Watershed Model Schematic

16
17

Legend

Hyd.	Origin	Description
1	Rational	Area 2-1
2	Rational	Area 2-2
3	Rational	Area 2-3
4	Rational	Area 2-4
5	Rational	Area 2-5
6	Rational	Area 2-6
7	Rational	Area 2-7
8	Rational	Area 2-8
9	Rational	Area 2-9
10	Rational	Area 2-10
11	Rational	Area 2-11
12	Combine	Combined 1
13	Combine	Combined 2
14	Combine	Combined 3
15	Combine	TOTAL TO DETENTION
16	Reservoir	TOTAL DETENTION
17	Combine	TOTAL RUNOFF

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	Rational	------	8.491	12.79	-------	15.57	17.68	21.26	-------	28.02	Area 2-1
2	Rational	------	3.933	5.927	-------	7.213	8.189	9.849	-------	12.98	Area 2-2
3	Rational	------	10.07	17.09	-------	20.61	23.40	27.61	-------	39.03	Area 2-3
4	Rational	------	1.993	3.689	-------	4.416	5.015	5.815	-------	8.784	Area 2-4
5	Rational	------	0.368	0.681	-------	0.815	0.926	1.074	-------	1.622	Area 2-5
6	Rational	------	2.197	4.067	-------	4.868	5.529	6.410	-------	9.684	Area 2-6
7	Rational	------	1.285	2.378	-------	2.847	3.233	3.749	-------	5.663	Area 2-7
8	Rational	------	0.728	1.348	-------	1.614	1.833	2.125	-------	3.210	Area 2-8
9	Rational	------	0.631	1.168	-------	1.398	1.587	1.840	-------	2.780	Area 2-9
10	Rational	------	0.918	1.700	-------	2.035	2.311	2.680	-------	4.048	Area 2-10
11	Rational	------	0.450	0.832	-------	0.996	1.132	1.312	-------	1.982	Area 2-11
12	Combine	1, 2, 3,	18.77	30.19	-------	36.55	41.51	49.38	-------	67.73	Combined 1
13	Combine	4, 5, 7,	3.646	6.749	-------	8.078	9.175	10.64	-------	16.07	Combined 2
14	Combine	6, 8, 9,	4.474	8.283	-------	9.914	11.26	13.06	-------	19.72	Combined 3
15	Combine	10, 12, 13, 14	23.64	39.21	-------	47.35	53.77	63.60	-------	89.21	TOTAL TO DETENTION
16	Reservoir	15	0.389	0.552	-------	0.955	2.130	5.952	-------	16.30	TOTAL DETENTION
17	Combine	11, 16	0.558	1.009	-------	1.210	2.130	5.952	-------	16.30	TOTAL RUNOFF

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	Rational	8.491	1	10	5,094	------	------	------	Area 2-1
2	Rational	3.933	1	10	2,360	------	------	------	Area 2-2
3	Rational	10.07	1	7	4,231	------	------	------	Area 2-3
4	Rational	1.993	1	5	598	------	------	------	Area 2-4
5	Rational	0.368	1	5	110	------	------	------	Area 2-5
6	Rational	2.197	1	5	659	------	------	------	Area 2-6
7	Rational	1.285	1	5	385	------	------	------	Area 2-7
8	Rational	0.728	1	5	218	------	------	------	Area 2-8
9	Rational	0.631	1	5	189	------	------	------	Area 2-9
10	Rational	0.918	1	5	276	------	------	------	Area 2-10
11	Rational	0.450	1	5	135	------	------	------	Area 2-11
12	Combine	18.77	1	7	11,685	1, 2, 3,	------	------	Combined 1
13	Combine	3.646	1	5	1,094	4, 5, 7,	------	------	Combined 2
14	Combine	4.474	1	5	1,342	6, 8, 9,	------	------	Combined 3
15	Combine	23.64	1	7	14,121	10, 12, 13, 14	------	------	TOTAL TO DETENTION
16	Reservoir	0.389	1	20	13,949	15	981.50	13,831	TOTAL DETENTION
17	Combine	0.558	1	5	14,084	11, 16	------	------	TOTAL RUNOFF

Hydrograph Report

Hyd. No. 1

Area 2-1

Hydrograph type	= Rational	Peak discharge	= 8.491 cfs
Storm frequency	= 1 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 5,094 cuft
Drainage area	= 9.380 ac	Runoff coeff.	= 0.31
Intensity	= 2.920 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 2

Area 2-2

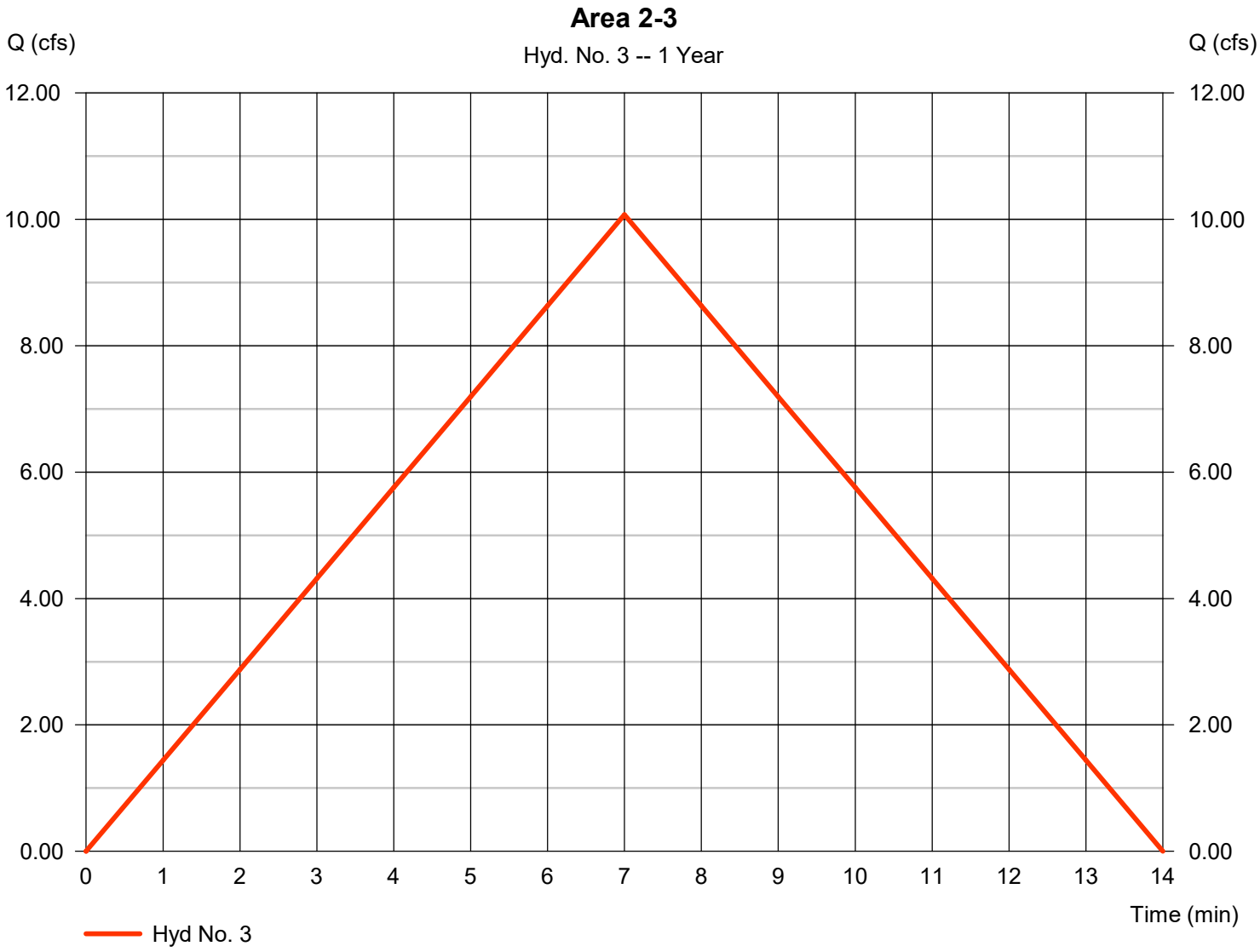
Hydrograph type	= Rational	Peak discharge	= 3.933 cfs
Storm frequency	= 1 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 2,360 cuft
Drainage area	= 4.490 ac	Runoff coeff.	= 0.3
Intensity	= 2.920 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 3

Area 2-3

Hydrograph type	= Rational	Peak discharge	= 10.07 cfs
Storm frequency	= 1 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 4,231 cuft
Drainage area	= 11.500 ac	Runoff coeff.	= 0.3
Intensity	= 2.920 in/hr	Tc by User	= 7.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

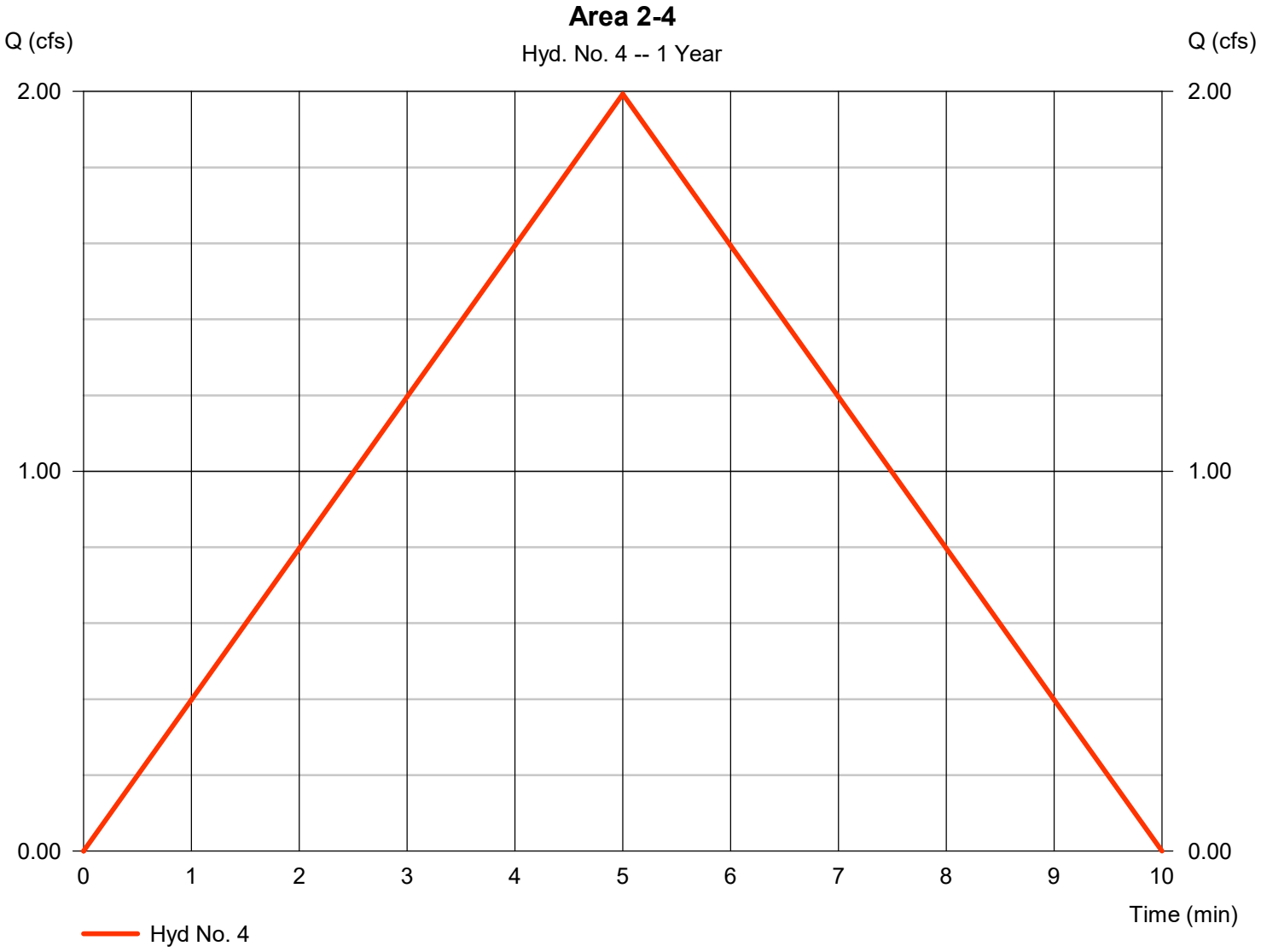


Hydrograph Report

Hyd. No. 4

Area 2-4

Hydrograph type	= Rational	Peak discharge	= 1.993 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 598 cuft
Drainage area	= 1.050 ac	Runoff coeff.	= 0.65
Intensity	= 2.920 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 5

Area 2-5

Hydrograph type	= Rational	Peak discharge	= 0.368 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 110 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.63
Intensity	= 2.920 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 6

Area 2-6

Hydrograph type	= Rational	Peak discharge	= 2.197 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 659 cuft
Drainage area	= 0.990 ac	Runoff coeff.	= 0.76
Intensity	= 2.920 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 7

Area 2-7

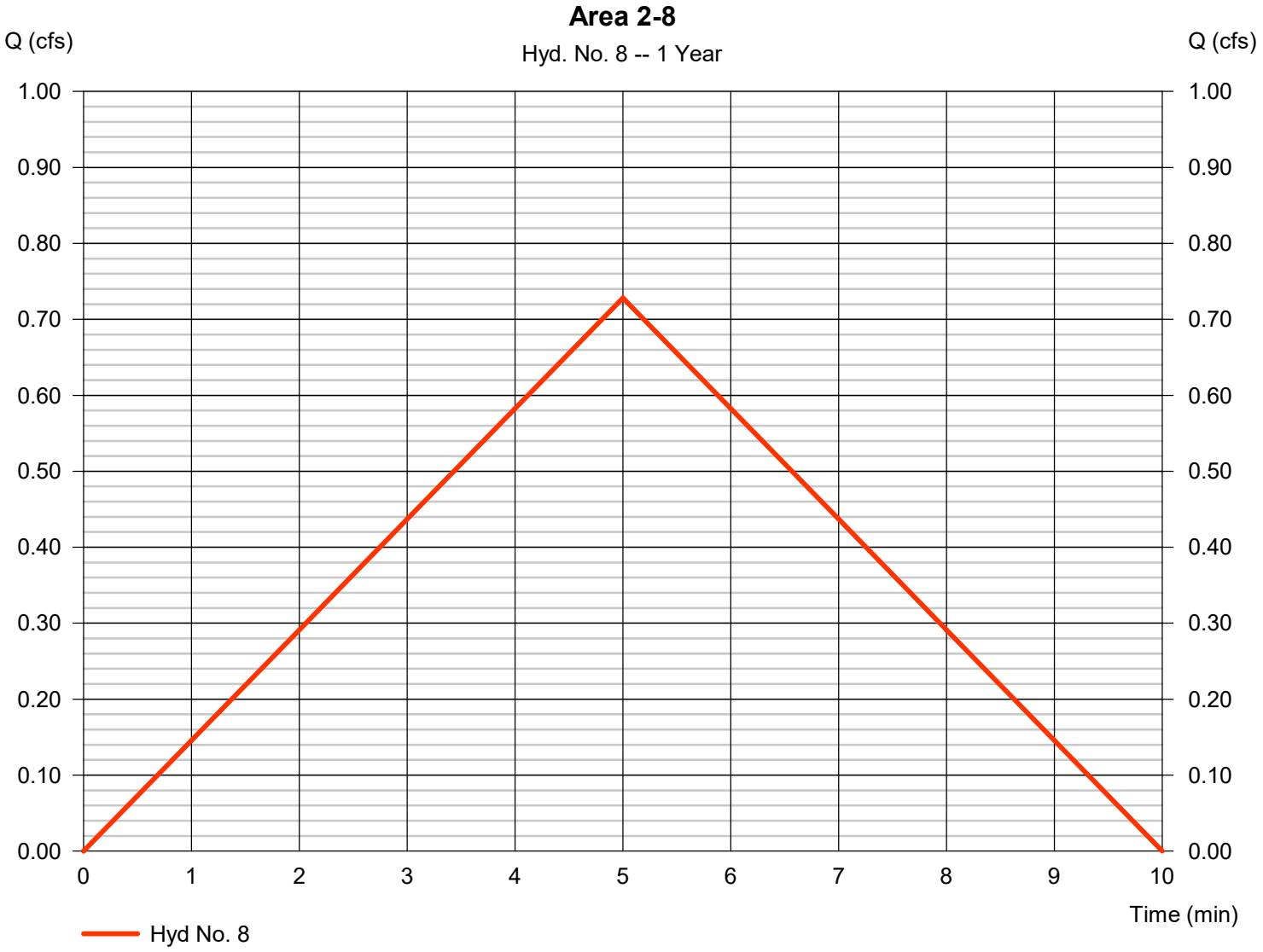
Hydrograph type	= Rational	Peak discharge	= 1.285 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 385 cuft
Drainage area	= 0.500 ac	Runoff coeff.	= 0.88
Intensity	= 2.920 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 8

Area 2-8

Hydrograph type	= Rational	Peak discharge	= 0.728 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 218 cuft
Drainage area	= 0.290 ac	Runoff coeff.	= 0.86
Intensity	= 2.920 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

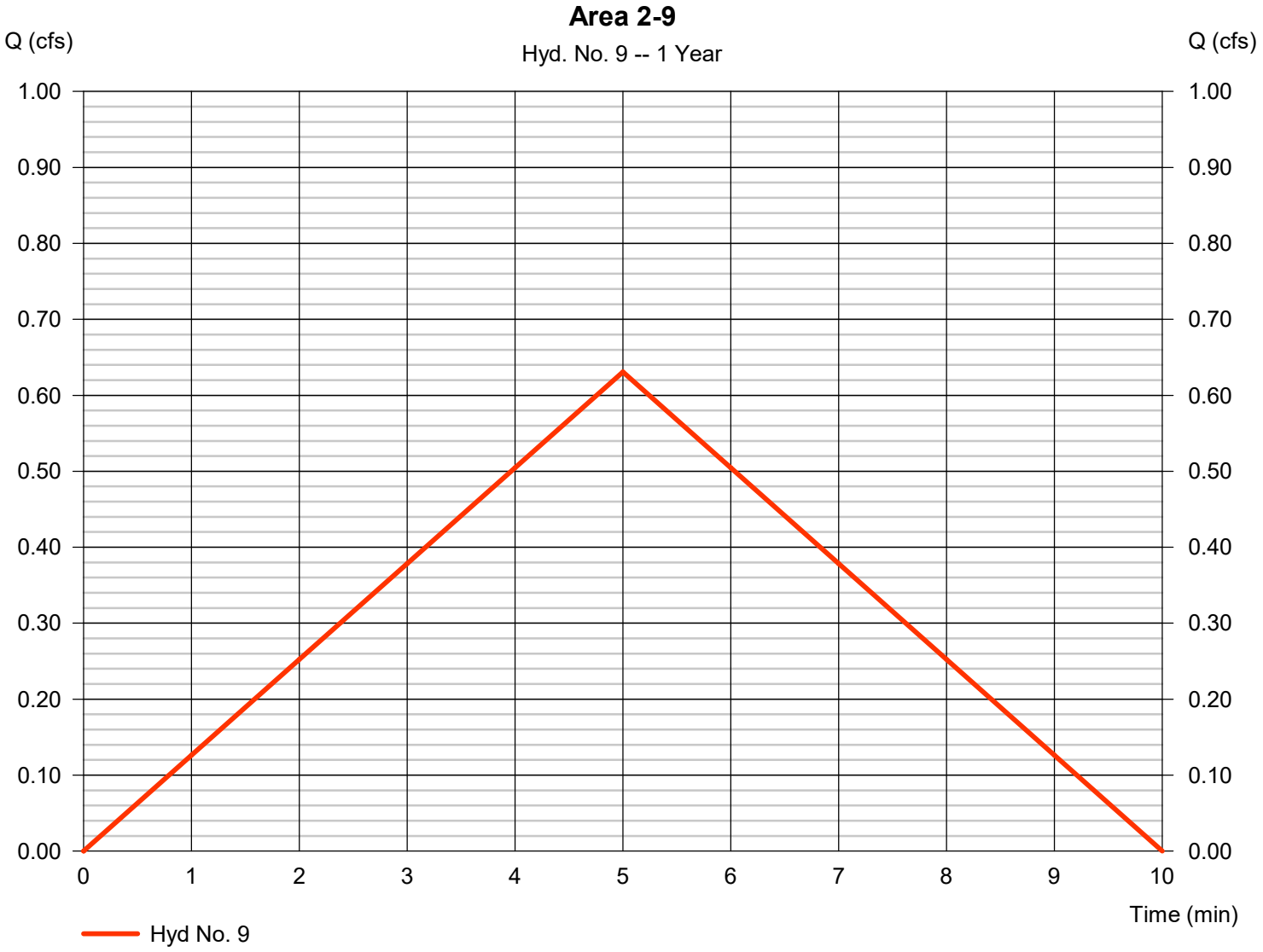


Hydrograph Report

Hyd. No. 9

Area 2-9

Hydrograph type	= Rational	Peak discharge	= 0.631 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 189 cuft
Drainage area	= 0.240 ac	Runoff coeff.	= 0.9
Intensity	= 2.920 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

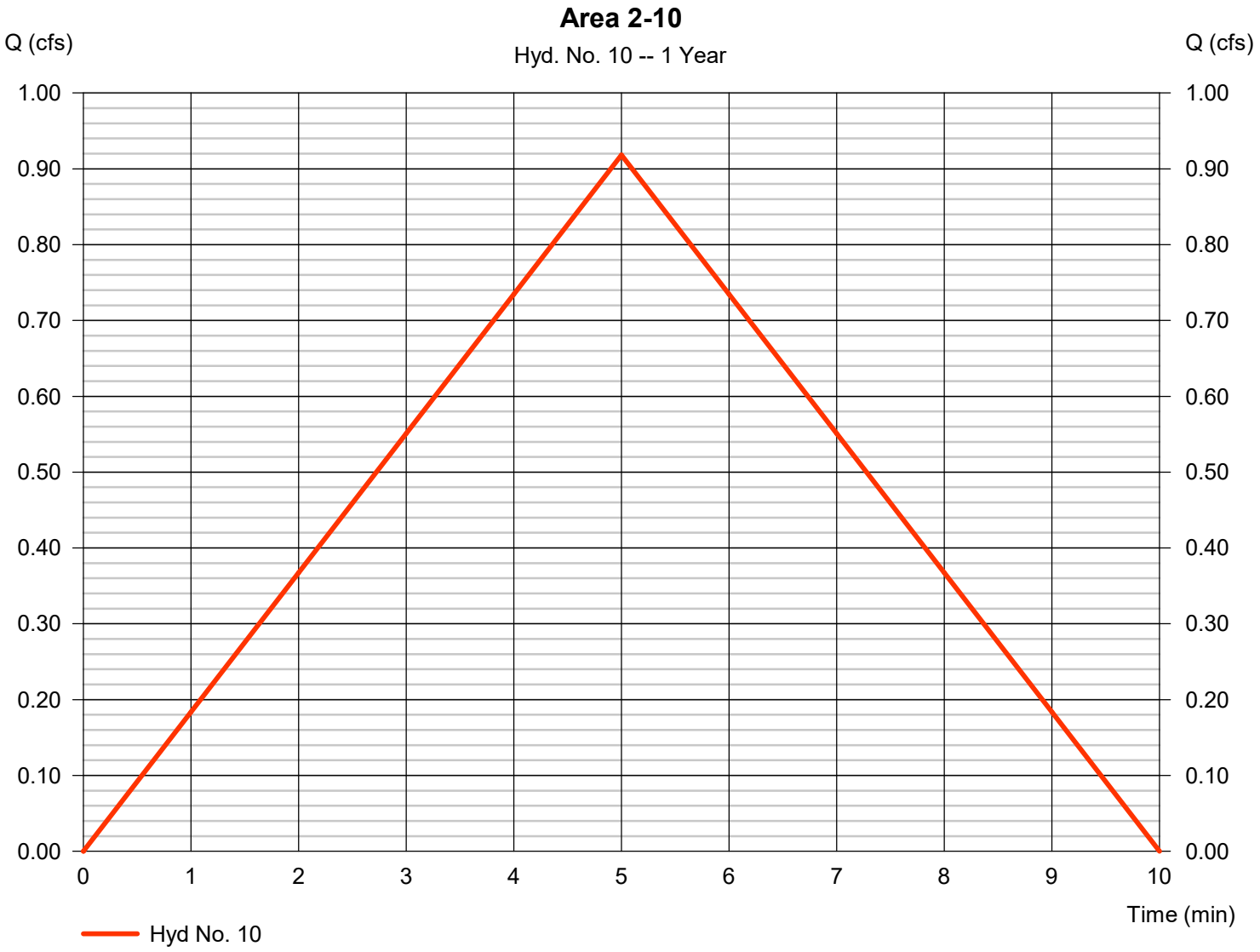


Hydrograph Report

Hyd. No. 10

Area 2-10

Hydrograph type	= Rational	Peak discharge	= 0.918 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 276 cuft
Drainage area	= 0.370 ac	Runoff coeff.	= 0.85
Intensity	= 2.920 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 11

Area 2-11

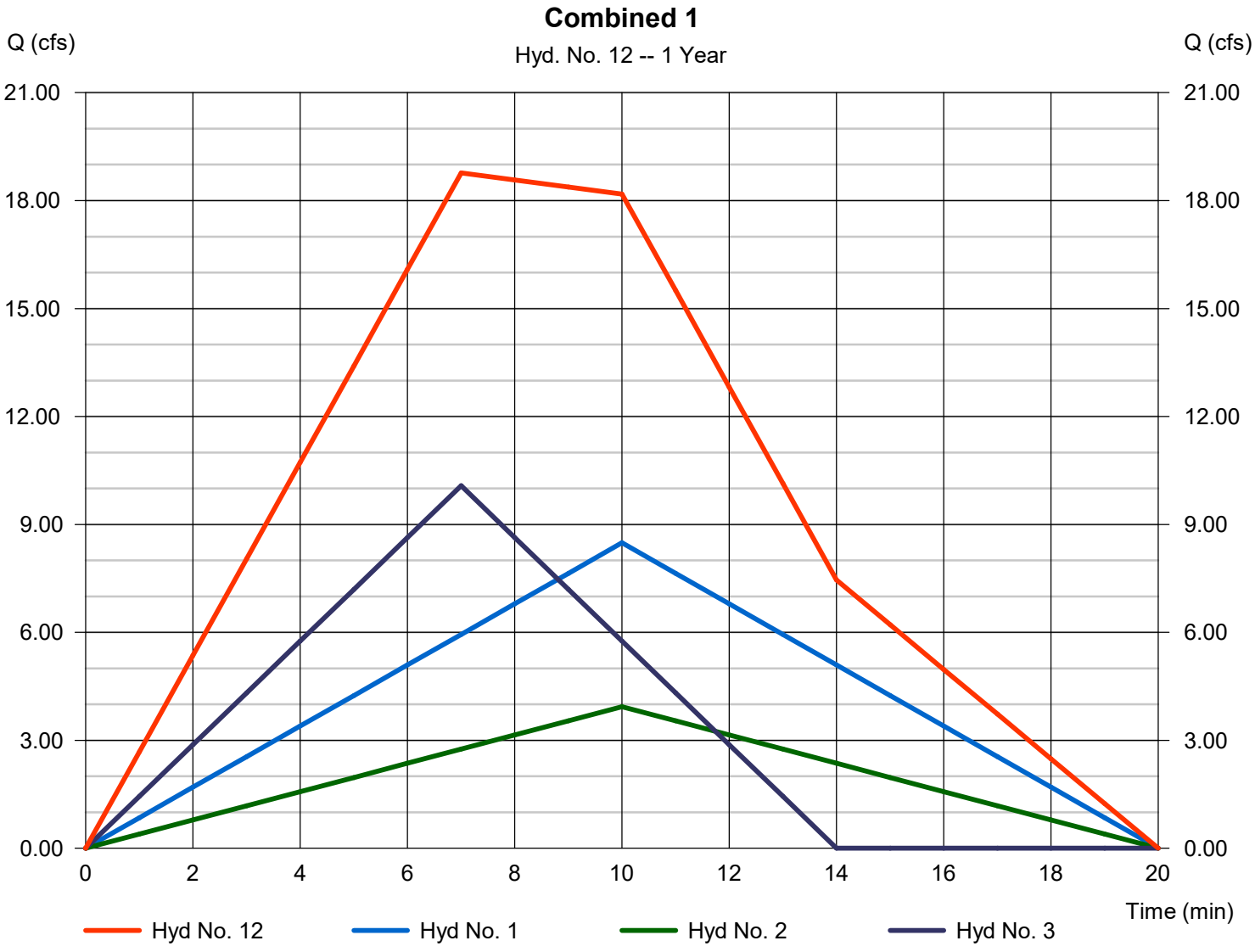
Hydrograph type	= Rational	Peak discharge	= 0.450 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 135 cuft
Drainage area	= 0.350 ac	Runoff coeff.	= 0.44
Intensity	= 2.920 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 12

Combined 1

Hydrograph type	= Combine	Peak discharge	= 18.77 cfs
Storm frequency	= 1 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 11,685 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 25.370 ac

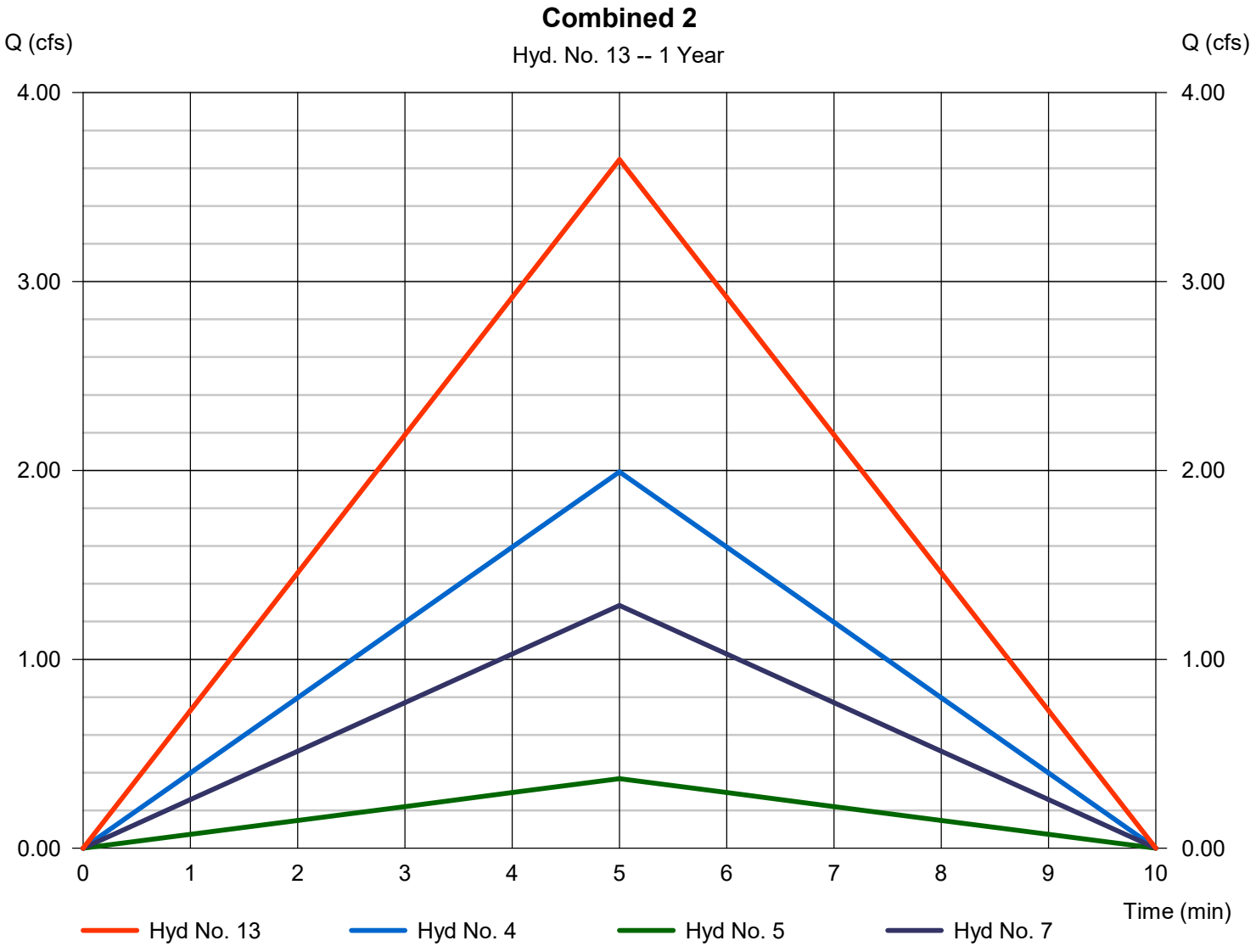


Hydrograph Report

Hyd. No. 13

Combined 2

Hydrograph type	= Combine	Peak discharge	= 3.646 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,094 cuft
Inflow hyds.	= 4, 5, 7	Contrib. drain. area	= 1.750 ac

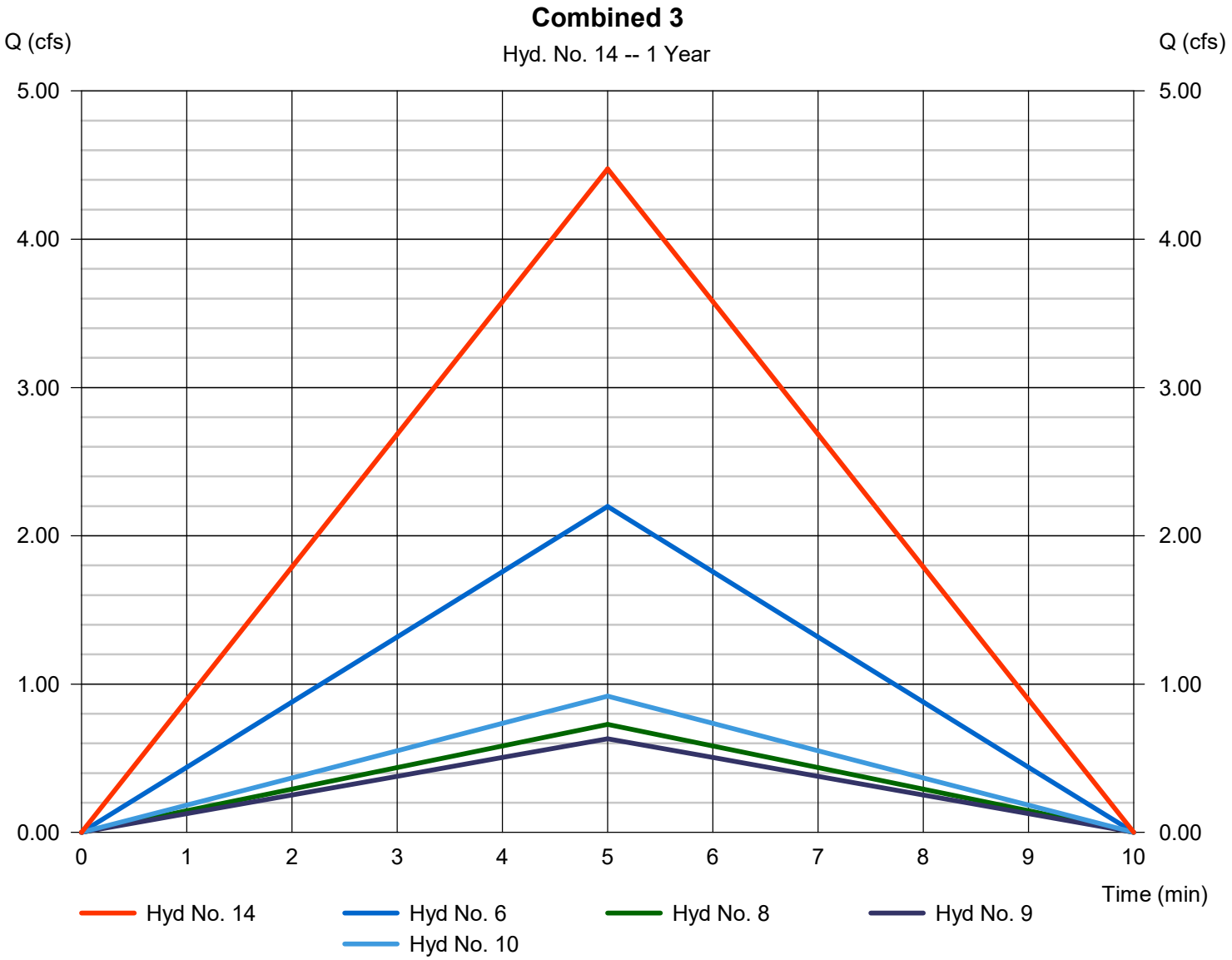


Hydrograph Report

Hyd. No. 14

Combined 3

Hydrograph type	= Combine	Peak discharge	= 4.474 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,342 cuft
Inflow hyds.	= 6, 8, 9, 10	Contrib. drain. area	= 1.890 ac

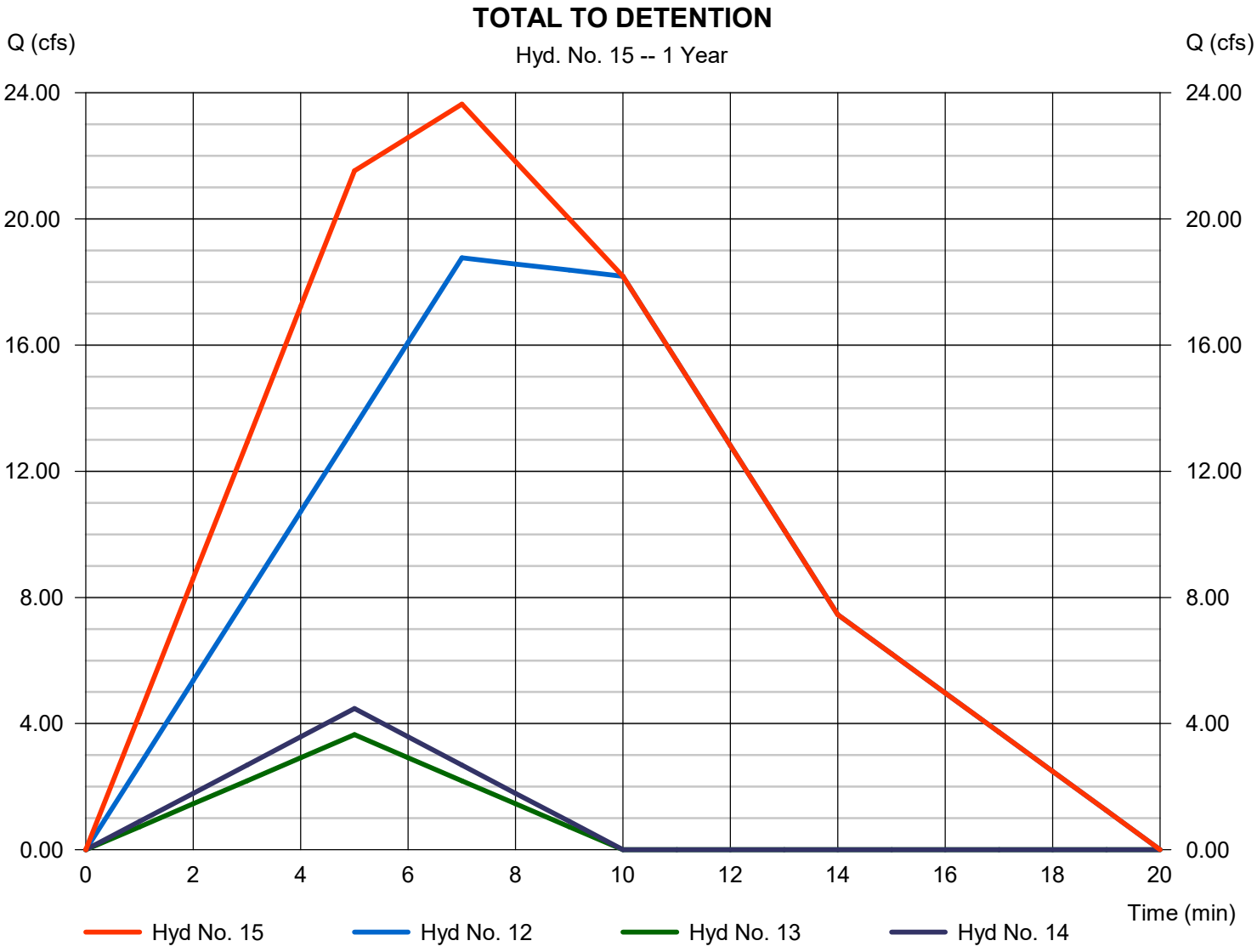


Hydrograph Report

Hyd. No. 15

TOTAL TO DETENTION

Hydrograph type	= Combine	Peak discharge	= 23.64 cfs
Storm frequency	= 1 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 14,121 cuft
Inflow hyds.	= 12, 13, 14	Contrib. drain. area	= 0.000 ac



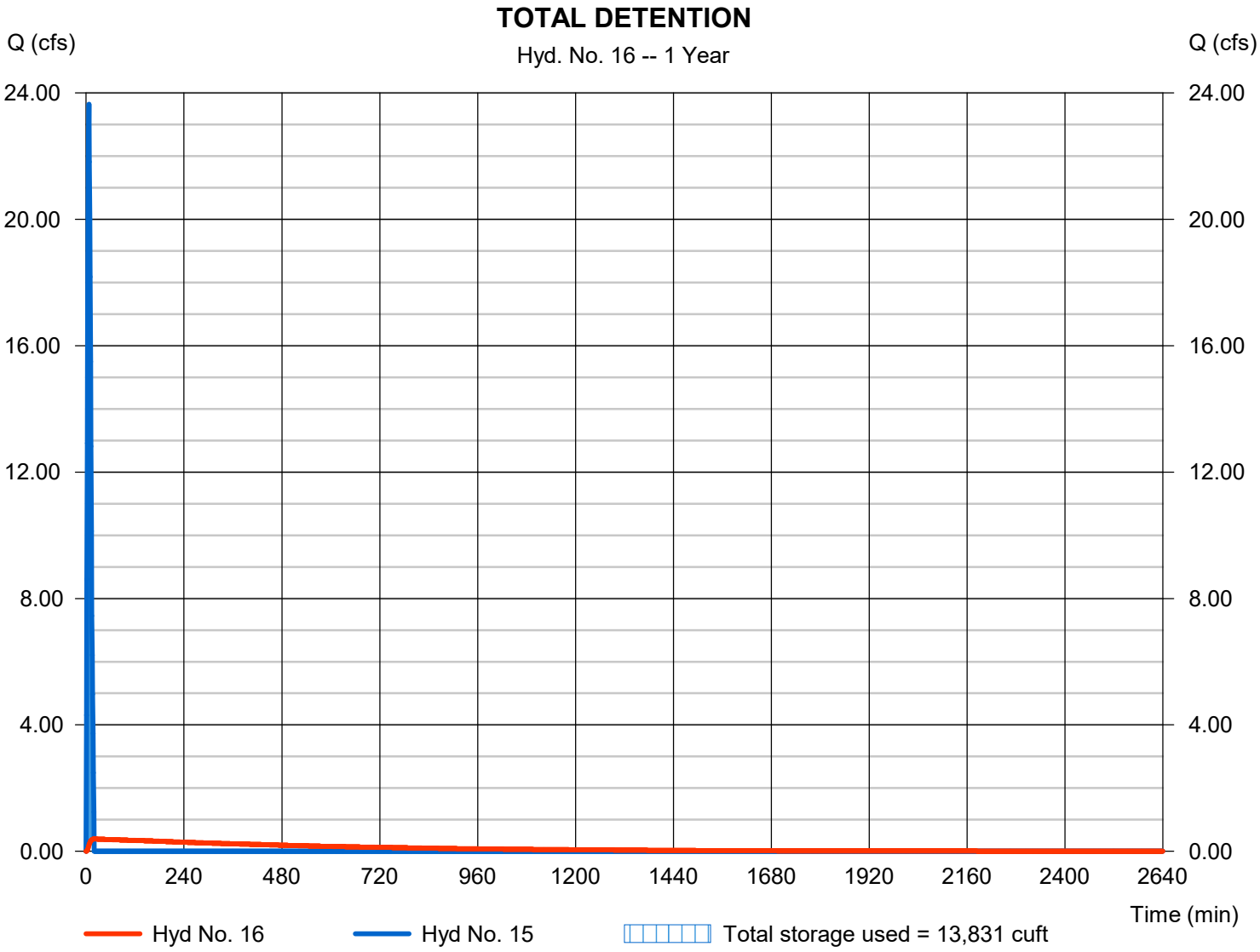
Hydrograph Report

Hyd. No. 16

TOTAL DETENTION

Hydrograph type	=	Reservoir	Peak discharge	=	0.389 cfs
Storm frequency	=	1 yrs	Time to peak	=	20 min
Time interval	=	1 min	Hyd. volume	=	13,949 cuft
Inflow hyd. No.	=	15 - TOTAL TO DETENTION	Max. Elevation	=	981.50 ft
Reservoir name	=	Detention	Max. Storage	=	13,831 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Detention

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 977.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	977.00	803	0	0
1.00	978.00	1,645	1,199	1,199
2.00	979.00	2,795	2,195	3,394
3.00	980.00	3,493	3,137	6,531
4.00	981.00	5,097	4,269	10,800
5.00	982.00	7,032	6,038	16,838
6.00	983.00	9,333	8,155	24,993
7.00	984.00	12,041	10,657	35,650
8.00	985.00	15,215	13,596	49,246
9.00	986.00	18,928	17,036	66,282
10.00	987.00	23,407	21,126	87,408

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 42.00	36.00	15.00	1.50
Span (in)	= 42.00	36.00	15.00	1.50
No. Barrels	= 1	1	1	6
Invert El. (ft)	= 976.75	983.47	982.94	976.70
Length (ft)	= 15.00	10.00	20.00	5.80
Slope (%)	= 2.00	1.00	2.00	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	Yes

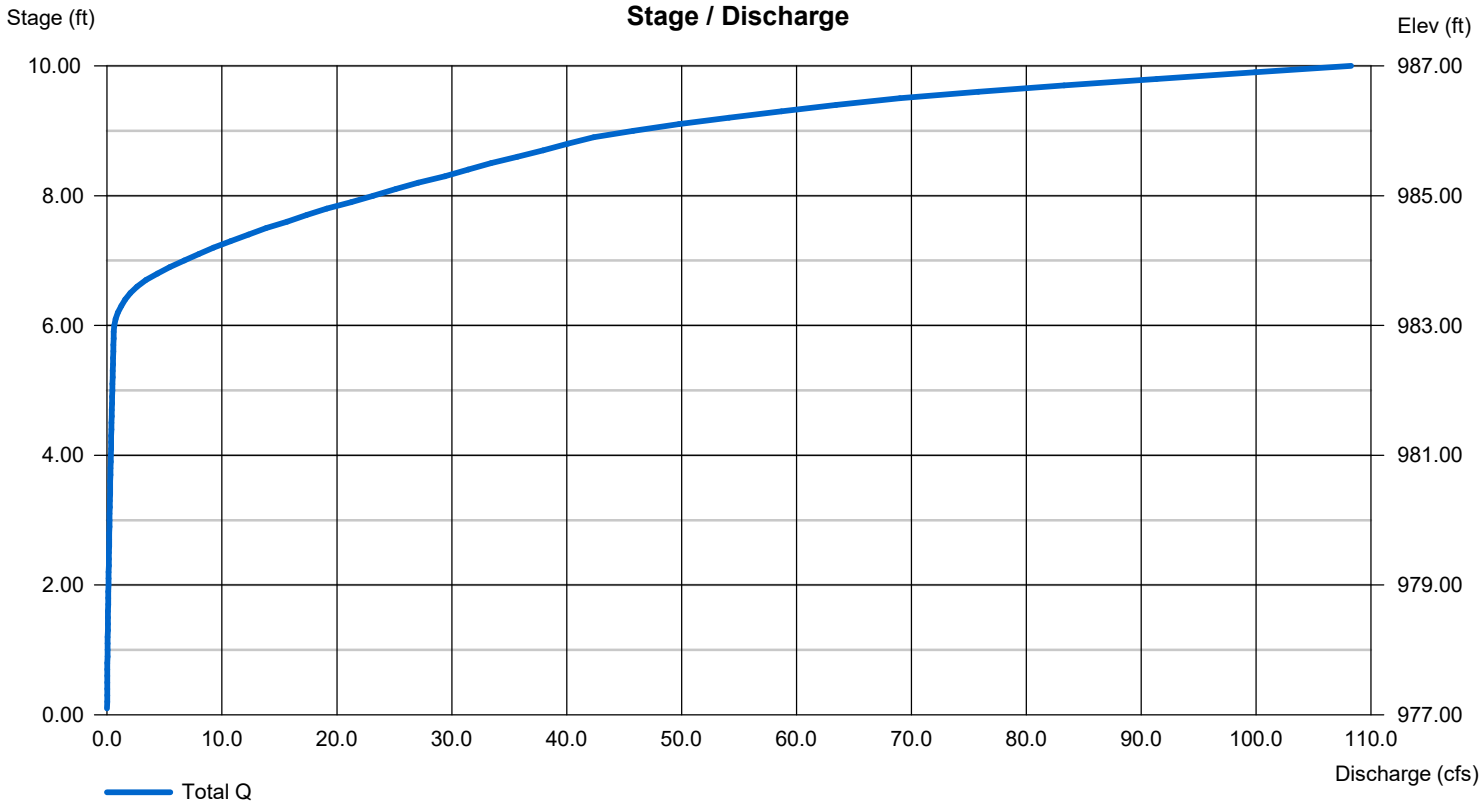
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	10.00	0.00
Crest El. (ft)	= 985.87	0.00	986.41	0.00
Weir Coeff.	= 2.60	2.60	2.60	3.33
Weir Type	= Broad	Broad	Broad	---
Multi-Stage	= Yes	Yes	Yes	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).

