SITE ENGINEERING DESIGN REPORT

For The Proposed:

Residential Development

Located at:
804 Fountain St
Woodbridge, Connecticut 06461
Job # 2850

Prepared On:
March 21, 2024

Prepared For:

Bridge Street Partners, LLC

Prepared By:

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INTRODUCTION

Rose Tiso & Co. has prepared this report to provide an analysis of the stormwater drainage, utility design, and soil erosion control impacts associated with the proposed construction of a residential development and associated parking facilities located at 804 Fountain Rd in Woodbridge, Connecticut. The design is in compliance with applicable Town of Woodbridge codes and regulations as well as other applicable state and federal requirements and regulations.

The 5.71-acre property is located at 804 Fountain St in Woodbridge, Connecticut. Fountain ST is accessed from CT Route 313 and Ct Route 63. The site is bounded by Woodbridge land trust property to the west and Route 15 (Wilber Cross Parkway) to the South and East. Currently, the site is an undeveloped wooded area with little understory on a rocky terrain. The site is proposed to be re-developed with a 98,086 s.f. 96-unit residential apartments and associated parking facilities.

The majority of the stormwater runoff associated with the proposed construction will be conveyed by the proposed drainage system. The total impervious area existing on site is approximately 0.0 acres. The impervious area upon project completion will total approximately 1.62 acres. While the proposed construction results in increases in peak runoff quantities for the overall site, the increase will be mitigated after passing through the proposed drainage system. Overall this project results in a net reduction of the overall rate of stormwater runoff for the property when compared to existing conditions.

The proposed stormwater quality measures were designed in accordance with the "2004 Connecticut Stormwater Quality Manual," published by The Connecticut Department of Energy and Environmental Protection. The stormwater quality measures provided as part of the proposed development will result in an enhancement to the stormwater discharge from the site.

The proposed plans for soil erosion and sediment control have been developed in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, prepared by the Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection.

STORMWATER MANAGEMENT

The stormwater management plan and design for the proposed development is intended to be in compliance with the Town of Woodbridge stormwater management regulations, the 2004 Connecticut Stormwater Quality Manual and the 2000 Connecticut Department of Transportation Drainage Manual, while taking prevailing site conditions and practical considerations into account.

METHODOLOGY

The stormwater runoff analysis for both the pre- and post-development conditions was performed using the software package Civil 3D 2022 Hydraflow Hydrograph Extension. This software uses a computer implementation of the SCS – TR-55 methodology to compute volumes and rates of runoff. The watershed area, rainfall depths and intensity, curve number and time of concentration are factors that influence the computed results.

Rainfall depths for this property were used for calculating the volumes and rates of runoff for this particular project. The depths were taken from the NOAA Atlas 14 documents (City of Milford) and are listed in Table 1 below.

Table 1: Rainfall Data

Return Period	24-hr Rainfall Depth (in)
1-year	2.99
2-year	3.66
10-year	5.62
25-year	6.84
50-year	7.74
100-year	8.72

Hydraflow Hydrographs Extension automatically computes the rainfall intensity from its own IDF curves when the rainfall intensity data is provided.

EXISTING HYDROLOGY

The project site is currently undeveloped with a wooded area with a rocky surface and little understory. Topographically, the site slopes steeply from the western portion of the lot where there is an existing high point within the existing lot. There are steep slopes along the undeveloped portions of the lot, sloping down towards the Fountain Rd there are not stormwater controls on site. The site outlets into the abutting Fountain St and into the roads existing drainage system. Slopes range from 45 percent to 15 percent, with a maximum elevation of approximately 362 feet and a minimum elevation of approximately 262 feet. According to the NRCS Soil Survey Geographic database for the State of Connecticut, the majority of the development area is comprised of Urban Land, Charlton- Chatfield Land Complex very rocky. For analysis purposes, the site has been examined as three separate drainage areas, Existing Drainage Area 1 (EDA-1), and Existing Drainage Area 2 (EDA-2)

EDA-1 has a contributing area of approximately 5.354 acres. This area encompasses the southeastern portion of the site. Runoff from EDA-1 travels into an existing stormwater system in Fountain Rd which collects runoff with a catch basin and directly connects to the city/ State drainage system in Fountain Rd.

EDA-2 bypasses the existing drainage system and has a contributing area of approximately 0.359 acres. This area encompasses the northern portion of the site that slopes to the northwest. Runoff from EDA-2 travels towards the existing offsite pond via overland sheet flow to the Northwest.

Characteristics of these drainage areas are summarized in Table 2, below. A map depicting existing drainage areas and their characteristics, entitled "Existing Drainage Area (C-1)", can be found in Appendix A.

Table 2: Existing Drainage Area Characteristics

Drainage Area	Area (Acres)	Curve Number (CN)	Time of Concentration
EDA-1	5.354	61	19
EDA-2	0.359	61	7.5

Peak rates of stormwater runoff, for the 1-year, 2-year, 10-year, 25-year, 50-year, and 100-year have been calculated for the existing site (See Table 3 below). The supporting calculations are included in Appendix A. 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 3: Existing Peak Flows

Drainage Area	Peak Flow (cfs)					
	1-yr	2-yr	10-yr	25-yr	50-yr	100-yr
EDA-1	0.995	2.199	7.255	11.06	14.07	17.49
EDA-2	0.079	0.19	0.655	0.998	1.268	1.574
Overall EDA	**1.051**	**2.32**	**7.63**	**11.63**	**14.79**	**18.37**

PROPOSED HYDROLOGY

The proposed project will maintain patterns similar to those of the existing conditions. For analysis purposes, the project site has been broken into three drainage areas, proposed drainage areas one, two, and three. Based on proposed drainage patterns, Proposed Drainage Area 1 (PDA-1) has a contributing area of approximately 4.119 acres. Runoff from PDA-1 travels east via sheet flow over impervious surfaces, and into a proposed stormwater system consisting of catch basins, a water quality separator, and sub-surface concrete stormwater storage units. The sub-surface stormwater storage units have been designed as part of the overall system designed to reduce the flows from the overall proposed site to the existing condition. This system will have controlled discharge into an existing pipe in Fountain Rd to the town / State system.

Proposed Drainage Area 2 (PDA-2) has a contributing area of approximately 0.359 acres. Runoff from this area travels from the existing property area northwest via sheet flow into the adjacent pond.

Proposed Drainage Area 3 (PDA-3) has a contributing area of approximately 1.228 acres. Runoff from this area travels from the existing lot areas via sheet flow into the existing drainage swale along Route 15 (Wilber Cross Parkway), this portion of the site will bypass the proposed system and will continue to flow to the south and it does in the existing condition, flow to the swale to the south will be reduced as the majority of the exiting area flowing to the swale will now be collected and controlled by the system in PDA-1.

Table 4 summarizes the characteristics of these drainage areas. Appendix A contains a map depicting proposed drainage areas and their characteristics, entitled "Proposed Drainage Area (DA-PR)."

Table 4: Proposed Drainage Area Characteristics

Drainage Area	Area (Acres)	Curve Number (CN)	Time of Concentration
PDA-1	4.119	76	10.80
PDA-2	0.359	61	3.4
PDA-3	1.228	61	5.5

Proposed peak flows for all analyzed storms are summarized in Table 5. Calculations for the proposed hydrology can be found in Appendix A.

Table 5: Proposed Peak Flows

Drainage Area	Peak Flow (cfs)					
	1-yr	2-yr	10-yr	25-yr	50-yr	100-yr
PDA-1	0.776	1.634	5.059	7.431	8.885	13.22
PDA-2	0.09	0.222	0.747	1.135	1.439	1.787
PDA-3	0.297	0.735	2.474	3.769	4.789	5.944
Overall PDA	**0.898**	**2.102**	**6.270**	**9.407**	**11.27**	**16.47**

In an effort to improve the quality of the stormwater discharged from the site, the project will include catch basins with hooded outlets and two-foot sumps, as well as water quality isolator rows in the gallery system. In addition, the proposed sub-surface stormwater storage units and stormwater basins have been designed to treat the water quality volume of the runoff associated with the development. The water quality volume is the amount of stormwater runoff from any given storm that should be captured and treated in order to remove a majority of the stormwater pollutants on an average annual basis. According to the 2004 Connecticut Stormwater Quality Manual the recommended water quality volume, which results in the capture and treatment of the entire runoff volume for 90 percent of the average annual storm event, is equivalent to the runoff associated with the first one-inch of rainfall. In addition, the system has been designed to accommodate the 1.3" water quality volume with a water quality weir in the control structure. The observed infiltration rate was 6 inches per hour but the DEEP default rate of 0.52 in/hr was used to be conservative, see calculations below.

WATER QUALITY VOLUME CALCULATION

DRAINAGE AREA = 4.119 ac

IMPERVIOUS = 43.5%

WQV= (P*RV*A); RV=0.05+0.009*I

RV= 0.05+0.009*I= 0.4415 WATERSHED INCHES

WQV= (1.3"*0.4415"*179,423)/12 = 8,581 cuft REQUIRED

26,271 cuft Provided

See Table 6 below for a comparison of the overall PDA vs. EDA. Calculations for the proposed hydrology can be found in Appendix A.

Table 6: Peak Flow Comparison

Drainage Area	Peak Flow (cfs)					
	1-yr	2-yr	10-yr	25-yr	50-yr	100-yr
Overall EDA	1.051	2.320	7.631	11.63	14.79	18.37
Overall PDA	0.898	2.102	6.27	9.407	11.27	16.47
Reduction	14.56%	9.40%	17.84%	19.11%	23.80%	10.34%

PROPOSED CONVEYANCE SYSTEM

The proposed conveyance system consists of a series of pipes and catch basins designed with two-foot sumps and hooded outlets for additional water quality measures. The proposed drainage features were designed in accordance with 2000 Connecticut Department of Transportation Drainage Manual.

In conformance with the Town of Woodbridge regulations the system was analyzed for the 100-year storm events. The conveyance system has been designed to accommodate the 100-year storm events without surcharging the top of the proposed drainage structures.

STORMWATER CONCLUSION

The proposed development results in an increase in impervious area of approximately 1.62 acres when compared to existing conditions. The stormwater system has been designed to treat the water quality volume associated with the proposed development, as well as to provide attenuation for the peak discharge rate for the 1-, 2-, 10-, 25-, 50-, and 100-year storm events.

The stormwater quality measures provided as part of the proposed development include concrete sub-surface stormwater storage chambers that will store the runoff from the paved parking areas prior to out letting to the existing stormwater system. This system will allow a maximum flow of 13.39 CFS at the 100-year storm event. This controlled outflow will exit the control structure to a proposed 54 linear foot lever spreader to the center of the southerly property line. Additional measures include water quality units and catch basins with two-foot sumps and hooded outlets. These measures will result in an enhancement to the stormwater discharge from the site.

PROPOSED UTILITIES

Sanitary Sewer discharge will be through a proposed 8-inch PVC sanitary sewer line from the proposed building to an existing sewer line on site.

Using the technical standards of the Connecticut Public Health Code, the estimated sewage flow is 0.1 gallons per day per square foot of gross floor area. The development has a proposed 98,086 square feet, 96 units, and 122 bedrooms.

150 GPD per bedroom
150 x 122 = 18,300 gallons per day average flow
Average Daily Flow = 12.71 gallons per minute

Peak flow estimate = 12.71 gpm x 5 (peaking factor)

= 63.55 gpm peak

= 0.142 cfs peak

Electrical service will connect to a new electric pole with underground conduit. Proposed fire and domestic water lines will connect from existing utility mains on site per coordination with the water utility company.

SOIL EROSION AND SEDIMENT CONTROL

The plan for soil erosion and sediment control prepared for the proposed development has been developed in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, prepared by the Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection.

The soil erosion and sediment control measures that will be proposed as part of this project include geotextile silt fences, temporary sediment traps, construction entrances, and inlet protection for existing and proposed drainage features.

The temporary sediment traps will be excavated to detain sediment-laden runoff from contributing drainage areas located within the project's limits. The sediment traps are proposed in the low-lying area of each contributing drainage area and have been sized to provide a minimum storage volume of 134 cubic yards per acre of drainage area as required by the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

For more details regarding the layout and design of the soil erosion and sediment control measures implemented as part of this project see Sheet SP-3, Soil Erosion and Sediment Control Plan.

APPENDIX A
HYDROLOGY

Existing Site Stage Hydrographs
Proposed Site Stage Hydrographs
Existing Drainage Area Map
Proposed Drainage Area Map

Hydraflow Table of Contents

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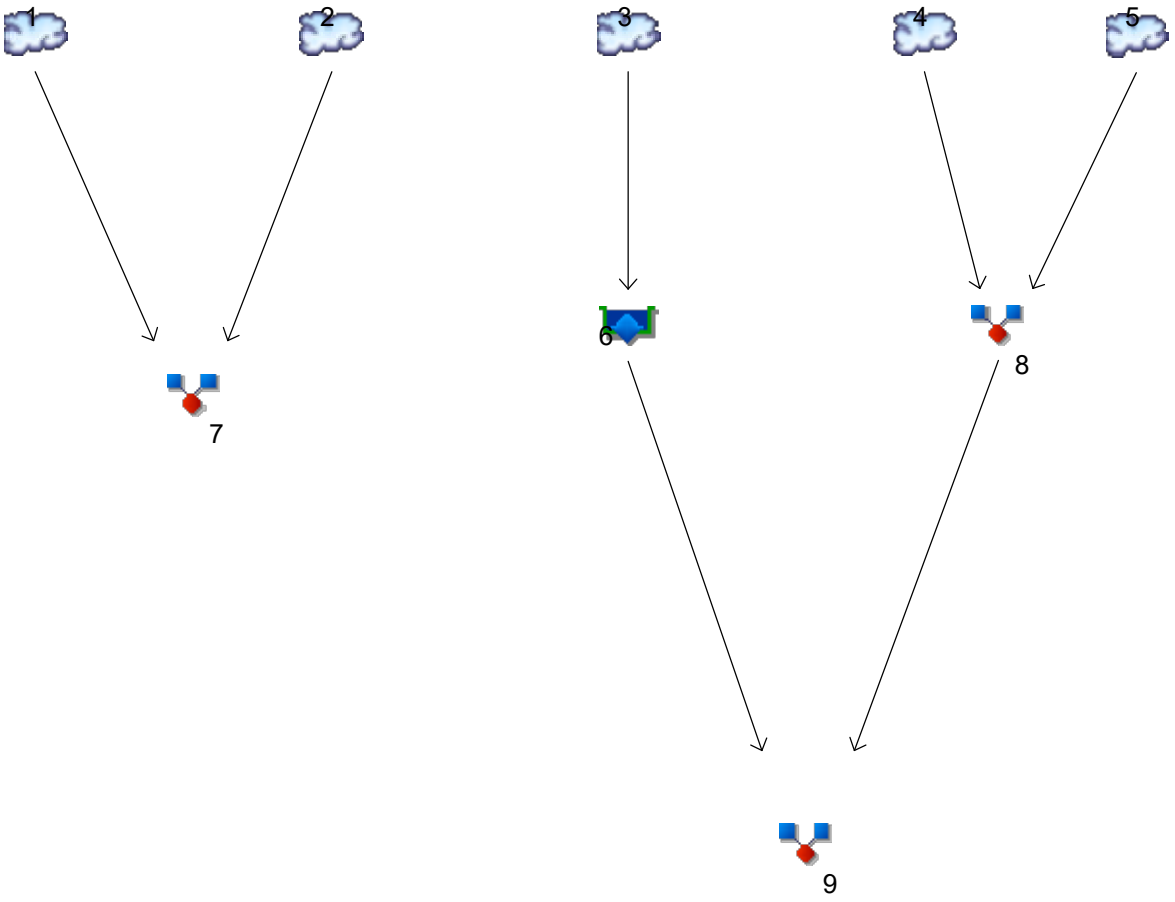
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Wednesday, 03 / 26 / 2025

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	EDA-1
2	SCS Runoff	EDA-2 BYPASS
3	SCS Runoff	PDA-1
4	SCS Runoff	PDA-2 BYPASS
5	SCS Runoff	PDA-3 BYPASS
6	Reservoir	TO GALLERIES
7	Combine	TOTAL EXISTING
8	Combine	PROPOSED BYPASS
9	Combine	TOTAL PROPOSED

Hydrograph Return Period Recap

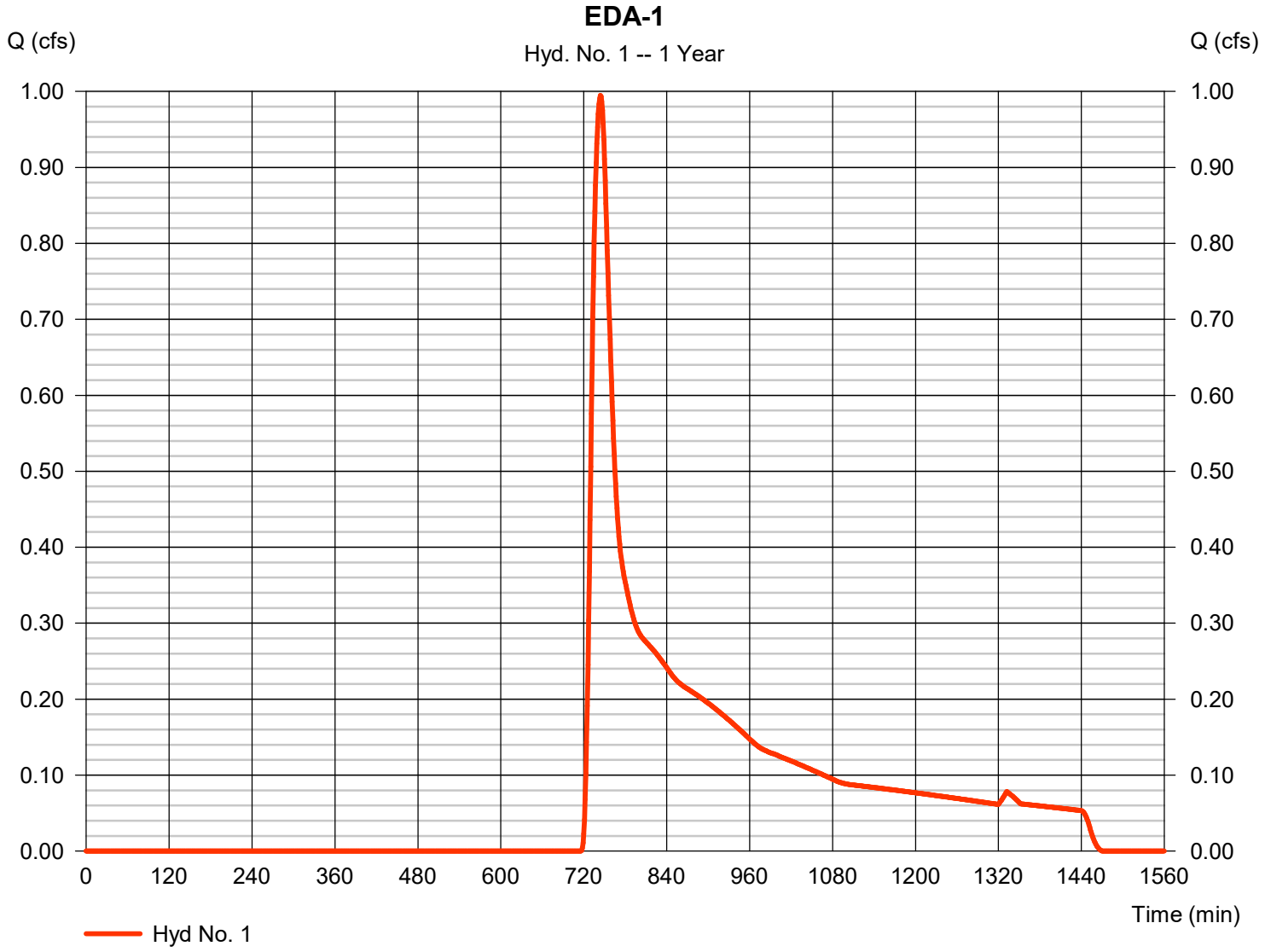
Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	0.995	2.199	-------	-------	7.255	11.06	14.07	17.49	EDA-1
2	SCS Runoff	------	0.079	0.194	-------	-------	0.655	0.998	1.268	1.574	EDA-2 BYPASS
3	SCS Runoff	------	4.019	6.073	-------	-------	12.78	17.19	20.49	24.12	PDA-1
4	SCS Runoff	------	0.090	0.222	-------	-------	0.747	1.135	1.439	1.787	PDA-2 BYPASS
5	SCS Runoff	------	0.297	0.735	-------	-------	2.474	3.769	4.789	5.944	PDA-3 BYPASS
6	Reservoir	3	0.776	1.634	-------	-------	5.059	7.431	8.885	13.22	TO GALLERIES
7	Combine	1, 2,	1.051	2.320	-------	-------	7.631	11.63	14.79	18.37	TOTAL EXISTING
8	Combine	4, 5,	0.384	0.947	-------	-------	3.196	4.858	6.165	7.660	PROPOSED BYPASS
9	Combine	6, 8	0.898	2.102	-------	-------	6.270	9.407	11.27	16.47	TOTAL PROPOSED

Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.995 cfs
Storm frequency	=	1 yrs	Time to peak	=	744 min
Time interval	=	1 min	Hyd. volume	=	7,022 cuft
Drainage area	=	5.354 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.00 min
Total precip.	=	2.99 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 1

EDA-1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.400		0.011		0.011		
Flow length (ft)	= 300.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.66		0.00		0.00		
Land slope (%)	= 22.00		0.00		0.00		
Travel Time (min)	**= 18.53**	**+**	**0.00**	**+**	**0.00**	**=**	**18.53**
Shallow Concentrated Flow							
Flow length (ft)	= 195.00		0.00		0.00		
Watercourse slope (%)	= 22.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=7.57		0.00		0.00		
Travel Time (min)	**= 0.43**	**+**	**0.00**	**+**	**0.00**	**=**	**0.43**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

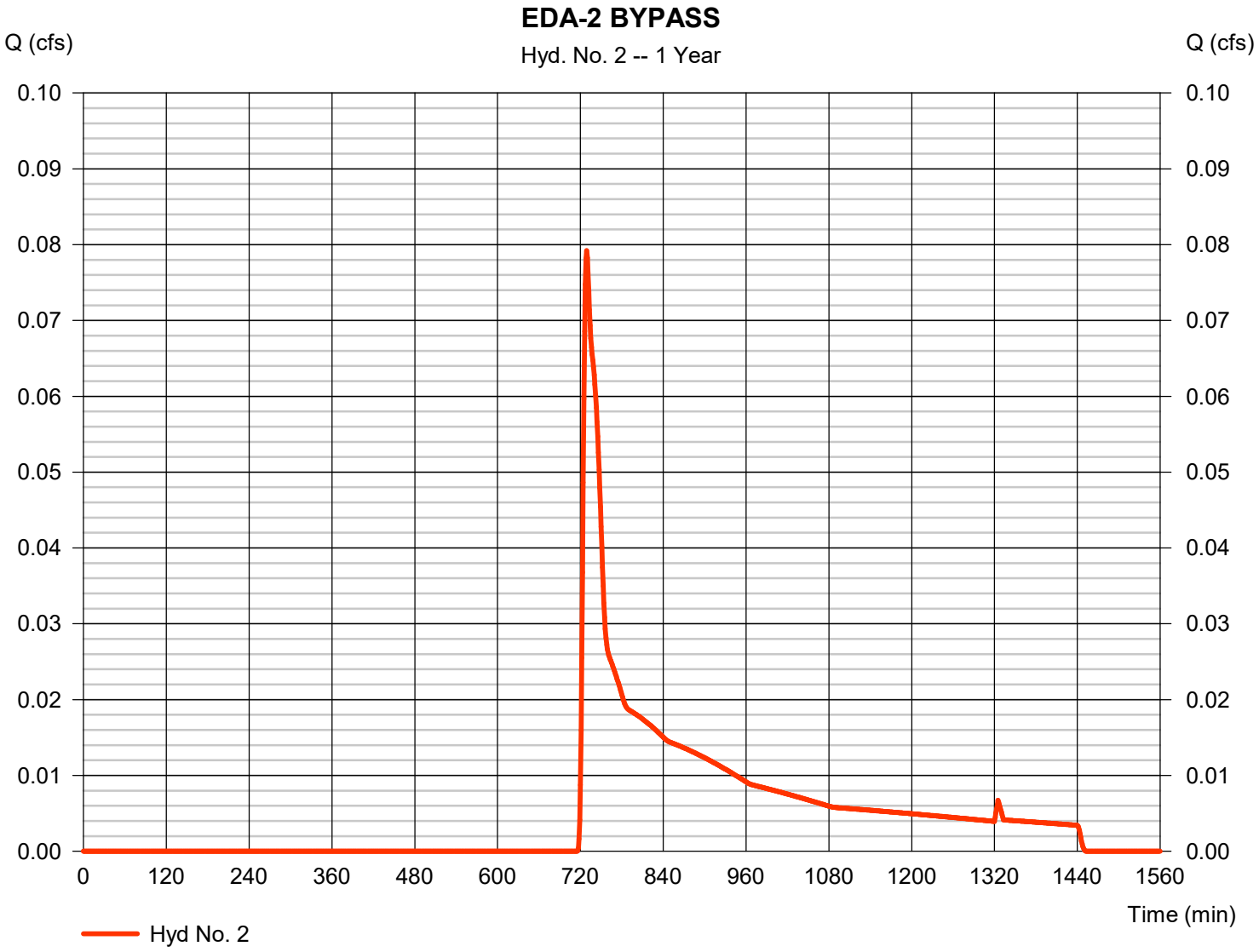
Total Travel Time, Tc ..... 19.00 min

Hydrograph Report

Hyd. No. 2

EDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.079 cfs
Storm frequency	=	1 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	459 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	2.99 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 2

EDA-2 BYPASS

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.400		0.011		0.011		
Flow length (ft)	= 97.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.66		0.00		0.00		
Land slope (%)	= 22.00		0.00		0.00		
Travel Time (min)	**= 7.51**	**+**	**0.00**	**+**	**0.00**	**=**	**7.51**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 7.50 min

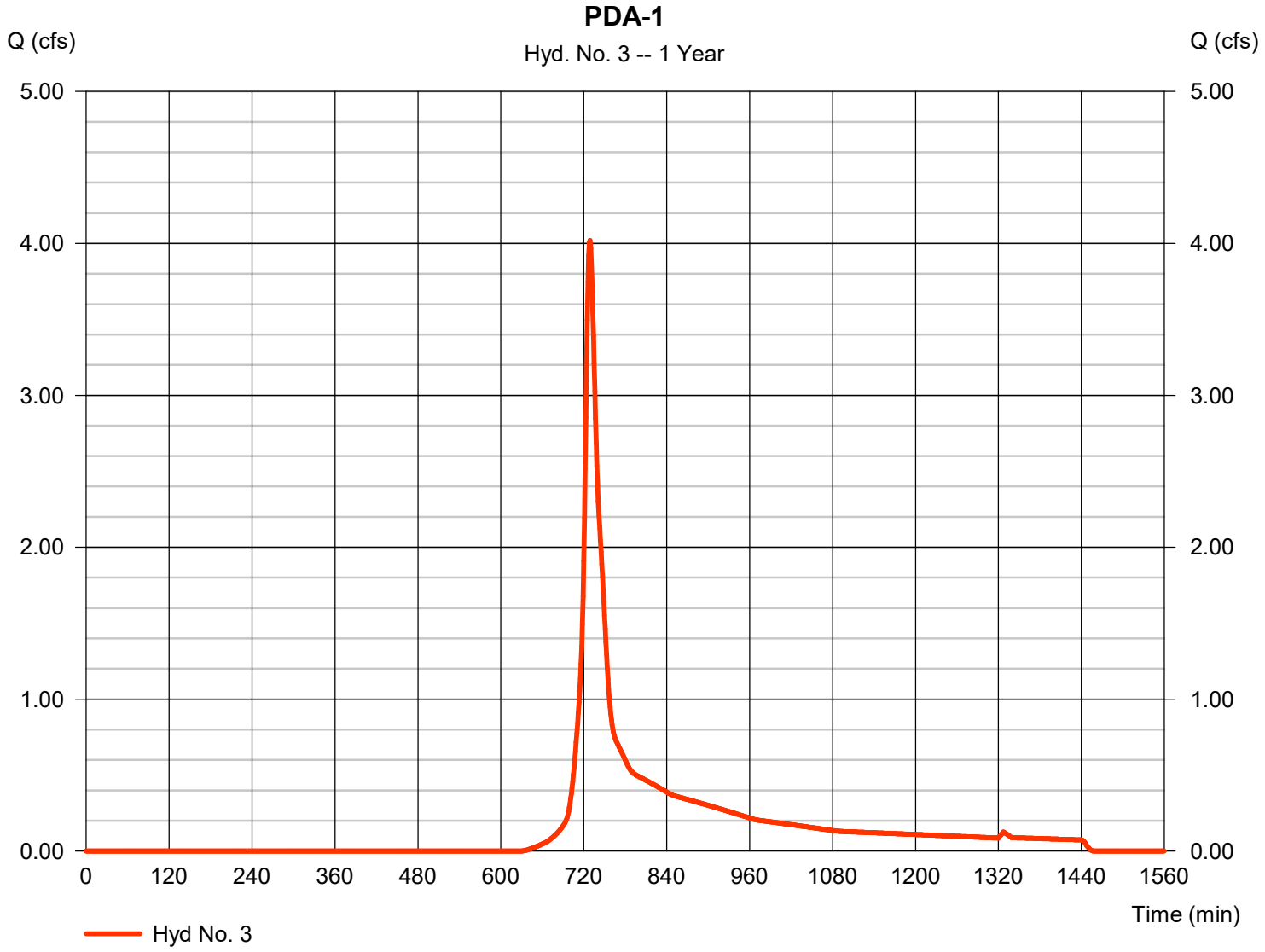
Hydrograph Report

Hyd. No. 3

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.019 cfs
Storm frequency	=	1 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	15,312 cuft
Drainage area	=	4.110 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.80 min
Total precip.	=	2.99 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.620 x 98) + (2.490 x 61)] / 4.110



TR55 Tc Worksheet

Hyd. No. 3

PDA-1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 105.0		57.0		0.0		
Two-year 24-hr precip. (in)	= 3.66		3.66		0.00		
Land slope (%)	= 2.00		2.00		0.00		
Travel Time (min)	**= 9.53**	**+**	**0.72**	**+**	**0.00**	**=**	**10.25**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow							
X sectional flow area (sqft)	= 1.23		0.00		0.00		
Wetted perimeter (ft)	= 3.93		0.00		0.00		
Channel slope (%)	= 8.00		0.00		0.00		
Manning's n-value	= 0.010		0.015		0.015		
Velocity (ft/s)	=19.33						
			0.00				
					0.00		
Flow length (ft)	({0})615.0		0.0		0.0		
Travel Time (min)	**= 0.53**	**+**	**0.00**	**+**	**0.00**	**=**	**0.53**

