SITE ENGINEERING DESIGN REPORT

Proposed
Apartment Building
Shelton, Connecticut
Job No. 2658

Prepared For:
S & G Hauling, Inc.

Prepared By:

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February 24, 2022

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Project Engineer

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INTRODUCTION:

S & G Hauling, Inc. is proposing the construction of a new residential apartment building located at 301 Old Bridgeport Avenue in Shelton, CT. The building and parking area will replace the former building and paved areas on the existing lot.

The site is located at 301 Old Bridgeport Avenue in Shelton, which is currently a developed lot with an existing 2 story structure and asphalt parking area. Currently the site is accessed from Sunwood Drive off of Old Bridgeport Avenue. A new proposed driveway entrance into the proposed off-street parking area will be provided from Sunwood Drive. The project site area will encompass approximately 1.4 acres of the lot.

Generally the site slopes from west to east towards an existing wetlands area located in the north-central portion of the lot. This wetlands area eventually drains to the east of the lot into Burying Ground Brook. The proposed project seeks to develop a portion of the existing wetlands area located in the north central area of the site, and will create a new wetlands area located towards the south-east corner of the lot.

EXISTING STORM WATER RUNOFF

For analysis purposes the site disturbance area has been examined as a single drainage area. This single drainage area will be referred to as EDA-1 for the balance of this report.

EDA-1 drains storm water via sheet flow over paved and other impervious surfaces as well as over lawn and wooded areas, until it reaches the wetland areas located in the south-eastern corner of the lot. The wetlands drain into Burying Ground Brook to the south-eastern corner of the lot.

Peak rates of storm water runoff, for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year storm events have been calculated for the existing site (See Table 1 below). The supporting calculations are included as Appendix A. These calculations are based on U.S. Soil Conservation Service methodology (TR-55).

These existing flows will later be compared to post development flows as a means of assessing the impact of the proposed project on surrounding infrastructures.

TABLE 1

Existing Flows (CFS)

Existing Runoff from area to be developed

	Da-Ex				
2-year	5-year	10-year,	25-year	50-year	100-year
0.87	1.71	2.38	3.09	3.09	4.72

PROPOSED STORM WATER DRAINAGE

The storm water control system was designed to minimize the impact on the surrounding infrastructure. This was achieved by routing catch basins and roof leaders to underground storm water storage on site. The site was divided into two separate drainage area; Proposed Drainage Area-1 and Proposed Drainage Area-2. PDA-1 will drain the majority of the proposed impervious area via catch basins and roof leaders and will be routed through the underground storm water storage system. This system will eventually drain to the proposed wetland area. PDA-2 will drain water from the existing wetland area located to the north of the proposed building and will discharge into the proposed wetlands area.

Design details for these systems are presented on Sheet SP-2 (part of the overall Project Documents). The system will drain the roof on site, all paved areas, sidewalks, and grassy areas that contribute runoff to the system. The roof and paved parking areas will be the major element of the total impervious area on the site. (Calculations included as Appendix A) The roof, grassy areas, sidewalks and driveways will contribute to the runoff totals seen in table 2. Storm water flow has been reduced by routing the on-site drainage system through a storm water infiltration system. Additionally, this system located on the east side of the site has been sized to collect the storm water quality volume required for the proposed site. (See calculations below)

TABLE 2

Proposed Flows (CFS) for new condition

Da-Ex

Existing:	2-year	5-year	10-year,	25-year	50-year	100-year
	0.87	1.71	2.38	3.09	3.09	4.72
Proposed:	2-year	5-year	10-year,	25-year	50-year	100-year
	0.86	1.44	1.87	2.30	3.05	4.69
REDUCTION:						
	1.1%	15.8%	21.4%	25.5%	1.3%	0.6%

WATER QUALITY VOLUME COMPUTATION:
Residential = 56,630 SF
WQV= (P*Rv*A); Rv = 0.05+0.009*I
Where P= 1" storm, I = % impervious, A = Area
WQV = (1*0.652*56,630) / 12 = 3,078 C.F.
Provided = 8,135 C.F.

SANITARY SEWER

Sanitary Sewer discharge will be through a proposed 6-inch PVC sanitary sewer line to an existing sanitary line that cuts through the north-eastern corner of the site.

Using the technical standards of the CT Public Health Code, the estimated sewage flow is 150 gallons per day per bedroom. This apartment development will have 43 bedrooms:

150 gallons per day per bedroom
43 bdrms x 150 = 6,450 gallons per day average flow
Average Daily Flow = 4.48 gallons per minute

Peak flow estimate = 4.48 x 4 (peaking factor)

= 17.9 gpm peak

Other Utilities

Electrical service will connect from an existing pole on Sunwood Drive. Water & gas services will be from existing mains within the Sunwood Drive right-of-way.

APPENDIX A
STAGE HYDROGRAPHS
DRAINAGE AREA MAPS

Hydraflow Table of Contents

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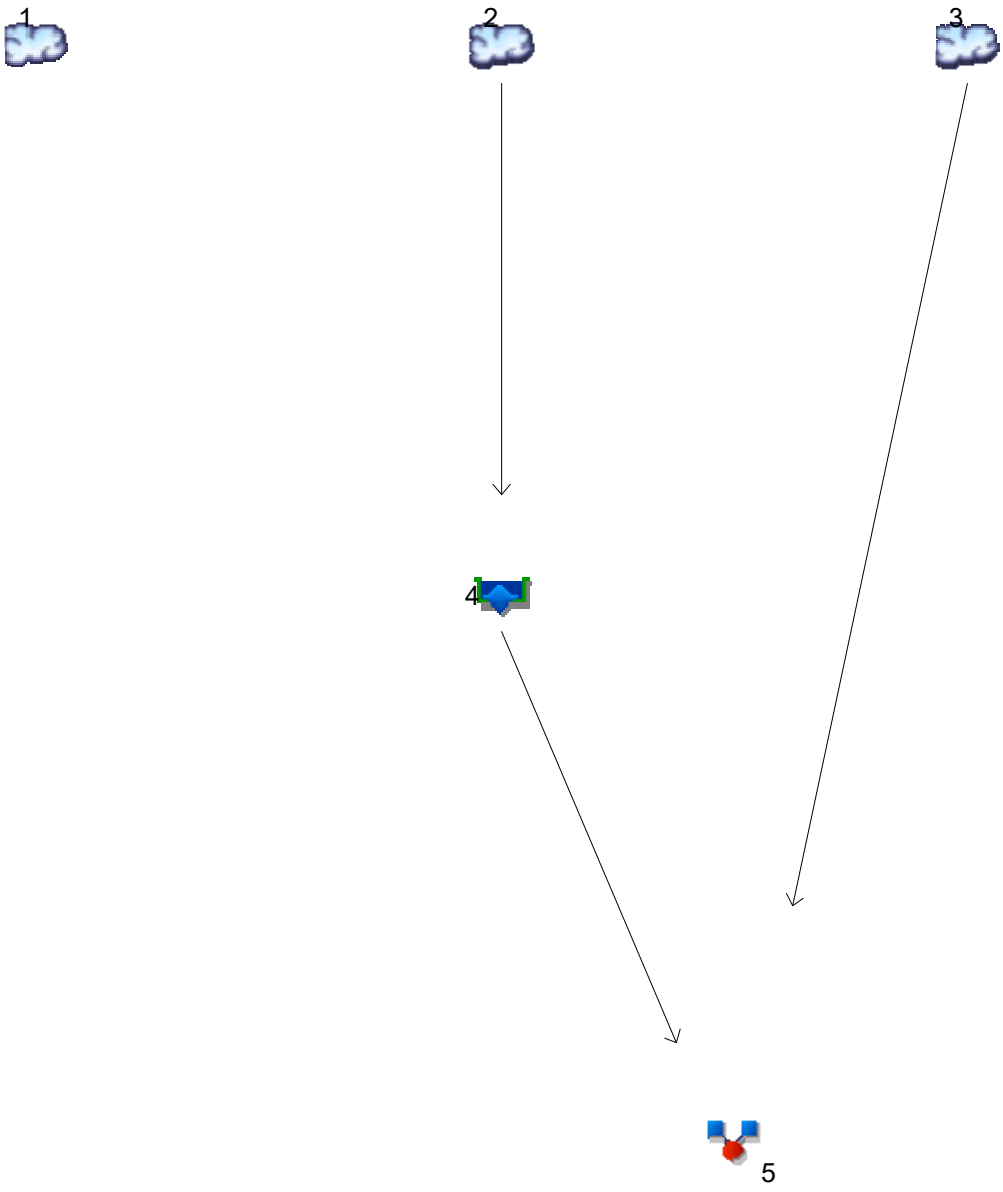
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 02 / 22 / 2022

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020



Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	0.870	-------	1.707	2.375	3.085	3.828	4.716	EDA-1
2	SCS Runoff	------	-------	2.636	-------	3.841	4.693	5.546	6.398	7.370	PDA-1
3	SCS Runoff	------	-------	0.449	-------	0.868	1.193	1.537	1.896	2.326	PDA-2
4	Reservoir	2	-------	0.519	-------	0.715	0.833	1.159	1.878	2.904	CONC. GALLERIES
5	Combine	3, 4	-------	0.886	-------	1.465	1.894	2.334	3.049	4.667	TOTAL PROPOSED DRAINAGE

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.870	2	746	5,293	------	------	------	EDA-1
2	SCS Runoff	2.636	2	726	9,002	------	------	------	PDA-1
3	SCS Runoff	0.449	2	730	1,975	------	------	------	PDA-2
4	Reservoir	0.519	2	750	3,064	2	199.14	2,797	CONC. GALLERIES
5	Combine	0.886	2	734	5,039	3, 4	------	------	TOTAL PROPOSED DRAINAGE

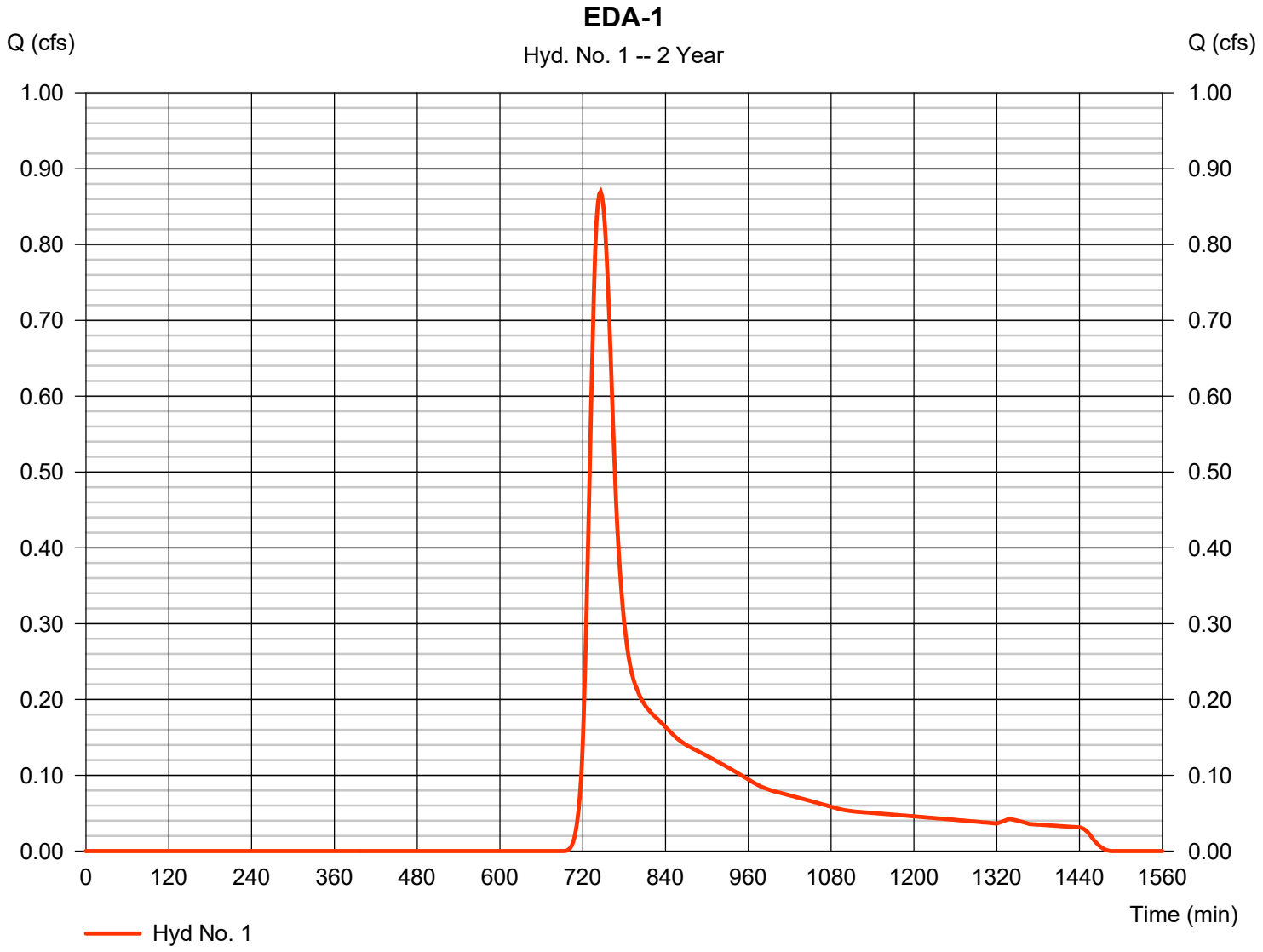
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.870 cfs
Storm frequency	=	2 yrs	Time to peak	=	746 min
Time interval	=	2 min	Hyd. volume	=	5,293 cuft
Drainage area	=	1.970 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.90 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.310 x 98) + (1.660 x 61)] / 1.970



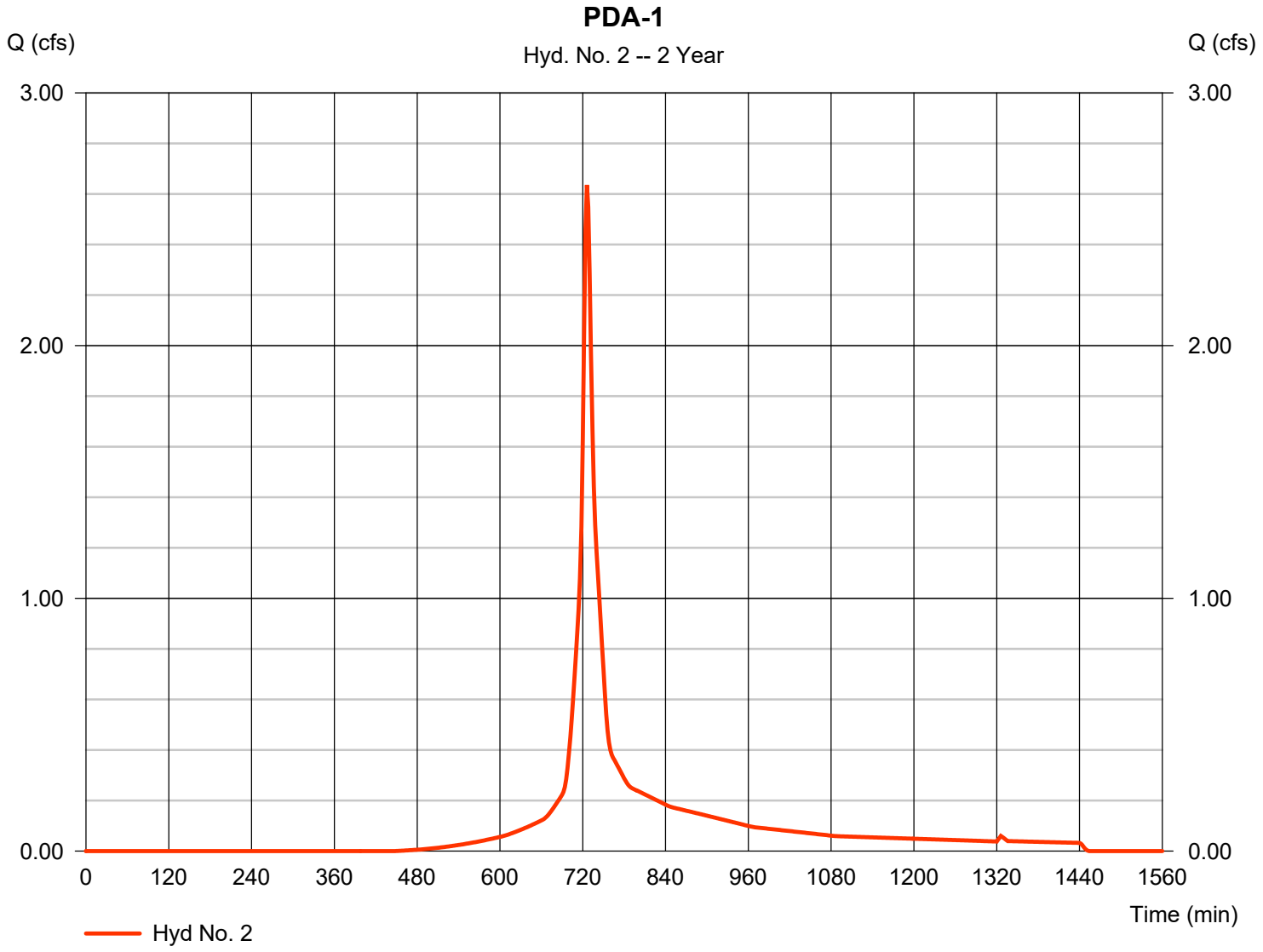
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.636 cfs
Storm frequency	=	2 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	9,002 cuft
Drainage area	=	1.290 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.870 x 98) + (0.420 x 61)] / 1.290