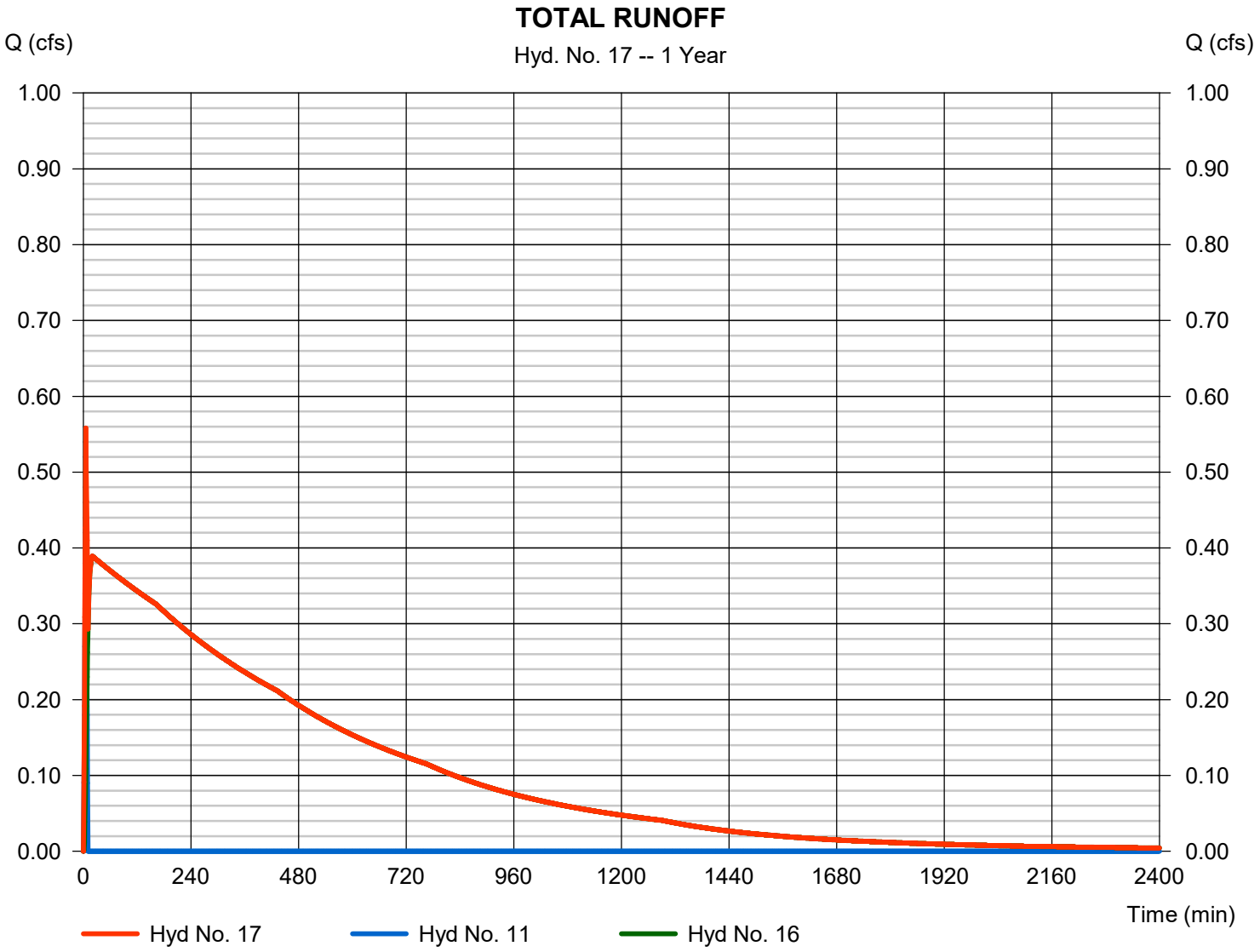


Hydrograph Report

Hyd. No. 17

TOTAL RUNOFF

Hydrograph type	= Combine	Peak discharge	= 0.558 cfs
Storm frequency	= 1 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 14,084 cuft
Inflow hyds.	= 11, 16	Contrib. drain. area	= 0.350 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	Rational	12.79	1	10	7,677	------	------	------	Area 2-1
2	Rational	5.927	1	10	3,556	------	------	------	Area 2-2
3	Rational	17.09	1	7	7,176	------	------	------	Area 2-3
4	Rational	3.689	1	5	1,107	------	------	------	Area 2-4
5	Rational	0.681	1	5	204	------	------	------	Area 2-5
6	Rational	4.067	1	5	1,220	------	------	------	Area 2-6
7	Rational	2.378	1	5	714	------	------	------	Area 2-7
8	Rational	1.348	1	5	404	------	------	------	Area 2-8
9	Rational	1.168	1	5	350	------	------	------	Area 2-9
10	Rational	1.700	1	5	510	------	------	------	Area 2-10
11	Rational	0.832	1	5	250	------	------	------	Area 2-11
12	Combine	30.19	1	7	18,409	1, 2, 3,	------	------	Combined 1
13	Combine	6.749	1	5	2,025	4, 5, 7,	------	------	Combined 2
14	Combine	8.283	1	5	2,485	6, 8, 9,	------	------	Combined 3
15	Combine	39.21	1	7	22,919	10, 12, 13, 14	------	------	TOTAL TO DETENTION
16	Reservoir	0.552	1	20	22,695	15	982.69	22,492	TOTAL DETENTION
17	Combine	1.009	1	5	22,945	11, 16	------	------	TOTAL RUNOFF

Hydrograph Report

Hyd. No. 1

Area 2-1

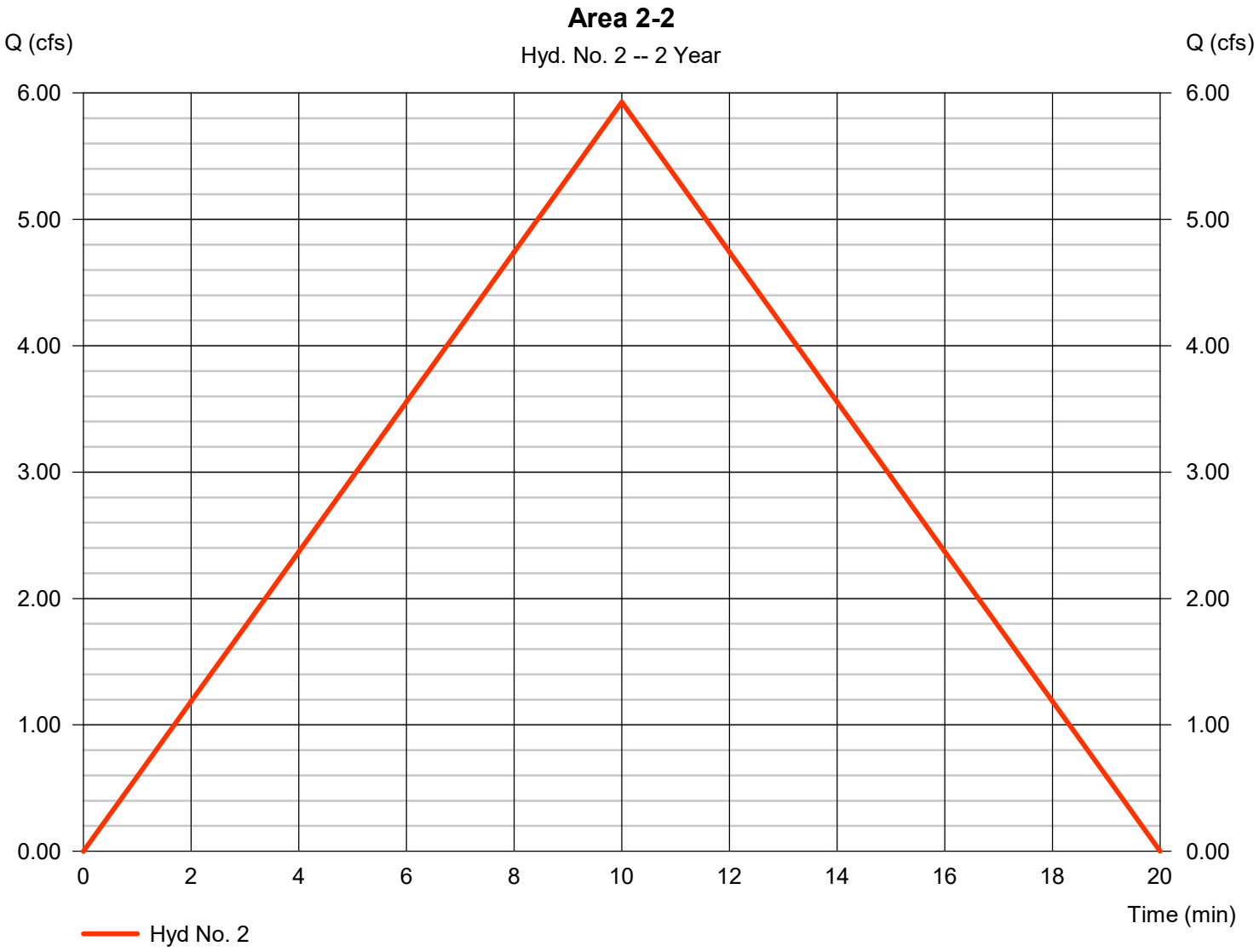
Hydrograph type	= Rational	Peak discharge	= 12.79 cfs
Storm frequency	= 2 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 7,677 cuft
Drainage area	= 9.380 ac	Runoff coeff.	= 0.31
Intensity	= 4.400 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 2

Area 2-2

Hydrograph type	= Rational	Peak discharge	= 5.927 cfs
Storm frequency	= 2 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 3,556 cuft
Drainage area	= 4.490 ac	Runoff coeff.	= 0.3
Intensity	= 4.400 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

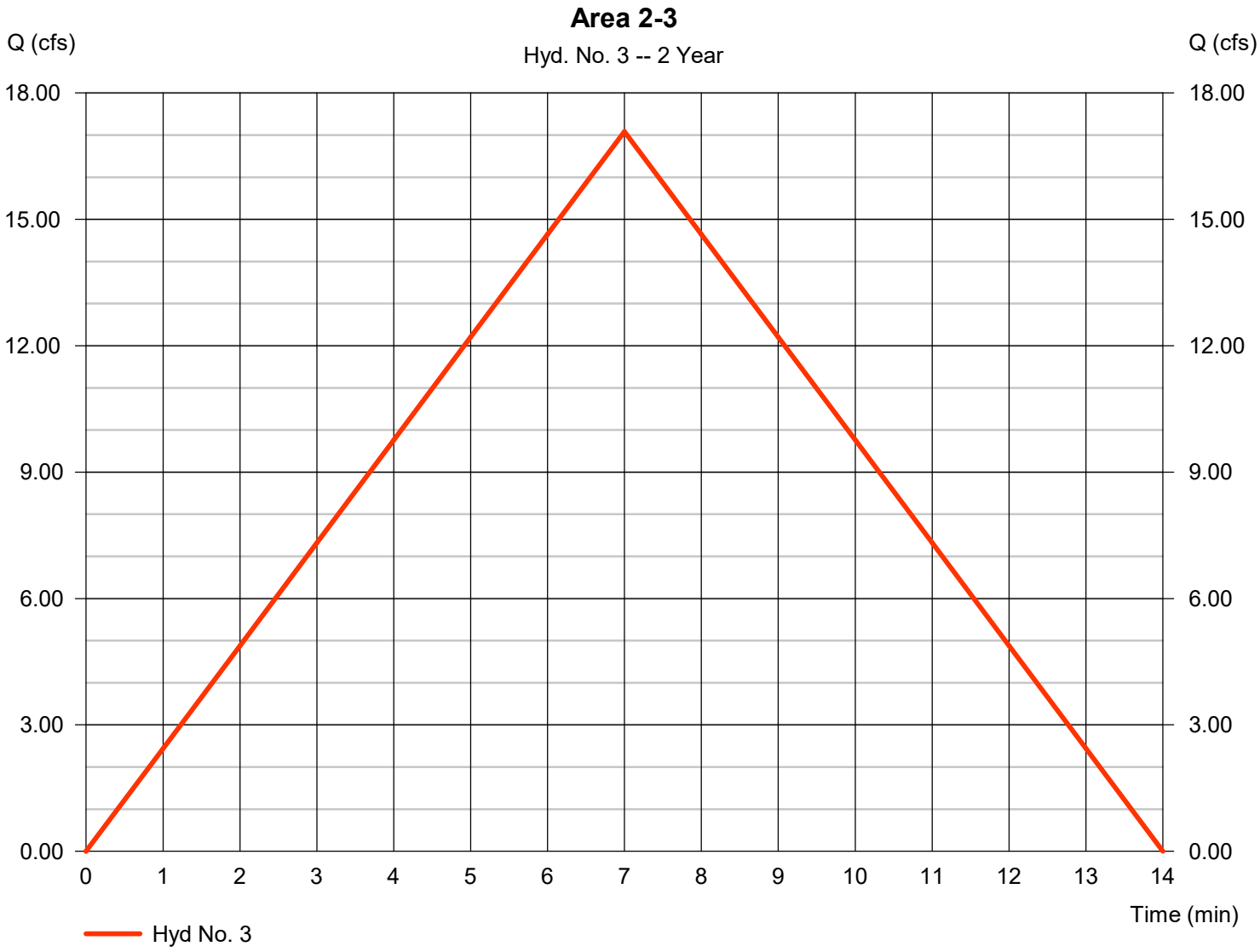


Hydrograph Report

Hyd. No. 3

Area 2-3

Hydrograph type	= Rational	Peak discharge	= 17.09 cfs
Storm frequency	= 2 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 7,176 cuft
Drainage area	= 11.500 ac	Runoff coeff.	= 0.3
Intensity	= 4.952 in/hr	Tc by User	= 7.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

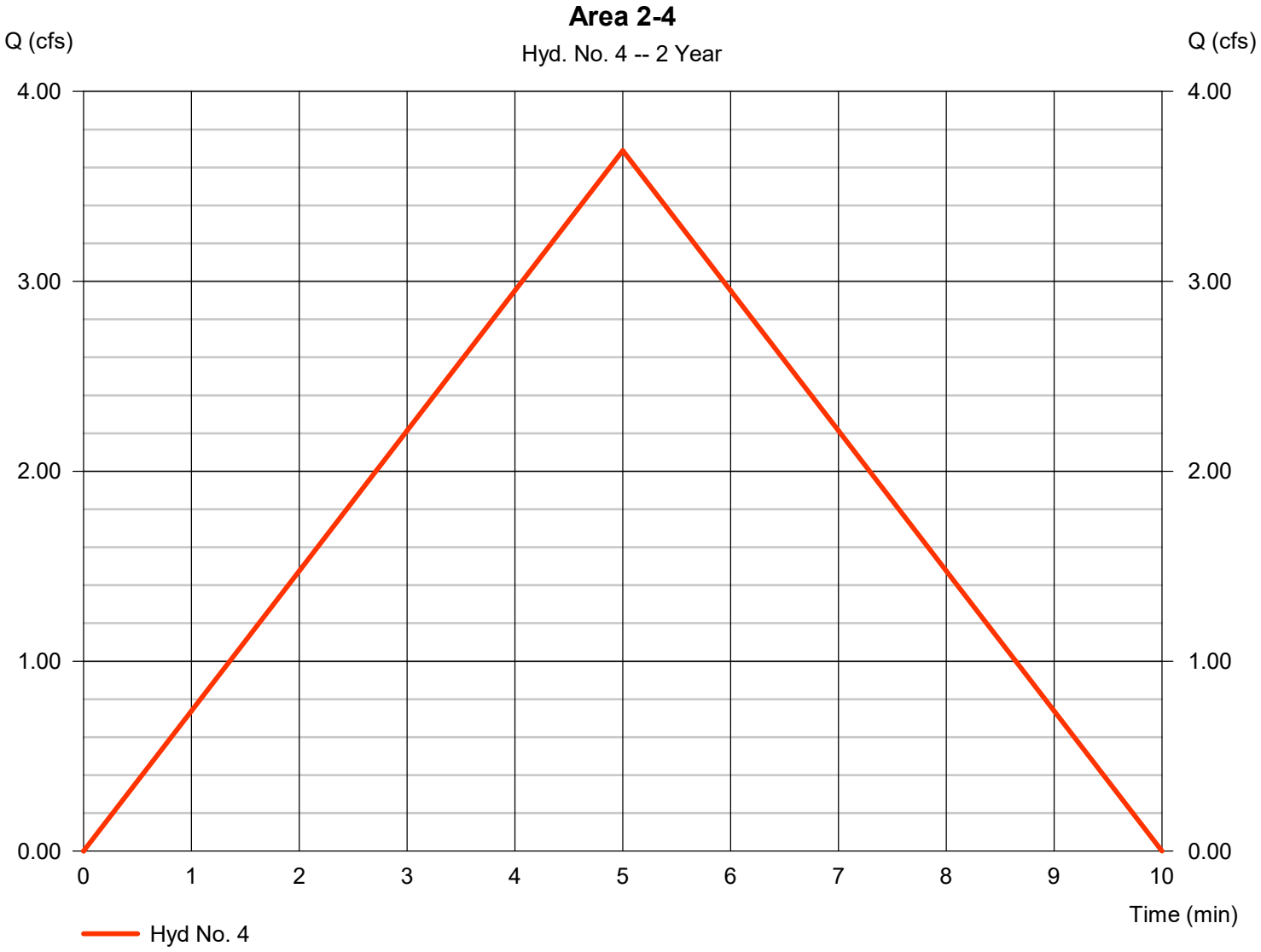


Hydrograph Report

Hyd. No. 4

Area 2-4

Hydrograph type	= Rational	Peak discharge	= 3.689 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,107 cuft
Drainage area	= 1.050 ac	Runoff coeff.	= 0.65
Intensity	= 5.406 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 5

Area 2-5

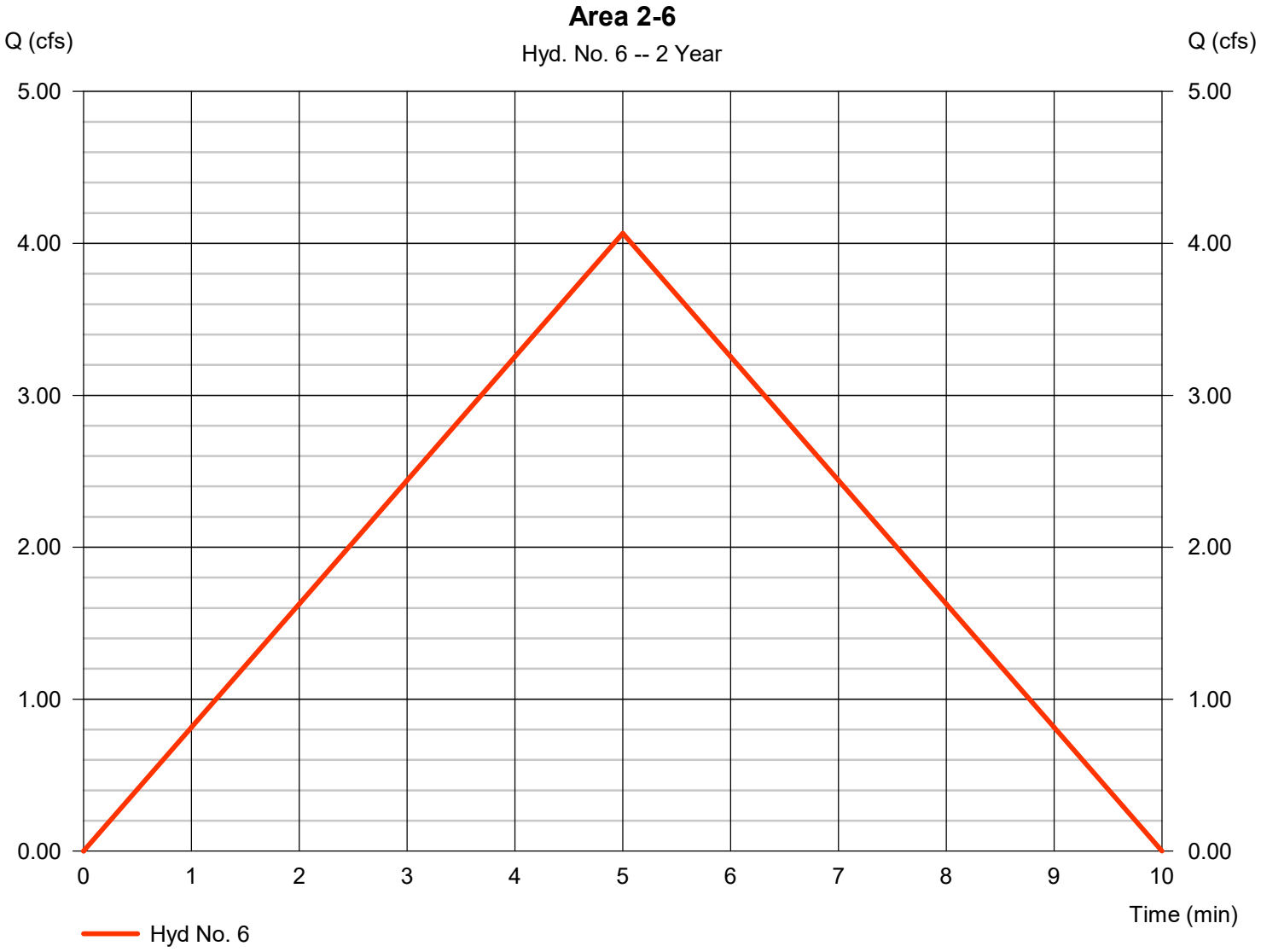
Hydrograph type	= Rational	Peak discharge	= 0.681 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 204 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.63
Intensity	= 5.406 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 6

Area 2-6

Hydrograph type	= Rational	Peak discharge	= 4.067 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,220 cuft
Drainage area	= 0.990 ac	Runoff coeff.	= 0.76
Intensity	= 5.406 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

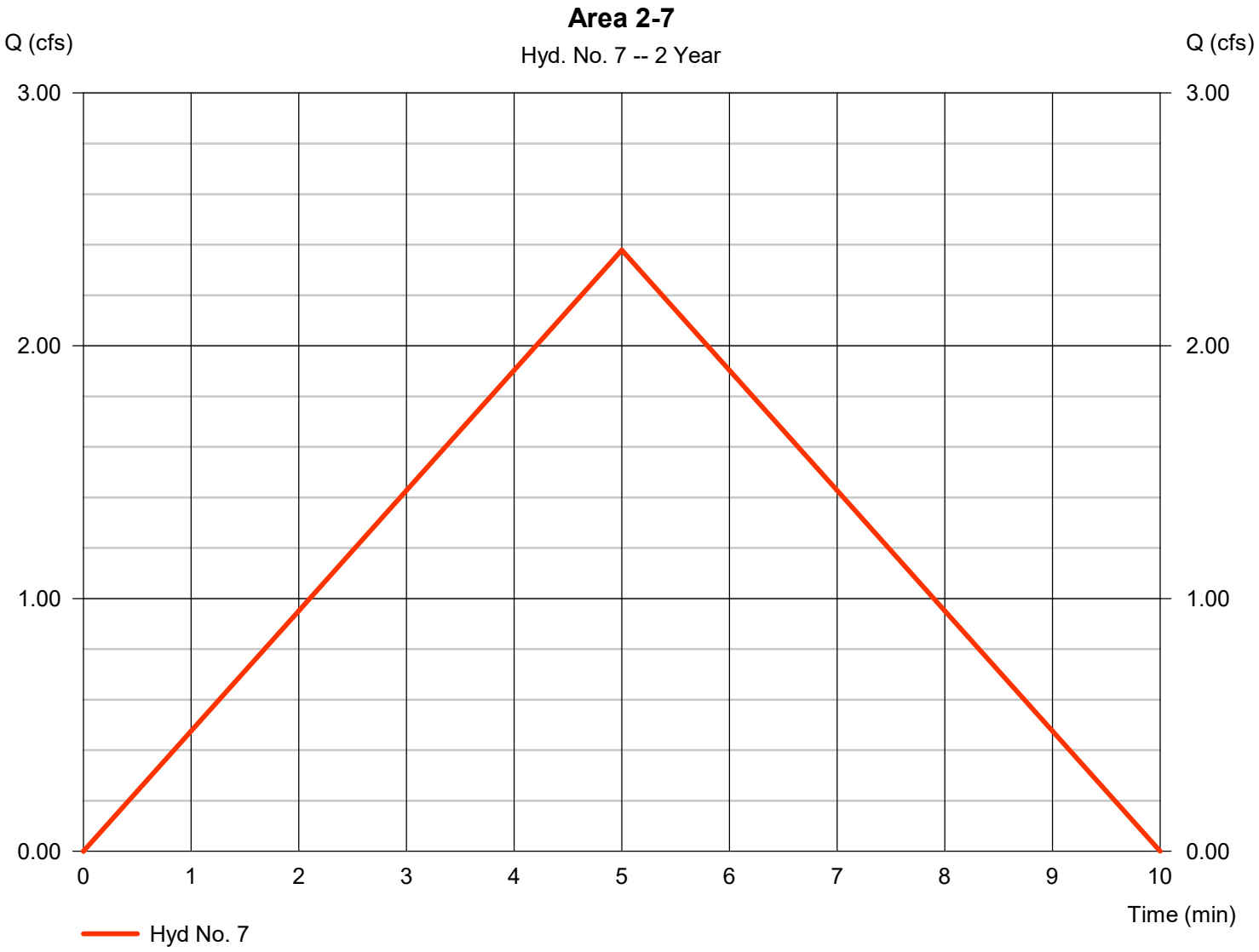


Hydrograph Report

Hyd. No. 7

Area 2-7

Hydrograph type	= Rational	Peak discharge	= 2.378 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 714 cuft
Drainage area	= 0.500 ac	Runoff coeff.	= 0.88
Intensity	= 5.406 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

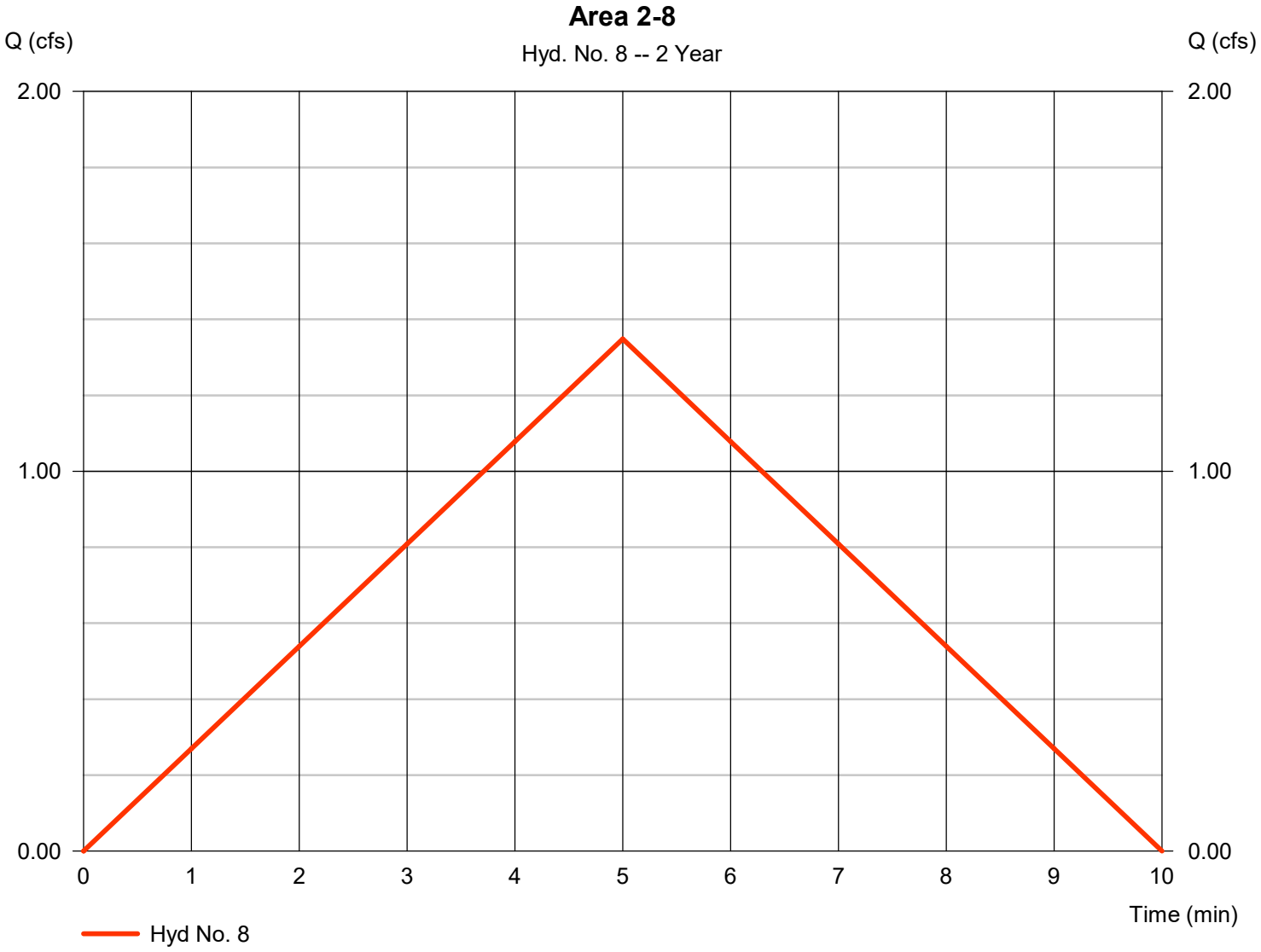


Hydrograph Report

Hyd. No. 8

Area 2-8

Hydrograph type	= Rational	Peak discharge	= 1.348 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 404 cuft
Drainage area	= 0.290 ac	Runoff coeff.	= 0.86
Intensity	= 5.406 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

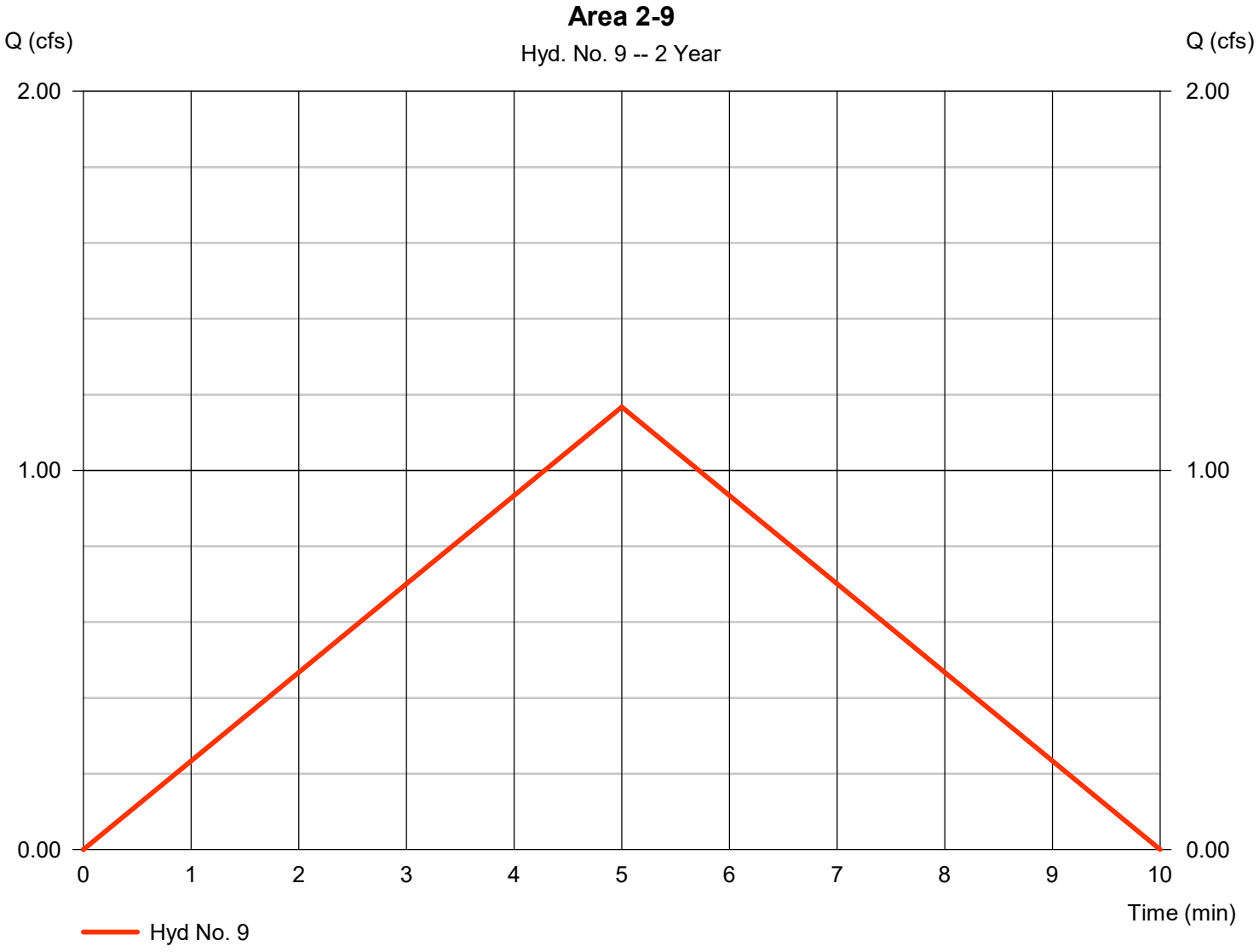


Hydrograph Report

Hyd. No. 9

Area 2-9

Hydrograph type	= Rational	Peak discharge	= 1.168 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 350 cuft
Drainage area	= 0.240 ac	Runoff coeff.	= 0.9
Intensity	= 5.406 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

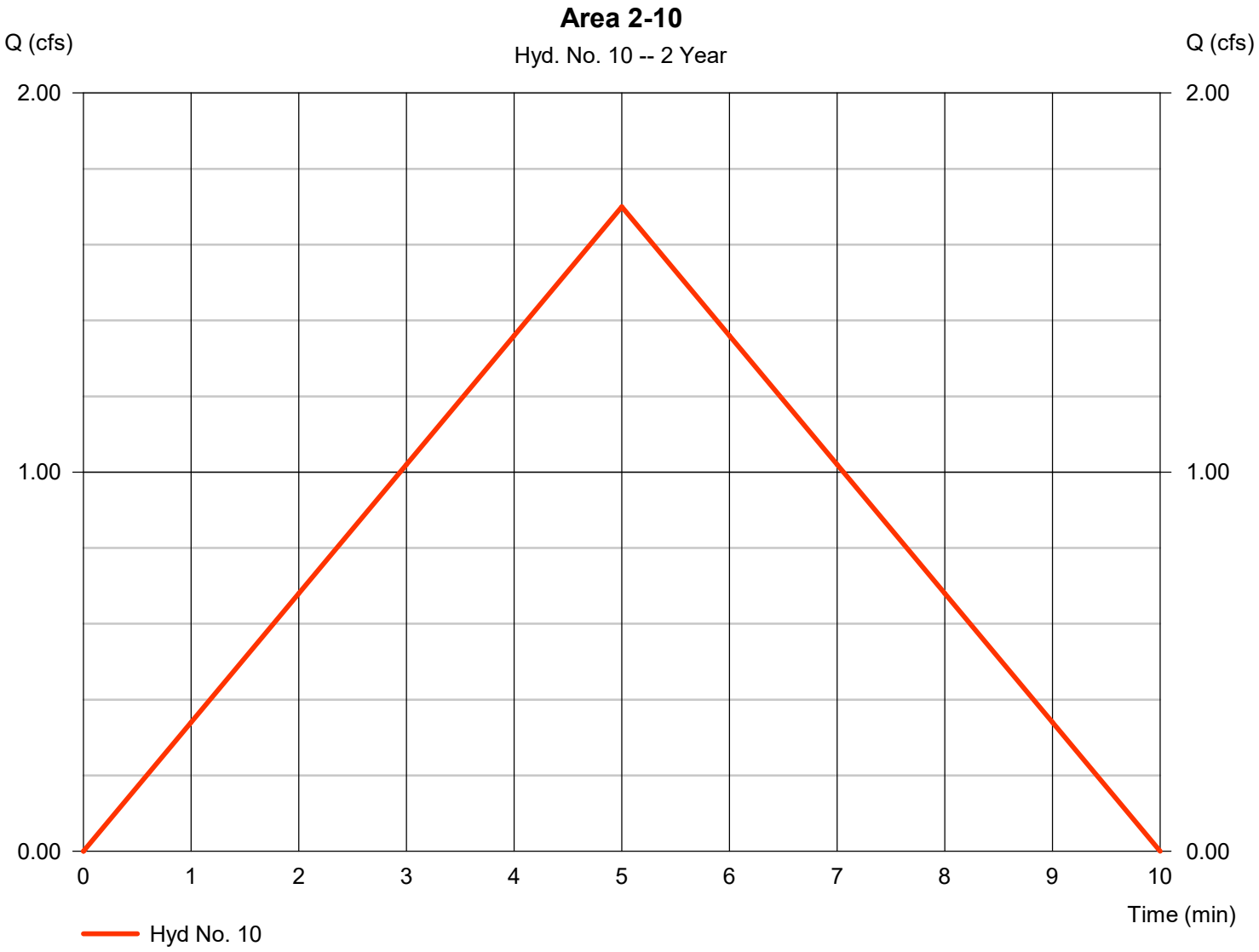


Hydrograph Report

Hyd. No. 10

Area 2-10

Hydrograph type	= Rational	Peak discharge	= 1.700 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 510 cuft
Drainage area	= 0.370 ac	Runoff coeff.	= 0.85
Intensity	= 5.406 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 11

Area 2-11

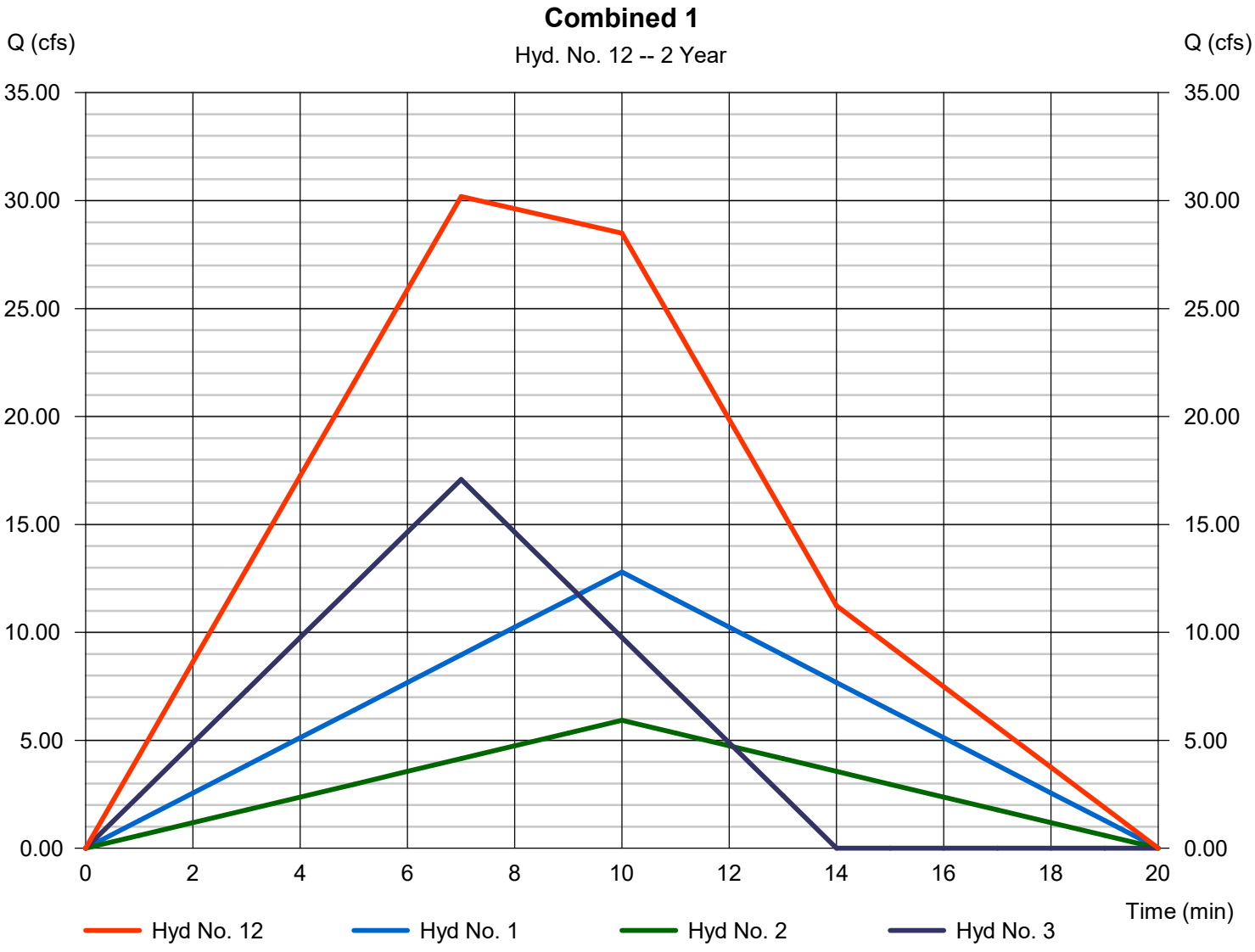
Hydrograph type	= Rational	Peak discharge	= 0.832 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 250 cuft
Drainage area	= 0.350 ac	Runoff coeff.	= 0.44
Intensity	= 5.406 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 12

