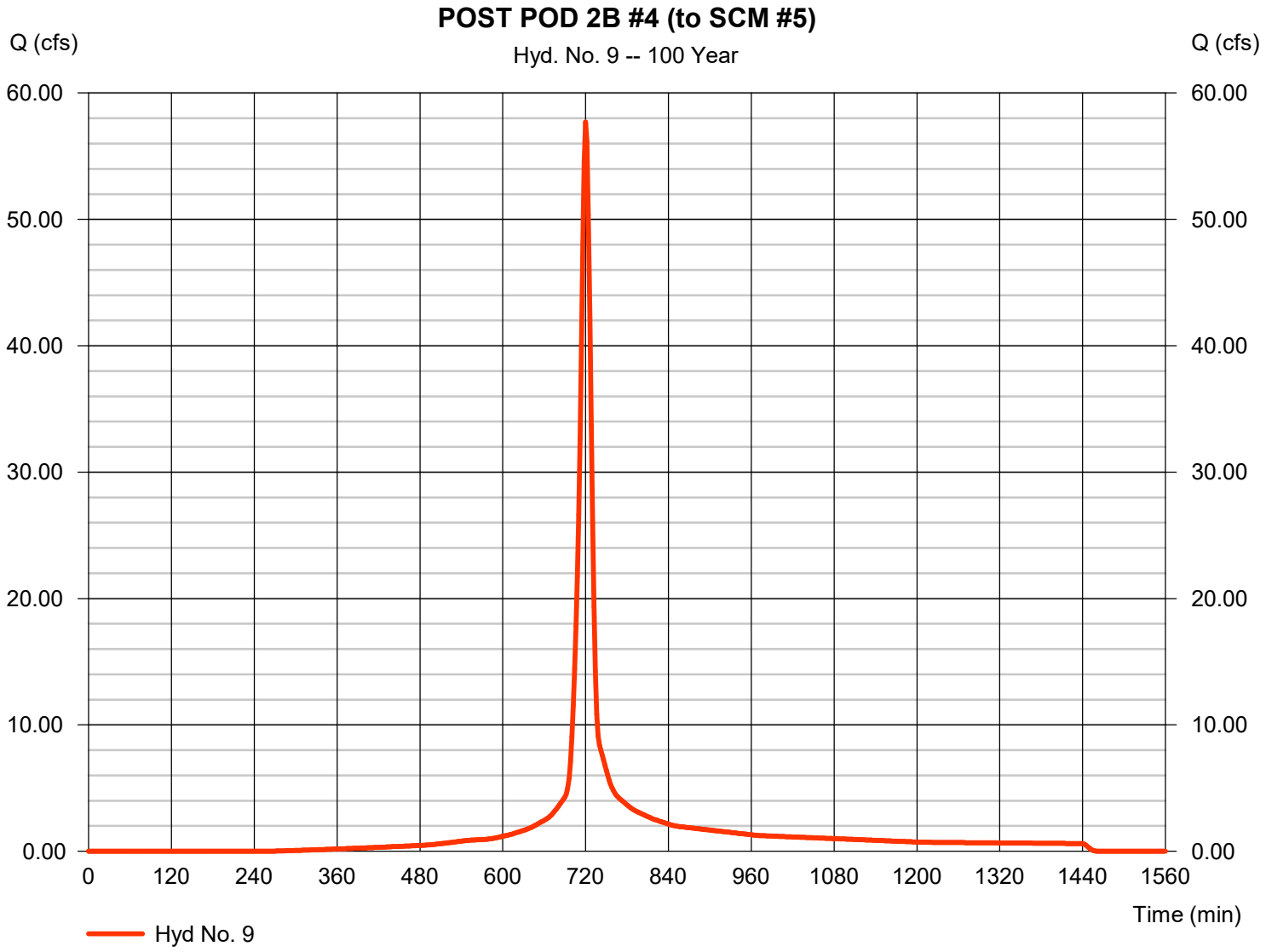


Hydrograph Report

Hyd. No. 9

POST POD 2B #4 (to SCM #5)

Hydrograph type	= SCS Runoff	Peak discharge	= 57.71 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 154,522 cuft
Drainage area	= 7.400 ac	Curve number	= 84
Basin Slope	= 3.2 %	Hydraulic length	= 1270 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 7.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



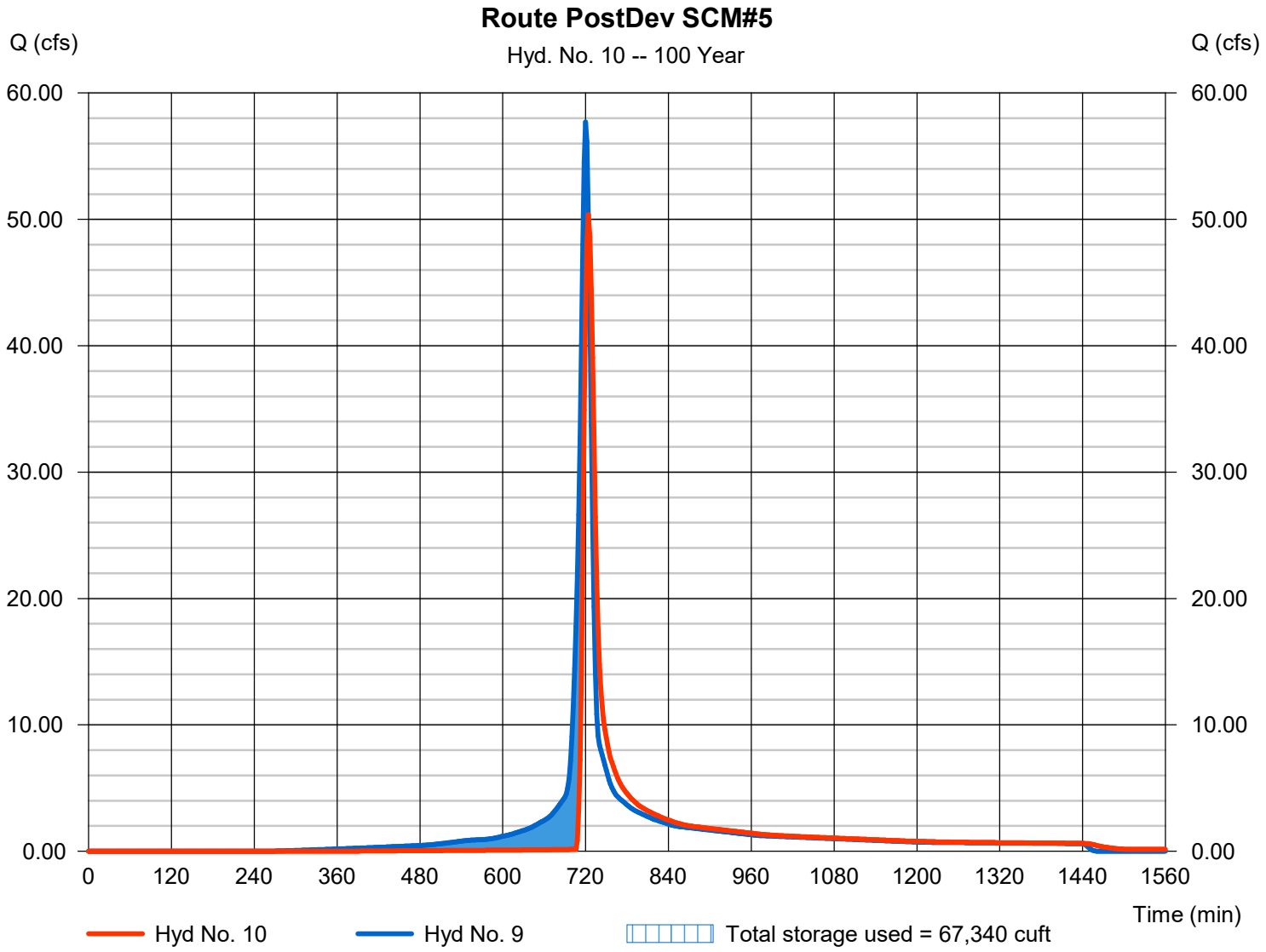
Hydrograph Report

Hyd. No. 10

Route PostDev SCM#5

Hydrograph type	=	Reservoir	Peak discharge	=	50.37 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	152,811 cuft
Inflow hyd. No.	=	9 - POST POD 2B #4 (to SCM #5)	Max. Elevation	=	351.32 ft
Reservoir name	=	SCM #5	Max. Storage	=	67,340 cuft

Storage Indication method used. Wet pond routing start elevation = 347.50 ft.

