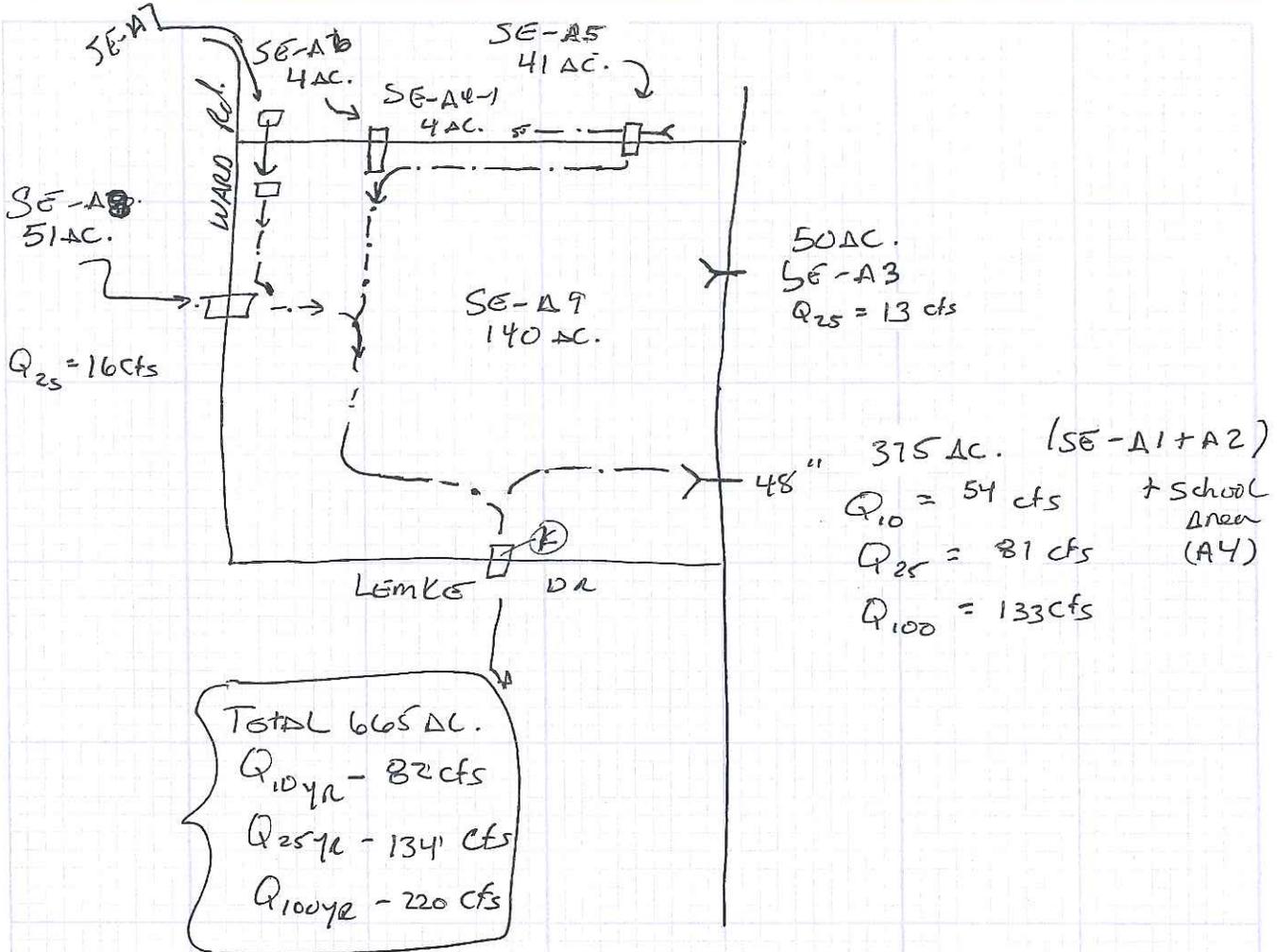


Attachment 3

Sawyer Creek East (SEA)



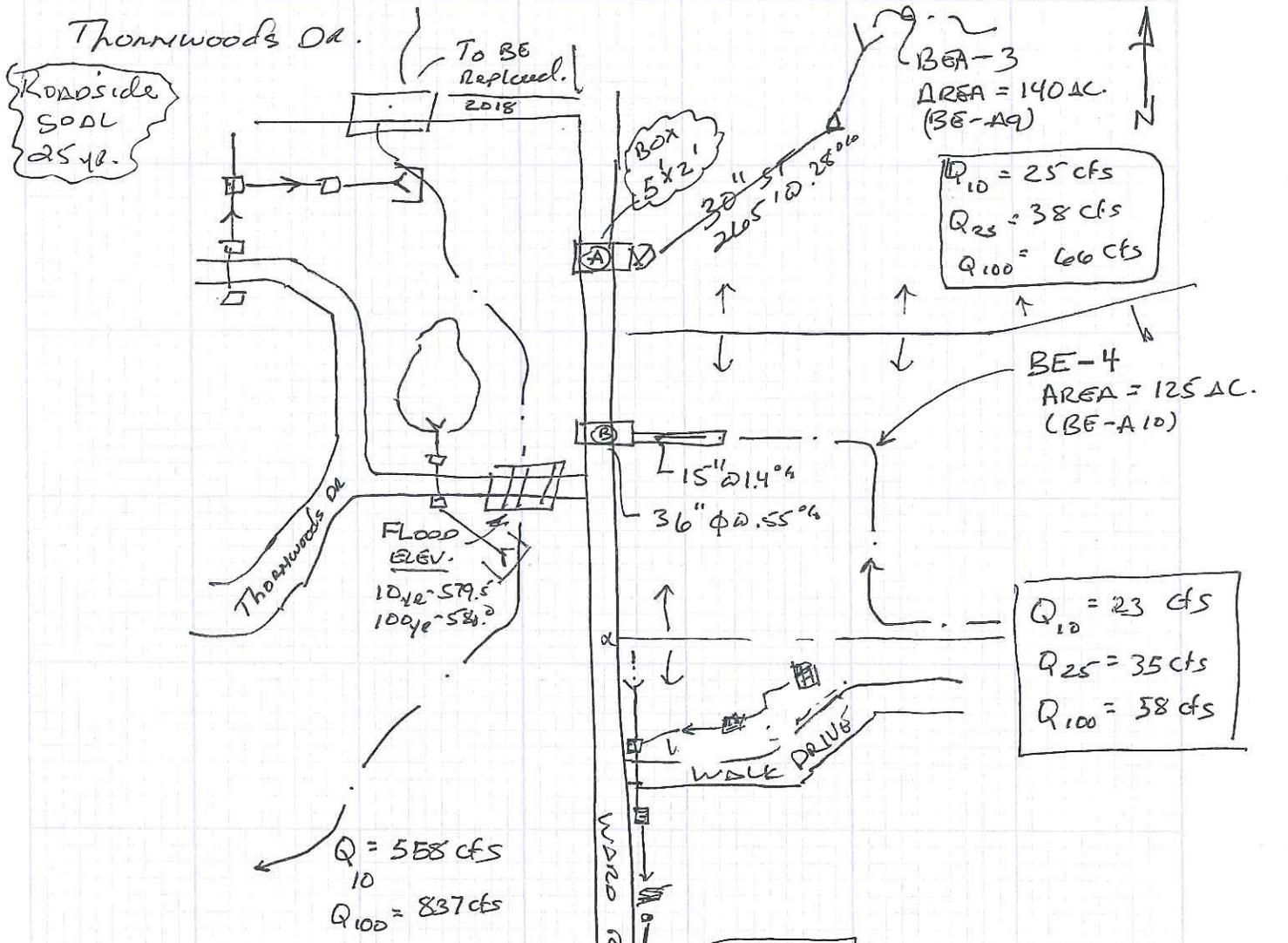
Client Wheatfield Job Number _____ Sheet _____ of _____
 Project DRAINAGE STUDY Sheets by _____ Date _____
 Subject _____ Checked by _____ Date _____



(E) - Twin 48" CMP (POOR CONDITION)
 Q CAP @ CROWN OF ROAD ~ 180 cfs OK



Client: Wheatfield Job Number: 231140 Sheet: of
 Project: DRAINAGE STUDY Sheets by: DMB Date:
 Subject: Thornwood Estates / WALK DR. Checked by: Date:



NOTES:

- Ⓐ 30" 12 yr. CAP.
- BOX COLLECT CAN HANDLE 100 yr FLOW
- Ⓑ 15" φ (7 cfs Capacity)
Restriction
- 36" φ CAN HANDLE 100 yr. ST.
- Ⓒ 15" φ (8 cfs capacity / NOISSUE)
- Ⓓ 18" (8 cfs capacity) | 18 cfs for 25 years
* Consider increasing 18" to 24" inlet; 24" across ST.
- Ⓔ 27" x 33" comp has 30 cfs capacity | 100 yr

4 AC.
SE-A7
 $Q_{10} = 3.4 \text{ cfs}$
 $Q_{25} = 4.7 \text{ cfs}$
 $Q_{100} = 7.5 \text{ cfs}$

BEA-3
 AREA = 140 AC.
 (BE-A9)
 $Q_{10} = 25 \text{ cfs}$
 $Q_{25} = 38 \text{ cfs}$
 $Q_{100} = 66 \text{ cfs}$

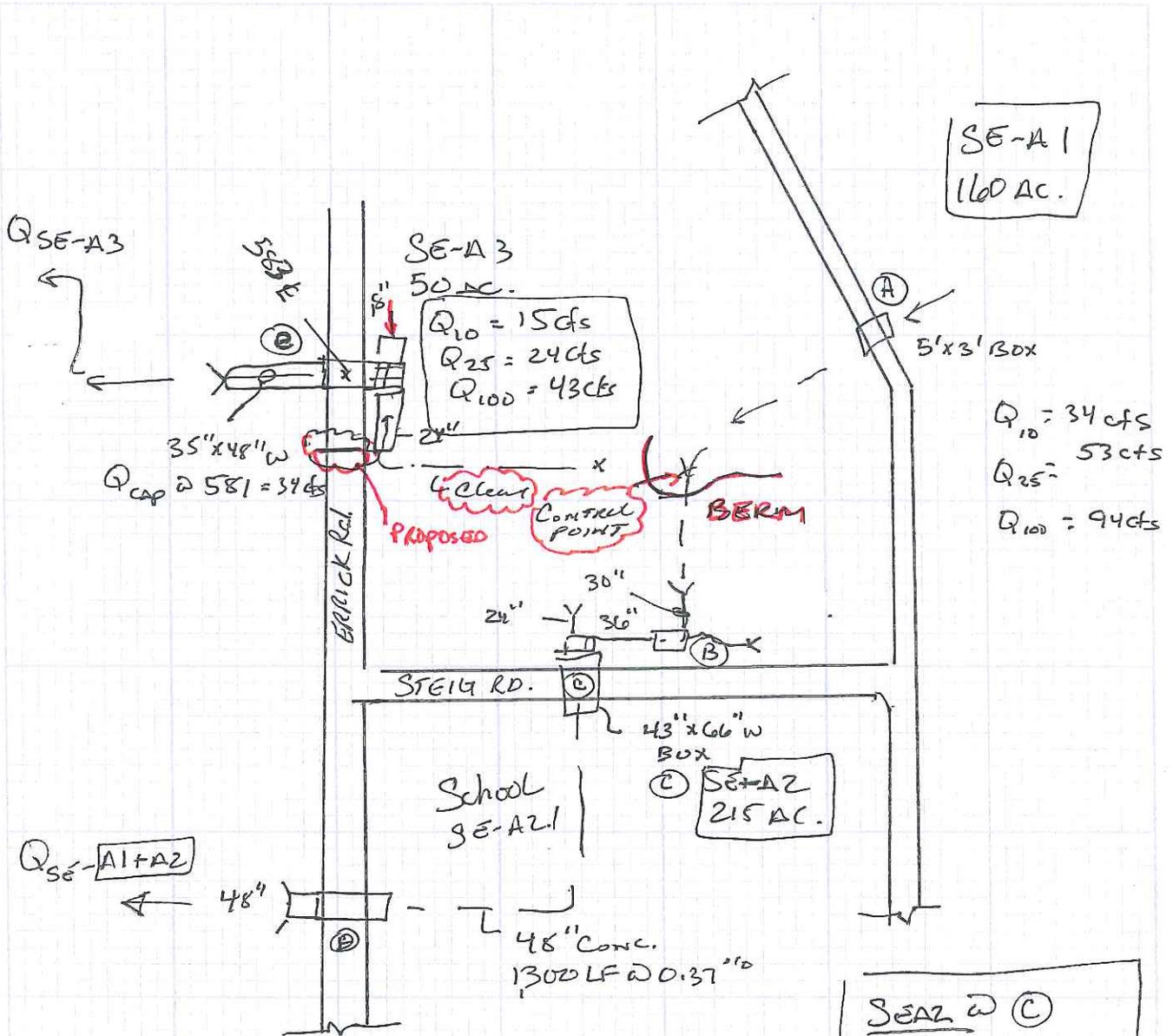
BE-4
 AREA = 125 AC.
 (BE-A10)

$Q_{10} = 23 \text{ cfs}$
 $Q_{25} = 35 \text{ cfs}$
 $Q_{100} = 58 \text{ cfs}$

(SE-A15)
 AREA = 41 A

$Q_{10} = 9.2 \text{ c}$
 $Q_{25} = 18$
 $Q_{100} = 30$

$Q_{10} = 13 \text{ cfs}$
 $Q_{25} = 19 \text{ cfs}$
 $Q_{100} = 31 \text{ cfs}$



- Ⓐ 5'x3' Box Capacity:
- Ⓑ 30" capacity 20 cfs @ 580.90
- Ⓒ 36" capacity 48 cfs @ 581.50
- 43"x66" Box capacity 102 cfs @ 579.3
- Ⓓ 48" comp ~ capacity 70 cfs @ 581 ← Limiting factor
- Ⓔ 24" comp/HOPE @ 0.1% (new) = 15 cfs / 25 yr storm.

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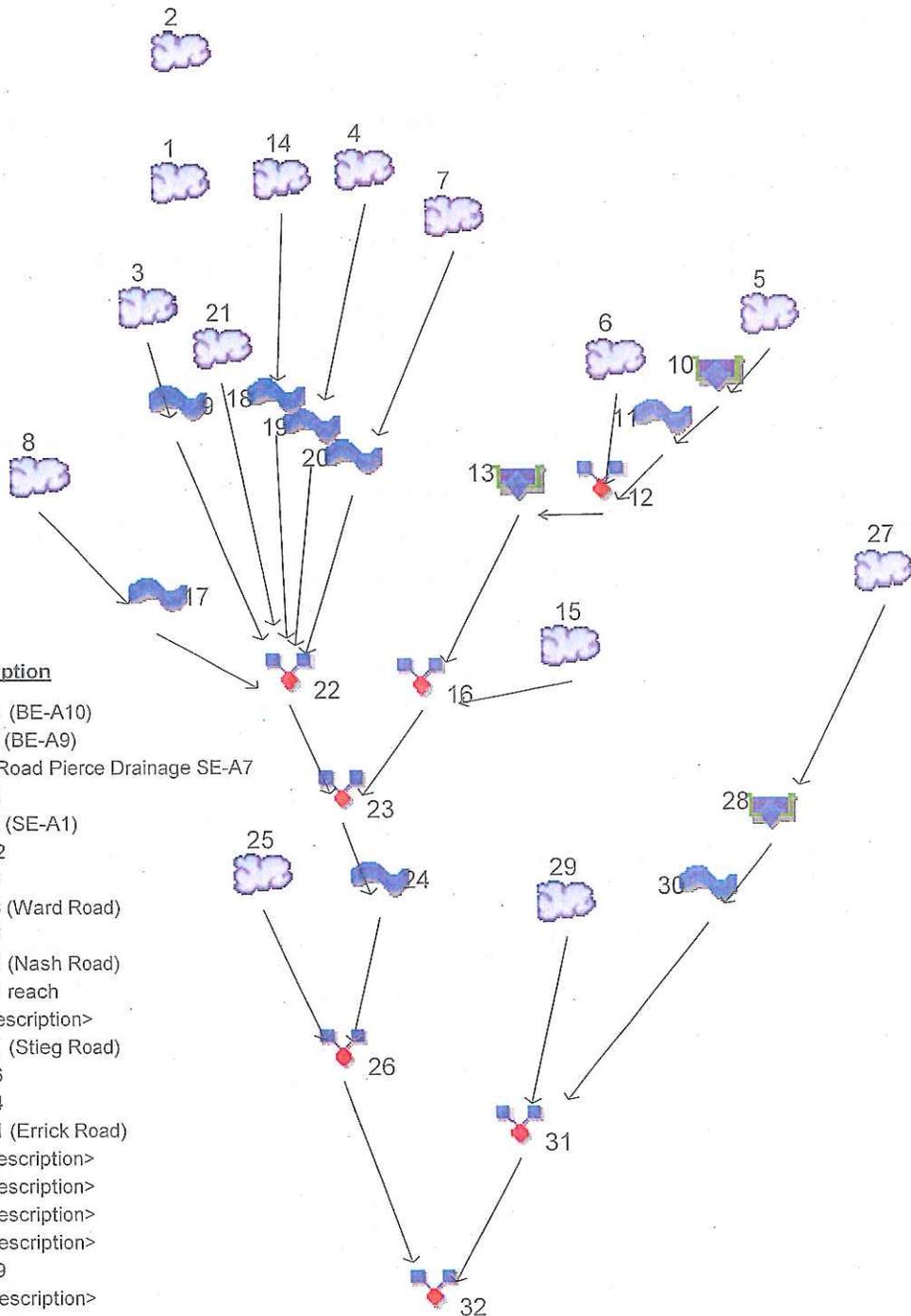
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Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Legend

Hyd. Origin	Description
1	SCS Runoff BEA-4 (BE-A10)
2	SCS Runoff BEA-3 (BE-A9)
3	SCS Runoff Ward Road Pierce Drainage SE-A7
4	SCS Runoff SE A5
5	SCS Runoff SEB-1 (SE-A1)
6	SCS Runoff SE- A2
7	SCS Runoff SE-A3
8	SCS Runoff SE-A8 (Ward Road)
9	Reach SE-A7
10	Reservoir SEB-1 (Nash Road)
11	Reach SE-A1 reach
12	Combine <no description>
13	Reservoir SEB-1 (Stieg Road)
14	SCS Runoff SE-A6
15	SCS Runoff SE-A4
16	Combine SEB-1 (Errick Road)
17	Reach <no description>
18	Reach <no description>
19	Reach <no description>
20	Reach <no description>
21	SCS Runoff SE-A9
22	Combine <no description>
23	Combine SEB (Lemke Rd)
24	Reach Errick Road
25	SCS Runoff SE-A10
26	Combine SEB (Errick Road)
27	SCS Runoff SEB-2 (SE-A11)
28	Reservoir SEB-2 Nash Road
29	SCS Runoff SE-A12
30	Reach <no description>
31	Combine <no description>
32	Combine SEB (Marc Dr)



Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

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	----	-----	-----	-----	-----	23.38	34.90	-----	60.44	BEA-4 (BE-A10)
2	SCS Runoff	----	-----	-----	-----	-----	30.47	45.50	-----	78.80	BEA-3 (BE-A9)
3	SCS Runoff	----	-----	-----	-----	-----	9.198	13.04	-----	21.18	Ward Road Pierce Drainage SE-A7
4	SCS Runoff	----	-----	-----	-----	-----	10.52	15.66	-----	26.93	SE A5
5	SCS Runoff	----	-----	-----	-----	-----	27.55	41.76	-----	73.79	SEB-1 (SE-A1)
6	SCS Runoff	----	-----	-----	-----	-----	30.51	45.99	-----	80.89	SE- A2
7	SCS Runoff	----	-----	-----	-----	-----	8.545	13.19	-----	23.74	SE-A3
8	SCS Runoff	----	-----	-----	-----	-----	10.75	16.39	-----	29.07	SE-A8 (Ward Road)
9	Reach	3	-----	-----	-----	-----	0.686	1.127	-----	2.281	SE-A7
10	Reservoir	5	-----	-----	-----	-----	26.14	39.03	-----	58.42	SEB-1 (Nash Road)
11	Reach	10	-----	-----	-----	-----	23.87	36.15	-----	56.59	SE-A1 reach
12	Combine	6, 11	-----	-----	-----	-----	53.64	80.87	-----	132.51	<no description>
13	Reservoir	12	-----	-----	-----	-----	53.60	80.86	-----	132.50	SEB-1 (Stieg Road)
14	SCS Runoff	----	-----	-----	-----	-----	17.03	24.10	-----	38.94	SE-A6
15	SCS Runoff	----	-----	-----	-----	-----	20.66	28.64	-----	45.15	SE-A4
16	Combine	13, 15	-----	-----	-----	-----	54.15	81.60	-----	133.58	SEB-1 (Errick Road)
17	Reach	8	-----	-----	-----	-----	10.000	15.37	-----	27.53	<no description>
18	Reach	14	-----	-----	-----	-----	6.771	10.60	-----	19.04	<no description>
19	Reach	4	-----	-----	-----	-----	9.305	14.03	-----	24.53	<no description>
20	Reach	7	-----	-----	-----	-----	7.517	11.77	-----	21.57	<no description>
21	SCS Runoff	----	-----	-----	-----	-----	26.09	39.24	-----	68.51	SE-A9
22	Combine	9, 17, 18, 19, 20, 21	-----	-----	-----	-----	53.65	81.59	-----	144.61	<no description>
23	Combine	16, 22	-----	-----	-----	-----	96.98	146.78	-----	247.24	SEB (Lemke Rd)
24	Reach	23	-----	-----	-----	-----	96.50	146.12	-----	246.89	Errick Road
25	SCS Runoff	----	-----	-----	-----	-----	12.58	18.99	-----	33.12	SE-A10
26	Combine	24, 25	-----	-----	-----	-----	100.83	152.85	-----	261.33	SEB (Errick Road)
27	SCS Runoff	----	-----	-----	-----	-----	22.54	33.20	-----	56.93	SEB-2 (SE-A11)
28	Reservoir	27	-----	-----	-----	-----	22.40	32.83	-----	56.93	SEB-2 Nash Road
29	SCS Runoff	----	-----	-----	-----	-----	29.94	44.51	-----	77.02	SE-A12
30	Reach	28	-----	-----	-----	-----	21.88	32.23	-----	55.57	<no description>
31	Combine	29, 30	-----	-----	-----	-----	44.35	65.38	-----	114.61	<no description>
32	Combine	26, 31	-----	-----	-----	-----	136.13	203.52	-----	343.28	SEB (Marc Dr)

Hydrograph Summary Report

Hydroflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

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	23.38	5	900	514,489	----	----	----	BEA-4 (BE-A10)
2	SCS Runoff	30.47	2	898	659,912	----	----	----	BEA-3 (BE-A9)
3	SCS Runoff	9.198	2	746	53,508	----	----	----	Ward Road Pierce Drainage SE-A7
4	SCS Runoff	10.52	2	830	173,435	----	----	----	SE A5
5	SCS Runoff	27.55	2	910	667,598	----	----	----	SEB-1 (SE-A1)
6	SCS Runoff	30.51	2	978	918,914	----	----	----	SE- A2
7	SCS Runoff	8.545	2	858	166,968	----	----	----	SE-A3
8	SCS Runoff	10.75	2	848	197,046	----	----	----	SE-A8 (Ward Road)
9	Reach	0.686	2	984	53,018	3	----	----	SE-A7
10	Reservoir	26.14	2	966	667,597	5	591.33	28,984	SEB-1 (Nash Road)
11	Reach	23.87	2	1042	667,555	10	----	----	SE-A1 reach
12	Combine	53.64	2	1016	1,586,469	6, 11	----	----	<no description>
13	Reservoir	53.60	2	1024	1,586,444	12	578.80	32,576	SEB-1 (Stieg Road)
14	SCS Runoff	17.03	2	722	48,373	----	----	----	SE-A6
15	SCS Runoff	20.66	2	722	58,233	----	----	----	SE-A4
16	Combine	54.15	2	1024	1,644,677	13, 15	----	----	SEB-1 (Errick Road)
17	Reach	10.000	2	894	197,027	8	----	----	<no description>
18	Reach	6.771	2	736	48,352	14	----	----	<no description>
19	Reach	9.305	2	886	173,411	4	----	----	<no description>
20	Reach	7.517	2	928	166,937	7	----	----	<no description>
21	SCS Runoff	26.09	2	864	520,672	----	----	----	SE-A9
22	Combine	53.65	2	884	1,159,416	9, 17, 18, 19, 20, 21	----	----	<no description>
23	Combine	96.98	2	954	2,804,091	16, 22	----	----	SEB (Lemke Rd)
24	Reach	96.50	2	968	2,804,088	23	----	----	Errick Road
25	SCS Runoff	12.58	2	814	186,668	----	----	----	SE-A10
26	Combine	100.83	2	954	2,990,755	24, 25	----	----	SEB (Errick Road)
27	SCS Runoff	22.54	2	1218	1,082,796	----	----	----	SEB-2 (SE-A11)
28	Reservoir	22.40	2	1260	1,082,794	27	583.49	31,660	SEB-2 Nash Road
29	SCS Runoff	29.94	2	1026	1,016,615	----	----	----	SE-A12
30	Reach	21.88	2	1346	1,082,754	28	----	----	<no description>
31	Combine	44.35	2	1198	2,099,371	29, 30	----	----	<no description>
32	Combine	136.13	2	990	5,090,134	26, 31	----	----	SEB (Marc Dr)
SEB-1 errick Road.gpw					Return Period: 10 Year			Thursday, 01 / 28 / 2016	

Hydrograph Report

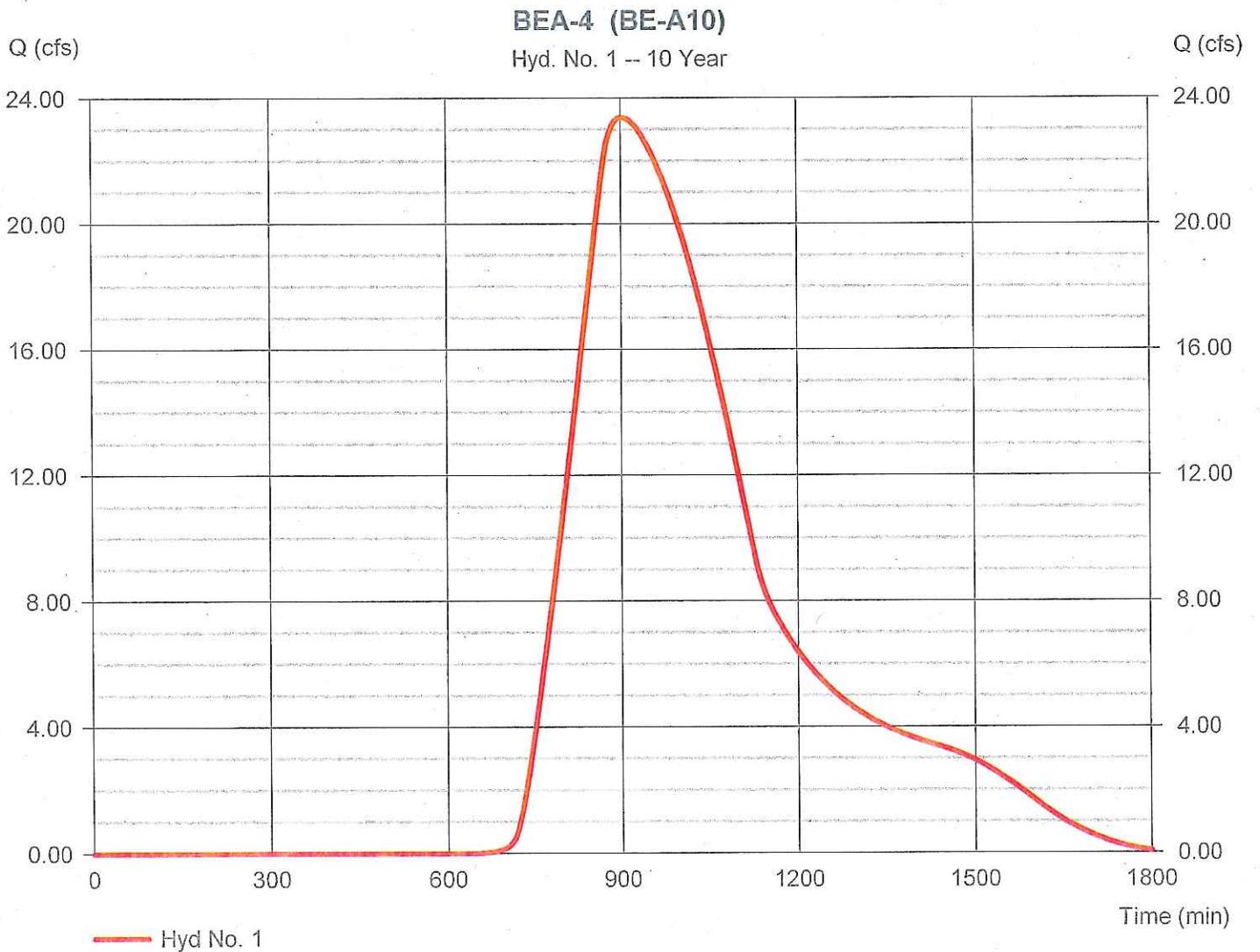
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 1

BEA-4 (BE-A10)

Hydrograph type	= SCS Runoff	Peak discharge	= 23.38 cfs
Storm frequency	= 10 yrs	Time to peak	= 900 min
Time interval	= 5 min	Hyd. volume	= 514,489 cuft
Drainage area	= 140.000 ac	Curve number	= 76
Basin Slope	= 0.4 %	Hydraulic length	= 6000 ft
Tc method	= User	Time of conc. (Tc)	= 260.00 min
Total precip.	= 2.99 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

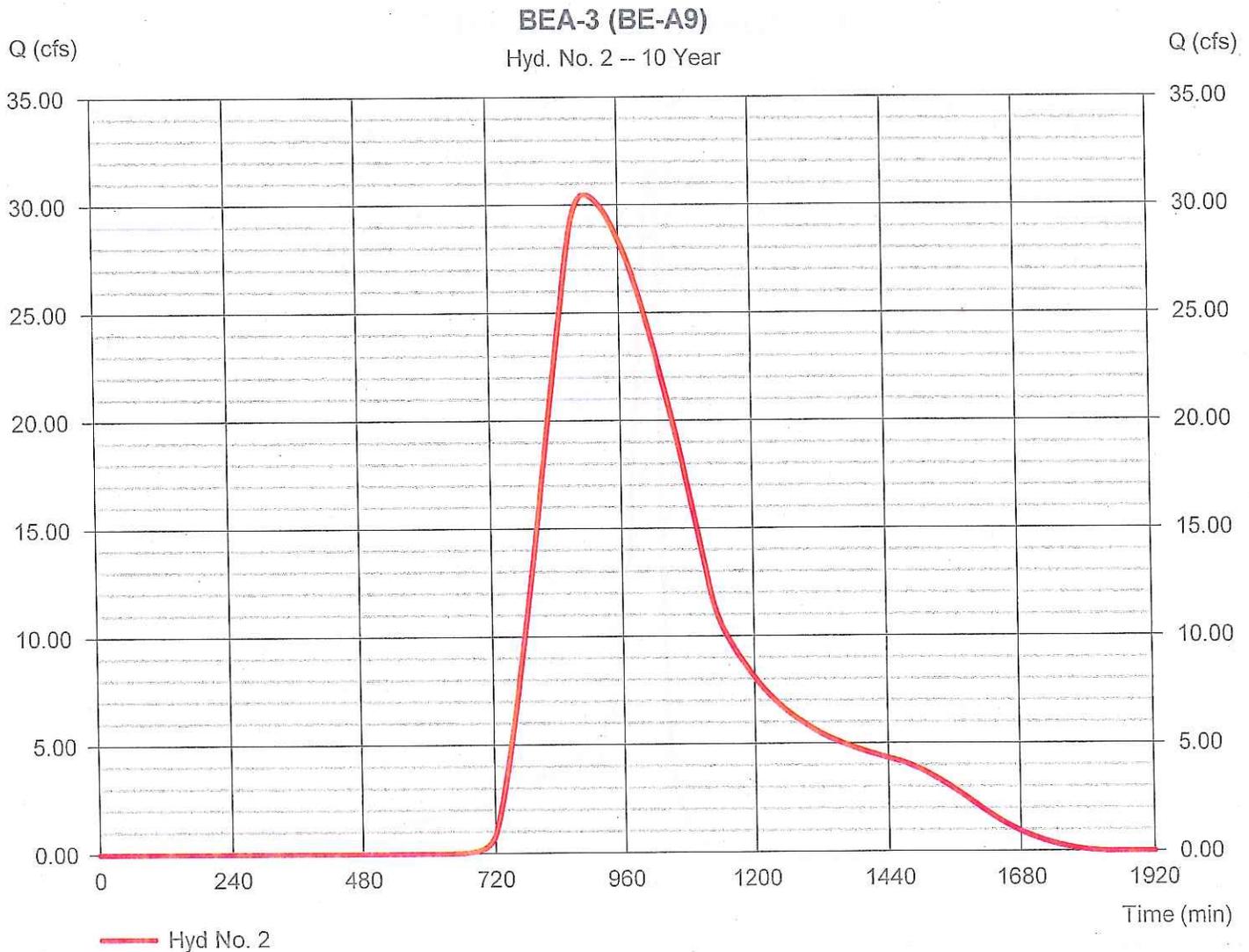
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 2

BEA-3 (BE-A9)

Hydrograph type	= SCS Runoff	Peak discharge	= 30.47 cfs
Storm frequency	= 10 yrs	Time to peak	= 898 min
Time interval	= 2 min	Hyd. volume	= 659,912 cuft
Drainage area	= 180.000 ac	Curve number	= 76
Basin Slope	= 0.4 %	Hydraulic length	= 6000 ft
Tc method	= User	Time of conc. (Tc)	= 255.00 min
Total precip.	= 2.99 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

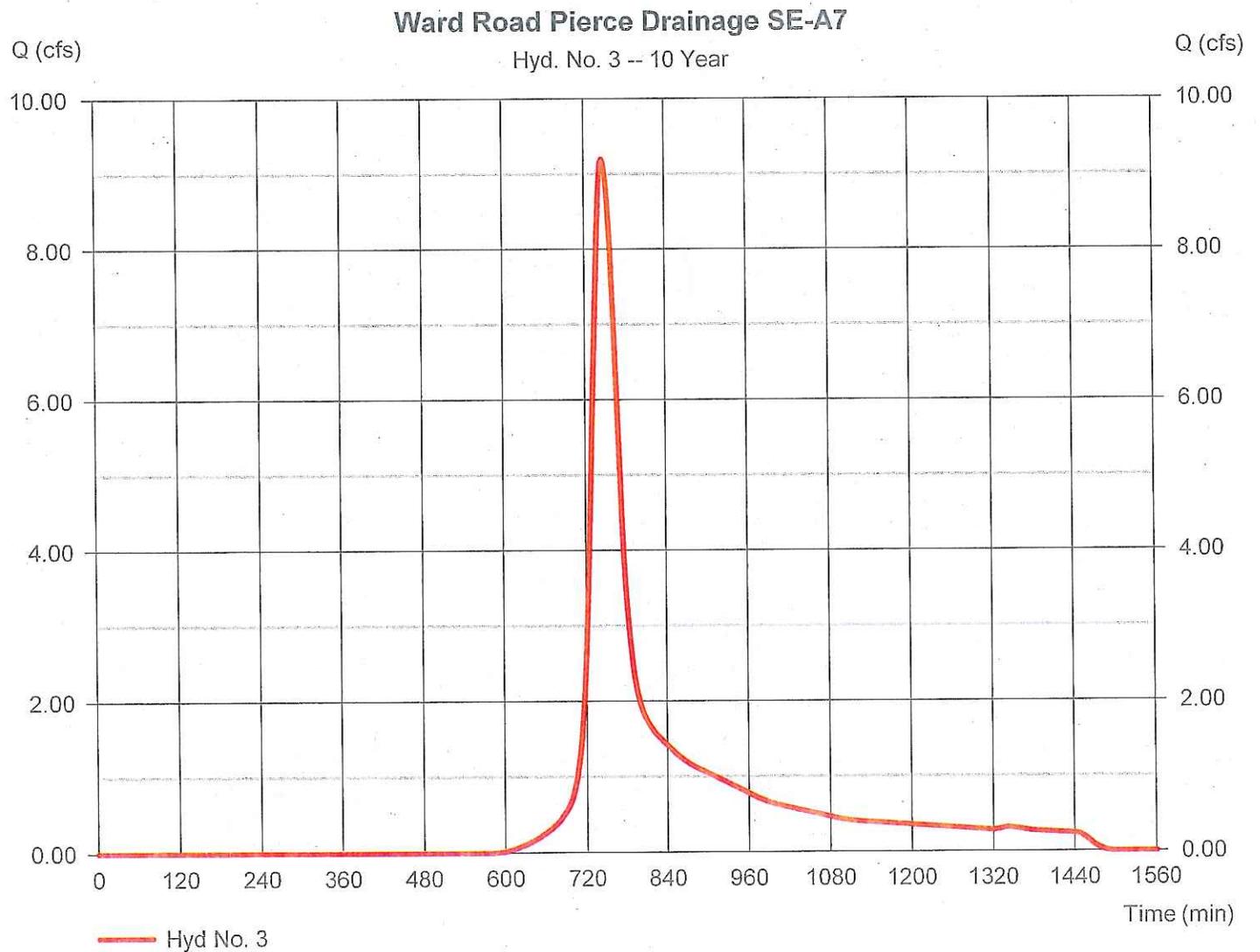
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 3

Ward Road Pierce Drainage SE-A7

Hydrograph type	= SCS Runoff	Peak discharge	= 9.198 cfs
Storm frequency	= 10 yrs	Time to peak	= 746 min
Time interval	= 2 min	Hyd. volume	= 53,508 cuft
Drainage area	= 12.000 ac	Curve number	= 80
Basin Slope	= 0.4 %	Hydraulic length	= 960 ft
Tc method	= TR55	Time of conc. (Tc)	= 36.70 min
Total precip.	= 2.99 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Hyd. No. 3

Ward Road Pierce Drainage SE-A7

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.12	0.00	0.00	
Land slope (%)	= 0.50	0.00	0.00	
Travel Time (min)	= 30.53	+ 0.00	+ 0.00	= 30.53
Shallow Concentrated Flow				
Flow length (ft)	= 50.00	0.00	0.00	
Watercourse slope (%)	= 0.40	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.02	0.00	0.00	
Travel Time (min)	= 0.82	+ 0.00	+ 0.00	= 0.82
Channel Flow				
X sectional flow area (sqft)	= 1.22	0.00	0.00	
Wetted perimeter (ft)	= 3.90	0.00	0.00	
Channel slope (%)	= 0.40	0.00	0.00	
Manning's n-value	= 0.020	0.015	0.015	
Velocity (ft/s)	=2.16	0.00	0.00	
Flow length (ft)	(0)700.0	0.0	0.0	
Travel Time (min)	= 5.39	+ 0.00	+ 0.00	= 5.39
Total Travel Time, Tc				36.70 min

Hydrograph Report

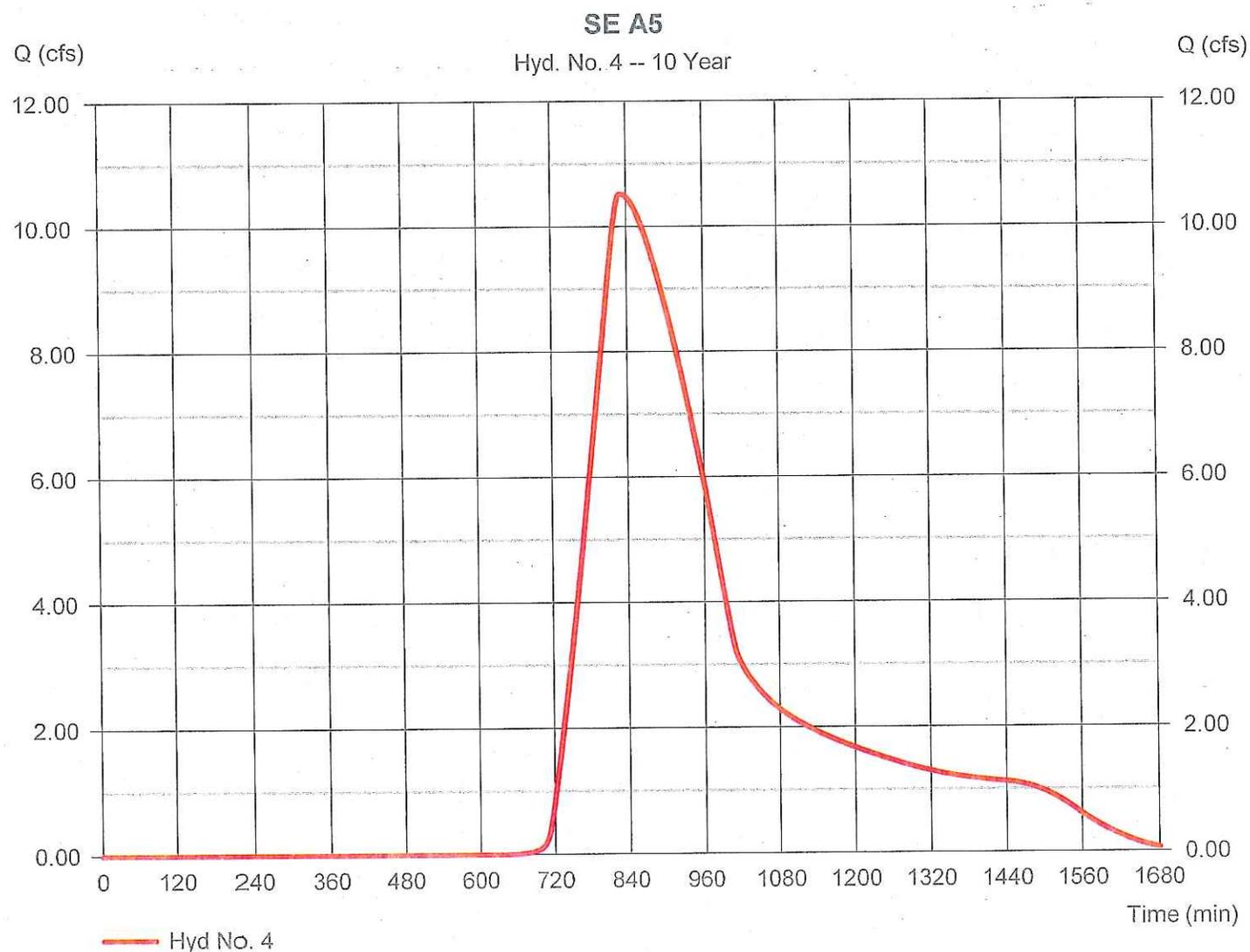
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 4

SE A5

Hydrograph type	= SCS Runoff	Peak discharge	= 10.52 cfs
Storm frequency	= 10 yrs	Time to peak	= 830 min
Time interval	= 2 min	Hyd. volume	= 173,435 cuft
Drainage area	= 45.000 ac	Curve number	= 77
Basin Slope	= 0.4 %	Hydraulic length	= 4200 ft
Tc method	= User	Time of conc. (Tc)	= 190.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

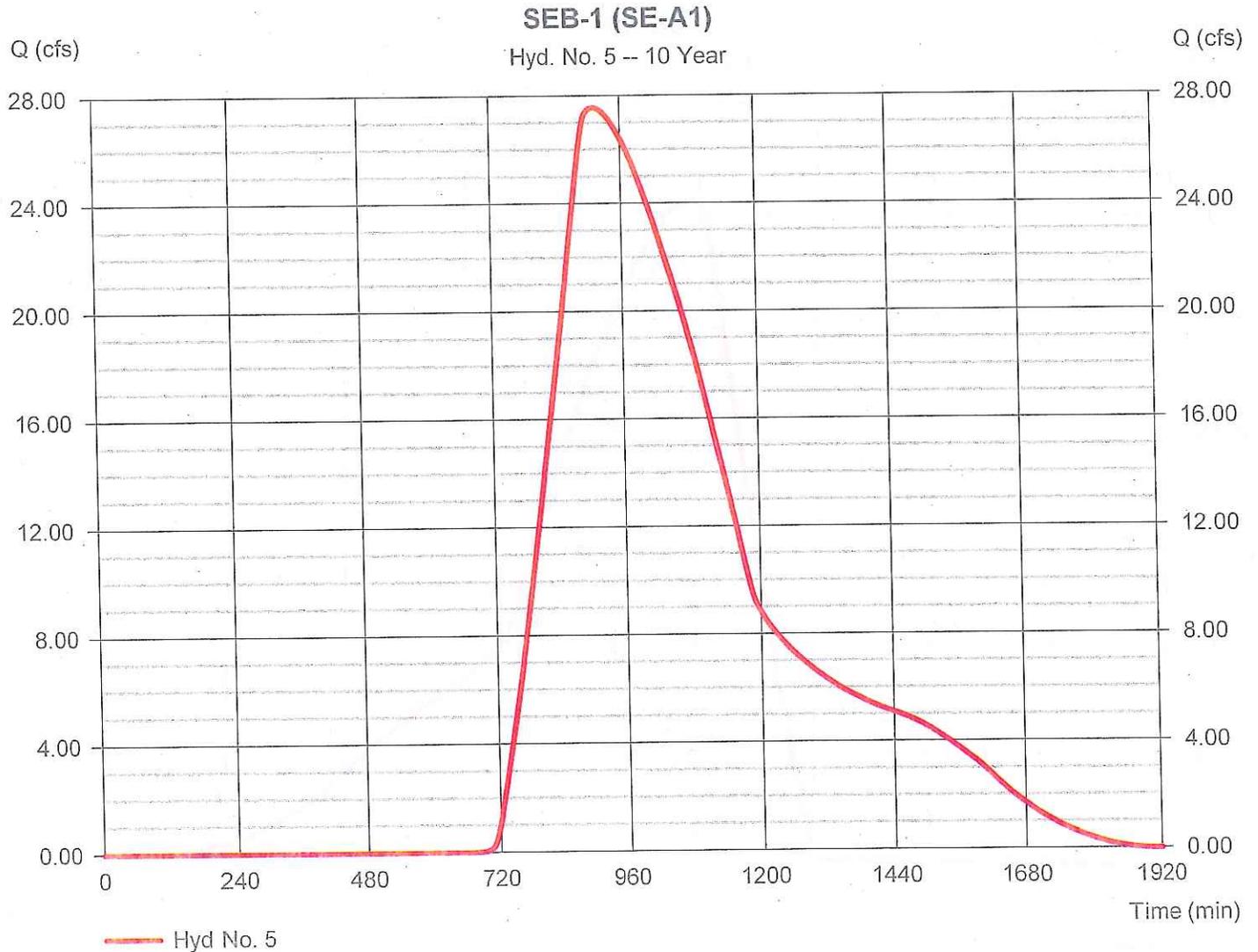
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 5

SEB-1 (SE-A1)

Hydrograph type	= SCS Runoff	Peak discharge	= 27.55 cfs
Storm frequency	= 10 yrs	Time to peak	= 910 min
Time interval	= 2 min	Hyd. volume	= 667,598 cuft
Drainage area	= 193.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 3900 ft
Tc method	= User	Time of conc. (Tc)	= 300.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

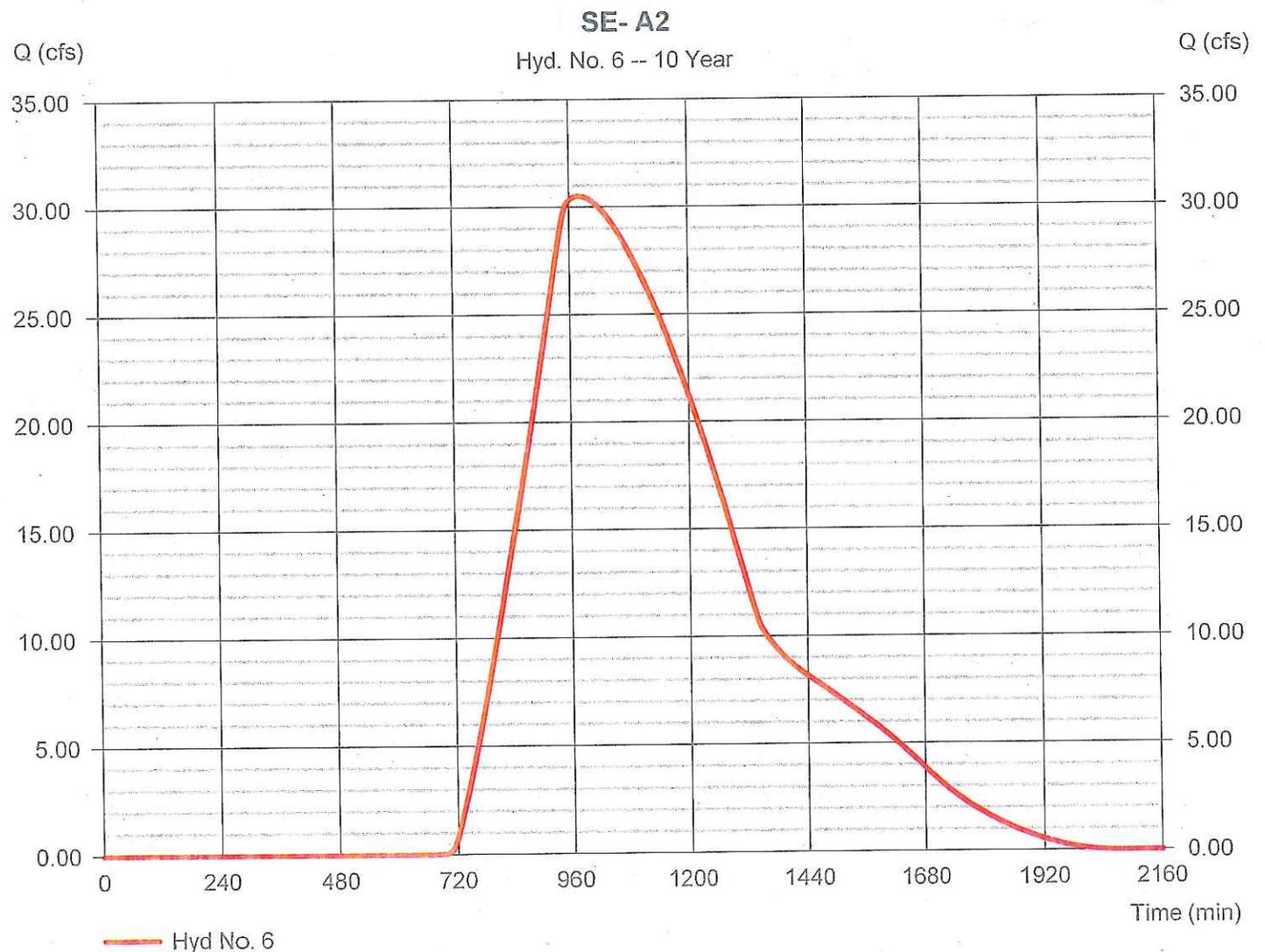
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 6

SE- A2

Hydrograph type	= SCS Runoff	Peak discharge	= 30.51 cfs
Storm frequency	= 10 yrs	Time to peak	= 978 min
Time interval	= 2 min	Hyd. volume	= 918,914 cuft
Drainage area	= 265.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 5600 ft
Tc method	= User	Time of conc. (Tc)	= 400.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

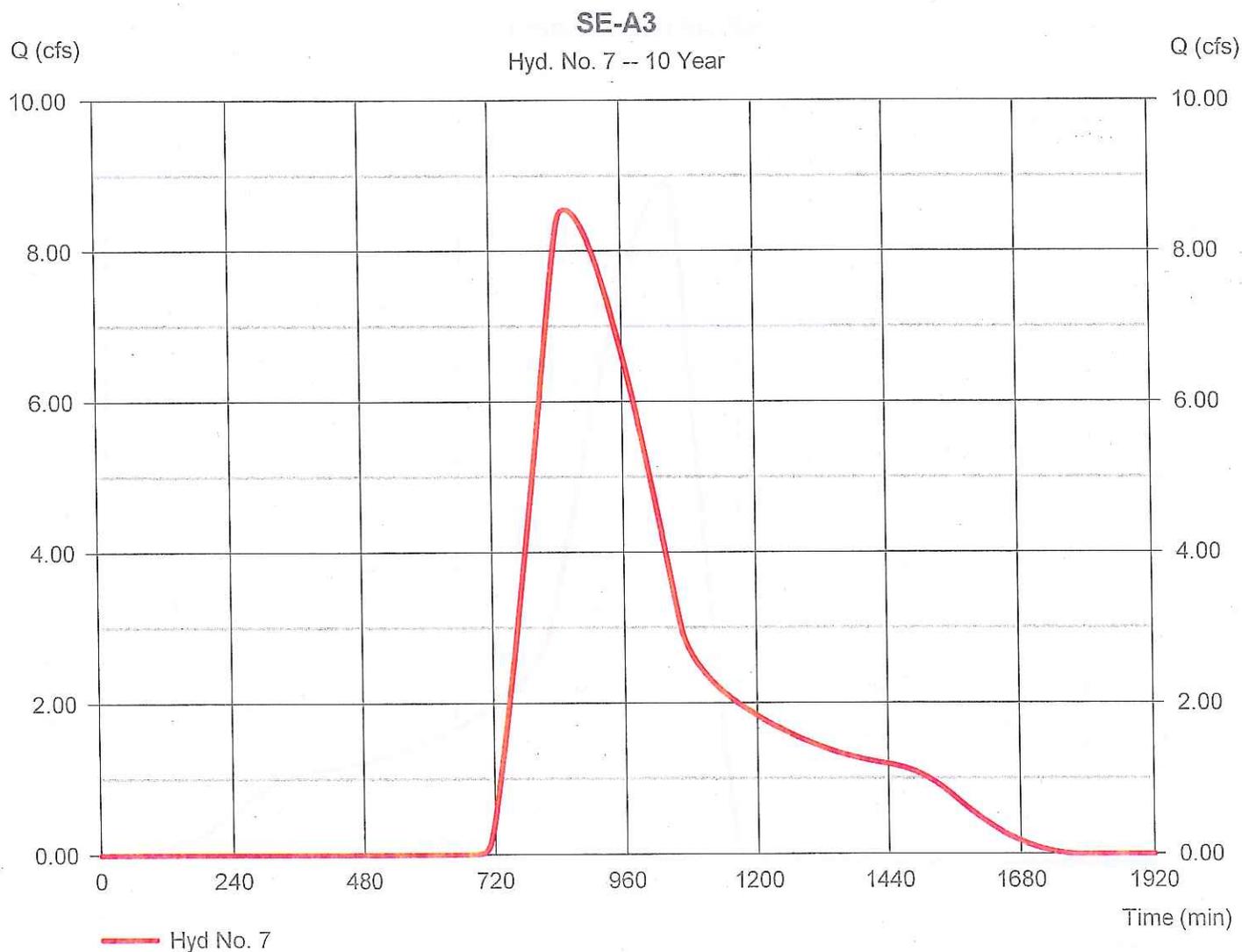
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 7

SE-A3

Hydrograph type	= SCS Runoff	Peak discharge	= 8.545 cfs
Storm frequency	= 10 yrs	Time to peak	= 858 min
Time interval	= 2 min	Hyd. volume	= 166,968 cuft
Drainage area	= 51.000 ac	Curve number	= 74
Basin Slope	= 0.2 %	Hydraulic length	= 3500 ft
Tc method	= LAG	Time of conc. (Tc)	= 220.96 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

