Drainage Report

For

Jamey South Storage Building

Bryant, Saline County, Arkansas



May 2, 2025

Prepared by:

RICHARDSON ENGINEERING, PLLC

325 W. South St.
Benton, AR 72015
501-315-7225

TABLE OF CONTENTS

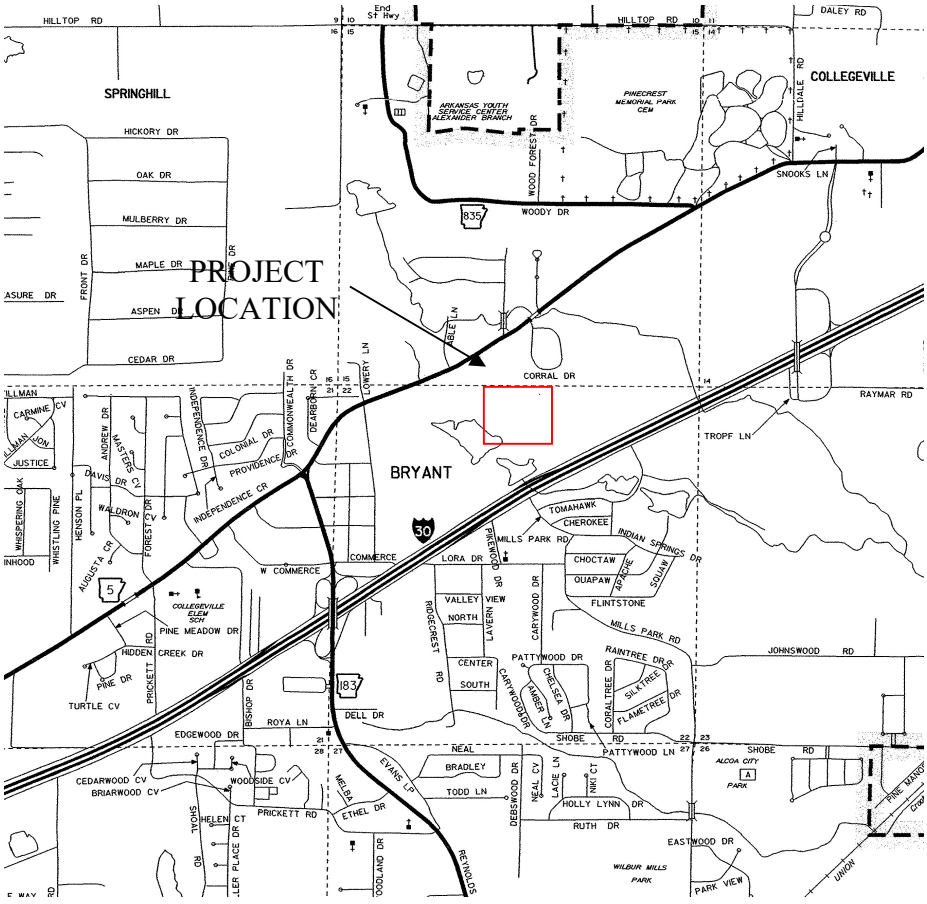
Title	Page Number
Project Owner Information	3
Project Location and Description	3
Site Drainage	4
Runoff Summary	4
Recommendations/Summary	5
Appendices:	6
Runoff Coefficient Calculation	7
Site Drainage Basin Maps	8
Pre and Post Development Hydrographs (Hydrology Studio)	9

Project Owner Information

Jamey South
515 N Reynolds Road
Bryant, AR 72022

Project Location and Description

The project is located on West side of N Reynolds Road, part of the Southwest Quater of the Southeast Quarter, Section 27, Township 1-S, Range 14-W, Saline County, Arkansas.



Vicinity Map – N.T.S

This project is a proposed Commercial Development for a storage building, located in the City of Bryant, Saline County.

Site Drainage

Pre-Development

The pre-developed runoff for the site flows to the west. The pre-development runoff condition consists of a mix of a small commercial development as well as a portion of undeveloped wooded property.

Post-Development

The site drainage starts on the East side of the project and flows to the West. The drainage is sheet flows across the proposed driving surface and is discharged into a proposed detention basin on the West side of the project. The proposed detention basin will utilize a culvert/weir discharge structure. Post-Development Basin A is the drainage basin that discharges water into the proposed detention basin and Post-Development Basin B are the grass tie back slopes from the proposed pavement to existing grade. This area is not routed through the detention basin, so it was calculated by itself. The post-development runoff conditions changed from developed/undeveloped to commercial development.

Runoff Summary

Basin Design Point
Development Drainage Study Area = 0.56 Ac
Existing Condition runoff Coefficient: C = 0.61
Proposed runoff Coefficient: C = 0.95
Tc Undeveloped = 9 Minutes (TR55 Method)
Tc Developed = 5 Minutes
Detention Basin Required Volume: 1,685 CF
Detention Basin Volume: 2,249 CF
Maximum Storage: 1,422 CF
Discharge Structure: Culvert/Wier

Design Storm	Pre-Development Flow Rate (cfs)	Post-Development Flow Rate (cfs)	Post-Development w/ Detention Flow Rate (cfs)
2-yr	1.61	3.27	1.53
10-yr	2.15	4.37	1.88
25-yr	2.47	5.02	2.06
50-yr	2.71	5.48	2.18
100-yr	2.94	5.96	2.31

Recommendations/Summary

The proposed drainage improvements include a small detention basin on the West side of the project. The proposed detention basin releases the post development runoff at a lower rate than the pre-development condition.

Appendices

Runoff Coefficient Calculations
Site Drainage Map
Pond and Post Development Hydrographs (Hydrology Studio)

Runoff Coefficient Calculations

RICHARDSON ENGINEERING
Planning ▪ Engineering ▪ Development Consulting

325 West South Street
Benton, AR 72015
(501) 315-7225

(1/1)

PROJECT 025-007 DRAINAGE CALCULATIONS DATE 05/02/2025

EXISTING C:

DEVELOPED: 0.16 C = 0.95

UNDEVELOPED: 0.40 C = 0.47 (AVERAGE 2-7% FOREST / WOODLANDS)

$$C = \frac{(0.16)(0.95) + (0.40)(0.47)}{0.56} = 0.61$$

POST-DEV C = 0.95

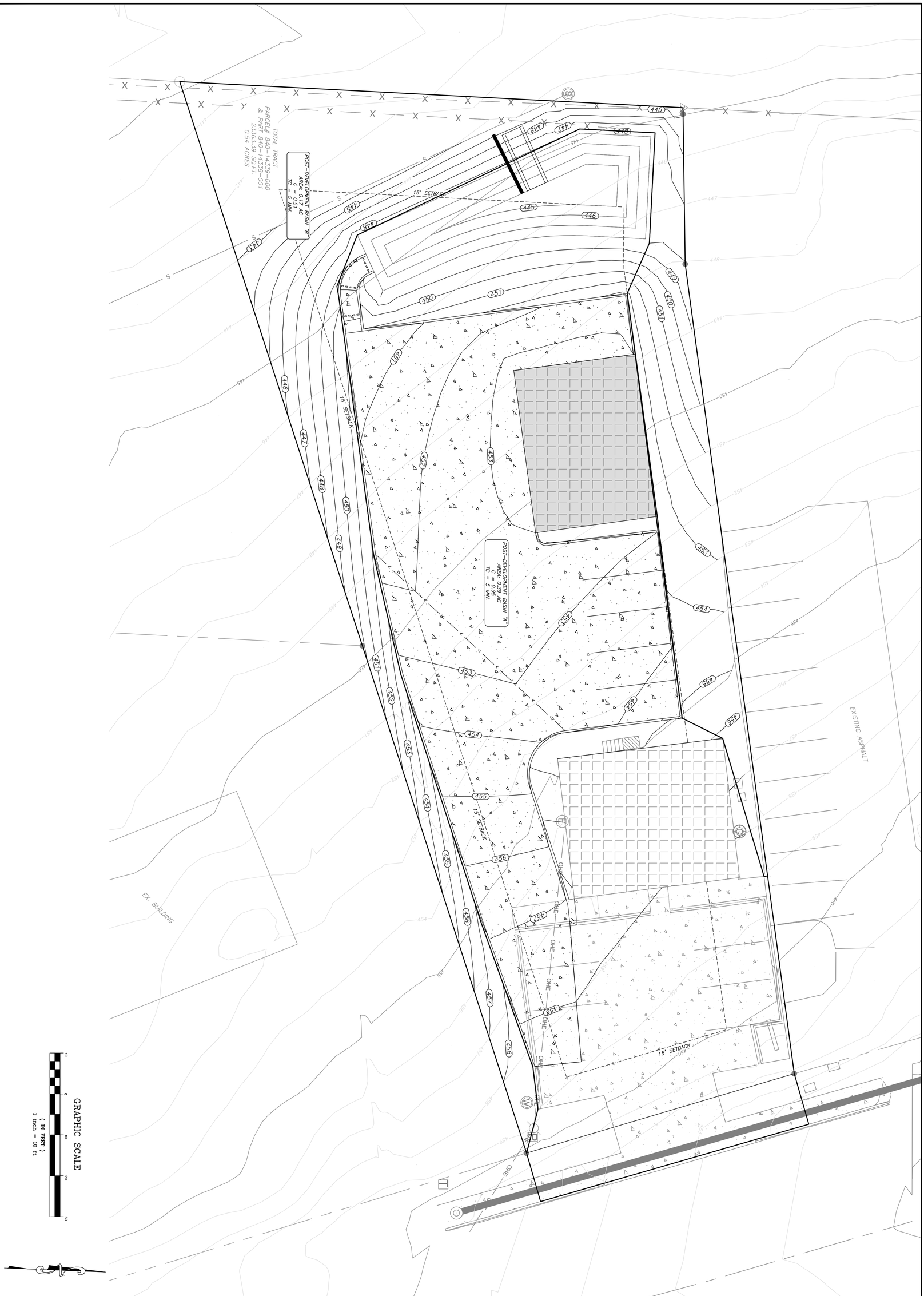
Site Drainage Basin Maps



PROJECT #: 025-007	No. / Revisions / Date	Prepared For: JAMEY SOUTH 515 N. REYNOLDS ROAD BRYANT, AR 72022	PRE-DEVELOPMENT DRAINAGE BASIN MAP STATE FARM – JAMEY SOUTH PROPOSED STORAGE BUILDING 515 N. REYNOLDS ROAD BRYANT, ARKANSAS
Scale: 1" = 10' Date: 05/02/2025			
Sheet: 1 of 2			

CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
ARKANSAS

RICHARDSON ENGINEERING
Planning • Engineering • Development Consulting
325 W. SOUTH STREET, BENTON, AR 72015 (501)315-7225



PROJECT #: 025-007	No. / Revisions / Date	Prepared For: JAMEY SOUTH 515 N. REYNOLDS ROAD BRYANT, AR 72022	POST-DEVELOPMENT DRAINAGE BASIN MAP STATE FARM – JAMEY SOUTH PROPOSED STORAGE BUILDING 515 N. REYNOLDS ROAD BRYANT, ARKANSAS
Scale: 1" = 10' Date: 05/02/2025			
Sheet: 2 of 2			

CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
ARKANSAS

RICHARDSON ENGINEERING
Planning • Engineering • Development Consulting
325 W. SOUTH STREET, BENTON, AR 72015 (501)315-7225

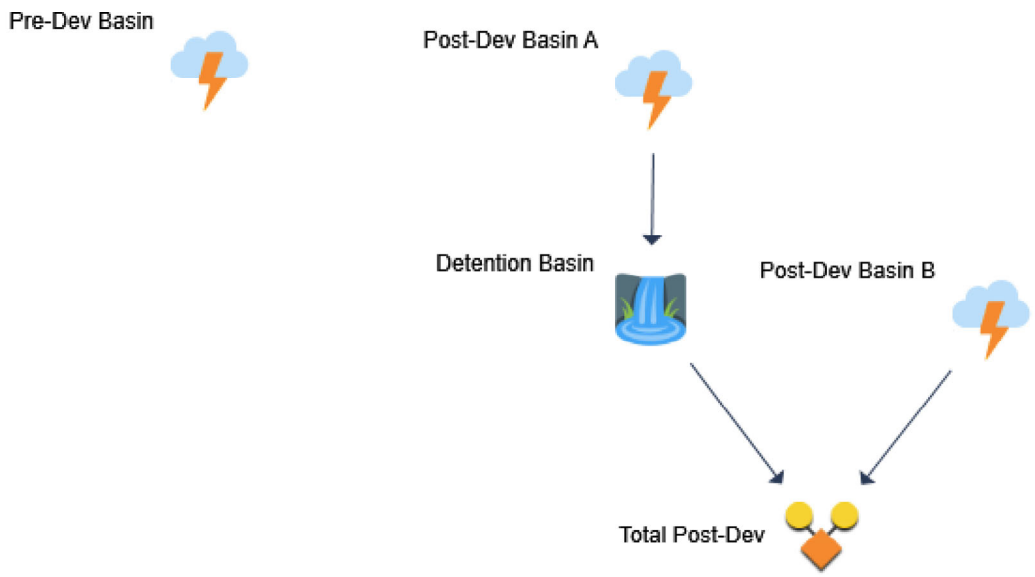
Pre and Post Development Hydrographs (Hydrology Studio)

Basin Model

Hydrology Studio v 3.0.0.27

Project Name: Jamey South Storage Building

05-02-2025



Hydrograph by Return Period

Project Name: Jamey South Storage Building

05-02-2025

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	Rational	Pre-Dev Basin		1.608			2.154	2.474	2.705	2.938
2	Mod Rational	Post-Dev Basin A		1.663			2.228	2.560	2.798	3.040
3	Pond Route	Detention Basin		1.347			1.600	1.730	1.823	1.915
4	Rational	Post-Dev Basin B		0.532			0.712	0.818	0.893	0.971
5	Junction	Total Post-Dev		1.530			1.878	2.056	2.184	2.310

Hydrograph 2-yr Summary

Project Name: Jamey South Storage Building

Hydrology Studio v 3.0.0.27

05-02-2025

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin	1.608	0.15	1,159	----		
2	Mod Rational	Post-Dev Basin A	1.663	0.08	998	----		
3	Pond Route	Detention Basin	1.347	0.18	996	2	446.02	389
4	Rational	Post-Dev Basin B	0.532	0.08	213	----		
5	Junction	Total Post-Dev	1.530	0.17	1,204	3, 4		

