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Drainage Calculations
&
Stormwater Management Report

Prepared for

Longleaf Developers, LLC

THE RESIDENCE AT EVERGREEN WALK

Proposed Multifamily Development
Property Located at
Unit #7C Evergreen Walk
South Windsor, Connecticut

May 26, 2023
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1. PROJECT OVERVIEW

The descriptions and computations included within this Engineering Report and Appendix are provided in support of the development of a property known as Unit #7C Evergreen Walk, located to the west of the existing Tempo multifamily development along Longleaf Lane in South Windsor, Connecticut. The current permit applications are for the approvals of a wetlands permit application from the Town of South Windsor Inland Wetlands Agency/Conservation Commission and site plan application from the Town of South Windsor Planning & Zoning Commission.

The overall project will consist of a new 165-unit multifamily development, containing (8) 10-unit buildings with garages, (2) 5-unit buildings with garages, a 4-story 38-unit building, a 4-story 37-unit building, and a clubhouse. Associated with these buildings will be the construction of site access drives, a 92-space parking garage, a 187-space surface parking lot, 93 driveway parking spaces, an outdoor amenity area and other related site improvements.

This property is known as Unit #7C within the Evergreen Walk development and consists of 31.678 acres and is located at the westerly end of Longleaf Lane off of Tamarack Avenue. The property is zoned Buckland Road Gateway Development Zone (GD zone). The majority of the site presently consists of an open meadow. There are two existing stormwater basins along the southerly and westerly edges of the site. These basins were constructed as part of the development for Evergreen Walk and Tempo. The perimeter of the site is wooded with mature deciduous and coniferous trees.

This development will be serviced by public water and sewers. Water will be extended to the project from Longleaf Lane and then looped back into the Tempo development. There is an existing sanitary sewer main that crosses the northern portion of the site. A gravity sewer system will be constructed within the site access drive for this development, which will then discharge to the existing sewer main near the northwest corner of this site. All other utilities such as electric, telephone and cable television will be provided by the existing services adjacent to the project site and shall be located underground. More detailed design information regarding the proposed utilities can be obtained from the site plans.

The storm water management system for this site has been designed utilizing Best Management Practices (BMPs) and Low Impact Development (LID) methods to improve the storm water quality and to attenuate the peak flows to prevent increases in the pre-development runoff rates to the northwesterly corner of this site. The overall storm water management system will consist of several enhancements to the existing Detention Basin #2 along the westerly side of this property, as well as the new construction of (2) proposed Stormwater Quality Basins along the northern side of the site and (7) Rain Gardens to be situated throughout the site, along with several other water quality measures.

The goal of the storm water management design is to provide removal of total suspended solids while attenuating the post development peak runoff rates. For more detailed information regarding storm water quantity, refer to Section 3 and Section 4 of this report. Refer to Section 5 for storm water quality management provided in the proposed design. Design computations and other relevant information are provided in the Appendix of this report.

2. EXISTING SITE CONDITIONS

This property is known as Unit #7C within the Evergreen Walk development and consists of 31.678 acres and is located at the westerly end of Longleaf Lane off of Tamarack Avenue. The property is zoned Buckland Road Gateway Development Zone (GD zone).

The majority of the site presently consists of an open meadow. There are two existing stormwater basins along the southerly and westerly edges of the site. These basins were constructed as part of the development for Evergreen Walk and Tempo. The perimeter of the site is wooded with mature deciduous and coniferous trees.

The topography of the site slopes at a moderate slope of 3%, in a westerly direction. There is an existing drainage swale that runs through the center of this site. This drainage swales conveys stormwater runoff from the Evergreen Walk and Tempo development to the existing Detention Basin #2 along the westerly side of the development. The topography ranges from the highest point of about 98 feet near the eastern portion of the site to the lowest point at roughly 74 feet at the northwesterly corner of the site.

This project site is located within the watershed for Local Basin #4004-01, the Plumb Brook watershed, which is part of the Podunk River Basin (Drainage Basin #4004) as shown on CT DEEP GIS Open Data Website for Local Basin Polygon, updated February 24, 2022.

There are wetlands along the north, west and southerly sides of this site. This wetlands resource was delineated by Matt Davison and Eric Davison, certified wetlands scientists with Davison Environmental Services, LLC. The wetlands to the west and south primarily consists of manmade detention basins. The wetlands soil type in this area are Scitico, Shaker, and Maybid soils and Saco silt loam.

The non-wetlands soils were determined from the available NRSC GIS (Geographic Information System) web-based mapping. Based on this mapping information, primary non-wetlands soil type on this property consists of (28A & 28B) Elmridge fine sandy loam, and (29A & a9B) Agawam fine sandy loam.

In addition, this property is not located within 100-year floodplain boundaries as delineated on the current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). A portion of this map has been included in Appendix A of this report.

3. STORMWATER MANAGEMENT DESIGN

The proposed storm water management system has been designed utilizing BMPs design principles to safely convey storm water runoff from the site while providing storm water quality measures. Stormwater management for the proposed project was achieved by collecting stormwater from the development area of the site through a series of Bio-Retention Swales and conveying it to the Stormwater Quality Basin, which has been designed to attenuate the proposed peak flow rates in order to prevent increases in the existing peak flow rates from this project. In addition, the collection system will incorporate several storm water quality measures designed to provide storm water treatment before discharging from the proposed project site. More information regarding water quantity (hydrology) can be found in Section 4. Stormwater quality management is discussed further in Section 5.

The computer program entitled "Stormwater Studio, ver. 3.0" by Hydrology Studio, was used for designing the proposed storm drainage. Storm drainage computations performed include pipe capacity calculations, hydraulic grade line calculations, and gutter flow (inlet capacity) computations. The overall watershed was divided into sub-basins to determine the drainage area and land coverage to each individual catch basin inlet. These values were used to determine the storm water runoff to each inlet using the Rational Method. The rainfall intensities utilized in the storm drainage computations were obtained from the web-based NOAA's National Weather Service Hydrometeorological Design Studies Center Precipitation Frequency Data Server (PFDS) NOAA Atlas 14, Vol 10, Ver. 2 for 151 Buckland Street, South Windsor, CT.

The proposed storm drainage systems were designed according to sound engineering practices to provide adequate pipe capacity to convey the 25-year storm event. In addition, the storm drainage design analysis includes a complete hydraulic grade line computation, which ensures adequate capacity for the 25-year storm event. A gutter flow analysis was performed on the storm drainage system as well to ensure adequate spacing and inlet capacity for the 25-year storm event. In addition, the outlet pipe from the proposed outlet control structure of the detention basin was sized with adequate capacity to convey the 100-year storm event. All storm drainage computations described in this section are provided in the Appendix of this report.

The use of a stormwater level spreader was utilized at the discharge point from the Stormwater Quality Basins as well. The purpose of the level spreaders is to prevent erosion of the soils at the outlet of this system. The level spreader has been designed with adequate overflow discharge capacity to meet the 100-year peak flow rate from the proposed stormwater quality basin.

4. HYDROLOGY ANALYSIS

The storm water management system has been designed in part to attenuate the proposed peak rates of runoff from the project site. In order to analyze the predevelopment and post development peak flow rates from this site, there were three drainage areas to the points where stormwater discharges and drains from this site. Subarea A is a 5.48-acre portion of this site that discharges to existing detention basin #2. This detention basin discharges through a level

spreader towards the wetlands at the northwest corner of the site. Subarea B is a 3.11-acre portion of this site that discharges towards the wetlands at the northwest corner of this site. Because both of these subareas discharge to the same area, the sum of the flows analyzed to this location is called Design point #1. Subarea C is the third subarea that was analyzed. This subarea is about 4.51 acres. These subareas are shown on a watershed map for both pre and post conditions and is included in Appendix G of this report.

The principal method of predicting the surface water runoff rates utilized in this analysis is a computer program entitled "Hydrology Studio V. 3.0". The "Hydrology Studio" computer modeling program utilizes the same methods for computing runoff rates that were originally developed by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, formerly known as the Soil Conservation Service or SCS), also utilized in the TR-20 computer modeling program and others. The "Hydrology Studio" computer program forecasts the rate of surface water runoff and river flow rates based upon several factors. The input data includes information on land use, hydrologic soil type, and vegetation conditions, contributing watershed area, time of concentration, rainfall data, storage volumes, and the hydraulic capacity of structures. The computer model predicts the amount of runoff as a function of time, including the attenuation effect due to flow restriction at roadway culverts, ponds, large wetlands, and floodplains. Runoff rates during specific rainstorms may vary due to different assumptions concerning soil moisture, water levels in ponds, snowmelt, and rainfall patterns. The input data for rainfalls with statistical recurrence frequencies of 2, 10, 25, 50, and 100 years were obtained from the NOAA's National Weather Service Hydrometeorolgical Design Studies Center Precipitation Frequency Data Server (PFDS) NOAA Atlas 14, Vol 10, Ver. 2 for 115 Buckland Road, South Windsor, CT analysis a Type III rainfall pattern with 24-hour duration was used.

The land use for the site under pre and post conditions was determined from the following sources: field survey, the proposed site development plans for the on-site drainage areas, and Town of South Windsor GIS mapping for the overall drainage subareas. Land use types used in the analysis included paved areas, wooded areas (with understory in good condition), grass areas, commercial area (72% impervious coverage) and multifamily residential areas. Soil types in the watershed were determined from the available GIS (Geographic Information System) database of the NRCS soil survey for South Windsor, Connecticut. The study area was determined to contain hydrologic soil types B & C as classified by the NRCS and as shown on the attached mapping in Appendix A of this report.

The pre-conditions were modeled with the Hydrographs computer program to determine the flow rates for the various storm events at the analysis point. A revised model was developed incorporating the post site conditions, and flows obtained with the revised model were then compared to the results of the existing conditions model. The stormwater quality basins were incorporated into the proposed model, which illustrated the attenuation capabilities of these structures.

The NRCS Reservoir routing subroutine utilized within the Hydro Studio computer program was used to design the detention basin storage and outlet control requirements. All Hydrographs input computations and model results are included in Appendix E (for pre-development conditions) and Appendix F (for post development conditions) of this report.

The analysis points, as shown on the existing and proposed conditions watershed maps, were used to determine the peak flow rates. These analysis points were chosen based on the fact that they both receive some storm water runoff from a portion of the project site. Therefore, the pre and post hydrology analysis of these areas provided a comparison of the peak flow rates that ultimately provided guidance when designing the storm water management system.

Stormwater management for the project was achieved by routing the storm water runoff from the developed subareas of the site through the existing detention basin and the proposed stormwater quality basins. The stormwater discharge rates were attenuated by using either the existing or proposed outlet control structures. The following is the description of each outlet and Stormwater Wetland / Pond routing results and the peak flows for each of the basins.

The outlet structure for the existing detention basin consists of a precast concrete structure with a 4”diameter orifice opening located towards the bottom of the structure. The overflow flow for this structure is through a type “CL” catch basin grate at the top. This structure discharges through a 12” RCP pipe under the berm for the detention basin and then outlets to a riprap level spreader to the north of the basin. The following is the Stormwater Wetland / Pond routing results and the peak flows to the design point:

Stormwater Wetlands / Pond Routing Information for Exist. Detention Basin #2							
Storm Frequency	1	2	5	10	25	50	100
Peak Inflow (c.f.s.)	34.01	45.79	66.01	83.27	106.8	124.6	143.6
Peak Outflow (c.f.s.)	0.54	0.63	0.75	0.85	0.96	1.03	1.10
Max. Water Surface El.	78.83	79.41	80.40	81.23	82.34	83.17	84.03
Max. Storage Vol .(cu.f.)	88,808	122,753	183,045	236,150	310,381	367,651	429,346

The outlet structure for Stormwater Quality Basin #1 consists of precast concrete structure with a 90° "V" notch weir in the face of the structure. The overflow will be through a 4' wide rectangular weir at the top of the structure. This structure discharges through an 18" RCP pipe under the berm for the detention basin, then outlets into Stormwater Quality Basin #2. This Basin will also have an 8' wide emergency spillway formed above the top of the weir. The proposed basin has been designed to provide approximately one foot of freeboard during the 100-year storm event. The following is the Stormwater Wetland / Pond routing results and the peak flows to the design point:

Stormwater Wetlands / Pond Routing Information for Proposed Stormwater Quality Basin #1							
Storm Frequency	1	2	5	10	25	50	100
Peak Inflow (c.f.s.)	5.60	7.62	11.53	14.49	18.48	21.46	24.62
Peak Outflow (c.f.s.)	0.26	0.76	2.07	4.24	8.29	10.92	14.02
Max. Water Surface El.	81.40	81.61	81.92	82.23	82.61	82.87	83.12
Max. Storage Vol .(cu.f.)	8,820	10,297	12,507	14,941	18,074	20,2019	22,388

The outlet structure for Stormwater Quality Basin #2 will also consists of precast concrete structure with a 90° "V" notch weir in the face of the structure. The overflow will be through a 4' wide rectangular weir at the top of the structure. This structure discharges through an 18" RCP pipe under the berm for the detention basin, then outlets into the same level spreader to which the existing detention basin #2 outlets. This Basin will also have an 8' wide emergency spillway formed above the top of the weir. The proposed basin has been designed to provide approximately one foot of freeboard during the 100-year storm event. The following is the Stormwater Wetland / Pond routing results and the peak flows to the design point:

Stormwater Wetlands / Pond Routing Information for Proposed Stormwater Quality Basin #2							
Storm Frequency	1	2	5	10	25	50	100
Peak Inflow (c.f.s.)	0.27	0.76	2.12	4.35	8.52	11.28	14.49
Peak Outflow (c.f.s.)	0.15	0.41	1.68	3.20	6.77	10.45	14.11
Max. Water Surface El.	78.83	79.98	80.08	80.15	82.34	80.35	80.43
Max. Storage Vol .(cu.f.)	4,733	5,208	5,533	5,751	6,131	6,442	6,711

Based on the basin routing above, the outlet hydrographs and remaining bypass subareas were merged together to determine the peak flows at each design point. Below is the result for each design point:

Peak Flow at Design Point "1" (Sum of flow to level spreader at northwest property corner)							
	Peak Flow Rates (cfs)*						
Storm Frequency (years)	1	2	5	10	25	50	100
Pre Development Conditions	2.75	*3.84*	*6.11*	*8.14*	*11.00*	*13.20*	*15.58*
Post Development Conditions	*0.68*	*1.01*	*2.34*	*3.91*	*7.49*	*11.19*	*14.87*
*cfs = cubic feet per second							
Peak Flow at Design Point "2" (Sum of flow to Existing Detention Basin #1, south side of property)							
	Peak Flow Rates (cfs)*						
Storm Frequency (years)	1	2	5	10	25	50	100
Pre Development Conditions	20.34	*27.67*	*40.37*	*51.39*	*66.48*	*77.94*	*90.21*
Post Development Conditions	*20.14*	*27.12*	*39.09*	*49.32*	*63.25*	*73.77*	*85.00*
*cfs = cubic feet per second							

For more detailed information of these routings, see Appendix E "Hydroflow Hydrograph ™ Computer Model Report Pre-Development" and Appendix F "Hydroflow Hydrograph ™ Computer Model Report Post-Development" in this report.

The summary of results for design point #1 above shows that there are no increases for a 1, 2, 5 ,10, 25, 50 & 100 year storm event. Instead, a slight decrease in flow rate for these storm events can be anticipated due to the storm water management system and the detention provided. This slight decrease in peak flow rate at the design point "1" is 2.07 cfs for a 1-year storm event ranging to 0.71 cfs for the 100-year storm.

The summary of results for design point #1 above shows that there are no increases for a 1, 2, 5 ,10, 25, 50 & 100 year storm event. Instead, a slight decrease in flow rate for these storm events can be anticipated due to a reduction of the drainage area discharging to it. This slight decrease in peak flow rate at the design point "1" is 0.20 cfs for a 1-year storm event ranging to ***5***.21 cfs for the 100-year storm.

5. WATER QUALITY MANAGEMENT

Several water quality measures or BMPs are incorporated into the storm water management design to maintain water quality. All of the best management control measures described in this section will help maintain the water quality of the storm water runoff from the proposed development.

Storm water runoff from the proposed site will be collected by a series of rain gardens and underground detention systems and conveyed via a subsurface pipe and catch basin drainage system. The drainage system will include catch basins with two-foot sumps with hooded outlets, which trap coarse sediments. The two-foot stumps and hooded outlets utilized in the storm drainage design will increase the system's ability to remove suspended solids and trap floatable debris before discharging to the Stormwater Quality Basins.

The stormwater management system also incorporates the use of a combination of Stormwater Quality Basins in accordance with the Connecticut Department of Environmental Protection's (CT DEP) Stormwater Quality Manual (SWQM), Chapter 11, Pages 11-P1-1 to 11-P1-15 (for Stormwater Ponds) and Pages 11-P2-1 to- 1-P2-14 (for Stormwater Wetlands). These Stormwater Quality Basins and Bio-retention Swales were designed to treat 100% of the Water Quality Volume (WQV). This will enhance water quality by providing additional storage volume or detention volume within the basin creating a water quality feature. Although the majority of the volume provided in the pond is for flow attenuation purposes, the bottom portion of the pond has been shaped to provide retention volume. Providing this water quality measure serves several purposes including storm water renovation, first flush retention, and creation of new wetlands habitat. A more detailed explanation of each of these measures follows.

The Stormwater Quality Manual (Chapter 7) also recommends methods for sizing storm water treatment measures with the Water Quality Volume (WQV) and computations. The WQV addresses the initial storm water runoff, also commonly referred to as the "first flush" runoff. The WQV provides adequate volume to store the initial one inch of runoff, which tends to contain the highest concentrations of potential pollutants. Supporting calculations for the volume provided, as well as WQV computations, have been included in Appendix C of this report.

There will be a sediment forebays constructed at the outlet of the drainage system into the Existing Detention Basin #2 and the Proposed Stormwater Quality Basins 1 & #2. These sediment forebays will improve water quality by trapping floatables, as well as filtering coarse sediment and other pollutants. As per the recommendation of the DEEP SWQM, these forebays were designed to treat a minimum of 10% of the WQV . The forebays will be constructed using a riprap filter berm and a riprap splash pad. Riprap splash pads (Energy Dissipaters) dissipate the potential erosive velocity of storm water entering the basin, as well as trap sediment, while the riprap filter berm will contain the sediment within a small area in the basin allowing easy maintenance.

The Stormwater Quality Basins will be constructed wetlands that will incorporate marsh areas around the perimeter and permanent pools to provide enhanced treatment and attenuation of stormwater flows. This Stormwater Wetlands/Pond will differ from a stormwater pond in that the wetlands vegetation is the major element of the overall treatment mechanism as opposed to a supplementary component. The (WQV) treatment

of this feature will provide approximately 1 foot of additional depth below the lowest outlet providing moisture to support the proposed vegetation. The vegetation will provide pollutant removal by filtering storm water runoff and will utilize excess nutrients that may be present in the storm water. The Stormwater runoff above the (WQV) from this basin will be discharged through a concrete outlet structure with a V-notch weir in it to attenuate the flow rate out and as further described in section 4 of this report.

Erosion and Sediment Control Measures

A detailed Sediment and Erosion (S&E) Control Plan has been developed to mitigate the short-term impacts of the development during construction. The S&E Control Plan includes a detailed proposed construction sequence in addition to descriptive specifications concerning land grading, top soiling, temporary vegetative cover, permanent vegetative cover, and vegetative cover selection and mulching, and erosion checks. Details have been provided for all erosion control measures with corresponding labels on the S&E control site plan. Specific measures are outlined on sheets #C-13, C-14, C-16 & C-18 of the plans.

STORMWATER SYSTEM MAINTENANCE

The site will be maintained in a clean condition at all times by implementing good housekeeping measures. Trash and surface debris will be removed from parking areas and stormwater structures. The site will be regularly cleaned of trash and debris. Stormwater structures (i.e., catch basins, stormwater quality basin, bio retention swales, underground detention systems, and level spreader, etc.) and outfalls will be cleaned of sediment and debris at least once a year during the month in the spring (once snow melt is complete) and at other times as necessary to prevent the off-site discharge of pollutants from the structures or outfalls. Special attention will be directed to the stormwater management basin identified on the site engineering drawings.

Stormwater Management Structures	Checked for...
Catch Basin	Accumulated sediment & debris
Stormwater Quality Basin & Rain Garden	Accumulated sediments, debris, evidence of erosion, etc.
Level Spreader at Outlet of Drainage System	Accumulated sediments in the structure, debris in structure, along outlet weep holes, and riprap outlet pad, and erosion, etc.

A member of the maintenance crew will complete thorough, quarterly inspections and complete inspection checklists.

SWEEPING SCHEDULE

All parking areas, sidewalks, loading areas and driveways will be swept as needed, with automatic air sweeping and vacuuming equipment

STORMWATER QUALITY BASIN

The following are the inspection and maintenance practices that will be used to maintain the storm water quality basin.

- The storm water quality basin will be monitored for a 3-year period by Davison Environmental Services, LLC, or other qualified soil scientist. The monitoring will address the success of the planting. The monitoring report will make recommendations on any remedial measures needed, if any. Photographs of the storm water quality basin will be included in the monitoring reports. Monitoring results will be sent to the Town of South Windsor Wetland Enforcement Officer annually.

- FIRST YEAR MONITORING:

    - The storm water quality basin shall be inspected by Davison Environmental Services, LLC, soil scientist or other qualified soil scientist or design engineer on the day following a rain event over 0.5 inches during the growing season, in the year following construction. A brief report that the basin has been inspected and appears to comply with the specification will be provided to the Town of South Windsor Wetlands Enforcement Officer. If problems are noted, a detailed report shall be provided to the Town of South Windsor Wetlands Enforcement Officer on mitigation measures that will be employed to correct the problem.

    - Inspect and clean storm water quality basin twice a year during the first year, annually thereafter, for cracking or erosion of side slopes, embankments, accumulated sediment, vegetative conditions, etc. Necessary sediment removal, earth repair, and/or reseeding will be performed immediately upon identification. If sediment build-up is found, core aeration or cultivating may be required to ensure adequate infiltration.

- LONG TERM MAINTENANCE SCHEDULE

    - Inspect storm water quality basin once annually, in the spring, for accumulated sediment. Necessary sediment removal will be performed immediately upon identification.

    - Inspect sediment forebay monthly for erosion of side slopes and accumulated sediment. Necessary sediment removal, earth repair and/or reseeding shall be performed immediately upon identification. Clean forebay approximately two times a year or as needed.

    - Annually mow bottom of forebay and main cell of basin and other areas as needed to control invasive colonization. A good time to mow is late winter, under frozen conditions. This lets the meadow's vegetation provide flowers, which then provide shelter and seeds during the fall and winter.

    - The basin area will be regularly inspected within 24 hours following the end of any storm event of 1-inch or greater.

- A maintenance inspection report will be made after each inspection. All reports shall be kept on file in the on-site maintenance office.
- The stormwater basin will be maintained in good condition. If a repair is necessary, it will be initiated in a timely manner.
- Built up sediment will be removed from inlets and all other areas in the basins where excessive accumulation of sediment may occur. All sediment will be removed from the forebay area of the stormwater basin when the depth of sediment exceeds 6 inches. There shall be no accumulated sediment allowed in the main cell of the basin.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth of vegetation.
- Trash and debris will be cleaned from stormwater quality basin.
- Annual mowing of the side slopes of the basin will be completed each fall to prevent growth of invasive species in the basins. Mowing is required for areas such as slopes when the grass/ground cover exceeds 6 inches in height. Dense cover on all slopes will be maintained.
- If there is any evidence of rodent holes, the rodents should be removed and any damage repaired.
- Replace rocks missing from splash pads or channel if there is any exposed soil or if there is only one layer of rock above native soil.
- The Outlet Control Structure shall be inspected a minimum of twice a year or after any rain event in excess of 1.0 inch for build-up of debris or vegetation against weirs and outlet pipes from the structures. If a build-up occurs, it shall be removed and disposed of off-site.

Level Spreader

The following are the inspection and maintenance practices that will be used to maintain the level spreader at the outlet from stormwater quality basin.

- The level will be monitored for a 3-year period by James Cassidy, P.E. or another qualified professional engineer. The monitoring will address that the level spreader is functioning properly. The monitoring report will make recommendations on any remedial measures needed, if any. Monitoring results will be sent to the Town of South Windsor Wetland Enforcement Officer annually.

- FIRST YEAR MONITORING:

    - The level shall be inspected by James Cassidy, P.E. or by another qualified professional engineer on the day following a rain event over 0.5 inches during the year following construction. A brief report that the level spreader has been inspected and appears to comply with the specification will be provided to the Town of South Windsor Wetlands Enforcement Officer. If problems are noted, a detailed report shall be provided to the Town of South Windsor Wetlands Enforcement Officer on mitigation measures that will be employed to correct the problem.

    - Inspect and clean level spreader twice a year during the first year, annually thereafter, for stabilization of the slope above level spreader, accumulated sediment and debris. Necessary sediment removal, earth repair, and/or reseeding will be performed immediately upon identification. If sediment build-up is found, core aeration or cultivating may be required to ensure adequate infiltration.

- LONG TERM MAINTENANCE SCHEDULE

    - The level spreader will be regularly inspected within 24 hours following the end of any storm event of 1-inch or greater.

    - A maintenance inspection report will be made after each inspection. All reports shall be kept on file in the on-site maintenance office.

    - The level spreader will be maintained in good condition. If a repair is necessary, it will be initiated in a timely manner.

    - All sediment will be removed from the level spreader when the depth of sediment exceeds 3 inches. The removal of excess sediment shall be accomplished by use of a vacuum truck. The sediment removed from this structure shall be disposed of off-site.

Yard Maintenance

1. Mowing

- After irrigation, mowing is the most important maintenance operation. With good mowing practices, density, texture, color, root development, wear tolerance and other aspects of turf quality are enhanced, and a healthy turf minimizes the need for use of fertilizers and pesticides.

- When the turf is mowed too closely, it becomes less tolerant of environmental stresses, more disease prone, and more dependent upon a carefully implemented fertilization program. The best approach is to use a high mowing height.

- Any time that grass is in a weakened condition, the mowing height will be raised immediately.

- Growth rate and mowing height have the most influence on mowing frequency. As a rule of thumb, mowing should be done often enough that no more than 30 percent of the leaf is removed at any one mowing. This practice minimizes the effect of mowing on photosynthesis and helps maintain a high percentage of leaf surface, which is necessary for healthy root development.

- Varied mowing patterns on all surfaces encourage upright growth and reduce wheel or mower wear and compaction.

- Research has shown that returning grass clippings to the surface does not greatly increase thatch building up on turf that is otherwise properly managed. Clippings do have significant nutrient value and decompose rapidly thus returning some fertilizer and organic matter to the soil. They also help conserve moisture and insulate the soil.

Appendices

Appendix A

FEMA FLOOD INSURANCE RATE MAP

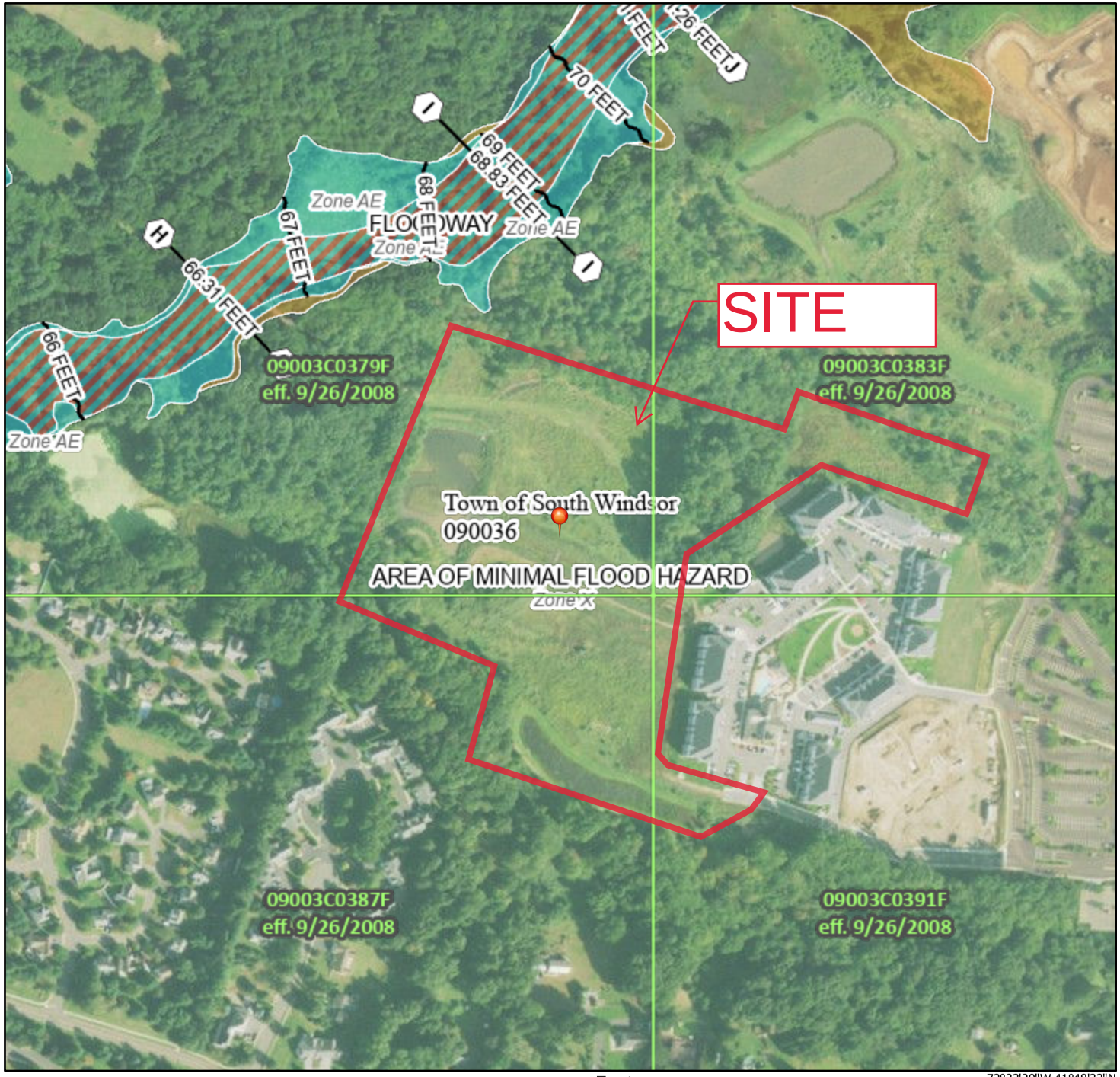
AND

NRCS SOILS MAPPING

National Flood Hazard Layer FIRMette

FEMA

72°34'7"W 41°49'N



72°33'29"W 41°48'33"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap Imagery Source: USGS National Map 2023

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

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- 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*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 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

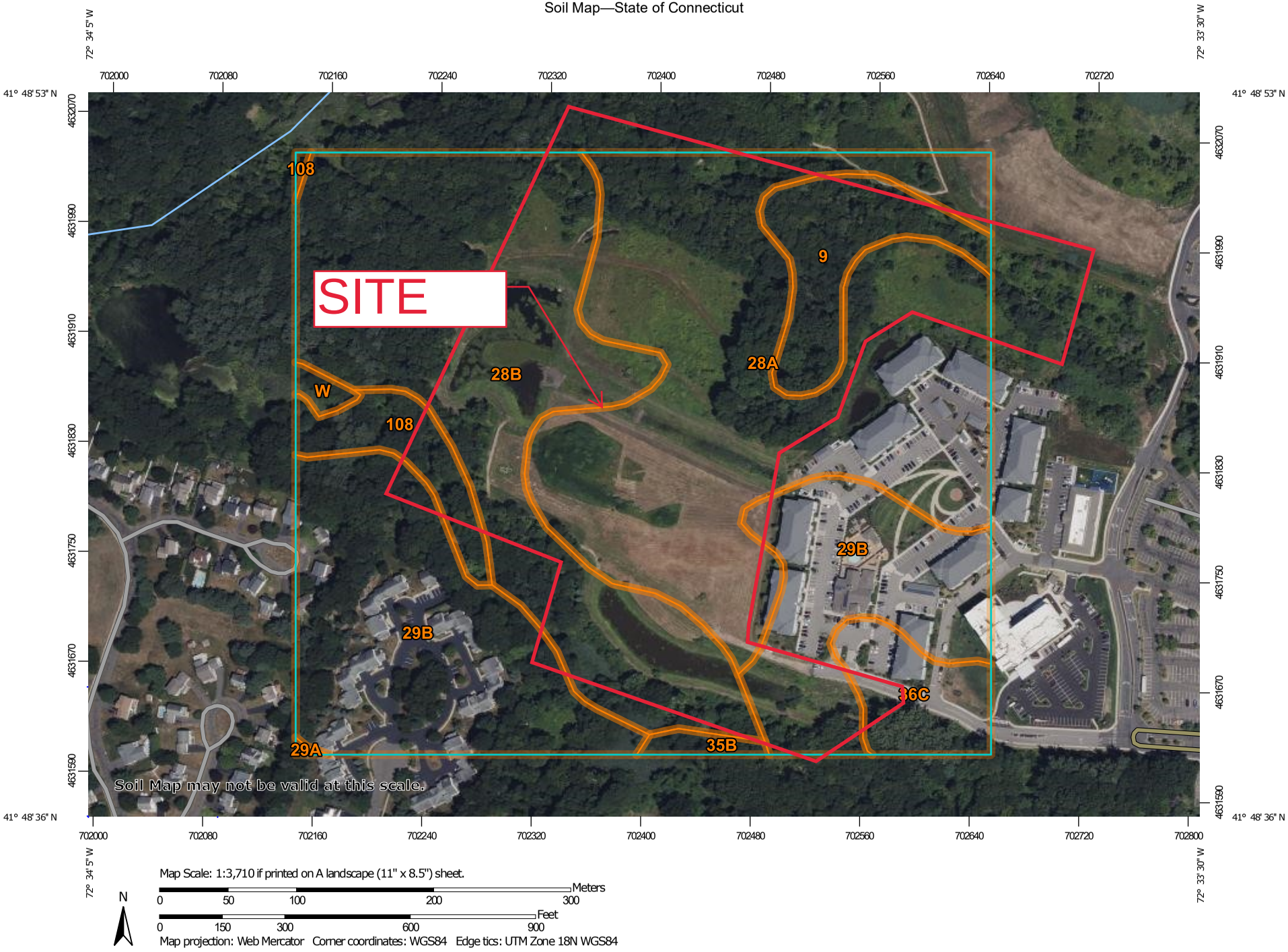
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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 6/26/2023 at 3:52 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.

Soil Map—State of Connecticut



Map Scale: 1:3,710 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

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: Jun 14, 2022—Oct 6, 2022

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
9	Scitico, Shaker, and Maybid soils	2.8	5.1%
28A	Elmridge fine sandy loam, 0 to 3 percent slopes	18.7	33.9%
28B	Elmridge fine sandy loam, 3 to 8 percent slopes	15.0	27.1%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	0.0	0.1%
29B	Agawam fine sandy loam, 3 to 8 percent slopes	14.4	26.0%
35B	Penwood loamy sand, 3 to 8 percent slopes	0.3	0.6%
36C	Windsor loamy sand, 8 to 15 percent slopes	2.0	3.7%
108	Saco silt loam	1.7	3.1%
W	Water	0.2	0.4%
Totals for Area of Interest		**55.2**	**100.0%**

Appendix B

STORM DRAINAGE SUBAREA DATA and COMPUTATIONS

HALLISEY, PEARSON & CASSIDY
Engineering Associates, Inc.
630 MAIN STREET
CROMWELL, CT 06416-1444
TELEPHONE (860) 529-6812

JOB #2574
SHEET NO. 1 OF 11
CALCULATED BY J.P.C DATE 05/22/23
CHECKED BY J.M.P. DATE 05/26/23
SCALE

DRAINAGE AREA DATA:

PRO SA-A.1

TOTAL AREA = 0.1308 AC

PAVED = 0.1136 ACC

LAWN = 0.0172 AC.

$$C = \frac{\overset{0.1022}{(0.1136 \times 0.9)} + \overset{0.0060}{(0.0172\ Ac. \times 0.35)}}{0.1308}$$

C = 0.1082 / 0.1308 = 0.83

T.O.C. ≤ 20' - SHEET FLOW, AVG GRASS @ 2.0% =
90' - SHALLOW CHANNEL, PAVED @ 2.3' =

PRO. SA-A.2.

TOTAL AREA = 0.0396 AC

ALL PAVED

C = 0.9

T.O.C ≤ 5 MINS.

PRO SA-A.3

TOTAL AREA = 0.0588 AC

PAVED = 0.0454 AC

LAWN = 0.0134 AC

$$C = \frac{\overset{0.0409}{(0.0454 \times 0.9)} + \overset{0.0047}{(0.0134 \times 0.35)}}{0.0588\ Ac.}$$

C = 0.0456 / 0.0588 AC = 0.78

T.O.C = 27' - SHEET FLOW, AVG GRASS @ 1.0%
T.O.C. 52' - SHALLOW CHANNEL, PAVED @ 0.5%

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JOB #2574
SHEET NO. 2 OF 11
CALCULATED BY J.P.C. DATE 05/22/23
CHECKED BY J.M.P. DATE 05/26/23
SCALE

DRAINAGE AREA DATA:

PRO SA - A.4

TOTAL AREA = 0.2022 AC

PAVED = 0.1473 AC

LAWN = 0.0549 AC

$$C = \frac{\overset{0.1326}{(0.1473 \times 0.9)} + \overset{0.0192}{(0.0549\ AC \times 0.35)}}{0.2022}$$

$C = 0.1518 / 0.2022 = \cancel{0.86}\ 0.75$

T.O.C = 21' - SHEET FLOW, AVG. GRASS @ 2.0%
72' - SHALLOW CHANNEL, PAVED - 0.7%

PRO SA - A.5

TOTAL AREA = 0.1614 AC

PAVED = 0.1187 AC

LAWN = 0.0427 AC

$$C = \frac{\overset{0.1068}{(0.1187 \times 0.9)} + \overset{0.0149}{(0.0427 \times 0.35)}}{0.1614}$$

$C = 0.1217 / 0.1614 = 0.75$

T.O.C = 33' - SHEET FLOW, AVG. GRASS @ 1.0% =
80' - SHALLOW CHANNEL, PAVED @ 1.0% =

PRO SA - A.6

TOTAL AREA = 0.2455 AC.

PAVED = 0.1869 AC
- 0.0010 AC
- 0.0018 AC
- 0.0057 AC
- 0.0048 AC

0.1734 AC

LAWN = 0.0721 AC

$$C = \frac{\overset{0.1561}{(0.1734 \times 0.9)} + \overset{0.0253}{(0.0721 \times 0.35)}}{0.2455}$$

$C = 0.1814 / 0.2455 = 0.74$

T.O.C. = 51' - SHEET FLOW, AVG GRASS @ 0.6%
257' - GUTTER FLOW, PAVED @ 1.1%

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JOB #2574
SHEET NO. 3 OF 11
CALCULATED BY J.P.C. DATE 05/22/23
CHECKED BY J.M.P. DATE 05/26/23
SCALE

DRAINAGE AREA DATA:

PROP SA - B.7

TOTAL AREA = 0.1577 AC.

PAVED = 0.0991 AC
- 0.0017 AC.
- 0.0033 AC.
0.0941 AC.

LAWN = 0.0636 AC

$$C = \frac{\overset{0.0847}{(0.0941 \times 0.9)} + \overset{0.0223}{(0.0636 \times 0.35)}}{0.1577}$$

$C = 0.1071 / 0.1577 = 0.68$

T.O.C. = 28' - SHEET FLOW, AVG. GRASS @ 1.5% =
148' - SHALLOW CHANNEL, PAVED @ 1.0%

PROP. SA - B.8

TOTAL AREA = 0.1912 AC

PAVED = 0.1294 AC

LAWN = 0.0618 AC.

$$C = \frac{\overset{0.1165}{(0.1294 \times 0.9)} + \overset{0.0216}{(0.0618 \times 0.35)}}{0.1912}$$

$C = 0.1381 / 0.1912 = 0.72$

T.O.C. = 20' - SHEET FLOW, AVG. GRASS @ 1.0%
178' - SHALLOW CHANNEL @ 0.9%

PROP. SA - B.8

TOTAL AREA = 0.1743 AC

PAVED = 0.1081 AC

LAWN = 0.0662 AC

$$C = \frac{\overset{0.0973}{(0.1081 \times 0.9)} + \overset{0.0232}{(0.0662 \times 0.35)}}{0.1743}$$

$C = 0.1205 / 0.1743 = 0.69$

T.O.C. = 33' - SHEET FLOW, AVG GRASS @ 3.0%
97' - SHALLOW CHANNEL, PAVED @ 0.95%

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DRAINAGE AREA DATA:

PRO SA. B.10

TOTAL AREA = 0.1535 AC

PAVED = 0.0972 AC

LAWN = 0.0563 AC

$$C = \frac{\overset{0.0975}{(0.0972 \times 0.9)} + \overset{0.0197}{(0.0563\ AC \times 0.35)}}{0.1535}$$

$C = 0.1072 / 0.1535 = 0.70$

T.O.C. = 27' - SHEET FLOW, AVG GRASS @ 2.0%
55' - SHALLOW CHANNEL, PAVED @ 0.5%

PRO. SA. B.12

TOTAL AREA = 0.1753 AC

PAVED = 0.1355 AC

LAWN = 0.0398 AC.

$$C = \frac{\overset{0.1220}{(0.1355\ AC \times 0.9)} + \overset{0.0139}{(0.0398 \times 0.35)}}{0.1753}$$

$C = 0.1359 / 0.1753 = 0.78$

T.O.C. 27' - SHEET FLOW, AVG. GRASS @ 1.0%
83' - SHALLOW CHANNEL, PAVED @ 1.1%

PRO. SA. B.12

TOTAL AREA = 0.2213 AC.

PAVED = 0.1490 AC

LAWN = 0.0723 AC.

$$C = \frac{\overset{0.1341}{(0.1490 \times 0.9)} + \overset{0.0253}{(0.0723 \times 0.35)}}{0.2213\ AC}$$

$C = 0.1594 / 0.2213 = 0.72$

T.O.C = 30' - SHEET FLOW, AVG. GRASS @ 1.0%
244' - SHEET FLOW, PAVED @ 1.0%

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JOB #2574
SHEET NO. 5 OF 11
CALCULATED BY J.P.C DATE 05/22/23
CHECKED BY J.M.P. DATE 05/26/23
SCALE

DRAINAGE AREA DATA:

PRO. SA B.13

TOTAL AREA = 0.2166 AC

PAVED = 0.0970 AC

LAWN = 0.1196 AC

$$C = \frac{\overset{0.0873}{(0.0970 \times 0.9)} + \overset{0.0419}{(0.1196 \times 0.35)}}{\underset{0.2166\ AC}{}}$$

$C = 0.1292 / 0.2166 = 0.60$

T.O.C. = 53' - SHEET FLOW, AVG. GRASS @ 2.8%
127' - SHALLOW CHANNEL, PAVED @ 1.4%

PRO. SA B.14

~~TOTAL AREA = 0.3614 AC~~

~~PAVED = 0.3027 - 0.0252 - 0.0055 = 0.272~~

~~LAWN = 0.0894~~

$$\cancel{C = \frac{\overset{0.2448}{(0.272 \times 0.9)} + \overset{0.0313}{(0.0894 \times 0.35)}}{0.3614}}$$

~~C = 0.2761 / 0.3614 = 0.81~~

~~T.O.C. = 41' - SHEET FLOW, AVG. GRASS @ 3.6%~~

PRO. SA. B.14

TOTAL AREA = 0.0496 AC

PAVED = 0.0280 AC.

LAWN = 0.0216 AC.

$$C = \frac{\overset{0.0252}{(0.0280 \times 0.9)} + \overset{0.0076}{(0.0216 \times 0.35)}}{0.0496}$$

$C = 0.03276 / 0.0496 = 0.66$

T.O.C. = 36' - SHEET FLOW, AVG. GRASS @ 3.0%
36' - SHALLOW CHANNEL, PAVED @ 1.0%

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JOB # 2574
SHEET NO. 6 OF 11
CALCULATED BY J.P.C DATE 05/22/23
CHECKED BY J.M.P. DATE 05/26/23
SCALE

DRAINAGE AREA DATA:

PROP. SA B.15

TOTAL AREA = 0.2076 AC

PAVED = 0.1741 AC

LAWN = 0.0335 AC

$$C = \frac{\overset{0.1567}{(0.1741 \times 0.9)} + \overset{0.0117}{(0.0335 \times 0.35)}}{0.2076}$$

$C = 0.1684 / 0.2076 = 0.81$

T.O.C. = 27' - SHEET FLOW, AVG. GRASS @ 11.1%
234' - SHALLOW CHANNEL, PAVED @ 2.2%

PROP. SA, A.16

TOTAL AREA = 0.0492 AC

PAVED = 0.0441 AC.
-0.0079 AC.
0.0362 AC.
-0.0087 AC.

LAWN = 0.0130 AC
LAWN = 0.125 AC

$$C = \frac{\overset{0.03258}{(0.0362 \times 0.9)} + \overset{0.0046}{(0.0130 \times 0.35)}}{0.0492}$$

$C = 0.0371 / 0.0492 = 0.75$

T.O.C. = 22' - SHEET FLOW, AVG GRASS @ 1.0%
38' - SHALLOW CHANNEL @ 1.0%

PROP SA, A.17

TOTAL AREA = 0.4367 AC

PAVED = 0.3325 AC.

LAWN = 0.1042 AC.

$$C = \frac{\overset{0.2993}{(0.3325 \times 0.9)} + \overset{0.0365}{(0.1042 \times 0.35)}}{0.4367}$$

$C = 0.3358 / 0.4367 = 0.77$

T.O.C. = 64' - SHEET FLOW, AVG. GRASS @ 1.0%
145' - SHALLOW CHANNEL, PAVED = 1.0%

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JOB #2574
SHEET NO. 7 OF 11
CALCULATED BY J.P.C. DATE 05/22/23
CHECKED BY J.M.P. DATE 05/26/23
SCALE

DRAINAGE AREA DATA:

PROP. SA - A.18

TOTAL AREA = 0.3260 AC.

PAVED = 0.2331 AC.

LAWN = 0.0929 AC

$$C = \frac{\overset{0.2098}{(0.2331 \times 0.9)} + \overset{0.0324}{(0.0927 \times 0.35)}}{0.3260}$$

$C = 0.2422 / 0.3260 = 0.74$

T.O.C. = 25' - SHEET FLOW, AVG. GRASS @ 1.0%
150' - SHALLOW CHANNEL, PAVED @ 1.0%

PROP. SA - A.19

TOTAL AREA = 0.1766 AC

PAVED = 0.1451 AC.

LAWN = 0.0315 AC

$$C = \frac{\overset{0.1306}{(0.1451 \times 0.9)} + \overset{0.0110}{(0.0315 \times 0.35)}}{0.1766}$$

$C = 0.1416 / 0.1766 = 0.80$

T.O.C. ≤ 5 MIN.

PROP. SA - A.20

TOTAL AREA = 0.4391 AC.

PAVED = 0.1891 AC

LAWN = 0.2500 AC.

$$C = \frac{\overset{0.1702}{(0.1891 \times 0.9)} + \overset{0.0875}{(0.2500 \times 0.35)}}{0.4391}$$

$C = 0.2577 / 0.4391 = 0.59$

T.O.C. - 25' - SHEET FLOW, AVG. GRASS @ 19.2%
158' - SHALLOW CHANNEL, PAVED @ 1.0%

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JOB #2574
SHEET NO. 8 OF 11
CALCULATED BY J.P.C. DATE 05/22/23
CHECKED BY J.M.P. DATE 05/26/23
SCALE

DRAINAGE AREA DATA:

PROP SA - A.21

TOTAL AREA = 0.2498 AC.

PAVED = 0.1099 AC.

LAWN = 0.1399 AC

$$C = \frac{\overset{0.0989}{(0.1099 \times 0.9)} + \overset{0.0487}{(0.1399 \times 0.35)}}{0.2498}$$

$C = 0.1476 / 0.2498 = 0.59$

T.O.C. - 53' - SHEET FLOW, AVG. GRASS @ 7.5%
70' - SHALLOW CHANNEL, PAVED @ 0.7%

PROP. SA - A.22

TOTAL AREA = 0.1442 AC

PAVED = 0.1400 AC

LAWN = 0.0042 AC

$$C = \frac{\overset{0.126}{(0.1400 \times 0.9)} + \overset{0.0014}{(0.0042 \times 0.35)}}{0.1442}$$

$C = 0.1300 / 0.1442 = 0.90$

T.O.C ≤ 5 MIN

PROP. SA. A.23 (R.G.)

TOTAL AREA = 0.1622 AC.

PAVED = 0.0990 AC

LAWN = 0.0632 AC

$$C = \frac{\overset{0.0891}{(0.0990 \times 0.9)} + \overset{0.0221}{(0.0632 \times 0.35)}}{0.1622}$$

$C = 0.1112 / 0.1622 = 0.69$

T.O.C ≤ 5 MIN

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DRAINAGE AREA DATA:

PROP. SA-A.24

TOTAL AREA = 0.1192 AC.

PAVED = 0.0556 AC

LAWN = 0.0636 AC

$$C = \frac{\overset{0.0500}{(0.0556 \times 0.9)} + \overset{0.0237}{(0.0636 \times 0.35)}}{0.1192}$$

$C = 0.0737 / 0.1192 = 0.62$

T.O.C. ≤ 5 MIN.

PROP. SA-A.25

TOTAL AREA = 0.1669 AC

PAVED = 0.0933 AC.

LAWN = 0.0736 AC.

$$C = \frac{\overset{0.0839}{(0.0933 \times 0.9)} + \overset{0.0258}{(0.0736 \times 0.35)}}{0.1669}$$

$C = 0.1097 / 0.1669 = 0.66$

T.O.C. ≤ 5 MIN

PROP. SA-A.27

TOTAL AREA = 0.2818 AC

PAVED = 0.2325 AC.

LAWN = 0.0493 AC.

$$C = \frac{\overset{0.2093}{(0.2325 \times 0.9)} + \overset{0.0173}{(0.0493 \times 0.35)}}{0.2818}$$

$C = 0.2266 / 0.2818 = 0.80$

T.O.C. = 41' - SHEET FLOW AVG. GRASS @ 6.1%
247' - SHALLOW CHANNEL, PAVED @ 2.5%

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DRAINAGE AREA DATA:

PROP. SA B.28

TOTAL AREA = 0.6330 AC

PAVED = 0.0507 AC.
0.2687 AC.
0.3194 AC.

LAWN = 0.3136 AC

$$C = \frac{\overset{0.2875}{(0.3194 \times 0.9)} + \overset{0.1098}{(0.3136 \times 0.35)}}{0.6330}$$

$C = 0.3973 / 0.6330 = 0.63$

T.O.C. = 10 MIN.

PRO. SA B.29

TOTAL AREA = 0.1658 AC

PAVED = 0.0352 AC

LAWN = 0.1306 AC

$$C = \frac{\overset{0.0317}{(0.0352 \times 0.9)} + \overset{0.0457}{(0.1306 \times 0.35)}}{0.1658}$$

$C = 0.0774 / 0.1658 = 0.47$

T.O.C = 10 MIN.

PROP. SA. A.26

TOTAL AREA = 0.0337 AC

PAVED = 0.0070 AC.

LAWN = 0.0267 AC.

$$C = \frac{\overset{0.0063}{(0.0070 \times 0.9)} + \overset{0.0094}{(0.0267 \times 0.35)}}{0.0337}$$

$= 0.0157 / 0.0337 = 0.47$

T.O.C = 5 MIN.

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JOB # 2574
SHEET NO. 11 OF 11
CALCULATED BY J.P.C DATE 05/22/23
CHECKED BY J.M.P. DATE 05/26/23
SCALE

DRAINAGE AREA DATA:

PROP SA B-30

TOTAL AREA = 0.2570 AC

PAVED = 0.2161 AC

LAWN 0.0409 AC

$$C = \frac{\overset{0.1945}{(0.2161 \times 0.9)} + \overset{0.0143}{(0.0409 \times 0.35)}}{0.2570}$$

C = 0.2088 / 0.2570 = 0.81

T.O.C = 22' - SHEET FLOW, AVG. GRASS @ 1.0% =
132' - SHALLOW CHANNEL, PAVED @ 2.27%

BUILDING DRAINAGE SUB AC

#1, 3, 4, 5, 6, 7, 8 & 9

TOTAL AREA PER BUILDING = 0.1902 AC
C = 0.9
T.O.C. = 5 min

#2A & #2B

TOTAL AREA PER BUILDING = 0.0951 AC
C = 0.9
T.O.C = 5 MIN.

#10 & #11

TOTAL AREA = 0.2723 AC
C = 0.9
T.O.C = 5 MIN

CLUBHOUSE

TOTAL AREA = 0.1105 AC
C = 0.9
T.O.C = 5 MIN.