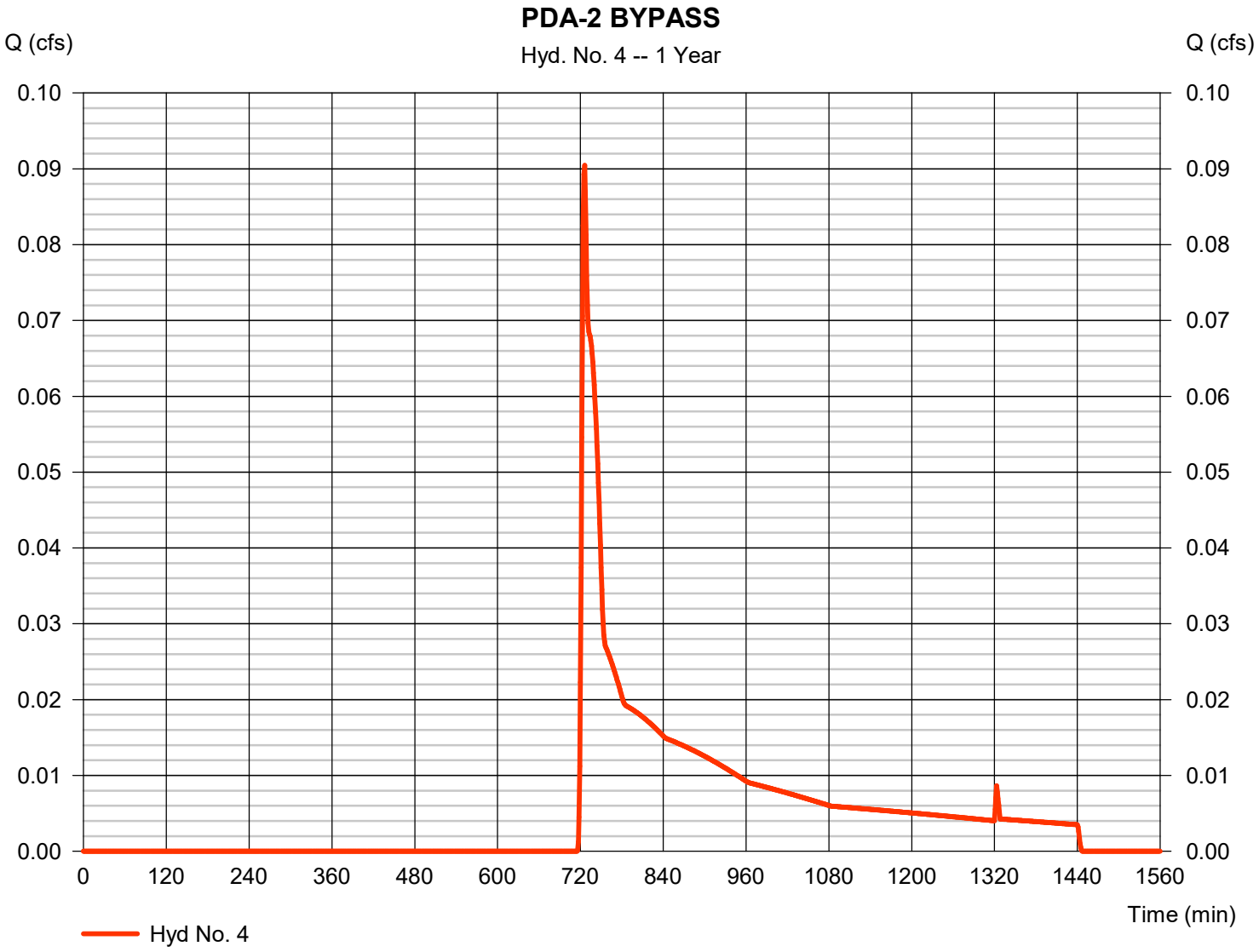
Total Travel Time, Tc ..... 10.80 min

Hydrograph Report

Hyd. No. 4

PDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.090 cfs
Storm frequency	=	1 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	471 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	3.40 min
Total precip.	=	2.99 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 4

PDA-2 BYPASS

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 97.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.66		0.00		0.00		
Land slope (%)	= 22.00		0.00		0.00		
Travel Time (min)	**= 3.43**	**+**	**0.00**	**+**	**0.00**	**=**	**3.43**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

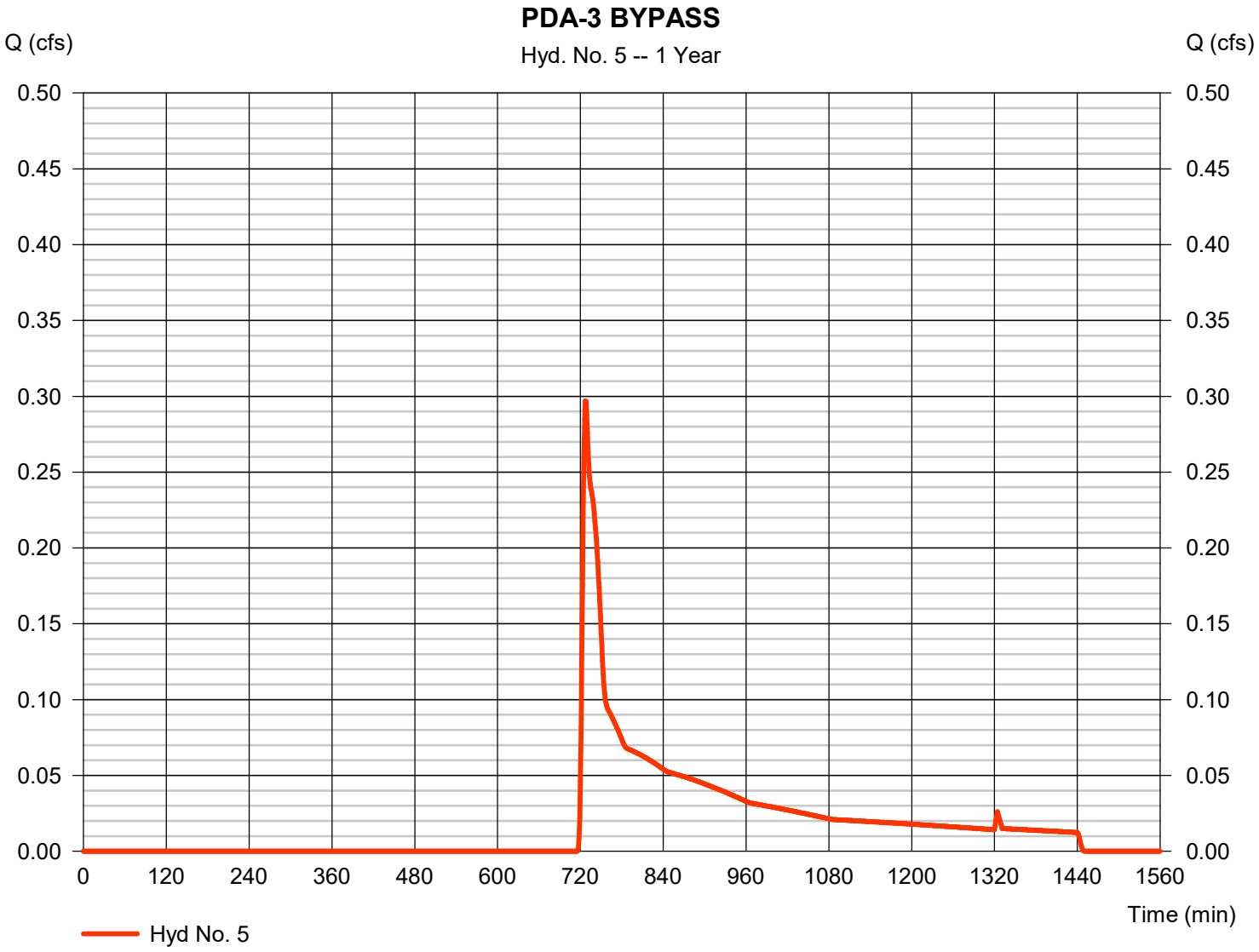
Total Travel Time, Tc ..... 3.40 min

Hydrograph Report

Hyd. No. 5

PDA-3 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.297 cfs
Storm frequency	=	1 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	1,661 cuft
Drainage area	=	1.228 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.50 min
Total precip.	=	2.99 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 5

PDA-3 BYPASS

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 175.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.66		0.00		0.00		
Land slope (%)	= 22.00		0.00		0.00		
Travel Time (min)	**= 5.49**	**+**	**0.00**	**+**	**0.00**	**=**	**5.49**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 5.50 min

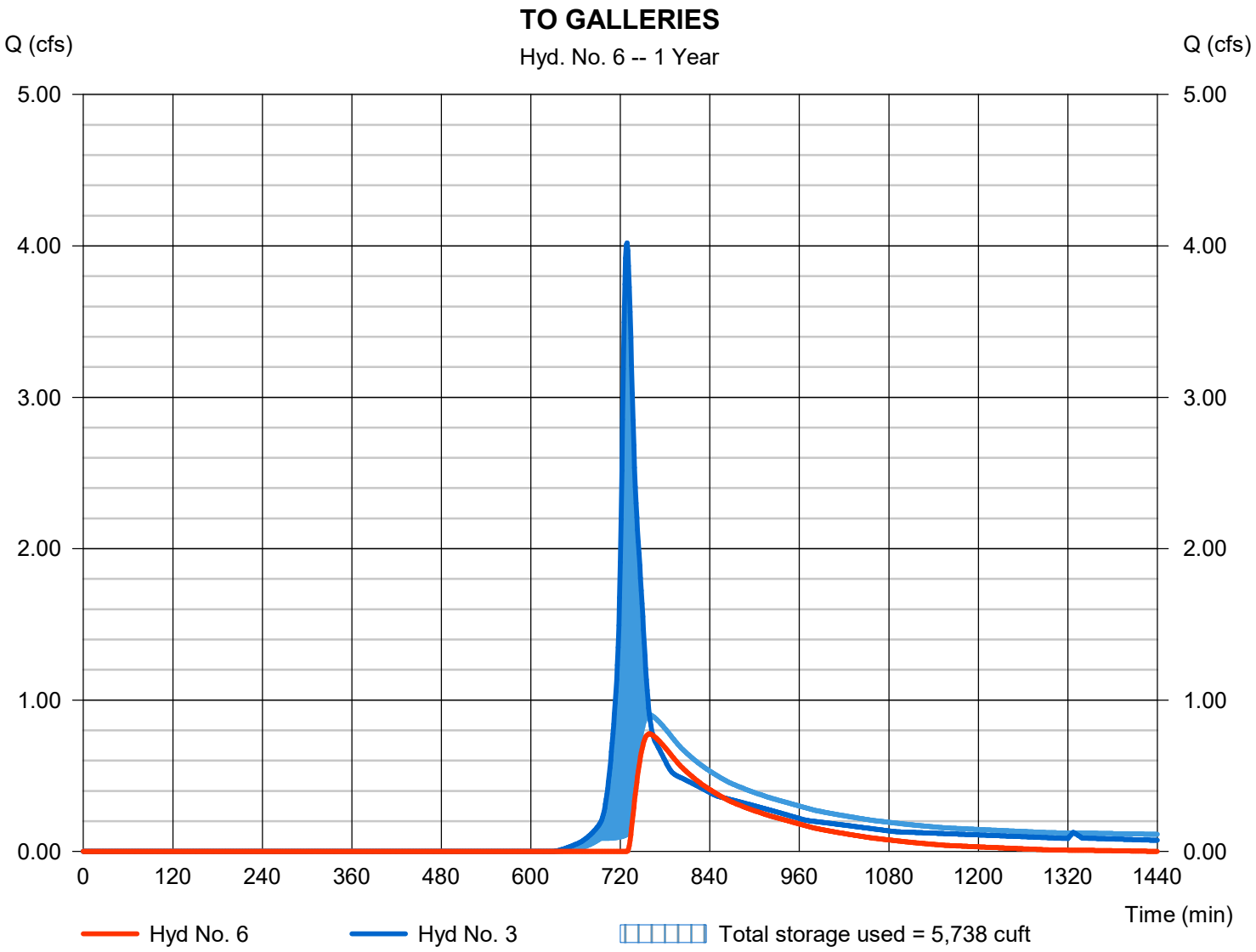
Hydrograph Report

Hyd. No. 6

TO GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	0.776 cfs
Storm frequency	=	1 yrs	Time to peak	=	759 min
Time interval	=	1 min	Hyd. volume	=	7,055 cuft
Inflow hyd. No.	=	3 - PDA-1	Max. Elevation	=	278.48 ft
Reservoir name	=	Galleries	Max. Storage	=	5,738 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 1 - Galleries

Pond Data

UG Chambers -Invert elev. = 278.00 ft, Rise x Span = 4.00 x 4.00 ft, Barrel Len = 1216.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 277.00 ft, Width = 6.00 ft, Height = 5.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	277.00	n/a	0	0
0.50	277.50	n/a	1,459	1,459
1.00	278.00	n/a	1,459	2,919
1.50	278.50	n/a	2,919	5,838
2.00	279.00	n/a	2,919	8,757
2.50	279.50	n/a	2,919	11,676
3.00	280.00	n/a	2,919	14,595
3.50	280.50	n/a	2,919	17,514
4.00	281.00	n/a	2,919	20,433
4.50	281.50	n/a	2,919	23,352
5.00	282.00	n/a	2,919	26,271

Culvert / Orifice Structures

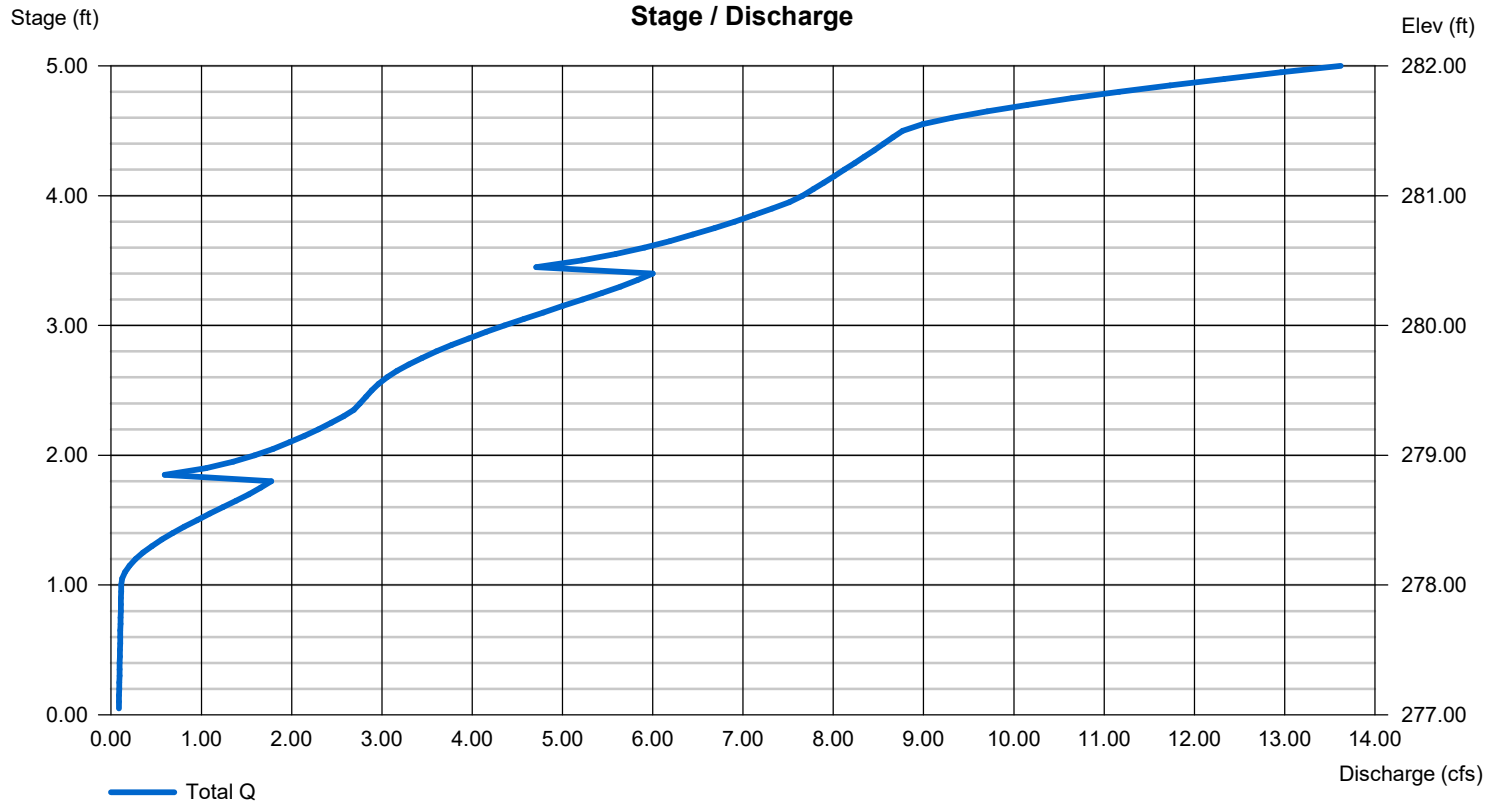
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	10.00	11.00	0.00
Span (in)	= 0.00	10.00	11.00	0.00
No. Barrels	= 0	1	1	0
Invert El. (ft)	= 0.00	278.00	279.50	0.00
Length (ft)	= 0.00	0.50	0.50	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.30	0.00	0.00	0.00
Crest El. (ft)	= 281.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.500 (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).

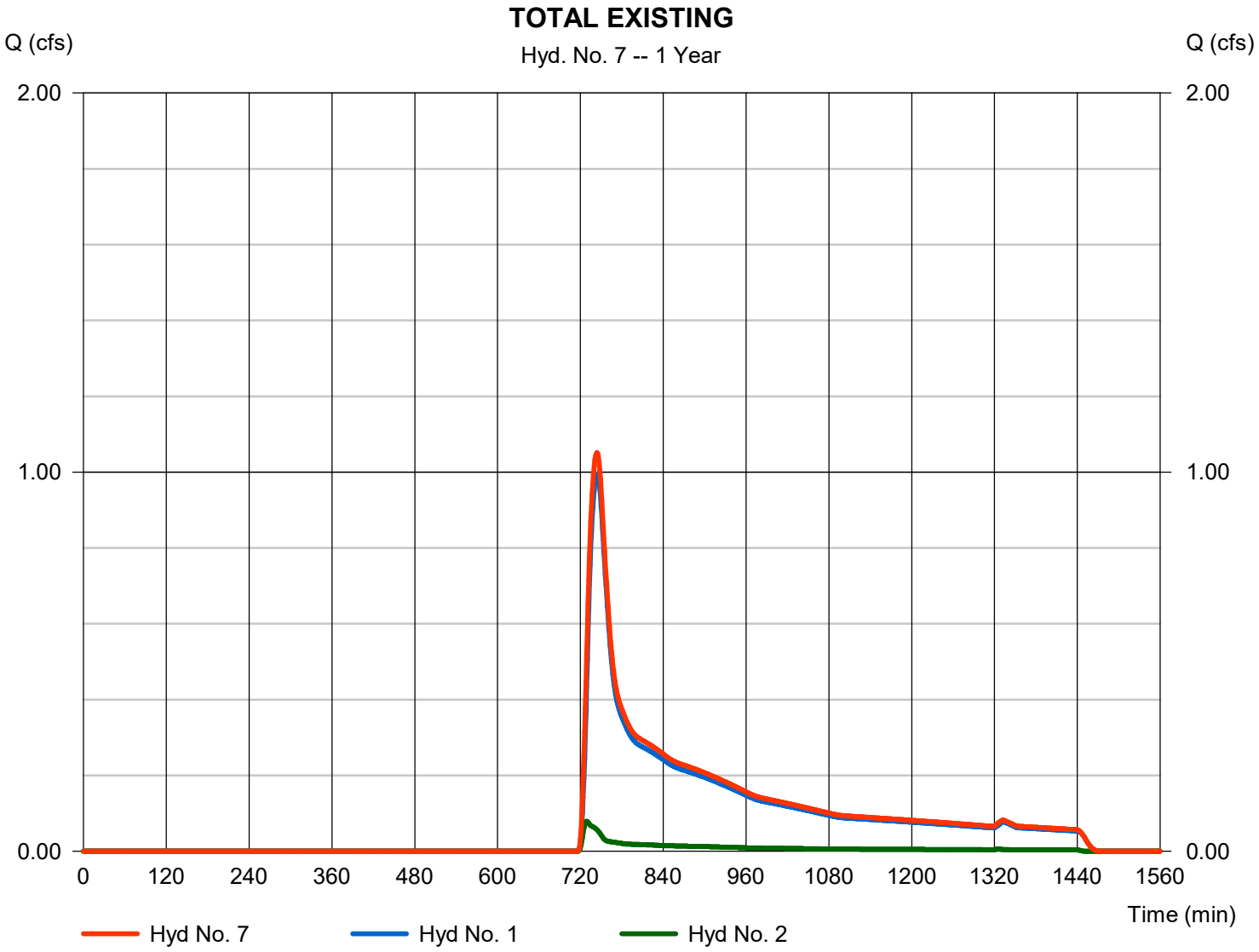


Hydrograph Report

Hyd. No. 7

TOTAL EXISTING

Hydrograph type	= Combine	Peak discharge	= 1.051 cfs
Storm frequency	= 1 yrs	Time to peak	= 744 min
Time interval	= 1 min	Hyd. volume	= 7,482 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 5.713 ac

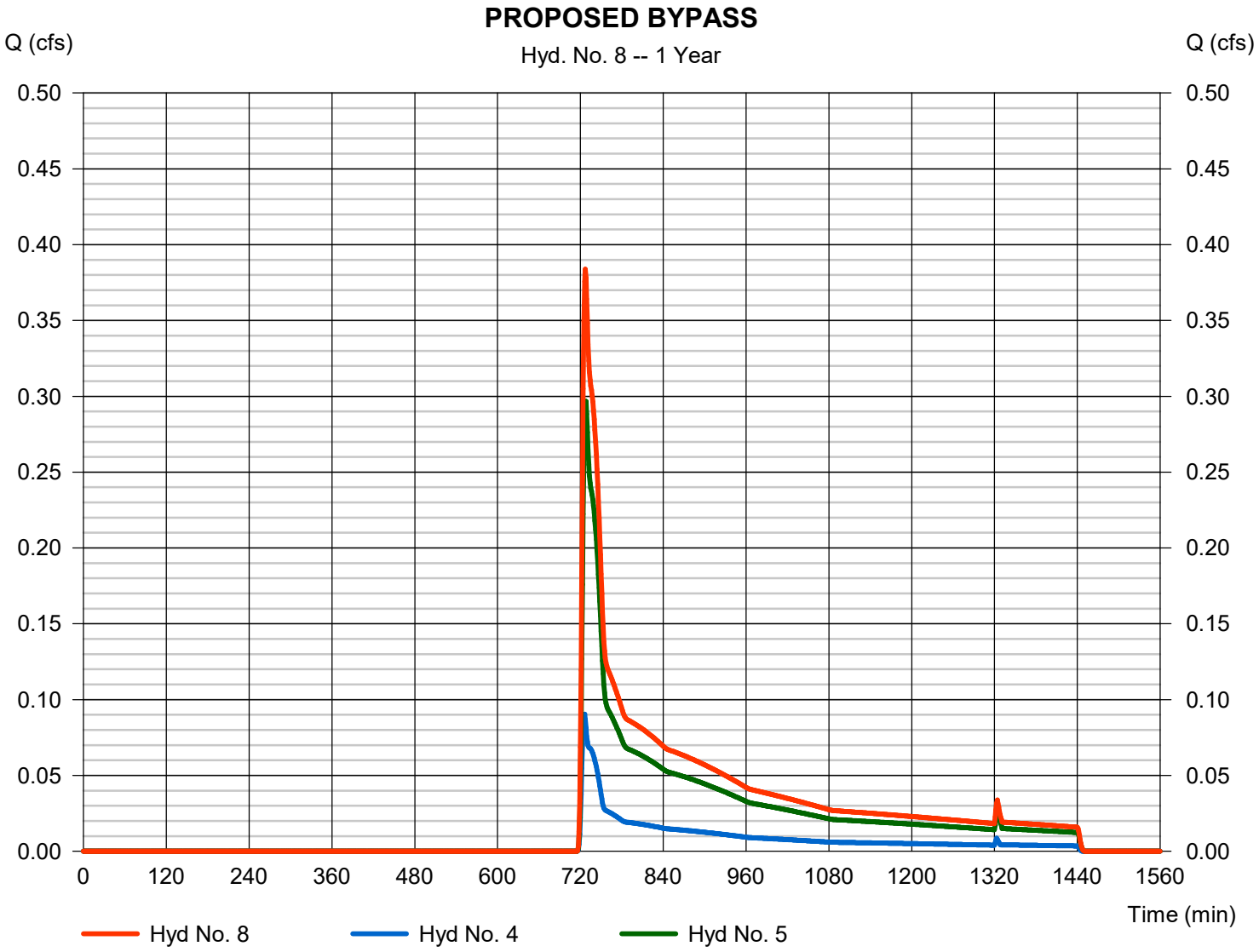


Hydrograph Report

Hyd. No. 8

PROPOSED BYPASS

Hydrograph type	=	Combine	Peak discharge	=	0.384 cfs
Storm frequency	=	1 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	2,132 cuft
Inflow hyds.	=	4, 5	Contrib. drain. area	=	1.587 ac

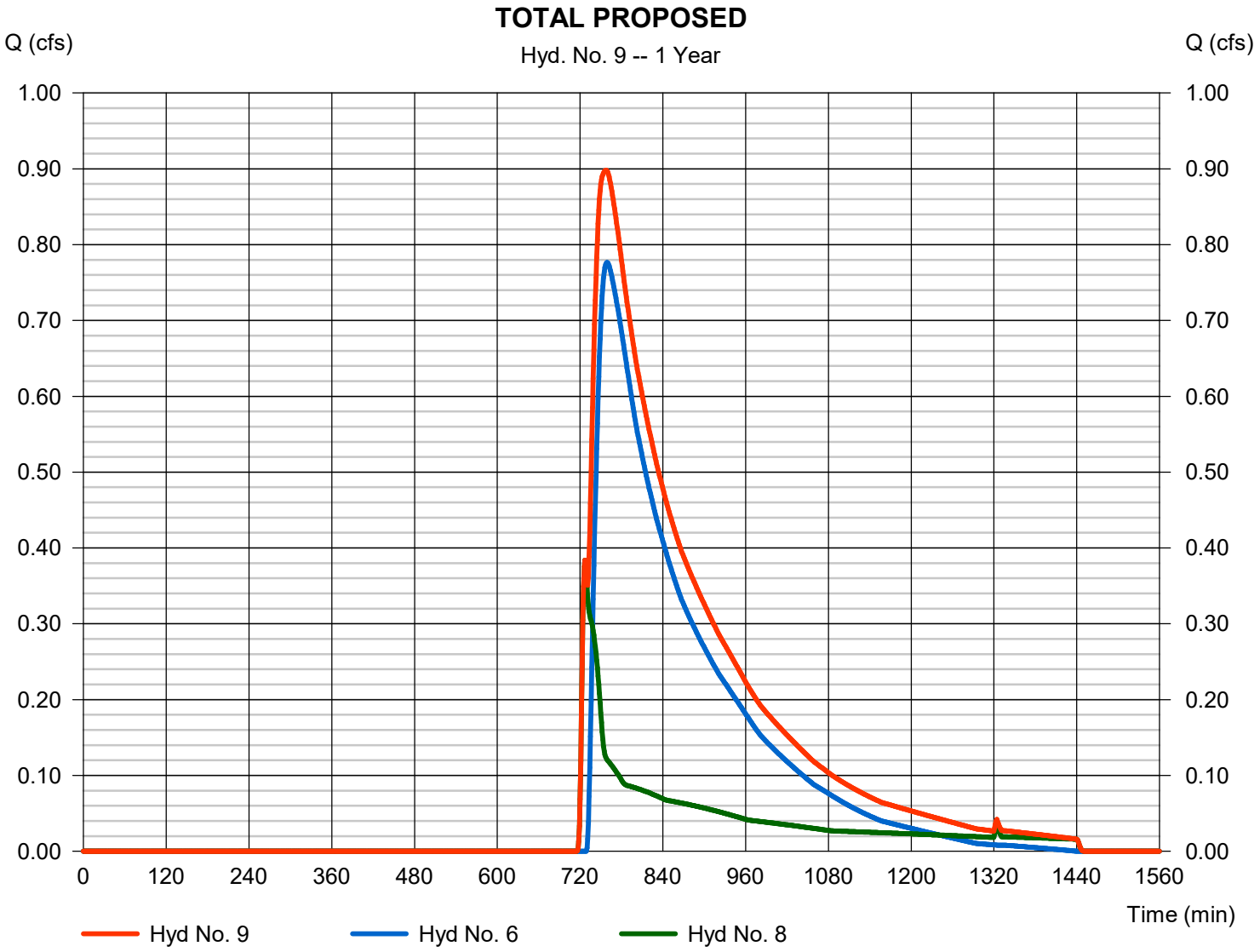


Hydrograph Report

Hyd. No. 9

TOTAL PROPOSED

Hydrograph type	=	Combine	Peak discharge	=	0.898 cfs
Storm frequency	=	1 yrs	Time to peak	=	757 min
Time interval	=	1 min	Hyd. volume	=	9,187 cuft
Inflow hyds.	=	6, 8	Contrib. drain. area	=	0.000 ac

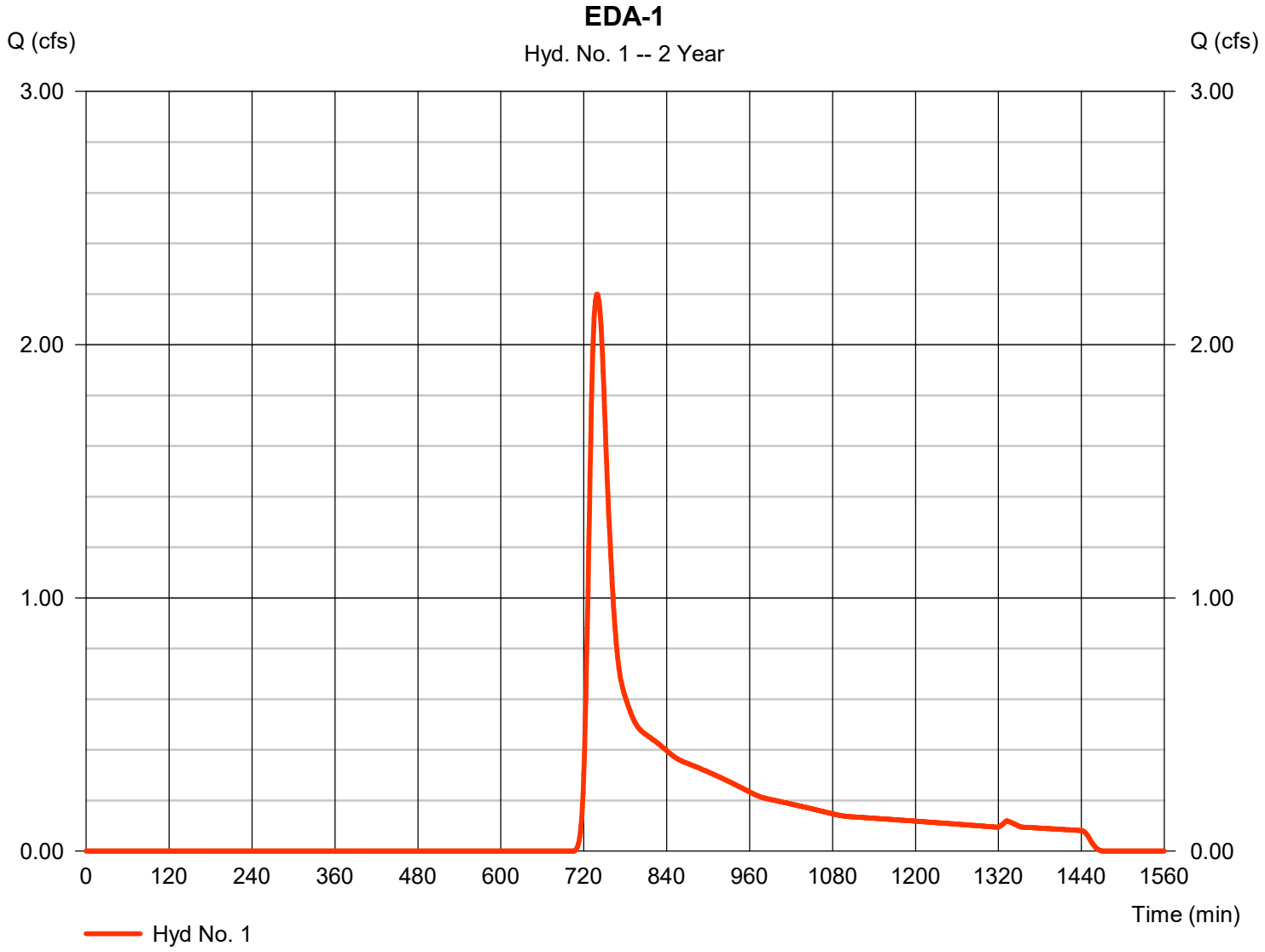


Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.199 cfs
Storm frequency	=	2 yrs	Time to peak	=	739 min
Time interval	=	1 min	Hyd. volume	=	12,560 cuft
Drainage area	=	5.354 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.00 min
Total precip.	=	3.66 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

