SKY BLUE DUPLEXES

PROPOSED MULTI-FAMILY UNITS

DRAINAGE REPORT

FOR

City of Bryant, AR

DATE

Hurricane Lake Road, Saline County, AR

By:

HOPE
CONSULTING
ENGINEERS • SURVEYORS

APPENDIX

Project Description/Summary

Detention Discharge Summary, Composite C Values, & time of concentration

Street Drainage Calculation

East Ditch Calculations

Time of Concentration Calculation

Pond Report

Hydrographs

East Ditch Exhibit

Summary

The following calculations pertain to the detention design for the proposed multi family development Located off Hurricane Lake Road in Bryant, AR.

Proposed Development area = 0.92 Acres

	C	*tc (min)*
Pre-development:	0.49	23
Post-development:	0.69	23

Detention Pre & Post Development Comparisons

Prior to detention routing:

Event (yrs)	Pre-developed Flow Q (cfs)	Post-developed Flow (no pond) Q (cfs)
2	1.40	1.98
10	1.95	2.75
25	2.26	3.18
50	2.57	3.61
100	2.75	3.87

After routing to detention:

Event (yrs)	Pre-developed Q (cfs)	Post-developed (with pond) Q (cfs)	Water El. (ft)
2	1.40	1.39	402.25
10	1.95	1.72	402.62
25	2.26	1.89	402.85
50	2.57	2.03	403.05
100	2.75	2.16	403.13

Therefore the development will not create any additional flow in the downstream area.

East Channel

The following calculations pertain to the existing east ditch, and are based on proposed re-design and excavation of the existing channel in order to have the needed vertical room necessary for detention and 2.0 feet of freeboard for the finished floor elevations of proposed structures.

time of concentration, tc (min) Pre	REGION 3 IDF			
Channel Dimensions and Time of Concentration, tc				
Area (ft2)	1998592.29			
Area (Acre)	46			
Length, L (ft)	2217.0			
Change in Elevation (ft)	60.27			
Slope, S (ft/ft)	0.027			
N (asphalt,grass,etc)	0.400		**h (ft)**	**S**
L(overland, ft)	200		4	0.020
L(channel 1, ft)	2017		56.27	0.028
L(channel 2, ft)	0.0		0	0.000
t_i	45.4	**v**		
t_{t1}	5.6	6.007023		
t_{t2}	0.0	0		
time of concentration, tc (min)	51.0	*use 50 min*		

	Design Peak Runoff Rates, Qp (cfs)		
	Intensity, I (in/hr)	Runoff Coeff	Flow (cfs)
	I	C	Q
100year	4.19	0.53	101.89
	Qp,max (max flow) cfs		102

V-Bottom Ditch (Analysis)

Side Slope	Q	n	Slope, m	Depth	Depth	Area	Velocity	Width
	cfs		ft/ft	ft	in	ft^2	ft/sec	ft
1: 3	103.0	0.023	0.005	2.53	30.4	19.26	5.35	15.20

STATION 1+68

Elev. + 2.0' freeboard	Y + depth	Dist to outlet	El. @ Outlet	Low Point
		x	y=mx+b	b
403.31	400.78	168.4	398.242	397.4

V-Bottom Ditch (Analysis)

Side Slope	Q	n	Slope, m	Depth	Depth	Area	Velocity	Width
	cfs		ft/ft	ft	in	ft^2	ft/sec	ft
1: 2	103.0	0.023	0.005	2.95	35.4	17.40	5.92	11.80

STATION 1+00

El. + 2.0 freeboard	Y + depth	Re-grade Dist	El. @ x	Low Point
		x	y=mx+b	b
403.80	400.85	100	397.9	397.4

PRE DEVELOPMENT TOC:

Time of Concentration, tc (min)	Bryant IDF			
Channel Dimensions and Time of Concentration, tc				
Area (ft2)	40262.9			
Area (Acre)	0.92			
Length, L (ft)	837.0			
Change in Elevation (ft)	32			
Slope, S (ft/ft)	0.038			
N (Coeff. Of roughness, Table 400-3)	0.100		**h (ft)**	**S**
L(overland/sheet flow, ft)	75		1	0.013
L(channel 1, ft)	601		25.00	0.04
L(channel 2, ft)	161.0		1	0.006
t_i	18.4	**v**		
t_{t1}	3.3	3.0241		
t_{t2}	0.9	2.909438		
time of concentration, tc (min)	**22.7**			**use 23**

POST DEVELOPMENT TOC:

time of concentration, tc (min)	Bryant IDF			
Channel Dimensions and Time of Concentration, tc				
Area (ft2)	40262.9			
Area (Acre)	0.92			
Length, L (ft)	888.0			
Change in Elevation (ft)	32			
Slope, S (ft/ft)	0.036			
N (Coeff. Of roughness, Table 400-3)	0.100		**h (ft)**	**S**
L(overland/sheet flow, ft)	75		1	0.013
L(channel 1, ft)	659		25.00	0.04
L(channel 2, ft)	154.0		3	0.017
t_i	18.4	**v**		
t_{t1}	3.8	2.887956		
t_{t2}	0.5	4.77828		
time of concentration, tc (min)	**22.8**			**use 23**

Watershed Model Schematic

Legend

Hyd.	Origin	Description
1	Rational	PRE DEV FLOW
2	Rational	DEVELOPMENT CREATED FLOW
3	Reservoir	POST DEV. FLOW

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

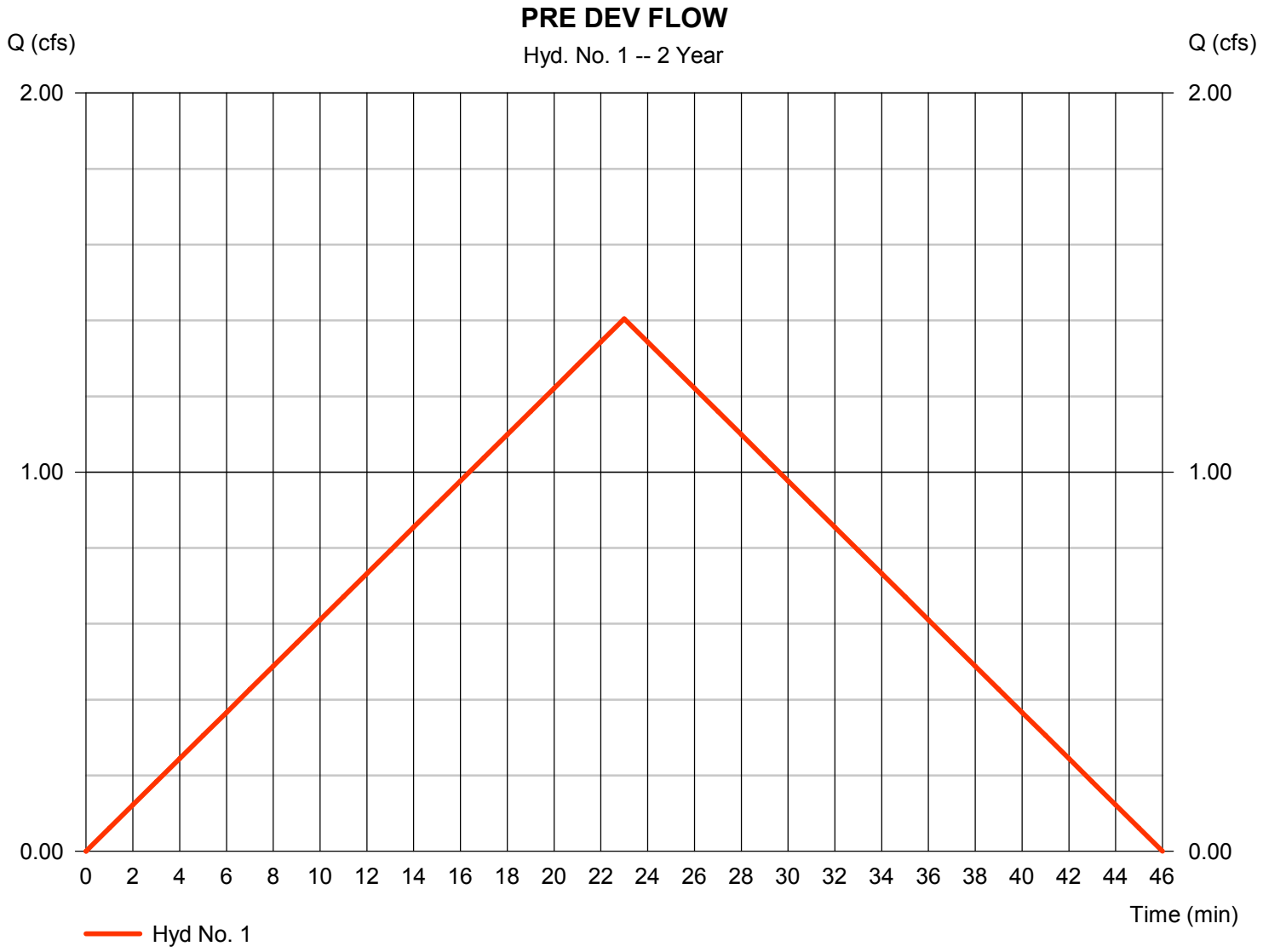
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	1.404	1	23	1,938	------	------	------	PRE DEV FLOW
2	Rational	1.977	1	23	2,729	------	------	------	DEVELOPMENT CREATED FLOW
3	Reservoir	1.391	1	30	2,728	2	402.25	649	POST DEV. FLOW

Hydrograph Report

Hyd. No. 1

PRE DEV FLOW

Hydrograph type	=	Rational	Peak discharge	=	1.404 cfs
Storm frequency	=	2 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	1,938 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.49
Intensity	=	3.115 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1

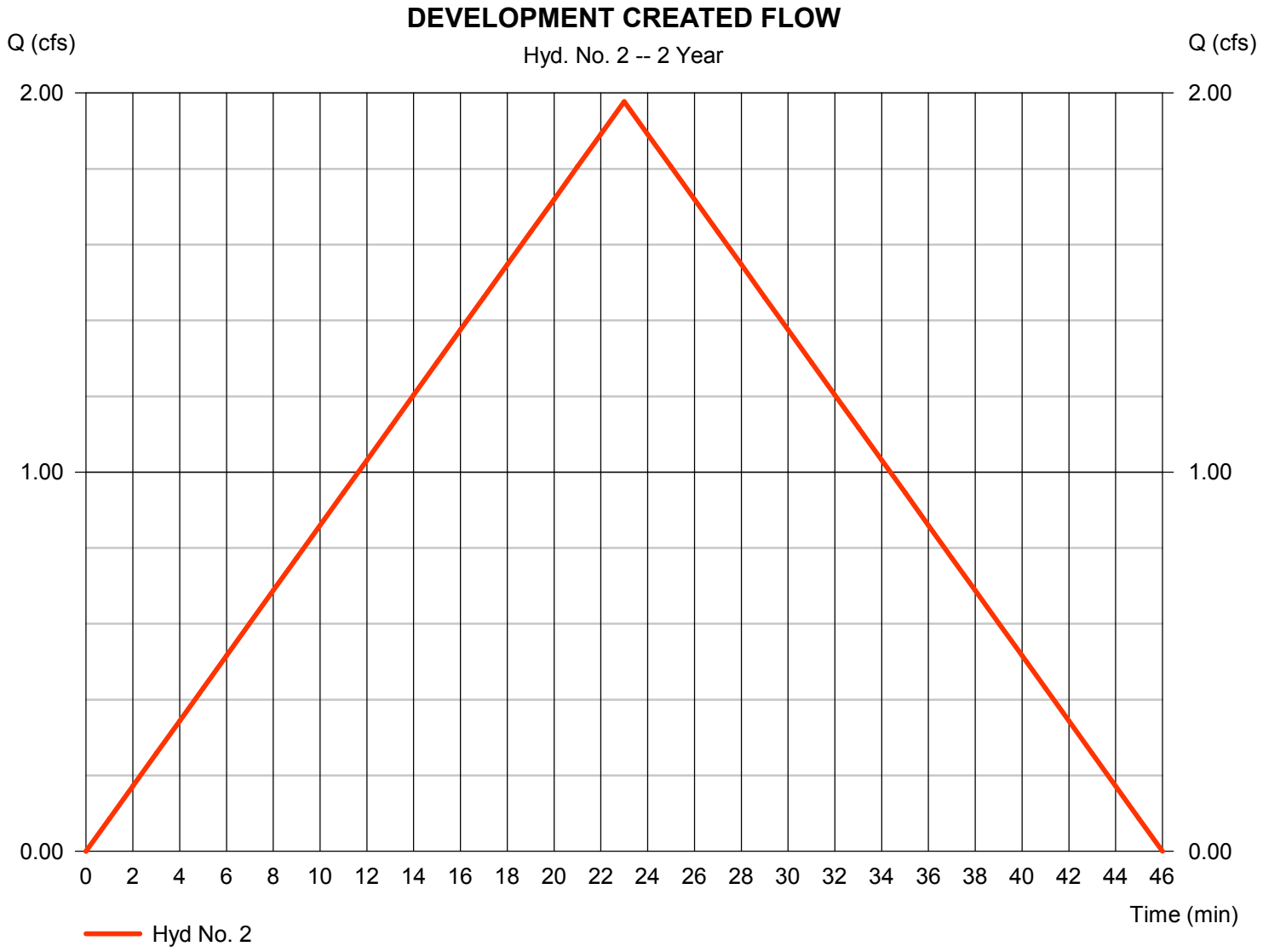


Hydrograph Report

Hyd. No. 2

DEVELOPMENT CREATED FLOW

Hydrograph type	=	Rational	Peak discharge	=	1.977 cfs
Storm frequency	=	2 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	2,729 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.69
Intensity	=	3.115 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1



