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CIVIL ENGINEERS

• LAND SURVEYORS

• SITE PLANNERS

1755 MERIDEN-WATERBURY ROAD, BOX 337, MILLDALE, CONNECTICUT 06467-0337

PHONE (860) 621-3638 • FAX (860) 621-9609 • EMAIL INFO@KRATZERTJONES.COM

AN EQUAL OPPORTUNITY EMPLOYER - M - F

STORMWATER MANAGEMENT REPORT

2/7/23

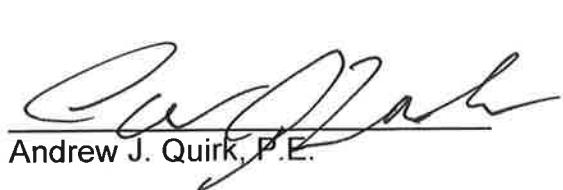
Including:

2, 5, 10, 25, and 100-Year Storms

Prepared for:

THE PYLE CORPORATION

487, 149, & 185 Aircraft Road
& 150 West Queen Street
Southington, CT



Andrew J. Quirk, P.E.

kratzert, jones & associates, inc.

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EXECUTIVE SUMMARY

This report summarizes the hydrologic changes and management of stormwater associated with the construction of a maintenance building and parking garage structure at an existing trucking facility. The existing land coverage consists of several buildings with paved truck parking, employee parking and associated drive access. The proposal calls for a 1.4% increase in impervious surface with an underground chamber groundwater recharge system to offset this change. The Stormwater Management Plan will include measures to control increases in runoff and address water quality concerns associated with the development of the site.

Watershed Description

In the pre-development condition, the site is described by one watershed: "EX-1" draining westerly. (See Sheet WS-1). In the post-development condition, the site is described by two watersheds. "PR-1A" is the proposed maintenance building roof contributing area to the underground recharge chambers. "PR-1B" is the remaining contributing area for the site. (See attached Green Space Comparison).

ZIRO (Zero Increase in Peak Discharge Runoff Rates) is achieved through the 100-year storm event for the watershed area.

Erosions and Sedimentation Control

The goal of the erosion and sedimentation controls on the site is to maintain water quality to runoff and to minimize erosion to areas both on and off site. In order to accomplish these goals, several erosion control measures are proposed. The plans have been developed in accordance with the 2004 Sedimentation and Erosion Control Guidelines and the Stormwater Quality Manual.

Water quality of the runoff will be provided through the use of **Best Management Practice (BMP)** erosion controls during construction. A detailed construction sequence and erosion control measures have been included with the plans. Silt fences are proposed down slope of areas proposed to be disturbed. Inlet protection devices will be installed around all catch basins during construction.

Model Formulation

Pre-development and post-development hydrographs were developed using the Rational Method. C values were derived based on land cover and the hydrologic soil groups. Time of concentration values were computed using the TR-55 method which takes into account length of flow-path, basin slope and curve number. The time of concentration calculations are included

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in this report. Storm routing was performed for the 2-year, 10-year, 25-year, 50-year, and 100-year storm events. For pipe sizing, the runoff rates were determined using the rational formula with the times of concentrations computed using the TR-55 method.

The area of the parcel to be developed is located in Zone X of the Flood Insurance Rate Maps for Southington, Connecticut. This indicates that the development area is outside of the 100-year (1% chance annual occurrence) floodplain

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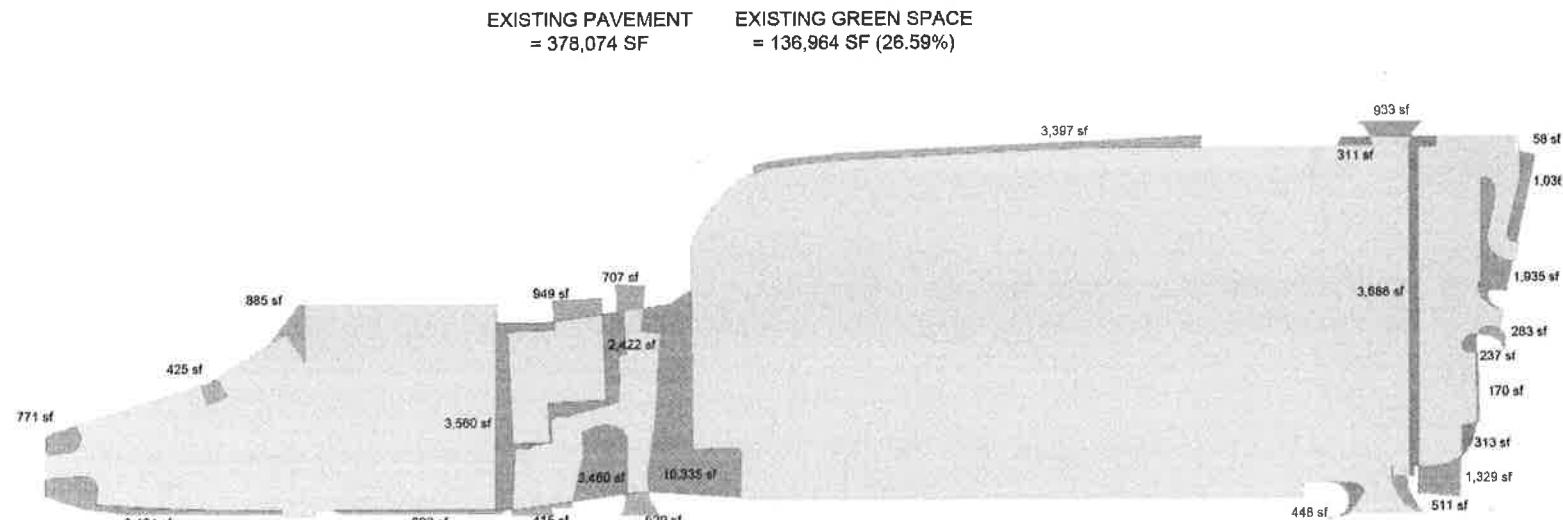
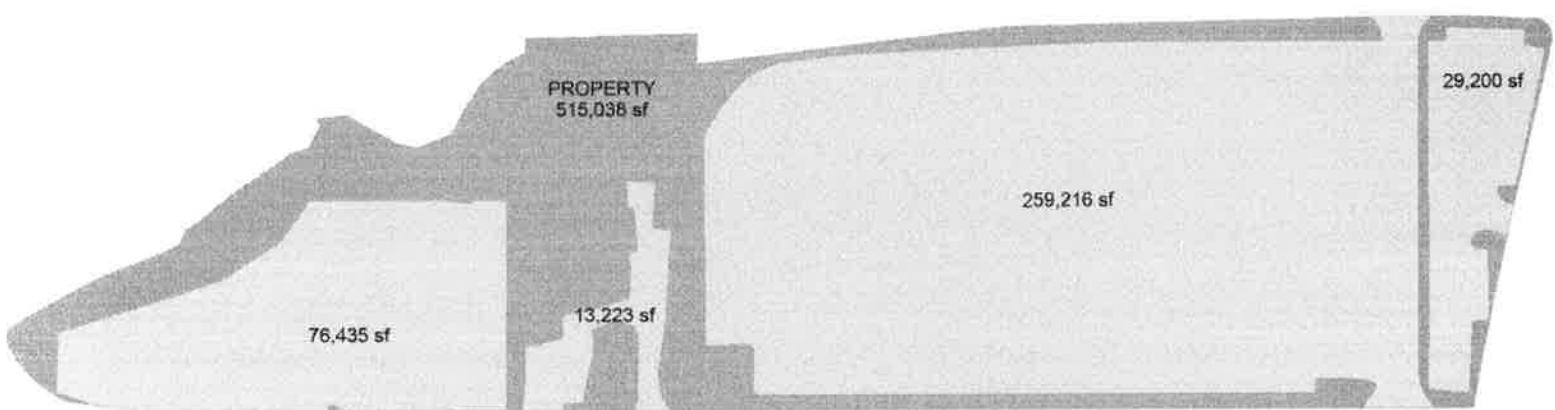
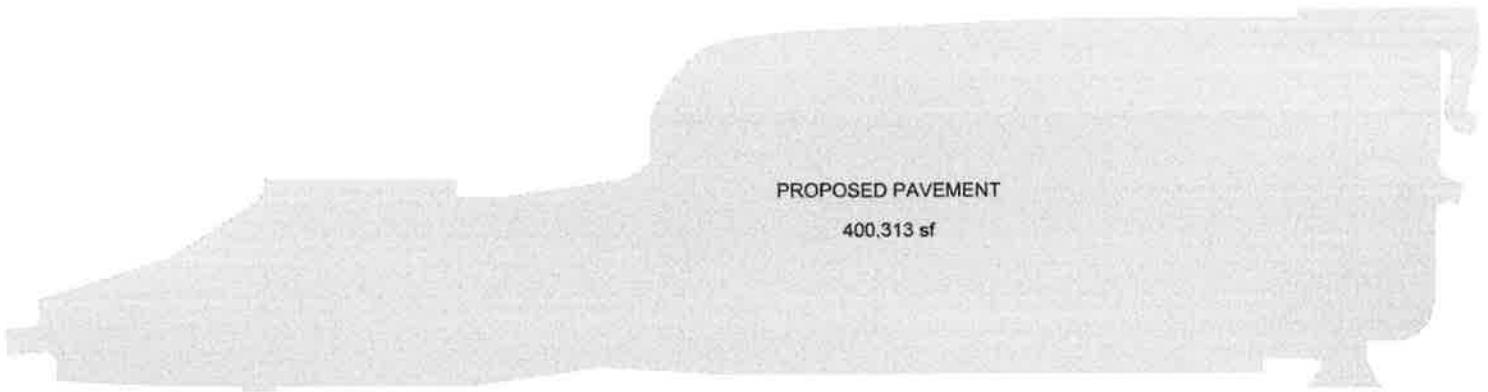
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Summary of Peak Discharge Rates

SITE TOTAL

Values shown are in Runoff Volumes in Cubic Feet per Second (CFS)

Storm Event	Pre-Development	Post-Development	Δ (%)
2-year	22.76	22.05	-0.71 (-3%)
5-year	28.86	27.96	-0.90 (-3%)
10-year	34.04	32.98	-1.06 (-3%)
25-year	41.33	40.04	-1.29 (-3%)
100-year	52.24	50.61	+1.63 (-3%)



● ADDED GREEN SPACE = 17,471 SF
● REMOVED GREEN SPACE = 24,830 SF
 REMAINING GREEN SPACE = 119,444 SF (25.16%)

NET LOSS = 7,359 SF
(1.42% OF ENTIRE SITE)

Hydrologic Soil Group—State of Connecticut



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

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: State of Connecticut

Survey Area Data: Version 22, Sep 12, 2022

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

Date(s) aerial images were photographed: Aug 30, 2019—Oct 15, 2019

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
108	Saco silt loam	B/D	1.1	9.3%
306	Udorthents-Urban land complex	B	0.0	0.1%
307	Urban land	D	10.8	90.6%
Totals for Area of Interest			11.9	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

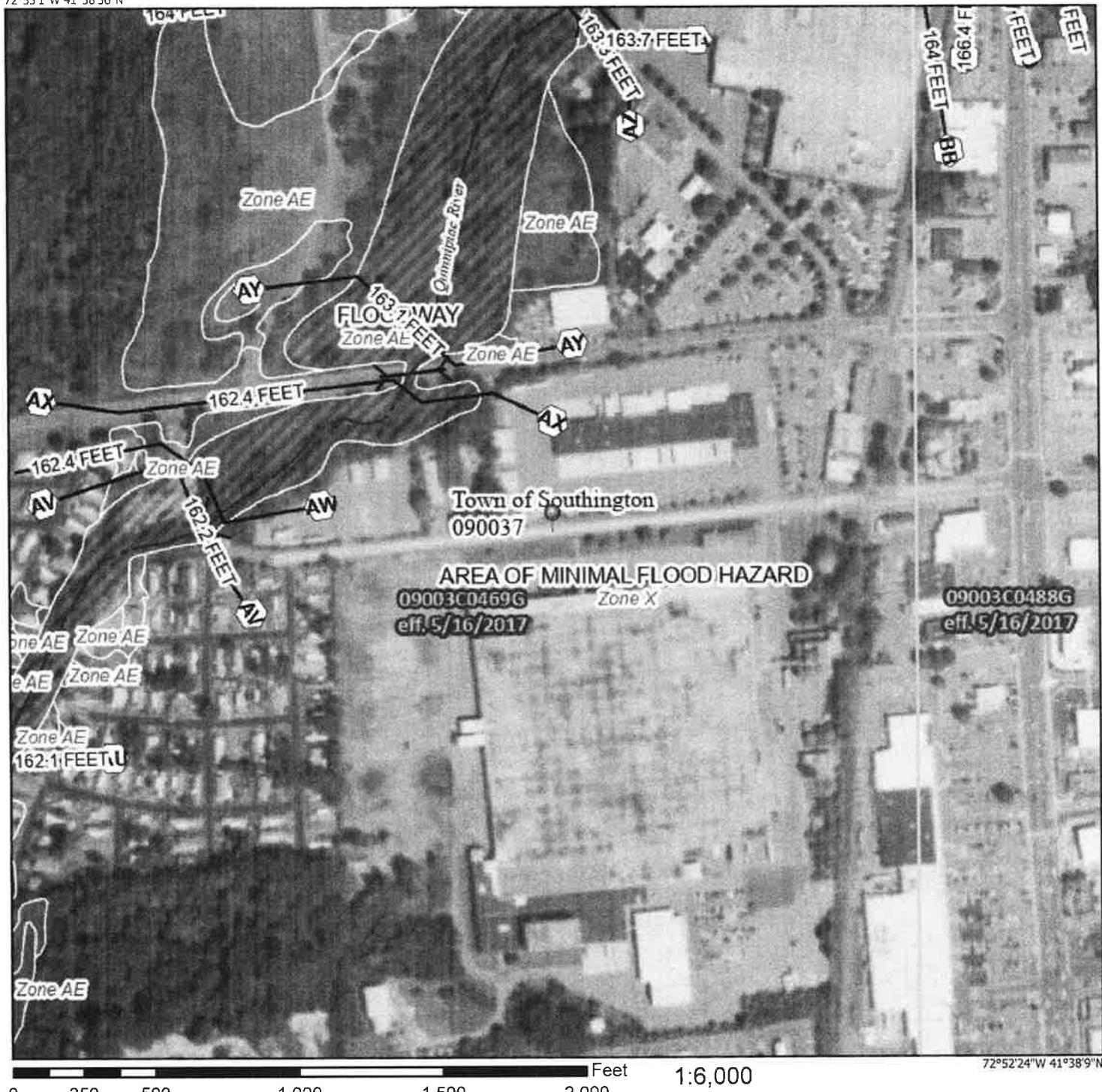
Tie-break Rule: Higher



National Flood Hazard Layer FIRMette



72°53'1" W 41°38'36" N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
	0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone I
OTHER AREAS OF FLOOD HAZARD	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee. See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
	NO SCREEN Area of Minimal Flood Hazard Zone X
OTHER AREAS	 Effective LOMRs
	 Area of Undetermined Flood Hazard Zone X
GENERAL STRUCTURES	 Channel, Culvert, or Storm Sewer
	 Levee, Dike, or Floodwall
OTHER FEATURES	 Cross Sections with 1% Annual Chance Water Surface Elevation
	 Coastal Transect
	 Base Flood Elevation Line (BFE)
	 Limit of Study
	 Jurisdiction Boundary
	 Coastal Transect Baseline
	 Profile Baseline
	 Hydrographic Feature
MAP PANELS	 Digital Data Available
	 No Digital Data Available
	 Unmapped
N	

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/7/2023 at 11:11 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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RATIONAL.gpw

Hydraflow Hydrographs by Intelisolve v9.1

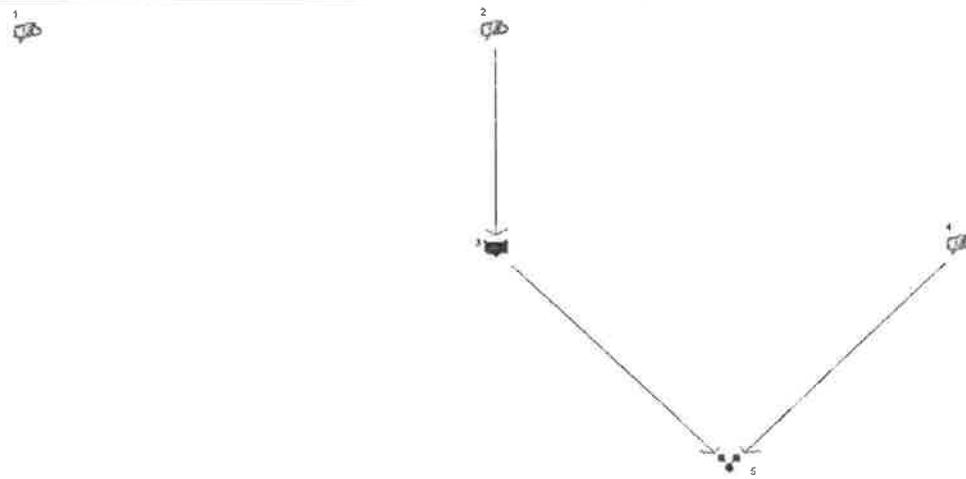
Tuesday, Feb 7, 2023

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Watershed Model Schematic

Hydraflow Hydrographs by InteliSolve v9.1



Legend

Hyd. Origin Description

1	Dekalb	EX #1
2	Dekalb	PR#1A
3	Reservoir	UG CHAMBER ROUTING
4	Dekalb	PR#1B
5	Combine	PR TOTAL

Hydrograph Return Period Recap

Hydraflow Hydrographs by InteliSolve v9.1

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	Dekalb	-----	-----	22.76	-----	28.86	34.04	41.33	-----	52.24	EX #1
2	Dekalb	-----	-----	1.797	-----	2.298	2.706	3.285	-----	4.150	PR#1A
3	Reservoir	2	-----	0.000	-----	0.000	0.000	0.000	-----	0.000	UG CHAMBER ROUTING
4	Dekalb	-----	-----	22.05	-----	27.96	32.98	40.04	-----	50.61	PR#1B
5	Combine	3, 4	-----	22.05	-----	27.96	32.98	40.04	-----	50.61	PR TOTAL

Hydrograph Summary Report

Hydraflow Hydrographs by Intellisolve v9.1

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	Dekalb	22.76	1	100	81,667	----	-----	-----	EX #1
2	Dekalb	1.797	1	25	1,612	----	-----	-----	PR#1A
3	Reservoir	0.000	1	n/a	0	2	167.47	1,612	UG CHAMBER ROUTING
4	Dekalb	22.05	1	100	79,111	----	-----	-----	PR#1B
5	Combine	22.05	1	100	79,111	3, 4	-----	-----	PR TOTAL
RATIONAL.gpw				Return Period: 2 Year			Tuesday, Feb 7, 2023		

Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

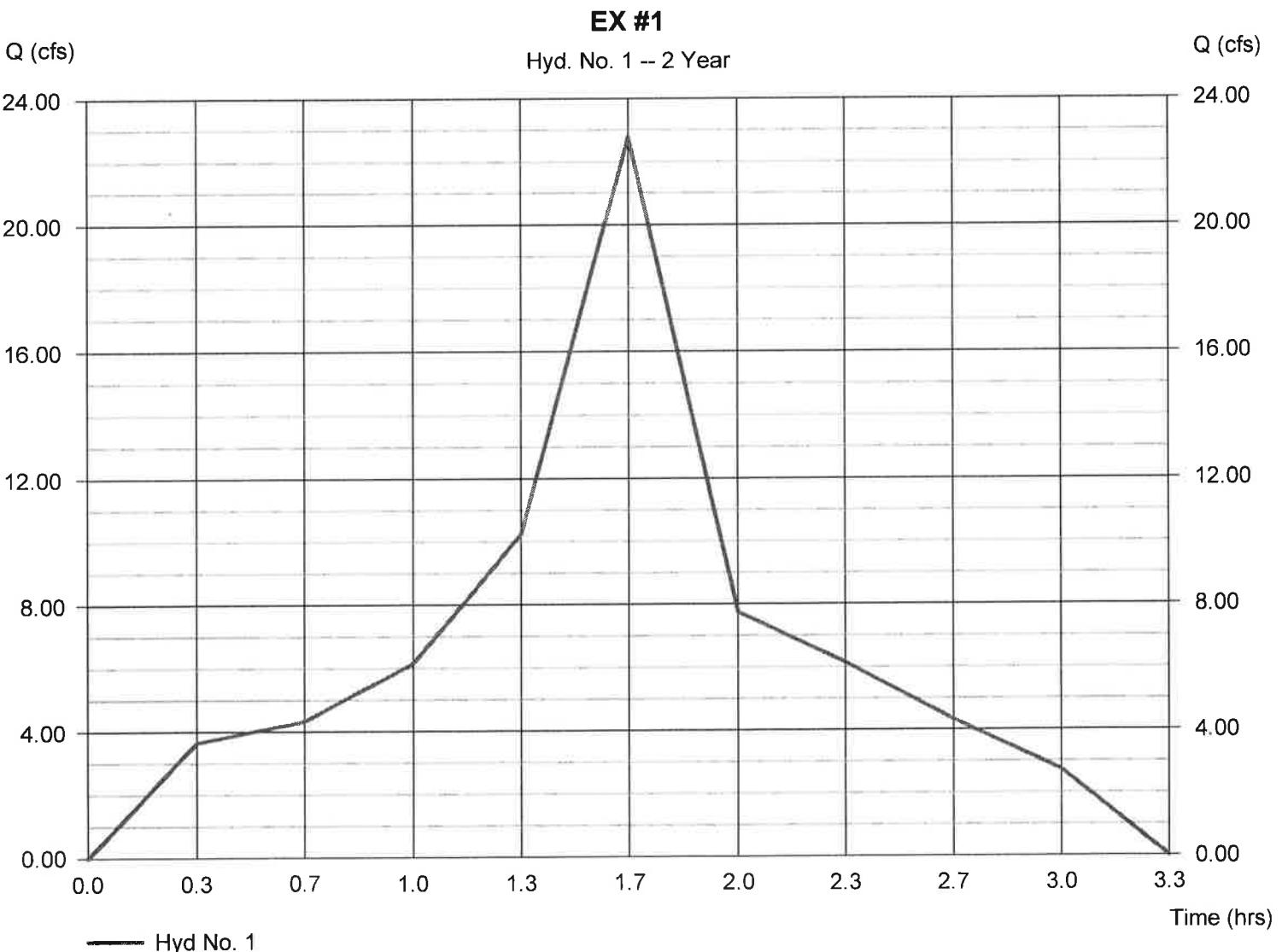
Tuesday, Feb 7, 2023

Hyd. No. 1

EX #1

Hydrograph type = Dekalb
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 11.820 ac
 Intensity = 2.438 in/hr
 IDF Curve = NOAA-SOUTHBURG.IDF