Appendix C

WATER QUALITY COMPUTATIONS

Water Quailty Volume (WQV) Calculation for
Proposed Multi-family Development
Residence at Evergreen Walk - Unit #7C, South Windsor, CT
Date: May 26, 2023, Revised: June 23, 2023

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS

SUBAREAS TO STORMWATER QUALITY BASIN #1 & #2 (SA-B)								
SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	WOODED AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.	
PRO-SA-B.7	0.158	0.094	59.670	0.000	0.000	0.064	40.330	
PRO-SA-B.8	0.174	0.108	62.020	0.000	0.000	0.066	37.980	
PRO-SA-B.9	0.191	0.129	67.678	0.000	0.000	0.062	32.322	
PRO-SA-B.10	0.154	0.097	63.322	0.000	0.000	0.056	36.678	
PRO-SA-B.11	0.221	0.149	67.329	0.000	0.000	0.072	32.671	
PRO-SA-B.12	0.175	0.136	77.296	0.000	0.000	0.040	22.704	
PRO-SA-B.13	0.217	0.097	44.783	0.000	0.000	0.120	55.217	
PRO-SA-B.14	0.050	0.028	56.452	0.000	0.000	0.022	43.548	
PRO-SA-B.15	0.208	0.174	83.863	0.000	0.000	0.034	16.137	
PRO-SA-B.27	0.282	0.233	82.505	0.000	0.000	0.049	17.495	
PRO-SA-B.28	0.633	0.319	50.458	0.000	0.000	0.314	49.542	
PRO-SA-B.29	0.166	0.035	21.230	0.000	0.000	0.131	78.770	
PRO-SA-B.30	0.257	0.216	84.086	0.000	0.000	0.041	15.914	
PRO-SA-B.31 (OVERLAND TO SWQB #1)	0.591	0.000	0.000	0.000	0.000	0.591	100.000	
PRO-SA-B.32 (OVERLAND TO SWQB #2)	0.209	0.000	0.000	0.000	0.000	0.209	100.000	
SUM OF SAB (TO SWQS #1 & #2)	3.685	1.816	49.270	0.000	0.000	1.869	50.730	
WATER QUALITY VOLUME (WQV)								
WQV= 1" x R x A/12								
WQV= water quailty volume (ac-ft)								
R= volumetric runoff coefficent = 0.05 + 0.009 (I)								
I= percent impervious cover	49.270							
A= site area in acres	3.685							
WQV (REQUIRED)=	0.140	acre-feet						
WQV (PROVIDED)=	0.137	acre-feet	SWQB #1 between elevations 80.0 to 81.0					
	0.088	acre-feet	SWQB #2 between elevations 78.0 to 79.5					
Total WQV (PROVIDED)=	0.225	acre-feet	or 160.7%					

Water Quailty Volume (WQV) Calculation for
Proposed Multi-family Development
Residence at Evergreen Walk - Unit #7C, South Windsor, CT
Date: May 26, 2023, Revised: June 23, 2023

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS

SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	DET BAS AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.
PRO-SA-A.1	0.131	0.114	86.850	0.000	0.000	0.017	13.150
PRO-SA-A.2	0.040	0.040	100.000	0.000	0.000	0.000	0.000
PRO-SA-A.3	0.059	0.045	77.211	0.000	0.000	0.013	22.789
PRO-SA-A.4	0.202	0.147	72.849	0.000	0.000	0.055	27.151
PRO-SA-A.5	0.119	0.119	100.000	0.000	0.000	0.000	0.000
PRO-SA-A.6	0.246	0.173	70.631	0.000	0.000	0.072	29.369
PRO-SA-A.16	0.049	0.036	73.577	0.000	0.000	0.013	26.423
PRO-SA-A.17	0.437	0.333	76.139	0.000	0.000	0.104	23.861
PRO-SA-A.18	0.326	0.233	71.503	0.000	0.000	0.093	28.497
PRO-SA-A.19	0.177	0.145	82.163	0.000	0.000	0.032	17.837
PRO-SA-A-20	0.439	0.189	43.065	0.000	0.000	0.250	56.935
PRO-SA-A.21	0.250	0.110	43.995	0.000	0.000	0.140	56.005
PRO-SA-A.22	0.144	0.140	97.087	0.000	0.000	0.004	2.913
PRO-SA-A.25	0.167	0.093	55.902	0.000	0.000	0.074	44.098
PRO-SA-A.26	0.034	0.007	20.772	0.000	0.000	0.027	79.228
PRO-SA-A.33 (OVERLAND TO EX DET. BASIN #2)	2.229	0.111	4.963	1.618	72.602	0.500	22.436
PRO-SA-BLDG #3 ROOF	0.190	0.190	100.000	0.000	0.000	0.000	0.000
PRO-SA-BLDG #9 ROOF	0.190	0.190	100.000	0.000	0.000	0.000	0.000
PRO-SA-BLDG #2B ROOF	0.095	0.095	100.000	0.000	0.000	0.000	0.000
PRO-SA-BLDG #10 ROOF	0.272	0.272	100.000	0.000	0.000	0.000	0.000
PRO-SA-BLDG #10 ROOF	0.272	0.272	100.000	0.000	0.000	0.000	0.000
PRO-SA-CLUBHOUSE ROOF	0.111	0.111	100.000	0.000	0.000	0.000	0.000
SUM OF SA-A (TO EX. DET. BASIN #2)	6.177	3.165	51.245	1.618	26.194	1.394	22.561

WATER QUALITY VOLUME (WQV)

WQV= 1" x R x A/12

WQV= water quailty volume (ac-ft)

R= volumetric runoff coefficent = 0.05 + 0.009 (I)

I= percent impervious cover	51.245	
A= site area in acres	6.177	
WQV (REQUIRED)=	0.242	acre-feet

Water Quailty Volume (WQV) Calculation for
Proposed Multi-family Development
Residence at Evergreen Walk - Unit #7C, South Windsor, CT
Date: May 26, 2023, Revised: June 23, 2023

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS

SUBAREAS TO EXIST. DET BASIN #2 FROM EXISTING DEVELOPMENT (SA-EW2)								
SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	DET BAS AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.	
PRO-SA-EW2 (EX. DEVELOPMENT PER F&O STU	33.060	19.373	58.600	0.000	0.000	13.687	41.400	
SUM OF SA-EW2 (TO EX. DET BASIN #2)	33.060	19.373	58.600	0.000	0.000	13.687	41.400	
WATER QUALITY VOLUME (WQV)								
WQV= 1" x R x A/12								
WQV= water quailty volume (ac-ft)								
R= volumetric runoff coefficent = 0.05 + 0.009 (I)								
I= percent impervious cover	58.600							
A= site area in acres	33.060							
WQV (REQUIRED)=	1.591	acre-feet						
SUM OF WQV TO EXIST. DET. BASIN #2 (SA-A + SA-EW2)								
WQV required for SA-A=	0.242	acre-feet						
WQV required fro SA-EW2=	1.591	acre-feet						
SUM OF WQV TO EXIST. DET. BASIN #2	1.833	acre-feet						
WQV (PROVIDED)=	2.259	acre-feet	between elevations 77.0 TO 79.0					
	or 123.2%							

Water Quailty Volume (WQV) Calculation for
Proposed Multi-family Development
Residence at Evergreen Walk - Unit #7C, South Windsor, CT
Date: May 26, 2023, Revised: June 23, 2023

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS

SUBAREAS TO RAINGARDEN #2 FROM (SA-A.25)								
SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	DET BAS AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.	
PRO-SA-A.25	0.167	0.093	55.902	0.000	0.000	0.074	44.098	
SA-A (TO RAINGARDEN #2)	0.167	0.093	55.902	0.000	0.000	0.074	44.098	
WATER QUALITY VOLUME (WQV)								
WQV= 1" x R x A/12								
WQV= water quailty volume (ac-ft)								
R= volumetric runoff coefficent = 0.05 + 0.009 (I)								
I= percent impervious cover	55.902							
A= site area in acres	0.167							
WQV (REQUIRED)=	0.011	acre-feet						
WQV (PROVIDED)=	0.0129	acre-feet	between elevations 86.0 to 87.0					
	or 128.9%							
SUBAREAS TO RAINGARDEN #3 FROM (SA-A.24)								
SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	DET BAS AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.	
PRO-SA-A.24	0.119	0.056	46.644	0.000	0.000	0.064	53.356	
SA-A (TO RAINGARDEN #3)	0.119	0.056	46.644	0.000	0.000	0.064	53.356	
WATER QUALITY VOLUME (WQV)								
WQV= 1" x R x A/12								
WQV= water quailty volume (ac-ft)								
R= volumetric runoff coefficent = 0.05 + 0.009 (I)								
I= percent impervious cover	46.644							
A= site area in acres	0.119							
WQV (REQUIRED)=	0.008	acre-feet						
WQV (PROVIDED)=	0.010	acre-feet	between elevations 88.0 to 89.0					
	or 125.0%							

Water Quailty Volume (WQV) Calculation for
Proposed Multi-family Development
Residence at Evergreen Walk - Unit #7C, South Windsor, CT
Date: May 26, 2023, Revised: June 23, 2023

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SUBAREAS TO RAINGARDEN #4 FROM (SA-A.23)								
SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	DET BAS AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.	
PRO-SA-A.23	1.622	0.990	61.036	0.000	0.000	0.632	38.964	
SA-A (TO RAINGARDEN #4)	1.622	0.990	61.036	0.000	0.000	0.632	38.964	
WATER QUALITY VOLUME (WQV)								
WQV= 1" x R x A/12								
WQV= water quailty volume (ac-ft)								
R= volumetric runoff coefficent = 0.05 + 0.009 (I)								
I= percent impervious cover	61.036							
A= site area in acres	1.622							
WQV (REQUIRED)=	0.078	acre-feet						
WQV (PROVIDED)=	0.0127	acre-feet	between elevations 88.0 to 89.0					
	or 162.2%							
SUBAREAS TO RAINGARDEN #5 FROM (SA-A.26)								
SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	DET BAS AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.	
PRO-SA-A.26	0.274	0.007	2.555	0.000	0.000	0.267	97.445	
SA-A (TO RAINGARDEN #5)	0.274	0.007	2.555	0.000	0.000	0.267	97.445	
WATER QUALITY VOLUME (WQV)								
WQV= 1" x R x A/12								
WQV= water quailty volume (ac-ft)								
R= volumetric runoff coefficent = 0.05 + 0.009 (I)								
I= percent impervious cover	2.555							
A= site area in acres	0.274							
WQV (REQUIRED)=	0.005	acre-feet						
WQV (PROVIDED)=	0.006	acre-feet	between eleva	89.5 to 90.0				
	or 120.0%							

Water Quailty Volume (WQV) Calculation for
Proposed Multi-family Development
Residence at Evergreen Walk - Unit #7C, South Windsor, CT
Date: May 26, 2023, Revised: June 23, 2023

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS

SUBAREAS TO RAINGARDEN #6 FROM (SA-A.28)								
SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	DET BAS AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.	
PRO-SA-A.28	0.633	0.319	50.458	0.000	0.000	0.314	49.542	
SA-A (TO RAINGARDEN #6)	0.633	0.319	50.458	0.000	0.000	0.314	49.542	
WATER QUALITY VOLUME (WQV)								
WQV= 1" x R x A/12								
WQV= water quailty volume (ac-ft)								
R= volumetric runoff coefficent = 0.05 + 0.009 (I)								
I= percent impervious cover	50.458							
A= site area in acres	0.633							
WQV (REQUIRED)=	0.028	acre-feet						
WQV (PROVIDED)=	0.032	acre-feet	between elevations 88.0 to 89.0					
	or 114.3%							

SUBAREAS TO RAINGARDEN #7 FROM (SA-A.23)								
SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	DET BAS AREA	% WOODED C	LAWN AREA	% LANDSCAPE COV.	
PRO-SA-A.23	0.162	0.099	61.036	0.000	0.000	0.063	38.964	
SA-A (TO RAINGARDEN #7)	0.162	0.099	61.036	0.000	0.000	0.063	38.964	
WATER QUALITY VOLUME (WQV)								
WQV= 1" x R x A/12								
WQV= water quailty volume (ac-ft)								
R= volumetric runoff coefficent = 0.05 + 0.009 (I)								
I= percent impervious cover	61.036							
A= site area in acres	0.162							
WQV (REQUIRED)=	0.012	acre-feet						
WQV (PROVIDED)=	0.021	acre-feet	between elevations 87.0 to 88.0					
	or 175.0%							

Appendix D

Stormwater Studio, ver. 3.0™

Computer Model Report for On-Site Drainage System

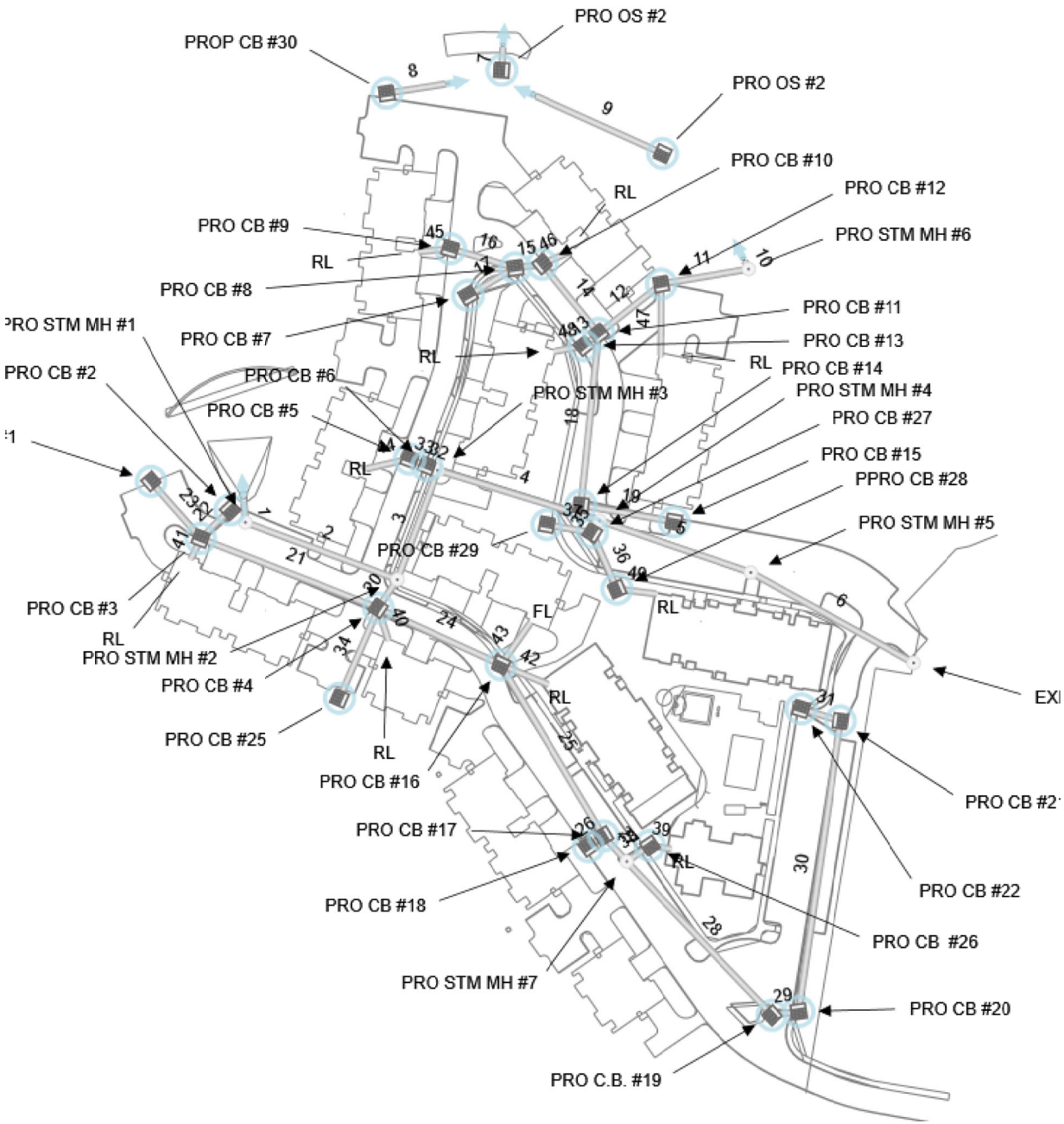
- Stormwater Studio – Plan View
- Storm Sewer Tabulation Report
- Inlet Report
- Energy Grade Line Calculations
- CT DOT Report

Plan View

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-26-2023



Storm Sewer Tabulation

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
PRO STM MH #1 to OUTLET	18.00	0.000	29.314	0.00	0.00	18.98	0.0	22.40	3.98	76.19	155.62	6.10	48	1.00	75.18	75.00	79.03	79.00	88.00	75.00	1
PRO STM MH #2 to PRO STM MH #1	54.00	0.000	29.314	0.00	0.00	18.98	0.0	22.20	4.00	76.57	155.62	9.80	48	1.00	79.67	78.16	82.26	80.38	90.70	88.00	2
PRO STM MH #3 to PRO STM MH #2	108.00	0.000	25.906	0.00	0.00	16.37	0.0	22.04	4.01	66.37	155.62	9.17	48	1.00	80.75	79.67	83.16	81.77	88.20	90.70	3
PRO STM MH #4 to PRO STM MH #3	54.00	0.000	25.661	0.00	0.00	16.19	0.0	21.82	4.04	65.68	155.62	9.31	48	1.00	82.32	80.75	84.72	82.78	88.71	88.20	4
PRO STM MH #5 to PRO STM MH #4	144.00	0.000	24.580	0.00	0.00	15.49	0.0	21.61	4.06	62.84	155.62	9.14	48	1.00	83.80	82.32	86.14	84.31	90.06	88.71	5
EXIST STM MH to PRO STM MH #5	75.00	24.580	24.580	0.63	15.49	15.49	21.4	21.40	4.08	63.17	195.13	9.92	48	1.57	86.52	83.80	88.87	85.59	97.97	90.06	6
PRO OS #2 Tto OUTLET	20.00	0.000	0.000	0.00	0.00	0.00	0.0	0.00	9.05	15.58	11.97	8.82	18	1.30	76.76	76.50	78.44	78.00	80.67	76.50	7
PRO CB #30 to PRO SWQB #2	24.00	0.257	0.257	0.81	0.21	0.21	5.0	5.00	9.05	1.88	7.00	2.07	15	1.00	78.54	78.00	79.25	79.25	83.40	78.00	8
PRO OS #1 to SWQB #2	128.00	0.000	0.000	0.00	0.00	0.00	0.0	0.00	9.05	15.07	11.38	8.53	18	1.00	79.28	78.00	81.75	79.50	83.67	78.00	9
PRO STM MH #6 to SWQB #2	7.00	0.000	1.548	0.00	0.00	1.10	0.0	7.48	7.26	9.25	24.50	2.96	24	1.00	80.07	80.00	82.01	82.00	86.00	80.00	10
PRO CB #12 to PROCB #11	82.00	0.176	1.548	0.77	0.14	1.10	5.3	7.24	7.39	9.39	17.33	3.07	24	0.50	80.48	80.07	82.29	82.19	86.42	86.00	11
PRO CB #11 to PRO CB #12	74.00	0.221	1.372	0.72	0.16	0.96	7.0	7.01	7.52	8.20	17.33	2.83	24	0.50	80.85	80.48	82.46	82.42	86.58	86.42	12
PRO CB #13 to PRO CB #11	18.00	0.217	0.217	0.60	0.13	0.13	6.1	6.12	8.10	1.37	7.00	3.52	15	1.00	83.02	82.84	83.49	83.26	86.52	86.58	13
PRO CB #10 to PRO CB #11	83.00	0.153	0.676	0.70	0.11	0.47	5.0	5.53	8.56	4.68	17.43	1.94	24	0.51	81.35	80.93	82.62	82.61	85.70	86.58	14
PRO CB #8 to PRO CB #10	25.00	0.174	0.523	0.69	0.12	0.37	5.0	5.46	8.62	3.47	11.10	4.49	18	1.00	82.10	81.85	82.81	82.49	85.60	85.70	15
PRO CB #9 to PRO CB #8	62.62	0.191	0.191	0.72	0.14	0.14	5.2	5.16	8.89	1.54	8.39	2.84	15	1.44	83.25	82.35	83.75	83.03	86.50	85.60	16
PRO CB #7 to PRO CB #8	50.58	0.158	0.158	0.68	0.11	0.11	5.2	5.25	8.81	0.95	7.02	3.30	15	1.01	83.18	82.67	83.57	83.00	86.68	85.60	17
PRO CB #14 to PRO CB #11	160.00	0.050	0.258	0.66	0.03	0.20	5.0	5.32	8.75	1.76	11.38	3.93	18	1.00	84.68	83.08	85.19	83.49	88.14	86.58	18
PRO CB #15 to PRO CB #14	87.73	0.208	0.208	0.81	0.17	0.17	5.0	5.00	9.05	1.52	7.05	3.84	15	1.01	85.82	84.93	86.31	85.34	88.77	88.14	19
PRO CB #4 to PRO STM MH #3	22.00	0.202	3.408	0.75	0.15	2.61	5.0	11.10	5.84	15.28	24.12	4.86	24	0.97	80.31	80.00	83.39	83.27	90.00	90.70	20
PRO CB #3 to PRO CB #4	177.00	0.059	0.420	0.77	0.05	0.36	5.2	5.37	8.71	3.14	4.96	4.28	15	0.50	84.14	83.25	84.86	83.97	90.05	90.00	21
PRO CB #2 to PRO CB #3	38.00	0.040	0.040	0.90	0.04	0.04	5.0	5.00	9.05	0.33	3.86	2.52	12	1.00	86.81	86.43	87.05	86.64	89.81	90.05	22

Notes: IDF File = NOAA Atlas 14 idf 10 Version 3 - Tamarack Ave South Windsor.idf, Return Period = 25-yrs.

Project File: 2574.sws

Storm Sewer Tabulation

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
PRO CB #1 to PRO CB #3	70.00	0.131	0.131	0.83	0.11	0.11	5.0	5.00	9.05	0.98	2.73	1.45	12	0.50	84.74	84.39	85.45	85.41	87.74	90.05	23
PRO CB #16 to PRO CB #4	125.00	0.049	2.429	0.75	0.04	1.82	5.0	10.82	5.93	10.79	11.38	6.11	18	1.00	82.06	80.81	84.66	83.53	91.13	90.00	24
PRO CB #17 to PRO CB #16	185.00	0.437	1.918	0.77	0.34	1.37	10.4	10.38	6.06	8.30	11.38	4.70	18	1.00	83.91	82.06	86.30	85.32	90.74	91.13	25
PRO CB #18 to PRO CB #17	17.00	0.326	0.326	0.74	0.24	0.24	5.6	5.56	8.54	2.06	7.00	3.98	15	1.00	87.49	87.32	88.06	87.84	90.74	90.74	26
PRO STM MH #7 to PRO CB #18	32.00	0.000	1.155	0.00	0.00	0.79	0.0	6.83	7.63	6.03	12.56	3.41	18	1.22	84.30	83.91	86.74	86.65	91.00	90.74	27
PRO CB #19 to PRO STM MH #7	176.00	0.177	1.010	0.80	0.14	0.67	5.0	6.30	7.97	5.38	11.38	3.56	18	1.00	86.26	84.30	87.31	86.89	92.50	91.00	28
PRO CB #20 to PRO CB #19	25.00	0.439	0.833	0.59	0.26	0.53	5.0	6.23	8.02	4.28	7.00	5.17	15	1.00	87.76	87.51	88.59	88.28	92.73	92.50	29
PRO CB #21 to PRO CB #20	272.00	0.250	0.394	0.59	0.15	0.27	5.0	5.13	8.92	2.45	5.14	3.01	15	0.63	89.48	87.76	90.11	88.93	93.50	92.73	30
PRO CB #22 to PRO CB #21	38.00	0.144	0.144	0.88	0.13	0.13	5.0	5.00	9.05	1.15	4.38	3.78	12	1.29	90.22	89.73	90.67	90.11	93.11	93.50	31
PRO CB. #6 to PRO STM MH #3	31.00	0.245	0.245	0.74	0.18	0.18	11.4	11.41	5.76	1.36	7.00	3.45	15	1.00	84.63	84.52	85.10	84.95	88.35	88.20	32
PRO CB #5 to PRO CB #6	17.00	0.000	0.000	0.00	0.00	0.00	0.0	5.22	8.84	0.32	3.86	1.72	12	1.00	85.05	84.88	85.29	85.24	88.35	88.35	33
PRO CB #25 to PRO CB #4	91.00	0.167	0.167	0.66	0.11	0.11	5.0	5.00	9.05	1.00	3.86	2.35	12	1.00	84.00	83.09	84.42	83.85	87.00	90.00	34
PRO CB #27 to PRO STM MH #4	48.00	0.282	1.081	0.80	0.23	0.70	5.0	10.22	6.12	4.64	11.38	2.65	18	1.00	84.32	84.19	85.76	85.74	88.35	88.71	35
PRO C.B. #28 to Pro CB #27	57.00	0.633	0.633	0.63	0.40	0.40	10.0	10.00	6.19	2.81	11.38	4.38	18	1.00	86.00	85.43	86.64	85.98	89.00	88.35	36
PRO CB #29 to PRO cb #27	43.00	0.166	0.166	0.47	0.08	0.08	10.0	10.00	6.19	0.48	7.00	0.45	15	1.00	85.00	84.57	85.90	85.90	88.00	88.35	37
PRO CB #26 to PRO STM MH #7	26.00	0.034	0.145	0.46	0.02	0.12	5.0	5.07	8.98	1.04	11.04	2.26	12	8.19	87.50	85.37	87.93	86.96	90.50	91.00	38
CLUBHOUSE RL to CB #26	17.00	0.111	0.111	0.90	0.10	0.10	5.0	5.00	9.05	0.90	1.31	3.73	8	1.00	88.00	87.83	88.45	88.26	94.50	90.50	39
BLDG #2B RL to PRO CB #4	28.00	0.190	0.190	0.90	0.17	0.17	5.0	5.00	9.05	1.55	1.31	4.43	8	1.00	83.37	83.09	84.15	83.76	92.50	90.00	40
BLDG #3 RL to PRO CB #3	18.00	0.190	0.190	0.90	0.17	0.17	5.0	5.00	9.05	1.55	1.31	4.44	8	1.00	84.90	84.72	85.64	85.39	92.00	90.05	41
BLDG #10 TO PRO CB #16	44.00	0.272	0.272	0.90	0.24	0.24	5.0	5.00	9.05	2.22	2.37	4.82	10	1.00	86.07	85.63	86.73	86.28	92.00	91.13	42
BLDG #9 RL to PRO CB #16	44.00	0.190	0.190	0.90	0.17	0.17	5.0	5.00	9.05	1.55	2.36	1.97	12	0.44	82.75	82.56	85.57	85.49	0.00	91.13	43
BLDG #4 RL to PRO CB #5	38.00	0.000	0.000	0.00	0.00	0.00	5.0	5.00	9.05	0.32	1.21	2.64	8	1.00	85.76	85.38	86.03	85.62	0.00	88.35	44

Notes: IDF File = NOAA Atlas 14 idf 10 Version 3 - Tamarack Ave South Windsor.idf, Return Period = 25-yrs.

Project File: 2574.sws

Storm Sewer Tabulation

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
PRO BLDG #5 RL to PRO CB #25	26.00	0.000	0.000	0.00	0.00	0.00	5.0	5.00	9.05	0.32	1.31	2.68	8	1.00	84.09	83.83	84.36	84.06	89.50	86.50	45
PRO BLDG #6 RL to PRO CB #26	26.00	0.000	0.000	0.00	0.00	0.00	5.0	5.00	9.05	0.32	1.31	2.68	8	1.00	82.94	82.68	83.21	82.91	88.00	85.70	46
PRO BLDG #7 RL to PRO CB #13	34.00	0.000	0.000	0.00	0.00	0.00	5.0	5.00	9.05	0.32	1.31	1.68	8	1.00	82.45	81.81	82.72	82.47	90.00	86.42	47
PRO BLDG #8 RL to PRO CB #24	24.00	0.000	0.000	0.00	0.00	0.00	5.0	5.00	9.05	0.32	1.31	2.68	8	1.00	83.84	83.60	84.11	83.83	89.50	86.52	48
PROP BLDG #11 RL to PRO CB #32	32.57	0.000	0.000	0.00	0.00	0.00	5.0	5.00	9.05	0.35	2.38	2.63	10	1.00	90.73	90.39	90.99	90.62	91.50	89.00	49

Notes: IDF File = NOAA Atlas 14 idf 10 Version 3 - Tamarack Ave South Windsor.idf, Return Period = 25-yrs.

Project File: 2574.sws

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 6

EXIST STM MH

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**13.14**	**0.00**	**0.00**	**13.14**
Shallow Concentrated Flow				
Flow Length (ft)	250	500		
Watercourse Slope (%)	1	1		
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	1.61	2.03		
Travel Time (min)	**2.58**	**4.10**	**0.00**	**6.68**
Channel Flow				
X-sectional Flow Area (sqft)	7.07			
Wetted Perimeter (ft)	9			
Channel Slope (%)	1			
Manning's n	0.012	0.000	0.000	
Velocity (ft/s)	10.56			
Flow Length (ft)	1000			
Travel Time (min)	**1.58**	**0.00**	**0.00**	**1.58**
Total Travel Time				**21.4 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 8

PROP CB #30

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	22			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**3.91**	**0.00**	**0.00**	**3.91**
Shallow Concentrated Flow				
Flow Length (ft)	132			
Watercourse Slope (%)	2.27			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	3.06			
Travel Time (min)	**0.72**	**0.00**	**0.00**	**0.72**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 11

PRO CB #12

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	27			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**4.61**	**0.00**	**0.00**	**4.61**
Shallow Concentrated Flow				
Flow Length (ft)	83			
Watercourse Slope (%)	1.1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.13			
Travel Time (min)	**0.65**	**0.00**	**0.00**	**0.65**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5.26 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 12

PRO CB #11

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	30			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**5.01**	**0.00**	**0.00**	**5.01**
Shallow Concentrated Flow				
Flow Length (ft)	244			
Watercourse Slope (%)	1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**2.00**	**0.00**	**0.00**	**2.00**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**7.01 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 13

PRO CB #13

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	53			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	2.8			
Travel Time (min)	**5.24**	**0.00**	**0.00**	**5.24**
Shallow Concentrated Flow				
Flow Length (ft)	127			
Watercourse Slope (%)	1.4			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.41			
Travel Time (min)	**0.88**	**0.00**	**0.00**	**0.88**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**6.12 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 14

PRO CB #10

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	27			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	2			
Travel Time (min)	**3.49**	**0.00**	**0.00**	**3.49**
Shallow Concentrated Flow				
Flow Length (ft)	55			
Watercourse Slope (%)	.5			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.44			
Travel Time (min)	**0.64**	**0.00**	**0.00**	**0.64**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 15

PRO CB #8

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	33			
2-yr, 24-hr Precip. (in)	3.100	3.100	5.209	
Land Slope (%)	3			
Travel Time (min)	**3.49**	**0.00**	**0.00**	**3.49**
Shallow Concentrated Flow				
Flow Length (ft)	97			
Watercourse Slope (%)	.95			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.98			
Travel Time (min)	**0.82**	**0.00**	**0.00**	**0.82**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 16

PRO CB #9

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	20			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**3.62**	**0.00**	**0.00**	**3.62**
Shallow Concentrated Flow				
Flow Length (ft)	178			
Watercourse Slope (%)	.9			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.93			
Travel Time (min)	**1.54**	**0.00**	**0.00**	**1.54**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5.16 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 17

PRO CB #7

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	28			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1.5			
Travel Time (min)	**4.03**	**0.00**	**0.00**	**4.03**
Shallow Concentrated Flow				
Flow Length (ft)	148			
Watercourse Slope (%)	1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**1.21**	**0.00**	**0.00**	**1.21**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5.25 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 18

PRO CB #14

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	36			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	3			
Travel Time (min)	**3.74**	**0.00**	**0.00**	**3.74**
Shallow Concentrated Flow				
Flow Length (ft)	36			
Watercourse Slope (%)	1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**0.30**	**0.00**	**0.00**	**0.30**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 19

PRO CB #15

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	27			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	11.1			
Travel Time (min)	**1.76**	**0.00**	**0.00**	**1.76**
Shallow Concentrated Flow				
Flow Length (ft)	234			
Watercourse Slope (%)	2.2			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	3.02			
Travel Time (min)	**1.29**	**0.00**	**0.00**	**1.29**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 20

PRO CB #4

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	21			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	2			
Travel Time (min)	**2.86**	**0.00**	**0.00**	**2.86**
Shallow Concentrated Flow				
Flow Length (ft)	72			
Watercourse Slope (%)	.7			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.7			
Travel Time (min)	**0.71**	**0.00**	**0.00**	**0.71**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 21

PRO CB #3

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	27			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**4.61**	**0.00**	**0.00**	**4.61**
Shallow Concentrated Flow				
Flow Length (ft)	52			
Watercourse Slope (%)	.5			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.44			
Travel Time (min)	**0.60**	**0.00**	**0.00**	**0.60**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5.21 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 23

PRO CB #1

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	20			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	2			
Travel Time (min)	**2.75**	**0.00**	**0.00**	**2.75**
Shallow Concentrated Flow				
Flow Length (ft)	90			
Watercourse Slope (%)	2.44			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	3.18			
Travel Time (min)	**0.47**	**0.00**	**0.00**	**0.47**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 24

PRO CB #16

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	22			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**3.91**	**0.00**	**0.00**	**3.91**
Shallow Concentrated Flow				
Flow Length (ft)	38			
Watercourse Slope (%)	1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**0.31**	**0.00**	**0.00**	**0.31**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 25

PRO CB #17

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	64			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**9.19**	**0.00**	**0.00**	**9.19**
Shallow Concentrated Flow				
Flow Length (ft)	145			
Watercourse Slope (%)	1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**1.19**	**0.00**	**0.00**	**1.19**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**10.38 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 26

PRO CB #18

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	25			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	1			
Travel Time (min)	**4.33**	**0.00**	**0.00**	**4.33**
Shallow Concentrated Flow				
Flow Length (ft)	150			
Watercourse Slope (%)	1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**1.23**	**0.00**	**0.00**	**1.23**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5.56 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 29

PRO CB #20

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	25			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	19.2			
Travel Time (min)	**1.33**	**0.00**	**0.00**	**1.33**
Shallow Concentrated Flow				
Flow Length (ft)	158			
Watercourse Slope (%)	1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**1.30**	**0.00**	**0.00**	**1.30**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 30

PRO CB #21

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	53			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	7.5			
Travel Time (min)	**3.53**	**0.00**	**0.00**	**3.53**
Shallow Concentrated Flow				
Flow Length (ft)	70			
Watercourse Slope (%)	.7			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.7			
Travel Time (min)	**0.69**	**0.00**	**0.00**	**0.69**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 32

PRO CB #6

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	51			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	.6			
Travel Time (min)	**9.40**	**0.00**	**0.00**	**9.40**
Shallow Concentrated Flow				
Flow Length (ft)	257			
Watercourse Slope (%)	1.1			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.13			
Travel Time (min)	**2.01**	**0.00**	**0.00**	**2.01**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**11.41 min**

TR55 Worksheet

Project Name: Enter Project Name...

Stormwater Studio 2023 v 3.0.0.31

06-25-2023

Line No. 35

PRO CB #27

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.000	0.000	
Flow Length (ft)	41			
2-yr, 24-hr Precip. (in)	3.100	3.100	3.100	
Land Slope (%)	6.1			
Travel Time (min)	**3.12**	**0.00**	**0.00**	**3.12**
Shallow Concentrated Flow				
Flow Length (ft)	247			
Watercourse Slope (%)	2.5			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	3.21			
Travel Time (min)	**1.28**	**0.00**	**0.00**	**1.28**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**5 min**

Composite C Worksheet

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No	Description	Drainage Area (ac)	Runoff Coeff (C)	C x A	Composite (C)	Structure ID
6	Multifamily Unit #7B	7.811	0.60	4.687		EXIST STM MH
	Commercail Dev EW	16.769	0.65	10.900		
	Totals	**24.580**		**15.586**	**0.63**	
8	PAVED	0.216	0.90	0.194		PROP CB #30
	LAWN/LANDSCAPED	0.041	0.35	0.014		
	Totals	**0.257**		**0.209**	**0.81**	
11	PAVED	0.136	0.90	0.122		PRO CB #12
	LAWN/LANDSCAPED	0.040	0.35	0.014		
	Totals	**0.176**		**0.136**	**0.77**	
12	PAVED	0.149	0.90	0.134		PRO CB #11
	LAWN/LANDSCPAED	0.072	0.35	0.025		
	Totals	**0.221**		**0.159**	**0.72**	
13	PAVED	0.097	0.90	0.087		PRO CB #13
	LAWN/LANDSCAPED	0.120	0.35	0.042		
	Totals	**0.217**		**0.129**	**0.60**	
14	PAVED	0.097	0.90	0.087		PRO CB #10
	LAWN/LANDSCAPED	0.056	0.35	0.020		
	Totals	**0.153**		**0.107**	**0.70**	
15	PAVED	0.108	0.90	0.097		PRO CB #8
	LANW/LANDSCAPED	0.066	0.35	0.023		
	Totals	**0.174**		**0.120**	**0.69**	
16	PAVED	0.129	0.90	0.116		PRO CB #9
	LANW/LANDSCAPE	0.062	0.35	0.022		
	Totals	**0.191**		**0.138**	**0.72**	

Project File: 2574.sws

Composite C Worksheet

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No	Description	Drainage Area (ac)	Runoff Coeff (C)	C x A	Composite (C)	Structure ID
17	PAVED	0.094	0.90	0.085		PRO CB #7
	LAWN/LANDSCAPE	0.064	0.35	0.022		
	Totals	**0.158**		**0.107**	**0.68**	
18	PAVED	0.028	0.90	0.025		PRO CB #14
	LAWN	0.022	0.35	0.008		
	Totals	**0.050**		**0.033**	**0.66**	
19	PAVED	0.174	0.90	0.157		PRO CB #15
	LAWN/LANDSCAPE	0.034	0.35	0.012		
	Totals	**0.208**		**0.169**	**0.81**	
20	PAVED	0.147	0.90	0.132		PRO CB #4
	LAWN/LANDSCAPED	0.055	0.35	0.019		
	Totals	**0.202**		**0.152**	**0.75**	
21	PAVED	0.045	0.90	0.041		PRO CB #3
	LAWN/LANDSCAPE	0.013	0.35	0.005		
	Totals	**0.059**		**0.046**	**0.77**	
22	PAVED	0.040	0.90	0.036		PRO CB #2
	Totals	**0.040**		**0.036**	**0.90**	
23	PAVED	0.114	0.90	0.103		PRO CB #1
	LAWN/LANDSCAPE	0.017	0.35	0.006		
	Totals	**0.131**		**0.109**	**0.83**	
24	PAVED	0.036	0.90	0.032		PRO CB #16
	LAWN	0.013	0.35	0.005		
	Totals	**0.049**		**0.037**	**0.75**	

Project File: 2574.sws

Composite C Worksheet

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No	Description	Drainage Area (ac)	Runoff Coeff (C)	C x A	Composite (C)	Structure ID
25	PAVED	0.333	0.90	0.300		PRO CB #17
	LAWN/LANDSCAPED	0.104	0.35	0.036		
	Totals	**0.437**		**0.336**	**0.77**	
26	PAVED	0.233	0.90	0.210		PRO CB #18
	LAWN/LANDSCAPED	0.093	0.35	0.033		
	Totals	**0.326**		**0.242**	**0.74**	
28	PAVED	0.145	0.90	0.131		PRO C.B. #19
	LAWN/LANDSCAPE	0.032	0.35	0.011		
	Totals	**0.177**		**0.142**	**0.80**	
29	PAVED	0.189	0.90	0.170		PRO CB #20
	LAWN/LANDSCAPE	0.250	0.35	0.088		
	Totals	**0.439**		**0.258**	**0.59**	
30	PAVED	0.110	0.90	0.099		PRO CB #21
	LAWN/LANDSCAPE	0.140	0.35	0.049		
	Totals	**0.250**		**0.148**	**0.59**	
31	PAVED	0.140	0.90	0.126		PRO CB #22
	LAWN/LANDSCAPE	0.004	0.35	0.001		
	Totals	**0.144**		**0.127**	**0.88**	
32	PAVED	0.173	0.90	0.156		PRO CB #6
	LAWN/LANDSCAPE	0.072	0.35	0.025		
	Totals	**0.245**		**0.181**	**0.74**	
34	PAVED	0.093	0.90	0.084		PRO CB #25
	LAWN/LANDSCAPE	0.074	0.35	0.026		
	Totals	**0.167**		**0.110**	**0.66**	

Project File: 2574.sws

Composite C Worksheet

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No	Description	Drainage Area (ac)	Runoff Coeff (C)	C x A	Composite (C)	Structure ID
35	PAVED	0.233	0.90	0.210		PRO CB #27
	LAWN	0.049	0.35	0.017		
	Totals	**0.282**		**0.227**	**0.80**	
36	PAVED	0.319	0.90	0.287		PPRO CB #28
	LAWN/LANDSCAPE	0.314	0.35	0.110		
	Totals	**0.633**		**0.397**	**0.63**	
37	PAVED	0.035	0.90	0.032		PRO CB #29
	LAWN/LANDSCAPE	0.131	0.35	0.046		
	Totals	**0.166**		**0.077**	**0.47**	
38	PAVED	0.007	0.90	0.006		PRO CB #26
	LAWN/LANDSCAPE	0.027	0.35	0.009		
	Totals	**0.034**		**0.016**	**0.46**	
39	ROOF	0.111	0.90	0.100		RL
	Totals	**0.111**		**0.100**	**0.90**	
40	ROOK	0.190	0.90	0.171		RL
	Totals	**0.190**		**0.171**	**0.90**	
41	ROOF	0.190	0.90	0.171		RL
	Totals	**0.190**		**0.171**	**0.90**	
42	ROOF	0.272	0.90	0.245		RL
	Totals	**0.272**		**0.245**	**0.90**	

Project File: 2574.sws

Composite C Worksheet

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No	Description	Drainage Area (ac)	Runoff Coeff (C)	C x A	Composite (C)	Structure ID
43	ROOF	0.190	0.90	0.171		FL
	Totals	**0.190**		**0.171**	**0.90**	

Project File: 2574.sws

Energy Grade Line Calculations

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	48	76.19	75.00	4.00	12.56	79.00	6.06	0.57	79.57	18.00	75.18	3.85	12.41	79.03	6.14	0.59	79.61	0.012	0.040	79.43	80.02	0.40
2	48	76.57	78.16	2.22‡	7.15	80.38	10.70	1.78	81.98	151.00	79.67	2.59²	8.60	82.26	8.90	1.23	83.49	0.012	1.510	82.26	83.49	0.00
3	48	66.37	79.67	2.10‡	6.68	81.77	9.94	1.54	83.66	108.00	80.75	2.41²	7.91	83.16	8.39	1.09	84.25	0.012	0.589	83.16	84.25	0.00
4	48	65.68	80.75	2.03‡	6.40	82.78	10.27	1.64	84.44	157.00	82.32	2.40²	7.86	84.72	8.36	1.09	85.80	0.012	1.359	84.72	85.80	0.00
5	48	62.84	82.32	1.99‡	6.24	84.31	10.08	1.58	85.98	148.00	83.80	2.34²	7.65	86.14	8.21	1.05	87.19	0.012	1.215	86.14	87.19	0.00
6	48	63.17	83.80	1.79‡	5.44	85.59	11.61	2.10	87.38	173.00	86.52	2.35²	7.68	88.87	8.23	1.05	89.92	0.012	2.546	88.87	89.92	0.00
7	18	15.58	76.50	1.50³	1.77	78.00	8.82	1.21	79.21	20.00	76.76	1.50	1.77	78.44	8.82	1.21	79.65	0.013	0.440	78.81	80.02	0.37
8	15	1.88	78.00	1.25	1.23	79.25	1.54	0.04	79.29	54.00	78.54	0.71	0.72	79.25	2.61	0.11	79.36	0.012	0.071	79.34	79.45	0.09
9	18	15.07	78.00	1.50³	1.77	79.50	8.53	1.13	80.63	128.00	79.28	1.50	1.77	81.75	8.53	1.13	82.88	0.012	2.247	82.06	83.19	0.31
10	24	9.25	80.00	2.00	3.14	82.00	2.94	0.13	82.13	7.00	80.07	1.94	3.11	82.01	2.97	0.14	82.14	0.012	0.009	82.13	82.27	0.13
11	24	9.39	80.07	2.00	3.14	82.19	2.99	0.14	82.33	82.00	80.48	1.81	2.99	82.29	3.14	0.15	82.44	0.012	0.114	82.33	82.48	0.04
12	24	8.20	80.48	1.94	3.11	82.42	2.63	0.11	82.52	74.00	80.85	1.61	2.71	82.46	3.02	0.14	82.60	0.012	0.080	82.50	82.64	0.04
13	15	1.37	82.84	0.42‡	0.36	83.26	3.77	0.22	83.47	18.00	83.02	0.47²	0.42	83.49	3.27	0.17	83.65	0.012	0.180	83.49	83.65	0.00
14	24	4.68	80.93	1.68	2.82	82.61	1.66	0.04	82.66	83.00	81.35	1.27	2.11	82.62	2.22	0.08	82.70	0.012	0.041	82.64	82.72	0.02
15	18	3.47	81.85	0.64‡	0.73	82.49	4.77	0.35	82.84	25.00	82.10	0.71²	0.82	82.81	4.20	0.27	83.09	0.012	0.242	82.81	83.09	0.00
16	15	1.54	82.35	0.68	0.68	83.03	2.28	0.08	83.11	62.62	83.25	0.50²	0.45	83.75	3.39	0.18	83.93	0.012	0.820	83.75	83.93	0.00
17	15	0.95	82.67	0.33‡	0.26	83.00	3.69	0.21	83.19	50.58	83.18	0.39²	0.33	83.57	2.90	0.13	83.70	0.012	0.510	83.57	83.70	0.00
18	18	1.76	83.08	0.41‡	0.39	83.49	4.50	0.32	83.76	160.00	84.68	0.51²	0.53	85.19	3.36	0.18	85.36	0.012	1.600	85.19	85.36	0.00
19	15	1.52	84.93	0.41‡	0.35	85.34	4.31	0.29	85.60	87.73	85.82	0.49²	0.45	86.31	3.38	0.18	86.49	0.012	0.890	86.31	86.49	0.00
20	24	15.28	80.00	2.00	3.14	83.27	4.86	0.37	83.64	32.00	80.31	2.00	3.14	83.39	4.86	0.37	83.76	0.012	0.124	83.51	83.88	0.12
21	15	3.14	83.25	0.72³	0.73	83.97	4.28	0.28	84.26	177.00	84.14	0.72	0.73	84.86	4.28	0.29	85.15	0.012	0.890	85.14	85.43	0.28
22	12	0.33	86.43	0.21‡	0.12	86.64	2.81	0.12	86.75	38.00	86.81	0.24²	0.15	87.05	2.22	0.08	87.13	0.012	0.380	87.05	87.13	0.00

Notes: Return Period = 25-yrs. ² Critical depth. ³ Normal depth. ‡ Supercritical.

Project File: 2574.sws

Energy Grade Line Calculations

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
23	12	0.98	84.39	1.00	0.79	85.41	1.25	0.02	85.44	70.00	84.74	0.71	0.60	85.45	1.65	0.04	85.49	0.012	0.053	85.48	85.52	0.03
24	18	10.79	80.81	1.50	1.77	83.53	6.11	0.58	84.11	125.00	82.06	1.50	1.77	84.66	6.11	0.58	85.24	0.012	1.125	84.94	85.52	0.29
25	18	8.30	82.06	1.50	1.77	85.32	4.70	0.34	85.66	185.00	83.91	1.50	1.77	86.30	4.70	0.34	86.64	0.012	0.984	86.41	86.76	0.11
26	15	2.06	87.32	0.52‡	0.49	87.84	4.21	0.28	88.11	17.00	87.49	0.57[2]	0.55	88.06	3.74	0.22	88.28	0.012	0.170	88.06	88.28	0.00
27	18	6.03	83.91	1.50	1.77	86.65	3.41	0.18	86.83	32.00	84.30	1.50	1.77	86.74	3.41	0.18	86.92	0.012	0.090	86.80	86.98	0.06
28	18	5.38	84.30	1.50	1.77	86.89	3.04	0.14	87.03	196.00	86.26	1.05	1.32	87.31	4.07	0.26	87.57	0.012	0.533	87.44	87.70	0.13
29	15	4.28	87.51	0.77‡	0.79	88.28	5.39	0.45	88.72	25.00	87.76	0.83[2]	0.86	88.59	4.96	0.38	88.97	0.012	0.250	88.59	88.97	0.00
30	15	2.45	87.76	1.17	1.19	88.93	2.05	0.07	88.99	272.00	89.48	0.63[2]	0.61	90.11	3.98	0.25	90.35	0.013	1.358	90.11	90.35	0.00
31	12	1.15	89.73	0.38‡	0.27	90.11	4.25	0.28	90.37	38.00	90.22	0.45[2]	0.35	90.67	3.31	0.17	90.84	0.012	0.473	90.67	90.84	0.00
32	15	1.36	84.52	0.43‡	0.37	84.95	3.64	0.21	85.15	11.00	84.63	0.47[2]	0.42	85.10	3.26	0.16	85.26	0.012	0.110	85.10	85.26	0.00
33	12	0.32	84.88	0.36	0.26	85.24	1.23	0.02	85.27	17.00	85.05	0.24[2]	0.14	85.29	2.21	0.08	85.37	0.012	0.098	85.29	85.37	0.00
34	12	1.00	83.09	0.76	0.64	83.85	1.55	0.04	83.89	91.00	84.00	0.42[2]	0.32	84.42	3.15	0.15	84.58	0.012	0.687	84.42	84.58	0.00
35	18	4.64	84.19	1.50	1.77	85.74	2.63	0.11	85.85	13.00	84.32	1.44	1.74	85.76	2.67	0.11	85.87	0.012	0.020	85.79	85.90	0.04
36	18	2.81	85.43	0.55‡	0.58	85.98	4.84	0.36	86.31	57.00	86.00	0.64[2]	0.72	86.64	3.91	0.24	86.88	0.012	0.570	86.64	86.88	0.00
37	15	0.48	84.57	1.25	1.23	85.90	0.39	0.00	85.90	43.00	85.00	0.90	0.95	85.90	0.51	0.00	85.91	0.012	0.003	85.91	85.91	0.00
38	12	1.04	85.37	1.00	0.79	86.96	1.32	0.03	86.99	26.00	87.50	0.43[2]	0.32	87.93	3.19	0.16	88.09	0.012	1.102	87.93	88.09	0.00
39	8	0.90	87.83	0.43‡	0.23	88.26	3.85	0.23	88.48	17.00	88.00	0.45	0.25	88.45	3.61	0.20	88.65	0.012	0.170	88.48	88.68	0.03
40	8	1.55	83.09	0.67[3]	0.35	83.76	4.43	0.31	84.06	28.00	83.37	0.67	0.35	84.15	4.43	0.31	84.45	0.012	0.391	84.20	84.51	0.05
41	8	1.55	84.72	0.67[3]	0.35	85.39	4.44	0.31	85.69	18.00	84.90	0.67	0.35	85.64	4.44	0.31	85.95	0.012	0.252	85.73	86.03	0.09
42	10	2.22	85.63	0.65‡	0.45	86.28	4.88	0.37	86.65	44.00	86.07	0.66	0.47	86.73	4.76	0.35	87.09	0.012	0.440	86.74	87.09	0.00
43	12	1.55	82.56	1.00	0.79	85.49	1.97	0.06	85.55	44.00	82.75	1.00	0.79	85.57	1.97	0.06	85.63	0.013	0.083	85.59	85.65	0.02
44	8	0.32	85.38	0.24‡	0.11	85.62	2.83	0.12	85.74	38.00	85.76	0.27[2]	0.13	86.03	2.45	0.09	86.12	0.013	0.380	86.03	86.12	0.00

Notes: Return Period = 25-yrs. [2] Critical depth. [3] Normal depth. ‡ Supercritical.

Project File: 2574.sws

Energy Grade Line Calculations

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
45	8	0.32	83.83	0.23‡	0.11	84.06	2.91	0.13	84.19	26.00	84.09	0.27²	0.13	84.36	2.45	0.09	84.45	0.012	0.260	84.36	84.45	0.00
46	8	0.32	82.68	0.23‡	0.11	82.91	2.91	0.13	83.04	26.00	82.94	0.27²	0.13	83.21	2.45	0.09	83.30	0.012	0.260	83.21	83.30	0.00
47	8	0.32	81.81	0.66	0.35	82.47	0.91	0.01	82.49	64.00	82.45	0.27²	0.13	82.72	2.45	0.09	82.81	0.012	0.323	82.72	82.81	0.00
48	8	0.32	83.60	0.23‡	0.11	83.83	2.91	0.13	83.96	24.00	83.84	0.27²	0.13	84.11	2.45	0.09	84.20	0.012	0.240	84.11	84.20	0.00
49	10	0.35	90.39	0.23‡	0.12	90.62	2.90	0.13	90.74	33.57	90.73	0.26²	0.15	90.99	2.36	0.09	91.08	0.012	0.337	90.99	91.08	0.00

Notes: Return Period = 25-yrs. ² Critical depth. ‡ Supercritical.

Project File: 2574.sws

CT DOT Report

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No.	Drain Area (ac)	Total Area (ac)	Runoff Coeff (C)	Incr CxA	Total C x A	Inlet Time (min)	Pipe Travel (min)	Tc System (min)	i Inlet (in/hr)	Line Size (in)	Flow Rate (cfs)	Capac. Full (cfs)	Vel Ave (ft/s)	Invert Up (ft)	Invert Dn (ft)	Line Slope (%)	Line Length (ft)	Line ID
1	0.000	29.314	0.00	0.00	18.98	0.0	0.02	22.4	0.00	48	76.19	155.62	6.10	75.18	75.00	1.00	18.00	PRO STM MH #1 to OUTLET
2	0.000	29.314	0.00	0.00	18.98	0.0	0.21	22.2	0.00	48	76.57	155.62	9.80	79.67	78.16	1.00	151.00	PRO STM MH #2 to PRO STM
3	0.000	25.906	0.00	0.00	16.37	0.0	0.15	22.0	0.00	48	66.37	155.62	9.17	80.75	79.67	1.00	108.00	PRO STM MH #3 to PRO STM
4	0.000	25.661	0.00	0.00	16.19	0.0	0.22	21.8	0.00	48	65.68	155.62	9.31	82.32	80.75	1.00	157.00	PRO STM MH #4 to PRO STM
5	0.000	24.580	0.00	0.00	15.49	0.0	0.21	21.6	0.00	48	62.84	155.62	9.14	83.80	82.32	1.00	148.00	PRO STM MH #5 to PRO STM
6	24.580	24.580	0.63	15.49	15.49	21.4	0.21	21.4	4.08	48	63.17	195.13	9.92	86.52	83.80	1.57	173.00	EXIST STM MH to PRO STM M
7	0.000	0.000	0.00	0.00	0.00	0.0	0.04	0.0	0.00	18	15.58	11.97	8.82	76.76	76.50	1.30	20.00	PRO OS #2 Tto OUTLET
8	0.257	0.257	0.81	0.21	0.21	5.0	0.19	5.0	9.05	15	1.88	7.00	2.07	78.54	78.00	1.00	54.00	PRO CB #30 to PRO SWQB #2
9	0.000	0.000	0.00	0.00	0.00	0.0	0.25	0.0	0.00	18	15.07	11.38	8.53	79.28	78.00	1.00	128.00	PRO OS #1 to SWQB #2
10	0.000	1.548	0.00	0.00	1.10	0.0	0.02	7.5	0.00	24	9.25	24.50	2.96	80.07	80.00	1.00	7.00	PRO STM MH #6 to SWQB #2
11	0.176	1.548	0.77	0.14	1.10	5.3	0.24	7.2	8.80	24	9.39	17.33	3.07	80.48	80.07	0.50	82.00	PRO CB #12 to PROCB #11
12	0.221	1.372	0.72	0.16	0.96	7.0	0.23	7.0	7.52	24	8.20	17.33	2.83	80.85	80.48	0.50	74.00	PRO CB #11 to PRO CB #12
13	0.217	0.217	0.60	0.13	0.13	6.1	0.07	6.1	8.10	15	1.37	7.00	3.52	83.02	82.84	1.00	18.00	PRO CB #13 to PRO CB #11
14	0.153	0.676	0.70	0.11	0.47	5.0	0.30	5.5	9.05	24	4.68	17.43	1.94	81.35	80.93	0.51	83.00	PRO CB #10 to PRO CB #11
15	0.174	0.523	0.69	0.12	0.37	5.0	0.08	5.5	9.05	18	3.47	11.10	4.49	82.10	81.85	1.00	25.00	PRO CB #8 to PRO CB #10
16	0.191	0.191	0.72	0.14	0.14	5.2	0.20	5.2	8.89	15	1.54	8.39	2.84	83.25	82.35	1.44	62.62	PRO CB #9 to PRO CB #8
17	0.158	0.158	0.68	0.11	0.11	5.2	0.21	5.2	8.81	15	0.95	7.02	3.30	83.18	82.67	1.01	50.58	PRO CB #7 to PRO CB #8
18	0.050	0.258	0.66	0.03	0.20	5.0	0.57	5.3	9.05	18	1.76	11.38	3.93	84.68	83.08	1.00	160.00	PRO CB #14 to PRO CB #11
19	0.208	0.208	0.81	0.17	0.17	5.0	0.32	5.0	9.05	15	1.52	7.05	3.84	85.82	84.93	1.01	87.73	PRO CB #15 to PRO CB #14
20	0.202	3.408	0.75	0.15	2.61	5.0	0.07	11.1	9.05	24	15.28	24.12	4.86	80.31	80.00	0.97	32.00	PRO CB #4 to PRO STM MH #
21	0.059	0.420	0.77	0.05	0.36	5.2	0.69	5.4	8.85	15	3.14	4.96	4.28	84.14	83.25	0.50	177.00	PRO CB #3 to PRO CB #4
22	0.040	0.040	0.90	0.04	0.04	5.0	0.21	5.0	9.05	12	0.33	3.86	2.52	86.81	86.43	1.00	38.00	PRO CB #2 to PRO CB #3
23	0.131	0.131	0.83	0.11	0.11	5.0	0.37	5.0	9.05	12	0.98	2.73	1.45	84.74	84.39	0.50	70.00	PRO CB #1 to PRO CB #3
24	0.049	2.429	0.75	0.04	1.82	5.0	0.29	10.8	9.05	18	10.79	11.38	6.11	82.06	80.81	1.00	125.00	PRO CB #16 to PRO CB #4

Notes: IDF File = NOAA Atlas 14 idf 10 Version 3 - Tamarack Ave South Windsor.idf, Return Period = 25-yrs.

Project File: 2574.sws

CT DOT Report

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No.	Drain Area (ac)	Total Area (ac)	Runoff Coeff (C)	Incr CxA	Total C x A	Inlet Time (min)	Pipe Travel (min)	Tc System (min)	i Inlet (in/hr)	Line Size (in)	Flow Rate (cfs)	Capac. Full (cfs)	Vel Ave (ft/s)	Invert Up (ft)	Invert Dn (ft)	Line Slope (%)	Line Length (ft)	Line ID
25	0.437	1.918	0.77	0.34	1.37	10.4	0.44	10.4	6.06	18	8.30	11.38	4.70	83.91	82.06	1.00	185.00	PRO CB #17 to PRO CB #16
26	0.326	0.326	0.74	0.24	0.24	5.6	0.06	5.6	8.54	15	2.06	7.00	3.98	87.49	87.32	1.00	17.00	PRO CB #18 to PRO CB #17
27	0.000	1.155	0.00	0.00	0.79	0.0	0.08	6.8	0.00	18	6.03	12.56	3.41	84.30	83.91	1.22	32.00	PRO STM MH #7 to PRO CB #
28	0.177	1.010	0.80	0.14	0.67	5.0	0.52	6.3	9.05	18	5.38	11.38	3.56	86.26	84.30	1.00	196.00	PRO CB #19 to PRO STM MH
29	0.439	0.833	0.59	0.26	0.53	5.0	0.07	6.2	9.05	15	4.28	7.00	5.17	87.76	87.51	1.00	25.00	PRO CB #20 to PRO CB #19
30	0.250	0.394	0.59	0.15	0.27	5.0	1.10	5.1	9.05	15	2.45	5.14	3.01	89.48	87.76	0.63	272.00	PRO CB #21 to PRO CB #20
31	0.144	0.144	0.88	0.13	0.13	5.0	0.13	5.0	9.05	12	1.15	4.38	3.78	90.22	89.73	1.29	38.00	PRO CB #22 to PRO CB #21
32	0.245	0.245	0.74	0.18	0.18	11.4	0.04	11.4	5.76	15	1.36	7.00	3.45	84.63	84.52	1.00	11.00	PRO CB. #6 to PRO STM MH #
33	0.000	0.000	0.00	0.00	0.00	0.0	0.10	5.2	0.00	12	0.32	3.86	1.72	85.05	84.88	1.00	17.00	PRO CB #5 to PRO CB #6
34	0.167	0.167	0.66	0.11	0.11	5.0	0.37	5.0	9.05	12	1.00	3.86	2.35	84.00	83.09	1.00	91.00	PRO CB #25 to PRO CB #4
35	0.282	1.081	0.80	0.23	0.70	5.0	0.04	10.2	9.05	18	4.64	11.38	2.65	84.32	84.19	1.00	13.00	PRO CB #27 to PRO STM MH
36	0.633	0.633	0.63	0.40	0.40	10.0	0.18	10.0	6.19	18	2.81	11.38	4.38	86.00	85.43	1.00	57.00	PRO C.B. #28 to Pro CB #27
37	0.166	0.166	0.47	0.08	0.08	10.0	0.22	10.0	6.19	15	0.48	7.00	0.45	85.00	84.57	1.00	43.00	PRO CB #29 to PRO cb #27
38	0.034	0.145	0.46	0.02	0.12	5.0	0.05	5.1	9.05	12	1.04	11.04	2.26	87.50	85.37	8.19	26.00	PRO CB #26 to PRO STM MH
39	0.111	0.111	0.90	0.10	0.10	5.0	0.07	5.0	9.05	8	0.90	1.31	3.73	88.00	87.83	1.00	17.00	CLUBHOUSE RL to CB #26
40	0.190	0.190	0.90	0.17	0.17	5.0	0.11	5.0	9.05	8	1.55	1.31	4.43	83.37	83.09	1.00	28.00	BLDG #2B RL to PRO CB #4
41	0.190	0.190	0.90	0.17	0.17	5.0	0.07	5.0	9.05	8	1.55	1.31	4.44	84.90	84.72	1.00	18.00	BLDG #3 RL to PRO CB #3
42	0.272	0.272	0.90	0.24	0.24	5.0	0.15	5.0	9.05	10	2.22	2.37	4.82	86.07	85.63	1.00	44.00	BLDG #10 TO PRO CB #16
43	0.190	0.190	0.90	0.17	0.17	5.0	0.23	5.0	9.05	12	1.55	2.36	1.97	82.75	82.56	0.44	44.00	BLDG #9 RL to PRO CB #16
44	0.000	0.000	0.00	0.00	0.00	5.0	0.22	5.0	0.00	8	0.32	1.21	2.64	85.76	85.38	1.00	38.00	BLDG #4 RL to PRO CB #5
45	0.000	0.000	0.00	0.00	0.00	5.0	0.14	5.0	0.00	8	0.32	1.31	2.68	84.09	83.83	1.00	26.00	PRO BLDG #5 RL to PRO CB #
46	0.000	0.000	0.00	0.00	0.00	5.0	0.14	5.0	0.00	8	0.32	1.31	2.68	82.94	82.68	1.00	26.00	PRO BLDG #6 RL to PRO CB #
47	0.000	0.000	0.00	0.00	0.00	5.0	0.34	5.0	0.00	8	0.32	1.31	1.68	82.45	81.81	1.00	64.00	PRO BLDG #7 RL to PRO CB
48	0.000	0.000	0.00	0.00	0.00	5.0	0.13	5.0	0.00	8	0.32	1.31	2.68	83.84	83.60	1.00	24.00	PRO BLDG #8 RL to PRO CB #

Notes: IDF File = NOAA Atlas 14 idf 10 Version 3 - Tamarack Ave South Windsor.idf, Return Period = 25-yrs.

Project File: 2574.sws

CT DOT Report

Stormwater Studio 2023 v 3.0.0.31

Project Name: Enter Project Name...

06-25-2023

Line No.	Drain Area (ac)	Total Area (ac)	Runoff Coeff (C)	Incr CxA	Total C x A	Inlet Time (min)	Pipe Travel (min)	Tc System (min)	i Inlet (in/hr)	Line Size (in)	Flow Rate (cfs)	Capac. Full (cfs)	Vel Ave (ft/s)	Invert Up (ft)	Invert Dn (ft)	Line Slope (%)	Line Length (ft)	Line ID
49	0.000	0.000	0.00	0.00	0.00	5.0	0.18	5.0	0.00	10	0.35	2.38	2.63	90.73	90.39	1.00	33.57	PROP BLDG #11 RL to PRO C

Notes: IDF File = NOAA Atlas 14 idf 10 Version 3 - Tamarack Ave South Windsor.idf, Return Period = 25-yrs.

Project File: 2574.sws

Appendix E

Hydrology Studio ™

Computer Model Report – Pre-Development

Table of Contents

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

Contents continued...

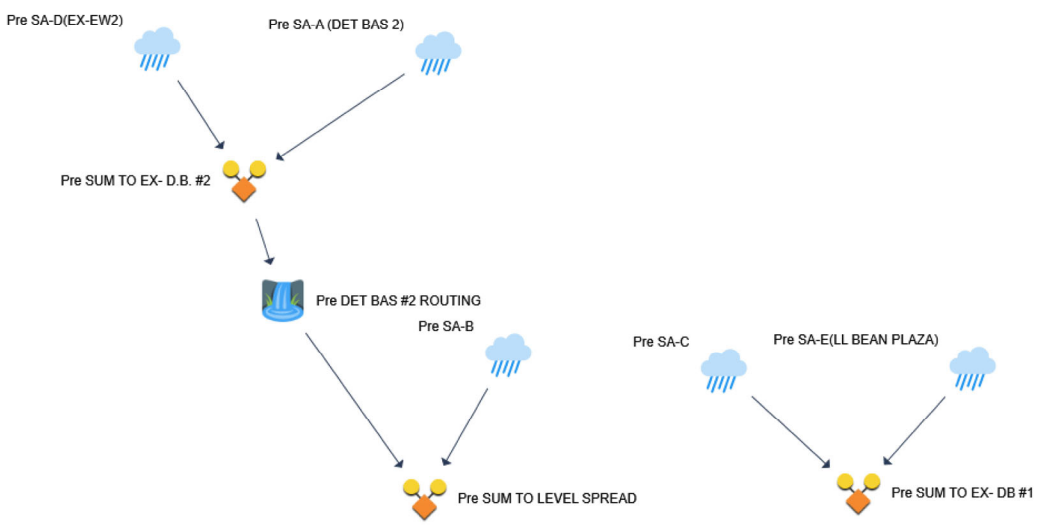
Contents continued...