Combined 1

Hydrograph type	= Combine	Peak discharge	= 30.19 cfs
Storm frequency	= 2 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 18,409 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 25.370 ac

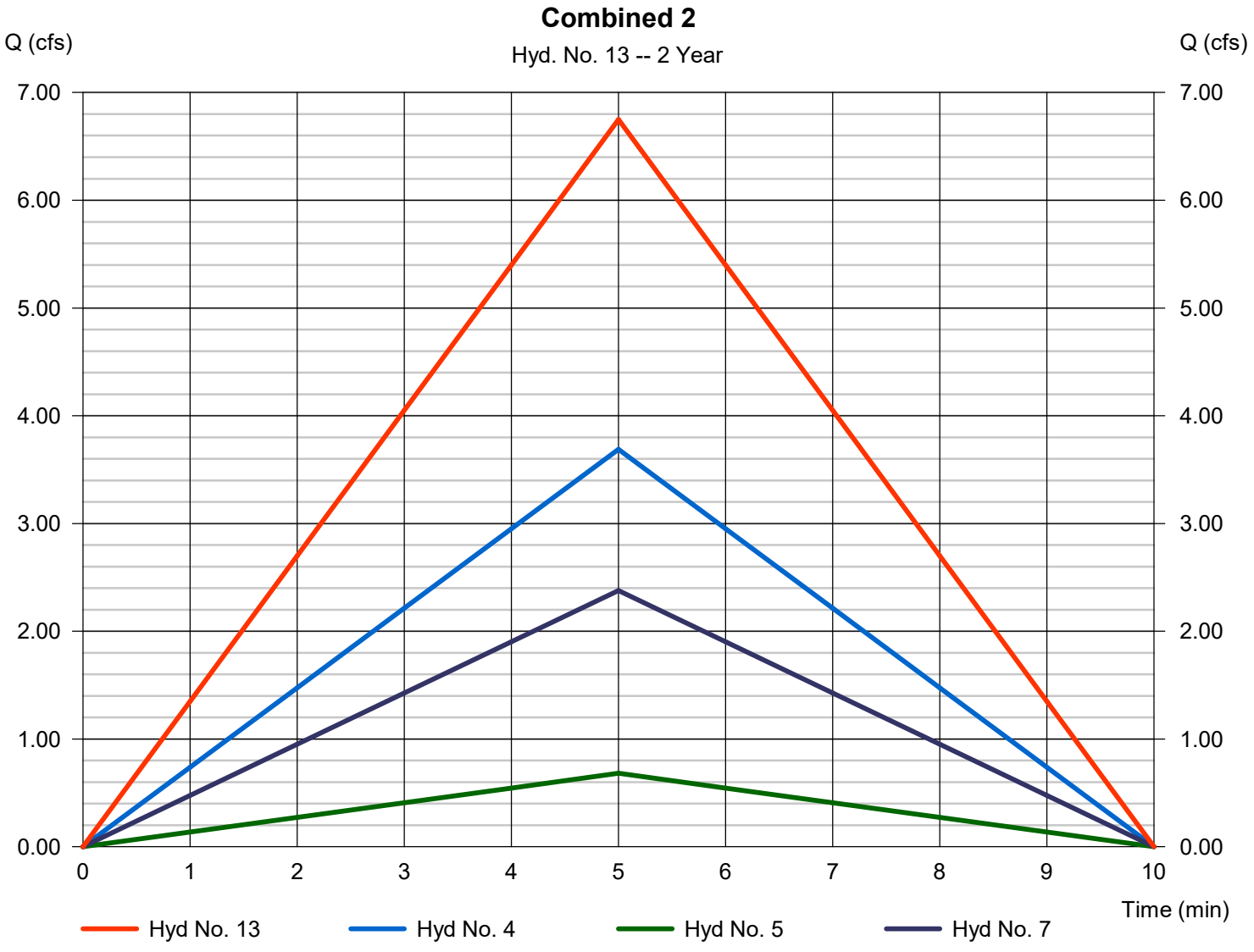


Hydrograph Report

Hyd. No. 13

Combined 2

Hydrograph type	= Combine	Peak discharge	= 6.749 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,025 cuft
Inflow hyds.	= 4, 5, 7	Contrib. drain. area	= 1.750 ac

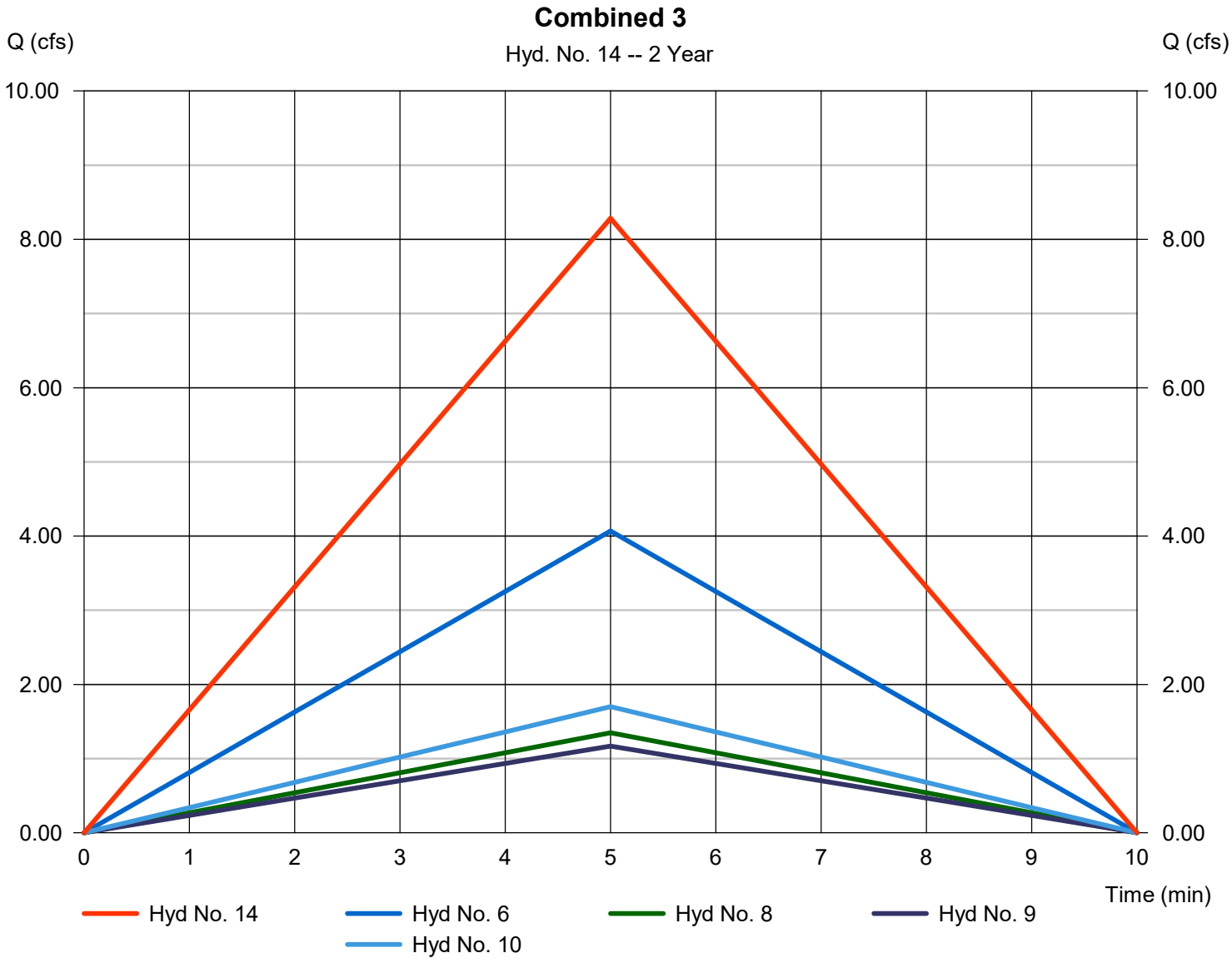


Hydrograph Report

Hyd. No. 14

Combined 3

Hydrograph type	= Combine	Peak discharge	= 8.283 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,485 cuft
Inflow hyds.	= 6, 8, 9, 10	Contrib. drain. area	= 1.890 ac

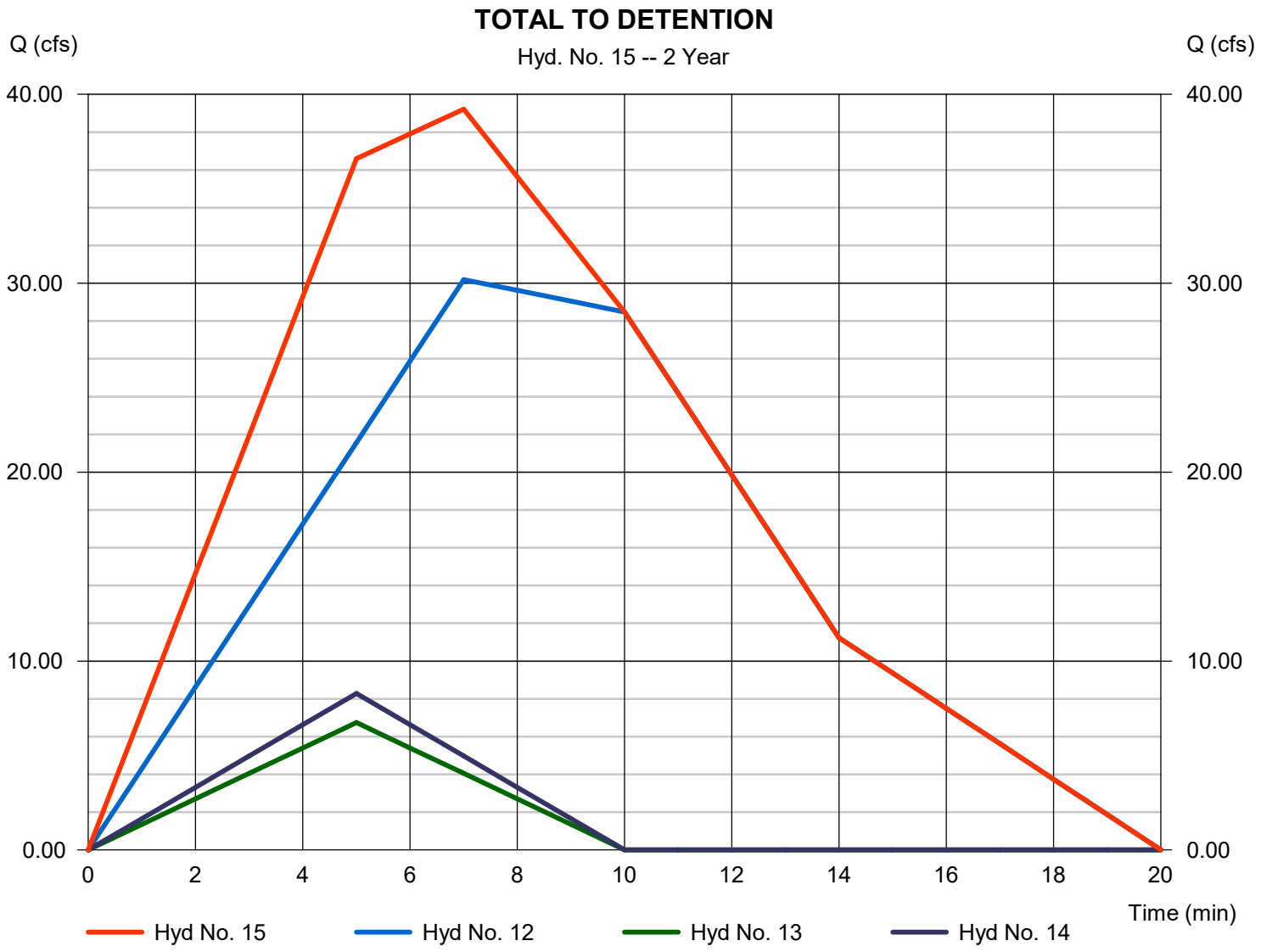


Hydrograph Report

Hyd. No. 15

TOTAL TO DETENTION

Hydrograph type	= Combine	Peak discharge	= 39.21 cfs
Storm frequency	= 2 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 22,919 cuft
Inflow hyds.	= 12, 13, 14	Contrib. drain. area	= 0.000 ac



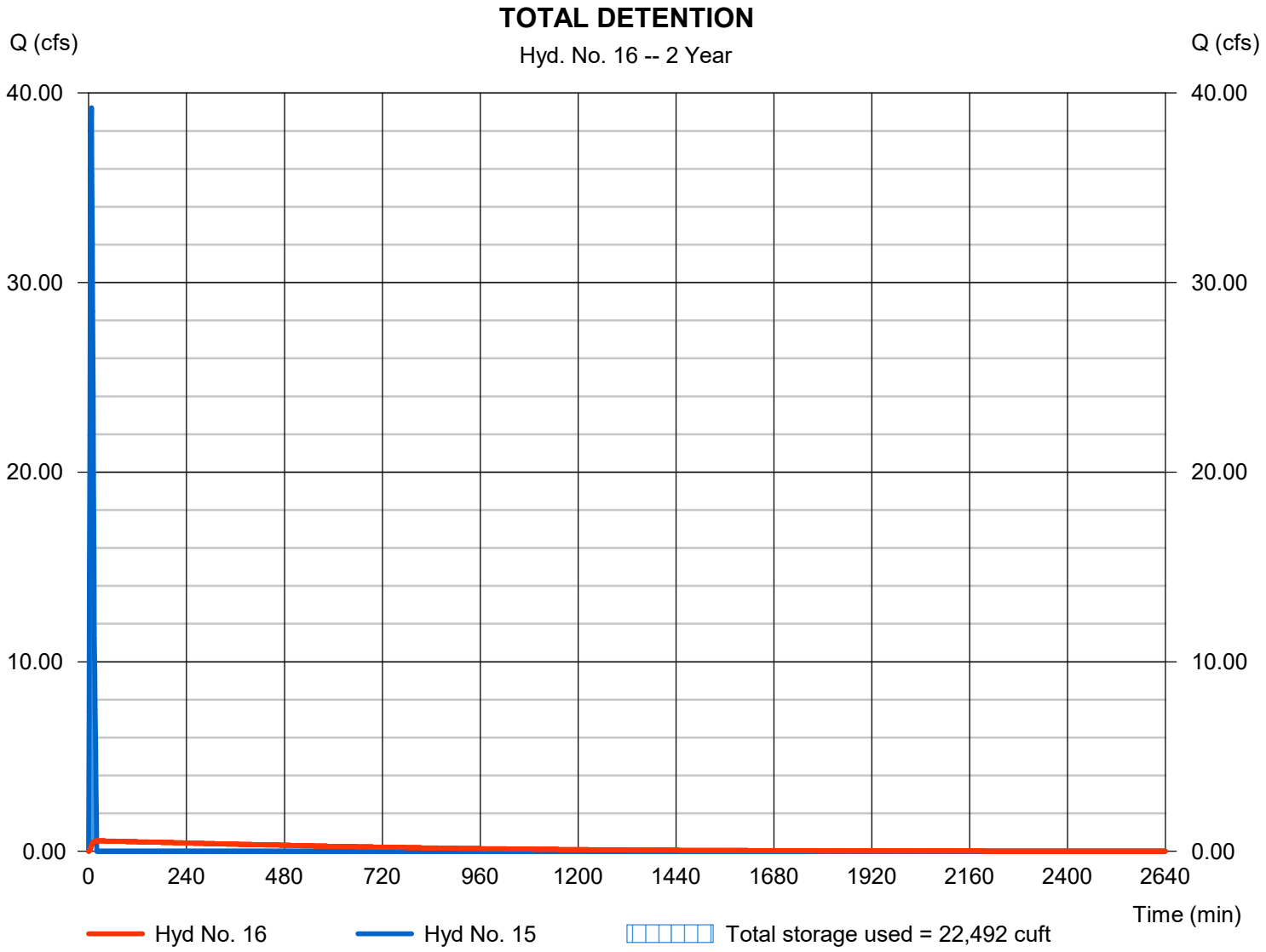
Hydrograph Report

Hyd. No. 16

TOTAL DETENTION

Hydrograph type	=	Reservoir	Peak discharge	=	0.552 cfs
Storm frequency	=	2 yrs	Time to peak	=	20 min
Time interval	=	1 min	Hyd. volume	=	22,695 cuft
Inflow hyd. No.	=	15 - TOTAL TO DETENTION	Max. Elevation	=	982.69 ft
Reservoir name	=	Detention	Max. Storage	=	22,492 cuft

Storage Indication method used.

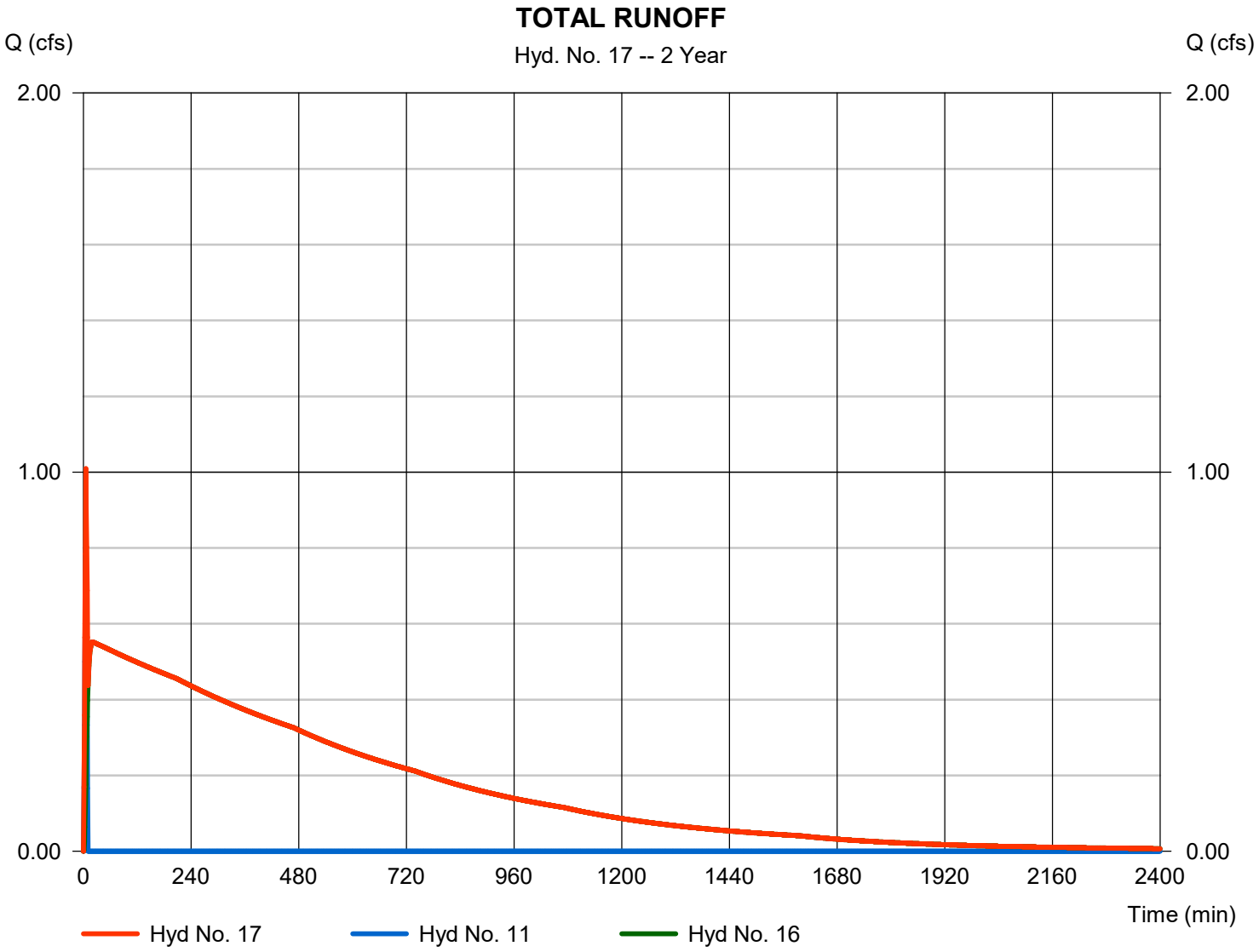


Hydrograph Report

Hyd. No. 17

TOTAL RUNOFF

Hydrograph type	=	Combine	Peak discharge	=	1.009 cfs
Storm frequency	=	2 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	22,945 cuft
Inflow hyds.	=	11, 16	Contrib. drain. area	=	0.350 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	Rational	15.57	1	10	9,342	------	------	------	Area 2-1
2	Rational	7.213	1	10	4,328	------	------	------	Area 2-2
3	Rational	20.61	1	7	8,655	------	------	------	Area 2-3
4	Rational	4.416	1	5	1,325	------	------	------	Area 2-4
5	Rational	0.815	1	5	245	------	------	------	Area 2-5
6	Rational	4.868	1	5	1,460	------	------	------	Area 2-6
7	Rational	2.847	1	5	854	------	------	------	Area 2-7
8	Rational	1.614	1	5	484	------	------	------	Area 2-8
9	Rational	1.398	1	5	419	------	------	------	Area 2-9
10	Rational	2.035	1	5	610	------	------	------	Area 2-10
11	Rational	0.996	1	5	299	------	------	------	Area 2-11
12	Combine	36.55	1	7	22,324	1, 2, 3,	------	------	Combined 1
13	Combine	8.078	1	5	2,423	4, 5, 7,	------	------	Combined 2
14	Combine	9.914	1	5	2,974	6, 8, 9,	------	------	Combined 3
15	Combine	47.35	1	7	27,722	10, 12, 13, 14	------	------	TOTAL TO DETENTION
16	Reservoir	0.955	1	20	27,472	15	983.20	27,155	TOTAL DETENTION
17	Combine	1.210	1	5	27,771	11, 16	------	------	TOTAL RUNOFF

Hydrograph Report

Hyd. No. 1

Area 2-1

Hydrograph type	= Rational	Peak discharge	= 15.57 cfs
Storm frequency	= 5 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 9,342 cuft
Drainage area	= 9.380 ac	Runoff coeff.	= 0.31
Intensity	= 5.355 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 2

Area 2-2

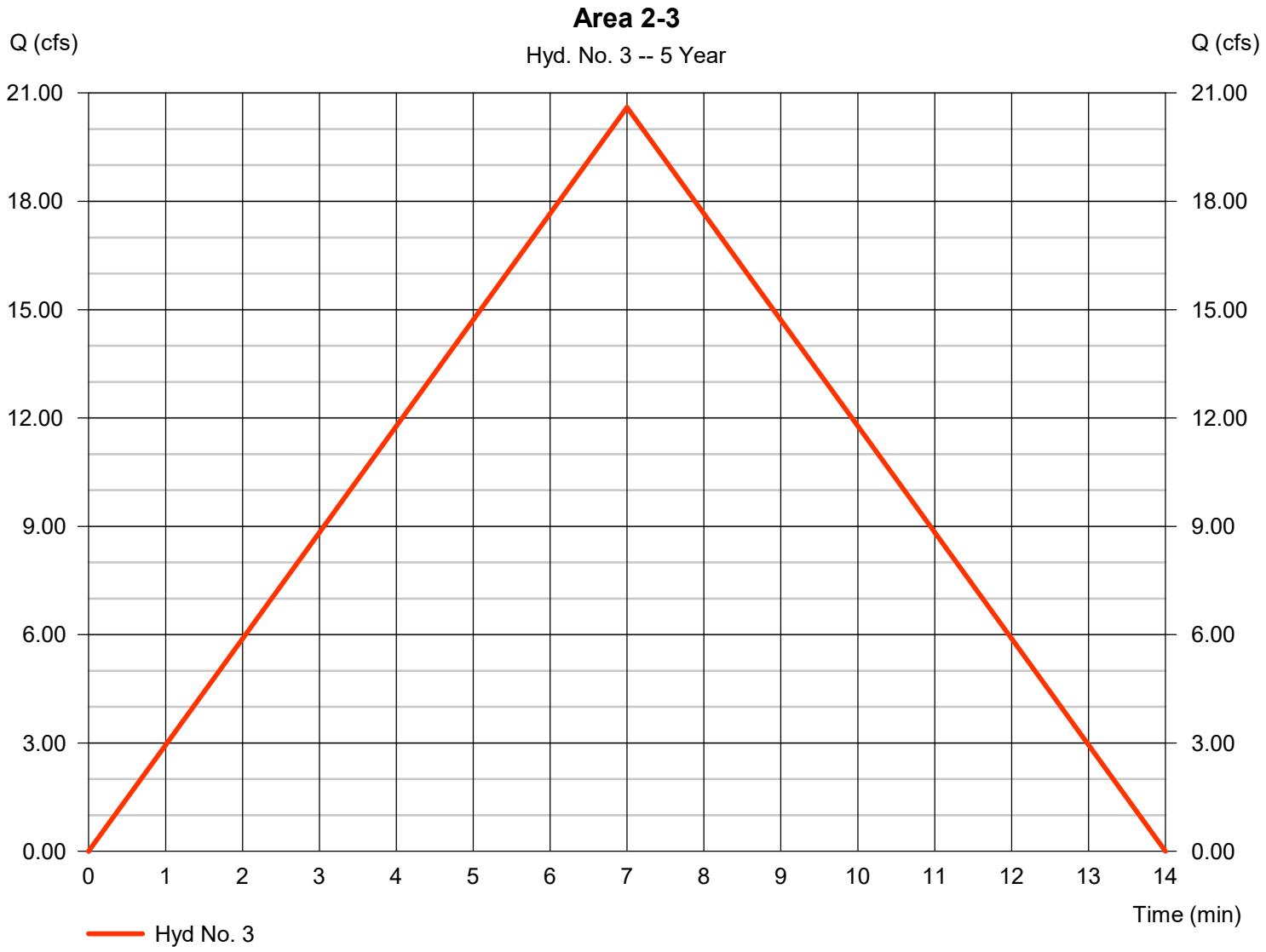
Hydrograph type	= Rational	Peak discharge	= 7.213 cfs
Storm frequency	= 5 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 4,328 cuft
Drainage area	= 4.490 ac	Runoff coeff.	= 0.3
Intensity	= 5.355 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 3

Area 2-3

Hydrograph type	= Rational	Peak discharge	= 20.61 cfs
Storm frequency	= 5 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 8,655 cuft
Drainage area	= 11.500 ac	Runoff coeff.	= 0.3
Intensity	= 5.973 in/hr	Tc by User	= 7.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

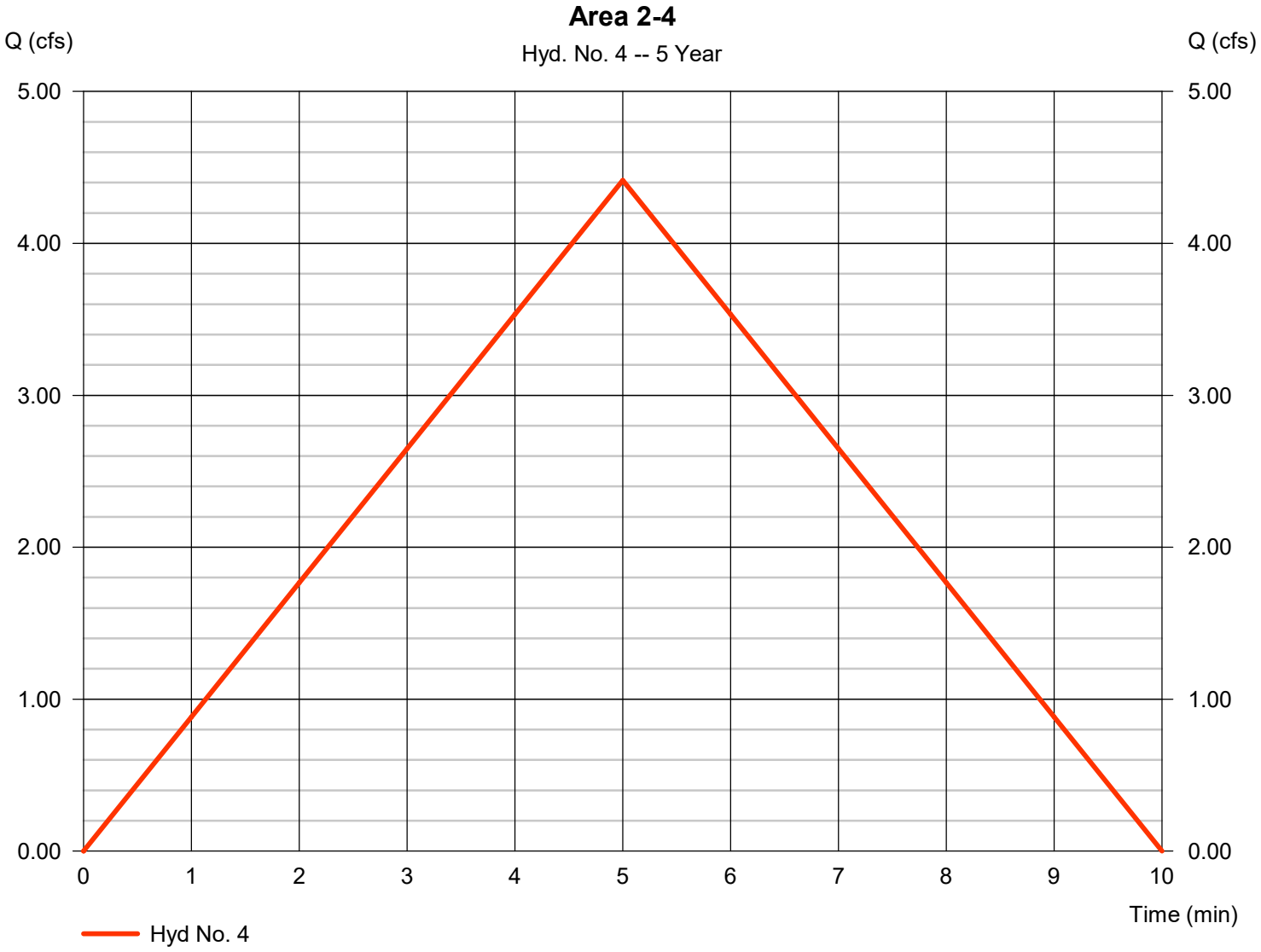


Hydrograph Report

Hyd. No. 4

Area 2-4

Hydrograph type	= Rational	Peak discharge	= 4.416 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,325 cuft
Drainage area	= 1.050 ac	Runoff coeff.	= 0.65
Intensity	= 6.470 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

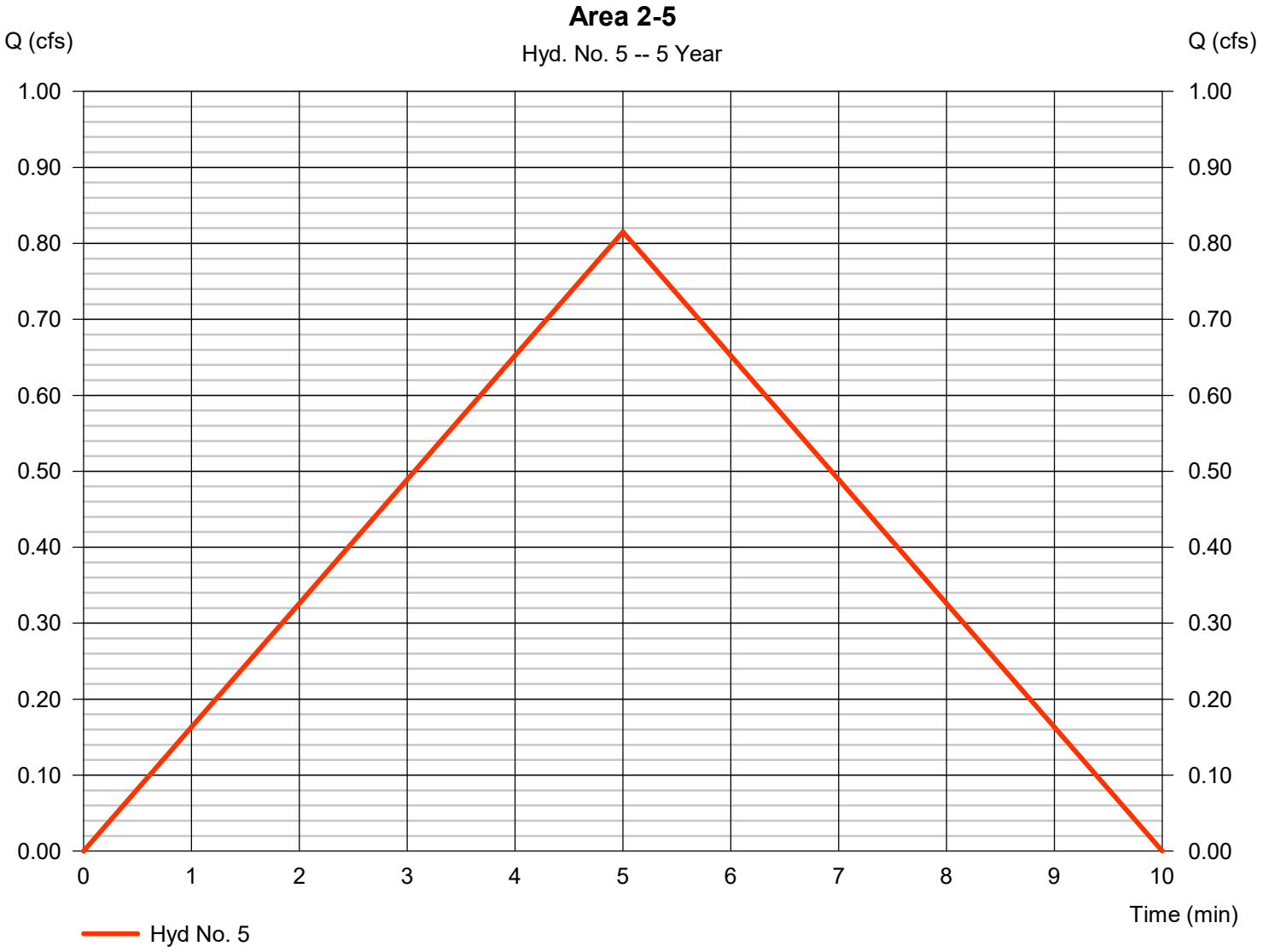


Hydrograph Report

Hyd. No. 5

Area 2-5

Hydrograph type	= Rational	Peak discharge	= 0.815 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 245 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.63
Intensity	= 6.470 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

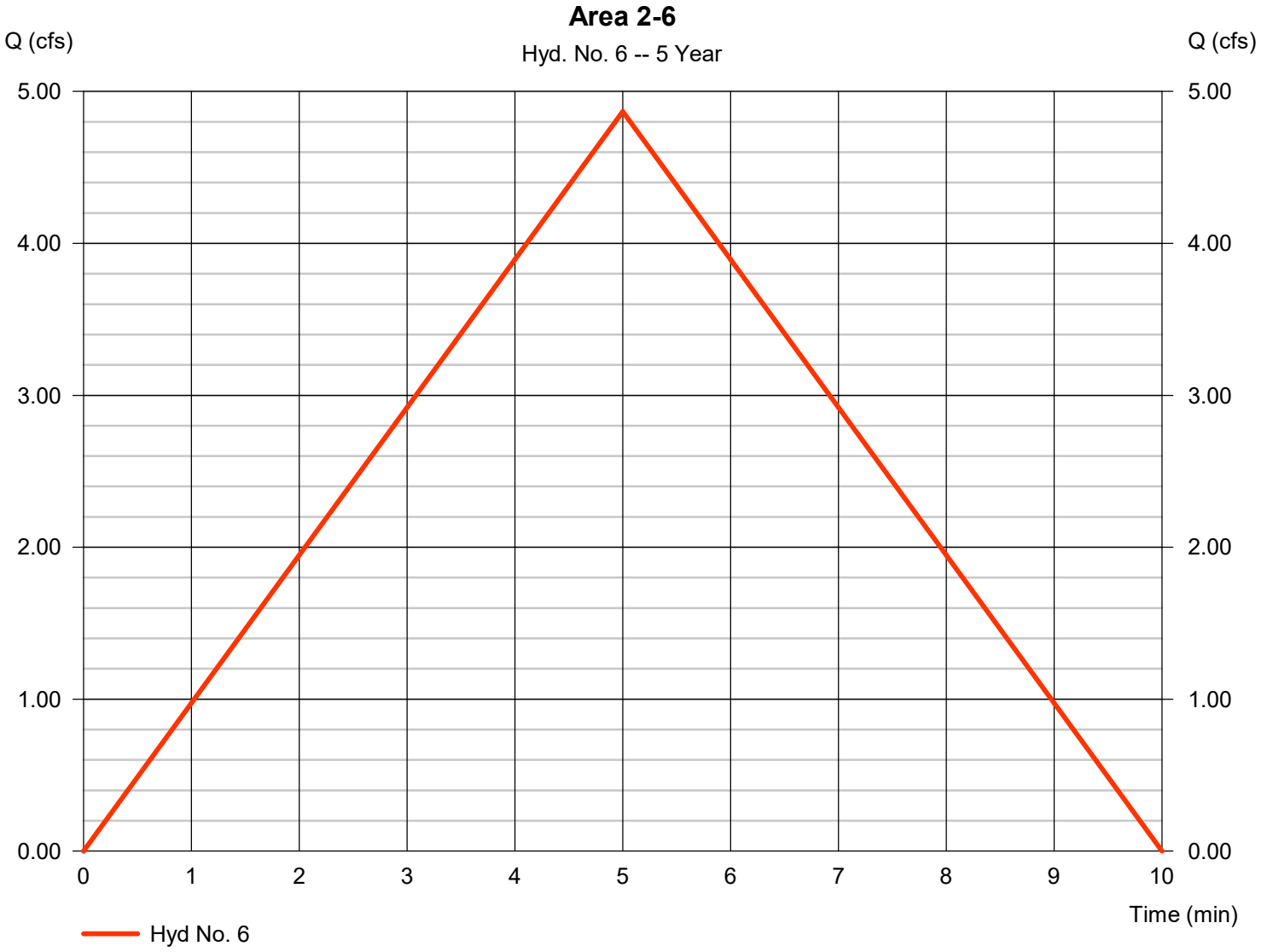


Hydrograph Report

Hyd. No. 6

Area 2-6

Hydrograph type	= Rational	Peak discharge	= 4.868 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,460 cuft
Drainage area	= 0.990 ac	Runoff coeff.	= 0.76
Intensity	= 6.470 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

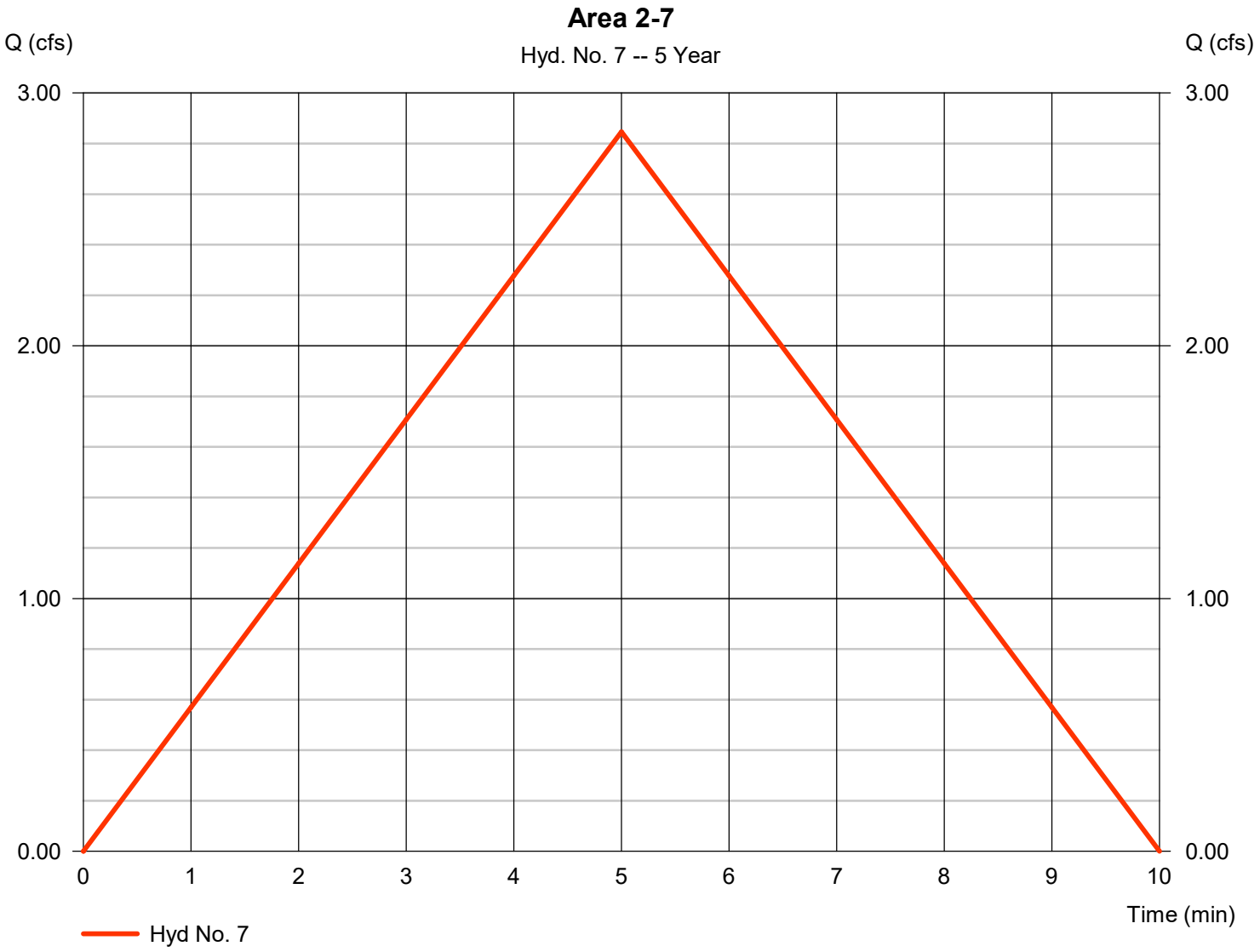


Hydrograph Report

Hyd. No. 7

Area 2-7

Hydrograph type	= Rational	Peak discharge	= 2.847 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 854 cuft
Drainage area	= 0.500 ac	Runoff coeff.	= 0.88
Intensity	= 6.470 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

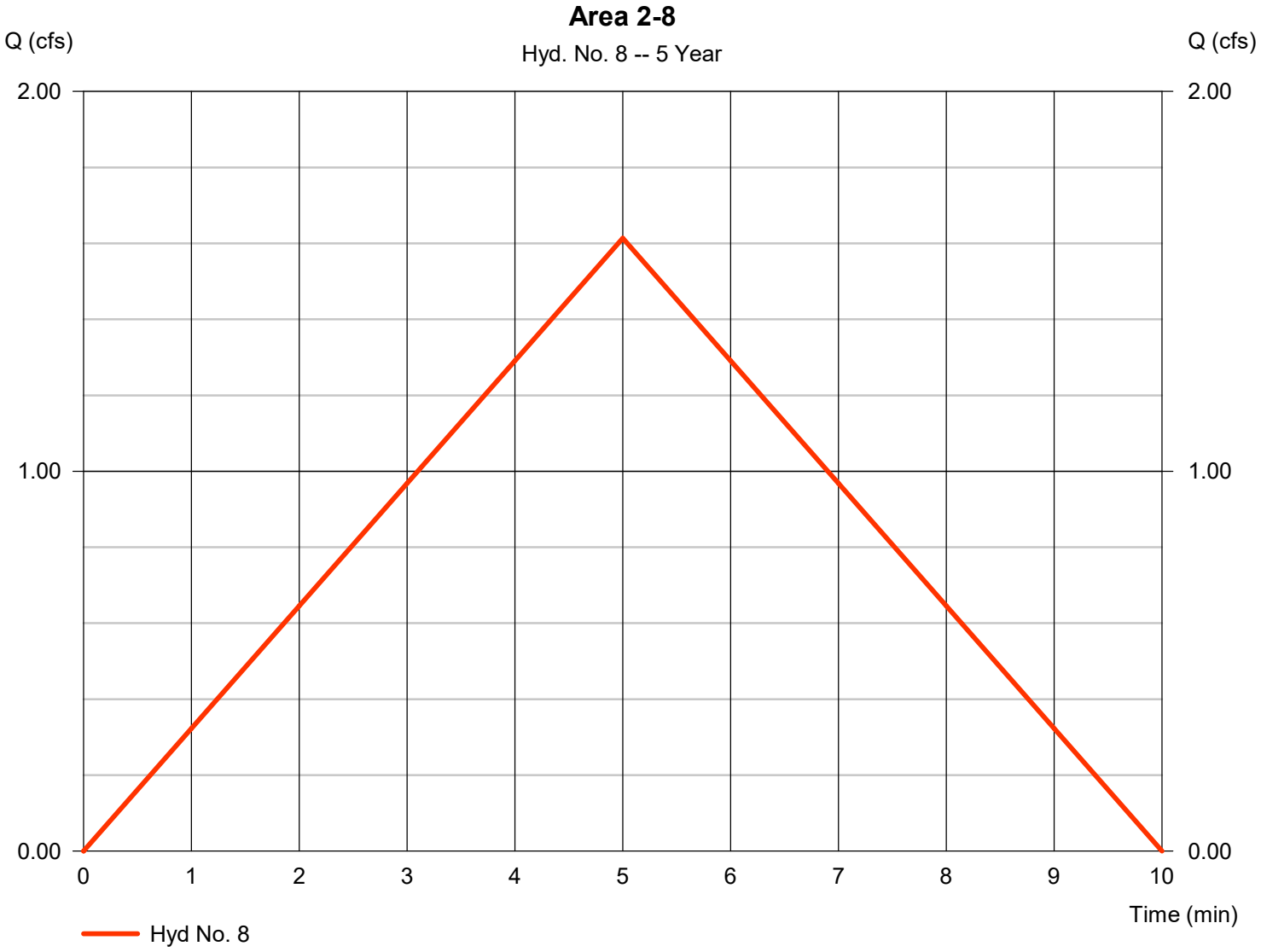


Hydrograph Report

Hyd. No. 8

Area 2-8

Hydrograph type	= Rational	Peak discharge	= 1.614 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 484 cuft
Drainage area	= 0.290 ac	Runoff coeff.	= 0.86
Intensity	= 6.470 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