Peak discharge = 22.76 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 81,667 cuft
 Runoff coeff. = 0.79
 Tc by User = 20.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

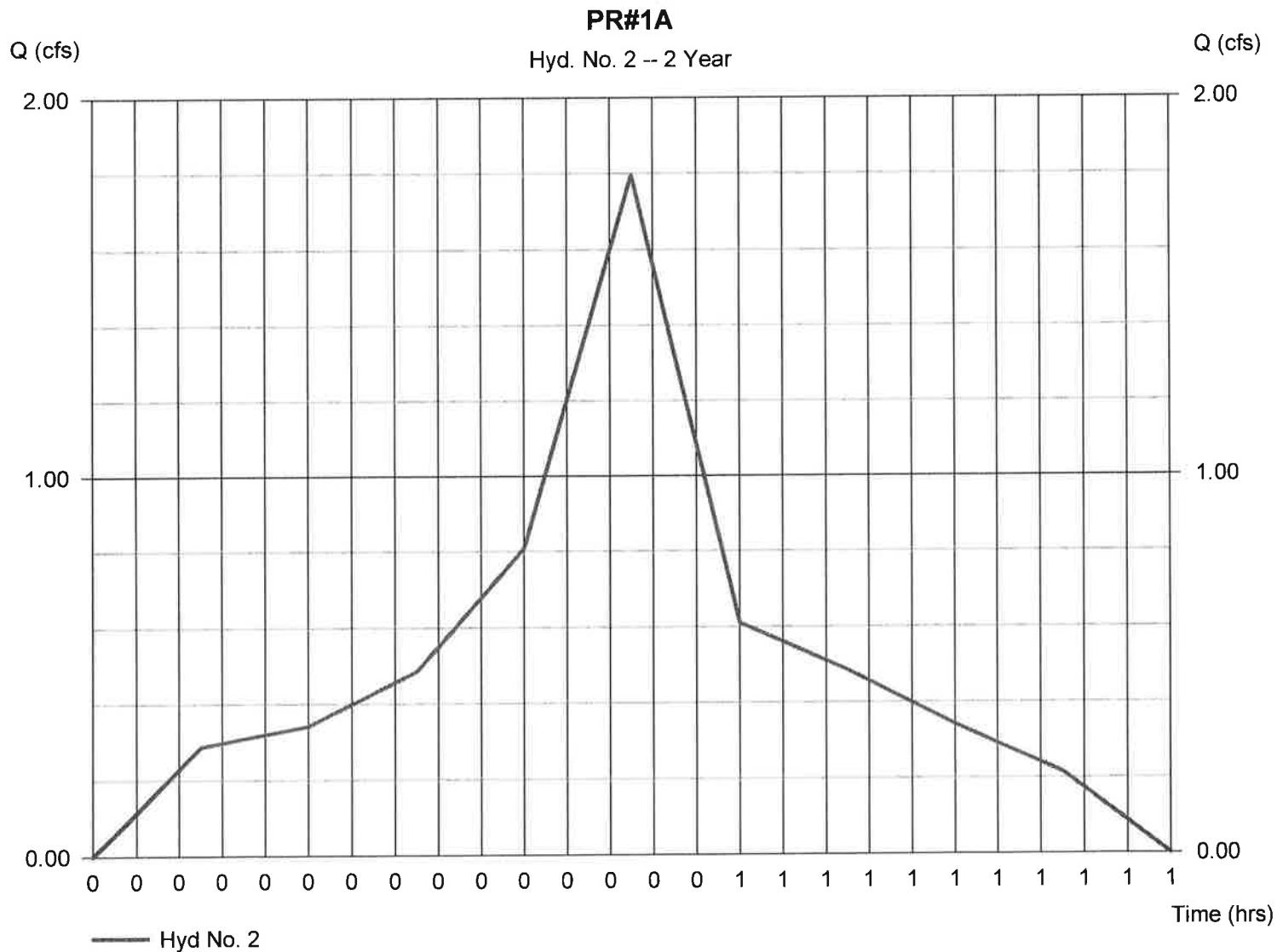
Tuesday, Feb 7, 2023

Hyd. No. 2

PR#1A

Hydrograph type = Dekalb
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 0.380 ac
 Intensity = 4.977 in/hr
 IDF Curve = NOAA-SOUTHBURG.IDF

Peak discharge = 1.797 cfs
 Time to peak = 0.42 hrs
 Hyd. volume = 1,612 cuft
 Runoff coeff. = 0.95
 Tc by User = 5.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

Tuesday, Feb 7, 2023

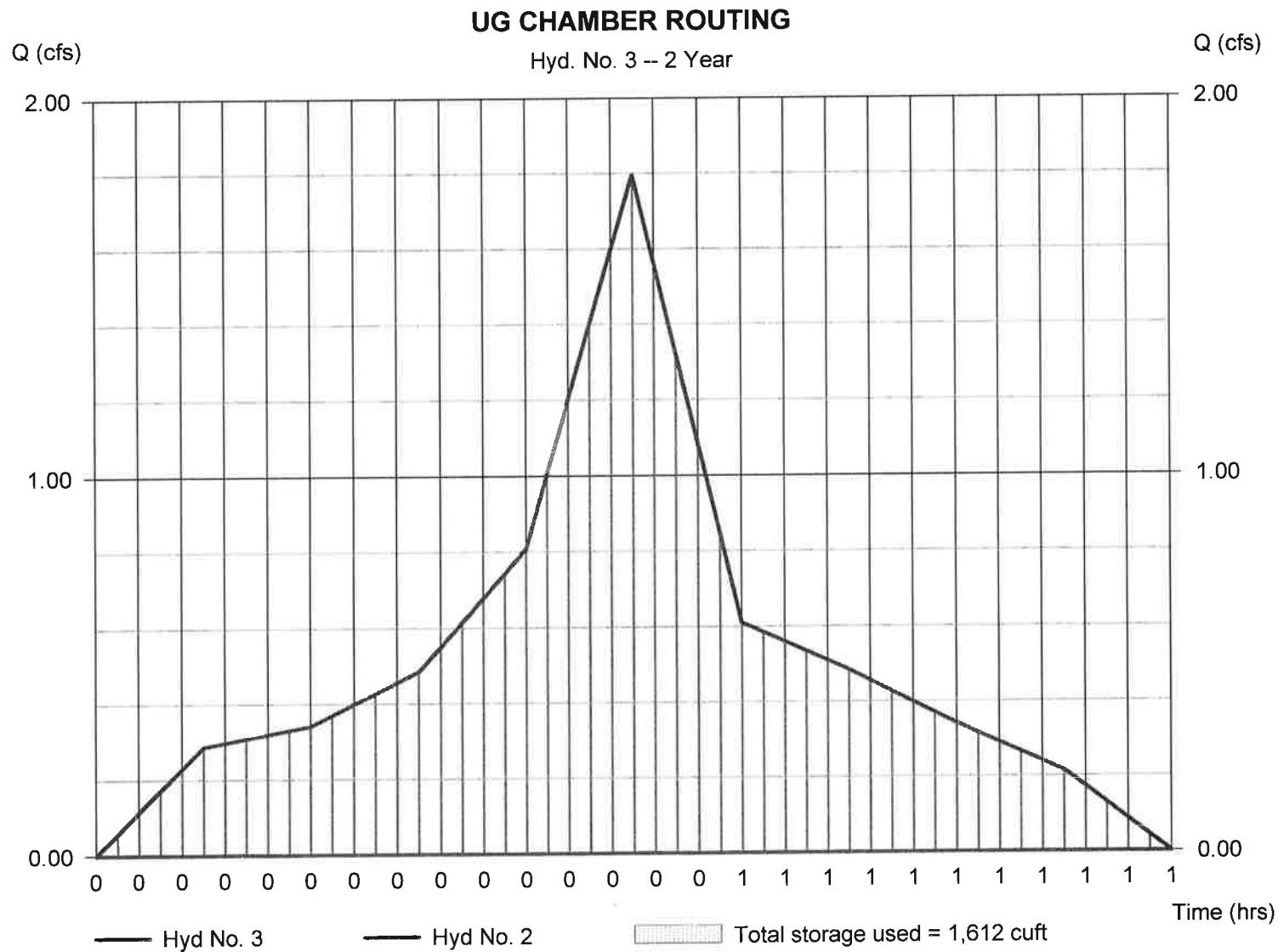
Hyd. No. 3

UG CHAMBER ROUTING

Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Time interval = 1 min
 Inflow hyd. No. = 2 - PR#1A
 Reservoir name = UG CHAMBERS

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0 cuft
 Max. Elevation = 167.47 ft
 Max. Storage = 1,612 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intellisolve v9.1

Tuesday, Feb 7, 2023

Pond No. 1 - UG CHAMBERS

Pond Data

UG Chambers - Invert elev. = 166.50 ft, Rise x Span = 2.53 x 4.28 ft, Barrel Len = 64.05 ft, No. Barrels = 2, Slope = 0.00%, Headers = Yes
 Encasement - Invert elev. = 166.00 ft, Width = 11.56 ft, Height = 3.53 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	166.00	n/a	0	0
0.35	166.35	n/a	285	285
0.71	166.71	n/a	377	661
1.06	167.06	n/a	441	1,102
1.41	167.41	n/a	436	1,538
1.77	167.77	n/a	427	1,965
2.12	168.12	n/a	414	2,379
2.47	168.47	n/a	396	2,775
2.82	168.82	n/a	367	3,142
3.18	169.18	n/a	309	3,451
3.53	169.53	n/a	285	3,736

Culvert / Orifice Structures

Weir Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00	Crest Len (ft)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00	Crest El. (ft)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0	Weir Coeff.	= 3.33	3.33	3.33	3.33
Invert El. (ft)	= 0.00	0.00	0.00	0.00	Weir Type	= ---	---	---	---
Length (ft)	= 0.00	0.00	0.00	0.00	Multi-Stage	= No	No	No	No
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	Exfil.(in/hr)	= 0.000 (by Wet area)			
Multi-Stage	= n/a	No	No	No	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	166.00	---	---	---	---	---	---	---	---	---	---	0.00
0.04	28	166.04	---	---	---	---	---	---	---	---	---	---	0.00
0.07	57	166.07	---	---	---	---	---	---	---	---	---	---	0.00
0.11	85	166.11	---	---	---	---	---	---	---	---	---	---	0.00
0.14	114	166.14	---	---	---	---	---	---	---	---	---	---	0.00
0.18	142	166.18	---	---	---	---	---	---	---	---	---	---	0.00
0.21	171	166.21	---	---	---	---	---	---	---	---	---	---	0.00
0.25	199	166.25	---	---	---	---	---	---	---	---	---	---	0.00
0.28	228	166.28	---	---	---	---	---	---	---	---	---	---	0.00
0.32	256	166.32	---	---	---	---	---	---	---	---	---	---	0.00
0.35	285	166.35	---	---	---	---	---	---	---	---	---	---	0.00
0.39	322	166.39	---	---	---	---	---	---	---	---	---	---	0.00
0.42	360	166.42	---	---	---	---	---	---	---	---	---	---	0.00
0.46	398	166.46	---	---	---	---	---	---	---	---	---	---	0.00
0.49	435	166.49	---	---	---	---	---	---	---	---	---	---	0.00
0.53	473	166.53	---	---	---	---	---	---	---	---	---	---	0.00
0.56	511	166.56	---	---	---	---	---	---	---	---	---	---	0.00
0.60	548	166.60	---	---	---	---	---	---	---	---	---	---	0.00
0.64	586	166.64	---	---	---	---	---	---	---	---	---	---	0.00
0.67	624	166.67	---	---	---	---	---	---	---	---	---	---	0.00
0.71	661	166.71	---	---	---	---	---	---	---	---	---	---	0.00
0.74	705	166.74	---	---	---	---	---	---	---	---	---	---	0.00
0.78	750	166.78	---	---	---	---	---	---	---	---	---	---	0.00
0.81	794	166.81	---	---	---	---	---	---	---	---	---	---	0.00
0.85	838	166.85	---	---	---	---	---	---	---	---	---	---	0.00
0.88	882	166.88	---	---	---	---	---	---	---	---	---	---	0.00
0.92	926	166.92	---	---	---	---	---	---	---	---	---	---	0.00
0.95	970	166.95	---	---	---	---	---	---	---	---	---	---	0.00
0.99	1,014	166.99	---	---	---	---	---	---	---	---	---	---	0.00
1.02	1,058	167.02	---	---	---	---	---	---	---	---	---	---	0.00
1.06	1,102	167.06	---	---	---	---	---	---	---	---	---	---	0.00
1.09	1,146	167.09	---	---	---	---	---	---	---	---	---	---	0.00
1.13	1,189	167.13	---	---	---	---	---	---	---	---	---	---	0.00

Continues on next page...

UG CHAMBERS

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
1.16	1,233	167.16	---	---	---	---	---	---	---	---	---	---	0.00
1.20	1,276	167.20	---	---	---	---	---	---	---	---	---	---	0.00
1.24	1,320	167.24	---	---	---	---	---	---	---	---	---	---	0.00
1.27	1,364	167.27	---	---	---	---	---	---	---	---	---	---	0.00
1.31	1,407	167.31	---	---	---	---	---	---	---	---	---	---	0.00
1.34	1,451	167.34	---	---	---	---	---	---	---	---	---	---	0.00
1.38	1,494	167.38	---	---	---	---	---	---	---	---	---	---	0.00
1.41	1,538	167.41	---	---	---	---	---	---	---	---	---	---	0.00
1.45	1,581	167.45	---	---	---	---	---	---	---	---	---	---	0.00
1.48	1,623	167.48	---	---	---	---	---	---	---	---	---	---	0.00
1.52	1,666	167.52	---	---	---	---	---	---	---	---	---	---	0.00
1.55	1,709	167.55	---	---	---	---	---	---	---	---	---	---	0.00
1.59	1,751	167.59	---	---	---	---	---	---	---	---	---	---	0.00
1.62	1,794	167.62	---	---	---	---	---	---	---	---	---	---	0.00
1.66	1,837	167.66	---	---	---	---	---	---	---	---	---	---	0.00
1.69	1,879	167.69	---	---	---	---	---	---	---	---	---	---	0.00
1.73	1,922	167.73	---	---	---	---	---	---	---	---	---	---	0.00
1.77	1,965	167.77	---	---	---	---	---	---	---	---	---	---	0.00
1.80	2,006	167.80	---	---	---	---	---	---	---	---	---	---	0.00
1.84	2,048	167.84	---	---	---	---	---	---	---	---	---	---	0.00
1.87	2,089	167.87	---	---	---	---	---	---	---	---	---	---	0.00
1.91	2,131	167.91	---	---	---	---	---	---	---	---	---	---	0.00
1.94	2,172	167.94	---	---	---	---	---	---	---	---	---	---	0.00
1.98	2,213	167.98	---	---	---	---	---	---	---	---	---	---	0.00
2.01	2,255	168.01	---	---	---	---	---	---	---	---	---	---	0.00
2.05	2,296	168.05	---	---	---	---	---	---	---	---	---	---	0.00
2.08	2,338	168.08	---	---	---	---	---	---	---	---	---	---	0.00
2.12	2,379	168.12	---	---	---	---	---	---	---	---	---	---	0.00
2.15	2,419	168.15	---	---	---	---	---	---	---	---	---	---	0.00
2.19	2,458	168.19	---	---	---	---	---	---	---	---	---	---	0.00
2.22	2,498	168.22	---	---	---	---	---	---	---	---	---	---	0.00
2.26	2,537	168.26	---	---	---	---	---	---	---	---	---	---	0.00
2.29	2,577	168.29	---	---	---	---	---	---	---	---	---	---	0.00
2.33	2,617	168.33	---	---	---	---	---	---	---	---	---	---	0.00
2.37	2,656	168.37	---	---	---	---	---	---	---	---	---	---	0.00
2.40	2,696	168.40	---	---	---	---	---	---	---	---	---	---	0.00
2.44	2,735	168.44	---	---	---	---	---	---	---	---	---	---	0.00
2.47	2,775	168.47	---	---	---	---	---	---	---	---	---	---	0.00
2.51	2,812	168.51	---	---	---	---	---	---	---	---	---	---	0.00
2.54	2,848	168.54	---	---	---	---	---	---	---	---	---	---	0.00
2.58	2,885	168.58	---	---	---	---	---	---	---	---	---	---	0.00
2.61	2,922	168.61	---	---	---	---	---	---	---	---	---	---	0.00
2.65	2,958	168.65	---	---	---	---	---	---	---	---	---	---	0.00
2.68	2,995	168.68	---	---	---	---	---	---	---	---	---	---	0.00
2.72	3,032	168.72	---	---	---	---	---	---	---	---	---	---	0.00
2.75	3,069	168.75	---	---	---	---	---	---	---	---	---	---	0.00
2.79	3,105	168.79	---	---	---	---	---	---	---	---	---	---	0.00
2.82	3,142	168.82	---	---	---	---	---	---	---	---	---	---	0.00
2.86	3,173	168.86	---	---	---	---	---	---	---	---	---	---	0.00
2.89	3,204	168.89	---	---	---	---	---	---	---	---	---	---	0.00
2.93	3,235	168.93	---	---	---	---	---	---	---	---	---	---	0.00
2.97	3,266	168.97	---	---	---	---	---	---	---	---	---	---	0.00
3.00	3,297	169.00	---	---	---	---	---	---	---	---	---	---	0.00
3.04	3,328	169.04	---	---	---	---	---	---	---	---	---	---	0.00
3.07	3,359	169.07	---	---	---	---	---	---	---	---	---	---	0.00
3.11	3,389	169.11	---	---	---	---	---	---	---	---	---	---	0.00
3.14	3,420	169.14	---	---	---	---	---	---	---	---	---	---	0.00
3.18	3,451	169.18	---	---	---	---	---	---	---	---	---	---	0.00
3.21	3,480	169.21	---	---	---	---	---	---	---	---	---	---	0.00
3.25	3,508	169.25	---	---	---	---	---	---	---	---	---	---	0.00
3.28	3,537	169.28	---	---	---	---	---	---	---	---	---	---	0.00
3.32	3,565	169.32	---	---	---	---	---	---	---	---	---	---	0.00
3.35	3,594	169.35	---	---	---	---	---	---	---	---	---	---	0.00
3.39	3,622	169.39	---	---	---	---	---	---	---	---	---	---	0.00
3.42	3,650	169.42	---	---	---	---	---	---	---	---	---	---	0.00
3.46	3,679	169.46	---	---	---	---	---	---	---	---	---	---	0.00
3.49	3,707	169.49	---	---	---	---	---	---	---	---	---	---	0.00
3.53	3,736	169.53	---	---	---	---	---	---	---	---	---	---	0.00