Hydrograph Report

Project Name: Jamey South Storage Building

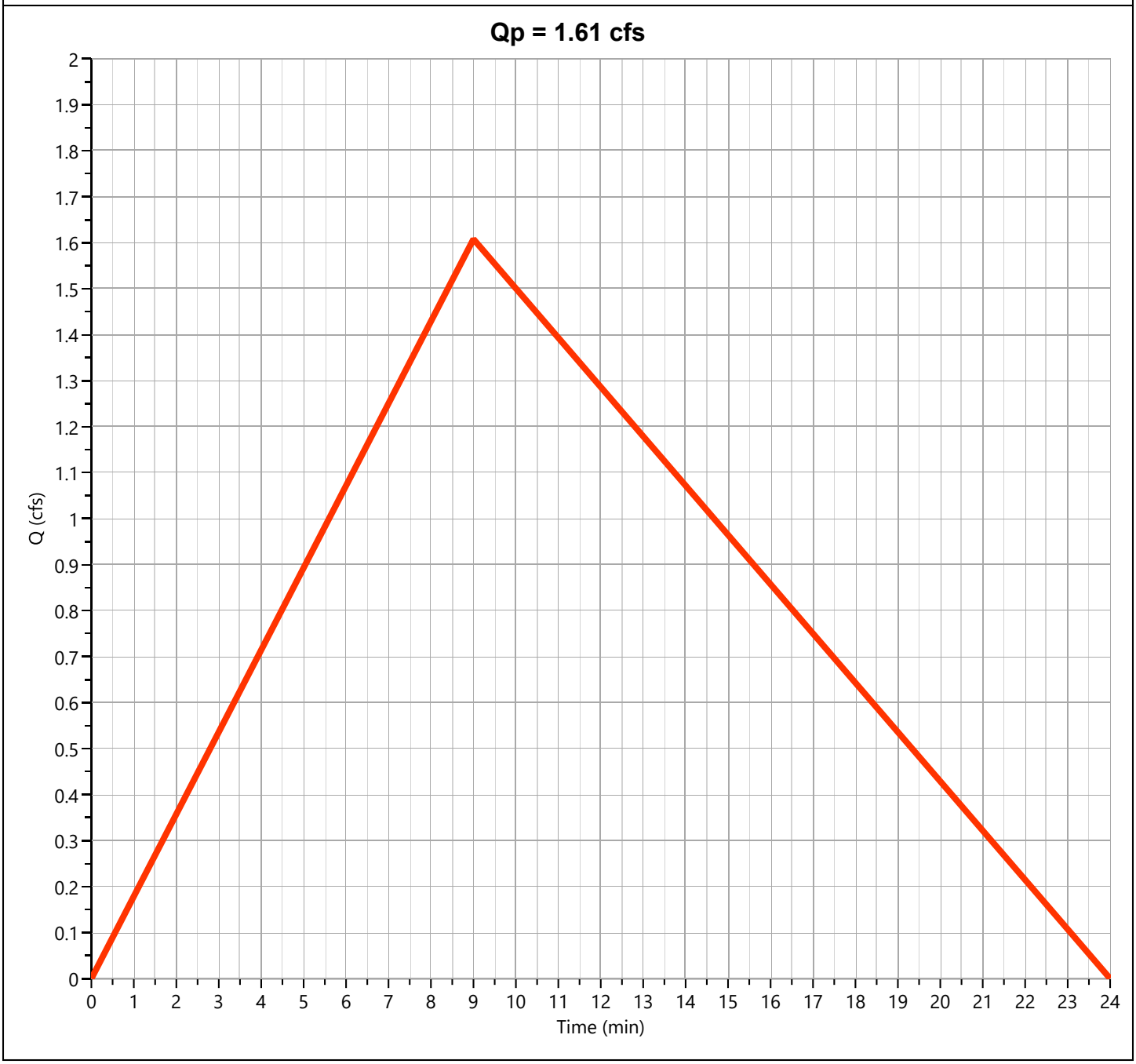
Hydrology Studio v 3.0.0.27

05-02-2025

Pre-Dev Basin

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 1.608 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 1,159 cuft
Drainage Area	= 0.56 ac	Runoff Coeff.	= 0.61
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.71 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Tc by TR55 Worksheet

Project Name: Jamey South Storage Building

Hydrology Studio v 3.0.0.27

05-02-2025

Pre-Dev Basin
Rational

Hyd. No. 1

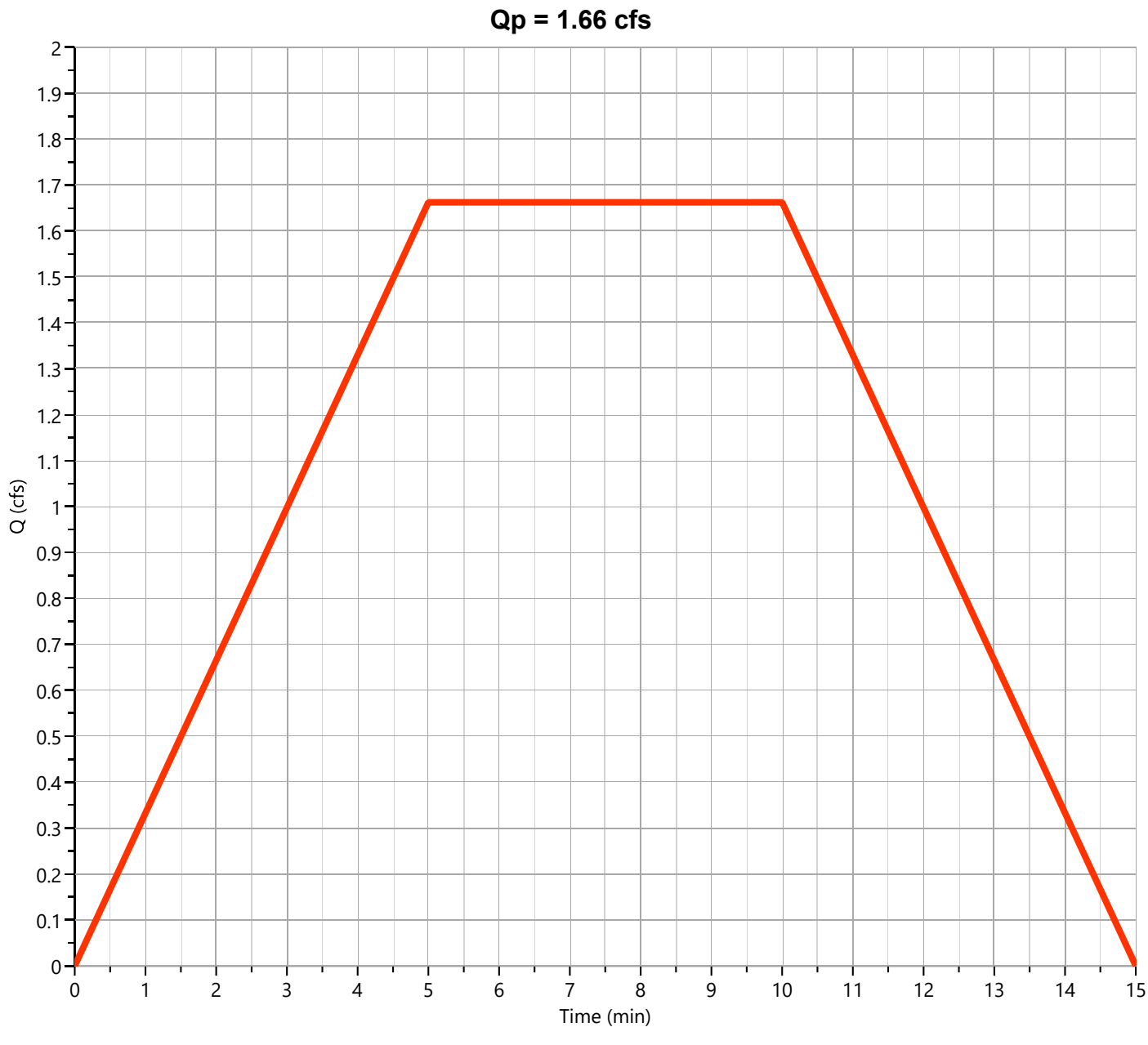
Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.36	2.28	2.28	
Land Slope (%)	7.7			
Travel Time (min)	**8.52**	**0.00**	**0.00**	**8.52**
Shallow Concentrated Flow				
Flow Length (ft)	95			
Watercourse Slope (%)	7.60	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	4.45			
Travel Time (min)	**0.36**	**0.00**	**0.00**	**0.36**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**9 min**

Hydrograph Report

Post-Dev Basin A

Hyd. No. 2

Hydrograph Type	= Mod Rational	Peak Flow	= 1.663 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 998 cuft
Drainage Area	= 0.39 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.49 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



Hydrograph Report

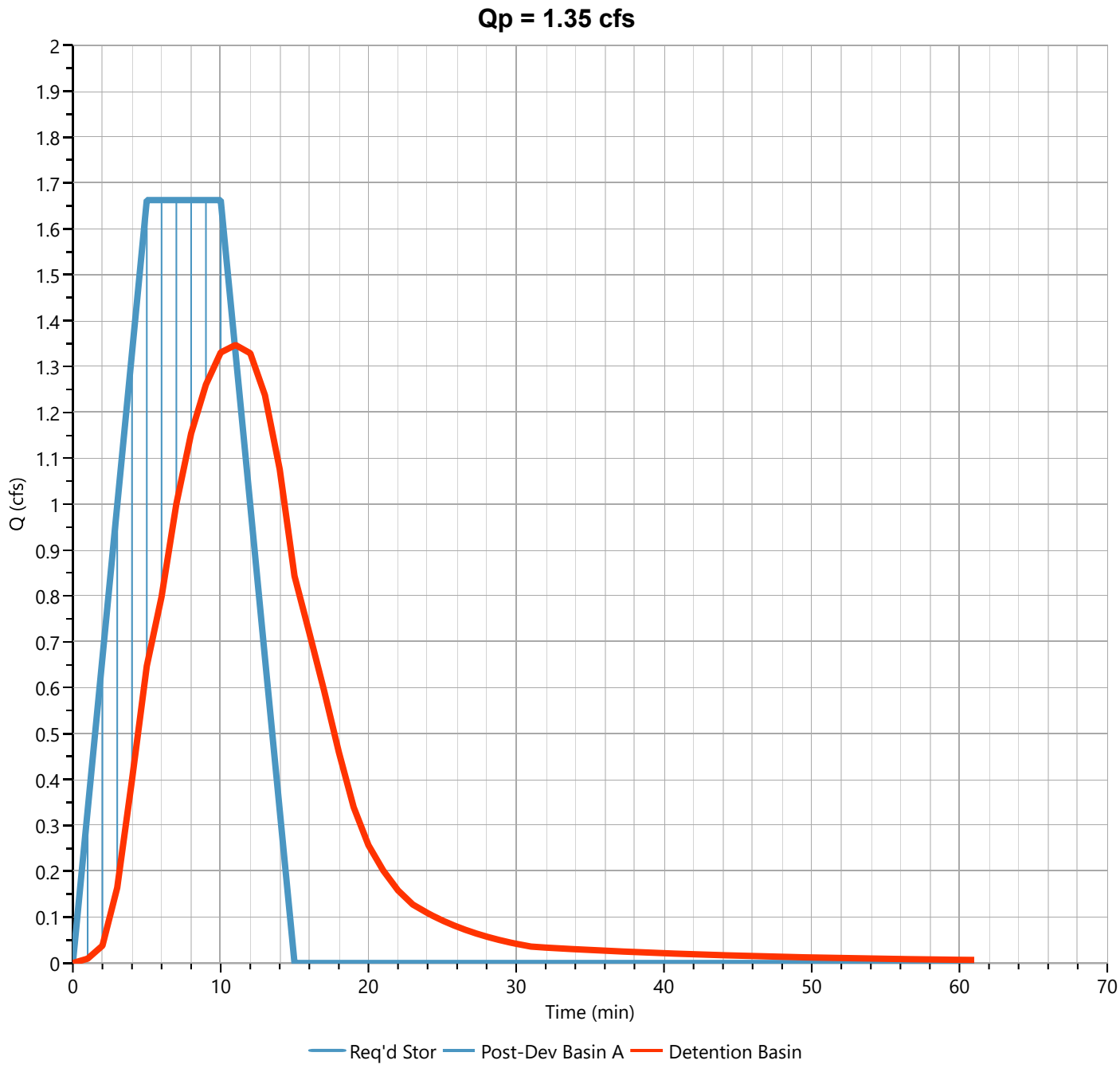
Detention Basin

Hyd. No. 3

Hydrograph Type	= Pond Route	Peak Flow	= 1.347 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Hydrograph Volume	= 996 cuft
Inflow Hydrograph	= 2 - Post-Dev Basin A	Max. Elevation	= 446.02 ft
Pond Name	= Jamey South Detention Pond	Max. Storage	= 389 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 5 min



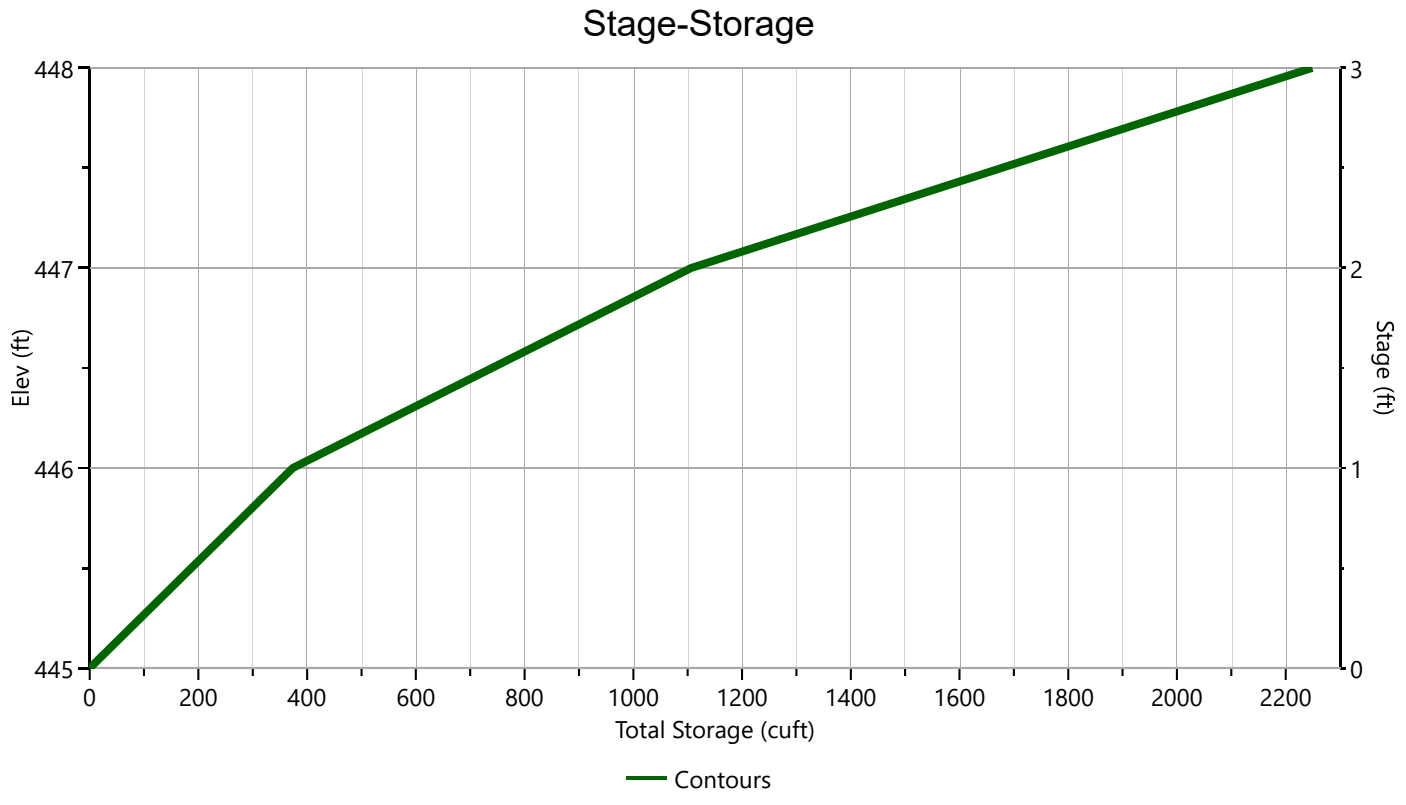
Jamey South Detention Pond

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	445.00
Voids (%)	100.00
Volume Calc	Ave End Area