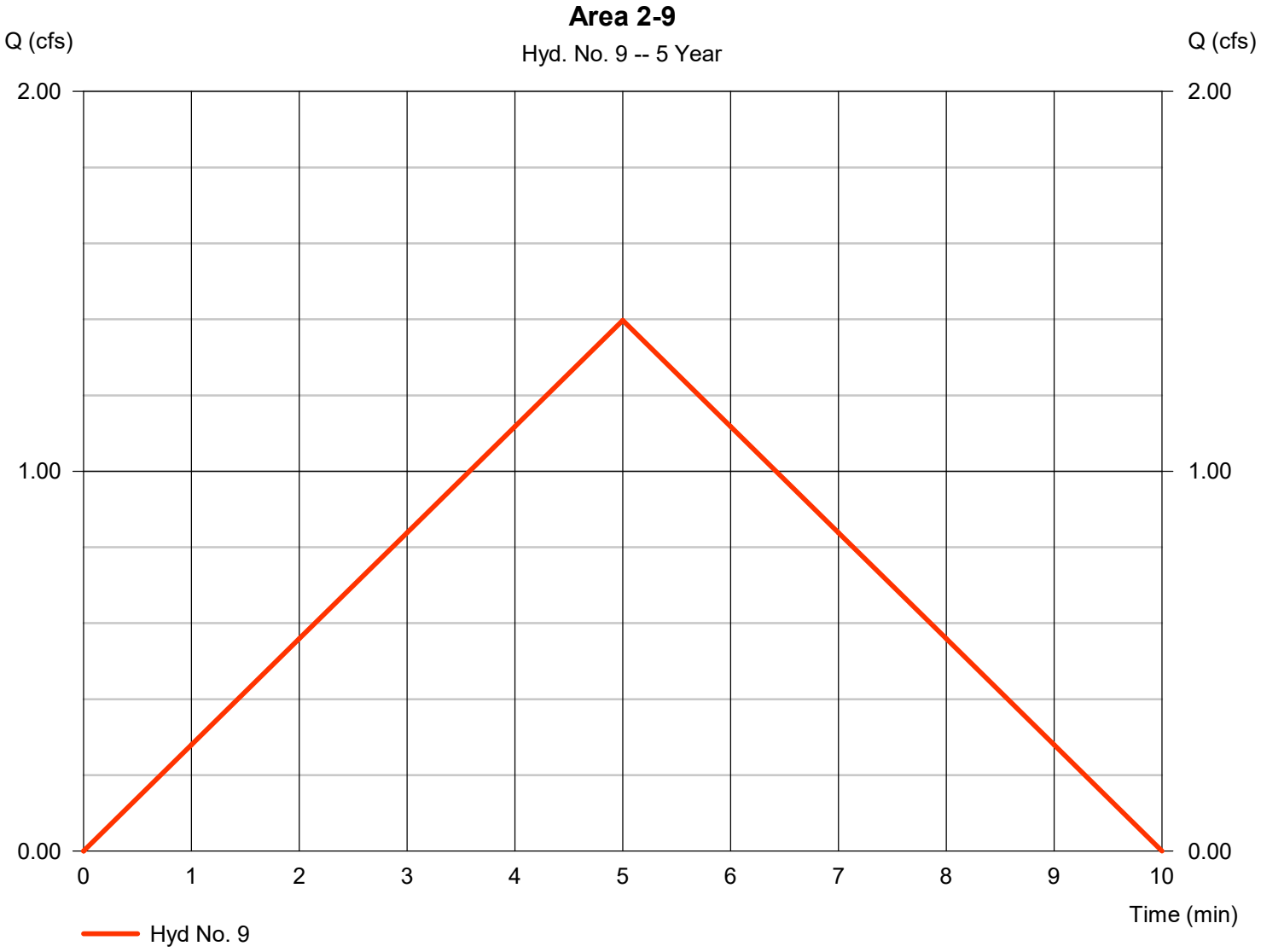


Hydrograph Report

Hyd. No. 9

Area 2-9

Hydrograph type	= Rational	Peak discharge	= 1.398 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 419 cuft
Drainage area	= 0.240 ac	Runoff coeff.	= 0.9
Intensity	= 6.470 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 10

Area 2-10

Hydrograph type	= Rational	Peak discharge	= 2.035 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 610 cuft
Drainage area	= 0.370 ac	Runoff coeff.	= 0.85
Intensity	= 6.470 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 11

Area 2-11

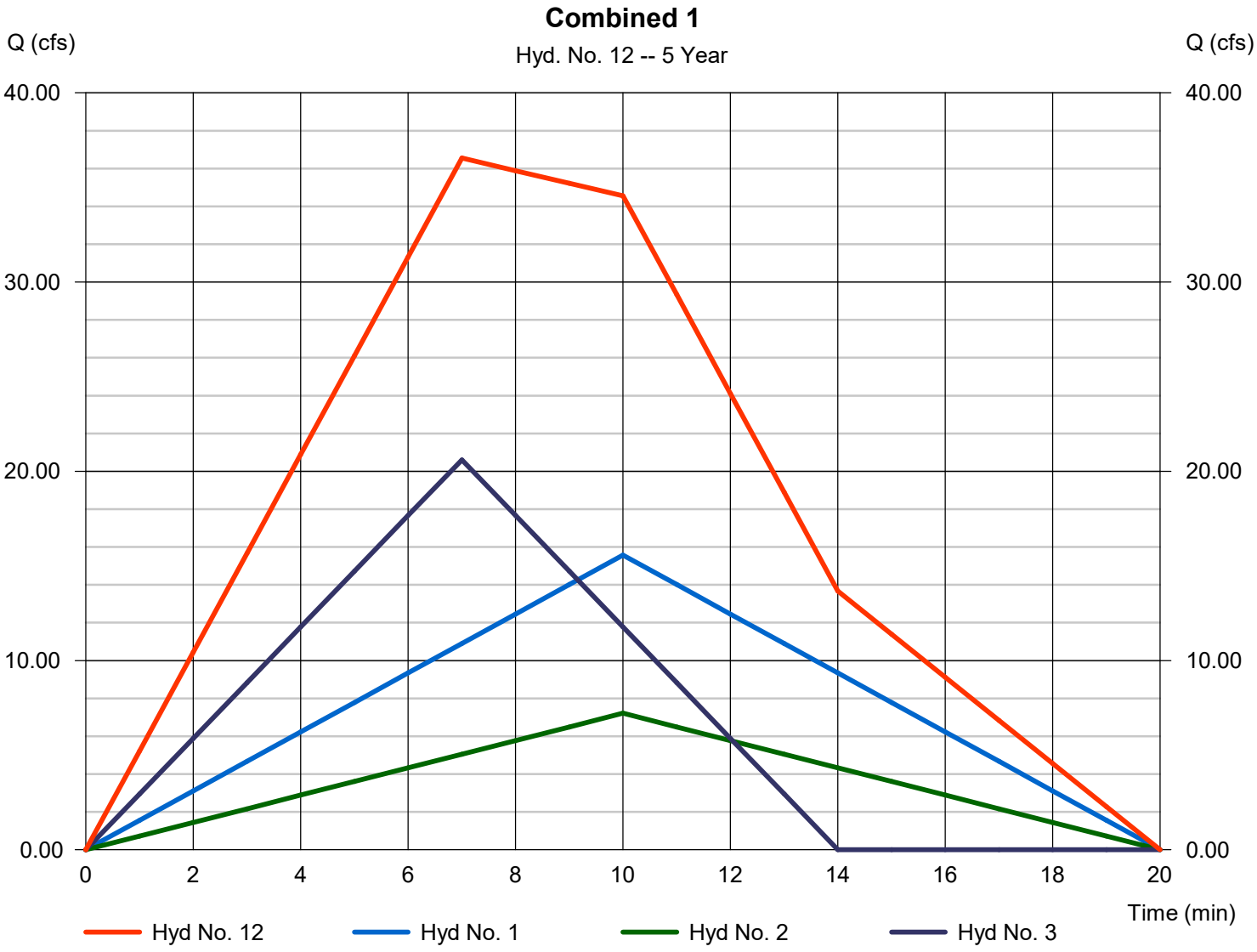
Hydrograph type	= Rational	Peak discharge	= 0.996 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 299 cuft
Drainage area	= 0.350 ac	Runoff coeff.	= 0.44
Intensity	= 6.470 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 12

Combined 1

Hydrograph type	= Combine	Peak discharge	= 36.55 cfs
Storm frequency	= 5 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 22,324 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 25.370 ac

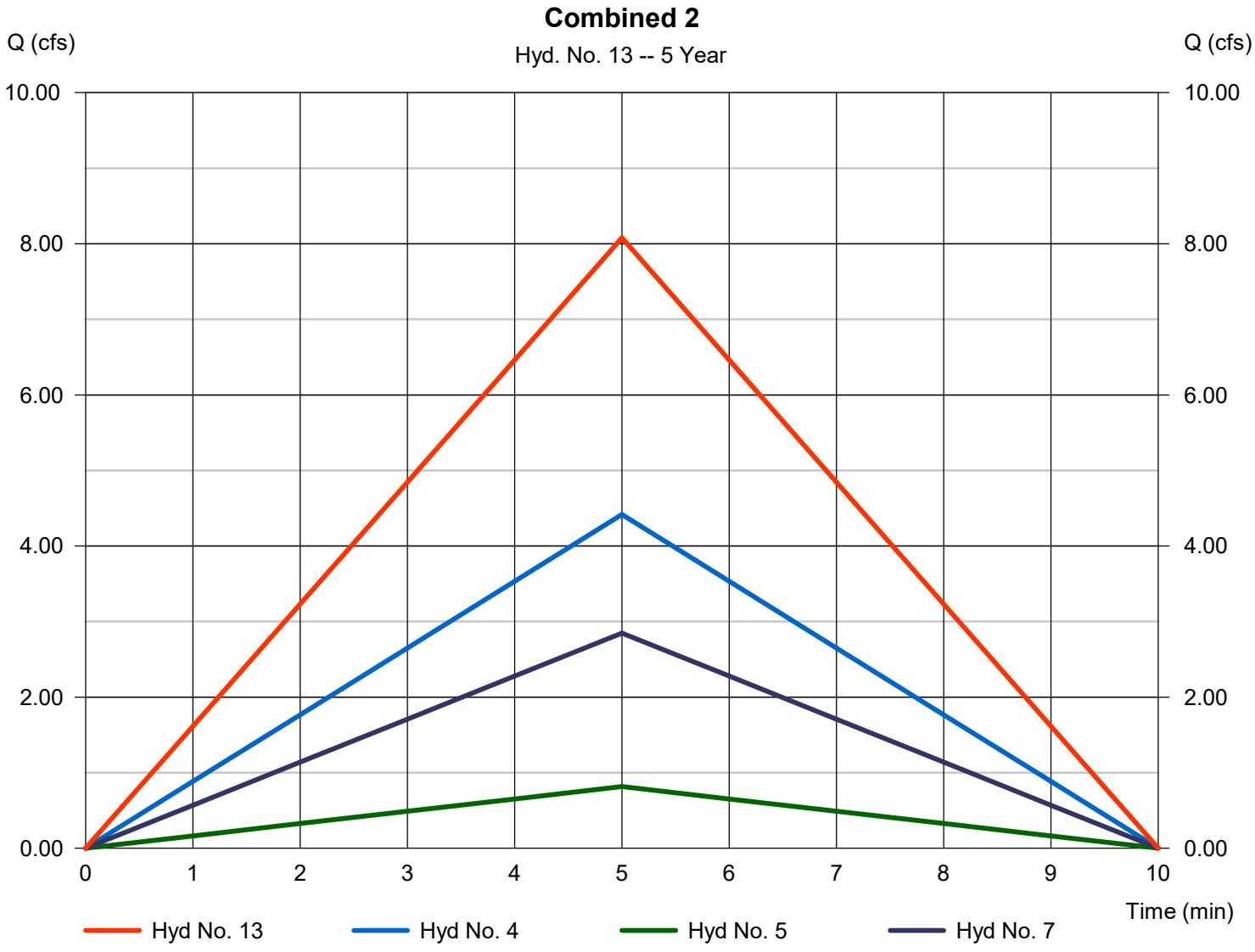


Hydrograph Report

Hyd. No. 13

Combined 2

Hydrograph type	= Combine	Peak discharge	= 8.078 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,423 cuft
Inflow hyds.	= 4, 5, 7	Contrib. drain. area	= 1.750 ac

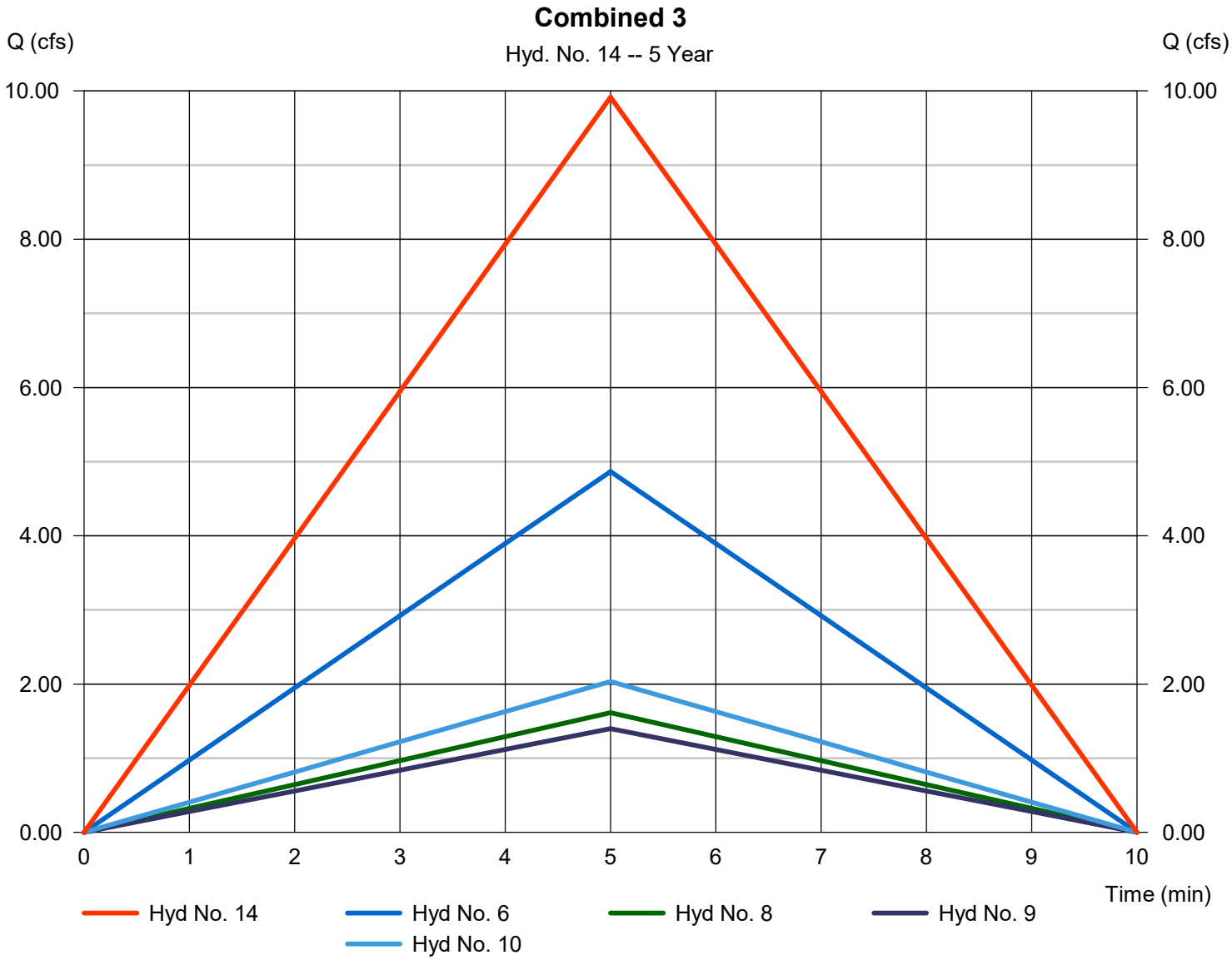


Hydrograph Report

Hyd. No. 14

Combined 3

Hydrograph type	= Combine	Peak discharge	= 9.914 cfs
Storm frequency	= 5 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,974 cuft
Inflow hyds.	= 6, 8, 9, 10	Contrib. drain. area	= 1.890 ac

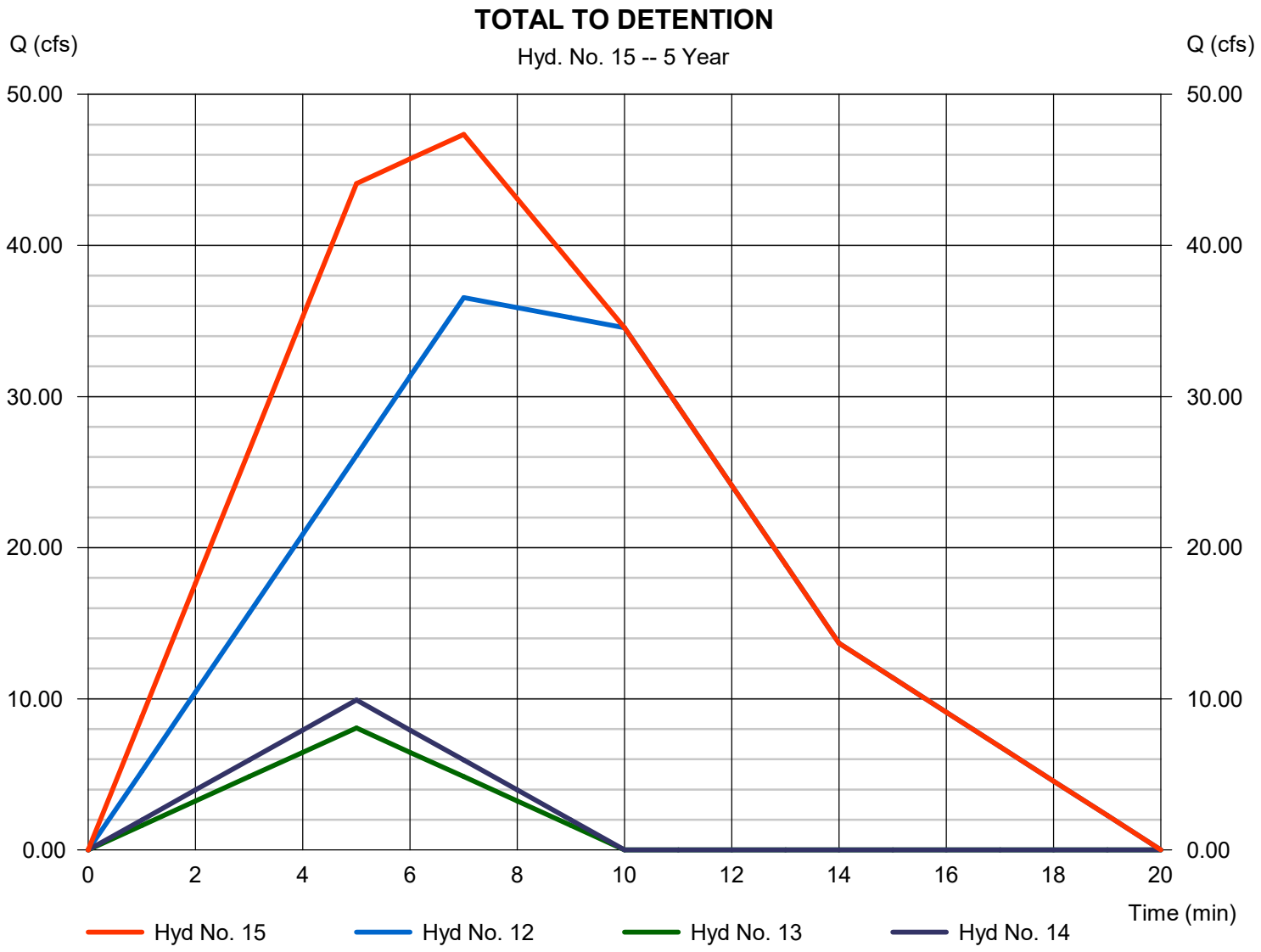


Hydrograph Report

Hyd. No. 15

TOTAL TO DETENTION

Hydrograph type	= Combine	Peak discharge	= 47.35 cfs
Storm frequency	= 5 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 27,722 cuft
Inflow hyds.	= 12, 13, 14	Contrib. drain. area	= 0.000 ac



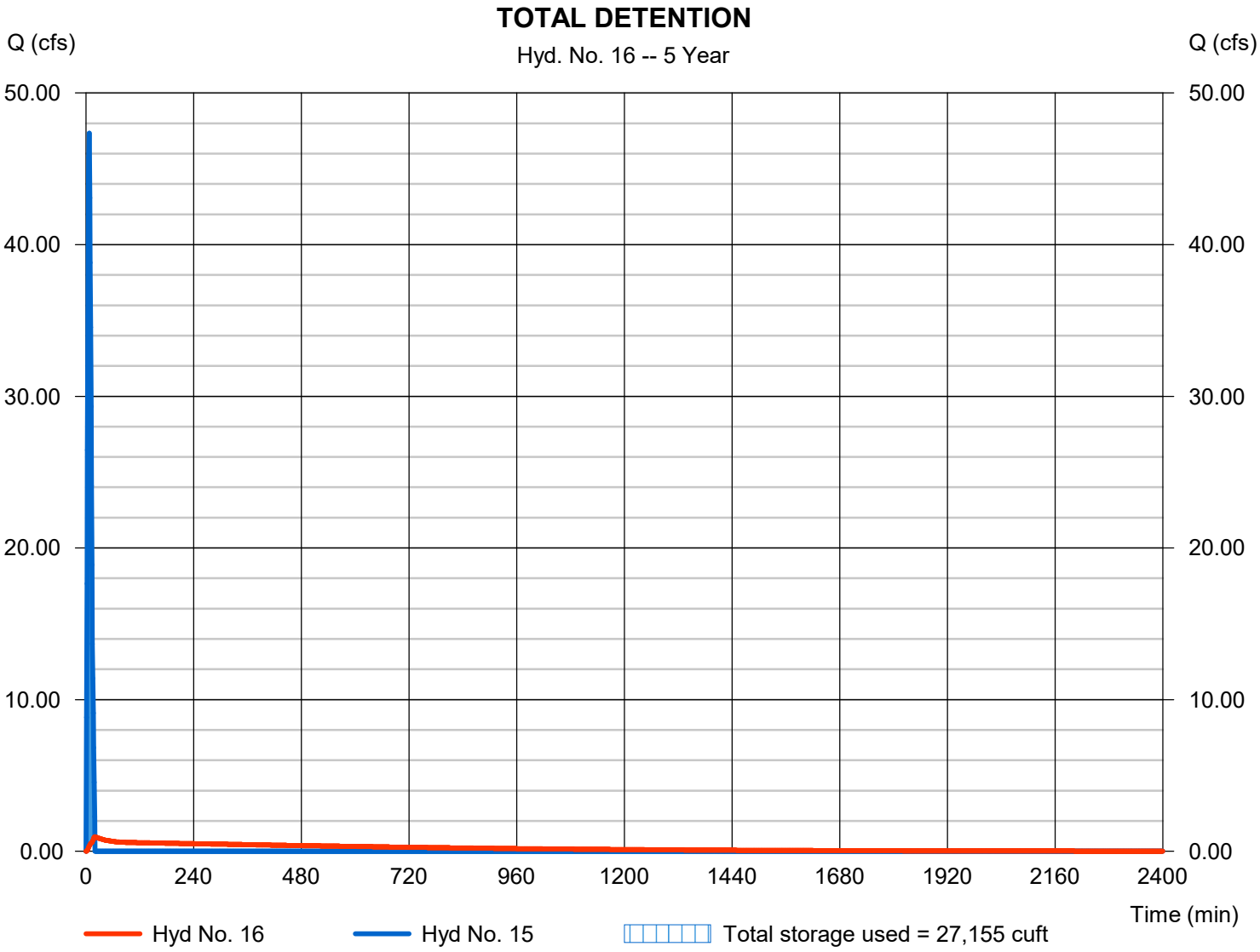
Hydrograph Report

Hyd. No. 16

TOTAL DETENTION

Hydrograph type	=	Reservoir	Peak discharge	=	0.955 cfs
Storm frequency	=	5 yrs	Time to peak	=	20 min
Time interval	=	1 min	Hyd. volume	=	27,472 cuft
Inflow hyd. No.	=	15 - TOTAL TO DETENTION	Max. Elevation	=	983.20 ft
Reservoir name	=	Detention	Max. Storage	=	27,155 cuft

Storage Indication method used.

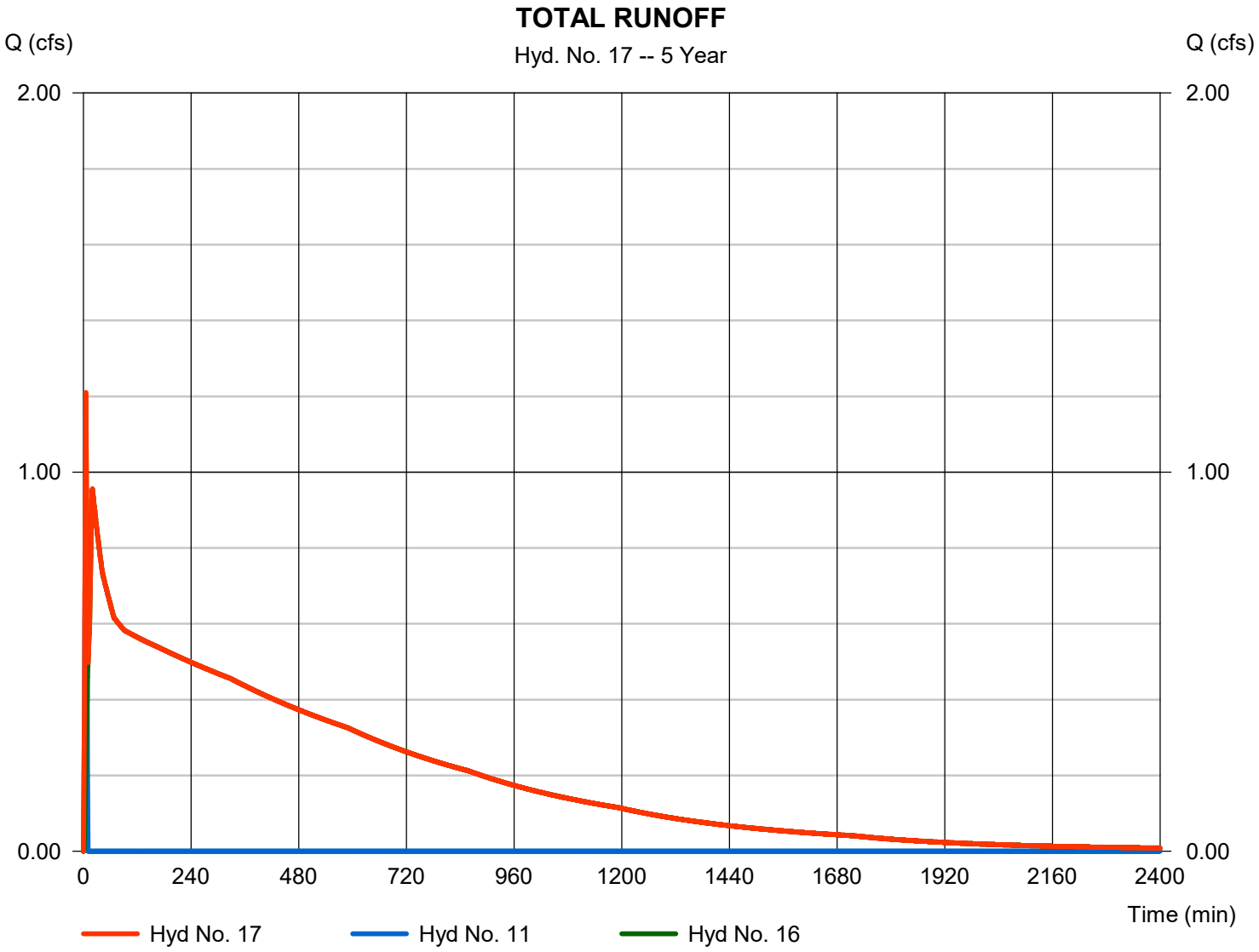


Hydrograph Report

Hyd. No. 17

TOTAL RUNOFF

Hydrograph type	=	Combine	Peak discharge	=	1.210 cfs
Storm frequency	=	5 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	27,771 cuft
Inflow hyds.	=	11, 16	Contrib. drain. area	=	0.350 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

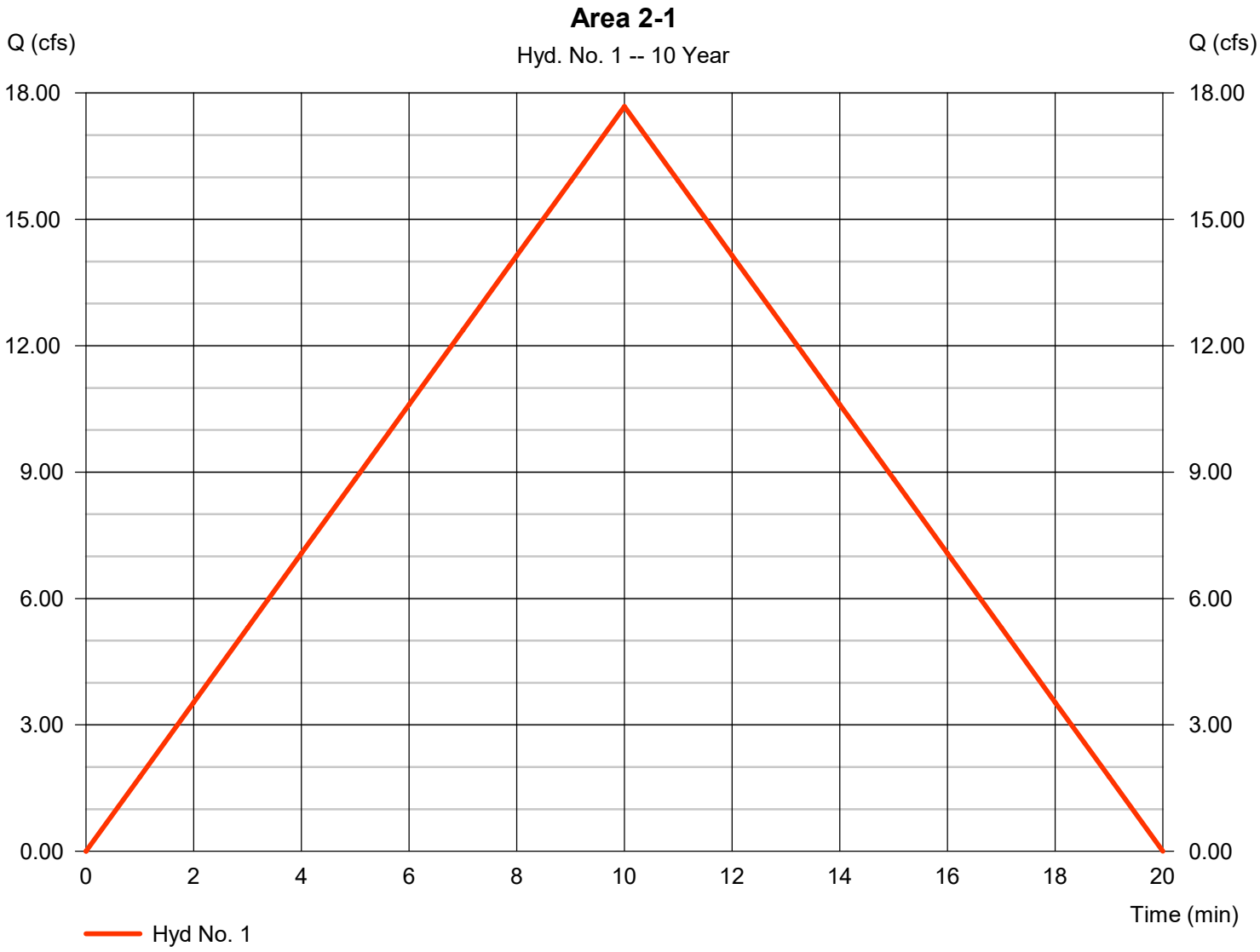
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	17.68	1	10	10,606	------	------	------	Area 2-1
2	Rational	8.189	1	10	4,913	------	------	------	Area 2-2
3	Rational	23.40	1	7	9,828	------	------	------	Area 2-3
4	Rational	5.015	1	5	1,505	------	------	------	Area 2-4
5	Rational	0.926	1	5	278	------	------	------	Area 2-5
6	Rational	5.529	1	5	1,659	------	------	------	Area 2-6
7	Rational	3.233	1	5	970	------	------	------	Area 2-7
8	Rational	1.833	1	5	550	------	------	------	Area 2-8
9	Rational	1.587	1	5	476	------	------	------	Area 2-9
10	Rational	2.311	1	5	693	------	------	------	Area 2-10
11	Rational	1.132	1	5	339	------	------	------	Area 2-11
12	Combine	41.51	1	7	25,347	1, 2, 3,	------	------	Combined 1
13	Combine	9.175	1	5	2,752	4, 5, 7,	------	------	Combined 2
14	Combine	11.26	1	5	3,378	6, 8, 9,	------	------	Combined 3
15	Combine	53.77	1	7	31,478	10, 12, 13, 14	------	------	TOTAL TO DETENTION
16	Reservoir	2.130	1	19	31,218	15	983.52	30,518	TOTAL DETENTION
17	Combine	2.130	1	19	31,558	11, 16	------	------	TOTAL RUNOFF

Hydrograph Report

Hyd. No. 1

Area 2-1

Hydrograph type	= Rational	Peak discharge	= 17.68 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 10,606 cuft
Drainage area	= 9.380 ac	Runoff coeff.	= 0.31
Intensity	= 6.079 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

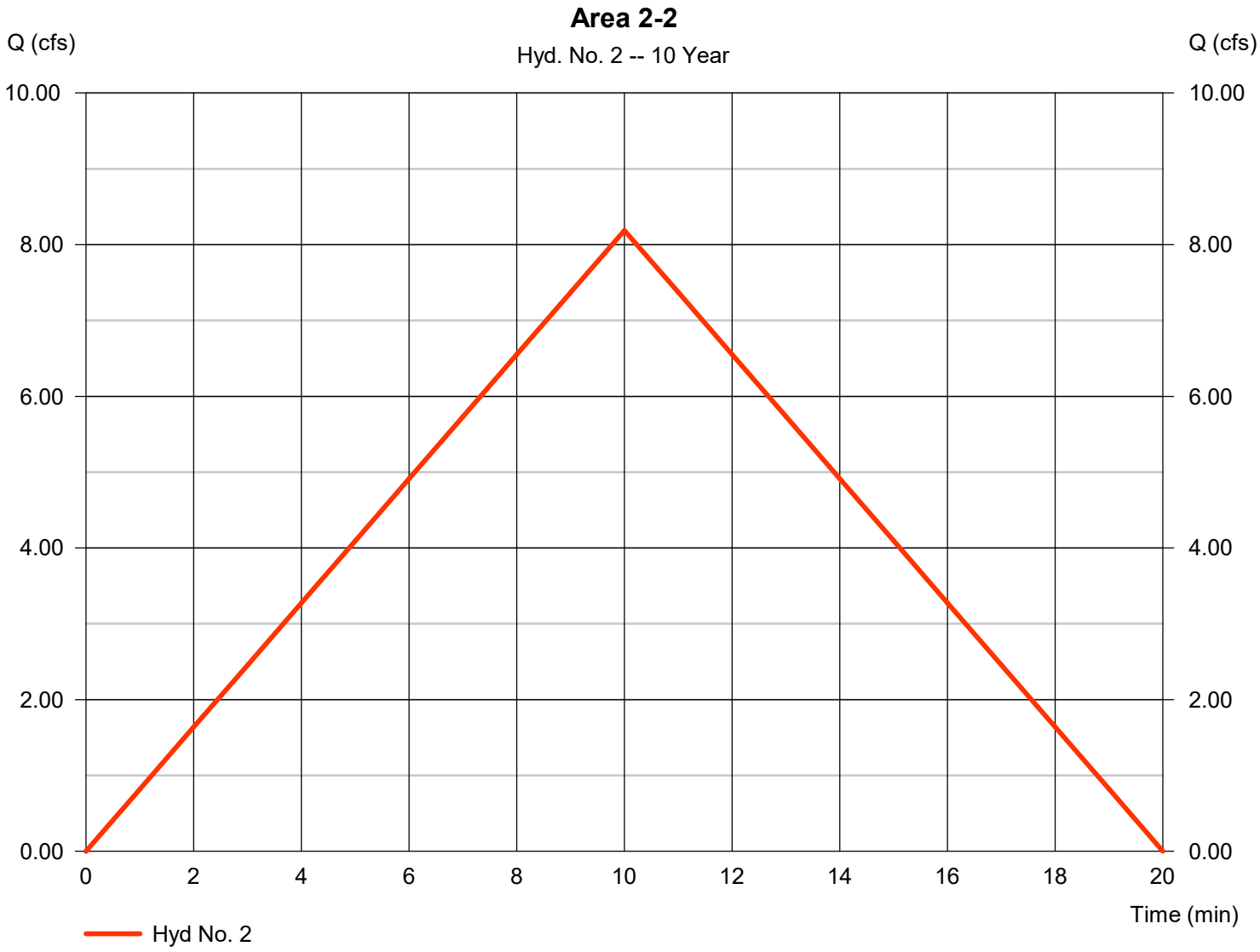


Hydrograph Report

Hyd. No. 2

Area 2-2

Hydrograph type	= Rational	Peak discharge	= 8.189 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 4,913 cuft
Drainage area	= 4.490 ac	Runoff coeff.	= 0.3
Intensity	= 6.079 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

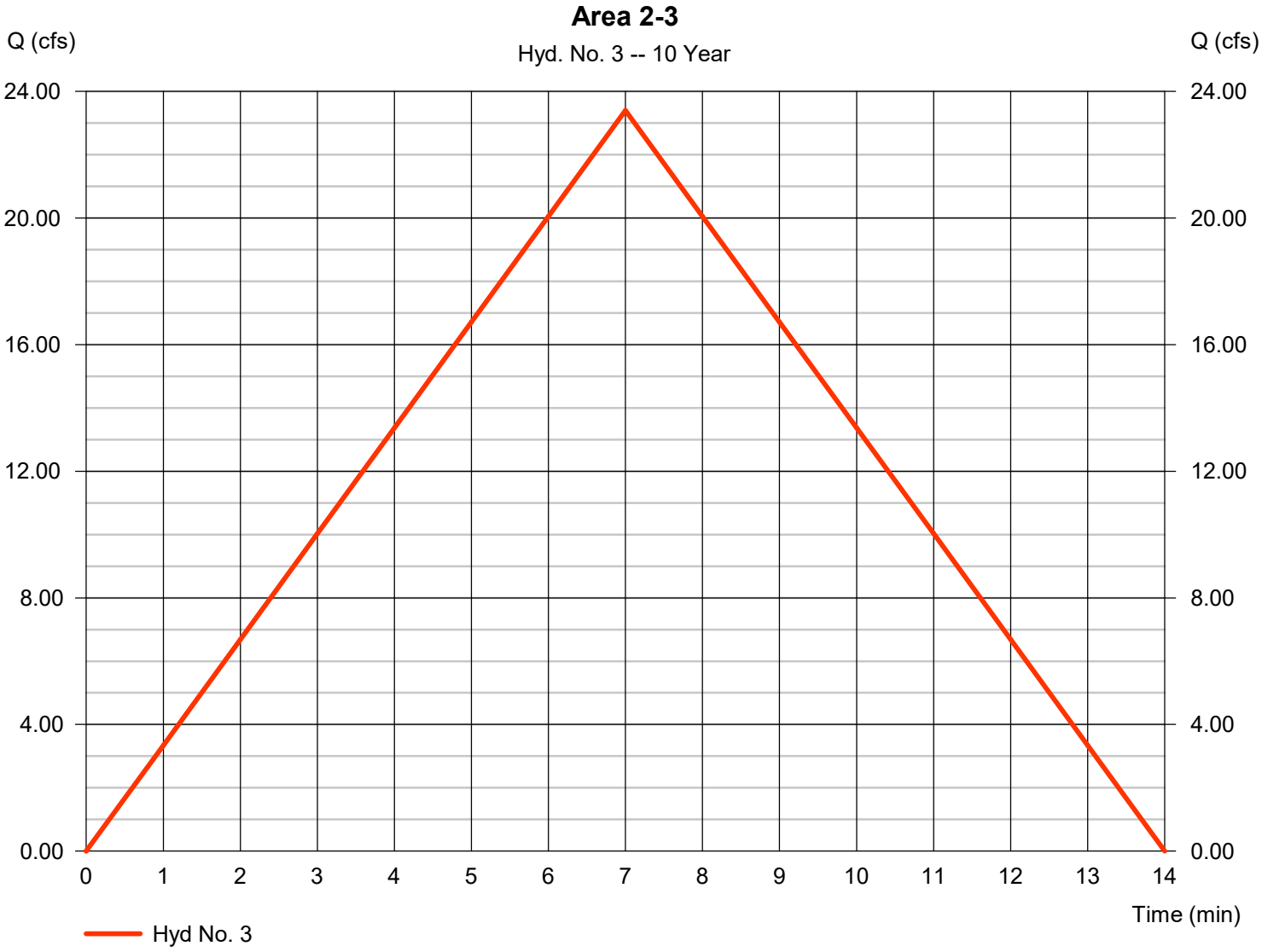


Hydrograph Report

Hyd. No. 3

Area 2-3

Hydrograph type	=	Rational	Peak discharge	=	23.40 cfs
Storm frequency	=	10 yrs	Time to peak	=	7 min
Time interval	=	1 min	Hyd. volume	=	9,828 cuft
Drainage area	=	11.500 ac	Runoff coeff.	=	0.3
Intensity	=	6.782 in/hr	Tc by User	=	7.00 min
IDF Curve	=	KCAPWA.IDF	Asc/Rec limb fact	=	1/1

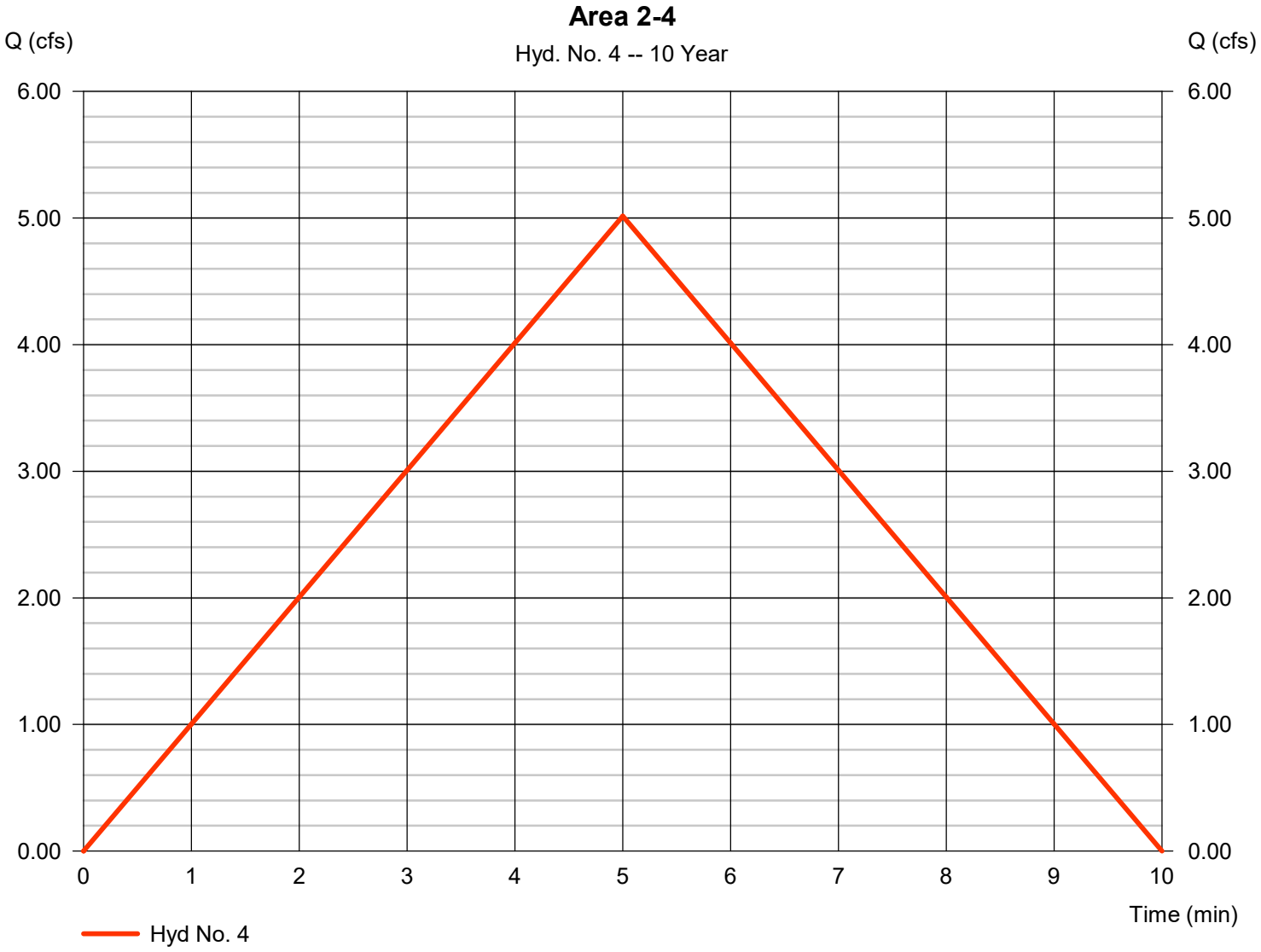


Hydrograph Report

Hyd. No. 4

Area 2-4

Hydrograph type	= Rational	Peak discharge	= 5.015 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,505 cuft
Drainage area	= 1.050 ac	Runoff coeff.	= 0.65
Intensity	= 7.348 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