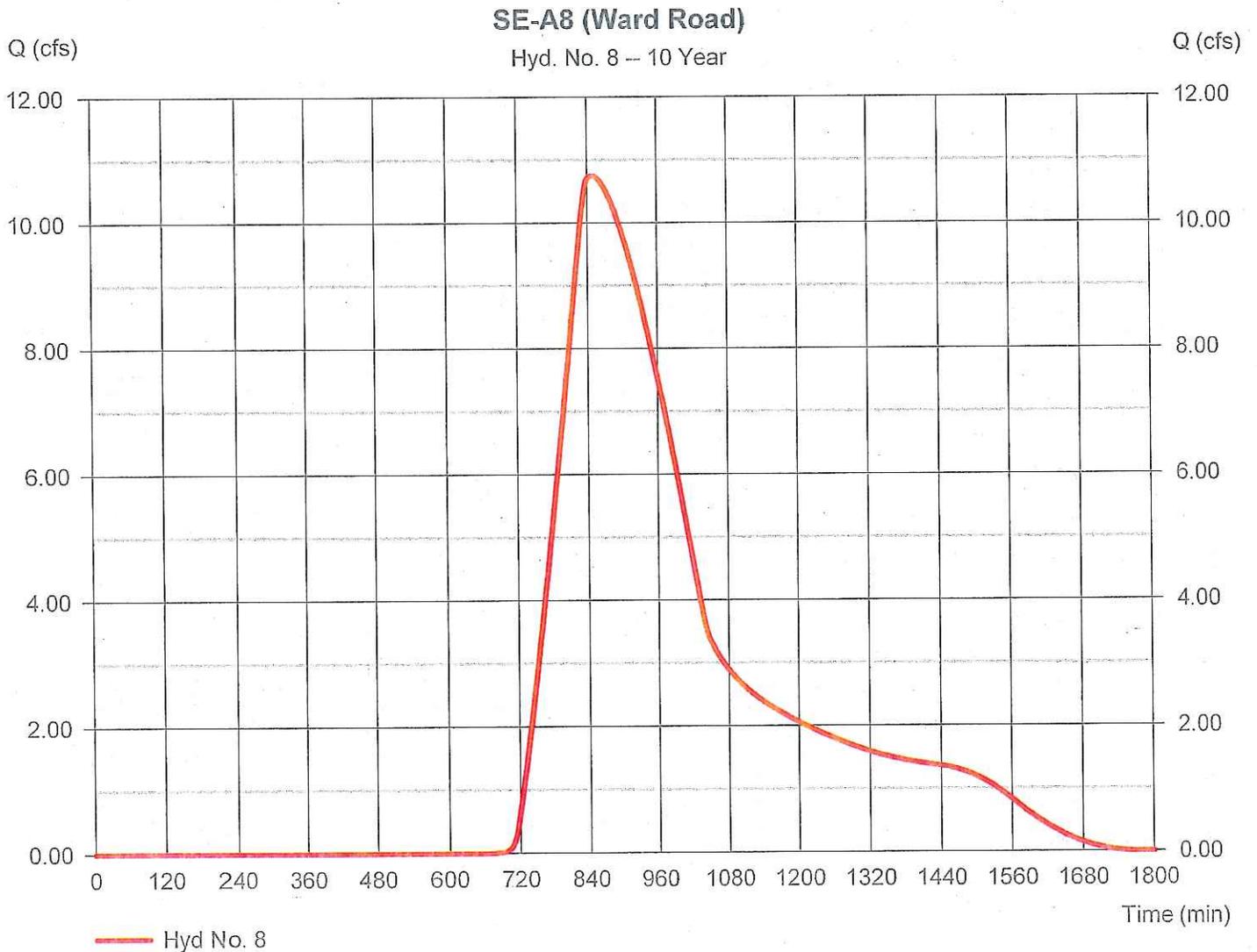
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 8

SE-A8 (Ward Road)

Hydrograph type	= SCS Runoff	Peak discharge	= 10.75 cfs
Storm frequency	= 10 yrs	Time to peak	= 848 min
Time interval	= 2 min	Hyd. volume	= 197,046 cuft
Drainage area	= 57.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 3200 ft
Tc method	= LAG	Time of conc. (Tc)	= 209.65 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

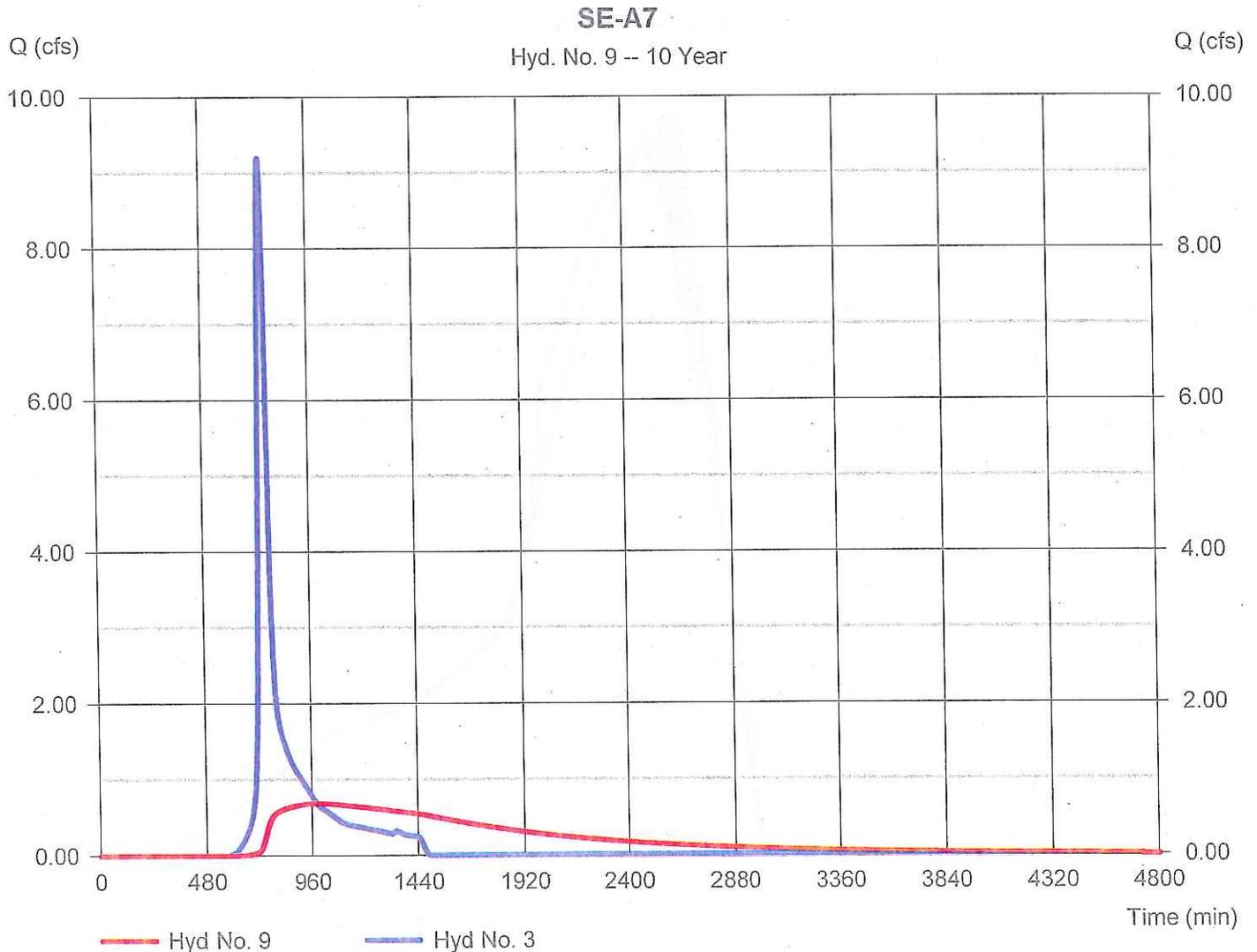
Thursday, 01 / 28 / 2016

Hyd. No. 9

SE-A7

Hydrograph type	= Reach	Peak discharge	= 0.686 cfs
Storm frequency	= 10 yrs	Time to peak	= 984 min
Time interval	= 2 min	Hyd. volume	= 53,018 cuft
Inflow hyd. No.	= 3 - Ward Road Pierce Drainage	Channel type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 3000.0 ft
Side slope	= 3.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.008	Rating curve m	= 1.583
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0024

Modified Att-Kin routing method used.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

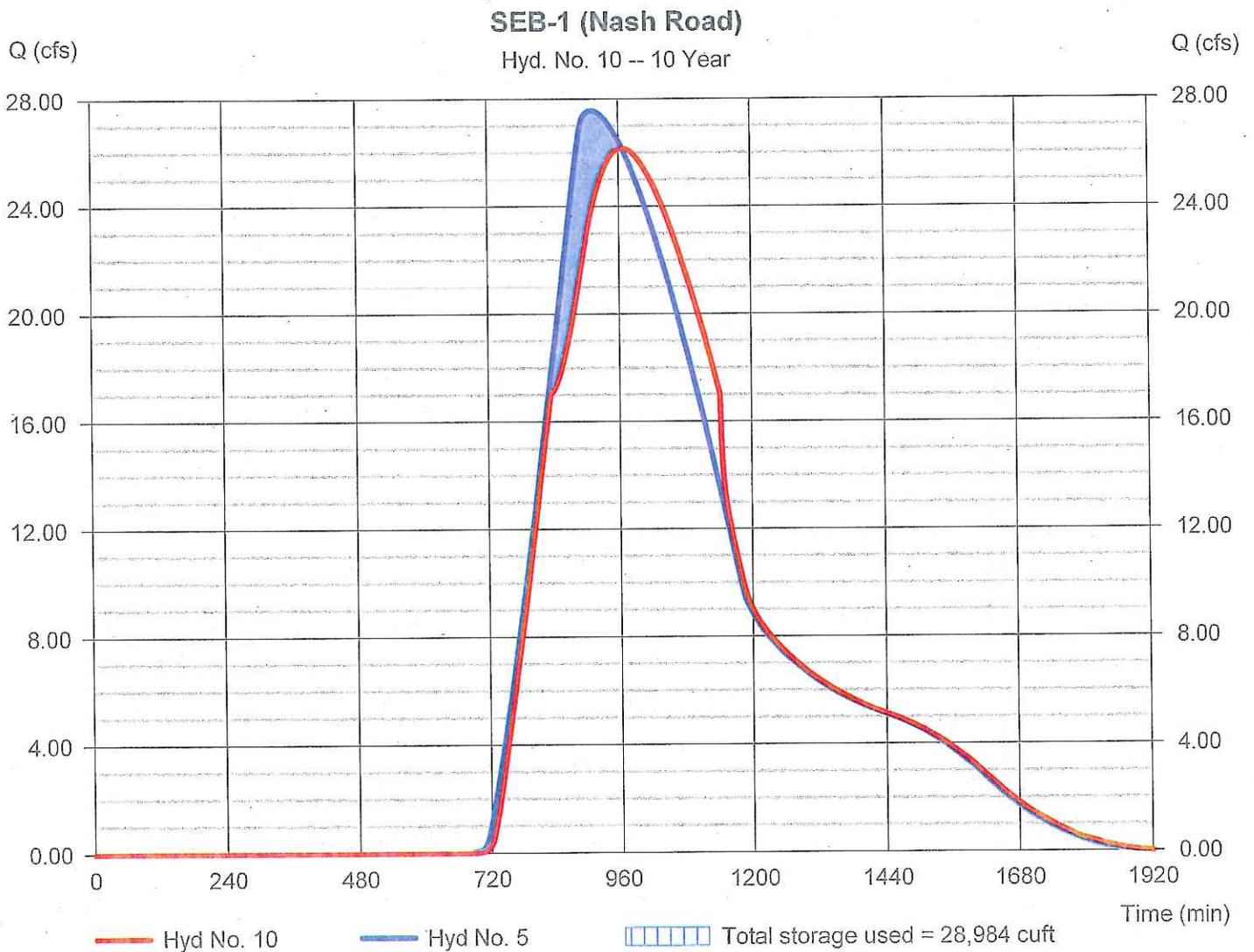
Thursday, 01 / 28 / 2016

Hyd. No. 10

SEB-1 (Nash Road)

Hydrograph type	= Reservoir	Peak discharge	= 26.14 cfs
Storm frequency	= 10 yrs	Time to peak	= 966 min
Time interval	= 2 min	Hyd. volume	= 667,597 cuft
Inflow hyd. No.	= 5 - SEB-1 (SE-A1)	Max. Elevation	= 591.33 ft
Reservoir name	= SEB-1 Nash Rd	Max. Storage	= 28,984 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - SEB-1 Nash Rd

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 590.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	590.00	2,500	0	0
1.00	591.00	10,000	5,833	5,833
2.00	592.00	160,000	69,993	75,826
3.00	593.00	300,000	226,340	302,166
4.00	594.00	525,000	407,247	709,413
5.00	595.00	1,020,000	758,850	1,468,263

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	0.00	Inactive	Inactive
Span (in)	= 60.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 590.00	0.00	0.00	0.00
Length (ft)	= 40.00	0.00	0.00	0.00
Slope (%)	= 1.30	0.00	0.00	n/a
N-Value	= .015	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	590.00	0.00	---	---	---	---	---	---	---	---	---	0.000
0.10	583	590.10	0.54 ic	---	---	---	---	---	---	---	---	---	0.538
0.20	1,167	590.20	1.52 ic	---	---	---	---	---	---	---	---	---	1.522
0.30	1,750	590.30	2.80 ic	---	---	---	---	---	---	---	---	---	2.796
0.40	2,333	590.40	4.31 ic	---	---	---	---	---	---	---	---	---	4.305
0.50	2,916	590.50	6.02 ic	---	---	---	---	---	---	---	---	---	6.017
0.60	3,500	590.60	7.91 ic	---	---	---	---	---	---	---	---	---	7.909
0.70	4,083	590.70	9.97 ic	---	---	---	---	---	---	---	---	---	9.966
0.80	4,666	590.80	12.18 ic	---	---	---	---	---	---	---	---	---	12.18
0.90	5,249	590.90	14.53 ic	---	---	---	---	---	---	---	---	---	14.53
1.00	5,833	591.00	17.02 ic	---	---	---	---	---	---	---	---	---	17.02
1.10	12,832	591.10	19.64 ic	---	---	---	---	---	---	---	---	---	19.64
1.20	19,831	591.20	22.38 ic	---	---	---	---	---	---	---	---	---	22.38
1.30	26,831	591.30	25.23 ic	---	---	---	---	---	---	---	---	---	25.23
1.40	33,830	591.40	28.20 ic	---	---	---	---	---	---	---	---	---	28.20
1.50	40,829	591.50	31.27 ic	---	---	---	---	---	---	---	---	---	31.27
1.60	47,829	591.60	34.45 ic	---	---	---	---	---	---	---	---	---	34.45
1.70	54,828	591.70	37.11 oc	---	---	---	---	---	---	---	---	---	37.11
1.80	61,827	591.80	39.42 oc	---	---	---	---	---	---	---	---	---	39.42
1.90	68,826	591.90	41.72 oc	---	---	---	---	---	---	---	---	---	41.72
2.00	75,826	592.00	44.04 oc	---	---	---	---	---	---	---	---	---	44.04
2.10	98,460	592.10	46.35 oc	---	---	---	---	---	---	---	---	---	46.35
2.20	121,094	592.20	48.65 oc	---	---	---	---	---	---	---	---	---	48.65
2.30	143,728	592.30	50.96 oc	---	---	---	---	---	---	---	---	---	50.96
2.40	166,362	592.40	53.27 oc	---	---	---	---	---	---	---	---	---	53.27
2.50	188,996	592.50	55.58 oc	---	---	---	---	---	---	---	---	---	55.58
2.60	211,630	592.60	57.88 oc	---	---	---	---	---	---	---	---	---	57.88
2.70	234,264	592.70	60.19 oc	---	---	---	---	---	---	---	---	---	60.19
2.80	256,898	592.80	62.50 oc	---	---	---	---	---	---	---	---	---	62.50
2.90	279,532	592.90	64.80 oc	---	---	---	---	---	---	---	---	---	64.80
3.00	302,166	593.00	64.98 oc	---	---	---	---	---	---	---	---	---	64.98
3.10	342,891	593.10	70.96 oc	---	---	---	---	---	---	---	---	---	70.96
3.20	383,616	593.20	76.46 oc	---	---	---	---	---	---	---	---	---	76.46
3.30	424,340	593.30	81.60 oc	---	---	---	---	---	---	---	---	---	81.60
3.40	465,065	593.40	86.43 oc	---	---	---	---	---	---	---	---	---	86.43

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SEB-1 Nash Rd

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.50	505,790	593.50	91.01 oc	---	---	---	---	---	---	---	---	---	91.01
3.60	546,514	593.60	95.36 oc	---	---	---	---	---	---	---	---	---	95.36
3.70	587,239	593.70	99.53 oc	---	---	---	---	---	---	---	---	---	99.53
3.80	627,964	593.80	103.53 oc	---	---	---	---	---	---	---	---	---	103.53
3.90	668,688	593.90	107.37 oc	---	---	---	---	---	---	---	---	---	107.37
4.00	709,413	594.00	111.10 oc	---	---	---	---	---	---	---	---	---	111.10
4.10	785,298	594.10	114.70 oc	---	---	---	---	---	---	---	---	---	114.70
4.20	861,183	594.20	118.18 oc	---	---	---	---	---	---	---	---	---	118.18
4.30	937,068	594.30	120.85 ic	---	---	---	---	---	---	---	---	---	120.85
4.40	1,012,953	594.40	122.99 ic	---	---	---	---	---	---	---	---	---	122.99
4.50	1,088,838	594.50	125.09 ic	---	---	---	---	---	---	---	---	---	125.09
4.60	1,164,723	594.60	127.16 ic	---	---	---	---	---	---	---	---	---	127.16
4.70	1,240,608	594.70	129.20 ic	---	---	---	---	---	---	---	---	---	129.20
4.80	1,316,493	594.80	131.20 ic	---	---	---	---	---	---	---	---	---	131.20
4.90	1,392,378	594.90	133.17 ic	---	---	---	---	---	---	---	---	---	133.17
5.00	1,468,263	595.00	135.12 ic	---	---	---	---	---	---	---	---	---	135.12

...End

Hydrograph Report

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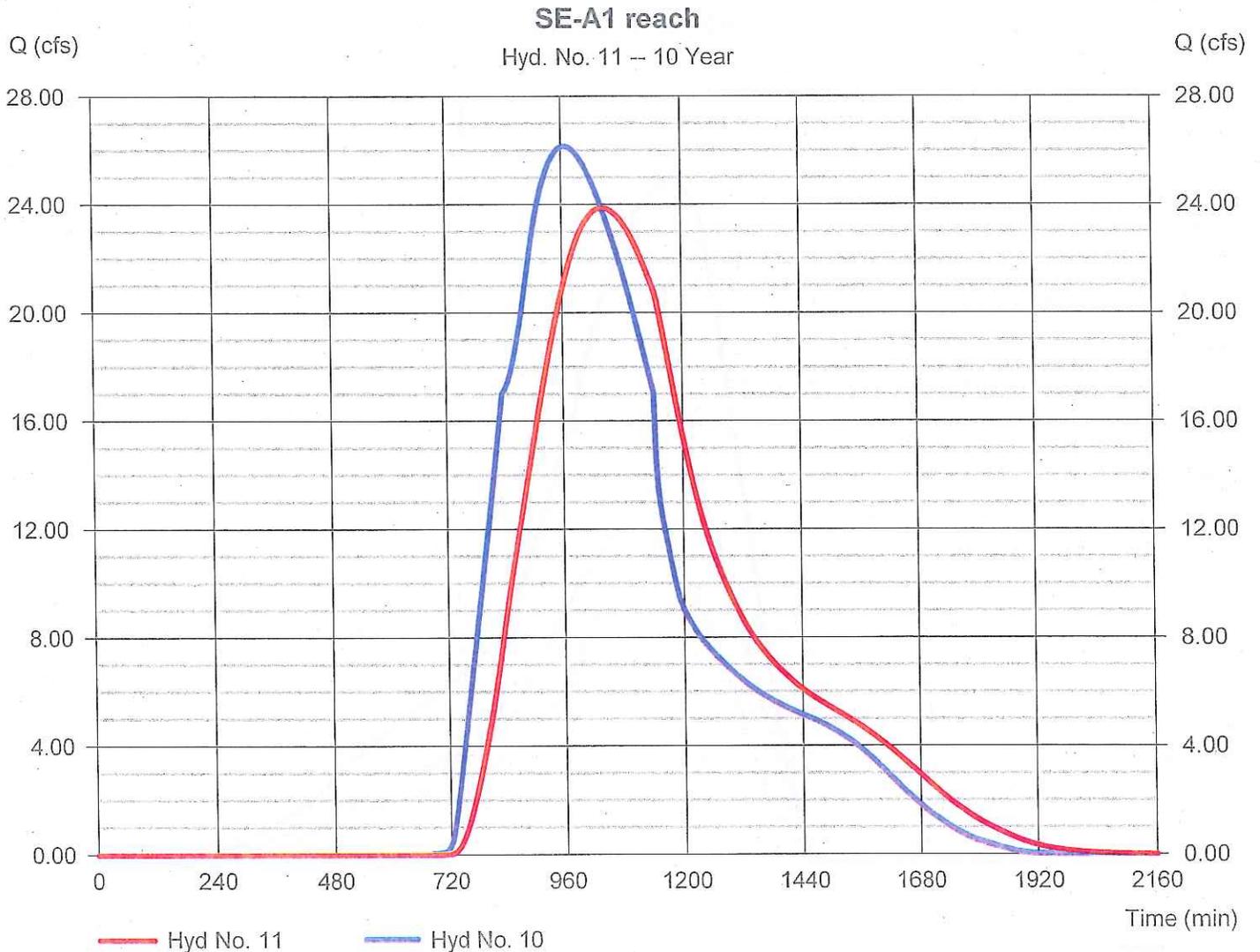
Thursday, 01 / 28 / 2016

Hyd. No. 11

SE-A1 reach

Hydrograph type	= Reach	Peak discharge	= 23.87 cfs
Storm frequency	= 10 yrs	Time to peak	= 1042 min
Time interval	= 2 min	Hyd. volume	= 667,555 cuft
Inflow hyd. No.	= 10 - SEB-1 (Nash Road)	Section type	= Trapezoidal
Reach length	= 5500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 3.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.212	Rating curve m	= 1.435
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0282

Modified Att-Kin routing method used.



Hydrograph Report

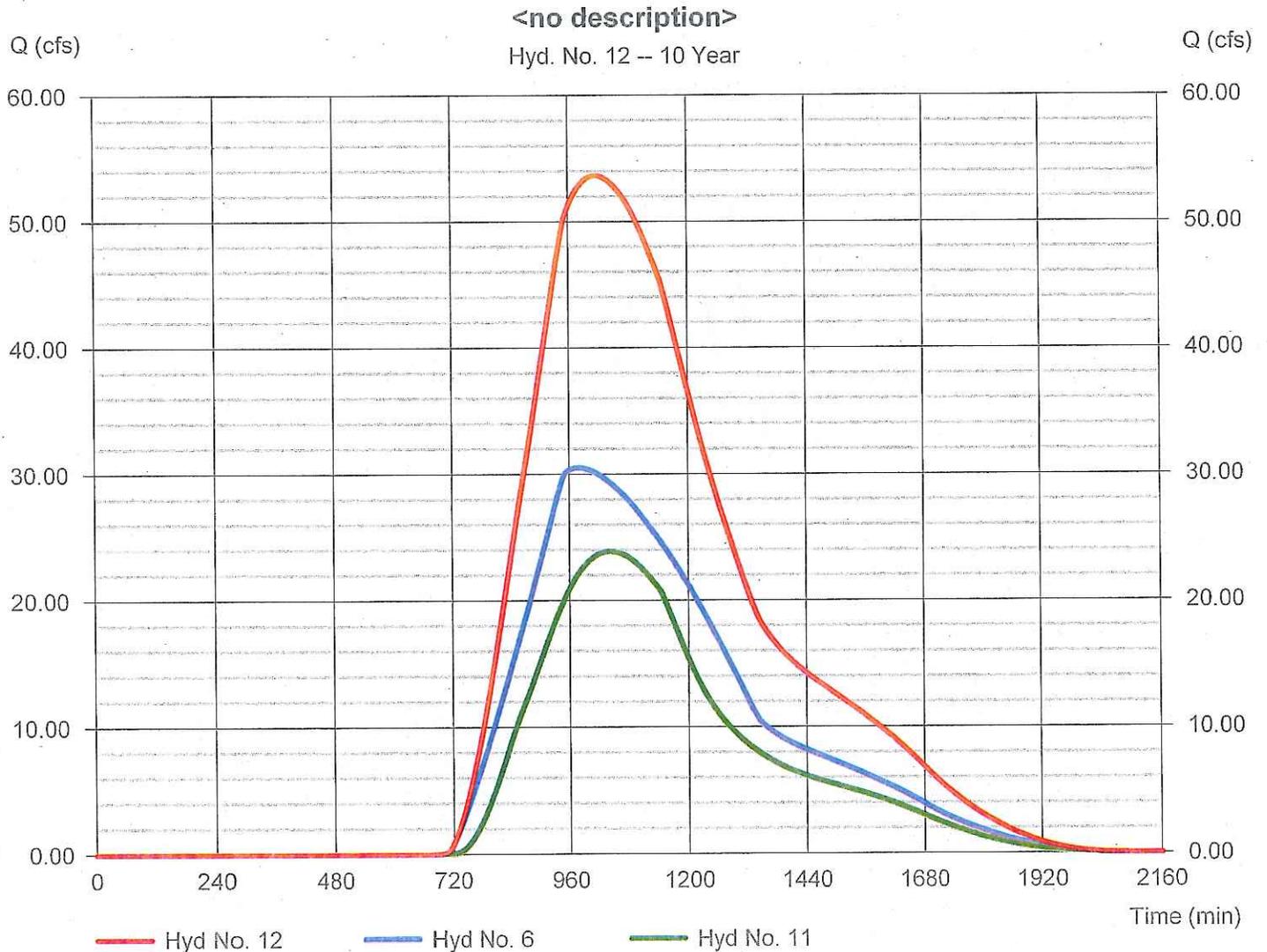
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 12

<no description>

Hydrograph type	= Combine	Peak discharge	= 53.64 cfs
Storm frequency	= 10 yrs	Time to peak	= 1016 min
Time interval	= 2 min	Hyd. volume	= 1,586,469 cuft
Inflow hyds.	= 6, 11	Contrib. drain. area	= 265.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

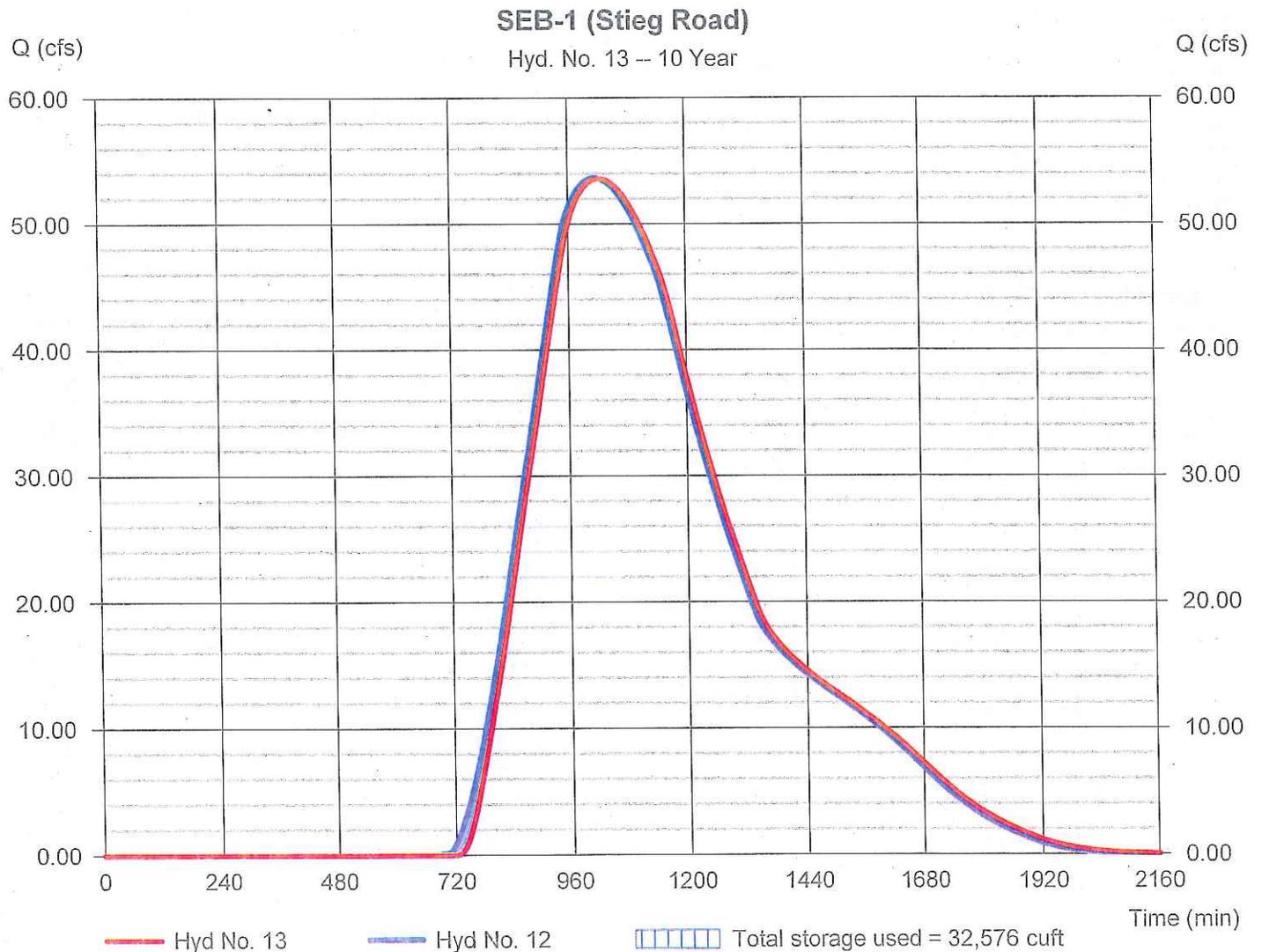
Thursday, 01 / 28 / 2016

Hyd. No. 13

SEB-1 (Stieg Road)

Hydrograph type	= Reservoir	Peak discharge	= 53.60 cfs
Storm frequency	= 10 yrs	Time to peak	= 1024 min
Time interval	= 2 min	Hyd. volume	= 1,586,444 cuft
Inflow hyd. No.	= 12 - <no description>	Max. Elevation	= 578.80 ft
Reservoir name	= SEB-1 Steig Road	Max. Storage	= 32,576 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Pond No. 2 - SEB-1 Steig Road

Pond Data

Trapezoid -Bottom L x W = 400.0 x 20.0 ft, Side slope = 3.00:1, Bottom elev. = 576.00 ft, Depth = 4.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	576.00	8,000	0	0
0.40	576.40	9,014	3,402	3,402
0.80	576.80	10,039	3,810	7,213
1.20	577.20	11,076	4,223	11,435
1.60	577.60	12,124	4,640	16,075
2.00	578.00	13,184	5,061	21,136
2.40	578.40	14,255	5,487	26,623
2.80	578.80	15,338	5,918	32,542
3.20	579.20	16,433	6,354	38,896
3.60	579.60	17,539	6,794	45,689
4.00	580.00	18,656	7,239	52,928

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	48.00	0.00	0.00
Span (in)	= 66.00	48.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 576.00	576.00	0.00	0.00
Length (ft)	= 660.00	660.00	0.00	0.00
Slope (%)	= 0.78	0.78	0.00	n/a
N-Value	= .015	.012	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 40.00	0.00	0.00	0.00
Crest El. (ft)	= 579.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	576.00	0.00	0.00	---	---	0.00	---	---	---	---	---	0.000
0.04	340	576.04	0.00	0.01 ic	---	---	0.00	---	---	---	---	---	0.015
0.08	680	576.08	0.00	0.06 ic	---	---	0.00	---	---	---	---	---	0.058
0.12	1,021	576.12	0.00	0.13 ic	---	---	0.00	---	---	---	---	---	0.130
0.16	1,361	576.16	0.00	0.23 ic	---	---	0.00	---	---	---	---	---	0.231
0.20	1,701	576.20	0.00	0.36 ic	---	---	0.00	---	---	---	---	---	0.361
0.24	2,041	576.24	0.00	0.52 ic	---	---	0.00	---	---	---	---	---	0.518
0.28	2,382	576.28	0.00	0.70 ic	---	---	0.00	---	---	---	---	---	0.697
0.32	2,722	576.32	0.00	0.91 ic	---	---	0.00	---	---	---	---	---	0.913
0.36	3,062	576.36	0.00	1.14 ic	---	---	0.00	---	---	---	---	---	1.144
0.40	3,402	576.40	0.00	1.41 ic	---	---	0.00	---	---	---	---	---	1.412
0.44	3,783	576.44	0.00	1.70 ic	---	---	0.00	---	---	---	---	---	1.705
0.48	4,164	576.48	0.00	2.02 ic	---	---	0.00	---	---	---	---	---	2.022
0.52	4,545	576.52	0.00	2.36 ic	---	---	0.00	---	---	---	---	---	2.362
0.56	4,926	576.56	0.00	2.74 ic	---	---	0.00	---	---	---	---	---	2.735
0.60	5,307	576.60	0.00	3.13 ic	---	---	0.00	---	---	---	---	---	3.128
0.64	5,688	576.64	0.00	3.54 ic	---	---	0.00	---	---	---	---	---	3.535
0.68	6,069	576.68	0.00	3.99 ic	---	---	0.00	---	---	---	---	---	3.994
0.72	6,451	576.72	0.00	4.45 ic	---	---	0.00	---	---	---	---	---	4.446
0.76	6,832	576.76	0.00	4.95 ic	---	---	0.00	---	---	---	---	---	4.951
0.80	7,213	576.80	0.00	5.46 ic	---	---	0.00	---	---	---	---	---	5.465
0.84	7,635	576.84	0.00	6.01 ic	---	---	0.00	---	---	---	---	---	6.010
0.88	8,057	576.88	0.00	6.56 ic	---	---	0.00	---	---	---	---	---	6.557
0.92	8,479	576.92	0.00	7.13 ic	---	---	0.00	---	---	---	---	---	7.135
0.96	8,902	576.96	0.00	7.74 ic	---	---	0.00	---	---	---	---	---	7.740
1.00	9,324	577.00	0.00	8.37 ic	---	---	0.00	---	---	---	---	---	8.375
1.04	9,746	577.04	0.00	9.04 ic	---	---	0.00	---	---	---	---	---	9.038
1.08	10,168	577.08	0.00	9.70 ic	---	---	0.00	---	---	---	---	---	9.695
1.12	10,591	577.12	0.00	10.38 ic	---	---	0.00	---	---	---	---	---	10.38
1.16	11,013	577.16	0.00	11.09 ic	---	---	0.00	---	---	---	---	---	11.09

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SEB-1 Steig Road

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.20	11,435	577.20	0.00	11.86 ic	---	---	0.00	---	---	---	---	---	11.86
1.24	11,899	577.24	0.00	12.59 ic	---	---	0.00	---	---	---	---	---	12.59
1.28	12,363	577.28	0.00	13.37 ic	---	---	0.00	---	---	---	---	---	13.37
1.32	12,827	577.32	0.00	14.18 ic	---	---	0.00	---	---	---	---	---	14.18
1.36	13,291	577.36	0.00	14.98 ic	---	---	0.00	---	---	---	---	---	14.98
1.40	13,755	577.40	0.00	15.79 ic	---	---	0.00	---	---	---	---	---	15.79
1.44	14,219	577.44	0.00	16.67 ic	---	---	0.00	---	---	---	---	---	16.67
1.48	14,683	577.48	0.00	17.53 ic	---	---	0.00	---	---	---	---	---	17.53
1.52	15,147	577.52	0.00	18.41 ic	---	---	0.00	---	---	---	---	---	18.41
1.56	15,611	577.56	0.00	19.31 ic	---	---	0.00	---	---	---	---	---	19.31
1.60	16,075	577.60	0.00	20.22 ic	---	---	0.00	---	---	---	---	---	20.22
1.64	16,581	577.64	0.00	21.16 ic	---	---	0.00	---	---	---	---	---	21.16
1.68	17,087	577.68	0.00	22.12 ic	---	---	0.00	---	---	---	---	---	22.12
1.72	17,593	577.72	0.00	23.09 ic	---	---	0.00	---	---	---	---	---	23.09
1.76	18,099	577.76	0.00	24.09 ic	---	---	0.00	---	---	---	---	---	24.09
1.80	18,605	577.80	0.00	25.10 ic	---	---	0.00	---	---	---	---	---	25.10
1.84	19,112	577.84	0.00	26.06 ic	---	---	0.00	---	---	---	---	---	26.06
1.88	19,618	577.88	0.00	27.10 ic	---	---	0.00	---	---	---	---	---	27.10
1.92	20,124	577.92	0.00	28.16 ic	---	---	0.00	---	---	---	---	---	28.16
1.96	20,630	577.96	0.00	29.23 ic	---	---	0.00	---	---	---	---	---	29.23
2.00	21,136	578.00	0.00	30.31 ic	---	---	0.00	---	---	---	---	---	30.31
2.04	21,685	578.04	0.00	31.35 ic	---	---	0.00	---	---	---	---	---	31.35
2.08	22,233	578.08	0.00	32.46 ic	---	---	0.00	---	---	---	---	---	32.46
2.12	22,782	578.12	0.00	33.57 ic	---	---	0.00	---	---	---	---	---	33.57
2.16	23,331	578.16	0.00	34.64 ic	---	---	0.00	---	---	---	---	---	34.64
2.20	23,880	578.20	0.00	35.78 ic	---	---	0.00	---	---	---	---	---	35.78
2.24	24,428	578.24	0.00	36.92 ic	---	---	0.00	---	---	---	---	---	36.92
2.28	24,977	578.28	0.00	38.08 ic	---	---	0.00	---	---	---	---	---	38.08
2.32	25,526	578.32	0.00	39.24 ic	---	---	0.00	---	---	---	---	---	39.24
2.36	26,075	578.36	0.00	40.40 ic	---	---	0.00	---	---	---	---	---	40.40
2.40	26,623	578.40	0.00	41.58 ic	---	---	0.00	---	---	---	---	---	41.58
2.44	27,215	578.44	0.00	42.75 ic	---	---	0.00	---	---	---	---	---	42.75
2.48	27,807	578.48	0.00	43.93 ic	---	---	0.00	---	---	---	---	---	43.93
2.52	28,399	578.52	0.00	45.11 ic	---	---	0.00	---	---	---	---	---	45.11
2.56	28,991	578.56	0.00	46.29 ic	---	---	0.00	---	---	---	---	---	46.29
2.60	29,583	578.60	0.00	47.47 ic	---	---	0.00	---	---	---	---	---	47.47
2.64	30,174	578.64	0.00	48.71 ic	---	---	0.00	---	---	---	---	---	48.71
2.68	30,766	578.68	0.00	49.89 ic	---	---	0.00	---	---	---	---	---	49.89
2.72	31,358	578.72	0.00	51.13 ic	---	---	0.00	---	---	---	---	---	51.13
2.76	31,950	578.76	0.00	52.36 ic	---	---	0.00	---	---	---	---	---	52.36
2.80	32,542	578.80	0.00	53.53 ic	---	---	0.00	---	---	---	---	---	53.53
2.84	33,177	578.84	0.00	54.75 ic	---	---	0.00	---	---	---	---	---	54.75
2.88	33,813	578.88	0.00	56.02 ic	---	---	0.00	---	---	---	---	---	56.02
2.92	34,448	578.92	0.00	57.22 ic	---	---	0.00	---	---	---	---	---	57.22
2.96	35,083	578.96	0.00	58.42 ic	---	---	0.00	---	---	---	---	---	58.42
3.00	35,719	579.00	0.00	59.65 ic	---	---	0.00	---	---	---	---	---	59.65
3.04	36,354	579.04	0.00	60.88 ic	---	---	0.83	---	---	---	---	---	61.71
3.08	36,989	579.08	0.00	62.08 ic	---	---	2.34	---	---	---	---	---	64.43
3.12	37,625	579.12	0.00	63.27 ic	---	---	4.31	---	---	---	---	---	67.59
3.16	38,260	579.16	0.00	64.45 ic	---	---	6.64	---	---	---	---	---	71.09
3.20	38,896	579.20	0.00	65.66 ic	---	---	9.30	---	---	---	---	---	74.96
3.24	39,575	579.24	0.00	66.84 ic	---	---	12.23	---	---	---	---	---	79.06
3.28	40,254	579.28	0.00	68.04 ic	---	---	15.41	---	---	---	---	---	83.45
3.32	40,934	579.32	0.00	69.17 ic	---	---	18.82	---	---	---	---	---	87.99
3.36	41,613	579.36	0.00	70.37 ic	---	---	22.46	---	---	---	---	---	92.82
3.40	42,293	579.40	0.00	71.48 ic	---	---	26.30	---	---	---	---	---	97.78
3.44	42,972	579.44	0.00	72.61 ic	---	---	30.34	---	---	---	---	---	102.95
3.48	43,651	579.48	0.00	73.74 ic	---	---	34.58	---	---	---	---	---	108.32
3.52	44,331	579.52	0.00	74.83 ic	---	---	38.97	---	---	---	---	---	113.80
3.56	45,010	579.56	0.00	75.91 ic	---	---	43.56	---	---	---	---	---	119.47
3.60	45,689	579.60	0.00	76.97 ic	---	---	48.33	---	---	---	---	---	125.30
3.64	46,413	579.64	0.00	78.01 ic	---	---	53.25	---	---	---	---	---	131.26
3.68	47,137	579.68	0.00	79.00 ic	---	---	58.30	---	---	---	---	---	137.30
3.72	47,861	579.72	0.00	80.00 ic	---	---	63.53	---	---	---	---	---	143.53
3.76	48,585	579.76	0.00	80.93 ic	---	---	68.89	---	---	---	---	---	149.82
3.80	49,309	579.80	0.00	81.85 ic	---	---	74.41	---	---	---	---	---	156.25
3.84	50,033	579.84	0.00	82.72 ic	---	---	80.04	---	---	---	---	---	162.75
3.88	50,756	579.88	0.00	83.54 ic	---	---	85.83	---	---	---	---	---	169.37
3.92	51,480	579.92	0.00	84.31 ic	---	---	91.74	---	---	---	---	---	176.05
3.96	52,204	579.96	0.00	85.00 ic	---	---	97.79	---	---	---	---	---	182.78

Continues on next page...

SEB-1 Steig Road

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
4.00	52,928	580.00	0.00	85.56	ic	---	104.00	---	---	---	---	---	189.56

...End

Hydrograph Report

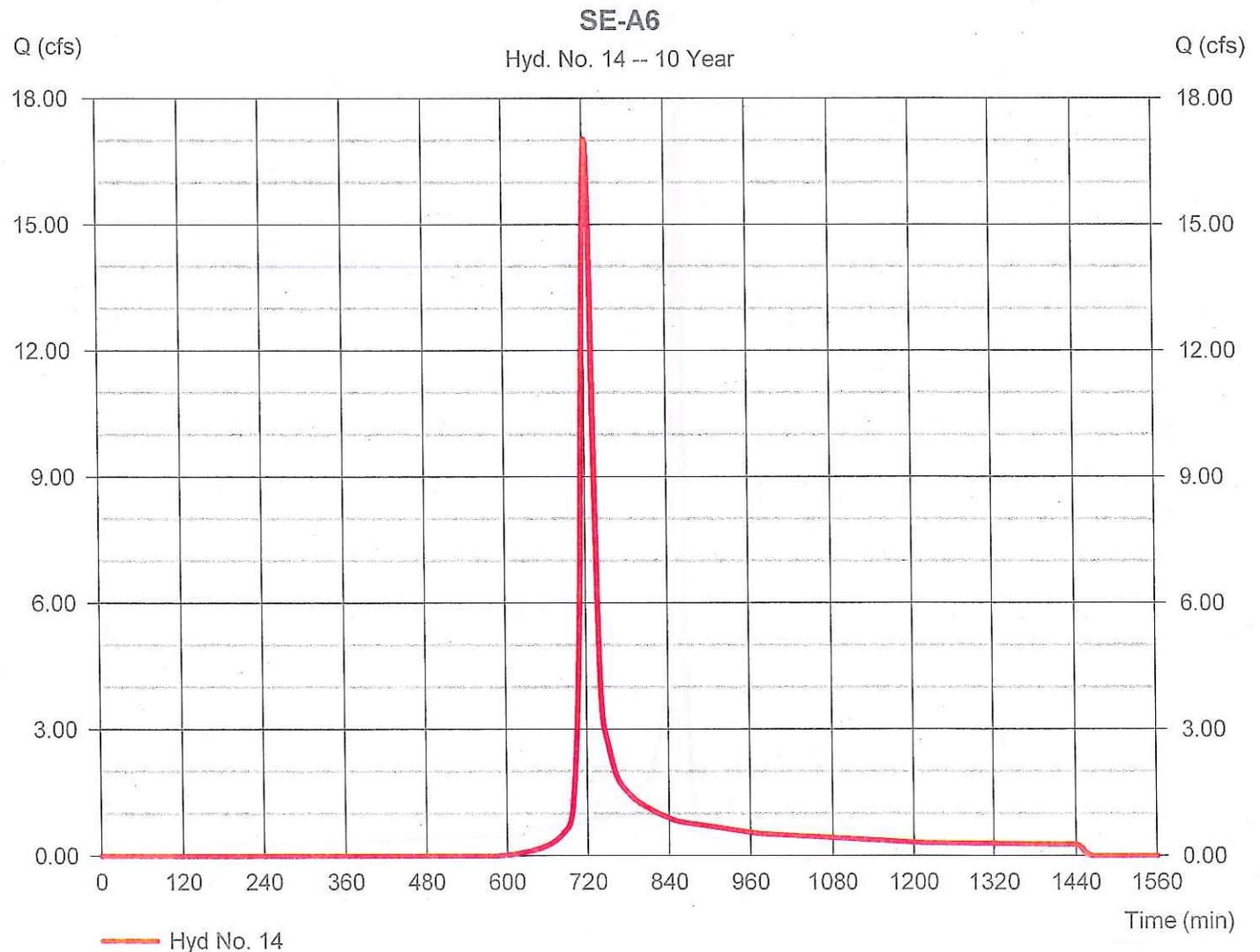
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 14

SE-A6

Hydrograph type	= SCS Runoff	Peak discharge	= 17.03 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 48,373 cuft
Drainage area	= 11.000 ac	Curve number	= 80
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 16.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

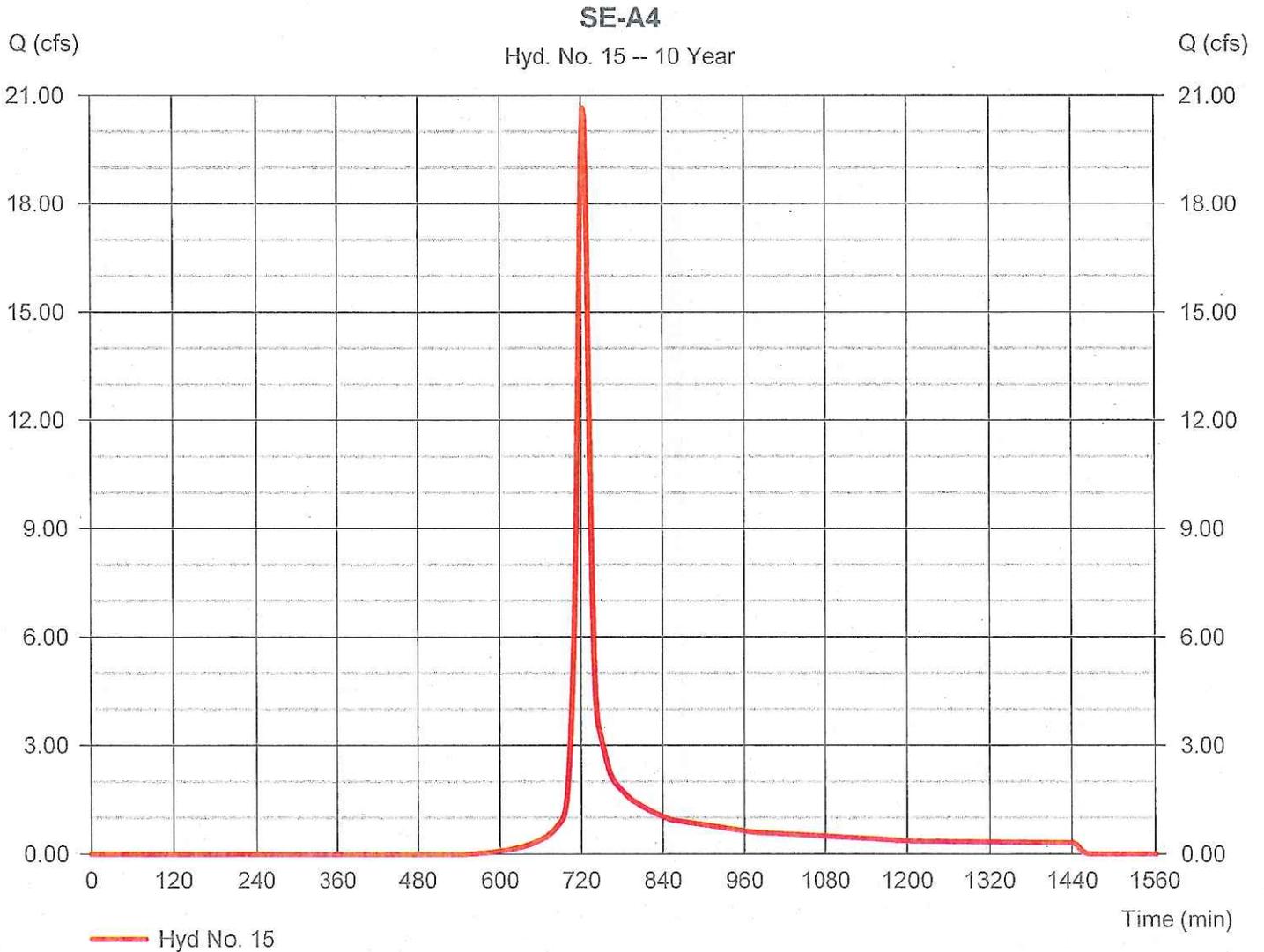
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 15

SE-A4

Hydrograph type	= SCS Runoff	Peak discharge	= 20.66 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 58,233 cuft
Drainage area	= 12.000 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

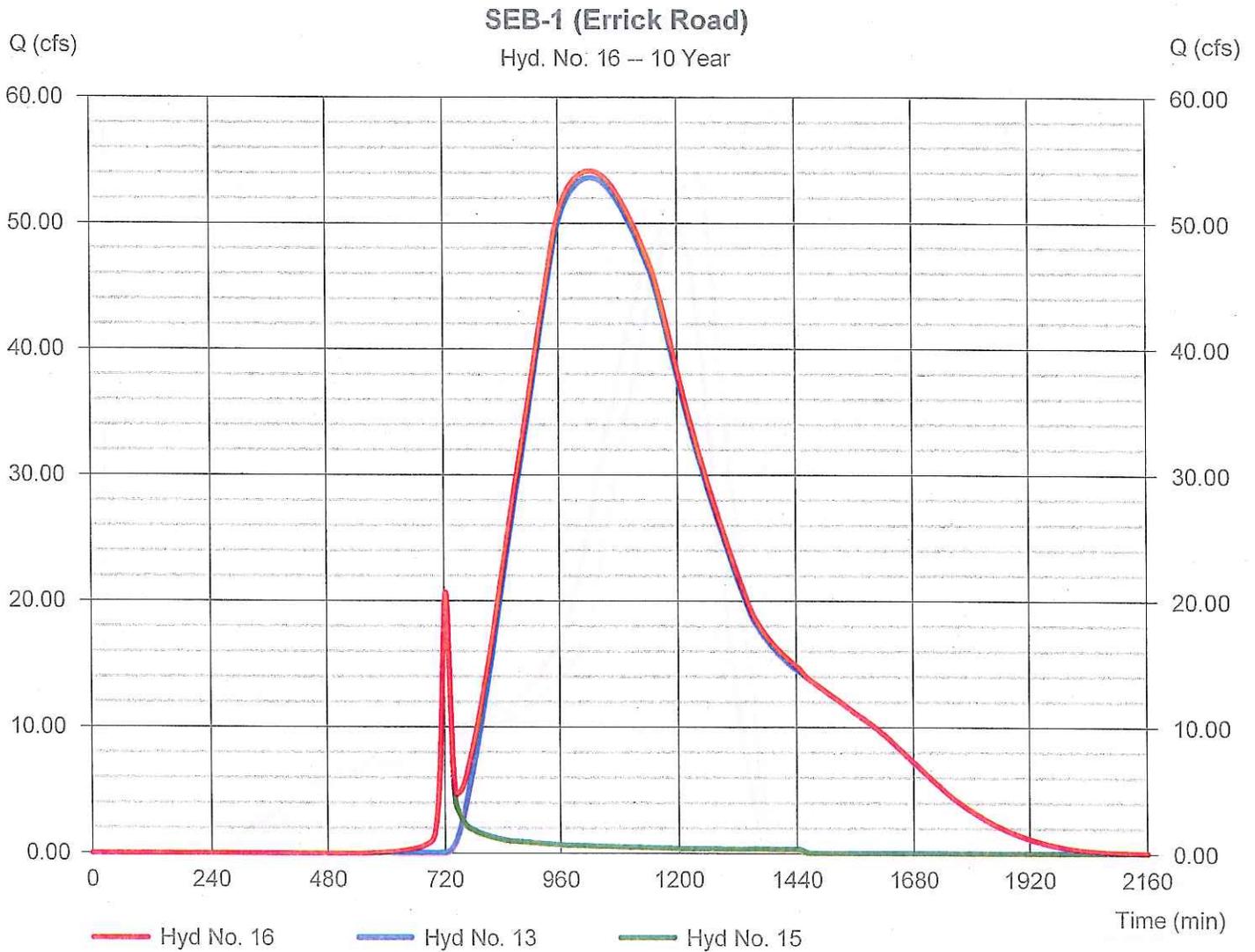
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 16

SEB-1 (Errick Road)

Hydrograph type	= Combine	Peak discharge	= 54.15 cfs
Storm frequency	= 10 yrs	Time to peak	= 1024 min
Time interval	= 2 min	Hyd. volume	= 1,644,677 cuft
Inflow hyds.	= 13, 15	Contrib. drain. area	= 12.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D© 2014 by Autodesk, Inc. v10.3

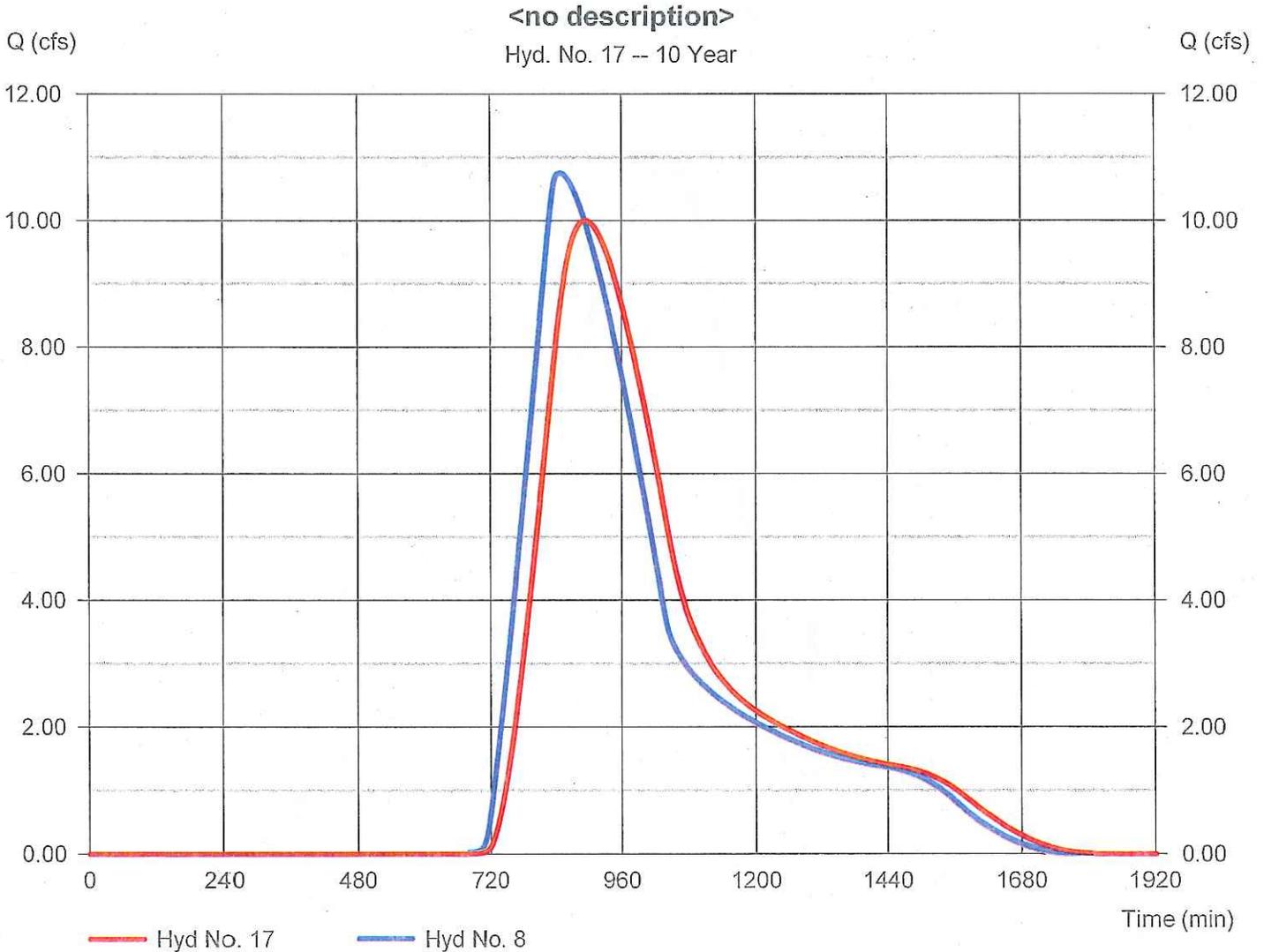
Thursday, 01 / 28 / 2016

Hyd. No. 17

<no description>

Hydrograph type	= Reach	Peak discharge	= 10.000 cfs
Storm frequency	= 10 yrs	Time to peak	= 894 min
Time interval	= 2 min	Hyd. volume	= 197,027 cuft
Inflow hyd. No.	= 8 - SE-A8 (Ward Road)	Section type	= Trapezoidal
Reach length	= 2300.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.237	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0616

Modified Att-Kin routing method used.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 18

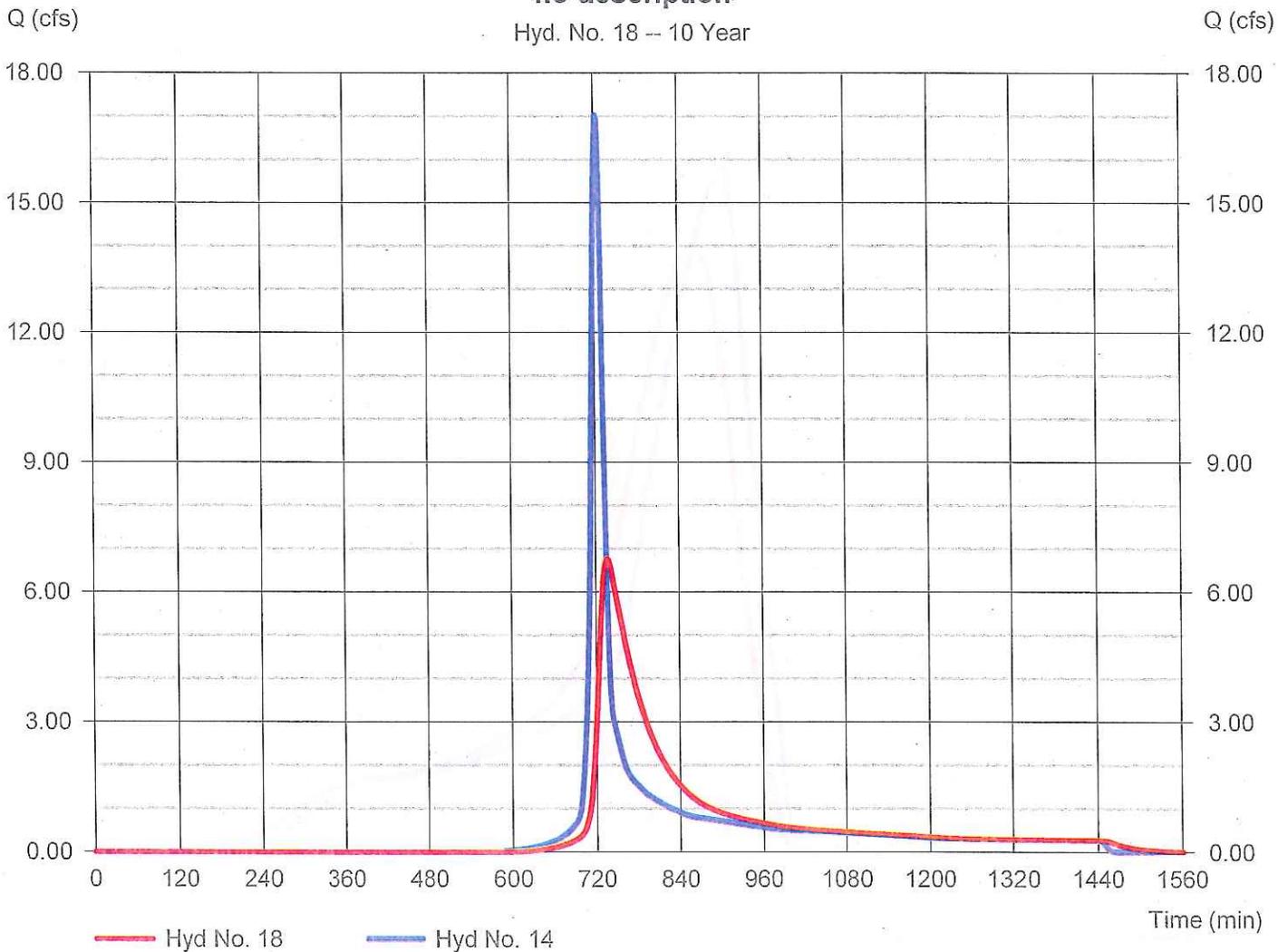
<no description>

Hydrograph type	= Reach	Peak discharge	= 6.771 cfs
Storm frequency	= 10 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 48,352 cuft
Inflow hyd. No.	= 14 - SE-A6	Section type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.274	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0550

Modified Att-Kin routing method used.