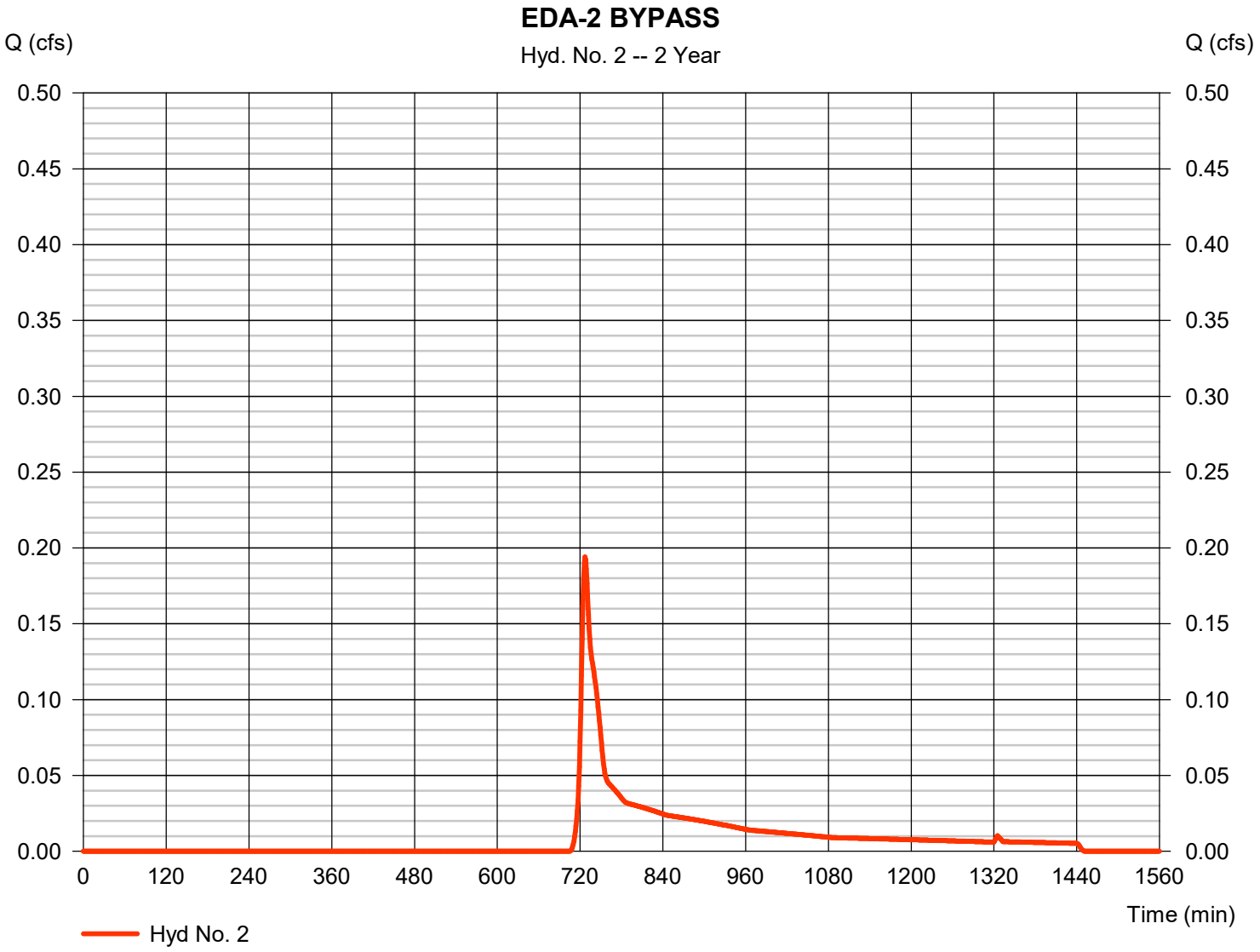


Hydrograph Report

Hyd. No. 2

EDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.194 cfs
Storm frequency	=	2 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	821 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	3.66 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



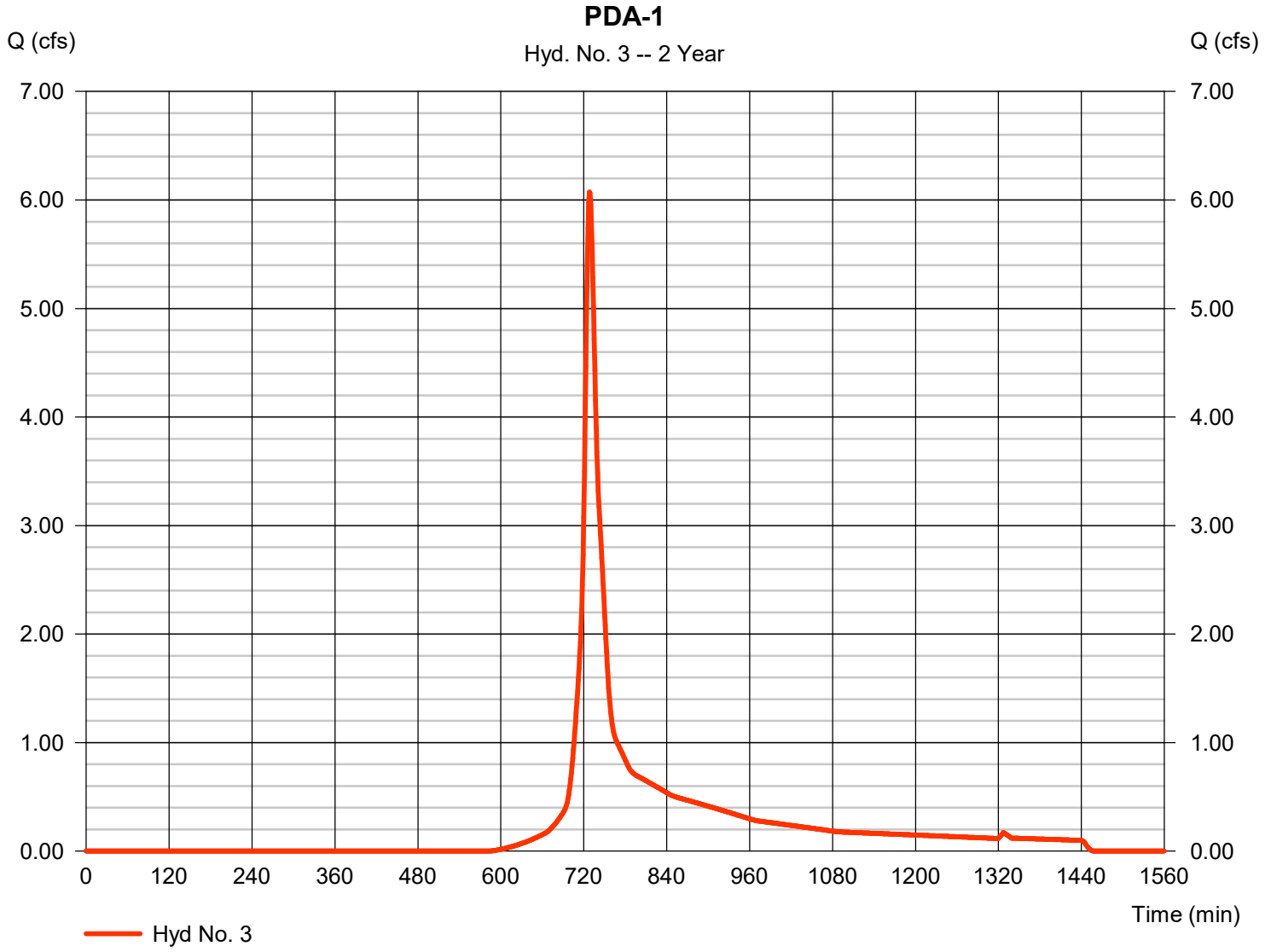
Hydrograph Report

Hyd. No. 3

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.073 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	22,513 cuft
Drainage area	=	4.110 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.80 min
Total precip.	=	3.66 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.620 x 98) + (2.490 x 61)] / 4.110

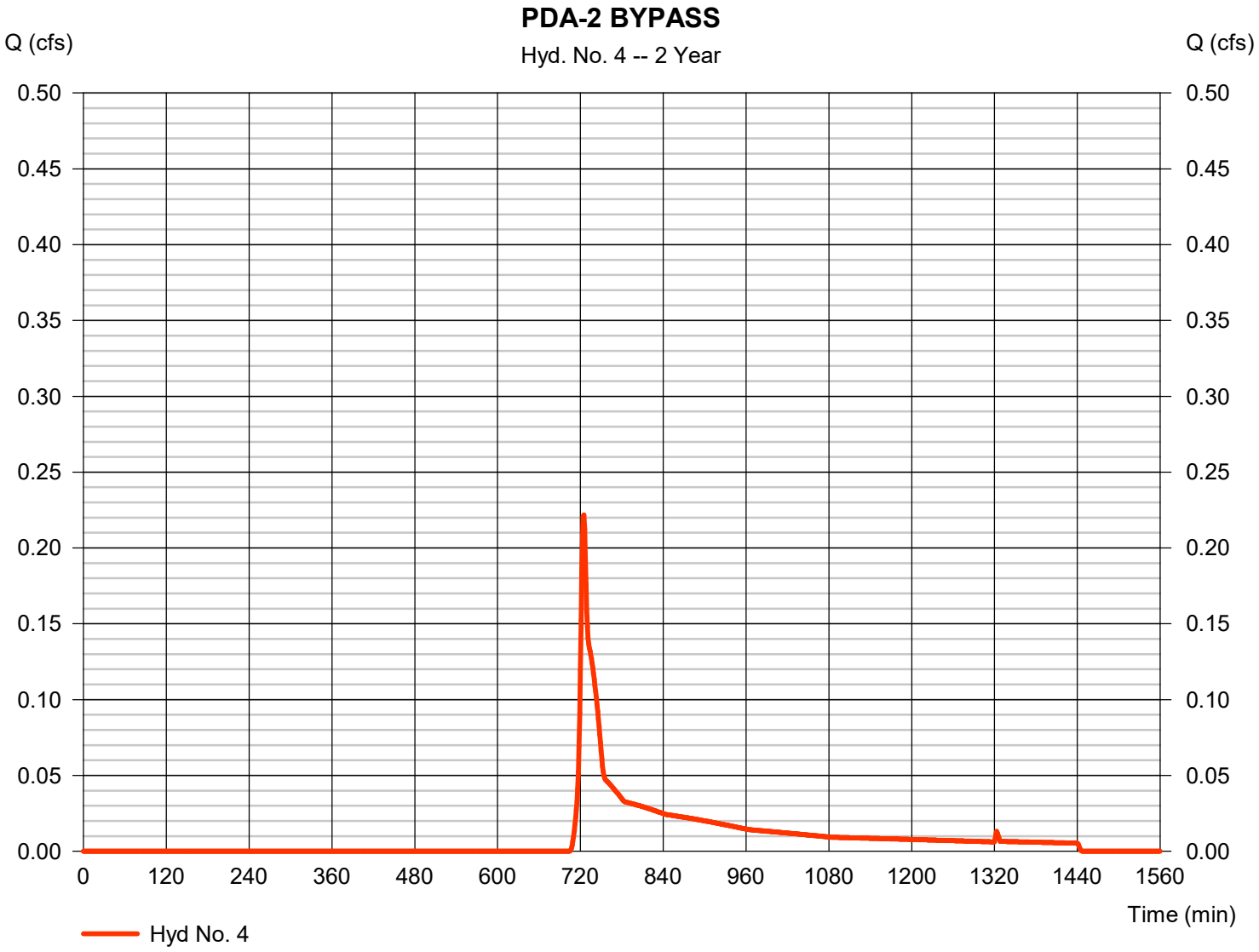


Hydrograph Report

Hyd. No. 4

PDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.222 cfs
Storm frequency	=	2 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	842 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	3.40 min
Total precip.	=	3.66 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

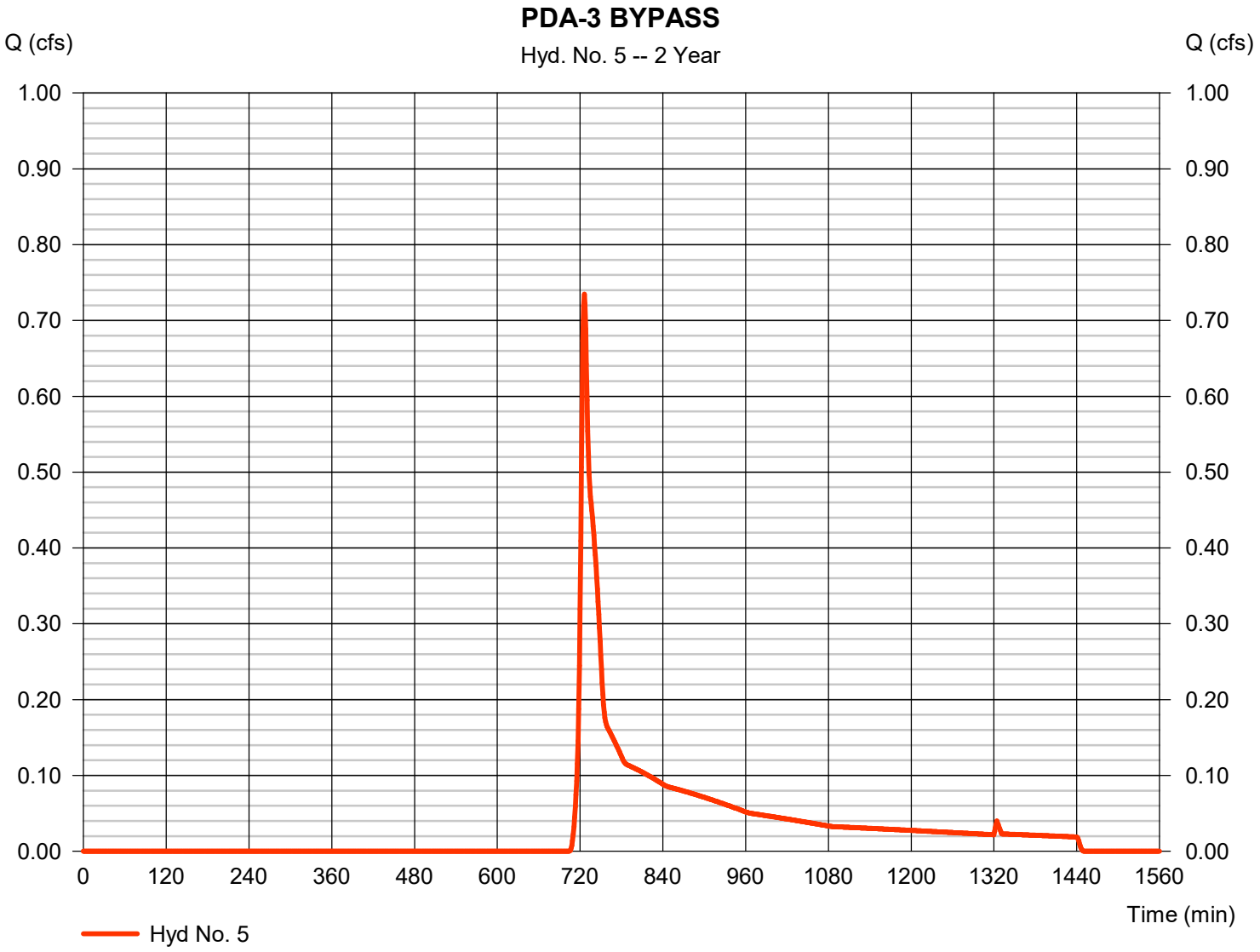


Hydrograph Report

Hyd. No. 5

PDA-3 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.735 cfs
Storm frequency	=	2 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	2,971 cuft
Drainage area	=	1.228 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.50 min
Total precip.	=	3.66 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



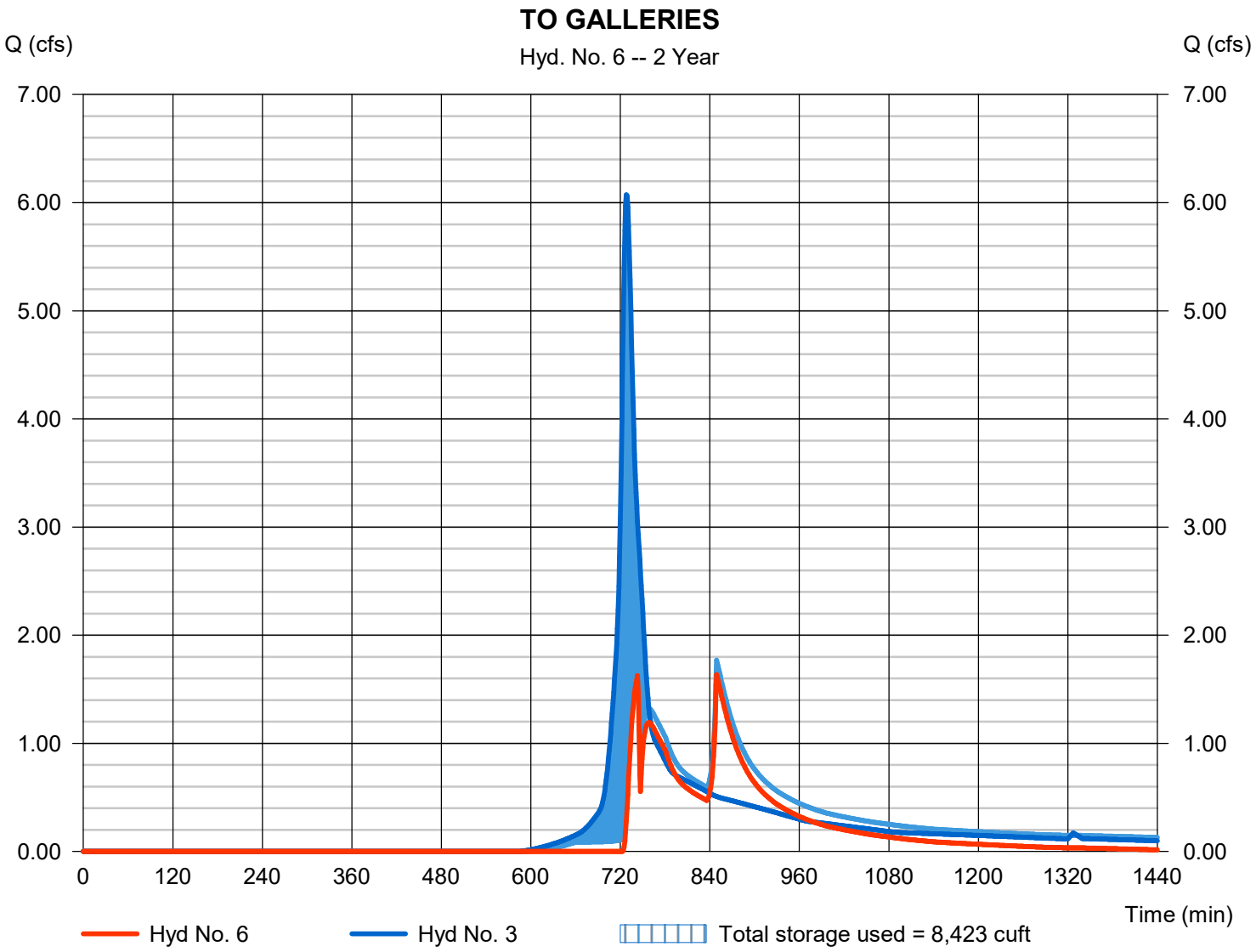
Hydrograph Report

Hyd. No. 6

TO GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	1.634 cfs
Storm frequency	=	2 yrs	Time to peak	=	849 min
Time interval	=	1 min	Hyd. volume	=	13,611 cuft
Inflow hyd. No.	=	3 - PDA-1	Max. Elevation	=	278.80 ft
Reservoir name	=	Galleries	Max. Storage	=	8,423 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

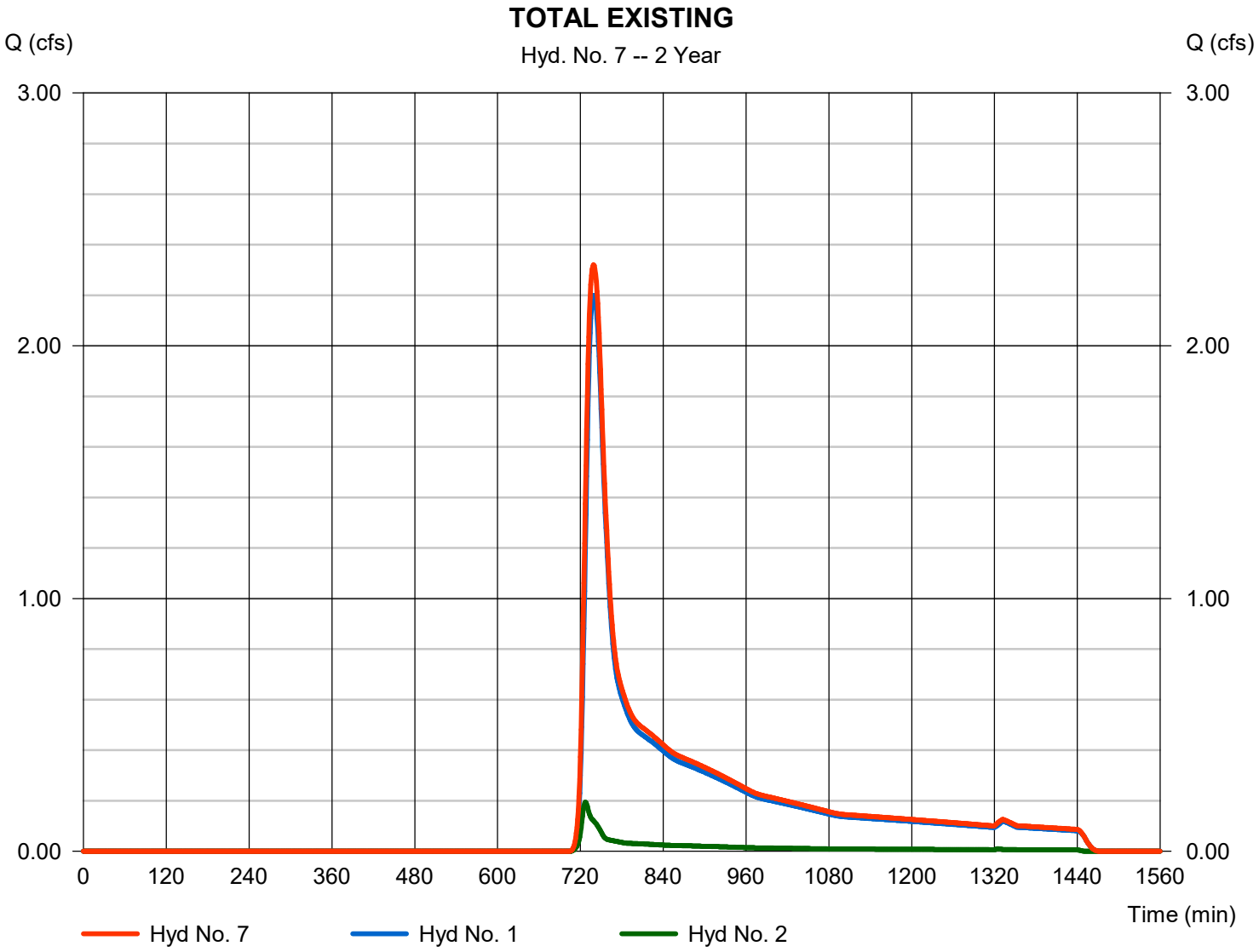


Hydrograph Report

Hyd. No. 7

TOTAL EXISTING

Hydrograph type	= Combine	Peak discharge	= 2.320 cfs
Storm frequency	= 2 yrs	Time to peak	= 739 min
Time interval	= 1 min	Hyd. volume	= 13,381 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 5.713 ac

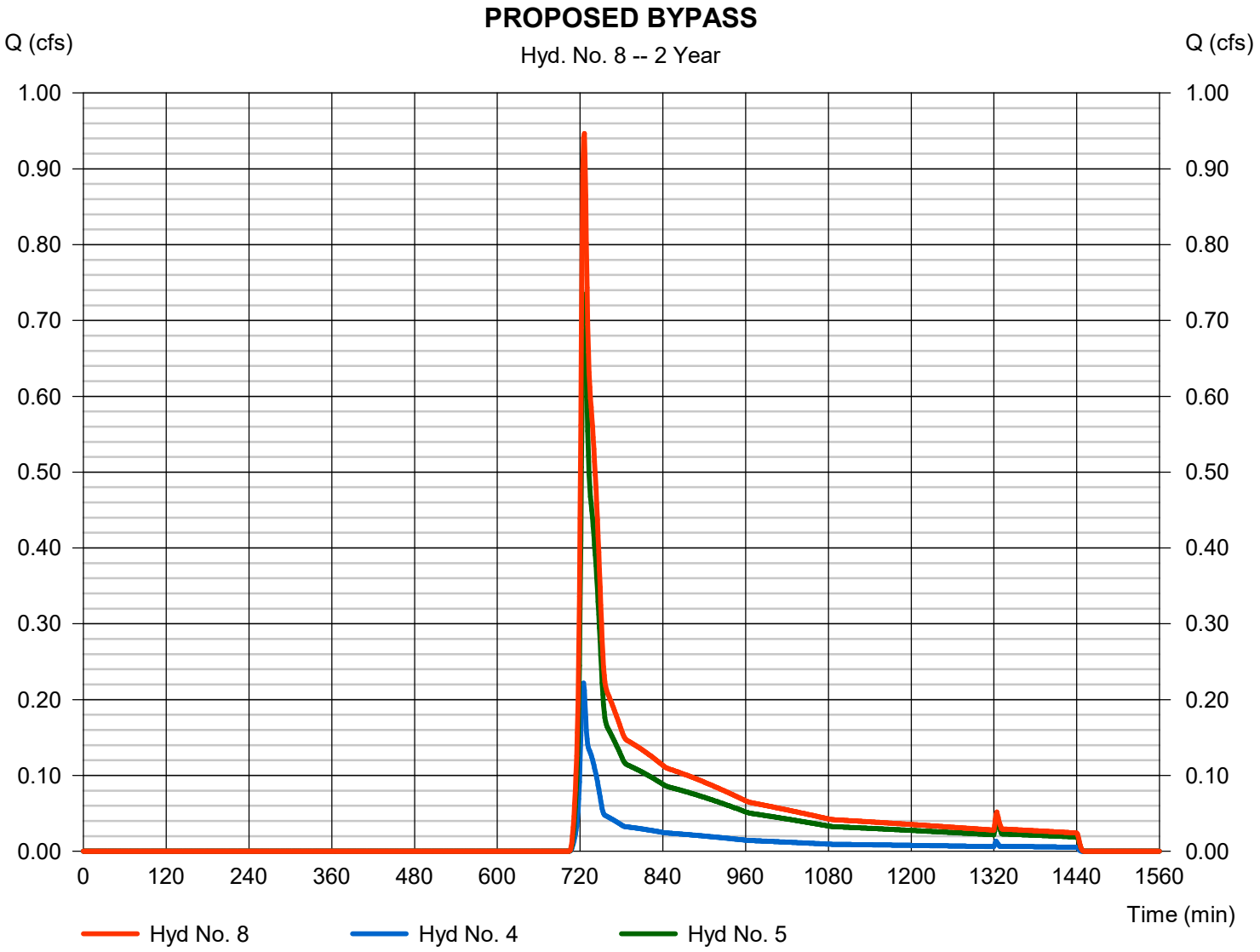


Hydrograph Report

Hyd. No. 8

PROPOSED BYPASS

Hydrograph type	=	Combine	Peak discharge	=	0.947 cfs
Storm frequency	=	2 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	3,813 cuft
Inflow hyds.	=	4, 5	Contrib. drain. area	=	1.587 ac

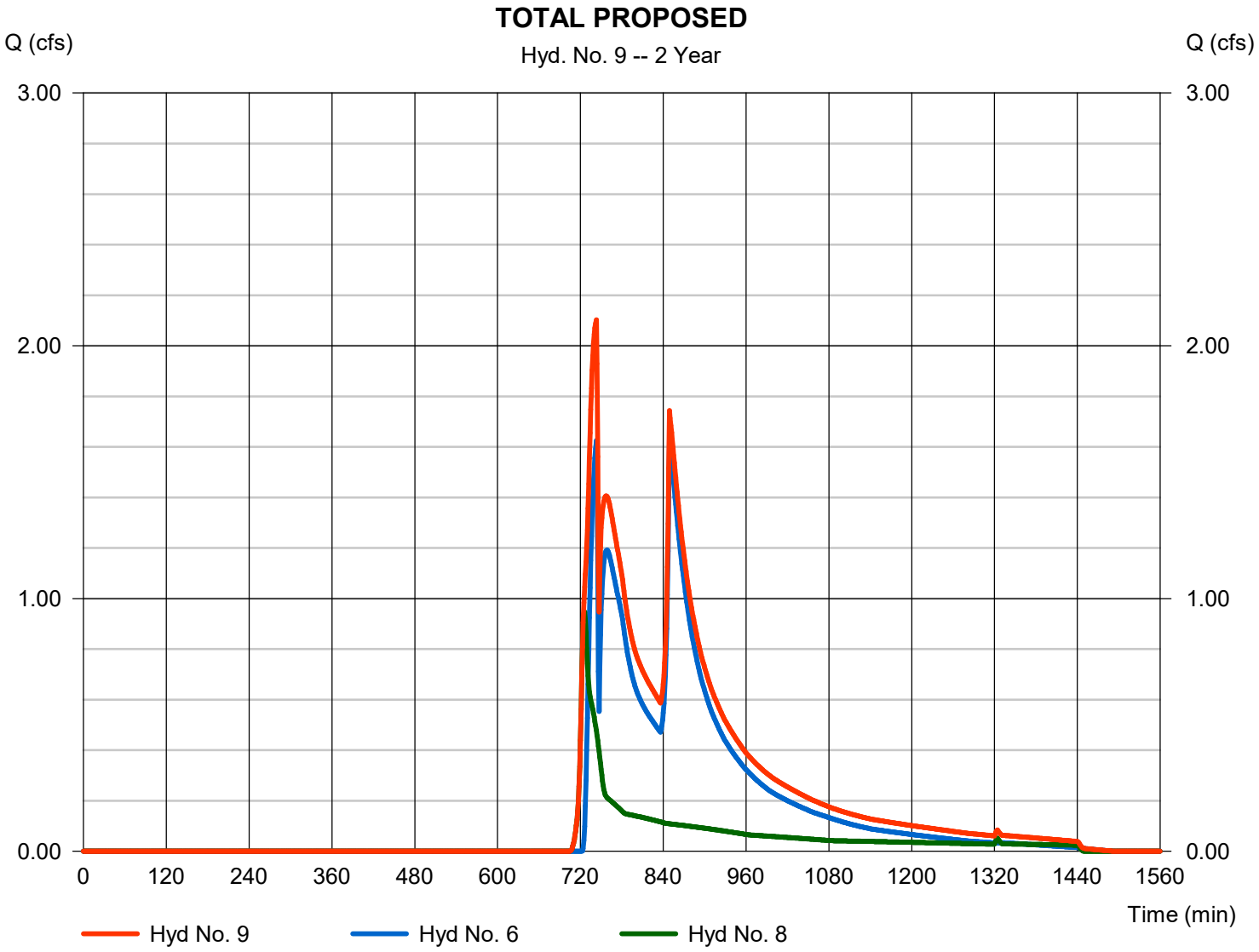


Hydrograph Report

Hyd. No. 9

TOTAL PROPOSED

Hydrograph type	=	Combine	Peak discharge	=	2.102 cfs
Storm frequency	=	2 yrs	Time to peak	=	743 min
Time interval	=	1 min	Hyd. volume	=	17,424 cuft
Inflow hyds.	=	6, 8	Contrib. drain. area	=	0.000 ac