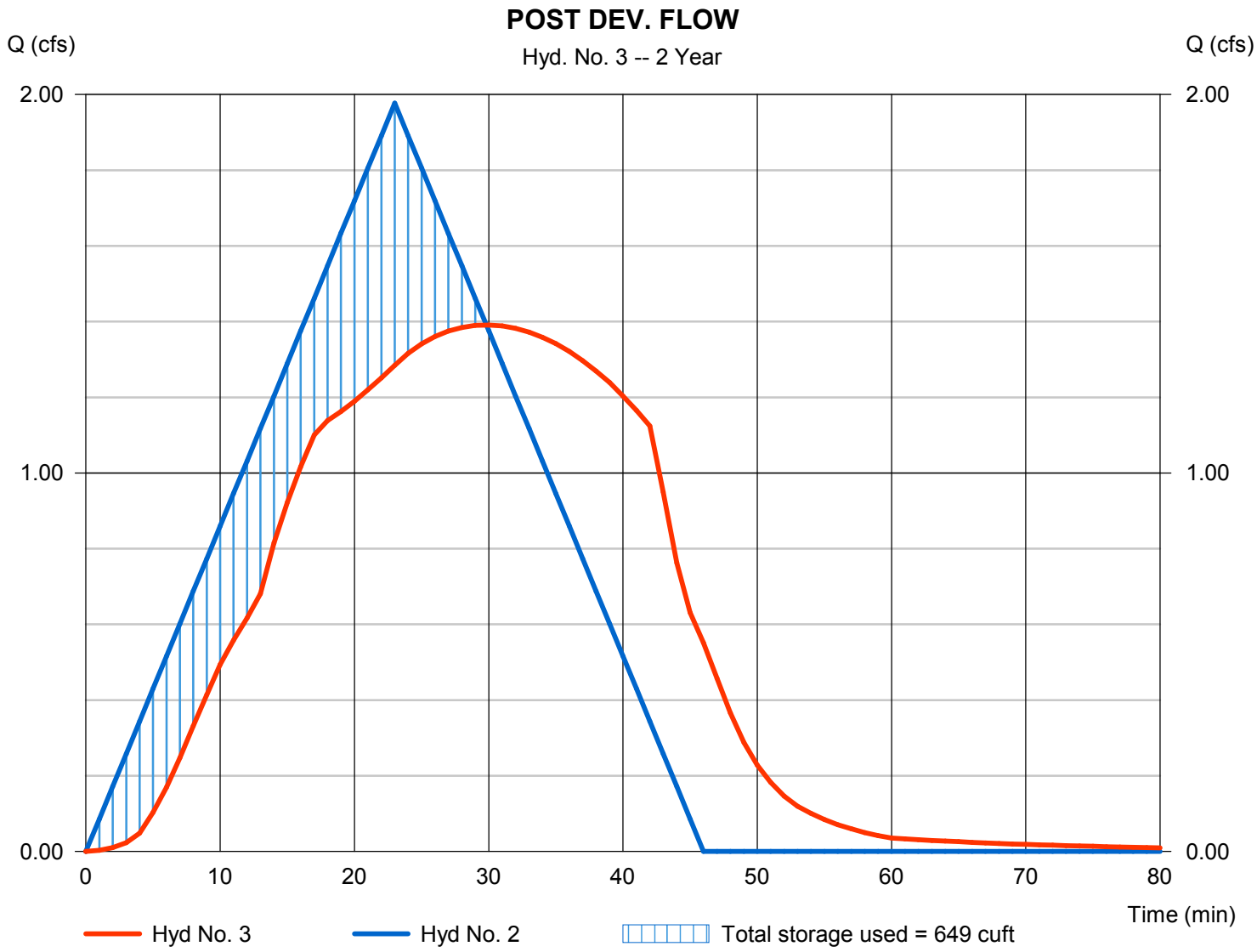
Hydrograph Report

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir	Peak discharge	=	1.391 cfs
Storm frequency	=	2 yrs	Time to peak	=	30 min
Time interval	=	1 min	Hyd. volume	=	2,728 cuft
Inflow hyd. No.	=	2 - DEVELOPMENT CREATED FLOW	Max. Elevation	=	402.25 ft
Reservoir name	=	DETENTION	Max. Storage	=	649 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - DETENTION

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 401.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	401.00	80	0	0
1.00	402.00	680	331	331
2.00	403.00	1,994	1,279	1,610
3.00	404.00	3,353	2,644	4,254

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 8.00	Inactive	Inactive	0.00
Span (in)	= 8.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 401.00	0.00	0.00	0.00
Length (ft)	= 26.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

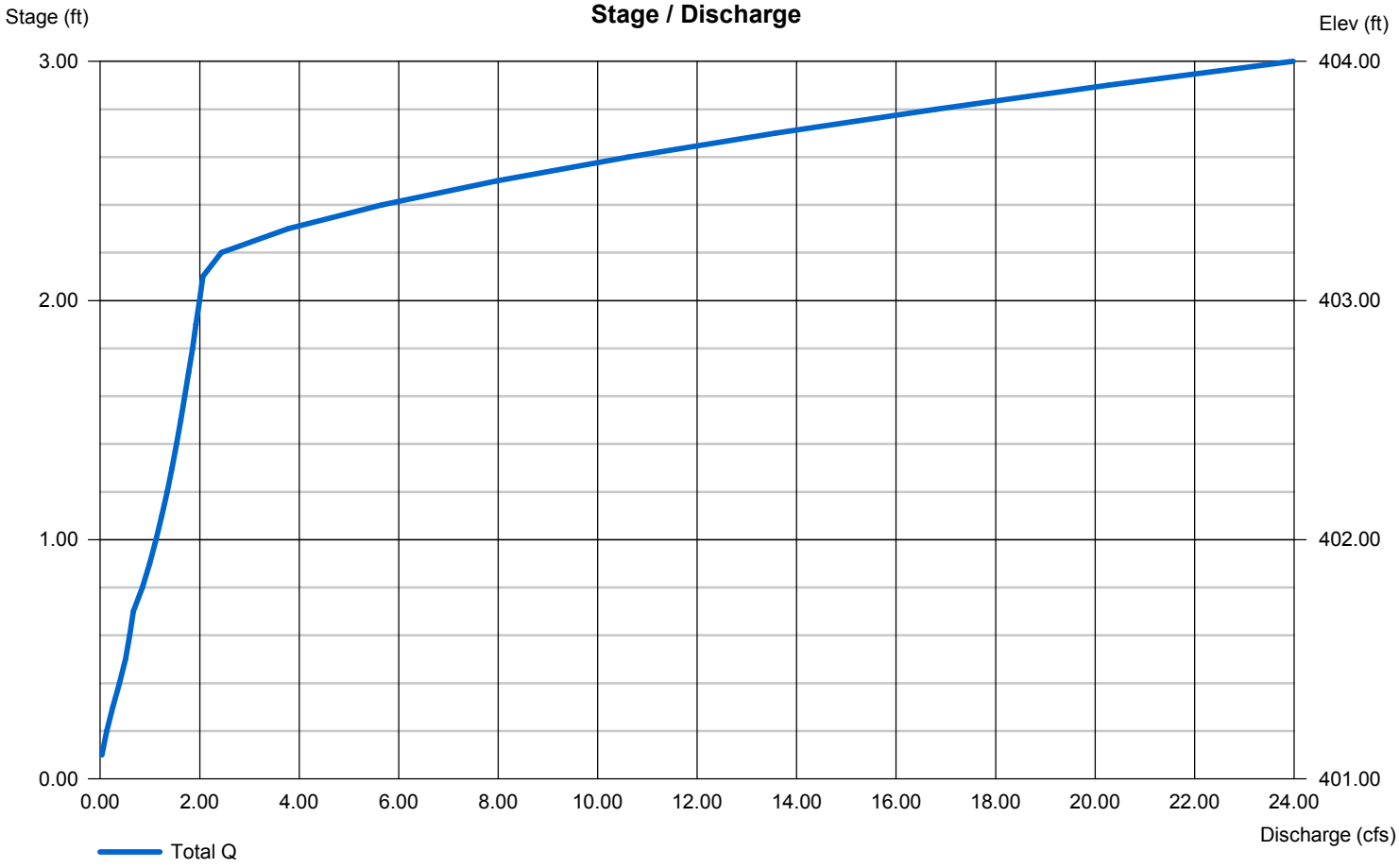
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 10.50	0.00	0.00	0.00
Crest El. (ft)	= 403.15	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

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

TW Elev. (ft) = 0.00

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



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

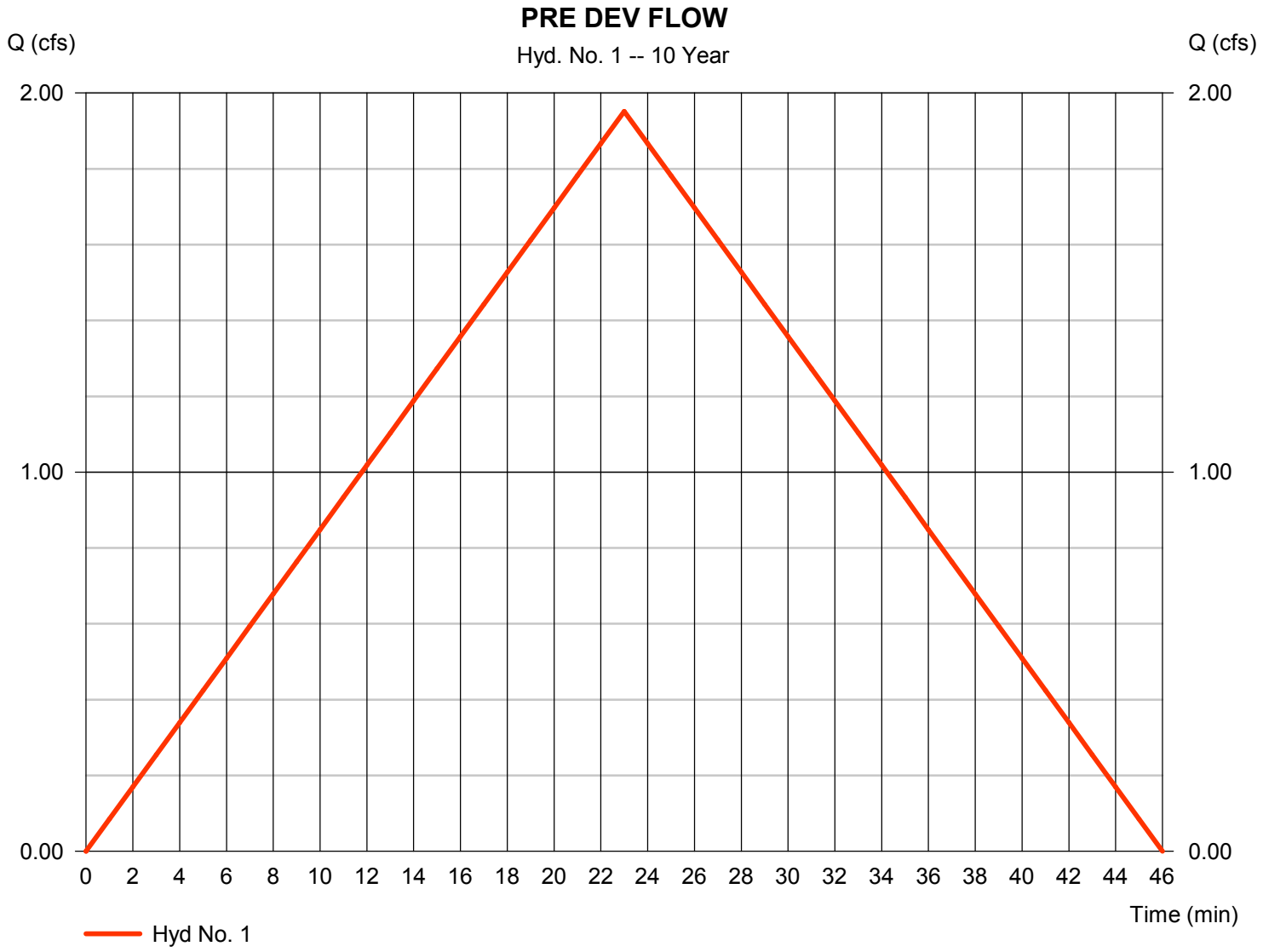
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	1.952	1	23	2,693	------	------	------	PRE DEV FLOW
2	Rational	2.748	1	23	3,793	------	------	------	DEVELOPMENT CREATED FLOW
3	Reservoir	1.719	1	32	3,792	2	402.62	1,127	POST DEV. FLOW