..End

Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

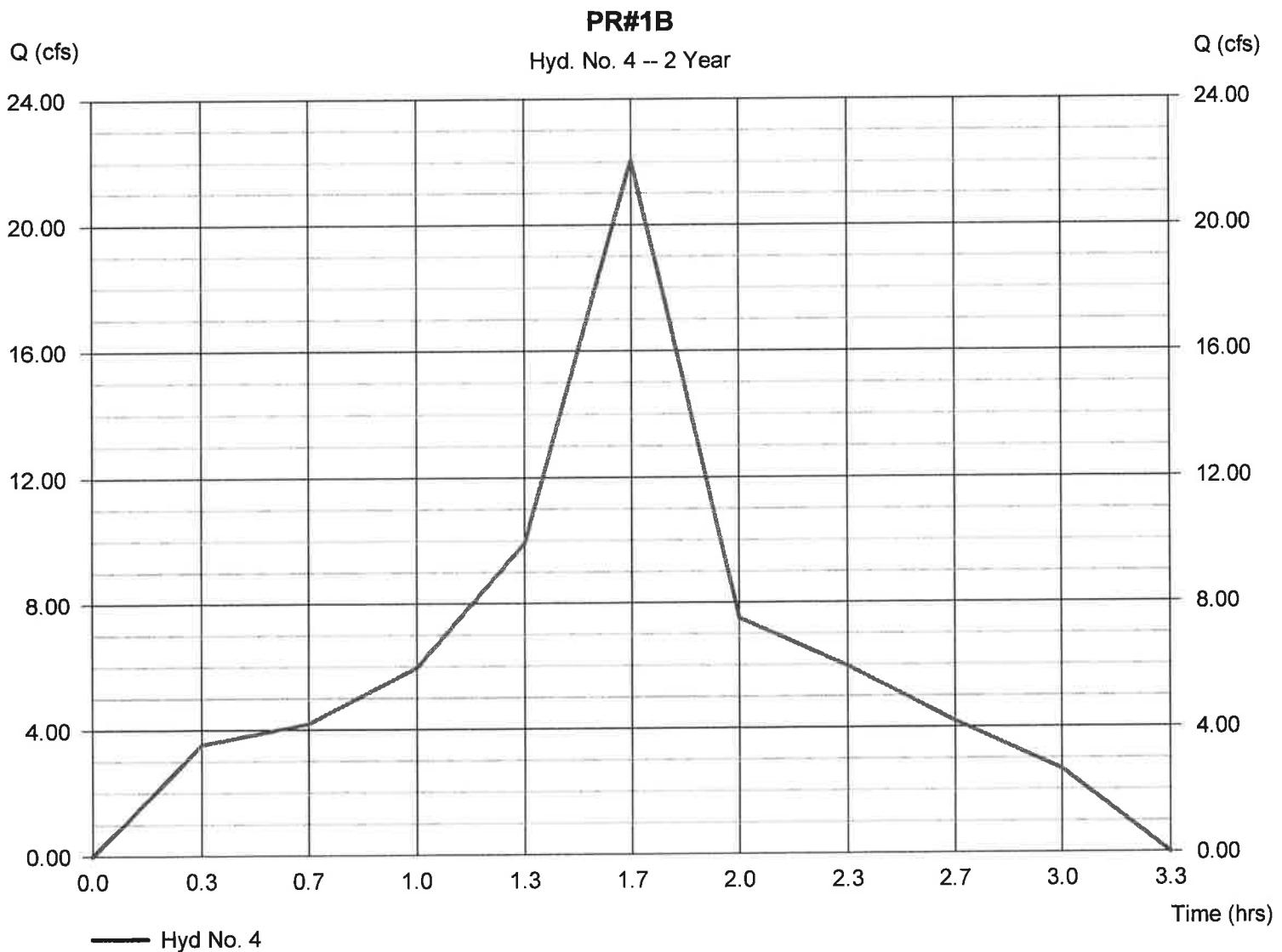
Tuesday, Feb 7, 2023

Hyd. No. 4

PR#1B

Hydrograph type = Dekalb
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 11.450 ac
 Intensity = 2.438 in/hr
 IDF Curve = NOAA-SOUTHBROOK.IDF

Peak discharge = 22.05 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 79,111 cuft
 Runoff coeff. = 0.79
 Tc by User = 20.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

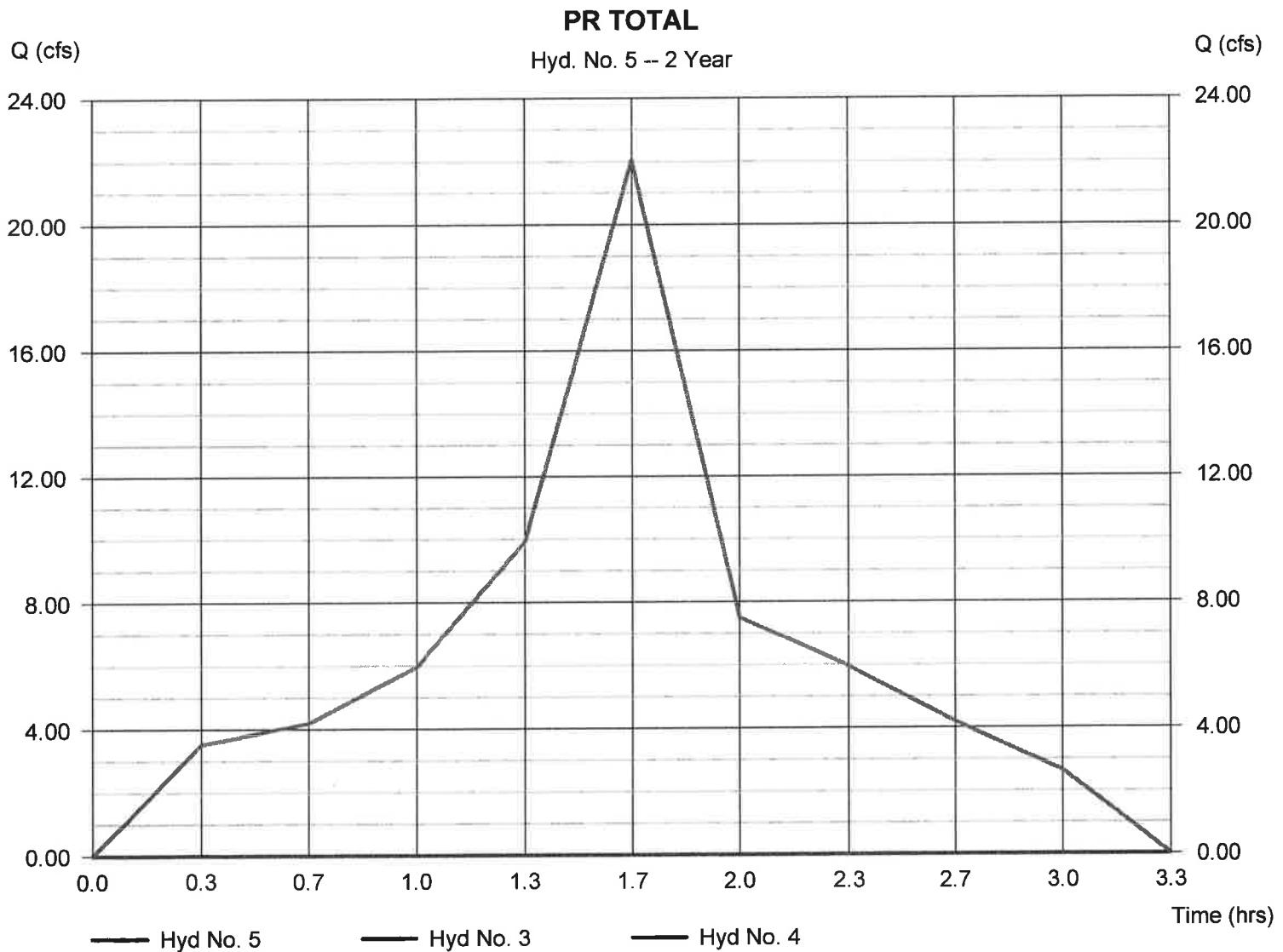
Tuesday, Feb 7, 2023

Hyd. No. 5

PR TOTAL

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 4

Peak discharge = 22.05 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 79,111 cuft
 Contrib. drain. area = 11.450 ac



Hydrograph Summary Report

Hydraflow Hydrographs by InteliSolve v9.1

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	Dekalb	28.86	1	100	103,547	----	-----	-----	EX #1
2	Dekalb	2.298	1	25	2,061	----	-----	-----	PR#1A
3	Reservoir	0.000	1	n/a	0	2	167.85	2,061	UG CHAMBER ROUTING
4	Dekalb	27.96	1	100	100,305	----	-----	-----	PR#1B
5	Combine	27.96	1	100	100,305	3, 4	-----	-----	PR TOTAL
RATIONAL.gpw				Return Period: 5 Year				Tuesday, Feb 7, 2023	

Hydrograph Report

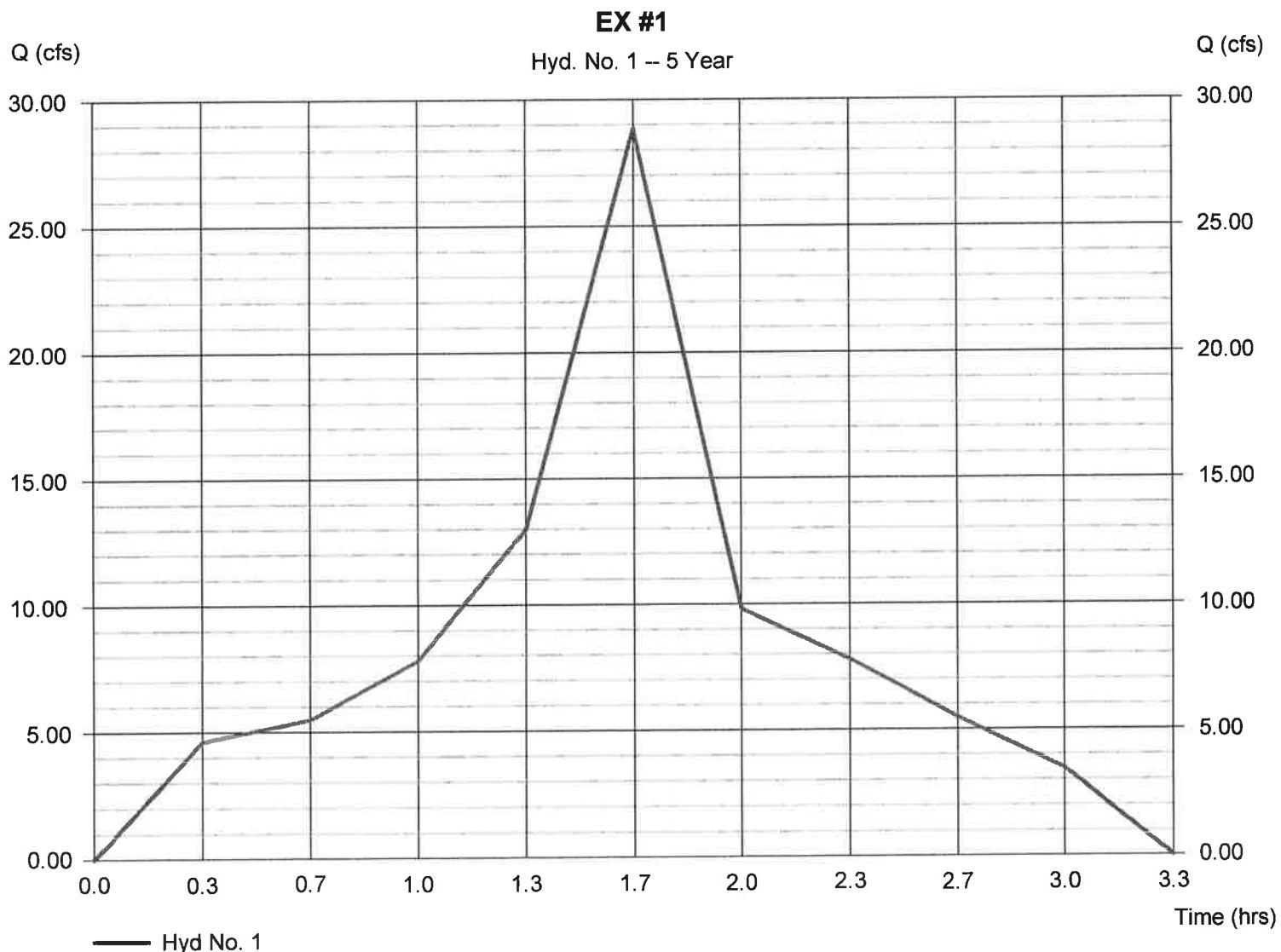
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 7, 2023

Hyd. No. 1

EX #1

Hydrograph type	= Dekalb	Peak discharge	= 28.86 cfs
Storm frequency	= 5 yrs	Time to peak	= 1.67 hrs
Time interval	= 1 min	Hyd. volume	= 103,547 cuft
Drainage area	= 11.820 ac	Runoff coeff.	= 0.79
Intensity	= 3.091 in/hr	Tc by User	= 20.00 min
IDF Curve	= NOAA-SOUTHWASHINGTON.IDF	Asc/Rec limb fact	= n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

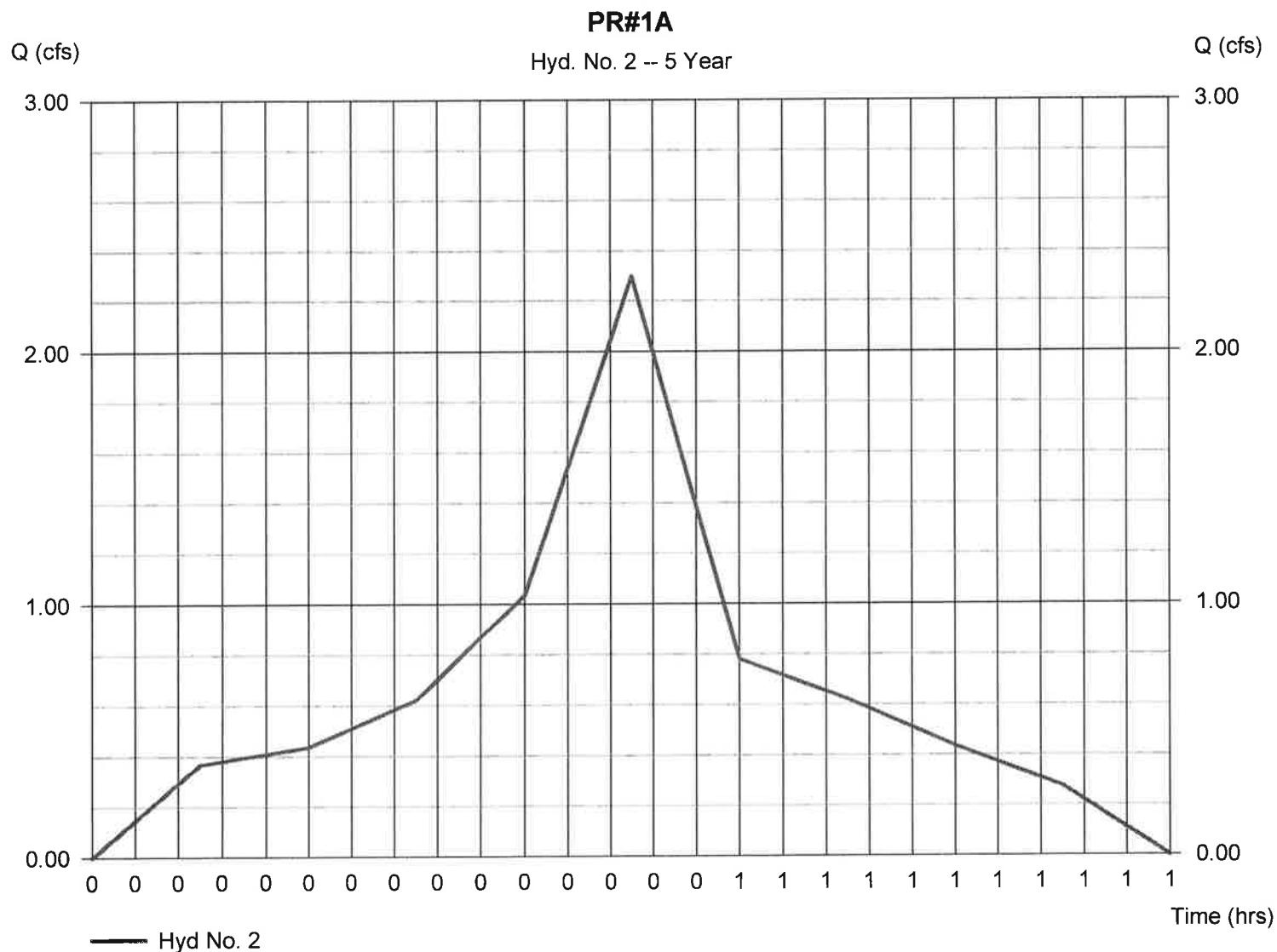
Tuesday, Feb 7, 2023

Hyd. No. 2

PR#1A

Hydrograph type = Dekalb
 Storm frequency = 5 yrs
 Time interval = 1 min
 Drainage area = 0.380 ac
 Intensity = 6.366 in/hr
 IDF Curve = NOAA-SOUTHBURG.IDF

Peak discharge = 2.298 cfs
 Time to peak = 0.42 hrs
 Hyd. volume = 2,061 cuft
 Runoff coeff. = 0.95
 Tc by User = 5.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 7, 2023

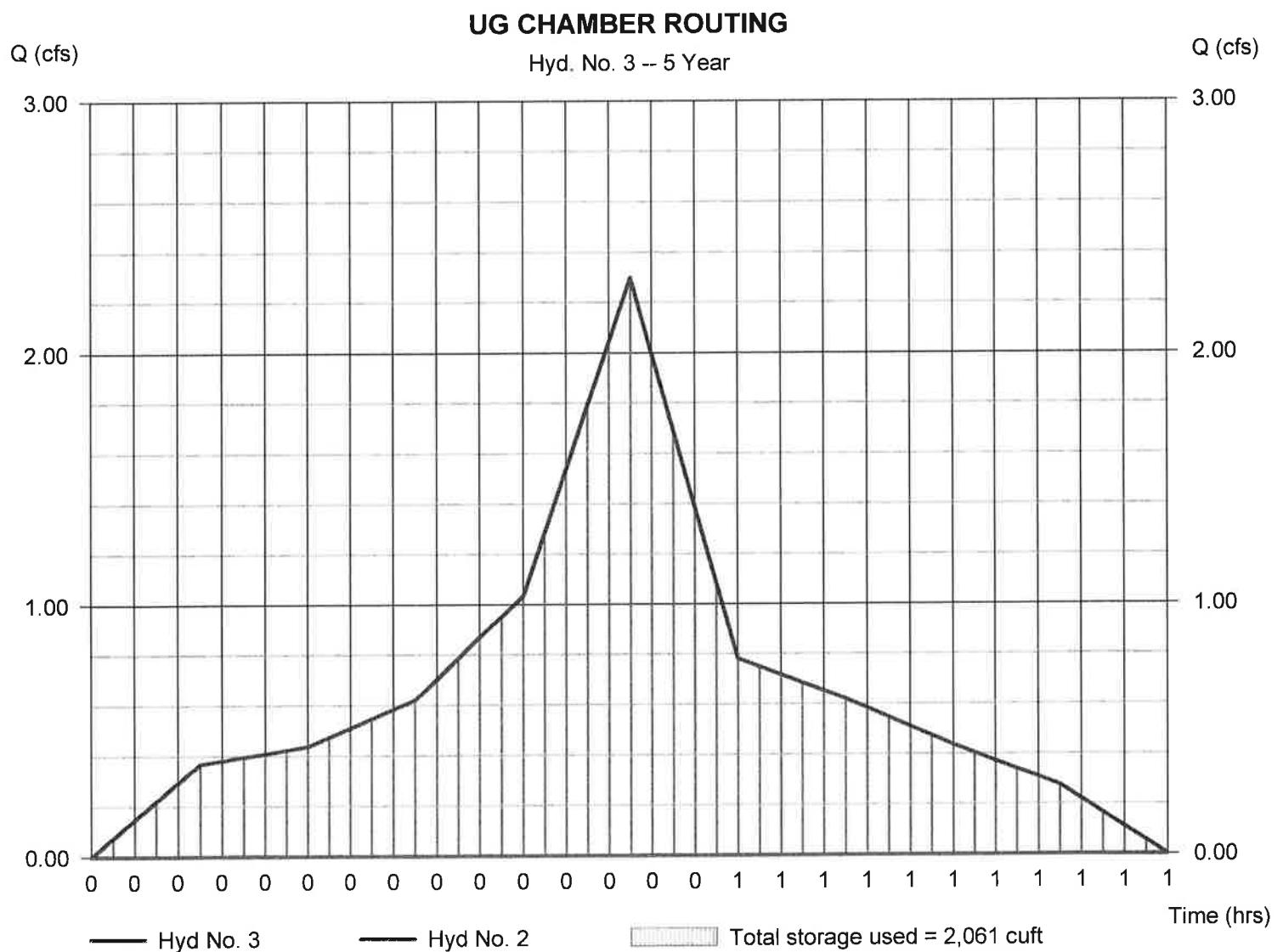
Hyd. No. 3

UG CHAMBER ROUTING

Hydrograph type = Reservoir
 Storm frequency = 5 yrs
 Time interval = 1 min
 Inflow hyd. No. = 2 - PR#1A
 Reservoir name = UG CHAMBERS

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0 cuft
 Max. Elevation = 167.85 ft
 Max. Storage = 2,061 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

