THE RESIDENCIES AT 340 NORTH

COMPUTATIONS FOR FINAL STORMWATER MANAGEMENT

ST. THOMAS
U.S. VIRGIN ISLANDS

FEBRUARY 2025

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the U.S. VIRGIN ISLANDS, **License Number** _____ **Expiration Date** _____ 2/6/2025 **Signature** **Date** Cecil Thomas **Printed Name**	

FREDERICK WARD ASSOCIATES, INC.
P.O. BOX 727
5 SOUTH MAIN STREET
BEL AIR, MARYLAND 21014-0727
(410) 838-7900

FWA Project #2081093.01

Developer:

AC Development, LLC.
P.O. Box 11451
St. Thomas, VI 00801
Attn: Mr. Ajani Corneiro
PHONE: (203) 893-7280

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200' - 400'
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CYRIL E KING AIRPORT
Crown Bay Cruise Ship Dock
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Yacht Haven Grande
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ATLANTIC
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PETERBORG
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HOSPITAL
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SUB BASE
Crown Bay Marina
Nisky Center
BAKKEROO
FRENCHMAN BAY
Frenchman Bay
Drake's Seat
Scenic Overlook
University of the Virgin Islands
Inner Brass
Caret Point
Kastel Point
Hull Bay
Red Point
Providence Point
Flamingo Point
Green Cay
N
0 1/2 1 mile
0 1/2 1 kilometre
ST. THOMAS

NARRATIVE

THE RESIDENCIES AT 340 NORTH
STORMWATER MANAGEMENT NARRATIVE

A. GENERAL SITE INFORMATION

The proposed project site consists of two parcels, parcels 103-003-030-600 and 103-003-038-700 totaling approximately 11.65 acres of total site area. The project site is located south of Rosendahl Drive and north of Valdemar A Hill Senior Drive and bounded to the west by Shady Lane in the St. Thomas, U.S. Virgin Islands. The property is being developed by AC Development, LLC. These parcels will be subdivided as a portion of the PUD with a mix of community open space, townhomes, and single family units.

The site consists of existing forest with upstream drainage consisting of forest, single family houses, and public roadways. The site consists entirely of hydrologic soil type 'B' soils. Soil groups present on site are listed in the table below.

SOILS CHART

SYMBOL	UNIT NAME	HYDRIC	K-VALUE	HYDROLOGIC GROUP
DoE	DOROTHEA-SUSANNABERG COMPLEX, 20 TO 40 PERCENT SLOPES, EXTREMELY STONY	-	—	B
DoF	DOROTHEA-SUSANNABERG COMPLEX, 40 TO 60 PERCENT SLOPES, EXTREMELY STONY	-	0.17	B
DoG	DOROTHEA-SUSANNABERG COMPLEX, 60 TO 90 PERCENT SLOPES, EXTREMELY STONY	-	—	B

The site drains to the adjacent roadway ditches which contributes to a minor tributary discharging directly to Lovenlund Bay. The property boundary is not within the 100-year flood plain based on the FEMA Flood plain map 7800000027G, dated April 16, 2007.

The proposed construction consists of 80 townhouses and single family homes between 2 and 3 stories in height with the first level providing garage parking and the remaining floor space serving as primary living area. These units are to be accessed off the community road proposed with concrete swales draining supporting inlets and storm sewer serving and to direct runoff to appropriate underground management vaults. Runoff from this proposed construction will be captured and treated on site by 3 facilities listed as Facility 'A', 'B', and 'C' respectively serving their minor contributing drainage areas.

A sewer main connects to each house and is conveyed under the community road to a designated treatment location. Potable water will be harvested from rooftop runoff serving individual units based on local standard practice. Since the available volume of storage in the tank is unknown prior to the storm event, this additional volume has not be utilized but we believe provides an additional level of safety to protect against storm events.

B. STORMWATER MANAGEMENT QUANTITY CONTROL

The existing land use of the property is hydrologic soil B with woods in good condition while upstream drainage areas are a mix of woods and other sparse land covers. For existing condition modeling purposes we denoted the three drainage areas as woods in good condition. The overall site and drainage area convey to one study point along Rosendahl Drive. This was our primary location of analysis to ensure the 10 Year storm

event was managed. There are 3 sub-drainage areas contributing to this study point. These were analyzed to ensure compliance in managing the 10 year peak discharge and also to mimic current hydrologic divides. Each of these sub-drainage areas have their own management facility capturing runoff prior to leaving the property. Drainage areas 1A and 1B then utilize a Reach to carry these flows down to Study Point #1 which is also the discharge for sub-drainage area 1C.

The three proposed facilities will have No. 57 stone bottoms designed to encourage infiltration into the natural ground providing water quality treatment along with the water quality provided by rooftop water harvesting.

2 Years Management is provided for sub drainage area 1B and 1C. Drainage area 1A provides most of the quantity management for this storm however due to the grade of the cul-de-sac at the end of the road, some of the developed area bypasses the facility and it is impractical to mitigate. The increase in drainage area 1A is minimal and should not negatively impact the properties downstream.

10 Year Management is provided for all three sub drainage areas and for Study Point 1 using underground storage facilities and associated control structures. This storm event along with the 2 year event were the primary focus for quantity management.

100 Year Conveyance is provided for the sub drainage areas to their respective discharge points. These discharges continue to Study Point 1.

Calculations and peak discharges for existing and proposed drainage areas are provided in the appendix with a summary provided below:

WATER QUANTITY MANAGEMENT SUMMARY			
STUDY POINT	STORM EVENT	EX Q (CFS)	PROP Q (CFS)
SP #1	1 - YEAR	15.60	16.84
	10 - YEAR	109.67	106.01
	100 - YEAR	351.35	440.81

C. STORMWATER MANAGEMENT QUANTITY CONTROL FACILITY SUMMARY

The following proposed stormwater management practices will allow us to treat the ESD_v to the MEP for the site:

FACILITY 1A:

- Contributing Drainage Area: 11.60 acres
- Total Design Storage Volume: 60,000 CF
- Overall Facility Height: 10’

FACILITY 1B:

- Contributing Drainage Area: 17.26 acres
- Total Design Storage Volume: 40,000 CF
- Overall Facility Height: 10’

FACILITY 1C:

- Contributing Drainage Area: 2.69 acres
- Total Design Storage Volume: 25,000 CF
- Overall Facility Height: 10’

Note: Recharge Volume ReV will be provided on site via a 9” stone layer below the proposed underground stormwater management detention facility. The underground detention facility will have an open bottomed section which will allow for runoff to enter the stone layer.

F. SEDIMENT CONTROL MEASURES

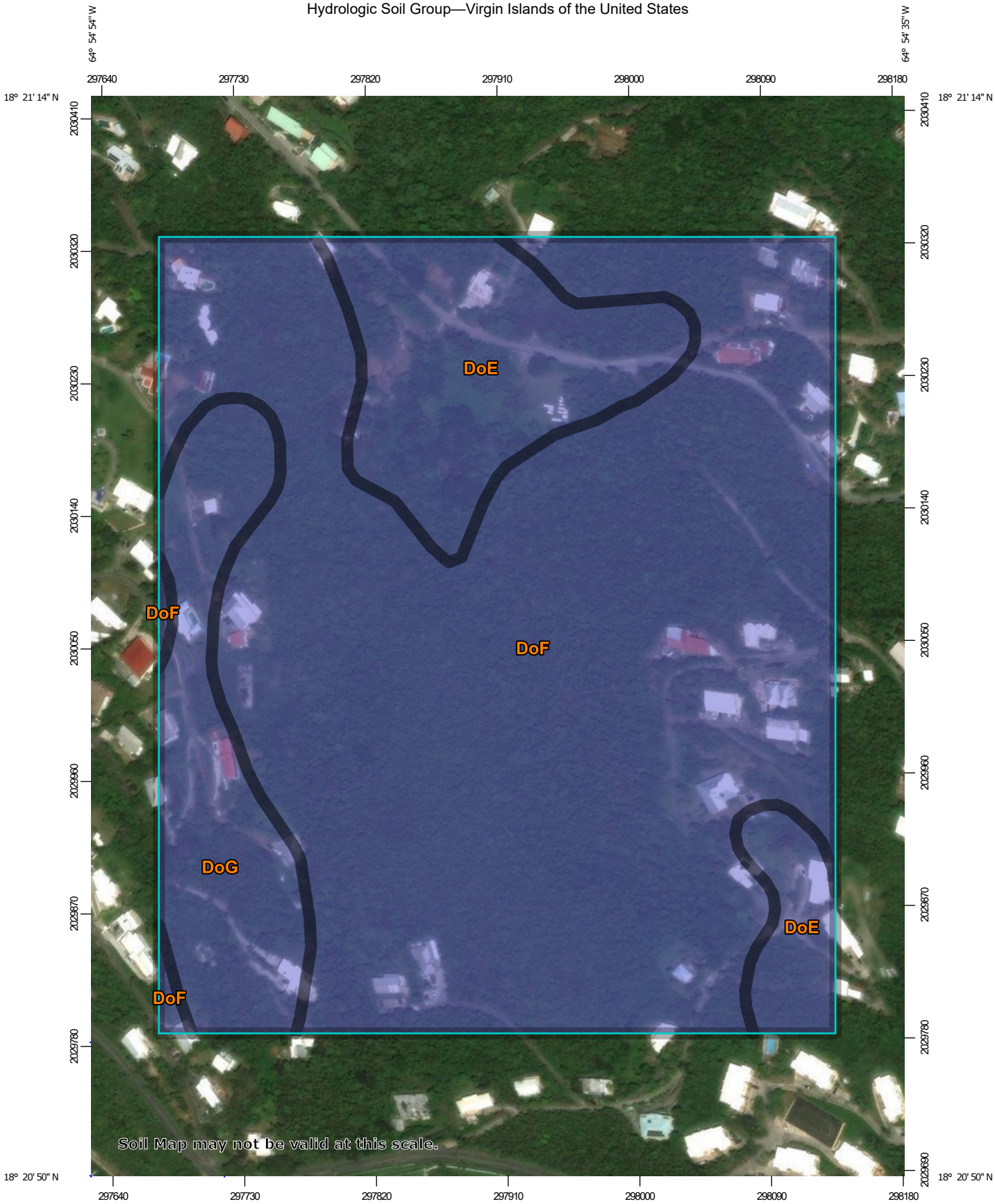
The Stormwater Management Plan shows some erosion controls to be implemented in association with the Stormwater Management facilities. Sediment Controls will include, storm inlet protection devices, silt fences, and erosion control blanket on slopes steeper than 3:1. Due to the soils being stable and having a low erodibility value we believe the soils will be relatively easy to manage as we will focus opening small phases to allow for managing the disturbed area on site, additional measures will be taken to mitigate the migration of sediment as they present themselve. This will include same day stabilization, soil stabilization matting, and silt fences at the toe of disturbed slopes.

Generally, the sequence of construction should proceed as follows:

1. Install Stabilized Construction Entrance
2. Install Silt Fence at perimeter locations shown on plan.
3. Strip topsoil and stockpile
4. Rough grade site.
5. Install storm drains, utilities, and other underground features. Install Inlet Protections.
6. Construct buildings, paving, and related utility lines.
7. Seed, mulch & mat as needed to stabilize disturbed earth.
8. Flush all storm drain system with high pressure hose to remove all sediment.
9. Activate quantity facility for each respective phase and allow for runoff to enter facilities.

Silt fence and super silt fences will be installed around the perimeter of the LOD boundary & stormwater facilities to prevent sediment laden runoff from entering the facilities while they are being installed. Stormwater should be diverted away from the quantity facilities using berms and silt fences if needed until facilities are stabilized. Pumping water to a suitable outfall after large rainfall events may also be necessary to protect the Stormwater management facilities.

USGS WEBSOIL SURVEY
HYDROLOGIC SOIL CONDITIONS



Map Scale: 1:3,590 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 20N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Virgin Islands of the United States
Survey Area Data: Version 6, Sep 10, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 2016—Feb 16, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DoE	Dorothea-Susannaberg complex, 20 to 40 percent slopes, extremely stony	B	9.7	15.7%
DoF	Dorothea-Susannaberg complex, 40 to 60 percent slopes, extremely stony	B	45.2	72.9%
DoG	Dorothea-Susannaberg complex, 60 to 90 percent slopes, extremely stony	B	7.1	11.4%
Totals for Area of Interest			**62.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

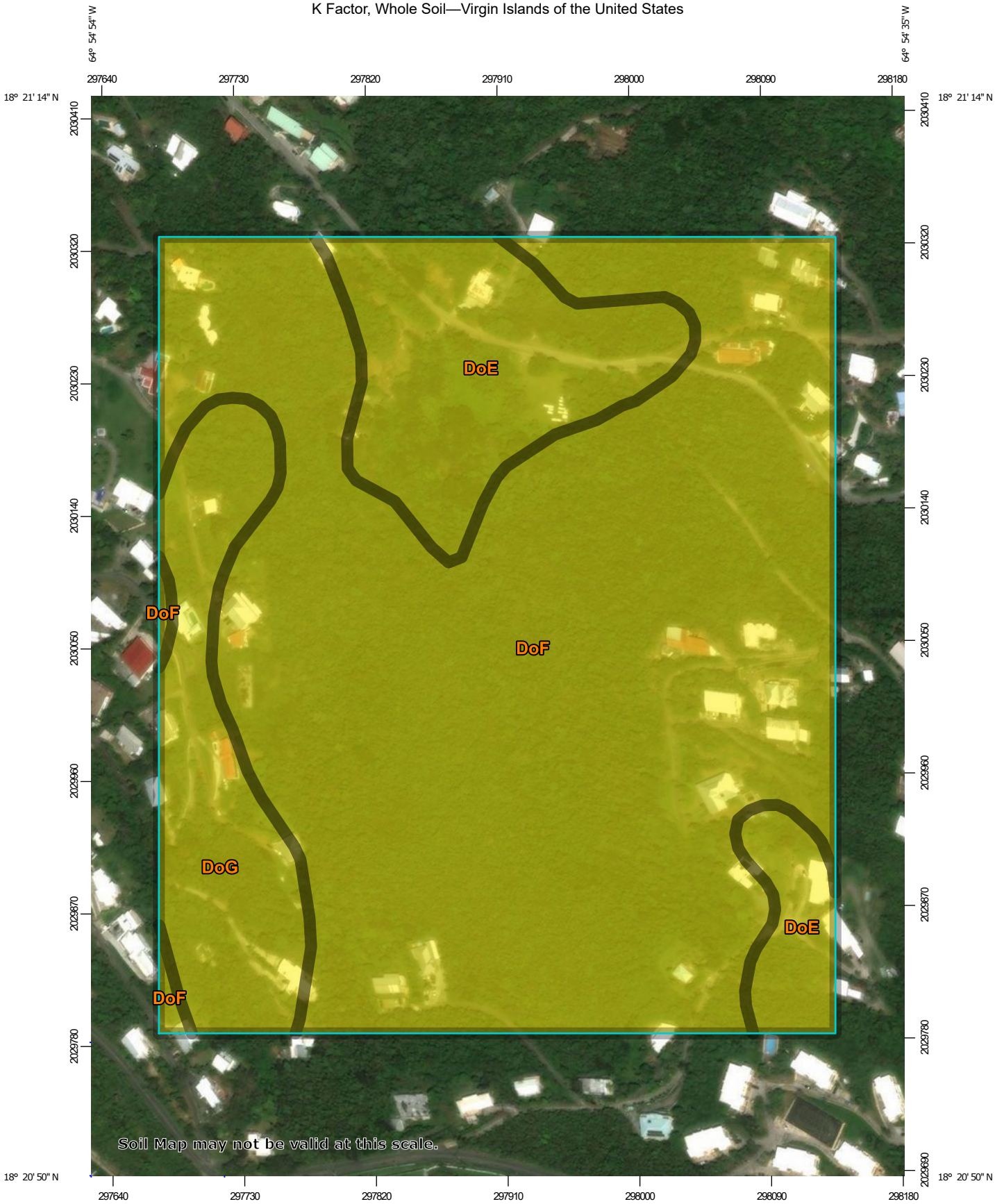
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

USGS WEB SOIL SURVEY
ERODIBLE SOILS



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N

Meters
0 50 100 200 300

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Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 20N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
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.64
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K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
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DoG	Dorothea-Susannaberg complex, 60 to 90 percent slopes, extremely stony	.17	7.1	11.4%
Totals for Area of Interest			**62.0**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

FEMA MAPPING

NOTES TO USERS

ap is for use in administering the National Flood Insurance Program. It ot necessarily identify all areas subject to flooding, particularly from local e sources of small size. The **community map repository** should be ed for possible updated or additional flood hazard information.

ain more detailed information in areas where **Base Flood Elevations** and/or **floodways** have been determined, users are encouraged to consult od Profiles and Floodway Data and/or Summary of Stillwater Elevations ontained within the Flood Insurance Study (FIS) report that accompanies RM. Users should be aware that BFEs shown on the FIRM represent d whole-foot elevations. These BFEs are intended for flood insurance purposes only and should not be used as the sole source of flood n information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of ction and/or floodplain management.

Base Flood Elevations shown on this map apply only landward of l datum defined by the National Ocean Service (NOS) and determined by Corps of Engineers (1995). Users of this FIRM should be aware that ood elevations are also provided in the Summary of Stillwater Elevations the Flood Insurance Study report for this jurisdiction. Elevations shown in mary of Stillwater Elevations tables should be used for construction and/or n management purposes when they are higher than the elevations shown IRM.

es of the **floodways** were computed at cross sections and interpolated cross sections. The floodways were based on hydraulic considerations ard to requirements of the National Flood Insurance Program. Floodway nd other pertinent floodway data are provided in the Flood Insurance port for this jurisdiction.

areas not in Special Flood Hazard Areas may be protected by **flood structures**. Refer to Section 2.4 "Flood Protection Measures" of the surance Study report for information on flood control structures for this on.

ection used in the preparation of this map was Puerto Rico / U.S. Virgin State Plane FIPSZONE 5200. The **horizontal datum** was NAD 83, pheroid. Differences in datum, spheroid, projection or State Plane zones the production of FIRMs for adjacent jurisdictions may result in slight l differences in map features across jurisdiction boundaries. These es do not affect the accuracy of this FIRM.

evations on this map are referenced to local tidal datum defined by the Ocean Service (NOS) and determined by the Army Corps of Engineers These flood elevations must be compared to structure and ground s referenced to the same **vertical datum**. For information regarding the on of local tidal datum, contact the Army Corps of Engineers, Jacksonville http://www.saj.usace.army.mil/. The Jacksonville District can be contacted lowing address:

y Corps of Engineers,
ville District
Marco Boulevard
ville, FL 32207-8175
04-232-2234
291-9405

, description, and/or location information for **bench marks** shown on this located in the accompanying Flood Insurance Study Report.

p information shown on this FIRM was derived from multiple sources. For e major U.S. Virgin Islands (St. Croix, St. John, and St. Thomas), digital tography was provided by the U.S. Army Corps of Engineers, Jacksonville These data were produced for use at a scale of 1:2,400 from photography bruary 6, 1994. For the small islands offshore of the three main islands, magery was provided by the National Oceanic and Atmospheric ration's Coastal Services Center. These data were produced at a scale of from aerial photography dated 1999.

n updated topographic information, this map reflects more detailed and **e stream channel configurations and floodplain delineations** than own on the previous FIRM for this jurisdiction. As a result, the Flood and Floodway Data tables in the Flood Insurance Study Report (which authoritative hydraulic data) may reflect stream channel distances that m what is shown on this map. Also, the road to floodplain relationships for d streams may differ from what is shown on previous maps.

te limits shown on this map are based on the best data available at the ublication. Because changes due to annexations or de-annexations may urred after this map was published, map users should contact appropriate ty officials to verify current corporate limit locations.

efer to the separately printed **Map Index** for an overview map showing t of map panels for this jurisdiction.

the **FEMA Map Service Center** at 1-800-358-9616 for information on products associated with this FIRM. Available products may include y issued Letters of Map Change, a Flood Insurance Study report, and/or rsions of this map. The FEMA Map Service Center may also be reached 1-800-358-9620 and its website at http://www.msc.fema.gov.

ve **questions about this map** or questions concerning the National Flood e Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or FEMA website at http://www.fema.gov.

COASTAL BARRIER LEGEND

-1990 Coastal Barrier

INSURANCE NOT AVAILABLE FOR NEW CONSTRUCTION OR ANTIALLY IMPROVED STRUCTURES ON OR AFTER NOVEMBER 16, N DESIGNATED COASTAL BARRIERS.

-1991 Otherwise Protected Area

INSURANCE NOT AVAILABLE FOR STRUCTURES – NEWLY BUILT BSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 16, 1991 – SED IN A MANNER CONSISTENT WITH THE PURPOSE OF THE WISE PROTECTED AREAS.

-1993 Coastal Barrier

INSURANCE NOT AVAILABLE FOR NEW CONSTRUCTION OR ANTIALLY IMPROVED STRUCTURES ON OR AFTER NOVEMBER 15, N DESIGNATED COASTAL BARRIERS.

-1997 Coastal Barrier

INSURANCE NOT AVAILABLE FOR NEW CONSTRUCTION OR ANTIALLY IMPROVED STRUCTURES ON OR AFTER FEBRUARY 24, N DESIGNATED COASTAL BARRIERS.

ents or concerns regarding the Coastal Barrier Resources n or Otherwise Protected Areas should be directed to the al Barrier Coordinator at the U.S. Fish and Wildlife Service; 79-7106.

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUN BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that chance of being equaled or exceeded in any given year. The Special Flood Hazard A area subject to flooding by the 1% annual chance flood. Areas of Special Flood Haza Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the wat elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); B Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain depths determined. For areas of alluvial fan flooding, velo determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annu flood by a flood control system that was subsequently decertified indicates that the former flood control system is being restored protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Fec protection system under construction; no Base Flood determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no B Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Ba Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must b of encroachment so that the 1% annual chance flood can be carried without substantia in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance average depths of less than 1 foot or with drainage areas 1 square mile; and areas protected by levees from 1% annual cha

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodpla

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREA

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Ar

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area 2 boundary dividing Special Flood Hazard Areas of diff Flood Elevations, flood depths or flood velocities.

513 — Base Flood Elevation line and value; elevation in feet*

(EL 987) — Base Flood Elevation value where uniform within zone; in feet*

* Referenced to the Local Tidal Datum

A — A — Cross section line

23 — 23 — Transect line

87°07'45", 32°22'30" — Geographic coordinates referenced to the North A Datum of 1983 (NAD 83), Western Hemisphere

1776000mN — 1000-meter Universal Transverse Mercator grid values, 20N

600000 FT — 5000-foot grid ticks: Puerto Rico Virgin Islands Stat coordinate system, zone (FIPSZONE 5200), Conformal Conic projection

DX5510 × — Bench mark (see explanation in Notes to Users sectio FIRM panel)

M1.5 — River Mile

MAP REPOSITORY
Office of the Tax Assessor and the Cadastral Section
1131 King Street
Christiansted, Virgin Islands 00820

INITIAL NFIP MAP DATE
February 25, 1977

FLOOD HAZARD BOUNDARY MAP REVISIONS
None

FLOOD INSURANCE RATE MAP EFFECTIVE
October 15, 1980

FLOOD INSURANCE RATE MAP REVISIONS
April 16, 2007 – to change base flood elevations, to change special flood hazard areas, to update r format, and to incorporate previously issued letters of map revisions.

See the NOTICE TO FLOOD INSURANCE STUDY USERS page of the Flood Insurance repor revision dates prior to April 16, 2007

To determine if flood insurance is available in this community, contact your Insurance ag the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0027G

FIRM

FLOOD INSURANCE RATE

U.S. VIRGIN ISLANDS

PANEL 27 OF 94

(SEE MAP INDEX FOR FIRM PANEL LA

CONTAINS:

COMMUNITY	NUMBER	PANEL
U.S. VIRGIN ISLANDS	780000	0027

- NOTE -

THIS MAP INCLUDES COASTAL BARRIER RE SYSTEM BOUNDARIES ESTABLISHED UNI COASTAL BARRIER RESOURCES ACT OF 198 SUBSEQUENT LEGISLATION.

Notice to User: The **Map Number** shown belo used when placing map orders; the **Communi** shown above should be used on insurance applica subject community.

MAP NU 780000

MAP RE APRIL 1

Federal Emergency Management

NOAA 14
RAINFALL MODELING DATA

NOAA Atlas 14, Volume 3, Version 4
Location name: Northside, Virgin Islands, VIR*
Latitude: 18.3508°, Longitude: -64.9129°
Elevation: 493 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

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	**0.310** (0.275-0.360)	**0.404** (0.356-0.461)	**0.505** (0.446-0.571)	**0.582** (0.507-0.659)	**0.679** (0.582-0.780)	**0.756** (0.637-0.879)	**0.832** (0.692-0.979)	**0.910** (0.744-1.08)	**1.02** (0.812-1.22)	**1.10** (0.862-1.34)
10-min	**0.424** (0.376-0.491)	**0.552** (0.486-0.630)	**0.690** (0.609-0.781)	**0.795** (0.693-0.901)	**0.928** (0.796-1.07)	**1.03** (0.871-1.20)	**1.14** (0.945-1.34)	**1.24** (1.02-1.48)	**1.39** (1.11-1.67)	**1.50** (1.18-1.83)
15-min	**0.544** (0.483-0.631)	**0.709** (0.624-0.809)	**0.886** (0.782-1.00)	**1.02** (0.889-1.16)	**1.19** (1.02-1.37)	**1.32** (1.12-1.54)	**1.46** (1.21-1.72)	**1.60** (1.31-1.90)	**1.78** (1.42-2.15)	**1.93** (1.51-2.35)
30-min	**0.871** (0.773-1.01)	**1.13** (0.999-1.30)	**1.42** (1.25-1.60)	**1.63** (1.42-1.85)	**1.91** (1.64-2.19)	**2.12** (1.79-2.47)	**2.34** (1.94-2.75)	**2.55** (2.09-3.04)	**2.85** (2.28-3.44)	**3.09** (2.42-3.76)
60-min	**1.29** (1.15-1.50)	**1.68** (1.48-1.92)	**2.10** (1.86-2.38)	**2.42** (2.11-2.75)	**2.83** (2.43-3.25)	**3.15** (2.65-3.66)	**3.47** (2.88-4.08)	**3.79** (3.10-4.51)	**4.23** (3.38-5.10)	**4.58** (3.59-5.58)
2-hr	**1.64** (1.44-1.94)	**2.18** (1.88-2.52)	**2.84** (2.46-3.26)	**3.36** (2.88-3.89)	**4.06** (3.39-4.78)	**4.61** (3.77-5.52)	**5.18** (4.15-6.28)	**5.76** (4.51-7.09)	**6.58** (5.01-8.31)	**7.21** (5.36-9.25)
3-hr	**1.85** (1.59-2.17)	**2.43** (2.09-2.82)	**3.20** (2.76-3.68)	**3.80** (3.24-4.41)	**4.62** (3.85-5.45)	**5.27** (4.30-6.29)	**5.94** (4.76-7.20)	**6.64** (5.22-8.16)	**7.62** (5.82-9.56)	**8.40** (6.26-10.7)
6-hr	**2.24** (1.86-2.68)	**2.97** (2.48-3.56)	**4.16** (3.46-4.94)	**5.13** (4.21-6.12)	**6.49** (5.16-7.91)	**7.60** (5.88-9.47)	**8.77** (6.60-11.1)	**10.0** (7.36-12.9)	**11.8** (8.37-15.7)	**13.3** (9.14-18.1)
12-hr	**2.62** (2.12-3.22)	**3.55** (2.89-4.38)	**5.22** (4.21-6.36)	**6.58** (5.22-8.11)	**8.55** (6.55-10.8)	**10.2** (7.54-13.1)	**11.9** (8.54-15.7)	**13.8** (9.62-18.6)	**16.5** (11.1-23.1)	**18.7** (12.1-26.7)
24-hr	**3.02** (2.54-3.62)	**4.12** (3.46-4.93)	**6.19** (5.18-7.37)	**7.96** (6.61-9.44)	**10.6** (8.64-12.5)	**12.8** (10.3-15.2)	**15.3** (12.1-18.0)	**18.0** (14.1-21.2)	**21.9** (16.9-26.0)	**25.2** (19.2-29.8)
2-day	**3.99** (3.33-4.86)	**5.46** (4.54-6.63)	**8.16** (6.77-9.89)	**10.4** (8.55-12.6)	**13.7** (11.1-16.4)	**16.4** (13.1-19.7)	**19.3** (15.2-23.1)	**22.5** (17.4-27.0)	**27.2** (20.6-32.7)	**31.0** (23.1-37.4)
3-day	**4.14** (3.43-5.09)	**5.66** (4.68-6.96)	**8.45** (6.94-10.3)	**10.7** (8.72-13.1)	**14.1** (11.2-17.1)	**16.8** (13.2-20.4)	**19.8** (15.4-24.0)	**23.0** (17.6-28.0)	**27.6** (20.8-33.7)	**31.4** (23.4-38.5)
4-day	**4.28** (3.52-5.33)	**5.87** (4.81-7.28)	**8.74** (7.10-10.8)	**11.1** (8.89-13.7)	**14.4** (11.4-17.7)	**17.2** (13.4-21.2)	**20.2** (15.6-24.9)	**23.4** (17.8-29.0)	**28.0** (21.0-34.7)	**31.8** (23.6-39.5)
7-day	**4.88** (3.99-6.13)	**6.66** (5.43-8.36)	**9.96** (8.04-12.4)	**12.7** (10.1-15.8)	**16.7** (13.0-20.6)	**20.0** (15.4-24.7)	**23.5** (17.9-29.2)	**27.4** (20.7-34.1)	**33.0** (24.5-41.2)	**37.6** (27.5-47.2)
10-day	**5.44** (4.50-6.73)	**7.39** (6.10-9.13)	**10.8** (8.85-13.3)	**13.6** (11.0-16.8)	**17.7** (14.0-21.6)	**21.0** (16.5-25.7)	**24.6** (19.0-30.1)	**28.4** (21.8-35.0)	**33.9** (25.6-41.9)	**38.4** (28.6-47.7)
20-day	**7.22** (6.15-8.57)	**9.60** (8.17-11.4)	**13.3** (11.2-15.7)	**16.2** (13.6-19.1)	**20.2** (16.7-23.8)	**23.4** (19.2-27.7)	**26.8** (21.8-31.7)	**30.3** (24.5-36.0)	**35.3** (28.1-42.1)	**39.2** (30.9-48.1)
30-day	**9.06** (7.85-10.5)	**11.9** (10.3-13.8)	**15.7** (13.6-18.2)	**18.6** (15.9-21.4)	**22.4** (19.0-25.9)	**25.4** (21.4-29.4)	**28.4** (23.8-33.0)	**31.5** (26.3-36.7)	**35.8** (29.6-42.5)	**39.3** (32.2-48.6)
45-day	**11.4** (10.0-12.9)	**14.7** (13.0-16.7)	**18.8** (16.5-21.2)	**21.8** (19.0-24.7)	**25.7** (22.3-29.1)	**28.7** (24.8-32.5)	**31.7** (27.2-36.0)	**34.8** (29.6-39.6)	**38.8** (32.8-44.5)	**42.0** (35.3-49.1)
60-day	**13.0** (11.7-14.6)	**16.8** (15.1-18.7)	**21.1** (18.9-23.6)	**24.4** (21.7-27.2)	**28.7** (25.4-32.0)	**32.0** (28.1-35.7)	**35.3** (30.8-39.5)	**38.7** (33.5-43.4)	**43.2** (37.0-48.6)	**46.6** (39.6-52.7)

[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

EXISTING CONDITIONS
TR-55

WinTR-55 Current Data Description

--- Identification Data ---

User: TMM
Project: USVI
SubTitle: Existing Cond
State: Maryland
County: USVI
Filename: <new file>

Date: 2/4/2025
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
EX-1A	Sub Area 1A	1A to SP1	14.96	55	.111
EX-1B	Sub Area 1B	1B to SP1	17.26	55	.147
EX-1C	Study Point 1	Outlet	2.74	55	.123

Total area: 34.96 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.12	.0	7.96	10.6	.0	15.3	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.12	.0	7.96	10.6	.0	15.3	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
EX-1A							
SHEET	100	0.2700	0.240				0.074
SHALLOW	647	0.3350	0.050				0.019
CHANNEL	449					7.000	0.018
					Time of Concentration		.111
EX-1B							
SHEET	100	0.1400	0.240				0.096
SHALLOW	504	0.4190	0.050				0.013
CHANNEL	964					7.000	0.038
					Time of Concentration		.147
EX-1C							
SHEET	100	0.2500	0.240				0.076
SHALLOW	566	0.3390	0.050				0.017
CHANNEL	751					7.000	0.030
					Time of Concentration		.123

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
EX-1A	Woods	(good)	B	14.956	55
	Total Area / Weighted Curve Number			14.96	55
EX-1B	Woods	(good)	B	17.261	55
	Total Area / Weighted Curve Number			17.26	55
EX-1C	Woods	(good)	B	2.738	55
	Total Area / Weighted Curve Number			2.74	55

PROPOSED CONDITIONS
TR-55

WinTR-55 Current Data Description

--- Identification Data ---

User: TMM
Project: USVI
SubTitle: Prop Cond - Unmanaged
State: Maryland
County: USVI
Filename: M:\FWA Business Development\Proposals\Engineering\2024\USVI ST\SWM\Prop.w55

Date: 2/4/2025
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
PR-1A	Sub Area 1A	1A to SP1	11.6	63	.106
PR-1B	Sub Area 1B	1B to SP1	15.74	59	.134
PR-1C	Study Point 1	Outlet	2.69	85	.123
PR-1A-REM	Rem Area not to Fac	1A to SP1	3.51	68	0.100
PR-1B-REM	Rem Area not to Fac	1B to SP1	1.41	85	0.100

Total area: 34.95 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.12	.0	7.96	10.6	.0	15.3	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

Prop Cond - Unmanaged
USVI County, Maryland

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.12	.0	7.96	10.6	.0	15.3	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
PR-1A							
SHEET	100	0.2700	0.240				0.074
SHALLOW	647	0.3320	0.050				0.019
CHANNEL	326					7.000	0.013
					Time of Concentration		.106
PR-1B							
SHEET	100	0.1400	0.240				0.096
SHALLOW	504	0.4160	0.050				0.013
CHANNEL	626					7.000	0.025
					Time of Concentration		.134
PR-1C							
SHEET	100	0.2500	0.240				0.076
SHALLOW	566	0.3390	0.050				0.017
CHANNEL	751					7.000	0.030
					Time of Concentration		.123
PR-1A-REM							
User-provided							0.100
					Time of Concentration		0.100
PR-1B-REM							
User-provided							0.100
					Time of Concentration		0.100

Prop Cond - Unmanaged
USVI County, Maryland

Sub-Area Land Use and Curve Number Details

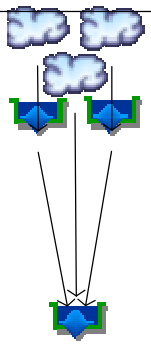
Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
PR-1A	Residential districts (1/8 acre)		B	3	85
	Woods	(good)	B	8.602	55
	Total Area / Weighted Curve Number			11.6	63
PR-1B	Residential districts (1/8 acre)		B	1.997	85
	Woods	(good)	B	13.738	55
	Total Area / Weighted Curve Number			15.74	59
PR-1C	Residential districts (1/8 acre)		B	2.694	85
	Total Area / Weighted Curve Number			2.69	85
PR-1A-REM	Residential districts (1/8 acre)		B	1.502	85
	Woods	(good)	B	2.013	55
	Total Area / Weighted Curve Number			3.51	68
PR-1B-REM	Residential districts (1/8 acre)		B	1.406	85
	Total Area / Weighted Curve Number			1.41	85