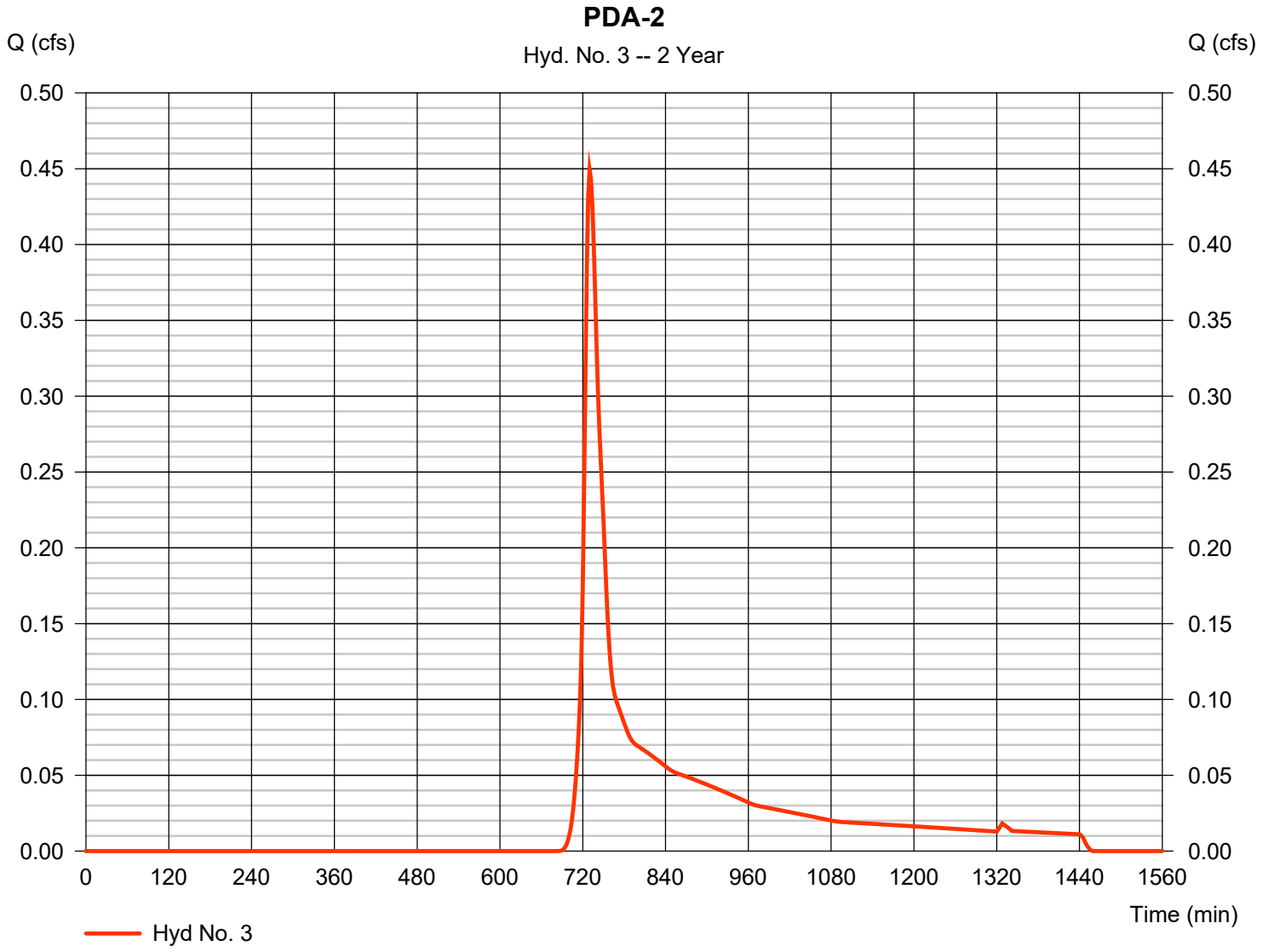
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.449 cfs
Storm frequency	=	2 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	1,975 cuft
Drainage area	=	0.670 ac	Curve number	=	68*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.60 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.550 x 61) + (0.120 x 98)] / 0.670



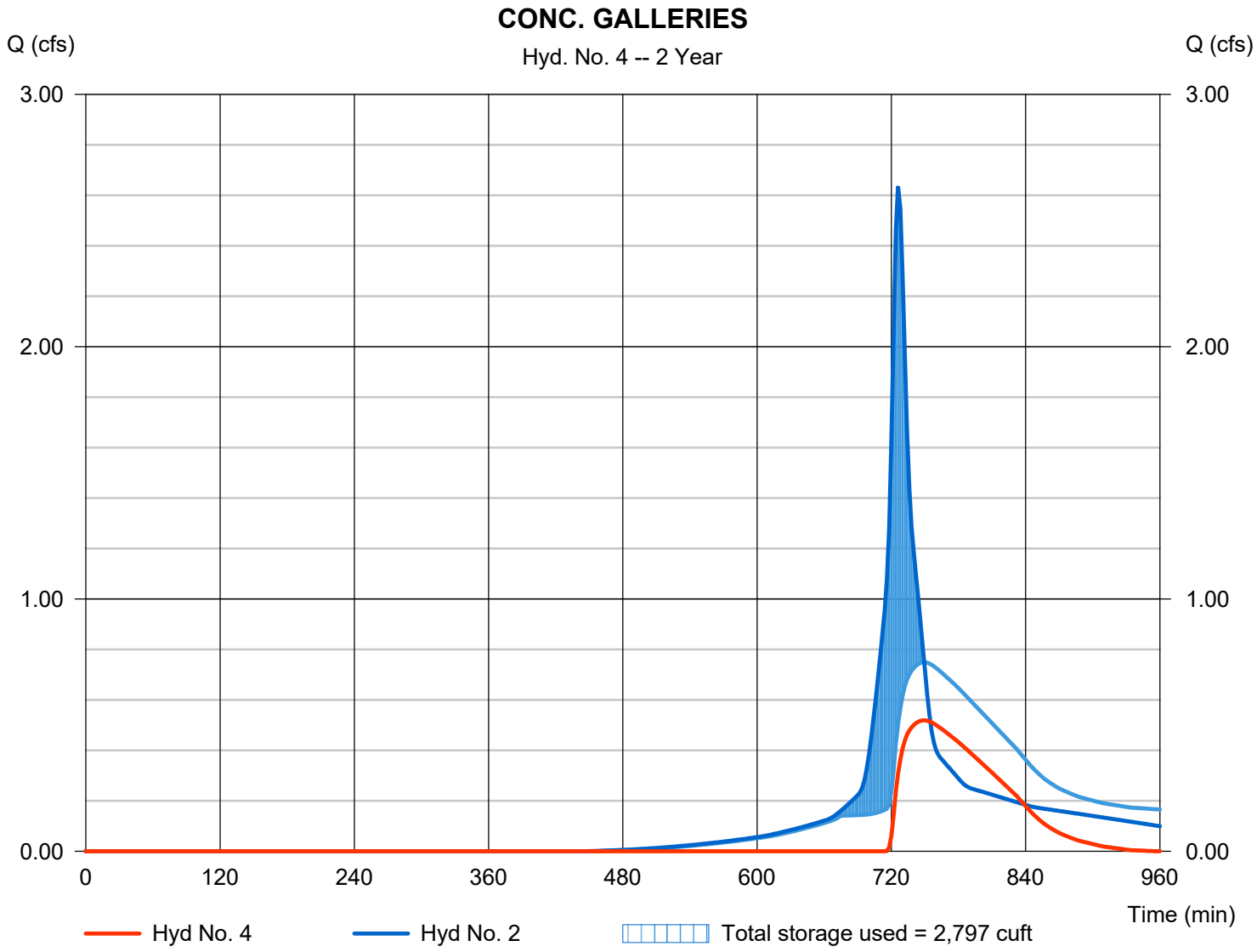
Hydrograph Report

Hyd. No. 4

CONC. GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	0.519 cfs
Storm frequency	=	2 yrs	Time to peak	=	750 min
Time interval	=	2 min	Hyd. volume	=	3,064 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	199.14 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	2,797 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 1 - 4' X 4' CONC. CHAMBERS

Pond Data

UG Chambers -Invert elev. = 198.00 ft, Rise x Span = 4.00 x 4.00 ft, Barrel Len = 400.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 197.50 ft, Width = 5.00 ft, Height = 4.50 ft, Voids = 66.67%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	197.50	n/a	0	0
0.45	197.95	n/a	600	600
0.90	198.40	n/a	814	1,414
1.35	198.85	n/a	840	2,254
1.80	199.30	n/a	840	3,094
2.25	199.75	n/a	840	3,934
2.70	200.20	n/a	840	4,774
3.15	200.65	n/a	840	5,615
3.60	201.10	n/a	840	6,455
4.05	201.55	n/a	840	7,295
4.50	202.00	n/a	840	8,135

Culvert / Orifice Structures

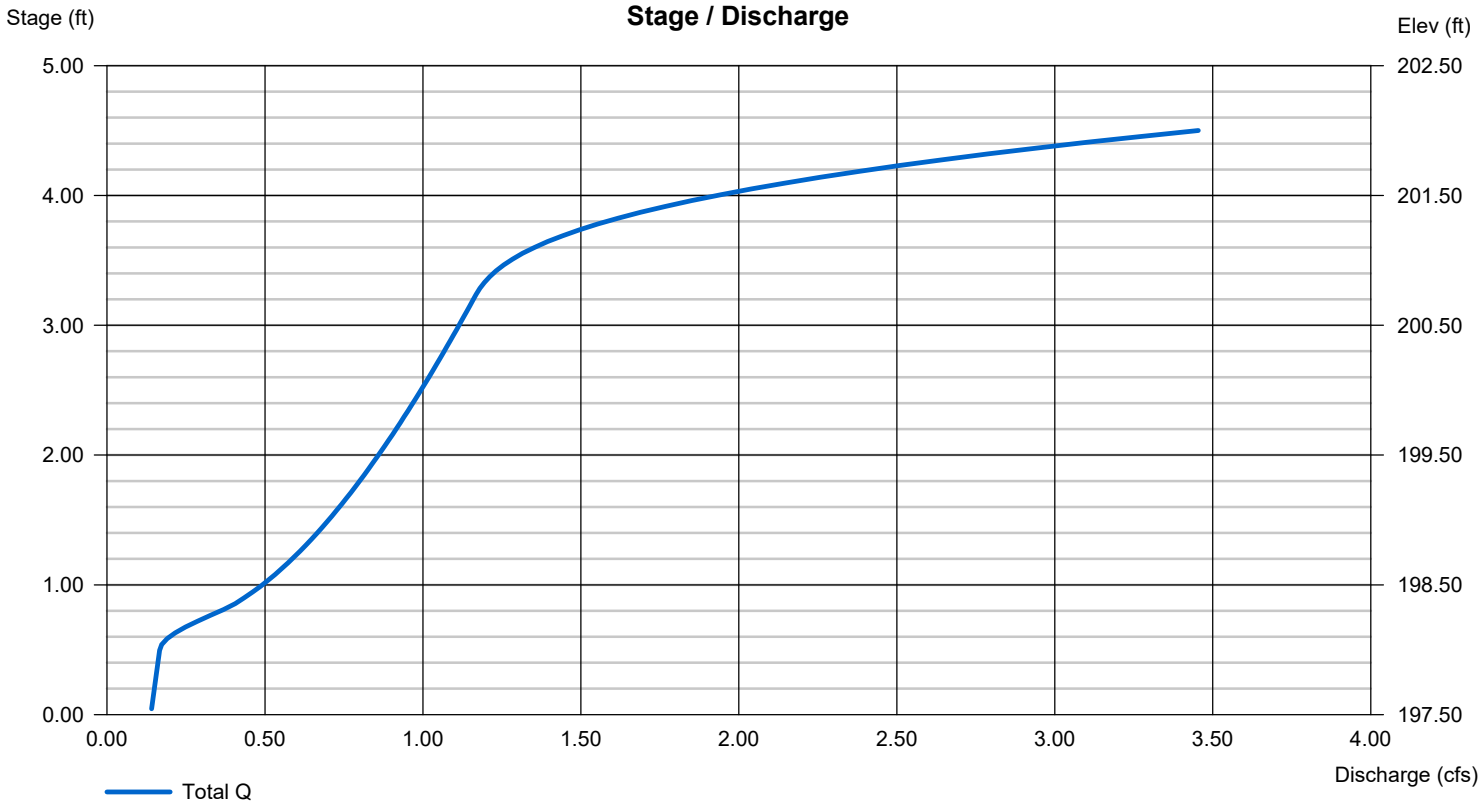
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	4.50	0.00	0.00
Span (in)	= 0.00	4.50	0.00	0.00
No. Barrels	= 0	1	0	0
Invert El. (ft)	= 0.00	198.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	200.70	0.00	0.00
Weir Coeff.	= 3.33	1.05	3.33	3.33
Weir Type	= ---	45 degV	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 3.000 (by Wet area)
TW Elev. (ft) = 0.00

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

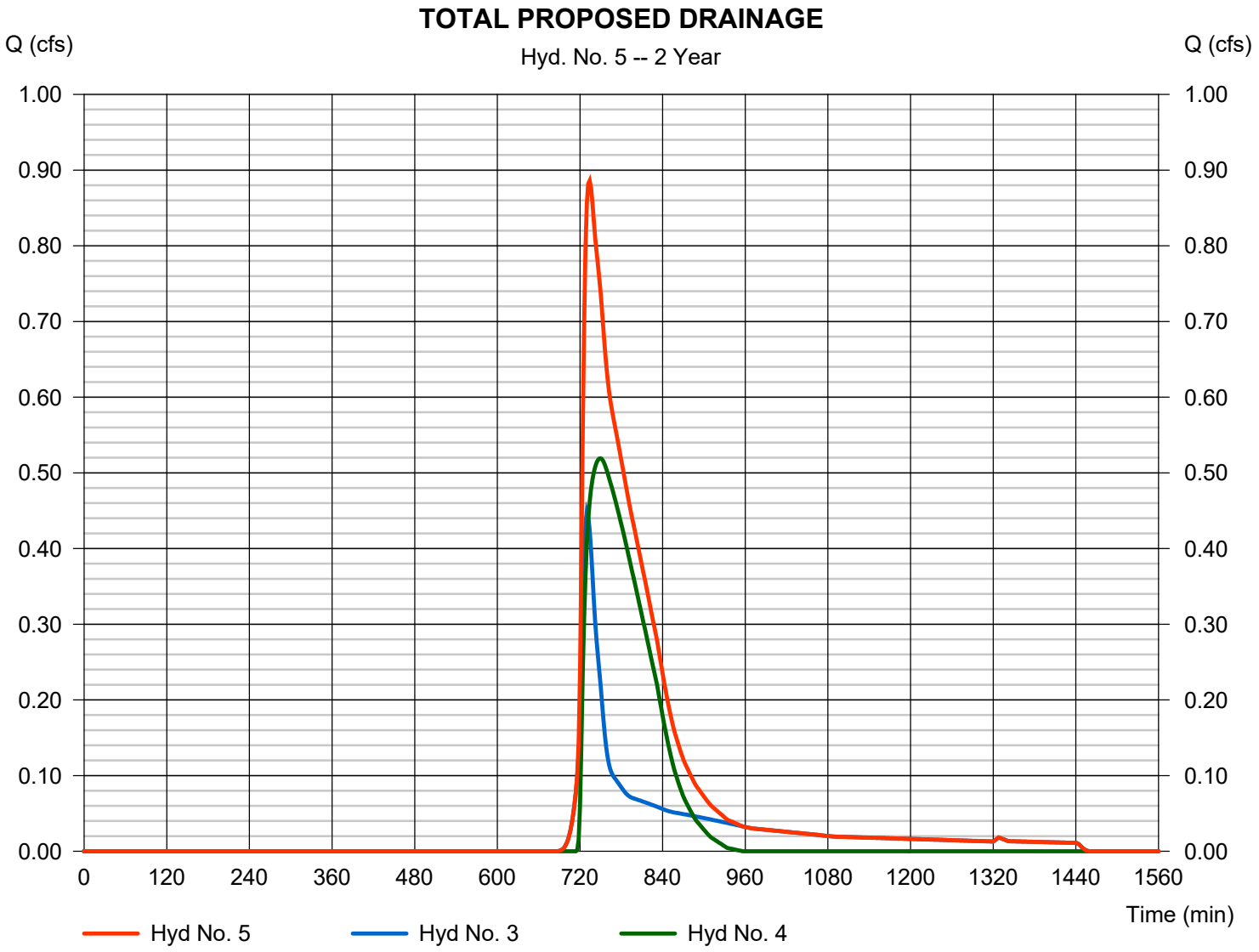


Hydrograph Report

Hyd. No. 5

TOTAL PROPOSED DRAINAGE

Hydrograph type	= Combine	Peak discharge	= 0.886 cfs
Storm frequency	= 2 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 5,039 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 0.670 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	1.707	2	742	9,536	------	------	------	EDA-1
2	SCS Runoff	3.841	2	726	13,203	------	------	------	PDA-1
3	SCS Runoff	0.868	2	730	3,509	------	------	------	PDA-2
4	Reservoir	0.715	2	750	5,643	2	200.00	4,393	CONC. GALLERIES
5	Combine	1.465	2	732	9,152	3, 4	------	------	TOTAL PROPOSED DRAINAGE