Basin Model

Hydrology Studio v 3.0.0.27

Project Name: UNIT 7C Evergreeen

06-25-2023



pre1

Hydrograph by Return Period

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	27.92	37.41		53.65	67.49	86.30	100.5	115.6
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	17.33	23.10		32.93	41.28	52.60	61.13	70.23
3	NRCS Runoff	Pre SA-A (DET BAS 2)	3.895	5.898		9.570	12.89	17.58	21.20	25.14
4	NRCS Runoff	Pre SA-B	2.338	3.528		5.707	7.677	10.45	12.60	14.92
5	NRCS Runoff	Pre SA-C	3.209	4.860		7.886	10.62	14.48	17.47	20.71
6	Junction	Pre SUM TO EX- D.B. #2	31.48	42.74		62.36	79.23	102.3	119.8	138.5
7	Junction	Pre SUM TO EX- DB #1	20.34	27.67		40.37	51.39	66.48	77.94	90.21
8	Pond Route	Pre DET BAS #2 ROUTING	0.517	0.605		0.731	0.823	0.932	1.005	1.076
9	Junction	Pre SUM TO LEVEL SPREAD	2.570	3.839		6.110	8.144	11.00	13.20	15.58

Hydrograph 1-yr Summary

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	27.92	12.10	92,058	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	17.33	12.00	41,911	----		
3	NRCS Runoff	Pre SA-A (DET BAS 2)	3.895	12.05	11,214	----		
4	NRCS Runoff	Pre SA-B	2.338	12.03	6,267	----		
5	NRCS Runoff	Pre SA-C	3.209	12.05	9,240	----		
6	Junction	Pre SUM TO EX- D.B. #2	31.48	12.10	103,271	1, 3		
7	Junction	Pre SUM TO EX- DB #1	20.34	12.02	51,152	2, 5		
8	Pond Route	Pre DET BAS #2 ROUTING	0.517	24.07	60,267	6	78.69	81,332
9	Junction	Pre SUM TO LEVEL SPREAD	2.570	12.03	66,534	4, 8		

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

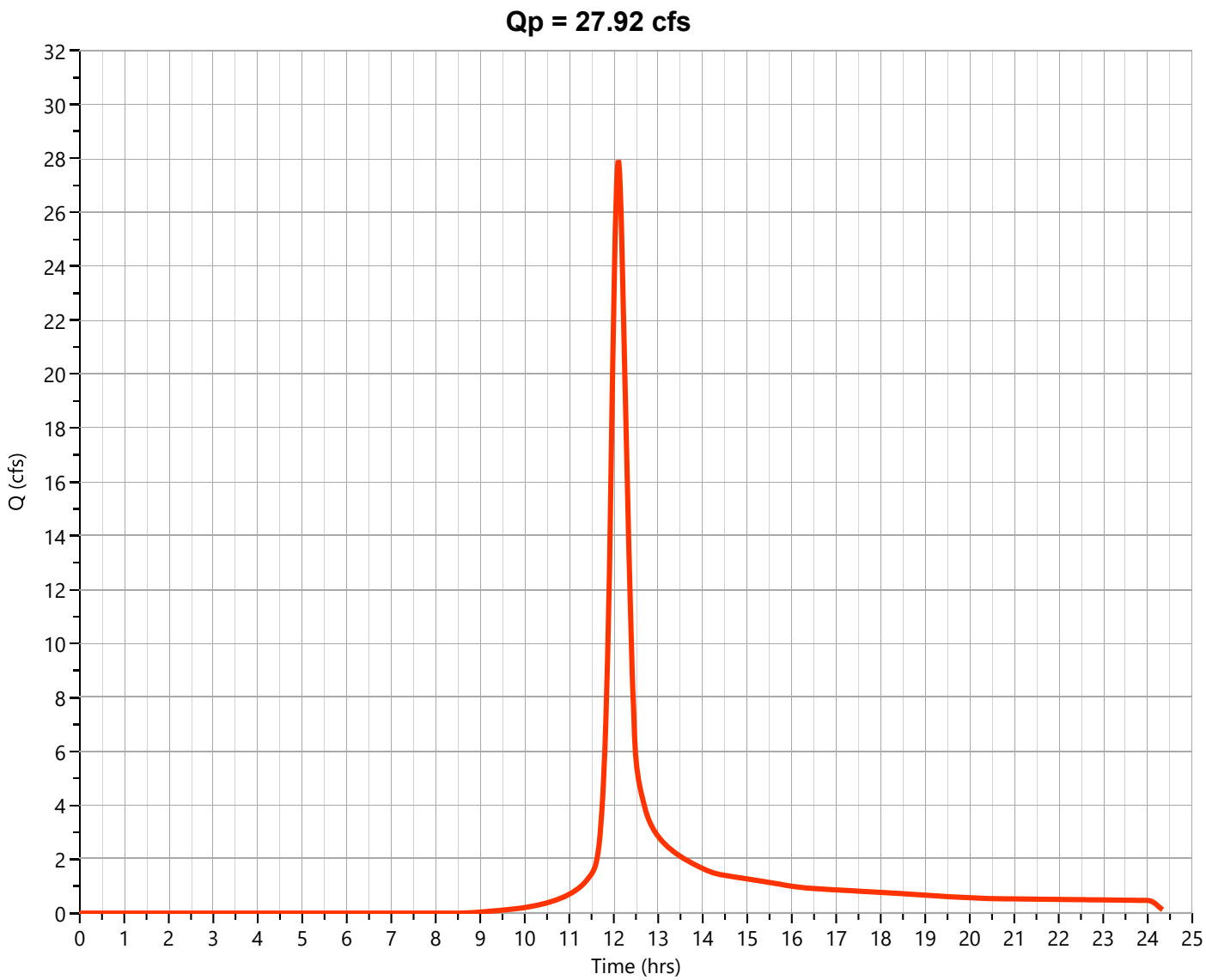
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 27.92 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 92,058 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



pre4

Tc by TR55 Worksheet

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

SA-D(EX-EW2)
NRCS Runoff

Hyd. No. 1

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	Lawn			
Manning's n	0.240	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	3			
Travel Time (min)	**12.33**	**0.00**	**0.00**	**12.33**
Shallow Concentrated Flow				
Flow Length (ft)	250	500		
Watercourse Slope (%)	1.00	1.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	1.61	2.03		
Travel Time (min)	**2.58**	**4.10**	**0.00**	**6.68**
Channel Flow				
X-sectional Flow Area (sqft)	7.07			
Wetted Perimeter (ft)	9			
Channel Slope (%)	1			
Manning's n	0.012	0.013	0.013	
Velocity (ft/s)	10.56			
Flow Length (ft)	1000			
Travel Time (min)	**1.58**	**0.00**	**0.00**	**1.58**
Total Travel Time				**20.59 min**

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

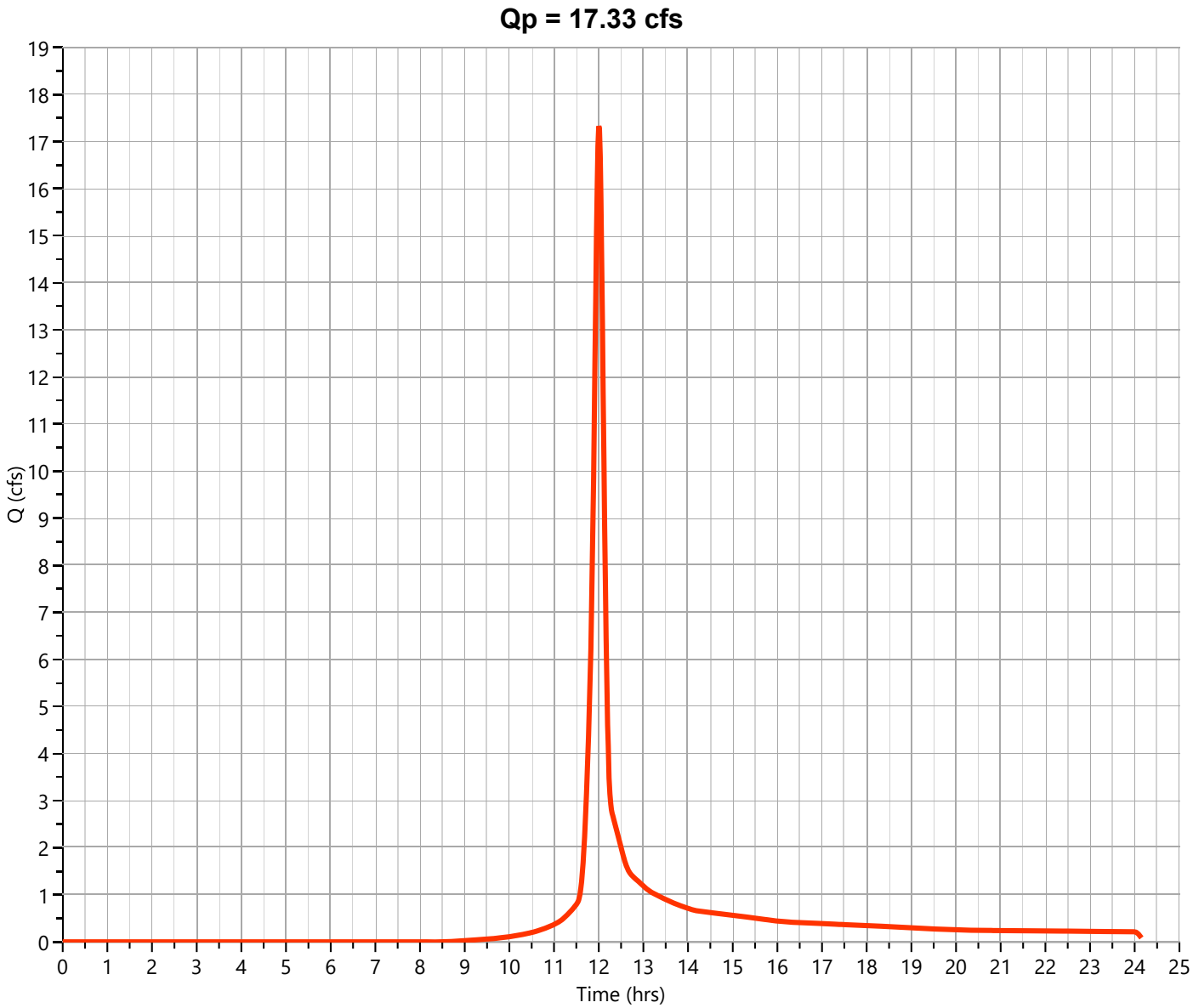
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 17.33 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 41,911 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



pre6

Tc by TR55 Worksheet

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

SA-E(LL BEAN PLAZA)

Hyd. No. 2

NRCS Runoff

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	LAWN			
Manning's n	0.240	0.013	0.013	
Flow Length (ft)	75			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	5			
Travel Time (min)	**7.98**	**0.00**	**0.00**	**7.98**
Shallow Concentrated Flow				
Flow Length (ft)	250			
Watercourse Slope (%)	1.00	0.00	0.00	
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**2.05**	**0.00**	**0.00**	**2.05**
Channel Flow				
X-sectional Flow Area (sqft)	7.7			
Wetted Perimeter (ft)	9			
Channel Slope (%)	1			
Manning's n	0.012	0.013	0.013	
Velocity (ft/s)	11.18			
Flow Length (ft)	500			
Travel Time (min)	**0.75**	**0.00**	**0.00**	**0.75**
Total Travel Time				**10.78 min**

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

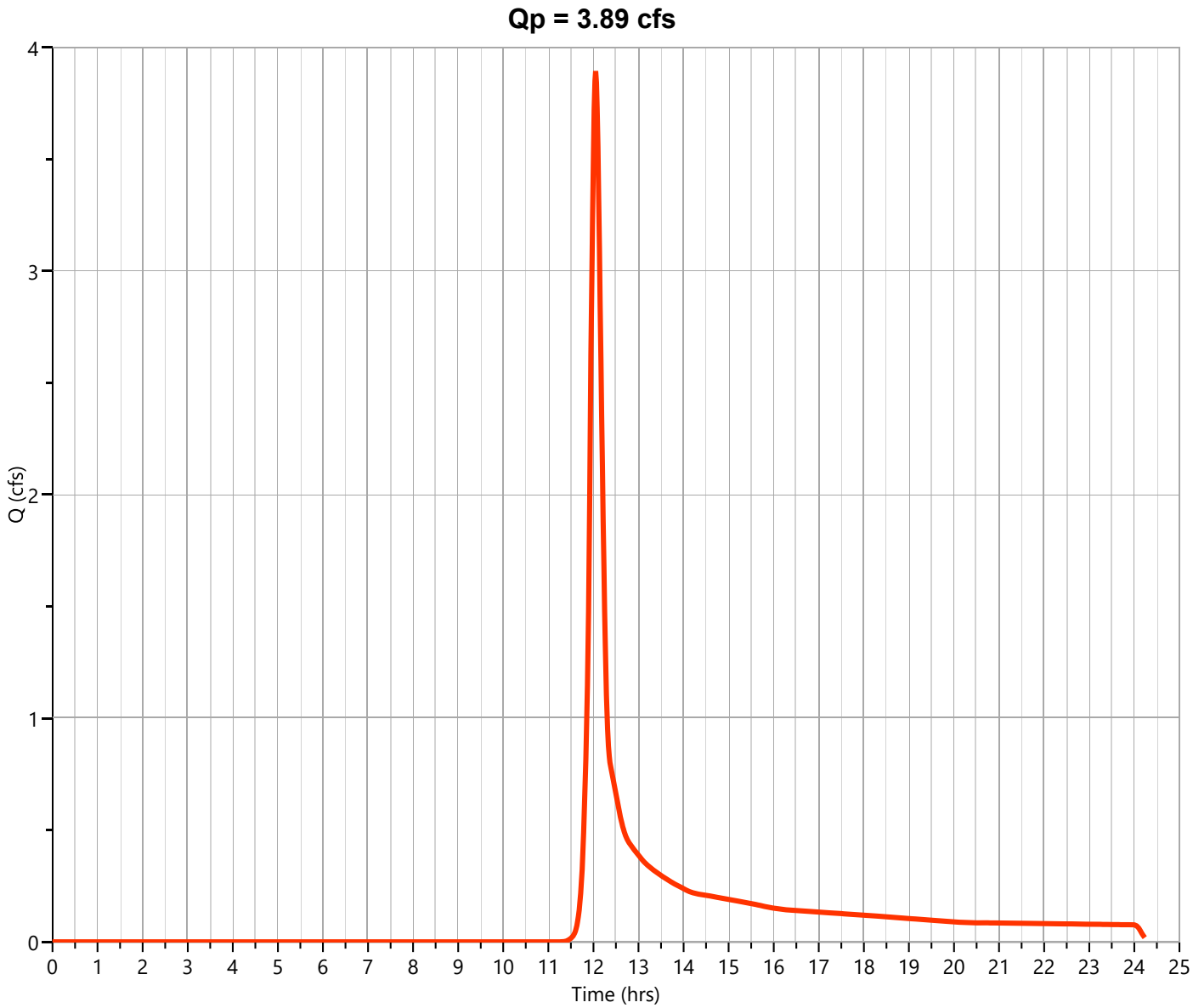
Pre SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.895 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.05 hrs
Time Interval	= 1 min	Runoff Volume	= 11,214 cuft
Drainage Area	= 5.478 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.24 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
5.478	79	C-GRASS (FAIR COVER)
5.478	**79**	Weighted CN Method Employed



Tc by TR55 Worksheet

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

SA-A (DET BAS 2)
NRCS Runoff

Hyd. No. 3

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	GRASS			
Manning's n	0.240	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	2.5			
Travel Time (min)	**13.26**	**0.00**	**0.00**	**13.26**
Shallow Concentrated Flow				
Flow Length (ft)	150			
Watercourse Slope (%)	2.50	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	2.55			
Travel Time (min)	**0.98**	**0.00**	**0.00**	**0.98**
Channel Flow				
X-sectional Flow Area (sqft)	27			
Wetted Perimeter (ft)	30			
Channel Slope (%)	1			
Manning's n	0.025	0.013	0.013	
Velocity (ft/s)	5.55			
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**14.24 min**

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

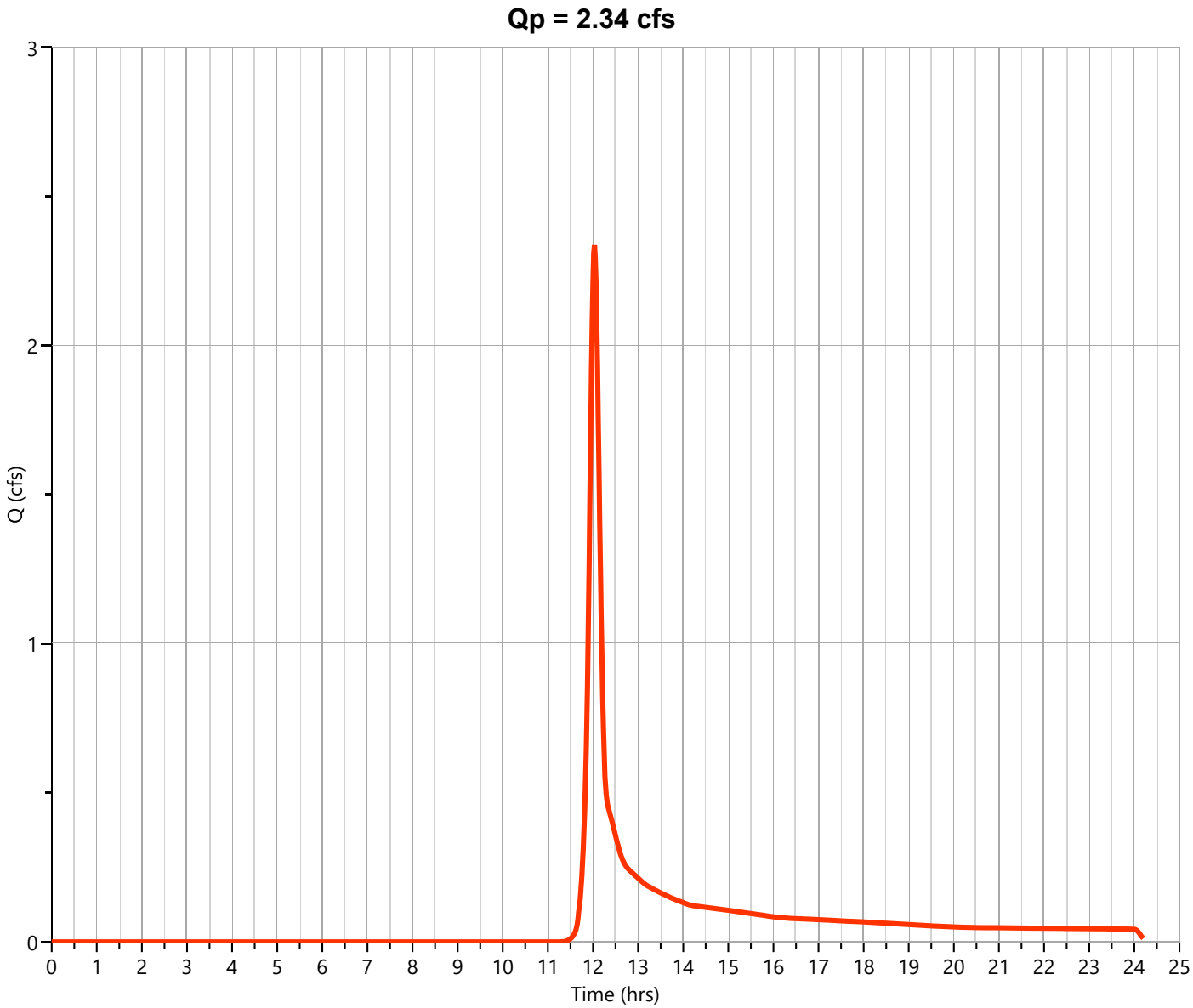
Pre SA-B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.338 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 6,267 cuft
Drainage Area	= 3.11 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.43 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
3.11	79	C-GRASS (FAIR)
3.11	**79**	Weighted CN Method Employed



Tc by TR55 Worksheet

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

SA-B
NRCS Runoff

Hyd. No. 4

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	GRASS			
Manning's n	0.150	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	1.5			
Travel Time (min)	**11.17**	**0.00**	**0.00**	**11.17**
Shallow Concentrated Flow				
Flow Length (ft)	380			
Watercourse Slope (%)	3.00	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	2.79			
Travel Time (min)	**2.27**	**0.00**	**0.00**	**2.27**
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				**13.43 min**

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

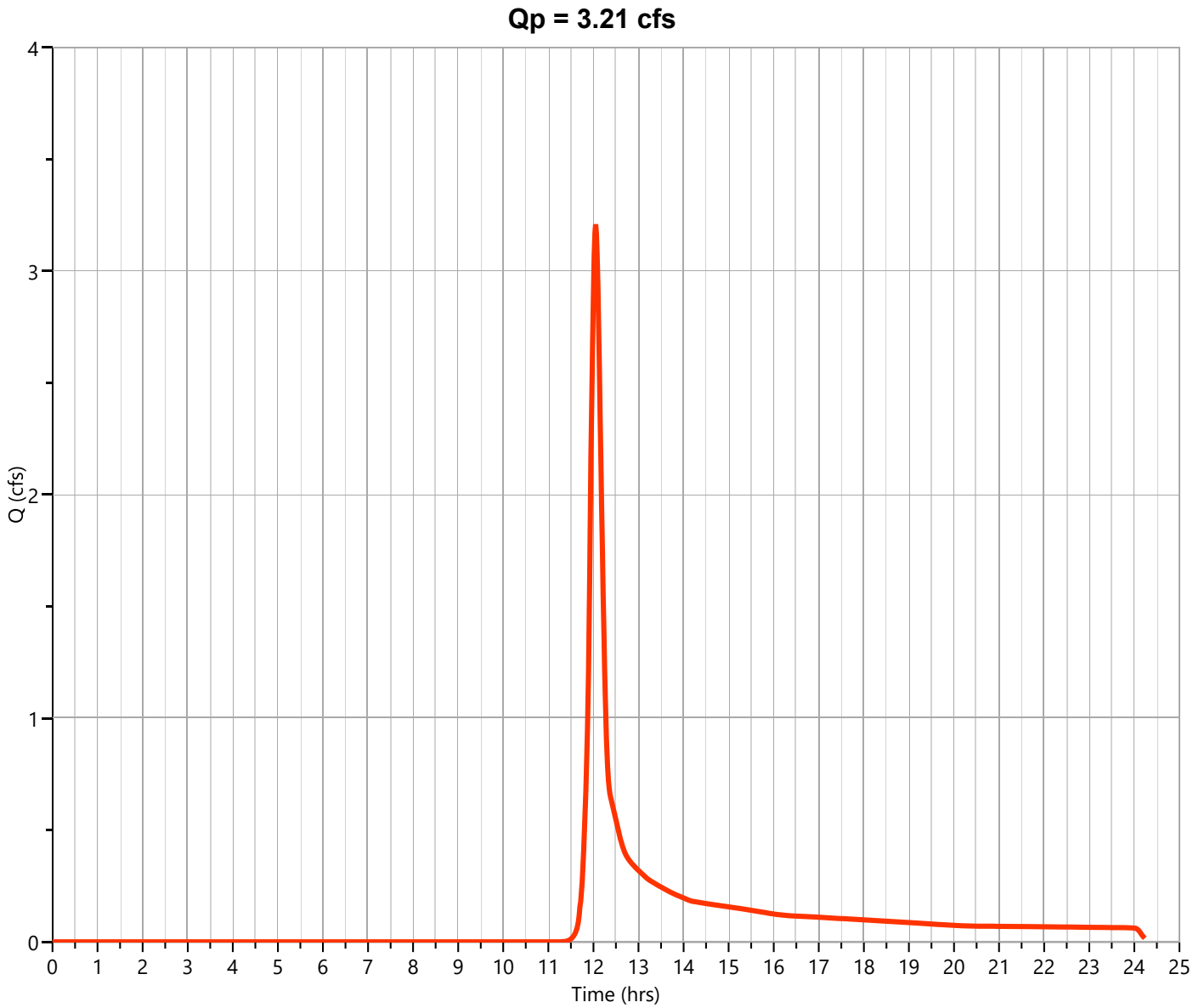
Pre SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.209 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.05 hrs
Time Interval	= 1 min	Runoff Volume	= 9,240 cuft
Drainage Area	= 4.514 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.5 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
4.514	79	C-GRASS (FAIR)
4.514	**79**	Weighted CN Method Employed



Tc by TR55 Worksheet

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

SA-C
NRCS Runoff

Hyd. No. 5

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	GRASS			
Manning's n	0.240	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	2			
Travel Time (min)	**14.50**	**0.00**	**0.00**	**14.50**
Shallow Concentrated Flow				
Flow Length (ft)				
Watercourse Slope (%)	0.00	0.00	0.00	
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
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				**14.5 min**

Hydrograph Report

Project Name: UNIT 7C Evergreeen

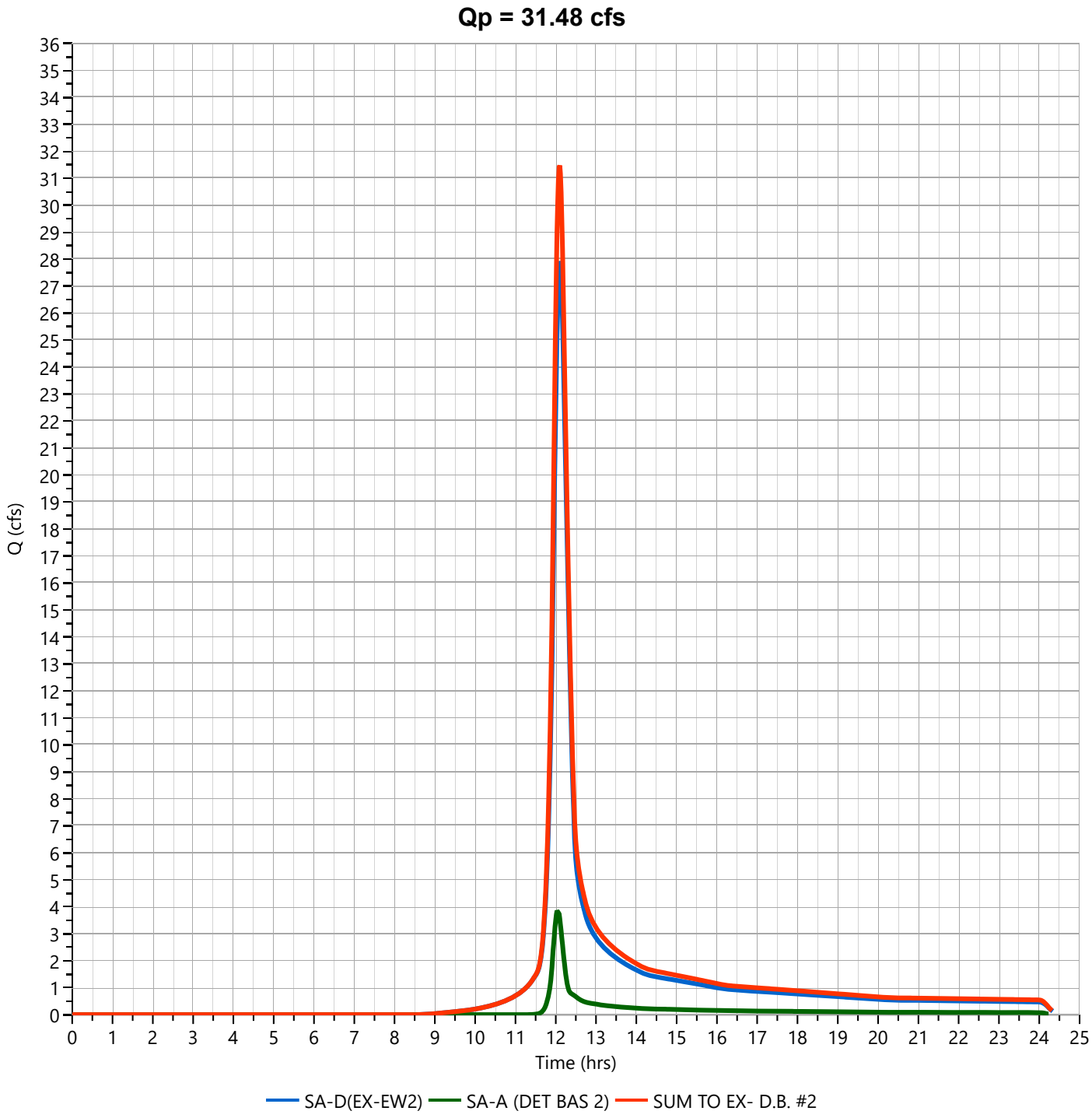
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- D.B. #2

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 31.48 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 103,271 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.058 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

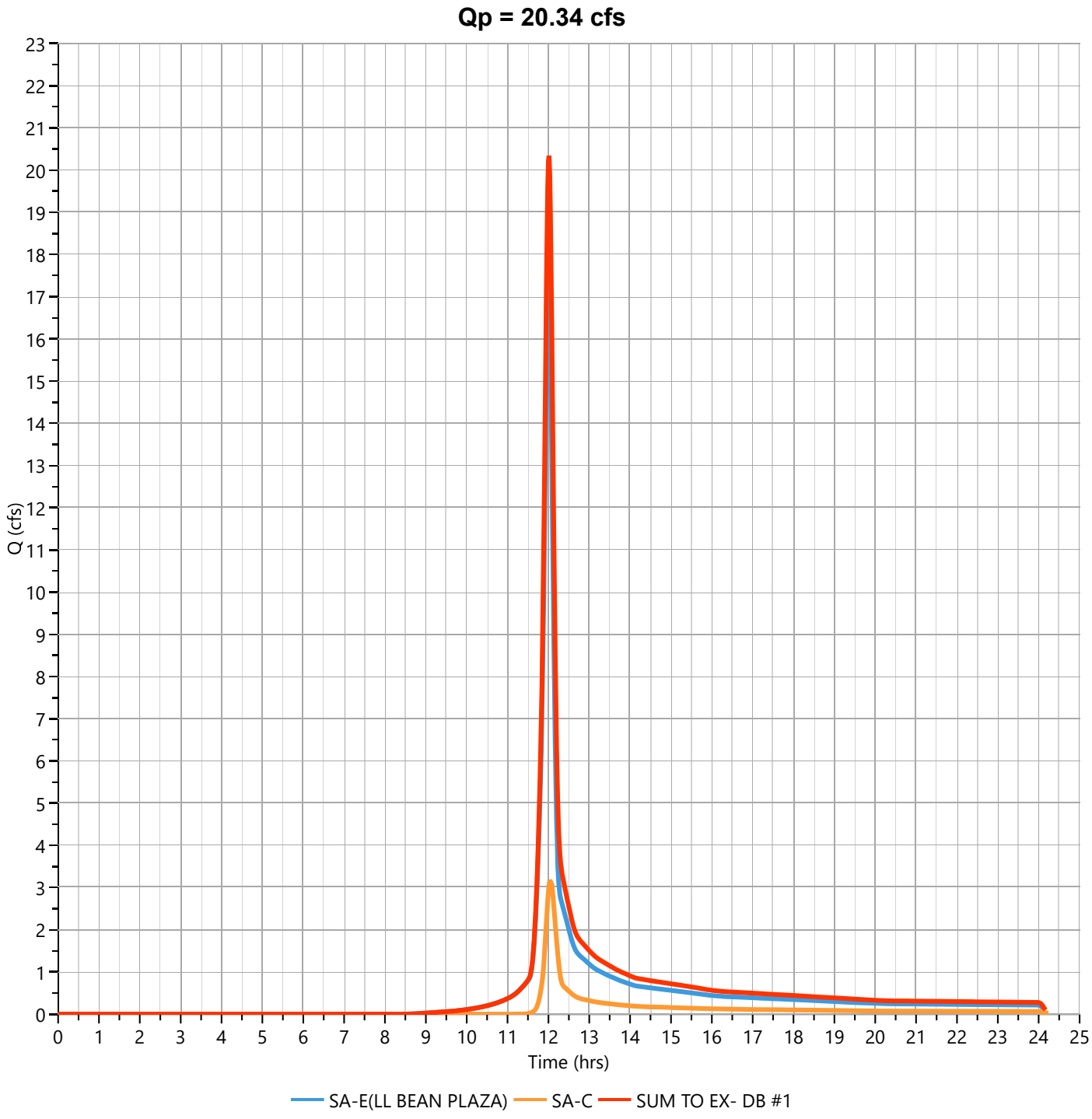
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- DB #1

Hyd. No. 7

Hydrograph Type	= Junction	Peak Flow	= 20.34 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Hydrograph Volume	= 51,152 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 15.614 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

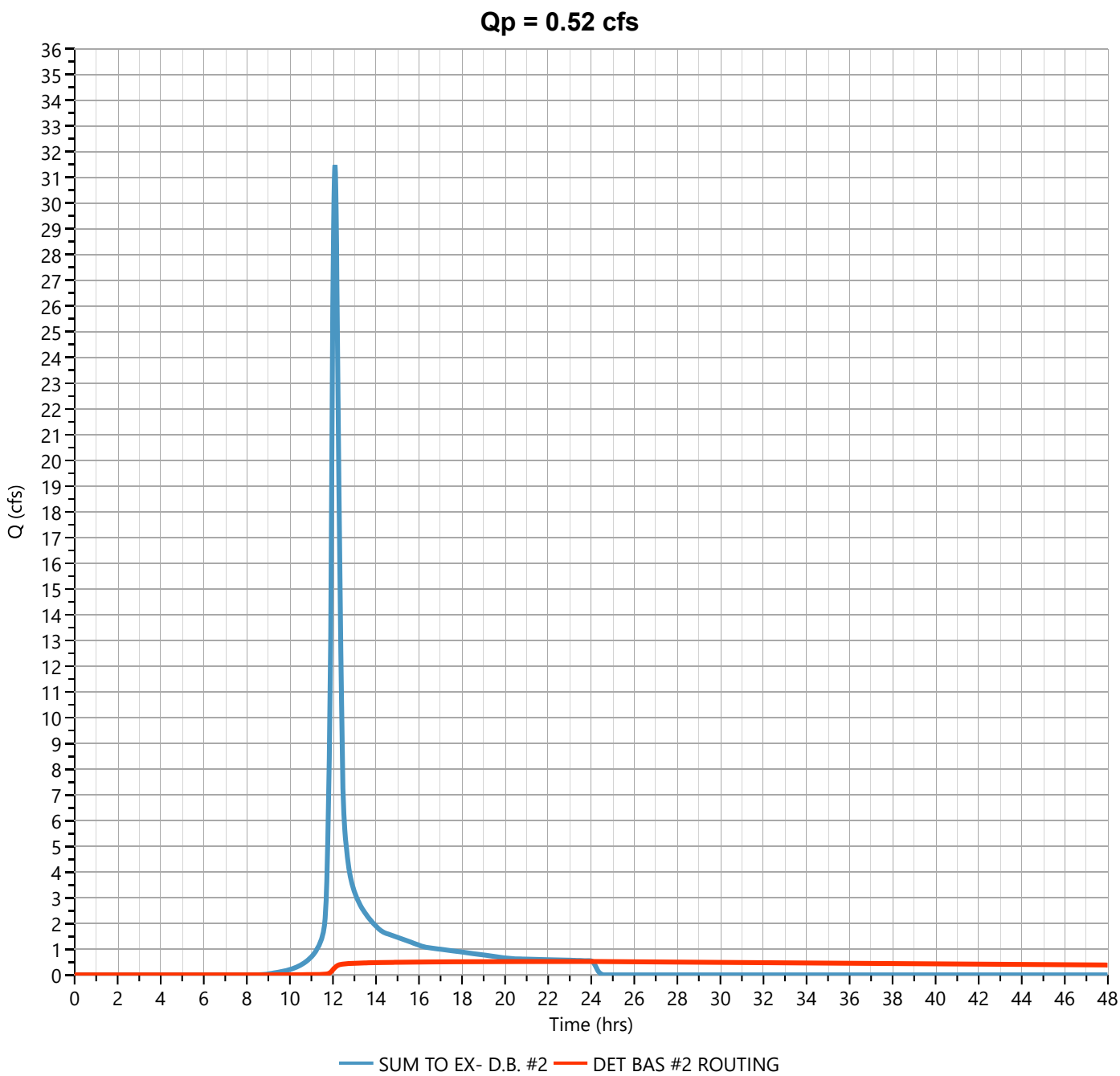
Pre DET BAS #2 ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.517 cfs
Storm Frequency	= 1-yr	Time to Peak	= 24.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 60,267 cuft
Inflow Hydrograph	= 6 - SUM TO EX- D.B. #2	Max. Elevation	= 78.69 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 81,332 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.19 hrs



Pond Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

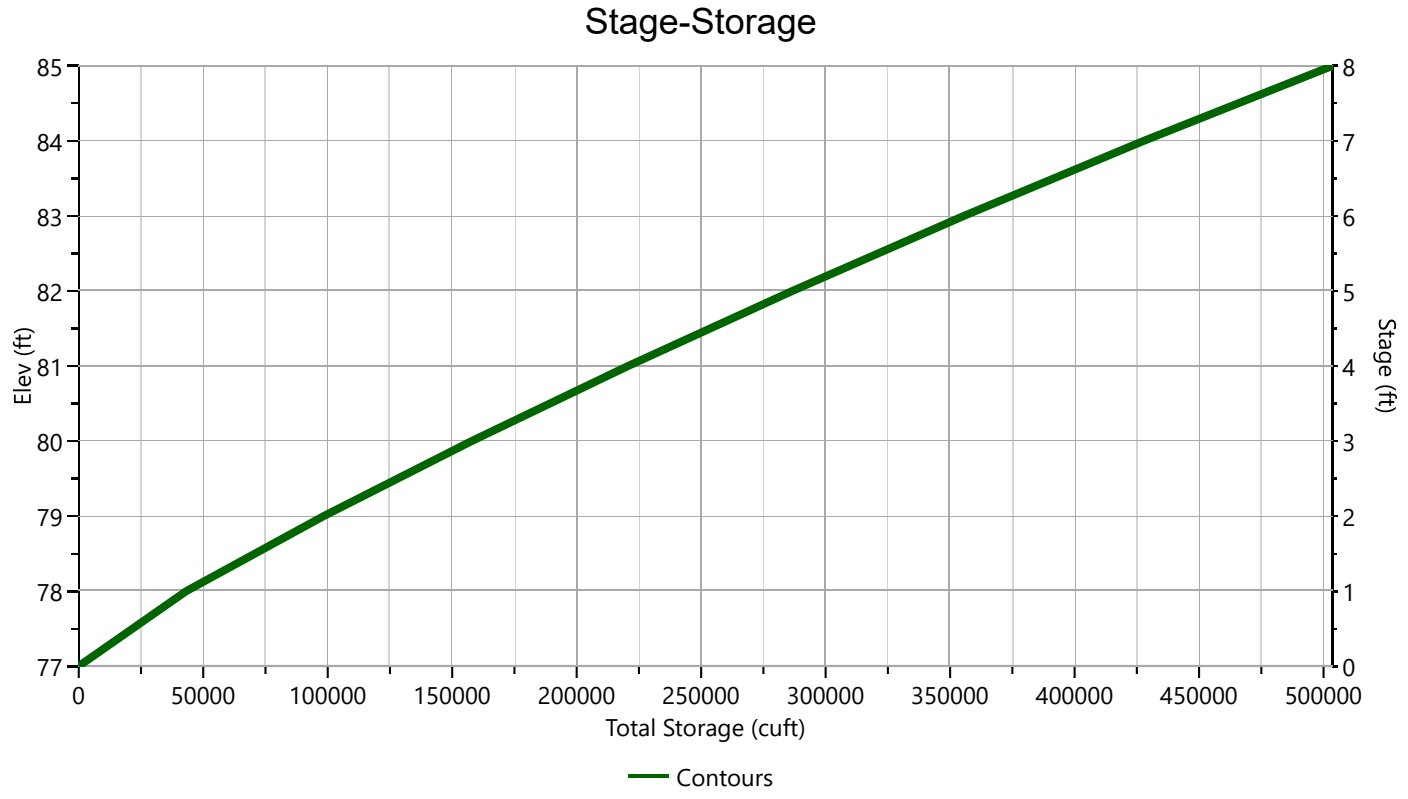
EX-DET BAS #2

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	77.00
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	77.00	33,990	0.000	0.000
1.00	78.00	52,443	43,217	43,217
2.00	79.00	57,929	55,186	98,403
3.00	80.00	60,932	59,431	157,833
4.00	81.00	64,680	62,806	220,639
5.00	82.00	67,341	66,011	286,650
6.00	83.00	70,474	68,908	355,557
7.00	84.00	73,893	72,184	427,741
8.00	85.00	77,798	75,846	503,586



Pond Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

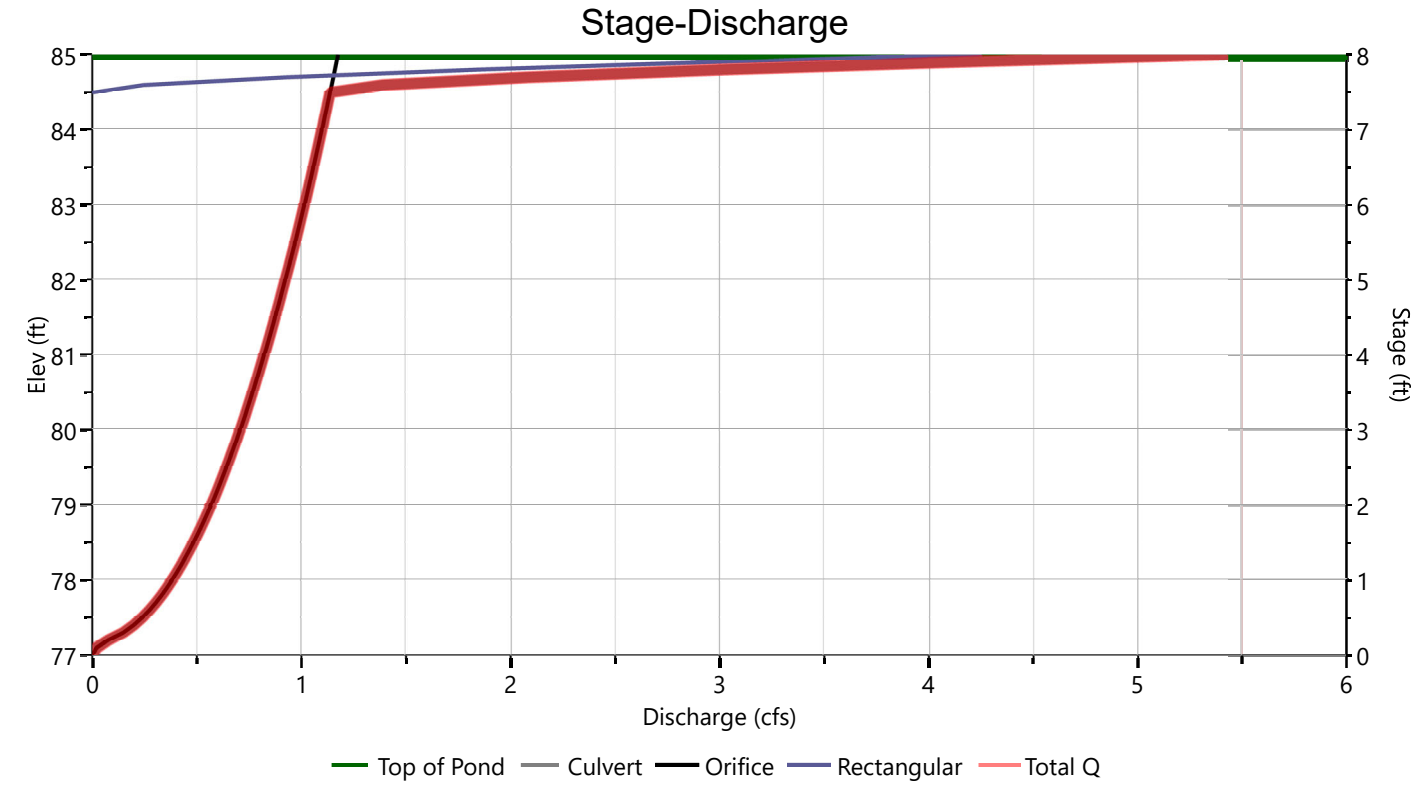
06-25-2023

EX-DET BAS #2

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser	
		1*	2	3		
Rise, in	12	4			Hole Diameter, in	
Span, in	12	4			No. holes	
No. Barrels	1	1			Invert Elevation, ft	
Invert Elevation, ft	12.00	77.01			Height, ft	
Orifice Coefficient, Co	0.60	0.60			Orifice Coefficient, Co	
Length, ft	121					
Barrel Slope, %	.67					
N-Value, n	0.012					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1*	2	3		
Shape / Type	Box	Rectangular			Exfiltration, in/hr	
Crest Elevation, ft		84.53				
Crest Length, ft		4				
Angle, deg						
Weir Coefficient, Cw		3.3				

**Routes through Culvert.*



EX-DET BAS #2

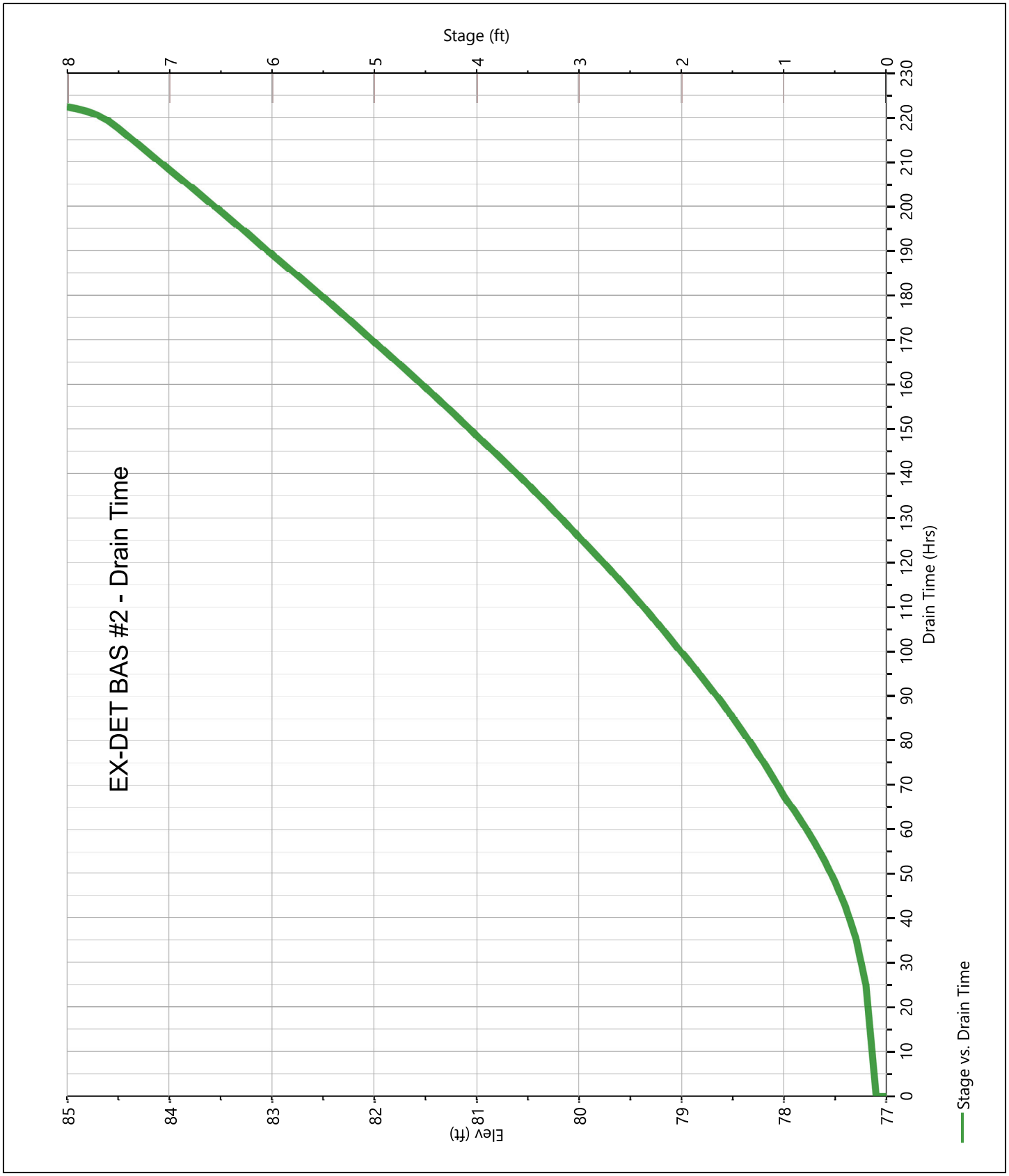
Stage-Storage-Discharge Summary

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	77.00	0.000	0.000	0.000				0.000						0.000
1.00	78.00	43,217	0.381 oc	0.381				0.000						0.381
2.00	79.00	98,403	0.567 oc	0.567				0.000						0.567
3.00	80.00	157,833	0.706 oc	0.706				0.000						0.706
4.00	81.00	220,639	0.822 oc	0.822				0.000						0.822
5.00	82.00	286,650	0.923 oc	0.923				0.000						0.923
6.00	83.00	355,557	1.014 oc	1.014				0.000						1.014
7.00	84.00	427,741	1.097 oc	1.097				0.000						1.097
8.00	85.00	503,586	5.428 oc	1.175				4.253						5.428

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

EX-DET BAS #2

Pond Drawdown



Hydrograph Report

Project Name: UNIT 7C Evergreeen

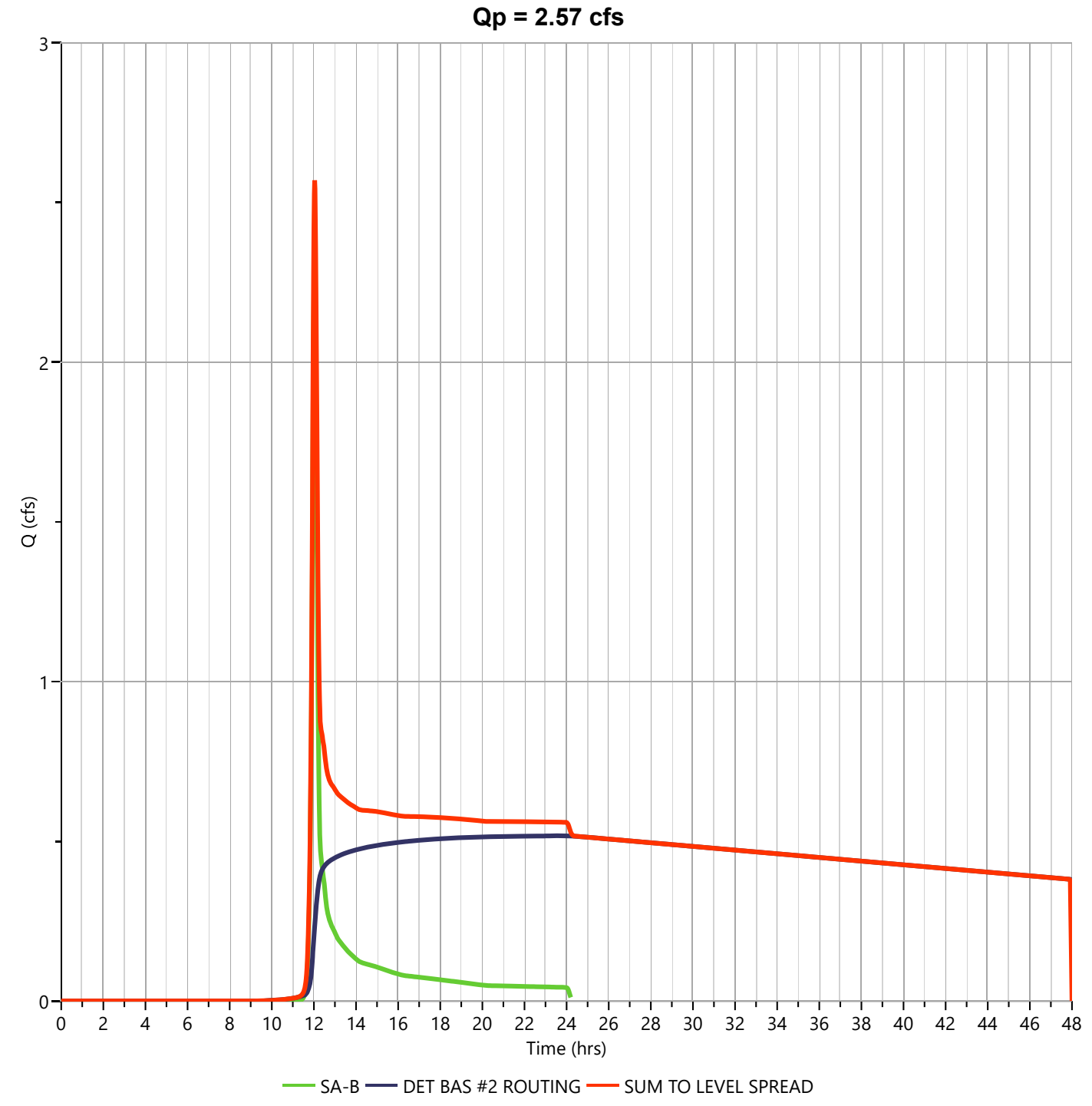
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO LEVEL SPREAD

Hyd. No. 9

Hydrograph Type	= Junction	Peak Flow	= 2.570 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Hydrograph Volume	= 66,534 cuft
Inflow Hydrographs	= 4, 8	Total Contrib. Area	= 3.11 ac



Design Storm Report

Custom Storm filename: 3170.cds

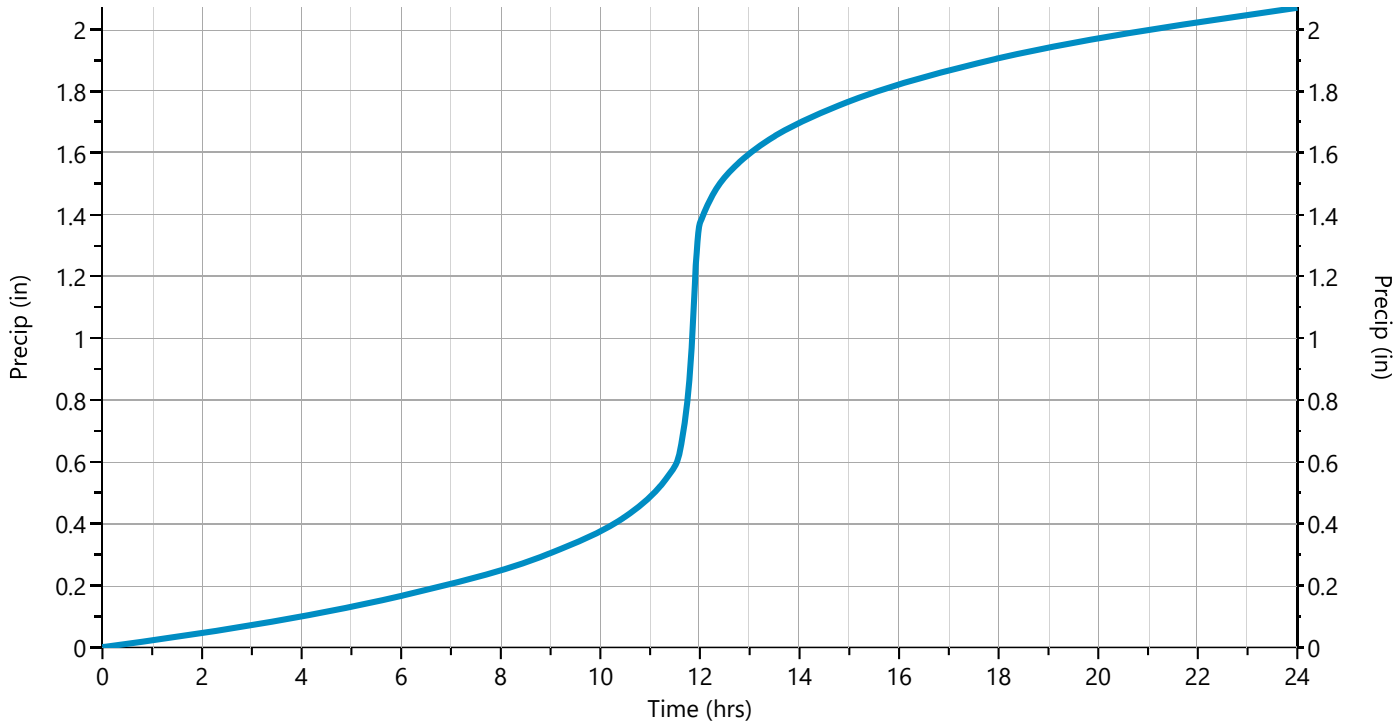
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	✔ 1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 1-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.003836	11.60	0.011629	11.78	0.030243	11.97	0.028482	12.15	0.005820
11.43	0.003892	11.62	0.012990	11.80	0.034031	11.98	0.019863	12.17	0.005689
11.45	0.003947	11.63	0.014352	11.82	0.037818	12.00	0.011244	12.18	0.005558
11.47	0.004002	11.65	0.015714	11.83	0.041605	12.02	0.007101	12.20	0.005427
11.48	0.004057	11.67	0.017075	11.85	0.045393	12.03	0.006738	12.22	0.005296
11.50	0.004112	11.68	0.018437	11.87	0.049180	12.05	0.006607	12.23	0.005165
11.52	0.004836	11.70	0.019798	11.88	0.052968	12.07	0.006476	12.25	0.005033
11.53	0.006182	11.72	0.021160	11.90	0.056755	12.08	0.006345	12.27	0.004902
11.55	0.007544	11.73	0.022522	**11.92**	**0.060542**	12.10	0.006213	12.28	0.004771
11.57	0.008906	11.75	0.023883	11.93	0.039589	12.12	0.006082	12.30	0.004640
11.58	0.010267	11.77	0.026256	11.95	0.037102	12.13	0.005951	12.32	0.004509



Hydrograph 2-yr Summary

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	37.41	12.10	122,907	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	23.10	12.00	55,956	----		
3	NRCS Runoff	Pre SA-A (DET BAS 2)	5.898	12.05	16,386	----		
4	NRCS Runoff	Pre SA-B	3.528	12.03	9,158	----		
5	NRCS Runoff	Pre SA-C	4.860	12.05	13,503	----		
6	Junction	Pre SUM TO EX- D.B. #2	42.74	12.08	139,294	1, 3		
7	Junction	Pre SUM TO EX- DB #1	27.67	12.02	69,459	2, 5		
8	Pond Route	Pre DET BAS #2 ROUTING	0.605	24.10	71,961	6	79.25	113,401
9	Junction	Pre SUM TO LEVEL SPREAD	3.839	12.03	81,119	4, 8		

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

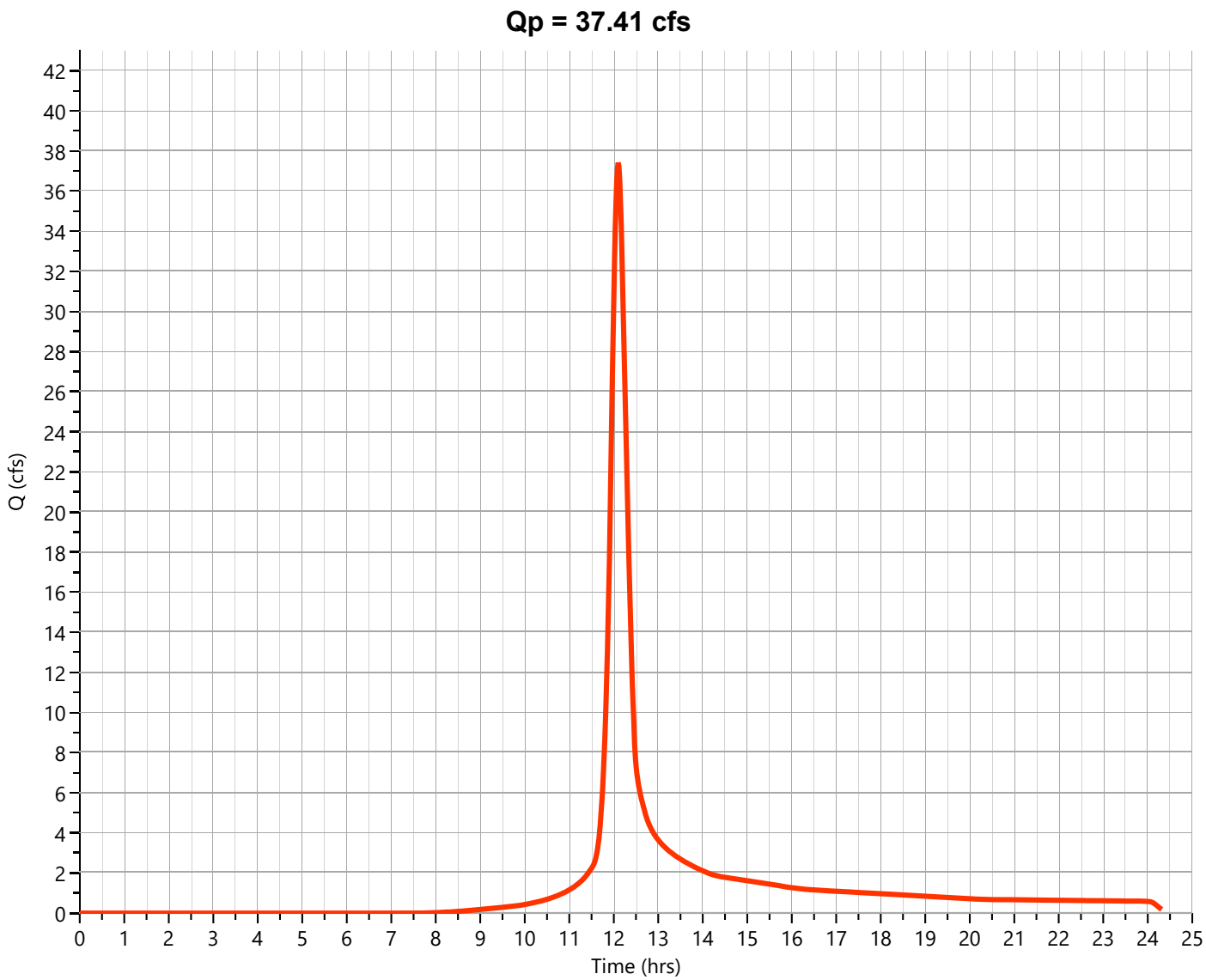
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 37.41 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 122,907 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