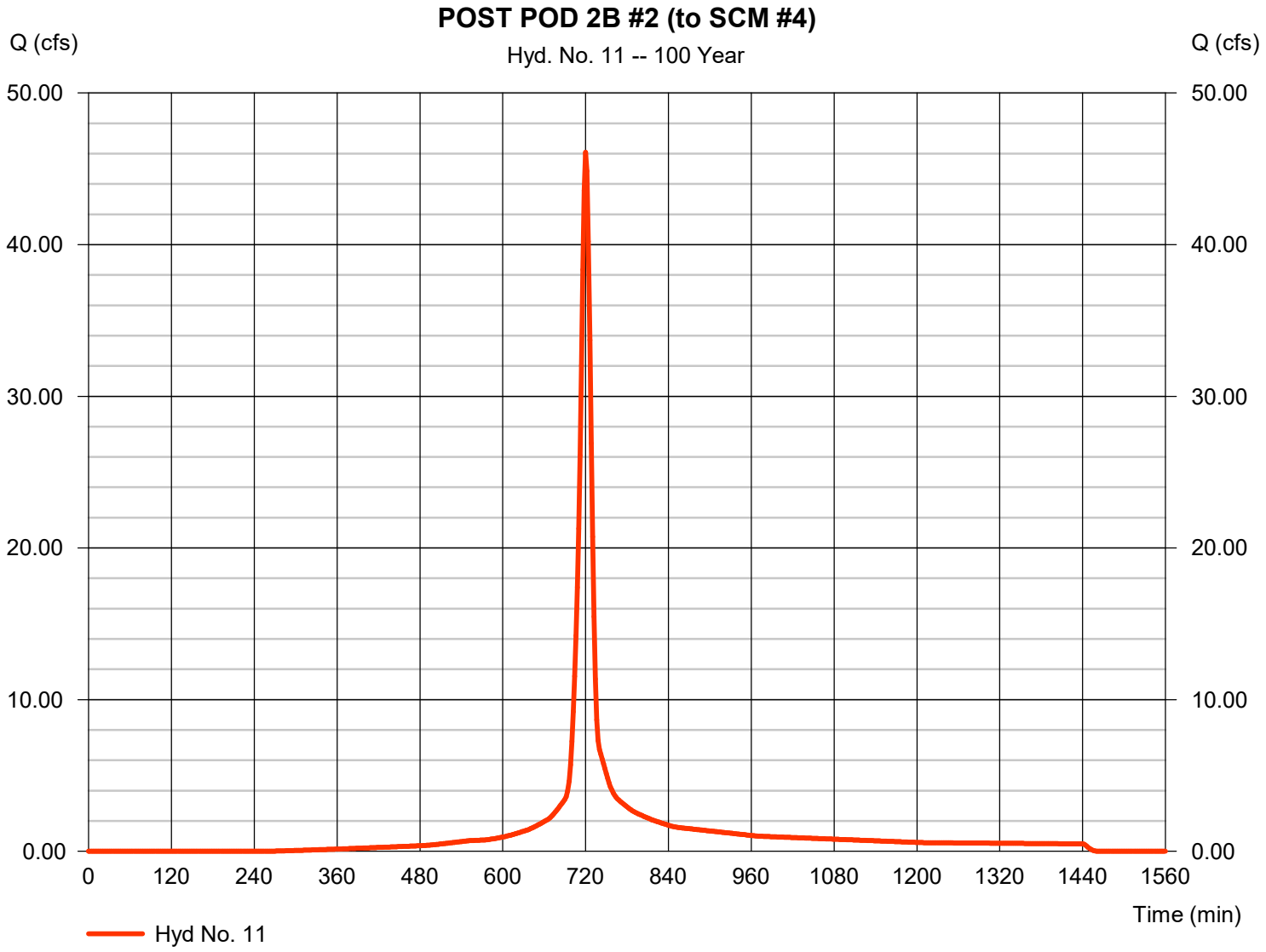


Hydrograph Report

Hyd. No. 11

POST POD 2B #2 (to SCM #4)

Hydrograph type	= SCS Runoff	Peak discharge	= 46.09 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 123,409 cuft
Drainage area	= 5.910 ac	Curve number	= 84
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 7.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



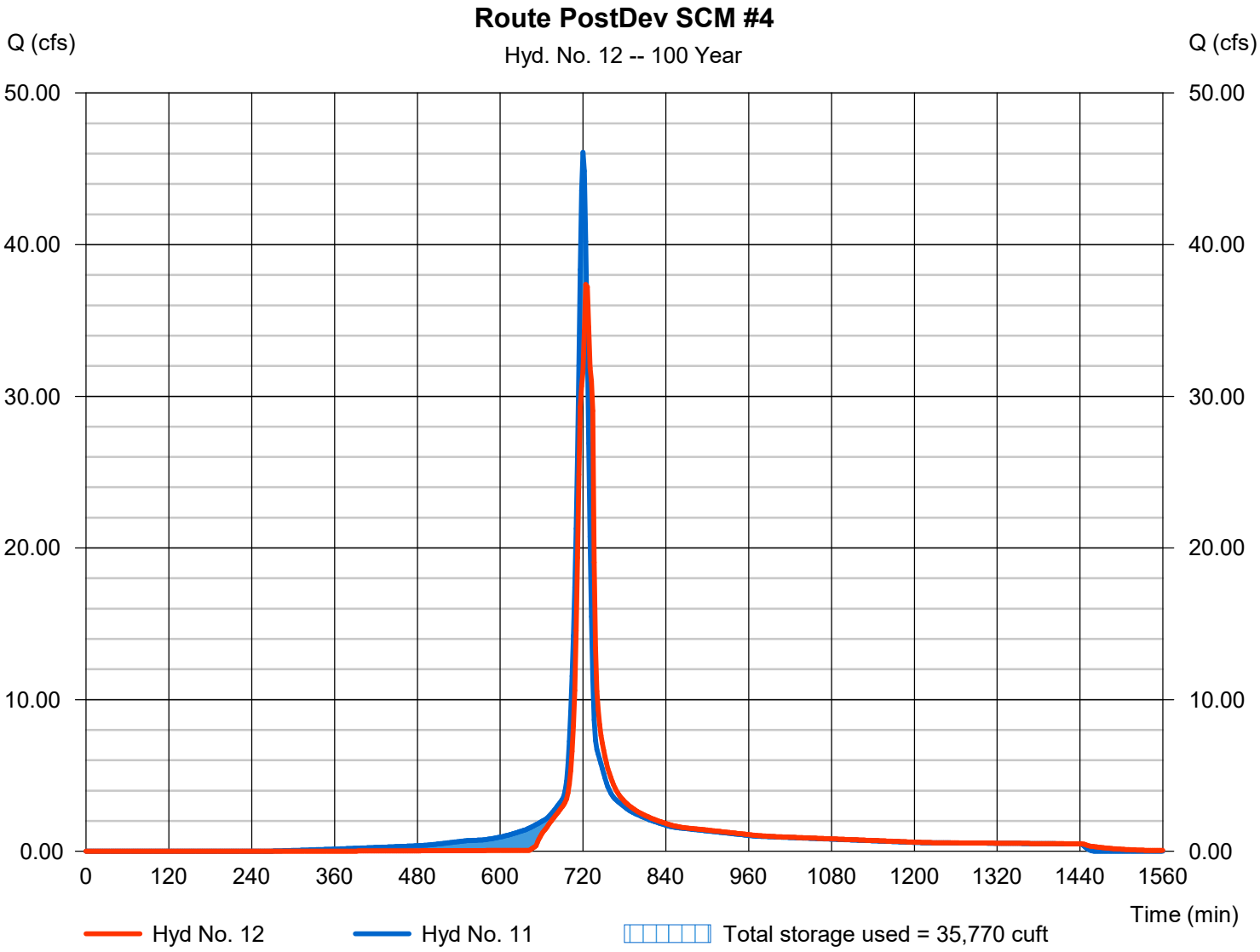
Hydrograph Report

Hyd. No. 12

Route PostDev SCM #4

Hydrograph type	=	Reservoir	Peak discharge	=	37.38 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	122,989 cuft
Inflow hyd. No.	=	11 - POST POD 2B #2 (to SCM #4)	Max. Elevation	=	360.15 ft
Reservoir name	=	SCM #4	Max. Storage	=	35,770 cuft

Storage Indication method used. Wet pond routing start elevation = 357.50 ft.