<no description>

Hyd. No. 18 -- 10 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

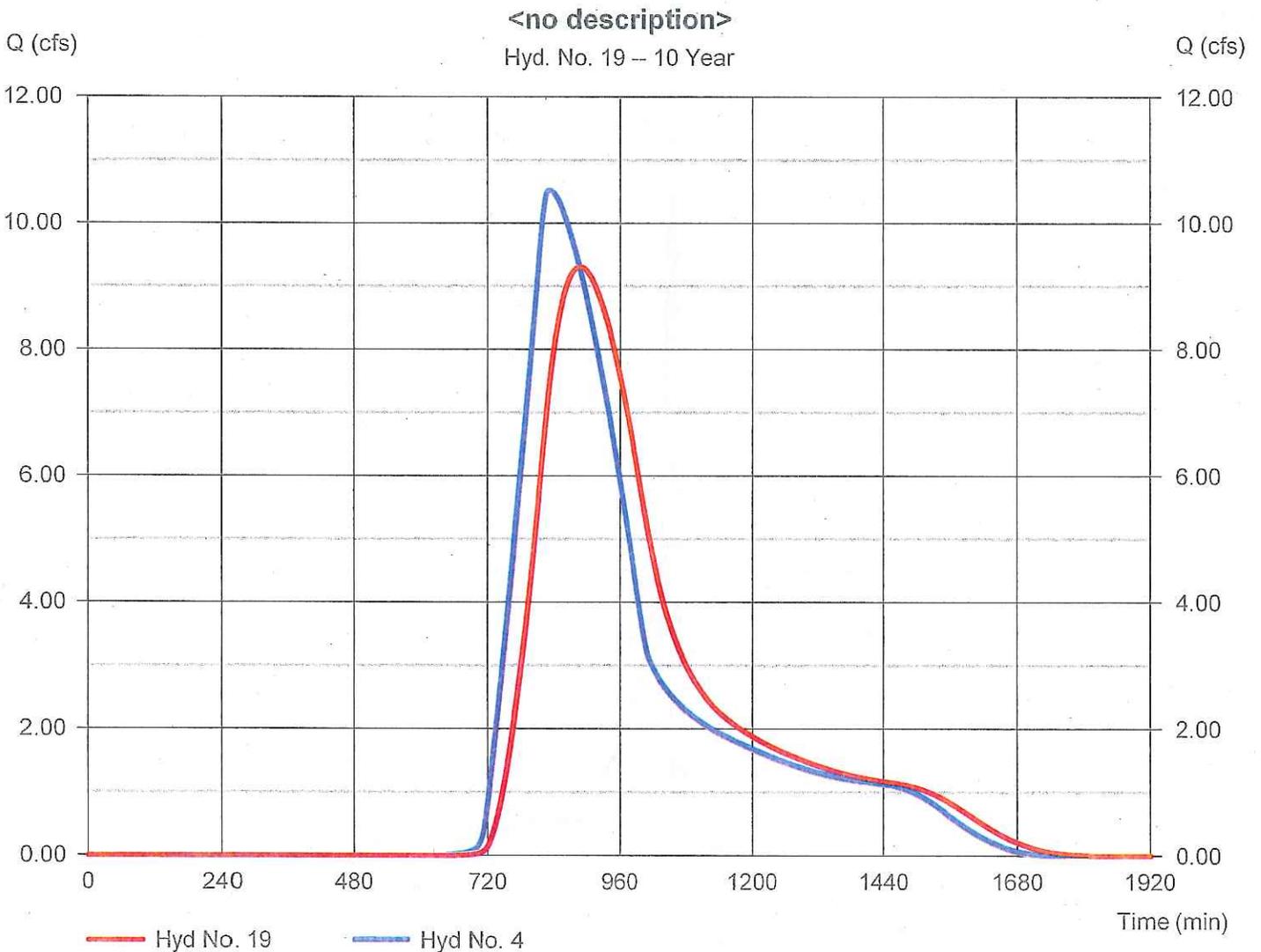
Thursday, 01 / 28 / 2016

Hyd. No. 19

<no description>

Hydrograph type	= Reach	Peak discharge	= 9.305 cfs
Storm frequency	= 10 yrs	Time to peak	= 886 min
Time interval	= 2 min	Hyd. volume	= 173,411 cuft
Inflow hyd. No.	= 4 - SE A5	Section type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 10.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.311	Rating curve m	= 1.447
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0488

Modified Att-Kin routing method used.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

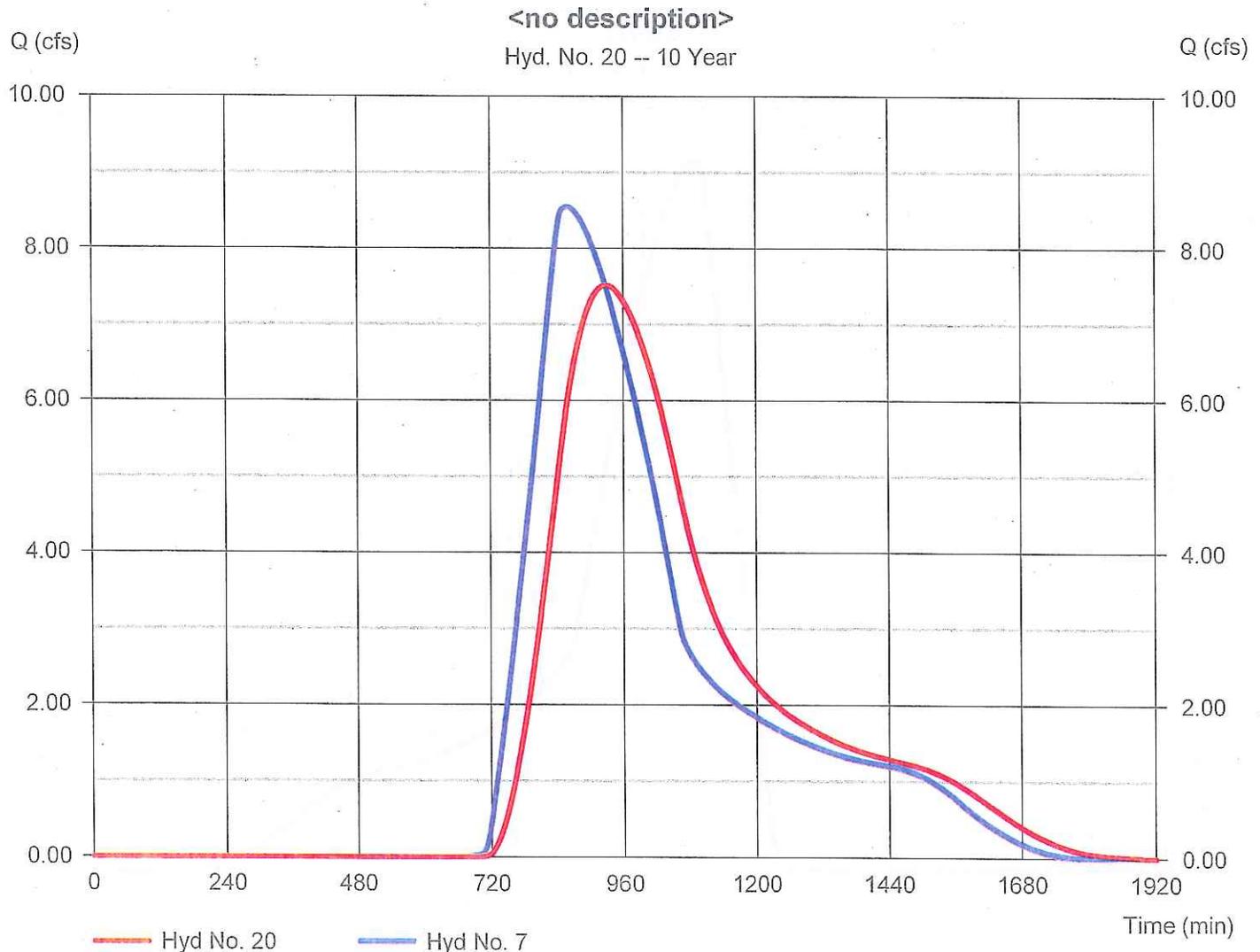
Thursday, 01 / 28 / 2016

Hyd. No. 20

<no description>

Hydrograph type	= Reach	Peak discharge	= 7.517 cfs
Storm frequency	= 10 yrs	Time to peak	= 928 min
Time interval	= 2 min	Hyd. volume	= 166,937 cuft
Inflow hyd. No.	= 7 - SE-A3	Section type	= Trapezoidal
Reach length	= 3500.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.237	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0380

Modified Att-Kin routing method used.



Hydrograph Report

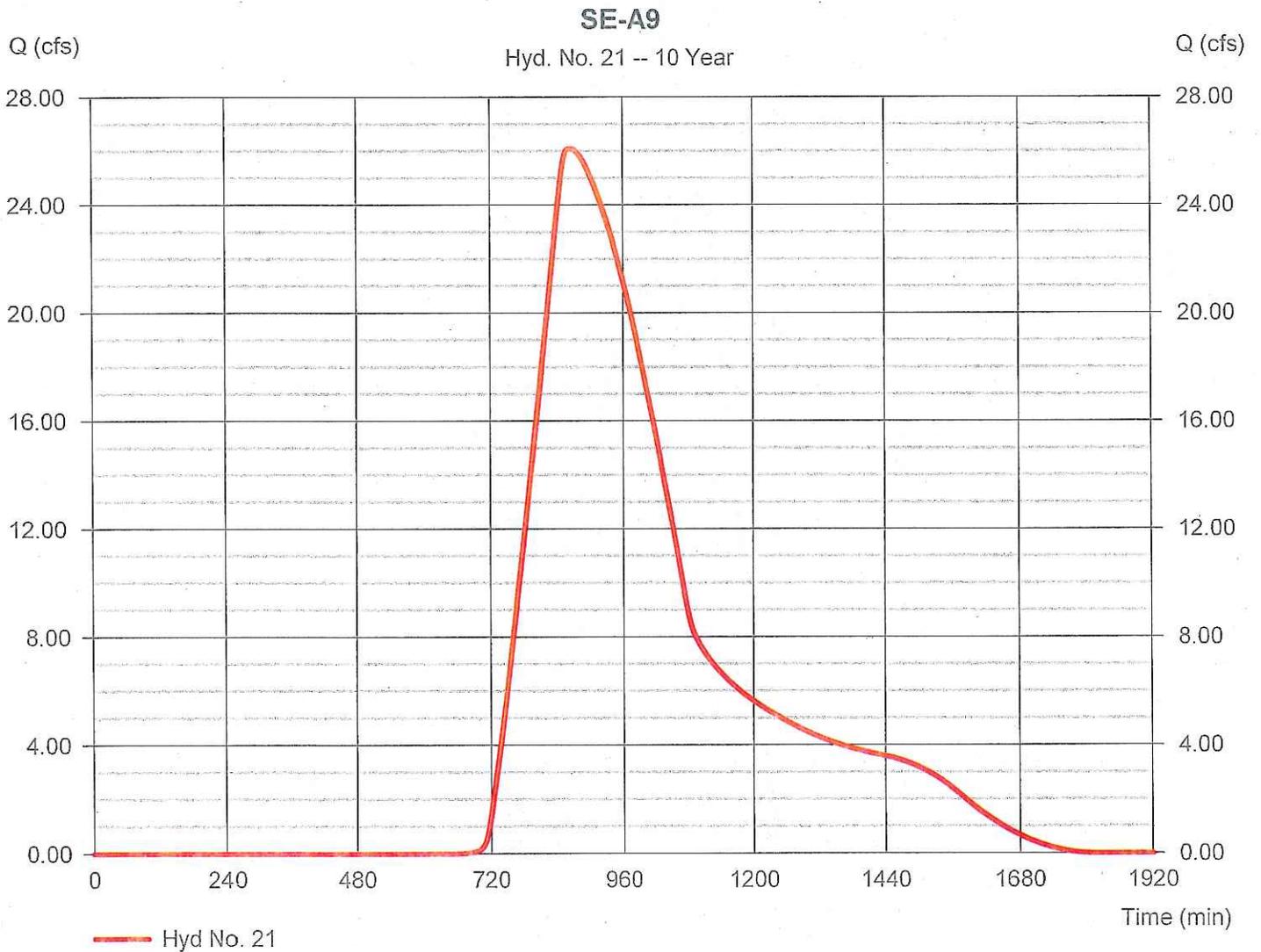
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Thursday, 01 / 28 / 2016

Hyd. No. 21

SE-A9

Hydrograph type	= SCS Runoff	Peak discharge	= 26.09 cfs
Storm frequency	= 10 yrs	Time to peak	= 864 min
Time interval	= 2 min	Hyd. volume	= 520,672 cuft
Drainage area	= 142.000 ac	Curve number	= 76
Basin Slope	= 0.2 %	Hydraulic length	= 3100 ft
Tc method	= User	Time of conc. (Tc)	= 235.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

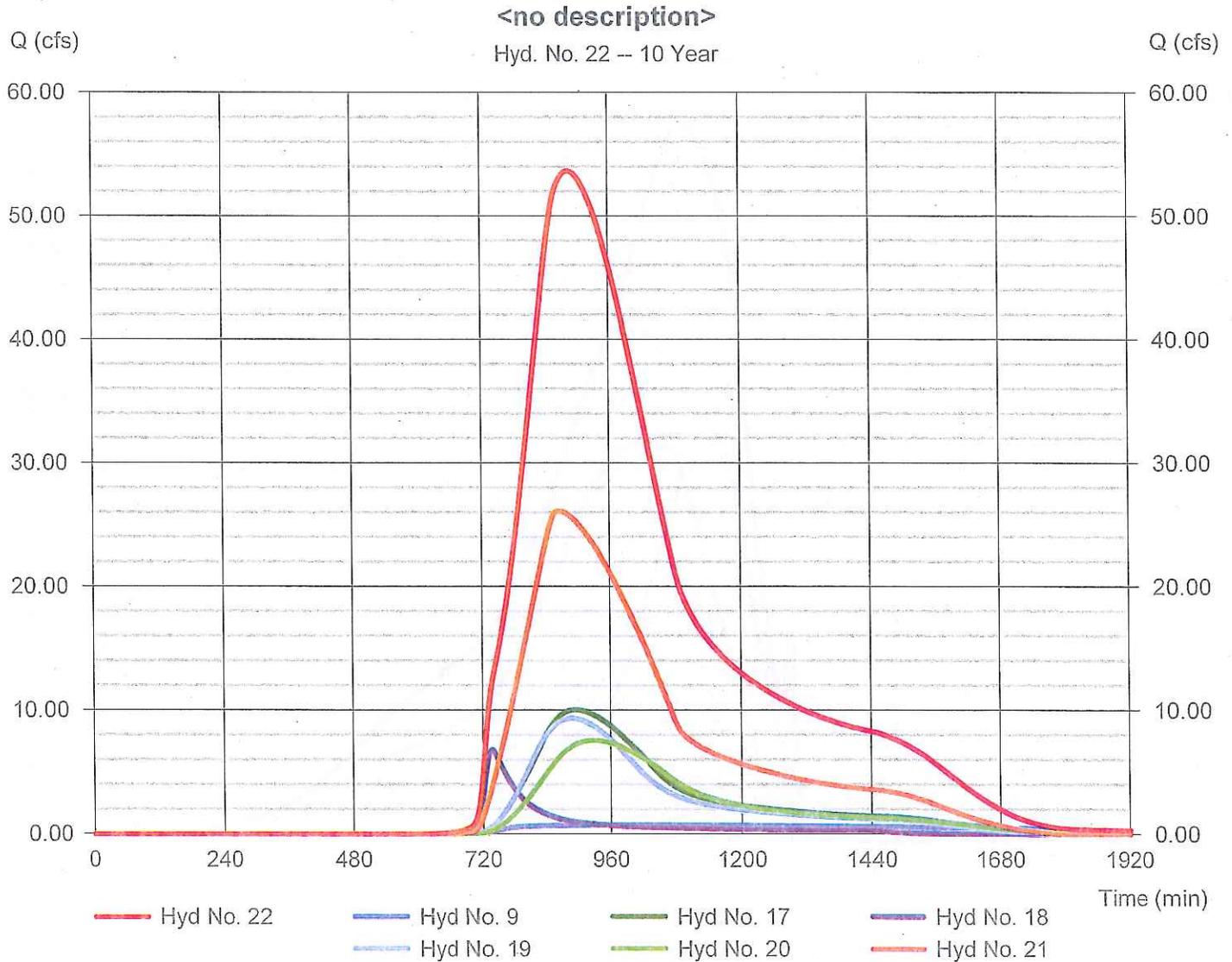
Thursday, 01 / 28 / 2016

Hyd. No. 22

<no description>

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 2 min
 Inflow hyds. = 9, 17, 18, 19, 20, 21

Peak discharge = 53.65 cfs
 Time to peak = 884 min
 Hyd. volume = 1,159,416 cuft
 Contrib. drain. area = 142.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

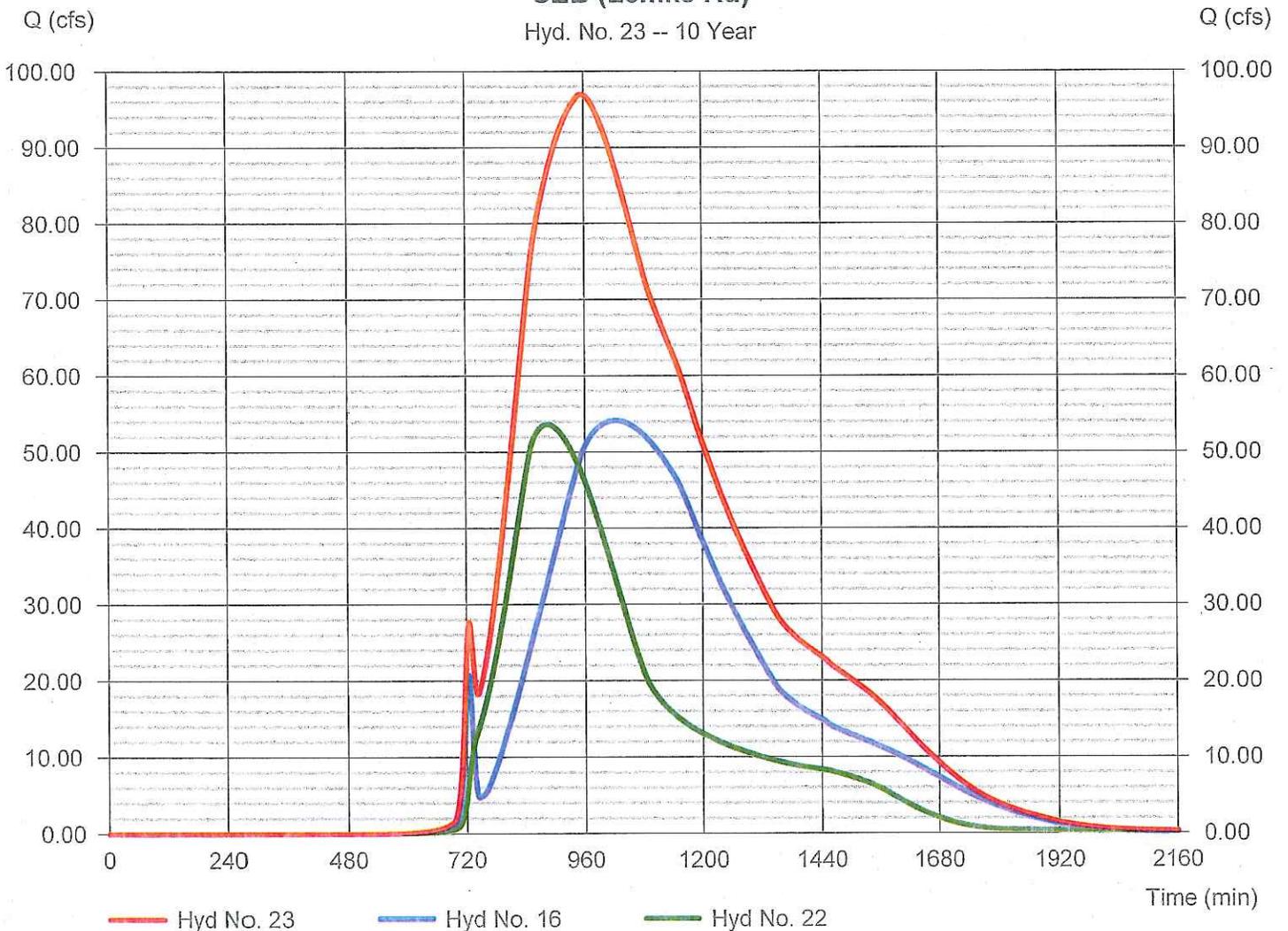
Hyd. No. 23

SEB (Lemke Rd)

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 2 min
 Inflow hyds. = 16, 22

Peak discharge = 96.98 cfs
 Time to peak = 954 min
 Hyd. volume = 2,804,091 cuft
 Contrib. drain. area = 0.000 ac

SEB (Lemke Rd)
 Hyd. No. 23 -- 10 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

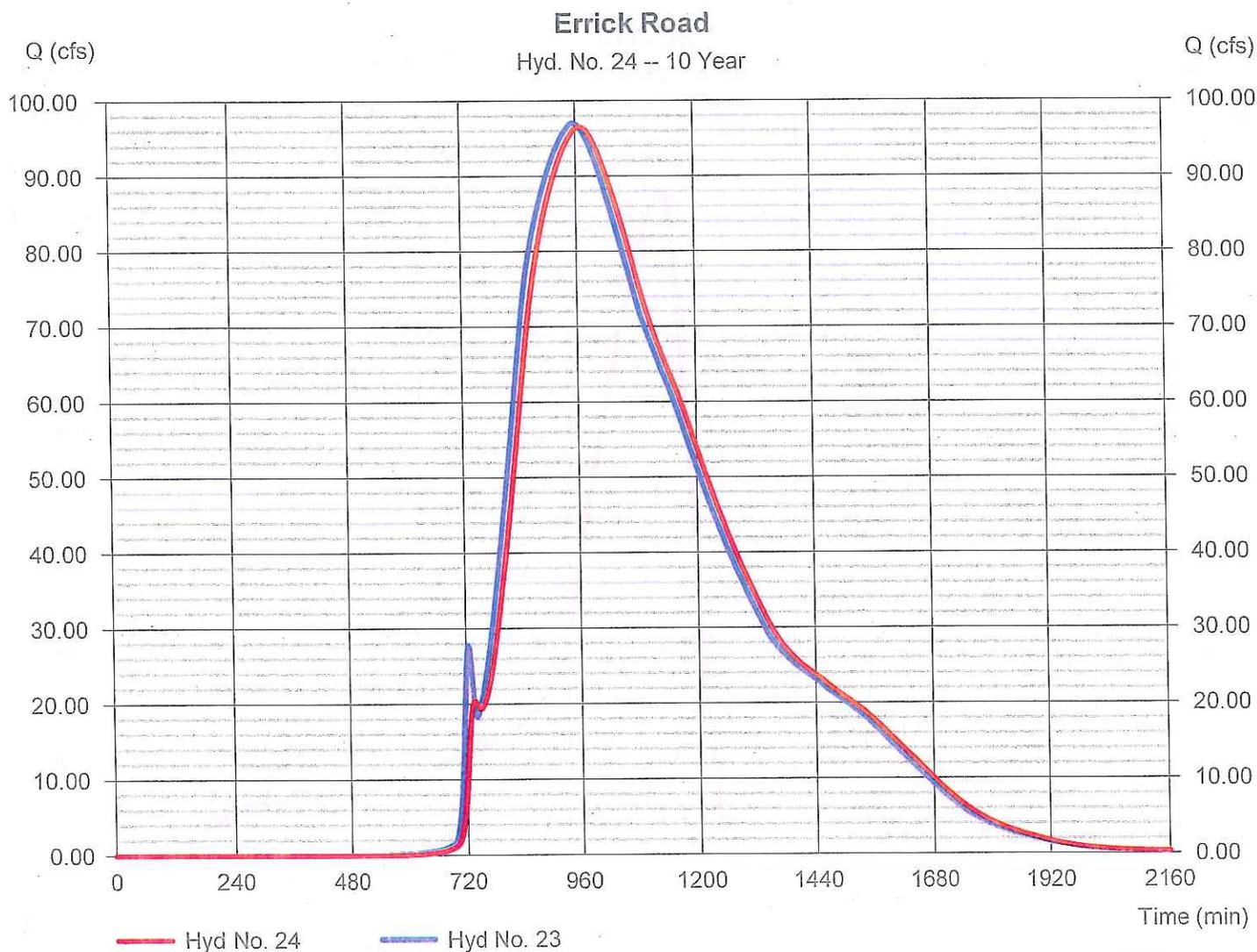
Thursday, 01 / 28 / 2016

Hyd. No. 24

Errick Road

Hydrograph type	= Reach	Peak discharge	= 96.50 cfs
Storm frequency	= 10 yrs	Time to peak	= 968 min
Time interval	= 2 min	Hyd. volume	= 2,804,088 cuft
Inflow hyd. No.	= 23 - SEB (Lemke Rd)	Section type	= Trapezoidal
Reach length	= 1500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.045	Bottom width	= 20.0 ft
Side slope	= 1.0:1	Max. depth	= 4.0 ft
Rating curve x	= 0.110	Rating curve m	= 1.567
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.1486

Modified Att-Kin routing method used.



Hydrograph Report

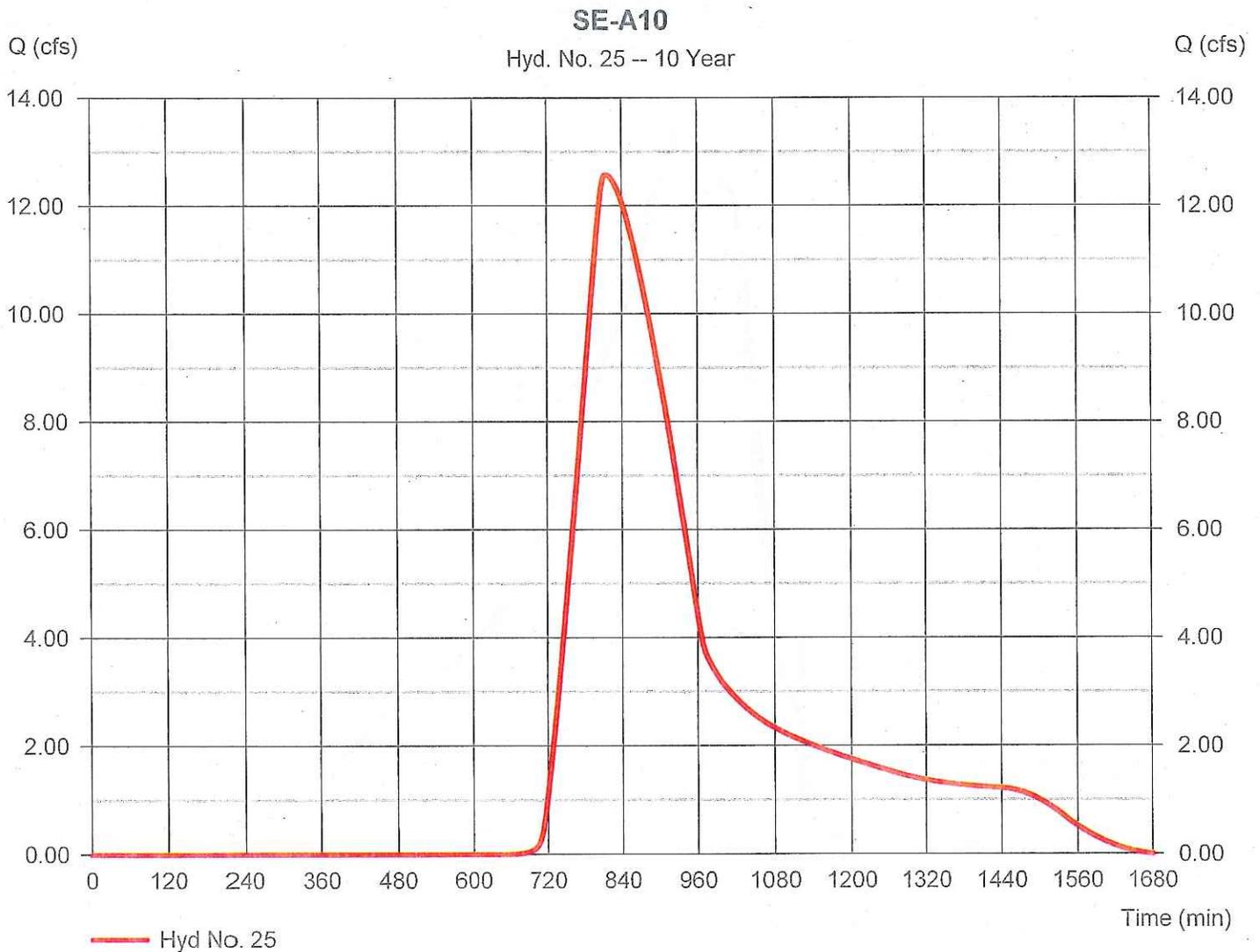
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 25

SE-A10

Hydrograph type	= SCS Runoff	Peak discharge	= 12.58 cfs
Storm frequency	= 10 yrs	Time to peak	= 814 min
Time interval	= 2 min	Hyd. volume	= 186,668 cuft
Drainage area	= 51.000 ac	Curve number	= 76
Basin Slope	= 0.1 %	Hydraulic length	= 1500 ft
Tc method	= User	Time of conc. (Tc)	= 160.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

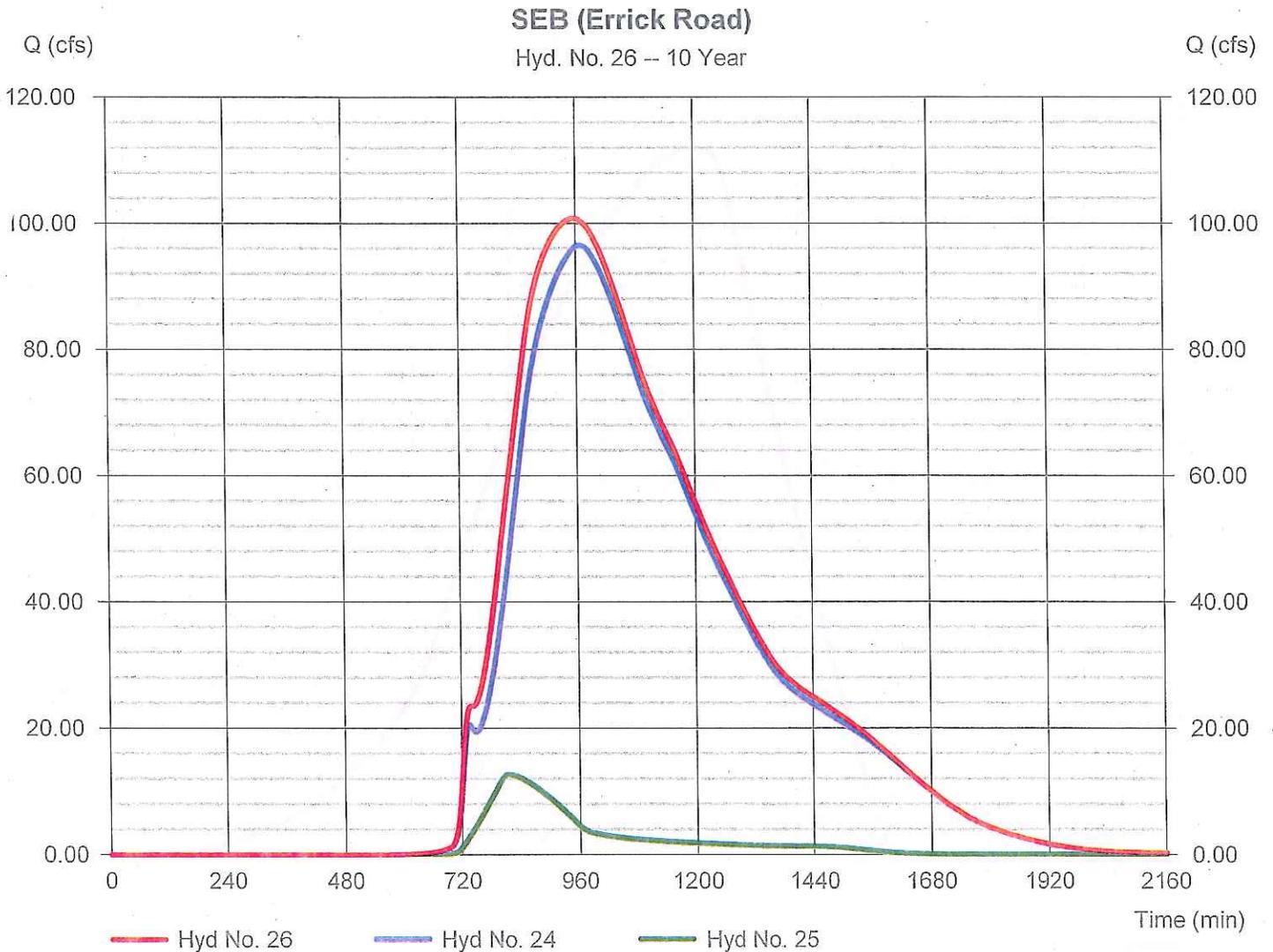
Thursday, 01 / 28 / 2016

Hyd. No. 26

SEB (Errick Road)

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 2 min
 Inflow hyds. = 24, 25

Peak discharge = 100.83 cfs
 Time to peak = 954 min
 Hyd. volume = 2,990,755 cuft
 Contrib. drain. area = 51.000 ac



Hydrograph Report

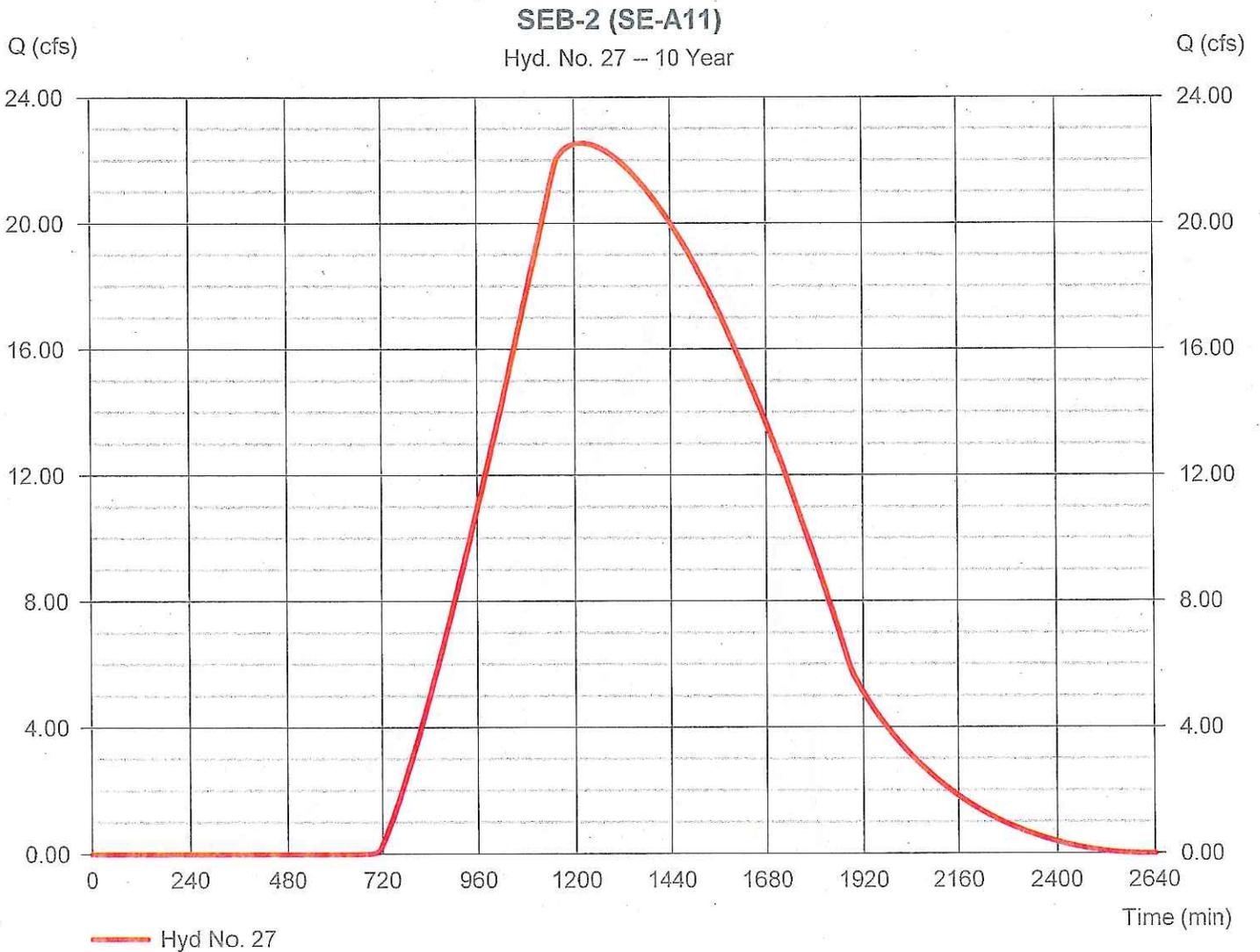
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 27

SEB-2 (SE-A11)

Hydrograph type	= SCS Runoff	Peak discharge	= 22.54 cfs
Storm frequency	= 10 yrs	Time to peak	= 1218 min
Time interval	= 2 min	Hyd. volume	= 1,082,796 cuft
Drainage area	= 296.000 ac	Curve number	= 76
Basin Slope	= 0.1 %	Hydraulic length	= 6200 ft
Tc method	= User	Time of conc. (Tc)	= 750.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

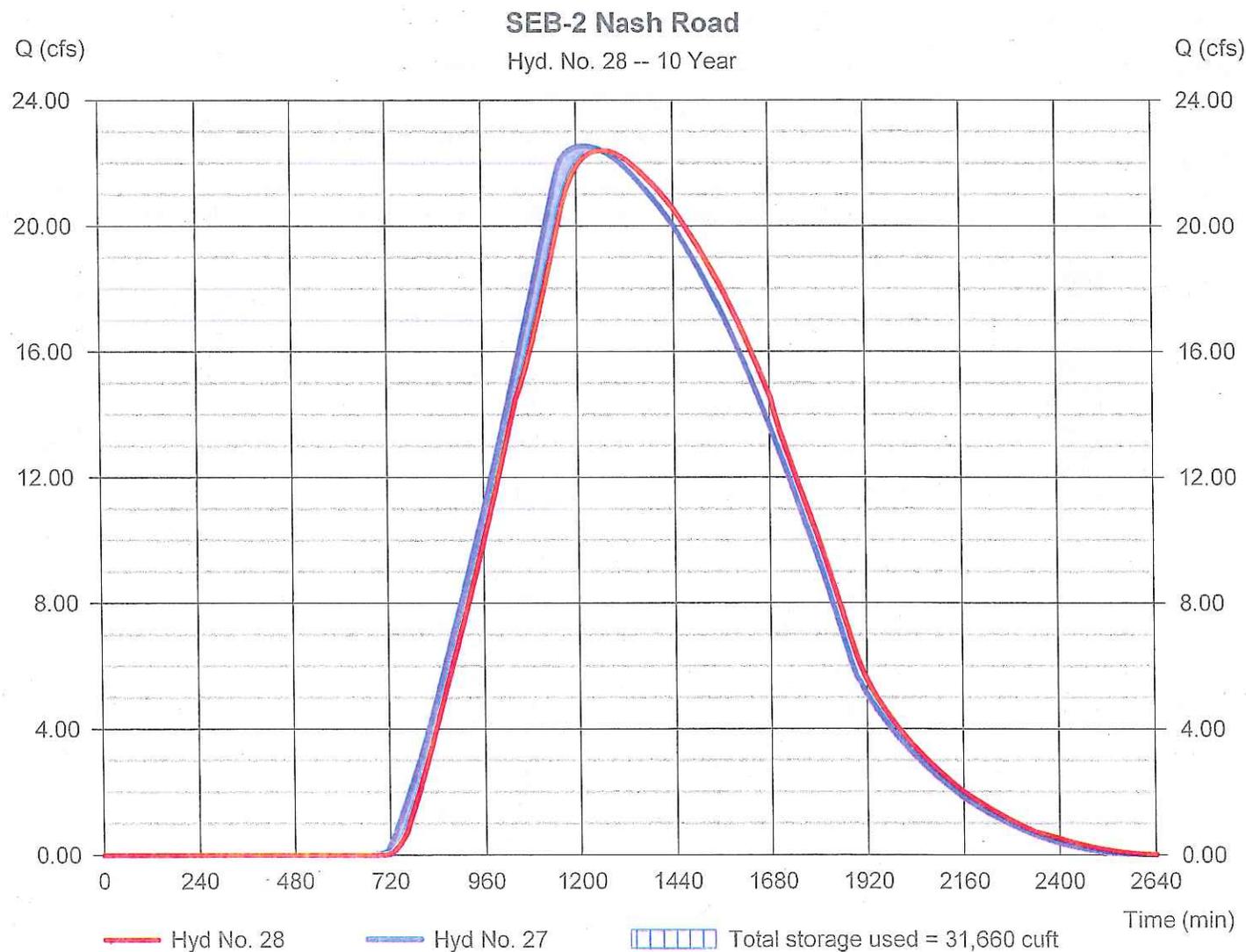
Thursday, 01 / 28 / 2016

Hyd. No. 28

SEB-2 Nash Road

Hydrograph type	= Reservoir	Peak discharge	= 22.40 cfs
Storm frequency	= 10 yrs	Time to peak	= 1260 min
Time interval	= 2 min	Hyd. volume	= 1,082,794 cuft
Inflow hyd. No.	= 27 - SEB-2 (SE-A11)	Max. Elevation	= 583.49 ft
Reservoir name	= SEB-2 Nash Road	Max. Storage	= 31,660 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Pond No. 3 - SEB-2 Nash Road

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 582.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	582.00	10,000	0	0
1.00	583.00	25,000	16,935	16,935
2.00	584.00	35,000	29,857	46,793
3.00	585.00	42,000	38,443	85,236
4.00	586.00	47,500	44,717	129,953

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	0.00	0.00	0.00
Span (in)	= 120.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 582.00	0.00	0.00	0.00
Length (ft)	= 40.00	0.00	0.00	0.00
Slope (%)	= 0.15	0.00	0.00	n/a
N-Value	= .015	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 584.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	582.00	0.00	---	---	---	0.00	---	---	---	---	---	0.000
0.10	1,694	582.10	0.73 oc	---	---	---	0.00	---	---	---	---	---	0.731
0.20	3,387	582.20	2.01 oc	---	---	---	0.00	---	---	---	---	---	2.006
0.30	5,081	582.30	3.46 oc	---	---	---	0.00	---	---	---	---	---	3.463
0.40	6,774	582.40	4.99 oc	---	---	---	0.00	---	---	---	---	---	4.993
0.50	8,468	582.50	6.56 oc	---	---	---	0.00	---	---	---	---	---	6.558
0.60	10,161	582.60	8.14 oc	---	---	---	0.00	---	---	---	---	---	8.139
0.70	11,855	582.70	9.73 oc	---	---	---	0.00	---	---	---	---	---	9.729
0.80	13,548	582.80	11.32 oc	---	---	---	0.00	---	---	---	---	---	11.32
0.90	15,242	582.90	12.92 oc	---	---	---	0.00	---	---	---	---	---	12.92
1.00	16,935	583.00	14.52 oc	---	---	---	0.00	---	---	---	---	---	14.52
1.10	19,921	583.10	16.12 oc	---	---	---	0.00	---	---	---	---	---	16.12
1.20	22,907	583.20	17.72 oc	---	---	---	0.00	---	---	---	---	---	17.72
1.30	25,893	583.30	19.31 oc	---	---	---	0.00	---	---	---	---	---	19.31
1.40	28,878	583.40	20.91 oc	---	---	---	0.00	---	---	---	---	---	20.91
1.50	31,864	583.50	22.51 oc	---	---	---	0.00	---	---	---	---	---	22.51
1.60	34,850	583.60	24.10 oc	---	---	---	0.00	---	---	---	---	---	24.10
1.70	37,835	583.70	25.70 oc	---	---	---	0.00	---	---	---	---	---	25.70
1.80	40,821	583.80	27.30 oc	---	---	---	0.00	---	---	---	---	---	27.30
1.90	43,807	583.90	28.89 oc	---	---	---	0.00	---	---	---	---	---	28.89
2.00	46,793	584.00	30.49 oc	---	---	---	0.00	---	---	---	---	---	30.49
2.10	50,637	584.10	32.09 oc	---	---	---	0.00	---	---	---	---	---	32.09
2.20	54,481	584.20	33.68 oc	---	---	---	0.00	---	---	---	---	---	33.68
2.30	58,325	584.30	35.27 oc	---	---	---	0.00	---	---	---	---	---	35.27
2.40	62,170	584.40	36.87 oc	---	---	---	0.00	---	---	---	---	---	36.87
2.50	66,014	584.50	38.46 oc	---	---	---	0.00	---	---	---	---	---	38.46
2.60	69,858	584.60	40.05 oc	---	---	---	0.00	---	---	---	---	---	40.05
2.70	73,703	584.70	41.65 oc	---	---	---	0.00	---	---	---	---	---	41.65
2.80	77,547	584.80	43.24 oc	---	---	---	0.00	---	---	---	---	---	43.24
2.90	81,391	584.90	44.83 oc	---	---	---	0.00	---	---	---	---	---	44.83
3.00	85,236	585.00	45.02 oc	---	---	---	0.00	---	---	---	---	---	45.02
3.10	89,707	585.10	73.51 oc	---	---	---	0.00	---	---	---	---	---	73.51
3.20	94,179	585.20	93.71 oc	---	---	---	0.00	---	---	---	---	---	93.71
3.30	98,651	585.30	110.27 oc	---	---	---	0.00	---	---	---	---	---	110.27
3.40	103,123	585.40	124.64 oc	---	---	---	0.00	---	---	---	---	---	124.64
3.50	107,594	585.50	137.52 oc	---	---	---	0.00	---	---	---	---	---	137.52

Continues on next page...