Hydrograph Report

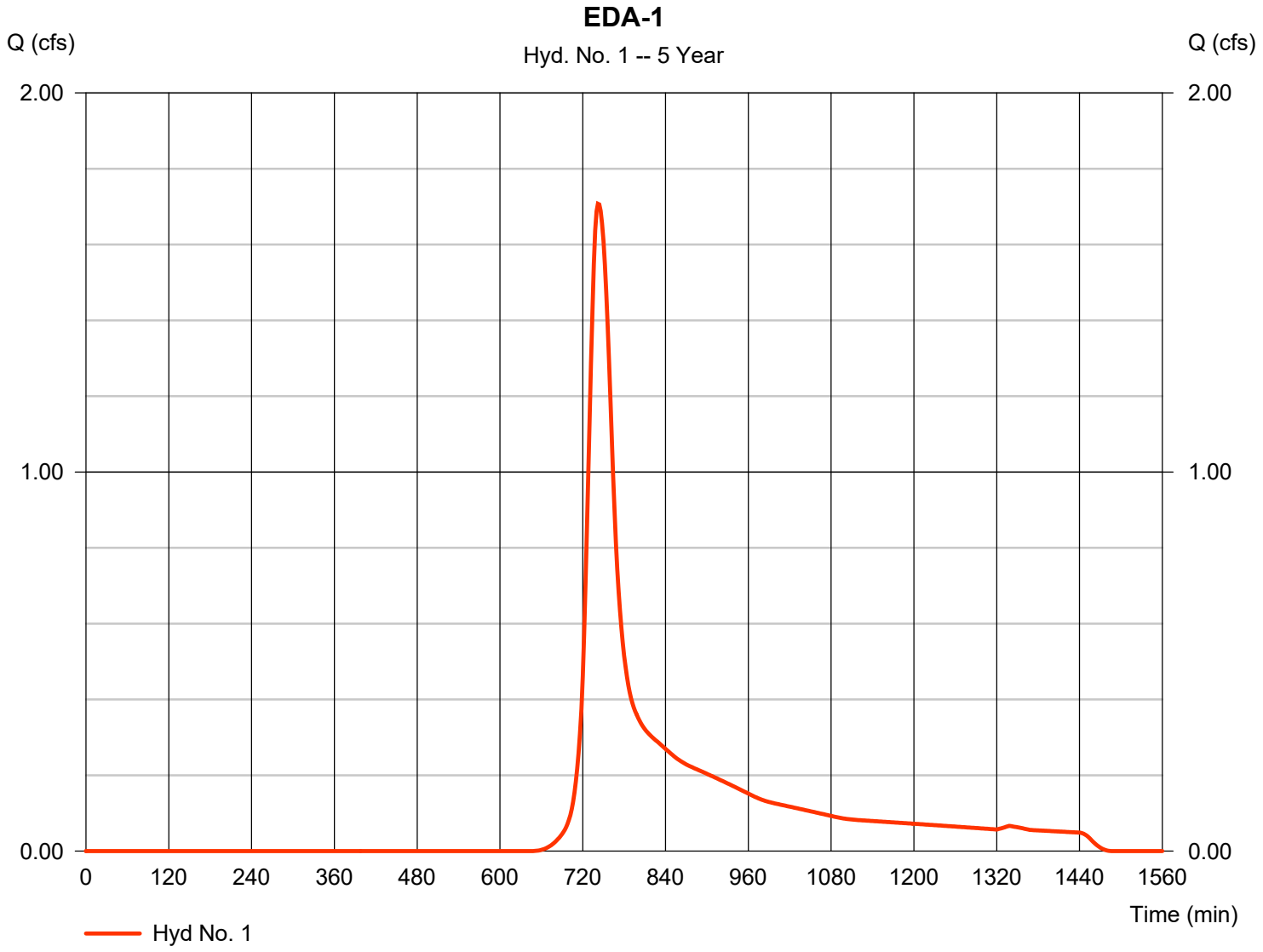
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 02 / 22 / 2022

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.707 cfs
Storm frequency	=	5 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	9,536 cuft
Drainage area	=	1.970 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.90 min
Total precip.	=	4.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.310 x 98) + (1.660 x 61)] / 1.970



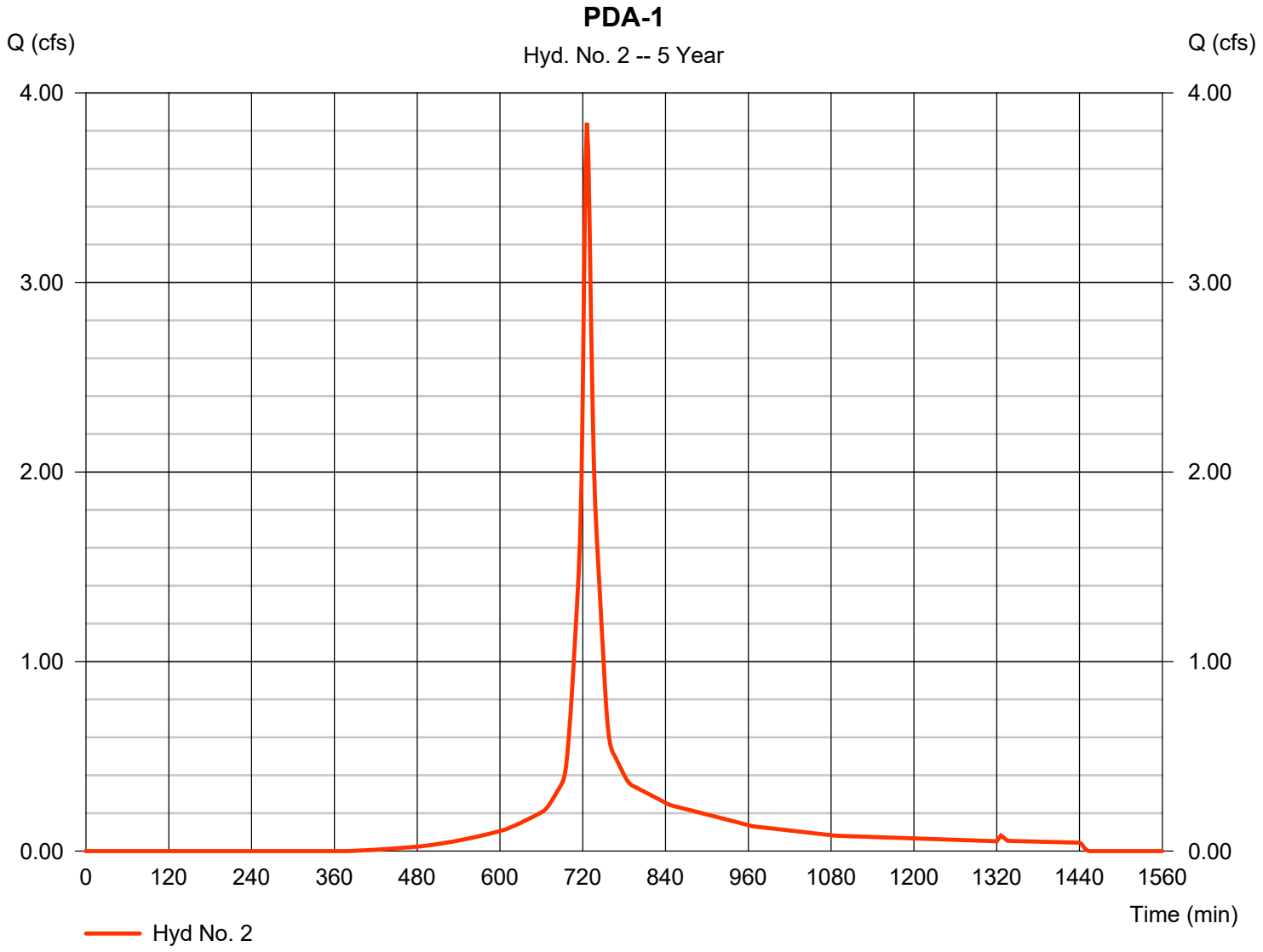
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.841 cfs
Storm frequency	=	5 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	13,203 cuft
Drainage area	=	1.290 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	4.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.870 x 98) + (0.420 x 61)] / 1.290



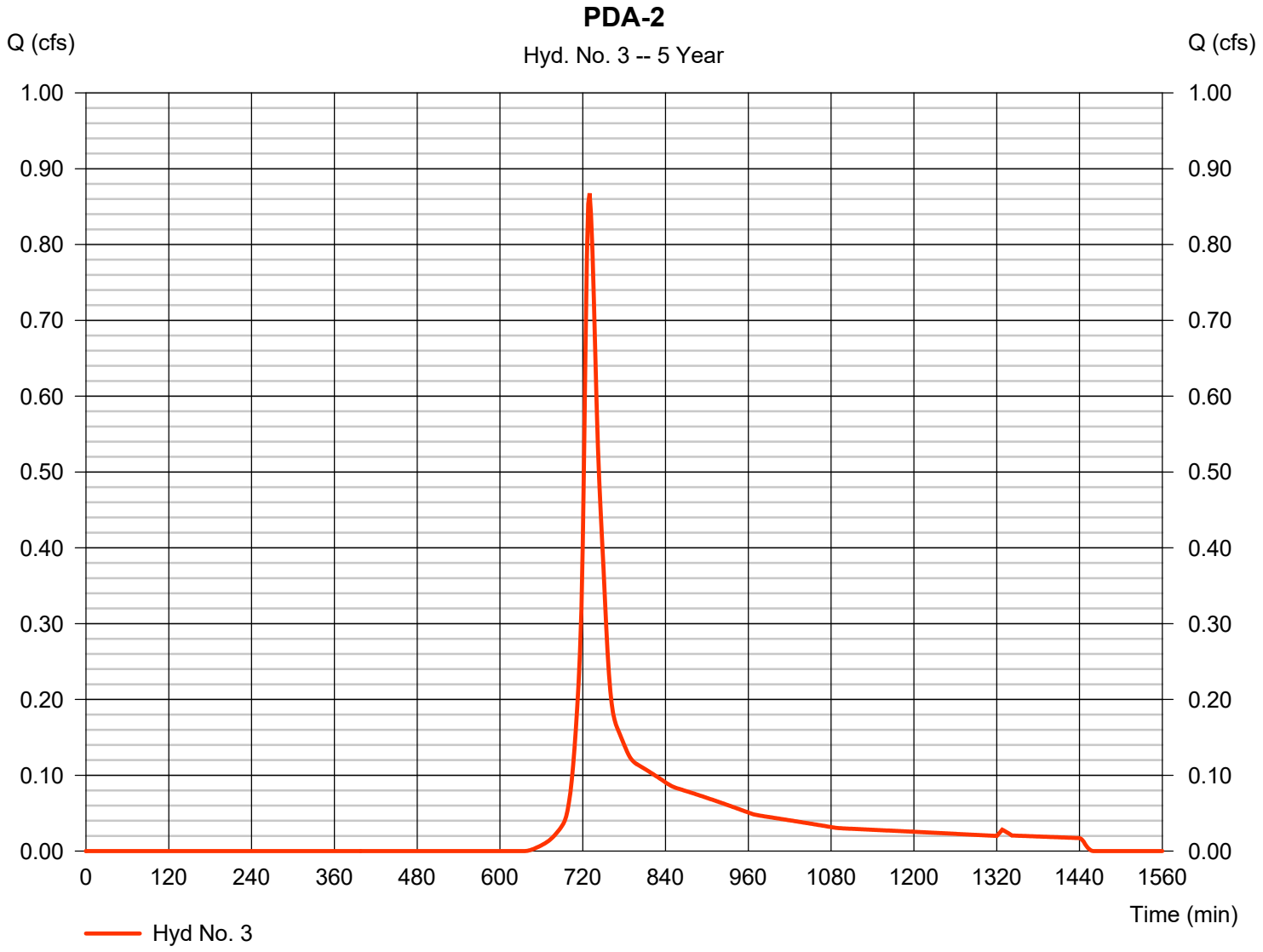
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.868 cfs
Storm frequency	=	5 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	3,509 cuft
Drainage area	=	0.670 ac	Curve number	=	68*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.60 min
Total precip.	=	4.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.550 x 61) + (0.120 x 98)] / 0.670



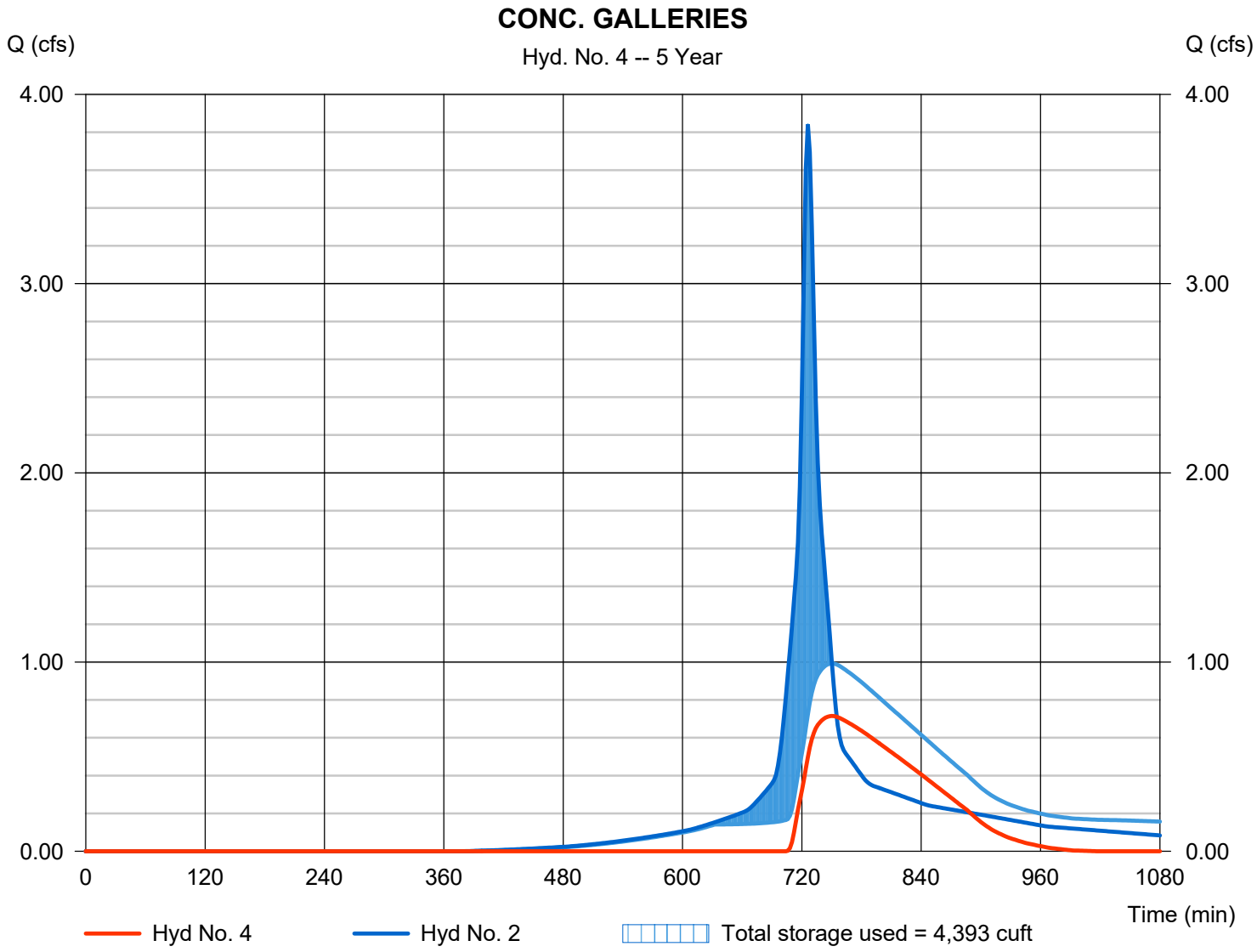
Hydrograph Report

Hyd. No. 4

CONC. GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	0.715 cfs
Storm frequency	=	5 yrs	Time to peak	=	750 min
Time interval	=	2 min	Hyd. volume	=	5,643 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	200.00 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	4,393 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

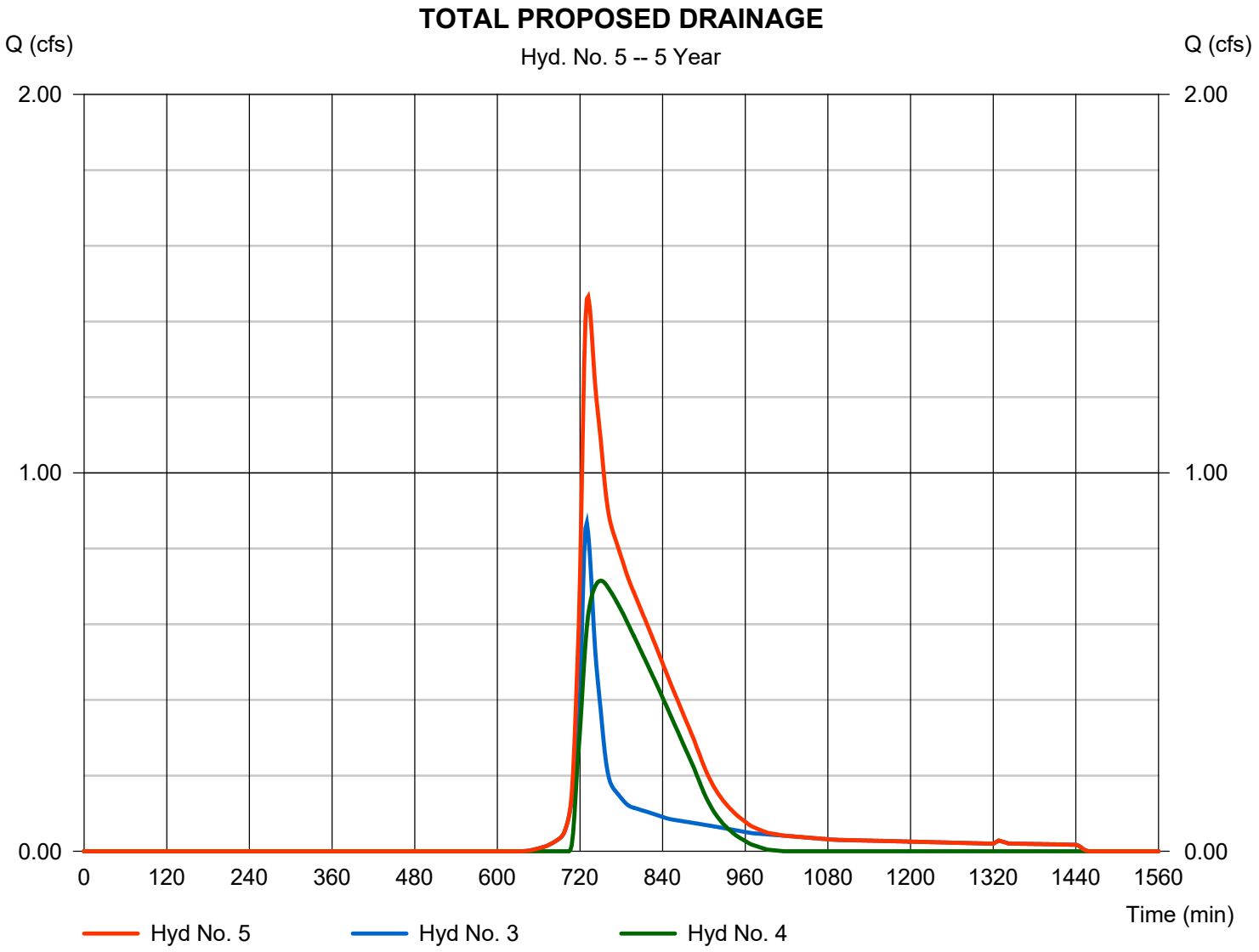


Hydrograph Report

Hyd. No. 5

TOTAL PROPOSED DRAINAGE

Hydrograph type	= Combine	Peak discharge	= 1.465 cfs
Storm frequency	= 5 yrs	Time to peak	= 732 min
Time interval	= 2 min	Hyd. volume	= 9,152 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 0.670 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	2.375	2	742	12,894	------	------	------	EDA-1
2	SCS Runoff	4.693	2	726	16,235	------	------	------	PDA-1
3	SCS Runoff	1.193	2	730	4,714	------	------	------	PDA-2
4	Reservoir	0.833	2	750	7,589	2	200.65	5,603	CONC. GALLERIES
5	Combine	1.894	2	730	12,303	3, 4	------	------	TOTAL PROPOSED DRAINAGE