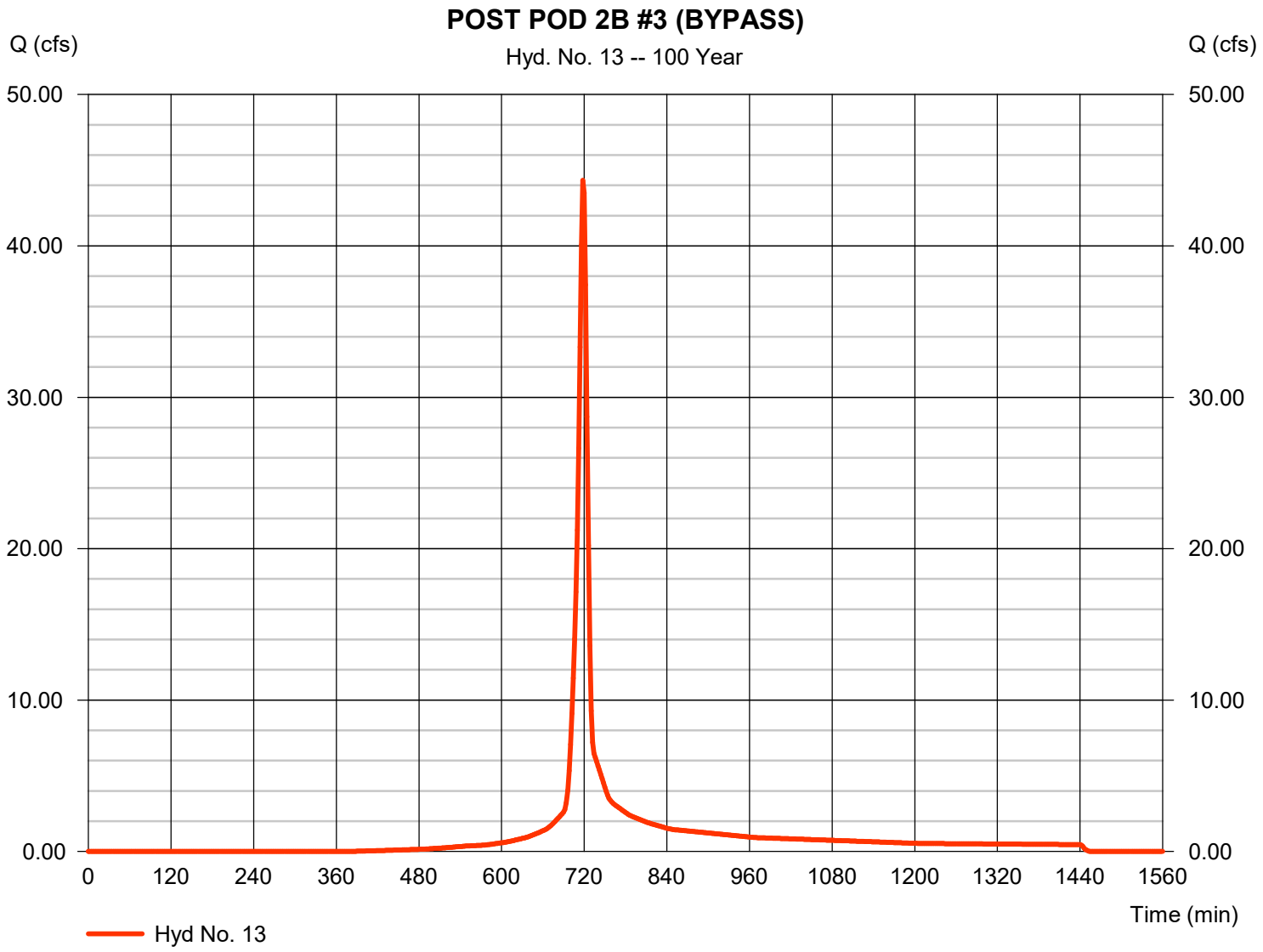


Hydrograph Report

Hyd. No. 13

POST POD 2B #3 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 44.33 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 102,447 cuft
Drainage area	= 6.030 ac	Curve number	= 76.1
Basin Slope	= 1.3 %	Hydraulic length	= 4170 ft
Tc method	= User	Time of conc. (Tc)	= 7.00 min
Total precip.	= 7.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

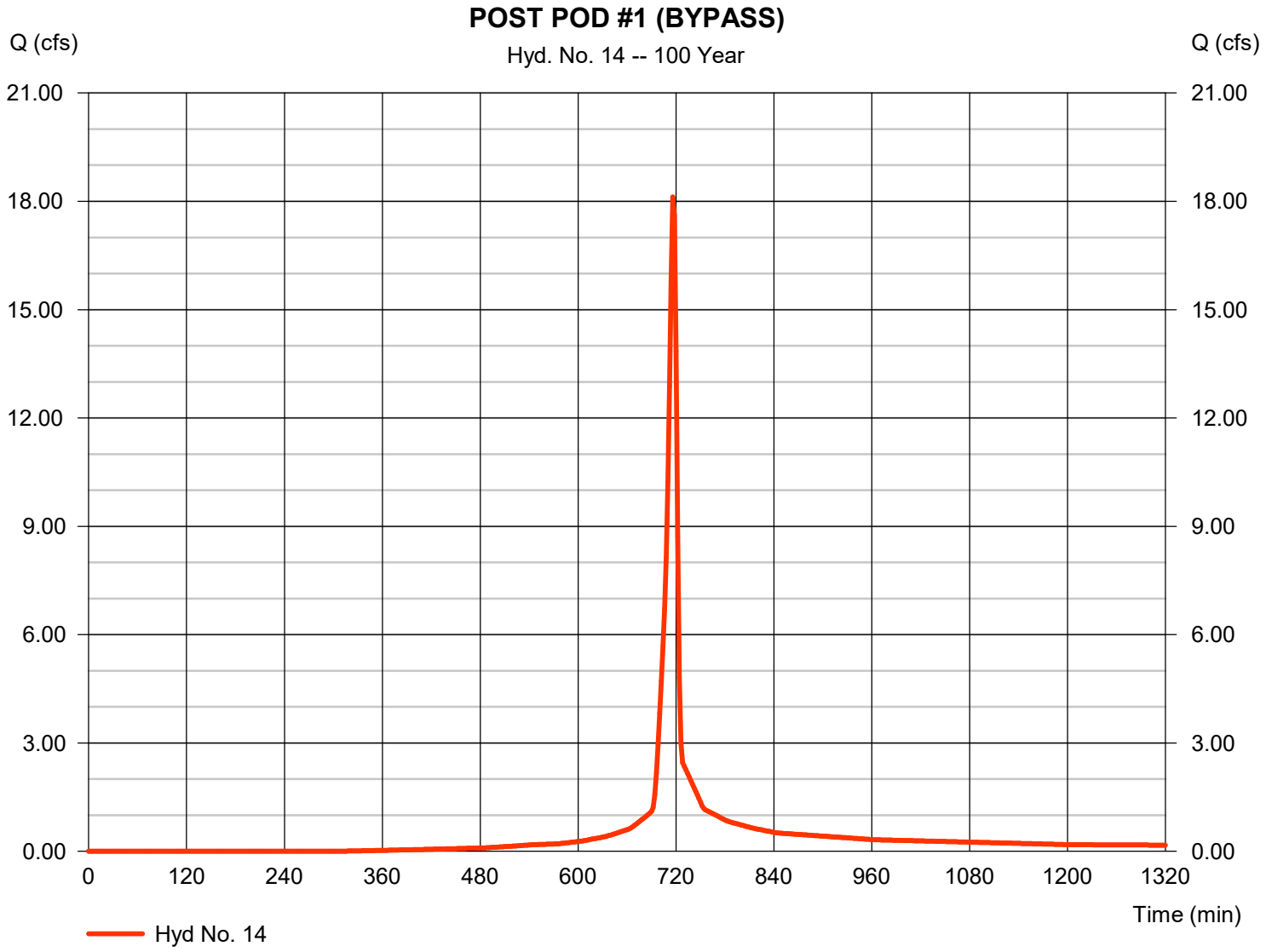


Hydrograph Report

Hyd. No. 14

POST POD #1 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 18.12 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 37,861 cuft
Drainage area	= 2.130 ac	Curve number	= 80.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

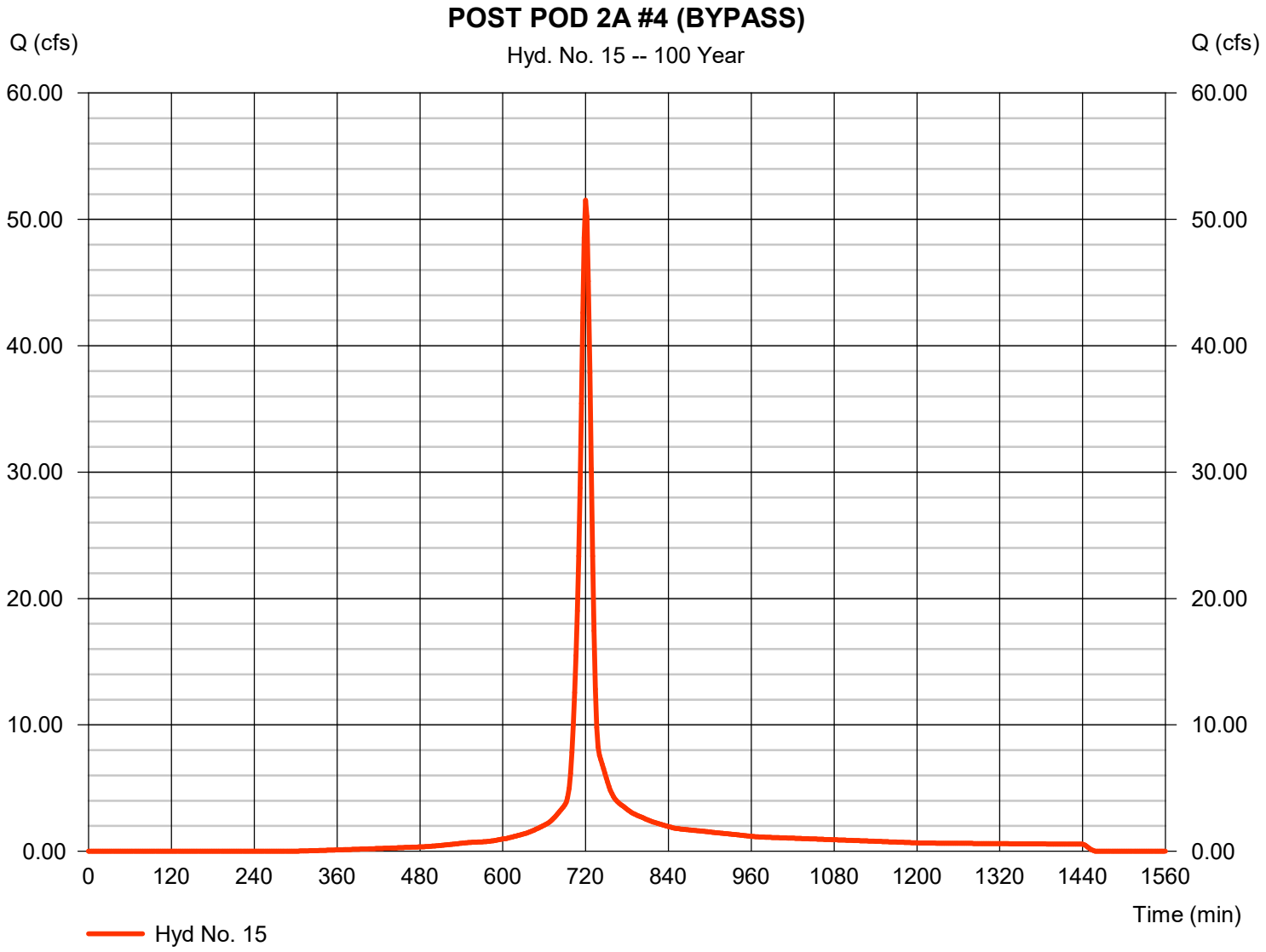


Hydrograph Report

Hyd. No. 15

POST POD 2A #4 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 51.51 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 136,661 cuft
Drainage area	= 6.840 ac	Curve number	= 81.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 11.50 min
Total precip.	= 7.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