SEB-2 Nash Road

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.60	112,066	585.60	149.30 oc	---	---	---	0.00	---	---	---	---	---	149.30
3.70	116,538	585.70	160.21 oc	---	---	---	0.00	---	---	---	---	---	160.21
3.80	121,010	585.80	170.43 oc	---	---	---	0.00	---	---	---	---	---	170.43
3.90	125,481	585.90	180.06 oc	---	---	---	0.00	---	---	---	---	---	180.06
4.00	129,953	586.00	189.23 oc	---	---	---	0.00	---	---	---	---	---	189.23

...End

Hydrograph Report

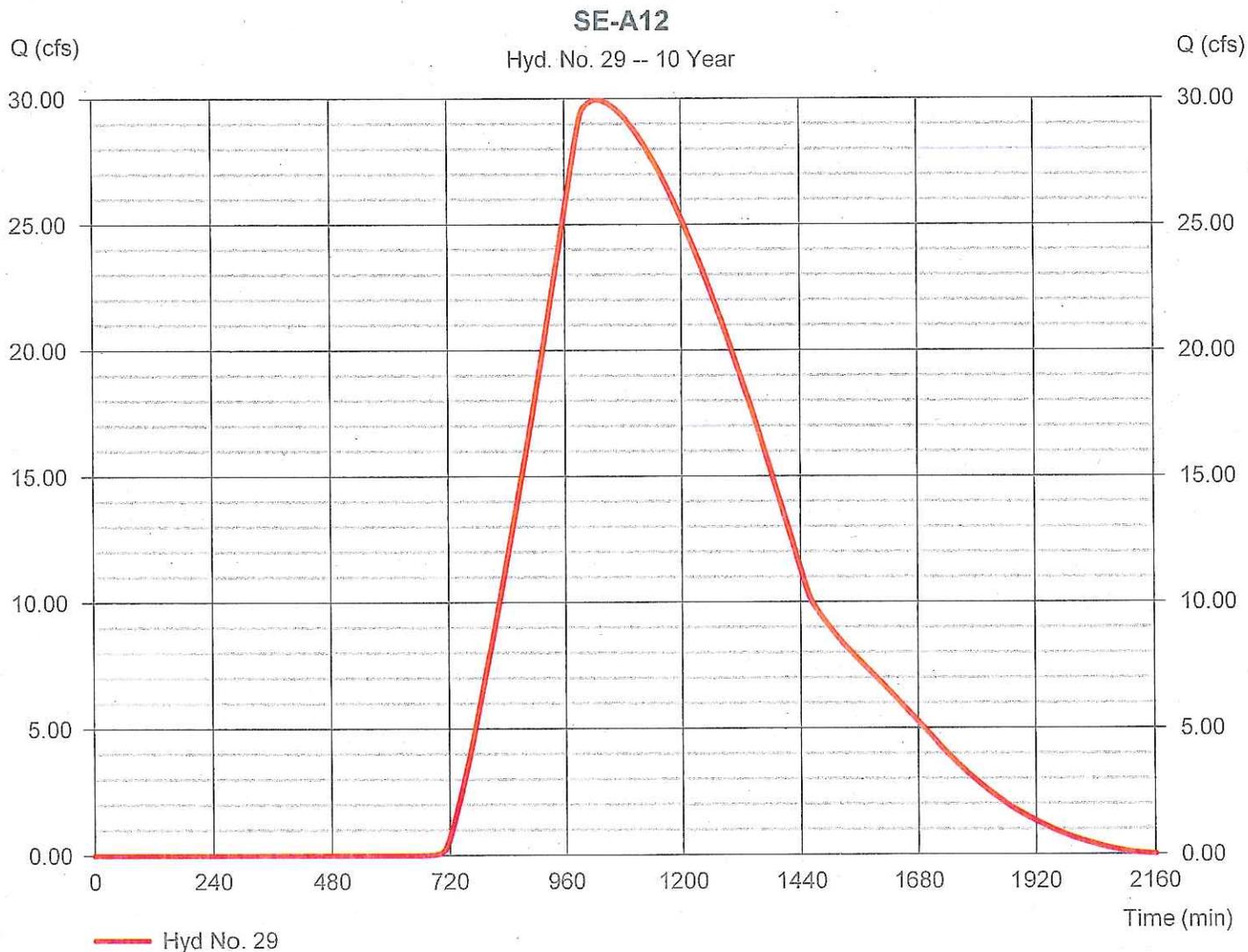
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 29

SE-A12

Hydrograph type	= SCS Runoff	Peak discharge	= 29.94 cfs
Storm frequency	= 10 yrs	Time to peak	= 1026 min
Time interval	= 2 min	Hyd. volume	= 1,016,615 cuft
Drainage area	= 278.000 ac	Curve number	= 76
Basin Slope	= 0.1 %	Hydraulic length	= 3500 ft
Tc method	= User	Time of conc. (Tc)	= 475.00 min
Total precip.	= 2.99 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

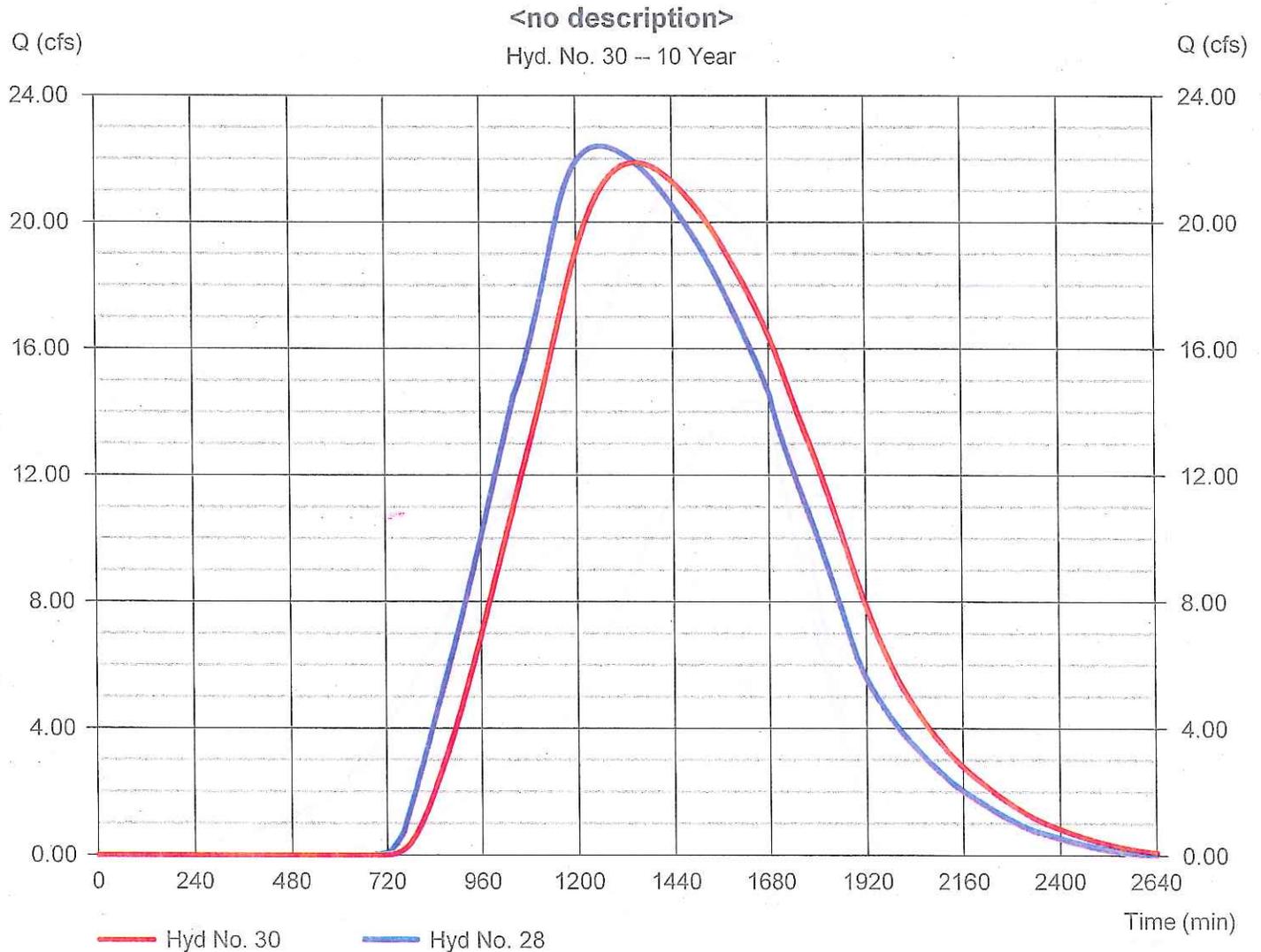
Thursday, 01 / 28 / 2016

Hyd. No. 30

<no description>

Hydrograph type	= Reach	Peak discharge	= 21.88 cfs
Storm frequency	= 10 yrs	Time to peak	= 1346 min
Time interval	= 2 min	Hyd. volume	= 1,082,754 cuft
Inflow hyd. No.	= 28 - SEB-2 Nash Road	Section type	= Trapezoidal
Reach length	= 3500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.045	Bottom width	= 20.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.100	Rating curve m	= 1.504
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0312

Modified Att-Kin routing method used.



Hydrograph Report

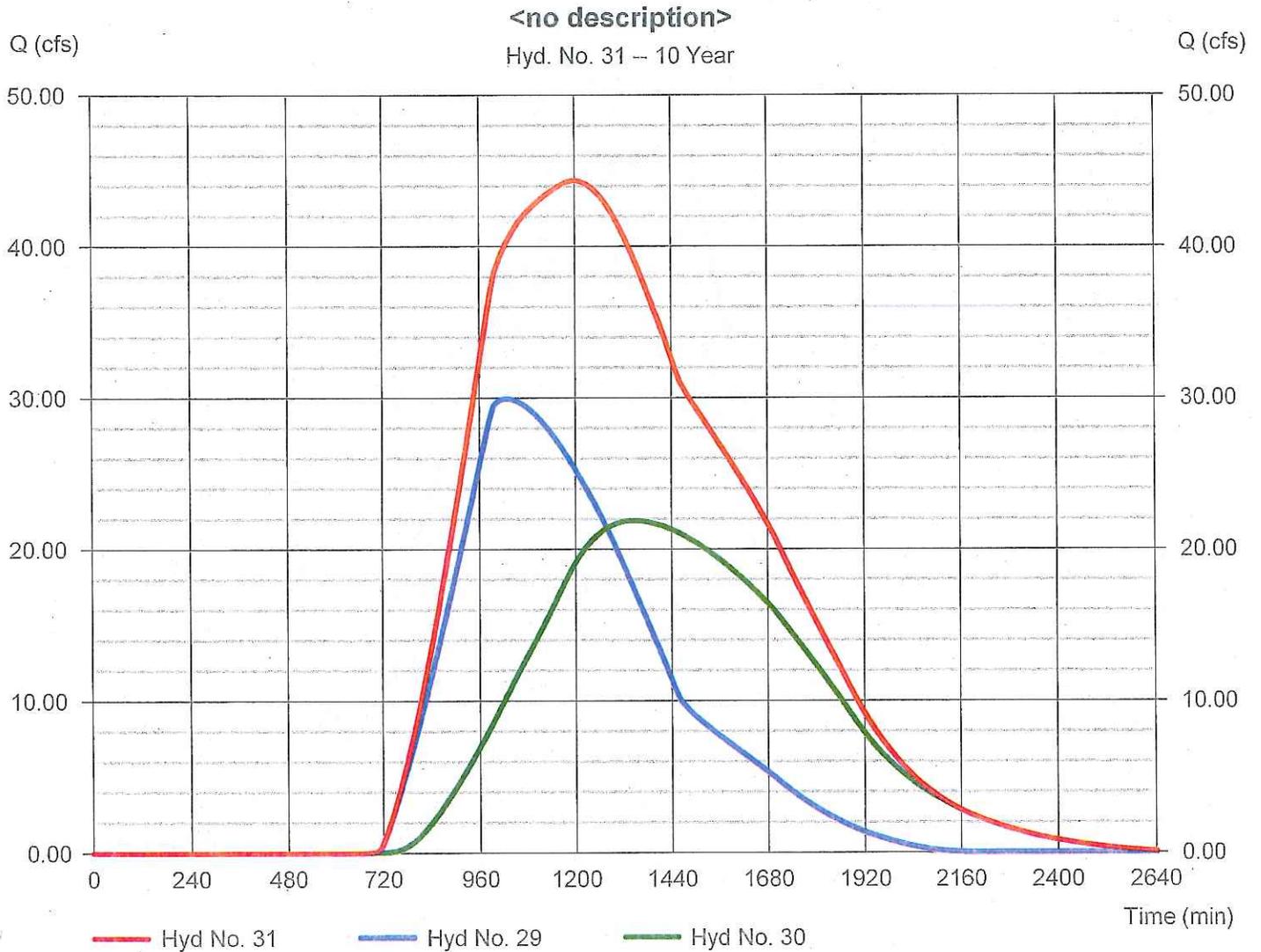
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 31

<no description>

Hydrograph type	= Combine	Peak discharge	= 44.35 cfs
Storm frequency	= 10 yrs	Time to peak	= 1198 min
Time interval	= 2 min	Hyd. volume	= 2,099,371 cuft
Inflow hyds.	= 29, 30	Contrib. drain. area	= 278.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

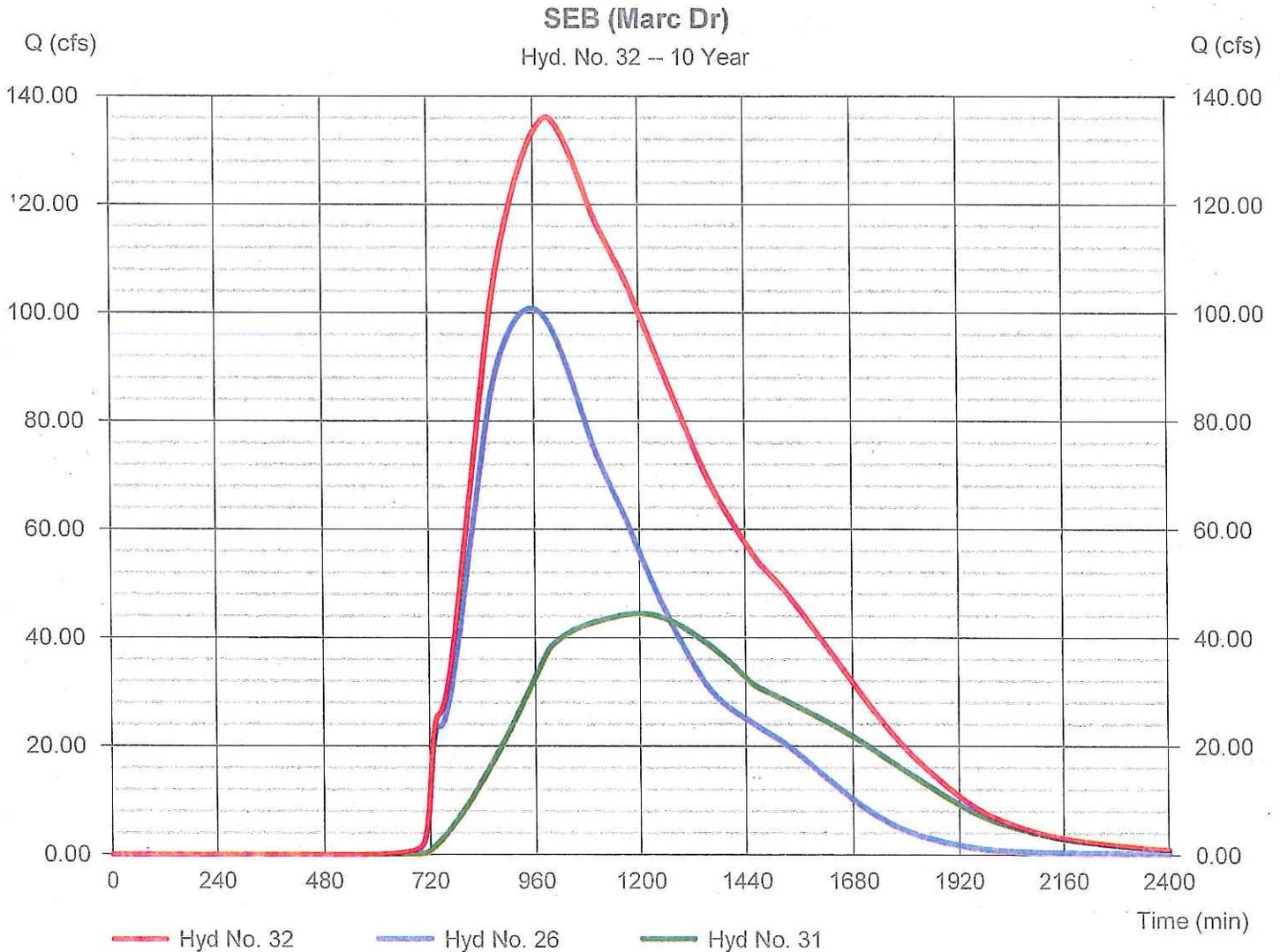
Thursday, 01 / 28 / 2016

Hyd. No. 32

SEB (Marc Dr)

Hydrograph type = Combine
Storm frequency = 10 yrs
Time interval = 2 min
Inflow hyds. = 26, 31

Peak discharge = 136.13 cfs
Time to peak = 990 min
Hyd. volume = 5,090,134 cuft
Contrib. drain. area = 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

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	34.90	5	895	745,154	-----	-----	-----	BEA-4 (BE-A10)
2	SCS Runoff	45.50	2	894	955,776	-----	-----	-----	BEA-3 (BE-A9)
3	SCS Runoff	13.04	2	746	74,938	-----	-----	-----	Ward Road Pierce Drainage SE-A7
4	SCS Runoff	15.66	2	828	249,006	-----	-----	-----	SE A5
5	SCS Runoff	41.76	2	904	975,671	-----	-----	-----	SEB-1 (SE-A1)
6	SCS Runoff	45.99	2	970	1,342,959	-----	-----	-----	SE- A2
7	SCS Runoff	13.19	2	854	246,303	-----	-----	-----	SE-A3
8	SCS Runoff	16.39	2	842	287,976	-----	-----	-----	SE-A8 (Ward Road)
9	Reach	1.127	2	944	74,535	3	-----	-----	SE-A7
10	Reservoir	39.03	2	964	975,670	5	591.78	60,658	SEB-1 (Nash Road)
11	Reach	36.15	2	1034	975,633	10	-----	-----	SE-A1 reach
12	Combine	80.87	2	1008	2,318,595	6, 11	-----	-----	<no description>
13	Reservoir	80.86	2	1010	2,318,577	12	579.26	39,854	SEB-1 (Stieg Road)
14	SCS Runoff	24.10	2	722	67,746	-----	-----	-----	SE-A6
15	SCS Runoff	28.64	2	722	80,291	-----	-----	-----	SE-A4
16	Combine	81.60	2	1010	2,398,869	13, 15	-----	-----	SEB-1 (Errick Road)
17	Reach	15.37	2	884	287,959	8	-----	-----	<no description>
18	Reach	10.60	2	736	67,728	14	-----	-----	<no description>
19	Reach	14.03	2	878	248,985	4	-----	-----	<no description>
20	Reach	11.77	2	916	246,276	7	-----	-----	<no description>
21	SCS Runoff	39.24	2	860	754,109	-----	-----	-----	SE-A9
22	Combine	81.59	2	876	1,679,591	9, 17, 18, 19, 20, 21	-----	-----	<no description>
23	Combine	146.78	2	948	4,078,449	16, 22	-----	-----	SEB (Lemke Rd)
24	Reach	146.12	2	958	4,078,448	23	-----	-----	Errick Road
25	SCS Runoff	18.99	2	812	270,359	-----	-----	-----	SE-A10
26	Combine	152.85	2	948	4,348,806	24, 25	-----	-----	SEB (Errick Road)
27	SCS Runoff	33.20	2	1202	1,568,257	-----	-----	-----	SEB-2 (SE-A11)
28	Reservoir	32.83	2	1258	1,568,252	27	584.15	52,442	SEB-2 Nash Road
29	SCS Runoff	44.51	2	1018	1,472,404	-----	-----	-----	SE-A12
30	Reach	32.23	2	1332	1,568,221	28	-----	-----	<no description>
31	Combine	65.38	2	1186	3,040,628	29, 30	-----	-----	<no description>
32	Combine	203.52	2	982	7,389,435	26, 31	-----	-----	SEB (Marc Dr)
SEB-1 errick Road.gpw					Return Period: 25 Year			Thursday, 01 / 28 / 2016	

Hydrograph Report

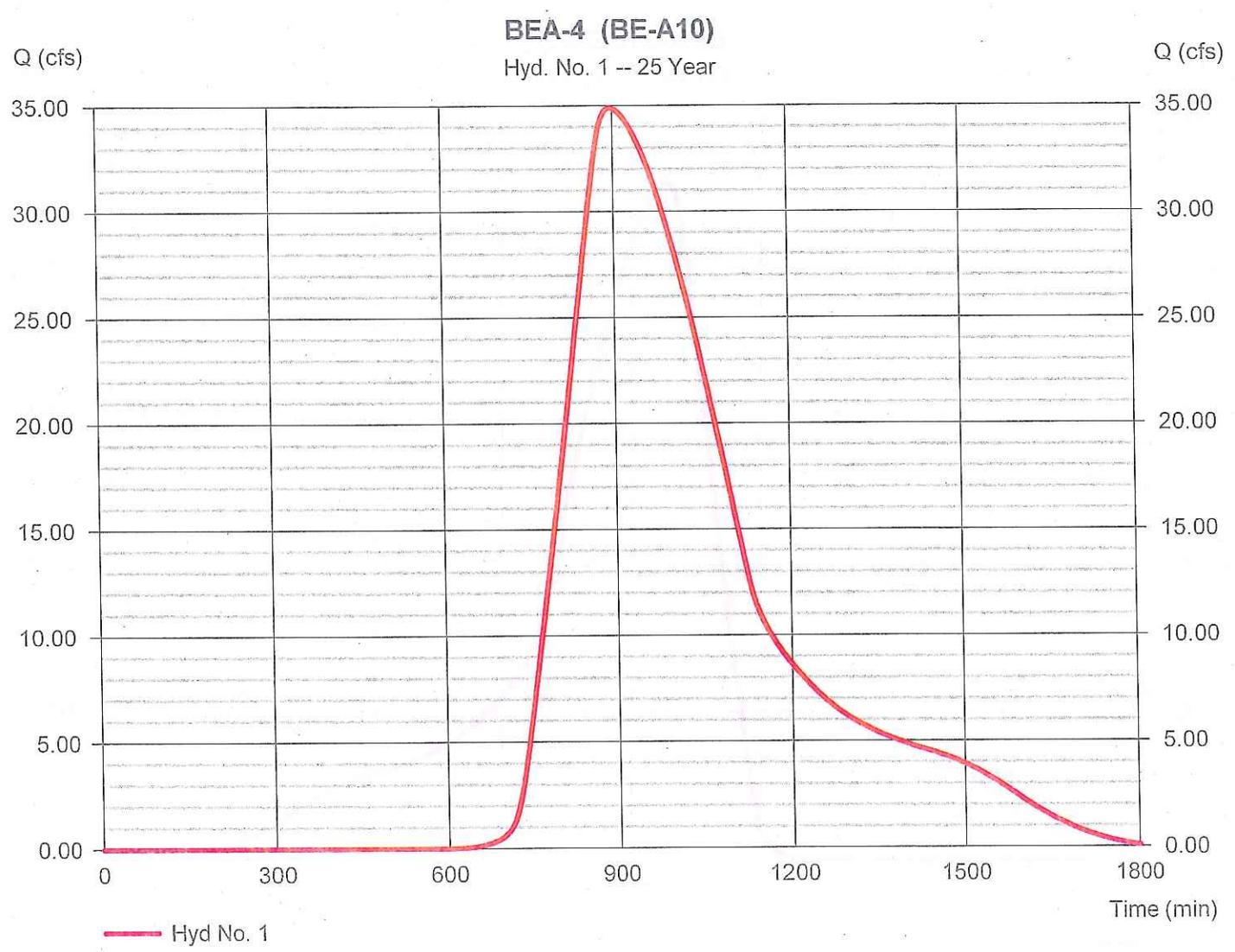
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Thursday, 01 / 28 / 2016

Hyd. No. 1

BEA-4 (BE-A10)

Hydrograph type	= SCS Runoff	Peak discharge	= 34.90 cfs
Storm frequency	= 25 yrs	Time to peak	= 895 min
Time interval	= 5 min	Hyd. volume	= 745,154 cuft
Drainage area	= 140.000 ac	Curve number	= 76
Basin Slope	= 0.4 %	Hydraulic length	= 6000 ft
Tc method	= User	Time of conc. (Tc)	= 260.00 min
Total precip.	= 3.63 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

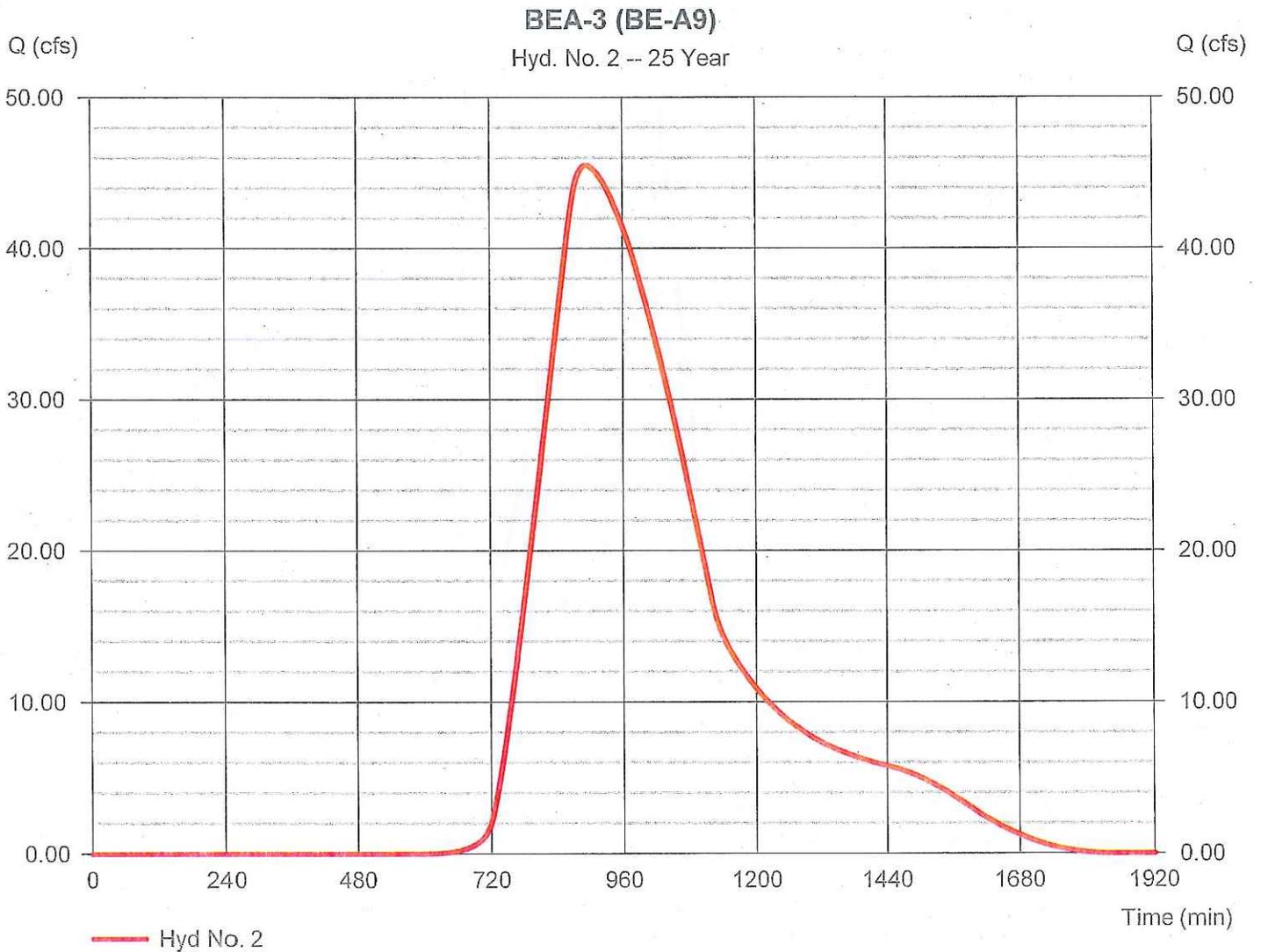
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Thursday, 01 / 28 / 2016

Hyd. No. 2

BEA-3 (BE-A9)

Hydrograph type	= SCS Runoff	Peak discharge	= 45.50 cfs
Storm frequency	= 25 yrs	Time to peak	= 894 min
Time interval	= 2 min	Hyd. volume	= 955,776 cuft
Drainage area	= 180.000 ac	Curve number	= 76
Basin Slope	= 0.4 %	Hydraulic length	= 6000 ft
Tc method	= User	Time of conc. (Tc)	= 255.00 min
Total precip.	= 3.63 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

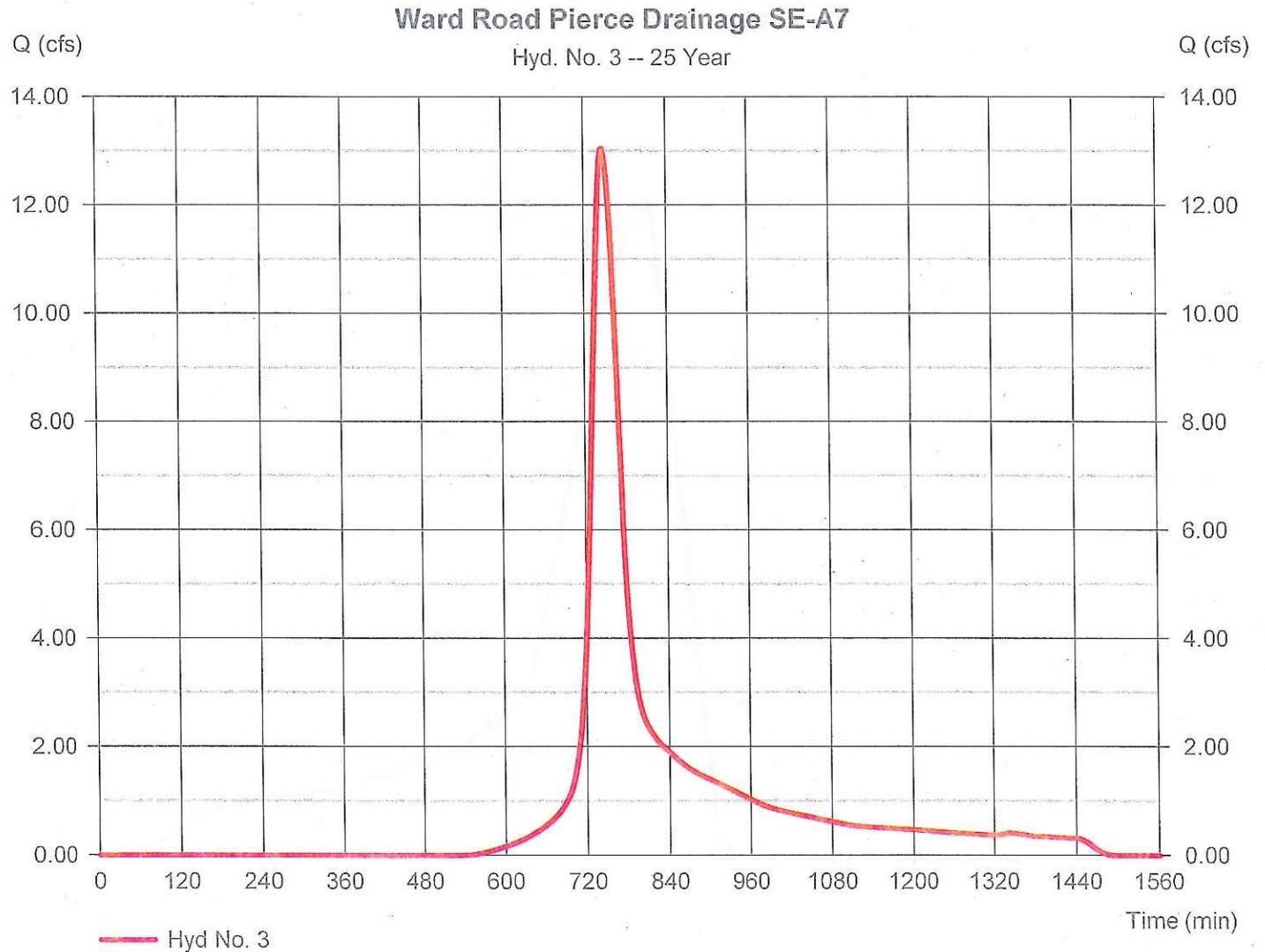
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 3

Ward Road Pierce Drainage SE-A7

Hydrograph type	= SCS Runoff	Peak discharge	= 13.04 cfs
Storm frequency	= 25 yrs	Time to peak	= 746 min
Time interval	= 2 min	Hyd. volume	= 74,938 cuft
Drainage area	= 12.000 ac	Curve number	= 80
Basin Slope	= 0.4 %	Hydraulic length	= 960 ft
Tc method	= TR55	Time of conc. (Tc)	= 36.70 min
Total precip.	= 3.63 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

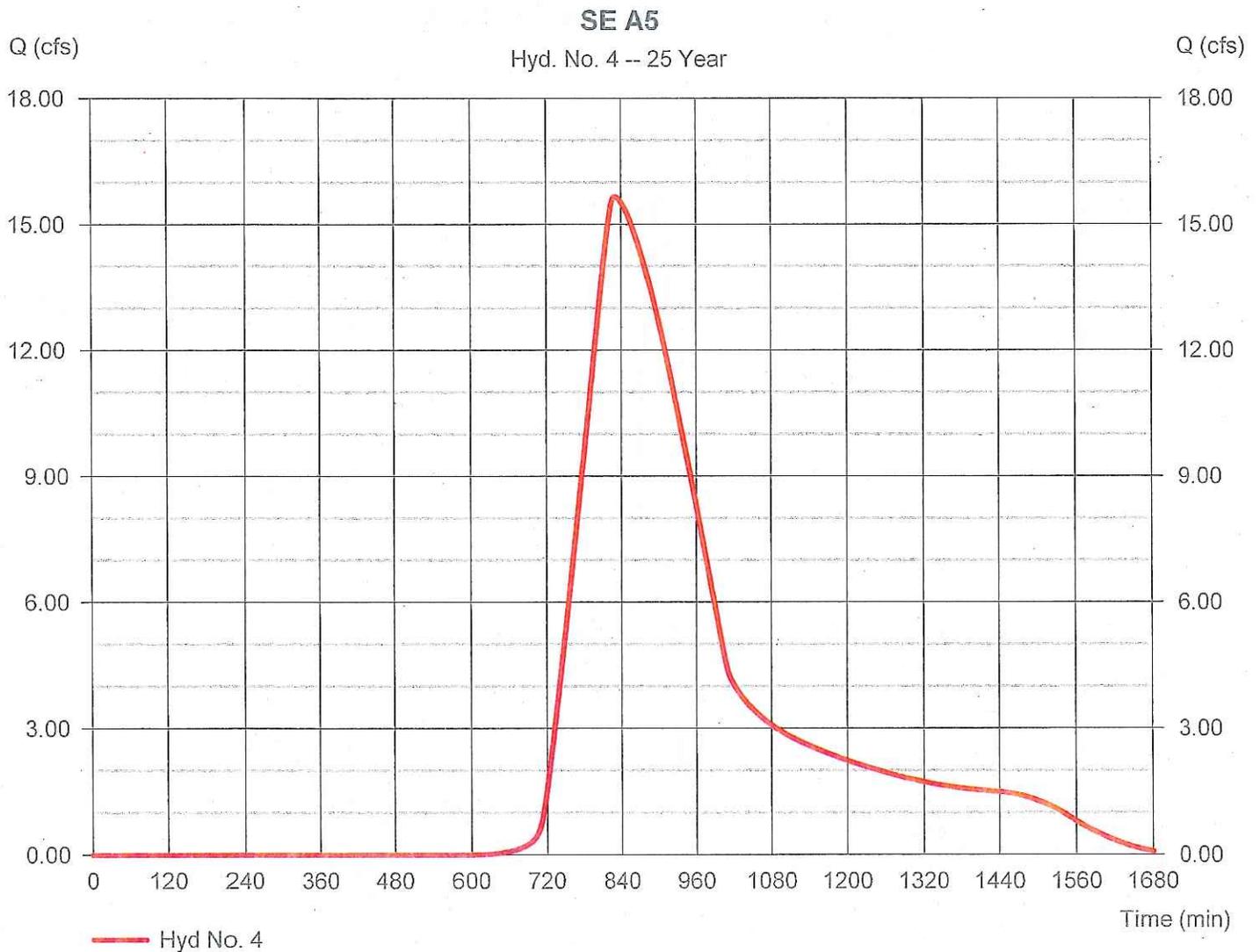
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 4

SE A5

Hydrograph type	= SCS Runoff	Peak discharge	= 15.66 cfs
Storm frequency	= 25 yrs	Time to peak	= 828 min
Time interval	= 2 min	Hyd. volume	= 249,006 cuft
Drainage area	= 45.000 ac	Curve number	= 77
Basin Slope	= 0.4 %	Hydraulic length	= 4200 ft
Tc method	= User	Time of conc. (Tc)	= 190.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

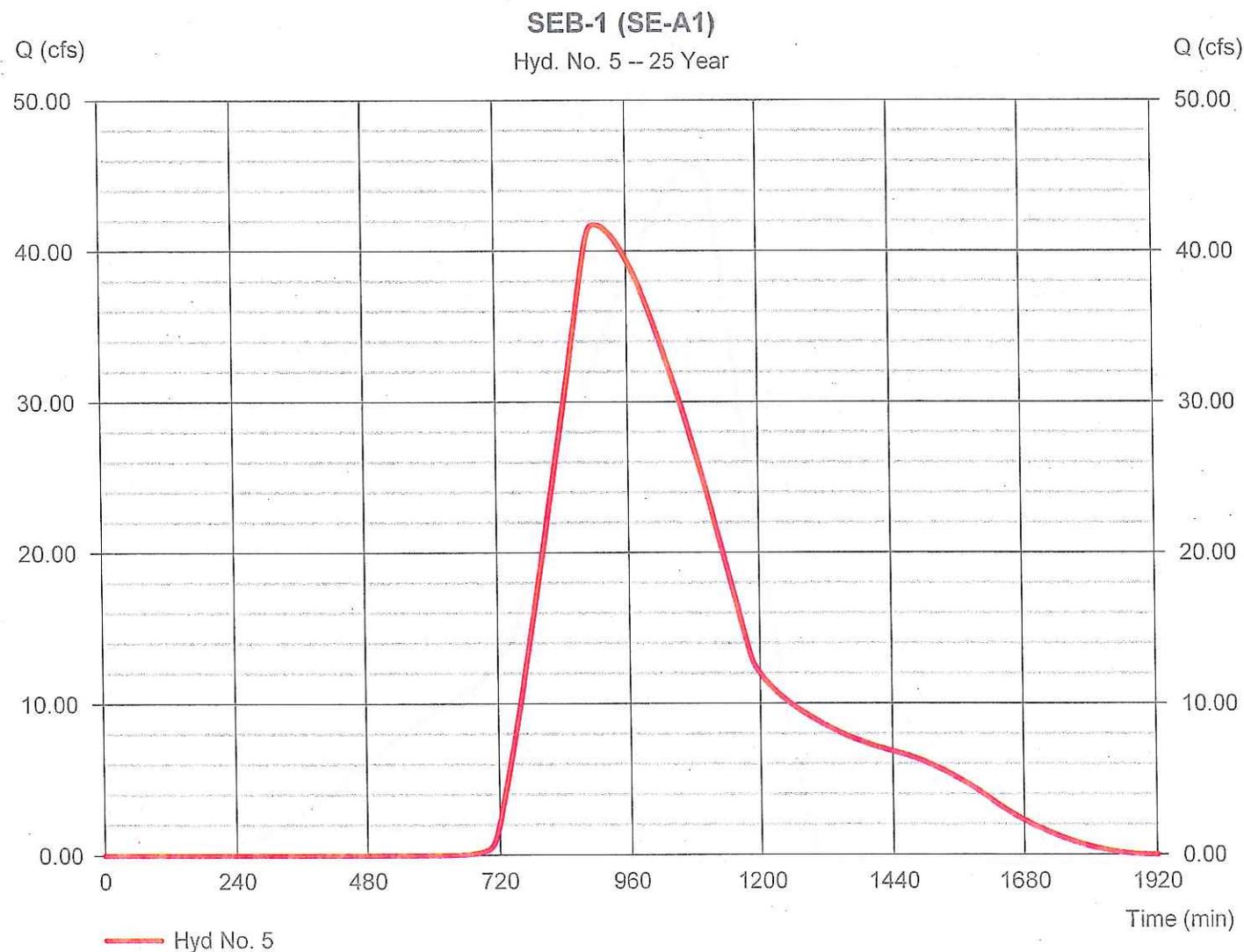
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 5

SEB-1 (SE-A1)

Hydrograph type	= SCS Runoff	Peak discharge	= 41.76 cfs
Storm frequency	= 25 yrs	Time to peak	= 904 min
Time interval	= 2 min	Hyd. volume	= 975,671 cuft
Drainage area	= 193.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 3900 ft
Tc method	= User	Time of conc. (Tc)	= 300.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

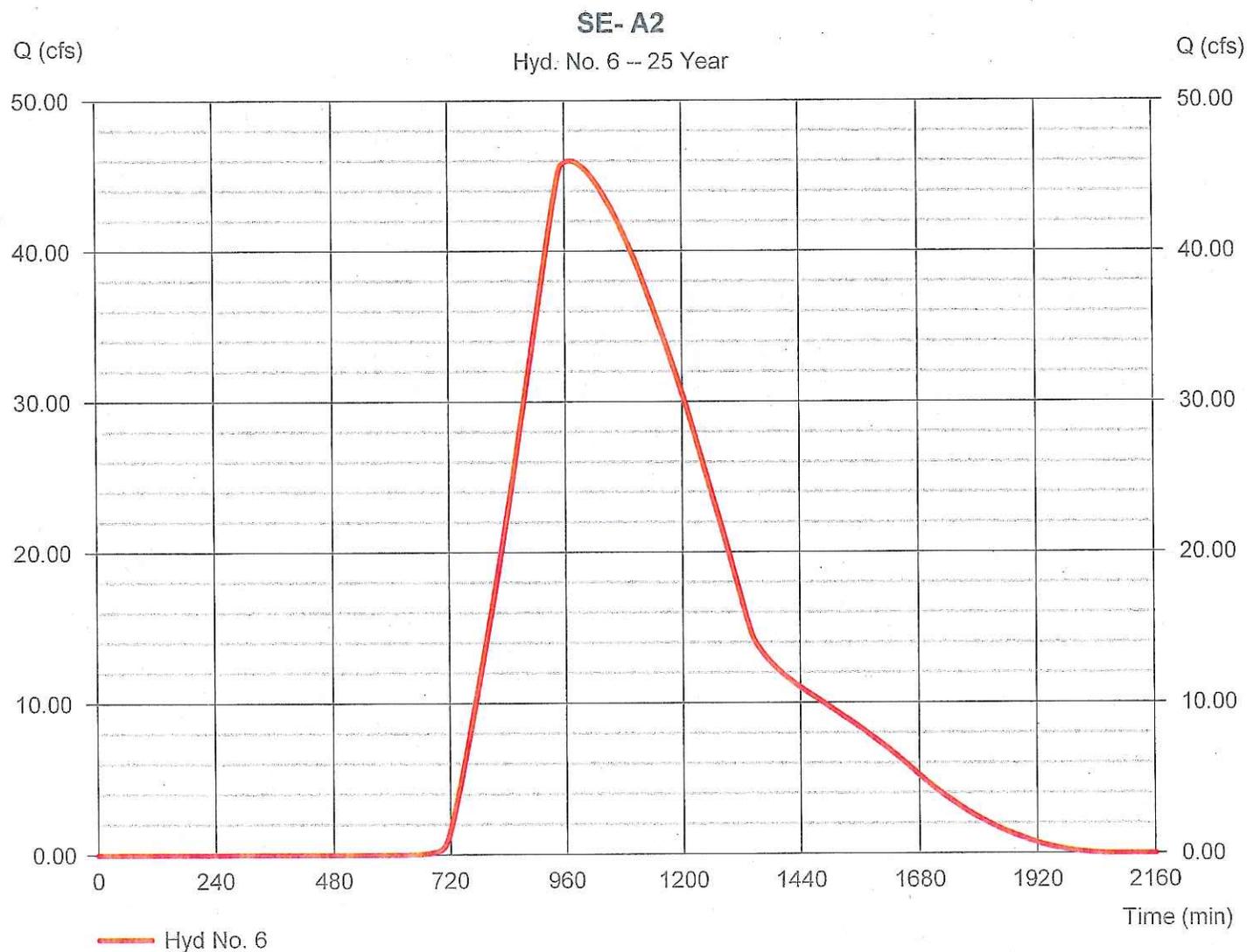
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 6

SE- A2

Hydrograph type	= SCS Runoff	Peak discharge	= 45.99 cfs
Storm frequency	= 25 yrs	Time to peak	= 970 min
Time interval	= 2 min	Hyd. volume	= 1,342,959 cuft
Drainage area	= 265.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 5600 ft
Tc method	= User	Time of conc. (Tc)	= 400.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

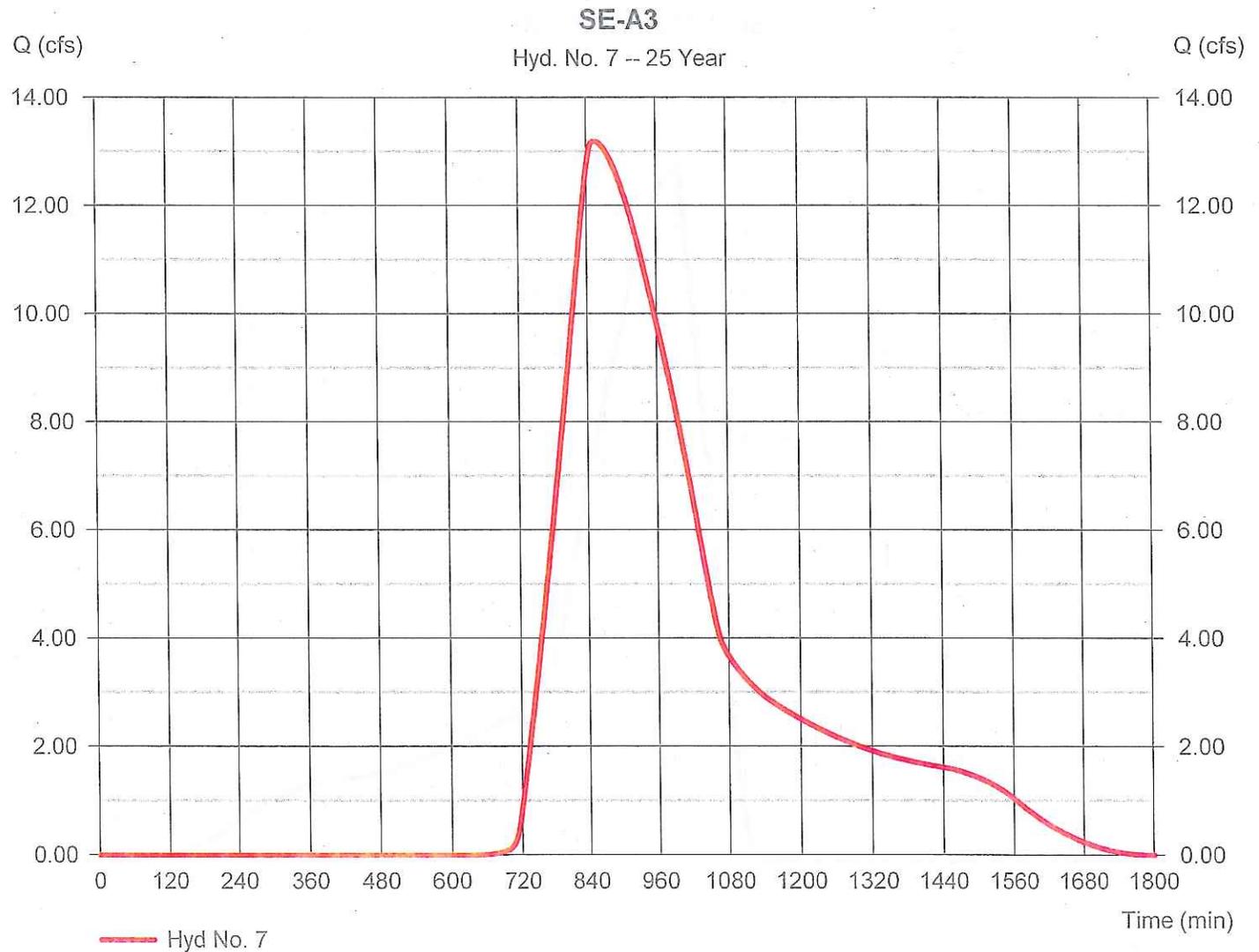
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Thursday, 01 / 28 / 2016

Hyd. No. 7

SE-A3

Hydrograph type	= SCS Runoff	Peak discharge	= 13.19 cfs
Storm frequency	= 25 yrs	Time to peak	= 854 min
Time interval	= 2 min	Hyd. volume	= 246,303 cuft
Drainage area	= 51.000 ac	Curve number	= 74
Basin Slope	= 0.2 %	Hydraulic length	= 3500 ft
Tc method	= LAG	Time of conc. (Tc)	= 220.96 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

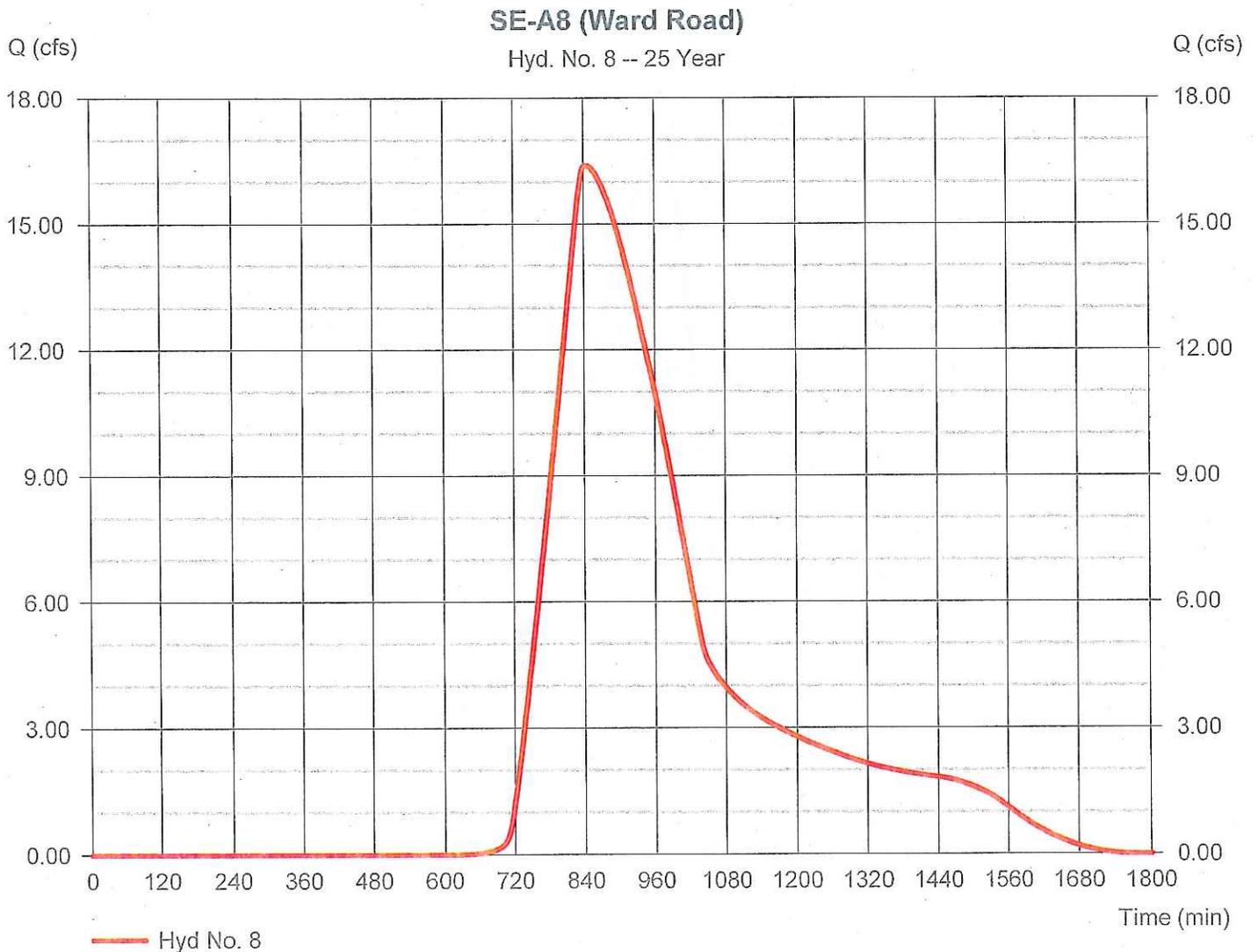
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Thursday, 01 / 28 / 2016

Hyd. No. 8

SE-A8 (Ward Road)

Hydrograph type	= SCS Runoff	Peak discharge	= 16.39 cfs
Storm frequency	= 25 yrs	Time to peak	= 842 min
Time interval	= 2 min	Hyd. volume	= 287,976 cuft
Drainage area	= 57.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 3200 ft
Tc method	= LAG	Time of conc. (Tc)	= 209.65 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

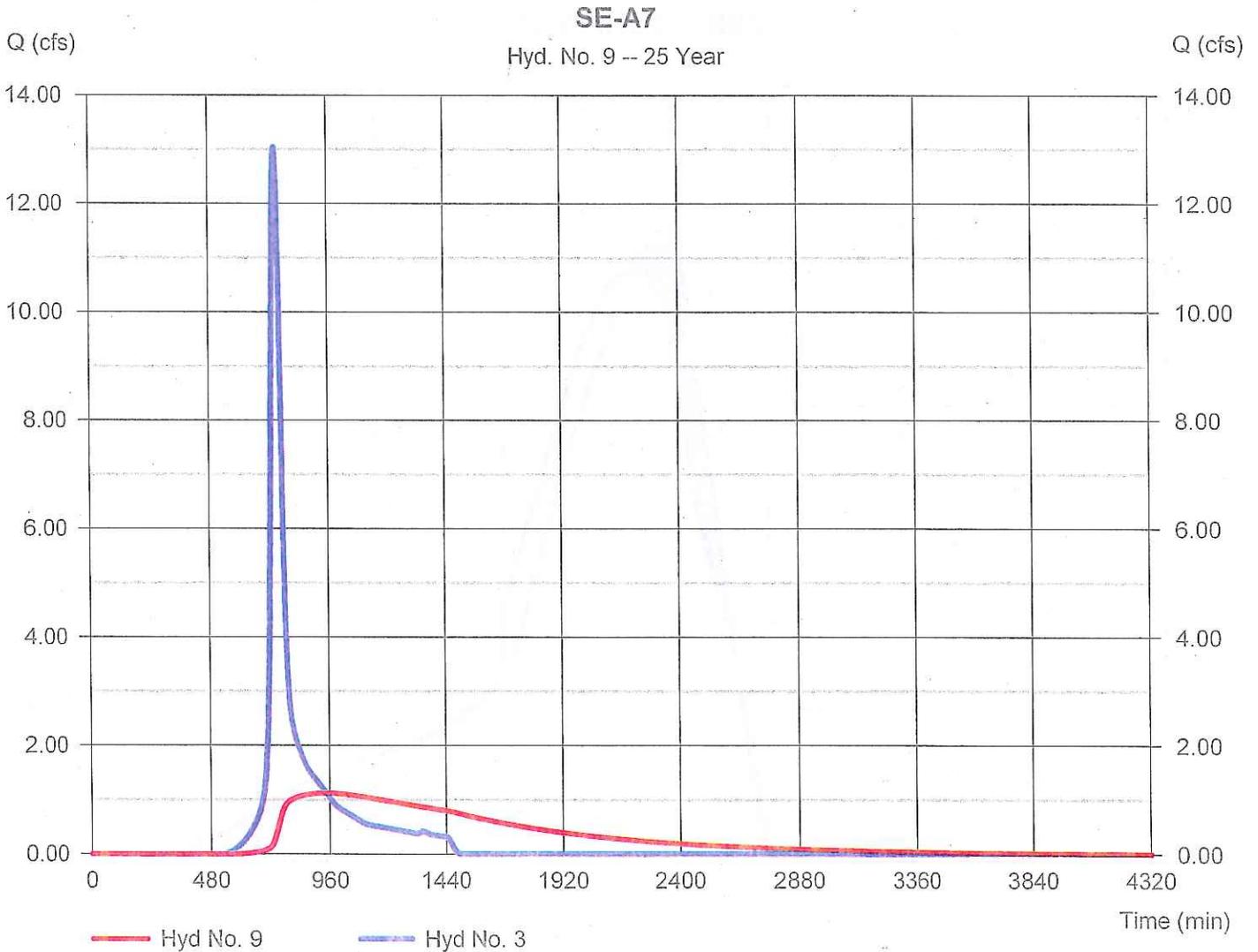
Thursday, 01 / 28 / 2016

Hyd. No. 9

SE-A7

Hydrograph type	= Reach	Peak discharge	= 1.127 cfs
Storm frequency	= 25 yrs	Time to peak	= 944 min
Time interval	= 2 min	Hyd. volume	= 74,535 cuft
Inflow hyd. No.	= 3 - Ward Road Pierce Drainage	Channel type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 3000.0 ft
Side slope	= 3.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.008	Rating curve m	= 1.583
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0030

Modified Att-Kin routing method used.