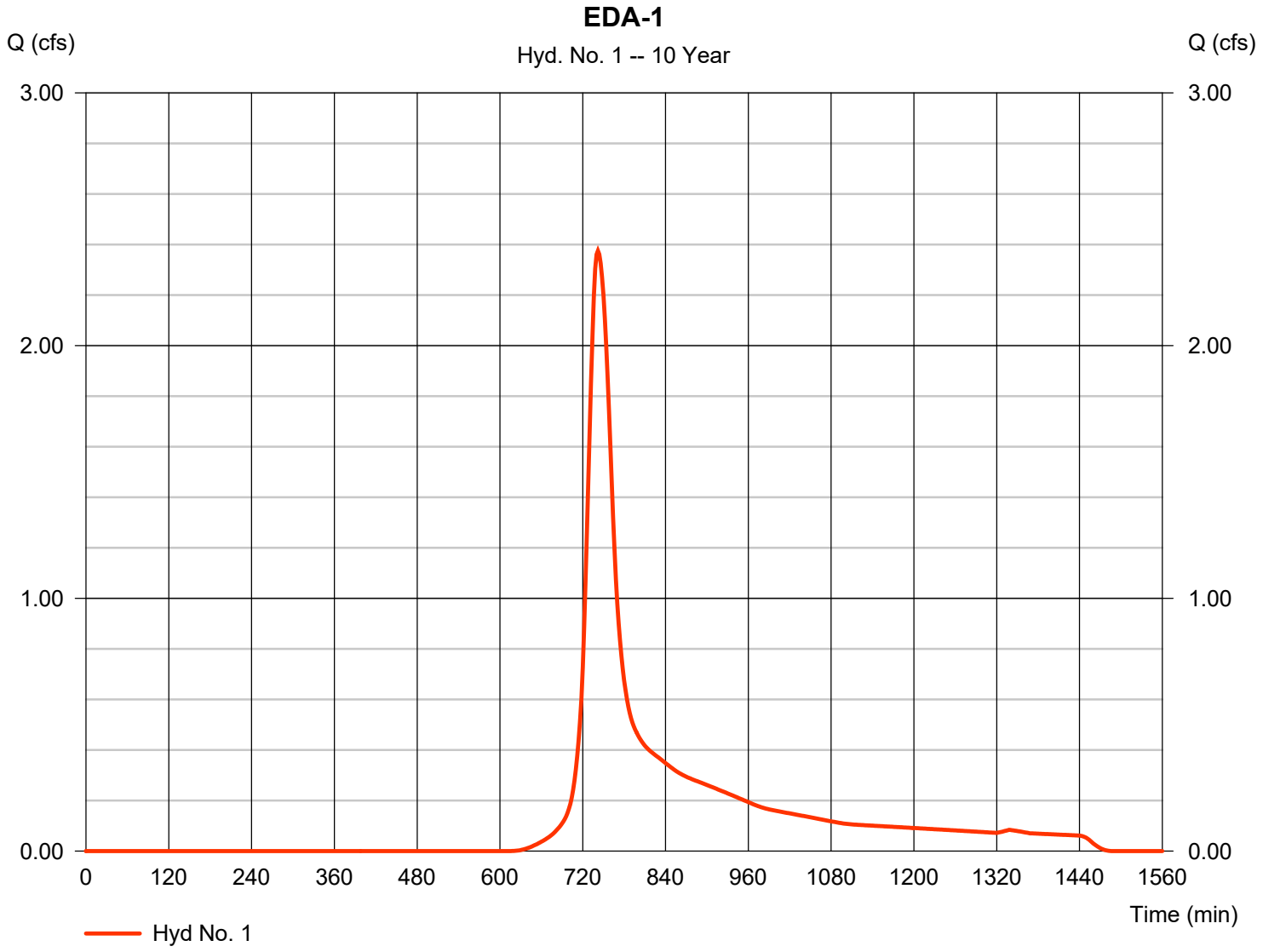
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.375 cfs
Storm frequency	=	10 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	12,894 cuft
Drainage area	=	1.970 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.90 min
Total precip.	=	5.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.310 x 98) + (1.660 x 61)] / 1.970



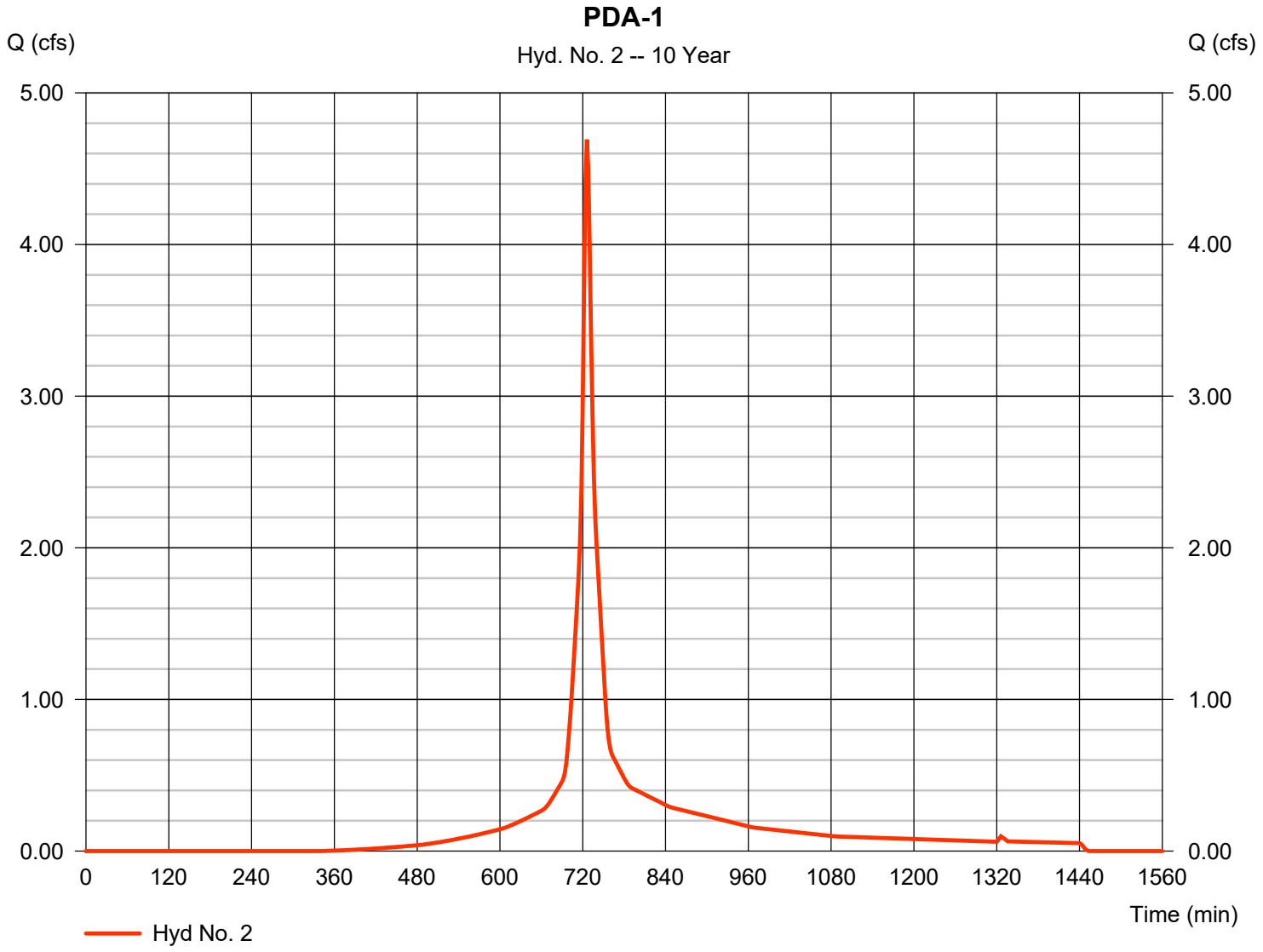
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	= SCS Runoff	Peak discharge	= 4.693 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 16,235 cuft
Drainage area	= 1.290 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.50 min
Total precip.	= 5.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.870 x 98) + (0.420 x 61)] / 1.290



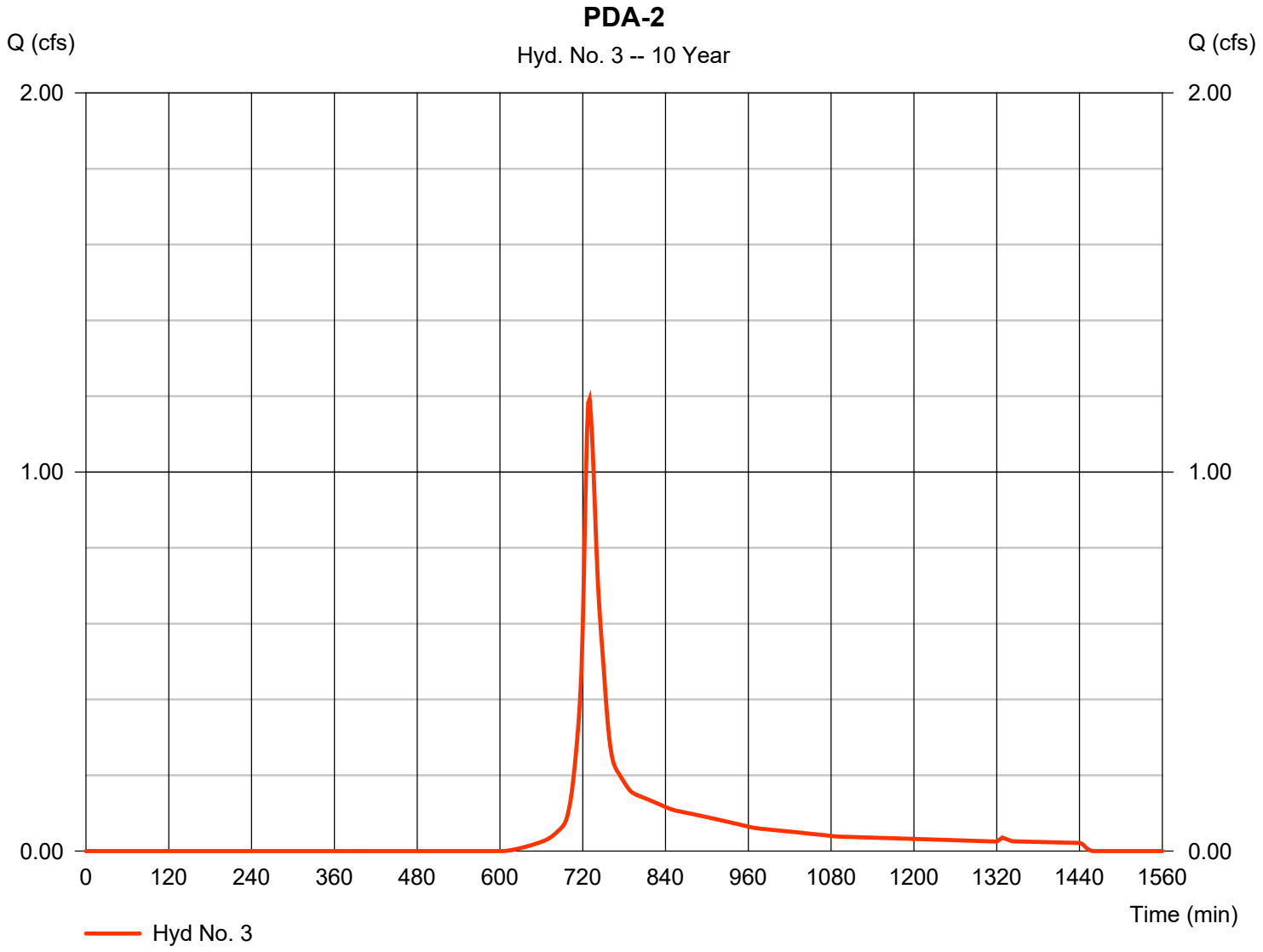
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.193 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	4,714 cuft
Drainage area	=	0.670 ac	Curve number	=	68*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.60 min
Total precip.	=	5.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.550 x 61) + (0.120 x 98)] / 0.670



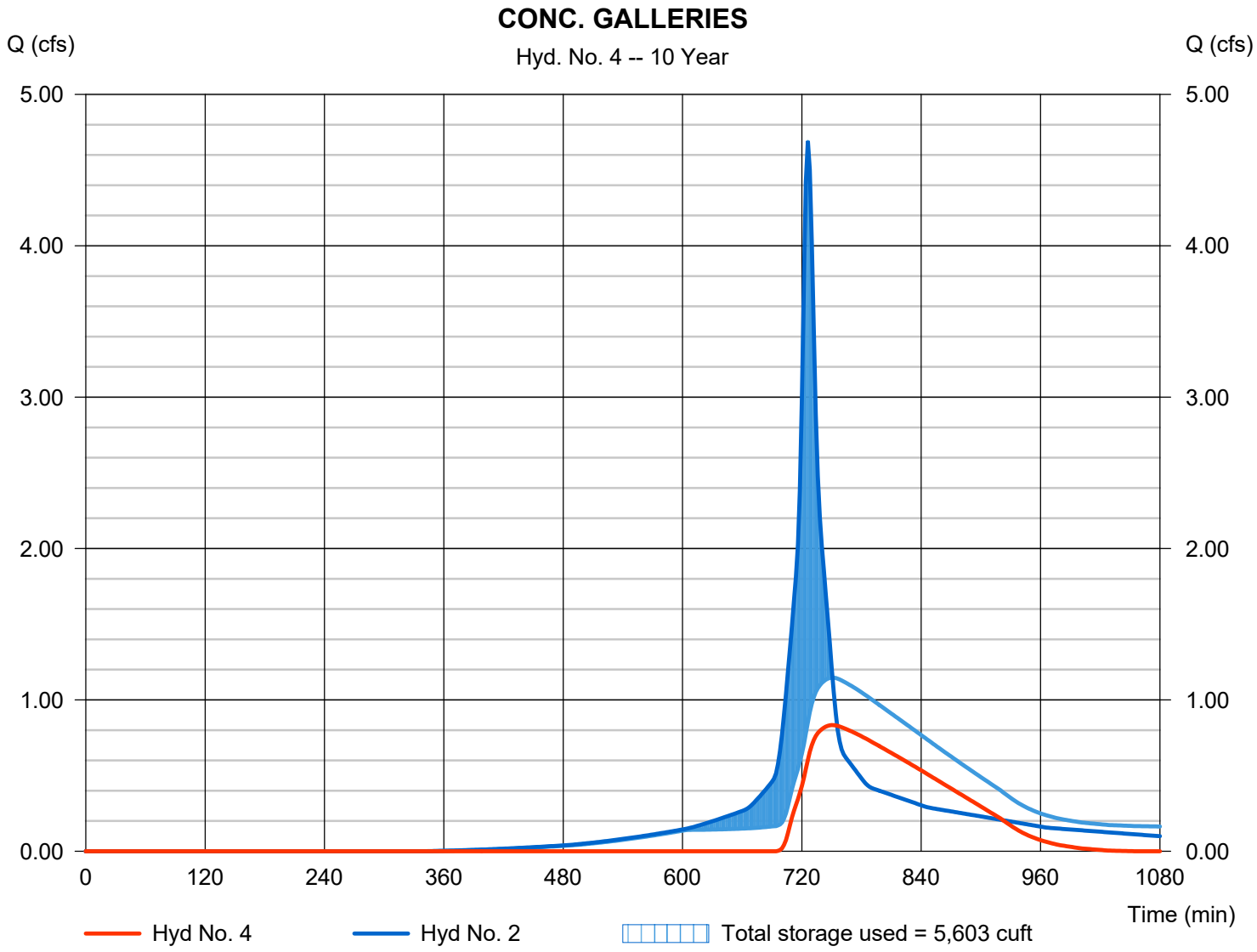
Hydrograph Report

Hyd. No. 4

CONC. GALLERIES

Hydrograph type	= Reservoir	Peak discharge	= 0.833 cfs
Storm frequency	= 10 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 7,589 cuft
Inflow hyd. No.	= 2 - PDA-1	Max. Elevation	= 200.65 ft
Reservoir name	= 4' X 4' CONC. CHAMBERS	Max. Storage	= 5,603 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