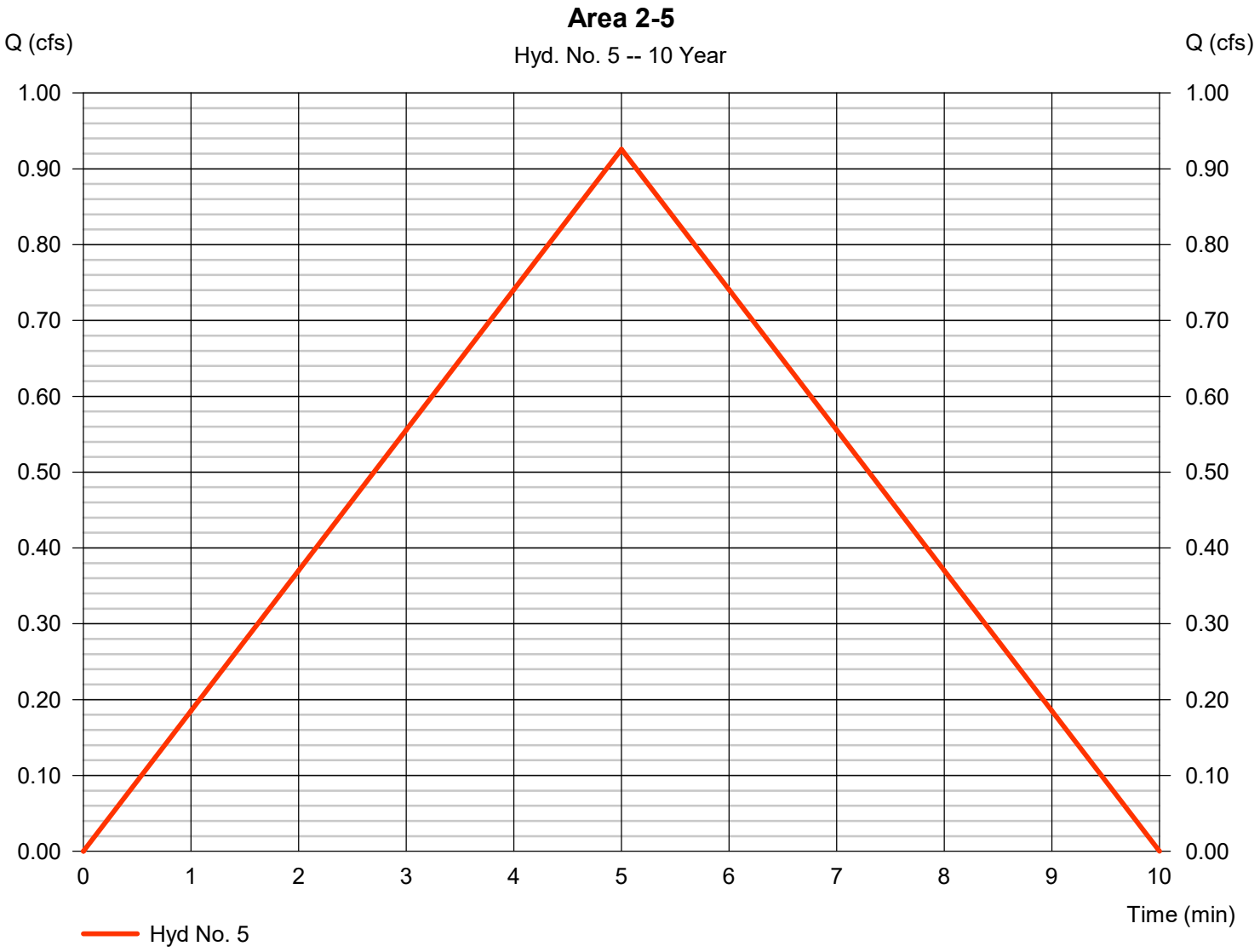


Hydrograph Report

Hyd. No. 5

Area 2-5

Hydrograph type	= Rational	Peak discharge	= 0.926 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 278 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.63
Intensity	= 7.348 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

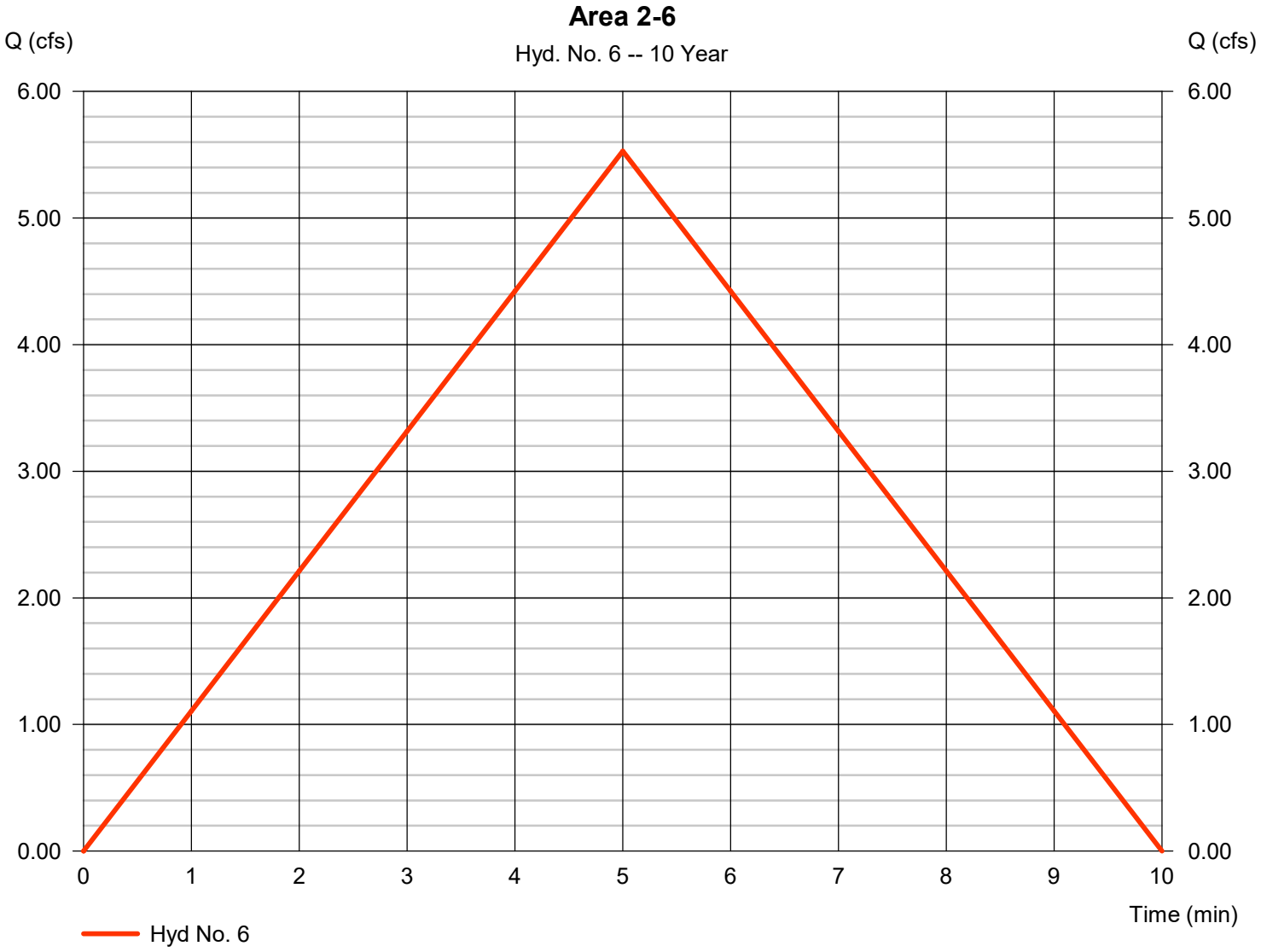


Hydrograph Report

Hyd. No. 6

Area 2-6

Hydrograph type	= Rational	Peak discharge	= 5.529 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,659 cuft
Drainage area	= 0.990 ac	Runoff coeff.	= 0.76
Intensity	= 7.348 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

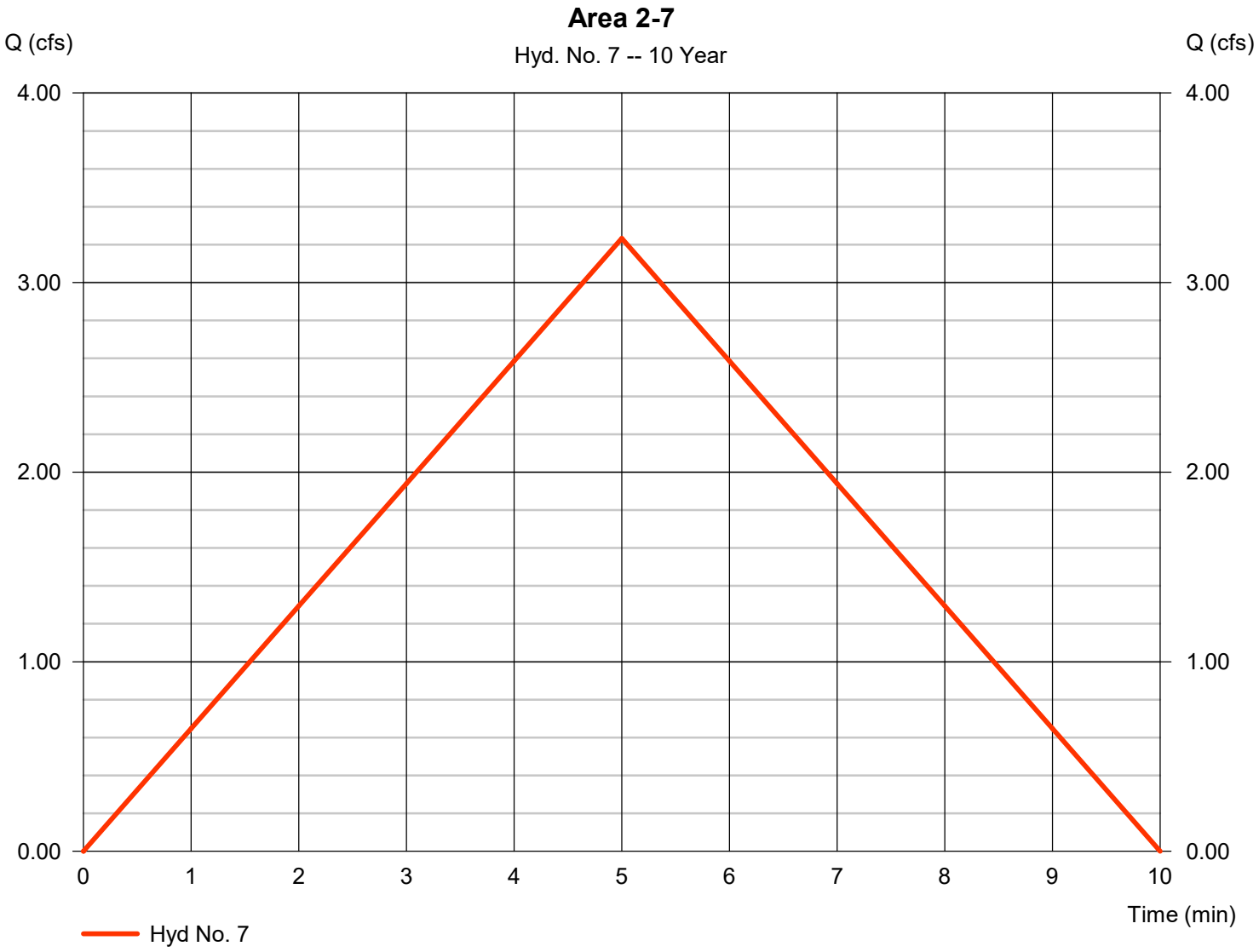


Hydrograph Report

Hyd. No. 7

Area 2-7

Hydrograph type	= Rational	Peak discharge	= 3.233 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 970 cuft
Drainage area	= 0.500 ac	Runoff coeff.	= 0.88
Intensity	= 7.348 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

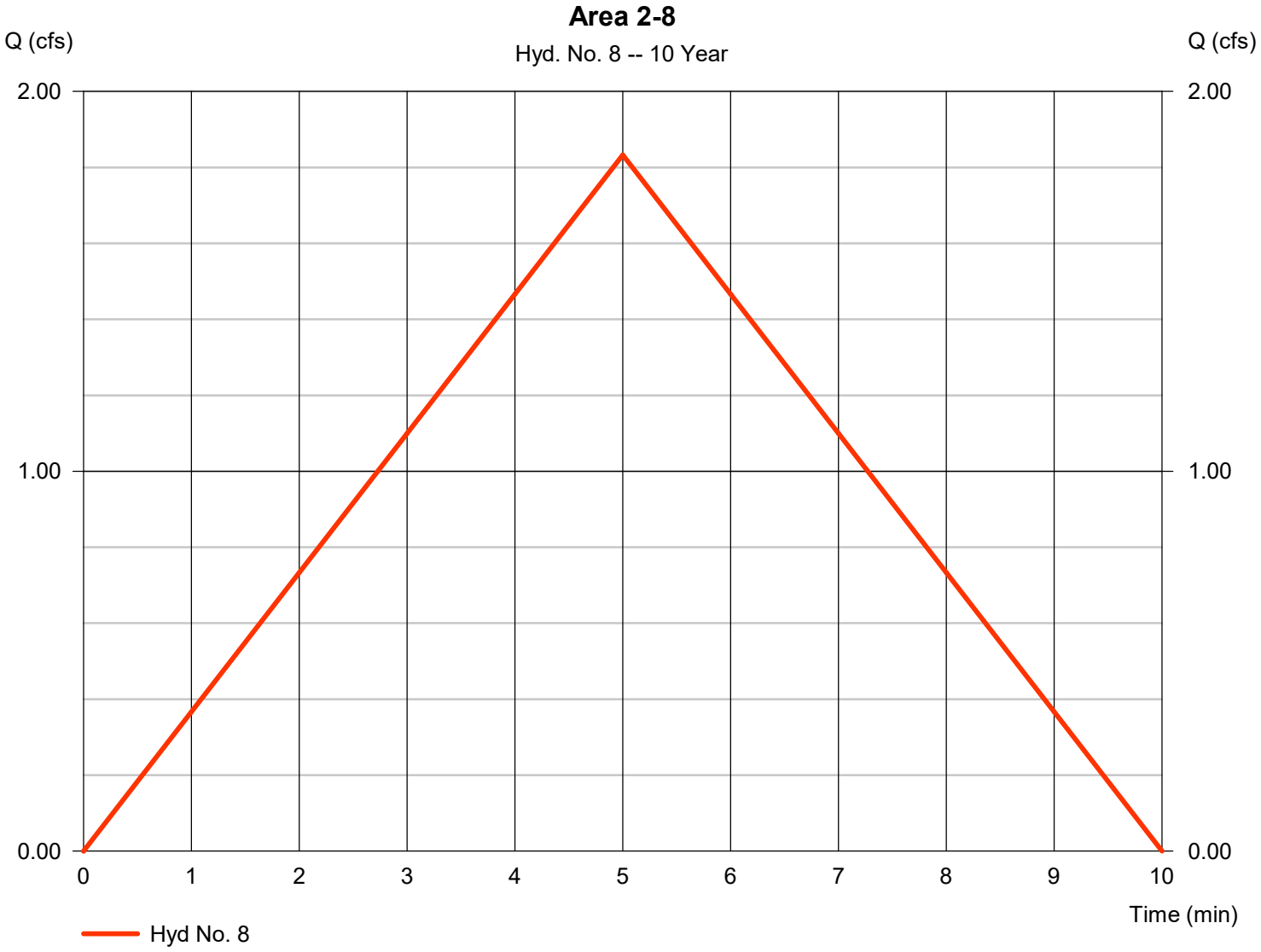


Hydrograph Report

Hyd. No. 8

Area 2-8

Hydrograph type	= Rational	Peak discharge	= 1.833 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 550 cuft
Drainage area	= 0.290 ac	Runoff coeff.	= 0.86
Intensity	= 7.348 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

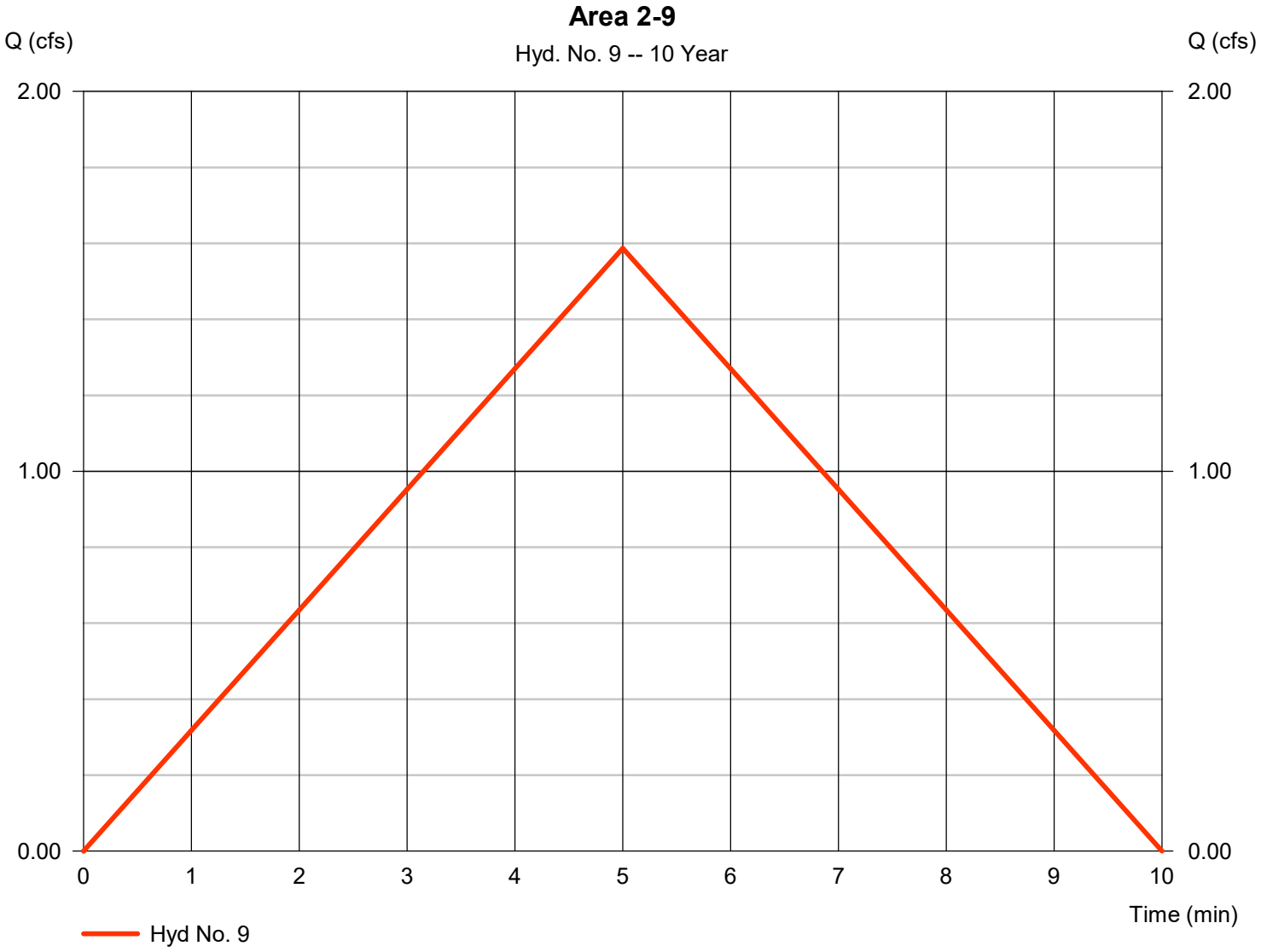


Hydrograph Report

Hyd. No. 9

Area 2-9

Hydrograph type	= Rational	Peak discharge	= 1.587 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 476 cuft
Drainage area	= 0.240 ac	Runoff coeff.	= 0.9
Intensity	= 7.348 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 10

Area 2-10

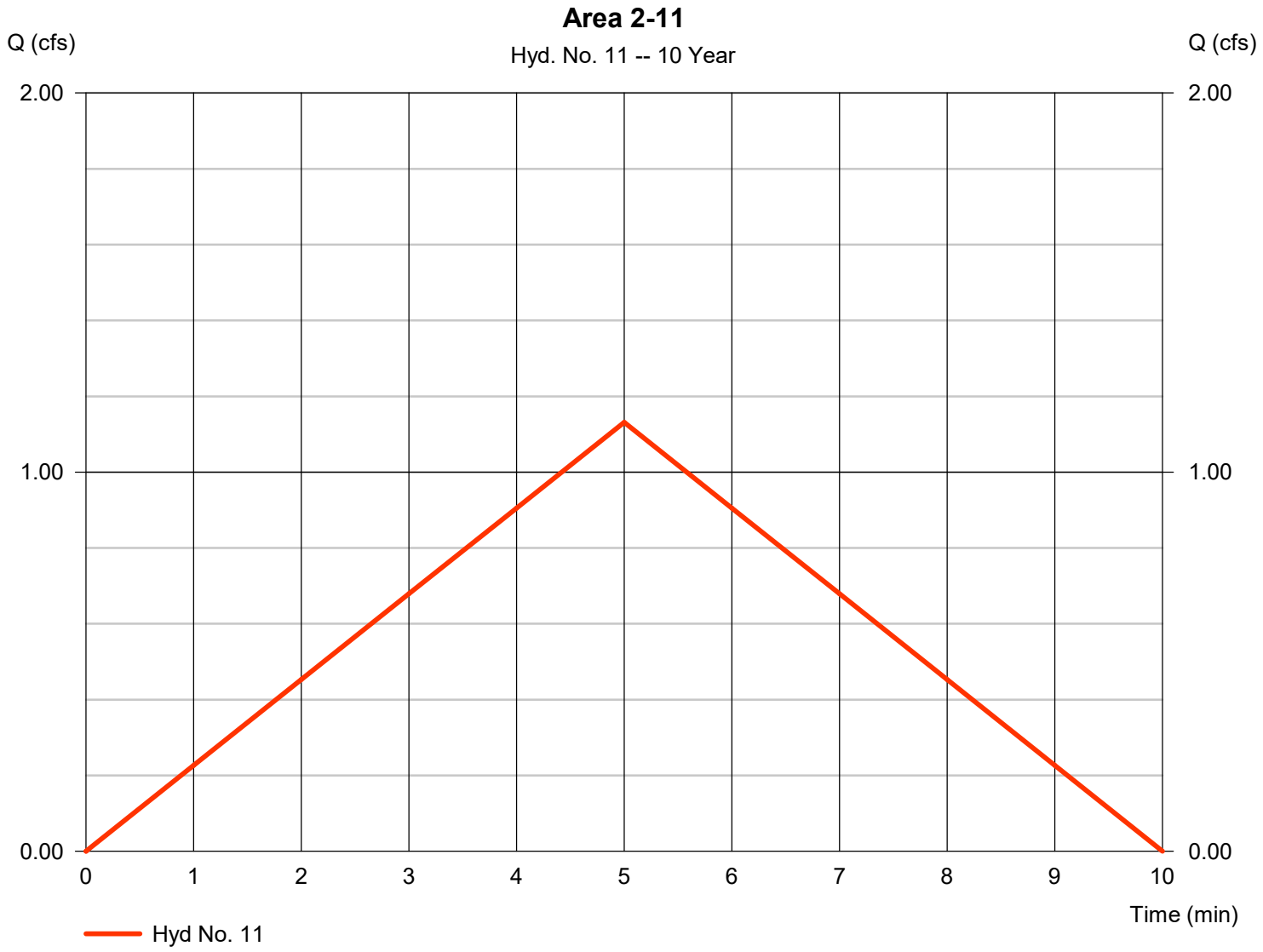
Hydrograph type	= Rational	Peak discharge	= 2.311 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 693 cuft
Drainage area	= 0.370 ac	Runoff coeff.	= 0.85
Intensity	= 7.348 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 11

Area 2-11

Hydrograph type	=	Rational	Peak discharge	=	1.132 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	339 cuft
Drainage area	=	0.350 ac	Runoff coeff.	=	0.44
Intensity	=	7.348 in/hr	Tc by User	=	5.00 min
IDF Curve	=	KCAPWA.IDF	Asc/Rec limb fact	=	1/1

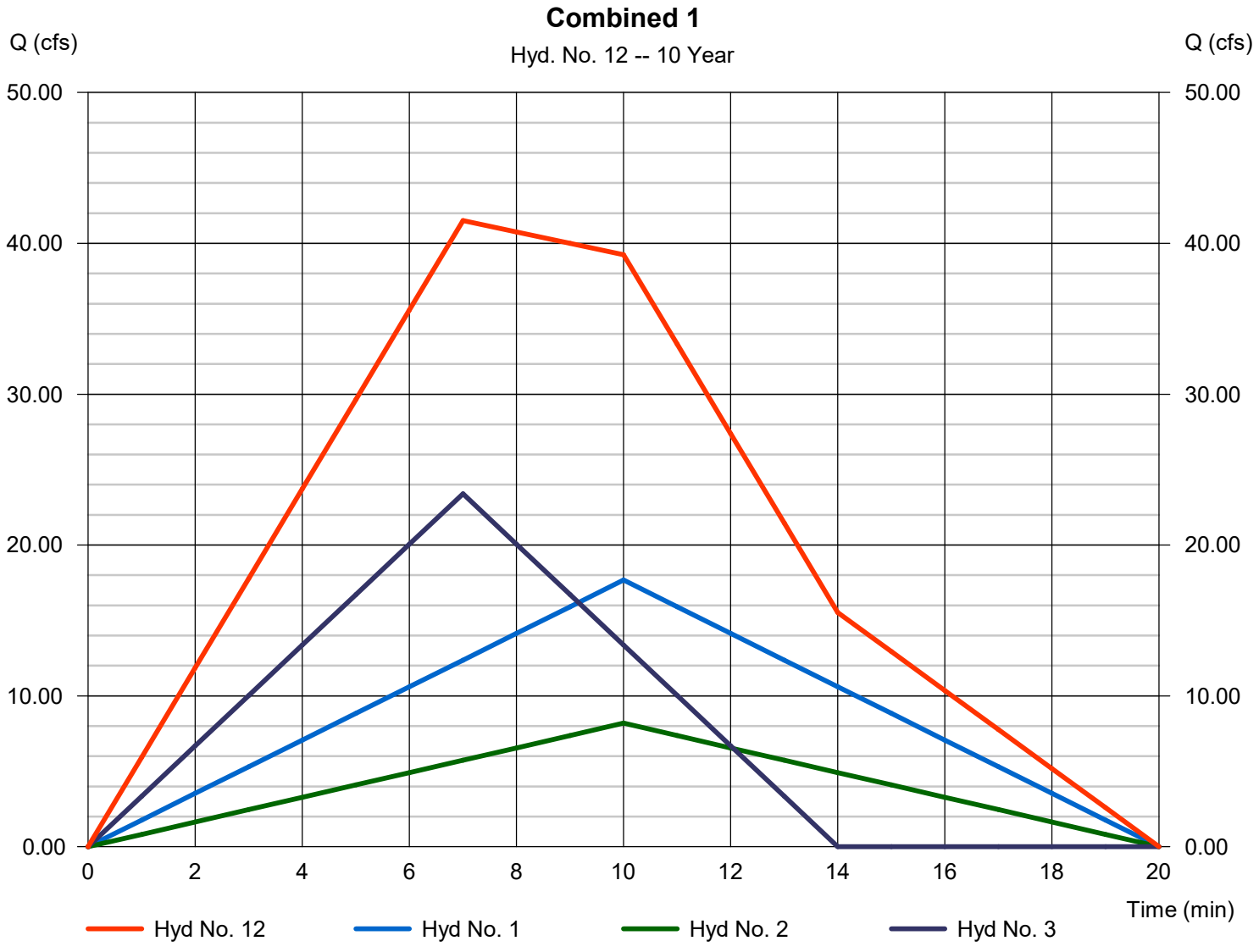


Hydrograph Report

Hyd. No. 12

Combined 1

Hydrograph type	= Combine	Peak discharge	= 41.51 cfs
Storm frequency	= 10 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 25,347 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 25.370 ac

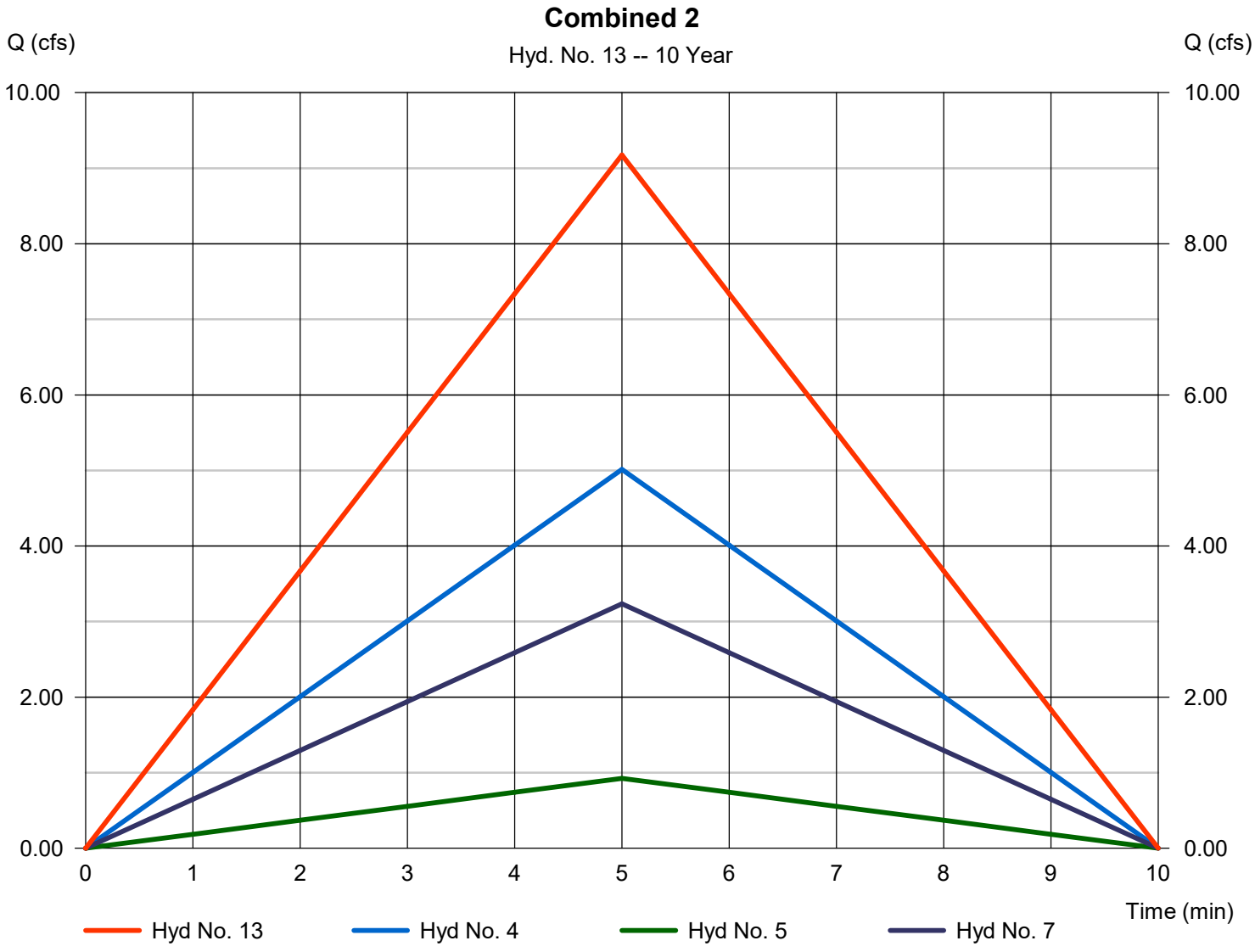


Hydrograph Report

Hyd. No. 13

Combined 2

Hydrograph type	= Combine	Peak discharge	= 9.175 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,752 cuft
Inflow hyds.	= 4, 5, 7	Contrib. drain. area	= 1.750 ac

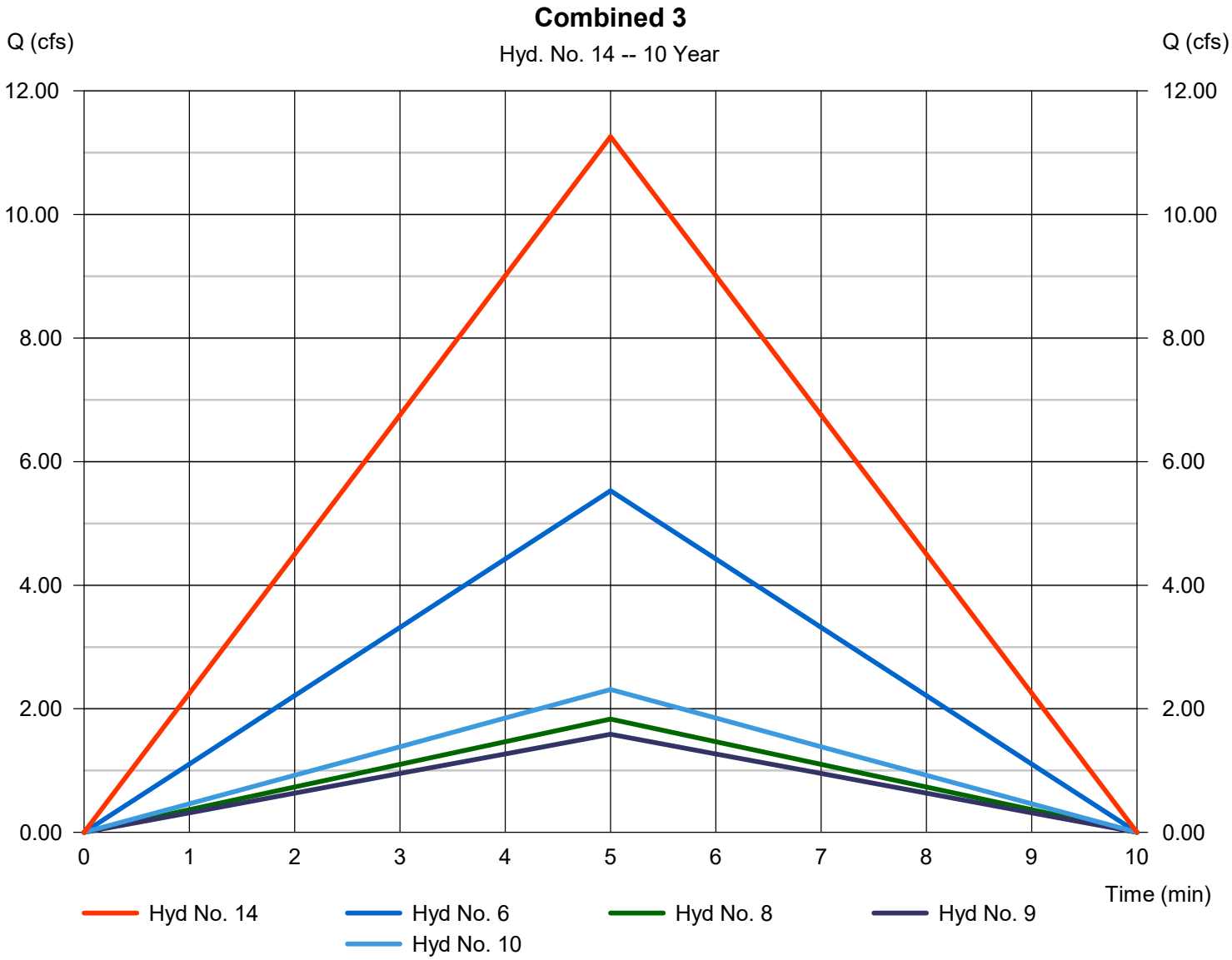


Hydrograph Report

Hyd. No. 14

Combined 3

Hydrograph type	= Combine	Peak discharge	= 11.26 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 3,378 cuft
Inflow hyds.	= 6, 8, 9, 10	Contrib. drain. area	= 1.890 ac

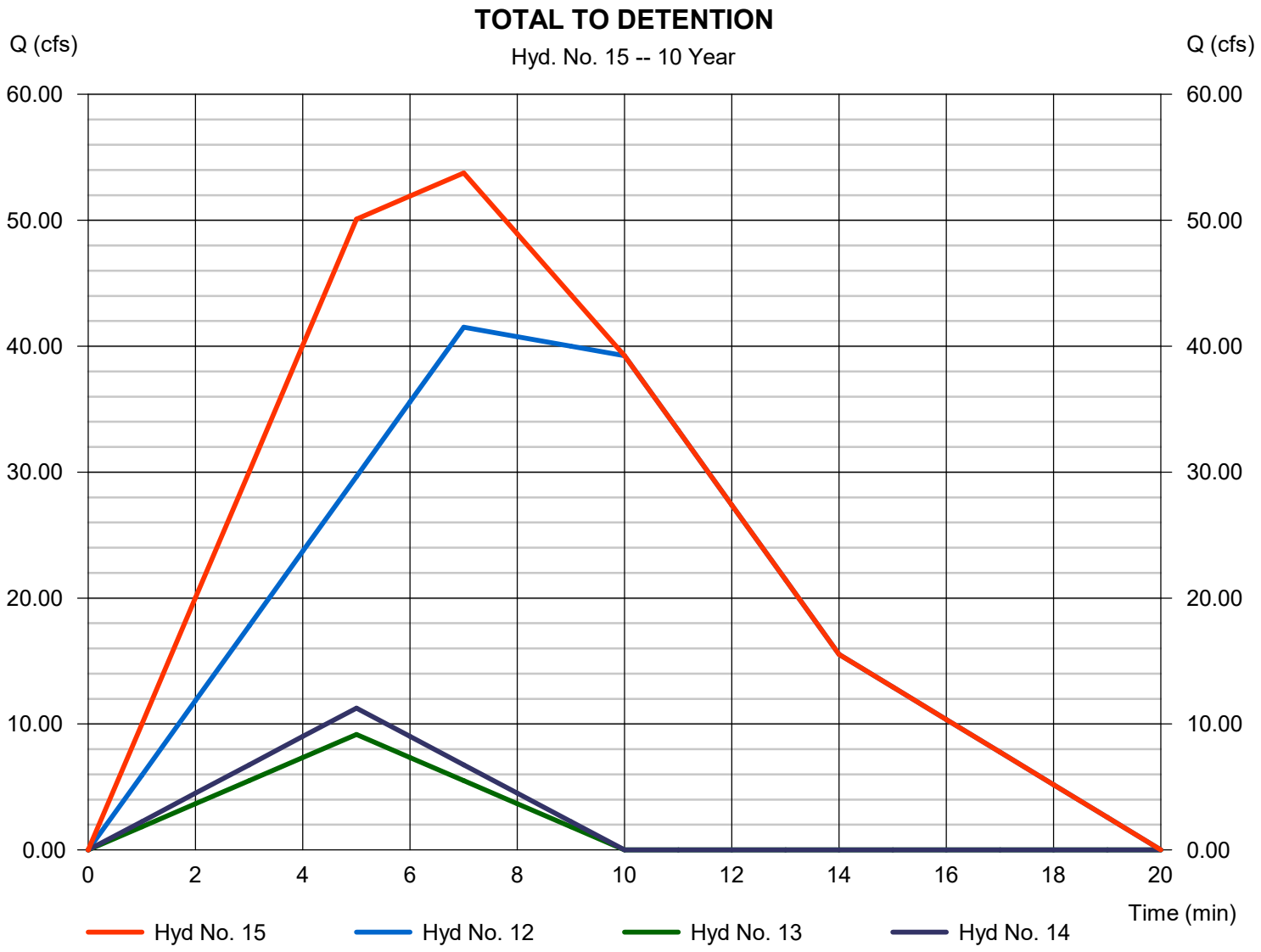


Hydrograph Report

Hyd. No. 15

TOTAL TO DETENTION

Hydrograph type	= Combine	Peak discharge	= 53.77 cfs
Storm frequency	= 10 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 31,478 cuft
Inflow hyds.	= 12, 13, 14	Contrib. drain. area	= 0.000 ac



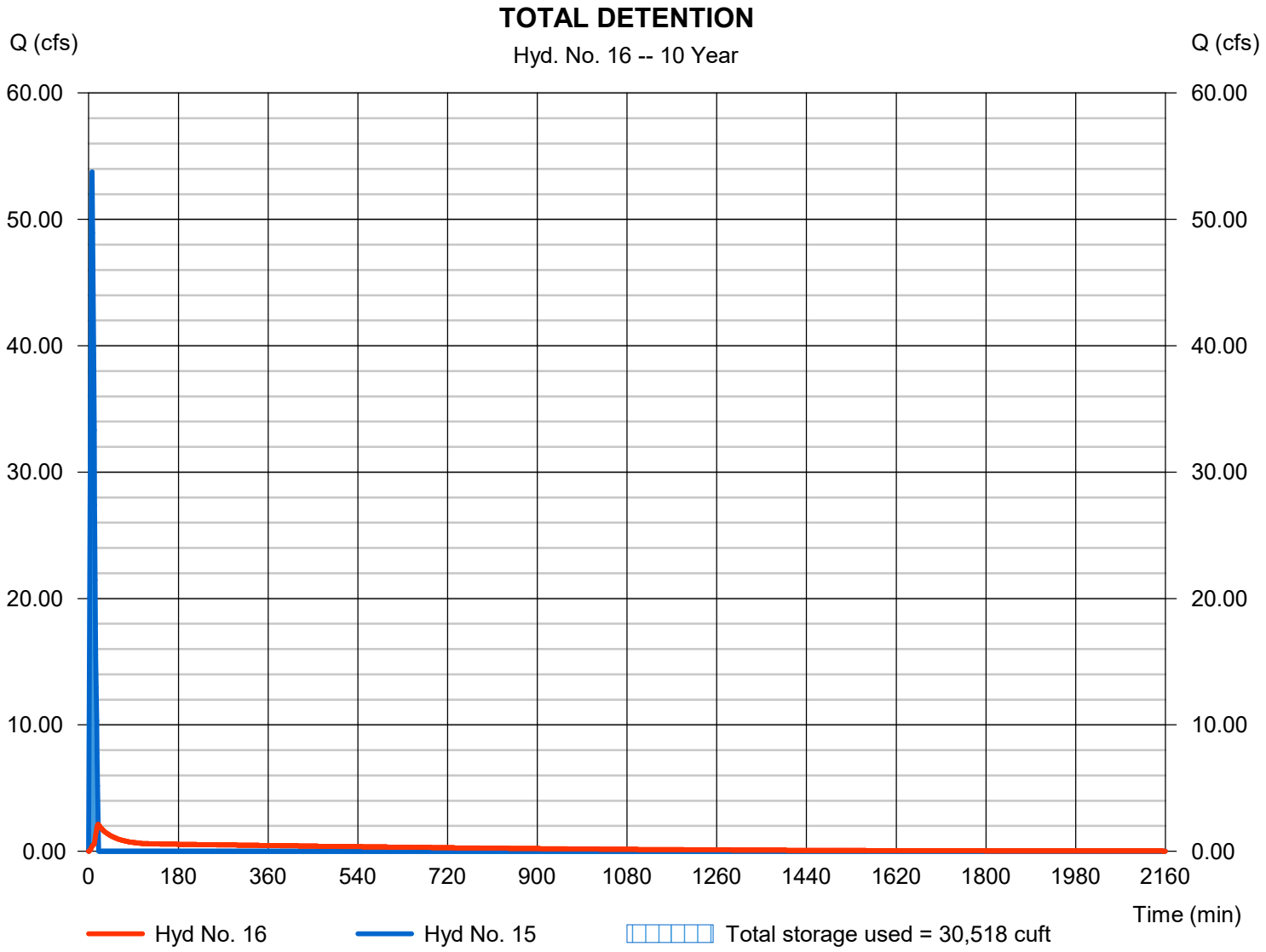
Hydrograph Report

Hyd. No. 16

TOTAL DETENTION

Hydrograph type	=	Reservoir	Peak discharge	=	2.130 cfs
Storm frequency	=	10 yrs	Time to peak	=	19 min
Time interval	=	1 min	Hyd. volume	=	31,218 cuft
Inflow hyd. No.	=	15 - TOTAL TO DETENTION	Max. Elevation	=	983.52 ft
Reservoir name	=	Detention	Max. Storage	=	30,518 cuft

Storage Indication method used.