Hydrograph Report

Hyd. No. 1

PRE DEV FLOW

Hydrograph type	=	Rational	Peak discharge	=	1.952 cfs
Storm frequency	=	10 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	2,693 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.49
Intensity	=	4.330 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1

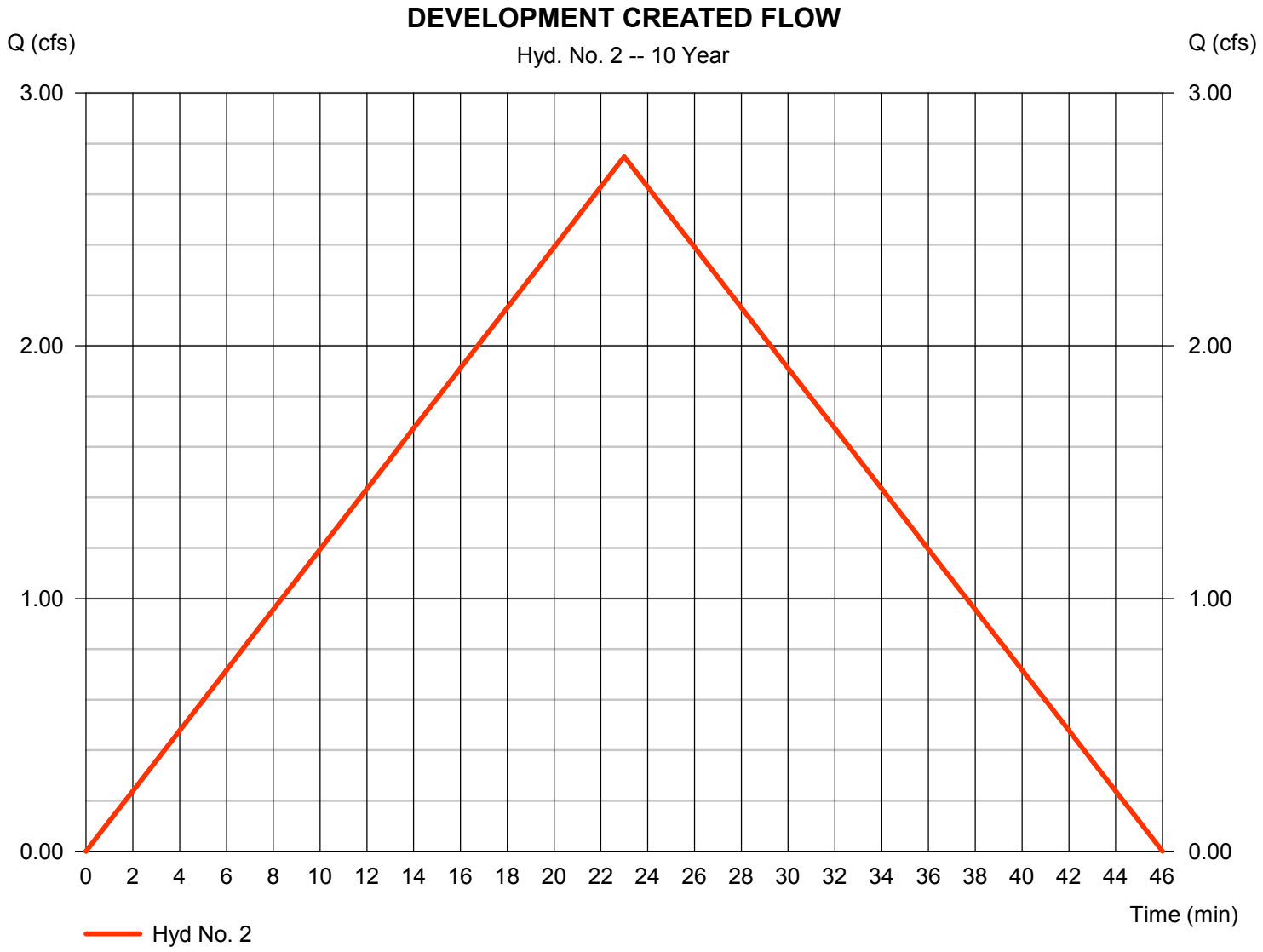


Hydrograph Report

Hyd. No. 2

DEVELOPMENT CREATED FLOW

Hydrograph type	=	Rational	Peak discharge	=	2.748 cfs
Storm frequency	=	10 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	3,793 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.69
Intensity	=	4.330 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1



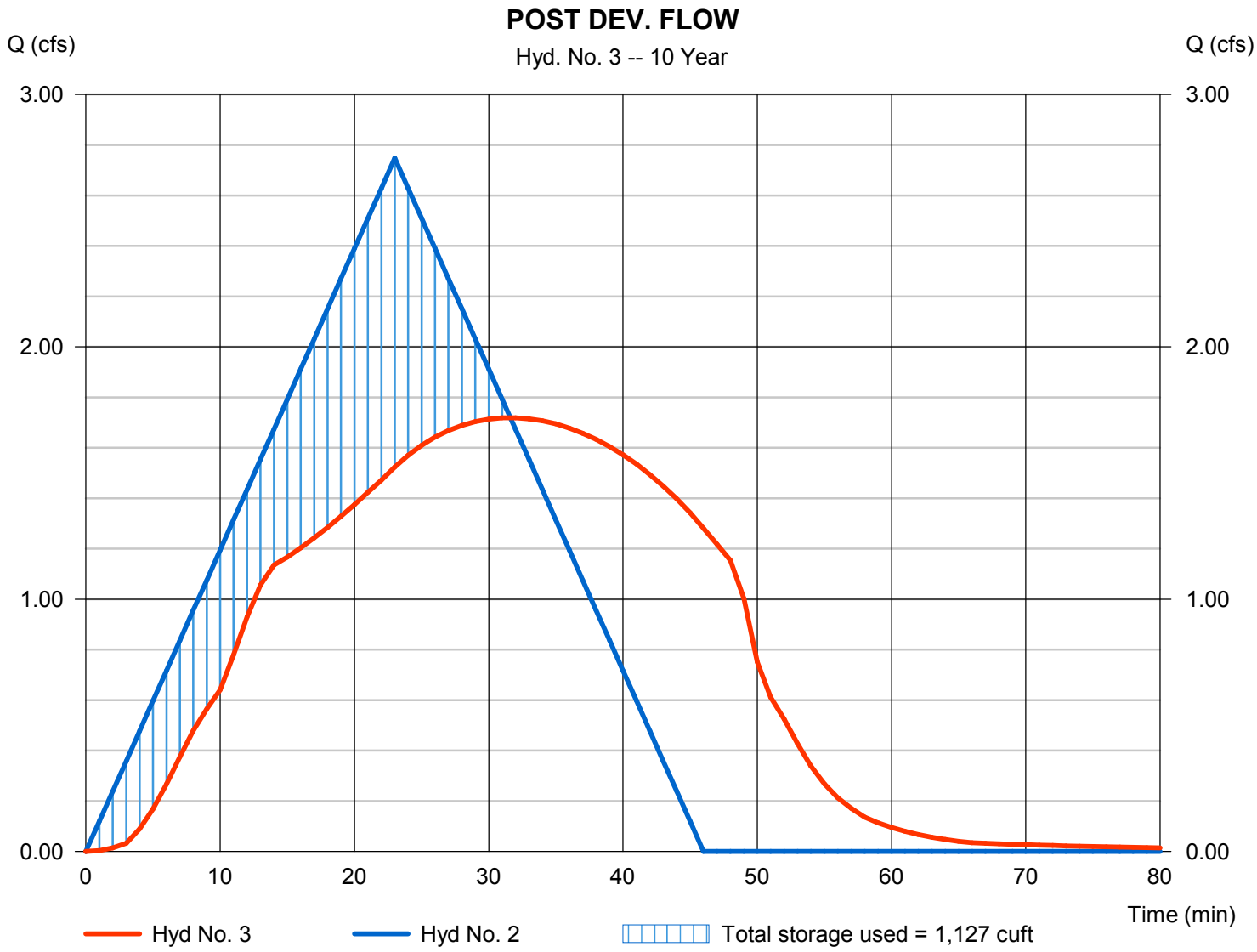
Hydrograph Report

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir	Peak discharge	=	1.719 cfs
Storm frequency	=	10 yrs	Time to peak	=	32 min
Time interval	=	1 min	Hyd. volume	=	3,792 cuft
Inflow hyd. No.	=	2 - DEVELOPMENT CREATED FLOW	Max. Elevation	=	402.62 ft
Reservoir name	=	DETENTION	Max. Storage	=	1,127 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

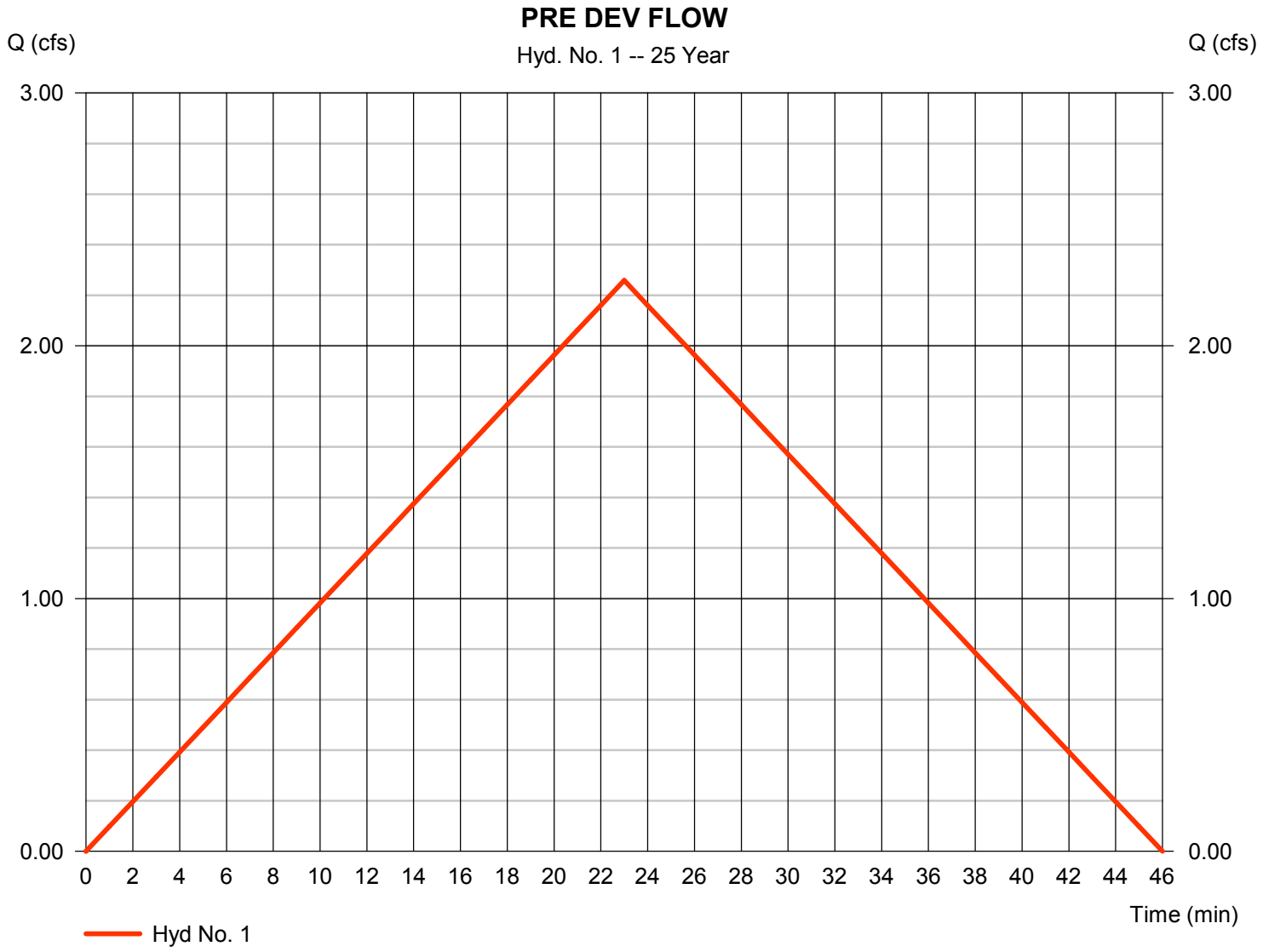
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	2.258	1	23	3,116	------	------	------	PRE DEV FLOW
2	Rational	3.180	1	23	4,389	------	------	------	DEVELOPMENT CREATED FLOW
3	Reservoir	1.894	1	32	4,388	2	402.85	1,424	POST DEV. FLOW

Hydrograph Report

Hyd. No. 1

PRE DEV FLOW

Hydrograph type	=	Rational	Peak discharge	=	2.258 cfs
Storm frequency	=	25 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	3,116 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.49
Intensity	=	5.010 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1