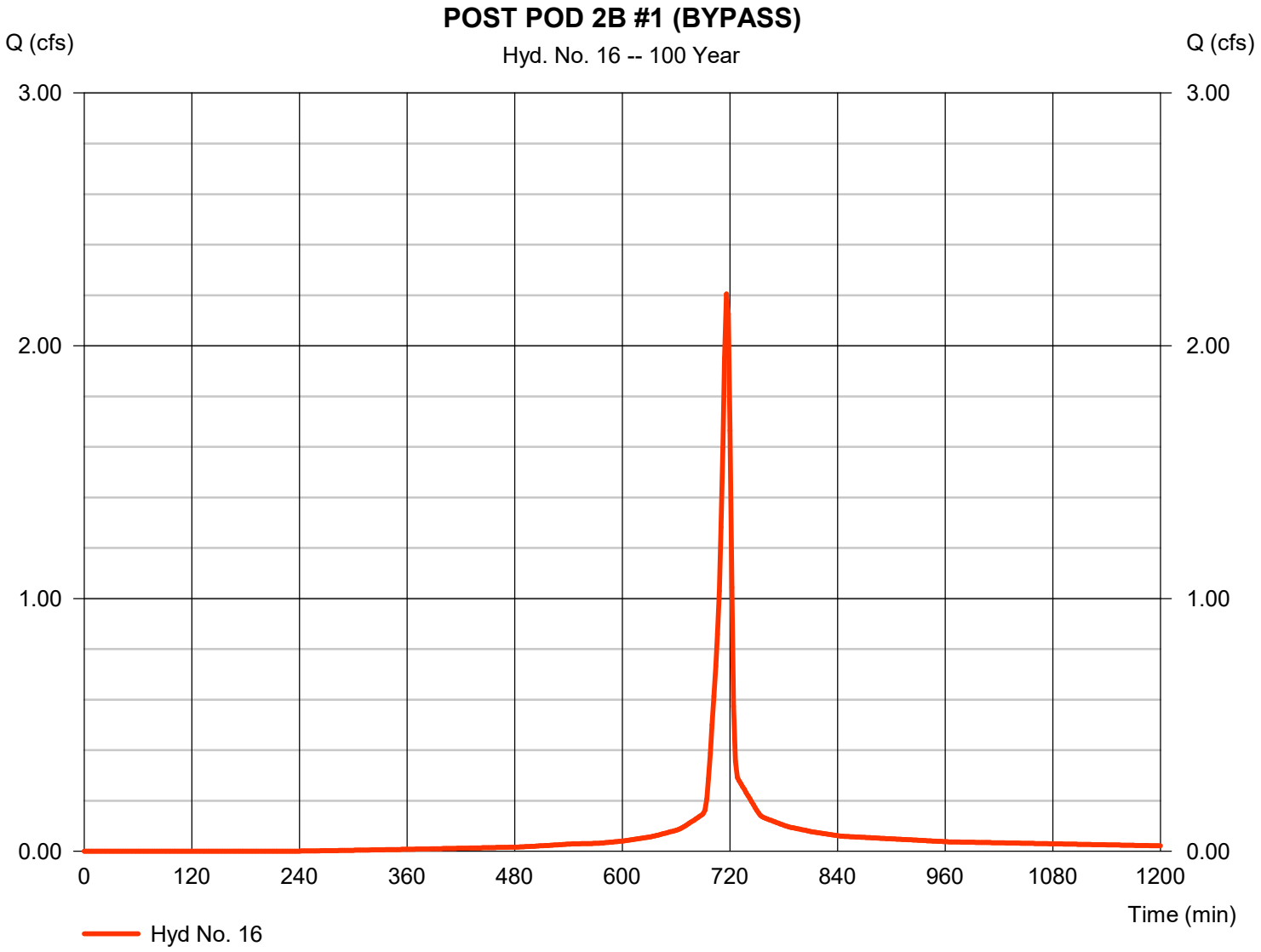


Hydrograph Report

Hyd. No. 16

POST POD 2B #1 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.205 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	4,735 cuft
Drainage area	=	0.240 ac	Curve number	=	85.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

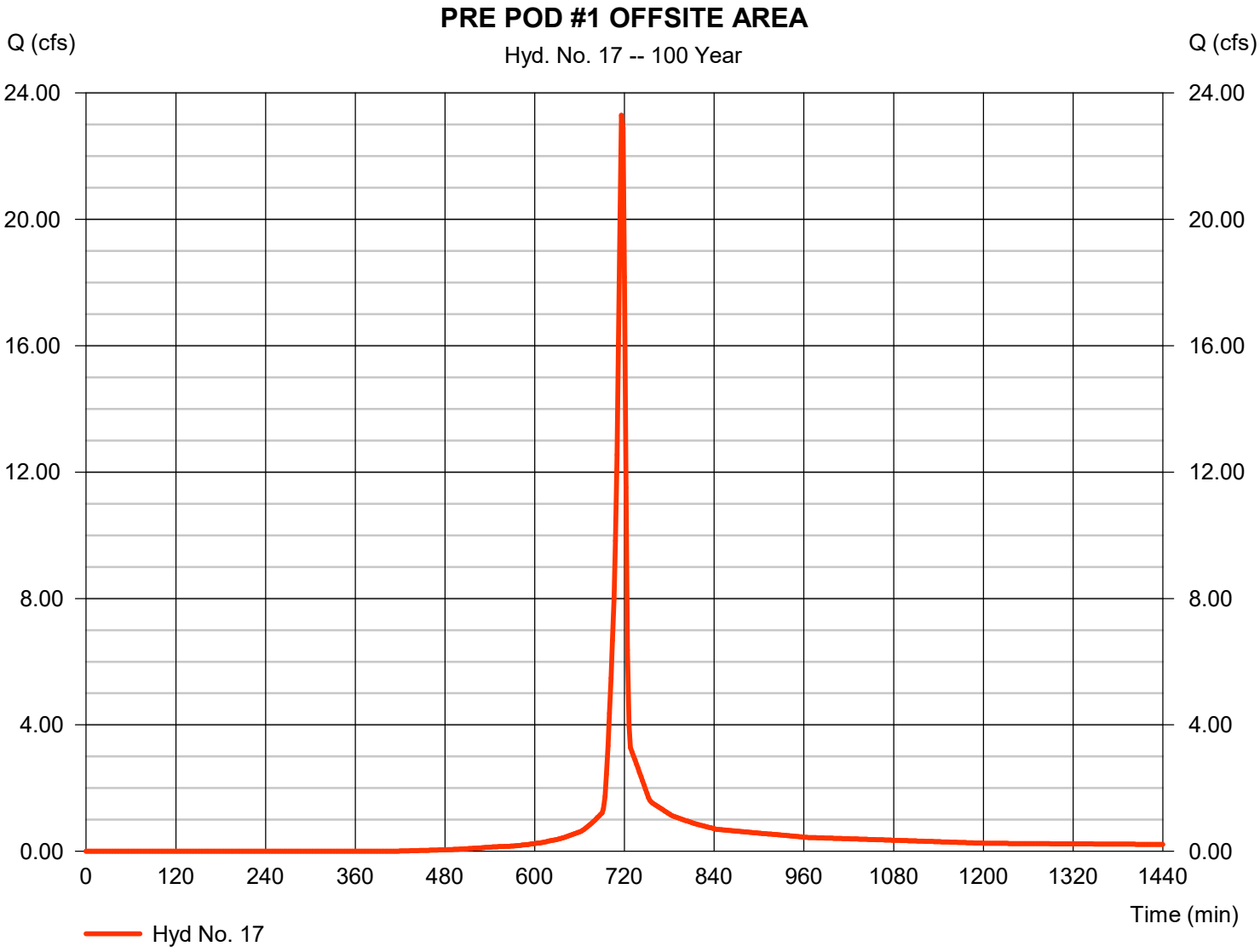


Hydrograph Report

Hyd. No. 17

PRE POD #1 OFFSITE AREA

Hydrograph type	=	SCS Runoff	Peak discharge	=	23.29 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	47,506 cuft
Drainage area	=	3.140 ac	Curve number	=	74
Basin Slope	=	4.5 %	Hydraulic length	=	1030 ft
Tc method	=	KIRPICH	Time of conc. (Tc)	=	5.38 min
Total precip.	=	7.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