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	445.00	206	0.000	0.000
1.00	446.00	541	374	374
2.00	447.00	925	733	1,107
3.00	448.00	1,360	1,143	2,249



Jamey South Detention Pond

Stage-Discharge

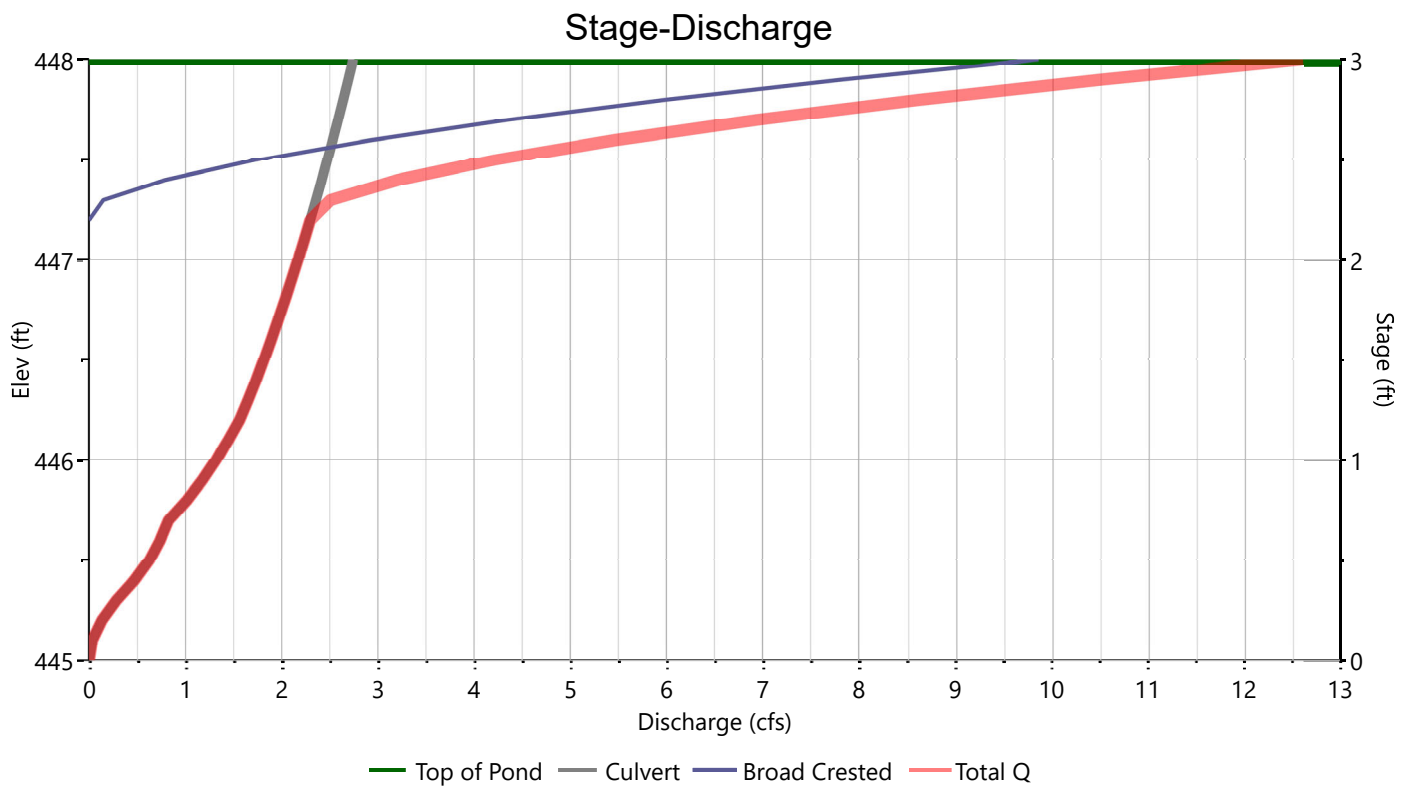
Culvert / Orifices	Culvert	Orifices		
		1	2	3
Rise, in	8			
Span, in	8			
No. Barrels	1			
Invert Elevation, ft	445.00			
Orifice Coefficient, Co	0.60			
Length, ft	16			
Barrel Slope, %	1			
N-Value, n	0.012			

Perforated Riser	
Hole Diameter, in	
No. holes	
Invert Elevation, ft	
Height, ft	
Orifice Coefficient, Co	

Weirs	Riser*	Weirs		
		1	2	3
Shape / Type	Circular	Broad Crested		
Crest Elevation, ft		447.25		
Crest Length, ft		4		
Angle, deg		45 (1:1)		
Weir Coefficient, Cw		3.3		

Ancillary	
Exfiltration, in/hr	

*Routes through Culvert.



Jamey South Detention Pond

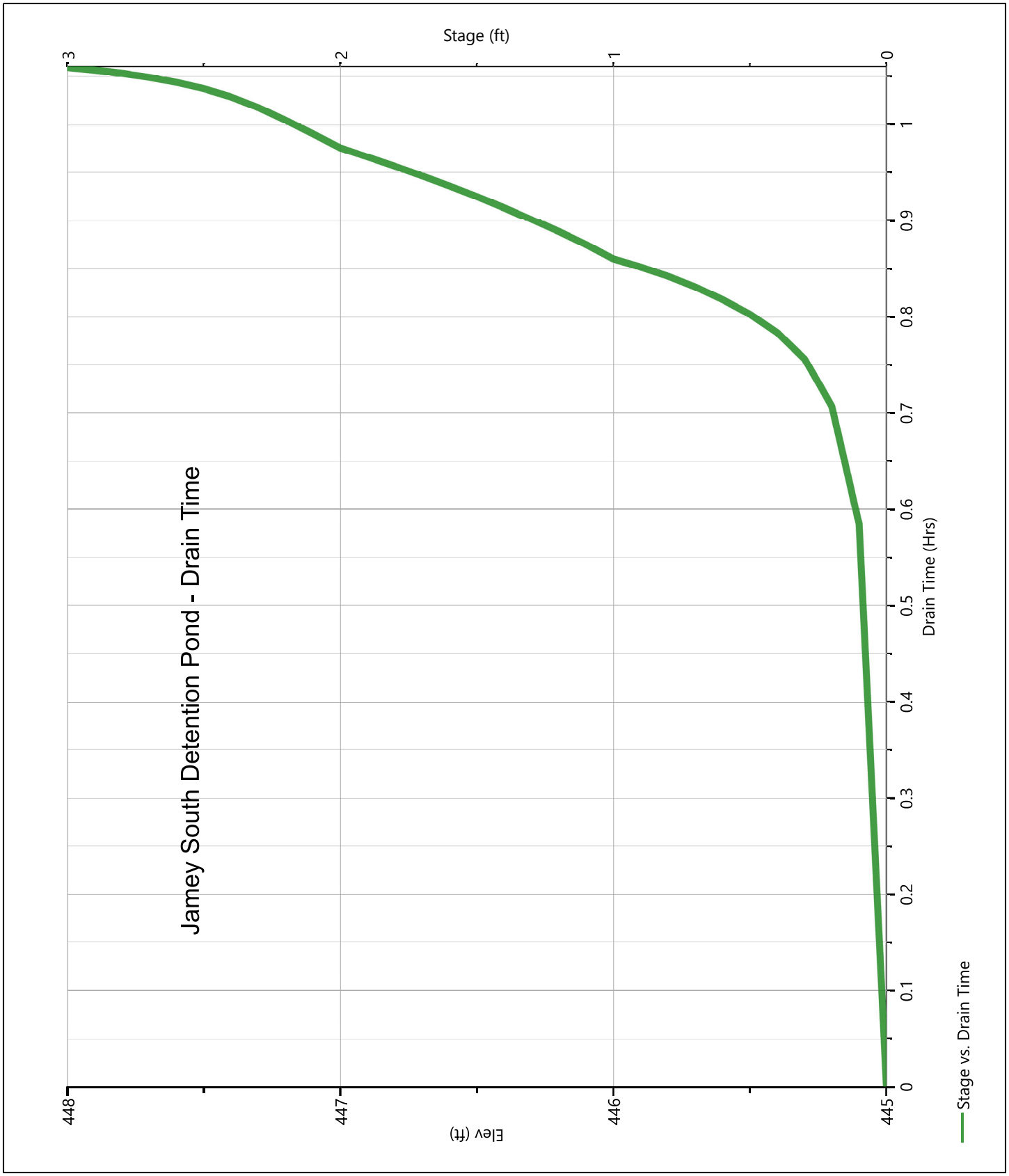
Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	445.00	0.000	0.000					0.000						0.000
1.00	446.00	374	1.319 oc					0.000						1.319
2.00	447.00	1,107	2.170 ic					0.000						2.170
3.00	448.00	2,249	2.744 ic					9.860						12.60

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Jamey South Detention Pond

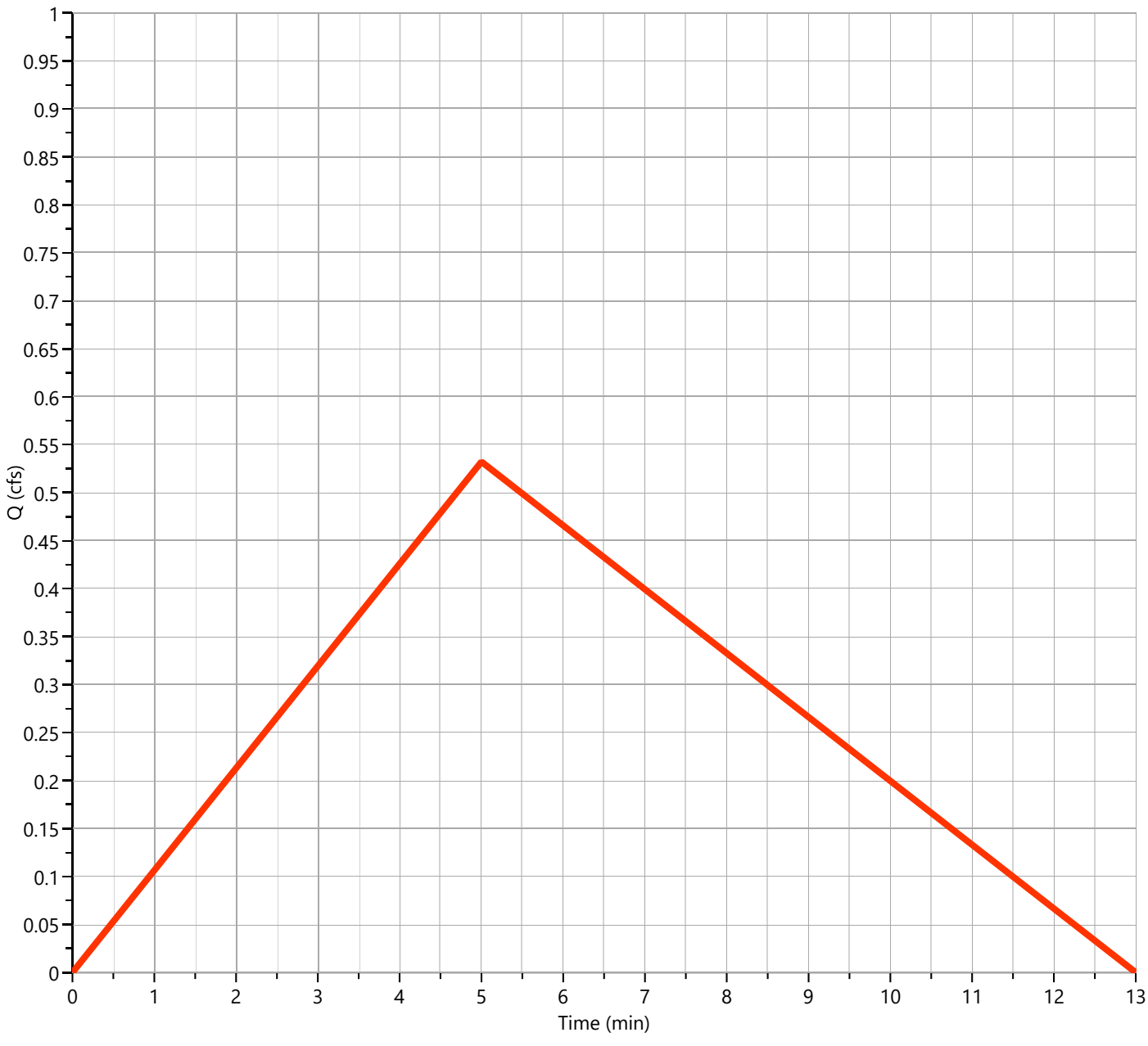
Pond Drawdown



Post-Dev Basin B

Hyd. No. 4

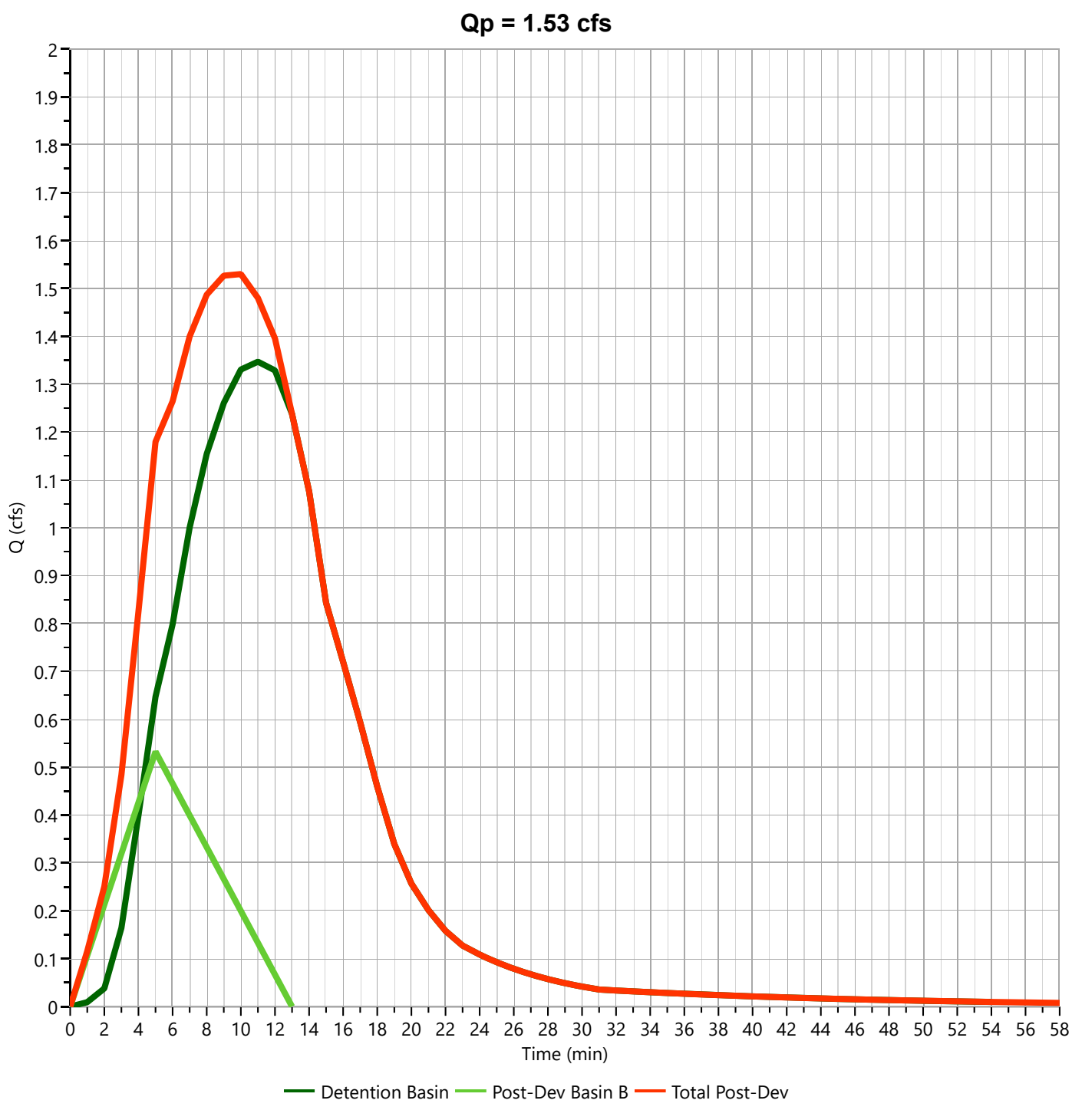
Hydrograph Type	= Rational	Peak Flow	= 0.532 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 213 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.14 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev