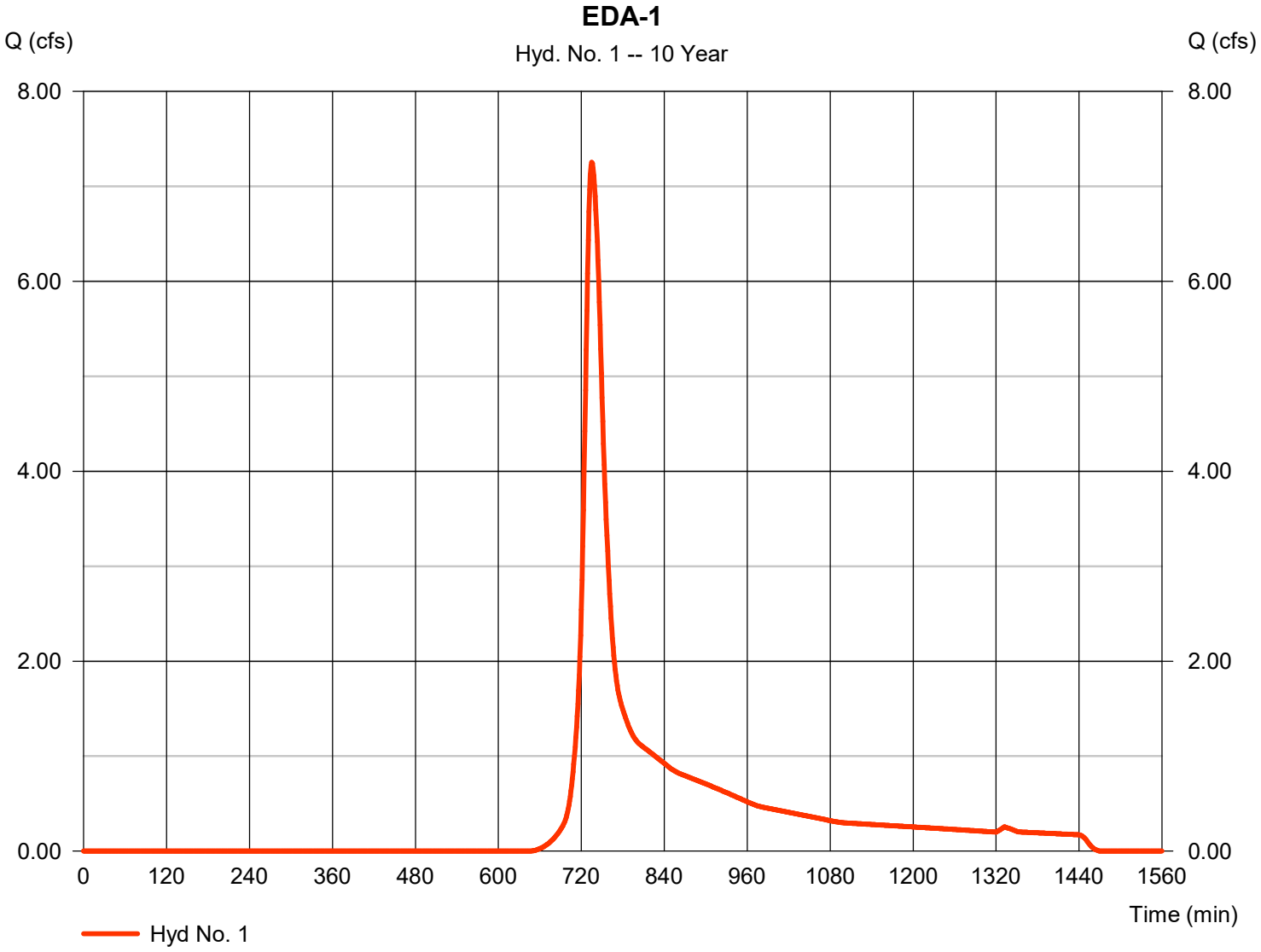


Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.255 cfs
Storm frequency	=	10 yrs	Time to peak	=	735 min
Time interval	=	1 min	Hyd. volume	=	34,122 cuft
Drainage area	=	5.354 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.00 min
Total precip.	=	5.62 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

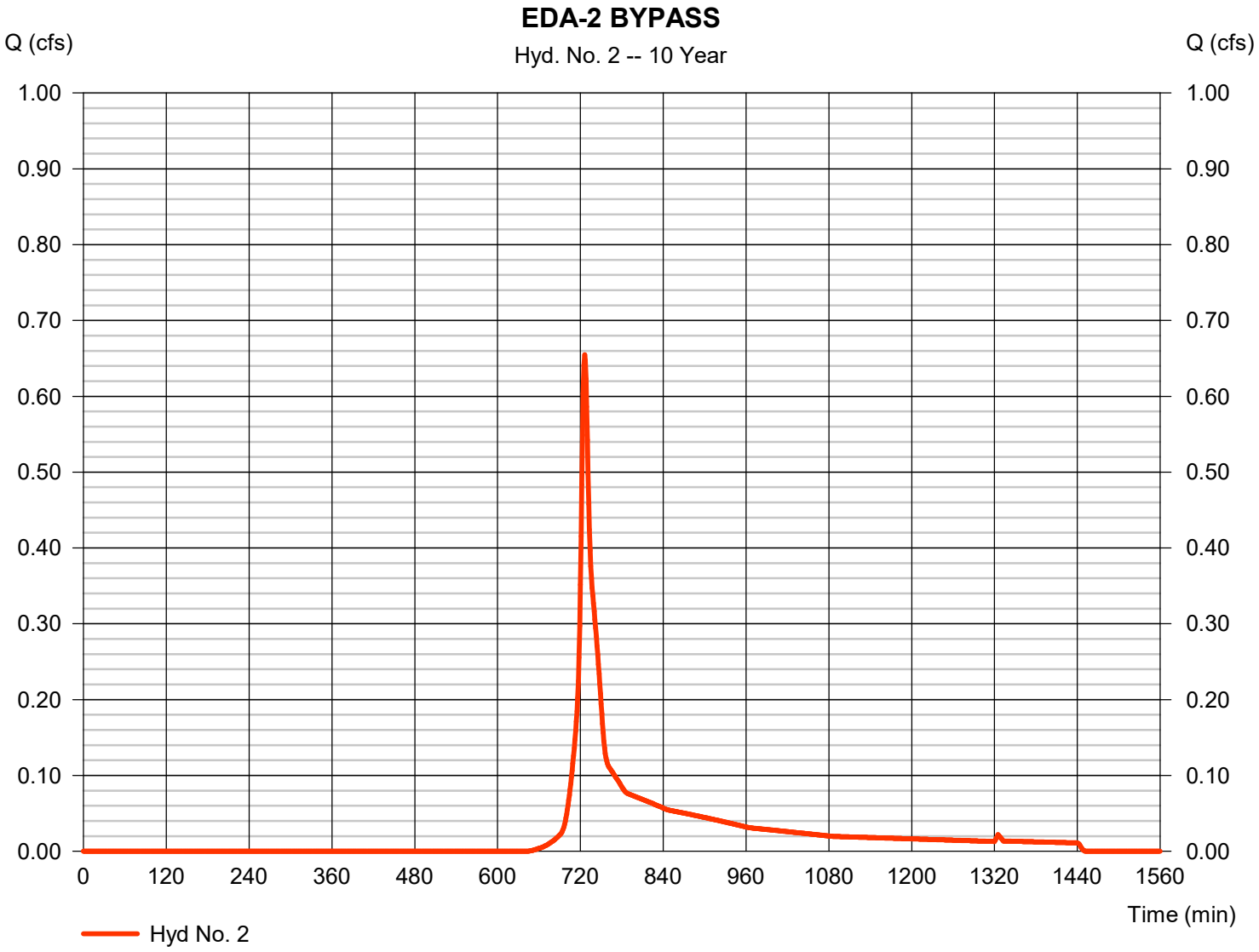


Hydrograph Report

Hyd. No. 2

EDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.655 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	2,231 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	5.62 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



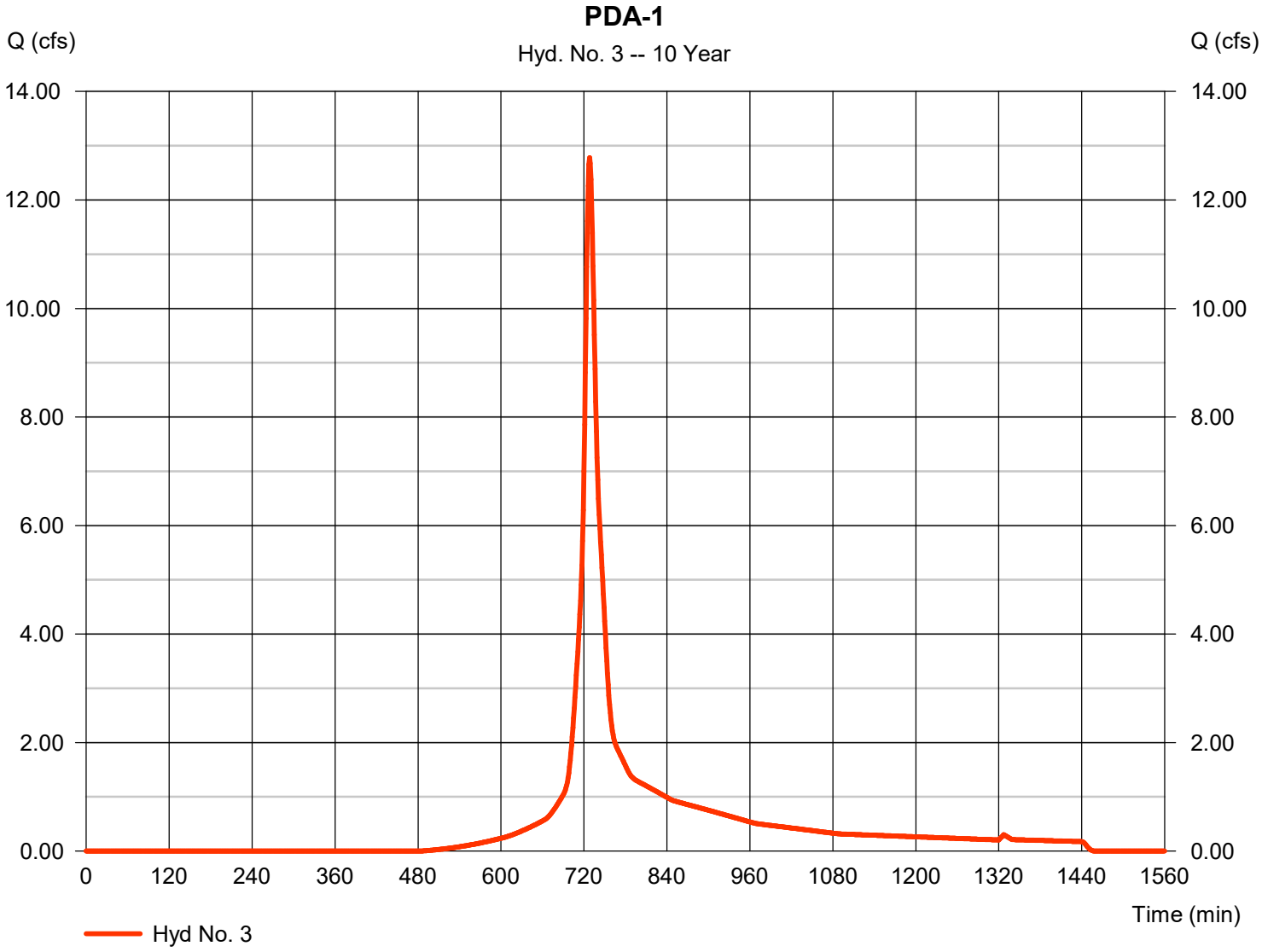
Hydrograph Report

Hyd. No. 3

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.78 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	46,387 cuft
Drainage area	=	4.110 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.80 min
Total precip.	=	5.62 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.620 x 98) + (2.490 x 61)] / 4.110

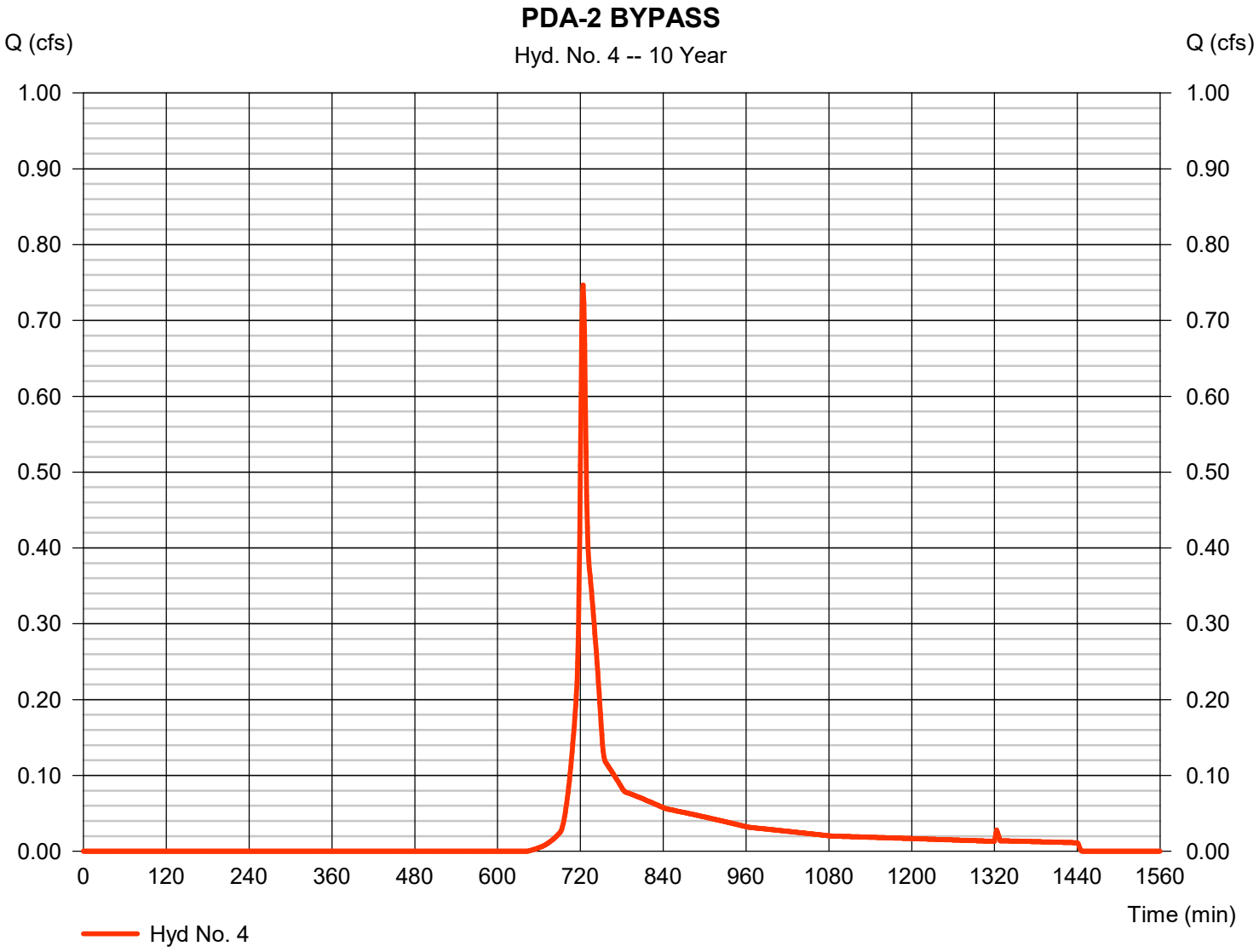


Hydrograph Report

Hyd. No. 4

PDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.747 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	2,288 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	3.40 min
Total precip.	=	5.62 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

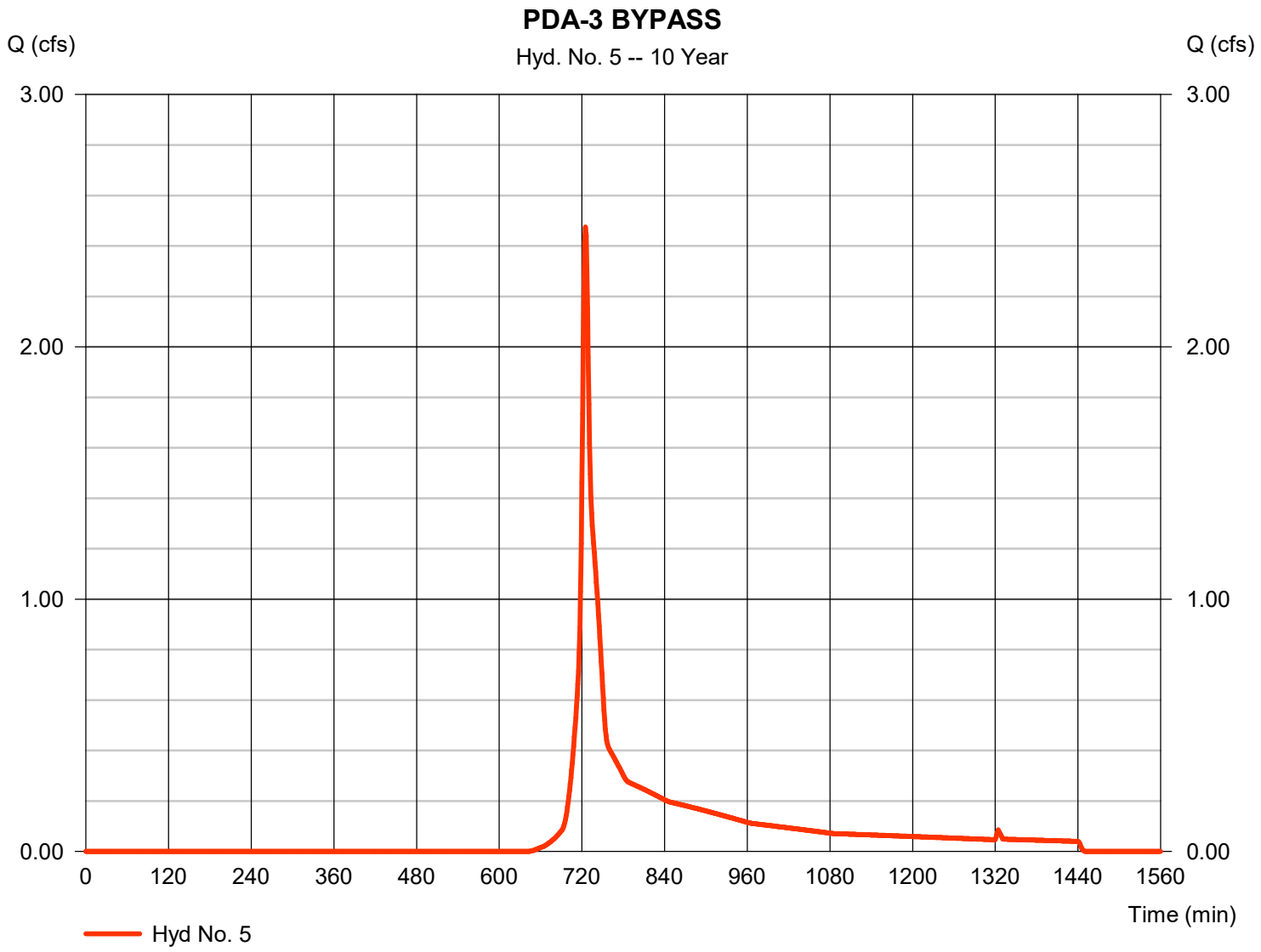


Hydrograph Report

Hyd. No. 5

PDA-3 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.474 cfs
Storm frequency	=	10 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	8,071 cuft
Drainage area	=	1.228 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.50 min
Total precip.	=	5.62 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



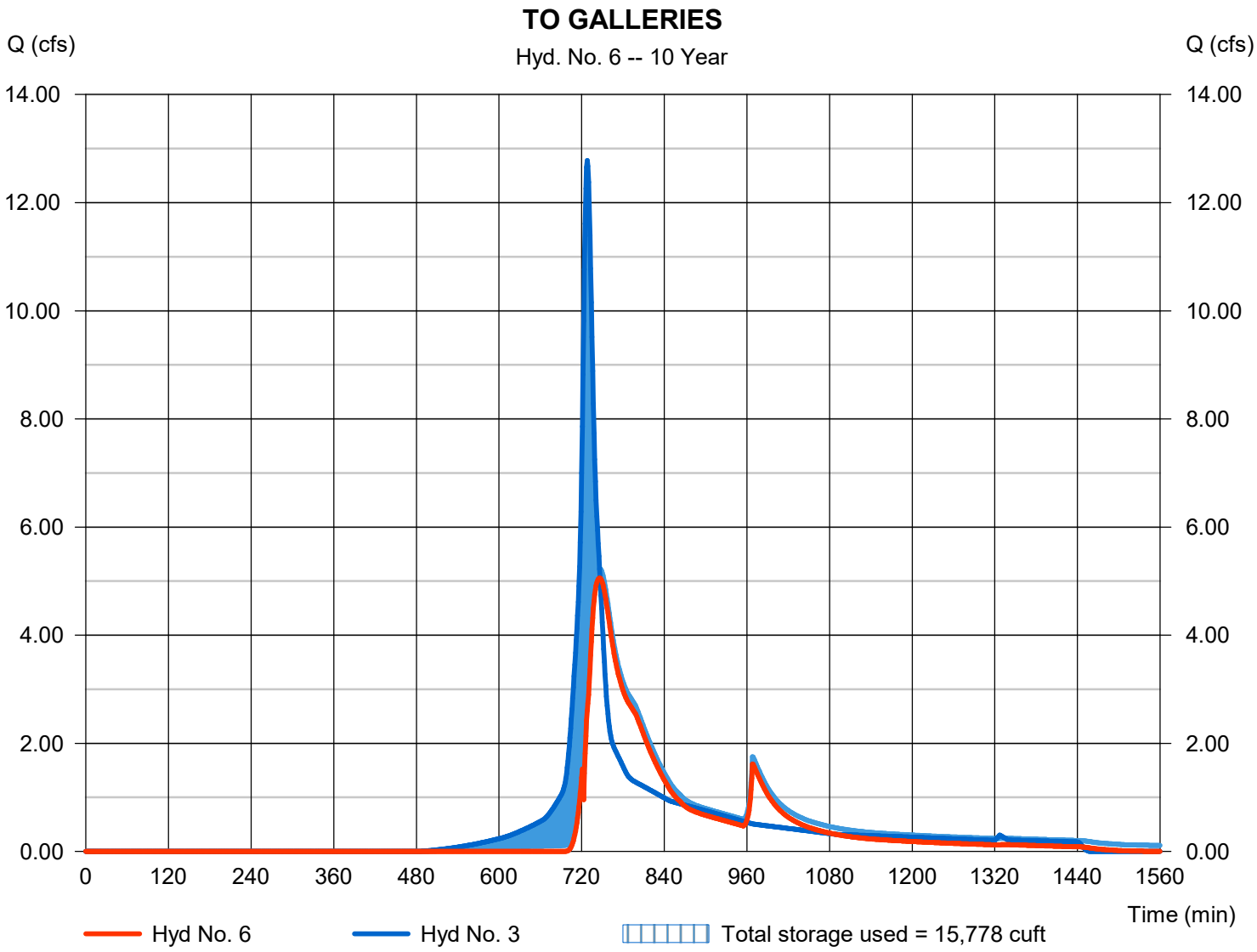
Hydrograph Report

Hyd. No. 6

TO GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	5.059 cfs
Storm frequency	=	10 yrs	Time to peak	=	746 min
Time interval	=	1 min	Hyd. volume	=	36,188 cuft
Inflow hyd. No.	=	3 - PDA-1	Max. Elevation	=	280.20 ft
Reservoir name	=	Galleries	Max. Storage	=	15,778 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

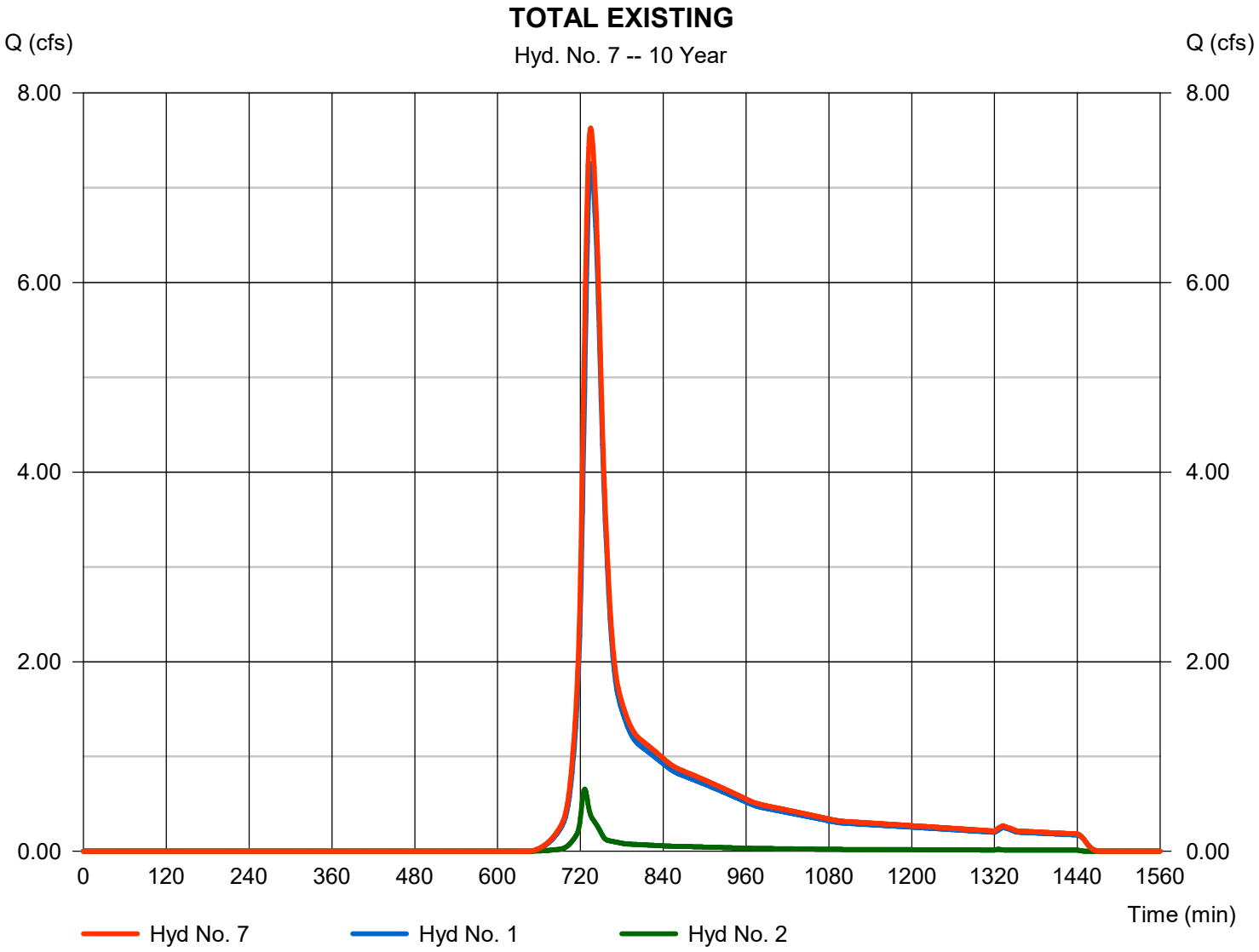


Hydrograph Report

Hyd. No. 7

TOTAL EXISTING

Hydrograph type	=	Combine	Peak discharge	=	7.631 cfs
Storm frequency	=	10 yrs	Time to peak	=	735 min
Time interval	=	1 min	Hyd. volume	=	36,353 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	5.713 ac

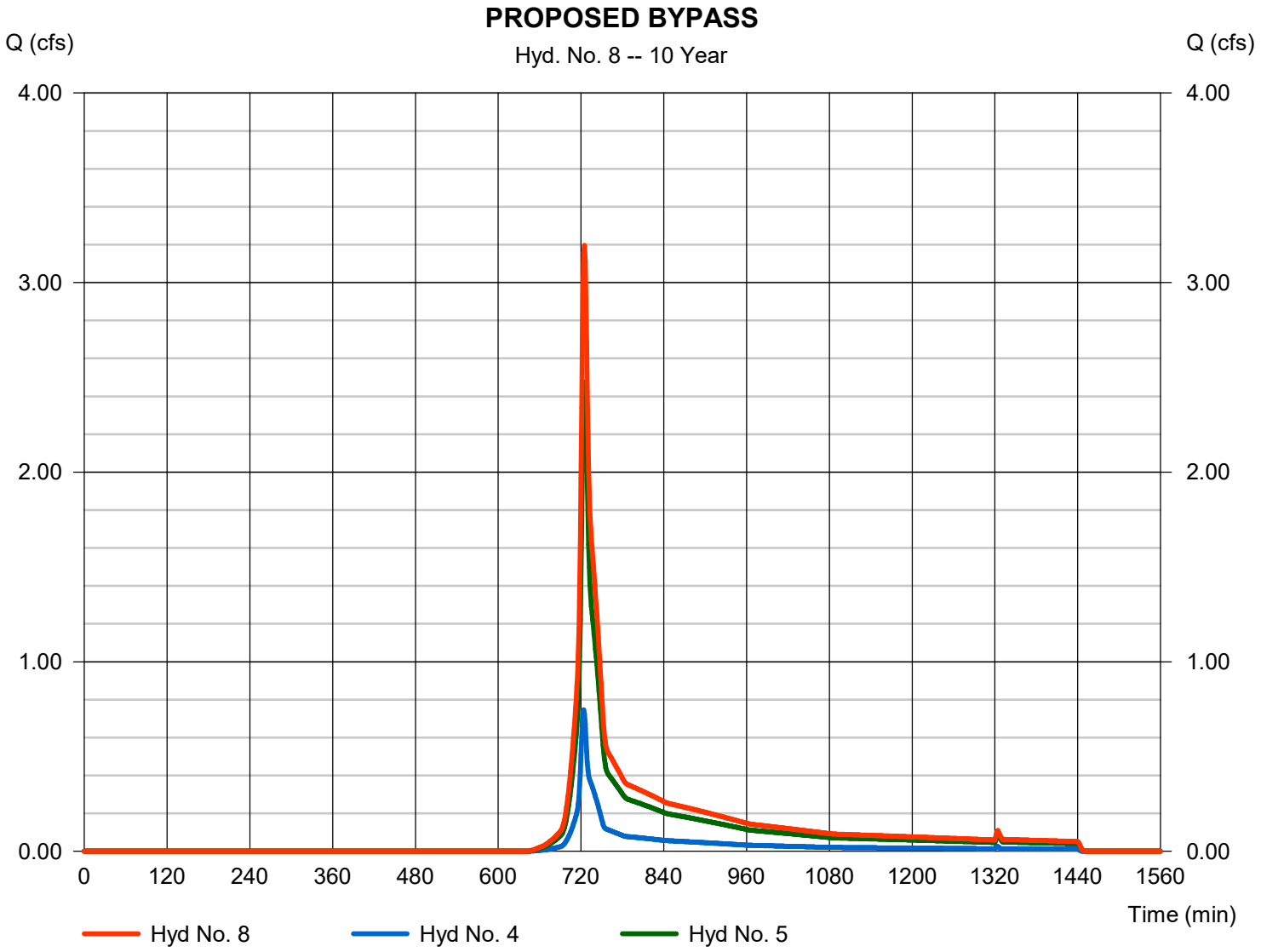


Hydrograph Report

Hyd. No. 8

PROPOSED BYPASS

Hydrograph type	=	Combine	Peak discharge	=	3.196 cfs
Storm frequency	=	10 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	10,359 cuft
Inflow hyds.	=	4, 5	Contrib. drain. area	=	1.587 ac

