PRELIMINARY DRAINAGE REPORT

ARTESSA PINNACLE PEAK

SWC Dynamite Boulevard and Alma School Road, Scottsdale, Arizona 85262

Prepared For:

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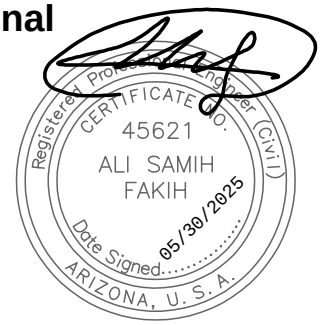
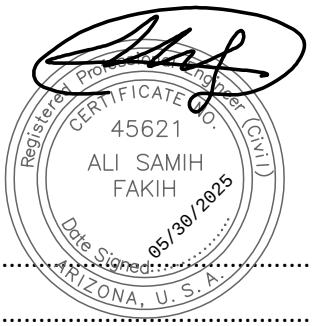


Project Number: 231106

1st Submittal Date: March 28, 2024 (REZONING)
2nd Submittal Date: July 16, 2024 (REZONING)
3rd Submittal Date: October 11, 2024 (REZONING)
4th Submittal Date: May 30, 2025 (REZONING)

CASE FILE #: 2-ZN-2024 **PLAN CHECK #: TBD**



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1. INTRODUCTION

This report represents the storm water analysis for Lifestyle Communities LLC, the project includes the construction of a new housing development with three 3-story buildings, 6 casitas, a community center and the associated hardscape and utility improvements in Scottsdale, Arizona. The purpose of this report is to provide the hydrologic and hydraulic analysis, required by the City of Scottsdale, to support the proposed site plan and rezoning submittal for said development. This report includes discussions and calculations defining the storm water management concepts for collection, conveyance, and detention systems necessary to comply with the drainage requirements of the City of Scottsdale and Maricopa County. Preparation of this report has been done in accordance with the requirements of the City of Scottsdale Design Standards & Policies Manual (DS&PM) 2018 [1], and the Drainage Design Manuals for Maricopa County, Arizona, Volumes I[2] and Volume II[3].

2. LOCATION AND PROJECT DESCRIPTION

2.1 LOCATION:

The project consists of a parcel of land located in the southeast quadrant of Section 28 Township 5 North, Range 5 East, and northeast quadrant of Section 33 Township 5 North, Range 5 East, Maricopa County, Arizona.

Parcel number is APN: 216-81-381, zoning PCC ESL (HD/HC) (Commercial and Industrial). This submittal is for rezoning.

Refer to **FIGURE 1** - **Vicinity Map** for the project's location with respect to major cross streets.

2.2 EXISTING SITE DESCRIPTION:

Land ownership, as defined by ALTA by Dibble dated 02/09/23 includes a 6.15 net acre (8.59 gross acre minus the open space easement) parcel of undeveloped natural desert land designated as PCC (Commercial and Industrial).

The site generally slopes from the north to the south, with an elevation difference of approximately 16 feet across the site. The ultimate outfall of the site is located at the southern boundary of the site at an elevation of 2635.2 feet. There are currently no drainage features other than natural washes and swales per the Final Drainage Report Drainage Channel Alma School/Dynamite Commercial Center, prepared in 2001. There are offsite flows that enter the site from the north, which will need to be accounted for in the proposed condition.

Refer to **FIGURE 2** attached for an aerial of the site.

2.3 PROPOSED SITE DEVELOPMENT:

The proposed development consists of a new multi-family housing development with casitas and a community center on approximately 264,844 sf (6.08 acres).

2.4 FLOOD HAZARD ZONE:

FIRM Map Number 04013C1330, dated October 16, 2013, indicates the site is designated as Zone "X Shaded". As such, the subject areas are defined as follows:
Zone X Shaded: "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or within drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

Refer to **FIGURE 3 – FIRM.**

3. EXISTING DRAINAGE CONDITIONS

3.1 EXISTING OFF-SITE DRAINAGE CONDITIONS :

The topographic survey provides the following information for offsite drainage:

- North: North of the site is a commercial development with associated parking. A portion of the parking lot and area to the west drains southerly into the site. This discharge to the site is 18.93 cfs and 29.21 cfs for 10-yr and 100-yr storm event, respectively, see CP-1 in the Existing Conditions Drainage Areas Map (refer to **APPENDIX II**).
- East: East of the site is E. Graythorn Drive. Flows from the east flow southerly overland into an existing curb opening southeast of the site. No flows from the east affect the site.
- West: West of the site is undeveloped. The open space (NAOS) easement is located on this side of the site. NAOS is an undisturbed land, therefore, it is being considered for this analysis as an off-site area. Also, adjacent to the west side of the site, there is a residential development. A portion of the remainder of the west side of the parcel drains easterly into the site.
- South: Southwest of the site there is an existing residential development and construction has started south. Flows from the south flow southerly overland away from the site. No flows from the south affect the site.

3.2 EXISTING ON-SITE DRAINAGE CONDITIONS :

The site is undeveloped natural desert with slopes generally ranging from the north to the south at approximately 2.5 % with an elevation difference of approximately 16 feet. The vegetation is typical of Sonoran Desert which includes Palo Verde, Mesquite and Catclaw Acacia. Table 1 below is a summary the calculated Q10 and Q100 runoff under existing conditions:

Table 1:

EXISTING SITE DISCHARGES									
	TOTAL AREA	Cwt	Intensity 10 yr	Q 10	Intensity 100 yr	Q 100	Control Point	Total flows Q10	Total flows Q100
	(ac)	(-)	(in/hr)	(cfs)	(in/hr)	(cfs)	CP#	(cfs)	(cfs)
	9.95	0.45	-	-	-	-	-	36.92	56.97
EX-OFF-1	3.31	0.95	6.02	18.93	9.29	29.21	CP-2	35.64	55.01
EX-A1	5.68	0.45	6.02	15.39	9.29	23.75			
EXOFF-2	0.31	0.45	6.02	0.84	9.29	1.30			
EXOFF-3	0.10	0.45	6.02	0.27	9.29	0.42			
EXOFF-4	0.08	0.45	6.02	0.22	9.29	0.33			
EX-B1	0.47	0.45	6.02	1.27	9.29	1.96	CP-3	1.27	1.96

On-Site and Off-site:

Overall drainage areas include **9.95 Acres.**

Overall on-site and off-site runoff = Q_{100} = **56.97 cfs**

Refer to **APPENDIX II** for **Existing Conditions Drainage Area Map**

4. PROPOSED STORM WATER MANAGEMENT

4.1 ON-SITE DESIGN INTENT:

On-site drainage will be handled within street sections via curb and gutter, catch basins, swales and open or underground retention basins. Proposed flows to off-site will be less than existing flows. Historical off-site flows coming from the north will combine with on-site drainage and ultimately discharge south of the site.

4.2 DESIGN STORM REQUIREMENTS:

In accordance with City of Scottsdale requirements, the site is in an Environmentally Sensitive Lands (ESL) designated area, so 100-yr, 2-hr storm water retention is not required for this project. Only the volume required to attenuate increases in storm water runoff created by the development is necessary per city code. Stormwater storage is based on the difference between existing conditions versus proposed conditions for 10-yr and 100-yr storm events, with the maximum developed outflow not to exceed existing condition rates as a minimum. Additionally, on-site detention shall provide sufficient capacity to accommodate the first flush volume. See Section 4.4 below.

4.3 LAND CHARACTERISTICS:

The proposed project site consists mainly of building pads for future residential developments, NAOS areas, and an access road. Based on the DS&PM, runoff coefficients for the 100-year storm event used are as follows:

- C=0.95 for building roofs, concrete, and pavement surfaces
- C=0.45 for undisturbed natural desert or desert landscape

HYDROLOGIC ANALYSIS: The hydrologic analysis is determined using the procedures in the City of Scottsdale Design Standards & Policies Manual. Table 2 below is a summary of proposed Q10, Q100 runoff under proposed conditions:

$$Q=C_{wt} * I * A$$

Where:

C_{wt} = The runoff coefficient relating runoff to rainfall
I = Average rainfall intensity in inches/hour, lasting for Tc
Tc = The time of concentration (minutes)
A = The contributing drainage area in acres

Table 2:

PROPOSED SITE DISCHARGES					
	Q 10	Q 100	Control Point	Total flows Q10	Total flows Q100
	(cfs)	(cfs)	CP#	(cfs)	(cfs)
	-	-	-	46.94	72.46
DA-A	0.69	1.06	BASIN-A	0.69	1.06
DA-B1	2.94	4.54	BASIN-B1	2.94	4.54
DA-B2	0.67	1.04	BASIN-B2	0.67	1.04
DA-C	1.25	1.93	BASIN-C	1.25	1.93
DA-D1	2.30	3.55	BASIN-D	21.26	32.80
DA-D2	0.03	0.04			
OFF-1	18.93	29.21			
DA-E1	1.81	2.79	BASIN-E	8.90	13.75
DA-E2	1.69	2.61			
DA-E3	3.74	5.77			
DA-E4	1.67	2.57			
DA-G	2.33	3.60	BASIN-G	2.82	4.35
OFF-3	0.27	0.42	BASIN-G		
OFF-4	0.22	0.33	BASIN-G		
DA-H1	0.48	0.74	BASIN-H1	0.48	0.74
DA-H2	1.39	2.14	BASIN-H2	1.39	2.14
DA-H3	0.69	1.07	BASIN-H3	0.69	1.07
DA-L	0.57	0.88	BASIN-L	0.57	0.88
DA-N	0.35	0.53	BASIN-N	0.35	0.53
DA-O	3.84	5.92	BASIN-O	4.73	7.30
OFF-2	0.89	1.38	BASIN-O		
DA-Q	0.21	0.33	BASIN-Q	0.21	0.33

Total existing on-site and off-site flows is Q_{100}= **56.97 cfs**. Total proposed on-site and off-site flows is Q_{100}= **72.46 cfs.** On-site open and underground retention basins are proposed to avoid increasing runoff to historical outfalls downstream the site (CP-2 and CP-3) and to handle first flush volume. Refer to **APPENDIX II** for Hydraflow Hydrographs Extension for Civil 3D Routing Calculations. Table 3, below, shows the difference in discharge between the existing and proposed conditions for the historical outfalls.

Table 3:

	Q10 (cfs)			Q100 (cfs)		
Outfall	Existing	Proposed	Δ	Existing	Proposed	Δ
CP-1	18.93	18.93	0.00	29.21	29.21	0.00
CP-2	35.64	1.38	-34.26	55.01	2.39	-52.62
CP-3	1.27	0.34	-0.93	1.96	0.59	-1.37

- Runoff to historical outfall CP-1 consists of off-site runoff from the north entering the site.
- Runoff to historical outfall CP-2 consists of the sum of a portion of the on-site runoff and CP-1.
    - Decrease to CP-2 is due to the proposed detention system, which consists of Basins B1, B2, C, D, E, G, H1, H2, H3, L, N, O, and Q.
    - Decrease to CP-3 is due to the proposed open detention Basin A.

4.4 STORMWATER RETENTION:

Proposed basins have been sized to attenuate post development flows while capturing the required first flush volume.

FIRST FLUSH: First Flush storage required is calculated in accordance with City of Scottsdale DSPM 4-1.201.

$$FF_r = C\left(\frac{P}{12}\right)A$$

where:

$FF_r =$ First Flush required storage volume (cf)

$P =$ Precipitation amount =0.5 in per C.O.S. DSPM

$A =$ Area of site excluding roofs and landscape (sf)

$C =$ The weighted average runoff coefficient

Table 4:

Required Storage Volume Calculations (FIRST FLUSH)						
						Vr= A * Cw *D/12
Drainage Area ID	Area (acres)	Cwt (-)	Depth (in)	Volume Req. (acre-ft)	Volume Req. (CF)	Total Volume Req. (CF)
ON-SITE RETENTION						
DA-A	0.19	0.60	0.50	0.005	210	210
DA-B1	0.67	0.73	0.50	0.020	888	1,096
DA-B2	0.16	0.70	0.50	0.005	208	
DA-C	0.31	0.67	0.50	0.009	382	382
DA-D1	0.45	0.85	0.50	0.016	691	700
DA-D2	0.01	0.45	0.50	0.000	9	
DA-E1	0.35	0.86	0.50	0.012	541	2,683
DA-E2	0.32	0.88	0.50	0.012	506	
DA-E3	0.74	0.84	0.50	0.026	1,138	
DA-E4	0.36	0.77	0.50	0.011	498	
DA-G	0.57	0.68	0.50	0.016	709	709
DA-H1	0.10	0.80	0.50	0.003	148	784
DA-H2	0.33	0.70	0.50	0.010	423	
DA-H3	0.18	0.64	0.50	0.005	213	
DA-L	0.14	0.75	0.50	0.004	186	186
DA-N	0.09	0.60	0.50	0.002	104	104
DA-O	1.10	0.58	0.50	0.026	1,153	1,153
DA-Q	0.06	0.59	0.50	0.001	61	61
					TOTAL	8,068

Refer to the **Proposed Conditions Drainage Area Map** and **Calculations** in **Appendix II**.
Refer to the **Request for Stormwater Storage Waiver** in **Appendix IV**.

Table 5:

Proposed Retention Basin Summary			
Basin (ID)	Type (--)	V_P (CF)	V_R (CF)
BASIN-A	OPEN	258	210
BASIN-B1	OPEN	3,099	888
BASIN-B2	OPEN	247	208
BASIN-C	OPEN	522	382
BASIN-D	UNDERGROUND	7,069	700
BASIN-E	UNDERGROUND	3,927	2,683
BASIN-G	OPEN	752	709
BASIN-H1	OPEN	214	148
BASIN-H2	OPEN	1,098	423
BASIN-H3	OPEN	219	213
BASIN-L	OPEN	342	186
BASIN-N	OPEN	180	104
BASIN-O	OPEN	1,193	1,153
BASIN-Q	OPEN	74	61
TOTAL		**19,192**	**8,068**

Table below shows the basins routing results summary under the proposed conditions.

Table 6:

Basins outflow and Inflow					
Basin id	**Inflow Source**	**Inflow Q100 (cfs)**	**Outflow Q100 (cfs)**	**Outlet Type**	**Downstream Basin id**
BASIN A	DA-A	1.06	0.59	Weir	CP-3
BASIN D	OFF- 1, DA-D1 & DA-D2	32.76	2.43	Pipe	BASIN E
BASIN E	DA-E1 to DA-E4 & BASIN D	15.59	8.69	Pipe	BASIN B1
BASIN Q	DA-Q	0.39	0.01	Pipe	BASIN N
BASIN N	DA-N & BASIN Q	0.53	0.01	Weir	BASIN L
BASIN L	DA-L & BASIN N	0.88	0	Weir	BASIN H2
BASIN H1	DA-H1	0.74	0.04	Weir	BASIN H2
BASIN O	OFF-2 & DA-O	7.3	1.19	Weir	BASIN H2
BASIN H2	DA-H2, BASINS L, H1 & O	2.14	0.28	Weir	BASIN H3
BASIN H3	DA-H3 & BASIN H2	1.07	0.2	Weir	BASIN C
BASIN C	DA-C & BASIN H3	1.93	0.16	Weir	BASIN B2
BASIN B2	DA-B2 & BASIN C	1.04	0.14	Pipe	BASIN B1
BASIN G	OFF-3, OFF-4 & DA-G	4.35	1.43	Weir	BASIN B1
BASIN B1	DA-B1, BASINS E,B2 & G	11.94	2.39	Weir	CP-2

Refer to **Appendix II** for Detailed required and provided volumes and Hydraflow Hydrographs Extension for Civil 3D Routing Calculations. **Figure 4** for Proposed Basins Exhibit to see the locations of the basins.

4.4.1 CMP UNDERGROUND RETENTION TANK DESIGN (75-YR DESIGN LIFE)

CMP underground retention tank design will be provided in the final drainage report.

4.5 DISSIPATION OF STORED RUNOFF

For basins or portions of basins with no direct bleed off available, drywells are proposed in the on-site storage facilities to dispose of the stormwater within thirty-six (36) hours. The calculation is as follows:

- Minimum percolating rate of a drywell (for planning purposes) = 0. 1 cfs
- Volume to be drained in 36 hours = 0.1 cfs * 36 hours * 3600 sec/hour = 12,960 cfs
- The number of drywells will be reduced if geotechnical testing for percolation rates determines adequate infiltration is available in the native soils at lower depths. If the percolation rate of the drywells is less than 0.1 cfs the number of drywells may have to be increased.

Basin B1 Provided Storage = 3,099 cf
3,099 cf / 12,960 cf= 0.24 (1 drywell is used).

Basin D Provided Storage = 7,069 cf
7,069 cf / 12,960 cf= 0.55 (1 drywell is used).

Basin E Provided Storage = 3,927 cf
3,927 cf / 12,960 cf= 0.30 (1 drywell is used).

Basin G Provided Storage = 752 cf
752 cf / 12,960 cf= 0.06 (1 drywell is used).

Open retention basins designed to provide storage within 0.50 ft depth or less do not require drywells. Therefore, Basins A, B2, C, H1, H2, H3, L, N, O, and Q do not require drywells. All proposed basins, with the exception of Basin A, will ultimately discharge excess runoff to Basin B1 south of the site. Basin B1 overflow will be directed southerly without increasing existing-conditions runoff (CP-2). Basin A southeast of the site will ultimately discharge southeast of the site without increasing the existing-conditions runoff (CP-3).

Refer to the **Preliminary Grading and Drainage plans** in **Appendix III**.

4.6 INLET CALCULATIONS

The inlet calculations will be provided in the final drainage report.

4.7 PIPE CAPACITY CALCULATIONS

The Pipe Capacity Calculations will be provided in the final drainage report.

4.8 ADEQ WATER QUALITY REQUIREMENTS

The total disturbed area of this site is approximately 8.86 acres. The Arizona Department of Environmental Quality requires that any site disturbance over an acre is required to submit an NOI. A NOI will be submitted to ADEQ for this site as this site disturbance is over 1 acre.

5. FLOOD SAFETY FOR DWELLINGS

5.1 FINISH FLOOR ELEVATIONS

All building finished floor elevations will be set a minimum of 14 inches above emergency overflow points, and a minimum of 12 inches above the 100-year high-water elevation of any adjacent streets and drainage paths.

6. CONCLUSIONS

6.1 OVERALL PROJECT:

1. The finish floor elevations will be designed a minimum of 12 inches above the 100-year water surface in adjacent streets and drainage paths and a minimum of 14 inches above the low top of curb of the lot.
2. Open and underground storage basins have been proposed to attenuate historical flows and provide first flush retention.
3. Proposed ultimate outflows at historical control points (CP-2 and CP-3) do not exceed existing conditions.

6.2 PROJECT PHASING:

The Project is to be constructed in a single phase.

7. WARNING AND DISCLAIMER OF LIABILITY

RE: following page.

8. REFERENCES

1. *Design Standards & Policies Manual, City of Scottsdale – January 2018.*
2. *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, Flood Control District of Maricopa County, Fourth Edition, November 18, 2009, amended through August 15, 2015.*
3. *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, Flood Control District of Maricopa County, August 15, 2015.*

APPENDIX I
RAINFALL DATA

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.741°, Longitude: -111.8455°
Elevation: 2654 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.239** (0.199-0.294)	**0.312** (0.261-0.383)	**0.420** (0.348-0.515)	**0.502** (0.412-0.612)	**0.610** (0.495-0.741)	**0.692** (0.554-0.836)	**0.774** (0.611-0.933)	**0.857** (0.667-1.03)	**0.967** (0.735-1.17)	**1.06** (0.785-1.28)
10-min	**0.364** (0.303-0.447)	**0.474** (0.396-0.583)	**0.639** (0.529-0.783)	**0.764** (0.628-0.932)	**0.928** (0.753-1.13)	**1.05** (0.844-1.27)	**1.18** (0.929-1.42)	**1.30** (1.02-1.57)	**1.47** (1.12-1.78)	**1.61** (1.20-1.95)
15-min	**0.451** (0.376-0.554)	**0.588** (0.492-0.723)	**0.793** (0.655-0.971)	**0.947** (0.778-1.16)	**1.15** (0.933-1.40)	**1.30** (1.05-1.58)	**1.46** (1.15-1.76)	**1.62** (1.26-1.95)	**1.83** (1.39-2.20)	**1.99** (1.48-2.41)
30-min	**0.608** (0.506-0.746)	**0.792** (0.662-0.974)	**1.07** (0.883-1.31)	**1.28** (1.05-1.56)	**1.55** (1.26-1.88)	**1.76** (1.41-2.12)	**1.97** (1.55-2.37)	**2.18** (1.69-2.62)	**2.46** (1.87-2.97)	**2.68** (2.00-3.25)
60-min	**0.752** (0.626-0.924)	**0.980** (0.819-1.20)	**1.32** (1.09-1.62)	**1.58** (1.30-1.93)	**1.92** (1.56-2.33)	**2.18** (1.74-2.63)	**2.43** (1.92-2.93)	**2.70** (2.10-3.25)	**3.04** (2.31-3.67)	**3.32** (2.47-4.02)
2-hr	**0.869** (0.733-1.04)	**1.12** (0.947-1.35)	**1.49** (1.25-1.79)	**1.77** (1.47-2.12)	**2.15** (1.77-2.56)	**2.44** (1.98-2.90)	**2.74** (2.19-3.25)	**3.03** (2.39-3.60)	**3.43** (2.65-4.07)	**3.74** (2.84-4.47)
3-hr	**0.934** (0.787-1.14)	**1.19** (1.01-1.46)	**1.55** (1.30-1.89)	**1.84** (1.53-2.23)	**2.24** (1.84-2.70)	**2.55** (2.07-3.06)	**2.88** (2.30-3.46)	**3.22** (2.53-3.86)	**3.69** (2.82-4.42)	**4.07** (3.04-4.88)
6-hr	**1.12** (0.966-1.32)	**1.41** (1.22-1.66)	**1.79** (1.54-2.10)	**2.09** (1.78-2.45)	**2.51** (2.11-2.92)	**2.83** (2.35-3.29)	**3.17** (2.59-3.68)	**3.51** (2.82-4.09)	**3.97** (3.12-4.61)	**4.33** (3.32-5.03)
12-hr	**1.35** (1.17-1.57)	**1.69** (1.47-1.97)	**2.12** (1.84-2.47)	**2.47** (2.12-2.86)	**2.93** (2.49-3.39)	**3.29** (2.76-3.80)	**3.66** (3.03-4.22)	**4.02** (3.30-4.65)	**4.51** (3.62-5.24)	**4.89** (3.85-5.71)
24-hr	**1.62** (1.43-1.86)	**2.06** (1.82-2.37)	**2.68** (2.36-3.09)	**3.19** (2.78-3.67)	**3.91** (3.37-4.50)	**4.49** (3.82-5.17)	**5.11** (4.29-5.92)	**5.76** (4.76-6.72)	**6.69** (5.38-7.89)	**7.44** (5.87-8.88)
2-day	**1.86** (1.62-2.14)	**2.37** (2.07-2.73)	**3.13** (2.72-3.60)	**3.75** (3.25-4.30)	**4.62** (3.96-5.31)	**5.33** (4.51-6.14)	**6.08** (5.08-7.06)	**6.88** (5.66-8.05)	**8.01** (6.44-9.48)	**8.92** (7.04-10.7)
3-day	**1.98** (1.74-2.28)	**2.55** (2.23-2.92)	**3.39** (2.96-3.88)	**4.08** (3.54-4.66)	**5.07** (4.36-5.80)	**5.88** (5.00-6.76)	**6.76** (5.67-7.82)	**7.70** (6.36-8.99)	**9.04** (7.30-10.7)	**10.2** (8.04-12.1)
4-day	**2.12** (1.86-2.42)	**2.72** (2.39-3.11)	**3.64** (3.19-4.16)	**4.41** (3.84-5.02)	**5.52** (4.76-6.30)	**6.44** (5.49-7.38)	**7.44** (6.26-8.58)	**8.52** (7.06-9.93)	**10.1** (8.16-11.9)	**11.4** (9.04-13.6)
7-day	**2.44** (2.13-2.82)	**3.14** (2.74-3.61)	**4.21** (3.67-4.85)	**5.11** (4.42-5.87)	**6.42** (5.49-7.39)	**7.51** (6.36-8.68)	**8.71** (7.27-10.1)	**10.0** (8.23-11.8)	**11.9** (9.57-14.2)	**13.5** (10.6-16.3)
10-day	**2.68** (2.35-3.07)	**3.44** (3.02-3.94)	**4.61** (4.02-5.27)	**5.57** (4.83-6.36)	**6.96** (5.98-7.97)	**8.12** (6.90-9.33)	**9.38** (7.86-10.9)	**10.7** (8.87-12.6)	**12.7** (10.3-15.1)	**14.4** (11.4-17.3)
20-day	**3.42** (3.00-3.90)	**4.41** (3.87-5.03)	**5.85** (5.12-6.67)	**7.00** (6.09-7.96)	**8.59** (7.42-9.81)	**9.86** (8.44-11.3)	**11.2** (9.49-12.9)	**12.6** (10.5-14.7)	**14.6** (12.0-17.2)	**16.2** (13.1-19.3)
30-day	**4.06** (3.57-4.64)	**5.24** (4.61-5.98)	**6.96** (6.11-7.92)	**8.31** (7.26-9.43)	**10.2** (8.81-11.6)	**11.6** (10.0-13.3)	**13.1** (11.2-15.1)	**14.7** (12.4-17.0)	**16.9** (14.0-19.8)	**18.7** (15.3-22.1)
45-day	**4.86** (4.28-5.53)	**6.28** (5.53-7.14)	**8.34** (7.32-9.47)	**9.93** (8.68-11.3)	**12.1** (10.5-13.8)	**13.8** (11.9-15.8)	**15.6** (13.3-17.9)	**17.5** (14.7-20.3)	**20.1** (16.6-23.6)	**22.1** (18.0-26.3)
60-day	**5.47** (4.83-6.21)	**7.09** (6.25-8.03)	**9.37** (8.25-10.6)	**11.1** (9.73-12.6)	**13.4** (11.7-15.3)	**15.2** (13.1-17.4)	**17.1** (14.6-19.6)	**19.0** (16.1-21.9)	**21.6** (18.0-25.3)	**23.6** (19.4-28.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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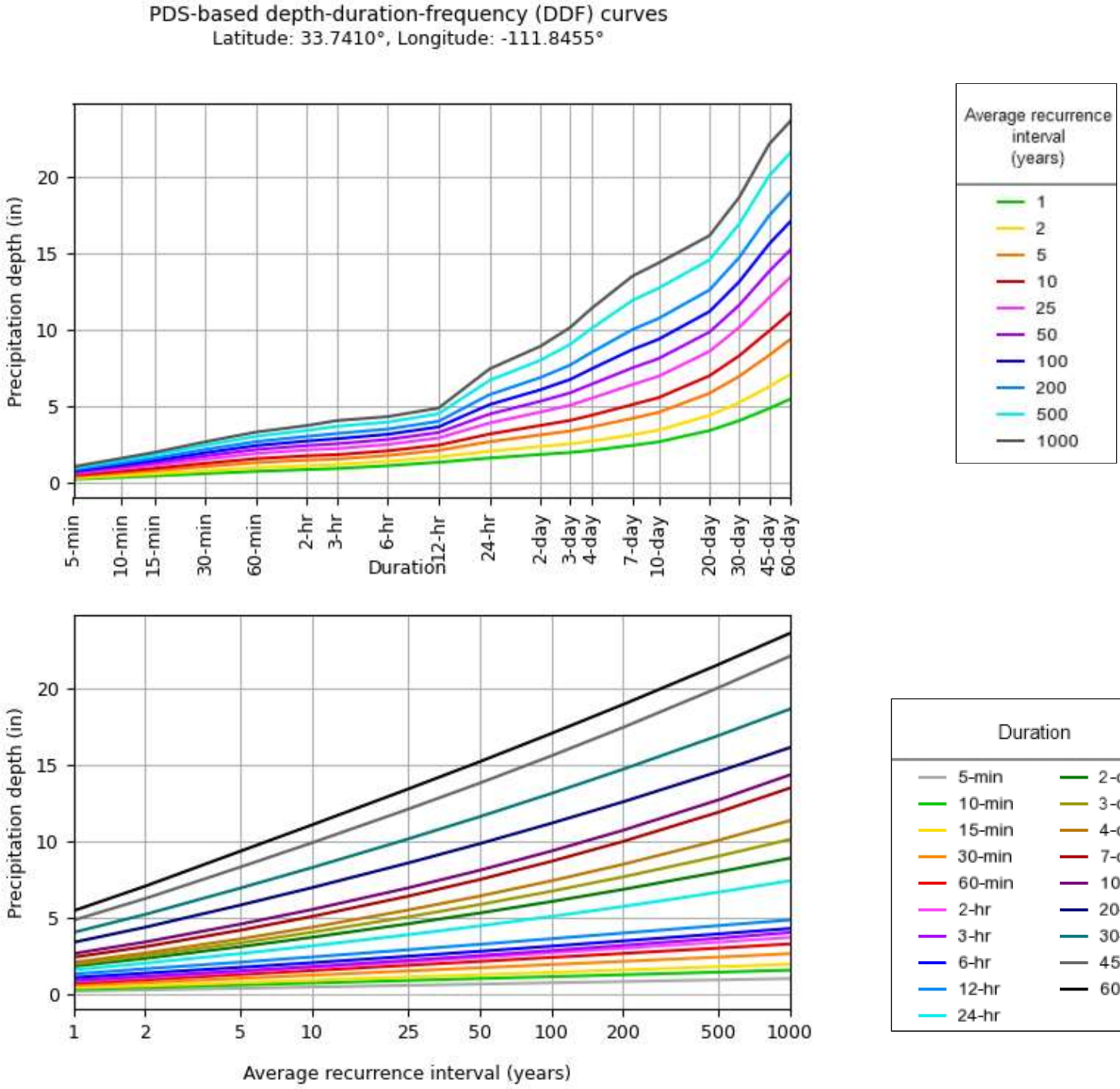
PF graphical



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Maps & aerials

Small scale terrain

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.741°, Longitude: -111.8455°
Elevation: 2654 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**2.87** (2.39-3.53)	**3.74** (3.13-4.60)	**5.04** (4.18-6.18)	**6.02** (4.94-7.34)	**7.32** (5.94-8.89)	**8.30** (6.65-10.0)	**9.29** (7.33-11.2)	**10.3** (8.00-12.4)	**11.6** (8.82-14.0)	**12.7** (9.42-15.3)
10-min	**2.18** (1.82-2.68)	**2.84** (2.38-3.50)	**3.83** (3.17-4.70)	**4.58** (3.77-5.59)	**5.57** (4.52-6.77)	**6.32** (5.06-7.64)	**7.07** (5.57-8.52)	**7.83** (6.09-9.43)	**8.84** (6.71-10.7)	**9.64** (7.17-11.7)
15-min	**1.80** (1.50-2.22)	**2.35** (1.97-2.89)	**3.17** (2.62-3.88)	**3.79** (3.11-4.62)	**4.60** (3.73-5.60)	**5.22** (4.18-6.31)	**5.84** (4.61-7.04)	**6.47** (5.04-7.79)	**7.30** (5.55-8.81)	**7.96** (5.92-9.65)
30-min	**1.22** (1.01-1.49)	**1.58** (1.32-1.95)	**2.14** (1.77-2.62)	**2.55** (2.10-3.11)	**3.10** (2.51-3.77)	**3.52** (2.82-4.25)	**3.93** (3.10-4.74)	**4.36** (3.39-5.25)	**4.92** (3.74-5.93)	**5.36** (3.99-6.50)
60-min	**0.752** (0.626-0.924)	**0.980** (0.819-1.20)	**1.32** (1.09-1.62)	**1.58** (1.30-1.93)	**1.92** (1.56-2.33)	**2.18** (1.74-2.63)	**2.43** (1.92-2.93)	**2.70** (2.10-3.25)	**3.04** (2.31-3.67)	**3.32** (2.47-4.02)
2-hr	**0.434** (0.366-0.521)	**0.561** (0.473-0.675)	**0.744** (0.624-0.893)	**0.885** (0.735-1.06)	**1.08** (0.883-1.28)	**1.22** (0.990-1.45)	**1.37** (1.09-1.62)	**1.52** (1.20-1.80)	**1.72** (1.32-2.04)	**1.87** (1.42-2.24)
3-hr	**0.311** (0.262-0.378)	**0.397** (0.336-0.485)	**0.517** (0.434-0.630)	**0.612** (0.510-0.742)	**0.745** (0.612-0.897)	**0.850** (0.689-1.02)	**0.959** (0.765-1.15)	**1.07** (0.843-1.28)	**1.23** (0.939-1.47)	**1.35** (1.01-1.62)
6-hr	**0.186** (0.161-0.220)	**0.235** (0.203-0.277)	**0.298** (0.256-0.350)	**0.349** (0.297-0.408)	**0.418** (0.351-0.488)	**0.473** (0.392-0.549)	**0.529** (0.433-0.614)	**0.586** (0.471-0.682)	**0.662** (0.520-0.770)	**0.722** (0.554-0.840)
12-hr	**0.111** (0.097-0.130)	**0.140** (0.122-0.163)	**0.176** (0.152-0.204)	**0.204** (0.175-0.237)	**0.243** (0.206-0.281)	**0.272** (0.229-0.315)	**0.303** (0.251-0.350)	**0.334** (0.274-0.385)	**0.374** (0.300-0.434)	**0.405** (0.319-0.473)
24-hr	**0.067** (0.059-0.077)	**0.085** (0.075-0.098)	**0.111** (0.098-0.128)	**0.132** (0.116-0.152)	**0.162** (0.140-0.187)	**0.187** (0.159-0.215)	**0.212** (0.178-0.246)	**0.240** (0.198-0.280)	**0.278** (0.224-0.328)	**0.310** (0.244-0.369)
2-day	**0.038** (0.033-0.044)	**0.049** (0.043-0.056)	**0.065** (0.056-0.074)	**0.078** (0.067-0.089)	**0.096** (0.082-0.110)	**0.111** (0.093-0.127)	**0.126** (0.105-0.146)	**0.143** (0.118-0.167)	**0.166** (0.134-0.197)	**0.185** (0.146-0.222)
3-day	**0.027** (0.024-0.031)	**0.035** (0.030-0.040)	**0.047** (0.041-0.053)	**0.056** (0.049-0.064)	**0.070** (0.060-0.080)	**0.081** (0.069-0.093)	**0.093** (0.078-0.108)	**0.106** (0.088-0.124)	**0.125** (0.101-0.148)	**0.141** (0.111-0.168)
4-day	**0.022** (0.019-0.025)	**0.028** (0.024-0.032)	**0.037** (0.033-0.043)	**0.045** (0.040-0.052)	**0.057** (0.049-0.065)	**0.067** (0.057-0.076)	**0.077** (0.065-0.089)	**0.088** (0.073-0.103)	**0.105** (0.085-0.123)	**0.118** (0.094-0.141)
7-day	**0.014** (0.012-0.016)	**0.018** (0.016-0.021)	**0.025** (0.021-0.028)	**0.030** (0.026-0.034)	**0.038** (0.032-0.043)	**0.044** (0.037-0.051)	**0.051** (0.043-0.060)	**0.059** (0.048-0.070)	**0.070** (0.056-0.084)	**0.080** (0.063-0.097)
10-day	**0.011** (0.009-0.012)	**0.014** (0.012-0.016)	**0.019** (0.016-0.021)	**0.023** (0.020-0.026)	**0.029** (0.024-0.033)	**0.033** (0.028-0.038)	**0.039** (0.032-0.045)	**0.044** (0.036-0.052)	**0.053** (0.042-0.062)	**0.059** (0.047-0.071)
20-day	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.012** (0.010-0.013)	**0.014** (0.012-0.016)	**0.017** (0.015-0.020)	**0.020** (0.017-0.023)	**0.023** (0.019-0.026)	**0.026** (0.021-0.030)	**0.030** (0.024-0.035)	**0.033** (0.027-0.040)
30-day	**0.005** (0.004-0.006)	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.011** (0.010-0.013)	**0.014** (0.012-0.016)	**0.016** (0.013-0.018)	**0.018** (0.015-0.020)	**0.020** (0.017-0.023)	**0.023** (0.019-0.027)	**0.025** (0.021-0.030)
45-day	**0.004** (0.003-0.005)	**0.005** (0.005-0.006)	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.011** (0.009-0.012)	**0.012** (0.011-0.014)	**0.014** (0.012-0.016)	**0.016** (0.013-0.018)	**0.018** (0.015-0.021)	**0.020** (0.016-0.024)
60-day	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.006** (0.005-0.007)	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.010** (0.009-0.012)	**0.011** (0.010-0.013)	**0.013** (0.011-0.015)	**0.014** (0.012-0.017)	**0.016** (0.013-0.019)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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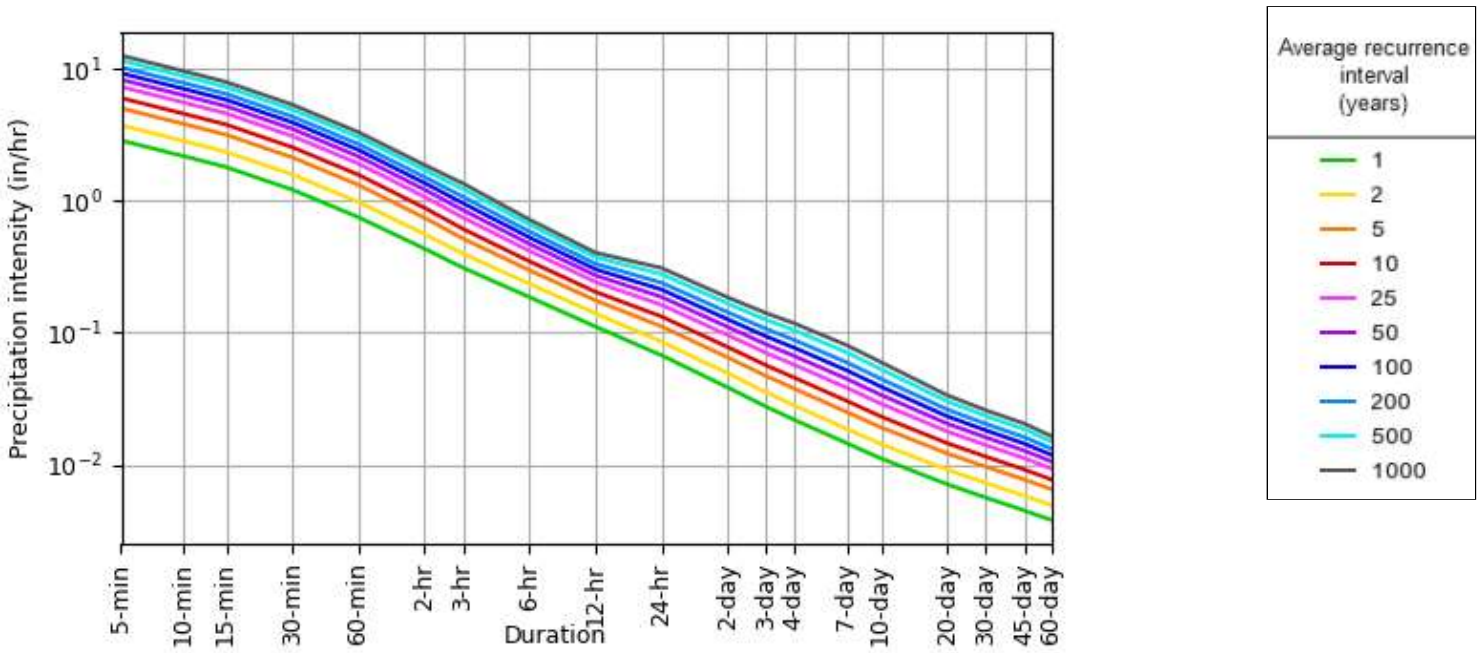
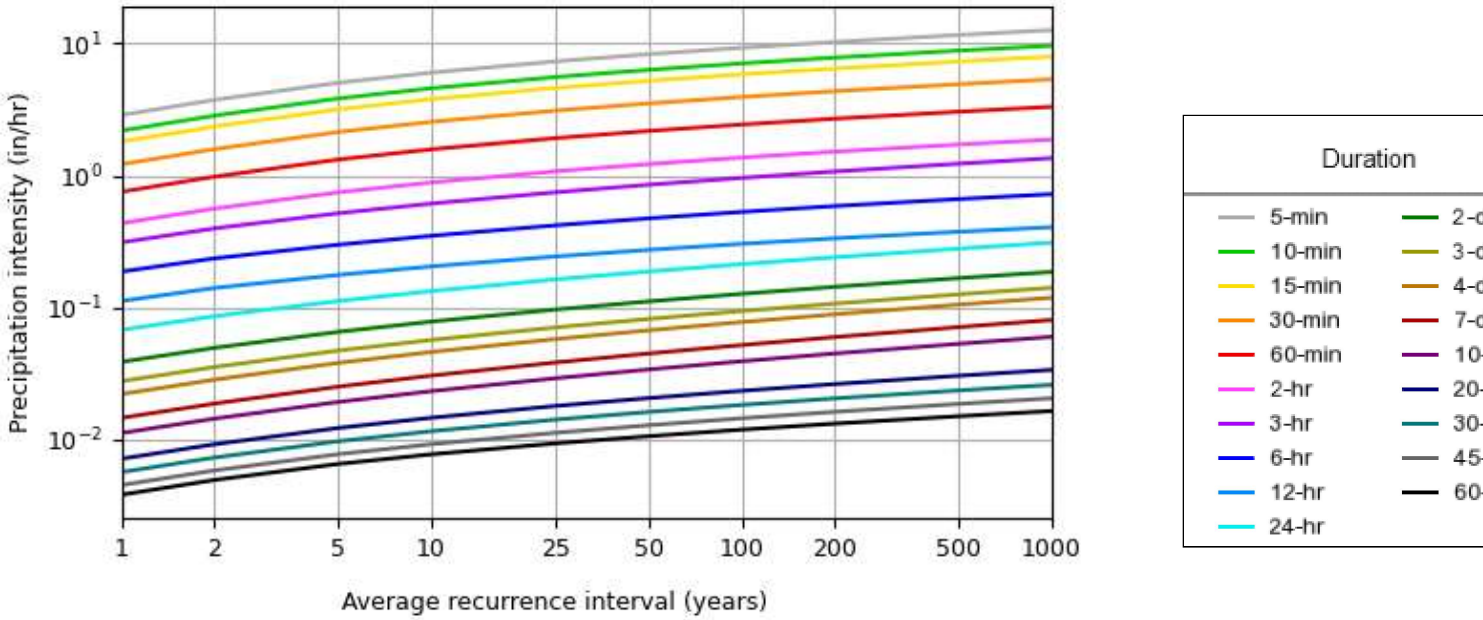
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 33.7410°, Longitude: -111.8455°





NOAA Atlas 14, Volume 1, Version 5

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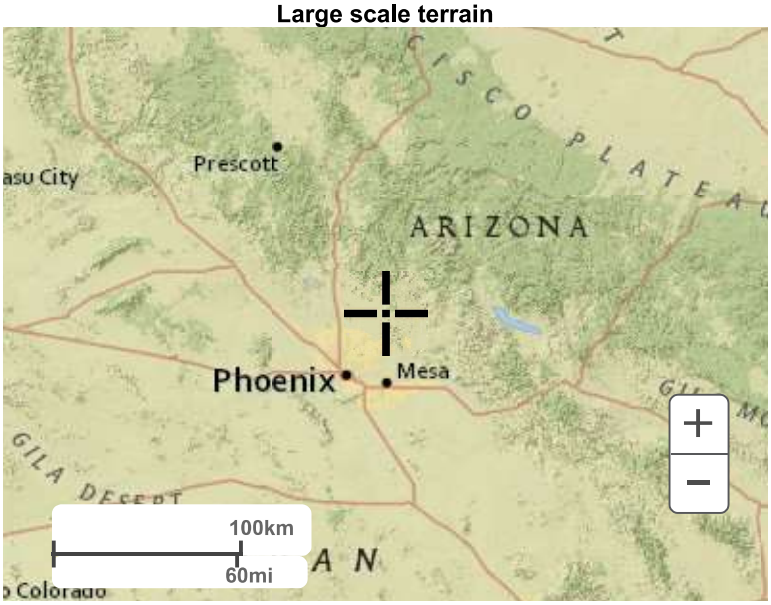
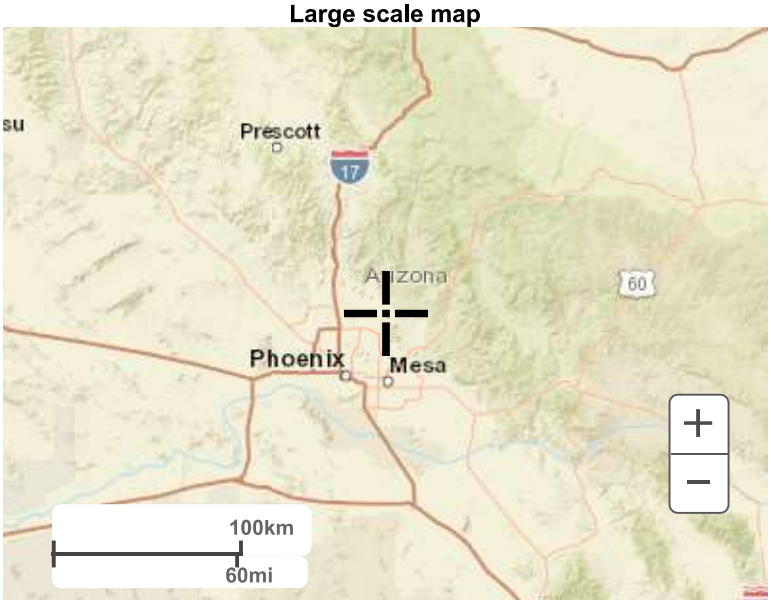
Maps & aerials

Small scale terrain

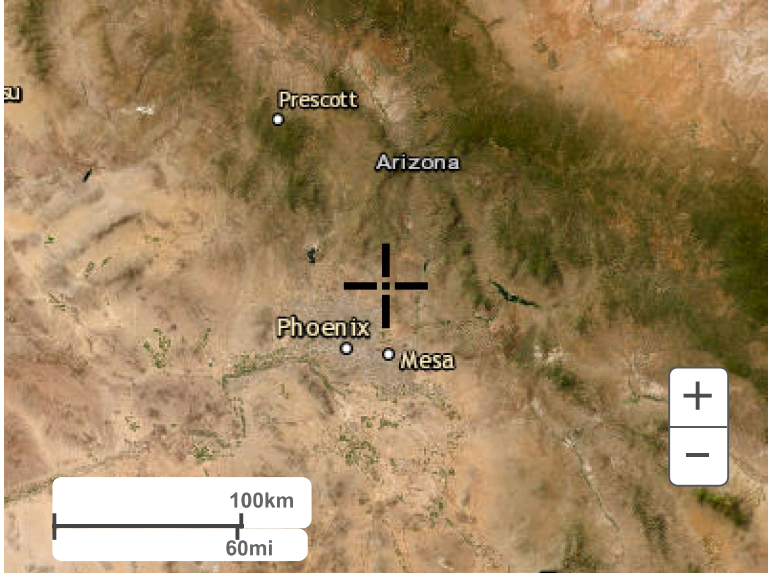
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX II

CALCULATIONS

EXISTING OVERALL SITE C_w				
	Pavement	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	0.00	6.15	**6.15**	**0.45**
EX-A1	0.00	5.68	5.68	0.45
EX-B1	0.00	0.47	0.47	0.45

EXISTING OFFSITE SITE C_w				
	Pavement	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	3.31	0.49	**3.80**	**0.89**
EX-OFF-1	3.31	0.00	3.31	0.95
EX-OFF-2	0.00	0.31	0.31	0.45
EX-OFF-3	0.00	0.10	0.10	0.45
EX-OFF-4	0.00	0.08	0.08	0.45

PROPOSED OVERALL SITE C_w				
	Building/ Pavement	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	3.36	2.79	**6.15**	**0.72**
DA-A	0.06	0.14	0.19	0.60
DA-B1	0.37	0.30	0.67	0.73
DA-B2	0.08	0.08	0.16	0.70
DA-C	0.14	0.17	0.31	0.67
DA-D1	0.36	0.09	0.45	0.85
DA-D2	0.00	0.01	0.01	0.45
DA-E1	0.28	0.06	0.35	0.86
DA-E2	0.27	0.04	0.32	0.88
DA-E3	0.58	0.16	0.74	0.84
DA-E4	0.23	0.13	0.36	0.77
DA-G	0.27	0.30	0.57	0.68
DA-H1	0.07	0.03	0.10	0.80
DA-H2	0.17	0.16	0.33	0.70
DA-H3	0.07	0.11	0.18	0.64
DA-L	0.08	0.06	0.14	0.75
DA-N	0.03	0.07	0.09	0.60
DA-O	0.28	0.83	1.10	0.58
DA-Q	0.02	0.04	0.06	0.59

PROPOSED OFFSITE SITE C_w				
	Pavement	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	3.33	0.47	**3.80**	**0.89**
OFF-1	3.31	0.00	3.31	0.95
OFF-2	0.02	0.29	0.31	0.48
OFF-3	0.00	0.10	0.10	0.45
OFF-4	0.00	0.08	0.08	0.45

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	0.213	1	5	64	------	------	------	DA Q
2	Reservoir	0.007	1	10	11	1	2646.11	63.0	Basin Q Flow
3	Rational	0.346	1	5	104	------	------	------	DA N1
4	Combine	0.346	1	5	114	2, 3	------	------	Basin N Inflow
5	Reservoir	0.000	1	n/a	0	4	2643.82	114	Basin N Outflow
6	Rational	0.572	1	5	172	------	------	------	DA L
7	Combine	0.572	1	5	172	5, 6	------	------	Basin L Inflow
8	Reservoir	0.000	1	n/a	0	7	2643.25	172	Basin L Outflow
9	Rational	0.481	1	5	144	------	------	------	DA H1
10	Reservoir	0.000	1	n/a	0	9	2643.35	144	Basin H1 Outflow
11	Rational	3.835	1	5	1,150	------	------	------	DA O
12	Rational	0.894	1	5	268	------	------	------	OFF 2
13	Combine	4.729	1	5	1,419	11, 12	------	------	Basin O Inflow
14	Reservoir	0.166	1	10	226	13	2645.57	1,401	Basin O Outflow
15	Rational	1.388	1	5	417	------	------	------	DA H2
16	Combine	1.388	1	5	643	8, 10, 14, 15	------	------	Basin H2 Inflow
17	Reservoir	0.000	1	n/a	0	16	2642.29	643	Basin H2 Outflow
18	Rational	0.692	1	5	208	------	------	------	DA H3
19	Rational	2.330	1	5	699	------	------	------	DA G
20	Rational	0.270	1	5	81	------	------	------	OFF 3
21	Rational	0.216	1	5	65	------	------	------	OFF 4
22	Combine	2.816	1	5	845	19, 20, 21	------	------	Basin G Inflow
23	Combine	0.692	1	5	208	17, 18,	------	------	Basin H3 Inflow
24	Reservoir	0.000	1	n/a	0	23	2641.98	208	Basin H3 Outflow
25	Rational	1.248	1	5	374	------	------	------	DA C
26	Combine	1.248	1	5	374	24, 25	------	------	Basin C Inflow
27	Reservoir	0.000	1	n/a	0	26	2638.86	374	Basin C Outflow
28	Reservoir	0.187	1	10	100	22	2640.08	826	Basin G Outflow
29	Rational	0.673	1	5	202	------	------	------	DA B2
30	Combine	0.673	1	5	202	27, 29	------	------	Basin B2 Inflow
31	Reservoir	0.000	1	n/a	0	30	2637.91	202	Basin B2 Outflow
32	Rational	0.685	1	5	206	------	------	------	DA A
33	Reservoir	0.342	1	8	205	32	2639.56	371	Basin A Outfall
34	Rational	18.90	1	5	5,670	------	------	------	OFF-1

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

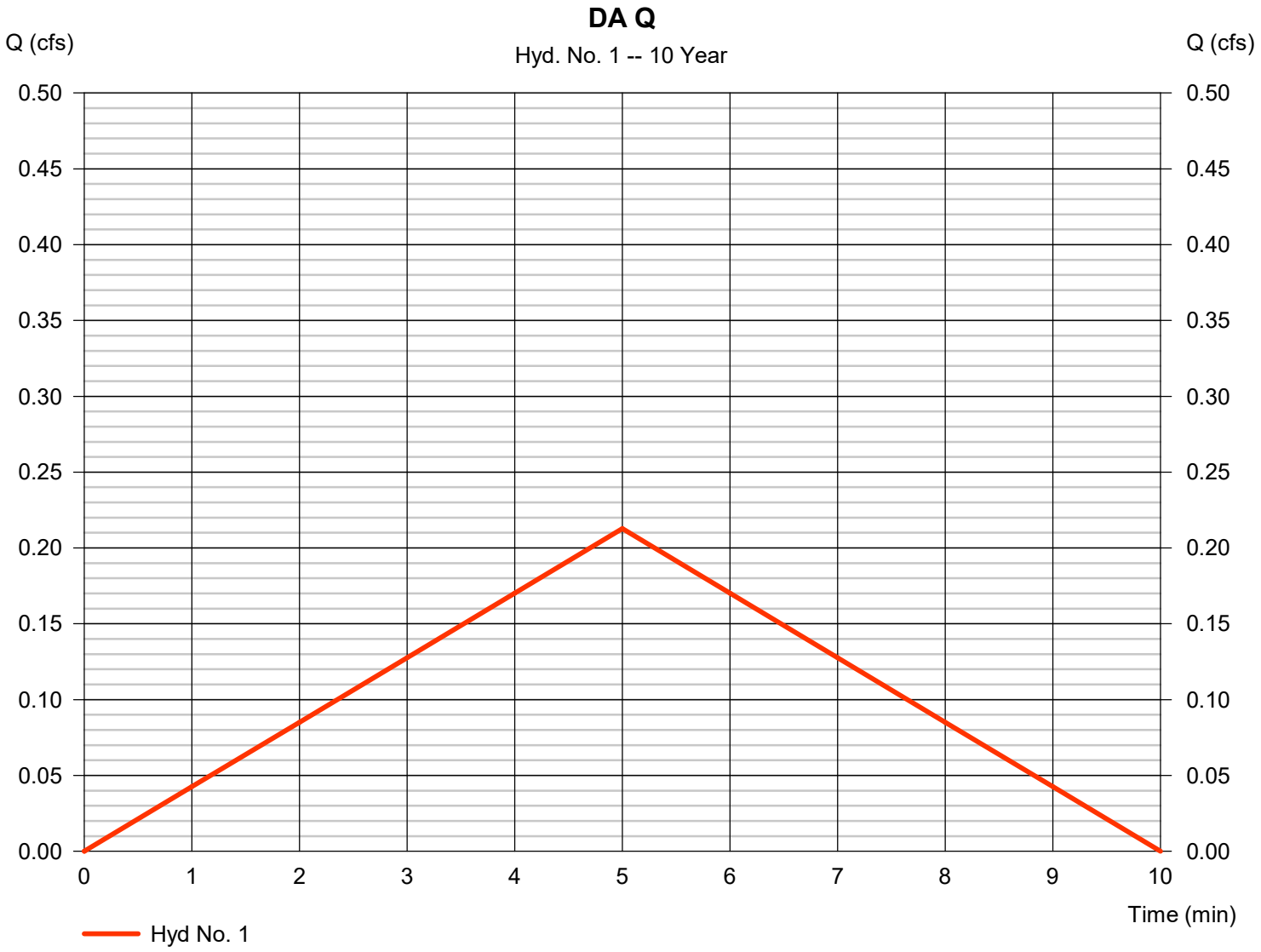
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
35	Rational	0.027	1	5	8	------	------	------	DA D2
36	Rational	2.299	1	5	690	------	------	------	DA D1
37	Rational	1.809	1	5	543	------	------	------	DA E1
38	Rational	1.692	1	5	508	------	------	------	DA E2
39	Rational	3.736	1	5	1,121	------	------	------	DA E3
40	Rational	1.666	1	5	500	------	------	------	DA E4
41	Combine	21.23	1	5	6,368	34, 35, 36,	------	------	Basin D Inflow
42	Reservoir	1.987	1	10	6,365	41	2635.67	5,578	Basin D Outflow
43	Combine	10.45	1	5	9,037	37, 38, 39, 40, 42	------	------	Basin E Inflow
44	Reservoir	1.898	1	15	5,667	43	2634.63	3,591	Basin E Outflow
45	Rational	2.940	1	5	882	------	------	------	DA B1
46	Combine	2.940	1	5	6,649	28, 31, 44, 45	------	------	Basin B1 Inflow
47	Reservoir	1.384	1	44	3,560	46	2636.14	3,538	Basin B1 Outflow

Hydrograph Report

Hyd. No. 1

DA Q

Hydrograph type	=	Rational	Peak discharge	=	0.213 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	64 cuft
Drainage area	=	0.060 ac	Runoff coeff.	=	0.59
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



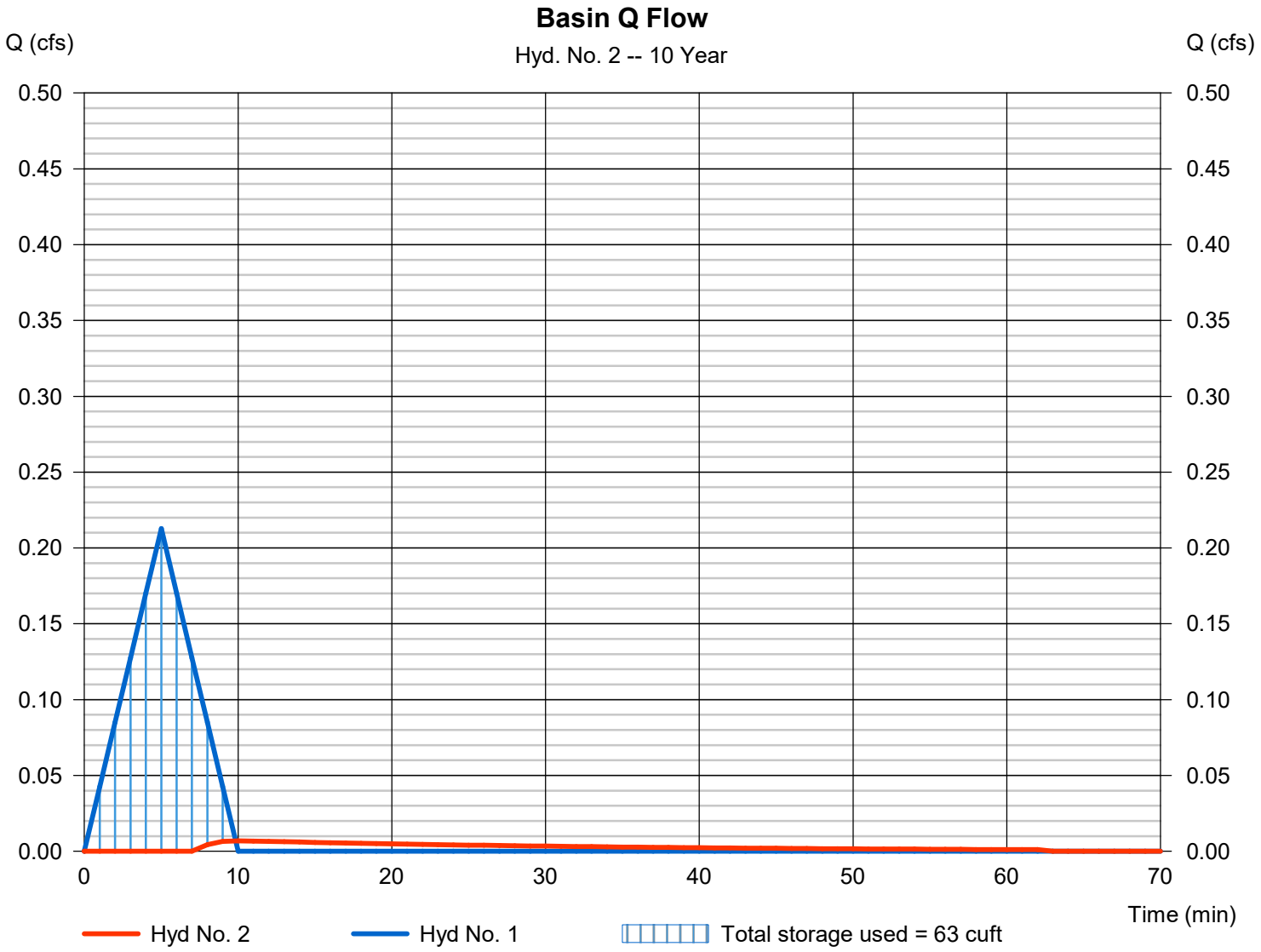
Hydrograph Report

Hyd. No. 2

Basin Q Flow

Hydrograph type	=	Reservoir	Peak discharge	=	0.007 cfs
Storm frequency	=	10 yrs	Time to peak	=	10 min
Time interval	=	1 min	Hyd. volume	=	11 cuft
Inflow hyd. No.	=	1 - DA Q	Max. Elevation	=	2646.11 ft
Reservoir name	=	Basin Q	Max. Storage	=	63 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Basin Q

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2645.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2645.50	34	0	0
1.00	2646.00	195	103	103
2.00	2647.00	456	316	420

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.00	0.00	0.00	0.00
Span (in)	= 1.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 2646.00	0.00	0.00	0.00
Length (ft)	= 35.34	0.00	0.00	0.00
Slope (%)	= 6.37	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

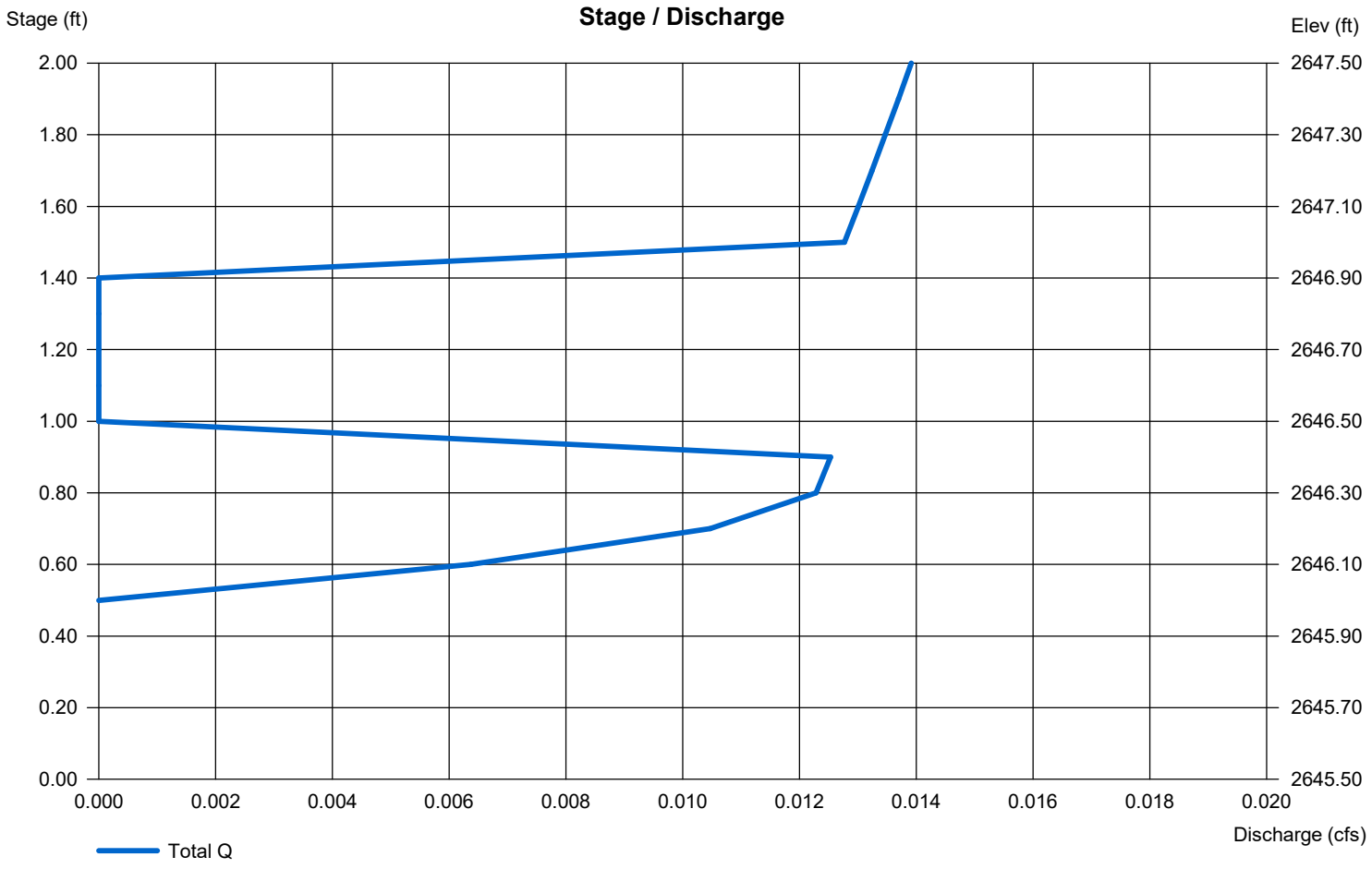
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.14	0.00	0.00	0.00
Crest El. (ft)	= 2646.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

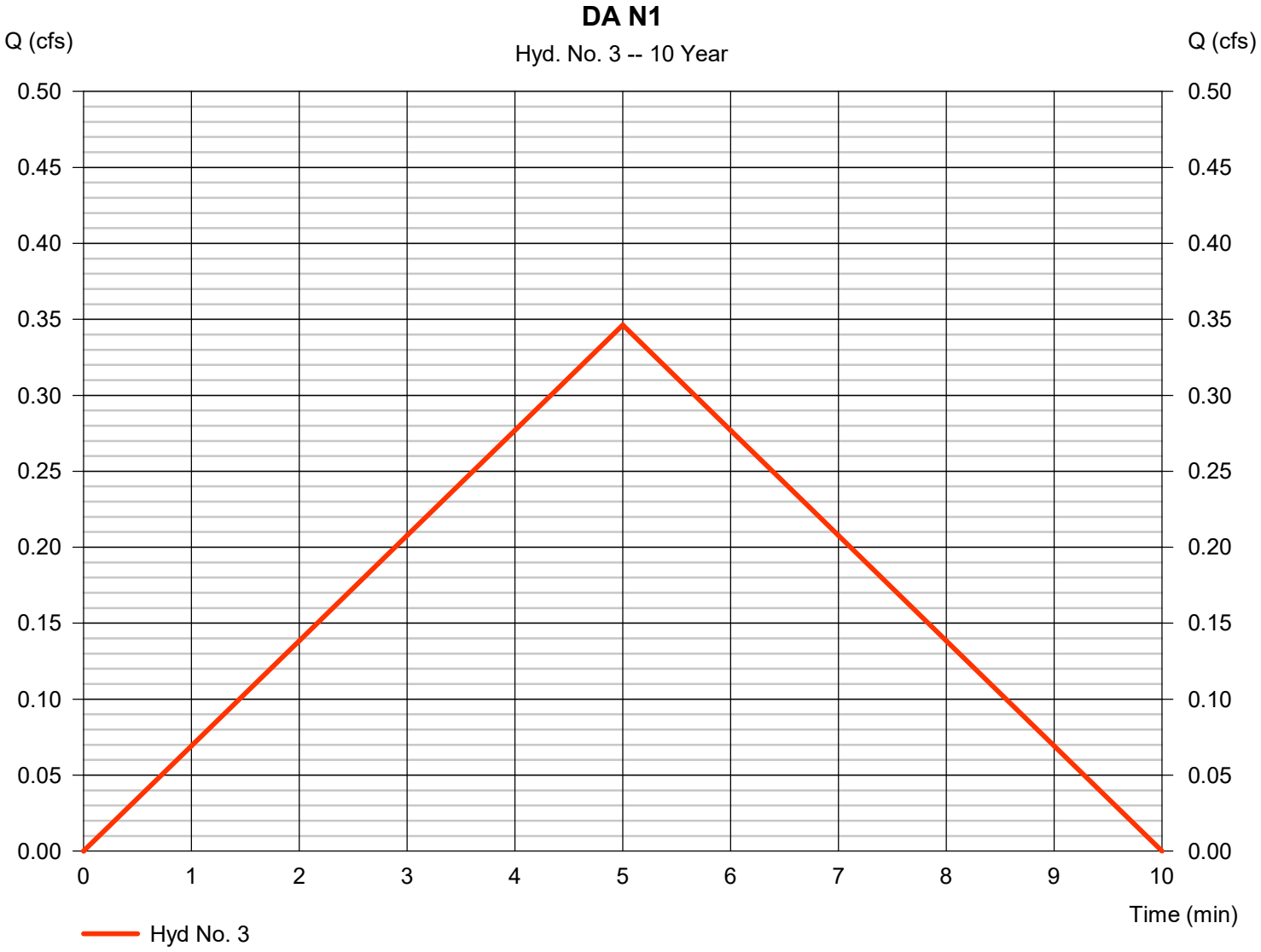


Hydrograph Report

Hyd. No. 3

DA N1

Hydrograph type	=	Rational	Peak discharge	=	0.346 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	104 cuft
Drainage area	=	0.090 ac	Runoff coeff.	=	0.64
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

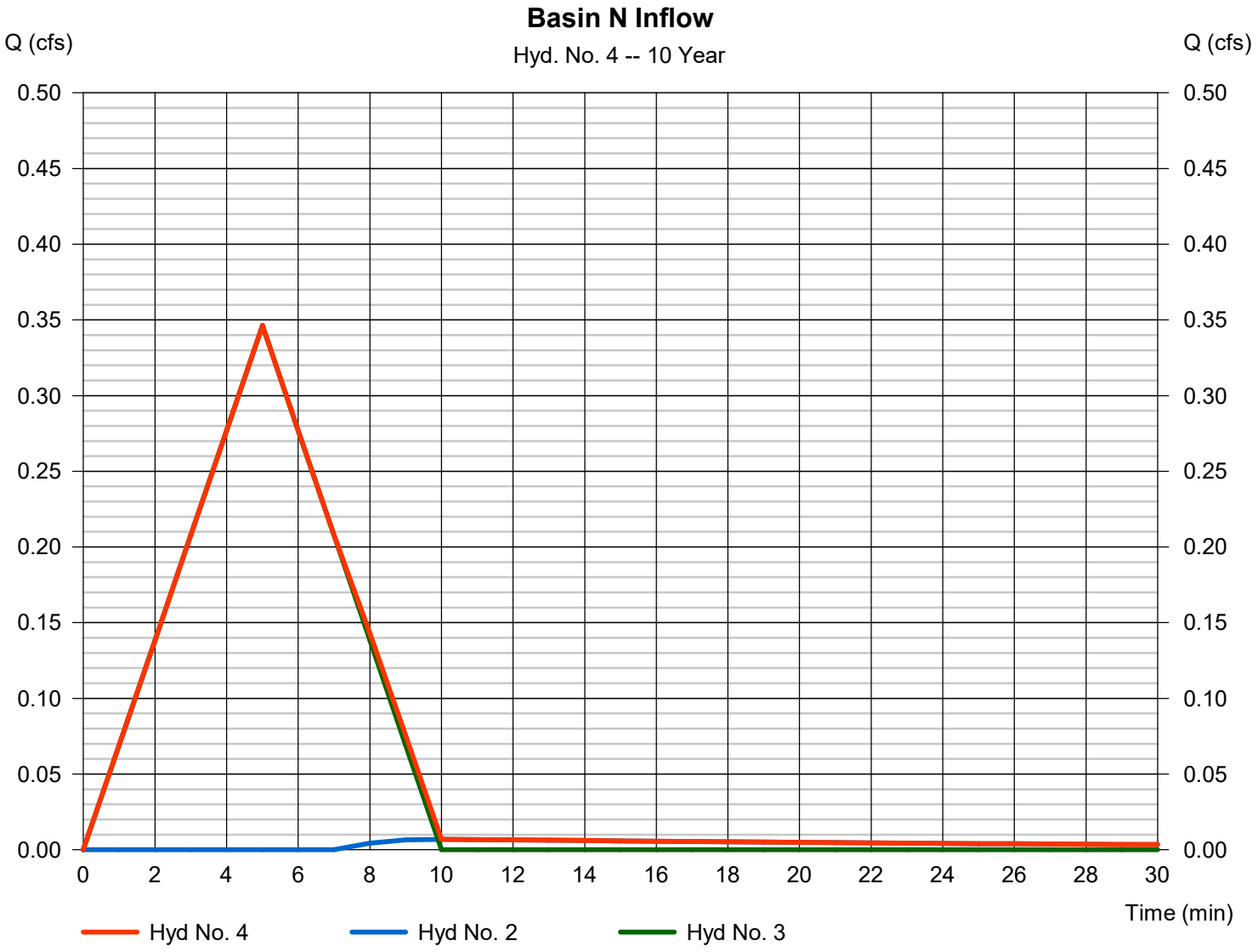


Hydrograph Report

Hyd. No. 4

Basin N Inflow

Hydrograph type	=	Combine	Peak discharge	=	0.346 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	114 cuft
Inflow hyds.	=	2, 3	Contrib. drain. area	=	0.090 ac



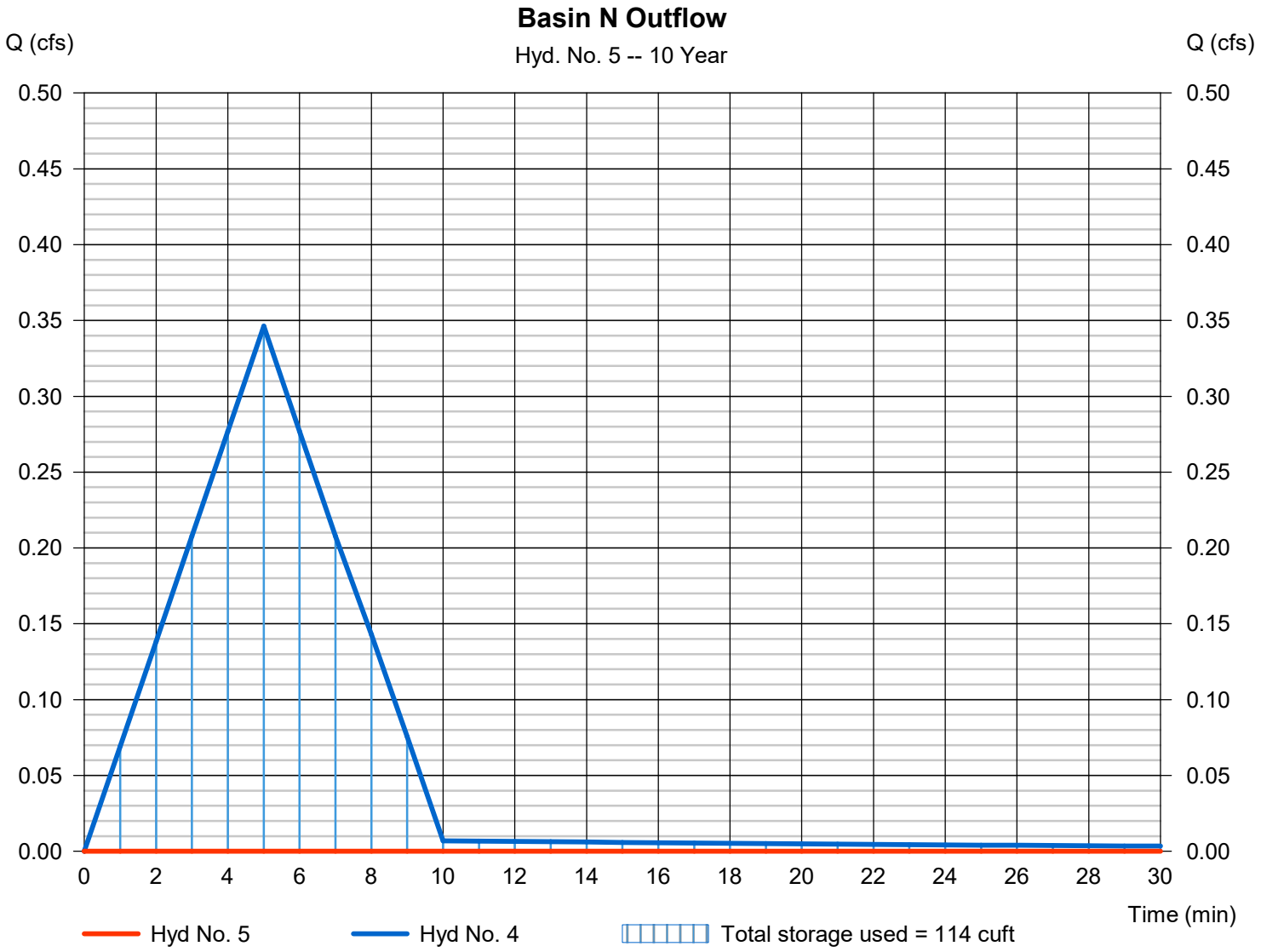
Hydrograph Report

Hyd. No. 5

Basin N Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	4 - Basin N Inflow	Max. Elevation	=	2643.82 ft
Reservoir name	=	Basin N	Max. Storage	=	114 cuft

Storage Indication method used.