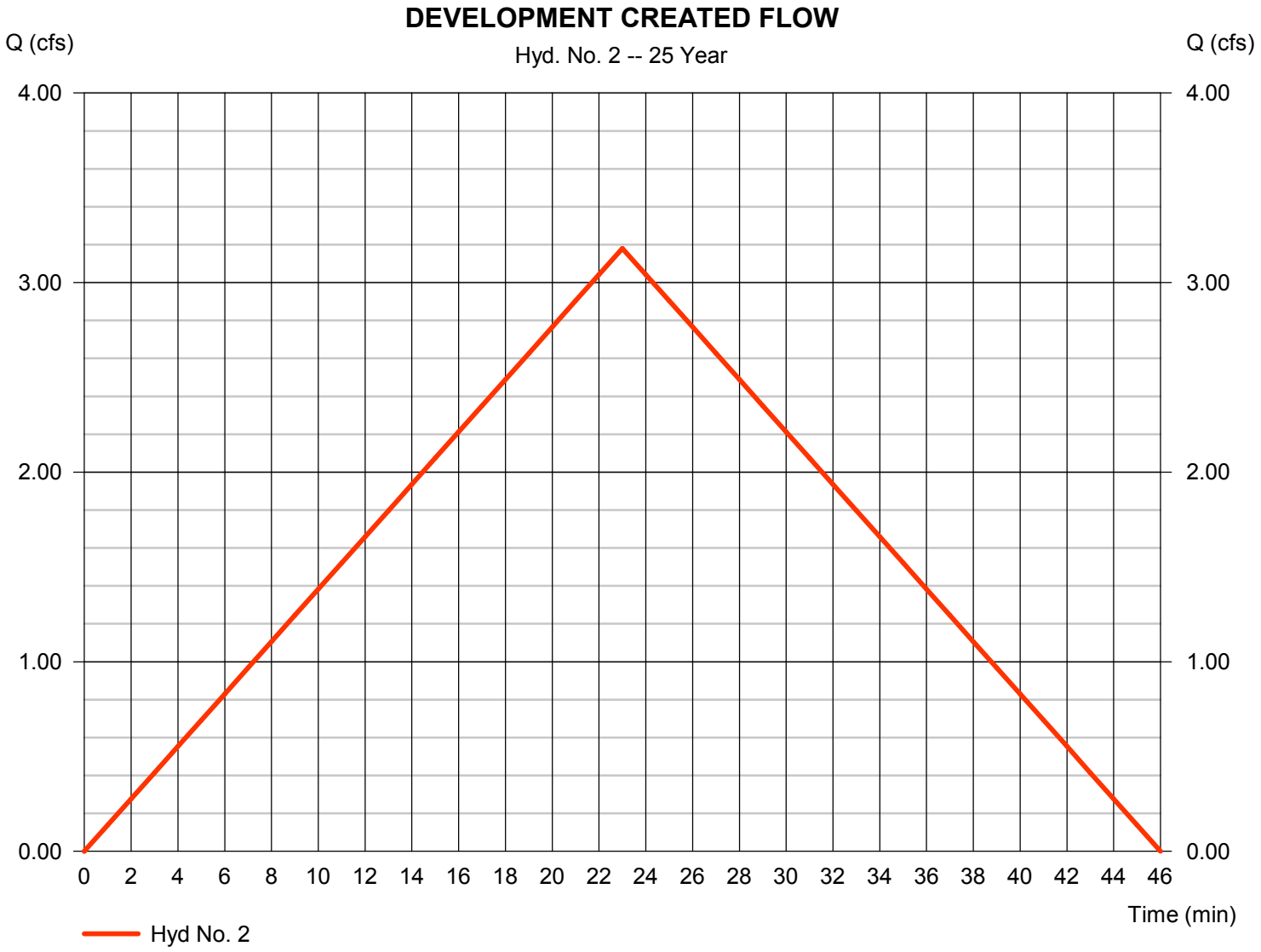


Hydrograph Report

Hyd. No. 2

DEVELOPMENT CREATED FLOW

Hydrograph type	=	Rational	Peak discharge	=	3.180 cfs
Storm frequency	=	25 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	4,389 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.69
Intensity	=	5.010 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1



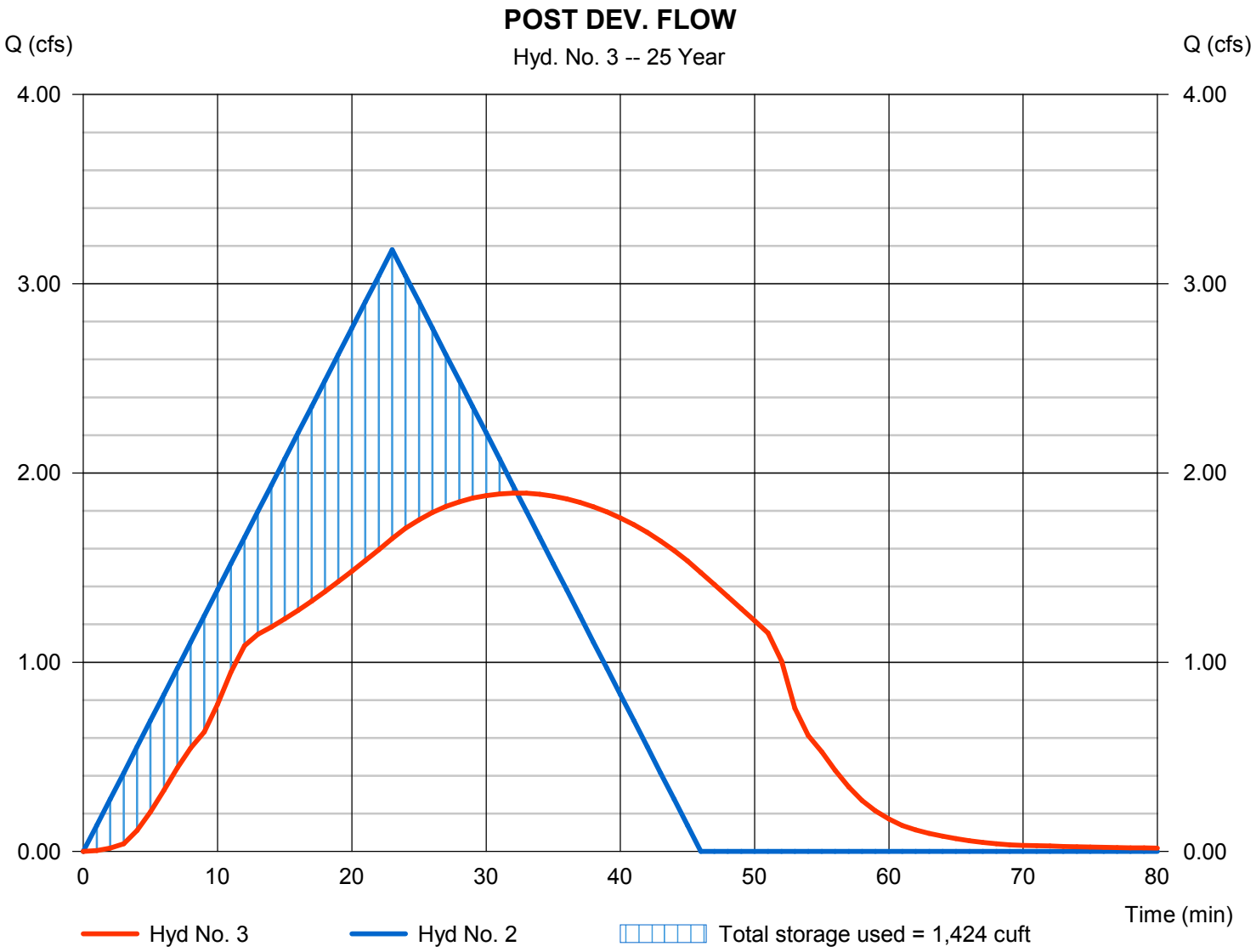
Hydrograph Report

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir	Peak discharge	=	1.894 cfs
Storm frequency	=	25 yrs	Time to peak	=	32 min
Time interval	=	1 min	Hyd. volume	=	4,388 cuft
Inflow hyd. No.	=	2 - DEVELOPMENT CREATED FLOW	Max. Elevation	=	402.85 ft
Reservoir name	=	DETENTION	Max. Storage	=	1,424 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

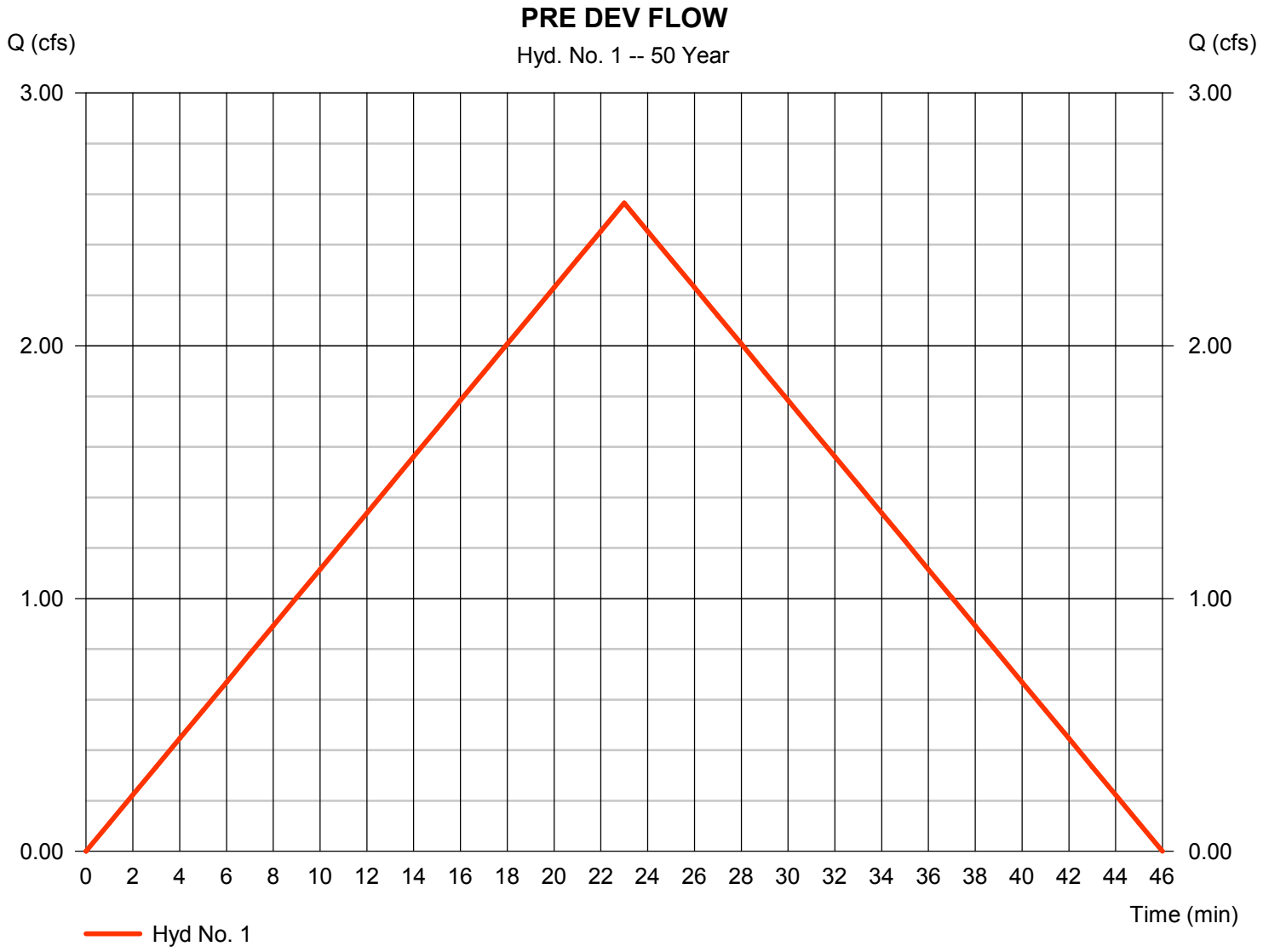
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	2.565	1	23	3,539	------	------	------	PRE DEV FLOW
2	Rational	3.612	1	23	4,984	------	------	------	DEVELOPMENT CREATED FLOW
3	Reservoir	2.030	1	33	4,983	2	403.05	1,743	POST DEV. FLOW

Hydrograph Report

Hyd. No. 1

PRE DEV FLOW

Hydrograph type	=	Rational	Peak discharge	=	2.565 cfs
Storm frequency	=	50 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	3,539 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.49
Intensity	=	5.690 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1