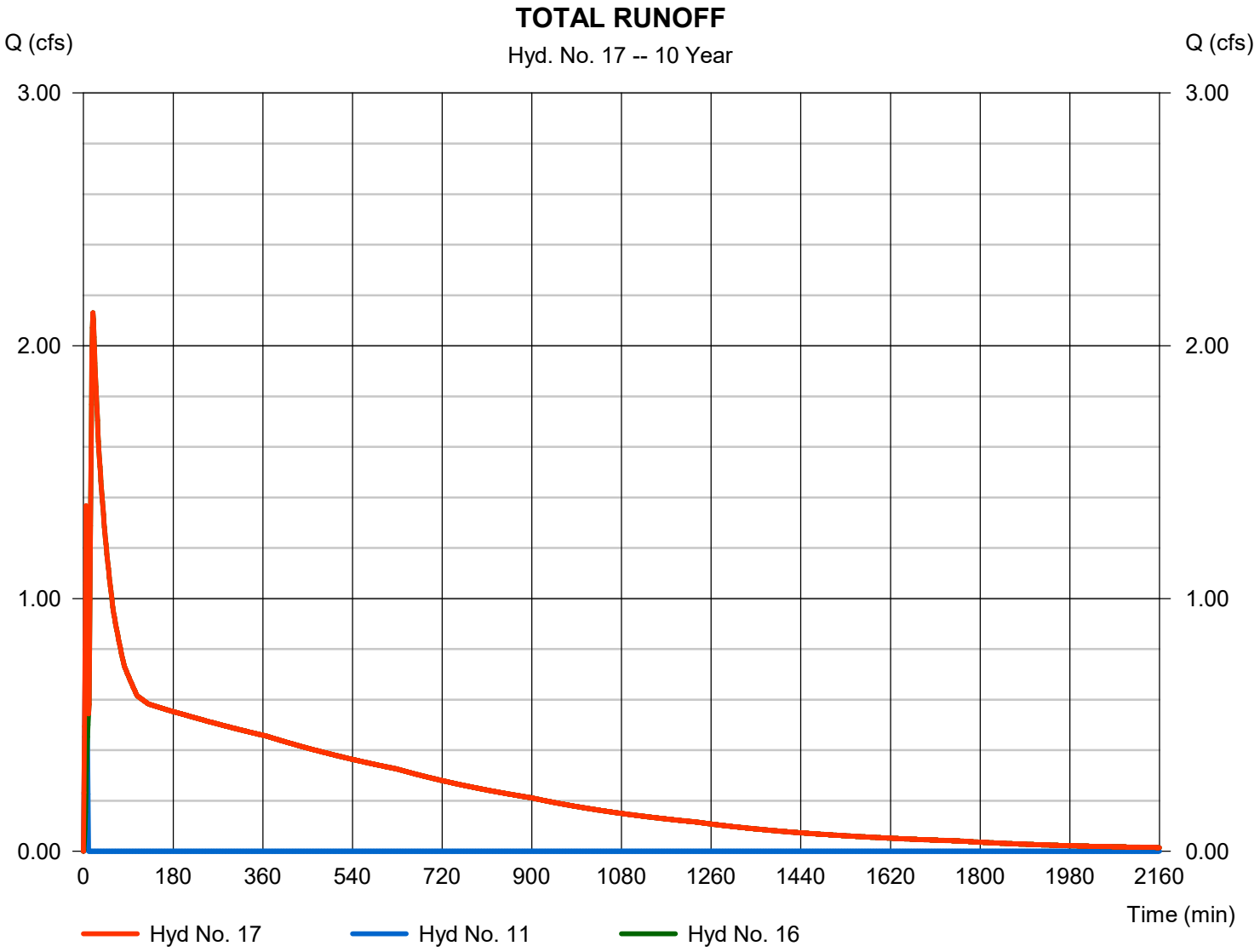


Hydrograph Report

Hyd. No. 17

TOTAL RUNOFF

Hydrograph type	= Combine	Peak discharge	= 2.130 cfs
Storm frequency	= 10 yrs	Time to peak	= 19 min
Time interval	= 1 min	Hyd. volume	= 31,558 cuft
Inflow hyds.	= 11, 16	Contrib. drain. area	= 0.350 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

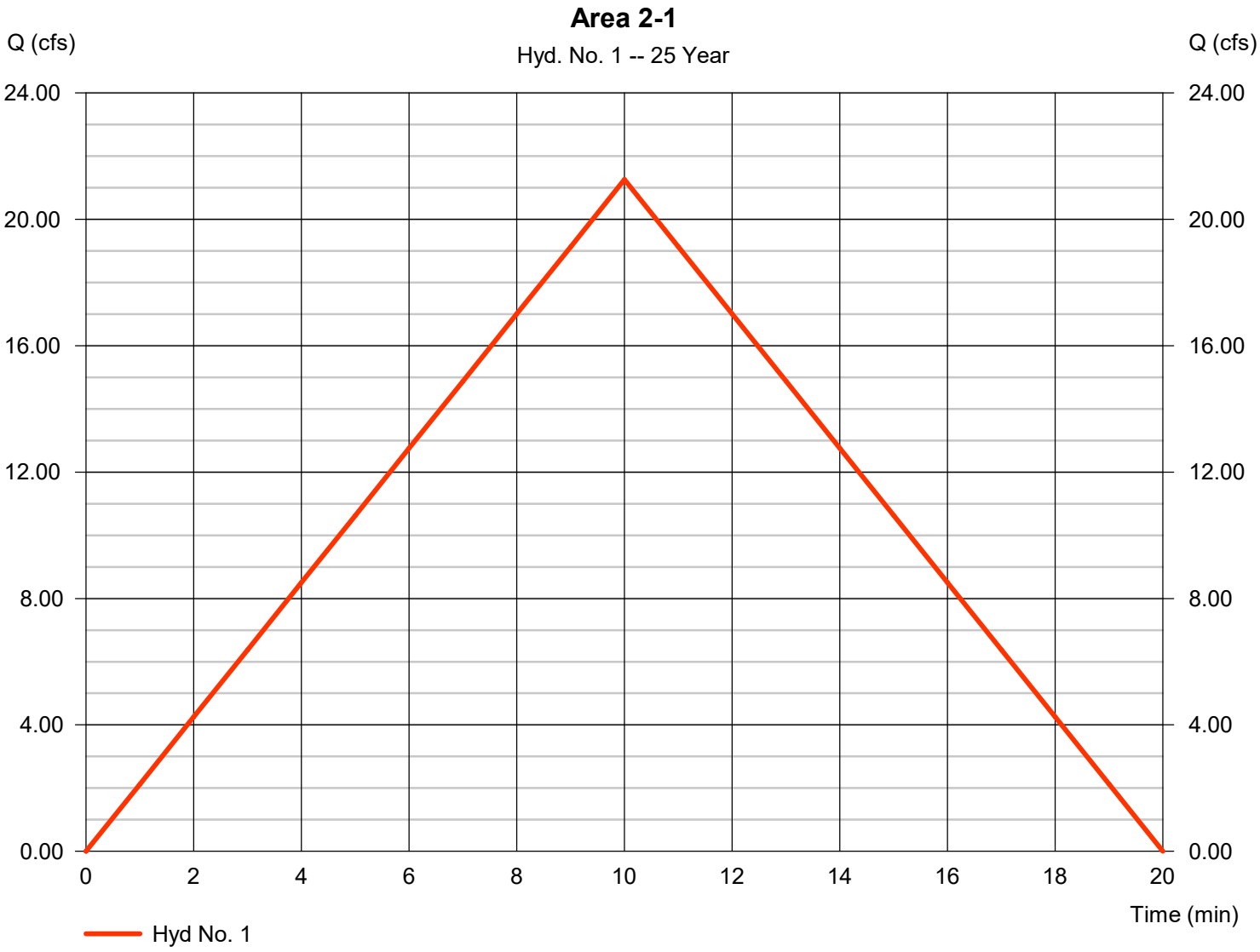
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	21.26	1	10	12,756	------	------	------	Area 2-1
2	Rational	9.849	1	10	5,909	------	------	------	Area 2-2
3	Rational	27.61	1	7	11,595	------	------	------	Area 2-3
4	Rational	5.815	1	5	1,744	------	------	------	Area 2-4
5	Rational	1.074	1	5	322	------	------	------	Area 2-5
6	Rational	6.410	1	5	1,923	------	------	------	Area 2-6
7	Rational	3.749	1	5	1,125	------	------	------	Area 2-7
8	Rational	2.125	1	5	637	------	------	------	Area 2-8
9	Rational	1.840	1	5	552	------	------	------	Area 2-9
10	Rational	2.680	1	5	804	------	------	------	Area 2-10
11	Rational	1.312	1	5	394	------	------	------	Area 2-11
12	Combine	49.38	1	7	30,260	1, 2, 3,	------	------	Combined 1
13	Combine	10.64	1	5	3,191	4, 5, 7,	------	------	Combined 2
14	Combine	13.06	1	5	3,917	6, 8, 9,	------	------	Combined 3
15	Combine	63.60	1	7	37,368	10, 12, 13, 14	------	------	TOTAL TO DETENTION
16	Reservoir	5.952	1	18	37,104	15	983.94	35,002	TOTAL DETENTION
17	Combine	5.952	1	18	37,497	11, 16	------	------	TOTAL RUNOFF

Hydrograph Report

Hyd. No. 1

Area 2-1

Hydrograph type	= Rational	Peak discharge	= 21.26 cfs
Storm frequency	= 25 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 12,756 cuft
Drainage area	= 9.380 ac	Runoff coeff.	= 0.31
Intensity	= 7.312 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

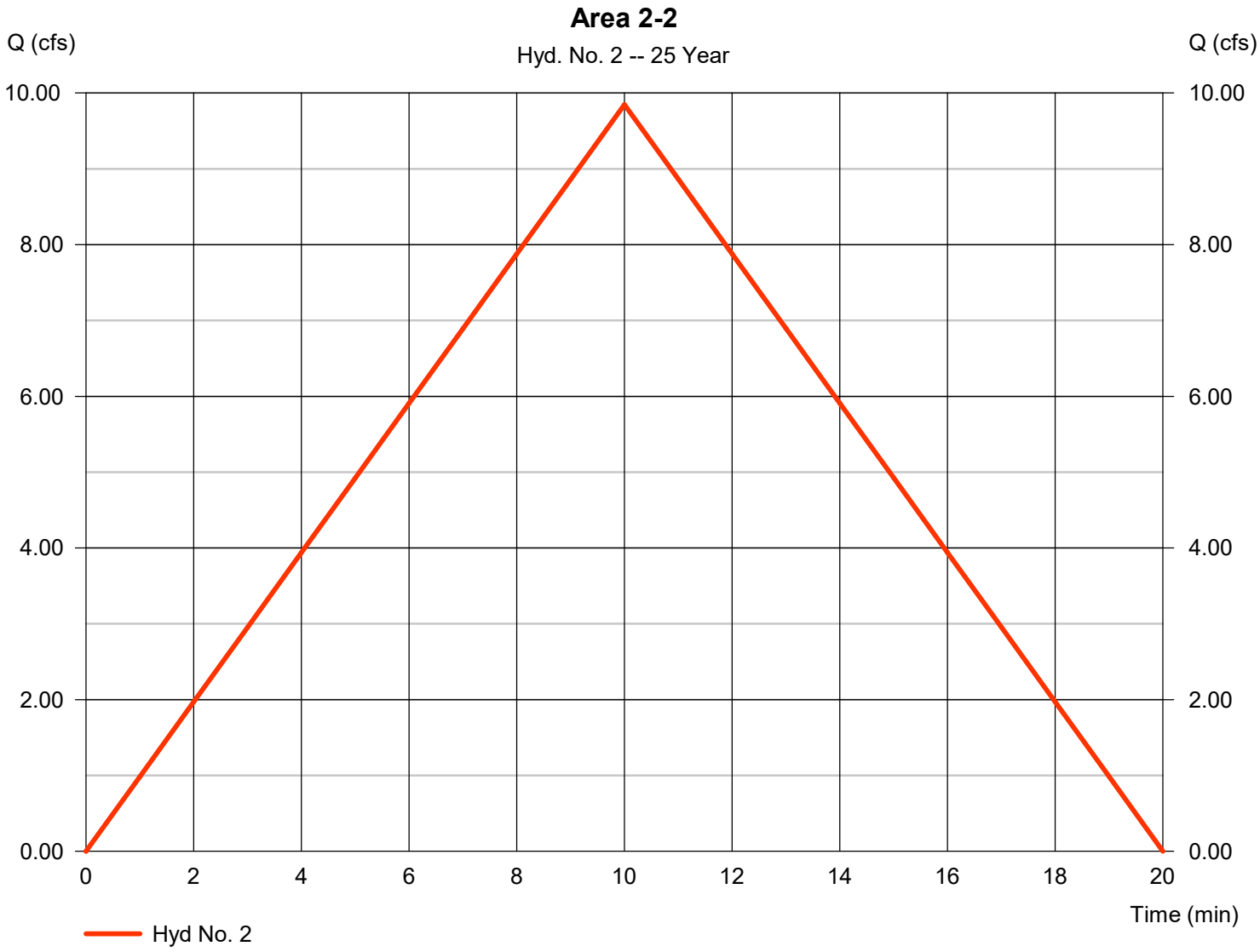


Hydrograph Report

Hyd. No. 2

Area 2-2

Hydrograph type	= Rational	Peak discharge	= 9.849 cfs
Storm frequency	= 25 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 5,909 cuft
Drainage area	= 4.490 ac	Runoff coeff.	= 0.3
Intensity	= 7.312 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

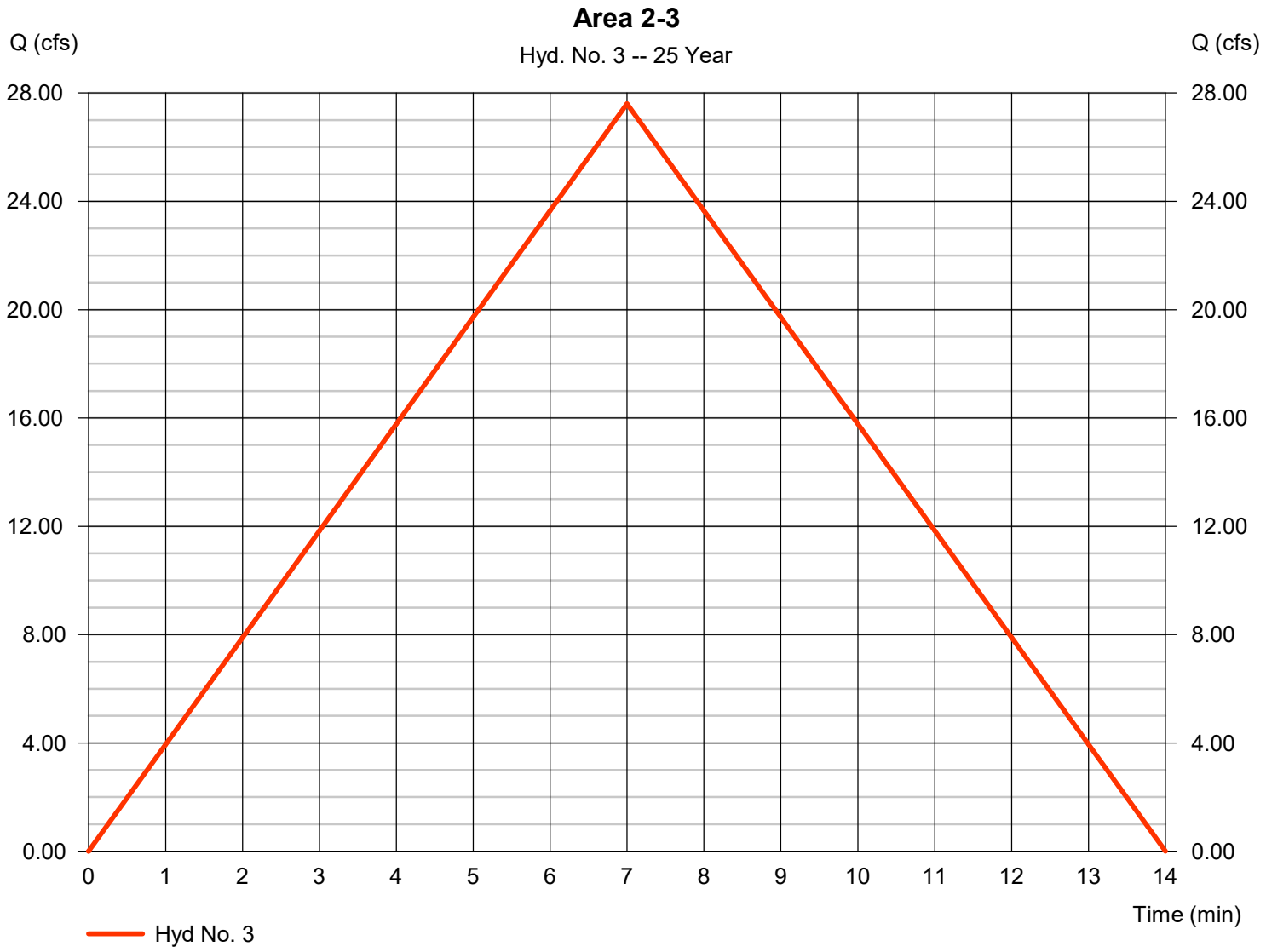


Hydrograph Report

Hyd. No. 3

Area 2-3

Hydrograph type	= Rational	Peak discharge	= 27.61 cfs
Storm frequency	= 25 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 11,595 cuft
Drainage area	= 11.500 ac	Runoff coeff.	= 0.3
Intensity	= 8.002 in/hr	Tc by User	= 7.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

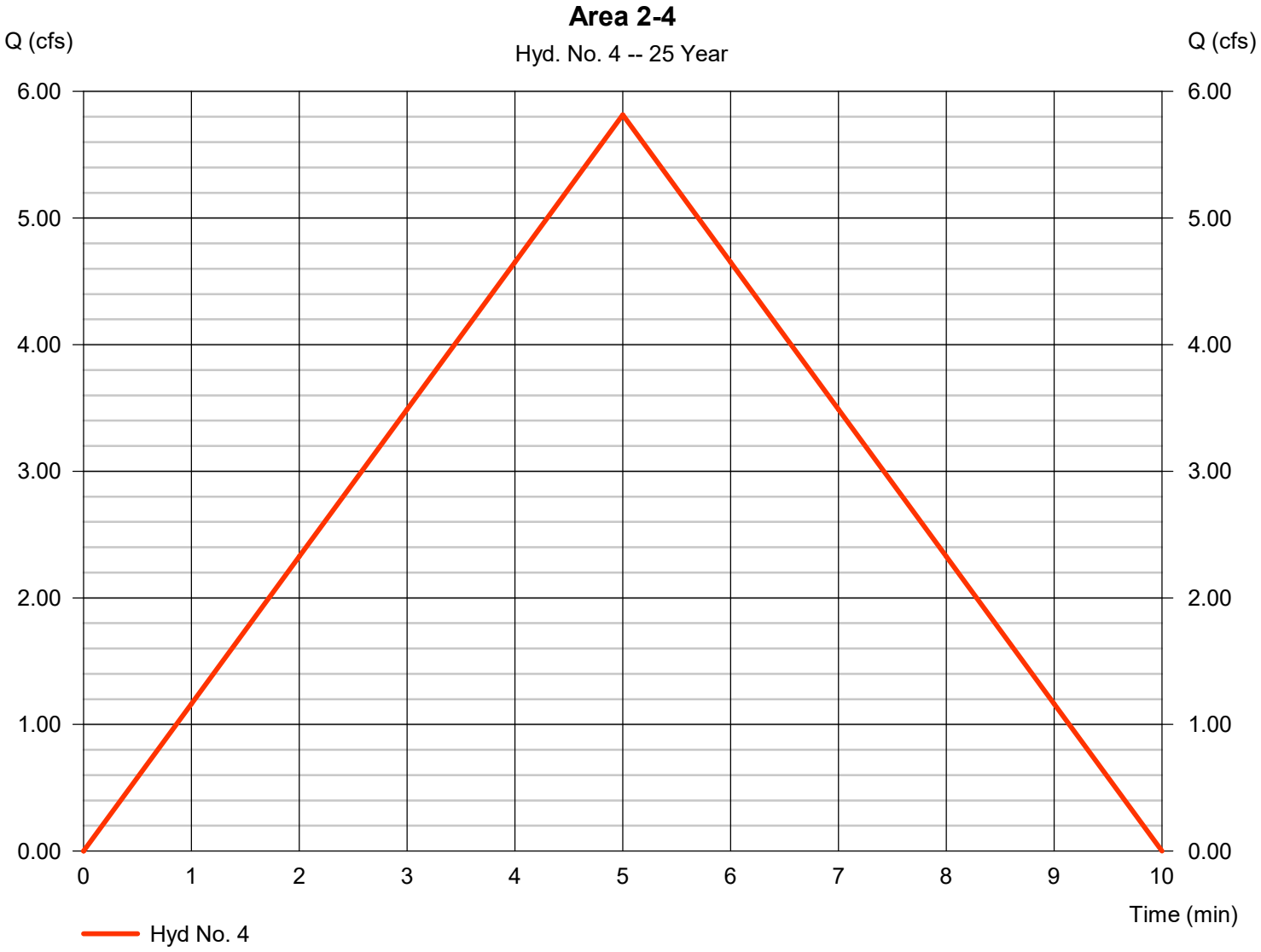


Hydrograph Report

Hyd. No. 4

Area 2-4

Hydrograph type	= Rational	Peak discharge	= 5.815 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,744 cuft
Drainage area	= 1.050 ac	Runoff coeff.	= 0.65
Intensity	= 8.520 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 5

Area 2-5

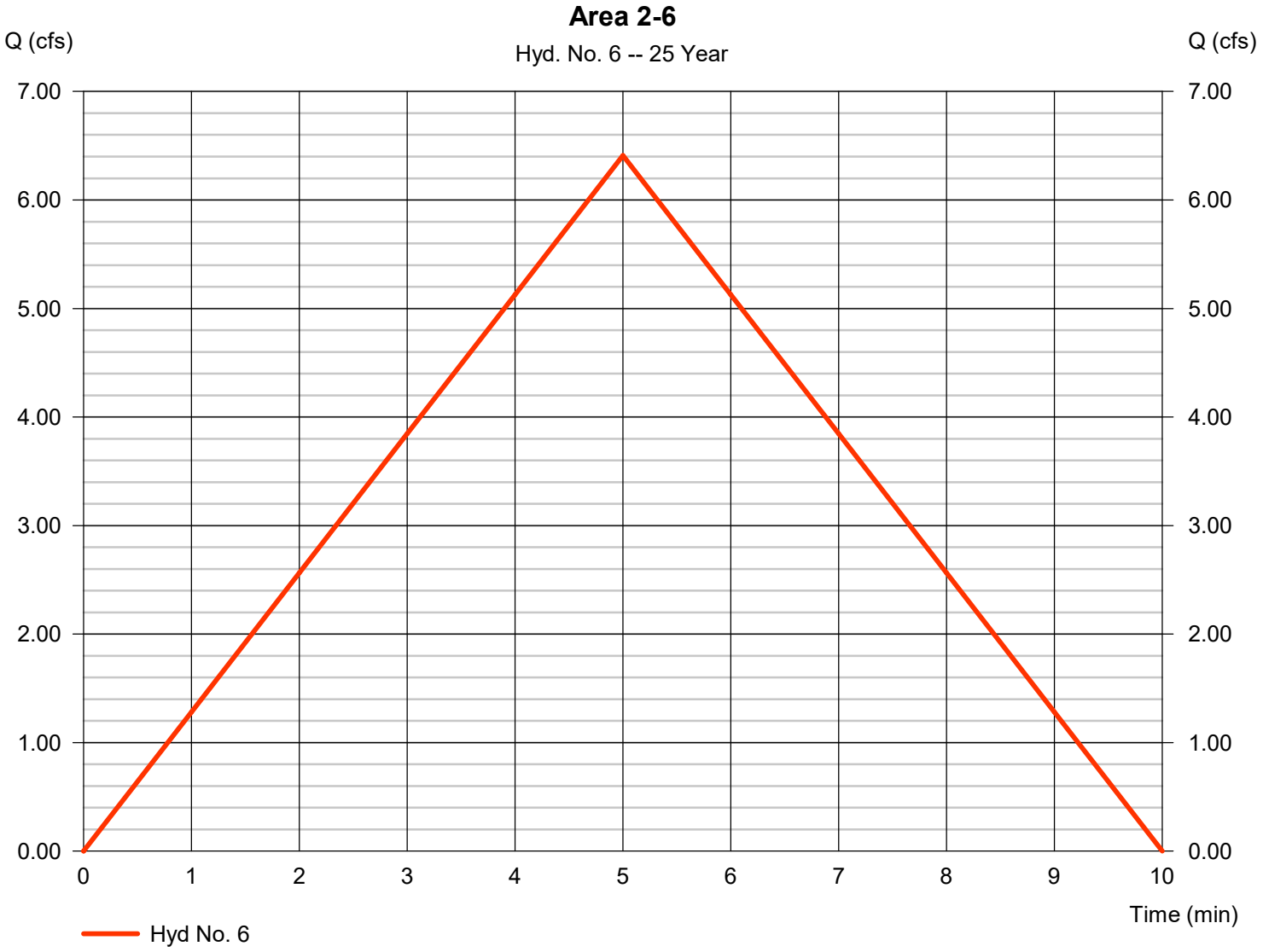
Hydrograph type	= Rational	Peak discharge	= 1.074 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 322 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.63
Intensity	= 8.520 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 6

Area 2-6

Hydrograph type	= Rational	Peak discharge	= 6.410 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,923 cuft
Drainage area	= 0.990 ac	Runoff coeff.	= 0.76
Intensity	= 8.520 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

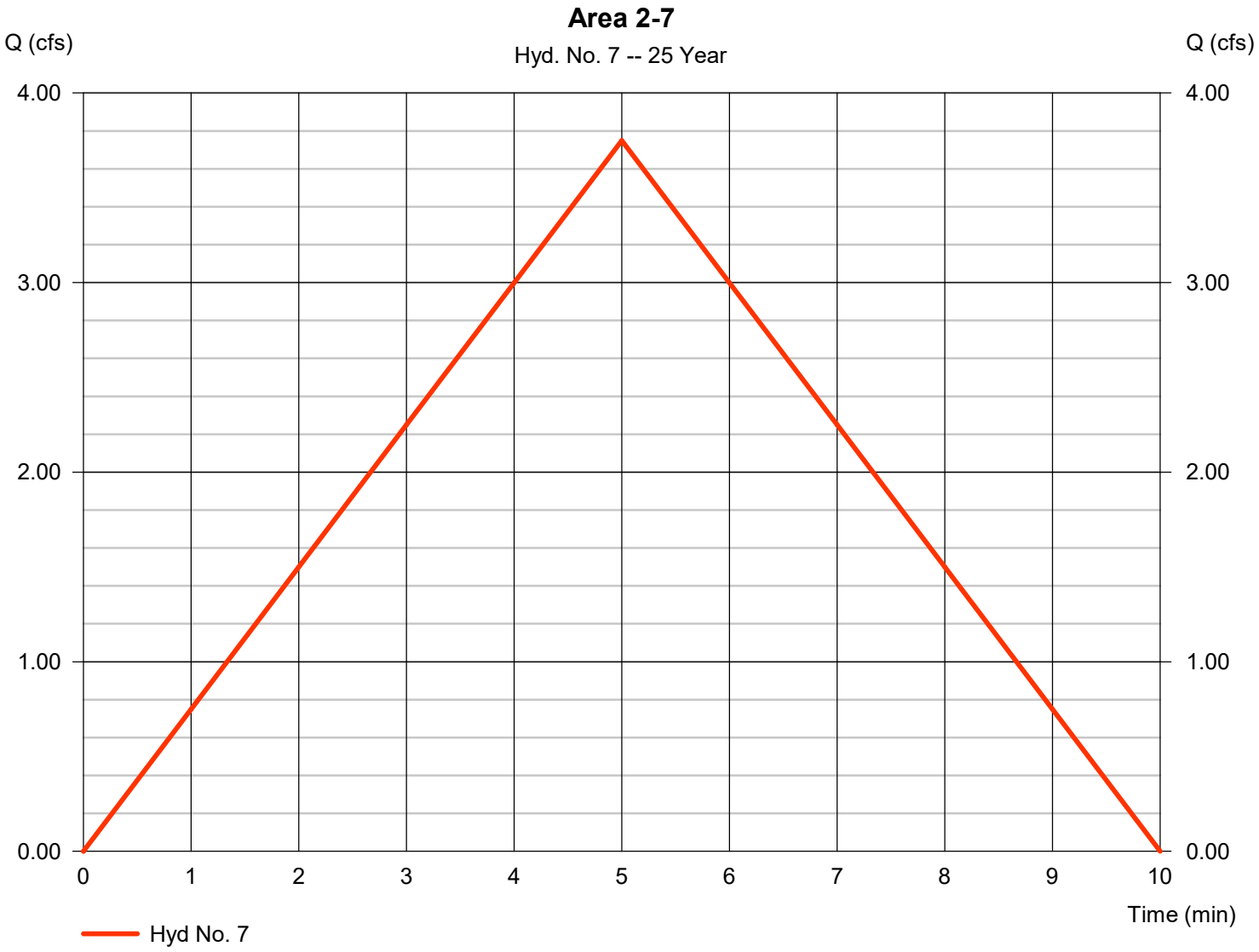


Hydrograph Report

Hyd. No. 7

Area 2-7

Hydrograph type	= Rational	Peak discharge	= 3.749 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,125 cuft
Drainage area	= 0.500 ac	Runoff coeff.	= 0.88
Intensity	= 8.520 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

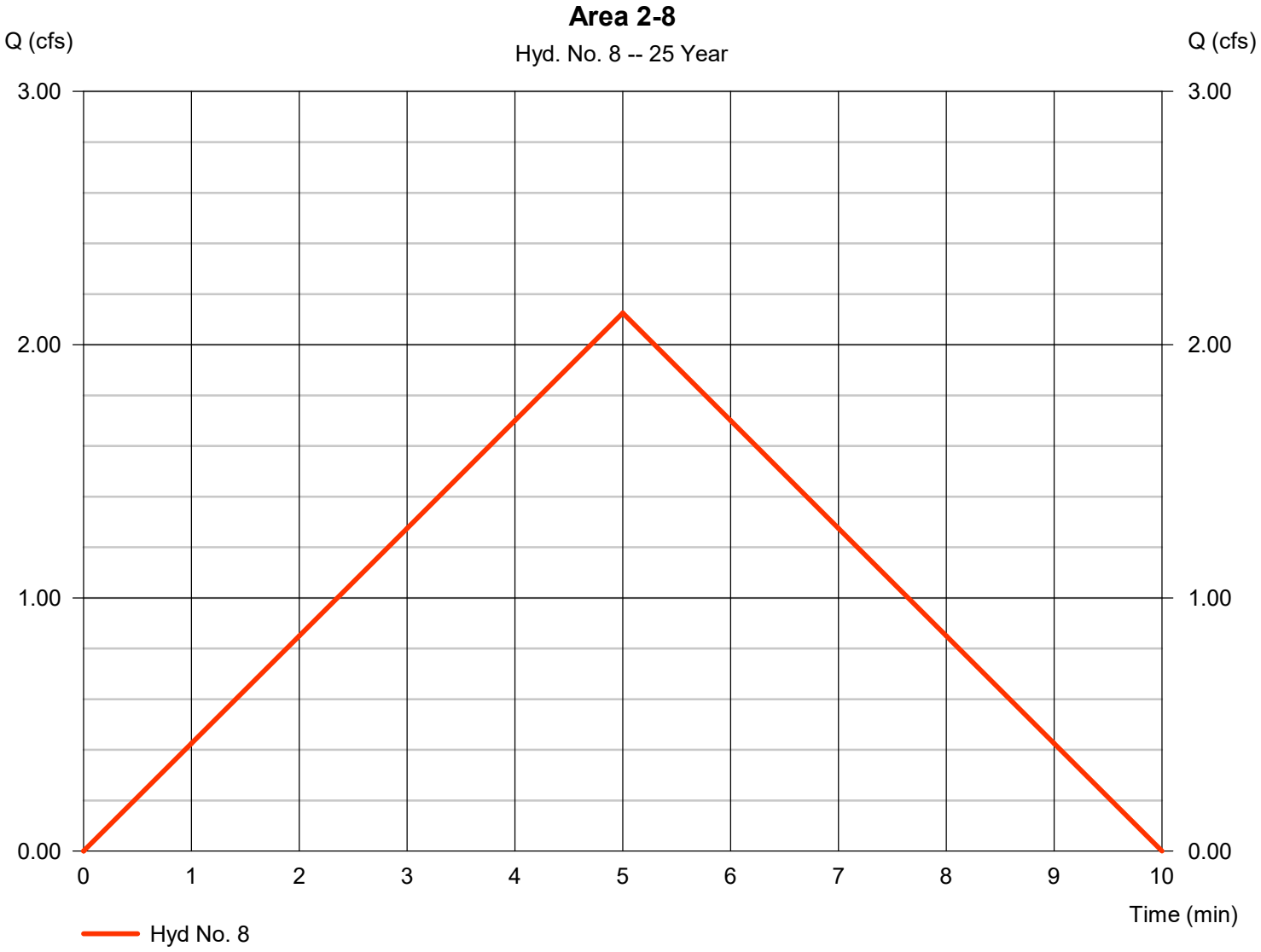


Hydrograph Report

Hyd. No. 8

Area 2-8

Hydrograph type	= Rational	Peak discharge	= 2.125 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 637 cuft
Drainage area	= 0.290 ac	Runoff coeff.	= 0.86
Intensity	= 8.520 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

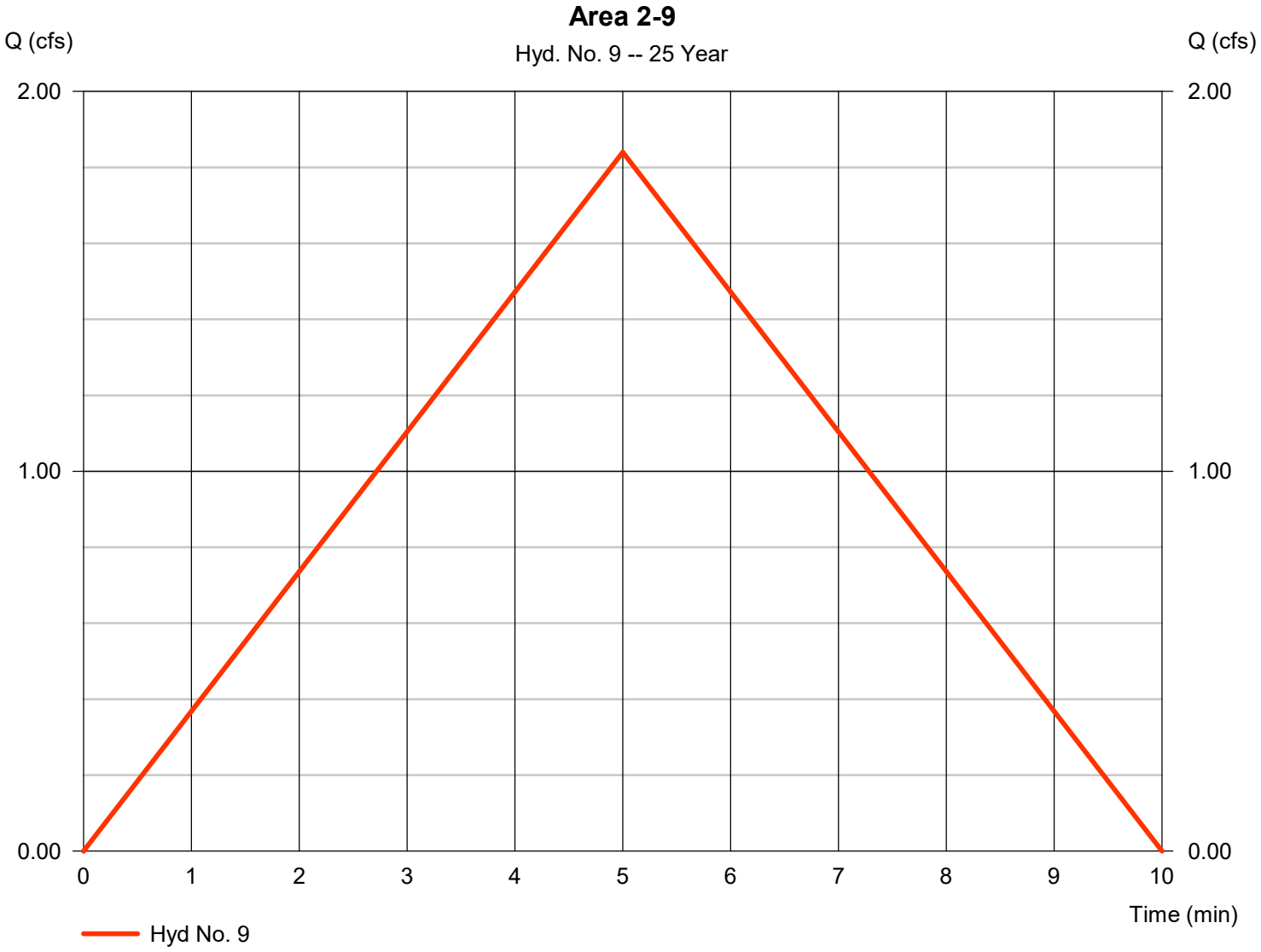


Hydrograph Report

Hyd. No. 9

Area 2-9

Hydrograph type	= Rational	Peak discharge	= 1.840 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 552 cuft
Drainage area	= 0.240 ac	Runoff coeff.	= 0.9
Intensity	= 8.520 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

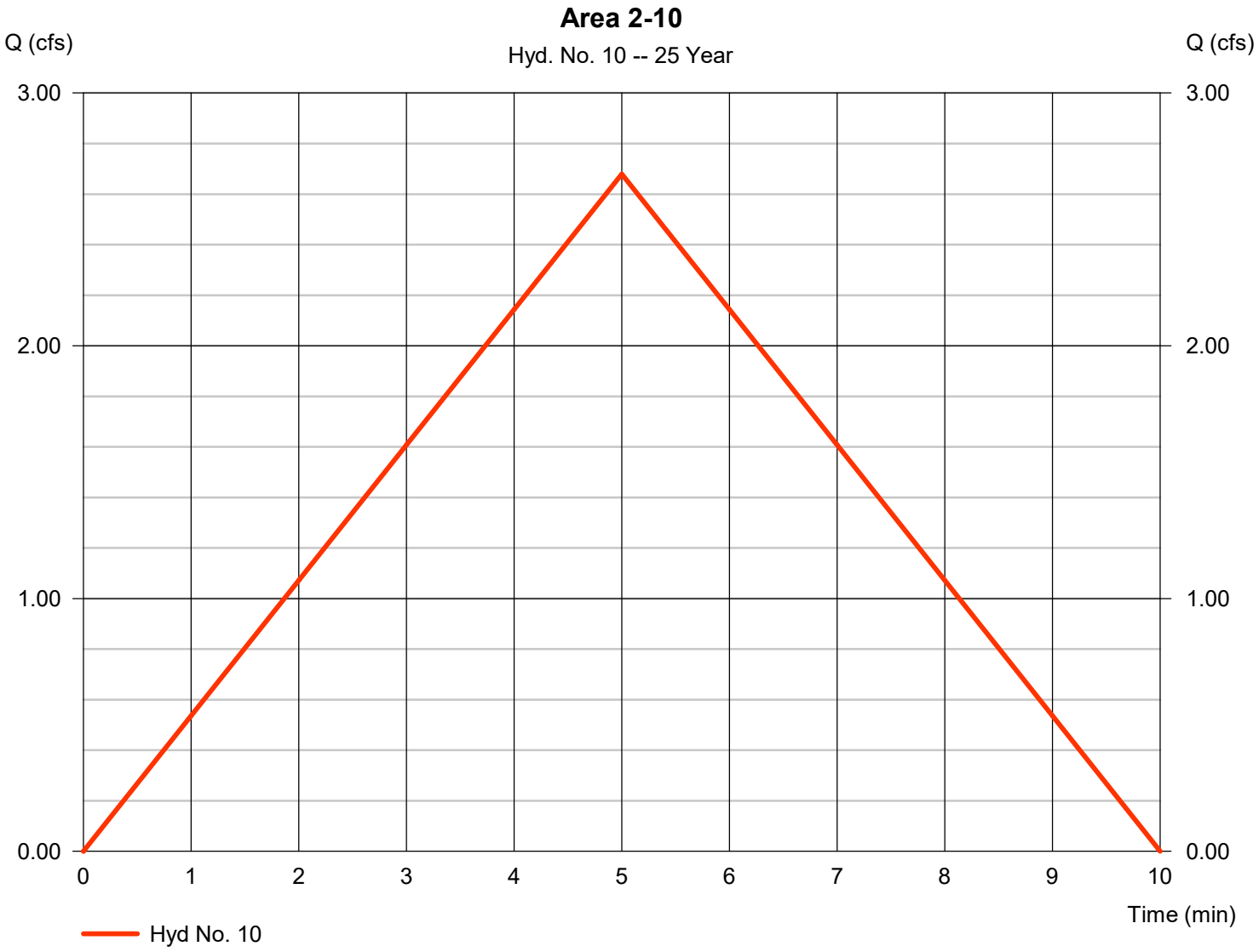


Hydrograph Report

Hyd. No. 10

Area 2-10

Hydrograph type	= Rational	Peak discharge	= 2.680 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 804 cuft
Drainage area	= 0.370 ac	Runoff coeff.	= 0.85
Intensity	= 8.520 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 11

Area 2-11

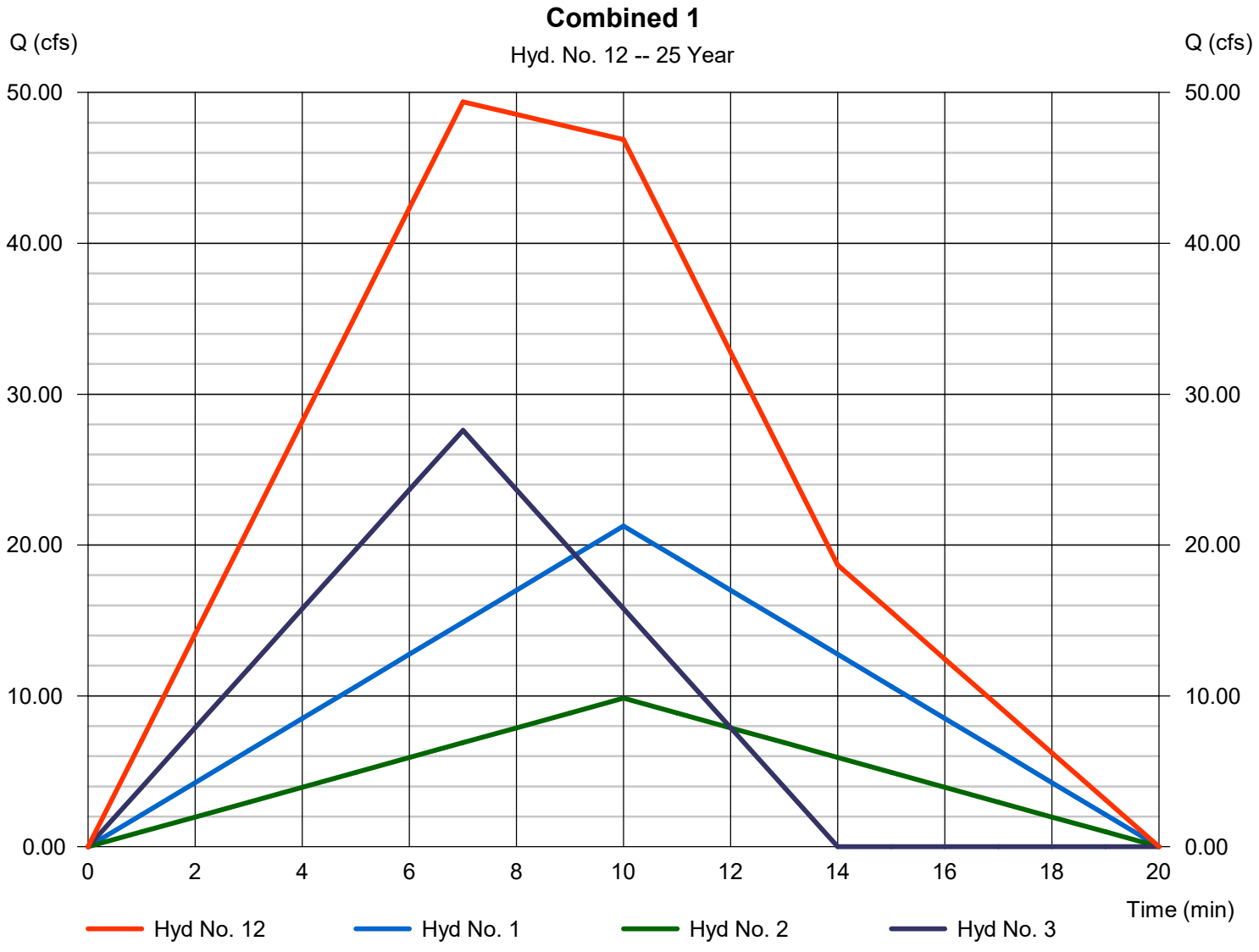
Hydrograph type	=	Rational	Peak discharge	=	1.312 cfs
Storm frequency	=	25 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	394 cuft
Drainage area	=	0.350 ac	Runoff coeff.	=	0.44
Intensity	=	8.520 in/hr	Tc by User	=	5.00 min
IDF Curve	=	KCAPWA.IDF	Asc/Rec limb fact	=	1/1

Hydrograph Report

Hyd. No. 12

Combined 1

Hydrograph type	= Combine	Peak discharge	= 49.38 cfs
Storm frequency	= 25 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 30,260 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 25.370 ac