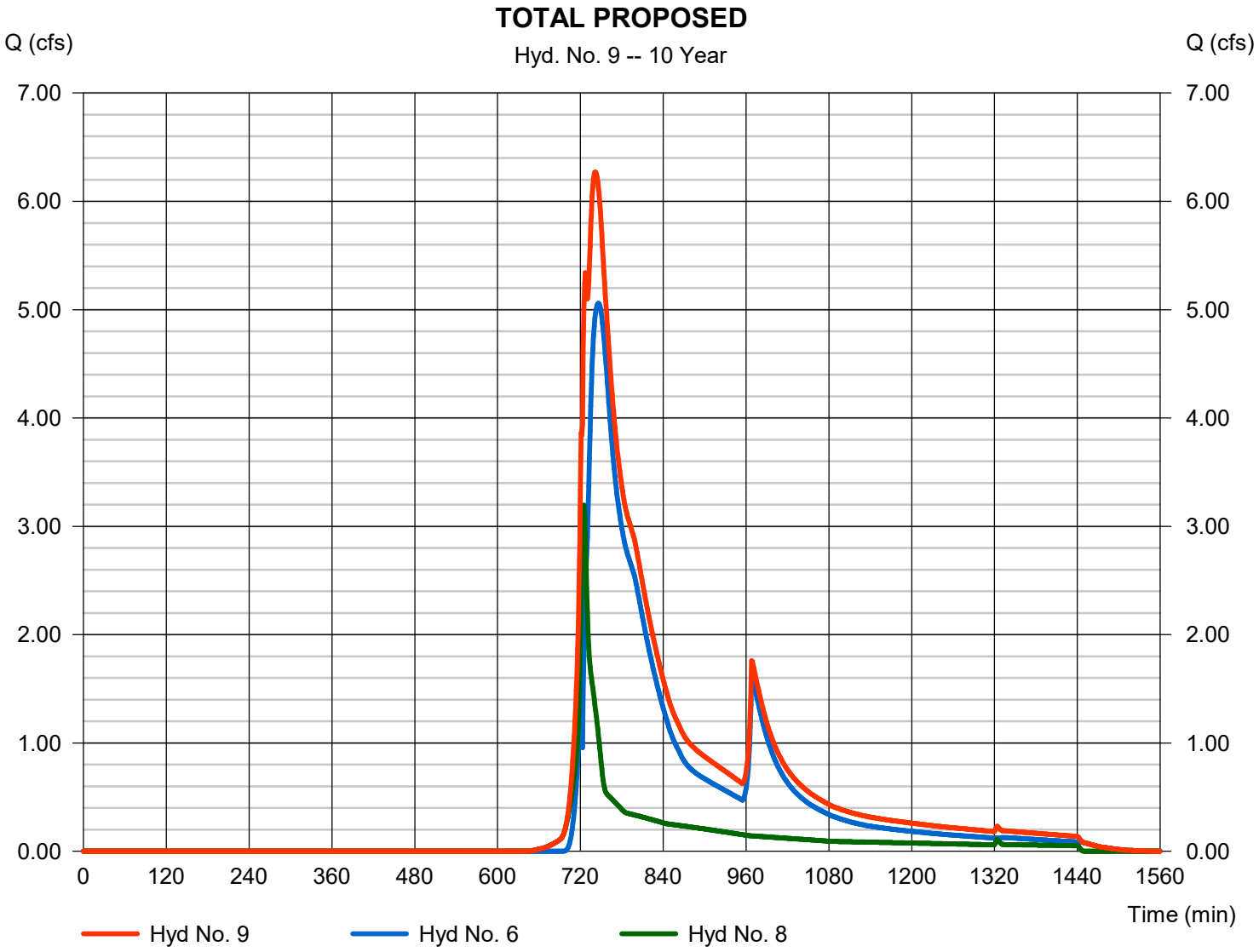


Hydrograph Report

Hyd. No. 9

TOTAL PROPOSED

Hydrograph type	= Combine	Peak discharge	= 6.270 cfs
Storm frequency	= 10 yrs	Time to peak	= 742 min
Time interval	= 1 min	Hyd. volume	= 46,547 cuft
Inflow hyds.	= 6, 8	Contrib. drain. area	= 0.000 ac

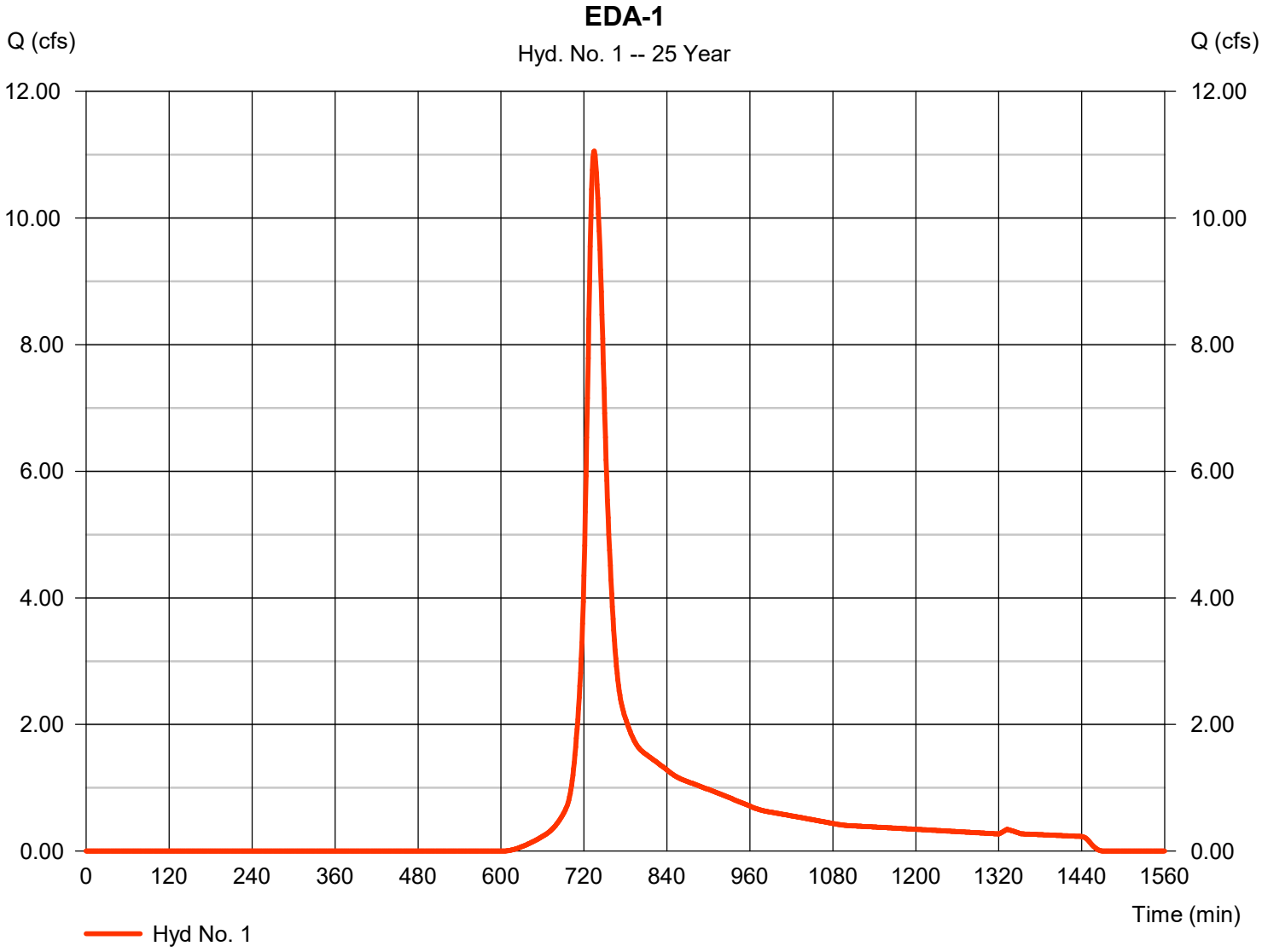


Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.06 cfs
Storm frequency	=	25 yrs	Time to peak	=	735 min
Time interval	=	1 min	Hyd. volume	=	50,280 cuft
Drainage area	=	5.354 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.00 min
Total precip.	=	6.84 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

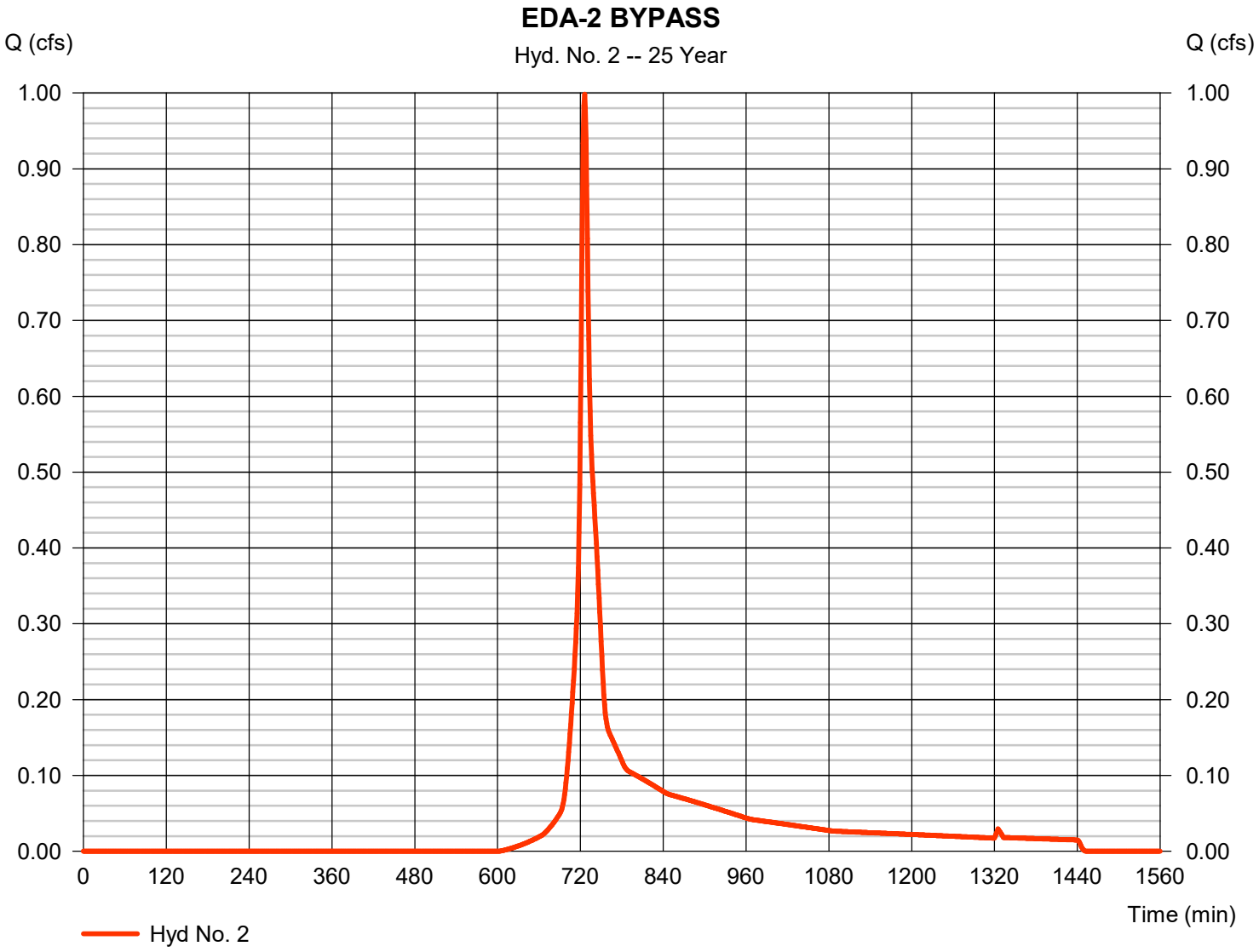


Hydrograph Report

Hyd. No. 2

EDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.998 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	3,287 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	6.84 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



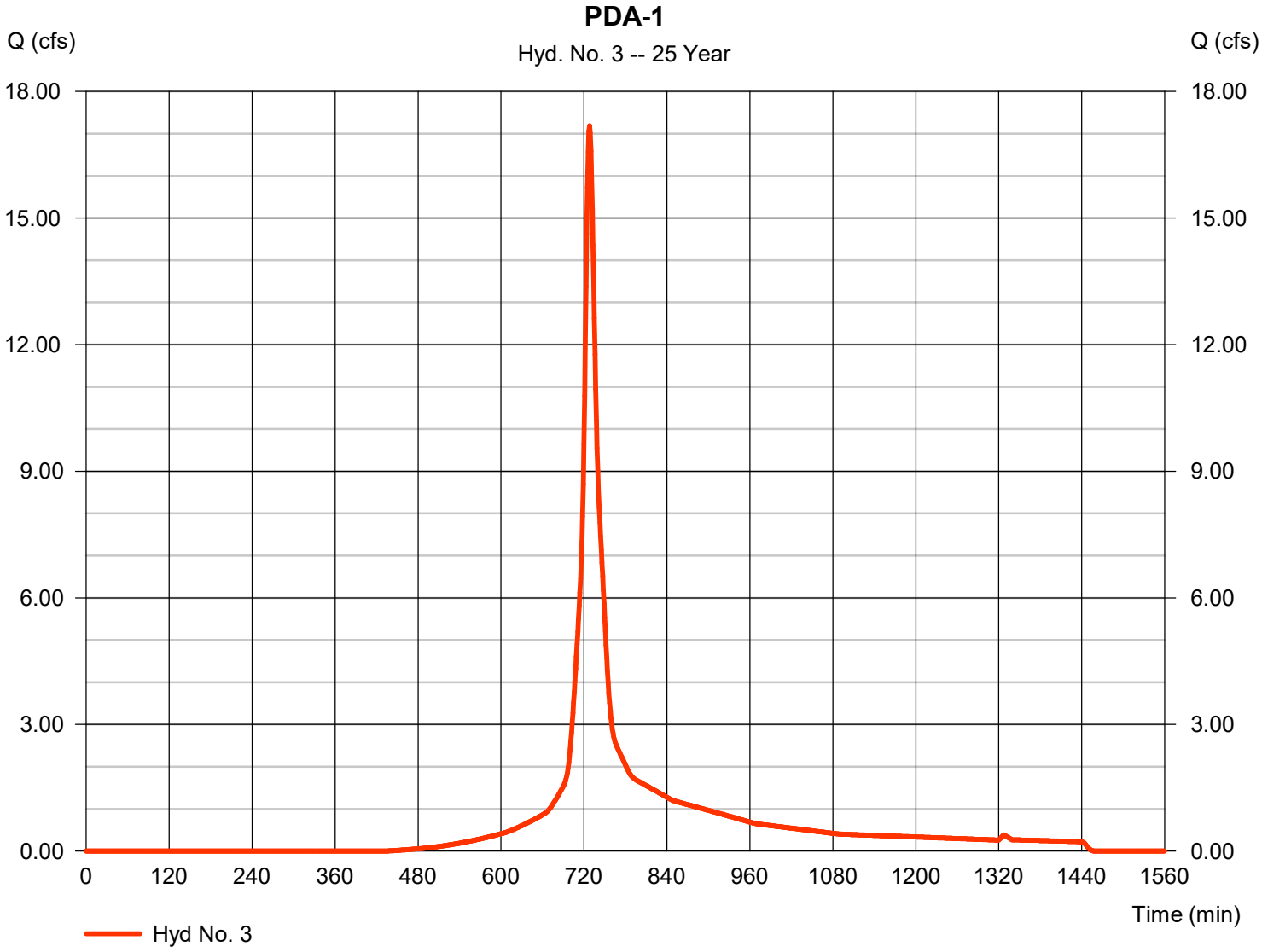
Hydrograph Report

Hyd. No. 3

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.19 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	62,493 cuft
Drainage area	=	4.110 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.80 min
Total precip.	=	6.84 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.620 x 98) + (2.490 x 61)] / 4.110

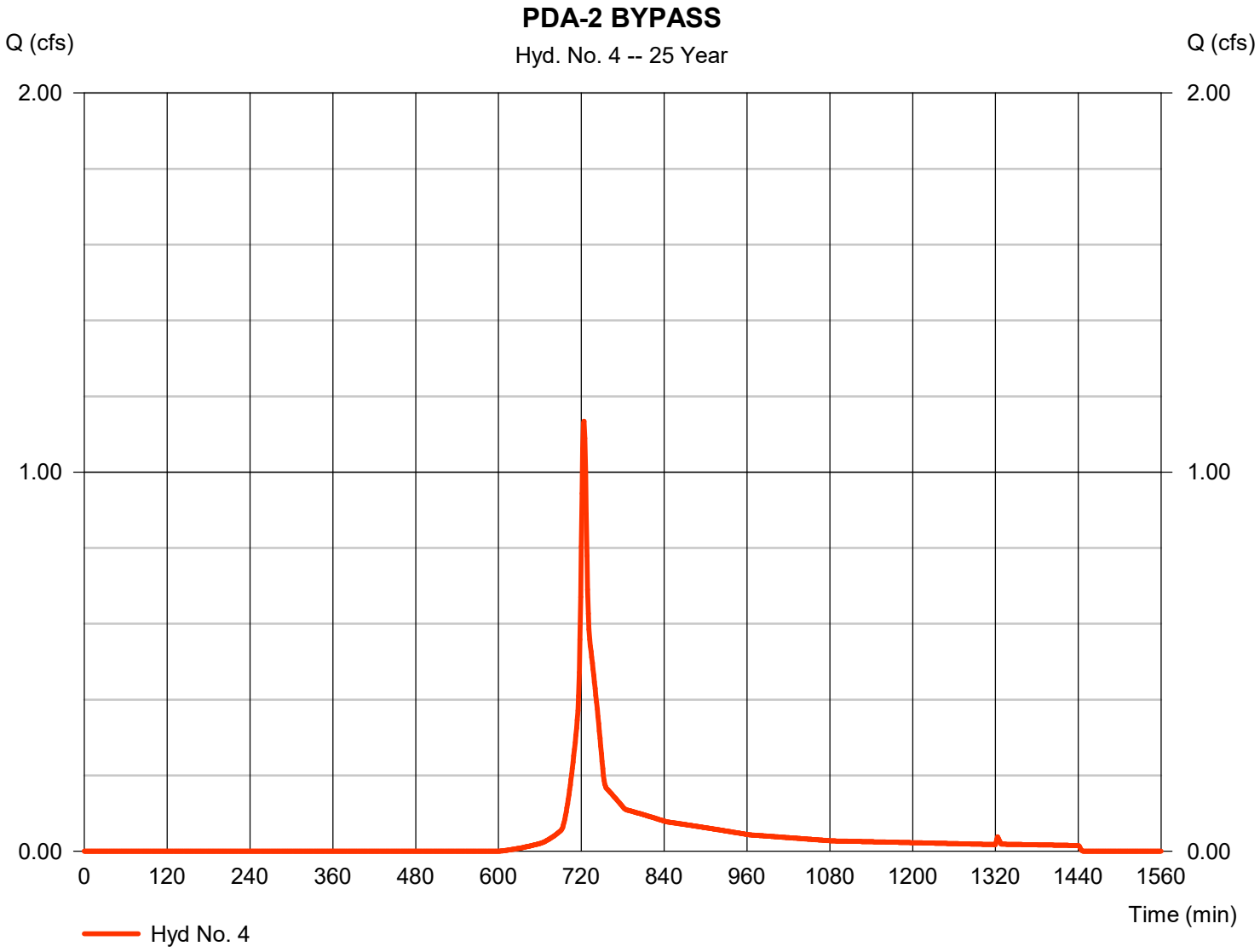


Hydrograph Report

Hyd. No. 4

PDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.135 cfs
Storm frequency	=	25 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	3,371 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	3.40 min
Total precip.	=	6.84 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

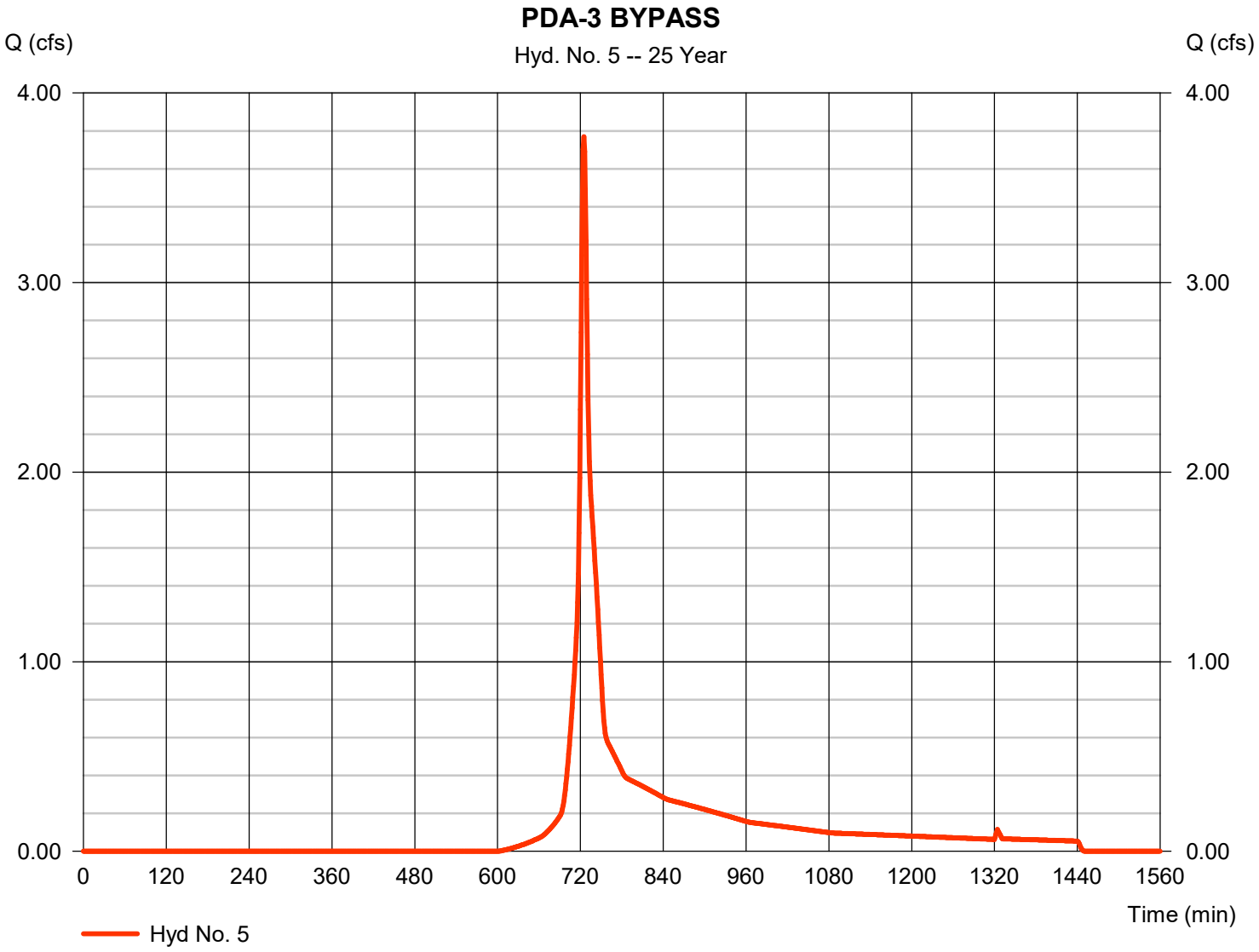


Hydrograph Report

Hyd. No. 5

PDA-3 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.769 cfs
Storm frequency	=	25 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	11,893 cuft
Drainage area	=	1.228 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.50 min
Total precip.	=	6.84 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



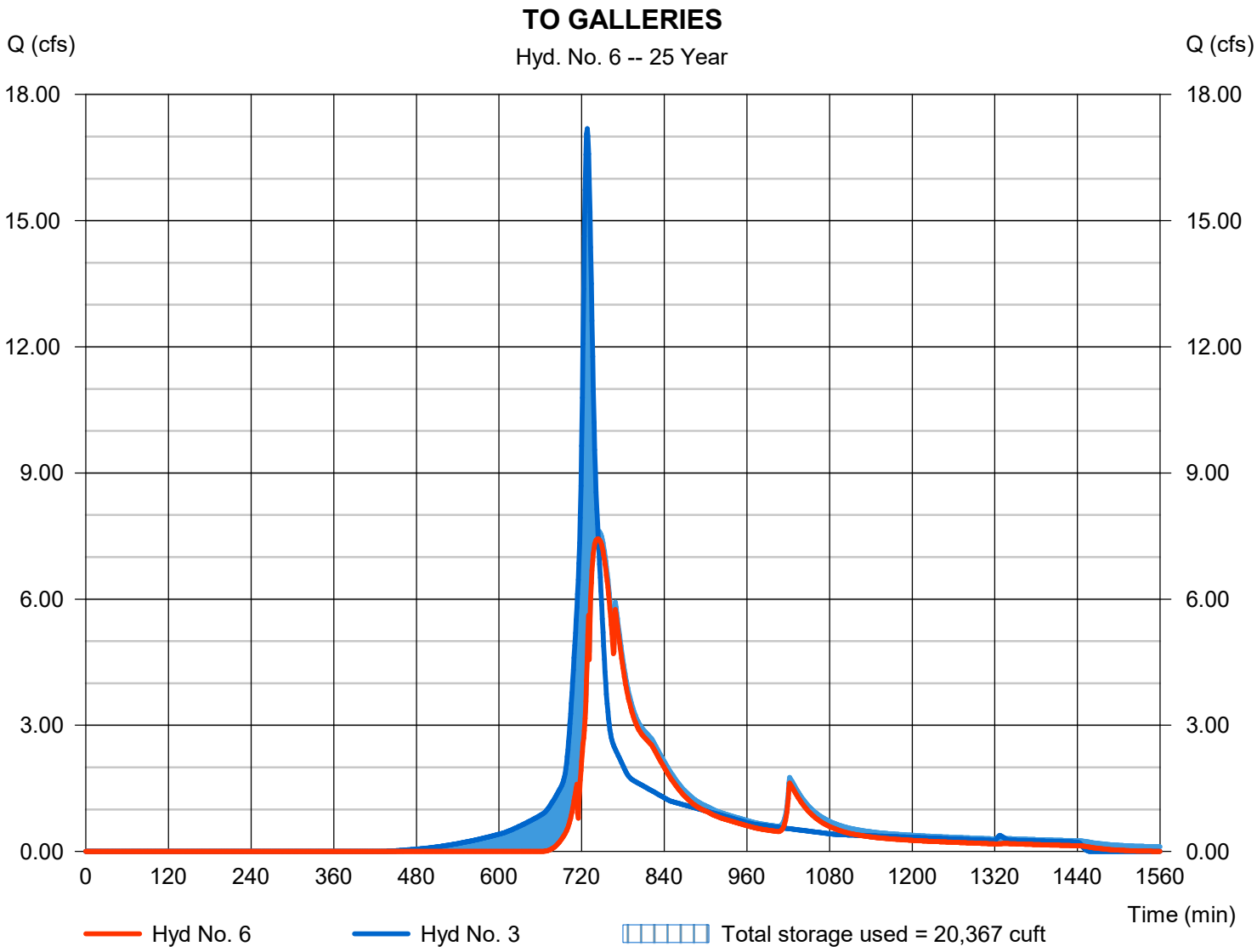
Hydrograph Report

Hyd. No. 6

TO GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	7.431 cfs
Storm frequency	=	25 yrs	Time to peak	=	744 min
Time interval	=	1 min	Hyd. volume	=	51,684 cuft
Inflow hyd. No.	=	3 - PDA-1	Max. Elevation	=	280.99 ft
Reservoir name	=	Galleries	Max. Storage	=	20,367 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