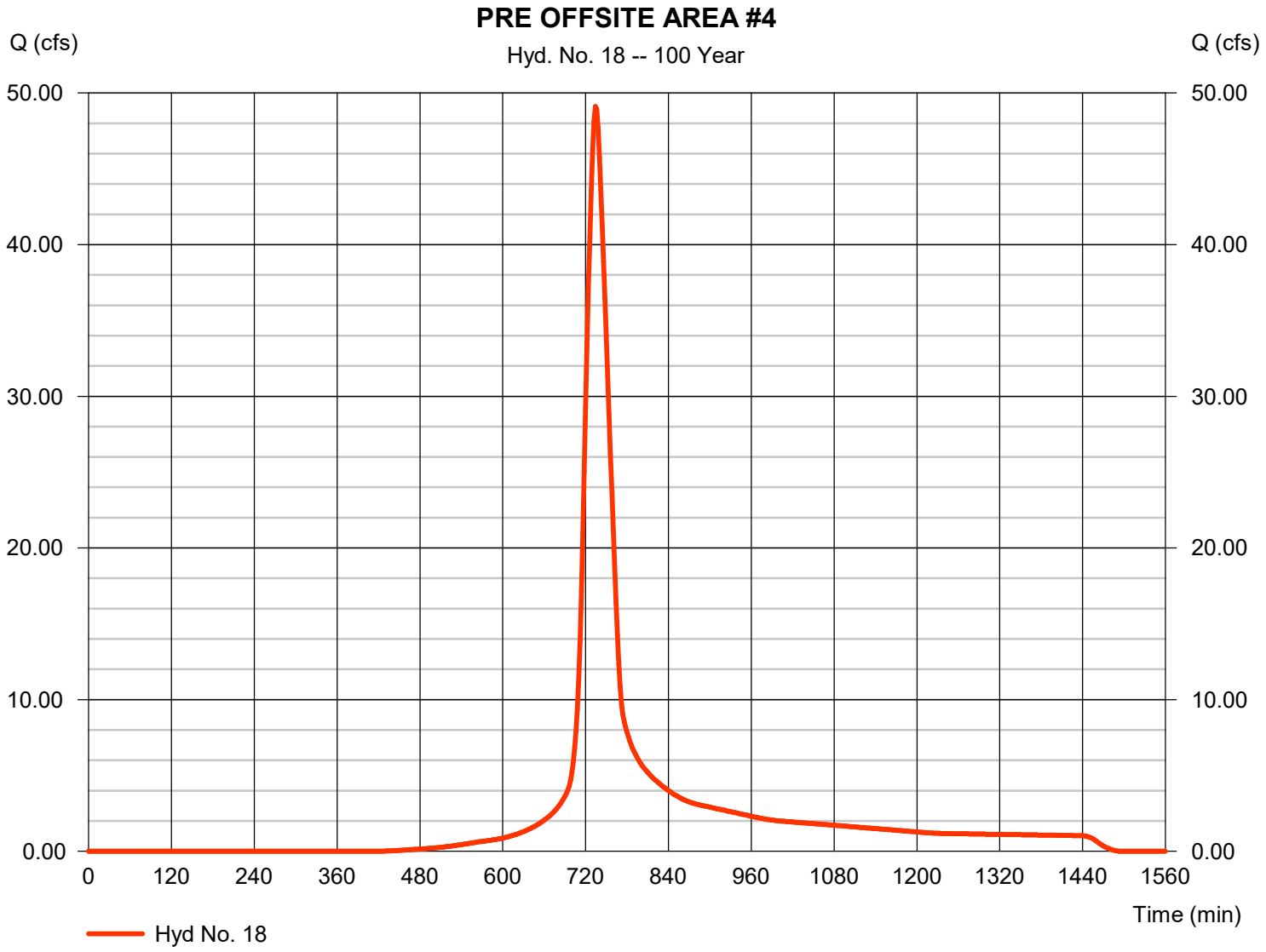


Hydrograph Report

Hyd. No. 18

PRE OFFSITE AREA #4

Hydrograph type	= SCS Runoff	Peak discharge	= 49.11 cfs
Storm frequency	= 100 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 222,406 cuft
Drainage area	= 13.940 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 34.70 min
Total precip.	= 7.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

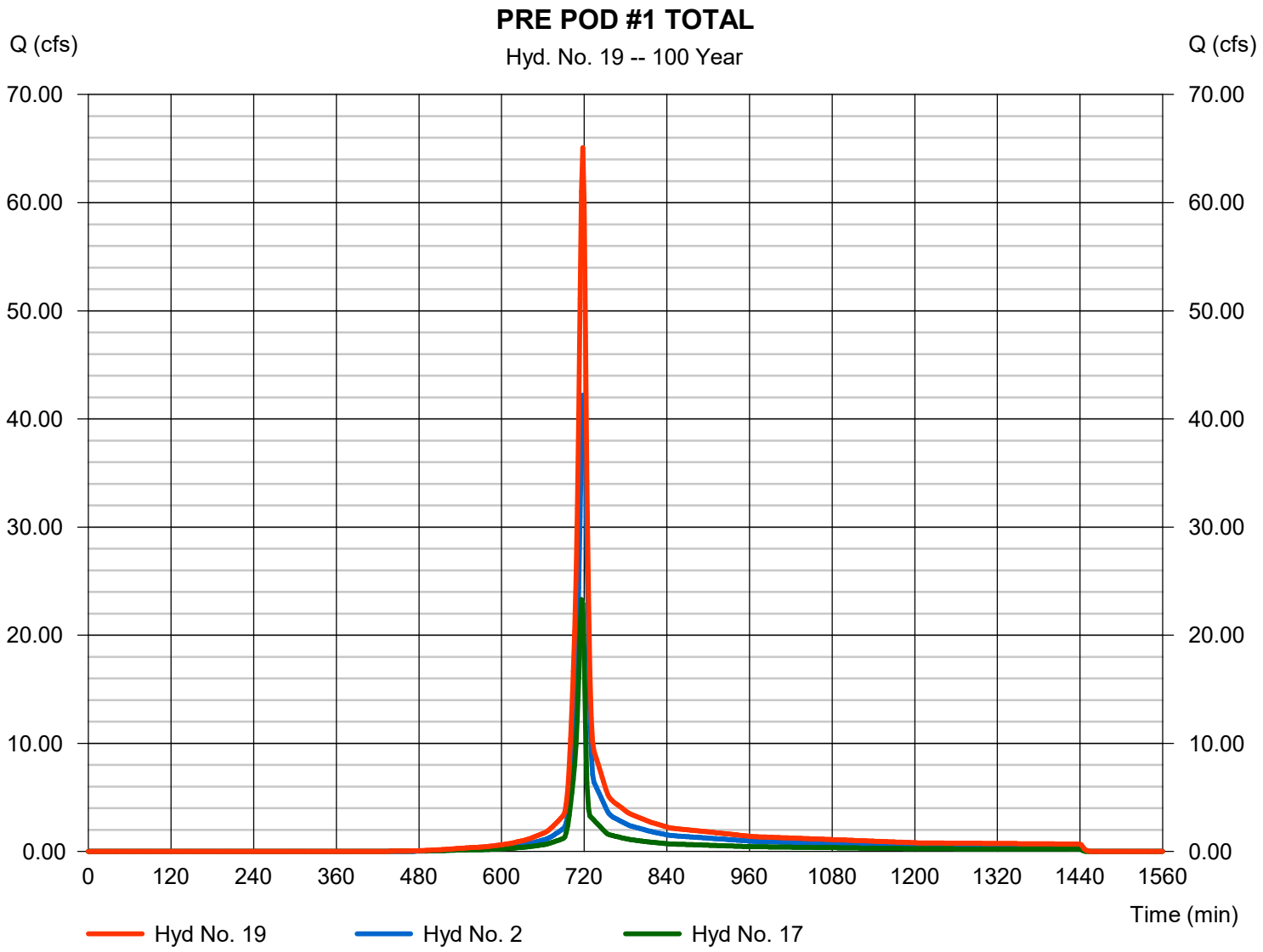


Hydrograph Report

Hyd. No. 19

PRE POD #1 TOTAL

Hydrograph type	=	Combine	Peak discharge	=	65.08 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	144,124 cuft
Inflow hyds.	=	2, 17	Contrib. drain. area	=	9.680 ac