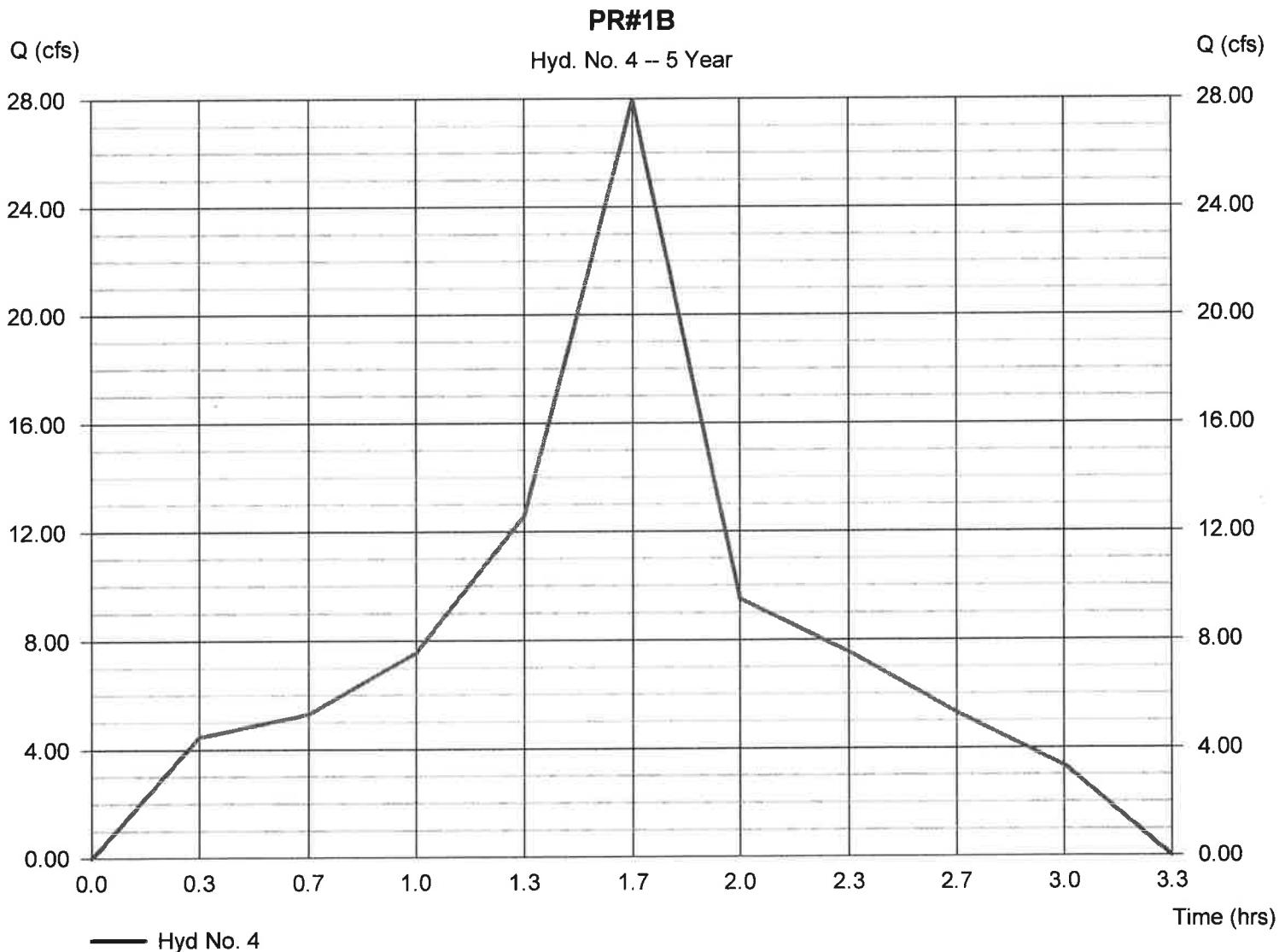
Tuesday, Feb 7, 2023

Hyd. No. 4

PR#1B

Hydrograph type = Dekalb
 Storm frequency = 5 yrs
 Time interval = 1 min
 Drainage area = 11.450 ac
 Intensity = 3.091 in/hr
 IDF Curve = NOAA-SOUTHBURG.IDF

Peak discharge = 27.96 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 100,305 cuft
 Runoff coeff. = 0.79
 Tc by User = 20.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

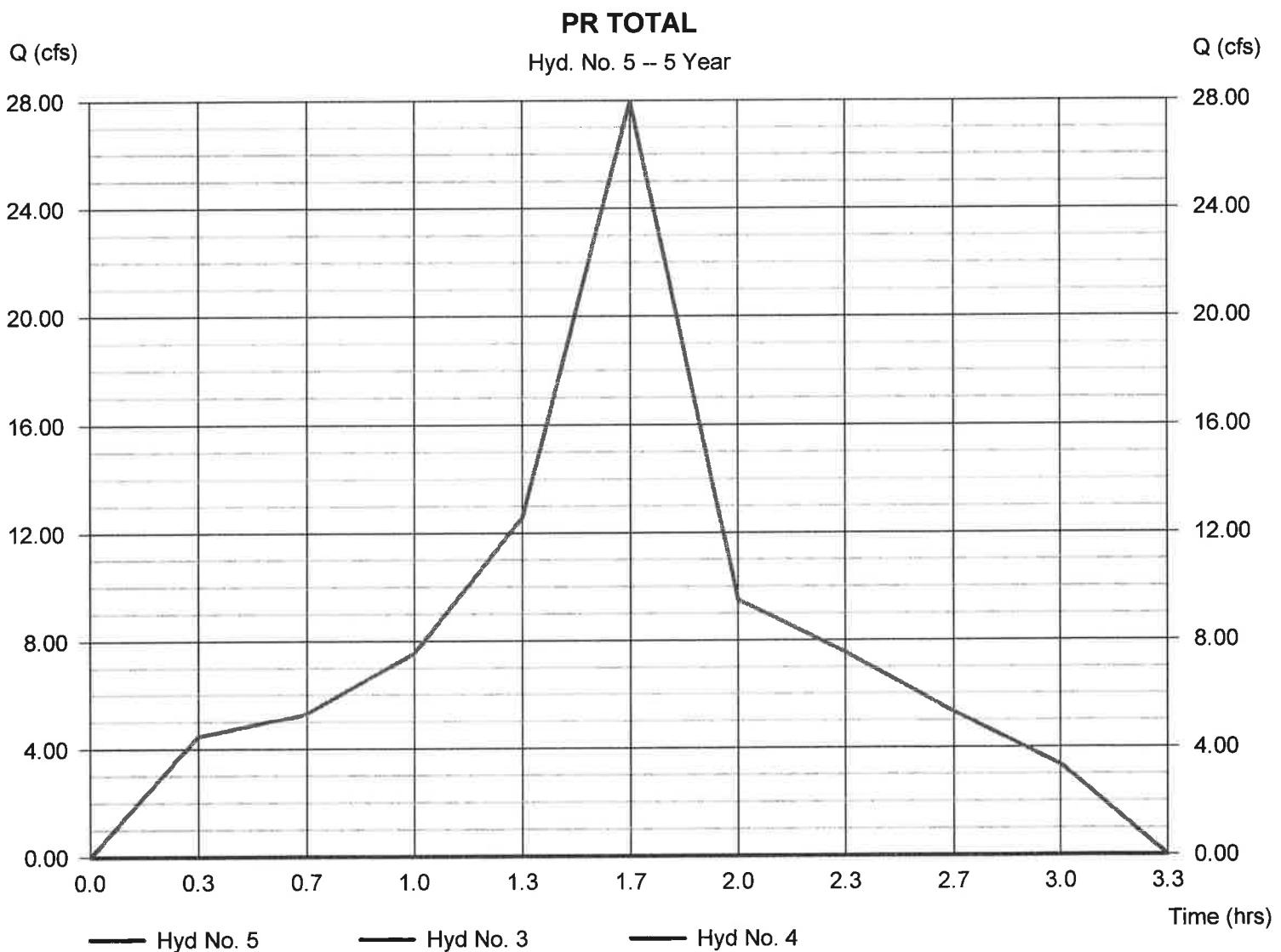
Tuesday, Feb 7, 2023

Hyd. No. 5

PR TOTAL

Hydrograph type = Combine
 Storm frequency = 5 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 4

Peak discharge = 27.96 cfs
Time to peak = 1.67 hrs
Hyd. volume = 100,305 cuft
Contrib. drain. area = 11.450 ac



Hydrograph Summary Report

Hydraflow Hydrographs by InteliSolve v9.1

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	Dekalb	34.04	1	100	122,144	----	-----	-----	EX #1
2	Dekalb	2.706	1	25	2,428	----	-----	-----	PR#1A
3	Reservoir	0.000	1	n/a	0	2	168.16	2,428	UG CHAMBER ROUTING
4	Dekalb	32.98	1	100	118,321	----	-----	-----	PR#1B
5	Combine	32.98	1	100	118,321	3, 4	-----	-----	PR TOTAL
RATIONAL.gpw				Return Period: 10 Year				Tuesday, Feb 7, 2023	

Hydrograph Report

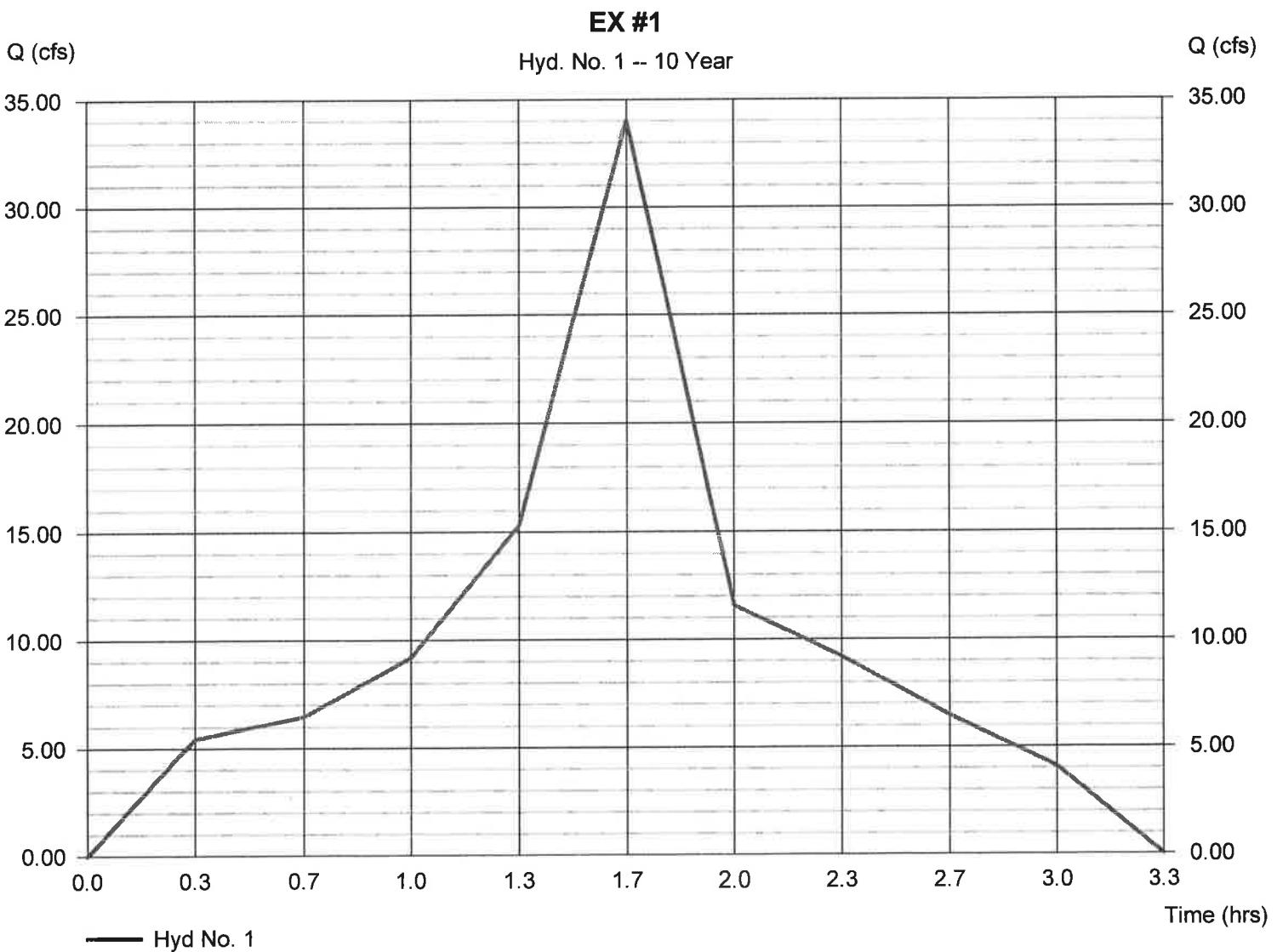
Hydraflow Hydrographs by InteliSolve v9.1

Tuesday, Feb 7, 2023

Hyd. No. 1

EX #1

Hydrograph type	= Dekalb	Peak discharge	= 34.04 cfs
Storm frequency	= 10 yrs	Time to peak	= 1.67 hrs
Time interval	= 1 min	Hyd. volume	= 122,144 cuft
Drainage area	= 11.820 ac	Runoff coeff.	= 0.79
Intensity	= 3.646 in/hr	Tc by User	= 20.00 min
IDF Curve	= NOAA-SOUTHBURG.IDF	Asc/Rec limb fact	= n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

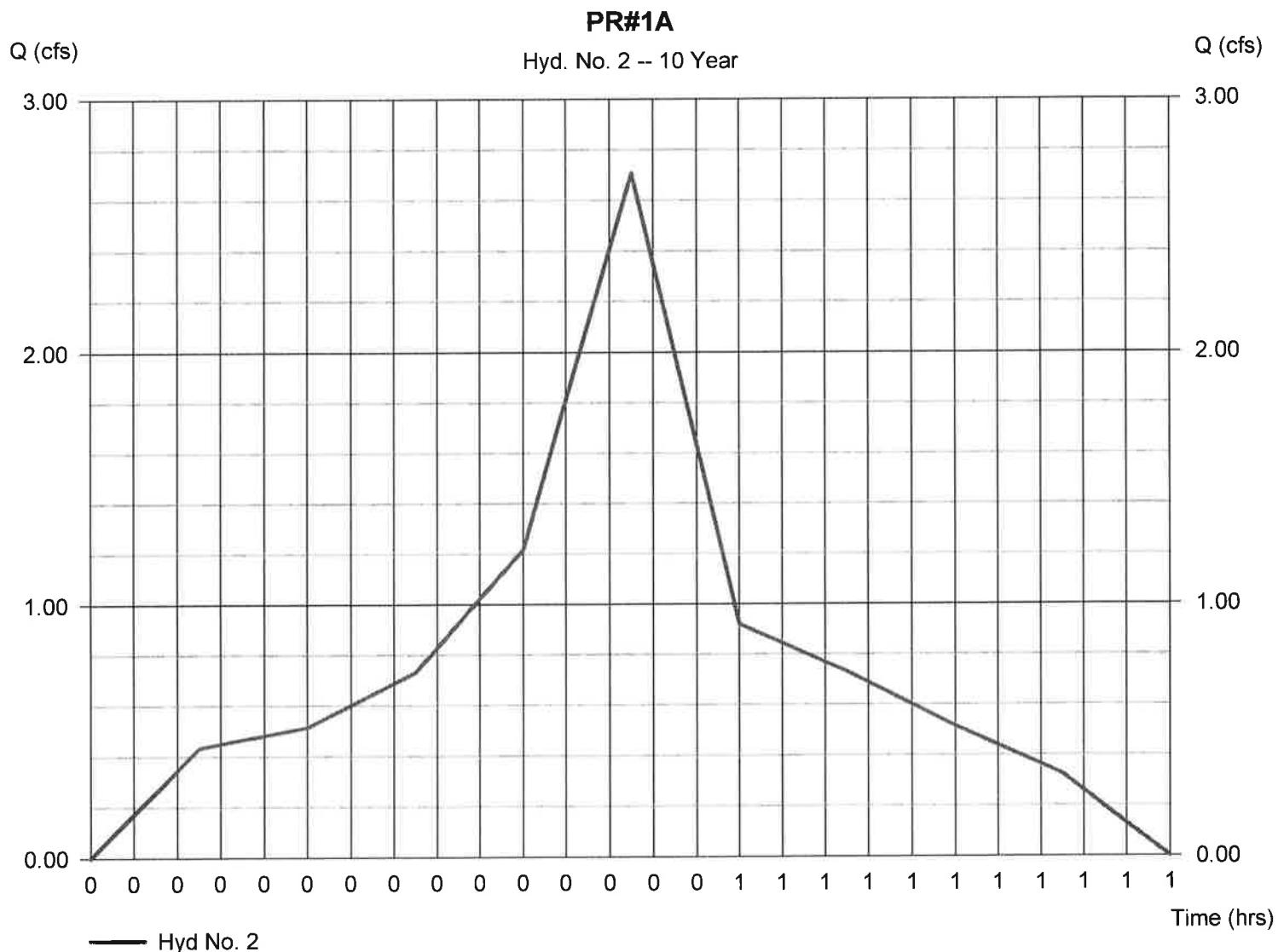
Tuesday, Feb 7, 2023

Hyd. No. 2

PR#1A

Hydrograph type = Dekalb
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 0.380 ac
 Intensity = 7.497 in/hr
 IDF Curve = NOAA-SOUTHBURG.IDF

Peak discharge = 2.706 cfs
 Time to peak = 0.42 hrs
 Hyd. volume = 2,428 cuft
 Runoff coeff. = 0.95
 Tc by User = 5.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

Tuesday, Feb 7, 2023

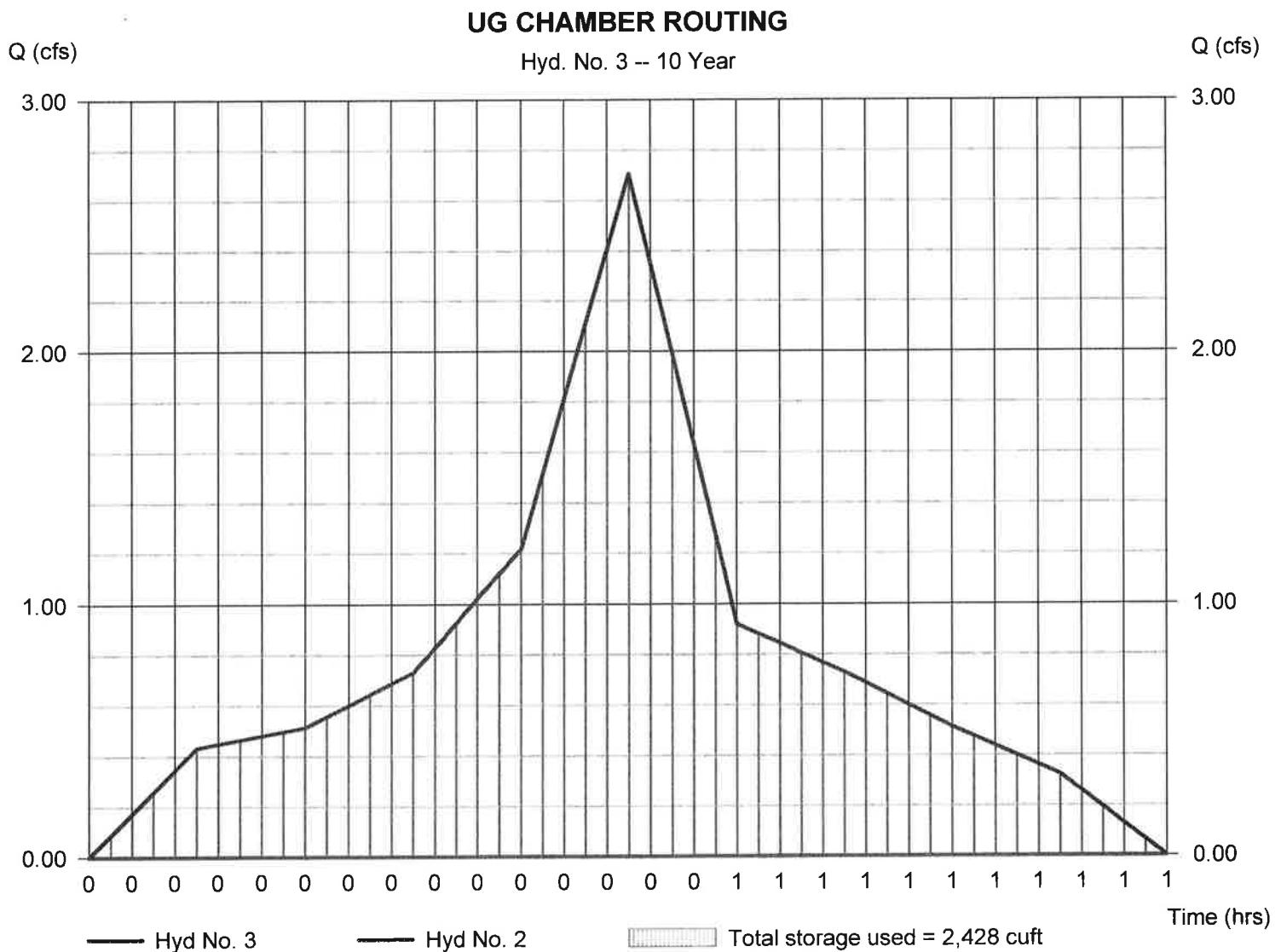
Hyd. No. 3

UG CHAMBER ROUTING

Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 1 min
 Inflow hyd. No. = 2 - PR#1A
 Reservoir name = UG CHAMBERS

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0 cuft
 Max. Elevation = 168.16 ft
 Max. Storage = 2,428 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