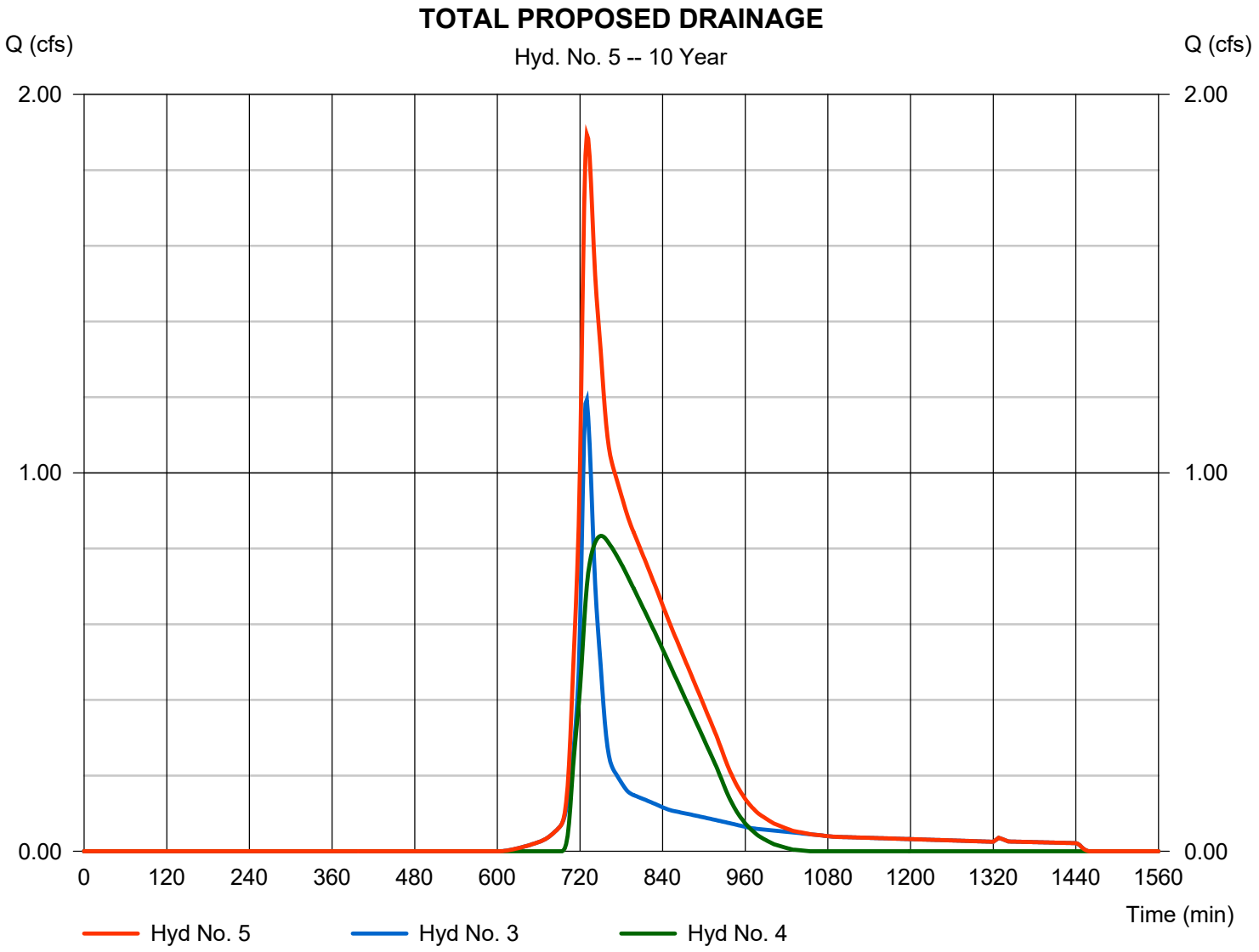


Hydrograph Report

Hyd. No. 5

TOTAL PROPOSED DRAINAGE

Hydrograph type	= Combine	Peak discharge	= 1.894 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 2 min	Hyd. volume	= 12,303 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 0.670 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	3.085	2	742	16,490	------	------	------	EDA-1
2	SCS Runoff	5.546	2	726	19,316	------	------	------	PDA-1
3	SCS Runoff	1.537	2	730	6,001	------	------	------	PDA-2
4	Reservoir	1.159	2	750	9,669	2	201.25	6,722	CONC. GALLERIES
5	Combine	2.334	2	730	15,670	3, 4	------	------	TOTAL PROPOSED DRAINAGE

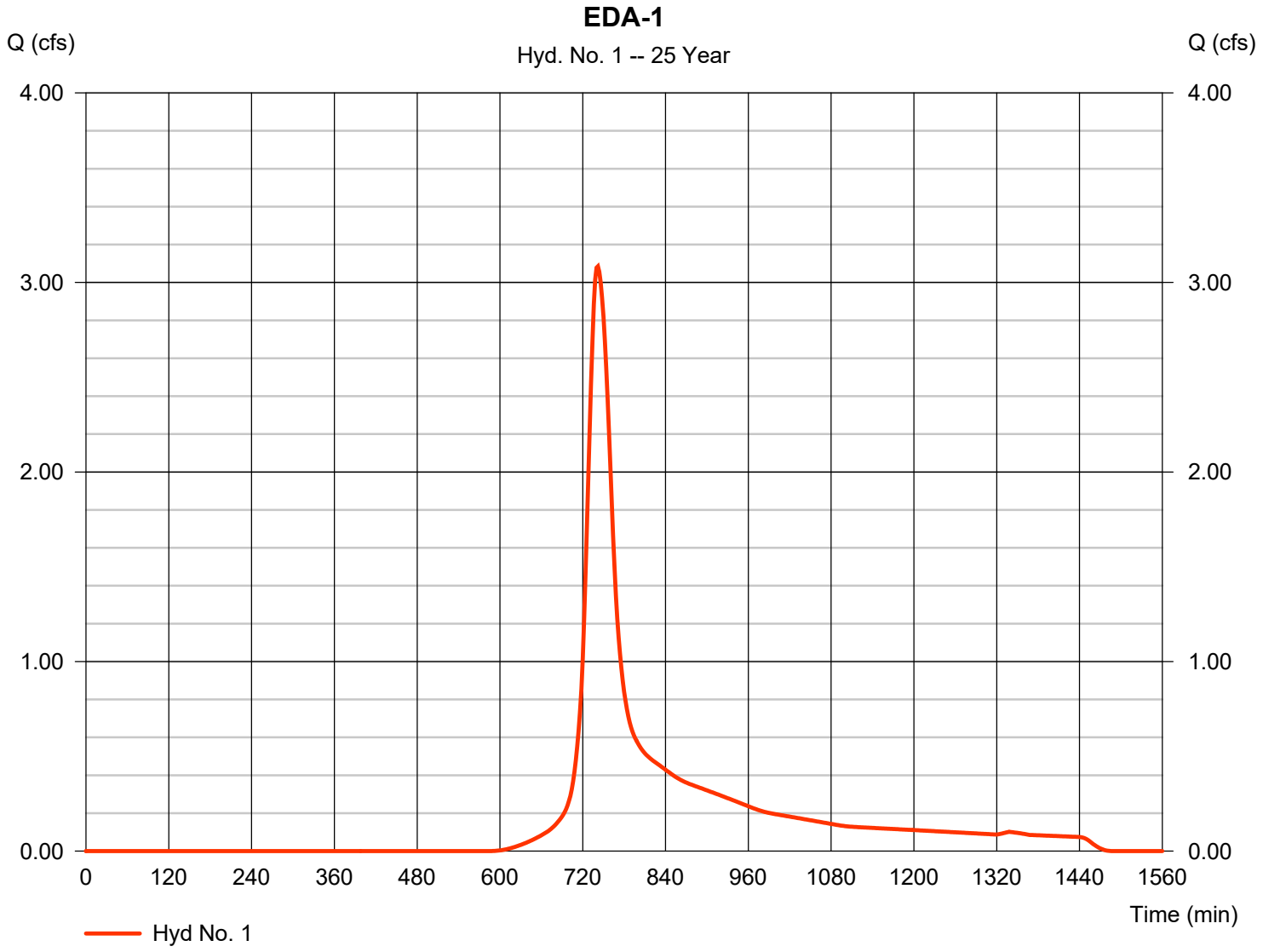
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.085 cfs
Storm frequency	=	25 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	16,490 cuft
Drainage area	=	1.970 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.90 min
Total precip.	=	5.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.310 x 98) + (1.660 x 61)] / 1.970



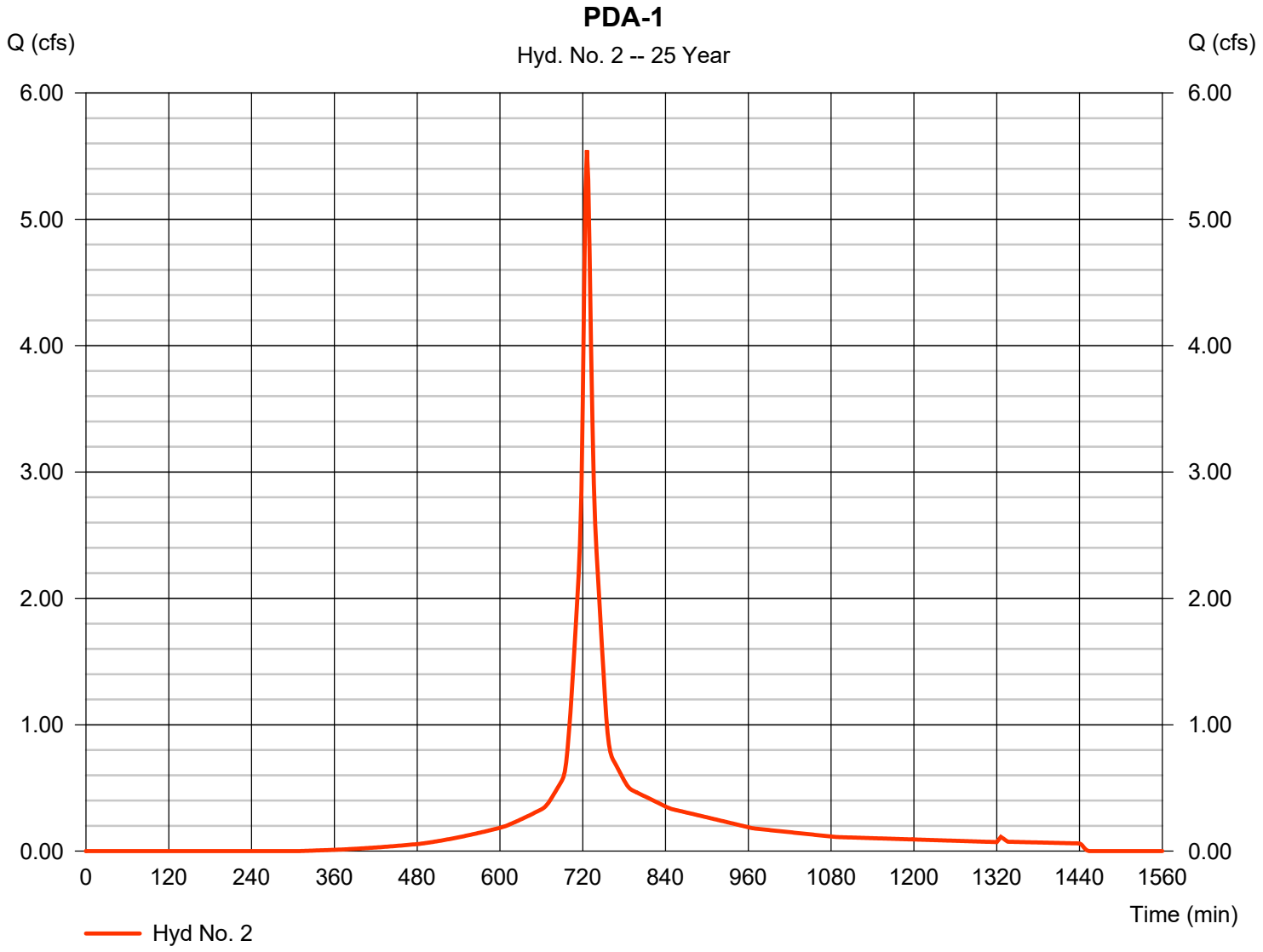
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.546 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	19,316 cuft
Drainage area	=	1.290 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	5.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.870 x 98) + (0.420 x 61)] / 1.290



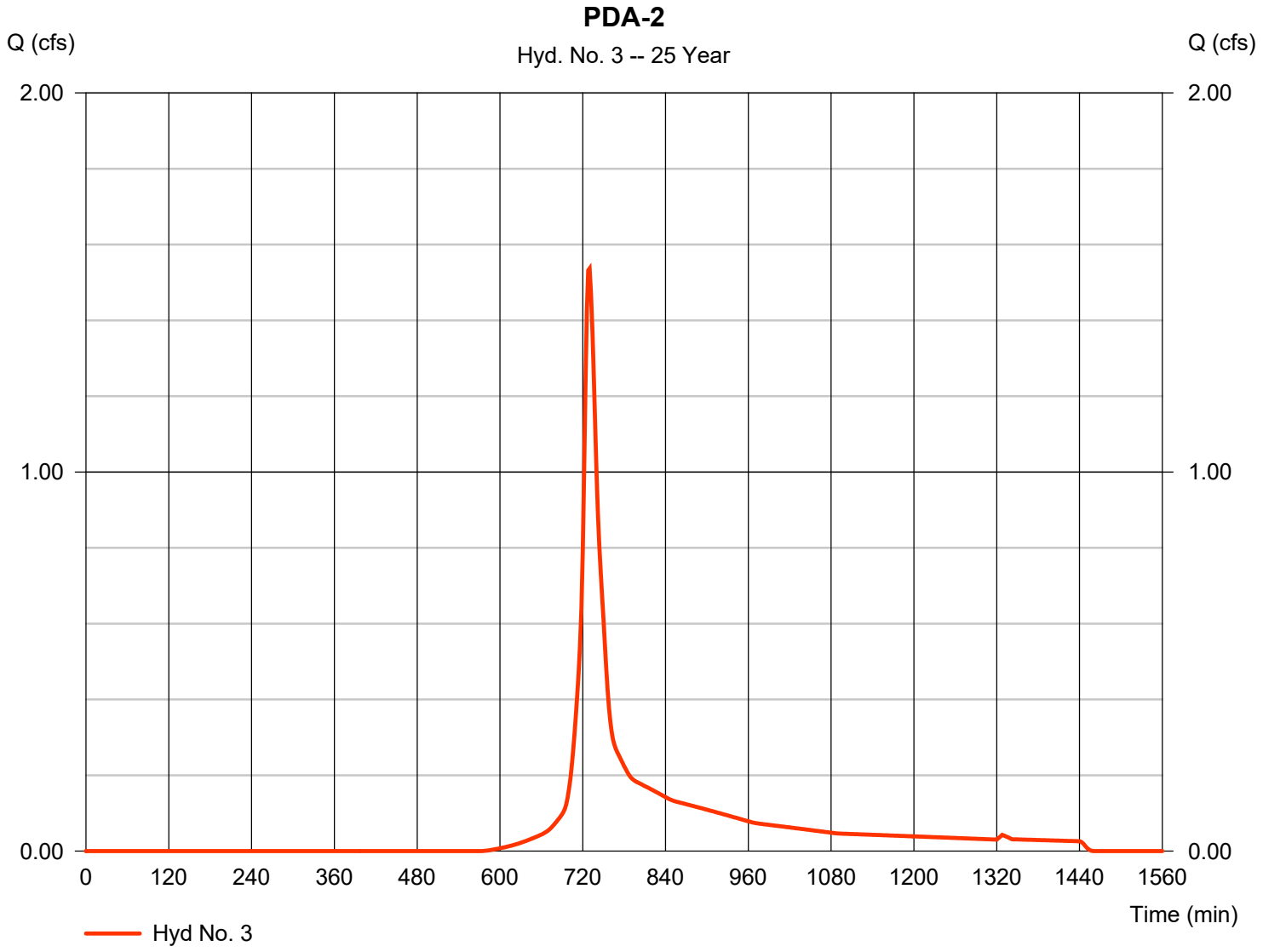
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.537 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	6,001 cuft
Drainage area	=	0.670 ac	Curve number	=	68*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.60 min
Total precip.	=	5.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.550 x 61) + (0.120 x 98)] / 0.670



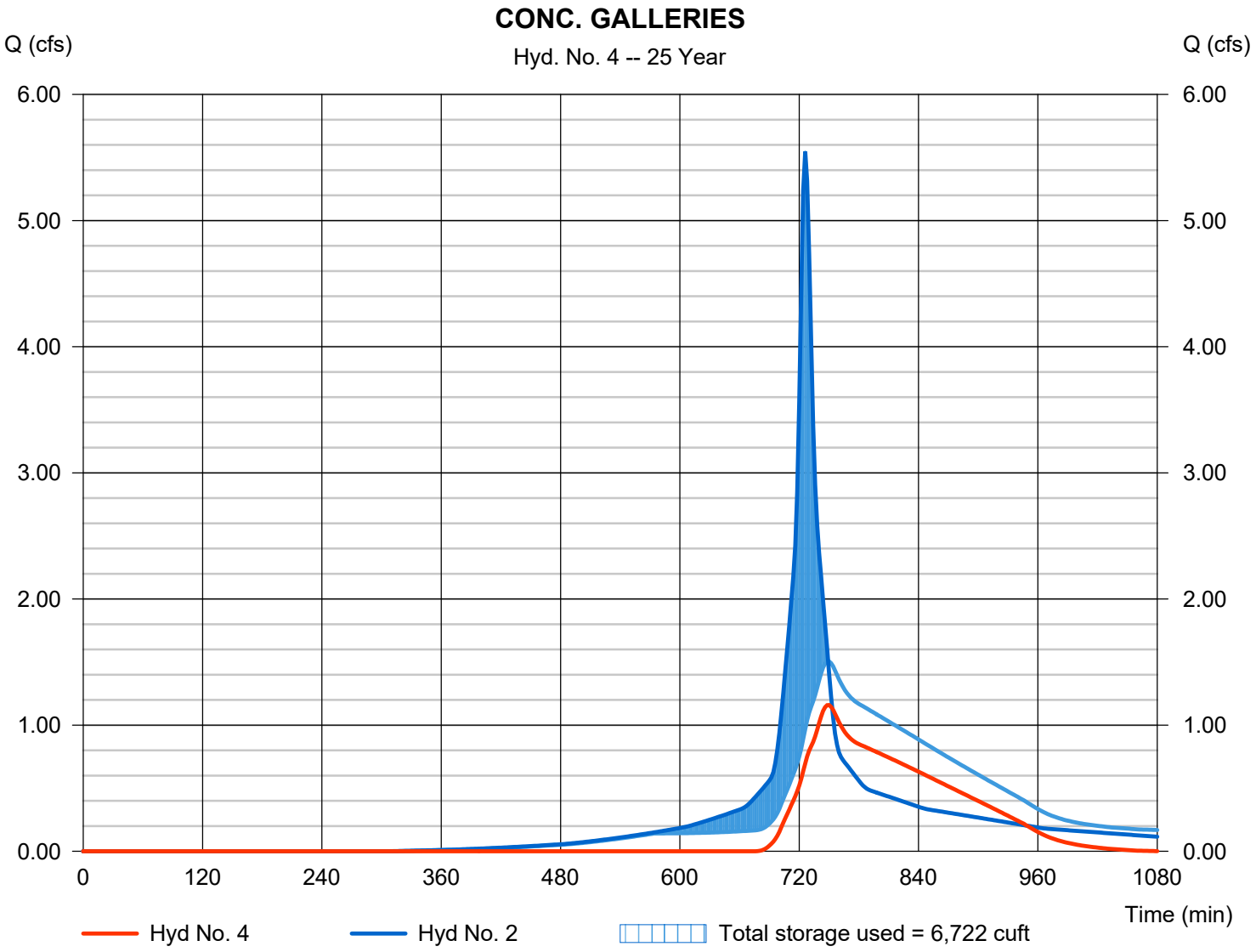
Hydrograph Report

Hyd. No. 4

CONC. GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	1.159 cfs
Storm frequency	=	25 yrs	Time to peak	=	750 min
Time interval	=	2 min	Hyd. volume	=	9,669 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	201.25 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	6,722 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