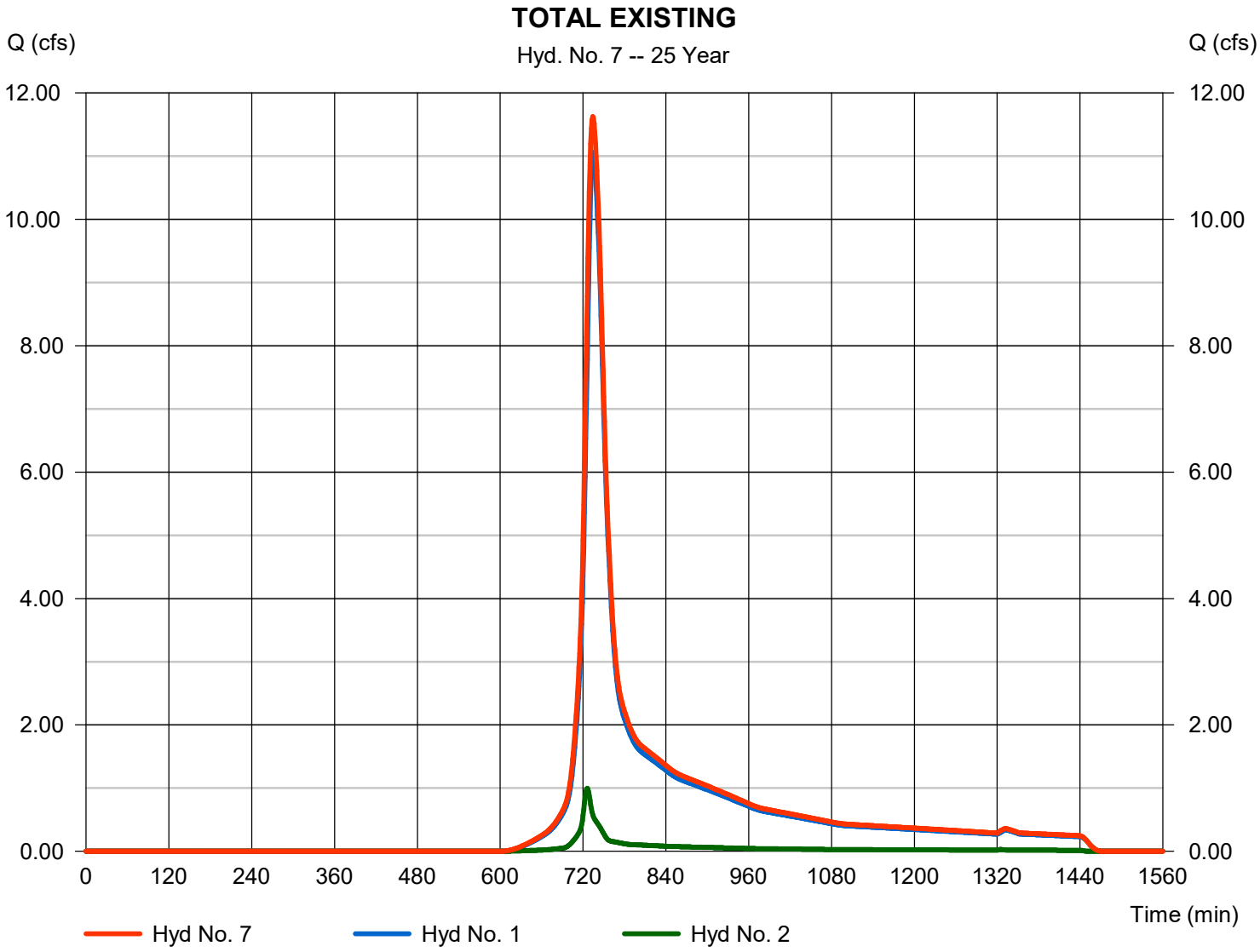


Hydrograph Report

Hyd. No. 7

TOTAL EXISTING

Hydrograph type	=	Combine	Peak discharge	=	11.63 cfs
Storm frequency	=	25 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	53,568 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	5.713 ac

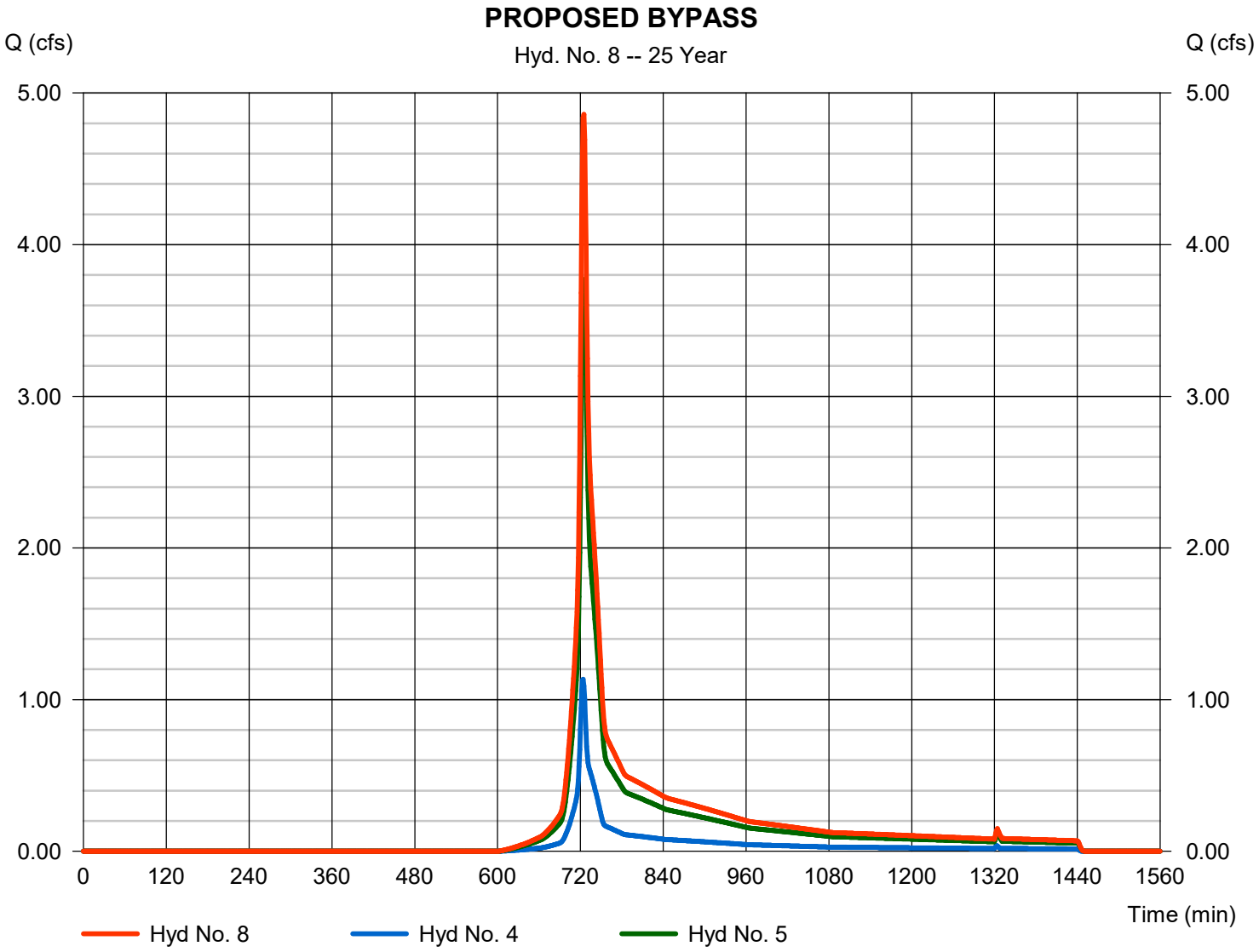


Hydrograph Report

Hyd. No. 8

PROPOSED BYPASS

Hydrograph type	=	Combine	Peak discharge	=	4.858 cfs
Storm frequency	=	25 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	15,264 cuft
Inflow hyds.	=	4, 5	Contrib. drain. area	=	1.587 ac

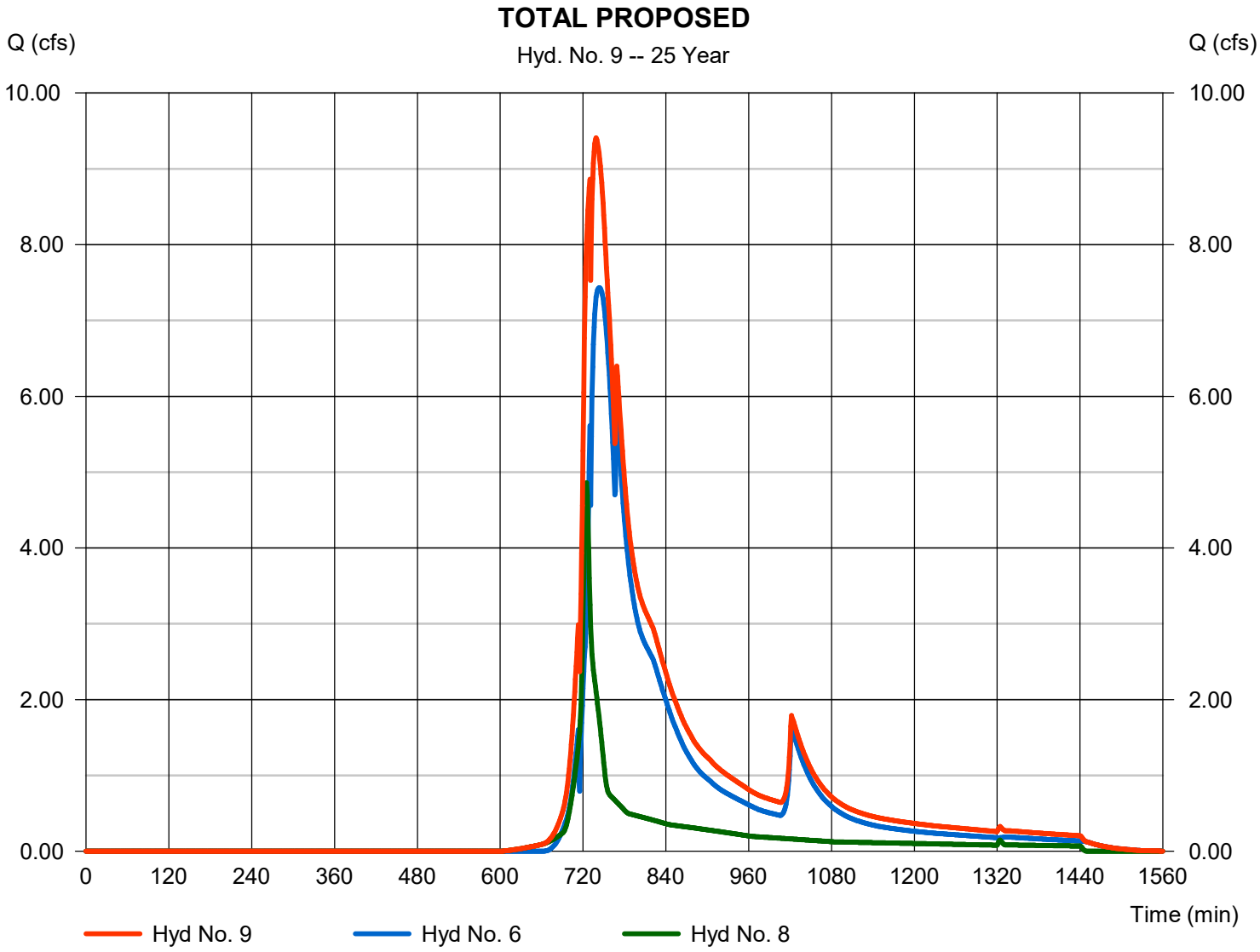


Hydrograph Report

Hyd. No. 9

TOTAL PROPOSED

Hydrograph type	=	Combine	Peak discharge	=	9.407 cfs
Storm frequency	=	25 yrs	Time to peak	=	739 min
Time interval	=	1 min	Hyd. volume	=	66,948 cuft
Inflow hyds.	=	6, 8	Contrib. drain. area	=	0.000 ac

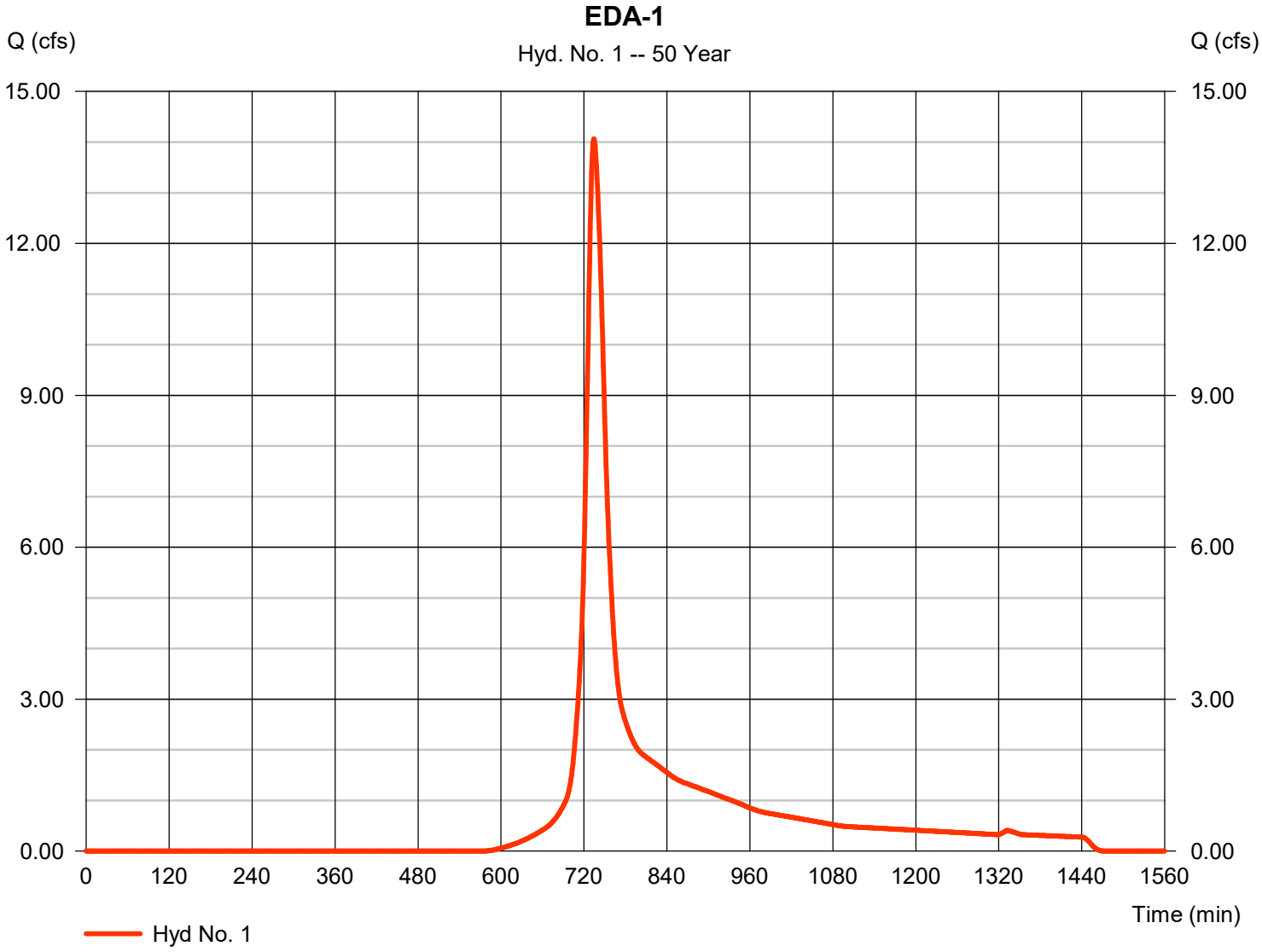


Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.07 cfs
Storm frequency	=	50 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	63,119 cuft
Drainage area	=	5.354 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.00 min
Total precip.	=	7.74 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

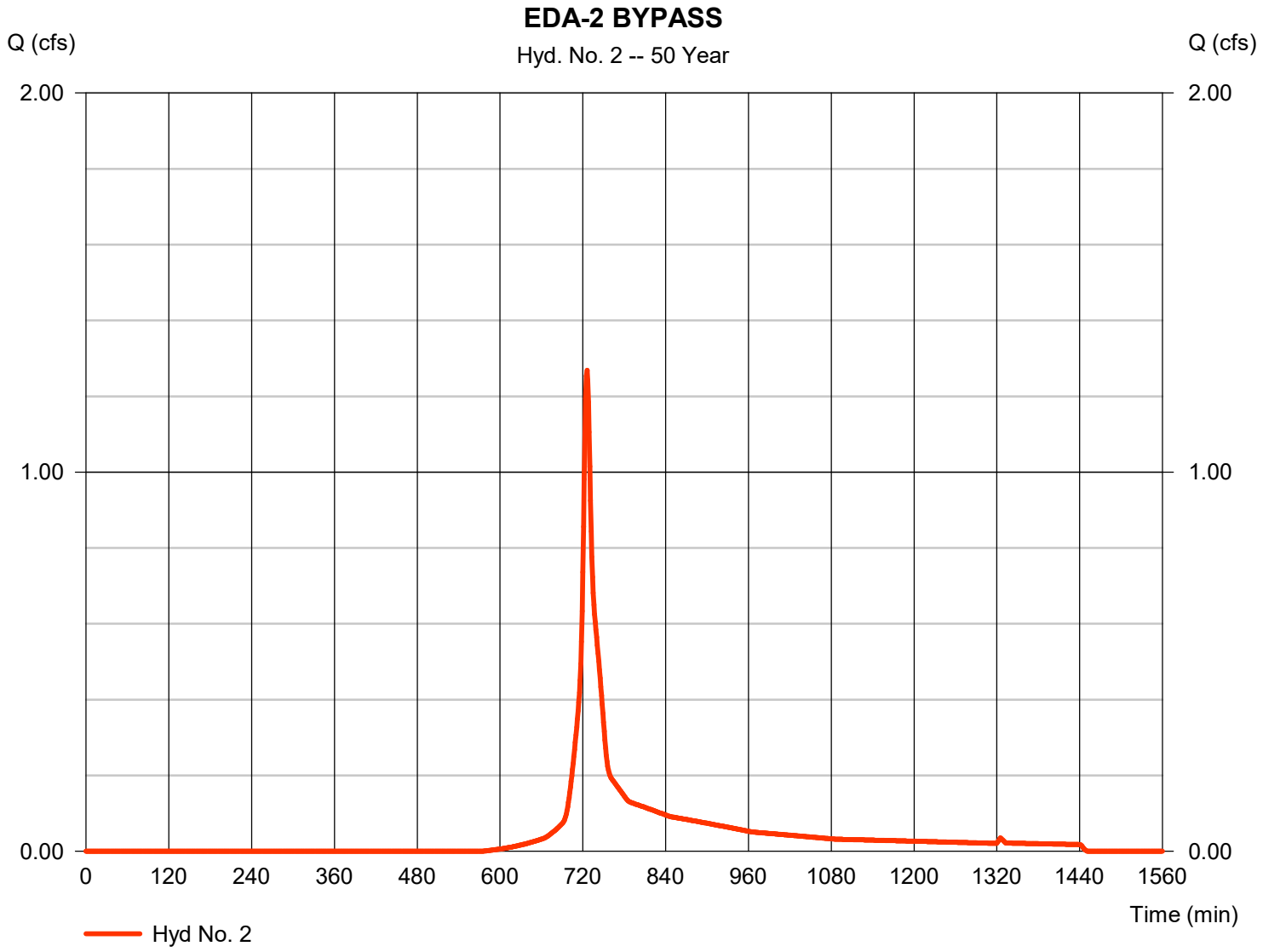


Hydrograph Report

Hyd. No. 2

EDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.268 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	4,127 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	7.74 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



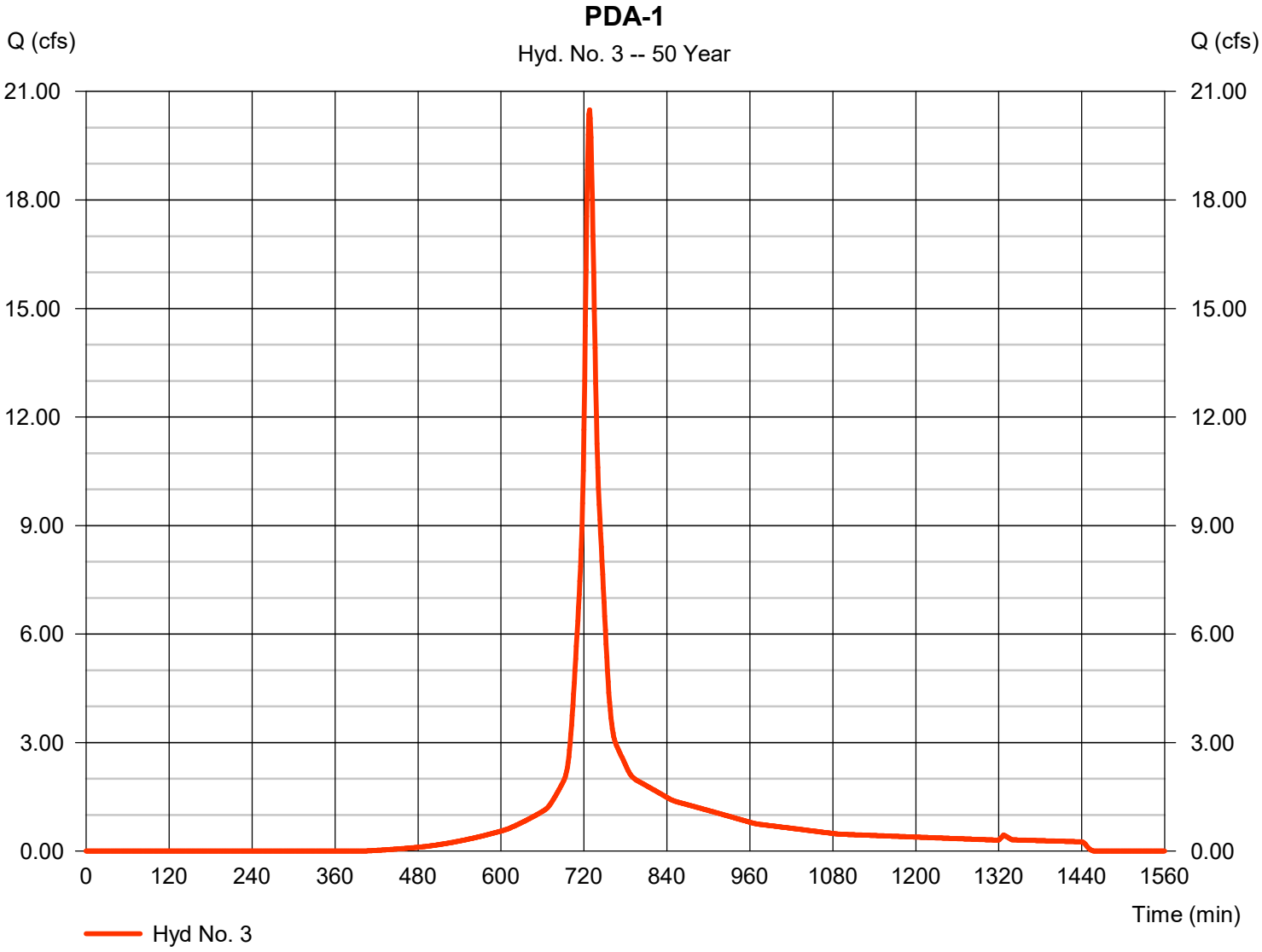
Hydrograph Report

Hyd. No. 3

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	20.49 cfs
Storm frequency	=	50 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	74,742 cuft
Drainage area	=	4.110 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.80 min
Total precip.	=	7.74 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.620 x 98) + (2.490 x 61)] / 4.110

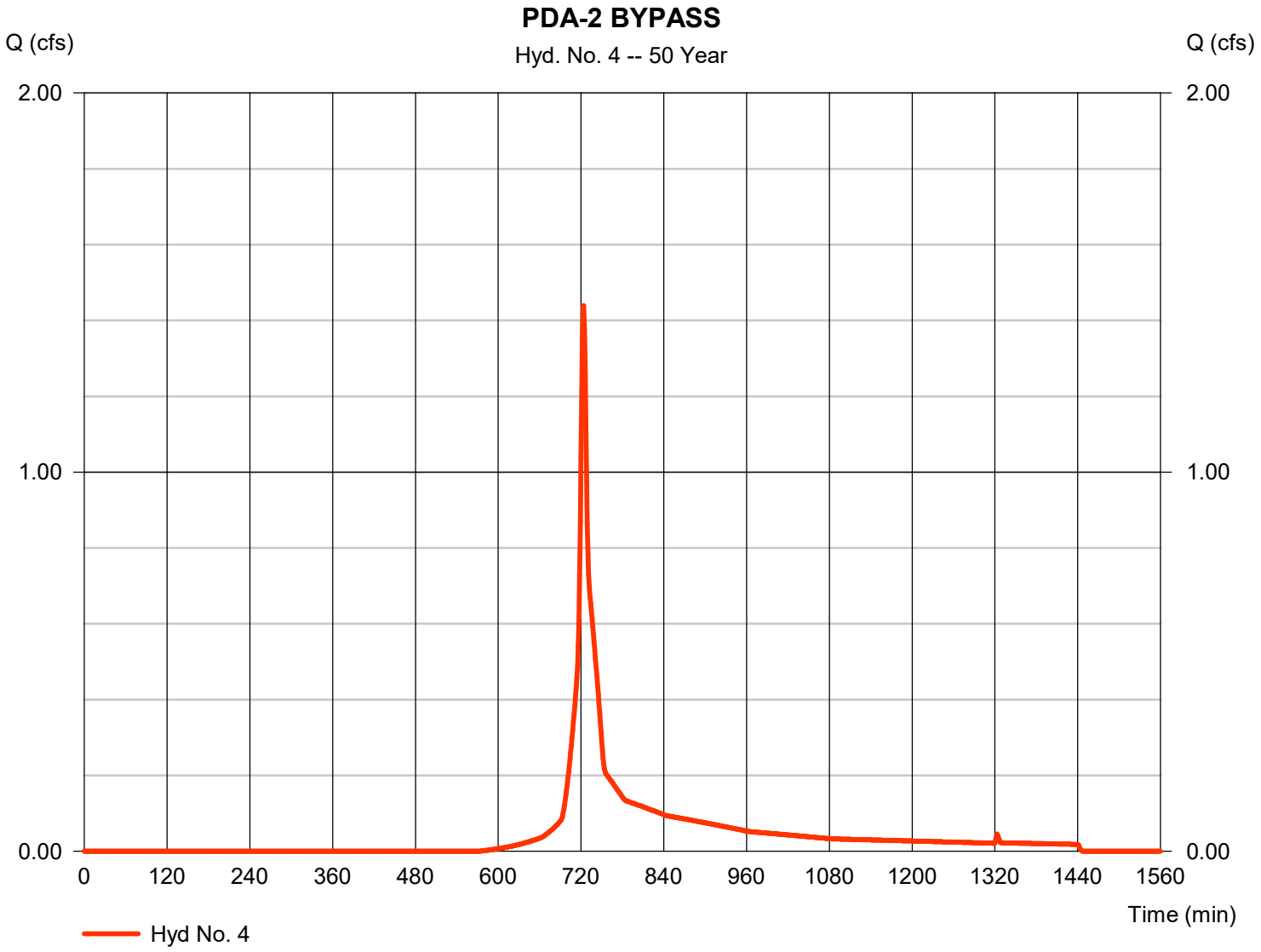


Hydrograph Report

Hyd. No. 4

PDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.439 cfs
Storm frequency	=	50 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	4,232 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	3.40 min
Total precip.	=	7.74 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

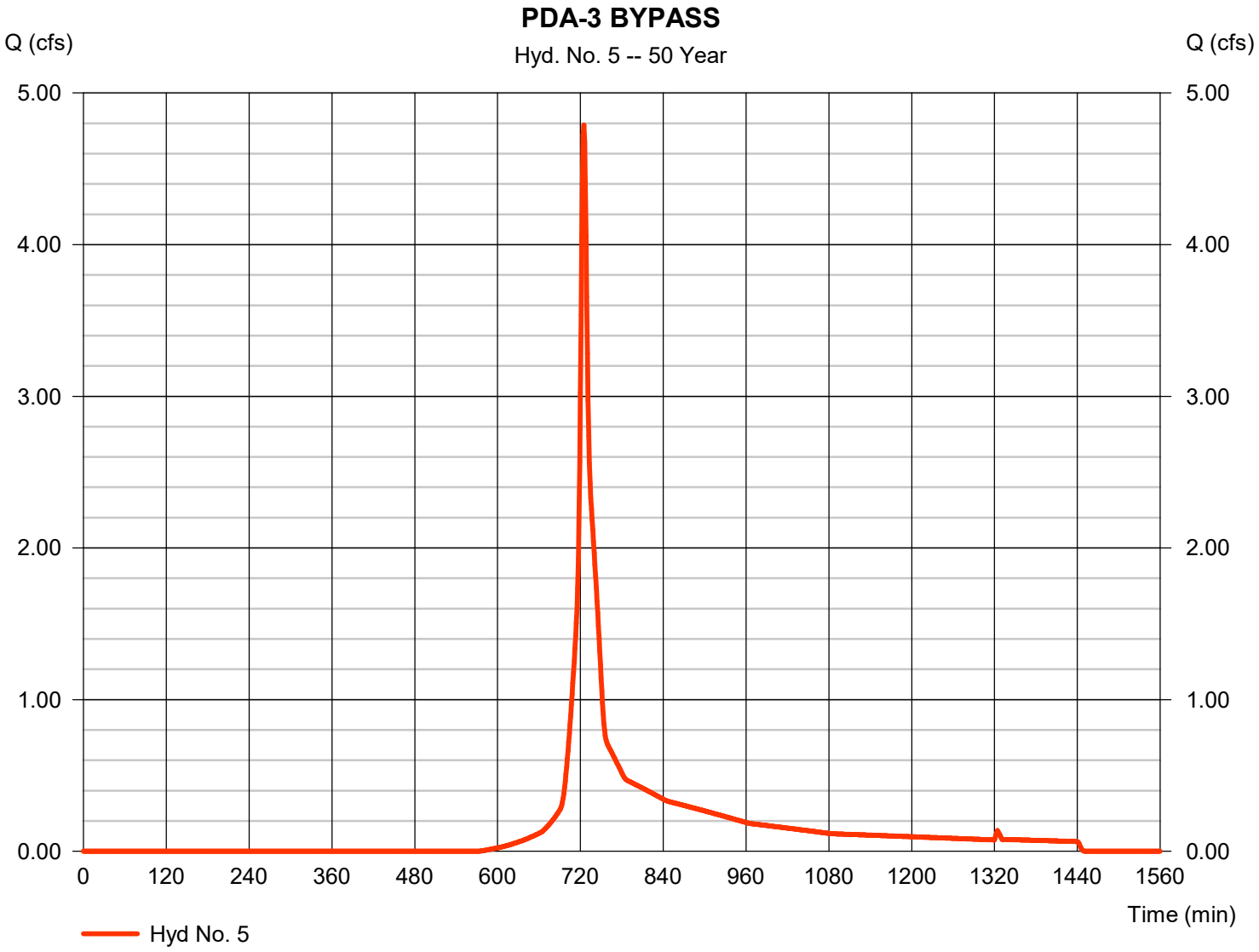


Hydrograph Report

Hyd. No. 5

PDA-3 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.789 cfs
Storm frequency	=	50 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	14,930 cuft
Drainage area	=	1.228 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.50 min
Total precip.	=	7.74 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