Pond Report

Pond No. 2 - Basin N

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2643.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2643.50	287	0	0
0.50	2644.00	432	178	178
1.00	2644.50	603	258	436
1.50	2645.00	799	349	785

Culvert / Orifice Structures

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

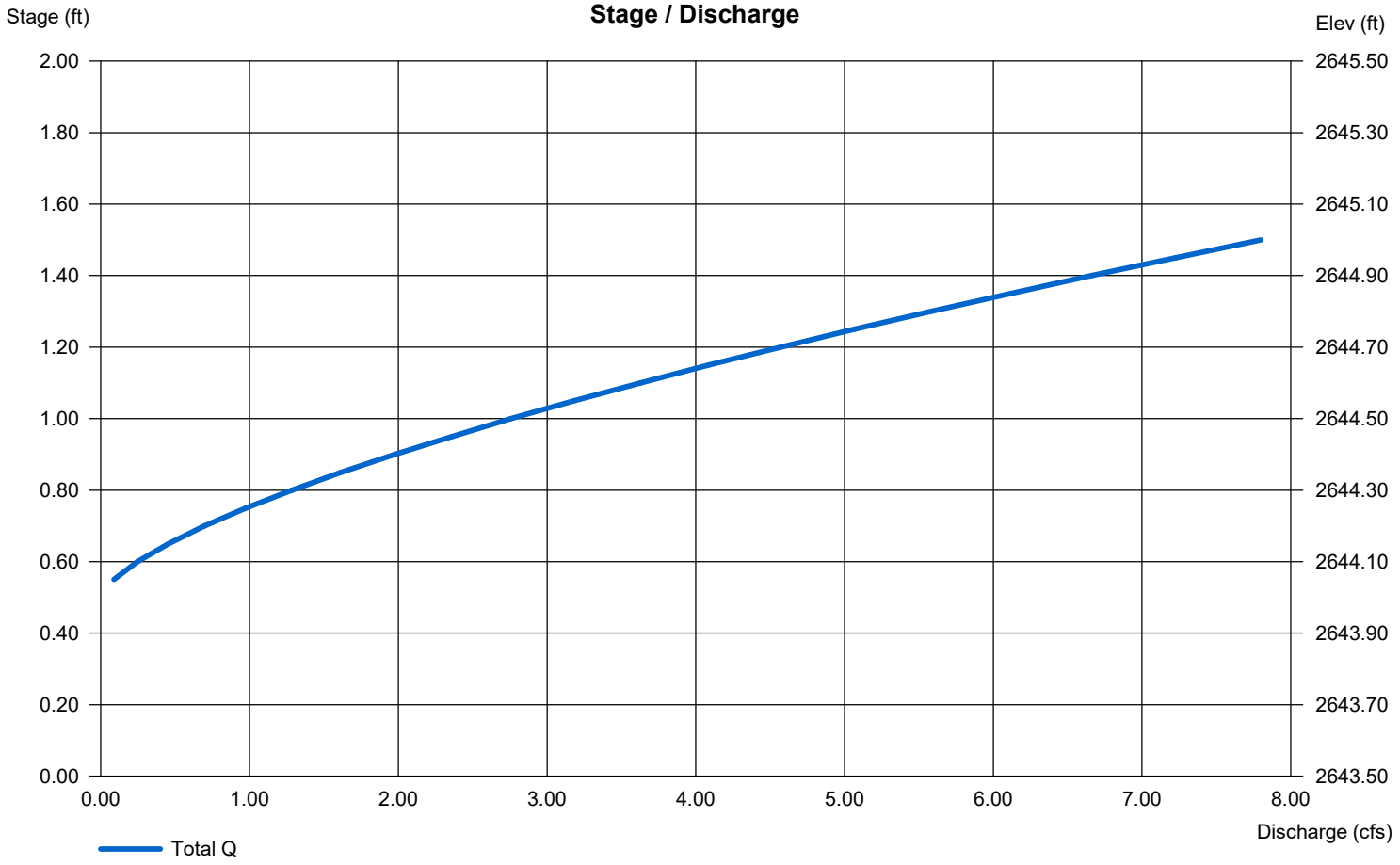
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 2644.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

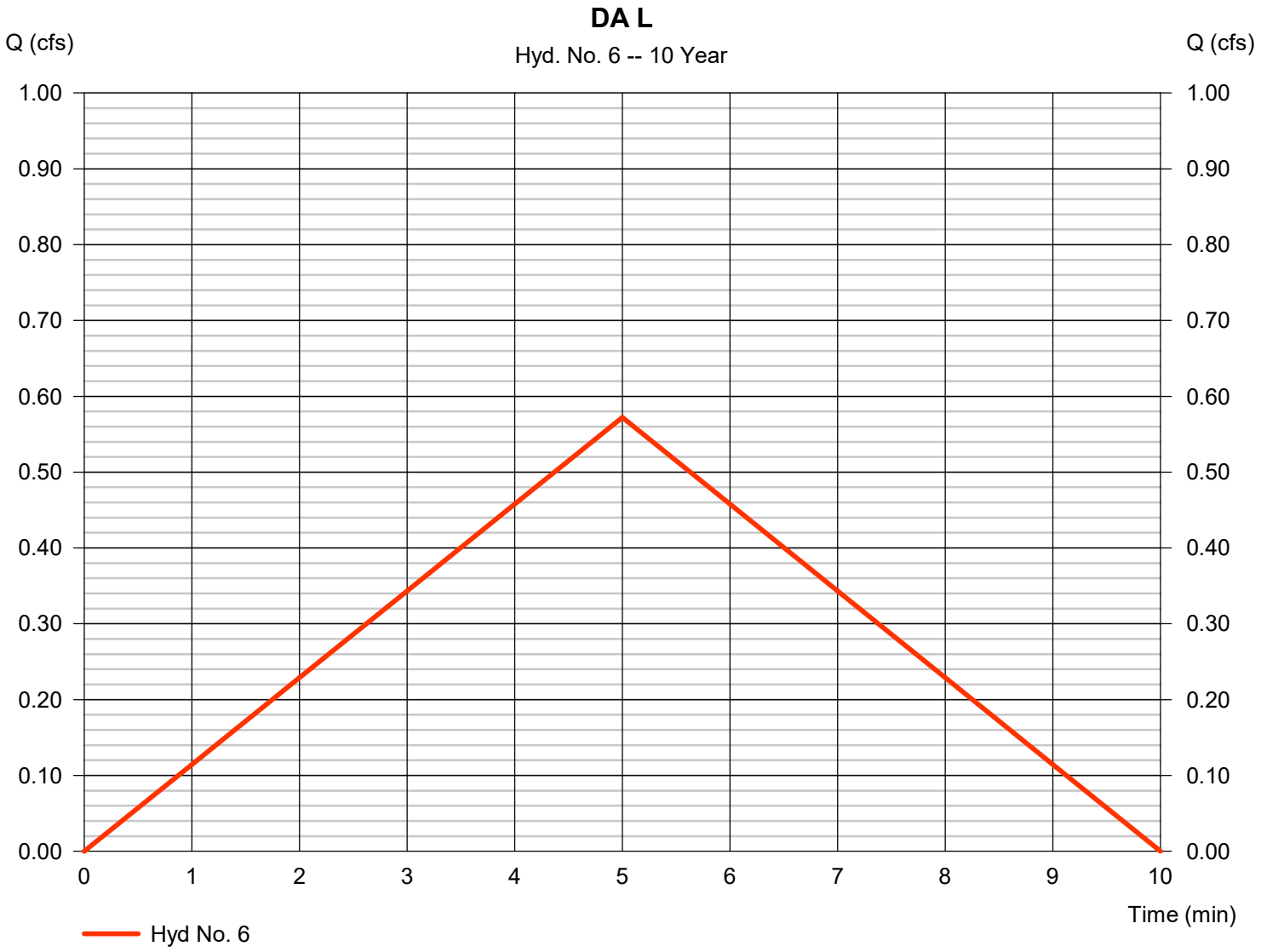


Hydrograph Report

Hyd. No. 6

DA L

Hydrograph type	=	Rational	Peak discharge	=	0.572 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	172 cuft
Drainage area	=	0.140 ac	Runoff coeff.	=	0.68
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

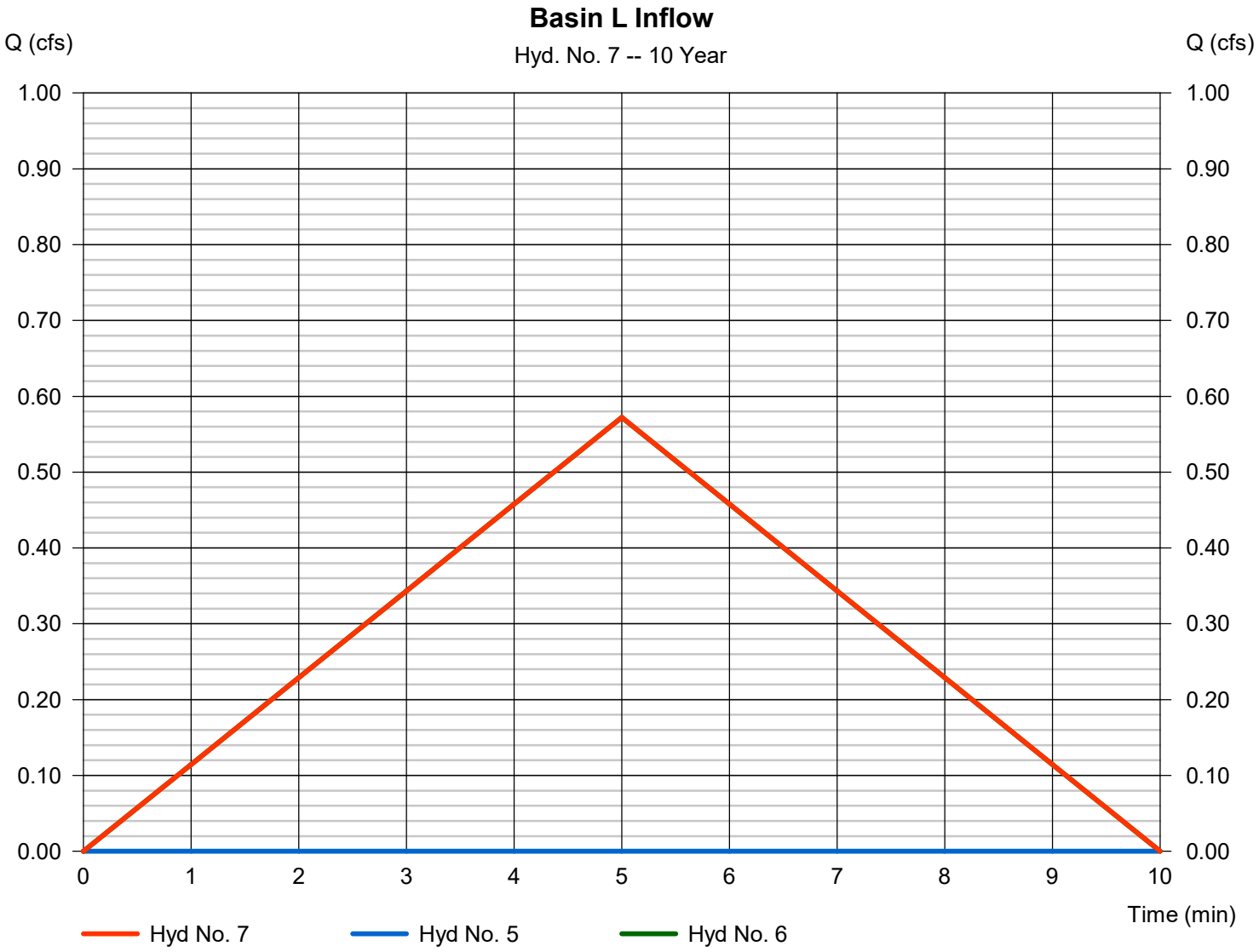


Hydrograph Report

Hyd. No. 7

Basin L Inflow

Hydrograph type	= Combine	Peak discharge	= 0.572 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 172 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.140 ac



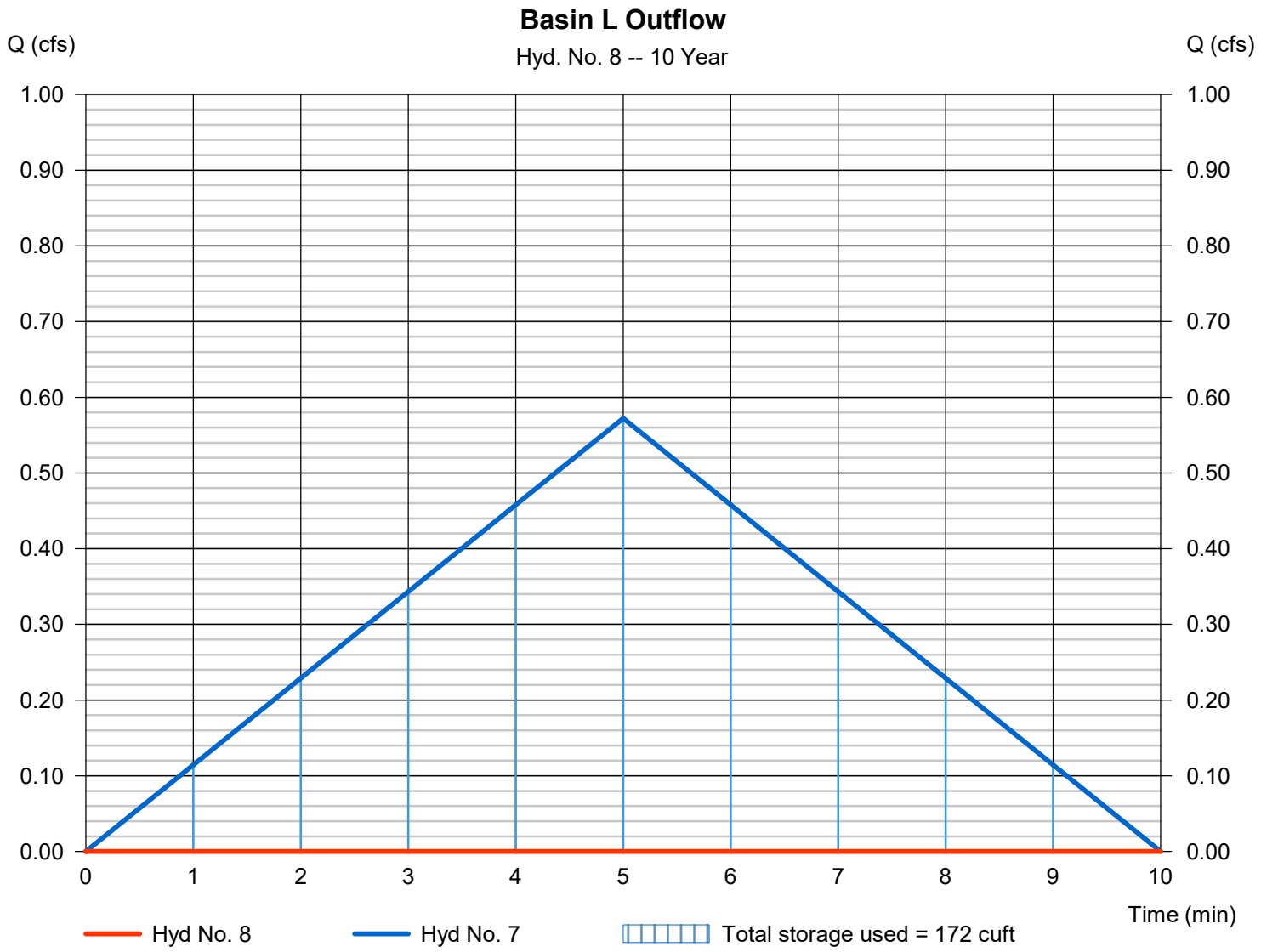
Hydrograph Report

Hyd. No. 8

Basin L Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	7 - Basin L Inflow	Max. Elevation	=	2643.25 ft
Reservoir name	=	Basin L	Max. Storage	=	172 cuft

Storage Indication method used.



Pond Report

Pond No. 3 - Basin L

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2643.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2643.00	564	0	0
0.50	2643.50	804	340	340
1.00	2644.00	1,098	473	814

Culvert / Orifice Structures

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

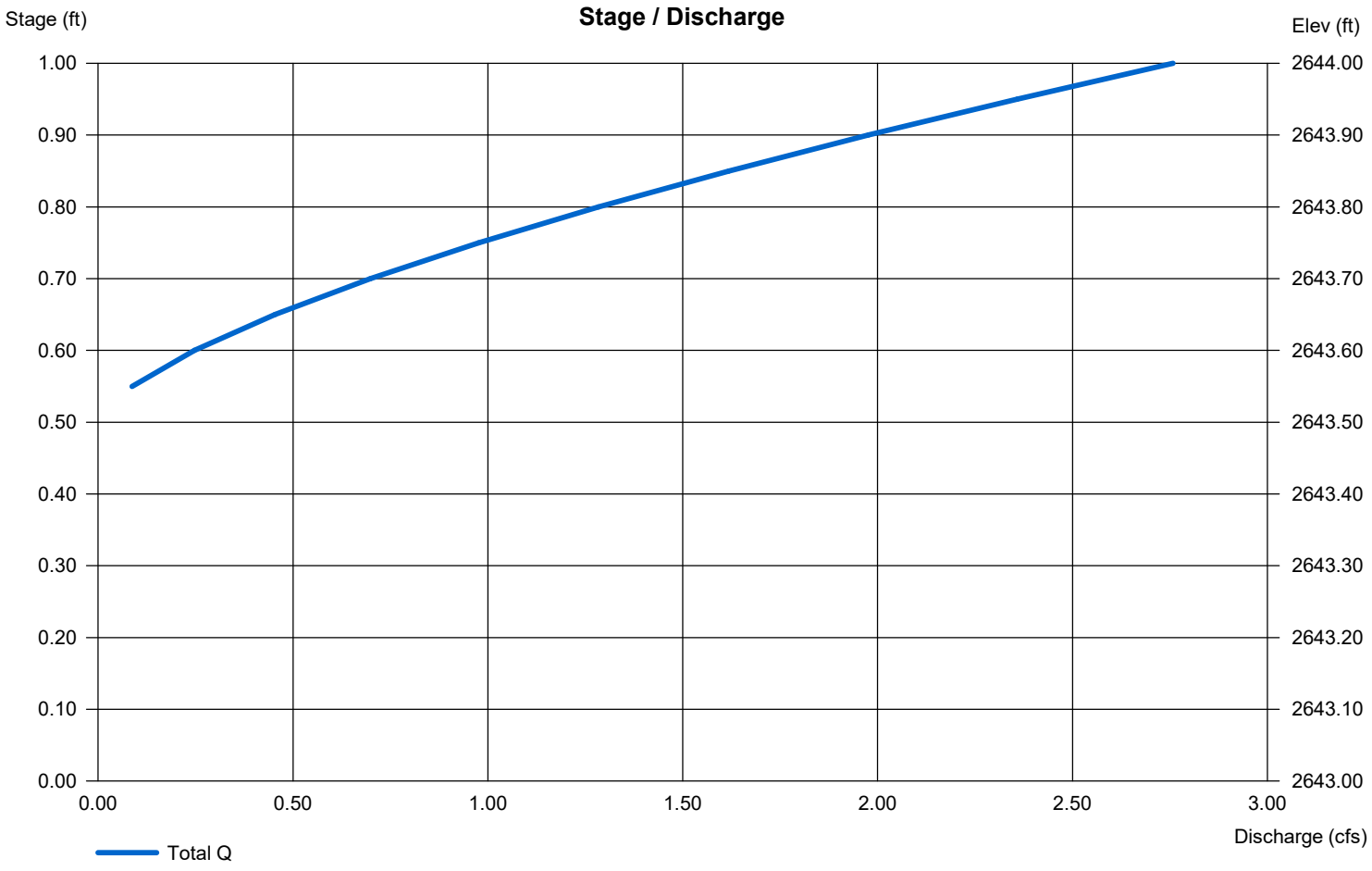
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 2643.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

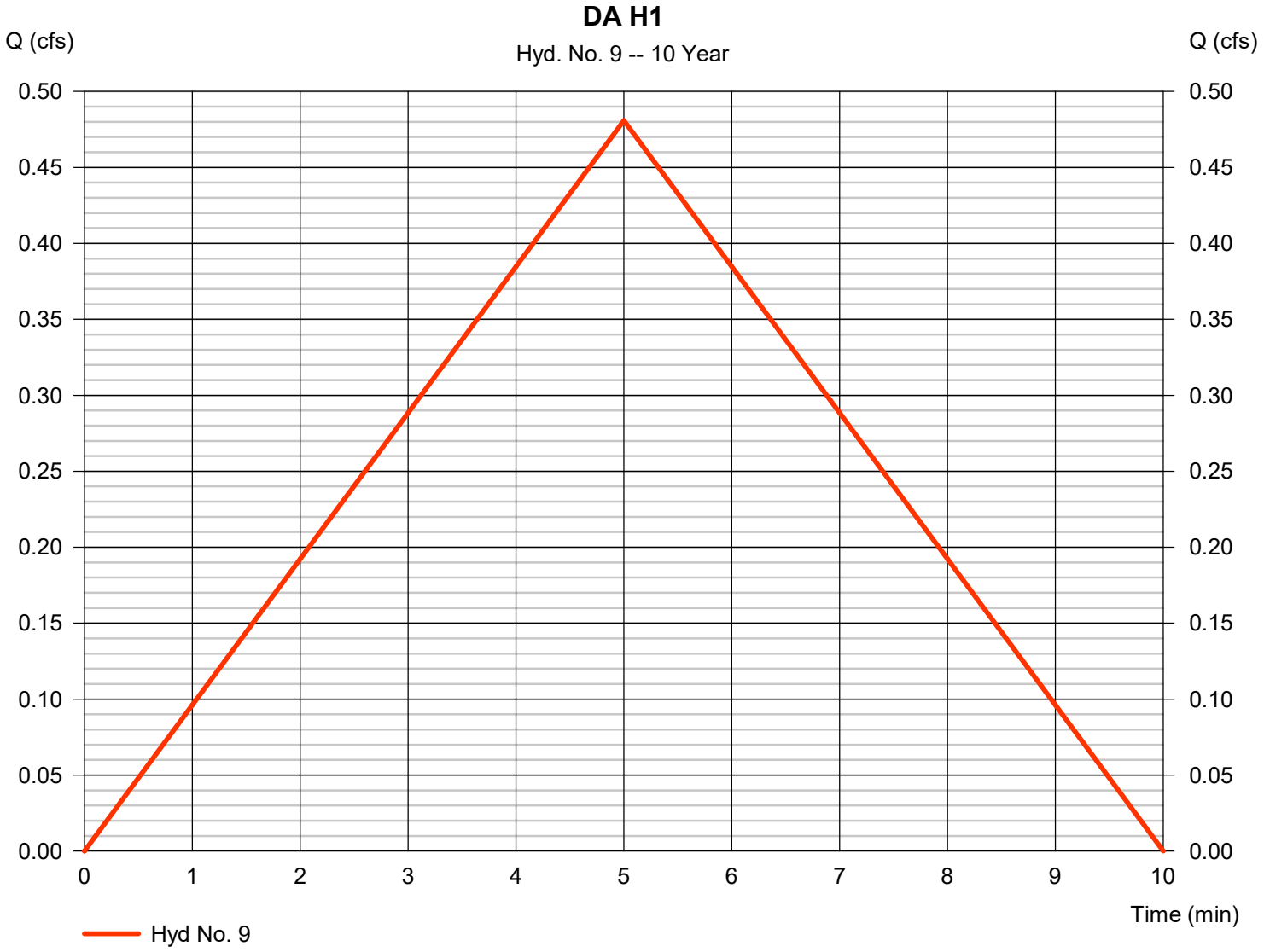


Hydrograph Report

Hyd. No. 9

DA H1

Hydrograph type	=	Rational	Peak discharge	=	0.481 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	144 cuft
Drainage area	=	0.100 ac	Runoff coeff.	=	0.8
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



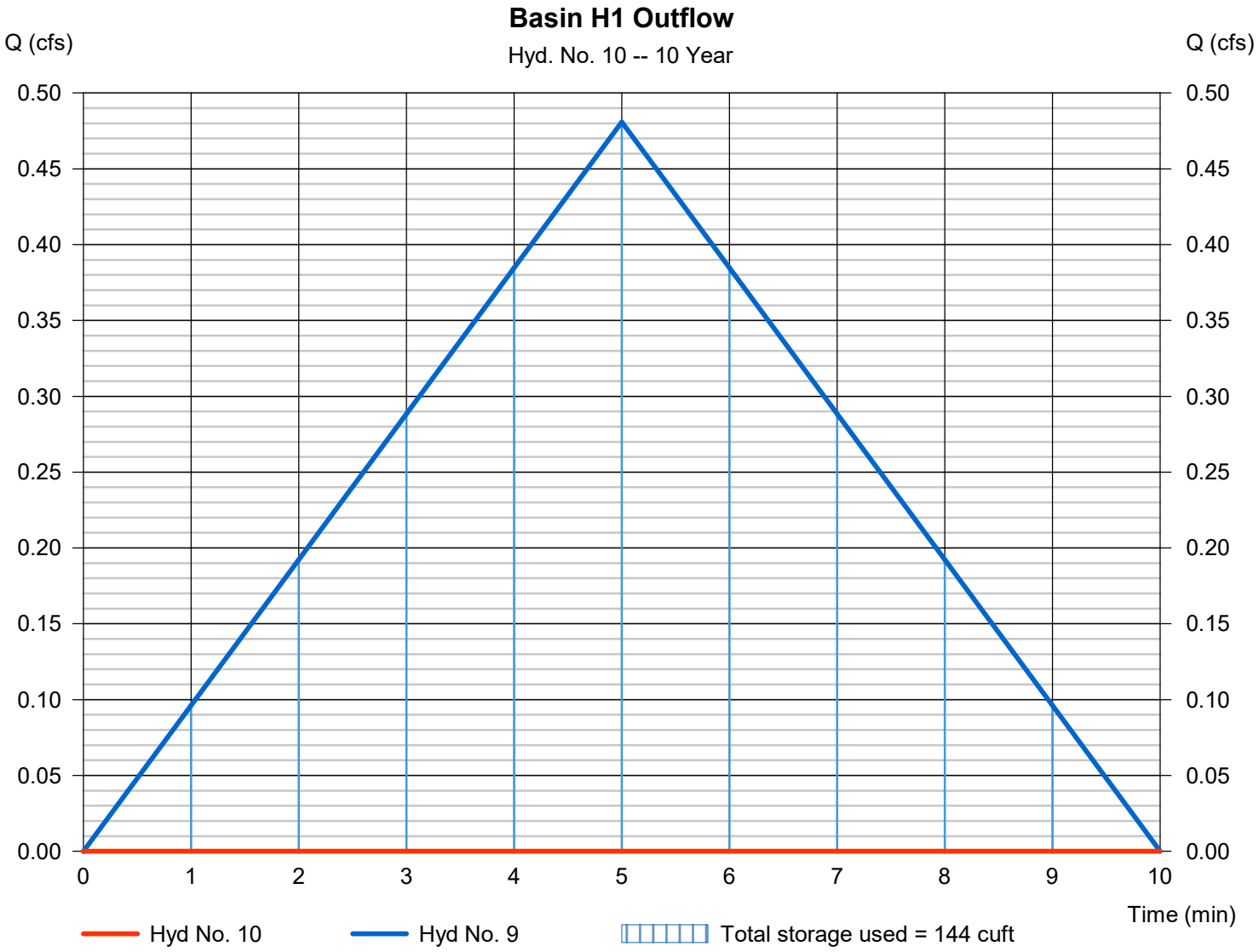
Hydrograph Report

Hyd. No. 10

Basin H1 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	9 - DA H1	Max. Elevation	=	2643.35 ft
Reservoir name	=	Basin H1	Max. Storage	=	144 cuft

Storage Indication method used.



Pond Report

Pond No. 4 - Basin H1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2643.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2643.00	349	0	0
0.40	2643.40	474	164	164
0.50	2643.50	508	49	213
1.00	2644.00	692	299	512

Culvert / Orifice Structures

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

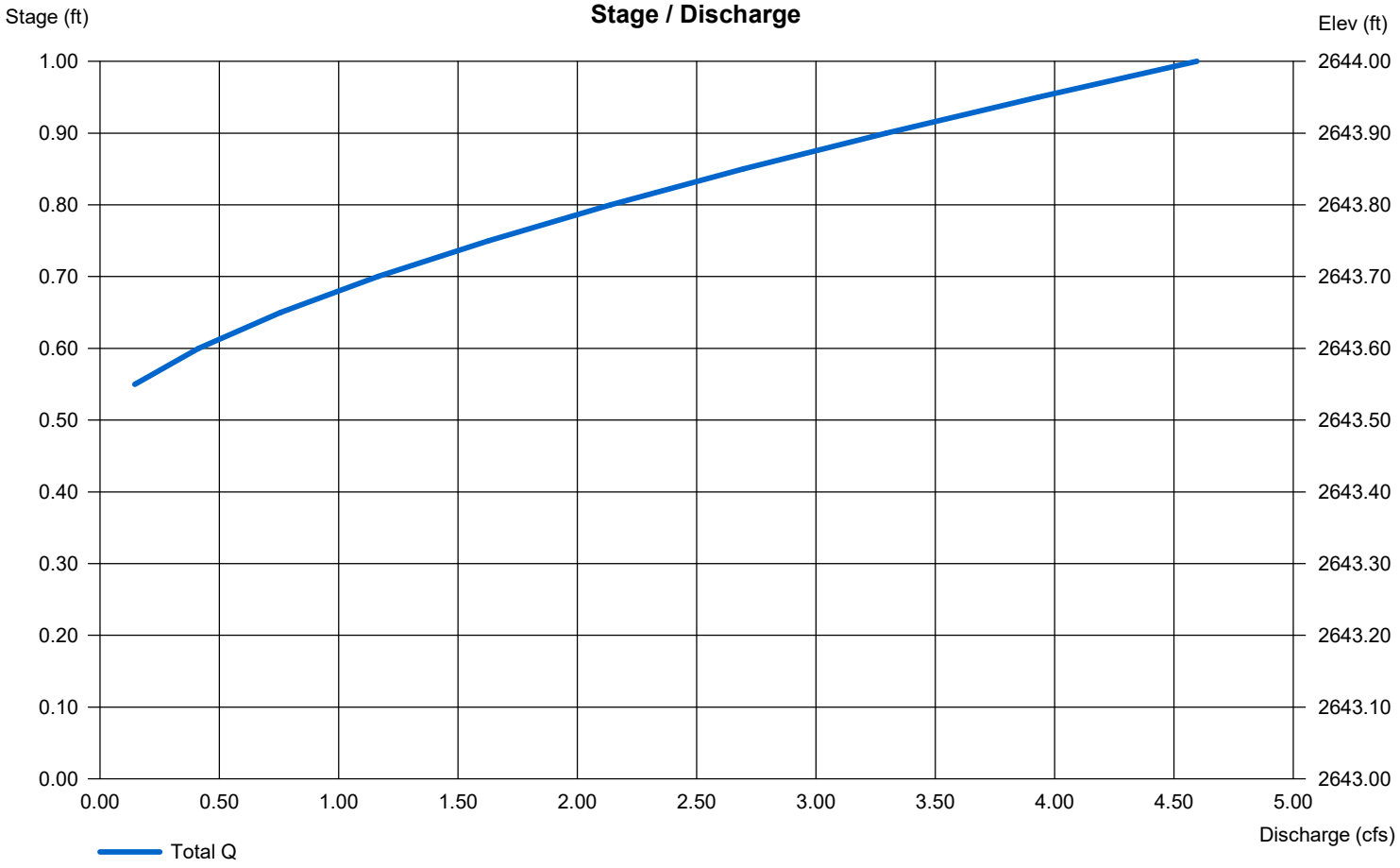
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 5.00	0.00	0.00	0.00
Crest El. (ft)	= 2643.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

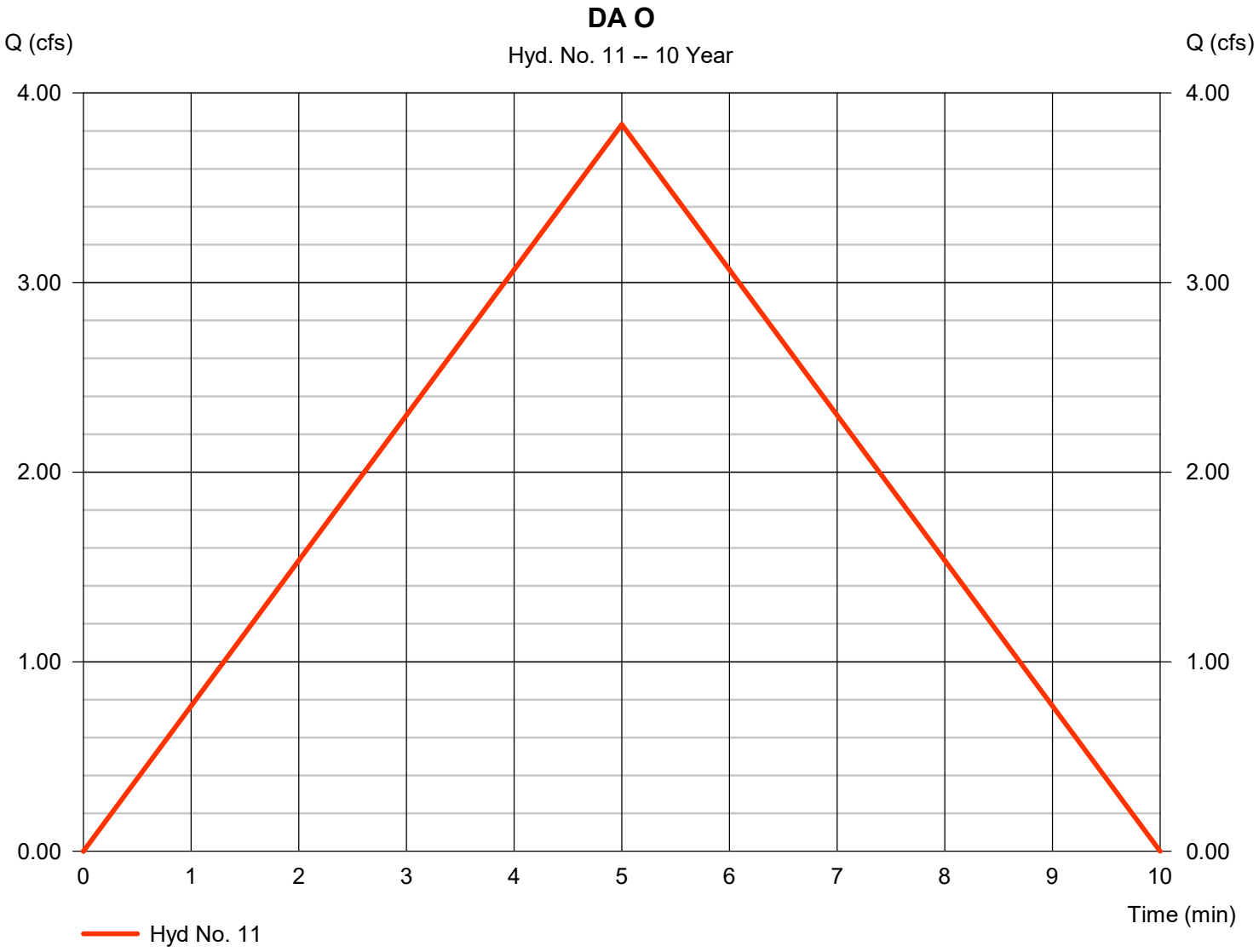


Hydrograph Report

Hyd. No. 11

DA O

Hydrograph type	=	Rational	Peak discharge	=	3.835 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,150 cuft
Drainage area	=	1.100 ac	Runoff coeff.	=	0.58
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

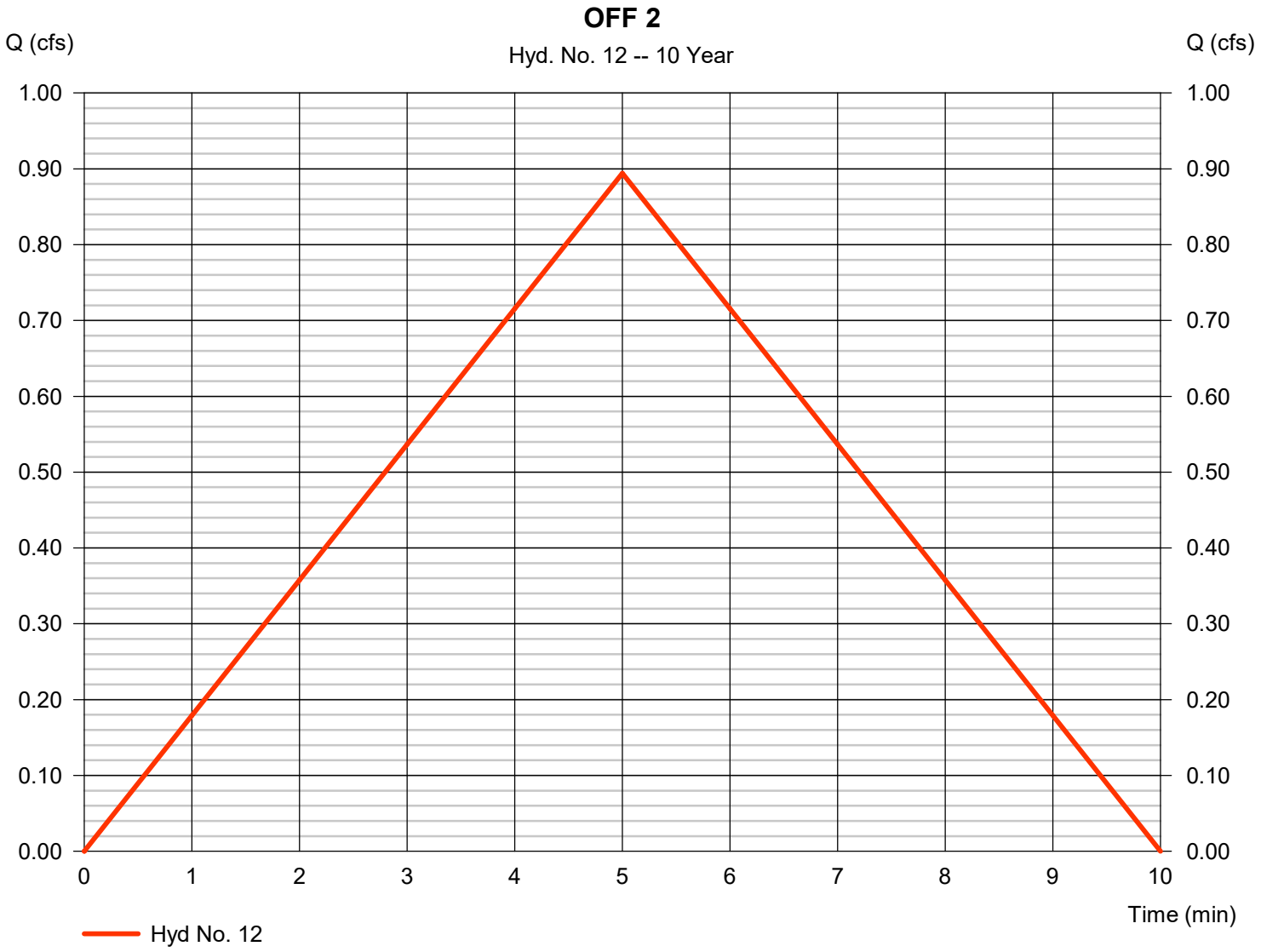


Hydrograph Report

Hyd. No. 12

OFF 2

Hydrograph type	=	Rational	Peak discharge	=	0.894 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	268 cuft
Drainage area	=	0.310 ac	Runoff coeff.	=	0.48
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

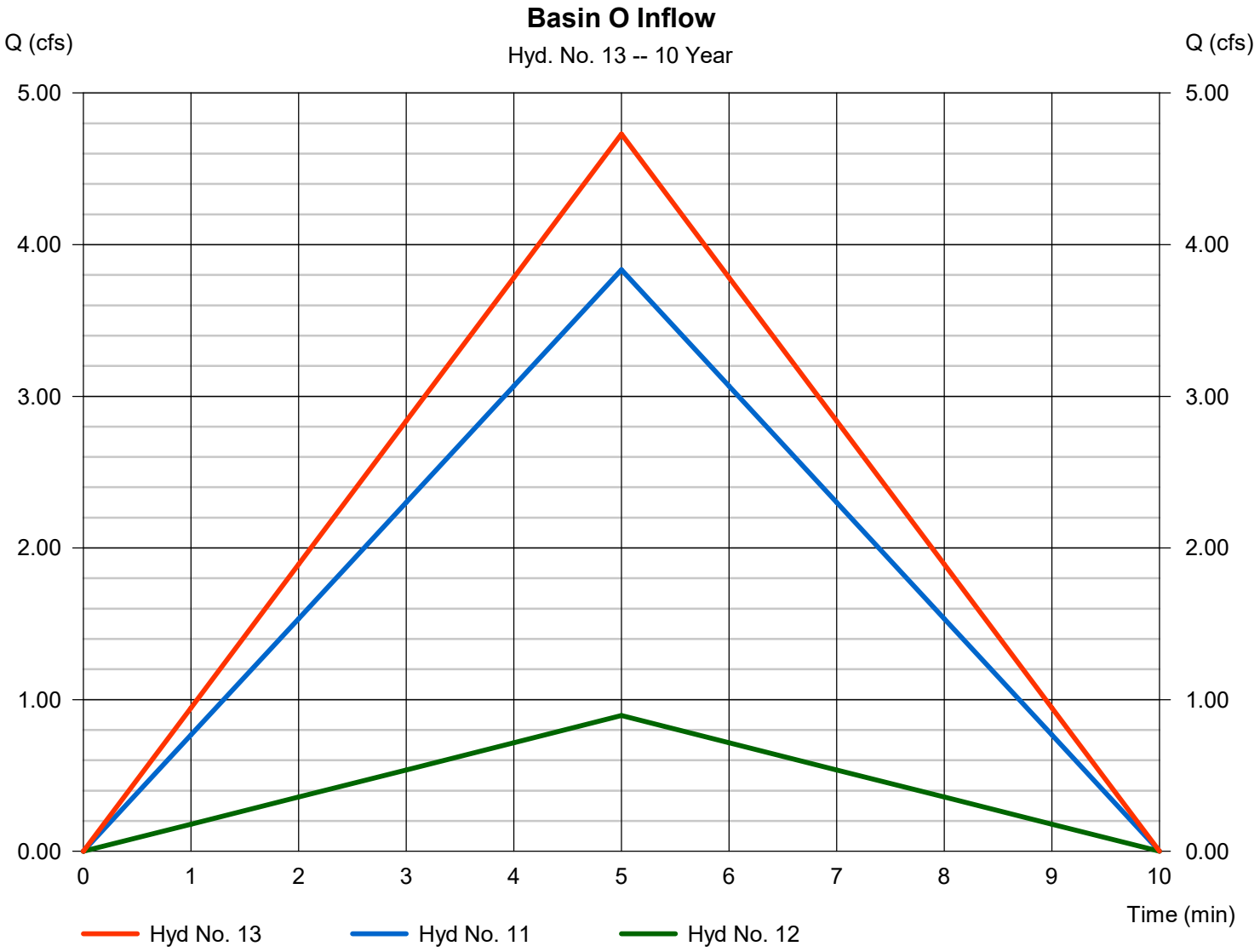


Hydrograph Report

Hyd. No. 13

Basin O Inflow

Hydrograph type	=	Combine	Peak discharge	=	4.729 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,419 cuft
Inflow hyds.	=	11, 12	Contrib. drain. area	=	1.410 ac



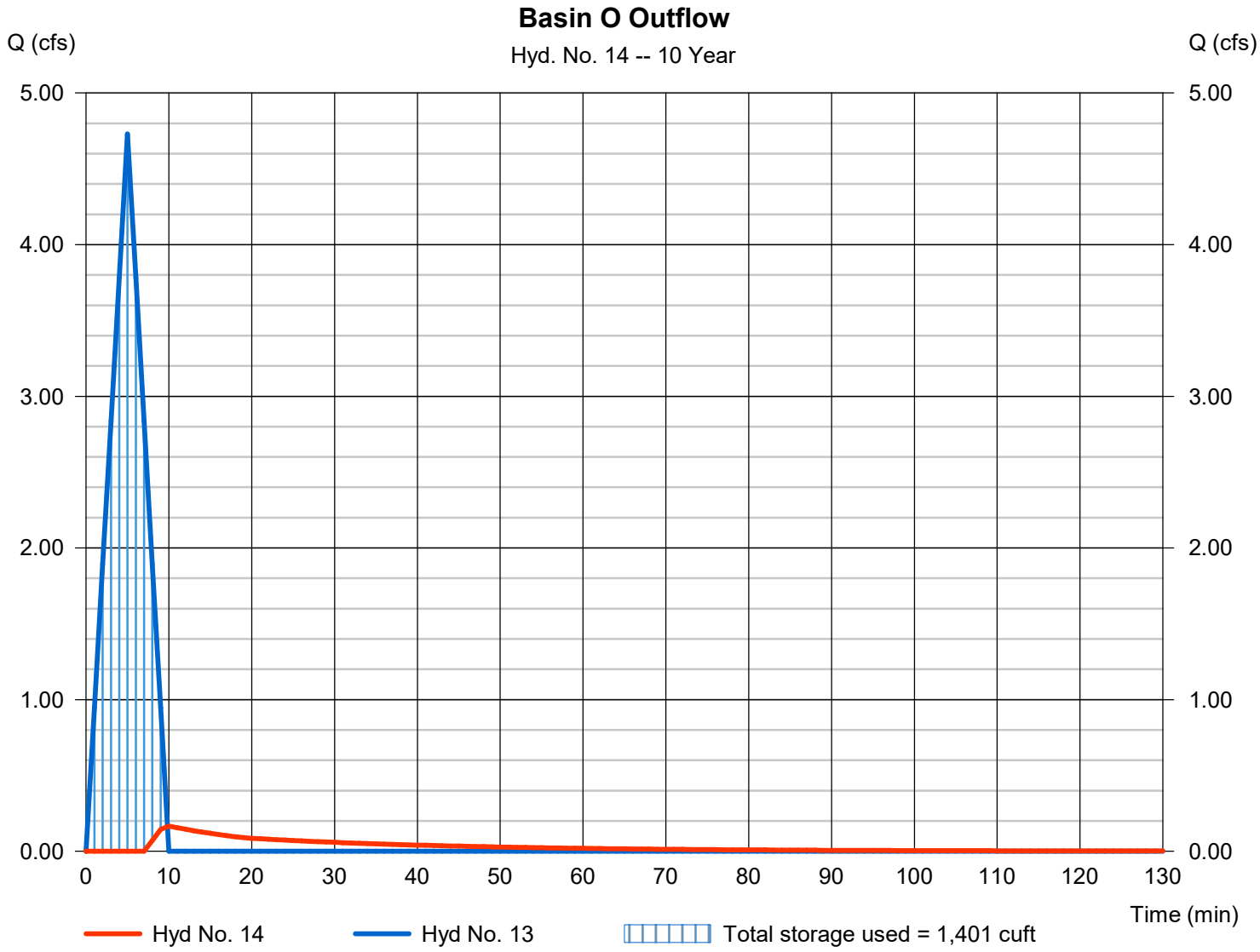
Hydrograph Report

Hyd. No. 14

Basin O Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.166 cfs
Storm frequency	=	10 yrs	Time to peak	=	10 min
Time interval	=	1 min	Hyd. volume	=	226 cuft
Inflow hyd. No.	=	13 - Basin O Inflow	Max. Elevation	=	2645.57 ft
Reservoir name	=	Basin O	Max. Storage	=	1,401 cuft

Storage Indication method used.



Pond Report

Pond No. 5 - Basin O

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2645.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2645.00	2,178	0	0
0.50	2645.50	2,592	1,191	1,191
1.00	2646.00	3,031	1,404	2,595

Culvert / Orifice Structures

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

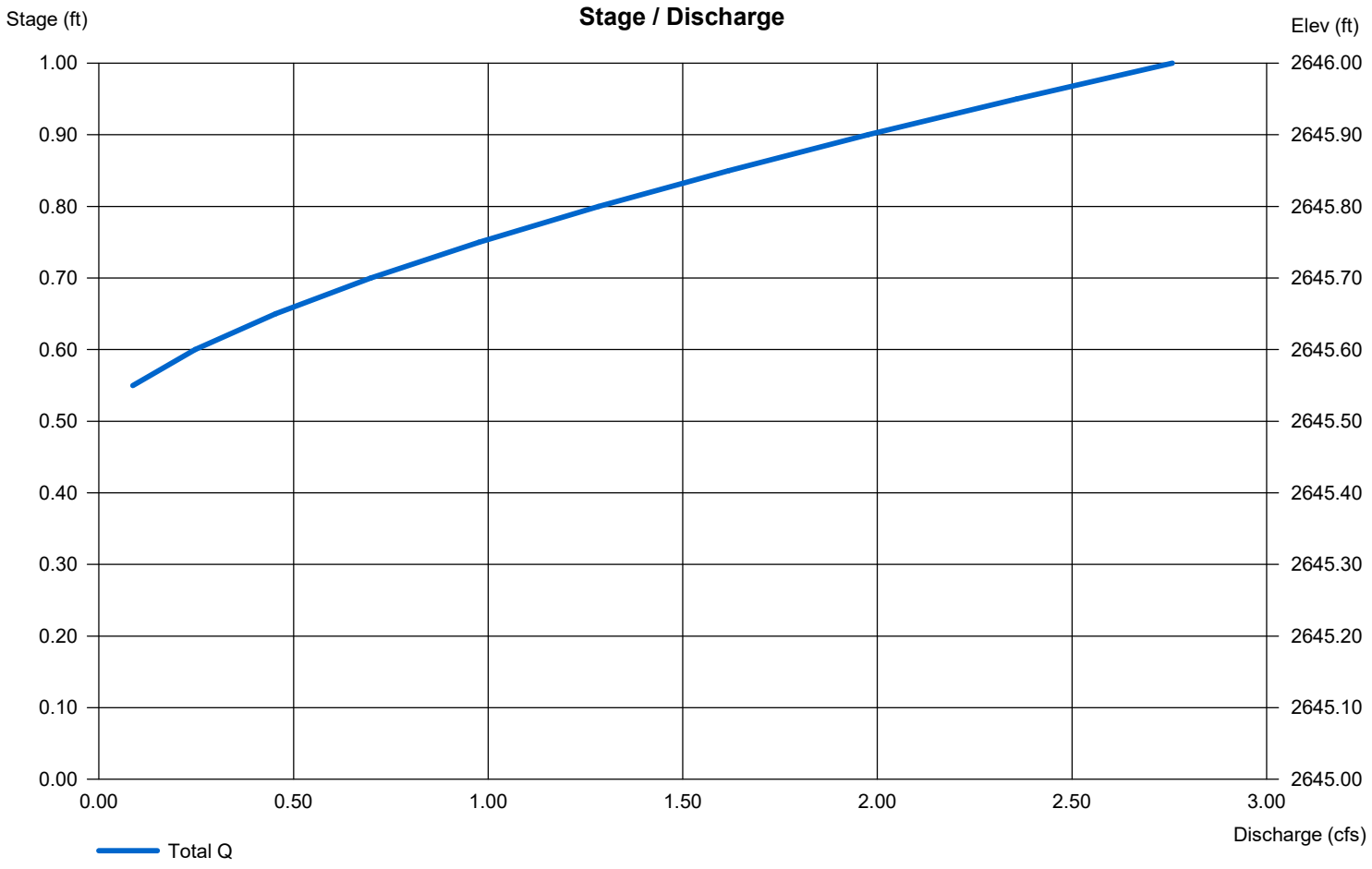
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 2645.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Hydrograph Report

Hyd. No. 15

DA H2

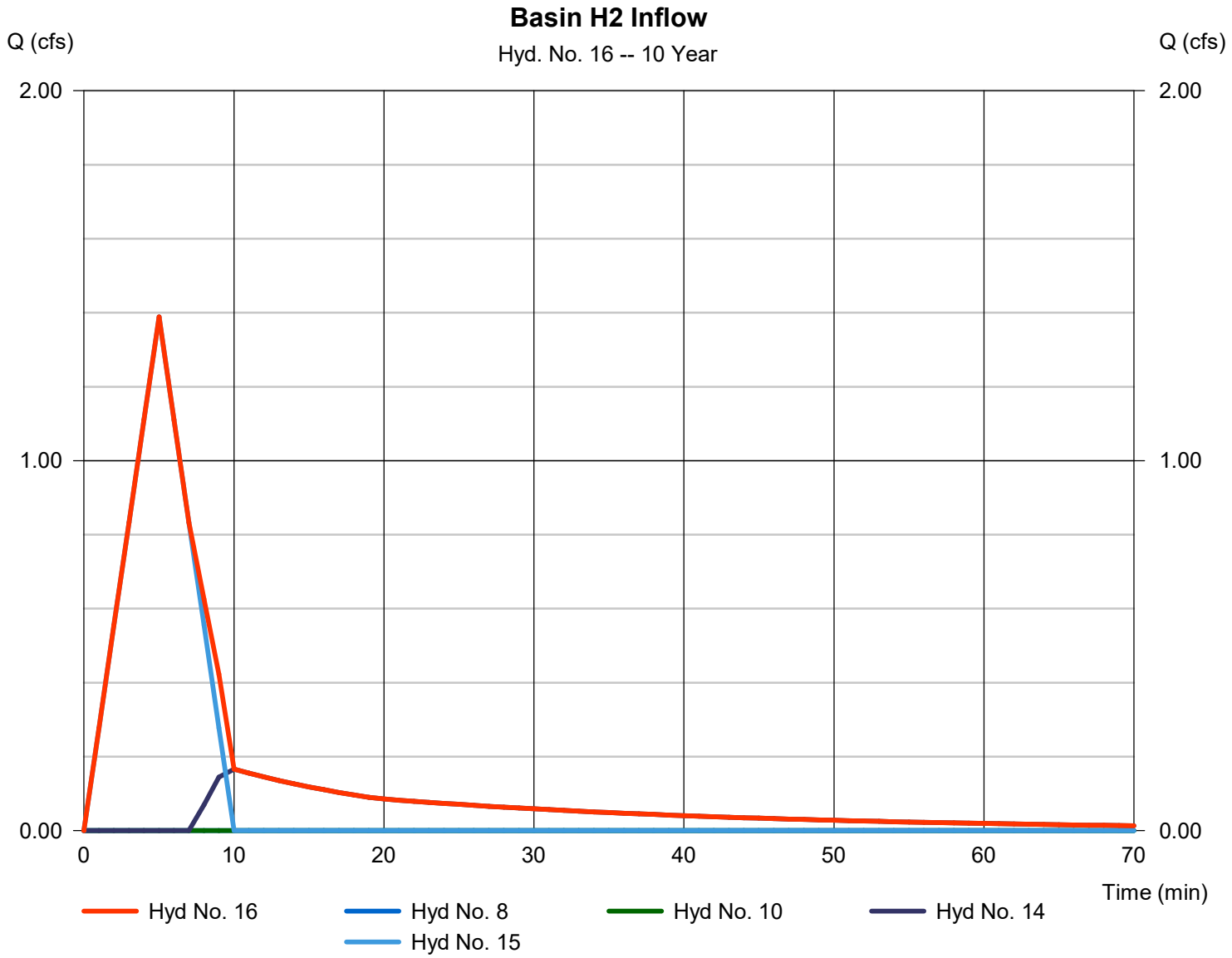
Hydrograph type	=	Rational	Peak discharge	=	1.388 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	417 cuft
Drainage area	=	0.330 ac	Runoff coeff.	=	0.7
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

Hydrograph Report

Hyd. No. 16

Basin H2 Inflow

Hydrograph type	=	Combine	Peak discharge	=	1.388 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	643 cuft
Inflow hyds.	=	8, 10, 14, 15	Contrib. drain. area	=	0.330 ac



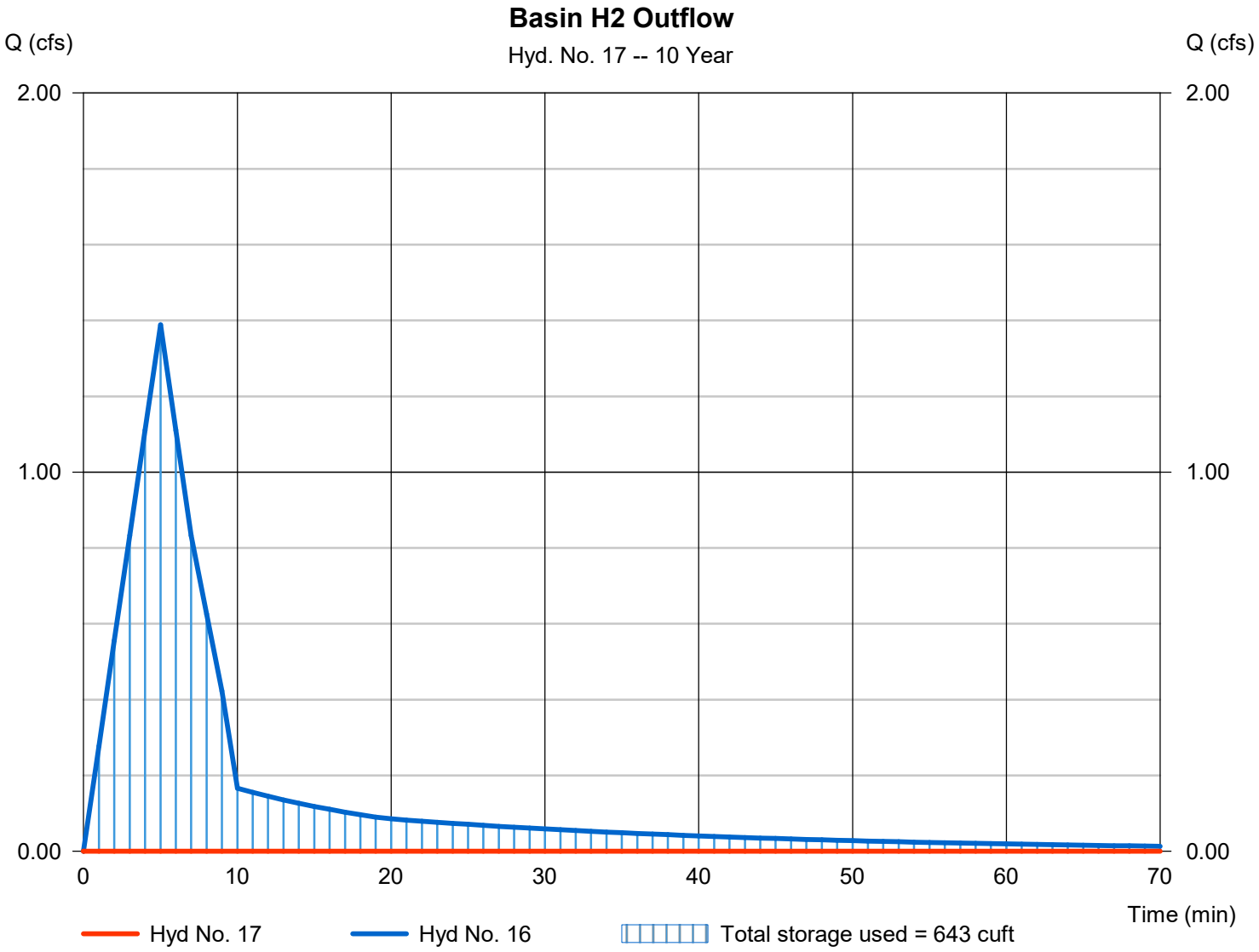
Hydrograph Report

Hyd. No. 17

Basin H2 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	16 - Basin H2 Inflow	Max. Elevation	=	2642.29 ft
Reservoir name	=	Basin H2	Max. Storage	=	643 cuft

Storage Indication method used.