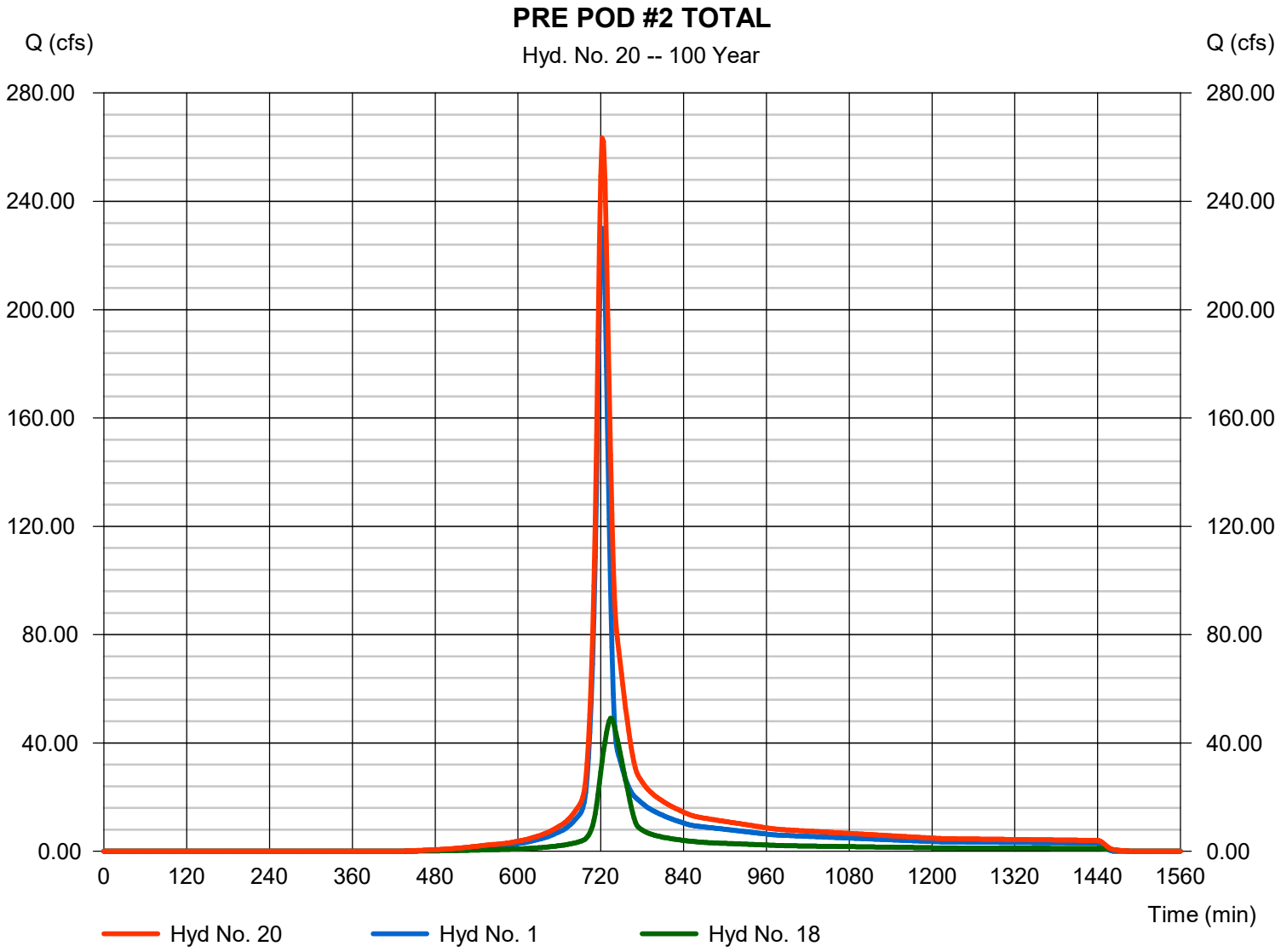


Hydrograph Report

Hyd. No. 20

PRE POD #2 TOTAL

Hydrograph type	=	Combine	Peak discharge	=	263.30 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	868,083 cuft
Inflow hyds.	=	1, 18	Contrib. drain. area	=	55.920 ac

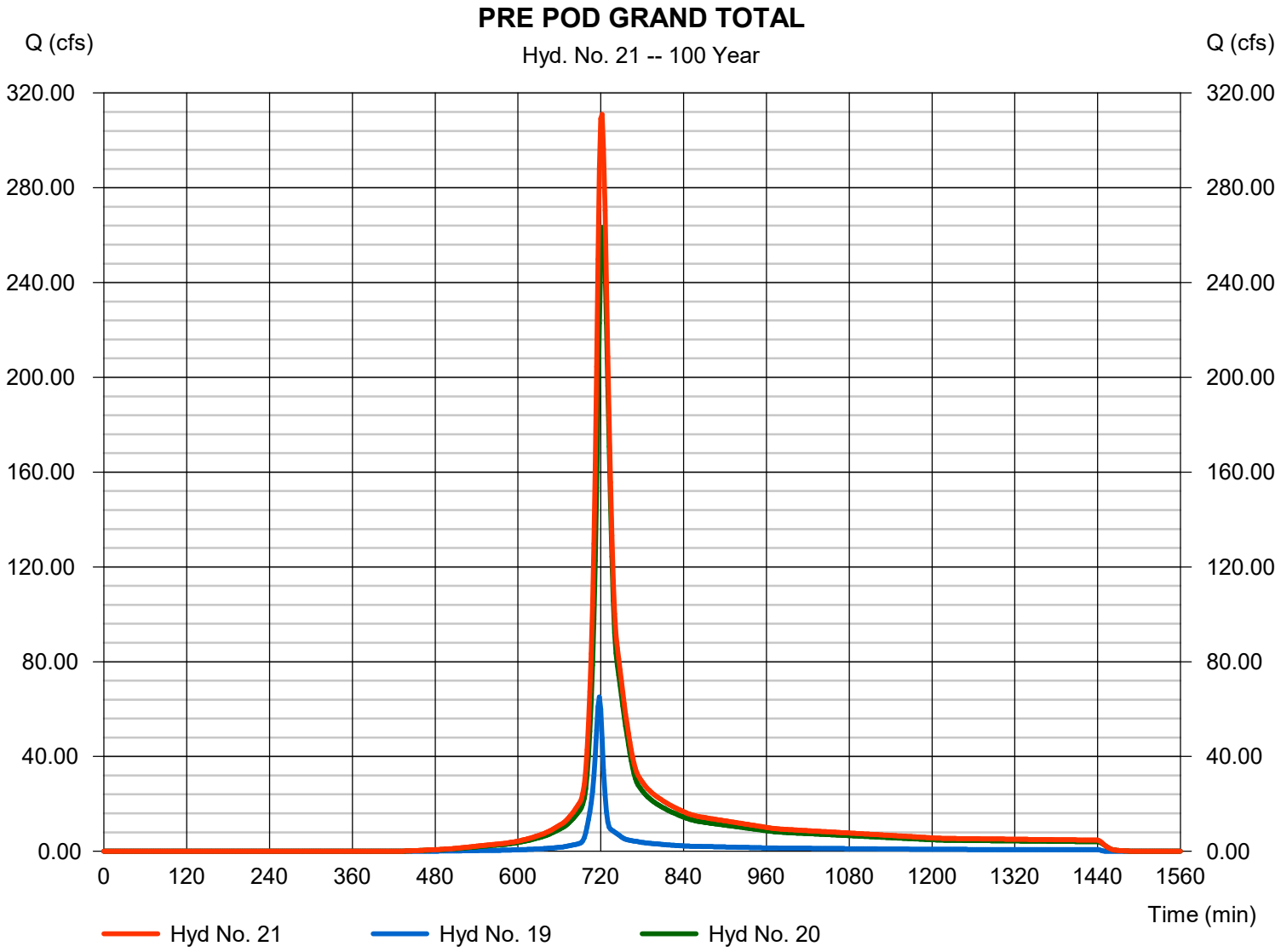


Hydrograph Report

Hyd. No. 21

PRE POD GRAND TOTAL

Hydrograph type	= Combine	Peak discharge	= 310.97 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 1,012,207 cuft
Inflow hyds.	= 19, 20	Contrib. drain. area	= 0.000 ac

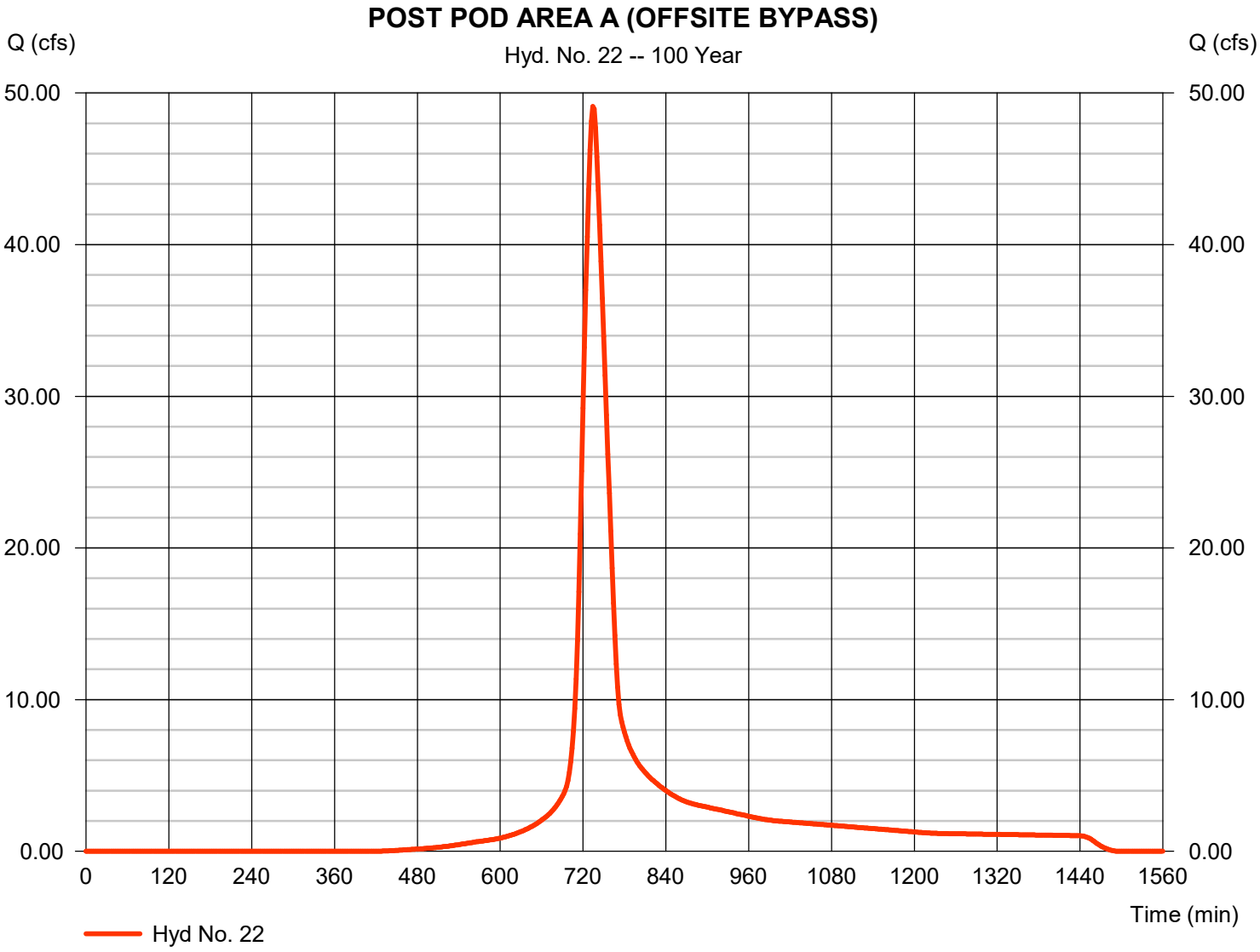


Hydrograph Report

Hyd. No. 22

POST POD AREA A (OFFSITE BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	49.11 cfs
Storm frequency	=	100 yrs	Time to peak	=	734 min
Time interval	=	2 min	Hyd. volume	=	222,406 cuft
Drainage area	=	13.940 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	34.70 min
Total precip.	=	7.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