Hyd. No. 5

Hydrograph Type	= Junction	Peak Flow	= 1.530 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,204 cuft
Inflow Hydrographs	= 3, 4	Total Contrib. Area	= 0.17 ac



Hydrograph 10-yr Summary

Project Name: Jamey South Storage Building

Hydrology Studio v 3.0.0.27

05-02-2025

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin	2.154	0.15	1,552	----		
2	Mod Rational	Post-Dev Basin A	2.228	0.08	1,337	----		
3	Pond Route	Detention Basin	1.600	0.18	1,336	2	446.25	550
4	Rational	Post-Dev Basin B	0.712	0.08	285	----		
5	Junction	Total Post-Dev	1.878	0.12	1,613	3, 4		

Hydrograph Report

Project Name: Jamey South Storage Building

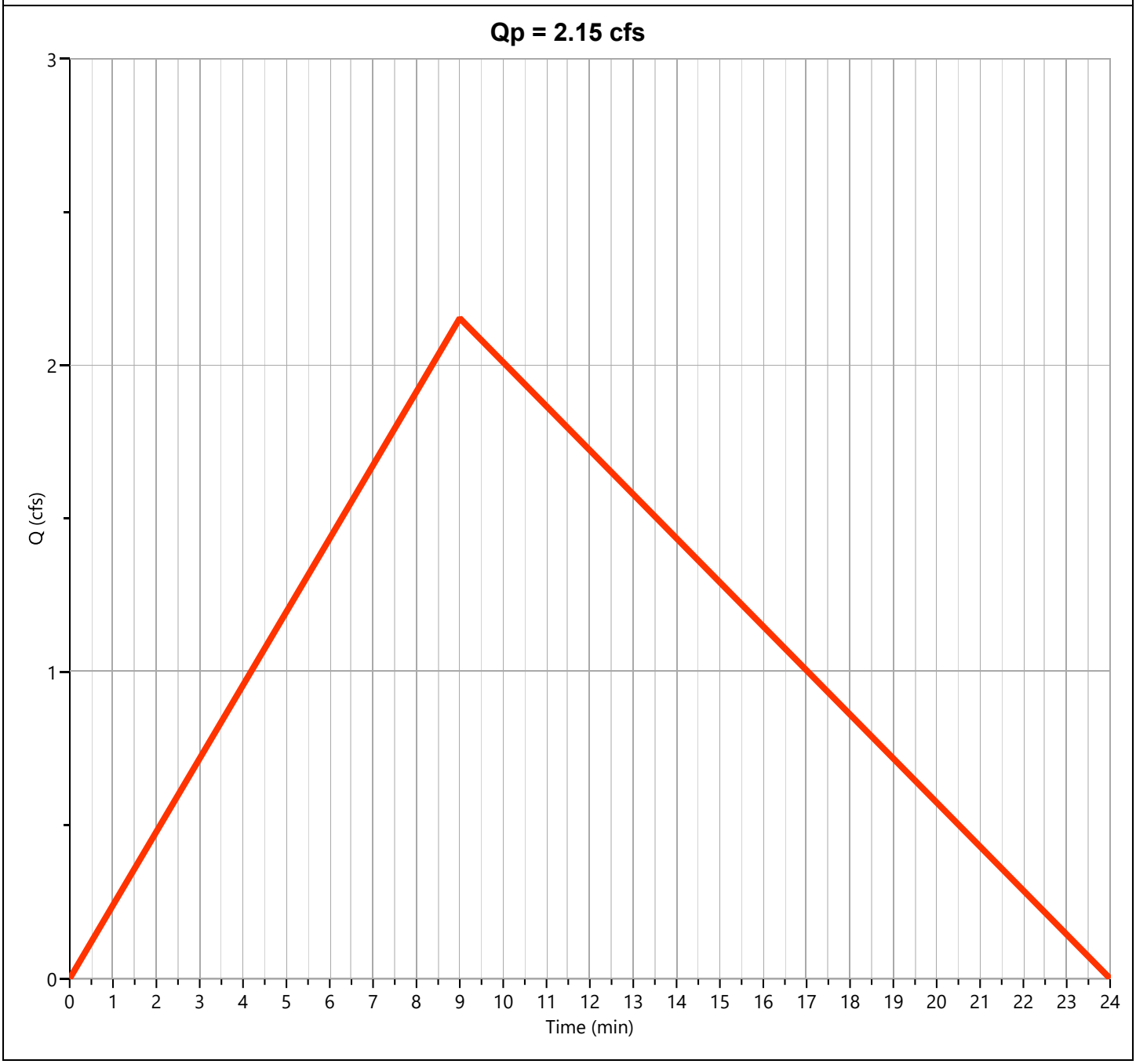
Hydrology Studio v 3.0.0.27

05-02-2025

Pre-Dev Basin

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 2.154 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 1,552 cuft
Drainage Area	= 0.56 ac	Runoff Coeff.	= 0.61
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin A

Hyd. No. 2

Hydrograph Type	= Mod Rational	Peak Flow	= 2.228 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 1,337 cuft
Drainage Area	= 0.39 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.01 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



Hydrograph Report

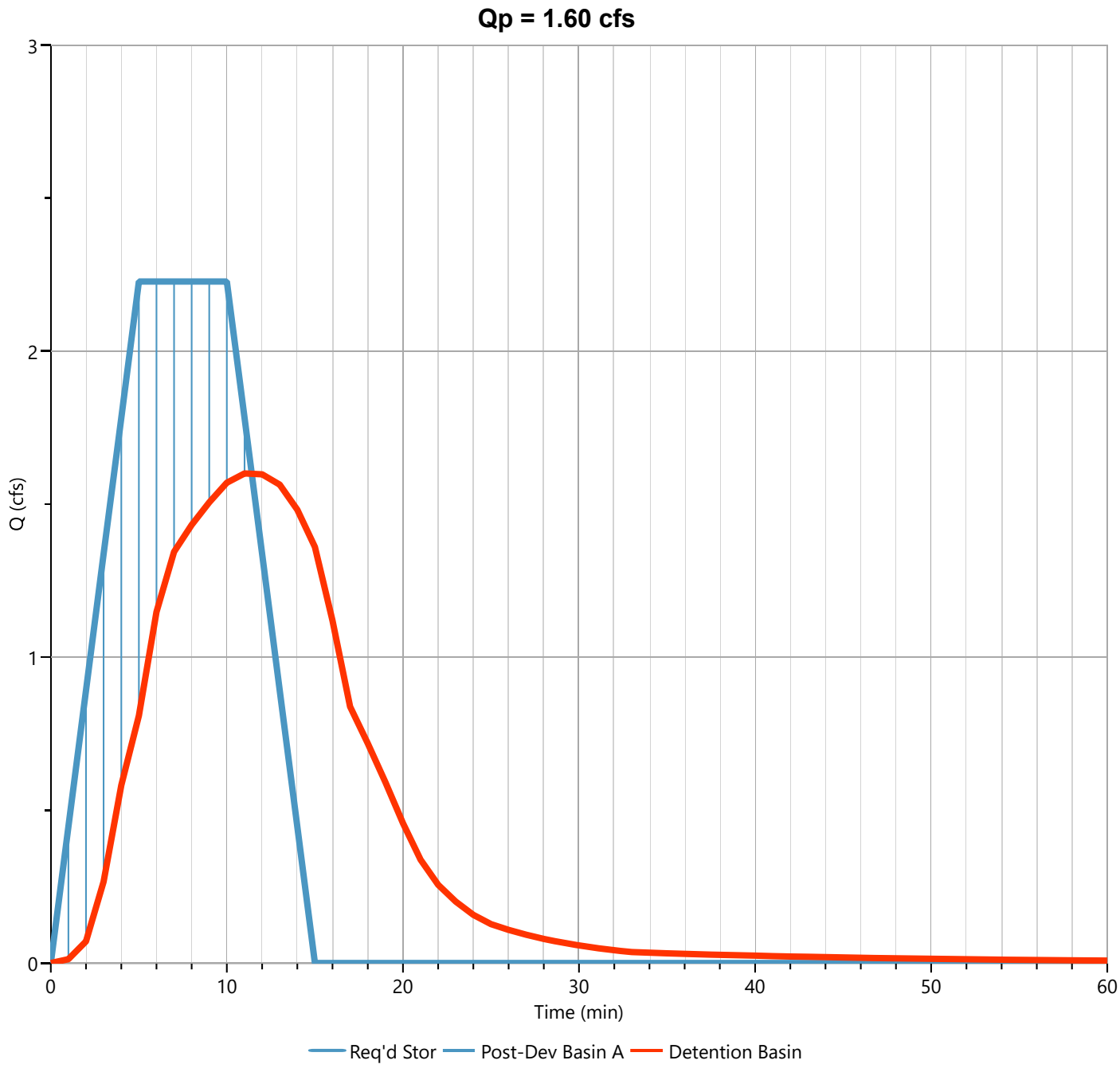
Detention Basin

Hyd. No. 3

Hydrograph Type	= Pond Route	Peak Flow	= 1.600 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,336 cuft
Inflow Hydrograph	= 2 - Post-Dev Basin A	Max. Elevation	= 446.25 ft
Pond Name	= Jamey South Detention Pond	Max. Storage	= 550 cuft