EXISTING CONDITIONS HYDRAULIC ANALYSIS

Hydraflow Table of Contents

Ex Cond.gpw

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	EX-1A
2	SCS Runoff	EX-1B
3	SCS Runoff	EX-1C
4	Reach	1B to SP#1
5	Reach	1A to SP1
6	Combine	SP1

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	6.123	-------	-------	43.73	76.61	-------	140.75	EX-1A
2	SCS Runoff	------	-------	12.07	-------	-------	75.60	129.79	-------	235.78	EX-1B
3	SCS Runoff	------	-------	2.075	-------	-------	12.61	21.54	-------	38.96	EX-1C
4	Reach	2	-------	11.81	-------	-------	75.32	129.70	-------	235.55	1B to SP#1
5	Reach	1	-------	5.847	-------	-------	42.97	75.77	-------	140.14	1A to SP1
6	Combine	3, 4, 5	-------	15.60	-------	-------	109.67	191.18	-------	351.35	SP1

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

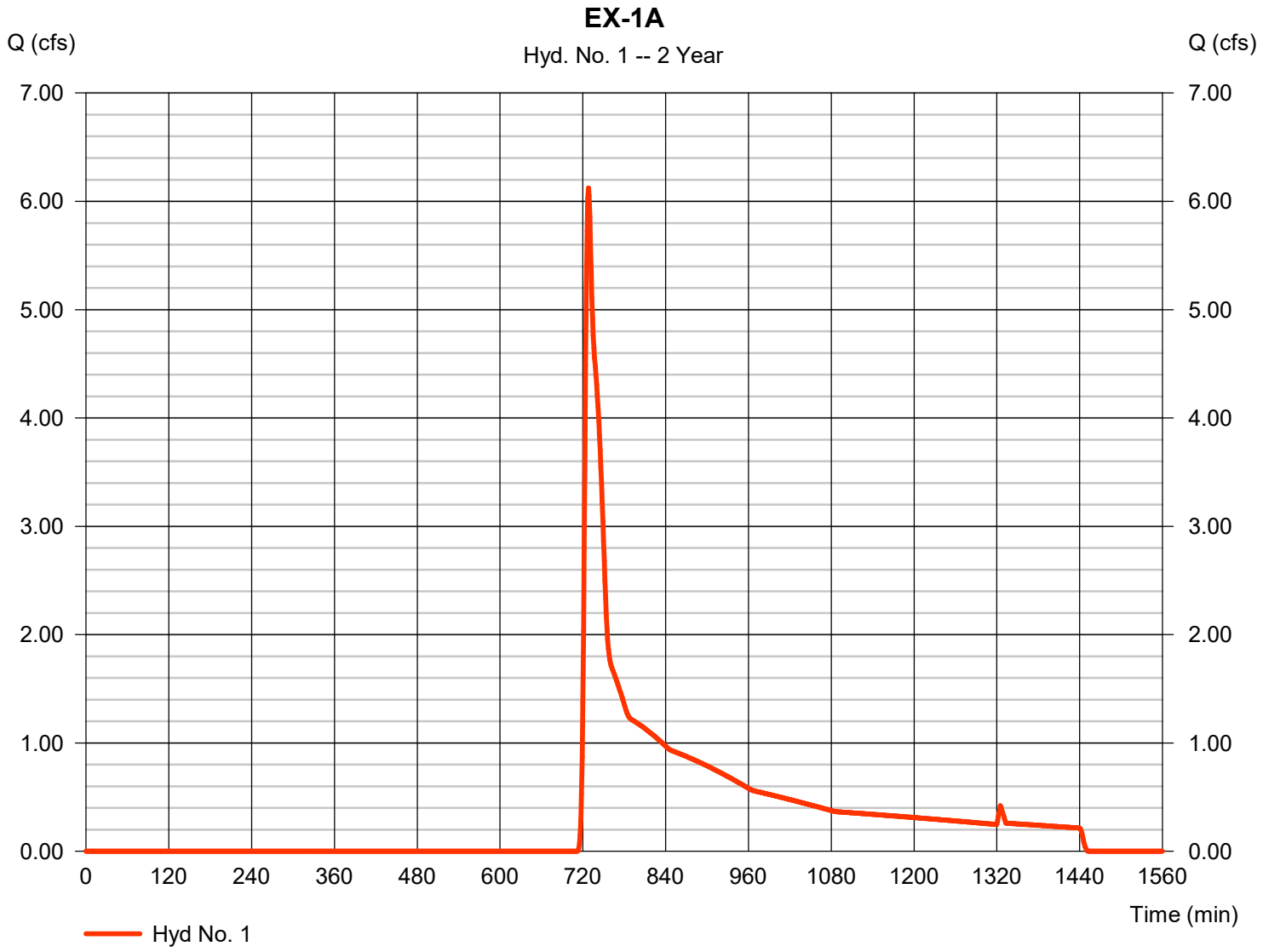
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	6.123	1	728	30,621	------	------	------	EX-1A
2	SCS Runoff	12.07	1	721	36,236	------	------	------	EX-1B
3	SCS Runoff	2.075	1	720	5,609	------	------	------	EX-1C
4	Reach	11.81	1	723	36,235	2	------	------	1B to SP#1
5	Reach	5.847	1	731	30,620	1	------	------	1A to SP1
6	Combine	15.60	1	724	72,464	3, 4, 5	------	------	SP1

Hydrograph Report

Hyd. No. 1

EX-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.123 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	30,621 cuft
Drainage area	=	14.960 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.70 min
Total precip.	=	4.12 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

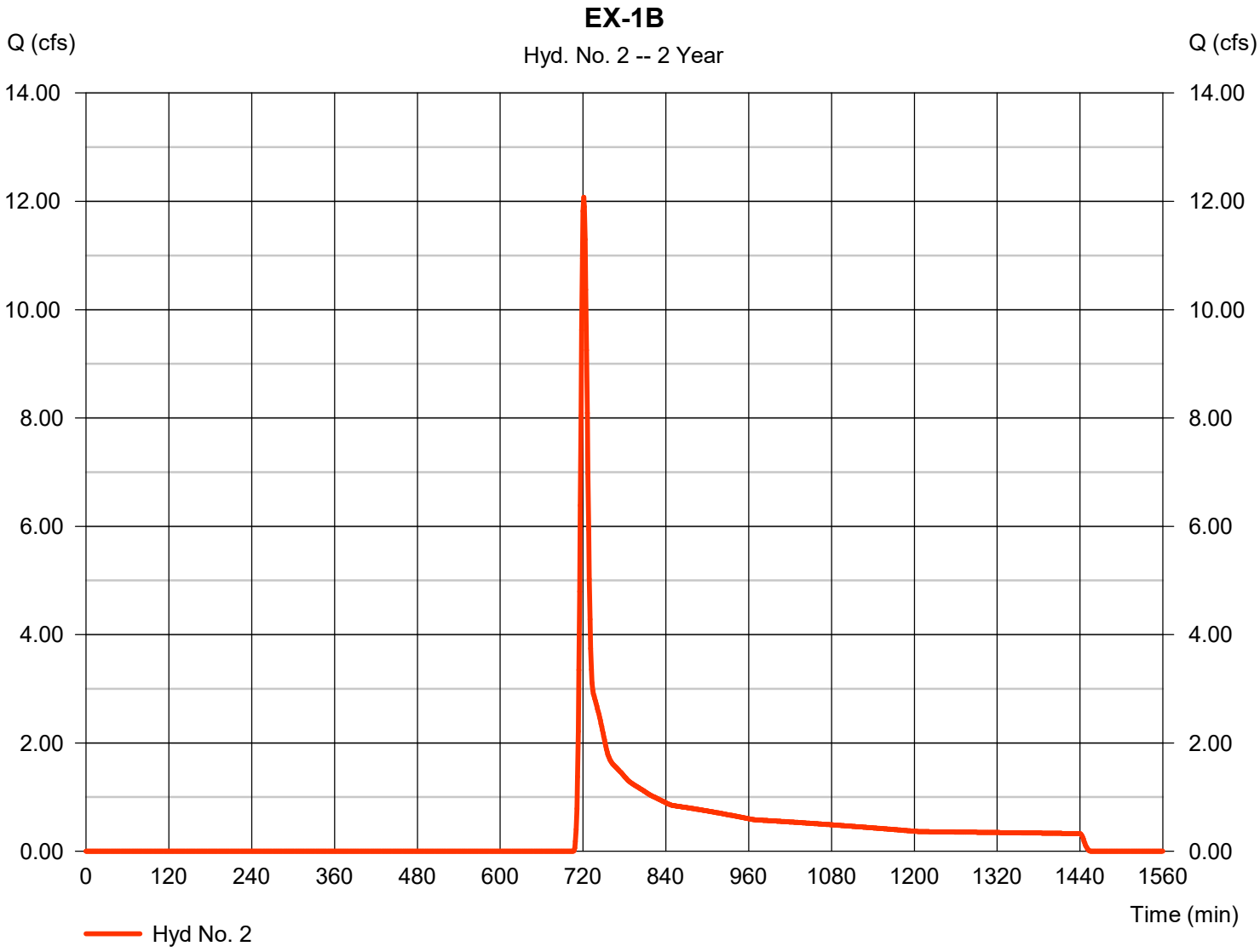


Hydrograph Report

Hyd. No. 2

EX-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.07 cfs
Storm frequency	=	2 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	36,236 cuft
Drainage area	=	17.260 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.82 min
Total precip.	=	4.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

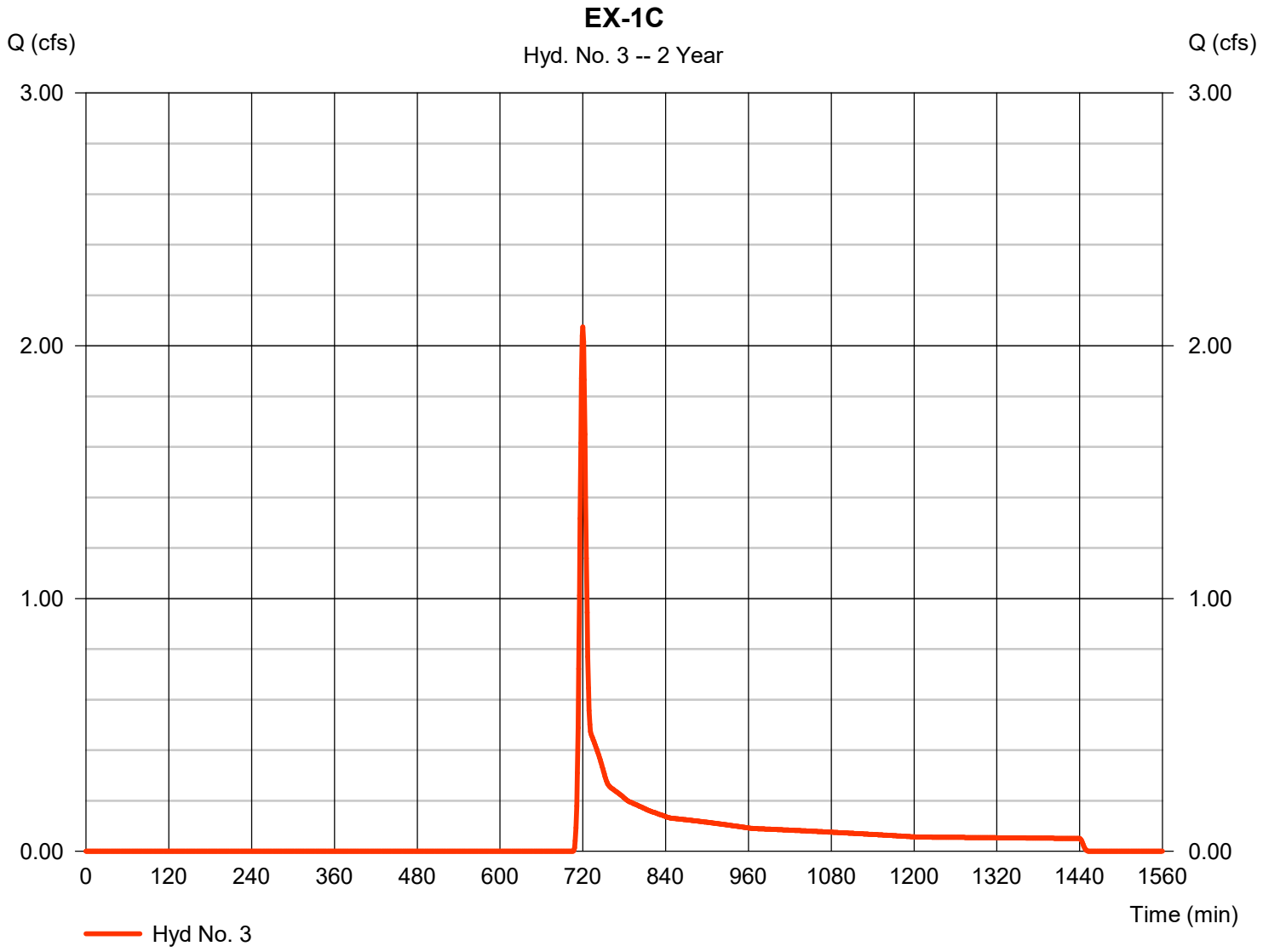


Hydrograph Report

Hyd. No. 3

EX-1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.075 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	5,609 cuft
Drainage area	=	2.740 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	7.38 min
Total precip.	=	4.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



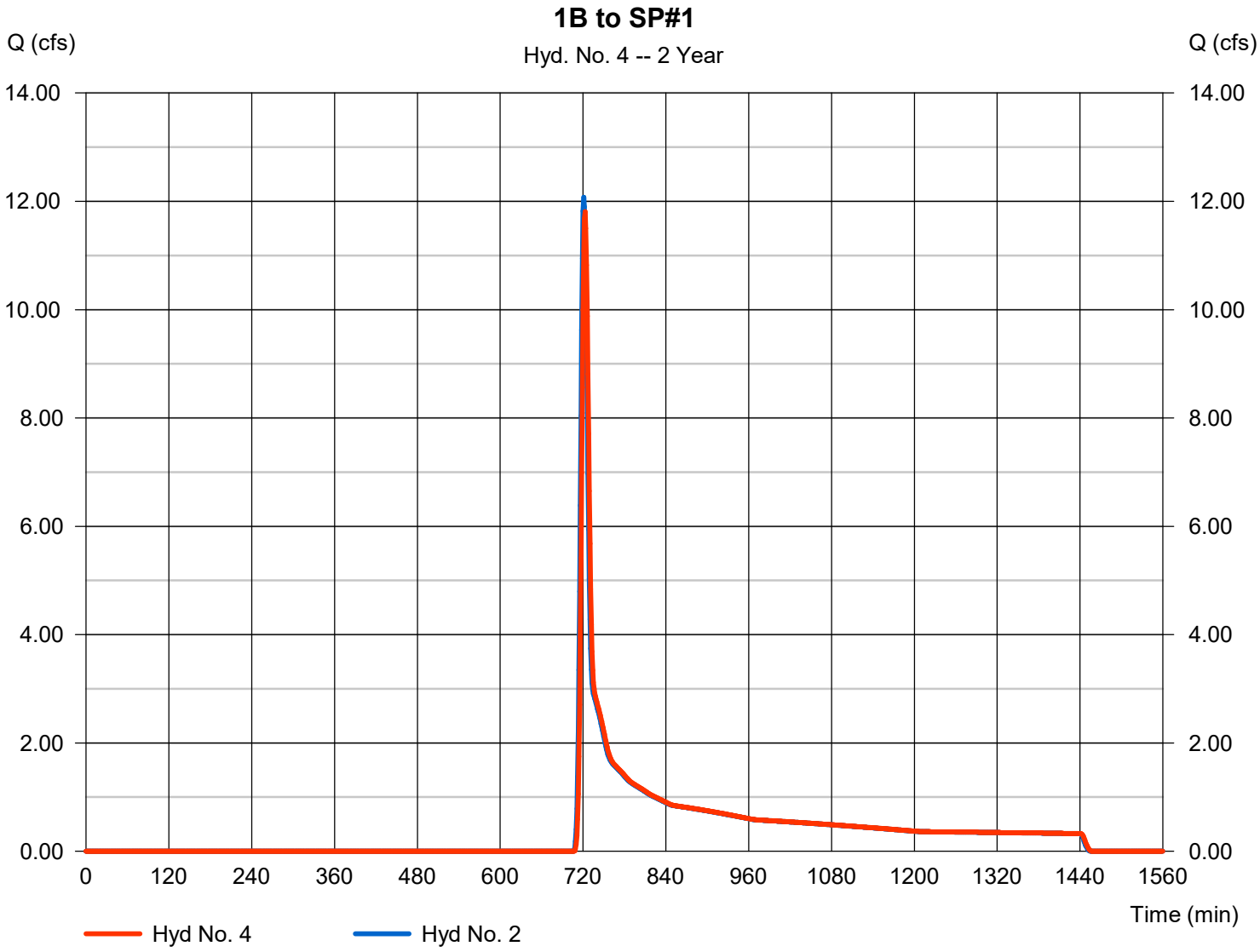
Hydrograph Report

Hyd. No. 4

1B to SP#1

Hydrograph type	=	Reach	Peak discharge	=	11.81 cfs
Storm frequency	=	2 yrs	Time to peak	=	723 min
Time interval	=	1 min	Hyd. volume	=	36,235 cuft
Inflow hyd. No.	=	2 - EX-1B	Section type	=	Trapezoidal
Reach length	=	649.0 ft	Channel slope	=	10.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	5.579	Rating curve m	=	1.356
Ave. velocity	=	6.83 ft/s	Routing coeff.	=	0.5995

Modified Att-Kin routing method used.



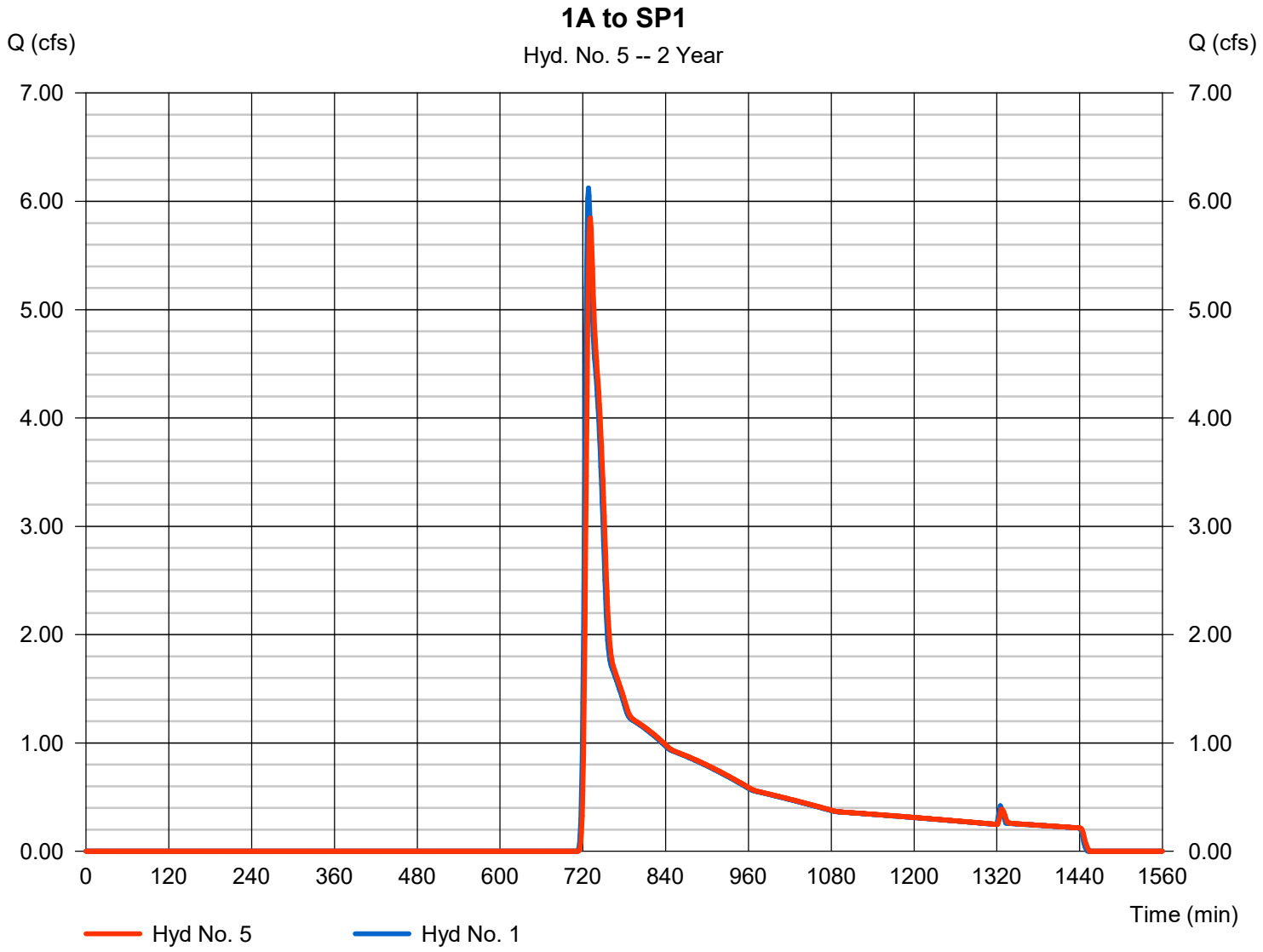
Hydrograph Report

Hyd. No. 5

1A to SP1

Hydrograph type	=	Reach	Peak discharge	=	5.847 cfs
Storm frequency	=	2 yrs	Time to peak	=	731 min
Time interval	=	1 min	Hyd. volume	=	30,620 cuft
Inflow hyd. No.	=	1 - EX-1A	Section type	=	Trapezoidal
Reach length	=	940.0 ft	Channel slope	=	13.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	6.307	Rating curve m	=	1.356
Ave. velocity	=	6.26 ft/s	Routing coeff.	=	0.4261

Modified Att-Kin routing method used.

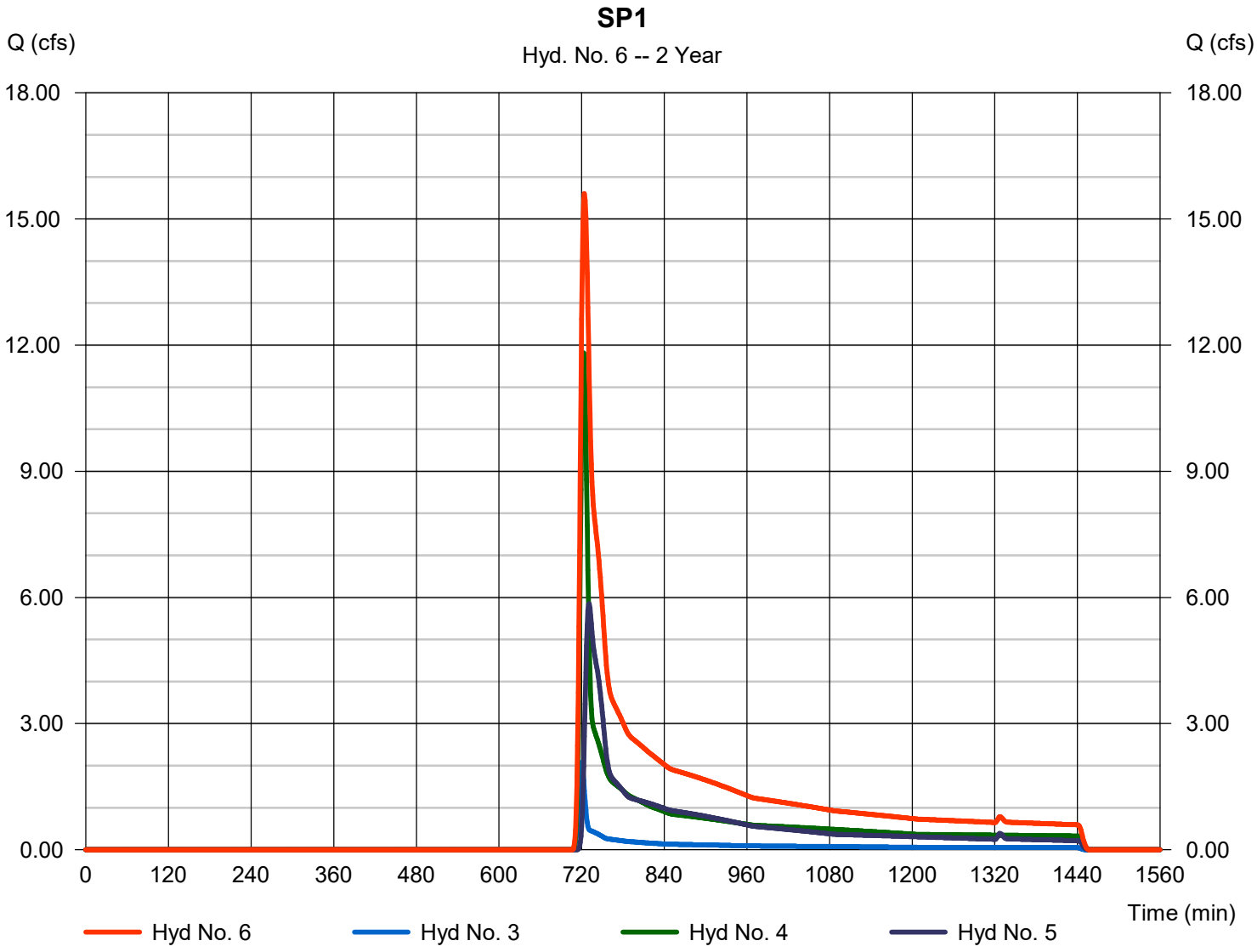


Hydrograph Report

Hyd. No. 6

SP1

Hydrograph type	=	Combine	Peak discharge	=	15.60 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	72,464 cuft
Inflow hyds.	=	3, 4, 5	Contrib. drain. area	=	2.740 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

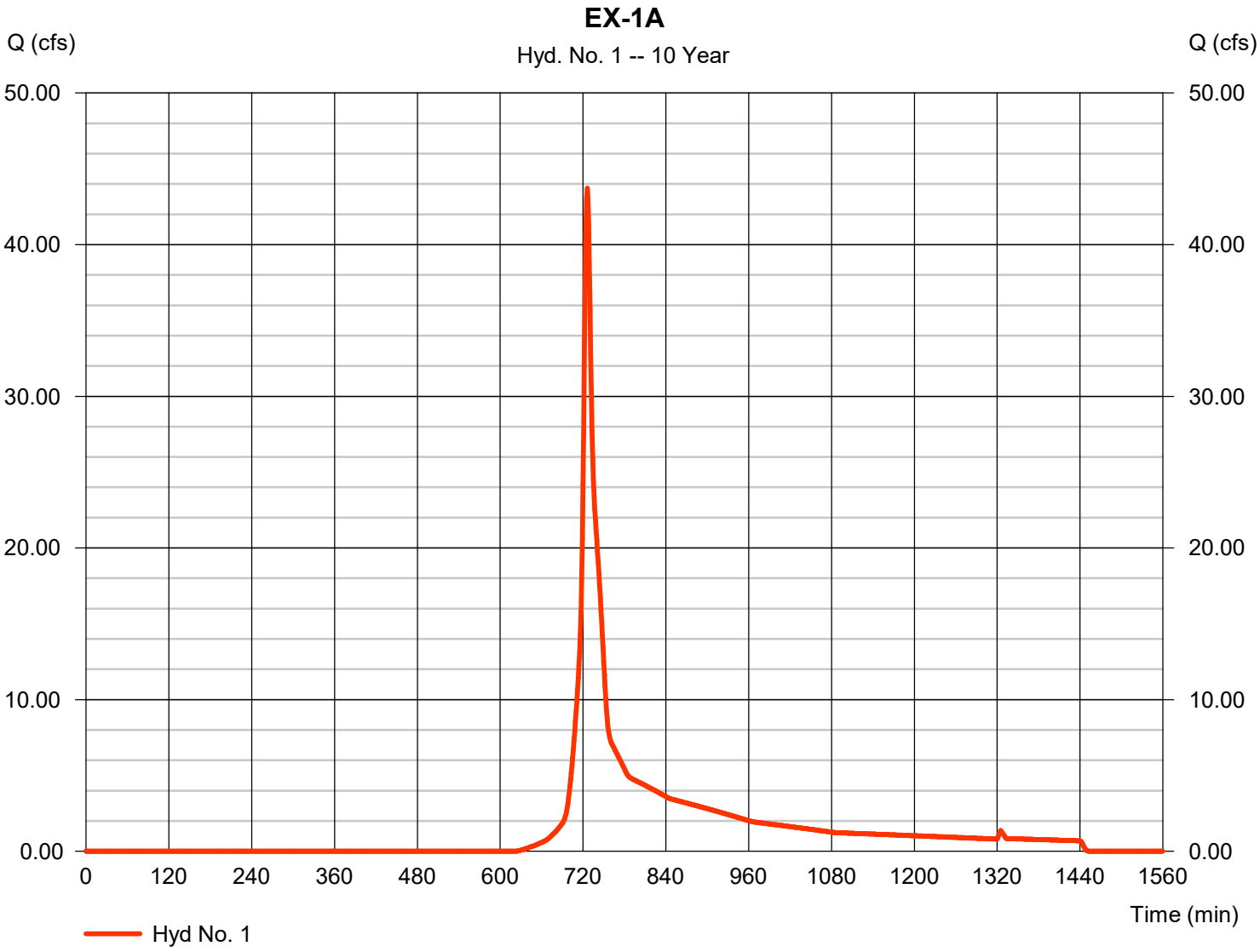
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	43.73	1	726	145,964	------	------	------	EX-1A
2	SCS Runoff	75.60	1	720	172,723	------	------	------	EX-1B
3	SCS Runoff	12.61	1	719	26,734	------	------	------	EX-1C
4	Reach	75.32	1	721	172,723	2	------	------	1B to SP#1
5	Reach	42.97	1	728	145,963	1	------	------	1A to SP1
6	Combine	109.67	1	722	345,420	3, 4, 5	------	------	SP1

Hydrograph Report

Hyd. No. 1

EX-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	43.73 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	145,964 cuft
Drainage area	=	14.960 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.70 min
Total precip.	=	7.96 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

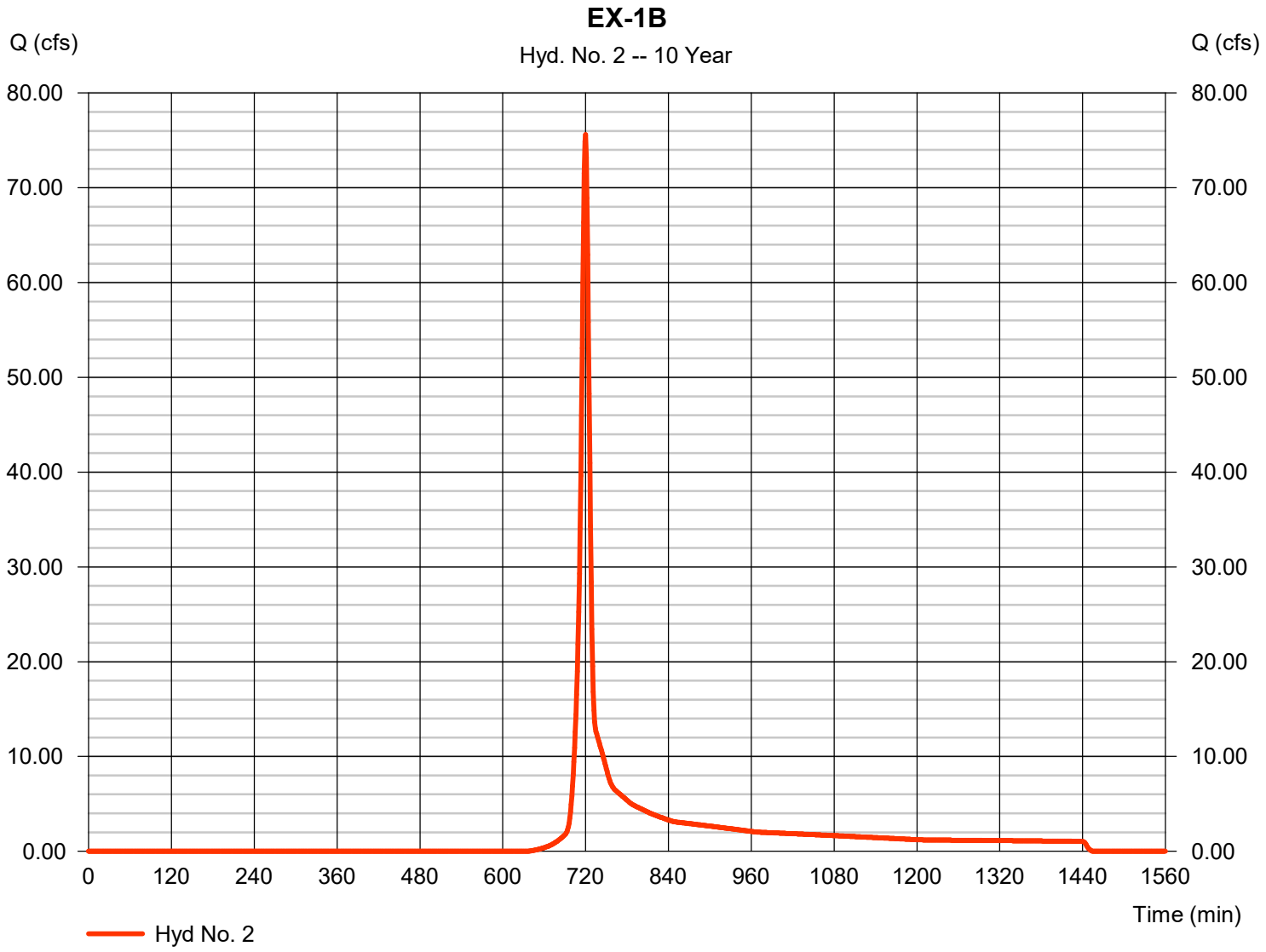


Hydrograph Report

Hyd. No. 2

EX-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	75.60 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	172,723 cuft
Drainage area	=	17.260 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.82 min
Total precip.	=	7.96 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

