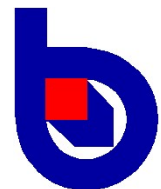**Blue Jay Road Elementary**
Construction of Elementary School
Effingham County, Georgia

April 22nd, 2024
May 29, 2024

STORMWATER MANAGEMENT PLAN

James W. Buckley & Associates, Inc.
114 North Green Street, P. O. Box 727
Swainsboro, Georgia 30401
Phone: (478) 237-6467 Fax: (478) 237-3197

STORMWATER MANAGEMENT PLAN

FOR

Blue Jay Road Elementary
Construction of Elementary School

Effingham County, Georgia

April 22nd, 2024
Revised: May 29th, 2024

PROFESSIONAL CERTIFICATION

"I, Will Martin, a Registered Professional Engineer in the State of Georgia, hereby certify that the grading and drainage plans for the project known as the Blue Jay Road Elementary, lying in Parcels 04320040, 04140003A00, 04320042, 04320043A00, 0432004, 04320040A00, Effingham County, Georgia, have been prepared under my supervision, and, state that in my opinion, the construction of said project will not produce storm drainage conditions that will cause damage or adversely affect the surrounding properties for the storm events specified in Georgia Stormwater Management Manual. This 22nd day of April 2024."

NARRATIVE

PURPOSE OF STUDY: This study was prepared in order to show the current conditions regarding rainfall and runoff versus the conditions that will result after construction of the proposed site improvements and future impervious improvements.

This study has been performed to evaluate the impact of the increased storm water runoff on the site and adjacent properties, resulting from the addition of a new building with associated parking areas, etc. The total site consists of approximately 75.73-acres; 50 of which will be disturbed during the course of construction. The site is located on the south side of Blue Jay Rd., west of the intersection of Blue Jay Rd, Blandford Rd and McCall Rd. Information used in the preparation of this report was taken from topographical surveys of the site, Effingham County tax maps, field observations, aerial photographs, site plan of the proposed construction, wetland inventory maps, USGS soils maps and available quadrangle maps.

SITE CONDITIONS

EXISTING CONDITIONS: The Blue Jay Road Elementary site is located on a lot that fronts Blue Jay Rd in Effingham County, Georgia. The total site consists of approximately 75.73-acres. There is driveway accessing Blue Jay Rd. The areas to the south of the site consist primarily of undeveloped forested lots. The areas to the east and west of the site are neighborhood residential communities consisting of lots ranging from 0.10 acres to 0.50 acres.

The existing site sits within a drainage basin sloping to the south and west into a wetland area that continues southwest. The improvements being made will have a minor effect on the drainage entering this wetland area as the impervious ground cover will increase. The remaining site will remain unaffected by the improvements and will continue to drain in its current state. There are no known impaired stream segments on the property or within one linear mile upstream of or within the same watershed. The receiving waters is an unnamed tributary to St. Augustine Creek.

Applicant Information:	Effingham County Board of Education
	405 North Ash Street
	Springfield, GA 31329
	(912) 754-6491
Site Information:	Blue Jay Road Elementary
	724 Blue Jay Rd
	Guyton, GA 31312

PROPOSED CONDITIONS: Effingham County intends to construct an elementary school onto the Blue Jay Road site. The school is approximately 150,000 square feet and construction will

include grading, paving sidewalks, installation of new drainage pipes, utility installation, and implementation of all required erosion and sediment control practices. All disturbed areas will be treated with temporary and permanent grassing as appropriate to prevent erosion from leaving the site. The site will also include a perimeter sediment barrier to prevent sediment from leaving the site. There is no existing detention facility at this location. New detention facilities will be constructed at the location. These new detention facilities will be constructed to handle the flow associated with this additional impervious area as well as additional impervious areas of future impervious developments.

OPERATION & MAINTENANCE:

Maintenance of the proposed storm sewerage system shall be provided by the Effingham County Board of Education. Maintenance tasks shall include the periodic removal of all sediment and debris that may inhibit the system's ability to function per the design parameters contained in this report.

3.2.1.7 Inspection and Maintenance Requirements

Table 3.2.1-1 Typical Maintenance Activities for Ponds
(Source: WMI, 1997)

Activity	Schedule
• Clean and remove debris from inlet and outlet structures. • Mow side slopes.	Monthly
• If wetland components are included, inspect for invasive vegetation.	Semiannual Inspection
• Inspect for damage, paying particular attention to the control structure. • Check for signs of eutrophic conditions. • Note signs of hydrocarbon build-up, and remove appropriately. • Monitor for sediment accumulation in the facility and forebay. • Examine to ensure that inlet and outlet devices are free of debris and operational. • Check all control gates, valves or other mechanical devices.	Annual Inspection
• Repair undercut or eroded areas.	As Needed
• Perform wetland plant management and harvesting.	Annually (if needed)
• Remove sediment from the forebay.	5 to 7 years or after 50% of the total forebay capacity has been lost
• Monitor sediment accumulations, and remove sediment when the pool volume has become reduced significantly, or the pond becomes eutrophic.	10 to 20 years or after 25% of the permanent pool volume has been lost

Additional Maintenance Considerations and Requirements

‣ A sediment marker should be located in the forebay to determine when sediment removal is required.

‣ Sediments excavated from stormwater ponds that do not receive runoff from designated hotspots are not considered toxic or hazardous material and can be safely disposed of by either land application or landfilling. Sediment testing may be required prior to sediment disposal when a hotspot land use is present.

‣ Periodic mowing of the pond buffer is only required along maintenance rights-of-way and the embankment. The remaining buffer can be managed as a meadow (mowing every other year) or forest.

‣ Care should be exercised during pond drawdowns to prevent downstream discharge of sediments, anoxic water, or high flows with erosive velocities. The approving jurisdiction should be notified before draining a stormwater pond.

> ⚠ Regular inspection and maintenance is critical to the effective operation of stormwater ponds as designed. Maintenance responsibility for a pond and its buffer should be vested with a responsible authority by means of a legally binding and enforceable maintenance agreement that is executed as a condition of plan approval.

TECHNICAL INFORMATION:

COMPUTATIONAL METHODS: The Soil Conservation System (SCS) Method is used for rainfall vs. runoff computations for onsite and offsite drainage basins as outlined in the *Georgia Stormwater Management Manual*. For analysis, the soils on this site are found to have type "D" characteristics, which indicate they have high runoff potential due to slow infiltration rates. See soil map at end of this report. Pre- and post-development curve numbers (CN) were chosen as follows: 98 for impervious areas; 84 for grass cover (fair condition); 80 for open space (good condition). These curve numbers were chosen to correspond with Hydrologic Soil Group D as the open areas of the drainage basin are Ridgeland, Group D. Curve numbers were taken from Table 2.1.5-1 from the *Georgia Stormwater Management Manual*. Times of Concentration were calculated using the TR-55 method of Urban Hydrology for Small Watersheds. Runoff hydrographs were generated using the software "Hydraflow Hydrographs Extension Version

2020," for the storm frequencies: 1-Year, 5-Year, 10-Year, 25-Year, 50-Year and 100-Year. Rainfall data was taken from NOAA's Point Precipitation Estimate for Savannah, Georgia.

The results for the "Hydraflow Hydrographs Extension Version 2020" are summarized in the tables below.

PRE-DEVELOPMENT:

Pre-development runoff results for the site are shown in the table below. The basins and study points are shown on the attached Pre-Developed Drainage Basin Map. The Pre Basin 1 is a portion of the Effingham Board of Education property, but also includes property east of the school's property. Pre Basin 2 is a small northern portion of the property owned by the school system adjoining Blue Jay Rd, and it also includes an area east of the subject property draining toward the roadside ditch on Blue Jay Rd. Pre Basin 3 is a section of property on the northwest side of the property owned by the school system draining southwest into the ditch along Blue Jay Rd.

TABLE 1: PRE-DEVELOPED RUNOFF DATA

PRE-BASIN	STORM FREQUENCY					
	1YR	5YR	10YR	25YR	50YR	100YR
BASIN 1 (cfs)	33.74	71.35	82.93	102.32	117.85	133.38
BASIN 2 (cfs)	3.43	7.22	8.39	10.33	11.89	13.44
BASIN 3 (cfs)	0.52	1.01	1.16	1.41	1.61	1.80

POST-DEVELOPMENT:

Post-development runoff results for the site are shown in the table below. Basin 3 no longer has runoff associated with it as this small area is now redirected to Basin 1.

TABLE 2: POST-DEVELOPED RUNOFF DATA

POST-BASIN	STORM FREQUENCY					
	1YR	5YR	10YR	25YR	50YR	100YR
BASIN 1 (cfs)	28.58	56.61	64.55	90.82	111.77	131.15
BASIN 2 (cfs)	1.55	3.53	4.15	5.20	6.05	6.90
BASIN 3 (cfs)	0	0	0	0	0	0

PRE VS. POST DEVELOPMENT ANALYSIS:

Basin 1: Pre Basin 1 and Post Basin 1 consist of the same areas for the most part, the difference being that Pre Basin 3 is absorbed into Post Basin 1. Post Basin 1 consists of a series of ponding areas in order to detain the post developed flow and ensure that the existing drainage patterns are maintained and do not affect the adjoining properties. The summary of the Pre vs. Post outflow for this basin is shown below.

TABLE 3: PRE vs POST DEVELOPED ANALYSIS (BASIN 1)

BASIN	STORM FREQUENCY					
	1YR	5YR	10YR	25YR	50YR	100YR
PRE BASIN (cfs)	33.74	71.35	82.93	102.32	117.85	133.38
POST BASIN (cfs)	28.58	56.61	64.55	90.82	111.77	131.15
Percent Reduction (%)	15.29	20.66	22.16	11.24	5.16	1.67

Basin 2: Post Basin 2 is reduced in size somewhat from Pre Basin 2 and Post Basin 2 maintains similar ground cover as Pre Basin 2 with no additional impervious area draining to this study point. The summary of the Pre vs. Post outflow for this basin is shown below.

TABLE 4: PRE vs POST DEVELOPED ANALYSIS (BASIN 2)

BASIN	STORM FREQUENCY					
	1YR	5YR	10YR	25YR	50YR	100YR
PRE BASIN (cfs)	3.43	7.22	8.39	10.33	11.89	13.44
POST BASIN (cfs)	1.55	3.53	4.15	5.20	6.05	6.90
Percent Reduction (%)	54.81	51.11	50.54	49.66	49.12	48.66

Basin 3: Post Basin 3 is being redirected into Post Basin 1. The summary of the Pre vs. Post outflow for this basin is shown below.

TABLE 5: PRE vs POST DEVELOPED ANALYSIS (BASIN 3)

BASIN	STORM FREQUENCY					
	1YR	5YR	10YR	25YR	50YR	100YR
PRE BASIN (cfs)	0.52	1.01	1.16	1.41	1.61	1.80
POST BASIN (cfs)	0	0	0	0	0	0
Percent Reduction (%)	100	100	100	100	100	100

MINIMUM STANDARD #1 – USE OF BETTER SITE DESIGN PRACTICES FOR STORMWATER MANAGEMENT:

The Blue Jay Road Elementary School has been designed to safely utilize new drainage infrastructure to convey the stormwater that is proposed to leave this site. The environmentally sensitive areas surrounding this site should not be impacted by this school addition.

MINIMUM STANDARD #2 – CONSTRUCTION EROSION AND SEDIMENTATION CONTROL:

The Blue Jay Road Elementary School has been designed to meet state and local requirements with an erosion and sedimentation control plan, including perimeter silt fence, construction exits, temporary and permanent grassing, dust control, and storm drain outlet protection. This site has been designed in accordance with the *Manual for Sediment and Erosion Control in Georgia*.

MINIMUM STANDARD #3 – CONSTRUCTION OF A MICROPOOL EXTENDED DETENTION FACILITY:

The Blue Jay Road Elementary School will include the construction of a detention facility. This facility will store and release all storm events below the predeveloped rate. Table 3 shows the summary of release rates from this facility. This facility will include grassed slopes and bottom which will be maintained by The Effingham County Board of Education. There will also be a 4-foot deep micropool within this facility. This permanent pool of water will remain undrained in the facility, and the pool will treat any flow into the pond.
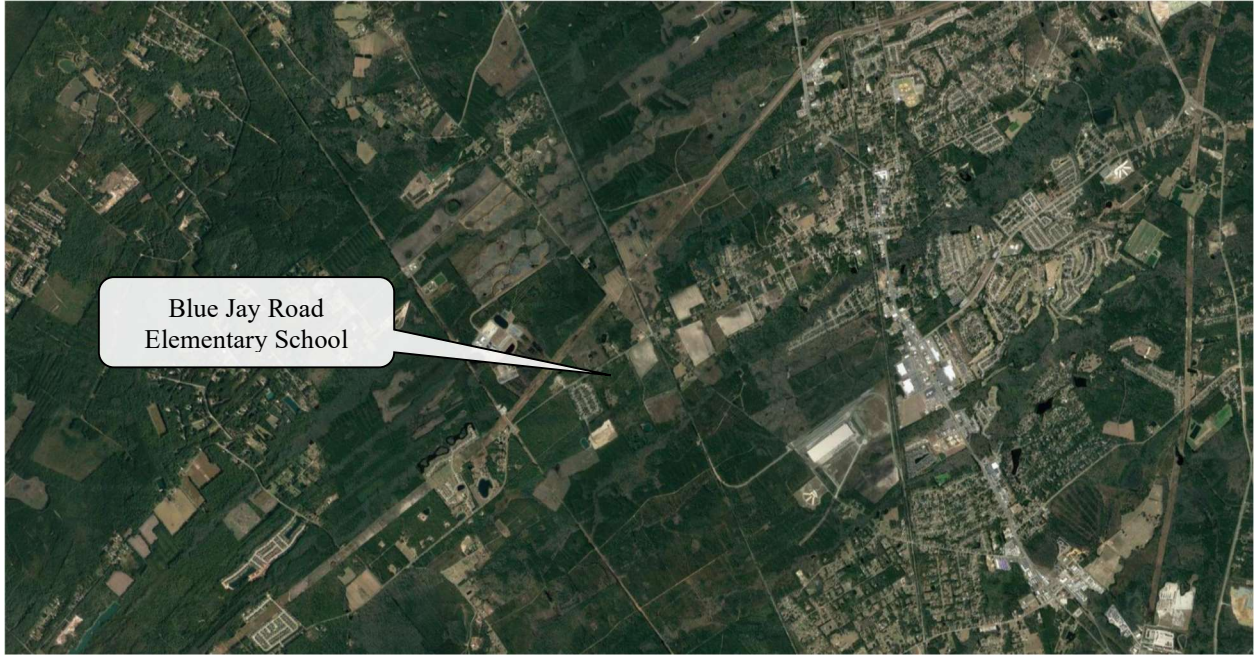
CONCLUSIONS:

The Blue Jay Road Elementary School will not increase the rate of stormwater runoff leaving this site and will treat any of the stormwater that leaves the site prior to its discharge. Therefore, this construction will not have any adverse effects on the site, surrounding properties, or downstream.

Respectfully Submitted,
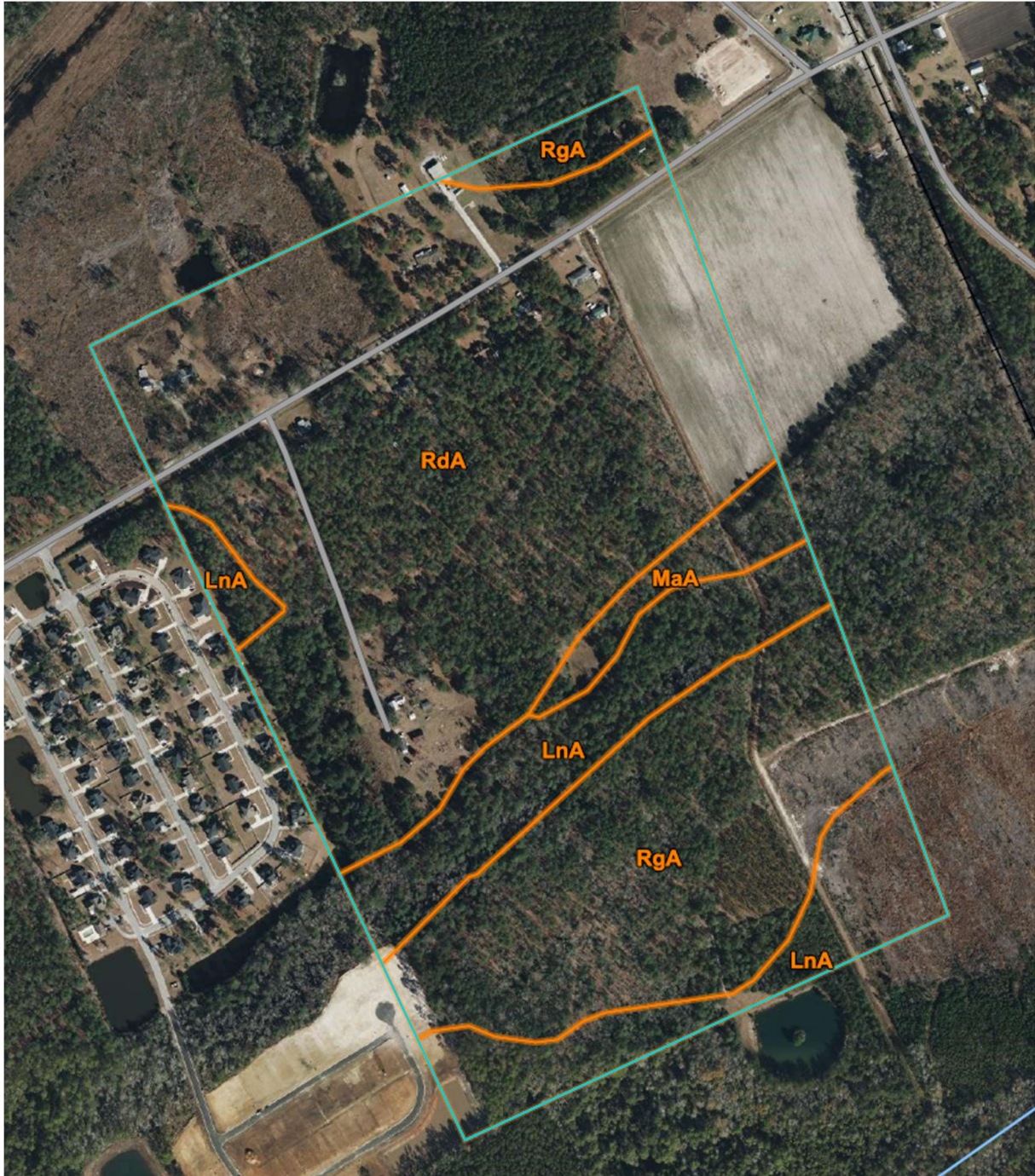James W. Buckley & Associates, Inc.

Will Martin, PE

VICINITY MAP

Blue Jay Road Elementary School

SOIL MAP

FEMA FLOOD MAP

POND WEIR DETAILS

Pond No. 1 - DETENTION AREA 1a

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

Top of pond
Elev. 78.00

2.00

1.00

110.0
Culv

Front View
NTS - Looking Downstream

0.00

Stage (ft)

Bottom of pond
Elev. 76.00

	25-yr
	10-yr
100-yr	5-yr
50-yr	1-yr
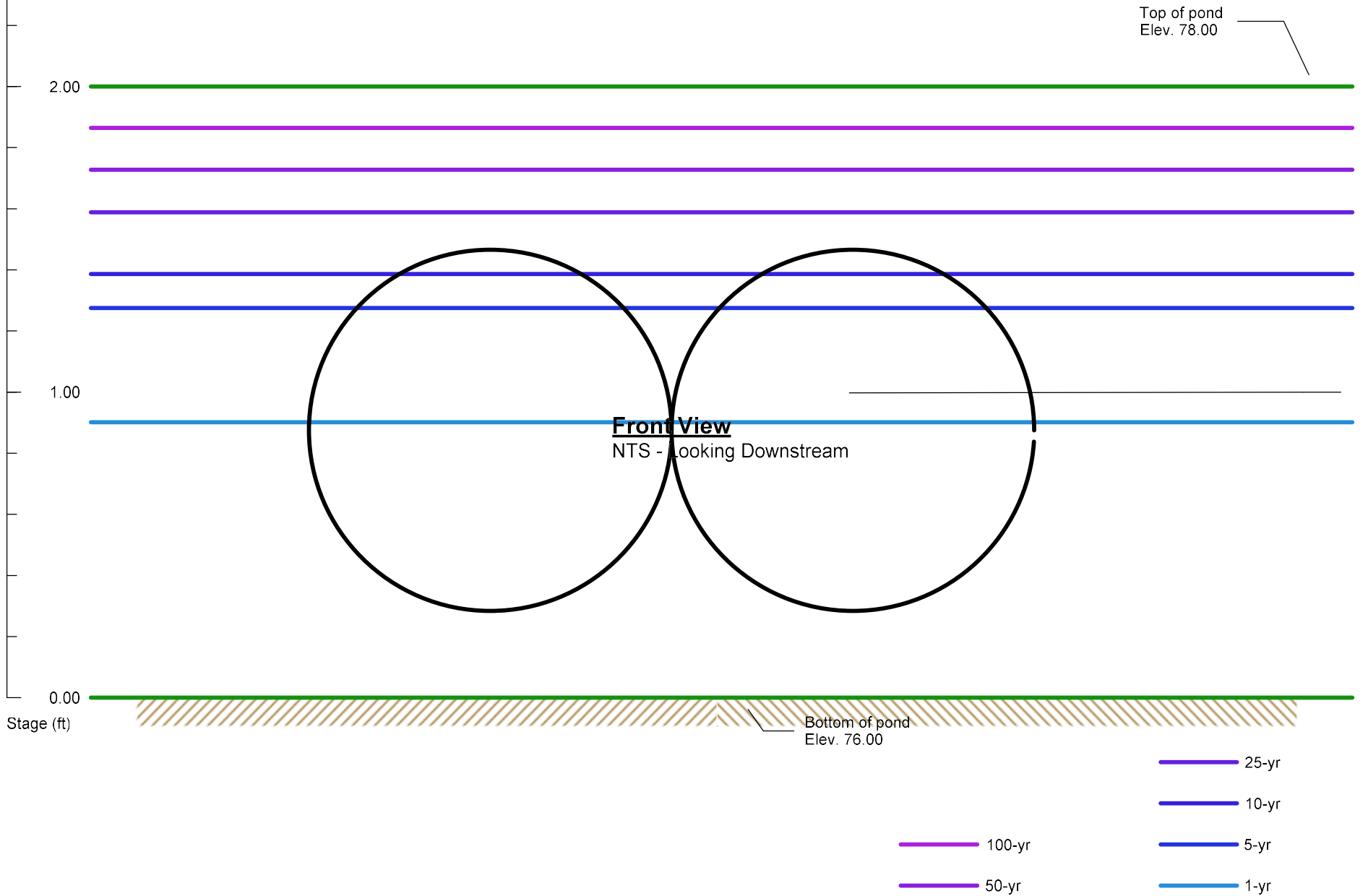
Inflow hydrograph = 5. SCS Runoff - POST_DEV_DRAINAGE_AREA_1a

Project: BLUE_JAY_ROAD_05282024gpw.gpw

Wednesday, 05 / 29 / 2024

Pond No. 2 - DETENTION AREA 1b

Top of pond
Elev. 78.00

110.0 LF of 18.0 in @ 0.30
CulvA - Inv. 75.92

Front View
NTS - Looking Downstream

Stage (ft)

Bottom of pond
Elev. 75.00

25-yr	
10-yr	
100-yr	5-yr
50-yr	1-yr
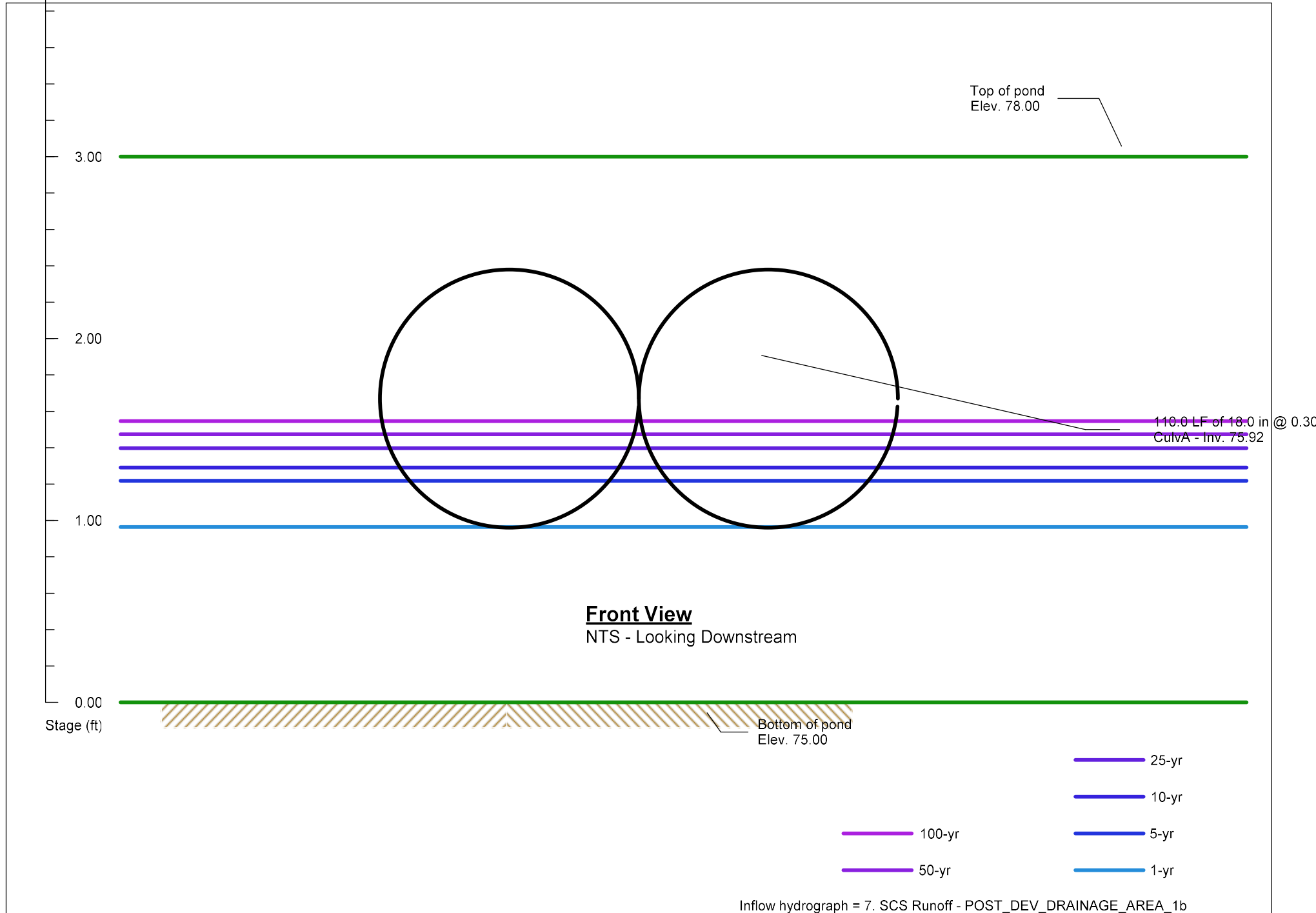
Inflow hydrograph = 7. SCS Runoff - POST_DEV_DRAINAGE_AREA_1b

Pond No. 3 - Big_Detention_Pond

Stage (ft)

Top of pond
Elev. 78.00

40.00 ft Cipoletti weir
WeirA - Elev. 77.01

700.0 LF of 24.0 in @ 0.20%
CulvA - Inv. 74.00

Front View
NTS - Looking Downstream

Bottom of pond
Elev. 74.00

100-yr	25-yr
50-yr	10-yr
	5-yr
	1-yr

Inflow hydrograph = 17. Reservoir - POST_DEV_BIG_POND_ROUT
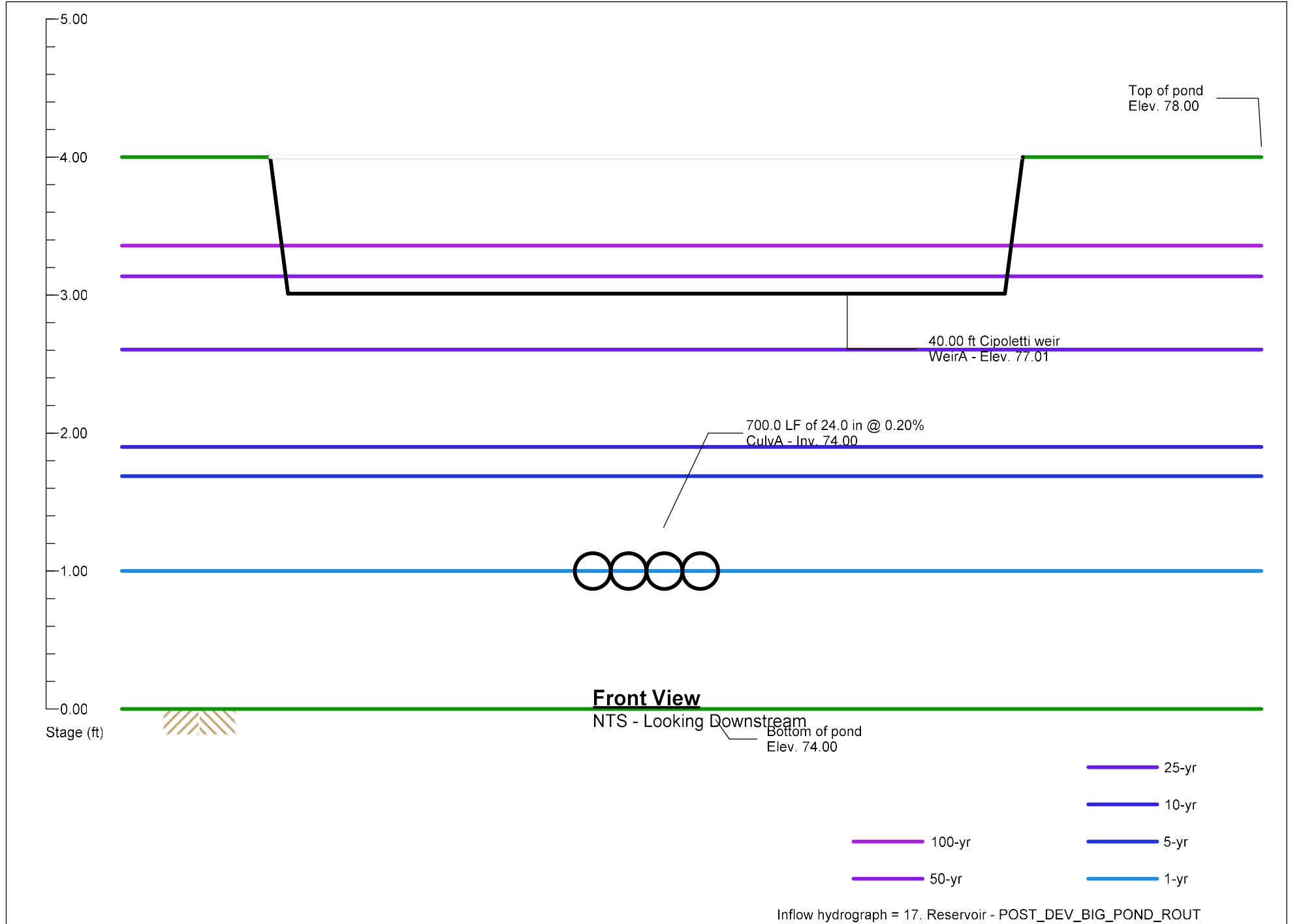
Pond No. 4 - Rear Detention Pond

Top of pond
Elev. 75.00

20.00 ft Cipoletti weir
WeirA - Elev. 73.00

Stage (ft)

Bottom of pond
Elev. 70.00

Front View
NTS - Looking Downstream
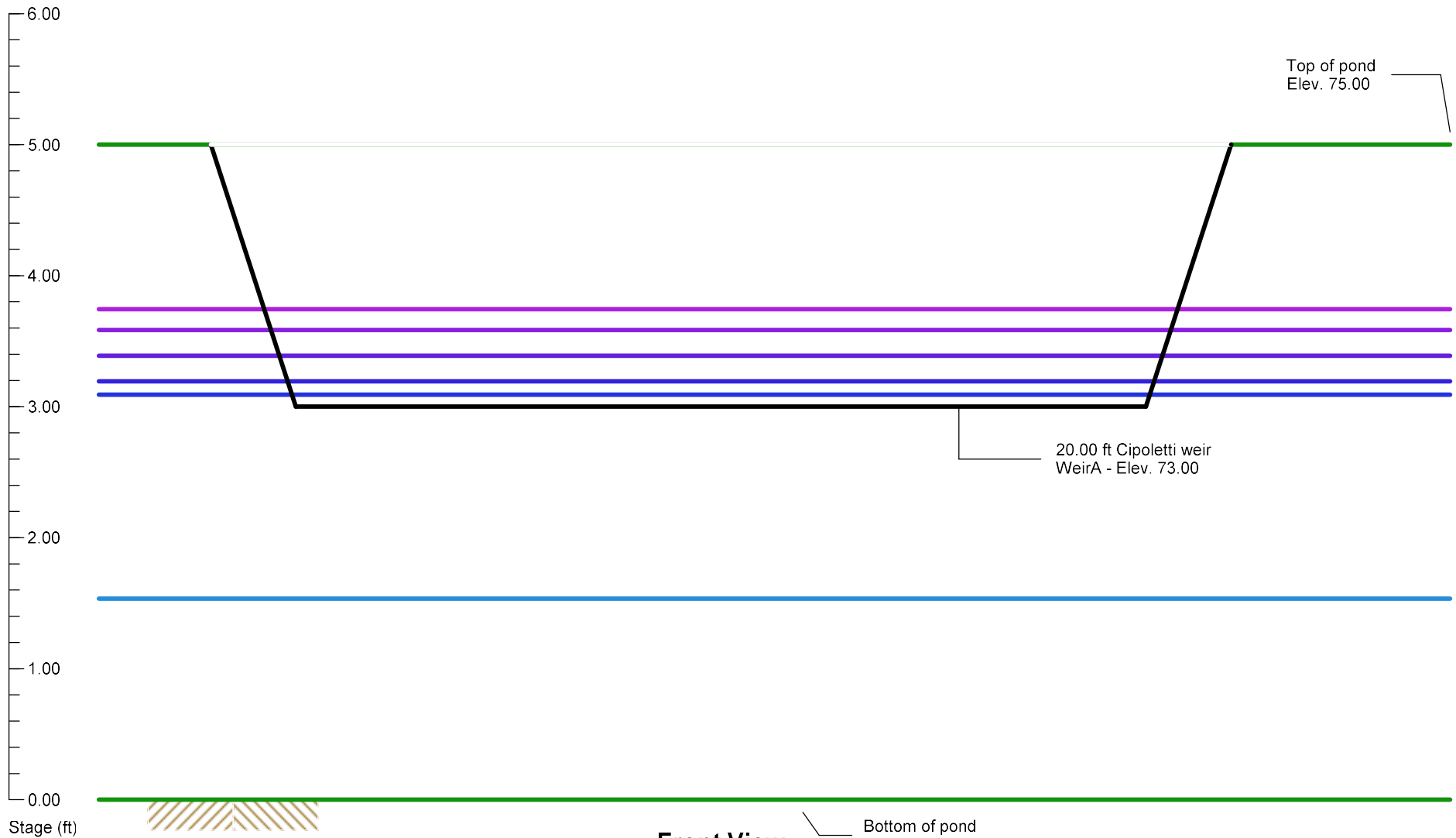
- 25-yr
- 10-yr
- 100-yr
- 5-yr
- 50-yr
- 1-yr

Inflow hydrograph = 18. Combine - TOTAL_FLOW_AT_OUTFALL_DA_1

Project: BLUE_JAY_ROAD_05282024gpw.gpw

Wednesday, 05 / 29 / 2024

PRE-DEVELOPED BASIN DELINEATION

BLUE JAY

XING

STUDY POINT 2

STUDY POINT 3

PRE-DEVELOPED
DRAINAGE AREA 1
SIZE: 73.85 ACRES
CN: 84
Tc: 127.8 min

PRE-DEVELOPED
DRAINAGE AREA 2
SIZE: 3.59 ACRES
CN: 86
Tc: 88.7 min

PRE-DEVELOPED
DRAINAGE AREA 3
SIZE: 10.69 ACRES
CN: 88
Tc: 81.8 min

RONALD D. BOWERS &
BELINDA A. BOWERS
P.B. B108 PG. D
B108 PG. D

KAREN ZIPPERER BRINDLEY &
TINA Z. KEENER
P.B. B108 PG. D
P.B. G PG. 255

KAREN ZIPPERER BRINDLEY &
TINA Z. KEENER
P.B. B108 PG. D
P.B. G PG. 255

STUDY POINT

MODULAR
HOME

PINE WOODS WITH MIXED HARDWOODS

MIXED MATURE HARDWOODS & PINES

MIXED MATURE HARDWOODS & PINES

PINE WOODS WITH MIXED HARDWOODS

PINE WOODS WITH MIXED HARDWOODS

BM #3

OPEN GRASSED AREA

EFFINGHAM COUNTY INDUSTRIAL
DEVELOPMENT AUTHORITY
D.B. 1548 PG. 819

MM-SAG INC.
P.B. 29 PG. 155

MM-SAG INC.
P.B. 29 PG. 155

MM-SAG INC.
P.B. 29 PG. 155

BLANDFORD CROSSING
P.B. D25 PG. A1-D1

BLANDFORD CROSSING
P.B. D25 PG. A1-D1

S 25°09'31"E 3403.89'

S 25°09'31"E 3403.89'

N 26°37'11"E 309.27'

N 27°37'10"W 550.54'

N 27°37'51"W 2112.06'

N 27°37'51"W 2112.05'

N 35°23'43"W 1115.5'

NOTE:
THERE ARE KNOWN WETLANDS LOCATED ON THIS SITE.
ALL WETLANDS SHOWN ON THESE PLANS ARE UNDER THE
JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS.
DISTURBING OF THESE AREAS WITHOUT PRIOR
AUTHORIZATION IS SUBJECT TO PENALTY OF LAW. NO
WORK IS TO TAKE PLACE INSIDE THESE AREAS WITHOUT
WRITTEN PERMISSION FROM THE ENGINEER.
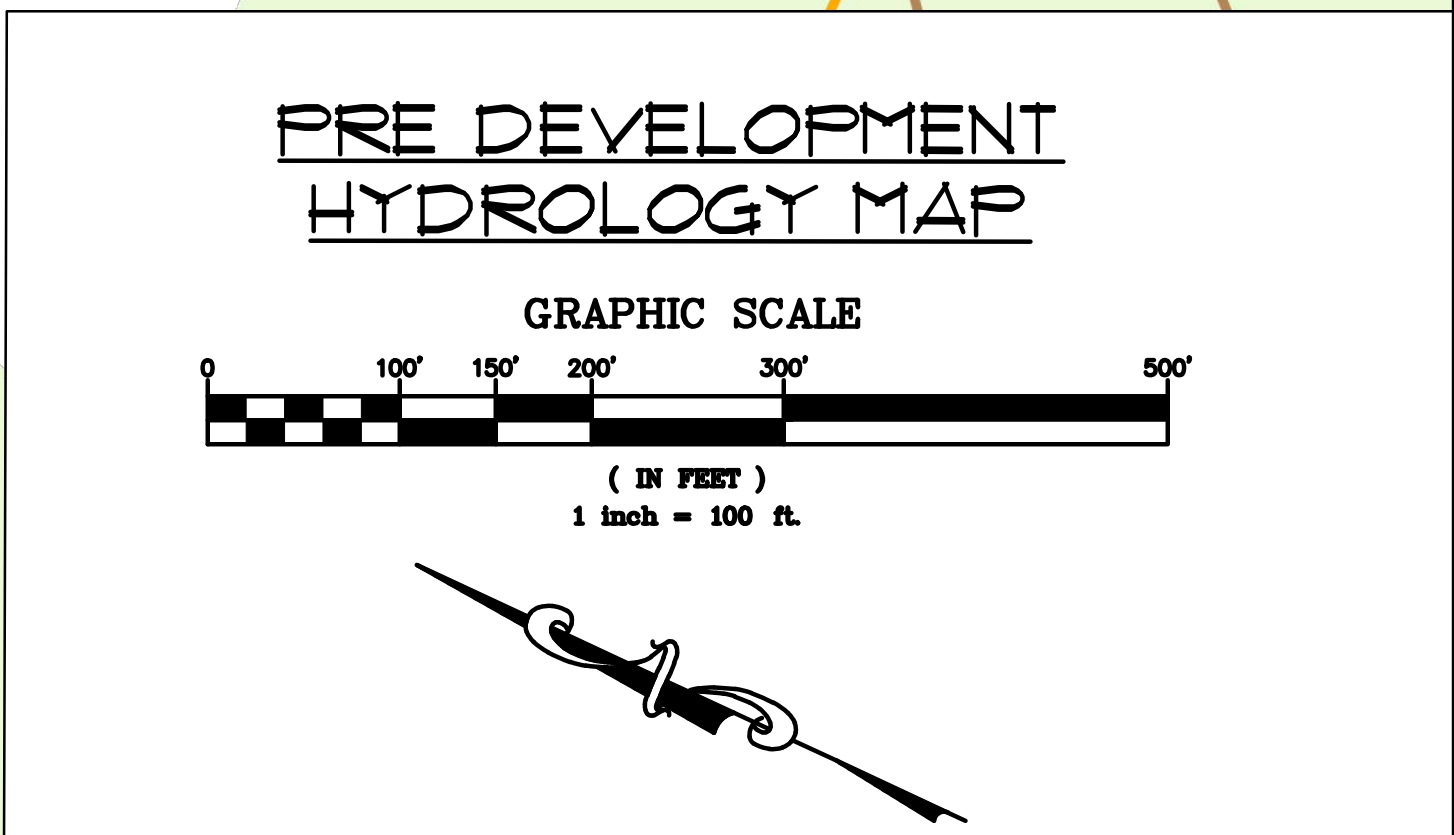
PRE DEVELOPMENT
HYDROLOGY MAP

GRAPHIC SCALE

0 100' 150' 200' 300' 500'

(IN FEET)
1 inch = 100 ft.

75

GEORGIA
REGISTERED
PROFESSIONAL
36128
WILLIAM D. MARTIN
CSMCE LEVEL II
CERT # .0000953108

811
Know what's below.
Call before you dig.

ISSUED FOR
BID SET

GOG
DRAWN BY
WDM
CHECKED BY
WDM
APPROVED BY
04-19-2024
DATE
23-035
PROJECT NO.

SHEET NUMBER

HYD 1.0

POST-DEVELOPED BASIN DELINEATION

POST-DEVELOPED
DRAINAGE AREA 2
SIZE: 3.21 ACRES
CN: 80
Tc: 92 min

POST-DEVELOPED
DRAINAGE AREA 1c
SIZE: 24.8 ACRES
CN: 84
Tc: 58.4 min

POST-DEVELOPED
DRAINAGE AREA 1
BYPASS
SIZE: 1.34 ACRES
CN: 77
Tc: 24.7 min

POST DEVELOPMENT
DRAINAGE AREA 1d
SIZE: 11.87 ACRES
CN: 86
Tc: 50 min

POST-DEVELOPED
DRAINAGE AREA 2
BYPASS
SIZE: 11.15 ACRES
CN: 77
Tc: 127.2 min

POST DEVELOPMENT
DRAINAGE AREA 1a
SIZE: 5.41 ACRES
CN: 88
Tc: 49 min

POST DEVELOPMENT
DRAINAGE AREA 1b
SIZE: 1.76 ACRES
CN: 80
Tc: 62 min

STUDY POINT

50' BUFFER

BLANDFORD CROSSING
P.B. D25 PG. A1-D1

POST DEVELOPMENT
HYDROLOGY MAP

GRAPHIC SCALE
0 100' 150' 200'   300'   500'
(IN FEET)
1 inch = 100 ft.

ISSUED FOR
BID SET
ADDENDUM #2
5/21/2024

GOG
DRAWN BY
CHECKER
CHECKED BY
WDM
APPROVED BY
04-19-2024
DATE
23-035
PROJECT NO.
SHEET NUMBER

HYD 2.0

GEORGIA
REGISTERED
PROFESSIONAL
WILLIAM D. MURPHY

811
Know what's below.
Call before you dig.

GEORGIA

WATER QUALITY SPREADSHEET

Site Data Summary

Site Land Cover Summary

Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	79.77	79.77
Impervious Cover	0.00	0.00	0.00	0.50	0.50
Total					80.27

Post-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	66.27	66.27
Impervious Cover	0.00	0.00	0.00	14.00	14.00
Total					80.27

Natural Resource Conservation Credits

	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Primary Conservation Areas (acres)	5.10	0.00	0.00	0.00	5.10
Secondary Conservation Areas (acres)	0.00	0.00	0.00	0.00	0.00
Total (acres)					5.10

Reduced Clearing and Grading Credits

	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Undisturbed Pervious Cover (Acres)	0.00	0.00	0.00	43.87	43.87

Restoration of Disturbed Pervious Surfaces

Soil Restoration (Acres)	0.00
Site Reforestation/Vegetation (Acres)	0.00
Soil Restoration w/ Site Reforestation/Revegetation (Acres)	0.00

Stormwater Runoff Reduction Summary

Target Runoff Reduction and Treatment Volume, RRv (cubic feet)	72,368
Total Adjustment to Runoff Reduction Volume, RRv (cubic feet)	24,374
Percentage of Target Runoff Reduction Volume Achieved	34%
Runoff Reduction Volume Achieved (in)	0.40
Runoff Reduction Volume Remaining (cubic feet)	47,995
Treatment Volume Achieved (cubic feet)	94,754
Treatment Volume Remaining (cubic feet)	0

Channel and Flood Protection

	Adjusted Curve Number			Detention Required		
	1-year storm	25-year storm	100-year storm	1-year storm	25-year storm	100-year storm
Target Rainfall Event (in)	3.60	7.92	9.84			
D.A. A CN	78	78	78	Yes	Yes	Yes
D.A. B CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. C CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. D CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. E CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. F CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. G CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. H CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. I CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. J CN	36	#N/A	#N/A	Yes	#N/A	#N/A

Drainage Area A Summary

Land Cover Summary

Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	79.60	79.60
Impervious Cover	0.00	0.00	0.00	0.00	0.00
Total					79.60

Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	5.10	0.00	0.00	0.00	5.10
Undisturbed Pervious Cover	0.00	0.00	0.00	38.90	38.90
Disturbed Pervious Cover	0.00	0.00	0.00	21.60	21.60
Impervious Cover	0.00	0.00	0.00	14.00	14.00
Total					79.60

Drainage Area A BMP Selections

Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Storage Volume Provided by Practice (cubic feet)	Runoff Red. Volume (ft3)	Treat. Volume (ft3)	Downstream Practice
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
Dry Swale, Non-Underdrained 1	0.00	0.00	0.0	0.0	0.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	

None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0
Stormwater Pond, Wetland, or Wet Swale 1	71.14	14.00	1377238.0	0.0	70379.9
None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0
None	0.00	0.00	N/A	0.0	0.0

Total	71.14	14.00	1377238.0	0.0	70379.9

PRE- AND POST-DEVELOPMENT HYDROGRAPHS

1-YEAR
5-YEAR
10-YEAR
25-YEAR
50-YEAR
100-YEAR

Watershed Model Schematic

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

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Legend

Hyd.	Origin	Description
1	SCS Runoff	PRE DEVELOPED DRAINAGE AREA 1
2	SCS Runoff	PRE DEVELOPED DRAINAGE AREA 2
3	SCS Runoff	PRE DEVELOPED DRAINAGE AREA 3
4	SCS Runoff	POST DEVELOPED DRAINAGE AREA 2
5	SCS Runoff	POST_DEV_DRAINAGE_AREA_1a
6	Reservoir	POST_DEV_DA_1a_ROUTED
7	SCS Runoff	POST_DEV_DRAINAGE_AREA_1b
8	SCS Runoff	POST DEVELOPED DRAINAGE AREA 1c
9	SCS Runoff	POST DEVELOPED DRAINAGE AREA 1d
10	SCS Runoff	POST_DEVELOPED_BYPASS_1
11	SCS Runoff	POST_DEVELOPED_BYPASS_2
12	Reservoir	Rear Area Routed
13	Combine	POST_DEV_1a_ROUTED+_1b
14	Reservoir	POST_DEVELOPED_POND_1B
15	Combine	POST_DEV_TOTAL_TO_POND_1d
16	Combine	POST_DEV_TOTAL_TO_BIG_POND
17	Reservoir	POST_DEV_BIG_POND_ROUT
18	Combine	TOTAL_FLOW_AT_OUTFALL_DA_1

Project: BLUE_JAY_ROAD_05282024gpw.gpw

Wednesday, 05 / 29 / 2024

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	------	33.74	------	------	71.35	82.93	102.32	117.85	133.38	PRE DEVELOPED DRAINAGE ARE
2	SCS Runoff	------	3.430	------	------	7.223	8.386	10.33	11.89	13.44	PRE DEVELOPED DRAINAGE ARE
3	SCS Runoff	------	0.518	------	------	1.013	1.161	1.409	1.606	1.803	PRE DEVELOPED DRAINAGE ARE
4	SCS Runoff	------	1.546	------	------	3.531	4.154	5.203	6.049	6.896	POST DEVELOPED DRAINAGE AR
5	SCS Runoff	------	5.992	------	------	11.65	13.35	16.17	18.42	20.66	POST_DEV_DRAINAGE_AREA_1a
6	Reservoir	5	3.003	------	------	5.337	5.746	6.340	7.320	8.170	POST_DEV_DA_1a_ROUTED
7	SCS Runoff	------	1.111	------	------	2.523	2.964	3.707	4.304	4.903	POST_DEV_DRAINAGE_AREA_1b
8	SCS Runoff	------	20.35	------	------	42.59	49.38	60.76	69.86	78.95	POST DEVELOPED DRAINAGE AR
9	SCS Runoff	------	12.44	------	------	25.04	28.86	35.21	40.28	45.34	POST DEVELOPED DRAINAGE AR
10	SCS Runoff	------	6.068	------	------	14.68	17.42	22.08	25.85	29.64	POST_DEVELOPED_BYPASS_1
11	SCS Runoff	------	5.177	------	------	12.48	14.81	18.74	21.93	25.13	POST_DEVELOPED_BYPASS_2
12	Reservoir	11	0.000	------	------	0.000	0.000	0.000	0.000	0.000	Rear Area Routed
13	Combine	6, 7,	3.862	------	------	7.337	8.162	9.288	10.46	11.78	POST_DEV_1a_ROUTED+_1b
14	Reservoir	13	2.457	------	------	6.398	7.182	8.053	8.913	9.970	POST_DEVELOPED_POND_1B
15	Combine	9, 14	12.16	------	------	24.48	28.55	36.78	43.34	49.59	POST_DEV_TOTAL_TO_POND_1d
16	Combine	8, 15	32.27	------	------	66.63	77.89	97.53	113.11	128.27	POST_DEV_TOTAL_TO_BIG_POND
17	Reservoir	16	23.17	------	------	41.97	47.14	70.77	90.62	108.61	POST_DEV_BIG_POND_ROUT
18	Combine	10, 12, 17	28.58	------	------	56.61	64.55	90.82	111.77	131.15	TOTAL_FLOW_AT_OUTFALL_DA_1

Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	33.74	2	796	542,710	------	------	------	PRE DEVELOPED DRAINAGE ARE
2	SCS Runoff	3.430	2	770	42,109	------	------	------	PRE DEVELOPED DRAINAGE ARE
3	SCS Runoff	0.518	2	766	5,917	------	------	------	PRE DEVELOPED DRAINAGE ARE
4	SCS Runoff	1.546	2	774	20,017	------	------	------	POST DEVELOPED DRAINAGE AR
5	SCS Runoff	5.992	2	744	46,395	------	------	------	POST_DEV_DRAINAGE_AREA_1a
6	Reservoir	3.003	2	802	41,624	5	76.90	20,306	POST_DEV_DA_1a_ROUTED
7	SCS Runoff	1.111	2	754	10,601	------	------	------	POST_DEV_DRAINAGE_AREA_1b
8	SCS Runoff	20.35	2	752	182,251	------	------	------	POST DEVELOPED DRAINAGE AR
9	SCS Runoff	12.44	2	746	96,481	------	------	------	POST DEVELOPED DRAINAGE AR
10	SCS Runoff	6.068	2	814	87,317	------	------	------	POST_DEVELOPED_BYPASS_1
11	SCS Runoff	5.177	2	792	60,722	------	------	------	POST_DEVELOPED_BYPASS_2
12	Reservoir	0.000	2	n/a	0	11	70.23	60,722	Rear Area Routed
13	Combine	3.862	2	796	52,225	6, 7,	------	------	POST_DEV_1a_ROUTED+_1b
14	Reservoir	2.457	2	852	42,787	13	76.44	16,841	POST_DEVELOPED_POND_1B
15	Combine	12.16	2	746	137,121	9, 14	------	------	POST_DEV_TOTAL_TO_POND_1d
16	Combine	32.27	2	750	319,371	8, 15	------	------	POST_DEV_TOTAL_TO_BIG_POND
17	Reservoir	23.17	2	792	319,239	16	75.14	71,273	POST_DEV_BIG_POND_ROUT
18	Combine	28.58	2	802	406,556	10, 12, 17	------	------	TOTAL_FLOW_AT_OUTFALL_DA_1

BLUE_JAY_ROAD_05282024gpw.gpw	Return Period: 1 Year	Wednesday, 05 / 29 / 2024

Hydrograph Report

Hyd. No. 1

PRE DEVELOPED DRAINAGE AREA 1

Hydrograph type	= SCS Runoff		Peak discharge	= 33.74 cfs
Storm frequency	= 1 yrs		Time to peak	= 796 min
Time interval	= 2 min		Hyd. volume	= 542,710 cuft
Drainage area	= 73.850 ac		Curve number	= 84*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 127.80 min
Total precip.	= 3.60 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = + (66.130 x 84)] / 73.850

PRE DEVELOPED DRAINAGE AREA 1

Hyd. No. 1 -- 1 Year
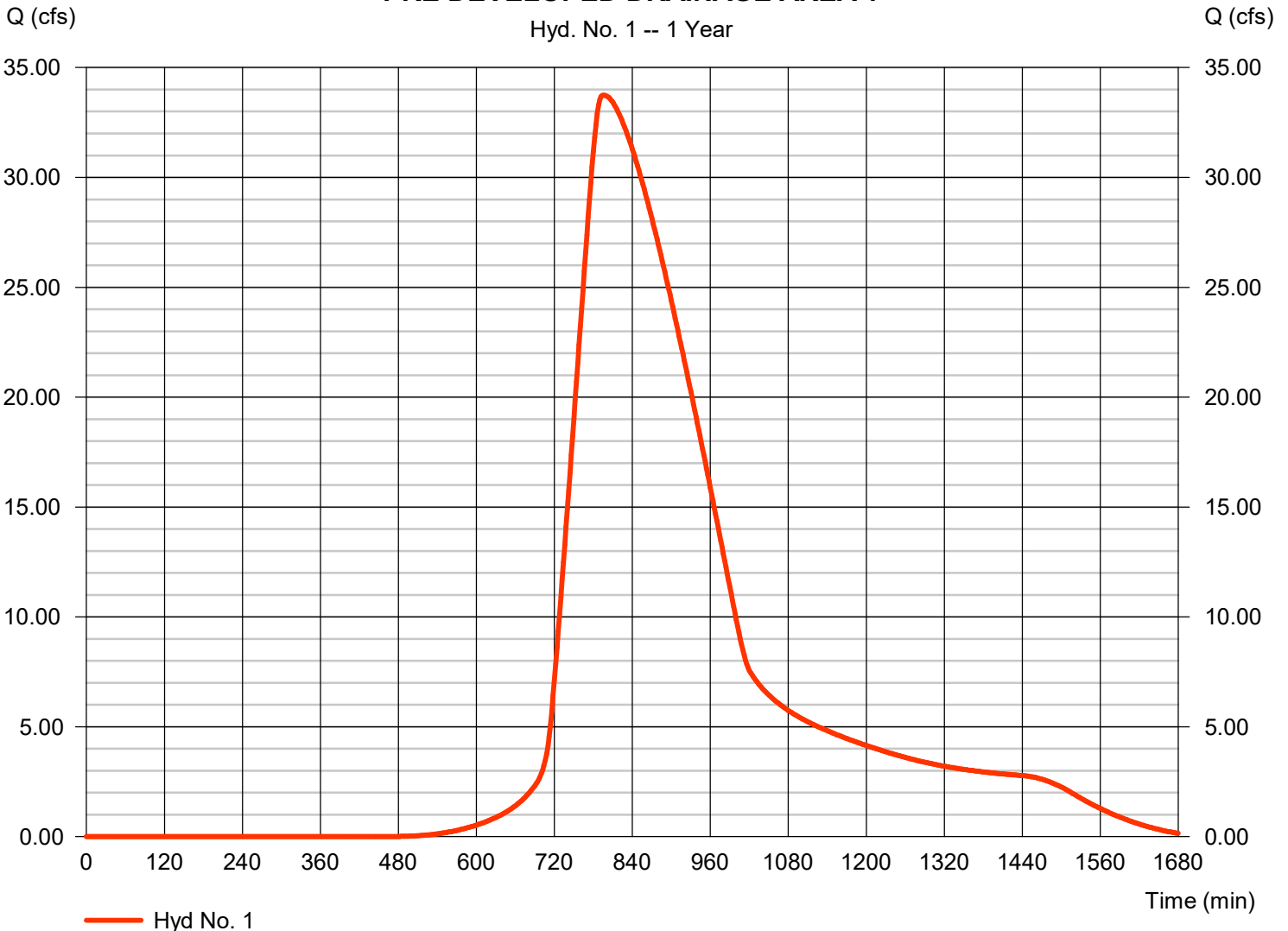
Hyd No. 1

TR55 Tc Worksheet

Hyd. No. 1

PRE DEVELOPED DRAINAGE AREA 1

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.800	0.800	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.80	4.80	0.00	
Land slope (%)	= 0.20	0.20	0.00	
Travel Time (min)	**= 76.68 +**	**0.00 +**	**0.00 =**	**76.68**
Shallow Concentrated Flow				
Flow length (ft)	= 3129.00	2204.89	0.00	
Watercourse slope (%)	= 0.40	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.02	0.00	0.00	
Travel Time (min)	**= 51.11 +**	**0.00 +**	**0.00 =**	**51.11**
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				**127.80 min**

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 2

PRE DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 3.430 cfs
Storm frequency	= 1 yrs	Time to peak	= 770 min
Time interval	= 2 min	Hyd. volume	= 42,109 cuft
Drainage area	= 5.730 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 88.70 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (5.480 x 83)] / 5.730

PRE DEVELOPED DRAINAGE AREA 2

Hyd. No. 2 -- 1 Year

TR55 Tc Worksheet

Hyd. No. 2

PRE DEVELOPED DRAINAGE AREA 2

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.800	0.800	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.80	4.80	0.00	
Land slope (%)	= 0.20	0.20	0.00	
Travel Time (min)	**= 76.68 +**	**0.00 +**	**0.00 =**	**76.68**
Shallow Concentrated Flow				
Flow length (ft)	= 521.39	2204.89	0.00	
Watercourse slope (%)	= 0.20	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=0.72	0.00	0.00	
Travel Time (min)	**= 12.04 +**	**0.00 +**	**0.00 =**	**12.04**
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				**88.70 min**

Hydrograph Report

Hyd. No. 3

PRE DEVELOPED DRAINAGE AREA 3

Hydrograph type	= SCS Runoff		Peak discharge	= 0.518 cfs
Storm frequency	= 1 yrs		Time to peak	= 766 min
Time interval	= 2 min		Hyd. volume	= 5,917 cuft
Drainage area	= 0.690 ac		Curve number	= 88*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 81.80 min
Total precip.	= 3.60 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (0.440 x 83)] / 0.690

PRE DEVELOPED DRAINAGE AREA 3

Hyd. No. 3 -- 1 Year
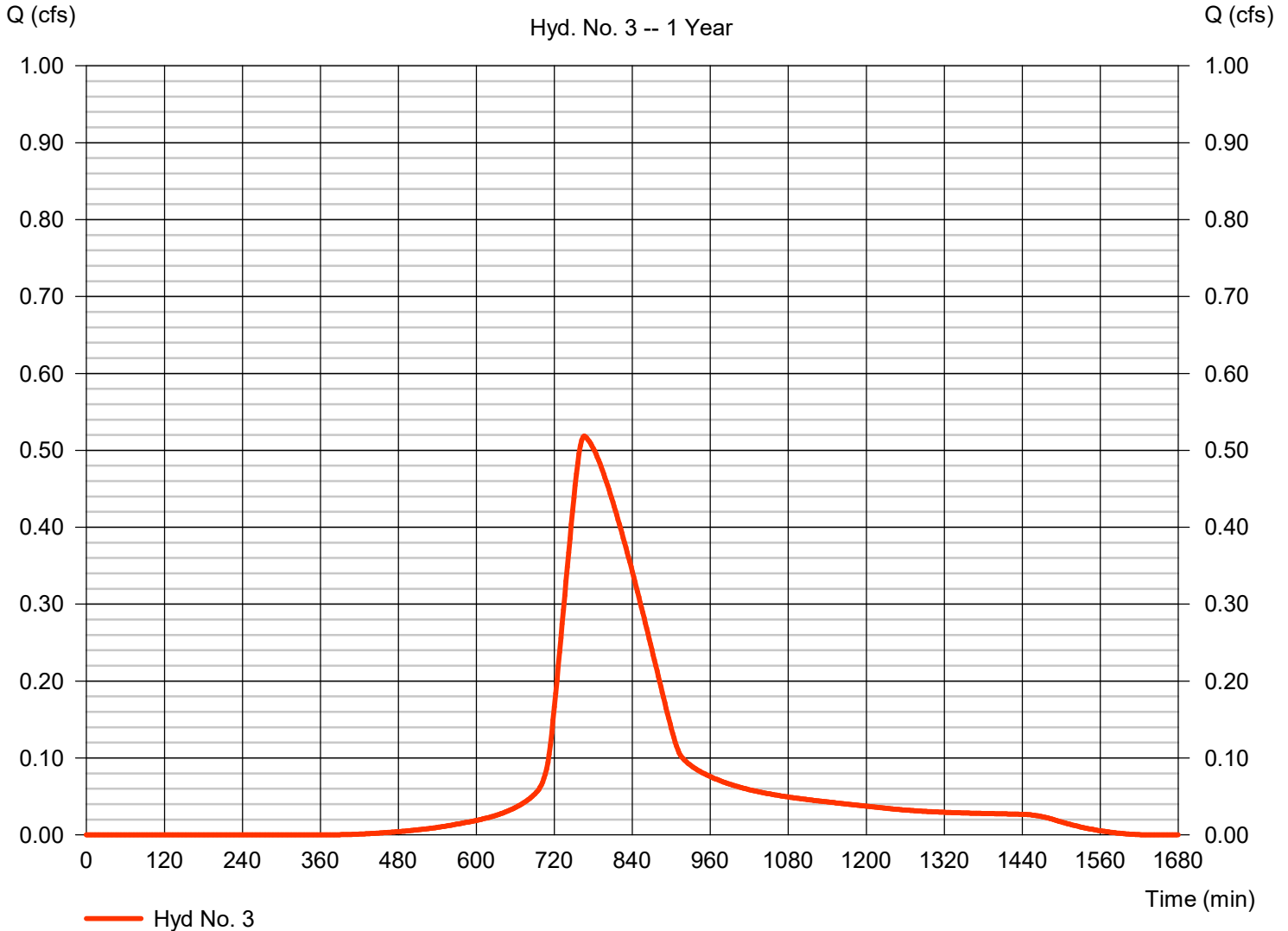
TR55 Tc Worksheet

Hyd. No. 3

PRE DEVELOPED DRAINAGE AREA 3

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.800	0.800	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.80	4.80	0.00	
Land slope (%)	= 0.20	0.20	0.00	
Travel Time (min)	**= 76.68 +**	**0.00 +**	**0.00 =**	**76.68**
Shallow Concentrated Flow				
Flow length (ft)	= 350.00	2204.89	0.00	
Watercourse slope (%)	= 0.50	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.14	0.00	0.00	
Travel Time (min)	**= 5.11 +**	**0.00 +**	**0.00 =**	**5.11**
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				**81.80 min**

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 4

POST DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff		Peak discharge	= 1.546 cfs
Storm frequency	= 1 yrs		Time to peak	= 774 min
Time interval	= 2 min		Hyd. volume	= 20,017 cuft
Drainage area	= 3.210 ac		Curve number	= 80*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 91.70 min
Total precip.	= 3.60 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = + (3.210 x 80)] / 3.210