Pond Routing by Storage Indication Method

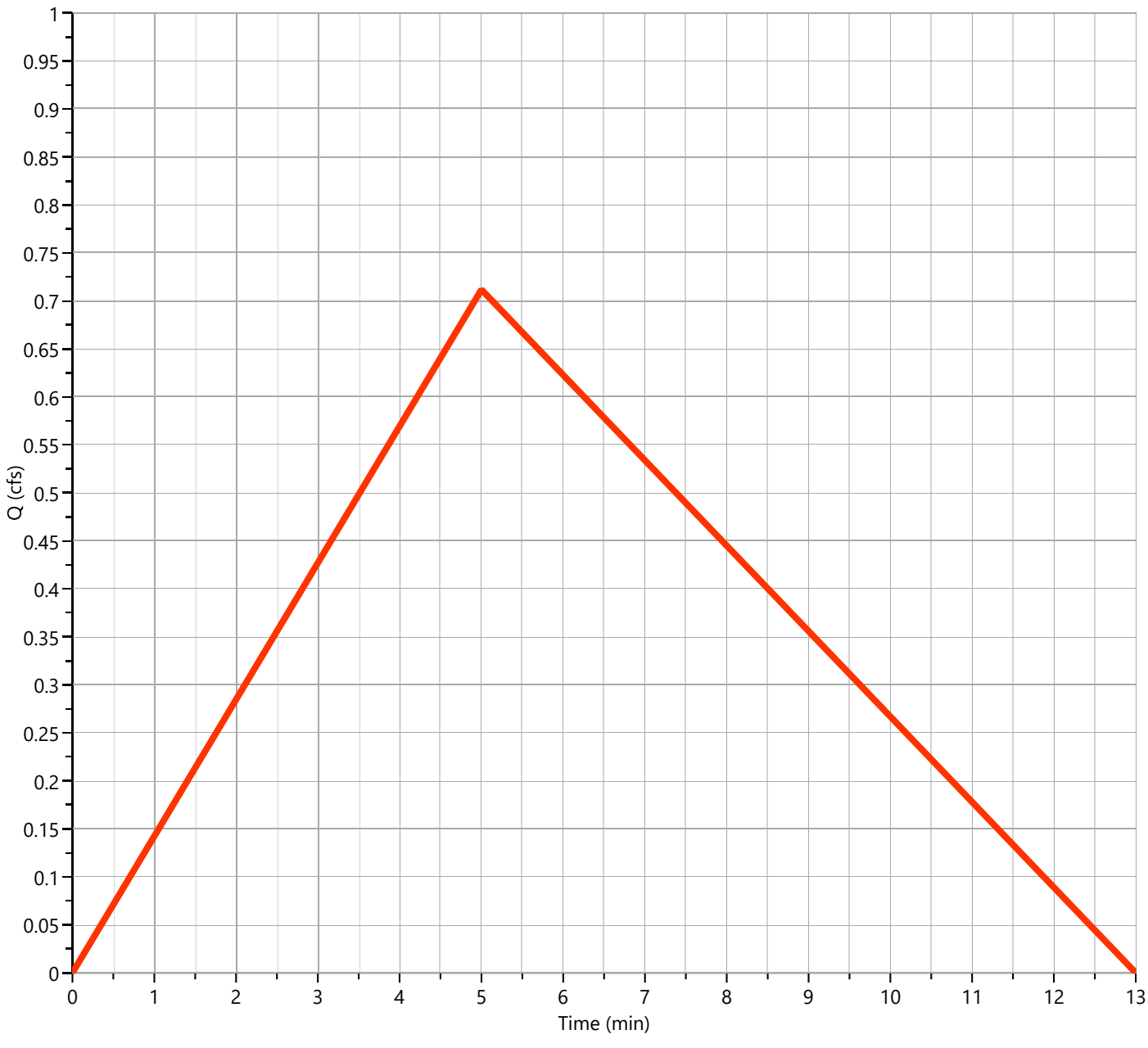
Center of mass detention time = 5 min



Post-Dev Basin B

Hyd. No. 4

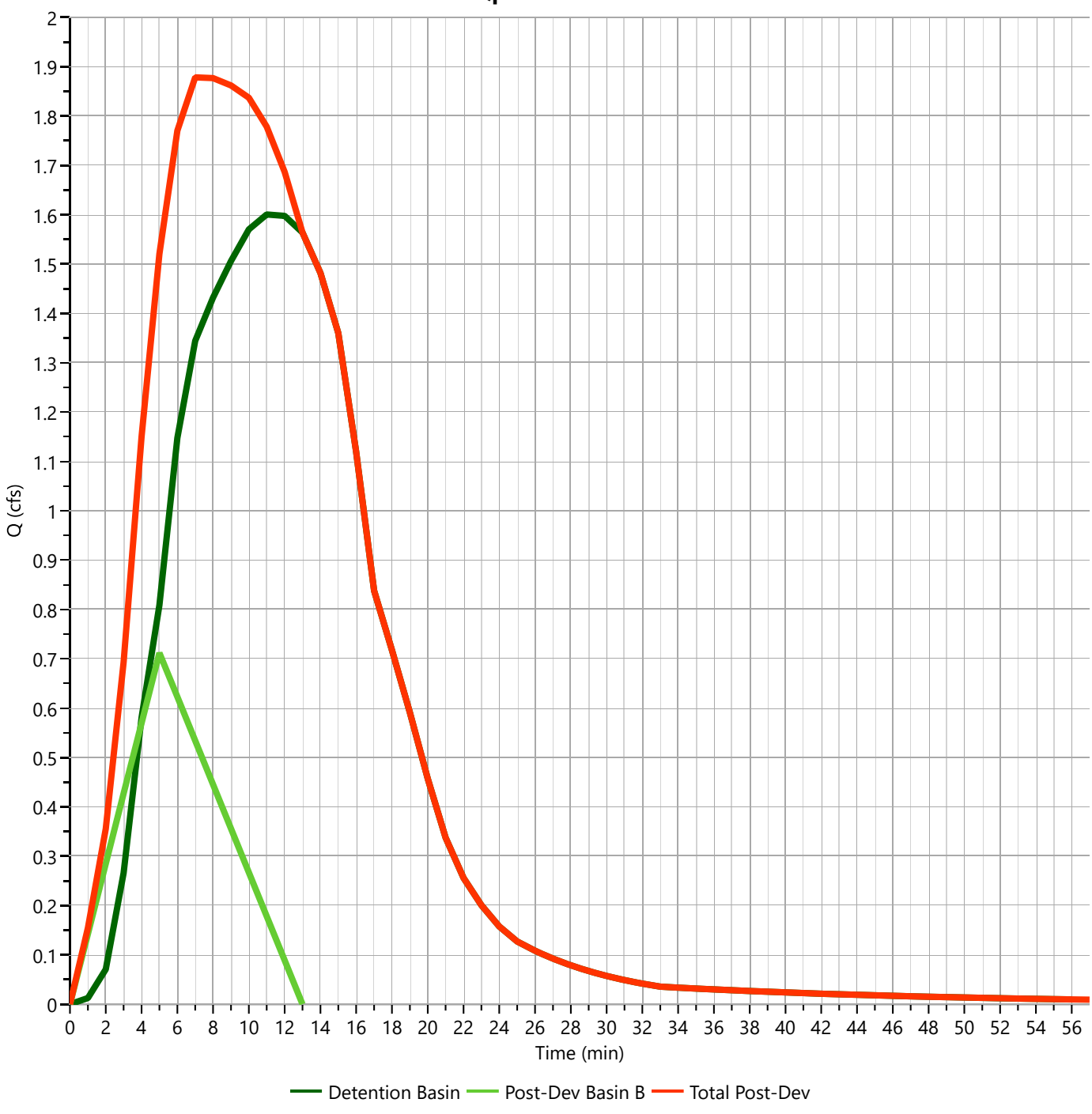
Hydrograph Type	= Rational	Peak Flow	= 0.712 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 285 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 8.21 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev

Hyd. No. 5

Hydrograph Type	= Junction	Peak Flow	= 1.878 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,613 cuft
Inflow Hydrographs	= 3, 4	Total Contrib. Area	= 0.17 ac



Hydrograph 25-yr Summary

Project Name: Jamey South Storage Building

Hydrology Studio v 3.0.0.27

05-02-2025

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin	2.474	0.15	1,784	----		
2	Mod Rational	Post-Dev Basin A	2.560	0.08	1,536	----		
3	Pond Route	Detention Basin	1.730	0.20	1,535	2	446.40	661
4	Rational	Post-Dev Basin B	0.818	0.08	327	----		
5	Junction	Total Post-Dev	2.056	0.13	1,854	3, 4		

Hydrograph Report

Project Name: Jamey South Storage Building

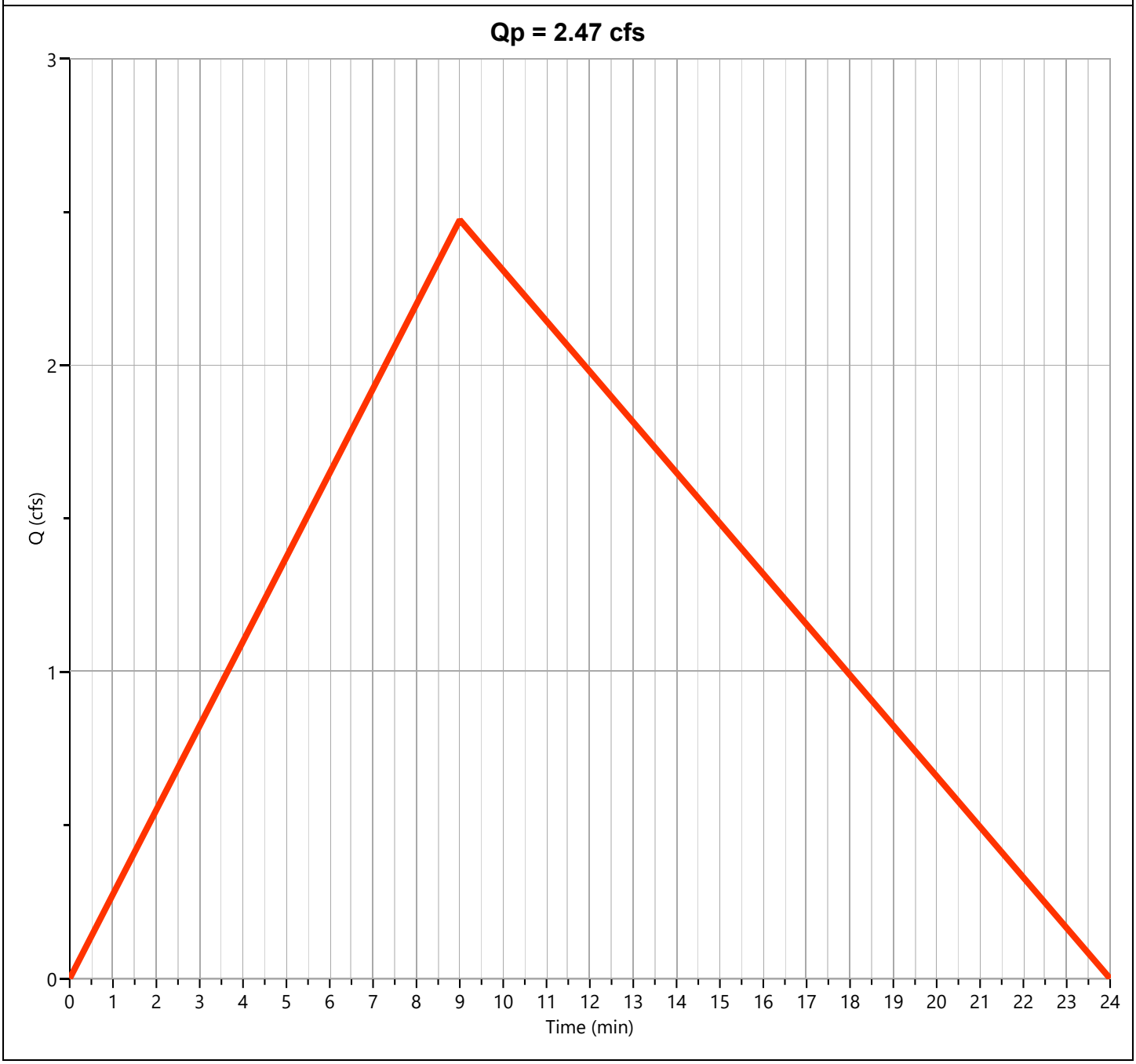
Hydrology Studio v 3.0.0.27

05-02-2025

Pre-Dev Basin

Hyd. No. 1

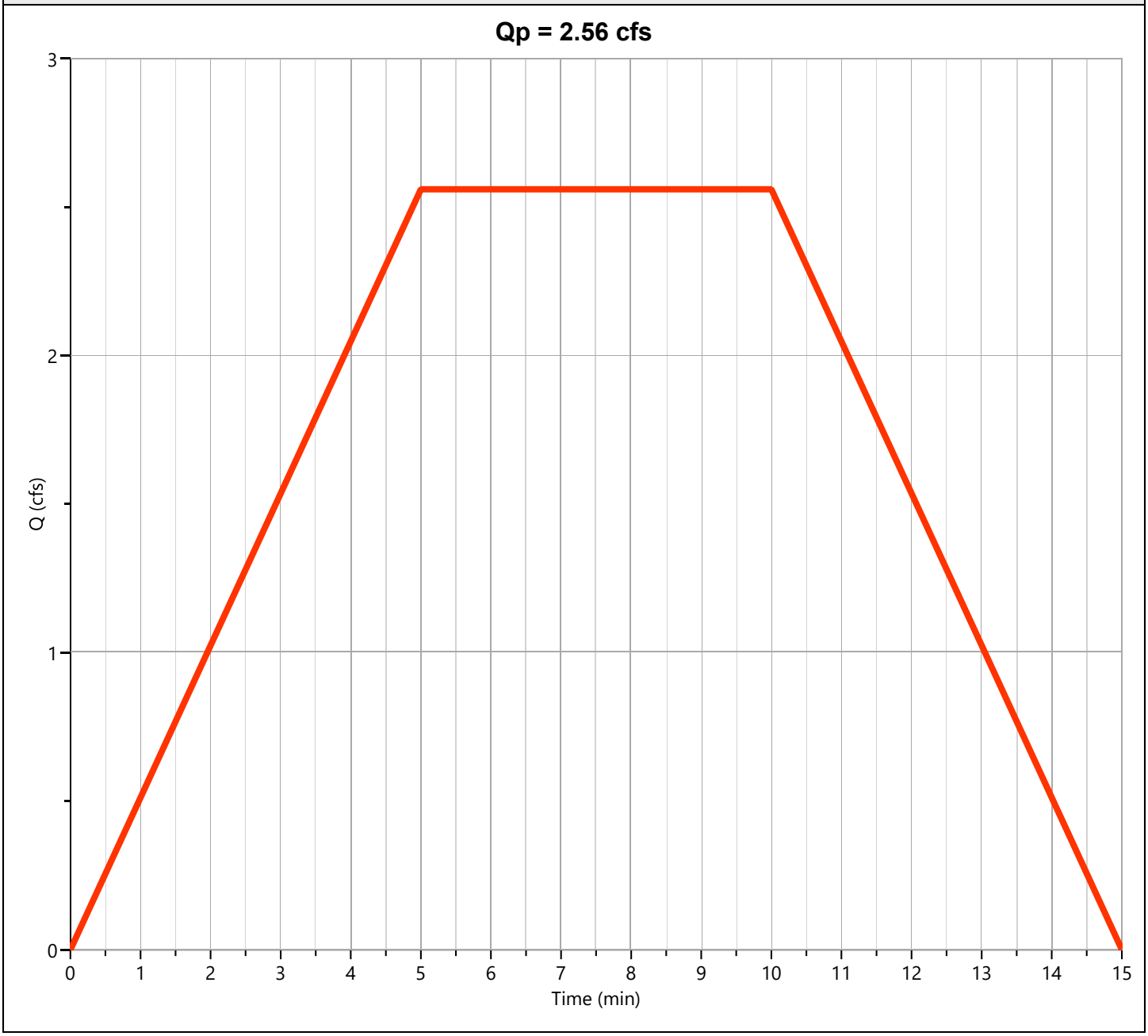
Hydrograph Type	= Rational	Peak Flow	= 2.474 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 1,784 cuft
Drainage Area	= 0.56 ac	Runoff Coeff.	= 0.61
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.24 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin A

Hyd. No. 2

Hydrograph Type	= Mod Rational	Peak Flow	= 2.560 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 1,536 cuft
Drainage Area	= 0.39 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.91 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



Hydrograph Report

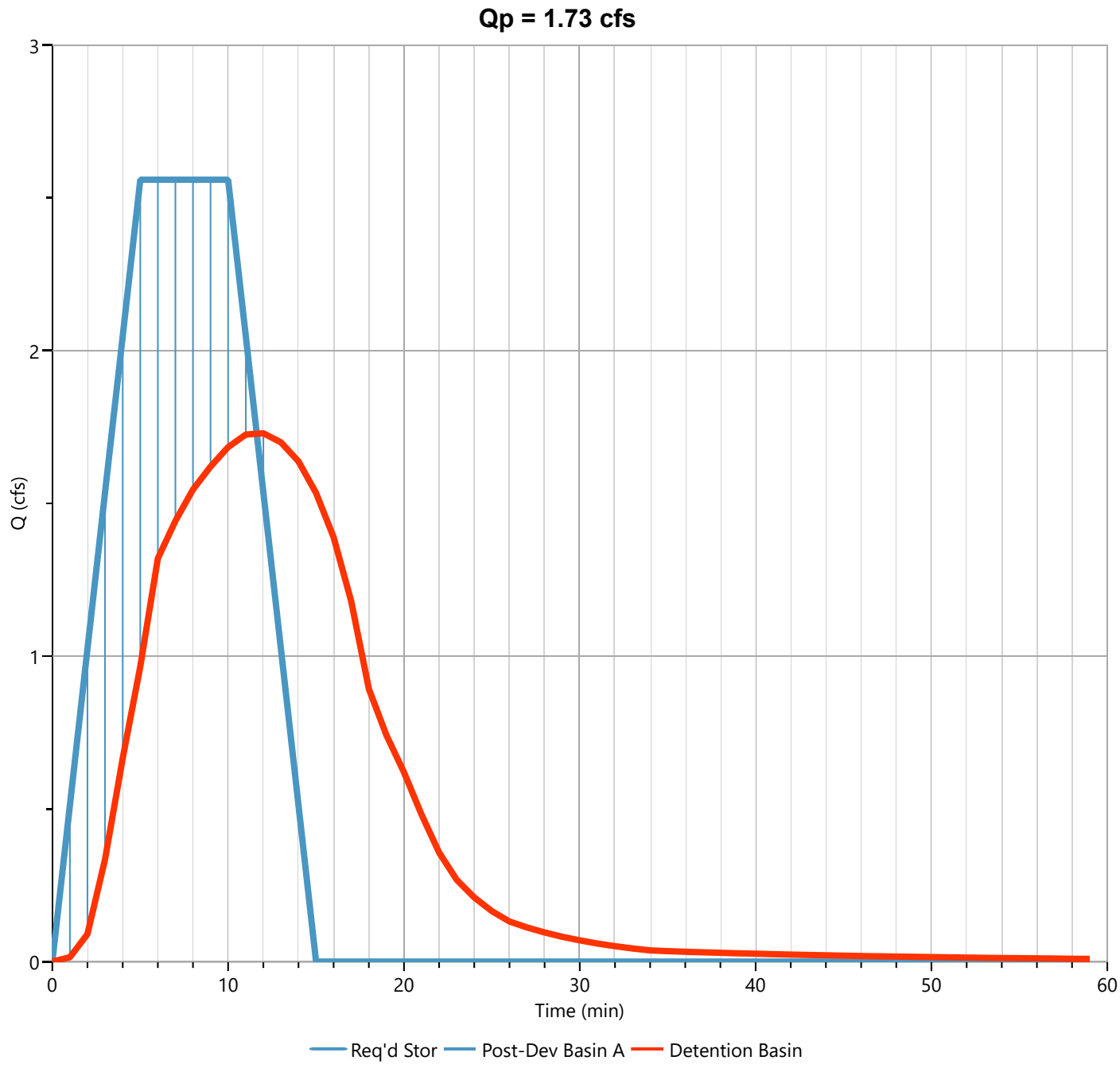
Detention Basin

Hyd. No. 3

Hydrograph Type	= Pond Route	Peak Flow	= 1.730 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,535 cuft
Inflow Hydrograph	= 2 - Post-Dev Basin A	Max. Elevation	= 446.40 ft
Pond Name	= Jamey South Detention Pond	Max. Storage	= 661 cuft