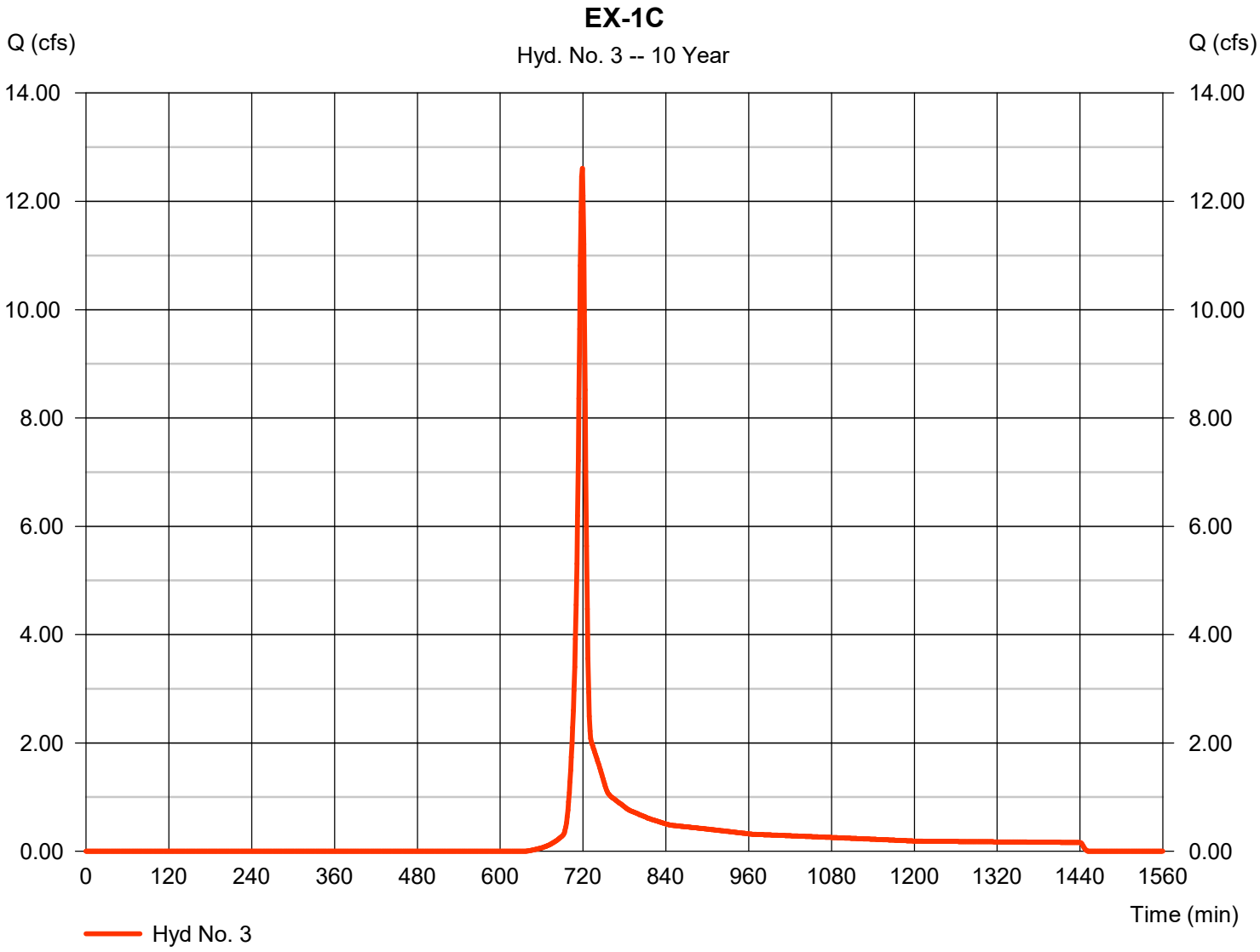


Hydrograph Report

Hyd. No. 3

EX-1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.61 cfs
Storm frequency	=	10 yrs	Time to peak	=	719 min
Time interval	=	1 min	Hyd. volume	=	26,734 cuft
Drainage area	=	2.740 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	7.38 min
Total precip.	=	7.96 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



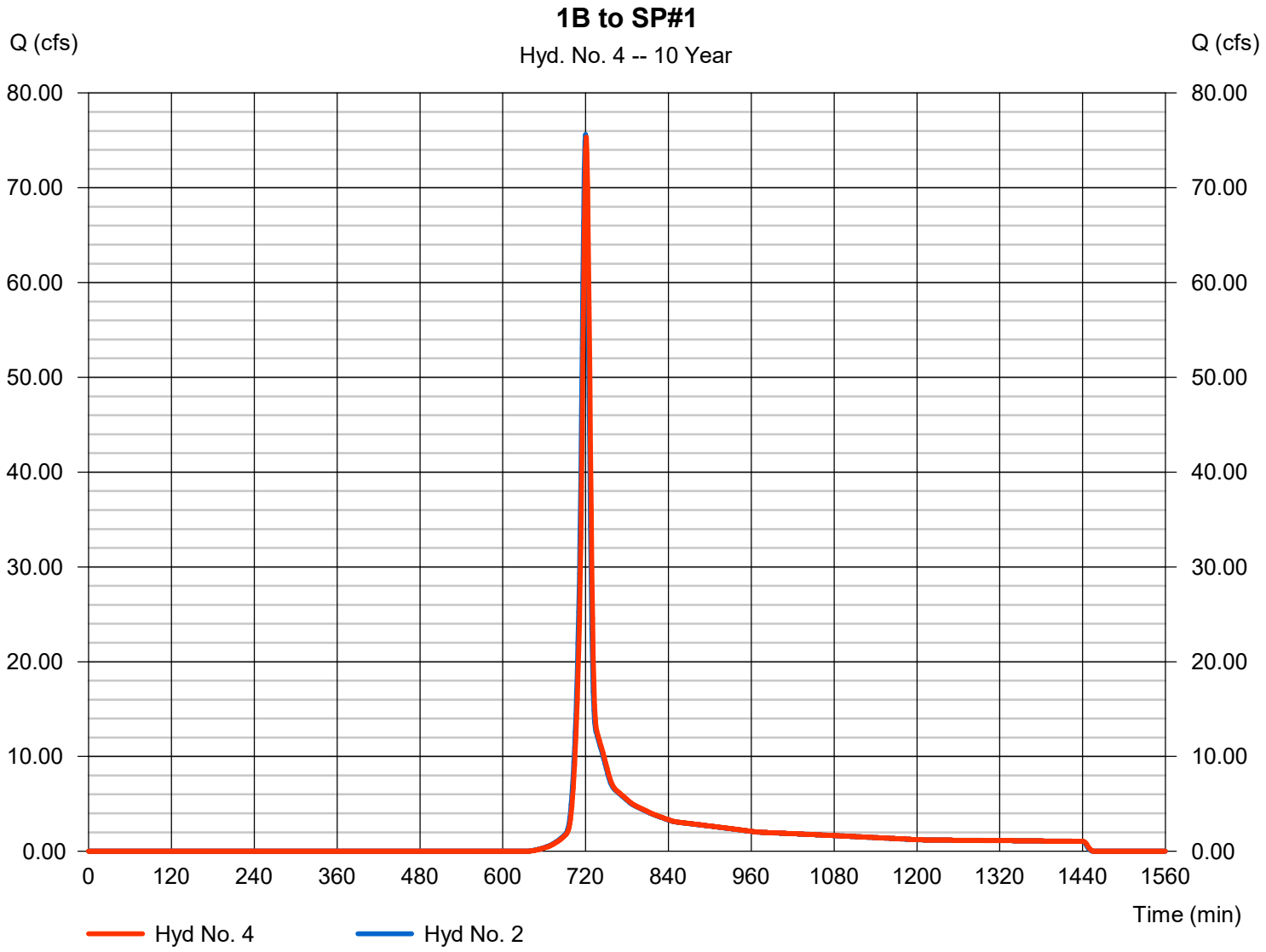
Hydrograph Report

Hyd. No. 4

1B to SP#1

Hydrograph type	=	Reach	Peak discharge	=	75.32 cfs
Storm frequency	=	10 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	172,723 cuft
Inflow hyd. No.	=	2 - EX-1B	Section type	=	Trapezoidal
Reach length	=	649.0 ft	Channel slope	=	10.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	5.579	Rating curve m	=	1.356
Ave. velocity	=	11.05 ft/s	Routing coeff.	=	0.8183

Modified Att-Kin routing method used.



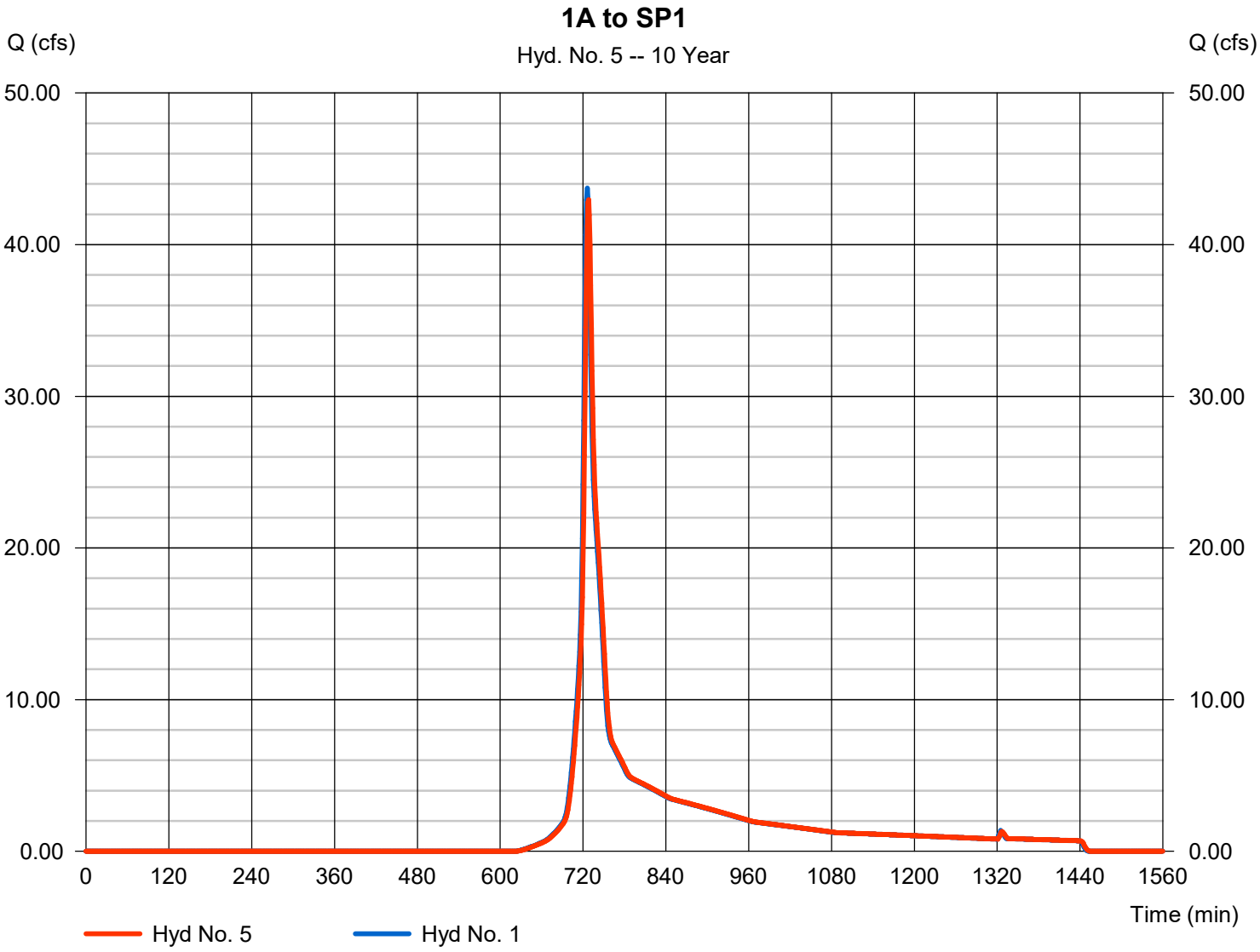
Hydrograph Report

Hyd. No. 5

1A to SP1

Hydrograph type	=	Reach	Peak discharge	=	42.97 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	145,963 cuft
Inflow hyd. No.	=	1 - EX-1A	Section type	=	Trapezoidal
Reach length	=	940.0 ft	Channel slope	=	13.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	6.307	Rating curve m	=	1.356
Ave. velocity	=	10.48 ft/s	Routing coeff.	=	0.6239

Modified Att-Kin routing method used.

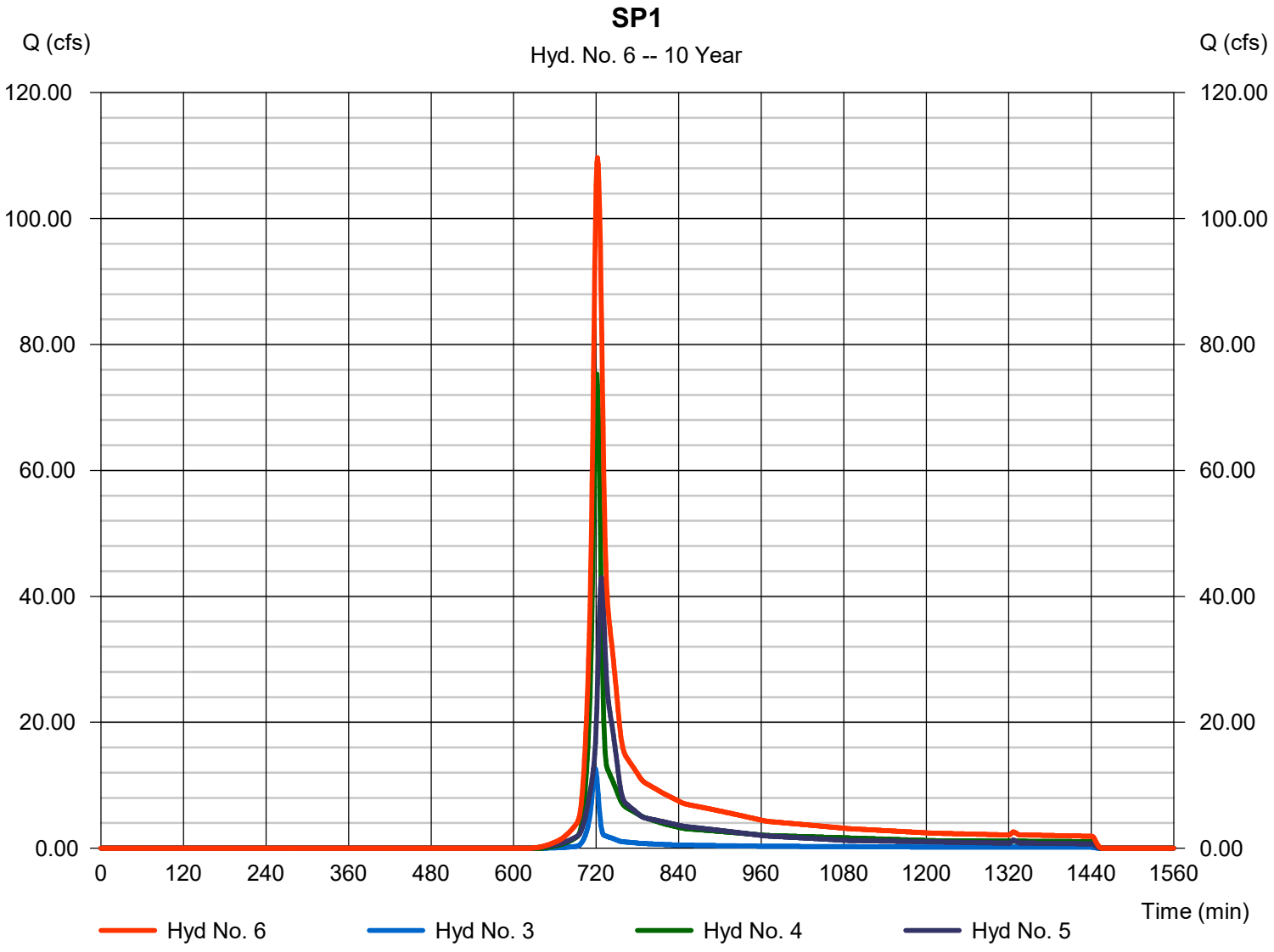


Hydrograph Report

Hyd. No. 6

SP1

Hydrograph type	=	Combine	Peak discharge	=	109.67 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	1 min	Hyd. volume	=	345,420 cuft
Inflow hyds.	=	3, 4, 5	Contrib. drain. area	=	2.740 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

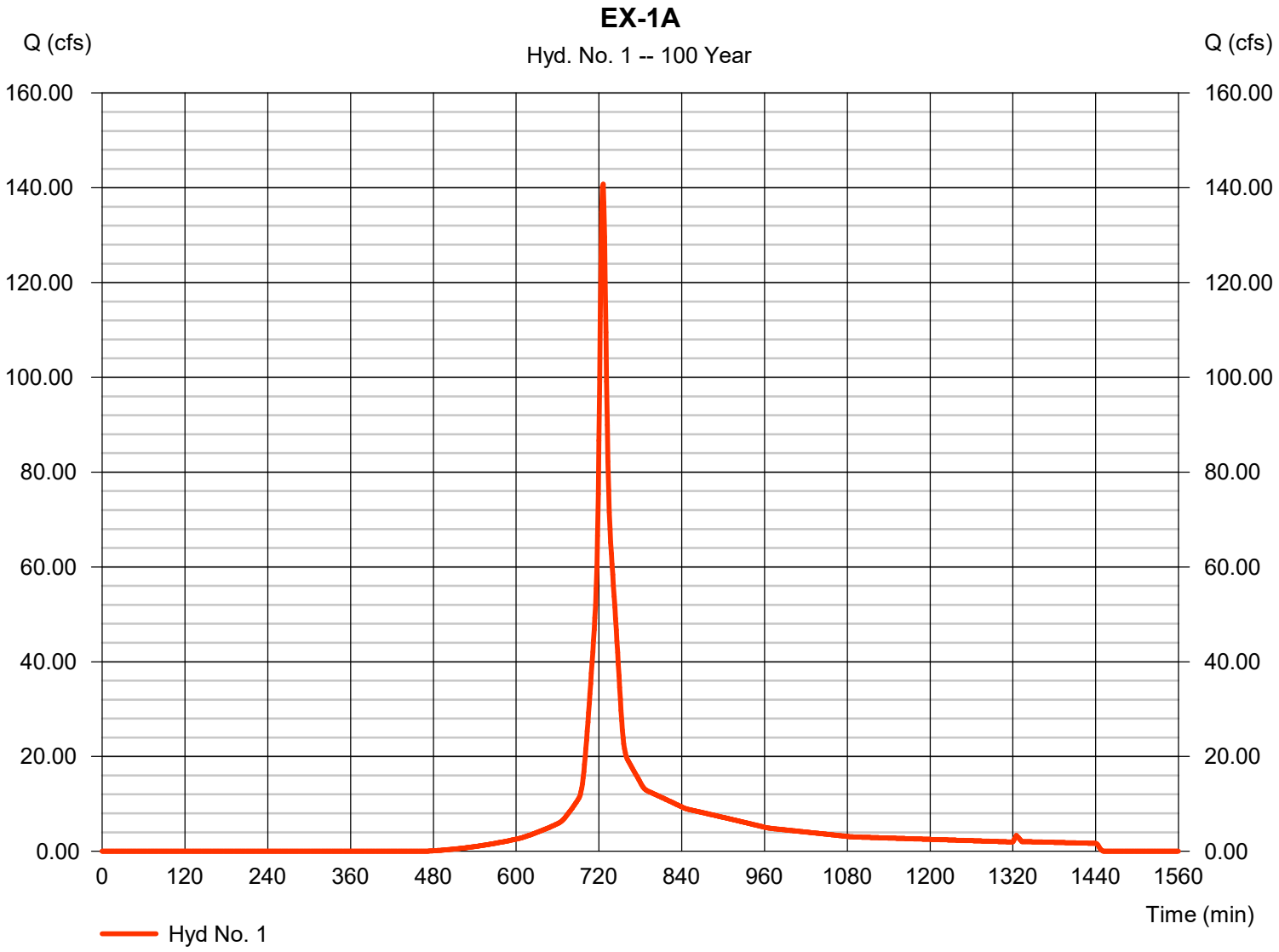
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	140.75	1	726	452,495	------	------	------	EX-1A
2	SCS Runoff	235.78	1	719	535,450	------	------	------	EX-1B
3	SCS Runoff	38.96	1	718	82,877	------	------	------	EX-1C
4	Reach	235.55	1	720	535,450	2	------	------	1B to SP#1
5	Reach	140.14	1	727	452,496	1	------	------	1A to SP1
6	Combine	351.35	1	721	1,070,822	3, 4, 5	------	------	SP1

Hydrograph Report

Hyd. No. 1

EX-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	140.75 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	452,495 cuft
Drainage area	=	14.960 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.70 min
Total precip.	=	15.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

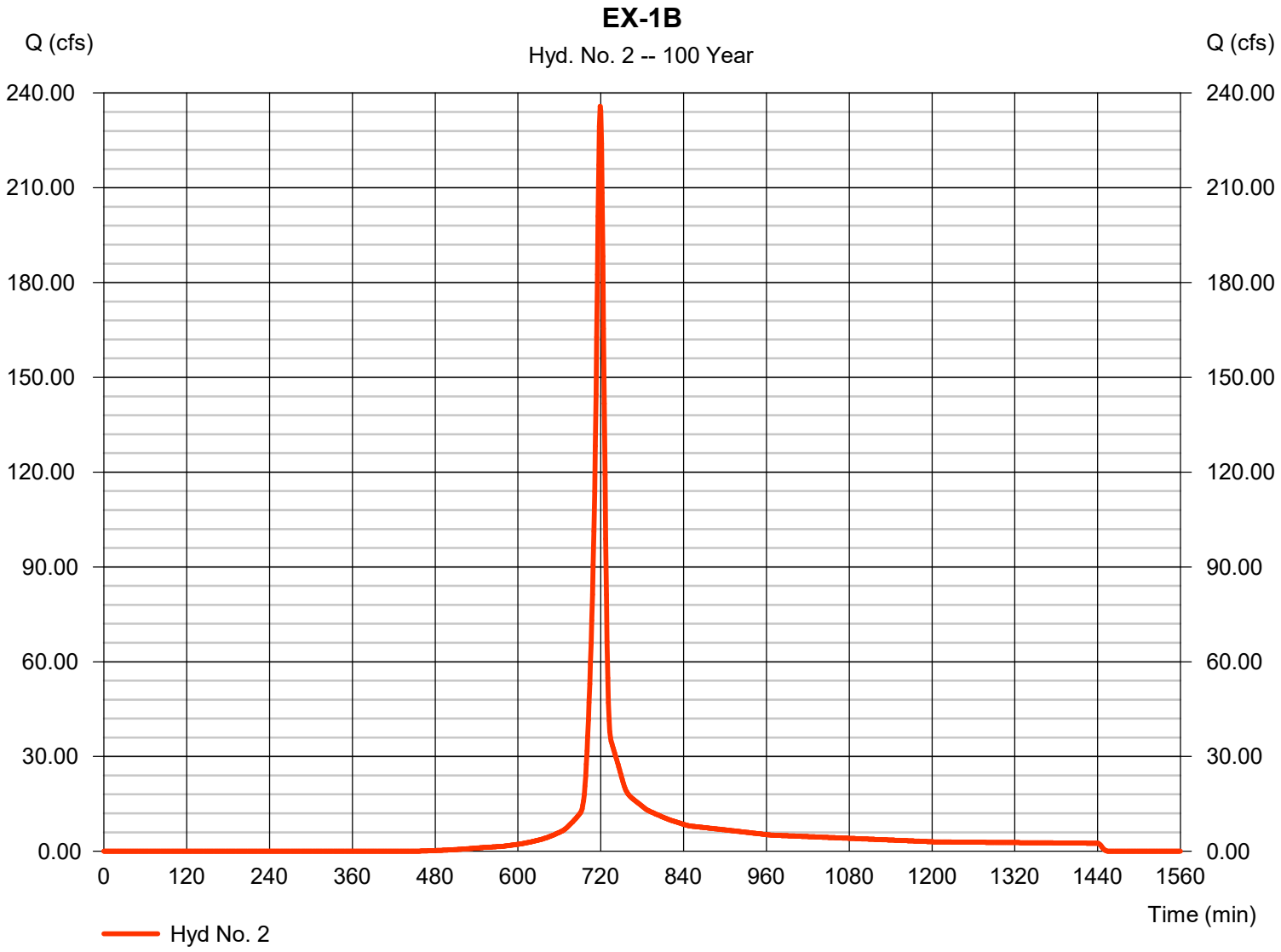


Hydrograph Report

Hyd. No. 2

EX-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	235.78 cfs
Storm frequency	=	100 yrs	Time to peak	=	719 min
Time interval	=	1 min	Hyd. volume	=	535,450 cuft
Drainage area	=	17.260 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.82 min
Total precip.	=	15.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

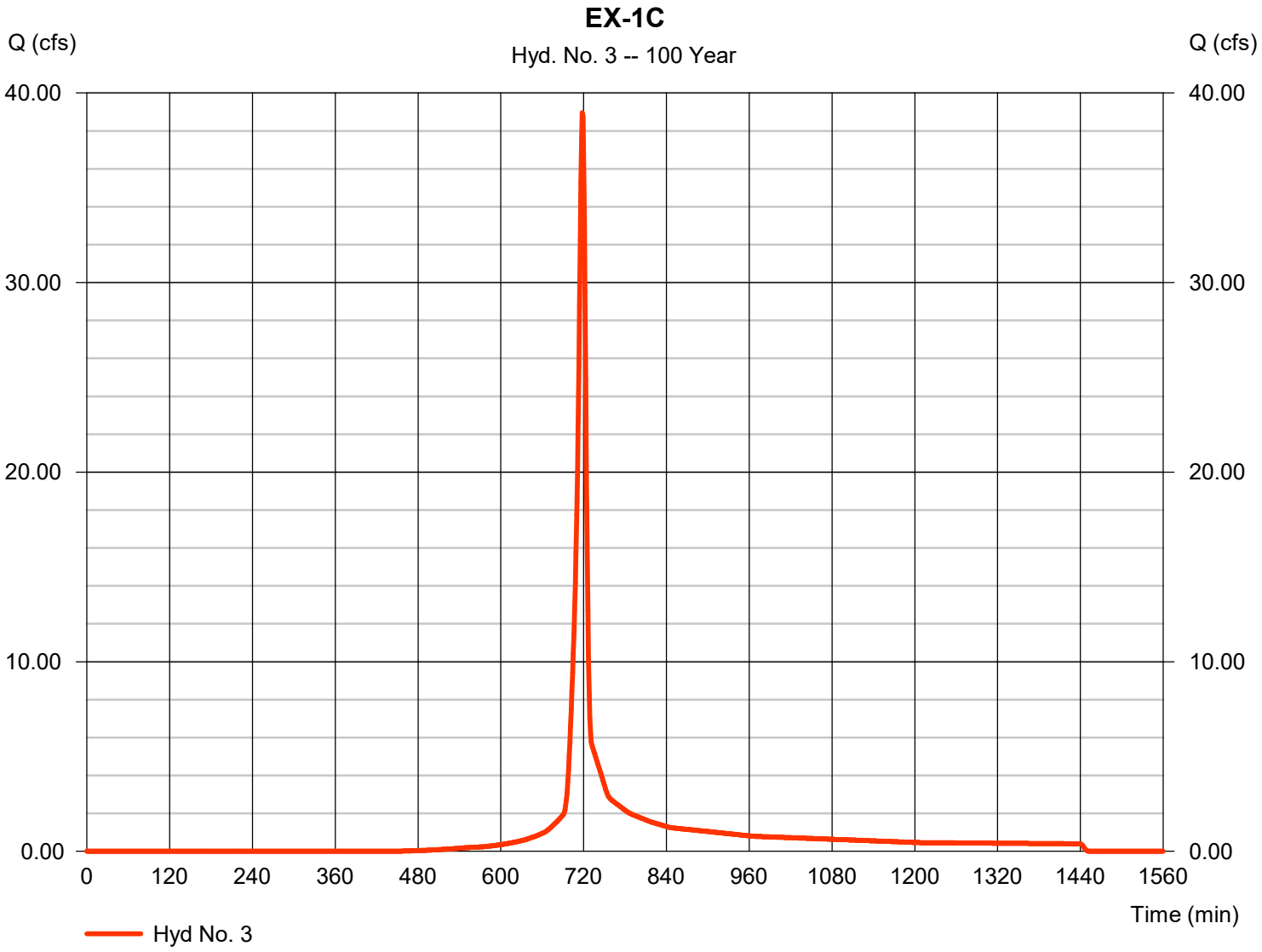


Hydrograph Report

Hyd. No. 3

EX-1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	38.96 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	82,877 cuft
Drainage area	=	2.740 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	7.38 min
Total precip.	=	15.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



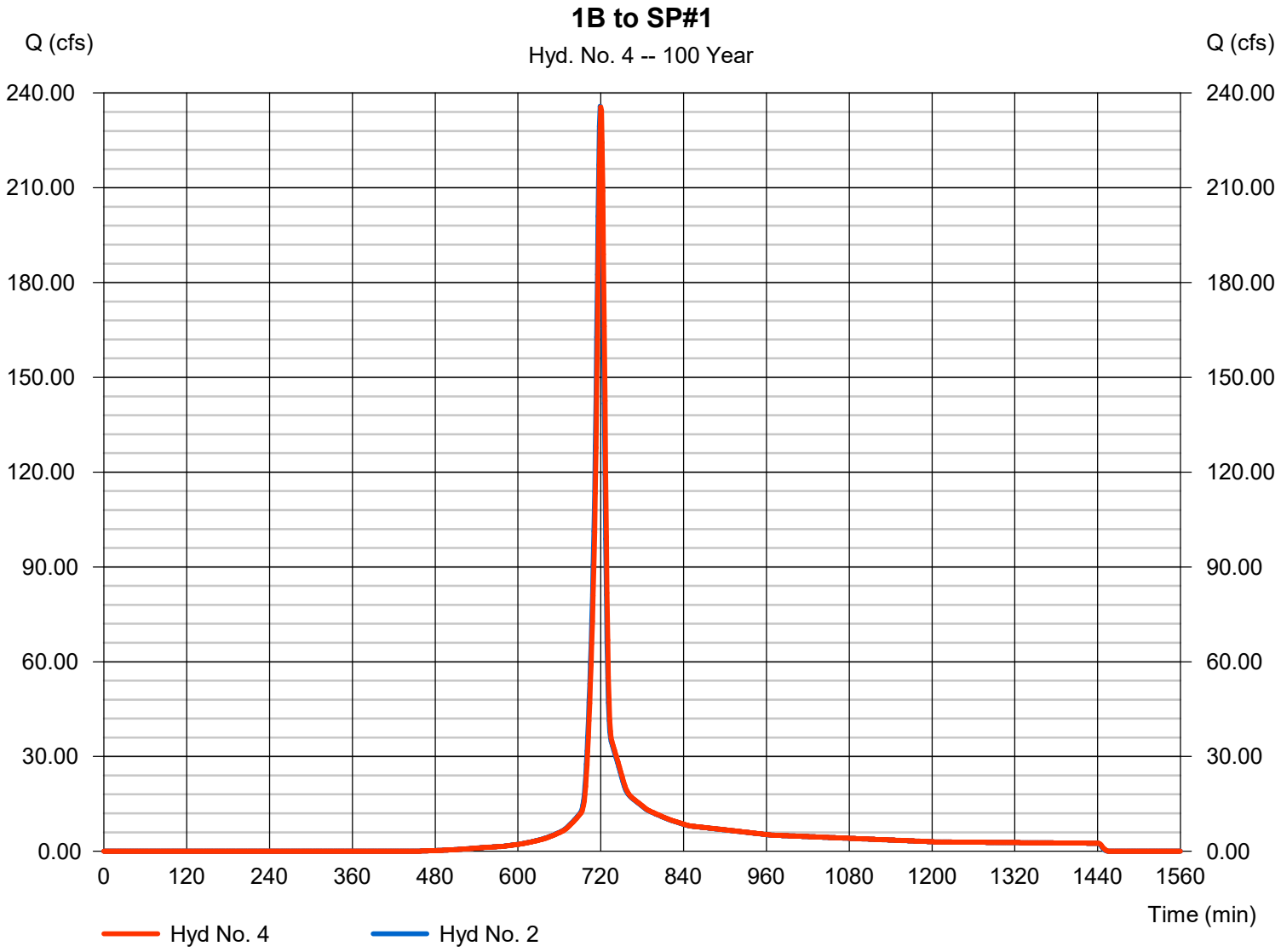
Hydrograph Report

Hyd. No. 4

1B to SP#1

Hydrograph type	=	Reach	Peak discharge	=	235.55 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	535,450 cuft
Inflow hyd. No.	=	2 - EX-1B	Section type	=	Trapezoidal
Reach length	=	649.0 ft	Channel slope	=	10.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	5.579	Rating curve m	=	1.356
Ave. velocity	=	14.89 ft/s	Routing coeff.	=	0.9654

Modified Att-Kin routing method used.



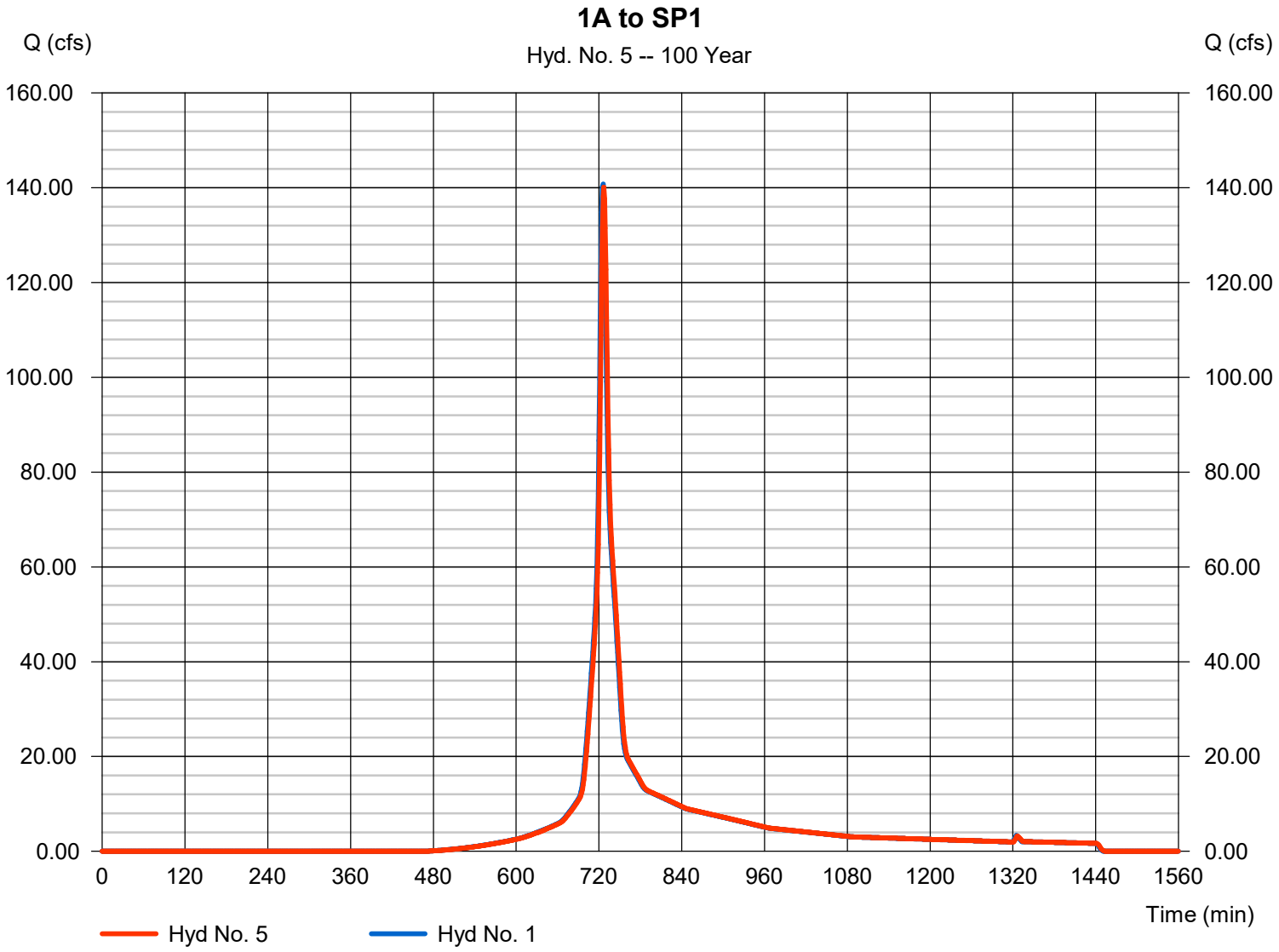
Hydrograph Report

Hyd. No. 5

1A to SP1

Hydrograph type	=	Reach	Peak discharge	=	140.14 cfs
Storm frequency	=	100 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	452,496 cuft
Inflow hyd. No.	=	1 - EX-1A	Section type	=	Trapezoidal
Reach length	=	940.0 ft	Channel slope	=	13.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	6.307	Rating curve m	=	1.356
Ave. velocity	=	14.24 ft/s	Routing coeff.	=	0.7624

Modified Att-Kin routing method used.