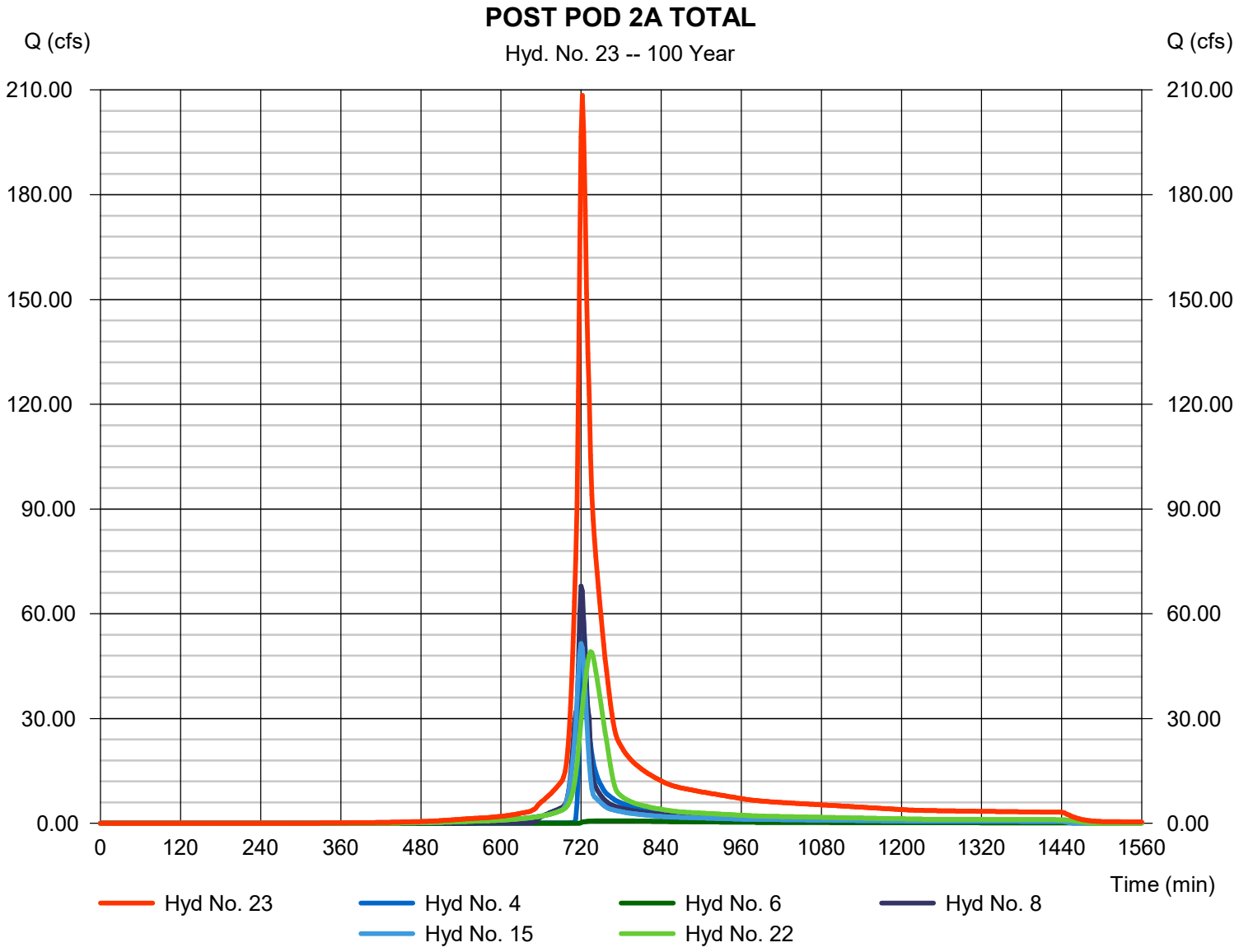


Hydrograph Report

Hyd. No. 23

POST POD 2A TOTAL

Hydrograph type	= Combine	Peak discharge	= 208.45 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 716,674 cuft
Inflow hyds.	= 4, 6, 8, 15, 22	Contrib. drain. area	= 20.780 ac

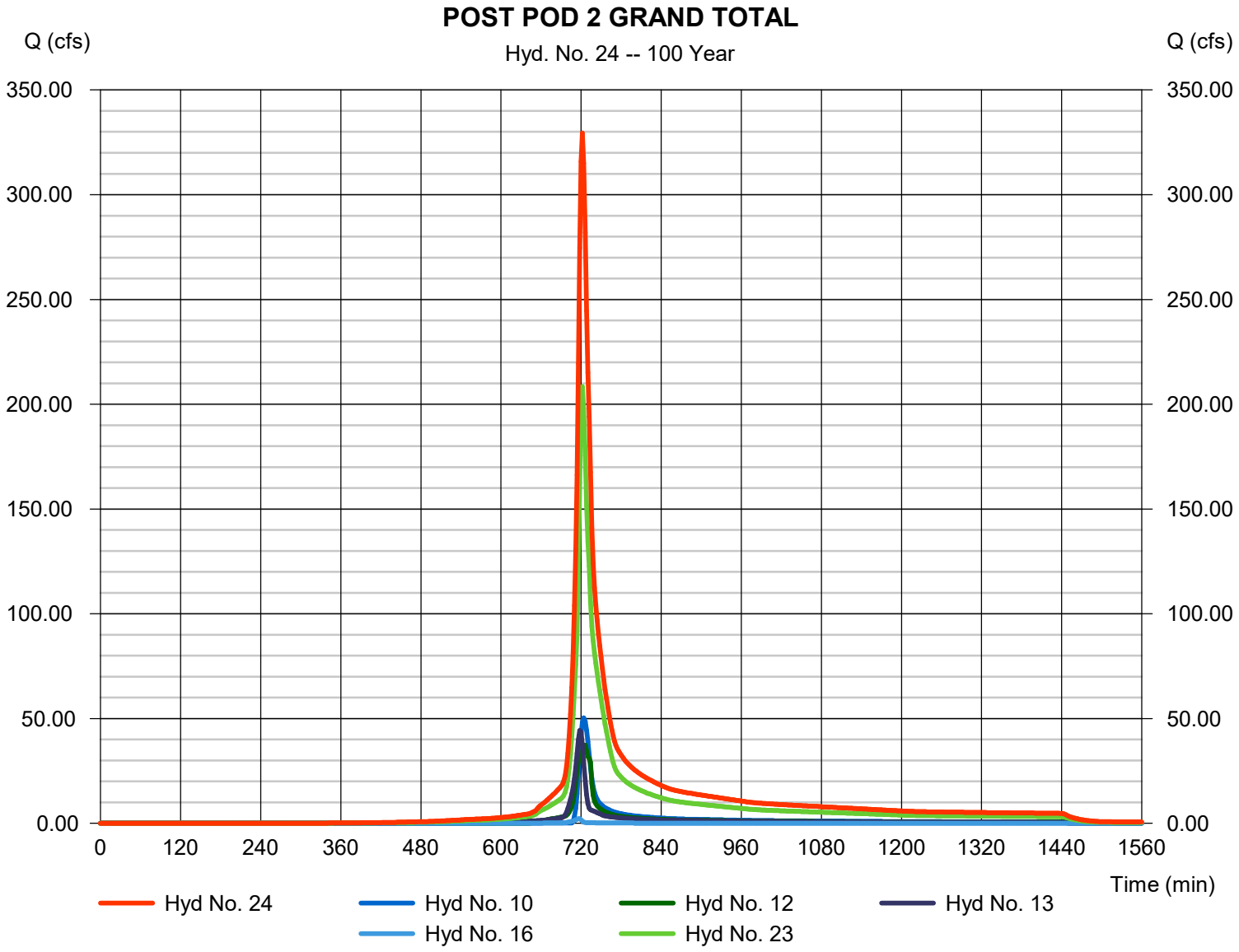


Hydrograph Report

Hyd. No. 24

POST POD 2 GRAND TOTAL

Hydrograph type	=	Combine	Peak discharge	=	329.46 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	1,099,656 cuft
Inflow hyds.	=	10, 12, 13, 16, 23	Contrib. drain. area	=	6.270 ac