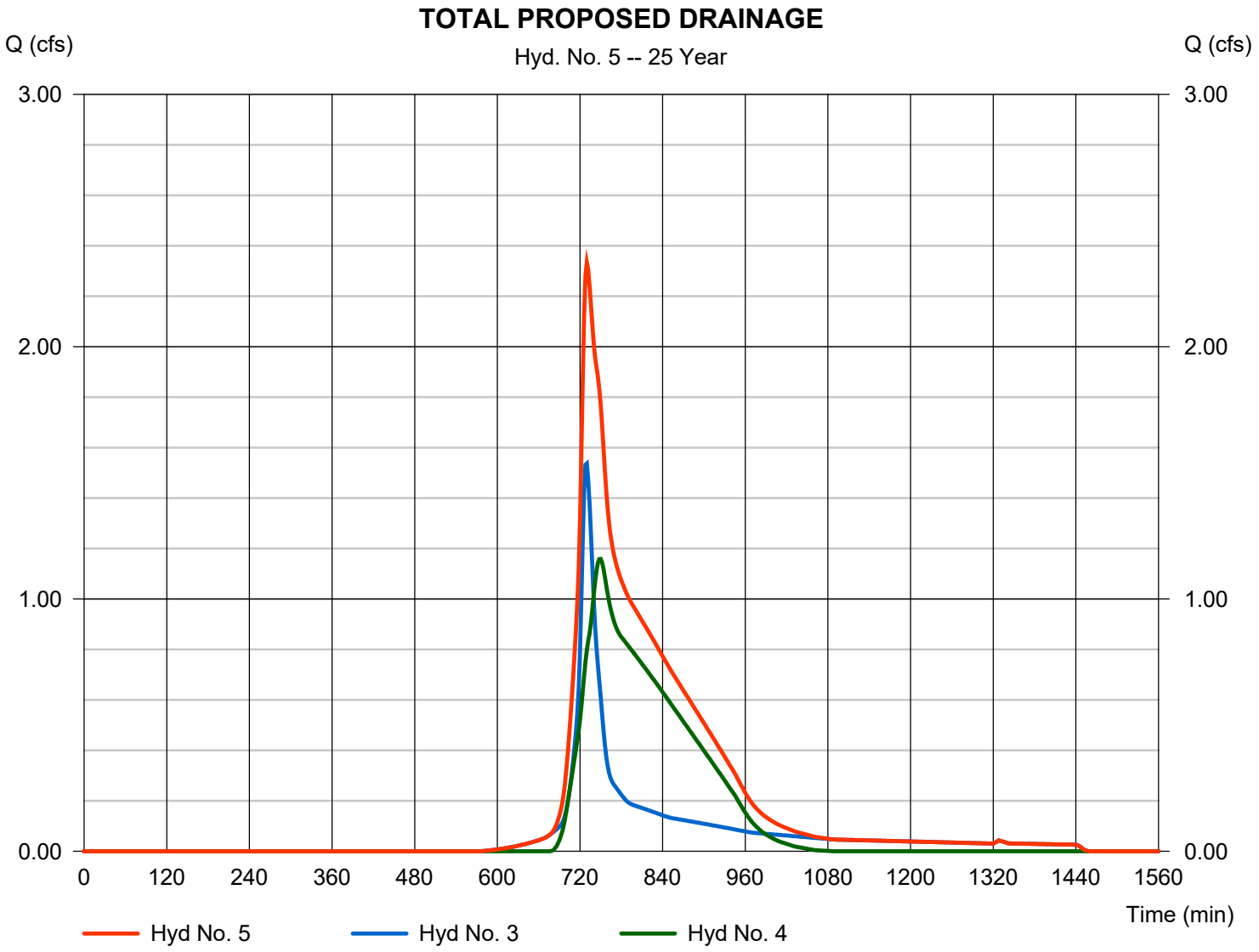


Hydrograph Report

Hyd. No. 5

TOTAL PROPOSED DRAINAGE

Hydrograph type	= Combine	Peak discharge	= 2.334 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 2 min	Hyd. volume	= 15,670 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 0.670 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	3.828	2	740	20,278	------	------	------	EDA-1
2	SCS Runoff	6.398	2	726	22,433	------	------	------	PDA-1
3	SCS Runoff	1.896	2	728	7,353	------	------	------	PDA-2
4	Reservoir	1.878	2	744	11,971	2	201.64	7,455	CONC. GALLERIES
5	Combine	3.049	2	736	19,324	3, 4	------	------	TOTAL PROPOSED DRAINAGE

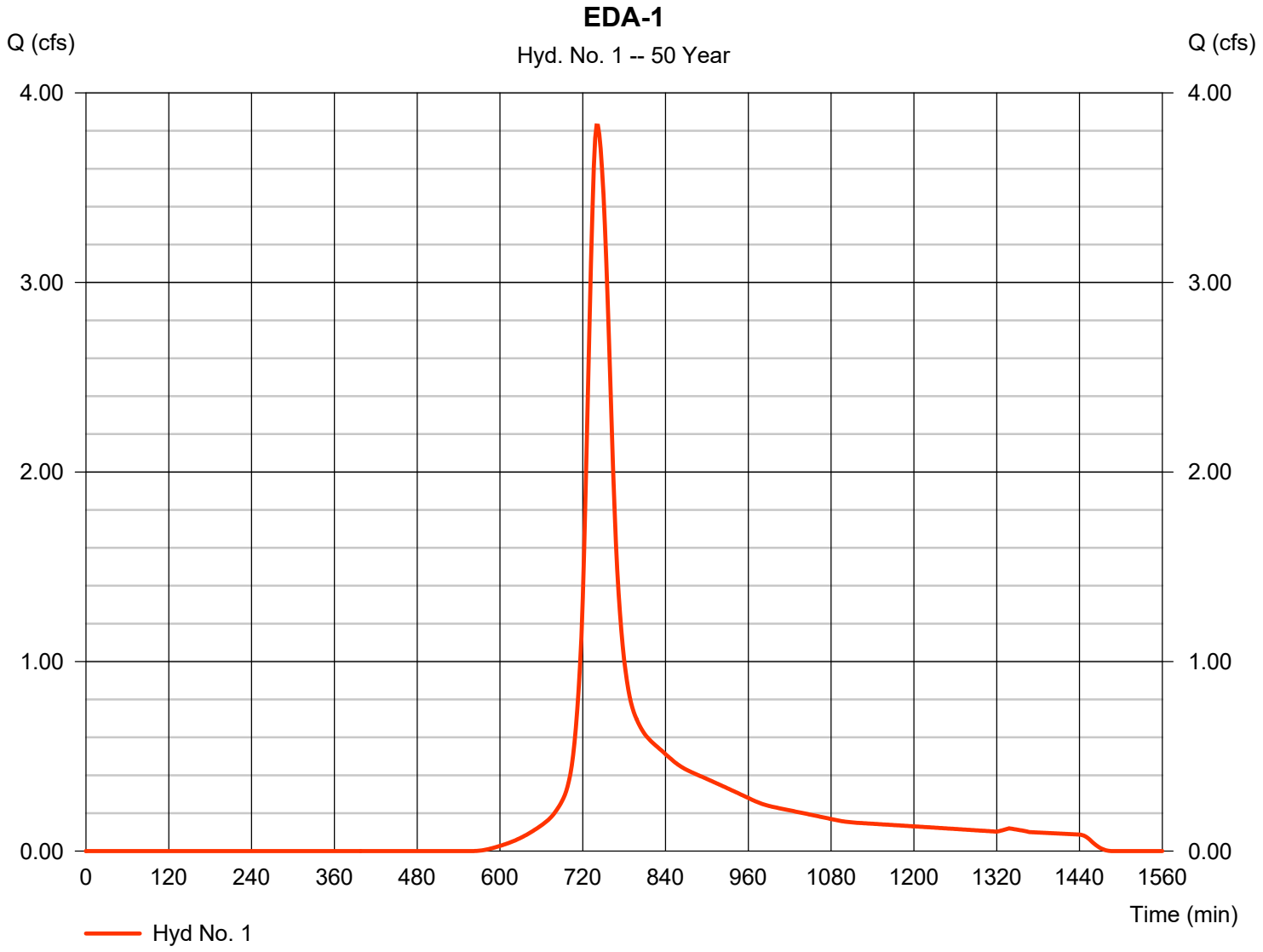
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.828 cfs
Storm frequency	=	50 yrs	Time to peak	=	740 min
Time interval	=	2 min	Hyd. volume	=	20,278 cuft
Drainage area	=	1.970 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.90 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.310 x 98) + (1.660 x 61)] / 1.970



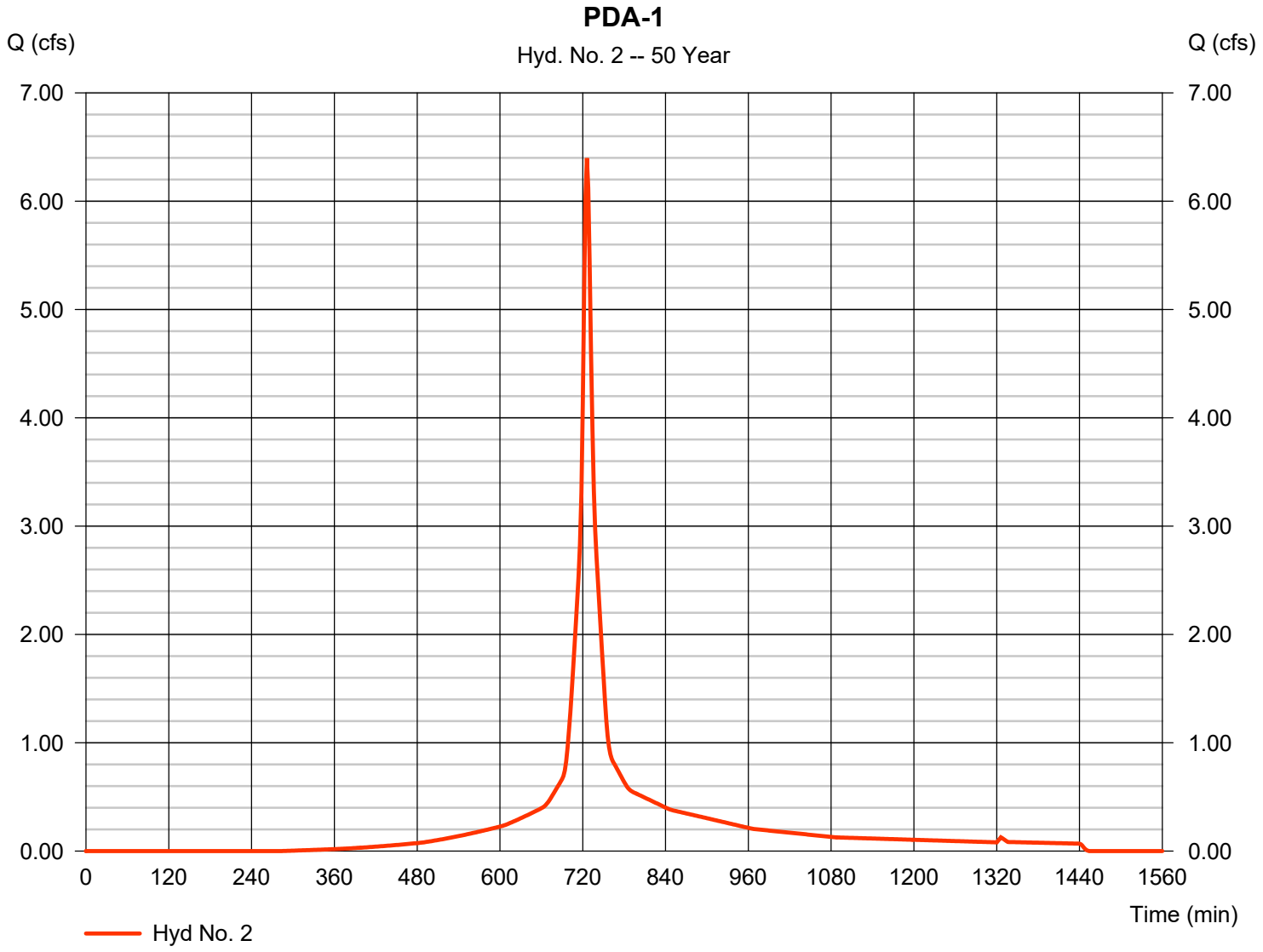
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.398 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	22,433 cuft
Drainage area	=	1.290 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.870 x 98) + (0.420 x 61)] / 1.290



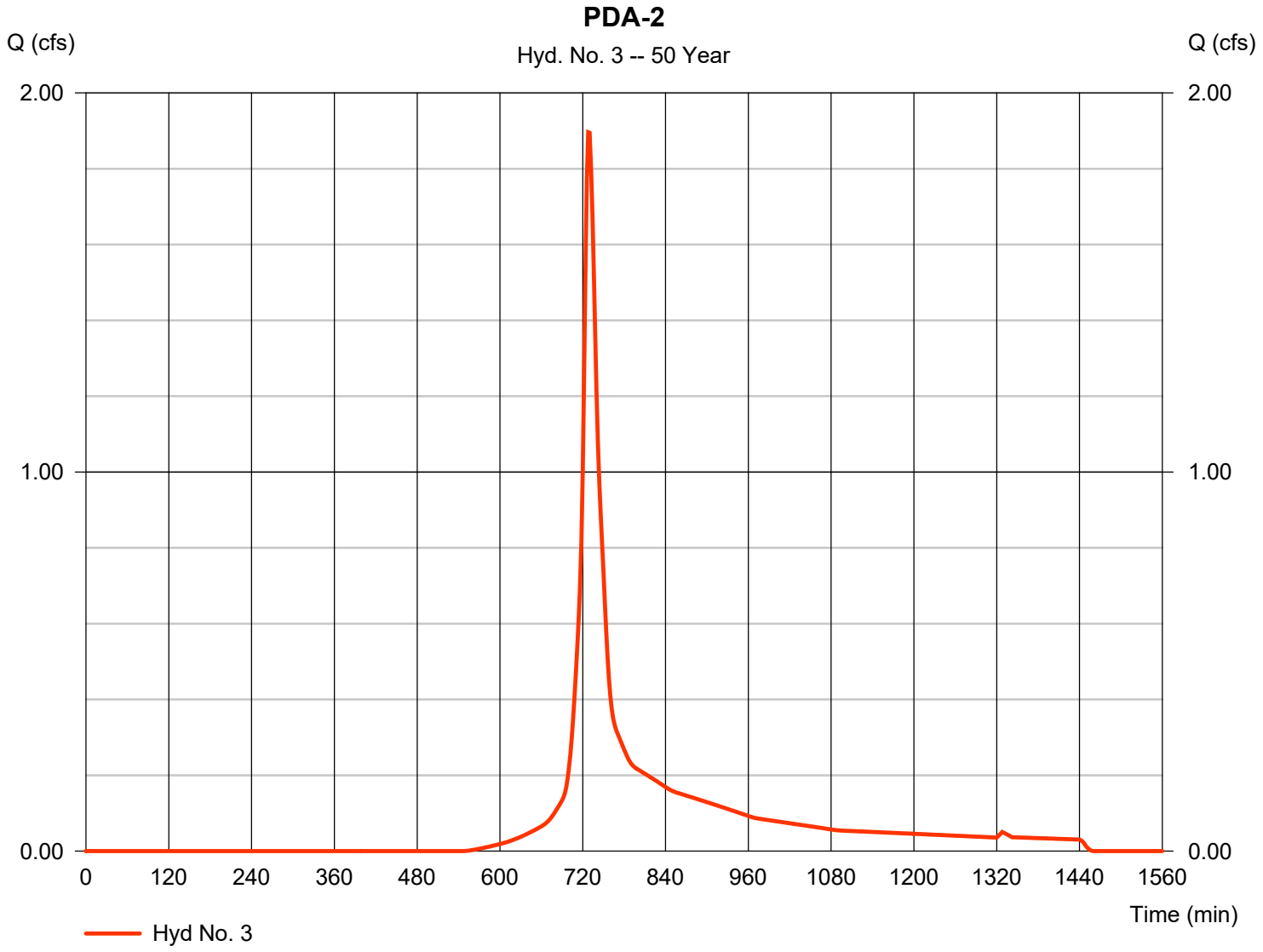
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.896 cfs
Storm frequency	=	50 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	7,353 cuft
Drainage area	=	0.670 ac	Curve number	=	68*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.60 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.550 x 61) + (0.120 x 98)] / 0.670