Pond Routing by Storage Indication Method

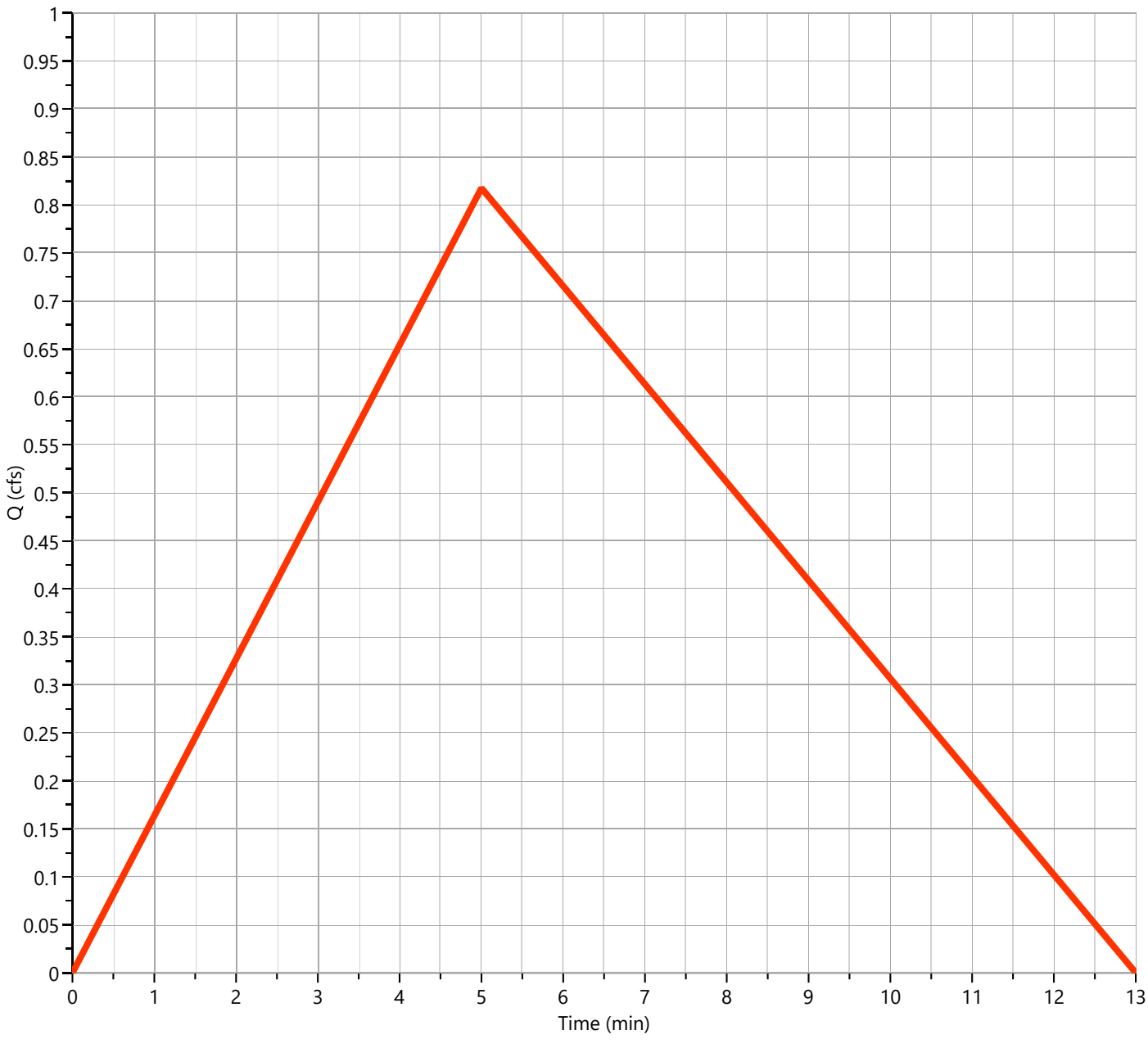
Center of mass detention time = 5 min



Post-Dev Basin B

Hyd. No. 4

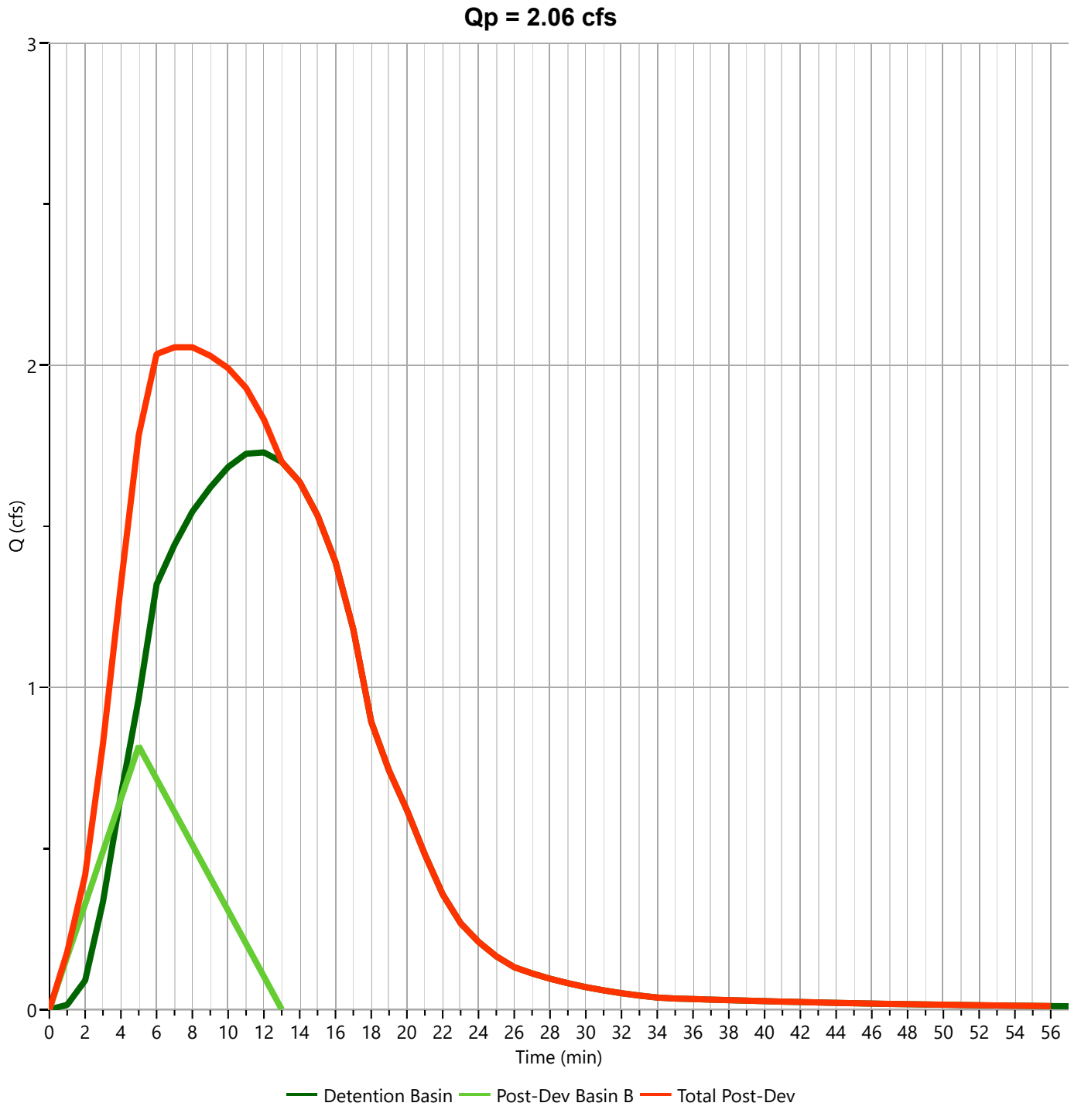
Hydrograph Type	= Rational	Peak Flow	= 0.818 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 327 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 9.43 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev

Hyd. No. 5

Hydrograph Type	= Junction	Peak Flow	= 2.056 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,854 cuft
Inflow Hydrographs	= 3, 4	Total Contrib. Area	= 0.17 ac



Hydrograph 50-yr Summary

Project Name: Jamey South Storage Building

Hydrology Studio v 3.0.0.27

05-02-2025

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin	2.705	0.15	1,950	----		
2	Mod Rational	Post-Dev Basin A	2.798	0.08	1,679	----		
3	Pond Route	Detention Basin	1.823	0.20	1,678	2	446.52	748
4	Rational	Post-Dev Basin B	0.893	0.08	358	----		
5	Junction	Total Post-Dev	2.184	0.12	2,026	3, 4		

Hydrograph Report

Project Name: Jamey South Storage Building

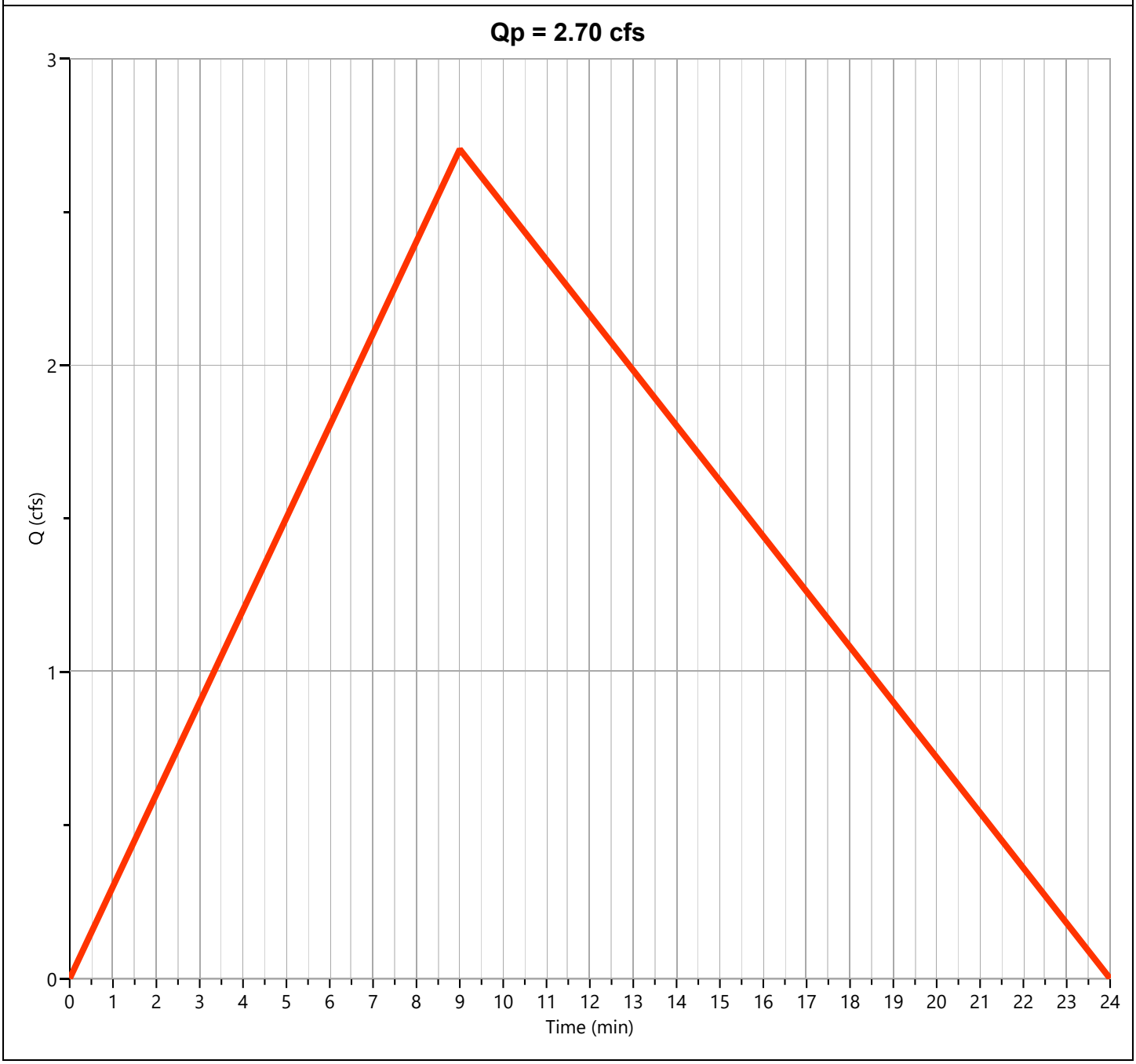
Hydrology Studio v 3.0.0.27

05-02-2025

Pre-Dev Basin

Hyd. No. 1

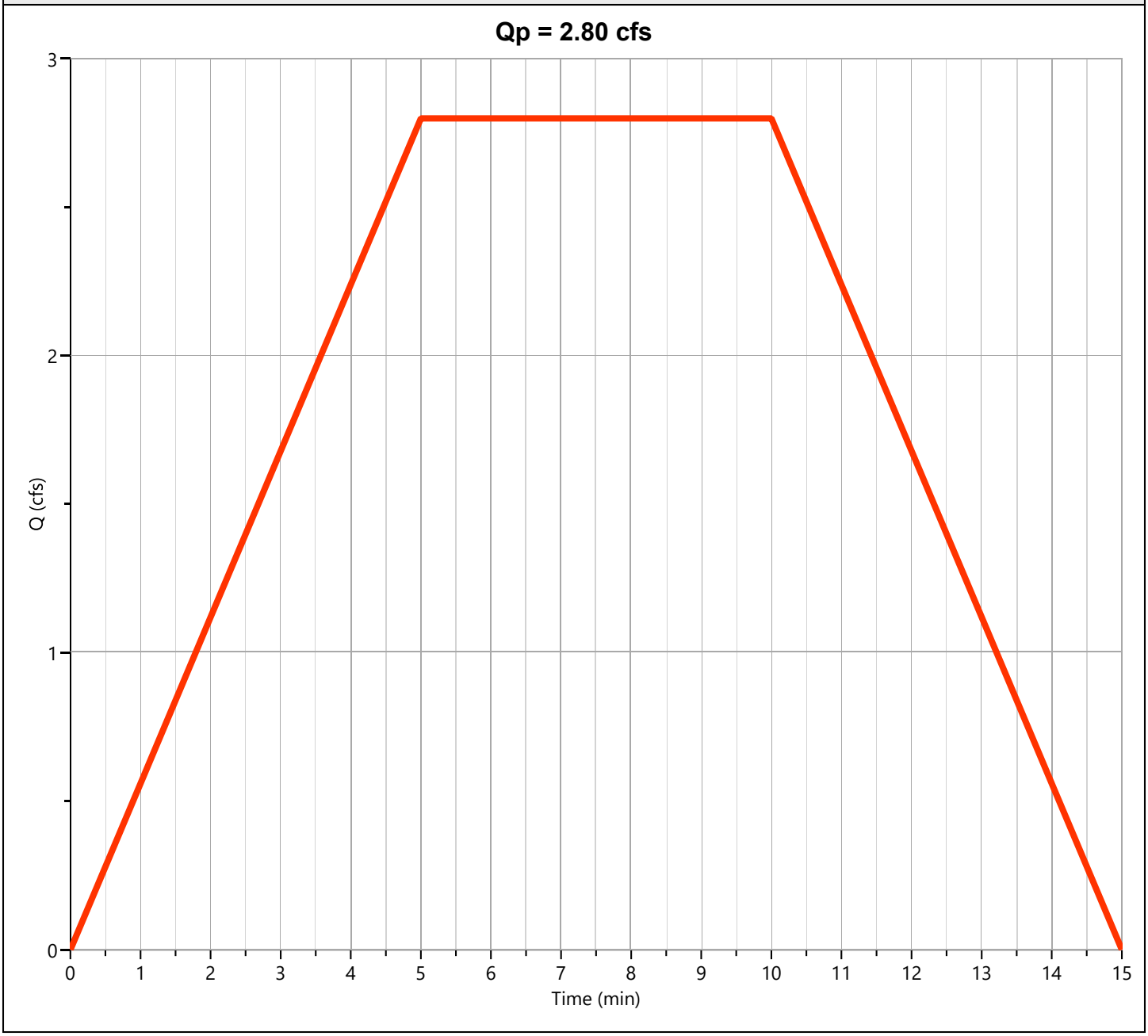
Hydrograph Type	= Rational	Peak Flow	= 2.705 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 1,950 cuft
Drainage Area	= 0.56 ac	Runoff Coeff.	= 0.61
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.92 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin A