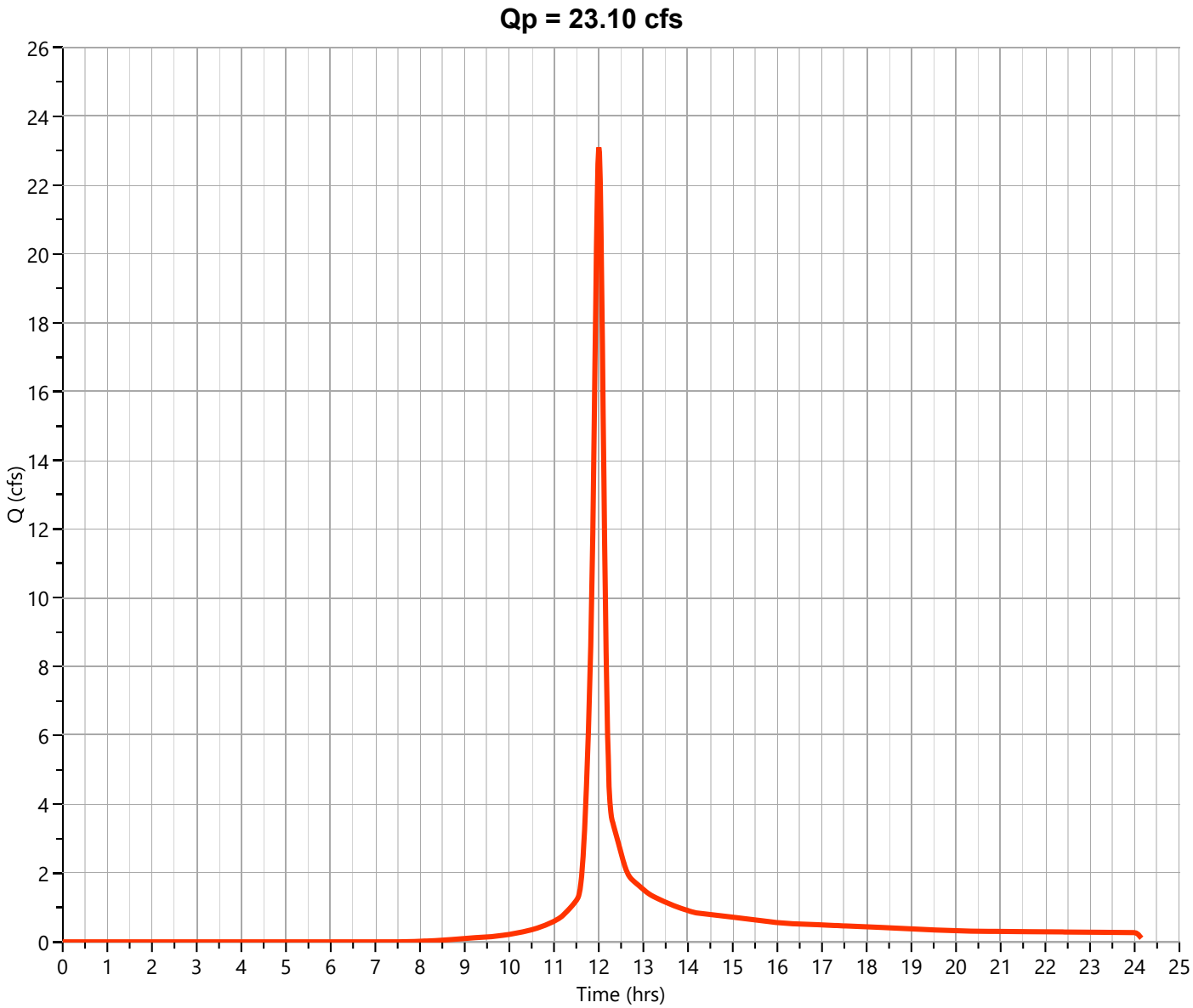
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 23.10 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 55,956 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

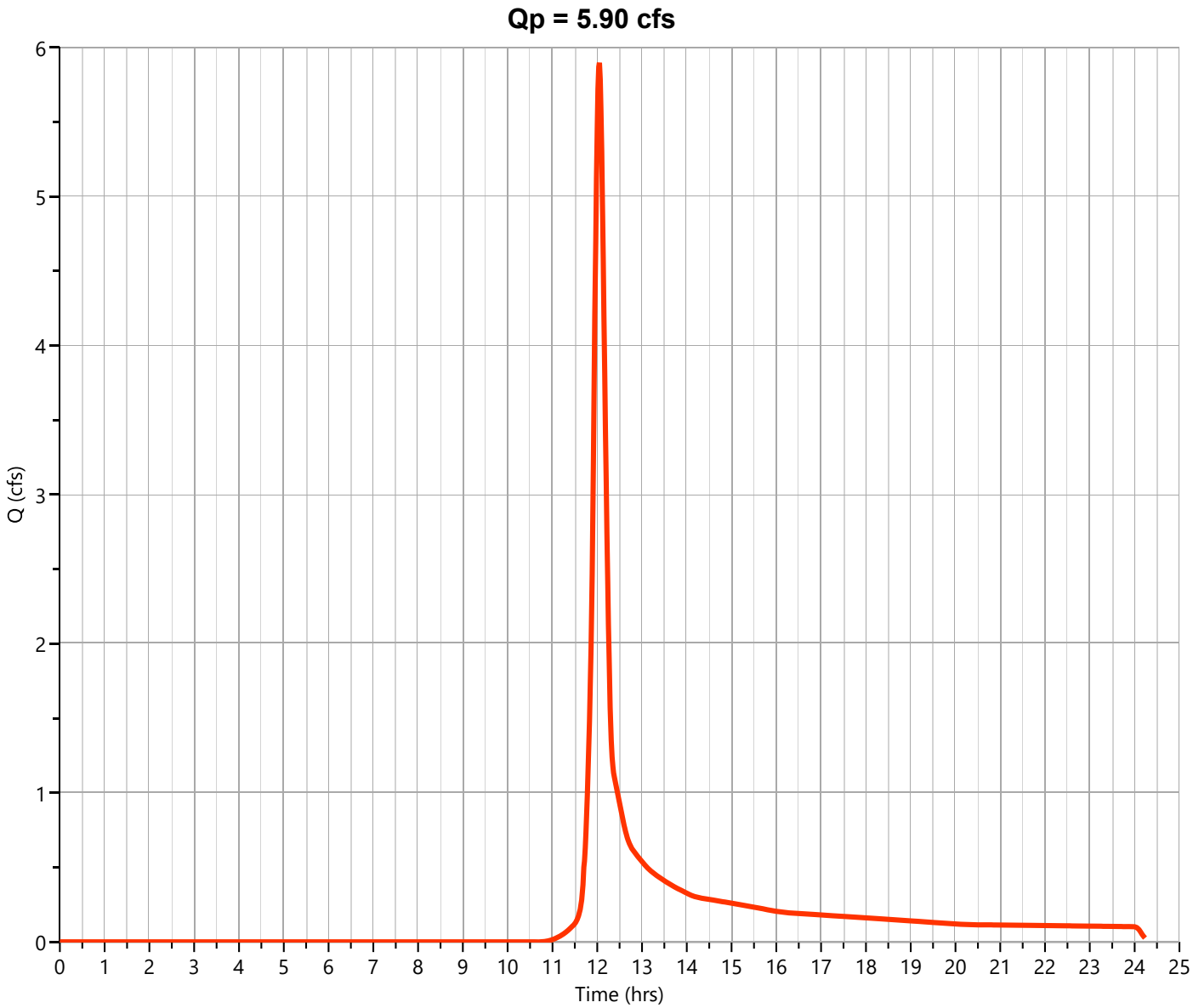
Pre SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.898 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.05 hrs
Time Interval	= 1 min	Runoff Volume	= 16,386 cuft
Drainage Area	= 5.478 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.24 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
5.478	79	C-GRASS (FAIR COVER)
5.478	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

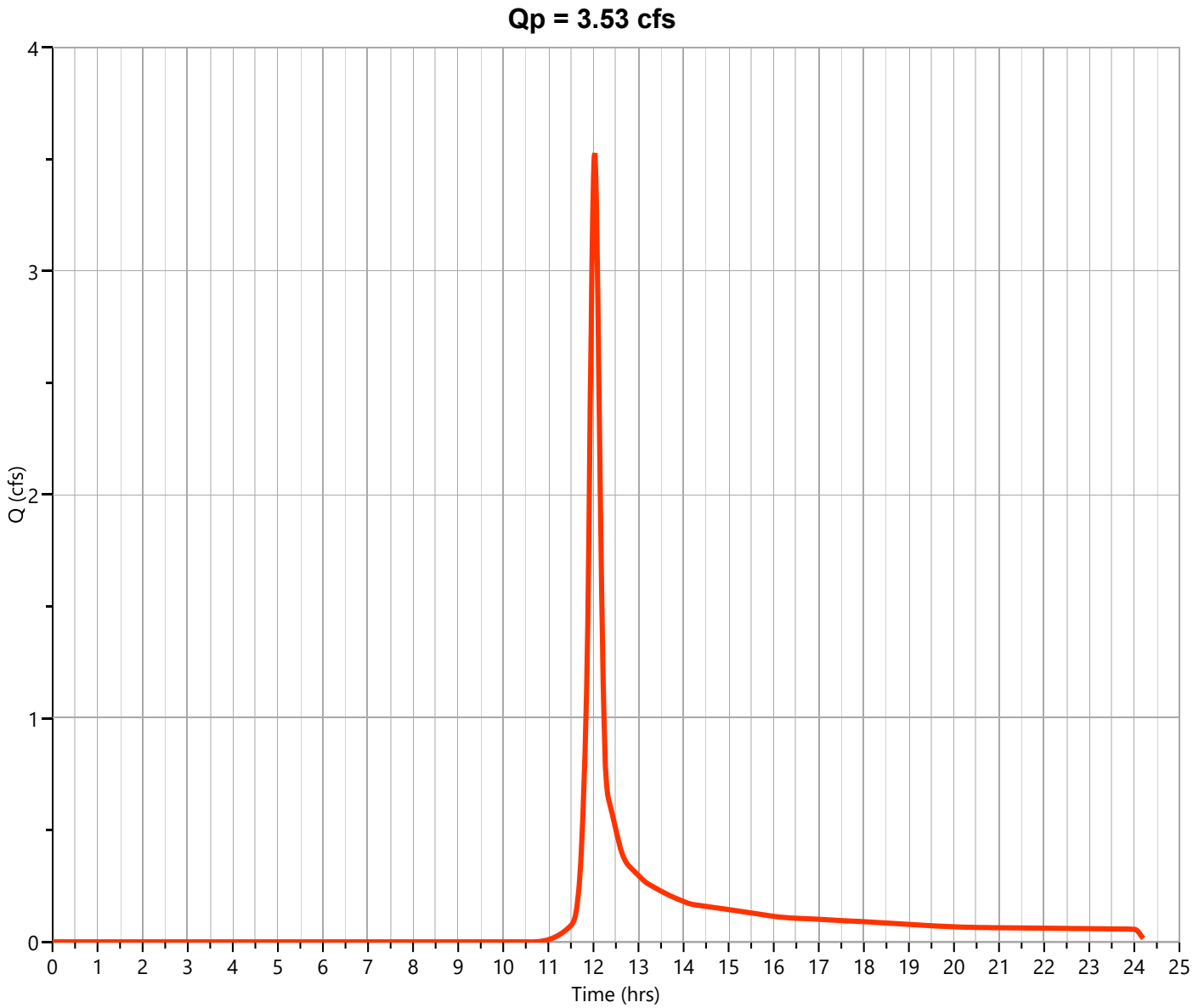
Pre SA-B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.528 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 9,158 cuft
Drainage Area	= 3.11 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.43 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
3.11	79	C-GRASS (FAIR)
3.11	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

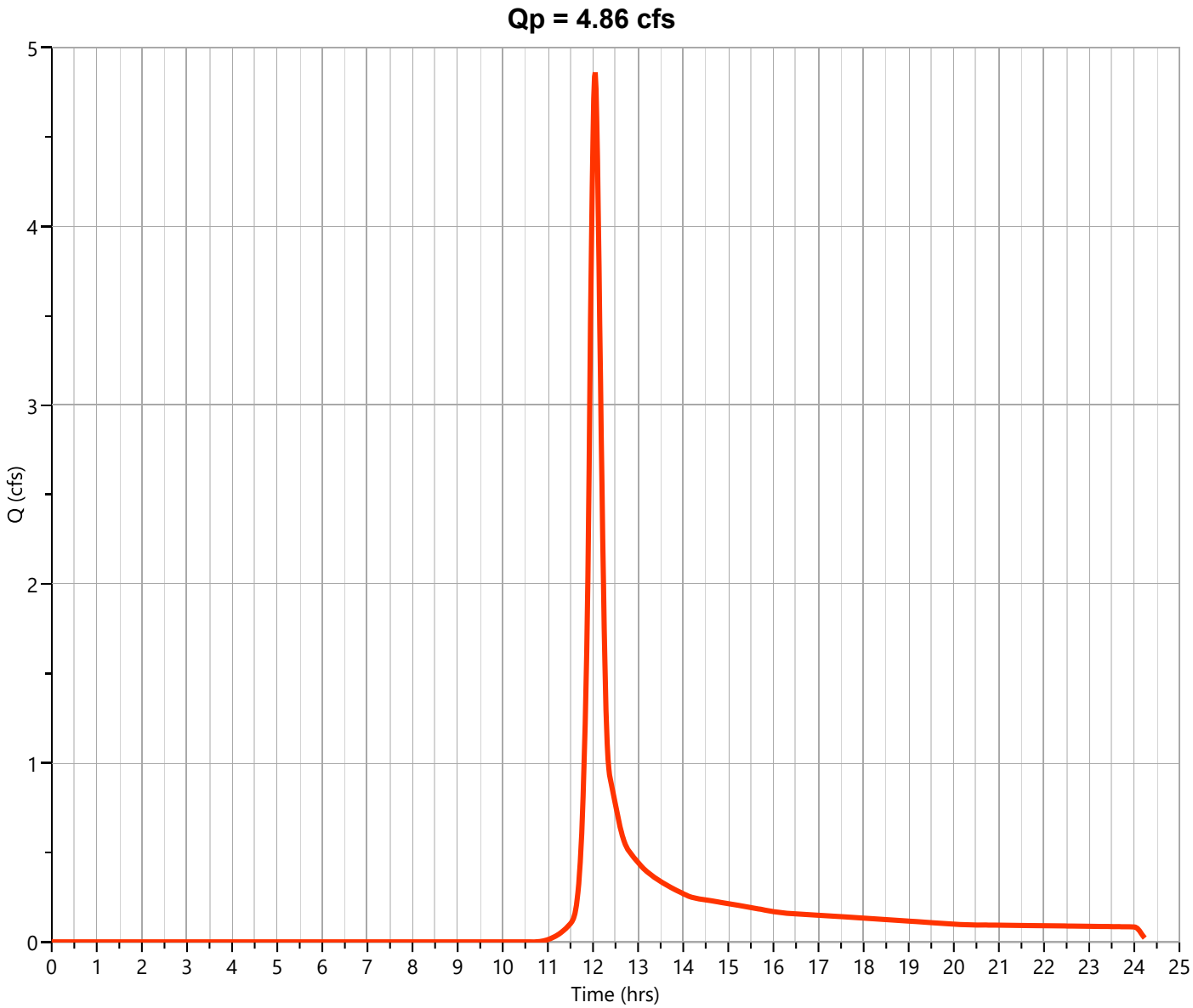
Pre SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.860 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.05 hrs
Time Interval	= 1 min	Runoff Volume	= 13,503 cuft
Drainage Area	= 4.514 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.5 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
4.514	79	C-GRASS (FAIR)
4.514	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

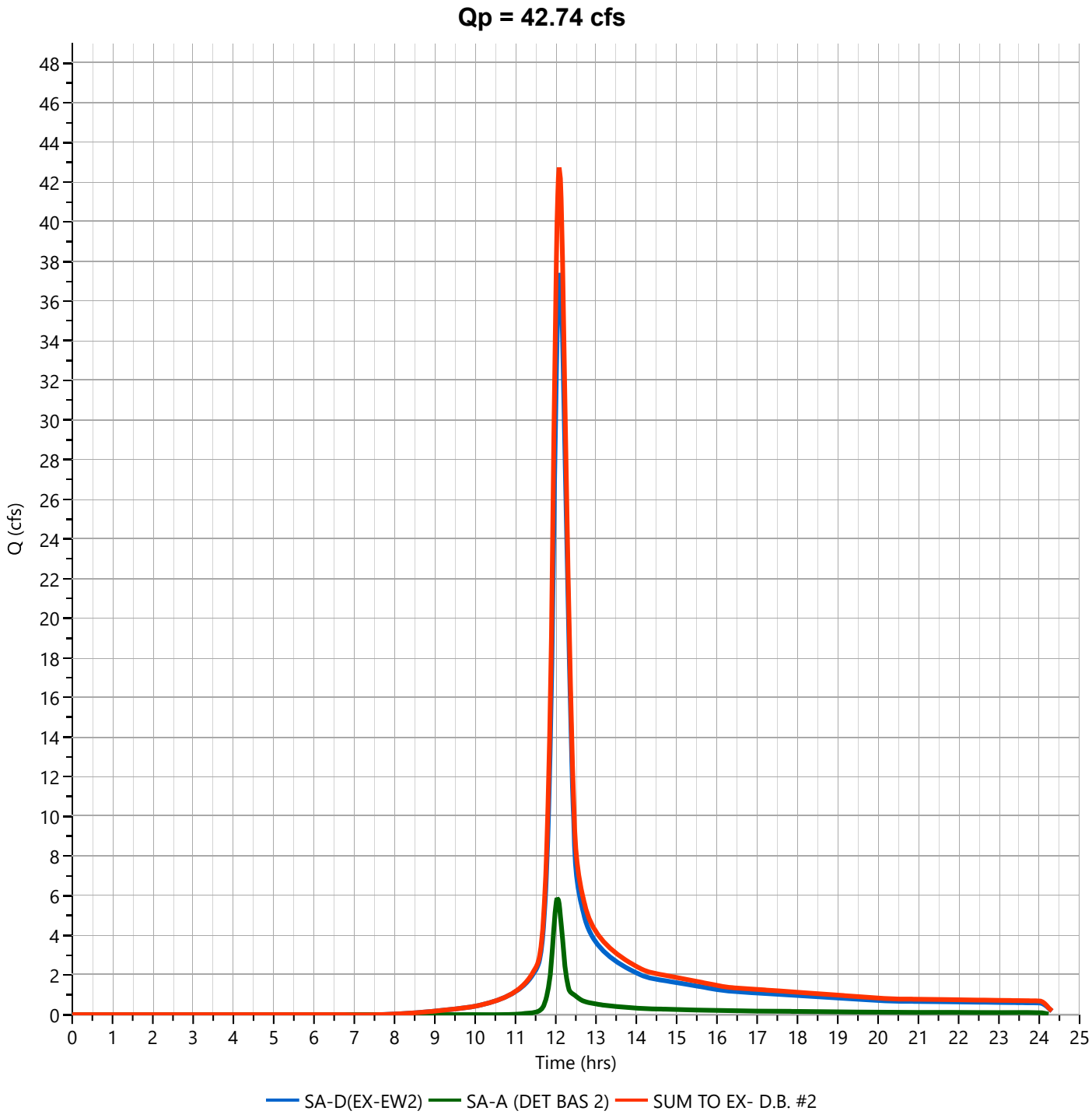
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- D.B. #2

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 42.74 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 139,294 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.058 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

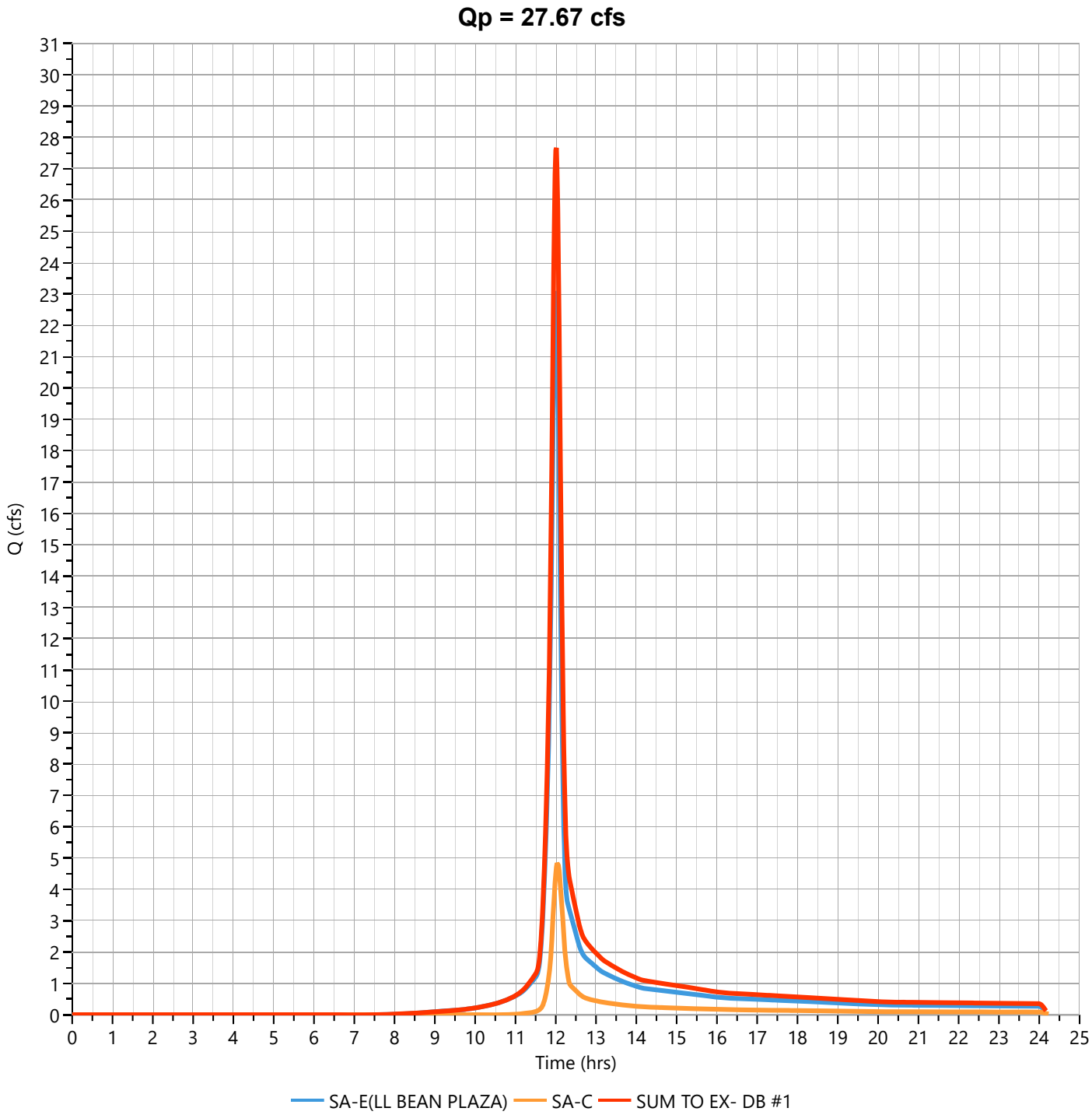
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- DB #1

Hyd. No. 7

Hydrograph Type	= Junction	Peak Flow	= 27.67 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Hydrograph Volume	= 69,459 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 15.614 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

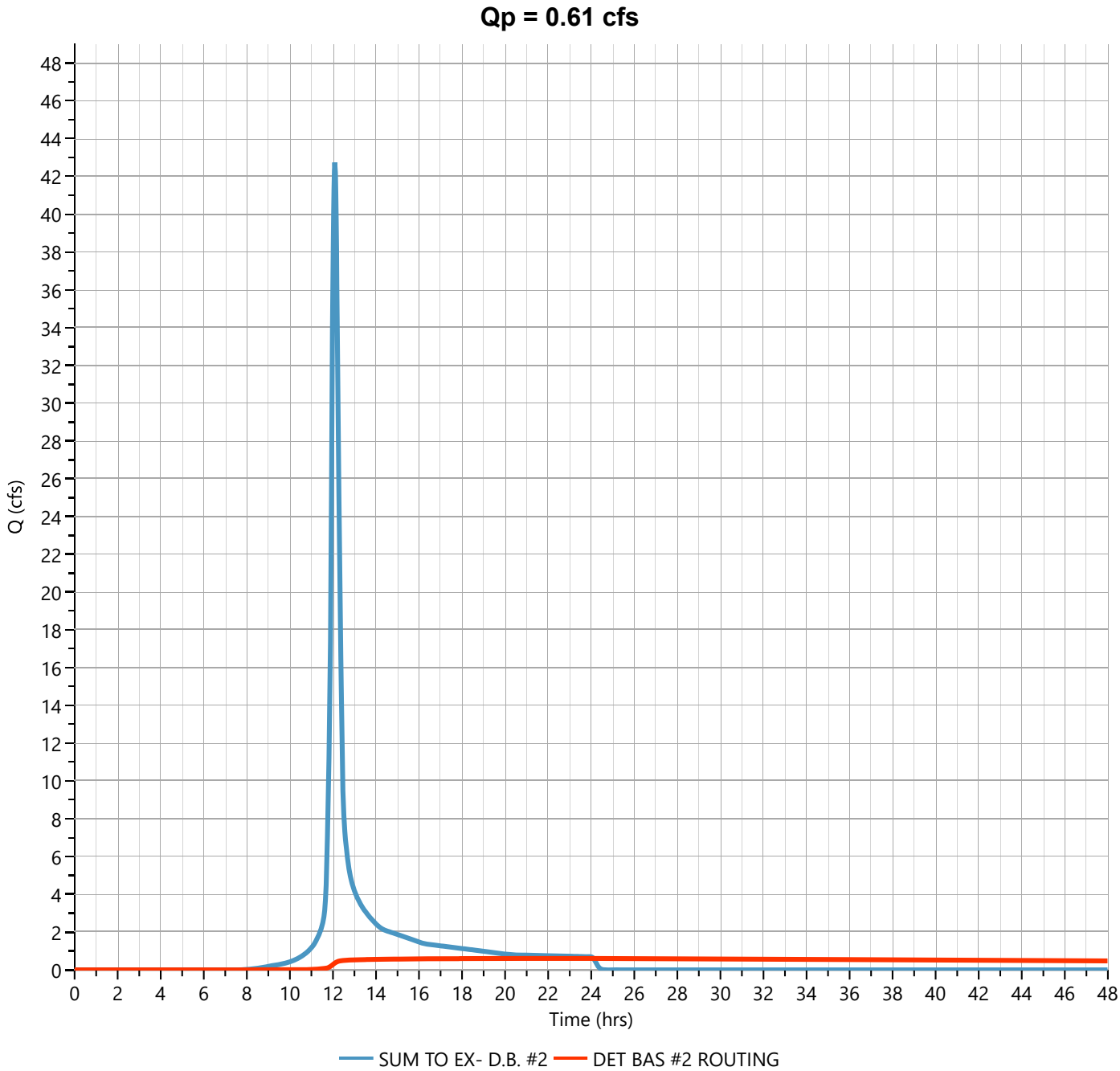
Pre DET BAS #2 ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.605 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 71,961 cuft
Inflow Hydrograph	= 6 - SUM TO EX- D.B. #2	Max. Elevation	= 79.25 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 113,401 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.46 hrs



Hydrograph Report

Project Name: UNIT 7C Evergreeen

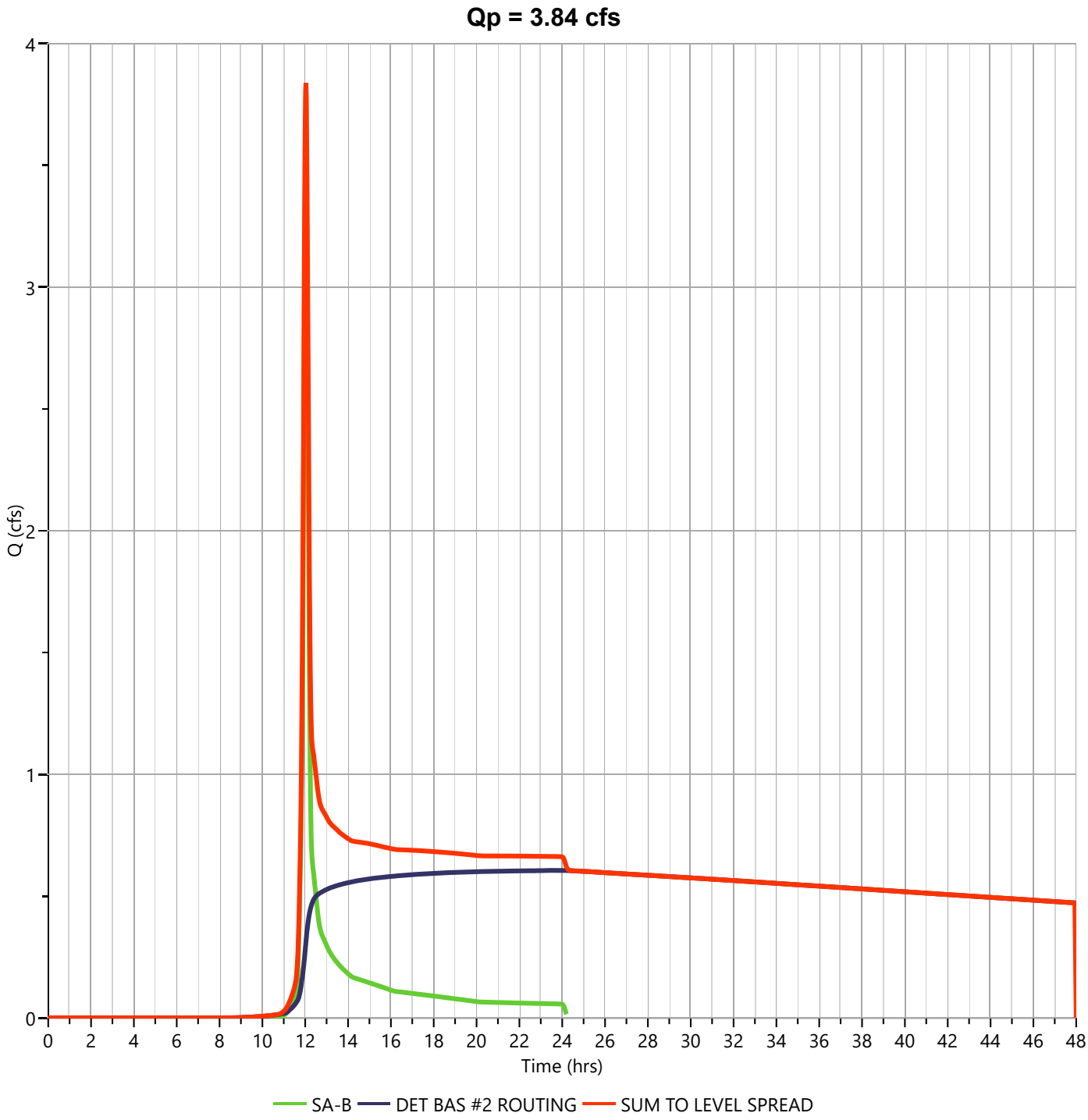
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO LEVEL SPREAD

Hyd. No. 9

Hydrograph Type	= Junction	Peak Flow	= 3.839 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Hydrograph Volume	= 81,119 cuft
Inflow Hydrographs	= 4, 8	Total Contrib. Area	= 3.11 ac



Design Storm Report

Custom Storm filename: 3170.cds

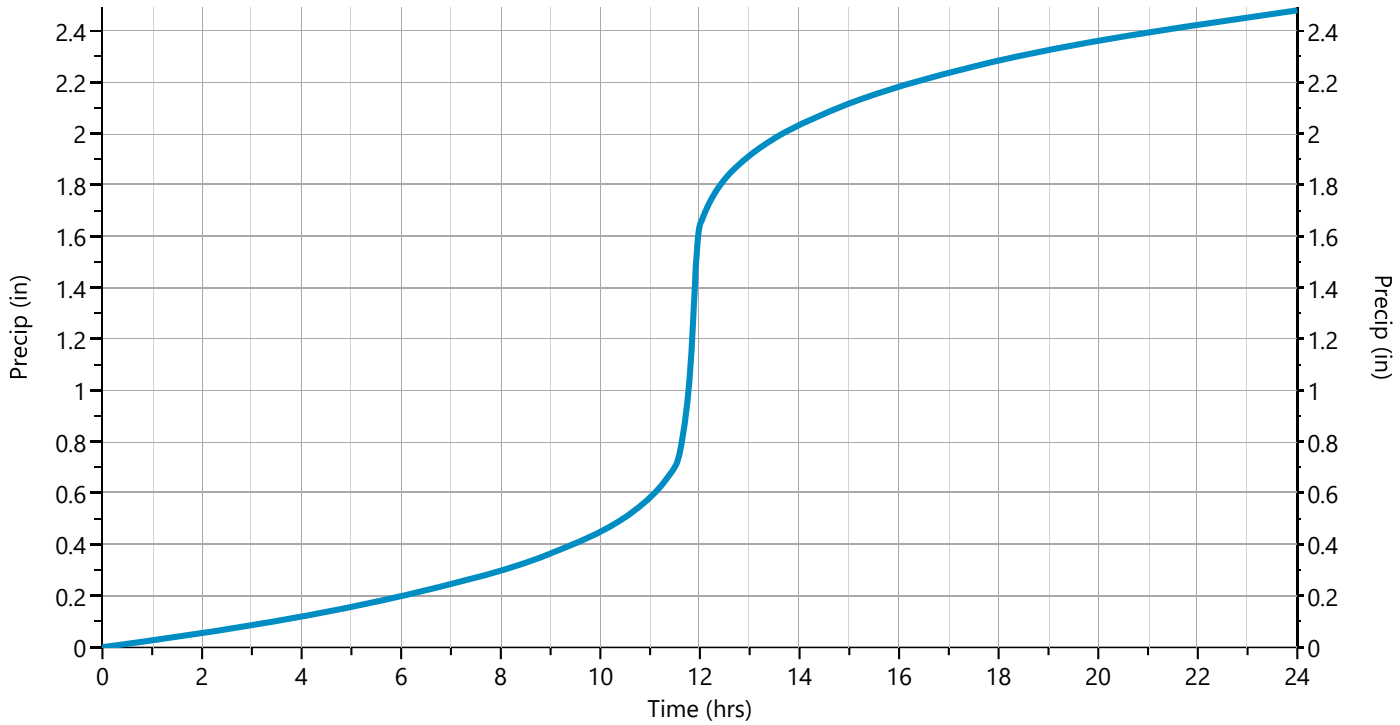
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	✔ 2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 2-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.004596	11.60	0.013932	11.78	0.036234	11.97	0.034124	12.15	0.006973
11.43	0.004662	11.62	0.015563	11.80	0.040771	11.98	0.023798	12.17	0.006816
11.45	0.004729	11.63	0.017195	11.82	0.045309	12.00	0.013471	12.18	0.006659
11.47	0.004795	11.65	0.018826	11.83	0.049846	12.02	0.008507	12.20	0.006502
11.48	0.004861	11.67	0.020457	11.85	0.054384	12.03	0.008072	12.22	0.006345
11.50	0.004927	11.68	0.022089	11.87	0.058921	12.05	0.007915	12.23	0.006188
11.52	0.005794	11.70	0.023720	11.88	0.063459	12.07	0.007758	12.25	0.006031
11.53	0.007407	11.72	0.025351	11.90	0.067996	12.08	0.007601	12.27	0.005873
11.55	0.009038	11.73	0.026982	**11.92**	**0.072533**	12.10	0.007444	12.28	0.005716
11.57	0.010670	11.75	0.028614	11.93	0.047431	12.12	0.007287	12.30	0.005559
11.58	0.012301	11.77	0.031456	11.95	0.044450	12.13	0.007130	12.32	0.005402



Hydrograph 5-yr Summary

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	53.65	12.10	176,660	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	32.93	12.00	80,428	----		
3	NRCS Runoff	Pre SA-A (DET BAS 2)	9.570	12.03	25,985	----		
4	NRCS Runoff	Pre SA-B	5.707	12.02	14,522	----		
5	NRCS Runoff	Pre SA-C	7.886	12.03	21,412	----		
6	Junction	Pre SUM TO EX- D.B. #2	62.36	12.08	202,645	1, 3		
7	Junction	Pre SUM TO EX- DB #1	40.37	12.00	101,841	2, 5		
8	Pond Route	Pre DET BAS #2 ROUTING	0.731	24.15	88,882	6	80.21	170,886
9	Junction	Pre SUM TO LEVEL SPREAD	6.110	12.03	103,404	4, 8		

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

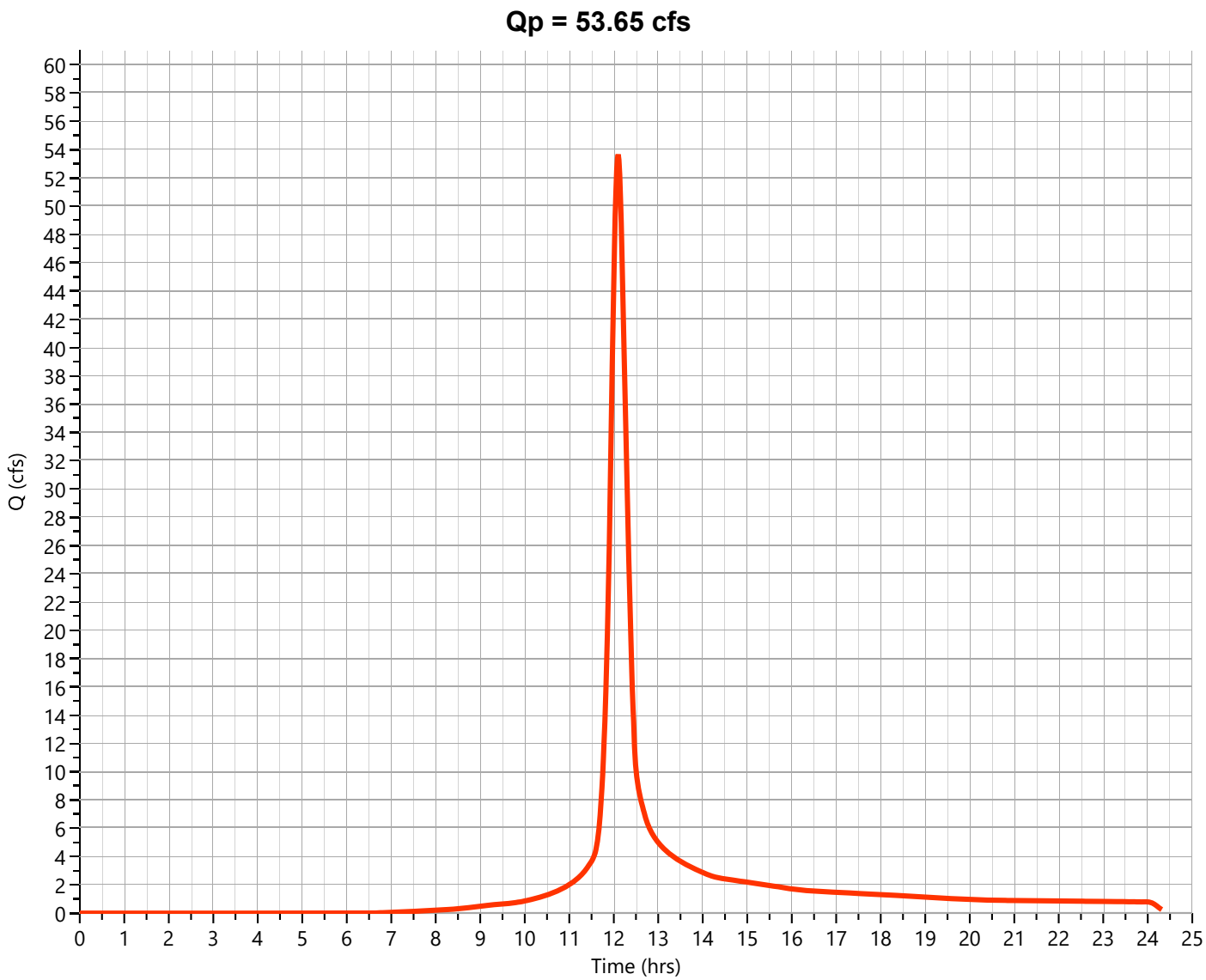
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 53.65 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 176,660 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

Pre SA-E(LL BEAN PLAZA)

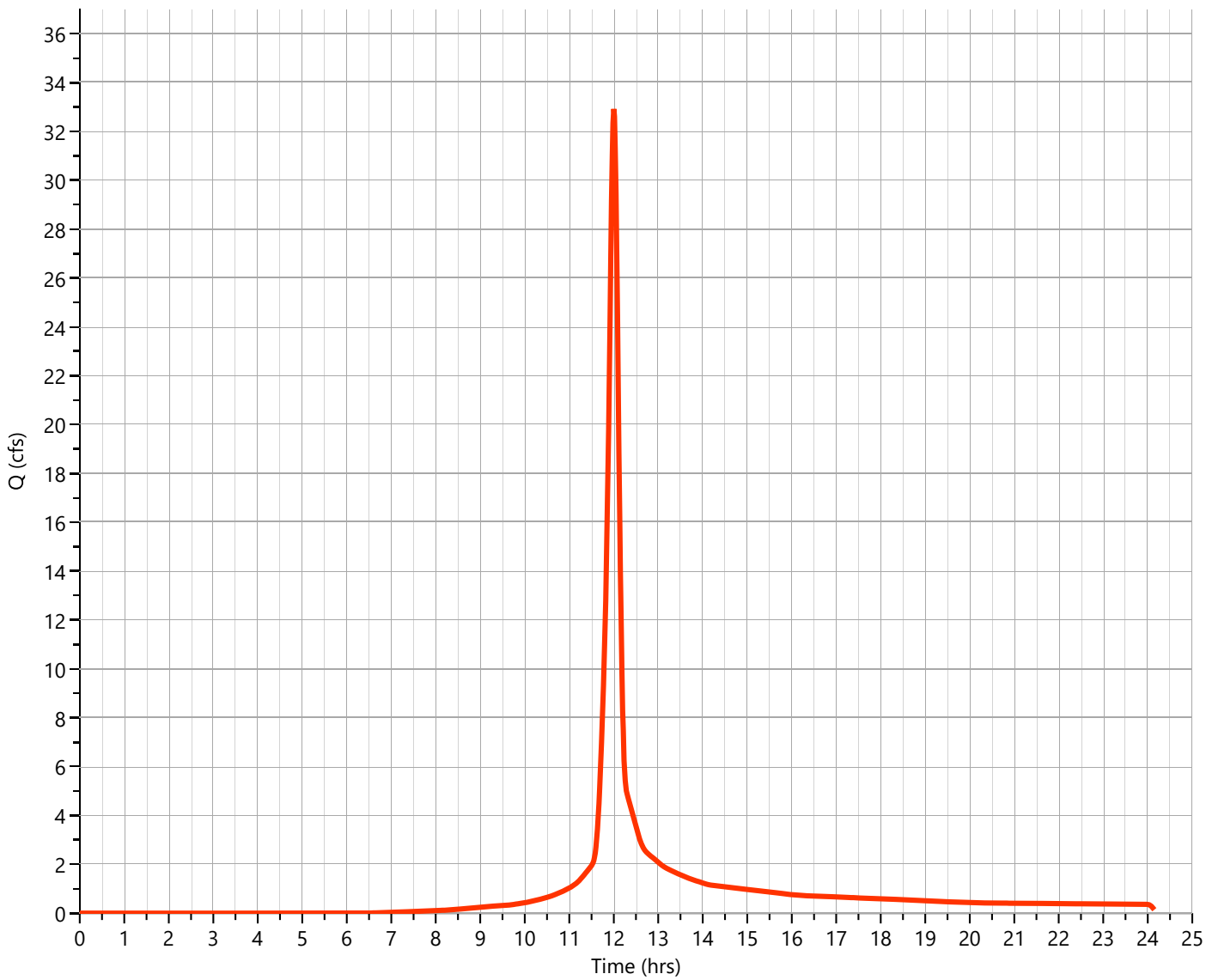
Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 32.93 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 80,428 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed

Qp = 32.93 cfs



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

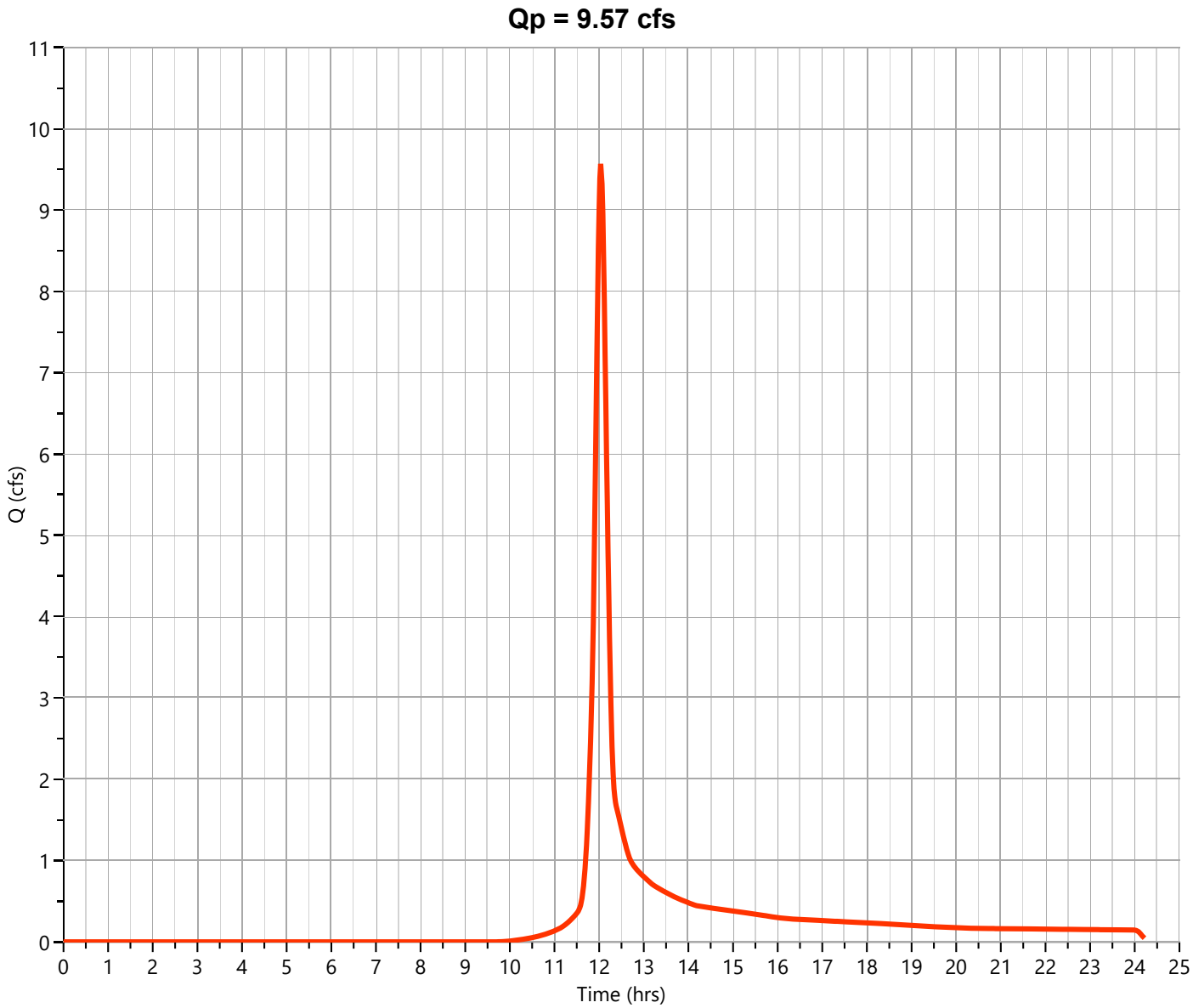
Pre SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 9.570 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 25,985 cuft
Drainage Area	= 5.478 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.24 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
5.478	79	C-GRASS (FAIR COVER)
5.478	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

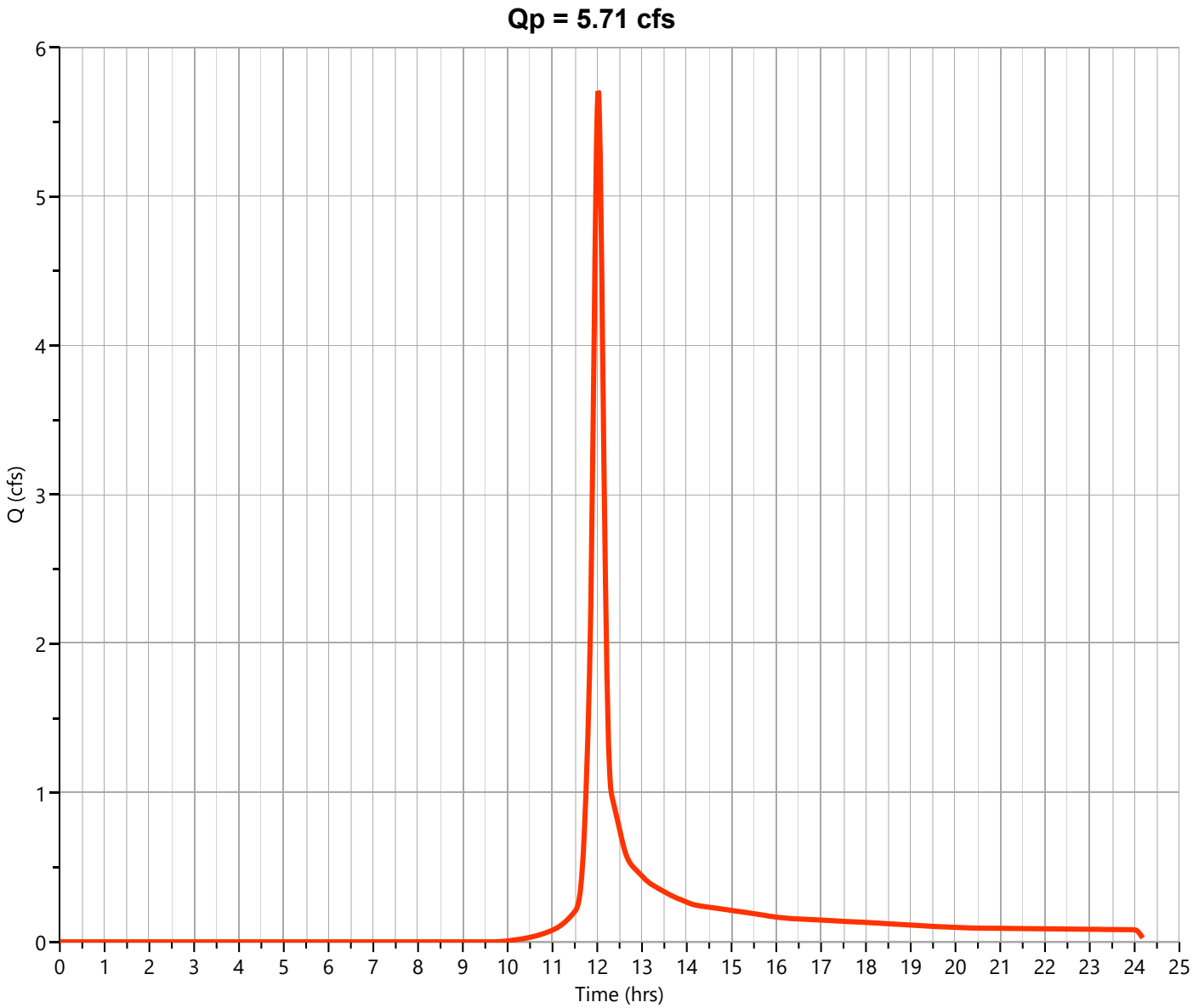
Pre SA-B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.707 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Runoff Volume	= 14,522 cuft
Drainage Area	= 3.11 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.43 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
3.11	79	C-GRASS (FAIR)
3.11	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

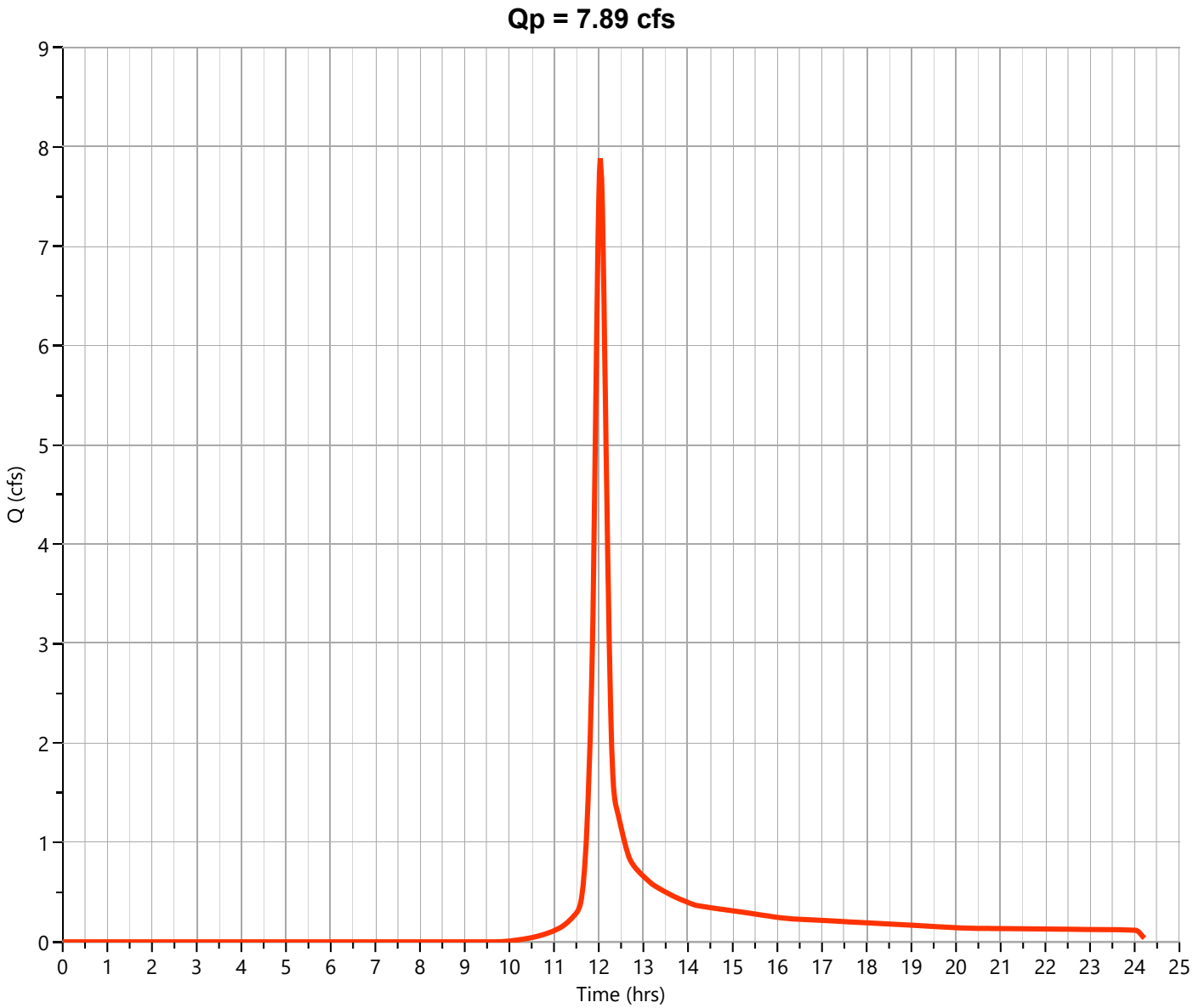
Pre SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.886 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 21,412 cuft
Drainage Area	= 4.514 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.5 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
4.514	79	C-GRASS (FAIR)
4.514	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

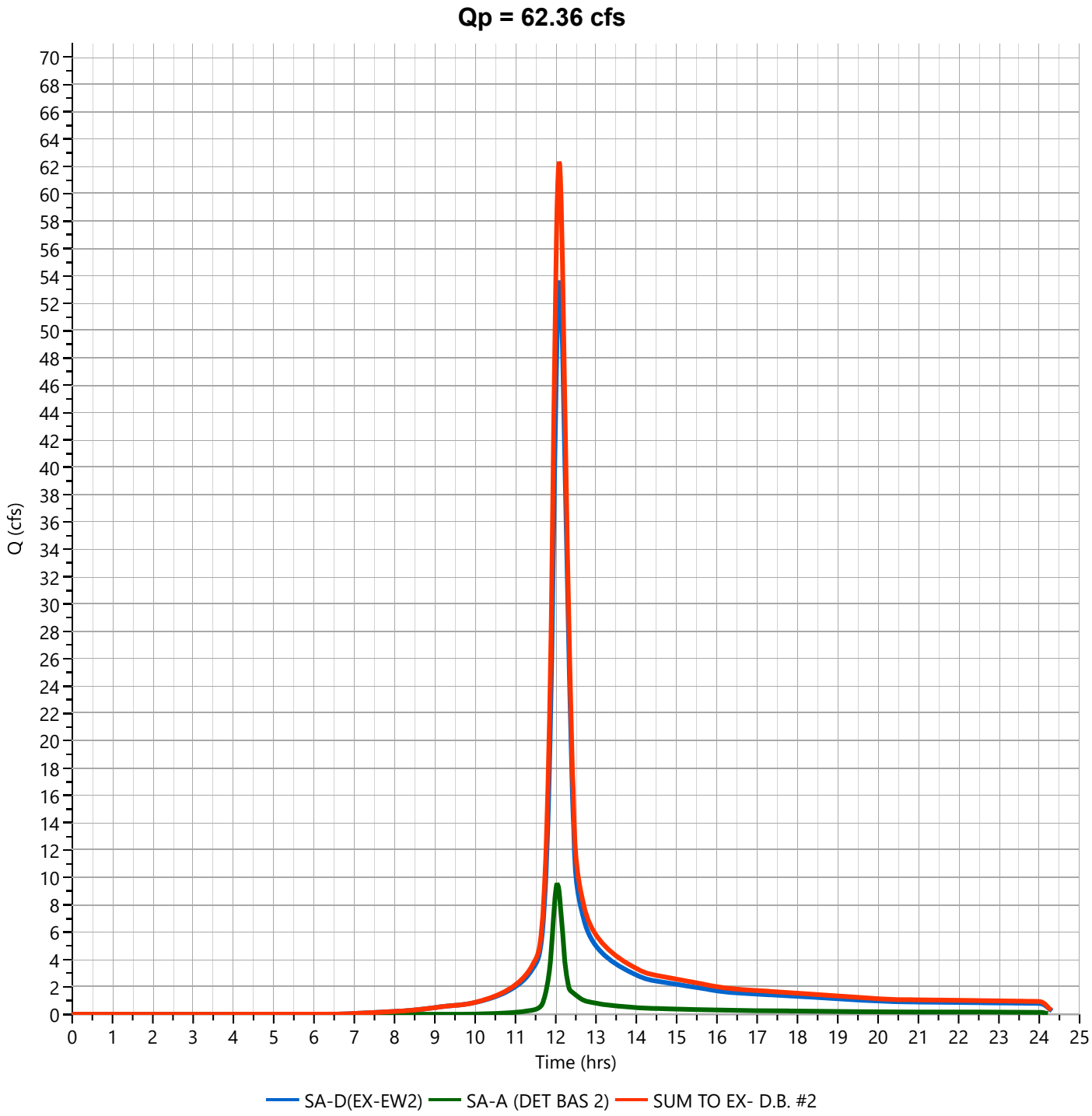
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- D.B. #2

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 62.36 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 202,645 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.058 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

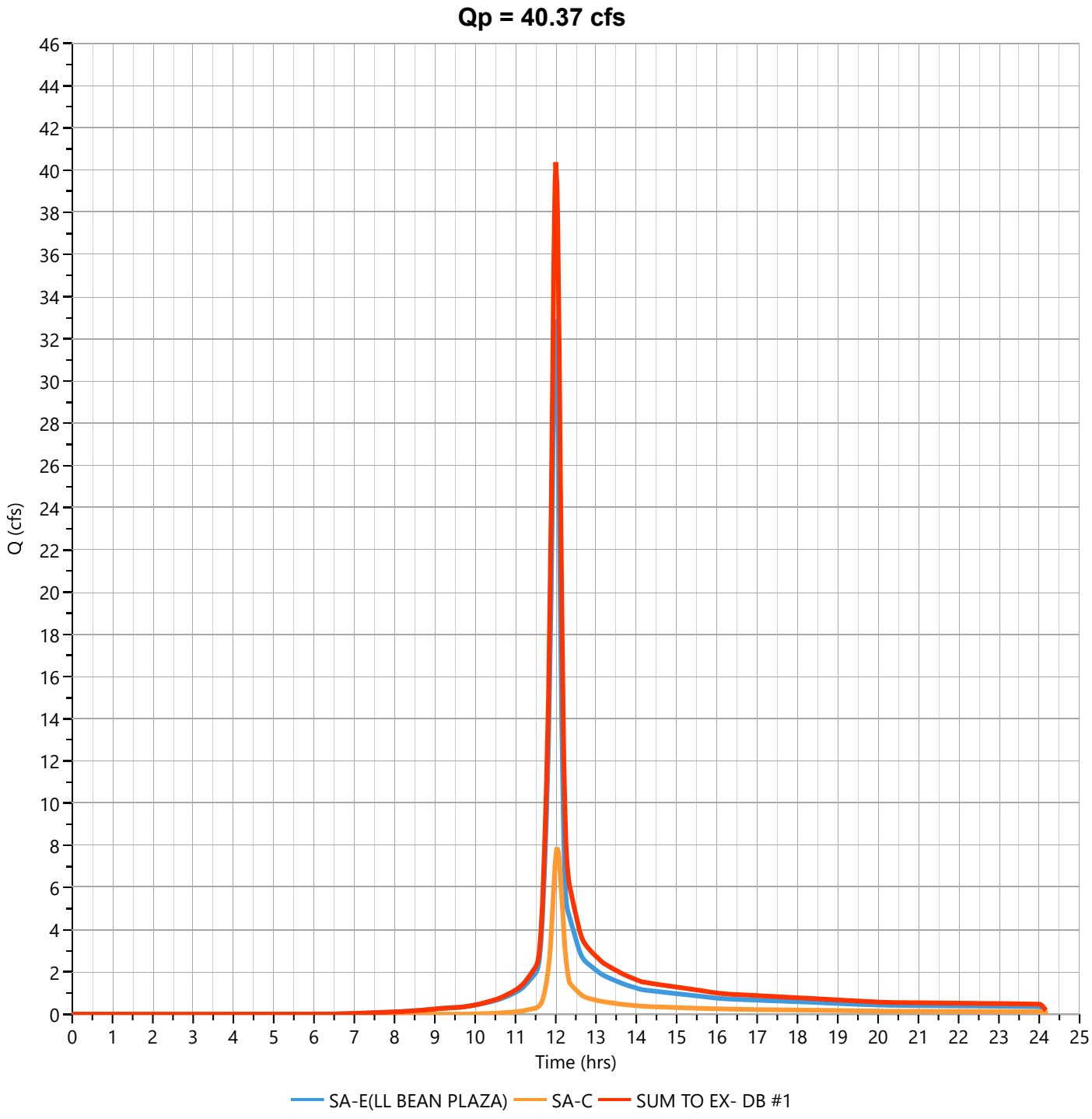
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- DB #1