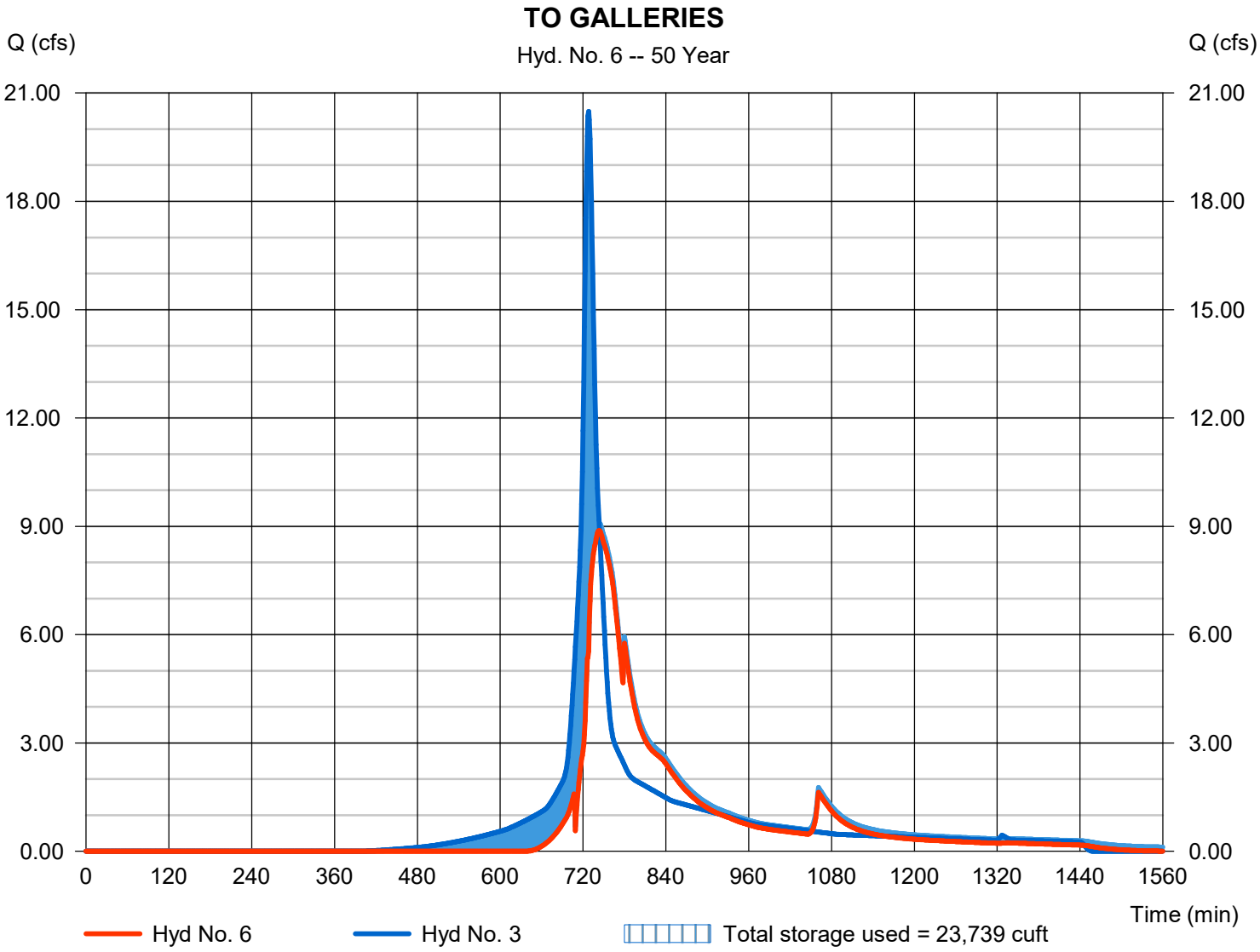
Hydrograph Report

Hyd. No. 6

TO GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	8.885 cfs
Storm frequency	=	50 yrs	Time to peak	=	743 min
Time interval	=	1 min	Hyd. volume	=	63,522 cuft
Inflow hyd. No.	=	3 - PDA-1	Max. Elevation	=	281.57 ft
Reservoir name	=	Galleries	Max. Storage	=	23,739 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

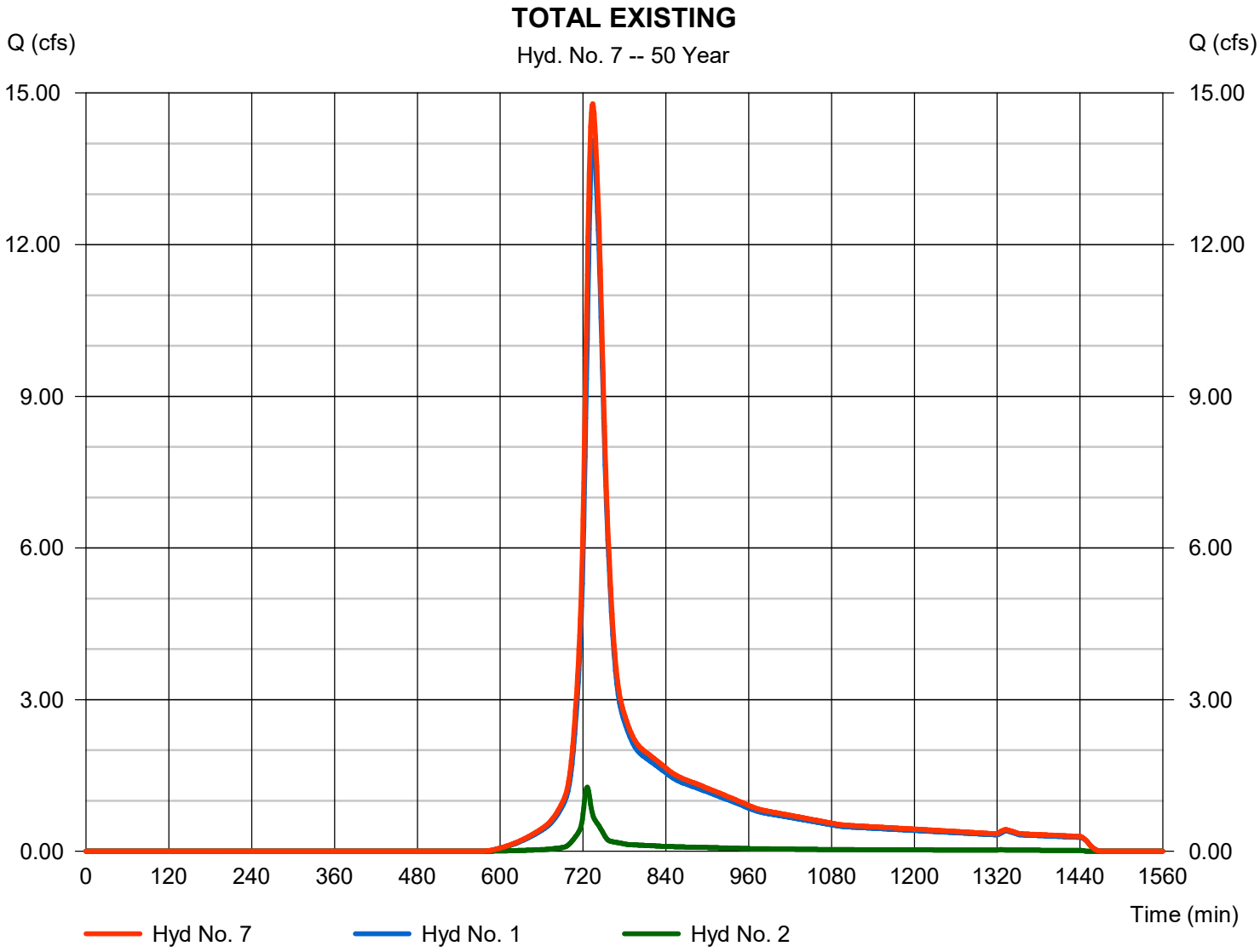


Hydrograph Report

Hyd. No. 7

TOTAL EXISTING

Hydrograph type	=	Combine	Peak discharge	=	14.79 cfs
Storm frequency	=	50 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	67,246 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	5.713 ac

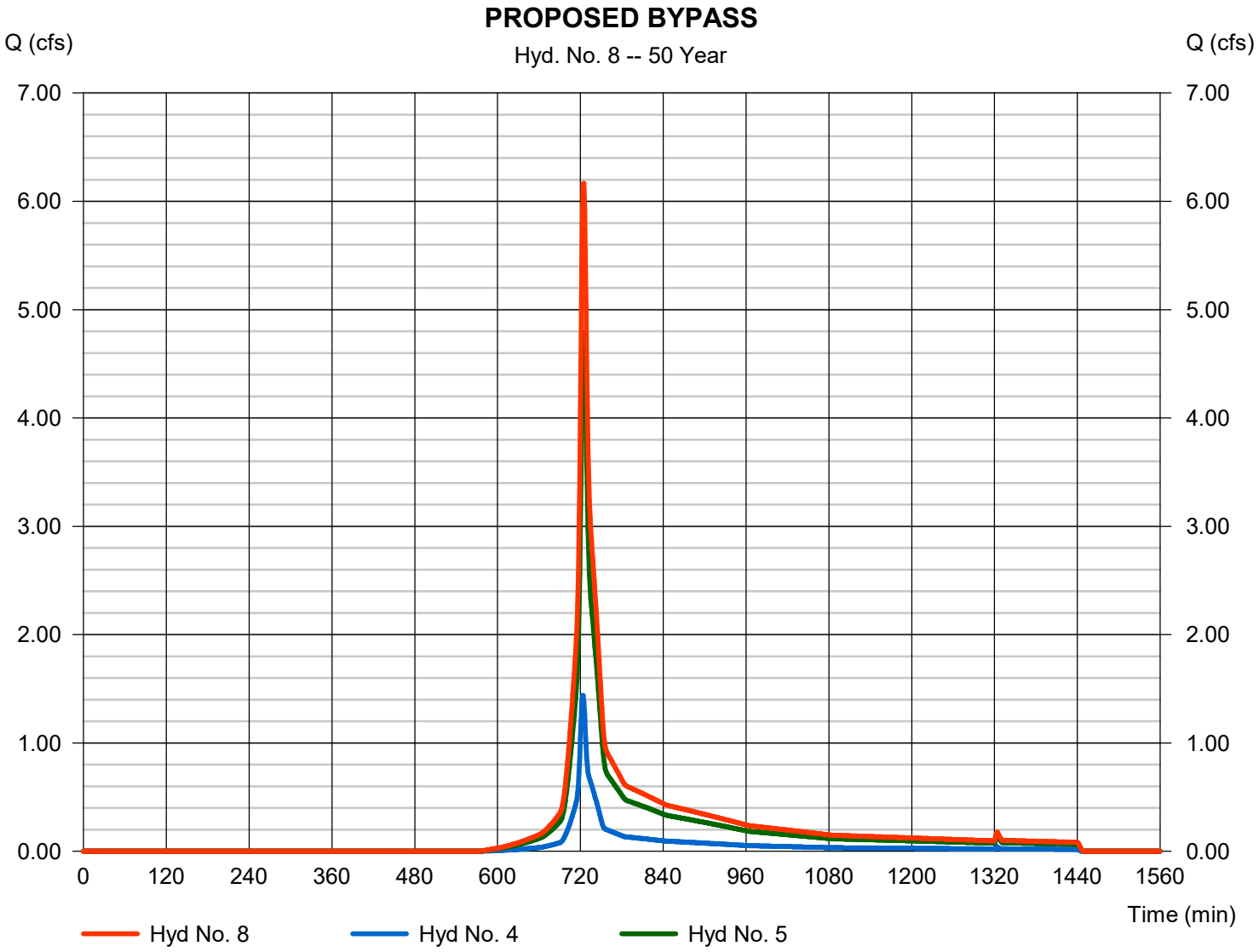


Hydrograph Report

Hyd. No. 8

PROPOSED BYPASS

Hydrograph type	=	Combine	Peak discharge	=	6.165 cfs
Storm frequency	=	50 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	19,162 cuft
Inflow hyds.	=	4, 5	Contrib. drain. area	=	1.587 ac

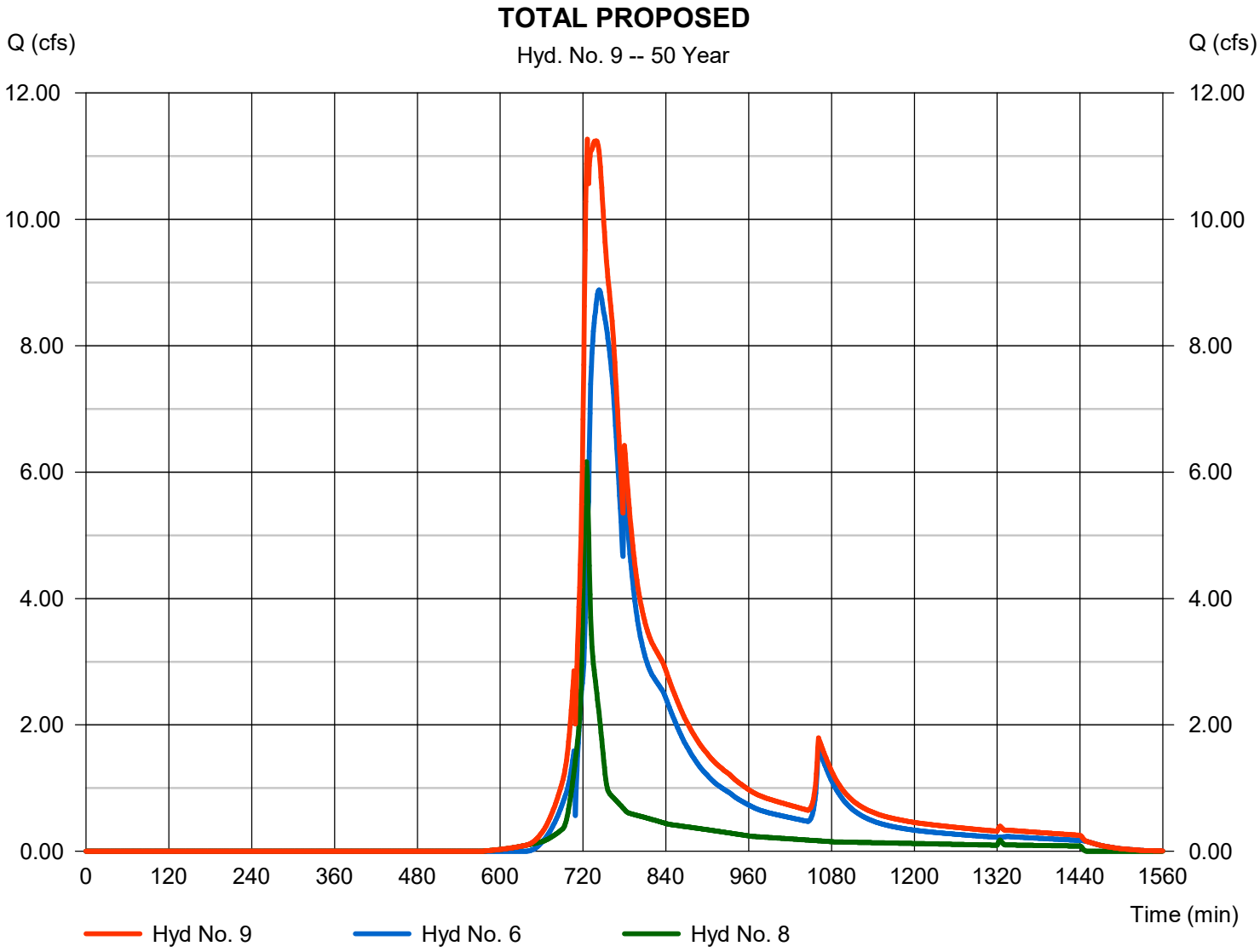


Hydrograph Report

Hyd. No. 9

TOTAL PROPOSED

Hydrograph type	=	Combine	Peak discharge	=	11.27 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	82,684 cuft
Inflow hyds.	=	6, 8	Contrib. drain. area	=	0.000 ac

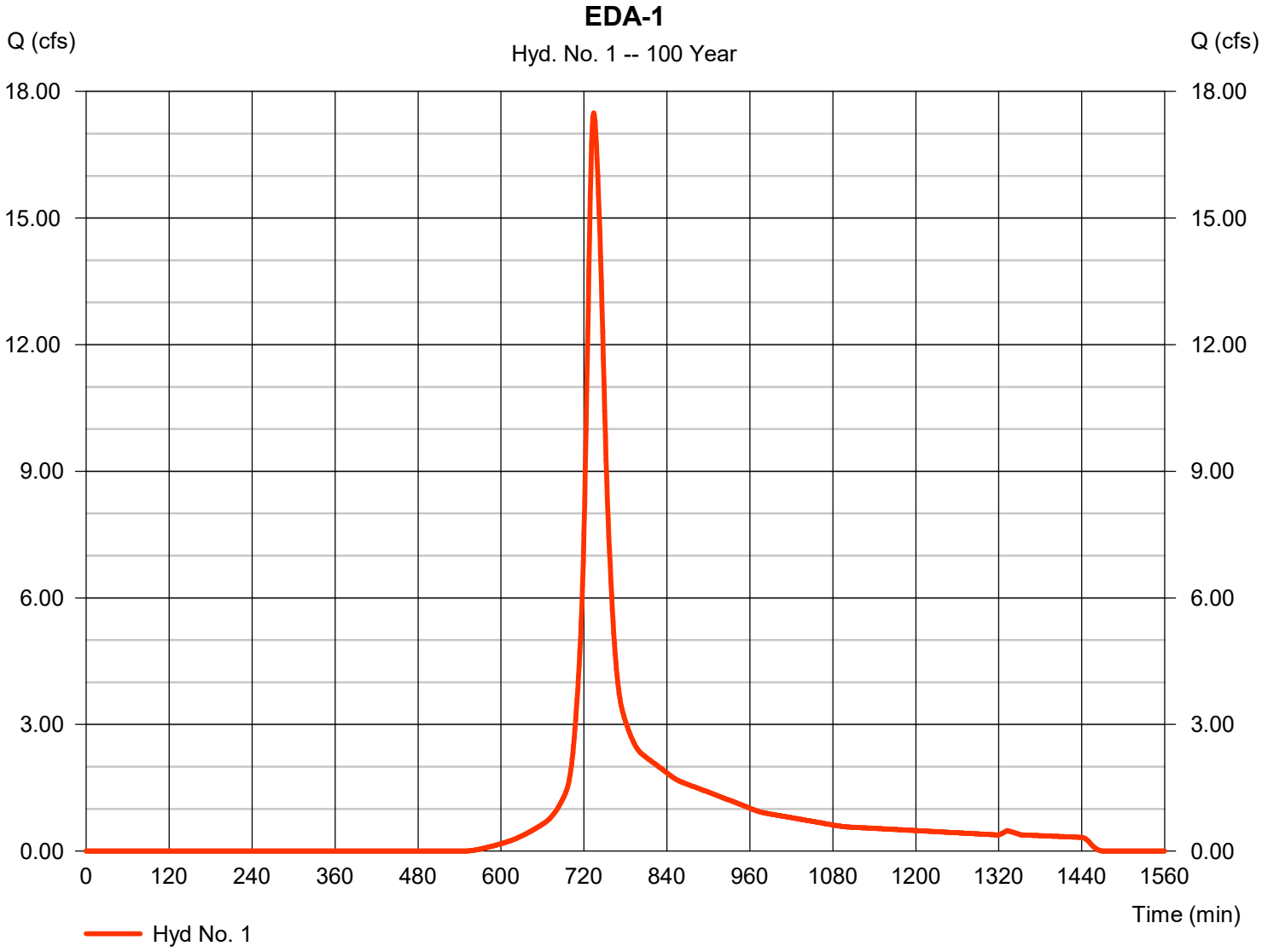


Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.49 cfs
Storm frequency	=	100 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	77,788 cuft
Drainage area	=	5.354 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.00 min
Total precip.	=	8.72 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

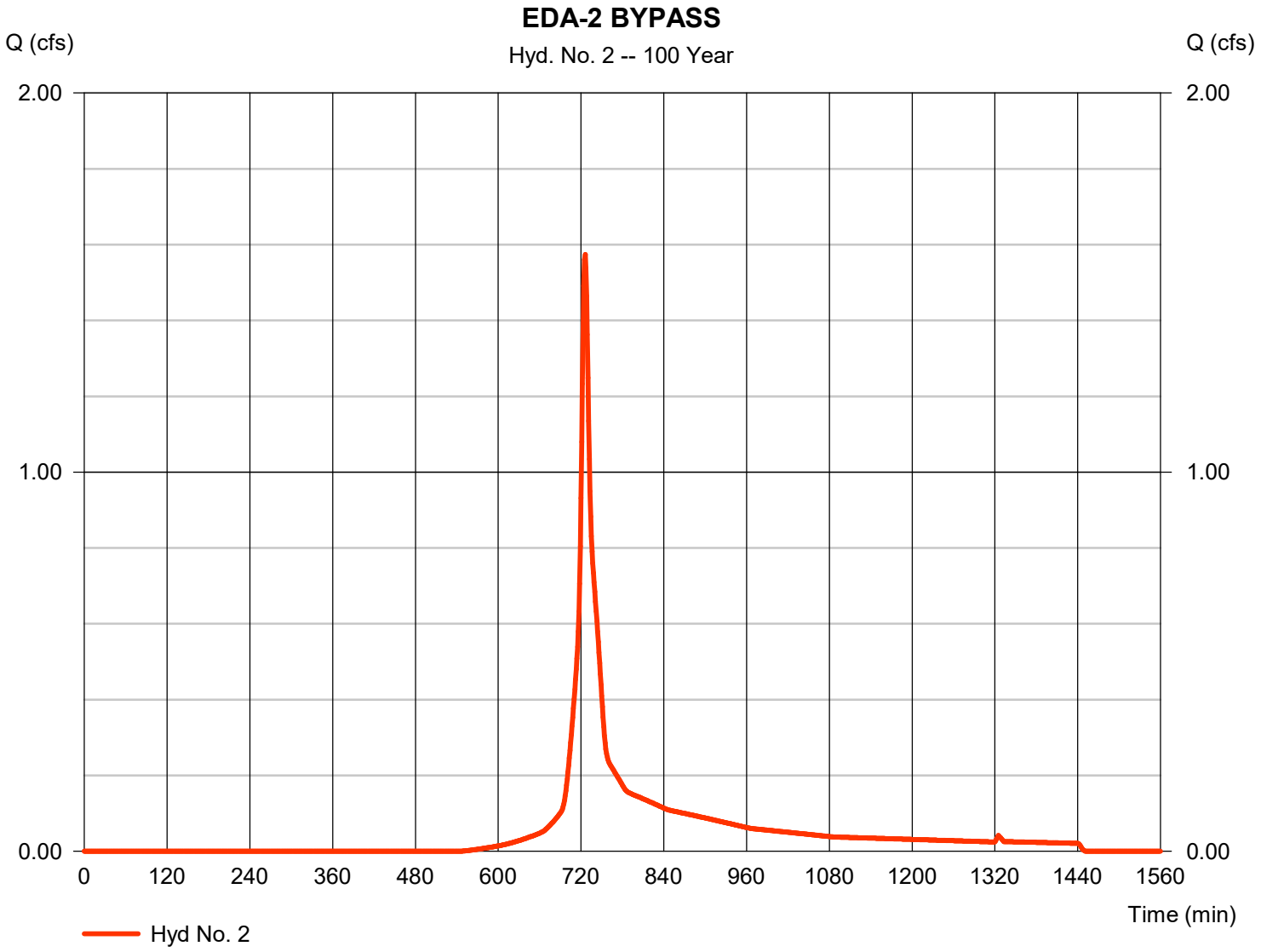


Hydrograph Report

Hyd. No. 2

EDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.574 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	5,085 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.50 min
Total precip.	=	8.72 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



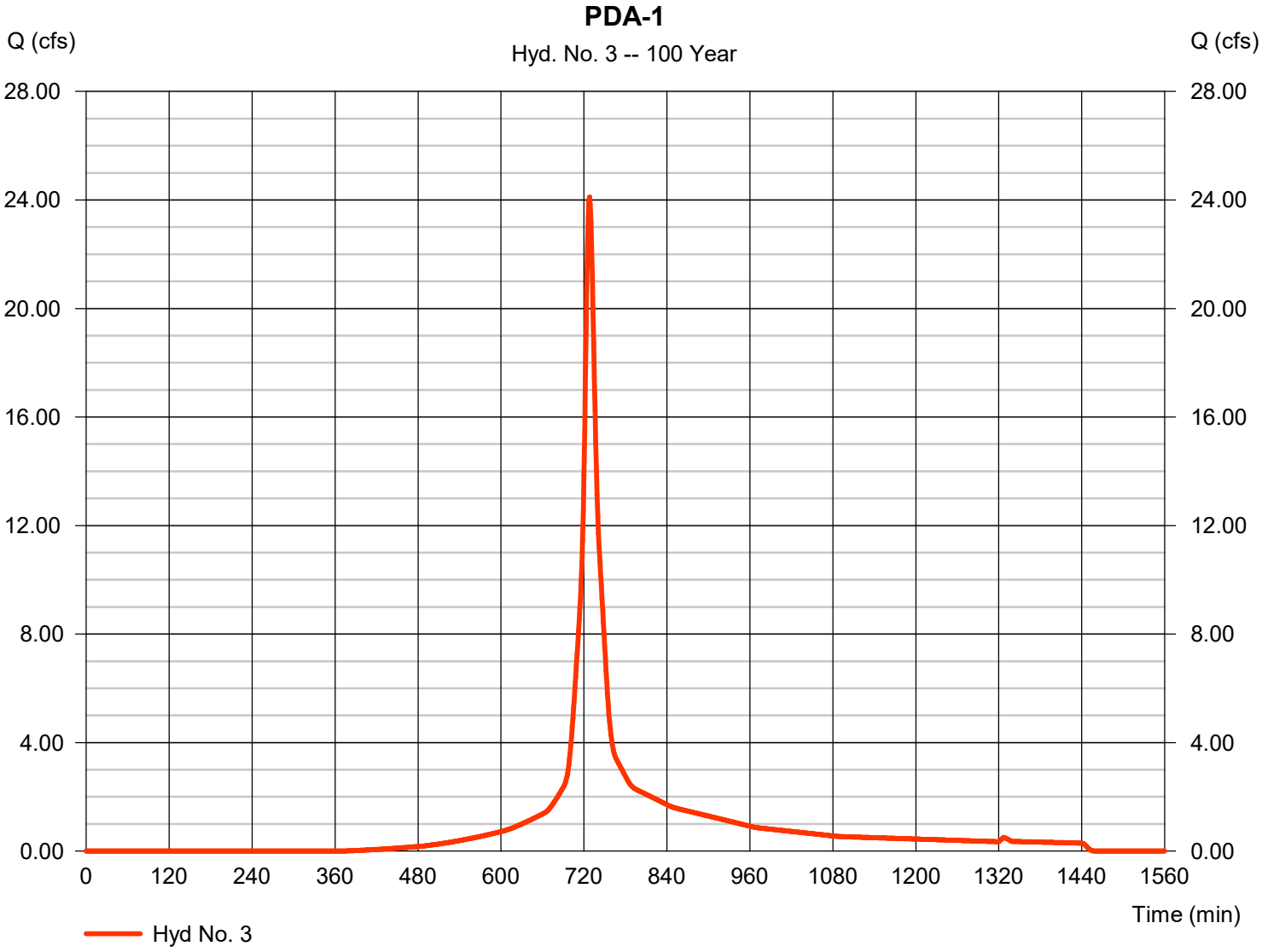
Hydrograph Report

Hyd. No. 3

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	24.12 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	88,339 cuft
Drainage area	=	4.110 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.80 min
Total precip.	=	8.72 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.620 x 98) + (2.490 x 61)] / 4.110

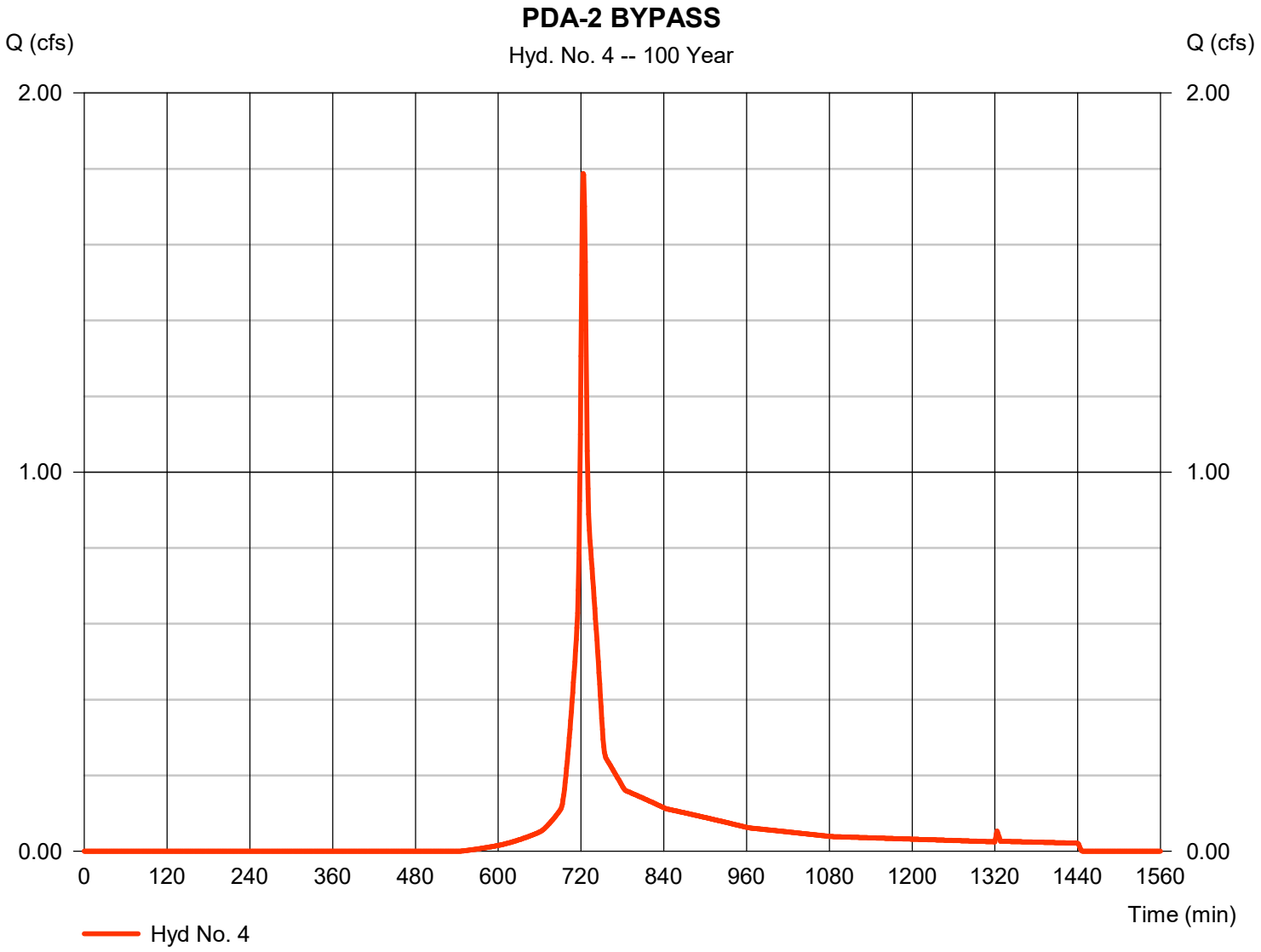


Hydrograph Report

Hyd. No. 4

PDA-2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.787 cfs
Storm frequency	=	100 yrs	Time to peak	=	723 min
Time interval	=	1 min	Hyd. volume	=	5,216 cuft
Drainage area	=	0.359 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	3.40 min
Total precip.	=	8.72 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