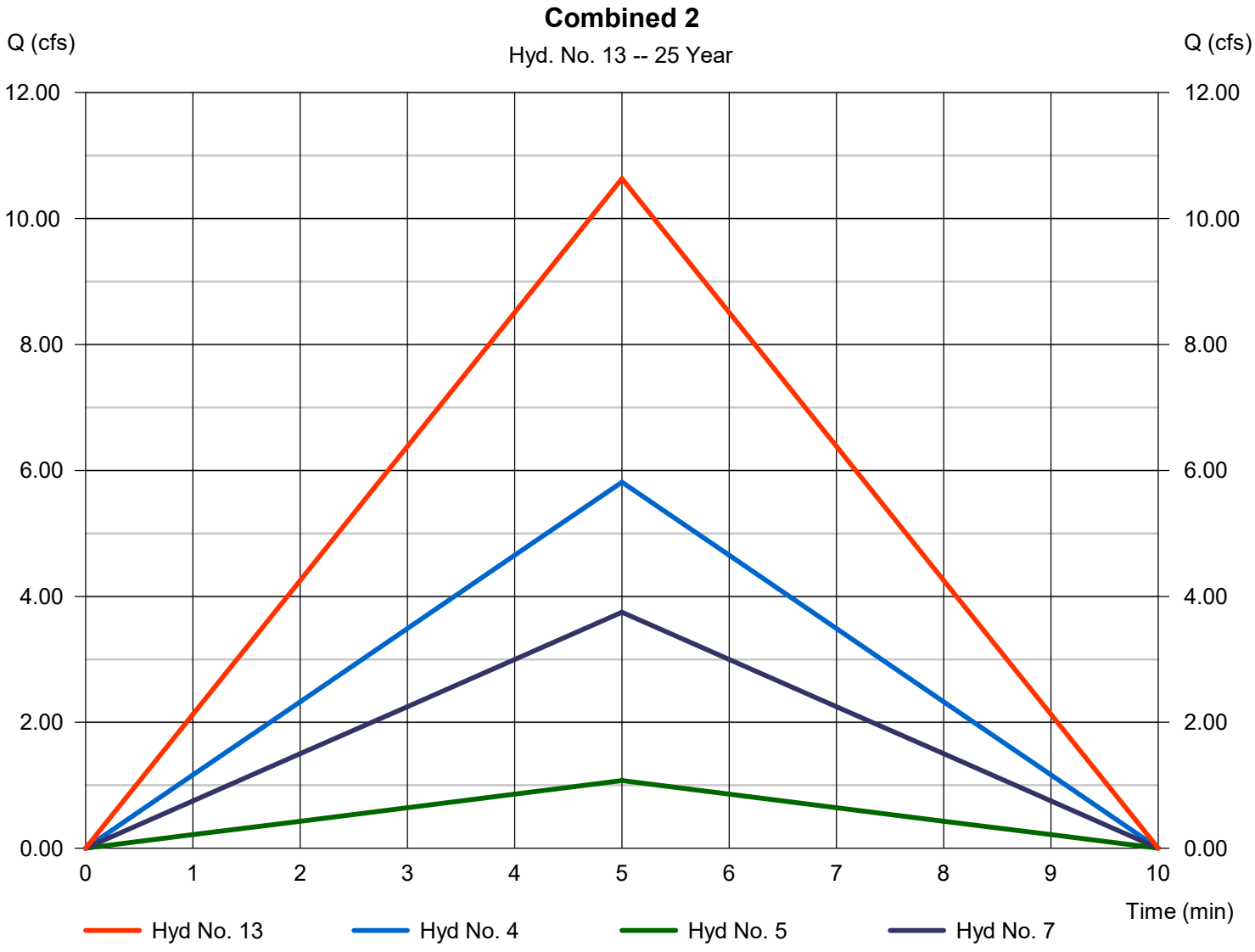


Hydrograph Report

Hyd. No. 13

Combined 2

Hydrograph type	= Combine	Peak discharge	= 10.64 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 3,191 cuft
Inflow hyds.	= 4, 5, 7	Contrib. drain. area	= 1.750 ac

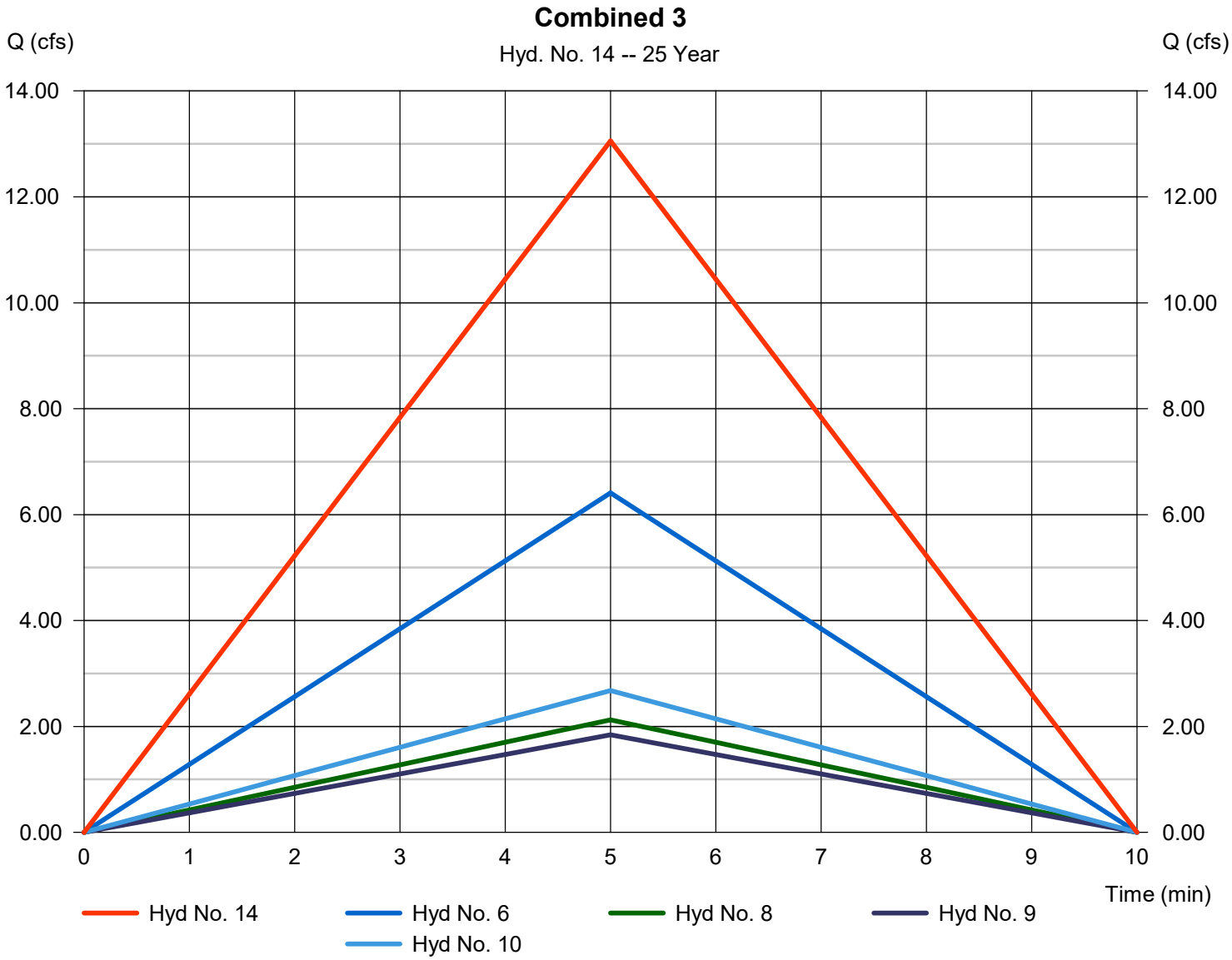


Hydrograph Report

Hyd. No. 14

Combined 3

Hydrograph type	= Combine	Peak discharge	= 13.06 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 3,917 cuft
Inflow hyds.	= 6, 8, 9, 10	Contrib. drain. area	= 1.890 ac

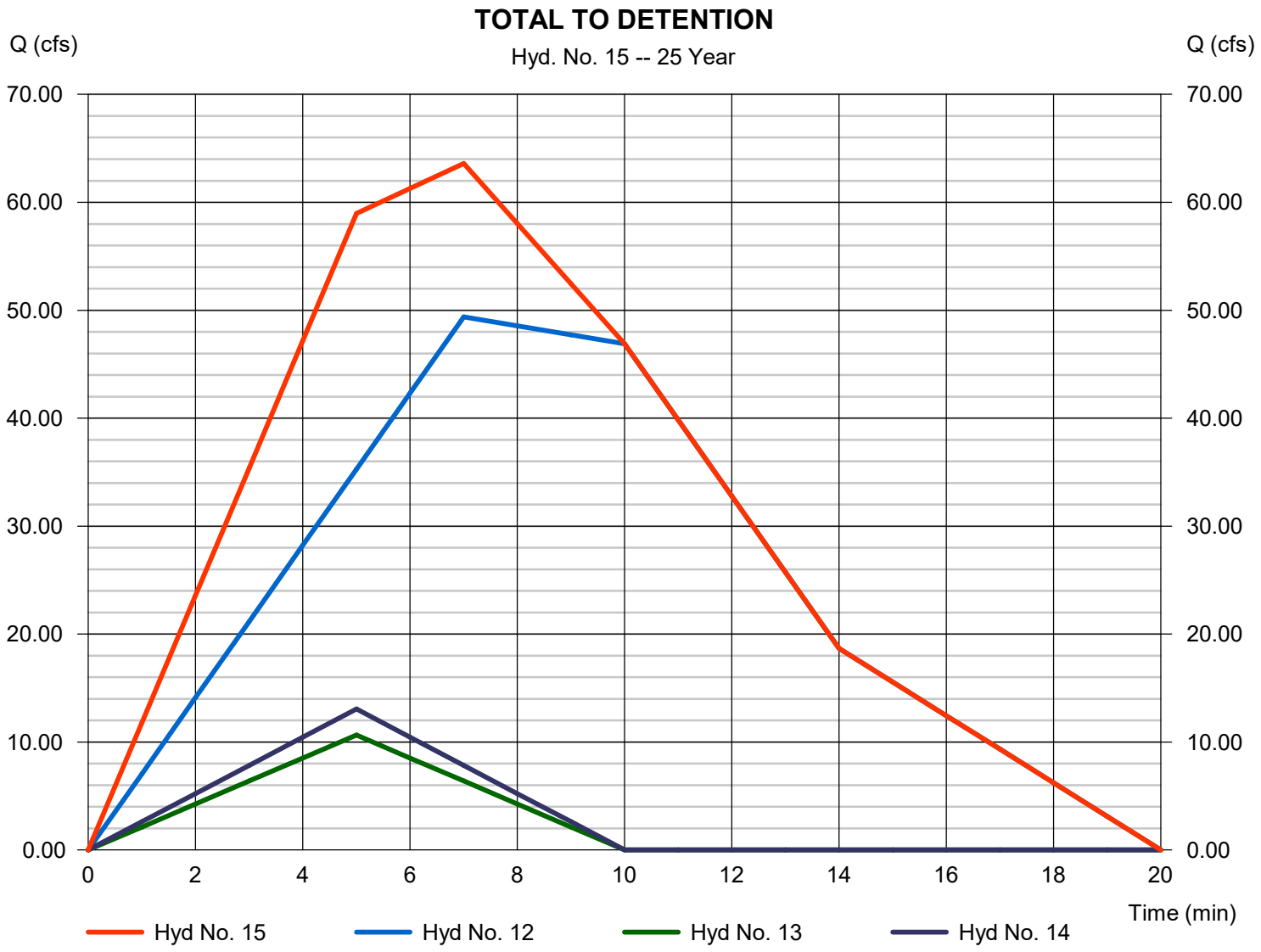


Hydrograph Report

Hyd. No. 15

TOTAL TO DETENTION

Hydrograph type	=	Combine	Peak discharge	=	63.60 cfs
Storm frequency	=	25 yrs	Time to peak	=	7 min
Time interval	=	1 min	Hyd. volume	=	37,368 cuft
Inflow hyds.	=	12, 13, 14	Contrib. drain. area	=	0.000 ac



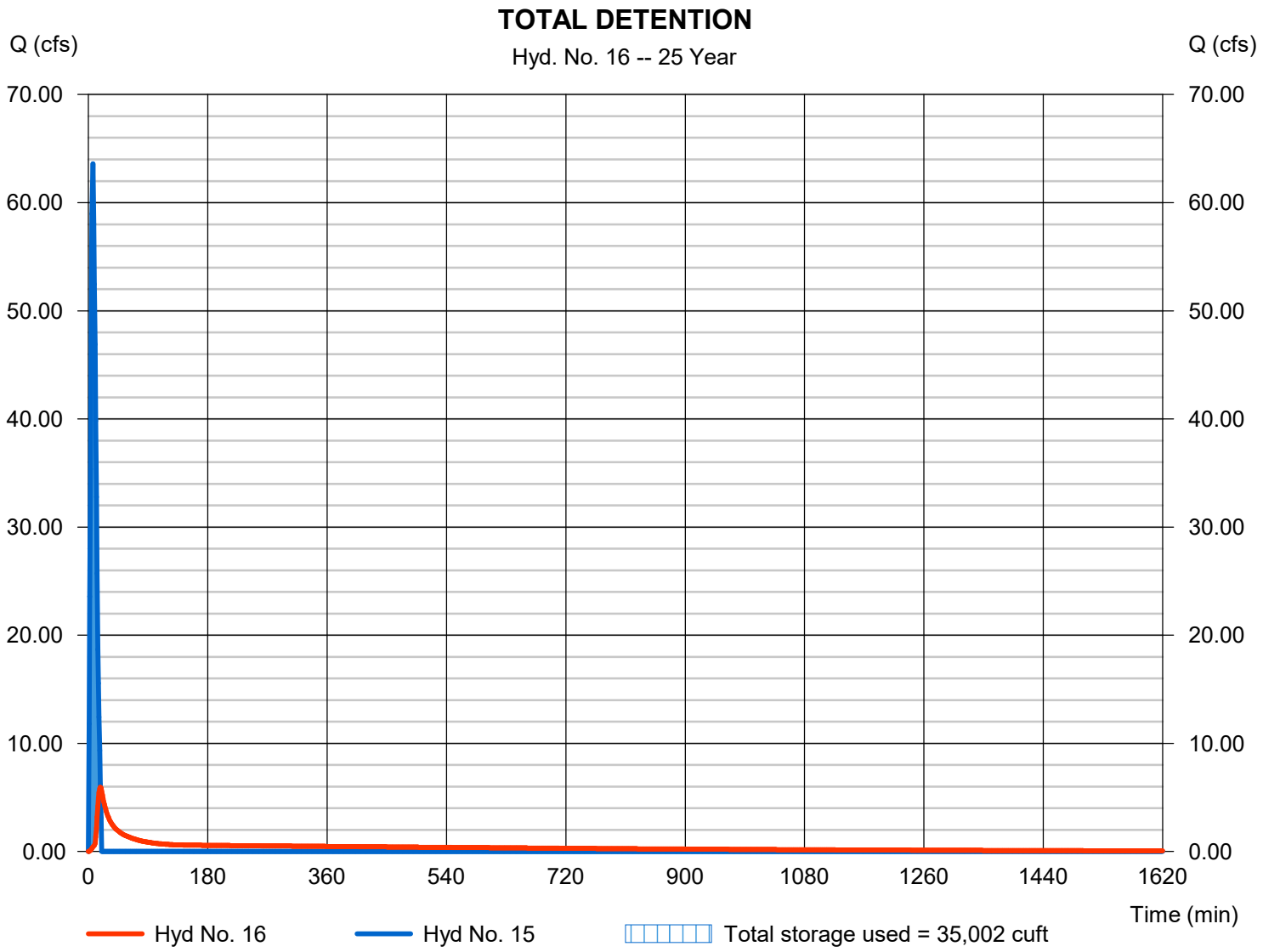
Hydrograph Report

Hyd. No. 16

TOTAL DETENTION

Hydrograph type	=	Reservoir	Peak discharge	=	5.952 cfs
Storm frequency	=	25 yrs	Time to peak	=	18 min
Time interval	=	1 min	Hyd. volume	=	37,104 cuft
Inflow hyd. No.	=	15 - TOTAL TO DETENTION	Max. Elevation	=	983.94 ft
Reservoir name	=	Detention	Max. Storage	=	35,002 cuft

Storage Indication method used.

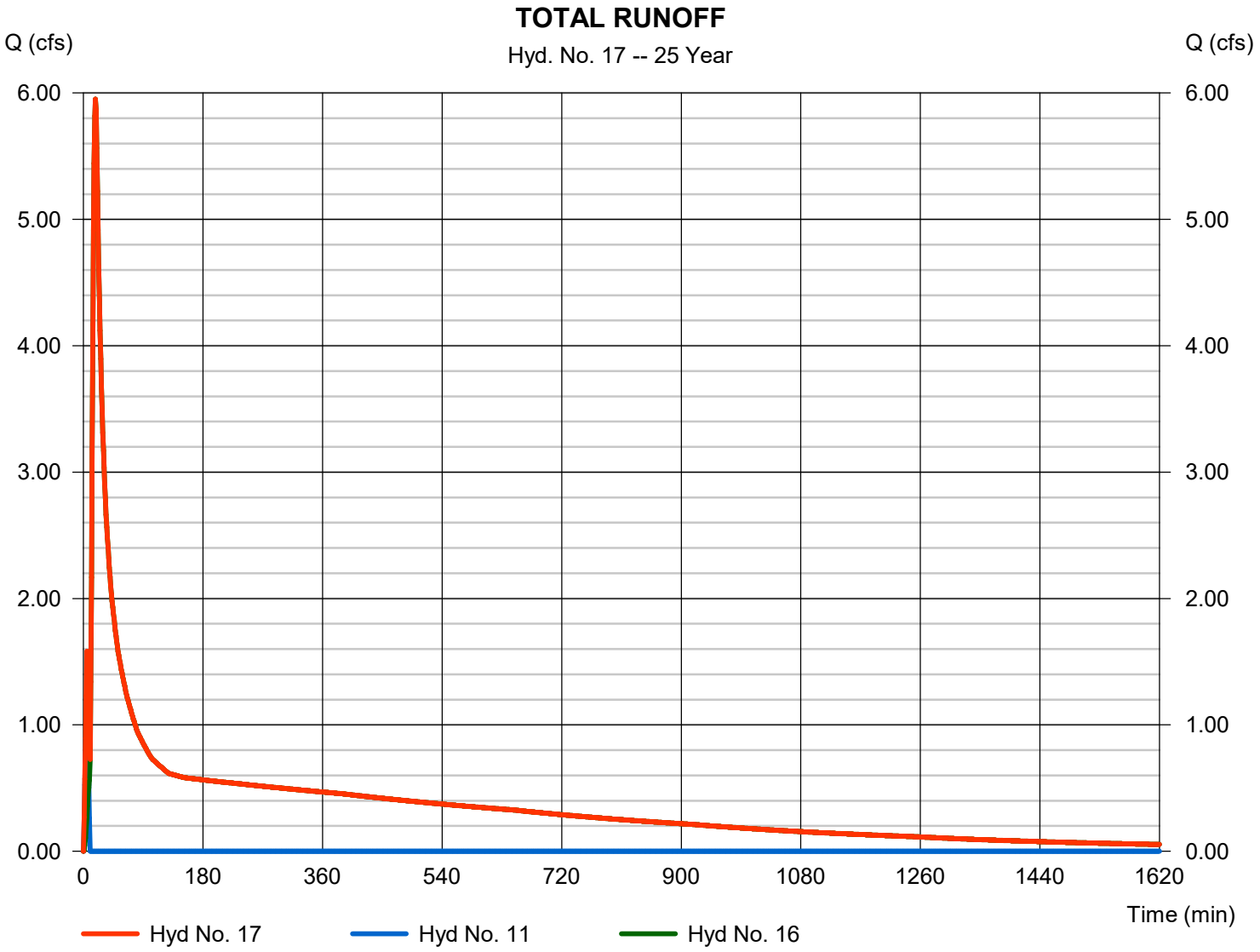


Hydrograph Report

Hyd. No. 17

TOTAL RUNOFF

Hydrograph type	=	Combine	Peak discharge	=	5.952 cfs
Storm frequency	=	25 yrs	Time to peak	=	18 min
Time interval	=	1 min	Hyd. volume	=	37,497 cuft
Inflow hyds.	=	11, 16	Contrib. drain. area	=	0.350 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

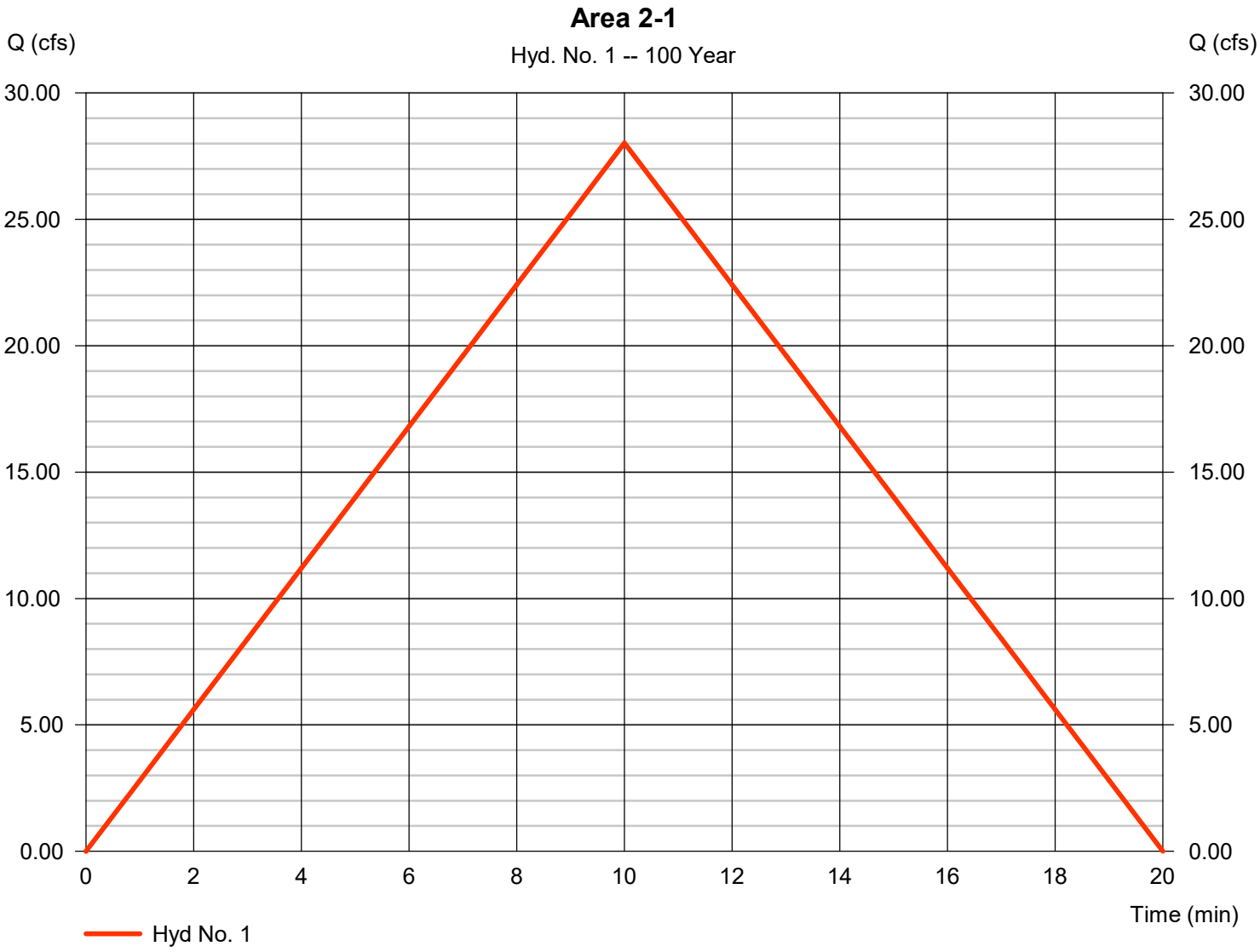
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	28.02	1	10	16,812	------	------	------	Area 2-1
2	Rational	12.98	1	10	7,788	------	------	------	Area 2-2
3	Rational	39.03	1	7	16,394	------	------	------	Area 2-3
4	Rational	8.784	1	5	2,635	------	------	------	Area 2-4
5	Rational	1.622	1	5	487	------	------	------	Area 2-5
6	Rational	9.684	1	5	2,905	------	------	------	Area 2-6
7	Rational	5.663	1	5	1,699	------	------	------	Area 2-7
8	Rational	3.210	1	5	963	------	------	------	Area 2-8
9	Rational	2.780	1	5	834	------	------	------	Area 2-9
10	Rational	4.048	1	5	1,214	------	------	------	Area 2-10
11	Rational	1.982	1	5	595	------	------	------	Area 2-11
12	Combine	67.73	1	7	40,993	1, 2, 3,	------	------	Combined 1
13	Combine	16.07	1	5	4,821	4, 5, 7,	------	------	Combined 2
14	Combine	19.72	1	5	5,917	6, 8, 9,	------	------	Combined 3
15	Combine	89.21	1	7	51,731	10, 12, 13, 14	------	------	TOTAL TO DETENTION
16	Reservoir	16.30	1	16	51,462	15	984.64	44,318	TOTAL DETENTION
17	Combine	16.30	1	16	52,057	11, 16	------	------	TOTAL RUNOFF

Hydrograph Report

Hyd. No. 1

Area 2-1

Hydrograph type	= Rational	Peak discharge	= 28.02 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 16,812 cuft
Drainage area	= 9.380 ac	Runoff coeff.	= 0.31
Intensity	= 9.636 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

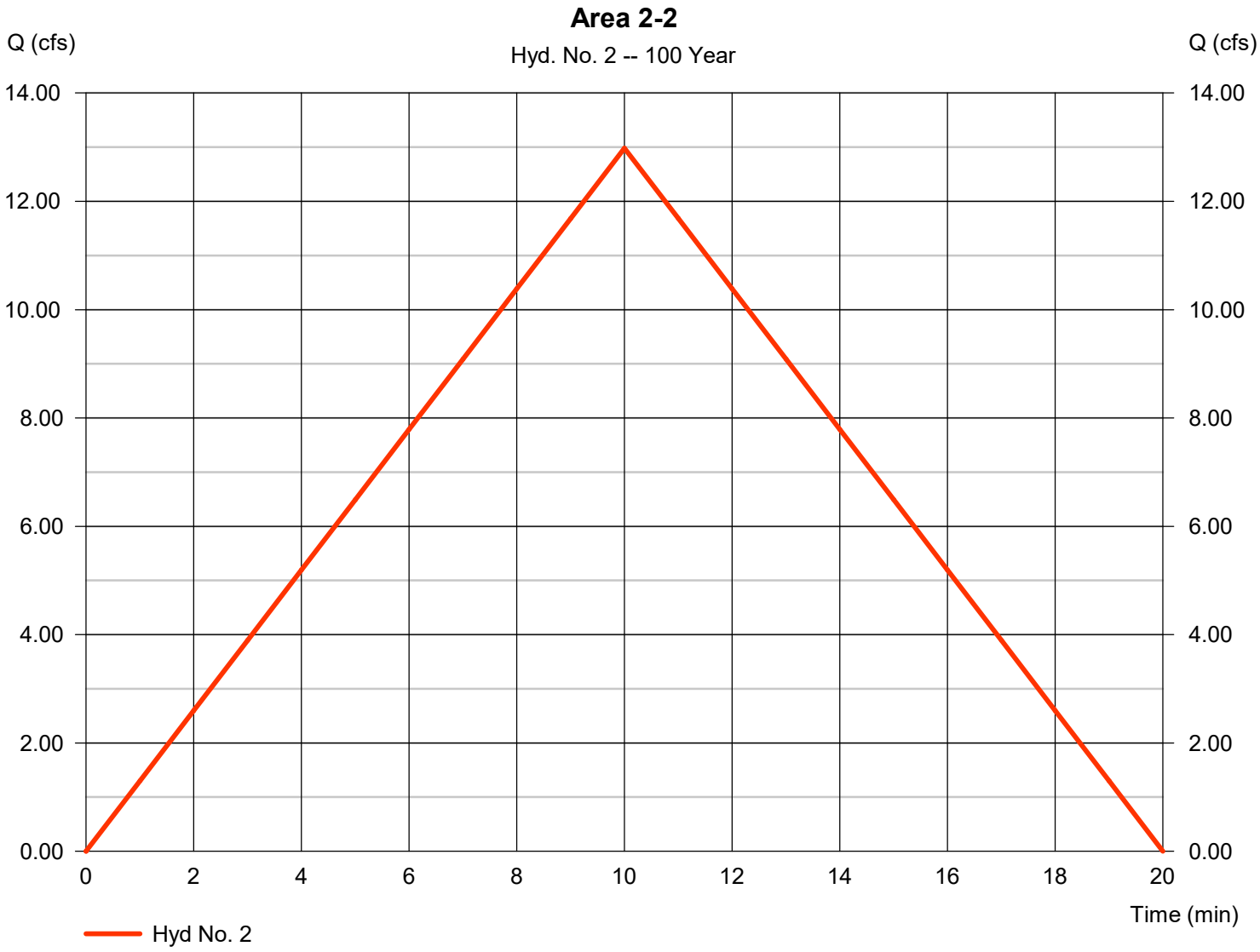


Hydrograph Report

Hyd. No. 2

Area 2-2

Hydrograph type	= Rational	Peak discharge	= 12.98 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 7,788 cuft
Drainage area	= 4.490 ac	Runoff coeff.	= 0.3
Intensity	= 9.636 in/hr	Tc by User	= 10.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

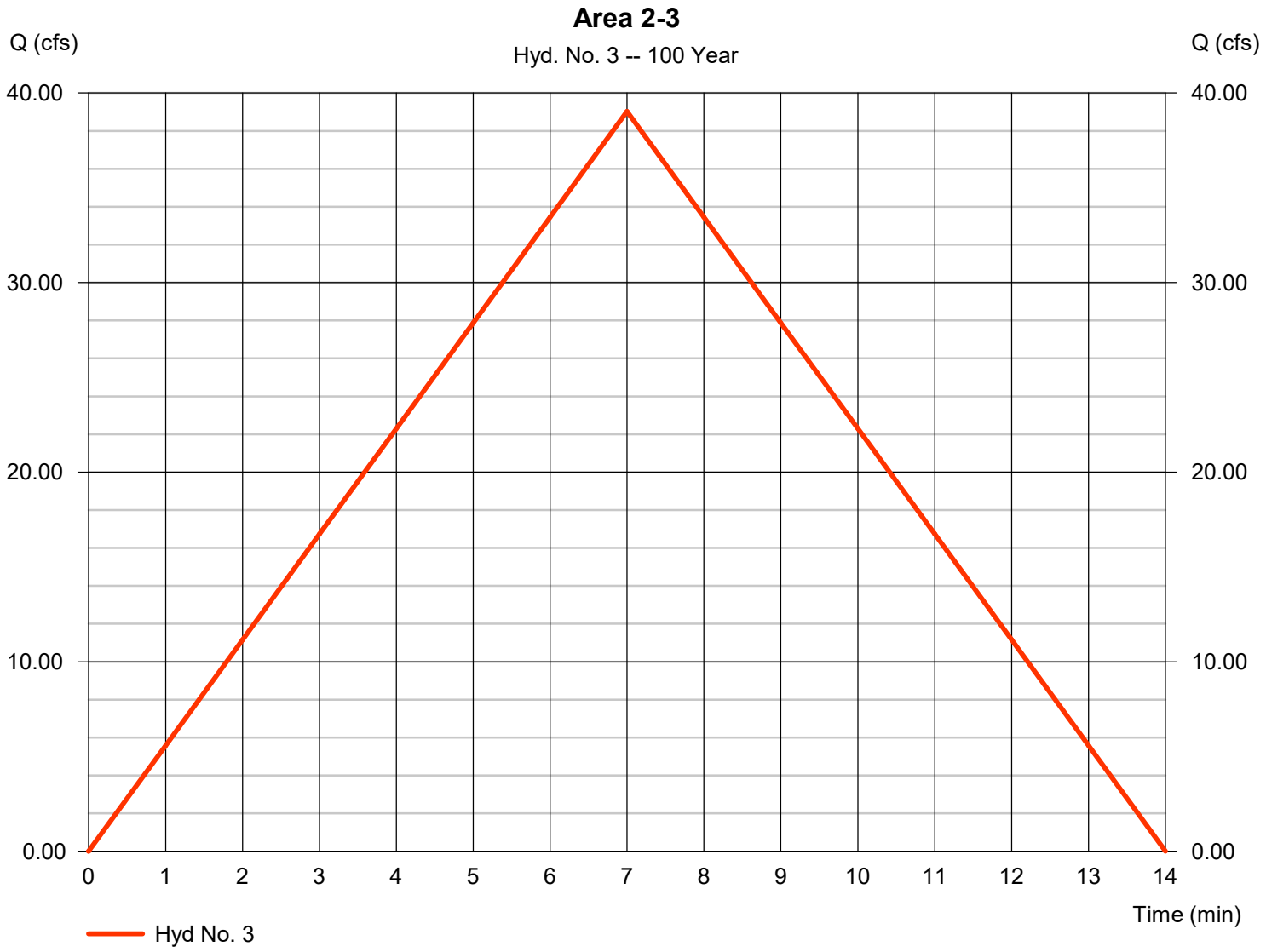


Hydrograph Report

Hyd. No. 3

Area 2-3

Hydrograph type	= Rational	Peak discharge	= 39.03 cfs
Storm frequency	= 100 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 16,394 cuft
Drainage area	= 11.500 ac	Runoff coeff.	= 0.3
Intensity	= 11.314 in/hr	Tc by User	= 7.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

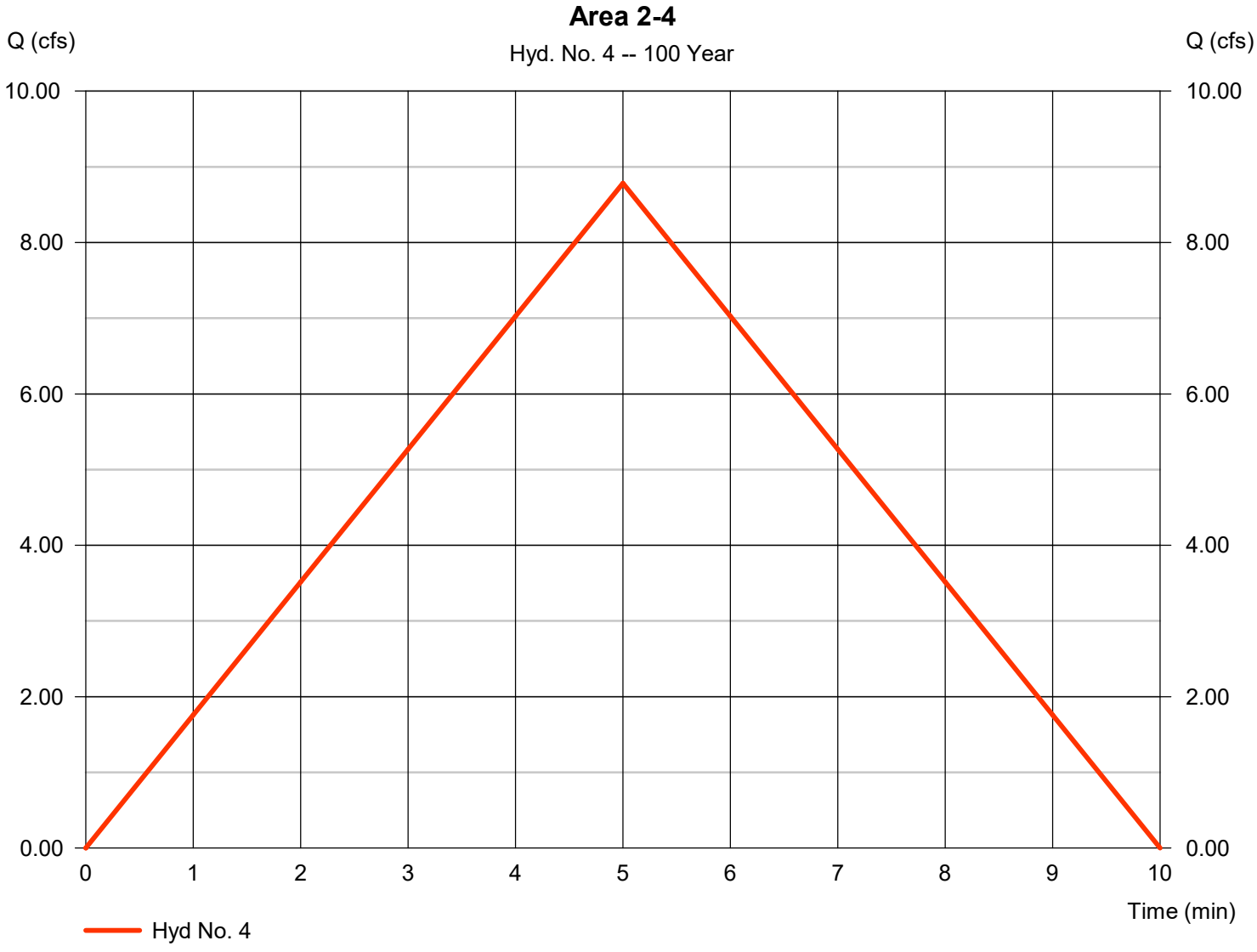


Hydrograph Report

Hyd. No. 4

Area 2-4

Hydrograph type	= Rational	Peak discharge	= 8.784 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,635 cuft
Drainage area	= 1.050 ac	Runoff coeff.	= 0.65
Intensity	= 12.871 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

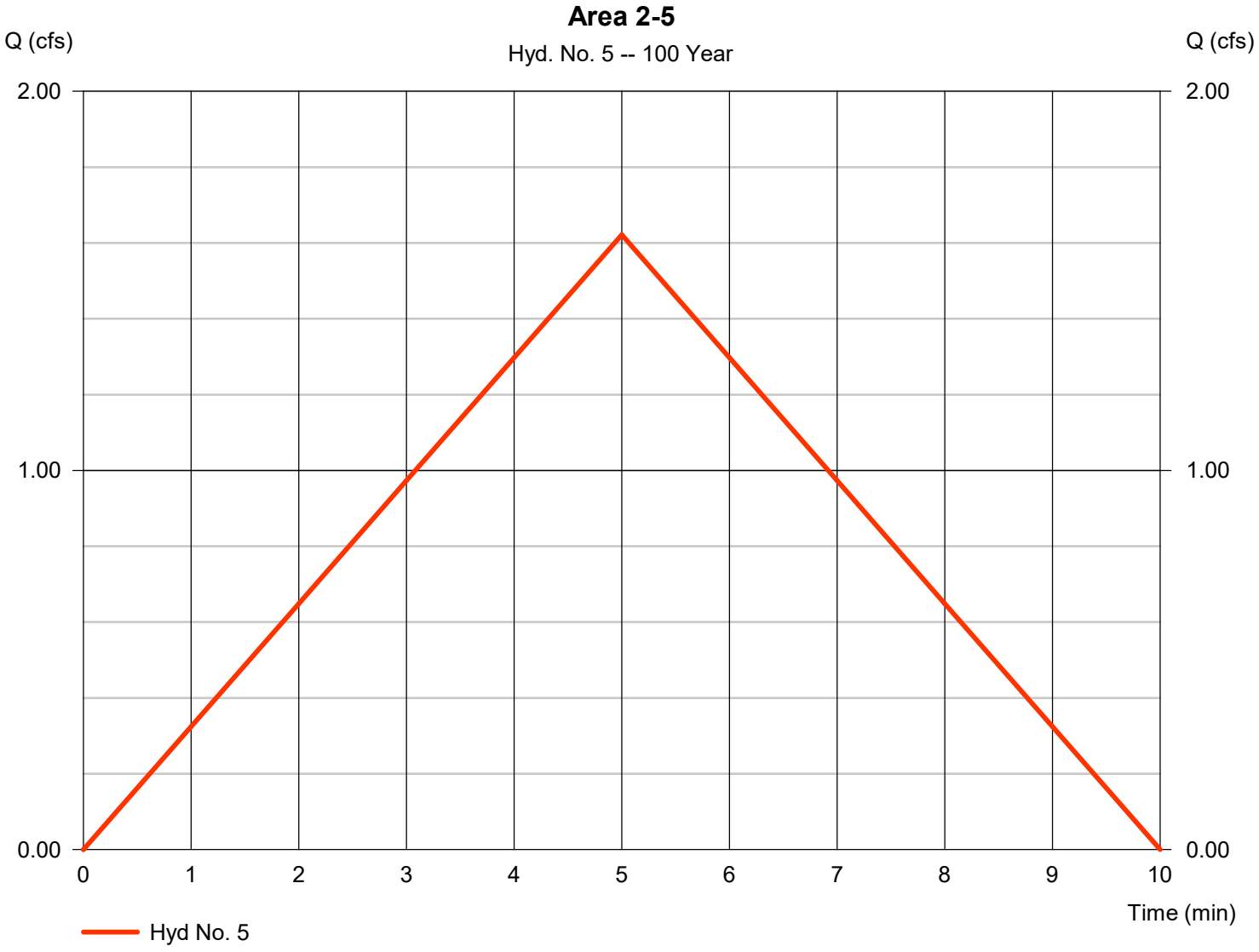


Hydrograph Report

Hyd. No. 5

Area 2-5

Hydrograph type	= Rational	Peak discharge	= 1.622 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 487 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.63
Intensity	= 12.871 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

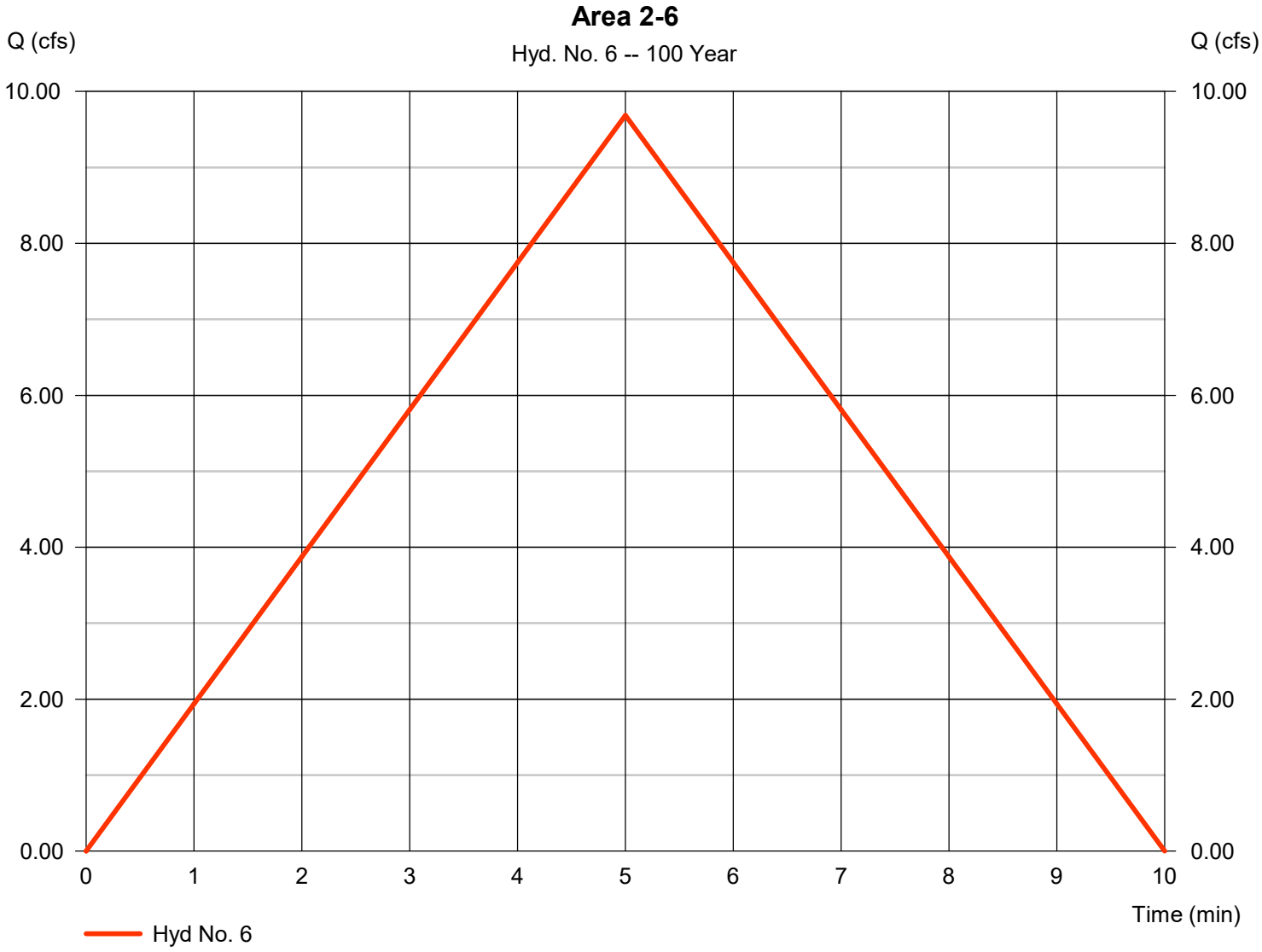


Hydrograph Report

Hyd. No. 6

Area 2-6

Hydrograph type	= Rational	Peak discharge	= 9.684 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,905 cuft
Drainage area	= 0.990 ac	Runoff coeff.	= 0.76
Intensity	= 12.871 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