POST DEVELOPED DRAINAGE AREA 2

Hyd. No. 4 -- 1 Year
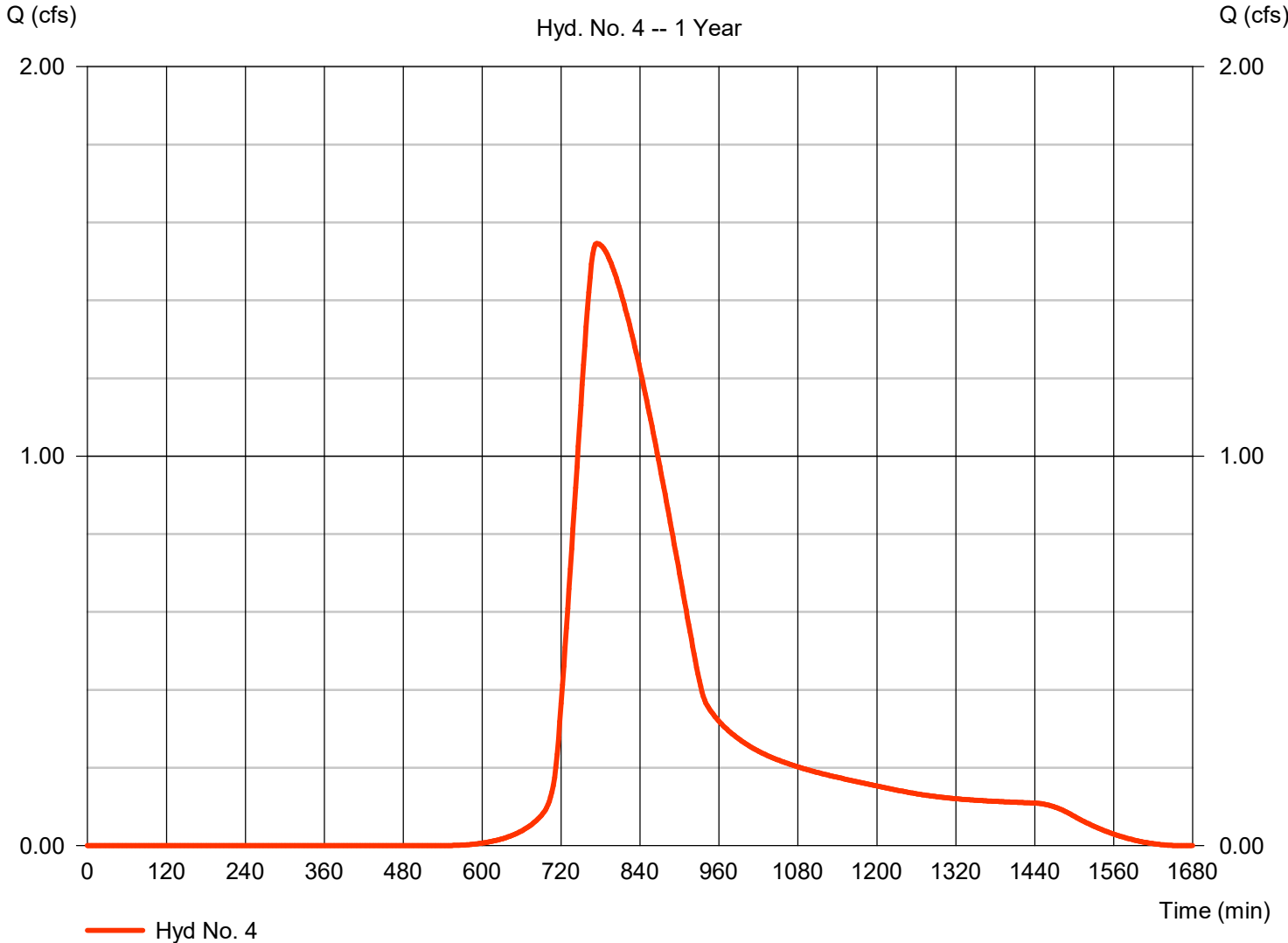
TR55 Tc Worksheet

Hyd. No. 4

POST DEVELOPED DRAINAGE AREA 2

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.800	0.010	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.25	0.00	0.00	
Land slope (%)	= 0.20	0.00	0.00	
Travel Time (min)	**= 81.49** +	**0.00** +	**0.00** =	**81.49**
Shallow Concentrated Flow				
Flow length (ft)	= 441.00	0.00	0.00	
Watercourse slope (%)	= 0.20	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=0.72	0.00	0.00	
Travel Time (min)	**= 10.19** +	**0.00** +	**0.00** =	**10.19**
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				**91.70 min**

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 5

POST_DEV_DRAINAGE_AREA_1a

Hydrograph type	= SCS Runoff		Peak discharge	= 5.992 cfs
Storm frequency	= 1 yrs		Time to peak	= 744 min
Time interval	= 2 min		Hyd. volume	= 46,395 cuft
Drainage area	= 5.410 ac		Curve number	= 88*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 48.90 min
Total precip.	= 3.60 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(2.490 x 98) + (2.920 x 80)] / 5.410

POST_DEV_DRAINAGE_AREA_1a

Hyd. No. 5 -- 1 Year
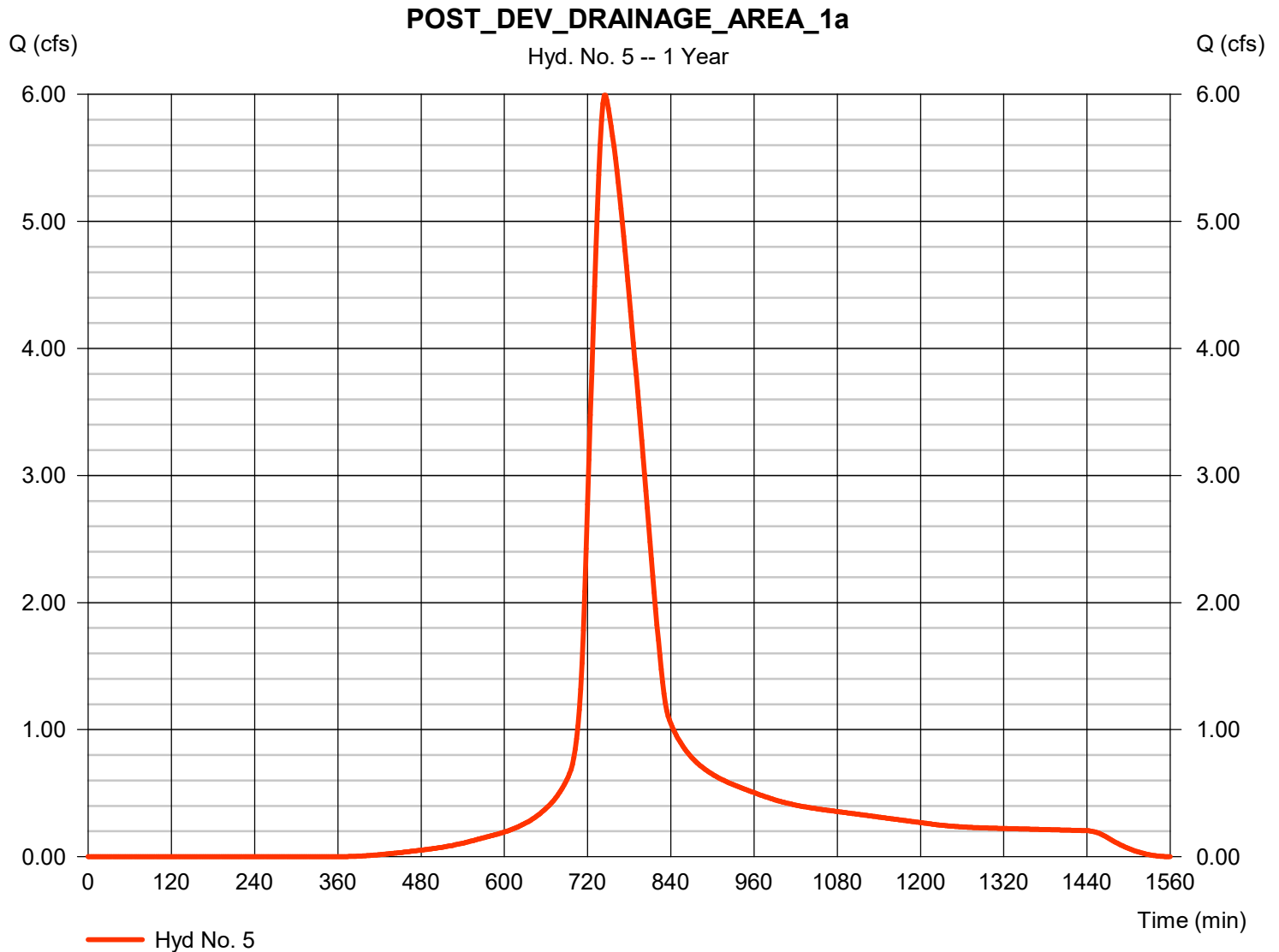
— Hyd No. 5

TR55 Tc Worksheet

Hyd. No. 5

POST_DEV_DRAINAGE_AREA_1a

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.410	0.010	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.25	0.00	0.00	
Land slope (%)	= 0.60	0.00	0.00	
Travel Time (min)	= **30.76** +	**0.00** +	**0.00** =	**30.76**
Shallow Concentrated Flow				
Flow length (ft)	= 356.00	410.00	0.00	
Watercourse slope (%)	= 0.60	0.10	0.00	
Surface description	= Unpaved	Unpaved	Paved	
Average velocity (ft/s)	=1.25	0.51	0.00	
Travel Time (min)	= **4.75** +	**13.39** +	**0.00** =	**18.14**
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				**48.90 min**

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 6

POST_DEV_DA_1a_ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 3.003 cfs
Storm frequency	= 1 yrs	Time to peak	= 802 min
Time interval	= 2 min	Hyd. volume	= 41,624 cuft
Inflow hyd. No.	= 5 - POST_DEV_DRAINAGE_AREA_1a	Max. Elevation	= 76.90 ft
Reservoir name	= DETENTION AREA 1a	Max. Storage	= 20,306 cuft

Storage Indication method used.
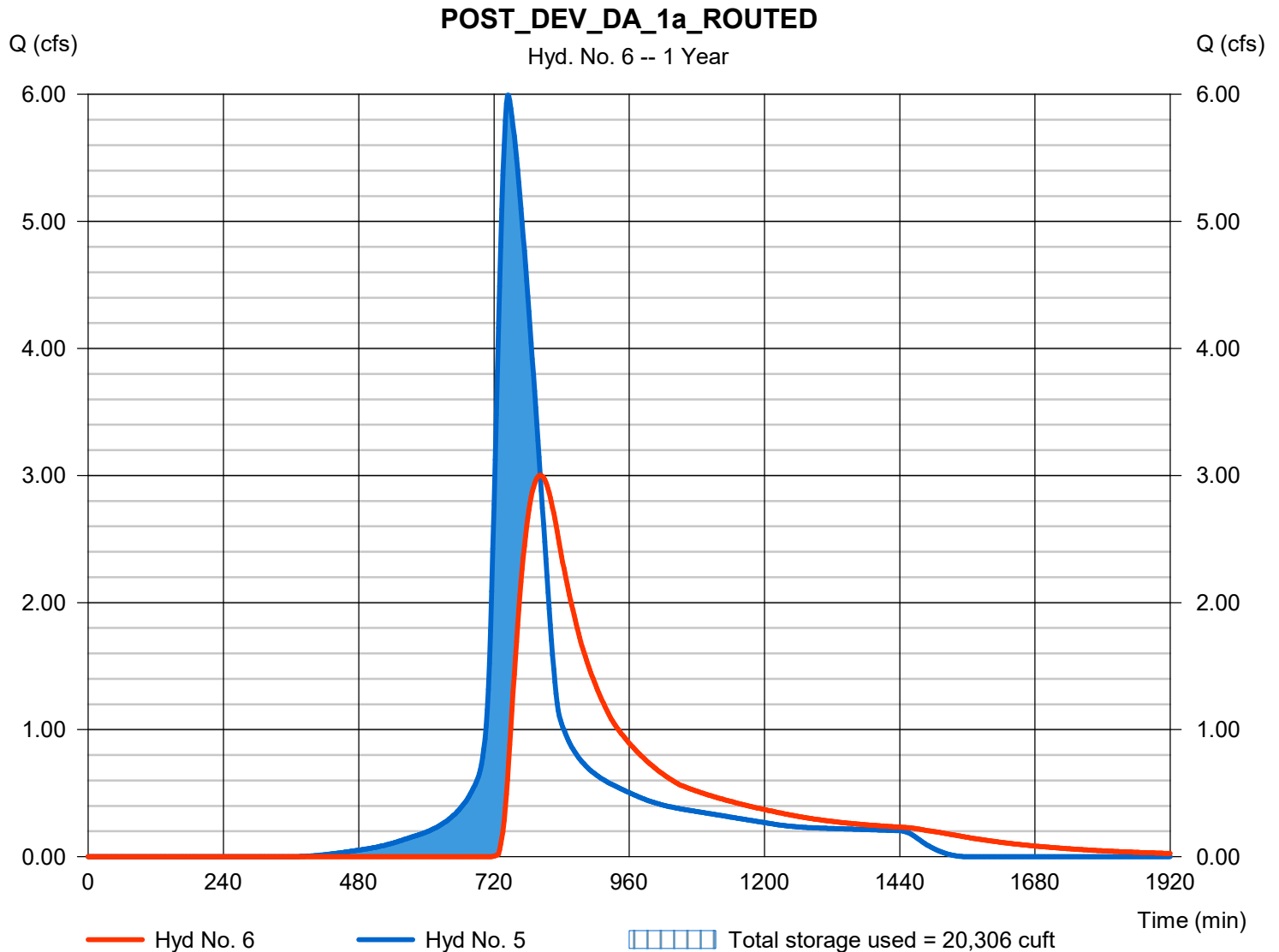
POST_DEV_DA_1a_ROUTED

Hyd. No. 6 -- 1 Year

Hyd No. 6   Hyd No. 5   Total storage used = 20,306 cuft

Hydrograph Report

Hyd. No. 7

POST_DEV_DRAINAGE_AREA_1b

Hydrograph type	= SCS Runoff	Peak discharge	= 1.111 cfs
Storm frequency	= 1 yrs	Time to peak	= 754 min
Time interval	= 2 min	Hyd. volume	= 10,601 cuft
Drainage area	= 1.700 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 61.80 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (1.700 x 80)] / 1.700

POST_DEV_DRAINAGE_AREA_1b

Hyd. No. 7 -- 1 Year
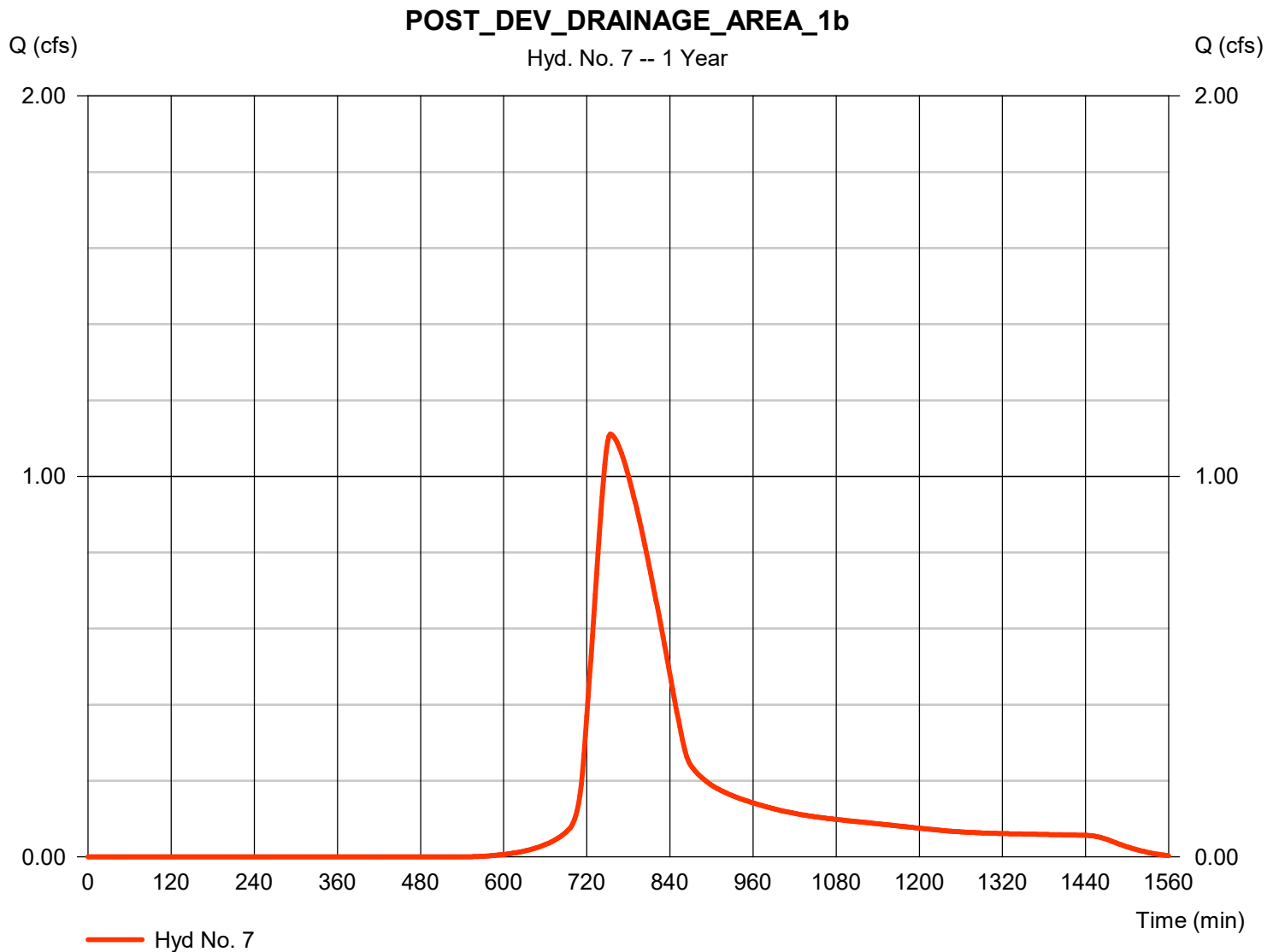
Hyd No. 7

TR55 Tc Worksheet

Hyd. No. 7

POST_DEV_DRAINAGE_AREA_1b

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.410	0.010	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.25	0.00	0.00	
Land slope (%)	= 0.35	0.00	0.00	
Travel Time (min)	= **38.16** +	**0.00** +	**0.00** =	**38.16**
Shallow Concentrated Flow				
Flow length (ft)	= 585.00	410.00	0.00	
Watercourse slope (%)	= 0.35	0.10	0.00	
Surface description	= Unpaved	Unpaved	Paved	
Average velocity (ft/s)	=0.95	0.51	0.00	
Travel Time (min)	= **10.21** +	**13.39** +	**0.00** =	**23.61**
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				**61.80 min**

Hydrograph Report

Hyd. No. 8

POST DEVELOPED DRAINAGE AREA 1c

Hydrograph type	= SCS Runoff		Peak discharge	= 20.35 cfs
Storm frequency	= 1 yrs		Time to peak	= 752 min
Time interval	= 2 min		Hyd. volume	= 182,251 cuft
Drainage area	= 24.800 ac		Curve number	= 84*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 58.40 min
Total precip.	= 3.60 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(7.730 x 98) + (7.770 x 80) + (9.300 x 77)] / 24.800

POST DEVELOPED DRAINAGE AREA 1c

Hyd. No. 8 -- 1 Year

Q (cfs)

Time (min)
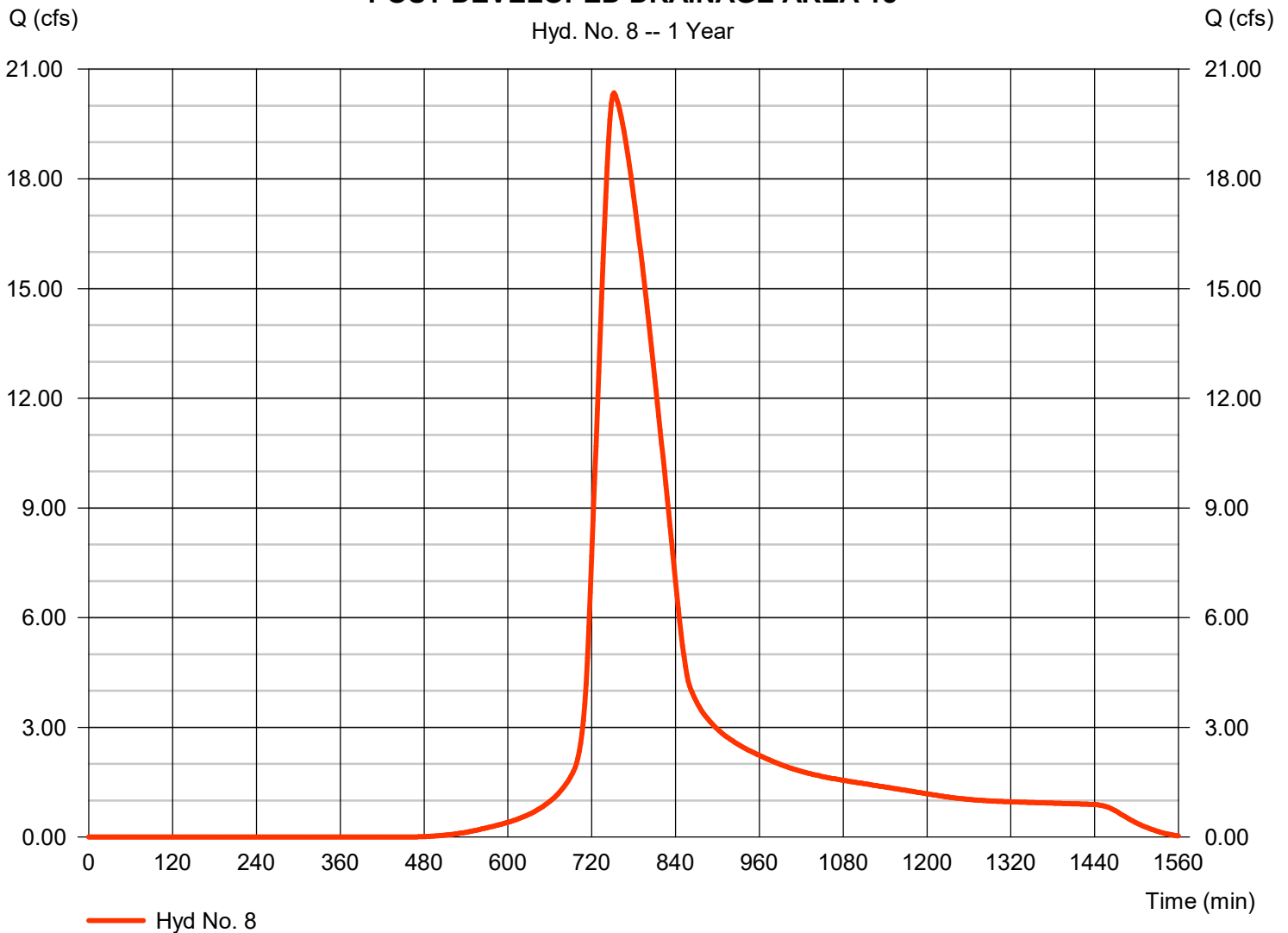
Hyd No. 8

TR55 Tc Worksheet

Hyd. No. 8

POST DEVELOPED DRAINAGE AREA 1c

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.010	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.25	0.00	0.00	
Land slope (%)	= 0.30	0.00	0.00	
Travel Time (min)	**= 26.45 +**	**0.00 +**	**0.00 =**	**26.45**
Shallow Concentrated Flow				
Flow length (ft)	= 1695.00	0.00	0.00	
Watercourse slope (%)	= 0.30	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=0.88	0.00	0.00	
Travel Time (min)	**= 31.97 +**	**0.00 +**	**0.00 =**	**31.97**
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				**58.40 min**

Hydrograph Report

Hyd. No. 9

POST DEVELOPED DRAINAGE AREA 1d

Hydrograph type	= SCS Runoff		Peak discharge	= 12.44 cfs
Storm frequency	= 1 yrs		Time to peak	= 746 min
Time interval	= 2 min		Hyd. volume	= 96,481 cuft
Drainage area	= 12.140 ac		Curve number	= 86*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 50.20 min
Total precip.	= 3.60 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(3.780 x 98) + (8.360 x 80)] / 12.140
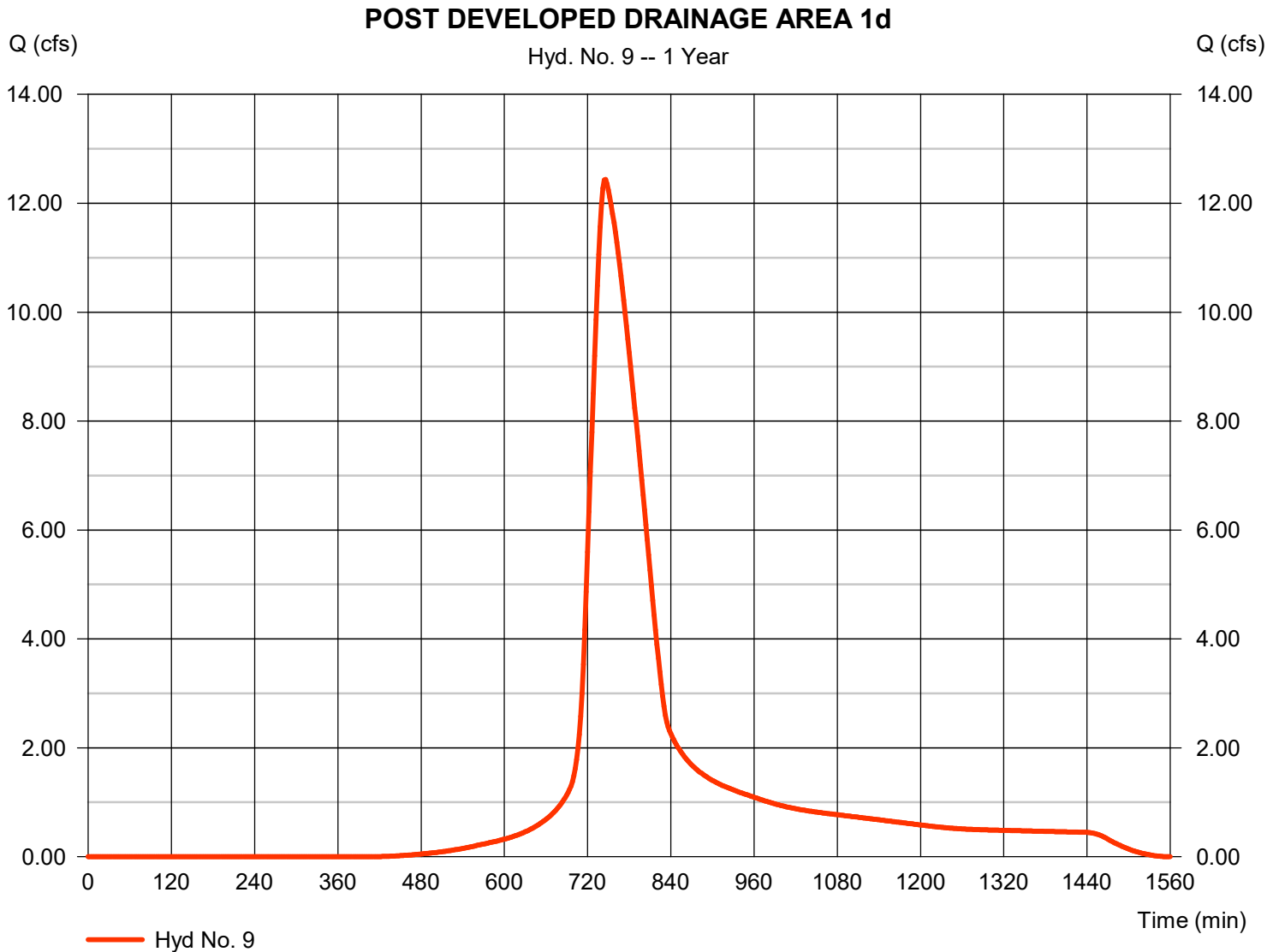
POST DEVELOPED DRAINAGE AREA 1d
Hyd. No. 9 -- 1 Year

Hyd No. 9

TR55 Tc Worksheet

Hyd. No. 9

POST DEVELOPED DRAINAGE AREA 1d

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.400	0.010	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.25	0.00	0.00	
Land slope (%)	= 0.40	0.00	0.00	
Travel Time (min)	**= 35.47 +**	**0.00 +**	**0.00 =**	**35.47**
Shallow Concentrated Flow				
Flow length (ft)	= 900.00	0.00	0.00	
Watercourse slope (%)	= 0.40	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.02	0.00	0.00	
Travel Time (min)	**= 14.70 +**	**0.00 +**	**0.00 =**	**14.70**
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				**50.20 min**

Hydrograph Report

Hyd. No. 10

POST_DEVELOPED_BYPASS_1

Hydrograph type	= SCS Runoff	Peak discharge	= 6.068 cfs
Storm frequency	= 1 yrs	Time to peak	= 814 min
Time interval	= 2 min	Hyd. volume	= 87,317 cuft
Drainage area	= 15.940 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 164.70 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

POST_DEVELOPED_BYPASS_1

Hyd. No. 10 -- 1 Year
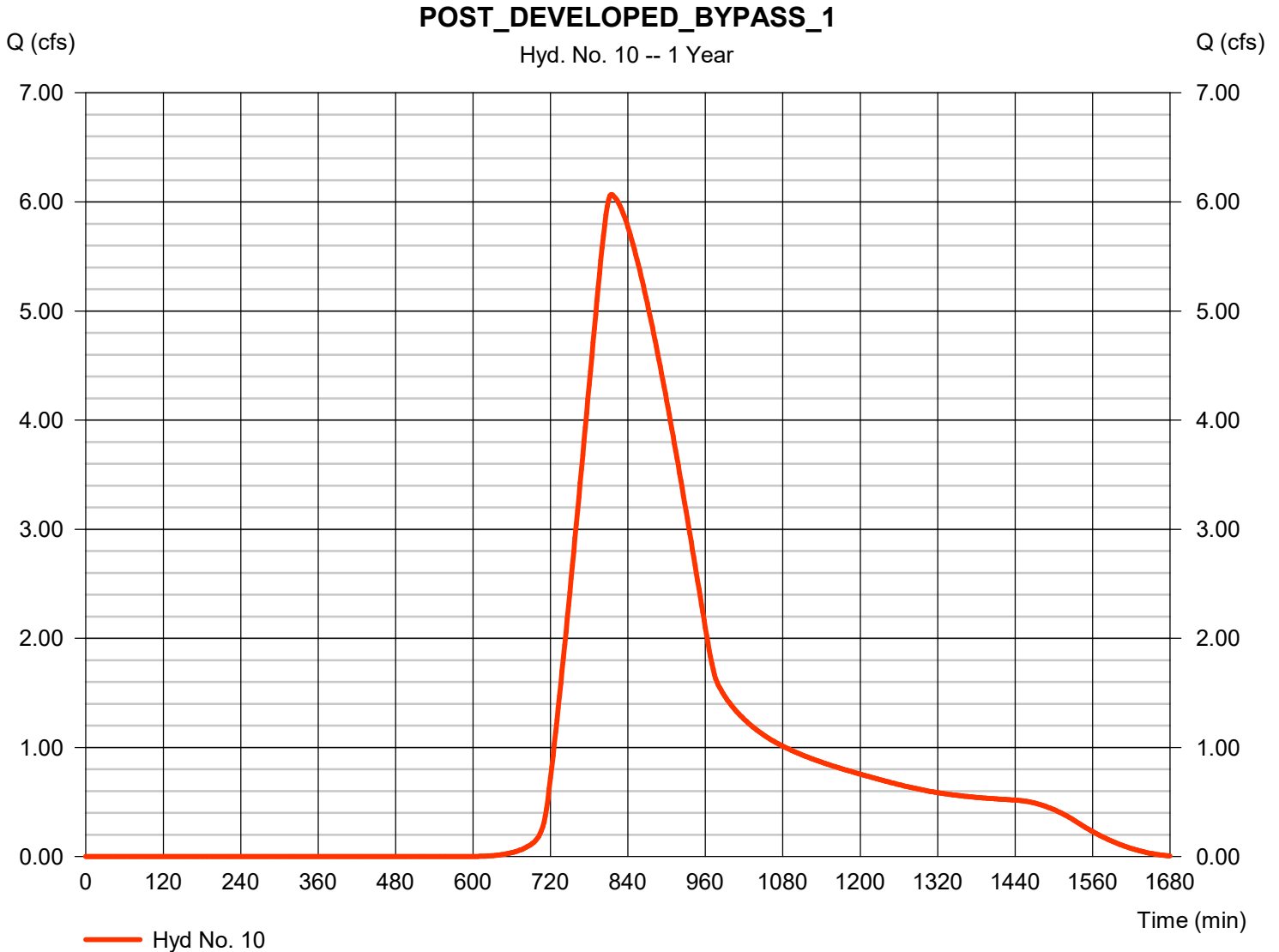
Hyd No. 10

TR55 Tc Worksheet

Hyd. No. 10

POST_DEVELOPED_BYPASS_1

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.800	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.80	0.00	0.00	
Land slope (%)	= 0.10	0.00	0.00	
Travel Time (min)	**= 101.18** +	**0.00** +	**0.00** =	**101.18**
Shallow Concentrated Flow				
Flow length (ft)	= 1944.00	0.00	0.00	
Watercourse slope (%)	= 0.10	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=0.51	0.00	0.00	
Travel Time (min)	**= 63.50** +	**0.00** +	**0.00** =	**63.50**
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				**164.70 min**

Hydrograph Report

Hyd. No. 11

POST_DEVELOPED_BYPASS_2

Hydrograph type	= SCS Runoff	Peak discharge	= 5.177 cfs
Storm frequency	= 1 yrs	Time to peak	= 792 min
Time interval	= 2 min	Hyd. volume	= 60,722 cuft
Drainage area	= 11.150 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 127.20 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

POST_DEVELOPED_BYPASS_2

Hyd. No. 11 -- 1 Year
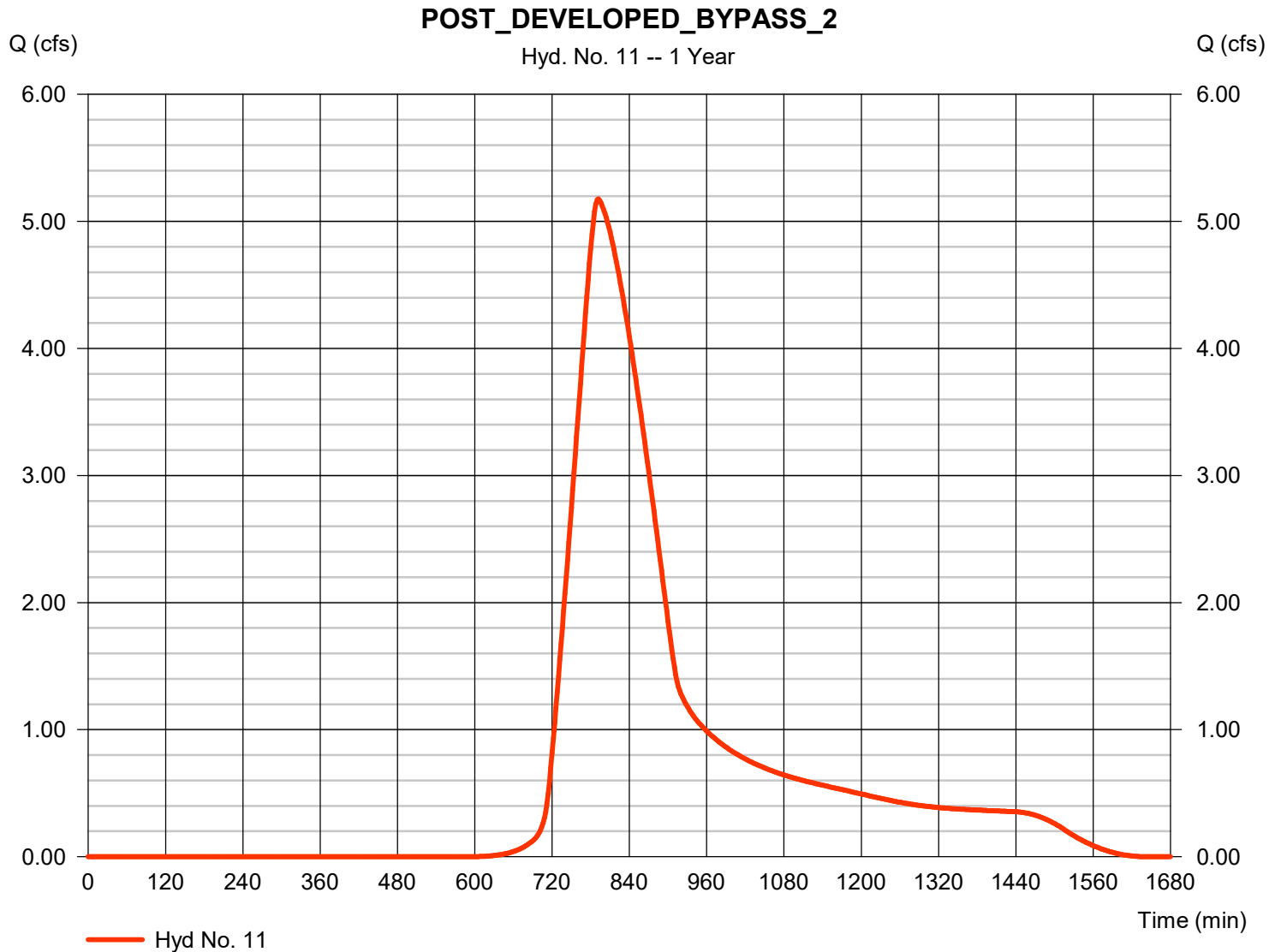
Hyd No. 11

TR55 Tc Worksheet

Hyd. No. 11
POST_DEVELOPED_BYPASS_2

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.800	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 4.80	0.00	0.00	
Land slope (%)	= 0.10	0.00	0.00	
Travel Time (min)	= 101.18 +	0.00 +	0.00 =	101.18
Shallow Concentrated Flow				
Flow length (ft)	= 796.00	0.00	0.00	
Watercourse slope (%)	= 0.10	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=0.51	0.00	0.00	
Travel Time (min)	= 26.00 +	0.00 +	0.00 =	26.00
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				**127.20 min**

Hydrograph Report

Hyd. No. 12

Rear Area Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - POST_DEVELOPED_BYPASSE2	Max. Elevation	= 70.23 ft
Reservoir name	= Rear Detention Pond	Max. Storage	= 60,722 cuft

Storage Indication method used.
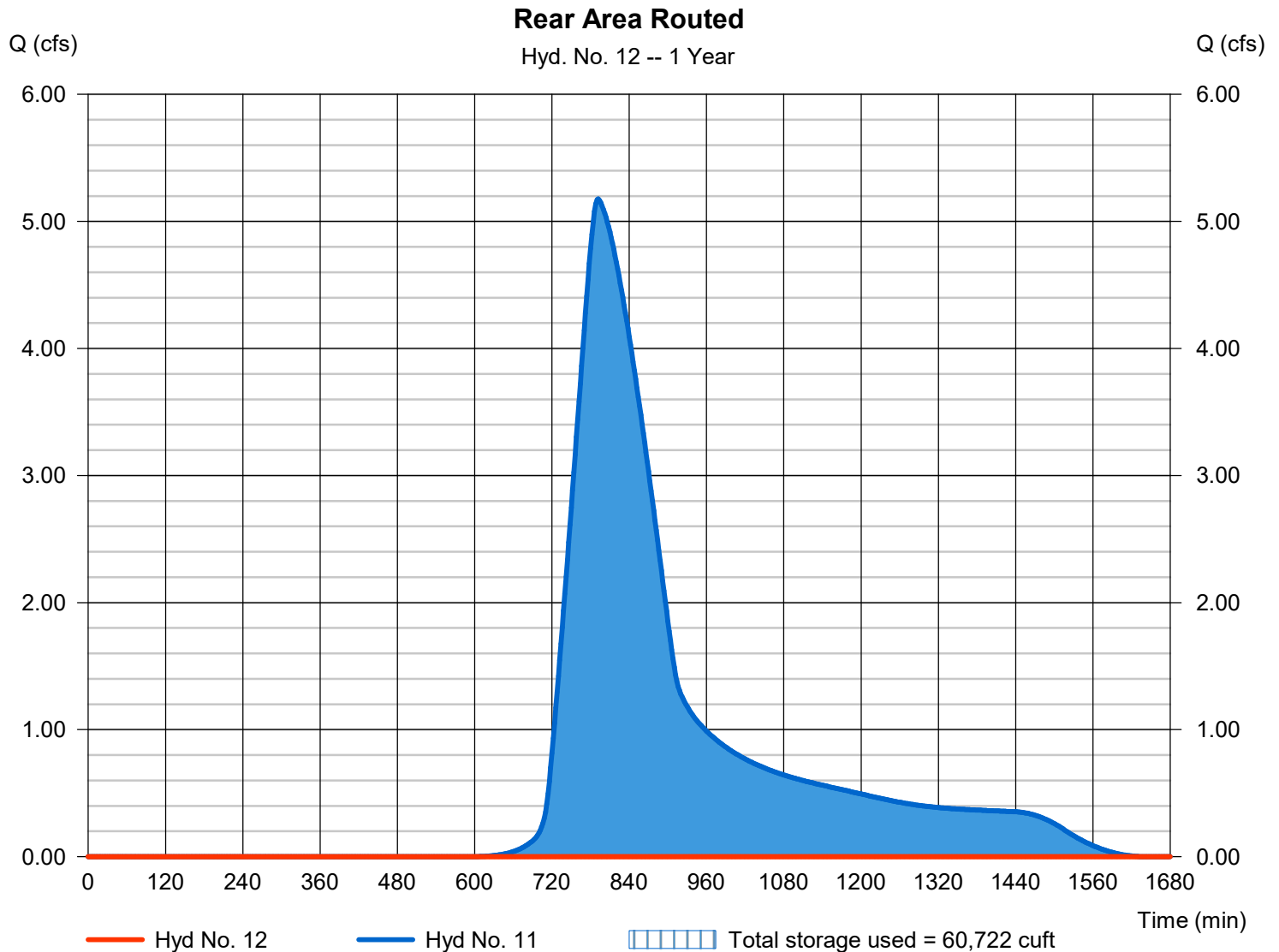
Rear Area Routed

Hyd. No. 12 -- 1 Year

Legend: Hyd No. 12 — Hyd No. 11 — Total storage used = 60,722 cuft

Hydrograph Report

Hyd. No. 13

POST_DEV_1a_ROUTED+_1b

Hydrograph type	= Combine	Peak discharge	= 3.862 cfs
Storm frequency	= 1 yrs	Time to peak	= 796 min
Time interval	= 2 min	Hyd. volume	= 52,225 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.700 ac
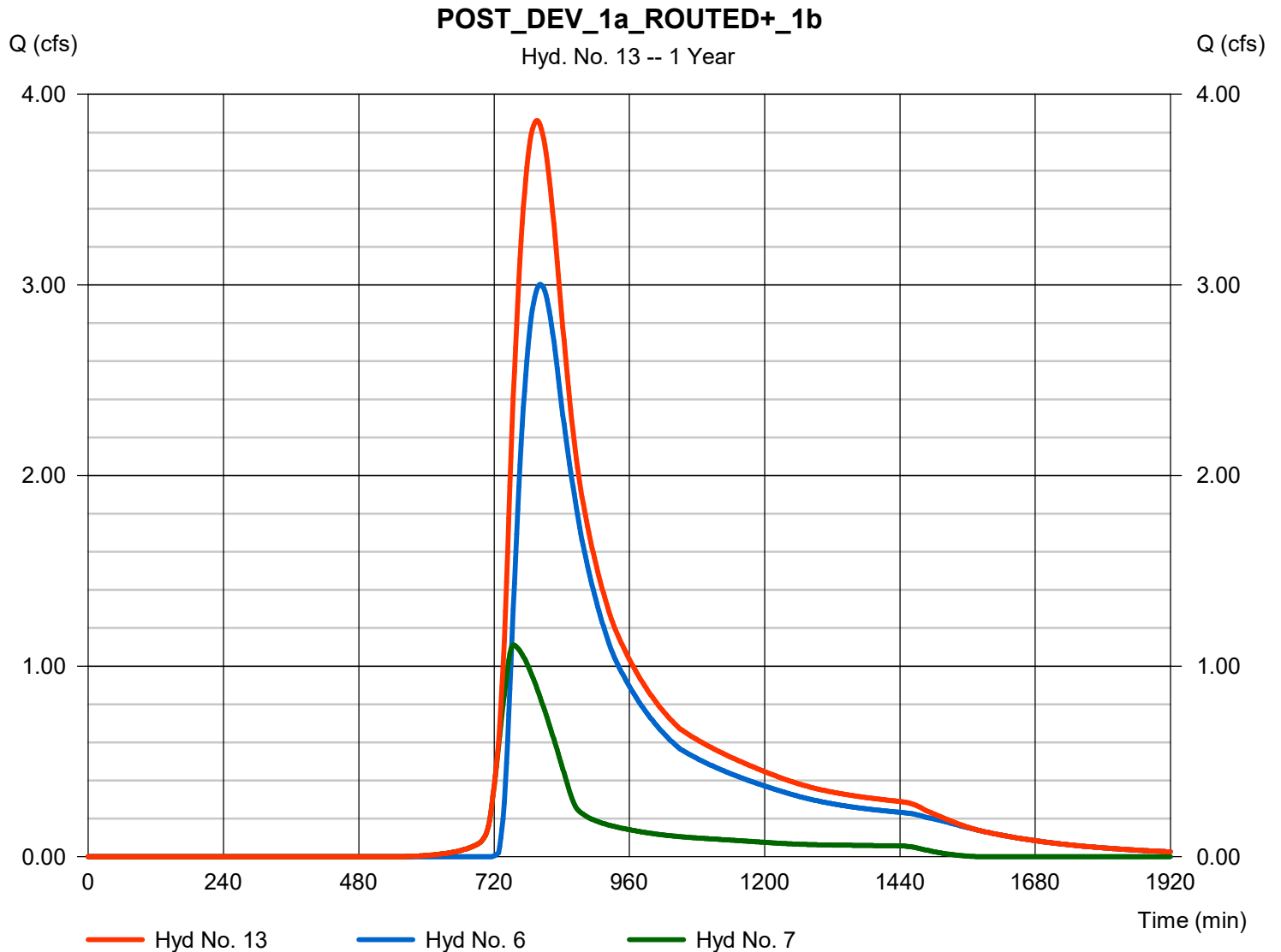
POST_DEV_1a_ROUTED+_1b
Hyd. No. 13 -- 1 Year

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 14

POST_DEVELOPED_POND_1B

Hydrograph type	= Reservoir	Peak discharge	= 2.457 cfs
Storm frequency	= 1 yrs	Time to peak	= 852 min
Time interval	= 2 min	Hyd. volume	= 42,787 cuft
Inflow hyd. No.	= 13 - POST_DEV_1a_ROUTED_1b	Max. Elevation	= 76.44 ft
Reservoir name	= DETENTION AREA 1b	Max. Storage	= 16,841 cuft

Storage Indication method used.
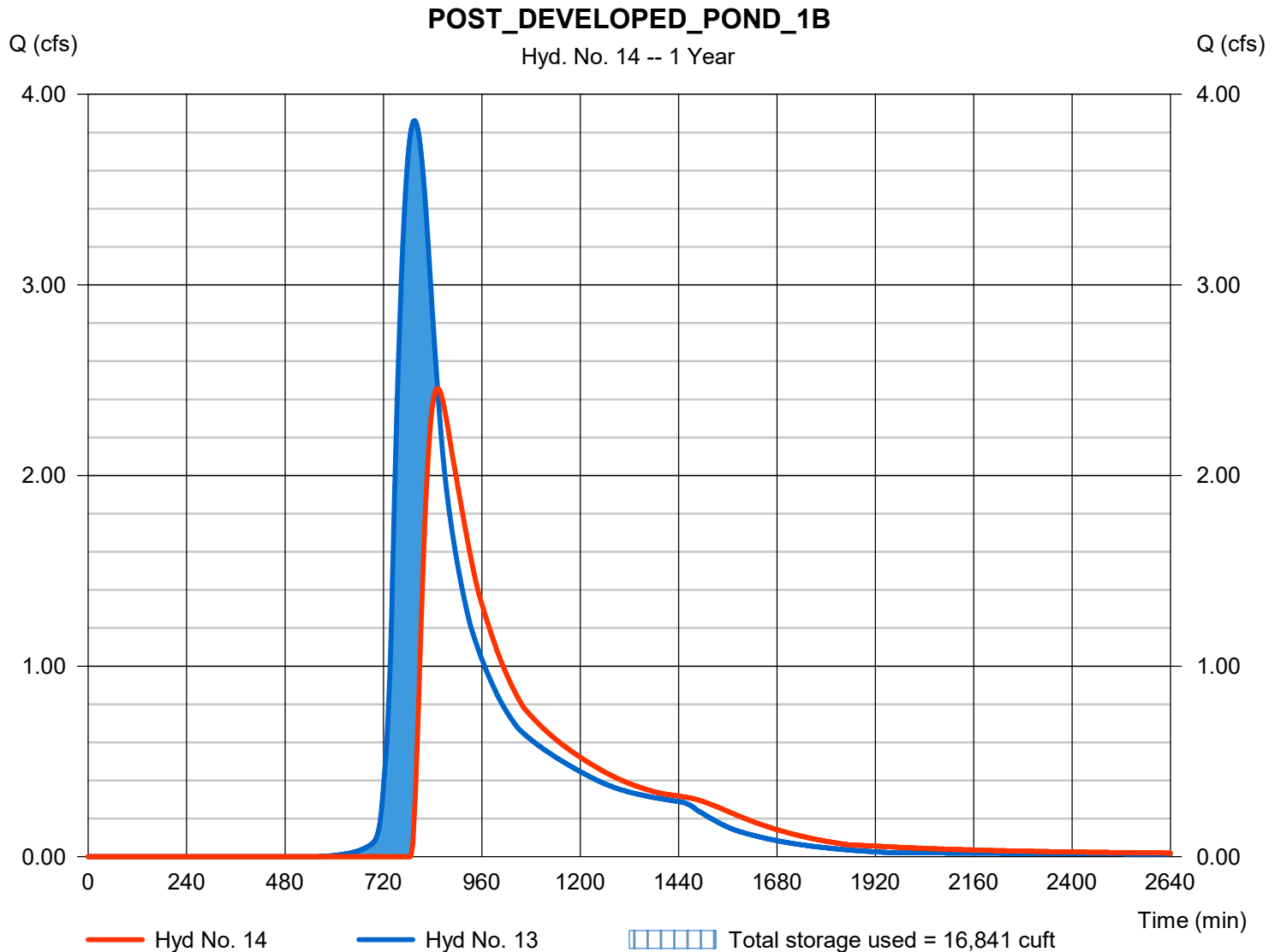
POST_DEVELOPED_POND_1B
Hyd. No. 14 -- 1 Year

Legend: Hyd No. 14 Hyd No. 13 Total storage used = 16,841 cuft

Hydrograph Report

Hyd. No. 15

POST_DEV_TOTAL_TO_POND_1d

Hydrograph type	= Combine	Peak discharge	= 12.16 cfs
Storm frequency	= 1 yrs	Time to peak	= 746 min
Time interval	= 2 min	Hyd. volume	= 137,121 cuft
Inflow hyds.	= 9, 14	Contrib. drain. area	= 12.140 ac
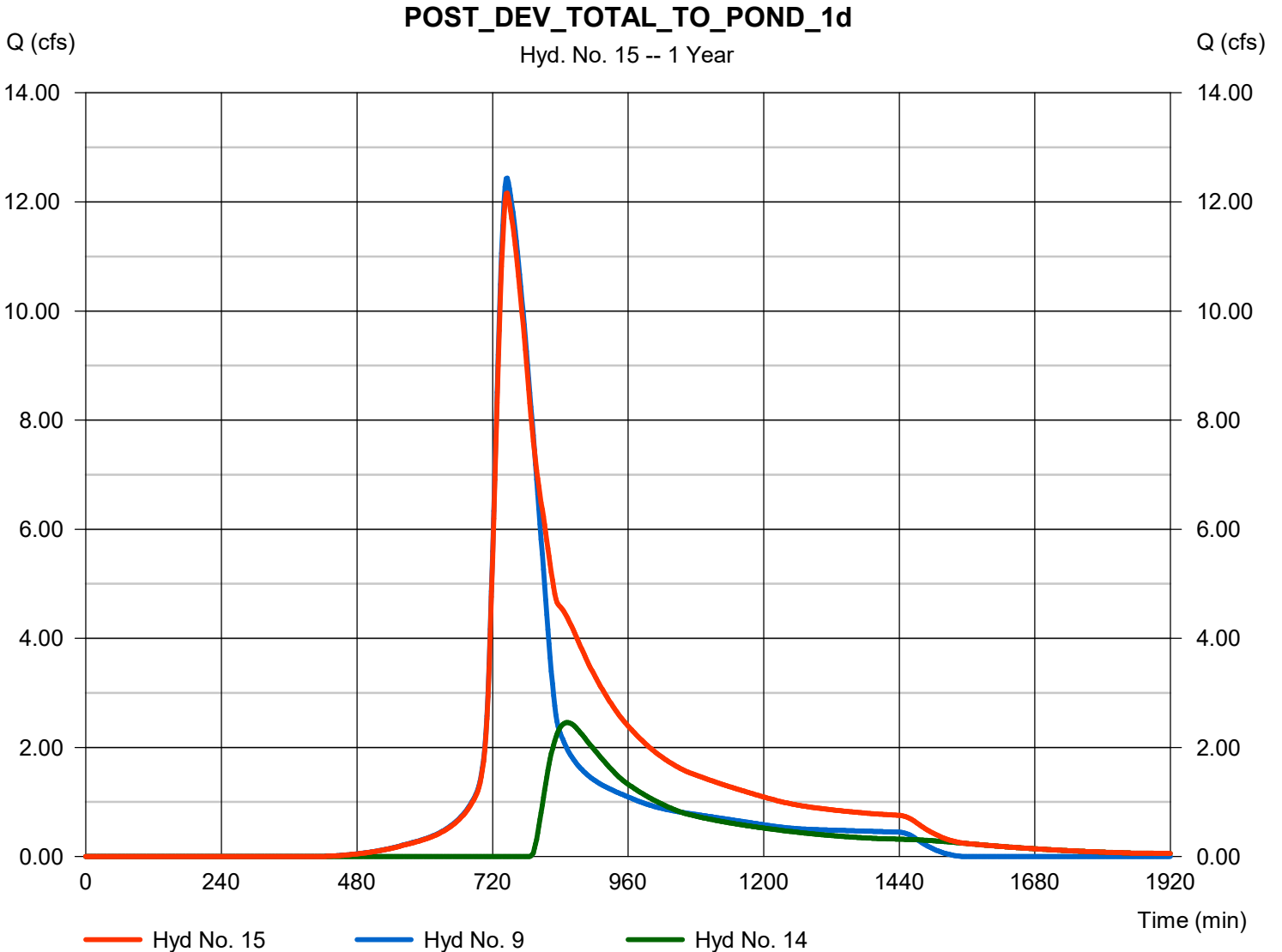
POST_DEV_TOTAL_TO_POND_1d

Hyd. No. 15 -- 1 Year

Legend: Hyd No. 15, Hyd No. 9, Hyd No. 14

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 16

POST_DEV_TOTAL_TO_BIG_POND

Hydrograph type	= Combine	Peak discharge	= 32.27 cfs
Storm frequency	= 1 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 319,371 cuft
Inflow hyds.	= 8, 15	Contrib. drain. area	= 24.800 ac

POST_DEV_TOTAL_TO_BIG_POND
Hyd. No. 16 -- 1 Year
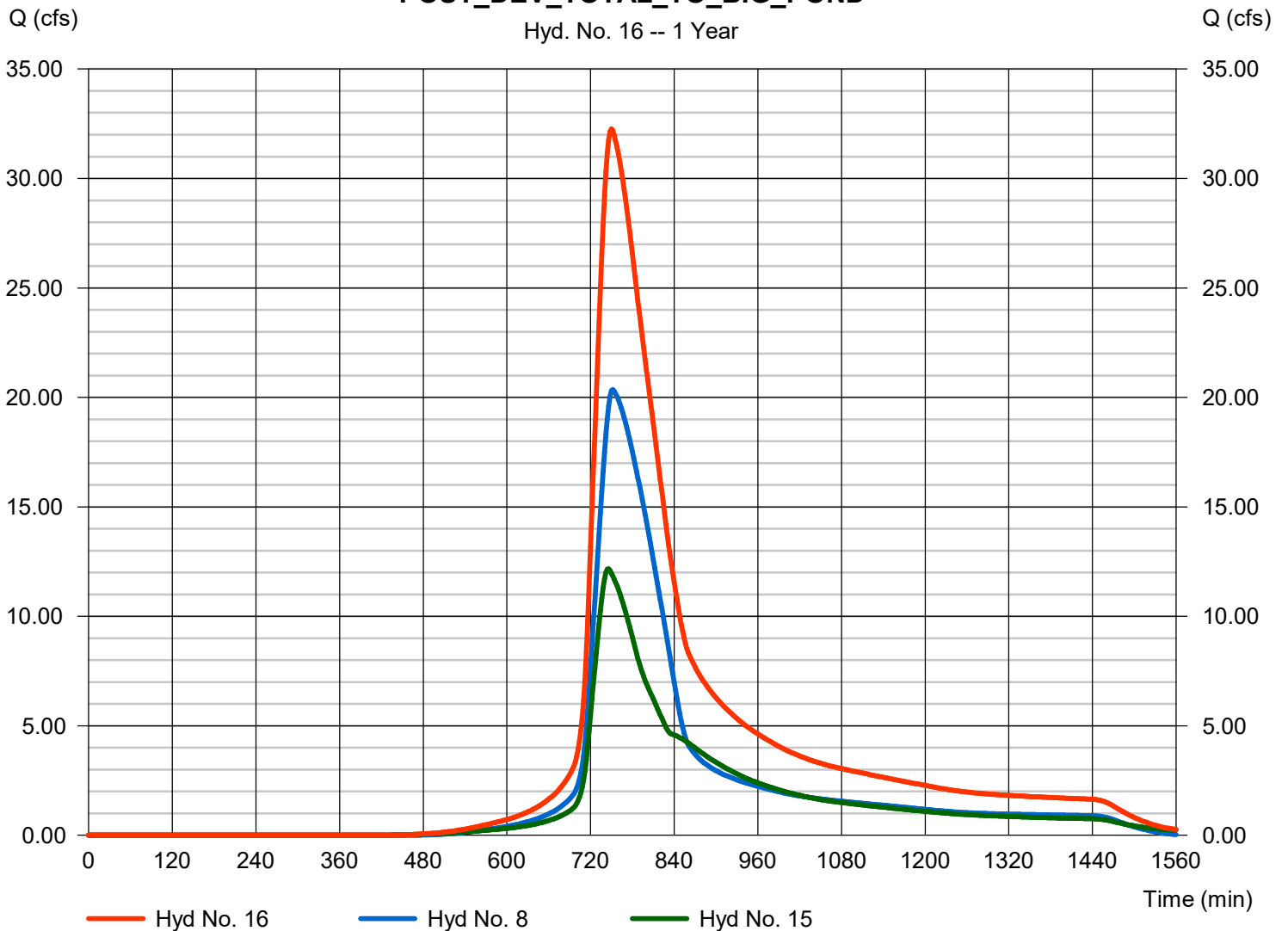
Hydrograph Report

Hyd. No. 17

POST_DEV_BIG_POND_ROUT

Hydrograph type	= Reservoir	Peak discharge	= 23.17 cfs
Storm frequency	= 1 yrs	Time to peak	= 792 min
Time interval	= 2 min	Hyd. volume	= 319,239 cuft
Inflow hyd. No.	= 16 - POST_DEV_TOTAL_TO_BIG_POND	Max. Elevation	= 75.14 ft
Reservoir name	= Big_Detention_Pond	Max. Storage	= 71,273 cuft

Storage Indication method used.
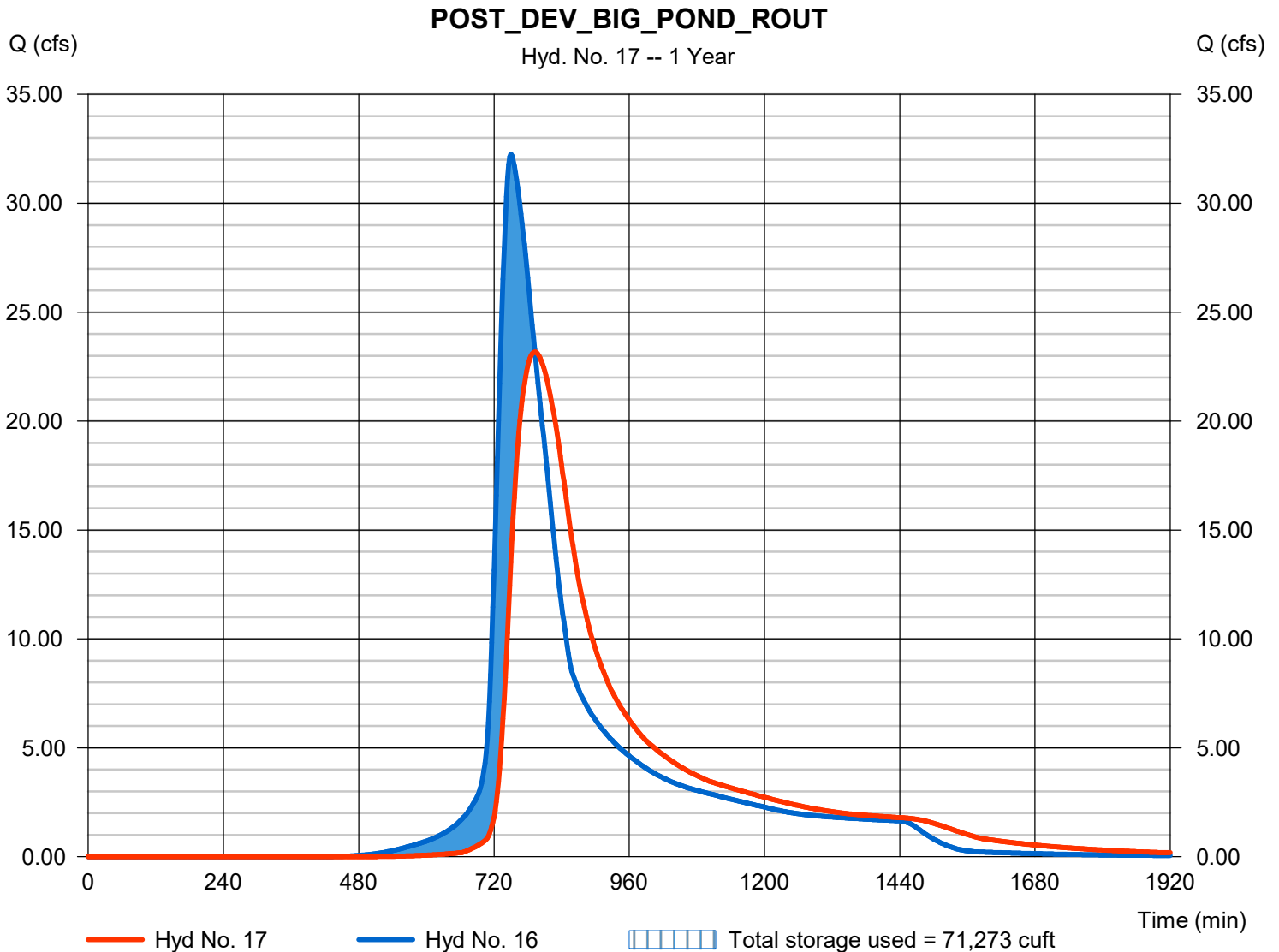
POST_DEV_BIG_POND_ROUT