Pond Report

Pond No. 6 - Basin H2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2642.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2642.00	1,969	0	0
0.50	2642.50	2,423	1,096	1,096
1.00	2643.00	2,901	1,329	2,425

Culvert / Orifice Structures

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

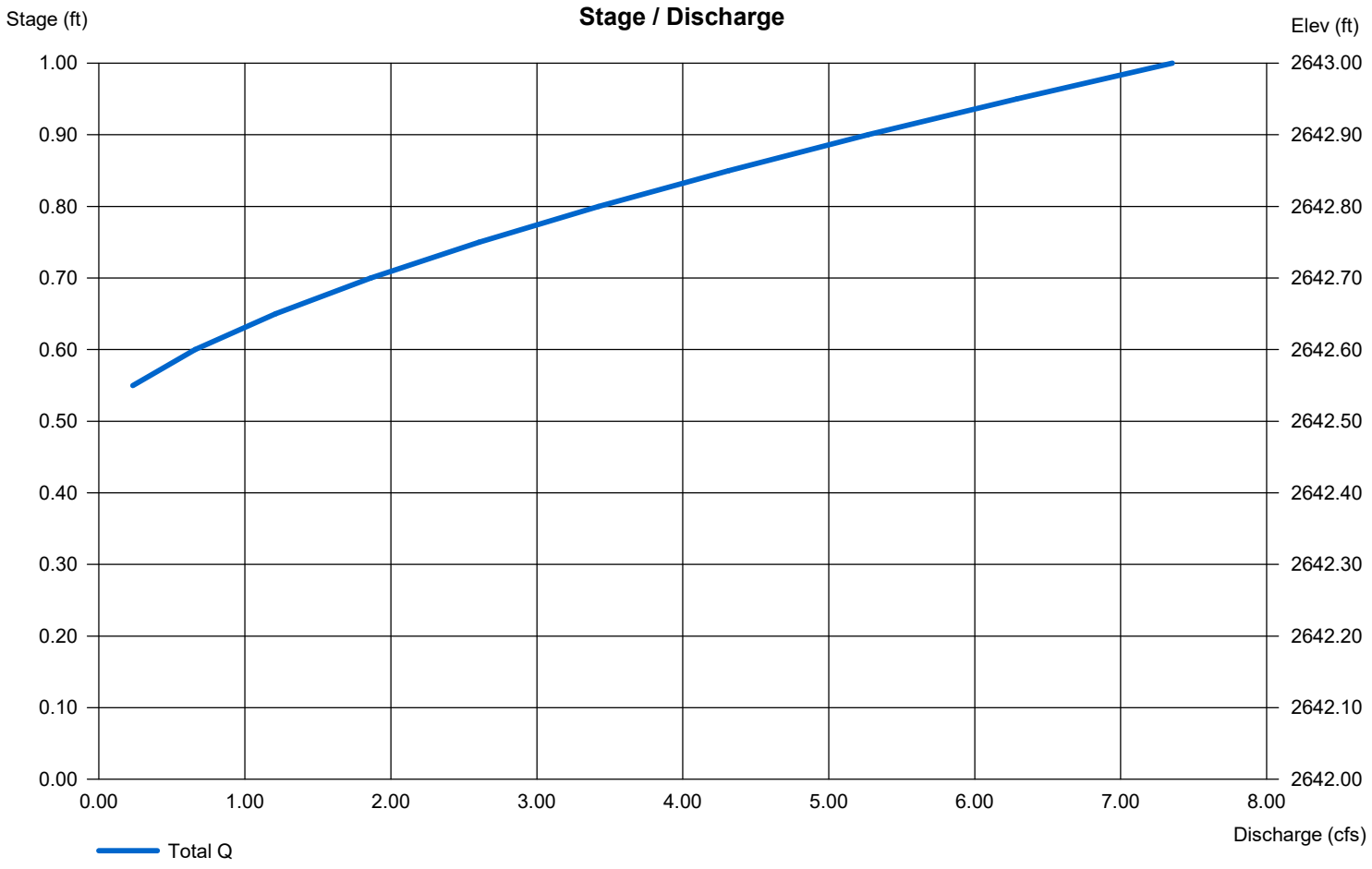
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 8.00	0.00	0.00	0.00
Crest El. (ft)	= 2642.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

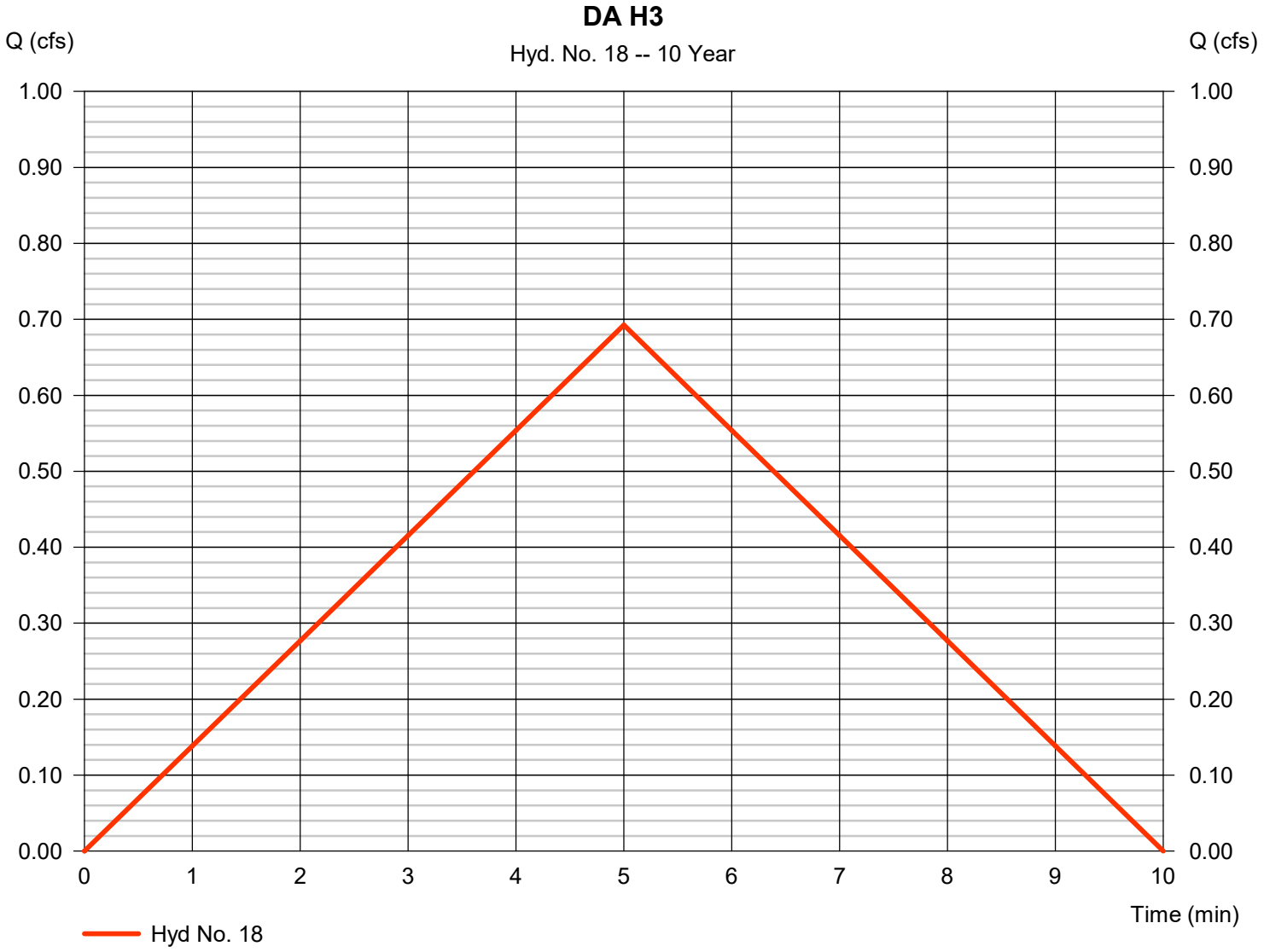


Hydrograph Report

Hyd. No. 18

DA H3

Hydrograph type	=	Rational	Peak discharge	=	0.692 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	208 cuft
Drainage area	=	0.180 ac	Runoff coeff.	=	0.64
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

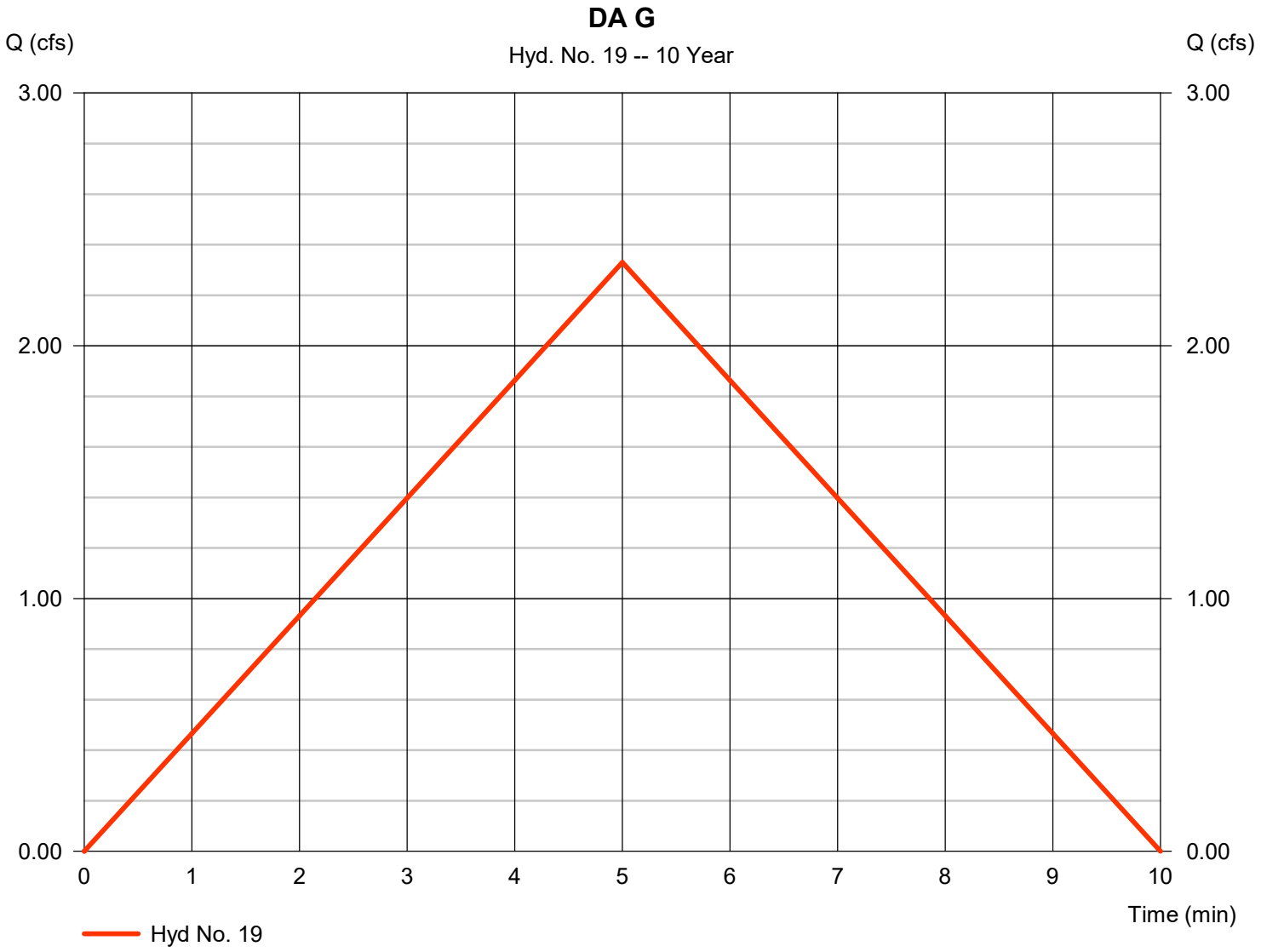


Hydrograph Report

Hyd. No. 19

DA G

Hydrograph type	=	Rational	Peak discharge	=	2.330 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	699 cuft
Drainage area	=	0.570 ac	Runoff coeff.	=	0.68
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

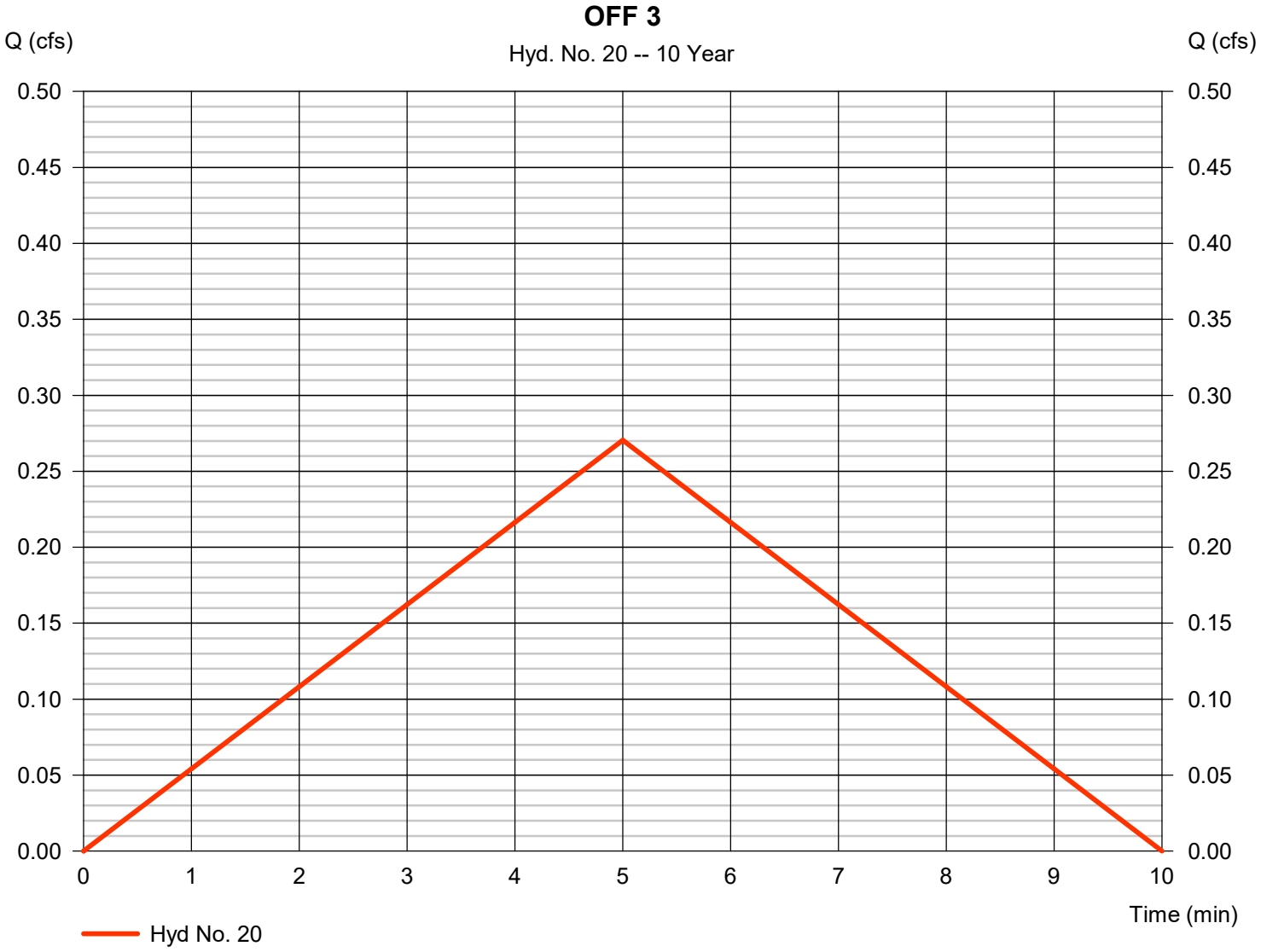


Hydrograph Report

Hyd. No. 20

OFF 3

Hydrograph type	=	Rational	Peak discharge	=	0.270 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	81 cuft
Drainage area	=	0.100 ac	Runoff coeff.	=	0.45
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

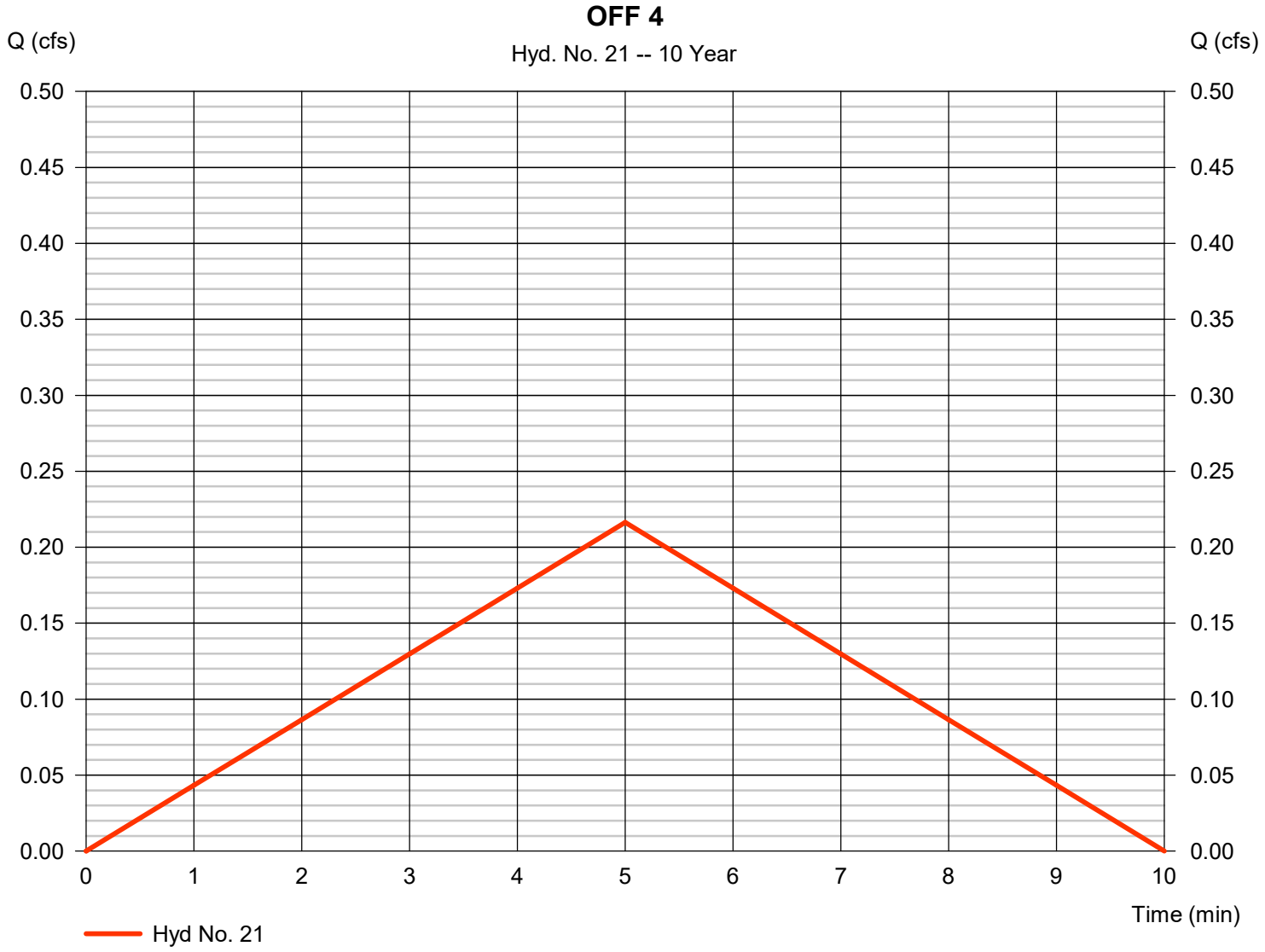


Hydrograph Report

Hyd. No. 21

OFF 4

Hydrograph type	=	Rational	Peak discharge	=	0.216 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	65 cuft
Drainage area	=	0.080 ac	Runoff coeff.	=	0.45
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

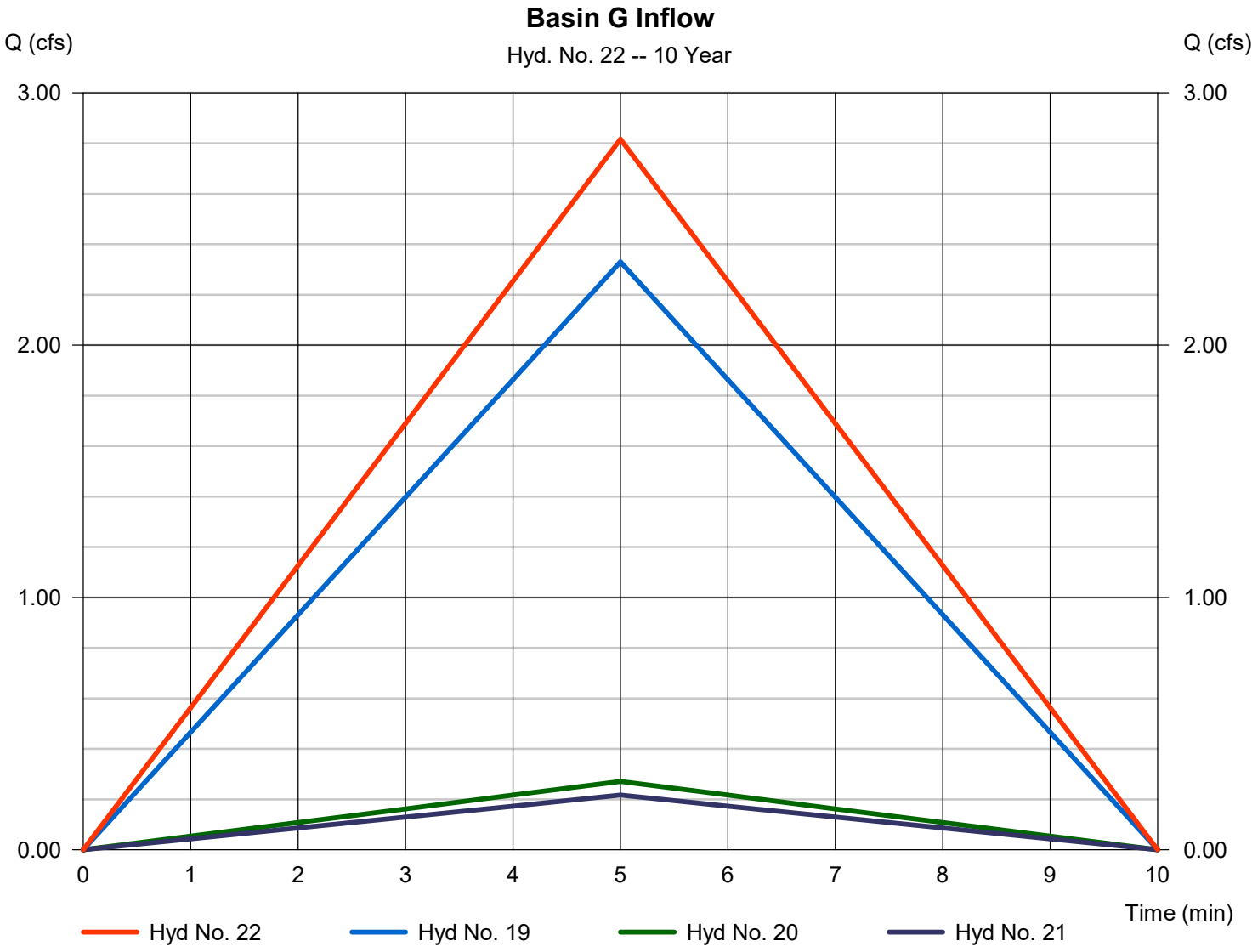


Hydrograph Report

Hyd. No. 22

Basin G Inflow

Hydrograph type	=	Combine	Peak discharge	=	2.816 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	845 cuft
Inflow hyds.	=	19, 20, 21	Contrib. drain. area	=	0.750 ac

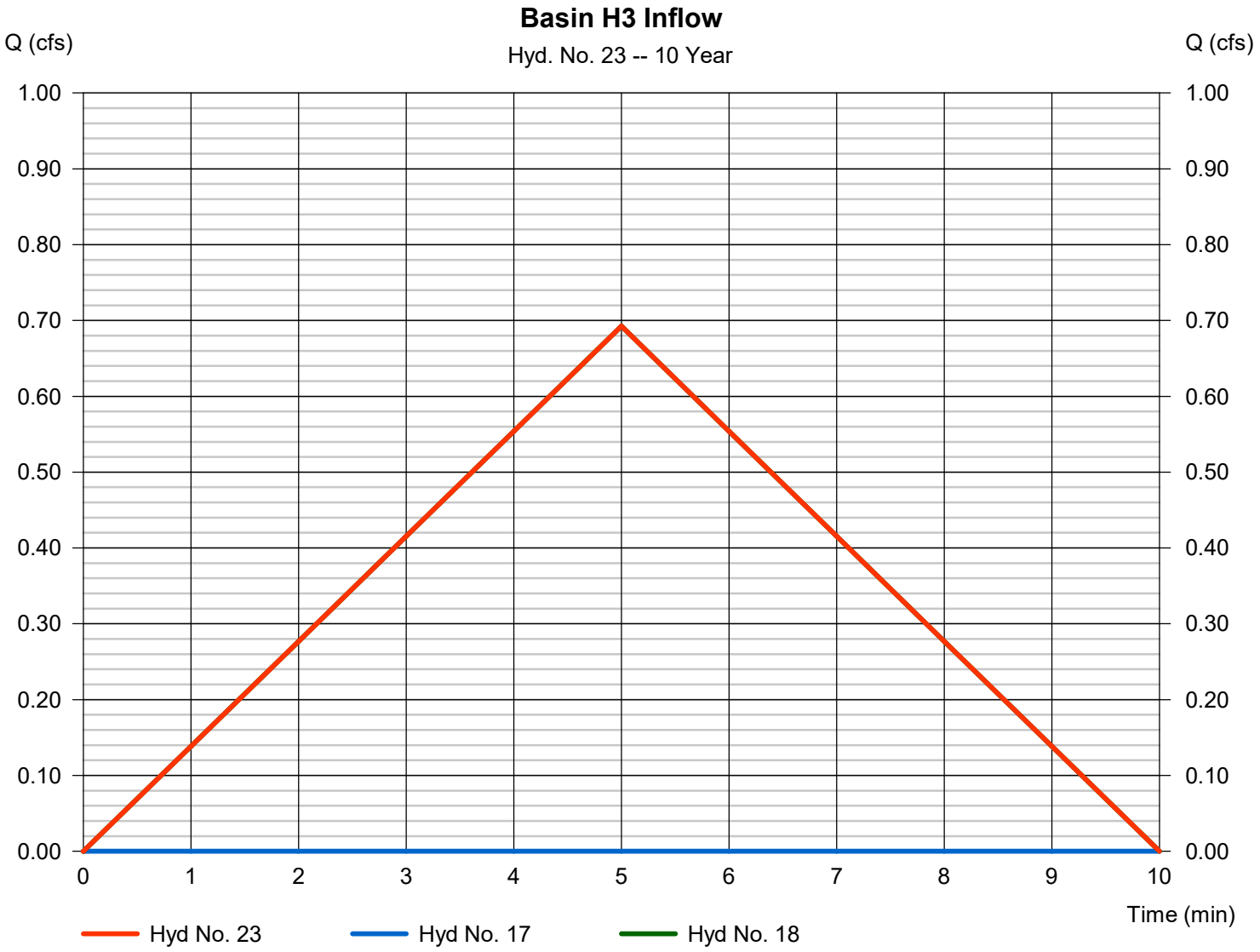


Hydrograph Report

Hyd. No. 23

Basin H3 Inflow

Hydrograph type	=	Combine	Peak discharge	=	0.692 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	208 cuft
Inflow hyds.	=	17, 18	Contrib. drain. area	=	0.180 ac



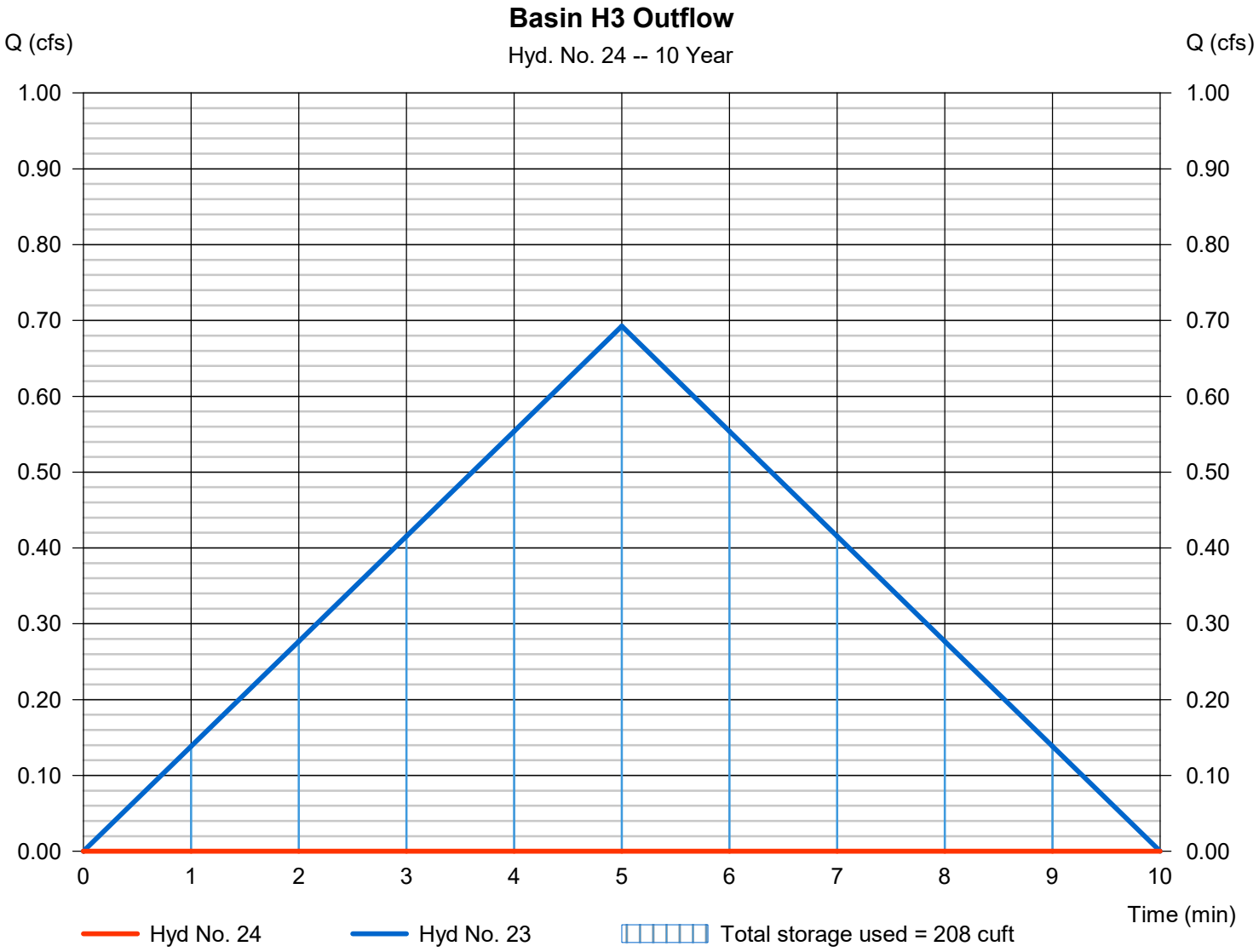
Hydrograph Report

Hyd. No. 24

Basin H3 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	23 - Basin H3 Inflow	Max. Elevation	=	2641.98 ft
Reservoir name	=	Basin H3	Max. Storage	=	208 cuft

Storage Indication method used.



Pond Report

Pond No. 7 - Basin H3

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2641.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2641.50	353	0	0
0.50	2642.00	522	217	217
1.00	2642.50	807	330	547

Culvert / Orifice Structures

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

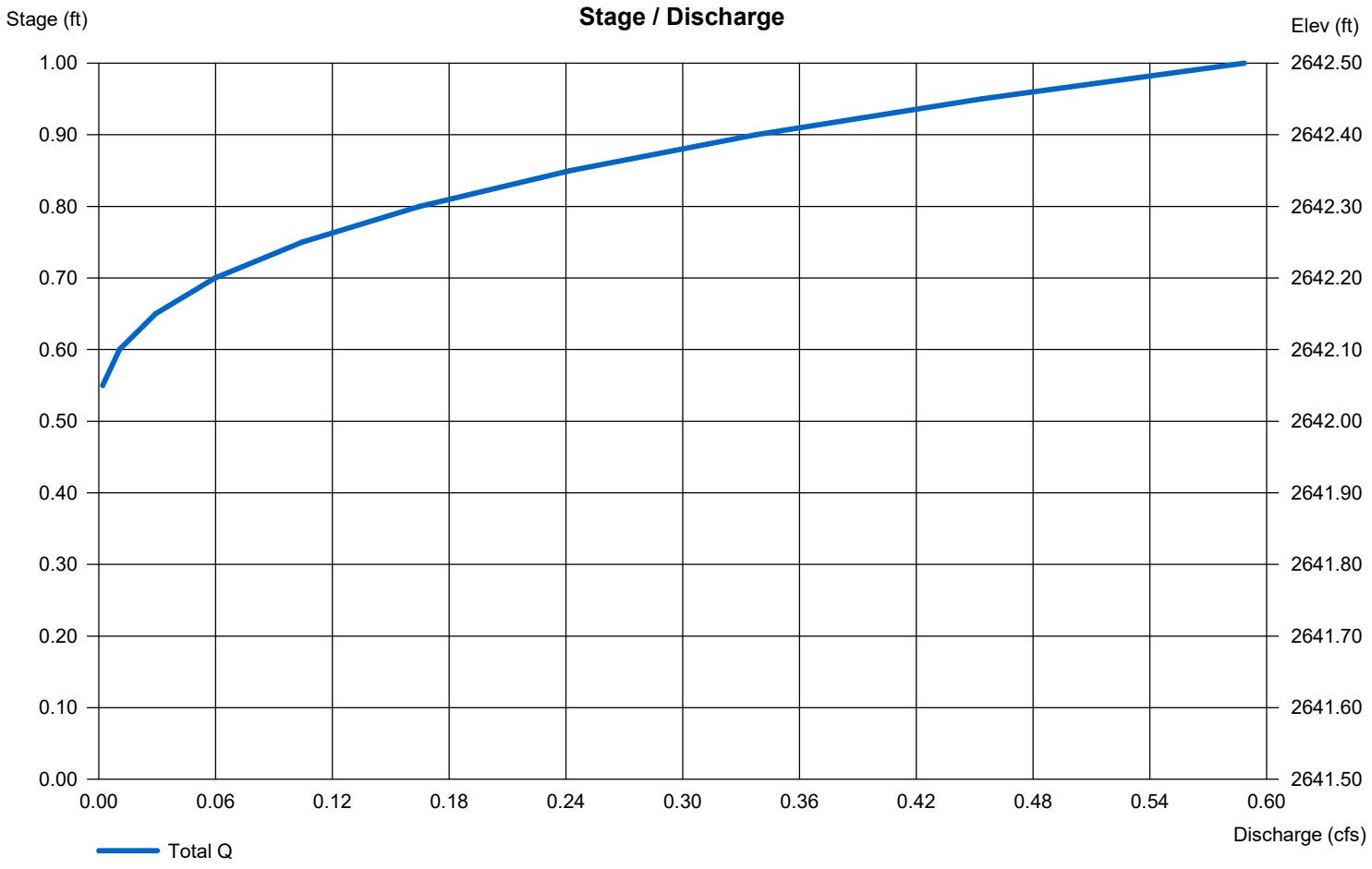
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	0.00	0.00	0.00
Crest El. (ft)	= 2642.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

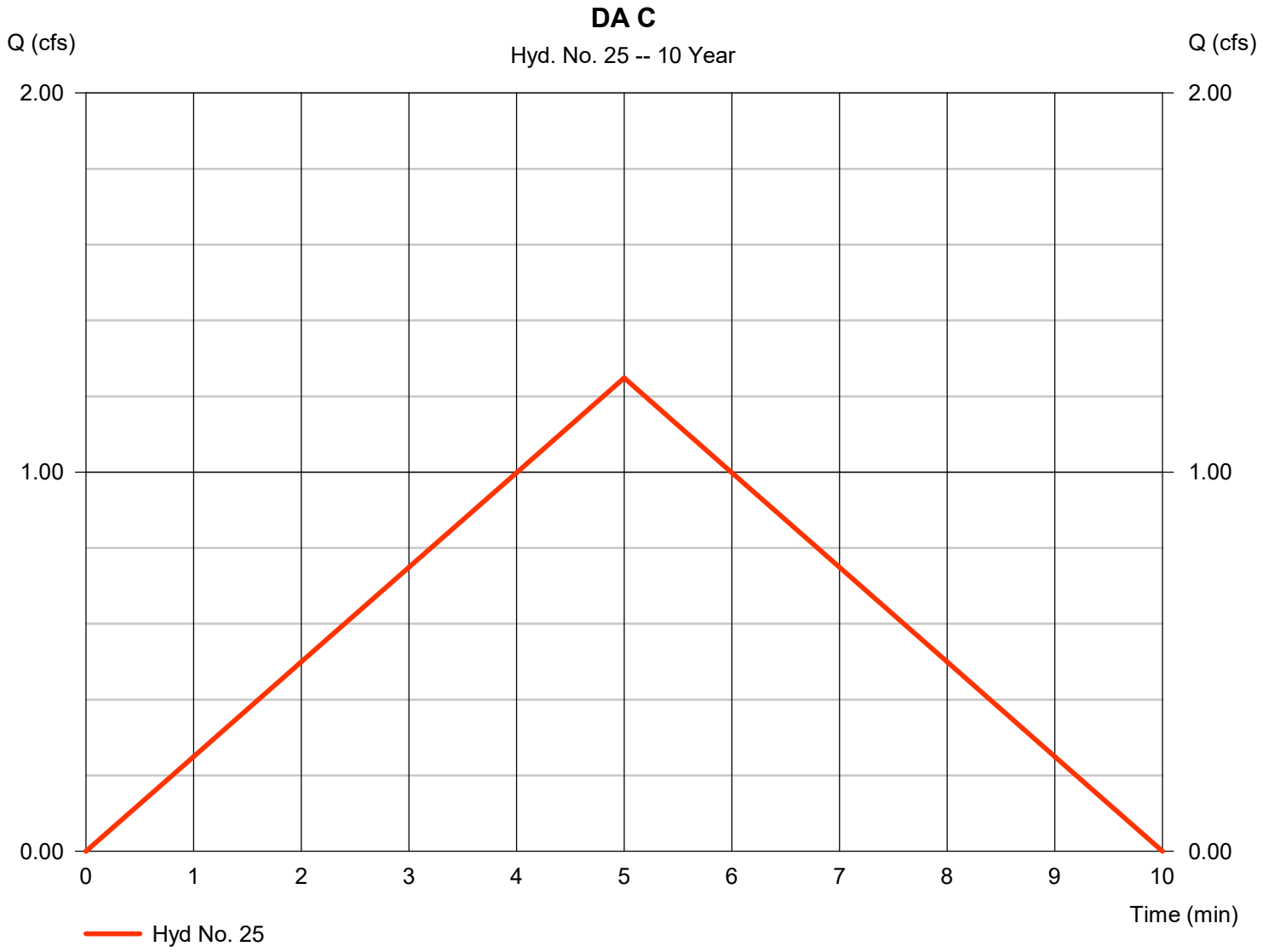


Hydrograph Report

Hyd. No. 25

DA C

Hydrograph type	=	Rational	Peak discharge	=	1.248 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	374 cuft
Drainage area	=	0.310 ac	Runoff coeff.	=	0.67
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

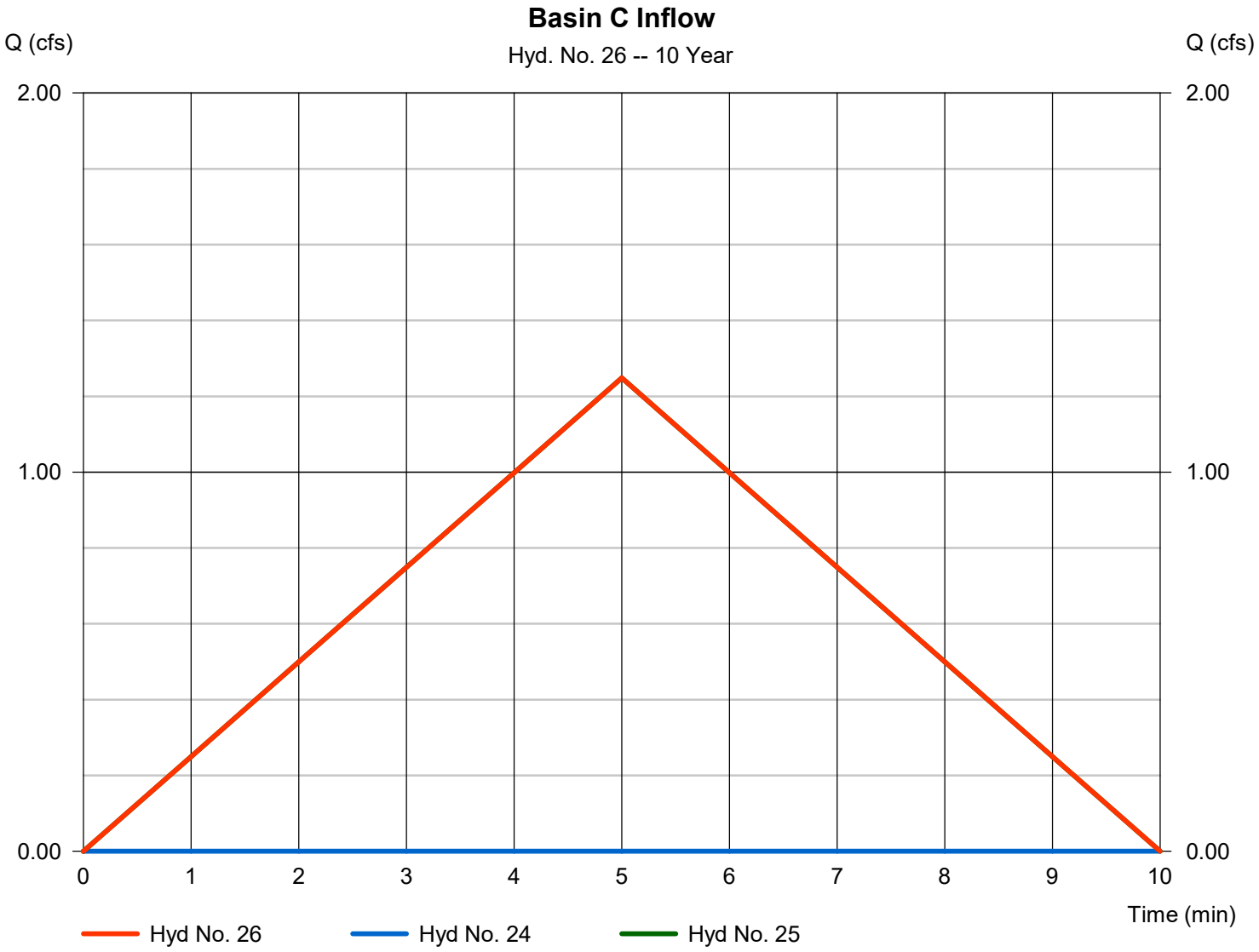


Hydrograph Report

Hyd. No. 26

Basin C Inflow

Hydrograph type	=	Combine	Peak discharge	=	1.248 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	374 cuft
Inflow hyds.	=	24, 25	Contrib. drain. area	=	0.310 ac



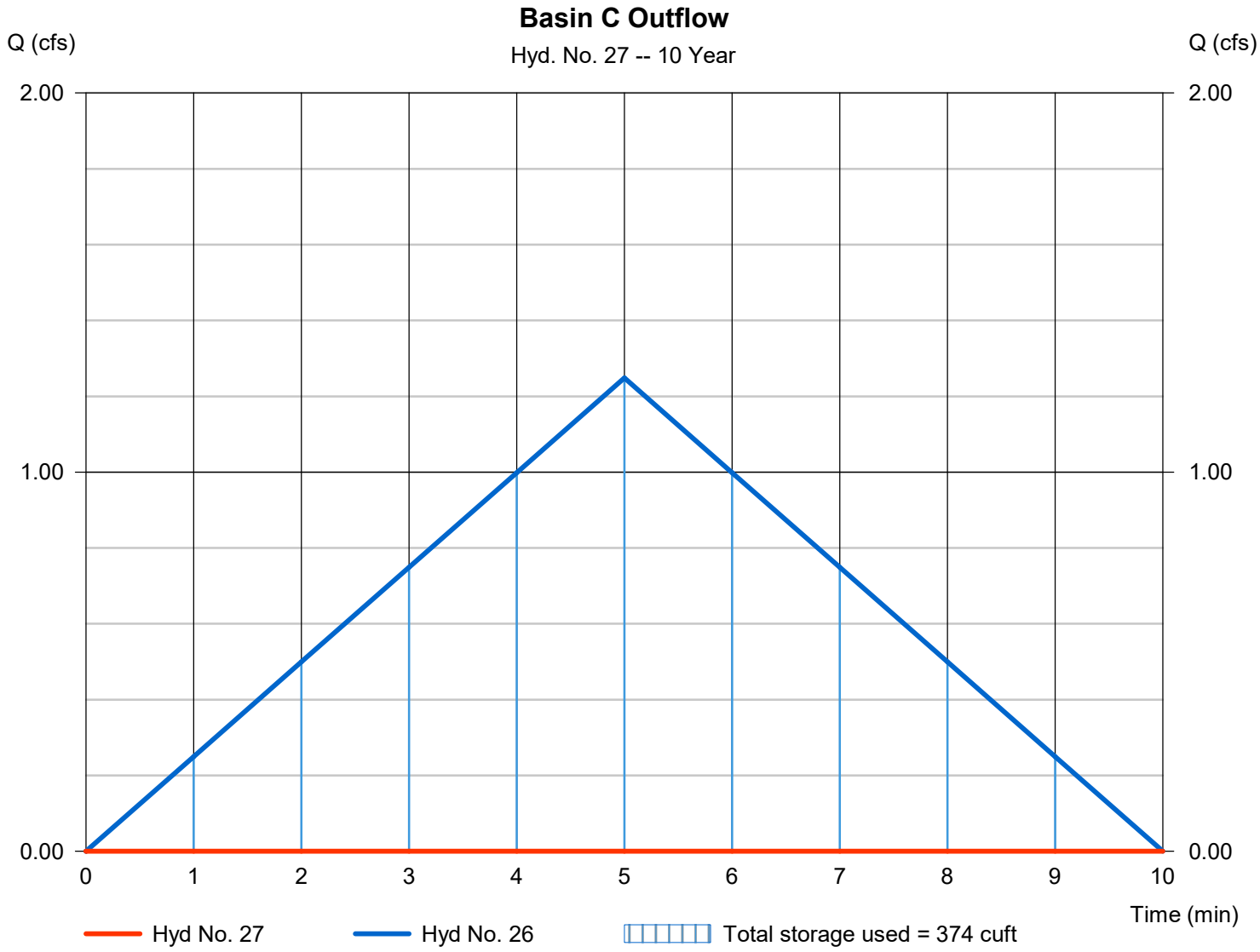
Hydrograph Report

Hyd. No. 27

Basin C Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	26 - Basin C Inflow	Max. Elevation	=	2638.86 ft
Reservoir name	=	Basin C	Max. Storage	=	374 cuft

Storage Indication method used.



Pond Report

Pond No. 8 - Basin C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2638.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2638.50	835	0	0
0.50	2639.00	1,252	518	518
1.00	2639.50	1,695	734	1,252

Culvert / Orifice Structures

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

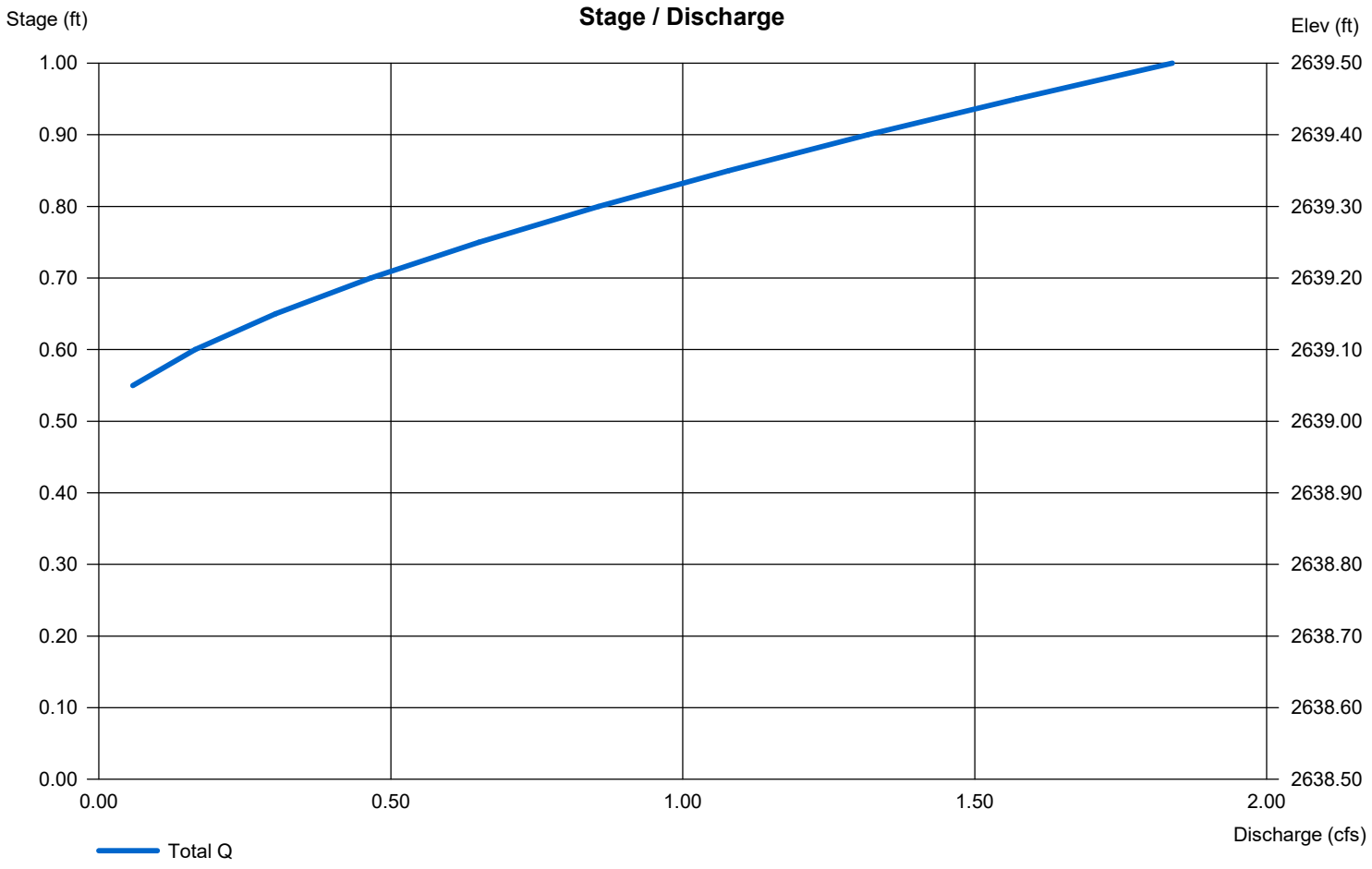
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	0.00	0.00	0.00
Crest El. (ft)	= 2639.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



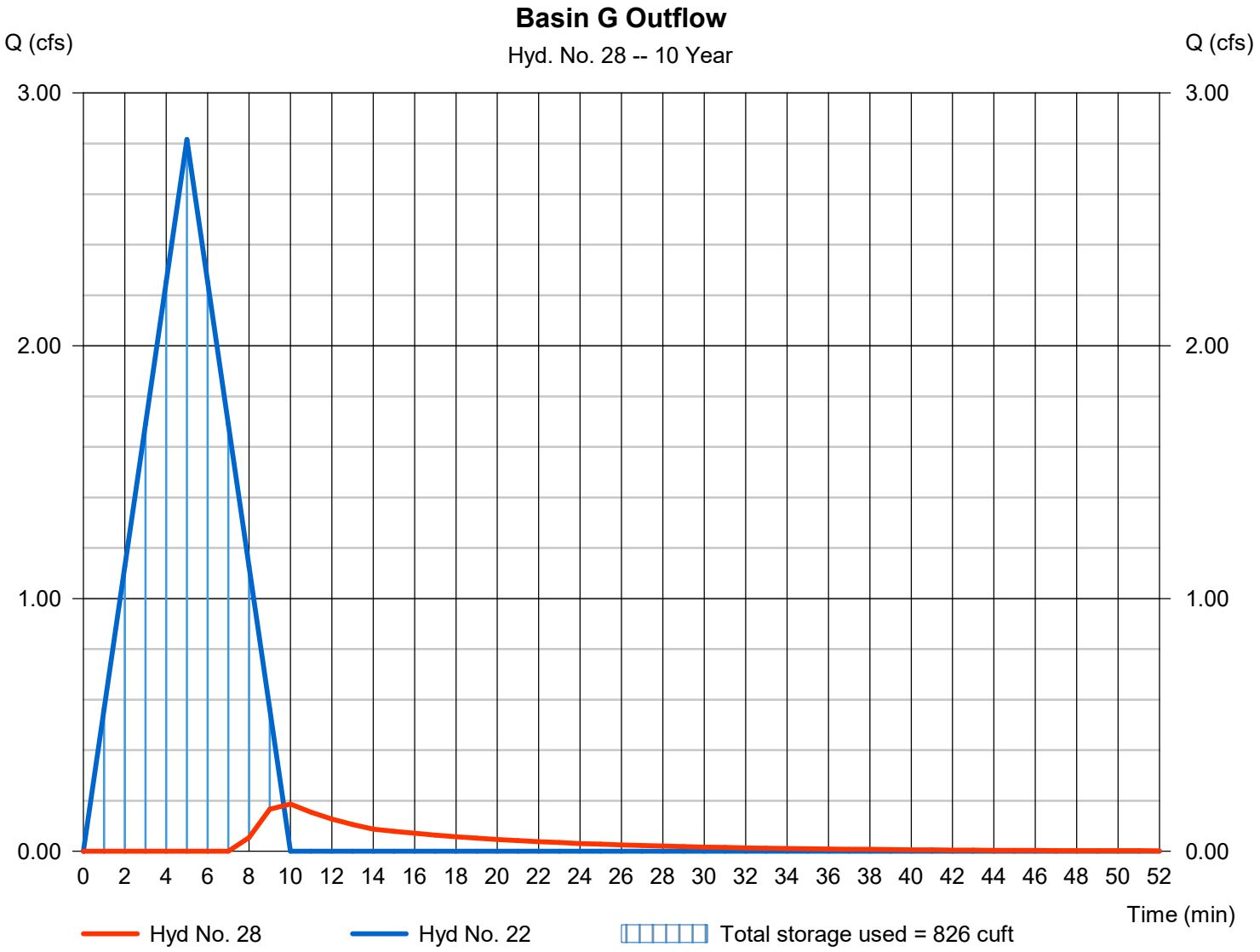
Hydrograph Report

Hyd. No. 28

Basin G Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.187 cfs
Storm frequency	=	10 yrs	Time to peak	=	10 min
Time interval	=	1 min	Hyd. volume	=	100 cuft
Inflow hyd. No.	=	22 - Basin G Inflow	Max. Elevation	=	2640.08 ft
Reservoir name	=	Basin G	Max. Storage	=	826 cuft

Storage Indication method used.



Pond Report

Pond No. 9 - Basin G

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2638.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2638.50	169	0	0
0.50	2639.00	369	131	131
1.00	2639.50	615	243	374
1.50	2640.00	872	370	744
2.00	2640.50	1,154	505	1,249

Culvert / Orifice Structures

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

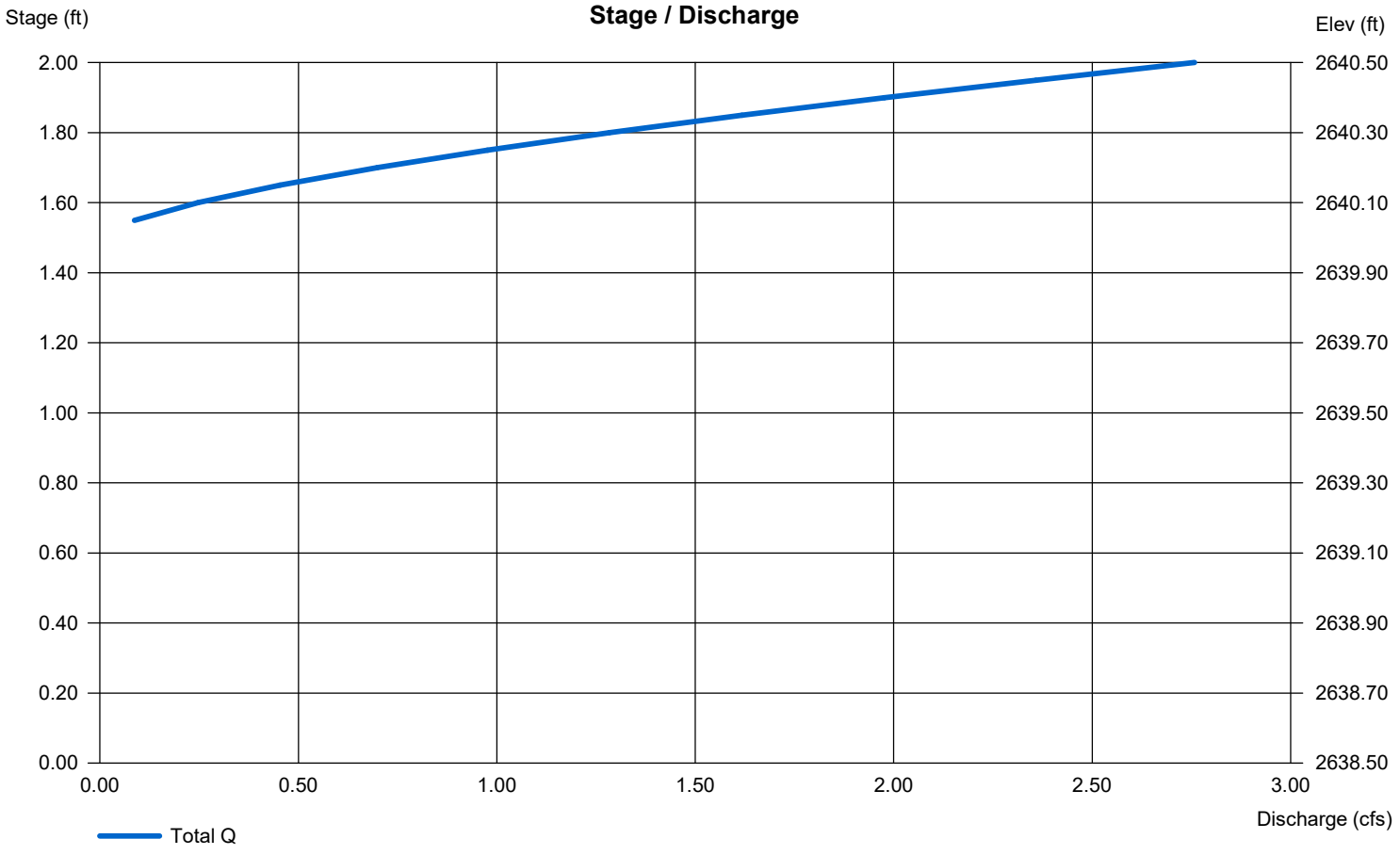
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 2640.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

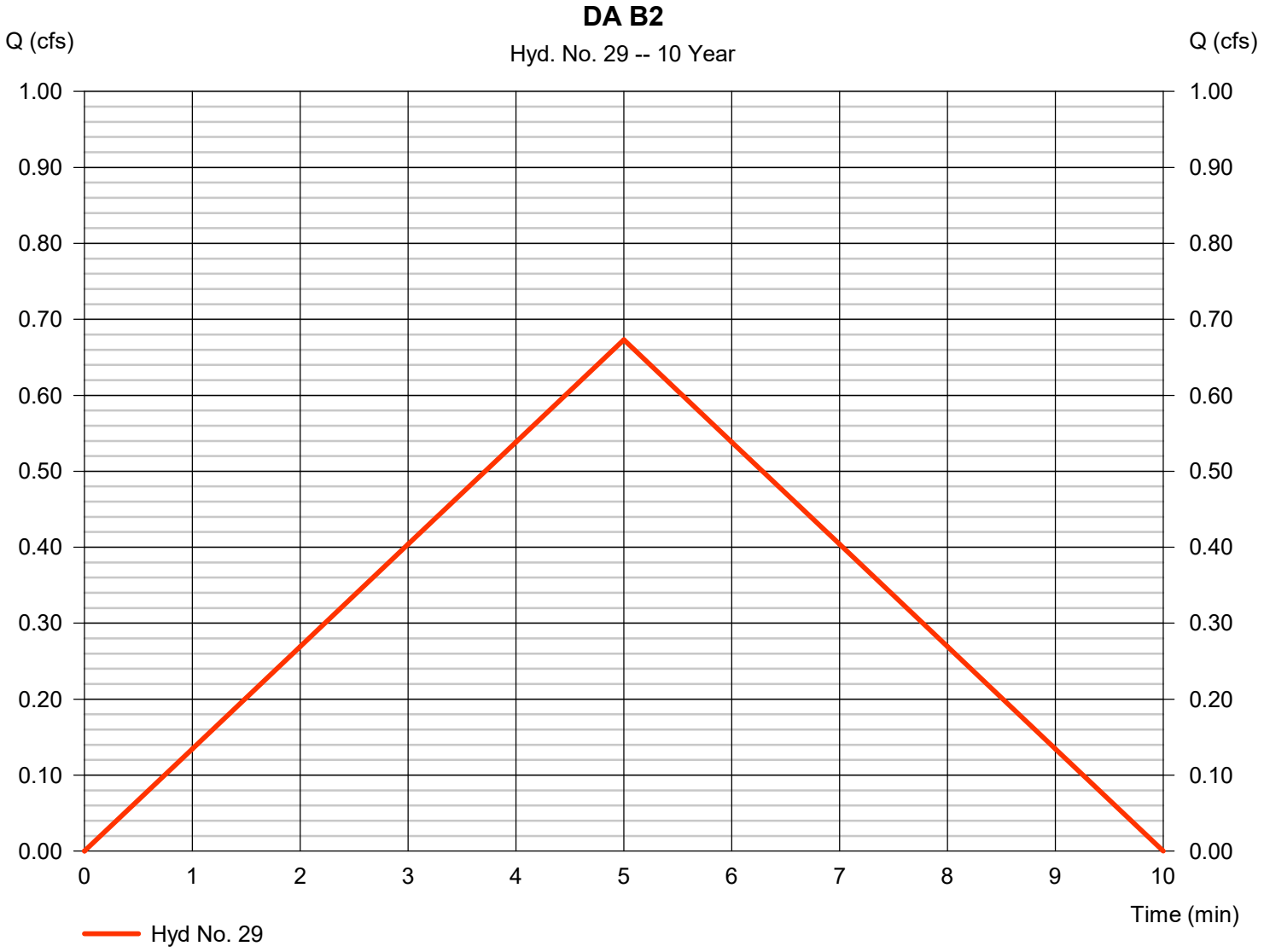


Hydrograph Report

Hyd. No. 29

DA B2

Hydrograph type	=	Rational	Peak discharge	=	0.673 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	202 cuft
Drainage area	=	0.160 ac	Runoff coeff.	=	0.7
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

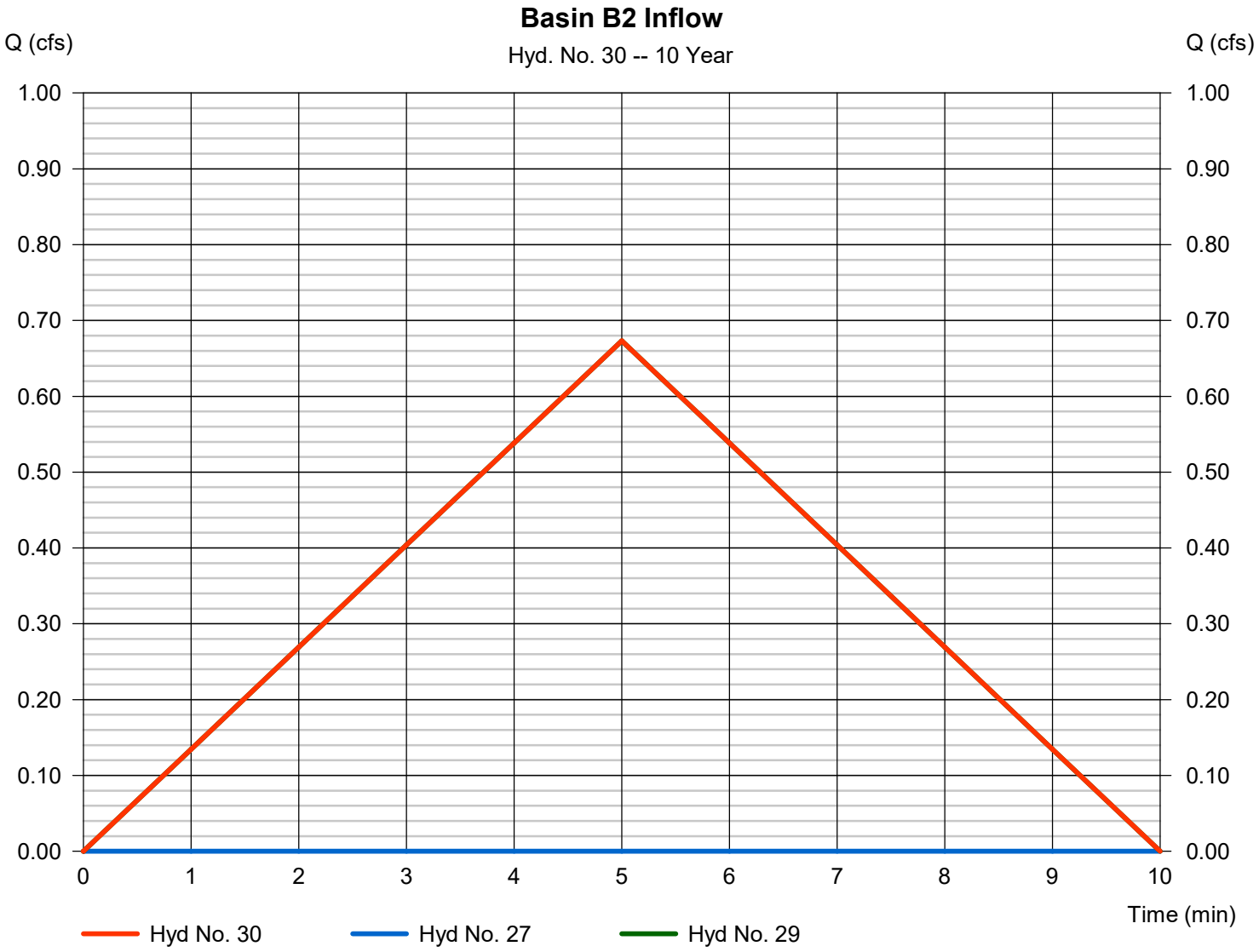


Hydrograph Report

Hyd. No. 30

Basin B2 Inflow

Hydrograph type	= Combine	Peak discharge	= 0.673 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 202 cuft
Inflow hyds.	= 27, 29	Contrib. drain. area	= 0.160 ac



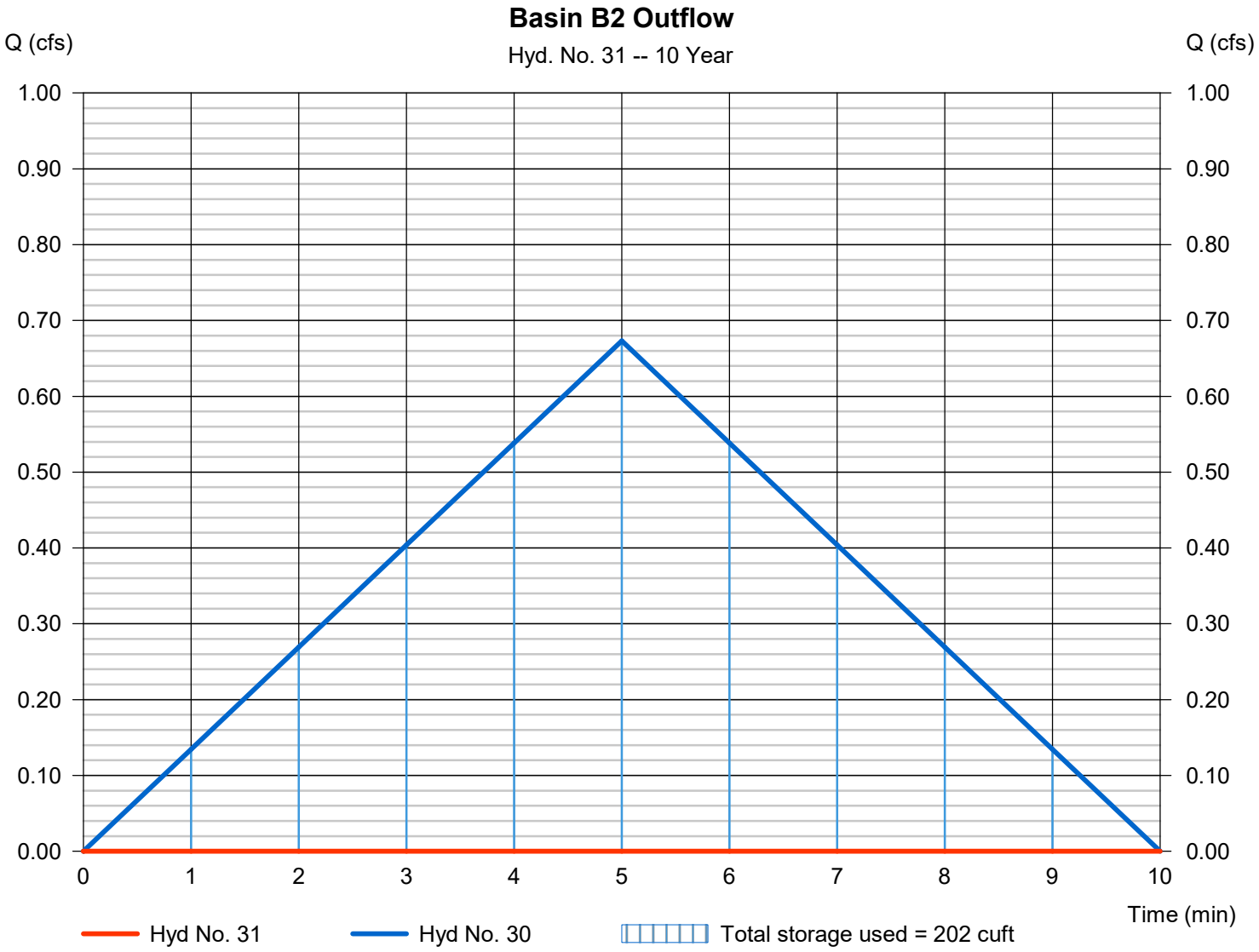
Hydrograph Report

Hyd. No. 31

Basin B2 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	30 - Basin B2 Inflow	Max. Elevation	=	2637.91 ft
Reservoir name	=	Basin B2	Max. Storage	=	202 cuft

Storage Indication method used.



Pond Report

Pond No. 11 - Basin B2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2637.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2637.50	379	0	0
0.50	2638.00	608	244	244
1.00	2638.50	863	366	610

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 6.00	0.00	0.00	0.00
Span (in)	= 6.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 2638.00	0.00	0.00	0.00
Length (ft)	= 40.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

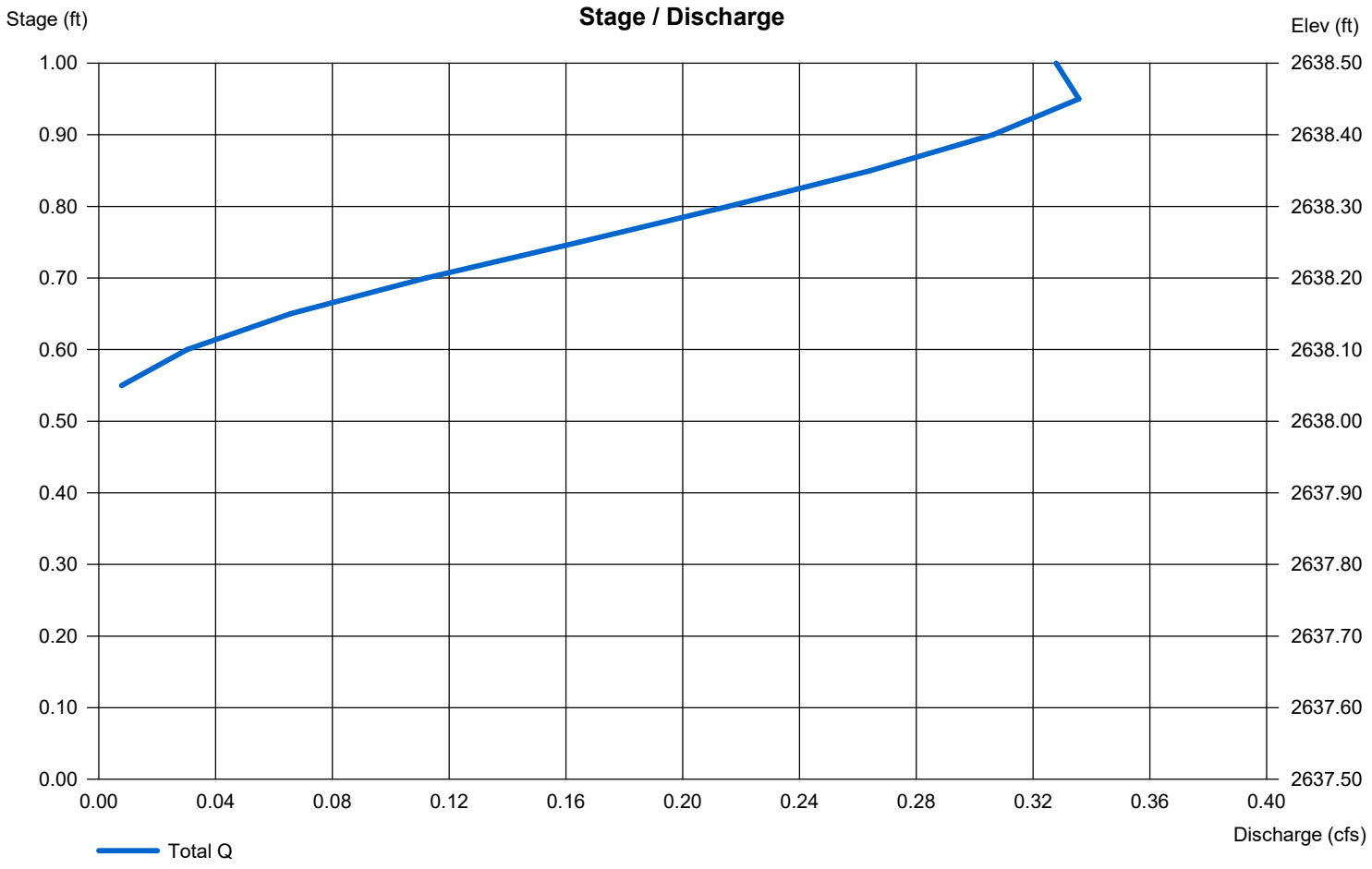
Weir Structures

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

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

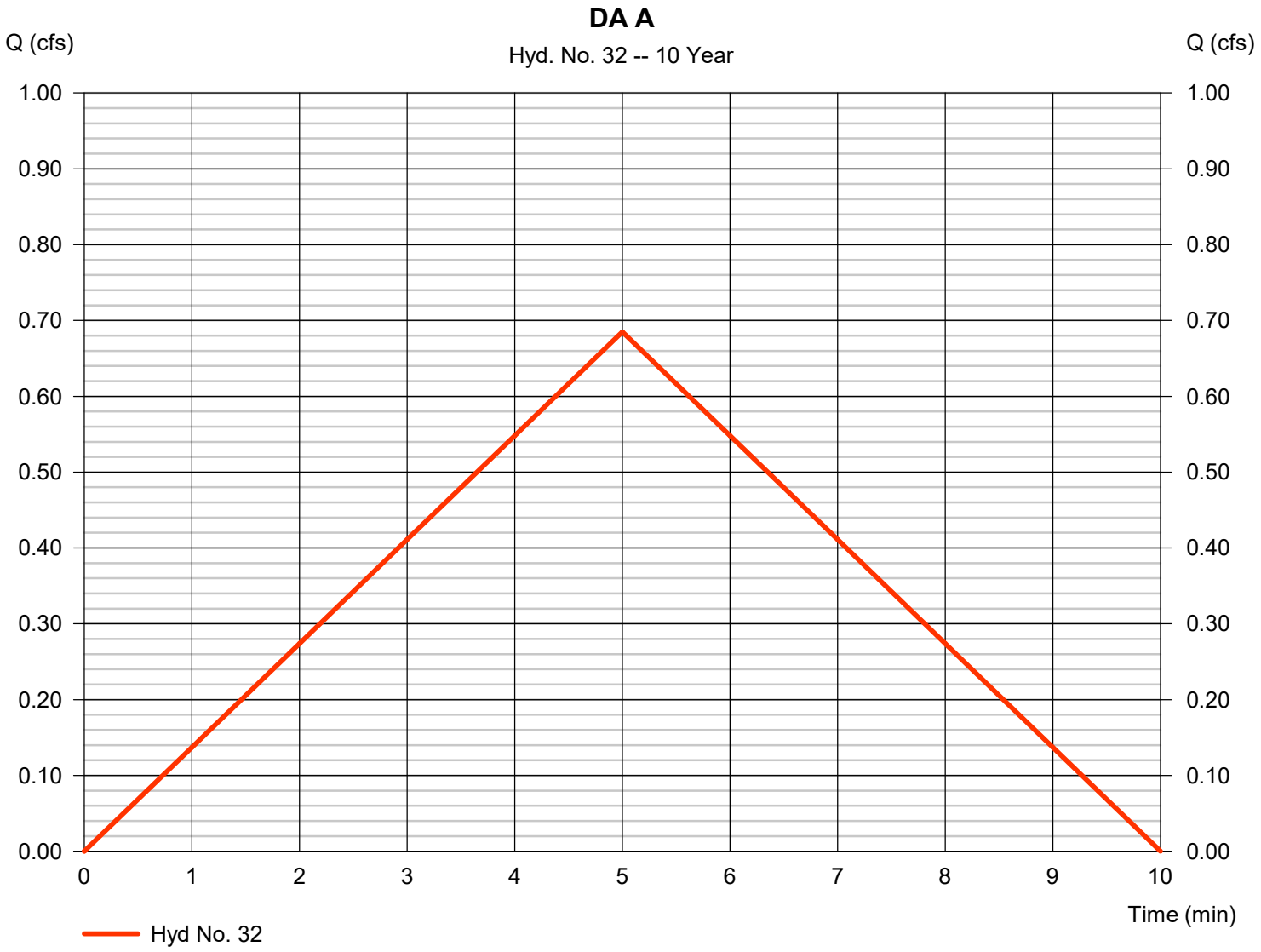


Hydrograph Report

Hyd. No. 32

DA A

Hydrograph type	=	Rational	Peak discharge	=	0.685 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	206 cuft
Drainage area	=	0.190 ac	Runoff coeff.	=	0.6
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



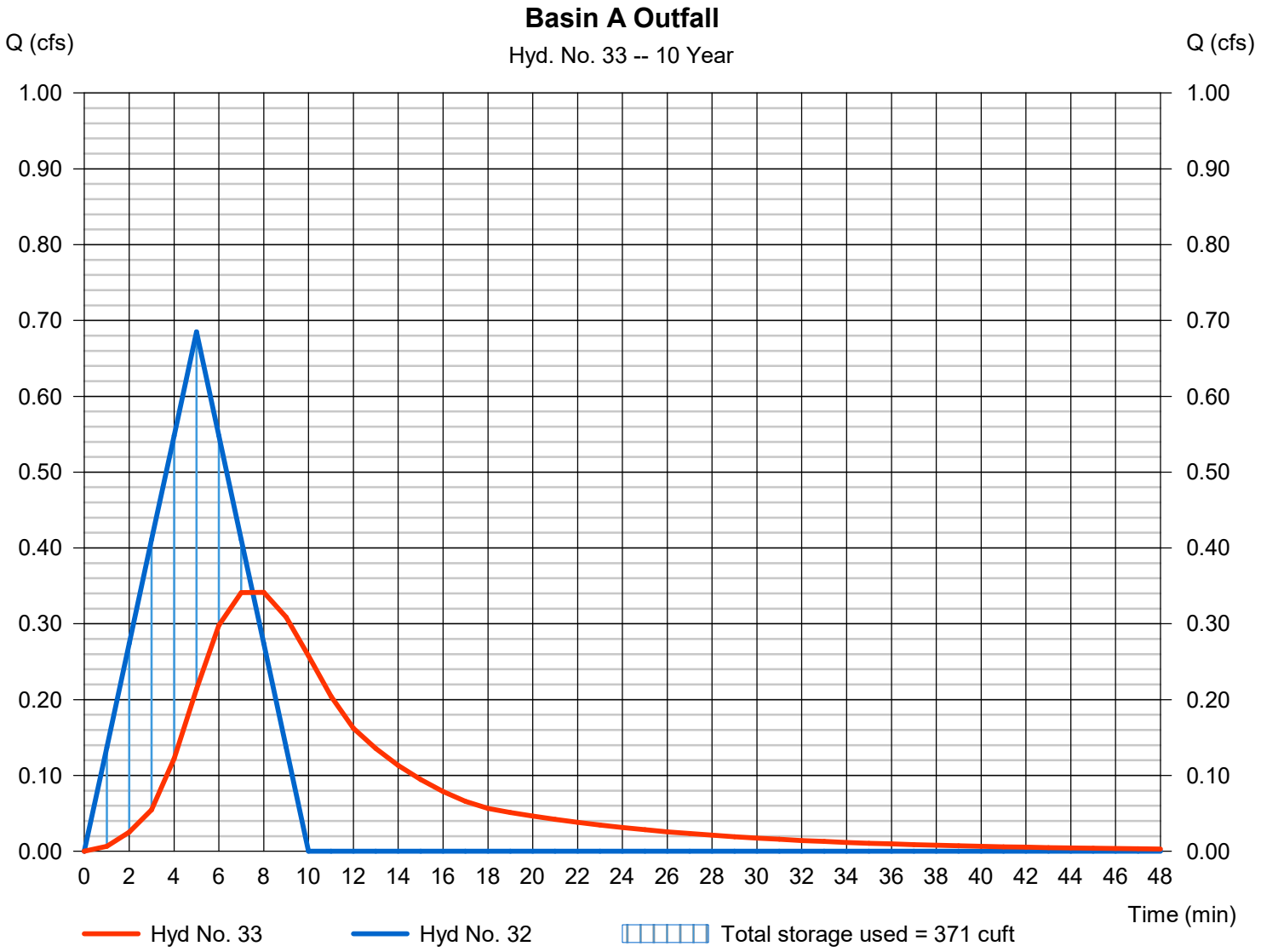
Hydrograph Report

Hyd. No. 33

Basin A Outfall

Hydrograph type	=	Reservoir	Peak discharge	=	0.342 cfs
Storm frequency	=	10 yrs	Time to peak	=	8 min
Time interval	=	1 min	Hyd. volume	=	205 cuft
Inflow hyd. No.	=	32 - DA A	Max. Elevation	=	2639.56 ft
Reservoir name	=	Basin A	Max. Storage	=	371 cuft

Storage Indication method used. Wet pond routing start elevation = 2639.40 ft.