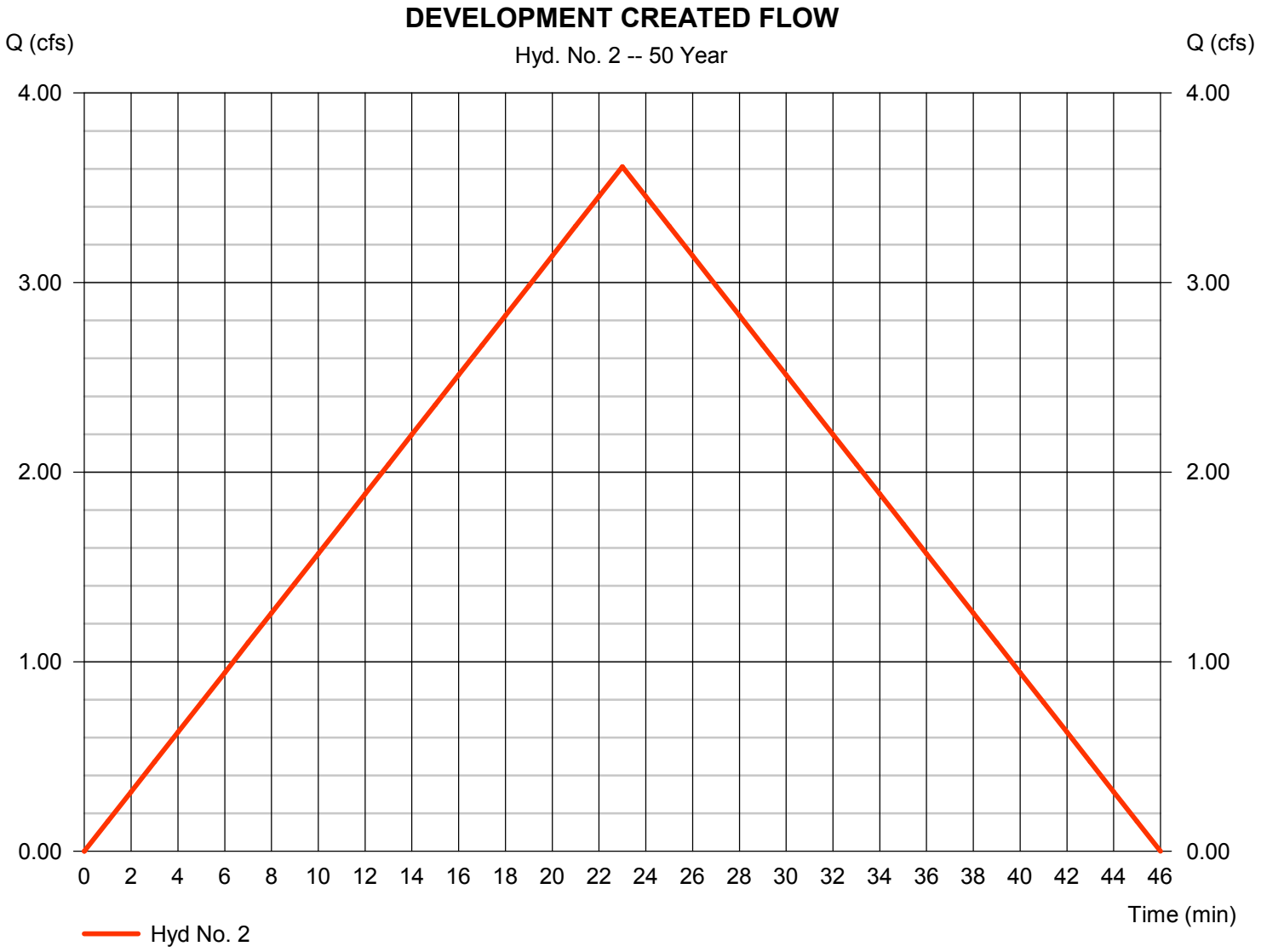


Hydrograph Report

Hyd. No. 2

DEVELOPMENT CREATED FLOW

Hydrograph type	=	Rational	Peak discharge	=	3.612 cfs
Storm frequency	=	50 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	4,984 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.69
Intensity	=	5.690 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1



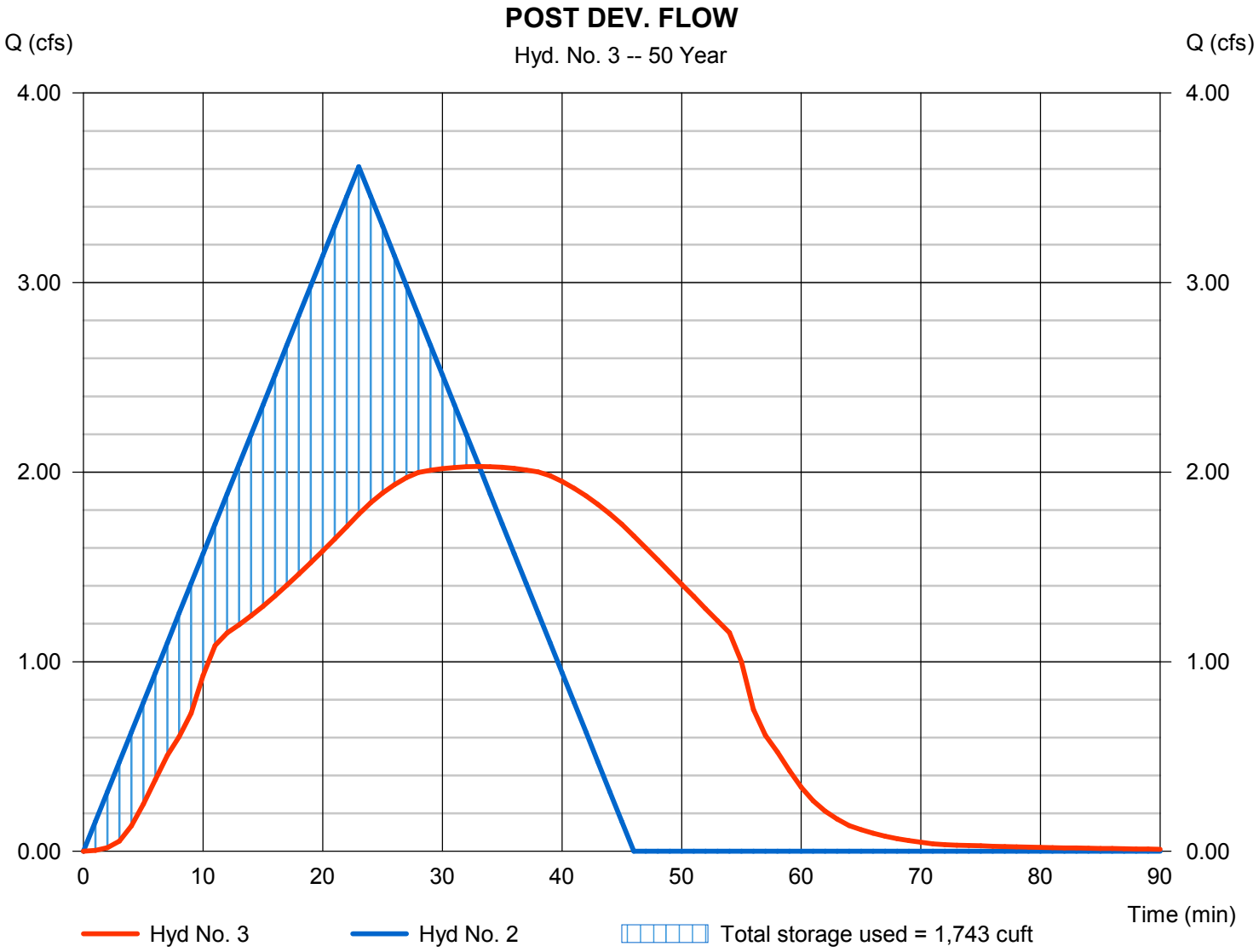
Hydrograph Report

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir	Peak discharge	=	2.030 cfs
Storm frequency	=	50 yrs	Time to peak	=	33 min
Time interval	=	1 min	Hyd. volume	=	4,983 cuft
Inflow hyd. No.	=	2 - DEVELOPMENT CREATED FLOW	Max. Elevation	=	403.05 ft
Reservoir name	=	DETENTION	Max. Storage	=	1,743 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

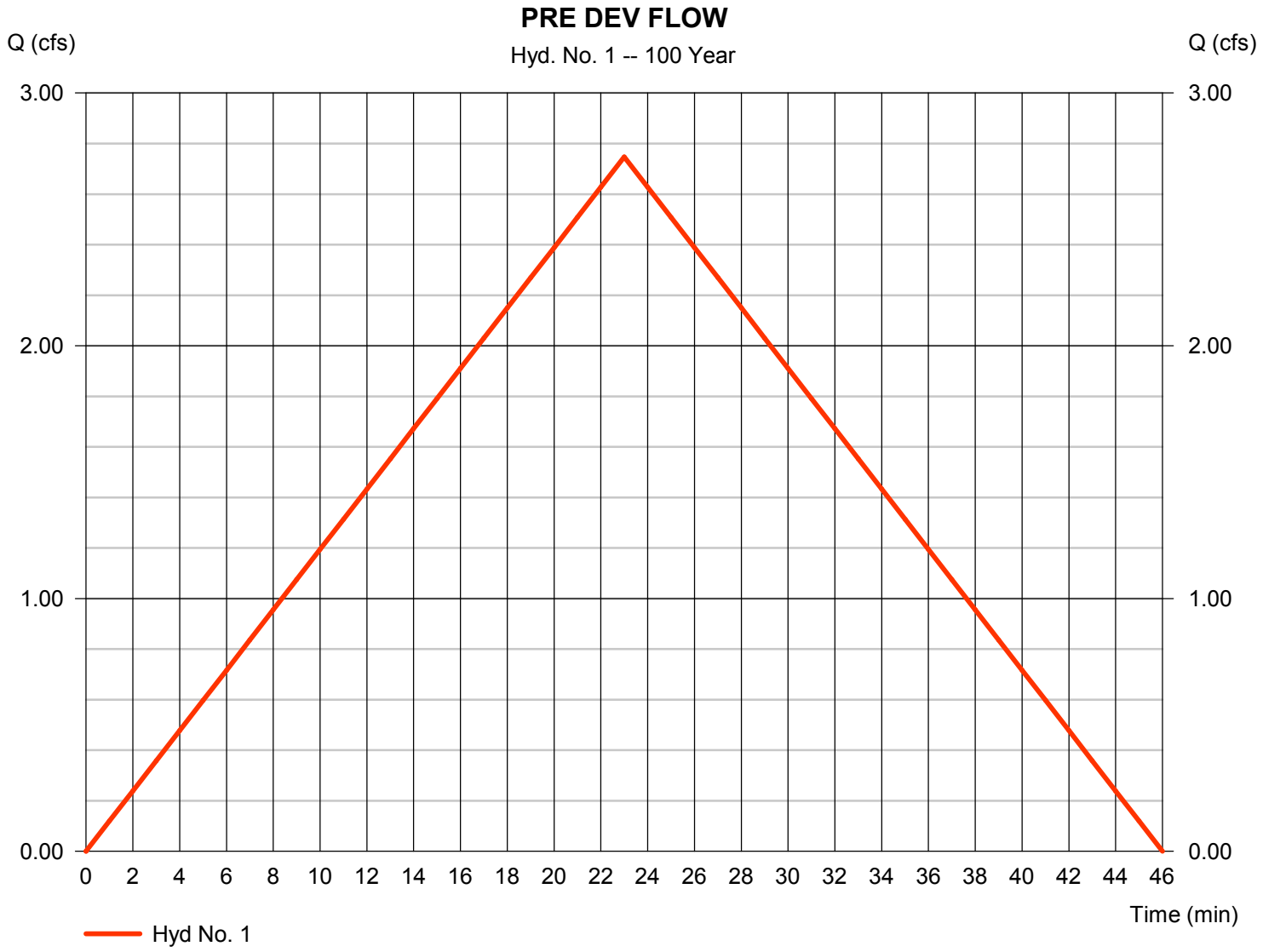
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	2.747	1	23	3,791	------	------	------	PRE DEV FLOW
2	Rational	3.868	1	23	5,338	------	------	------	DEVELOPMENT CREATED FLOW
3	Reservoir	2.156	1	33	5,337	2	403.13	1,941	POST DEV. FLOW

Hydrograph Report

Hyd. No. 1

PRE DEV FLOW

Hydrograph type	=	Rational	Peak discharge	=	2.747 cfs
Storm frequency	=	100 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	3,791 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.49
Intensity	=	6.093 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1