Hyd. No. 17 -- 1 Year

Hyd No. 17   Hyd No. 16   Total storage used = 71,273 cuft

Hydrograph Report

Hyd. No. 18

TOTAL_FLOW_AT_OUTFALL_DA_1

Hydrograph type	= Combine		Peak discharge	= 28.58 cfs
Storm frequency	= 1 yrs		Time to peak	= 802 min
Time interval	= 2 min		Hyd. volume	= 406,556 cuft
Inflow hyds.	= 10, 12, 17		Contrib. drain. area	= 15.940 ac
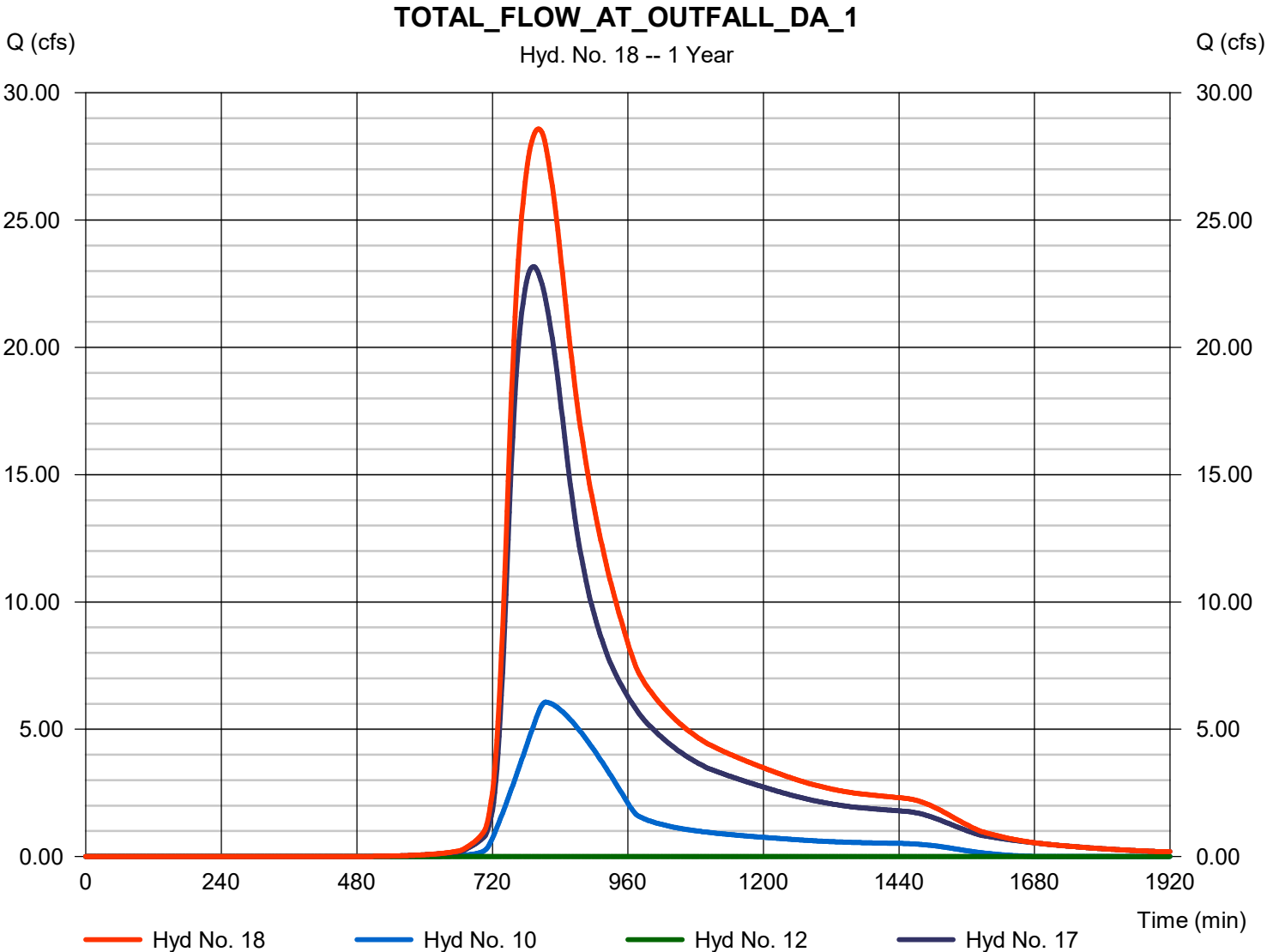
TOTAL_FLOW_AT_OUTFALL_DA_1

Hyd. No. 18 -- 1 Year

Hyd No. 18 — Hyd No. 10 — Hyd No. 12 — Hyd No. 17

Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	71.35	2	792	1,126,143	------	------	------	PRE DEVELOPED DRAINAGE ARE
2	SCS Runoff	7.223	2	770	87,377	------	------	------	PRE DEVELOPED DRAINAGE ARE
3	SCS Runoff	1.013	2	766	11,598	------	------	------	PRE DEVELOPED DRAINAGE ARE
4	SCS Runoff	3.531	2	772	44,106	------	------	------	POST DEVELOPED DRAINAGE AR
5	SCS Runoff	11.65	2	744	90,938	------	------	------	POST_DEV_DRAINAGE_AREA_1a
6	Reservoir	5.337	2	804	86,158	5	77.28	37,579	POST_DEV_DA_1a_ROUTED
7	SCS Runoff	2.523	2	754	23,358	------	------	------	POST_DEV_DRAINAGE_AREA_1b
8	SCS Runoff	42.59	2	752	378,176	------	------	------	POST DEVELOPED DRAINAGE AR
9	SCS Runoff	25.04	2	744	194,516	------	------	------	POST DEVELOPED DRAINAGE AR
10	SCS Runoff	14.68	2	812	201,821	------	------	------	POST_DEVELOPED_BYPASS_1
11	SCS Runoff	12.48	2	790	140,351	------	------	------	POST_DEVELOPED_BYPASS_2
12	Reservoir	0.000	2	n/a	0	11	70.53	140,351	Rear Area Routed
13	Combine	7.337	2	782	109,517	6, 7,	------	------	POST_DEV_1a_ROUTED+_1b
14	Reservoir	6.398	2	828	100,076	13	76.90	23,475	POST_DEVELOPED_POND_1B
15	Combine	24.48	2	744	290,266	9, 14	------	------	POST_DEV_TOTAL_TO_POND_1d
16	Combine	66.63	2	750	668,442	8, 15	------	------	POST_DEV_TOTAL_TO_BIG_POND
17	Reservoir	41.97	2	808	668,305	16	76.35	157,863	POST_DEV_BIG_POND_ROUT
18	Combine	56.61	2	812	870,125	10, 12, 17	------	------	TOTAL_FLOW_AT_OUTFALL_DA_1

BLUE_JAY_ROAD_05282024gpw.gpw	Return Period: 5 Year	Wednesday, 05 / 29 / 2024

Hydrograph Report

Hyd. No. 1

PRE DEVELOPED DRAINAGE AREA 1

Hydrograph type	= SCS Runoff		Peak discharge	= 71.35 cfs
Storm frequency	= 5 yrs		Time to peak	= 792 min
Time interval	= 2 min		Hyd. volume	= 1,126,143 cuft
Drainage area	= 73.850 ac		Curve number	= 84*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 127.80 min
Total precip.	= 6.00 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = + (66.130 x 84)] / 73.850

PRE DEVELOPED DRAINAGE AREA 1

Hyd. No. 1 -- 5 Year
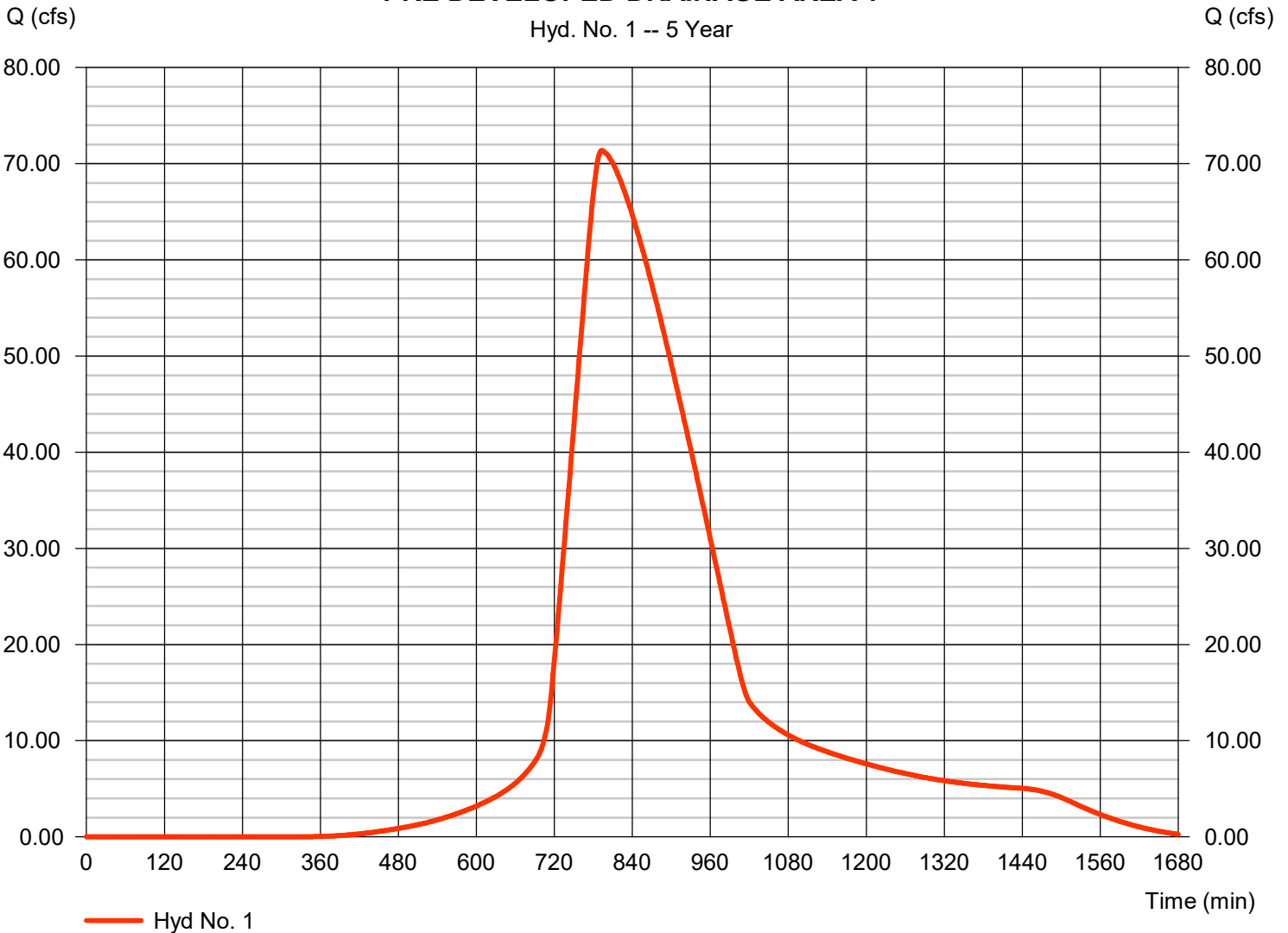
Q (cfs)

Time (min)

— Hyd No. 1

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 2

PRE DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 7.223 cfs
Storm frequency	= 5 yrs	Time to peak	= 770 min
Time interval	= 2 min	Hyd. volume	= 87,377 cuft
Drainage area	= 5.730 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 88.70 min
Total precip.	= 6.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (5.480 x 83)] / 5.730

PRE DEVELOPED DRAINAGE AREA 2

Hyd. No. 2 -- 5 Year
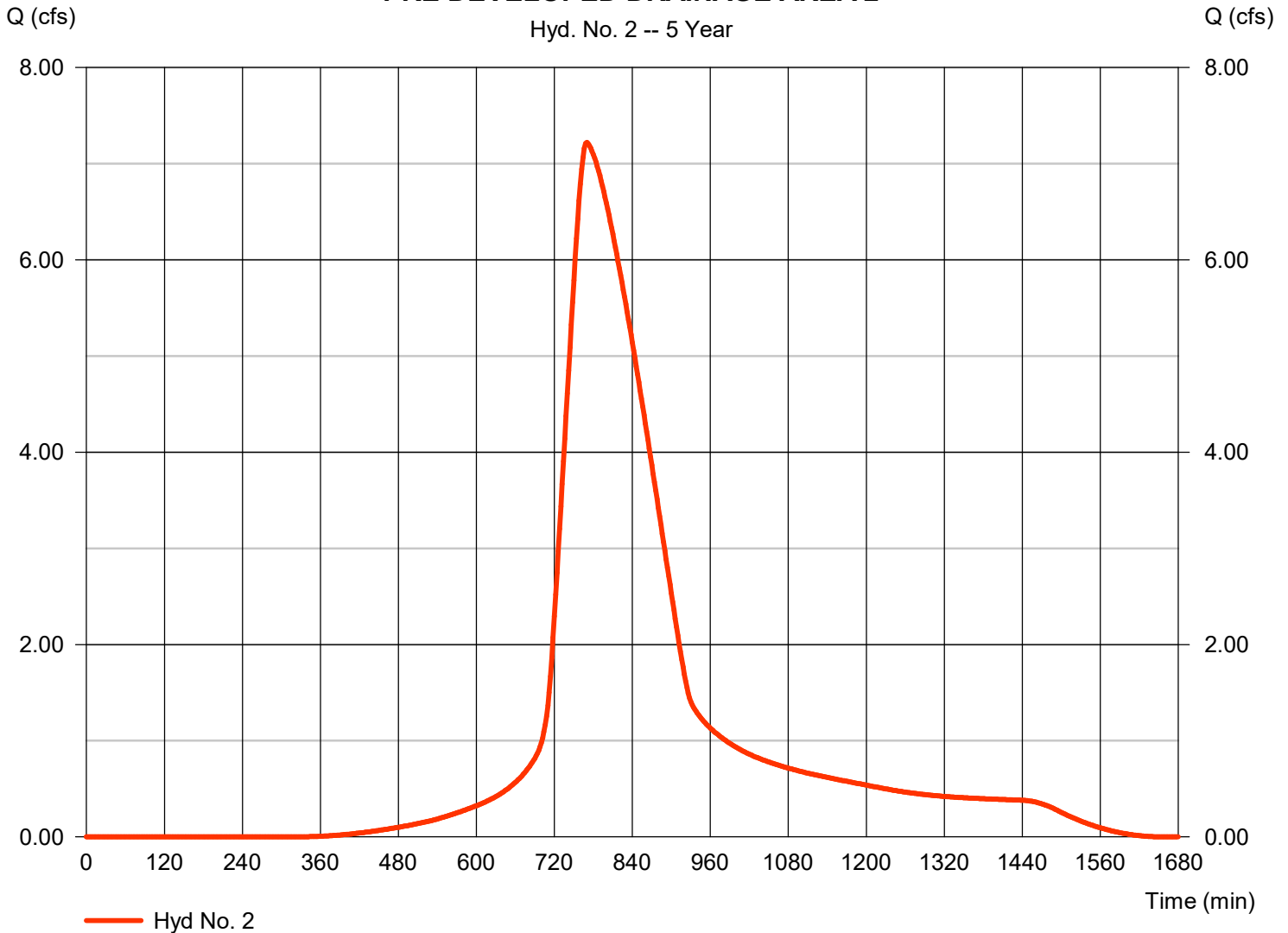
— Hyd No. 2

Hydrograph Report

Hyd. No. 3

PRE DEVELOPED DRAINAGE AREA 3

Hydrograph type	= SCS Runoff		Peak discharge	= 1.013 cfs
Storm frequency	= 5 yrs		Time to peak	= 766 min
Time interval	= 2 min		Hyd. volume	= 11,598 cuft
Drainage area	= 0.690 ac		Curve number	= 88*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 81.80 min
Total precip.	= 6.00 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (0.440 x 83)] / 0.690

PRE DEVELOPED DRAINAGE AREA 3

Hyd. No. 3 -- 5 Year

— Hyd No. 3

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024
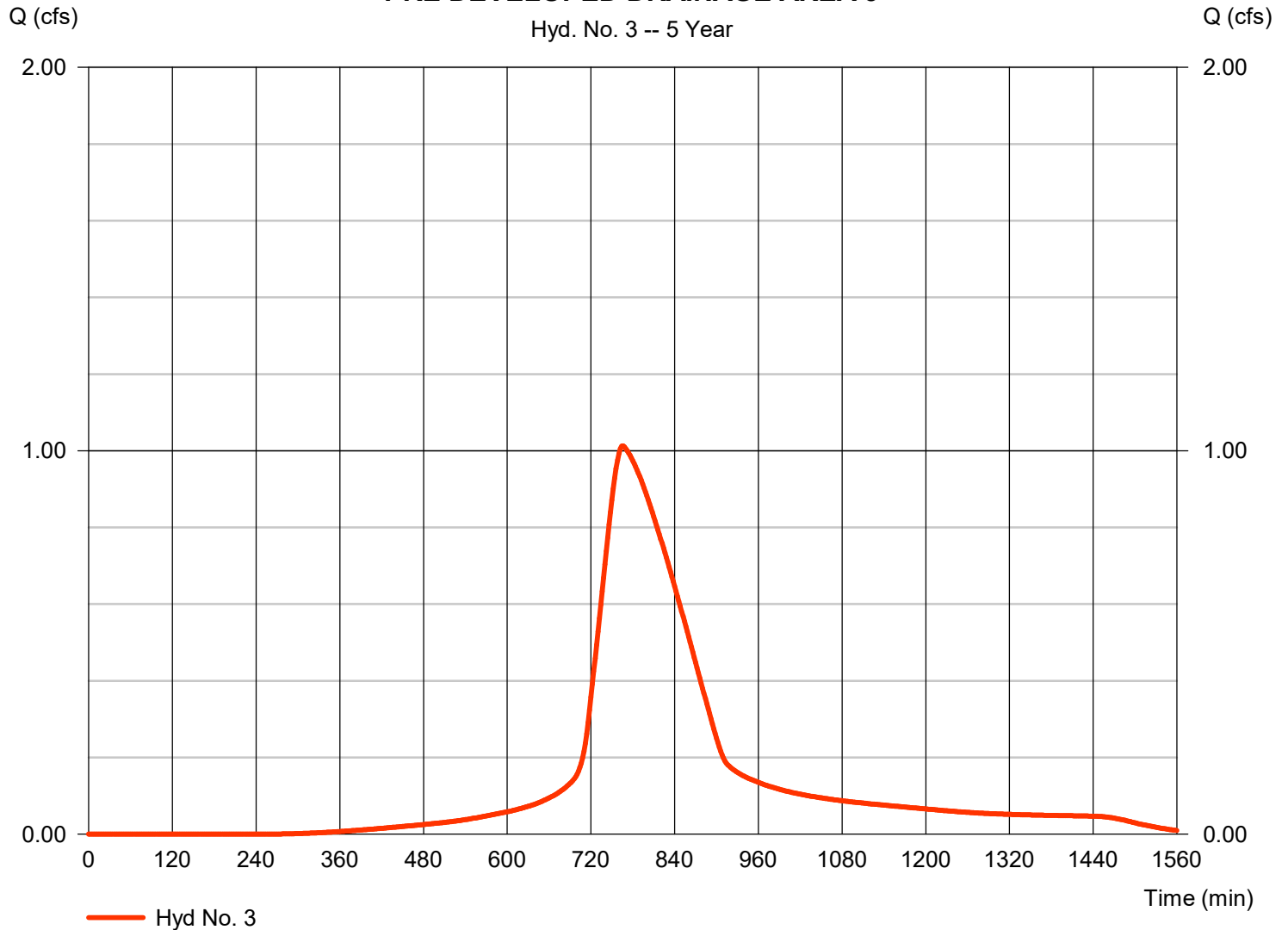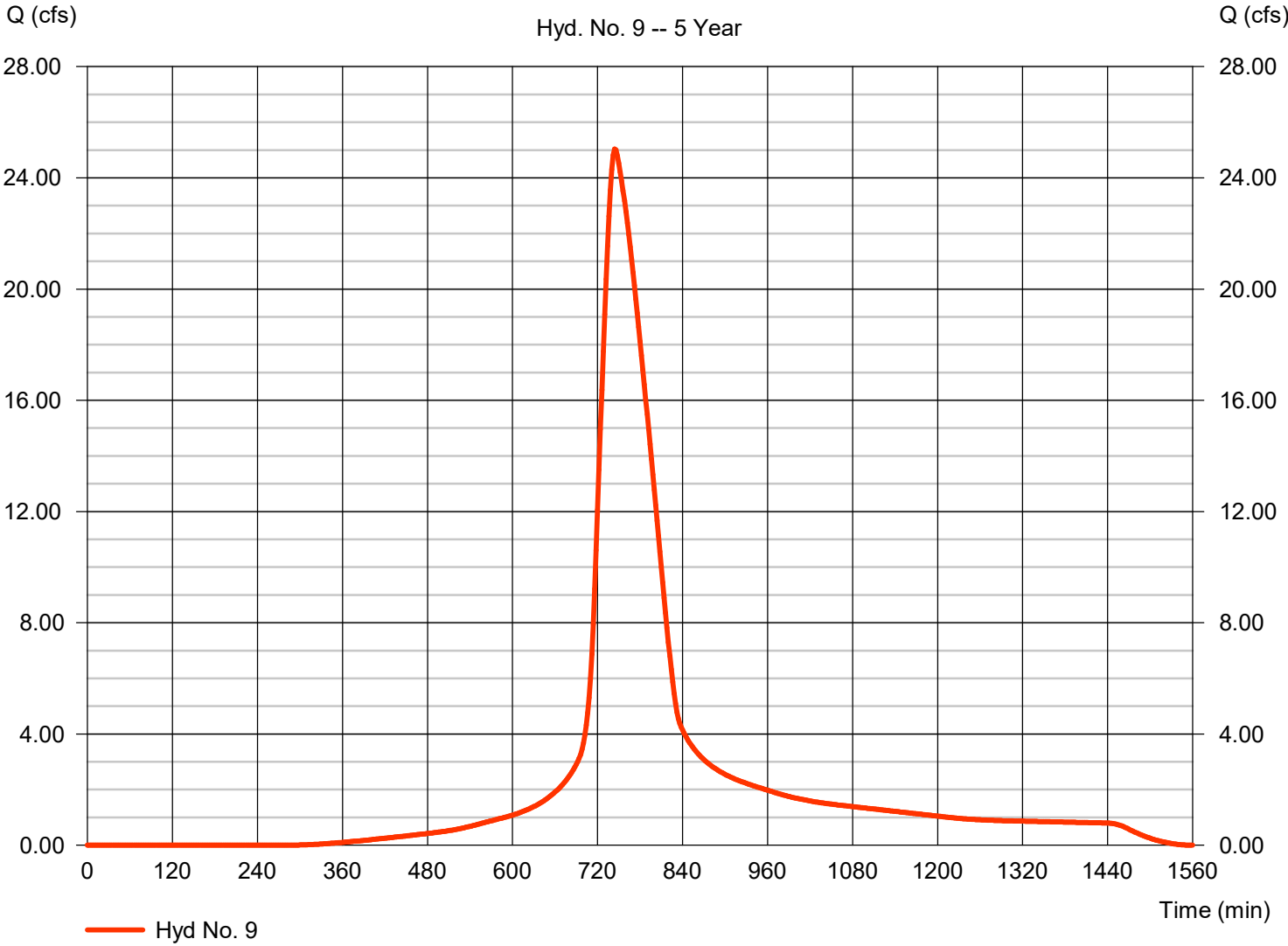
Hyd. No. 4

POST DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 3.531 cfs
Storm frequency	= 5 yrs	Time to peak	= 772 min
Time interval	= 2 min	Hyd. volume	= 44,106 cuft
Drainage area	= 3.210 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 91.70 min
Total precip.	= 6.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (3.210 x 80)] / 3.210

POST DEVELOPED DRAINAGE AREA 2

Hyd. No. 4 -- 5 Year
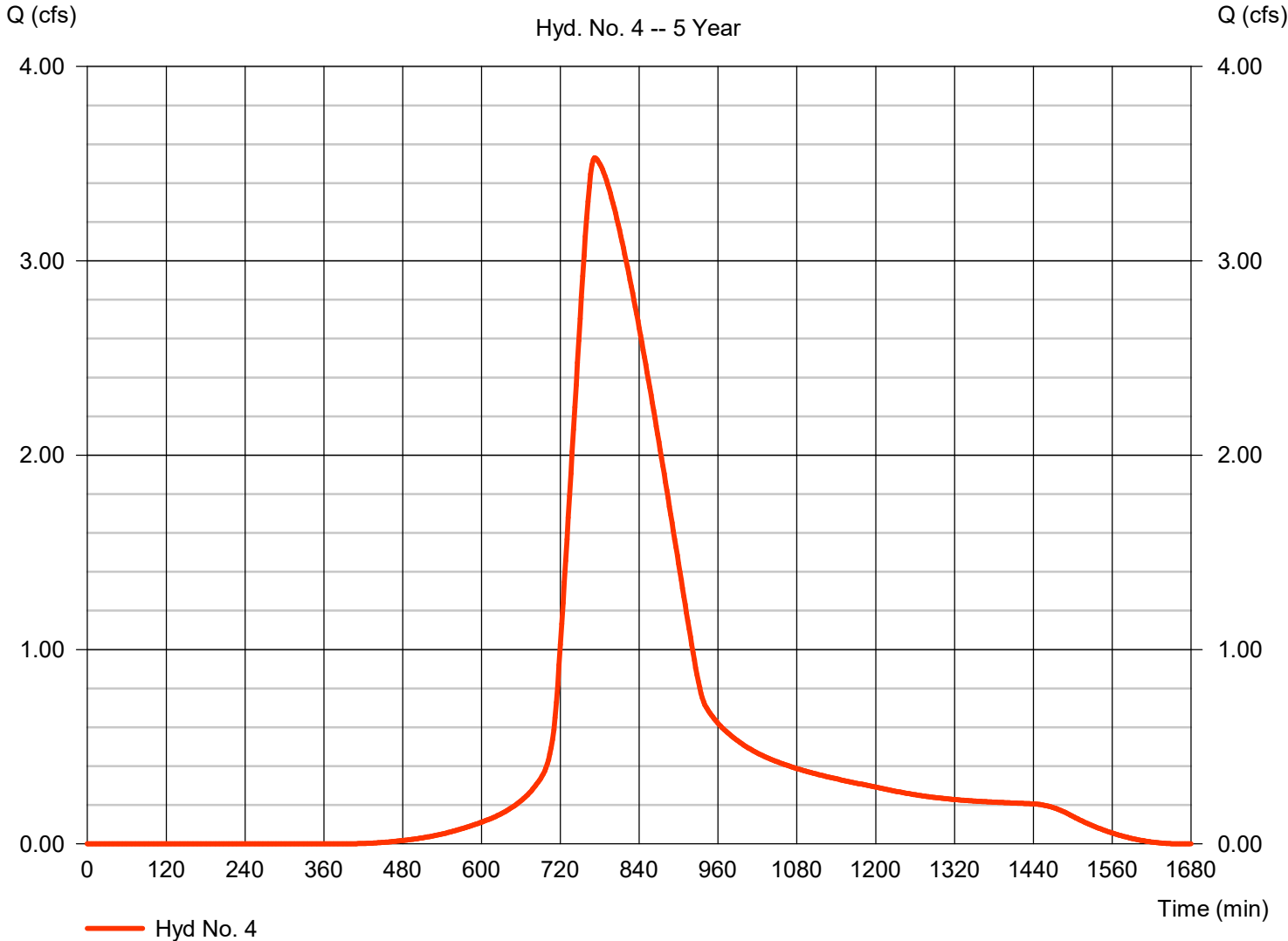
Hydrograph Report

Hyd. No. 5

POST_DEV_DRAINAGE_AREA_1a

Hydrograph type	= SCS Runoff	Peak discharge	= 11.65 cfs
Storm frequency	= 5 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 90,938 cuft
Drainage area	= 5.410 ac	Curve number	= 88*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 48.90 min
Total precip.	= 6.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(2.490 x 98) + (2.920 x 80)] / 5.410

POST_DEV_DRAINAGE_AREA_1a

Hyd. No. 5 -- 5 Year
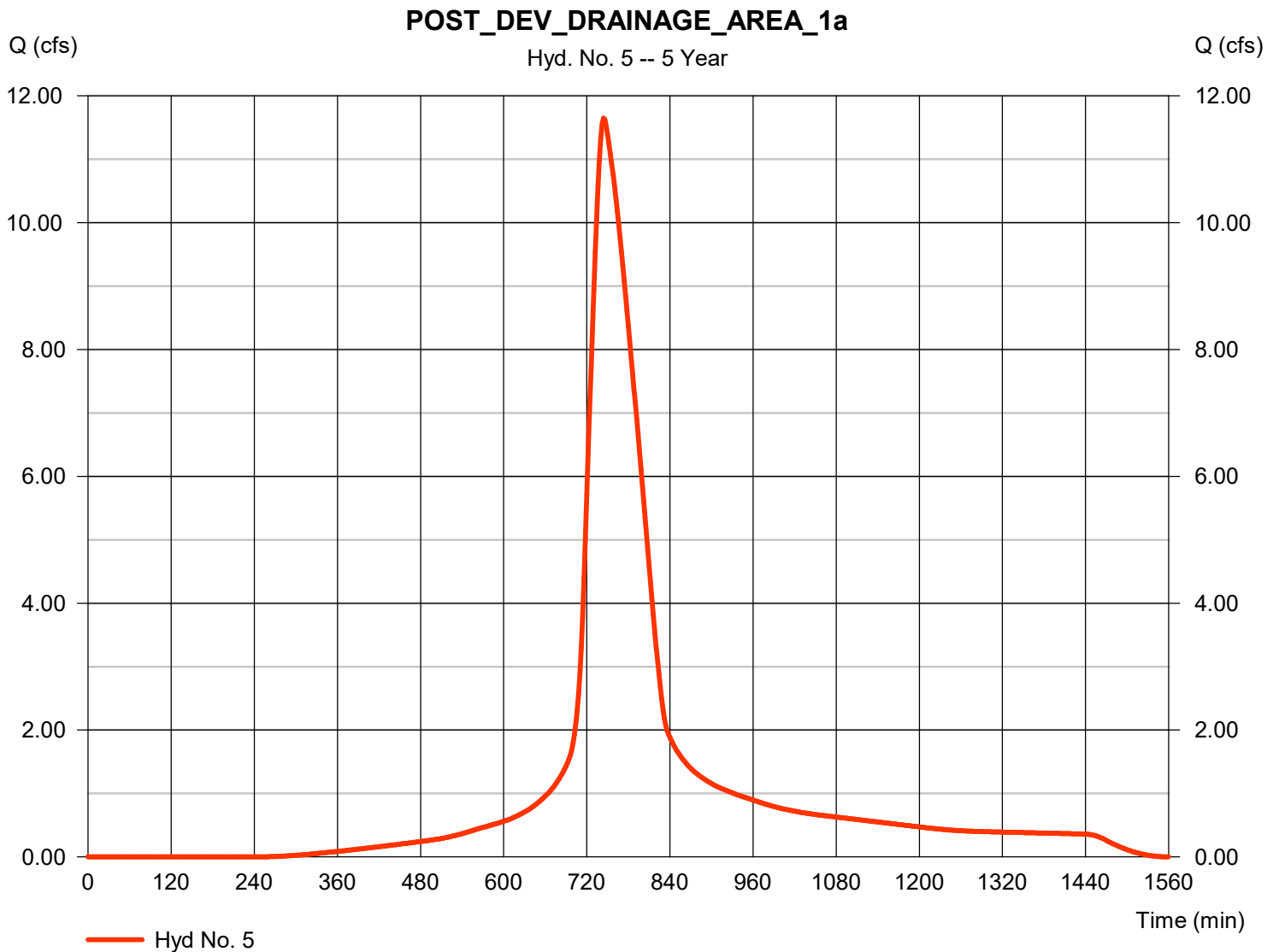
Hyd No. 5

Hydrograph Report

Hyd. No. 6

POST_DEV_DA_1a_ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 5.337 cfs
Storm frequency	= 5 yrs	Time to peak	= 804 min
Time interval	= 2 min	Hyd. volume	= 86,158 cuft
Inflow hyd. No.	= 5 - POST_DEV_DRAINAGE_AREA_1a	Max. Elevation	= 77.28 ft
Reservoir name	= DETENTION AREA 1a	Max. Storage	= 37,579 cuft

Storage Indication method used.
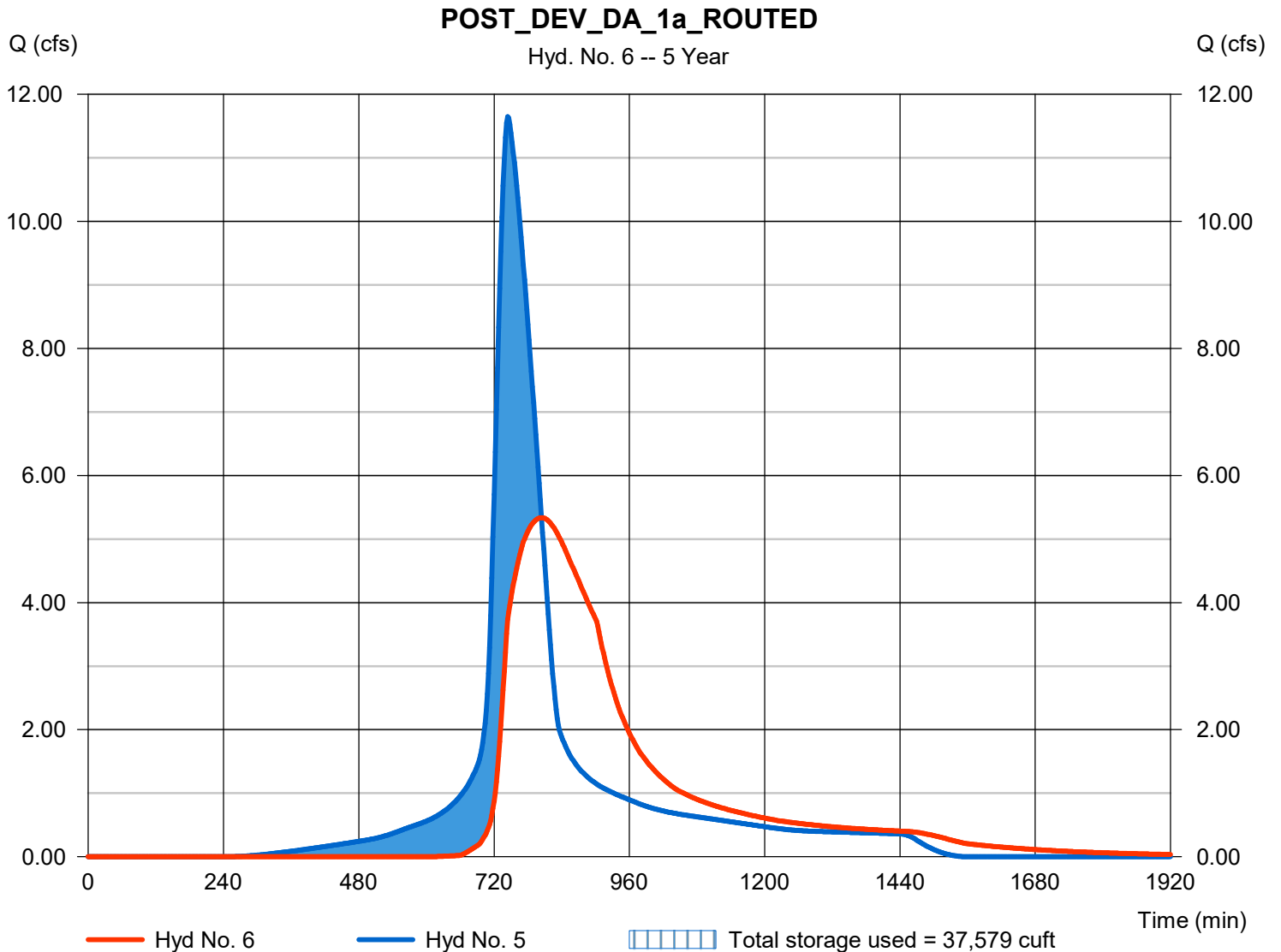
POST_DEV_DA_1a_ROUTED

Hyd. No. 6 -- 5 Year

Hyd No. 6   Hyd No. 5   Total storage used = 37,579 cuft

Hydrograph Report

Hyd. No. 7

POST_DEV_DRAINAGE_AREA_1b

Hydrograph type	= SCS Runoff	Peak discharge	= 2.523 cfs
Storm frequency	= 5 yrs	Time to peak	= 754 min
Time interval	= 2 min	Hyd. volume	= 23,358 cuft
Drainage area	= 1.700 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 61.80 min
Total precip.	= 6.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (1.700 x 80)] / 1.700

POST_DEV_DRAINAGE_AREA_1b

Hyd. No. 7 -- 5 Year
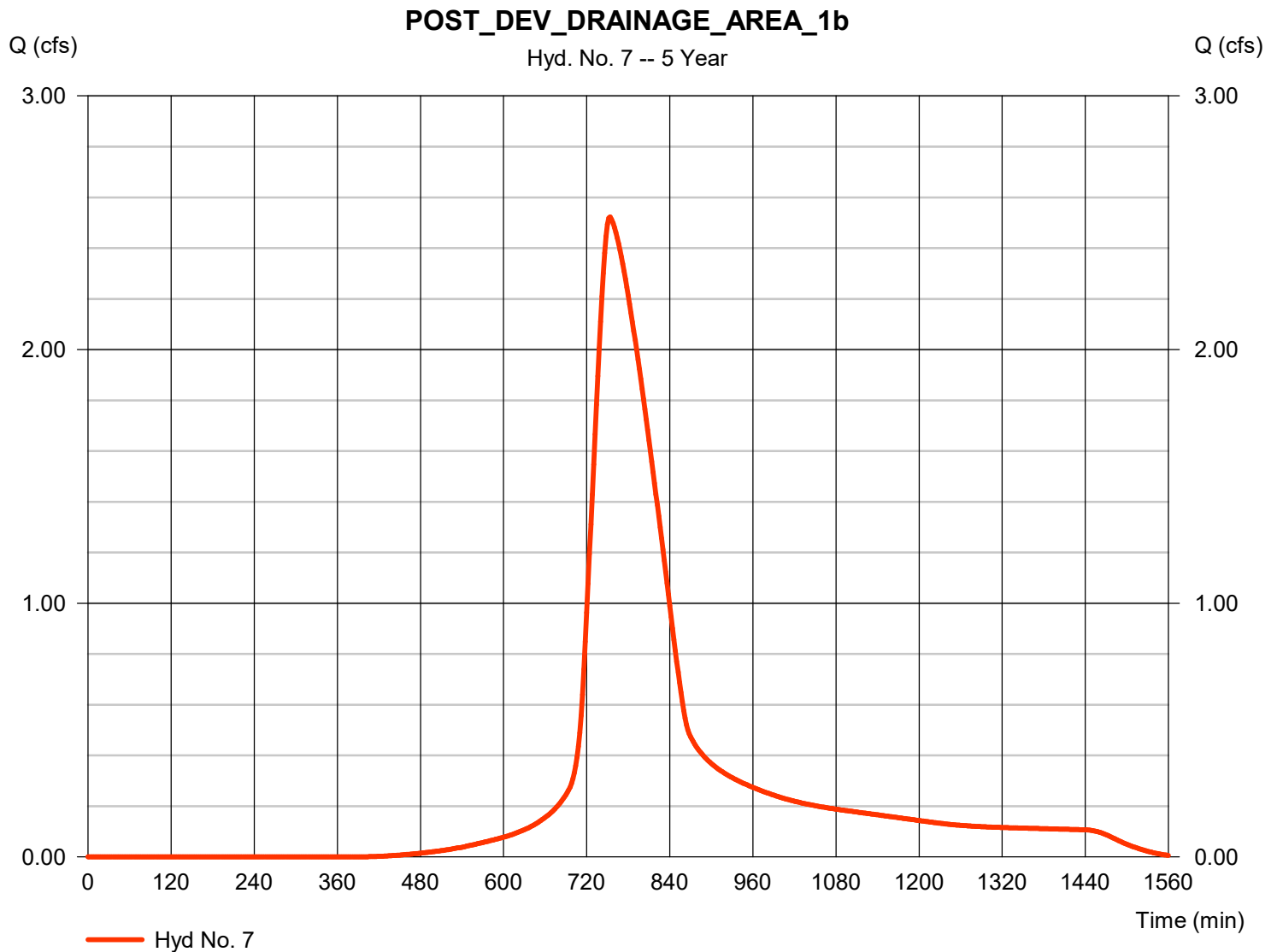
— Hyd No. 7

Hydrograph Report

Hyd. No. 8

POST DEVELOPED DRAINAGE AREA 1c

Hydrograph type	= SCS Runoff	Peak discharge	= 42.59 cfs
Storm frequency	= 5 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 378,176 cuft
Drainage area	= 24.800 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 58.40 min
Total precip.	= 6.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(7.730 x 98) + (7.770 x 80) + (9.300 x 77)] / 24.800
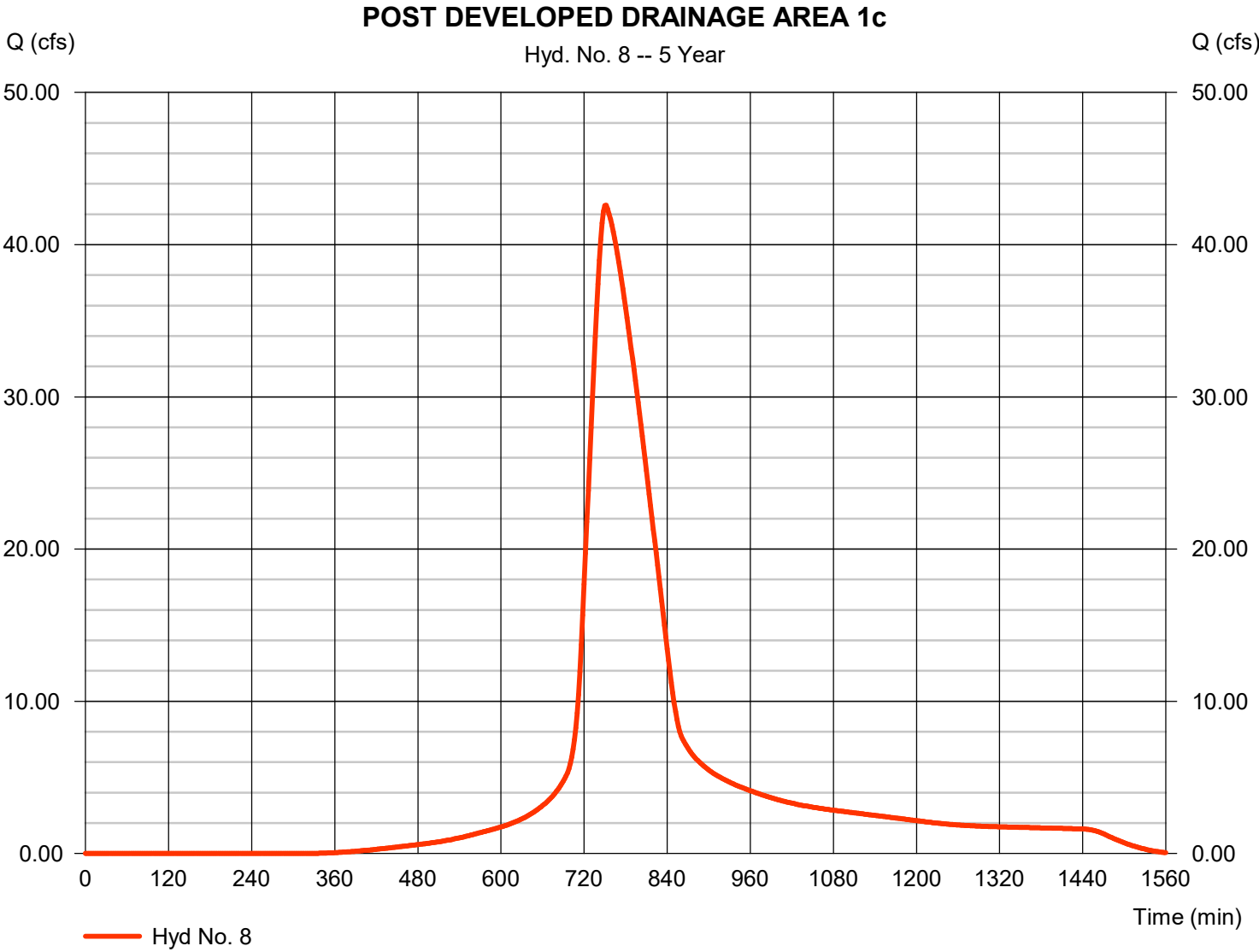
POST DEVELOPED DRAINAGE AREA 1c
Hyd. No. 8 -- 5 Year

Hydrograph Report

Hyd. No. 9

POST DEVELOPED DRAINAGE AREA 1d

Hydrograph type	= SCS Runoff	Peak discharge	= 25.04 cfs
Storm frequency	= 5 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 194,516 cuft
Drainage area	= 12.140 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 50.20 min
Total precip.	= 6.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(3.780 x 98) + (8.360 x 80)] / 12.140

POST DEVELOPED DRAINAGE AREA 1d

Hyd. No. 9 -- 5 Year

Hyd No. 9

Hydrograph Report

Hyd. No. 10

POST_DEVELOPED_BYPASS_1

Hydrograph type	= SCS Runoff		Peak discharge	= 14.68 cfs
Storm frequency	= 5 yrs		Time to peak	= 812 min
Time interval	= 2 min		Hyd. volume	= 201,821 cuft
Drainage area	= 15.940 ac		Curve number	= 77
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 164.70 min
Total precip.	= 6.00 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 484

POST_DEVELOPED_BYPASS_1

Hyd. No. 10 -- 5 Year
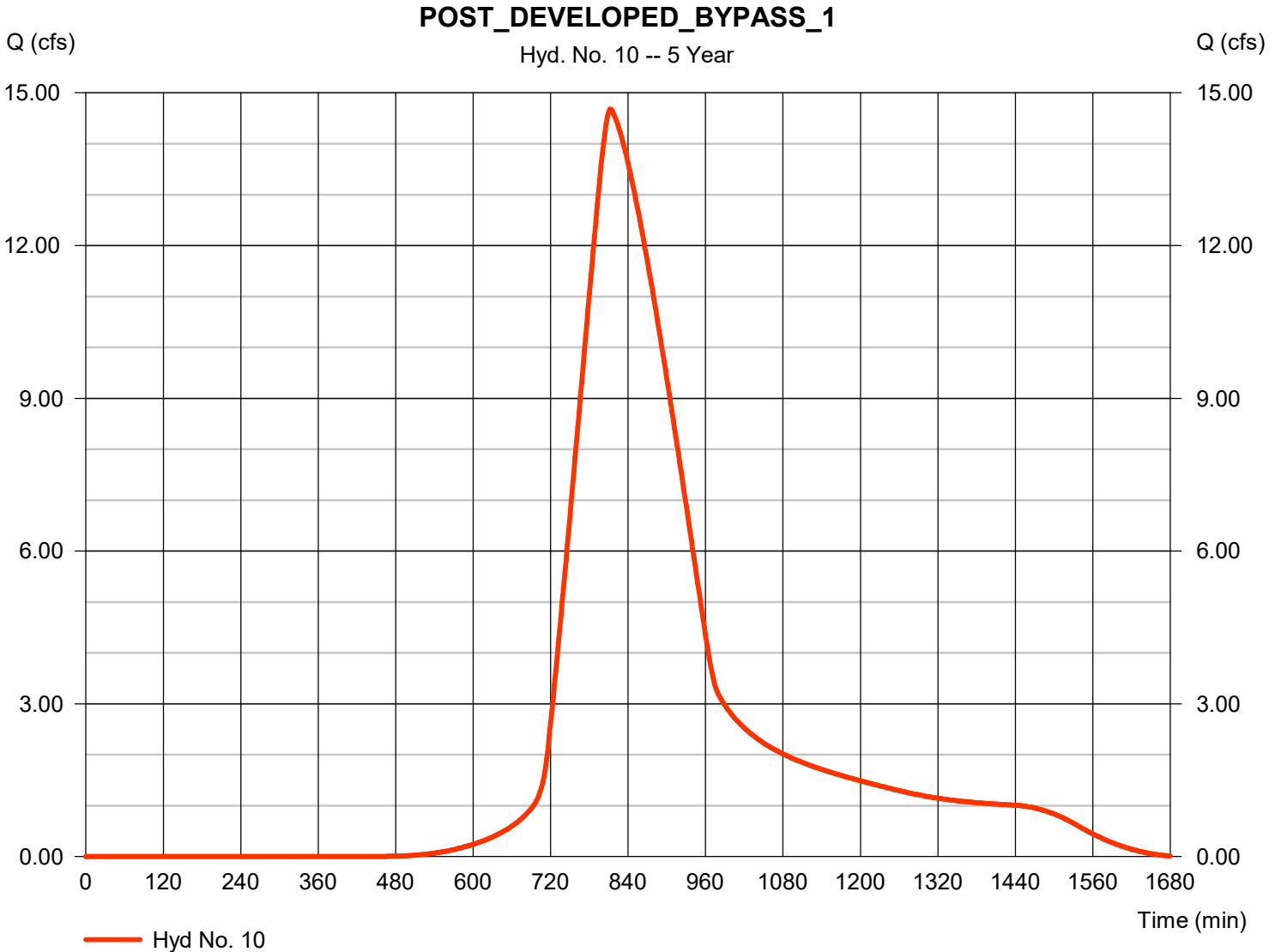
Hyd No. 10

Hydrograph Report

Hyd. No. 11

POST_DEVELOPED_BYPASS_2

Hydrograph type	= SCS Runoff	Peak discharge	= 12.48 cfs
Storm frequency	= 5 yrs	Time to peak	= 790 min
Time interval	= 2 min	Hyd. volume	= 140,351 cuft
Drainage area	= 11.150 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 127.20 min
Total precip.	= 6.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

POST_DEVELOPED_BYPASS_2
Hyd. No. 11 -- 5 Year
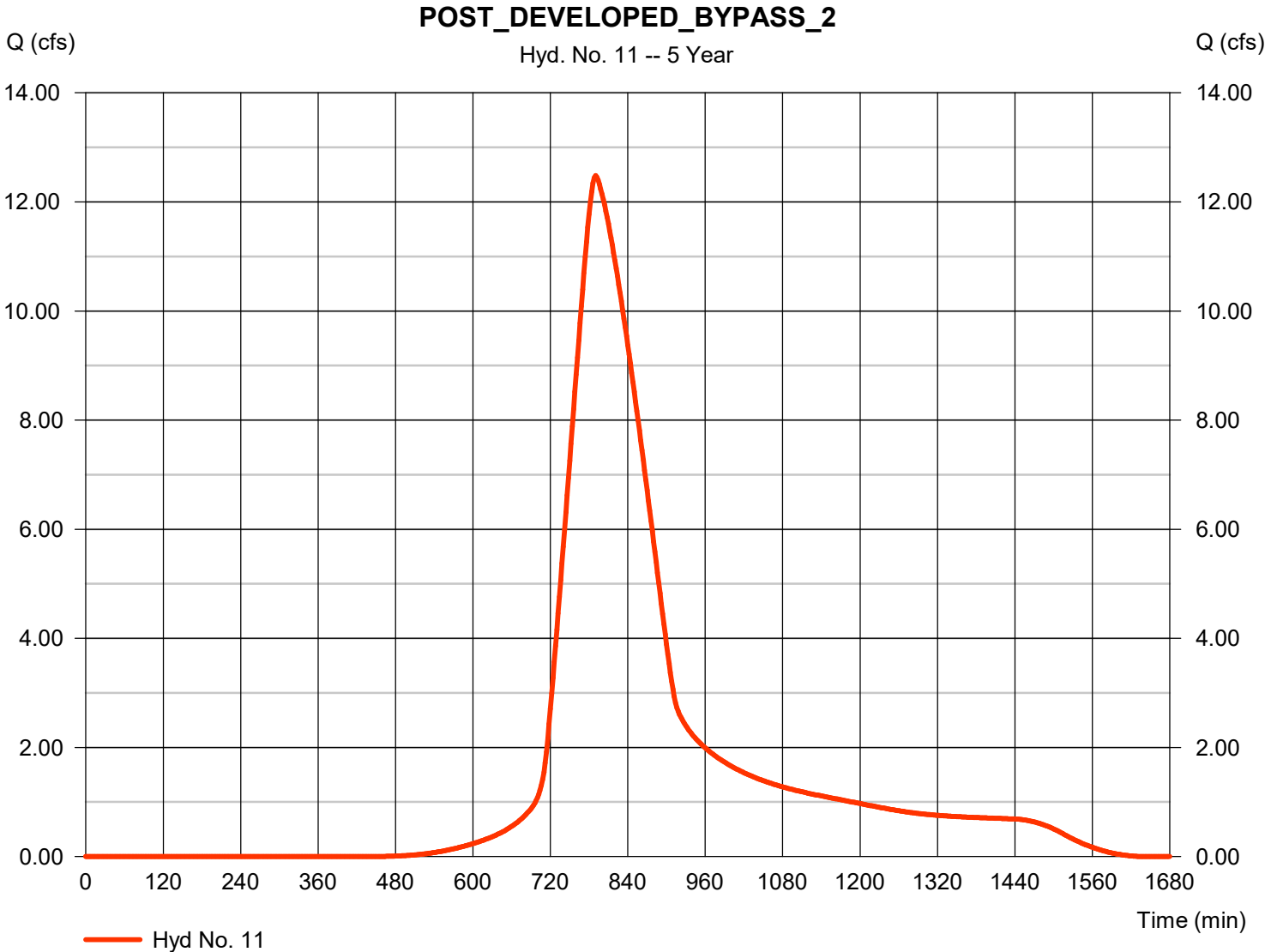
Hydrograph Report

Hyd. No. 12

Rear Area Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 5 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - POST_DEVELOPED_BYPASS_2	Max. Elevation	= 70.53 ft
Reservoir name	= Rear Detention Pond	Max. Storage	= 140,351 cuft

Storage Indication method used.
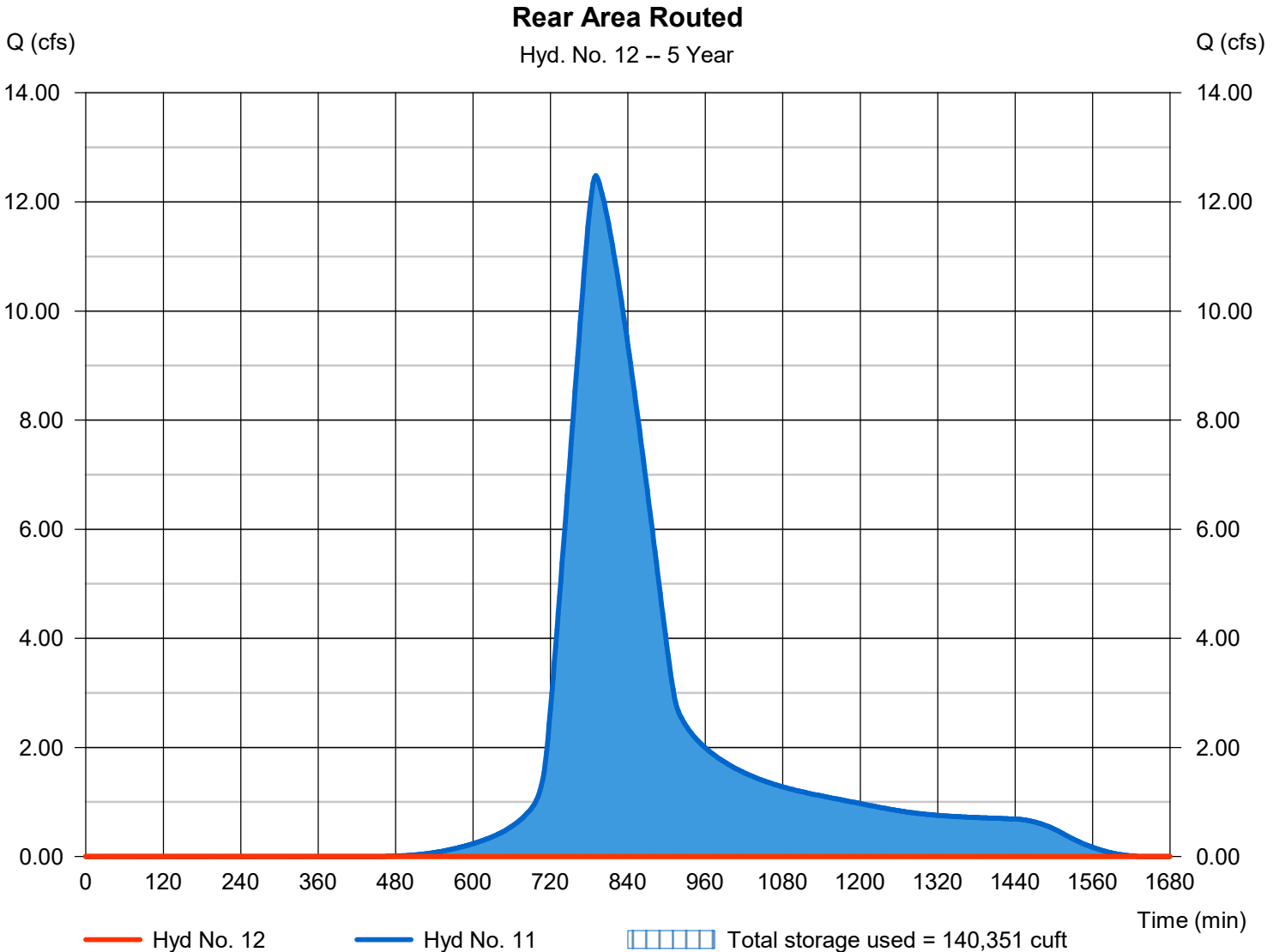
Rear Area Routed

Hyd. No. 12 -- 5 Year

Hyd No. 12   Hyd No. 11   Total storage used = 140,351 cuft

Hydrograph Report

Hyd. No. 13

POST_DEV_1a_ROUTED+_1b

Hydrograph type	= Combine		Peak discharge	= 7.337 cfs
Storm frequency	= 5 yrs		Time to peak	= 782 min
Time interval	= 2 min		Hyd. volume	= 109,517 cuft
Inflow hyds.	= 6, 7		Contrib. drain. area	= 1.700 ac
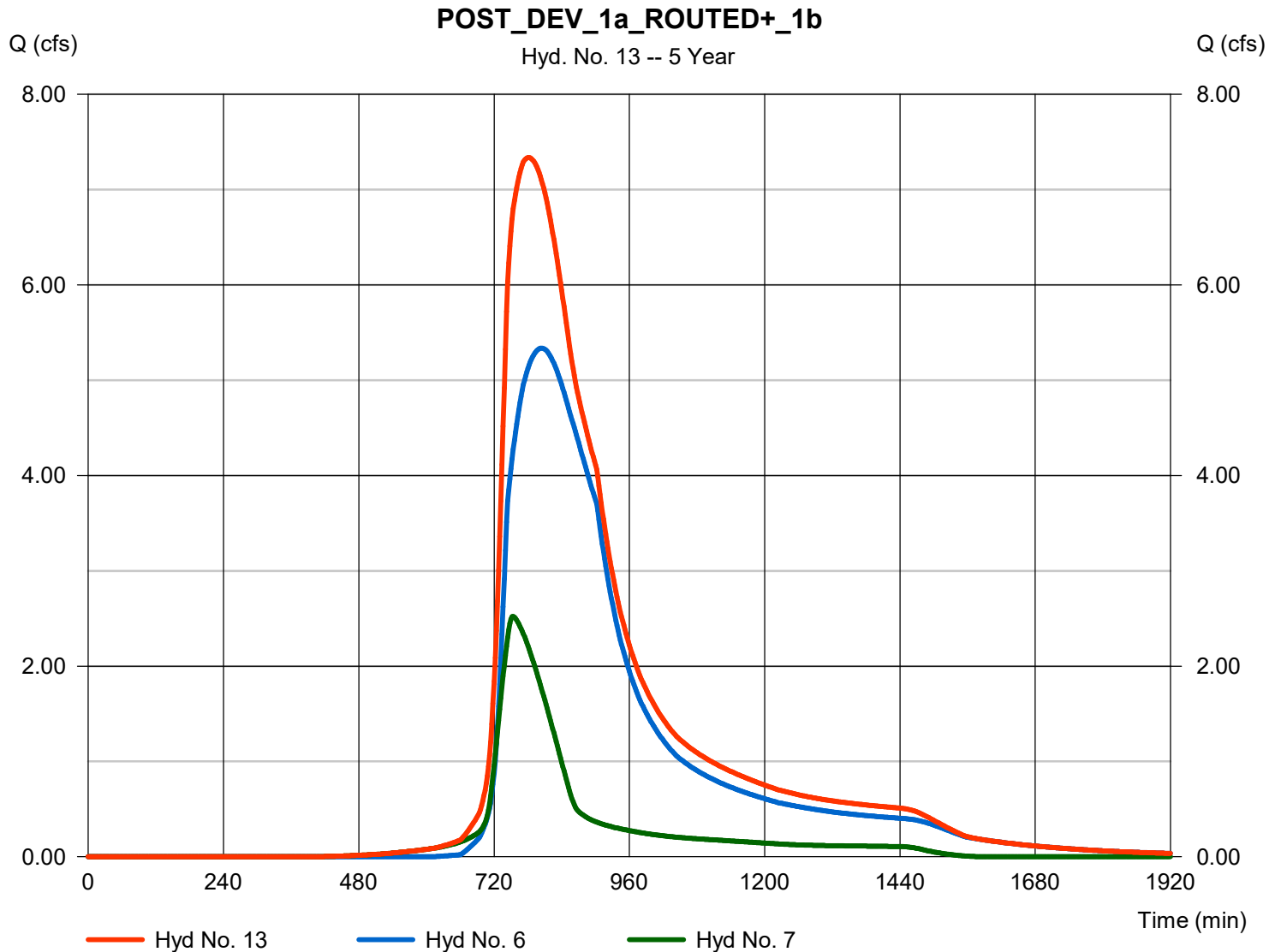
POST_DEV_1a_ROUTED+_1b

Hyd. No. 13 -- 5 Year

Hyd No. 13 — Hyd No. 6 — Hyd No. 7

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 14

POST_DEVELOPED_POND_1B

Hydrograph type	= Reservoir	Peak discharge	= 6.398 cfs
Storm frequency	= 5 yrs	Time to peak	= 828 min
Time interval	= 2 min	Hyd. volume	= 100,076 cuft
Inflow hyd. No.	= 13 - POST_DEV_1a_ROUTED_1b	Max. Elevation	= 76.90 ft
Reservoir name	= DETENTION AREA 1b	Max. Storage	= 23,475 cuft

Storage Indication method used.
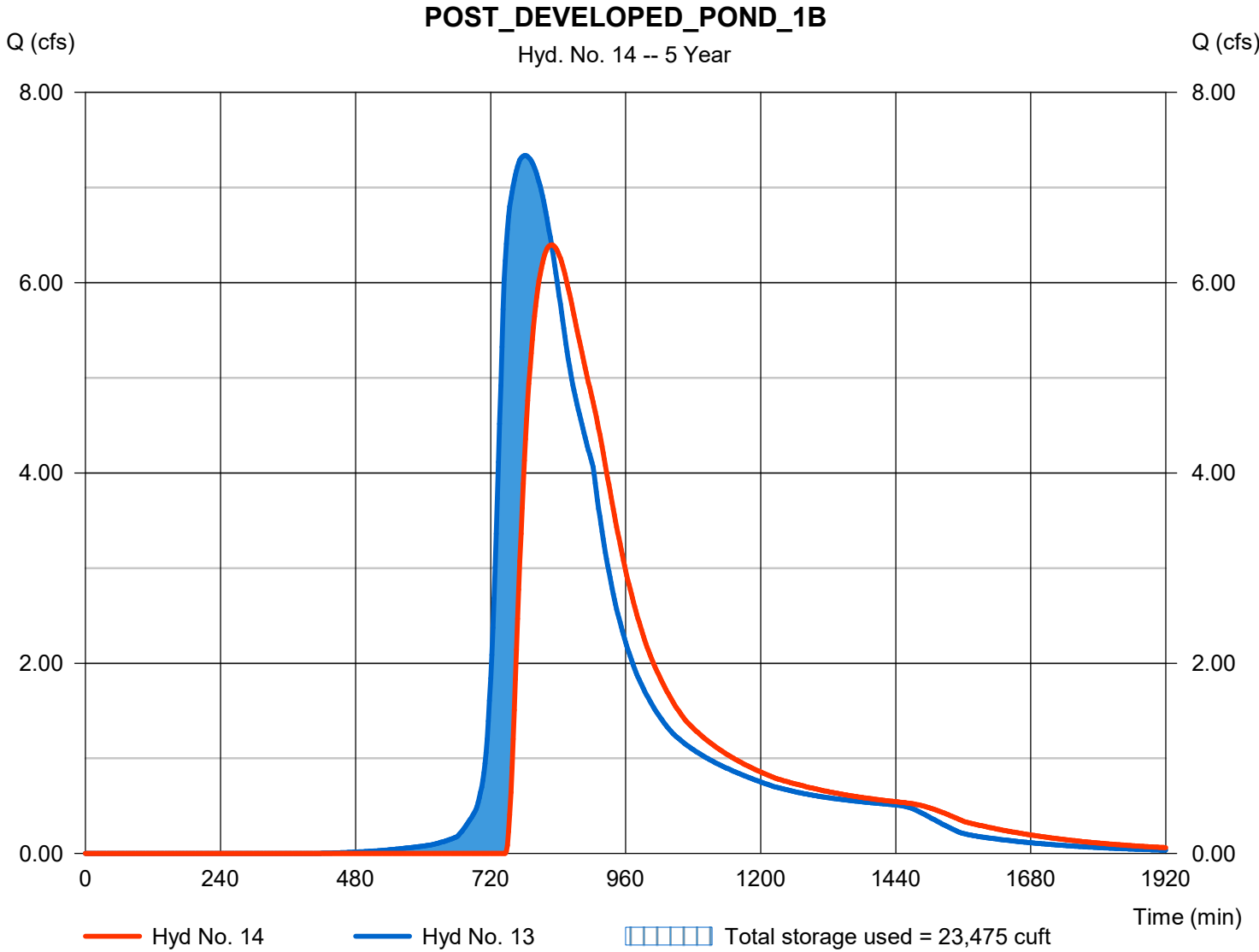
POST_DEVELOPED_POND_1B