Pond Report

Pond No. 12 - Basin A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2638.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2638.90	418	0	0
0.50	2639.40	613	256	256
1.00	2639.90	814	356	612

Culvert / Orifice Structures

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

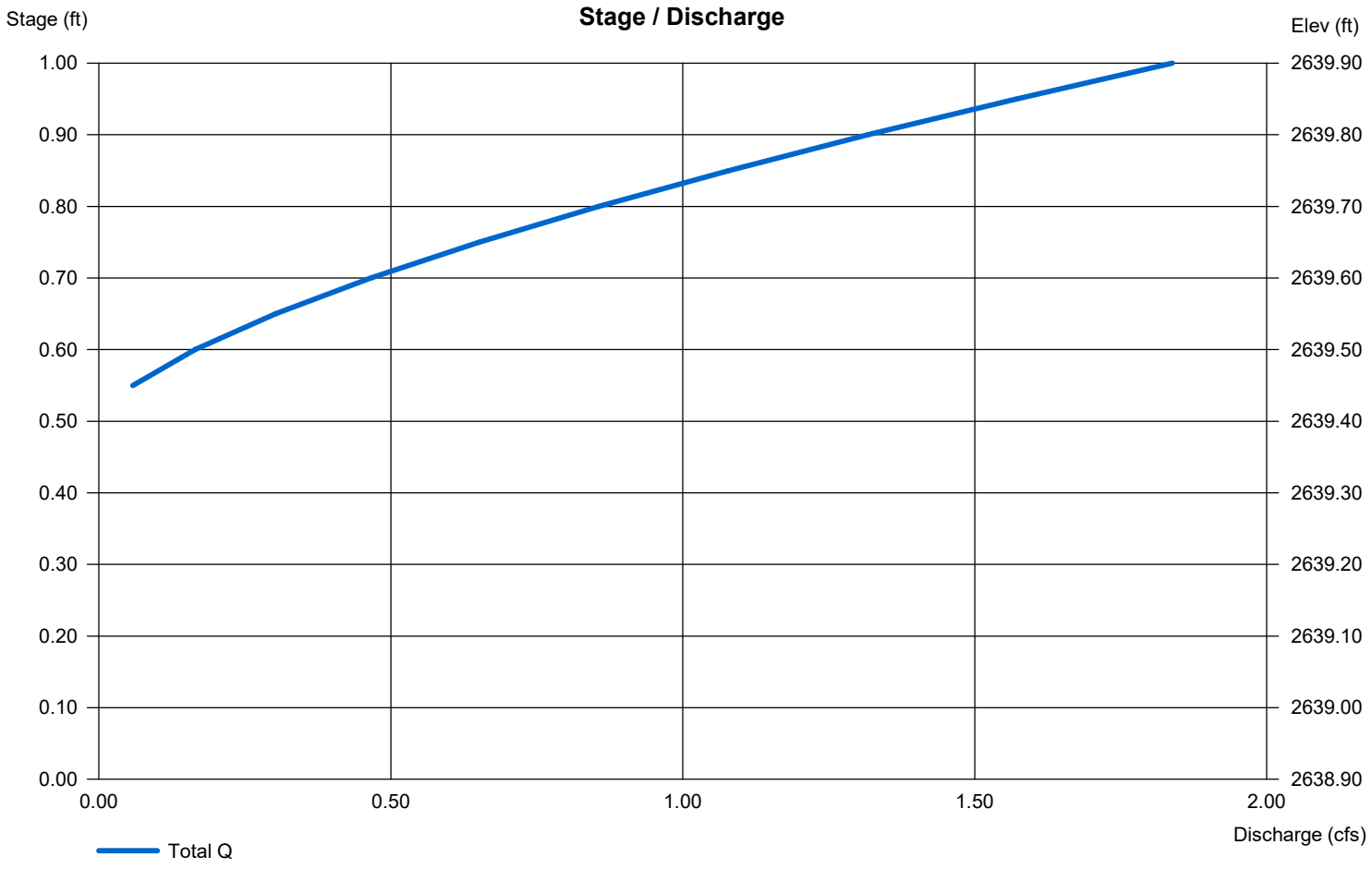
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	0.00	0.00	0.00
Crest El. (ft)	= 2639.40	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

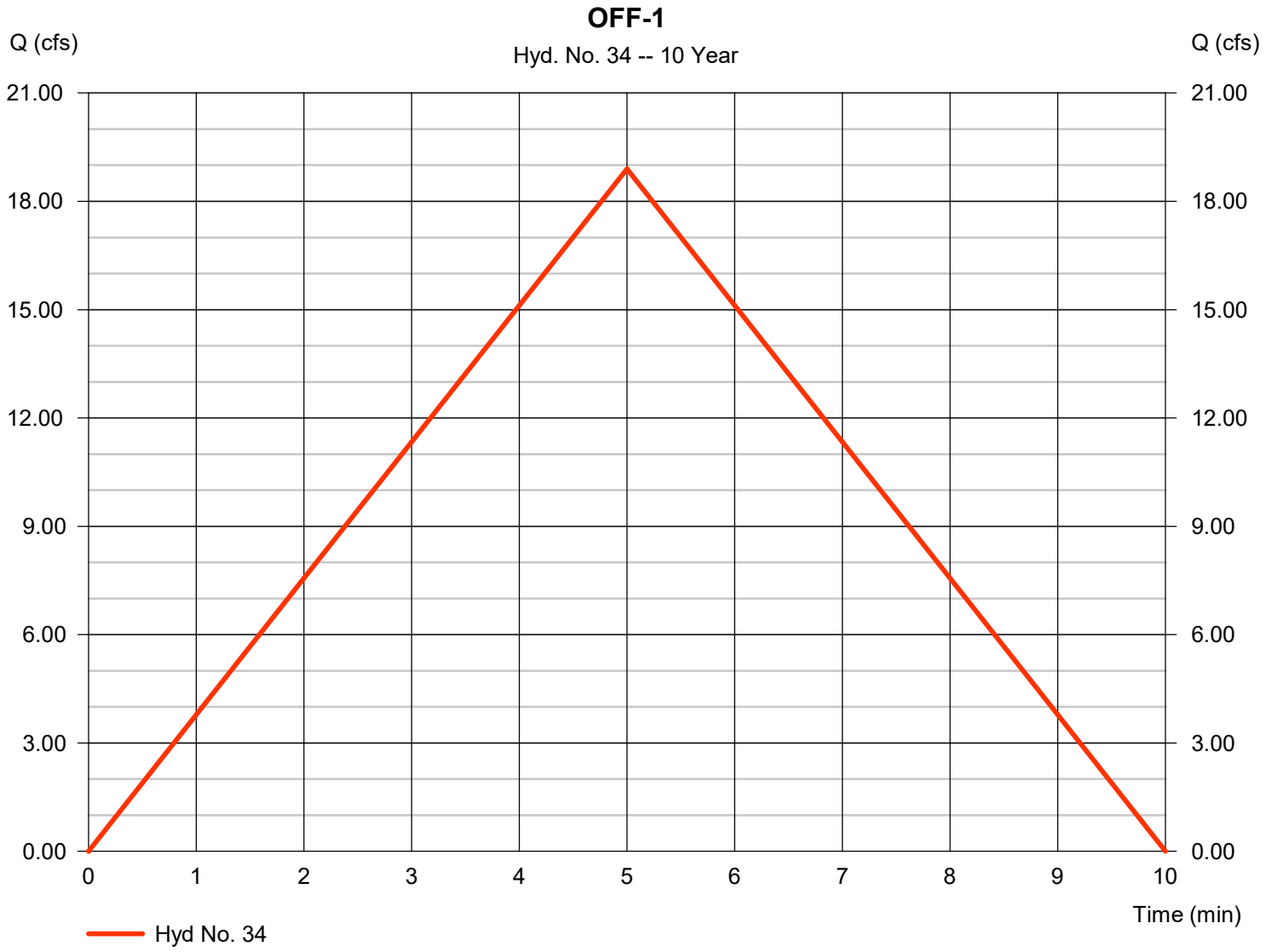


Hydrograph Report

Hyd. No. 34

OFF-1

Hydrograph type	=	Rational	Peak discharge	=	18.90 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	5,670 cuft
Drainage area	=	3.310 ac	Runoff coeff.	=	0.95
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

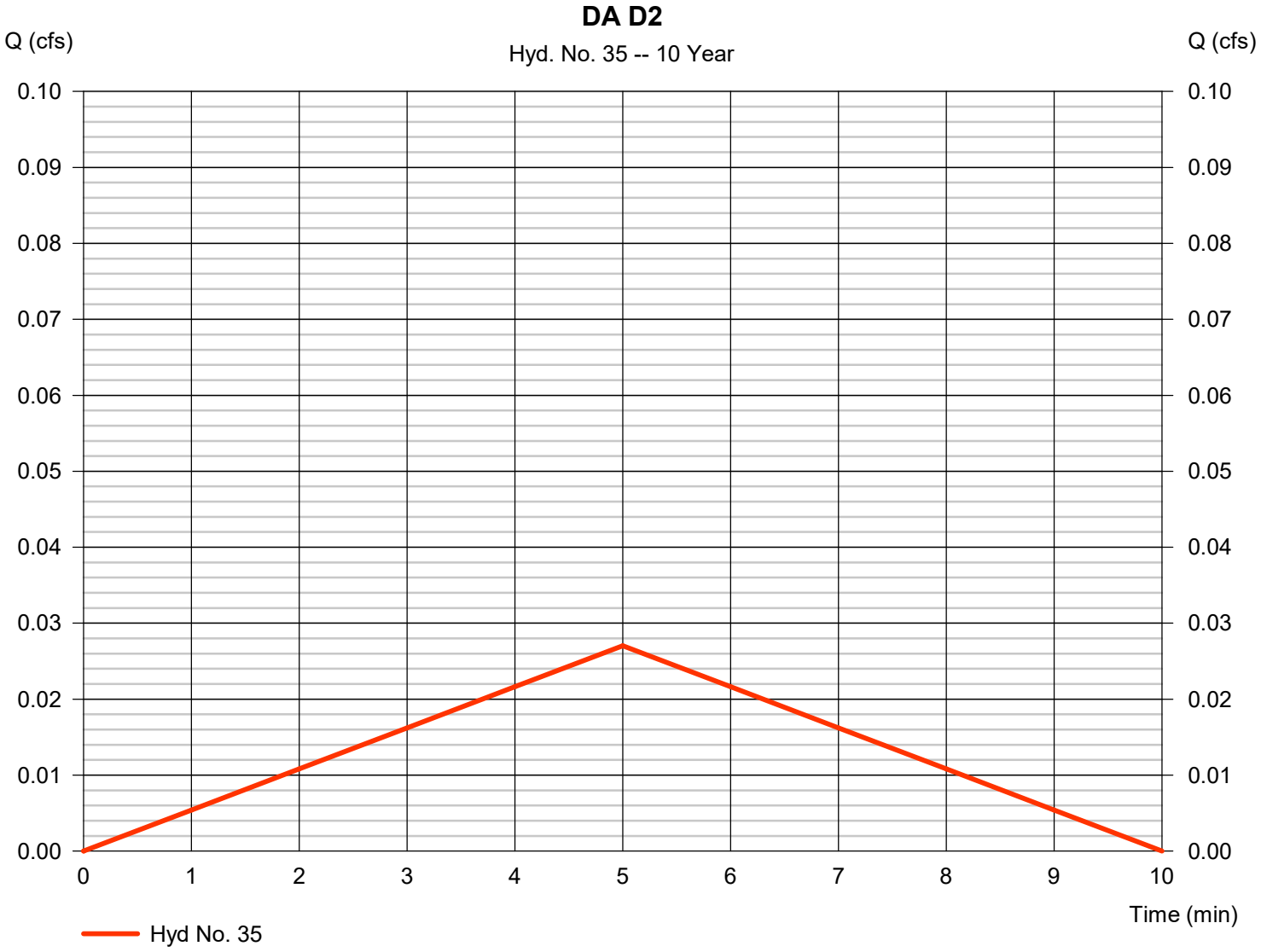


Hydrograph Report

Hyd. No. 35

DA D2

Hydrograph type	=	Rational	Peak discharge	=	0.027 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	8 cuft
Drainage area	=	0.010 ac	Runoff coeff.	=	0.45
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



Hydrograph Report

Hyd. No. 36

DA D1

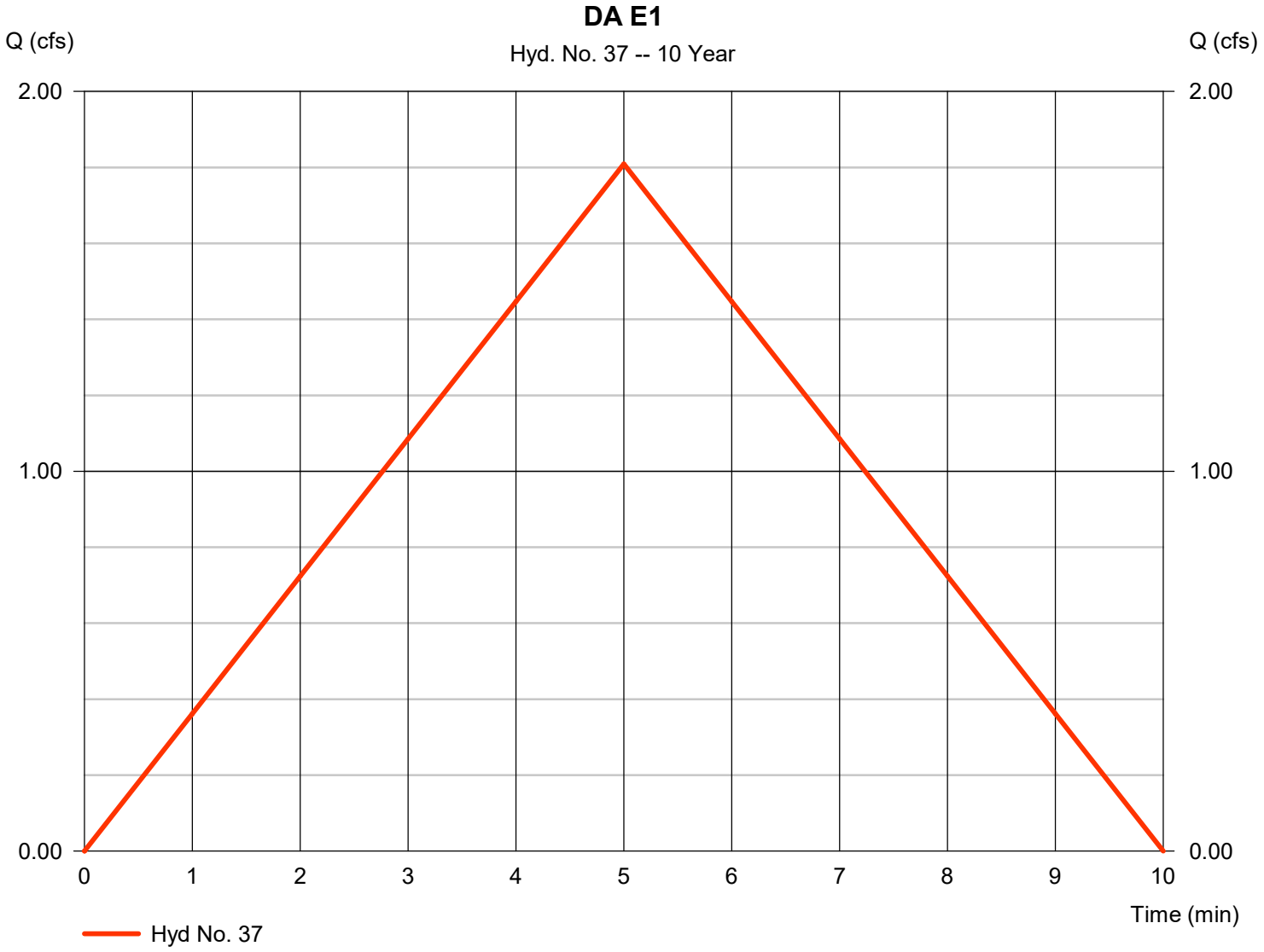
Hydrograph type	=	Rational	Peak discharge	=	2.299 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	690 cuft
Drainage area	=	0.450 ac	Runoff coeff.	=	0.85
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

Hydrograph Report

Hyd. No. 37

DA E1

Hydrograph type	=	Rational	Peak discharge	=	1.809 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	543 cuft
Drainage area	=	0.350 ac	Runoff coeff.	=	0.86
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



Hydrograph Report

Hyd. No. 38

DA E2

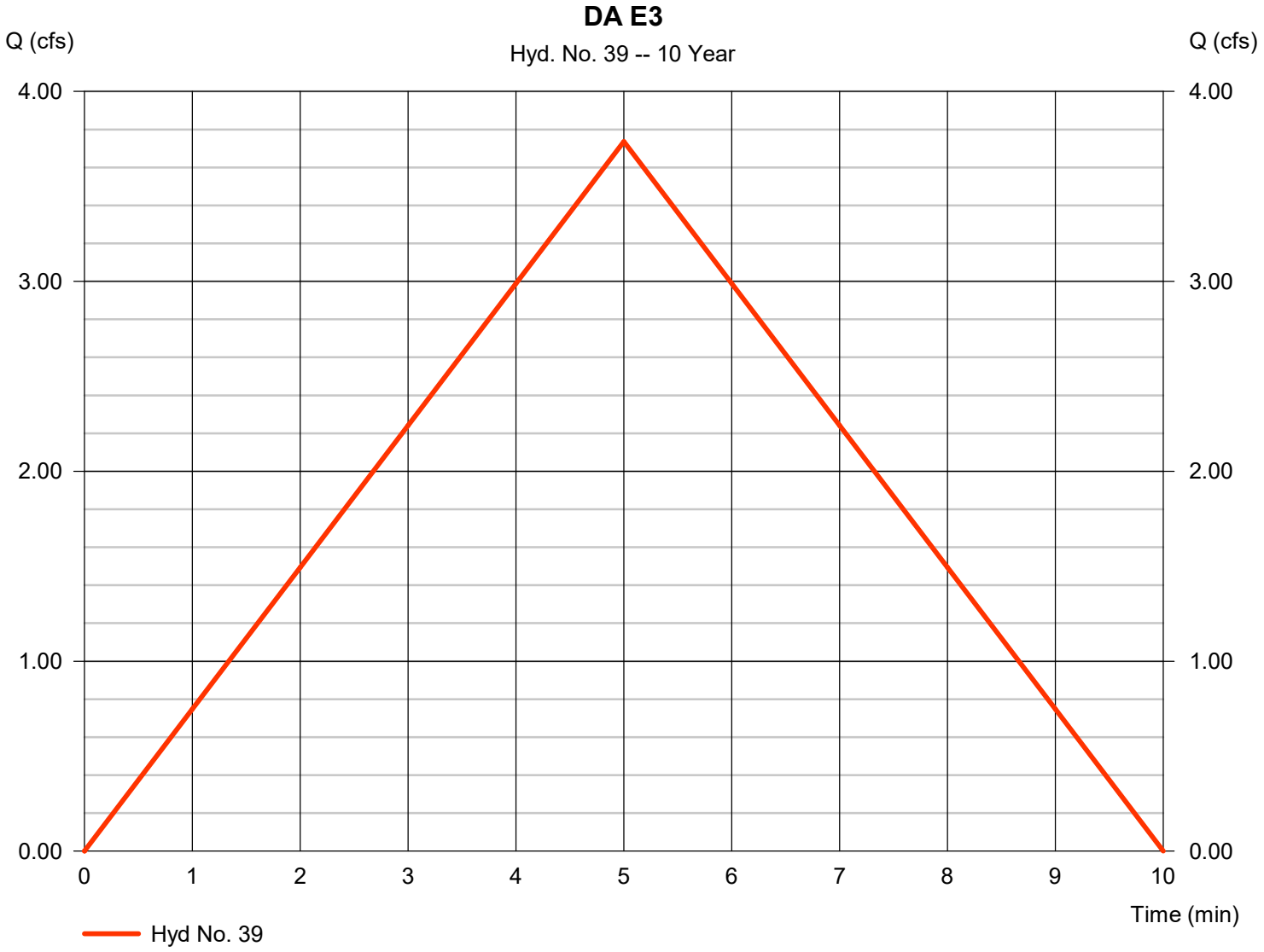
Hydrograph type	=	Rational	Peak discharge	=	1.692 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	508 cuft
Drainage area	=	0.320 ac	Runoff coeff.	=	0.88
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

Hydrograph Report

Hyd. No. 39

DA E3

Hydrograph type	=	Rational	Peak discharge	=	3.736 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,121 cuft
Drainage area	=	0.740 ac	Runoff coeff.	=	0.84
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

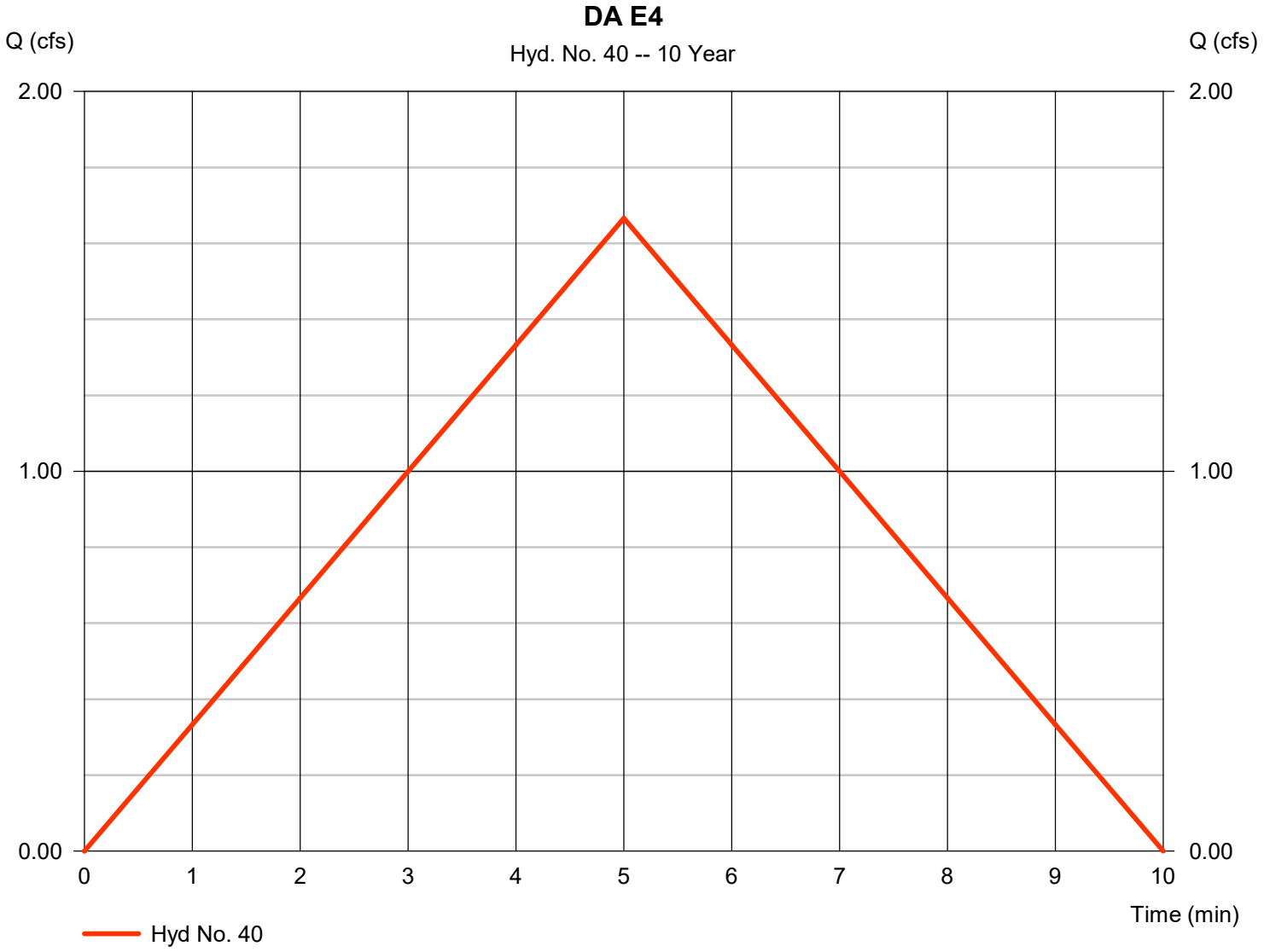


Hydrograph Report

Hyd. No. 40

DA E4

Hydrograph type	=	Rational	Peak discharge	=	1.666 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	500 cuft
Drainage area	=	0.360 ac	Runoff coeff.	=	0.77
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

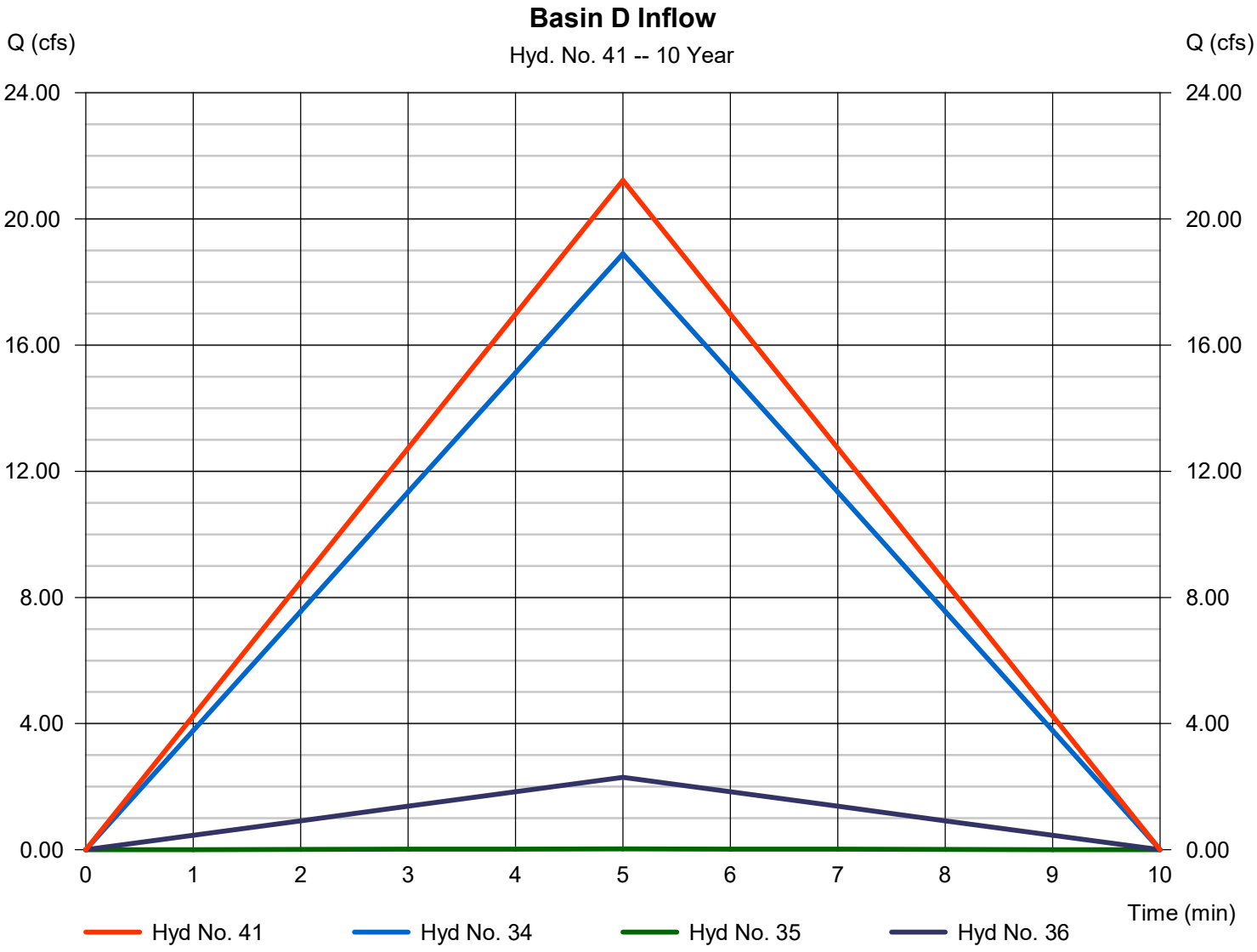


Hydrograph Report

Hyd. No. 41

Basin D Inflow

Hydrograph type	=	Combine	Peak discharge	=	21.23 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	6,368 cuft
Inflow hyds.	=	34, 35, 36	Contrib. drain. area	=	3.770 ac



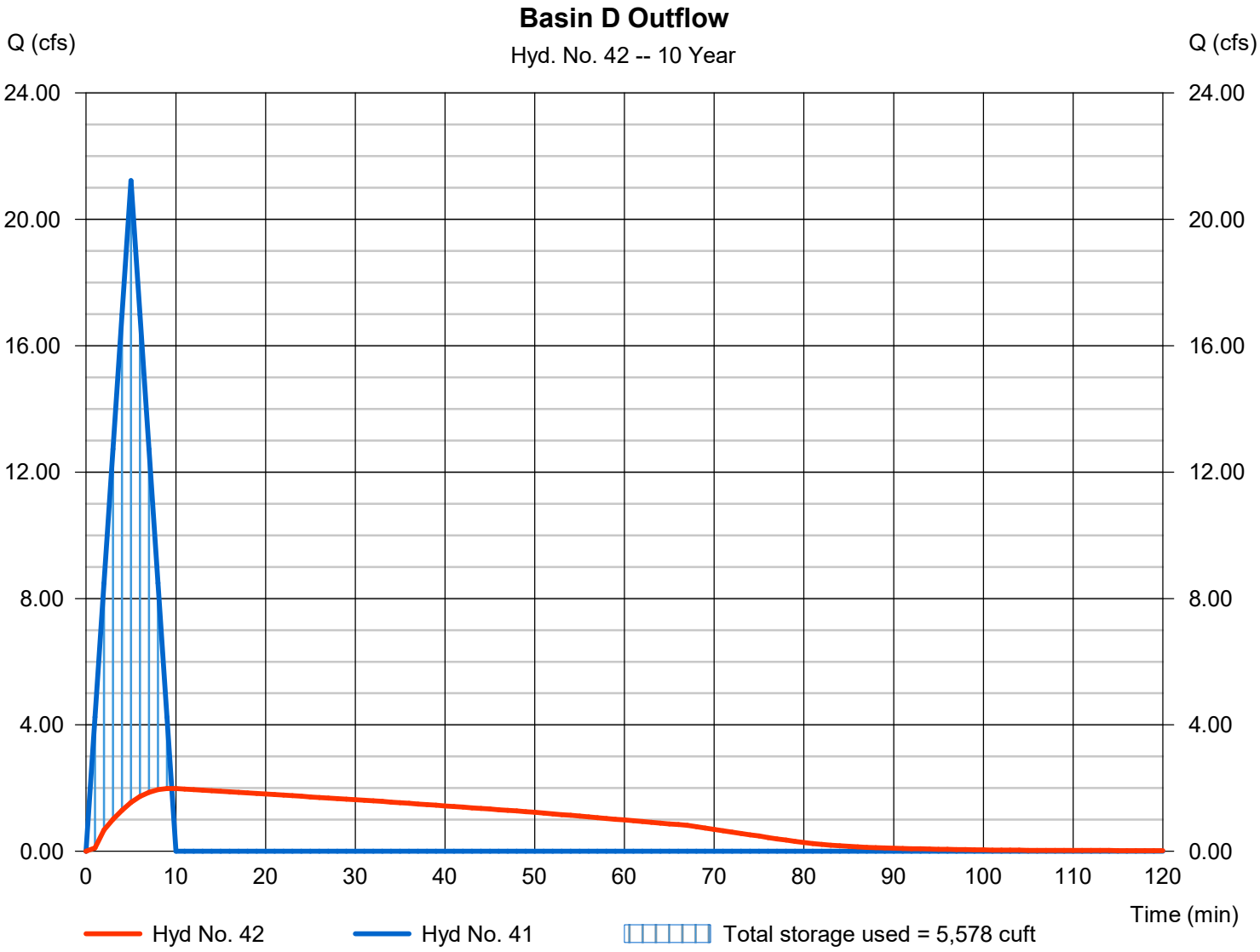
Hydrograph Report

Hyd. No. 42

Basin D Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.987 cfs
Storm frequency	=	10 yrs	Time to peak	=	10 min
Time interval	=	1 min	Hyd. volume	=	6,365 cuft
Inflow hyd. No.	=	41 - Basin D Inflow	Max. Elevation	=	2635.67 ft
Reservoir name	=	Basin D	Max. Storage	=	5,578 cuft

Storage Indication method used.



Pond Report

Pond No. 13 - Basin D

Pond Data

UG Chambers -Invert elev. = 2631.00 ft, Rise x Span = 10.00 x 10.00 ft, Barrel Len = 155.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2631.00	n/a	0	0
1.00	2632.00	n/a	634	634
2.00	2633.00	n/a	1,101	1,735
3.00	2634.00	n/a	1,339	3,074
4.00	2635.00	n/a	1,475	4,549
5.00	2636.00	n/a	1,541	6,089
6.00	2637.00	n/a	1,541	7,630
7.00	2638.00	n/a	1,474	9,105
8.00	2639.00	n/a	1,338	10,443
9.00	2640.00	n/a	1,100	11,543
10.00	2641.00	n/a	633	12,176

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 6.00	18.00	0.00	0.00
Span (in)	= 6.00	18.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 2631.00	2639.40	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

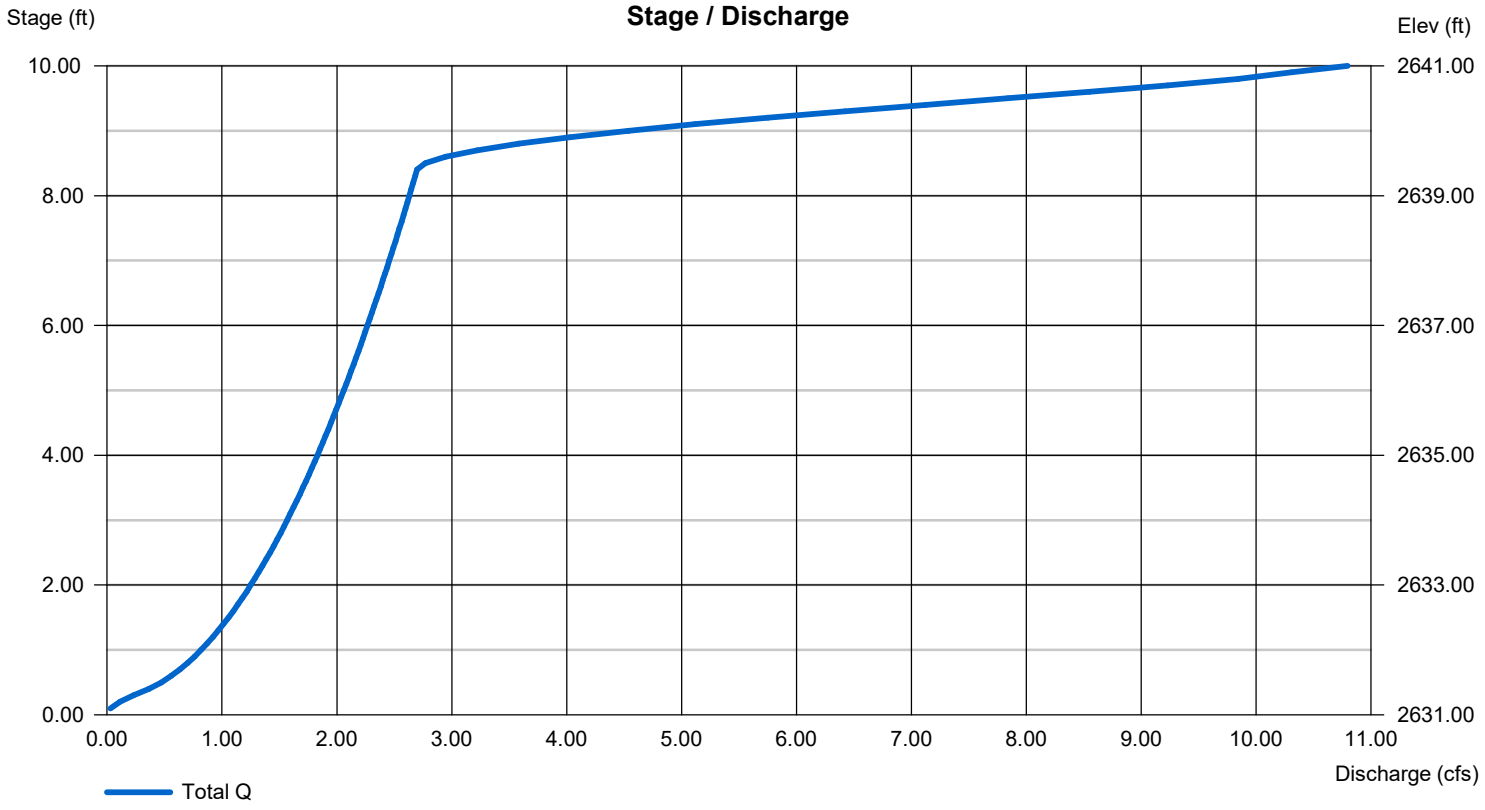
Weir Structures

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

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

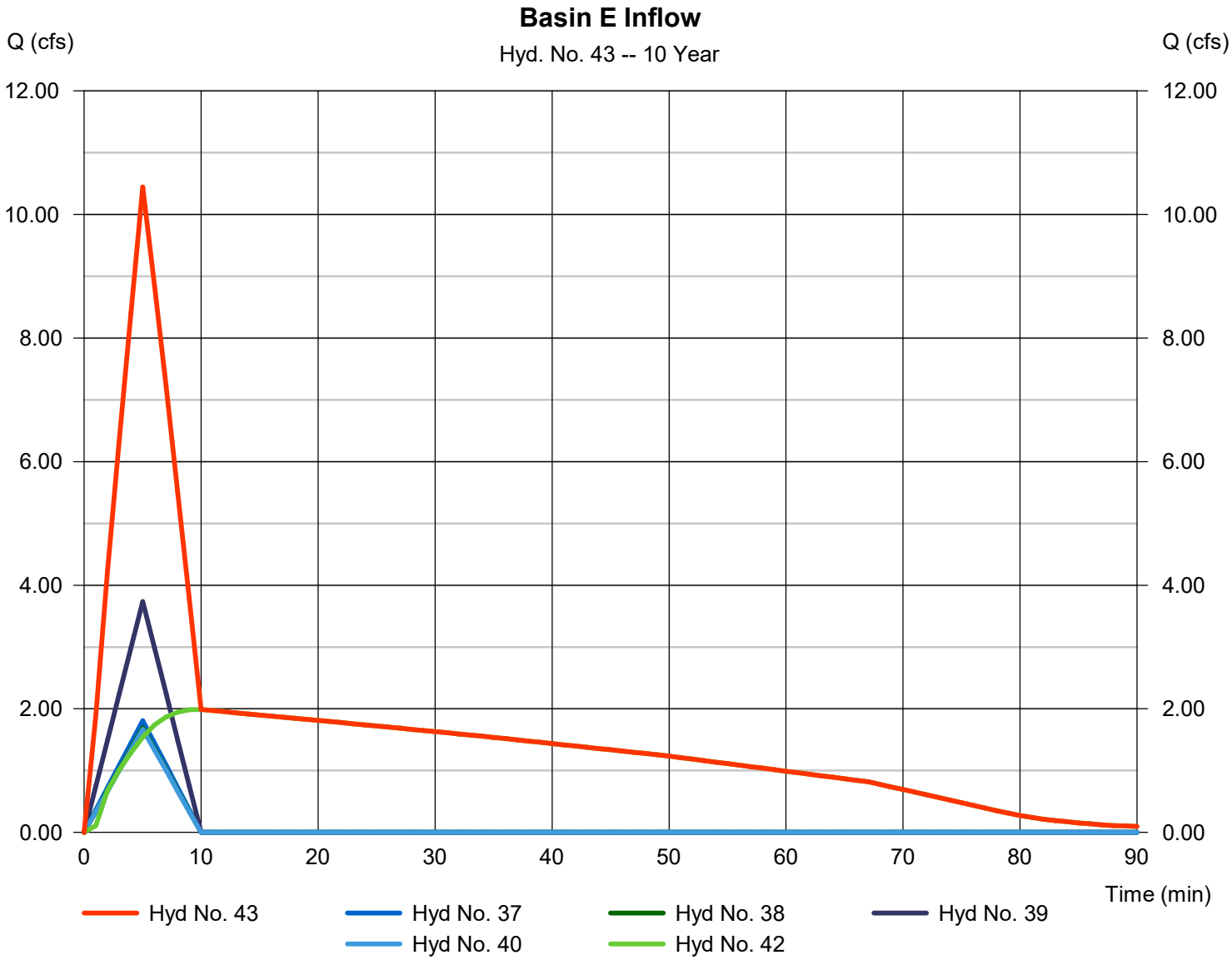


Hydrograph Report

Hyd. No. 43

Basin E Inflow

Hydrograph type	=	Combine	Peak discharge	=	10.45 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	9,037 cuft
Inflow hyds.	=	37, 38, 39, 40, 42	Contrib. drain. area	=	1.770 ac



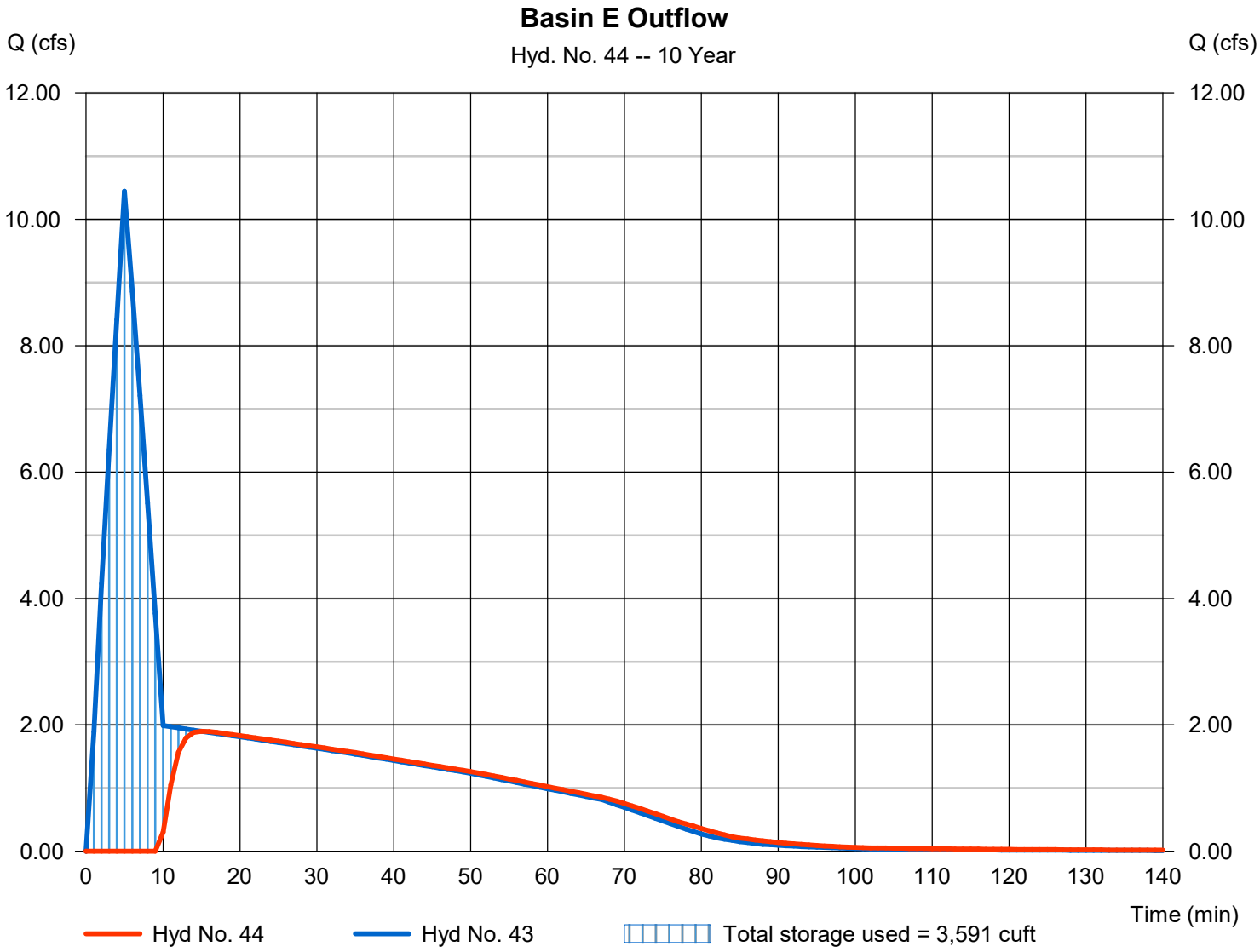
Hydrograph Report

Hyd. No. 44

Basin E Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.898 cfs
Storm frequency	=	10 yrs	Time to peak	=	15 min
Time interval	=	1 min	Hyd. volume	=	5,667 cuft
Inflow hyd. No.	=	43 - Basin E Inflow	Max. Elevation	=	2634.63 ft
Reservoir name	=	Basin E	Max. Storage	=	3,591 cuft

Storage Indication method used.



Pond Report

Pond No. 14 - Basin E

Pond Data

UG Chambers -Invert elev. = 2626.00 ft, Rise x Span = 10.00 x 10.00 ft, Barrel Len = 50.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2626.00	n/a	0	0
1.00	2627.00	n/a	204	204
2.00	2628.00	n/a	355	560
3.00	2629.00	n/a	432	992
4.00	2630.00	n/a	476	1,467
5.00	2631.00	n/a	497	1,964
6.00	2632.00	n/a	497	2,461
7.00	2633.00	n/a	476	2,937
8.00	2634.00	n/a	432	3,369
9.00	2635.00	n/a	355	3,724
10.00	2636.00	n/a	204	3,928

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.00
Span (in)	= 18.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 2634.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

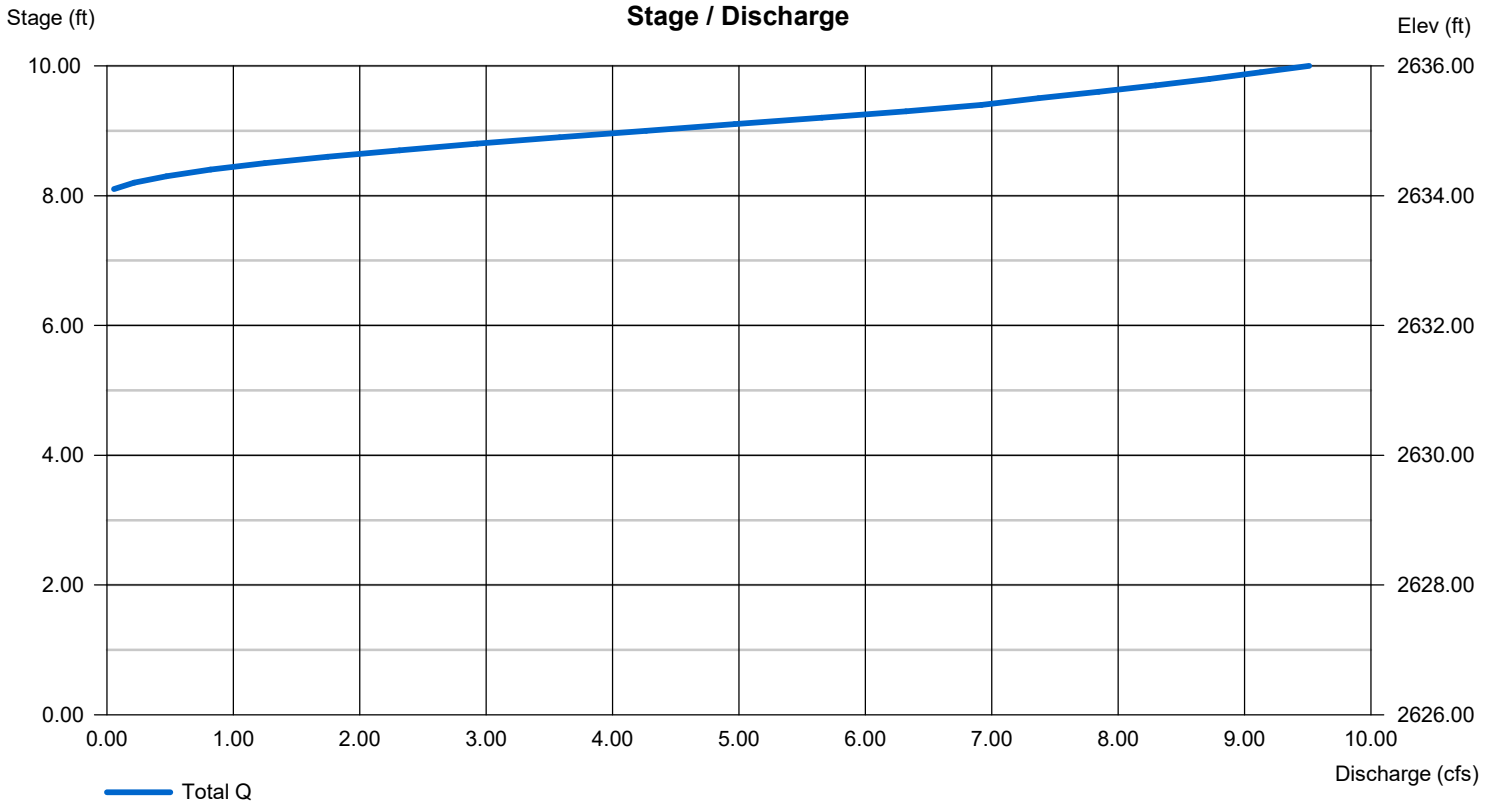
Weir Structures

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

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

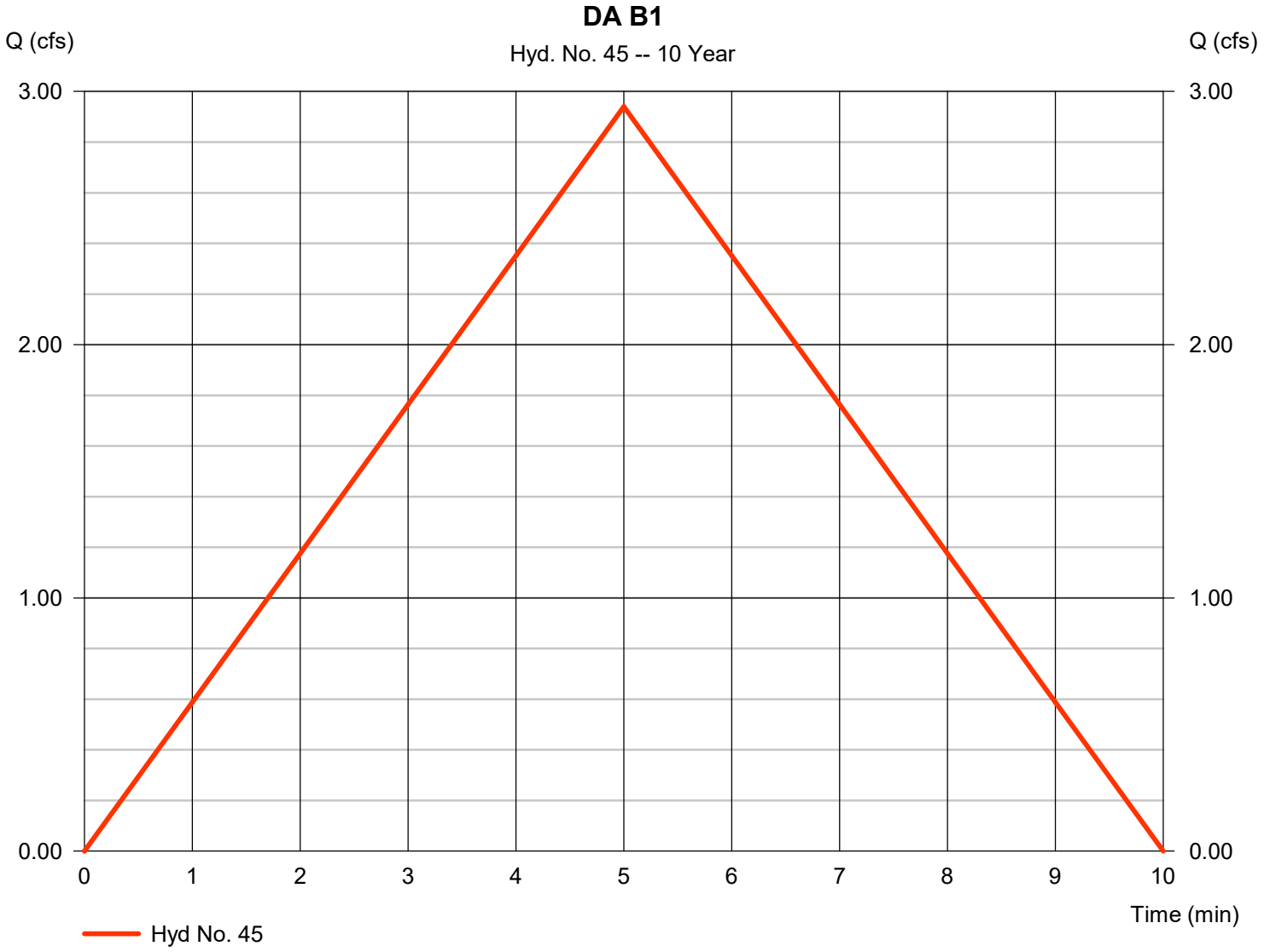


Hydrograph Report

Hyd. No. 45

DA B1

Hydrograph type	=	Rational	Peak discharge	=	2.940 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	882 cuft
Drainage area	=	0.670 ac	Runoff coeff.	=	0.73
Intensity	=	6.010 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

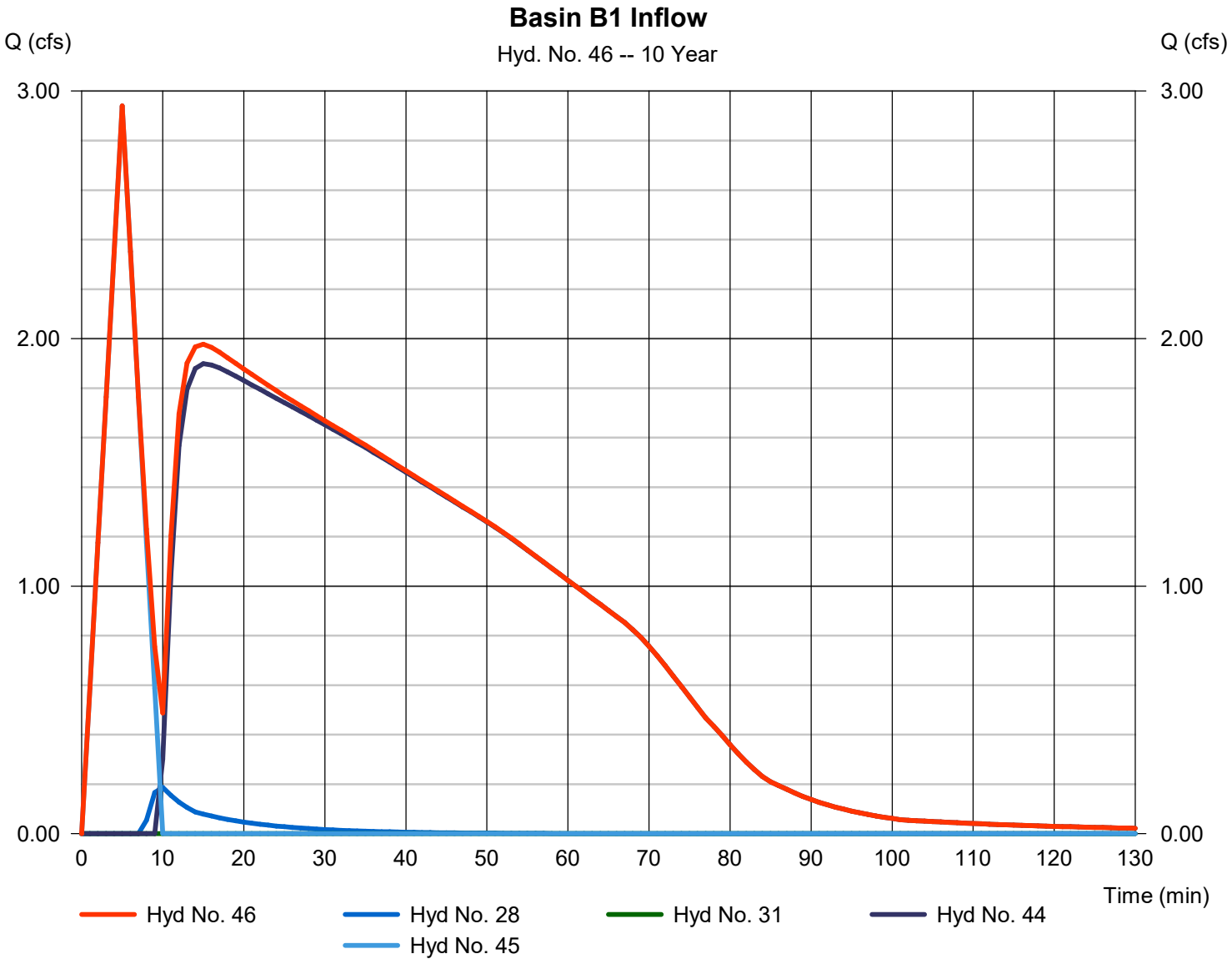


Hydrograph Report

Hyd. No. 46

Basin B1 Inflow

Hydrograph type	= Combine	Peak discharge	= 2.940 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 6,649 cuft
Inflow hyds.	= 28, 31, 44, 45	Contrib. drain. area	= 0.670 ac



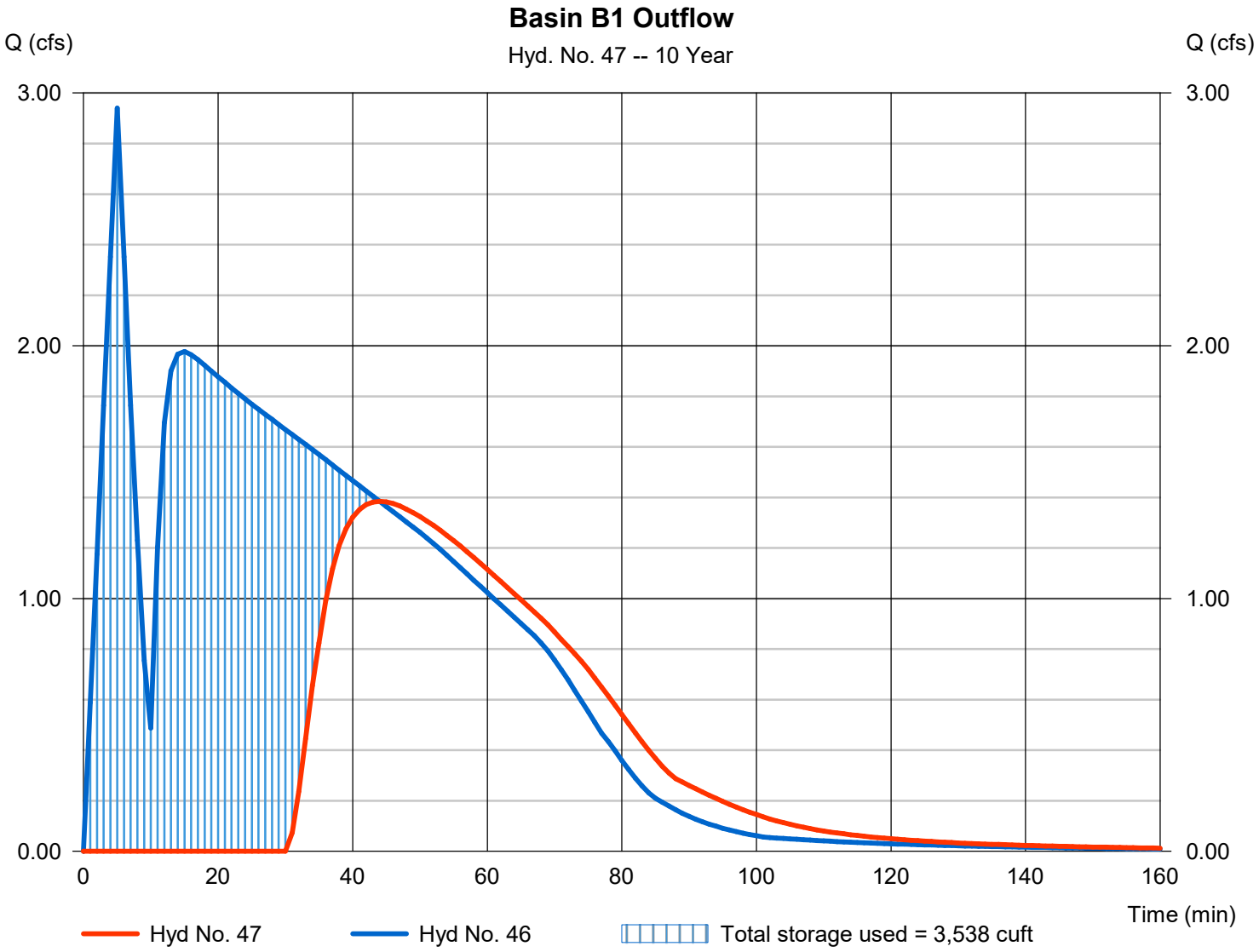
Hydrograph Report

Hyd. No. 47

Basin B1 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.384 cfs
Storm frequency	=	10 yrs	Time to peak	=	44 min
Time interval	=	1 min	Hyd. volume	=	3,560 cuft
Inflow hyd. No.	=	46 - Basin B1 Inflow	Max. Elevation	=	2636.14 ft
Reservoir name	=	Basin B1	Max. Storage	=	3,538 cuft

Storage Indication method used.