Hydrograph Report

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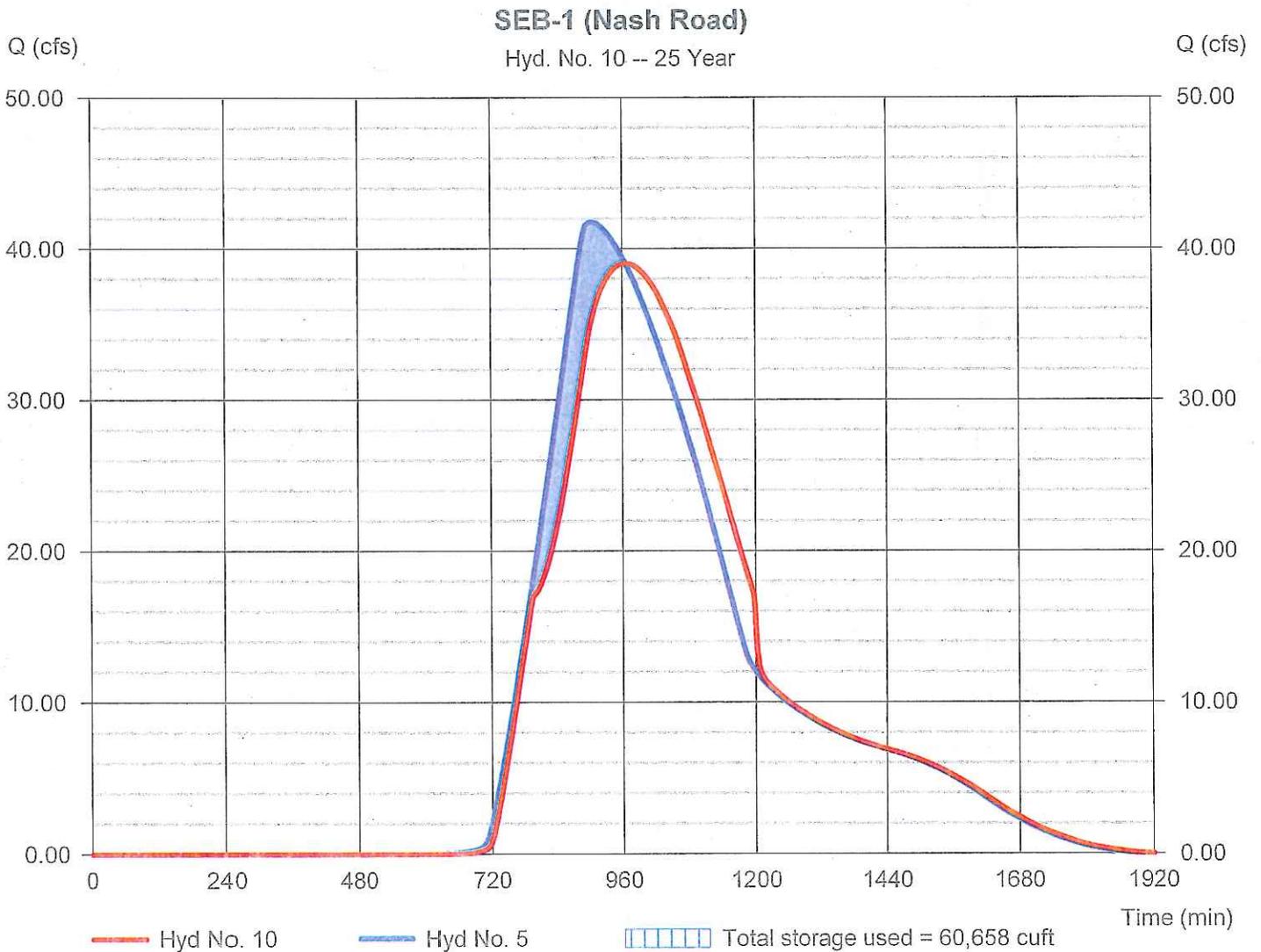
Thursday, 01 / 28 / 2016

Hyd. No. 10

SEB-1 (Nash Road)

Hydrograph type	= Reservoir	Peak discharge	= 39.03 cfs
Storm frequency	= 25 yrs	Time to peak	= 964 min
Time interval	= 2 min	Hyd. volume	= 975,670 cuft
Inflow hyd. No.	= 5 - SEB-1 (SE-A1)	Max. Elevation	= 591.78 ft
Reservoir name	= SEB-1 Nash Rd	Max. Storage	= 60,658 cuft

Storage Indication method used.



Hydrograph Report

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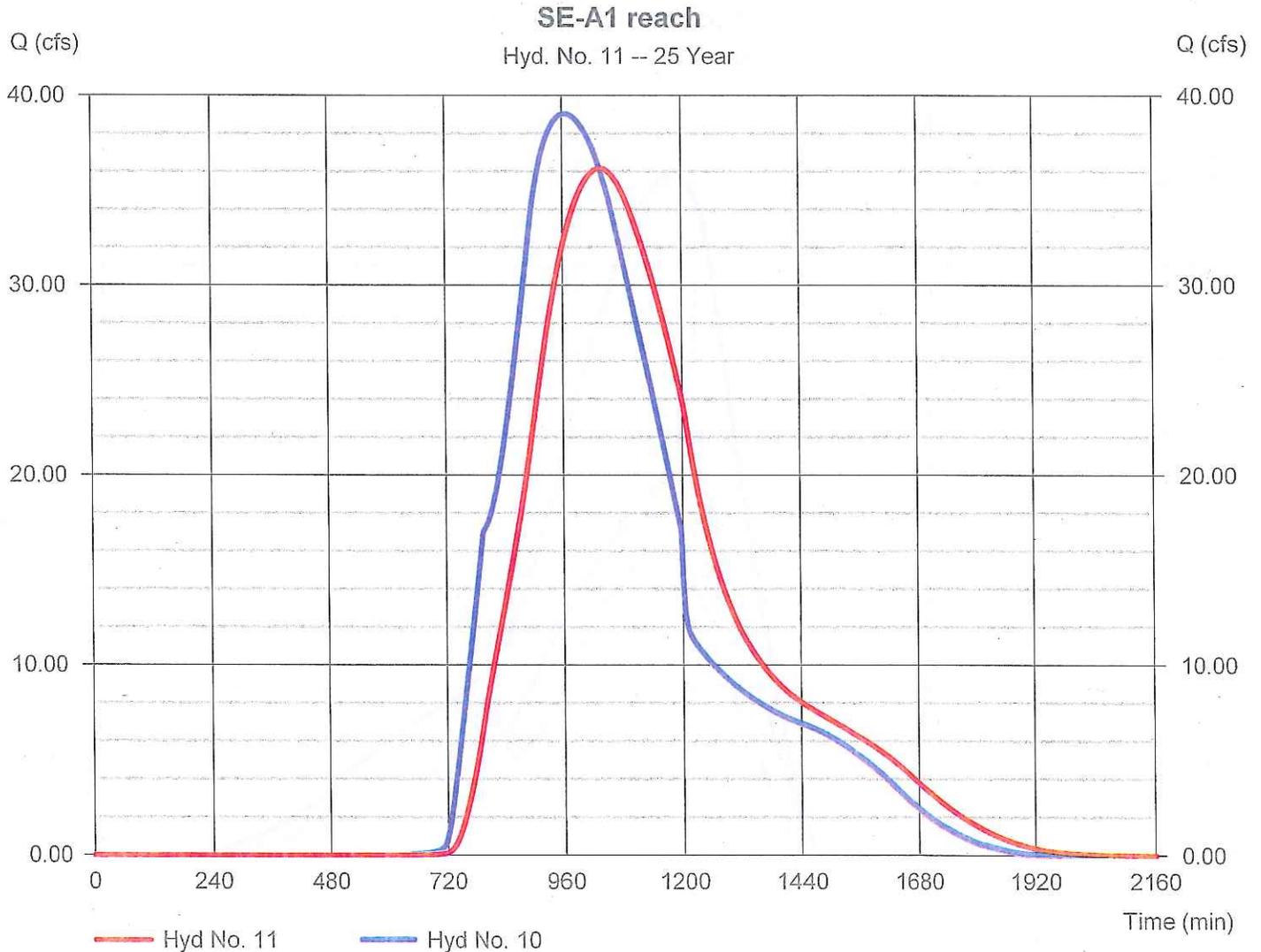
Thursday, 01 / 28 / 2016

Hyd. No. 11

SE-A1 reach

Hydrograph type	= Reach	Peak discharge	= 36.15 cfs
Storm frequency	= 25 yrs	Time to peak	= 1034 min
Time interval	= 2 min	Hyd. volume	= 975,633 cuft
Inflow hyd. No.	= 10 - SEB-1 (Nash Road)	Section type	= Trapezoidal
Reach length	= 5500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 3.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.212	Rating curve m	= 1.435
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0317

Modified Att-Kin routing method used.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

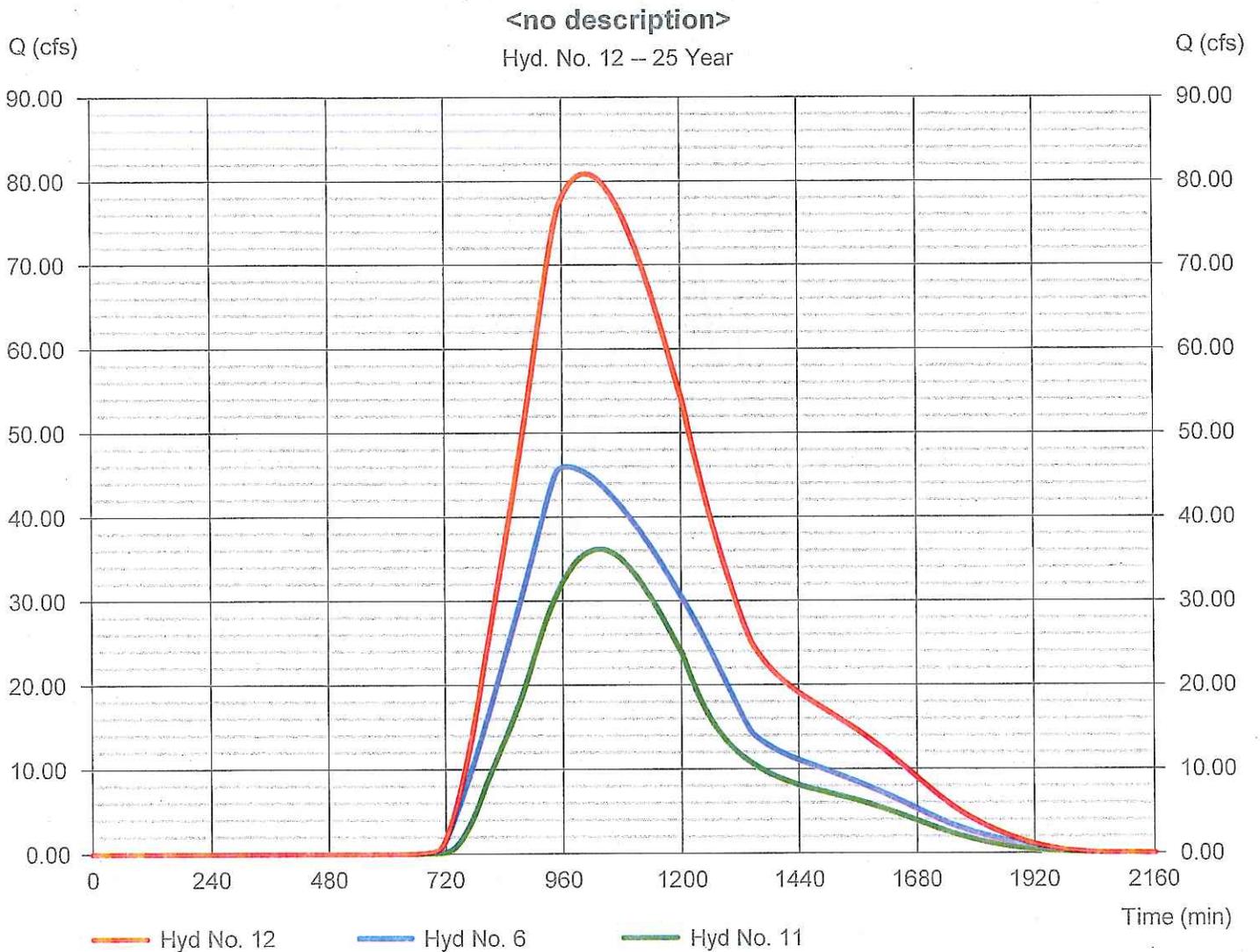
Thursday, 01 / 28 / 2016

Hyd. No. 12

<no description>

Hydrograph type = Combine
 Storm frequency = 25 yrs
 Time interval = 2 min
 Inflow hyds. = 6, 11

Peak discharge = 80.87 cfs
 Time to peak = 1008 min
 Hyd. volume = 2,318,595 cuft
 Contrib. drain. area = 265.000 ac



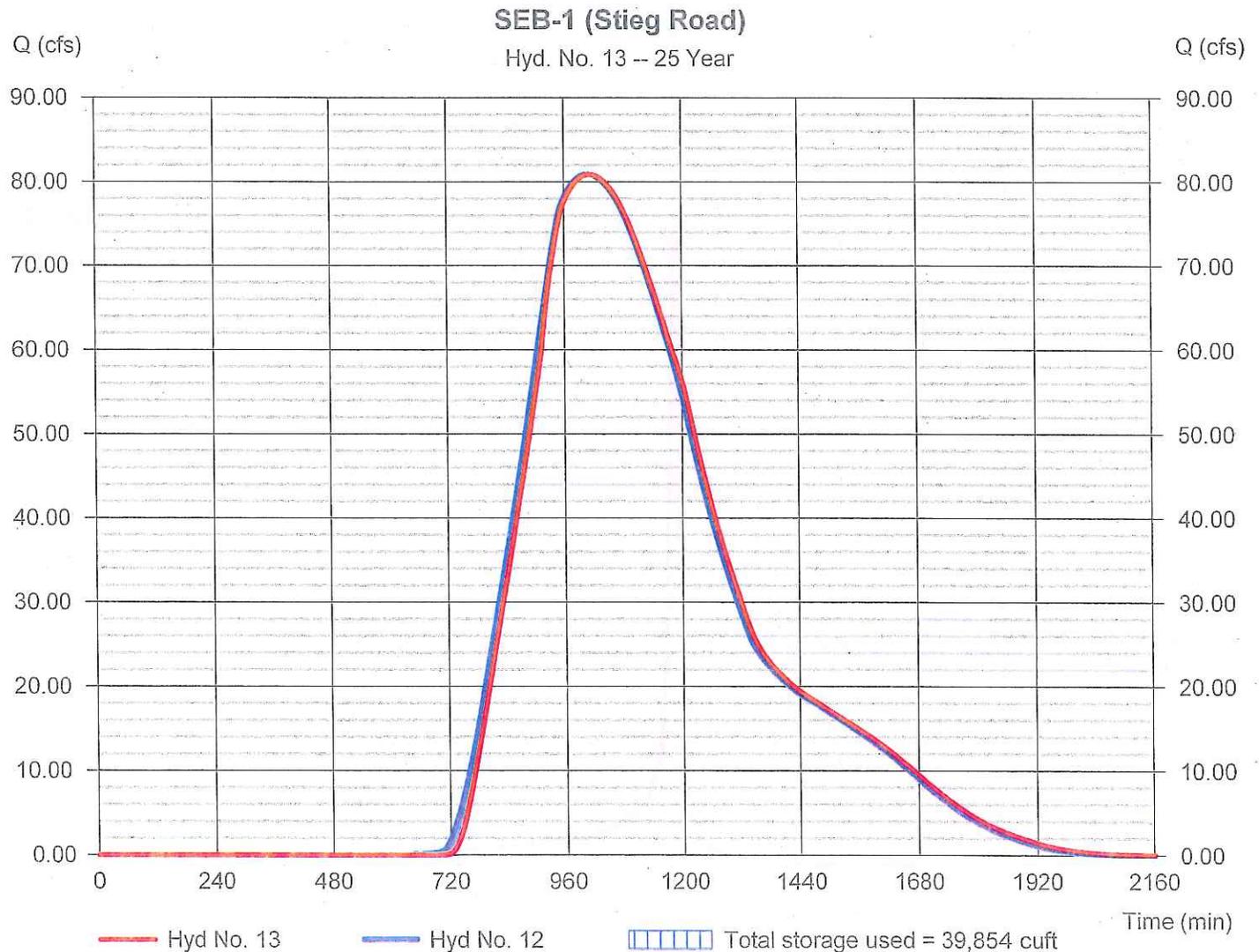
Hydrograph Report

Hyd. No. 13

SEB-1 (Stieg Road)

Hydrograph type	= Reservoir	Peak discharge	= 80.86 cfs
Storm frequency	= 25 yrs	Time to peak	= 1010 min
Time interval	= 2 min	Hyd. volume	= 2,318,577 cuft
Inflow hyd. No.	= 12 - <no description>	Max. Elevation	= 579.26 ft
Reservoir name	= SEB-1 Steig Road	Max. Storage	= 39,854 cuft

Storage Indication method used.



Hydrograph Report

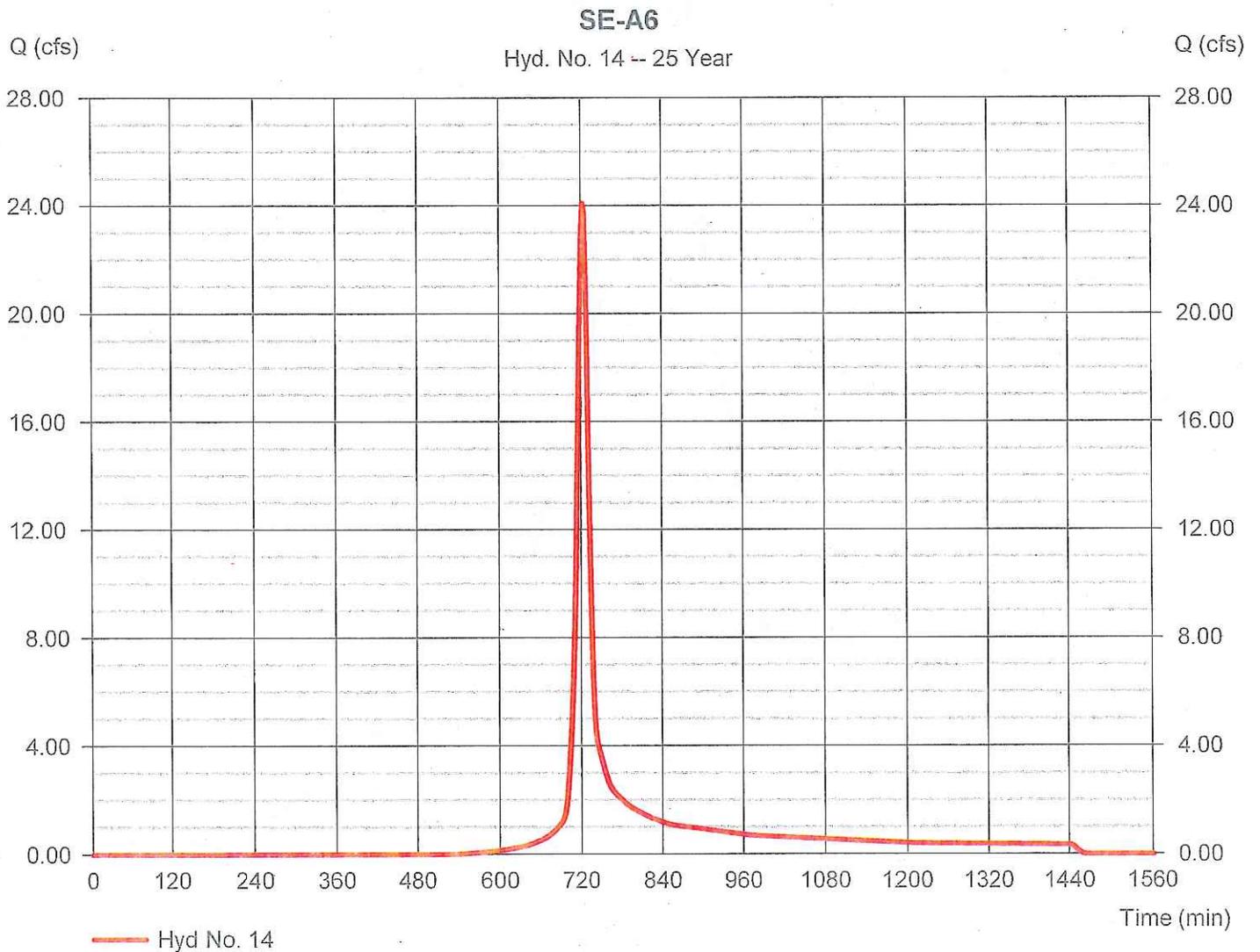
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 14

SE-A6

Hydrograph type	= SCS Runoff	Peak discharge	= 24.10 cfs
Storm frequency	= 25 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 67,746 cuft
Drainage area	= 11.000 ac	Curve number	= 80
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 16.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

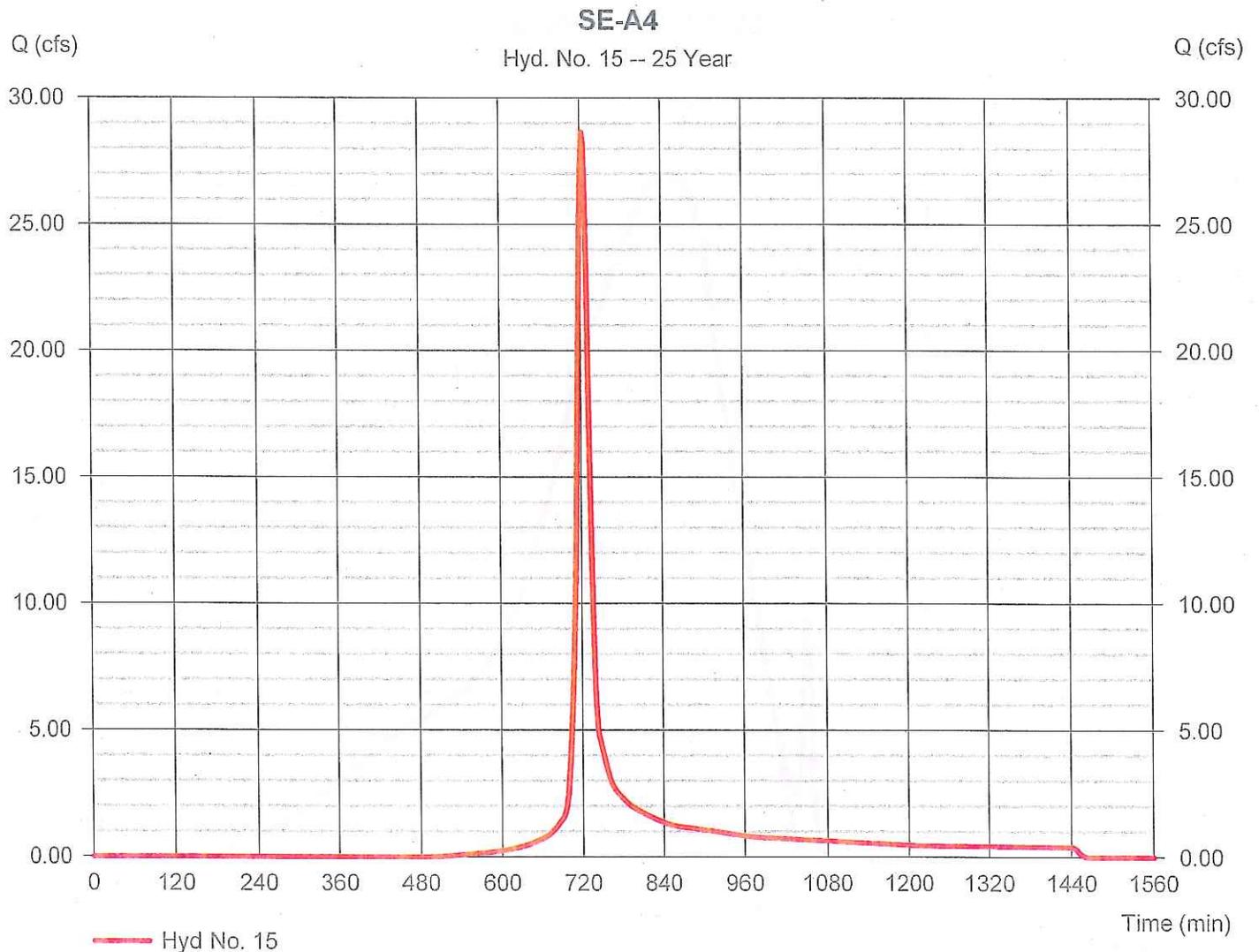
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 15

SE-A4

Hydrograph type	= SCS Runoff	Peak discharge	= 28.64 cfs
Storm frequency	= 25 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 80,291 cuft
Drainage area	= 12.000 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

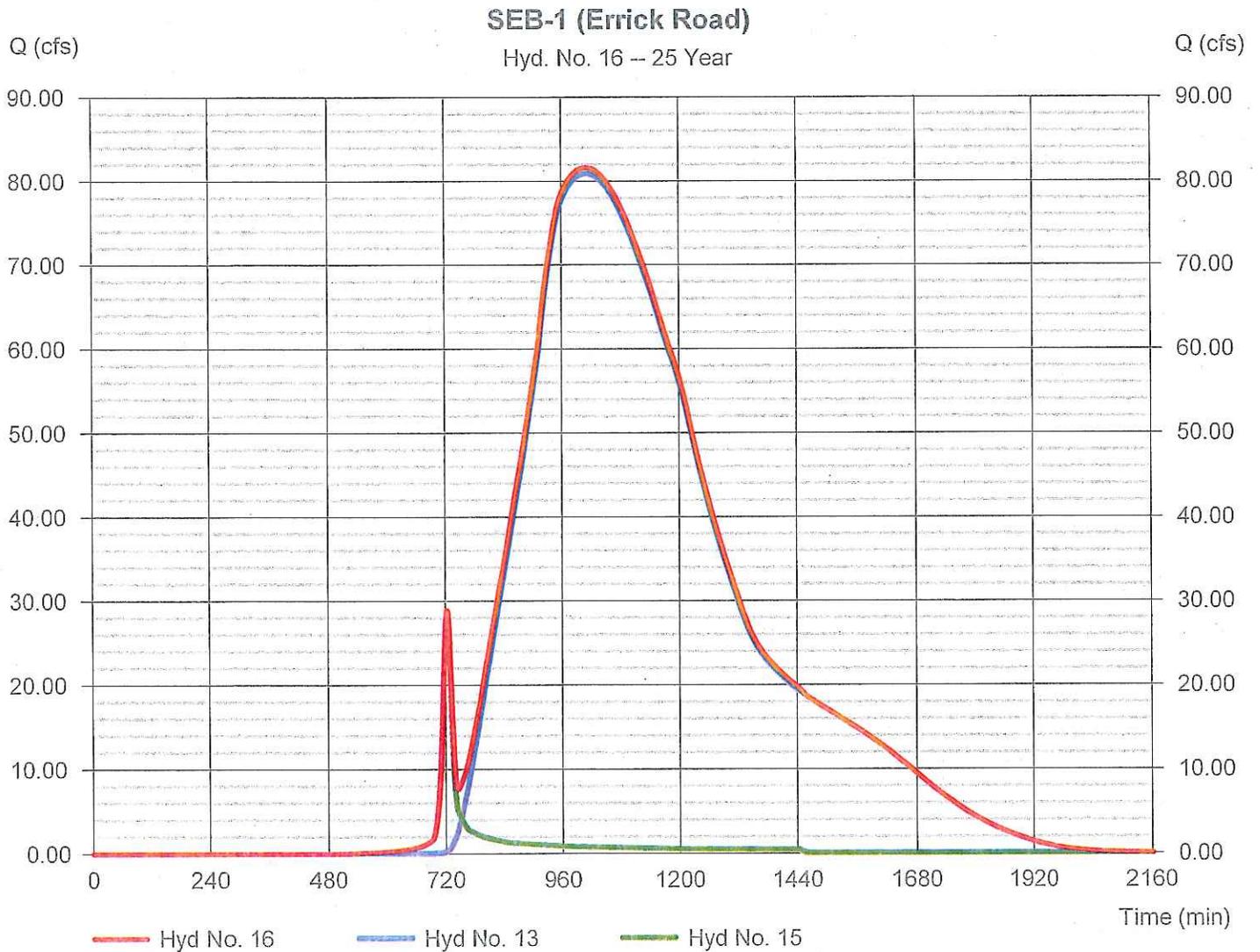
Thursday, 01 / 28 / 2016

Hyd. No. 16

SEB-1 (Errick Road)

Hydrograph type = Combine
 Storm frequency = 25 yrs
 Time interval = 2 min
 Inflow hyds. = 13, 15

Peak discharge = 81.60 cfs
 Time to peak = 1010 min
 Hyd. volume = 2,398,869 cuft
 Contrib. drain. area = 12.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

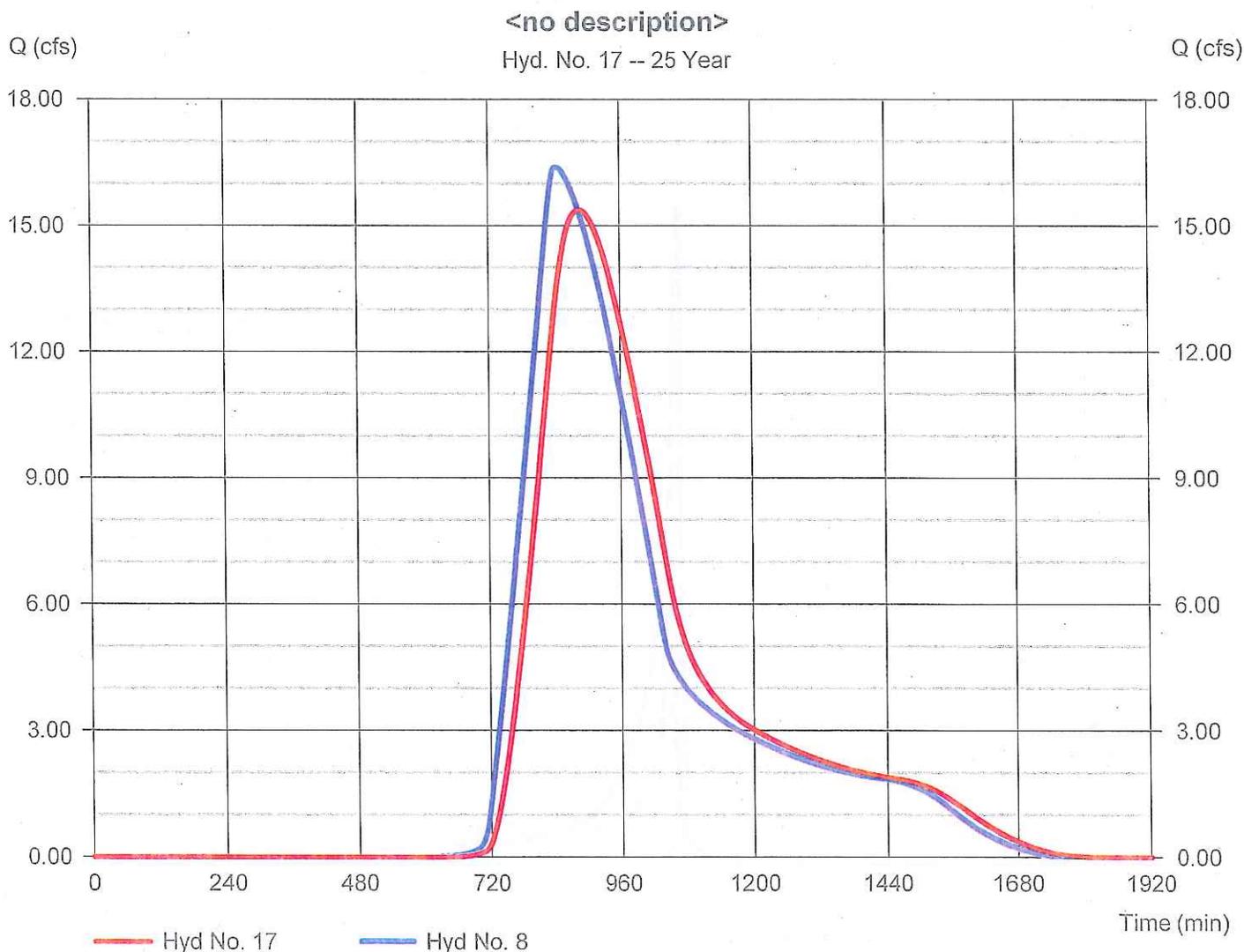
Thursday, 01 / 28 / 2016

Hyd. No. 17

<no description>

Hydrograph type	= Reach	Peak discharge	= 15.37 cfs
Storm frequency	= 25 yrs	Time to peak	= 884 min
Time interval	= 2 min	Hyd. volume	= 287,959 cuft
Inflow hyd. No.	= 8 - SE-A8 (Ward Road)	Section type	= Trapezoidal
Reach length	= 2300.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.237	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0704

Modified Att-Kin routing method used.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 18

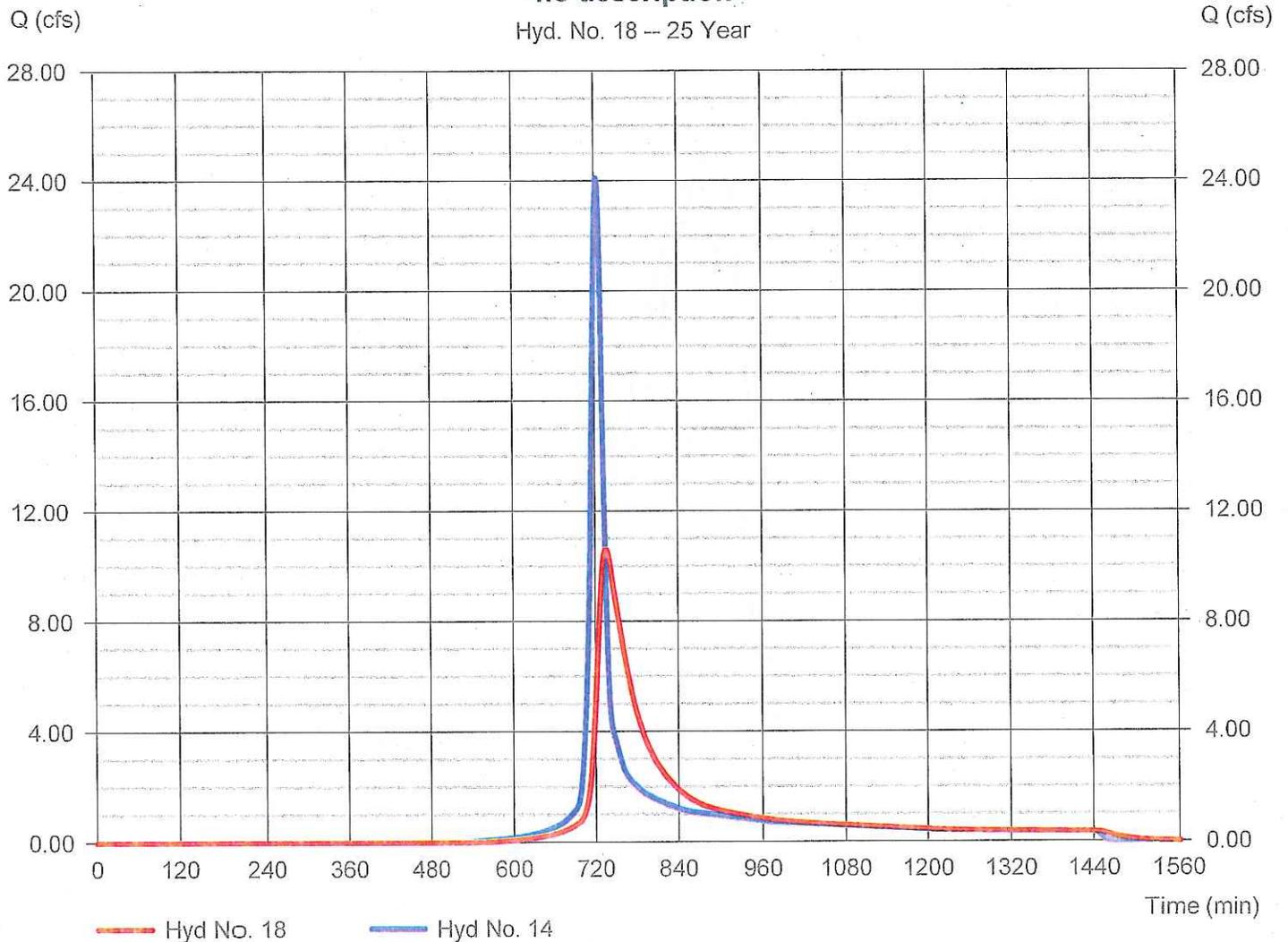
<no description>

Hydrograph type	= Reach	Peak discharge	= 10.60 cfs
Storm frequency	= 25 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 67,728 cuft
Inflow hyd. No.	= 14 - SE-A6	Section type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.274	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0634

Modified Att-Kin routing method used.

<no description>

Hyd. No. 18 -- 25 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

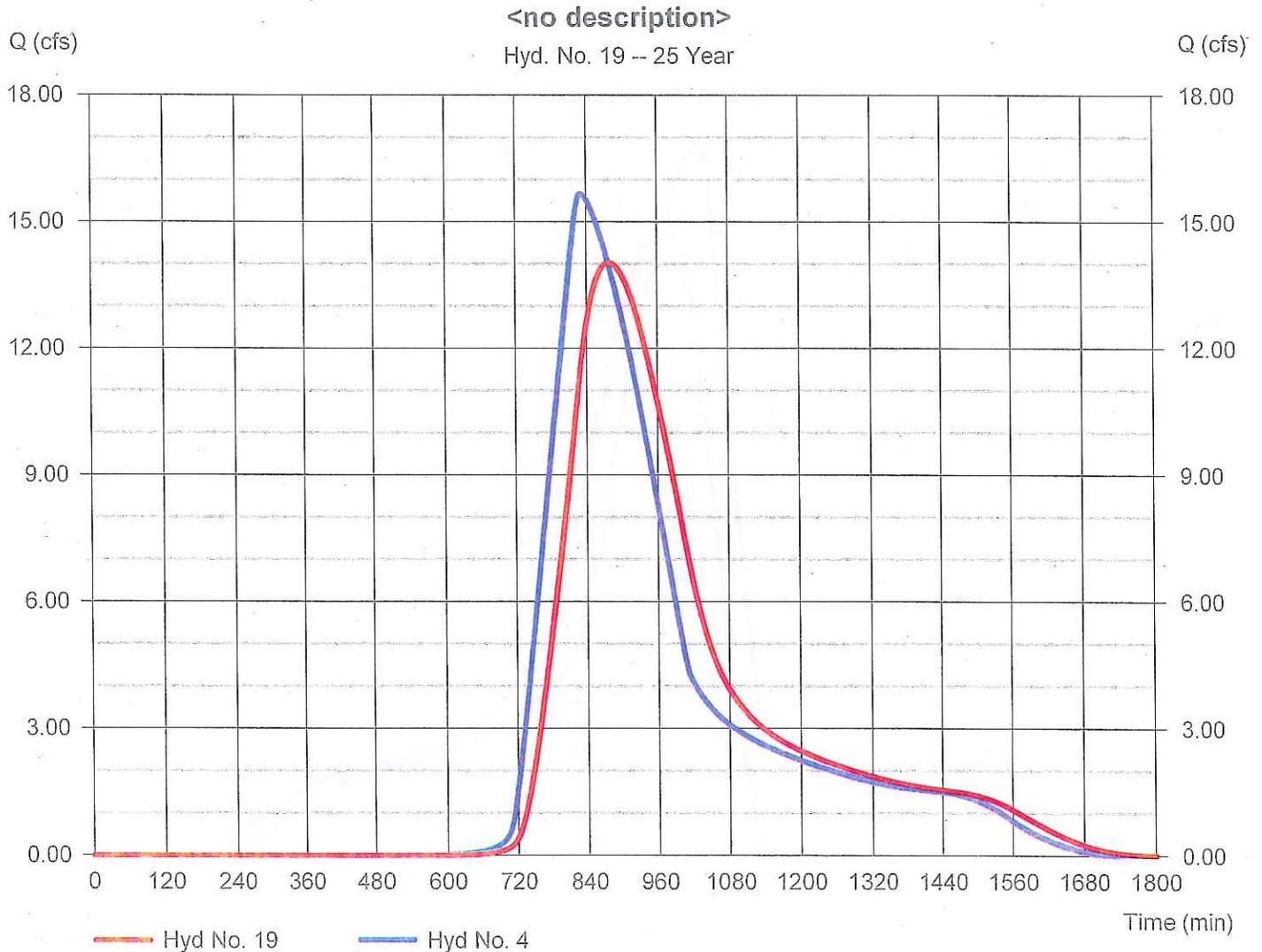
Thursday, 01 / 28 / 2016

Hyd. No. 19

<no description>

Hydrograph type	= Reach	Peak discharge	= 14.03 cfs
Storm frequency	= 25 yrs	Time to peak	= 878 min
Time interval	= 2 min	Hyd. volume	= 248,985 cuft
Inflow hyd. No.	= 4 - SE A5	Section type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 10.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.311	Rating curve m	= 1.447
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0551

Modified Att-Kin routing method used.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

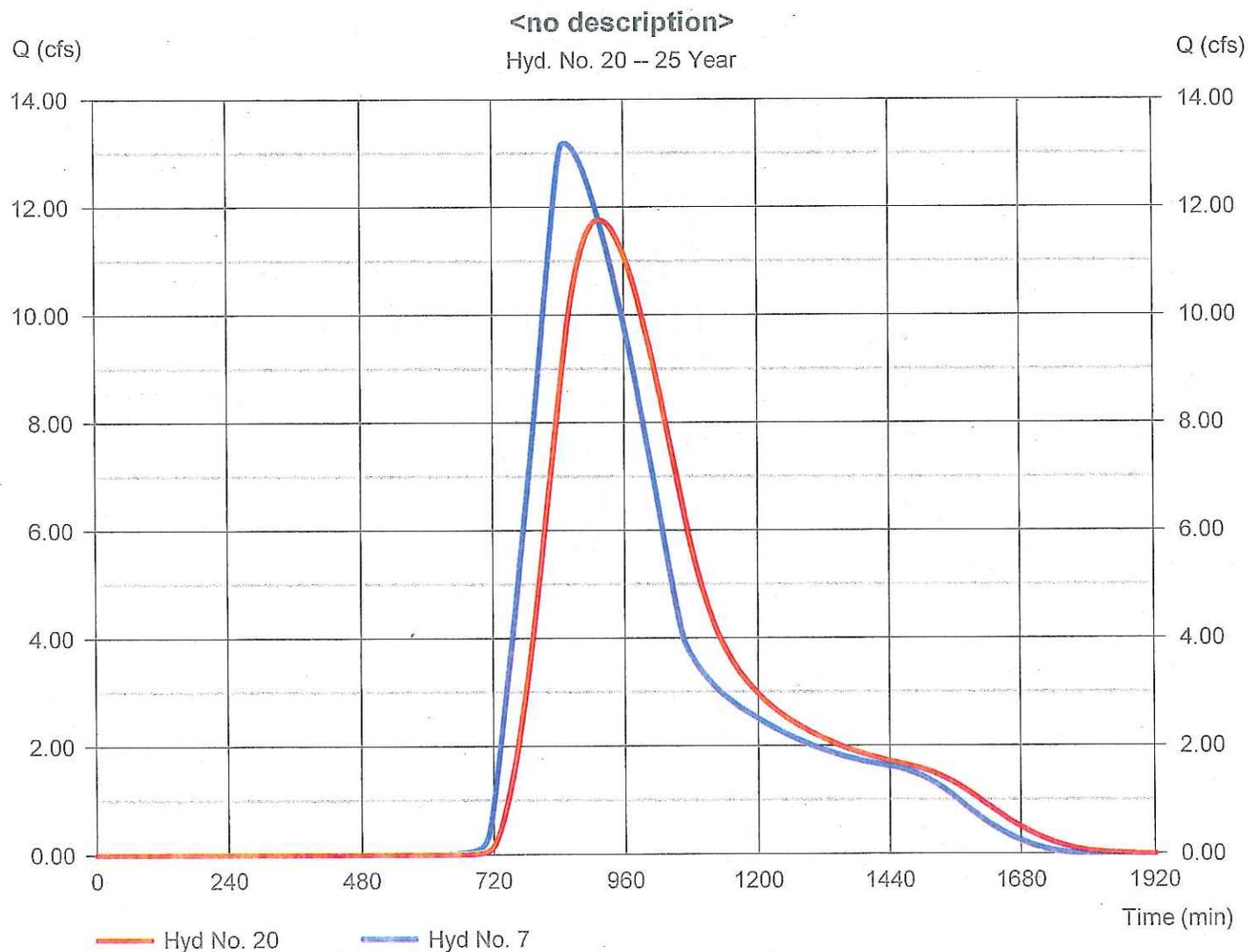
Thursday, 01 / 28 / 2016

Hyd. No. 20

<no description>

Hydrograph type	= Reach	Peak discharge	= 11.77 cfs
Storm frequency	= 25 yrs	Time to peak	= 916 min
Time interval	= 2 min	Hyd. volume	= 246,276 cuft
Inflow hyd. No.	= 7 - SE-A3	Section type	= Trapezoidal
Reach length	= 3500.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.237	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0437

Modified Att-Kin routing method used.



Hydrograph Report

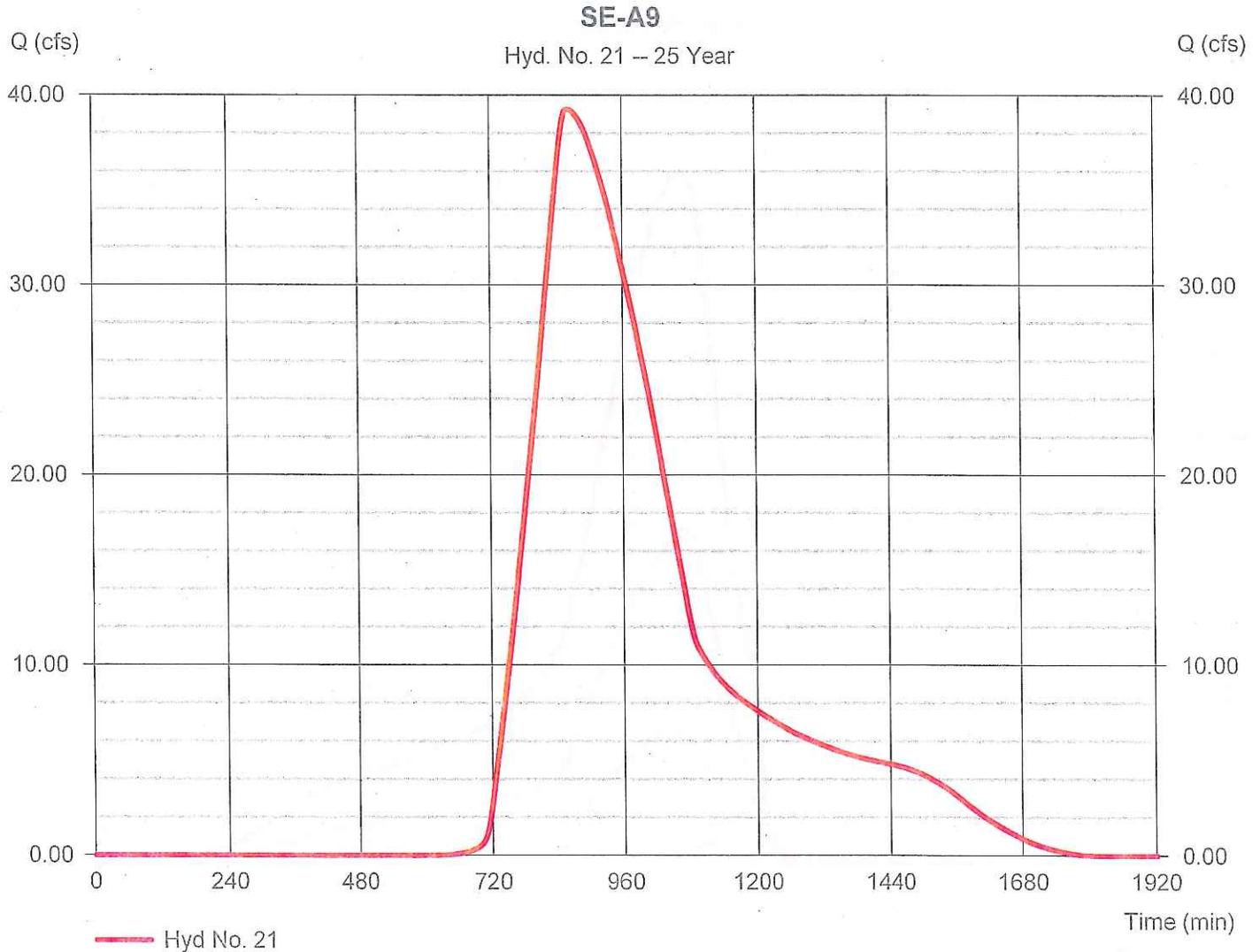
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Thursday, 01 / 28 / 2016

Hyd. No. 21

SE-A9

Hydrograph type	= SCS Runoff	Peak discharge	= 39.24 cfs
Storm frequency	= 25 yrs	Time to peak	= 860 min
Time interval	= 2 min	Hyd. volume	= 754,109 cuft
Drainage area	= 142.000 ac	Curve number	= 76
Basin Slope	= 0.2 %	Hydraulic length	= 3100 ft
Tc method	= User	Time of conc. (Tc)	= 235.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

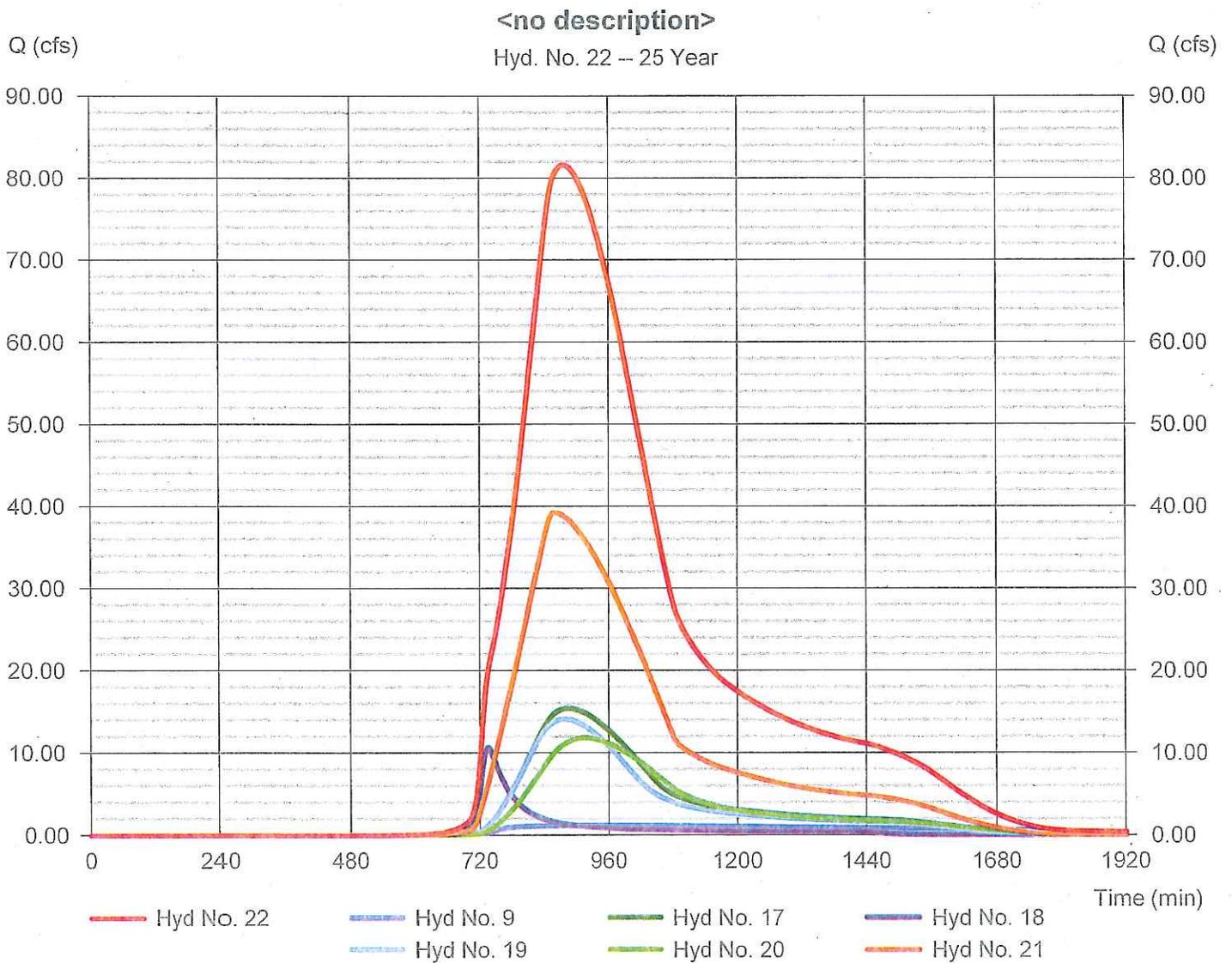
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 22

<no description>

Hydrograph type	= Combine	Peak discharge	= 81.59 cfs
Storm frequency	= 25 yrs	Time to peak	= 876 min
Time interval	= 2 min	Hyd. volume	= 1,679,591 cuft
Inflow hyds.	= 9, 17, 18, 19, 20, 21	Contrib. drain. area	= 142.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

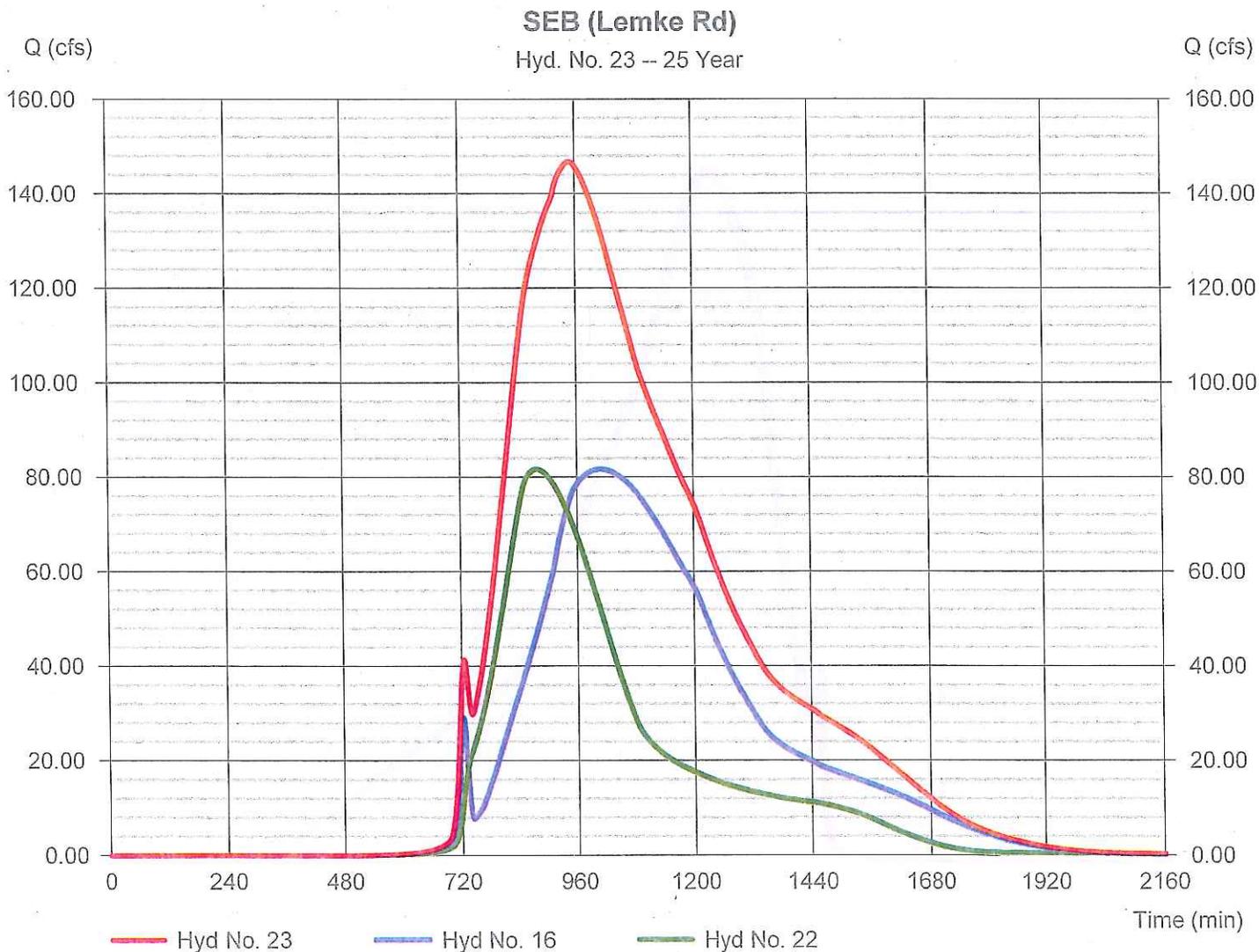
Thursday, 01 / 28 / 2016

Hyd. No. 23

SEB (Lemke Rd)

Hydrograph type = Combine
 Storm frequency = 25 yrs
 Time interval = 2 min
 Inflow hyds. = 16, 22

Peak discharge = 146.78 cfs
 Time to peak = 948 min
 Hyd. volume = 4,078,449 cuft
 Contrib. drain. area = 0.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

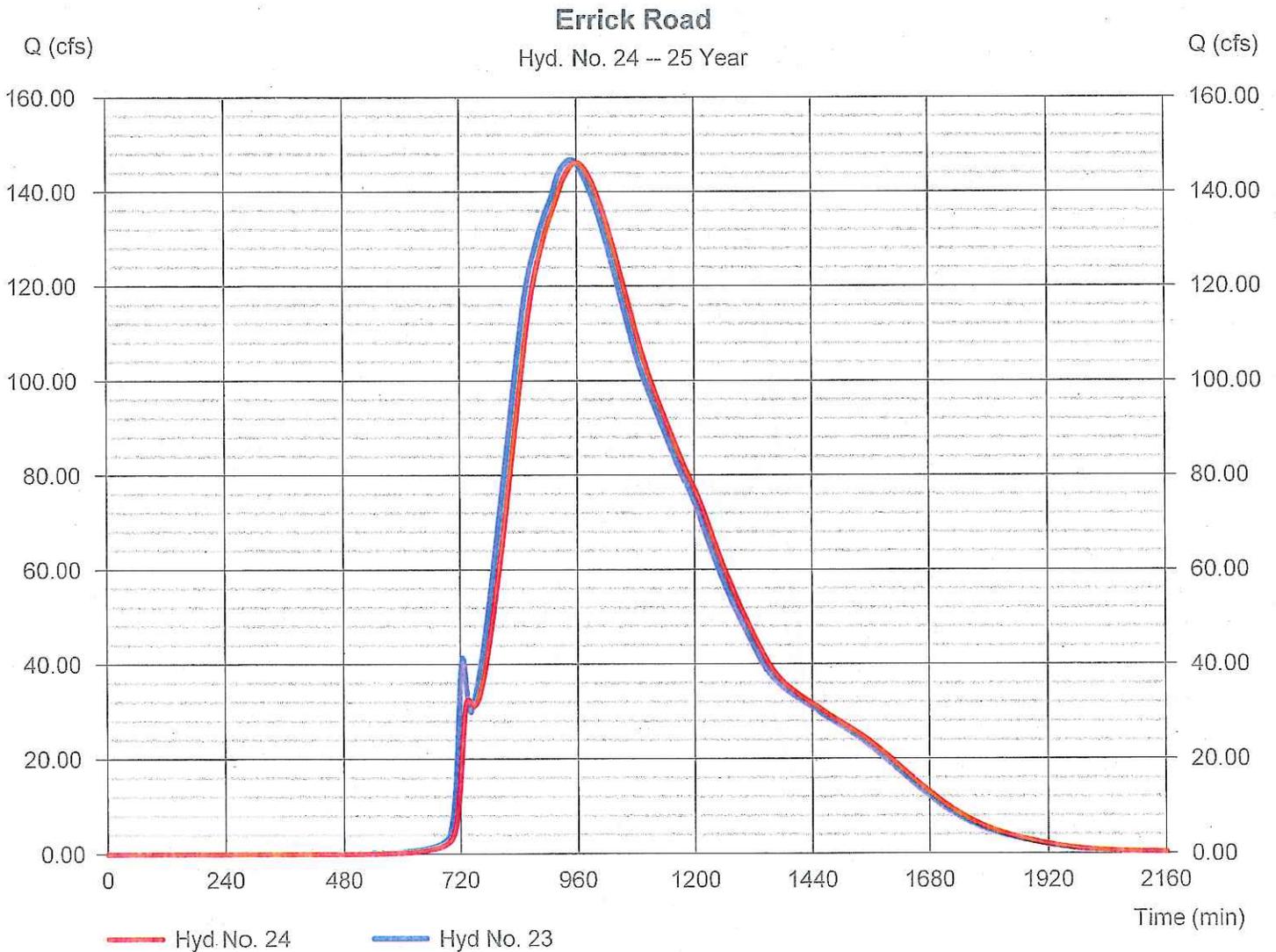
Thursday, 01 / 28 / 2016

Hyd. No. 24

Errick Road

Hydrograph type	= Reach	Peak discharge	= 146.12 cfs
Storm frequency	= 25 yrs	Time to peak	= 958 min
Time interval	= 2 min	Hyd. volume	= 4,078,448 cuft
Inflow hyd. No.	= 23 - SEB (Lemke Rd)	Section type	= Trapezoidal
Reach length	= 1500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.045	Bottom width	= 20.0 ft
Side slope	= 1.0:1	Max. depth	= 4.0 ft
Rating curve x	= 0.110	Rating curve m	= 1.567
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.1706

Modified Att-Kin routing method used.