Hyd. No. 14 -- 5 Year

Hyd No. 14   Hyd No. 13   Total storage used = 23,475 cuft

Hydrograph Report

Hyd. No. 15

POST_DEV_TOTAL_TO_POND_1d

Hydrograph type	= Combine	Peak discharge	= 24.48 cfs
Storm frequency	= 5 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 290,266 cuft
Inflow hyds.	= 9, 14	Contrib. drain. area	= 12.140 ac

POST_DEV_TOTAL_TO_POND_1d

Hyd. No. 15 -- 5 Year
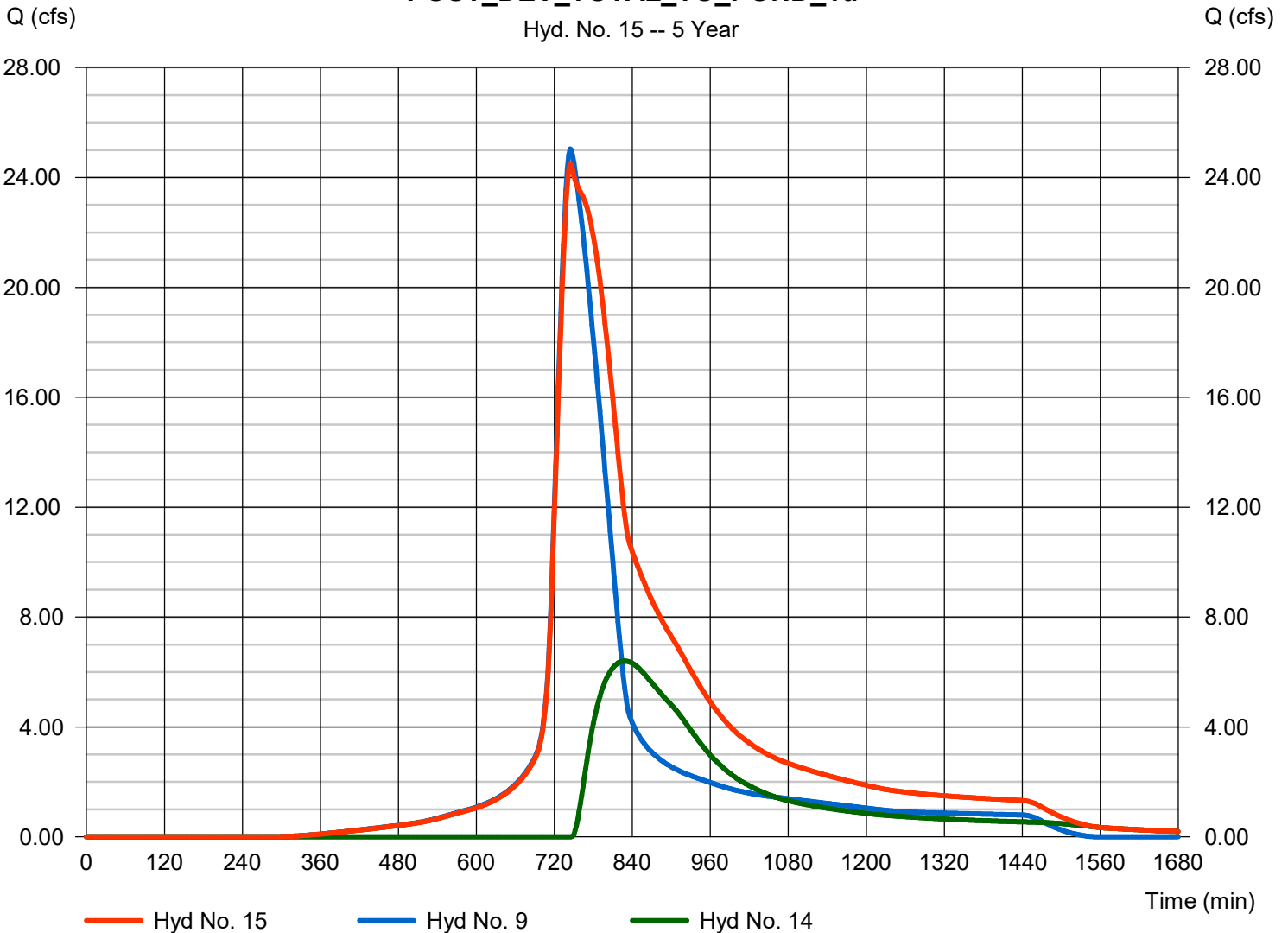
Hyd No. 15 — Hyd No. 9 — Hyd No. 14

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 16

POST_DEV_TOTAL_TO_BIG_POND

Hydrograph type	= Combine	Peak discharge	= 66.63 cfs
Storm frequency	= 5 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 668,442 cuft
Inflow hyds.	= 8, 15	Contrib. drain. area	= 24.800 ac

POST_DEV_TOTAL_TO_BIG_POND

Hyd. No. 16 -- 5 Year
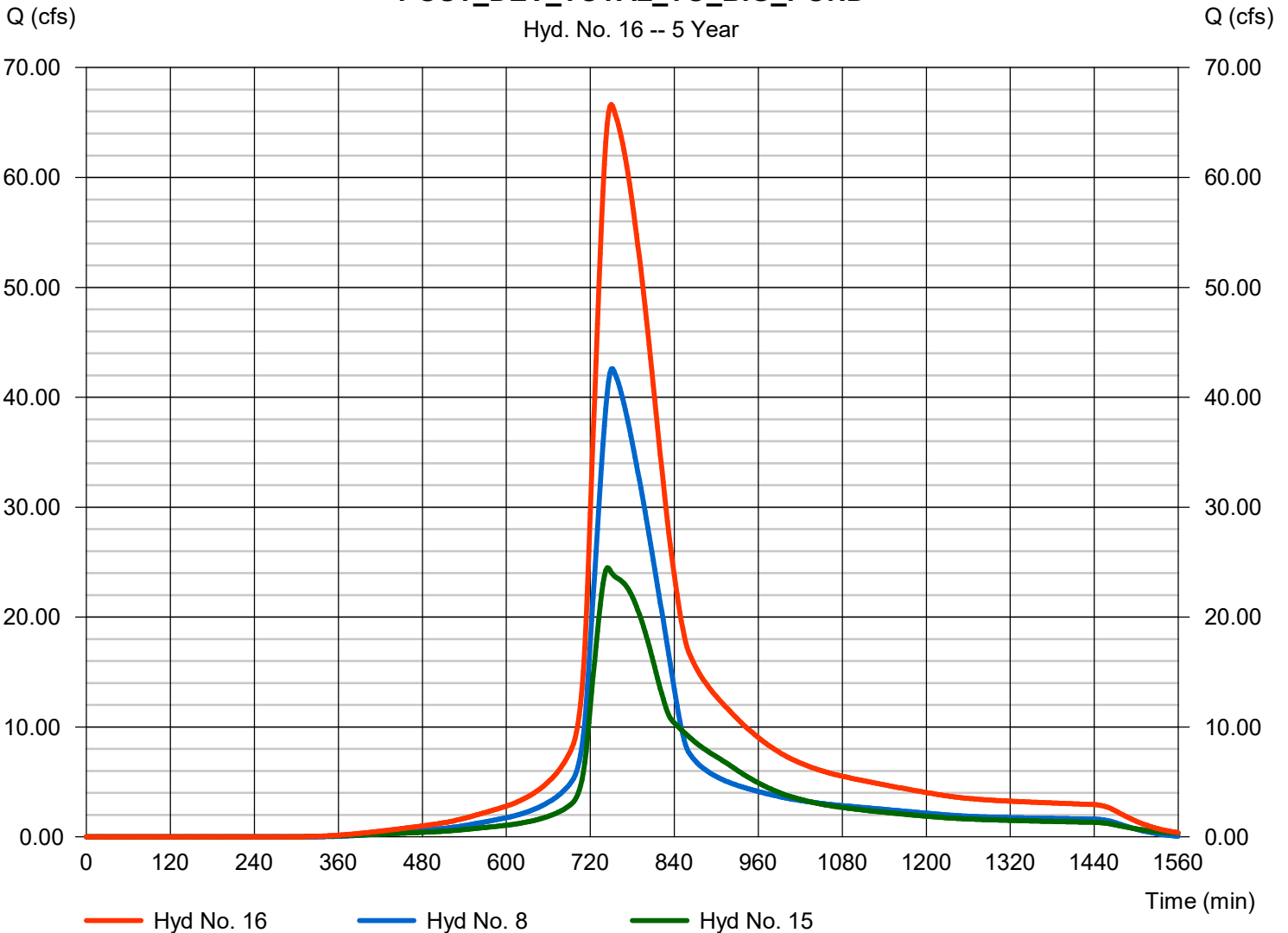
Legend: Hyd No. 16 — Hyd No. 8 — Hyd No. 15

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 17

POST_DEV_BIG_POND_ROUT

Hydrograph type	= Reservoir	Peak discharge	= 41.97 cfs
Storm frequency	= 5 yrs	Time to peak	= 808 min
Time interval	= 2 min	Hyd. volume	= 668,305 cuft
Inflow hyd. No.	= 16 - POST_DEV_TOTAL_TO_BIG_POND	Max. Elevation	= 76.35 ft
Reservoir name	= Big_Detention_Pond	Max. Storage	= 157,863 cuft

Storage Indication method used.
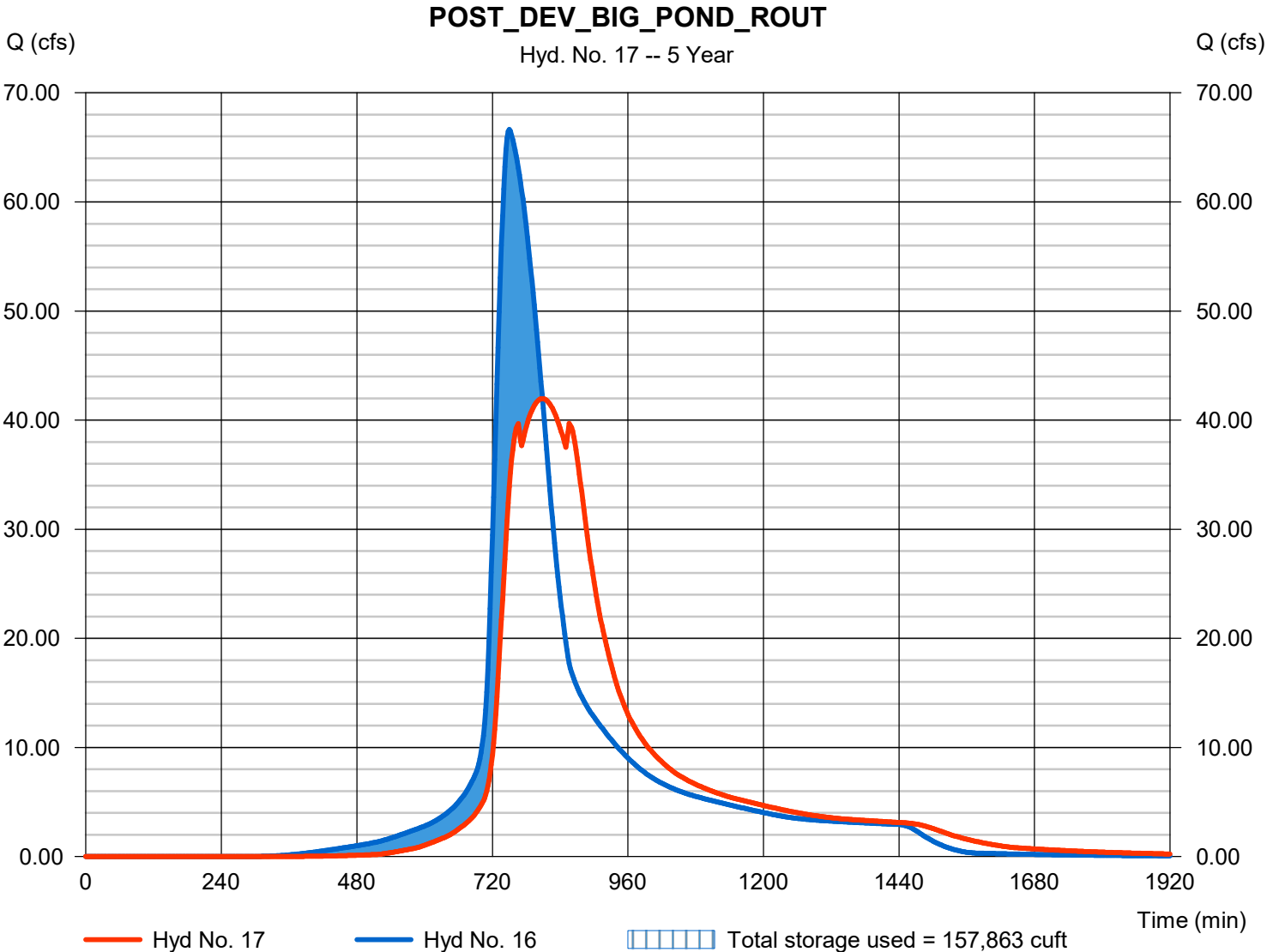
POST_DEV_BIG_POND_ROUT

Hyd. No. 17 -- 5 Year

Hyd No. 17   Hyd No. 16   Total storage used = 157,863 cuft

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 18

TOTAL_FLOW_AT_OUTFALL_DA_1

Hydrograph type	= Combine	Peak discharge	= 56.61 cfs
Storm frequency	= 5 yrs	Time to peak	= 812 min
Time interval	= 2 min	Hyd. volume	= 870,125 cuft
Inflow hyds.	= 10, 12, 17	Contrib. drain. area	= 15.940 ac

TOTAL_FLOW_AT_OUTFALL_DA_1

Hyd. No. 18 -- 5 Year

Hydrograph Summary Report

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	82.93	2	792	1,308,055	------	------	------	PRE DEVELOPED DRAINAGE ARE
2	SCS Runoff	8.386	2	770	101,492	------	------	------	PRE DEVELOPED DRAINAGE ARE
3	SCS Runoff	1.161	2	766	13,343	------	------	------	PRE DEVELOPED DRAINAGE ARE
4	SCS Runoff	4.154	2	772	51,752	------	------	------	POST DEVELOPED DRAINAGE AR
5	SCS Runoff	13.35	2	744	104,617	------	------	------	POST_DEV_DRAINAGE_AREA_1a
6	Reservoir	5.746	2	806	99,835	5	77.39	43,667	POST_DEV_DA_1a_ROUTED
7	SCS Runoff	2.964	2	754	27,407	------	------	------	POST_DEV_DRAINAGE_AREA_1b
8	SCS Runoff	49.38	2	750	439,265	------	------	------	POST DEVELOPED DRAINAGE AR
9	SCS Runoff	28.86	2	744	224,841	------	------	------	POST DEVELOPED DRAINAGE AR
10	SCS Runoff	17.42	2	812	238,712	------	------	------	POST_DEVELOPED_BYPASS_1
11	SCS Runoff	14.81	2	790	166,005	------	------	------	POST_DEVELOPED_BYPASS_2
12	Reservoir	0.000	2	n/a	0	11	70.63	166,005	Rear Area Routed
13	Combine	8.162	2	774	127,243	6, 7,	------	------	POST_DEV_1a_ROUTED+_1b
14	Reservoir	7.182	2	826	117,802	13	77.00	24,879	POST_DEVELOPED_POND_1B
15	Combine	28.55	2	748	337,643	9, 14	------	------	POST_DEV_TOTAL_TO_POND_1d
16	Combine	77.89	2	750	776,908	8, 15	------	------	POST_DEV_TOTAL_TO_BIG_POND
17	Reservoir	47.14	2	810	776,770	16	76.81	192,130	POST_DEV_BIG_POND_ROUT
18	Combine	64.55	2	812	1,015,481	10, 12, 17	------	------	TOTAL_FLOW_AT_OUTFALL_DA_1

BLUE_JAY_ROAD_05282024gpw.gpw	Return Period: 10 Year	Wednesday, 05 / 29 / 2024

Hydrograph Report

Hyd. No. 1

PRE DEVELOPED DRAINAGE AREA 1

Hydrograph type	= SCS Runoff	Peak discharge	= 82.93 cfs
Storm frequency	= 10 yrs	Time to peak	= 792 min
Time interval	= 2 min	Hyd. volume	= 1,308,055 cuft
Drainage area	= 73.850 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 127.80 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (66.130 x 84)] / 73.850

PRE DEVELOPED DRAINAGE AREA 1

Hyd. No. 1 -- 10 Year
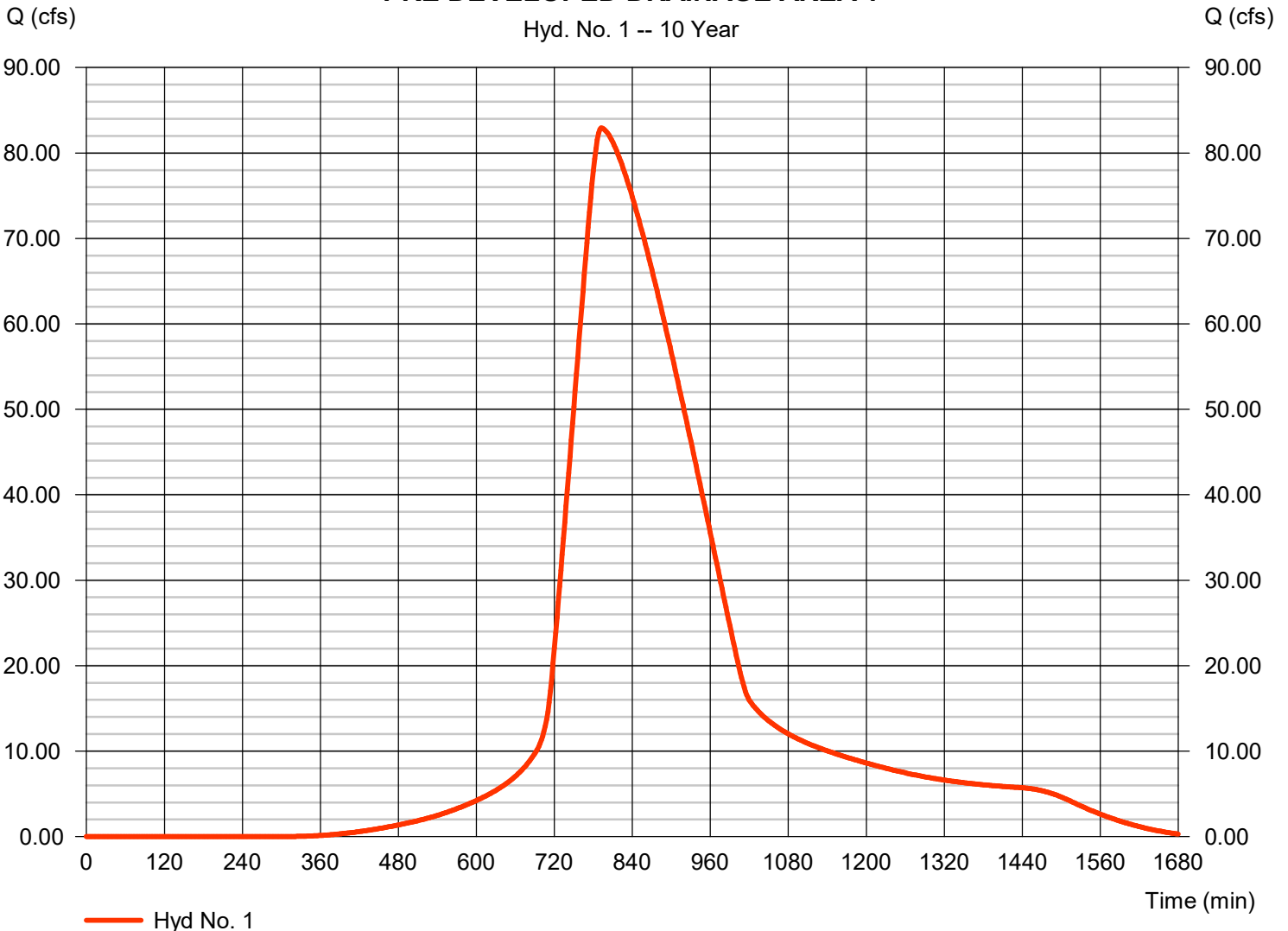
Hydrograph Report

Hyd. No. 2

PRE DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 8.386 cfs
Storm frequency	= 10 yrs	Time to peak	= 770 min
Time interval	= 2 min	Hyd. volume	= 101,492 cuft
Drainage area	= 5.730 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 88.70 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (5.480 x 83)] / 5.730

PRE DEVELOPED DRAINAGE AREA 2

Hyd. No. 2 -- 10 Year
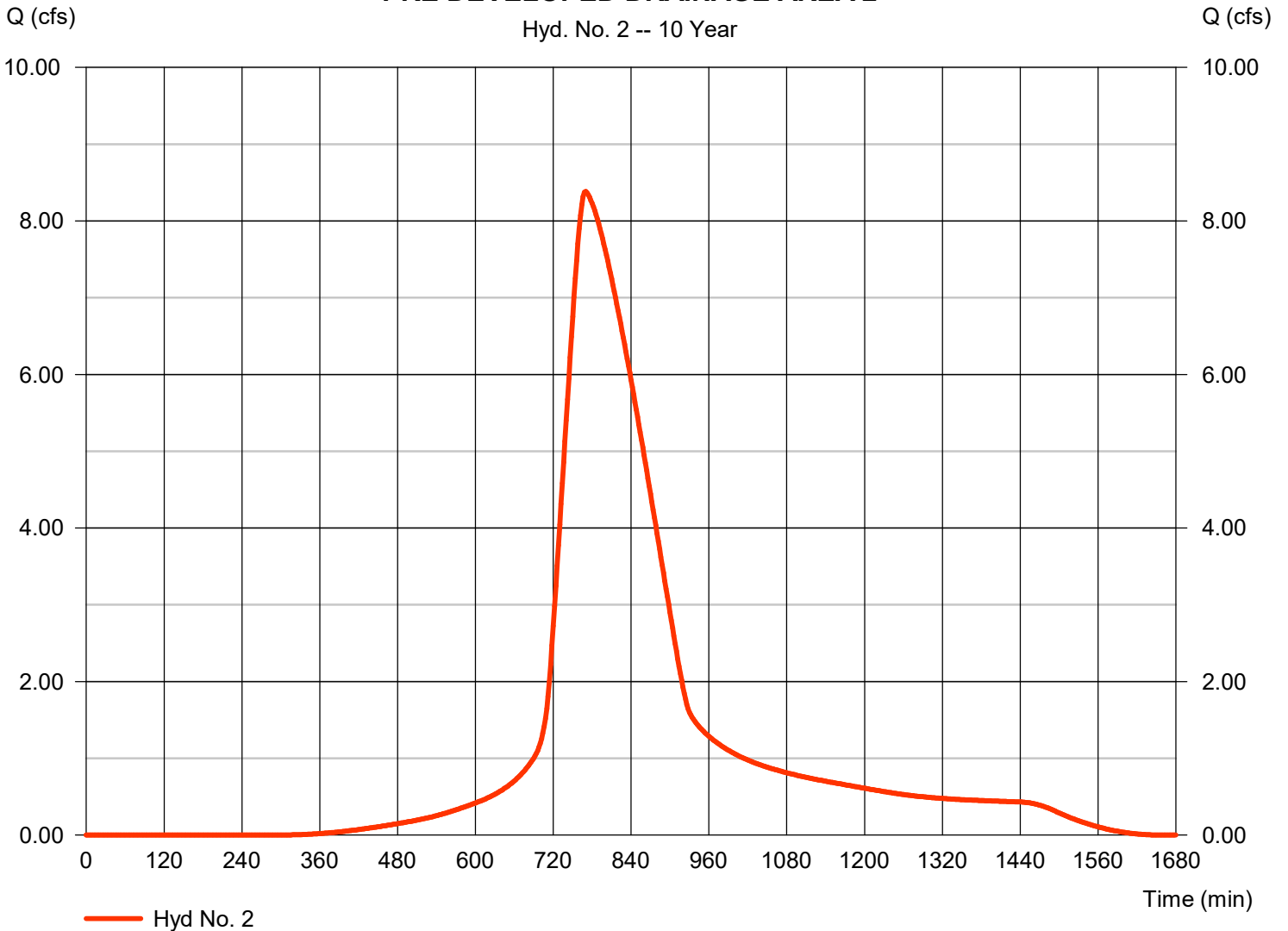
Hyd No. 2

Hydrograph Report

Hyd. No. 3

PRE DEVELOPED DRAINAGE AREA 3

Hydrograph type	= SCS Runoff	Peak discharge	= 1.161 cfs
Storm frequency	= 10 yrs	Time to peak	= 766 min
Time interval	= 2 min	Hyd. volume	= 13,343 cuft
Drainage area	= 0.690 ac	Curve number	= 88*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 81.80 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (0.440 x 83)] / 0.690

PRE DEVELOPED DRAINAGE AREA 3

Hyd. No. 3 -- 10 Year
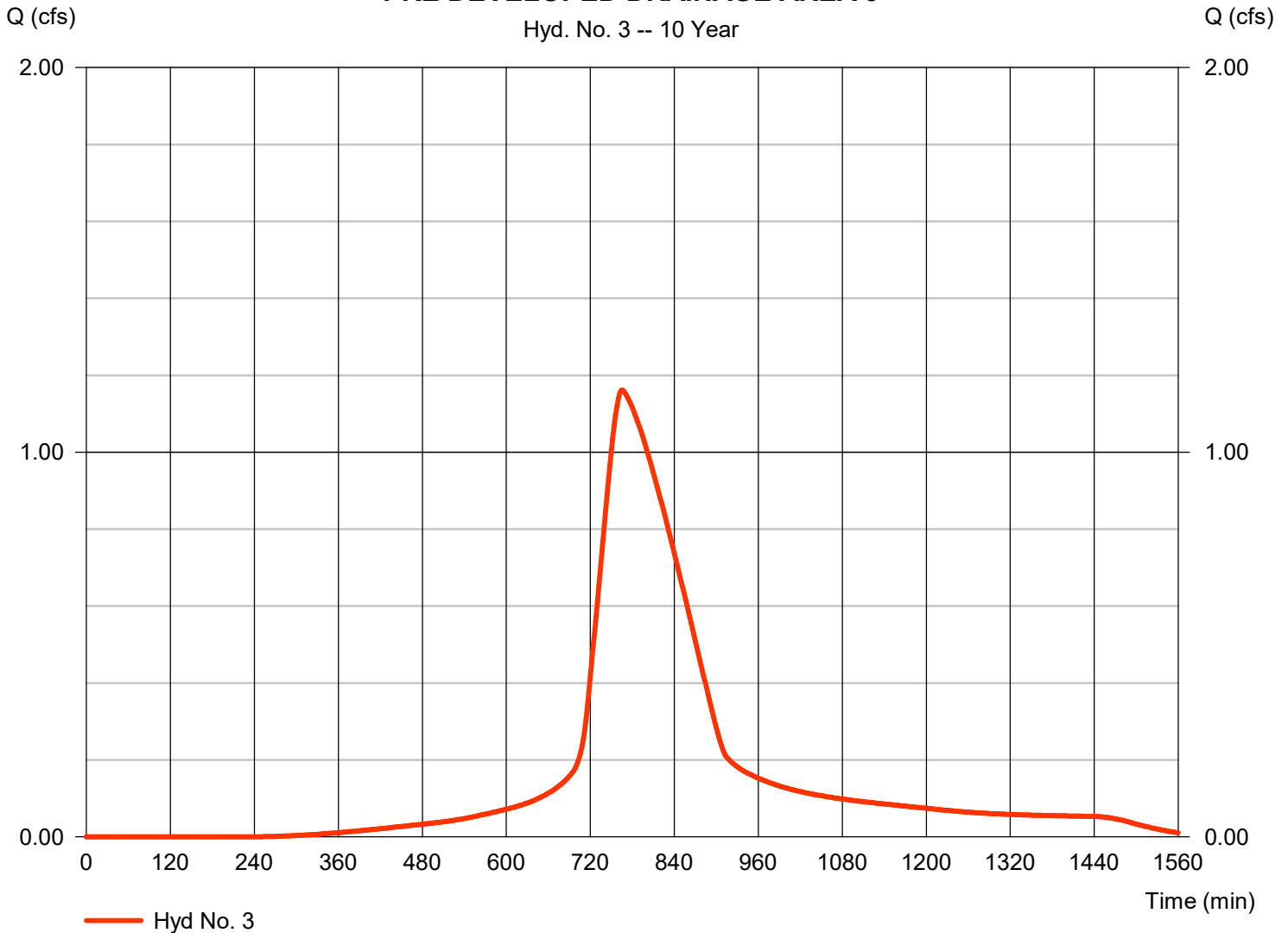
Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 4

POST DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 4.154 cfs
Storm frequency	= 10 yrs	Time to peak	= 772 min
Time interval	= 2 min	Hyd. volume	= 51,752 cuft
Drainage area	= 3.210 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 91.70 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (3.210 x 80)] / 3.210

POST DEVELOPED DRAINAGE AREA 2

Hyd. No. 4 -- 10 Year

Q (cfs)
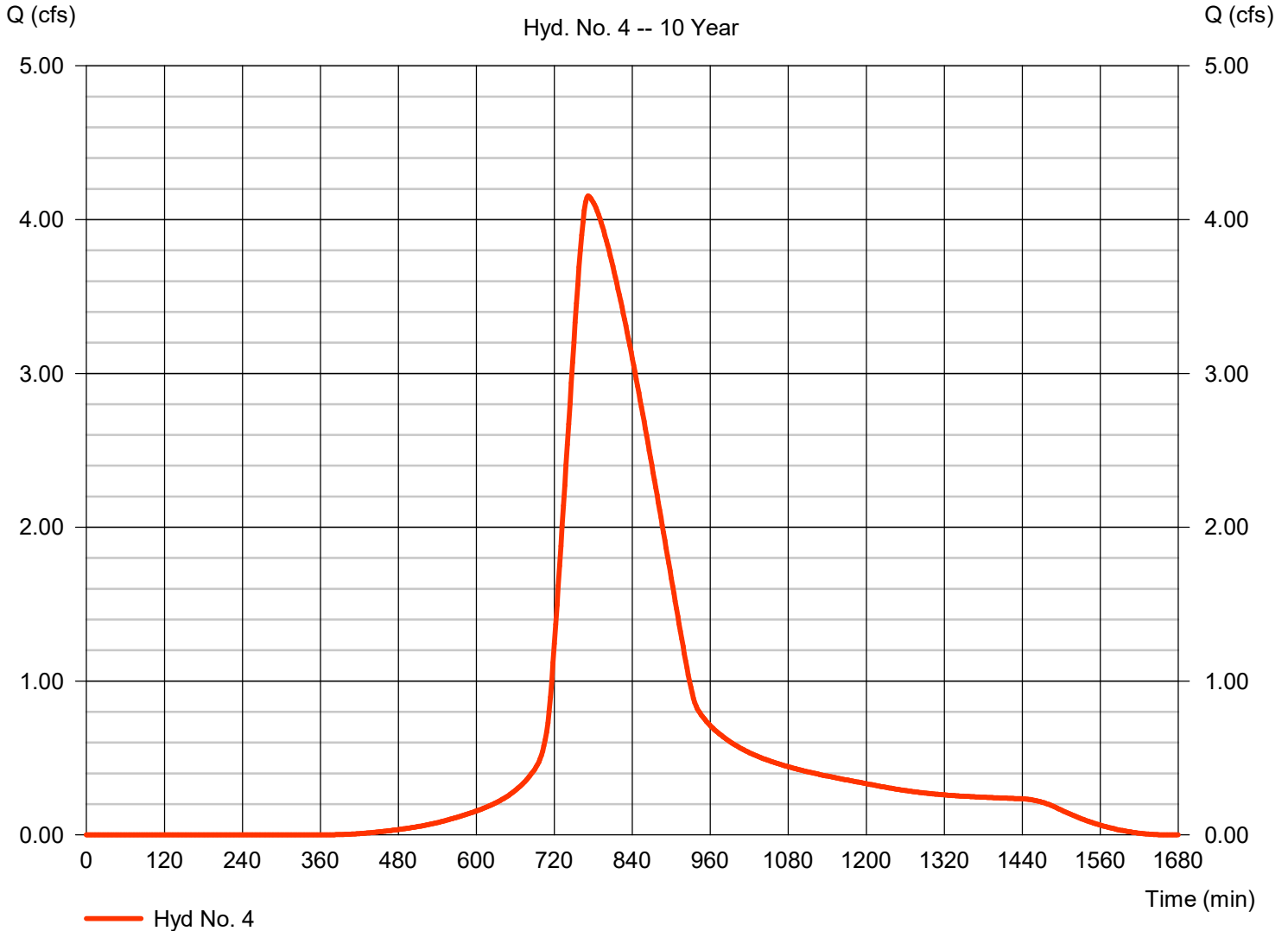
Hyd No. 4

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024

Hyd. No. 5

POST_DEV_DRAINAGE_AREA_1a

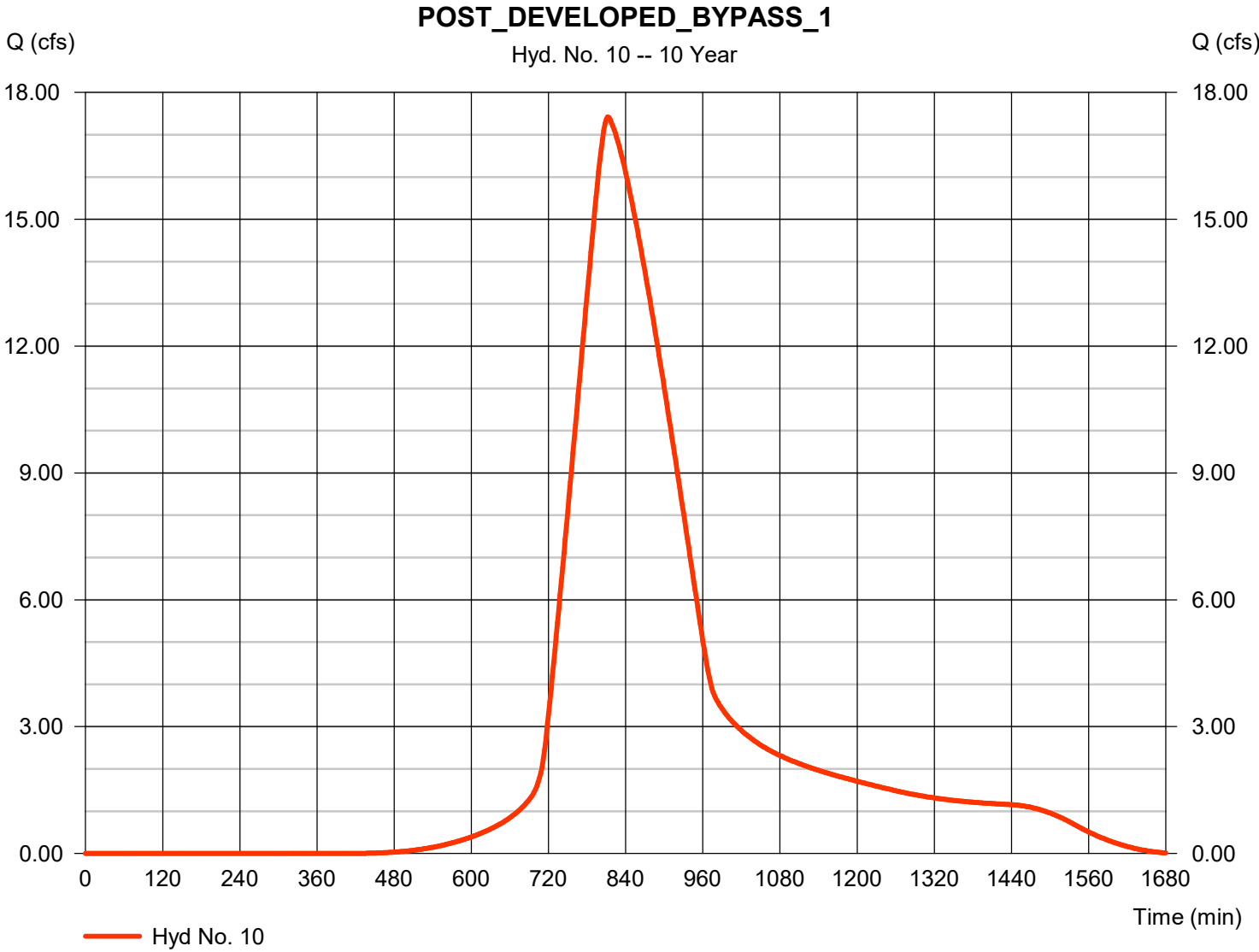|			
Hydrograph type	= SCS Runoff	Peak discharge	= 13.35 cfs
Storm frequency	= 10 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 104,617 cuft
Drainage area	= 5.410 ac	Curve number	= 88*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 48.90 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(2.490 x 98) + (2.920 x 80)] / 5.410

POST_DEV_DRAINAGE_AREA_1a
Hyd. No. 5 -- 10 Year
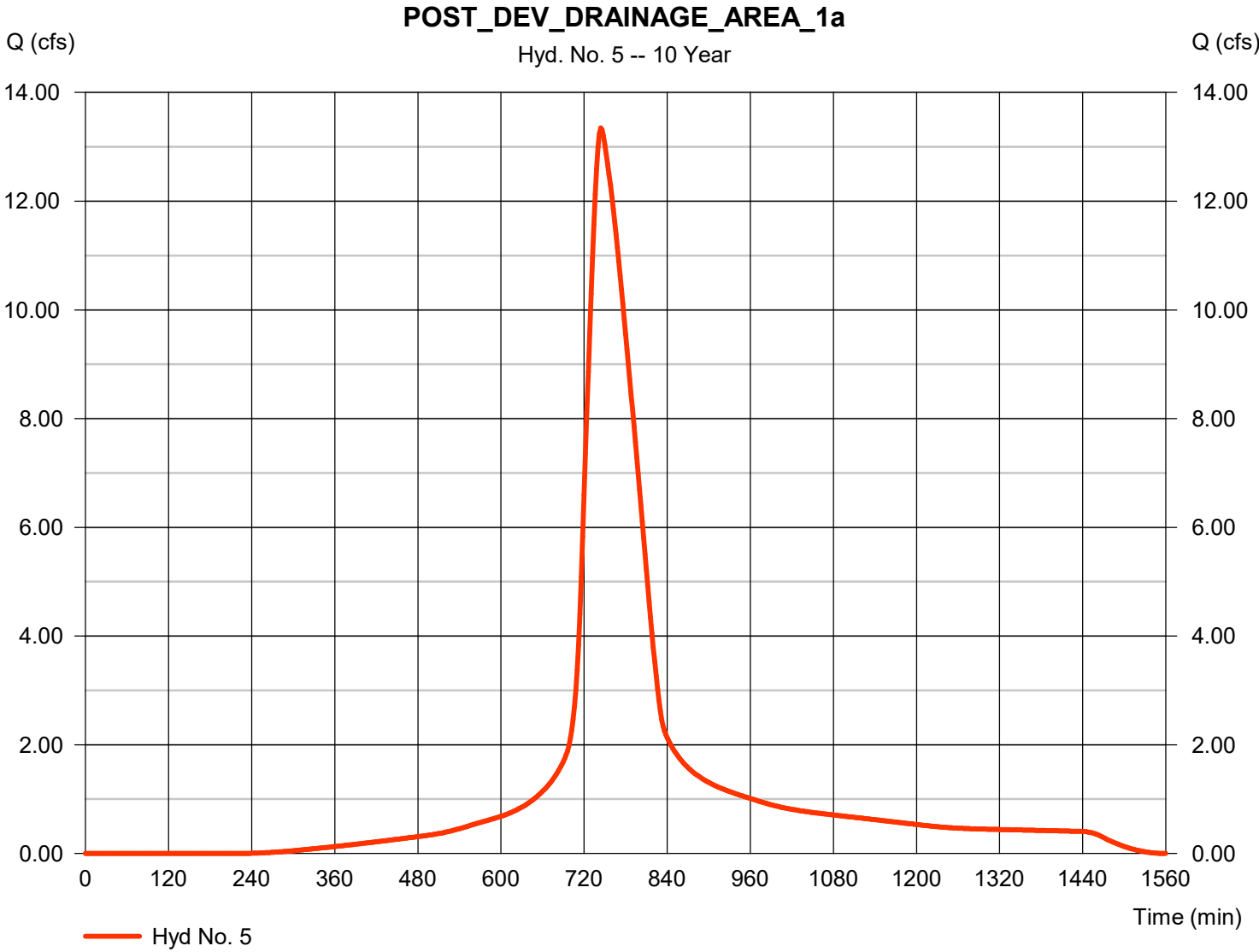
— Hyd No. 5

Hydrograph Report

Hyd. No. 6

POST_DEV_DA_1a_ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 5.746 cfs
Storm frequency	= 10 yrs	Time to peak	= 806 min
Time interval	= 2 min	Hyd. volume	= 99,835 cuft
Inflow hyd. No.	= 5 - POST_DEV_DRAINAGE_AREA_1a	Max. Elevation	= 77.39 ft
Reservoir name	= DETENTION AREA 1a	Max. Storage	= 43,667 cuft

Storage Indication method used.
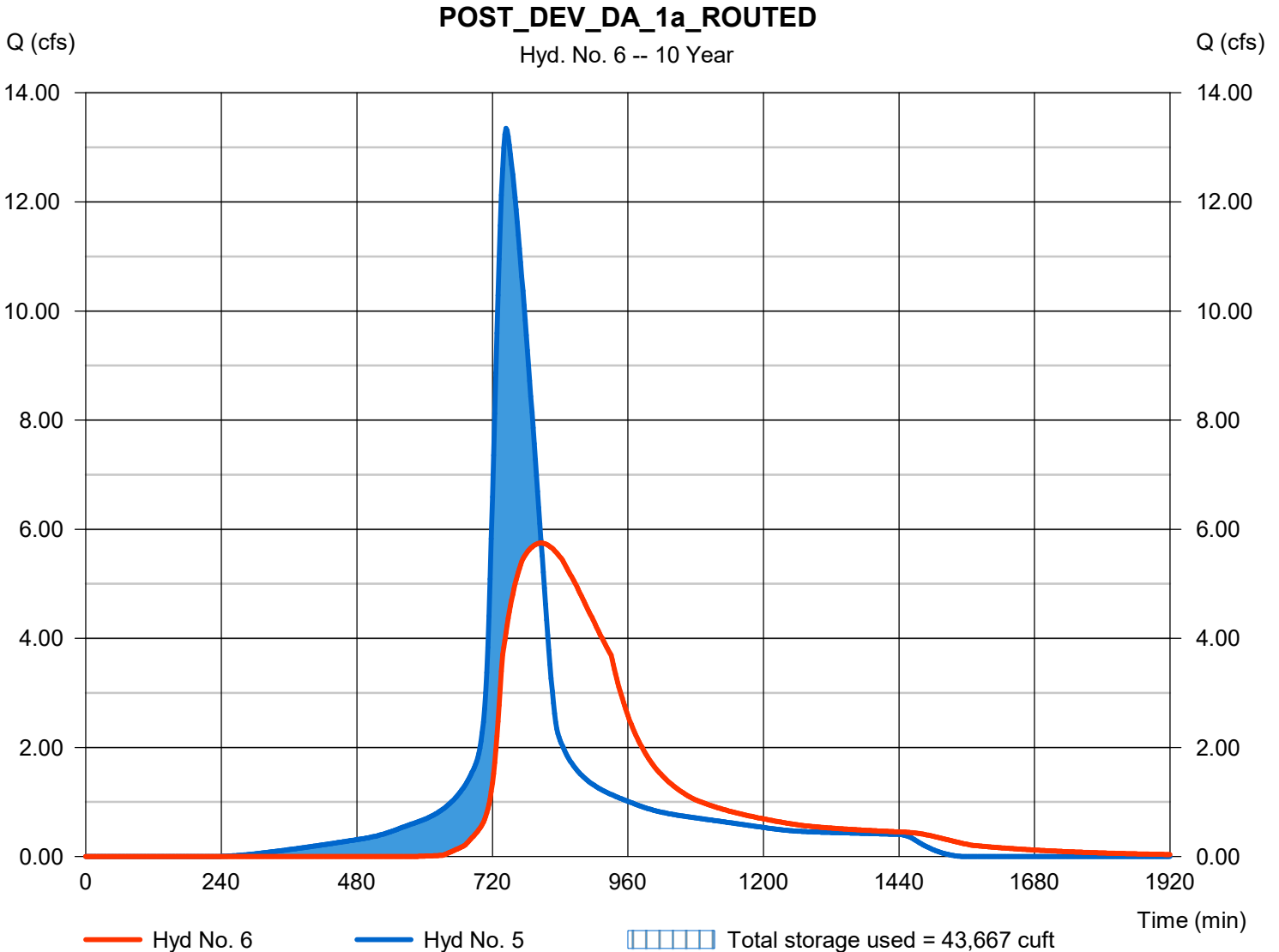
POST_DEV_DA_1a_ROUTED

Hyd. No. 6 -- 10 Year

Hyd No. 6   Hyd No. 5   Total storage used = 43,667 cuft

Hydrograph Report

Hyd. No. 7

POST_DEV_DRAINAGE_AREA_1b

Hydrograph type	= SCS Runoff	Peak discharge	= 2.964 cfs
Storm frequency	= 10 yrs	Time to peak	= 754 min
Time interval	= 2 min	Hyd. volume	= 27,407 cuft
Drainage area	= 1.700 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 61.80 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (1.700 x 80)] / 1.700

POST_DEV_DRAINAGE_AREA_1b

Hyd. No. 7 -- 10 Year
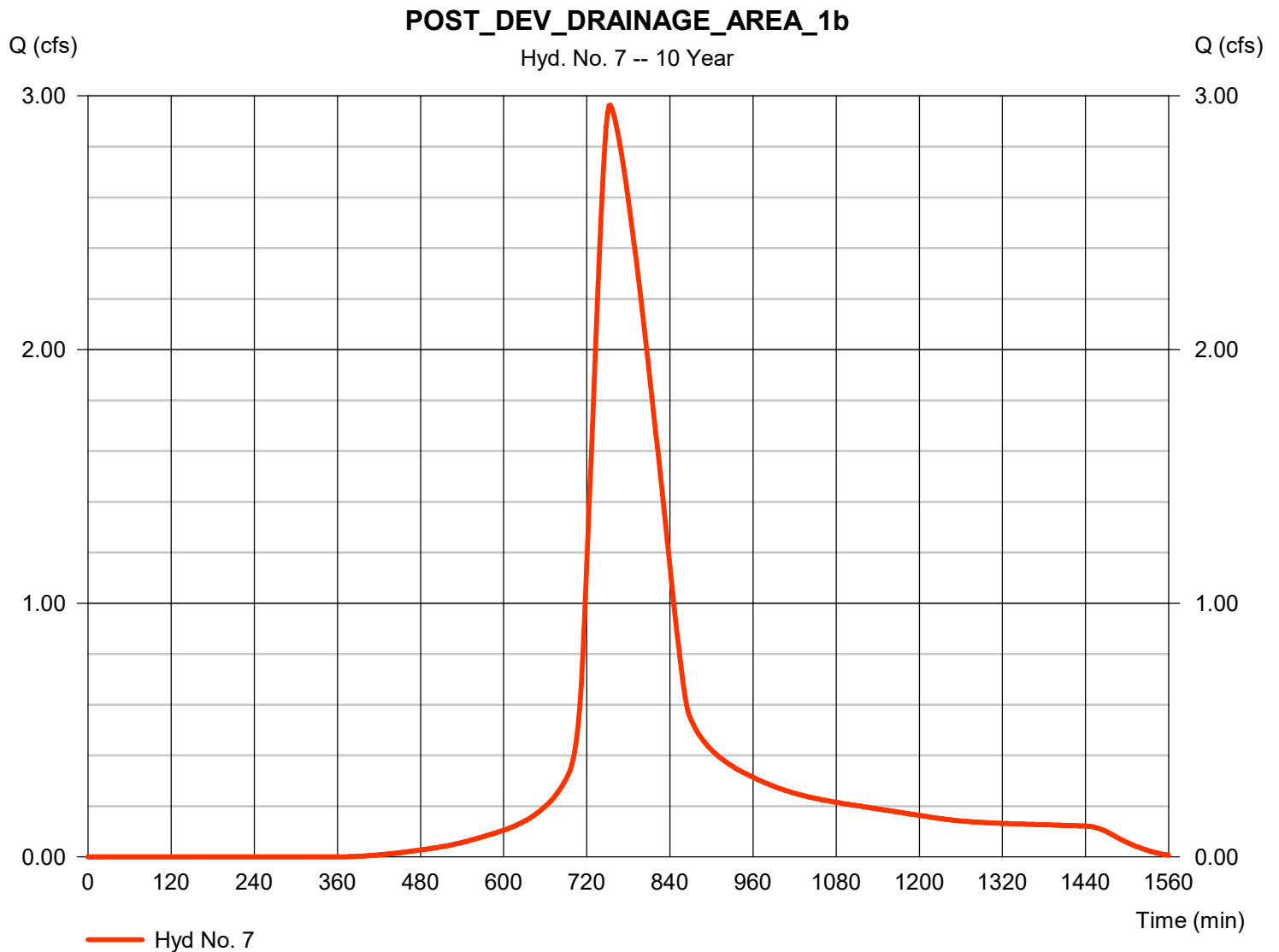
— Hyd No. 7

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 8

POST DEVELOPED DRAINAGE AREA 1c

Hydrograph type	= SCS Runoff	Peak discharge	= 49.38 cfs
Storm frequency	= 10 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 439,265 cuft
Drainage area	= 24.800 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 58.40 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(7.730 x 98) + (7.770 x 80) + (9.300 x 77)] / 24.800

POST DEVELOPED DRAINAGE AREA 1c

Hyd. No. 8 -- 10 Year

Q (cfs)

Time (min)
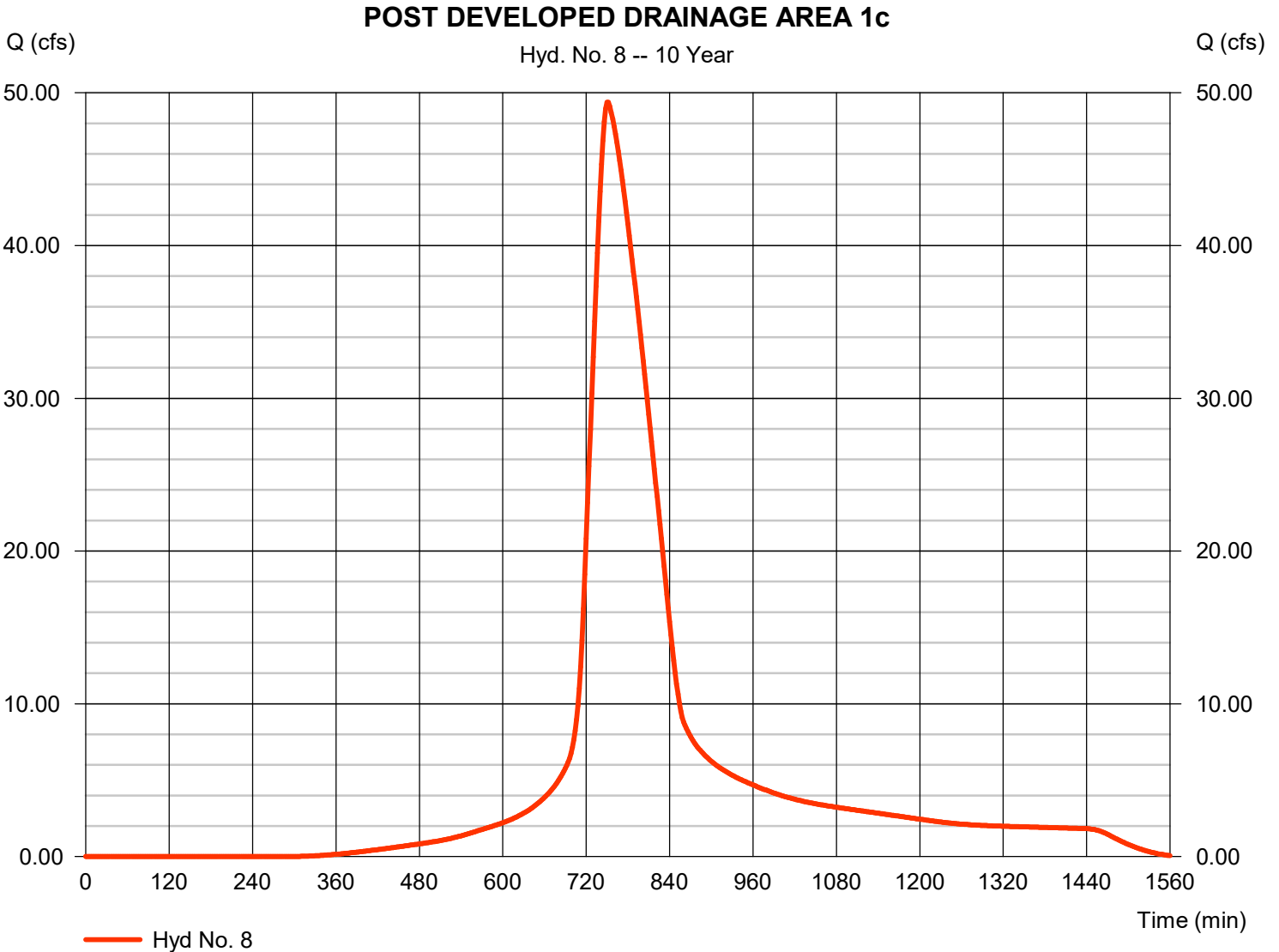
— Hyd No. 8

Hydrograph Report

Hyd. No. 9

POST DEVELOPED DRAINAGE AREA 1d

Hydrograph type	= SCS Runoff	Peak discharge	= 28.86 cfs
Storm frequency	= 10 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 224,841 cuft
Drainage area	= 12.140 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 50.20 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(3.780 x 98) + (8.360 x 80)] / 12.140

POST DEVELOPED DRAINAGE AREA 1d

Hyd. No. 9 -- 10 Year
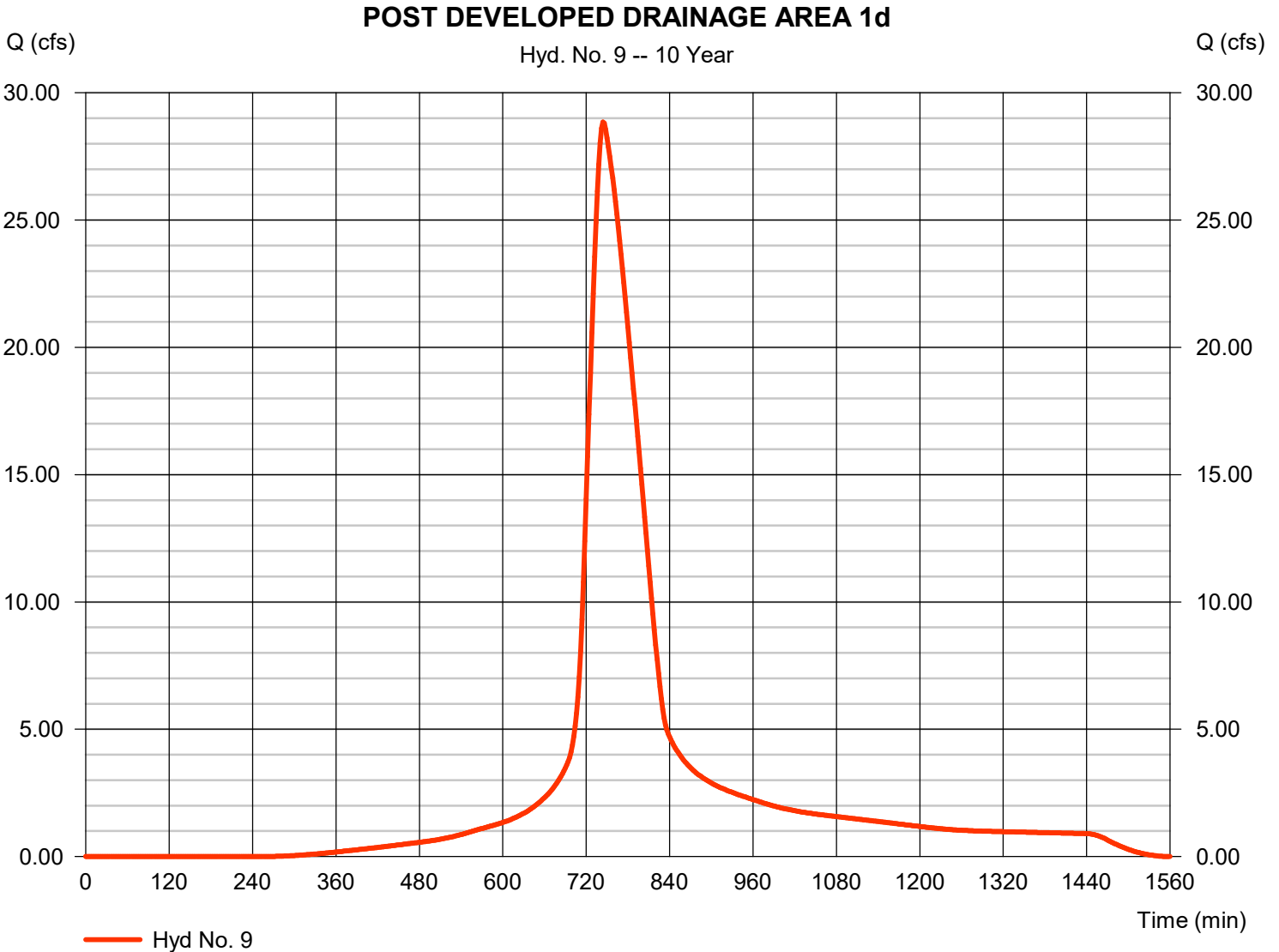
Hydrograph Report

Hyd. No. 10

POST_DEVELOPED_BYPASS_1

Hydrograph type	= SCS Runoff		Peak discharge	= 17.42 cfs
Storm frequency	= 10 yrs		Time to peak	= 812 min
Time interval	= 2 min		Hyd. volume	= 238,712 cuft
Drainage area	= 15.940 ac		Curve number	= 77
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 164.70 min
Total precip.	= 6.72 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 484

POST_DEVELOPED_BYPASS_1

Hyd. No. 10 -- 10 Year

Hyd No. 10

Hydrograph Report

Hyd. No. 11

POST_DEVELOPED_BYPASS_2

Hydrograph type	= SCS Runoff	Peak discharge	= 14.81 cfs
Storm frequency	= 10 yrs	Time to peak	= 790 min
Time interval	= 2 min	Hyd. volume	= 166,005 cuft
Drainage area	= 11.150 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 127.20 min
Total precip.	= 6.72 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

POST_DEVELOPED_BYPASS_2

Hyd. No. 11 -- 10 Year
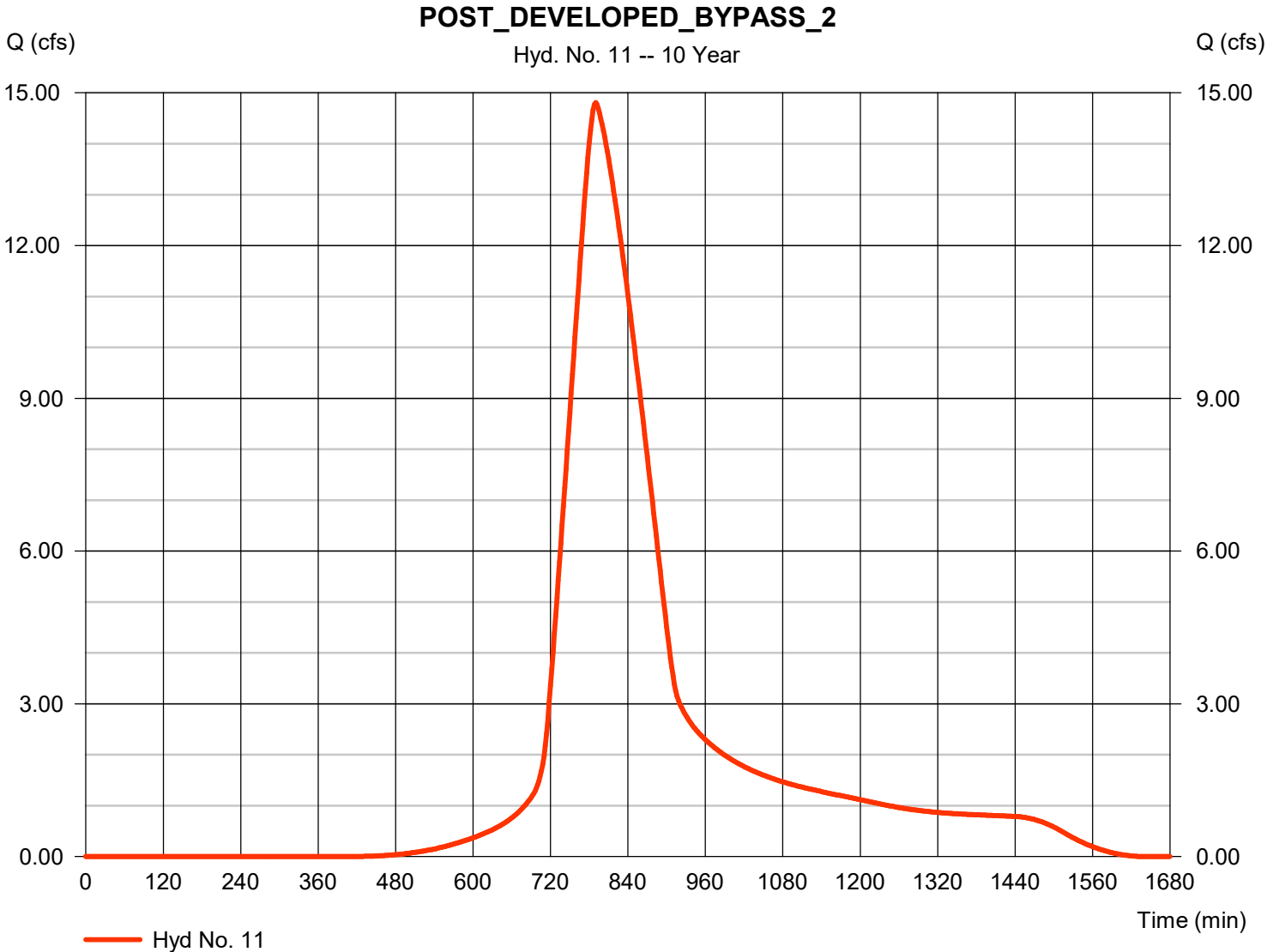
— Hyd No. 11

Hydrograph Report

Hyd. No. 12

Rear Area Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - POST_DEVELOPED_BYPASSE2	Max. Elevation	= 70.63 ft
Reservoir name	= Rear Detention Pond	Max. Storage	= 166,005 cuft