Pond Report

Pond No. 15 - Basin B1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2634.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2634.50	1,214	0	0
0.50	2635.00	1,788	746	746
1.00	2635.50	2,343	1,029	1,775
1.50	2636.00	2,923	1,314	3,089
2.00	2636.50	3,471	1,596	4,685

Culvert / Orifice Structures

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

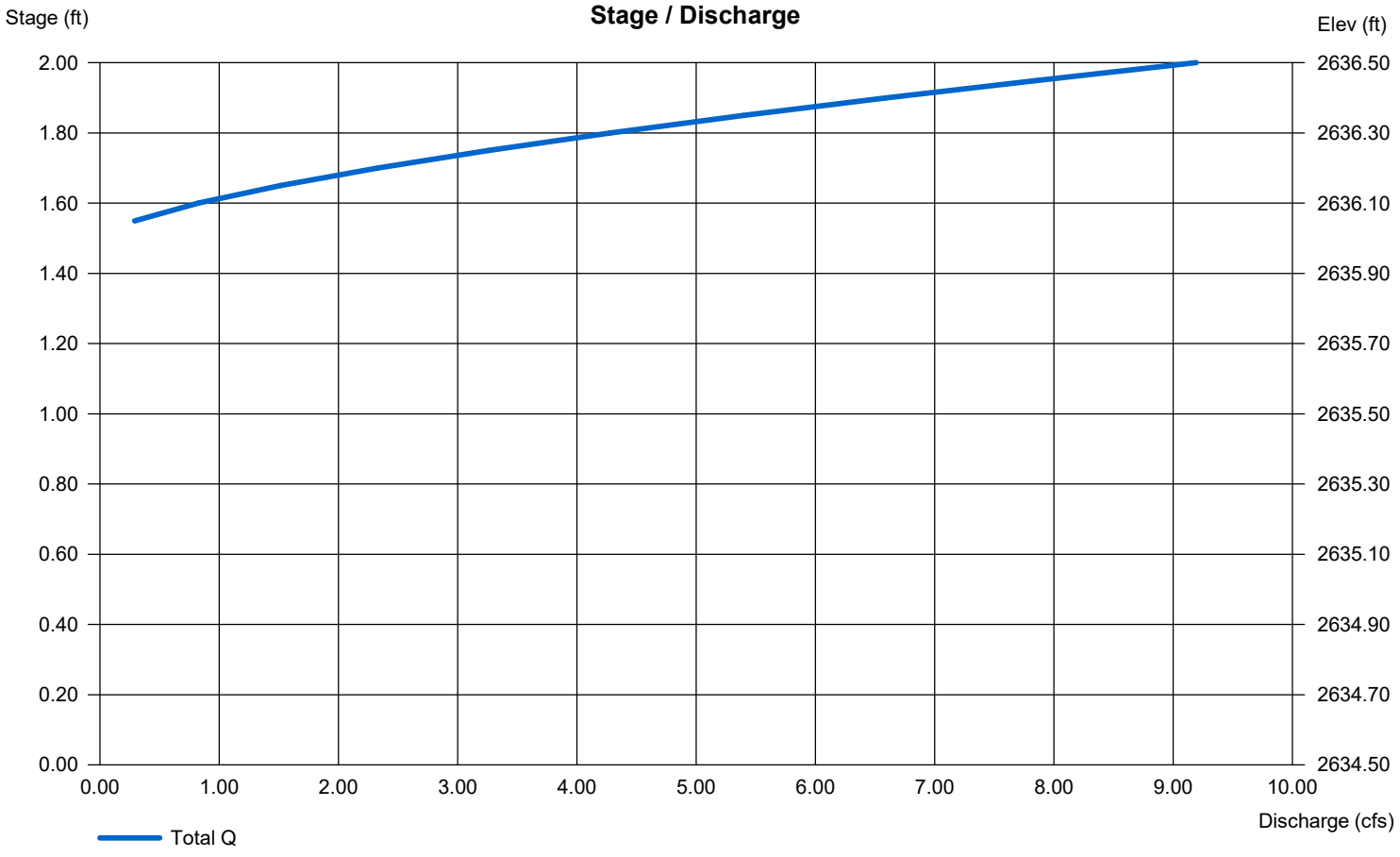
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 10.00	0.00	0.00	0.00
Crest El. (ft)	= 2636.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	0.328	1	5	99	------	------	------	DA Q
2	Reservoir	0.013	1	15	45	1	2646.40	95.6	Basin Q Flow
3	Rational	0.534	1	5	160	------	------	------	DA N1
4	Combine	0.534	1	5	206	2, 3	------	------	Basin N Inflow
5	Reservoir	0.010	1	45	27	4	2644.01	181	Basin N Outflow
6	Rational	0.883	1	5	265	------	------	------	DA L
7	Combine	0.883	1	5	292	5, 6	------	------	Basin L Inflow
8	Reservoir	0.000	1	n/a	0	7	2643.43	292	Basin L Outflow
9	Rational	0.742	1	5	223	------	------	------	DA H1
10	Reservoir	0.036	1	10	10	9	2643.51	220	Basin H1 Outflow
11	Rational	5.919	1	5	1,776	------	------	------	DA O
12	Rational	1.381	1	5	414	------	------	------	OFF 2
13	Combine	7.300	1	5	2,190	11, 12	------	------	Basin O Inflow
14	Reservoir	1.187	1	9	997	13	2645.78	1,989	Basin O Outflow
15	Rational	2.143	1	5	643	------	------	------	DA H2
16	Combine	2.143	1	5	1,650	8, 10, 14, 15	------	------	Basin H2 Inflow
17	Reservoir	0.277	1	24	553	16	2642.55	1,242	Basin H2 Outflow
18	Rational	1.069	1	5	321	------	------	------	DA H3
19	Rational	3.596	1	5	1,079	------	------	------	DA G
20	Rational	0.417	1	5	125	------	------	------	OFF 3
21	Rational	0.334	1	5	100	------	------	------	OFF 4
22	Combine	4.347	1	5	1,304	19, 20, 21	------	------	Basin G Inflow
23	Combine	1.069	1	5	874	17, 18,	------	------	Basin H3 Inflow
24	Reservoir	0.201	1	34	639	23	2642.32	431	Basin H3 Outflow
25	Rational	1.927	1	5	578	------	------	------	DA C
26	Combine	1.927	1	5	1,217	24, 25	------	------	Basin C Inflow
27	Reservoir	0.160	1	46	698	26	2639.10	662	Basin C Outflow
28	Reservoir	1.432	1	8	559	22	2640.32	1,069	Basin G Outflow
29	Rational	1.039	1	5	312	------	------	------	DA B2
30	Combine	1.039	1	5	1,009	27, 29	------	------	Basin B2 Inflow
31	Reservoir	0.138	1	59	760	30	2638.22	409	Basin B2 Outflow
32	Rational	1.058	1	5	317	------	------	------	DA A
33	Reservoir	0.586	1	7	317	32	2639.63	421	Basin A Outfall
34	Rational	29.17	1	5	8,752	------	------	------	OFF-1

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

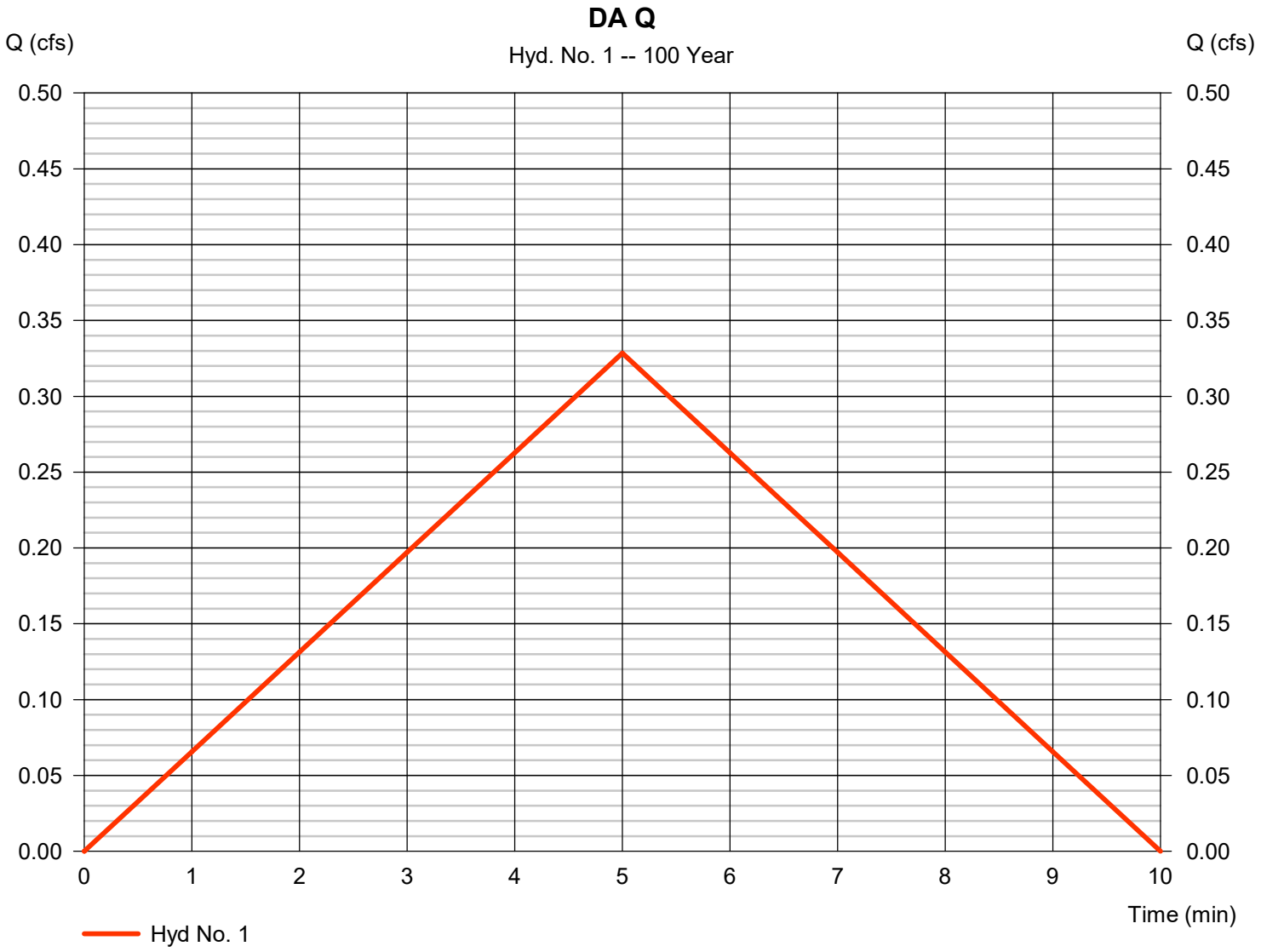
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
35	Rational	0.042	1	5	13	------	------	------	DA D2
36	Rational	3.549	1	5	1,065	------	------	------	DA D1
37	Rational	2.793	1	5	838	------	------	------	DA E1
38	Rational	2.613	1	5	784	------	------	------	DA E2
39	Rational	5.767	1	5	1,730	------	------	------	DA E3
40	Rational	2.572	1	5	772	------	------	------	DA E4
41	Combine	32.76	1	5	9,829	34, 35, 36,	------	------	Basin D Inflow
42	Reservoir	2.426	1	10	9,827	41	2637.84	8,866	Basin D Outflow
43	Combine	15.59	1	5	13,950	37, 38, 39, 40, 42	------	------	Basin E Inflow
44	Reservoir	8.685	1	8	10,581	43	2635.79	3,885	Basin E Outflow
45	Rational	4.538	1	5	1,361	------	------	------	DA B1
46	Combine	11.94	1	8	13,262	28, 31, 44, 45	------	------	Basin B1 Inflow
47	Reservoir	2.390	1	20	10,173	46	2636.20	3,738	Basin B1 Outflow

Hydrograph Report

Hyd. No. 1

DA Q

Hydrograph type	=	Rational	Peak discharge	=	0.328 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	99 cuft
Drainage area	=	0.060 ac	Runoff coeff.	=	0.59
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



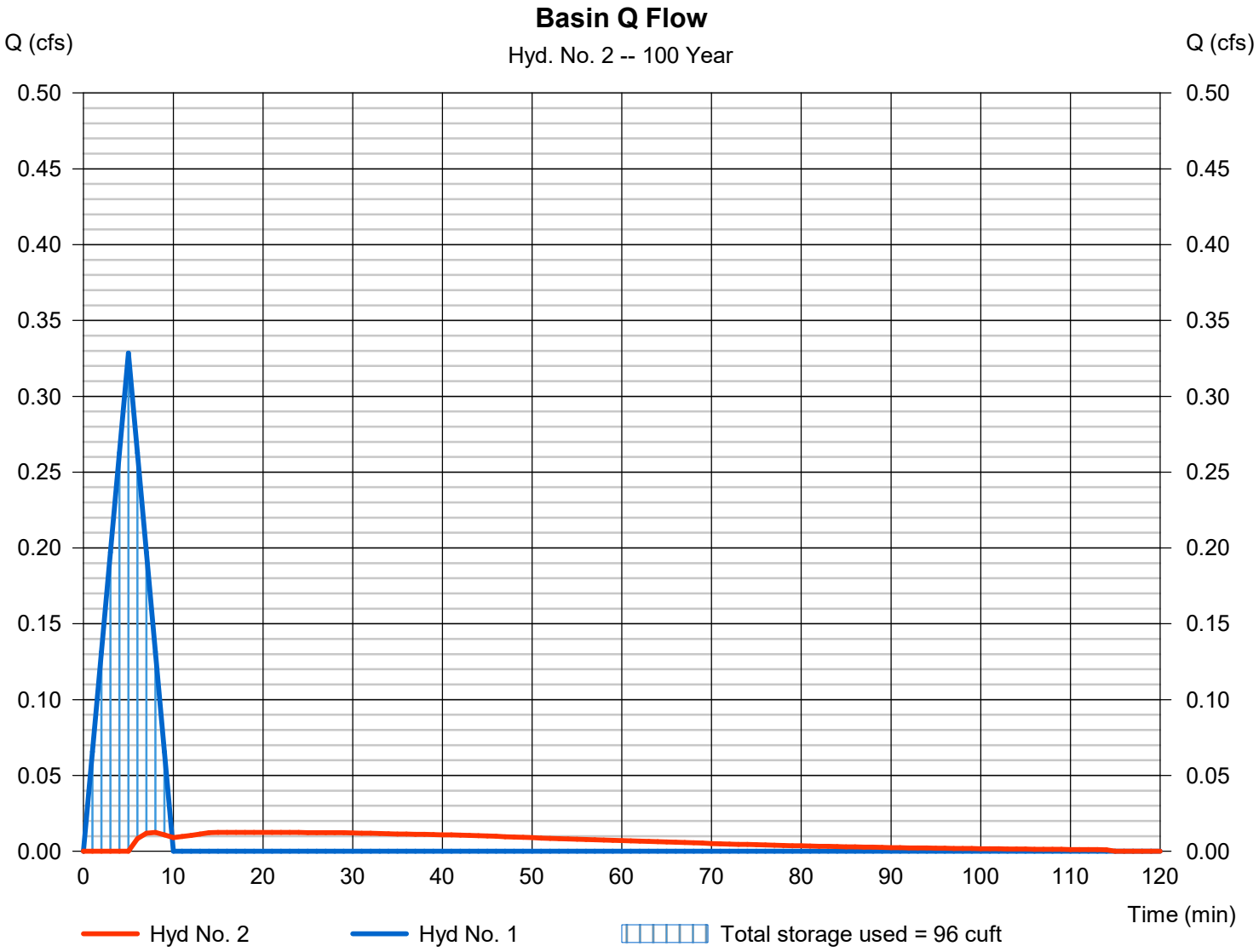
Hydrograph Report

Hyd. No. 2

Basin Q Flow

Hydrograph type	=	Reservoir	Peak discharge	=	0.013 cfs
Storm frequency	=	100 yrs	Time to peak	=	15 min
Time interval	=	1 min	Hyd. volume	=	45 cuft
Inflow hyd. No.	=	1 - DA Q	Max. Elevation	=	2646.40 ft
Reservoir name	=	Basin Q	Max. Storage	=	96 cuft

Storage Indication method used.

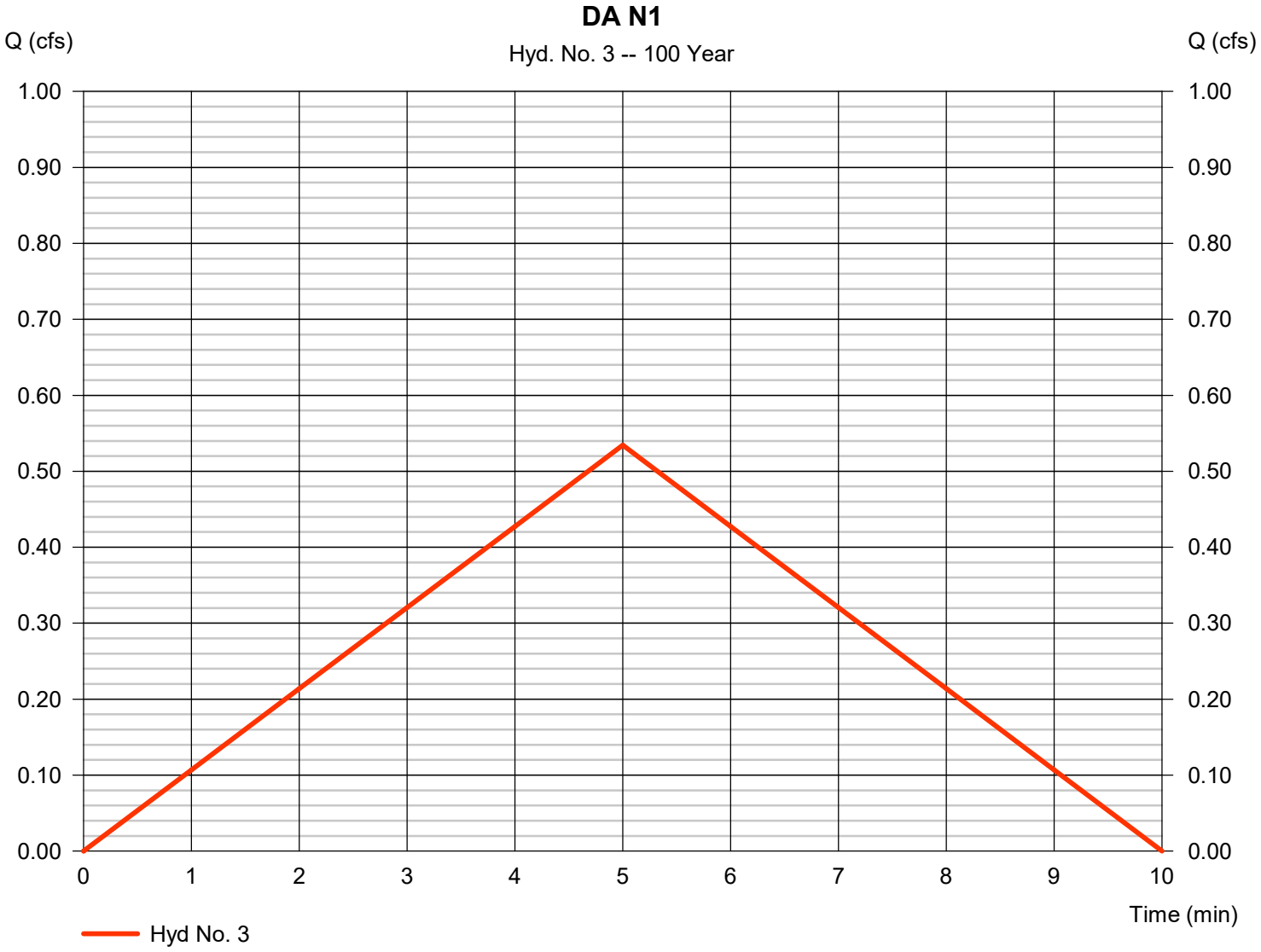


Hydrograph Report

Hyd. No. 3

DA N1

Hydrograph type	=	Rational	Peak discharge	=	0.534 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	160 cuft
Drainage area	=	0.090 ac	Runoff coeff.	=	0.64
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

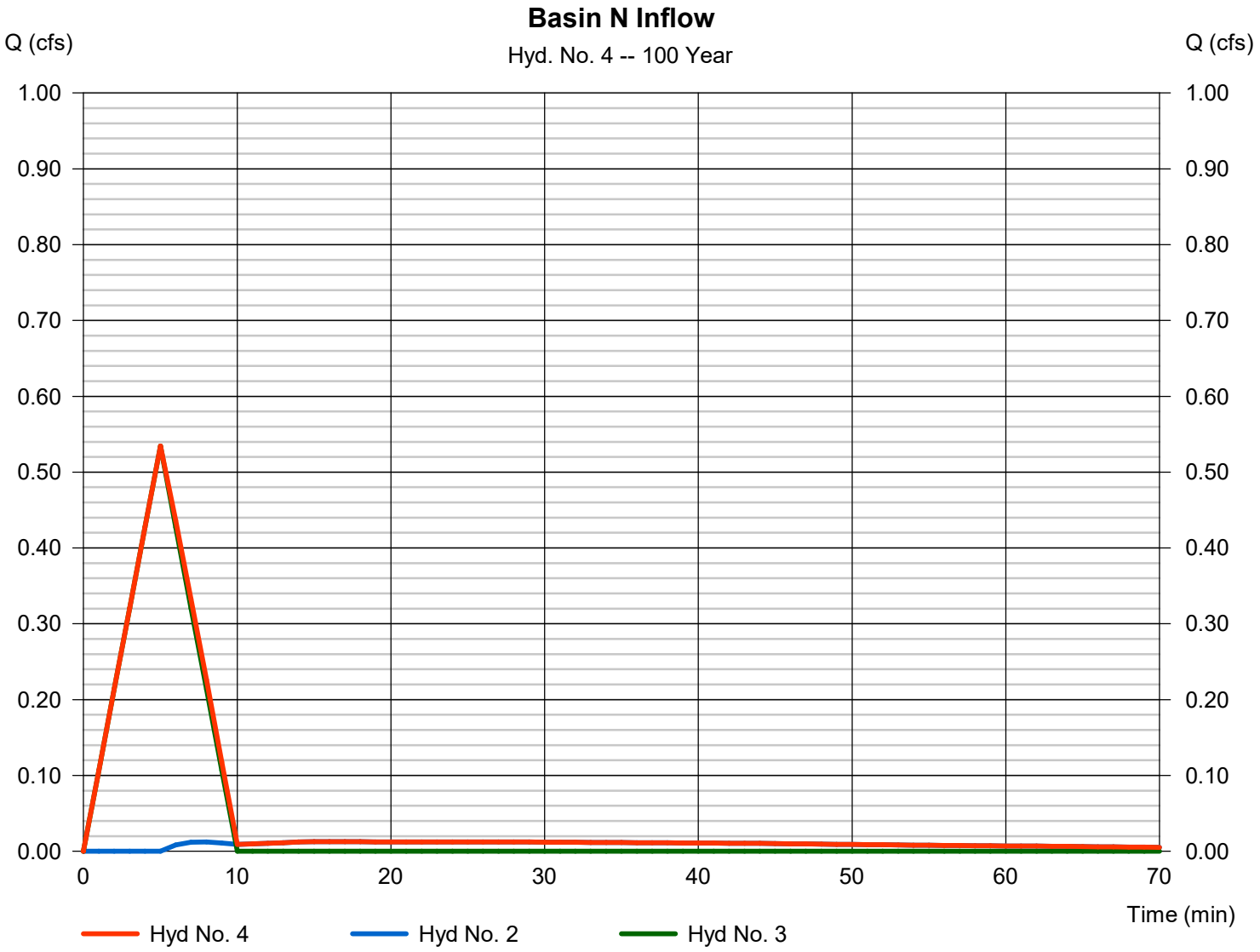


Hydrograph Report

Hyd. No. 4

Basin N Inflow

Hydrograph type	=	Combine	Peak discharge	=	0.534 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	206 cuft
Inflow hyds.	=	2, 3	Contrib. drain. area	=	0.090 ac



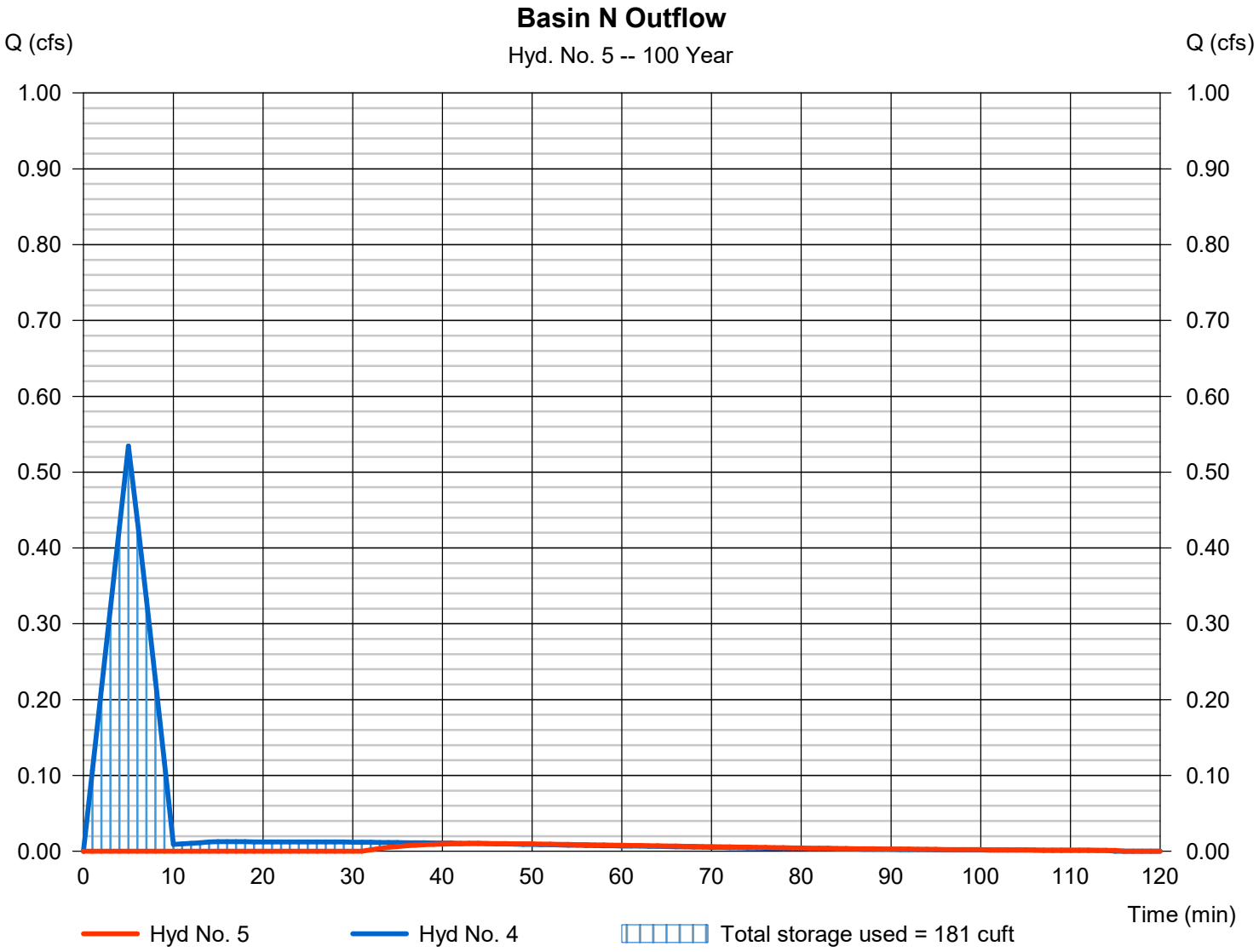
Hydrograph Report

Hyd. No. 5

Basin N Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.010 cfs
Storm frequency	=	100 yrs	Time to peak	=	45 min
Time interval	=	1 min	Hyd. volume	=	27 cuft
Inflow hyd. No.	=	4 - Basin N Inflow	Max. Elevation	=	2644.01 ft
Reservoir name	=	Basin N	Max. Storage	=	181 cuft

Storage Indication method used.

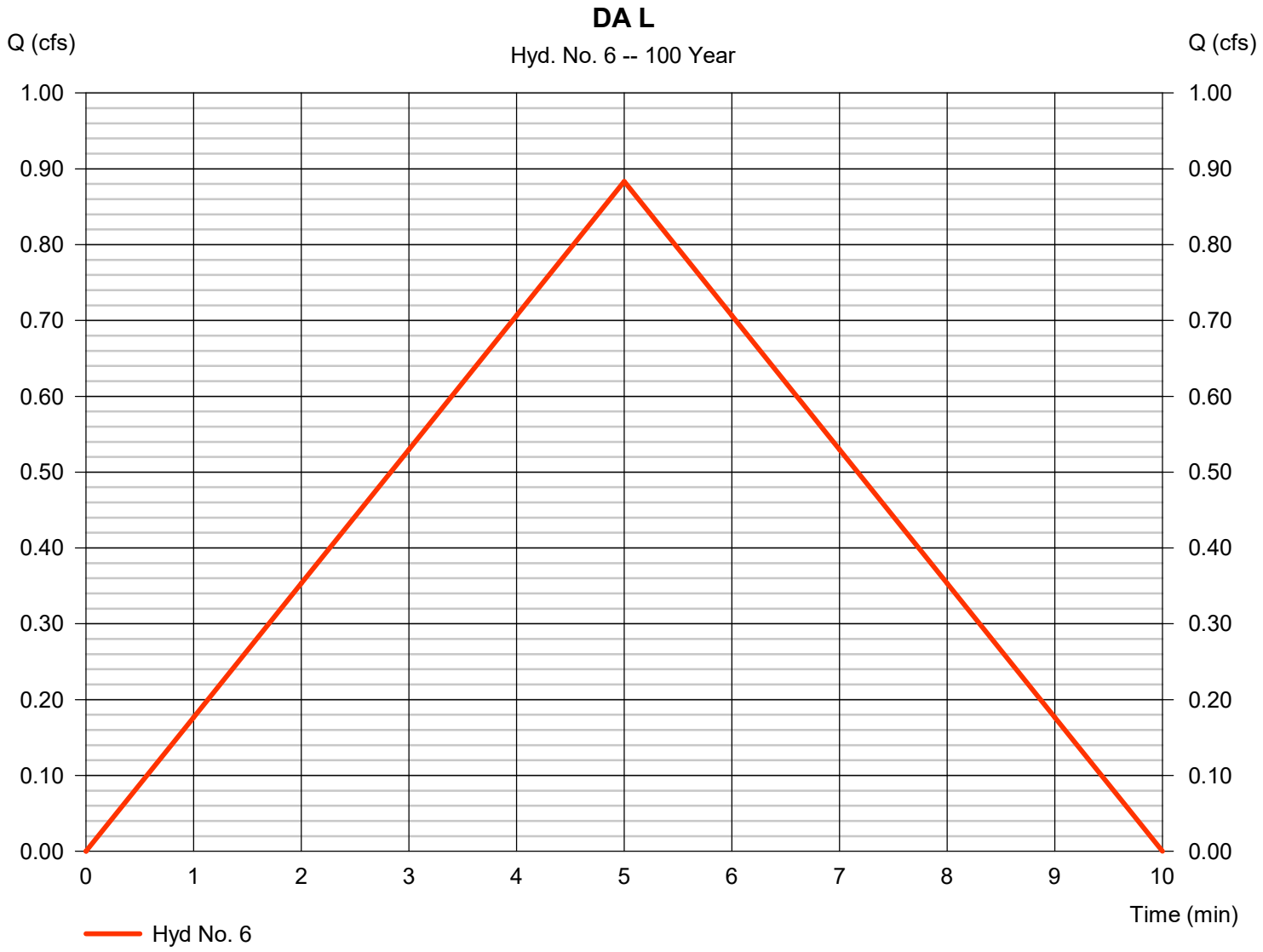


Hydrograph Report

Hyd. No. 6

DA L

Hydrograph type	=	Rational	Peak discharge	=	0.883 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	265 cuft
Drainage area	=	0.140 ac	Runoff coeff.	=	0.68
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

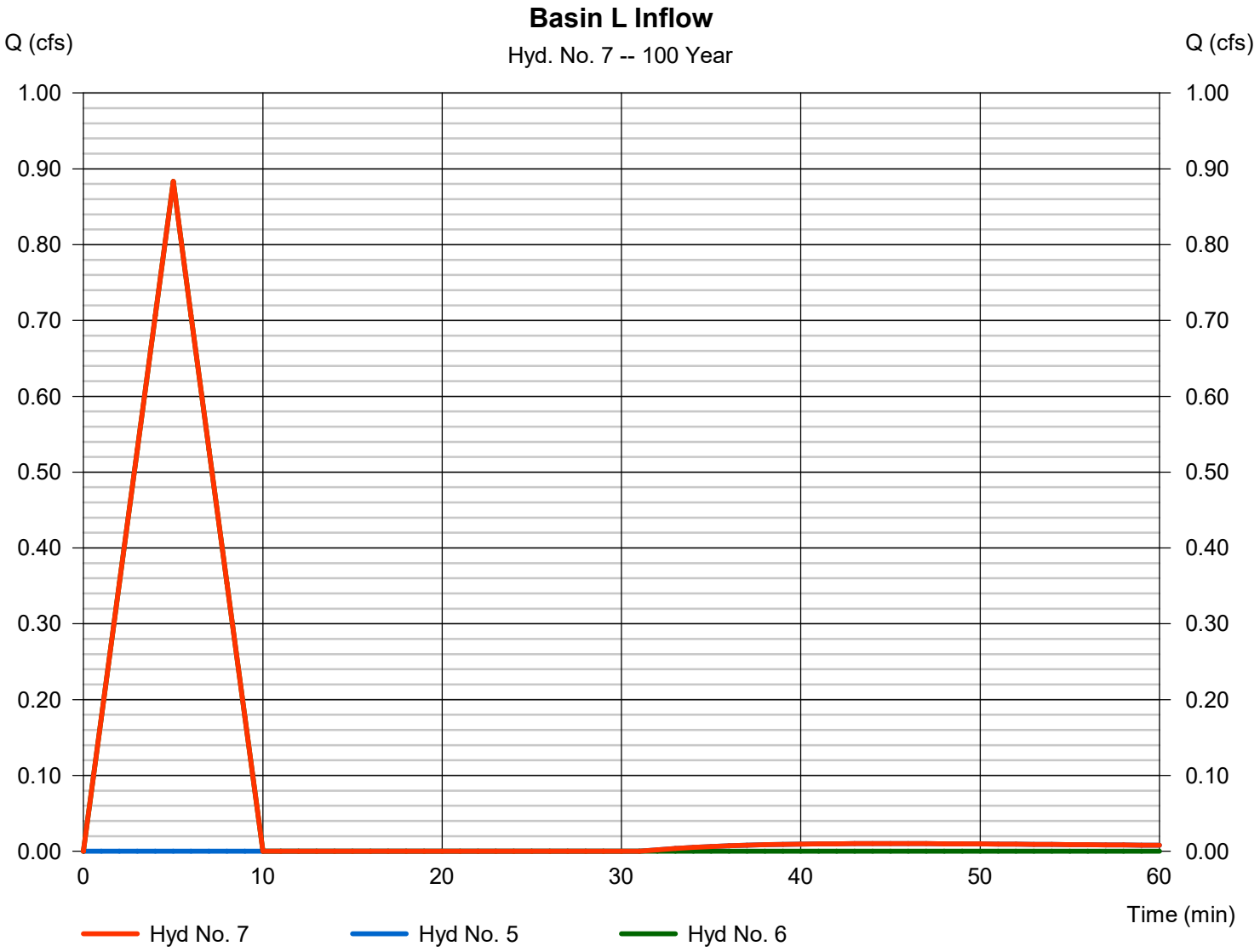


Hydrograph Report

Hyd. No. 7

Basin L Inflow

Hydrograph type	= Combine	Peak discharge	= 0.883 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 292 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.140 ac



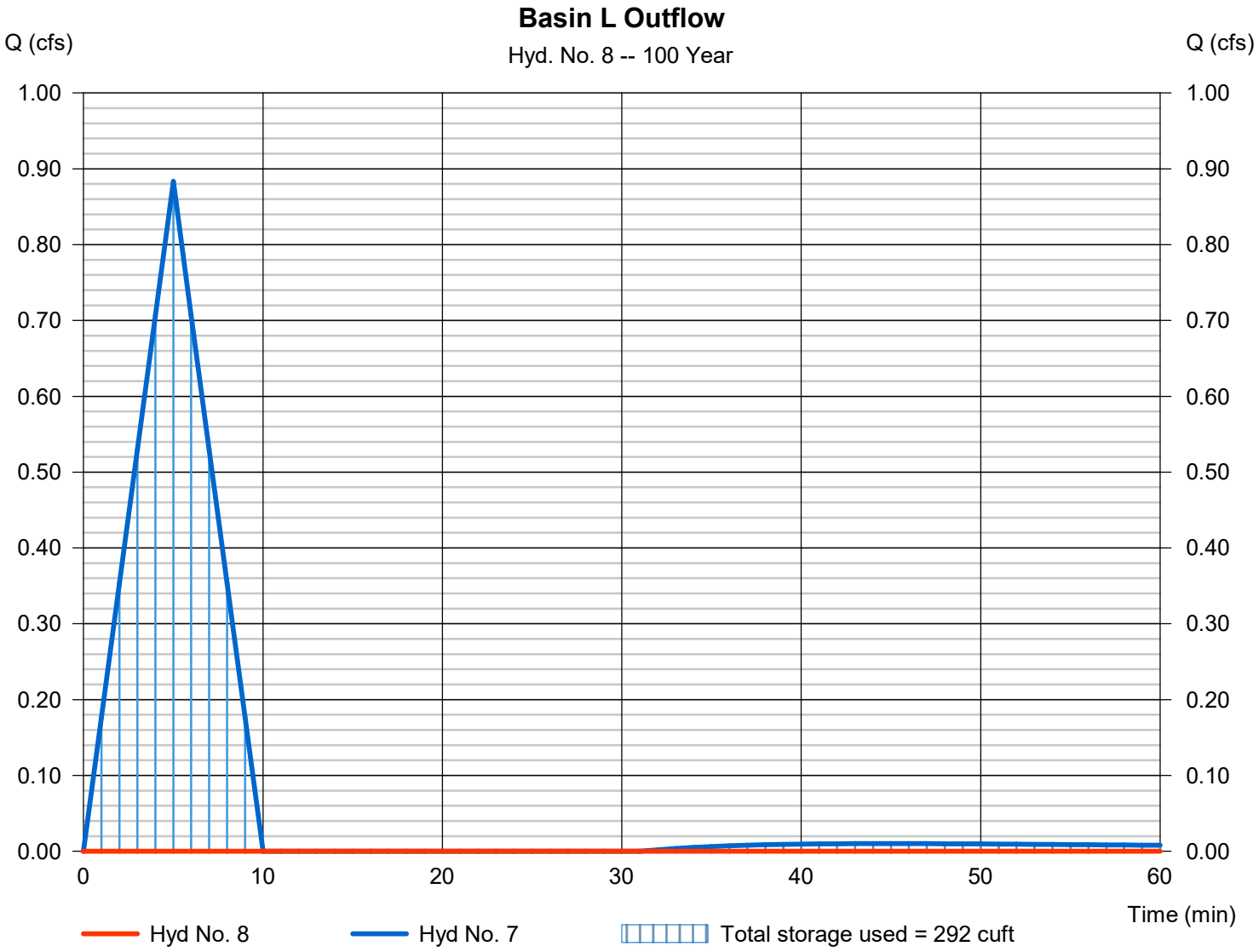
Hydrograph Report

Hyd. No. 8

Basin L Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	100 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	7 - Basin L Inflow	Max. Elevation	=	2643.43 ft
Reservoir name	=	Basin L	Max. Storage	=	292 cuft

Storage Indication method used.

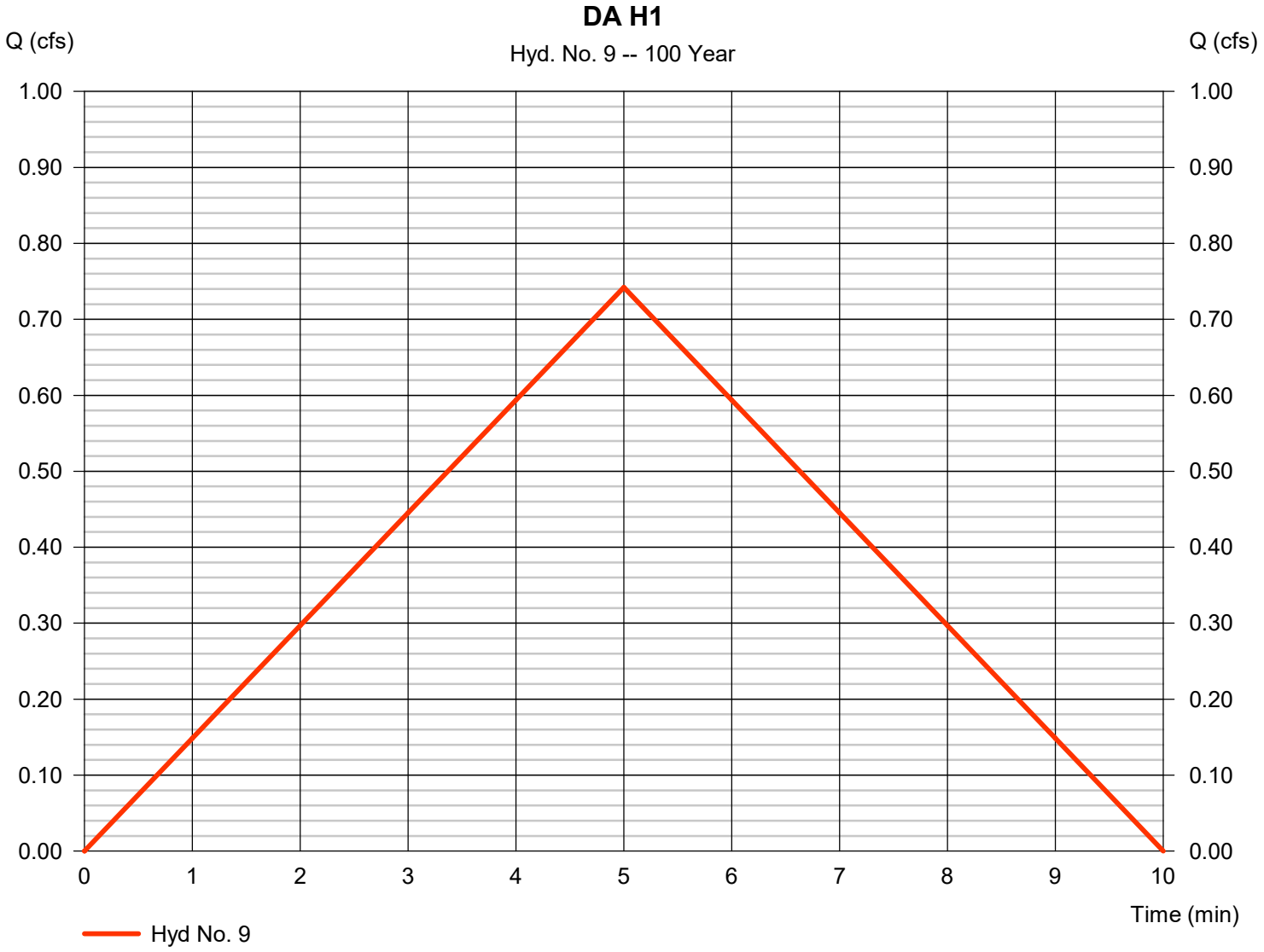


Hydrograph Report

Hyd. No. 9

DA H1

Hydrograph type	=	Rational	Peak discharge	=	0.742 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	223 cuft
Drainage area	=	0.100 ac	Runoff coeff.	=	0.8
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



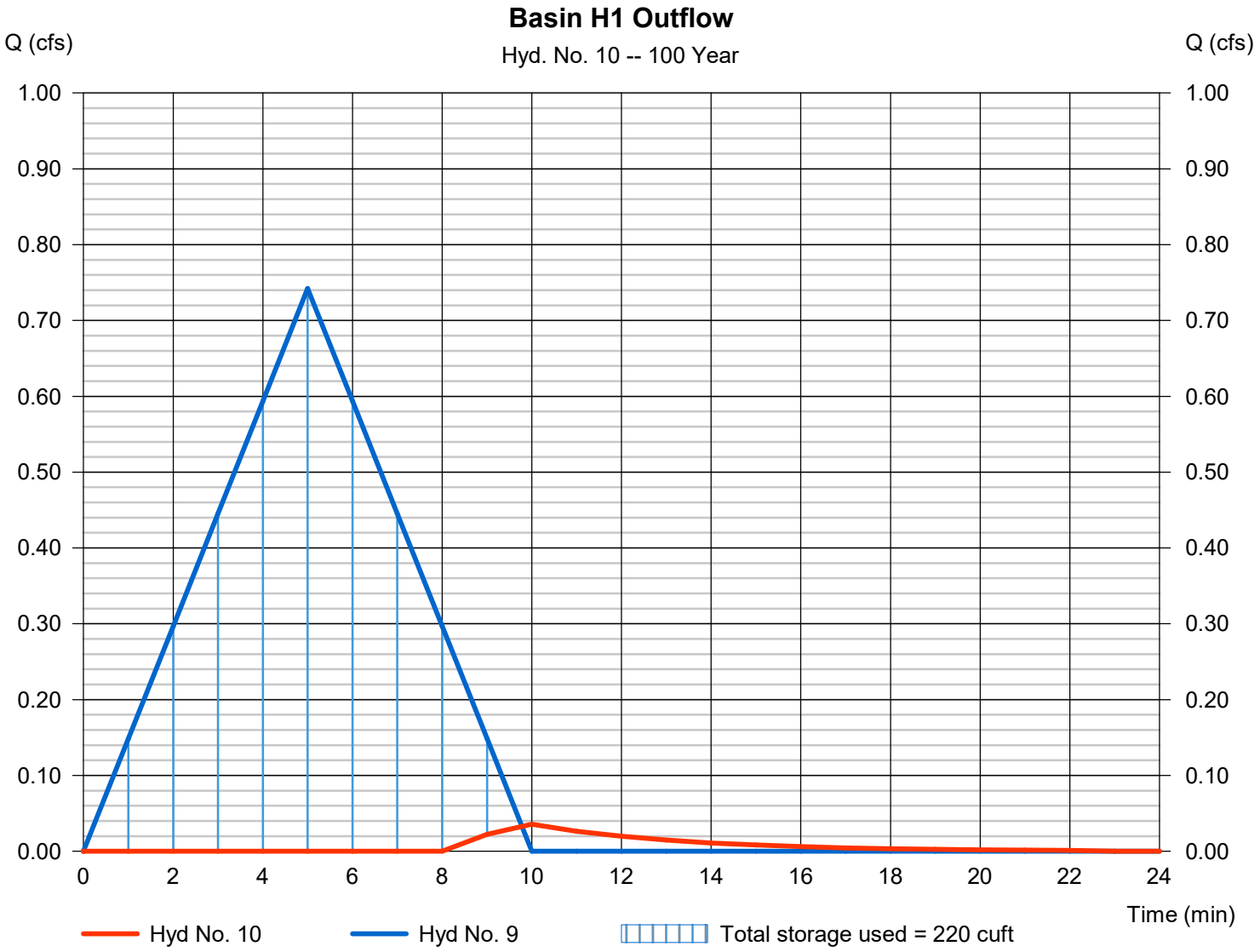
Hydrograph Report

Hyd. No. 10

Basin H1 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.036 cfs
Storm frequency	=	100 yrs	Time to peak	=	10 min
Time interval	=	1 min	Hyd. volume	=	10 cuft
Inflow hyd. No.	=	9 - DA H1	Max. Elevation	=	2643.51 ft
Reservoir name	=	Basin H1	Max. Storage	=	220 cuft

Storage Indication method used.

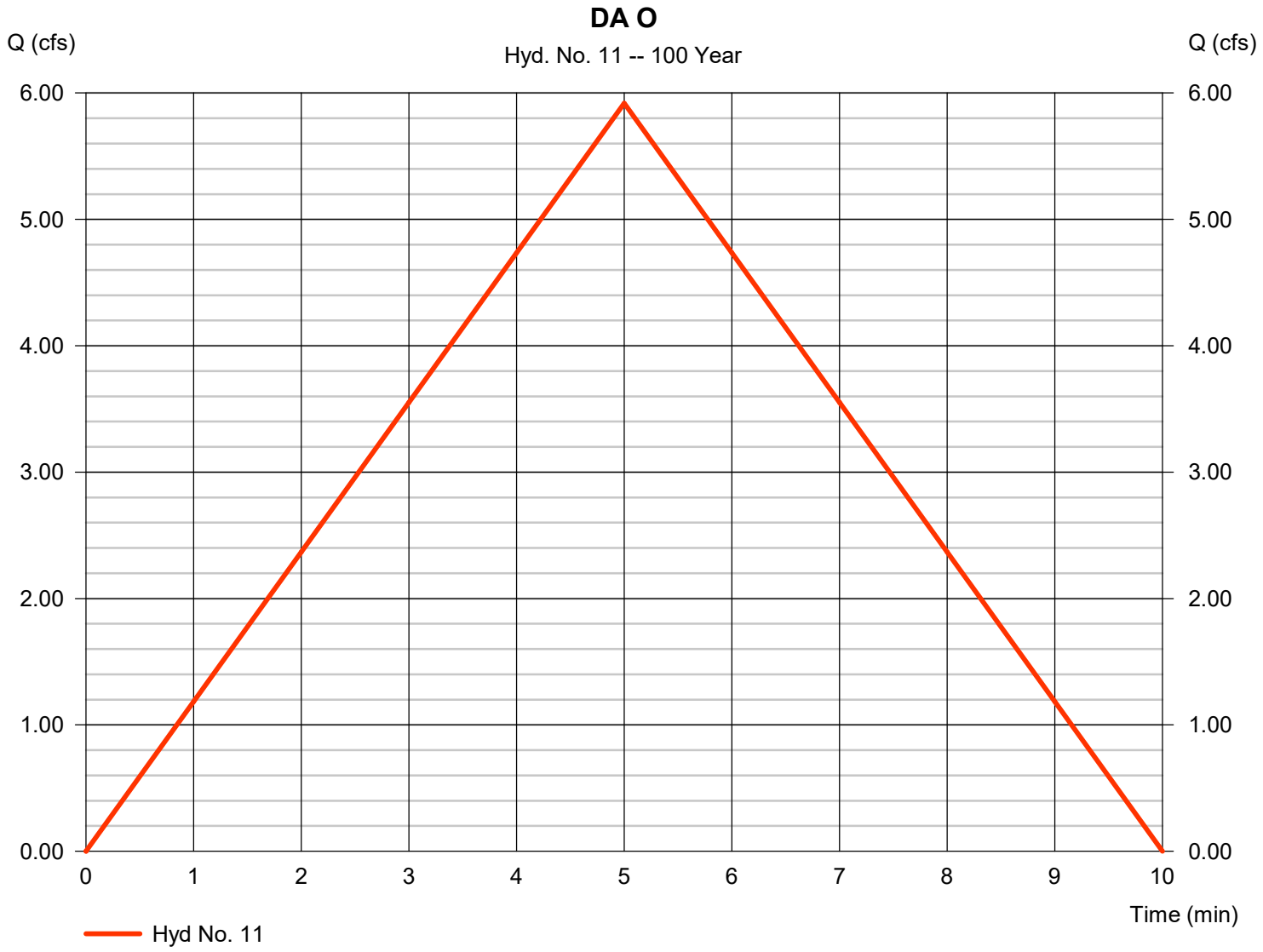


Hydrograph Report

Hyd. No. 11

DA O

Hydrograph type	=	Rational	Peak discharge	=	5.919 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,776 cuft
Drainage area	=	1.100 ac	Runoff coeff.	=	0.58
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

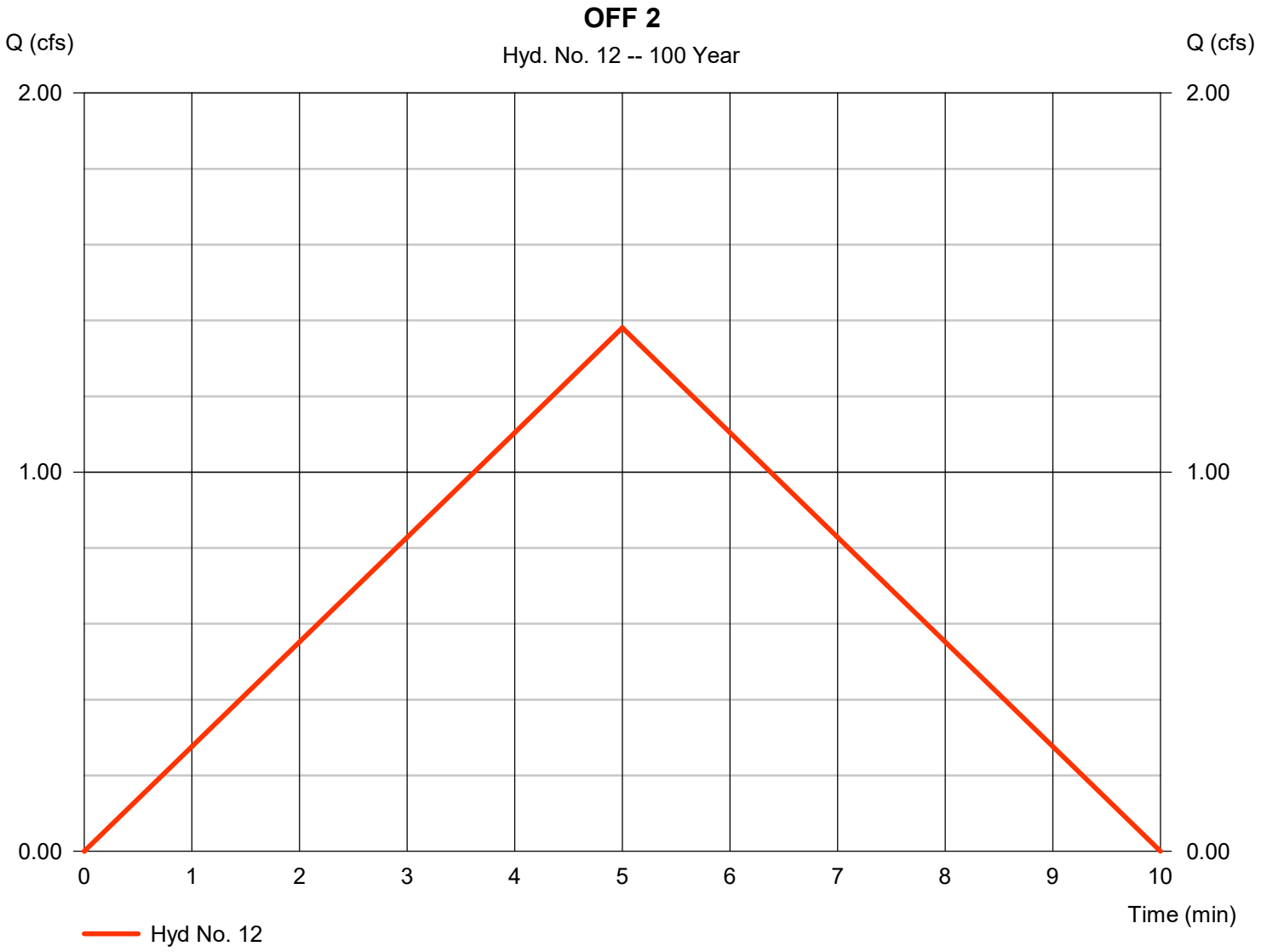


Hydrograph Report

Hyd. No. 12

OFF 2

Hydrograph type	=	Rational	Peak discharge	=	1.381 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	414 cuft
Drainage area	=	0.310 ac	Runoff coeff.	=	0.48
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

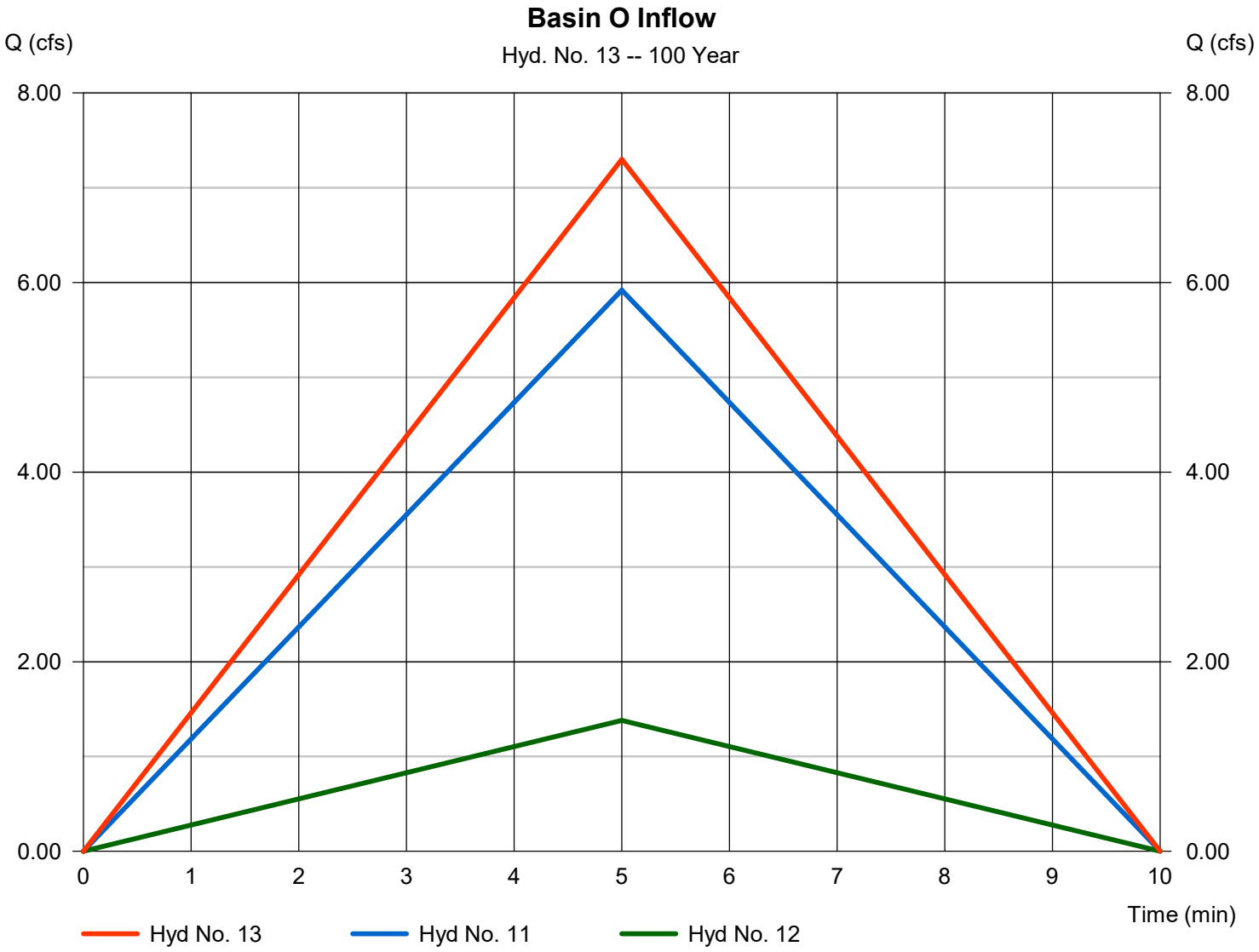


Hydrograph Report

Hyd. No. 13

Basin O Inflow

Hydrograph type	=	Combine	Peak discharge	=	7.300 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	2,190 cuft
Inflow hyds.	=	11, 12	Contrib. drain. area	=	1.410 ac



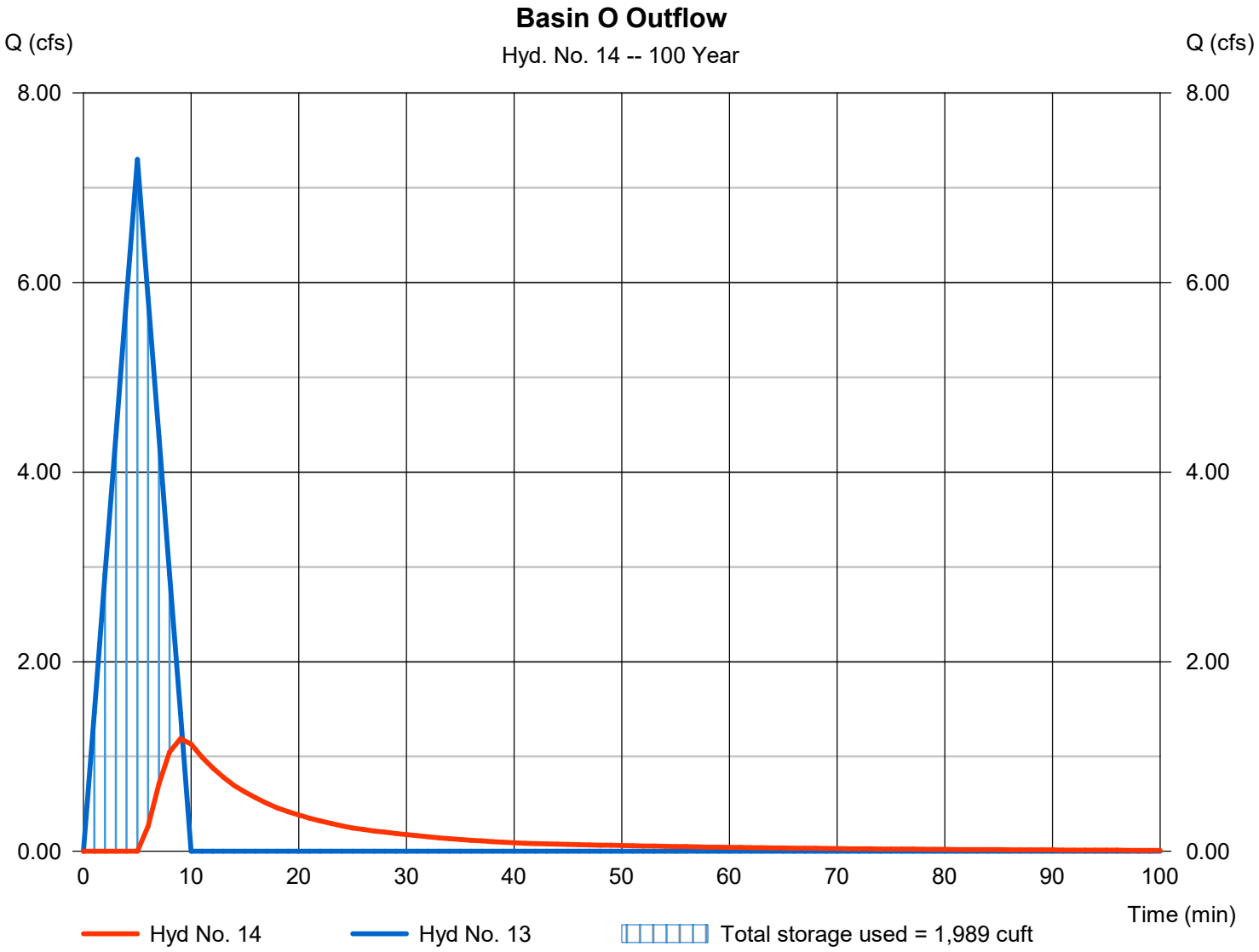
Hydrograph Report

Hyd. No. 14

Basin O Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.187 cfs
Storm frequency	=	100 yrs	Time to peak	=	9 min
Time interval	=	1 min	Hyd. volume	=	997 cuft
Inflow hyd. No.	=	13 - Basin O Inflow	Max. Elevation	=	2645.78 ft
Reservoir name	=	Basin O	Max. Storage	=	1,989 cuft

Storage Indication method used.

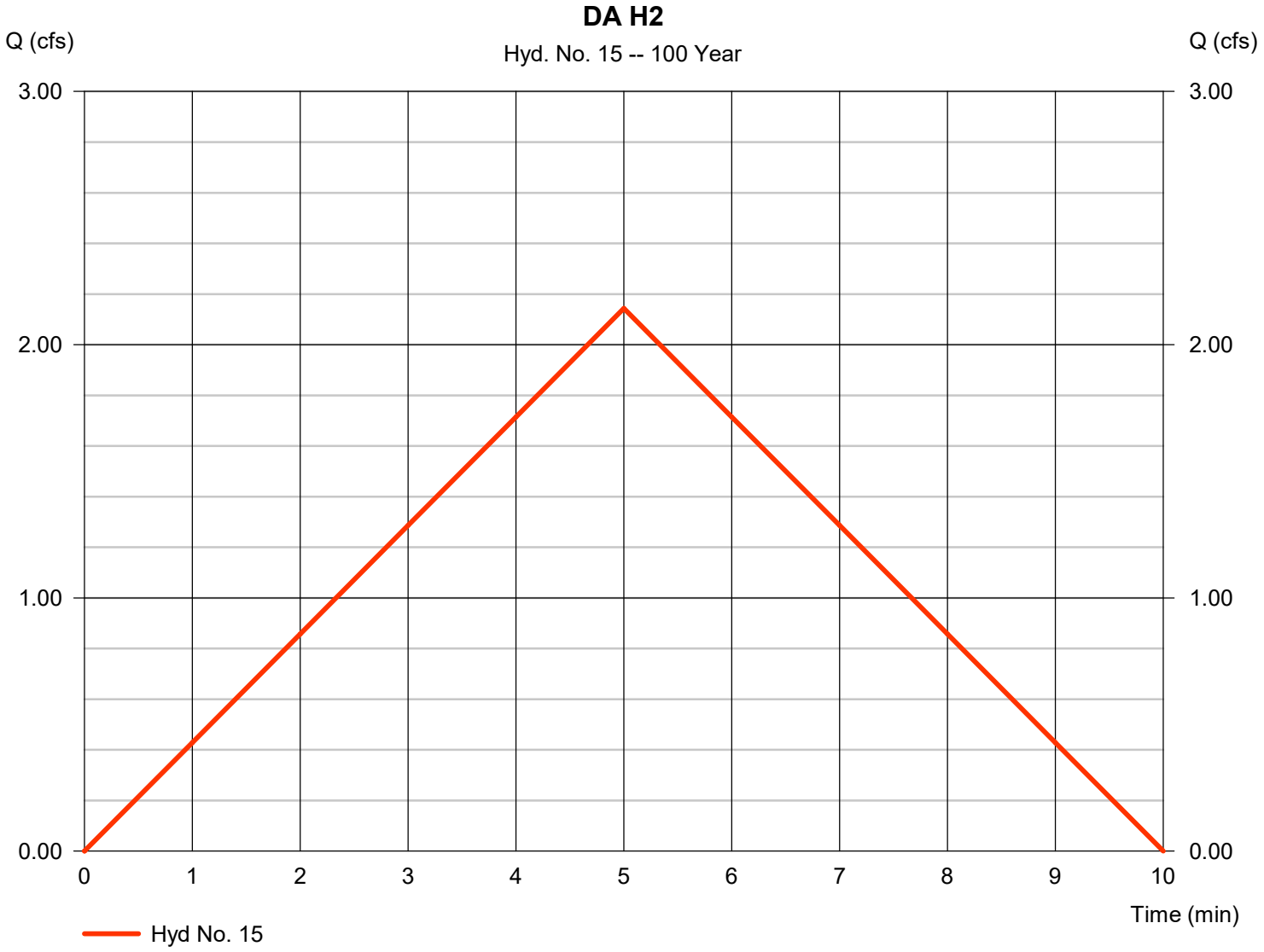


Hydrograph Report

Hyd. No. 15

DA H2

Hydrograph type	=	Rational	Peak discharge	=	2.143 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	643 cuft
Drainage area	=	0.330 ac	Runoff coeff.	=	0.7
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

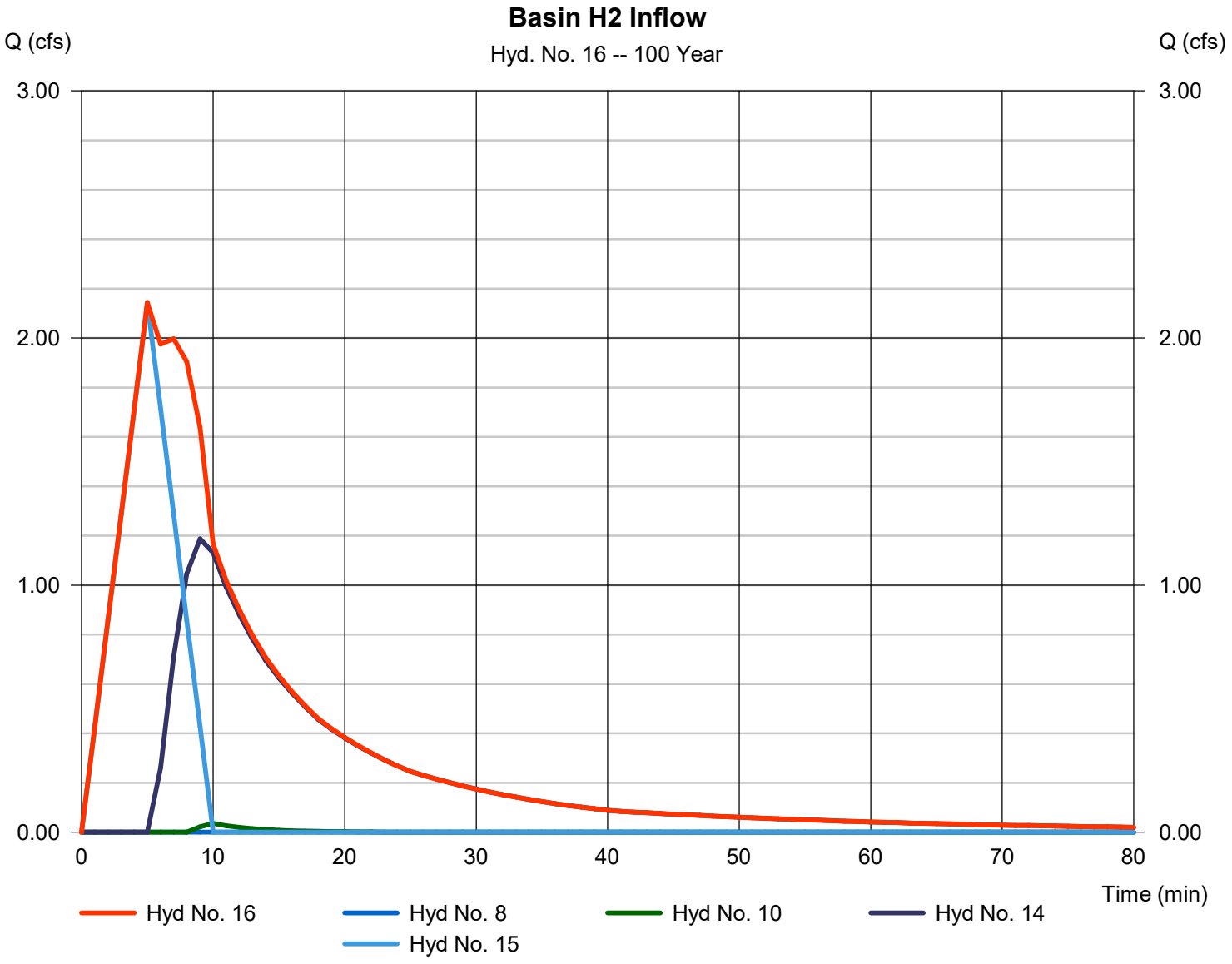


Hydrograph Report

Hyd. No. 16

Basin H2 Inflow

Hydrograph type	=	Combine	Peak discharge	=	2.143 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,650 cuft
Inflow hyds.	=	8, 10, 14, 15	Contrib. drain. area	=	0.330 ac



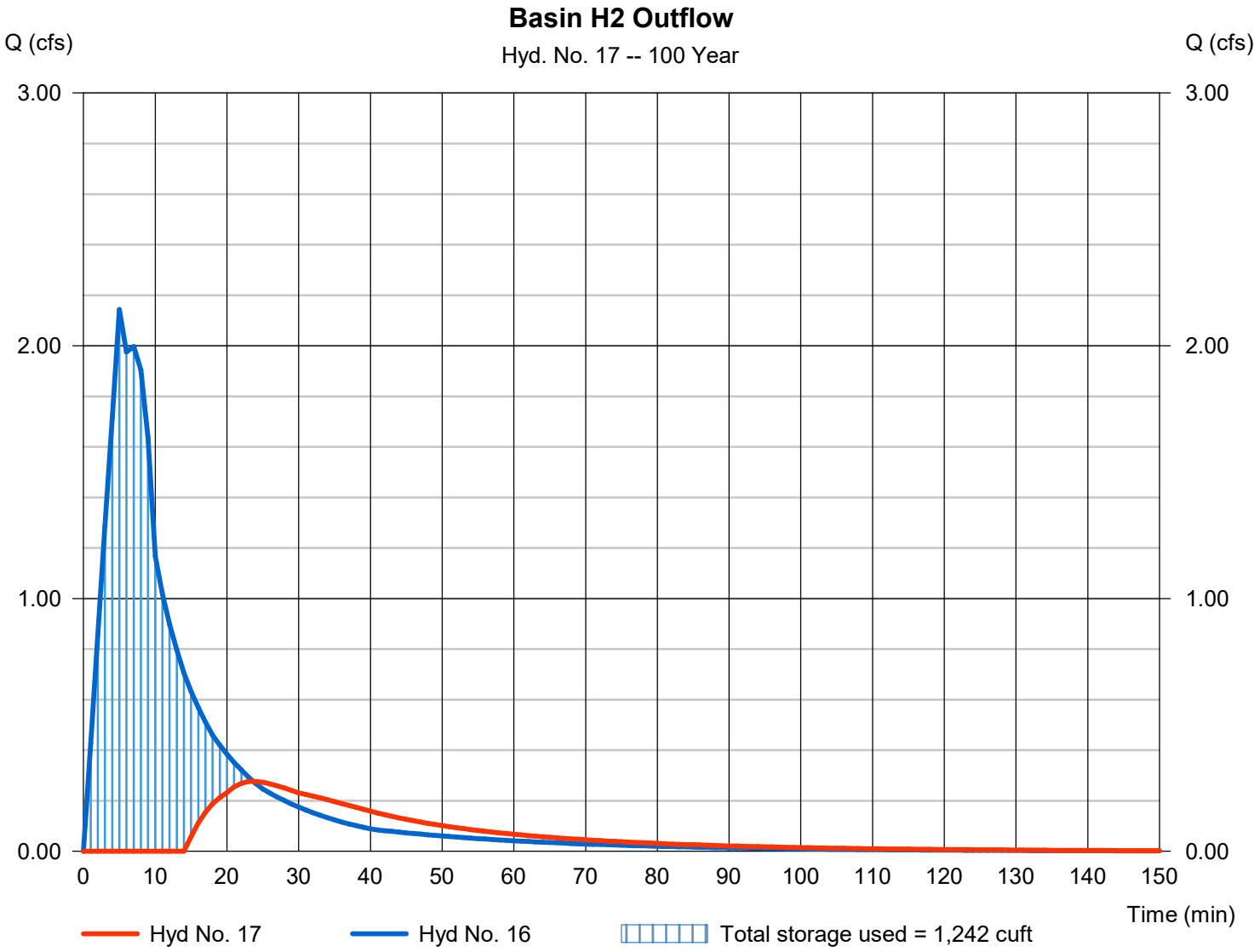
Hydrograph Report

Hyd. No. 17

Basin H2 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.277 cfs
Storm frequency	=	100 yrs	Time to peak	=	24 min
Time interval	=	1 min	Hyd. volume	=	553 cuft
Inflow hyd. No.	=	16 - Basin H2 Inflow	Max. Elevation	=	2642.55 ft
Reservoir name	=	Basin H2	Max. Storage	=	1,242 cuft

Storage Indication method used.