Hyd. No. 7

Hydrograph Type	= Junction	Peak Flow	= 40.37 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 101,841 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 15.614 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

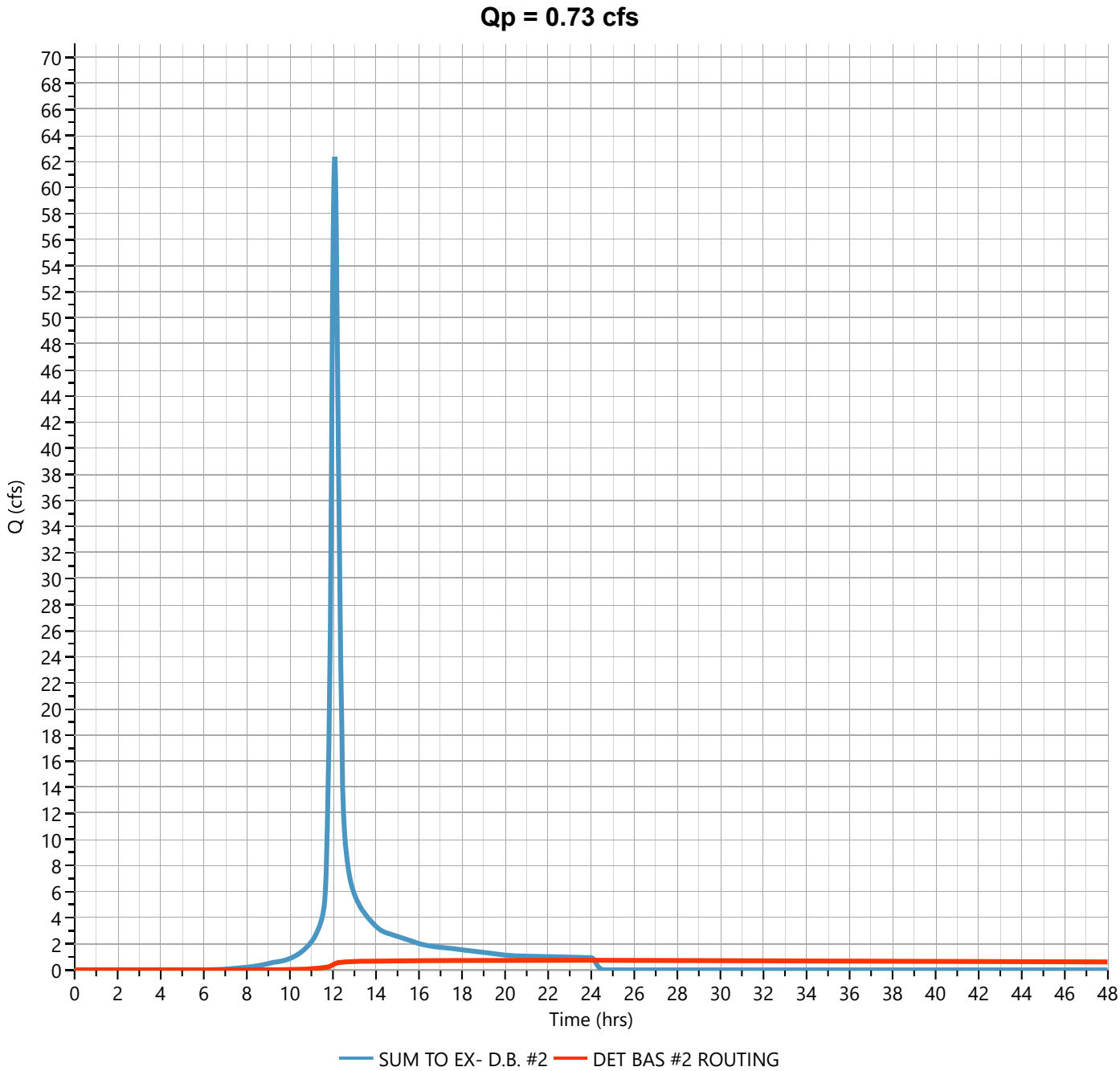
Pre DET BAS #2 ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.731 cfs
Storm Frequency	= 5-yr	Time to Peak	= 24.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 88,882 cuft
Inflow Hydrograph	= 6 - SUM TO EX- D.B. #2	Max. Elevation	= 80.21 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 170,886 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.73 hrs



Hydrograph Report

Project Name: UNIT 7C Evergreeen

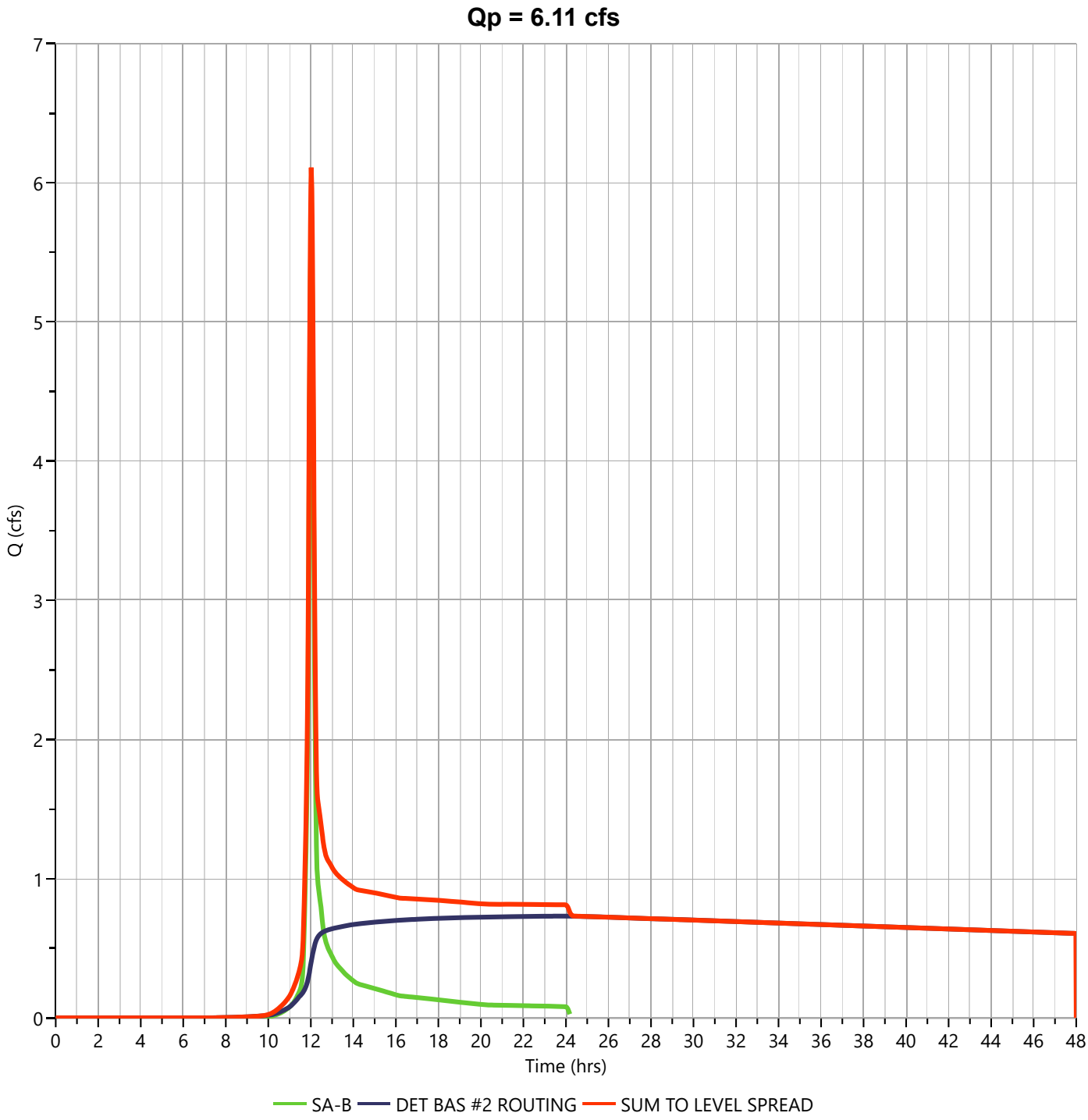
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO LEVEL SPREAD

Hyd. No. 9

Hydrograph Type	= Junction	Peak Flow	= 6.110 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Hydrograph Volume	= 103,404 cuft
Inflow Hydrographs	= 4, 8	Total Contrib. Area	= 3.11 ac



Design Storm Report

Custom Storm filename: 3170.cds

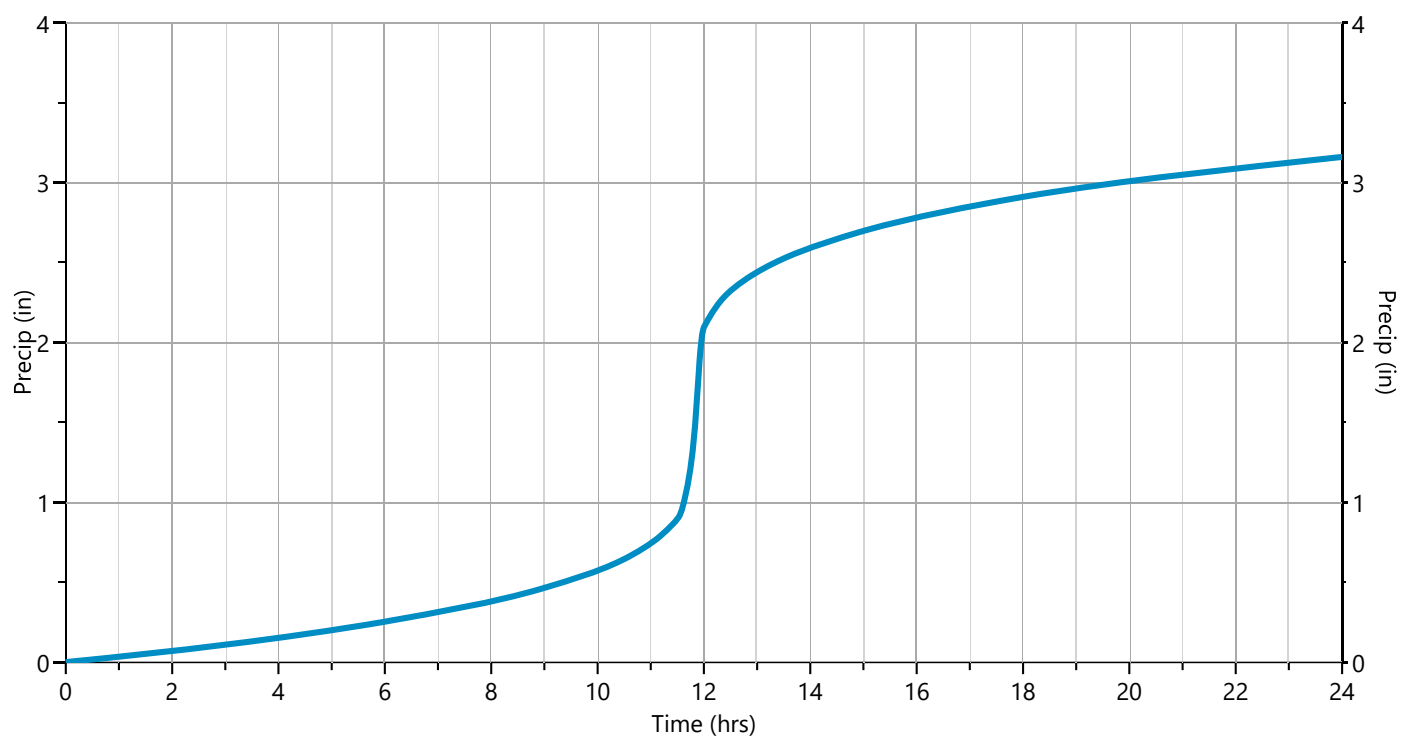
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	✔ 5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 5-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.005857	11.60	0.017752	11.78	0.046169	11.97	0.043481	12.15	0.008885
11.43	0.005941	11.62	0.019831	11.80	0.051950	11.98	0.030323	12.17	0.008685
11.45	0.006025	11.63	0.021909	11.82	0.057732	12.00	0.017165	12.18	0.008485
11.47	0.006109	11.65	0.023988	11.83	0.063514	12.02	0.010839	12.20	0.008285
11.48	0.006194	11.67	0.026066	11.85	0.069295	12.03	0.010286	12.22	0.008084
11.50	0.006278	11.68	0.028145	11.87	0.075077	12.05	0.010086	12.23	0.007884
11.52	0.007383	11.70	0.030224	11.88	0.080859	12.07	0.009885	12.25	0.007684
11.53	0.009438	11.72	0.032302	11.90	0.086640	12.08	0.009686	12.27	0.007484
11.55	0.011517	11.73	0.034381	**11.92**	**0.092422**	12.10	0.009485	12.28	0.007284
11.57	0.013595	11.75	0.036459	11.93	0.060436	12.12	0.009285	12.30	0.007084
11.58	0.015674	11.77	0.040081	11.95	0.056638	12.13	0.009085	12.32	0.006883



Hydrograph 10-yr Summary

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	67.49	12.10	223,349	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	41.28	12.00	101,684	----		
3	NRCS Runoff	Pre SA-A (DET BAS 2)	12.89	12.03	34,733	----		
4	NRCS Runoff	Pre SA-B	7.677	12.02	19,410	----		
5	NRCS Runoff	Pre SA-C	10.62	12.03	28,621	----		
6	Junction	Pre SUM TO EX- D.B. #2	79.23	12.08	258,081	1, 3		
7	Junction	Pre SUM TO EX- DB #1	51.39	12.00	130,305	2, 5		
8	Pond Route	Pre DET BAS #2 ROUTING	0.823	24.17	101,372	6	81.02	221,846
9	Junction	Pre SUM TO LEVEL SPREAD	8.144	12.02	120,783	4, 8		

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

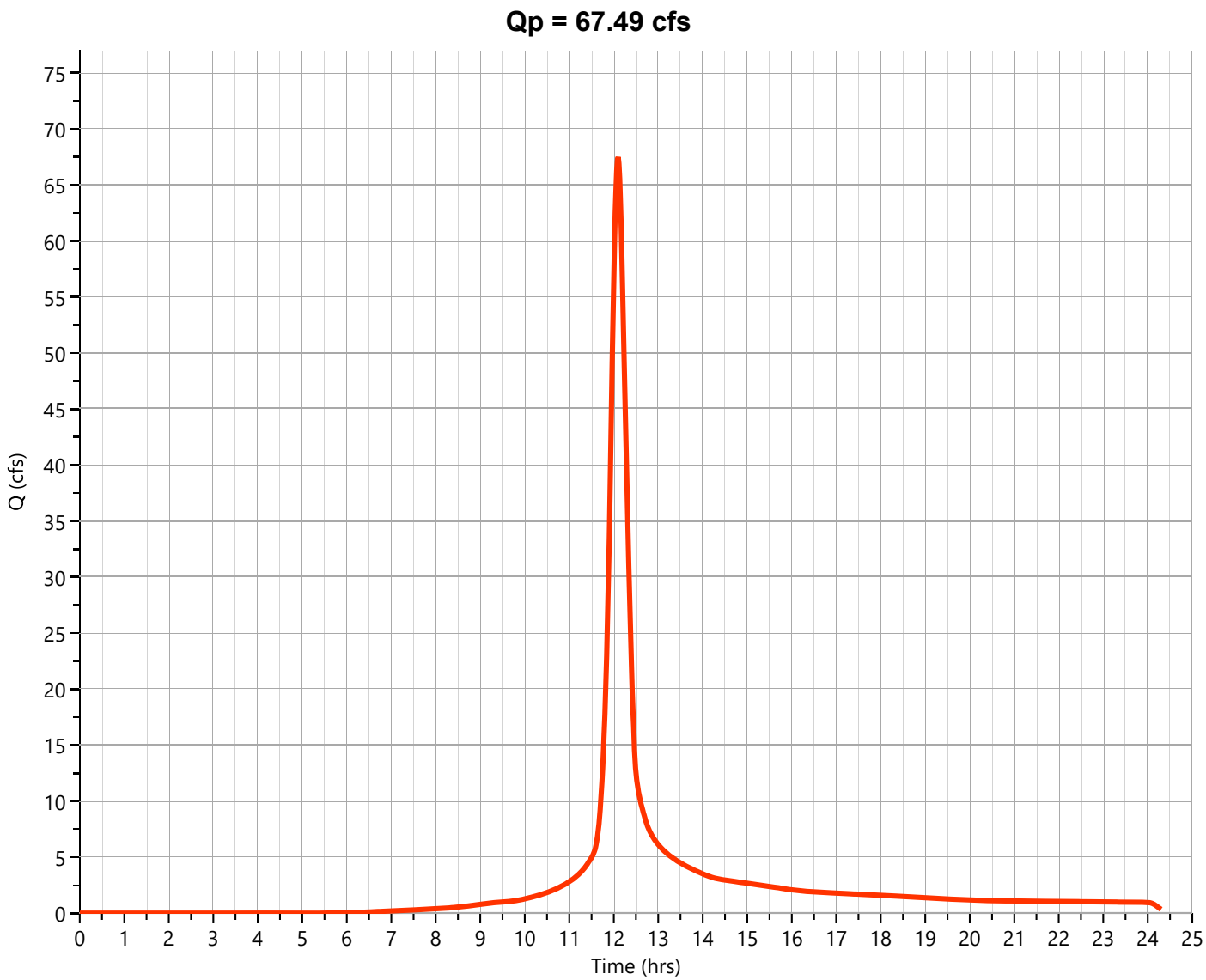
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 67.49 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 223,349 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

Pre SA-E(LL BEAN PLAZA)

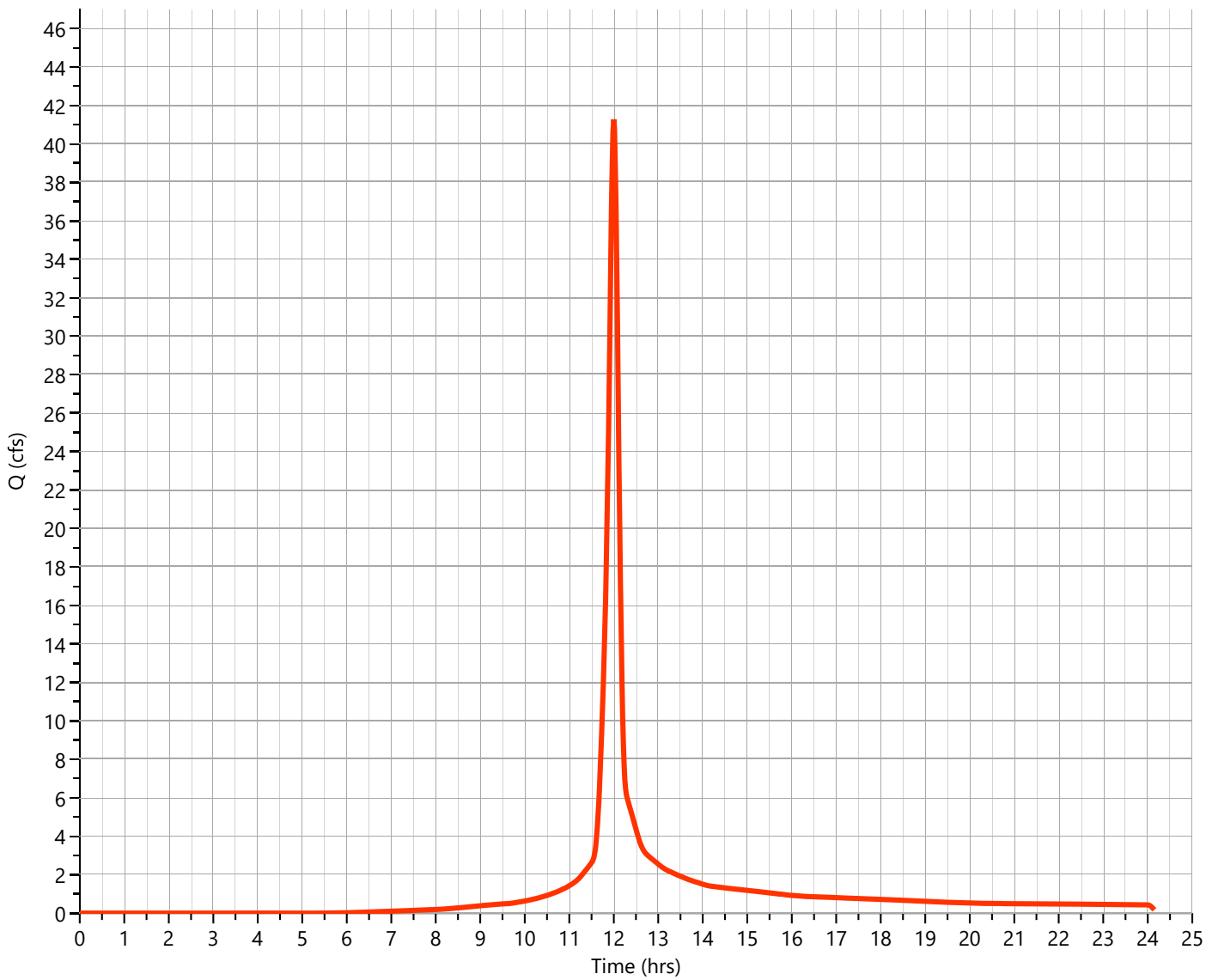
Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 41.28 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 101,684 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed

Qp = 41.28 cfs



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

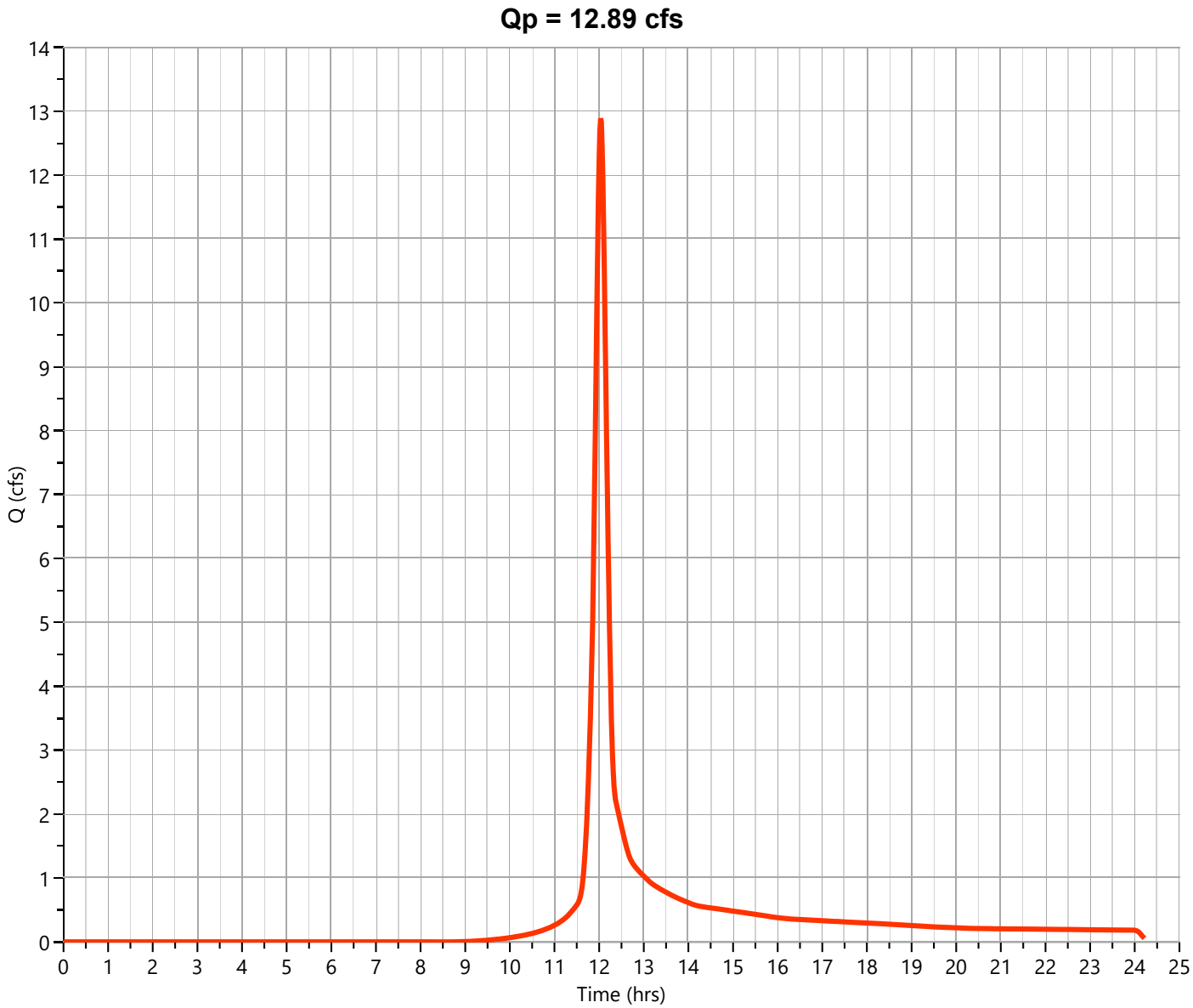
Pre SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.89 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 34,733 cuft
Drainage Area	= 5.478 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.24 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
5.478	79	C-GRASS (FAIR COVER)
5.478	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

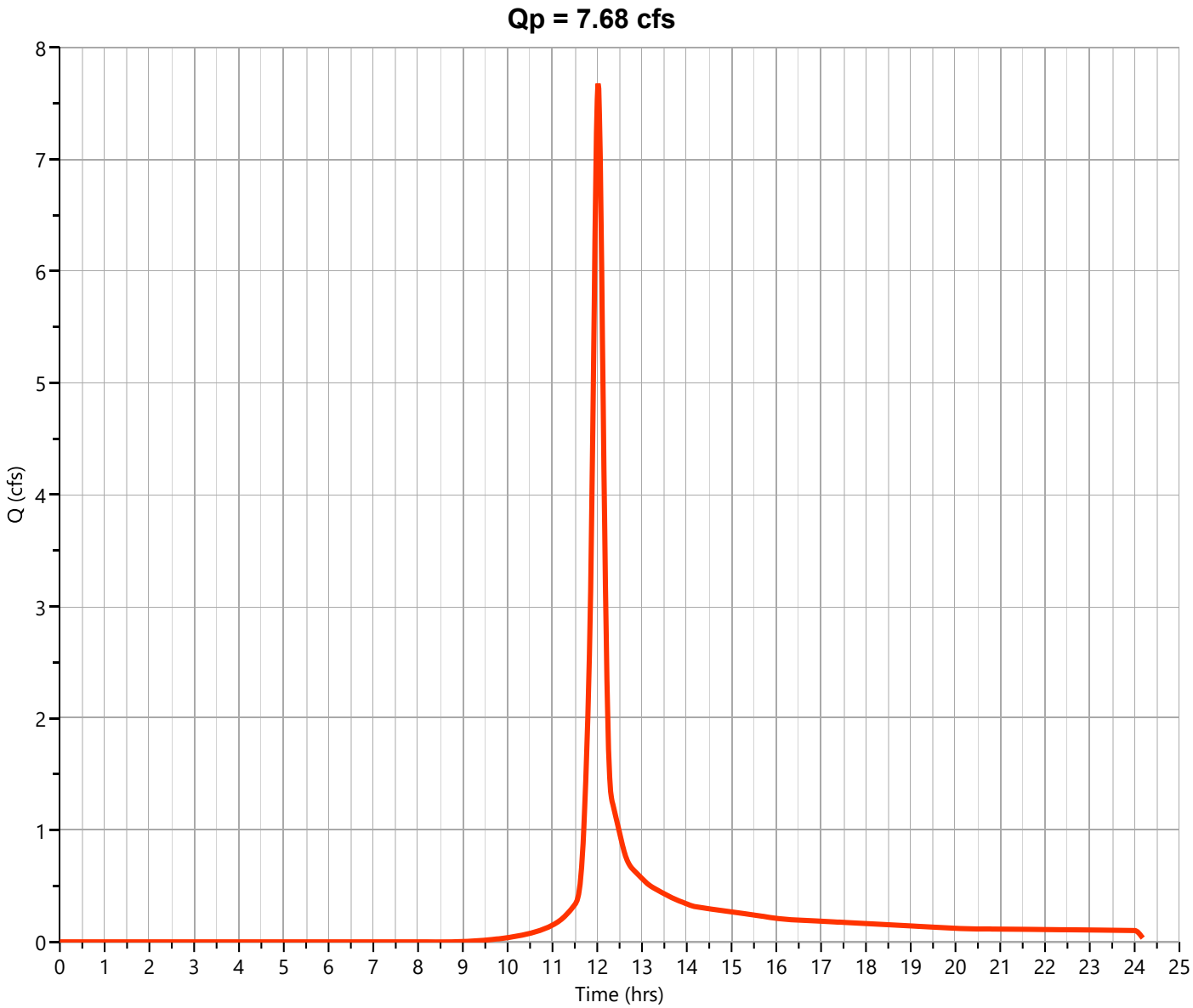
Pre SA-B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.677 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Runoff Volume	= 19,410 cuft
Drainage Area	= 3.11 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.43 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
3.11	79	C-GRASS (FAIR)
3.11	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

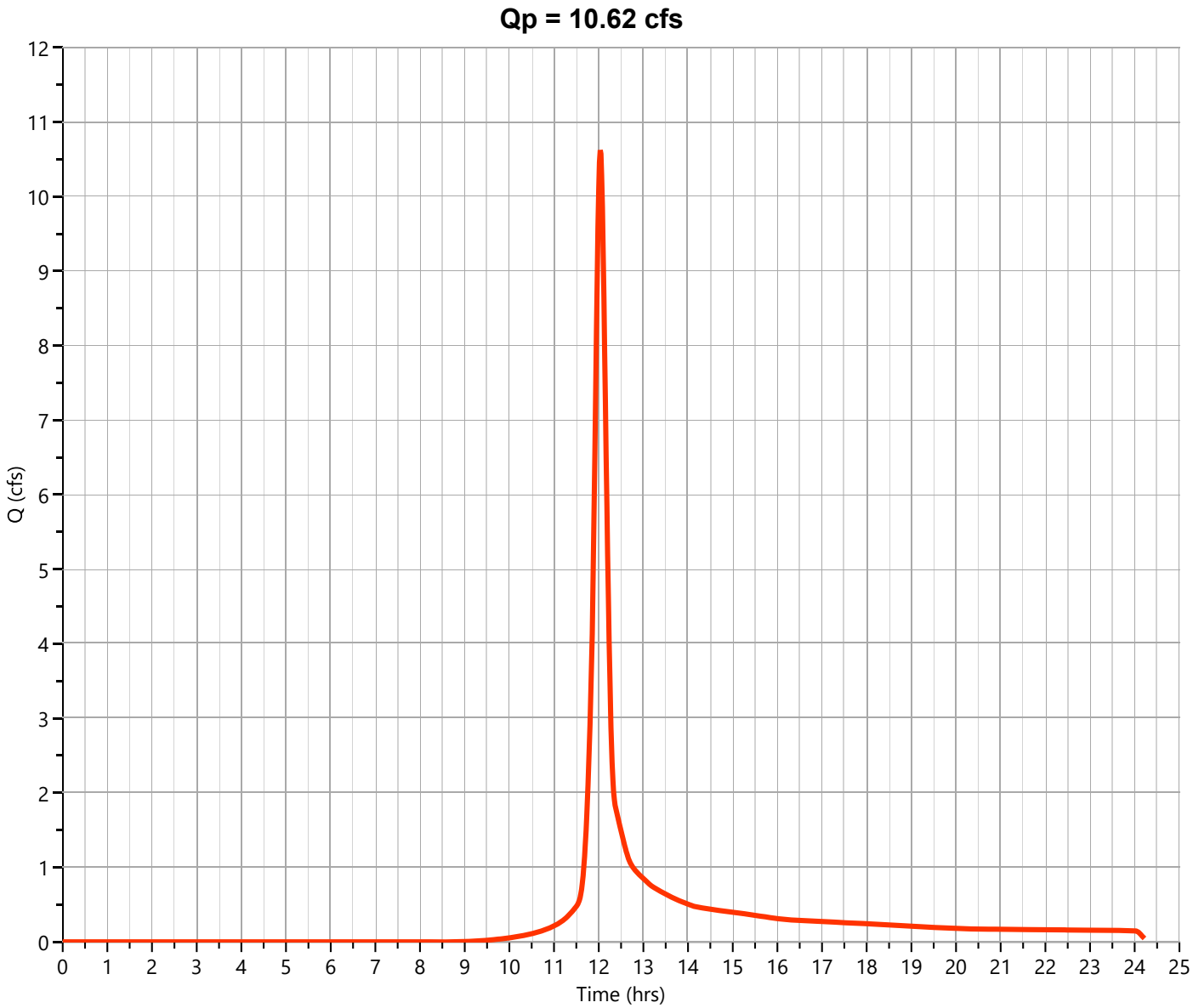
Pre SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 10.62 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 28,621 cuft
Drainage Area	= 4.514 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.5 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
4.514	79	C-GRASS (FAIR)
4.514	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

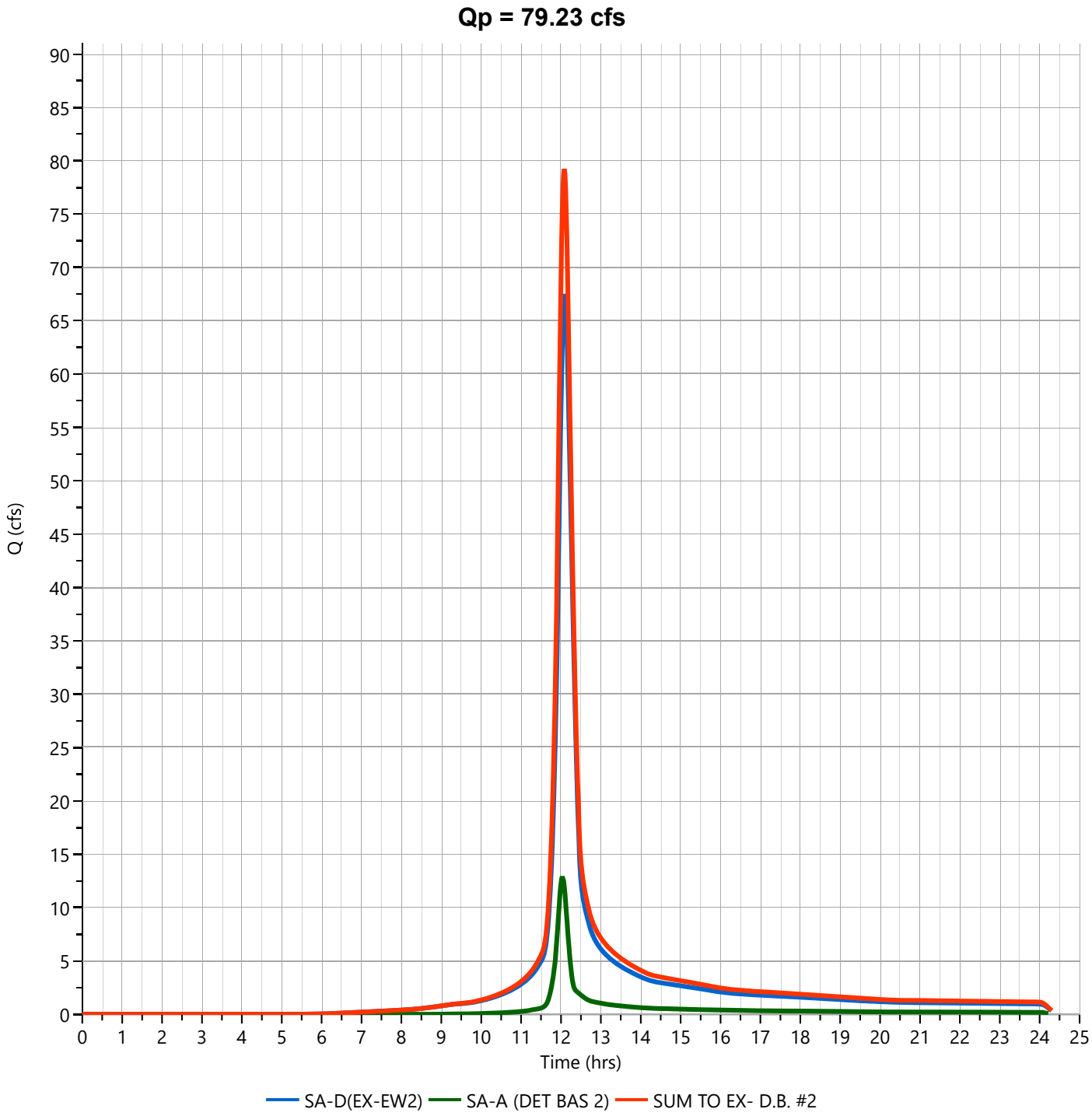
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- D.B. #2

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 79.23 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 258,081 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.058 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

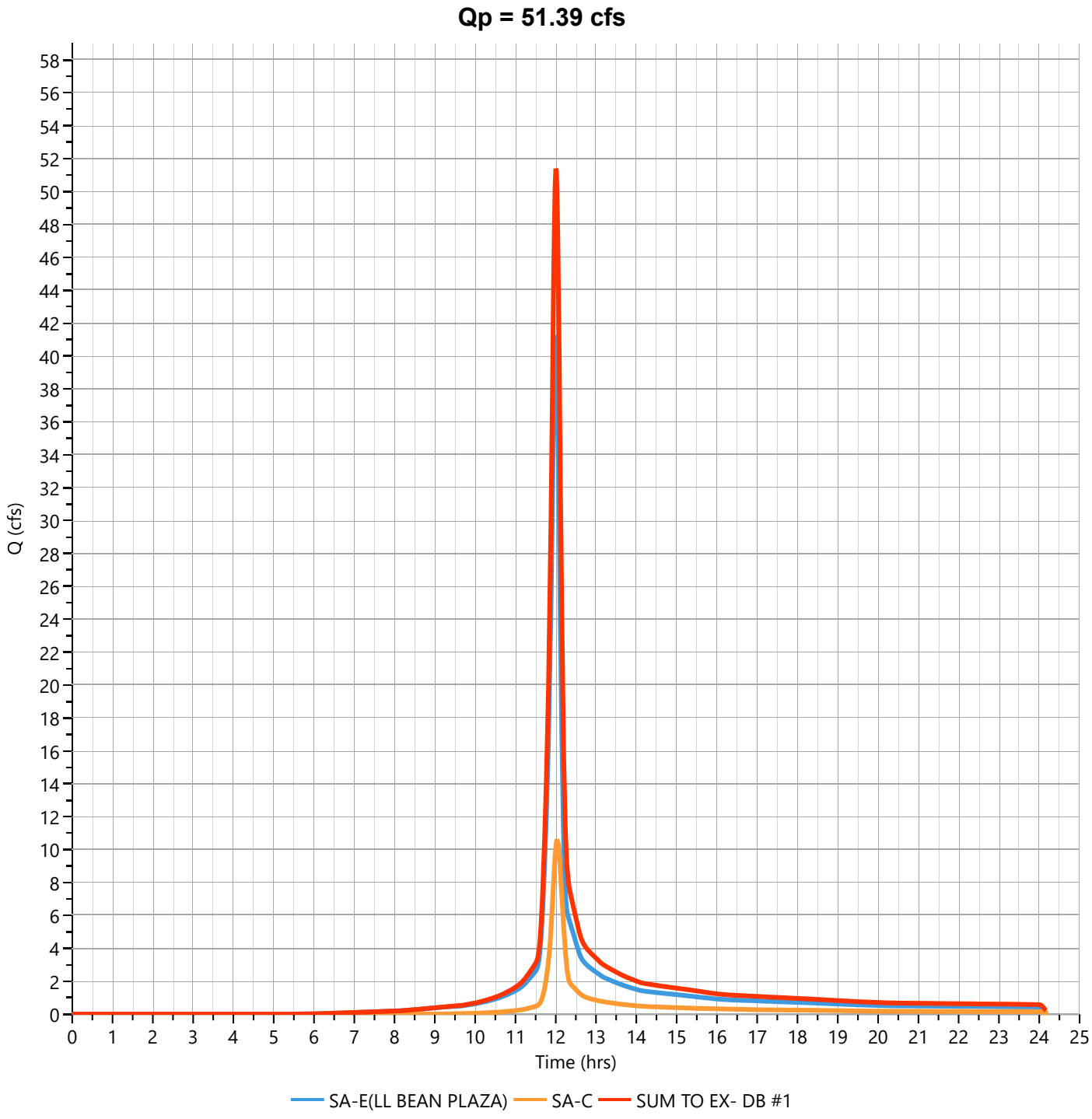
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- DB #1

Hyd. No. 7

Hydrograph Type	= Junction	Peak Flow	= 51.39 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 130,305 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 15.614 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

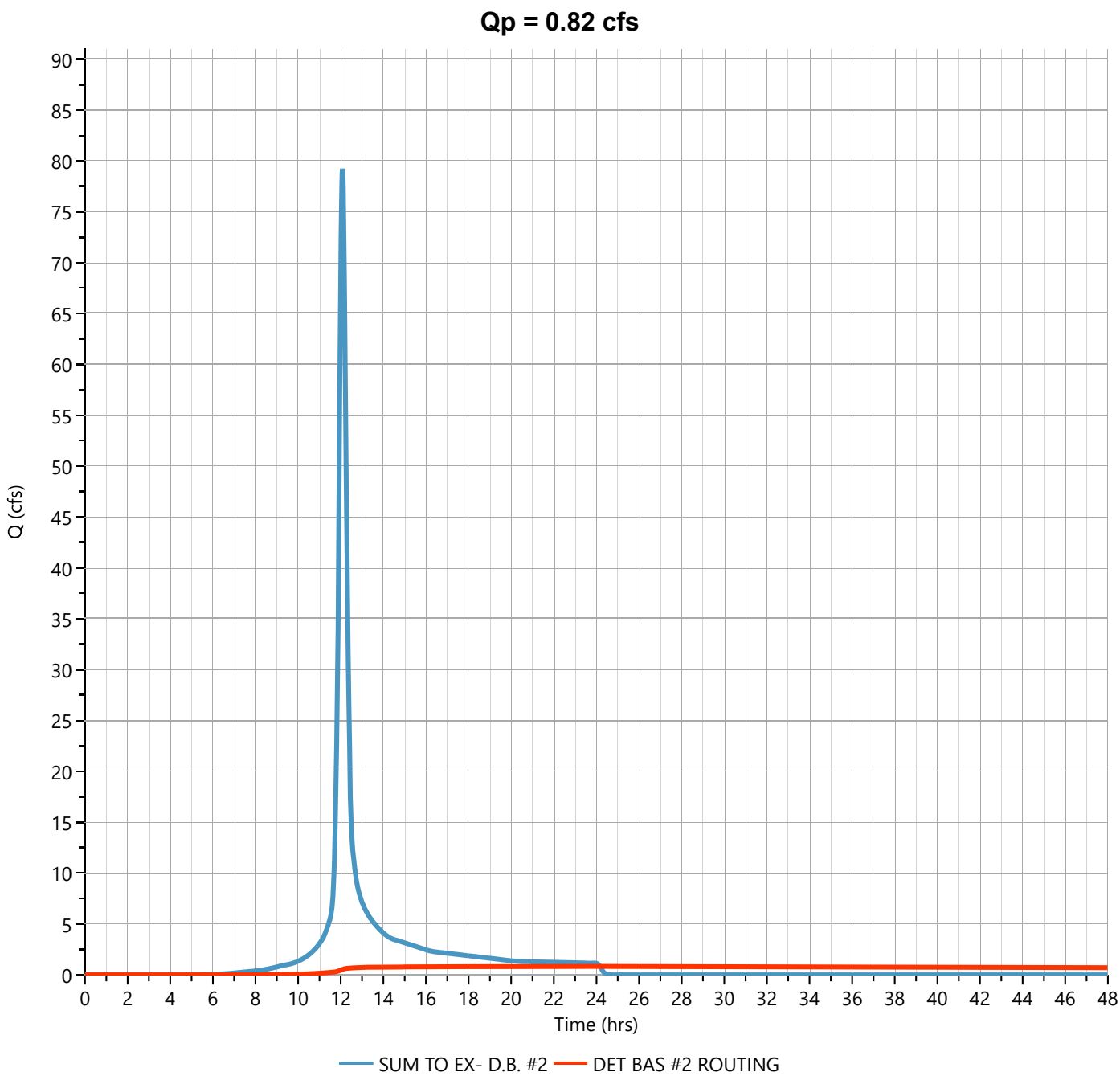
Pre DET BAS #2 ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.823 cfs
Storm Frequency	= 10-yr	Time to Peak	= 24.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 101,372 cuft
Inflow Hydrograph	= 6 - SUM TO EX- D.B. #2	Max. Elevation	= 81.02 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 221,846 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.84 hrs



Hydrograph Report

Project Name: UNIT 7C Evergreeen

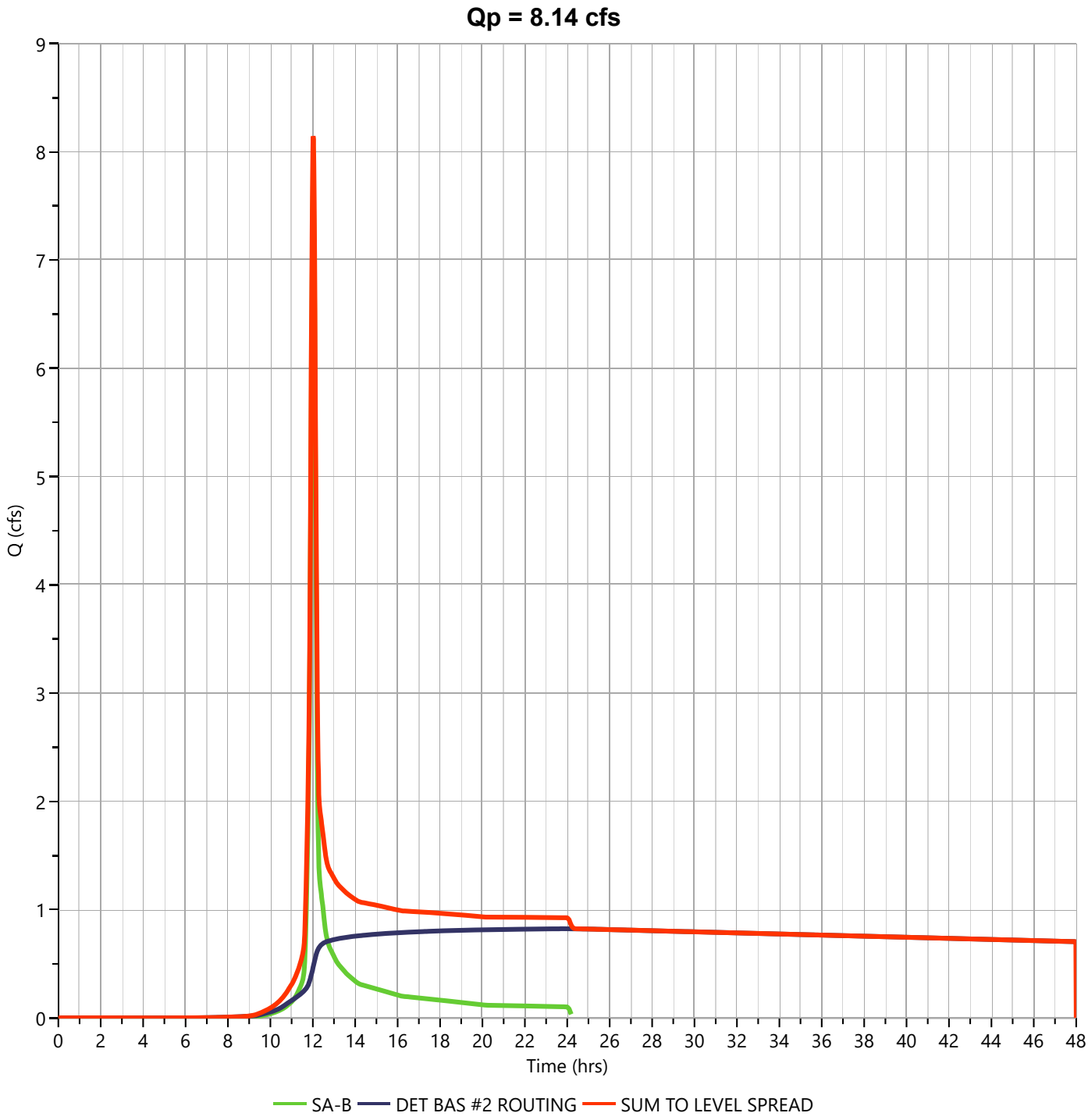
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO LEVEL SPREAD

Hyd. No. 9

Hydrograph Type	= Junction	Peak Flow	= 8.144 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Hydrograph Volume	= 120,783 cuft
Inflow Hydrographs	= 4, 8	Total Contrib. Area	= 3.11 ac



Design Storm Report

Custom Storm filename: 3170.cds

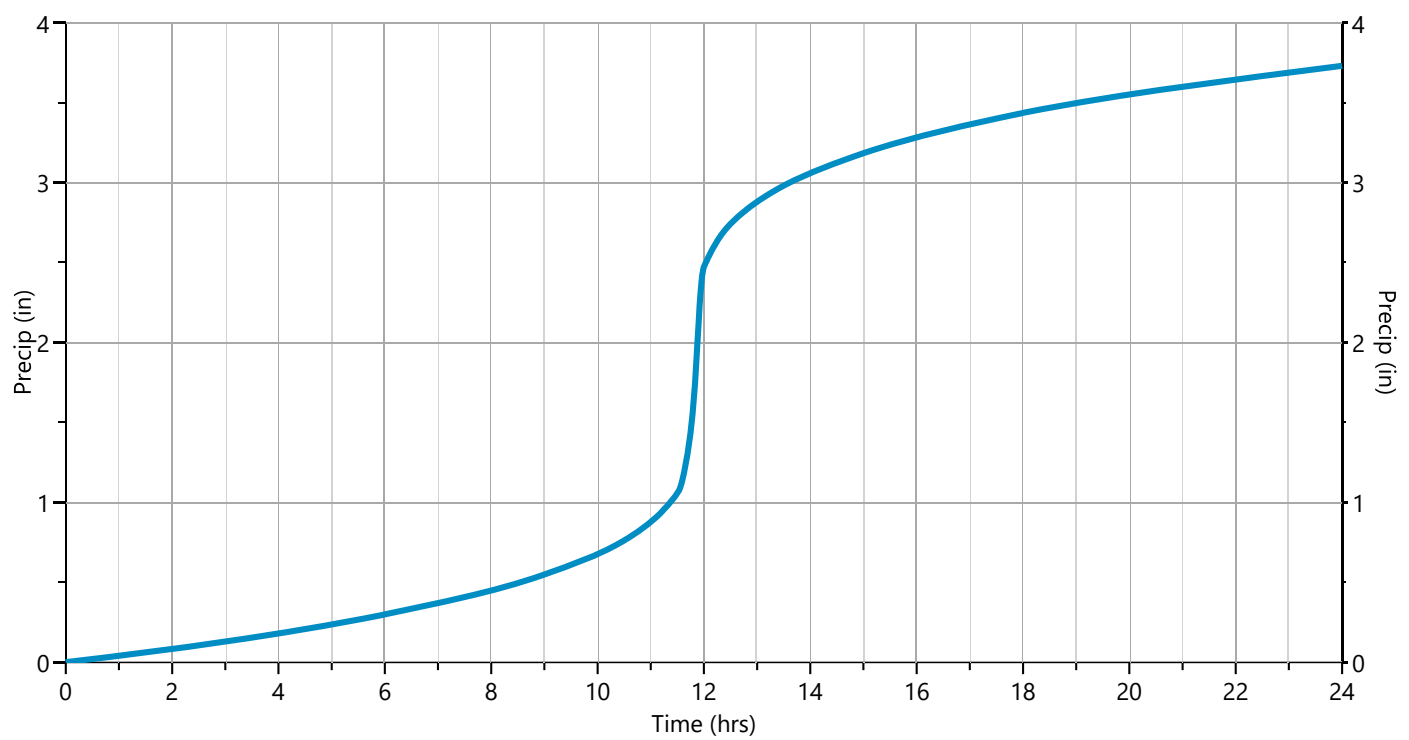
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	✔ 10-yr	25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 10-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.006913	11.60	0.020954	11.78	0.054497	11.97	0.051324	12.15	0.010488
11.43	0.007012	11.62	0.023408	11.80	0.061321	11.98	0.035792	12.17	0.010251
11.45	0.007112	11.63	0.025861	11.82	0.068146	12.00	0.020261	12.18	0.010015
11.47	0.007211	11.65	0.028315	11.83	0.074970	12.02	0.012795	12.20	0.009779
11.48	0.007311	11.67	0.030768	11.85	0.081795	12.03	0.012141	12.22	0.009543
11.50	0.007410	11.68	0.033222	11.87	0.088619	12.05	0.011905	12.23	0.009306
11.52	0.008715	11.70	0.035675	11.88	0.095444	12.07	0.011669	12.25	0.009070
11.53	0.011140	11.72	0.038129	11.90	0.102268	12.08	0.011432	12.27	0.008834
11.55	0.013594	11.73	0.040582	**11.92**	**0.109093**	12.10	0.011196	12.28	0.008598
11.57	0.016047	11.75	0.043036	11.93	0.071337	12.12	0.010960	12.30	0.008361
11.58	0.018501	11.77	0.047311	11.95	0.066855	12.13	0.010724	12.32	0.008125



Hydrograph 25-yr Summary

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	86.30	12.10	287,927	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	52.60	12.00	131,086	----		
3	NRCS Runoff	Pre SA-A (DET BAS 2)	17.58	12.03	47,256	----		
4	NRCS Runoff	Pre SA-B	10.45	12.02	26,409	----		
5	NRCS Runoff	Pre SA-C	14.48	12.03	38,940	----		
6	Junction	Pre SUM TO EX- D.B. #2	102.3	12.08	335,183	1, 3		
7	Junction	Pre SUM TO EX- DB #1	66.48	12.00	170,026	2, 5		
8	Pond Route	Pre DET BAS #2 ROUTING	0.932	24.18	116,419	6	82.10	293,403
9	Junction	Pre SUM TO LEVEL SPREAD	11.00	12.02	142,828	4, 8		

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

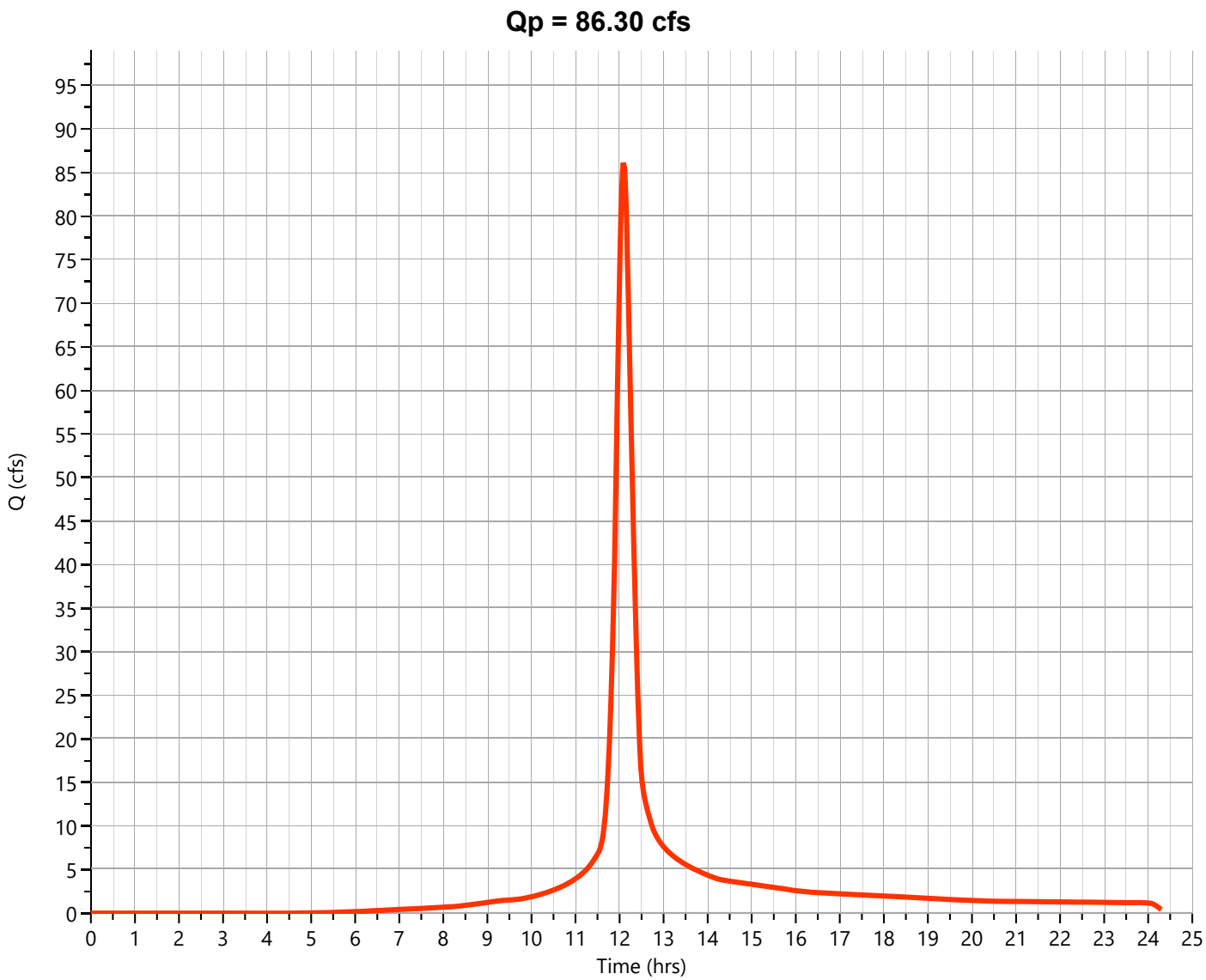
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 86.30 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 287,927 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

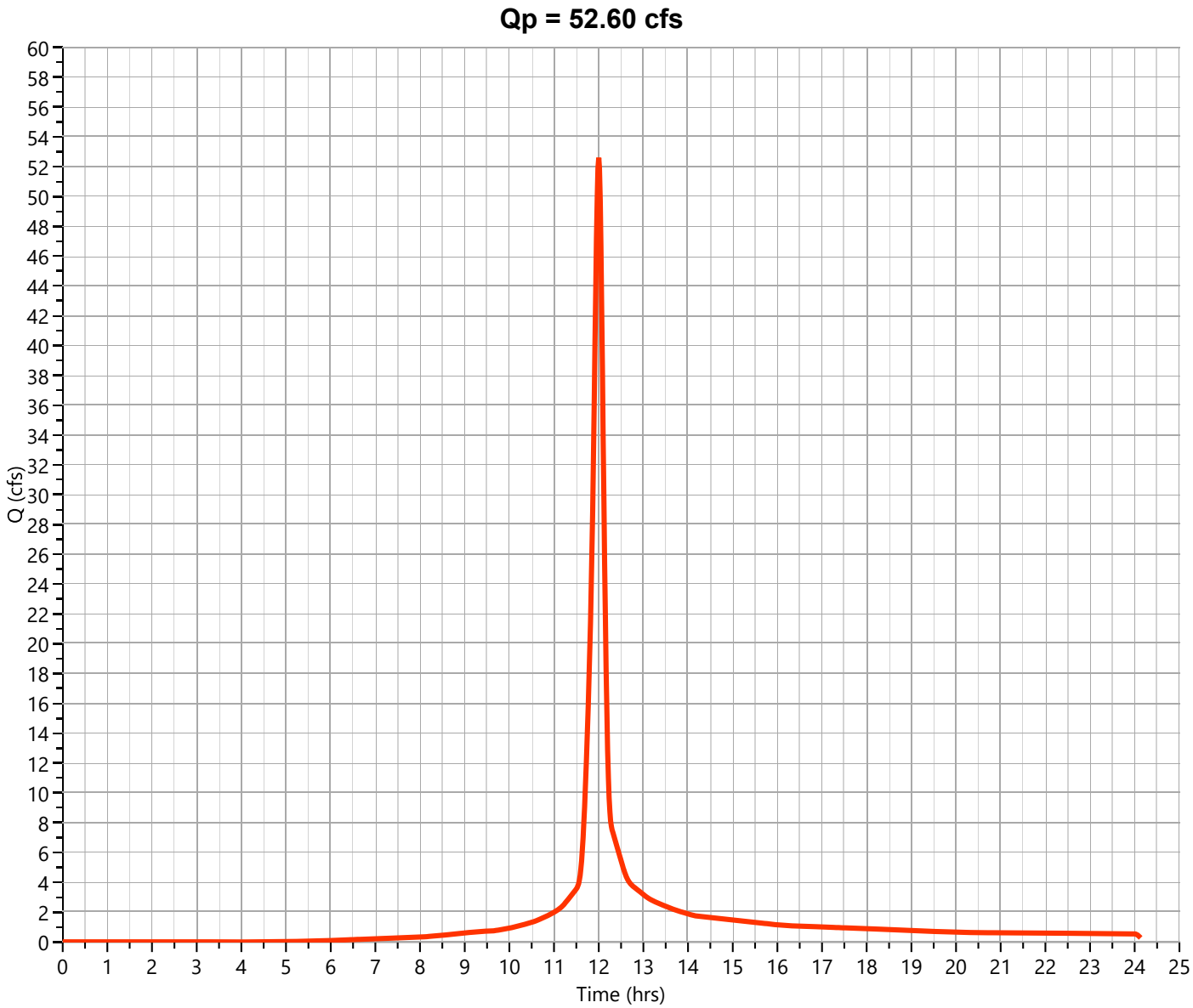
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 52.60 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 131,086 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