Storage Indication method used.
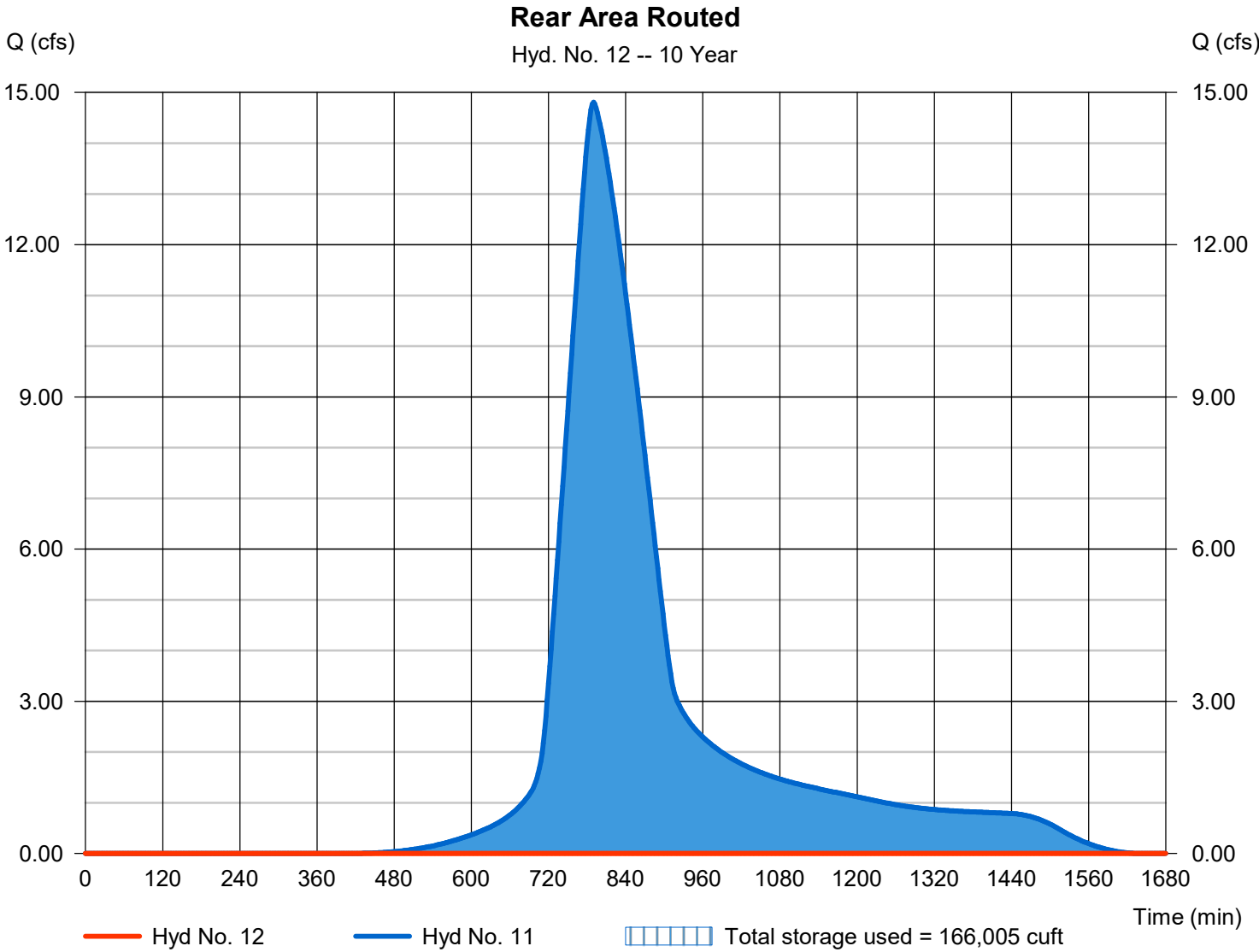
Rear Area Routed

Hyd. No. 12 -- 10 Year

Legend: Hyd No. 12 — Hyd No. 11 — Total storage used = 166,005 cuft

Hydrograph Report

Hyd. No. 13

POST_DEV_1a_ROUTED+_1b

Hydrograph type	= Combine	Peak discharge	= 8.162 cfs
Storm frequency	= 10 yrs	Time to peak	= 774 min
Time interval	= 2 min	Hyd. volume	= 127,243 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.700 ac
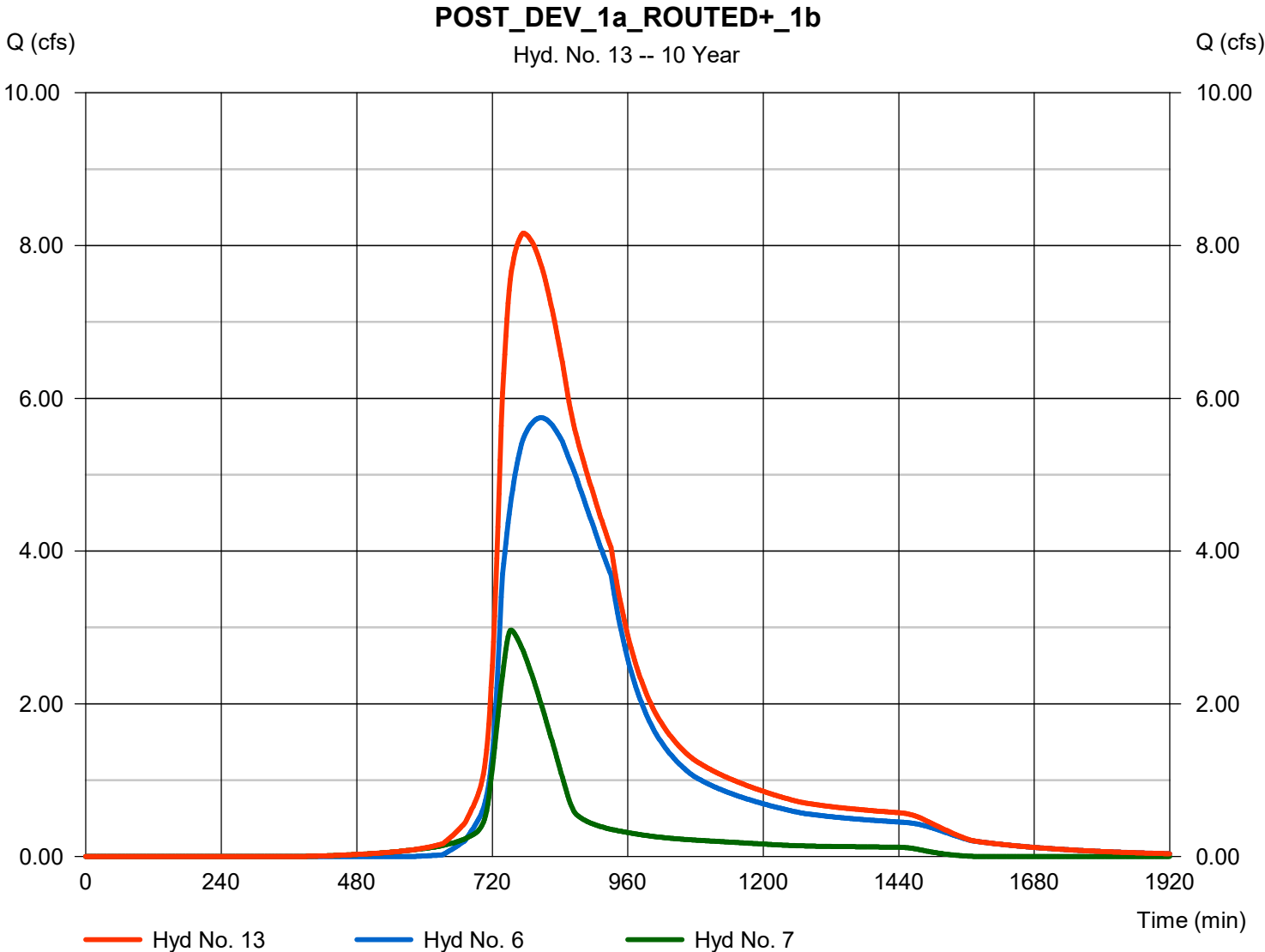
POST_DEV_1a_ROUTED+_1b

Hyd. No. 13 -- 10 Year

Hyd No. 13   Hyd No. 6   Hyd No. 7

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 14

POST_DEVELOPED_POND_1B

Hydrograph type	= Reservoir	Peak discharge	= 7.182 cfs
Storm frequency	= 10 yrs	Time to peak	= 826 min
Time interval	= 2 min	Hyd. volume	= 117,802 cuft
Inflow hyd. No.	= 13 - POST_DEV_1a_ROUTED_1b	Max. Elevation	= 77.00 ft
Reservoir name	= DETENTION AREA 1b	Max. Storage	= 24,879 cuft

Storage Indication method used.
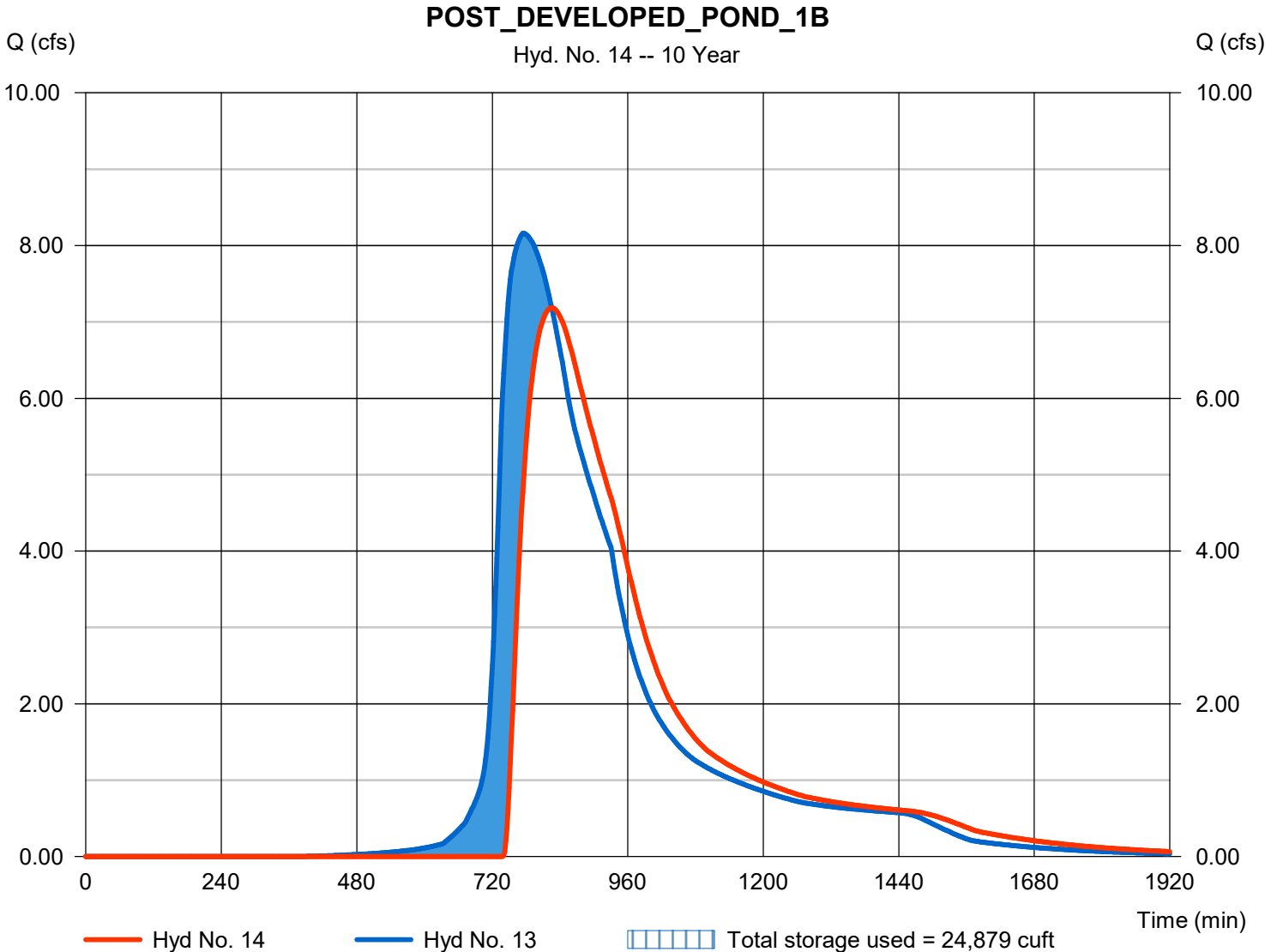
POST_DEVELOPED_POND_1B

Hyd. No. 14 -- 10 Year

Hyd No. 14   Hyd No. 13   Total storage used = 24,879 cuft

Hydrograph Report

Hyd. No. 15

POST_DEV_TOTAL_TO_POND_1d

Hydrograph type	= Combine		Peak discharge	= 28.55 cfs
Storm frequency	= 10 yrs		Time to peak	= 748 min
Time interval	= 2 min		Hyd. volume	= 337,643 cuft
Inflow hyds.	= 9, 14		Contrib. drain. area	= 12.140 ac
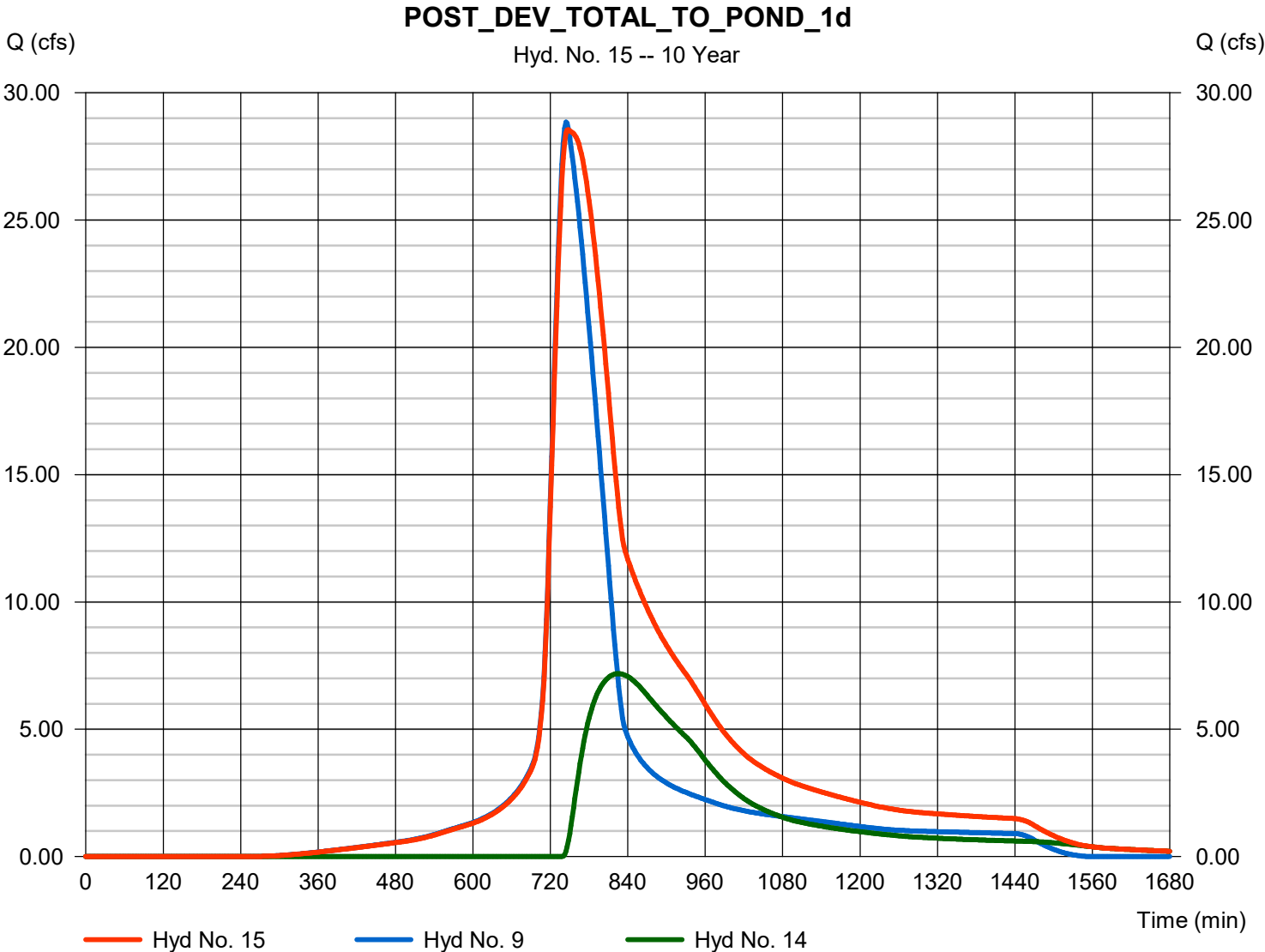
POST_DEV_TOTAL_TO_POND_1d

Hyd. No. 15 -- 10 Year

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 16

POST_DEV_TOTAL_TO_BIG_POND

Hydrograph type	= Combine		Peak discharge	= 77.89 cfs
Storm frequency	= 10 yrs		Time to peak	= 750 min
Time interval	= 2 min		Hyd. volume	= 776,908 cuft
Inflow hyds.	= 8, 15		Contrib. drain. area	= 24.800 ac

POST_DEV_TOTAL_TO_BIG_POND

Hyd. No. 16 -- 10 Year
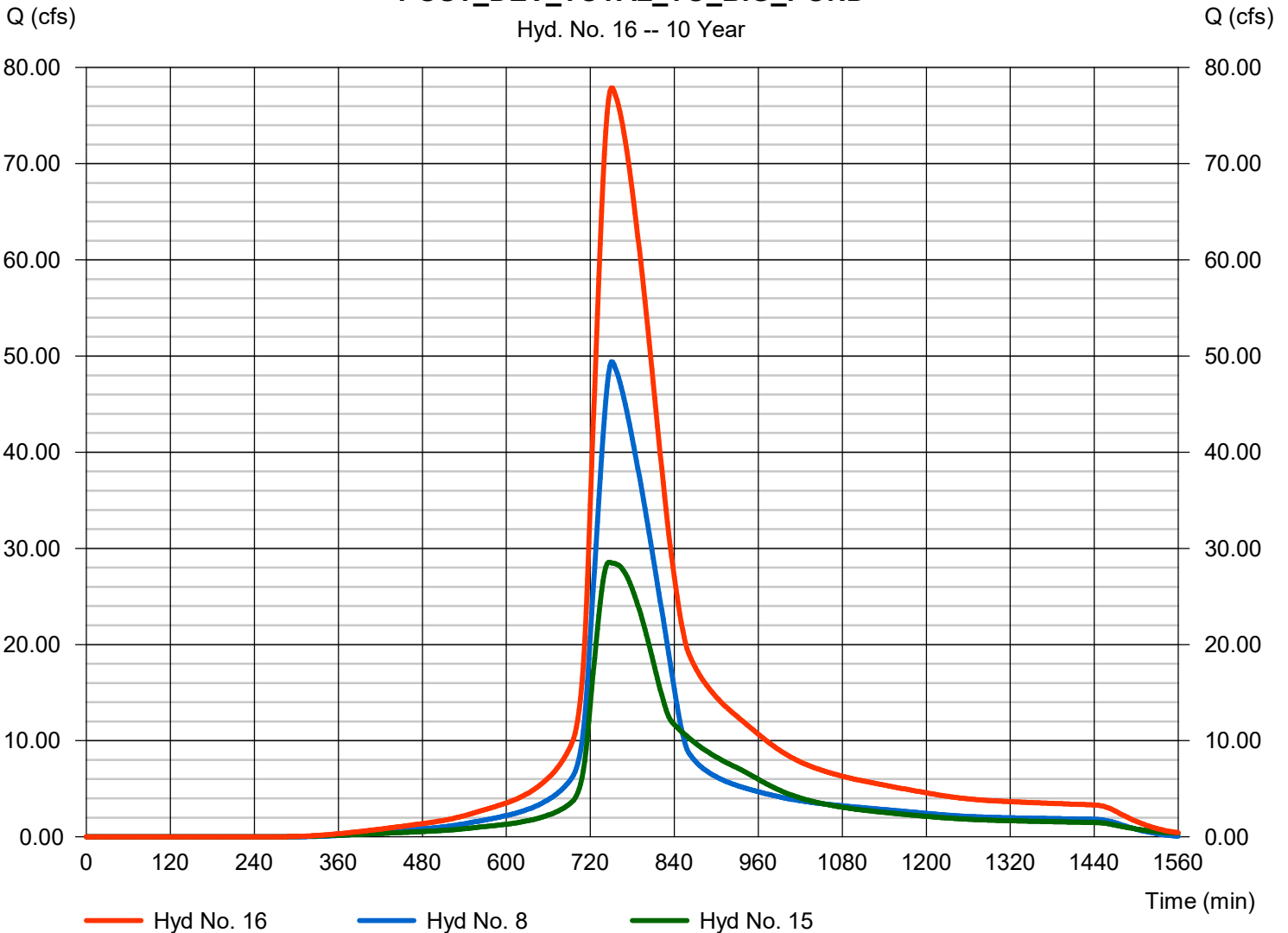
Legend: Hyd No. 16, Hyd No. 8, Hyd No. 15

Hydrograph Report

Hyd. No. 17

POST_DEV_BIG_POND_ROUT

Hydrograph type	= Reservoir	Peak discharge	= 47.14 cfs
Storm frequency	= 10 yrs	Time to peak	= 810 min
Time interval	= 2 min	Hyd. volume	= 776,770 cuft
Inflow hyd. No.	= 16 - POST_DEV_TOTAL_TO_BIG_POND	Max. Elevation	= 76.81 ft
Reservoir name	= Big_Detention_Pond	Max. Storage	= 192,130 cuft

Storage Indication method used.
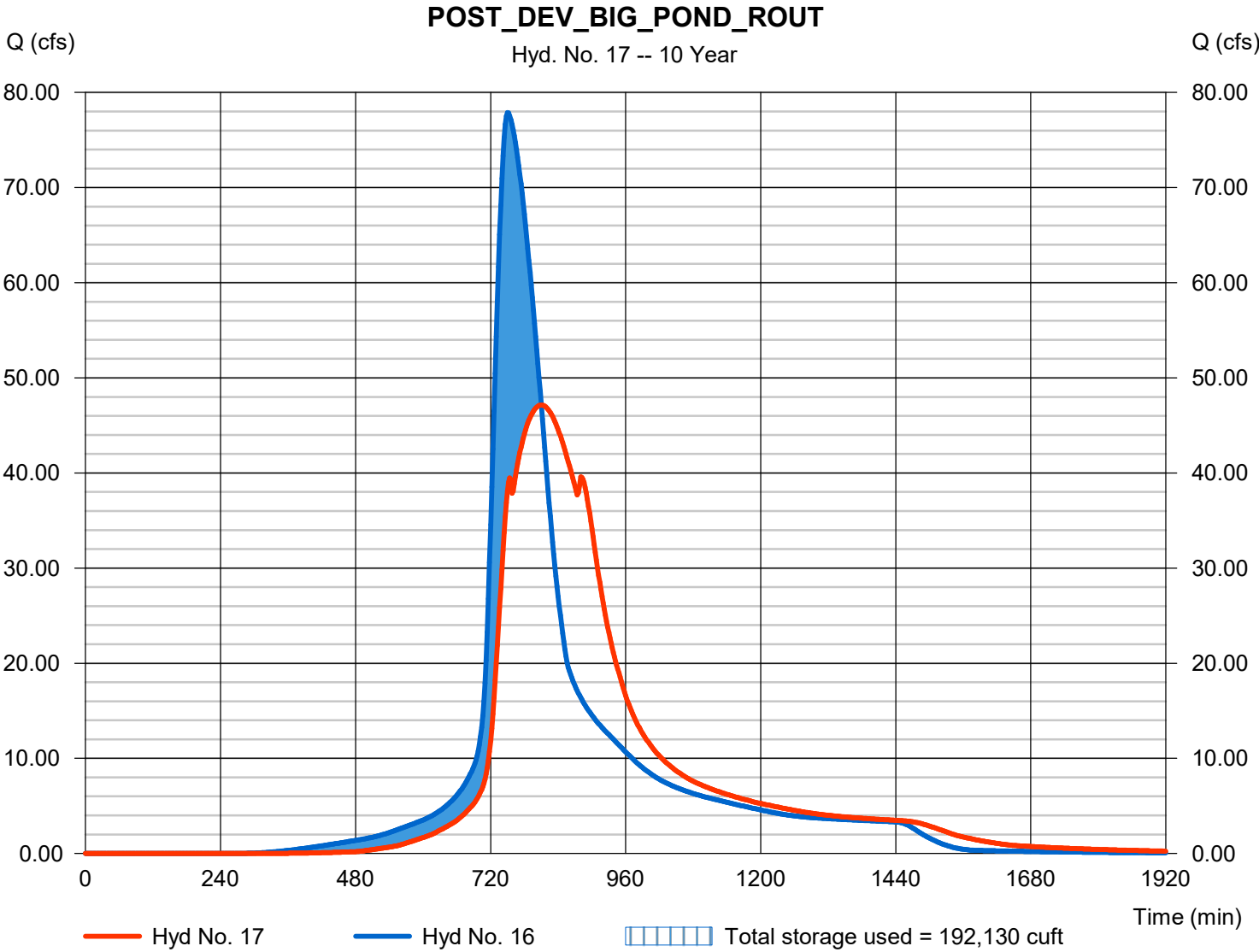
POST_DEV_BIG_POND_ROUT

Hyd. No. 17 -- 10 Year

Hyd No. 17   Hyd No. 16   Total storage used = 192,130 cuft

Hydrograph Report

Hyd. No. 18

TOTAL_FLOW_AT_OUTFALL_DA_1

Hydrograph type	= Combine		Peak discharge	= 64.55 cfs
Storm frequency	= 10 yrs		Time to peak	= 812 min
Time interval	= 2 min		Hyd. volume	= 1,015,481 cuft
Inflow hyds.	= 10, 12, 17		Contrib. drain. area	= 15.940 ac

TOTAL_FLOW_AT_OUTFALL_DA_1

Hyd. No. 18 -- 10 Year

Legend: Hyd No. 18 — Hyd No. 10 — Hyd No. 12 — Hyd No. 17

Hydrograph Summary Report

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	102.32	2	792	1,615,071	------	------	------	PRE DEVELOPED DRAINAGE ARE
2	SCS Runoff	10.33	2	770	125,313	------	------	------	PRE DEVELOPED DRAINAGE ARE
3	SCS Runoff	1.409	2	766	16,272	------	------	------	PRE DEVELOPED DRAINAGE ARE
4	SCS Runoff	5.203	2	772	64,738	------	------	------	POST DEVELOPED DRAINAGE AR
5	SCS Runoff	16.17	2	744	127,584	------	------	------	POST_DEV_DRAINAGE_AREA_1a
6	Reservoir	6.340	2	810	122,800	5	77.59	54,723	POST_DEV_DA_1a_ROUTED
7	SCS Runoff	3.707	2	754	34,285	------	------	------	POST_DEV_DRAINAGE_AREA_1b
8	SCS Runoff	60.76	2	750	542,365	------	------	------	POST DEVELOPED DRAINAGE AR
9	SCS Runoff	35.21	2	744	275,881	------	------	------	POST DEVELOPED DRAINAGE AR
10	SCS Runoff	22.08	2	812	301,710	------	------	------	POST_DEVELOPED_BYPASS_1
11	SCS Runoff	18.74	2	790	209,816	------	------	------	POST_DEVELOPED_BYPASS_2
12	Reservoir	0.000	2	n/a	0	11	70.80	209,816	Rear Area Routed
13	Combine	9.288	2	766	157,084	6, 7,	------	------	POST_DEV_1a_ROUTED+_1b
14	Reservoir	8.053	2	826	147,643	13	77.13	27,369	POST_DEVELOPED_POND_1B
15	Combine	36.78	2	748	417,389	9, 14	------	------	POST_DEV_TOTAL_TO_POND_1d
16	Combine	97.53	2	750	959,754	8, 15	------	------	POST_DEV_TOTAL_TO_BIG_POND
17	Reservoir	70.77	2	794	959,615	16	77.28	227,148	POST_DEV_BIG_POND_ROUT
18	Combine	90.82	2	796	1,261,325	10, 12, 17	------	------	TOTAL_FLOW_AT_OUTFALL_DA_1

BLUE_JAY_ROAD_05282024gpw.gpw	Return Period: 25 Year	Wednesday, 05 / 29 / 2024

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024

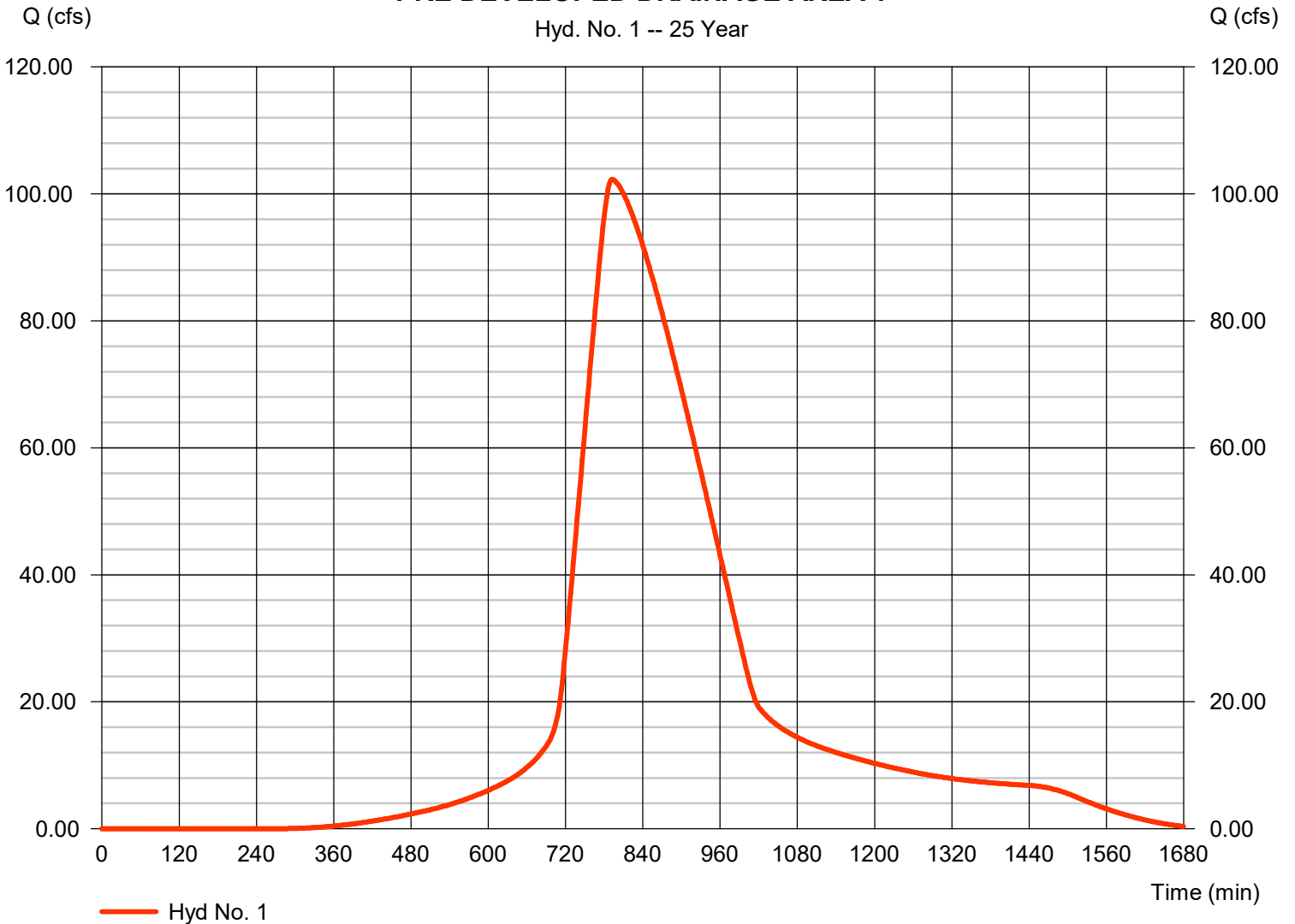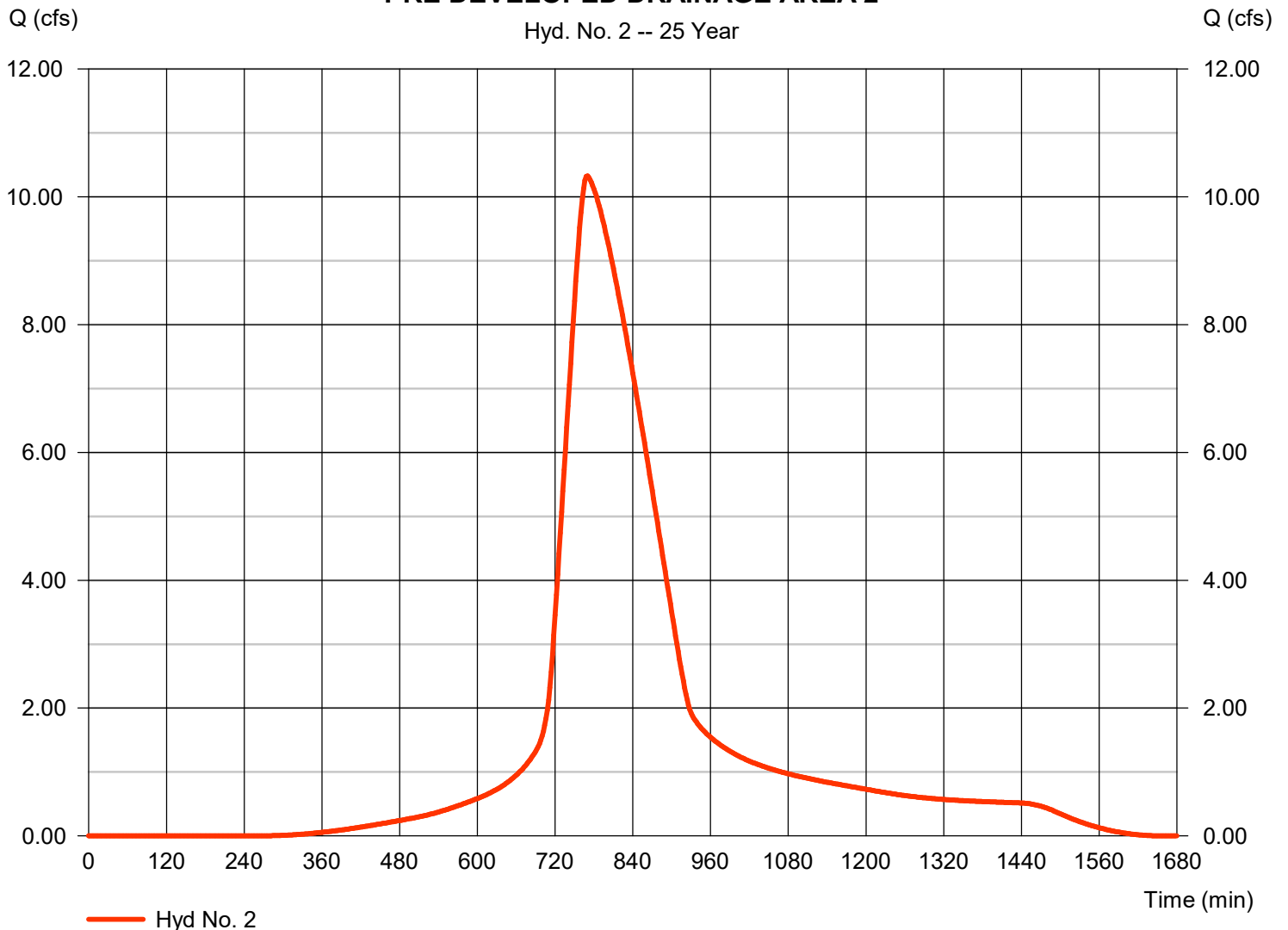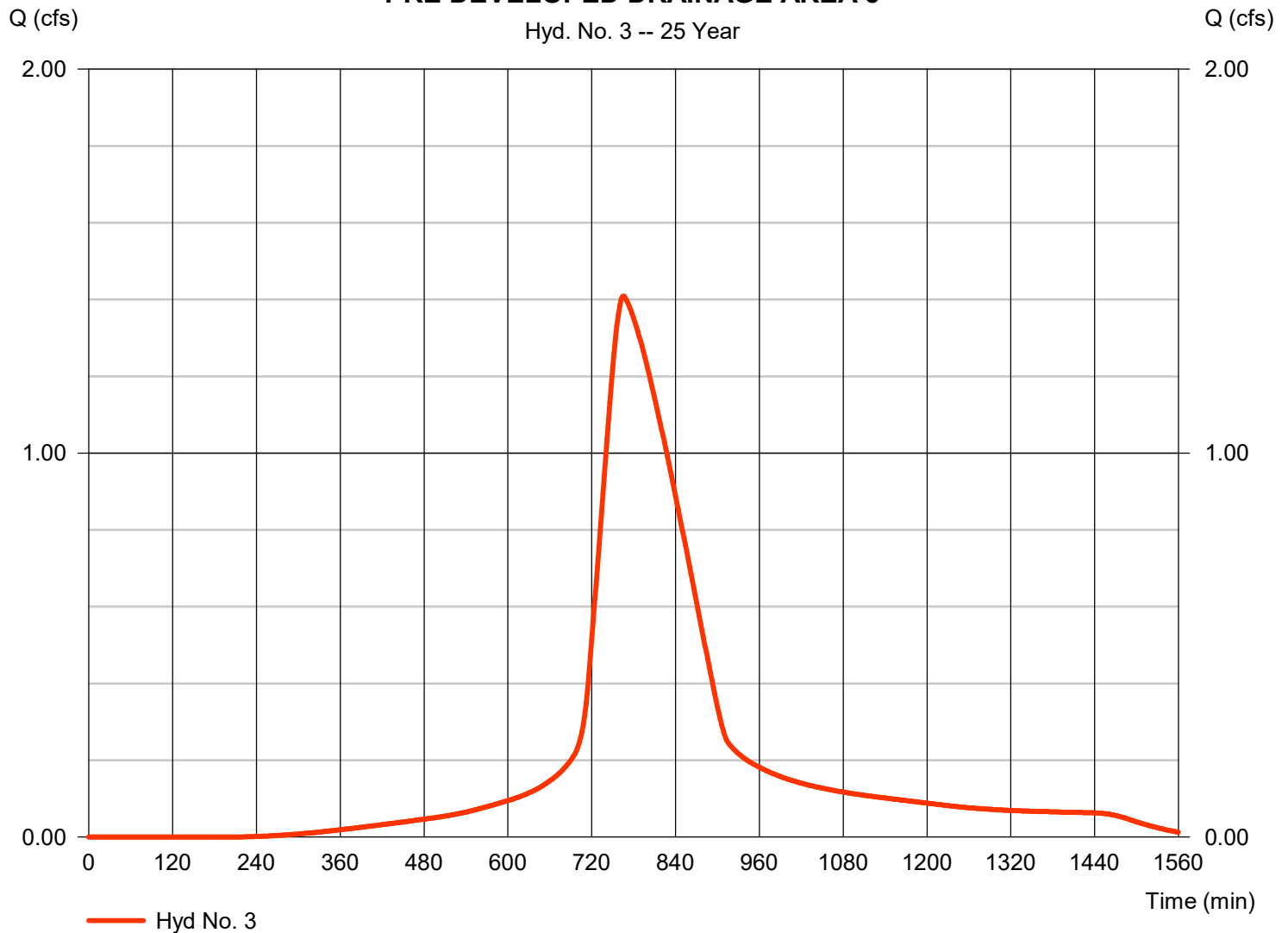## Hyd. No. 1

PRE DEVELOPED DRAINAGE AREA 1

Hydrograph type	= SCS Runoff	Peak discharge	= 102.32 cfs
Storm frequency	= 25 yrs	Time to peak	= 792 min
Time interval	= 2 min	Hyd. volume	= 1,615,071 cuft
Drainage area	= 73.850 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 127.80 min
Total precip.	= 7.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (66.130 x 84)] / 73.850

PRE DEVELOPED DRAINAGE AREA 1
Hyd. No. 1 -- 25 Year

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 2

PRE DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 10.33 cfs
Storm frequency	= 25 yrs	Time to peak	= 770 min
Time interval	= 2 min	Hyd. volume	= 125,313 cuft
Drainage area	= 5.730 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 88.70 min
Total precip.	= 7.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (5.480 x 83)] / 5.730

PRE DEVELOPED DRAINAGE AREA 2

Hyd. No. 2 -- 25 Year

Hyd No. 2

Hydrograph Report

Hyd. No. 3

PRE DEVELOPED DRAINAGE AREA 3

Hydrograph type	= SCS Runoff		Peak discharge	= 1.409 cfs
Storm frequency	= 25 yrs		Time to peak	= 766 min
Time interval	= 2 min		Hyd. volume	= 16,272 cuft
Drainage area	= 0.690 ac		Curve number	= 88*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 81.80 min
Total precip.	= 7.92 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (0.440 x 83)] / 0.690

PRE DEVELOPED DRAINAGE AREA 3

Hyd. No. 3 -- 25 Year

Hydrograph Report

Hyd. No. 4

POST DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 5.203 cfs
Storm frequency	= 25 yrs	Time to peak	= 772 min
Time interval	= 2 min	Hyd. volume	= 64,738 cuft
Drainage area	= 3.210 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 91.70 min
Total precip.	= 7.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (3.210 x 80)] / 3.210

POST DEVELOPED DRAINAGE AREA 2

Hyd. No. 4 -- 25 Year
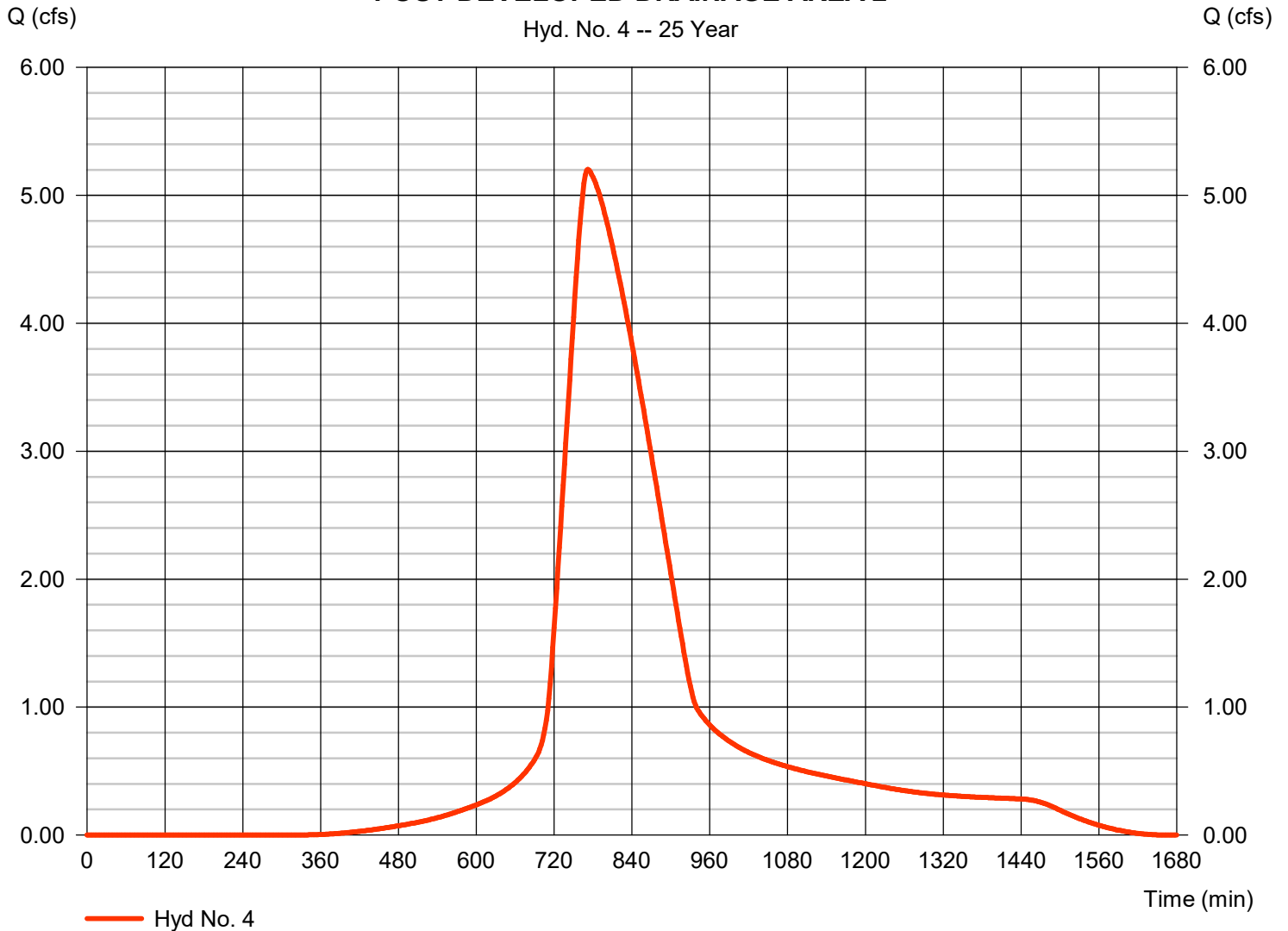
Hydrograph Report

Hyd. No. 5

POST_DEV_DRAINAGE_AREA_1a

Hydrograph type	= SCS Runoff		Peak discharge	= 16.17 cfs
Storm frequency	= 25 yrs		Time to peak	= 744 min
Time interval	= 2 min		Hyd. volume	= 127,584 cuft
Drainage area	= 5.410 ac		Curve number	= 88*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 48.90 min
Total precip.	= 7.92 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(2.490 x 98) + (2.920 x 80)] / 5.410

POST_DEV_DRAINAGE_AREA_1a

Hyd. No. 5 -- 25 Year
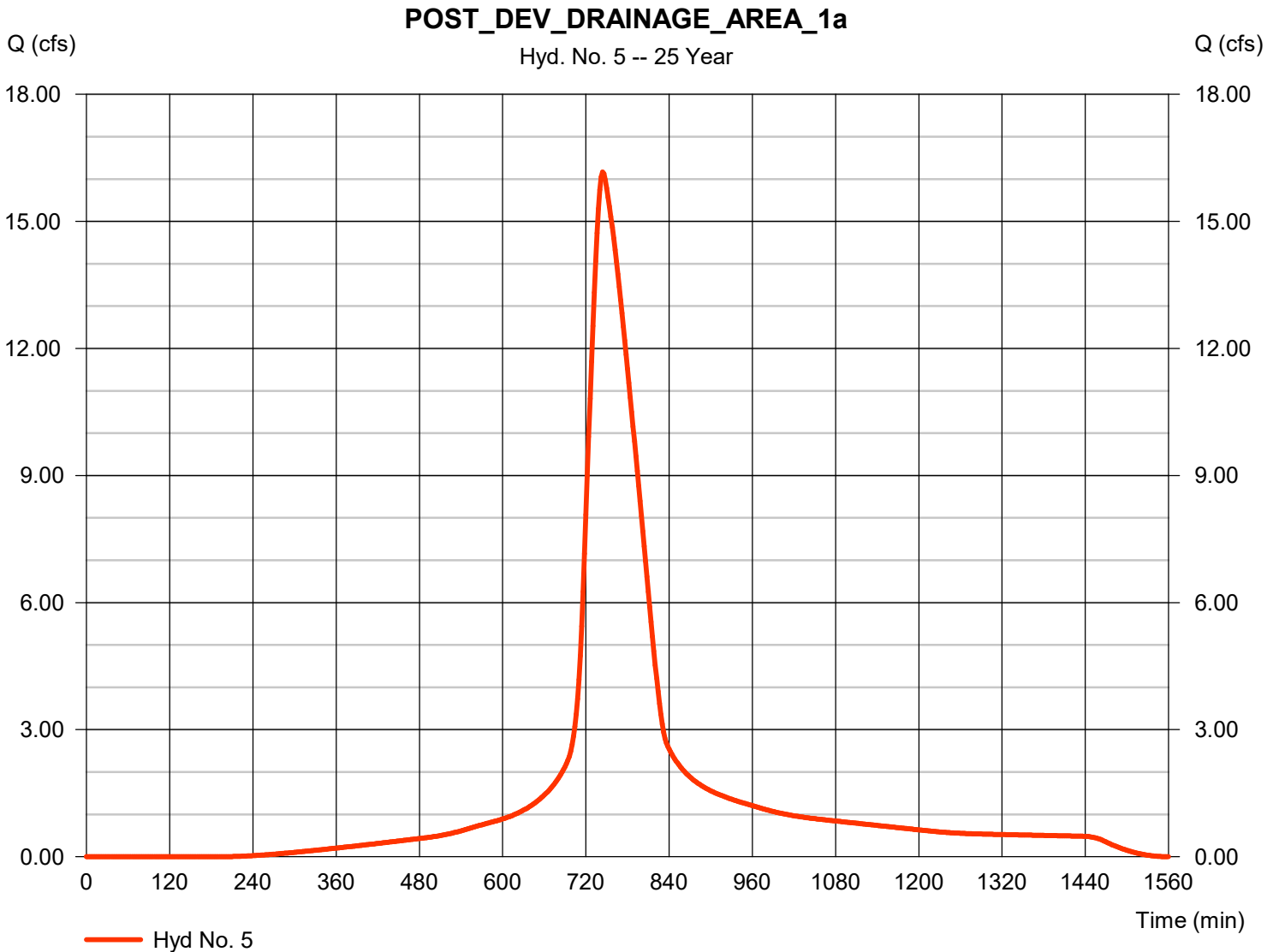
— Hyd No. 5

Hydrograph Report

Hyd. No. 6

POST_DEV_DA_1a_ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 6.340 cfs
Storm frequency	= 25 yrs	Time to peak	= 810 min
Time interval	= 2 min	Hyd. volume	= 122,800 cuft
Inflow hyd. No.	= 5 - POST_DEV_DRAINAGE_AREA_1a	Max. Elevation	= 77.59 ft
Reservoir name	= DETENTION AREA 1a	Max. Storage	= 54,723 cuft

Storage Indication method used.
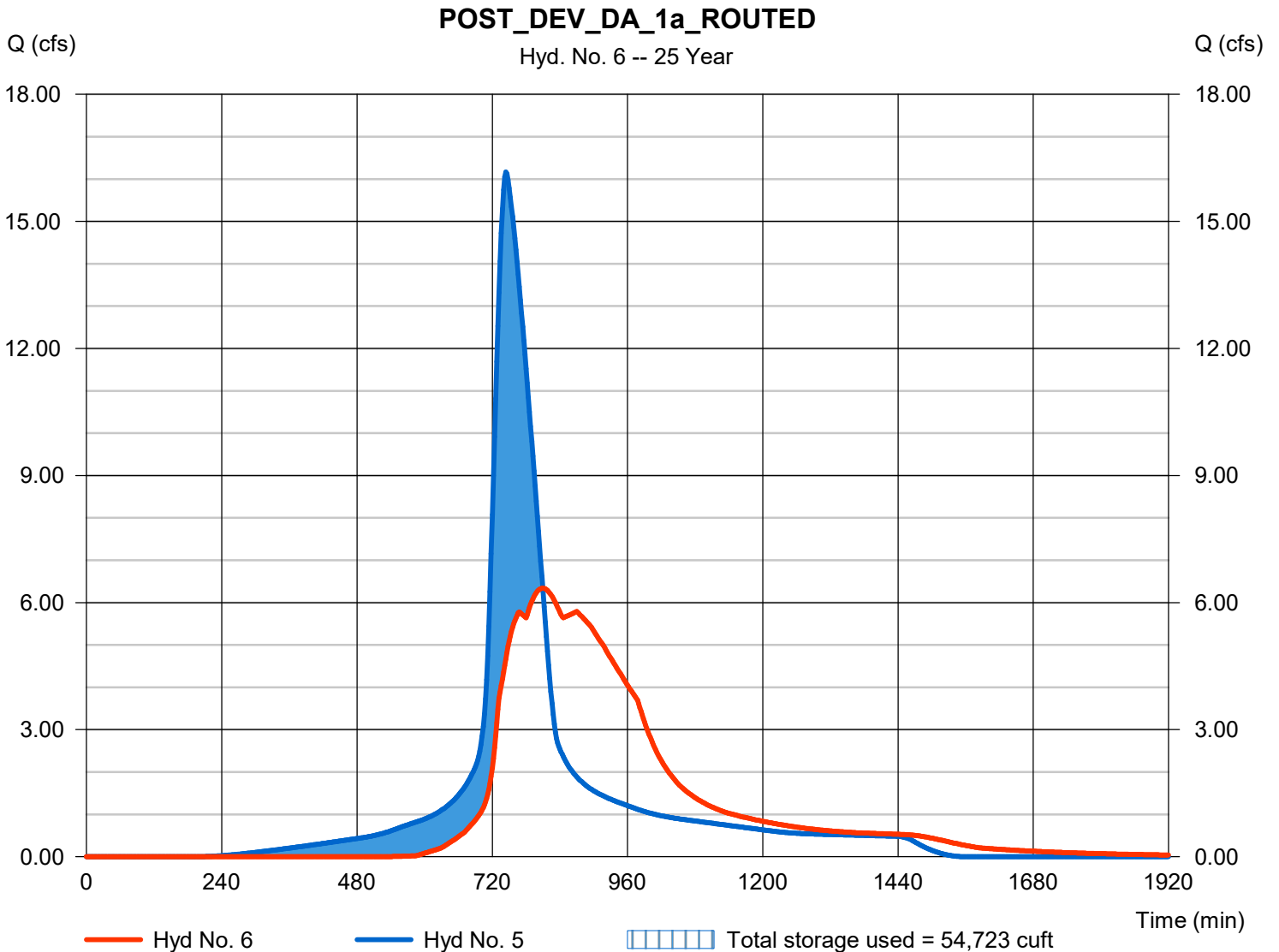
POST_DEV_DA_1a_ROUTED

Hyd. No. 6 -- 25 Year

Hyd No. 6   Hyd No. 5   Total storage used = 54,723 cuft

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 7

POST_DEV_DRAINAGE_AREA_1b

Hydrograph type	= SCS Runoff	Peak discharge	= 3.707 cfs
Storm frequency	= 25 yrs	Time to peak	= 754 min
Time interval	= 2 min	Hyd. volume	= 34,285 cuft
Drainage area	= 1.700 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 61.80 min
Total precip.	= 7.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (1.700 x 80)] / 1.700

POST_DEV_DRAINAGE_AREA_1b

Hyd. No. 7 -- 25 Year
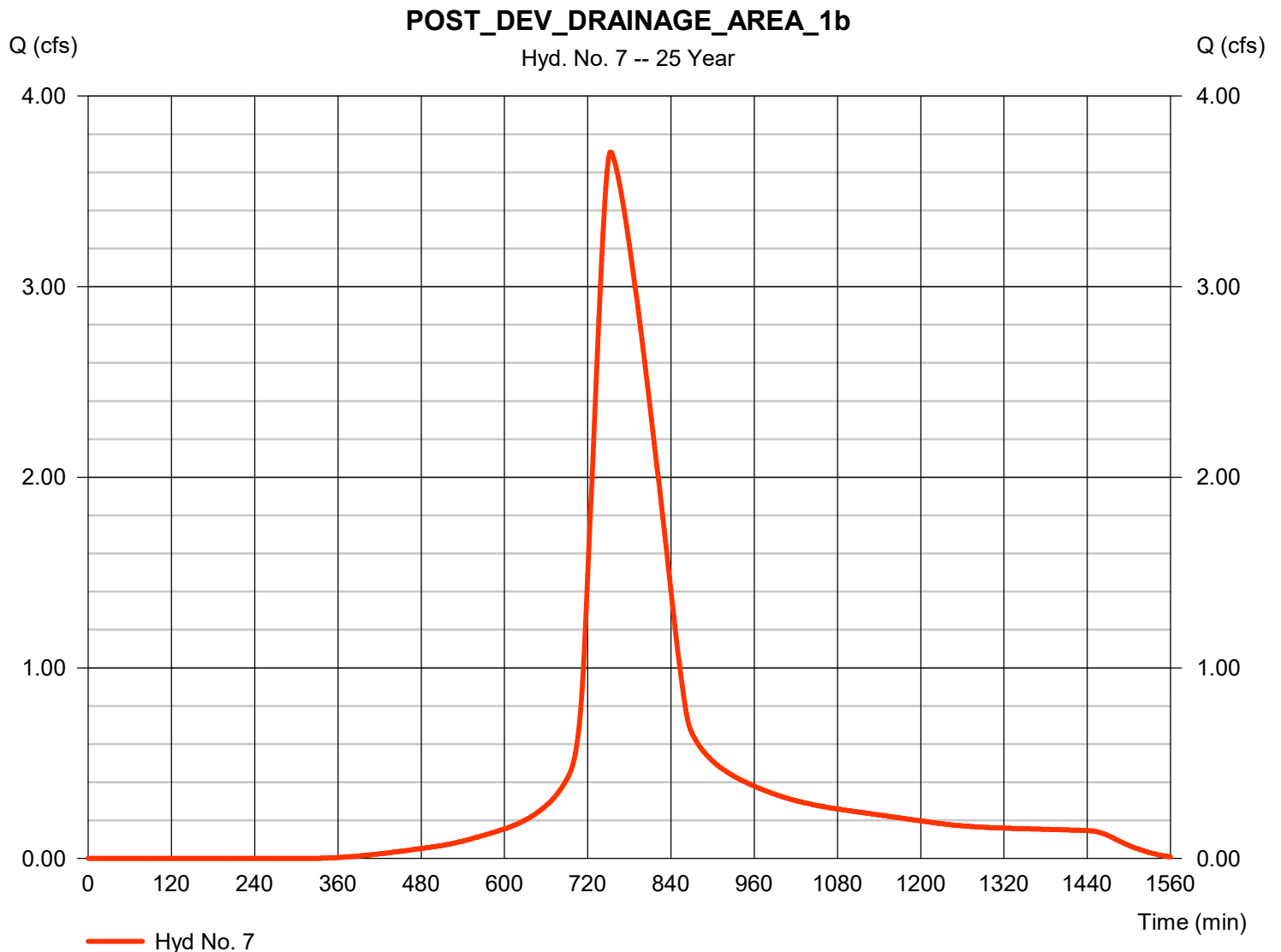
— Hyd No. 7

Hydrograph Report

Hyd. No. 8

POST DEVELOPED DRAINAGE AREA 1c

Hydrograph type	= SCS Runoff		Peak discharge	= 60.76 cfs
Storm frequency	= 25 yrs		Time to peak	= 750 min
Time interval	= 2 min		Hyd. volume	= 542,365 cuft
Drainage area	= 24.800 ac		Curve number	= 84*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 58.40 min
Total precip.	= 7.92 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(7.730 x 98) + (7.770 x 80) + (9.300 x 77)] / 24.800
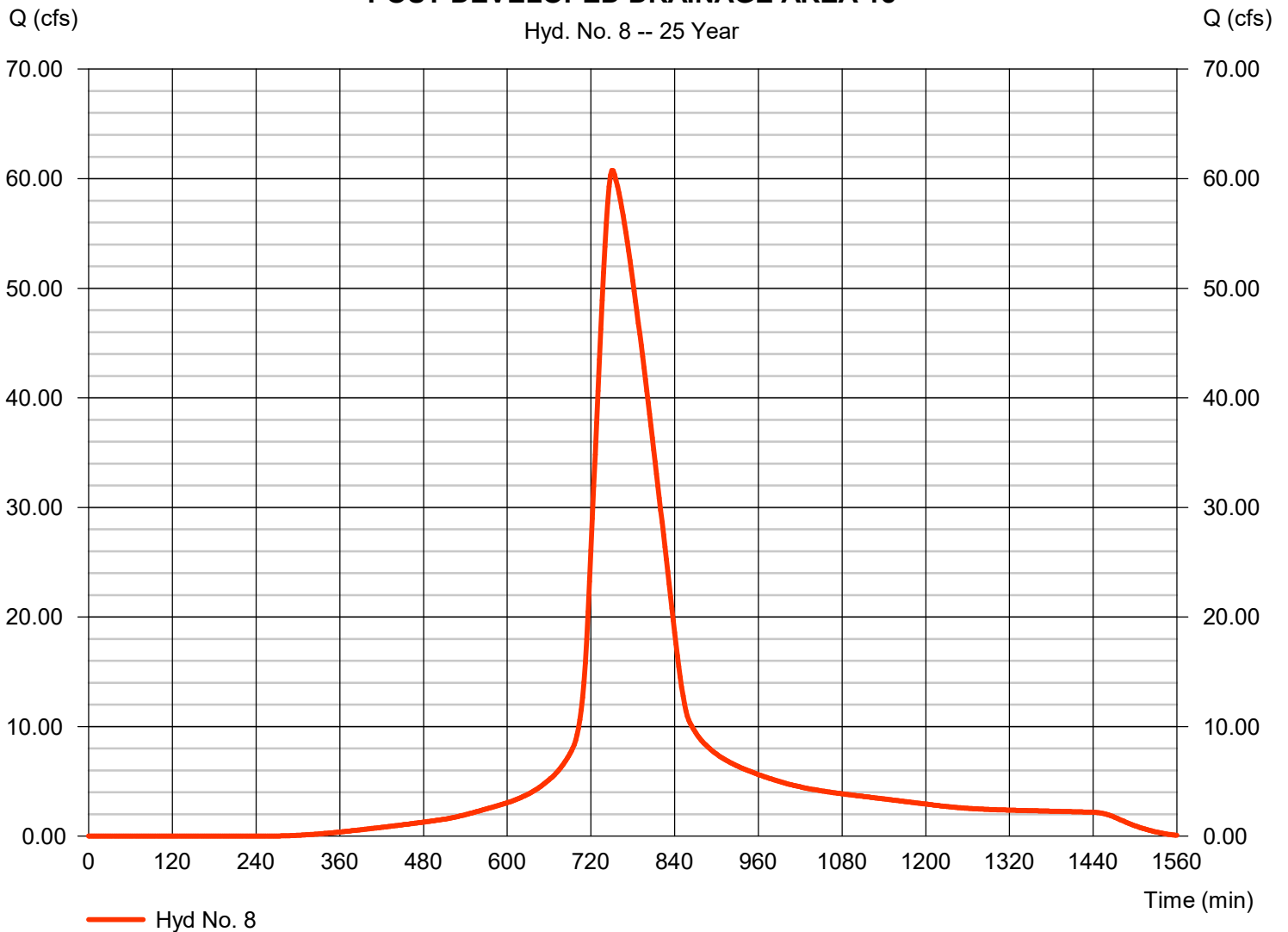
POST DEVELOPED DRAINAGE AREA 1c
Hyd. No. 8 -- 25 Year

Hydrograph Report

Hyd. No. 9

POST DEVELOPED DRAINAGE AREA 1d

Hydrograph type	= SCS Runoff	Peak discharge	= 35.21 cfs
Storm frequency	= 25 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 275,881 cuft
Drainage area	= 12.140 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 50.20 min
Total precip.	= 7.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(3.780 x 98) + (8.360 x 80)] / 12.140