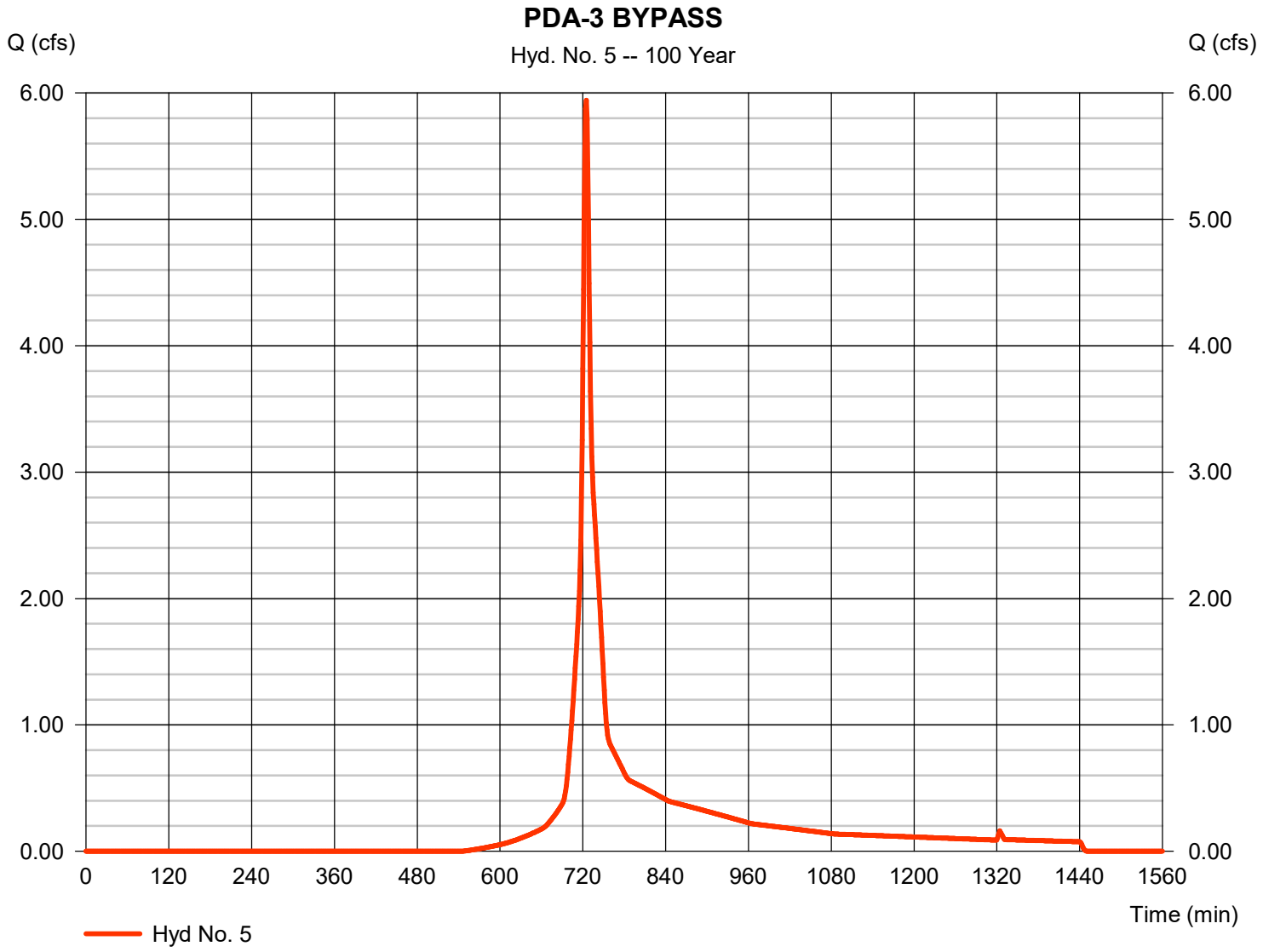


Hydrograph Report

Hyd. No. 5

PDA-3 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.944 cfs
Storm frequency	=	100 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	18,399 cuft
Drainage area	=	1.228 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.50 min
Total precip.	=	8.72 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



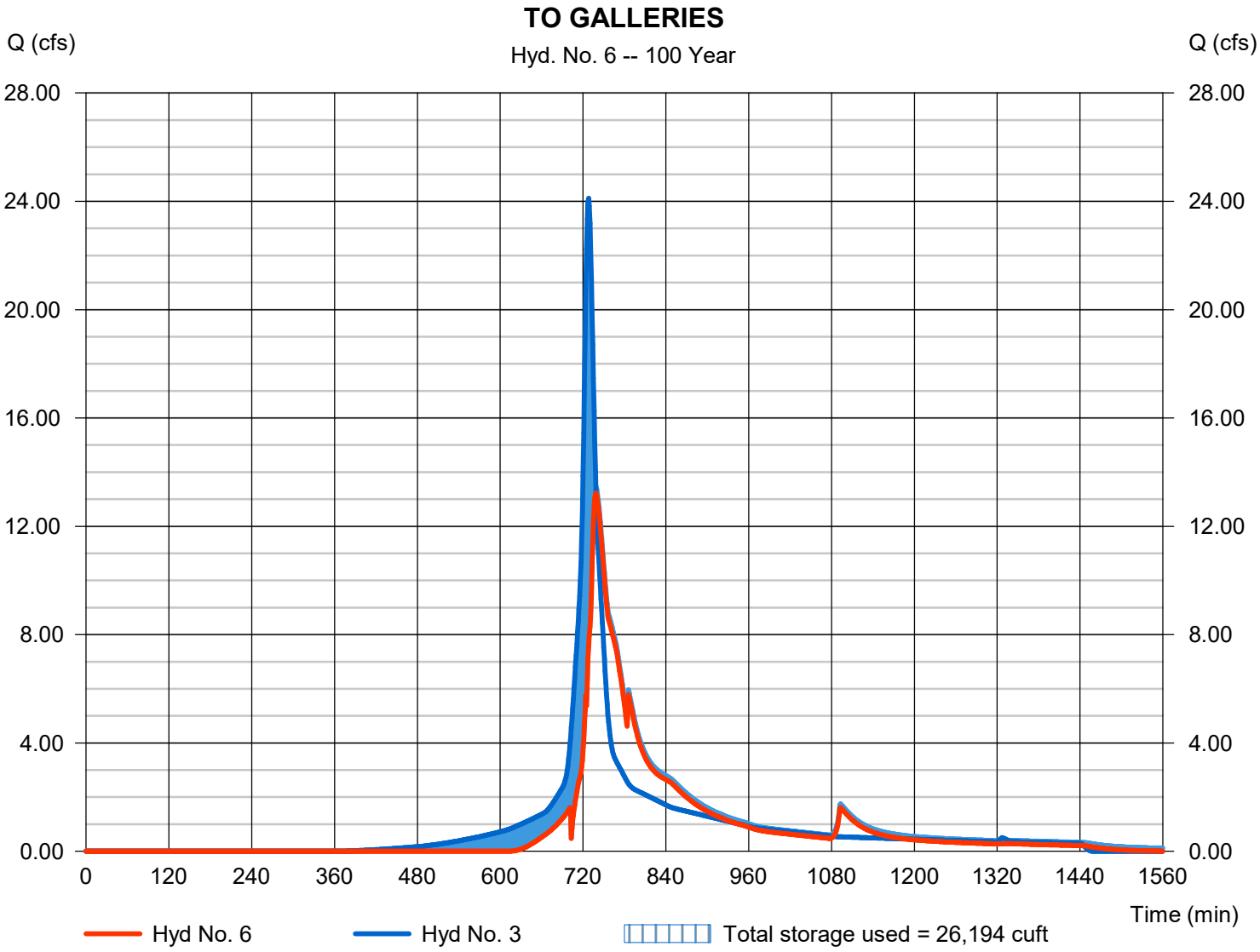
Hydrograph Report

Hyd. No. 6

TO GALLERIES

Hydrograph type	=	Reservoir	Peak discharge	=	13.22 cfs
Storm frequency	=	100 yrs	Time to peak	=	739 min
Time interval	=	1 min	Hyd. volume	=	76,732 cuft
Inflow hyd. No.	=	3 - PDA-1	Max. Elevation	=	281.99 ft
Reservoir name	=	Galleries	Max. Storage	=	26,194 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

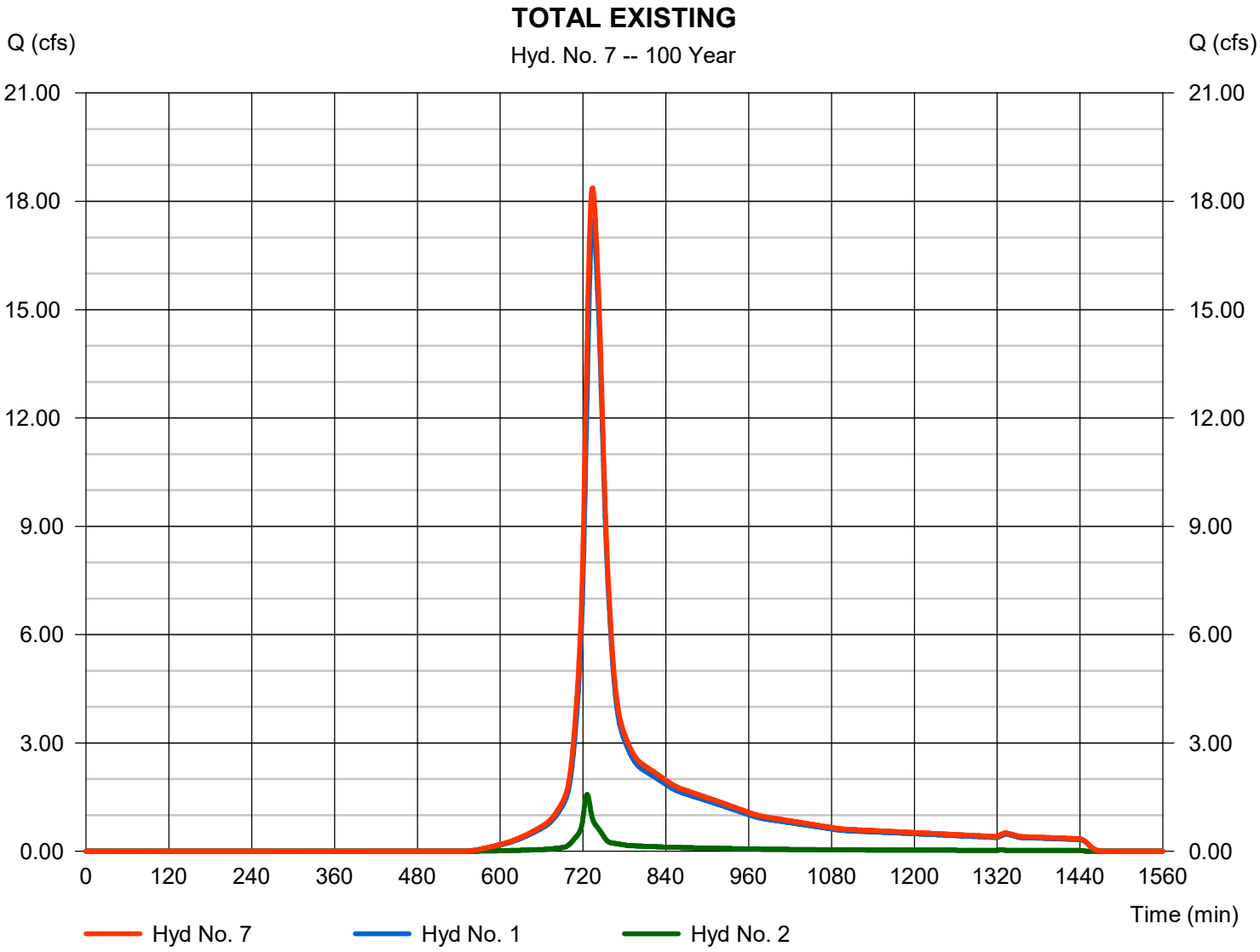


Hydrograph Report

Hyd. No. 7

TOTAL EXISTING

Hydrograph type	=	Combine	Peak discharge	=	18.37 cfs
Storm frequency	=	100 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	82,874 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	5.713 ac

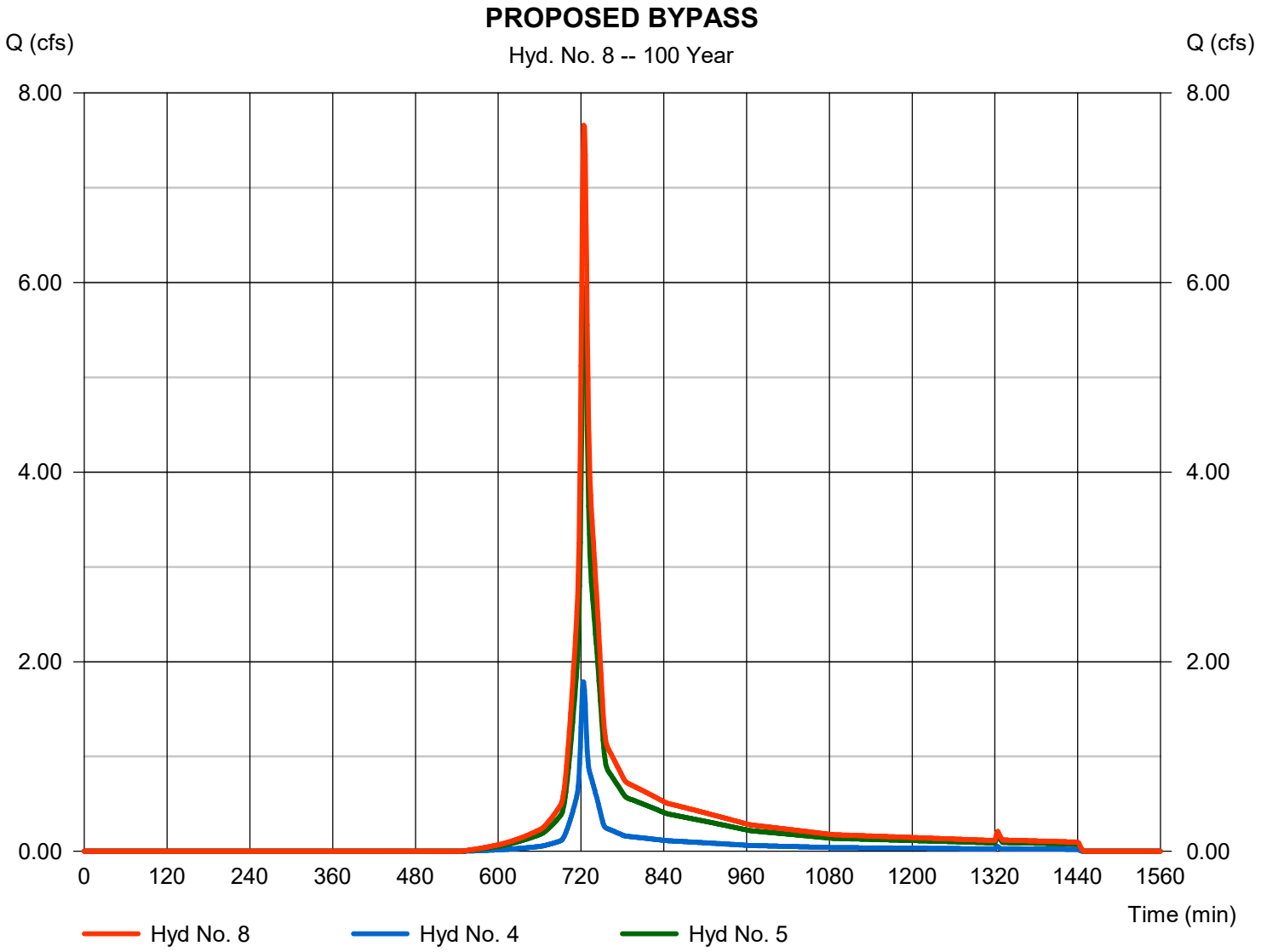


Hydrograph Report

Hyd. No. 8

PROPOSED BYPASS

Hydrograph type	= Combine	Peak discharge	= 7.660 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 1 min	Hyd. volume	= 23,615 cuft
Inflow hyds.	= 4, 5	Contrib. drain. area	= 1.587 ac

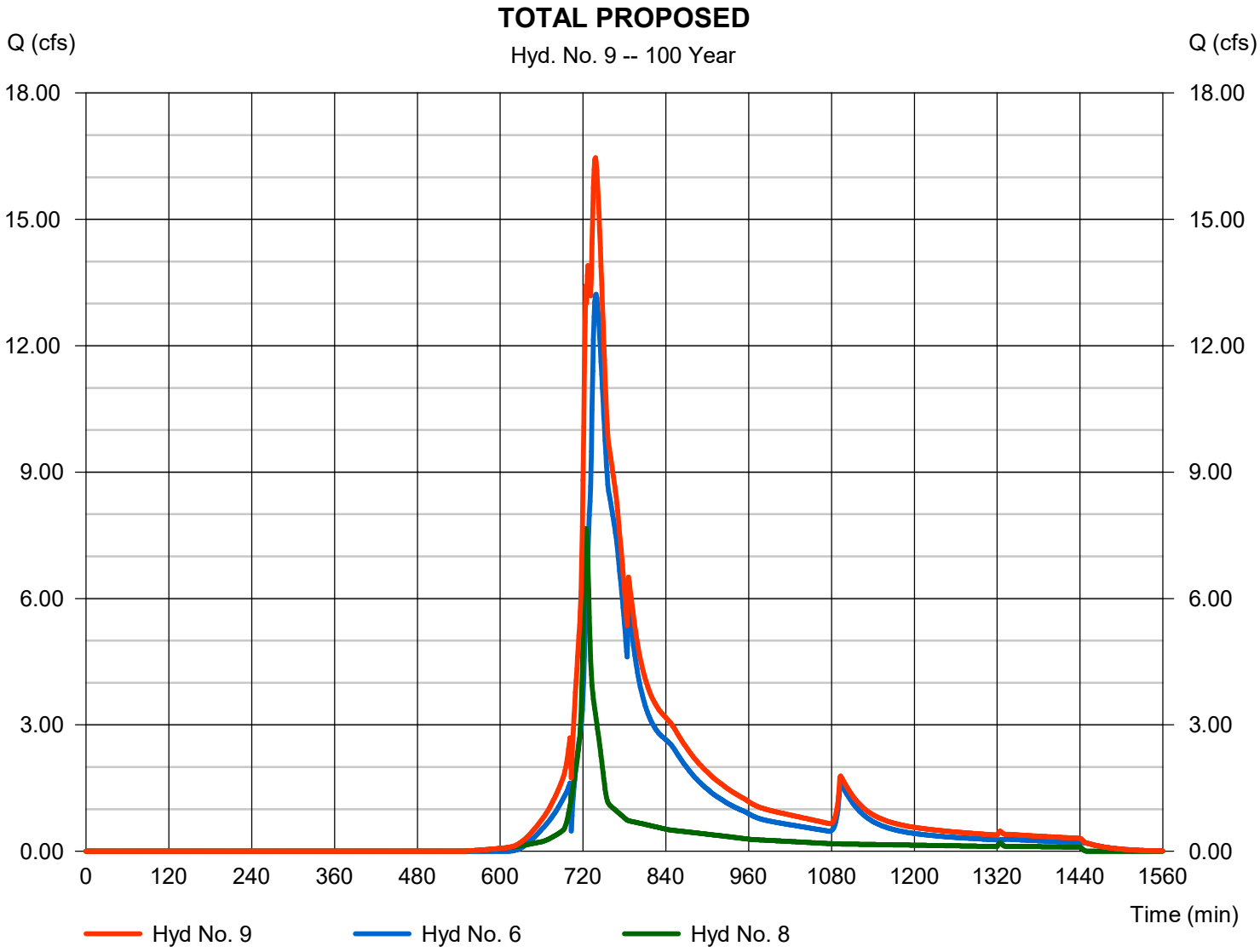


Hydrograph Report

Hyd. No. 9

TOTAL PROPOSED

Hydrograph type	=	Combine	Peak discharge	=	16.47 cfs
Storm frequency	=	100 yrs	Time to peak	=	738 min
Time interval	=	1 min	Hyd. volume	=	100,347 cuft
Inflow hyds.	=	6, 8	Contrib. drain. area	=	0.000 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	23.3464	3.9000	0.7061	--------
3	0.0000	0.0000	0.0000	--------
5	29.3741	3.8000	0.7033	--------
10	32.9968	3.5000	0.6915	--------
25	40.1073	3.5000	0.6929	--------
50	46.2166	3.6000	0.6977	--------
100	51.9312	3.7000	0.6979	--------

File name: Milford.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4.99	3.64	2.93	2.48	2.17	1.94	1.76	1.62	1.50	1.40	1.31	1.24
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.36	4.64	3.73	3.16	2.76	2.47	2.24	2.06	1.91	1.78	1.67	1.58
10	7.51	5.46	4.39	3.72	3.25	2.91	2.64	2.43	2.25	2.11	1.98	1.87
25	9.10	6.61	5.31	4.50	3.94	3.52	3.20	2.94	2.72	2.54	2.39	2.26
50	10.30	7.48	6.01	5.09	4.45	3.98	3.61	3.32	3.08	2.87	2.70	2.55
100	11.48	8.36	6.73	5.70	4.99	4.46	4.05	3.72	3.45	3.22	3.03	2.86

Tc = time in minutes. Values may exceed 60.

Precip. file name: H:\LIBRARY\DEPT\SITE\hydraflow\woodbridge.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.99	3.66	0.00	4.73	5.62	6.84	7.74	8.72
SCS 6-Hr	2.03	2.41	0.00	3.04	3.56	4.27	4.81	5.38
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX B
NCRS SOIL MAP

Soil Map

Map Unit Legend

State of Connecticut, Western Part (CT601)

State of Connecticut, Western Part (CT601)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	10.3	11.3%
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	0.4	0.4%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	31.8	35.0%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	18.1	19.8%
75C	Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	0.6	0.6%

Legend

Scale (not to scale)

APPENDIX C

WATER QUALITY VOLUME CALCULATION
DRAINAGE AREA = 4.119 ac
IMPERVIOUS = 43.5%
WQV= (P*RV*A); RV=0.05+0.009*I
RV= 0.05+0.009*I= 0.4415 WATERSHED INCHES
WQV= (1.3"*0.4415"*179,423)/12 = 8,581 cuft REQUIRED
27,000 cuft Provided

LEVEL SPREADER CALCULATION
Per DEEP chaper 13 Page 476
Flow at 100 yr storm
=13.39 cfs

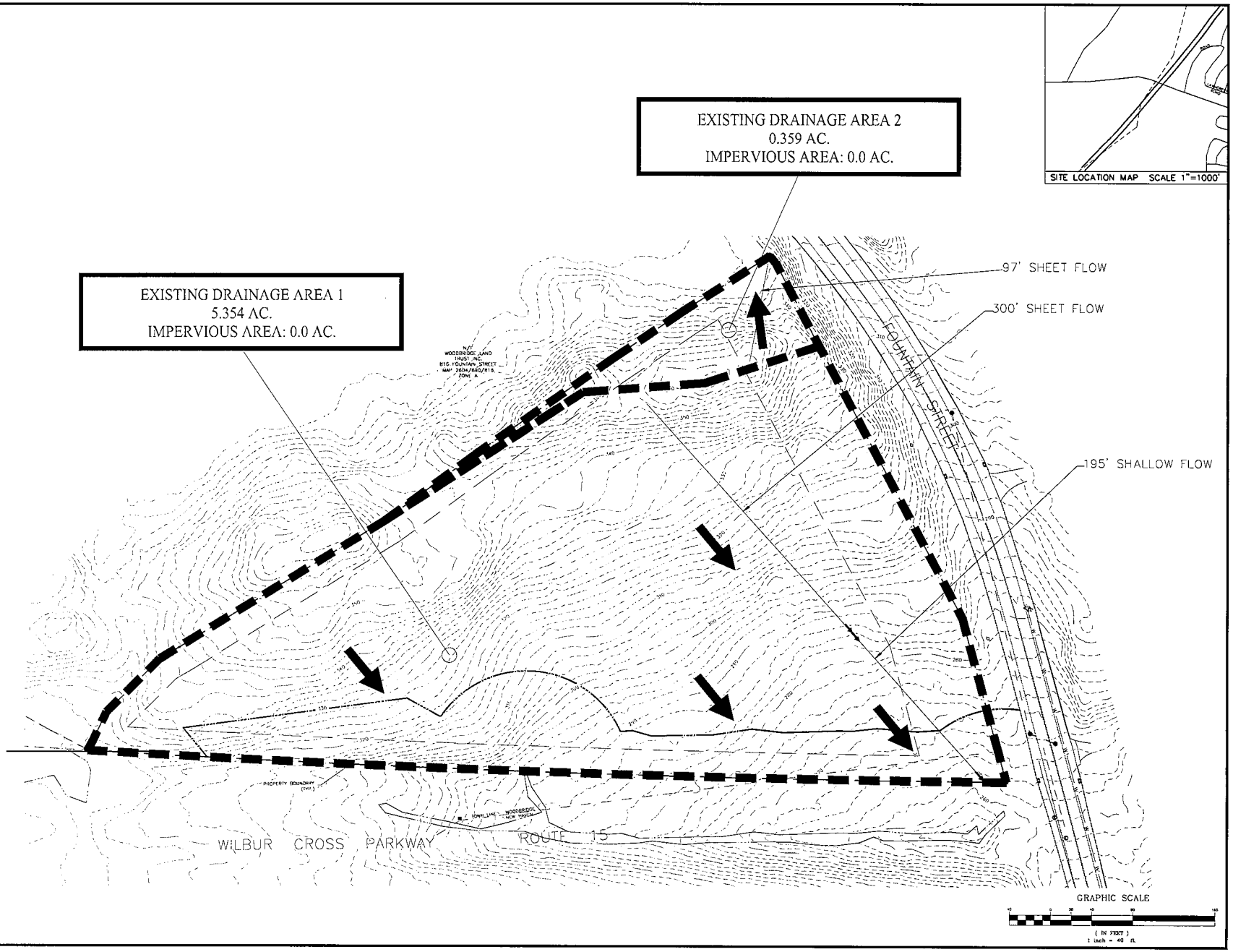
Required 4 feet of spreader per 1 cfs or 4*13.39=53.56 use **54 feet**

SEDIMENT STORAGE VOLUME
REQUIRED:
V=[(DA)(A)(DR)(TE)]/[GAMMA (43,560 SQ-FT/AC.)]

V=[(5.71)(50)(50%)(0.8)]/[125 X 43,560] = .002869 AC-FT/YR.
V= 125 CF

PROVIDED:

V = 1,031 CF



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REVISIONS			
NO.	BY	DATE	DESCRIPTION
1	MWF	9-16-2024	DESIGN DEVELOPMENT
2	PWR	11-20-2024	UPDATE ZONING GRID
3	MJS	12-31-2024	ISSUED TO P&Z
4	SWM	03-2025	REVISED PER TOWN'S MEMO

PROJECT TITLE

RESIDENTIAL
DEVELOPMENT
804 FOUNTAIN STREET
WOODBRIDGE, CT 06525

Prepared for:
FOUNTAIN RIDGE, LLC
8 HUNTINGTON STREET SUITE 171
SHELTON, CT 06484

SHEET TITLE

EX. DRAINAGE BASINS

DESIGNED BY: MJS	SCALE: AS NOTED
DRAWN BY: MJS	DATE: 9-20-24
CHECKED BY: PR	PROJECT NUMBER: 2850
CAD FILE: R:/2850/DWG/SITEPLAN	

SEAL

SHEET NUMBER

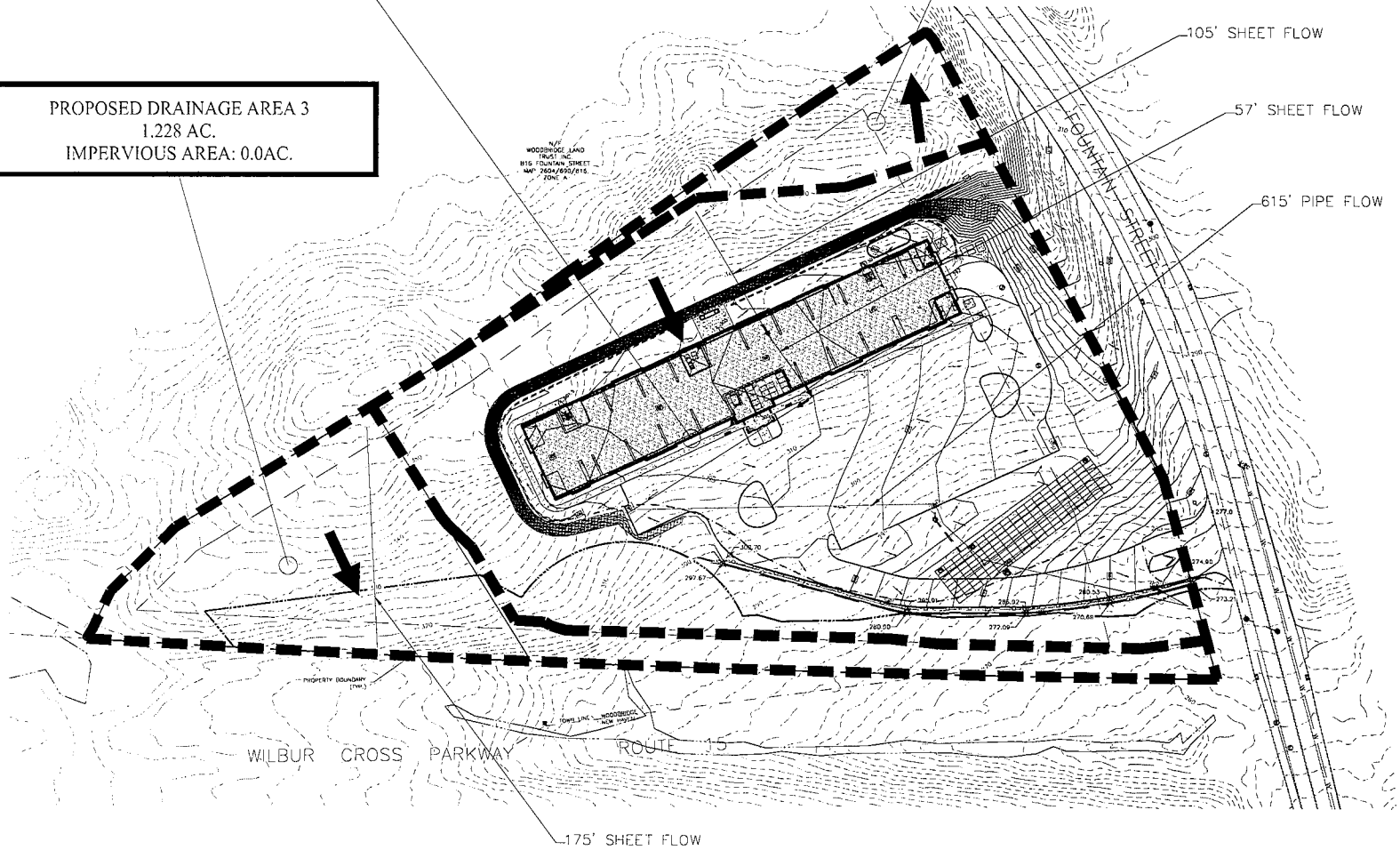
C-1

21/05/2025

PROPOSED DRAINAGE AREA 1
4.119 AC.
IMPERVIOUS AREA: 1.62AC.

PROPOSED DRAINAGE AREA 2
0.359 AC.
IMPERVIOUS AREA: 0.0 AC.

PROPOSED DRAINAGE AREA 3
1.228 AC.
IMPERVIOUS AREA: 0.0AC.



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REVISIONS

NO.	BY	DATE	DESCRIPTION
1	MMT	9-18-2024	DESIGN DEVELOPMENT
2	PMR	11-20-2024	UPDATE ZONING GRID
3	MJS	12-31-2024	ISSUED TO P&Z
4	SMM	03-2025	REVISED PER TOWN'S MEMO

PROJECT TITLE

RESIDENTIAL
DEVELOPMENT
804 FOUNTAIN STREET
WOODBRIDGE, CT 06525

Prepared for:
FOUNTAIN RIDGE, LLC
8 HUNTINGTON STREET SUITE 171
SHELTON, CT 06484

SHEET TITLE

PR. DRAINAGE BASINS

DESIGNED BY: MJS	SCALE: AS NOTED
DRAWN BY: MJS	DATE: 9-20-24
CHECKED BY: PR	PROJECT NUMBER: 2850
CAD FILE: R:/2850/DWG/SITEPLAN	

SEAL

SHEET NUMBER

C-2

27/03/2025