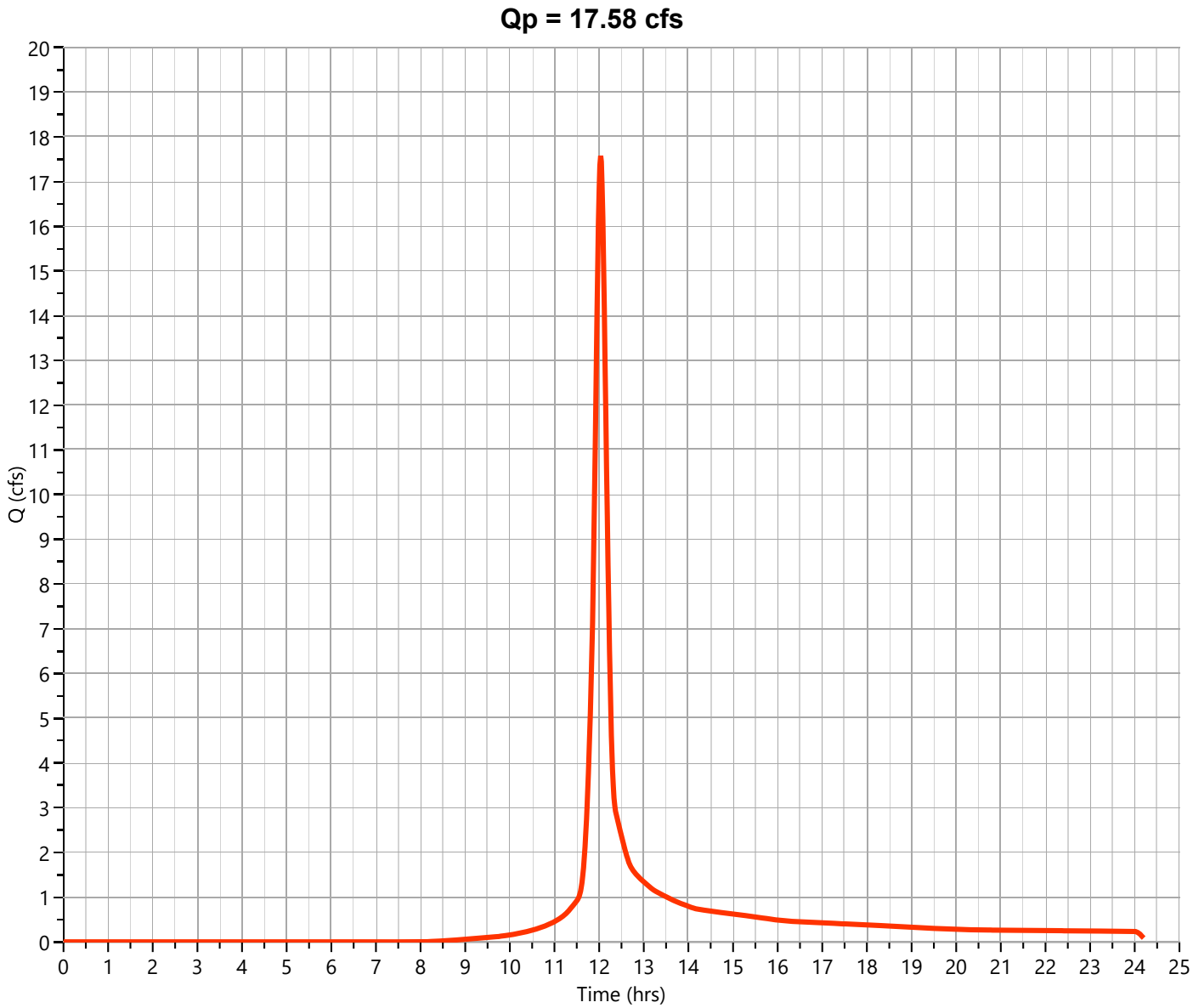
Pre SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 17.58 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 47,256 cuft
Drainage Area	= 5.478 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.24 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
5.478	79	C-GRASS (FAIR COVER)
5.478	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

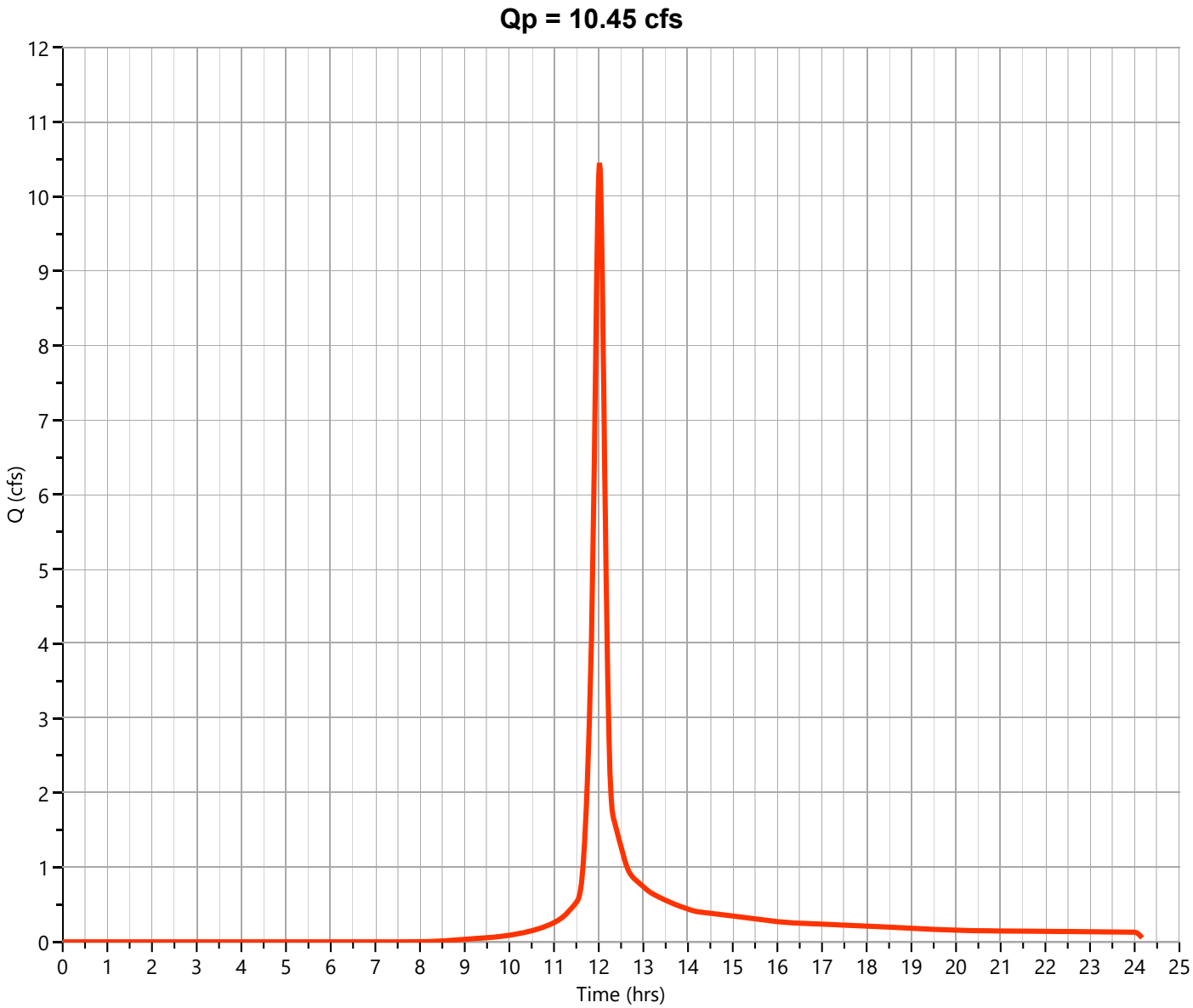
Pre SA-B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 10.45 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Runoff Volume	= 26,409 cuft
Drainage Area	= 3.11 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.43 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
3.11	79	C-GRASS (FAIR)
3.11	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

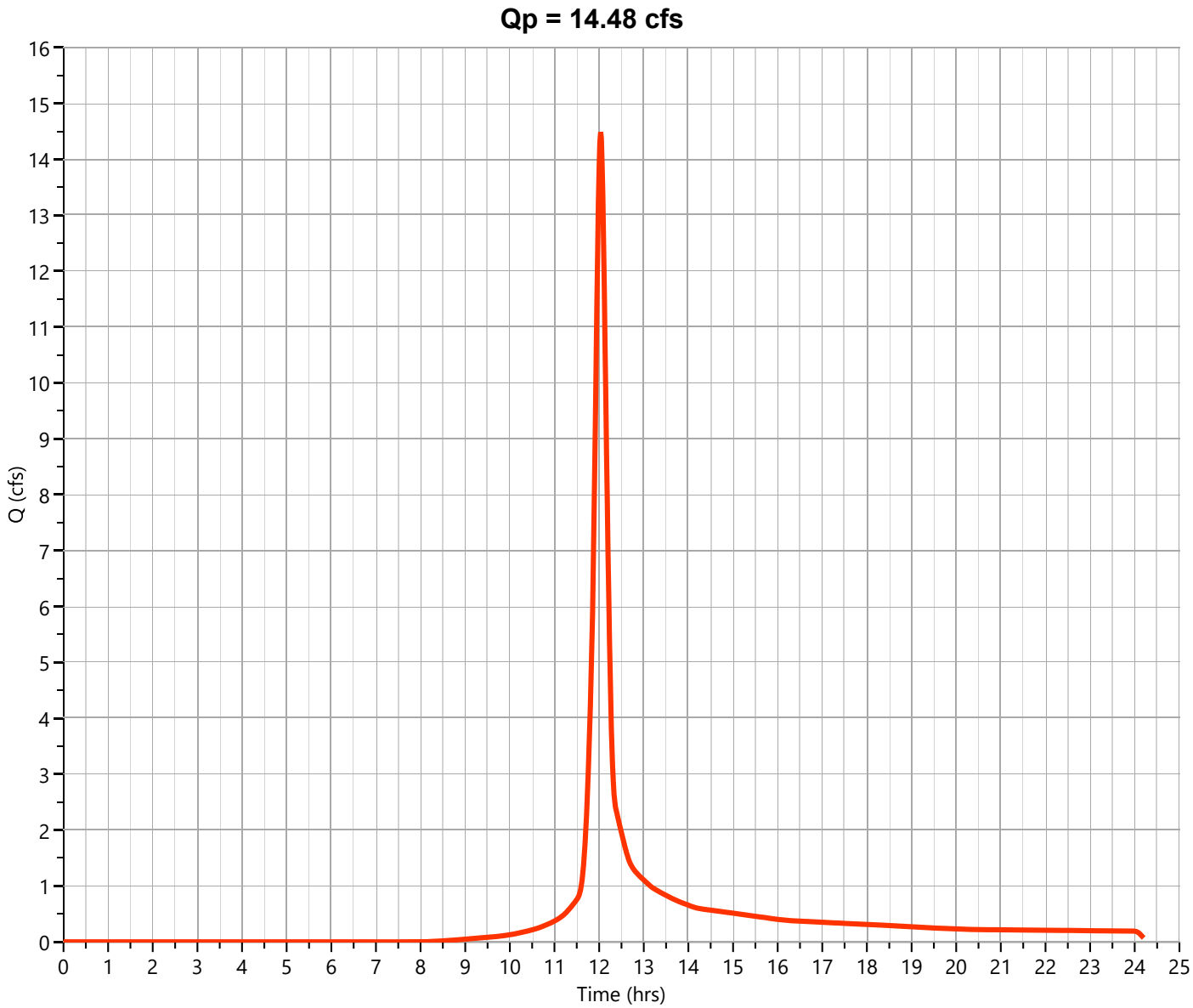
Pre SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 14.48 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 38,940 cuft
Drainage Area	= 4.514 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.5 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
4.514	79	C-GRASS (FAIR)
4.514	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

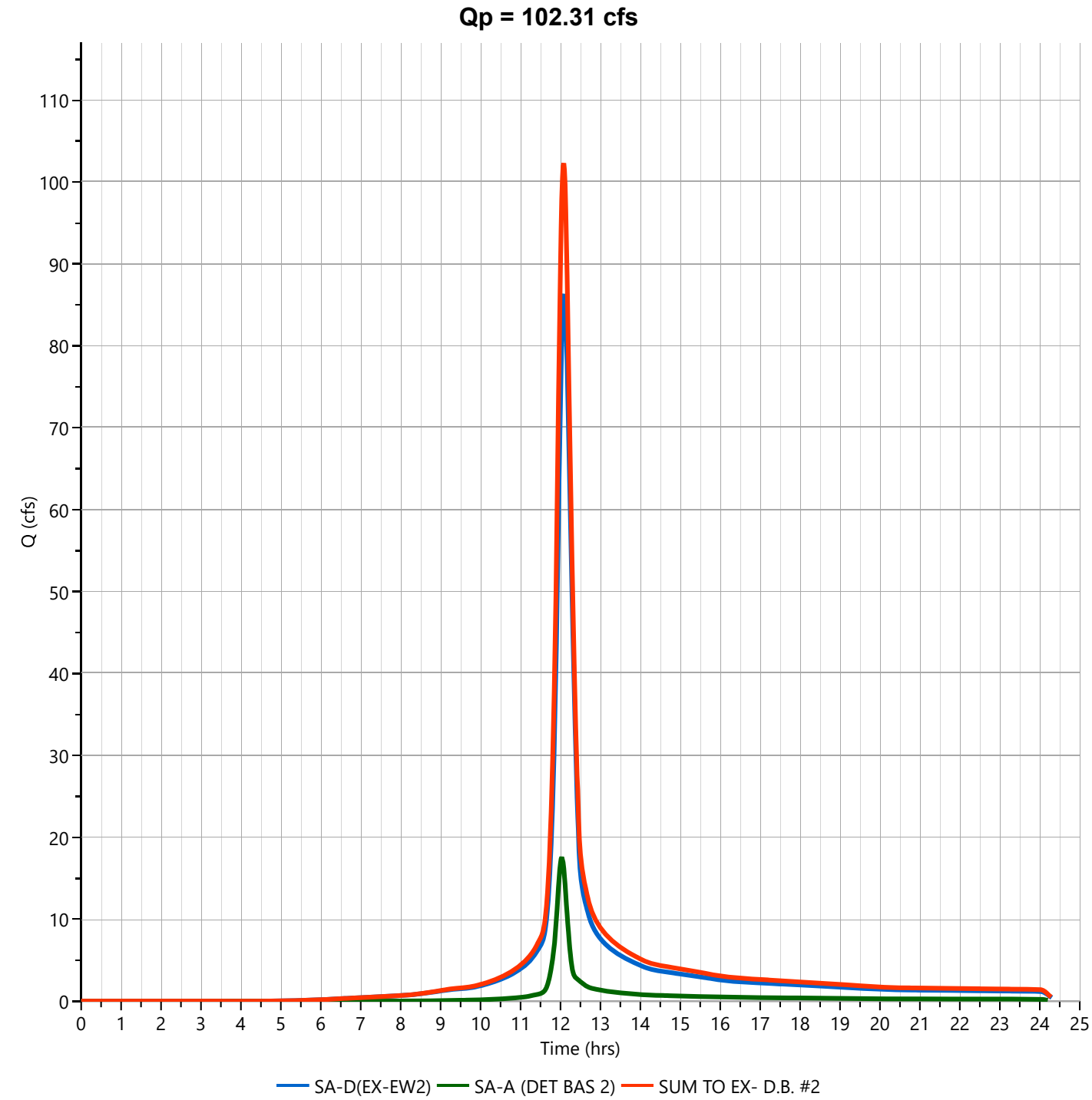
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- D.B. #2

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 102.3 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 335,183 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.058 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

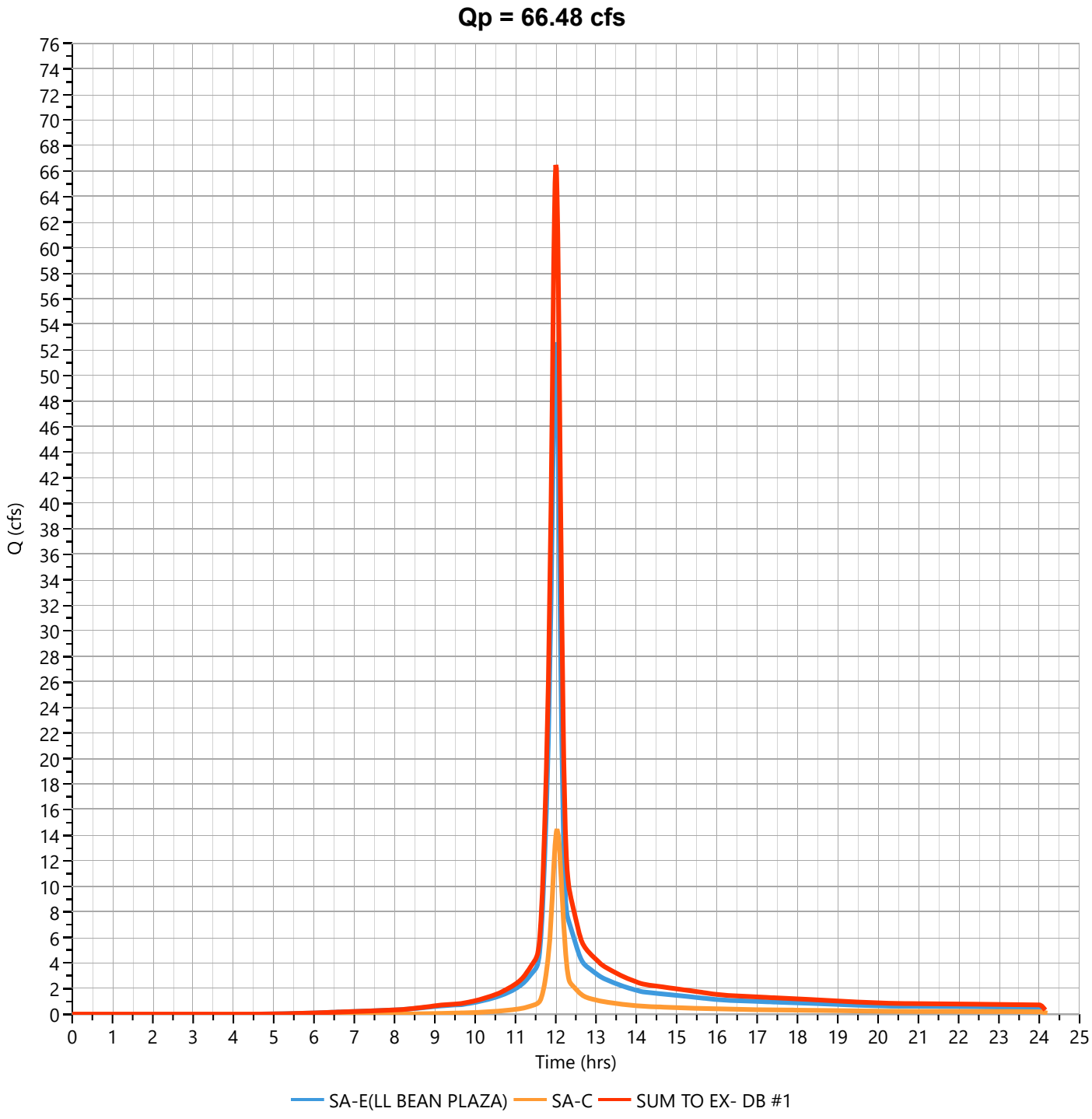
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- DB #1

Hyd. No. 7

Hydrograph Type	= Junction	Peak Flow	= 66.48 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 170,026 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 15.614 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

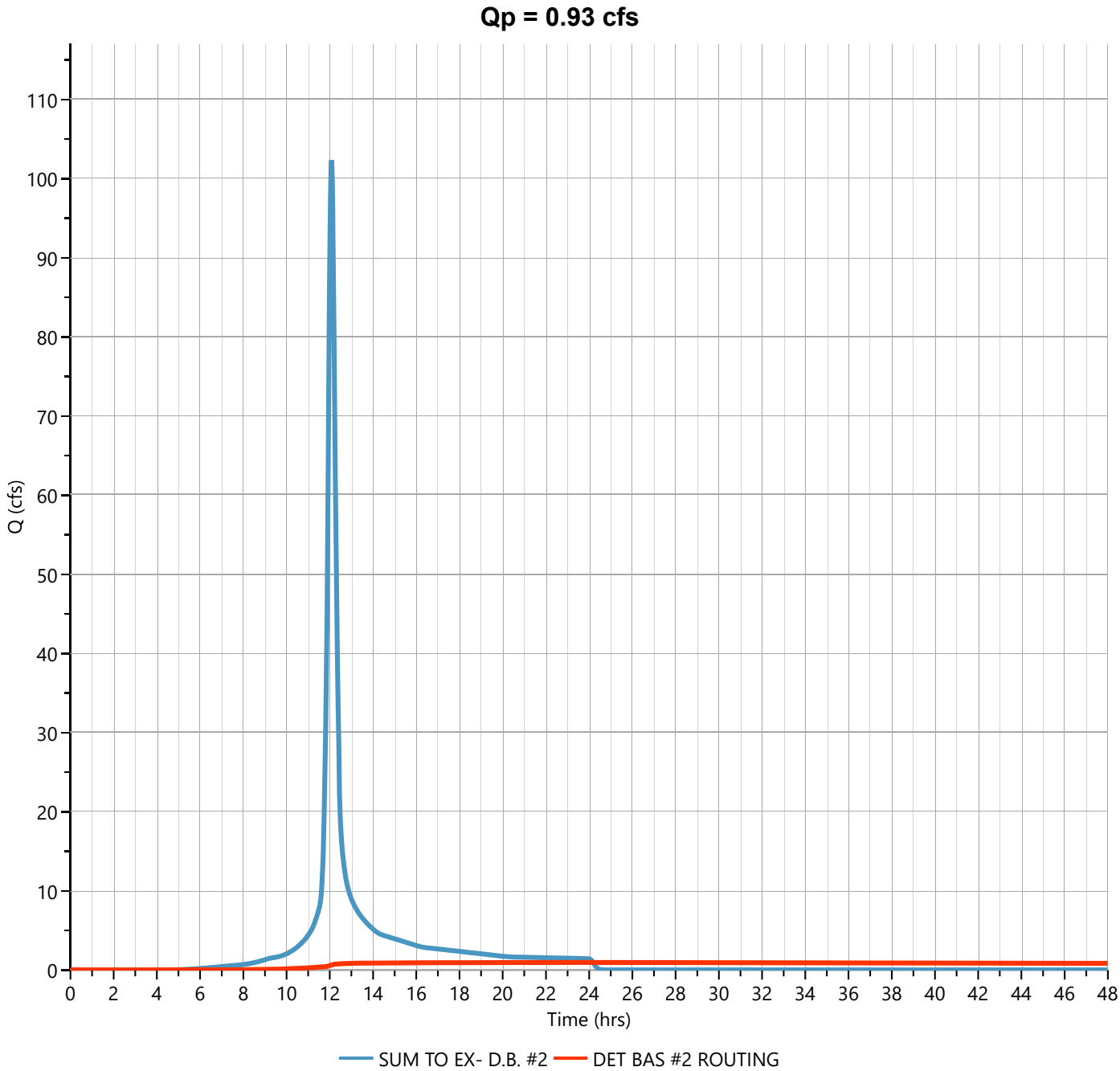
Pre DET BAS #2 ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.932 cfs
Storm Frequency	= 25-yr	Time to Peak	= 24.18 hrs
Time Interval	= 1 min	Hydrograph Volume	= 116,419 cuft
Inflow Hydrograph	= 6 - SUM TO EX- D.B. #2	Max. Elevation	= 82.10 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 293,403 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.93 hrs



Hydrograph Report

Project Name: UNIT 7C Evergreeen

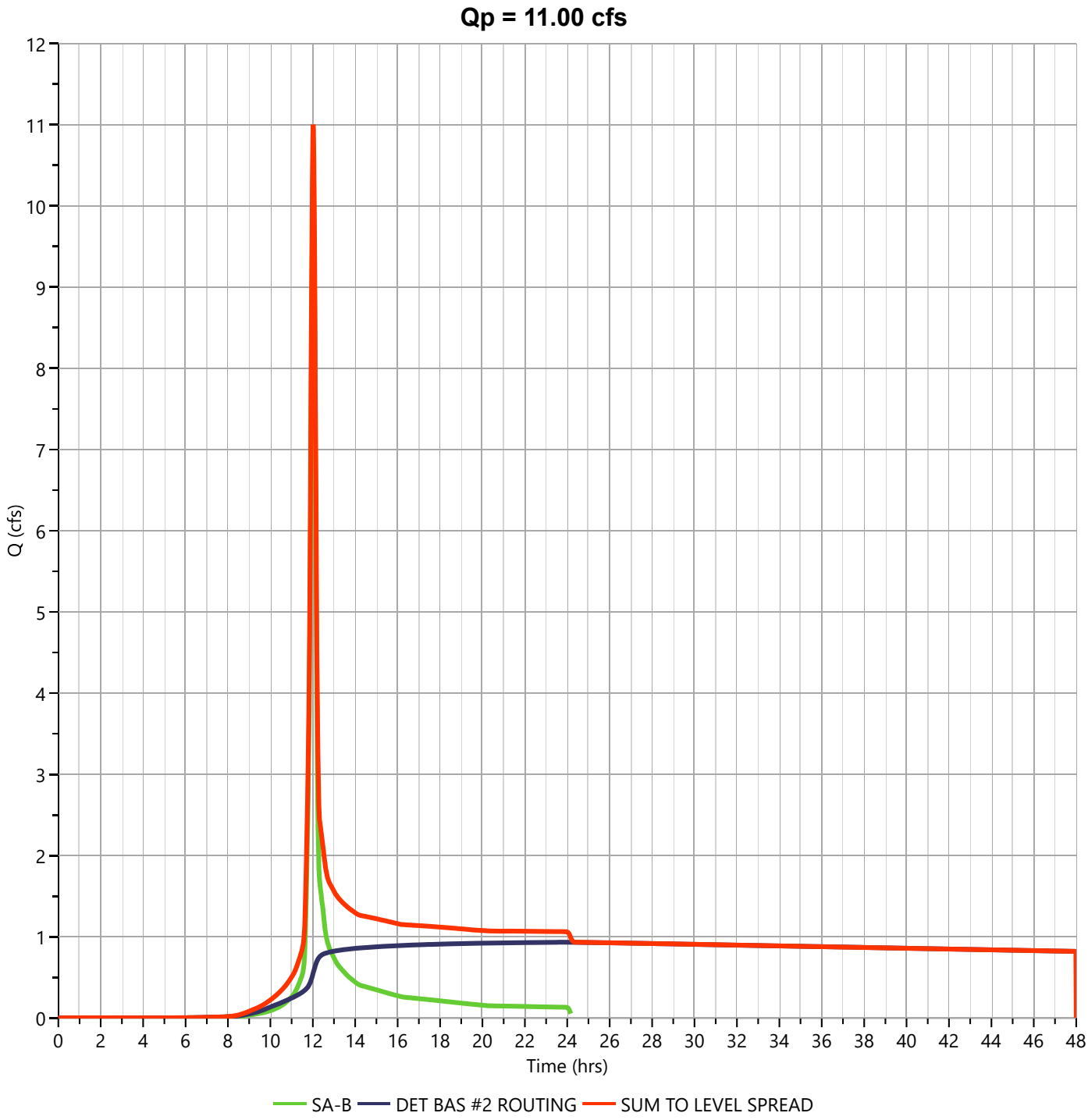
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO LEVEL SPREAD

Hyd. No. 9

Hydrograph Type	= Junction	Peak Flow	= 11.00 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Hydrograph Volume	= 142,828 cuft
Inflow Hydrographs	= 4, 8	Total Contrib. Area	= 3.11 ac



Design Storm Report

Custom Storm filename: 3170.cds

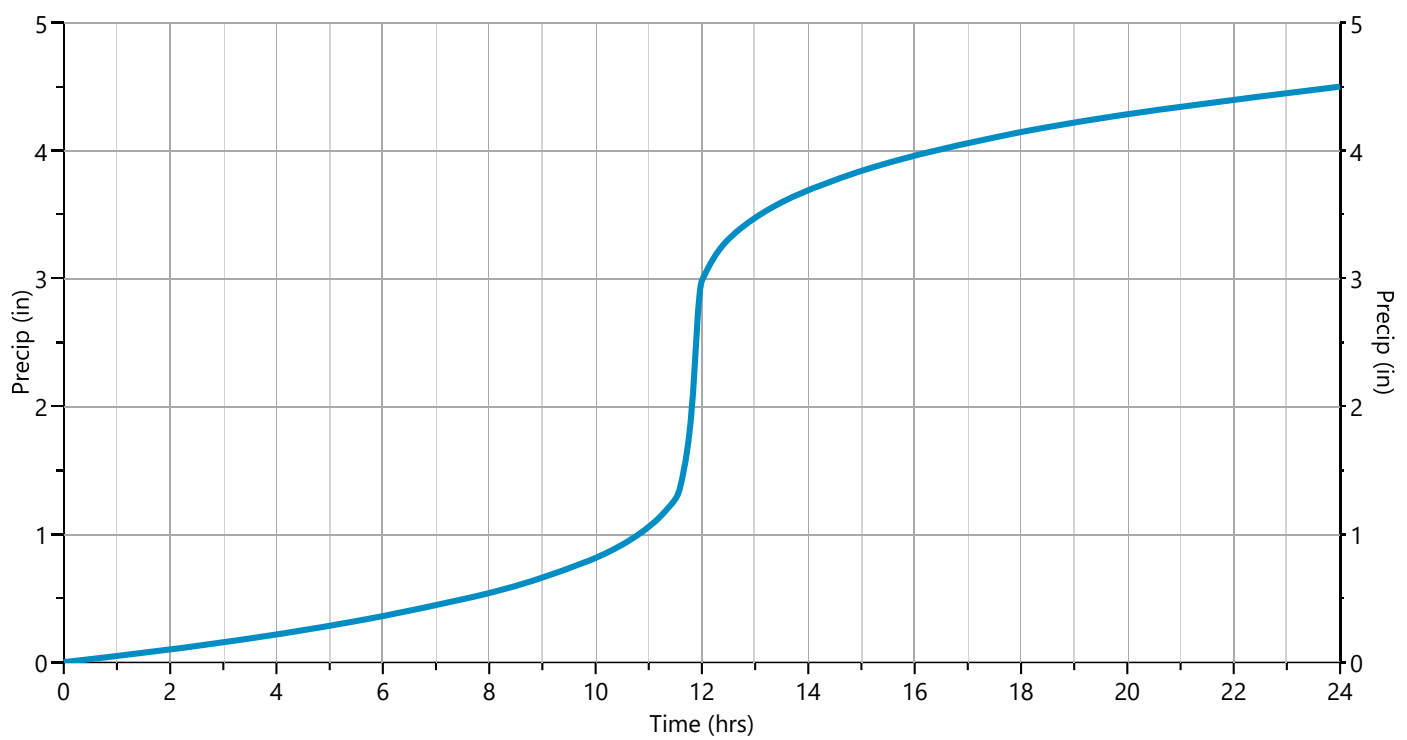
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	✔ 25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 25-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.008340	11.60	0.025280	11.78	0.065747	11.97	0.061918	12.15	0.012652
11.43	0.008460	11.62	0.028240	11.80	0.073980	11.98	0.043181	12.17	0.012367
11.45	0.008580	11.63	0.031200	11.82	0.082213	12.00	0.024443	12.18	0.012083
11.47	0.008700	11.65	0.034160	11.83	0.090447	12.02	0.015436	12.20	0.011797
11.48	0.008820	11.67	0.037120	11.85	0.098680	12.03	0.014647	12.22	0.011513
11.50	0.008940	11.68	0.040080	11.87	0.106914	12.05	0.014363	12.23	0.011228
11.52	0.010514	11.70	0.043040	11.88	0.115147	12.07	0.014077	12.25	0.010942
11.53	0.013440	11.72	0.046000	11.90	0.123380	12.08	0.013793	12.27	0.010658
11.55	0.016400	11.73	0.048960	**11.92**	**0.131613**	12.10	0.013508	12.28	0.010372
11.57	0.019360	11.75	0.051920	11.93	0.086064	12.12	0.013222	12.30	0.010087
11.58	0.022320	11.77	0.057078	11.95	0.080656	12.13	0.012938	12.32	0.009803



Hydrograph 50-yr Summary

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	100.5	12.10	337,359	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	61.13	12.00	153,591	----		
3	NRCS Runoff	Pre SA-A (DET BAS 2)	21.20	12.03	57,083	----		
4	NRCS Runoff	Pre SA-B	12.60	12.02	31,901	----		
5	NRCS Runoff	Pre SA-C	17.47	12.03	47,038	----		
6	Junction	Pre SUM TO EX- D.B. #2	119.8	12.08	394,443	1, 3		
7	Junction	Pre SUM TO EX- DB #1	77.94	12.00	200,629	2, 5		
8	Pond Route	Pre DET BAS #2 ROUTING	1.005	24.20	126,659	6	82.90	348,803
9	Junction	Pre SUM TO LEVEL SPREAD	13.20	12.02	158,560	4, 8		

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

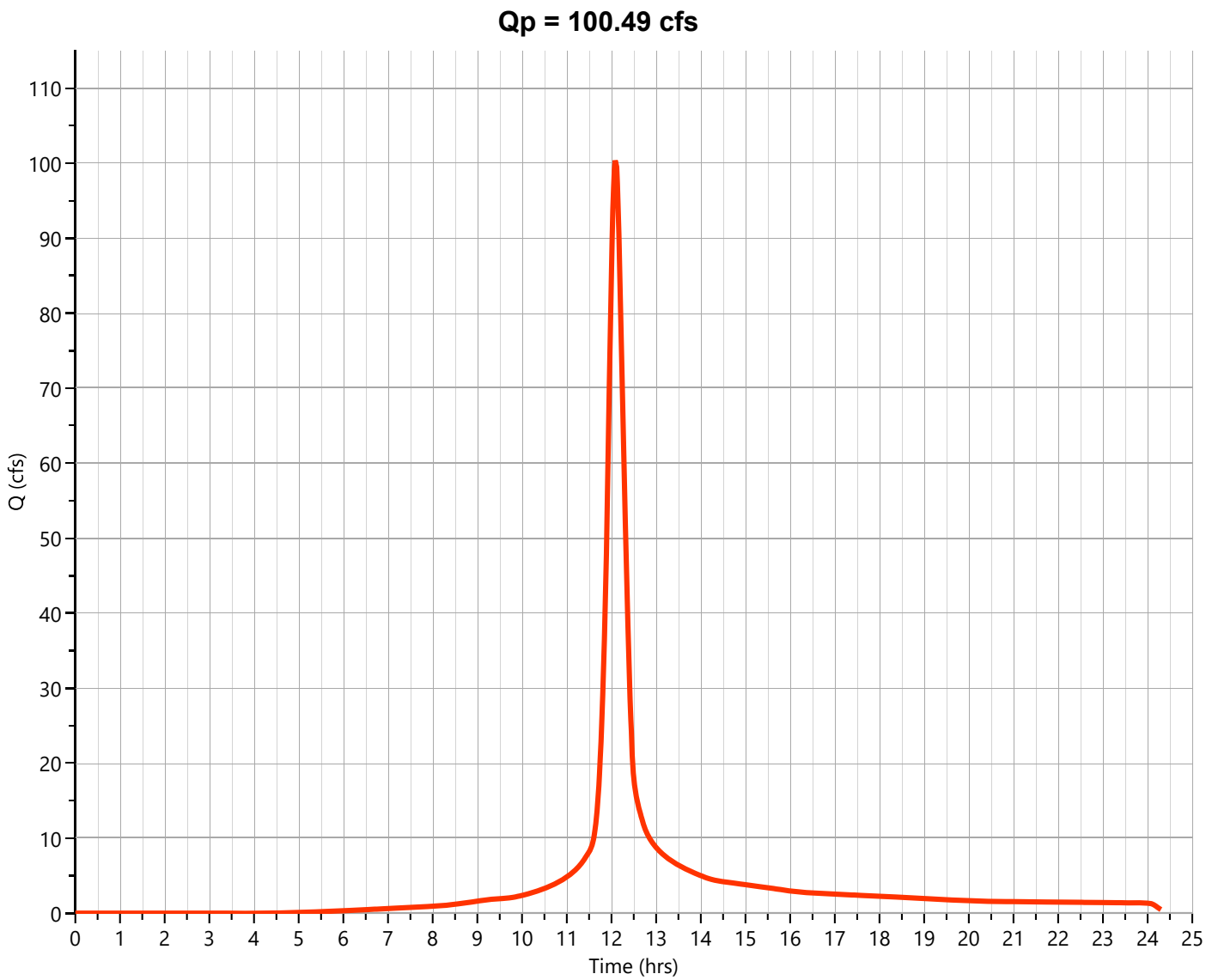
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 100.5 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 337,359 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

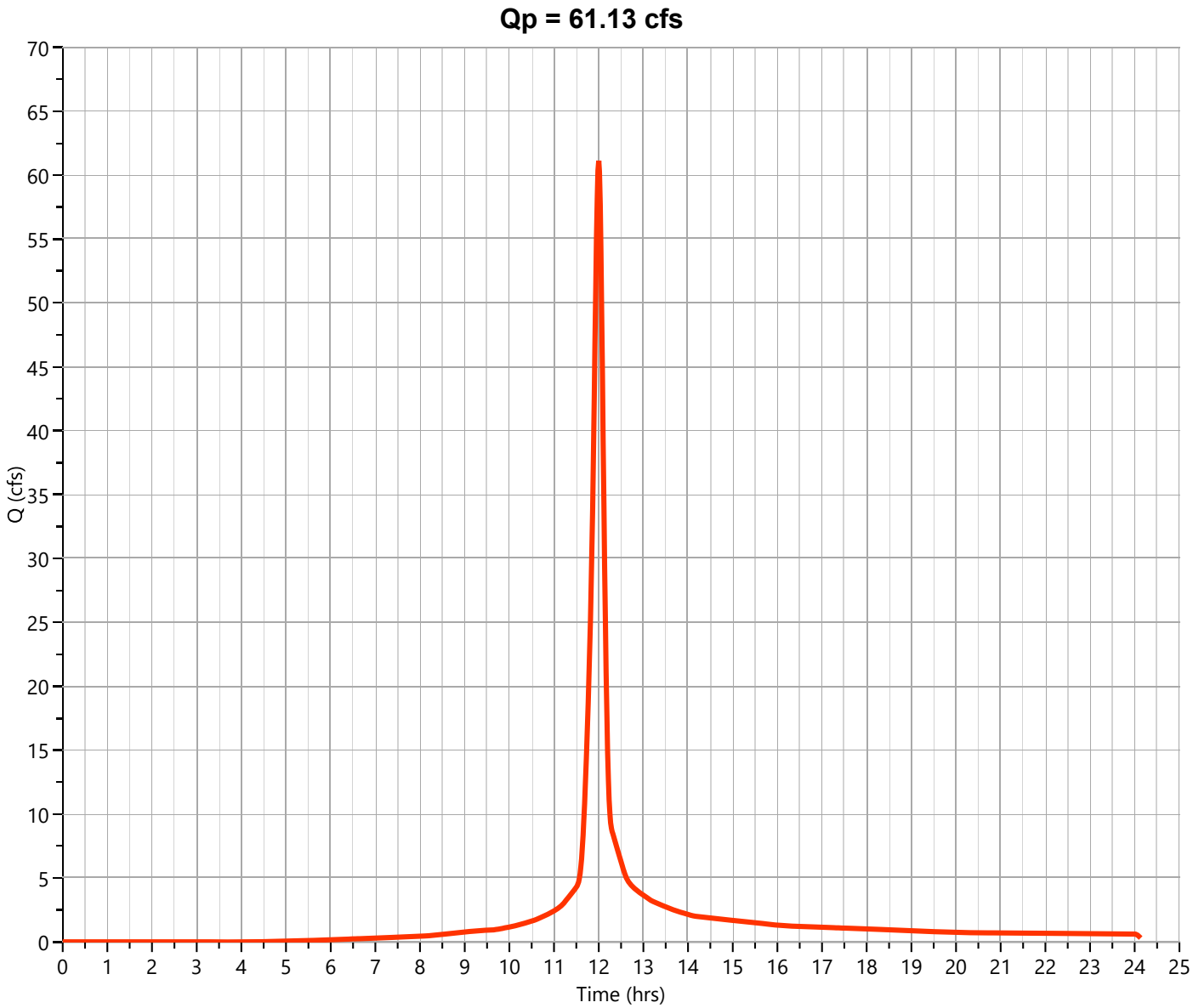
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 61.13 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 153,591 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

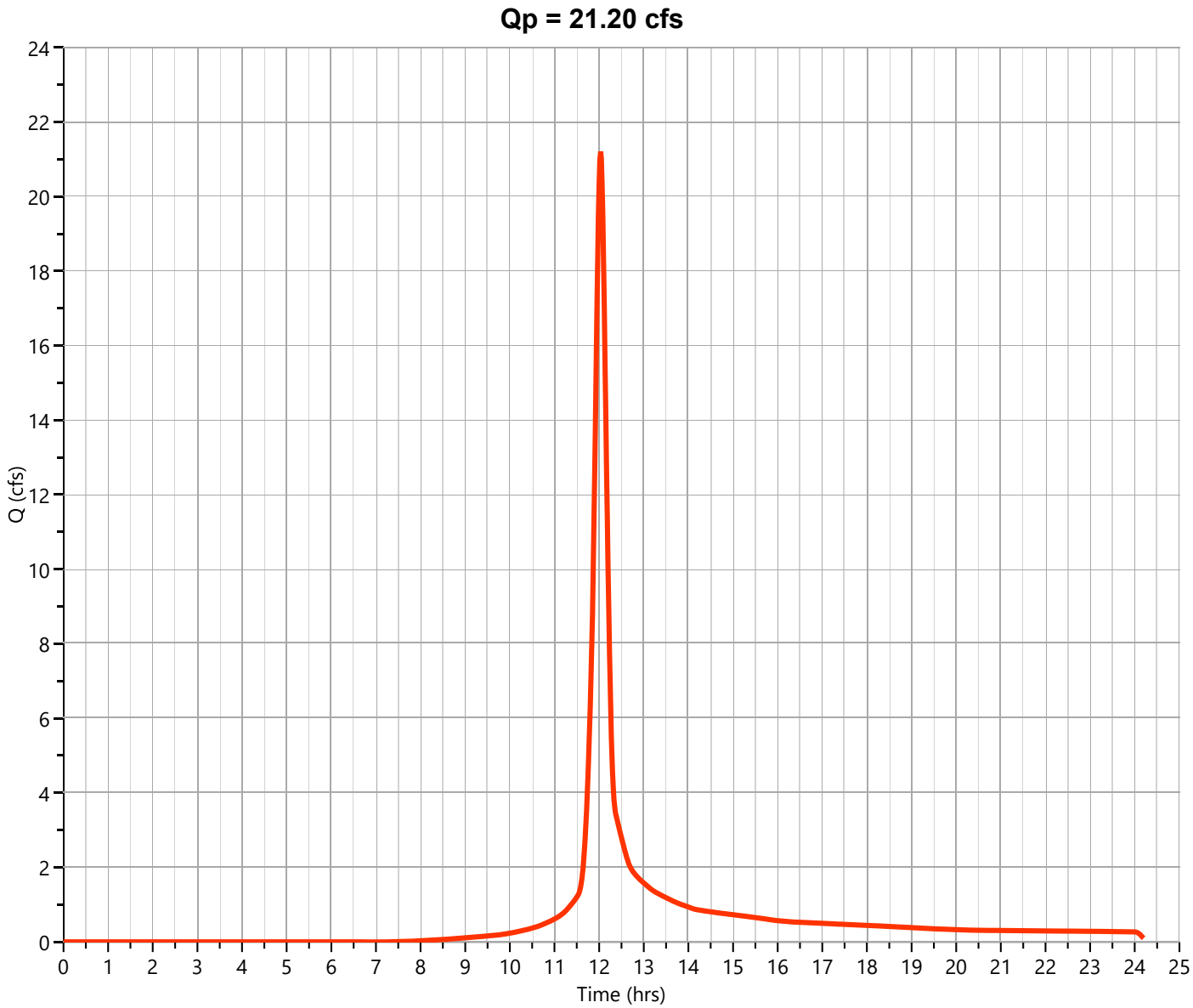
Pre SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 21.20 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 57,083 cuft
Drainage Area	= 5.478 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.24 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
5.478	79	C-GRASS (FAIR COVER)
5.478	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

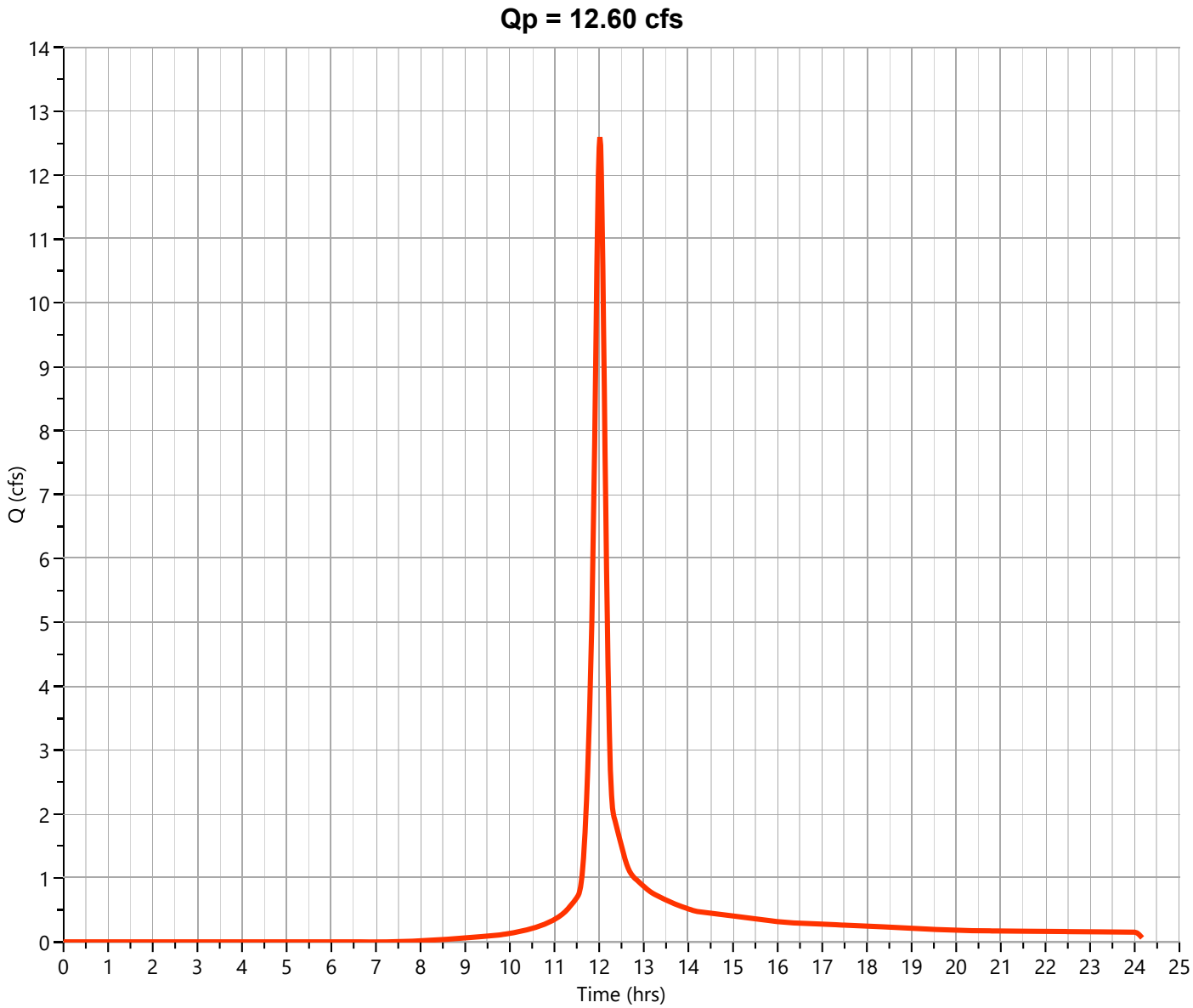
Pre SA-B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.60 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Runoff Volume	= 31,901 cuft
Drainage Area	= 3.11 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.43 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
3.11	79	C-GRASS (FAIR)
3.11	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

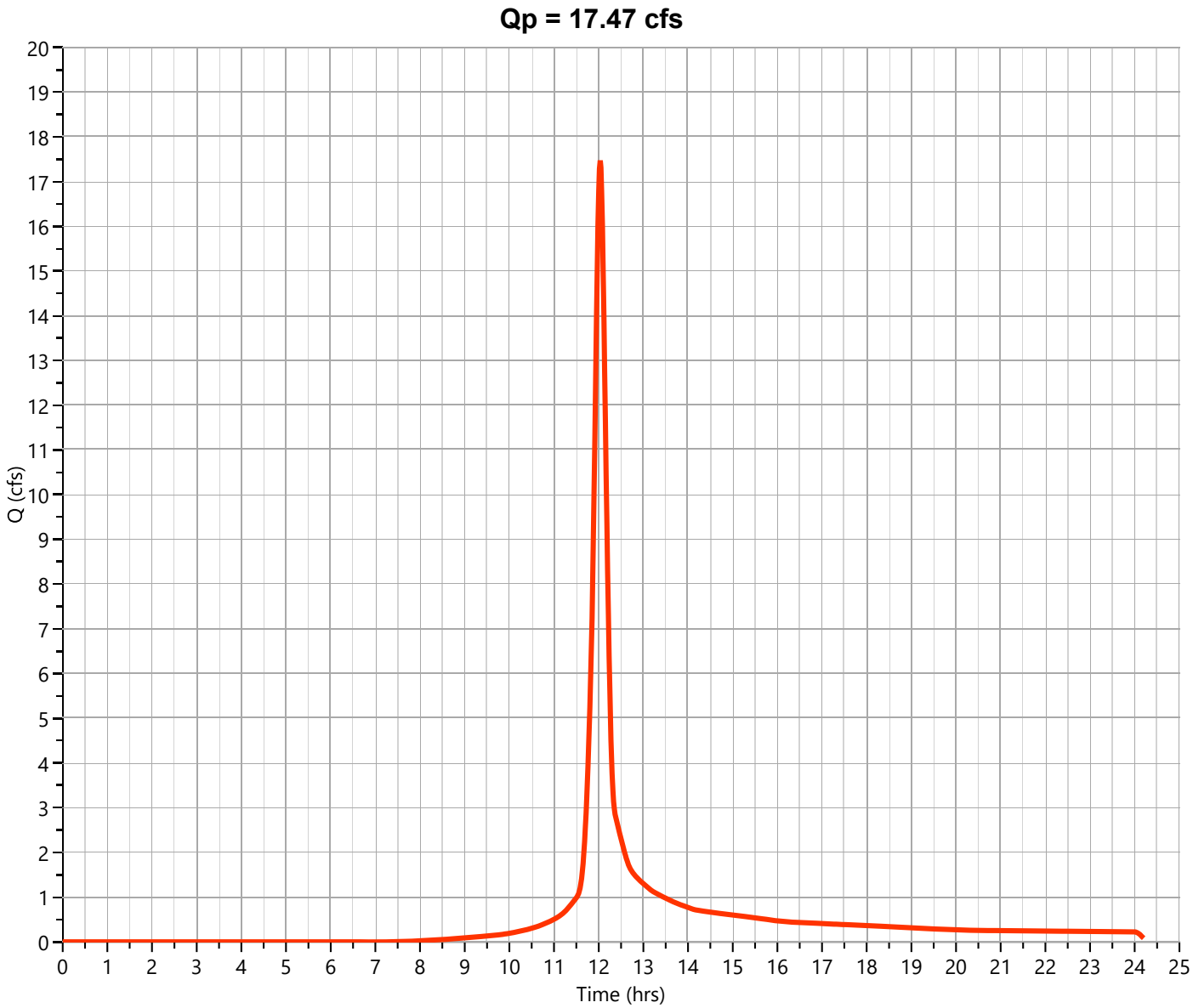
Pre SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 17.47 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 47,038 cuft
Drainage Area	= 4.514 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.5 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
4.514	79	C-GRASS (FAIR)
4.514	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

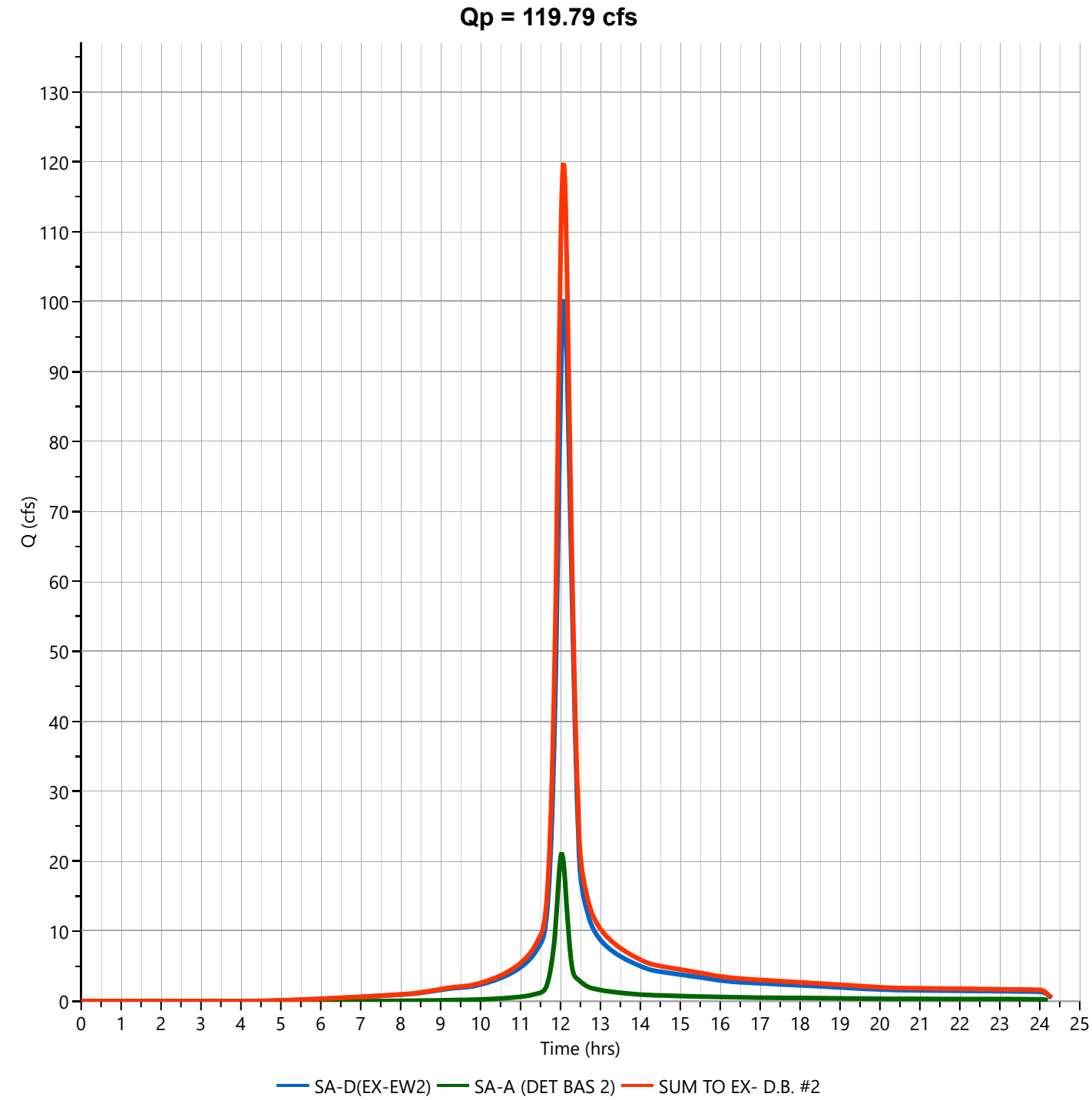
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- D.B. #2

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 119.8 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 394,443 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.058 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

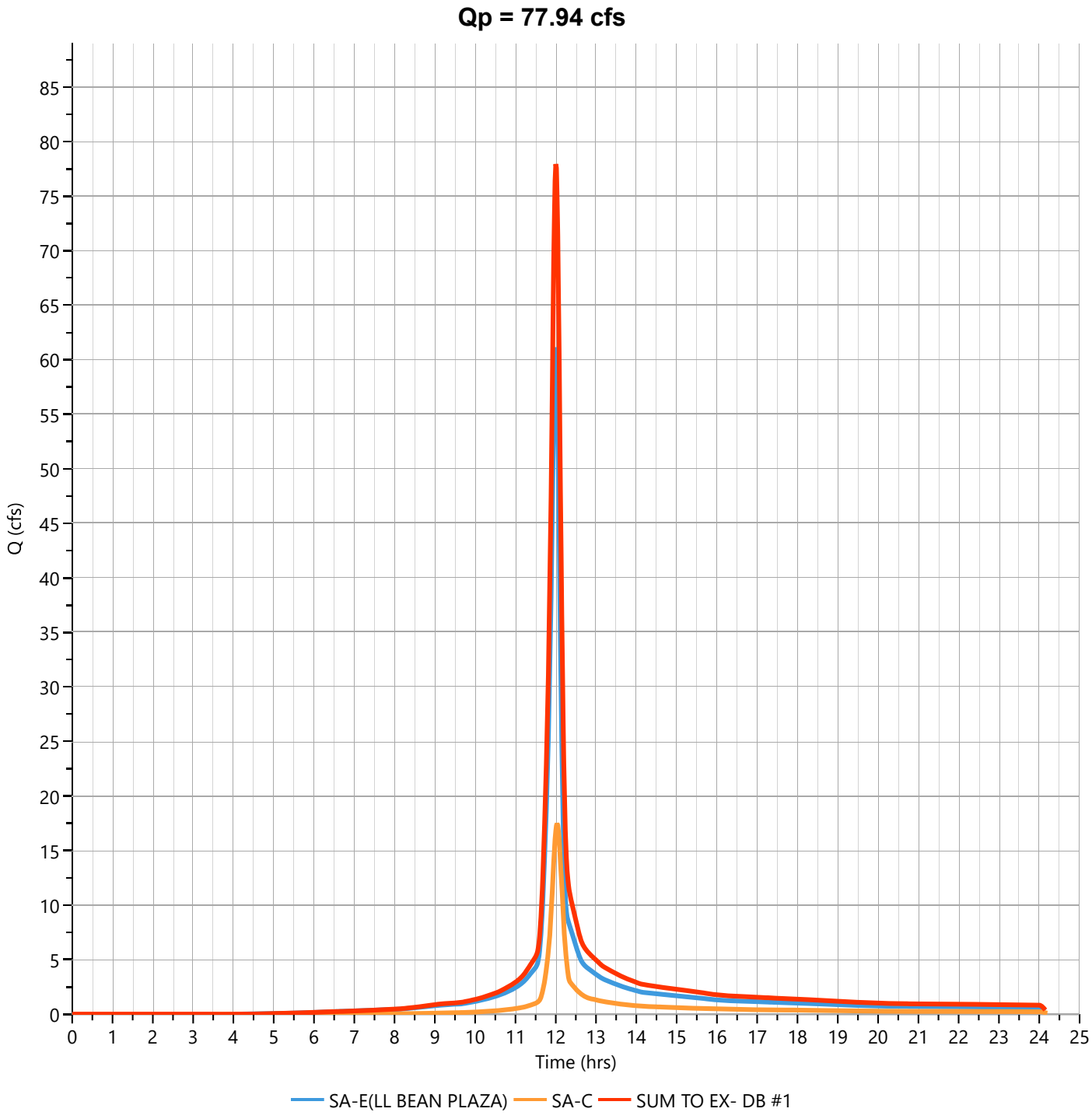
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- DB #1

Hyd. No. 7

Hydrograph Type	= Junction	Peak Flow	= 77.94 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 200,629 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 15.614 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