POST DEVELOPED DRAINAGE AREA 1d

Hyd. No. 9 -- 25 Year
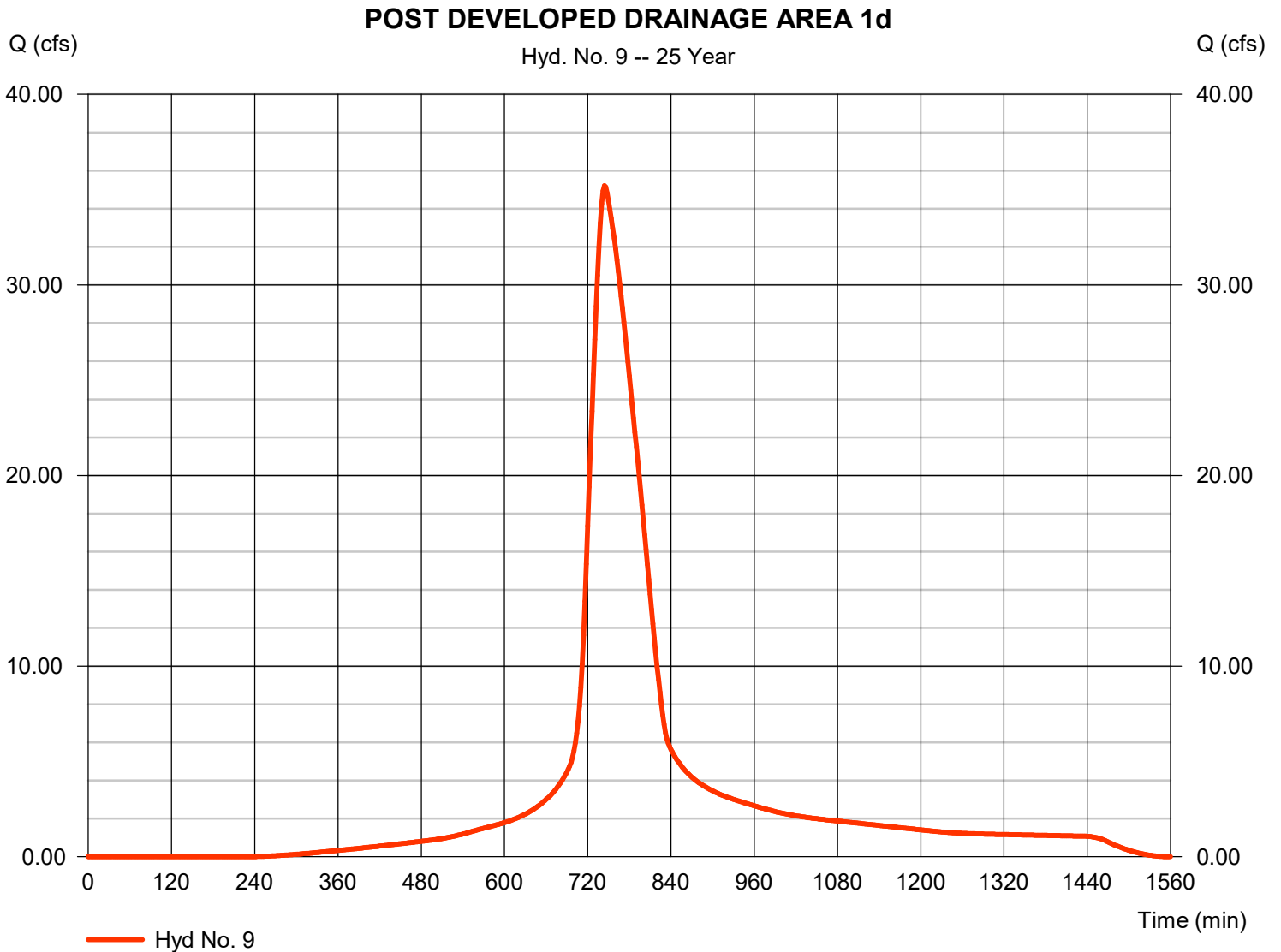
Hyd No. 9

Hydrograph Report

Hyd. No. 10

POST_DEVELOPED_BYPASS_1

Hydrograph type	= SCS Runoff		Peak discharge	= 22.08 cfs
Storm frequency	= 25 yrs		Time to peak	= 812 min
Time interval	= 2 min		Hyd. volume	= 301,710 cuft
Drainage area	= 15.940 ac		Curve number	= 77
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 164.70 min
Total precip.	= 7.92 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 484

POST_DEVELOPED_BYPASS_1

Hyd. No. 10 -- 25 Year

Hyd No. 10

Hydrograph Report

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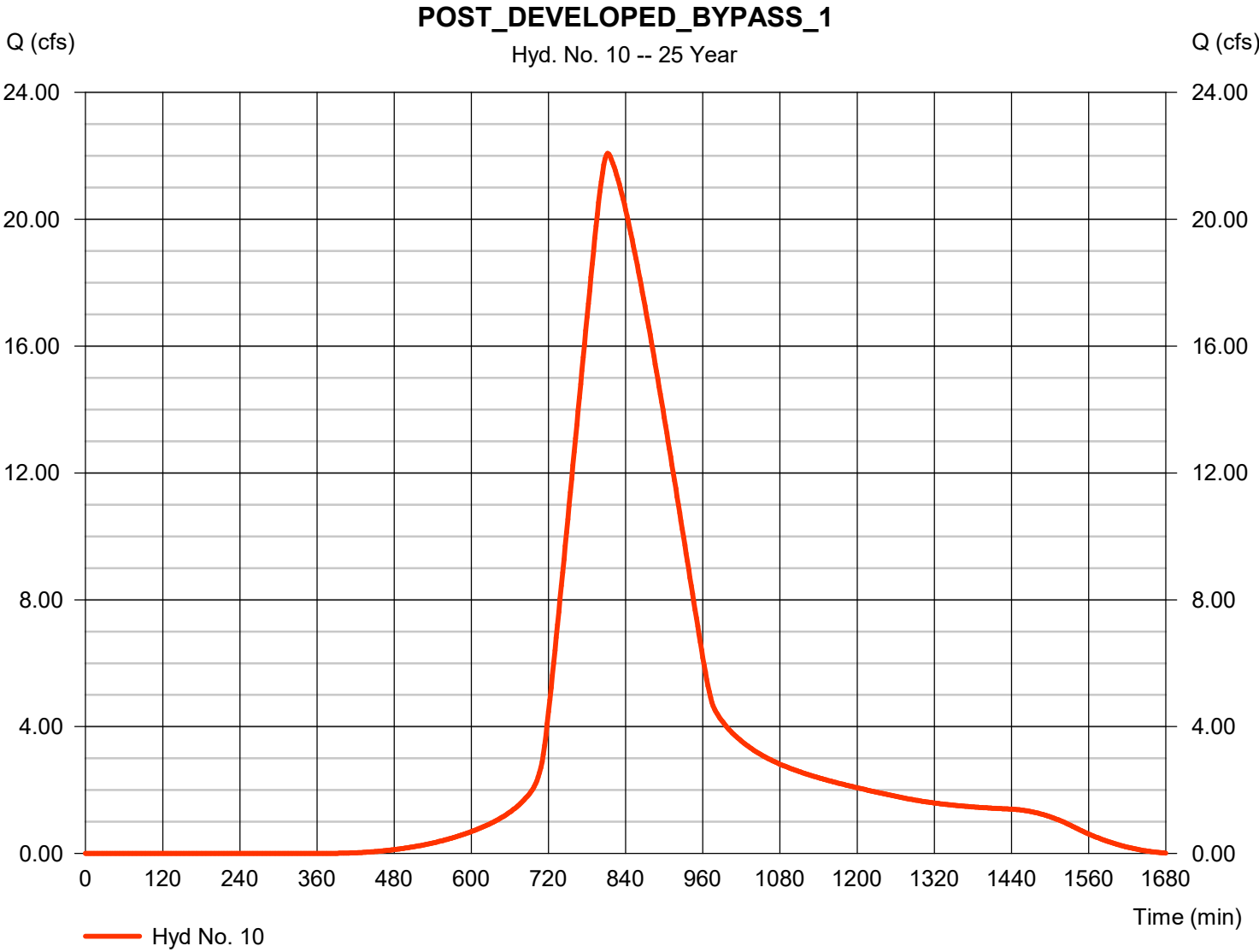
Hyd. No. 11

POST_DEVELOPED_BYPASS_2

Hydrograph type	= SCS Runoff	Peak discharge	= 18.74 cfs
Storm frequency	= 25 yrs	Time to peak	= 790 min
Time interval	= 2 min	Hyd. volume	= 209,816 cuft
Drainage area	= 11.150 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 127.20 min
Total precip.	= 7.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

POST_DEVELOPED_BYPASS_2

Hyd. No. 11 -- 25 Year
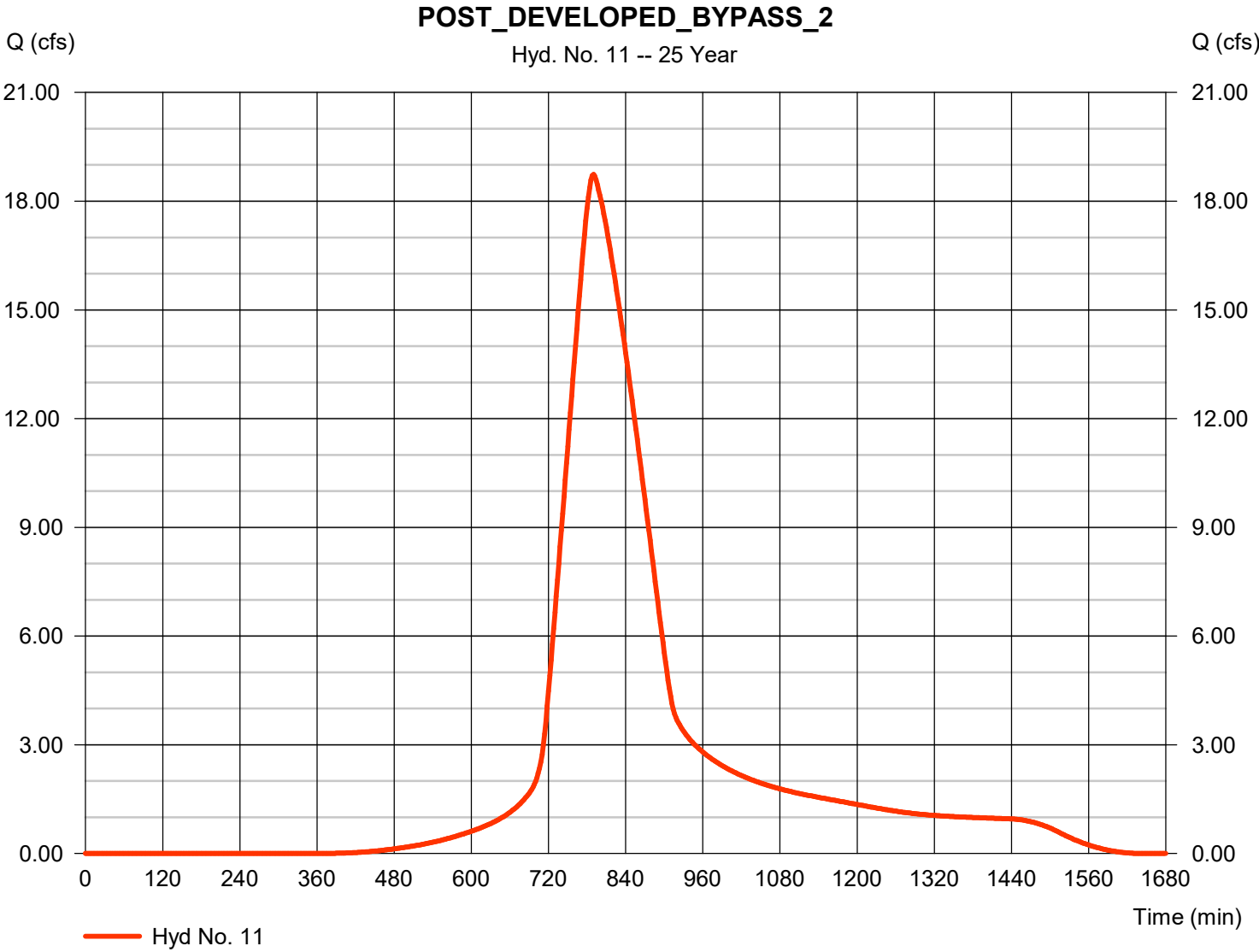
Hyd No. 11

Hydrograph Report

Hyd. No. 12

Rear Area Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - POST_DEVELOPED_BYPASSED	Max. Elevation	= 70.80 ft
Reservoir name	= Rear Detention Pond	Max. Storage	= 209,816 cuft

Storage Indication method used.
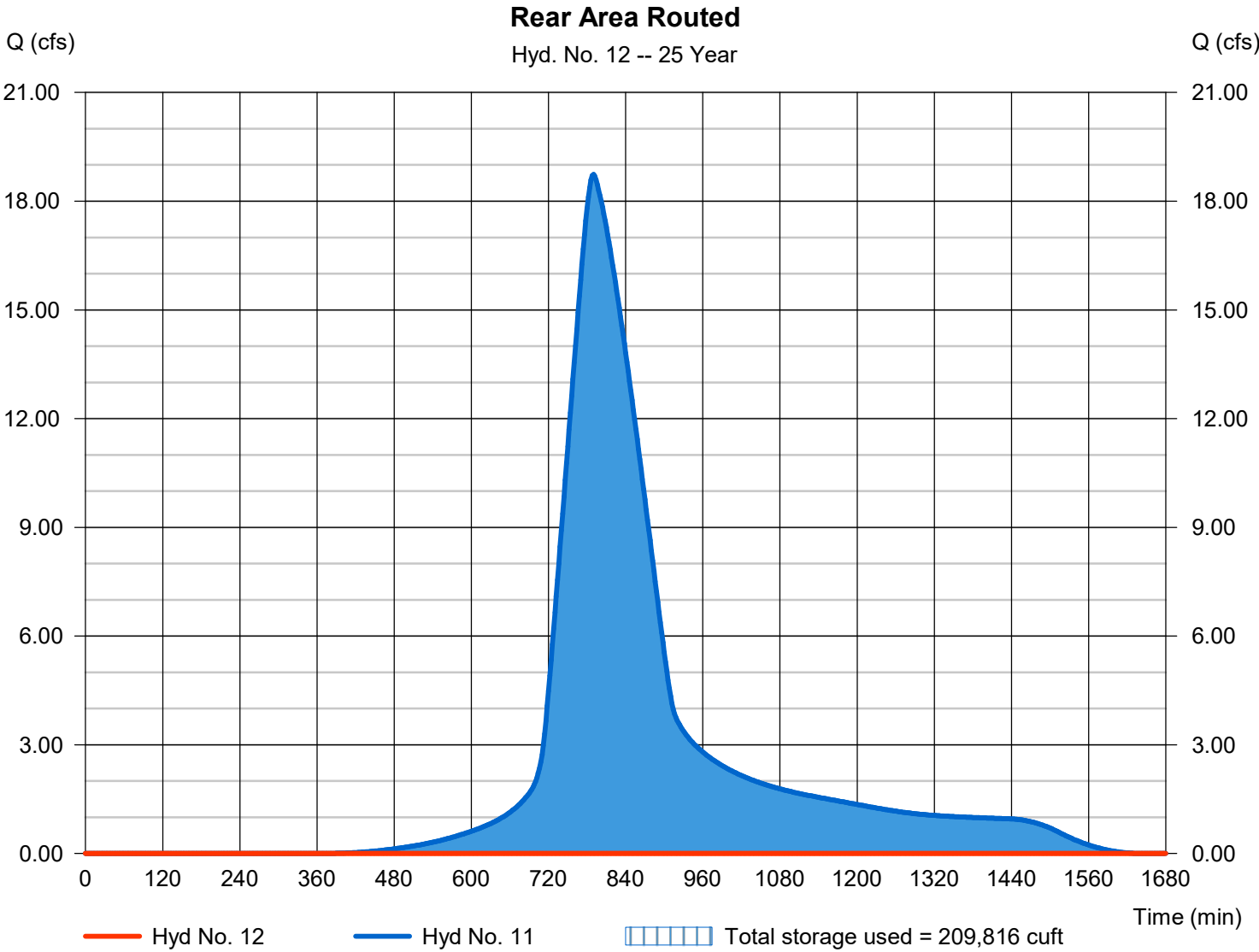
Rear Area Routed

Hyd. No. 12 -- 25 Year

Legend: Hyd No. 12, Hyd No. 11, Total storage used = 209,816 cuft

Hydrograph Report

Hyd. No. 13

POST_DEV_1a_ROUTED+_1b

Hydrograph type	= Combine		Peak discharge	= 9.288 cfs
Storm frequency	= 25 yrs		Time to peak	= 766 min
Time interval	= 2 min		Hyd. volume	= 157,084 cuft
Inflow hyds.	= 6, 7		Contrib. drain. area	= 1.700 ac
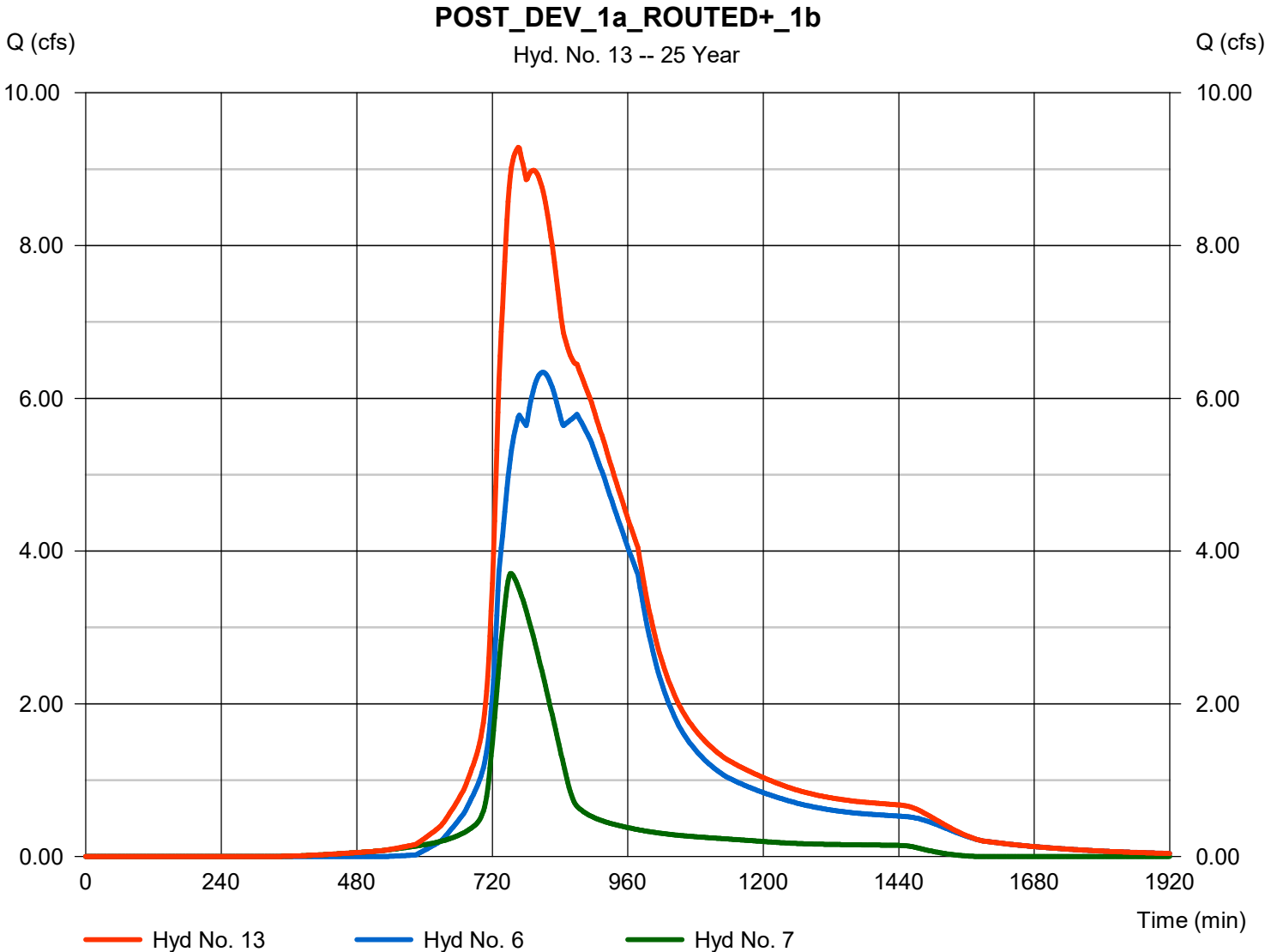
POST_DEV_1a_ROUTED+_1b

Hyd. No. 13 -- 25 Year

Hydrograph Report

Hyd. No. 14

POST_DEVELOPED_POND_1B

Hydrograph type	= Reservoir	Peak discharge	= 8.053 cfs
Storm frequency	= 25 yrs	Time to peak	= 826 min
Time interval	= 2 min	Hyd. volume	= 147,643 cuft
Inflow hyd. No.	= 13 - POST_DEV_1a_ROUTED_1b	Max. Elevation	= 77.13 ft
Reservoir name	= DETENTION AREA 1b	Max. Storage	= 27,369 cuft

Storage Indication method used.
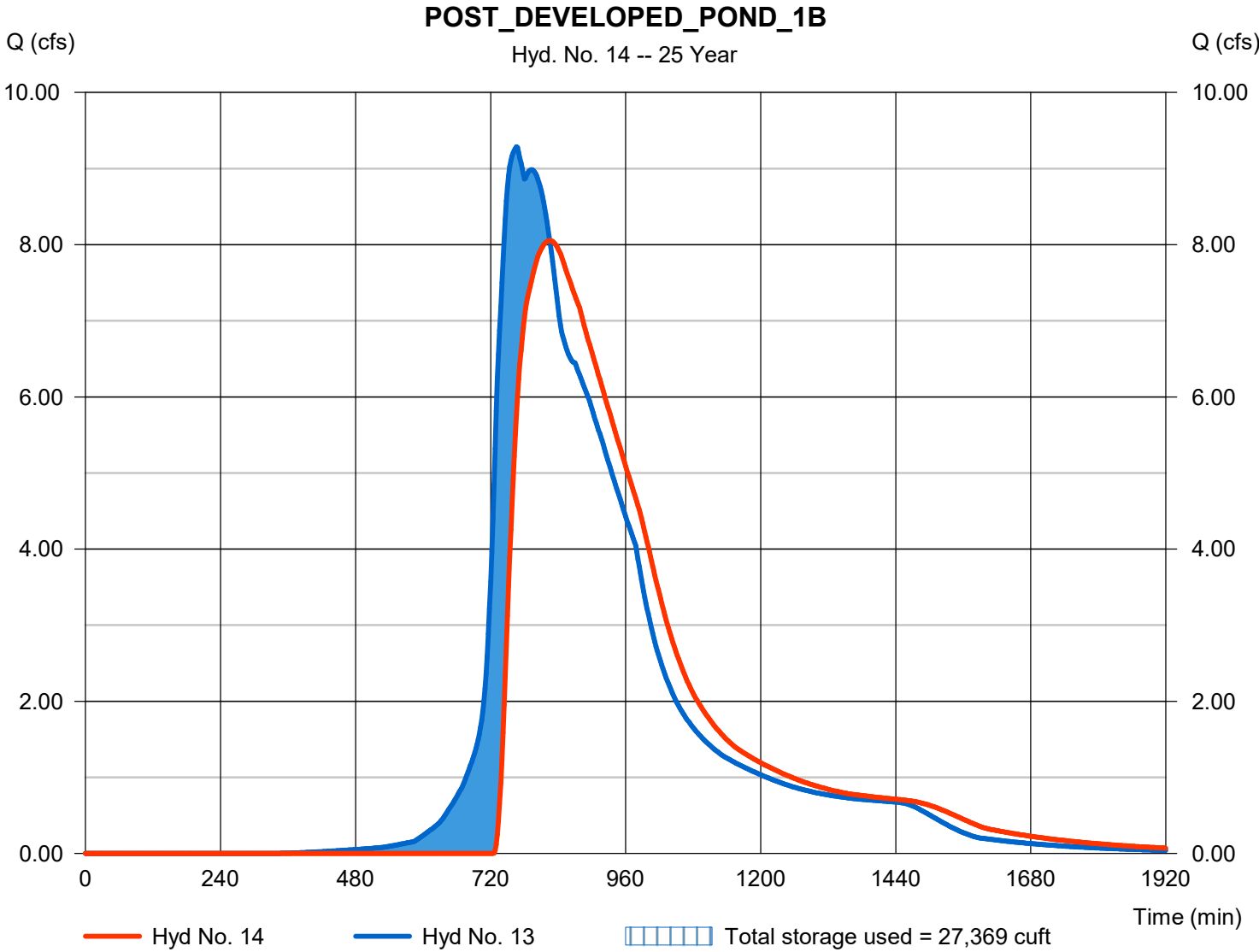
POST_DEVELOPED_POND_1B

Hyd. No. 14 -- 25 Year

Legend: Hyd No. 14 — Hyd No. 13 — Total storage used = 27,369 cuft

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 15

POST_DEV_TOTAL_TO_POND_1d

Hydrograph type	= Combine	Peak discharge	= 36.78 cfs
Storm frequency	= 25 yrs	Time to peak	= 748 min
Time interval	= 2 min	Hyd. volume	= 417,389 cuft
Inflow hyds.	= 9, 14	Contrib. drain. area	= 12.140 ac
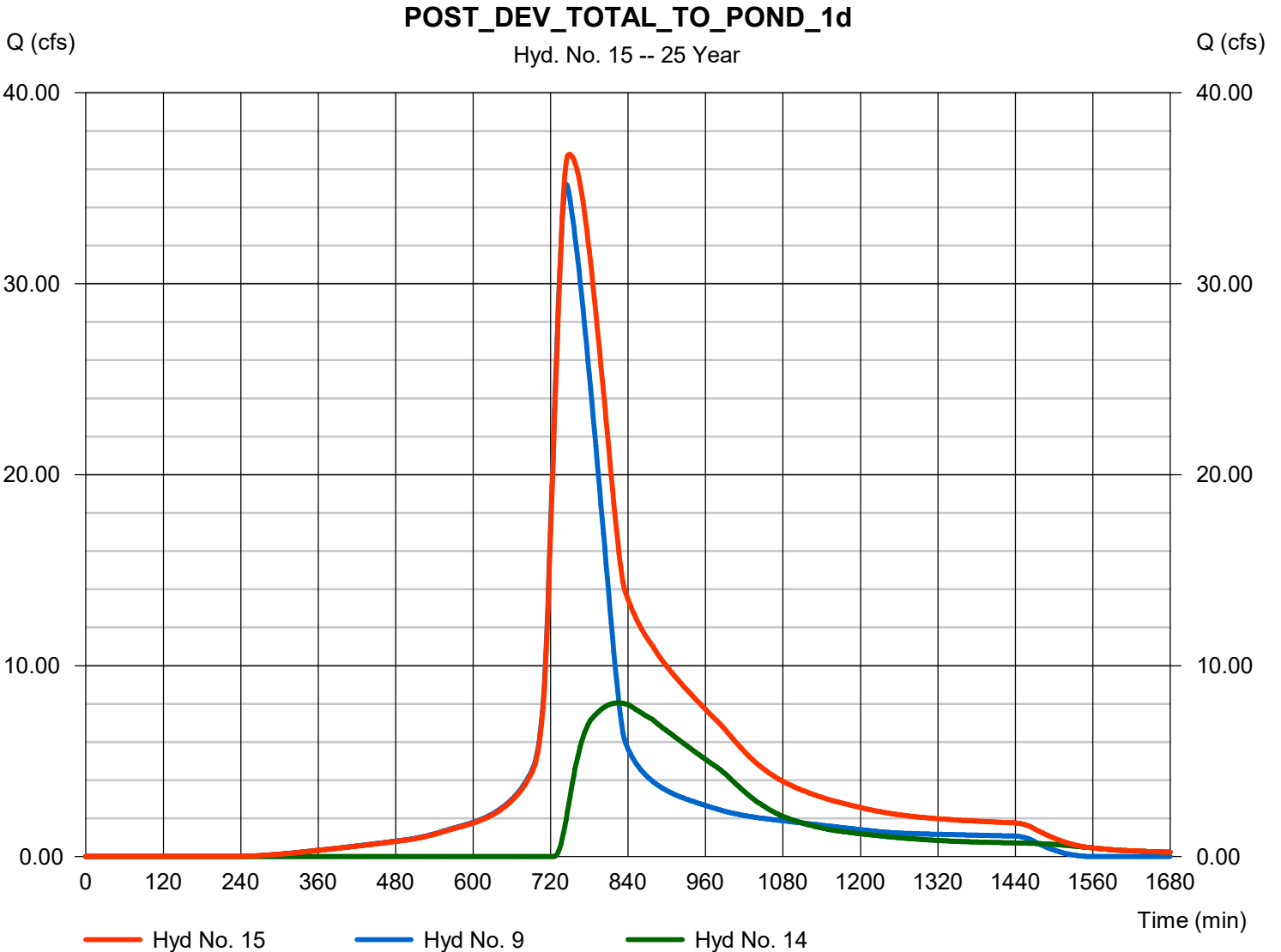
POST_DEV_TOTAL_TO_POND_1d

Hyd. No. 15 -- 25 Year

Legend: Hyd No. 15 (red), Hyd No. 9 (blue), Hyd No. 14 (green)

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 16

POST_DEV_TOTAL_TO_BIG_POND

Hydrograph type	= Combine	Peak discharge	= 97.53 cfs
Storm frequency	= 25 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 959,754 cuft
Inflow hyds.	= 8, 15	Contrib. drain. area	= 24.800 ac

POST_DEV_TOTAL_TO_BIG_POND

Hyd. No. 16 -- 25 Year
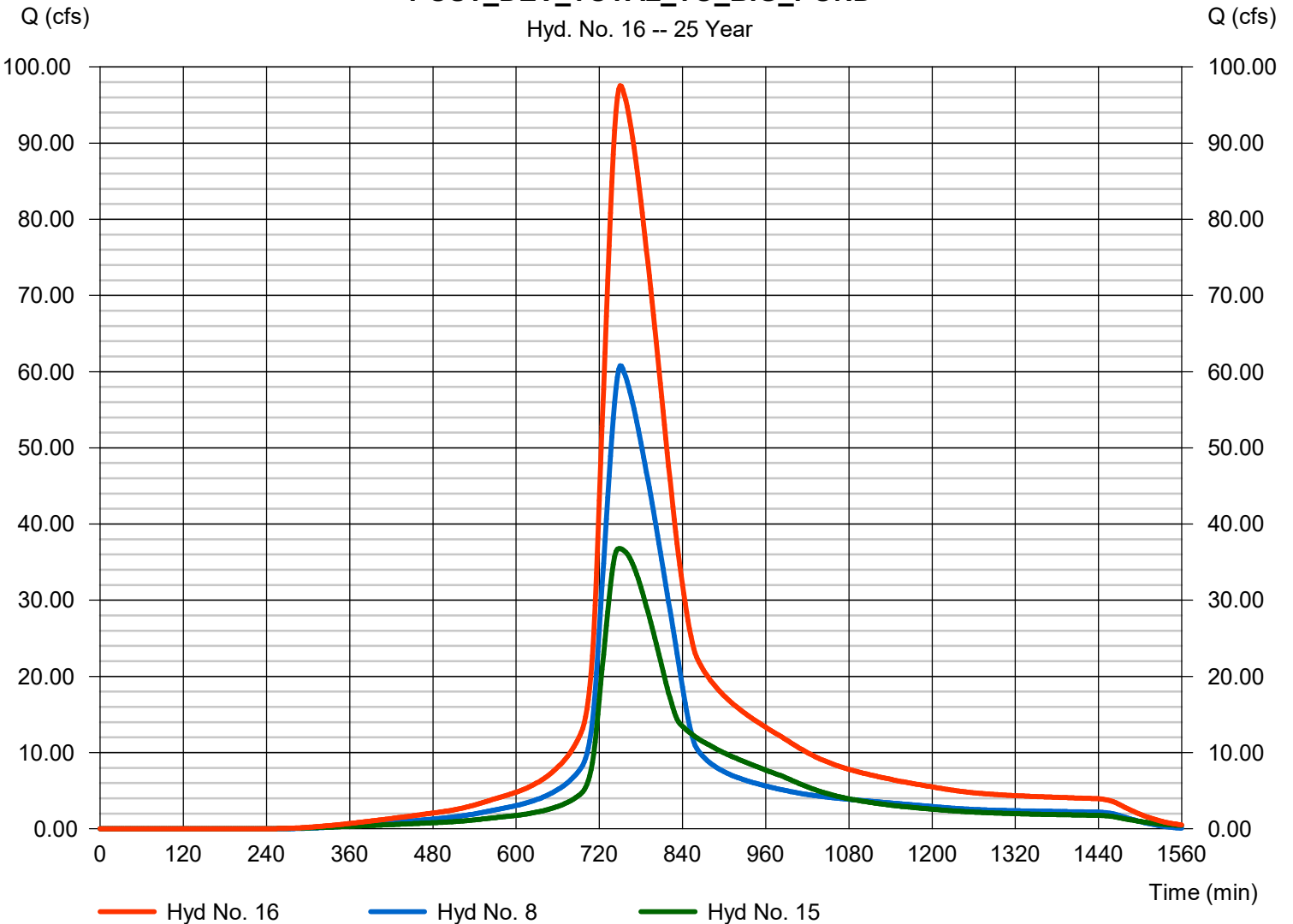
Hydrograph Report

Hyd. No. 17

POST_DEV_BIG_POND_ROUT

Hydrograph type	= Reservoir	Peak discharge	= 70.77 cfs
Storm frequency	= 25 yrs	Time to peak	= 794 min
Time interval	= 2 min	Hyd. volume	= 959,615 cuft
Inflow hyd. No.	= 16 - POST_DEV_TOTAL_TO_BIG_POND	Max. Elevation	= 77.28 ft
Reservoir name	= Big_Detention_Pond	Max. Storage	= 227,148 cuft

Storage Indication method used.
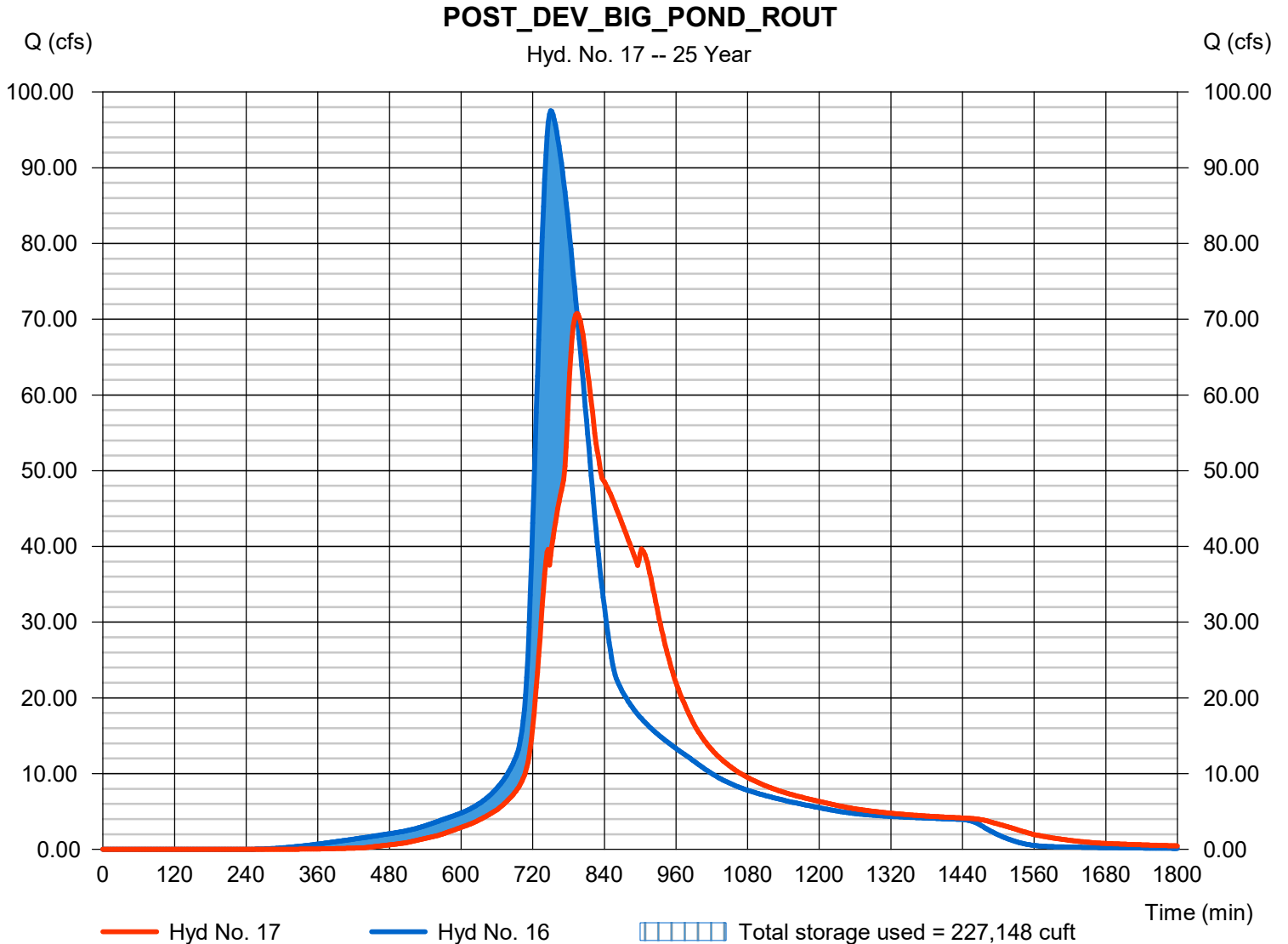
POST_DEV_BIG_POND_ROUT

Hyd. No. 17 -- 25 Year

Legend: Hyd No. 17 — Hyd No. 16 — Total storage used = 227,148 cuft

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 18

TOTAL_FLOW_AT_OUTFALL_DA_1

Hydrograph type	= Combine	Peak discharge	= 90.82 cfs
Storm frequency	= 25 yrs	Time to peak	= 796 min
Time interval	= 2 min	Hyd. volume	= 1,261,325 cuft
Inflow hyds.	= 10, 12, 17	Contrib. drain. area	= 15.940 ac

TOTAL_FLOW_AT_OUTFALL_DA_1

Hyd. No. 18 -- 25 Year

Legend: — Hyd No. 18   — Hyd No. 10   — Hyd No. 12   — Hyd No. 17

Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	117.85	2	792	1,863,176	------	------	------	PRE DEVELOPED DRAINAGE ARE
2	SCS Runoff	11.89	2	770	144,563	------	------	------	PRE DEVELOPED DRAINAGE ARE
3	SCS Runoff	1.606	2	766	18,629	------	------	------	PRE DEVELOPED DRAINAGE ARE
4	SCS Runoff	6.049	2	772	75,287	------	------	------	POST DEVELOPED DRAINAGE AR
5	SCS Runoff	18.42	2	744	146,066	------	------	------	POST_DEV_DRAINAGE_AREA_1a
6	Reservoir	7.320	2	808	141,280	5	77.73	62,349	POST_DEV_DA_1a_ROUTED
7	SCS Runoff	4.304	2	754	39,872	------	------	------	POST_DEV_DRAINAGE_AREA_1b
8	SCS Runoff	69.86	2	750	625,683	------	------	------	POST DEVELOPED DRAINAGE AR
9	SCS Runoff	40.28	2	744	317,035	------	------	------	POST DEVELOPED DRAINAGE AR
10	SCS Runoff	25.85	2	812	353,123	------	------	------	POST_DEVELOPED_BYPASS_1
11	SCS Runoff	21.93	2	790	245,570	------	------	------	POST_DEVELOPED_BYPASS_2
12	Reservoir	0.000	2	n/a	0	11	70.93	245,570	Rear Area Routed
13	Combine	10.46	2	790	181,151	6, 7,	------	------	POST_DEV_1a_ROUTED+_1b
14	Reservoir	8.913	2	832	171,710	13	77.31	31,069	POST_DEVELOPED_POND_1B
15	Combine	43.34	2	748	481,694	9, 14	------	------	POST_DEV_TOTAL_TO_POND_1d
16	Combine	113.11	2	750	1,107,377	8, 15	------	------	POST_DEV_TOTAL_TO_BIG_POND
17	Reservoir	90.62	2	784	1,107,238	16	77.44	238,844	POST_DEV_BIG_POND_ROUT
18	Combine	111.77	2	786	1,460,361	10, 12, 17	------	------	TOTAL_FLOW_AT_OUTFALL_DA_1

BLUE_JAY_ROAD_05282024gpw.gpw	Return Period: 50 Year	Wednesday, 05 / 29 / 2024

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024
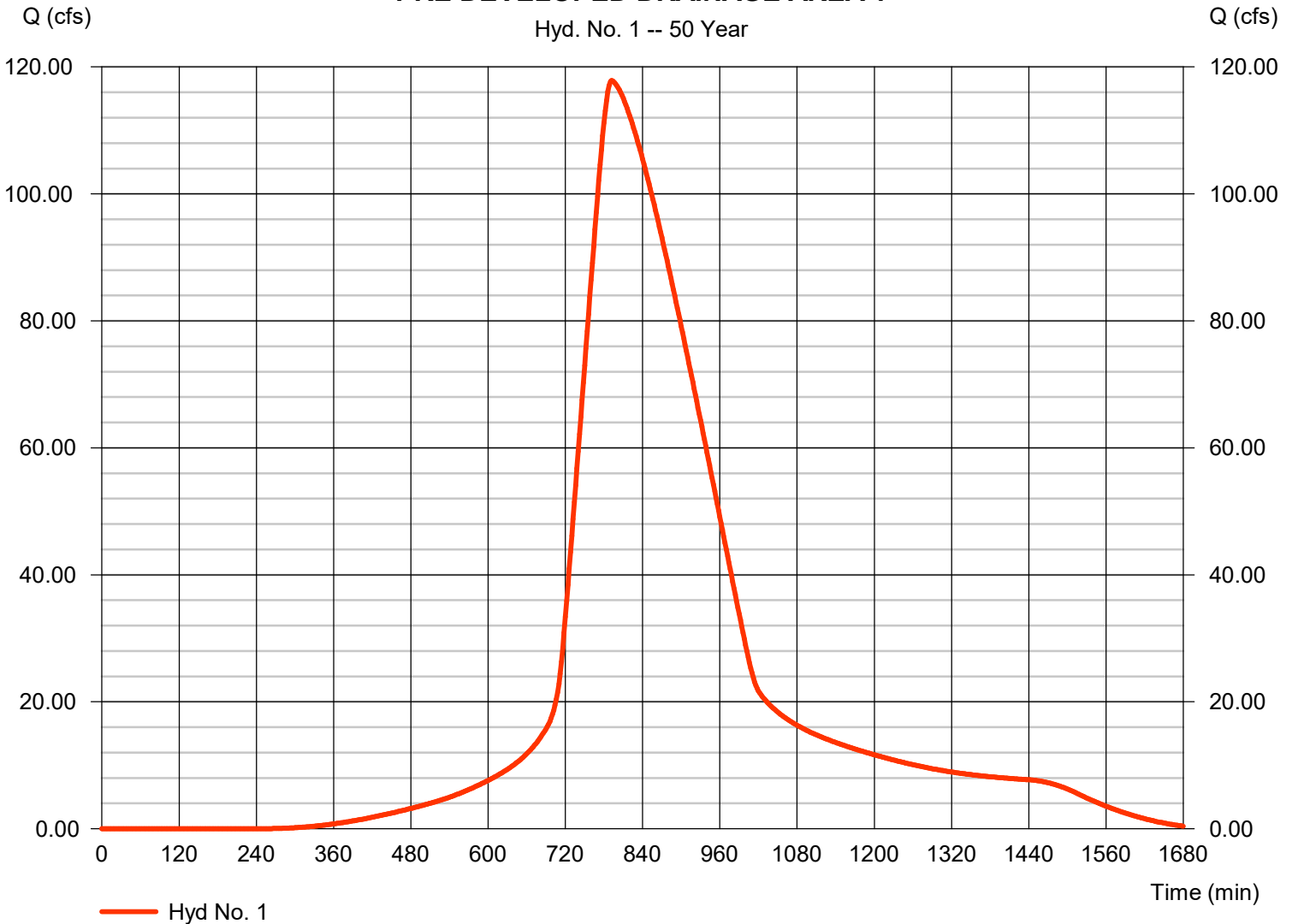
Hyd. No. 1

PRE DEVELOPED DRAINAGE AREA 1

Hydrograph type	= SCS Runoff		Peak discharge	= 117.85 cfs
Storm frequency	= 50 yrs		Time to peak	= 792 min
Time interval	= 2 min		Hyd. volume	= 1,863,176 cuft
Drainage area	= 73.850 ac		Curve number	= 84*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 127.80 min
Total precip.	= 8.88 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = + (66.130 x 84)] / 73.850

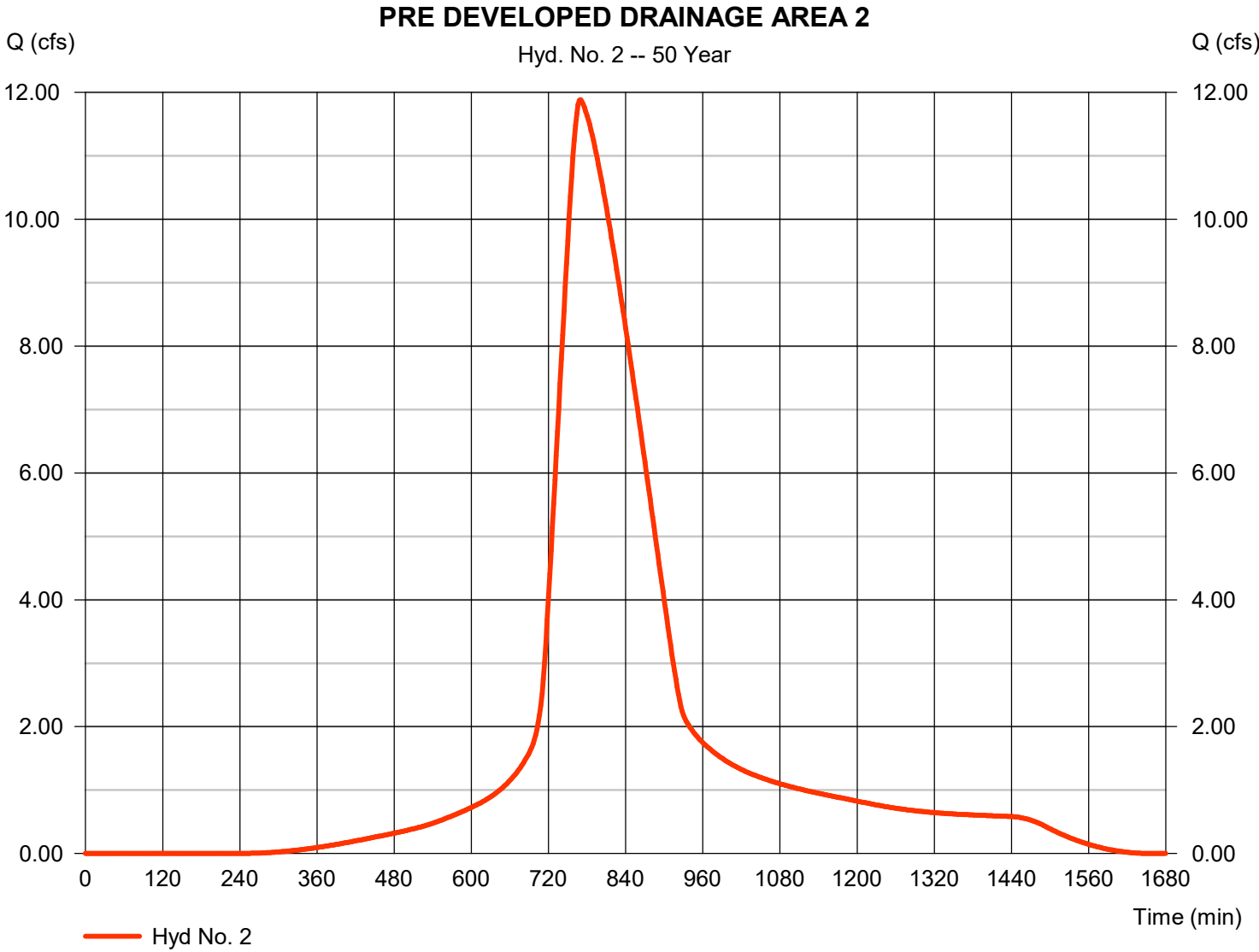**PRE DEVELOPED DRAINAGE AREA 1**

Hyd. No. 1 -- 50 Year

Hydrograph Report

Hyd. No. 2

PRE DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 11.89 cfs
Storm frequency	= 50 yrs	Time to peak	= 770 min
Time interval	= 2 min	Hyd. volume	= 144,563 cuft
Drainage area	= 5.730 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 88.70 min
Total precip.	= 8.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (5.480 x 83)] / 5.730

PRE DEVELOPED DRAINAGE AREA 2

Hyd. No. 2 -- 50 Year

Hydrograph Report

Hyd. No. 3

PRE DEVELOPED DRAINAGE AREA 3

Hydrograph type	= SCS Runoff		Peak discharge	= 1.606 cfs
Storm frequency	= 50 yrs		Time to peak	= 766 min
Time interval	= 2 min		Hyd. volume	= 18,629 cuft
Drainage area	= 0.690 ac		Curve number	= 88*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 81.80 min
Total precip.	= 8.88 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (0.440 x 83)] / 0.690

PRE DEVELOPED DRAINAGE AREA 3

Hyd. No. 3 -- 50 Year
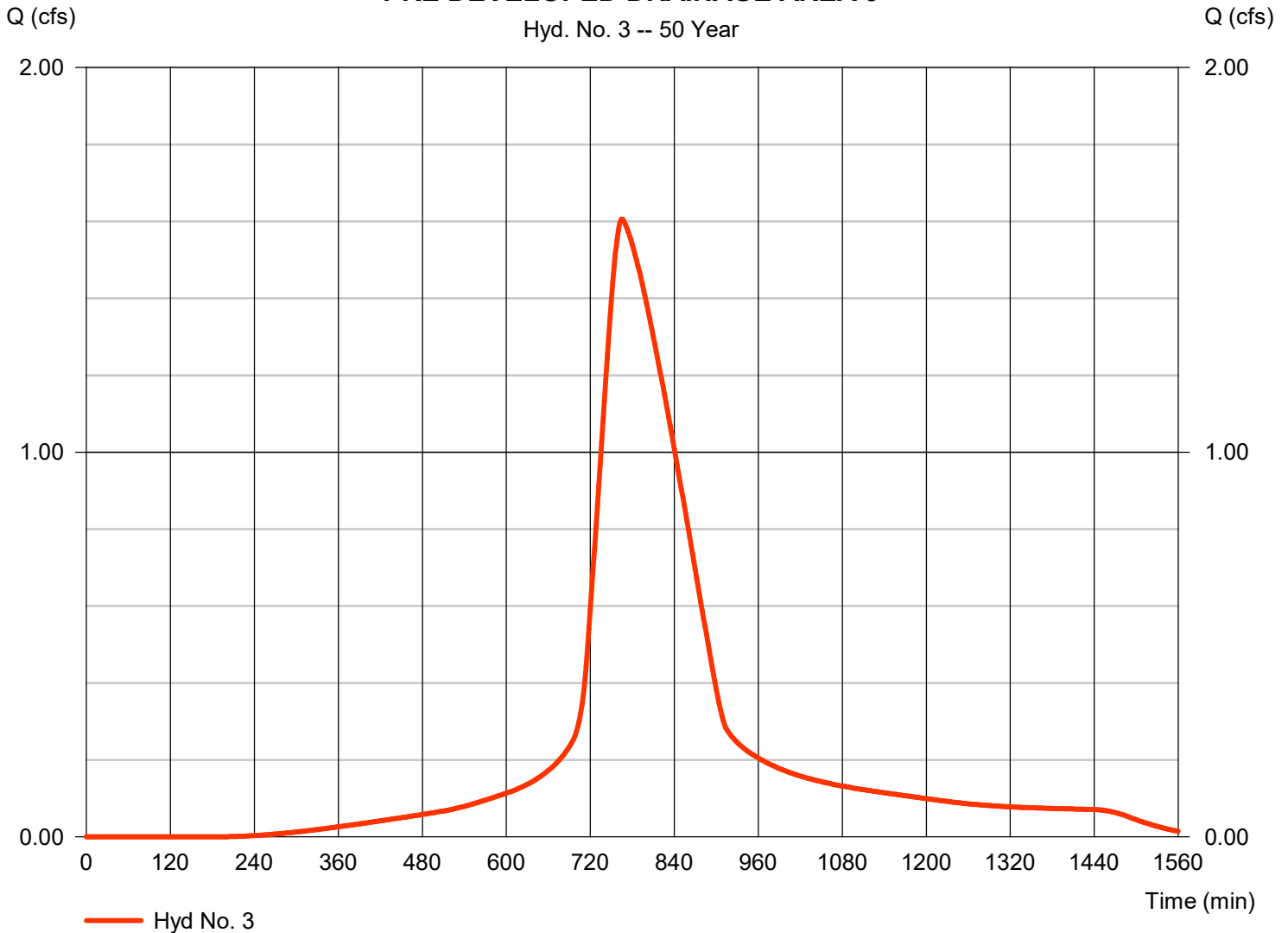
Hyd No. 3

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 4

POST DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 6.049 cfs
Storm frequency	= 50 yrs	Time to peak	= 772 min
Time interval	= 2 min	Hyd. volume	= 75,287 cuft
Drainage area	= 3.210 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 91.70 min
Total precip.	= 8.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (3.210 x 80)] / 3.210

POST DEVELOPED DRAINAGE AREA 2

Hyd. No. 4 -- 50 Year

Hydrograph Report

Wednesday, 05 / 29 / 2024
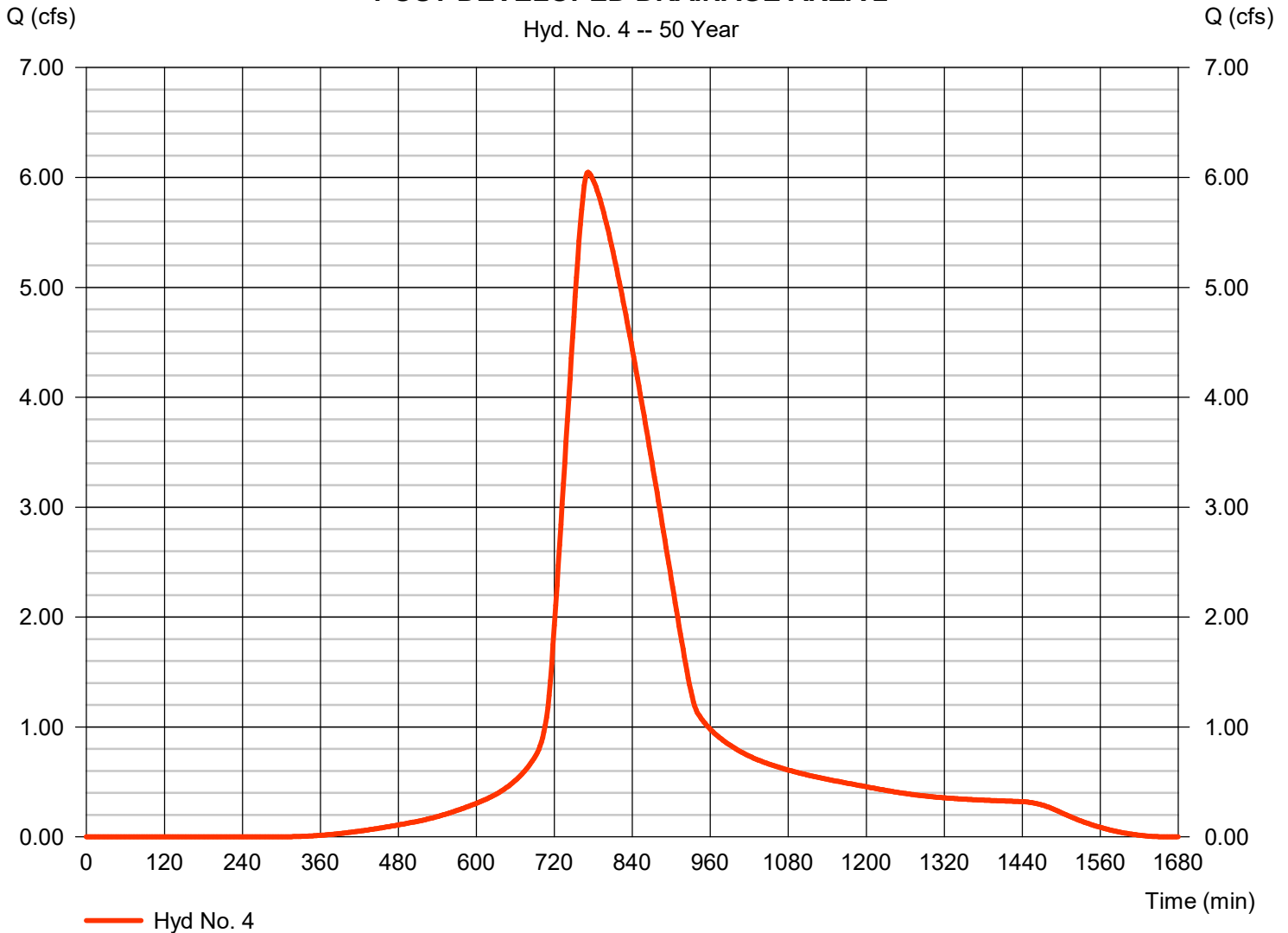
Hyd. No. 5

POST_DEV_DRAINAGE_AREA_1a

Hydrograph type	= SCS Runoff	Peak discharge	= 18.42 cfs
Storm frequency	= 50 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 146,066 cuft
Drainage area	= 5.410 ac	Curve number	= 88*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 48.90 min
Total precip.	= 8.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(2.490 x 98) + (2.920 x 80)] / 5.410

POST_DEV_DRAINAGE_AREA_1a

Hyd. No. 5 -- 50 Year

Time (min)
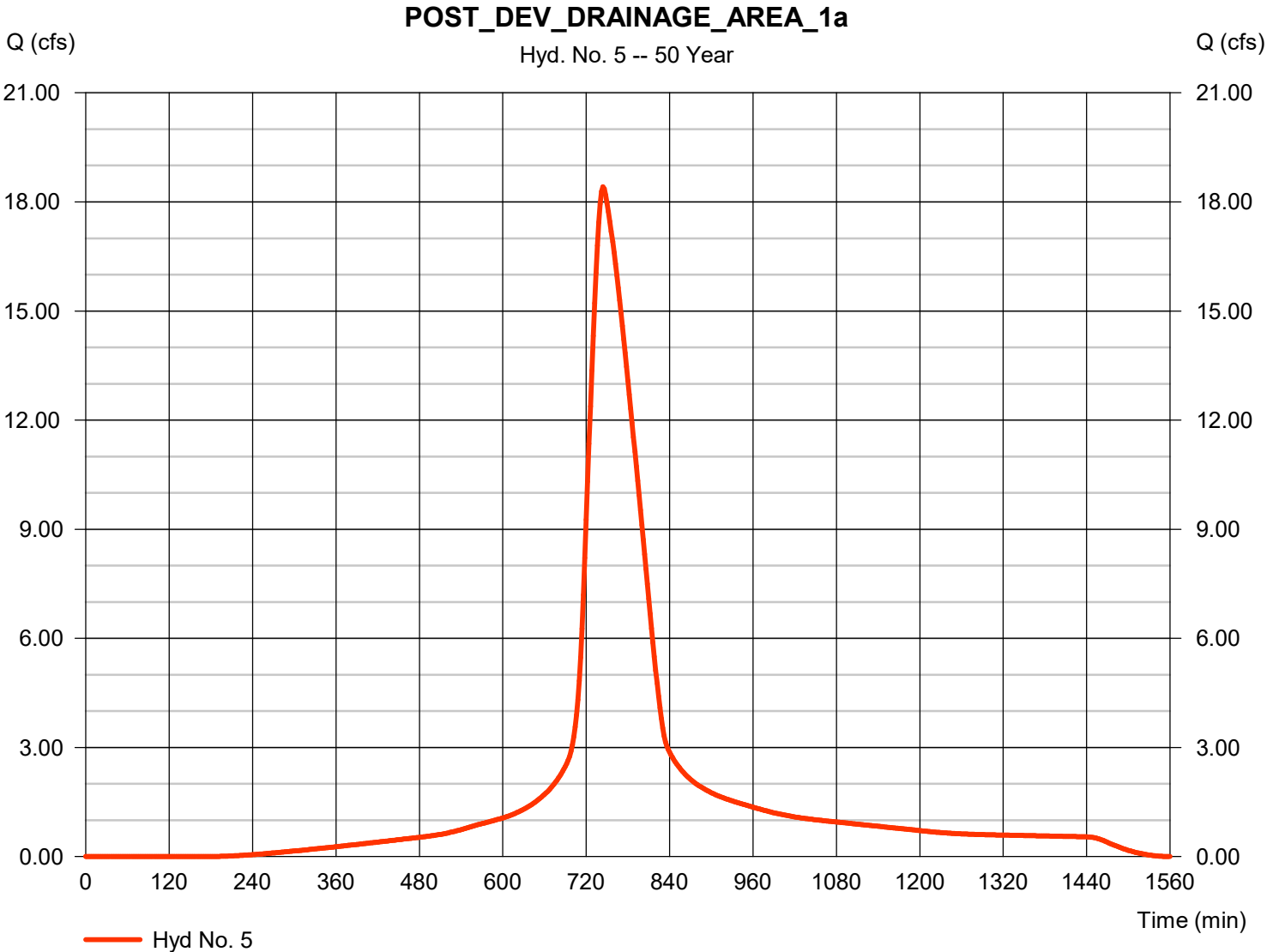
Hyd No. 5

Hydrograph Report

Hyd. No. 6

POST_DEV_DA_1a_ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 7.320 cfs
Storm frequency	= 50 yrs	Time to peak	= 808 min
Time interval	= 2 min	Hyd. volume	= 141,280 cuft
Inflow hyd. No.	= 5 - POST_DEV_DRAINAGE_AREA_1a	Max. Elevation	= 77.73 ft
Reservoir name	= DETENTION AREA 1a	Max. Storage	= 62,349 cuft

Storage Indication method used.
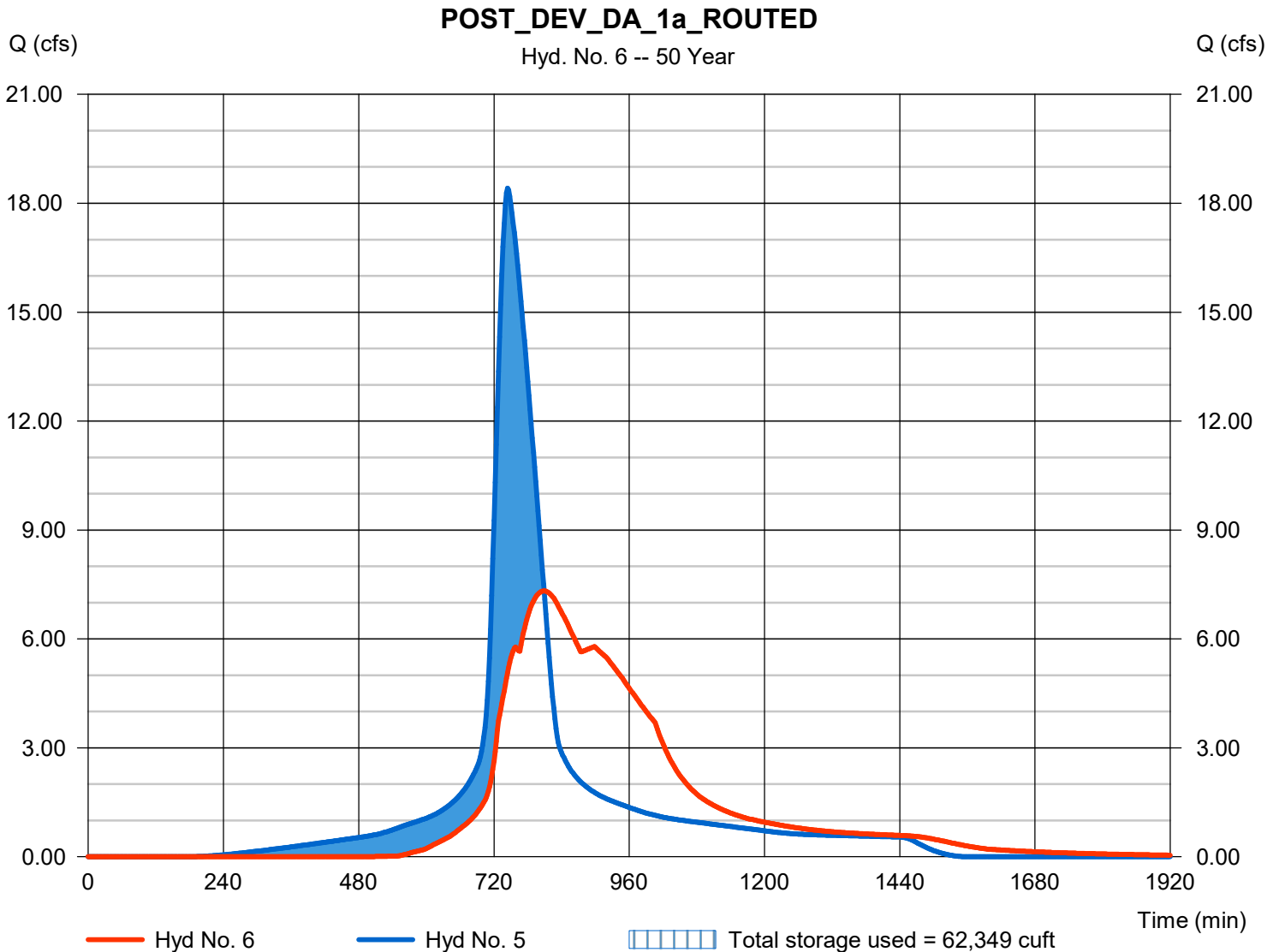
POST_DEV_DA_1a_ROUTED