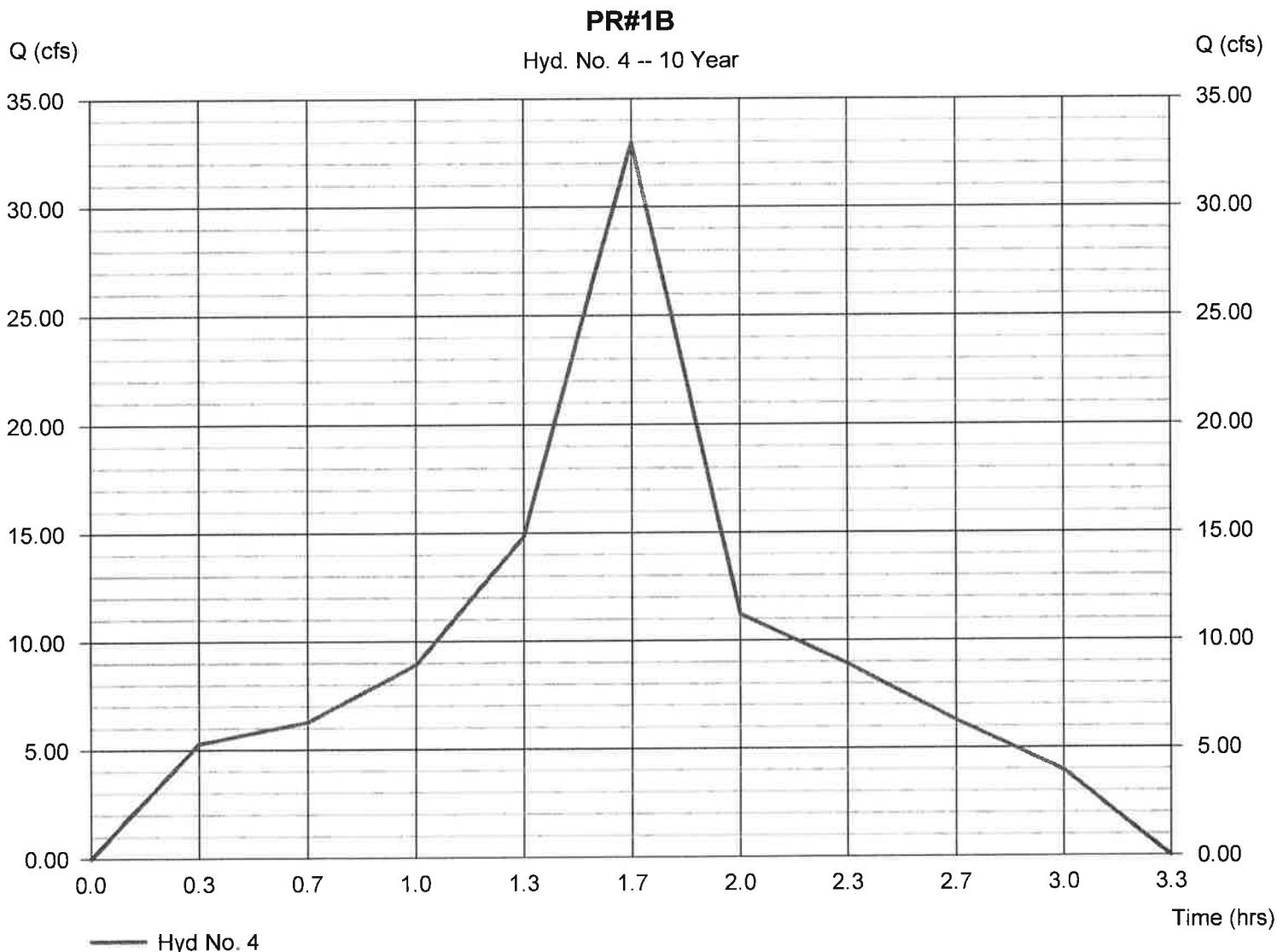
Tuesday, Feb 7, 2023

Hyd. No. 4

PR#1B

Hydrograph type = Dekalb
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 11.450 ac
 Intensity = 3.646 in/hr
 IDF Curve = NOAA-SOUTHBURY.IDF

Peak discharge = 32.98 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 118,321 cuft
 Runoff coeff. = 0.79
 Tc by User = 20.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

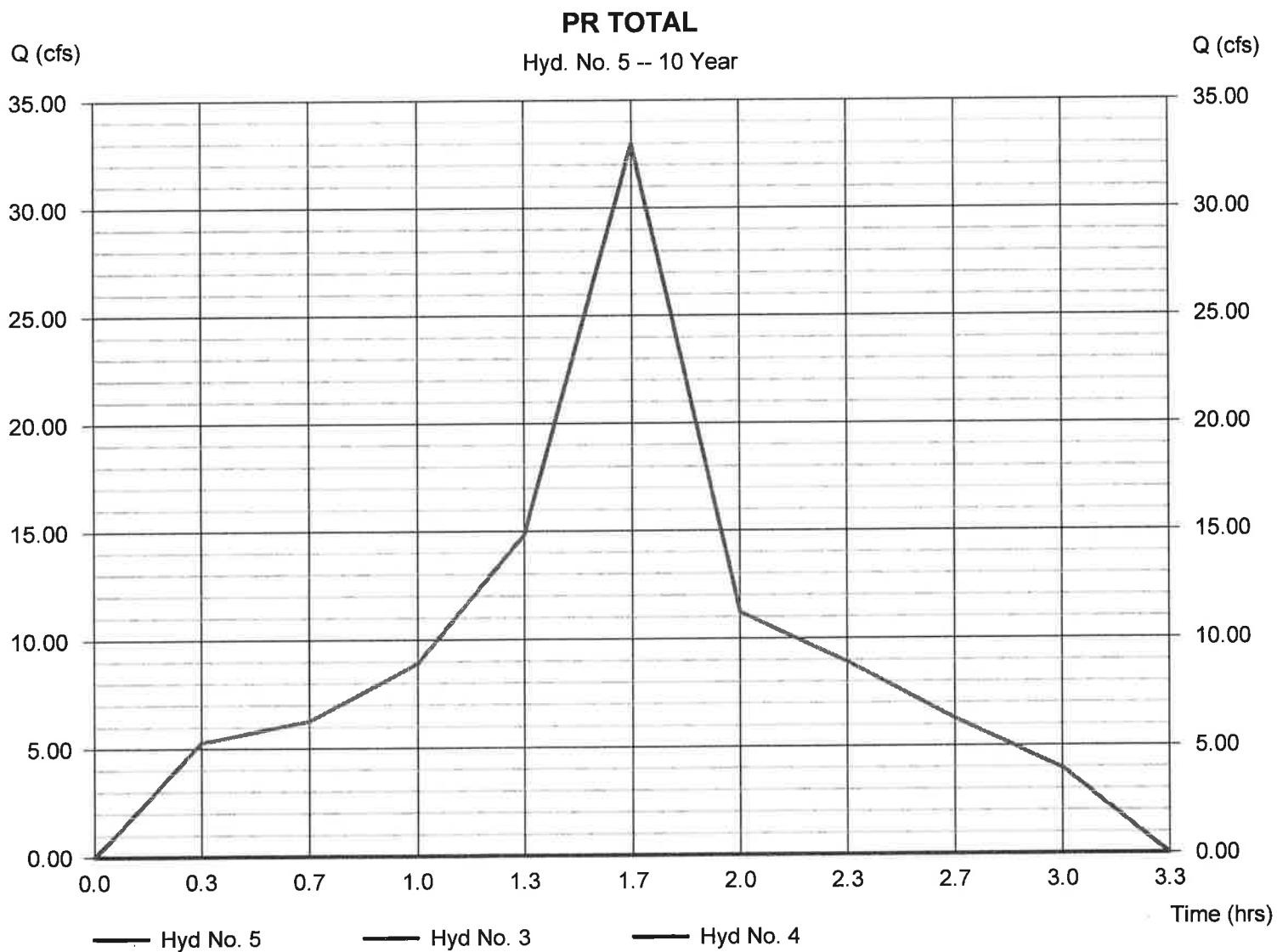
Tuesday, Feb 7, 2023

Hyd. No. 5

PR TOTAL

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 4

Peak discharge = 32.98 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 118,321 cuft
 Contrib. drain. area = 11.450 ac



Hydrograph Summary Report

Hydraflow Hydrographs by InteliSolve v9.1

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	Dekalb	41.33	1	100	148,298	----	-----	-----	EX #1
2	Dekalb	3.285	1	25	2,947	----	-----	-----	PR#1A
3	Reservoir	0.000	1	n/a	0	2	168.64	2,947	UG CHAMBER ROUTING
4	Dekalb	40.04	1	100	143,656	----	-----	-----	PR#1B
5	Combine	40.04	1	100	143,656	3, 4	-----	-----	PR TOTAL
RATIONAL.gpw				Return Period: 25 Year				Tuesday, Feb 7, 2023	

Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

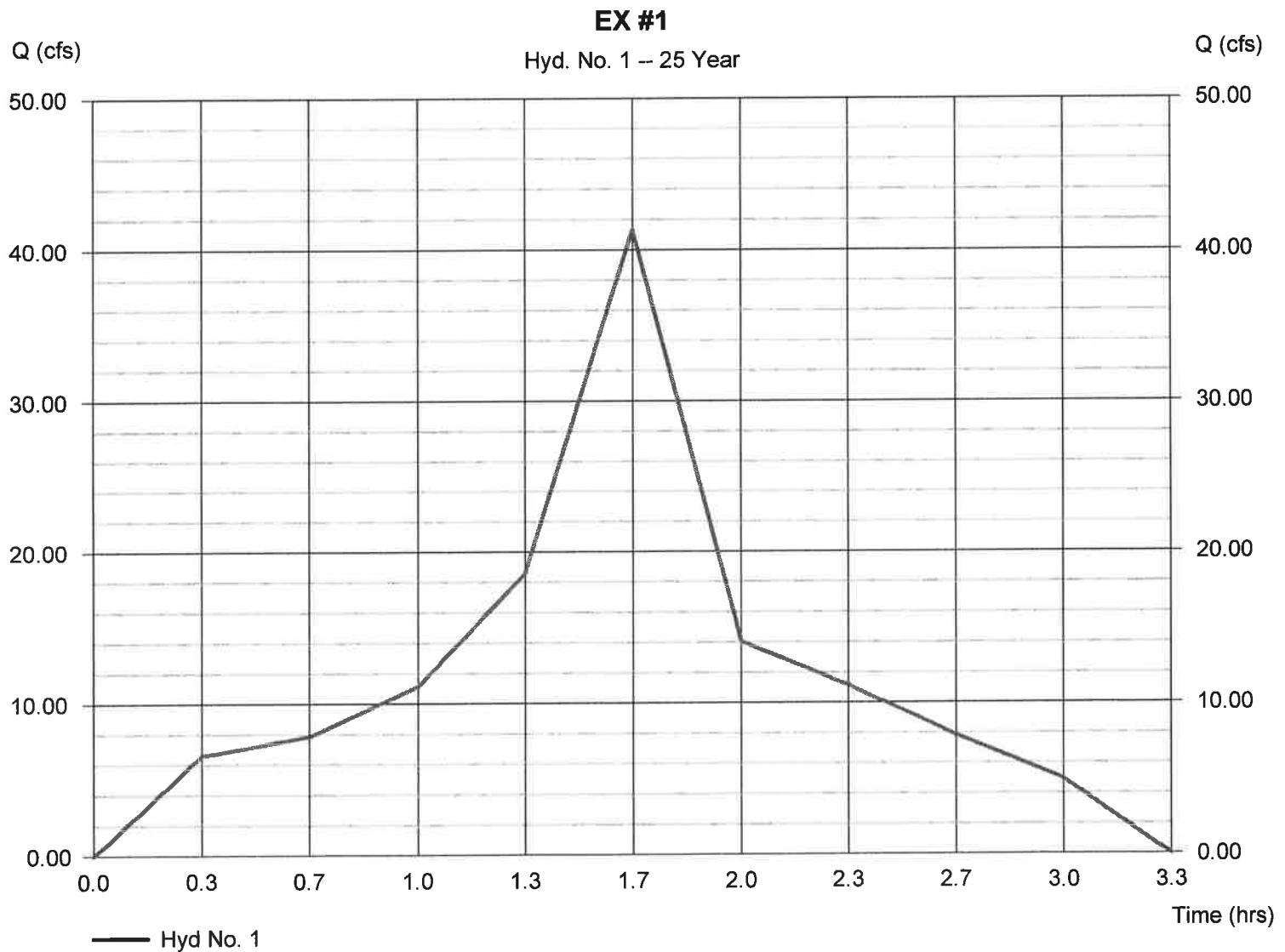
Tuesday, Feb 7, 2023

Hyd. No. 1

EX #1

Hydrograph type = Dekalb
 Storm frequency = 25 yrs
 Time interval = 1 min
 Drainage area = 11.820 ac
 Intensity = 4.426 in/hr
 IDF Curve = NOAA-SOUTHWASHINGTON.IDF

Peak discharge = 41.33 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 148,298 cuft
 Runoff coeff. = 0.79
 Tc by User = 20.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

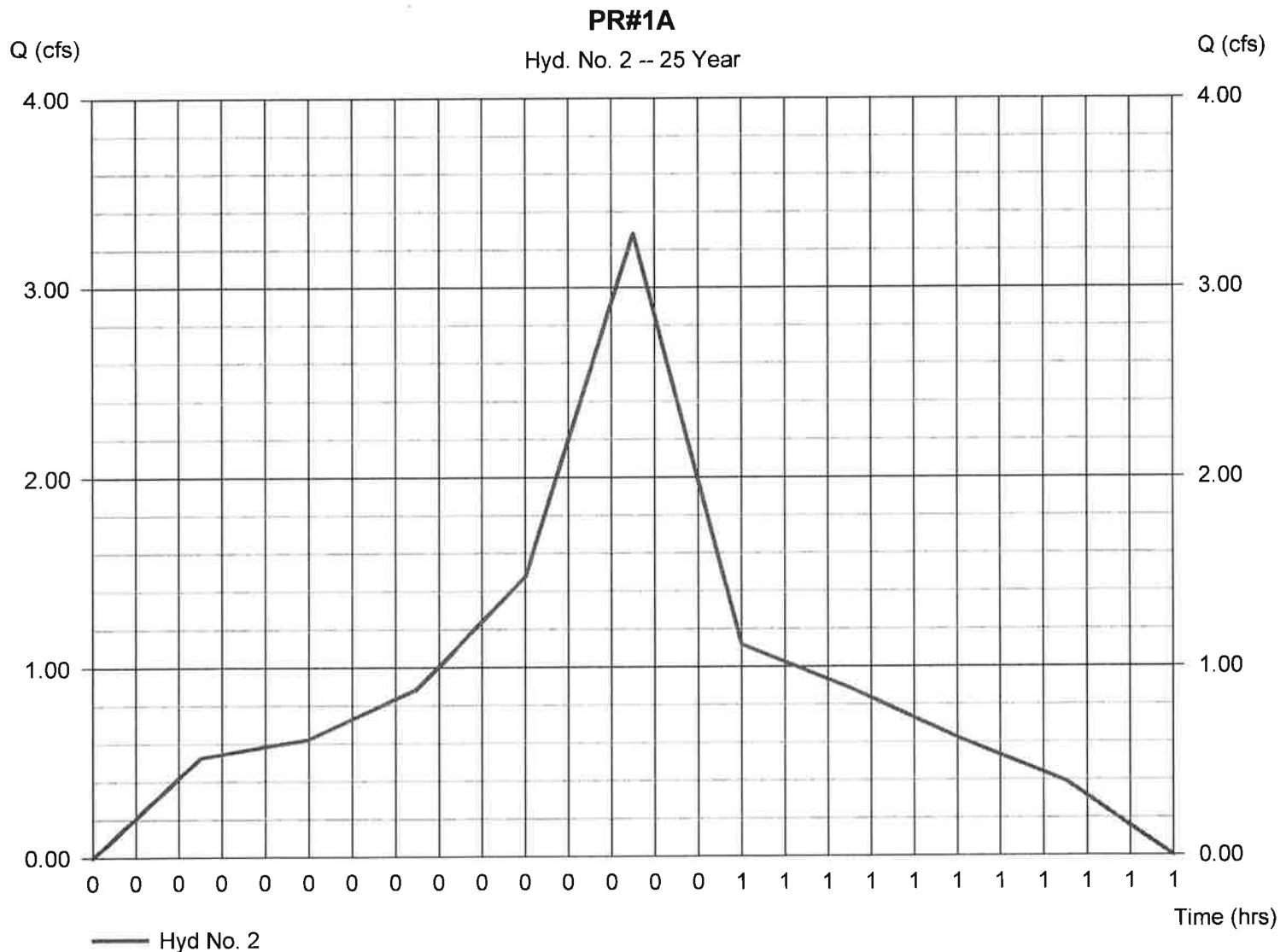
Tuesday, Feb 7, 2023

Hyd. No. 2

PR#1A

Hydrograph type = Dekalb
 Storm frequency = 25 yrs
 Time interval = 1 min
 Drainage area = 0.380 ac
 Intensity = 9.099 in/hr
 IDF Curve = NOAA-SOUTHBURG.IDF

Peak discharge = 3.285 cfs
 Time to peak = 0.42 hrs
 Hyd. volume = 2,947 cuft
 Runoff coeff. = 0.95
 Tc by User = 5.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 7, 2023

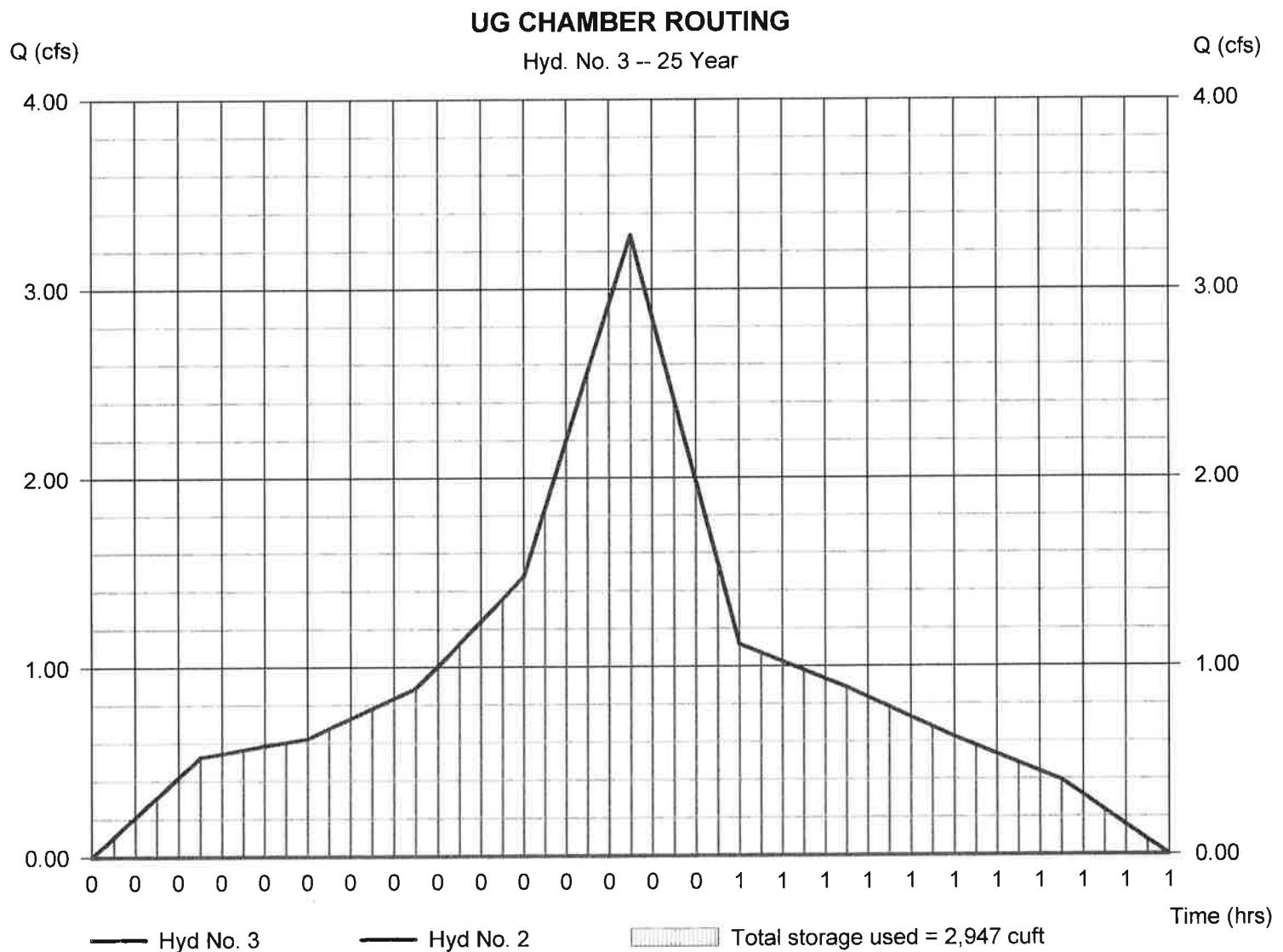
Hyd. No. 3

UG CHAMBER ROUTING

Hydrograph type	= Reservoir
Storm frequency	= 25 yrs
Time interval	= 1 min
Inflow hyd. No.	= 2 - PR#1A
Reservoir name	= UG CHAMBERS

Peak discharge	= 0.000 cfs
Time to peak	= n/a
Hyd. volume	= 0 cuft
Max. Elevation	= 168.64 ft
Max. Storage	= 2,947 cuft

Storage Indication method used.