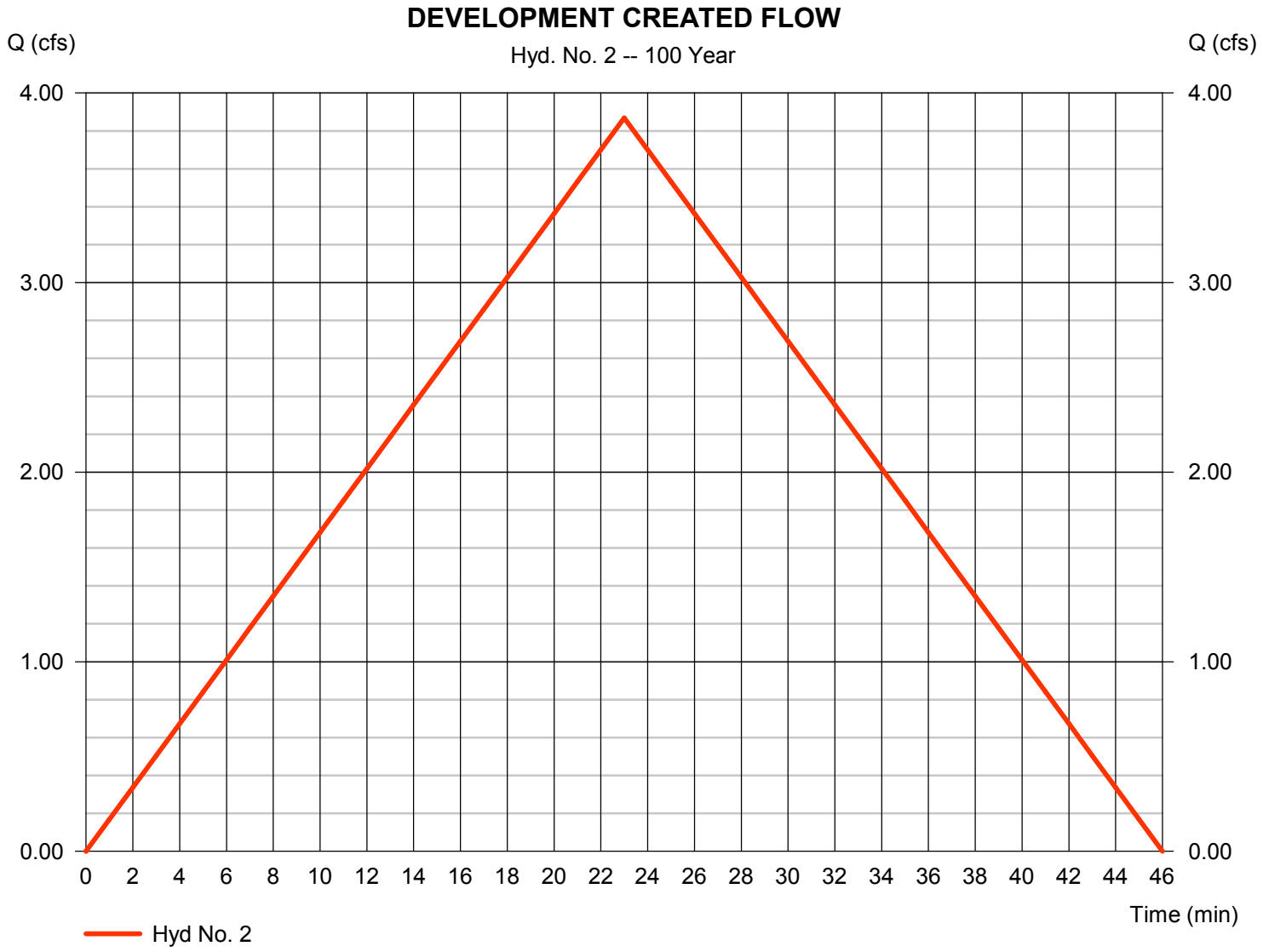


Hydrograph Report

Hyd. No. 2

DEVELOPMENT CREATED FLOW

Hydrograph type	=	Rational	Peak discharge	=	3.868 cfs
Storm frequency	=	100 yrs	Time to peak	=	23 min
Time interval	=	1 min	Hyd. volume	=	5,338 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.69
Intensity	=	6.093 in/hr	Tc by User	=	23.00 min
IDF Curve	=	Bryant 50.IDF	Asc/Rec limb fact	=	1/1



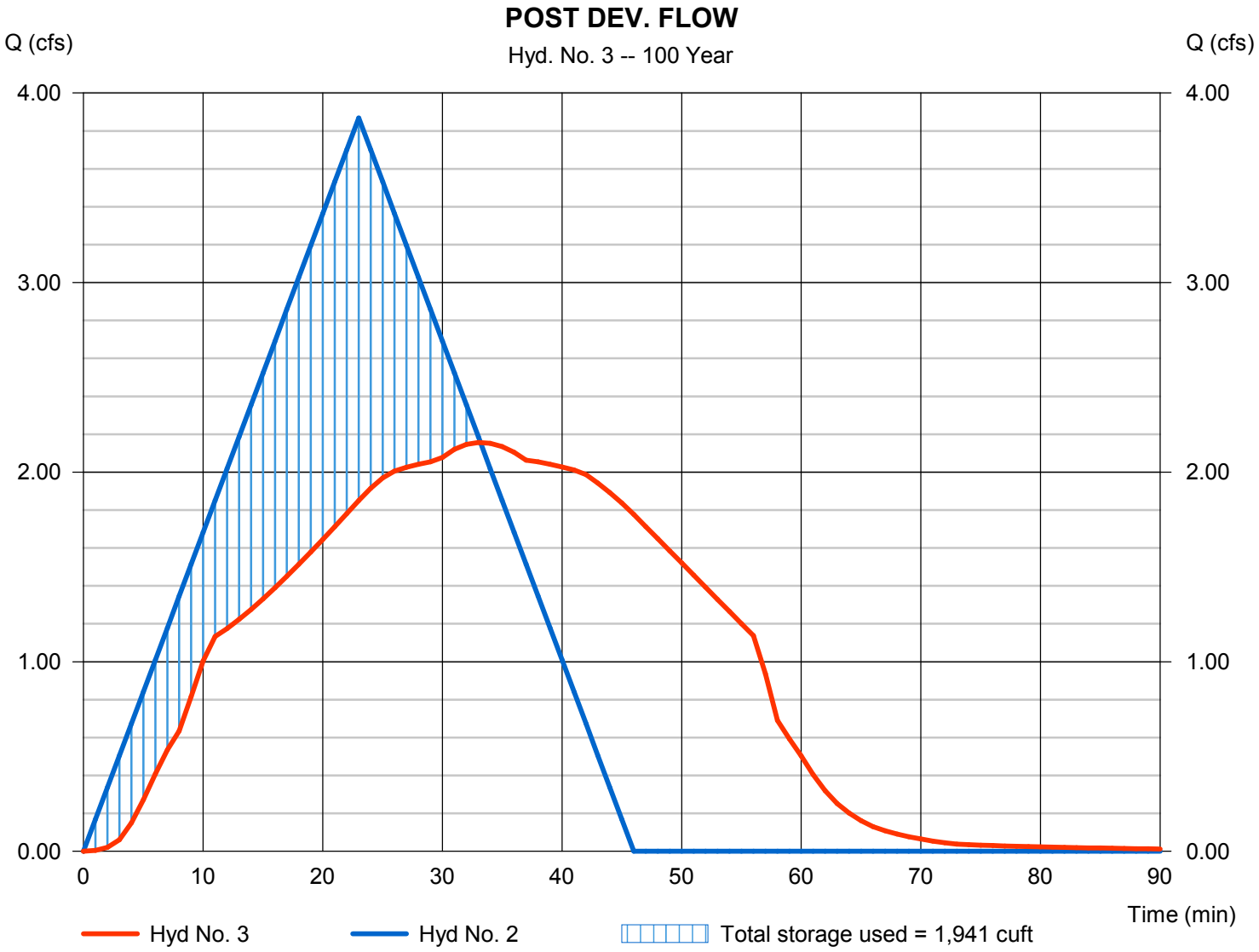
Hydrograph Report

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir	Peak discharge	=	2.156 cfs
Storm frequency	=	100 yrs	Time to peak	=	33 min
Time interval	=	1 min	Hyd. volume	=	5,337 cuft
Inflow hyd. No.	=	2 - DEVELOPMENT CREATED FLOW	Max. Elevation	=	403.13 ft
Reservoir name	=	DETENTION	Max. Storage	=	1,941 cuft

Storage Indication method used.



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	32.2253	7.2000	0.6856	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	46.3641	10.0000	0.6781	--------
25	61.8249	11.8000	0.7079	--------
50	79.0516	13.3000	0.7326	--------
100	54.7483	10.0000	0.6279	--------

File name: Bryant 50.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	5.80	4.58	3.85	3.35	2.98	2.70	2.48	2.29	2.14	2.01	1.90	1.80
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	7.39	6.08	5.23	4.62	4.16	3.80	3.51	3.27	3.06	2.89	2.73	2.60
25	8.39	6.98	6.03	5.34	4.82	4.40	4.06	3.78	3.54	3.34	3.16	3.00
50	9.40	7.87	6.83	6.06	5.47	5.00	4.62	4.29	4.02	3.79	3.58	3.40
100	10.00	8.34	7.25	6.47	5.87	5.40	5.02	4.69	4.42	4.19	3.98	3.80

Tc = time in minutes. Values may exceed 60.

Precip. file name: C:\Documents and Settings\Will\Desktop\Fleming\fleming.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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Multi-Hydrograph Plot

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 1

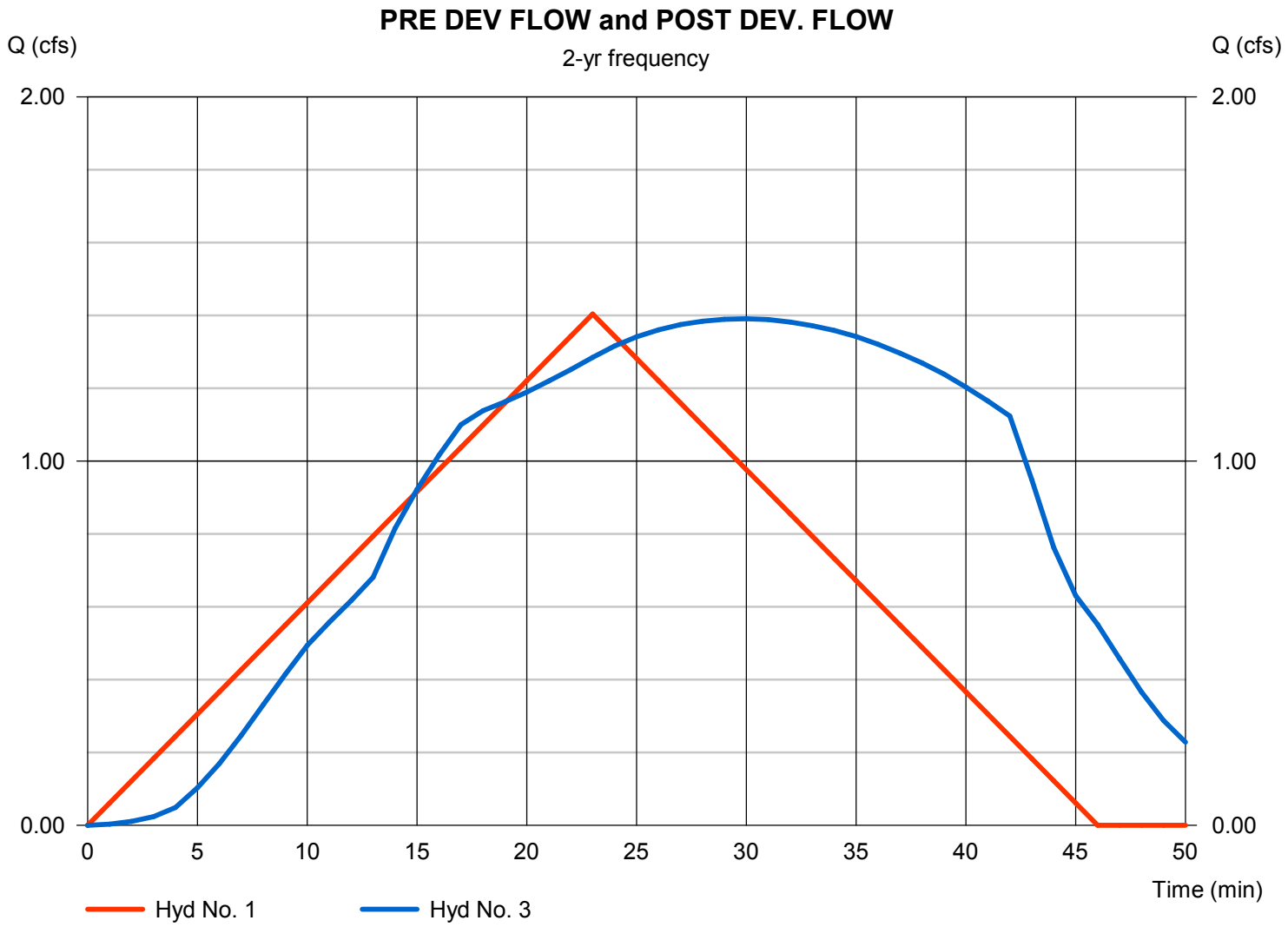
PRE DEV FLOW

Hydrograph type	=	Rational
Peak discharge	=	1.404 cfs
Time to peak	=	23 min
Hyd. Volume	=	1,938 cuft

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir
Peak discharge	=	1.39 cfs
Time to peak	=	30 min
Hyd. Volume	=	2,728 cuft