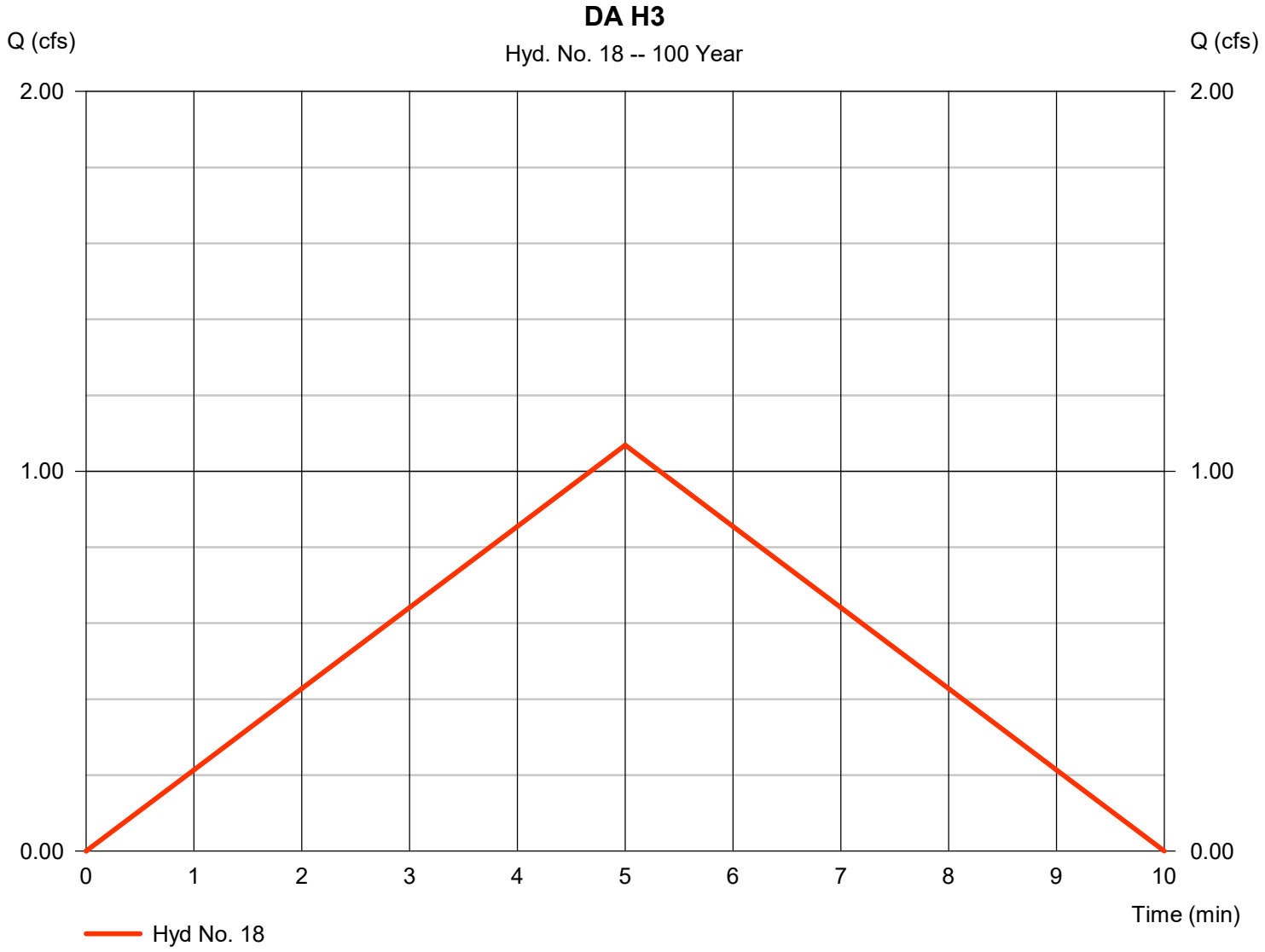


Hydrograph Report

Hyd. No. 18

DA H3

Hydrograph type	=	Rational	Peak discharge	=	1.069 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	321 cuft
Drainage area	=	0.180 ac	Runoff coeff.	=	0.64
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

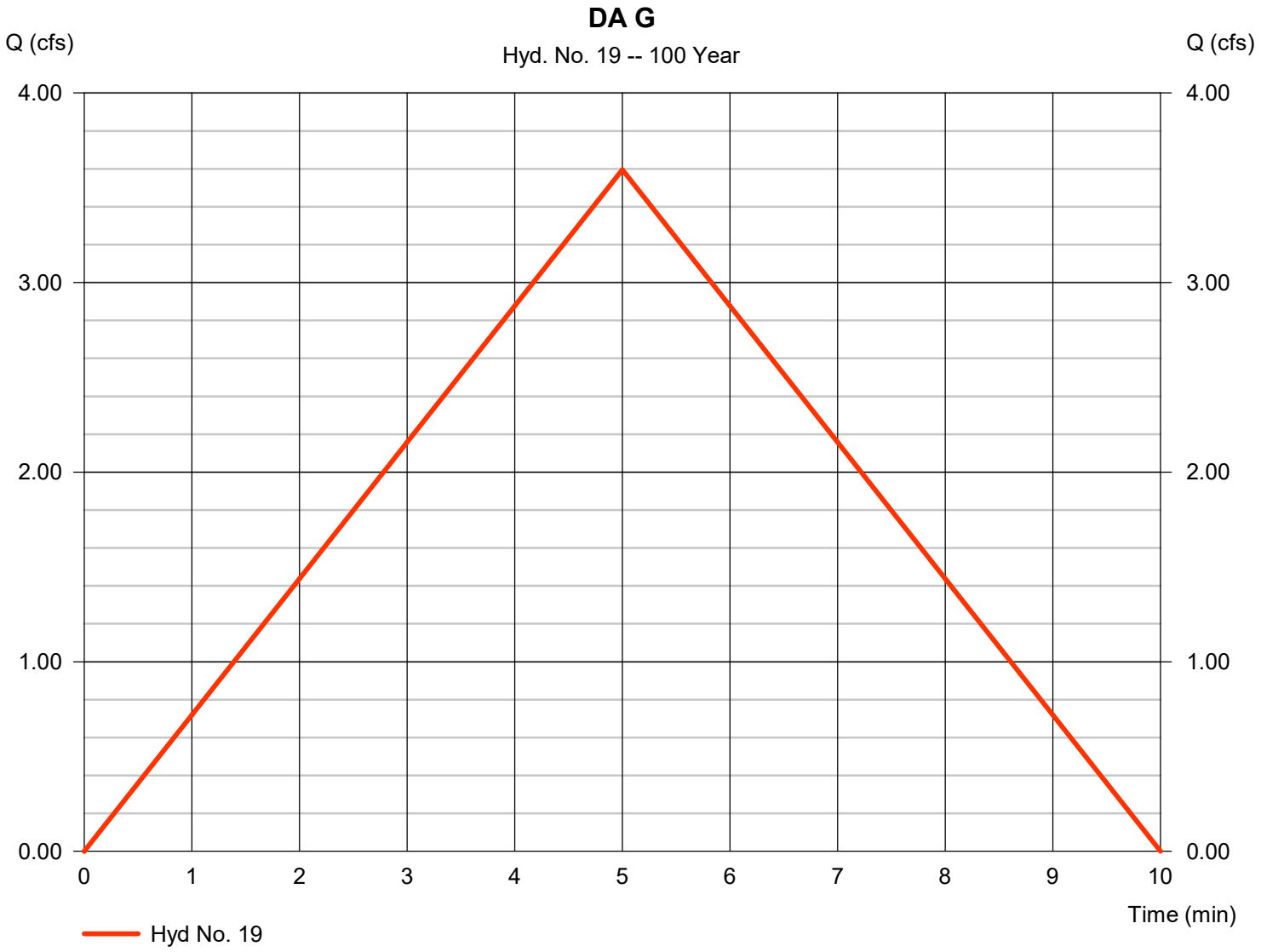


Hydrograph Report

Hyd. No. 19

DA G

Hydrograph type	=	Rational	Peak discharge	=	3.596 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,079 cuft
Drainage area	=	0.570 ac	Runoff coeff.	=	0.68
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

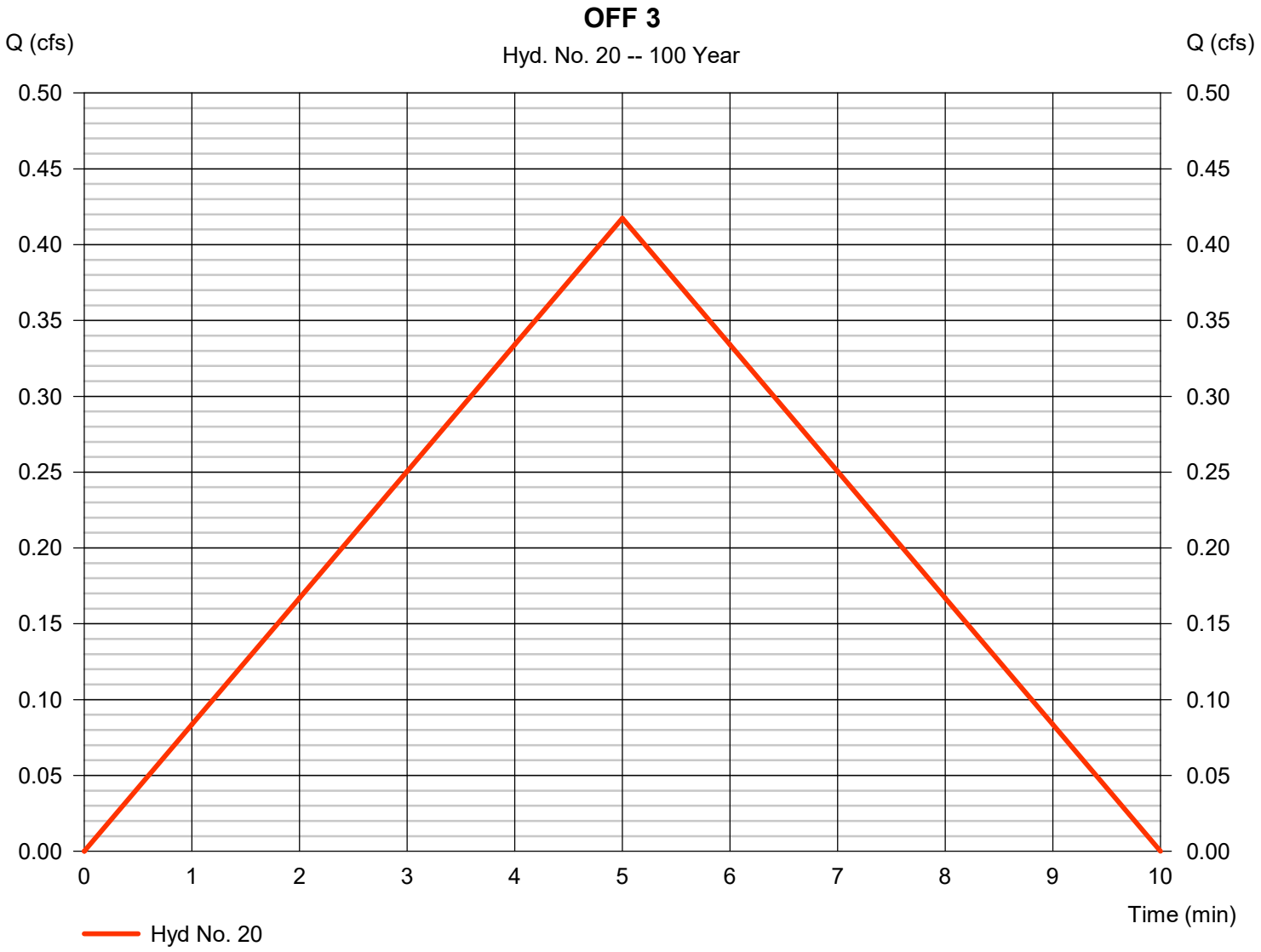


Hydrograph Report

Hyd. No. 20

OFF 3

Hydrograph type	=	Rational	Peak discharge	=	0.417 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	125 cuft
Drainage area	=	0.100 ac	Runoff coeff.	=	0.45
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

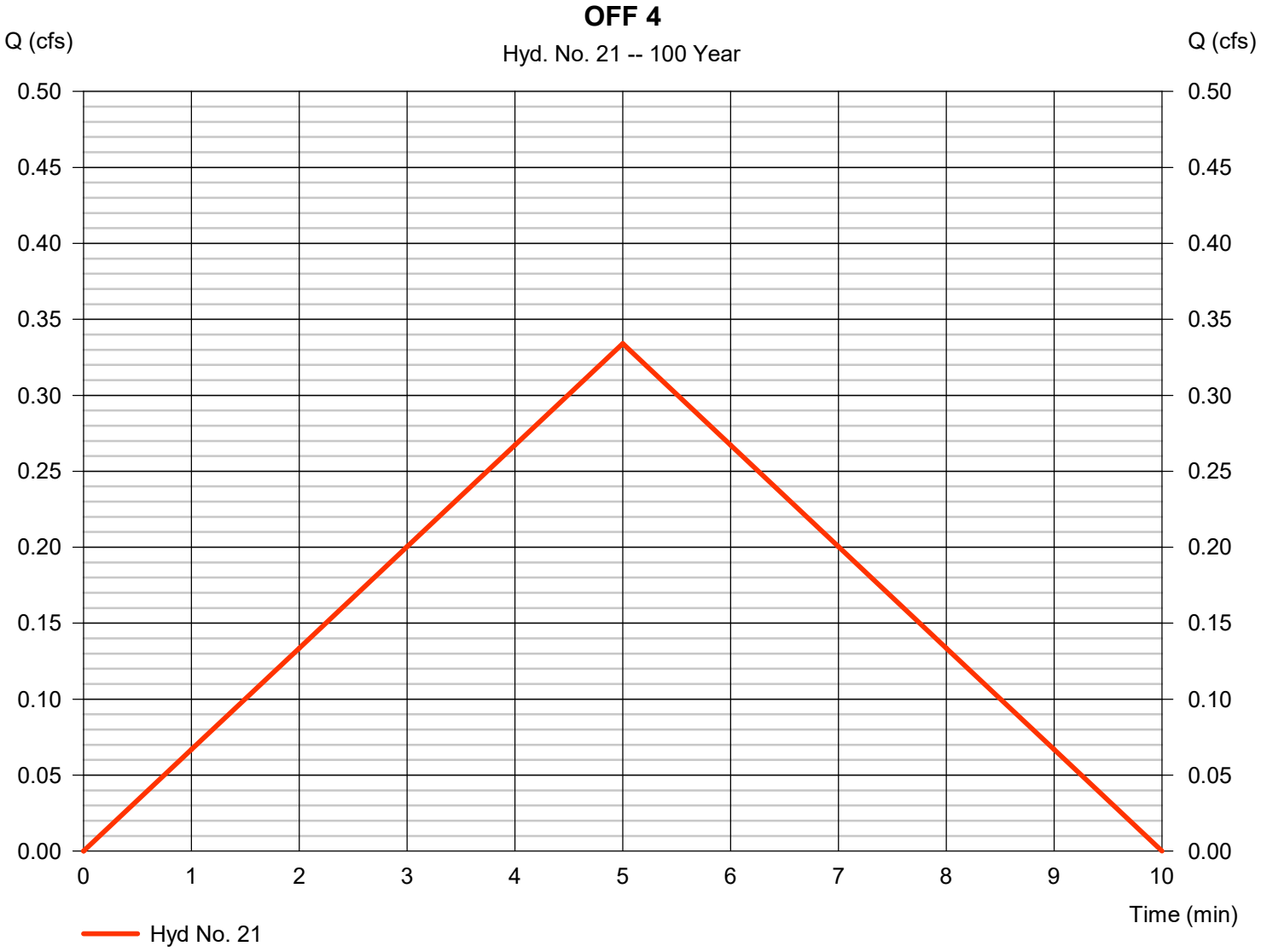


Hydrograph Report

Hyd. No. 21

OFF 4

Hydrograph type	= Rational	Peak discharge	= 0.334 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 100 cuft
Drainage area	= 0.080 ac	Runoff coeff.	= 0.45
Intensity	= 9.278 in/hr	Tc by User	= 5.00 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

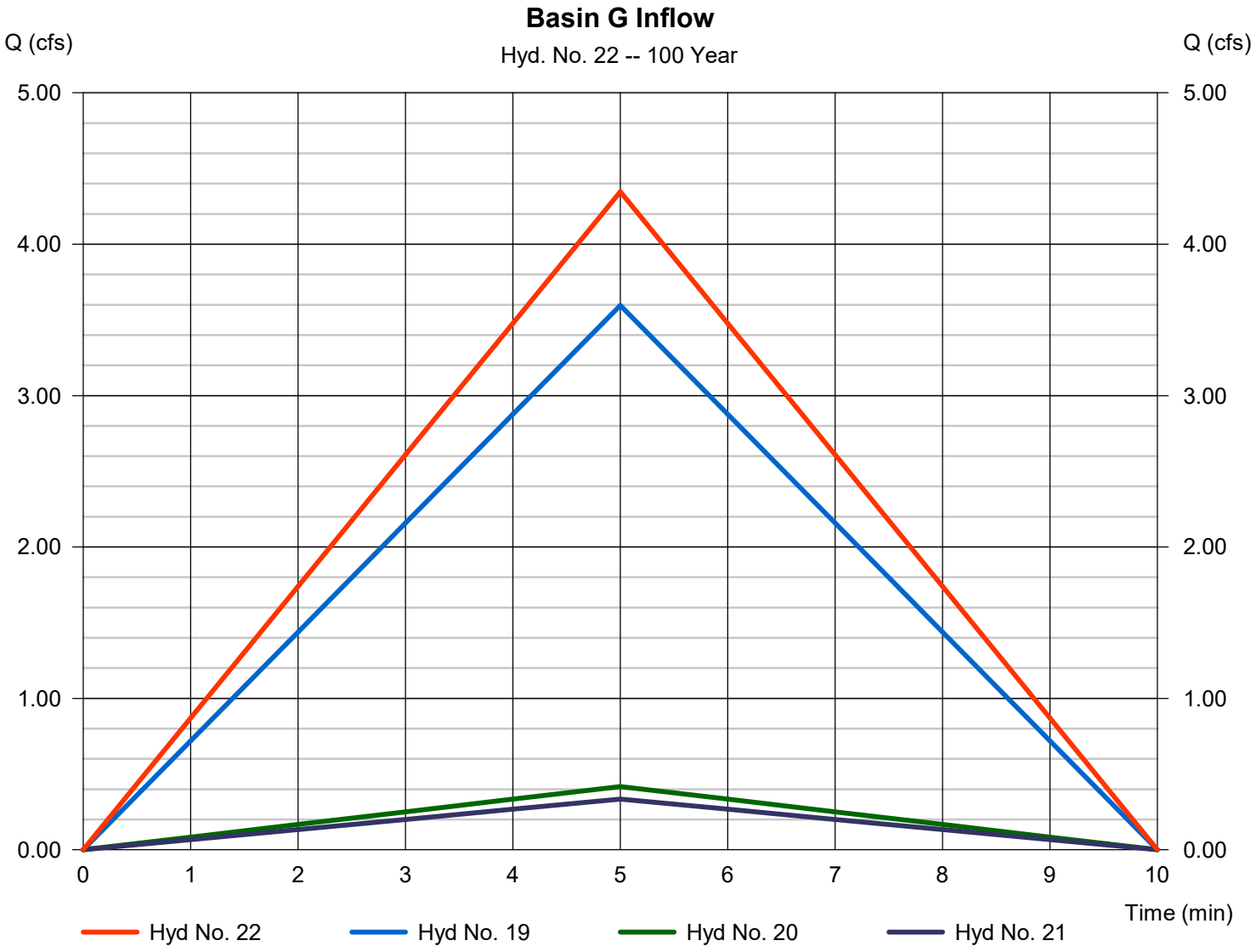


Hydrograph Report

Hyd. No. 22

Basin G Inflow

Hydrograph type	=	Combine	Peak discharge	=	4.347 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,304 cuft
Inflow hyds.	=	19, 20, 21	Contrib. drain. area	=	0.750 ac

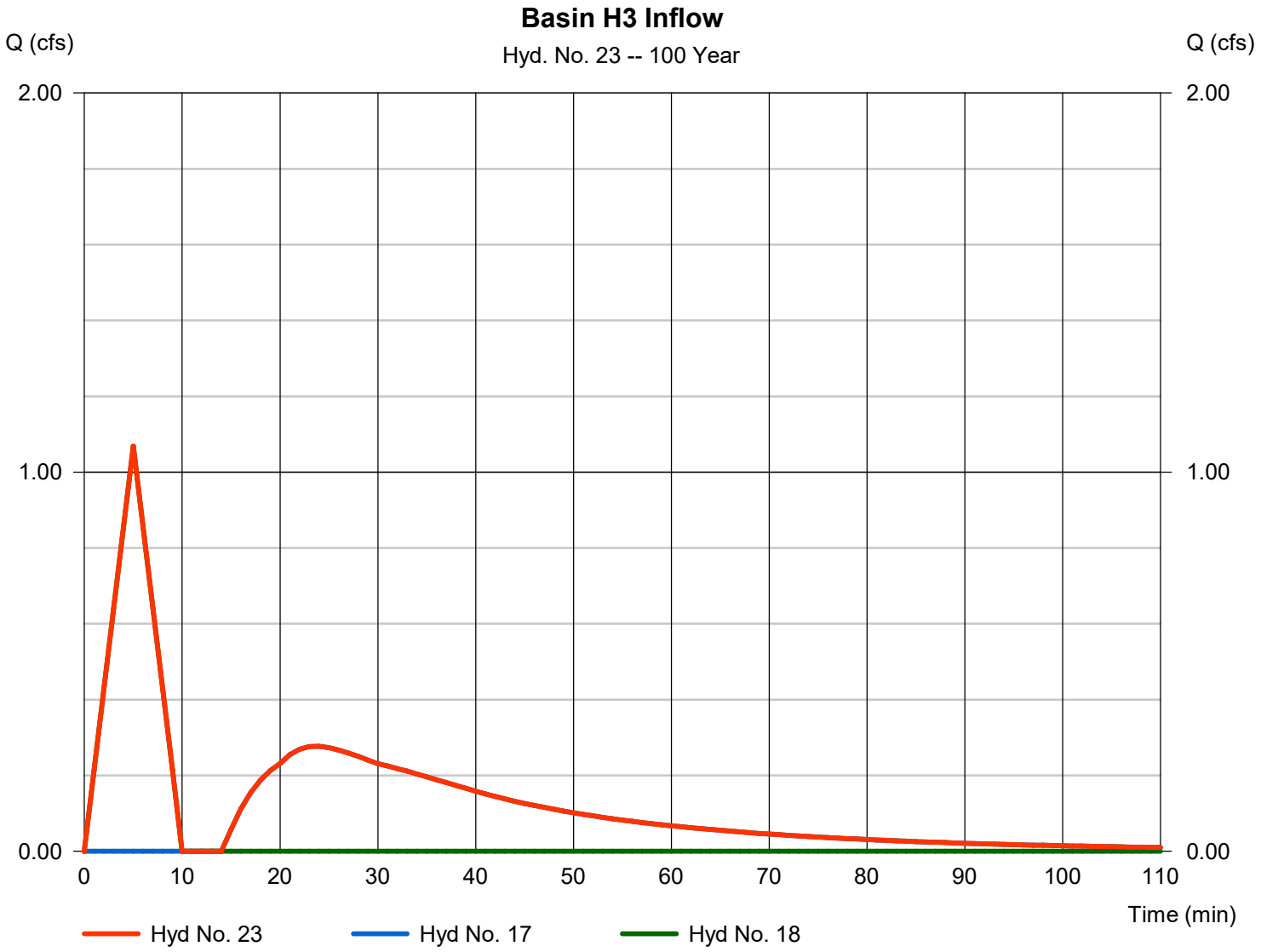


Hydrograph Report

Hyd. No. 23

Basin H3 Inflow

Hydrograph type	=	Combine	Peak discharge	=	1.069 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	874 cuft
Inflow hyds.	=	17, 18	Contrib. drain. area	=	0.180 ac



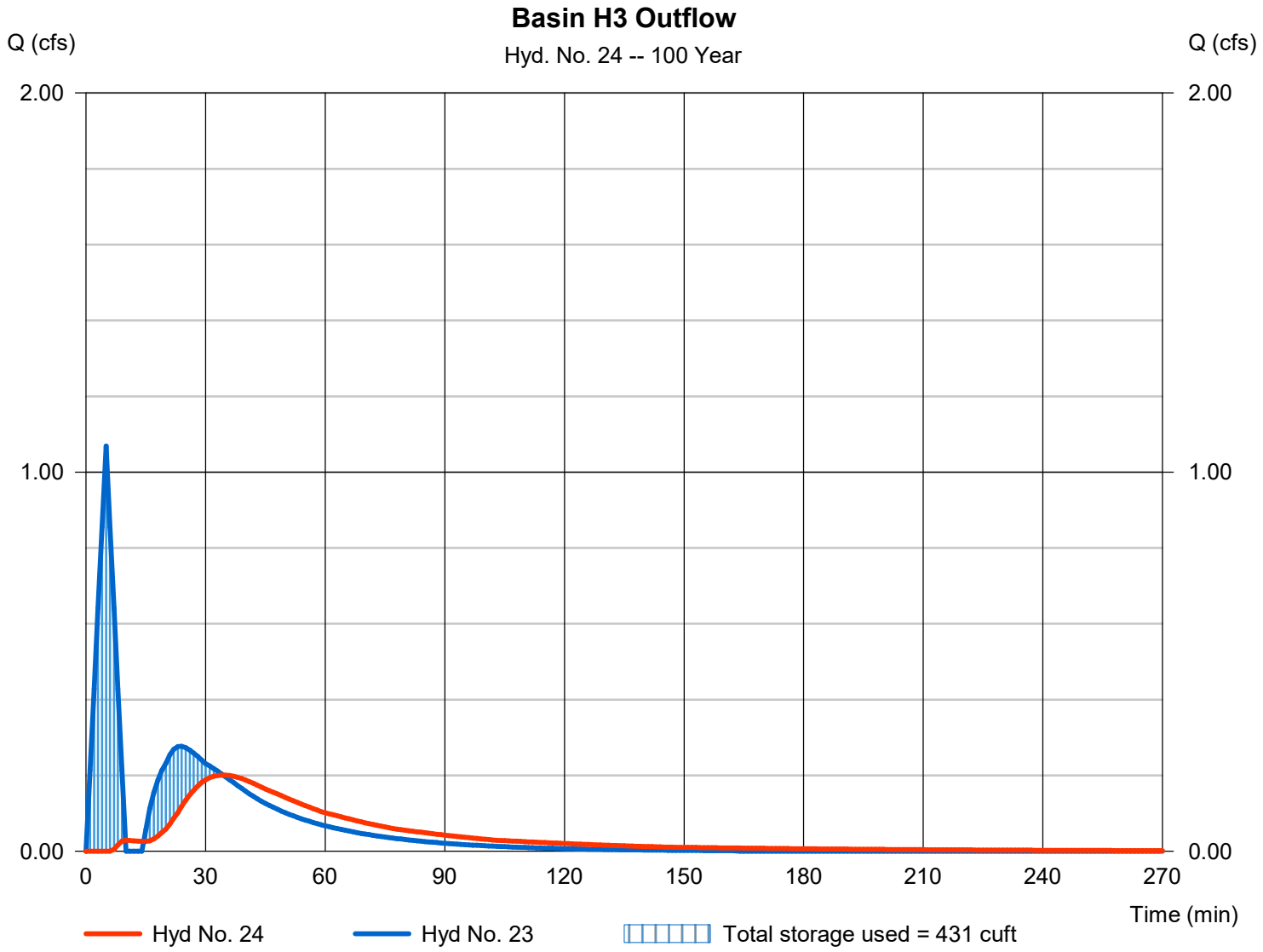
Hydrograph Report

Hyd. No. 24

Basin H3 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.201 cfs
Storm frequency	=	100 yrs	Time to peak	=	34 min
Time interval	=	1 min	Hyd. volume	=	639 cuft
Inflow hyd. No.	=	23 - Basin H3 Inflow	Max. Elevation	=	2642.32 ft
Reservoir name	=	Basin H3	Max. Storage	=	431 cuft

Storage Indication method used.

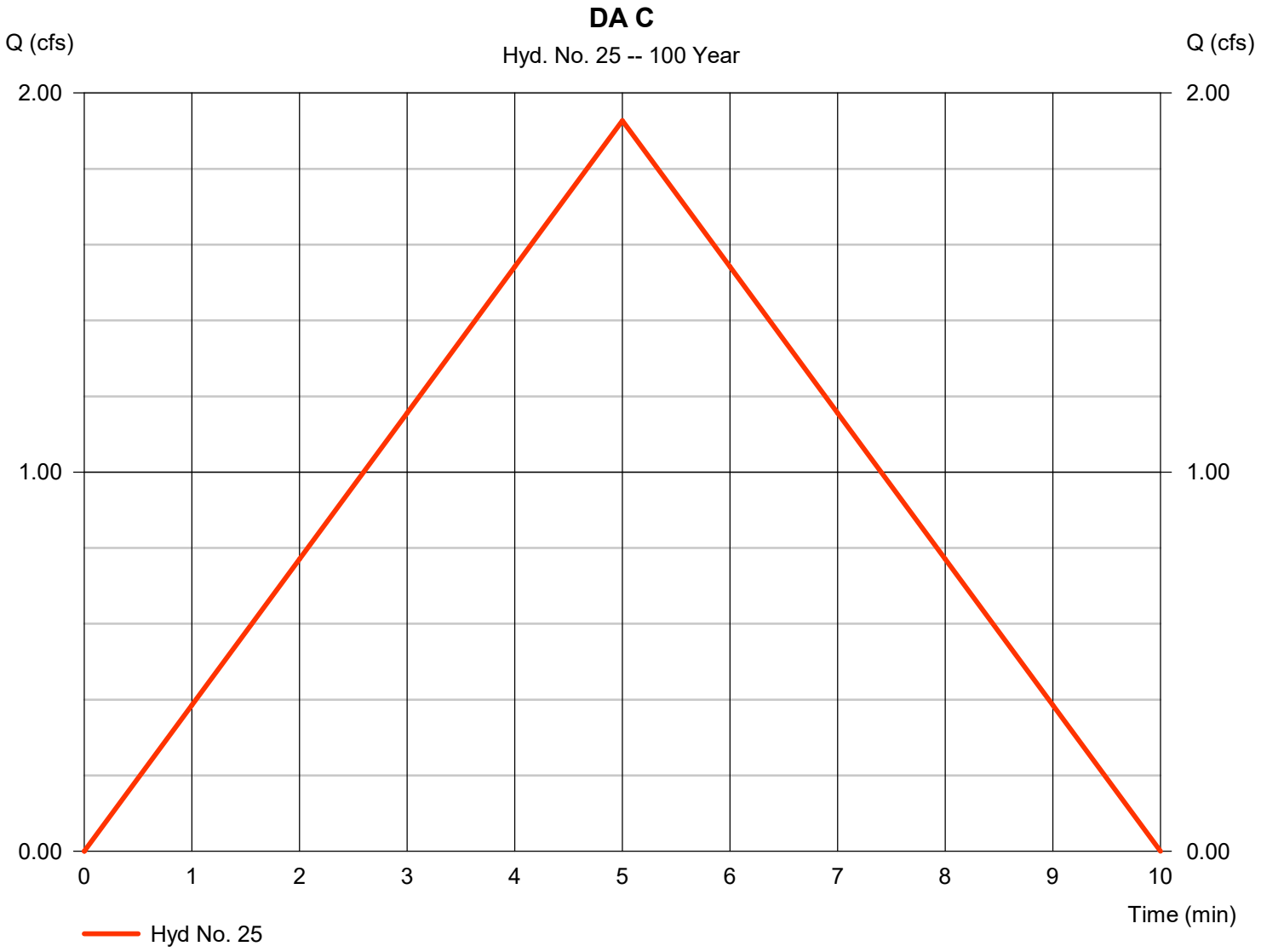


Hydrograph Report

Hyd. No. 25

DA C

Hydrograph type	=	Rational	Peak discharge	=	1.927 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	578 cuft
Drainage area	=	0.310 ac	Runoff coeff.	=	0.67
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

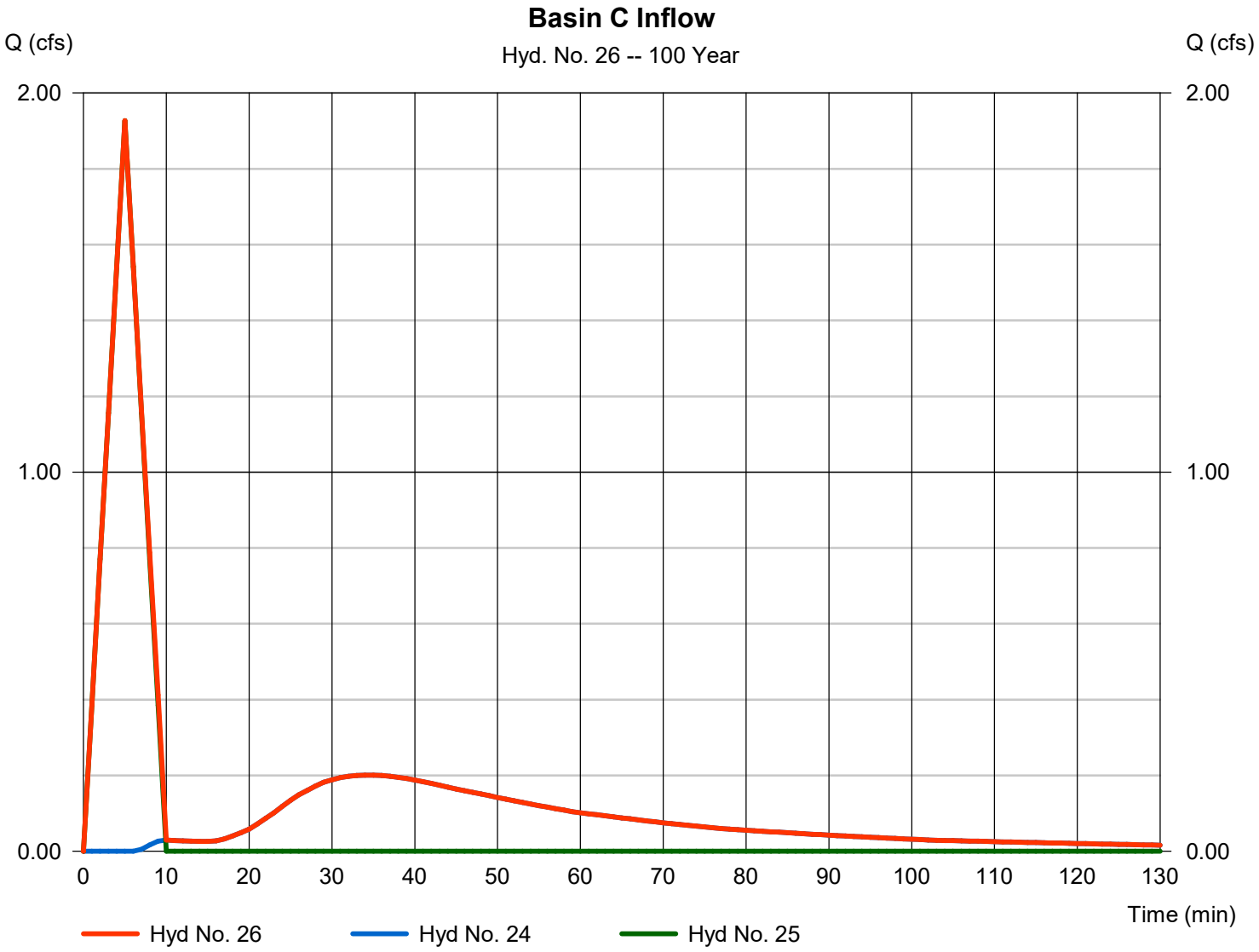


Hydrograph Report

Hyd. No. 26

Basin C Inflow

Hydrograph type	= Combine	Peak discharge	= 1.927 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,217 cuft
Inflow hyds.	= 24, 25	Contrib. drain. area	= 0.310 ac



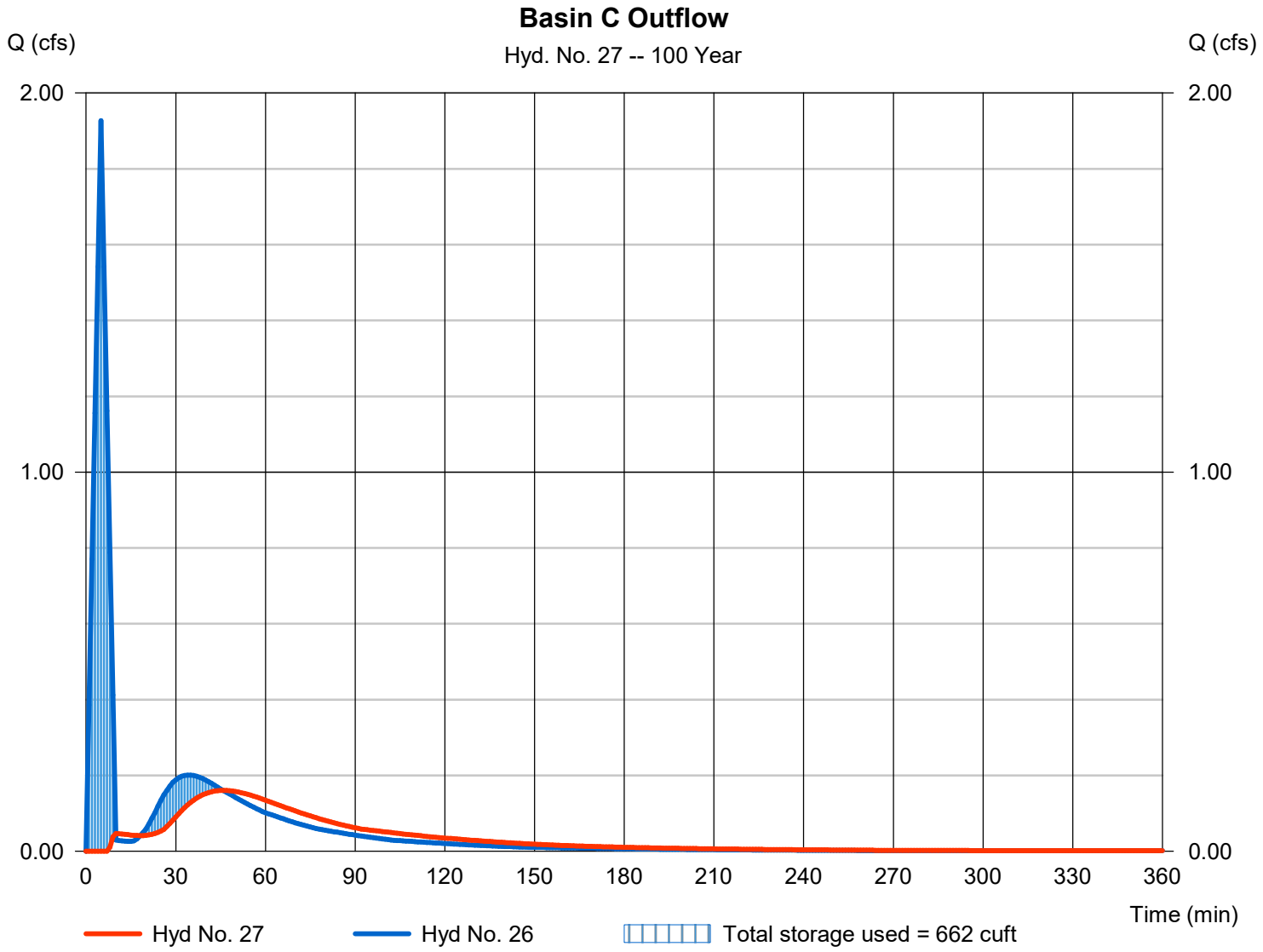
Hydrograph Report

Hyd. No. 27

Basin C Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.160 cfs
Storm frequency	=	100 yrs	Time to peak	=	46 min
Time interval	=	1 min	Hyd. volume	=	698 cuft
Inflow hyd. No.	=	26 - Basin C Inflow	Max. Elevation	=	2639.10 ft
Reservoir name	=	Basin C	Max. Storage	=	662 cuft

Storage Indication method used.



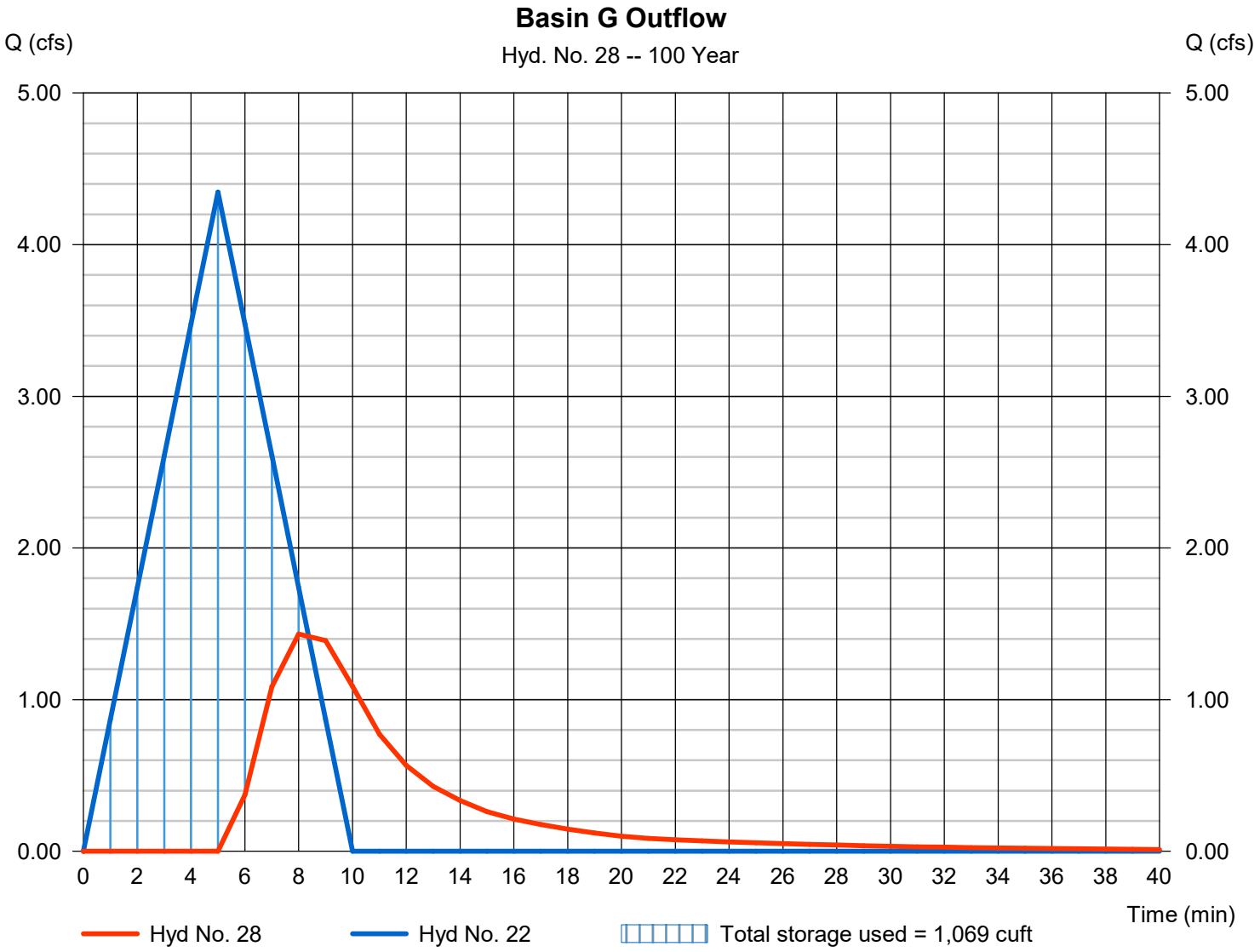
Hydrograph Report

Hyd. No. 28

Basin G Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.432 cfs
Storm frequency	=	100 yrs	Time to peak	=	8 min
Time interval	=	1 min	Hyd. volume	=	559 cuft
Inflow hyd. No.	=	22 - Basin G Inflow	Max. Elevation	=	2640.32 ft
Reservoir name	=	Basin G	Max. Storage	=	1,069 cuft

Storage Indication method used.

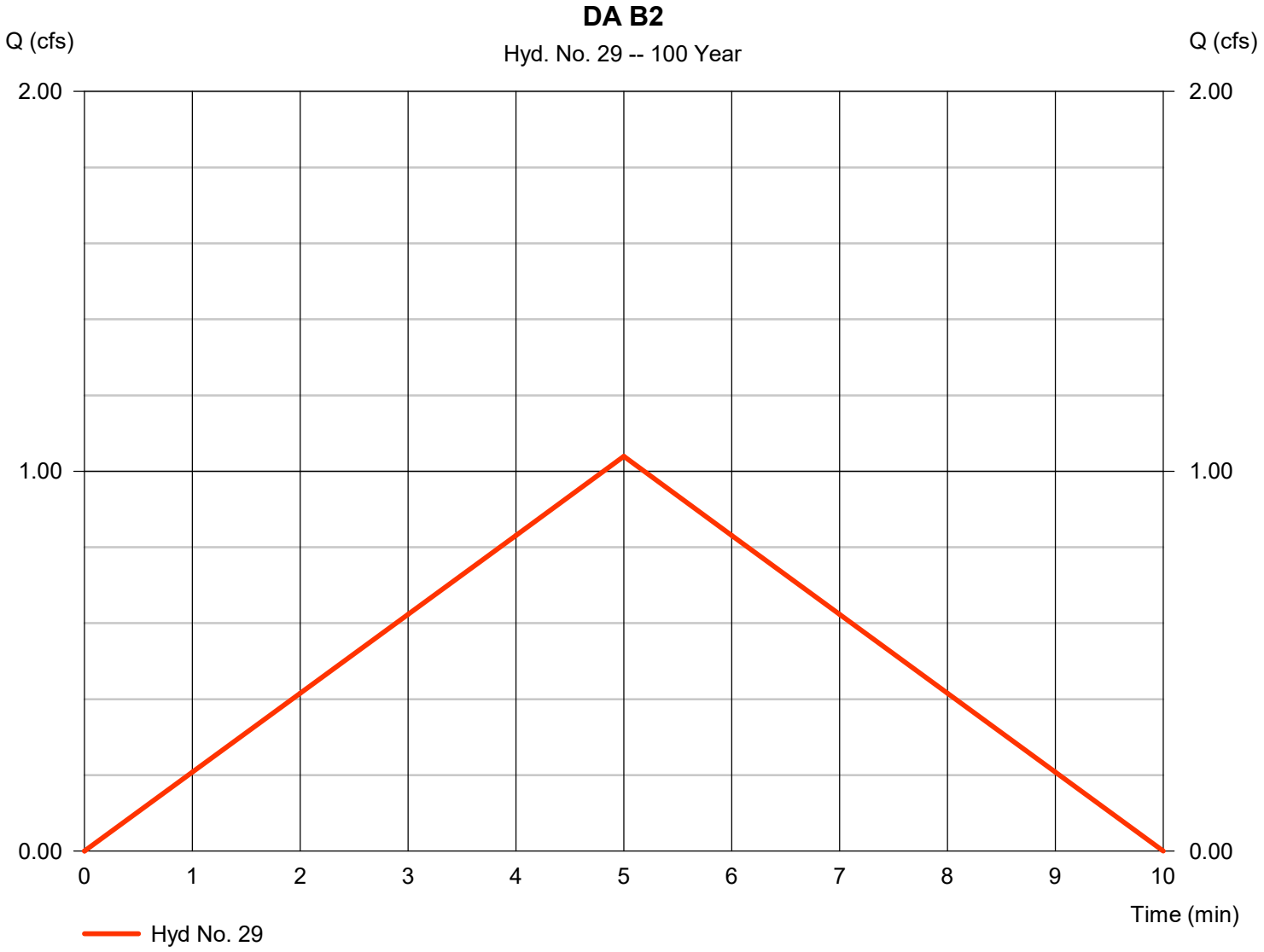


Hydrograph Report

Hyd. No. 29

DA B2

Hydrograph type	=	Rational	Peak discharge	=	1.039 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	312 cuft
Drainage area	=	0.160 ac	Runoff coeff.	=	0.7
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

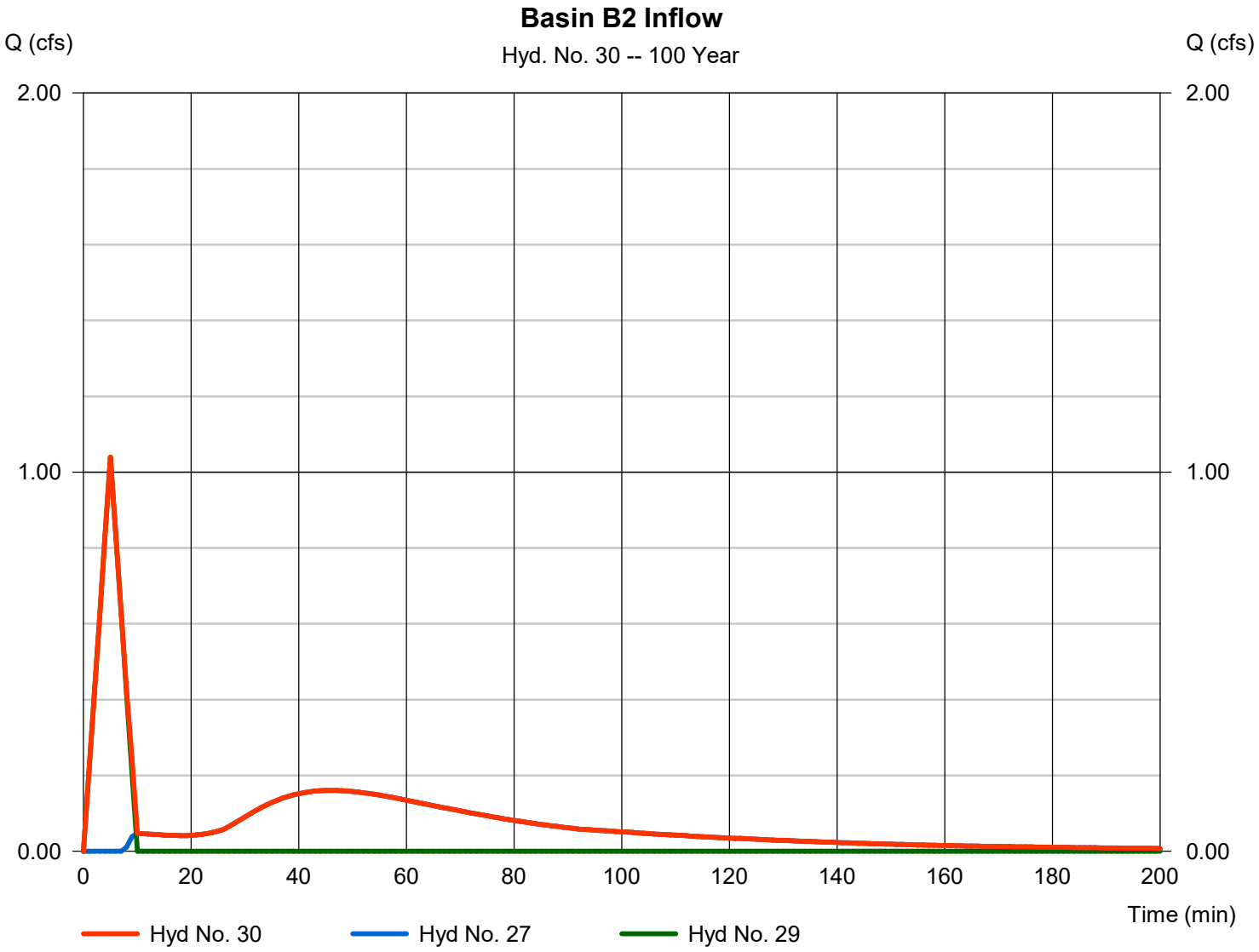


Hydrograph Report

Hyd. No. 30

Basin B2 Inflow

Hydrograph type	= Combine	Peak discharge	= 1.039 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,009 cuft
Inflow hyds.	= 27, 29	Contrib. drain. area	= 0.160 ac



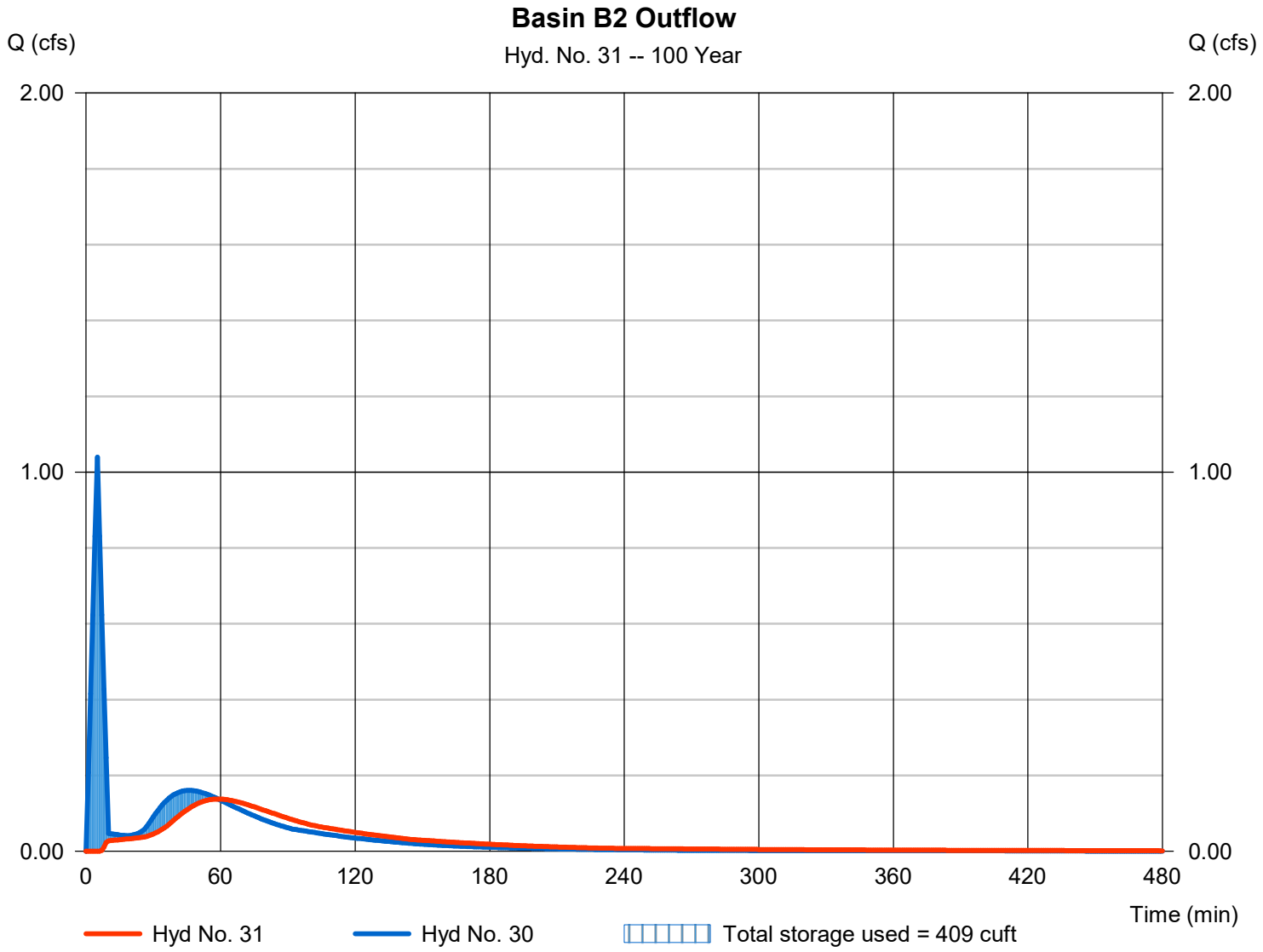
Hydrograph Report

Hyd. No. 31

Basin B2 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.138 cfs
Storm frequency	=	100 yrs	Time to peak	=	59 min
Time interval	=	1 min	Hyd. volume	=	760 cuft
Inflow hyd. No.	=	30 - Basin B2 Inflow	Max. Elevation	=	2638.22 ft
Reservoir name	=	Basin B2	Max. Storage	=	409 cuft

Storage Indication method used.

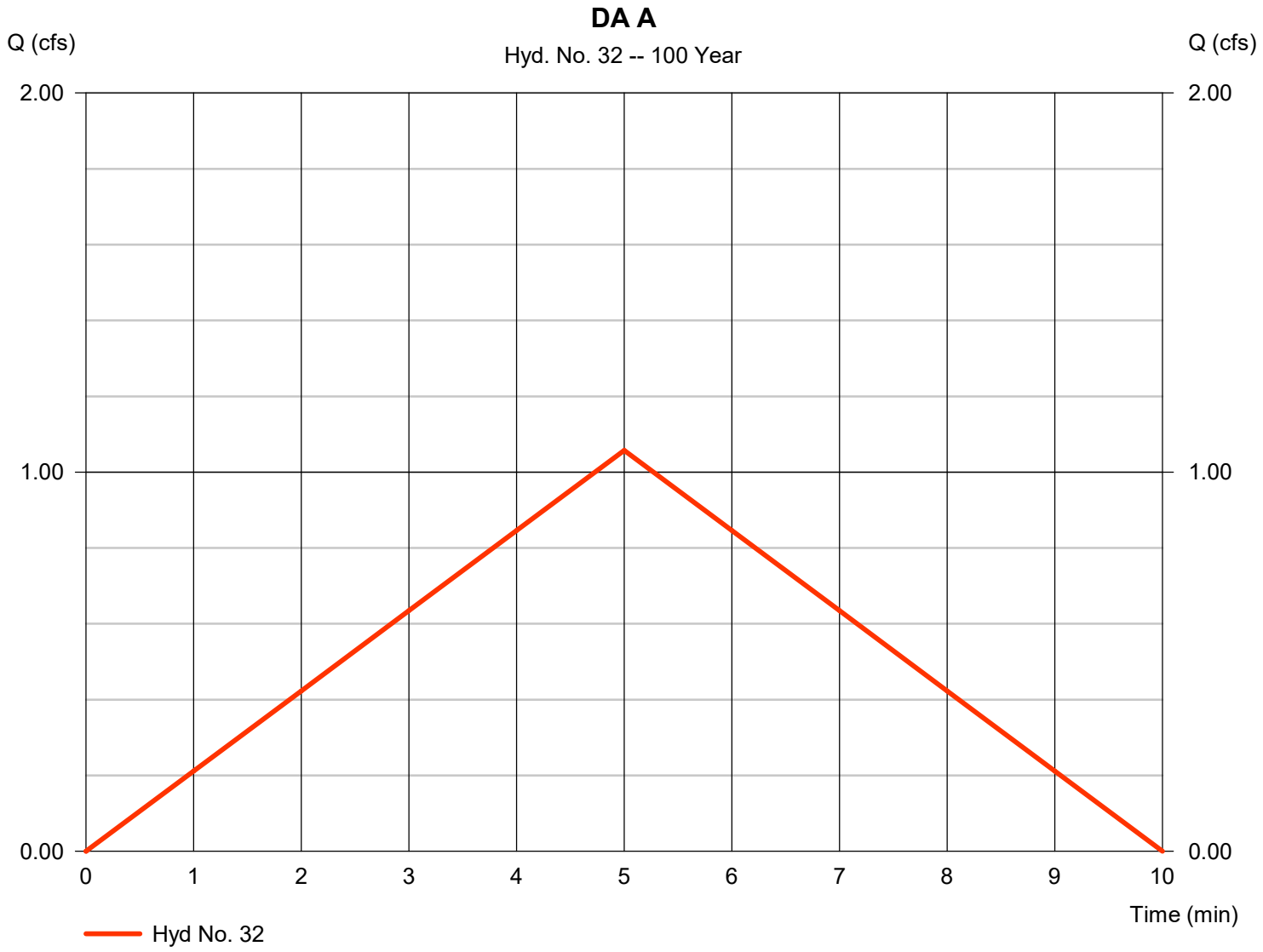


Hydrograph Report

Hyd. No. 32

DA A

Hydrograph type	=	Rational	Peak discharge	=	1.058 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	317 cuft
Drainage area	=	0.190 ac	Runoff coeff.	=	0.6
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



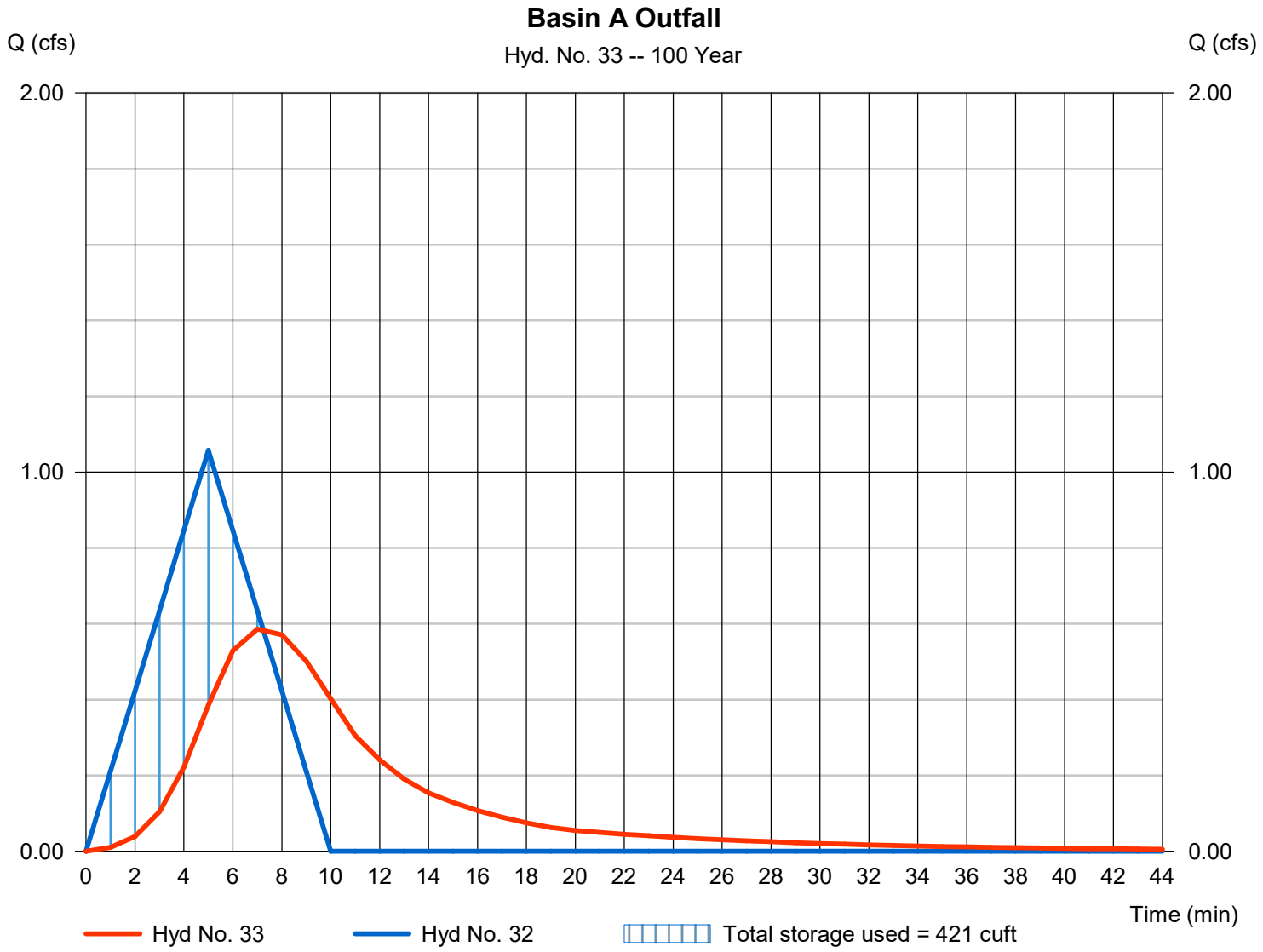
Hydrograph Report

Hyd. No. 33

Basin A Outfall

Hydrograph type	=	Reservoir	Peak discharge	=	0.586 cfs
Storm frequency	=	100 yrs	Time to peak	=	7 min
Time interval	=	1 min	Hyd. volume	=	317 cuft
Inflow hyd. No.	=	32 - DA A	Max. Elevation	=	2639.63 ft
Reservoir name	=	Basin A	Max. Storage	=	421 cuft

Storage Indication method used. Wet pond routing start elevation = 2639.40 ft.