Hydrograph Report

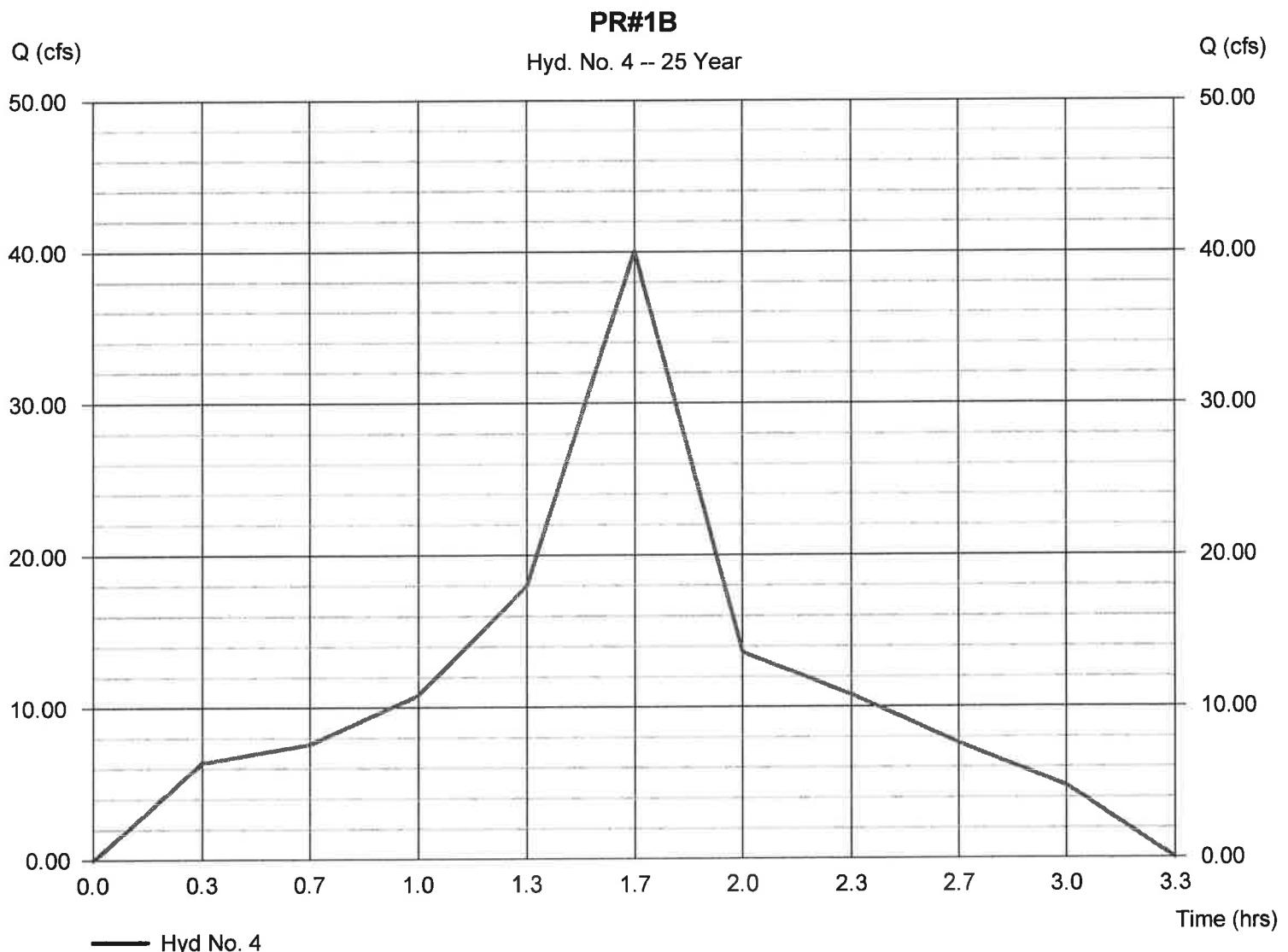
Hydraflow Hydrographs by InteliSolve v9.1

Tuesday, Feb 7, 2023

Hyd. No. 4

PR#1B

Hydrograph type	= Dekalb	Peak discharge	= 40.04 cfs
Storm frequency	= 25 yrs	Time to peak	= 1.67 hrs
Time interval	= 1 min	Hyd. volume	= 143,656 cuft
Drainage area	= 11.450 ac	Runoff coeff.	= 0.79
Intensity	= 4.426 in/hr	Tc by User	= 20.00 min
IDF Curve	= NOAA-SOUTHBURY.IDF	Asc/Rec limb fact	= n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

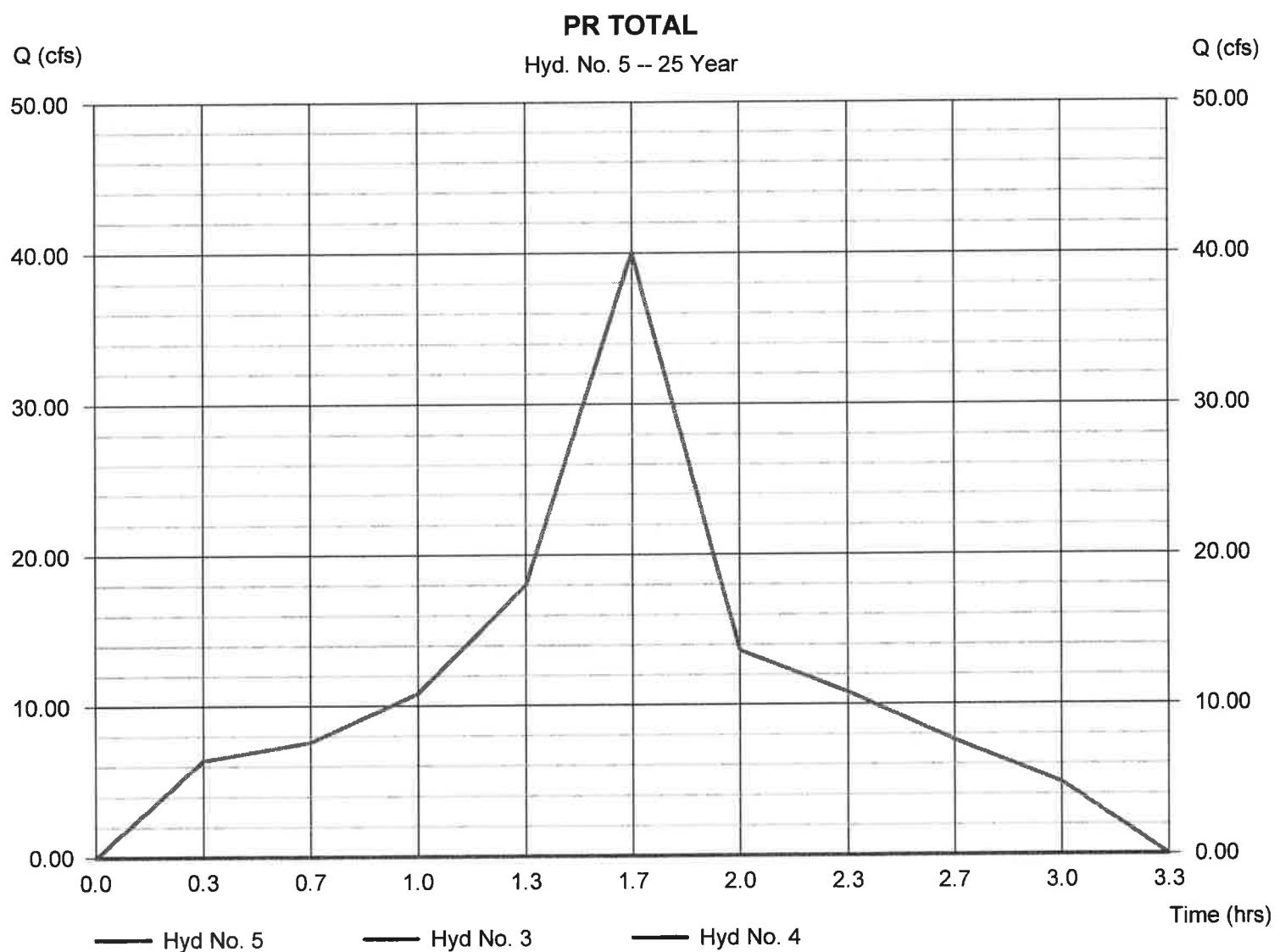
Tuesday, Feb 7, 2023

Hyd. No. 5

PR TOTAL

Hydrograph type = Combine
 Storm frequency = 25 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 4

Peak discharge = 40.04 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 143,656 cuft
 Contrib. drain. area = 11.450 ac



Hydrograph Summary Report

Hydraflow Hydrographs by InteliSolve v9.1

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	Dekalb	52.24	1	100	187,444	----	-----	-----	EX #1
2	Dekalb	4.150	1	25	3,723	----	-----	-----	PR#1A
3	Reservoir	0.000	1	n/a	0	2	169.51	3,723	UG CHAMBER ROUTING
4	Dekalb	50.61	1	100	181,577	----	-----	-----	PR#1B
5	Combine	50.61	1	100	181,577	3, 4	-----	-----	PR TOTAL
RATIONAL.gpw				Return Period: 100 Year				Tuesday, Feb 7, 2023	

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 7, 2023

Hyd. No. 1

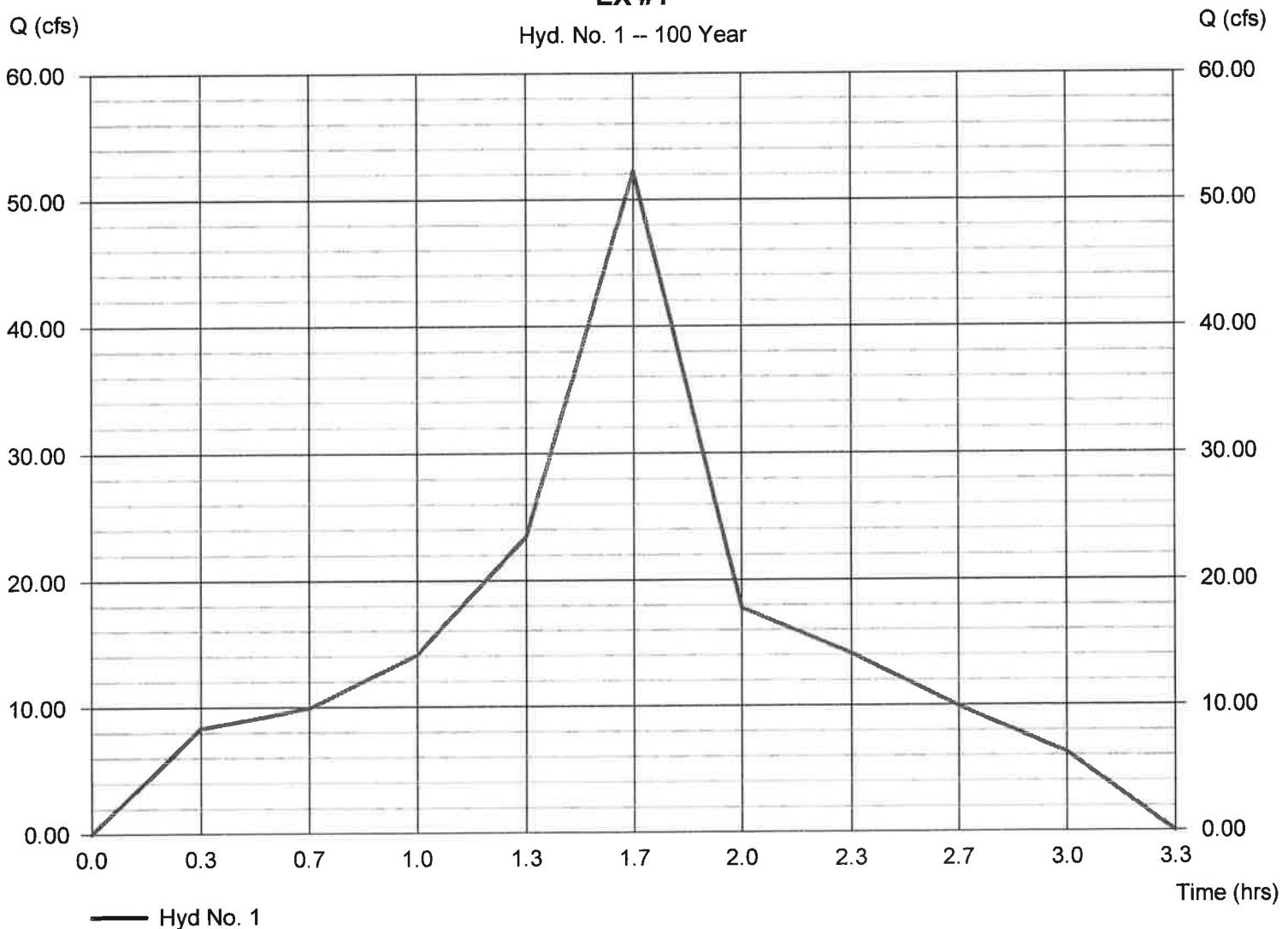
EX #1

Hydrograph type = Dekalb
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 11.820 ac
 Intensity = 5.595 in/hr
 IDF Curve = NOAA-SOUTHBURG.IDF

Peak discharge = 52.24 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 187,444 cuft
 Runoff coeff. = 0.79
 Tc by User = 20.00 min
 Asc/Rec limb fact = n/a

EX #1

Hyd. No. 1 -- 100 Year



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

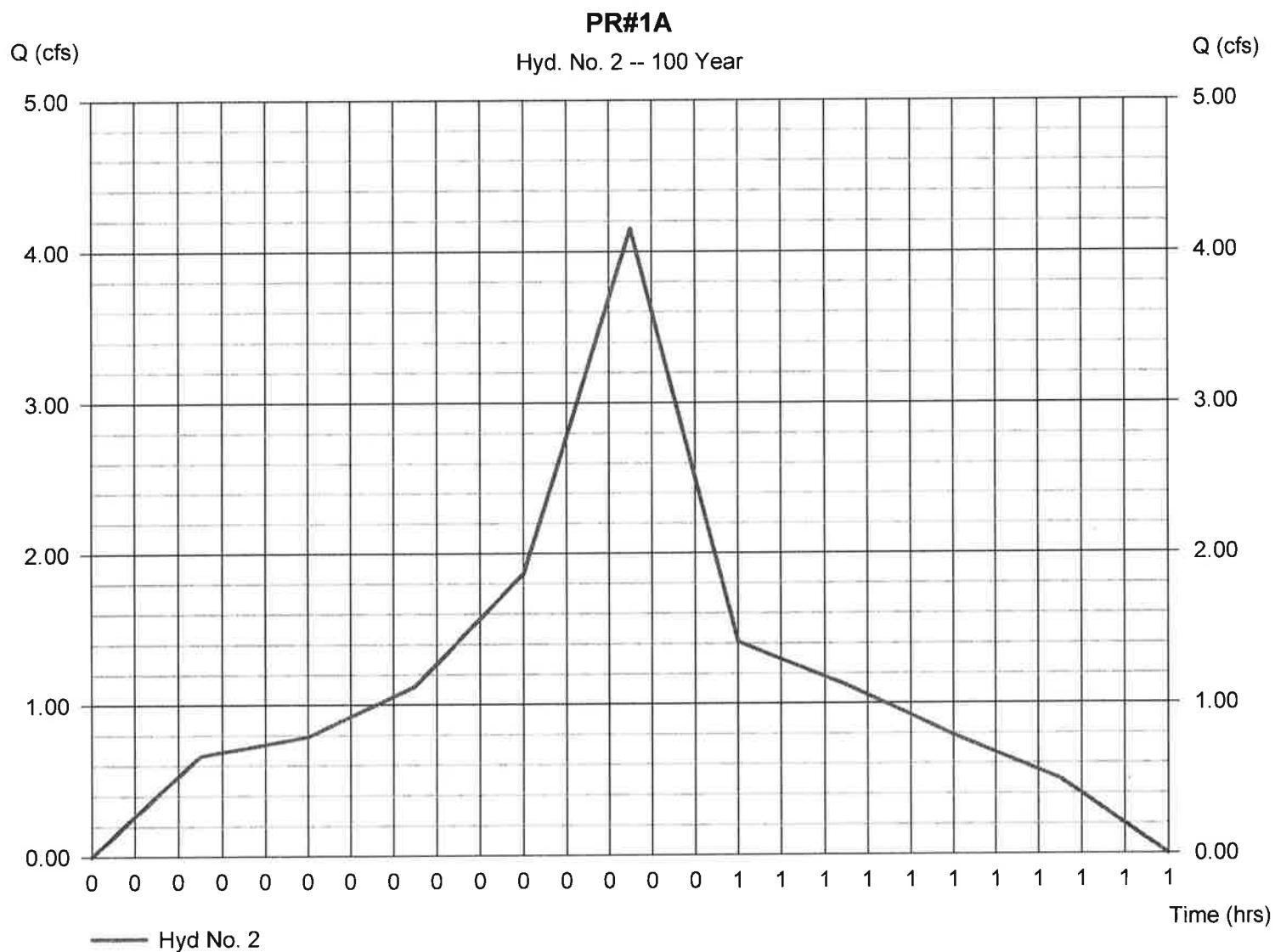
Tuesday, Feb 7, 2023

Hyd. No. 2

PR#1A

Hydrograph type = Dekalb
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 0.380 ac
 Intensity = 11.497 in/hr
 IDF Curve = NOAA-SOUTHWICHINGTON.IDF

Peak discharge = 4.150 cfs
 Time to peak = 0.42 hrs
 Hyd. volume = 3,723 cuft
 Runoff coeff. = 0.95
 Tc by User = 5.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

Tuesday, Feb 7, 2023

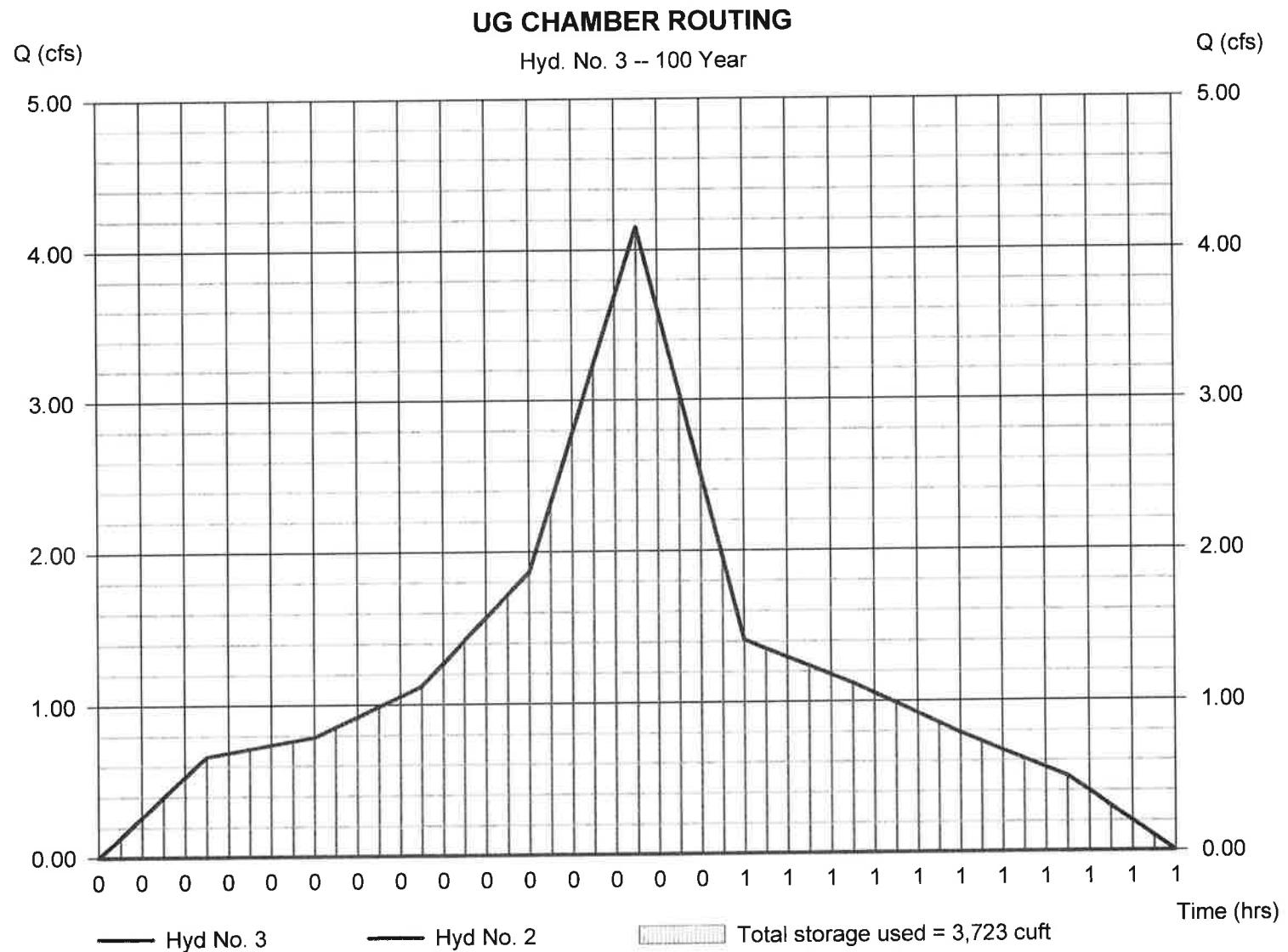
Hyd. No. 3

UG CHAMBER ROUTING

Hydrograph type = Reservoir
 Storm frequency = 100 yrs
 Time interval = 1 min
 Inflow hyd. No. = 2 - PR#1A
 Reservoir name = UG CHAMBERS