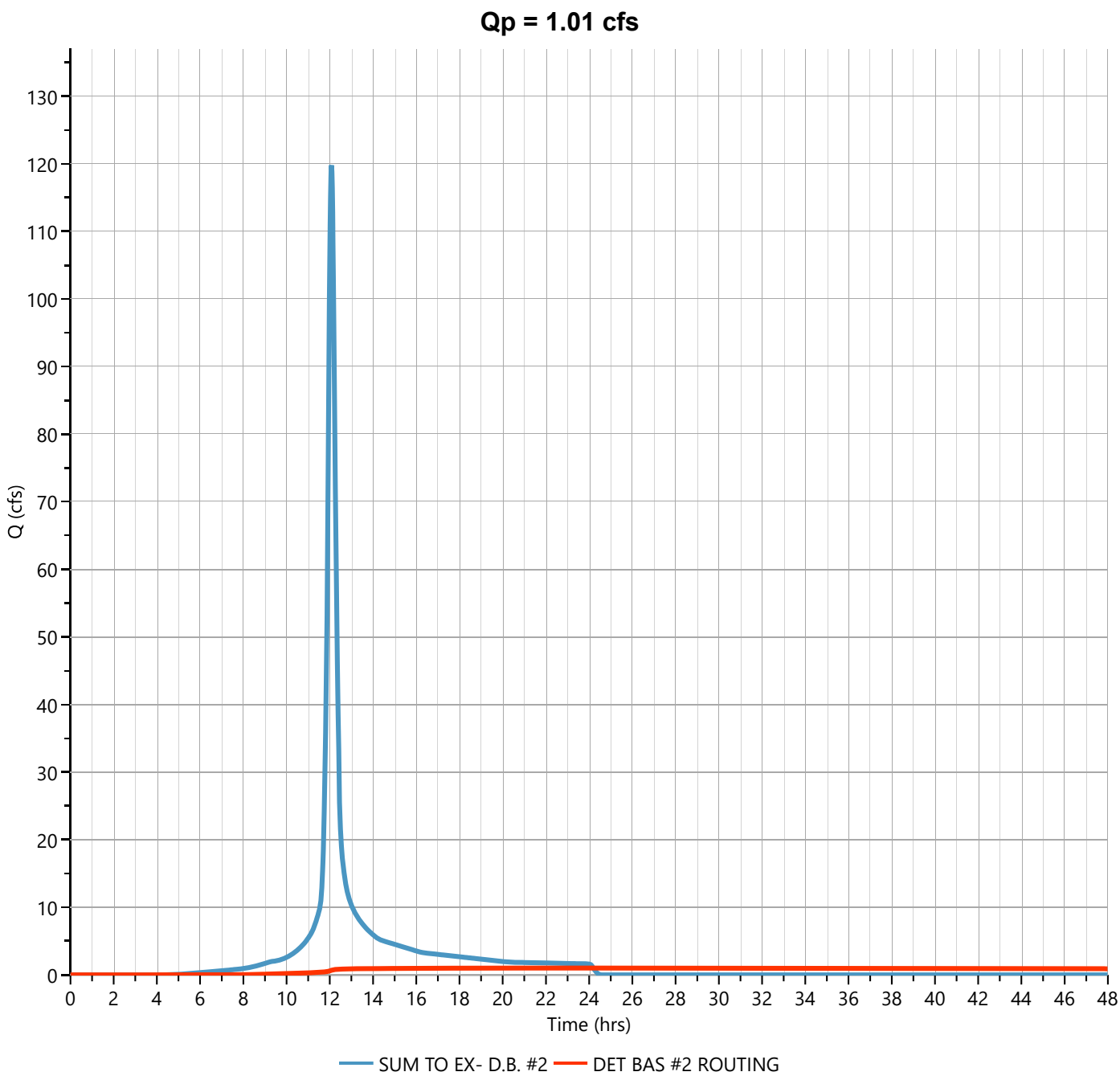
Pre DET BAS #2 ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 1.005 cfs
Storm Frequency	= 50-yr	Time to Peak	= 24.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 126,659 cuft
Inflow Hydrograph	= 6 - SUM TO EX- D.B. #2	Max. Elevation	= 82.90 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 348,803 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.97 hrs



Hydrograph Report

Project Name: UNIT 7C Evergreeen

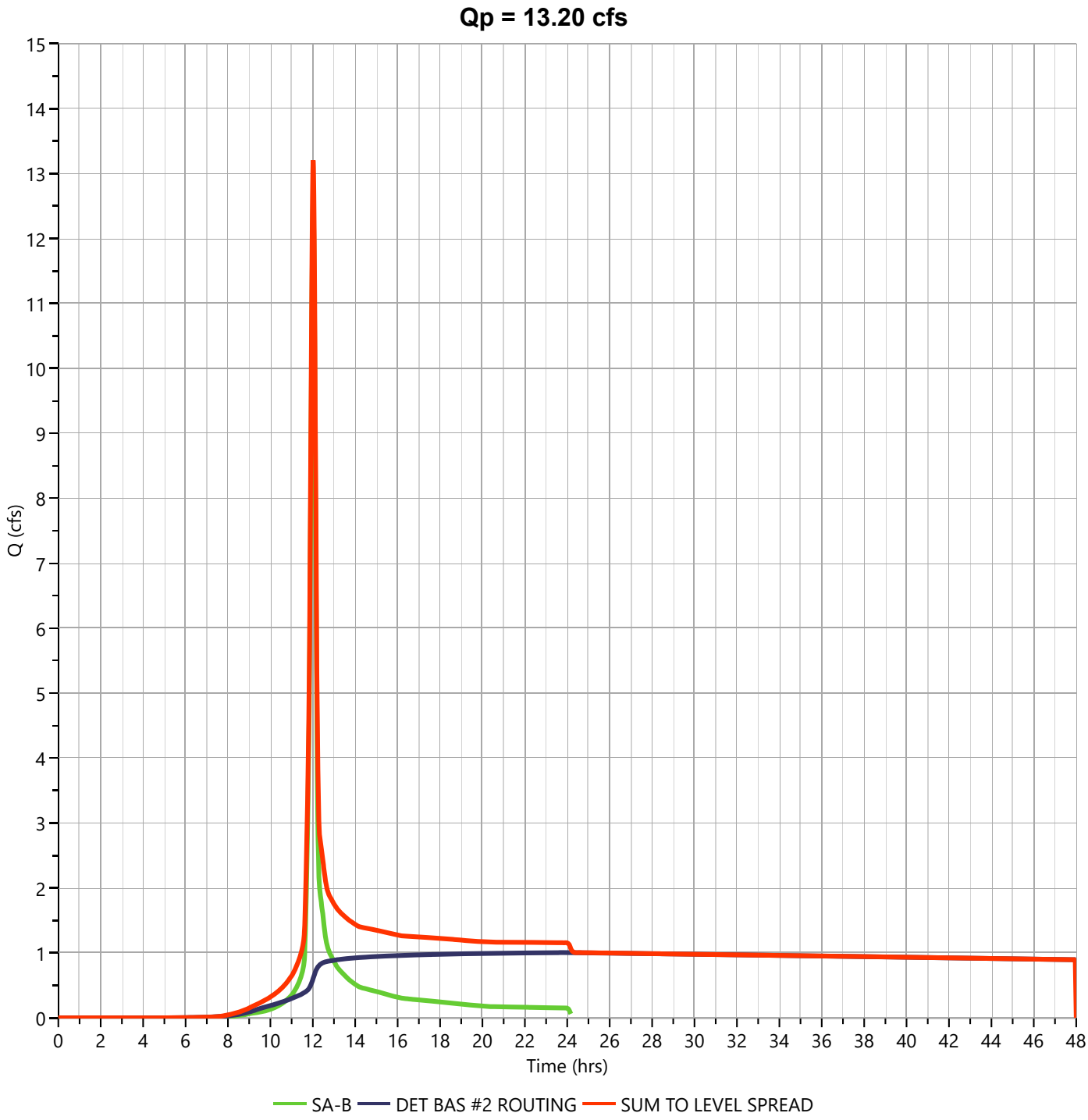
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO LEVEL SPREAD

Hyd. No. 9

Hydrograph Type	= Junction	Peak Flow	= 13.20 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Hydrograph Volume	= 158,560 cuft
Inflow Hydrographs	= 4, 8	Total Contrib. Area	= 3.11 ac



Design Storm Report

Custom Storm filename: 3170.cds

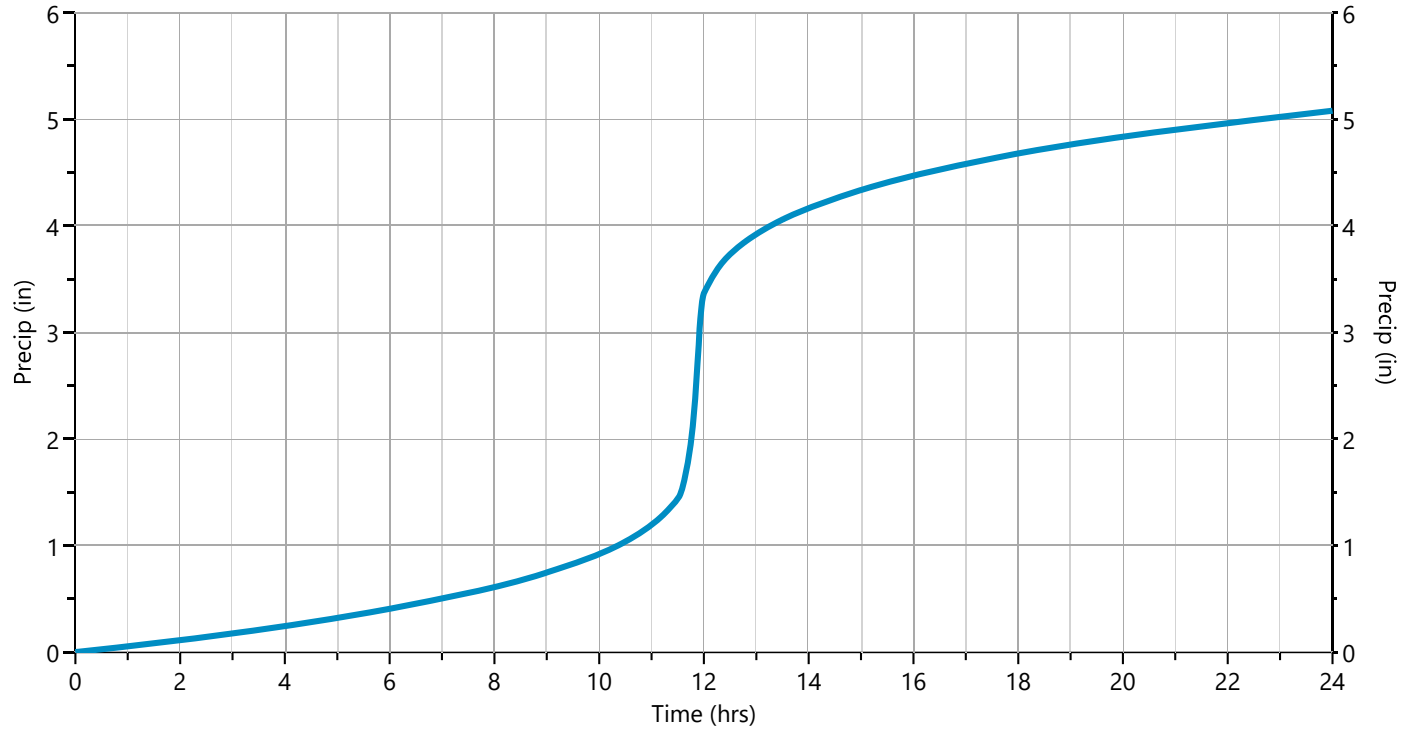
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	✔ 50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 50-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.009415	11.60	0.028538	11.78	0.074221	11.97	0.069899	12.15	0.014283
11.43	0.009550	11.62	0.031880	11.80	0.083515	11.98	0.048746	12.17	0.013962
11.45	0.009686	11.63	0.035221	11.82	0.092810	12.00	0.027594	12.18	0.013640
11.47	0.009821	11.65	0.038563	11.83	0.102104	12.02	0.017426	12.20	0.013318
11.48	0.009957	11.67	0.041904	11.85	0.111399	12.03	0.016535	12.22	0.012996
11.50	0.010092	11.68	0.045246	11.87	0.120693	12.05	0.016214	12.23	0.012675
11.52	0.011869	11.70	0.048587	11.88	0.129988	12.07	0.015892	12.25	0.012353
11.53	0.015172	11.72	0.051929	11.90	0.139283	12.08	0.015570	12.27	0.012031
11.55	0.018514	11.73	0.055270	**11.92**	**0.148577**	12.10	0.015249	12.28	0.011709
11.57	0.021855	11.75	0.058612	11.93	0.097156	12.12	0.014927	12.30	0.011388
11.58	0.025197	11.77	0.064435	11.95	0.091052	12.13	0.014605	12.32	0.011066



Hydrograph 100-yr Summary

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	115.6	12.10	390,733	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	70.23	12.00	177,890	----		
3	NRCS Runoff	Pre SA-A (DET BAS 2)	25.14	12.03	67,867	----		
4	NRCS Runoff	Pre SA-B	14.92	12.02	37,928	----		
5	NRCS Runoff	Pre SA-C	20.71	12.03	55,924	----		
6	Junction	Pre SUM TO EX- D.B. #2	138.5	12.08	458,600	1, 3		
7	Junction	Pre SUM TO EX- DB #1	90.21	12.00	233,814	2, 5		
8	Pond Route	Pre DET BAS #2 ROUTING	1.076	24.20	136,758	6	83.74	409,097
9	Junction	Pre SUM TO LEVEL SPREAD	15.58	12.02	174,686	4, 8		

Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

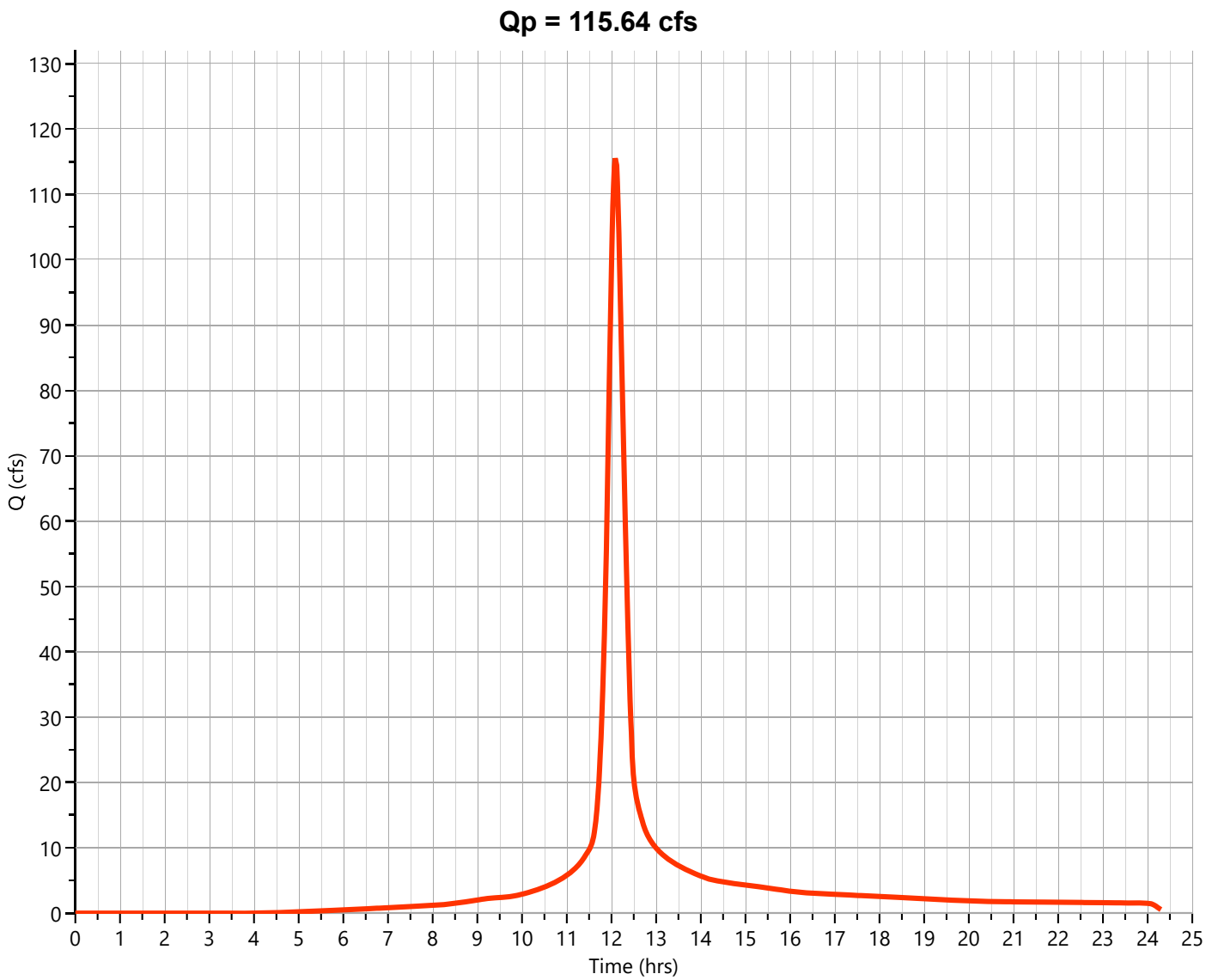
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 115.6 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 390,733 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

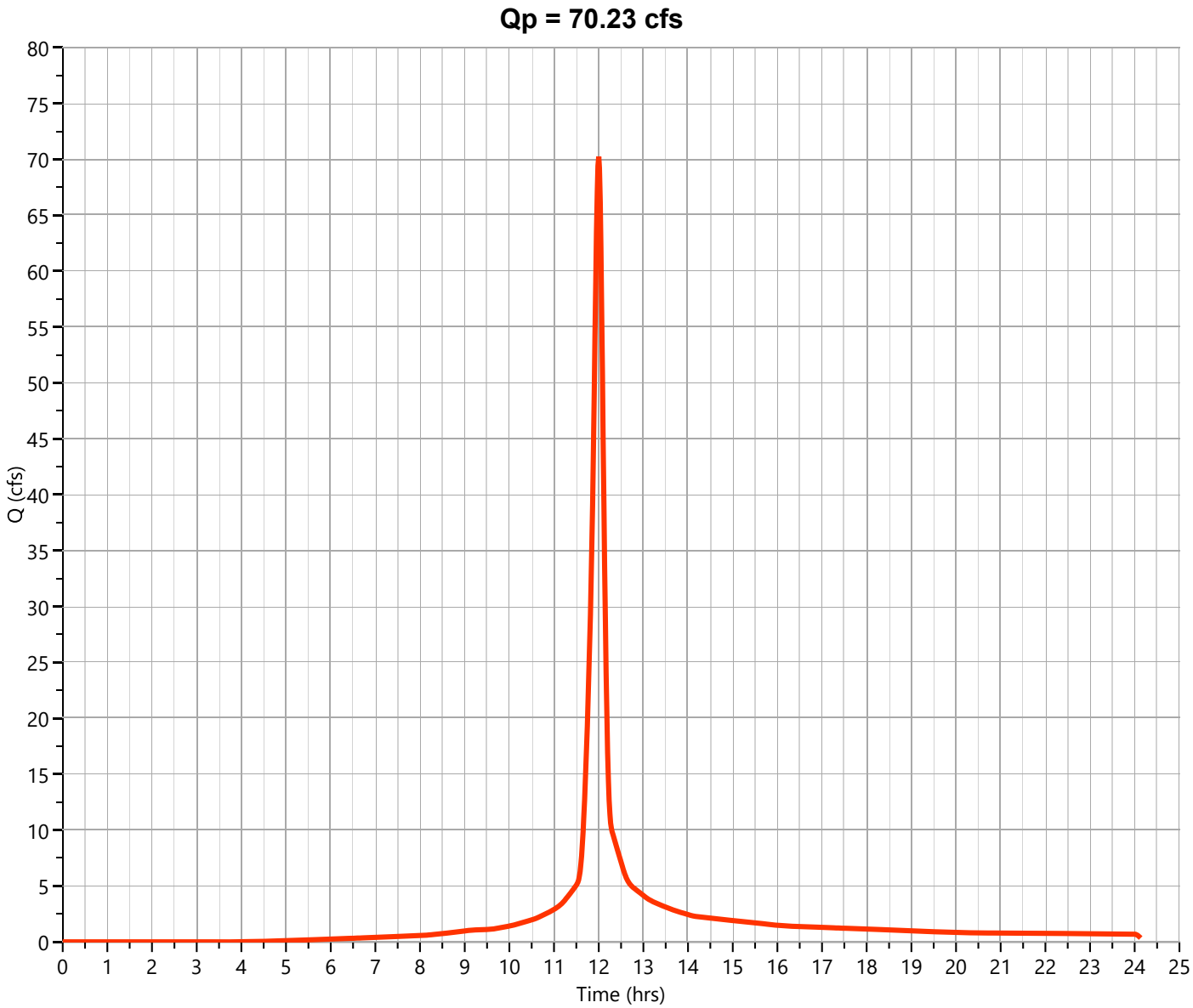
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 70.23 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 177,890 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

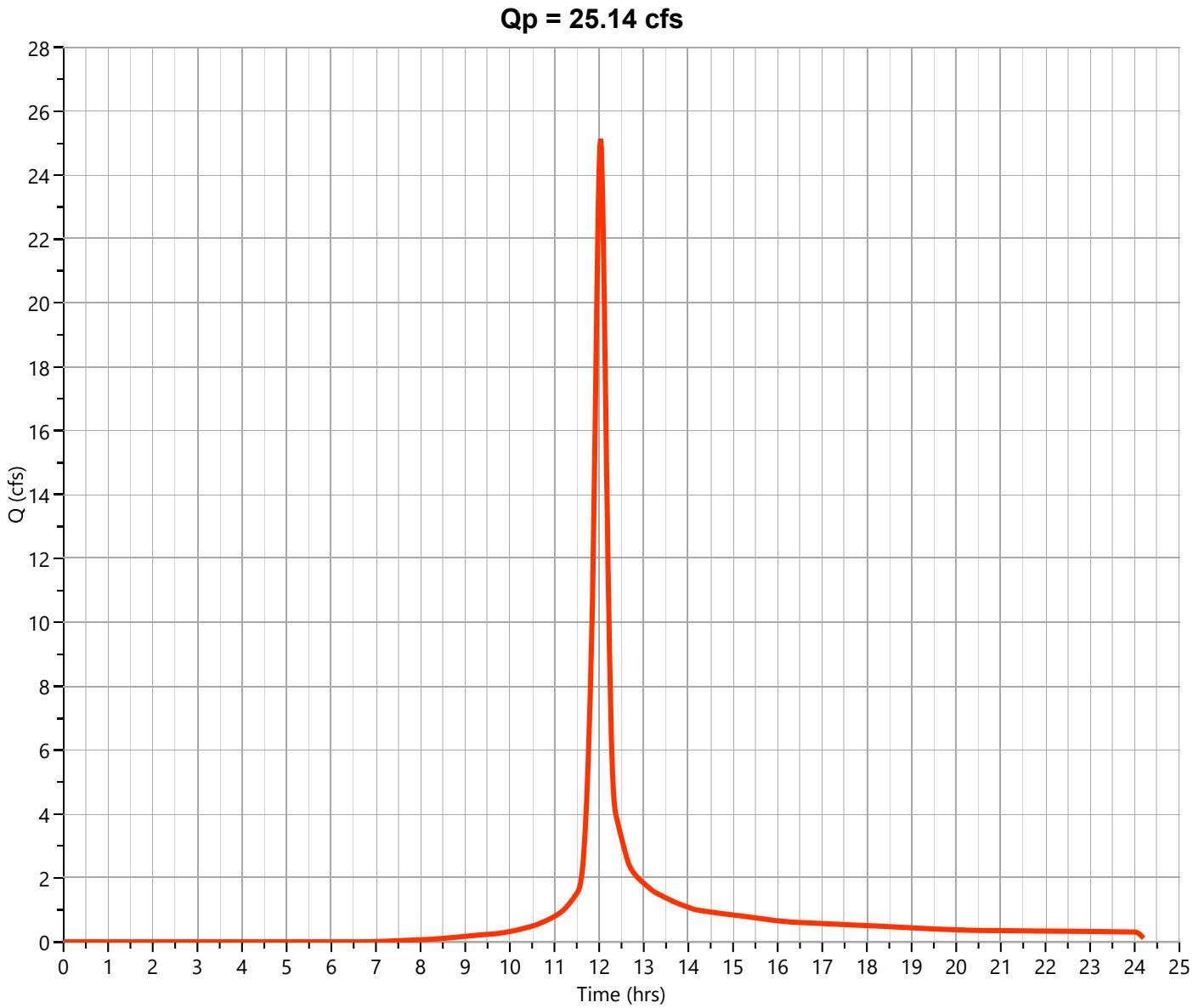
Pre SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 25.14 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 67,867 cuft
Drainage Area	= 5.478 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.24 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
5.478	79	C-GRASS (FAIR COVER)
5.478	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

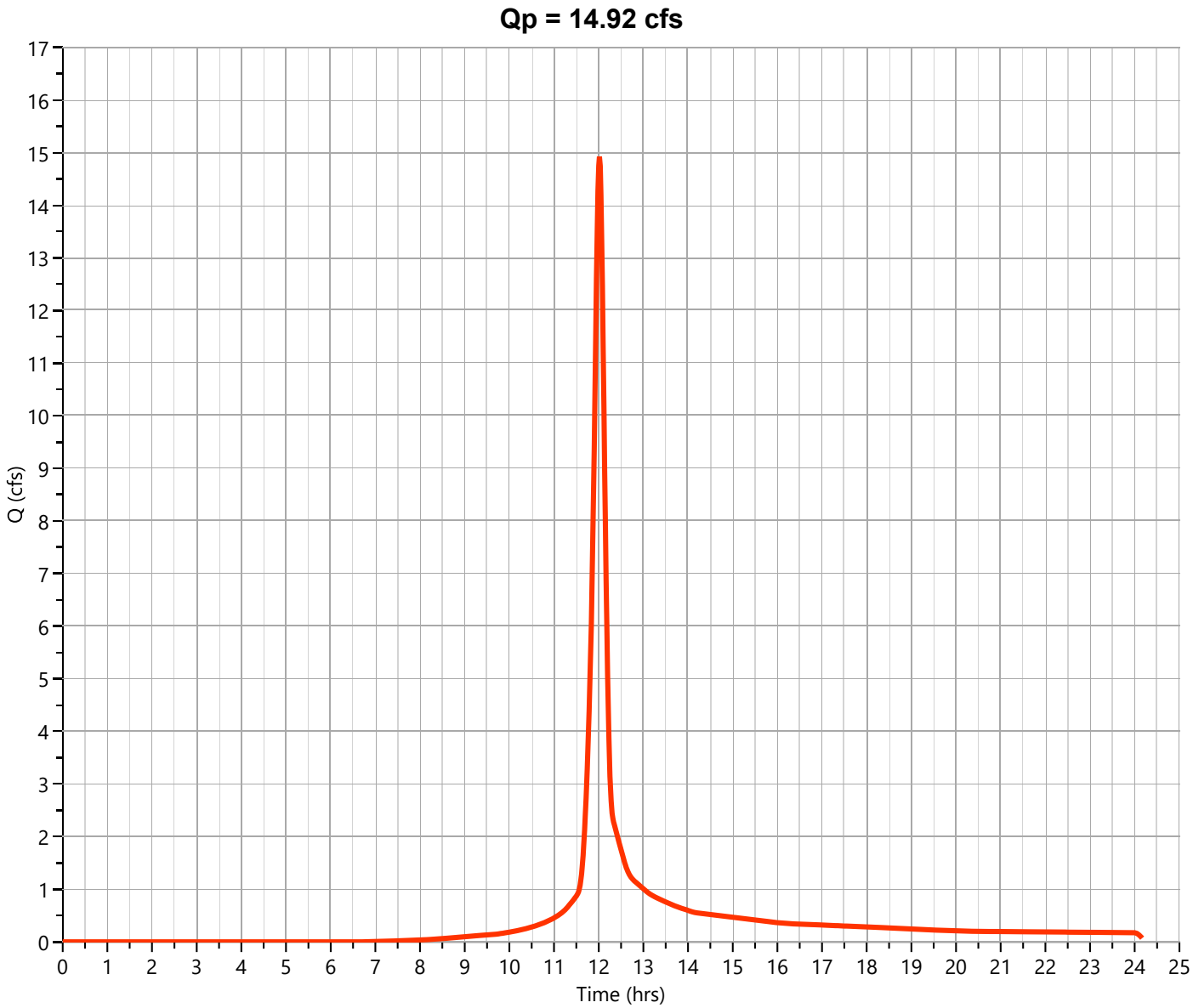
Pre SA-B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 14.92 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Runoff Volume	= 37,928 cuft
Drainage Area	= 3.11 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.43 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
3.11	79	C-GRASS (FAIR)
3.11	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

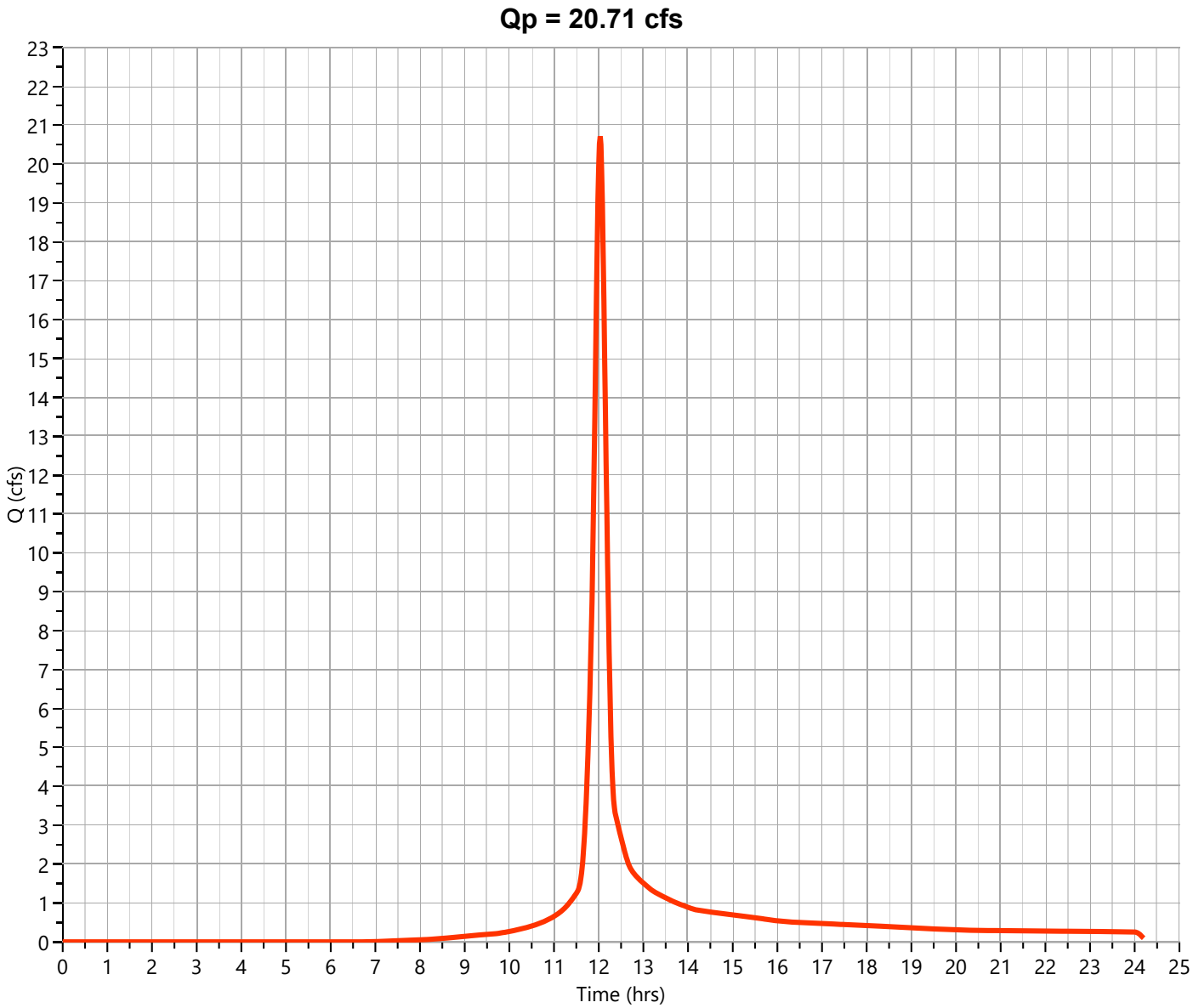
Pre SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 20.71 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 55,924 cuft
Drainage Area	= 4.514 ac	Curve Number	= 79*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.5 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
4.514	79	C-GRASS (FAIR)
4.514	**79**	Weighted CN Method Employed



Hydrograph Report

Project Name: UNIT 7C Evergreeen

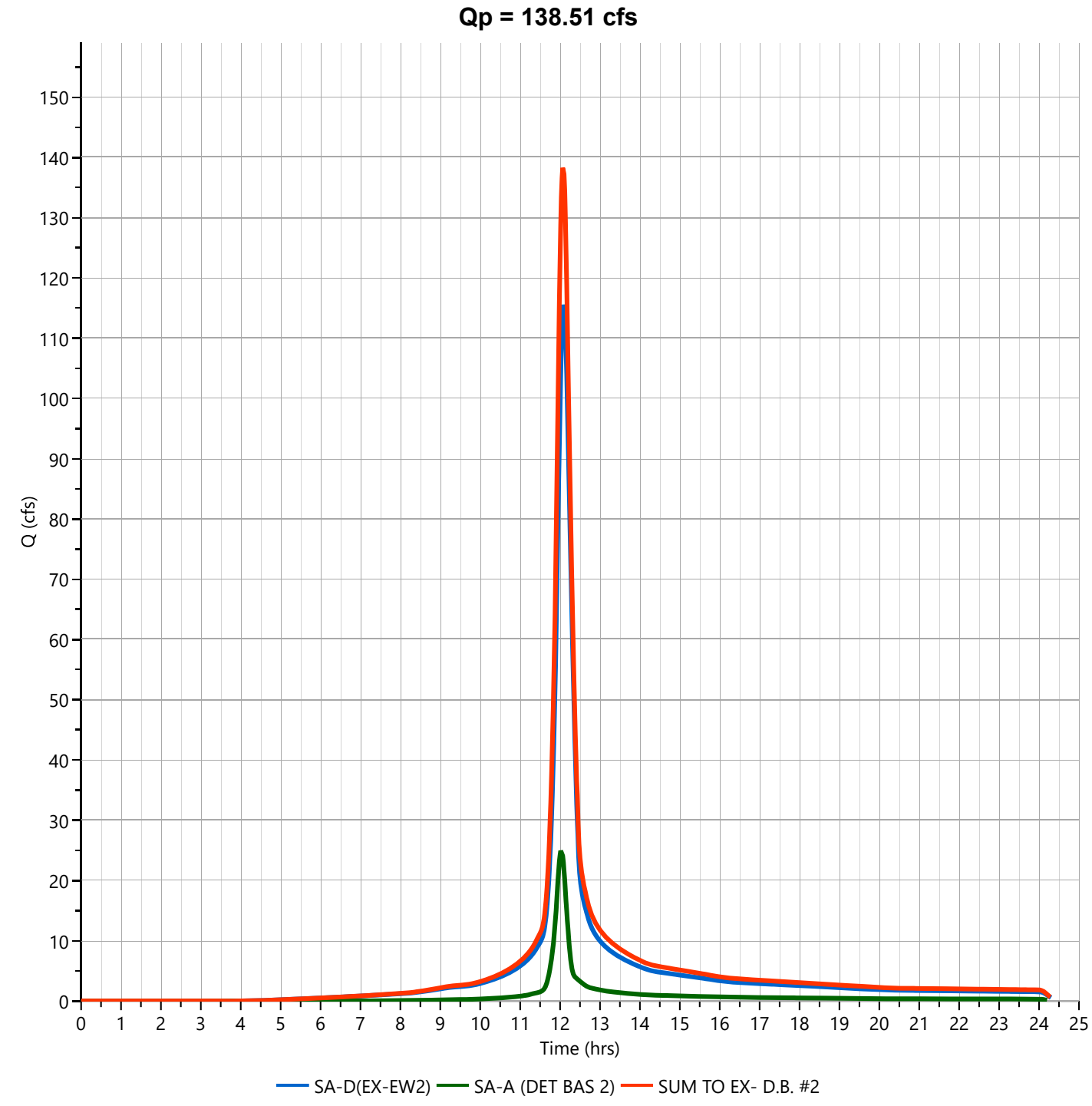
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- D.B. #2

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 138.5 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 458,600 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.058 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

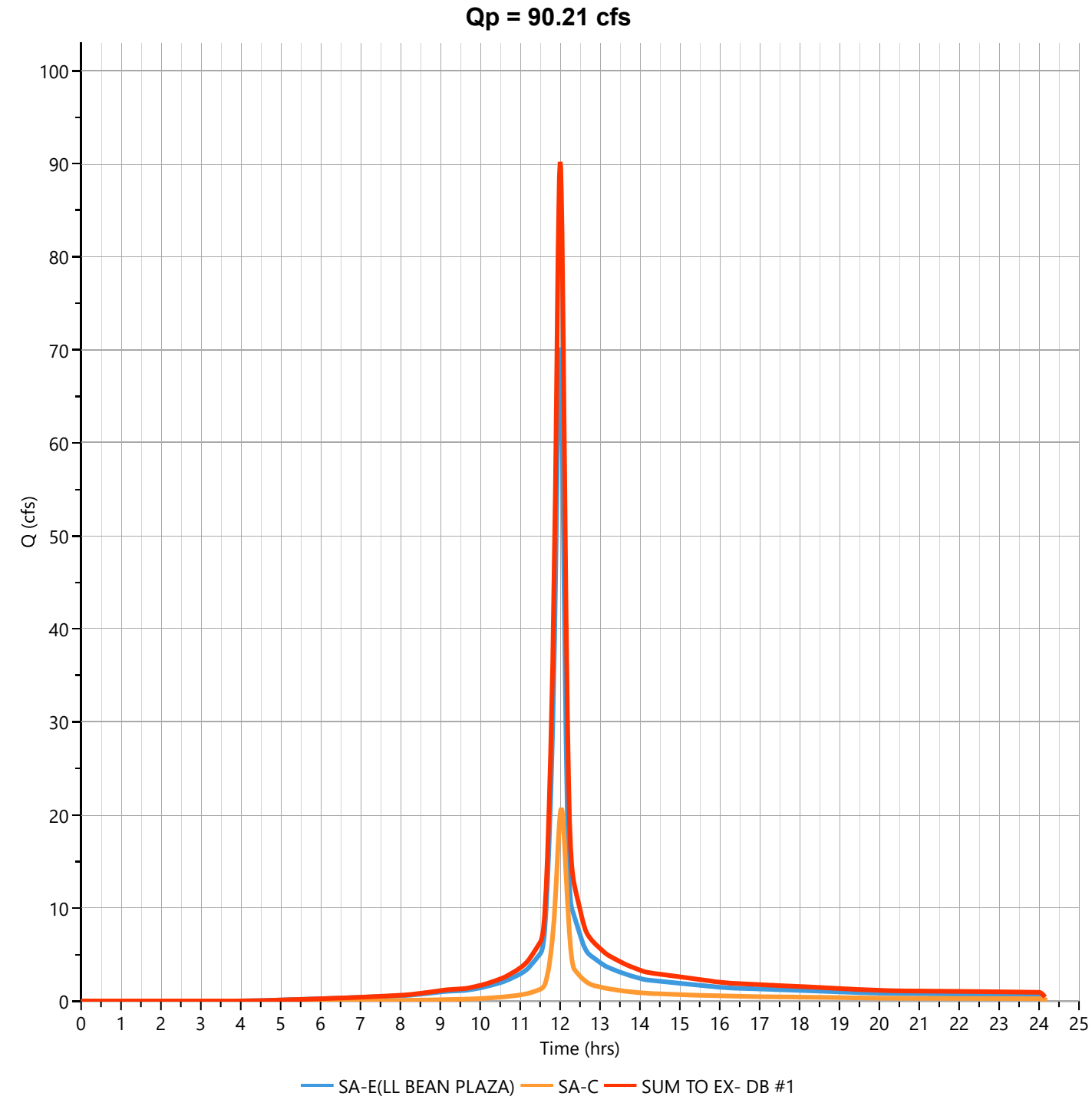
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO EX- DB #1

Hyd. No. 7

Hydrograph Type	= Junction	Peak Flow	= 90.21 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 233,814 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 15.614 ac



Hydrograph Report

Project Name: UNIT 7C Evergreeen

Hydrology Studio v 3.0.0.27

06-25-2023

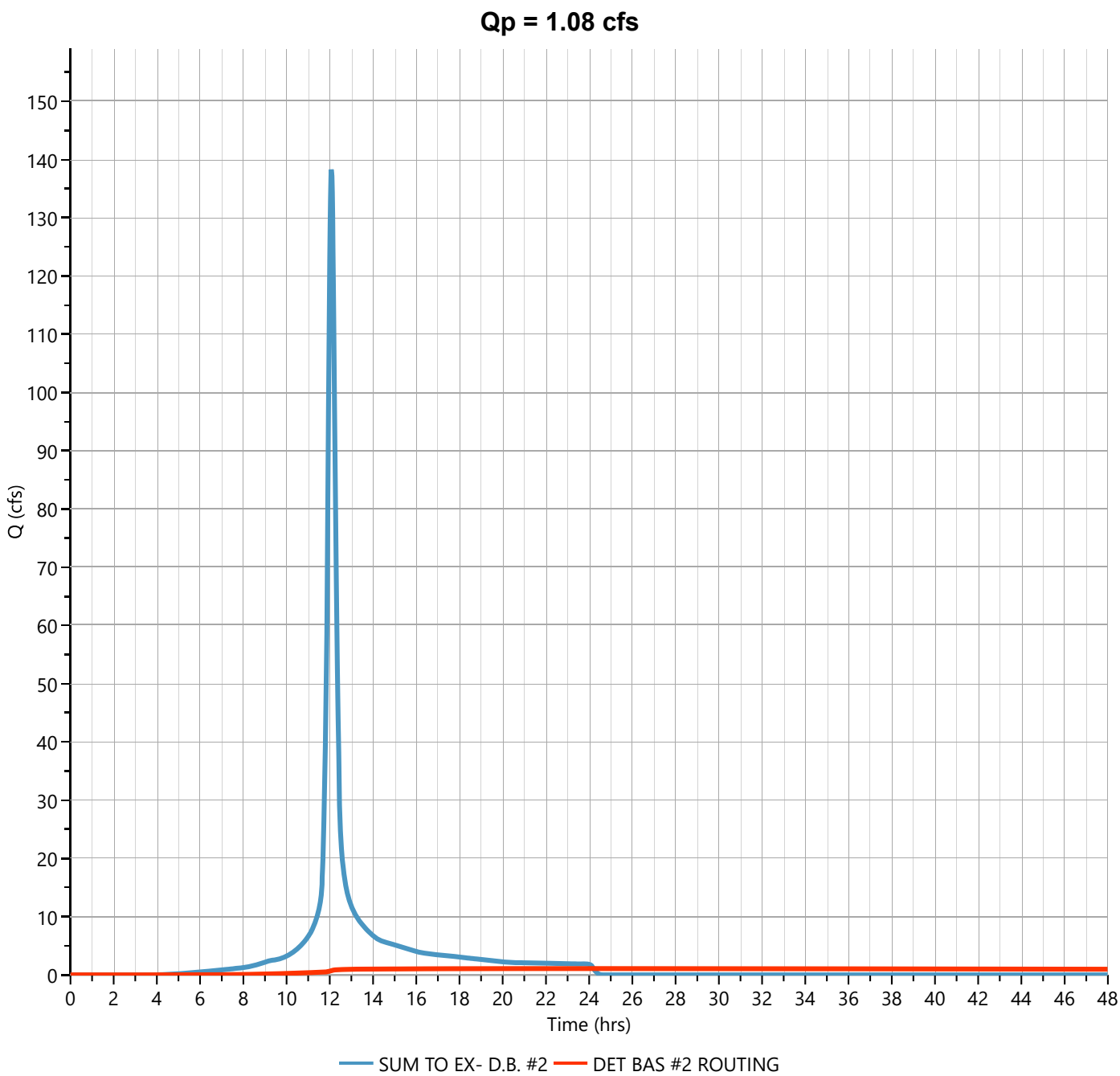
Pre DET BAS #2 ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 1.076 cfs
Storm Frequency	= 100-yr	Time to Peak	= 24.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 136,758 cuft
Inflow Hydrograph	= 6 - SUM TO EX- D.B. #2	Max. Elevation	= 83.74 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 409,097 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.99 hrs



Hydrograph Report

Project Name: UNIT 7C Evergreeen

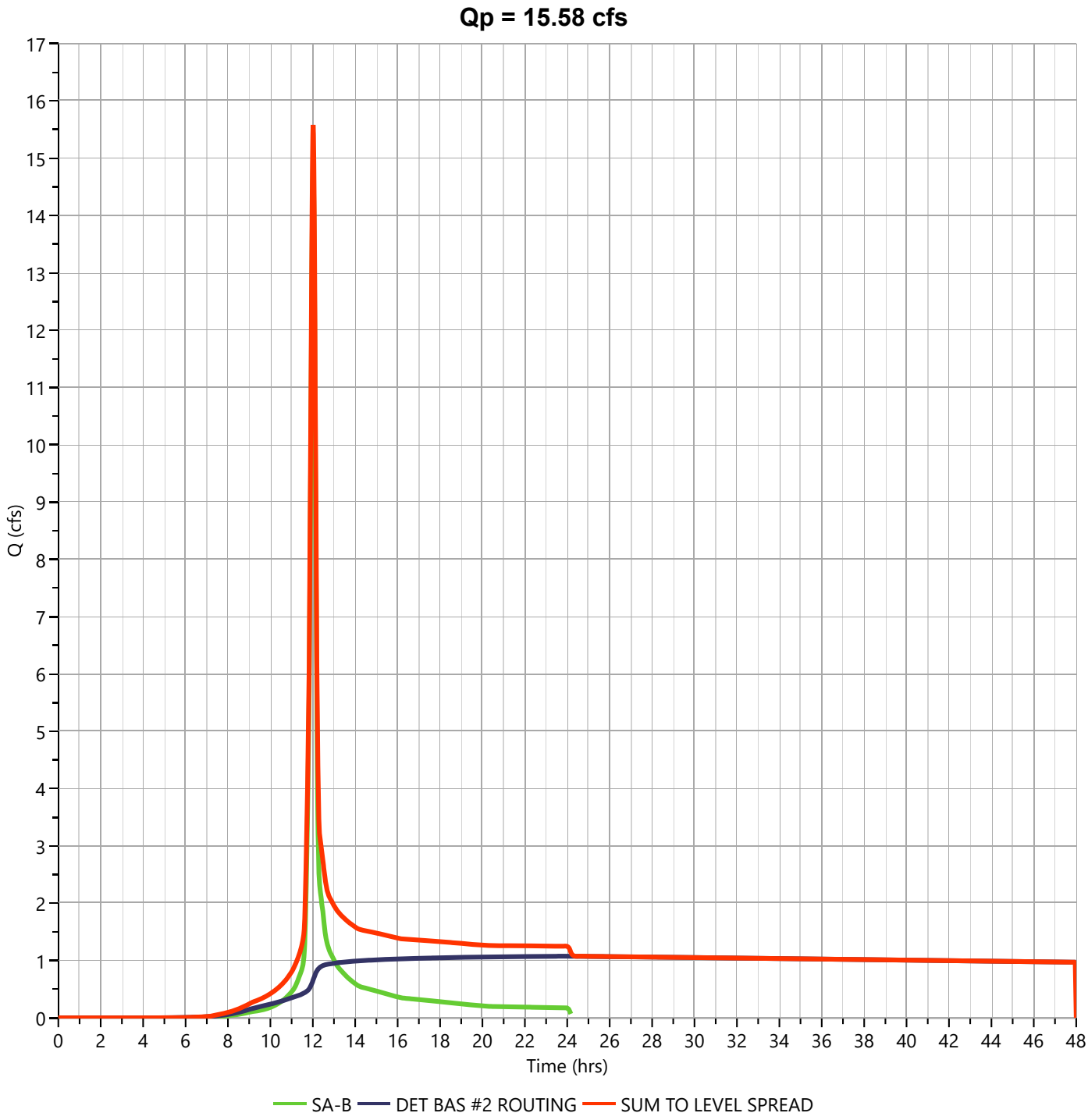
Hydrology Studio v 3.0.0.27

06-25-2023

Pre SUM TO LEVEL SPREAD

Hyd. No. 9

Hydrograph Type	= Junction	Peak Flow	= 15.58 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Hydrograph Volume	= 174,686 cuft
Inflow Hydrographs	= 4, 8	Total Contrib. Area	= 3.11 ac



Design Storm Report

Custom Storm filename: 3170.cds

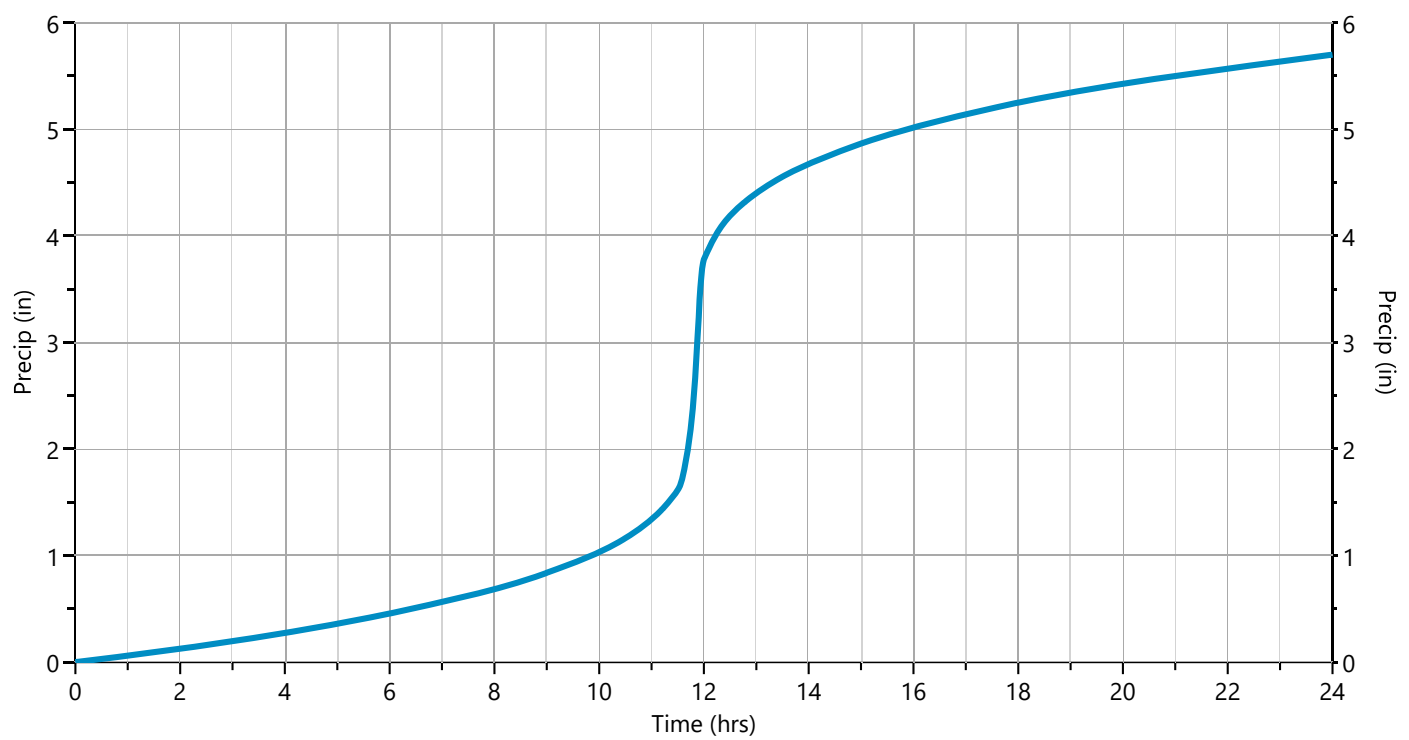
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	✔ 100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 100-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.010564	11.60	0.032021	11.78	0.083279	11.97	0.078430	12.15	0.016027
11.43	0.010716	11.62	0.035771	11.80	0.093708	11.98	0.054696	12.17	0.015666
11.45	0.010868	11.63	0.039520	11.82	0.104137	12.00	0.030962	12.18	0.015305
11.47	0.011020	11.65	0.043269	11.83	0.114566	12.02	0.019552	12.20	0.014944
11.48	0.011172	11.67	0.047019	11.85	0.124995	12.03	0.018554	12.22	0.014582
11.50	0.011324	11.68	0.050768	11.87	0.135424	12.05	0.018193	12.23	0.014222
11.52	0.013317	11.70	0.054517	11.88	0.145852	12.07	0.017832	12.25	0.013860
11.53	0.017024	11.72	0.058267	11.90	0.156282	12.08	0.017470	12.27	0.013500
11.55	0.020773	11.73	0.062016	**11.92**	**0.166710**	12.10	0.017110	12.28	0.013138
11.57	0.024523	11.75	0.065765	11.93	0.109014	12.12	0.016748	12.30	0.012778
11.58	0.028272	11.77	0.072299	11.95	0.102164	12.13	0.016387	12.32	0.012416



IDF Report

IDF filename: NOAA Atlas 14 idf 10 Version 3 - Tamarack Ave South Windsor.idf

Hydrology Studio v 3.0.0.27

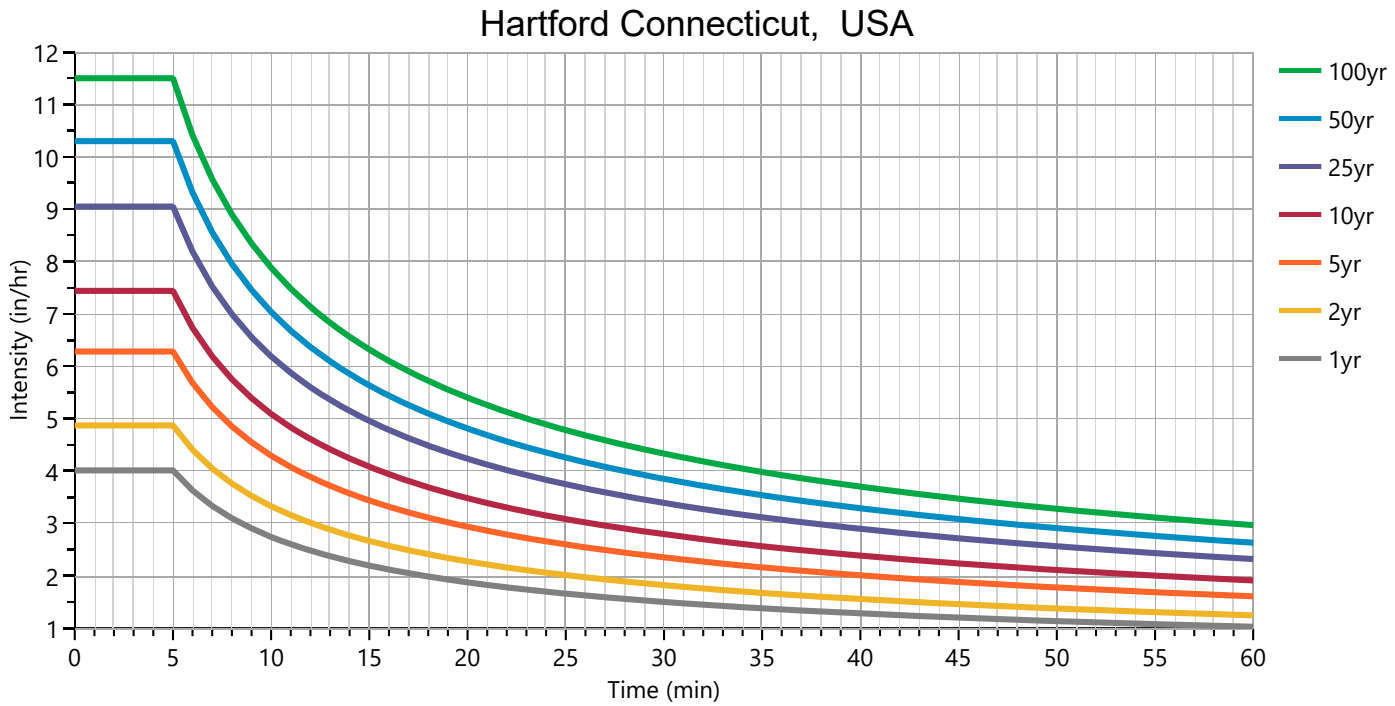
06-25-2023

Equation Coefficients	Intensity = B / (Tc + D)^E (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
B	9.6993	11.7894	0.0000	15.1849	17.9555	21.8627	24.9302	27.6530	
D	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
E	0.5488	0.5493	0.0000	0.5486	0.5474	0.5480	0.5492	0.5452	

Minimum Tc = 5 minutes

Tc (min)	Intensity Values (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
Cf	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
5	4.01	4.87	0	6.28	7.44	9.05	10.30	11.50	
10	2.74	3.33	0	4.29	5.09	6.19	7.04	7.88	
15	2.19	2.66	0	3.44	4.08	4.96	5.63	6.32	
20	1.87	2.27	0	2.94	3.48	4.23	4.81	5.40	
25	1.66	2.01	0	2.60	3.08	3.75	4.26	4.78	
30	1.50	1.82	0	2.35	2.79	3.39	3.85	4.33	
35	1.38	1.67	0	2.16	2.56	3.12	3.54	3.98	
40	1.28	1.55	0	2.01	2.38	2.90	3.29	3.70	
45	1.20	1.46	0	1.88	2.23	2.71	3.08	3.47	
50	1.13	1.37	0	1.78	2.11	2.56	2.91	3.28	
55	1.08	1.30	0	1.69	2.00	2.43	2.76	3.11	
60	1.03	1.24	0	1.61	1.91	2.32	2.63	2.97	

Cf = Correction Factor applied to Rational Method runoff coefficient.