Hydrograph Report

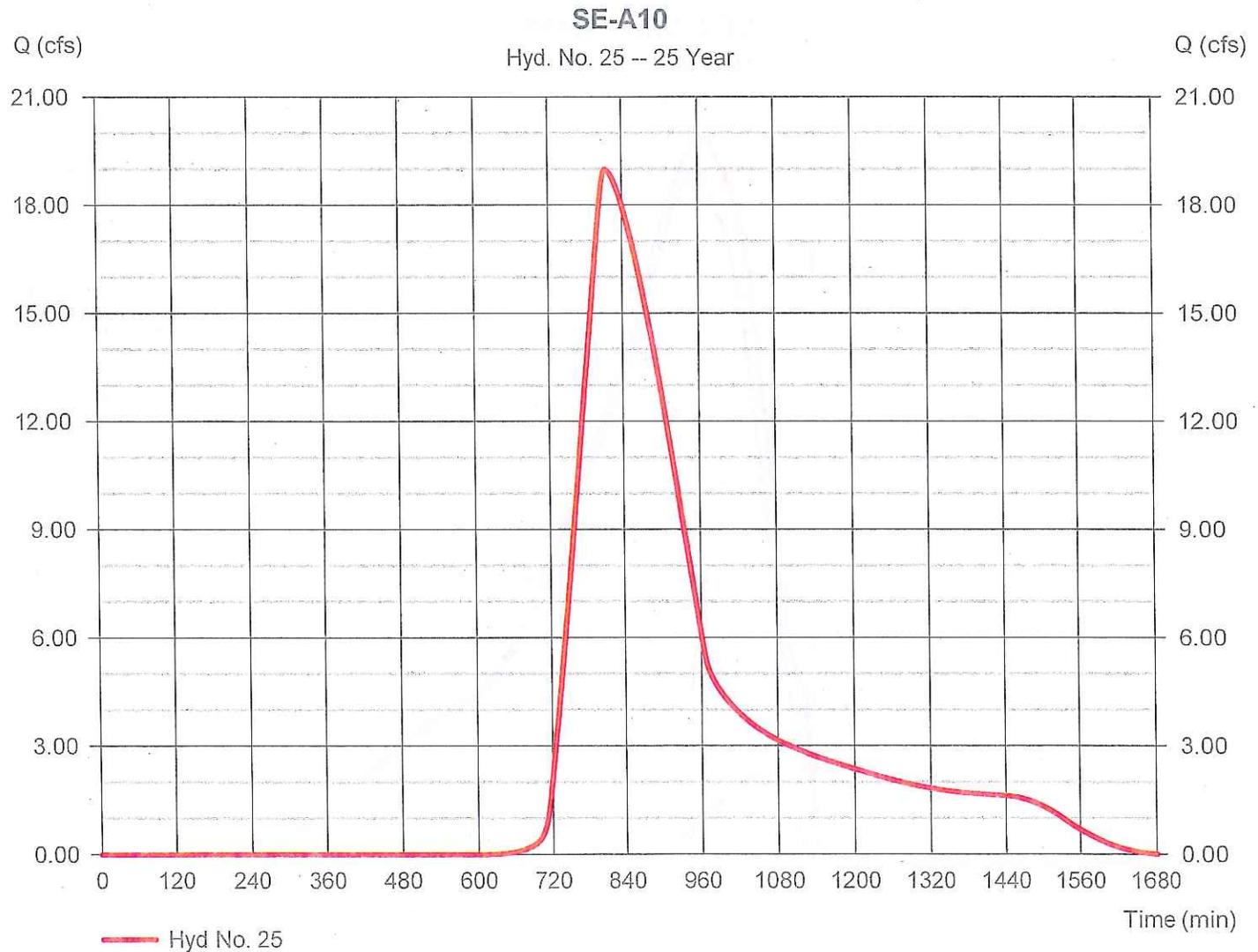
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Thursday, 01 / 28 / 2016

Hyd. No. 25

SE-A10

Hydrograph type	= SCS Runoff	Peak discharge	= 18.99 cfs
Storm frequency	= 25 yrs	Time to peak	= 812 min
Time interval	= 2 min	Hyd. volume	= 270,359 cuft
Drainage area	= 51.000 ac	Curve number	= 76
Basin Slope	= 0.1 %	Hydraulic length	= 1500 ft
Tc method	= User	Time of conc. (Tc)	= 160.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

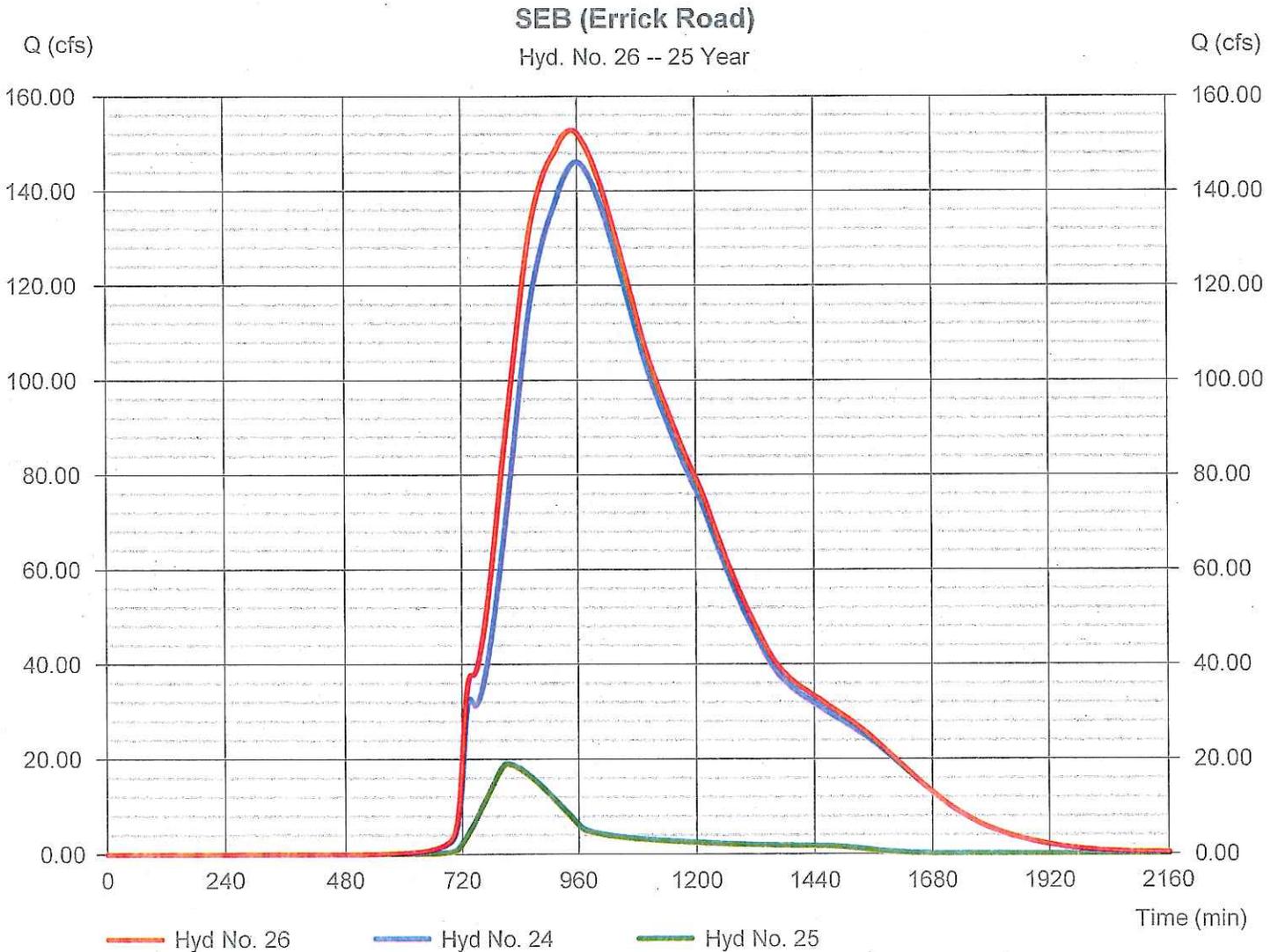
Thursday, 01 / 28 / 2016

Hyd. No. 26

SEB (Errick Road)

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 2 min
Inflow hyds. = 24, 25

Peak discharge = 152.85 cfs
Time to peak = 948 min
Hyd. volume = 4,348,806 cuft
Contrib. drain. area = 51.000 ac

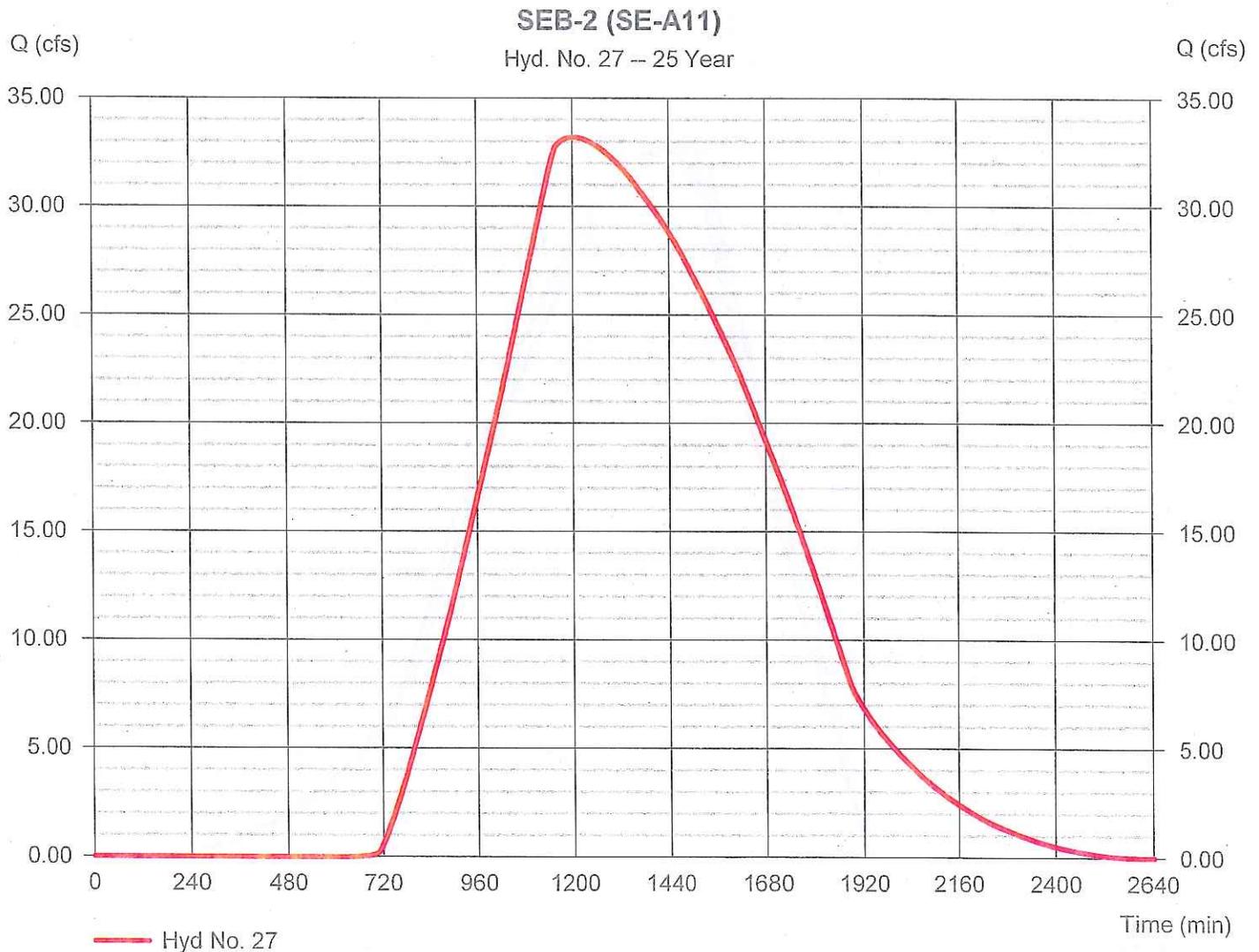


Hydrograph Report

Hyd. No. 27

SEB-2 (SE-A11)

Hydrograph type	= SCS Runoff	Peak discharge	= 33.20 cfs
Storm frequency	= 25 yrs	Time to peak	= 1202 min
Time interval	= 2 min	Hyd. volume	= 1,568,257 cuft
Drainage area	= 296.000 ac	Curve number	= 76
Basin Slope	= 0.1 %	Hydraulic length	= 6200 ft
Tc method	= User	Time of conc. (Tc)	= 750.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

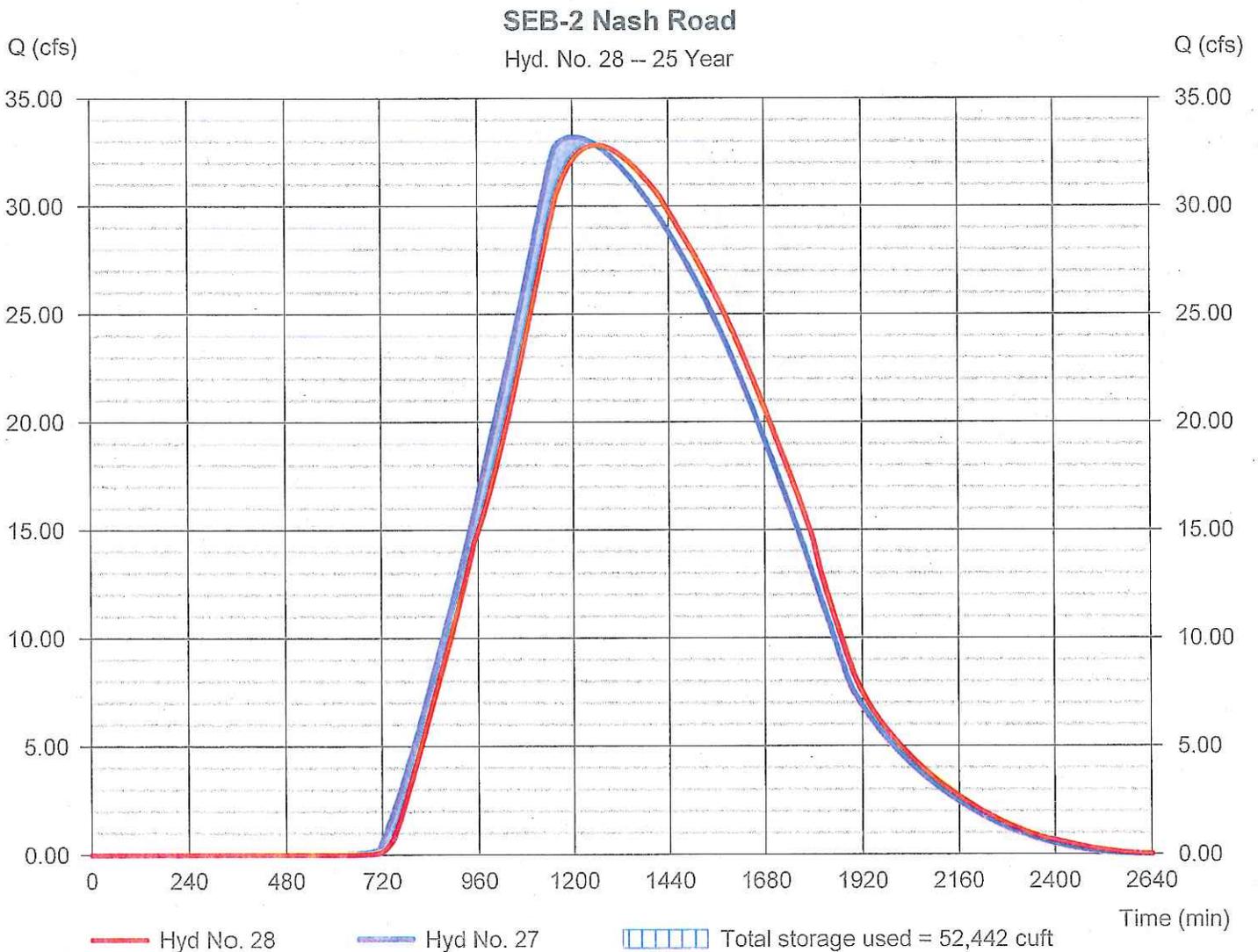
Thursday, 01 / 28 / 2016

Hyd. No. 28

SEB-2 Nash Road

Hydrograph type	= Reservoir	Peak discharge	= 32.83 cfs
Storm frequency	= 25 yrs	Time to peak	= 1258 min
Time interval	= 2 min	Hyd. volume	= 1,568,252 cuft
Inflow hyd. No.	= 27 - SEB-2 (SE-A11)	Max. Elevation	= 584.15 ft
Reservoir name	= SEB-2 Nash Road	Max. Storage	= 52,442 cuft

Storage Indication method used.

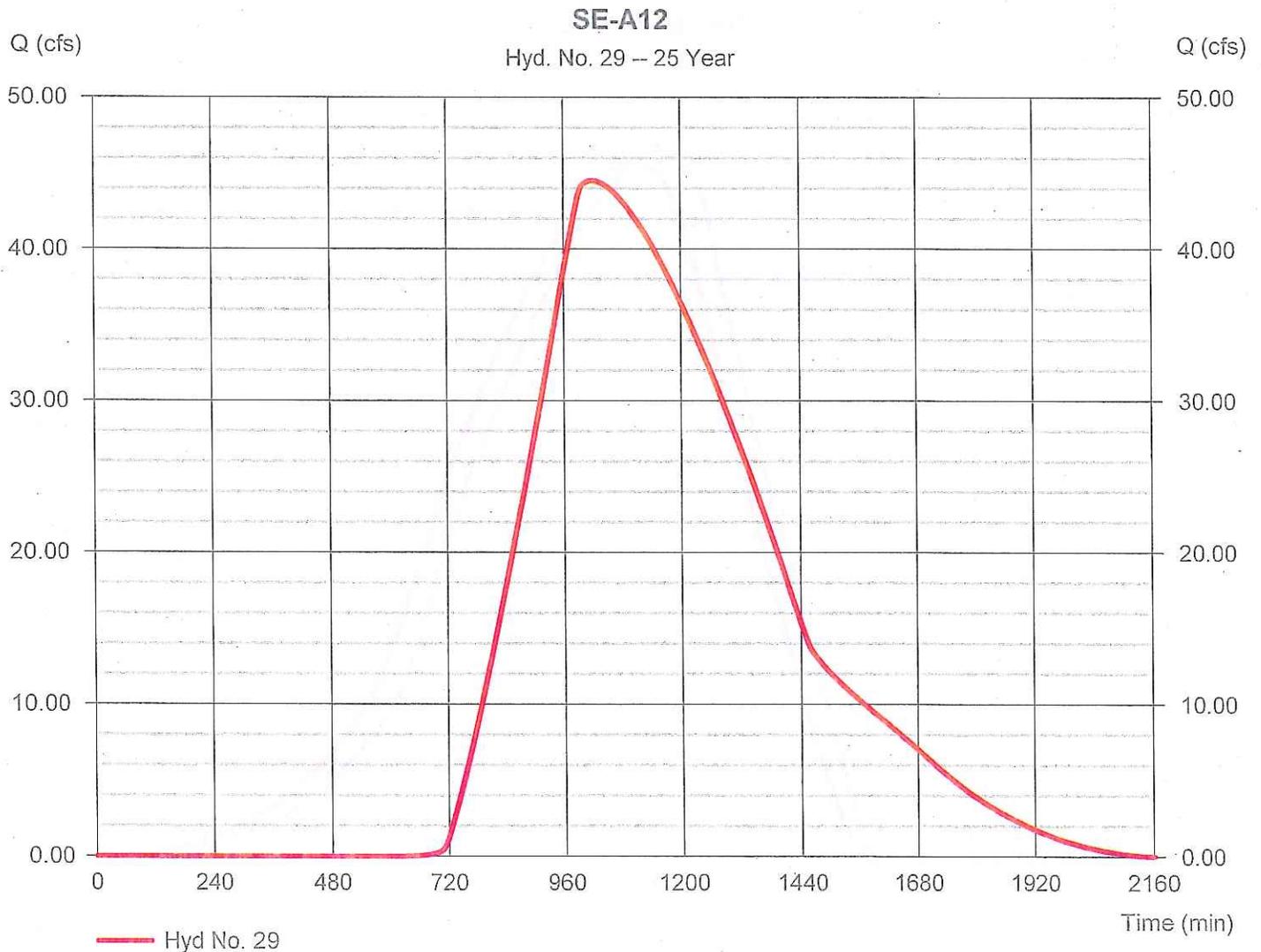


Hydrograph Report

Hyd. No. 29

SE-A12

Hydrograph type	= SCS Runoff	Peak discharge	= 44.51 cfs
Storm frequency	= 25 yrs	Time to peak	= 1018 min
Time interval	= 2 min	Hyd. volume	= 1,472,404 cuft
Drainage area	= 278.000 ac	Curve number	= 76
Basin Slope	= 0.1 %	Hydraulic length	= 3500 ft
Tc method	= User	Time of conc. (Tc)	= 475.00 min
Total precip.	= 3.63 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

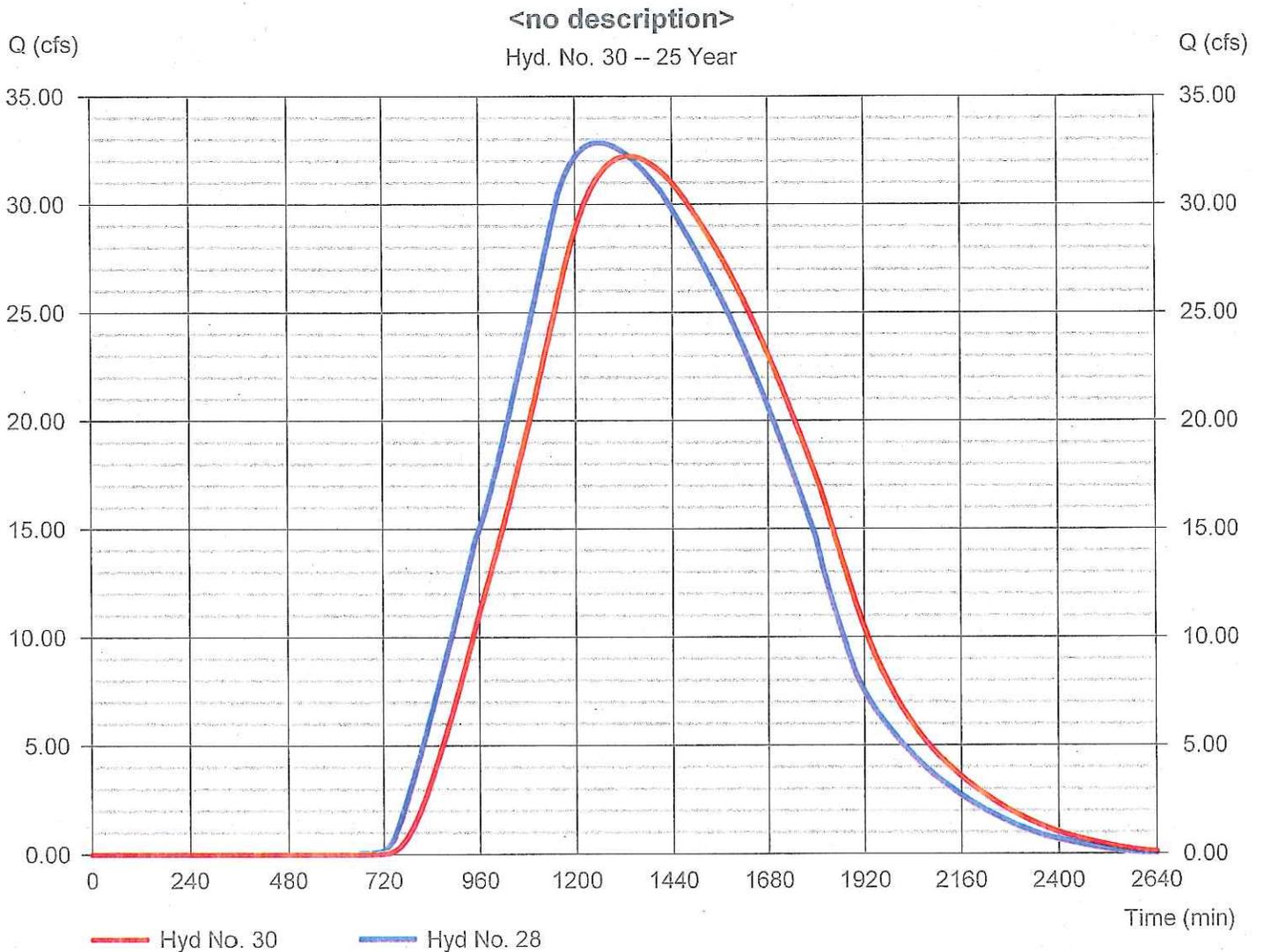
Thursday, 01 / 28 / 2016

Hyd. No. 30

<no description>

Hydrograph type	= Reach	Peak discharge	= 32.23 cfs
Storm frequency	= 25 yrs	Time to peak	= 1332 min
Time interval	= 2 min	Hyd. volume	= 1,568,221 cuft
Inflow hyd. No.	= 28 - SEB-2 Nash Road	Section type	= Trapezoidal
Reach length	= 3500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.045	Bottom width	= 20.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.100	Rating curve m	= 1.504
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0354

Modified Att-Kin routing method used.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

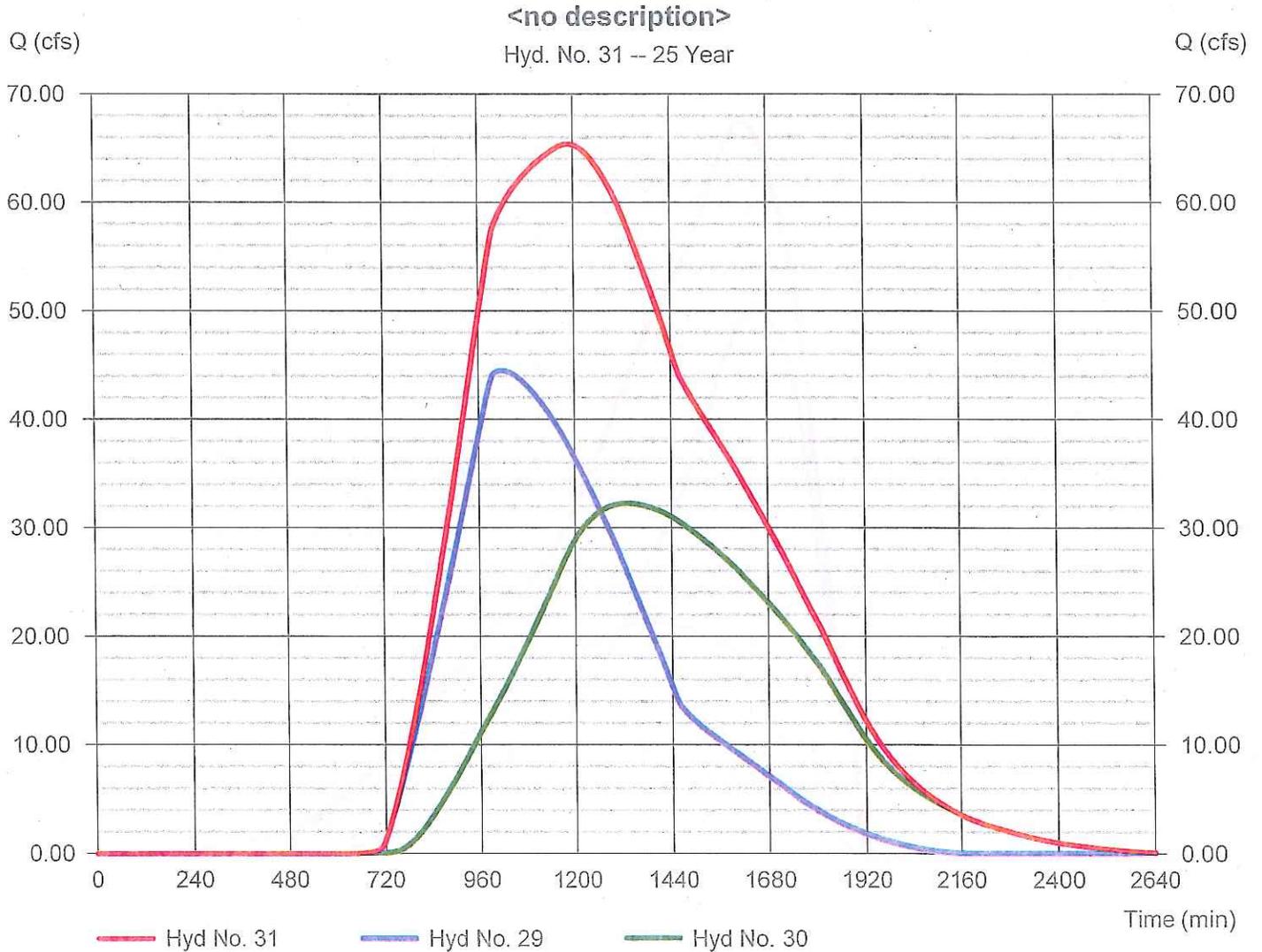
Thursday, 01 / 28 / 2016

Hyd. No. 31

<no description>

Hydrograph type = Combine
 Storm frequency = 25 yrs
 Time interval = 2 min
 Inflow hyds. = 29, 30

Peak discharge = 65.38 cfs
 Time to peak = 1186 min
 Hyd. volume = 3,040,628 cuft
 Contrib. drain. area = 278.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

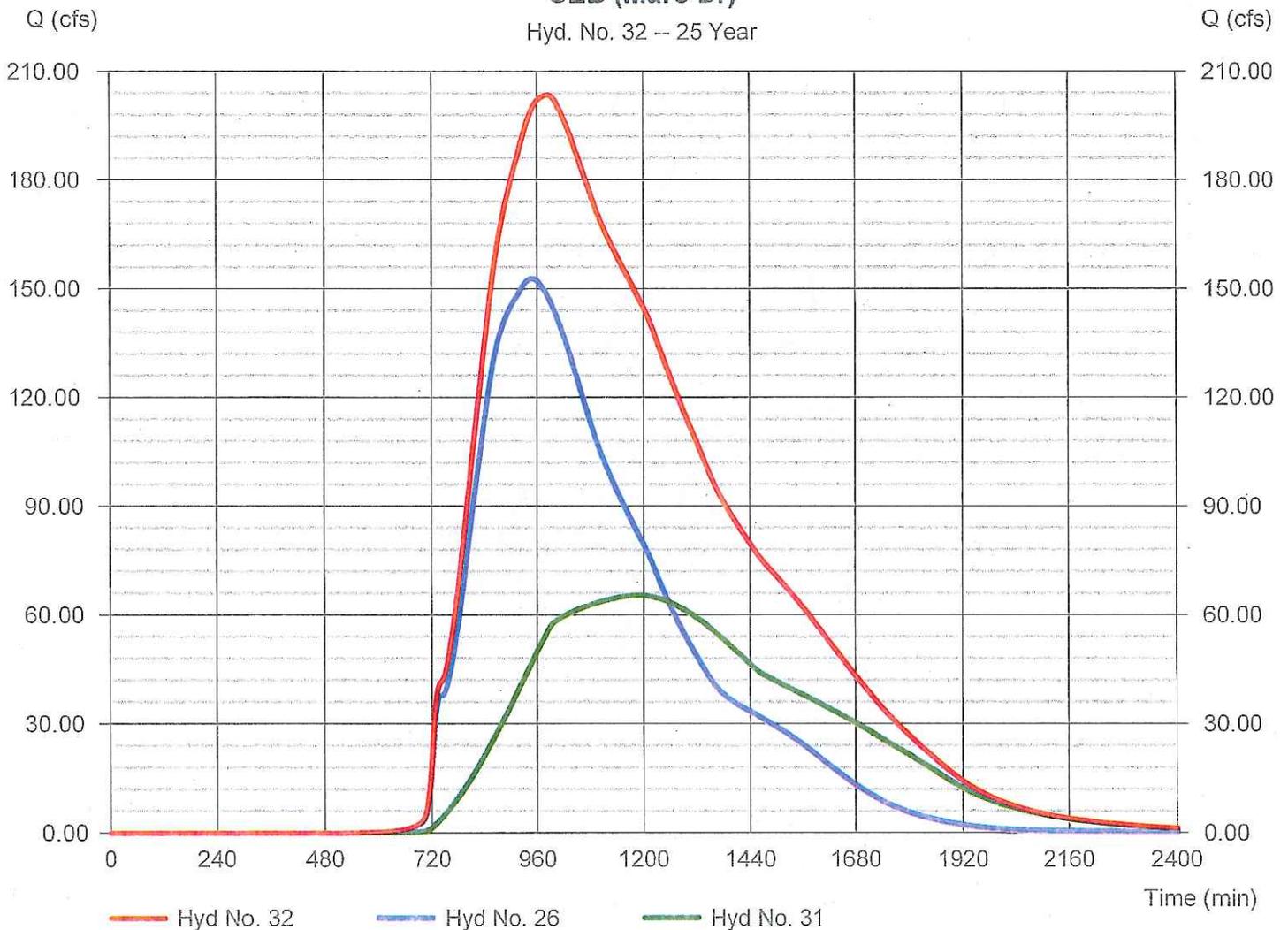
Hyd. No. 32

SEB (Marc Dr)

Hydrograph type	= Combine	Peak discharge	= 203.52 cfs
Storm frequency	= 25 yrs	Time to peak	= 982 min
Time interval	= 2 min	Hyd. volume	= 7,389,435 cuft
Inflow hyds.	= 26, 31	Contrib. drain. area	= 0.000 ac

SEB (Marc Dr)

Hyd. No. 32 -- 25 Year



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

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	60.44	5	890	1,251,824	----	----	----	BEA-4 (BE-A10)	
2	SCS Runoff	78.80	2	888	1,605,660	----	----	----	BEA-3 (BE-A9)	
3	SCS Runoff	21.18	2	744	120,832	----	----	----	Ward Road Pierce Drainage SE-A7	
4	SCS Runoff	26.93	2	828	413,909	----	----	----	SE A5	
5	SCS Runoff	73.79	2	896	1,656,966	----	----	----	SEB-1 (SE-A1)	
6	SCS Runoff	80.89	2	962	2,280,728	----	----	----	SE- A2	
7	SCS Runoff	23.74	2	848	422,976	----	----	----	SE-A3	
8	SCS Runoff	29.07	2	840	489,064	----	----	----	SE-A8 (Ward Road)	
9	Reach	2.281	2	878	120,527	3	----	----	SE-A7	
10	Reservoir	58.42	2	1016	1,656,964	5	592.62	216,871	SEB-1 (Nash Road)	
11	Reach	56.59	2	1074	1,656,932	10	----	----	SE-A1 reach	
12	Combine	132.51	2	1006	3,937,658	6, 11	----	----	<no description>	
13	Reservoir	132.50	2	1008	3,937,638	12	579.65	46,561	SEB-1 (Stieg Road)	
14	SCS Runoff	38.94	2	722	109,235	----	----	----	SE-A6	
15	SCS Runoff	45.15	2	722	126,979	----	----	----	SE-A4	
16	Combine	133.58	2	1008	4,064,620	13, 15	----	----	SEB-1 (Errick Road)	
17	Reach	27.53	2	874	489,051	8	----	----	<no description>	
18	Reach	19.04	2	734	109,219	14	----	----	<no description>	
19	Reach	24.53	2	868	413,892	4	----	----	<no description>	
20	Reach	21.57	2	900	422,954	7	----	----	<no description>	
21	SCS Runoff	68.51	2	856	1,266,868	----	----	----	SE-A9	
22	Combine	144.61	2	868	2,822,506	9, 17, 18, 19, 20, 21	----	----	<no description>	
23	Combine	247.24	2	938	6,887,122	16, 22	----	----	SEB (Lemke Rd)	
24	Reach	246.89	2	946	6,887,127	23	----	----	Errick Road	
25	SCS Runoff	33.12	2	812	454,190	----	----	----	SE-A10	
26	Combine	261.33	2	920	7,341,314	24, 25	----	----	SEB (Errick Road)	
27	SCS Runoff	56.93	2	1186	2,634,597	----	----	----	SEB-2 (SE-A11)	
28	Reservoir	56.93	2	1188	2,634,592	27	585.04	87,105	SEB-2 Nash Road	
29	SCS Runoff	77.02	2	1008	2,473,570	----	----	----	SE-A12	
30	Reach	55.57	2	1270	2,634,569	28	----	----	<no description>	
31	Combine	114.61	2	1178	5,108,133	29, 30	----	----	<no description>	
32	Combine	343.28	2	958	12,449,430	26, 31	----	----	SEB (Marc Dr)	
SEB-1 errick Road.gpw					Return Period: 100 Year			Thursday, 01 / 28 / 2016		

Hydrograph Report

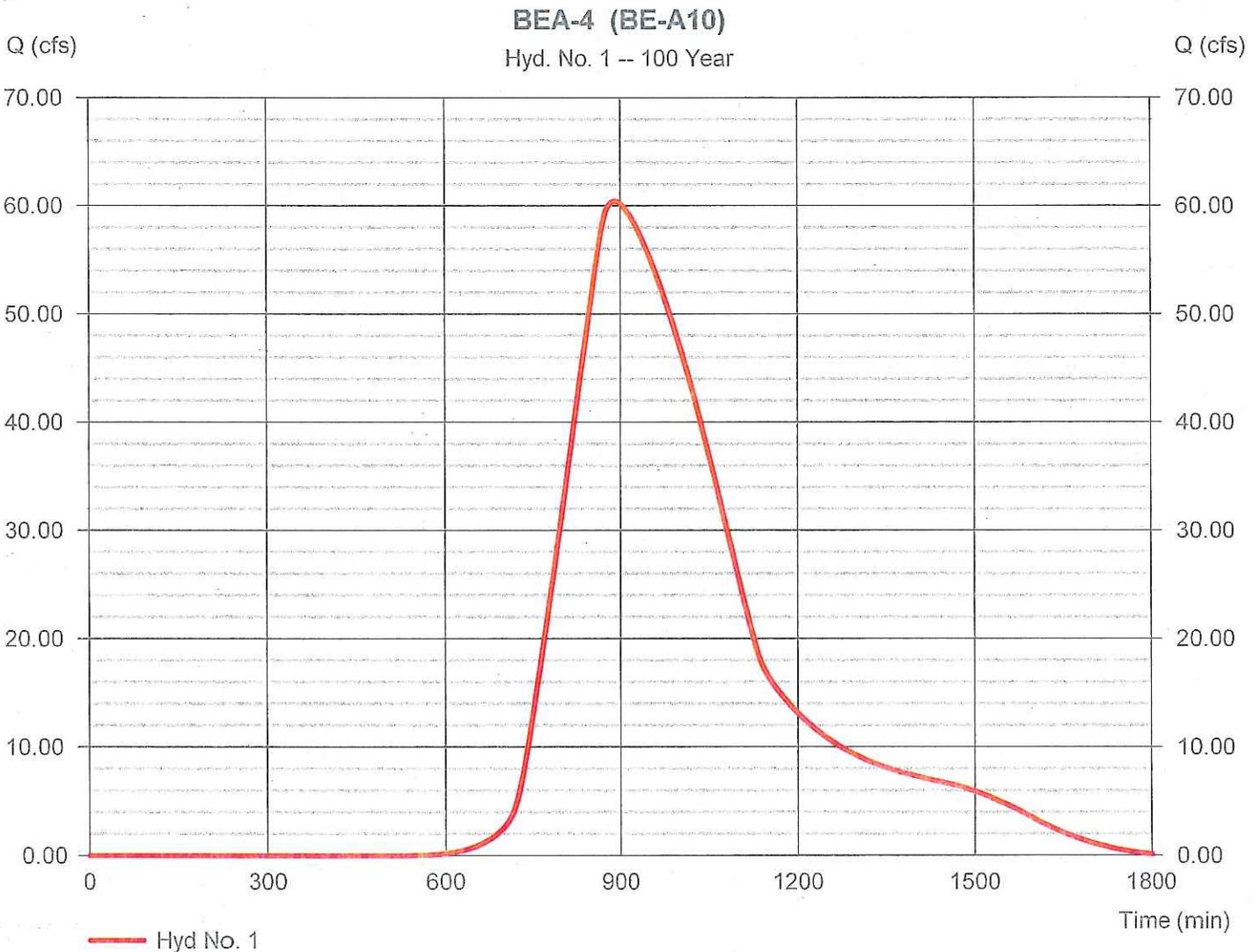
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Thursday, 01 / 28 / 2016

Hyd. No. 1

BEA-4 (BE-A10)

Hydrograph type	= SCS Runoff	Peak discharge	= 60.44 cfs
Storm frequency	= 100 yrs	Time to peak	= 890 min
Time interval	= 5 min	Hyd. volume	= 1,251,824 cuft
Drainage area	= 140.000 ac	Curve number	= 76
Basin Slope	= 0.4 %	Hydraulic length	= 6000 ft
Tc method	= User	Time of conc. (Tc)	= 260.00 min
Total precip.	= 4.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

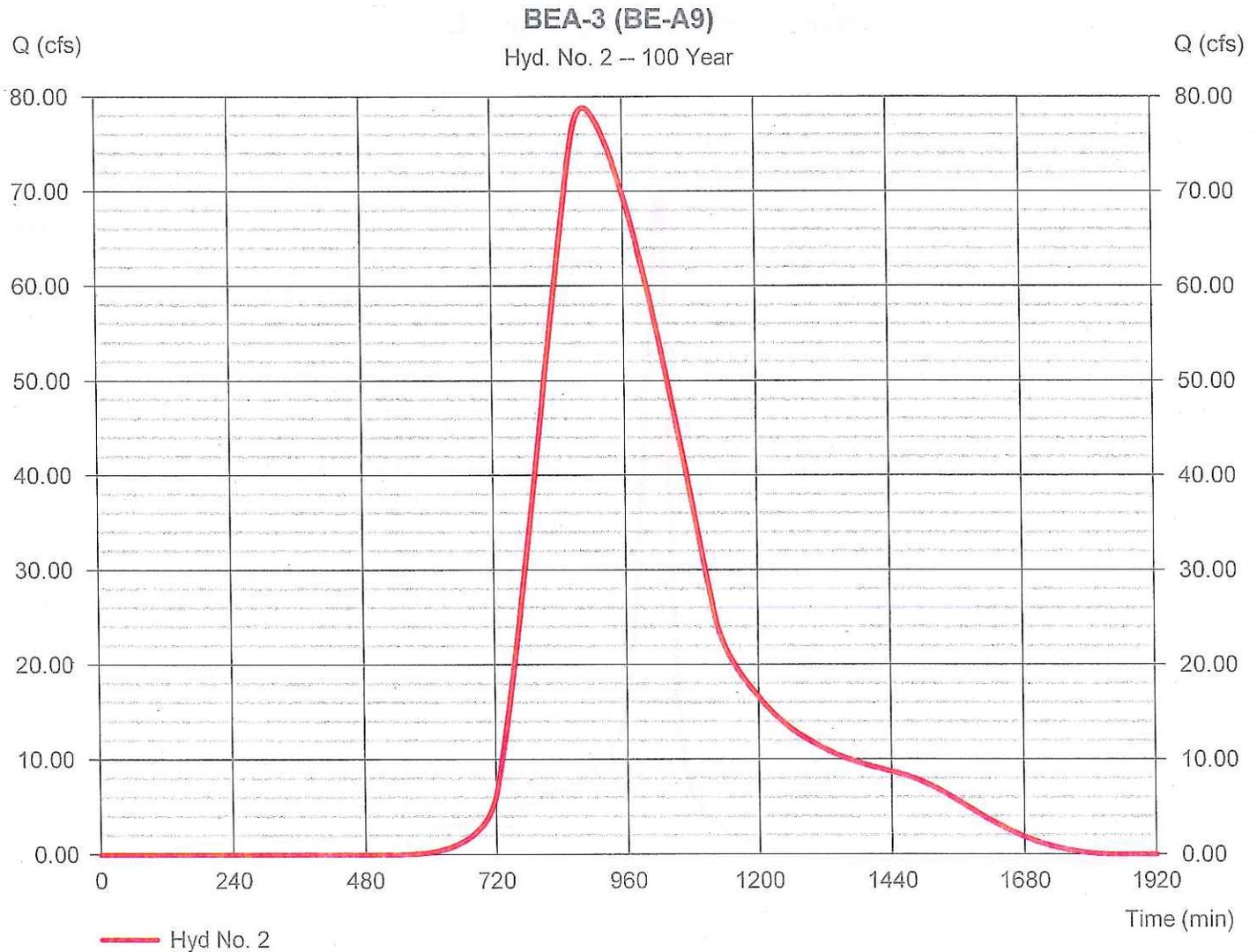
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Thursday, 01 / 28 / 2016

Hyd. No. 2

BEA-3 (BE-A9)

Hydrograph type	= SCS Runoff	Peak discharge	= 78.80 cfs
Storm frequency	= 100 yrs	Time to peak	= 888 min
Time interval	= 2 min	Hyd. volume	= 1,605,660 cuft
Drainage area	= 180.000 ac	Curve number	= 76
Basin Slope	= 0.4 %	Hydraulic length	= 6000 ft
Tc method	= User	Time of conc. (Tc)	= 255.00 min
Total precip.	= 4.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

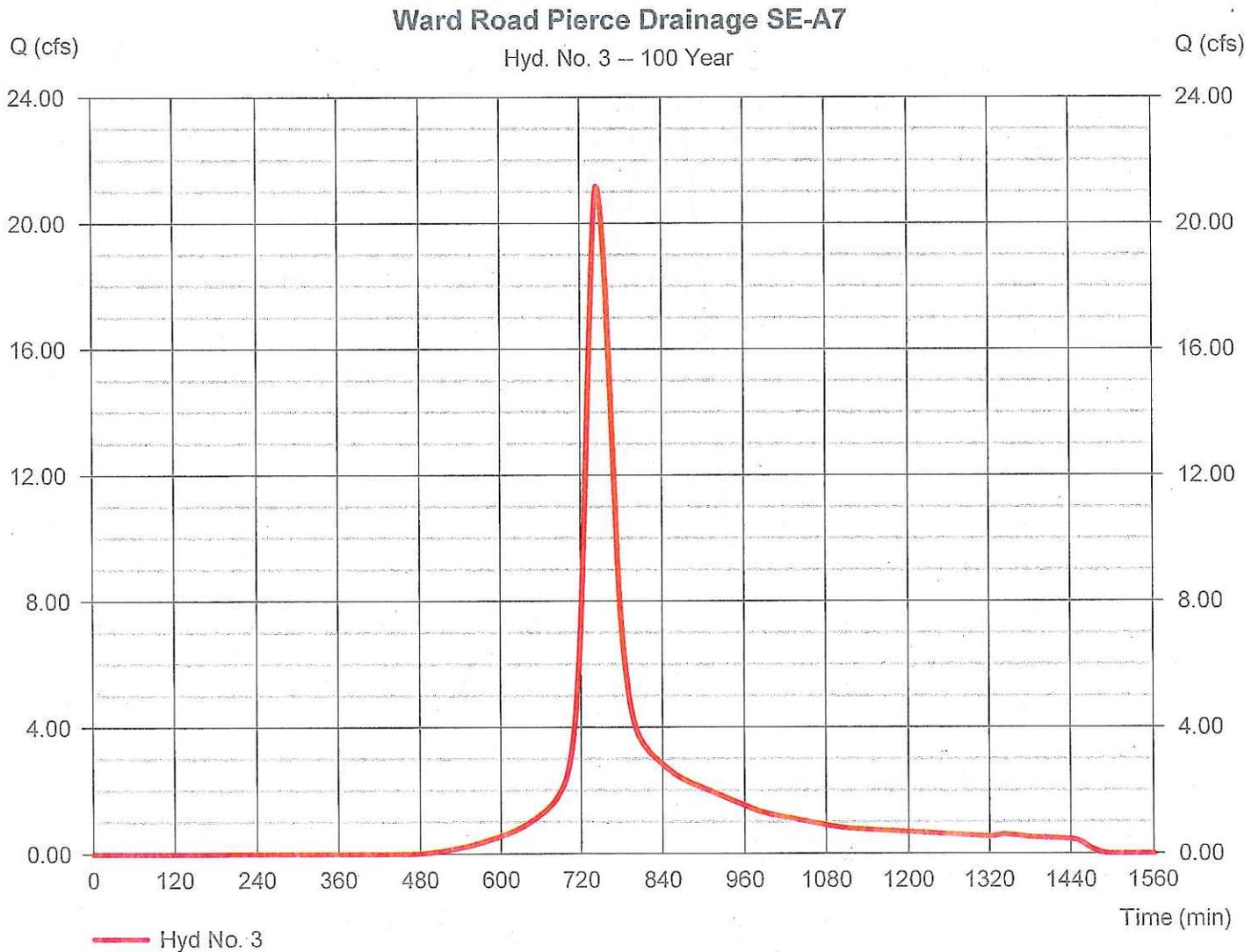
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 3

Ward Road Pierce Drainage SE-A7

Hydrograph type	= SCS Runoff	Peak discharge	= 21.18 cfs
Storm frequency	= 100 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 120,832 cuft
Drainage area	= 12.000 ac	Curve number	= 80
Basin Slope	= 0.4 %	Hydraulic length	= 960 ft
Tc method	= TR55	Time of conc. (Tc)	= 36.70 min
Total precip.	= 4.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