Hyd. No. 6 -- 50 Year

Hyd No. 6   Hyd No. 5   Total storage used = 62,349 cuft

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 7

POST_DEV_DRAINAGE_AREA_1b

Hydrograph type	= SCS Runoff	Peak discharge	= 4.304 cfs
Storm frequency	= 50 yrs	Time to peak	= 754 min
Time interval	= 2 min	Hyd. volume	= 39,872 cuft
Drainage area	= 1.700 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 61.80 min
Total precip.	= 8.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (1.700 x 80)] / 1.700

POST_DEV_DRAINAGE_AREA_1b

Hyd. No. 7 -- 50 Year

Q (cfs)

Q (cfs)

Time (min)
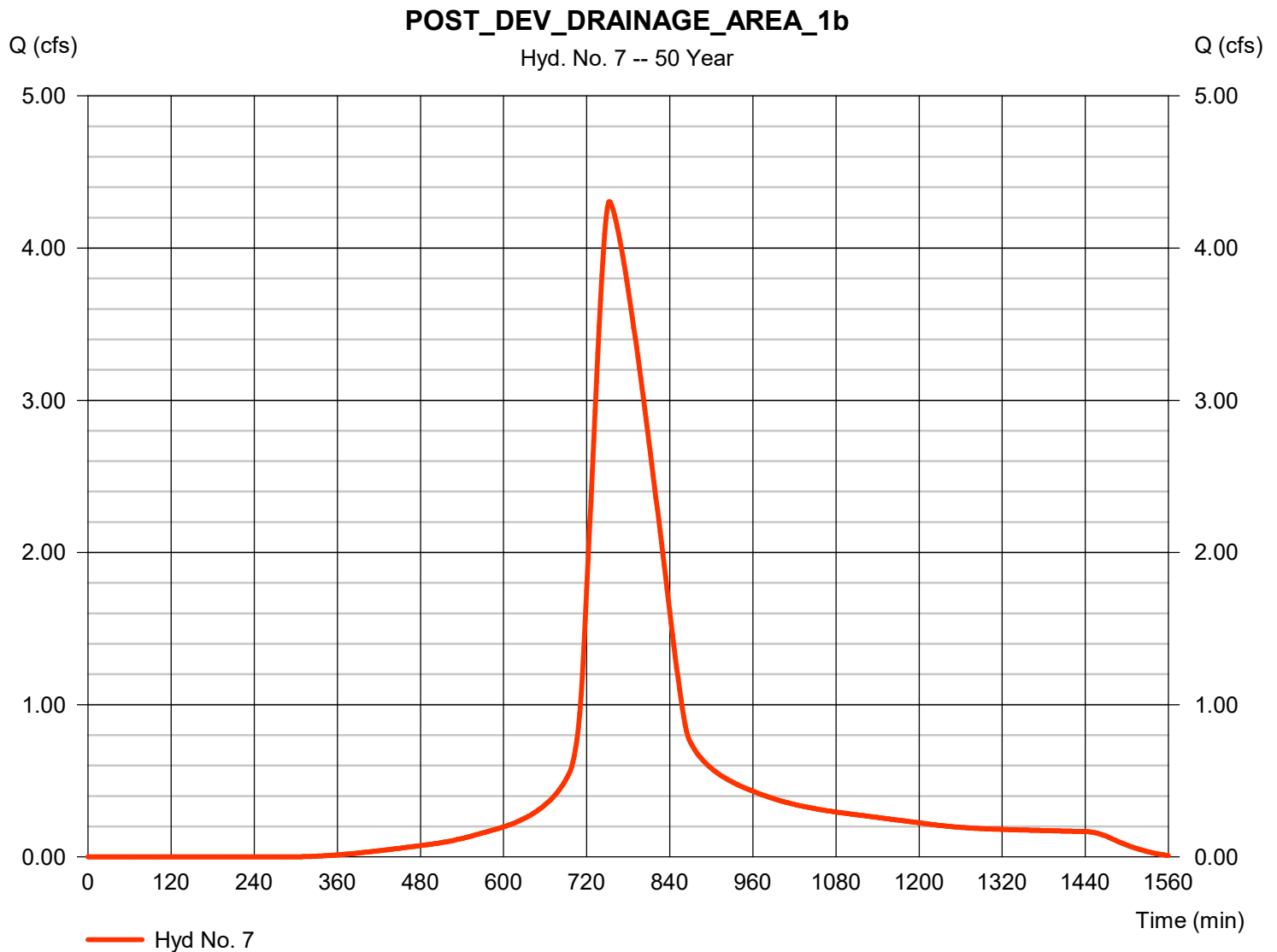
Hyd No. 7

Hydrograph Report

Hyd. No. 8

POST DEVELOPED DRAINAGE AREA 1c

Hydrograph type	= SCS Runoff	Peak discharge	= 69.86 cfs
Storm frequency	= 50 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 625,683 cuft
Drainage area	= 24.800 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 58.40 min
Total precip.	= 8.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(7.730 x 98) + (7.770 x 80) + (9.300 x 77)] / 24.800

POST DEVELOPED DRAINAGE AREA 1c
Hyd. No. 8 -- 50 Year
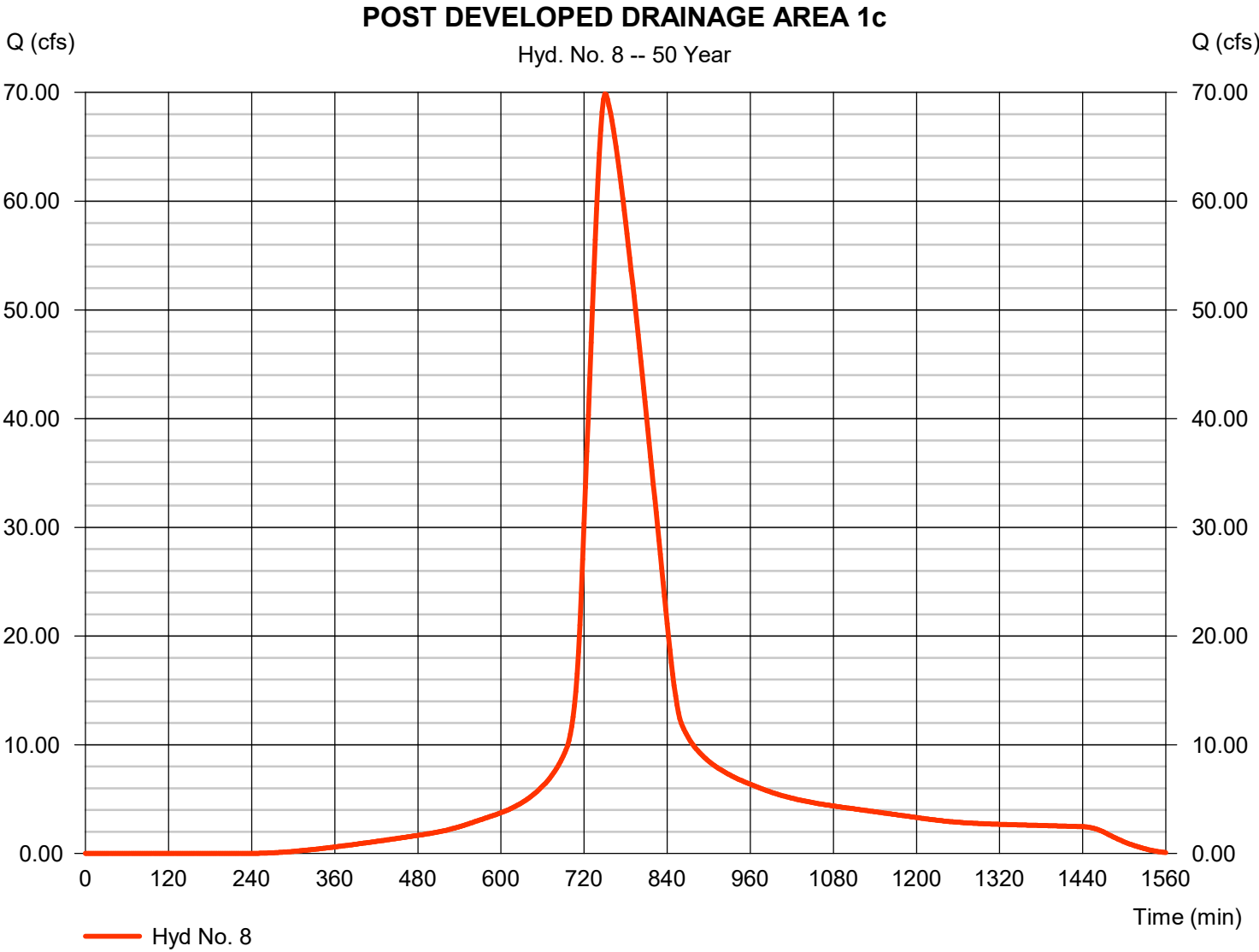
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024

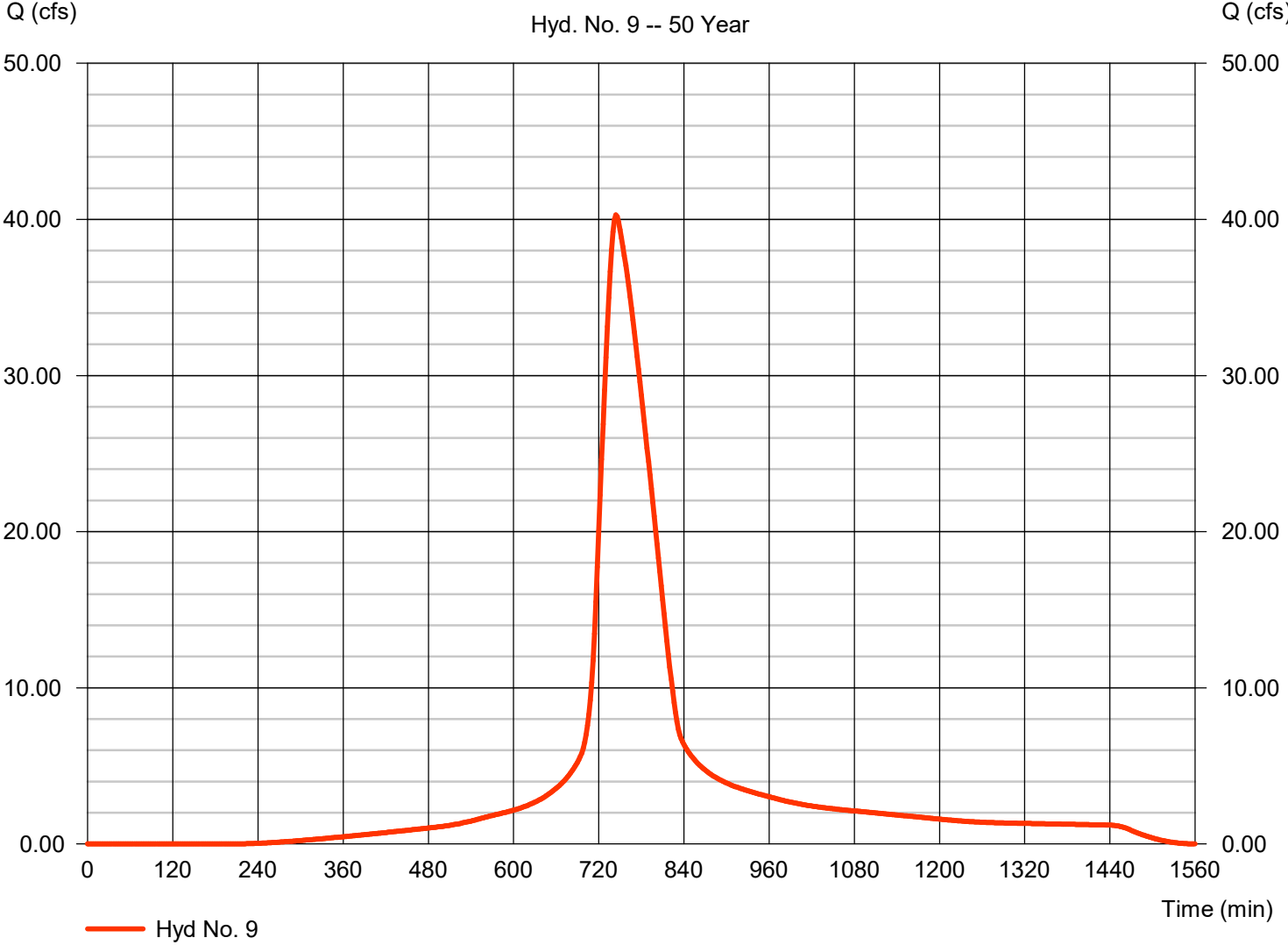## Hyd. No. 9

POST DEVELOPED DRAINAGE AREA 1d

Hydrograph type	= SCS Runoff	Peak discharge	= 40.28 cfs
Storm frequency	= 50 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 317,035 cuft
Drainage area	= 12.140 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 50.20 min
Total precip.	= 8.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(3.780 x 98) + (8.360 x 80)] / 12.140

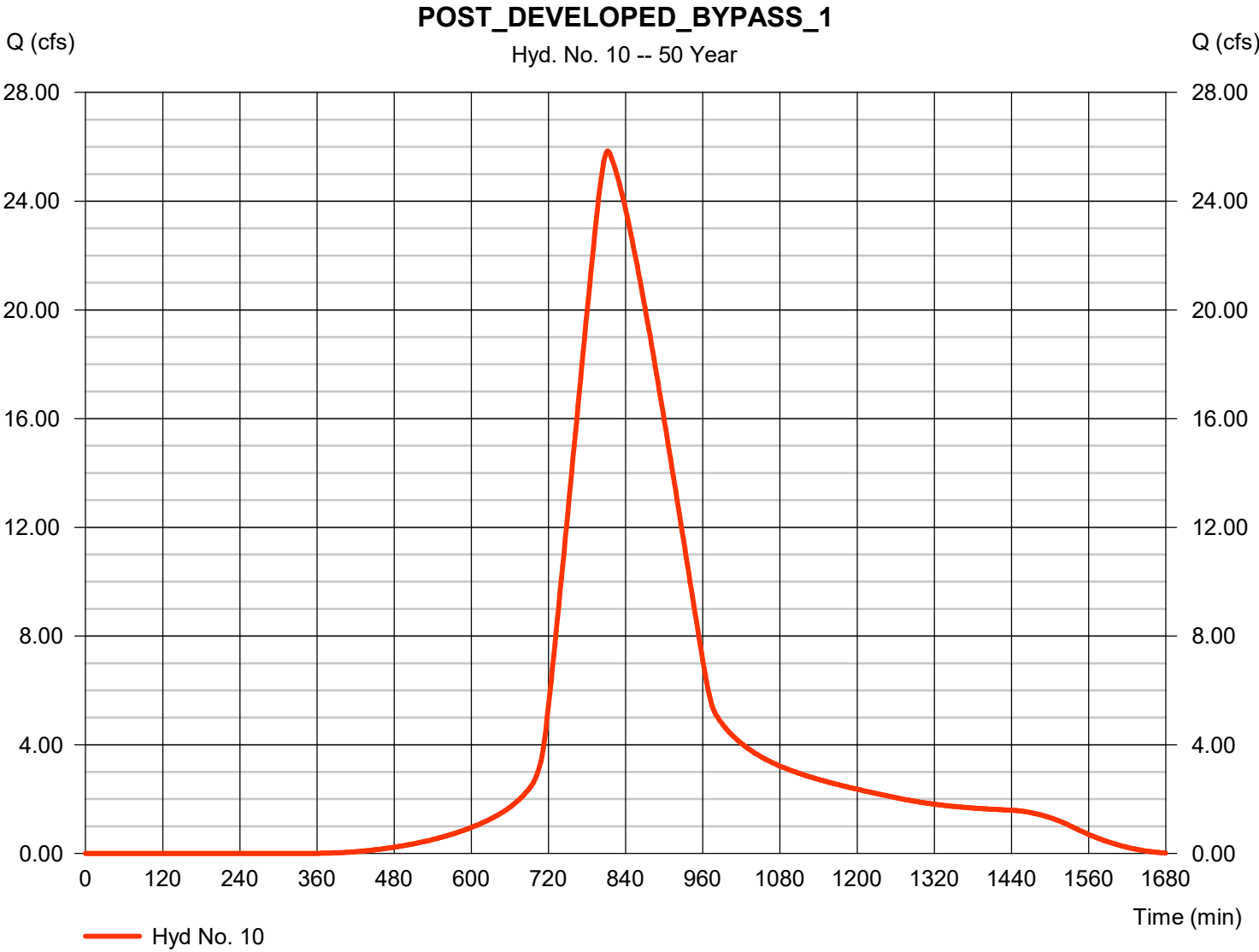**POST DEVELOPED DRAINAGE AREA 1d**
Hyd. No. 9 -- 50 Year

Hyd No. 9

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024

Hyd. No. 10

POST_DEVELOPED_BYPASS_1

Hydrograph type	= SCS Runoff	Peak discharge	= 25.85 cfs
Storm frequency	= 50 yrs	Time to peak	= 812 min
Time interval	= 2 min	Hyd. volume	= 353,123 cuft
Drainage area	= 15.940 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 164.70 min
Total precip.	= 8.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

POST_DEVELOPED_BYPASS_1

Hyd. No. 10 -- 50 Year

Hyd No. 10

Hydrograph Report

Hyd. No. 11

POST_DEVELOPED_BYPASS_2

Hydrograph type	= SCS Runoff	Peak discharge	= 21.93 cfs
Storm frequency	= 50 yrs	Time to peak	= 790 min
Time interval	= 2 min	Hyd. volume	= 245,570 cuft
Drainage area	= 11.150 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 127.20 min
Total precip.	= 8.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

POST_DEVELOPED_BYPASS_2

Hyd. No. 11 -- 50 Year
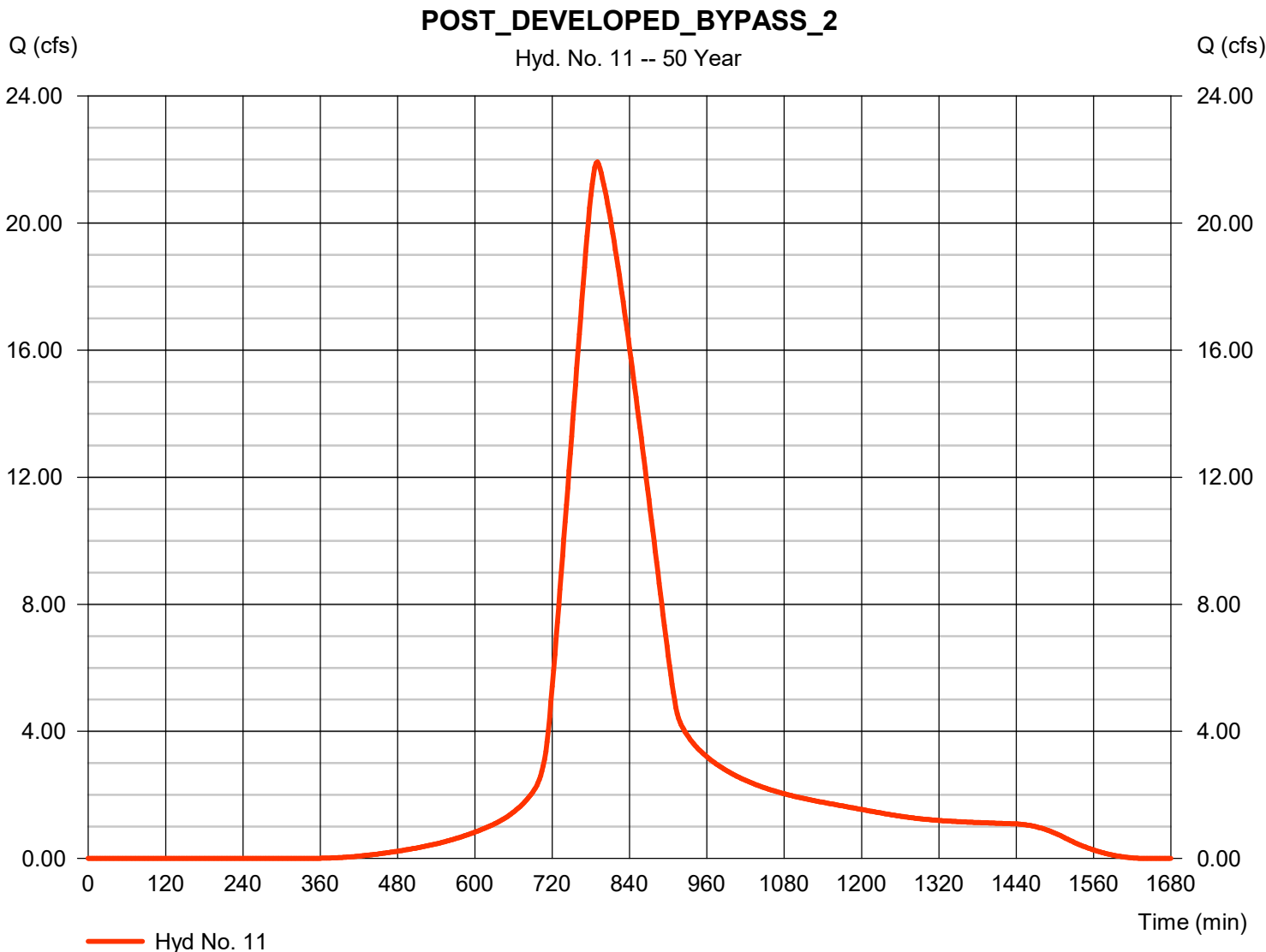
Hyd No. 11

Hydrograph Report

Hyd. No. 12

Rear Area Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 50 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - POST_DEVELOPED_BYPASSE2	Max. Elevation	= 70.93 ft
Reservoir name	= Rear Detention Pond	Max. Storage	= 245,570 cuft

Storage Indication method used.
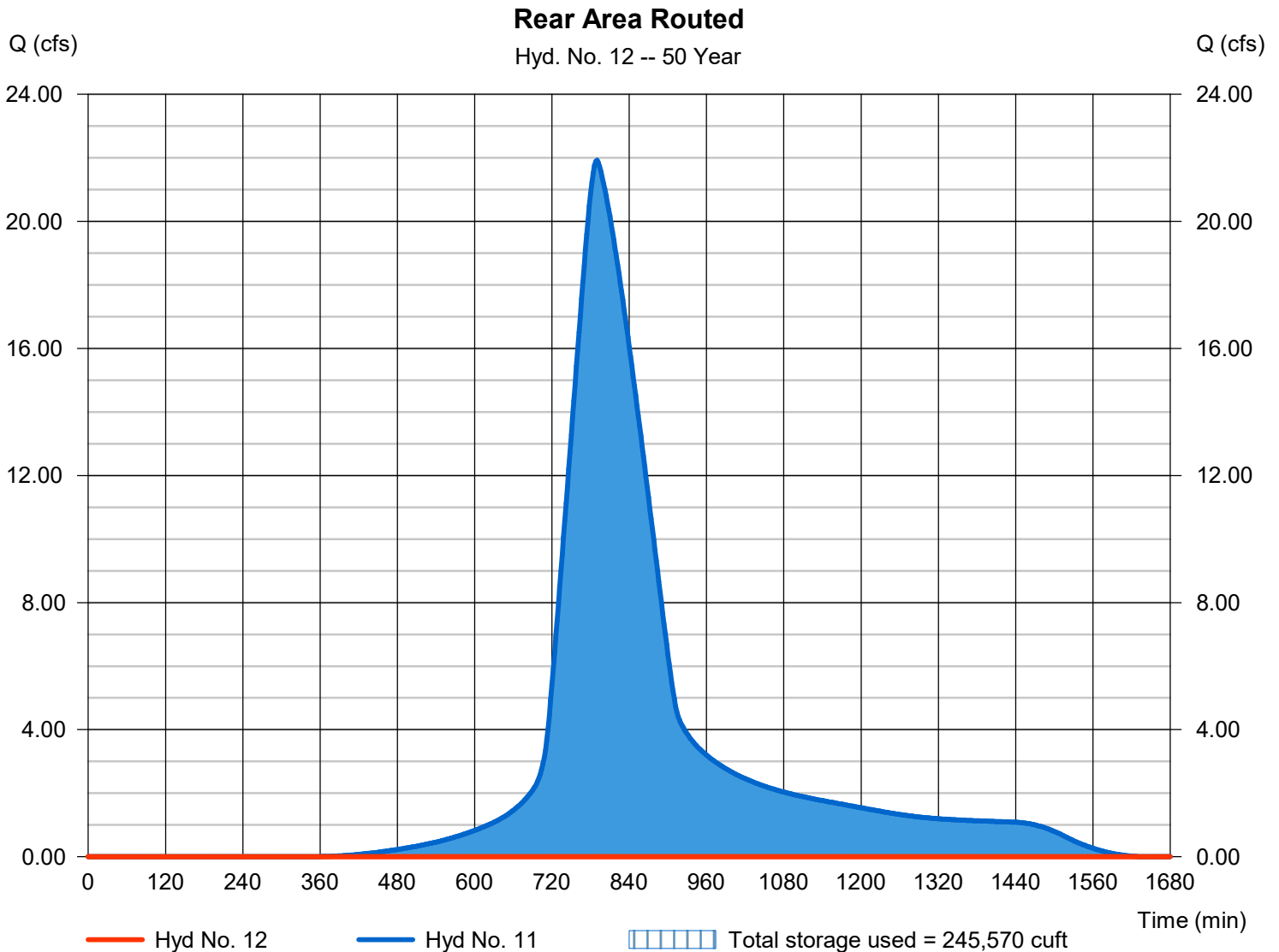
Rear Area Routed
Hyd. No. 12 -- 50 Year

Hyd No. 12   Hyd No. 11   Total storage used = 245,570 cuft

Hydrograph Report

Hyd. No. 13

POST_DEV_1a_ROUTED+_1b

Hydrograph type	= Combine	Peak discharge	= 10.46 cfs
Storm frequency	= 50 yrs	Time to peak	= 790 min
Time interval	= 2 min	Hyd. volume	= 181,151 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.700 ac
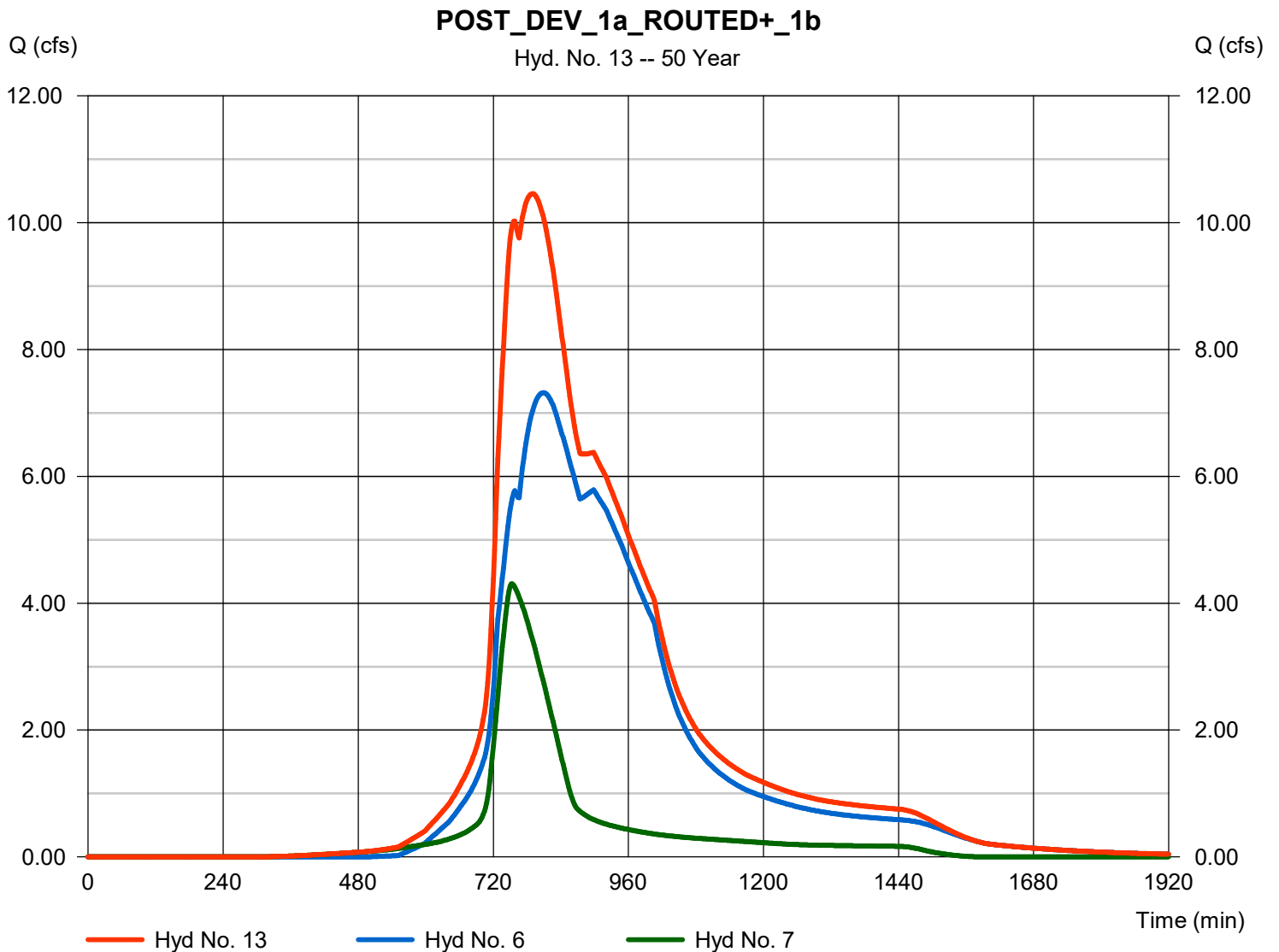
POST_DEV_1a_ROUTED+_1b

Hyd. No. 13 -- 50 Year

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024

Hyd. No. 14

POST_DEVELOPED_POND_1B

Hydrograph type	= Reservoir	Peak discharge	= 8.913 cfs
Storm frequency	= 50 yrs	Time to peak	= 832 min
Time interval	= 2 min	Hyd. volume	= 171,710 cuft
Inflow hyd. No.	= 13 - POST_DEV_1a_ROUTED_1b	Max. Elevation	= 77.31 ft
Reservoir name	= DETENTION AREA 1b	Max. Storage	= 31,069 cuft

Storage Indication method used.
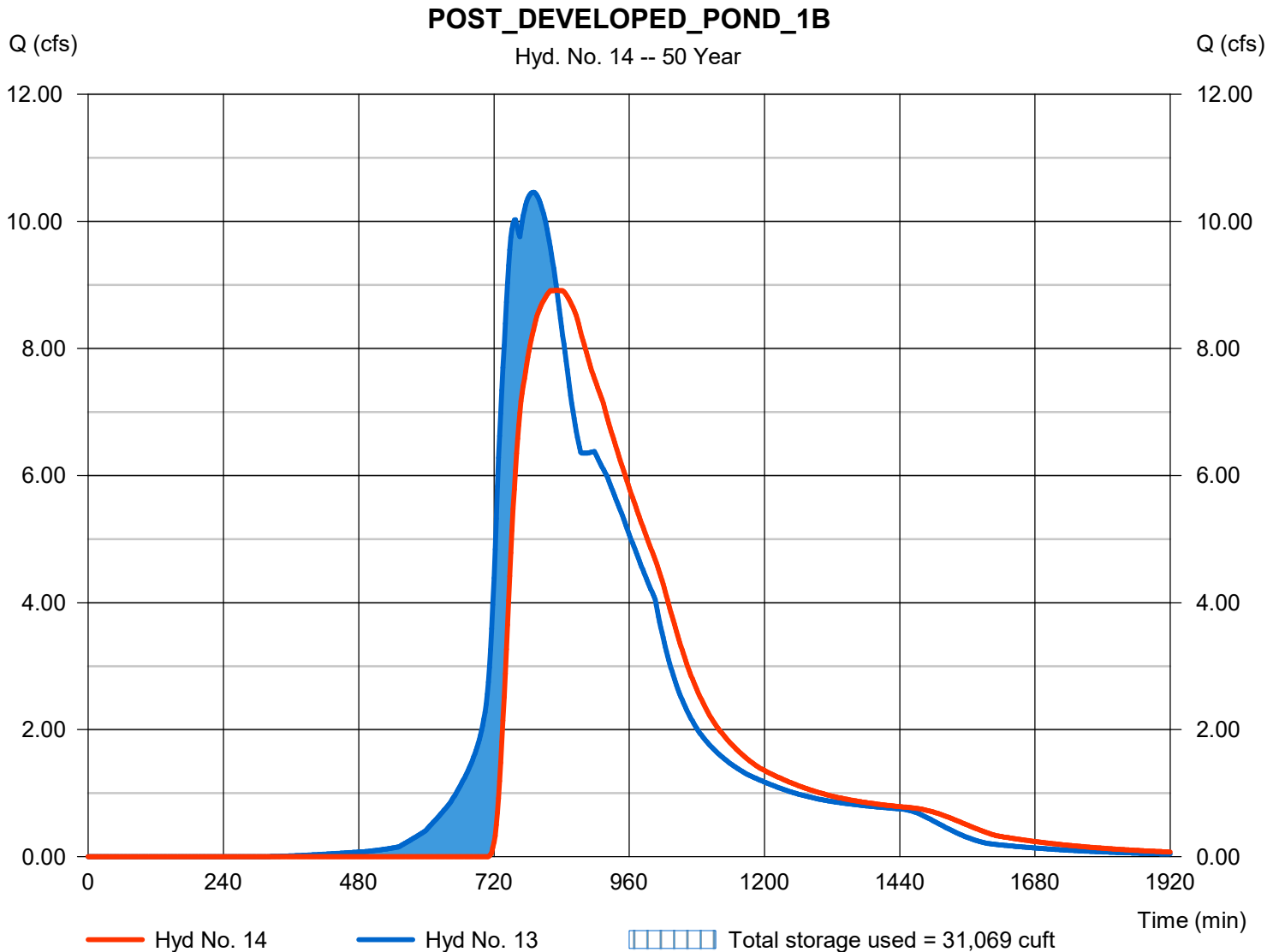
POST_DEVELOPED_POND_1B
Hyd. No. 14 -- 50 Year

Hyd No. 14   Hyd No. 13   Total storage used = 31,069 cuft

Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 15

POST_DEV_TOTAL_TO_POND_1d

Hydrograph type	= Combine	Peak discharge	= 43.34 cfs
Storm frequency	= 50 yrs	Time to peak	= 748 min
Time interval	= 2 min	Hyd. volume	= 481,694 cuft
Inflow hyds.	= 9, 14	Contrib. drain. area	= 12.140 ac

POST_DEV_TOTAL_TO_POND_1d

Hyd. No. 15 -- 50 Year
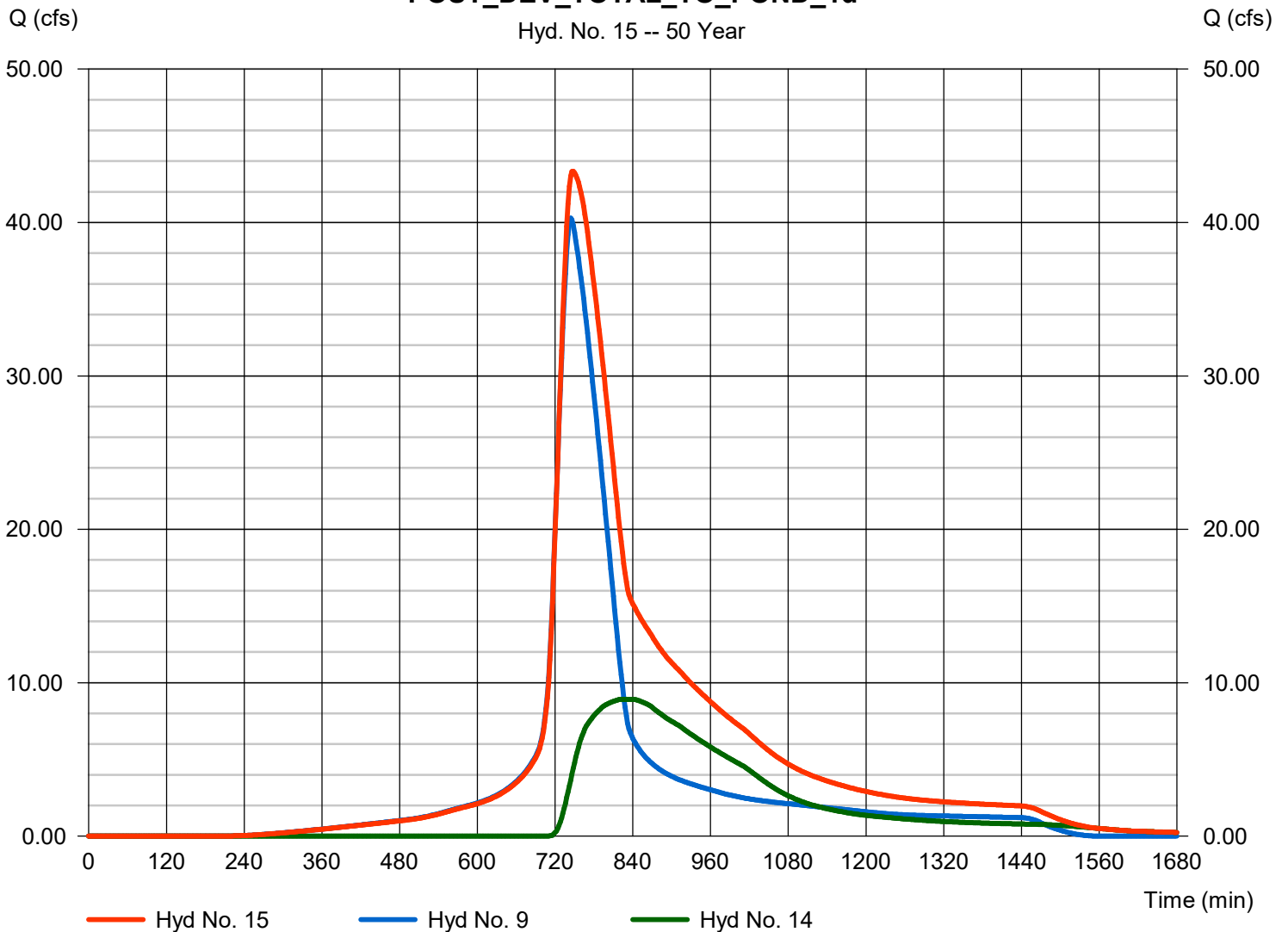
Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 16

POST_DEV_TOTAL_TO_BIG_POND

Hydrograph type	= Combine	Peak discharge	= 113.11 cfs
Storm frequency	= 50 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 1,107,377 cuft
Inflow hyds.	= 8, 15	Contrib. drain. area	= 24.800 ac

POST_DEV_TOTAL_TO_BIG_POND

Hyd. No. 16 -- 50 Year
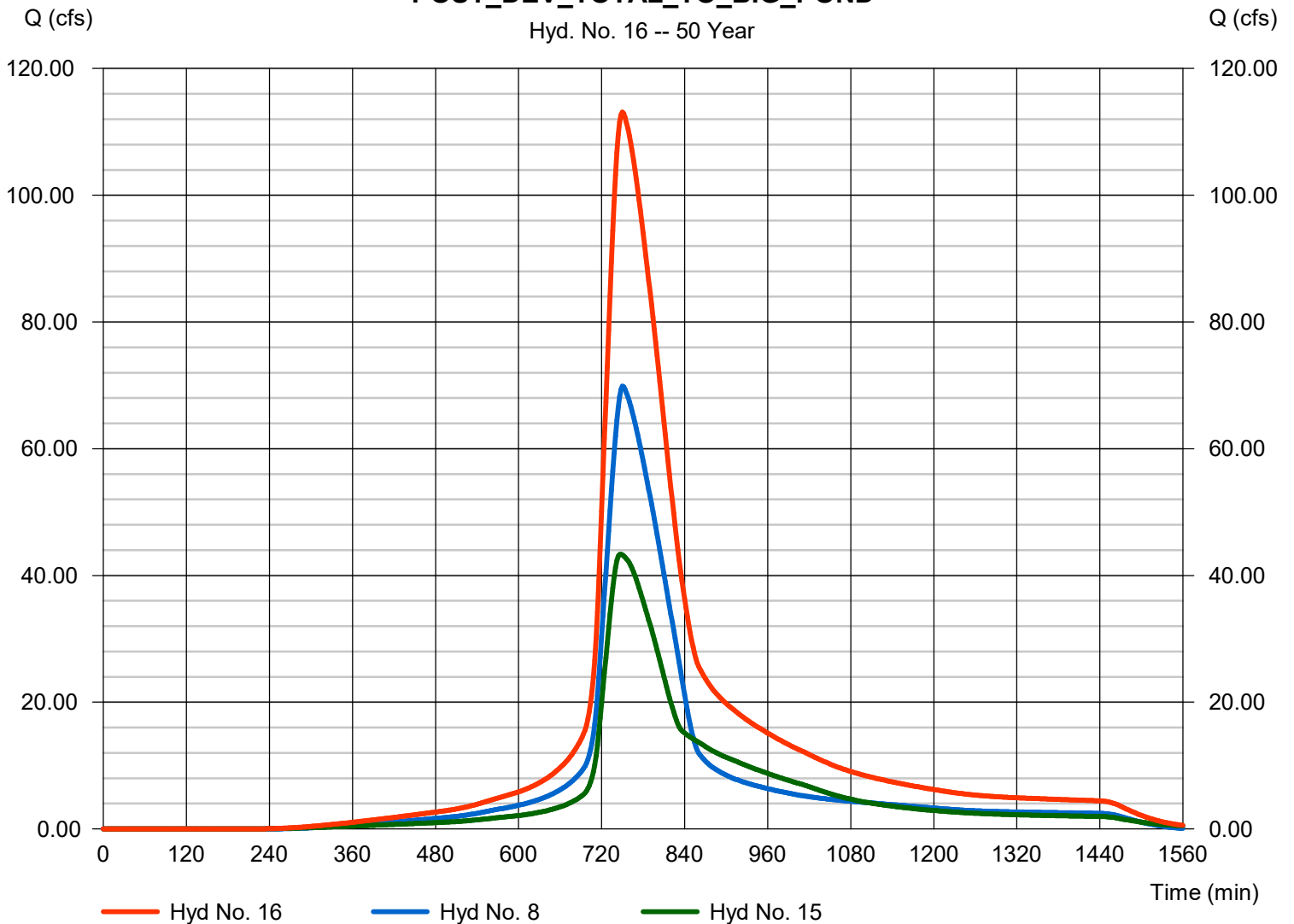
Hydrograph Report

Hyd. No. 17

POST_DEV_BIG_POND_ROUT

Hydrograph type	= Reservoir	Peak discharge	= 90.62 cfs
Storm frequency	= 50 yrs	Time to peak	= 784 min
Time interval	= 2 min	Hyd. volume	= 1,107,238 cuft
Inflow hyd. No.	= 16 - POST_DEV_TOTAL_TO_BIG_POND	Max. Elevation	= 77.44 ft
Reservoir name	= Big_Detention_Pond	Max. Storage	= 238,844 cuft

Storage Indication method used.

POST_DEV_BIG_POND_ROUT

Hyd. No. 17 -- 50 Year

Legend: —— Hyd No. 17   —— Hyd No. 16   ▨ Total storage used = 238,844 cuft

Hydrograph Report

Hyd. No. 18

TOTAL_FLOW_AT_OUTFALL_DA_1

Hydrograph type	= Combine	Peak discharge	= 111.77 cfs
Storm frequency	= 50 yrs	Time to peak	= 786 min
Time interval	= 2 min	Hyd. volume	= 1,460,361 cuft
Inflow hyds.	= 10, 12, 17	Contrib. drain. area	= 15.940 ac

TOTAL_FLOW_AT_OUTFALL_DA_1

Hyd. No. 18 -- 50 Year

Hyd No. 18 Hyd No. 10 Hyd No. 12 Hyd No. 17

Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	133.38	2	792	2,112,891	------	------	------	PRE DEVELOPED DRAINAGE ARE
2	SCS Runoff	13.44	2	770	163,938	------	------	------	PRE DEVELOPED DRAINAGE ARE
3	SCS Runoff	1.803	2	764	20,995	------	------	------	PRE DEVELOPED DRAINAGE ARE
4	SCS Runoff	6.896	2	772	85,941	------	------	------	POST DEVELOPED DRAINAGE AR
5	SCS Runoff	20.66	2	744	164,616	------	------	------	POST_DEV_DRAINAGE_AREA_1a
6	Reservoir	8.170	2	808	159,829	5	77.86	69,835	POST_DEV_DA_1a_ROUTED
7	SCS Runoff	4.903	2	752	45,514	------	------	------	POST_DEV_DRAINAGE_AREA_1b
8	SCS Runoff	78.95	2	750	709,541	------	------	------	POST DEVELOPED DRAINAGE AR
9	SCS Runoff	45.34	2	744	358,395	------	------	------	POST DEVELOPED DRAINAGE AR
10	SCS Runoff	29.64	2	812	405,207	------	------	------	POST_DEVELOPED_BYPASS_1
11	SCS Runoff	25.13	2	790	281,790	------	------	------	POST_DEVELOPED_BYPASS_2
12	Reservoir	0.000	2	n/a	0	11	71.07	281,790	Rear Area Routed
13	Combine	11.78	2	786	205,343	6, 7,	------	------	POST_DEV_1a_ROUTED+_1b
14	Reservoir	9.970	2	832	195,901	13	77.52	35,237	POST_DEVELOPED_POND_1B
15	Combine	49.59	2	746	546,326	9, 14	------	------	POST_DEV_TOTAL_TO_POND_1d
16	Combine	128.27	2	750	1,255,865	8, 15	------	------	POST_DEV_TOTAL_TO_BIG_POND
17	Reservoir	108.61	2	778	1,255,725	16	77.56	247,923	POST_DEV_BIG_POND_ROUT
18	Combine	131.15	2	780	1,660,932	10, 12, 17	------	------	TOTAL_FLOW_AT_OUTFALL_DA_1

BLUE_JAY_ROAD_05282024gpw.gpw	Return Period: 100 Year	Wednesday, 05 / 29 / 2024

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024
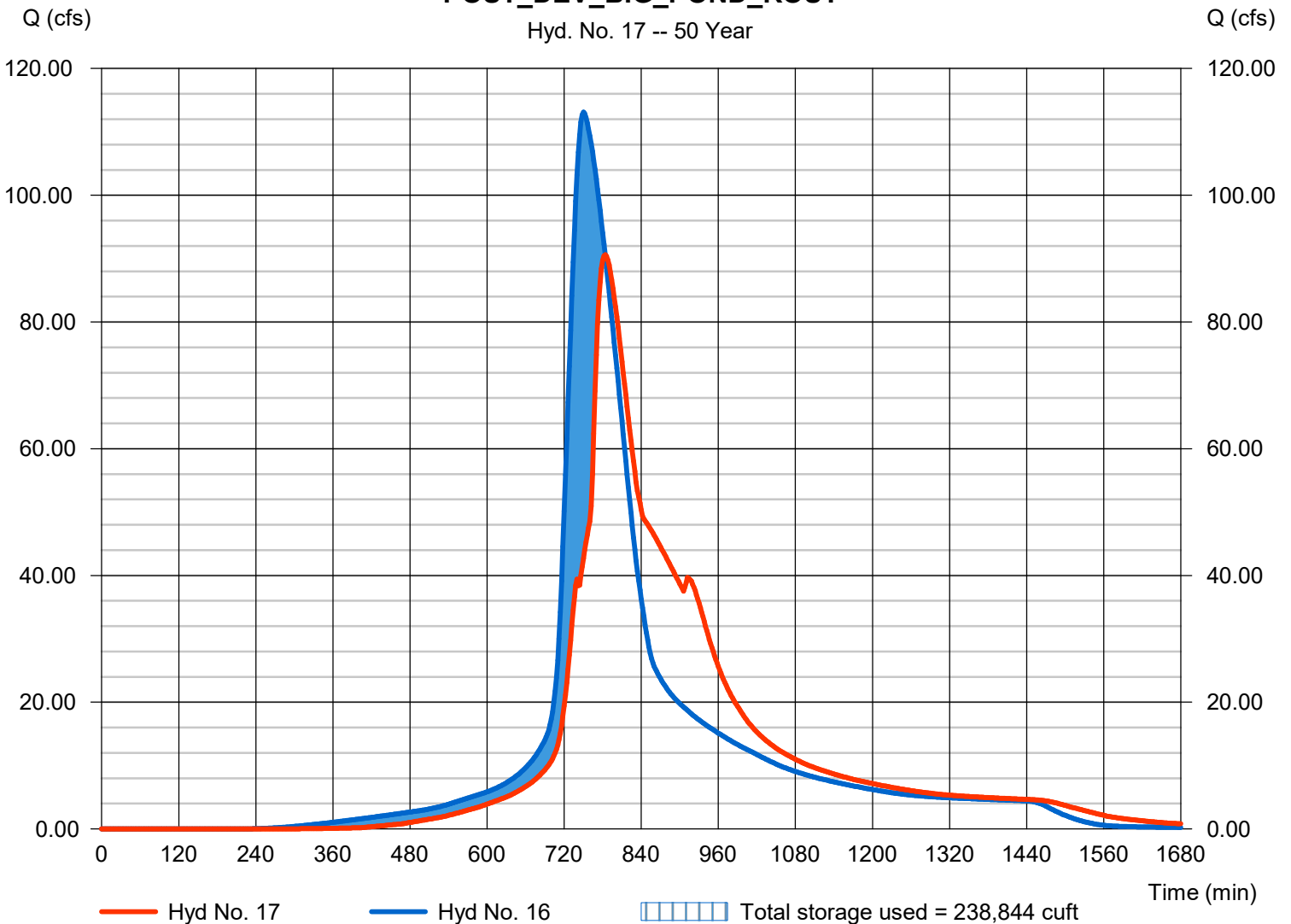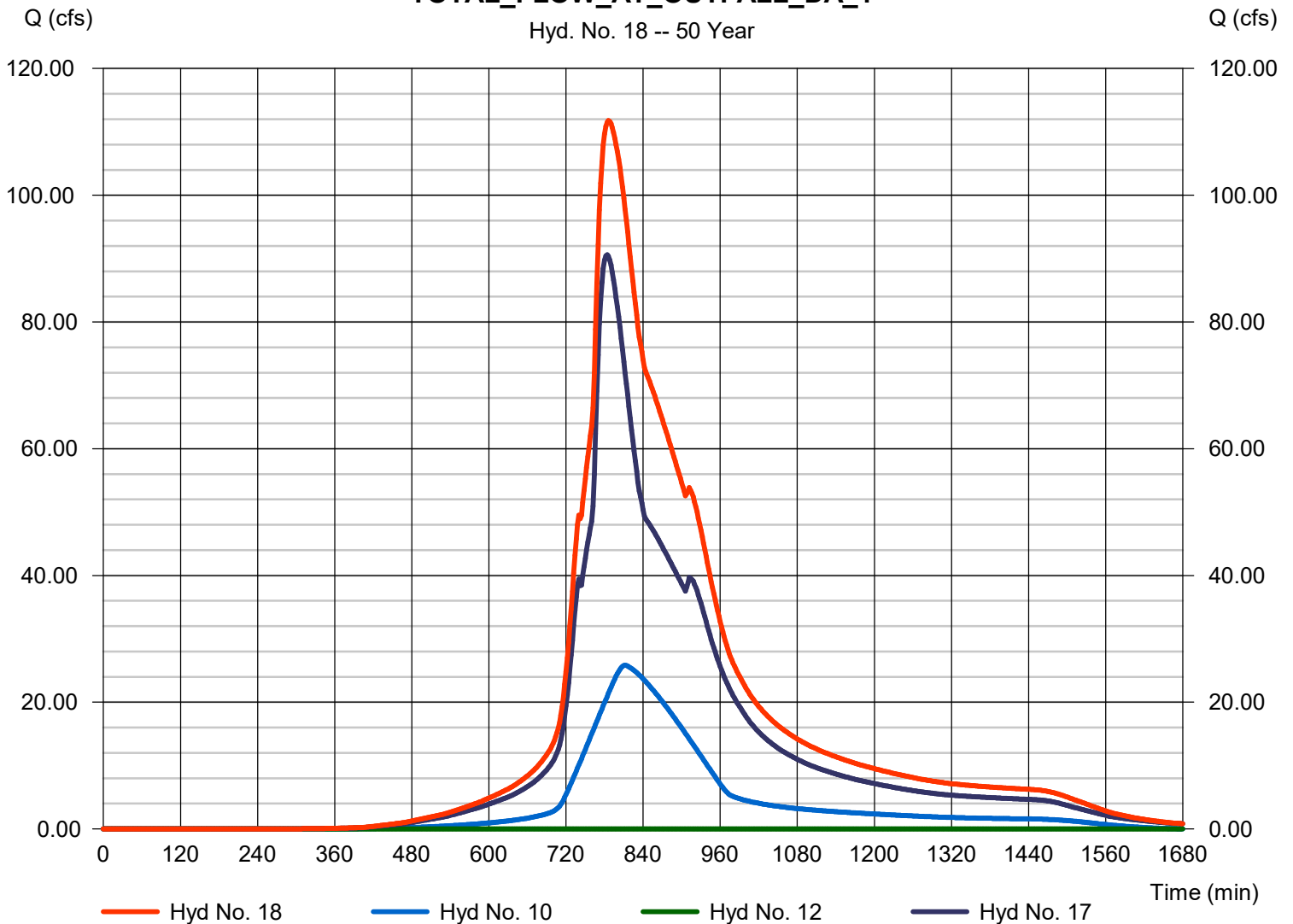
Hyd. No. 1

PRE DEVELOPED DRAINAGE AREA 1

Hydrograph type	= SCS Runoff	Peak discharge	= 133.38 cfs
Storm frequency	= 100 yrs	Time to peak	= 792 min
Time interval	= 2 min	Hyd. volume	= 2,112,891 cuft
Drainage area	= 73.850 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 127.80 min
Total precip.	= 9.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = + (66.130 x 84)] / 73.850

PRE DEVELOPED DRAINAGE AREA 1

Hyd. No. 1 -- 100 Year
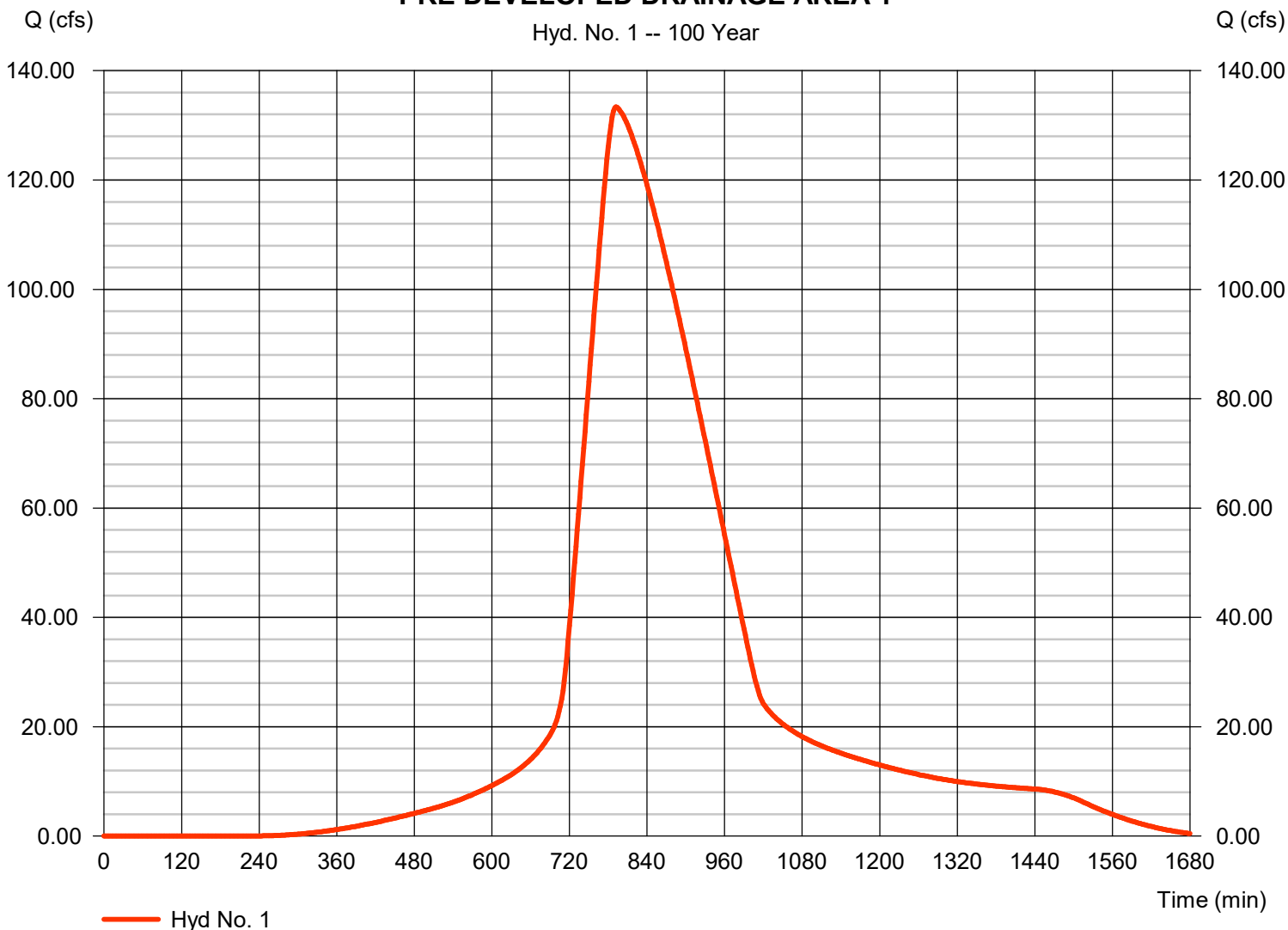
Hyd No. 1

Hydrograph Report

Hyd. No. 2

PRE DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff	Peak discharge	= 13.44 cfs
Storm frequency	= 100 yrs	Time to peak	= 770 min
Time interval	= 2 min	Hyd. volume	= 163,938 cuft
Drainage area	= 5.730 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 88.70 min
Total precip.	= 9.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (5.480 x 83)] / 5.730

PRE DEVELOPED DRAINAGE AREA 2

Hyd. No. 2 -- 100 Year
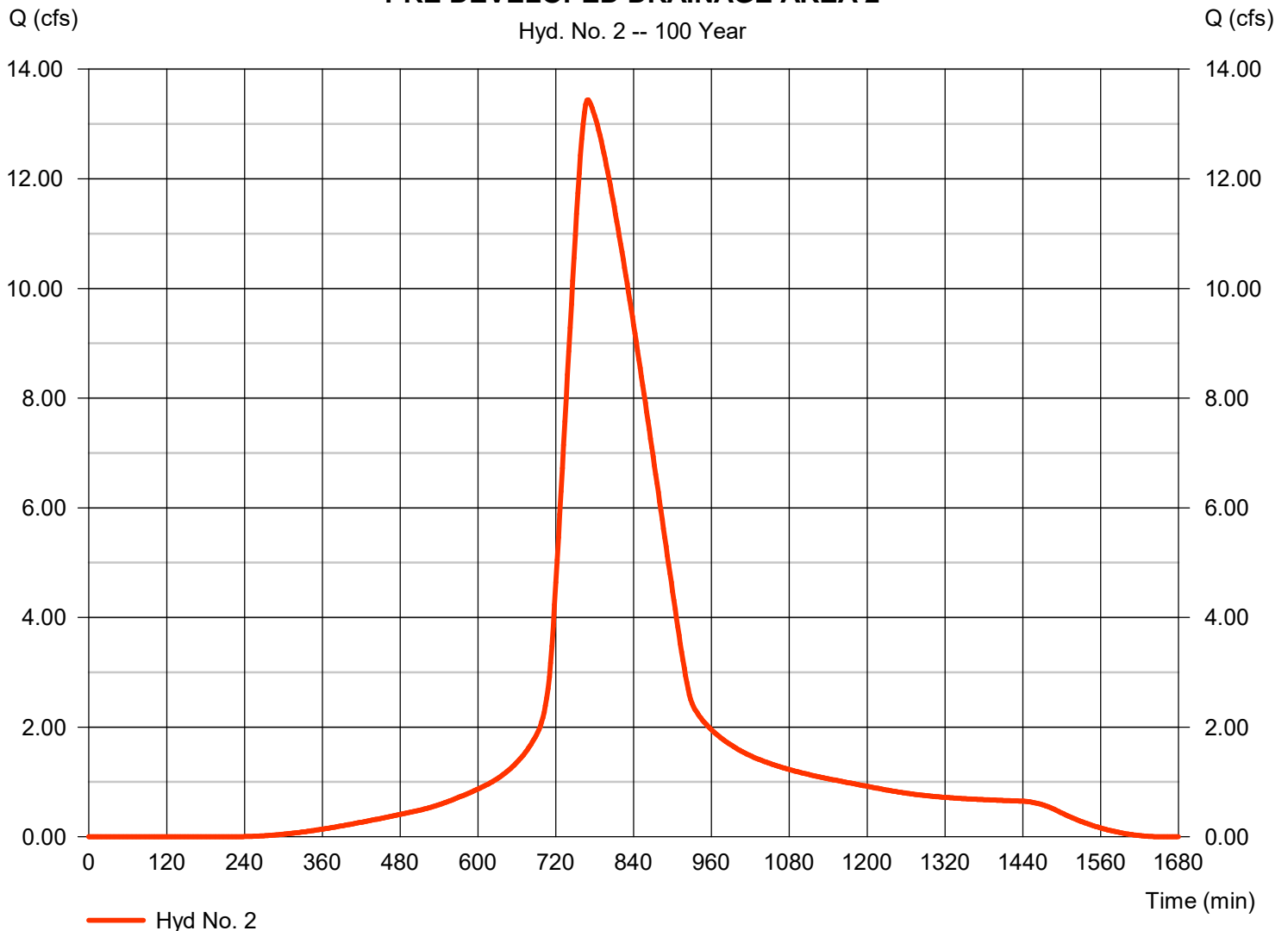
Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 3

PRE DEVELOPED DRAINAGE AREA 3

Hydrograph type	= SCS Runoff	Peak discharge	= 1.803 cfs
Storm frequency	= 100 yrs	Time to peak	= 764 min
Time interval	= 2 min	Hyd. volume	= 20,995 cuft
Drainage area	= 0.690 ac	Curve number	= 88*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 81.80 min
Total precip.	= 9.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.250 x 98) + (0.440 x 83)] / 0.690

PRE DEVELOPED DRAINAGE AREA 3

Hyd. No. 3 -- 100 Year
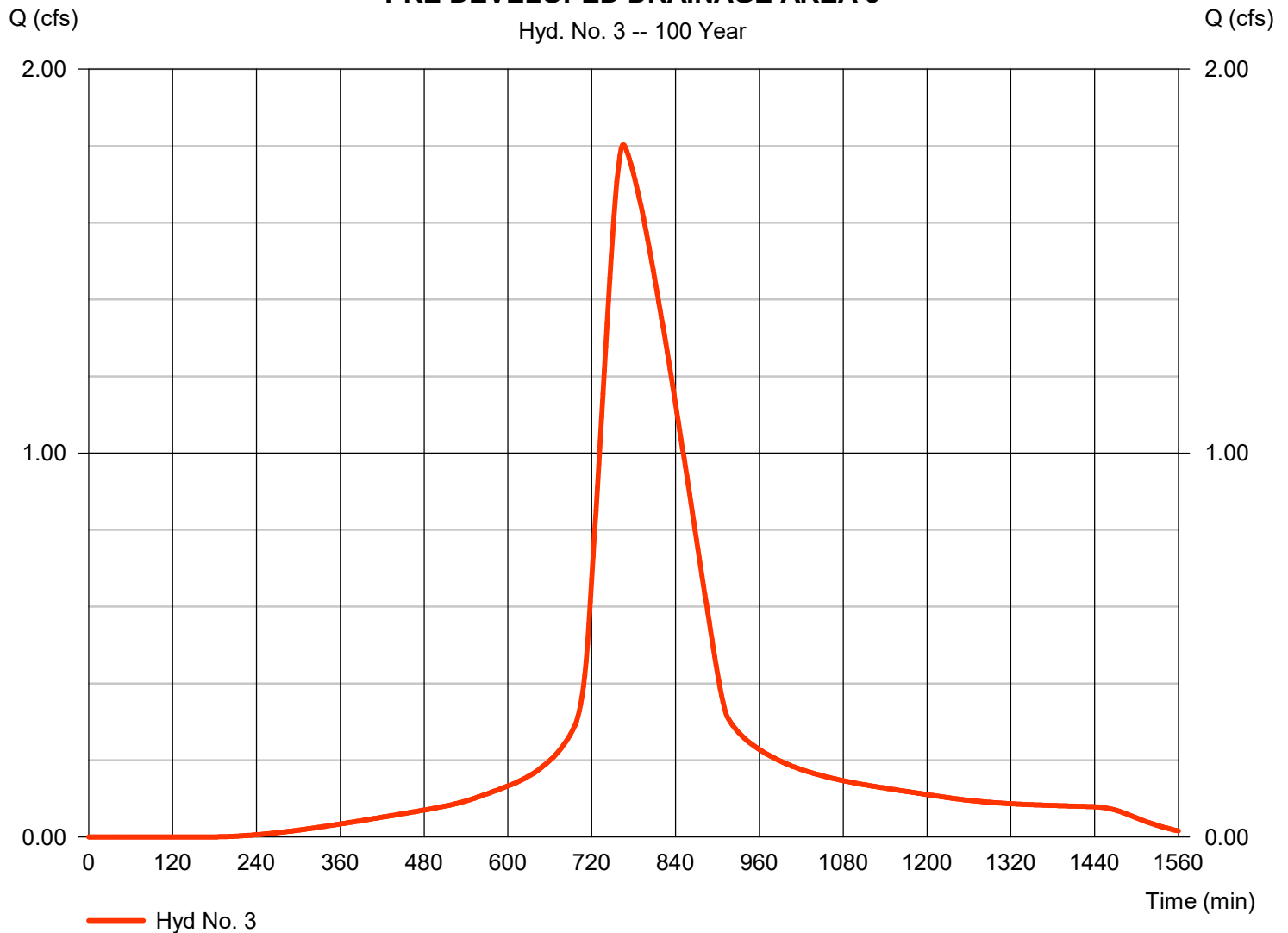
Hydrograph Report