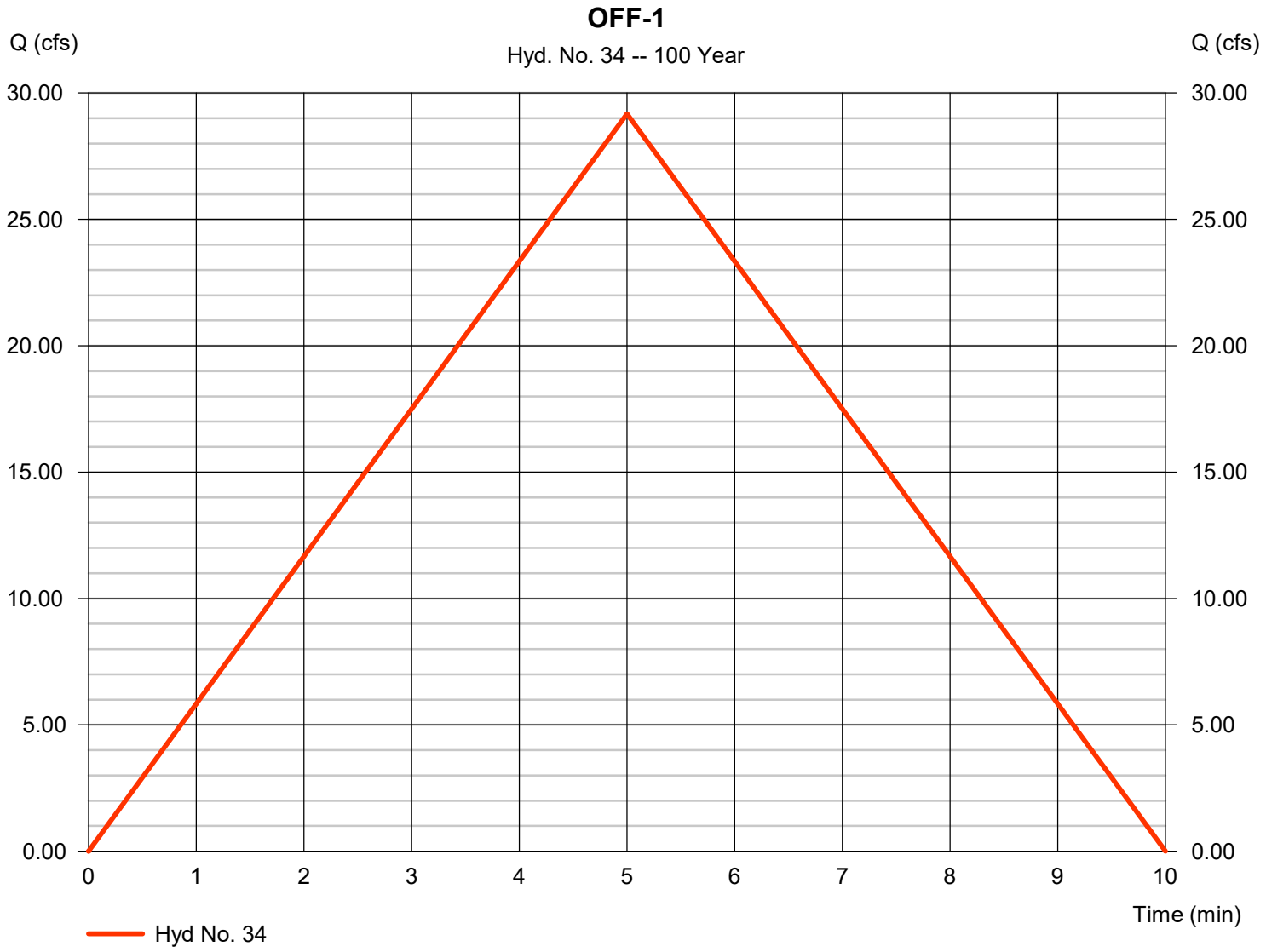


Hydrograph Report

Hyd. No. 34

OFF-1

Hydrograph type	=	Rational	Peak discharge	=	29.17 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	8,752 cuft
Drainage area	=	3.310 ac	Runoff coeff.	=	0.95
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

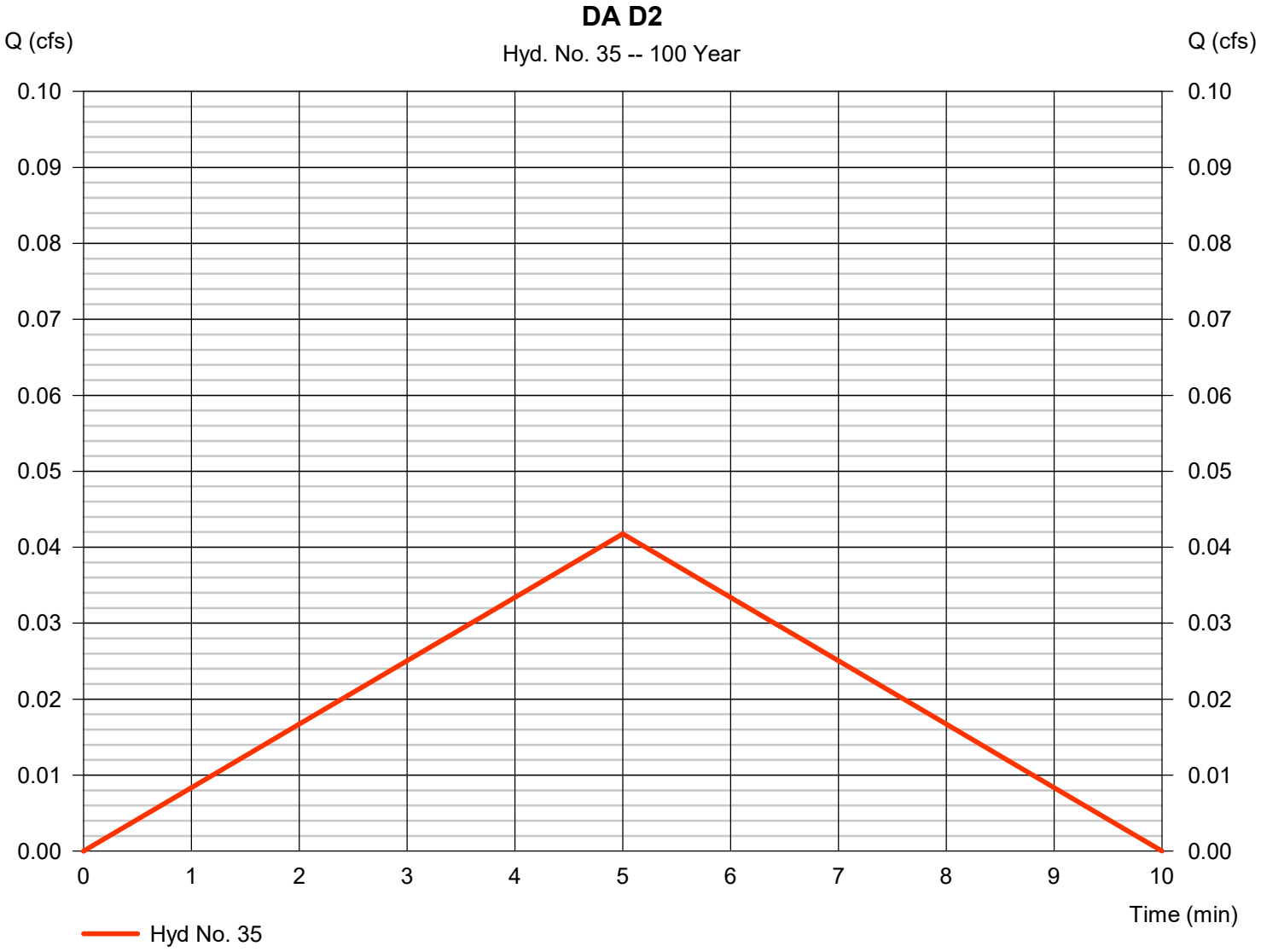


Hydrograph Report

Hyd. No. 35

DA D2

Hydrograph type	=	Rational	Peak discharge	=	0.042 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	13 cuft
Drainage area	=	0.010 ac	Runoff coeff.	=	0.45
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

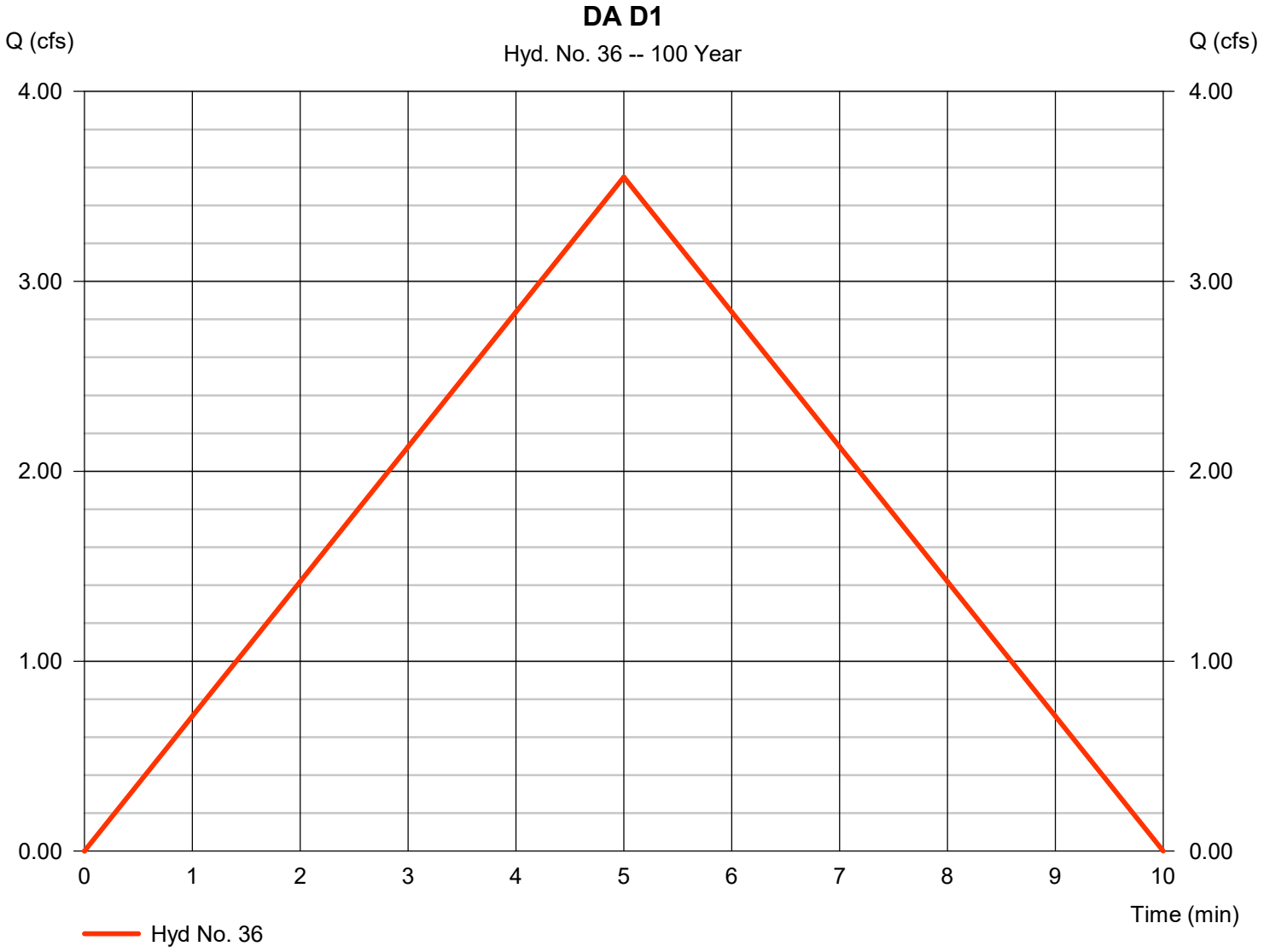


Hydrograph Report

Hyd. No. 36

DA D1

Hydrograph type	=	Rational	Peak discharge	=	3.549 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,065 cuft
Drainage area	=	0.450 ac	Runoff coeff.	=	0.85
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

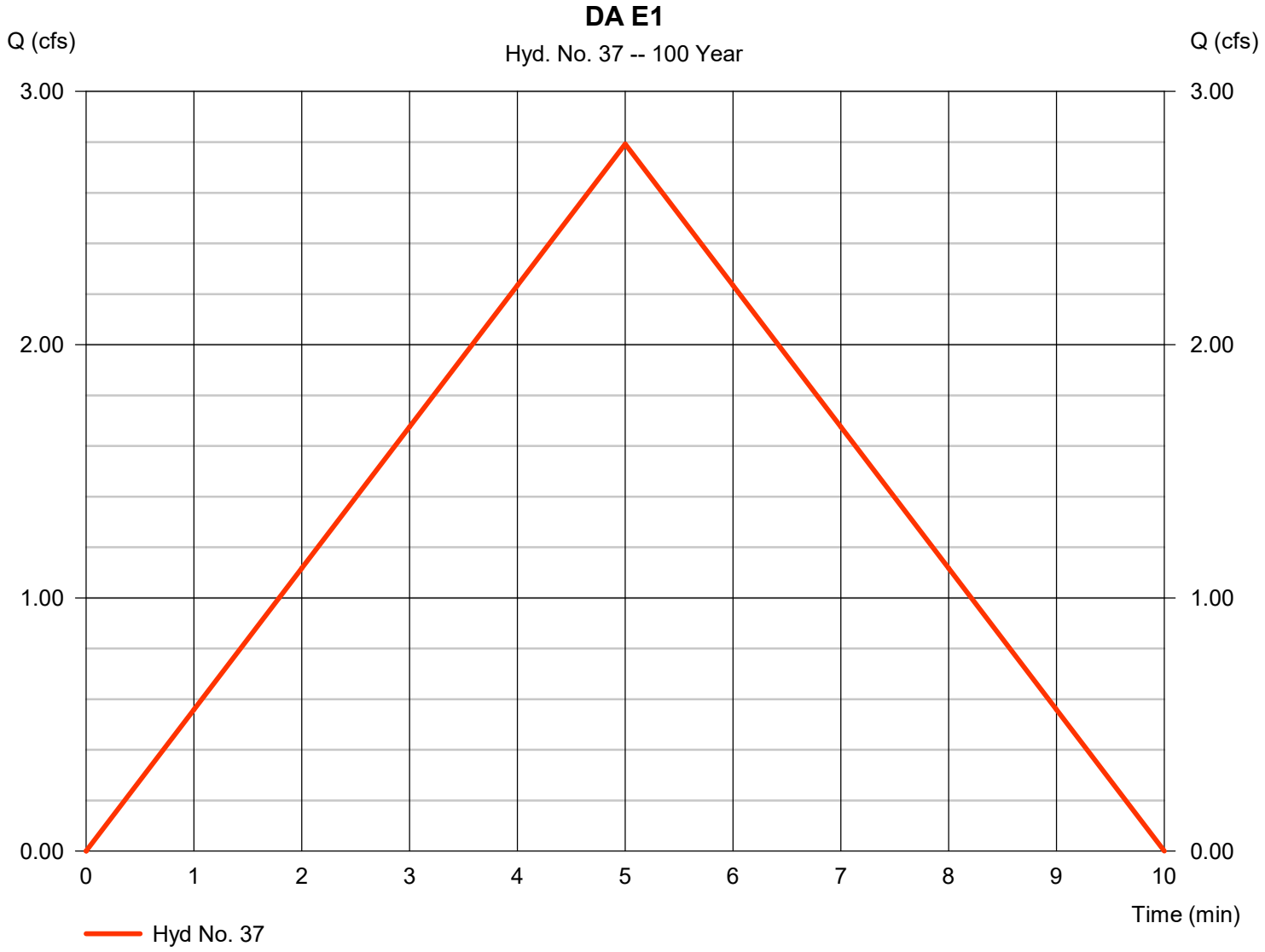


Hydrograph Report

Hyd. No. 37

DA E1

Hydrograph type	=	Rational	Peak discharge	=	2.793 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	838 cuft
Drainage area	=	0.350 ac	Runoff coeff.	=	0.86
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1



Hydrograph Report

Hyd. No. 38

DA E2

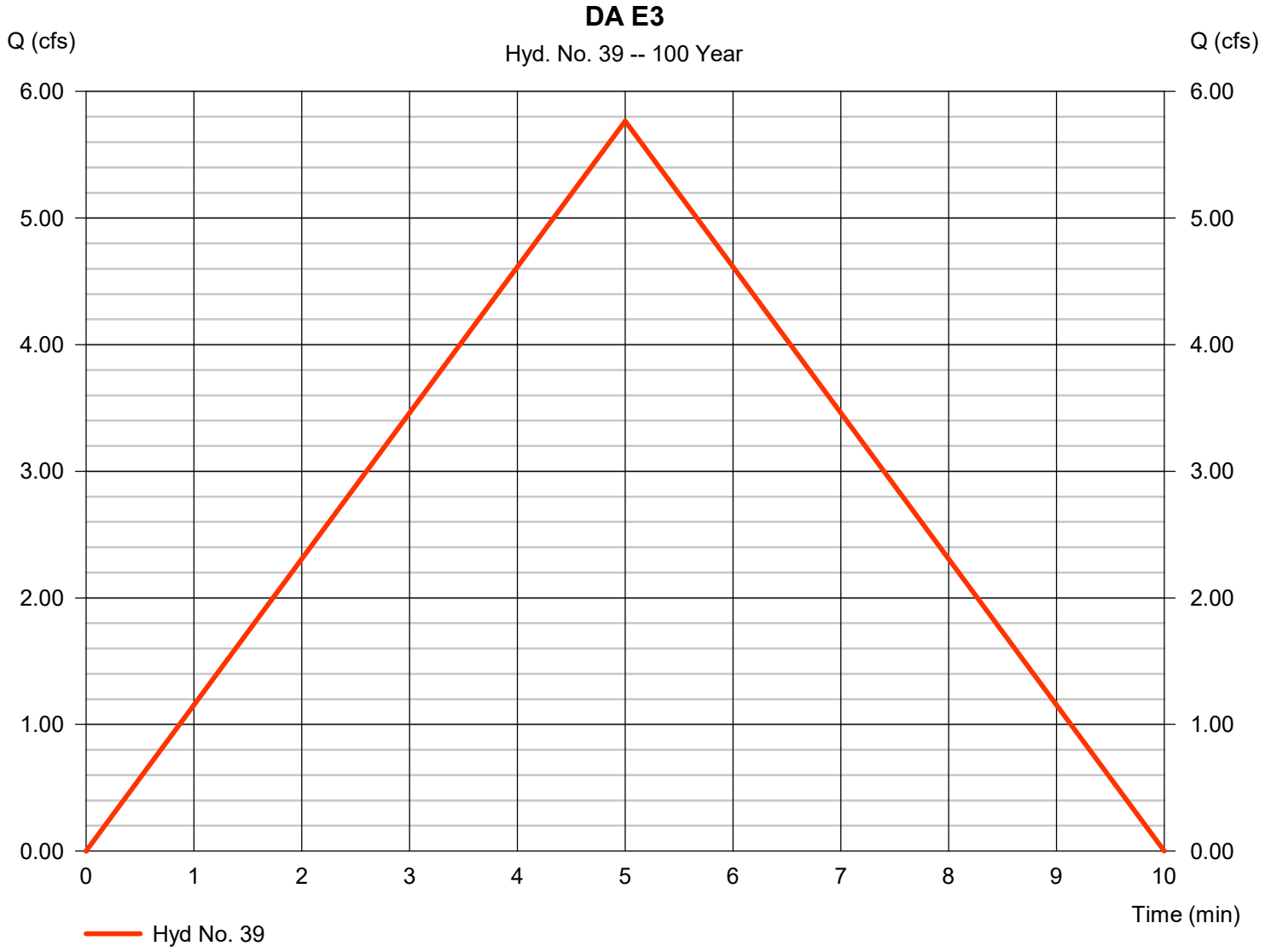
Hydrograph type	=	Rational	Peak discharge	=	2.613 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	784 cuft
Drainage area	=	0.320 ac	Runoff coeff.	=	0.88
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

Hydrograph Report

Hyd. No. 39

DA E3

Hydrograph type	=	Rational	Peak discharge	=	5.767 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,730 cuft
Drainage area	=	0.740 ac	Runoff coeff.	=	0.84
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

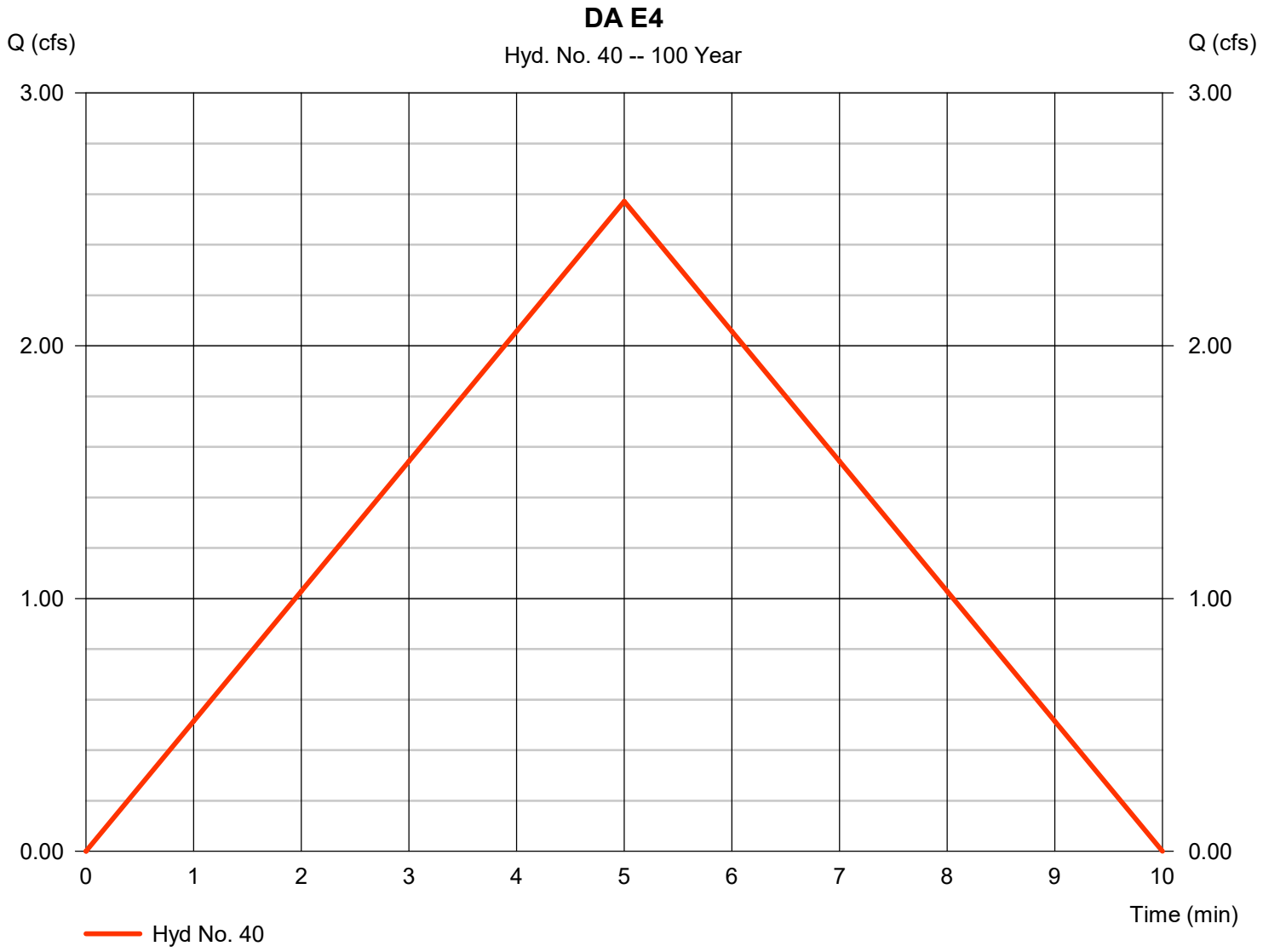


Hydrograph Report

Hyd. No. 40

DA E4

Hydrograph type	=	Rational	Peak discharge	=	2.572 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	772 cuft
Drainage area	=	0.360 ac	Runoff coeff.	=	0.77
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

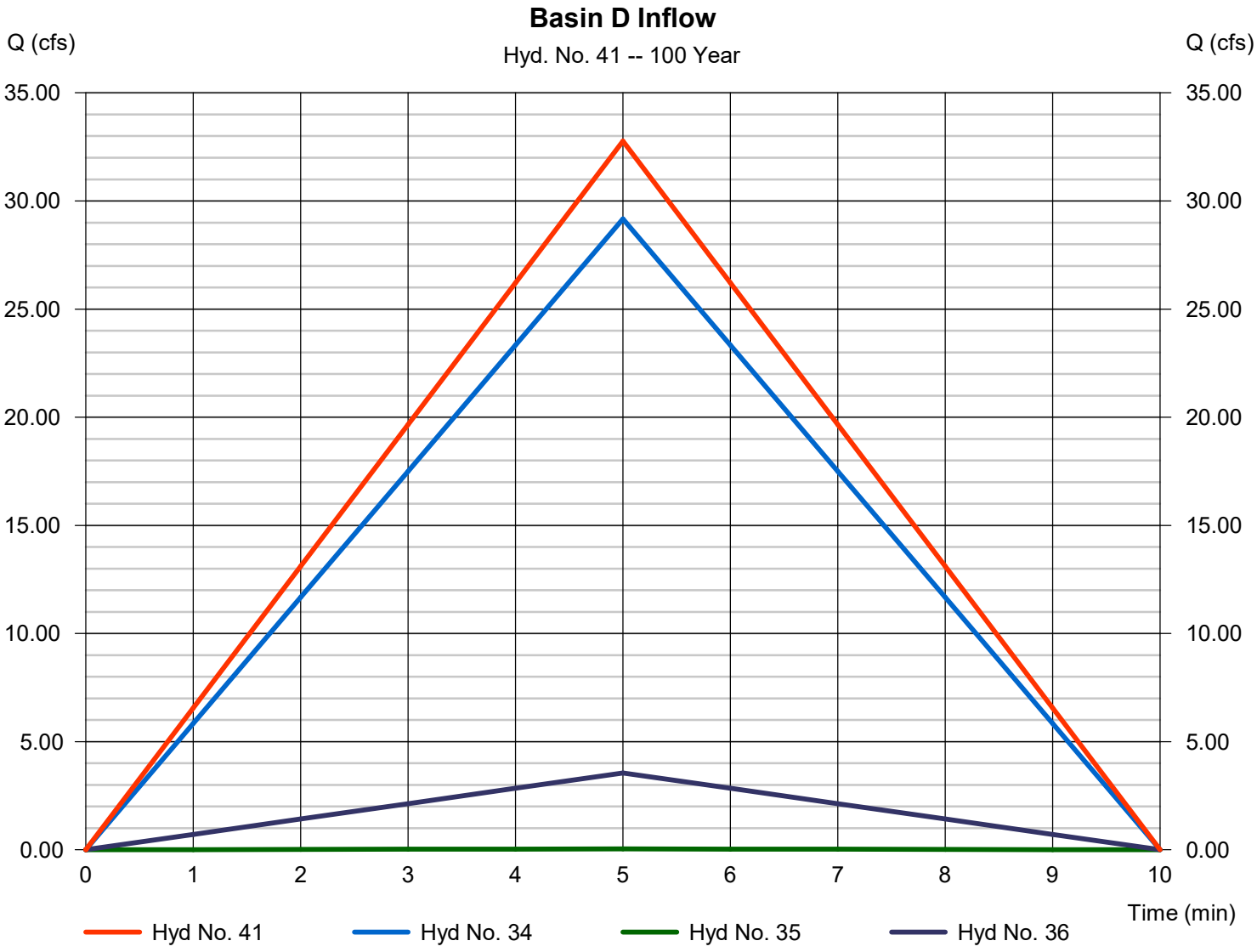


Hydrograph Report

Hyd. No. 41

Basin D Inflow

Hydrograph type	=	Combine	Peak discharge	=	32.76 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	9,829 cuft
Inflow hyds.	=	34, 35, 36	Contrib. drain. area	=	3.770 ac



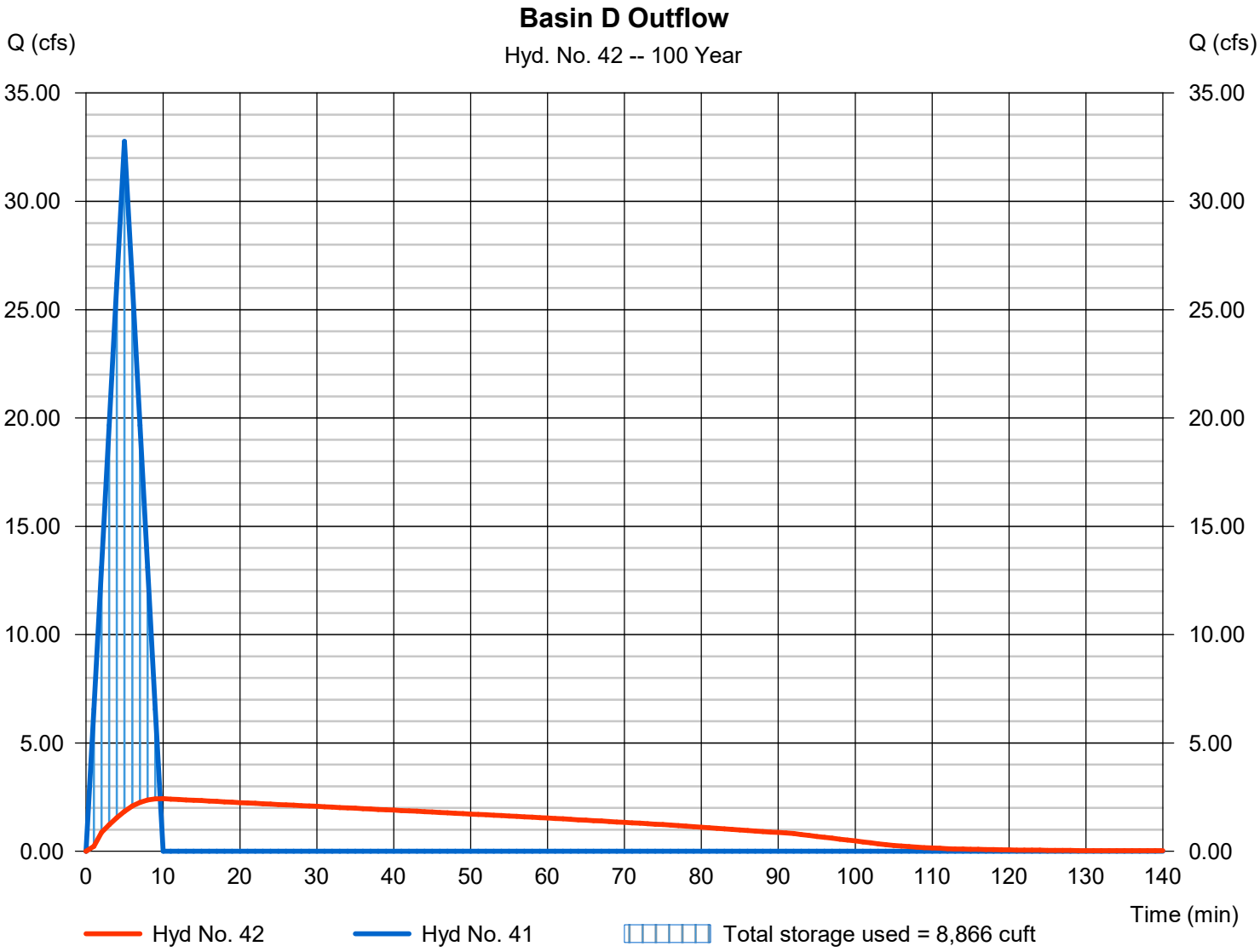
Hydrograph Report

Hyd. No. 42

Basin D Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	2.426 cfs
Storm frequency	=	100 yrs	Time to peak	=	10 min
Time interval	=	1 min	Hyd. volume	=	9,827 cuft
Inflow hyd. No.	=	41 - Basin D Inflow	Max. Elevation	=	2637.84 ft
Reservoir name	=	Basin D	Max. Storage	=	8,866 cuft

Storage Indication method used.

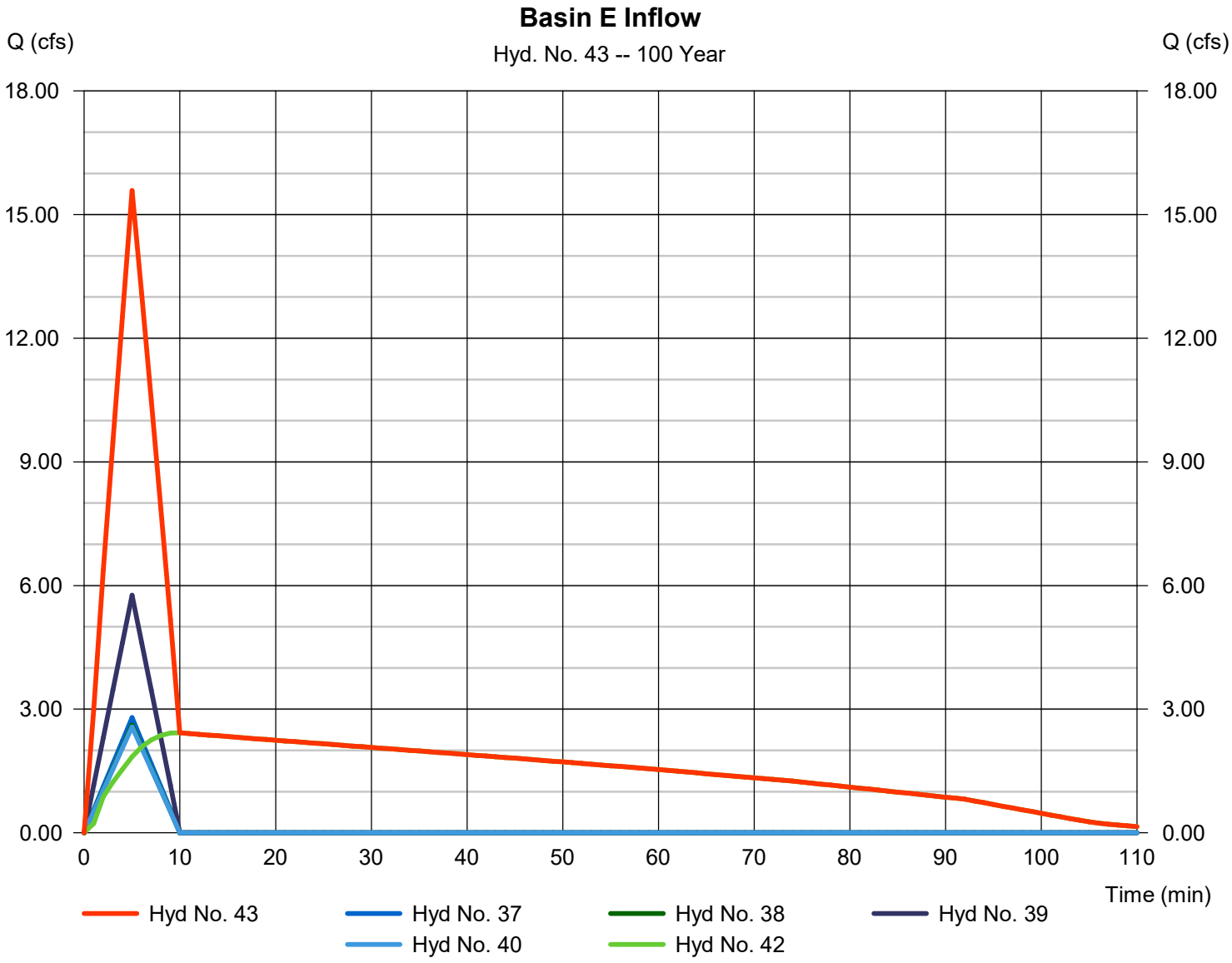


Hydrograph Report

Hyd. No. 43

Basin E Inflow

Hydrograph type	=	Combine	Peak discharge	=	15.59 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	13,950 cuft
Inflow hyds.	=	37, 38, 39, 40, 42	Contrib. drain. area	=	1.770 ac



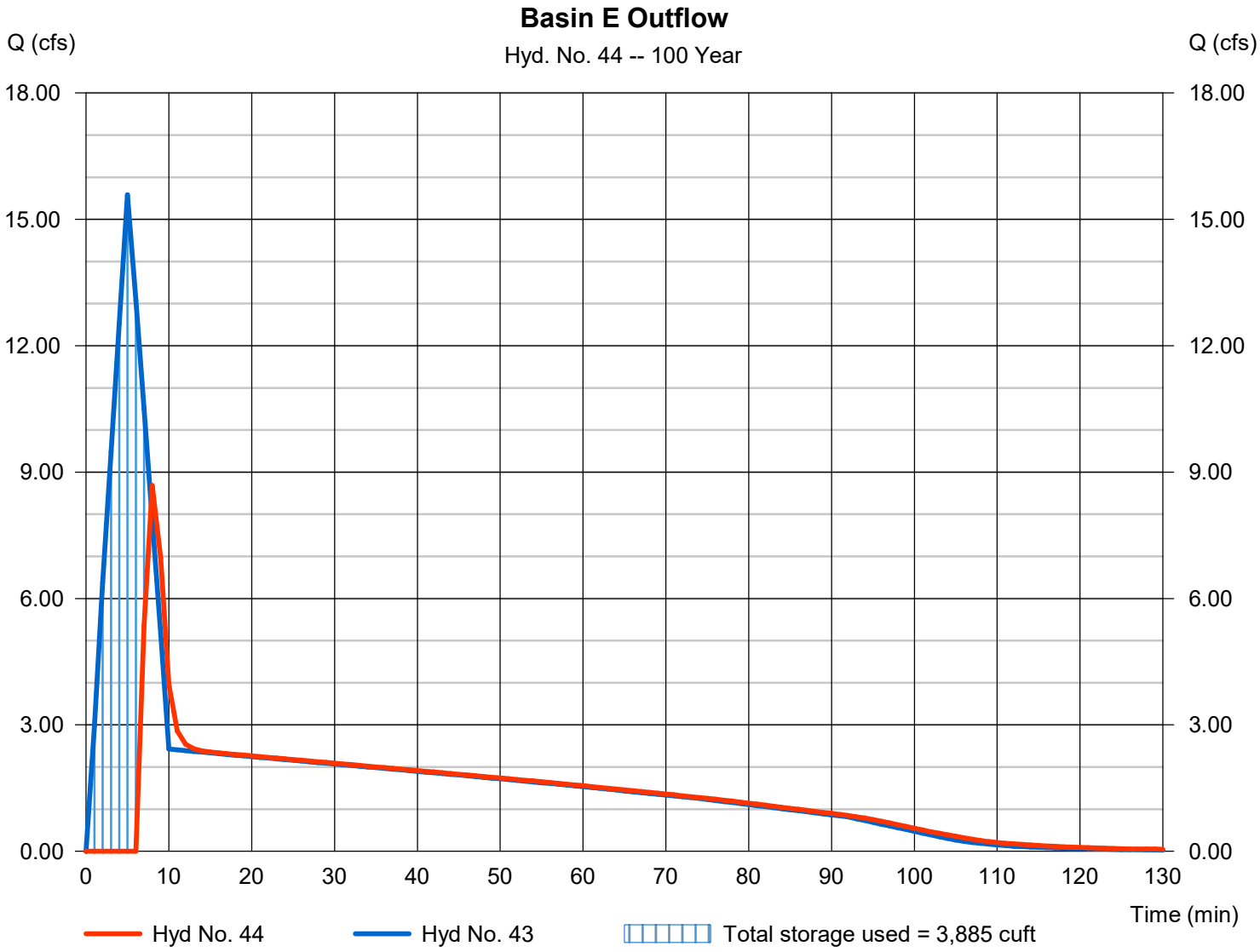
Hydrograph Report

Hyd. No. 44

Basin E Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	8.685 cfs
Storm frequency	=	100 yrs	Time to peak	=	8 min
Time interval	=	1 min	Hyd. volume	=	10,581 cuft
Inflow hyd. No.	=	43 - Basin E Inflow	Max. Elevation	=	2635.79 ft
Reservoir name	=	Basin E	Max. Storage	=	3,885 cuft

Storage Indication method used.

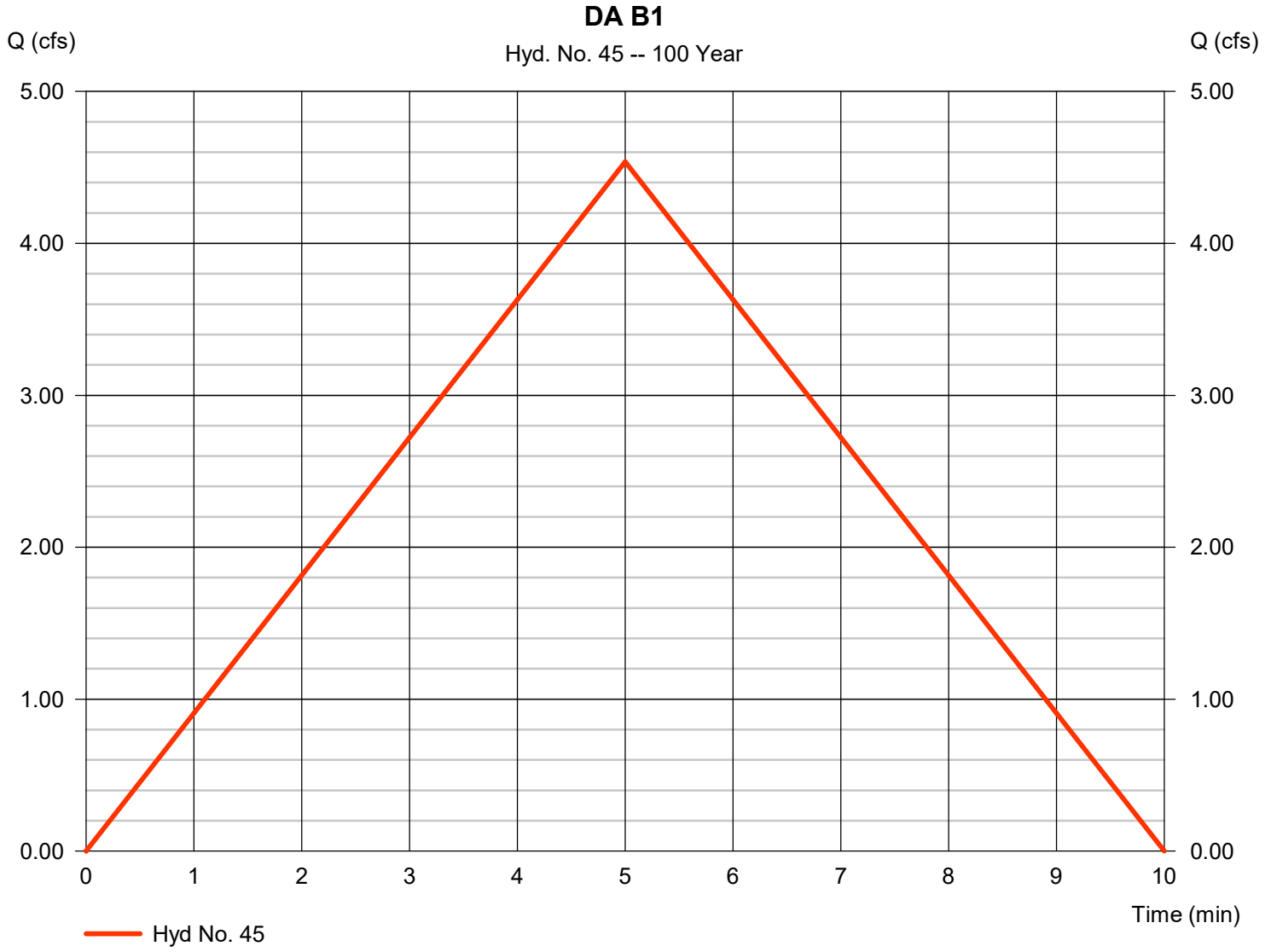


Hydrograph Report

Hyd. No. 45

DA B1

Hydrograph type	=	Rational	Peak discharge	=	4.538 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,361 cuft
Drainage area	=	0.670 ac	Runoff coeff.	=	0.73
Intensity	=	9.278 in/hr	Tc by User	=	5.00 min
IDF Curve	=	SampleFHA.idf	Asc/Rec limb fact	=	1/1

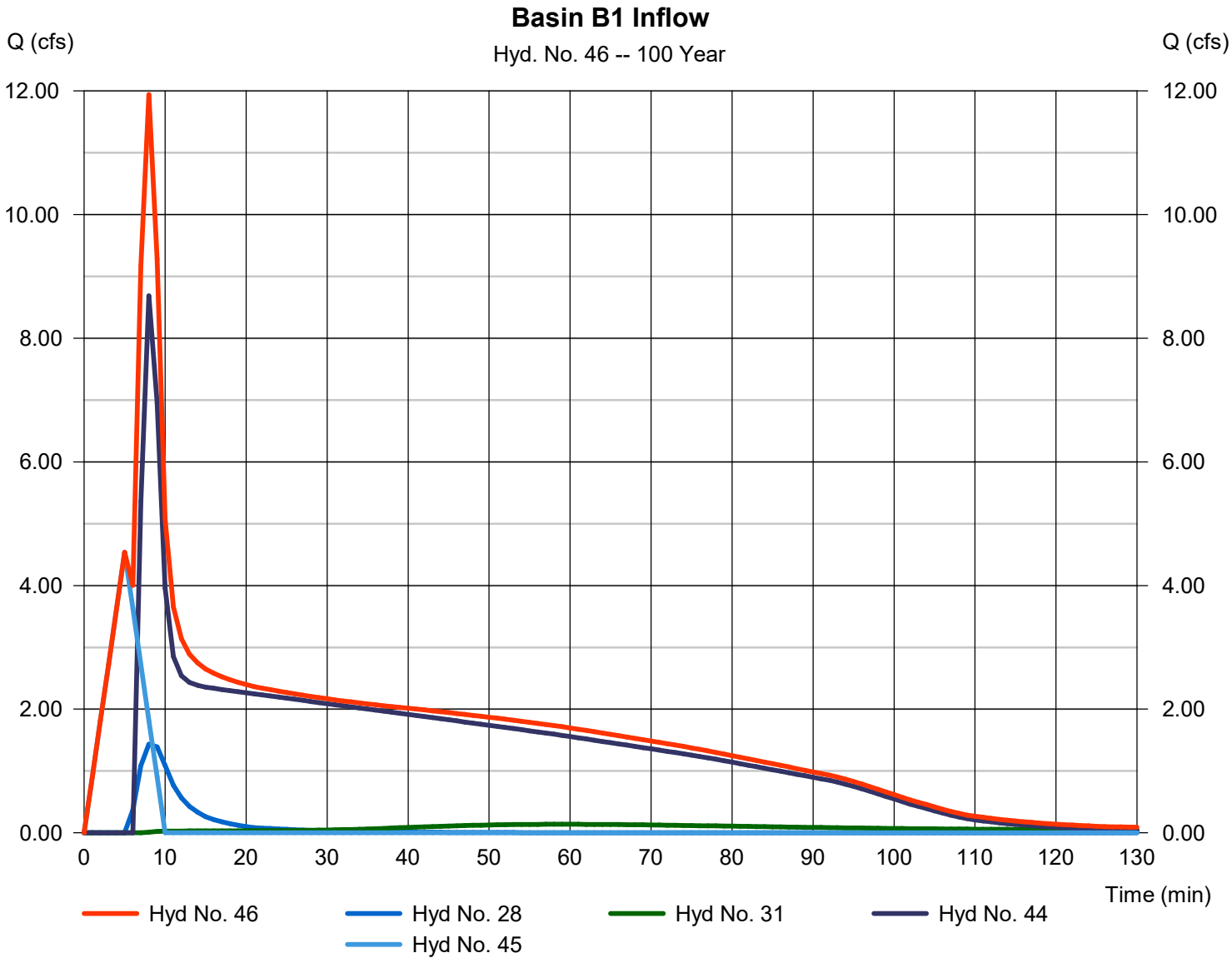


Hydrograph Report

Hyd. No. 46

Basin B1 Inflow

Hydrograph type	=	Combine	Peak discharge	=	11.94 cfs
Storm frequency	=	100 yrs	Time to peak	=	8 min
Time interval	=	1 min	Hyd. volume	=	13,262 cuft
Inflow hyds.	=	28, 31, 44, 45	Contrib. drain. area	=	0.670 ac



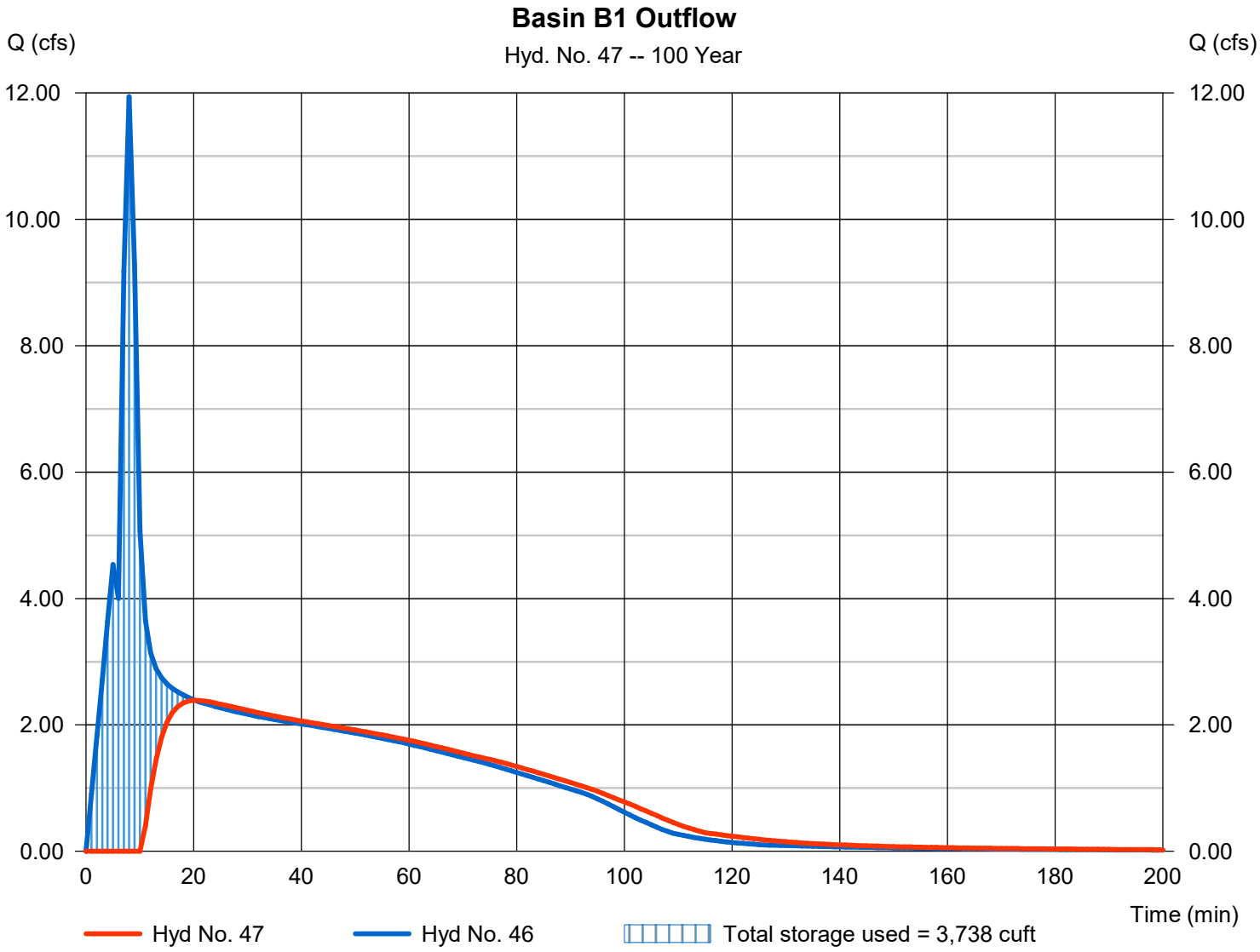
Hydrograph Report

Hyd. No. 47

Basin B1 Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	2.390 cfs
Storm frequency	=	100 yrs	Time to peak	=	20 min
Time interval	=	1 min	Hyd. volume	=	10,173 cuft
Inflow hyd. No.	=	46 - Basin B1 Inflow	Max. Elevation	=	2636.20 ft
Reservoir name	=	Basin B1	Max. Storage	=	3,738 cuft

Storage Indication method used.



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	29.8944	9.9000	0.8677	--------
2	33.6567	8.9000	0.8355	--------
3	0.0000	0.0000	0.0000	--------
5	50.0384	9.6000	0.8568	--------
10	55.5820	9.1000	0.8406	--------
25	67.7482	9.1000	0.8413	--------
50	77.5874	9.2000	0.8431	--------
100	87.5307	9.2000	0.8459	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	2.87	2.23	1.84	1.57	1.37	1.22	1.10	1.00	0.92	0.86	0.80	0.75
2	3.73	2.89	2.37	2.03	1.77	1.58	1.43	1.31	1.20	1.12	1.04	0.98
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	5.03	3.91	3.22	2.75	2.40	2.14	1.93	1.76	1.63	1.51	1.41	1.32
10	6.01	4.66	3.83	3.27	2.86	2.55	2.30	2.11	1.94	1.80	1.68	1.58
25	7.31	5.66	4.66	3.97	3.48	3.10	2.80	2.56	2.36	2.19	2.05	1.92
50	8.29	6.43	5.29	4.51	3.95	3.52	3.18	2.91	2.68	2.49	2.32	2.18
100	9.28	7.19	5.91	5.04	4.41	3.93	3.55	3.24	2.99	2.77	2.59	2.43

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.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	0.00	2.20	0.00	3.30	4.25	5.77	6.80	7.95
SCS 6-Hr	0.00	1.80	0.00	0.00	2.60	0.00	0.00	4.00
Huff-1st	0.00	1.55	0.00	2.75	4.00	5.38	6.50	8.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	1.75	0.00	2.80	3.90	5.25	6.00	7.10

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	0.213	1	5	64	------	------	------	DA Q
2	Reservoir	0.007	1	10	11	1	2646.11	63.0	Basin Q Flow
3	Rational	0.346	1	5	104	------	------	------	DA N1
4	Combine	0.346	1	5	114	2, 3	------	------	Basin N Inflow
5	Reservoir	0.000	1	n/a	0	4	2643.82	114	Basin N Outflow
6	Rational	0.572	1	5	172	------	------	------	DA L
7	Combine	0.572	1	5	172	5, 6	------	------	Basin L Inflow
8	Reservoir	0.000	1	n/a	0	7	2643.25	172	Basin L Outflow
9	Rational	0.481	1	5	144	------	------	------	DA H1
10	Reservoir	0.000	1	n/a	0	9	2643.35	144	Basin H1 Outflow
11	Rational	3.835	1	5	1,150	------	------	------	DA O
12	Rational	0.894	1	5	268	------	------	------	OFF 2
13	Combine	4.729	1	5	1,419	11, 12	------	------	Basin O Inflow
14	Reservoir	0.166	1	10	226	13	2645.57	1,401	Basin O Outflow
15	Rational	1.388	1	5	417	------	------	------	DA H2
16	Combine	1.388	1	5	643	8, 10, 14, 15	------	------	Basin H2 Inflow
17	Reservoir	0.000	1	n/a	0	16	2642.29	643	Basin H2 Outflow
18	Rational	0.692	1	5	208	------	------	------	DA H3
19	Rational	2.330	1	5	699	------	------	------	DA G
20	Rational	0.270	1	5	81	------	------	------	OFF 3
21	Rational	0.216	1	5	65	------	------	------	OFF 4
22	Combine	2.816	1	5	845	19, 20, 21	------	------	Basin G Inflow
23	Combine	0.692	1	5	208	17, 18,	------	------	Basin H3 Inflow
24	Reservoir	0.000	1	n/a	0	23	2641.98	208	Basin H3 Outflow
25	Rational	1.248	1	5	374	------	------	------	DA C
26	Combine	1.248	1	5	374	24, 25	------	------	Basin C Inflow
27	Reservoir	0.000	1	n/a	0	26	2638.86	374	Basin C Outflow
28	Reservoir	0.187	1	10	100	22	2640.08	826	Basin G Outflow
29	Rational	0.673	1	5	202	------	------	------	DA B2
30	Combine	0.673	1	5	202	27, 29	------	------	Basin B2 Inflow
31	Reservoir	0.000	1	n/a	0	30	2637.91	202	Basin B2 Outflow
32	Rational	0.685	1	5	206	------	------	------	DA A
33	Reservoir	0.342	1	8	205	32	2639.56	371	Basin A Outfall
34	Rational	18.90	1	5	5,670	------	------	------	OFF-1

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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
35	Rational	0.027	1	5	8	------	------	------	DA D2
36	Rational	2.299	1	5	690	------	------	------	DA D1
37	Rational	1.809	1	5	543	------	------	------	DA E1
38	Rational	1.692	1	5	508	------	------	------	DA E2
39	Rational	3.736	1	5	1,121	------	------	------	DA E3
40	Rational	1.666	1	5	500	------	------	------	DA E4
41	Combine	21.23	1	5	6,368	34, 35, 36,	------	------	Basin D Inflow
42	Reservoir	1.987	1	10	6,365	41	2635.67	5,578	Basin D Outflow
43	Combine	10.45	1	5	9,037	37, 38, 39, 40, 42	------	------	Basin E Inflow
44	Reservoir	1.898	1	15	5,667	43	2634.63	3,591	Basin E Outflow
45	Rational	2.940	1	5	882	------	------	------	DA B1
46	Combine	2.940	1	5	6,649	28, 31, 44, 45	------	------	Basin B1 Inflow
47	Reservoir	1.384	1	44	3,560	46	2636.14	3,538	Basin B1 Outflow

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	0.328	1	5	99	------	------	------	DA Q
2	Reservoir	0.013	1	15	45	1	2646.40	95.6	Basin Q Flow
3	Rational	0.534	1	5	160	------	------	------	DA N1
4	Combine	0.534	1	5	206	2, 3	------	------	Basin N Inflow
5	Reservoir	0.010	1	45	27	4	2644.01	181	Basin N Outflow
6	Rational	0.883	1	5	265	------	------	------	DA L
7	Combine	0.883	1	5	292	5, 6	------	------	Basin L Inflow
8	Reservoir	0.000	1	n/a	0	7	2643.43	292	Basin L Outflow
9	Rational	0.742	1	5	223	------	------	------	DA H1
10	Reservoir	0.036	1	10	10	9	2643.51	220	Basin H1 Outflow
11	Rational	5.919	1	5	1,776	------	------	------	DA O
12	Rational	1.381	1	5	414	------	------	------	OFF 2
13	Combine	7.300	1	5	2,190	11, 12	------	------	Basin O Inflow
14	Reservoir	1.187	1	9	997	13	2645.78	1,989	Basin O Outflow
15	Rational	2.143	1	5	643	------	------	------	DA H2
16	Combine	2.143	1	5	1,650	8, 10, 14, 15	------	------	Basin H2 Inflow
17	Reservoir	0.277	1	24	553	16	2642.55	1,242	Basin H2 Outflow
18	Rational	1.069	1	5	321	------	------	------	DA H3
19	Rational	3.596	1	5	1,079	------	------	------	DA G
20	Rational	0.417	1	5	125	------	------	------	OFF 3
21	Rational	0.334	1	5	100	------	------	------	OFF 4
22	Combine	4.347	1	5	1,304	19, 20, 21	------	------	Basin G Inflow
23	Combine	1.069	1	5	874	17, 18,	------	------	Basin H3 Inflow
24	Reservoir	0.201	1	34	639	23	2642.32	431	Basin H3 Outflow
25	Rational	1.927	1	5	578	------	------	------	DA C
26	Combine	1.927	1	5	1,217	24, 25	------	------	Basin C Inflow
27	Reservoir	0.160	1	46	698	26	2639.10	662	Basin C Outflow
28	Reservoir	1.432	1	8	559	22	2640.32	1,069	Basin G Outflow
29	Rational	1.039	1	5	312	------	------	------	DA B2
30	Combine	1.039	1	5	1,009	27, 29	------	------	Basin B2 Inflow
31	Reservoir	0.138	1	59	760	30	2638.22	409	Basin B2 Outflow
32	Rational	1.058	1	5	317	------	------	------	DA A
33	Reservoir	0.586	1	7	317	32	2639.63	421	Basin A Outfall
34	Rational	29.17	1	5	8,752	------	------	------	OFF-1

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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
35	Rational	0.042	1	5	13	------	------	------	DA D2
36	Rational	3.549	1	5	1,065	------	------	------	DA D1
37	Rational	2.793	1	5	838	------	------	------	DA E1
38	Rational	2.613	1	5	784	------	------	------	DA E2
39	Rational	5.767	1	5	1,730	------	------	------	DA E3
40	Rational	2.572	1	5	772	------	------	------	DA E4
41	Combine	32.76	1	5	9,829	34, 35, 36,	------	------	Basin D Inflow
42	Reservoir	2.426	1	10	9,827	41	2637.84	8,866	Basin D Outflow
43	Combine	15.59	1	5	13,950	37, 38, 39, 40, 42	------	------	Basin E Inflow
44	Reservoir	8.685	1	8	10,581	43	2635.79	3,885	Basin E Outflow
45	Rational	4.538	1	5	1,361	------	------	------	DA B1
46	Combine	11.94	1	8	13,262	28, 31, 44, 45	------	------	Basin B1 Inflow
47	Reservoir	2.390	1	20	10,173	46	2636.20	3,738	Basin B1 Outflow

Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	29.8944	9.9000	0.8677	--------
2	33.6567	8.9000	0.8355	--------
3	0.0000	0.0000	0.0000	--------
5	50.0384	9.6000	0.8568	--------
10	55.5820	9.1000	0.8406	--------
25	67.7482	9.1000	0.8413	--------
50	77.5874	9.2000	0.8431	--------
100	87.5307	9.2000	0.8459	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	2.87	2.23	1.84	1.57	1.37	1.22	1.10	1.00	0.92	0.86	0.80	0.75
2	3.73	2.89	2.37	2.03	1.77	1.58	1.43	1.31	1.20	1.12	1.04	0.98
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	5.03	3.91	3.22	2.75	2.40	2.14	1.93	1.76	1.63	1.51	1.41	1.32
10	6.01	4.66	3.83	3.27	2.86	2.55	2.30	2.11	1.94	1.80	1.68	1.58
25	7.31	5.66	4.66	3.97	3.48	3.10	2.80	2.56	2.36	2.19	2.05	1.92
50	8.29	6.43	5.29	4.51	3.95	3.52	3.18	2.91	2.68	2.49	2.32	2.18
100	9.28	7.19	5.91	5.04	4.41	3.93	3.55	3.24	2.99	2.77	2.59	2.43

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.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	0.00	2.20	0.00	3.30	4.25	5.77	6.80	7.95
SCS 6-Hr	0.00	1.80	0.00	0.00	2.60	0.00	0.00	4.00
Huff-1st	0.00	1.55	0.00	2.75	4.00	5.38	6.50	8.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	1.75	0.00	2.80	3.90	5.25	6.00	7.10

Pond Report

Pond No. 1 - Basin Q

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2645.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2645.50	34	0	0
1.00	2646.00	195	103	103
2.00	2647.00	456	316	420

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.00	0.00	0.00	0.00
Span (in)	= 1.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 2646.00	0.00	0.00	0.00
Length (ft)	= 35.34	0.00	0.00	0.00
Slope (%)	= 6.37	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

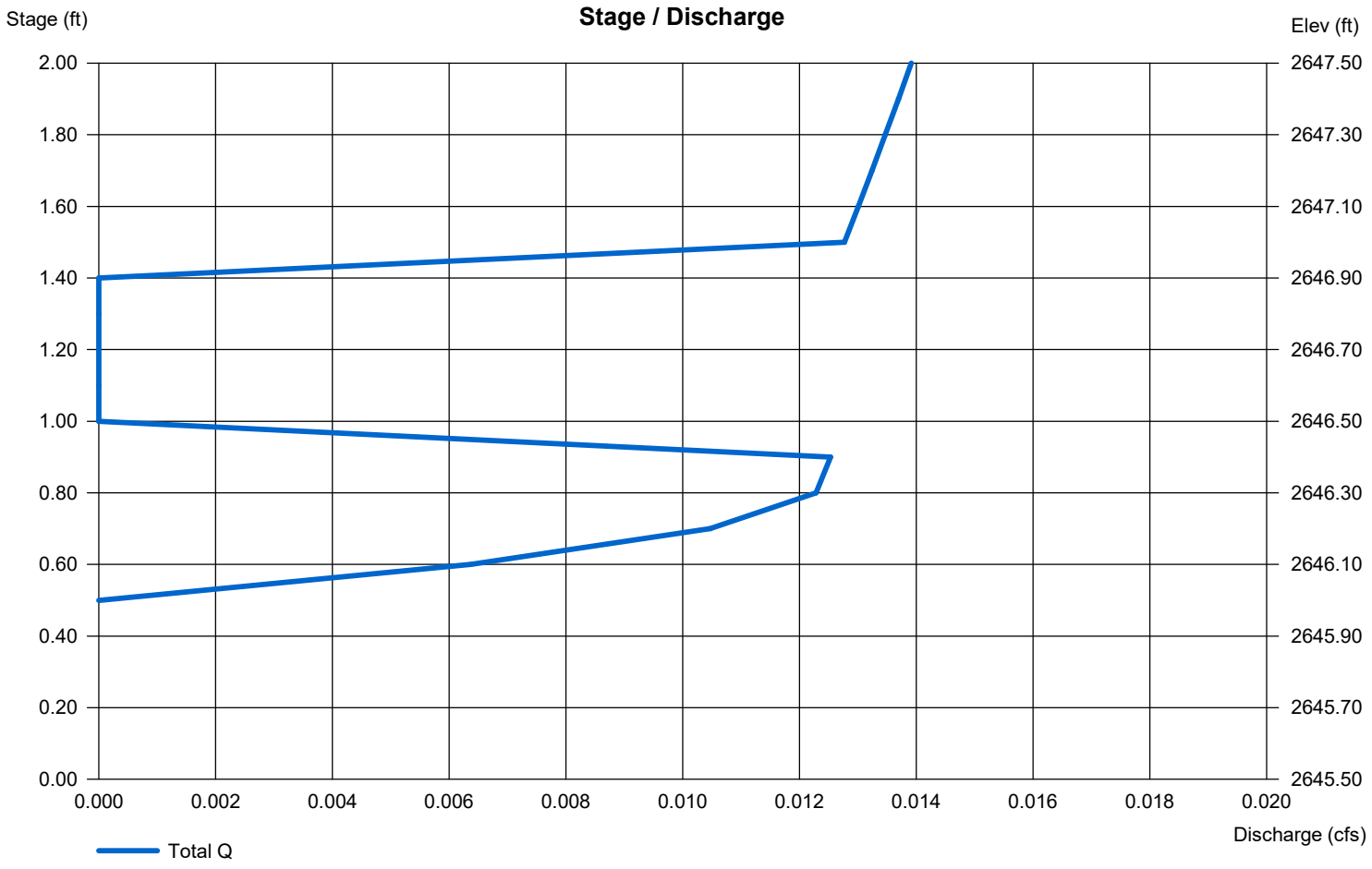
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.14	0.00	0.00	0.00
Crest El. (ft)	= 2646.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 2 - Basin N

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2643.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2643.50	287	0	0
0.50	2644.00	432	178	178
1.00	2644.50	603	258	436
1.50	2645.00	799	349	785

Culvert / Orifice Structures

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

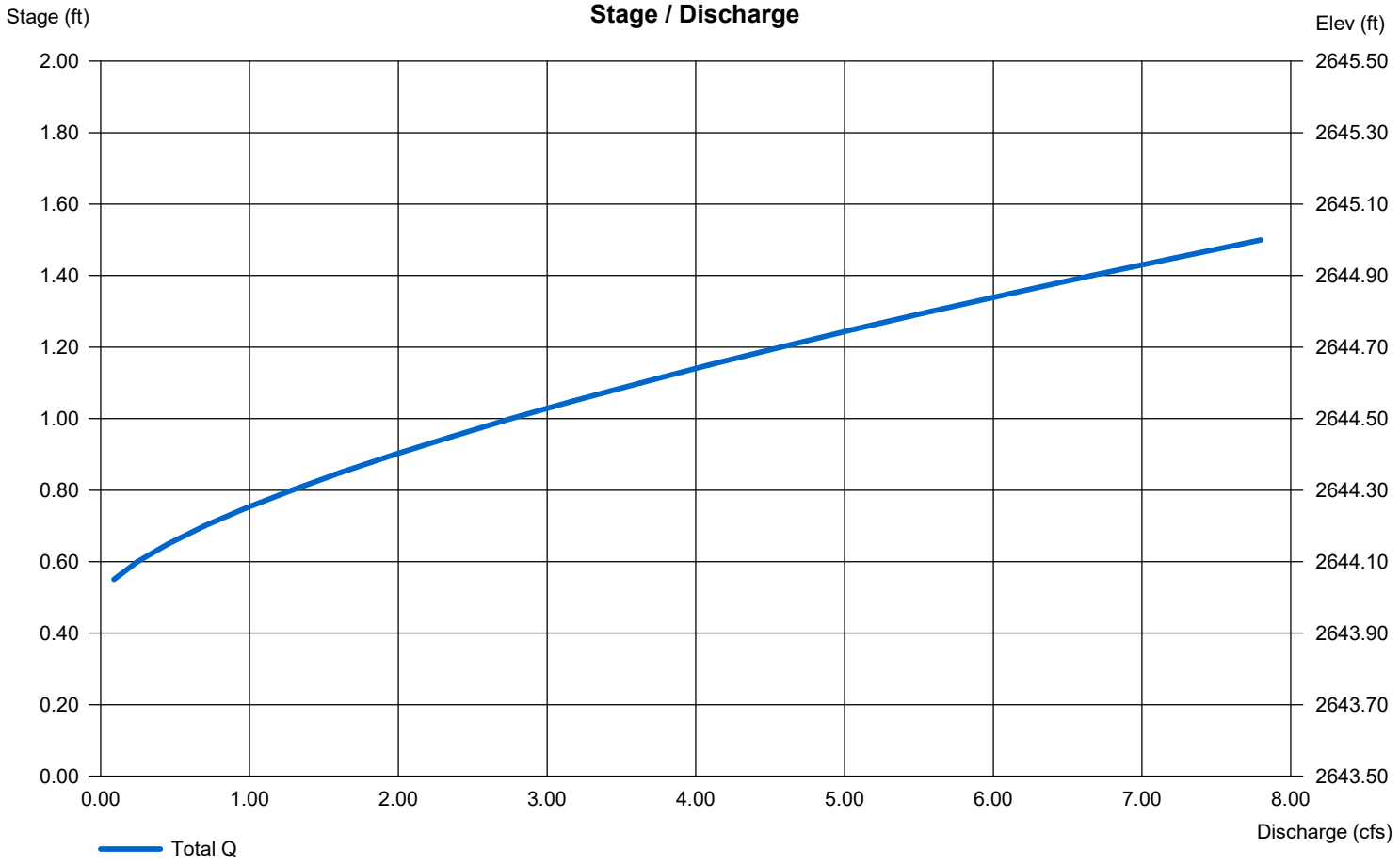
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 2644.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 3 - Basin L

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2643.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2643.00	564	0	0
0.50	2643.50	804	340	340
1.00	2644.00	1,098	473	814

Culvert / Orifice Structures

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

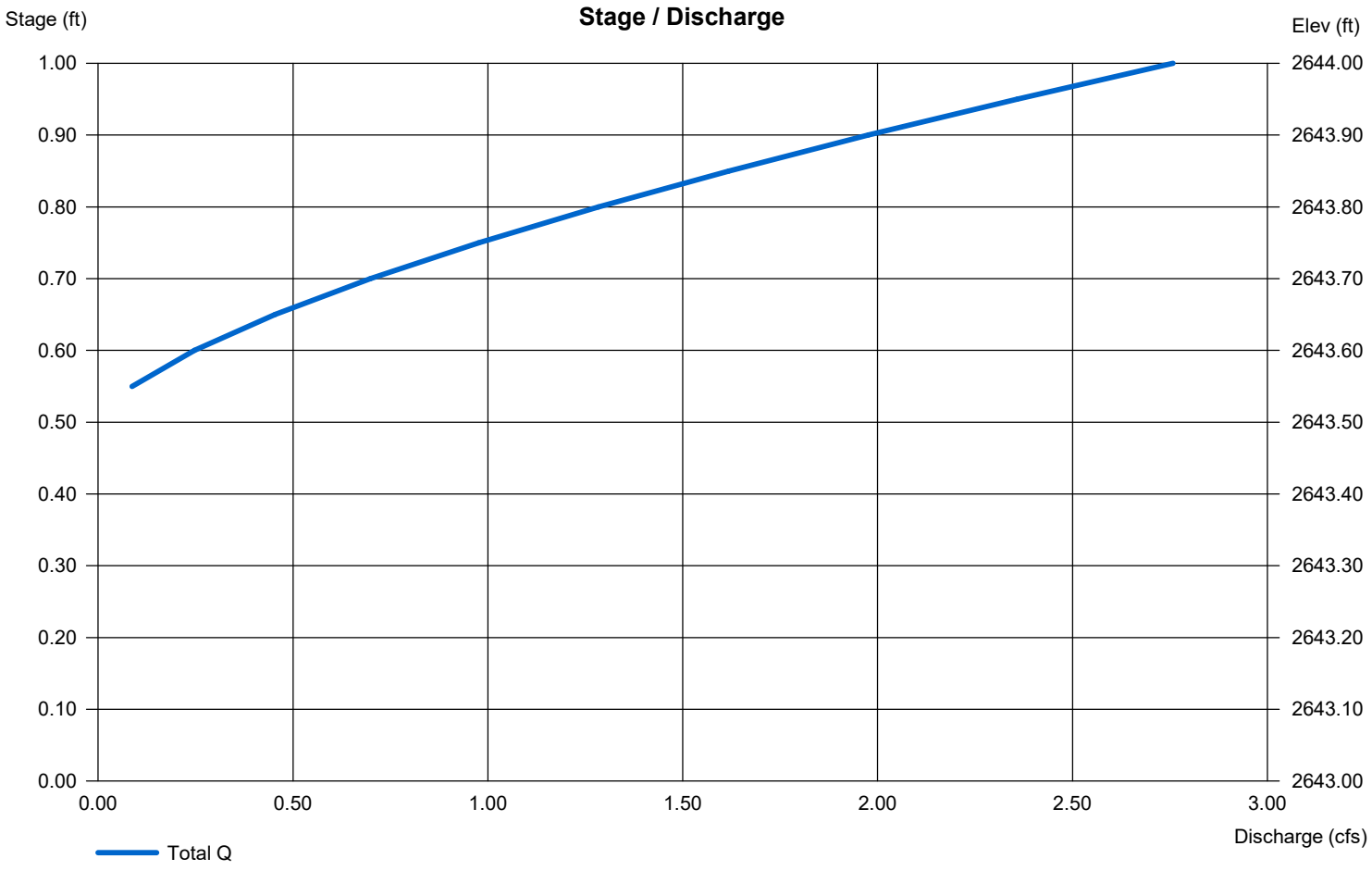
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 2643.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 4 - Basin H1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2643.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2643.00	349	0	0
0.40	2643.40	474	164	164
0.50	2643.50	508	49	213
1.00	2644.00	692	299	512

Culvert / Orifice Structures

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

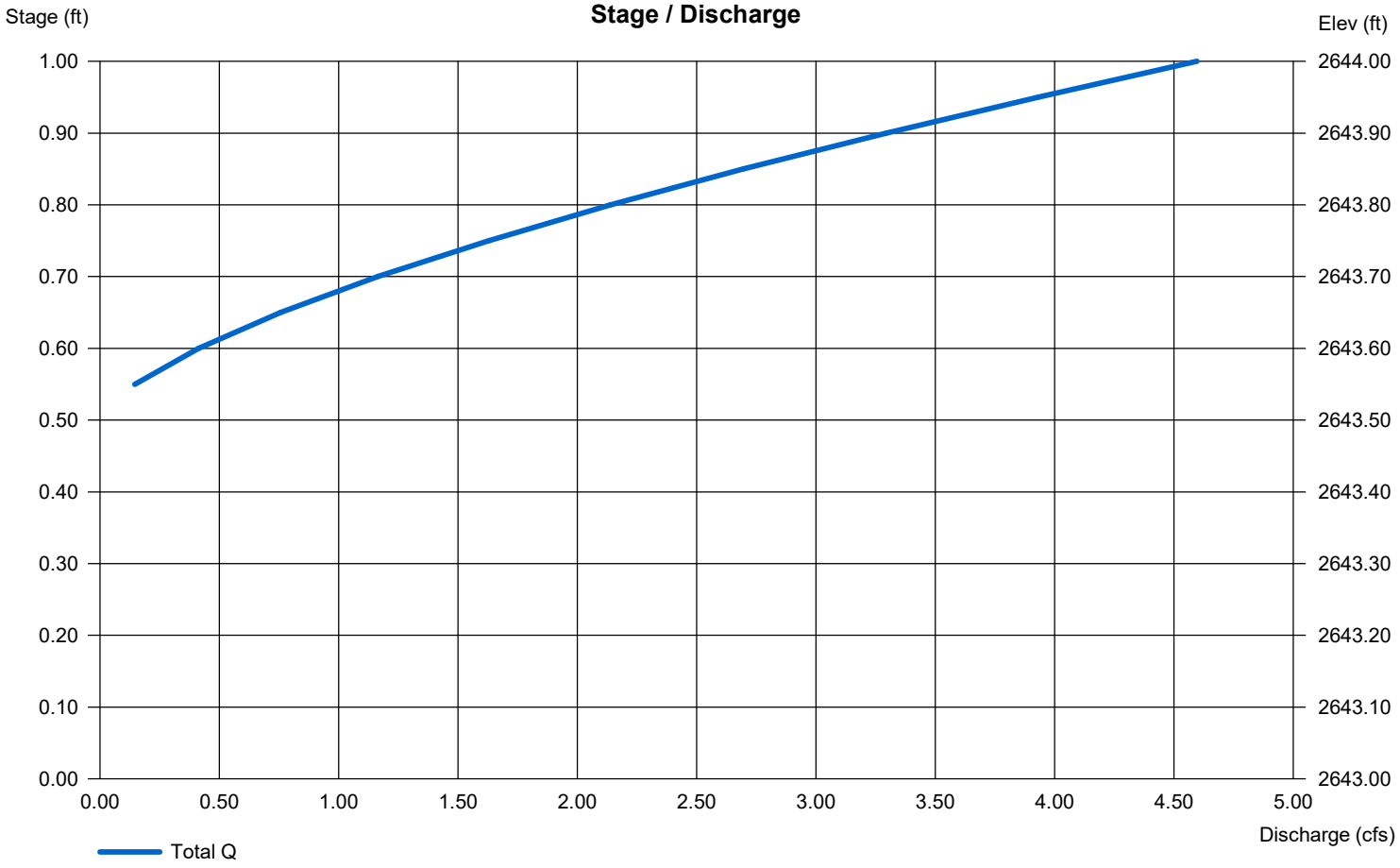
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 5.00	0.00	0.00	0.00
Crest El. (ft)	= 2643.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 5 - Basin O

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2645.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2645.00	2,178	0	0
0.50	2645.50	2,592	1,191	1,191
1.00	2646.00	3,031	1,404	2,595