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0 cuft
 Max. Elevation = 169.51 ft
 Max. Storage = 3,723 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

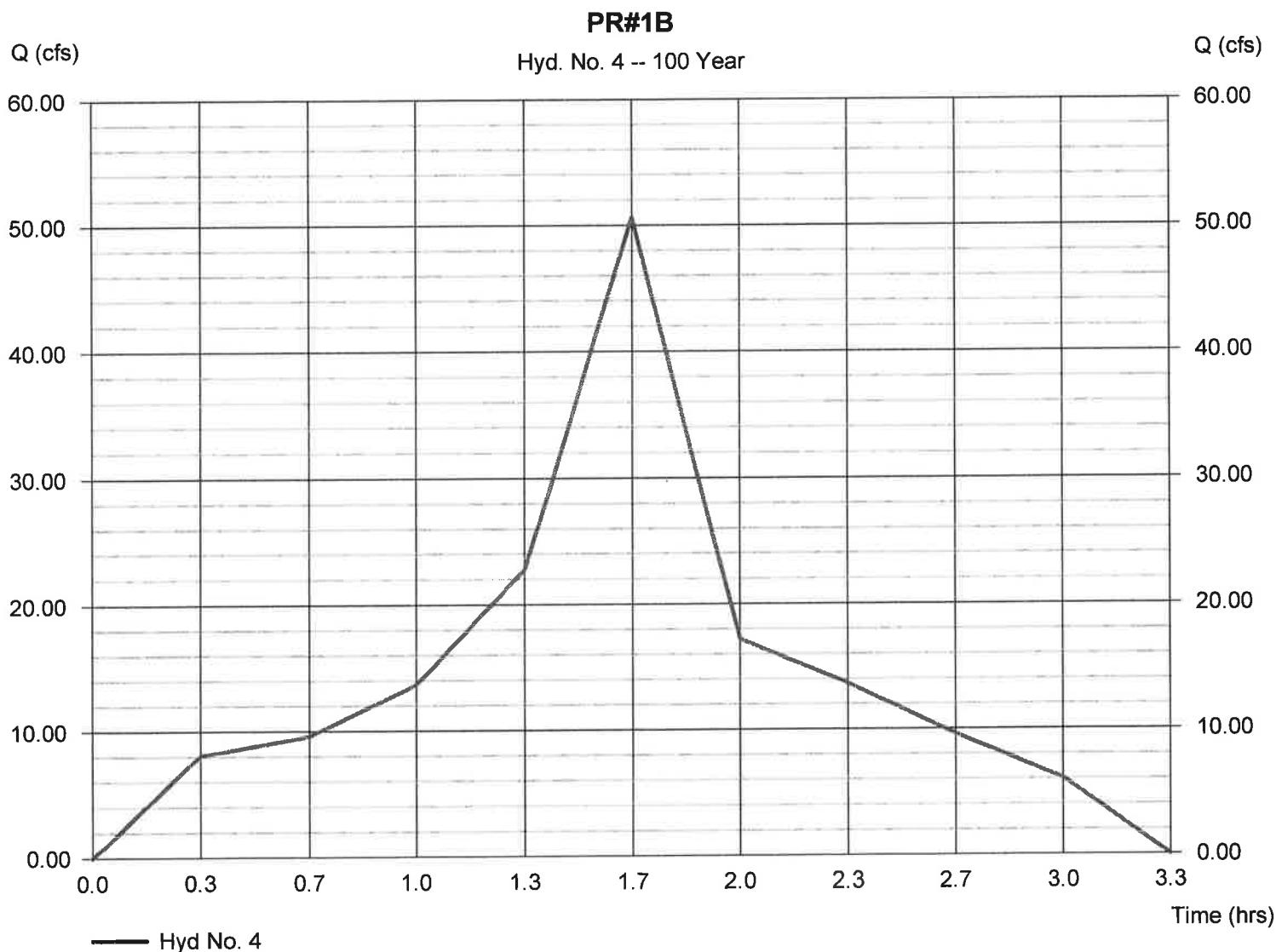
Tuesday, Feb 7, 2023

Hyd. No. 4

PR#1B

Hydrograph type = Dekalb
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 11.450 ac
 Intensity = 5.595 in/hr
 IDF Curve = NOAA-SOUTHBURY.IDF

Peak discharge = 50.61 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 181,577 cuft
 Runoff coeff. = 0.79
 Tc by User = 20.00 min
 Asc/Rec limb fact = n/a



Hydrograph Report

Hydraflow Hydrographs by InteliSolve v9.1

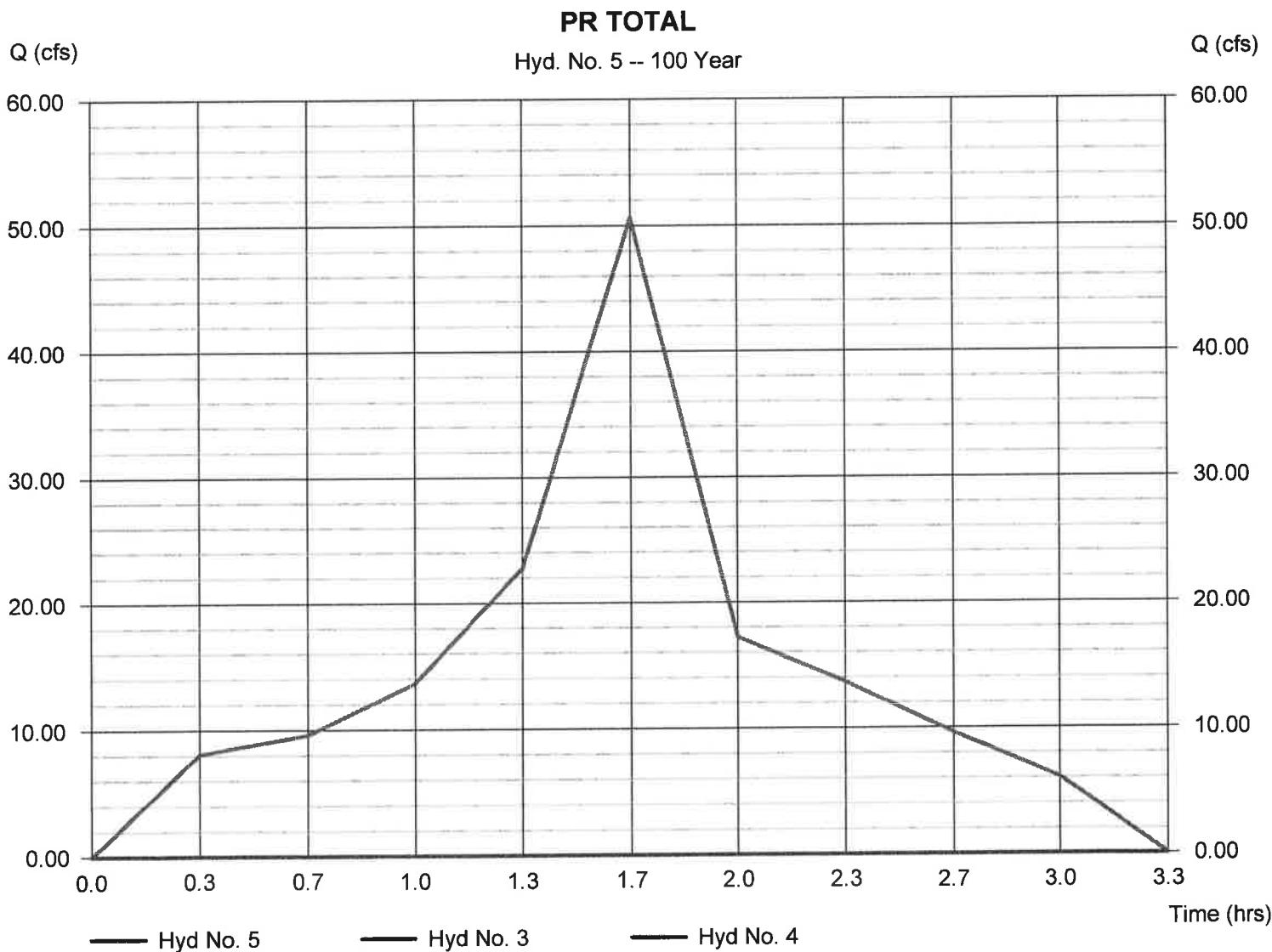
Tuesday, Feb 7, 2023

Hyd. No. 5

PR TOTAL

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 4

Peak discharge = 50.61 cfs
 Time to peak = 1.67 hrs
 Hyd. volume = 181,577 cuft
 Contrib. drain. area = 11.450 ac



Hydraflow Rainfall Report

Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 7, 2023

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	20.5300	4.0000	0.7290	-----
2	25.1162	4.1000	0.7330	-----
3	0.0000	0.0000	0.0000	-----
5	29.7031	3.6000	0.7158	-----
10	35.5494	3.7000	0.7194	-----
25	44.8352	3.9000	0.7295	-----
50	49.8640	3.8000	0.7261	-----
100	55.5061	3.8000	0.7239	-----

File name: NOAA-SOUTHINGTON.IDF

$$\text{Intensity} = B / (T_c + D)^E$$

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.14	3.00	2.40	2.02	1.76	1.57	1.42	1.30	1.20	1.12	1.05	0.99
2	4.98	3.61	2.89	2.44	2.12	1.89	1.71	1.57	1.45	1.35	1.26	1.19
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	6.37	4.59	3.66	3.09	2.69	2.40	2.17	1.99	1.84	1.72	1.61	1.52
10	7.50	5.41	4.32	3.65	3.18	2.83	2.56	2.35	2.17	2.02	1.90	1.79
25	9.10	6.57	5.25	4.43	3.85	3.43	3.10	2.84	2.63	2.45	2.29	2.16
50	10.28	7.42	5.92	4.99	4.35	3.87	3.50	3.21	2.96	2.76	2.59	2.44
100	11.50	8.30	6.64	5.59	4.87	4.34	3.93	3.60	3.33	3.10	2.91	2.74

Tc = time in minutes. Values may exceed 60.

Precip. file name: NOAA-SOUTHINGTON (SO END RD).pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.77	3.42	0.00	4.49	5.38	6.61	7.55	8.50
SCS 6-Hr	1.91	2.30	0.00	2.93	3.45	4.17	4.73	5.28
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	1.55	0.00	2.75	4.00	5.38	6.50	8.00
Custom	0.00	1.75	0.00	2.80	3.90	5.25	6.00	7.10

Project No. 221122

THE PYLE CORPORATION

67, 149 & 185 AIRCRAFT ROAD & 150 WEST QUEEN STREET

COMPOSITE 'C' CALCULATIONS:

COVERAGE AND SOIL TYPE	C	AREAS (SF)		
		PRE-DEVELOPMENT		POST-DEVELOPMENT
		EX #1	PR #1A	PR #1B
Open space (lawns, fields) - Good condition - Type B Soil - Average Slope	0.35	136,964	0	129,605
Impervious Areas (Buildings, Drives, Parking)	0.95	378,074	16,477	368,956
Area (Ac.)		11.82	0.38	11.45
'C' WEIGHTED		0.79	0.95	0.79



NOAA Atlas 14, Volume 10, Version 2
Location name: Southington, Connecticut, USA*
Latitude: 41.5616°, Longitude: -72.8716°
Elevation: 151.56 ft**

* source: ESRI Maps
** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.340 (0.266-0.428)	0.411 (0.321-0.518)	0.527 (0.410-0.668)	0.624 (0.483-0.795)	0.757 (0.566-1.01)	0.859 (0.630-1.18)	0.962 (0.684-1.37)	1.09 (0.733-1.59)	1.25 (0.813-1.91)	1.38 (0.873-2.15)
10-min	0.481 (0.376-0.607)	0.582 (0.454-0.734)	0.747 (0.581-0.946)	0.884 (0.684-1.13)	1.07 (0.802-1.43)	1.22 (0.892-1.67)	1.36 (0.969-1.94)	1.54 (1.04-2.26)	1.78 (1.15-2.71)	1.95 (1.24-3.04)
15-min	0.566 (0.443-0.714)	0.685 (0.535-0.864)	0.879 (0.684-1.11)	1.04 (0.804-1.33)	1.26 (0.944-1.69)	1.43 (1.05-1.96)	1.60 (1.14-2.29)	1.81 (1.22-2.66)	2.09 (1.36-3.18)	2.30 (1.46-3.58)
30-min	0.778 (0.608-0.980)	0.937 (0.732-1.18)	1.20 (0.932-1.52)	1.42 (1.09-1.80)	1.71 (1.28-2.29)	1.94 (1.42-2.66)	2.17 (1.55-3.10)	2.46 (1.66-3.60)	2.83 (1.84-4.31)	3.12 (1.97-4.86)
60-min	0.990 (0.773-1.25)	1.19 (0.929-1.50)	1.52 (1.18-1.92)	1.79 (1.38-2.28)	2.16 (1.62-2.89)	2.45 (1.80-3.36)	2.74 (1.95-3.91)	3.10 (2.09-4.54)	3.58 (2.32-5.45)	3.94 (2.49-6.13)
2-hr	1.30 (1.02-1.62)	1.55 (1.22-1.94)	1.97 (1.54-2.47)	2.31 (1.80-2.93)	2.79 (2.10-3.70)	3.15 (2.32-4.29)	3.52 (2.52-4.99)	3.99 (2.70-5.81)	4.61 (3.00-6.98)	5.08 (3.22-7.86)
3-hr	1.51 (1.19-1.88)	1.80 (1.42-2.25)	2.28 (1.79-2.86)	2.68 (2.09-3.38)	3.23 (2.44-4.28)	3.65 (2.71-4.97)	4.08 (2.93-5.78)	4.64 (3.14-6.73)	5.38 (3.50-8.11)	5.93 (3.77-9.15)
6-hr	1.91 (1.52-2.37)	2.30 (1.82-2.85)	2.93 (2.32-3.64)	3.45 (2.71-4.32)	4.17 (3.18-5.50)	4.73 (3.53-6.40)	5.28 (3.83-7.47)	6.05 (4.12-8.73)	7.06 (4.61-10.6)	7.82 (4.99-12.0)
12-hr	2.36 (1.88-2.90)	2.87 (2.29-3.53)	3.70 (2.95-4.58)	4.39 (3.48-5.47)	5.34 (4.10-7.02)	6.08 (4.57-8.20)	6.81 (4.98-9.62)	7.87 (5.38-11.3)	9.27 (6.08-13.8)	10.3 (6.61-15.7)
24-hr	2.77 (2.23-3.38)	3.42 (2.75-4.19)	4.49 (3.60-5.52)	5.38 (4.29-6.66)	6.61 (5.10-8.66)	7.55 (5.72-10.2)	8.50 (6.28-12.0)	9.97 (6.83-14.2)	11.9 (7.83-17.7)	13.4 (8.58-20.3)
2-day	3.12 (2.53-3.78)	3.92 (3.18-4.77)	5.24 (4.23-6.40)	6.34 (5.08-7.78)	7.85 (6.11-10.3)	9.01 (6.89-12.1)	10.2 (7.60-14.4)	12.1 (8.34-17.2)	14.7 (9.71-21.7)	16.7 (10.7-25.1)
3-day	3.38 (2.75-4.09)	4.27 (3.47-5.17)	5.73 (4.64-6.96)	6.94 (5.58-8.48)	8.60 (6.72-11.2)	9.88 (7.59-13.3)	11.2 (8.38-15.8)	13.4 (9.21-18.9)	16.3 (10.8-23.9)	18.5 (11.9-27.8)
4-day	3.63 (2.96-4.37)	4.58 (3.73-5.52)	6.13 (4.97-7.42)	7.41 (5.98-9.04)	9.18 (7.20-11.9)	10.5 (8.11-14.1)	11.9 (8.96-16.8)	14.3 (9.83-20.1)	17.4 (11.5-25.5)	19.7 (12.7-29.5)
7-day	4.33 (3.55-5.19)	5.38 (4.41-6.46)	7.11 (5.80-8.57)	8.54 (6.93-10.4)	10.5 (8.27-13.6)	12.0 (9.28-16.0)	13.6 (10.2-18.9)	16.1 (11.1-22.5)	19.4 (12.9-28.3)	21.9 (14.2-32.6)
10-day	5.03 (4.14-6.00)	6.14 (5.05-7.34)	7.96 (6.52-9.56)	9.47 (7.71-11.4)	11.5 (9.10-14.8)	13.2 (10.1-17.3)	14.8 (11.1-20.4)	17.3 (12.0-24.1)	20.6 (13.7-29.9)	23.1 (15.0-34.3)
20-day	7.22 (5.99-8.56)	8.40 (6.96-9.98)	10.3 (8.53-12.3)	11.9 (9.79-14.3)	14.2 (11.2-17.9)	15.9 (12.2-20.5)	17.6 (13.1-23.7)	19.8 (13.9-27.5)	22.8 (15.3-32.9)	25.1 (16.3-37.1)
30-day	9.06 (7.54-10.7)	10.3 (8.54-12.2)	12.3 (10.2-14.6)	13.9 (11.4-16.6)	16.2 (12.8-20.2)	17.9 (13.8-23.0)	19.7 (14.6-26.2)	21.7 (15.3-30.0)	24.4 (16.4-35.1)	26.5 (17.3-39.0)
45-day	11.3 (9.47-13.3)	12.6 (10.5-14.8)	14.6 (12.2-17.3)	16.3 (13.5-19.5)	18.7 (14.8-23.2)	20.5 (15.8-26.0)	22.3 (16.5-29.4)	24.1 (17.0-33.1)	26.5 (17.9-37.9)	28.3 (18.5-41.5)
60-day	13.2 (11.1-15.5)	14.5 (12.2-17.0)	16.6 (13.9-19.6)	18.4 (15.2-21.8)	20.8 (16.5-25.7)	22.7 (17.5-28.6)	24.5 (18.2-32.1)	26.2 (18.5-35.8)	28.4 (19.2-40.5)	30.1 (19.7-44.0)

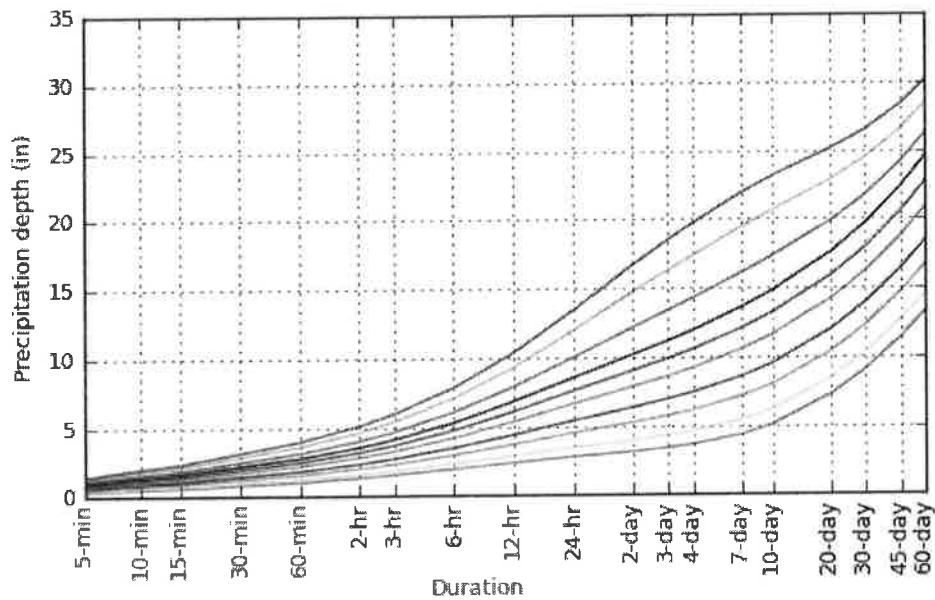
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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.

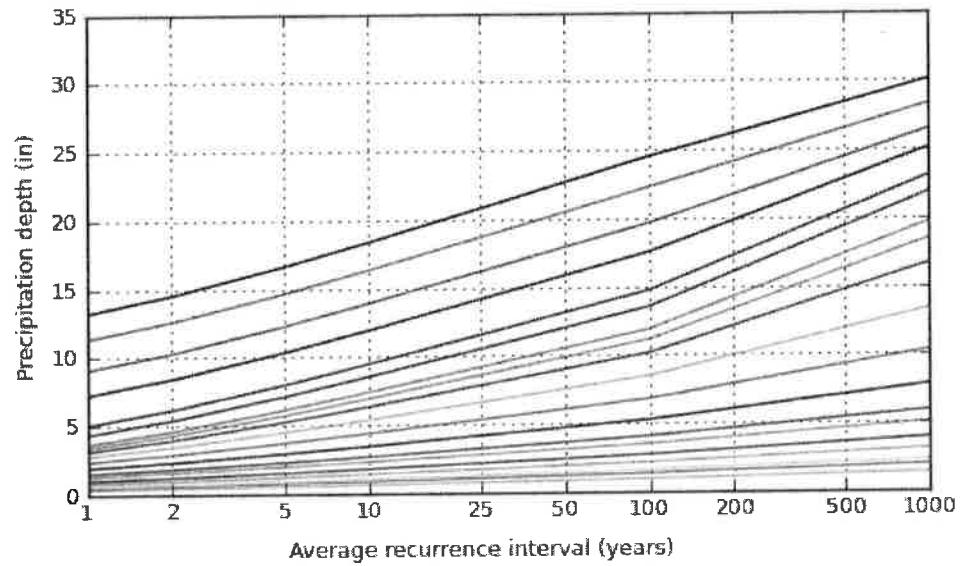
Please refer to NOAA Atlas 14 document for more information.