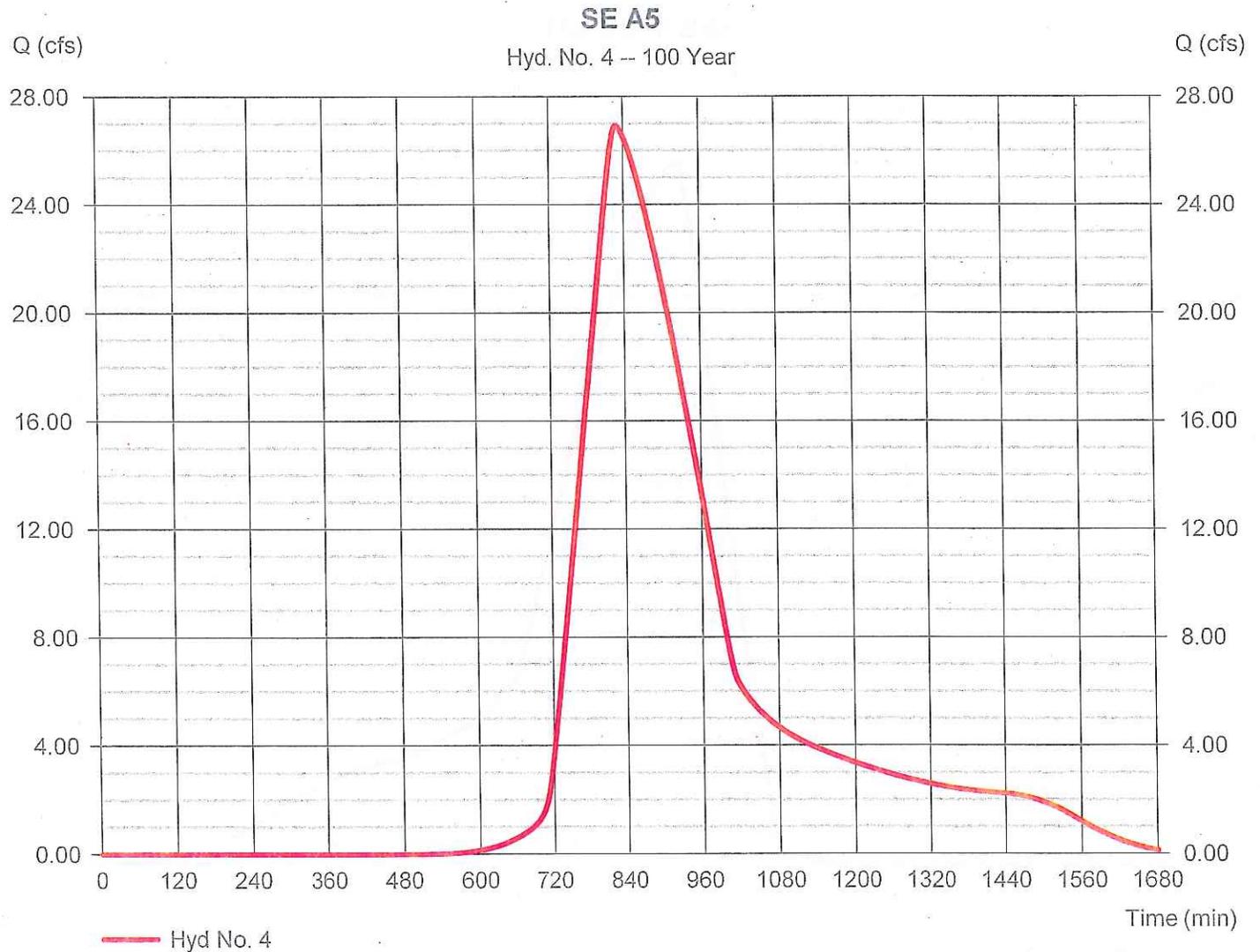
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 4

SE A5

Hydrograph type	= SCS Runoff	Peak discharge	= 26.93 cfs
Storm frequency	= 100 yrs	Time to peak	= 828 min
Time interval	= 2 min	Hyd. volume	= 413,909 cuft
Drainage area	= 45.000 ac	Curve number	= 77
Basin Slope	= 0.4 %	Hydraulic length	= 4200 ft
Tc method	= User	Time of conc. (Tc)	= 190.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

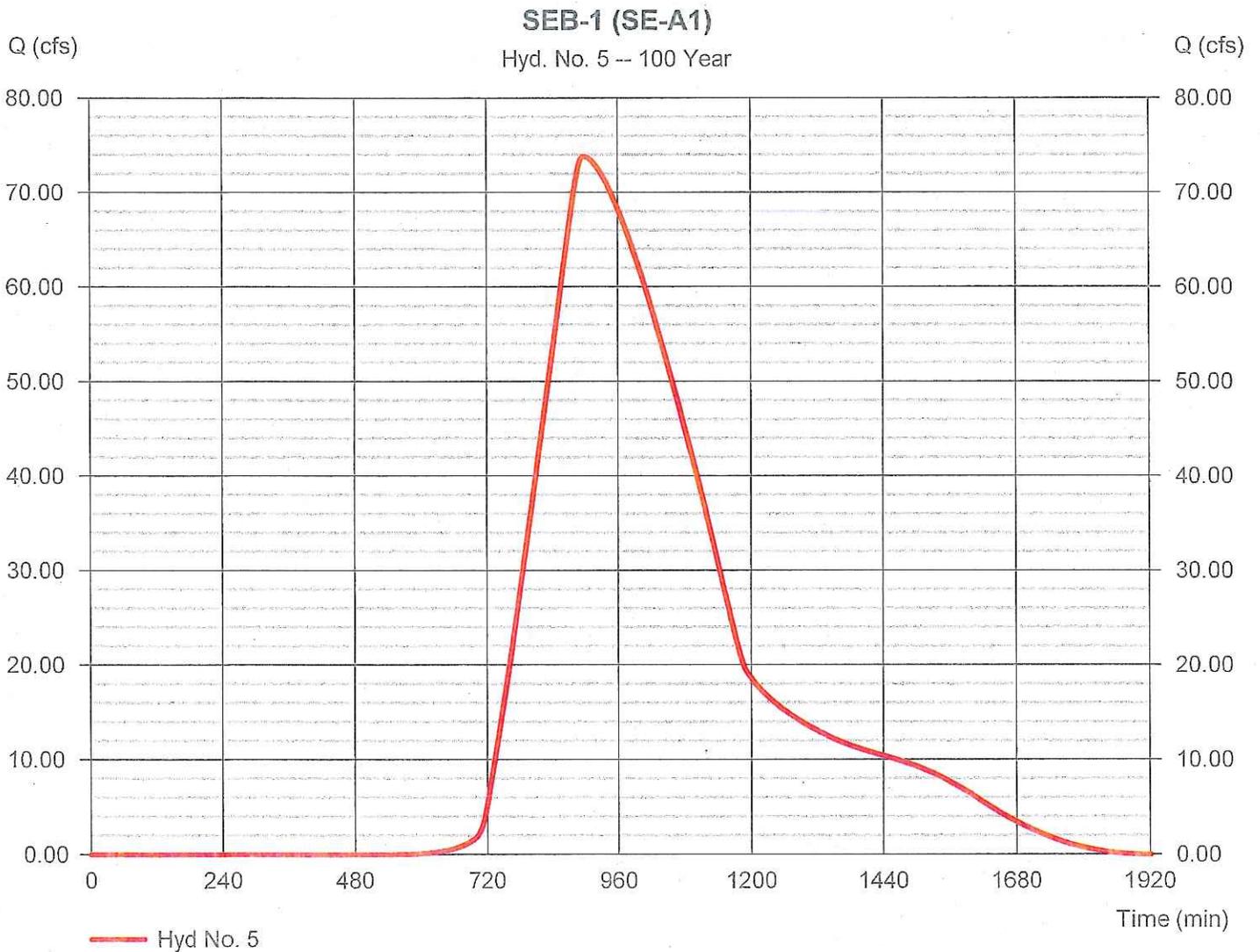
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 5

SEB-1 (SE-A1)

Hydrograph type	= SCS Runoff	Peak discharge	= 73.79 cfs
Storm frequency	= 100 yrs	Time to peak	= 896 min
Time interval	= 2 min	Hyd. volume	= 1,656,966 cuft
Drainage area	= 193.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 3900 ft
Tc method	= User	Time of conc. (Tc)	= 300.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

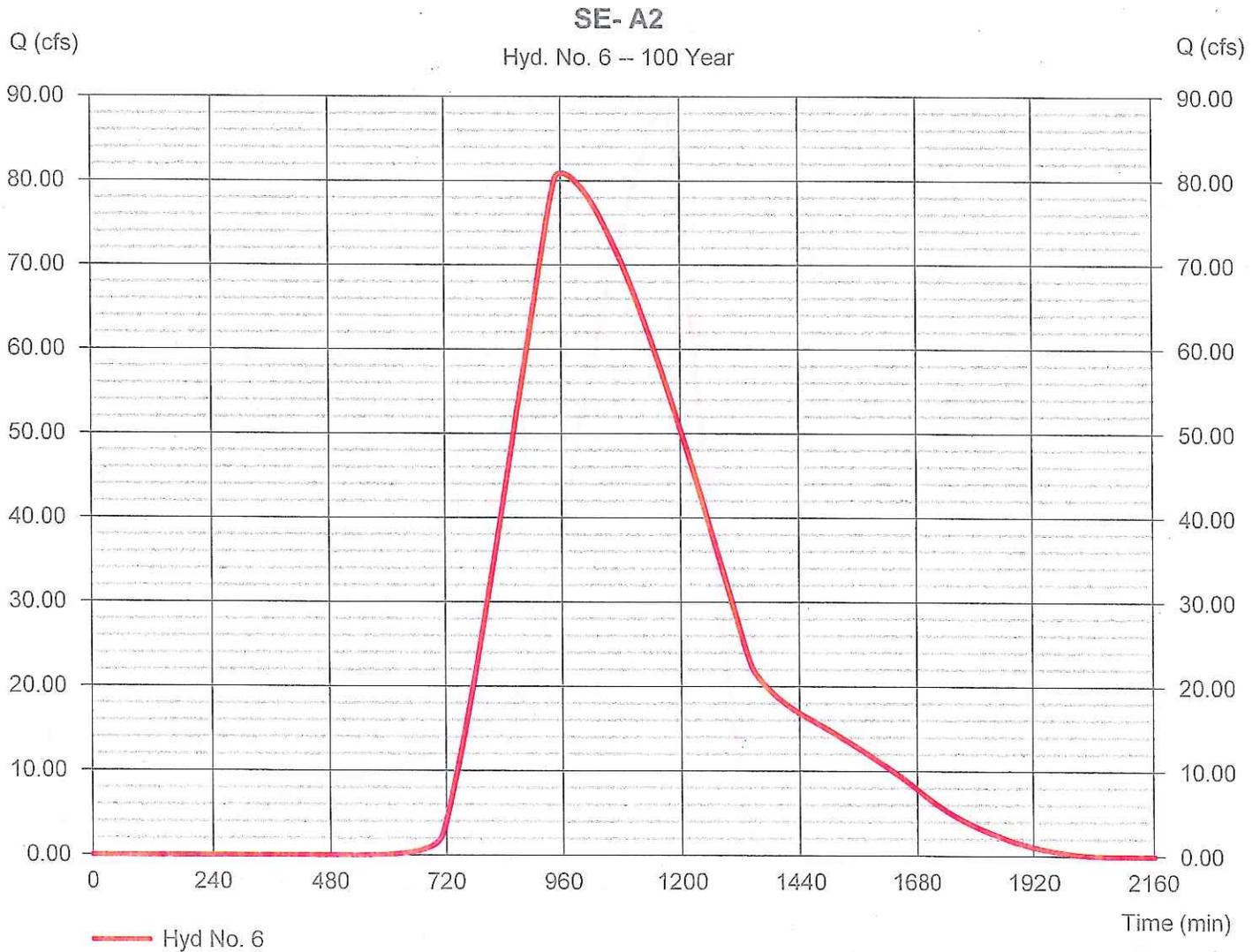
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 6

SE- A2

Hydrograph type	= SCS Runoff	Peak discharge	= 80.89 cfs
Storm frequency	= 100 yrs	Time to peak	= 962 min
Time interval	= 2 min	Hyd. volume	= 2,280,728 cuft
Drainage area	= 265.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 5600 ft
Tc method	= User	Time of conc. (Tc)	= 400.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

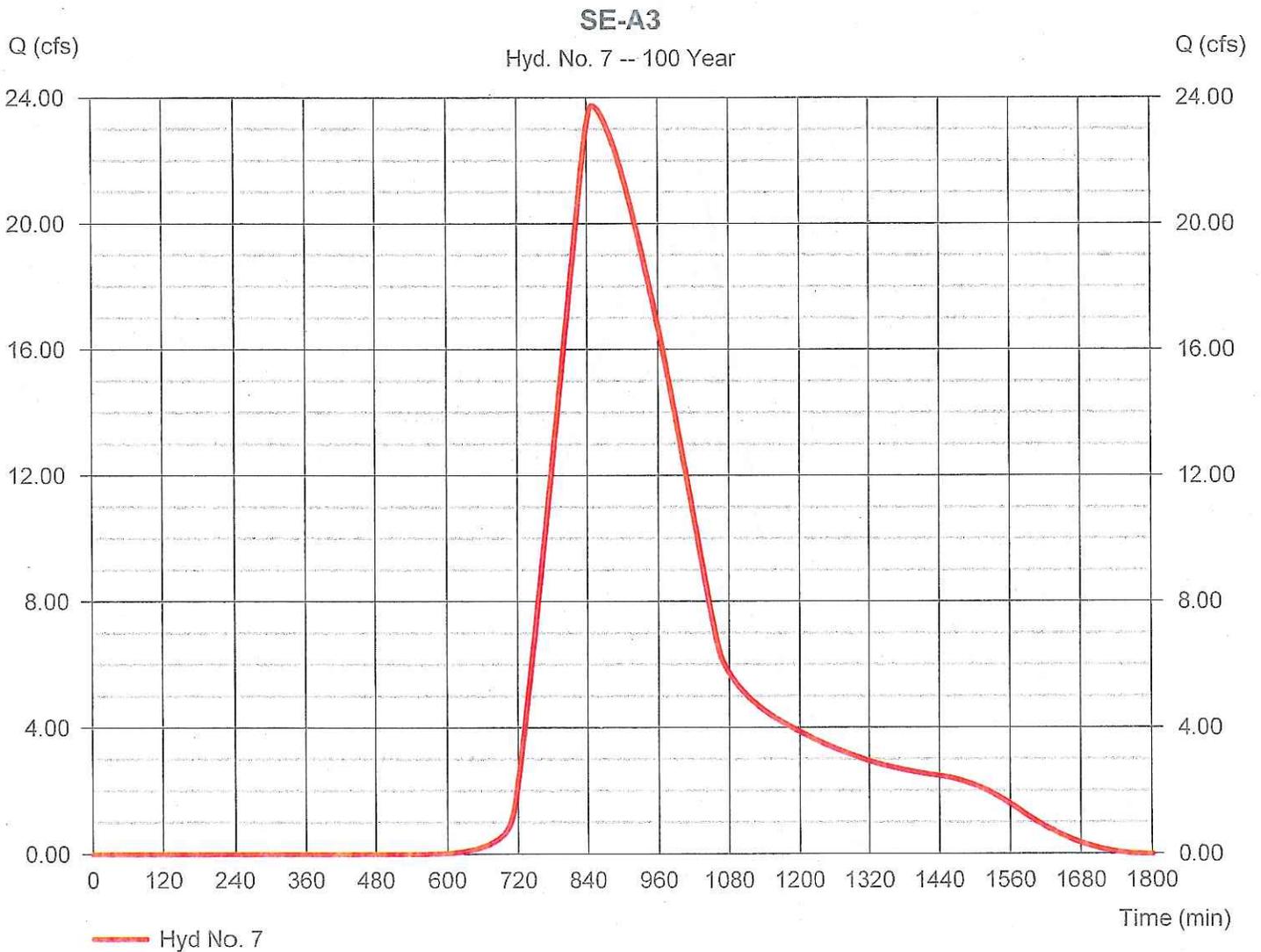
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 7

SE-A3

Hydrograph type	= SCS Runoff	Peak discharge	= 23.74 cfs
Storm frequency	= 100 yrs	Time to peak	= 848 min
Time interval	= 2 min	Hyd. volume	= 422,976 cuft
Drainage area	= 51.000 ac	Curve number	= 74
Basin Slope	= 0.2 %	Hydraulic length	= 3500 ft
Tc method	= LAG	Time of conc. (Tc)	= 220.96 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

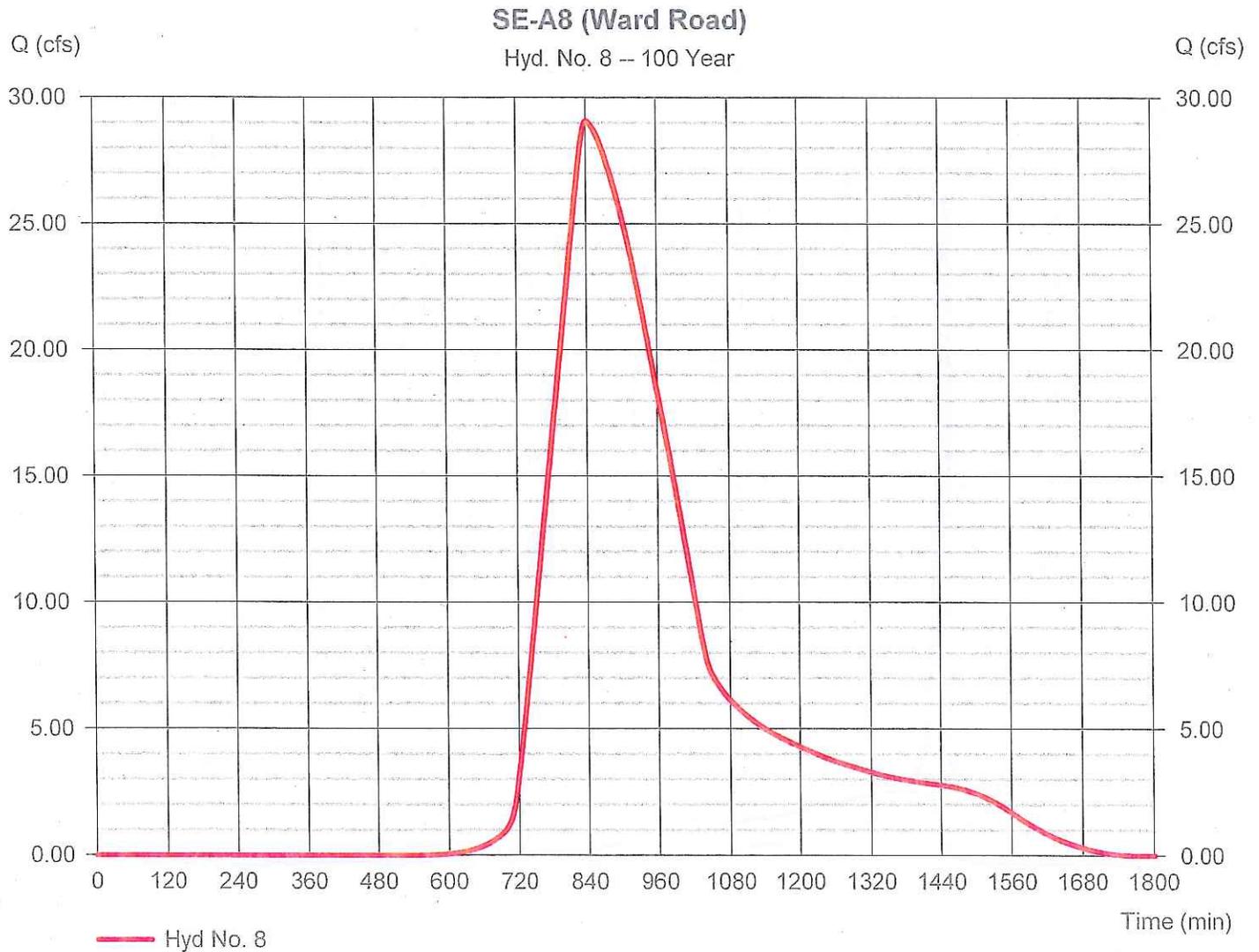
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 8

SE-A8 (Ward Road)

Hydrograph type	= SCS Runoff	Peak discharge	= 29.07 cfs
Storm frequency	= 100 yrs	Time to peak	= 840 min
Time interval	= 2 min	Hyd. volume	= 489,064 cuft
Drainage area	= 57.000 ac	Curve number	= 75
Basin Slope	= 0.2 %	Hydraulic length	= 3200 ft
Tc method	= LAG	Time of conc. (Tc)	= 209.65 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

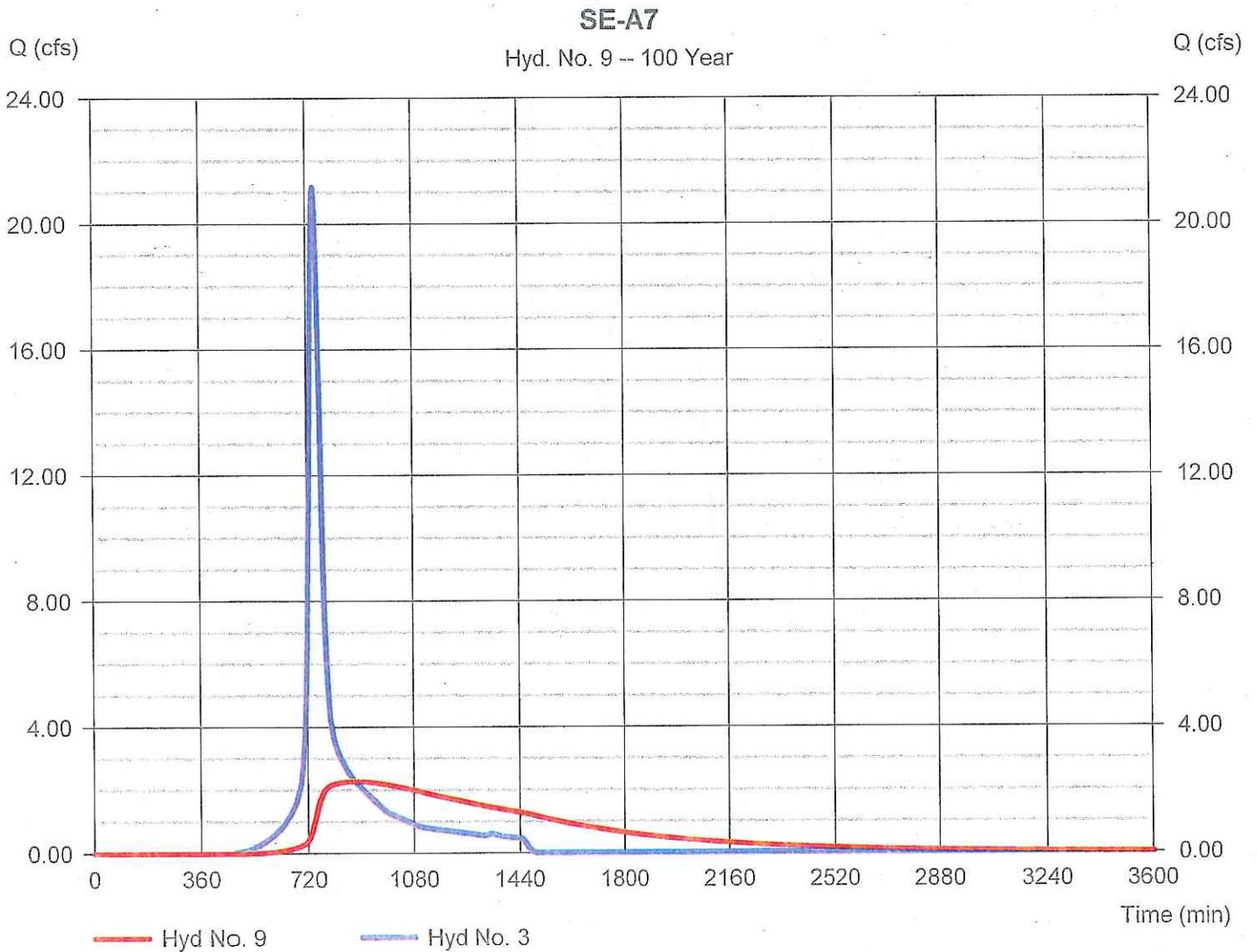
Thursday, 01 / 28 / 2016

Hyd. No. 9

SE-A7

Hydrograph type	= Reach	Peak discharge	= 2.281 cfs
Storm frequency	= 100 yrs	Time to peak	= 878 min
Time interval	= 2 min	Hyd. volume	= 120,527 cuft
Inflow hyd. No.	= 3 - Ward Road Pierce Drainage	Channel type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 3000.0 ft
Side slope	= 3.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.008	Rating curve m	= 1.583
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0039

Modified Att-Kin routing method used.



Hydrograph Report

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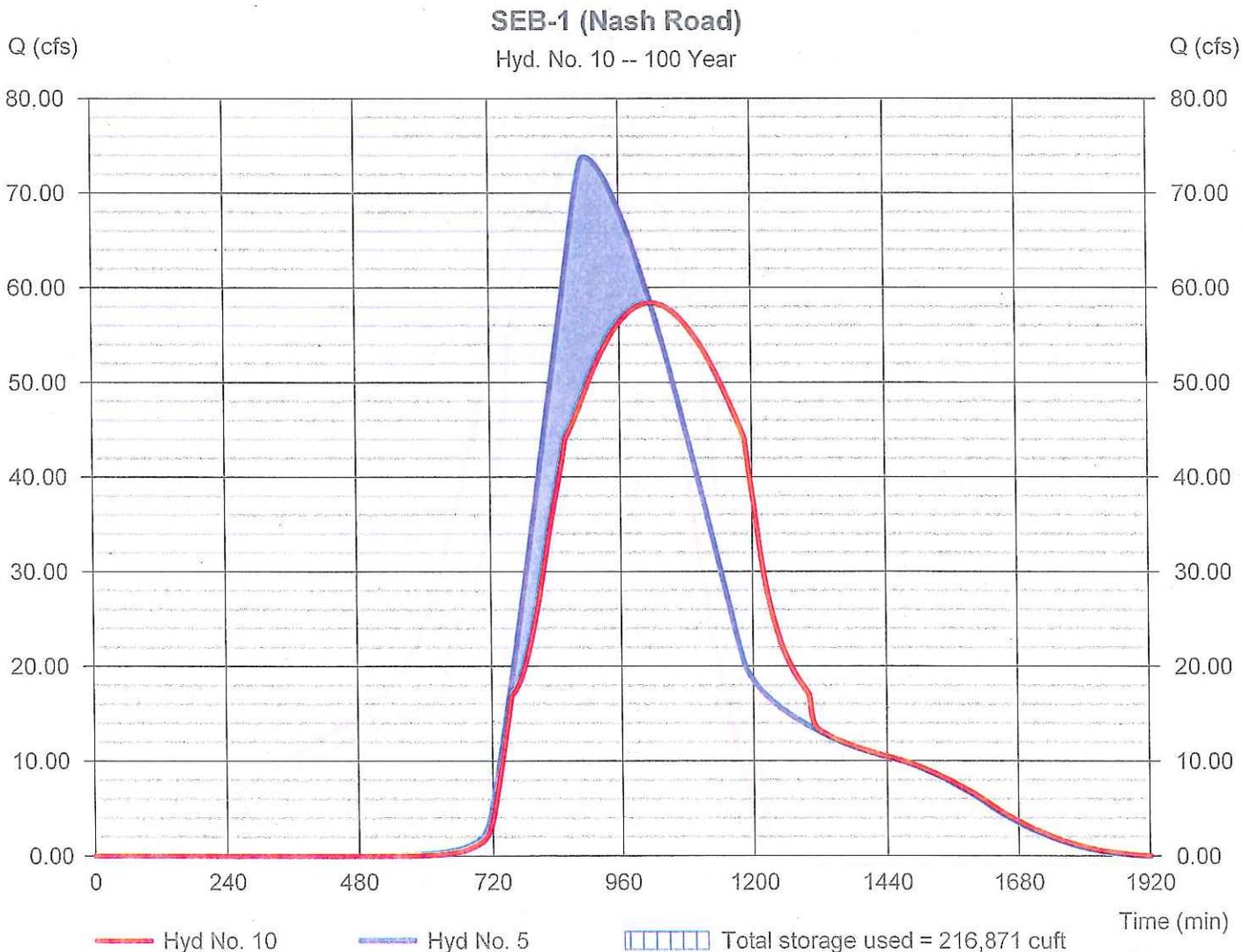
Thursday, 01 / 28 / 2016

Hyd. No. 10

SEB-1 (Nash Road)

Hydrograph type	= Reservoir	Peak discharge	= 58.42 cfs
Storm frequency	= 100 yrs	Time to peak	= 1016 min
Time interval	= 2 min	Hyd. volume	= 1,656,964 cuft
Inflow hyd. No.	= 5 - SEB-1 (SE-A1)	Max. Elevation	= 592.62 ft
Reservoir name	= SEB-1 Nash Rd	Max. Storage	= 216,871 cuft

Storage Indication method used.



Hydrograph Report

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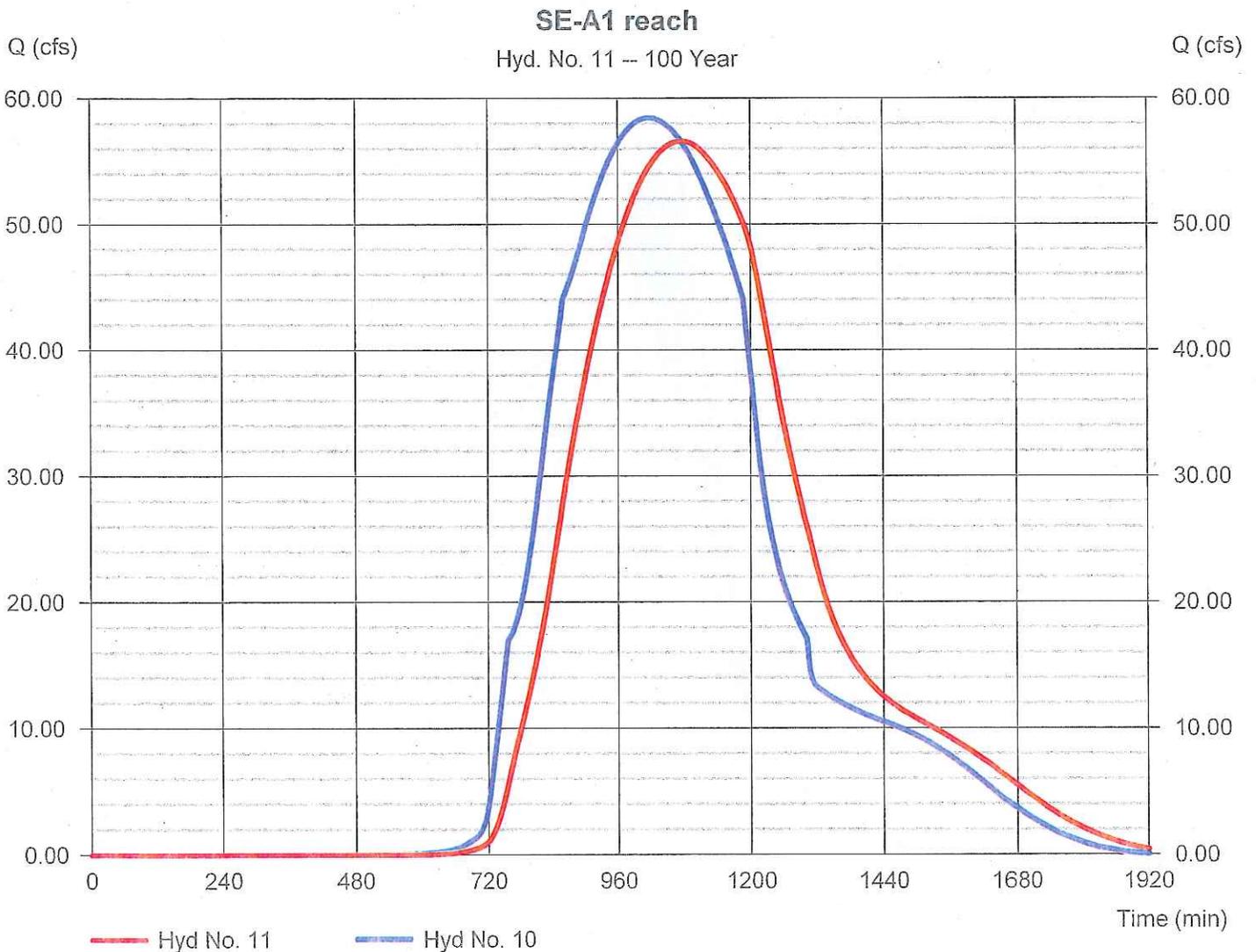
Thursday, 01 / 28 / 2016

Hyd. No. 11

SE-A1 reach

Hydrograph type	= Reach	Peak discharge	= 56.59 cfs
Storm frequency	= 100 yrs	Time to peak	= 1074 min
Time interval	= 2 min	Hyd. volume	= 1,656,932 cuft
Inflow hyd. No.	= 10 - SEB-1 (Nash Road)	Section type	= Trapezoidal
Reach length	= 5500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 3.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.212	Rating curve m	= 1.435
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0358

Modified Att-Kin routing method used.



Hydrograph Report

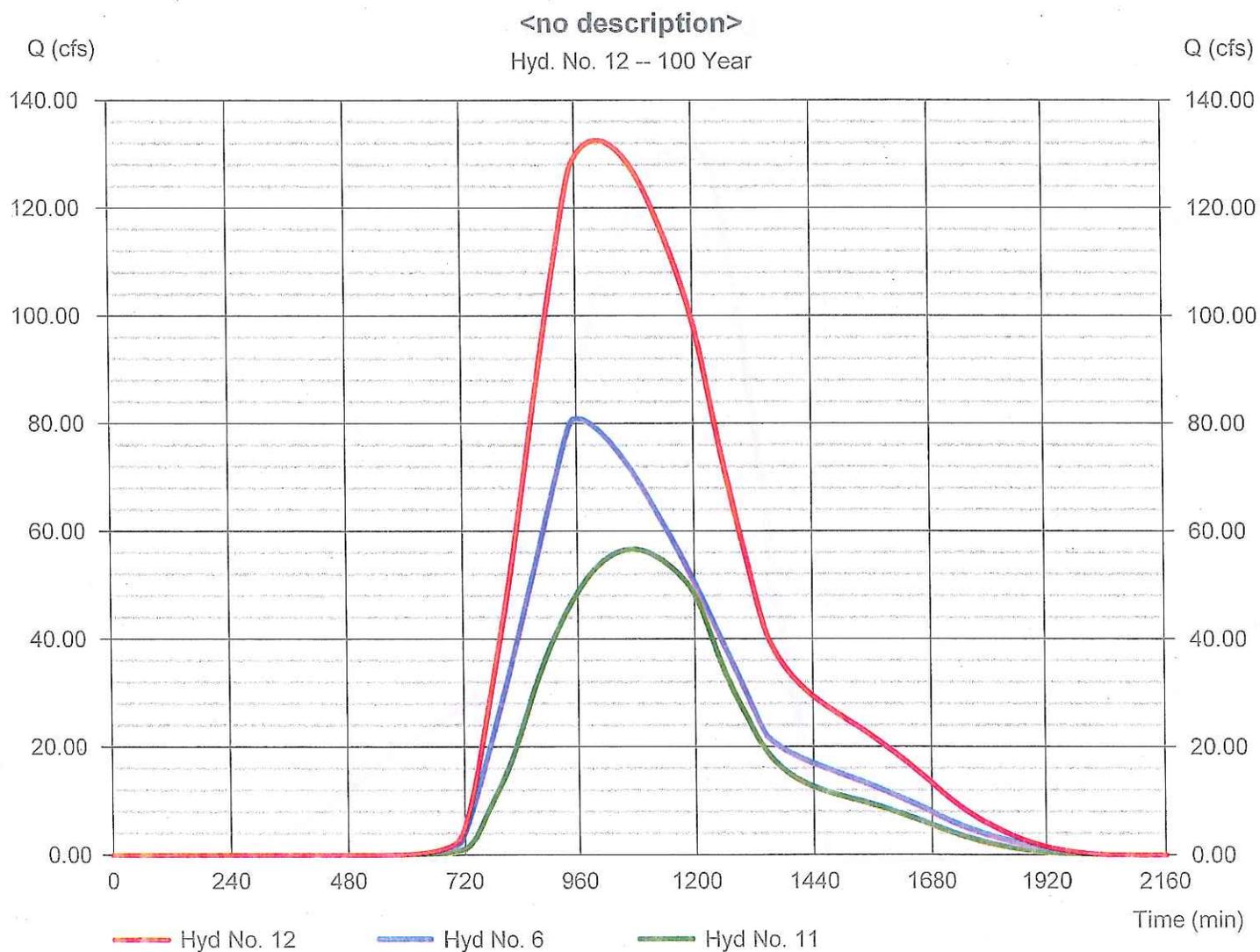
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 12

<no description>

Hydrograph type	= Combine	Peak discharge	= 132.51 cfs
Storm frequency	= 100 yrs	Time to peak	= 1006 min
Time interval	= 2 min	Hyd. volume	= 3,937,658 cuft
Inflow hyds.	= 6, 11	Contrib. drain. area	= 265.000 ac



Hydrograph Report

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Thursday, 01 / 28 / 2016

Hyd. No. 13

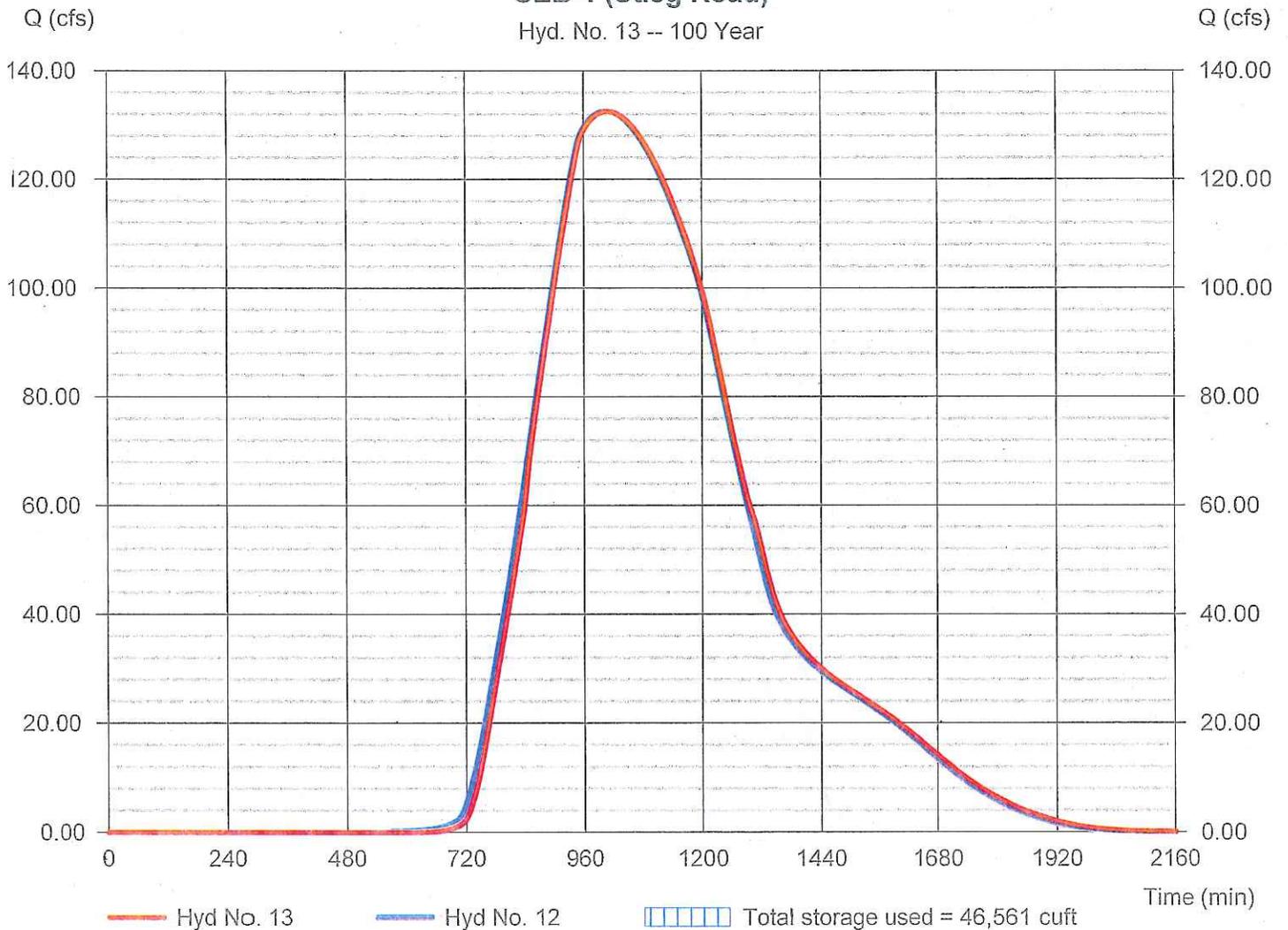
SEB-1 (Stieg Road)

Hydrograph type	= Reservoir	Peak discharge	= 132.50 cfs
Storm frequency	= 100 yrs	Time to peak	= 1008 min
Time interval	= 2 min	Hyd. volume	= 3,937,638 cuft
Inflow hyd. No.	= 12 - <no description>	Max. Elevation	= 579.65 ft
Reservoir name	= SEB-1 Steig Road	Max. Storage	= 46,561 cuft

Storage Indication method used.

SEB-1 (Stieg Road)

Hyd. No. 13 -- 100 Year



Hydrograph Report

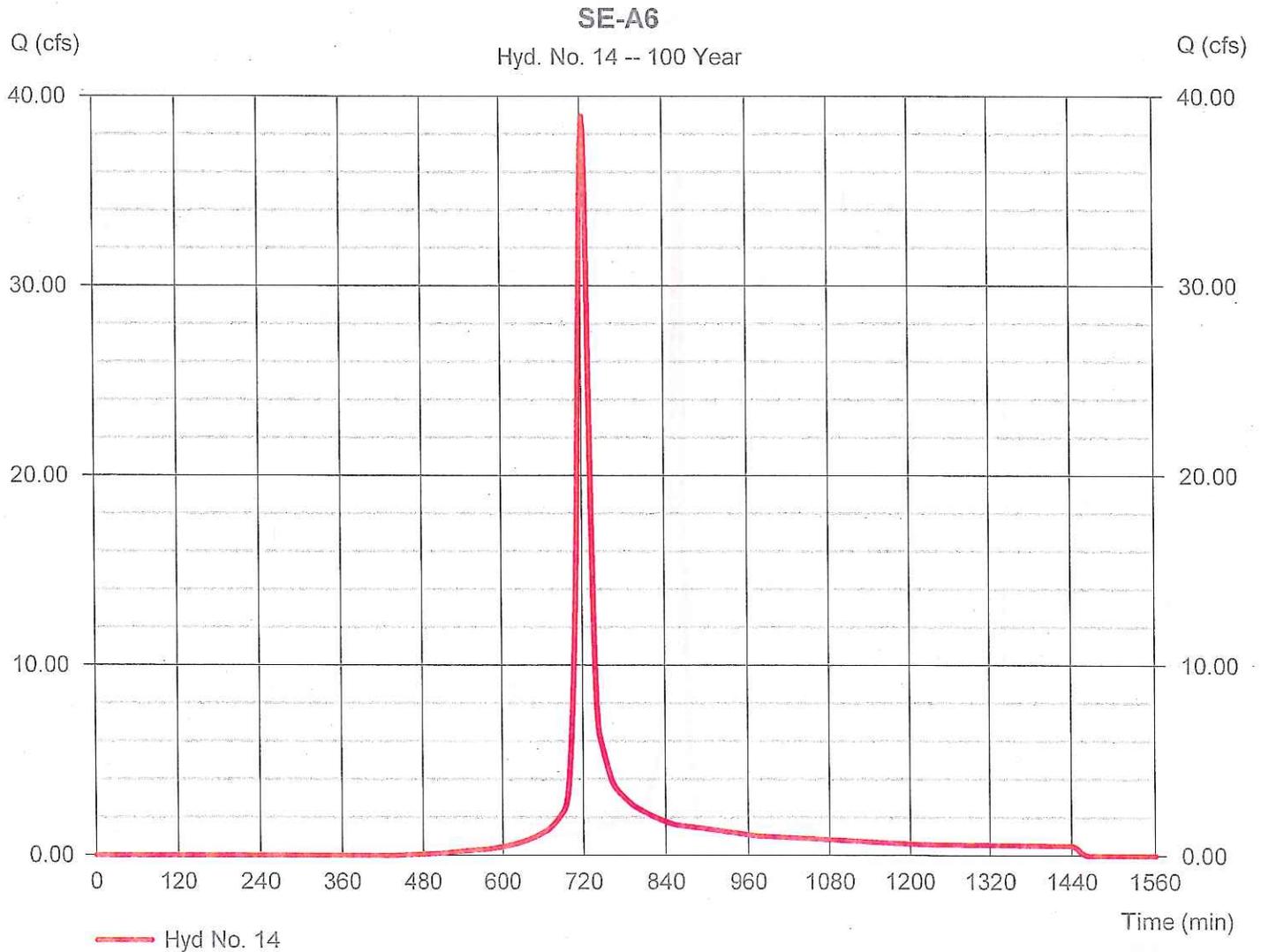
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 14

SE-A6

Hydrograph type	= SCS Runoff	Peak discharge	= 38.94 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 109,235 cuft
Drainage area	= 11.000 ac	Curve number	= 80
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 16.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

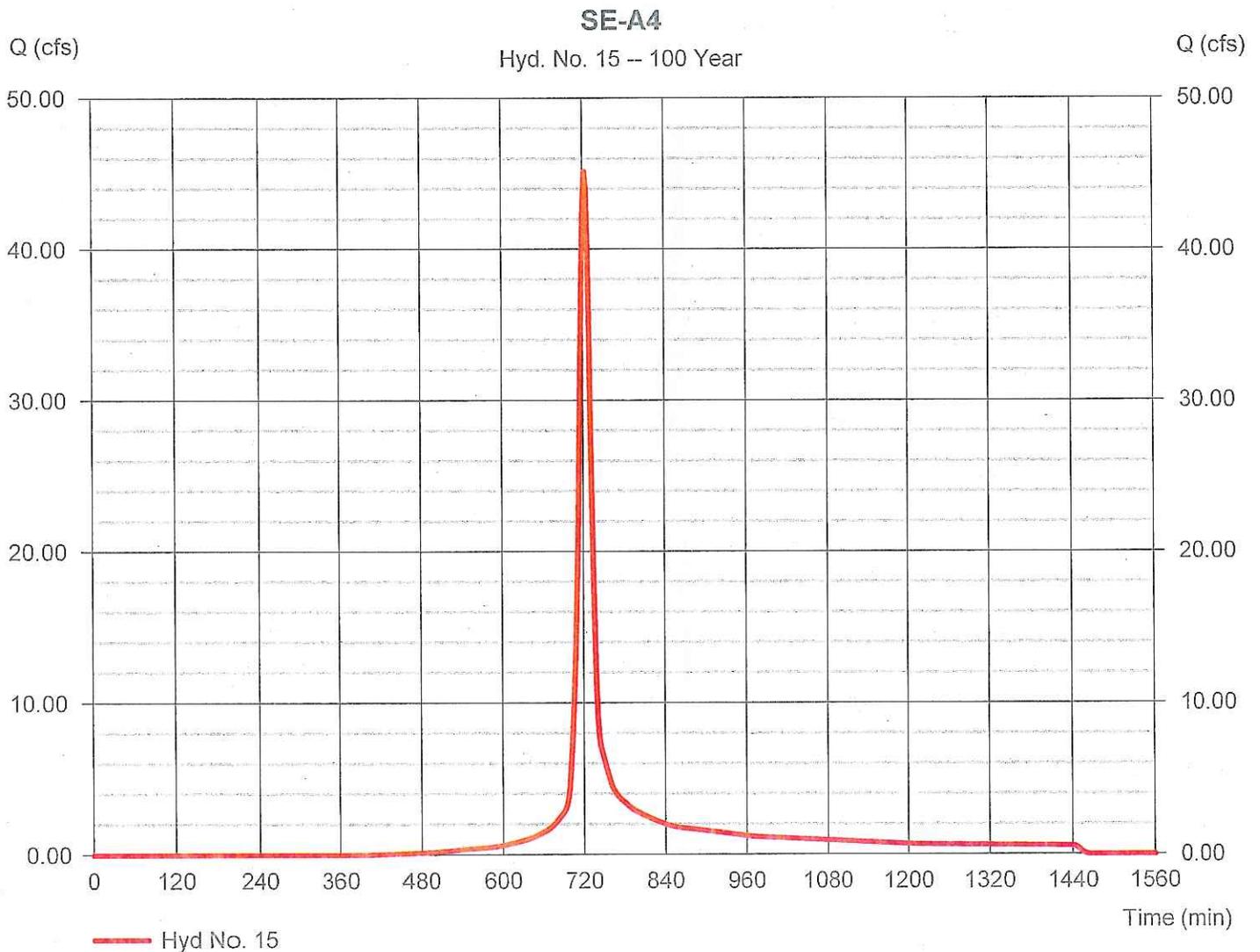
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Hyd. No. 15

SE-A4

Hydrograph type	= SCS Runoff	Peak discharge	= 45.15 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 126,979 cuft
Drainage area	= 12.000 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

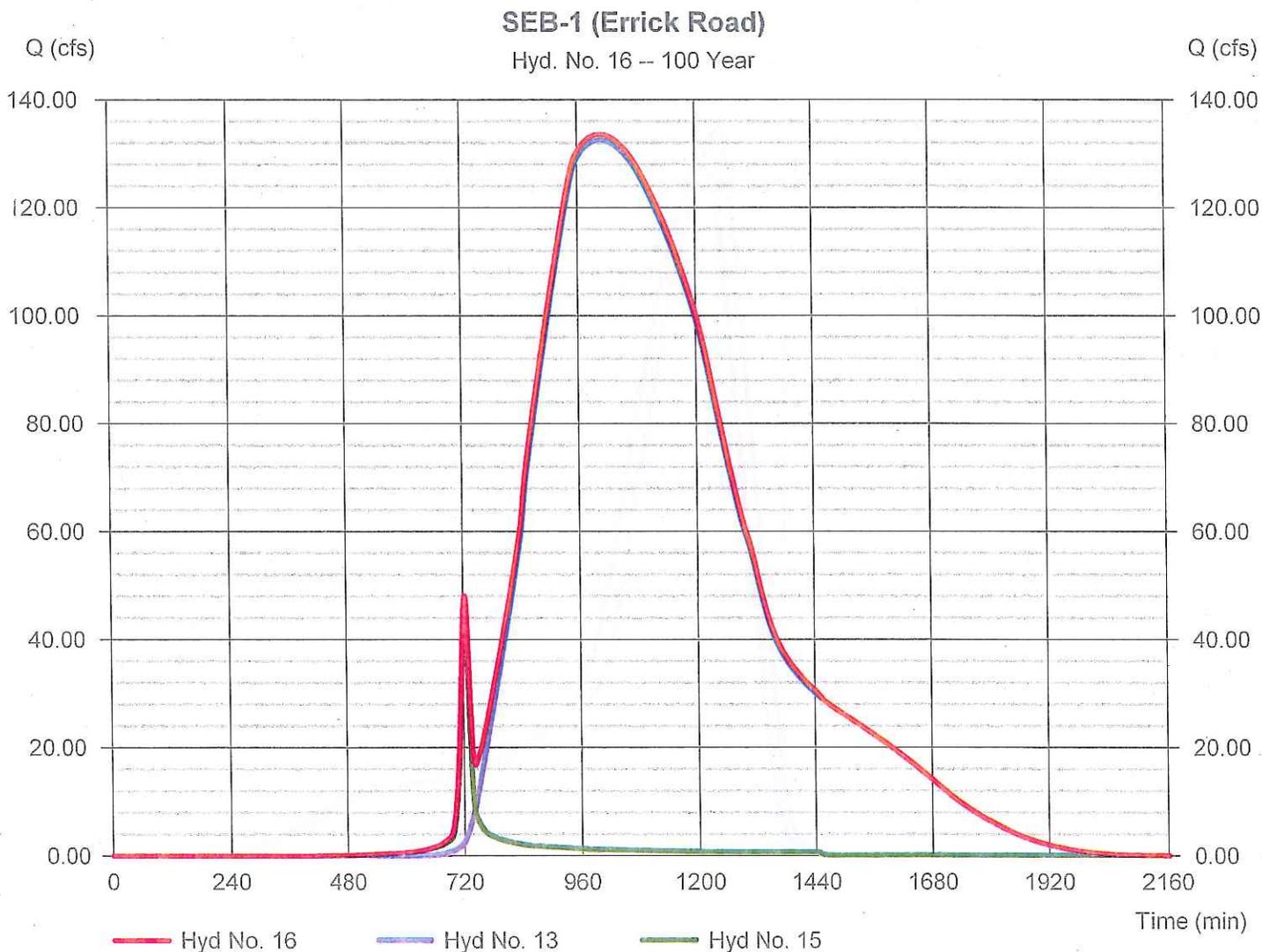
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Thursday, 01 / 28 / 2016

Hyd. No. 16

SEB-1 (Errick Road)

Hydrograph type	= Combine	Peak discharge	= 133.58 cfs
Storm frequency	= 100 yrs	Time to peak	= 1008 min
Time interval	= 2 min	Hyd. volume	= 4,064,620 cuft
Inflow hyds.	= 13, 15	Contrib. drain. area	= 12.000 ac



Hydrograph Report

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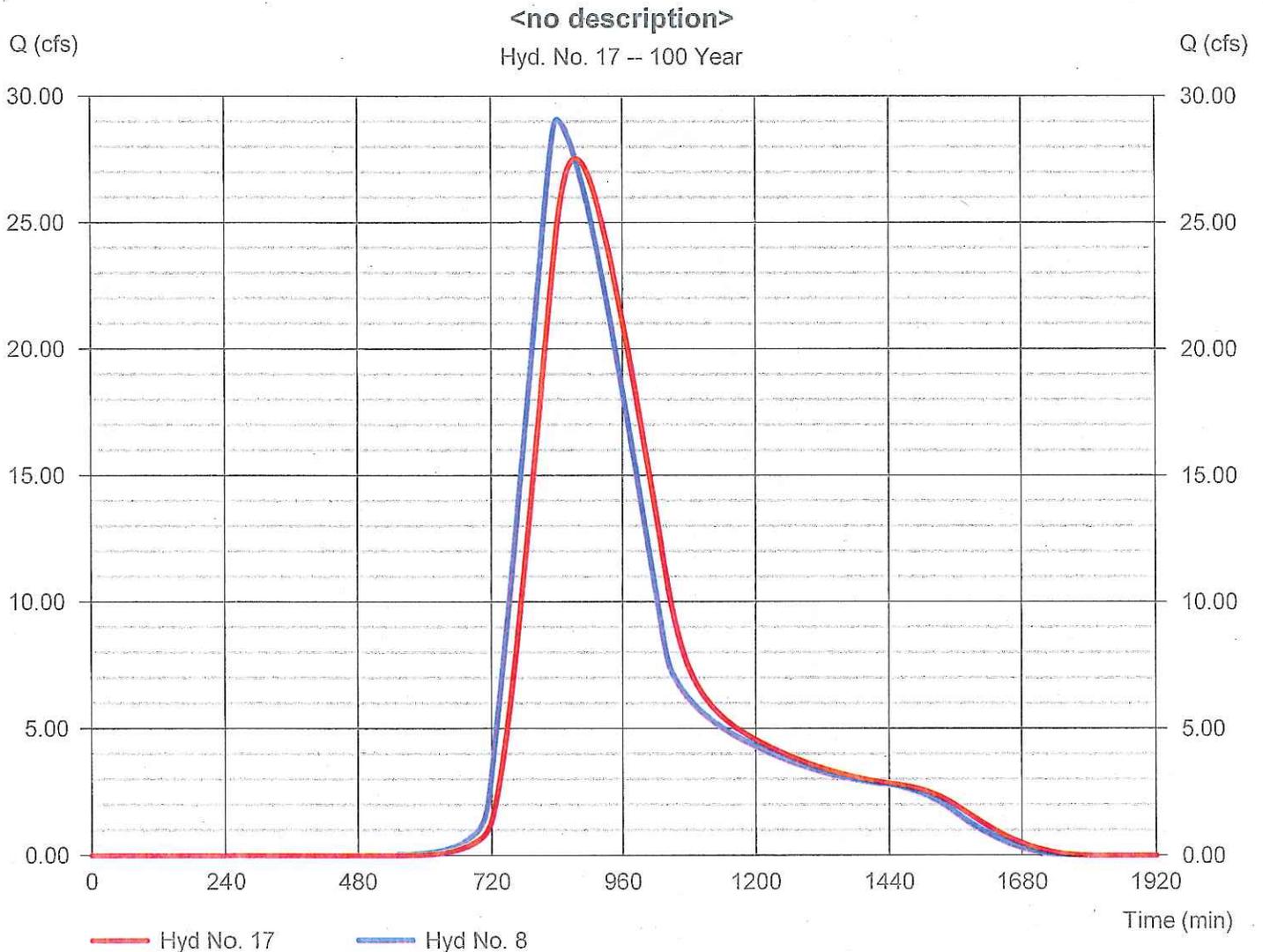
Thursday, 01 / 28 / 2016

Hyd. No. 17

<no description>

Hydrograph type	= Reach	Peak discharge	= 27.53 cfs
Storm frequency	= 100 yrs	Time to peak	= 874 min
Time interval	= 2 min	Hyd. volume	= 489,051 cuft
Inflow hyd. No.	= 8 - SE-A8 (Ward Road)	Section type	= Trapezoidal
Reach length	= 2300.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.237	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0842

Modified Att-Kin routing method used.