Hyd. No. 2

Hydrograph Type	= Mod Rational	Peak Flow	= 2.798 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 1,679 cuft
Drainage Area	= 0.39 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.55 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



Hydrograph Report

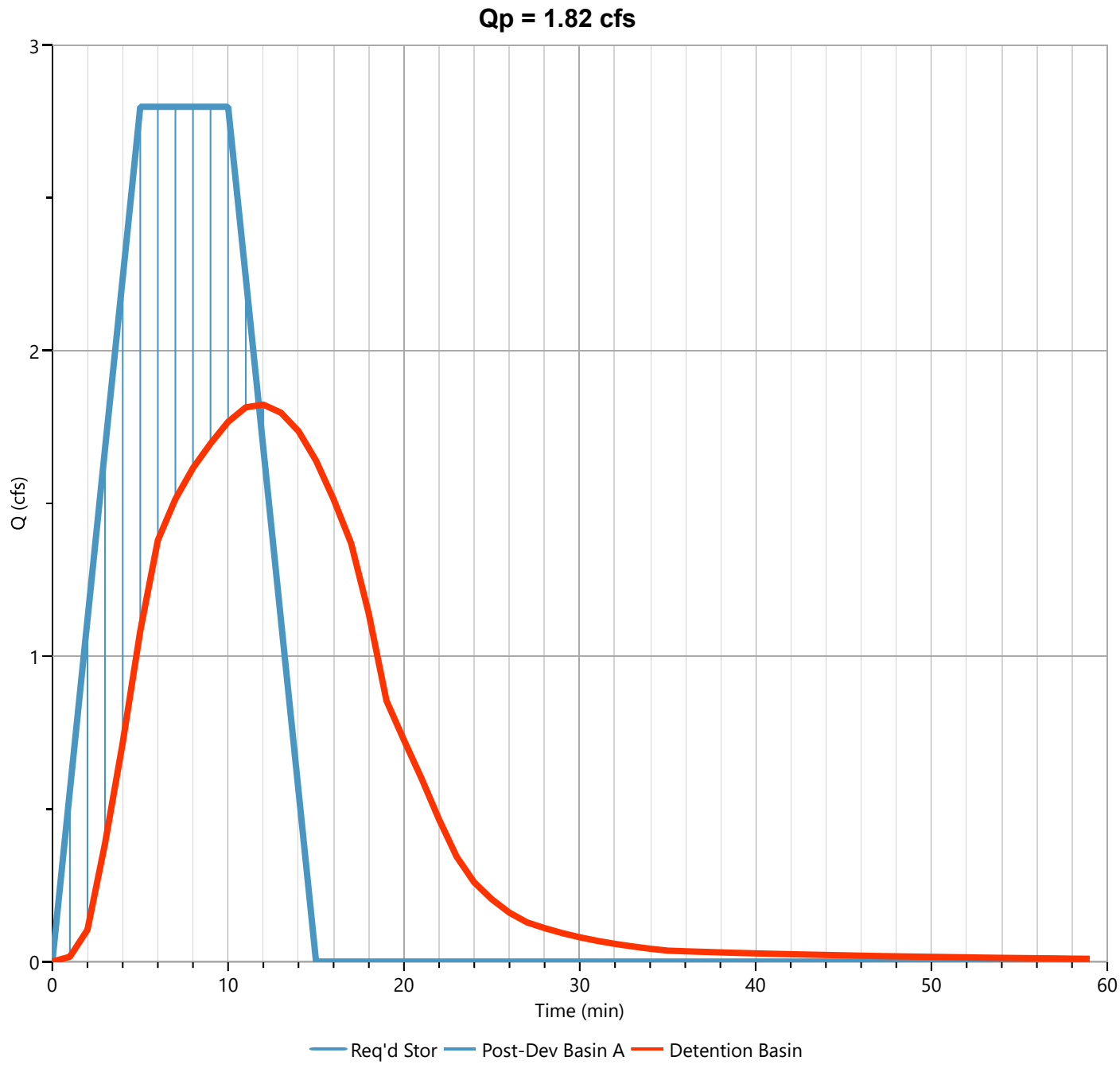
Detention Basin

Hyd. No. 3

Hydrograph Type	= Pond Route	Peak Flow	= 1.823 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,678 cuft
Inflow Hydrograph	= 2 - Post-Dev Basin A	Max. Elevation	= 446.52 ft
Pond Name	= Jamey South Detention Pond	Max. Storage	= 748 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 6 min



Hydrograph Report

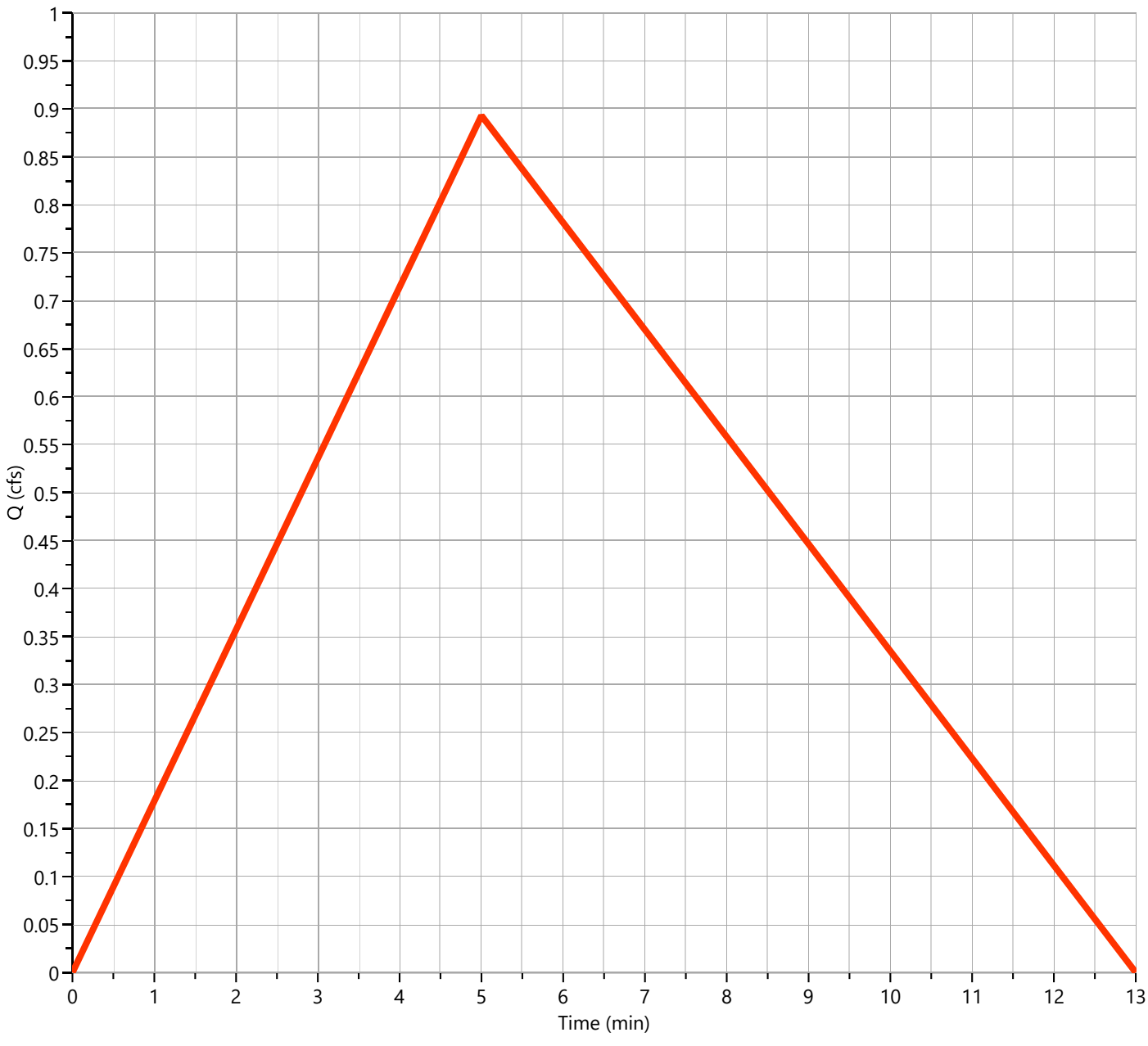
Hydrology Studio v 3.0.0.27

05-02-2025

Post-Dev Basin B

Hyd. No. 4

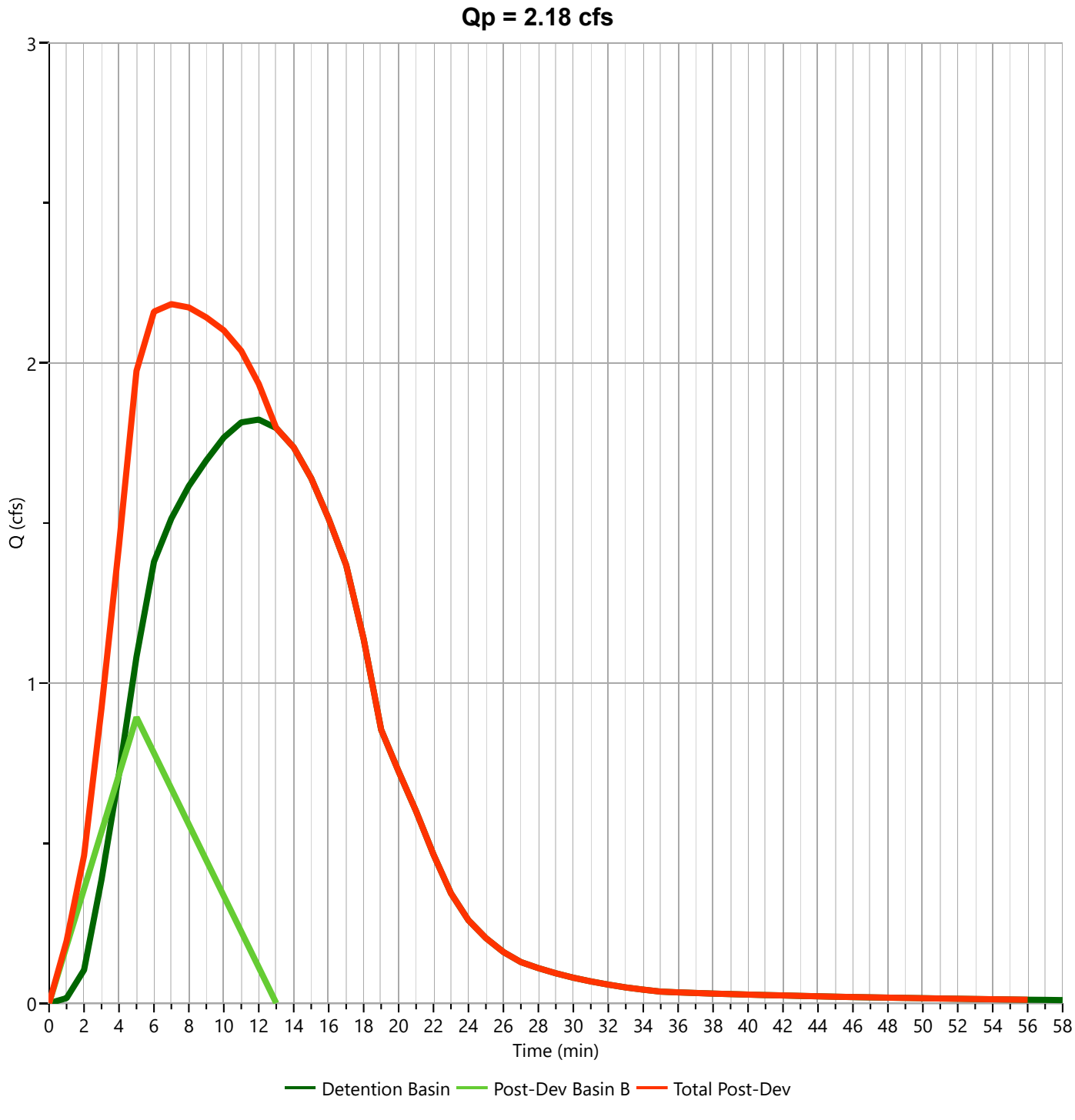
Hydrograph Type	= Rational	Peak Flow	= 0.893 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 358 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 10.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev

Hyd. No. 5

Hydrograph Type	= Junction	Peak Flow	= 2.184 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,026 cuft
Inflow Hydrographs	= 3, 4	Total Contrib. Area	= 0.17 ac



Hydrograph 100-yr Summary

Project Name: Jamey South Storage Building

05-02-2025

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin	2.938	0.15	2,118	----		
2	Mod Rational	Post-Dev Basin A	3.040	0.08	1,824	----		
3	Pond Route	Detention Basin	1.915	0.20	1,823	2	446.64	837
4	Rational	Post-Dev Basin B	0.971	0.08	389	----		
5	Junction	Total Post-Dev	2.310	0.12	2,202	3, 4		