Multi-Hydrograph Plot

Hyd. No. 1

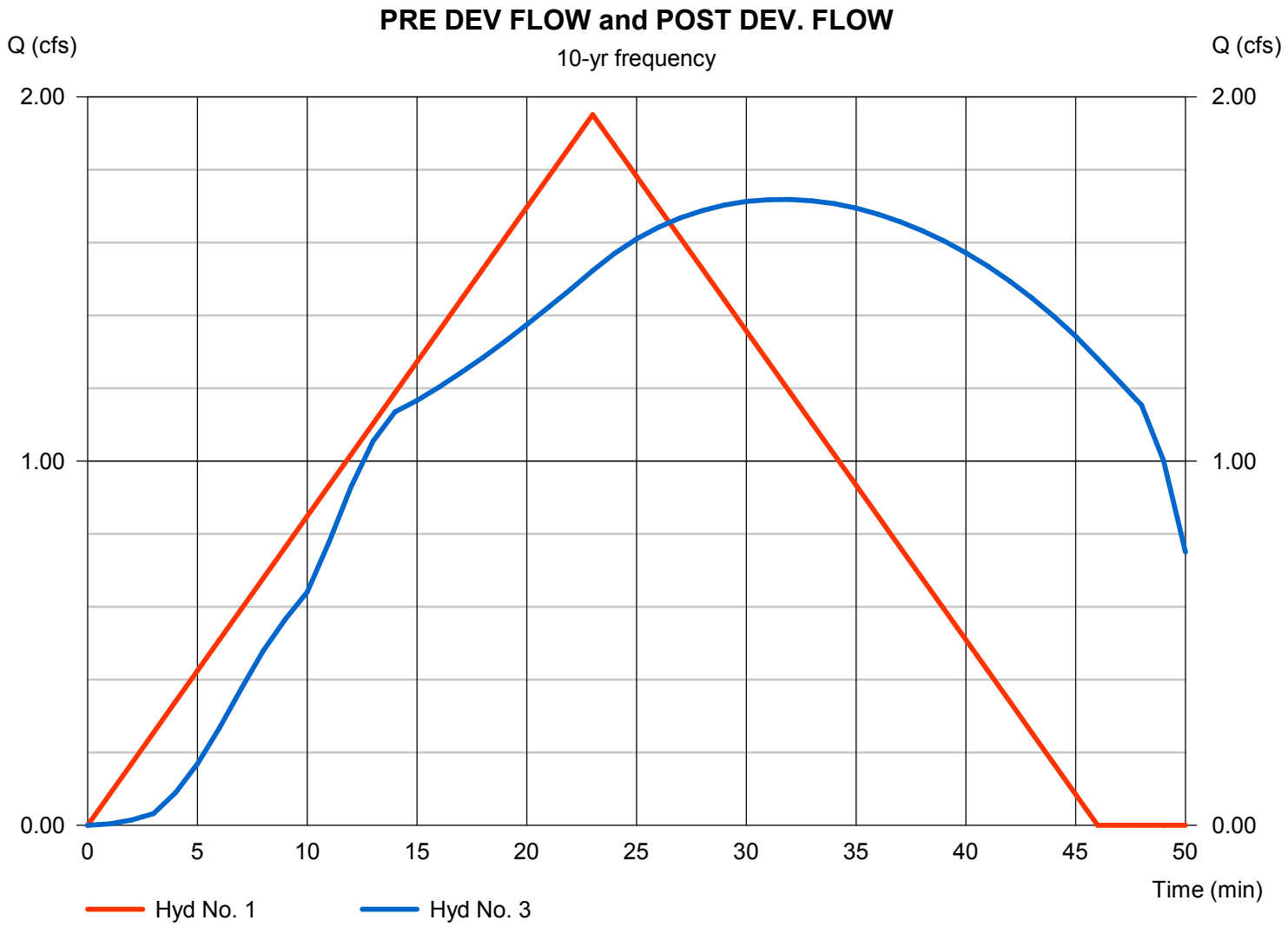
PRE DEV FLOW

Hydrograph type	=	Rational
Peak discharge	=	1.952 cfs
Time to peak	=	23 min
Hyd. Volume	=	2,693 cuft

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir
Peak discharge	=	1.72 cfs
Time to peak	=	32 min
Hyd. Volume	=	3,792 cuft



Multi-Hydrograph Plot

Hyd. No. 1

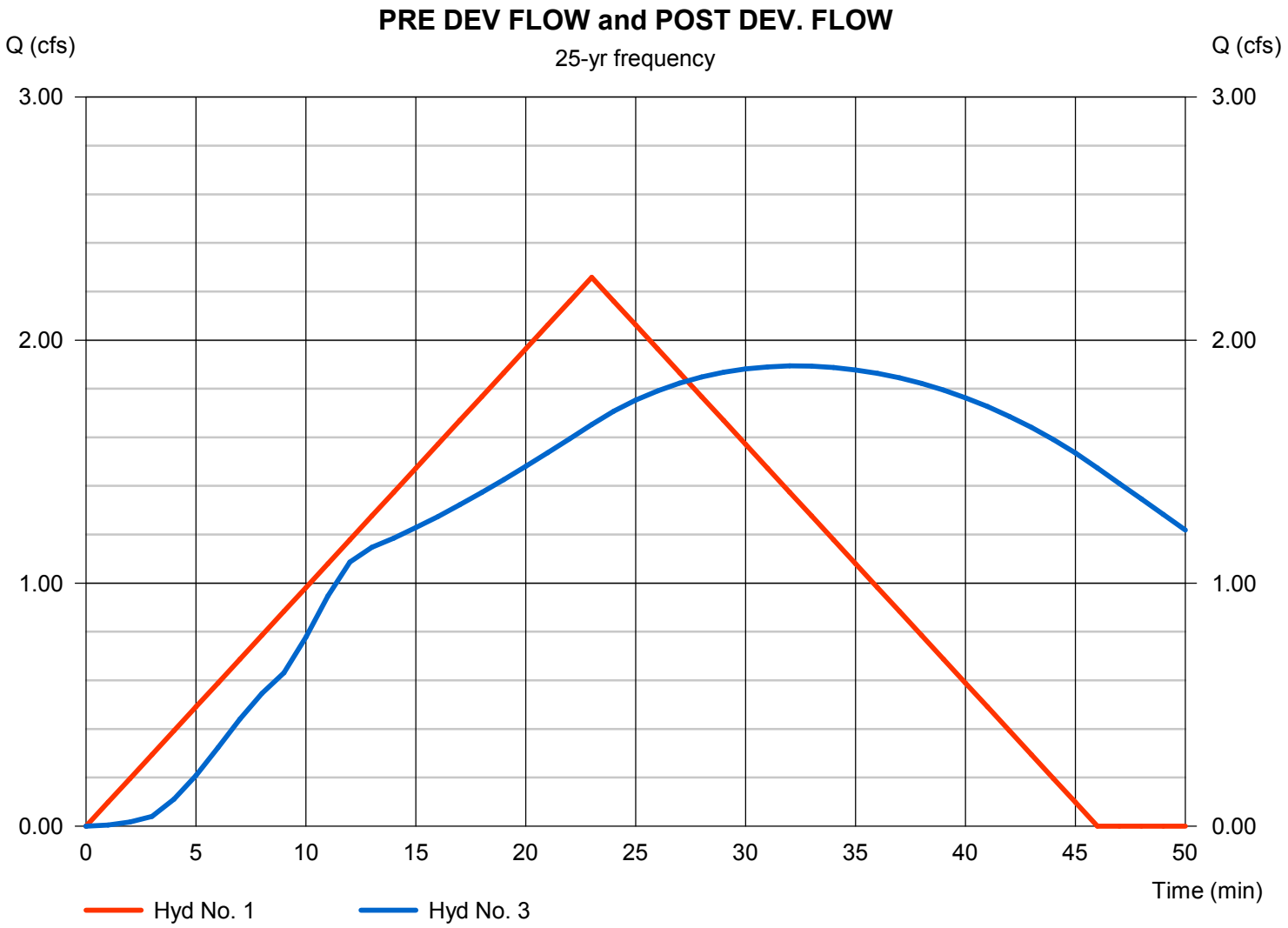
PRE DEV FLOW

Hydrograph type	=	Rational
Peak discharge	=	2.258 cfs
Time to peak	=	23 min
Hyd. Volume	=	3,116 cuft

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir
Peak discharge	=	1.89 cfs
Time to peak	=	32 min
Hyd. Volume	=	4,388 cuft



Multi-Hydrograph Plot

Hyd. No. 1

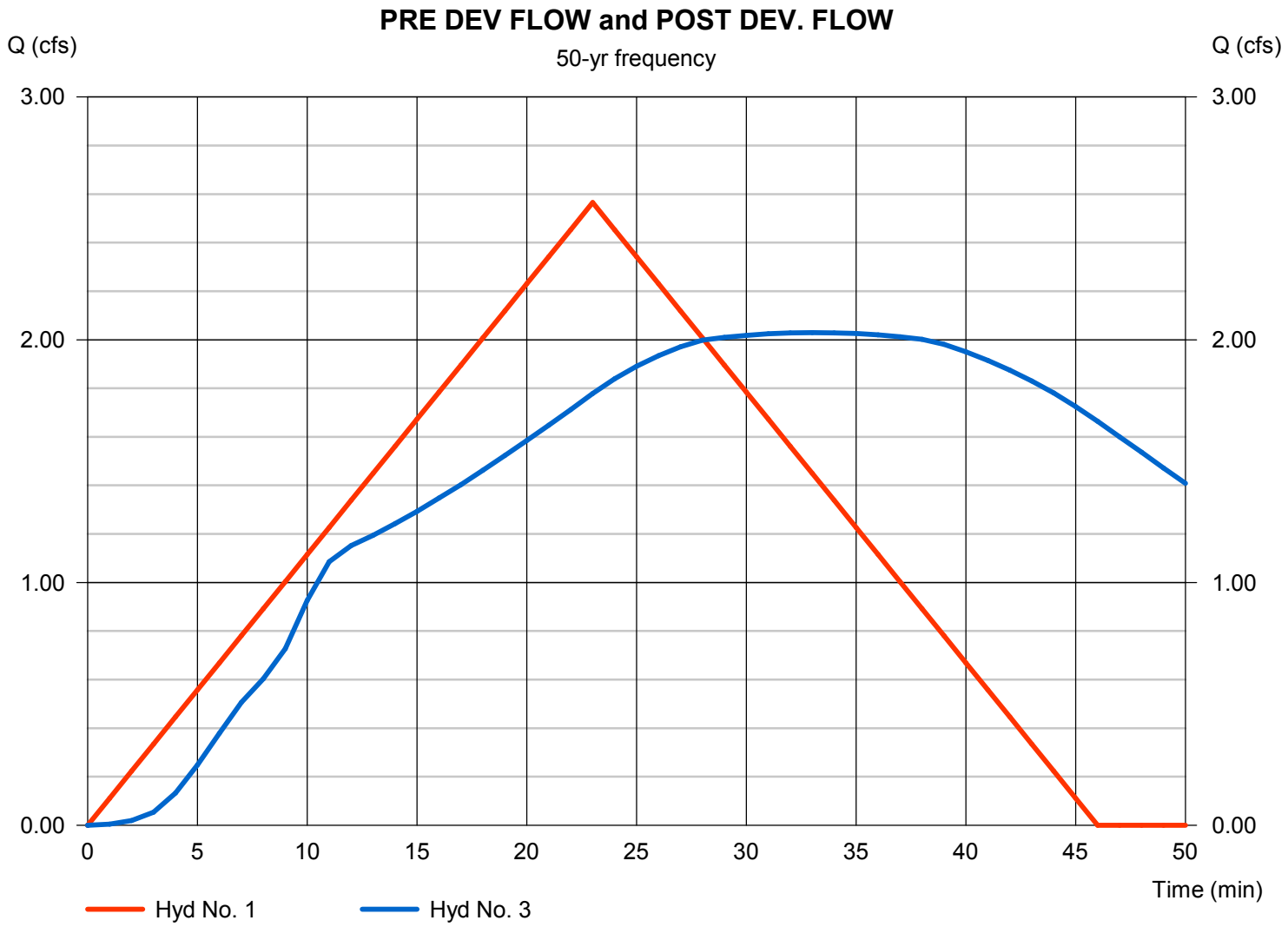
PRE DEV FLOW

Hydrograph type	=	Rational
Peak discharge	=	2.565 cfs
Time to peak	=	23 min
Hyd. Volume	=	3,539 cuft

Hyd. No. 3

POST DEV. FLOW

Hydrograph type	=	Reservoir
Peak discharge	=	2.03 cfs
Time to peak	=	33 min
Hyd. Volume	=	4,983 cuft