Wednesday, 05 / 29 / 2024

Hyd. No. 4

POST DEVELOPED DRAINAGE AREA 2

Hydrograph type	= SCS Runoff		Peak discharge	= 6.896 cfs
Storm frequency	= 100 yrs		Time to peak	= 772 min
Time interval	= 2 min		Hyd. volume	= 85,941 cuft
Drainage area	= 3.210 ac		Curve number	= 80*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 91.70 min
Total precip.	= 9.84 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = + (3.210 x 80)] / 3.210

POST DEVELOPED DRAINAGE AREA 2

Hyd. No. 4 -- 100 Year
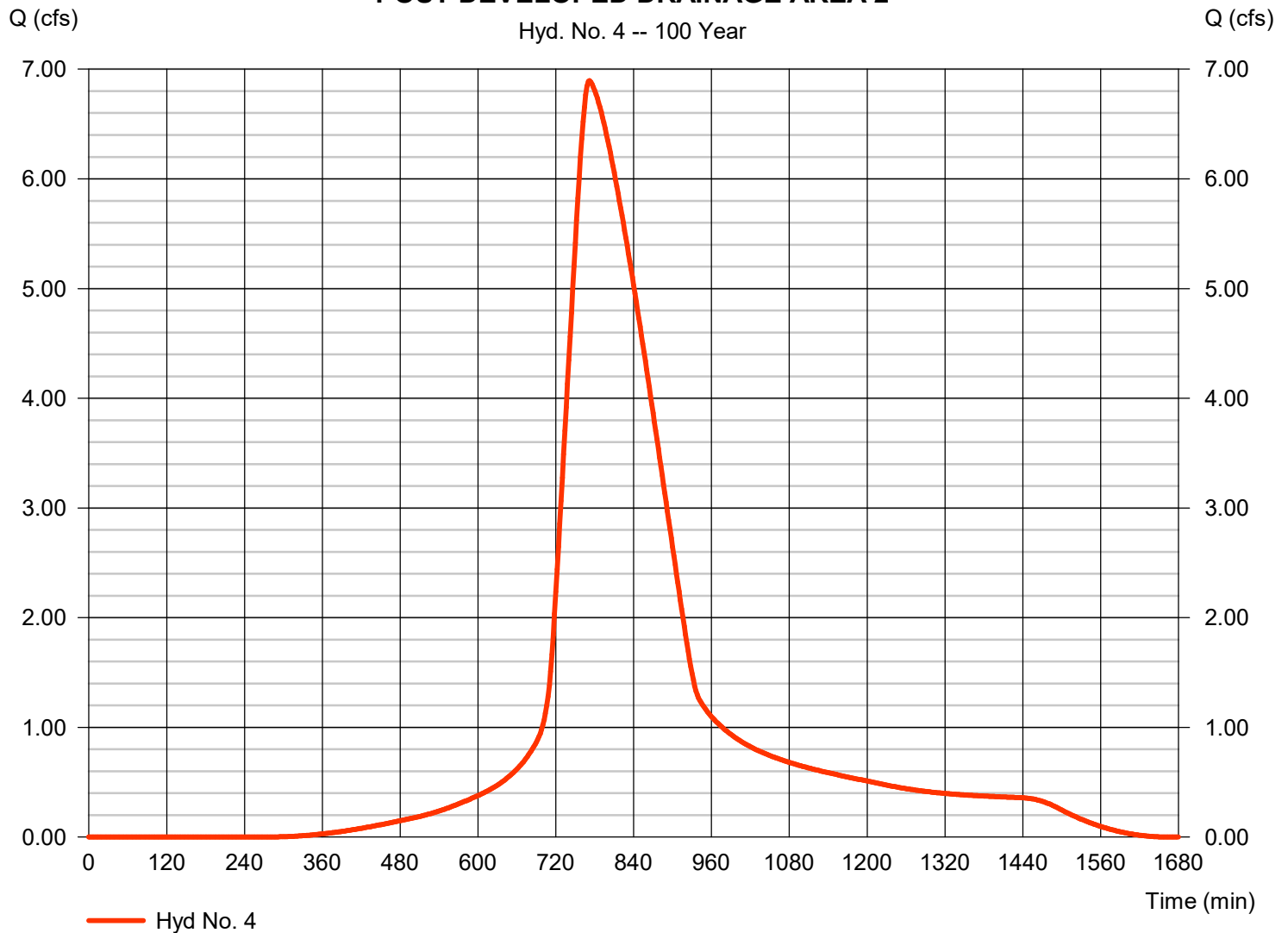
Hyd No. 4

Hydrograph Report

Hyd. No. 5

POST_DEV_DRAINAGE_AREA_1a

Hydrograph type	= SCS Runoff	Peak discharge	= 20.66 cfs
Storm frequency	= 100 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 164,616 cuft
Drainage area	= 5.410 ac	Curve number	= 88*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 48.90 min
Total precip.	= 9.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(2.490 x 98) + (2.920 x 80)] / 5.410

POST_DEV_DRAINAGE_AREA_1a

Hyd. No. 5 -- 100 Year
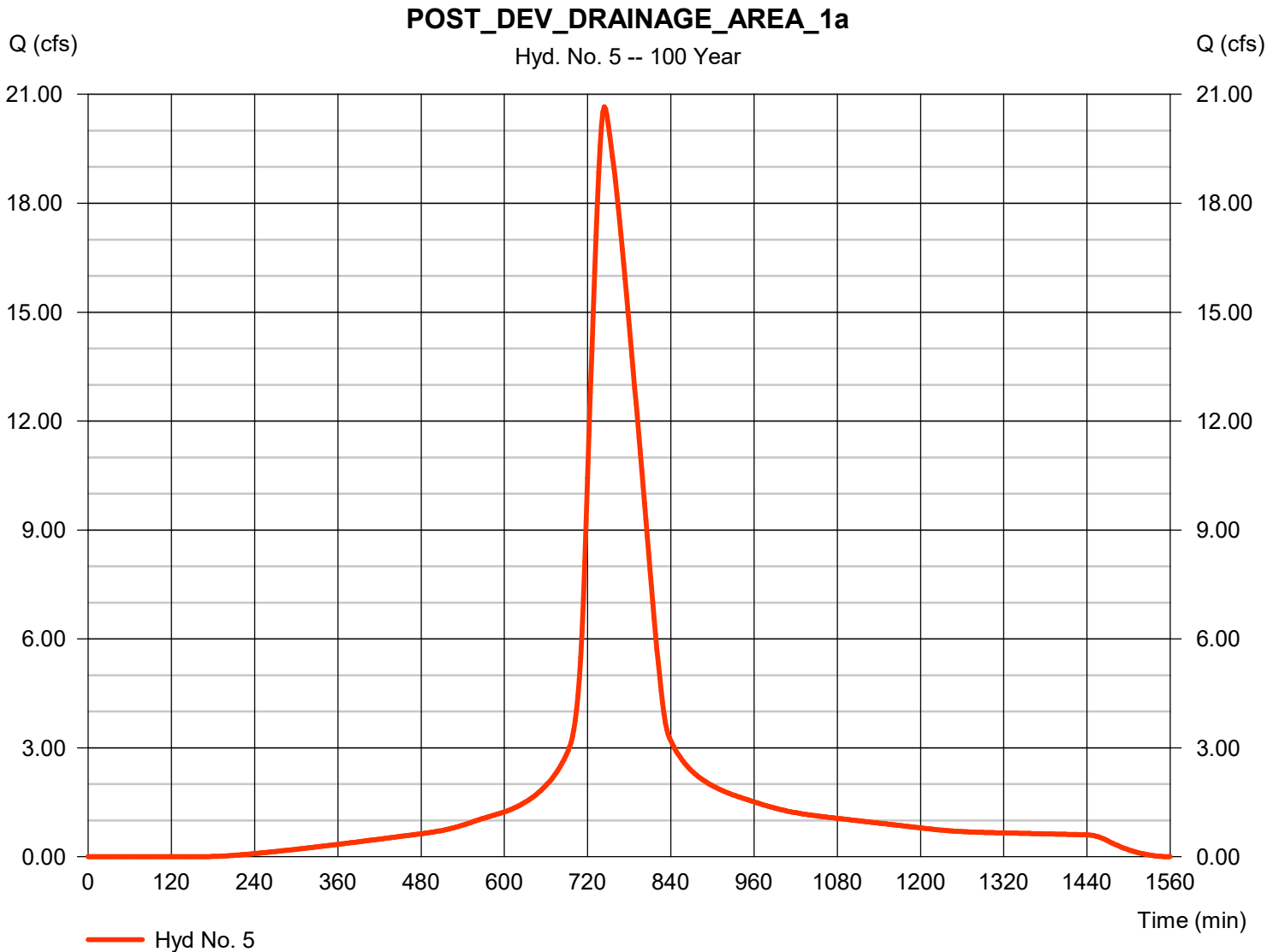
Hydrograph Report

Hyd. No. 6

POST_DEV_DA_1a_ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 8.170 cfs
Storm frequency	= 100 yrs	Time to peak	= 808 min
Time interval	= 2 min	Hyd. volume	= 159,829 cuft
Inflow hyd. No.	= 5 - POST_DEV_DRAINAGE_AREA_1a	Max. Elevation	= 77.86 ft
Reservoir name	= DETENTION AREA 1a	Max. Storage	= 69,835 cuft

Storage Indication method used.
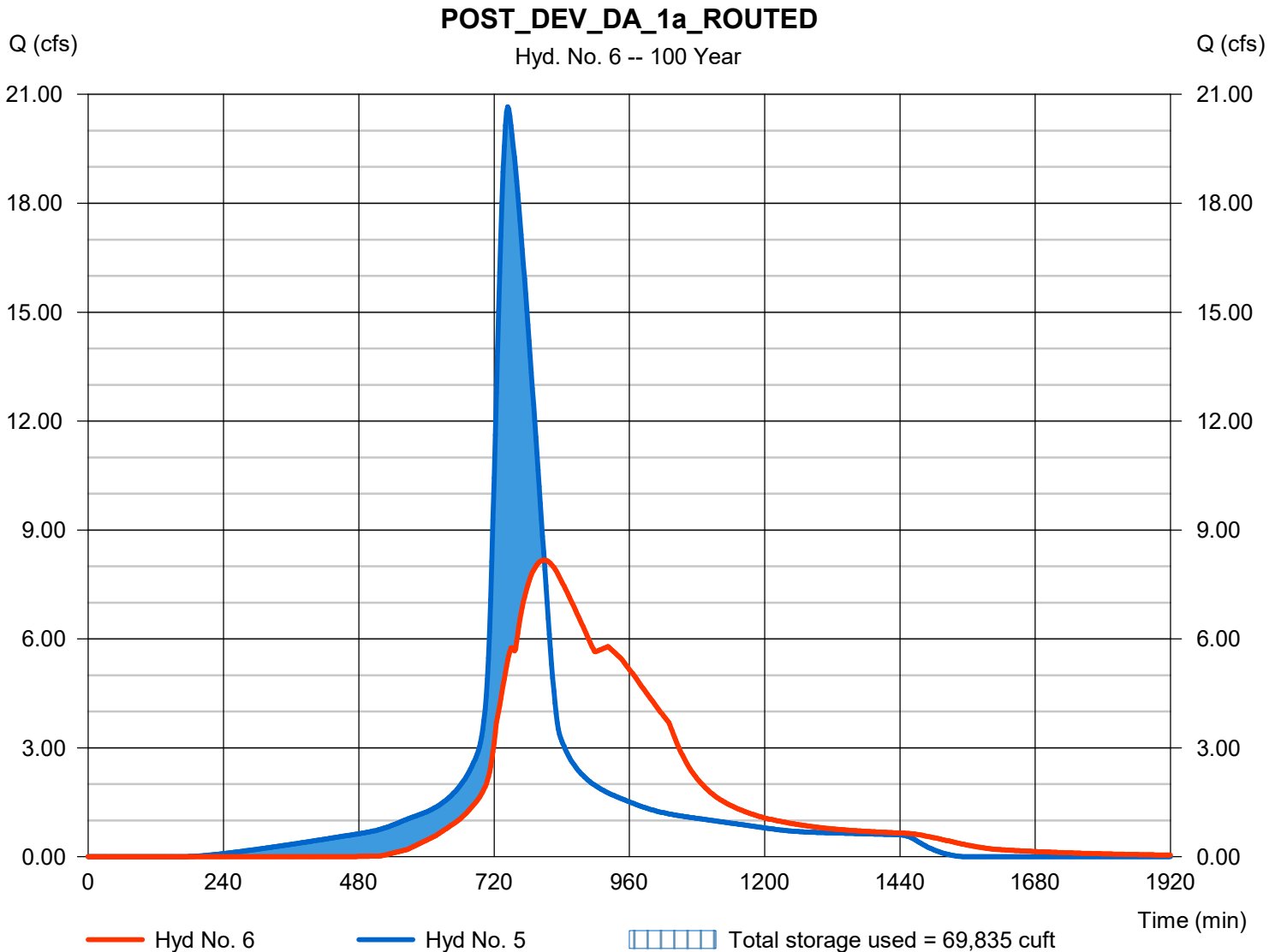
POST_DEV_DA_1a_ROUTED

Hyd. No. 6 -- 100 Year

Hyd No. 6   Hyd No. 5   Total storage used = 69,835 cuft

Hydrograph Report

Hyd. No. 7

POST_DEV_DRAINAGE_AREA_1b

Hydrograph type	= SCS Runoff		Peak discharge	= 4.903 cfs
Storm frequency	= 100 yrs		Time to peak	= 752 min
Time interval	= 2 min		Hyd. volume	= 45,514 cuft
Drainage area	= 1.700 ac		Curve number	= 80*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 61.80 min
Total precip.	= 9.84 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = + (1.700 x 80)] / 1.700

POST_DEV_DRAINAGE_AREA_1b

Hyd. No. 7 -- 100 Year
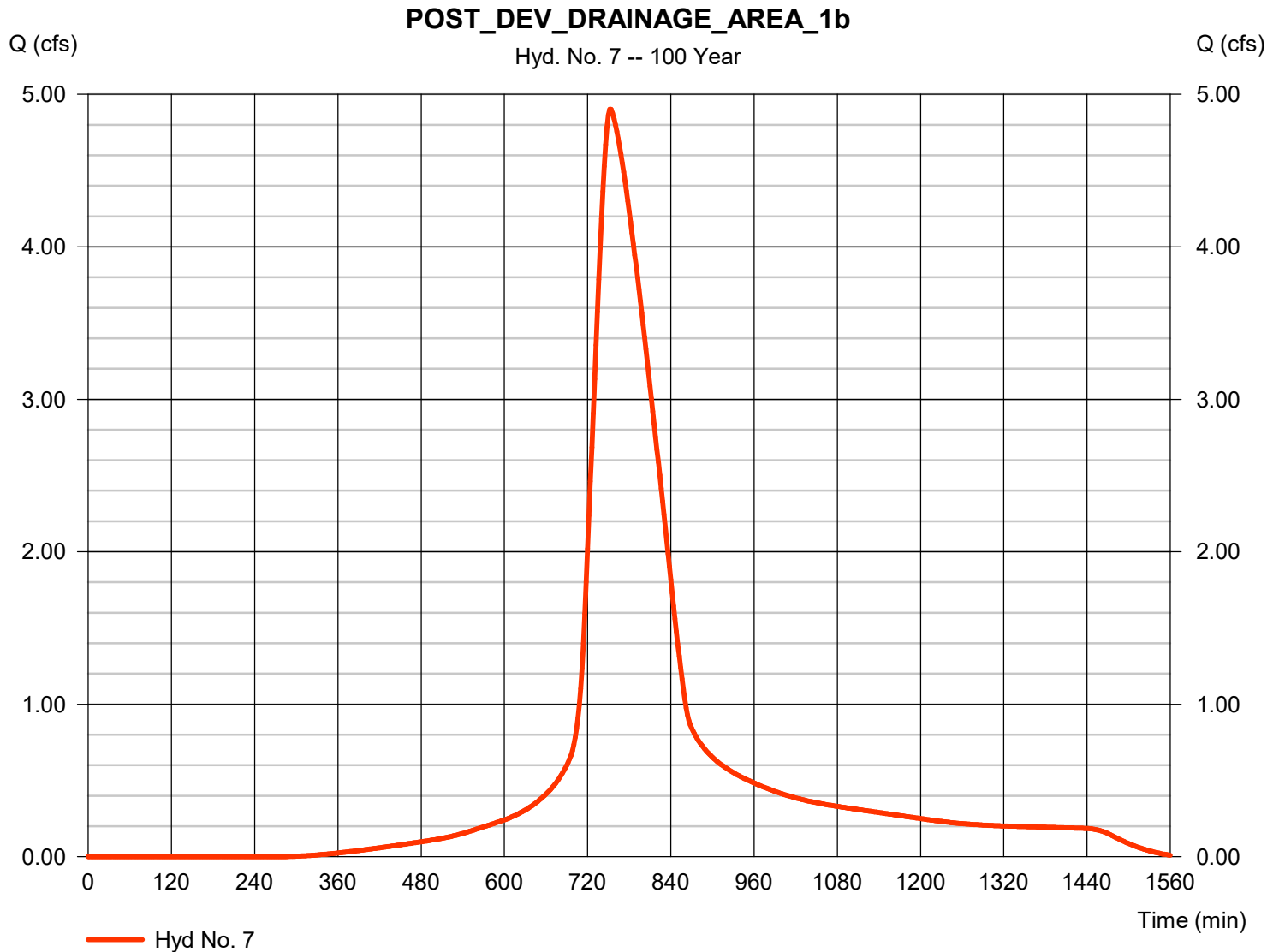
Hyd No. 7

Hydrograph Report

Hyd. No. 8

POST DEVELOPED DRAINAGE AREA 1c

Hydrograph type	= SCS Runoff	Peak discharge	= 78.95 cfs
Storm frequency	= 100 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 709,541 cuft
Drainage area	= 24.800 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 58.40 min
Total precip.	= 9.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(7.730 x 98) + (7.770 x 80) + (9.300 x 77)] / 24.800

POST DEVELOPED DRAINAGE AREA 1c

Hyd. No. 8 -- 100 Year
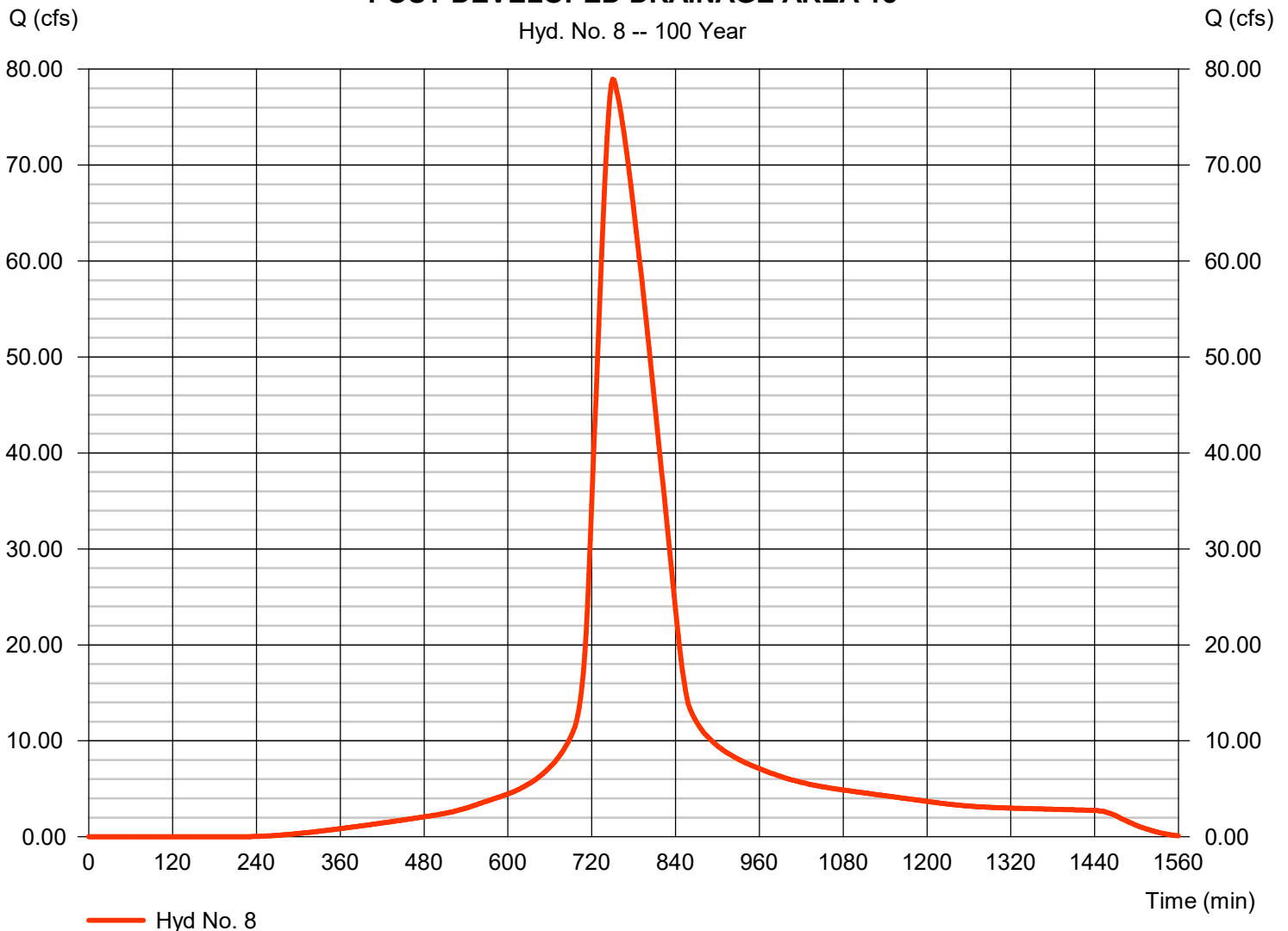
— Hyd No. 8

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024

Hyd. No. 9

POST DEVELOPED DRAINAGE AREA 1d

Hydrograph type	= SCS Runoff		Peak discharge	= 45.34 cfs
Storm frequency	= 100 yrs		Time to peak	= 744 min
Time interval	= 2 min		Hyd. volume	= 358,395 cuft
Drainage area	= 12.140 ac		Curve number	= 86*
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 50.20 min
Total precip.	= 9.84 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 323

* Composite (Area/CN) = [(3.780 x 98) + (8.360 x 80)] / 12.140

POST DEVELOPED DRAINAGE AREA 1d

Hyd. No. 9 -- 100 Year
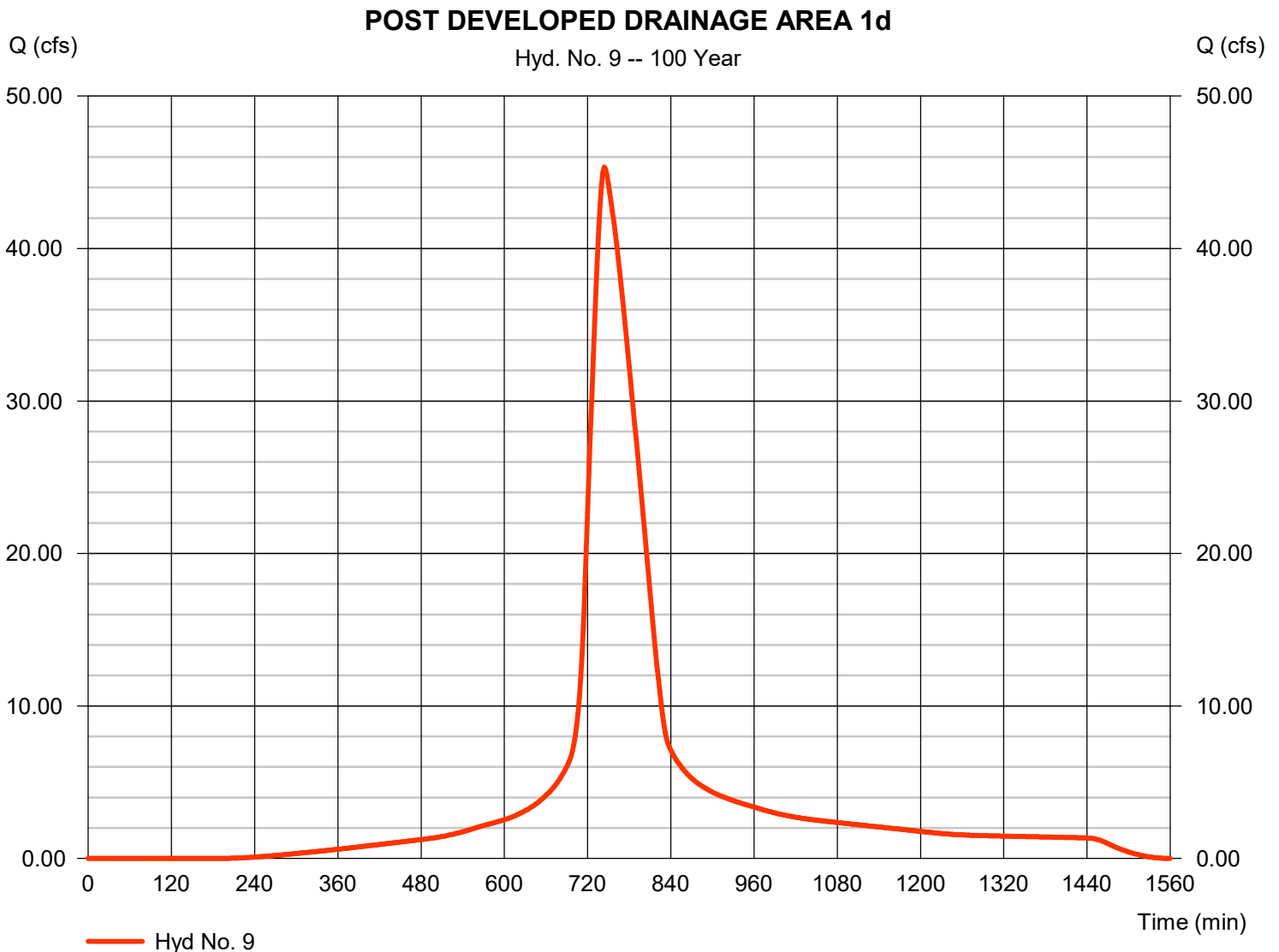
—— Hyd No. 9

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2024

Hyd. No. 10

POST_DEVELOPED_BYPASS_1

Hydrograph type	= SCS Runoff	Peak discharge	= 29.64 cfs
Storm frequency	= 100 yrs	Time to peak	= 812 min
Time interval	= 2 min	Hyd. volume	= 405,207 cuft
Drainage area	= 15.940 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 164.70 min
Total precip.	= 9.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484
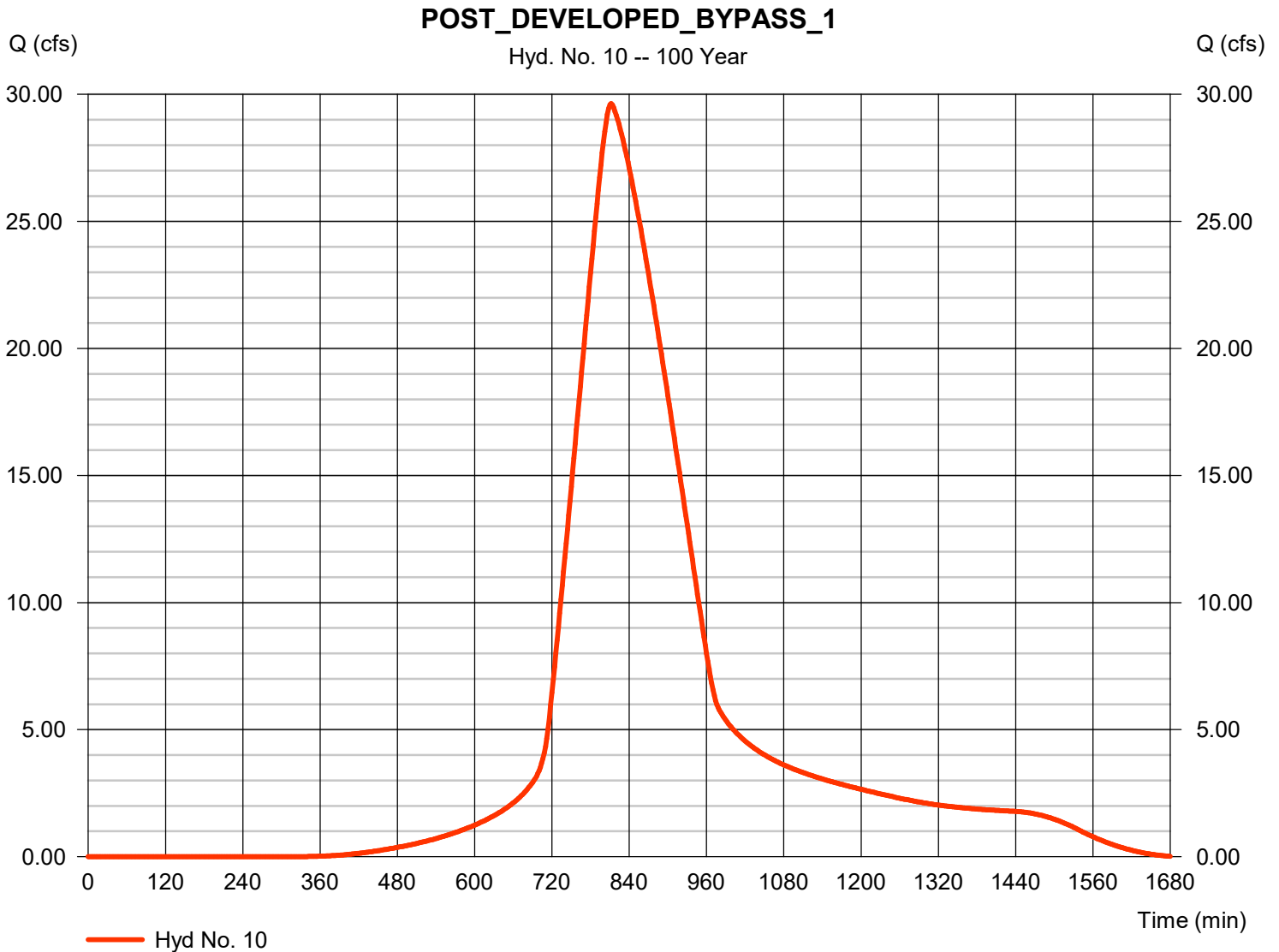
POST_DEVELOPED_BYPASS_1
Hyd. No. 10 -- 100 Year

Hydrograph Report

Hyd. No. 11

POST_DEVELOPED_BYPASS_2

Hydrograph type	= SCS Runoff		Peak discharge	= 25.13 cfs
Storm frequency	= 100 yrs		Time to peak	= 790 min
Time interval	= 2 min		Hyd. volume	= 281,790 cuft
Drainage area	= 11.150 ac		Curve number	= 77
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= TR55		Time of conc. (Tc)	= 127.20 min
Total precip.	= 9.84 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 484

POST_DEVELOPED_BYPASS_2
Hyd. No. 11 -- 100 Year

Hyd No. 11

Hydrograph Report

Hyd. No. 12

Rear Area Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - POST_DEVELOPED_BYPASSE2	Max. Elevation	= 71.07 ft
Reservoir name	= Rear Detention Pond	Max. Storage	= 281,790 cuft

Storage Indication method used.
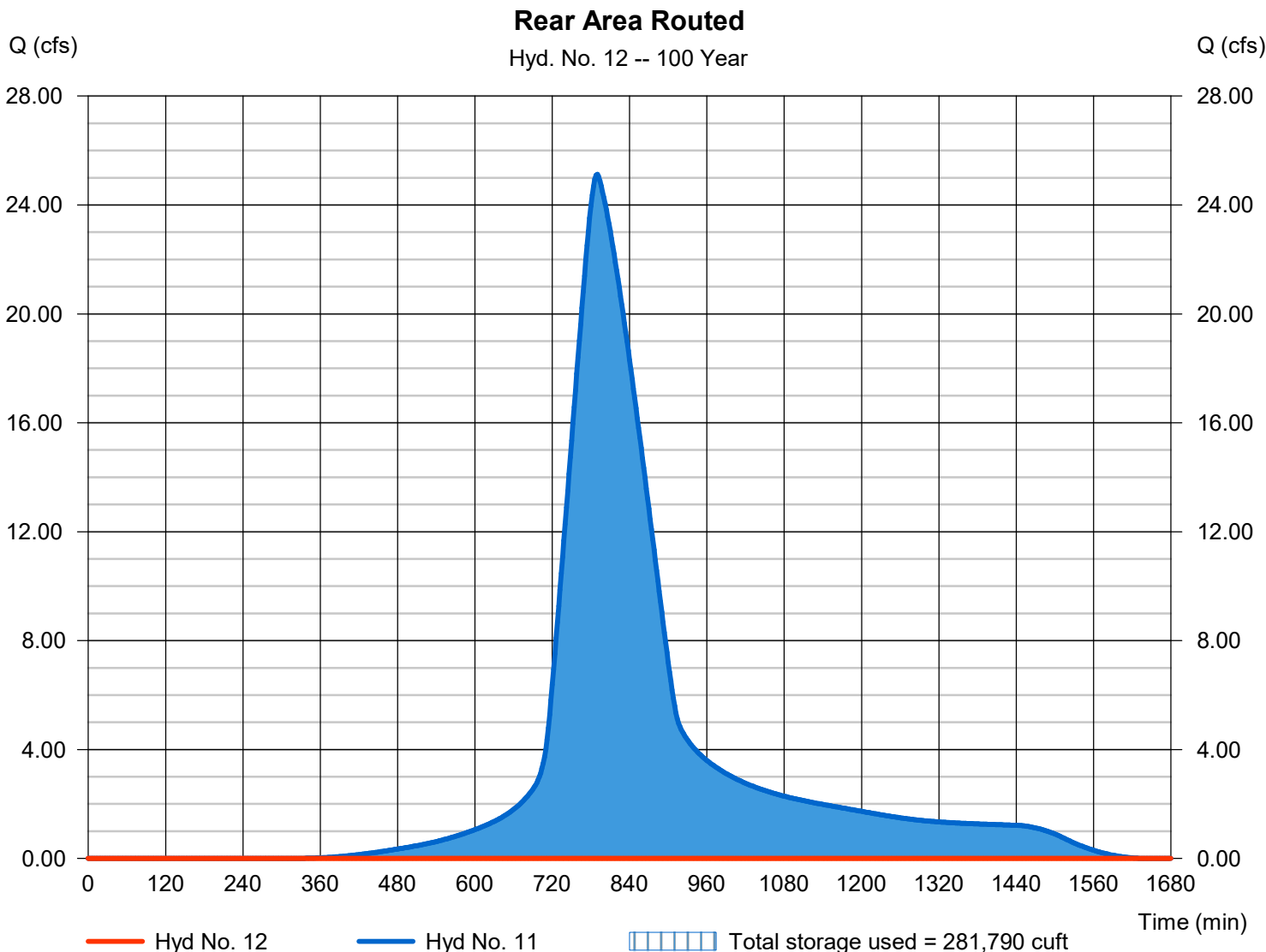
Rear Area Routed

Hyd. No. 12 -- 100 Year

Legend: Hyd No. 12 — Hyd No. 11 — Total storage used = 281,790 cuft

Hydrograph Report

Hyd. No. 13

POST_DEV_1a_ROUTED+_1b

Hydrograph type	= Combine		Peak discharge	= 11.78 cfs
Storm frequency	= 100 yrs		Time to peak	= 786 min
Time interval	= 2 min		Hyd. volume	= 205,343 cuft
Inflow hyds.	= 6, 7		Contrib. drain. area	= 1.700 ac
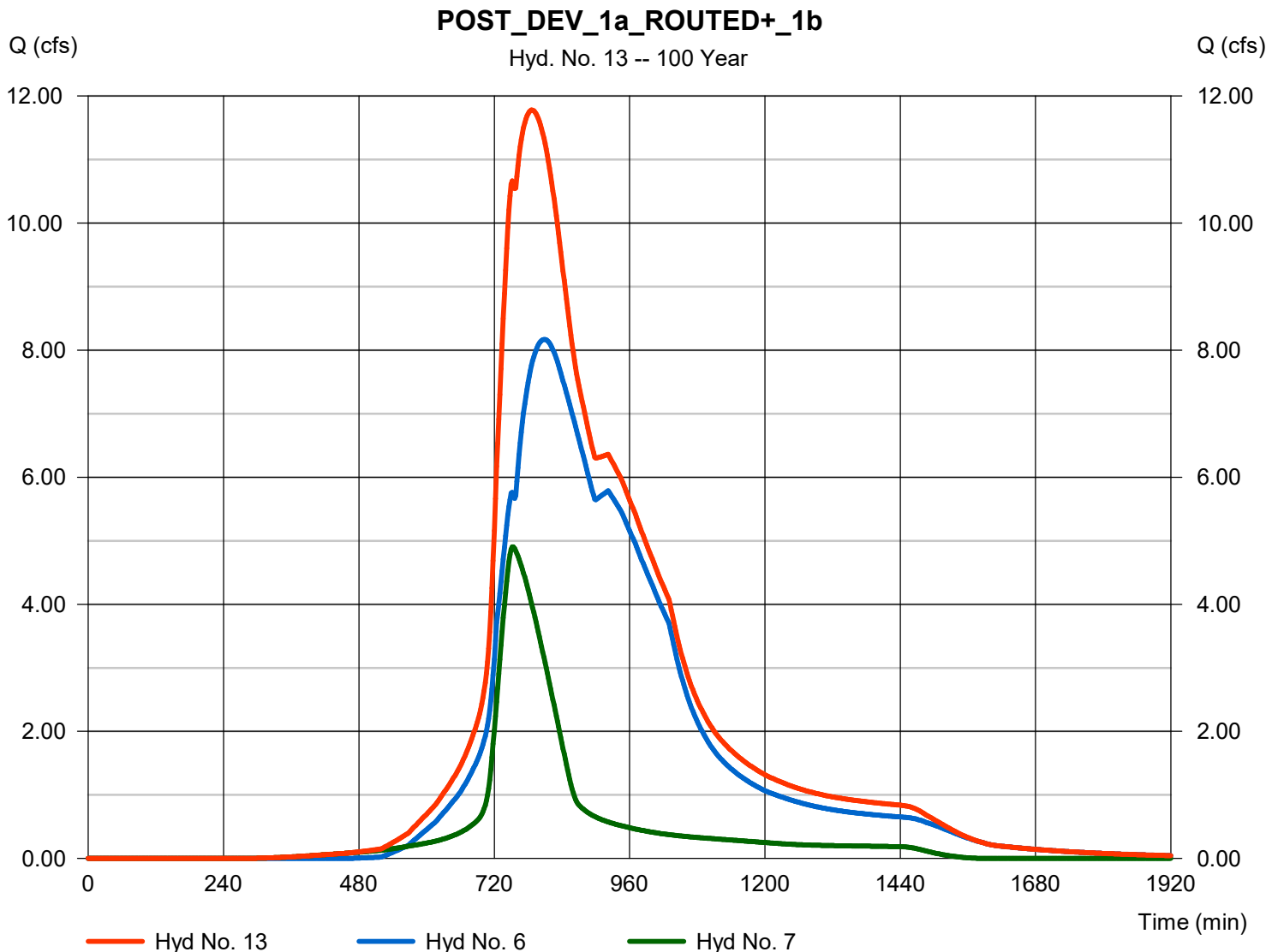
POST_DEV_1a_ROUTED+_1b
Hyd. No. 13 -- 100 Year
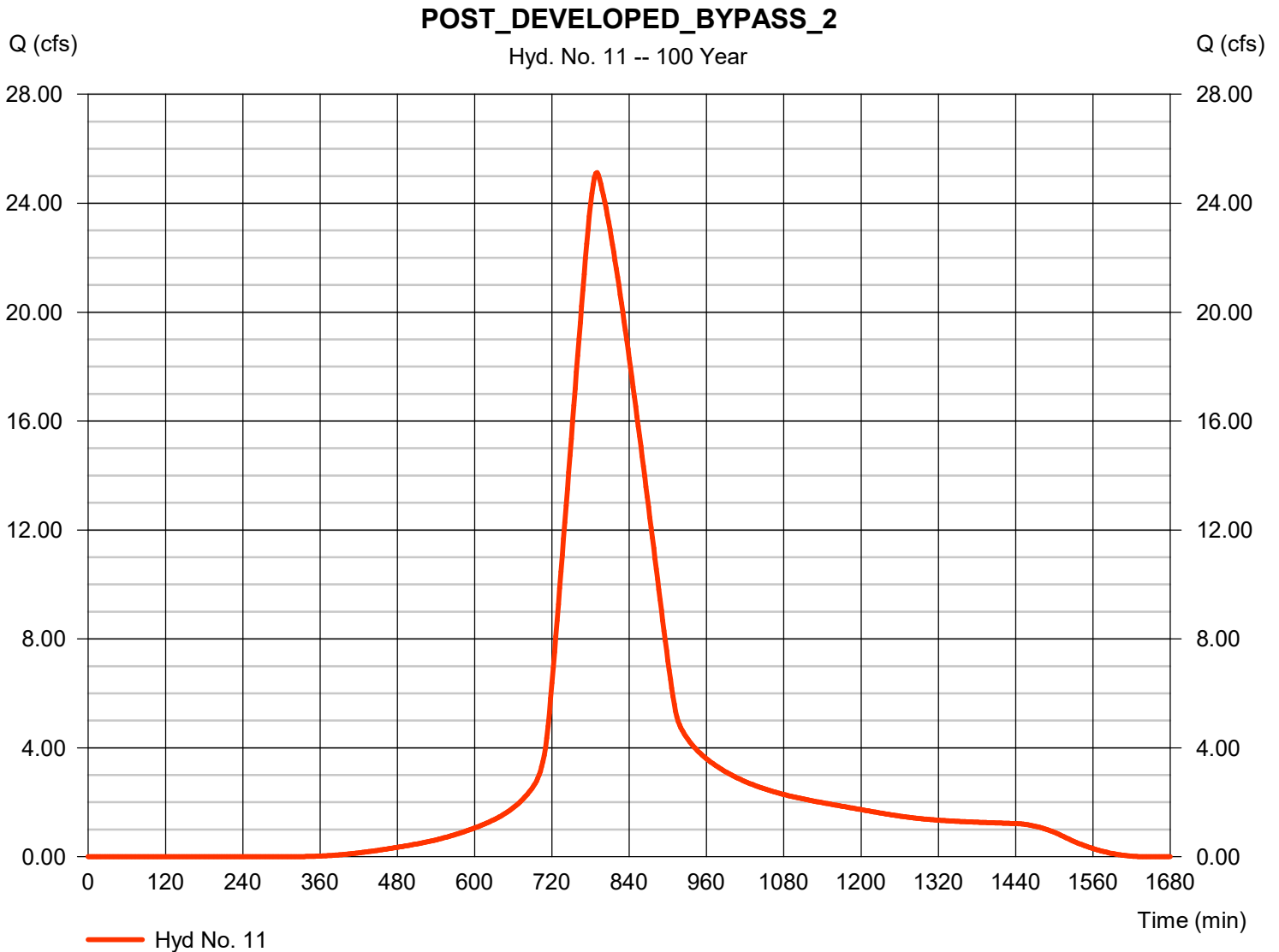
Hyd No. 13   Hyd No. 6   Hyd No. 7

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024

Hyd. No. 14

POST_DEVELOPED_POND_1B

Hydrograph type	= Reservoir	Peak discharge	= 9.970 cfs
Storm frequency	= 100 yrs	Time to peak	= 832 min
Time interval	= 2 min	Hyd. volume	= 195,901 cuft
Inflow hyd. No.	= 13 - POST_DEV_1a_ROUTED_1b	Max. Elevation	= 77.52 ft
Reservoir name	= DETENTION AREA 1b	Max. Storage	= 35,237 cuft

Storage Indication method used.
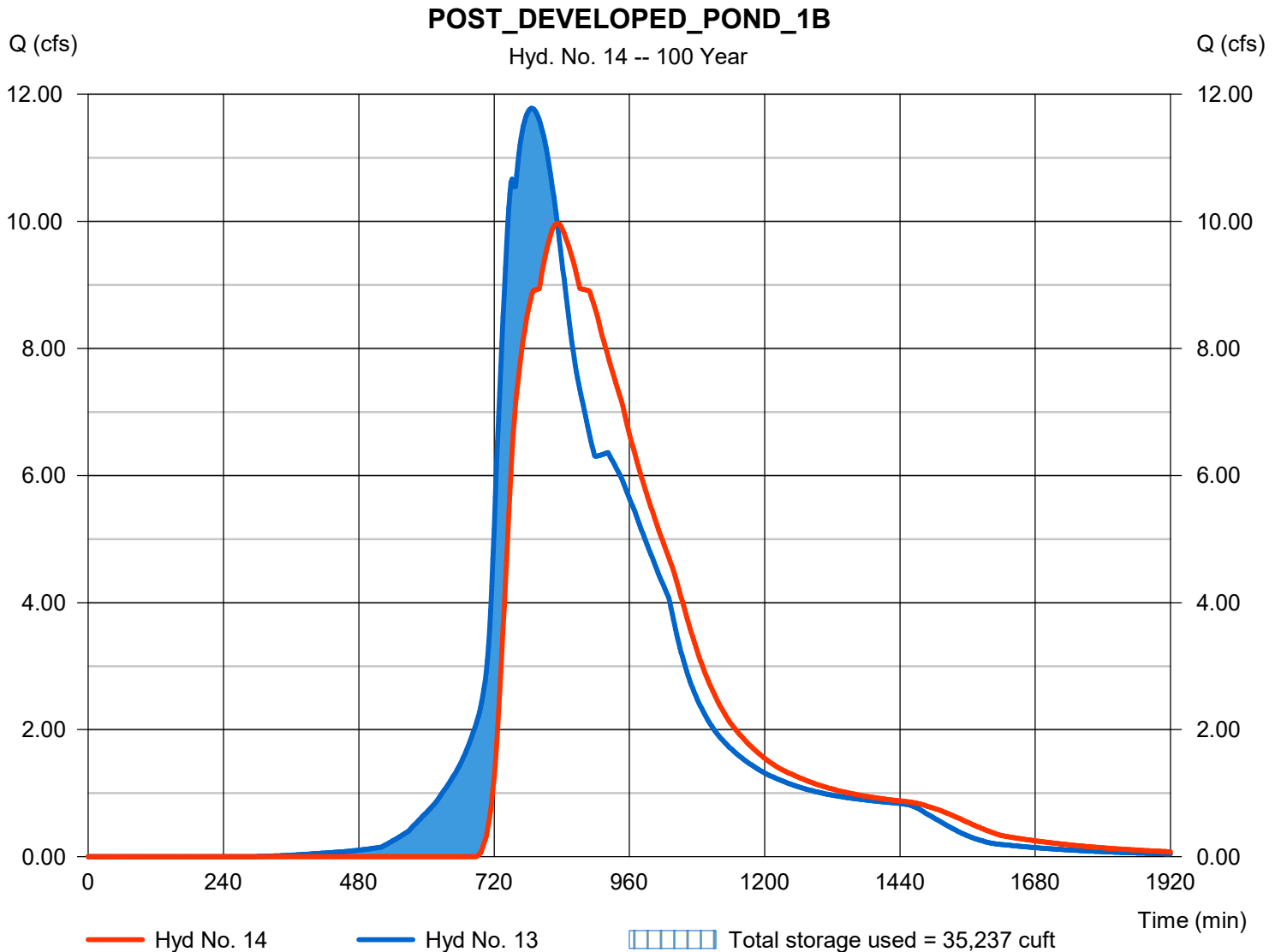
POST_DEVELOPED_POND_1B

Hyd. No. 14 -- 100 Year

Hyd No. 14   Hyd No. 13   Total storage used = 35,237 cuft

Hydrograph Report

Hyd. No. 15

POST_DEV_TOTAL_TO_POND_1d

Hydrograph type	= Combine		Peak discharge	= 49.59 cfs
Storm frequency	= 100 yrs		Time to peak	= 746 min
Time interval	= 2 min		Hyd. volume	= 546,326 cuft
Inflow hyds.	= 9, 14		Contrib. drain. area	= 12.140 ac
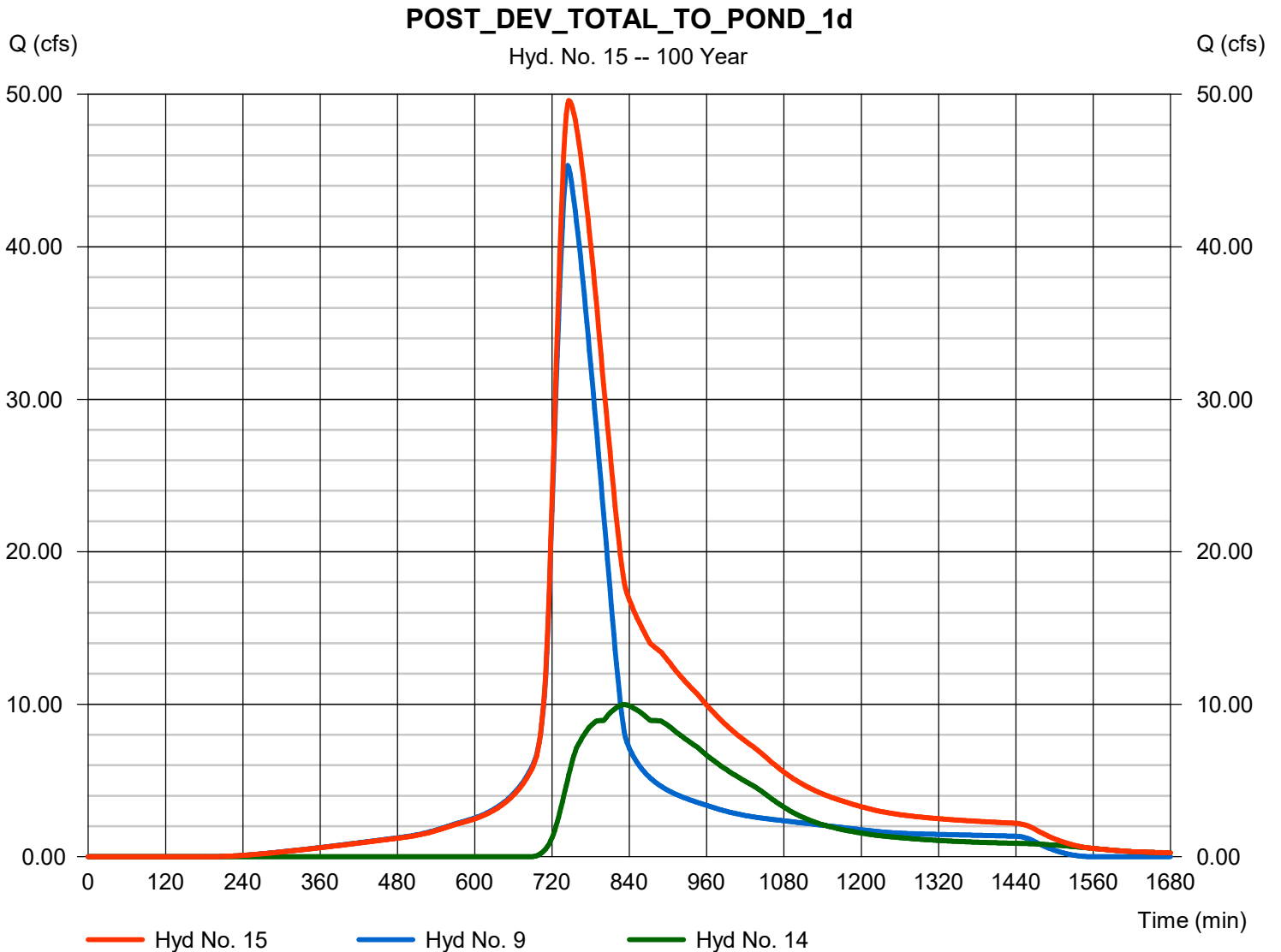
POST_DEV_TOTAL_TO_POND_1d

Hyd. No. 15 -- 100 Year

Hyd No. 15   Hyd No. 9   Hyd No. 14

Hydrograph Report

Hyd. No. 16

POST_DEV_TOTAL_TO_BIG_POND

Hydrograph type	= Combine		Peak discharge	= 128.27 cfs
Storm frequency	= 100 yrs		Time to peak	= 750 min
Time interval	= 2 min		Hyd. volume	= 1,255,865 cuft
Inflow hyds.	= 8, 15		Contrib. drain. area	= 24.800 ac

POST_DEV_TOTAL_TO_BIG_POND

Hyd. No. 16 -- 100 Year
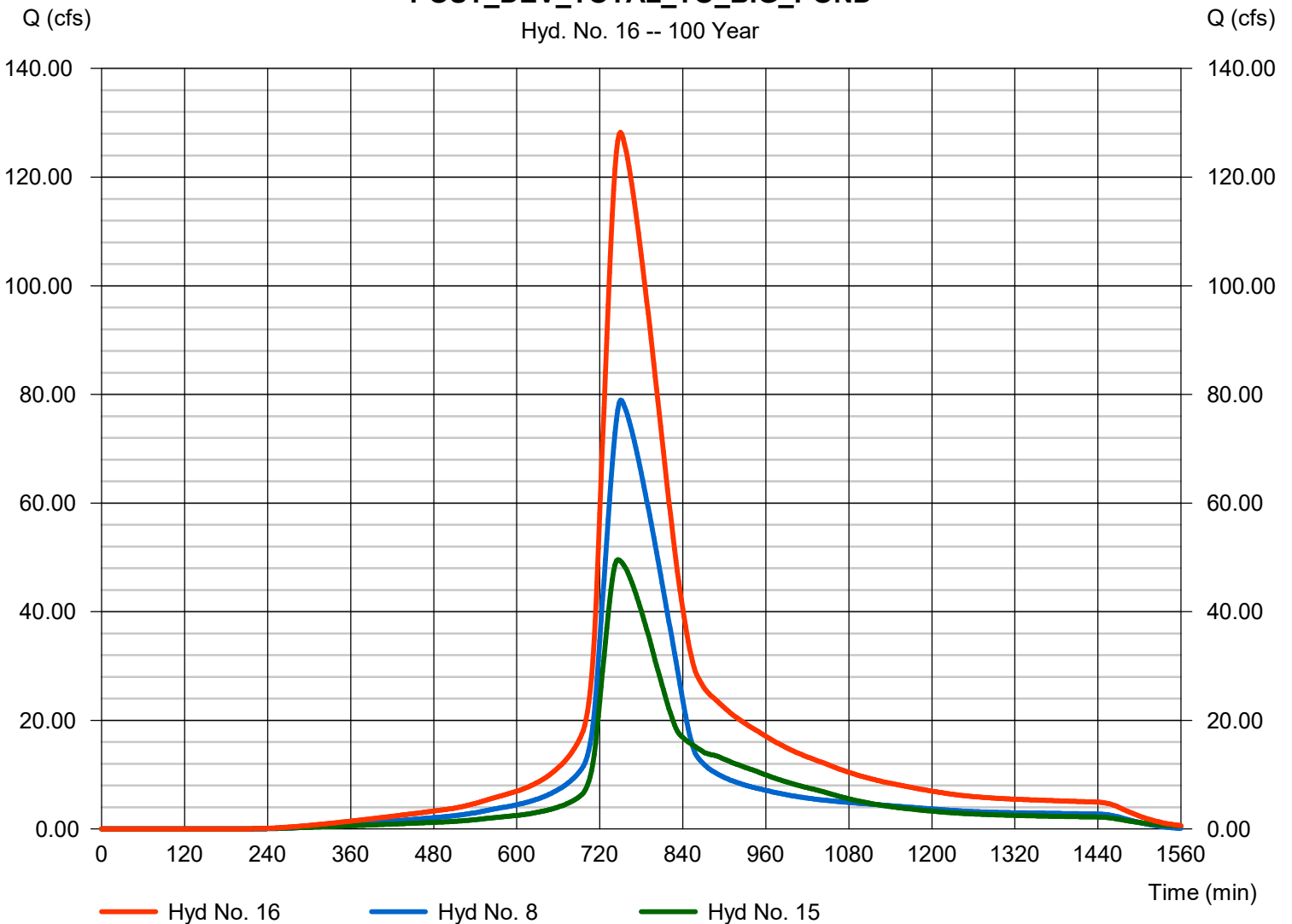
Hyd No. 16 — Hyd No. 8 — Hyd No. 15

Hydrograph Report

Hyd. No. 17

POST_DEV_BIG_POND_ROUT

Hydrograph type	= Reservoir	Peak discharge	= 108.61 cfs
Storm frequency	= 100 yrs	Time to peak	= 778 min
Time interval	= 2 min	Hyd. volume	= 1,255,725 cuft
Inflow hyd. No.	= 16 - POST_DEV_TOTAL_TO_BIG_POND	Max. Elevation	= 77.56 ft
Reservoir name	= Big_Detention_Pond	Max. Storage	= 247,923 cuft

Storage Indication method used.

POST_DEV_BIG_POND_ROUT

Hyd. No. 17 -- 100 Year
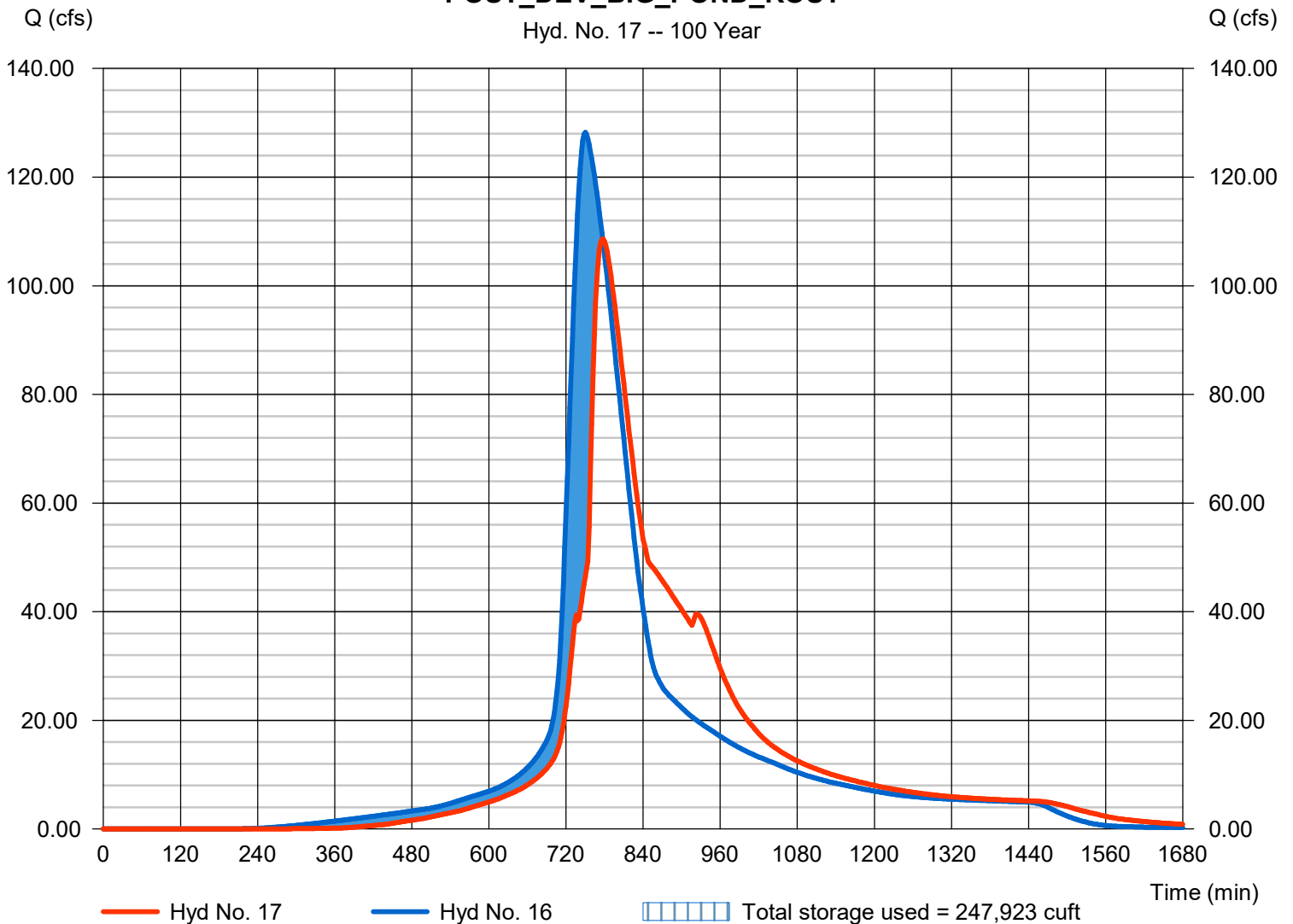
Hyd No. 17   Hyd No. 16   Total storage used = 247,923 cuft

Hydrograph Report

　　　　　　　　　Wednesday, 05 / 29 / 2024

Hyd. No. 18

TOTAL_FLOW_AT_OUTFALL_DA_1

Hydrograph type	= Combine		Peak discharge	= 131.15 cfs
Storm frequency	= 100 yrs		Time to peak	= 780 min
Time interval	= 2 min		Hyd. volume	= 1,660,932 cuft
Inflow hyds.	= 10, 12, 17		Contrib. drain. area	= 15.940 ac

TOTAL_FLOW_AT_OUTFALL_DA_1

Hyd. No. 18 -- 100 Year

Hydraflow Rainfall Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023   Wednesday, 05 / 29 / 2024

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	51.2636	12.6000	0.7740	--------
2	76.7251	16.4000	0.8191	--------
3	0.0000	0.0000	0.0000	--------
5	110.2374	21.6000	0.8461	--------
10	145.6077	25.3001	0.8732	--------
25	212.1002	30.1001	0.9125	--------
50	271.5898	33.2001	0.9374	--------
100	355.9461	36.7000	0.9686	--------

File name: effingham2007.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	5.57	4.59	3.93	3.46	3.10	2.81	2.58	2.39	2.22	2.09	1.97	1.86
2	6.24	5.25	4.56	4.04	3.63	3.31	3.04	2.82	2.63	2.47	2.33	2.20
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	6.87	5.94	5.24	4.70	4.27	3.92	3.62	3.37	3.16	2.97	2.81	2.66
10	7.41	6.48	5.77	5.21	4.76	4.38	4.06	3.79	3.55	3.35	3.16	3.00
25	8.25	7.31	6.56	5.96	5.47	5.05	4.69	4.39	4.12	3.89	3.68	3.49
50	8.93	7.96	7.18	6.55	6.02	5.57	5.19	4.85	4.56	4.30	4.08	3.87
100	9.60	8.60	7.79	7.13	6.57	6.09	5.68	5.32	5.00	4.72	4.47	4.25

Tc = time in minutes. Values may exceed 60.

Precip. file name: L:\02 - AutoCad Library\01 - Civil\DRAINAGE\IDF Curves\Effingham2007.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	3.60	4.80	0.00	6.00	6.72	7.92	8.88	9.84
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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