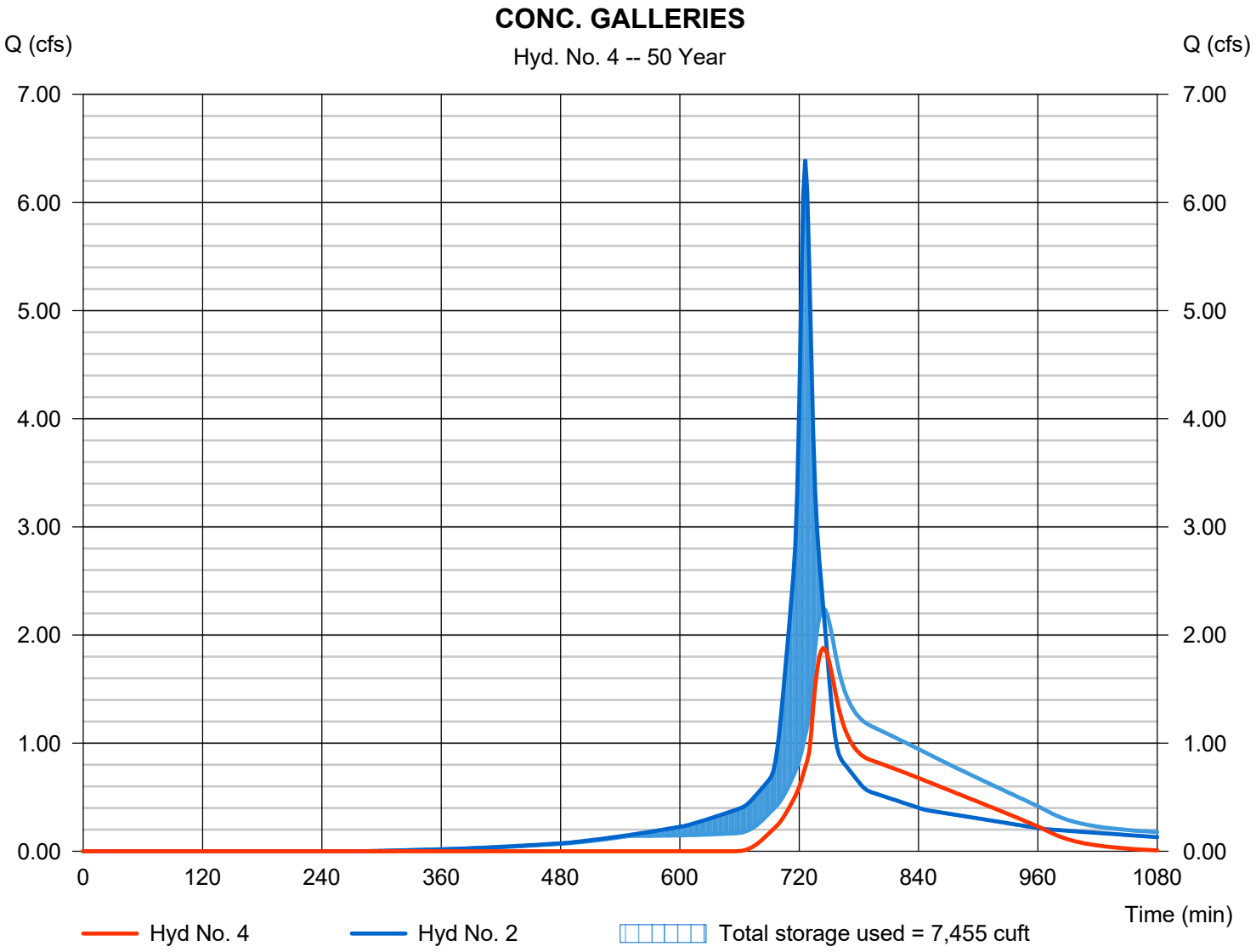
Hydrograph Report

Hyd. No. 4

CONC. GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	1.878 cfs
Storm frequency	=	50 yrs	Time to peak	=	744 min
Time interval	=	2 min	Hyd. volume	=	11,971 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	201.64 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	7,455 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

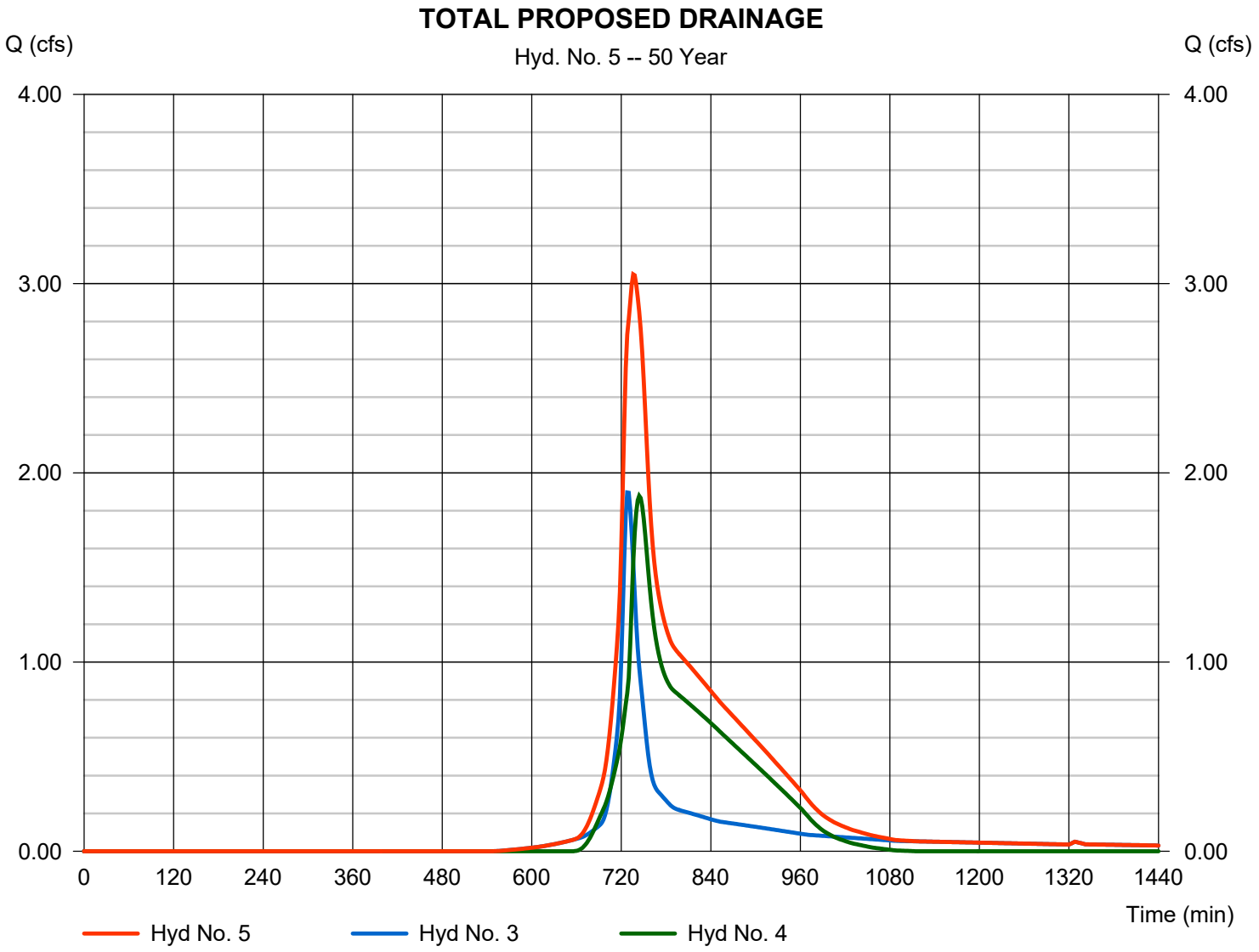


Hydrograph Report

Hyd. No. 5

TOTAL PROPOSED DRAINAGE

Hydrograph type	= Combine	Peak discharge	= 3.049 cfs
Storm frequency	= 50 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 19,324 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 0.670 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	4.716	2	740	24,794	------	------	------	EDA-1
2	SCS Runoff	7.370	2	726	26,027	------	------	------	PDA-1
3	SCS Runoff	2.326	2	728	8,961	------	------	------	PDA-2
4	Reservoir	2.904	2	738	14,751	2	201.96	8,059	CONC. GALLERIES
5	Combine	4.667	2	736	23,711	3, 4	------	------	TOTAL PROPOSED DRAINAGE

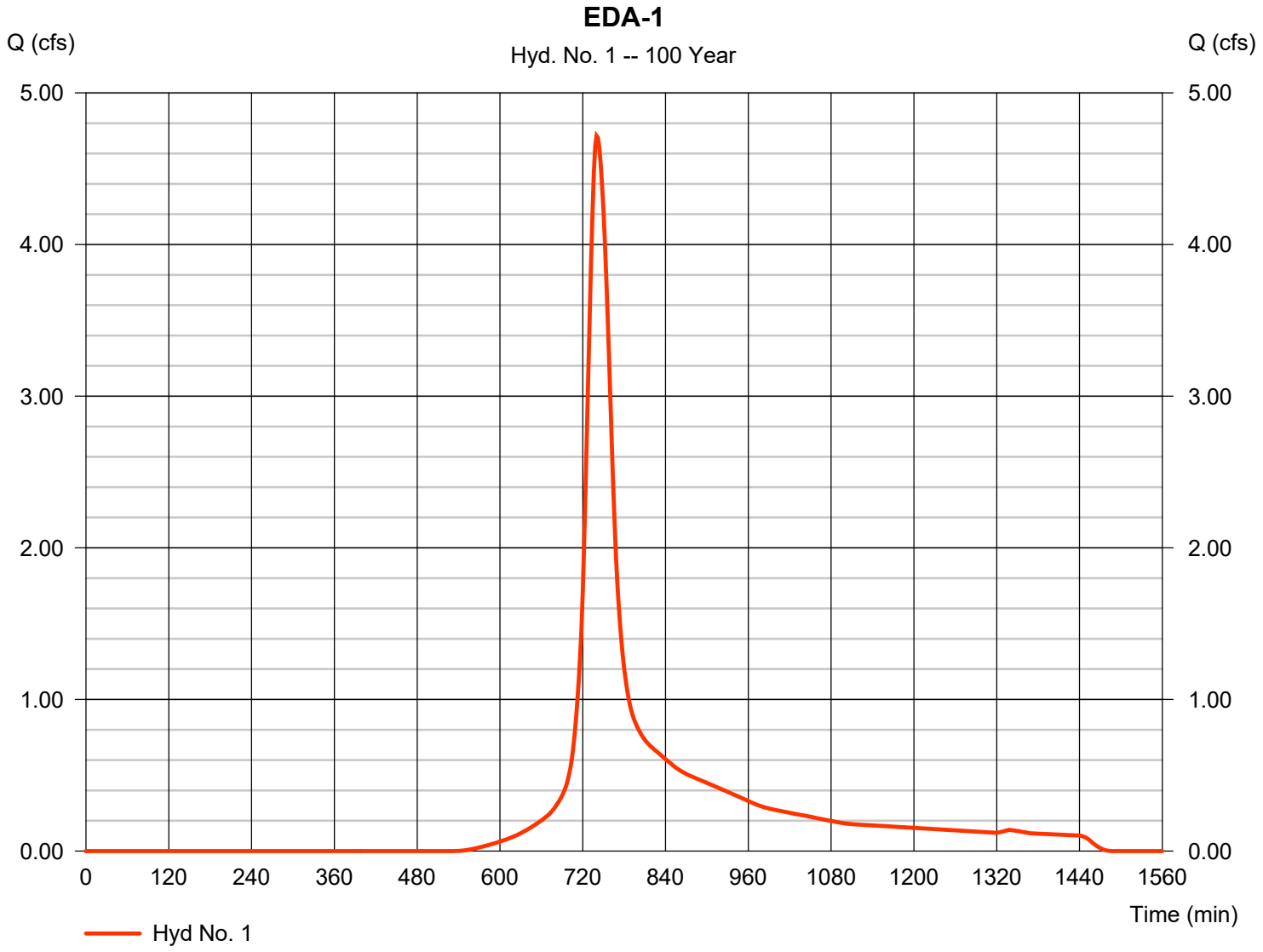
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.716 cfs
Storm frequency	=	100 yrs	Time to peak	=	740 min
Time interval	=	2 min	Hyd. volume	=	24,794 cuft
Drainage area	=	1.970 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.90 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.310 x 98) + (1.660 x 61)] / 1.970



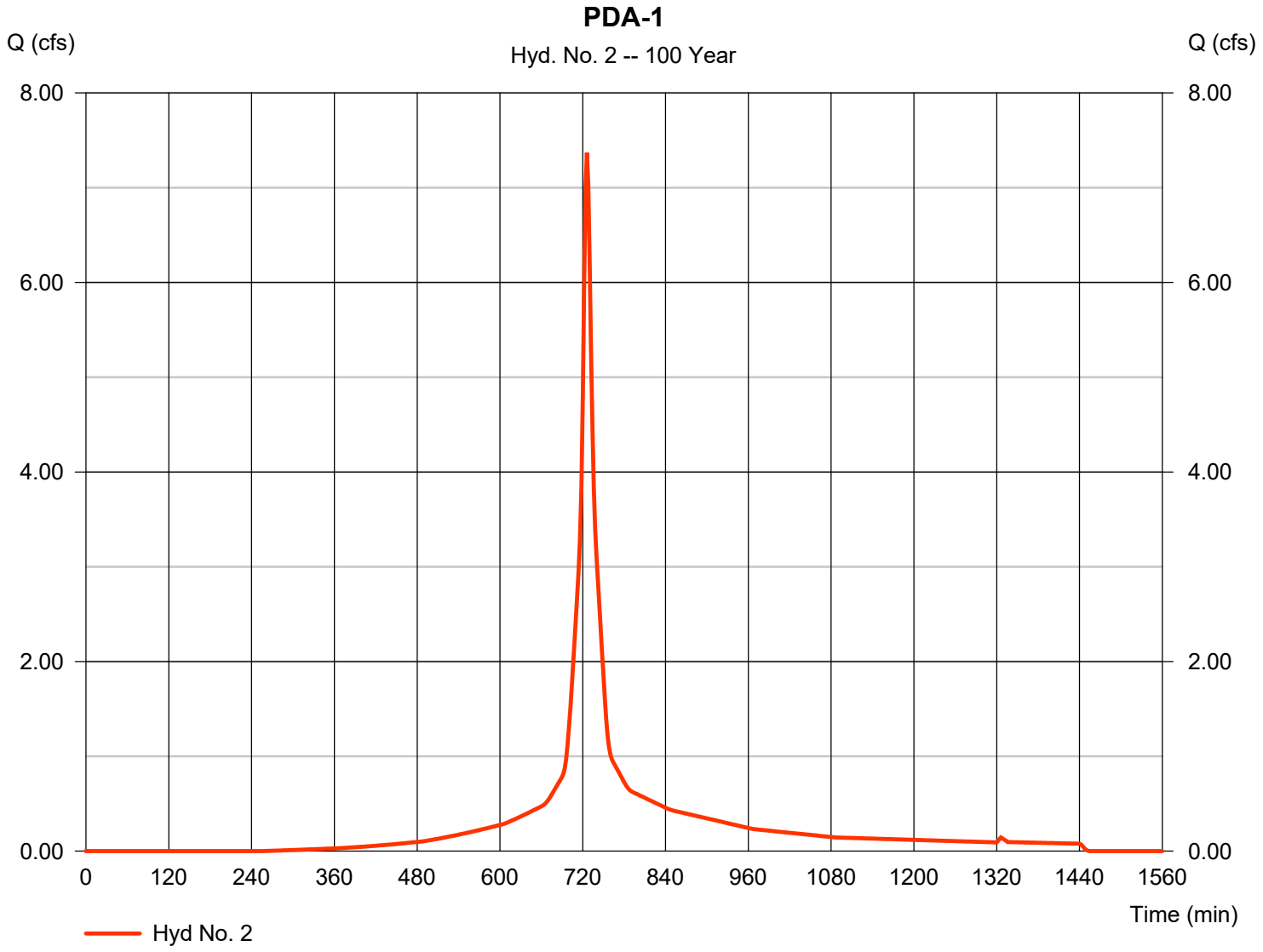
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.370 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	26,027 cuft
Drainage area	=	1.290 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.870 x 98) + (0.420 x 61)] / 1.290



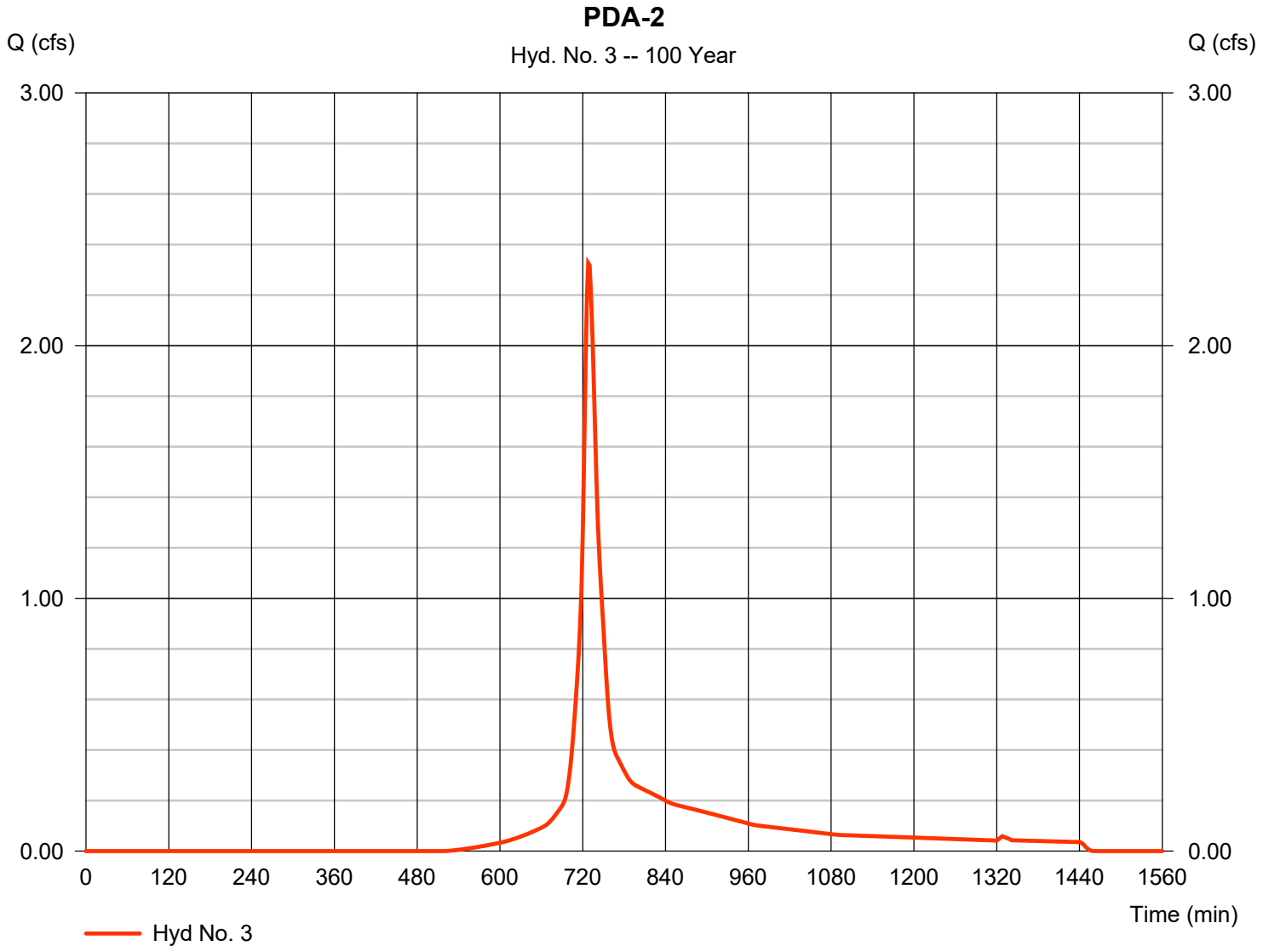
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.326 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	8,961 cuft
Drainage area	=	0.670 ac	Curve number	=	68*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.60 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.550 x 61) + (0.120 x 98)] / 0.670