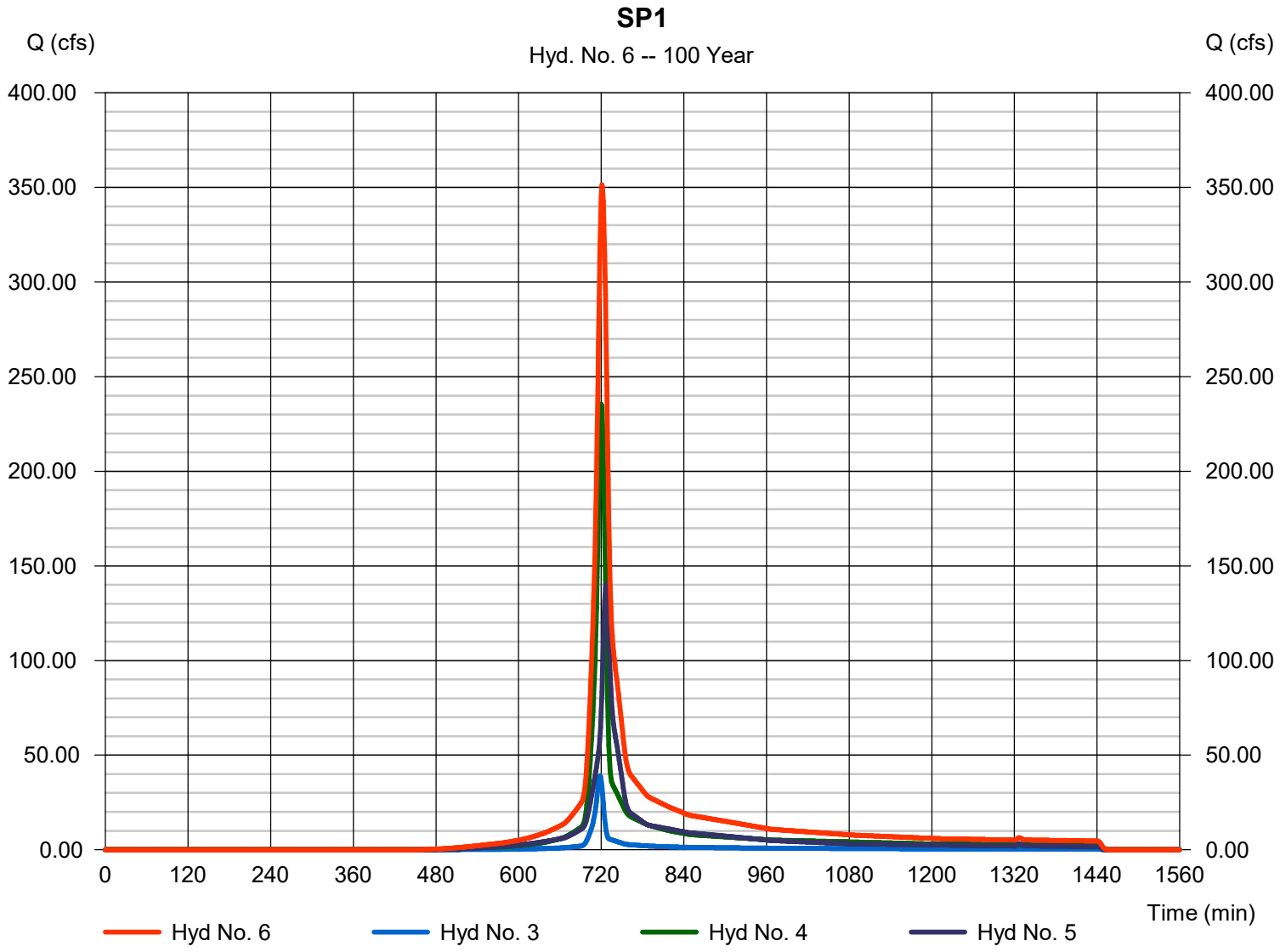


Hydrograph Report

Hyd. No. 6

SP1

Hydrograph type	=	Combine	Peak discharge	=	351.35 cfs
Storm frequency	=	100 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	1,070,822 cuft
Inflow hyds.	=	3, 4, 5	Contrib. drain. area	=	2.740 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

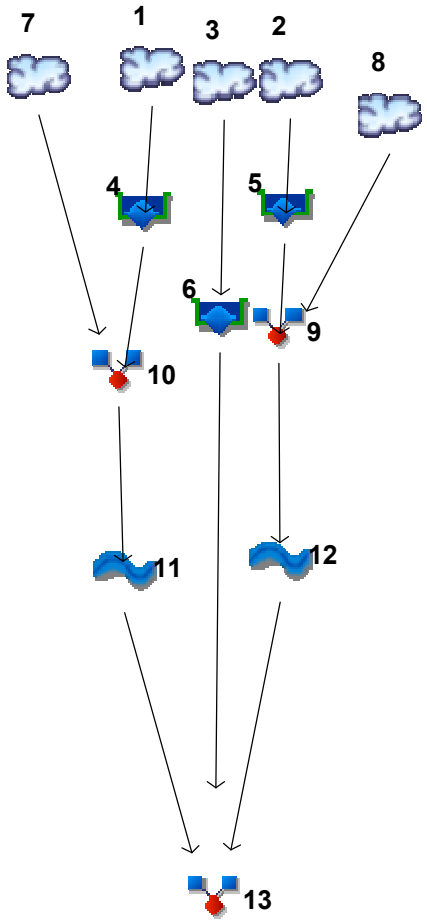
Precip. file name: Sample.pcp

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	4.12	0.00	3.30	7.96	10.60	6.80	15.30
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	2.75	0.00	0.00	6.50	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	2.80	0.00	0.00	6.00	0.00

PROPOSED CONDITIONS
HYDRAULIC ANALYSIS

Hydraflow Table of Contents

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	PR-1A
2	SCS Runoff	PR-1B
3	SCS Runoff	PR-1C
4	Reservoir	Facility A Route
5	Reservoir	Facility B Route
6	Reservoir	Facility C Route
7	SCS Runoff	PR-1A-REM
8	SCS Runoff	PR-1B-REM
9	Combine	SP-1B
10	Combine	SP-1A
11	Reach	SP-1A Reach
12	Reach	SP-1B Reach
13	Combine	SP-1

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	12.11	-------	-------	51.01	81.85	-------	139.23	PR-1A
2	SCS Runoff	------	-------	12.07	-------	-------	75.60	129.79	-------	235.78	PR-1B
3	SCS Runoff	------	-------	11.36	-------	-------	26.08	36.09	-------	53.71	PR-1C
4	Reservoir	1	-------	2.862	-------	-------	16.19	69.82	-------	136.70	Facility A Route
5	Reservoir	2	-------	1.624	-------	-------	60.07	122.51	-------	235.07	Facility B Route
6	Reservoir	3	-------	1.761	-------	-------	11.52	31.10	-------	52.46	Facility C Route
7	SCS Runoff	------	-------	8.282	-------	-------	27.22	41.37	-------	67.24	PR-1A-REM
8	SCS Runoff	------	-------	6.550	-------	-------	15.03	20.80	-------	30.95	PR-1B-REM
9	Combine	5, 8	-------	7.105	-------	-------	68.24	137.42	-------	261.01	SP-1B
10	Combine	4, 7,	-------	8.716	-------	-------	33.90	76.23	-------	155.41	SP-1A
11	Reach	10	-------	8.293	-------	-------	33.06	74.22	-------	154.83	SP-1A Reach
12	Reach	9	-------	6.856	-------	-------	68.05	137.16	-------	260.84	SP-1B Reach
13	Combine	6, 11, 12	-------	16.69	-------	-------	109.74	215.54	-------	443.37	SP-1

Hydrograph Summary Report

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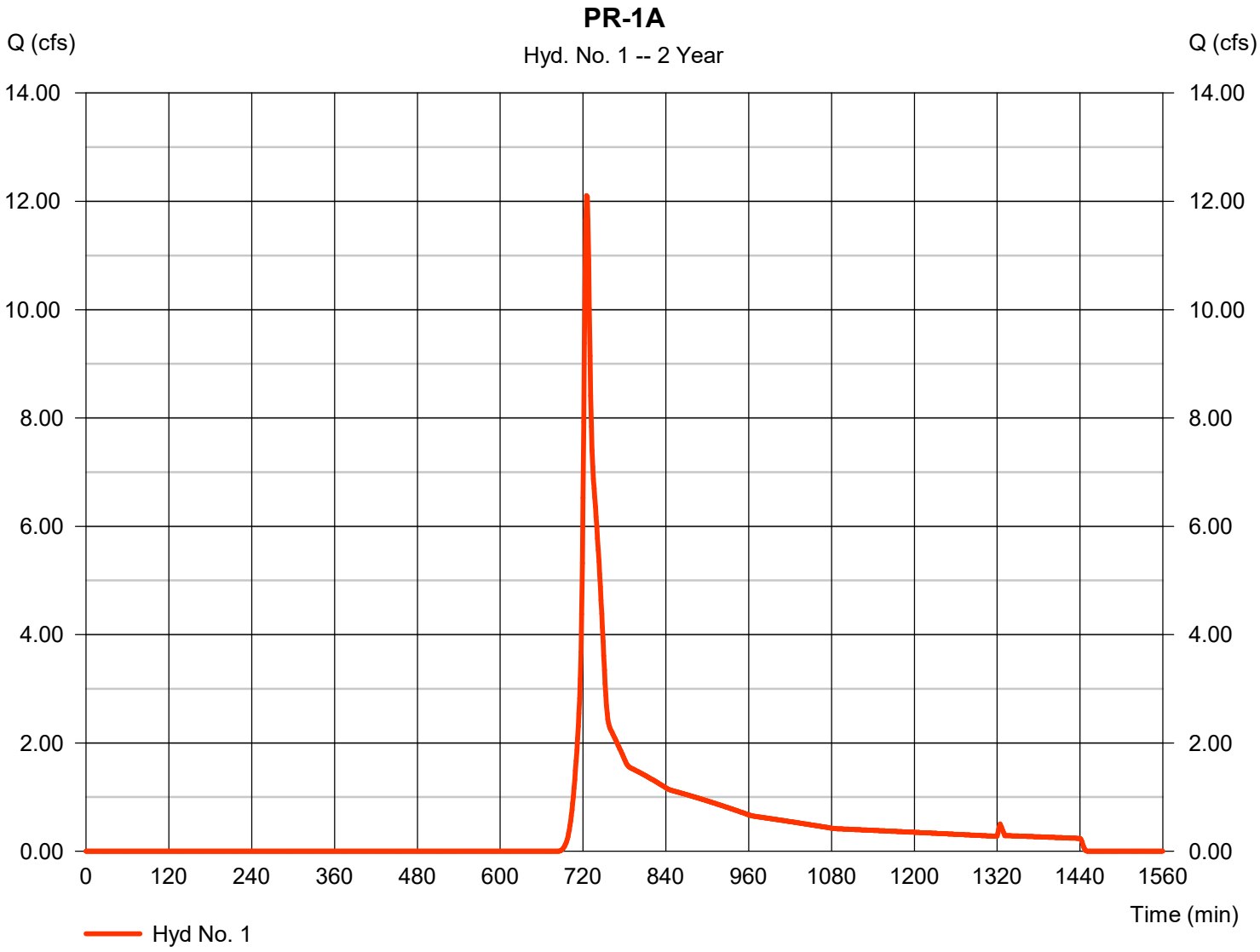
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	12.11	1	725	42,719	------	------	------	PR-1A
2	SCS Runoff	12.07	1	721	36,236	------	------	------	PR-1B
3	SCS Runoff	11.36	1	718	24,423	------	------	------	PR-1C
4	Reservoir	2.862	1	753	42,710	1	593.98	11,862	Facility A Route
5	Reservoir	1.624	1	762	36,227	2	522.32	9,273	Facility B Route
6	Reservoir	1.761	1	730	24,415	3	403.95	9,867	Facility C Route
7	SCS Runoff	8.282	1	718	16,839	------	------	------	PR-1A-REM
8	SCS Runoff	6.550	1	717	13,540	------	------	------	PR-1B-REM
9	Combine	7.105	1	718	49,768	5, 8	------	------	SP-1B
10	Combine	8.716	1	718	59,550	4, 7,	------	------	SP-1A
11	Reach	8.293	1	720	59,470	10	------	------	SP-1A Reach
12	Reach	6.856	1	720	49,695	9	------	------	SP-1B Reach
13	Combine	16.69	1	720	133,579	6, 11, 12	------	------	SP-1

Hydrograph Report

Hyd. No. 1

PR-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.11 cfs
Storm frequency	=	2 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	42,719 cuft
Drainage area	=	11.600 ac	Curve number	=	63
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.36 min
Total precip.	=	4.12 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

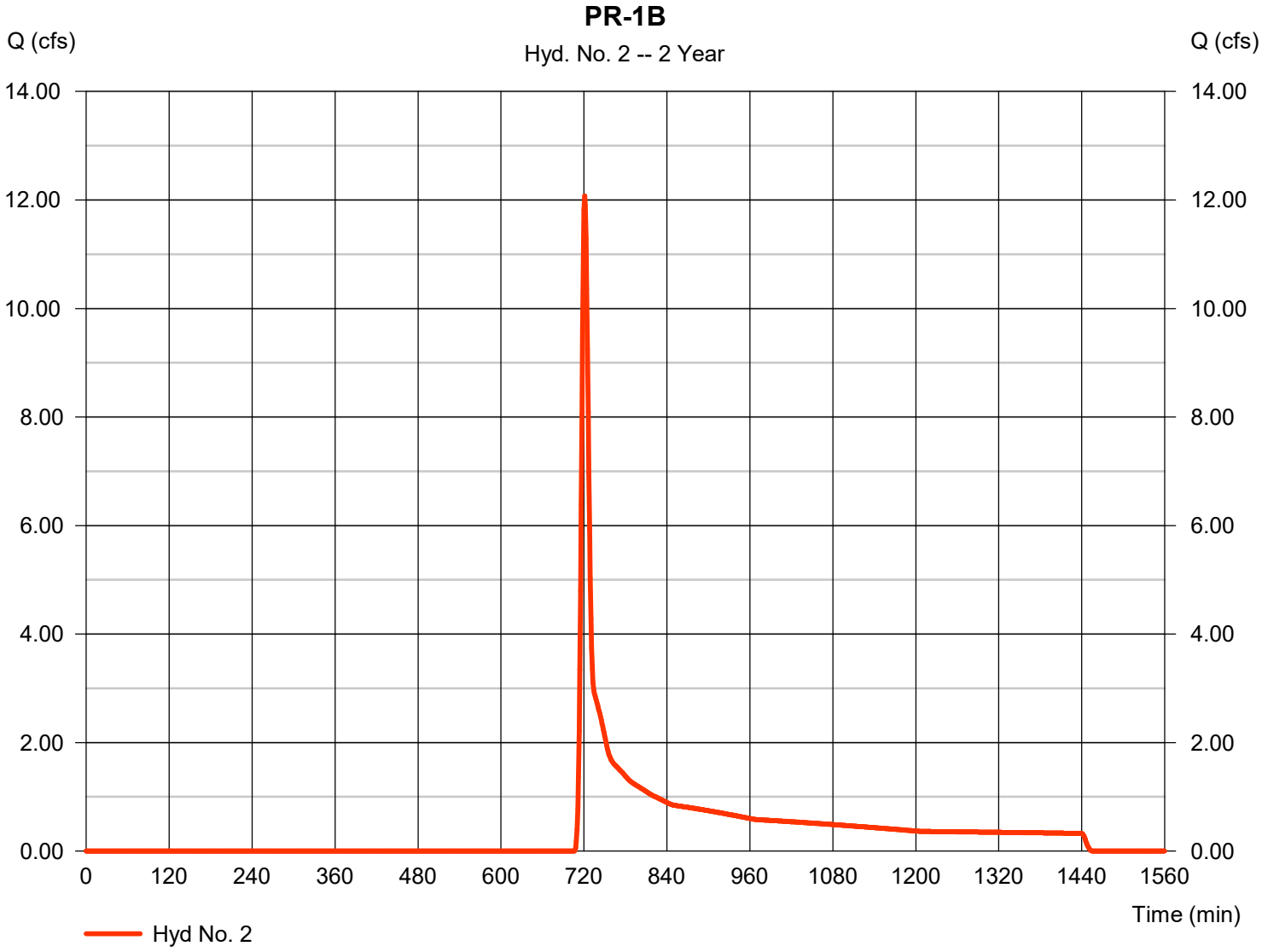


Hydrograph Report

Hyd. No. 2

PR-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.07 cfs
Storm frequency	=	2 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	36,236 cuft
Drainage area	=	17.260 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	4.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

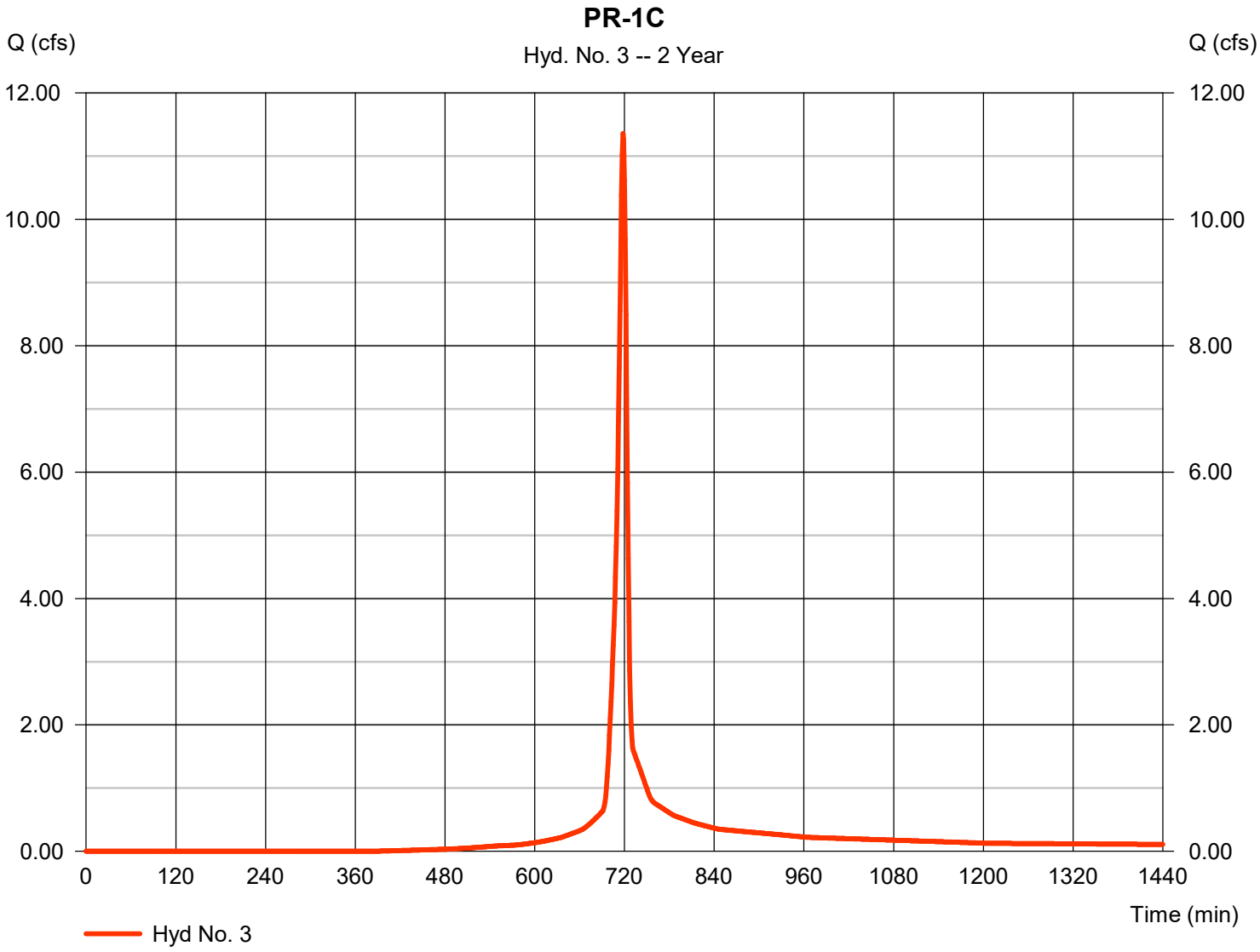


Hydrograph Report

Hyd. No. 3

PR-1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.36 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	24,423 cuft
Drainage area	=	2.690 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	7.38 min
Total precip.	=	4.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



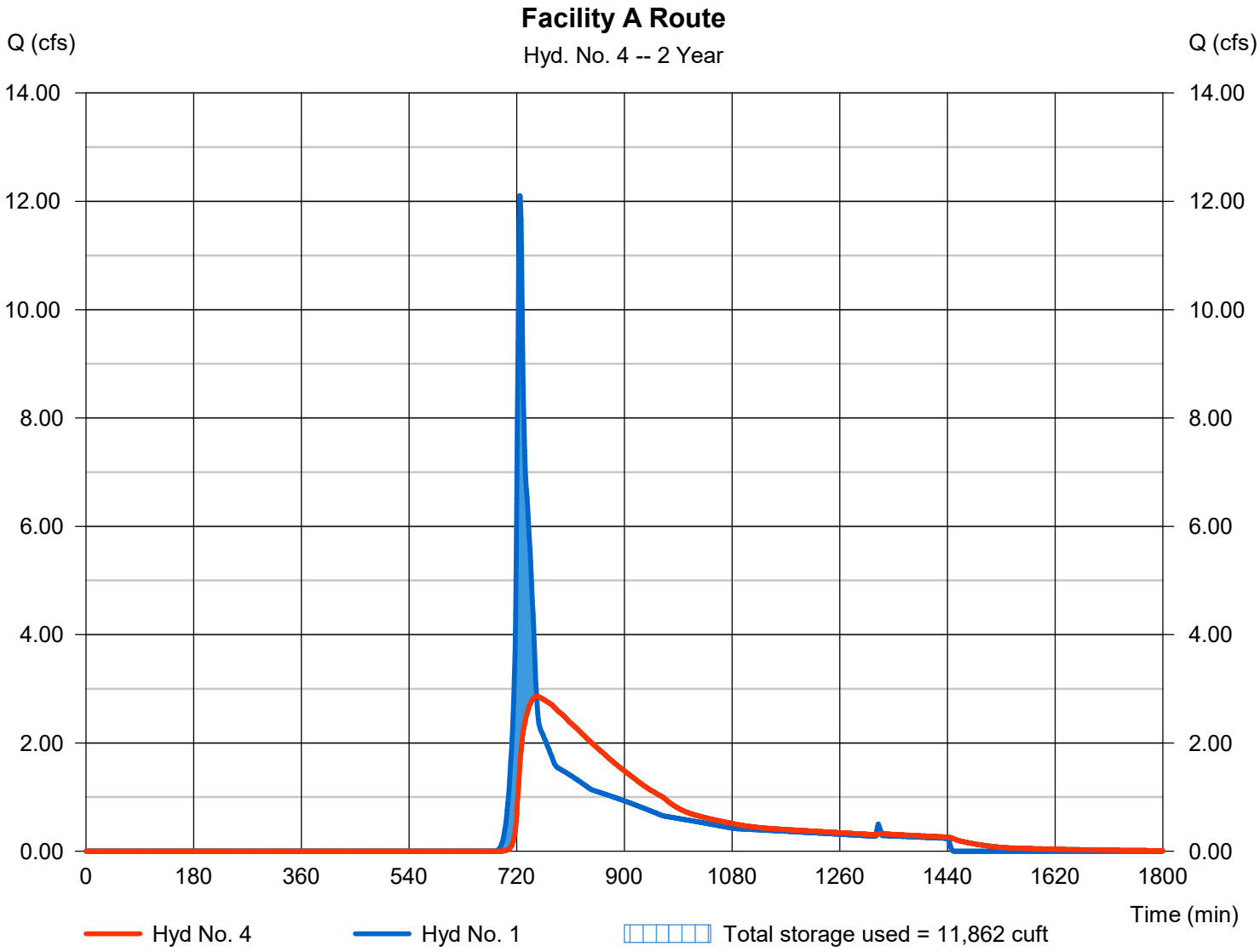
Hydrograph Report

Hyd. No. 4

Facility A Route

Hydrograph type	=	Reservoir	Peak discharge	=	2.862 cfs
Storm frequency	=	2 yrs	Time to peak	=	753 min
Time interval	=	1 min	Hyd. volume	=	42,710 cuft
Inflow hyd. No.	=	1 - PR-1A	Max. Elevation	=	593.98 ft
Reservoir name	=	Facility A	Max. Storage	=	11,862 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 1 - Facility A

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	592.00	n/a	0	0
1.00	593.00	n/a	6,000	6,000
2.00	594.00	n/a	6,000	12,000
3.00	595.00	n/a	6,000	18,000
4.00	596.00	n/a	6,000	24,000
5.00	597.00	n/a	6,000	30,000
6.00	598.00	n/a	6,000	36,000
7.00	599.00	n/a	6,000	42,000
8.00	600.00	n/a	6,000	48,000
9.00	601.00	n/a	6,000	54,000
10.00	602.00	n/a	6,000	60,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 48.00	6.00	6.00	0.00
Span (in)	= 48.00	12.00	22.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 592.00	592.00	594.00	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 10.00	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	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	0.00	0.00	0.00
Crest El. (ft)	= 600.00	0.00	0.00	0.00
Weir Coeff.	= 3.10	2.60	3.33	3.33
Weir Type	= Rect	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 6.000 (by Wet area)

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	592.00	0.00	0.00	0.00	---	0.00	---	---	---	0.000	---	0.000
1.00	6,000	593.00	1.81 ic	1.80 ic	0.00	---	0.00	---	---	---	0.000	---	1.803
2.00	12,000	594.00	2.92 ic	2.89 ic	0.00	---	0.00	---	---	---	0.000	---	2.885
3.00	18,000	595.00	7.55 ic	3.47 ic	3.82 ic	---	0.00	---	---	---	0.000	---	7.287
4.00	24,000	596.00	10.25 ic	4.11 ic	5.84 ic	---	0.00	---	---	---	0.000	---	9.944
5.00	30,000	597.00	12.33 ic	4.69 ic	7.32 ic	---	0.00	---	---	---	0.000	---	12.01
6.00	36,000	598.00	14.04 ic	5.22 ic	8.55 ic	---	0.00	---	---	---	0.000	---	13.77
7.00	42,000	599.00	15.33 ic	5.71 ic	9.62 ic	---	0.00	---	---	---	0.000	---	15.33
8.00	48,000	600.00	17.16 ic	6.17 ic	10.58 ic	---	0.00	---	---	---	0.000	---	16.75
9.00	54,000	601.00	77.81 ic	5.58 ic	10.23 ic	---	62.00	---	---	---	0.000	---	77.81
10.00	60,000	602.00	159.11 ic	2.51 ic	4.59 ic	---	152.00 s	---	---	---	0.000	---	159.10

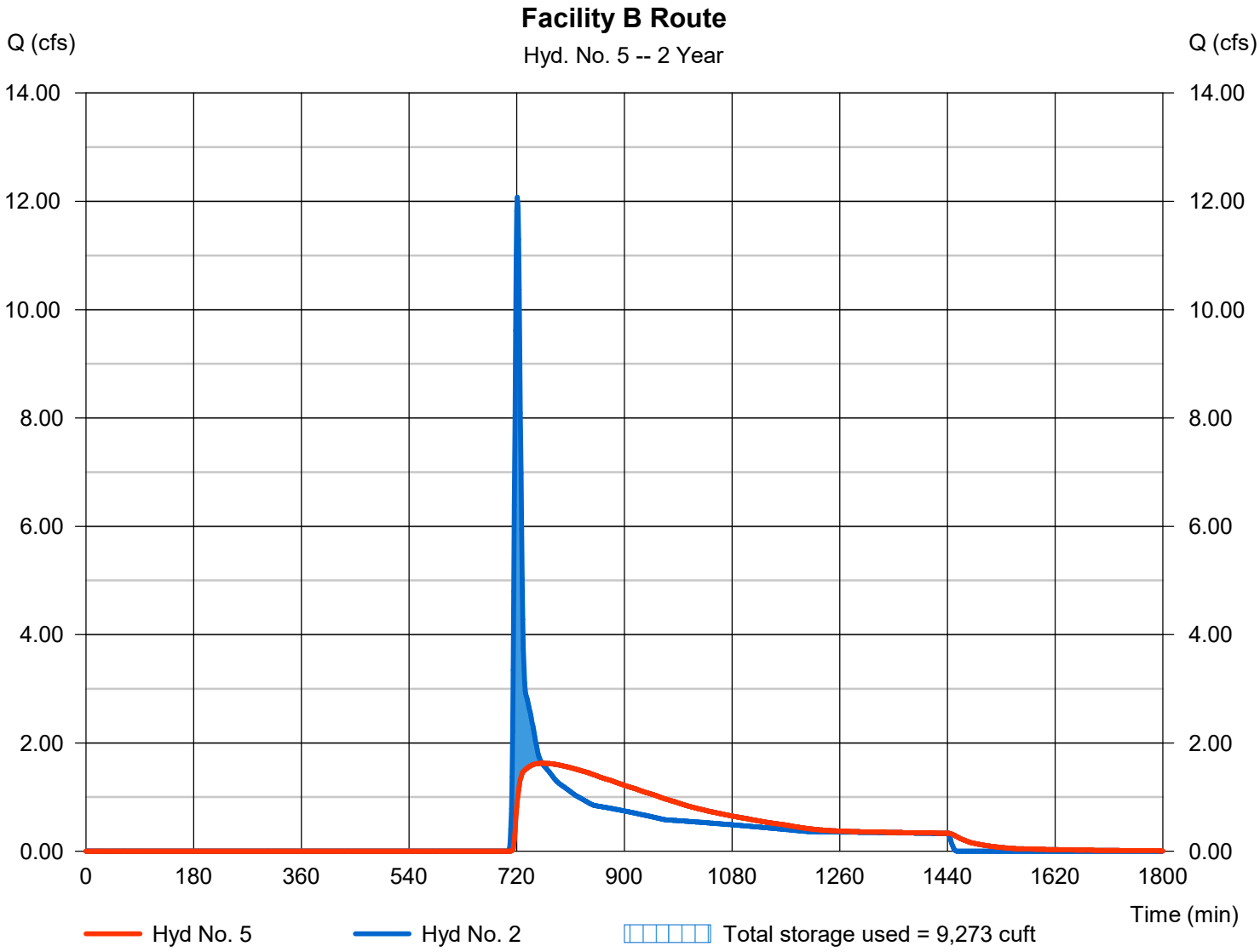
Hydrograph Report

Hyd. No. 5

Facility B Route

Hydrograph type	=	Reservoir	Peak discharge	=	1.624 cfs
Storm frequency	=	2 yrs	Time to peak	=	762 min
Time interval	=	1 min	Hyd. volume	=	36,227 cuft
Inflow hyd. No.	=	2 - PR-1B	Max. Elevation	=	522.32 ft
Reservoir name	=	Facility B	Max. Storage	=	9,273 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 2 - Facility B

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	520.00	n/a	0	0
1.00	521.00	n/a	4,000	4,000
2.00	522.00	n/a	4,000	8,000
3.00	523.00	n/a	4,000	12,000
4.00	524.00	n/a	4,000	16,000
5.00	525.00	n/a	4,000	20,000
6.00	526.00	n/a	4,000	24,000
7.00	527.00	n/a	4,000	28,000
8.00	528.00	n/a	4,000	32,000
9.00	529.00	n/a	4,000	36,000
10.00	530.00	n/a	4,000	40,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 60.00	5.00	16.00	0.00
Span (in)	= 60.00	7.00	60.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 520.00	520.00	522.40	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 13.00	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	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.00	20.00	0.00	0.00
Crest El. (ft)	= 526.40	529.00	0.00	0.00
Weir Coeff.	= 3.10	3.10	3.33	3.33
Weir Type	= Rect	Rect	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 4.000 (by Wet area)

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	520.00	0.00	0.00	0.00	---	0.00	0.00	---	---	0.000	---	0.000
1.00	4,000	521.00	1.04 ic	0.97 ic	0.00	---	0.00	0.00	---	---	0.000	---	0.973
2.00	8,000	522.00	1.49 ic	1.49 ic	0.00	---	0.00	0.00	---	---	0.000	---	1.488
3.00	12,000	523.00	9.93 ic	1.66 ic	7.91 ic	---	0.00	0.00	---	---	0.000	---	9.567
4.00	16,000	524.00	33.52 ic	1.69 ic	31.01 ic	---	0.00	0.00	---	---	0.000	---	32.70
5.00	20,000	525.00	46.68 ic	1.92 ic	44.63 ic	---	0.00	0.00	---	---	0.000	---	46.55
6.00	24,000	526.00	57.14 ic	2.16 ic	54.98 ic	---	0.00	0.00	---	---	0.000	---	57.13
7.00	28,000	527.00	75.51 ic	2.33 ic	63.66 ic	---	8.64	0.00	---	---	0.000	---	74.63
8.00	32,000	528.00	106.06 ic	2.41 ic	66.00 ic	---	37.64	0.00	---	---	0.000	---	106.05
9.00	36,000	529.00	145.83 ic	2.39 ic	65.46 ic	---	77.98	0.00	---	---	0.000	---	145.83
10.00	40,000	530.00	189.06 ic	2.19 ic	60.05 ic	---	126.82 s	62.00	---	---	0.000	---	251.06