PF graphical

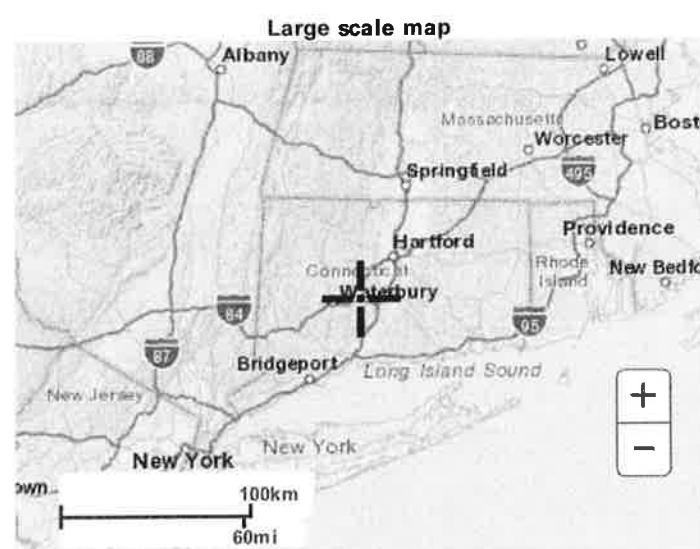
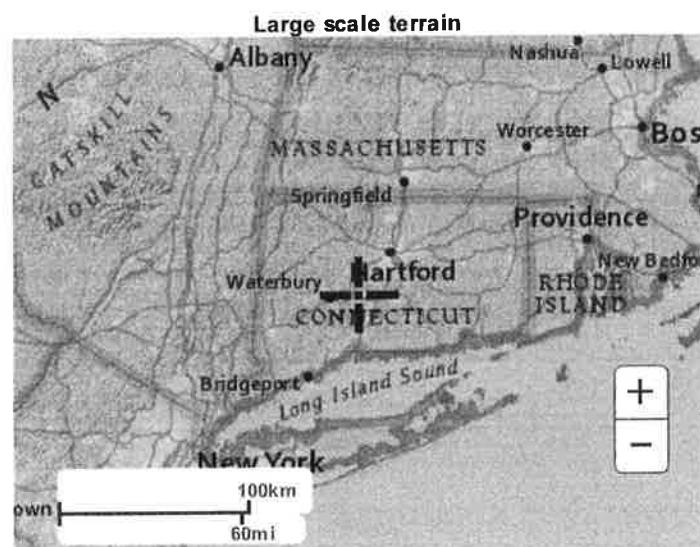
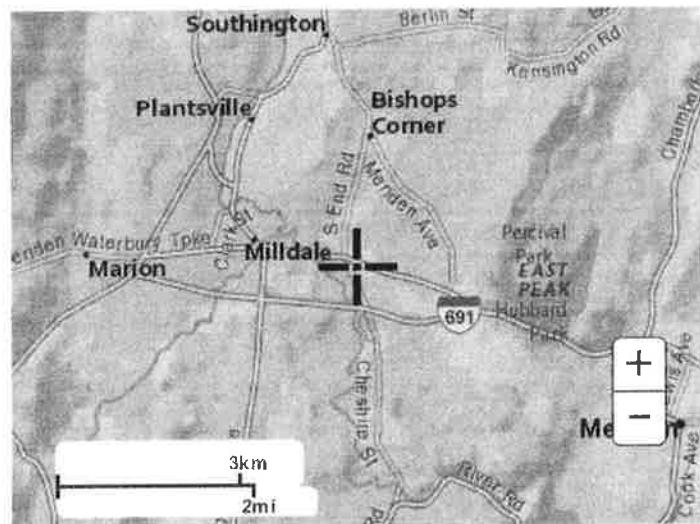
PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.5616°, Longitude: -72.8716°



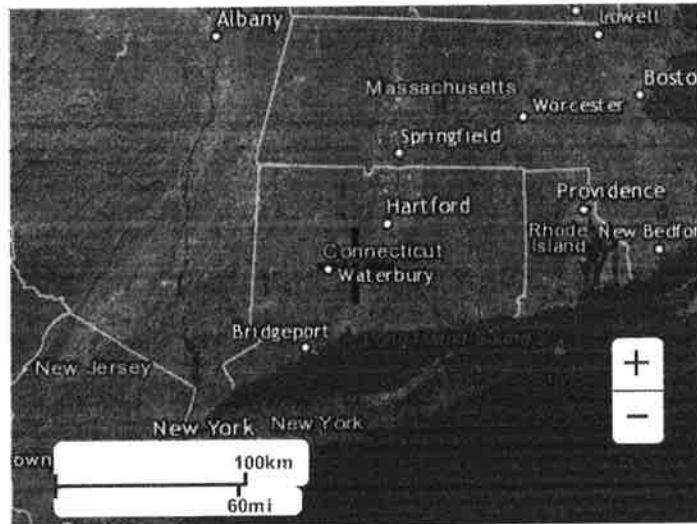
Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



Duration
5-min
10-min
15-min
30-min
60-min
2-hr
3-hr
6-hr
12-hr
24-hr
2-day
3-day
4-day
7-day
10-day
20-day
30-day
45-day
60-day



Large scale aerial



[Back to Top](#)

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](#)



NOAA Atlas 14, Volume 10, Version 2
Location name: Southington, Connecticut, USA*
Latitude: 41.5616°, Longitude: -72.8716°
Elevation: 151.56 ft**

* source: ESRI Maps
** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.08 (3.19-5.14)	4.93 (3.85-6.22)	6.32 (4.92-8.02)	7.49 (5.80-9.54)	9.08 (6.79-12.1)	10.3 (7.56-14.1)	11.5 (8.21-16.5)	13.1 (8.80-19.1)	15.0 (9.76-22.9)	16.6 (10.5-25.8)
10-min	2.89 (2.26-3.64)	3.49 (2.72-4.40)	4.48 (3.49-5.68)	5.30 (4.10-6.76)	6.43 (4.81-8.60)	7.30 (5.35-10.0)	8.17 (5.81-11.7)	9.25 (6.23-13.5)	10.7 (6.91-16.2)	11.7 (7.42-18.3)
15-min	2.26 (1.77-2.86)	2.74 (2.14-3.46)	3.52 (2.74-4.45)	4.16 (3.22-5.30)	5.04 (3.78-6.75)	5.73 (4.20-7.84)	6.41 (4.56-9.14)	7.25 (4.89-10.6)	8.36 (5.42-12.7)	9.20 (5.82-14.3)
30-min	1.56 (1.22-1.96)	1.87 (1.46-2.37)	2.40 (1.86-3.03)	2.83 (2.19-3.61)	3.42 (2.56-4.58)	3.88 (2.85-5.32)	4.34 (3.09-6.19)	4.91 (3.31-7.20)	5.67 (3.67-8.63)	6.24 (3.95-9.71)
60-min	0.990 (0.773-1.25)	1.19 (0.929-1.50)	1.52 (1.18-1.92)	1.79 (1.38-2.28)	2.16 (1.62-2.89)	2.45 (1.80-3.36)	2.74 (1.95-3.91)	3.10 (2.09-4.54)	3.58 (2.32-5.45)	3.94 (2.49-6.13)
2-hr	0.649 (0.510-0.812)	0.776 (0.610-0.972)	0.983 (0.770-1.24)	1.16 (0.899-1.46)	1.39 (1.05-1.85)	1.58 (1.16-2.15)	1.76 (1.26-2.50)	1.99 (1.35-2.90)	2.30 (1.50-3.49)	2.54 (1.61-3.93)
3-hr	0.501 (0.396-0.625)	0.600 (0.473-0.749)	0.760 (0.597-0.952)	0.893 (0.697-1.13)	1.08 (0.814-1.43)	1.22 (0.901-1.65)	1.36 (0.977-1.93)	1.54 (1.05-2.24)	1.79 (1.17-2.70)	1.98 (1.26-3.05)
6-hr	0.319 (0.254-0.395)	0.383 (0.304-0.475)	0.489 (0.387-0.609)	0.576 (0.453-0.722)	0.697 (0.530-0.919)	0.789 (0.589-1.07)	0.882 (0.639-1.25)	1.01 (0.687-1.46)	1.18 (0.770-1.77)	1.31 (0.833-2.00)
12-hr	0.196 (0.156-0.241)	0.238 (0.190-0.293)	0.307 (0.244-0.380)	0.364 (0.288-0.454)	0.444 (0.340-0.583)	0.504 (0.379-0.680)	0.565 (0.413-0.798)	0.653 (0.446-0.938)	0.769 (0.504-1.15)	0.857 (0.549-1.31)
24-hr	0.115 (0.093-0.141)	0.143 (0.115-0.174)	0.187 (0.150-0.230)	0.224 (0.179-0.277)	0.275 (0.213-0.361)	0.315 (0.238-0.424)	0.354 (0.262-0.501)	0.415 (0.284-0.593)	0.496 (0.326-0.736)	0.557 (0.358-0.844)
2-day	0.065 (0.053-0.079)	0.082 (0.066-0.099)	0.109 (0.088-0.133)	0.132 (0.106-0.162)	0.163 (0.127-0.214)	0.188 (0.143-0.252)	0.212 (0.158-0.300)	0.253 (0.174-0.359)	0.307 (0.202-0.453)	0.347 (0.224-0.523)
3-day	0.047 (0.038-0.057)	0.059 (0.048-0.072)	0.080 (0.064-0.097)	0.096 (0.078-0.118)	0.119 (0.093-0.156)	0.137 (0.105-0.184)	0.155 (0.116-0.220)	0.186 (0.128-0.263)	0.226 (0.149-0.333)	0.257 (0.166-0.385)
4-day	0.038 (0.031-0.046)	0.048 (0.039-0.058)	0.064 (0.052-0.077)	0.077 (0.062-0.094)	0.096 (0.075-0.124)	0.110 (0.085-0.147)	0.124 (0.093-0.175)	0.148 (0.102-0.210)	0.181 (0.120-0.265)	0.205 (0.133-0.307)
7-day	0.026 (0.021-0.031)	0.032 (0.026-0.038)	0.042 (0.035-0.051)	0.051 (0.041-0.062)	0.063 (0.049-0.081)	0.072 (0.055-0.095)	0.081 (0.061-0.113)	0.096 (0.066-0.134)	0.115 (0.077-0.168)	0.130 (0.084-0.194)
10-day	0.021 (0.017-0.025)	0.026 (0.021-0.031)	0.033 (0.027-0.040)	0.039 (0.032-0.048)	0.048 (0.038-0.062)	0.055 (0.042-0.072)	0.061 (0.046-0.085)	0.072 (0.050-0.101)	0.086 (0.057-0.125)	0.096 (0.062-0.143)
20-day	0.015 (0.012-0.018)	0.018 (0.014-0.021)	0.022 (0.018-0.026)	0.025 (0.020-0.030)	0.029 (0.023-0.037)	0.033 (0.025-0.043)	0.037 (0.027-0.049)	0.041 (0.029-0.057)	0.048 (0.032-0.069)	0.052 (0.034-0.077)
30-day	0.013 (0.010-0.015)	0.014 (0.012-0.017)	0.017 (0.014-0.020)	0.019 (0.016-0.023)	0.022 (0.018-0.028)	0.025 (0.019-0.032)	0.027 (0.020-0.036)	0.030 (0.021-0.042)	0.034 (0.023-0.049)	0.037 (0.024-0.054)
45-day	0.010 (0.009-0.012)	0.012 (0.010-0.014)	0.014 (0.011-0.016)	0.015 (0.012-0.018)	0.017 (0.014-0.021)	0.019 (0.015-0.024)	0.021 (0.016-0.027)	0.022 (0.016-0.031)	0.025 (0.017-0.035)	0.026 (0.017-0.038)
60-day	0.009 (0.008-0.011)	0.010 (0.008-0.012)	0.012 (0.010-0.014)	0.013 (0.011-0.015)	0.014 (0.011-0.018)	0.016 (0.012-0.020)	0.017 (0.013-0.022)	0.018 (0.013-0.025)	0.020 (0.013-0.028)	0.021 (0.014-0.031)

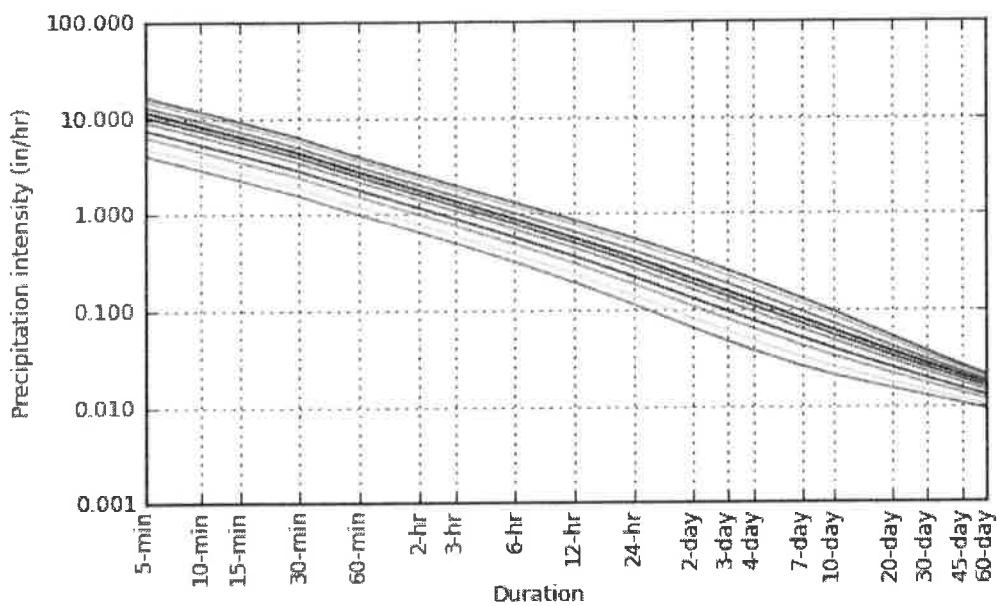
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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.

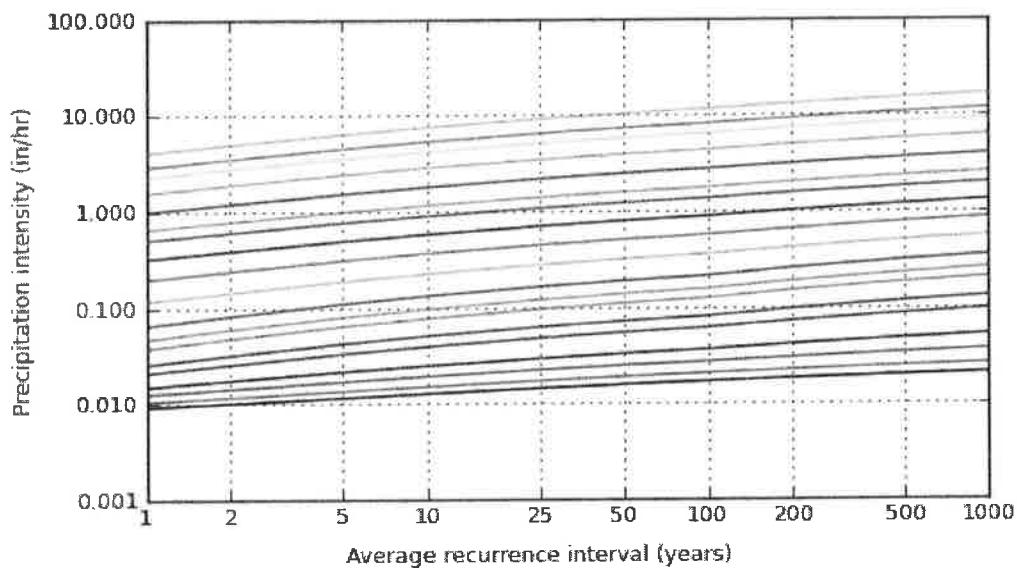
Please refer to NOAA Atlas 14 document for more information.

PF graphical

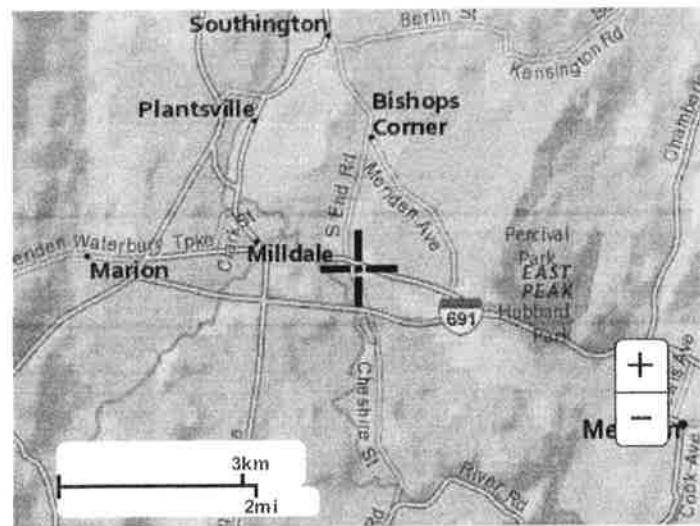
PDS-based intensity-duration-frequency (IDF) curves
Latitude: 41.5616°, Longitude: -72.8716°



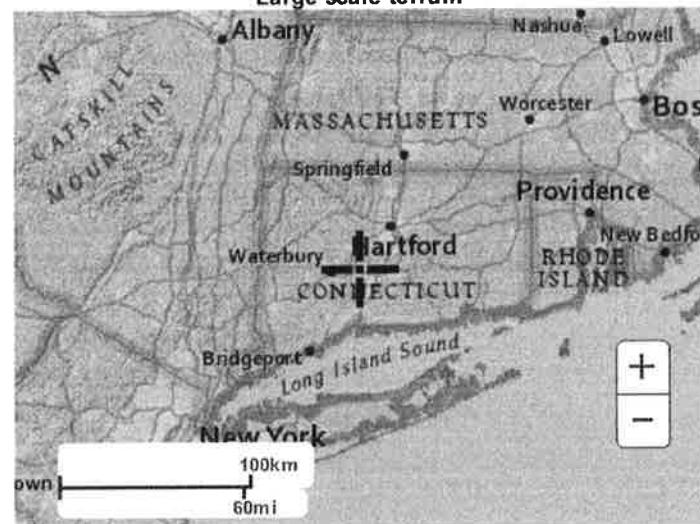
Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



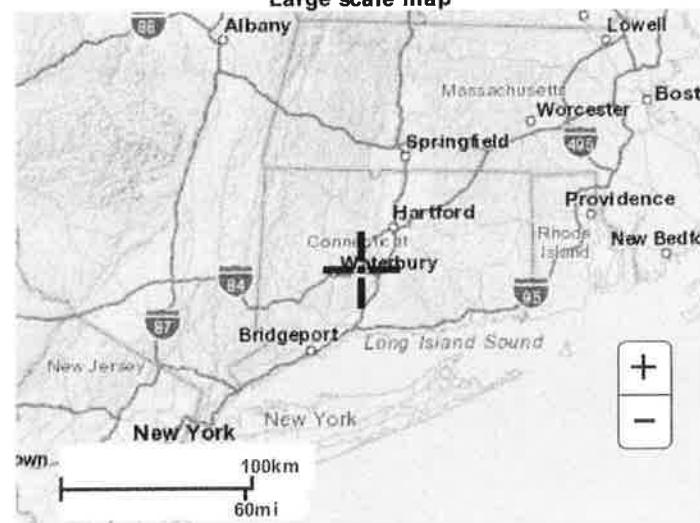
Duration
5-min
10-min
15-min
30-min
60-min
2-hr
3-hr
6-hr
12-hr
24-hr
2-day
3-day
4-day
7-day
10-day
20-day
30-day
45-day
60-day



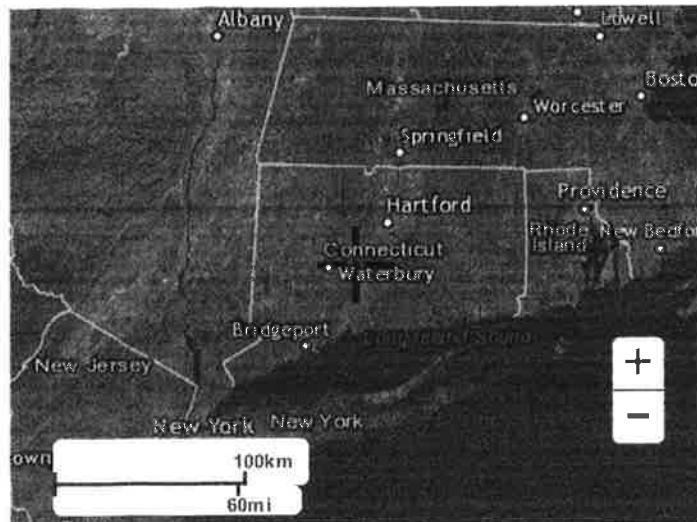
Large scale terrain



Large scale map



Large scale aerial



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