Multi-Hydrograph Plot

Hyd. No. 1

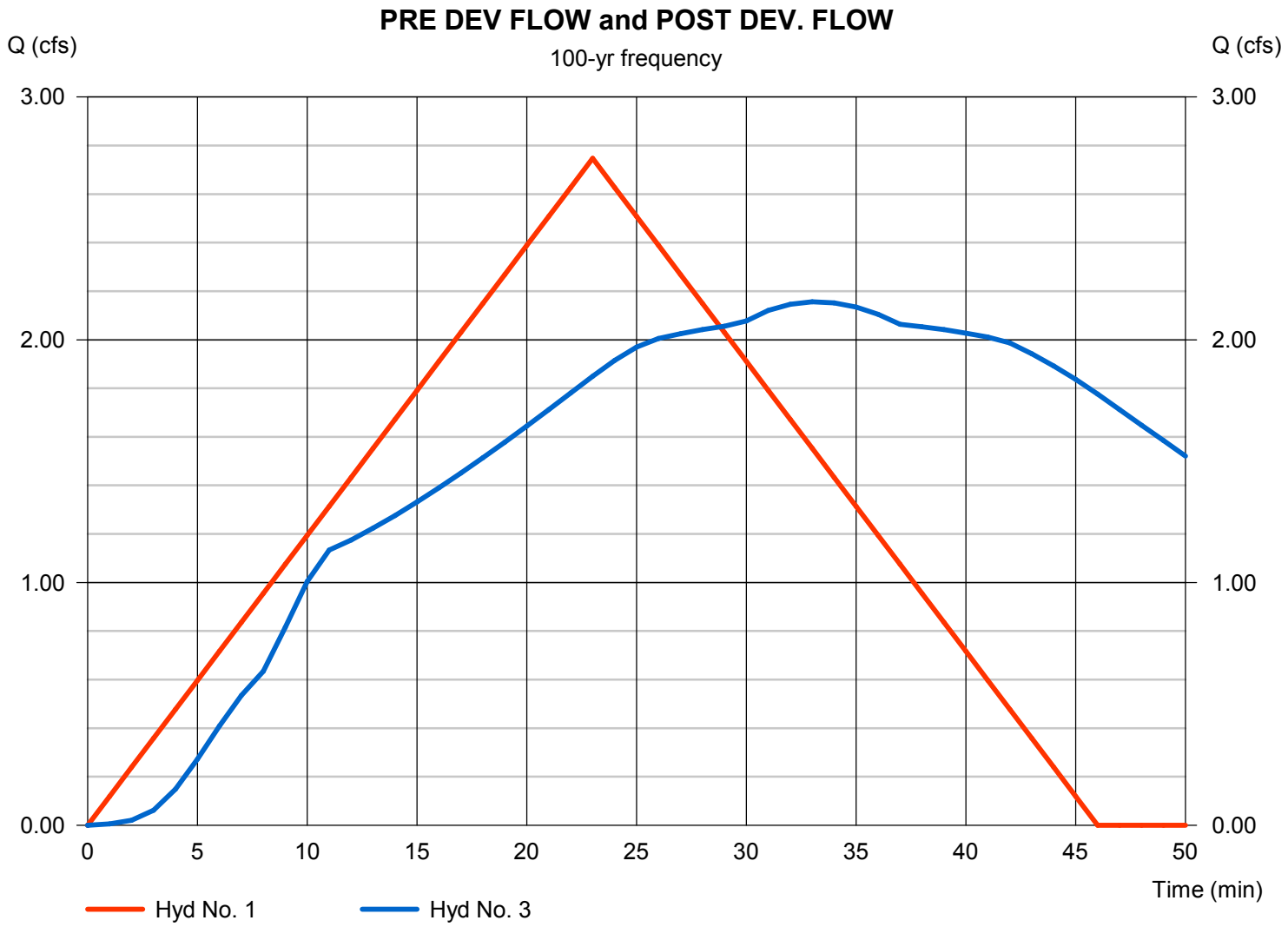
PRE DEV FLOW

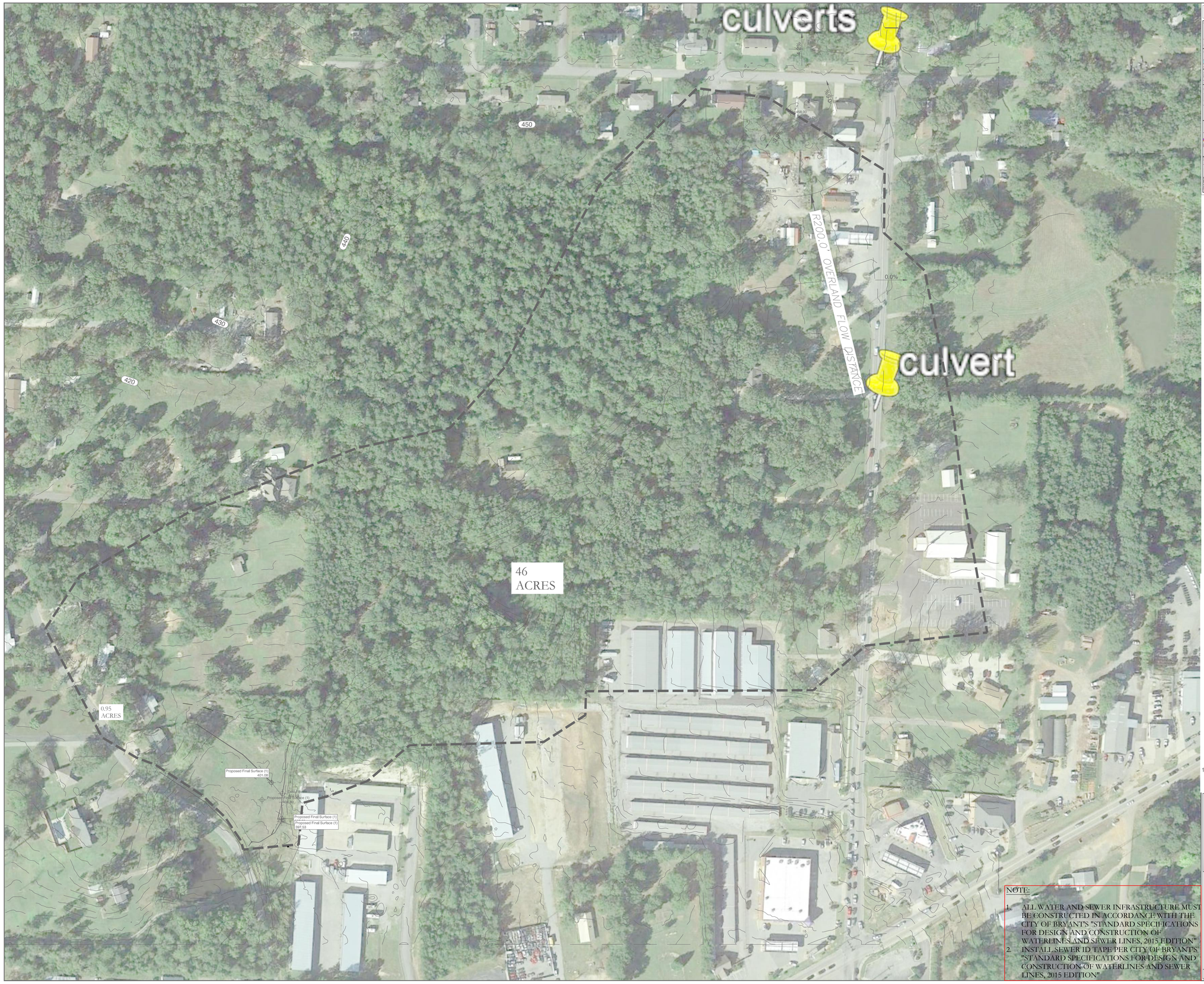
Hydrograph type	=	Rational
Peak discharge	=	2.747 cfs
Time to peak	=	23 min
Hyd. Volume	=	3,791 cuft

Hyd. No. 3

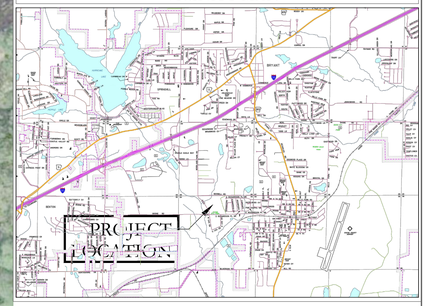
POST DEV. FLOW

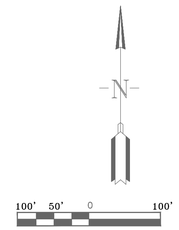
Hydrograph type	=	Reservoir
Peak discharge	=	2.16 cfs
Time to peak	=	33 min
Hyd. Volume	=	5,337 cuft





VICINITY MAP:





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

time of concentration, tc (min)	REGION 3 IDF		
Pre			
Channel Dimensions and Time of Concentration, tc			
Area (ft2)	1998592.29		
Area (Acre)	46		
Length, L (ft)	2217.0		
Change in Elevation (ft)	60.27		
Slope, S (ft/ft)	0.027		
N (asphalt,grass,etc)	0.400	h (ft)	S
L(overland, ft)	200	4	0.020
L(channel 1, ft)	2017	56.27	0.028
L(channel 2, ft)	0.0	0	0.000
t_c	45.4	v	
t_{c1}	5.6	6.007023	
t_{c2}	0.0	0	
time of concentration, tc (min)	51.0	*use 50 min*	

Design Peak Runoff Rates, Qp (cfs)			
	Intensity, I (in/hr)	Runoff Coeff	Flow (cfs)
	I	C	Q
100year	4.19	0.53	101.89
	Qp,max (max flow) cfs		102
	Qp,min (min flow)		102

NOTE:

1. ALL WATER AND SEWER INFRASTRUCTURE MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF BRYANT'S "STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF WATERLINES AND SEWER LINES, 2015 EDITION"
2. INSTALL SEWER ID TAPE PER CITY OF BRYANT'S "STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF WATERLINES AND SEWER LINES, 2015 EDITION"

HOPE CONSULTING
ENGINEERS - SURVEYORS
117 S. Market Street,
Benton, Arkansas 72015
PH. (501)315-2626
FAX (501) 315-0024
www.hopeconsulting.com

FOR USE AND BENEFIT OF:
SKY BLUE, LLC

SEWER EXTENSION PLAN PROFILE

SKY BLUE DUPLEXES

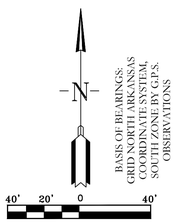
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

DATE:	4-1-19	C.A.D. BY:		DRAWING NUMBER:
REVISED:		CHECKED BY:		17-0532
SHEET:	C-3.0	SCALE:		

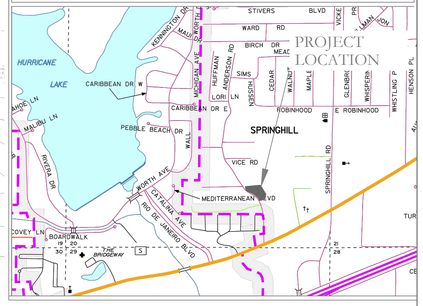
500	01S	14W	0	27	430	62	1807

K:\LAND PROJECTS 2019\SUBDIVISIONS\2019-019 SKY BLUE\SKY BLUE DUPLEXES\DELINEATION & EXTRA LIDAR.DWG





VICINITY MAP:



CONTOUR INTERVAL:

EXISTING: 1' AND 5'
PROPOSED: 1' AND 5'

NOTE:

1. ALL ROOF DRAINS WILL BE ROUTED TO DETENTION BY SURFACE GRADING OR PIPES.
2. DETENTION EMBANKMENT AS WELL AS SLOPED EMBANKMENTS ADJACENT TO THE BUILDING SHALL CARRY A MAXIMUM SLOPE OF 3:1 AND BE SODDED FOR ADEQUATE VEGETATION.
3. IN AREAS WHERE STEEP EMBANKMENT SLOPES ARE REQUIRED, A MAXIMUM SLOPE OF 2:1 MAY BE USED IN CONJUNCTION WITH RIP RAPPED EMBANKMENTS.

CERTIFICATE OF AUTHORIZATION
HOPE CONSULTING, INC.
No. 1931
ARKANSAS

DETENTION POND MAINTENANCE PLAN

Background
The detention pond is located just beyond the northeast corner of the property. The modifications are designed to temporarily detain stormwater to meet the City of Bryant's water quantity criteria before discharging from the pond.

Routine Maintenance
Routine maintenance will include but not be limited to:
-The primary discharge (v-notch weir) from the pond and other areas will be inspected monthly for debris which could inhibit the proper flow of discharge. Any debris will be removed immediately and disposed of or placed in a location to prevent future maintenance and to not cause impact up or downstream of the structure.
-Trash will be removed from around the pond to prevent entering the pond. Generally, the site should be kept free of loose trash which could be carried off site by wind or rain.
-Inspect the pond and discharge weir for non-routine maintenance need.

Periodic or Non-Routine Maintenance
The routine inspection of the pond area and discharge weir will identify needed repairs and non-routine maintenance. These items may include but not be limited to:
-Bottom of pond will be sodded (except where trickle channel is located).
-Embankments sloped 2:1 will be rip rapped, 3:1 slopes shall be sodded
-Re-growth of trees on or around the pond bank. These should be cut and removed from the pond area.
-Stabilization of slopes may be required periodically or after excessive rain events. Any disturbance of slopes should be reseeded or may require installation of erosion control materials until seeding can reestablish adequate grasses to prevent future erosion.
-Any other maintenance or repairs which would minimize other maintenance to the pond or outfall structures.

For questions or concerns about the pond, contact ___ at 501-315-2626.

HOPE CONSULTING
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Benton, Arkansas 72015
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FAX (501) 315-0024
www.hopeconsulting.com

FOR USE AND BENEFIT OF:
SKY BLUE, LLC.

DRAINAGE AREA
SKY BLUE DUPLEXES
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

DATE:	06-26-24	C.A.D. BY:	DRAWING NUMBER:
REVISED:		CHECKED BY:	19-0066
SHEET:	C-2.2	SCALE:	

500	01S	14W	0	19	440	62	1802

K:\LAND PROJECTS 2004\SUBDIVISIONS\2019\19-0066 BUSSENT DUPLEXES\19-0066 - SKY BLUE DUPLEXES BS_BASE DRAWING_06-24-2024.DWG