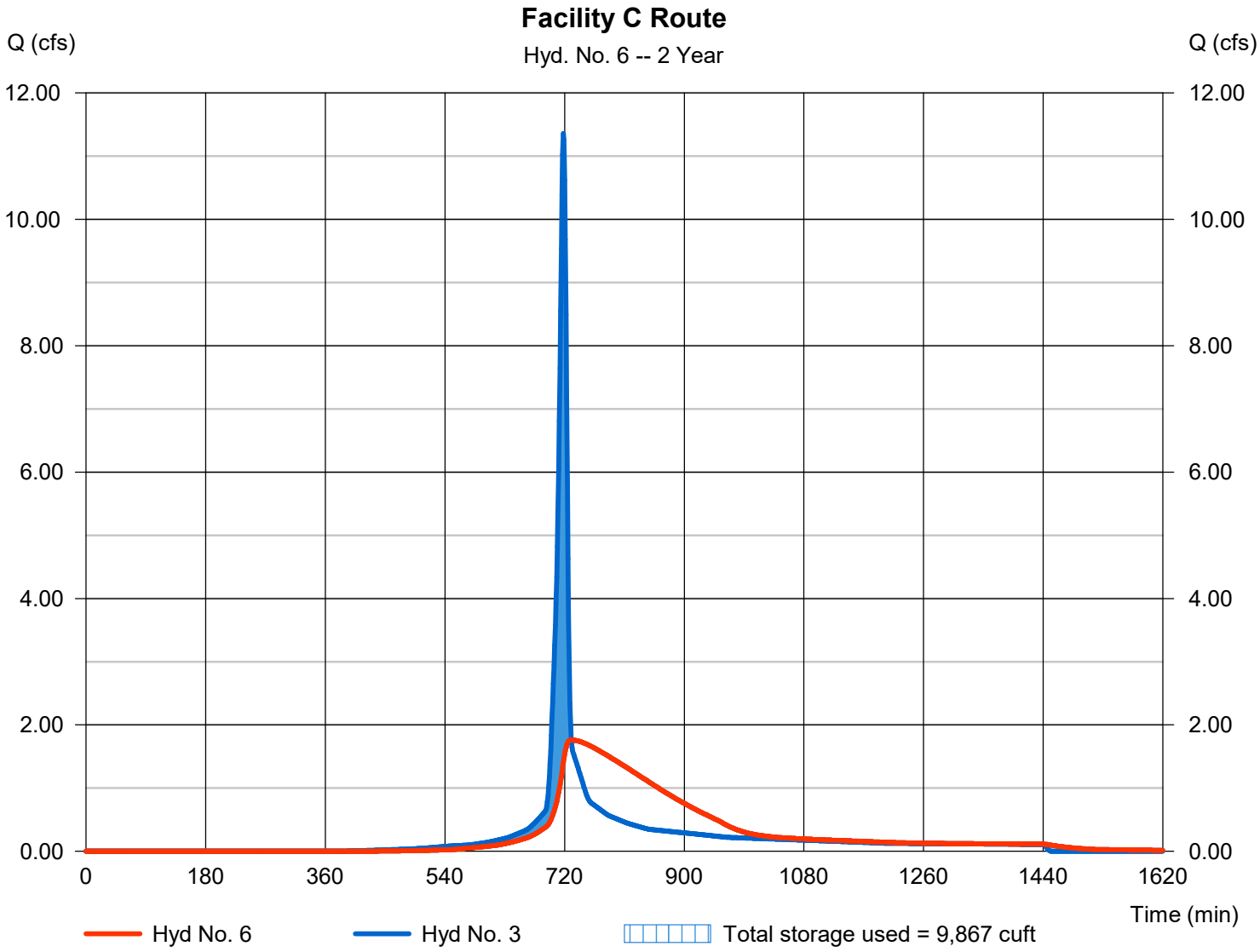
Hydrograph Report

Hyd. No. 6

Facility C Route

Hydrograph type	=	Reservoir	Peak discharge	=	1.761 cfs
Storm frequency	=	2 yrs	Time to peak	=	730 min
Time interval	=	1 min	Hyd. volume	=	24,415 cuft
Inflow hyd. No.	=	3 - PR-1C	Max. Elevation	=	403.95 ft
Reservoir name	=	Facility C	Max. Storage	=	9,867 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond No. 3 - Facility C

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	400.00	n/a	0	0
1.00	401.00	n/a	2,500	2,500
2.00	402.00	n/a	2,500	5,000
3.00	403.00	n/a	2,500	7,500
4.00	404.00	n/a	2,500	10,000
5.00	405.00	n/a	2,500	12,500
6.00	406.00	n/a	2,500	15,000
7.00	407.00	n/a	2,500	17,500
8.00	408.00	n/a	2,500	20,000
9.00	409.00	n/a	2,500	22,500
10.00	410.00	n/a	2,500	25,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	6.00	6.00	0.00
Span (in)	= 36.00	6.00	24.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 400.00	400.00	404.00	0.00
Length (ft)	= 40.00	0.00	0.00	0.00
Slope (%)	= 5.00	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	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.00	0.00	0.00	0.00
Crest El. (ft)	= 408.00	0.00	0.00	0.00
Weir Coeff.	= 3.10	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 4.000 (by Wet area)

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

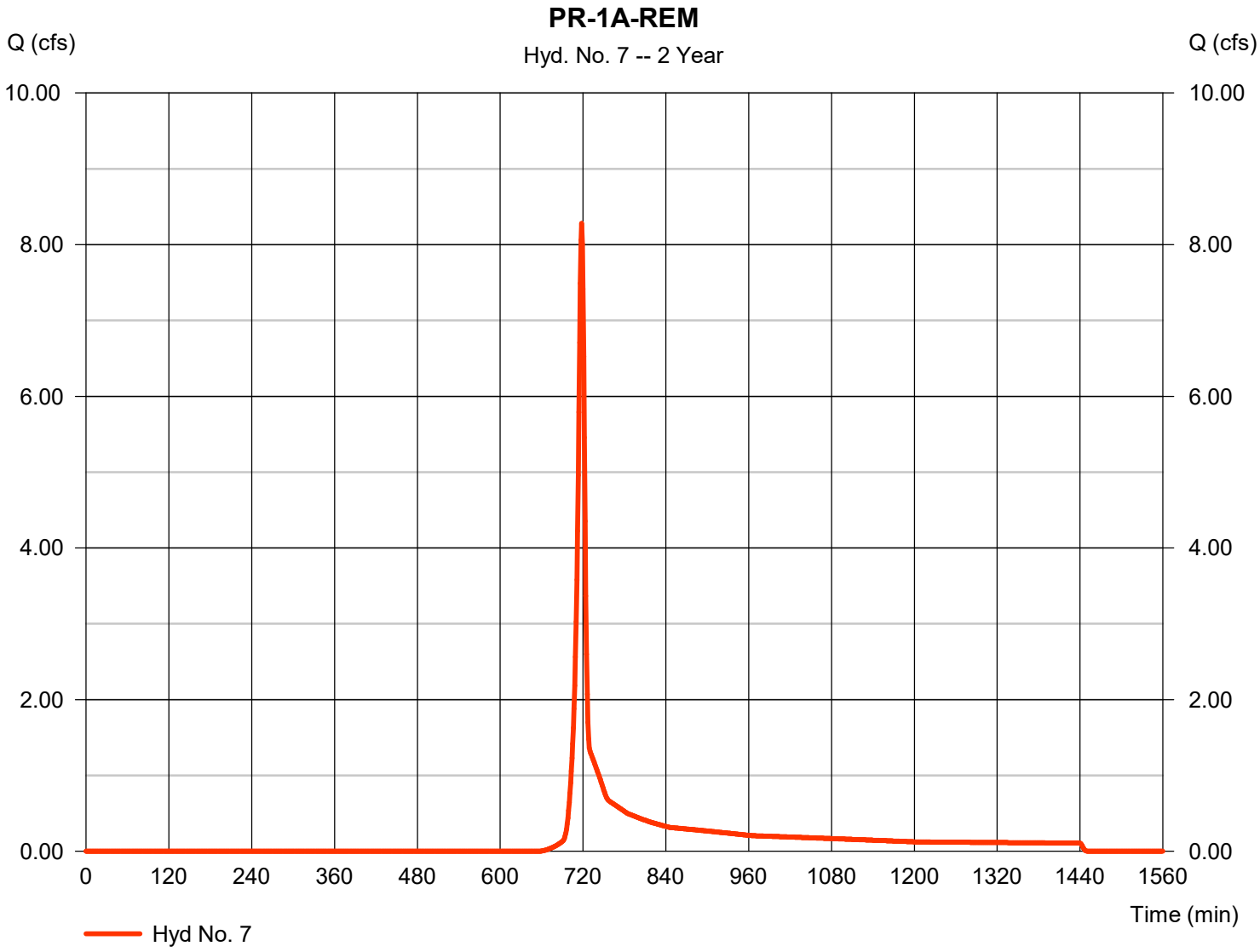
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	400.00	0.00	0.00	0.00	---	0.00	---	---	---	0.000	---	0.000
1.00	2,500	401.00	0.81 ic	0.78 ic	0.00	---	0.00	---	---	---	0.000	---	0.782
2.00	5,000	402.00	1.22 ic	1.20 ic	0.00	---	0.00	---	---	---	0.000	---	1.199
3.00	7,500	403.00	1.53 ic	1.51 ic	0.00	---	0.00	---	---	---	0.000	---	1.513
4.00	10,000	404.00	1.77 ic	1.77 ic	0.00	---	0.00	---	---	---	0.000	---	1.774
5.00	12,500	405.00	6.08 ic	1.91 ic	4.17 ic	---	0.00	---	---	---	0.000	---	6.078
6.00	15,000	406.00	8.68 ic	2.09 ic	6.37 ic	---	0.00	---	---	---	0.000	---	8.461
7.00	17,500	407.00	10.39 ic	2.27 ic	7.98 ic	---	0.00	---	---	---	0.000	---	10.26
8.00	20,000	408.00	11.86 ic	2.44 ic	9.32 ic	---	0.00	---	---	---	0.000	---	11.77
9.00	22,500	409.00	31.53 ic	2.43 ic	10.49 ic	---	18.60	---	---	---	0.000	---	31.53
10.00	25,000	410.00	65.26 ic	2.08 ic	10.57 ic	---	52.61	---	---	---	0.000	---	65.26

Hydrograph Report

Hyd. No. 7

PR-1A-REM

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.282 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	16,839 cuft
Drainage area	=	3.510 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

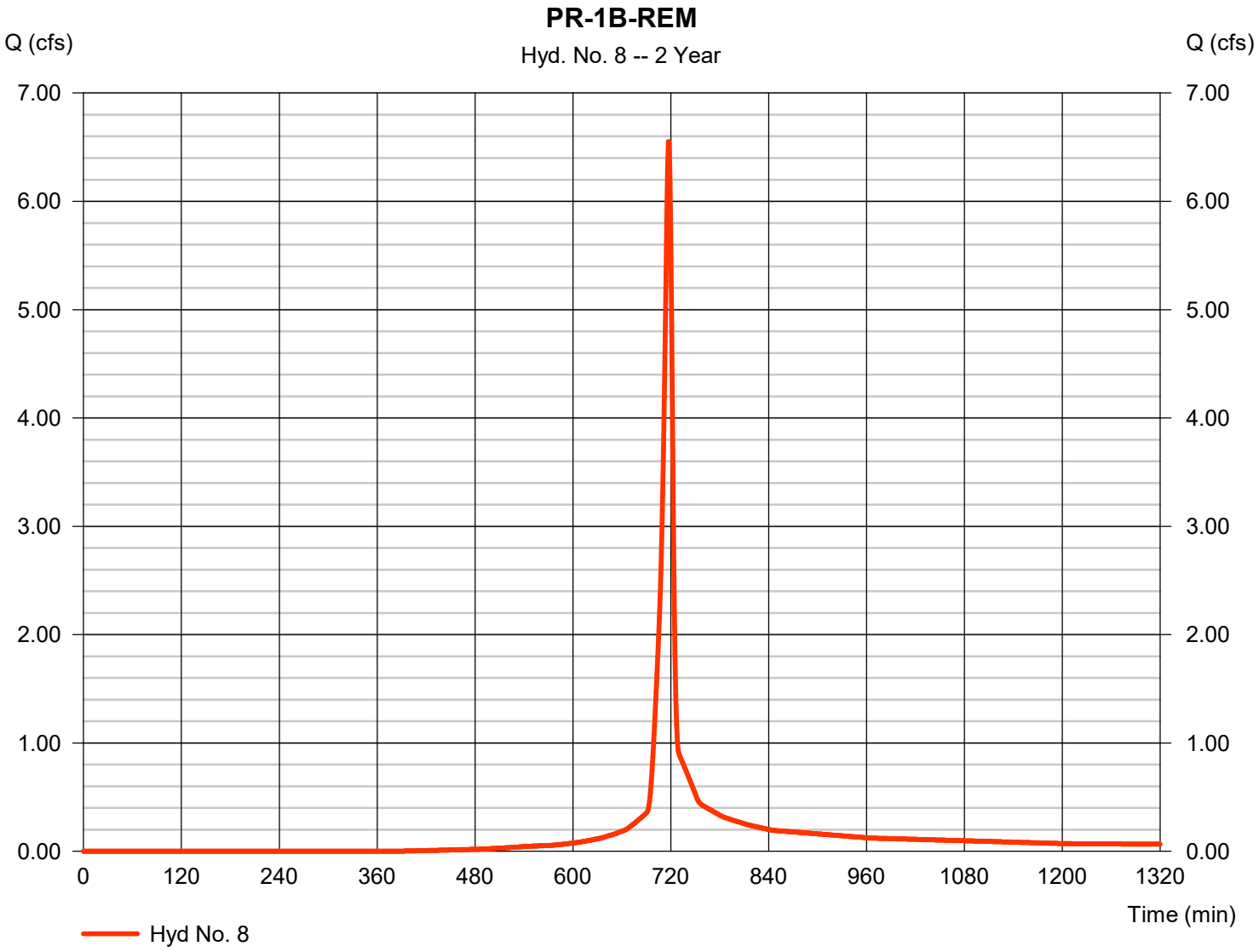


Hydrograph Report

Hyd. No. 8

PR-1B-REM

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.550 cfs
Storm frequency	=	2 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	13,540 cuft
Drainage area	=	1.410 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

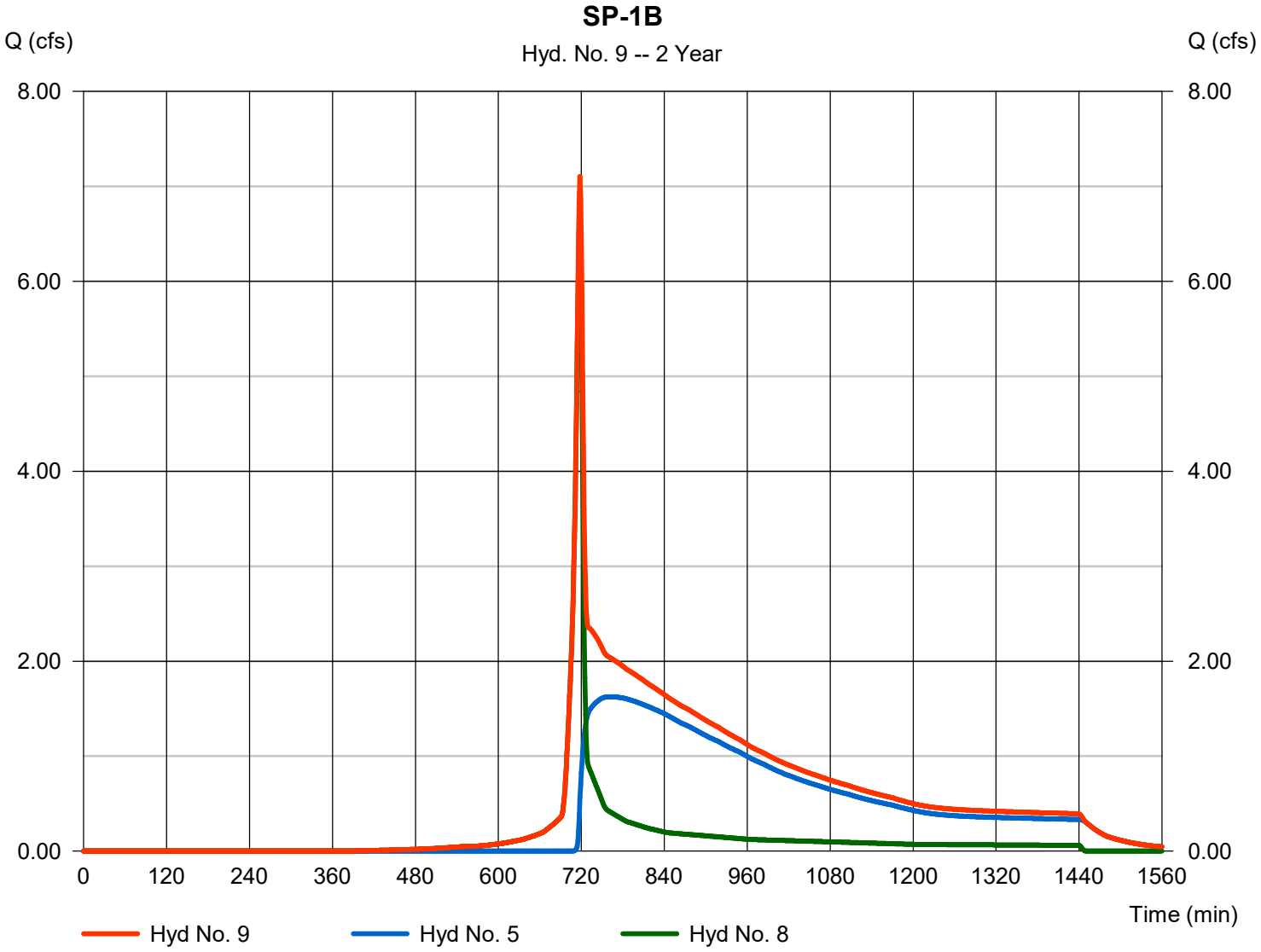


Hydrograph Report

Hyd. No. 9

SP-1B

Hydrograph type	= Combine	Peak discharge	= 7.105 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 49,768 cuft
Inflow hyds.	= 5, 8	Contrib. drain. area	= 1.410 ac

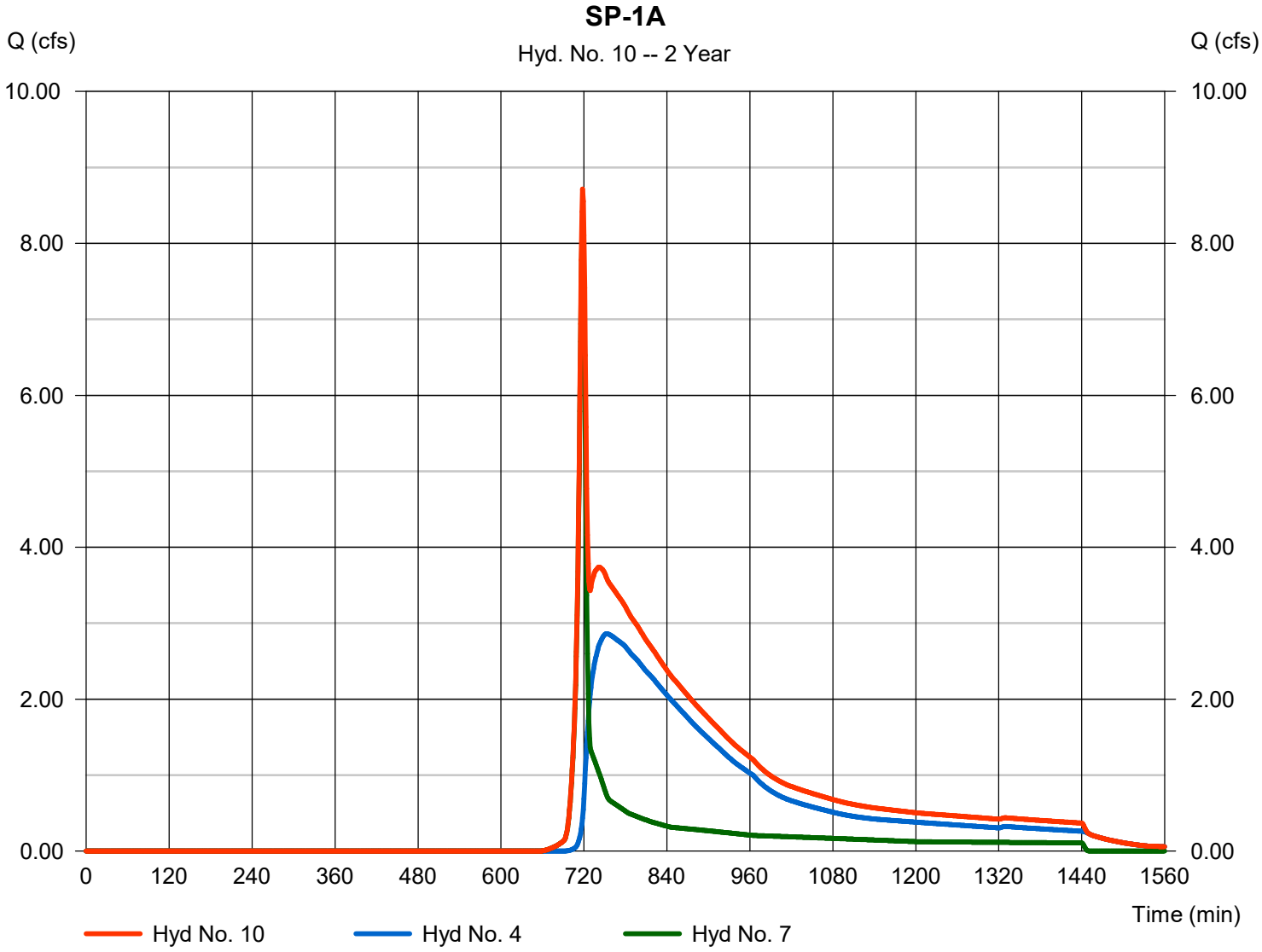


Hydrograph Report

Hyd. No. 10

SP-1A

Hydrograph type	= Combine	Peak discharge	= 8.716 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 59,550 cuft
Inflow hyds.	= 4, 7	Contrib. drain. area	= 3.510 ac



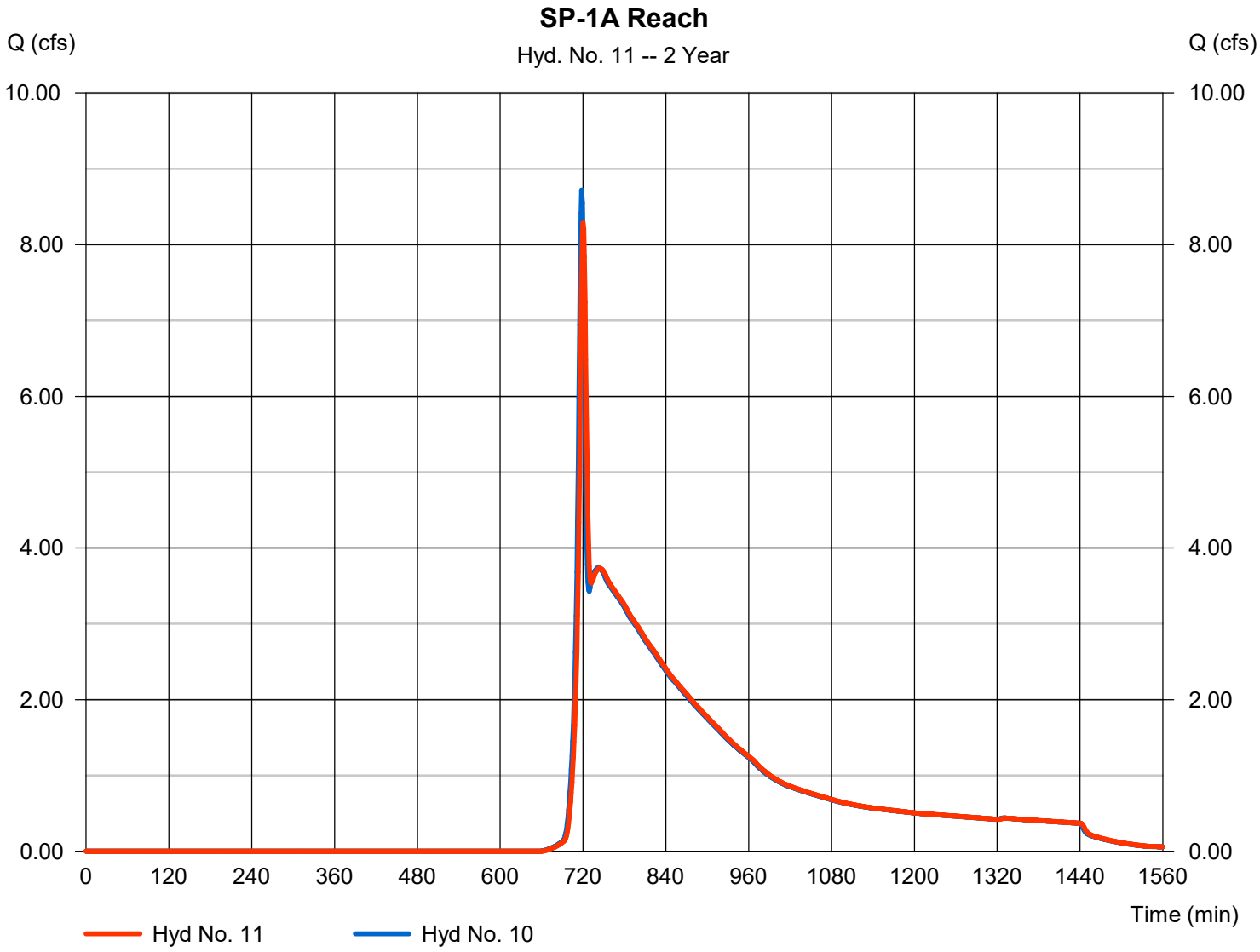
Hydrograph Report

Hyd. No. 11

SP-1A Reach

Hydrograph type	=	Reach	Peak discharge	=	8.293 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	59,470 cuft
Inflow hyd. No.	=	10 - SP-1A	Section type	=	Trapezoidal
Reach length	=	940.0 ft	Channel slope	=	13.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	6.307	Rating curve m	=	1.356
Ave. velocity	=	6.87 ft/s	Routing coeff.	=	0.4580

Modified Att-Kin routing method used.



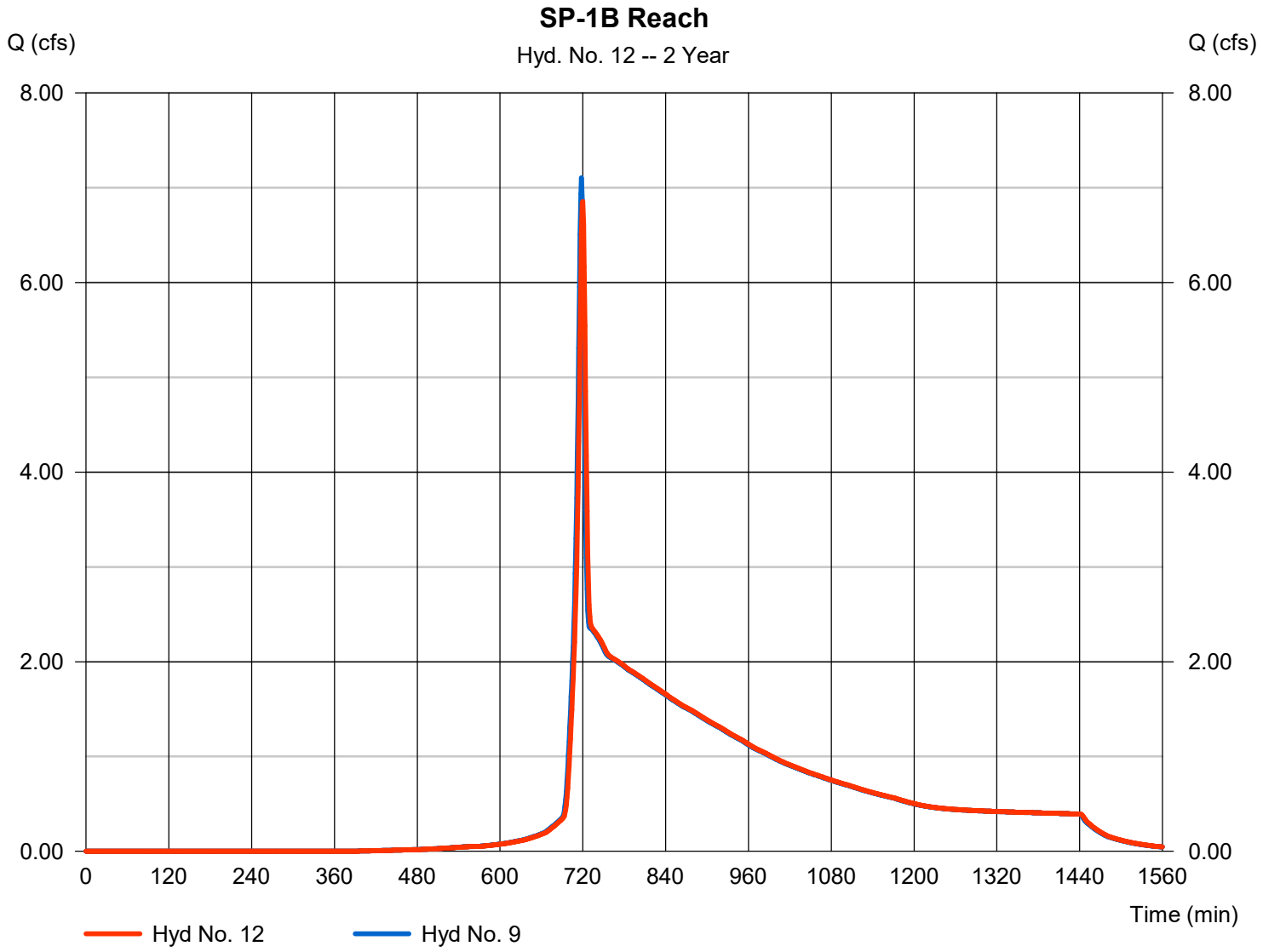
Hydrograph Report

Hyd. No. 12

SP-1B Reach

Hydrograph type	=	Reach	Peak discharge	=	6.856 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	49,695 cuft
Inflow hyd. No.	=	9 - SP-1B	Section type	=	Trapezoidal
Reach length	=	649.0 ft	Channel slope	=	10.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	5.579	Rating curve m	=	1.356
Ave. velocity	=	5.94 ft/s	Routing coeff.	=	0.5428

Modified Att-Kin routing method used.

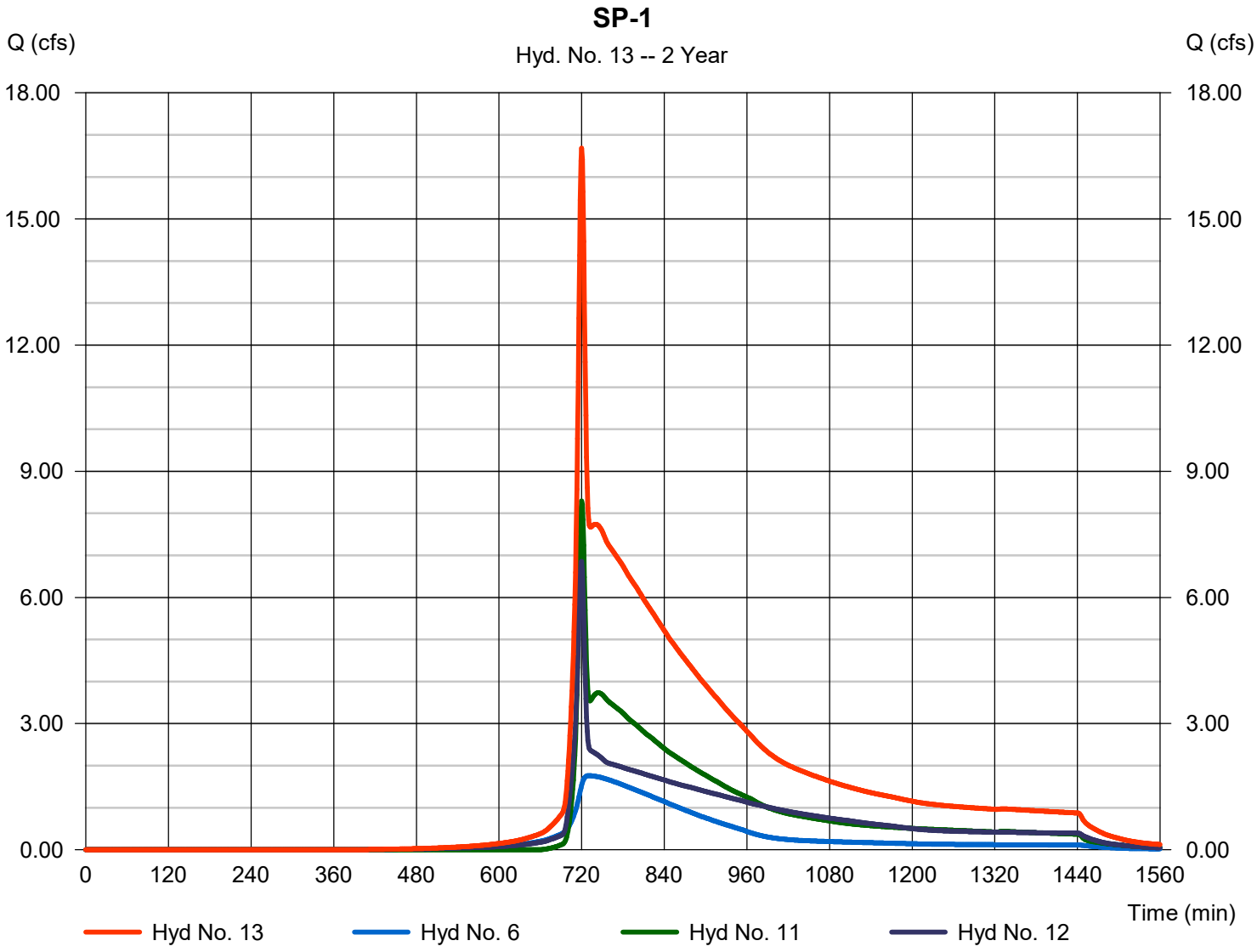


Hydrograph Report

Hyd. No. 13

SP-1

Hydrograph type	=	Combine	Peak discharge	=	16.69 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	133,579 cuft
Inflow hyds.	=	6, 11, 12	Contrib. drain. area	=	0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