Hydrograph Report

Project Name: Jamey South Storage Building

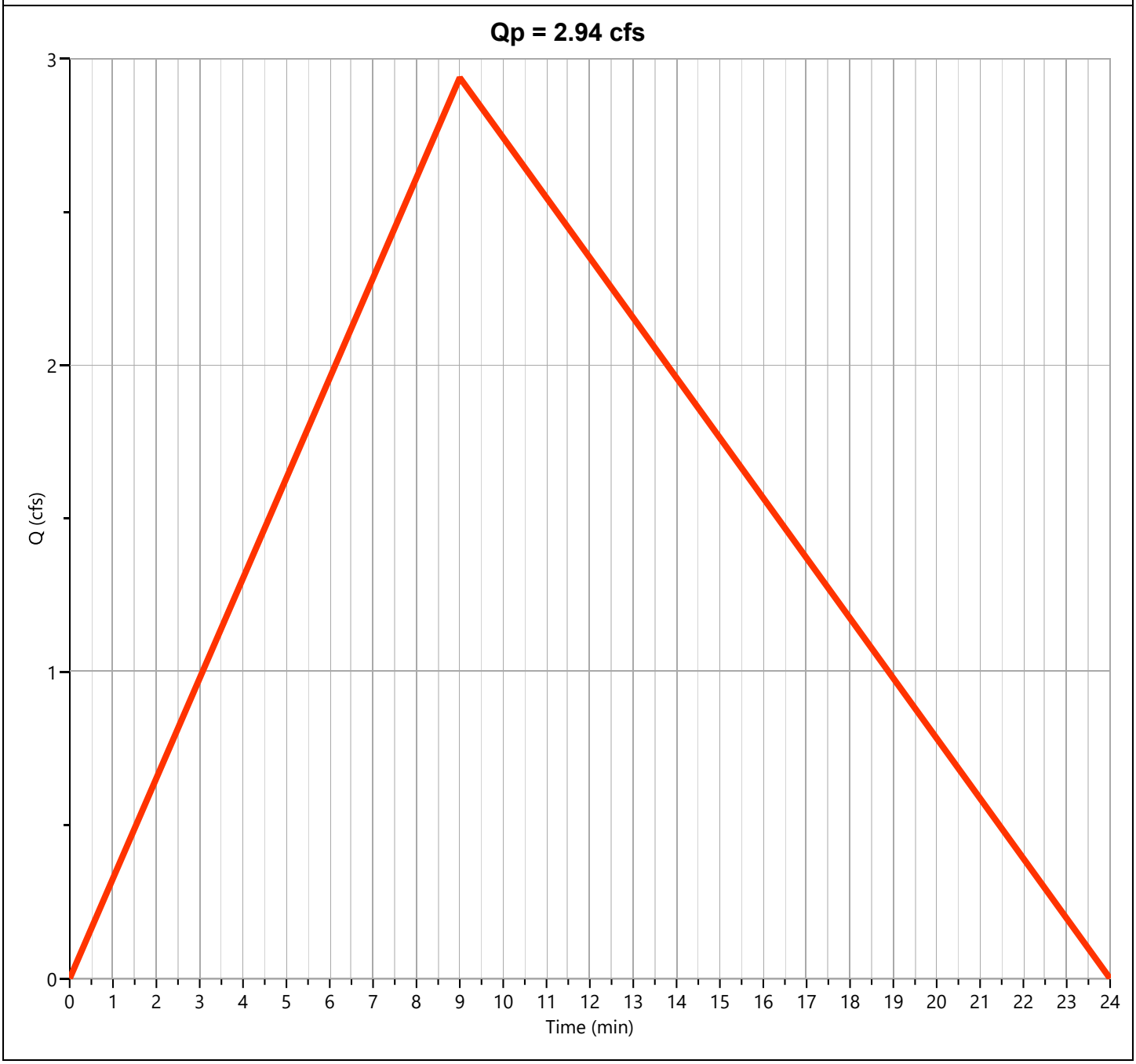
Hydrology Studio v 3.0.0.27

05-02-2025

Pre-Dev Basin

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 2.938 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 2,118 cuft
Drainage Area	= 0.56 ac	Runoff Coeff.	= 0.61
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 8.60 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

Project Name: Jamey South Storage Building

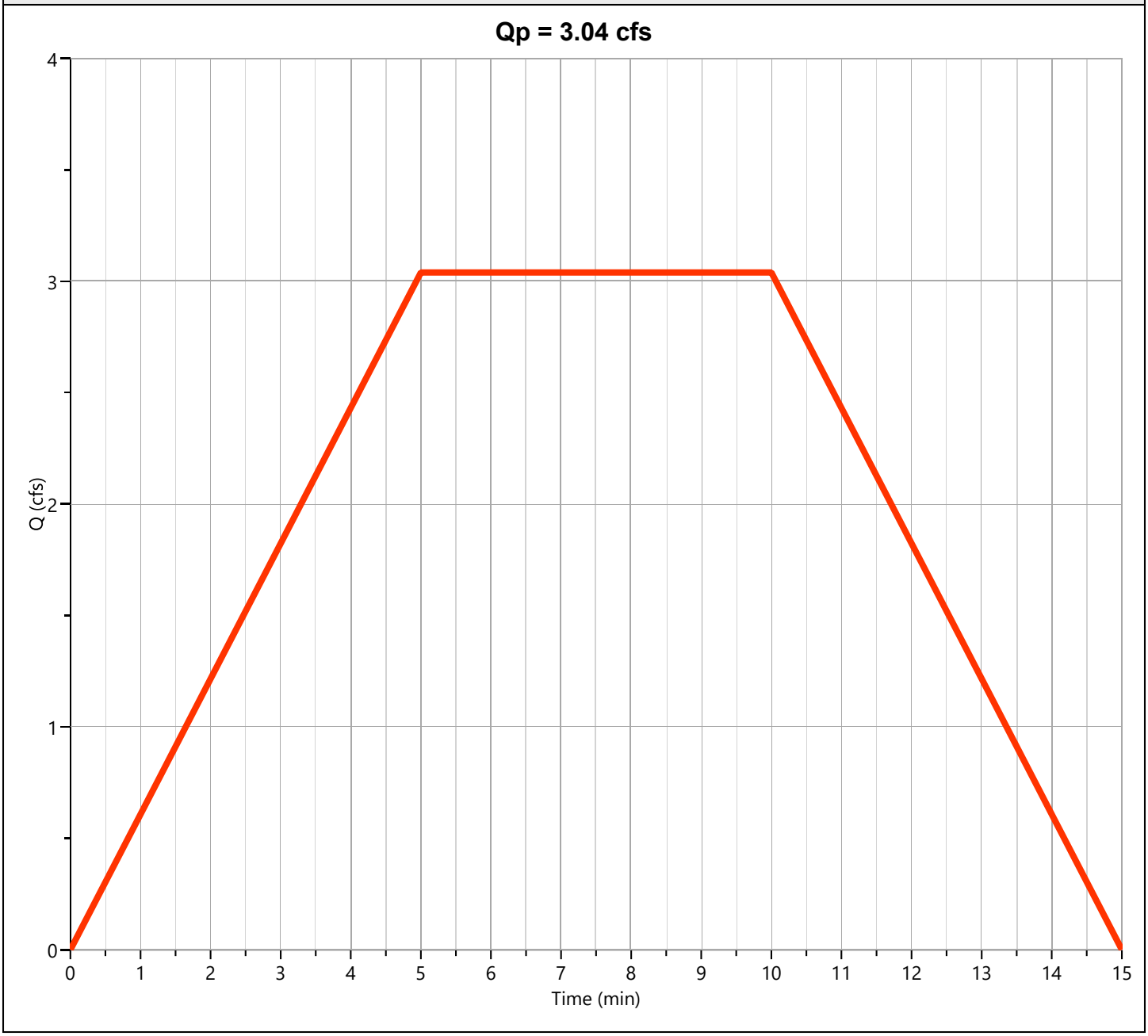
Hydrology Studio v 3.0.0.27

05-02-2025

Post-Dev Basin A

Hyd. No. 2

Hydrograph Type	= Mod Rational	Peak Flow	= 3.040 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 1,824 cuft
Drainage Area	= 0.39 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 8.20 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



Hydrograph Report

Hydrology Studio v 3.0.0.27

05-02-2025

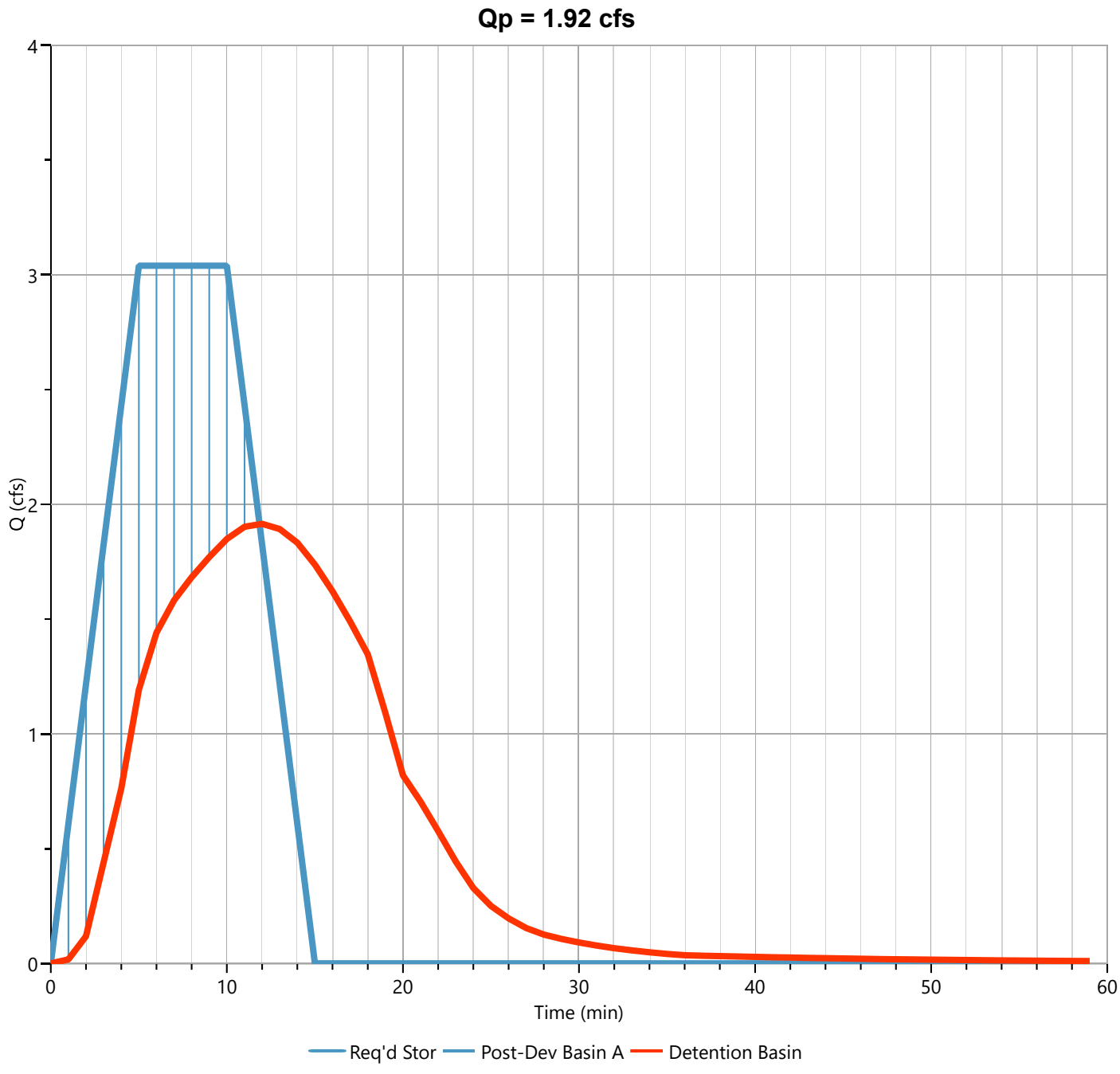
Detention Basin

Hyd. No. 3

Hydrograph Type	= Pond Route	Peak Flow	= 1.915 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,823 cuft
Inflow Hydrograph	= 2 - Post-Dev Basin A	Max. Elevation	= 446.64 ft
Pond Name	= Jamey South Detention Pond	Max. Storage	= 837 cuft

Pond Routing by Storage Indication Method

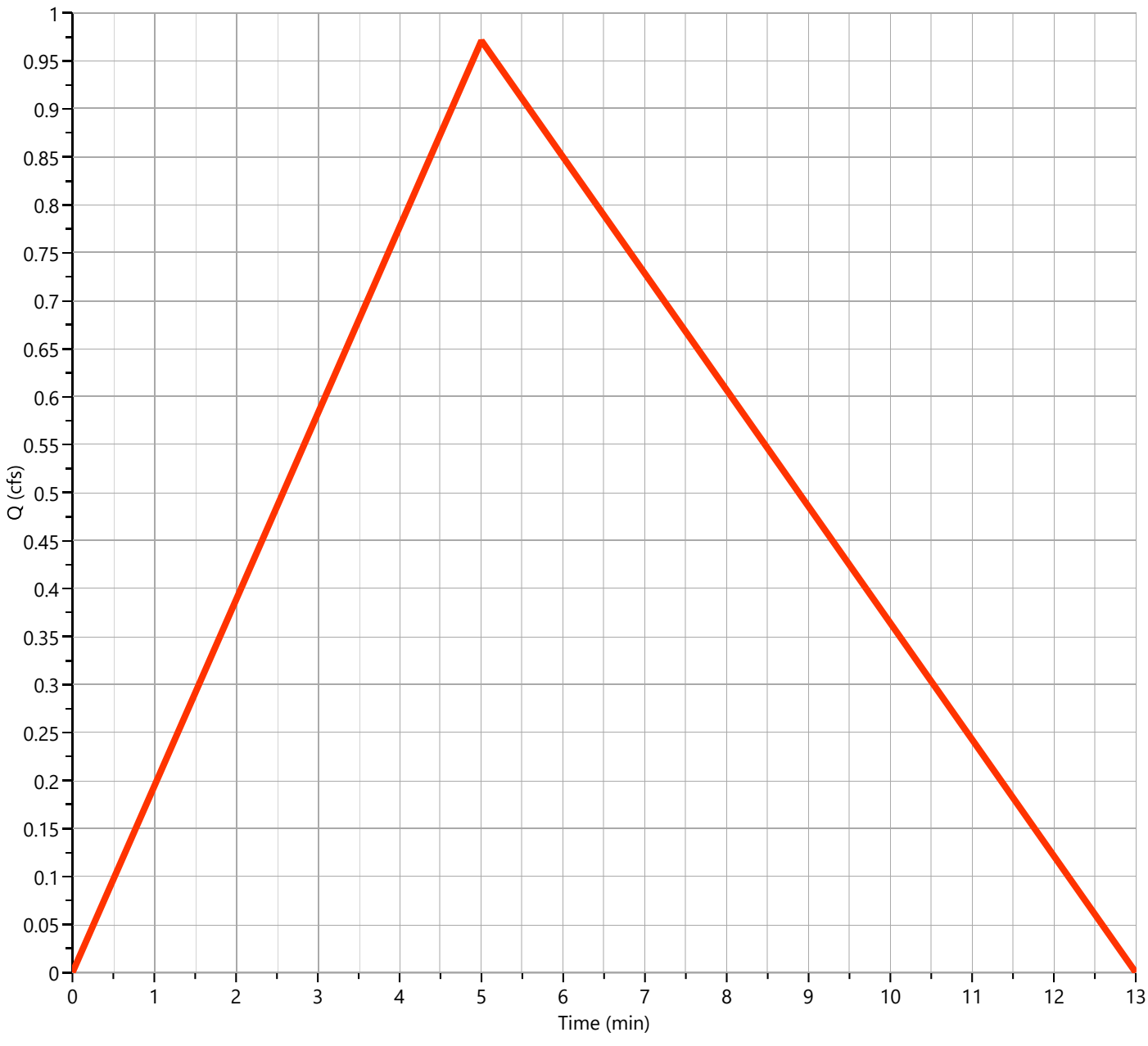
Center of mass detention time = 6 min



Post-Dev Basin B

Hyd. No. 4

Hydrograph Type	= Rational	Peak Flow	= 0.971 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 389 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 11.20 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev

Hyd. No. 5

Hydrograph Type	= Junction	Peak Flow	= 2.310 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,202 cuft
Inflow Hydrographs	= 3, 4	Total Contrib. Area	= 0.17 ac