Culvert / Orifice Structures

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

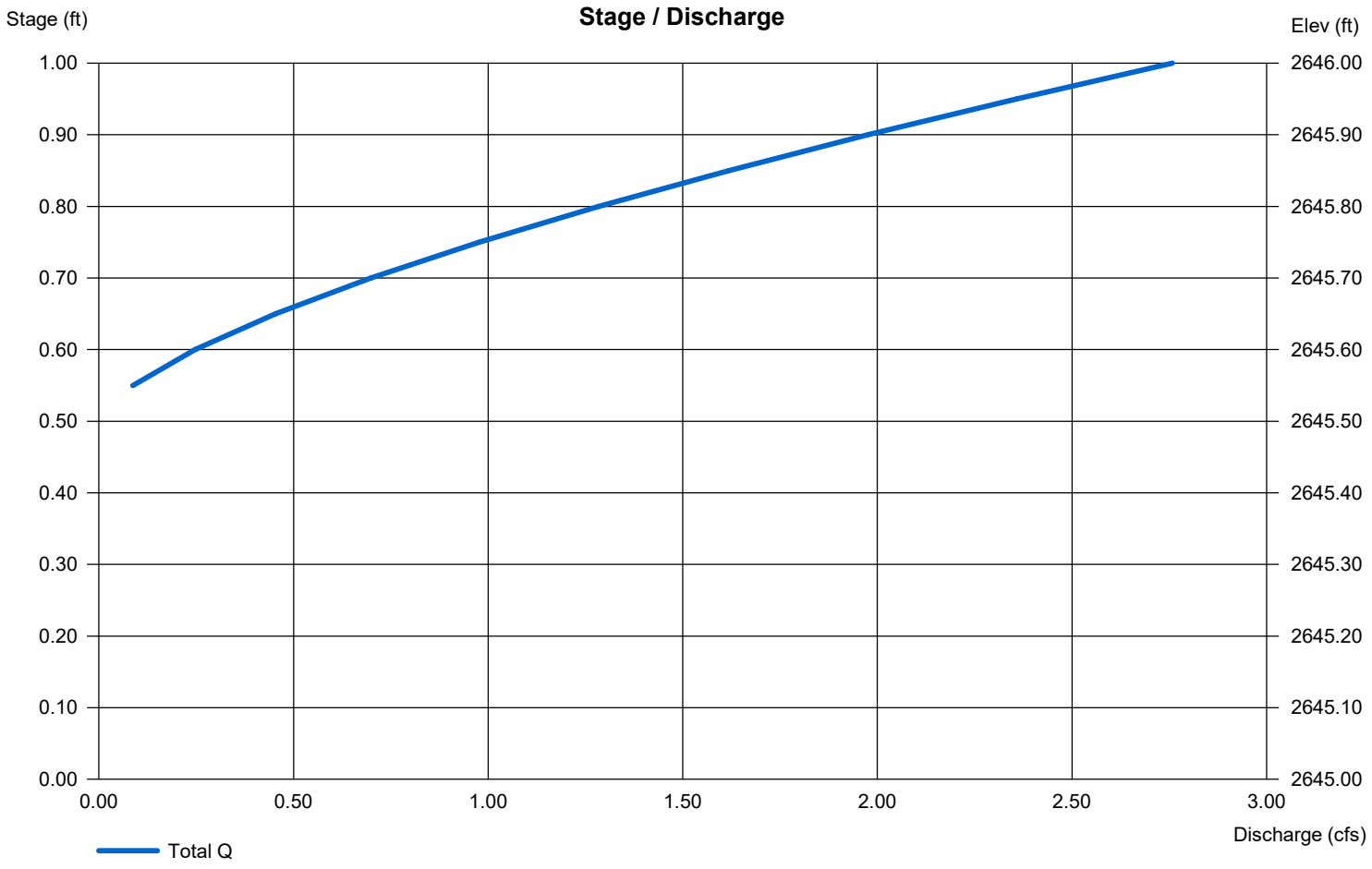
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 2645.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 6 - Basin H2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2642.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2642.00	1,969	0	0
0.50	2642.50	2,423	1,096	1,096
1.00	2643.00	2,901	1,329	2,425

Culvert / Orifice Structures

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

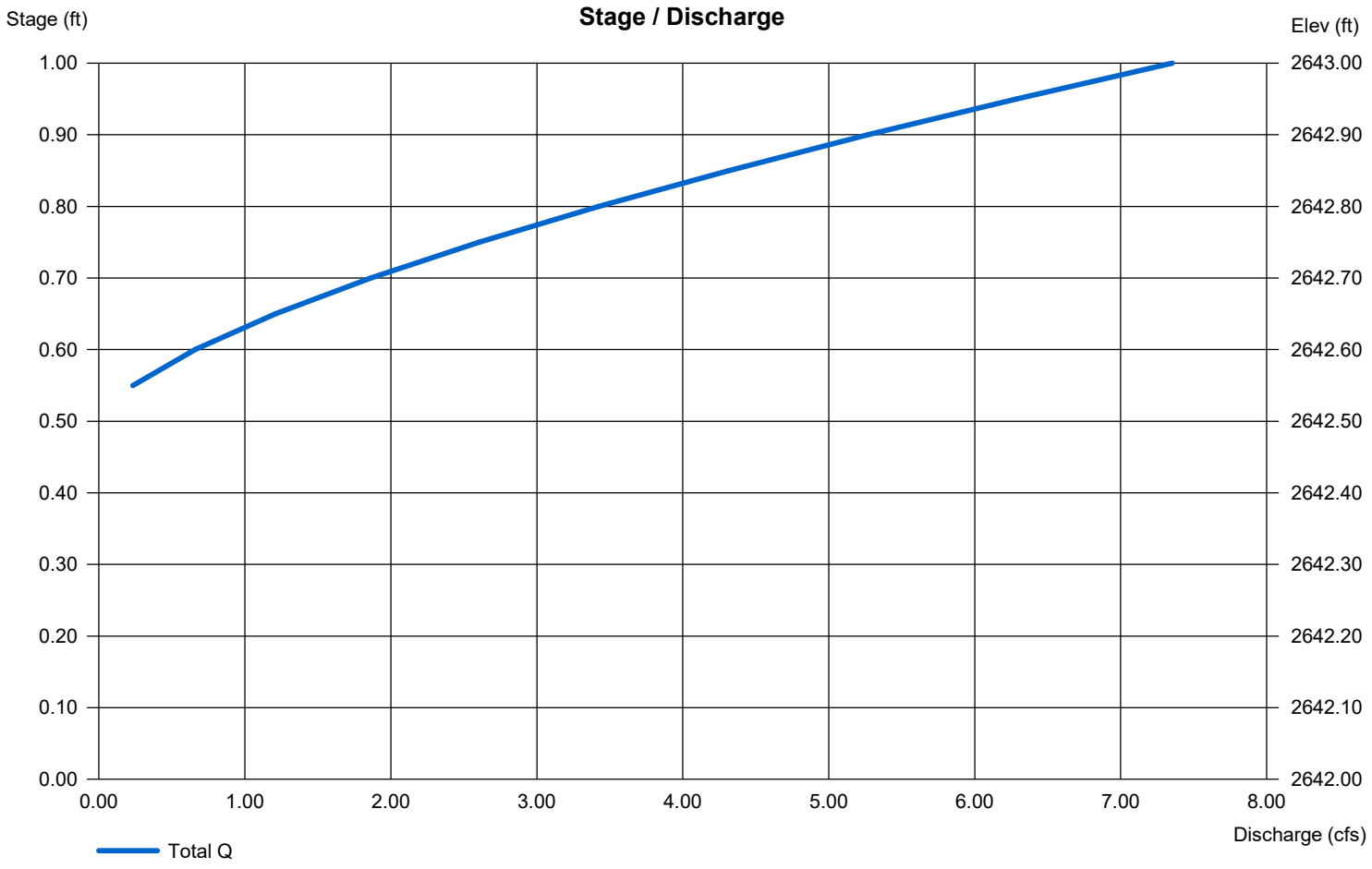
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 8.00	0.00	0.00	0.00
Crest El. (ft)	= 2642.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 7 - Basin H3

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2641.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2641.50	353	0	0
0.50	2642.00	522	217	217
1.00	2642.50	807	330	547

Culvert / Orifice Structures

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

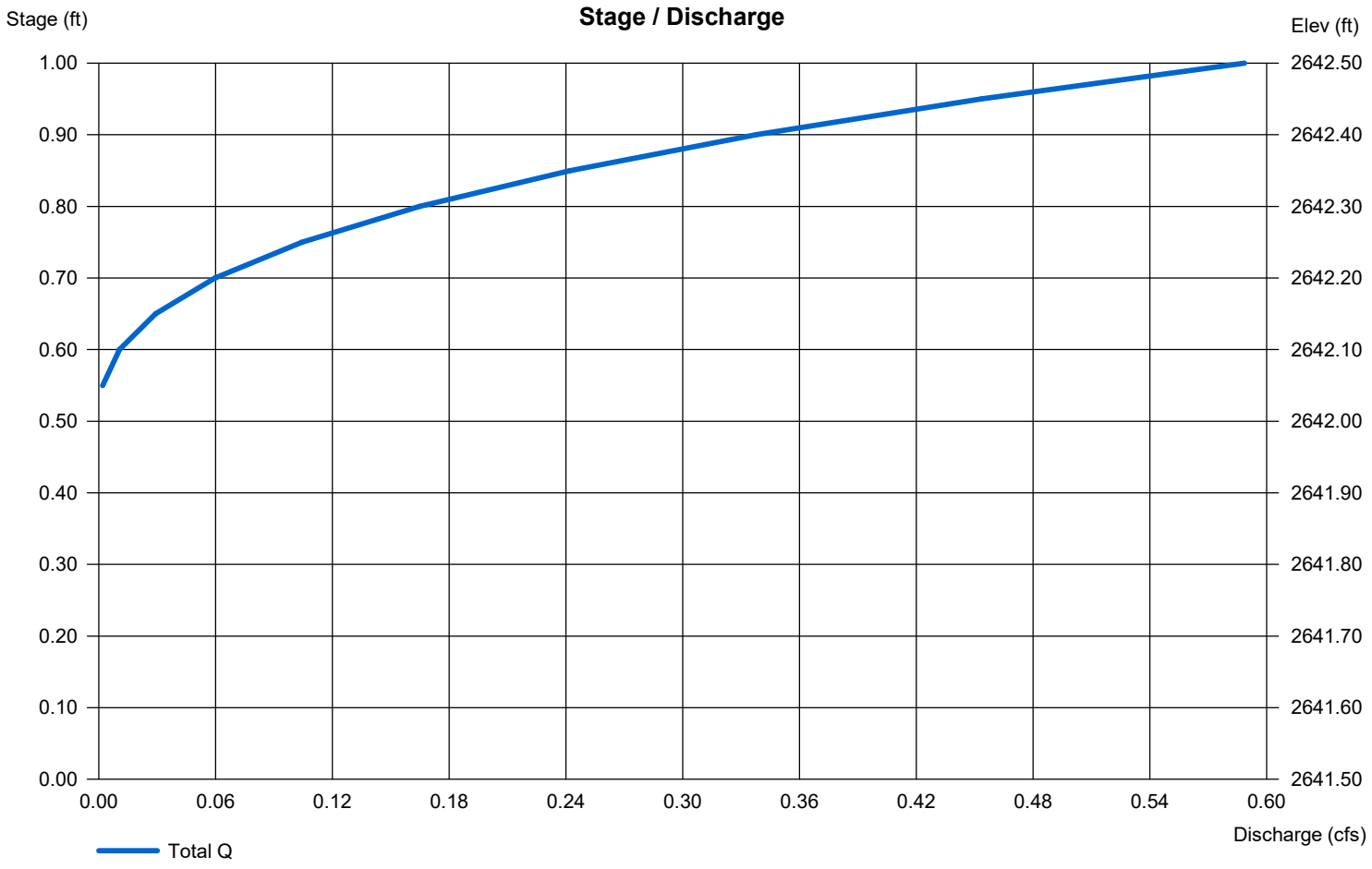
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	0.00	0.00	0.00
Crest El. (ft)	= 2642.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 8 - Basin C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2638.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2638.50	835	0	0
0.50	2639.00	1,252	518	518
1.00	2639.50	1,695	734	1,252

Culvert / Orifice Structures

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

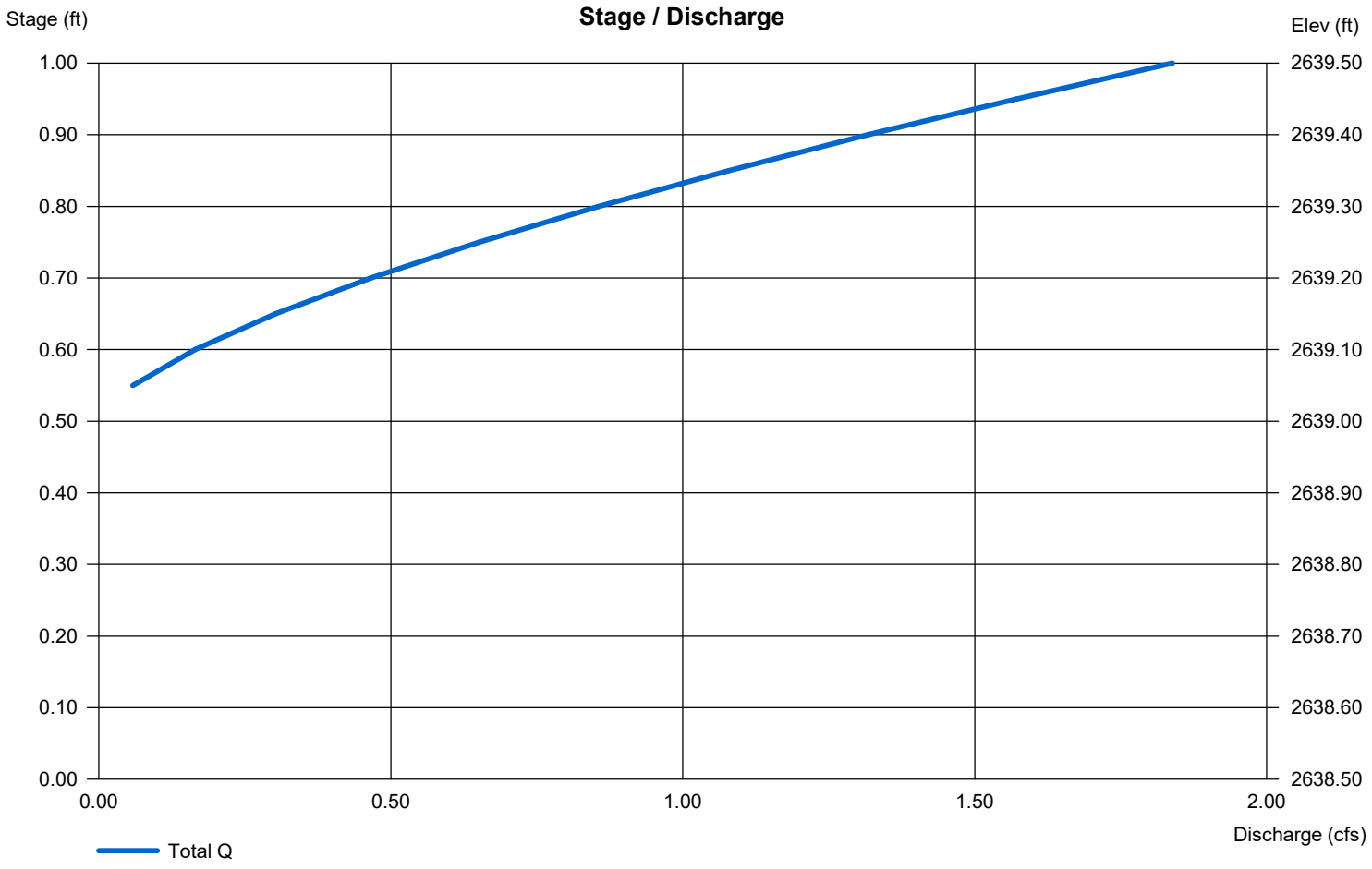
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	0.00	0.00	0.00
Crest El. (ft)	= 2639.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 9 - Basin G

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2638.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2638.50	169	0	0
0.50	2639.00	369	131	131
1.00	2639.50	615	243	374
1.50	2640.00	872	370	744
2.00	2640.50	1,154	505	1,249

Culvert / Orifice Structures

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

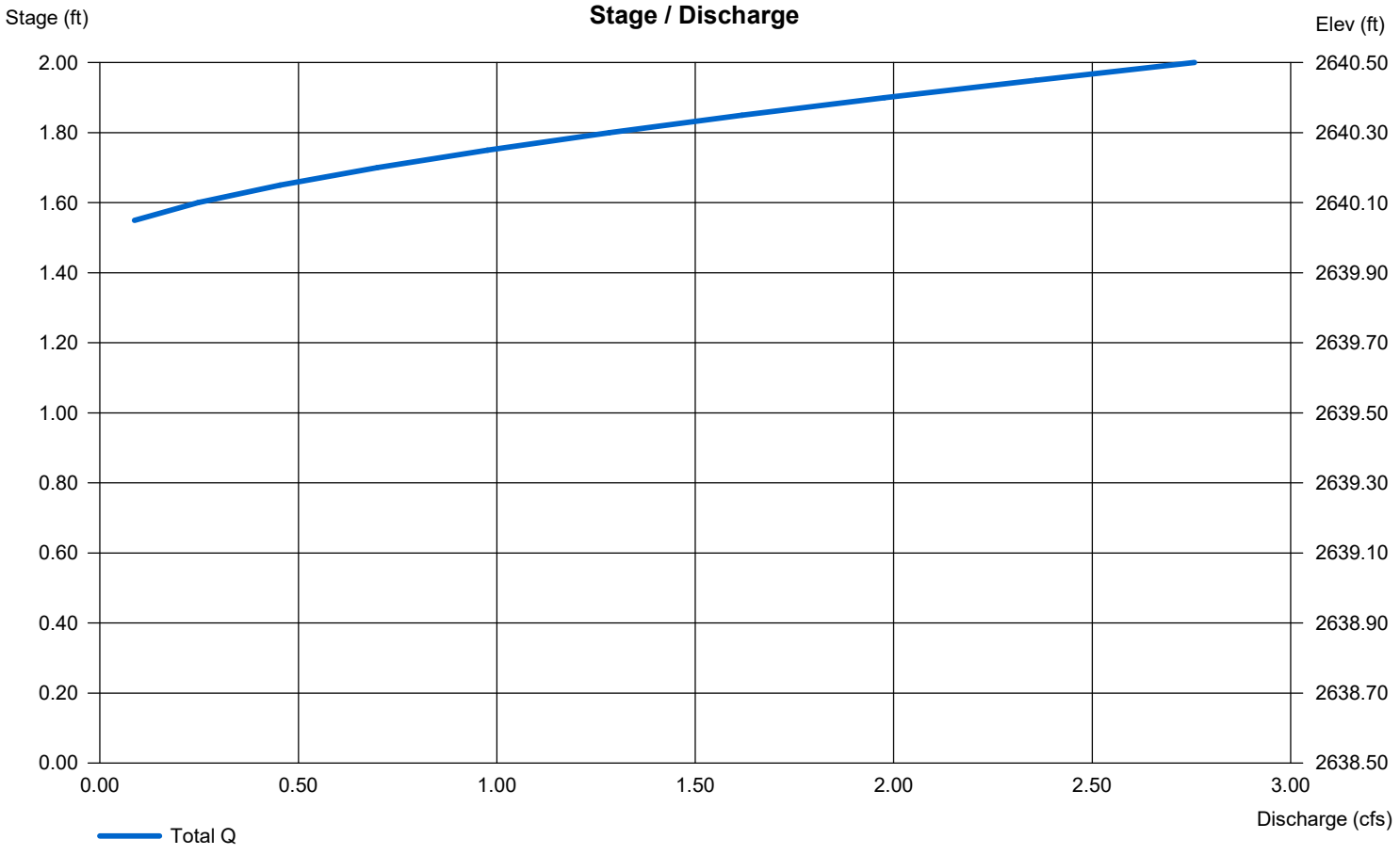
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 2640.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 11 - Basin B2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2637.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2637.50	379	0	0
0.50	2638.00	608	244	244
1.00	2638.50	863	366	610

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 6.00	0.00	0.00	0.00
Span (in)	= 6.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 2638.00	0.00	0.00	0.00
Length (ft)	= 40.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

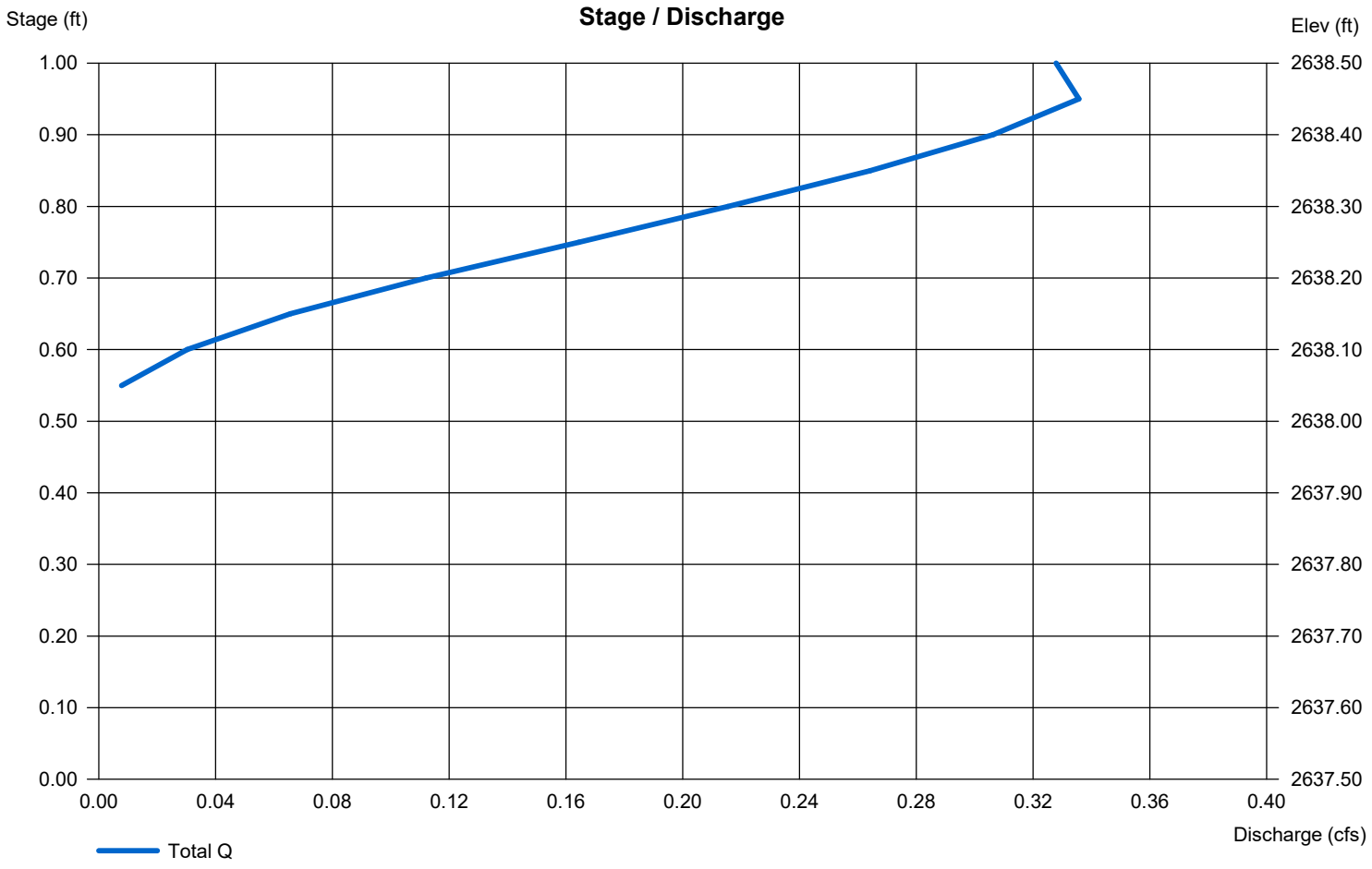
Weir Structures

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

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 12 - Basin A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2638.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2638.90	418	0	0
0.50	2639.40	613	256	256
1.00	2639.90	814	356	612

Culvert / Orifice Structures

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

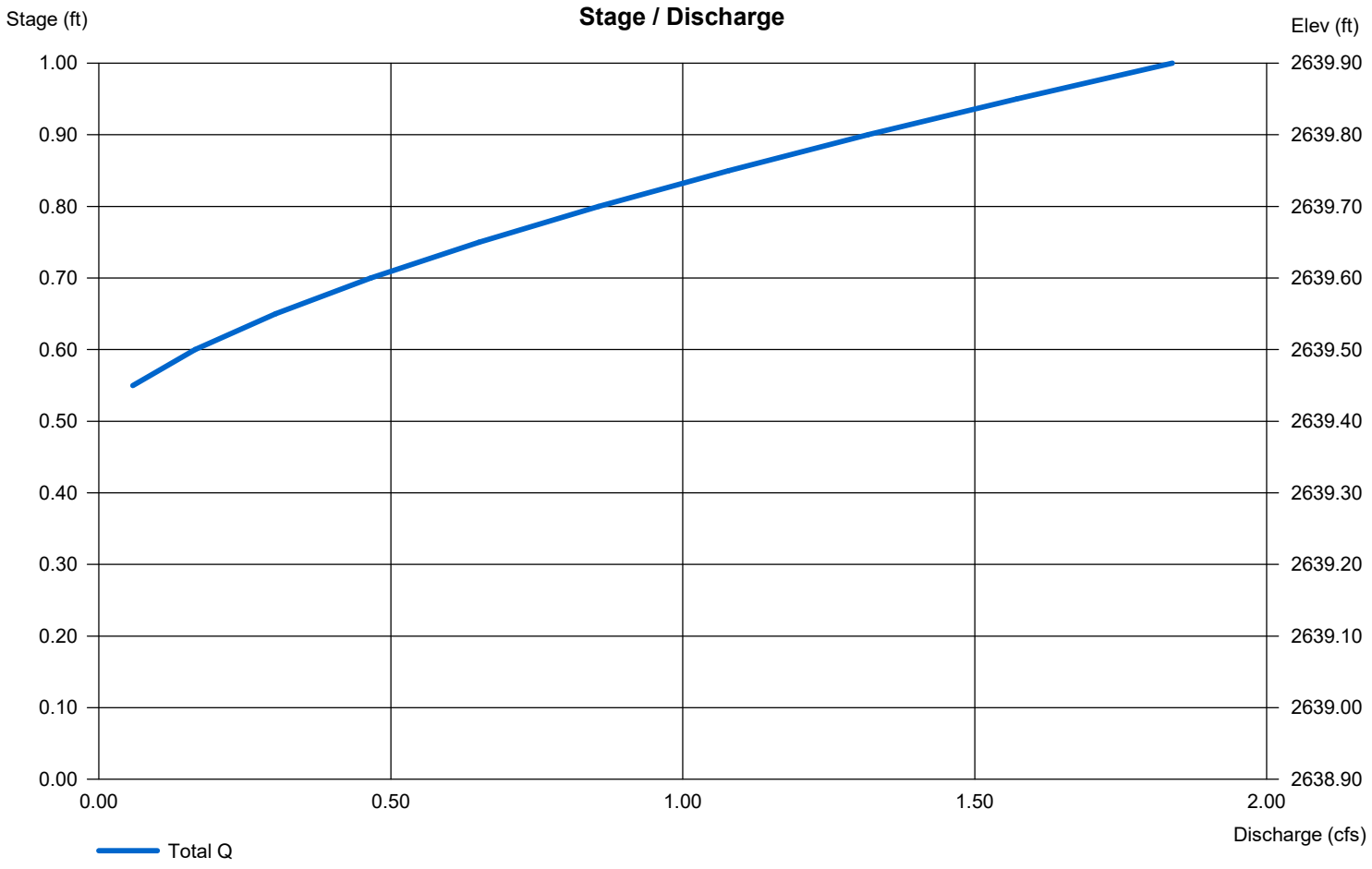
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	0.00	0.00	0.00
Crest El. (ft)	= 2639.40	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 13 - Basin D

Pond Data

UG Chambers -Invert elev. = 2631.00 ft, Rise x Span = 10.00 x 10.00 ft, Barrel Len = 155.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2631.00	n/a	0	0
1.00	2632.00	n/a	634	634
2.00	2633.00	n/a	1,101	1,735
3.00	2634.00	n/a	1,339	3,074
4.00	2635.00	n/a	1,475	4,549
5.00	2636.00	n/a	1,541	6,089
6.00	2637.00	n/a	1,541	7,630
7.00	2638.00	n/a	1,474	9,105
8.00	2639.00	n/a	1,338	10,443
9.00	2640.00	n/a	1,100	11,543
10.00	2641.00	n/a	633	12,176

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 6.00	18.00	0.00	0.00
Span (in)	= 6.00	18.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 2631.00	2639.40	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

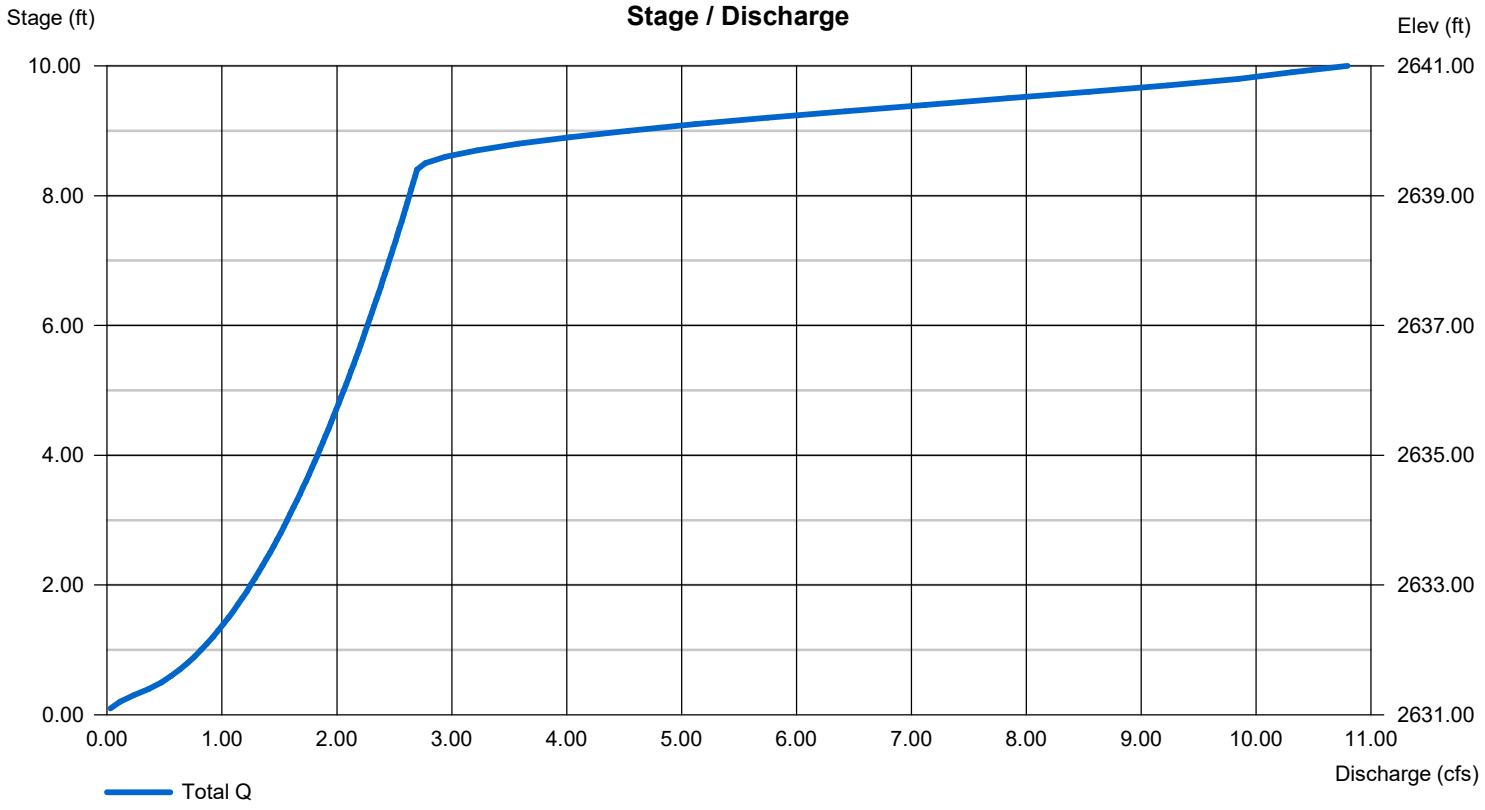
Weir Structures

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

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 14 - Basin E

Pond Data

UG Chambers -Invert elev. = 2626.00 ft, Rise x Span = 10.00 x 10.00 ft, Barrel Len = 50.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2626.00	n/a	0	0
1.00	2627.00	n/a	204	204
2.00	2628.00	n/a	355	560
3.00	2629.00	n/a	432	992
4.00	2630.00	n/a	476	1,467
5.00	2631.00	n/a	497	1,964
6.00	2632.00	n/a	497	2,461
7.00	2633.00	n/a	476	2,937
8.00	2634.00	n/a	432	3,369
9.00	2635.00	n/a	355	3,724
10.00	2636.00	n/a	204	3,928

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.00
Span (in)	= 18.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 2634.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

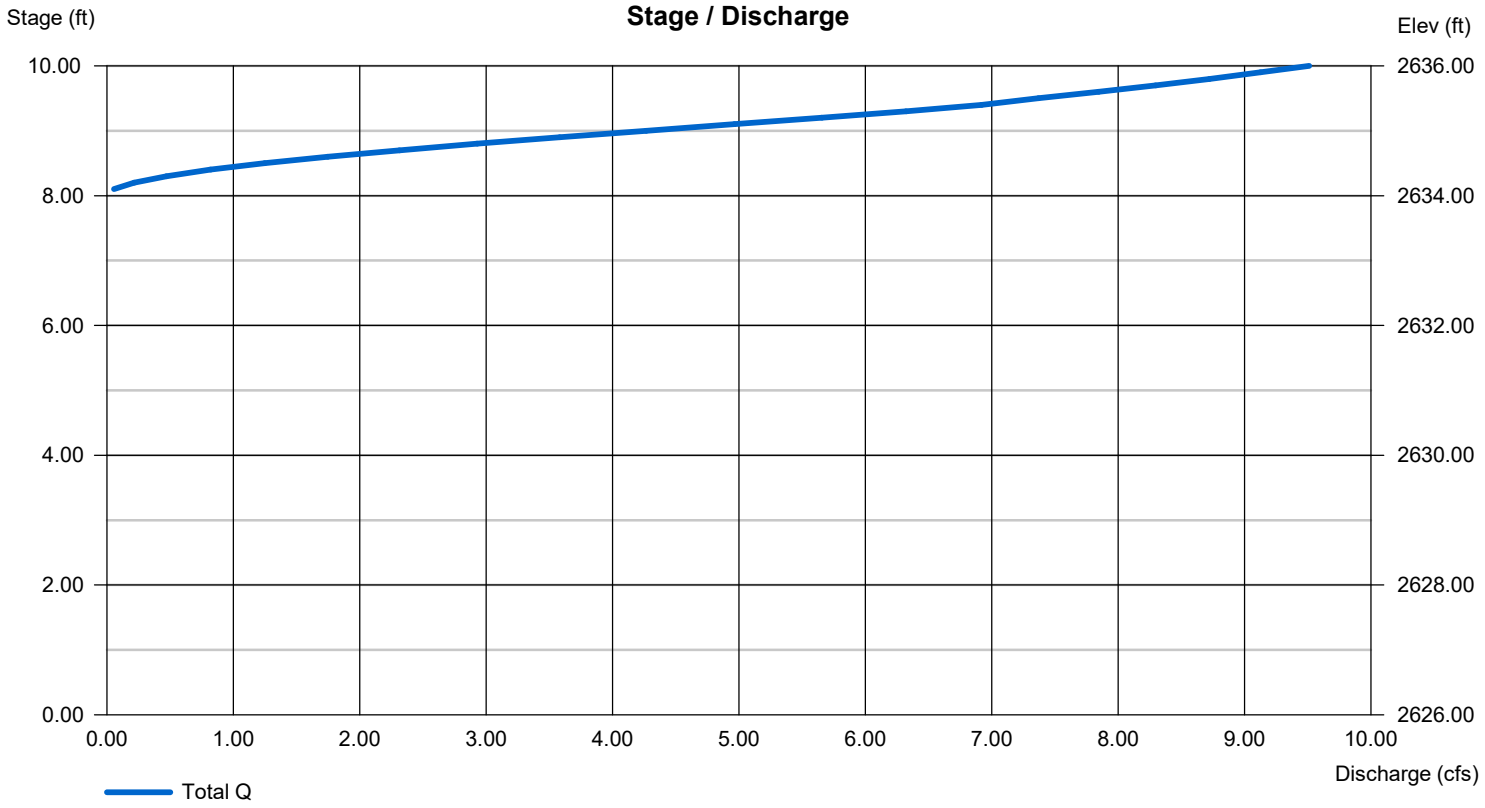
Weir Structures

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

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



Pond Report

Pond No. 15 - Basin B1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2634.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2634.50	1,214	0	0
0.50	2635.00	1,788	746	746
1.00	2635.50	2,343	1,029	1,775
1.50	2636.00	2,923	1,314	3,089
2.00	2636.50	3,471	1,596	4,685

Culvert / Orifice Structures

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

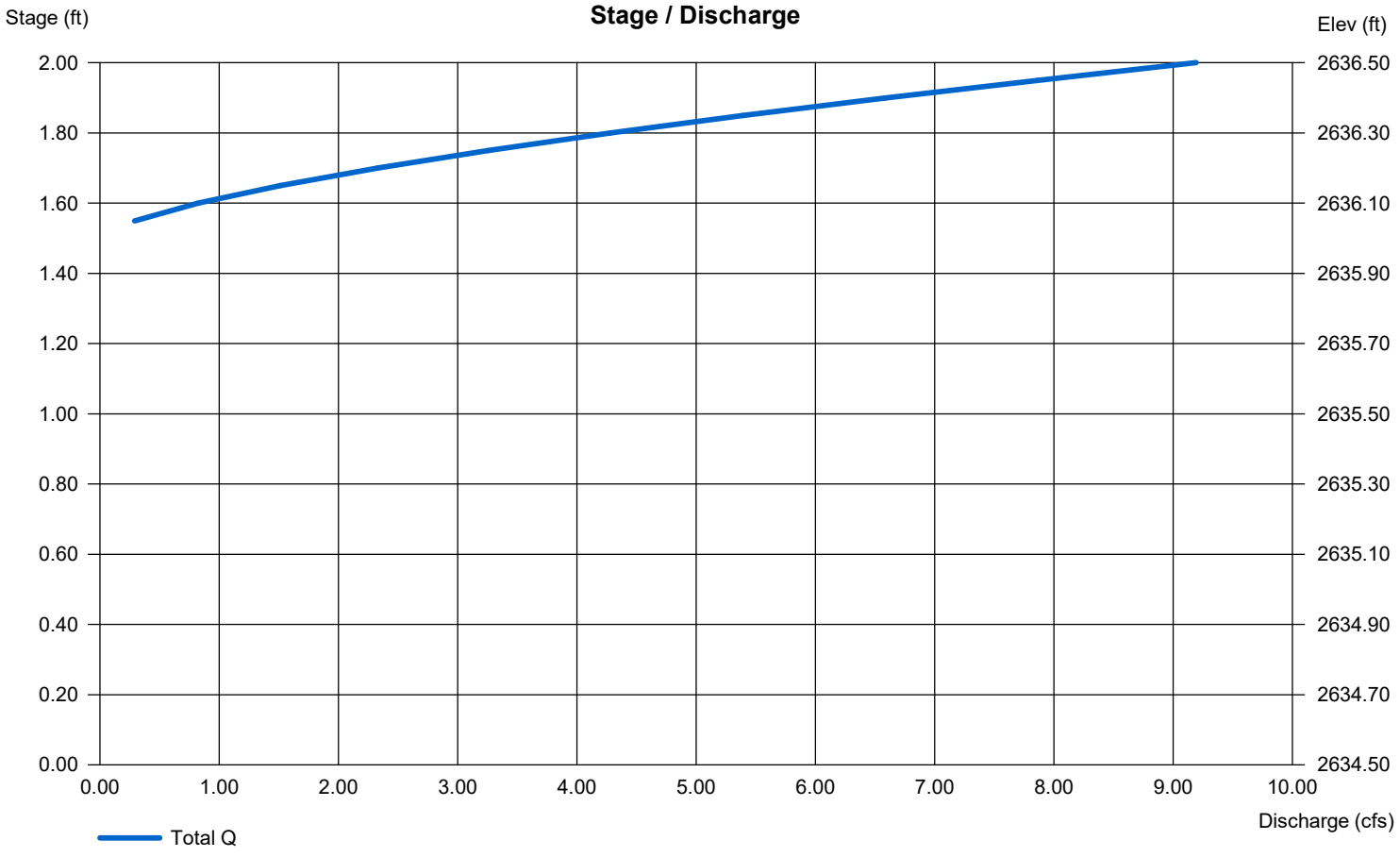
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 10.00	0.00	0.00	0.00
Crest El. (ft)	= 2636.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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



STORMWATER STORAGE

BASIN A

ELEV. (FT)	AREA (SF)	DEPTH (FT)	AVG VOLUME (CF)	SUM VOLUME (CF)	COMMENT
2638.9	418			0	**Bottom**
		0.50	258		
2639.4	613			**258**	**Volume Provided (HWE)**
		0.50	362		
2639.9	834			620	**Top**

BASIN B1

ELEV. (FT)	AREA (SF)	DEPTH (FT)	AVG VOLUME (CF)	SUM VOLUME (CF)	COMMENT
2634.5	1,214			0	**Bottom**
		0.50	750		
2635.0	1,788			750	
		0.50	1,033		
2635.5	2,343			1,783	
		0.50	1,316		
2636.0	2,923			**3,099**	**Volume Provided (HWE)**
		0.50	1,598		
2636.5	3,471			4,698	**TOP**

BASIN B2

ELEV. (FT)	AREA (SF)	DEPTH (FT)	AVG VOLUME (CF)	SUM VOLUME (CF)	COMMENT
2637.5	379			0	**Bottom**
		0.50	247		
2638.0	608			**247**	**Volume Provided (HWE)**
		0.50	368		
2638.5	863			614	**Top**

BASIN C

ELEV. (FT)	AREA (SF)	DEPTH (FT)	AVG VOLUME (CF)	SUM VOLUME (CF)	COMMENT
2638.5	835			0	**Bottom**
		0.50	522		
2639.0	1,252			**522**	**Volume Provided (HWE)**
		0.50	737		
2639.5	1,695			1,259	**Top**

BASIN G					
ELEV.	AREA	DEPTH	AVG VOLUME	SUM VOLUME	COMMENT
(FT)	(SF)	(FT)	(CF)	(CF)	
2638.5	169			0	Bottom
		0.50	134		
2639.0	369			134	
		0.50	246		
2639.5	615			380	
		0.50	372		
2640.0	872			752	Volume Provided (HWE)
		0.50	507		
2640.5	1,154			1,259	Top

BASIN H1					
ELEV.	AREA	DEPTH	AVG VOLUME	SUM VOLUME	COMMENT
(FT)	(SF)	(FT)	(CF)	(CF)	
2643.0	349			0	Bottom
		0.40	165		
2643.4	474			165	
		0.10	49		
2643.5	508			214	Volume Provided (HWE)
		0.50	300		
2644.0	692			514	Top

BASIN H2					
ELEV.	AREA	DEPTH	AVG VOLUME	SUM VOLUME	COMMENT
(FT)	(SF)	(FT)	(CF)	(CF)	
2642.0	1,969			0	Bottom
		0.50	1,098		
2642.5	2,423			1,098	Volume Provided (HWE)
		0.50	1,331		
2643.0	2,901			2,429	Top

BASIN H3					
ELEV.	AREA	DEPTH	AVG VOLUME	SUM VOLUME	COMMENT
(FT)	(SF)	(FT)	(CF)	(CF)	
2641.5	353			0	Bottom
		0.50	219		
2642.0	522			219	Volume Provided (HWE)
		0.50	332		
2642.5	807			551	Top

BASIN L					
ELEV.	AREA	DEPTH	AVG VOLUME	SUM VOLUME	COMMENT
(FT)	(SF)	(FT)	(CF)	(CF)	
2643.0	564			0	Bottom
		0.50	342		
2643.5	804			342	Volume Provided (HWE)
		0.50	475		
2644.0	1,098			817	Top

BASIN N					
ELEV.	AREA	DEPTH	AVG VOLUME	SUM VOLUME	COMMENT
(FT)	(SF)	(FT)	(CF)	(CF)	
2643.5	287			0	Bottom
		0.50	180		
2644.0	432			180	Volume Provided (HWE)
		0.50	259		
2644.5	603			439	
		0.50	350		
2645.0	799			789	Top

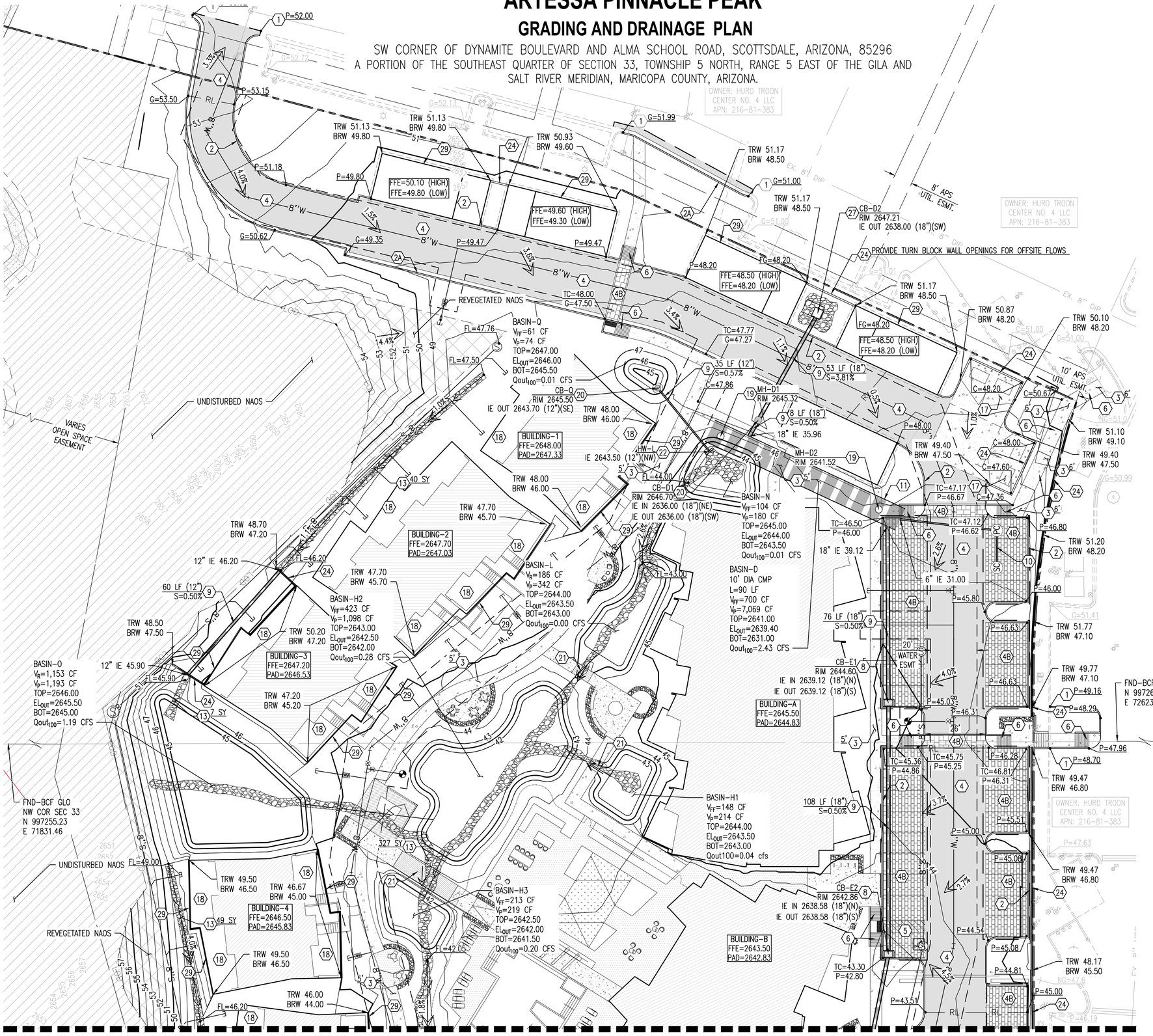
BASIN O					
ELEV.	AREA	DEPTH	AVG VOLUME	SUM VOLUME	COMMENT
(FT)	(SF)	(FT)	(CF)	(CF)	
2645.0	2,178			0	Bottom
		0.50	1,193		
2645.5	2,592			1,193	Volume Provided (HWE)
		0.50	1,406		
2646.0	3,031			2,598	Top

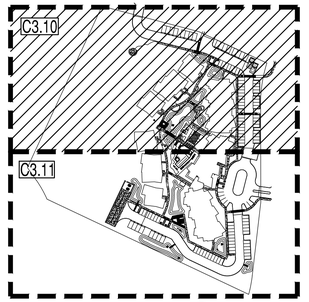
BASIN Q					
ELEV.	AREA	DEPTH	AVG VOLUME	SUM VOLUME	COMMENT
(FT)	(SF)	(FT)	(CF)	(CF)	
2645.5	102			0	Bottom
		0.50	74		
2646.0	195			74	Volume Provided (HWE)
		1.00	326		
2647.0	456			400	Top

ARTESSA PINNACLE PEAK

GRADING AND DRAINAGE PLAN

SW CORNER OF DYNAMITE BOULEVARD AND ALMA SCHOOL ROAD, SCOTTSDALE, ARIZONA, 85296
A PORTION OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 5 NORTH, RANGE 5 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA.





PRELIMINARY GRADING KEY NOTES

1. MATCH EXISTING GRADE.
2. 6" SINGLE CURB.
2A. 6" VERTICAL CURB AND GUTTER.
3. PROPOSED CONCRETE SIDEWALK. WIDTH PER PLAN.
4. HEAVY DUTY PAVEMENT.
4B. PAVERS FOR TRAFFIC AREAS.
5. PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
6. PROPOSED ACCESIBLE RAMP.
8. PROPOSED NYLOPLAST DRAIN BASIN WITH 30" RISER AND 2'X3' STEEL GRATE.
9. PROPOSED HDPE DOUBLE WALL PIPE, CLASS 100; PIPE MATERIAL PER MAG SPECIFICATION 738. LENGTH PER PLAN.
13. PROPOSED RIP-RAP; D50=6", 12" DEPTH. DIMENSIONS PER PLAN.
17. PROPOSED TRASH ENCLOSURE.
18. PROPOSED PATIO.
19. PROPOSED 30" CMP RISER WITH VENTED SOLID LID, INCLUDING CONCRETE COLLAR.
20. PROPOSED 30" RAISED RIM NYLOPLAST DRAIN BASIN WITH STANDARD H-20 GRATE, INCLUDING CONCRETE COLLAR.
21. PROPOSED DIAMOND PLATE SIDEWALK SCUPPER.
22. PROPOSED STRAIGHT TYPE HEADWALL PER M.A.G. STD. DET. 501.
24. PROPOSED RETAINING WALL.
27. PROPOSED DROP CURB INLET.
29. PROPOSED STRUCTURAL WALL ASSOCIATED WITH PROPOSED STRUCTURE.

NOTES:

1. FIRE LANE SURFACE SHALL SUPPORT 83,000 LBS. GVW.

NORTH

SCALE: 1" = 20'

NOT FOR CONSTRUCTION

SEG SUSTAINABILITY ENGINEERING GROUP
5240 N. 16TH STREET SUITE 105, PHOENIX, ARIZONA 85016
WWW.AZSEG.COM TEL. 480.588.7226 FAX. 480.258.3534

lifestyle communities

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Call 811 or visit Arizona811.com

PROJECT: ARTESSA PINNACLE PEAK
LOCATION: SWC DYNAMITE BOULEVARD AND ALMA SCHOOL ROAD, SCOTTSDALE, AZ

DRAWN	BCJC	05/30/2025
DESIGNED	BCJC	05/30/2025
CHECKED	SC	10/10/2024
FINAL QC	AK	10/11/2024
PROJ. MGR.	AK	05/30/2025

DATE: 05/30/2025
ISSUED FOR: REZONING

REVISION NO.:	DATE:
1	
2	
3	
4	

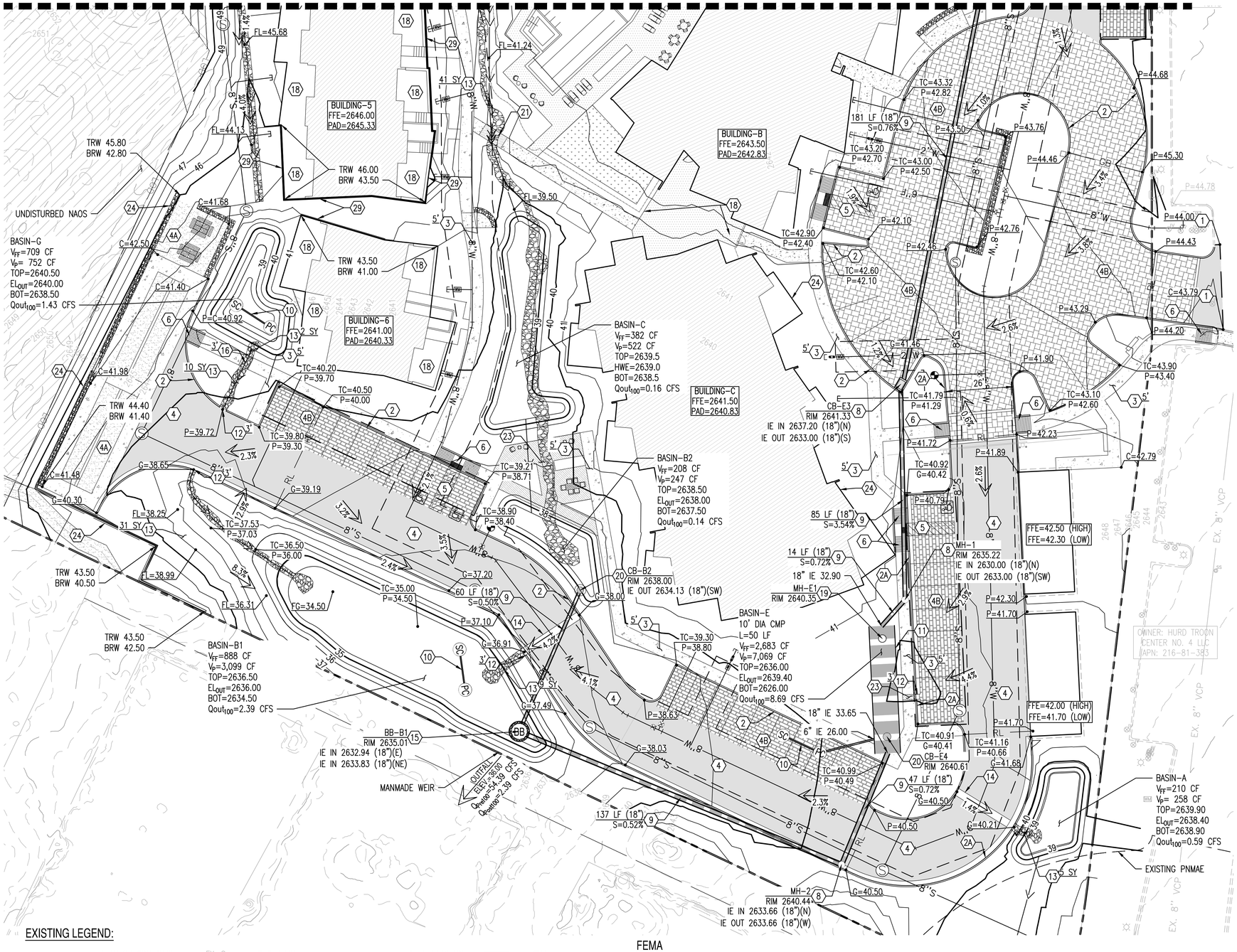
JOB NO.: 231106

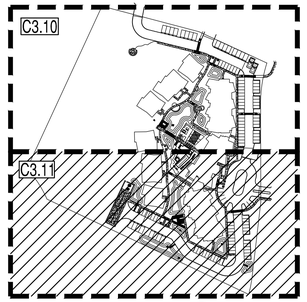
SHEET TITLE: **PRELIMINARY GRADING AND DRAINAGE PLAN**

PAGE NO.: 1 OF 3
SHEET NO.: **C3.10**

CASE #: 2-ZN-2024

MATCHLINE - REFER TO SHEET C3.10





PRELIMINARY GRADING KEY NOTES

1. MATCH EXISTING GRADE.
2. 6" SINGLE CURB.
2A. 6" VERTICAL CURB AND GUTTER.
3. PROPOSED CONCRETE SIDEWALK. WIDTH PER PLAN.
4. HEAVY DUTY PAVEMENT.
4A. STABILIZED DECOMPOSED GRANITE.
4B. PAVERS FOR TRAFFIC AREAS.
5. PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
6. PROPOSED ACCESIBLE RAMP.
7. PROPOSED 30" NYLOPLAST DRAIN BASIN WITH STANDARD SOLID LID, INCLUDING CONCRETE COLLAR.
8. PROPOSED NYLOPLAST DRAIN BASIN WITH 30" RISER AND 2'X3' STEEL GRATE.
9. PROPOSED HDPE DOUBLE WALL PIPE, CLASS 100; PIPE MATERIAL PER MAG SPECIFICATION 738. LENGTH PER PLAN.
10. PROPOSED MAXWELL PLUS DRYWELL.
NOTE: CONTRACTOR TO HAVE A PERCOLATION TEST DONE ON FIRST CONSTRUCTED DRYWELL AND PROVIDE RESULTS TO ENGINEER FOR DETERMINATION OF ULTIMATE NUMBER OF REQUIRED DRYWELLS.
11. PROPOSED UNDERGROUND STORMWATER STORAGE SYSTEM.
12. PROPOSED CURB OPENING WITH RIP-RAP. LENGTH PER PLAN.
13. PROPOSED RIP-RAP; D50=6", 12" DEPTH. DIMENSIONS PER PLAN.
14. PROPOSED CONCRETE VALLEY GUTTER
15. PROPOSED BUBBLER BOX. PROVIDE INLET PROTECTION.
16. PROPOSED SIDEWALK SCUPPER. WIDTH PER PLAN.
18. PROPOSED PATIO.
19. PROPOSED 30" CMP RISER WITH VENTED SOLID LID, INCLUDING CONCRETE COLLAR.
20. PROPOSED 30" RAISED RIM NYLOPLAST DRAIN BASIN WITH STANDARD H-20 GRATE, INCLUDING CONCRETE COLLAR.
21. PROPOSED DIAMOND PLATE SIDEWALK SCUPPER.
23. PROPOSED ELEVATED PLATFORM. REFER TO LANDSCAPE PLANS.
24. PROPOSED RETAINING WALL.
29. PROPOSED STRUCTURAL WALL ASSOCIATED WITH PROPOSED STRUCTURE.

EXISTING LEGEND:

EX. MAJOR CONTOURS (XXXX) — EX. MINOR CONTOURS (XXXX) — EX. SPOT ELEVATION (TC: XX.XX, GE: XX.XX) — EASEMENT LINE AS NOTED

EX. S — SEWER LINE — SEWER MANHOLE (S) — EX. W — WATER LINE — WATER VALVE (WV) — FIRE HYDRANT

STORM DRAIN LINE — STORM CATCH BASIN (CB) — STORM MANHOLE (D) — GAS (GAS) — FENCE (X X)

SIGN — STREET LIGHT — TREE — ROAD CENTERLINE

FEMA

MAP NUMBER	COMMUNITY NUMBER	PANEL # PANEL DATE	SUFFIX	DATE OF FIRM (INDEX DATE)	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE USE DEPTH)
04013C1330L	045012	1330 10/16/2013	L	08/02/2024	X-SHADED	N/A

PROPOSED GRADING LEGEND:

G=XX.XX — GUTTER ELEVATION, TC = G+0.5'
P=XX.XX — PAVEMENT ELEVATION TC = P+0.5'
C=XX.XX — CONCRETE ELEVATION

PROPERTY LINE — RIGHT OF WAY — CURB AND GUTTER — RIDGELINE (RL)

SETBACK — FLOW ARROW — CATCH BASIN — STORM PIPE

END SECTION — STORM MANHOLE (SD) — DRYWELL (PC–SC) — NYLOPLAST BASIN

WATER METER (WM) — GATE VALVE — FIRE HYDRANT — SEWER MANHOLE (S)

RIP-RAP — CONCRETE PAVEMENT — HEAVY DUTY PAVEMENT — STABILIZED DECOMPOSED GRANITE

PAVERS

NOTES:

1. FIRE LANE SURFACE SHALL SUPPORT 83,000 LBS. GVW.

NORTH

0' 20' 40' 60'

SCALE: 1" = 20'

NOT FOR CONSTRUCTION

SEG SUSTAINABILITY ENGINEERING GROUP
5240 N. 16TH STREET SUITE 105, PHOENIX, ARIZONA 85016
WWW.AZSEG.COM TEL. 480.588.7226 FAX. 480.255.3534

c. lifestyle communities

Blue Stake, Inc. Arizona 811 at least two full working days before you begin excavation. ARIZONA811.com Call 811 or eBlue Stake 811.com

PROJECT: ARTESSA PINNACLE PEAK
LOCATION: SWC DYNAMITE BOULEVARD AND ALMA SCHOOL ROAD, SCOTTSDALE, AZ

DRAWN	BCJC	05/30/2025
DESIGNED	BCJC	05/30/2025
CHECKED	SC	10/10/2024
FINAL QC	AK	10/11/2024
PROJ. MGR.	AK	05/30/2025

DATE: 05/30/2025
ISSUED FOR: REZONING

REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 231106

SHEET TITLE:
PRELIMINARY GRADING AND DRAINAGE PLAN

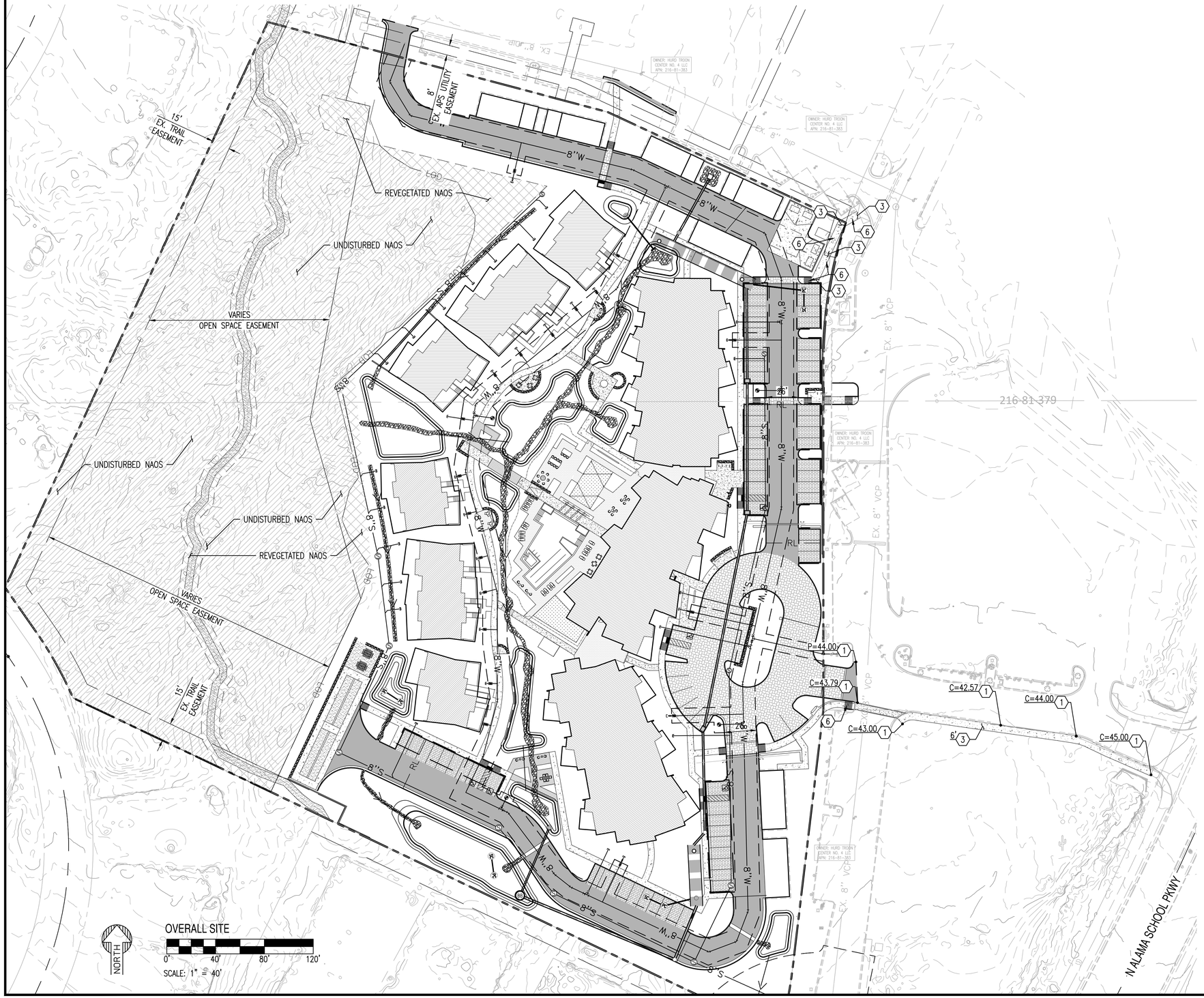
PAGE NO.: 2 OF 3
SHEET NO.: **C3.11**

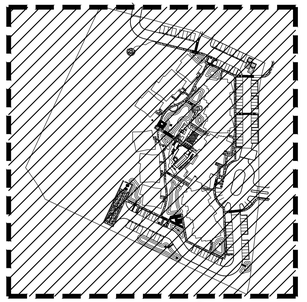
CASE #: 2-ZN-2024

ARTESSA PINNACLE PEAK

GRADING AND DRAINAGE OVERALL SITE

SW CORNER OF DYNAMITE BOULEVARD AND ALMA SCHOOL ROAD, ARIZONA, 85296
A PORTION OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 5 NORTH, RANGE 5 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA.





PRELIMINARY GRADING KEY NOTES

1. MATCH EXISTING GRADE.
3. PROPOSED CONCRETE SIDEWALK. WIDTH PER PLAN.
6. PROPOSED ACCESIBLE RAMP.

NOT FOR CONSTRUCTION

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lifestyle communities

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ARIZONA811
Call 811 or visit Arizona811.com

PROJECT	ARTESSA PINNACLE PEAK
LOCATION	SWC DYNAMITE BOULEVARD AND ALMA SCHOOL ROAD, SCOTTSDALE, AZ

DRAWN	BC/JC	05/30/2025
DESIGNED	BC/JC	05/30/2025
CHECKED	SC	10/10/2024
FINAL QC	AK	10/11/2024
PROJ. MGR.	AK	05/30/2025

DATE: 05/30/2025

ISSUED FOR: REZONING

REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 231106

SHEET TITLE: **PRELIMINARY GRADING AND DRAINAGE OVERALL PLAN**

PAGE NO.:	SHEET NO.:
3 OF 3	**C3.12**

CASE #: Z-ZN-2024

APPENDIX IV

REQUEST FOR STORMWATER STORAGE WAIVER

Request for Stormwater Storage Waiver

City of Scottsdale Plan/Case Numbers:

____ - DR - ___ ____ - PP - ____ PC#_____

Requests for stormwater storage waivers are reviewed as part of case submittals for the associated project. This form should be included in the preliminary drainage report with the applicant's portion completed. The preliminary drainage report shall include supporting documentation and analysis as needed to support the requested wavier.

Date 06/07/2024 Project Name Artessa Pinnacle Peak

Project Location SWC Dynamite Boulevard and Alma School Road, Scottsdale, Arizona 85262

Applicant Contact Ali Fakih Company Name Sustainability Engineering Group LLC

Phone 480-588-7226 E-mail ali@seg.com

Address N/A

Waiver Criteria

A project must meet at least one of three criteria listed below for the city to consider waiving some or all required stormwater storage. **However, regardless of the criteria, a waiver will only be granted if the applicant can demonstrate that the effect of a waiver will not increase the potential for flooding on any property.** Check the applicable box and provide a signed and sealed engineering report and supporting engineering analysis that demonstrate the project meets the criteria and that the effect of a waiver will not increase the potential for flooding on any property.

If the runoff for the project has been included in a storage facility at another location, the applicant must demonstrate that the stormwater storage facility was specifically designed to accommodate runoff from the subject property and that the runoff will be conveyed to this location through an adequately designed conveyance facility.

It should be noted that reductions in stormwater storage relating to

☐ 1. The development is adjacent to a conveyance facility that an engineering analysis shows is designed and constructed to handle the additional runoff from the site as a result of development.

☐ 2. The development is on a parcel less than one-half acre in size.

☑ 3. Stormwater storage requirements conflict with requirements of the Environmentally Sensitive Lands Ordinance (ESLO).

For a full storage waiver, a conflict with ESLO is limited to:

- Property located in the hillside landform as defined in the city Zoning Ordinance
- Property in the upper desert landform that has a land slope steeper than 5% as defined in the city Zoning Ordinance
- Property within the ESL zoning overlay district where the only viable location for a stormwater storage basin requires blasting

This full waiver only applies to those portions of property meeting one of these three requirements.

100-year/2-hour storage is allowed, but not required for redevelopment projects and development within the ESL zoning overlay. Rather, these projects must store enough stormwater to attenuate post-development flows to predevelopment levels, considering the 10- and 100-year storm events (S.R.C. Sections 37-50 and 37-51).

By signing below, I certify that the stated project meets the waiver criteria selected above as demonstrated by the attached documentation.

_____ _____

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500

Request for Stormwater Storage Waiver

City of Scottsdale Plan/Case Numbers:

____ - DR - ___ ____ - PP - ____ PC#_____

CITY STAFF TO COMPLETE THIS PAGE

Project Name Artessa Pinnacle Peak

Check Appropriate Boxes:

☐ Meets waiver criteria (specify): ☐ 1 ☐ 2 ☐ 3

Recommended Conditions of Waiver:

☐ All storage requirements waived.

☐ Post-development peak discharge rates do not exceed pre-development conditions.

☐ Other:

Explain: _____

_____

☐ **Waiver approved per above conditions.**

_____ _____

Floodplain Administrator or Designee Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500

Request for Stormwater Storage Waiver

City of Scottsdale Plan/Case Numbers:

____ - DR - ___ ____ - PP - ____ PC#_____

In-Lieu Fee and In-Kind Contributions

In-lieu fees are only applicable to projects where post-development peak discharge rates exceed pre-development levels, based on the 10- and 100-year storm events. If the city grants a waiver, the developer is required to calculate and contribute an in-lieu fee based on what it would cost the city to provide a storage basin, sized as described below, including costs such as land acquisition, construction, landscaping, design, construction management, and maintenance over a 75-year design life. The fee for this cost is $3.00 per cubic foot of stormwater storage for a virtual storage basin designed to mitigate the increase in runoff associated with the 100-year/2-hour storm event. The applicant may submit site-specific in-lieu fee calculations subject to the Floodplain Administrator's approval.

The Floodplain Administrator considers in-kind contributions on a case-by-case basis. An in-kind contribution can serve as part of or instead of the calculated in-lieu fee. In-kind contributions must be stormwater-related and must constitute a public benefit. In-lieu fees and in-kind contributions are subject to the approval of the Floodplain Administrator or designee.

Project Name Artessa Pinnacle Peak

The waived stormwater storage volume is calculated using a simplified approach as follows:

$V = \Delta CRA$; where

V = stormwater storage volume required, in cubic feet,
ΔC = increase in weighted average runoff coefficient over disturbed area ($C_{post} - C_{pre}$),
R = 100-year/2-hour precipitation depth, in feet (DSPM, Appendix 4-1D, page 11), and
A = area of disturbed ground, in square feet

Furthermore,

$V_w = V - V_p$; where
V_w = volume waived,
V = volume required, and
V_p = volume provided

R = 2.74
ΔC= 0.27
A = 267,826
V = 16,511
V_p= 17,420
V_w= -909

☐ An in-lieu fee will be paid, based on the following calculations and supporting documentation:
In-lieu fee ($) = V_w (cu. ft.) x $3.00 per cubic foot = _____

☐ An in-kind contribution will be made, as follows:

_____
_____
_____

☑ No in-lieu fee is required. Reason:

From the pre vs post analysis, Volume required is 16,550 CF, and volume proposed is 17,420 CF. Therefore, Volume waived is negative.

Approved by:

_____ _____
Floodplain Administrator or Designee Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500