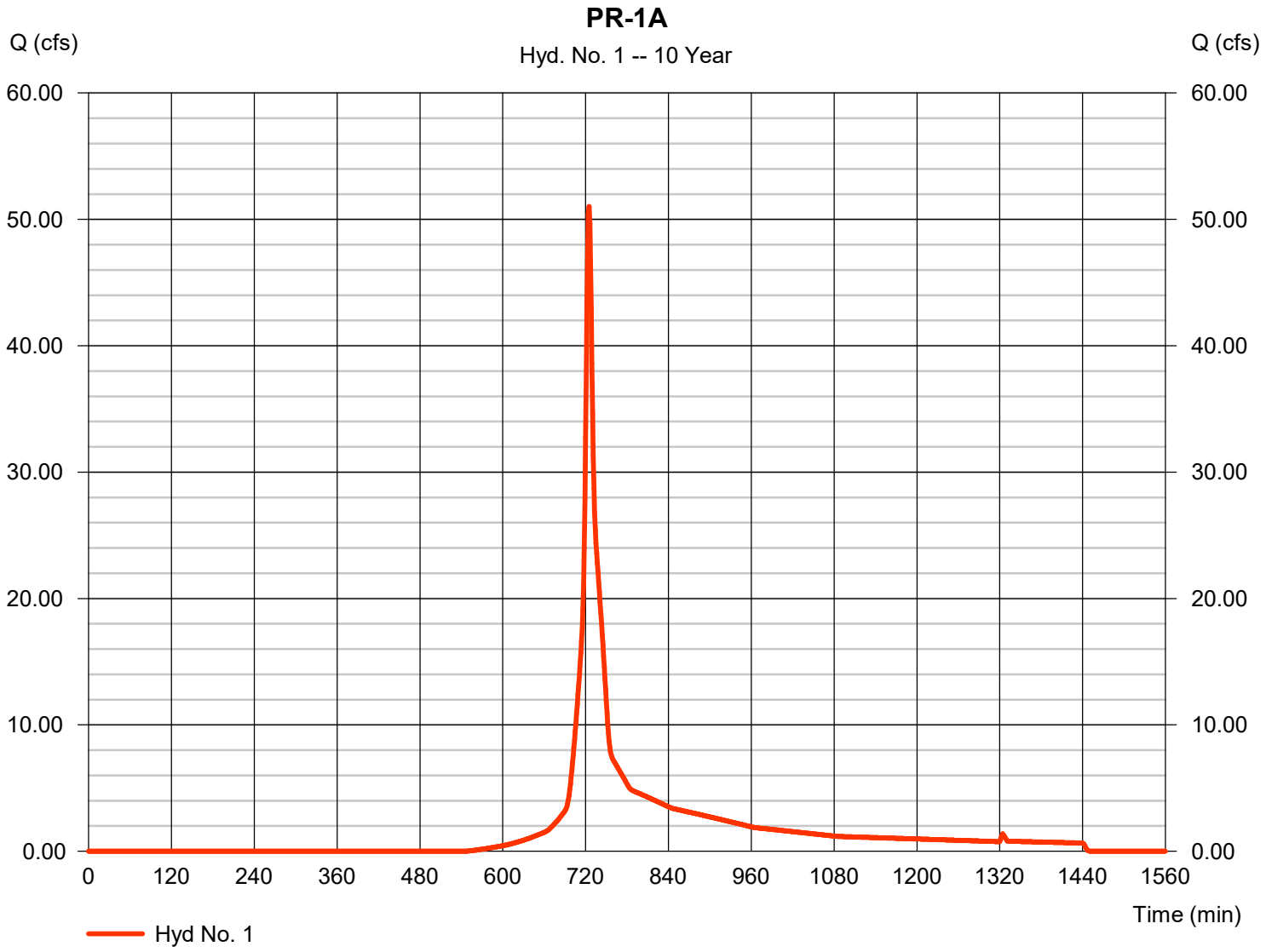
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	51.01	1	725	157,943	------	------	------	PR-1A
2	SCS Runoff	75.60	1	720	172,723	------	------	------	PR-1B
3	SCS Runoff	26.08	1	718	58,786	------	------	------	PR-1C
4	Reservoir	16.19	1	745	157,934	1	599.60	45,574	Facility A Route
5	Reservoir	60.07	1	723	172,715	2	526.31	25,253	Facility B Route
6	Reservoir	11.52	1	725	58,777	3	407.83	19,563	Facility C Route
7	SCS Runoff	27.22	1	718	55,208	------	------	------	PR-1A-REM
8	SCS Runoff	15.03	1	717	32,591	------	------	------	PR-1B-REM
9	Combine	68.24	1	721	205,306	5, 8	------	------	SP-1B
10	Combine	33.90	1	718	213,142	4, 7,	------	------	SP-1A
11	Reach	33.06	1	720	213,062	10	------	------	SP-1A Reach
12	Reach	68.05	1	723	205,233	9	------	------	SP-1B Reach
13	Combine	109.74	1	721	477,073	6, 11, 12	------	------	SP-1

Hydrograph Report

Hyd. No. 1

PR-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	51.01 cfs
Storm frequency	=	10 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	157,943 cuft
Drainage area	=	11.600 ac	Curve number	=	63
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.36 min
Total precip.	=	7.96 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

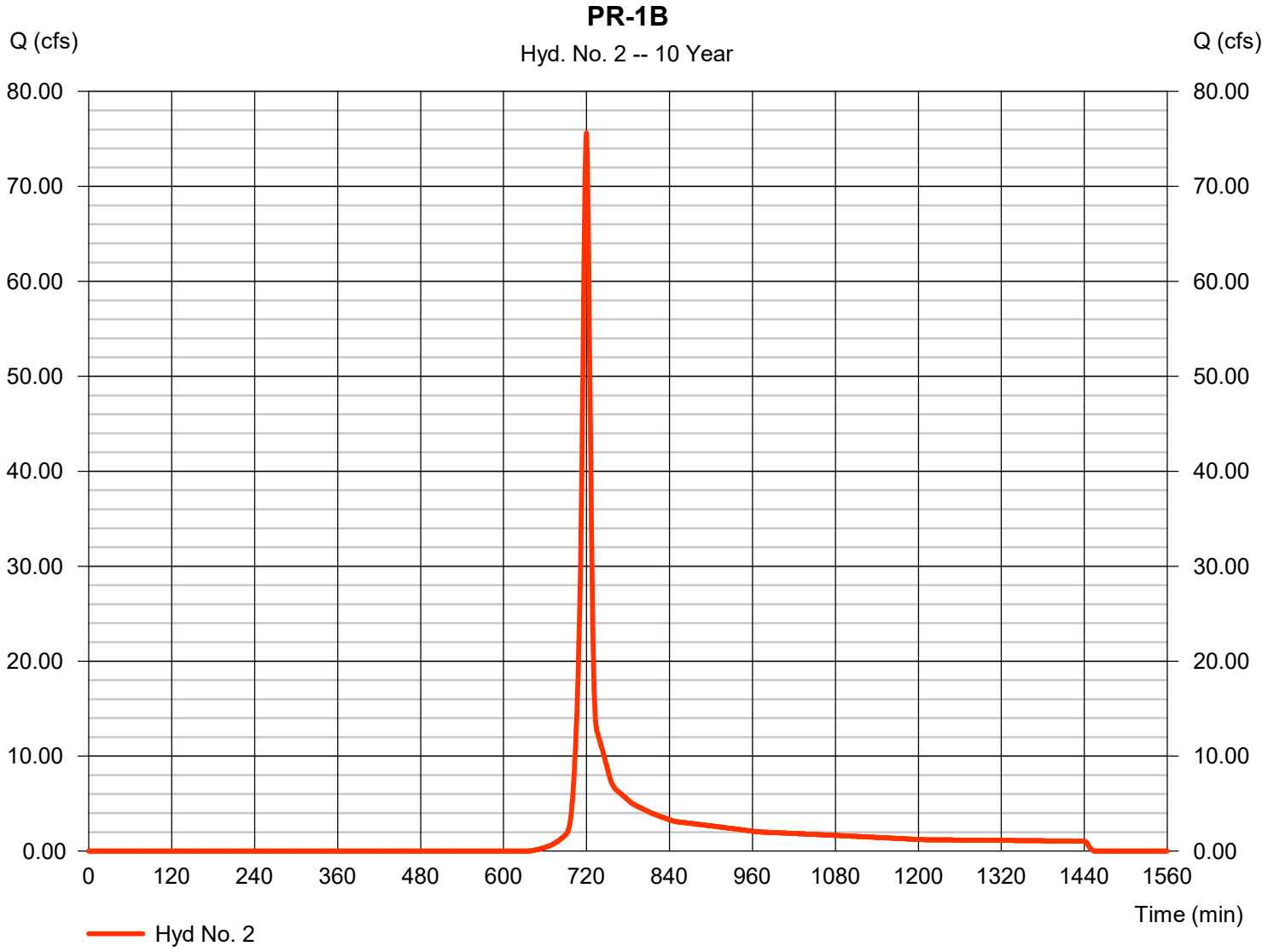


Hydrograph Report

Hyd. No. 2

PR-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	75.60 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	172,723 cuft
Drainage area	=	17.260 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	7.96 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

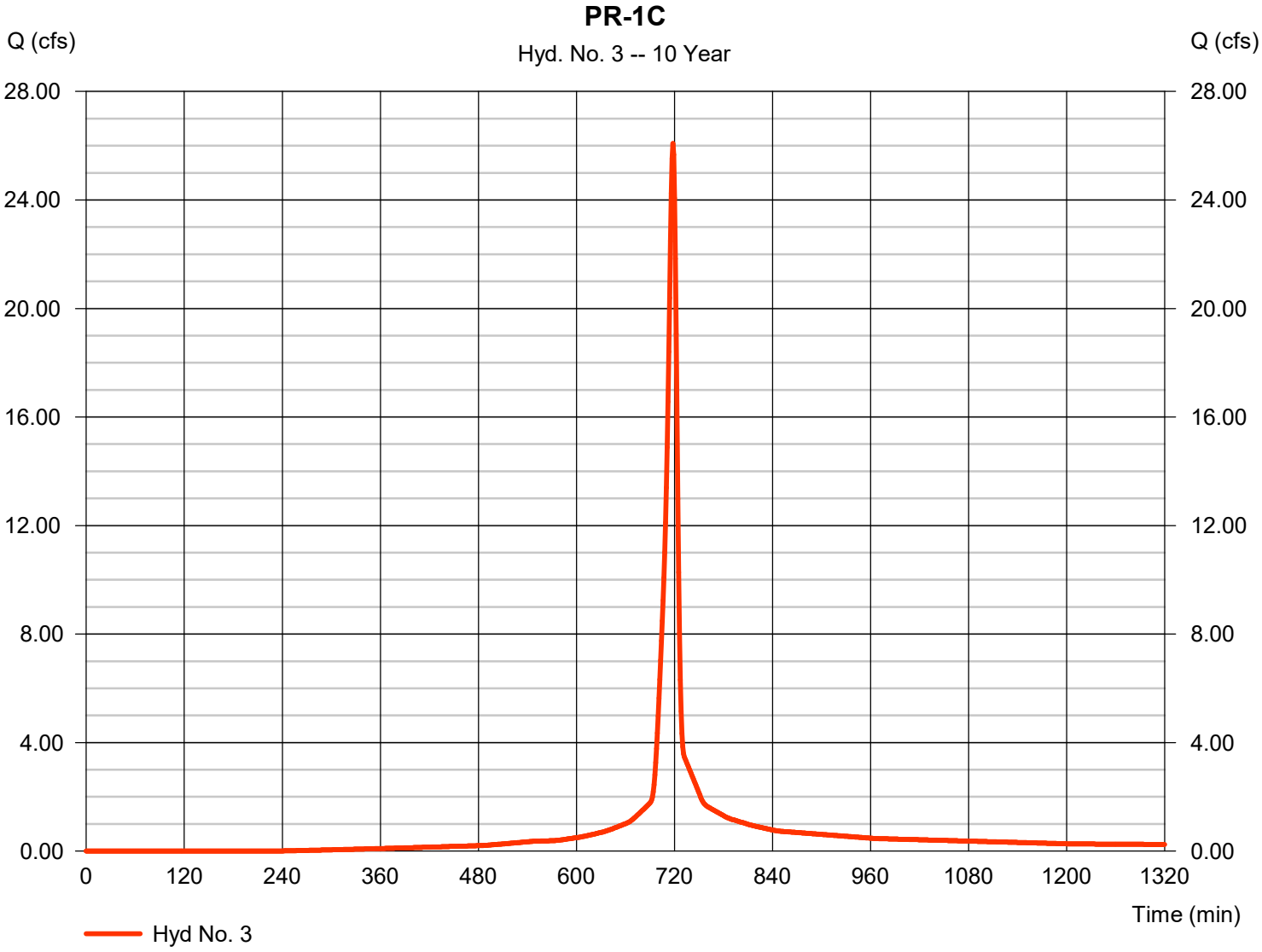


Hydrograph Report

Hyd. No. 3

PR-1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	26.08 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	58,786 cuft
Drainage area	=	2.690 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	7.38 min
Total precip.	=	7.96 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



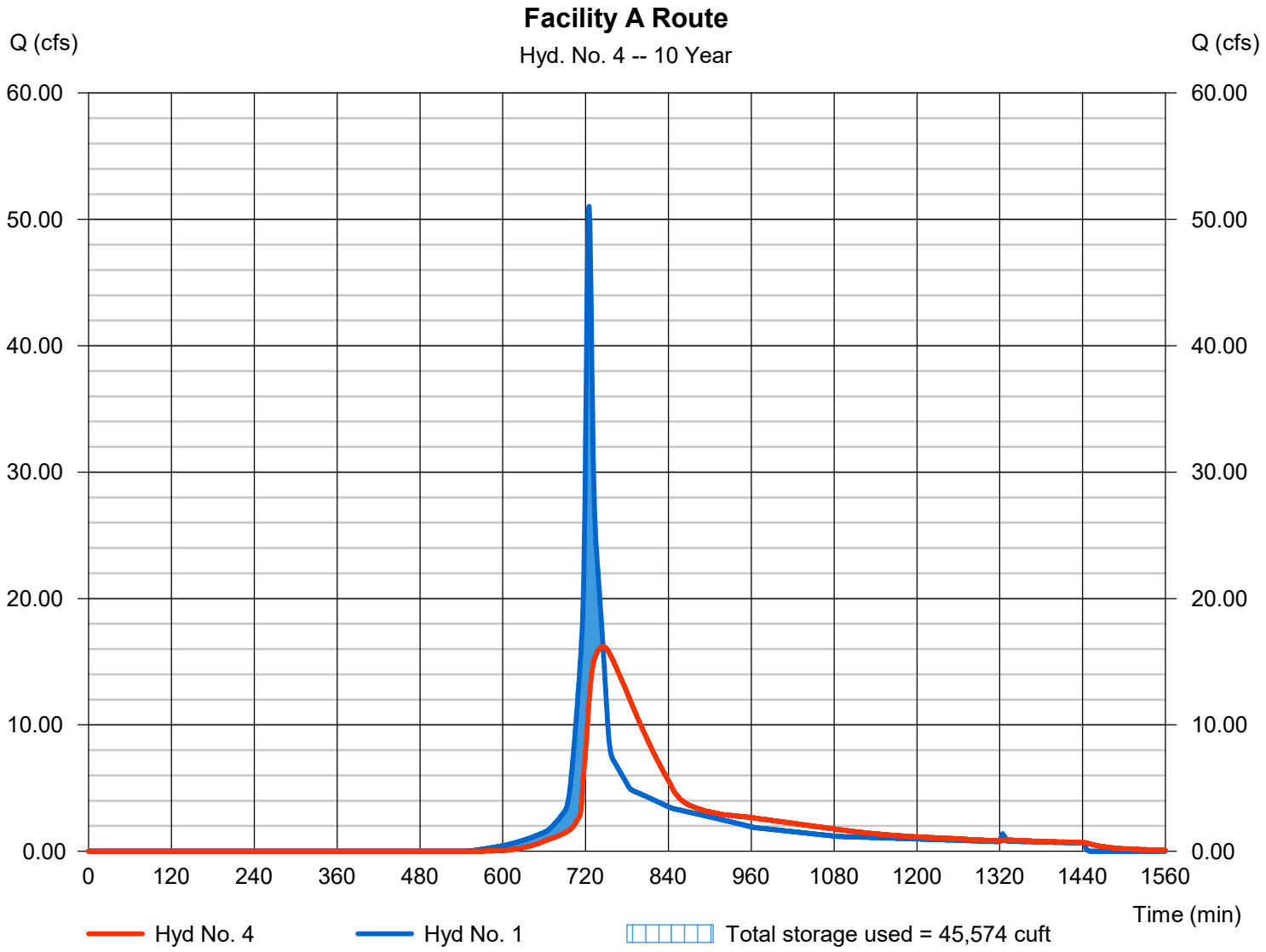
Hydrograph Report

Hyd. No. 4

Facility A Route

Hydrograph type	=	Reservoir	Peak discharge	=	16.19 cfs
Storm frequency	=	10 yrs	Time to peak	=	745 min
Time interval	=	1 min	Hyd. volume	=	157,934 cuft
Inflow hyd. No.	=	1 - PR-1A	Max. Elevation	=	599.60 ft
Reservoir name	=	Facility A	Max. Storage	=	45,574 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



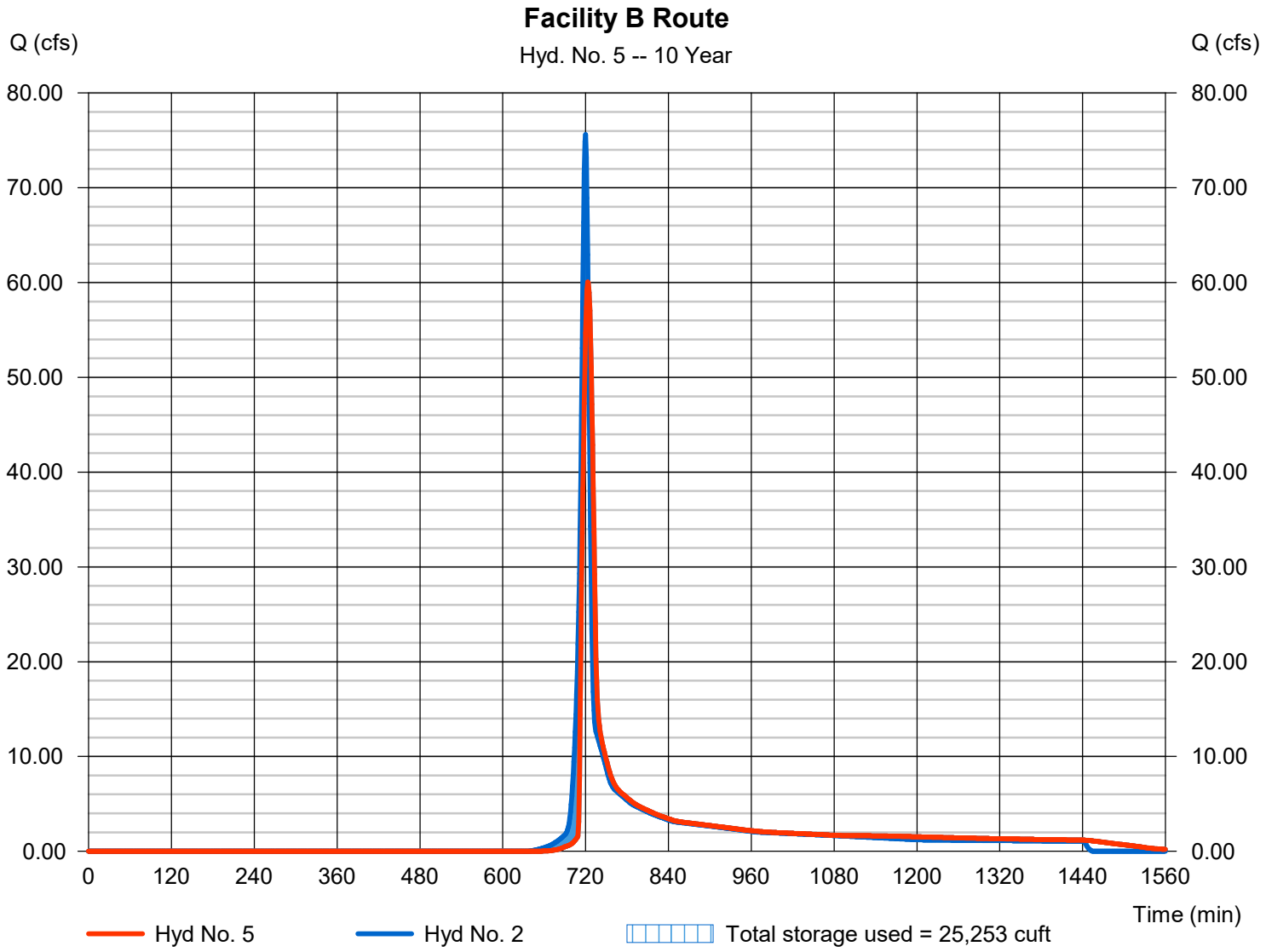
Hydrograph Report

Hyd. No. 5

Facility B Route

Hydrograph type	=	Reservoir	Peak discharge	=	60.07 cfs
Storm frequency	=	10 yrs	Time to peak	=	723 min
Time interval	=	1 min	Hyd. volume	=	172,715 cuft
Inflow hyd. No.	=	2 - PR-1B	Max. Elevation	=	526.31 ft
Reservoir name	=	Facility B	Max. Storage	=	25,253 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



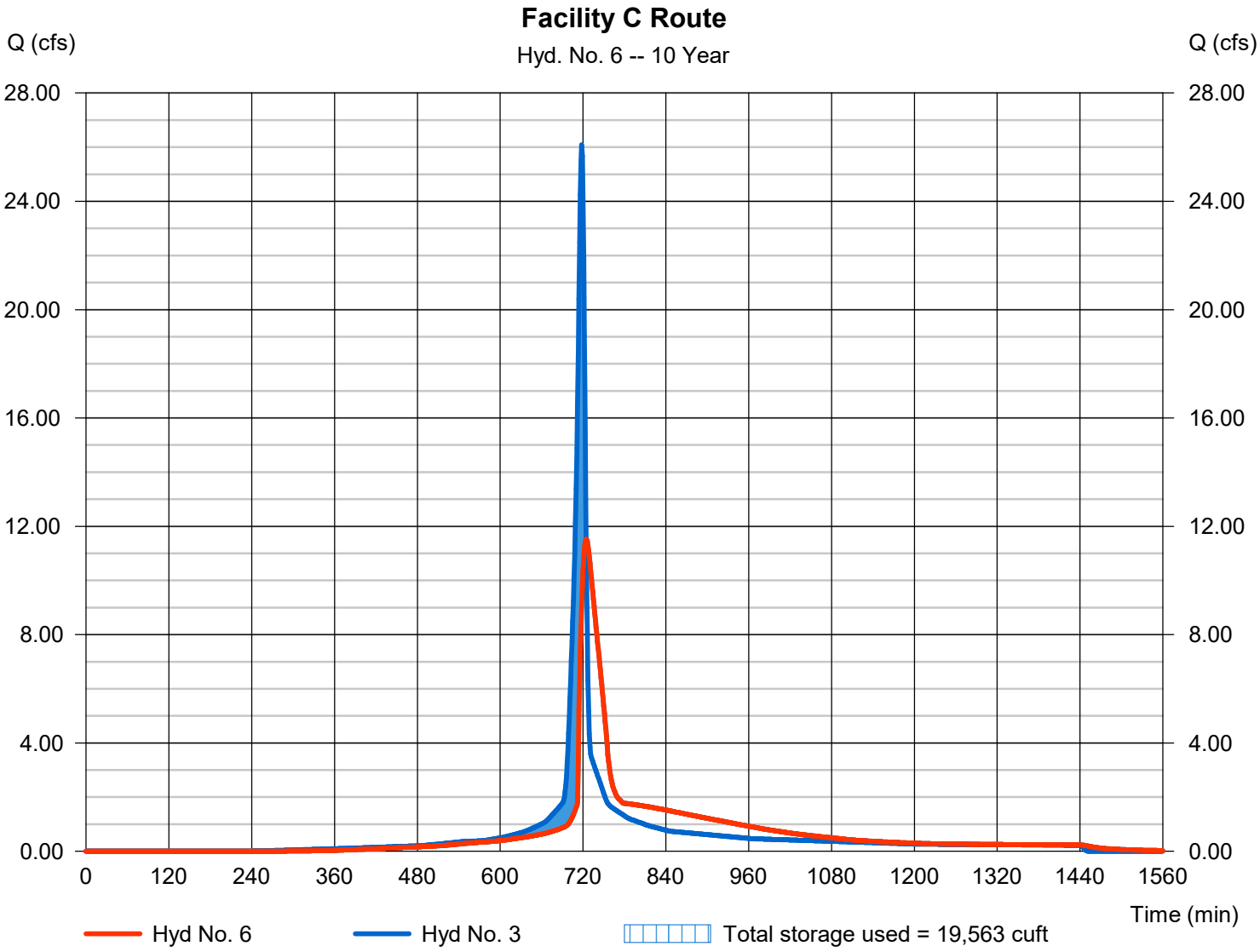
Hydrograph Report

Hyd. No. 6

Facility C Route

Hydrograph type	=	Reservoir	Peak discharge	=	11.52 cfs
Storm frequency	=	10 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	58,777 cuft
Inflow hyd. No.	=	3 - PR-1C	Max. Elevation	=	407.83 ft
Reservoir name	=	Facility C	Max. Storage	=	19,563 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

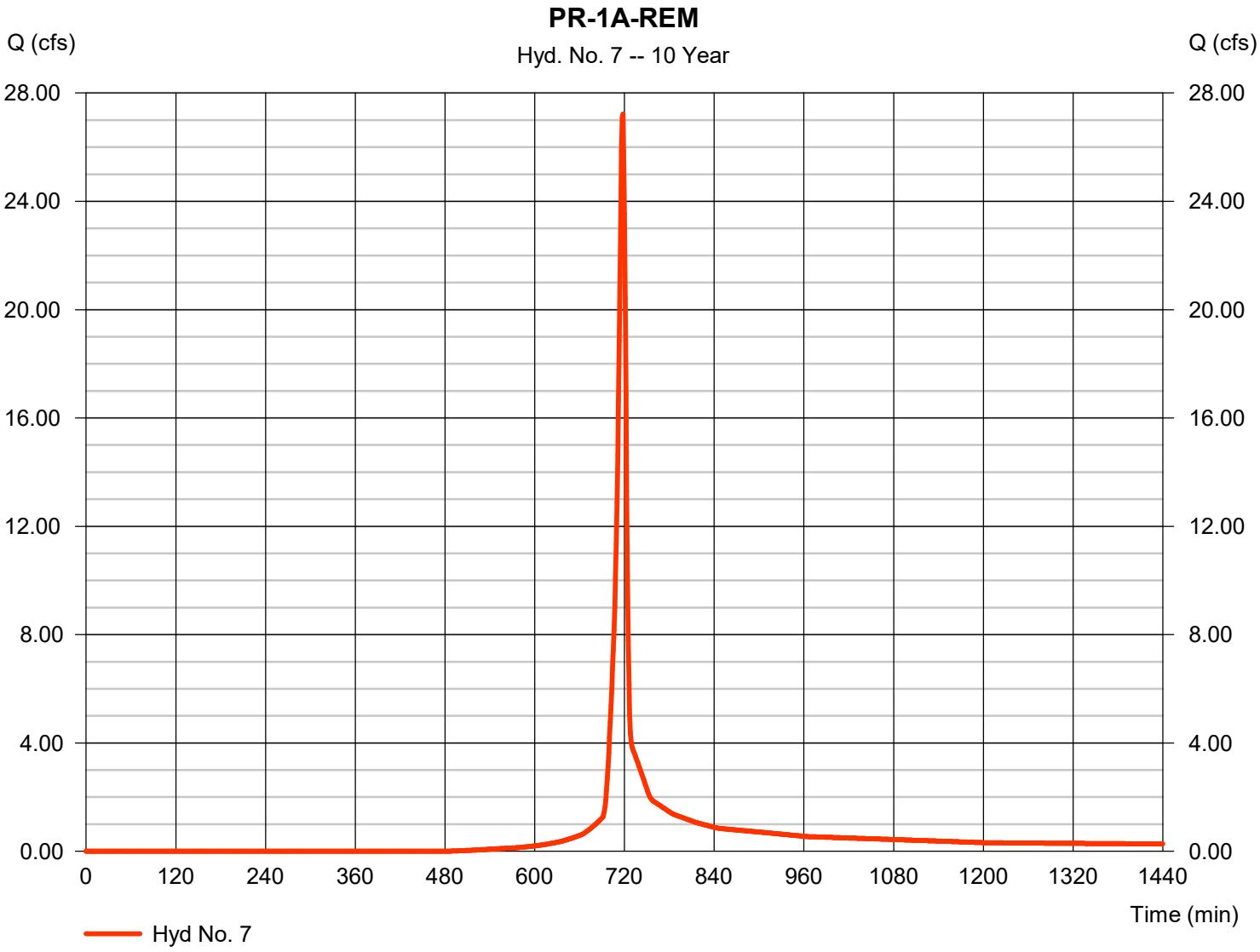


Hydrograph Report

Hyd. No. 7

PR-1A-REM

Hydrograph type	=	SCS Runoff	Peak discharge	=	27.22 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	55,208 cuft
Drainage area	=	3.510 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.96 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

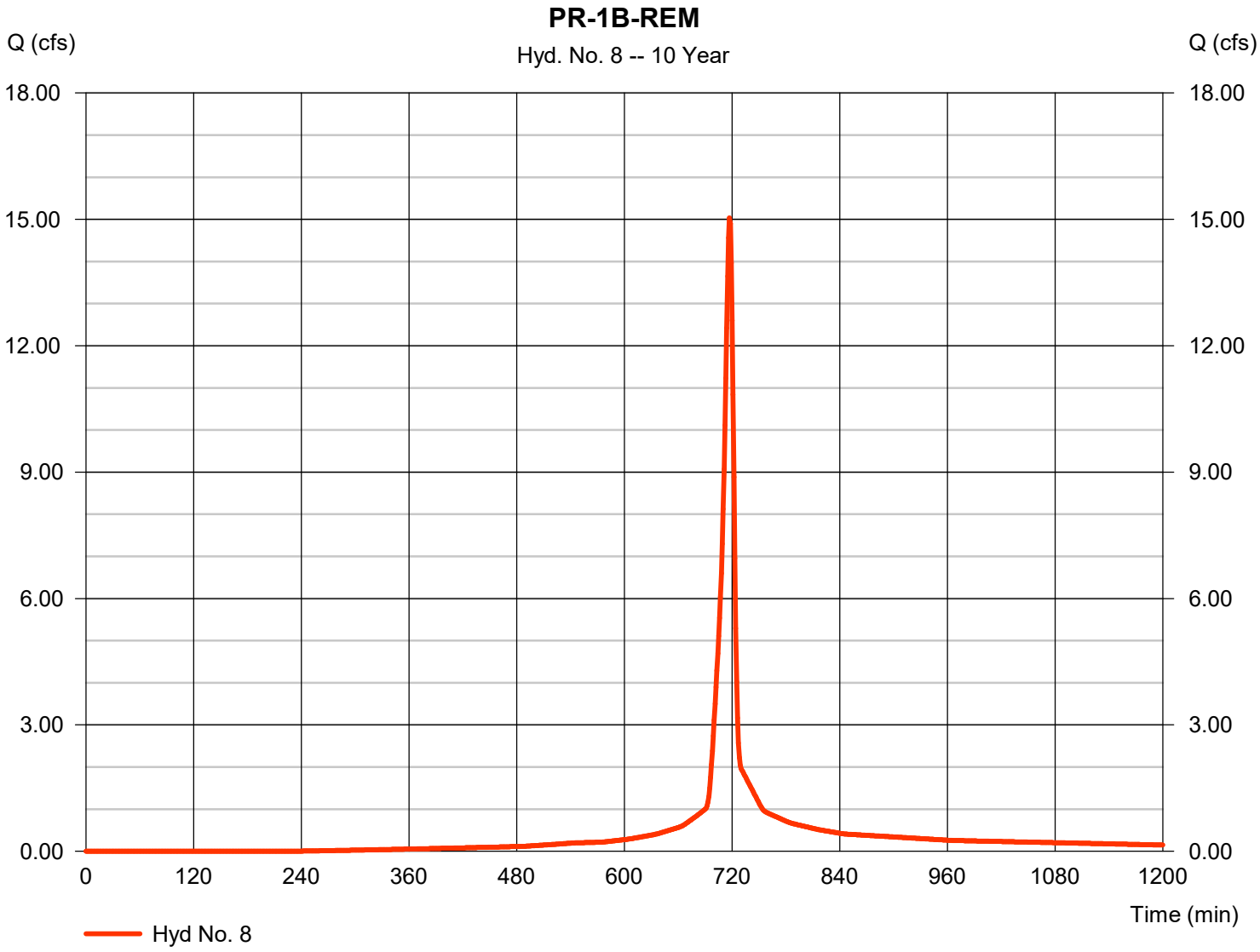


Hydrograph Report

Hyd. No. 8

PR-1B-REM

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.03 cfs
Storm frequency	=	10 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	32,591 cuft
Drainage area	=	1.410 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.96 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

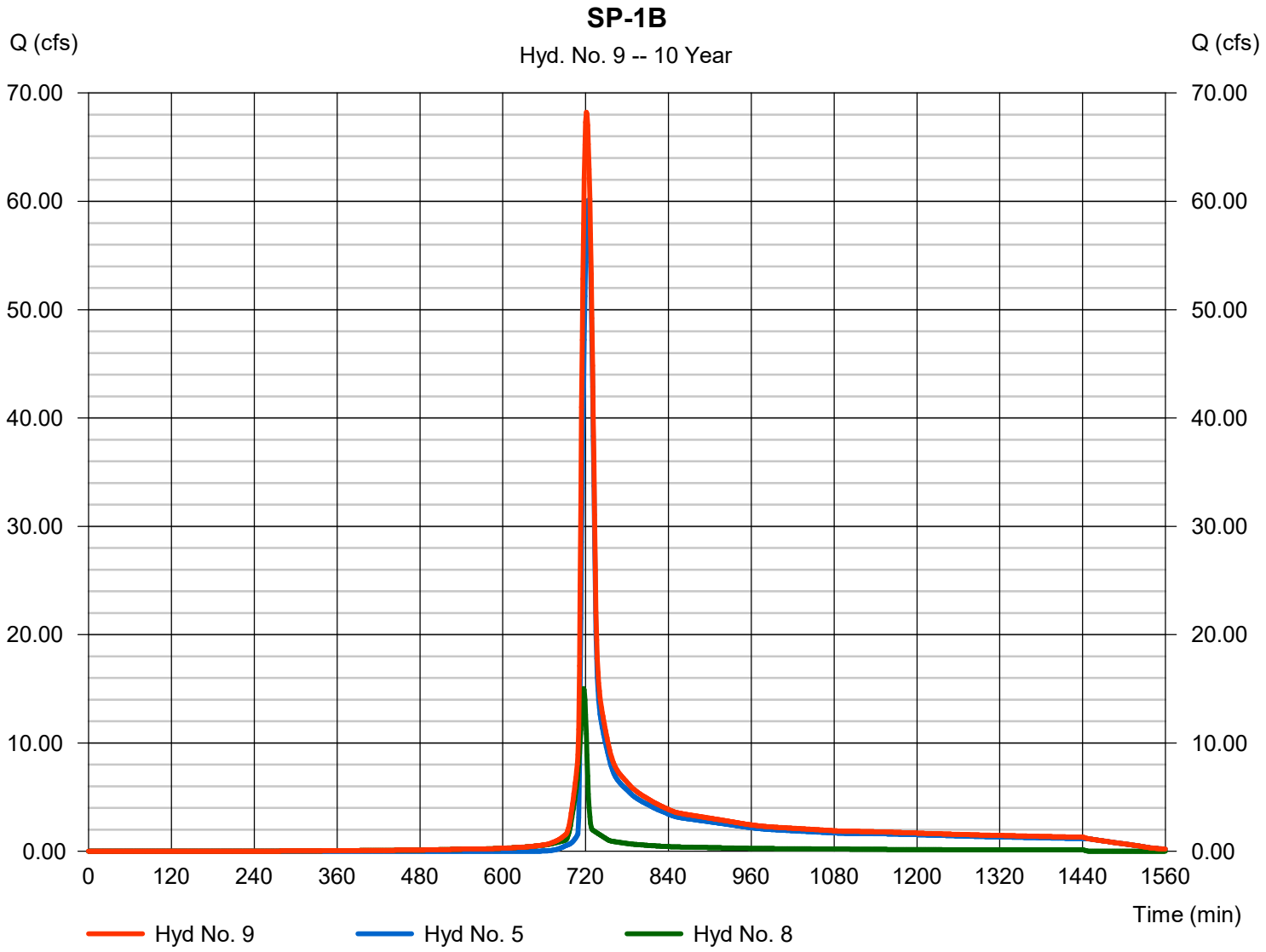


Hydrograph Report

Hyd. No. 9

SP-1B

Hydrograph type	=	Combine	Peak discharge	=	68.24 cfs
Storm frequency	=	10 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	205,306 cuft
Inflow hyds.	=	5, 8	Contrib. drain. area	=	1.410 ac