Hydrograph Report

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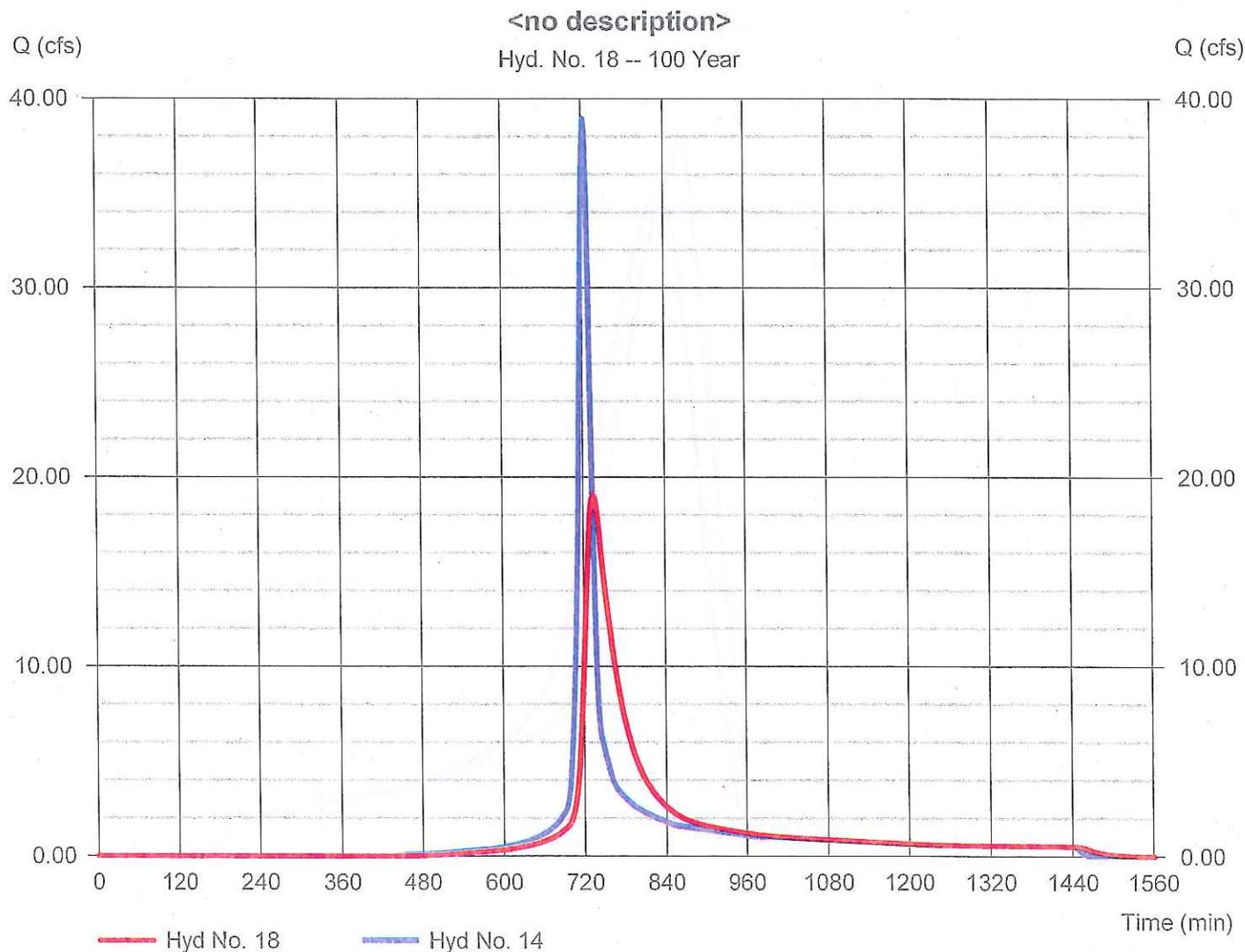
Thursday, 01 / 28 / 2016

Hyd. No. 18

<no description>

Hydrograph type	= Reach	Peak discharge	= 19.04 cfs
Storm frequency	= 100 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 109,219 cuft
Inflow hyd. No.	= 14 - SE-A6	Section type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.274	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0737

Modified Att-Kin routing method used.



Hydrograph Report

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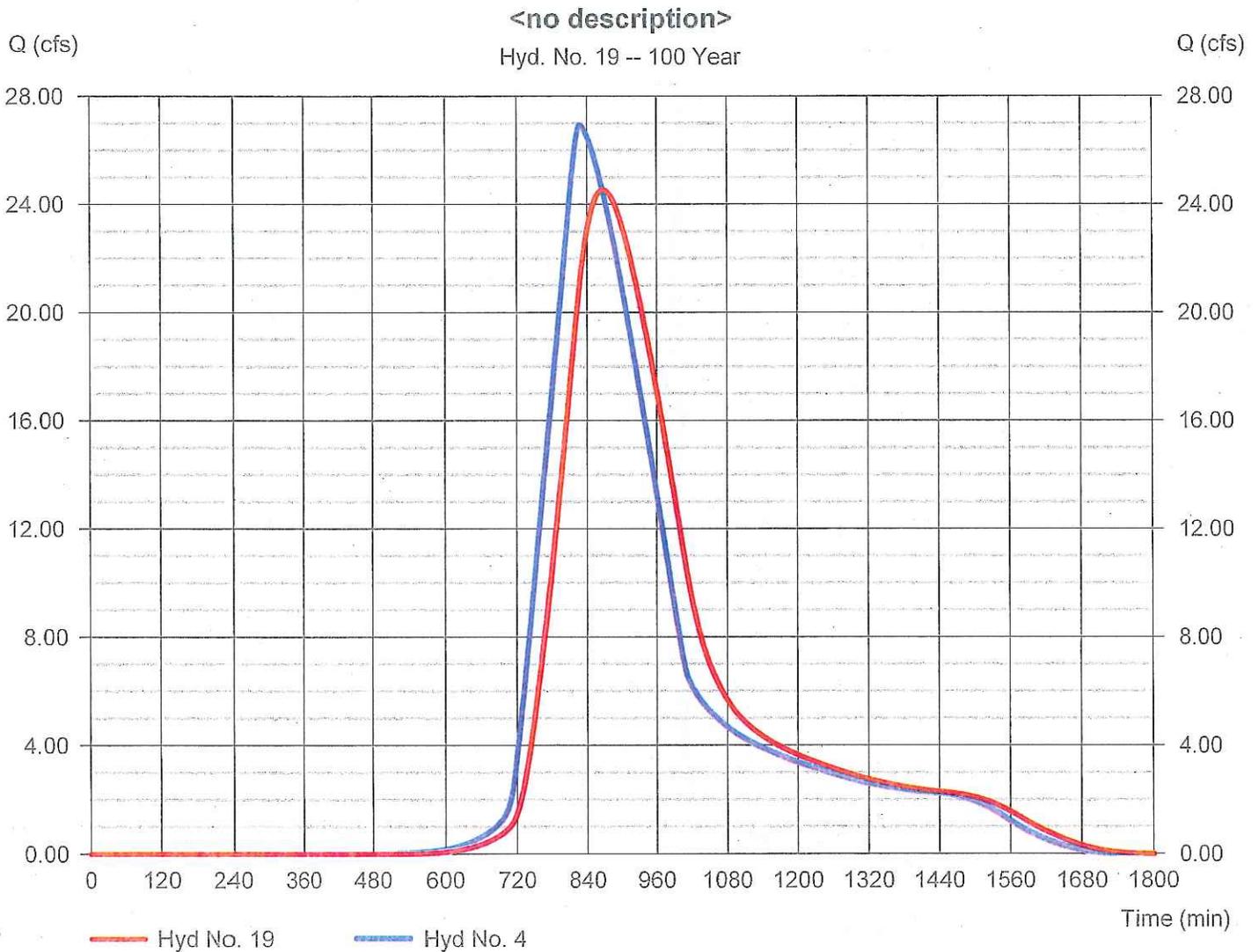
Thursday, 01 / 28 / 2016

Hyd. No. 19

<no description>

Hydrograph type	= Reach	Peak discharge	= 24.53 cfs
Storm frequency	= 100 yrs	Time to peak	= 868 min
Time interval	= 2 min	Hyd. volume	= 413,892 cuft
Inflow hyd. No.	= 4 - SE A5	Section type	= Trapezoidal
Reach length	= 3200.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 10.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.311	Rating curve m	= 1.447
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0648

Modified Att-Kin routing method used.



Hydrograph Report

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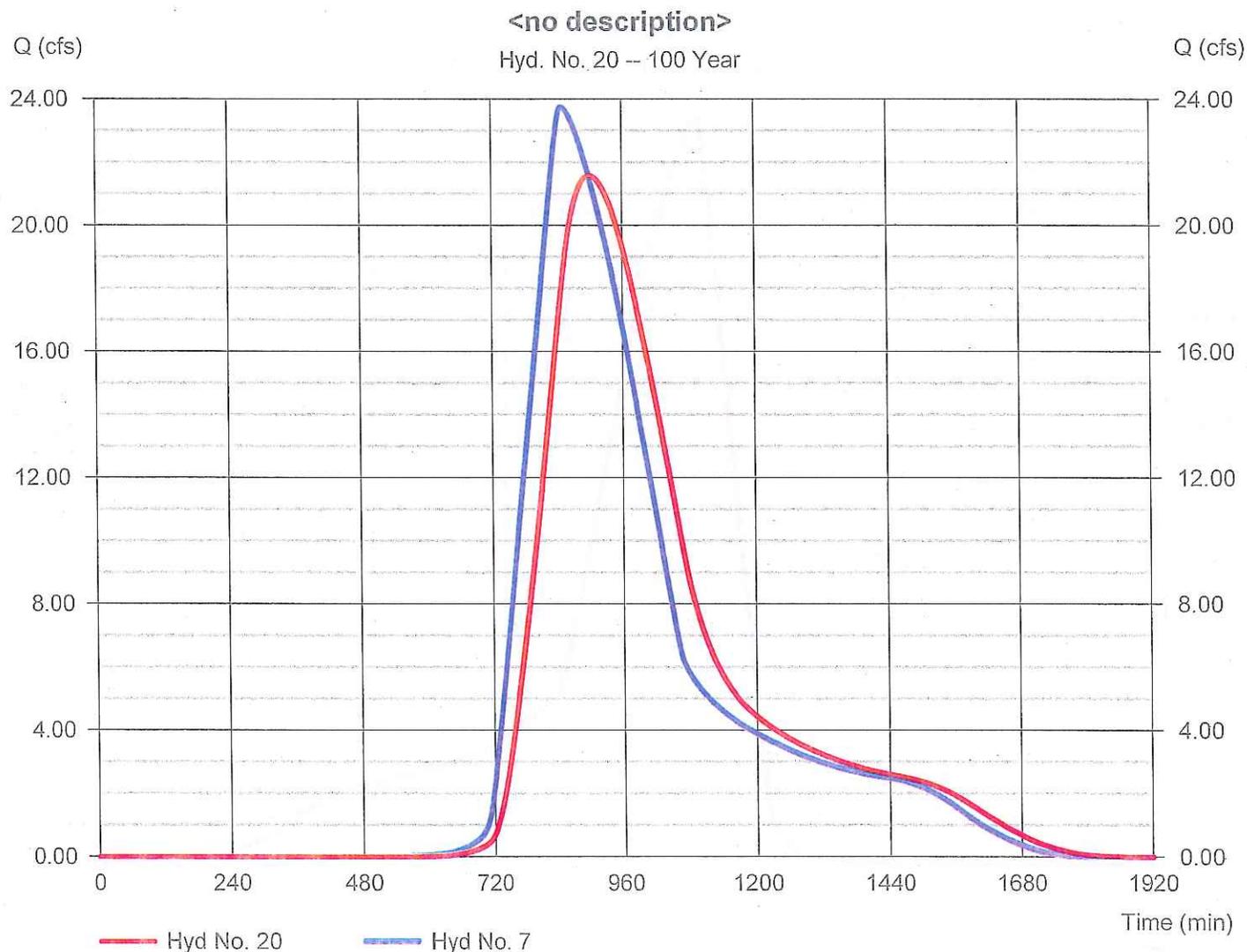
Thursday, 01 / 28 / 2016

Hyd. No. 20

<no description>

Hydrograph type	= Reach	Peak discharge	= 21.57 cfs
Storm frequency	= 100 yrs	Time to peak	= 900 min
Time interval	= 2 min	Hyd. volume	= 422,954 cuft
Inflow hyd. No.	= 7 - SE-A3	Section type	= Trapezoidal
Reach length	= 3500.0 ft	Channel slope	= 0.2 %
Manning's n	= 0.040	Bottom width	= 15.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.237	Rating curve m	= 1.483
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0526

Modified Att-Kin routing method used.



Hydrograph Report

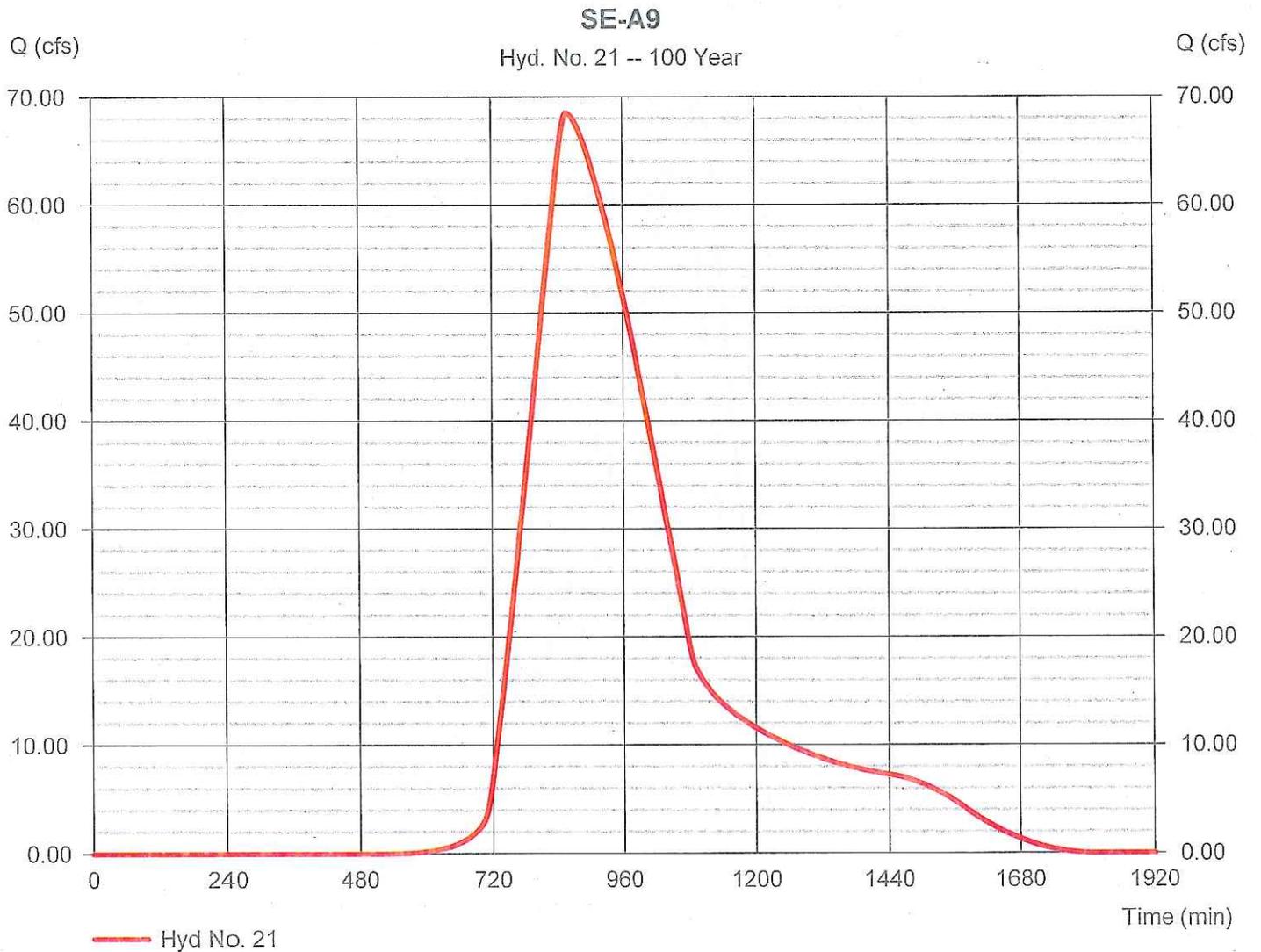
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Thursday, 01 / 28 / 2016

Hyd. No. 21

SE-A9

Hydrograph type	= SCS Runoff	Peak discharge	= 68.51 cfs
Storm frequency	= 100 yrs	Time to peak	= 856 min
Time interval	= 2 min	Hyd. volume	= 1,266,868 cuft
Drainage area	= 142.000 ac	Curve number	= 76
Basin Slope	= 0.2 %	Hydraulic length	= 3100 ft
Tc method	= User	Time of conc. (Tc)	= 235.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

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Thursday, 01 / 28 / 2016

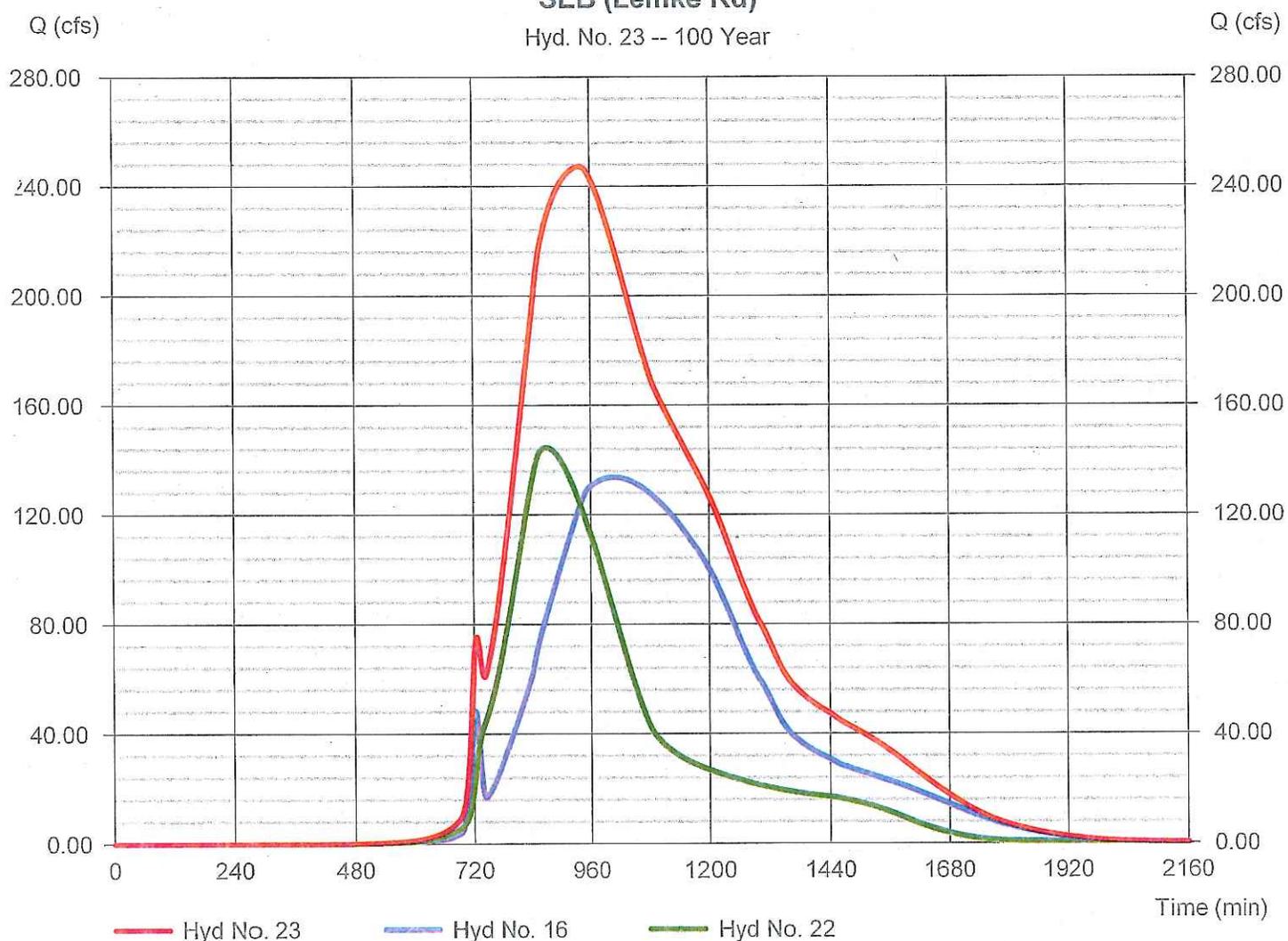
Hyd. No. 23

SEB (Lemke Rd)

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 2 min
 Inflow hyds. = 16, 22

Peak discharge = 247.24 cfs
 Time to peak = 938 min
 Hyd. volume = 6,887,122 cuft
 Contrib. drain. area = 0.000 ac

SEB (Lemke Rd)
 Hyd. No. 23 -- 100 Year



Hydrograph Report

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Thursday, 01 / 28 / 2016

Hyd. No. 24

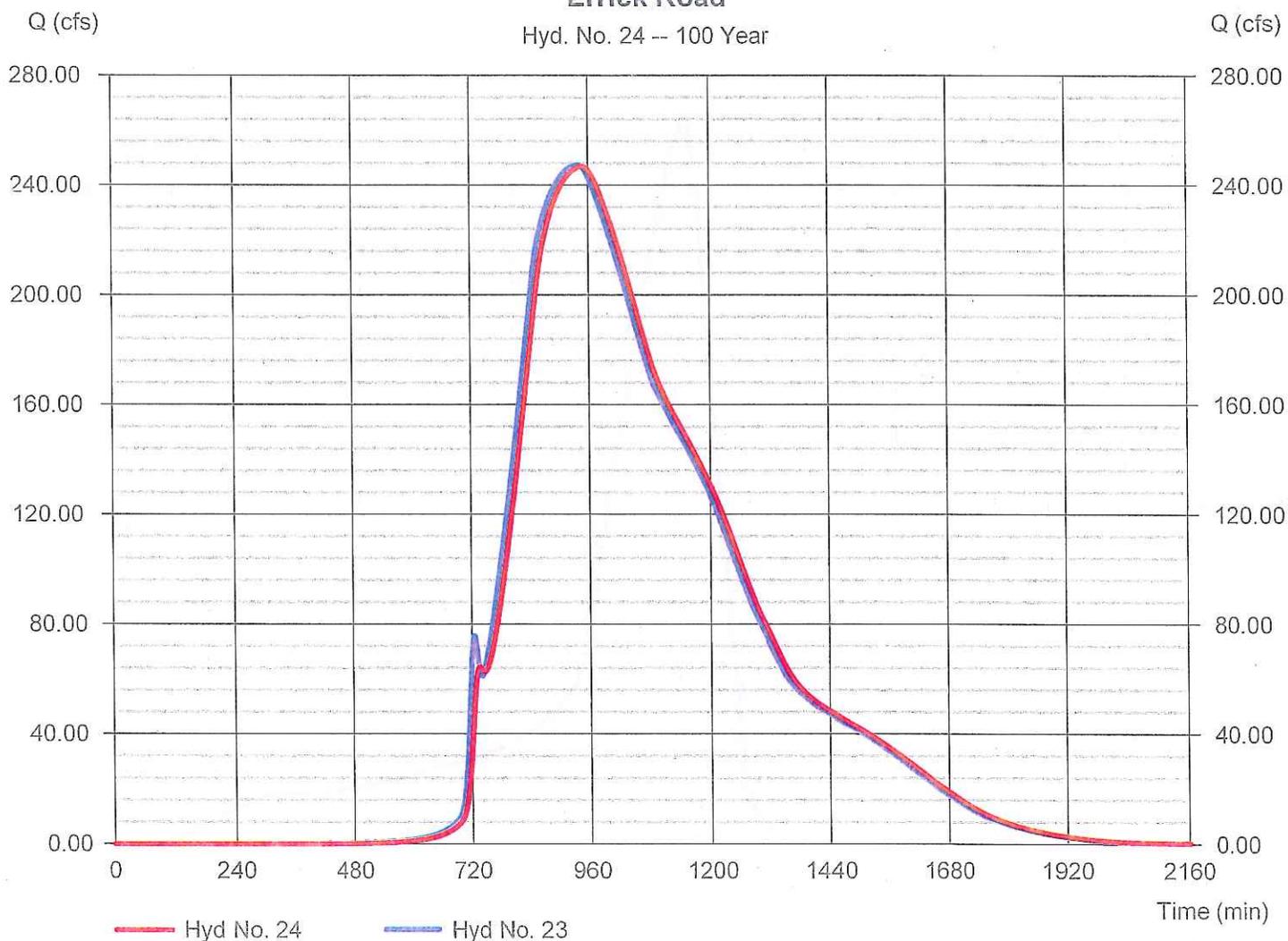
Errick Road

Hydrograph type	= Reach	Peak discharge	= 246.89 cfs
Storm frequency	= 100 yrs	Time to peak	= 946 min
Time interval	= 2 min	Hyd. volume	= 6,887,127 cuft
Inflow hyd. No.	= 23 - SEB (Lemke Rd)	Section type	= Trapezoidal
Reach length	= 1500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.045	Bottom width	= 20.0 ft
Side slope	= 1.0:1	Max. depth	= 4.0 ft
Rating curve x	= 0.110	Rating curve m	= 1.567
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.2024

Modified Att-Kin routing method used.

Errick Road

Hyd. No. 24 -- 100 Year



Hydrograph Report

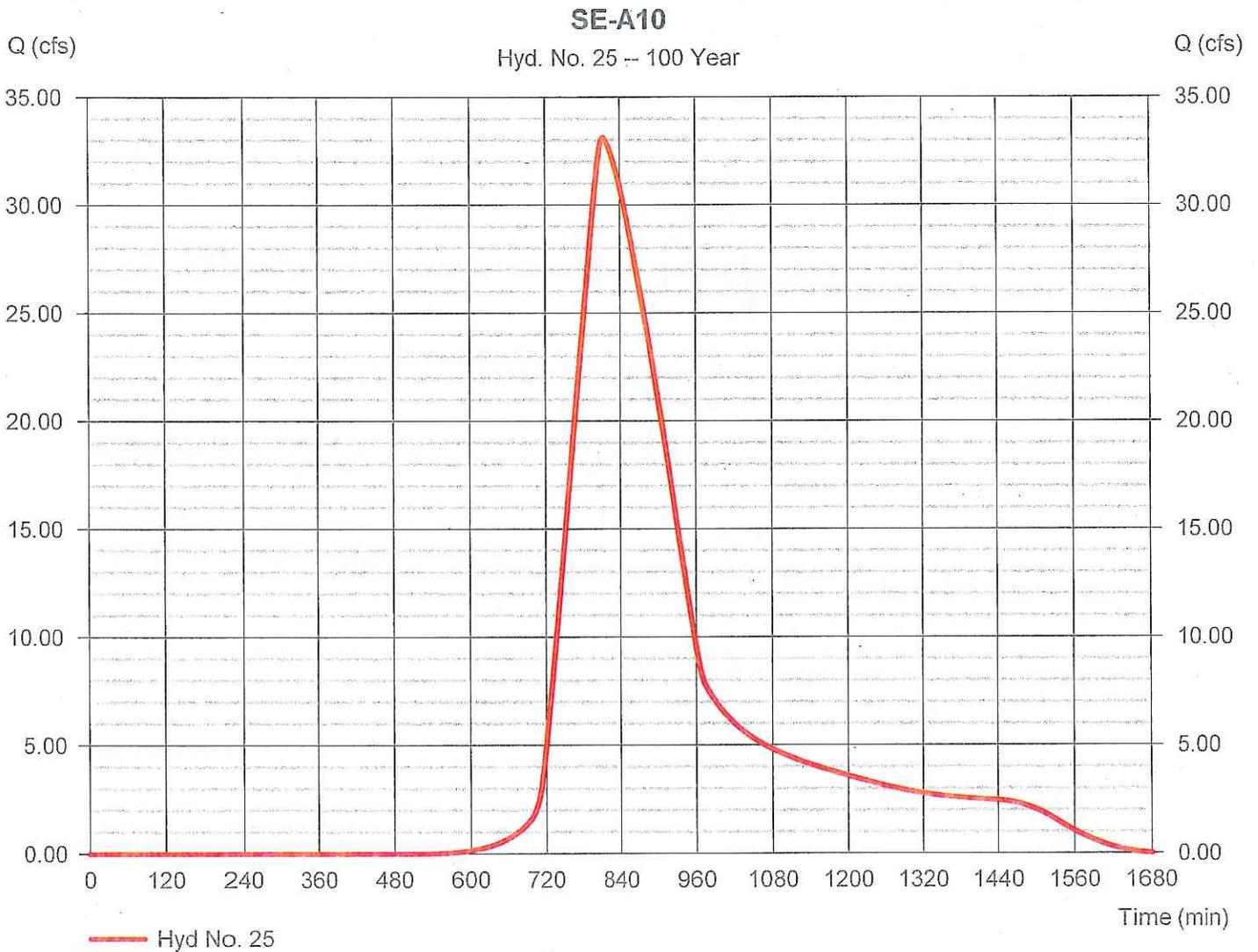
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Thursday, 01 / 28 / 2016

Hyd. No. 25

SE-A10

Hydrograph type	= SCS Runoff	Peak discharge	= 33.12 cfs
Storm frequency	= 100 yrs	Time to peak	= 812 min
Time interval	= 2 min	Hyd. volume	= 454,190 cuft
Drainage area	= 51.000 ac	Curve number	= 76
Basin Slope	= 0.1 %	Hydraulic length	= 1500 ft
Tc method	= User	Time of conc. (Tc)	= 160.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

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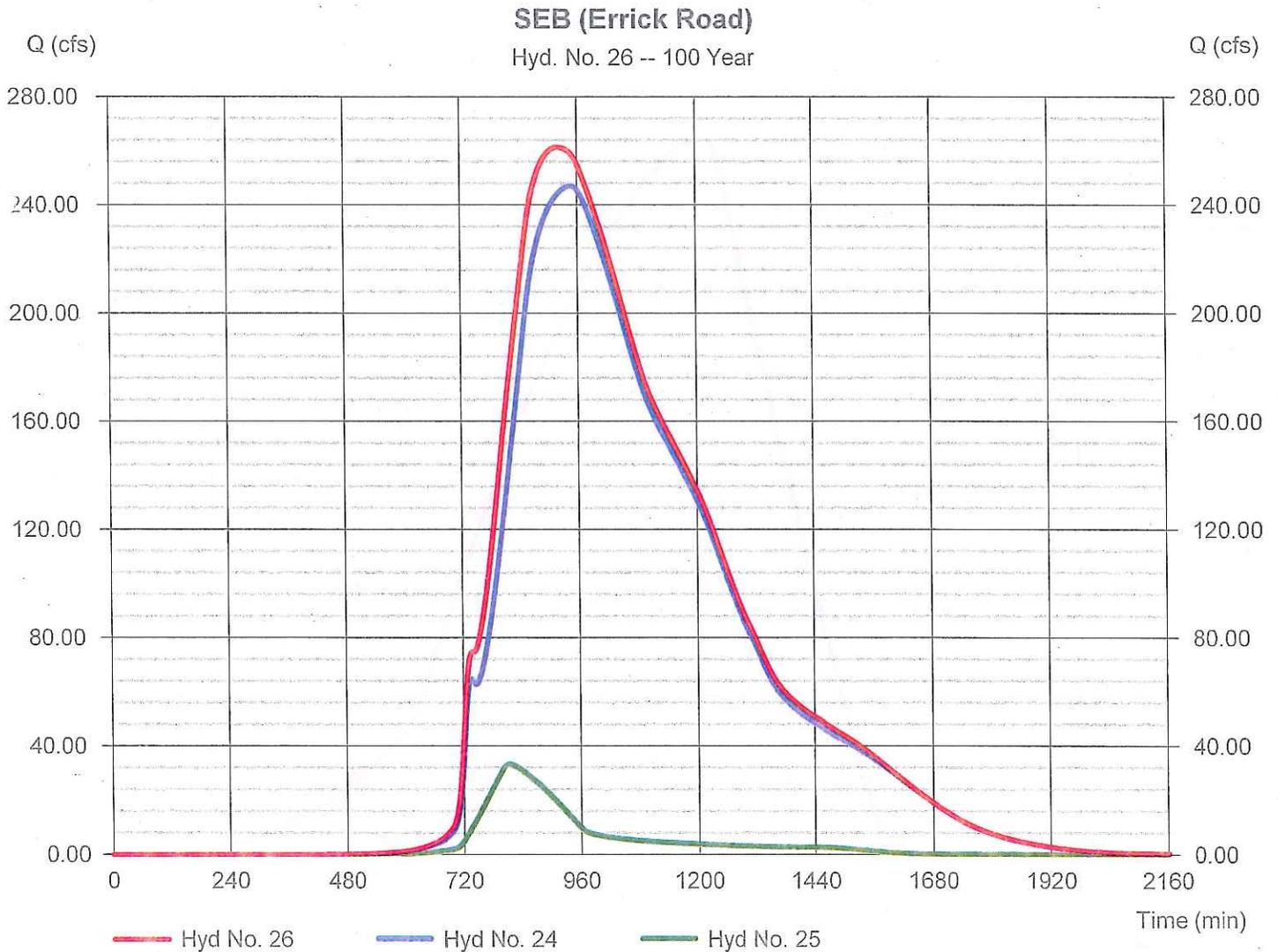
Thursday, 01 / 28 / 2016

Hyd. No. 26

SEB (Errick Road)

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 2 min
 Inflow hyds. = 24, 25

Peak discharge = 261.33 cfs
 Time to peak = 920 min
 Hyd. volume = 7,341,314 cuft
 Contrib. drain. area = 51.000 ac



Hydrograph Report

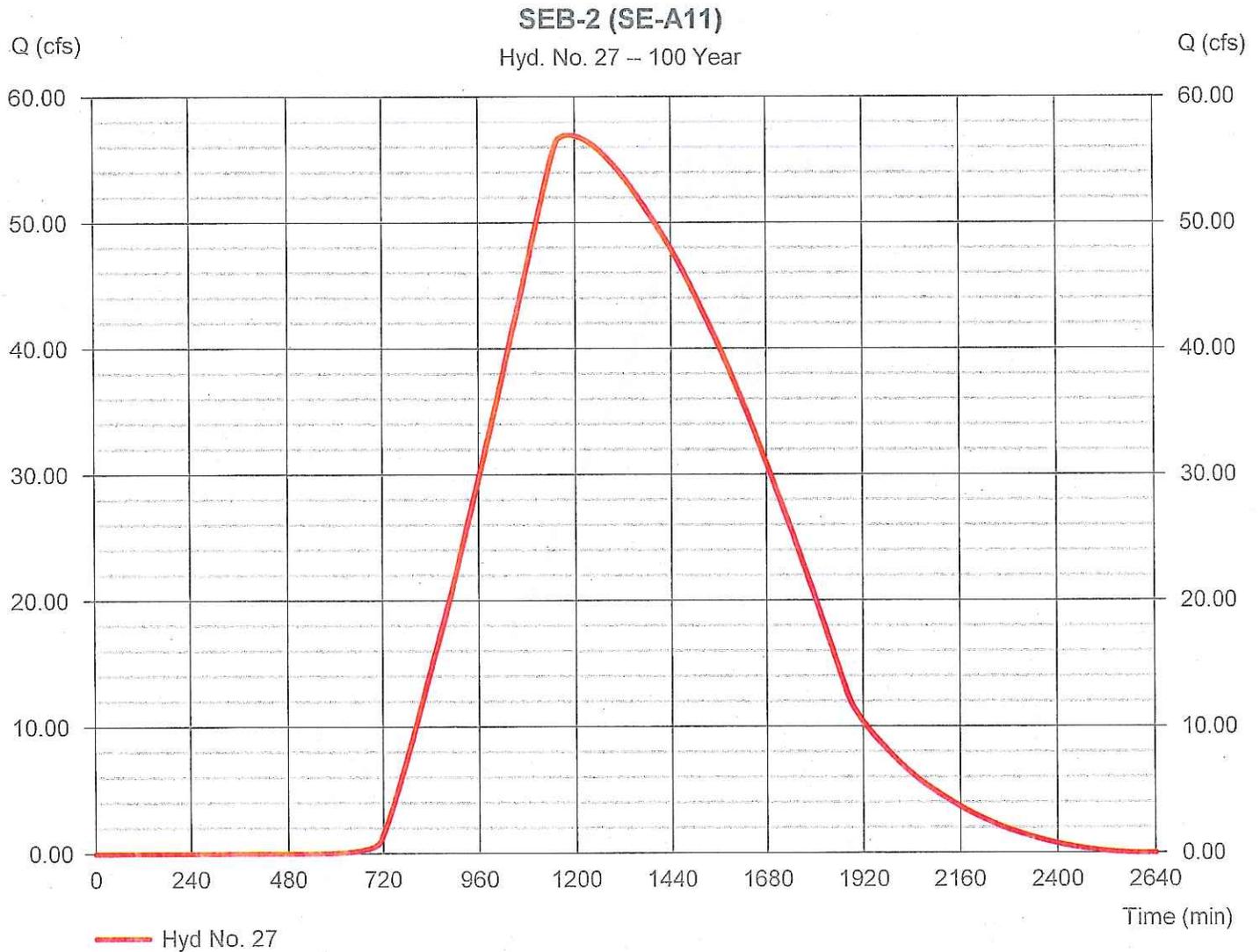
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 27

SEB-2 (SE-A11)

Hydrograph type	= SCS Runoff	Peak discharge	= 56.93 cfs
Storm frequency	= 100 yrs	Time to peak	= 1186 min
Time interval	= 2 min	Hyd. volume	= 2,634,597 cuft
Drainage area	= 296.000 ac	Curve number	= 76
Basin Slope	= 0.1 %	Hydraulic length	= 6200 ft
Tc method	= User	Time of conc. (Tc)	= 750.00 min
Total precip.	= 4.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

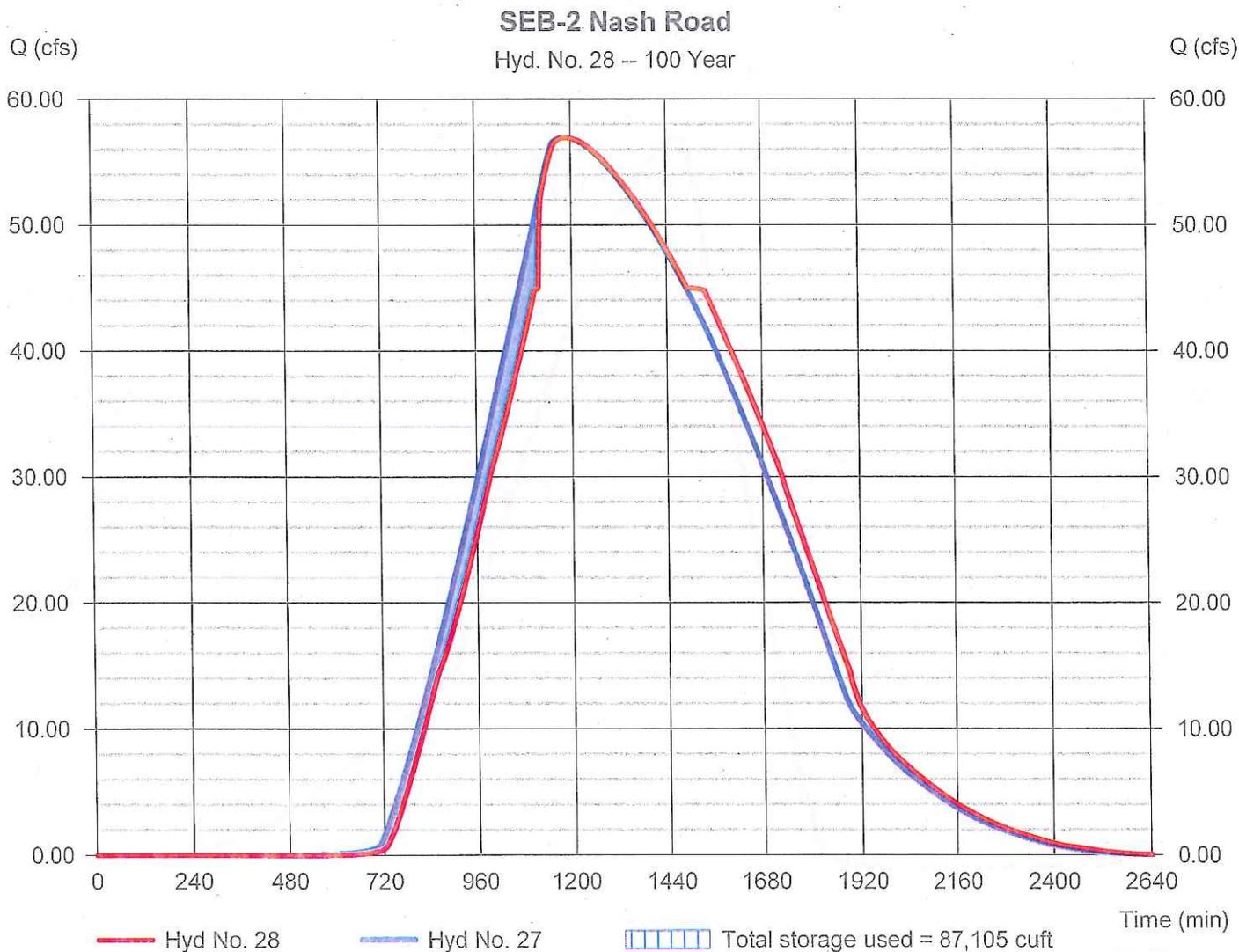
Thursday, 01 / 28 / 2016

Hyd. No. 28

SEB-2 Nash Road

Hydrograph type	= Reservoir	Peak discharge	= 56.93 cfs
Storm frequency	= 100 yrs	Time to peak	= 1188 min
Time interval	= 2 min	Hyd. volume	= 2,634,592 cuft
Inflow hyd. No.	= 27 - SEB-2 (SE-A11)	Max. Elevation	= 585.04 ft
Reservoir name	= SEB-2 Nash Road	Max. Storage	= 87,105 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

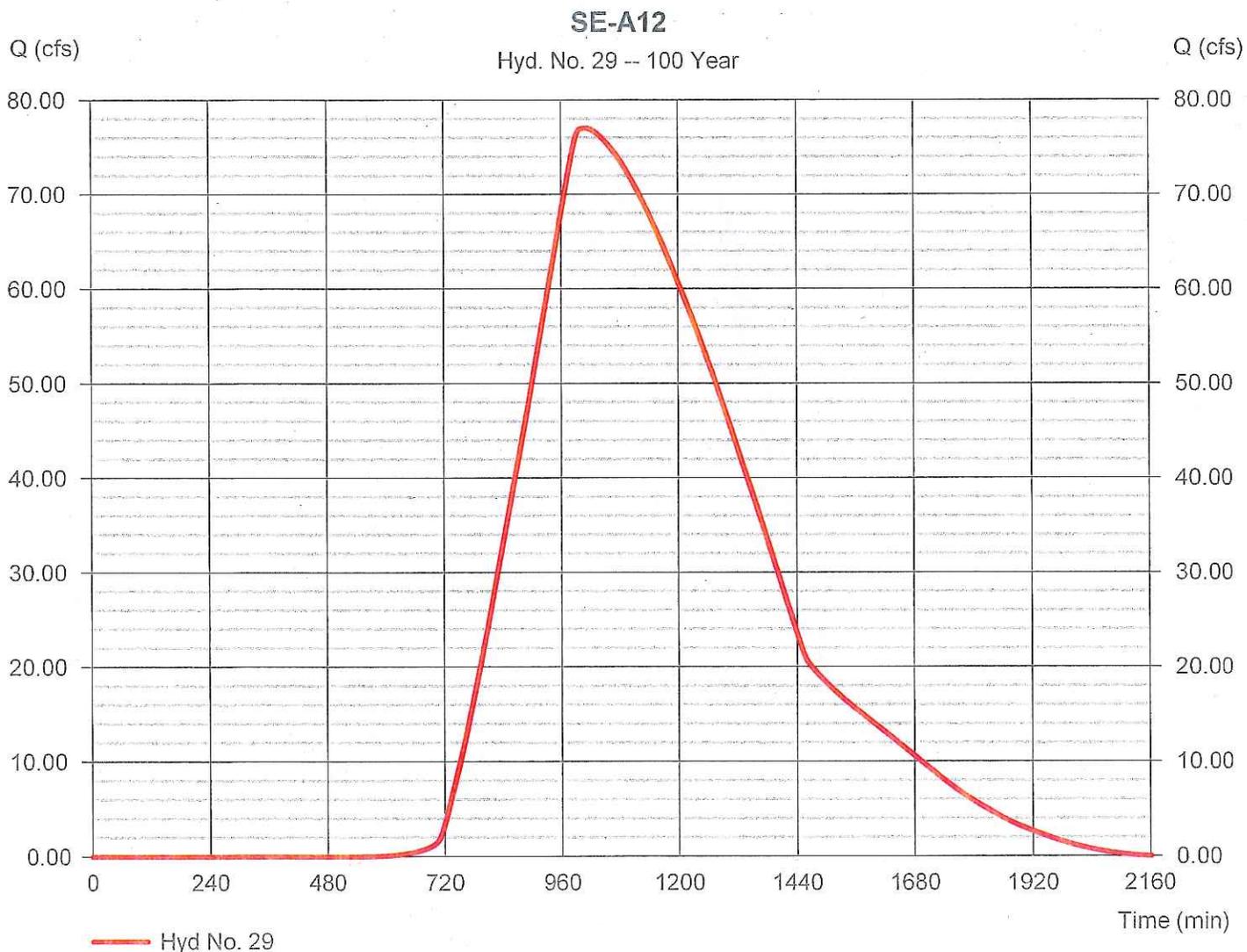
Thursday, 01 / 28 / 2016

Hyd. No. 29

SE-A12

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 2 min
 Drainage area = 278.000 ac
 Basin Slope = 0.1 %
 Tc method = User
 Total precip. = 4.90 in
 Storm duration = 24 hrs

Peak discharge = 77.02 cfs
 Time to peak = 1008 min
 Hyd. volume = 2,473,570 cuft
 Curve number = 76
 Hydraulic length = 3500 ft
 Time of conc. (Tc) = 475.00 min
 Distribution = Type II
 Shape factor = 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

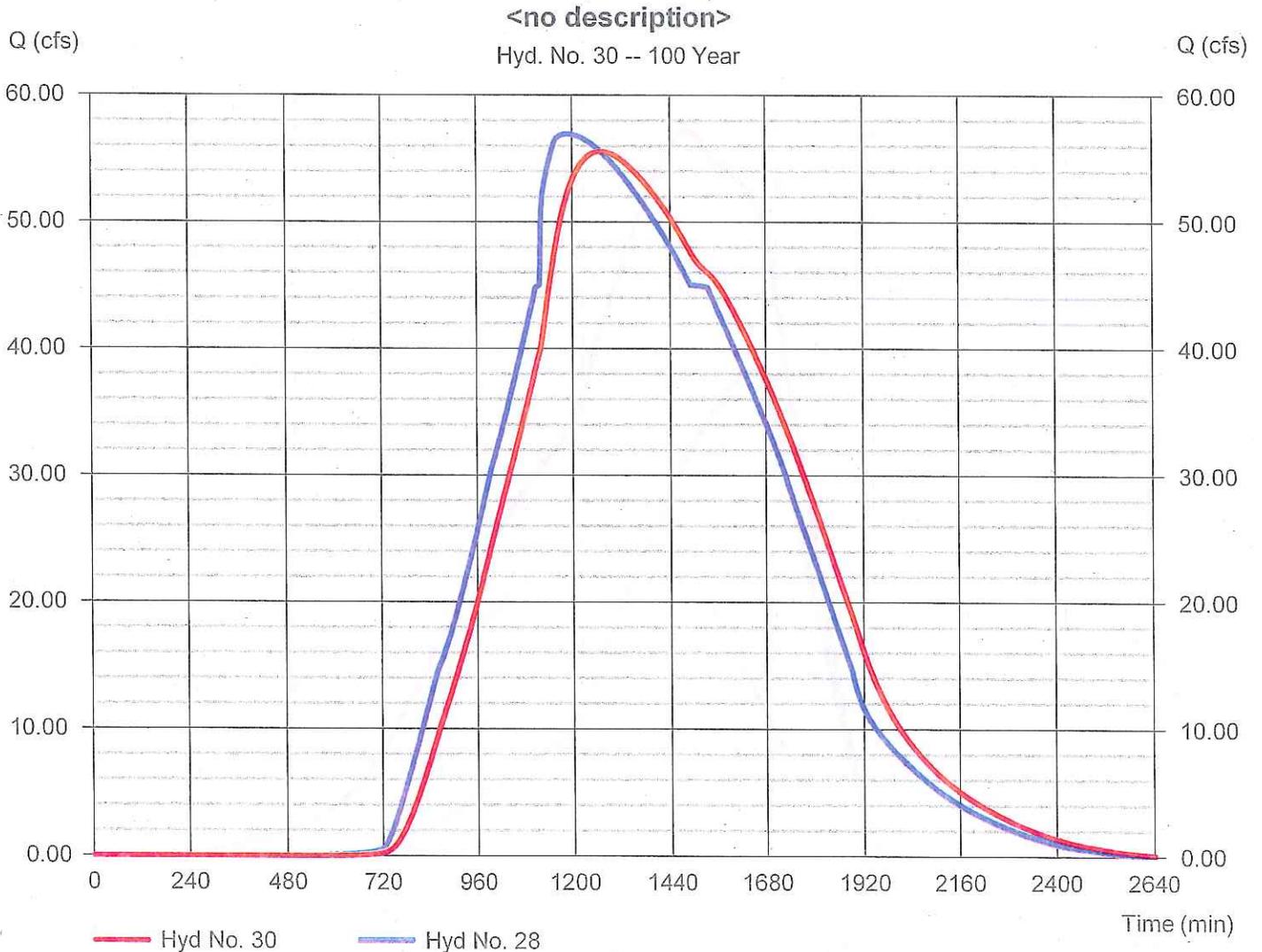
Thursday, 01 / 28 / 2016

Hyd. No. 30

<no description>

Hydrograph type	= Reach	Peak discharge	= 55.57 cfs
Storm frequency	= 100 yrs	Time to peak	= 1270 min
Time interval	= 2 min	Hyd. volume	= 2,634,569 cuft
Inflow hyd. No.	= 28 - SEB-2 Nash Road	Section type	= Trapezoidal
Reach length	= 3500.0 ft	Channel slope	= 0.1 %
Manning's n	= 0.045	Bottom width	= 20.0 ft
Side slope	= 2.0:1	Max. depth	= 3.0 ft
Rating curve x	= 0.100	Rating curve m	= 1.504
Ave. velocity	= 0.00 ft/s	Routing coeff.	= 0.0424

Modified Att-Kin routing method used.



Hydrograph Report

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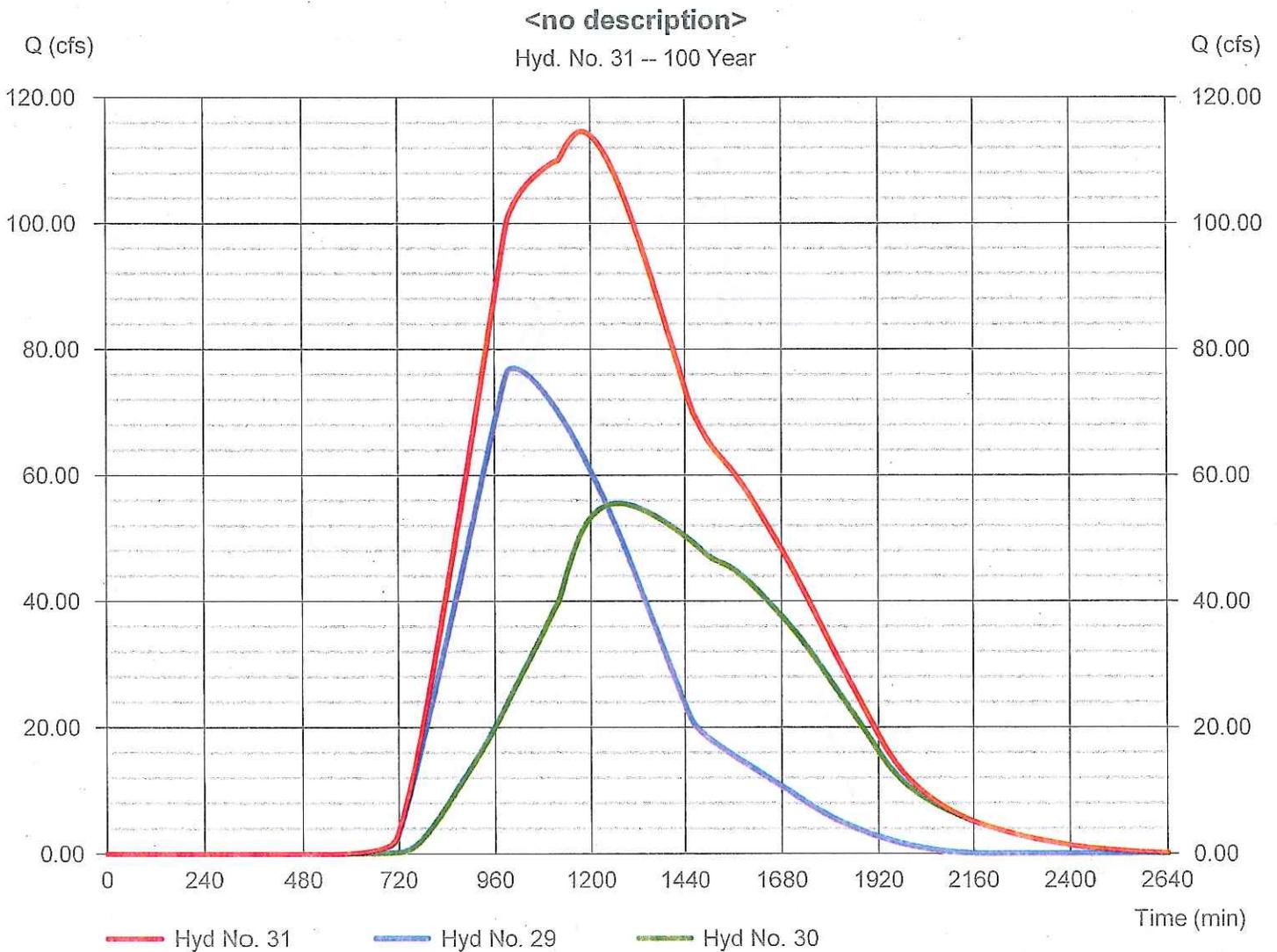
Thursday, 01 / 28 / 2016

Hyd. No. 31

<no description>

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 2 min
 Inflow hyds. = 29, 30

Peak discharge = 114.61 cfs
 Time to peak = 1178 min
 Hyd. volume = 5,108,133 cuft
 Contrib. drain. area = 278.000 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Thursday, 01 / 28 / 2016

Hyd. No. 32

SEB (Marc Dr)

Hydrograph type	= Combine	Peak discharge	= 343.28 cfs
Storm frequency	= 100 yrs	Time to peak	= 958 min
Time interval	= 2 min	Hyd. volume	= 12,449,430 cuft
Inflow hyds.	= 26, 31	Contrib. drain. area	= 0.000 ac