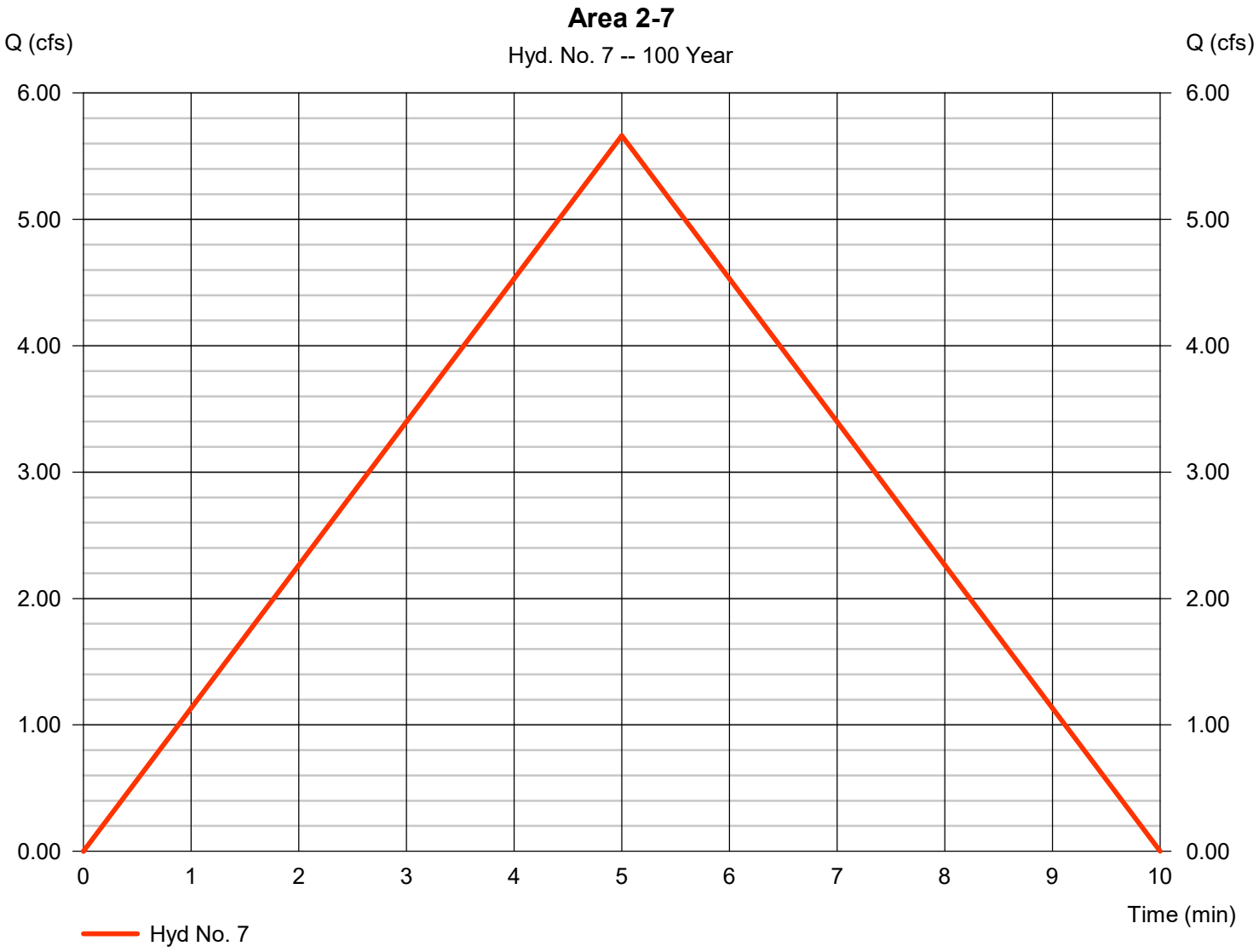


Hydrograph Report

Hyd. No. 7

Area 2-7

Hydrograph type	= Rational	Peak discharge	= 5.663 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,699 cuft
Drainage area	= 0.500 ac	Runoff coeff.	= 0.88
Intensity	= 12.871 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

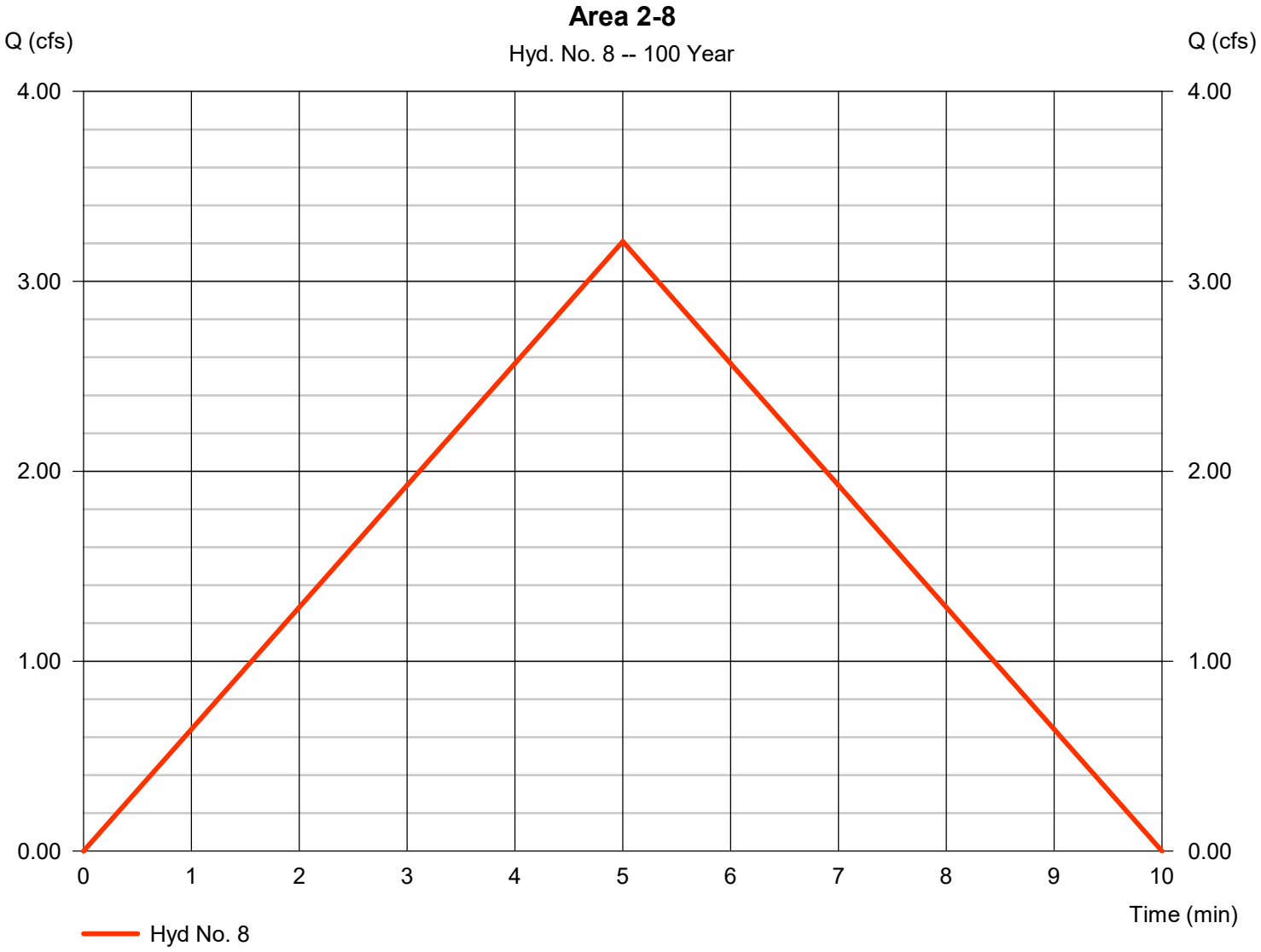


Hydrograph Report

Hyd. No. 8

Area 2-8

Hydrograph type	= Rational	Peak discharge	= 3.210 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 963 cuft
Drainage area	= 0.290 ac	Runoff coeff.	= 0.86
Intensity	= 12.871 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

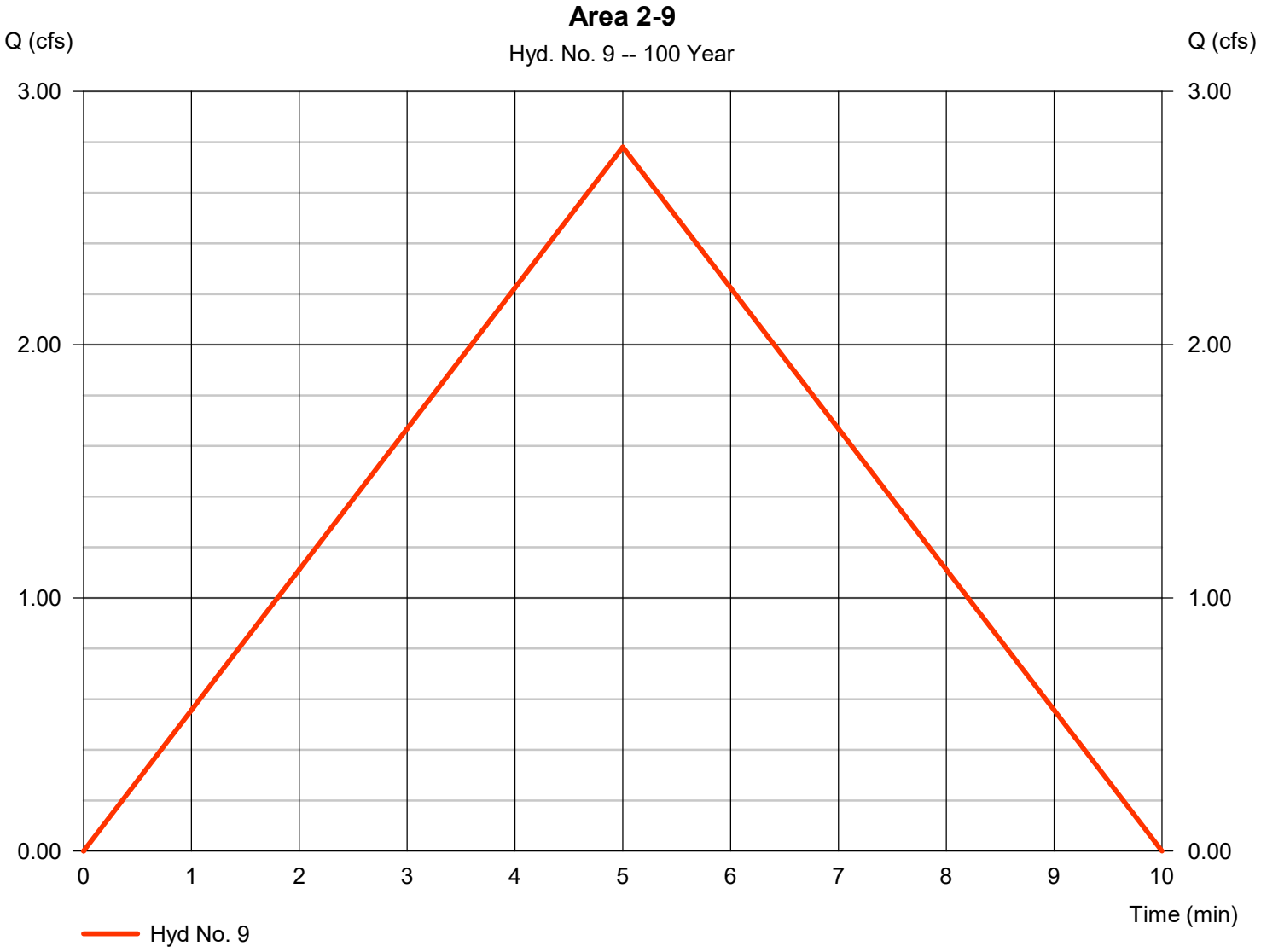


Hydrograph Report

Hyd. No. 9

Area 2-9

Hydrograph type	= Rational	Peak discharge	= 2.780 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 834 cuft
Drainage area	= 0.240 ac	Runoff coeff.	= 0.9
Intensity	= 12.871 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

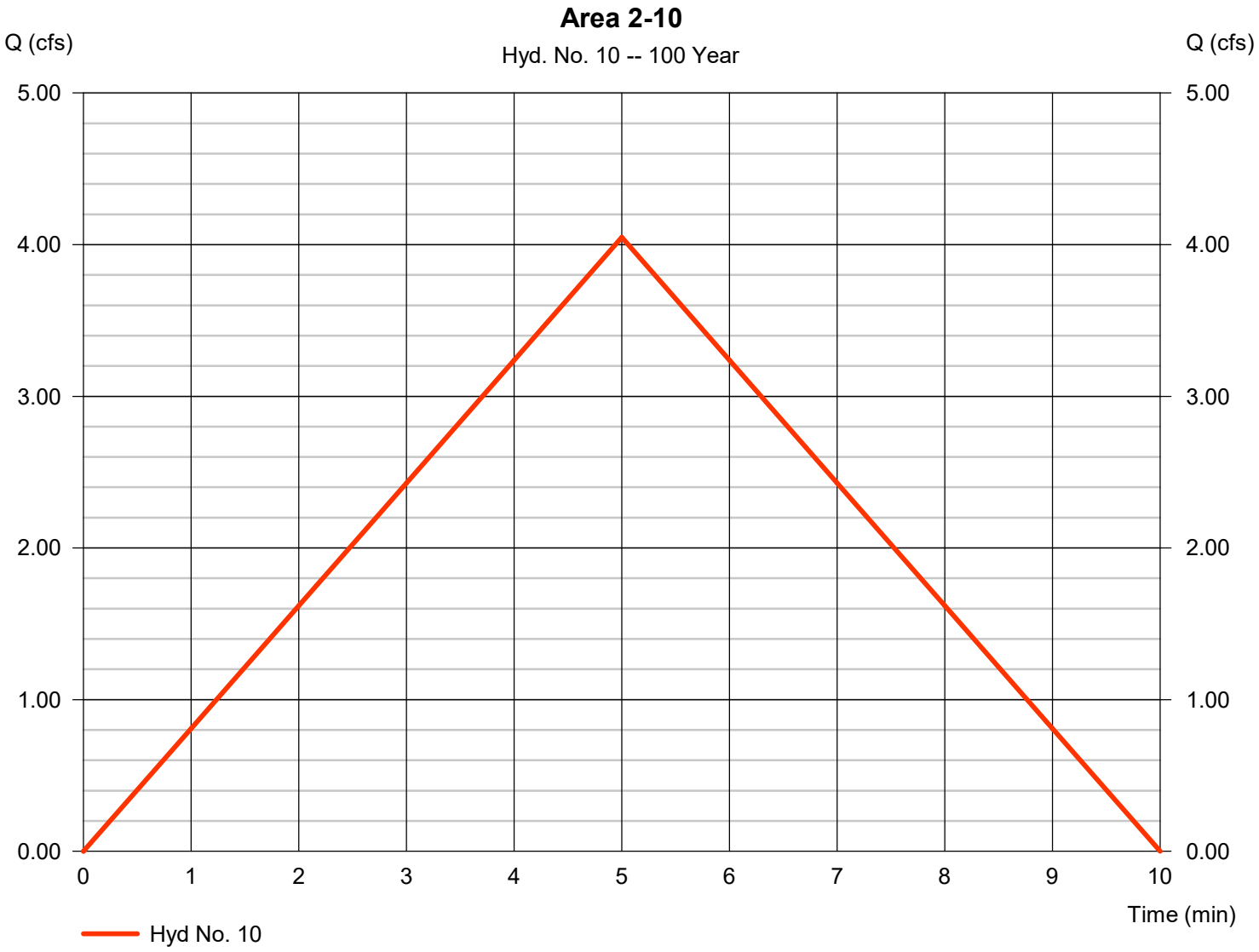


Hydrograph Report

Hyd. No. 10

Area 2-10

Hydrograph type	= Rational	Peak discharge	= 4.048 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,214 cuft
Drainage area	= 0.370 ac	Runoff coeff.	= 0.85
Intensity	= 12.871 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

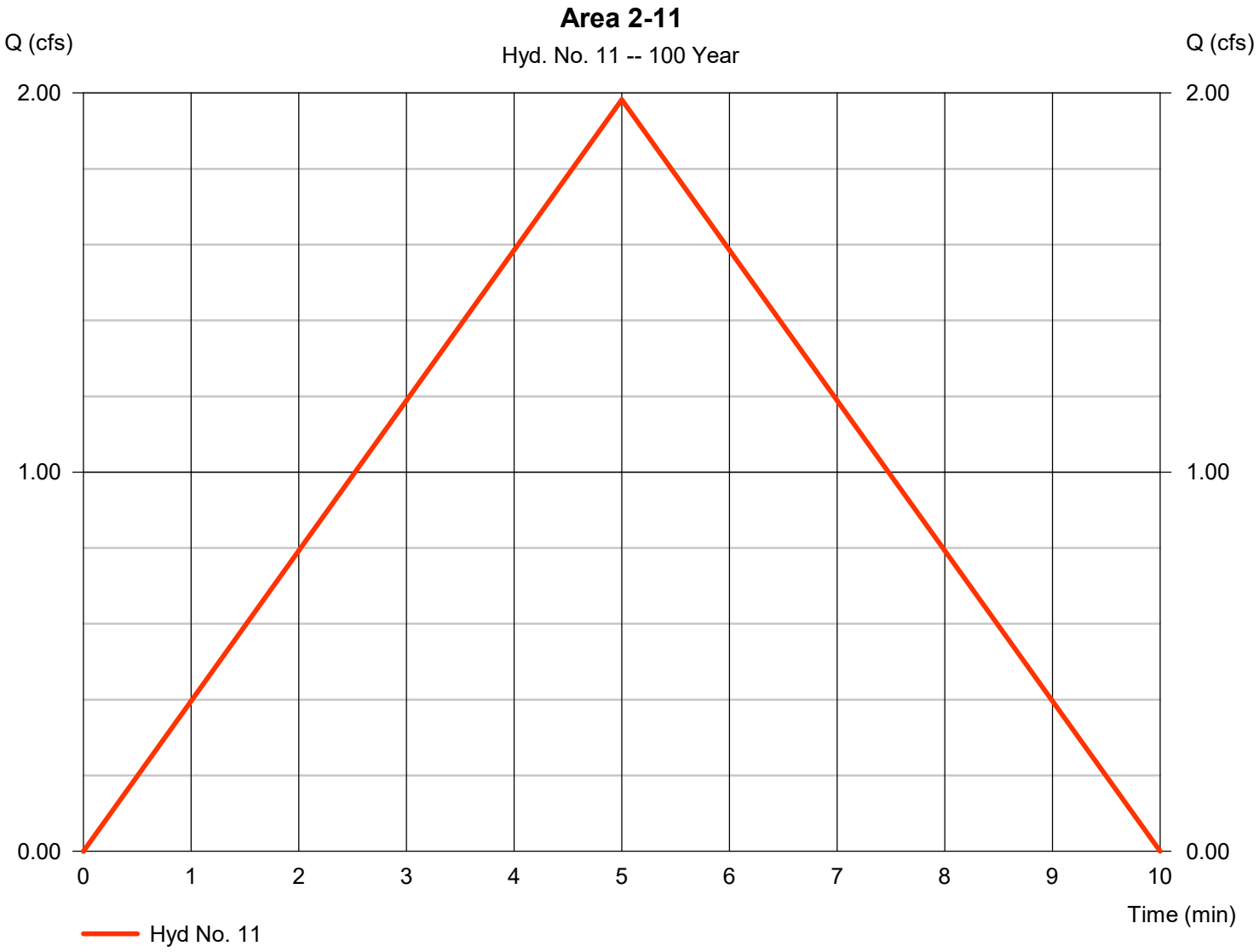


Hydrograph Report

Hyd. No. 11

Area 2-11

Hydrograph type	= Rational	Peak discharge	= 1.982 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 595 cuft
Drainage area	= 0.350 ac	Runoff coeff.	= 0.44
Intensity	= 12.871 in/hr	Tc by User	= 5.00 min
IDF Curve	= KCAPWA.IDF	Asc/Rec limb fact	= 1/1

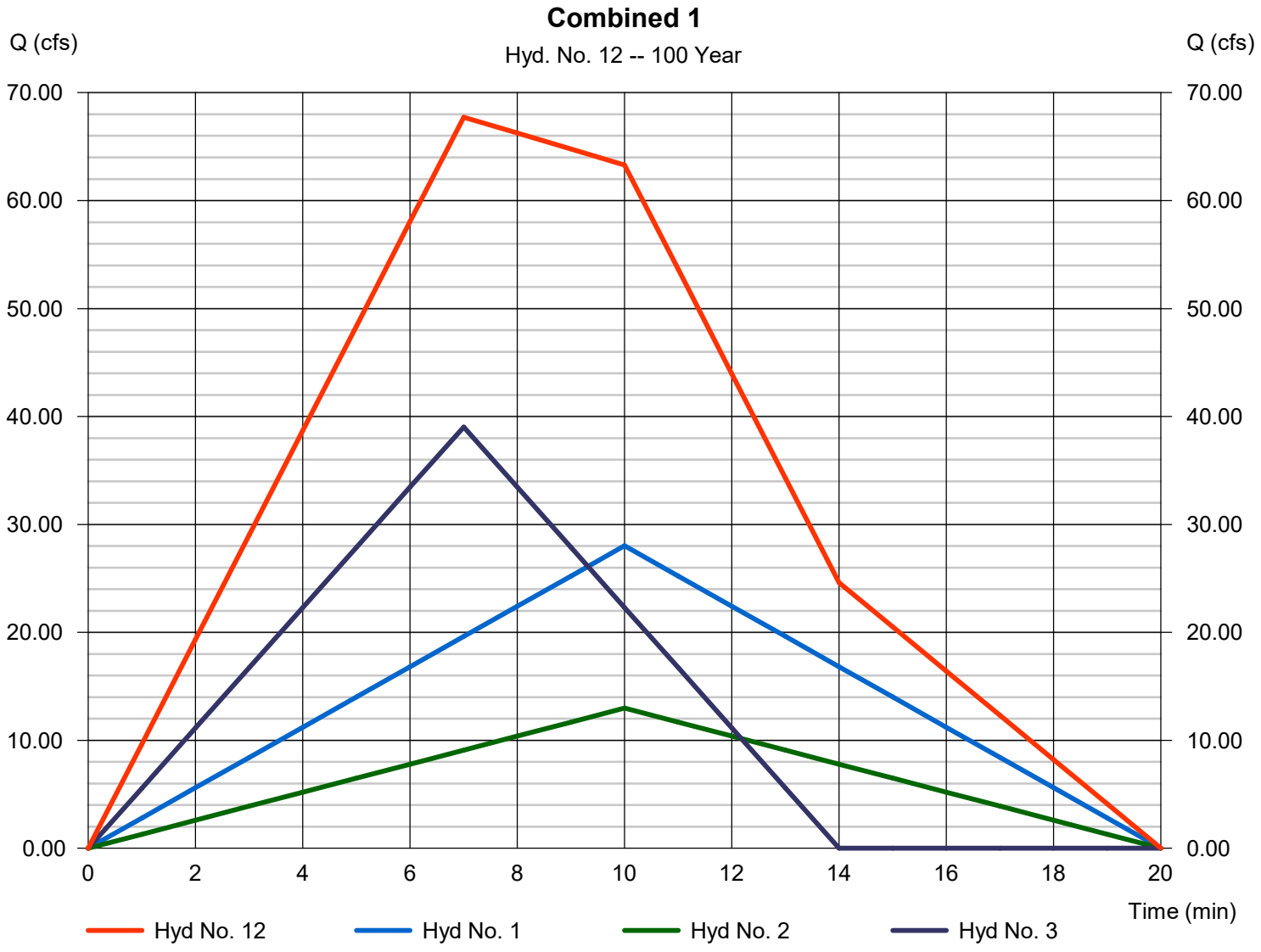


Hydrograph Report

Hyd. No. 12

Combined 1

Hydrograph type	= Combine	Peak discharge	= 67.73 cfs
Storm frequency	= 100 yrs	Time to peak	= 7 min
Time interval	= 1 min	Hyd. volume	= 40,993 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 25.370 ac

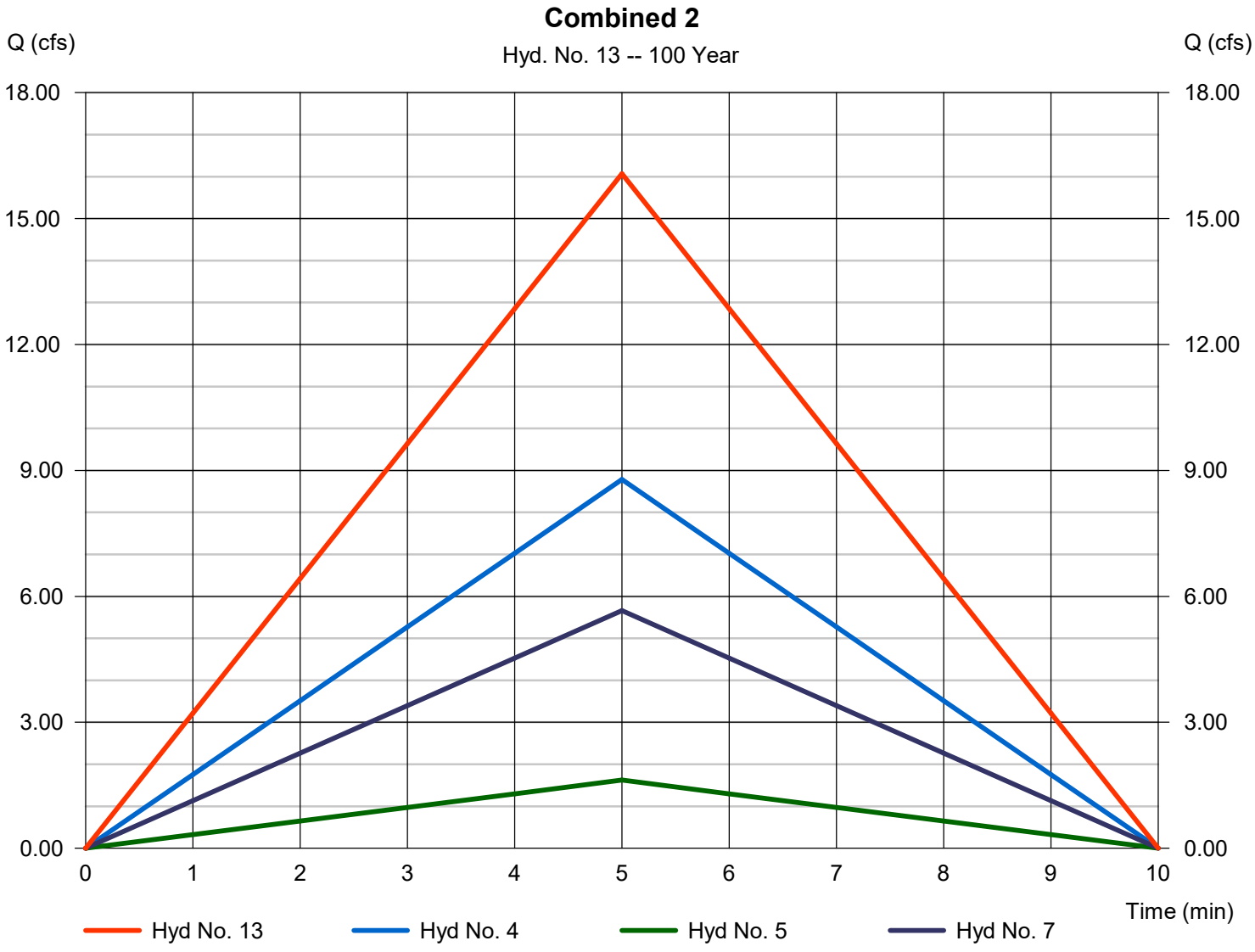


Hydrograph Report

Hyd. No. 13

Combined 2

Hydrograph type	= Combine	Peak discharge	= 16.07 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 4,821 cuft
Inflow hyds.	= 4, 5, 7	Contrib. drain. area	= 1.750 ac

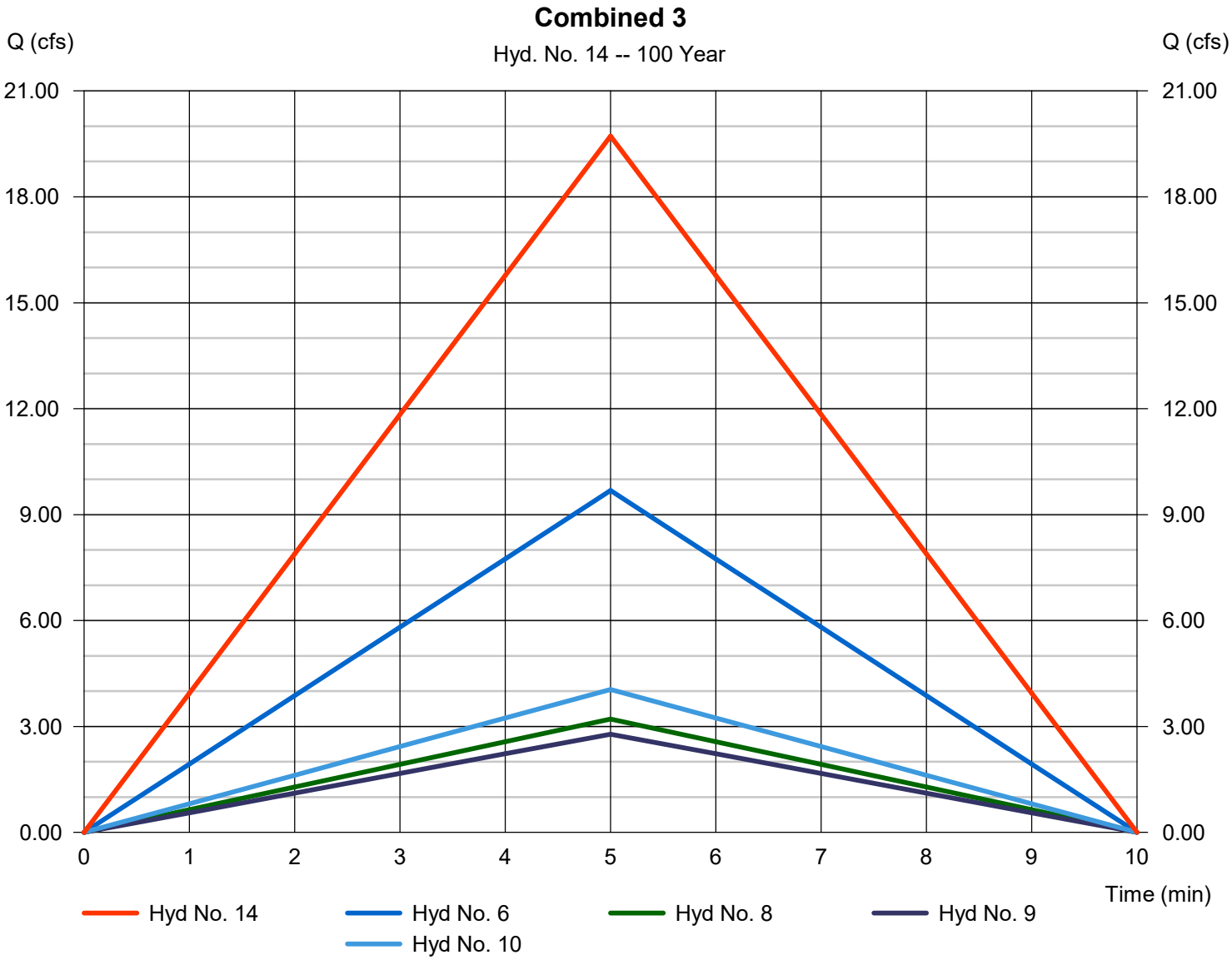


Hydrograph Report

Hyd. No. 14

Combined 3

Hydrograph type	= Combine	Peak discharge	= 19.72 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 5,917 cuft
Inflow hyds.	= 6, 8, 9, 10	Contrib. drain. area	= 1.890 ac

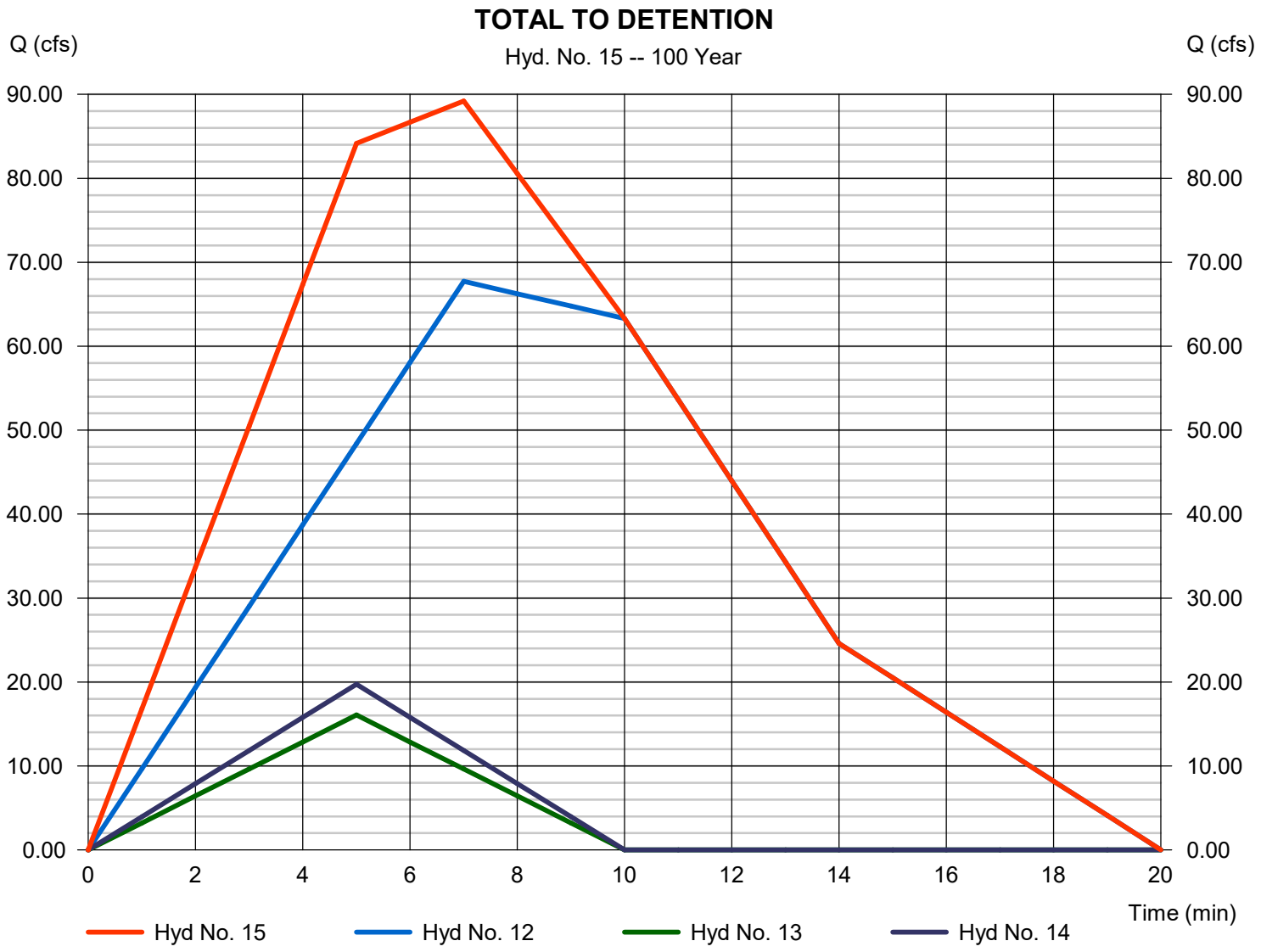


Hydrograph Report

Hyd. No. 15

TOTAL TO DETENTION

Hydrograph type	=	Combine	Peak discharge	=	89.21 cfs
Storm frequency	=	100 yrs	Time to peak	=	7 min
Time interval	=	1 min	Hyd. volume	=	51,731 cuft
Inflow hyds.	=	12, 13, 14	Contrib. drain. area	=	0.000 ac



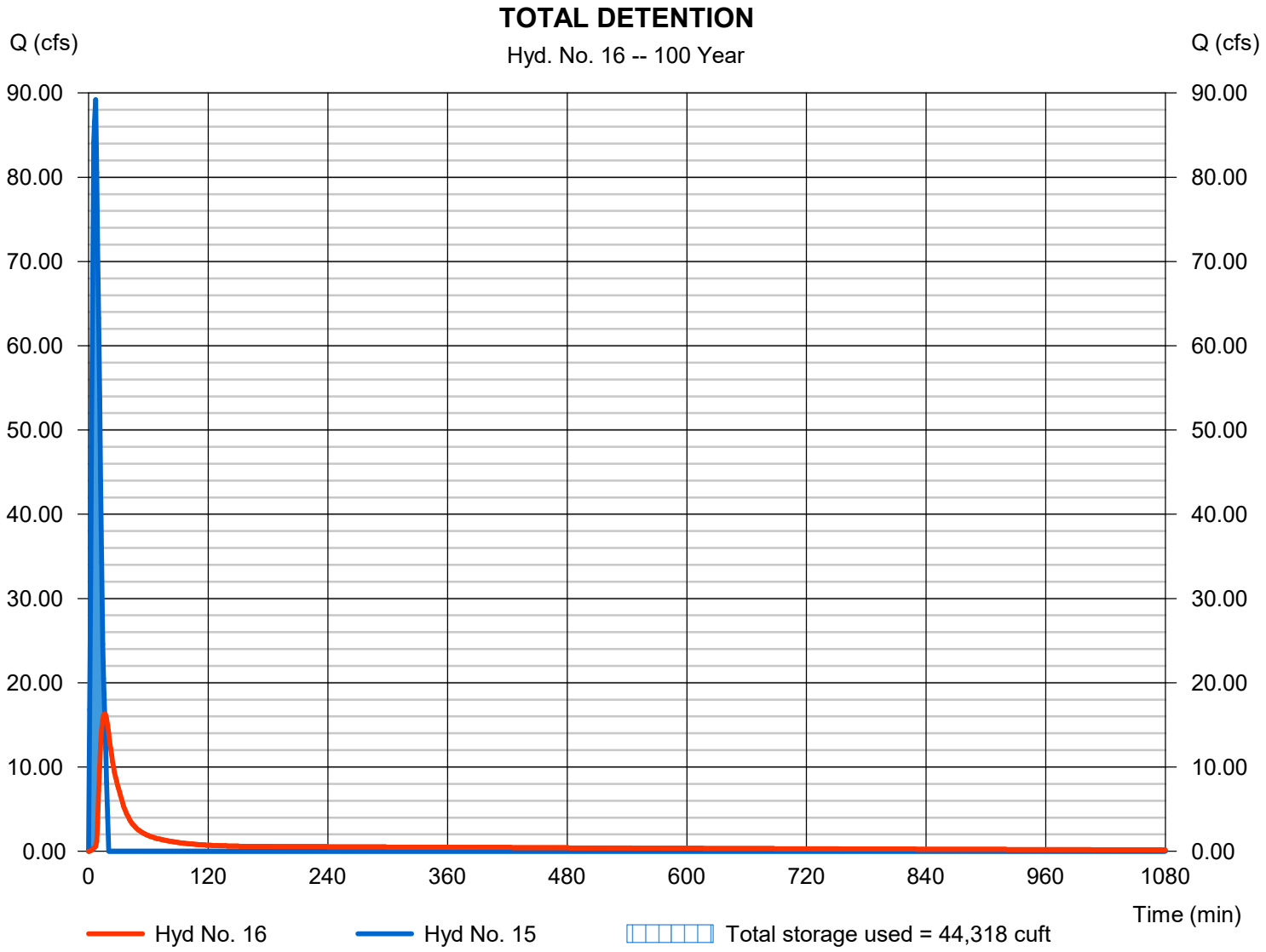
Hydrograph Report

Hyd. No. 16

TOTAL DETENTION

Hydrograph type	=	Reservoir	Peak discharge	=	16.30 cfs
Storm frequency	=	100 yrs	Time to peak	=	16 min
Time interval	=	1 min	Hyd. volume	=	51,462 cuft
Inflow hyd. No.	=	15 - TOTAL TO DETENTION	Max. Elevation	=	984.64 ft
Reservoir name	=	Detention	Max. Storage	=	44,318 cuft

Storage Indication method used.

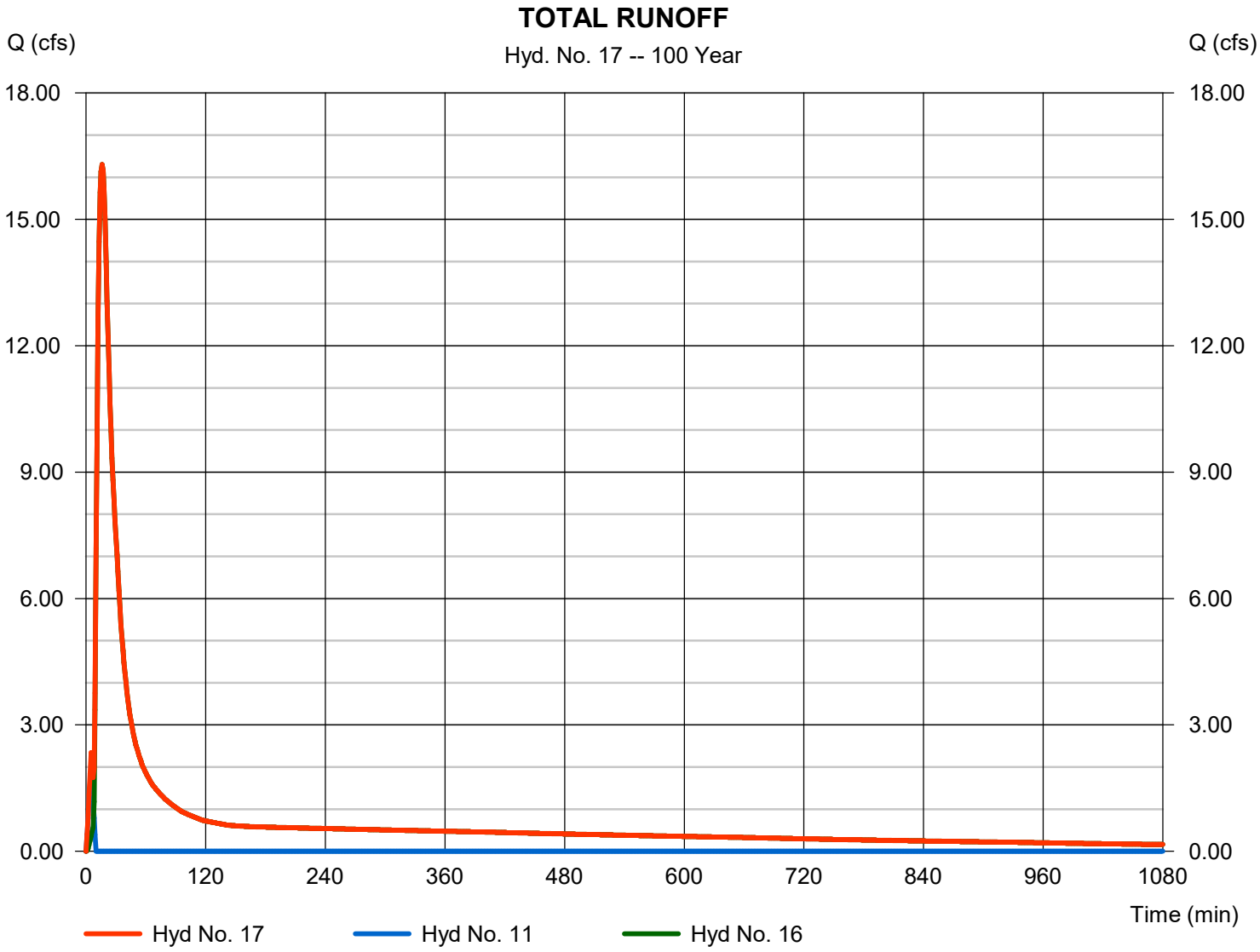


Hydrograph Report

Hyd. No. 17

TOTAL RUNOFF

Hydrograph type	=	Combine	Peak discharge	=	16.30 cfs
Storm frequency	=	100 yrs	Time to peak	=	16 min
Time interval	=	1 min	Hyd. volume	=	52,057 cuft
Inflow hyds.	=	11, 16	Contrib. drain. area	=	0.350 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	2.9200	0.1000	0.0000	--------
2	110.7137	16.5000	0.9842	--------
3	0.0000	0.0000	0.0000	--------
5	168.3971	19.5000	1.0189	--------
10	183.3473	19.2000	1.0096	--------
25	12318.8496	51.4998	1.8037	--------
50	235.4014	19.9000	1.0020	--------
100	83.7894	6.1000	0.7783	--------

File name: KCAPWA.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	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92
2	5.41	4.40	3.71	3.21	2.83	2.53	2.29	2.09	1.92	1.78	1.66	1.55
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	6.47	5.35	4.56	3.98	3.52	3.16	2.86	2.62	2.41	2.24	2.08	1.95
10	7.35	6.08	5.18	4.52	4.00	3.59	3.26	2.98	2.74	2.54	2.37	2.22
25	8.52	7.31	6.35	5.57	4.93	4.40	3.95	3.57	3.24	2.96	2.72	2.50
50	9.39	7.82	6.70	5.86	5.20	4.68	4.25	3.90	3.60	3.34	3.12	2.92
100	12.87	9.64	7.81	6.62	5.77	5.14	4.65	4.25	3.92	3.65	3.41	3.21

Tc = time in minutes. Values may exceed 60.

Precip. file name: bluesprings.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	2.90	3.50	0.00	4.50	5.30	6.10	6.80	7.70
SCS 6-Hr	0.00	2.65	0.00	3.30	3.45	4.50	5.10	5.70
Huff-1st	0.00	1.55	0.00	2.75	4.00	5.38	6.50	8.00
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	1.55	0.00	2.75	4.00	5.38	6.50	8.00
Custom	0.00	1.75	0.00	2.80	3.90	5.25	6.00	7.10

Hydraflow Table of Contents

19076.As-BuiltConditions.03.30.2022.gpw

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 04 / 1 / 2022

10 - Year

25 - Year