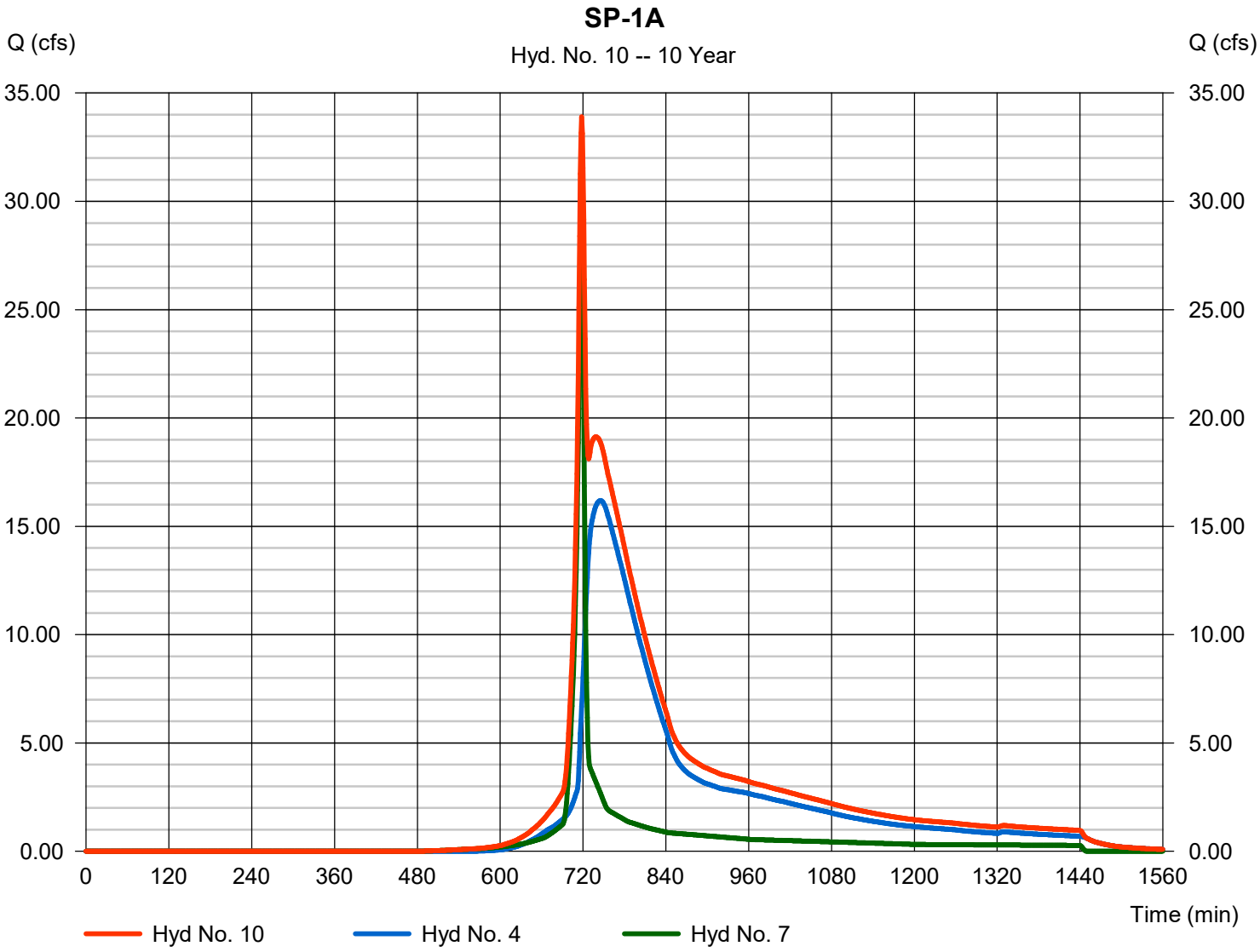


Hydrograph Report

Hyd. No. 10

SP-1A

Hydrograph type	=	Combine	Peak discharge	=	33.90 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	213,142 cuft
Inflow hyds.	=	4, 7	Contrib. drain. area	=	3.510 ac



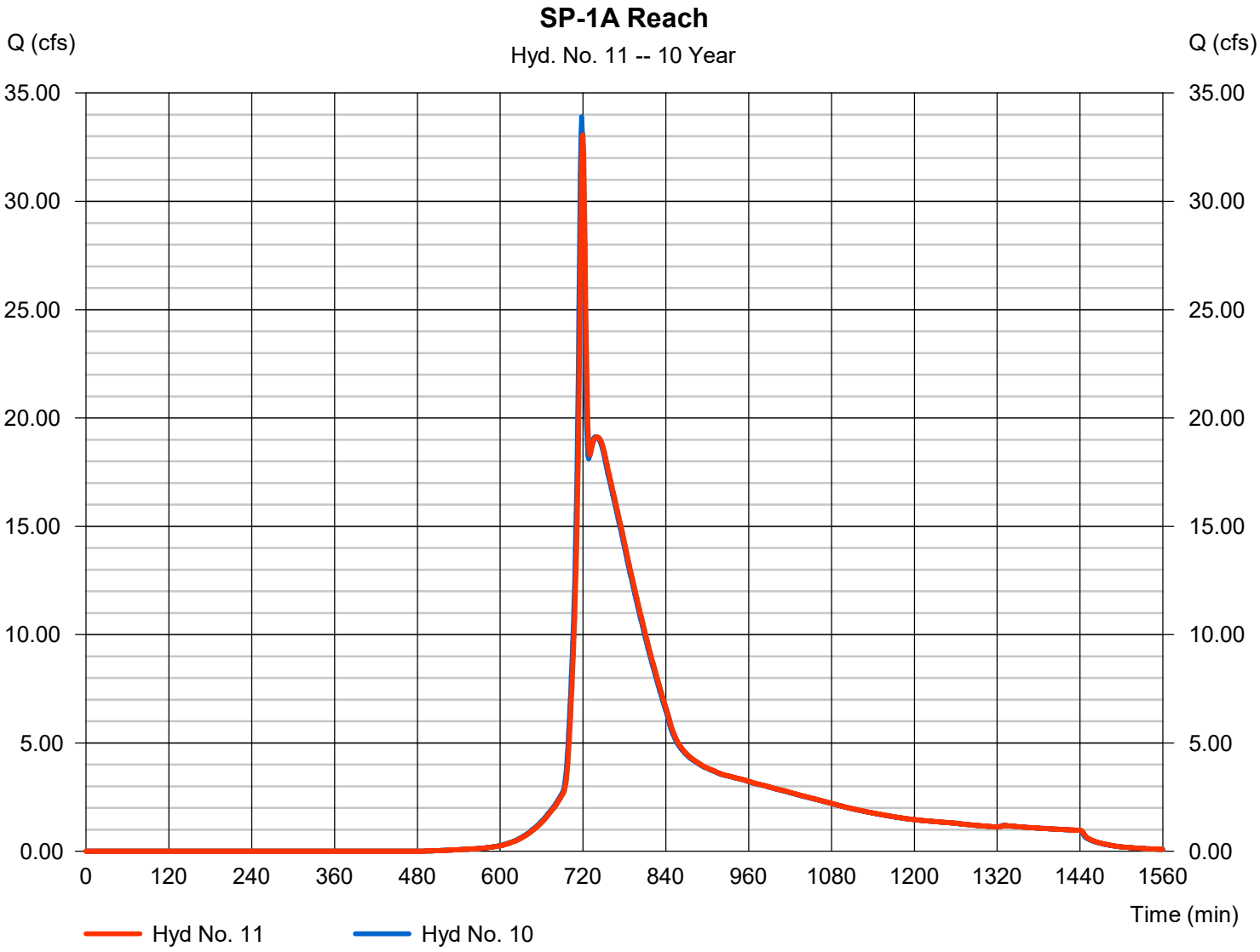
Hydrograph Report

Hyd. No. 11

SP-1A Reach

Hydrograph type	=	Reach	Peak discharge	=	33.06 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	213,062 cuft
Inflow hyd. No.	=	10 - SP-1A	Section type	=	Trapezoidal
Reach length	=	940.0 ft	Channel slope	=	13.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	6.307	Rating curve m	=	1.356
Ave. velocity	=	9.80 ft/s	Routing coeff.	=	0.5956

Modified Att-Kin routing method used.



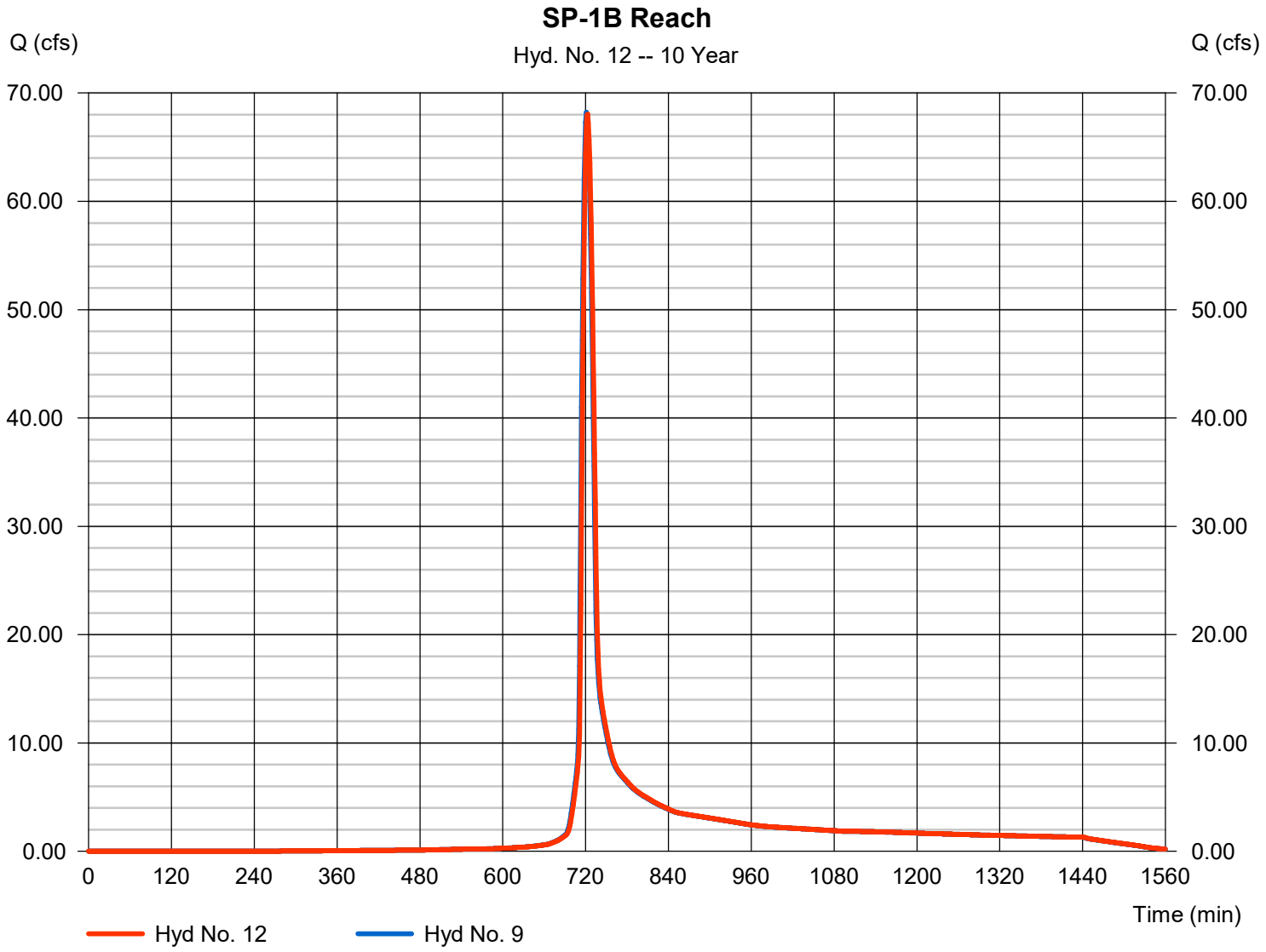
Hydrograph Report

Hyd. No. 12

SP-1B Reach

Hydrograph type	=	Reach	Peak discharge	=	68.05 cfs
Storm frequency	=	10 yrs	Time to peak	=	723 min
Time interval	=	1 min	Hyd. volume	=	205,233 cuft
Inflow hyd. No.	=	9 - SP-1B	Section type	=	Trapezoidal
Reach length	=	649.0 ft	Channel slope	=	10.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	5.579	Rating curve m	=	1.356
Ave. velocity	=	10.76 ft/s	Routing coeff.	=	0.8053

Modified Att-Kin routing method used.

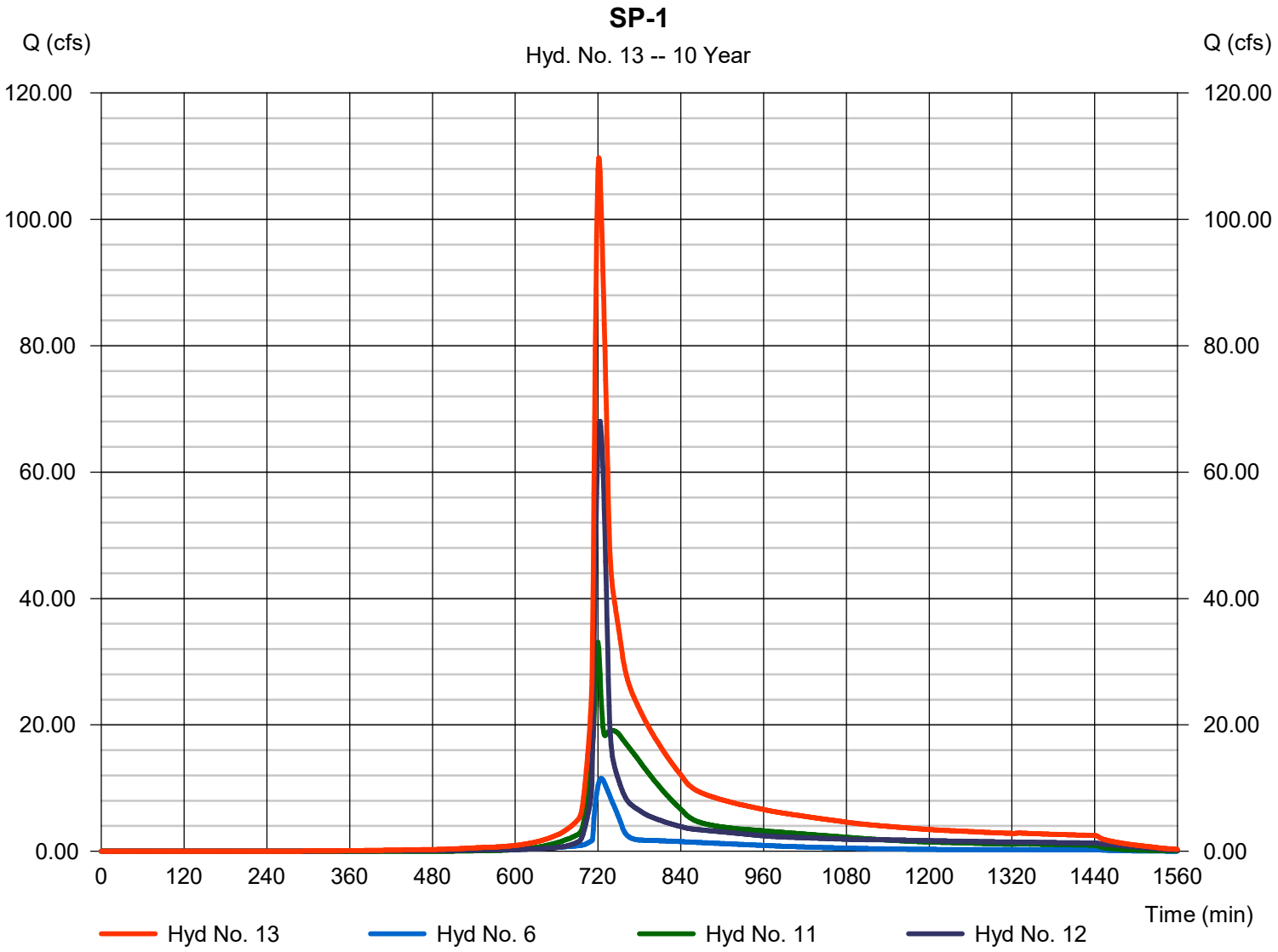


Hydrograph Report

Hyd. No. 13

SP-1

Hydrograph type	=	Combine	Peak discharge	=	109.74 cfs
Storm frequency	=	10 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	477,073 cuft
Inflow hyds.	=	6, 11, 12	Contrib. drain. area	=	0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

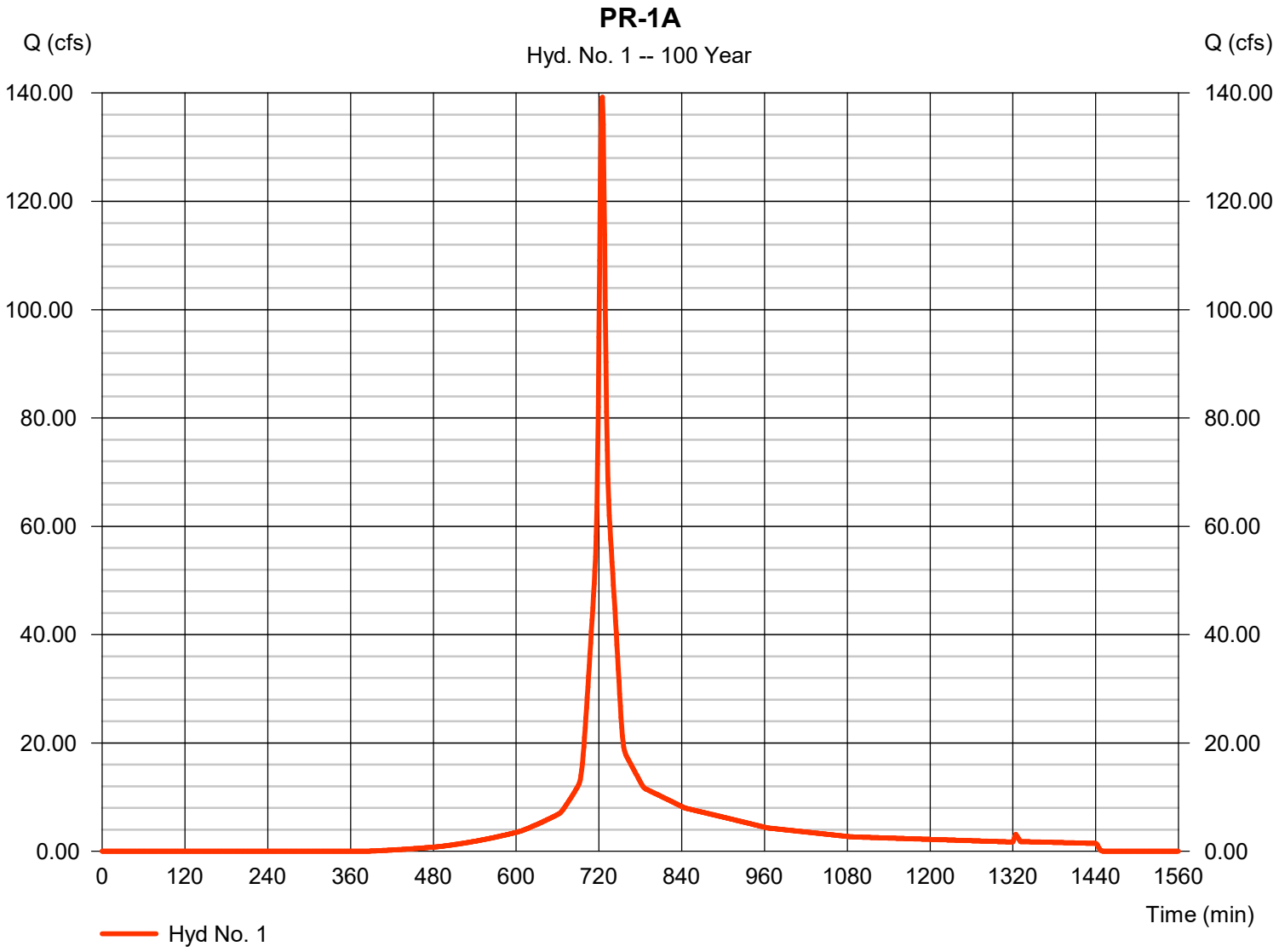
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	139.23	1	725	433,245	------	------	------	PR-1A
2	SCS Runoff	235.78	1	719	535,450	------	------	------	PR-1B
3	SCS Runoff	53.71	1	718	127,278	------	------	------	PR-1C
4	Reservoir	136.70	1	726	433,237	1	601.60	57,623	Facility A Route
5	Reservoir	235.07	1	720	535,441	2	529.88	39,521	Facility B Route
6	Reservoir	52.46	1	719	127,269	3	409.64	24,096	Facility C Route
7	SCS Runoff	67.24	1	717	142,097	------	------	------	PR-1A-REM
8	SCS Runoff	30.95	1	717	70,563	------	------	------	PR-1B-REM
9	Combine	261.01	1	719	606,005	5, 8	------	------	SP-1B
10	Combine	155.41	1	724	575,334	4, 7,	------	------	SP-1A
11	Reach	154.83	1	726	575,254	10	------	------	SP-1A Reach
12	Reach	260.84	1	720	605,932	9	------	------	SP-1B Reach
13	Combine	443.37	1	721	1,308,457	6, 11, 12	------	------	SP-1

Hydrograph Report

Hyd. No. 1

PR-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	139.23 cfs
Storm frequency	=	100 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	433,245 cuft
Drainage area	=	11.600 ac	Curve number	=	63
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.36 min
Total precip.	=	15.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

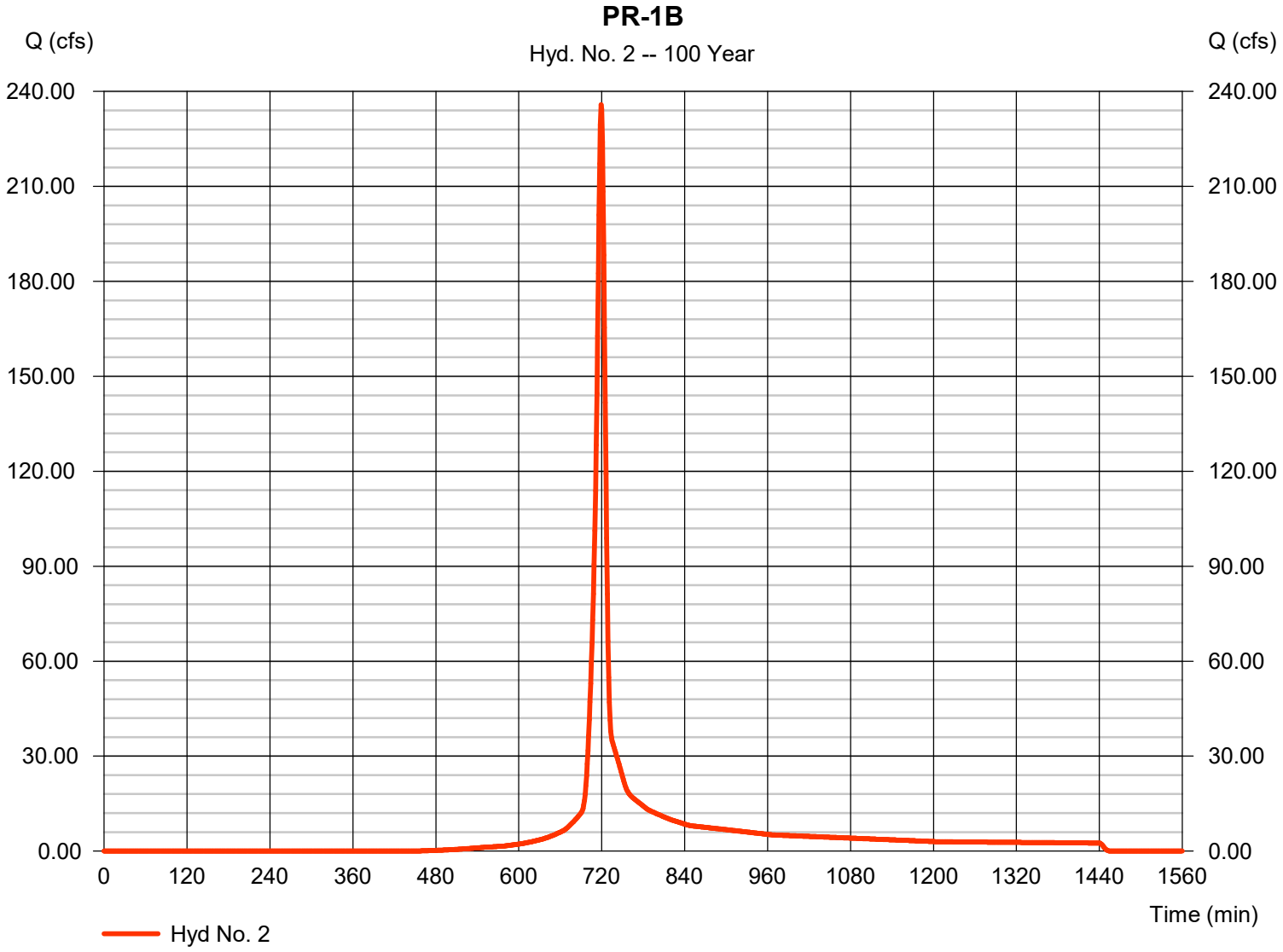


Hydrograph Report

Hyd. No. 2

PR-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	235.78 cfs
Storm frequency	=	100 yrs	Time to peak	=	719 min
Time interval	=	1 min	Hyd. volume	=	535,450 cuft
Drainage area	=	17.260 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	15.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

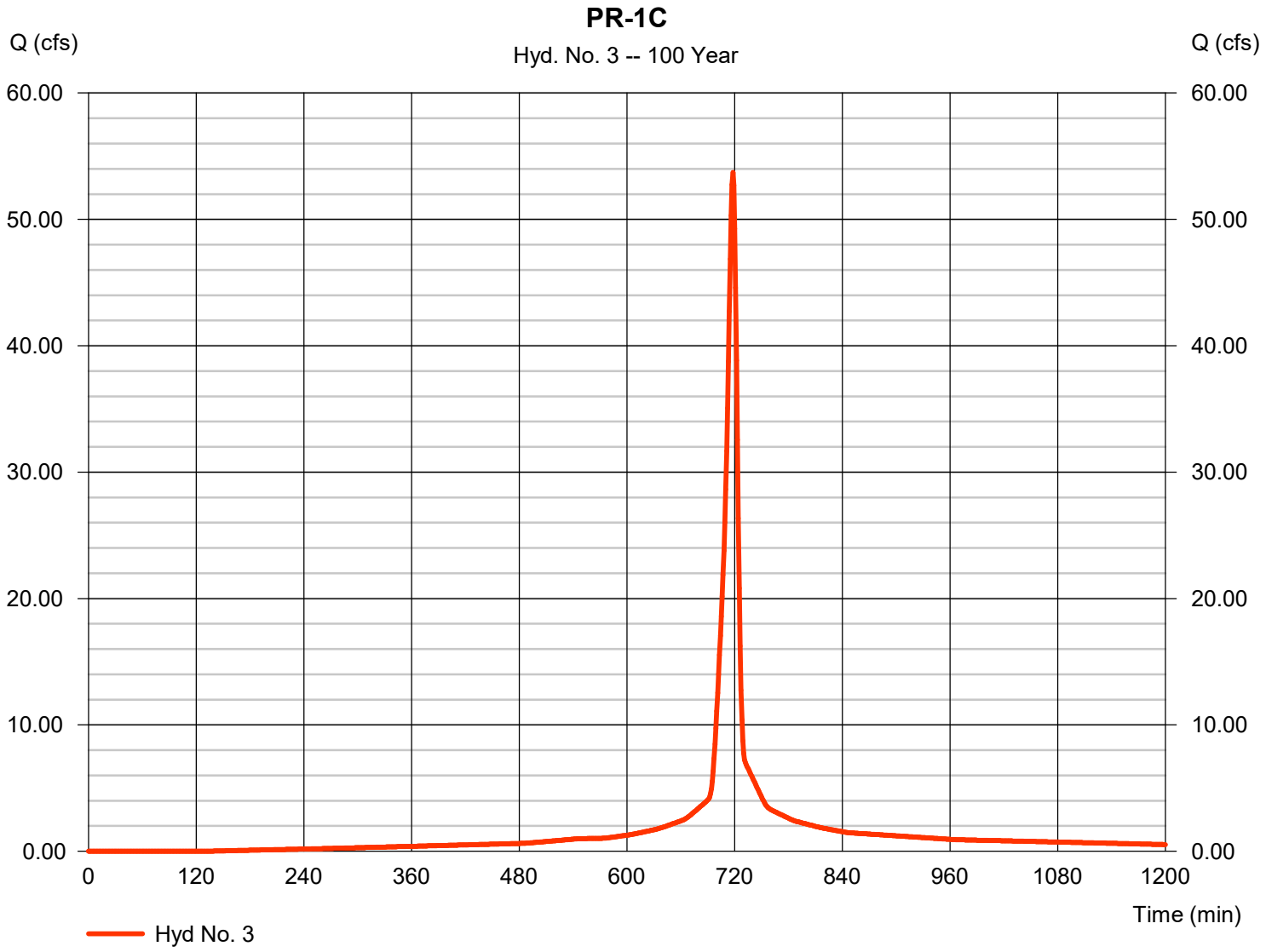


Hydrograph Report

Hyd. No. 3

PR-1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	53.71 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	127,278 cuft
Drainage area	=	2.690 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	7.38 min
Total precip.	=	15.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



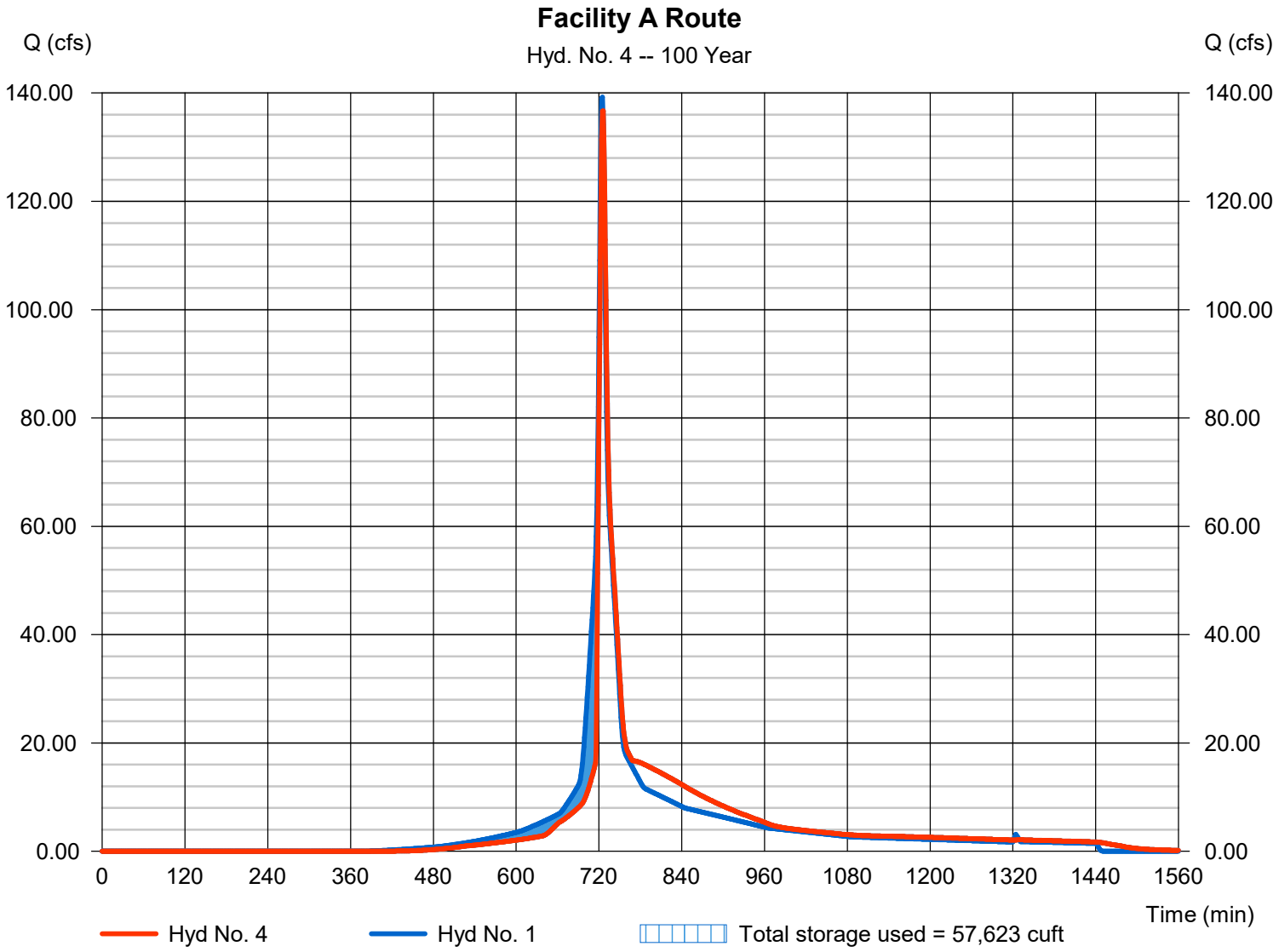
Hydrograph Report

Hyd. No. 4

Facility A Route

Hydrograph type	=	Reservoir	Peak discharge	=	136.70 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	433,237 cuft
Inflow hyd. No.	=	1 - PR-1A	Max. Elevation	=	601.60 ft
Reservoir name	=	Facility A	Max. Storage	=	57,623 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