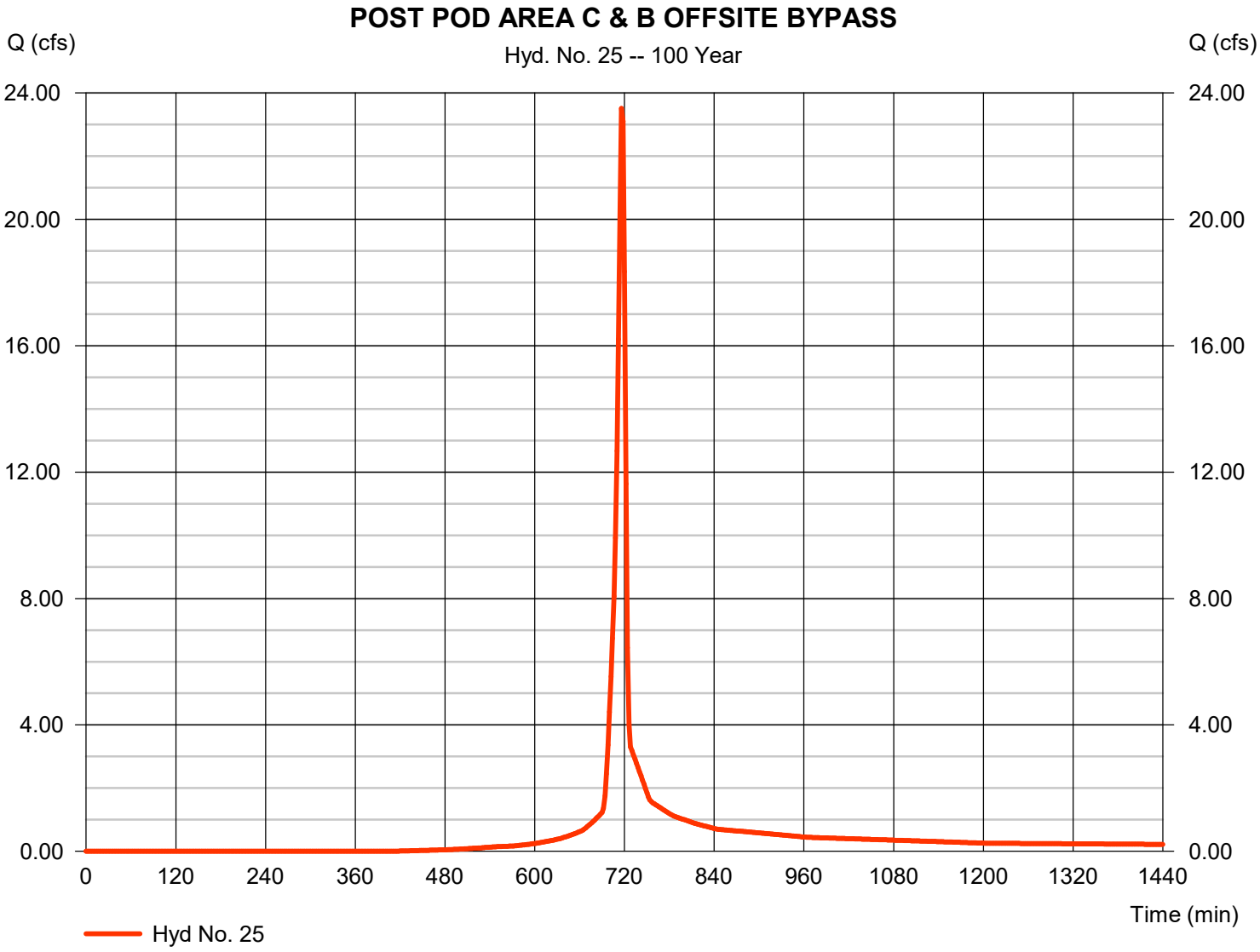


Hydrograph Report

Hyd. No. 25

POST POD AREA C & B OFFSITE BYPASS

Hydrograph type	= SCS Runoff	Peak discharge	= 23.52 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 47,960 cuft
Drainage area	= 3.170 ac	Curve number	= 74
Basin Slope	= 4.5 %	Hydraulic length	= 1030 ft
Tc method	= KIRPICH	Time of conc. (Tc)	= 5.38 min
Total precip.	= 7.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

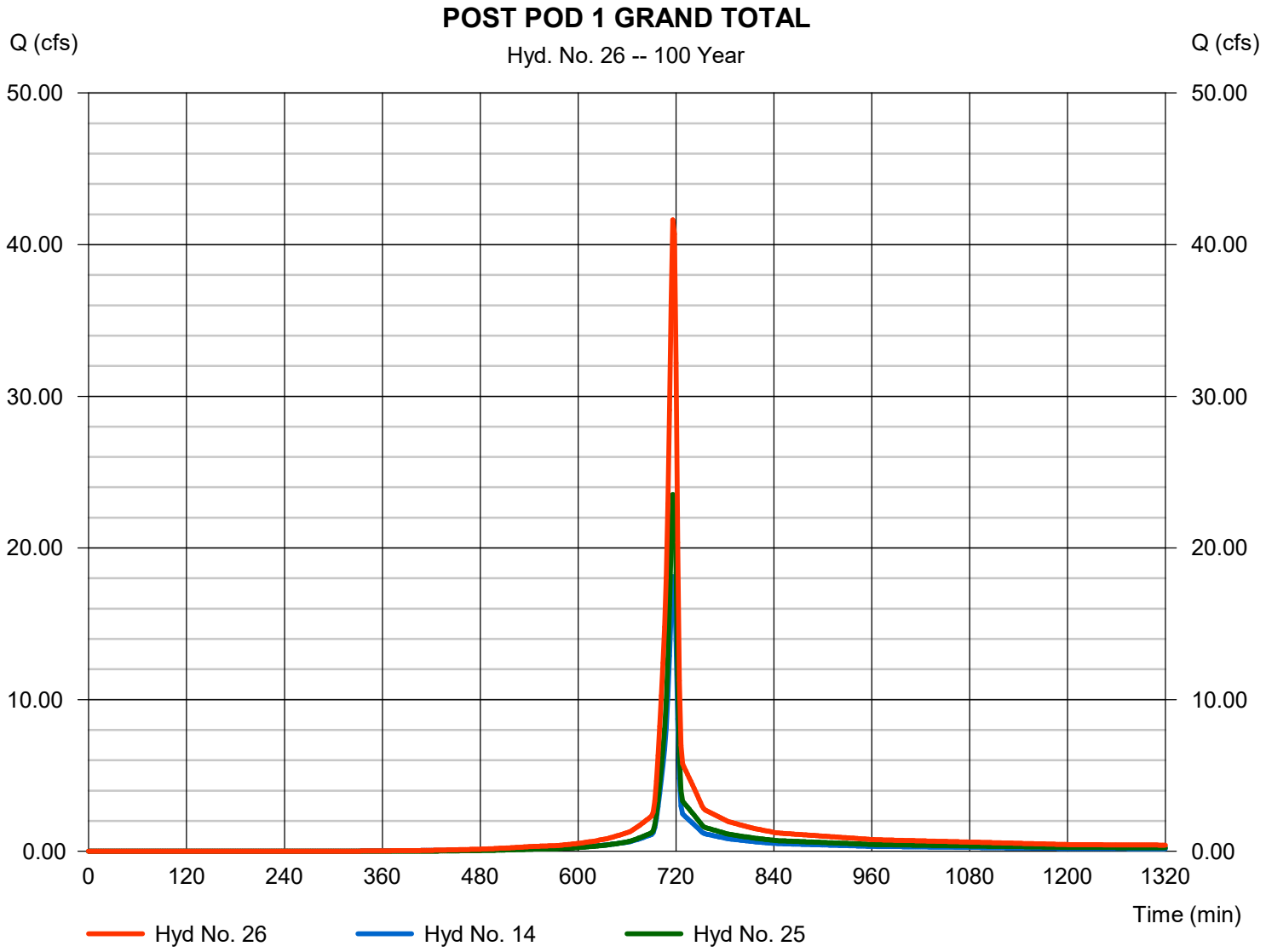


Hydrograph Report

Hyd. No. 26

POST POD 1 GRAND TOTAL

Hydrograph type	= Combine	Peak discharge	= 41.64 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 85,820 cuft
Inflow hyds.	= 14, 25	Contrib. drain. area	= 5.300 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.0305	12.5000	0.8674	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	74.0861	12.5000	0.8066	--------
25	62.8559	11.0000	0.7384	--------
50	56.0596	9.9000	0.6909	--------
100	53.0414	9.3000	0.6596	--------

File name: 20241113 Moody IDF.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.76	4.64	3.89	3.37	2.98	2.67	2.42	2.22	2.05	1.91	1.79	1.68
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	7.36	6.01	5.11	4.47	3.98	3.60	3.29	3.04	2.82	2.64	2.48	2.34
25	8.11	6.64	5.67	4.98	4.46	4.05	3.72	3.45	3.22	3.02	2.85	2.70
50	8.67	7.10	6.08	5.36	4.82	4.39	4.05	3.76	3.52	3.32	3.14	2.98
100	9.17	7.53	6.47	5.72	5.15	4.71	4.35	4.06	3.81	3.59	3.40	3.24

Tc = time in minutes. Values may exceed 60.

Precip. file name: F:\Kalas Assemblage\Raleigh-Wake County 24Hr Rain.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	3.00	3.45	0.00	4.33	5.02	5.96	6.80	7.46
SCS 6-Hr	2.05	2.46	0.00	3.04	3.55	0.00	0.00	5.32
Huff-1st	0.00	0.00	0.00	2.75	0.00	5.38	6.50	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	2.80	0.00	5.25	6.00	0.00