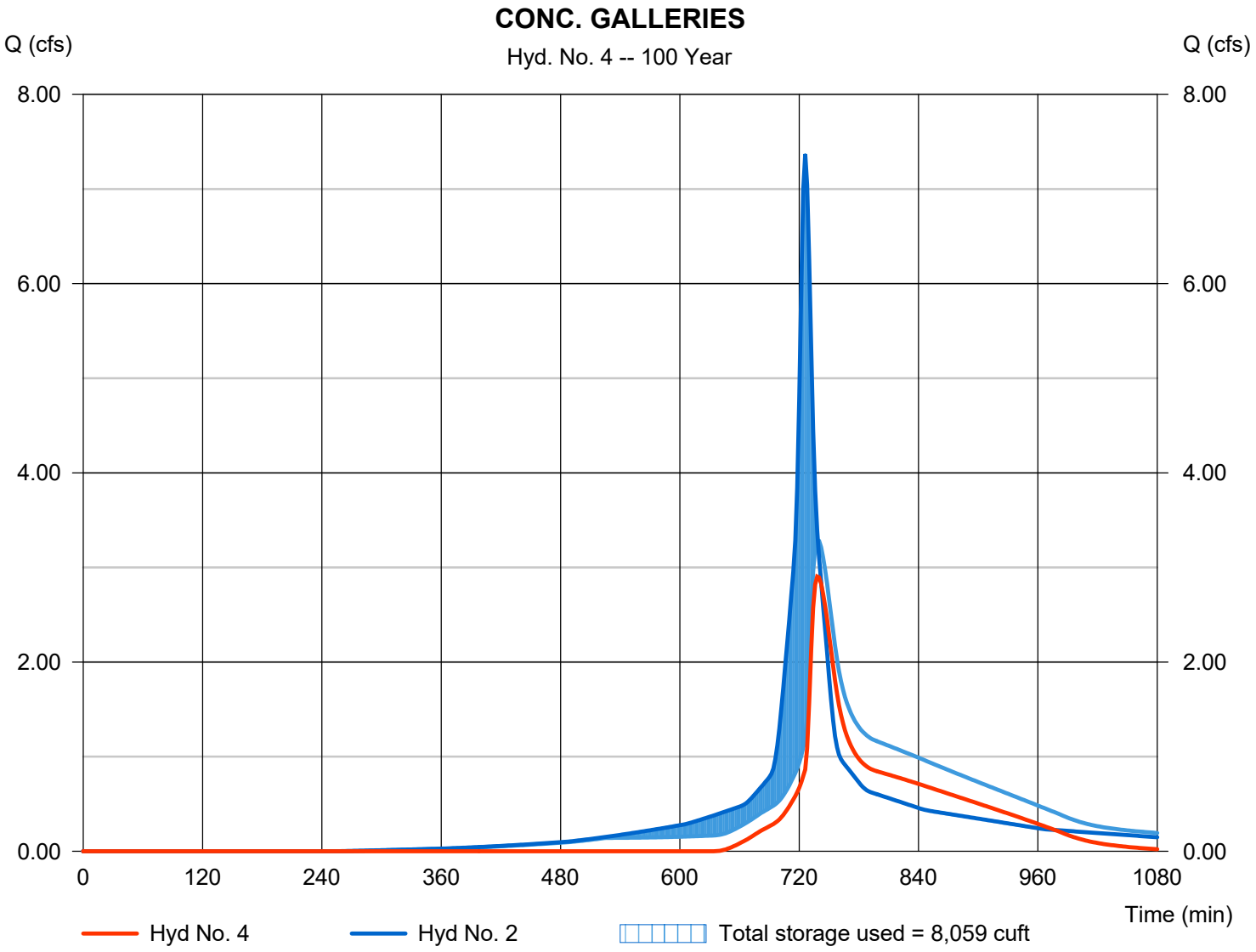
Hydrograph Report

Hyd. No. 4

CONC. GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	2.904 cfs
Storm frequency	=	100 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	14,751 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	201.96 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	8,059 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

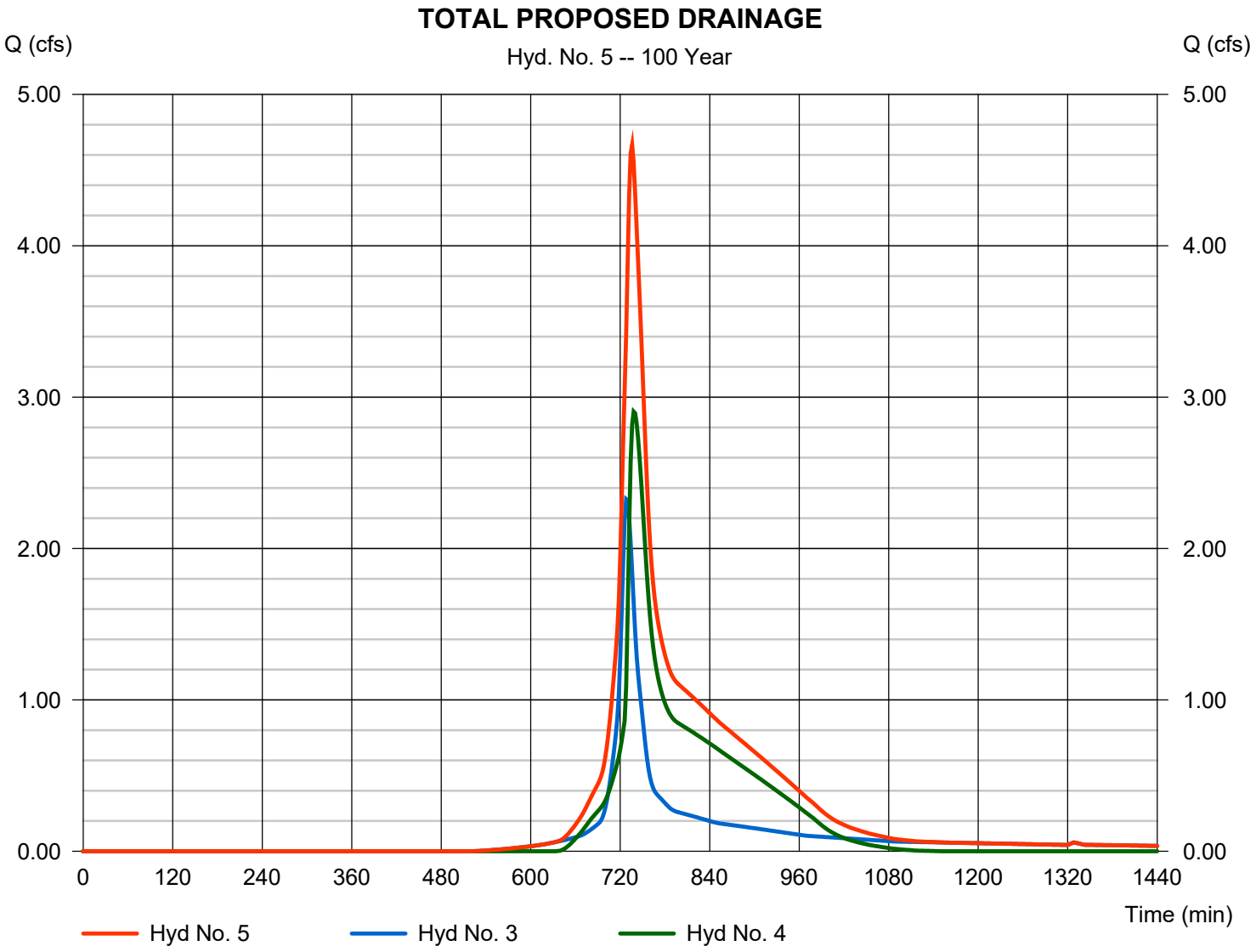


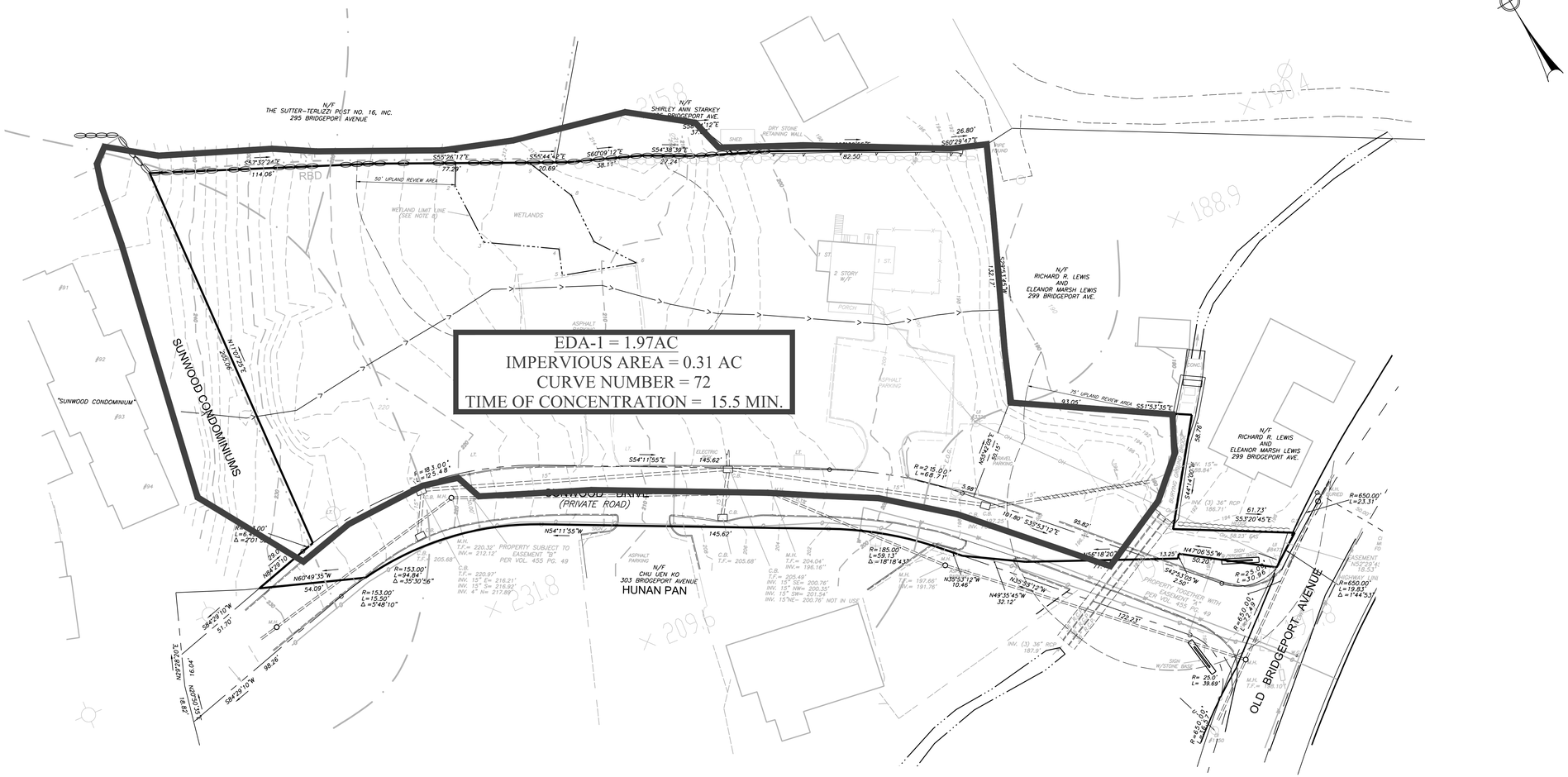
Hydrograph Report

Hyd. No. 5

TOTAL PROPOSED DRAINAGE

Hydrograph type	= Combine	Peak discharge	= 4.667 cfs
Storm frequency	= 100 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 23,711 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 0.670 ac





LEGEND

- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPERTY LINE
- STREAM
- WETLANDS
- PROPOSED BUILDING
- 123.4 PROPOSED SPOT ELEVATION
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING STORM PIPES
- PROPOSED STORM PIPES
- EXISTING SANITARY PIPES
- PROPOSED SANITARY PIPES
- GRADE TO DRAIN

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

ROSE •TISO & CO. LLC.
ARCHITECTS●SURVEYORS●ENGINEERS
WWW.ROSETISO.COM
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262● FAX: (203)610-6404

REVISIONS

NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

BROOK VIEW APARTMENTS

301 OLD BRIDGEPORT AVENUE

SHELTON, CONNECTICUT

Prepared For:

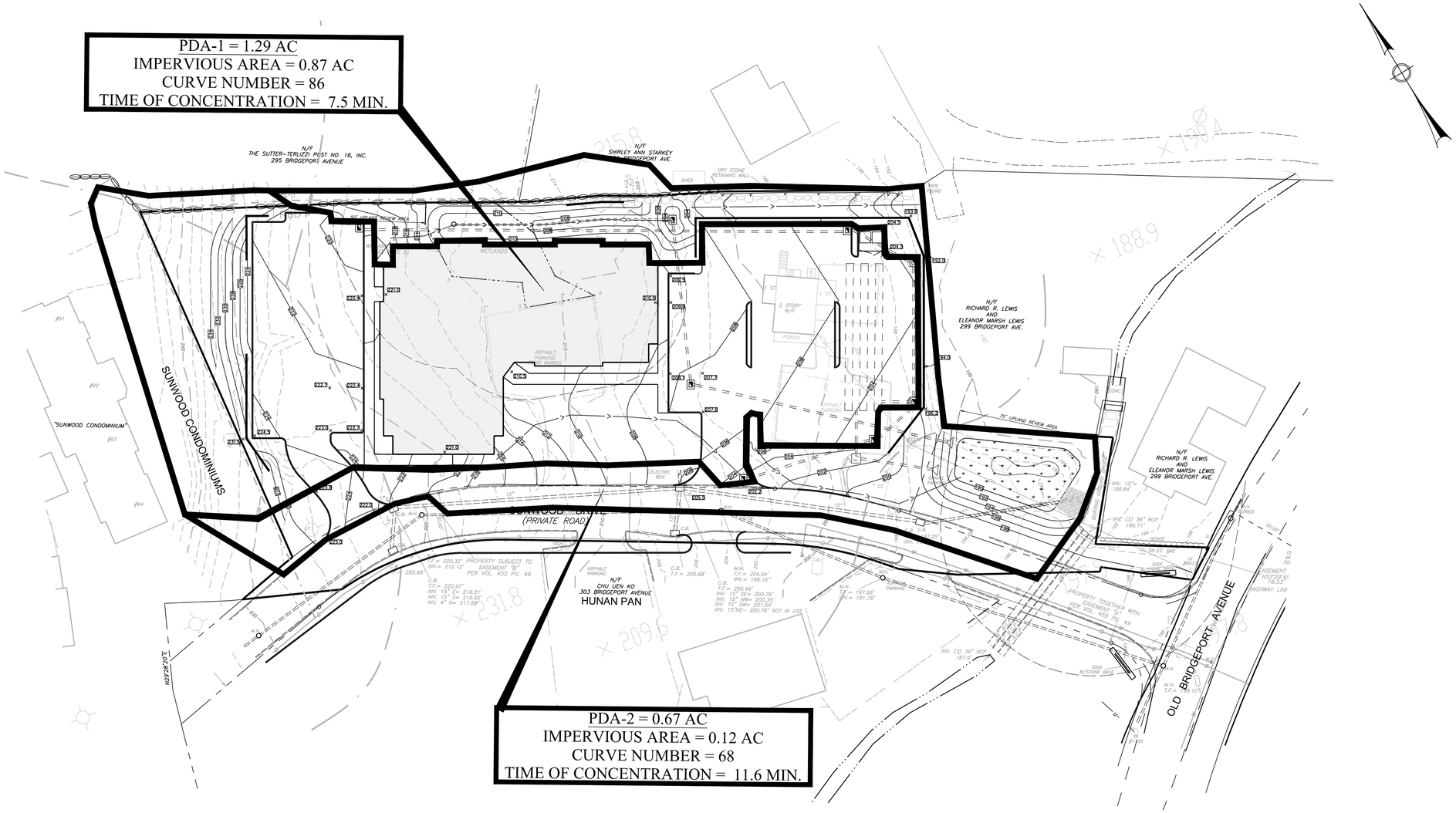
S & G HAULING, LLC

SHEET TITLE

EXISTING DRAINAGE AREA

DESIGNED BY: PR	SCALE: 1"=40'
DRAWN BY: SFS	DATE: 02-08-22
CHECKED BY: MJS	PROJECT NUMBER: 2658
CAD FILE: R:\2658\DWG	

SEAL	SHEET NUMBER
	DA-EX



LEGEND

- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPERTY LINE
- STREAM
- WETLANDS
- PROPOSED BUILDING
- PROPOSED SPOT ELEVATION
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING STORM PIPES
- PROPOSED STORM PIPES
- EXISTING SANITARY PIPES
- PROPOSED SANITARY PIPES
- GRADE TO DRAIN

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262● FAX: (203)610-6404

REVISIONS

NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

BROOK VIEW APARTMENTS

301 OLD BRIDGEPORT AVENUE

SHELTON, CONNECTICUT

Prepared For:

S & G HAULING, LLC

SHEET TITLE

PROPOSED DRAINAGE AREA

DESIGNED BY: PR	SCALE: 1"=40'
DRAWN BY: SFS	DATE: 02-08-22
CHECKED BY: MJS	PROJECT NUMBER: 2658
CAD FILE: R:\2658\DWG	

SEAL

SHEET NUMBER

DA-PR