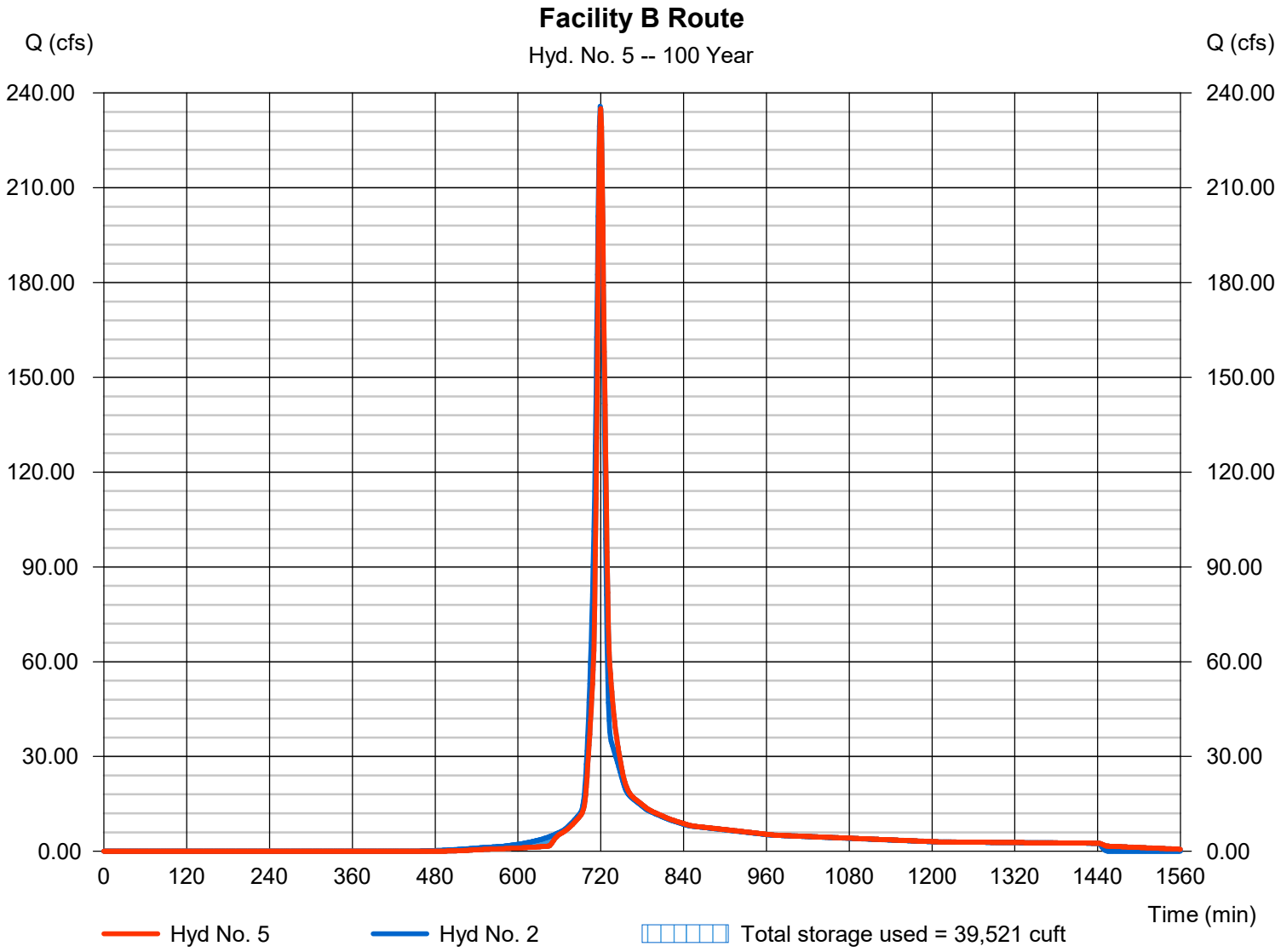
Hydrograph Report

Hyd. No. 5

Facility B Route

Hydrograph type	=	Reservoir	Peak discharge	=	235.07 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	535,441 cuft
Inflow hyd. No.	=	2 - PR-1B	Max. Elevation	=	529.88 ft
Reservoir name	=	Facility B	Max. Storage	=	39,521 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



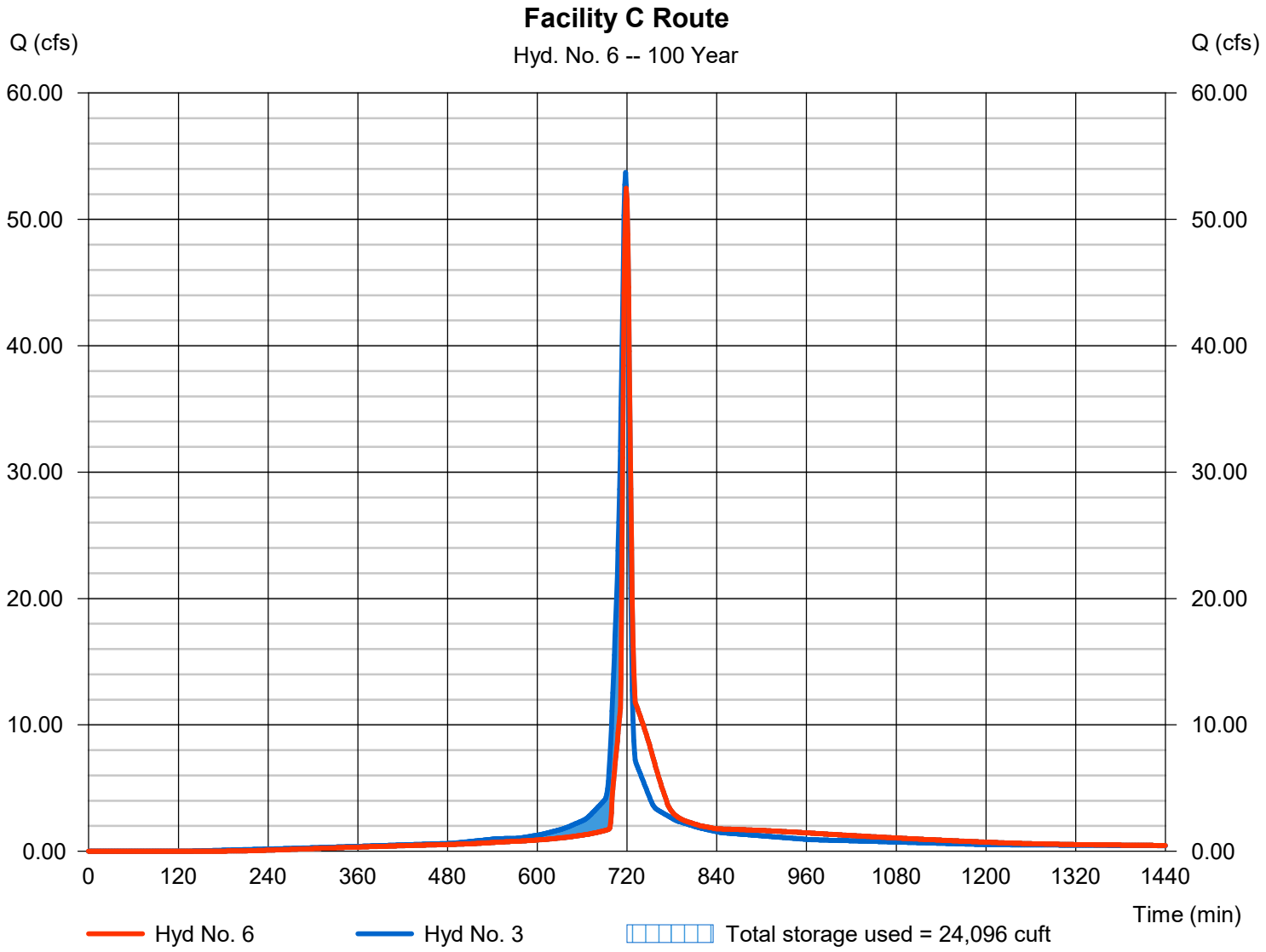
Hydrograph Report

Hyd. No. 6

Facility C Route

Hydrograph type	=	Reservoir	Peak discharge	=	52.46 cfs
Storm frequency	=	100 yrs	Time to peak	=	719 min
Time interval	=	1 min	Hyd. volume	=	127,269 cuft
Inflow hyd. No.	=	3 - PR-1C	Max. Elevation	=	409.64 ft
Reservoir name	=	Facility C	Max. Storage	=	24,096 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

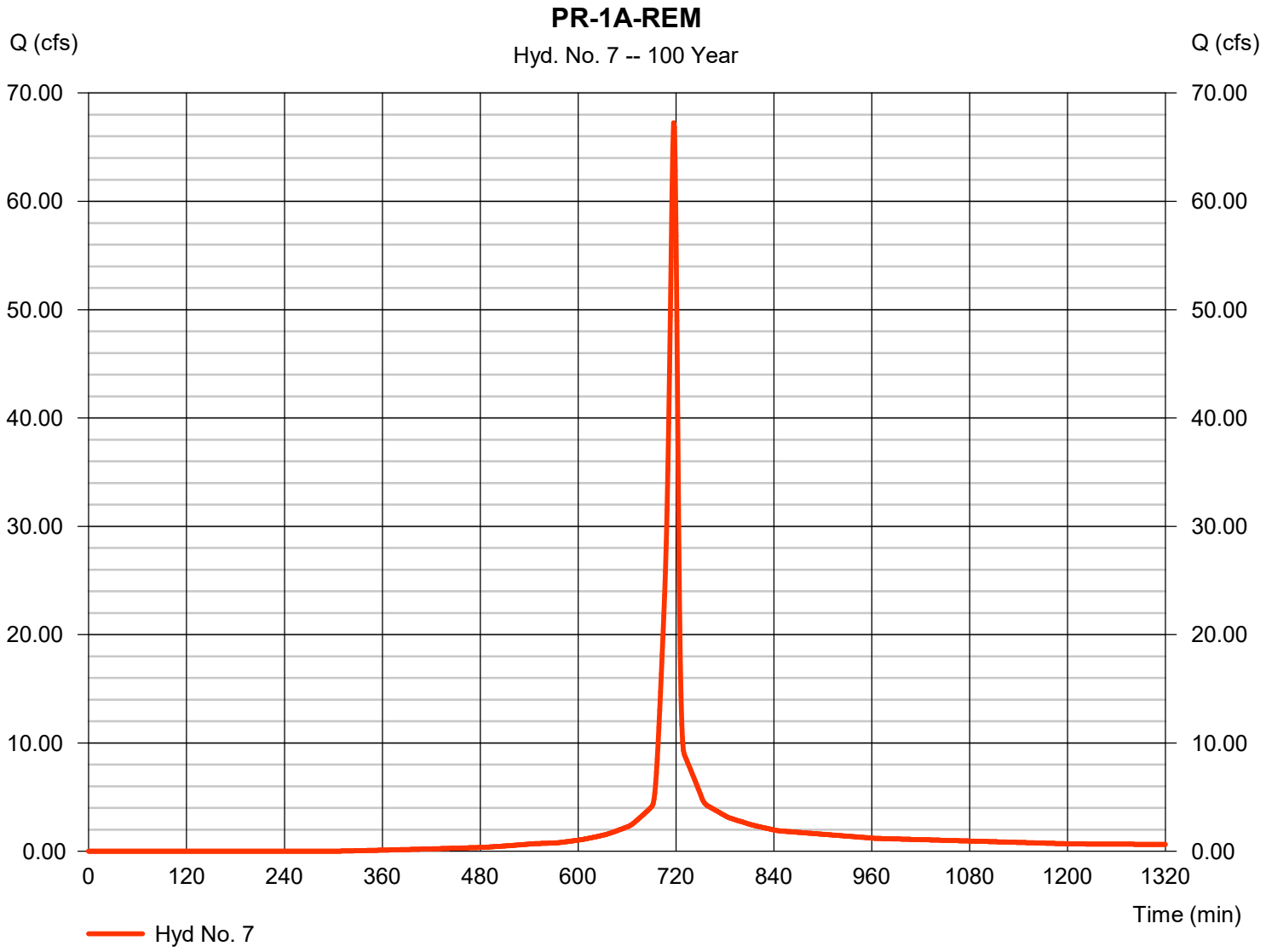


Hydrograph Report

Hyd. No. 7

PR-1A-REM

Hydrograph type	=	SCS Runoff	Peak discharge	=	67.24 cfs
Storm frequency	=	100 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	142,097 cuft
Drainage area	=	3.510 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	15.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

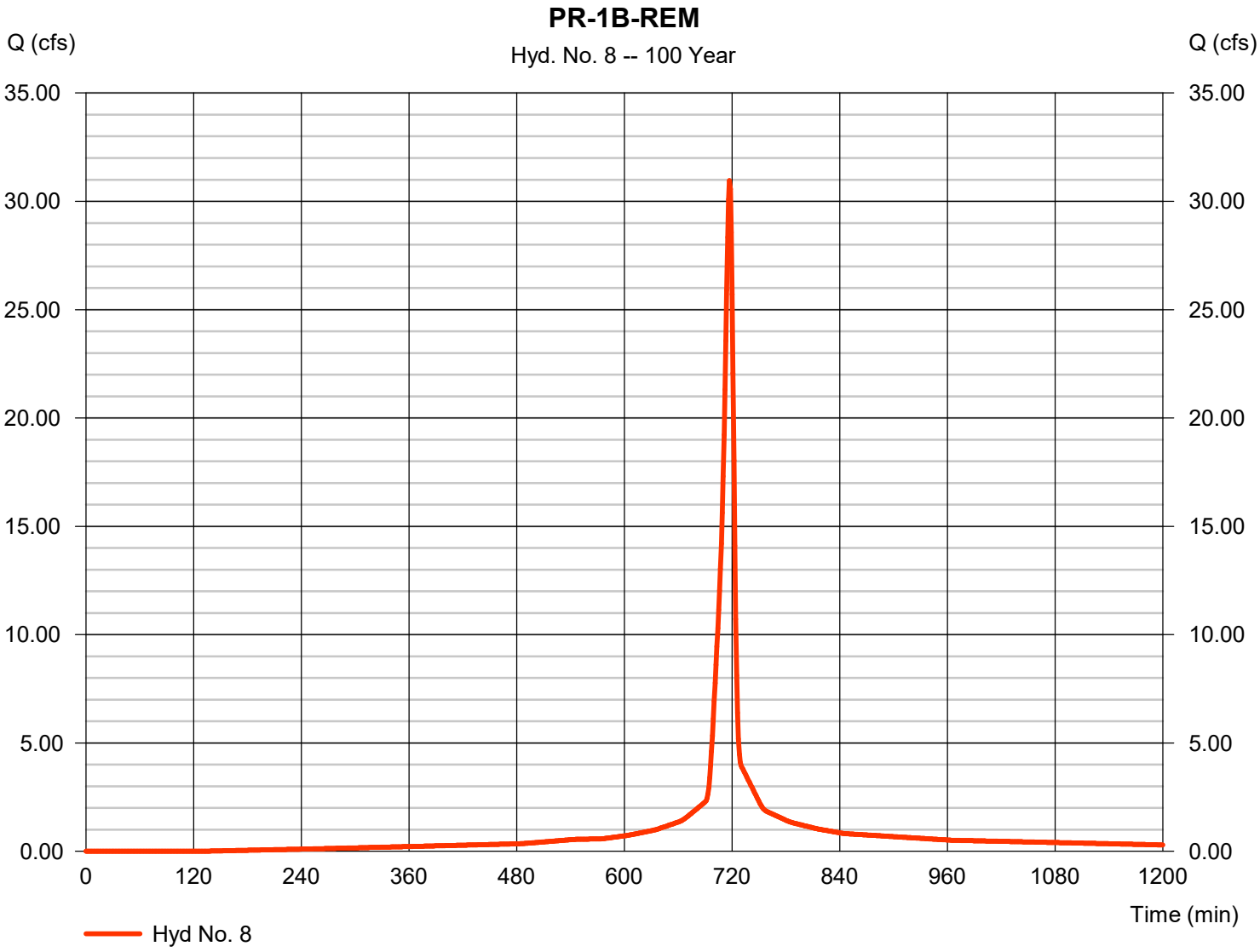


Hydrograph Report

Hyd. No. 8

PR-1B-REM

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.95 cfs
Storm frequency	=	100 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	70,563 cuft
Drainage area	=	1.410 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	15.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

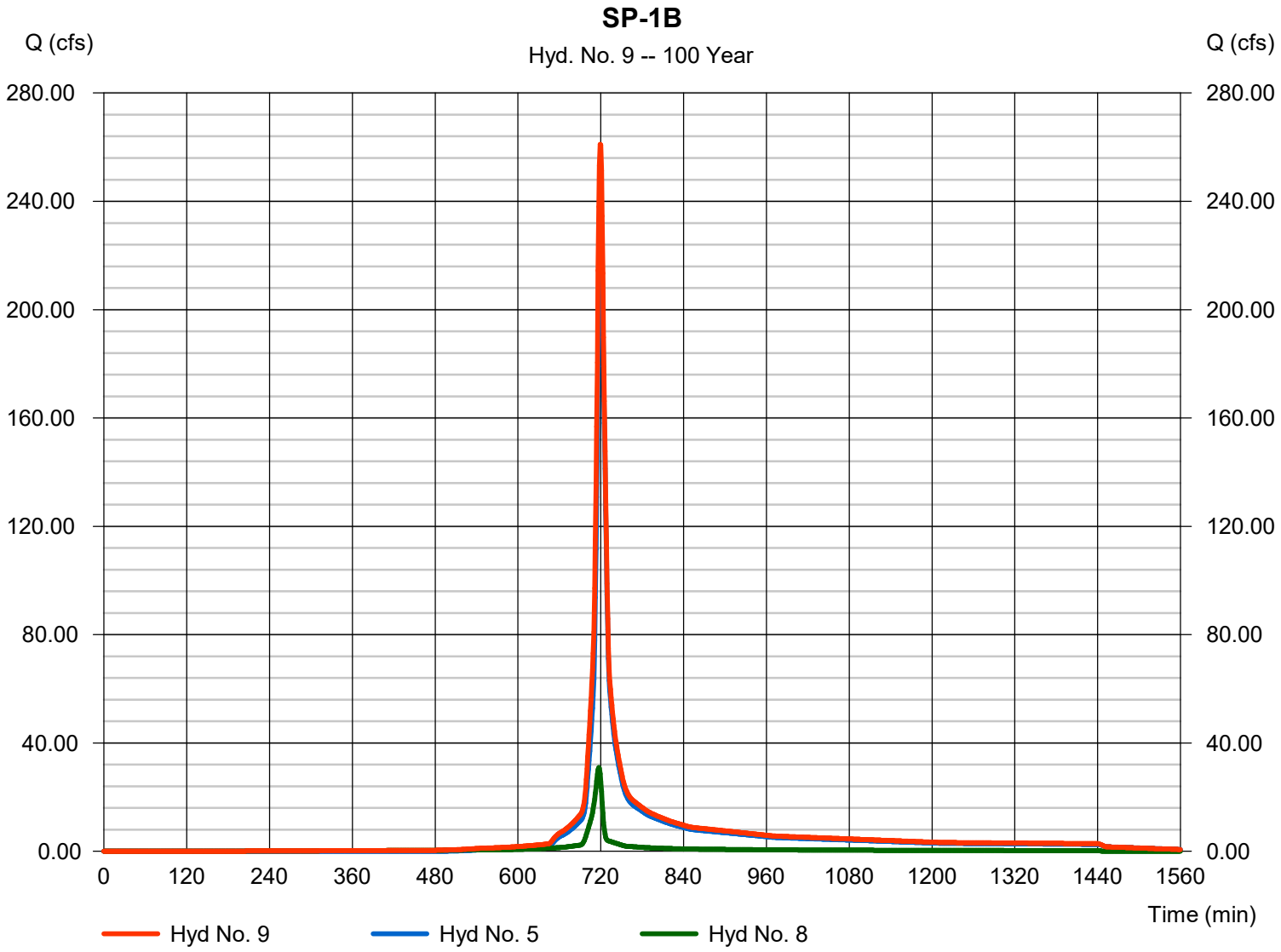


Hydrograph Report

Hyd. No. 9

SP-1B

Hydrograph type	=	Combine	Peak discharge	=	261.01 cfs
Storm frequency	=	100 yrs	Time to peak	=	719 min
Time interval	=	1 min	Hyd. volume	=	606,005 cuft
Inflow hyds.	=	5, 8	Contrib. drain. area	=	1.410 ac

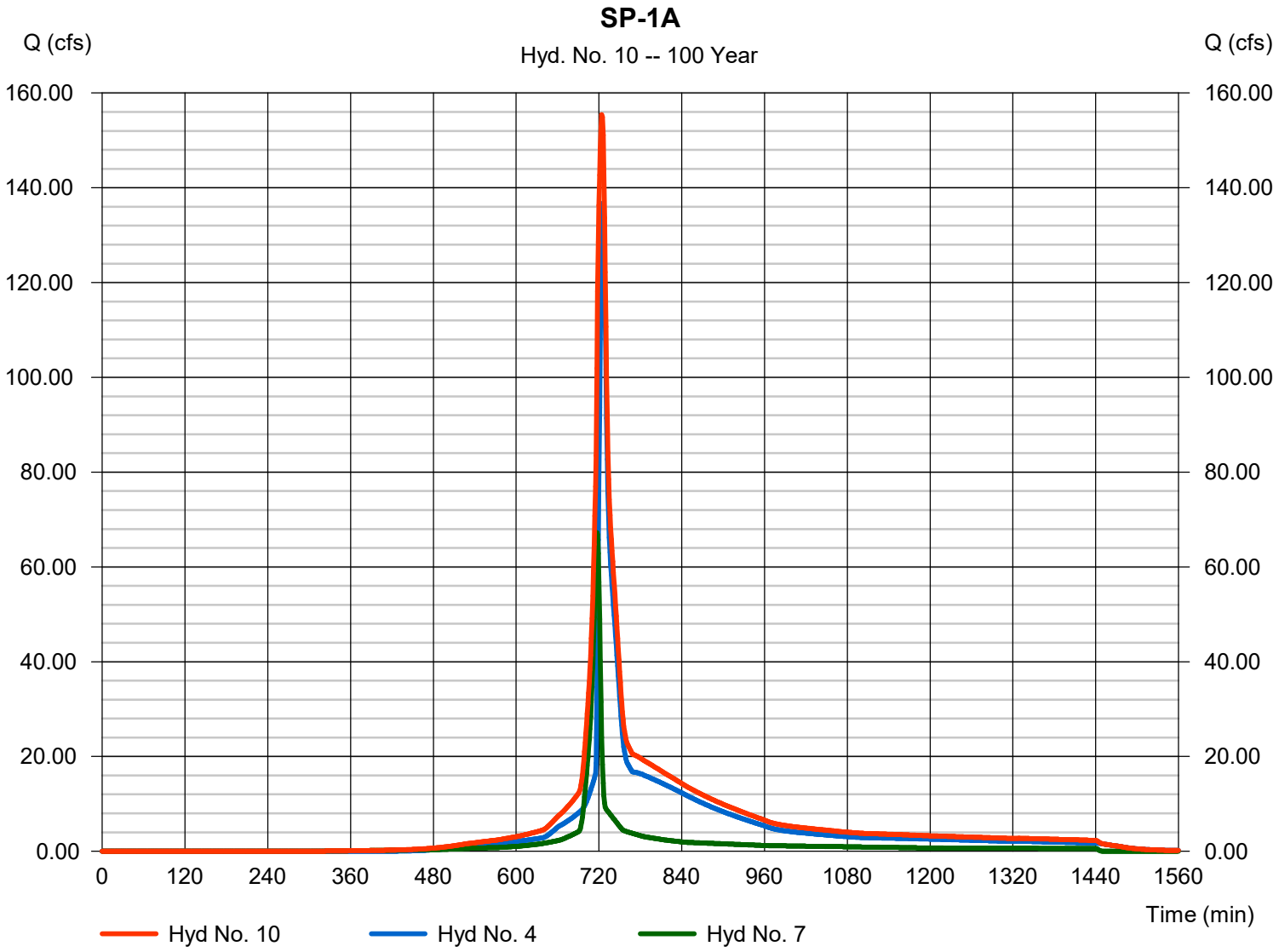


Hydrograph Report

Hyd. No. 10

SP-1A

Hydrograph type	= Combine	Peak discharge	= 155.41 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 1 min	Hyd. volume	= 575,334 cuft
Inflow hyds.	= 4, 7	Contrib. drain. area	= 3.510 ac



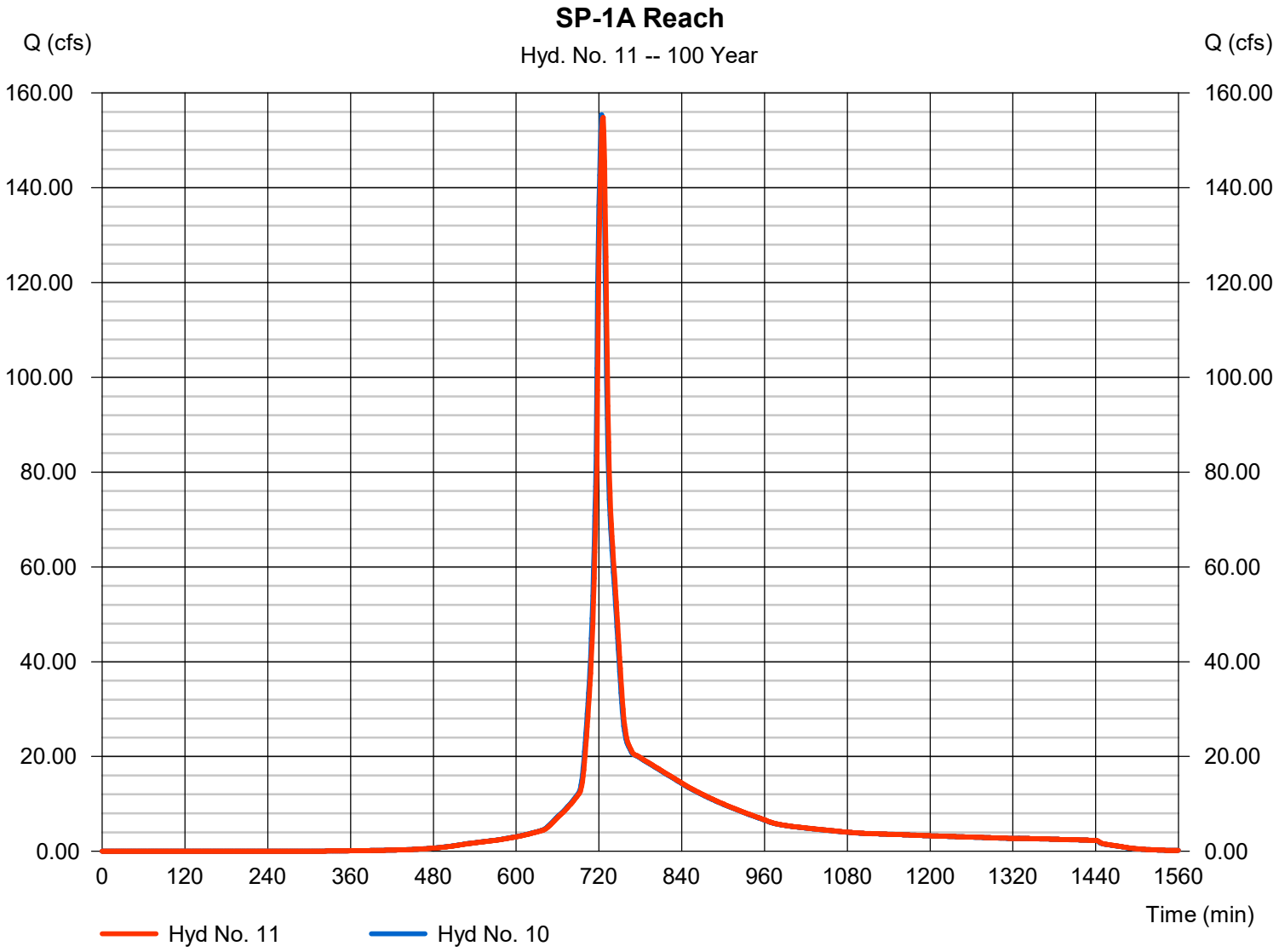
Hydrograph Report

Hyd. No. 11

SP-1A Reach

Hydrograph type	=	Reach	Peak discharge	=	154.83 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	575,254 cuft
Inflow hyd. No.	=	10 - SP-1A	Section type	=	Trapezoidal
Reach length	=	940.0 ft	Channel slope	=	13.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	6.307	Rating curve m	=	1.356
Ave. velocity	=	14.61 ft/s	Routing coeff.	=	0.7747

Modified Att-Kin routing method used.



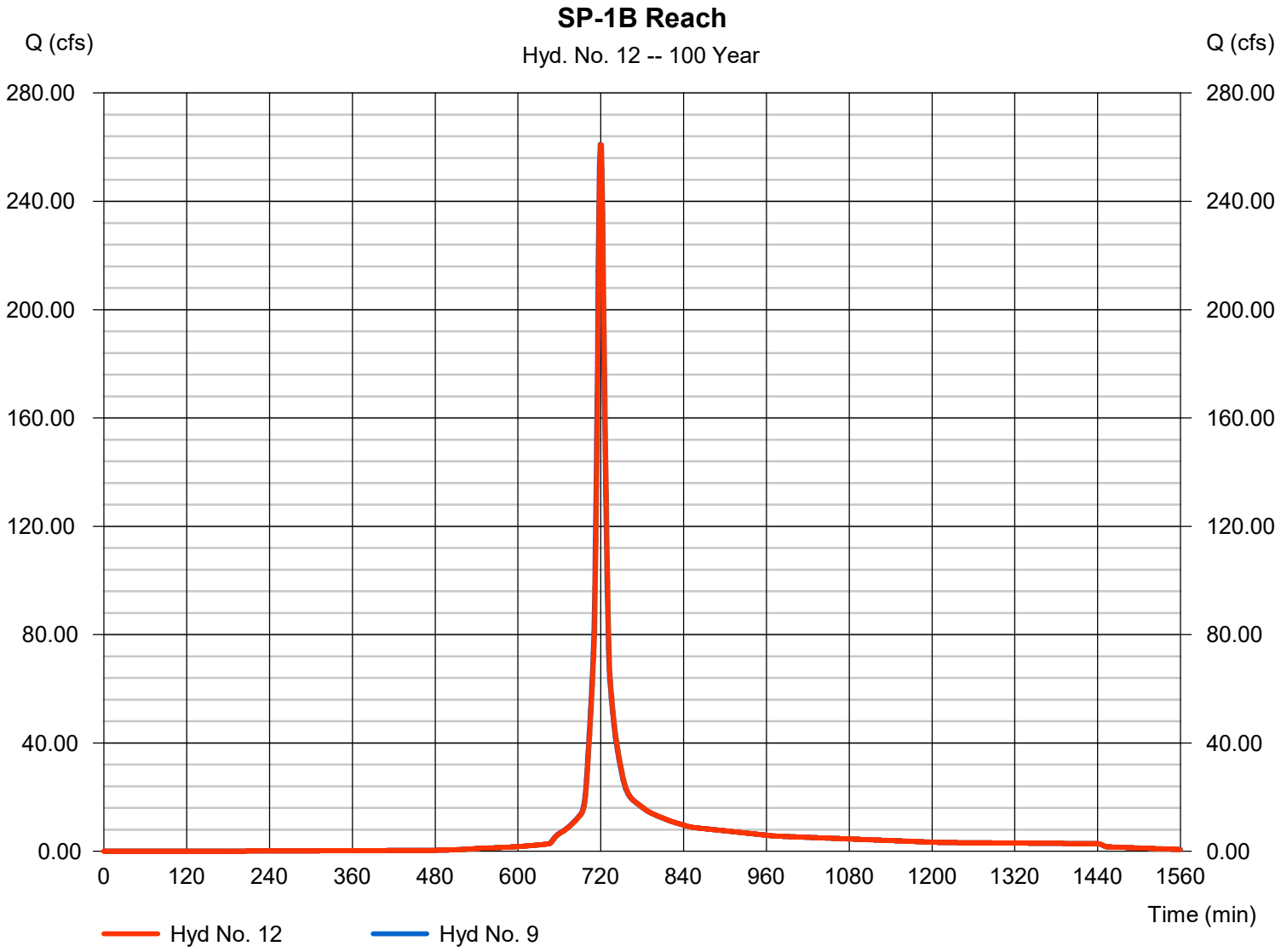
Hydrograph Report

Hyd. No. 12

SP-1B Reach

Hydrograph type	=	Reach	Peak discharge	=	260.84 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	605,932 cuft
Inflow hyd. No.	=	9 - SP-1B	Section type	=	Trapezoidal
Reach length	=	649.0 ft	Channel slope	=	10.8 %
Manning's n	=	0.030	Bottom width	=	5.0 ft
Side slope	=	3.0:1	Max. depth	=	20.0 ft
Rating curve x	=	5.579	Rating curve m	=	1.356
Ave. velocity	=	15.30 ft/s	Routing coeff.	=	0.9788

Modified Att-Kin routing method used.

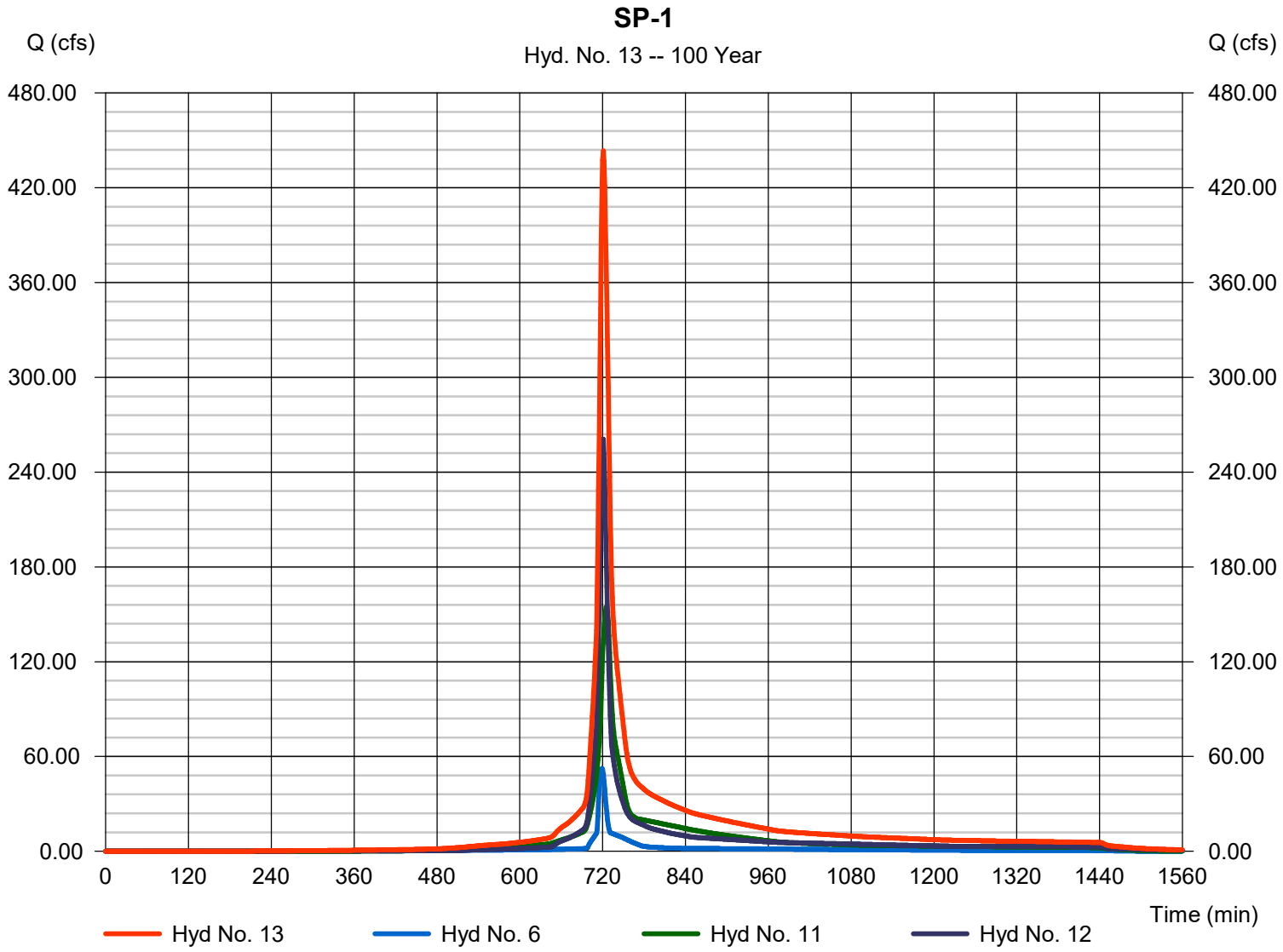


Hydrograph Report

Hyd. No. 13

SP-1

Hydrograph type	=	Combine	Peak discharge	=	443.37 cfs
Storm frequency	=	100 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	1,308,457 cuft
Inflow hyds.	=	6, 11, 12	Contrib. drain. area	=	0.000 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

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	4.12	0.00	3.30	7.96	10.60	6.80	15.30
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	2.75	0.00	0.00	6.50	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	2.80	0.00	0.00	6.00	0.00