Precipitation Report

Precipitation filename: NOAA Atlas 14, Volume 10, Version 3-PFDepth_English_PDS (151 Buckland Road South Windsor CT).pcp

Hydrology Studio v 3.0.0.27 (Rainfall totals in Inches) 06-25-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active		✔	✔		✔	✔	✔	✔	✔
SCS Storms	**> SCS Dimensionless Storms**								
SCS 6hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
Type I, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Type IA, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Type II, 24-hr	✔	2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Type II FL, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Type III, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Synthetic Storms	**> IDF-Based Synthetic Storms**								
1-hr		1.03	1.24	0	1.61	1.91	2.32	2.63	2.97
2-hr		1.40	1.70	0	2.20	2.61	3.17	3.60	4.07
3-hr		1.68	2.04	0	2.64	3.14	3.81	4.32	4.89
6-hr		2.30	2.79	0	3.61	4.30	5.21	5.90	6.70
12-hr		3.15	3.81	0	4.93	5.88	7.13	8.06	9.19
24-hr		4.30	5.21	0	6.74	8.04	9.75	11.02	12.59
Huff Distribution	**> 1st Quartile (0 to 6 hrs)**								
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
Huff Distribution	**> 2nd Quartile (>6 to 12 hrs)**								
8-hr		0	0	0	0	0	0	0	0
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
Huff Distribution	**> 3rd Quartile (>12 to 24 hrs)**								
18-hr		0	0	0	0	0	0	0	0
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Custom Storms	**> Custom Storm Distributions**								
My Custom Storm 1		0	0	0	0	0	0	0	0
My Custom Storm 2		0	0	0	0	0	0	0	0
My Custom Storm 3		0	0	0	0	0	0	0	0
My Custom Storm 4		0	0	0	0	0	0	0	0
My Custom Storm 5		0	0	0	0	0	0	0	0
My Custom Storm 6		0	0	0	0	0	0	0	0
My Custom Storm 7		0	0	0	0	0	0	0	0
My Custom Storm 8		0	0	0	0	0	0	0	0
My Custom Storm 9		0	0	0	0	0	0	0	0
My Custom Storm 10		0	0	0	0	0	0	0	0

Precipitation Report Cont'd

Precipitation filename: NOAA Atlas 14, Volume 10, Version 3-PFDepth_English_PDS (151 Buckland Road South Windsor CT).pcp

Rainfall totals in Inches

06-25-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active		✔	✔		✔	✔	✔	✔	✔
Huff Indiana	**> Indianapolis**								
30-min		0.64	0.78	0	1.00	1.18	1.43	1.62	1.82
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Huff Indiana	**> Evansville**								
30-min		0.64	0.78	0	1.00	1.18	1.43	1.62	1.82
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Huff Indiana	**> Fort Wayne**								
30-min		0.64	0.78	0	1.00	1.18	1.43	1.62	1.82
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Huff Indiana	**> South Bend**								
30-min		0.64	0.78	0	1.00	1.18	1.43	1.62	1.82
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70

Precipitation Report Cont'd

Precipitation filename: NOAA Atlas 14, Volume 10, Version 3-PFDepth_English_PDS (151 Buckland Road South Windsor CT).pcp

Rainfall totals in Inches

06-25-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active		✔	✔		✔	✔	✔	✔	✔
NRCS Storms	**> NRCS Dimensionless Storms**								
NRCS MSE1, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE2, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE3, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE4, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE5, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE6, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NOAA-A, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NOAA-B, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NOAA-C, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NOAA-D, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCC-A, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCC-B, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCC-C, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCC-D, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-1, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-2, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-3, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-4, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-5, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-6, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
FDOT Storms	**> Florida DOT Storms**								
FDOT, 1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
FDOT, 2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
FDOT, 4-hr		0	0	0	0	0	0	0	0
FDOT, 8-hr		0	0	0	0	0	0	0	0
FDOT, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
FDOT, 72-hr		0	0	0	0	0	0	0	0
SFWMD, 72-hr		0	0	0	0	0	0	0	0
Austin Storms	**> Austin Frequency Storms**								
Austin Zone 1, 24-hr		0	0	0	0	0	0	0	0
Austin Zone 2, 24-hr		0	0	0	0	0	0	0	0

Appendix F

Hydrology Studio ™

Computer Model Report – Post Development

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Hydrology Studio v 3.0.0.27

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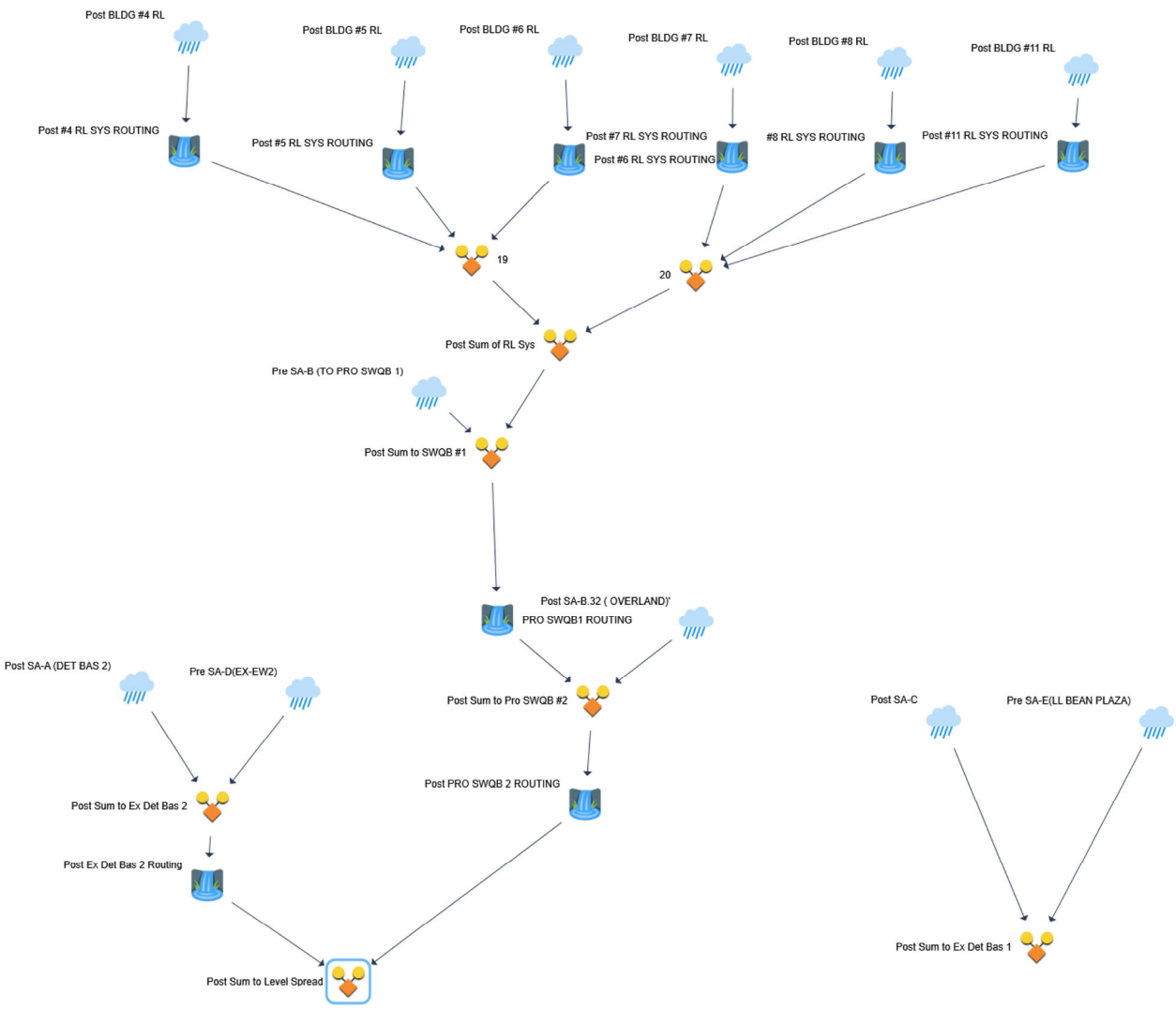
Basin Model

Hydrology Studio v 3.0.0.27

Project Name:

06-25-2023



Hydrograph by Return Period

Hydrology Studio v 3.0.0.27

Project Name:

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	27.92	37.41		53.65	67.49	86.30	100.5	115.6
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	17.33	23.10		32.93	41.28	52.60	61.13	70.23
3	NRCS Runoff	Post SA-A (DET BAS 2)	8.113	11.07		16.19	20.58	26.58	31.12	35.97
4	NRCS Runoff	Pre SA-B (TO PRO SWQB 1)	5.596	7.515		10.81	13.62	17.44	20.32	23.40
5	NRCS Runoff	Post SA-C	2.814	4.021		6.171	8.078	10.72	12.75	14.92
6	NRCS Runoff	Post SA-B.32 (OVERLAND)	0.133	0.223		0.392	0.548	0.772	0.947	1.139
7	NRCS Runoff	Post BLDG #4 RL	0.569	0.687		0.881	1.044	1.262	1.427	1.603
8	Pond Route	Post #4 RL SYS ROUTING	0.032	0.092		0.123	0.144	0.169	0.184	0.208
9	NRCS Runoff	Post BLDG #5 RL	0.569	0.687		0.881	1.044	1.262	1.427	1.603
10	Pond Route	Post #5 RL SYS ROUTING	0.032	0.092		0.123	0.144	0.169	0.184	0.208
11	NRCS Runoff	Post BLDG #6 RL	0.569	0.687		0.881	1.044	1.262	1.427	1.603
12	Pond Route	Post #6 RL SYS ROUTING	0.032	0.092		0.123	0.144	0.169	0.184	0.208
13	NRCS Runoff	Post BLDG #7 RL	0.569	0.687		0.881	1.044	1.262	1.427	1.603
14	Pond Route	Post #7 RL SYS ROUTING	0.032	0.092		0.123	0.144	0.169	0.184	0.208
15	NRCS Runoff	Post BLDG #8 RL	0.569	0.687		0.881	1.044	1.262	1.427	1.603
16	Pond Route	#8 RL SYS ROUTING	0.032	0.092		0.123	0.144	0.169	0.184	0.208
17	NRCS Runoff	Post BLDG #11 RL	0.815	0.983		1.261	1.494	1.807	2.043	2.295
18	Pond Route	Post #11 RL SYS ROUTING	0.062	0.181		0.253	0.297	0.346	0.377	0.425
19	Junction		0.096	0.275		0.369	0.433	0.506	0.552	0.625
20	Junction		0.123	0.364		0.499	0.585	0.683	0.745	0.841
21	Junction	Post Sum of RL Sys	0.219	0.639		0.868	1.018	1.189	1.297	1.466
22	Junction	Post Sum to SWQB #1	5.596	7.623		11.53	14.49	18.48	21.46	24.62
23	Pond Route	PRO SWQB1 ROUTING	0.260	0.740		2.072	4.240	8.288	10.92	14.02
24	NRCS Runoff	Post SA-B.32 (OVERLAND)'	0.132	0.222		0.390	0.545	0.768	0.943	1.134
25	Junction	Post Sum to Pro SWQB #2	0.265	0.755		2.121	4.348	8.515	11.28	14.49
26	Pond Route	Post PRO SWQB 2 ROUTING	0.145	0.411		1.677	3.201	6.766	10.45	14.11
27	Junction	Post Sum to Ex Det Bas 2	34.01	45.79		66.01	83.27	106.8	124.6	143.6
28	Pond Route	Post Ex Det Bas 2 Routing	0.540	0.628		0.754	0.846	0.955	1.028	1.100
29	Junction	Post Sum to Level Spread	0.681	1.005		2.337	3.911	7.493	11.19	14.87
30	Junction	Post Sum to Ex Det Bas 1	20.14	27.12		39.09	49.32	63.25	73.77	85.00

Hydrograph 1-yr Summary

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	27.92	12.10	92,058	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	17.33	12.00	41,911	----		
3	NRCS Runoff	Post SA-A (DET BAS 2)	8.113	12.02	19,687	----		
4	NRCS Runoff	Pre SA-B (TO PRO SWQB 1)	5.596	11.98	11,822	----		
5	NRCS Runoff	Post SA-C	2.814	12.00	6,446	----		
6	NRCS Runoff	Post SA-B.32 (OVERLAND)	0.133	11.97	301	----		
7	NRCS Runoff	Post BLDG #4 RL	0.569	11.95	1,311	----		
8	Pond Route	Post #4 RL SYS ROUTING	0.032	12.72	492	7	84.13	892
9	NRCS Runoff	Post BLDG #5 RL	0.569	11.95	1,311	----		
10	Pond Route	Post #5 RL SYS ROUTING	0.032	12.72	492	9	84.13	892
11	NRCS Runoff	Post BLDG #6 RL	0.569	11.95	1,311	----		
12	Pond Route	Post #6 RL SYS ROUTING	0.032	12.72	492	11	84.13	892
13	NRCS Runoff	Post BLDG #7 RL	0.569	11.95	1,311	----		
14	Pond Route	Post #7 RL SYS ROUTING	0.032	12.72	492	13	84.13	892
15	NRCS Runoff	Post BLDG #8 RL	0.569	11.95	1,311	----		
16	Pond Route	#8 RL SYS ROUTING	0.032	12.72	492	15	84.13	892
17	NRCS Runoff	Post BLDG #11 RL	0.815	11.95	1,877	----		
18	Pond Route	Post #11 RL SYS ROUTING	0.062	12.48	776	17	84.17	1,233
19	Junction		0.096	12.72	1,476	8, 10, 12		
20	Junction		0.123	12.57	1,760	14, 16, 18		
21	Junction	Post Sum of RL Sys	0.219	12.63	3,237	19, 20		
22	Junction	Post Sum to SWQB #1	5.596	11.98	15,059	4, 21		
23	Pond Route	PRO SWQB1 ROUTING	0.260	14.90	8,657	22	81.40	8,820
24	NRCS Runoff	Post SA-B.32 (OVERLAND)'	0.132	11.97	300	----		
25	Junction	Post Sum to Pro SWQB #2	0.265	14.88	8,957	23, 24		
26	Pond Route	Post PRO SWQB 2 ROUTING	0.145	20.02	4,890	25	79.82	4,733
27	Junction	Post Sum to Ex Det Bas 2	34.01	12.07	111,745	1, 3		
28	Pond Route	Post Ex Det Bas 2 Routing	0.540	24.07	63,213	27	78.83	88,808
29	Junction	Post Sum to Level Spread	0.681	20.07	68,103	26, 28		
30	Junction	Post Sum to Ex Det Bas 1	20.14	12.00	48,357	2, 5		

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

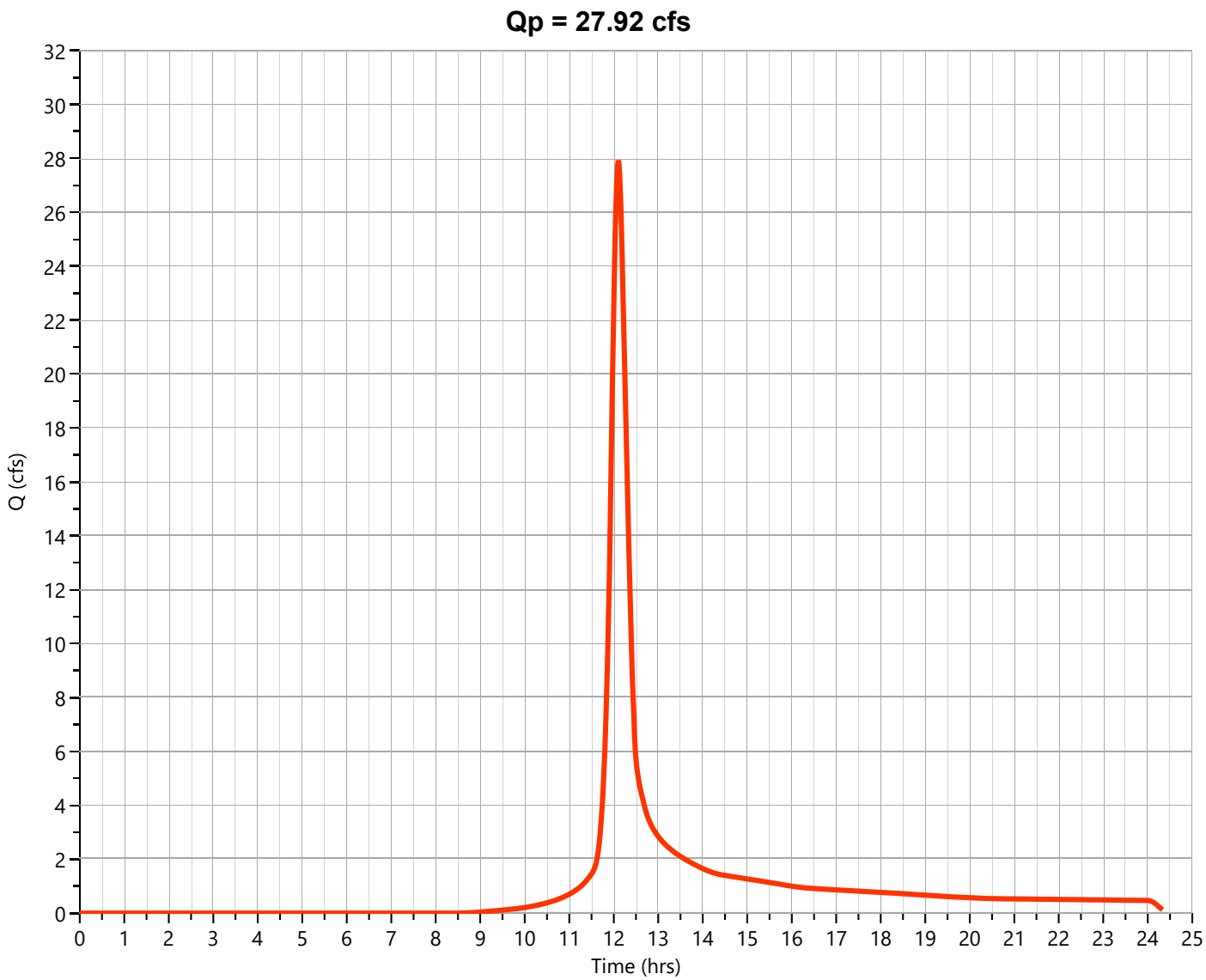
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 27.92 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 92,058 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



post4

Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

SA-D(EX-EW2)
NRCS Runoff

Hyd. No. 1

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	Lawn			
Manning's n	0.240	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	3			
Travel Time (min)	**12.33**	**0.00**	**0.00**	**12.33**
Shallow Concentrated Flow				
Flow Length (ft)	250	500		
Watercourse Slope (%)	1.00	1.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	1.61	2.03		
Travel Time (min)	**2.58**	**4.10**	**0.00**	**6.68**
Channel Flow				
X-sectional Flow Area (sqft)	7.07			
Wetted Perimeter (ft)	9			
Channel Slope (%)	1			
Manning's n	0.012	0.013	0.013	
Velocity (ft/s)	10.56			
Flow Length (ft)	1000			
Travel Time (min)	**1.58**	**0.00**	**0.00**	**1.58**
Total Travel Time				**20.59 min**

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

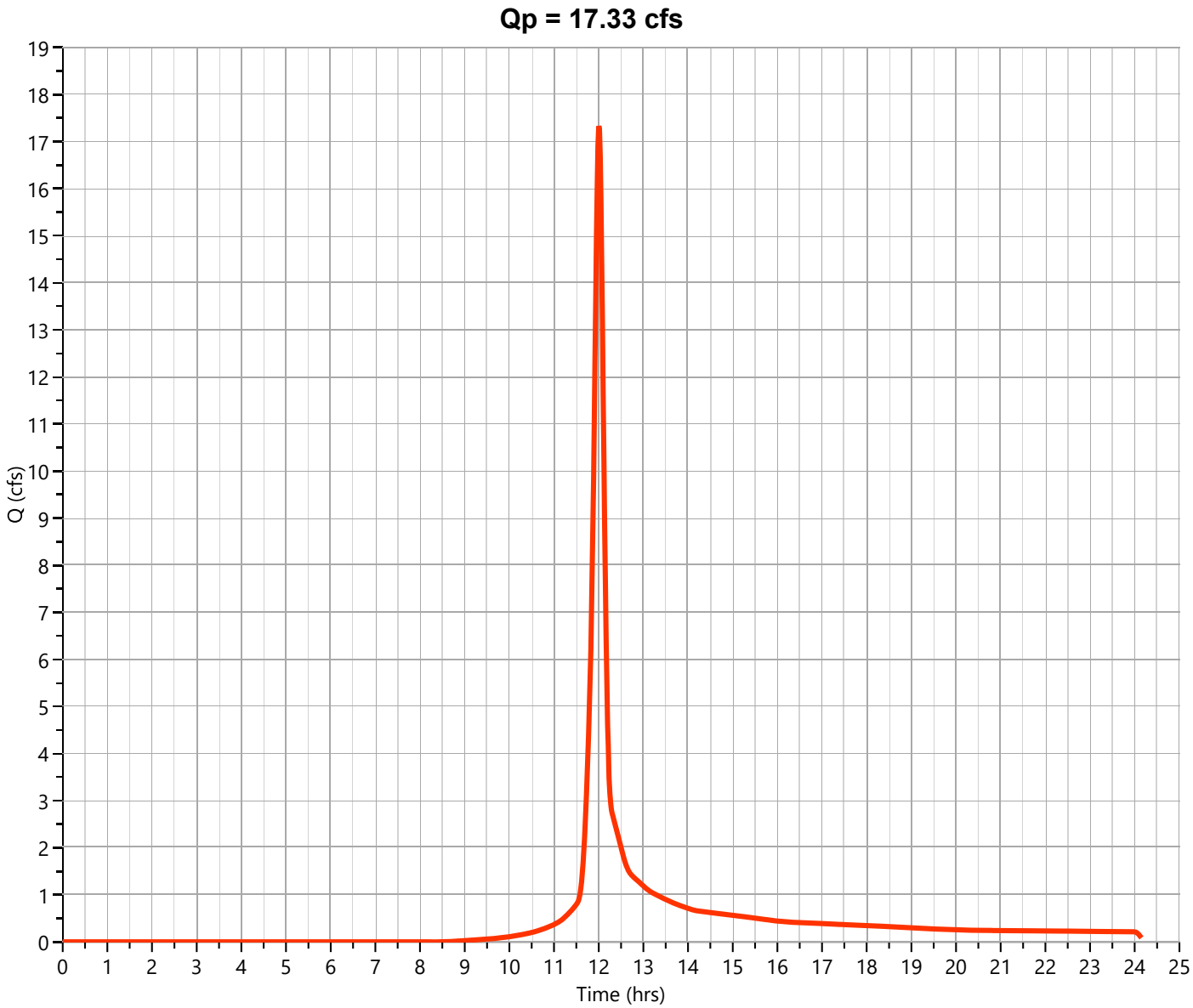
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 17.33 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 41,911 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



post6

Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

SA-E(LL BEAN PLAZA)

Hyd. No. 2

NRCS Runoff

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	LAWN			
Manning's n	0.240	0.013	0.013	
Flow Length (ft)	75			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	5			
Travel Time (min)	**7.98**	**0.00**	**0.00**	**7.98**
Shallow Concentrated Flow				
Flow Length (ft)	250			
Watercourse Slope (%)	1.00	0.00	0.00	
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.03			
Travel Time (min)	**2.05**	**0.00**	**0.00**	**2.05**
Channel Flow				
X-sectional Flow Area (sqft)	7.7			
Wetted Perimeter (ft)	9			
Channel Slope (%)	1			
Manning's n	0.012	0.013	0.013	
Velocity (ft/s)	11.18			
Flow Length (ft)	500			
Travel Time (min)	**0.75**	**0.00**	**0.00**	**0.75**
Total Travel Time				**10.78 min**

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

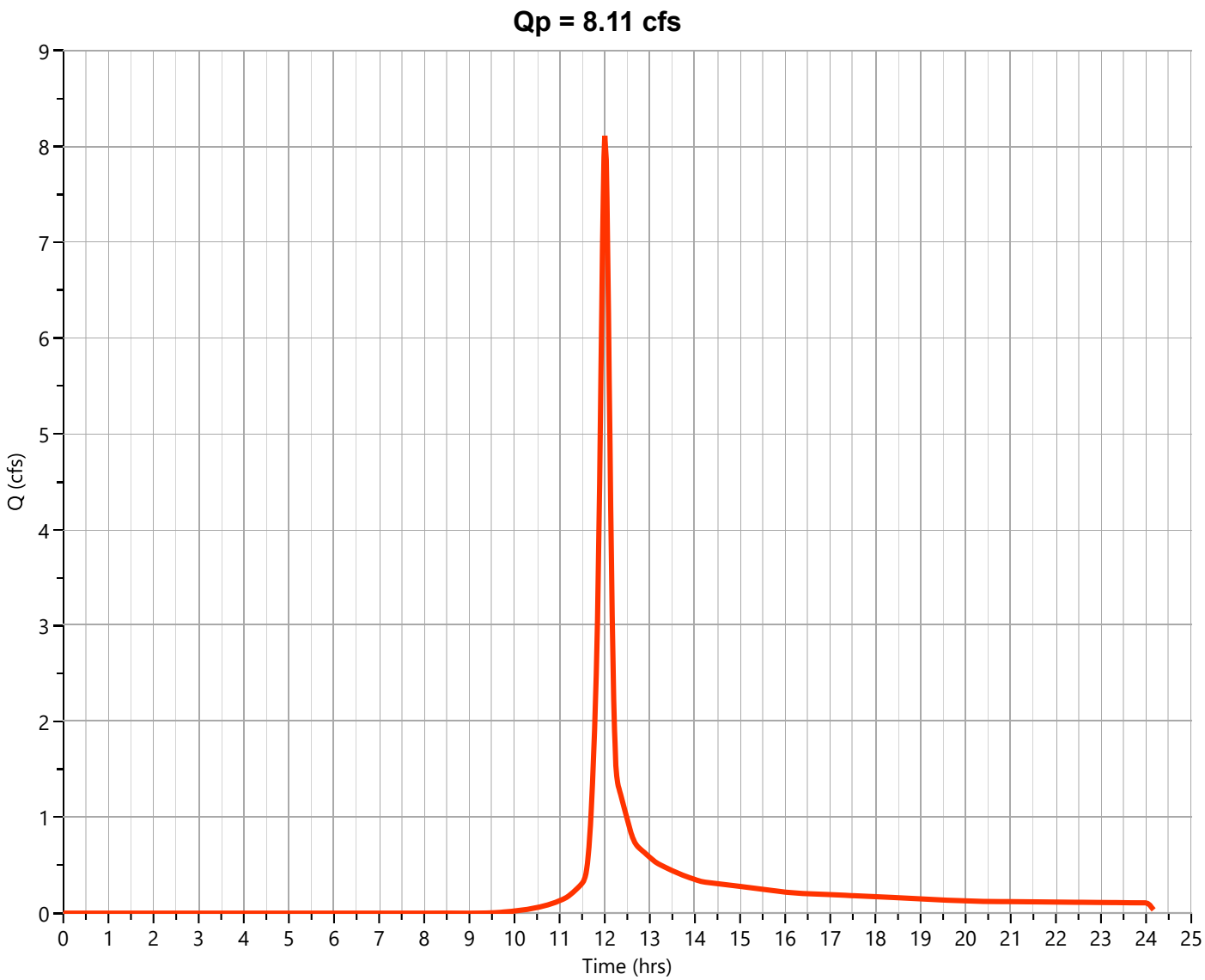
Post SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.113 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.02 hrs
Time Interval	= 1 min	Runoff Volume	= 19,687 cuft
Drainage Area	= 5.905 ac	Curve Number	= 86*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.893	98	C-PAVED/ROOF
1.394	74	C-LAWN/LANDSCAPED
1.618	74	C- GRASS /DET BAS
5.905	**86**	Weighted CN Method Employed



post8

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

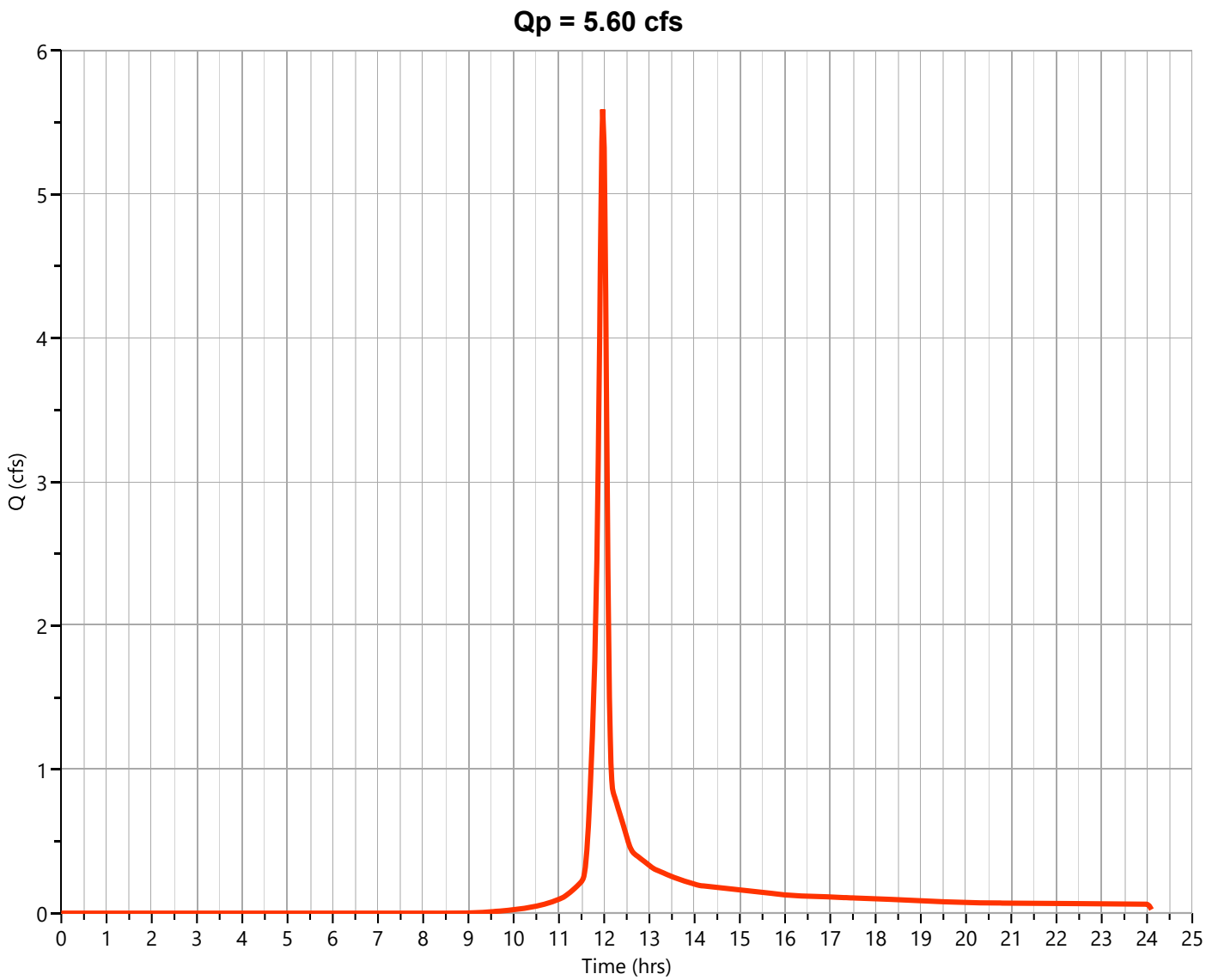
Pre SA-B (TO PRO SWQB 1)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.596 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.98 hrs
Time Interval	= 1 min	Runoff Volume	= 11,822 cuft
Drainage Area	= 3.477 ac	Curve Number	= 87*
Tc Method	= User	Time of Conc. (Tc)	= 7.5 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.66	74	C-GRASS (GOOD)
1.817	98	C-PAVED/ROOF
3.477	**87**	Weighted CN Method Employed



post9

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

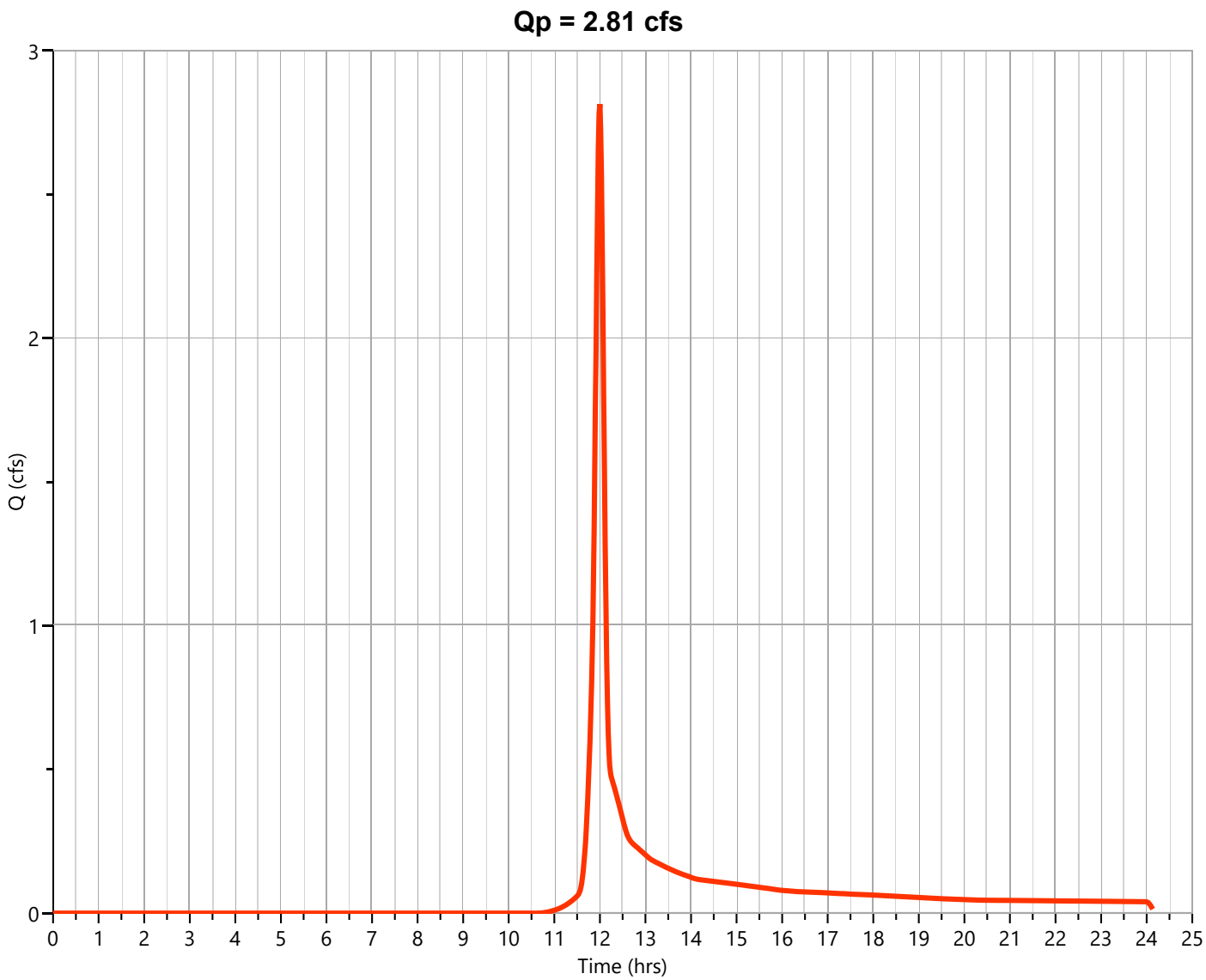
Post SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.814 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 6,446 cuft
Drainage Area	= 2.554 ac	Curve Number	= 82*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.178	79	C-GRASS (FAIR)
0.376	98	C-ROOF & PAVED
2.554	**82**	Weighted CN Method Employed



post10

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

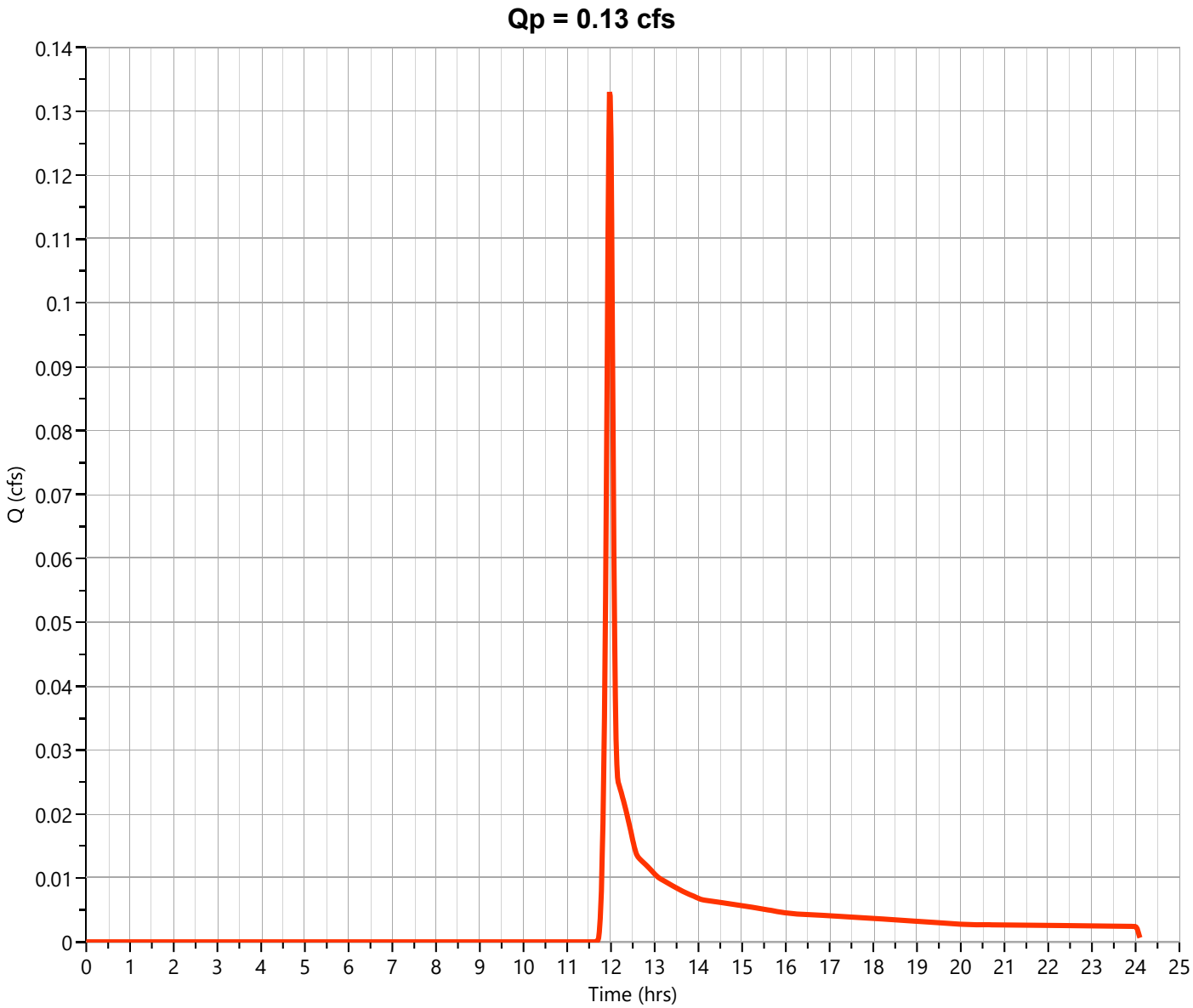
Post SA-B.32 (OVERLAND)

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.133 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 301 cuft
Drainage Area	= 0.21 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.47 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.21	74	C-GRASS
0.21	**74**	Weighted CN Method Employed



post11

Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

SA-B.32 (OVERLAND)

Hyd. No. 6

NRCS Runoff

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	AVG. GRASS			
Manning's n	0.240	0.013	0.013	
Flow Length (ft)	73			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	8			
Travel Time (min)	**6.47**	**0.00**	**0.00**	**6.47**
Shallow Concentrated Flow				
Flow Length (ft)				
Watercourse Slope (%)	0.00	0.00	0.00	
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
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				**6.47 min**

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

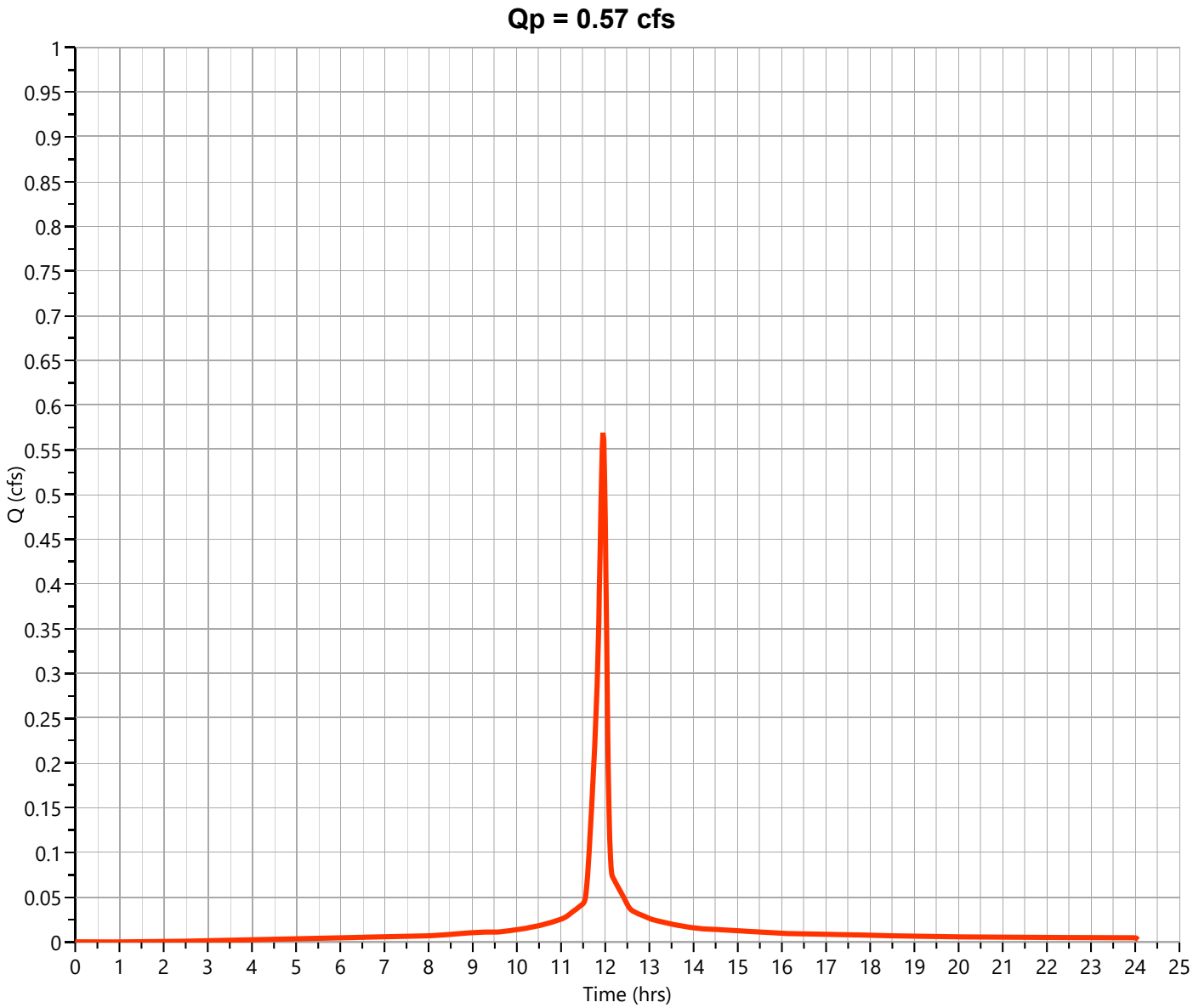
Post BLDG #4 RL

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.569 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,311 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post13

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

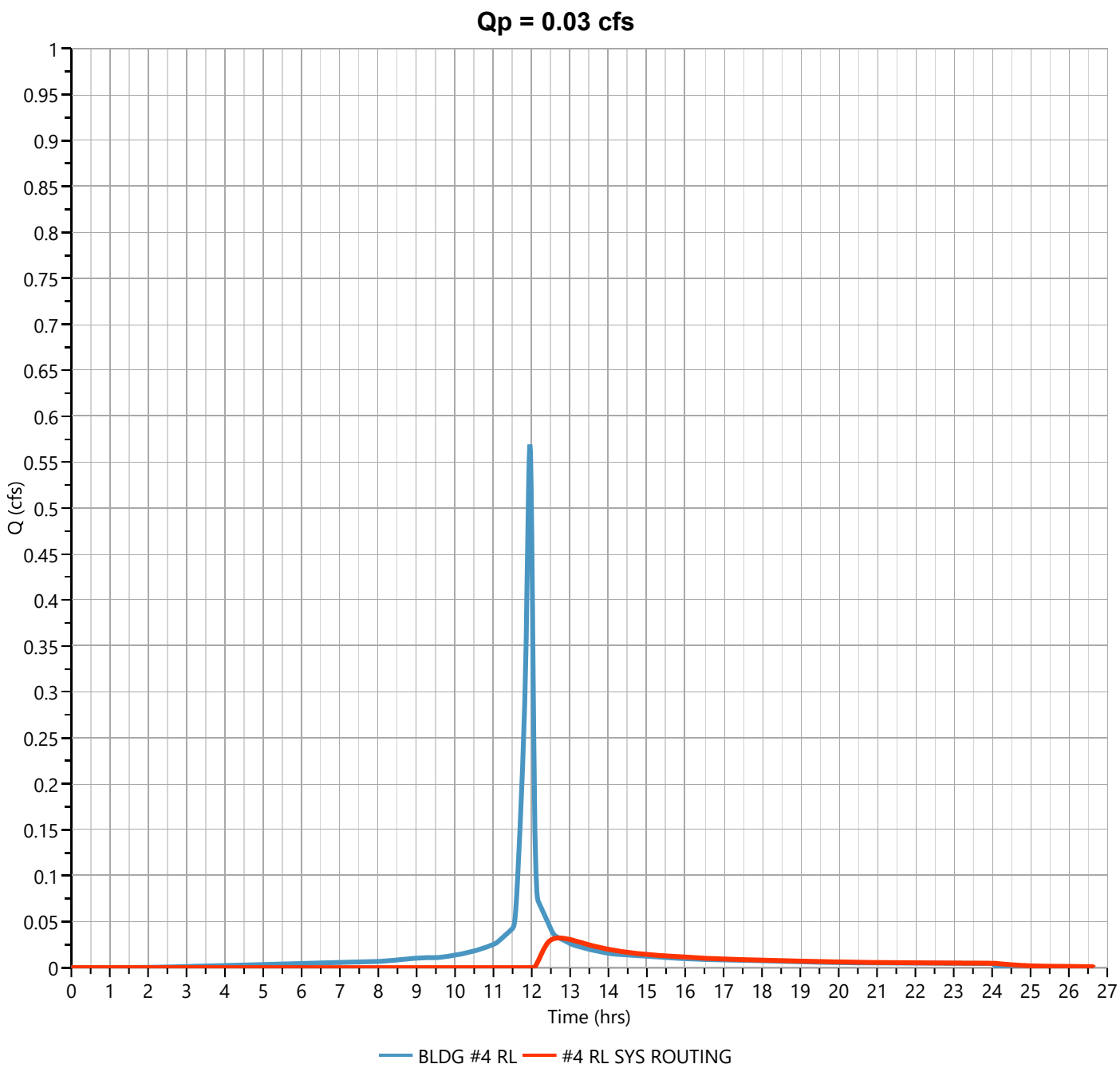
Post #4 RL SYS ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.032 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.72 hrs
Time Interval	= 1 min	Hydrograph Volume	= 492 cuft
Inflow Hydrograph	= 7 - BLDG #4 RL	Max. Elevation	= 84.13 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 892 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 4.32 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

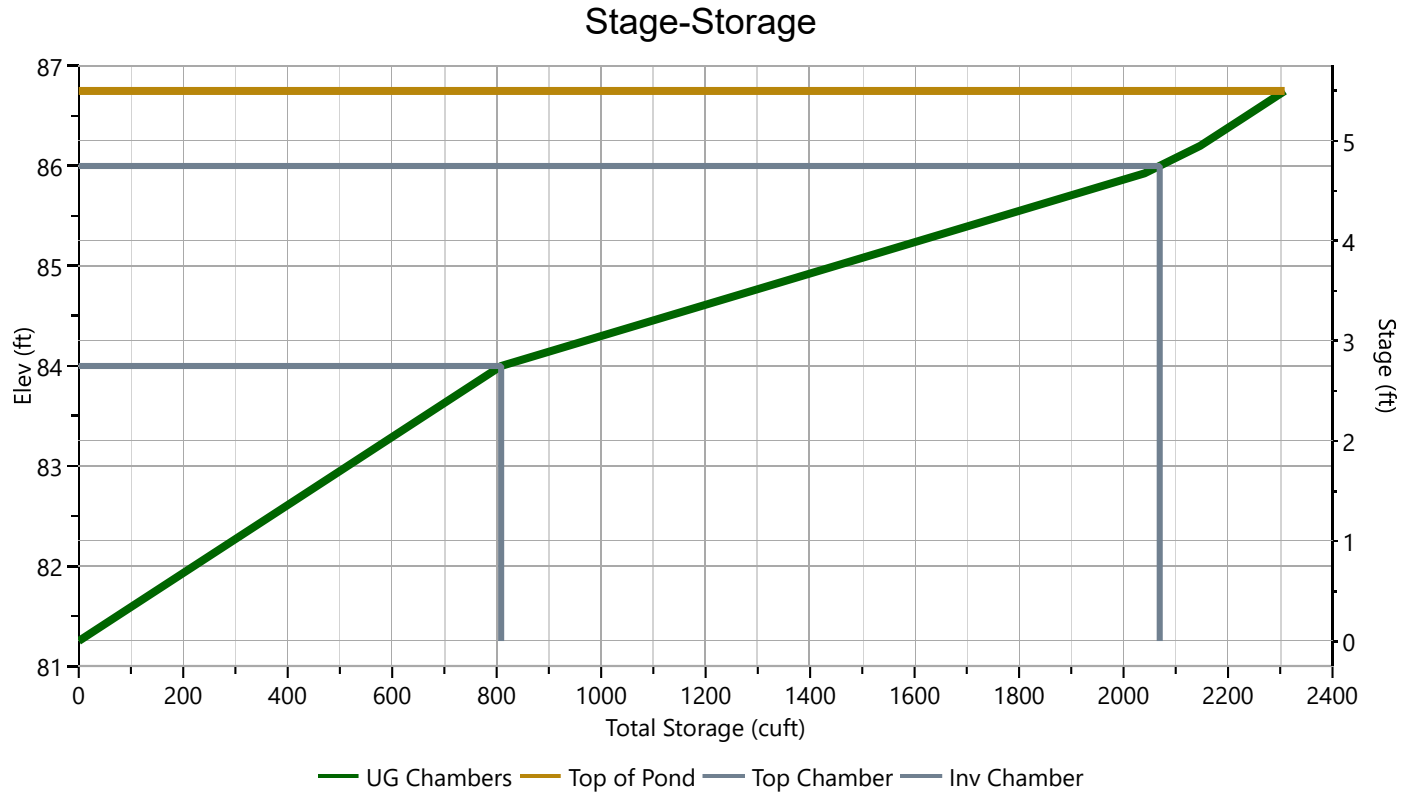
TYP. BLDG RL SYS

Stage-Storage

Underground Chambers	
Description	**Input**
Invert Elev Down, ft	84.00
Chamber Rise, ft	2.00
Chamber Shape	Box
Chamber Span, ft	4.00
Barrel Length, ft	48.00
No. Barrels	3
Barrel Slope, %	0.00
Headers, y/n	No
Stone Encasement, y/n	Yes
Encasement Bottom Elevation, ft	81.25
Encasement Width per Chamber, ft	5.00
Encasement Depth, ft	5.50
Encasement Voids, %	40.00

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	81.25	735	0.000	0.000
0.28	81.53	735	80.9	80.9
0.55	81.80	735	80.9	162
0.83	82.08	735	80.9	243
1.10	82.35	735	80.9	323
1.38	82.63	735	80.9	404
1.65	82.90	735	80.9	485
1.93	83.18	735	80.9	566
2.20	83.45	735	80.9	647
2.48	83.73	735	80.9	728
2.75	84.00	735	80.9	809
3.03	84.28	735	176	985
3.30	84.55	735	176	1,161
3.58	84.83	735	176	1,336
3.85	85.10	735	176	1,512
4.13	85.38	735	176	1,688
4.40	85.65	735	176	1,864
4.68	85.93	735	176	2,040
4.95	86.20	735	107	2,147
5.23	86.48	735	80.9	2,228
5.50	86.75	735	80.9	2,309



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

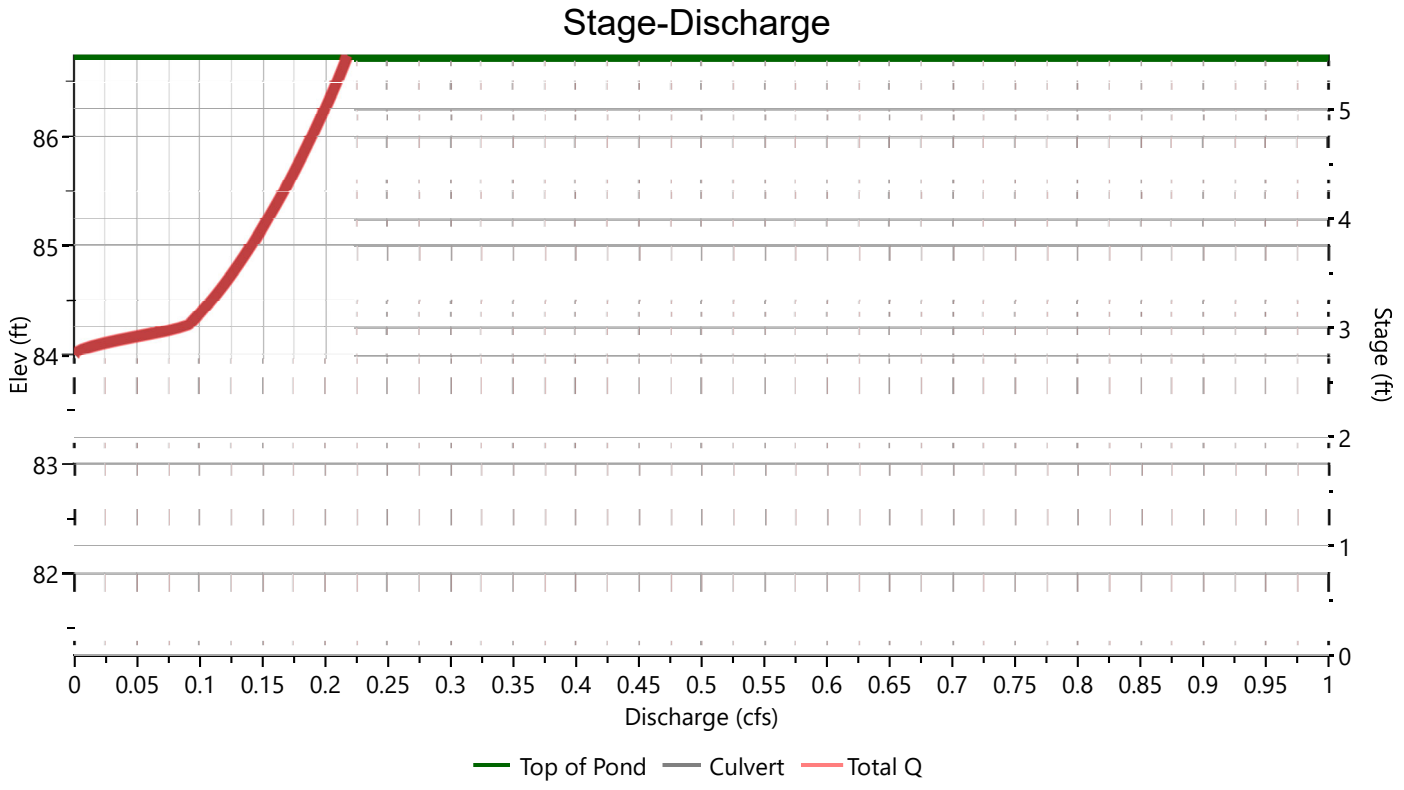
06-25-2023

TYP. BLDG RL SYS

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser	
		1	2	3		
Rise, in	3				Hole Diameter, in	
Span, in	3				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	84.00				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	50					
Barrel Slope, %	1					
N-Value, n	0.012					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1	2	3		
Shape / Type					Exfiltration, in/hr	
Crest Elevation, ft						
Crest Length, ft						
Angle, deg						
Weir Coefficient, Cw						

**Routes through Culvert.*



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

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	81.25	0.000	0.000											0.000
0.28	81.53	80.9	0.000											0.000
0.55	81.80	162	0.000											0.000
0.83	82.08	243	0.000											0.000
1.10	82.35	323	0.000											0.000
1.38	82.63	404	0.000											0.000
1.65	82.90	485	0.000											0.000
1.93	83.18	566	0.000											0.000
2.20	83.45	647	0.000											0.000
2.48	83.73	728	0.000											0.000
2.75	84.00	809	0.000											0.000
3.03	84.28	985	0.091 oc											0.091
3.30	84.55	1,161	0.112 oc											0.112
3.58	84.83	1,336	0.130 oc											0.130
3.85	85.10	1,512	0.146 oc											0.146
4.13	85.38	1,688	0.160 oc											0.160
4.40	85.65	1,864	0.173 oc											0.173
4.68	85.93	2,040	0.185 oc											0.185
4.95	86.20	2,147	0.197 oc											0.197
5.23	86.48	2,228	0.207 oc											0.207
5.50	86.75	2,309	0.217 oc											0.217

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

Pond Report

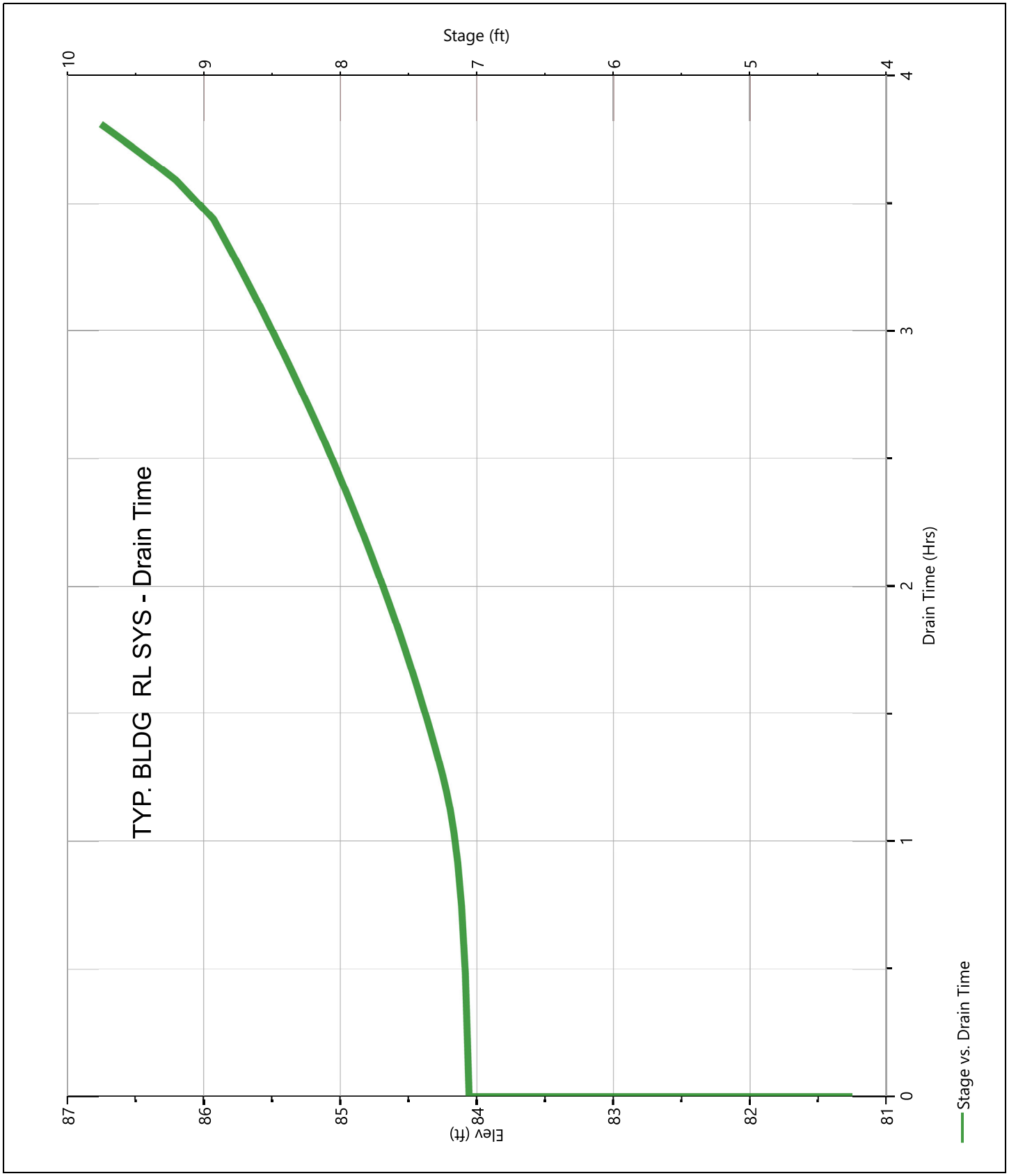
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

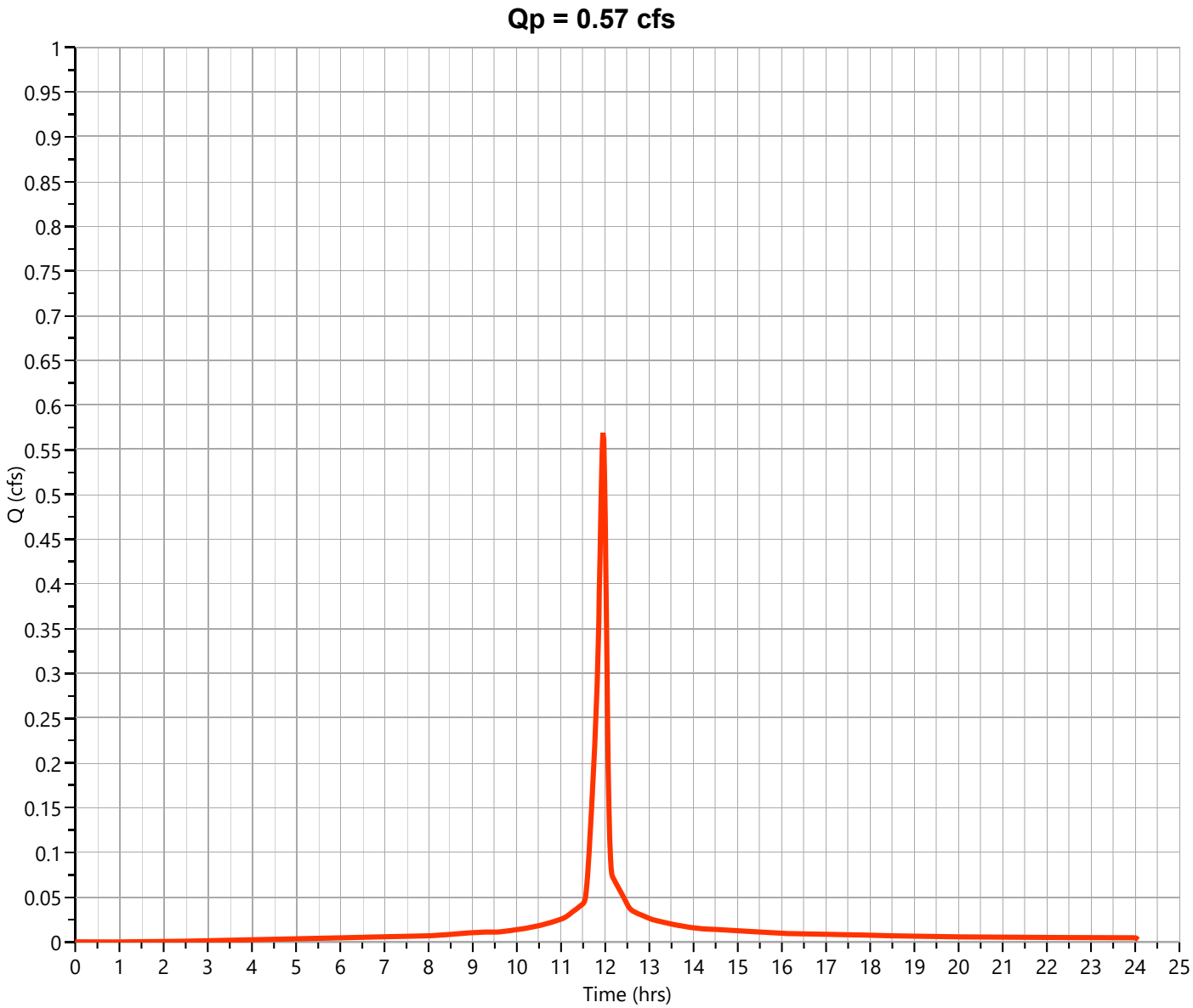
Post BLDG #5 RL

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.569 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,311 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

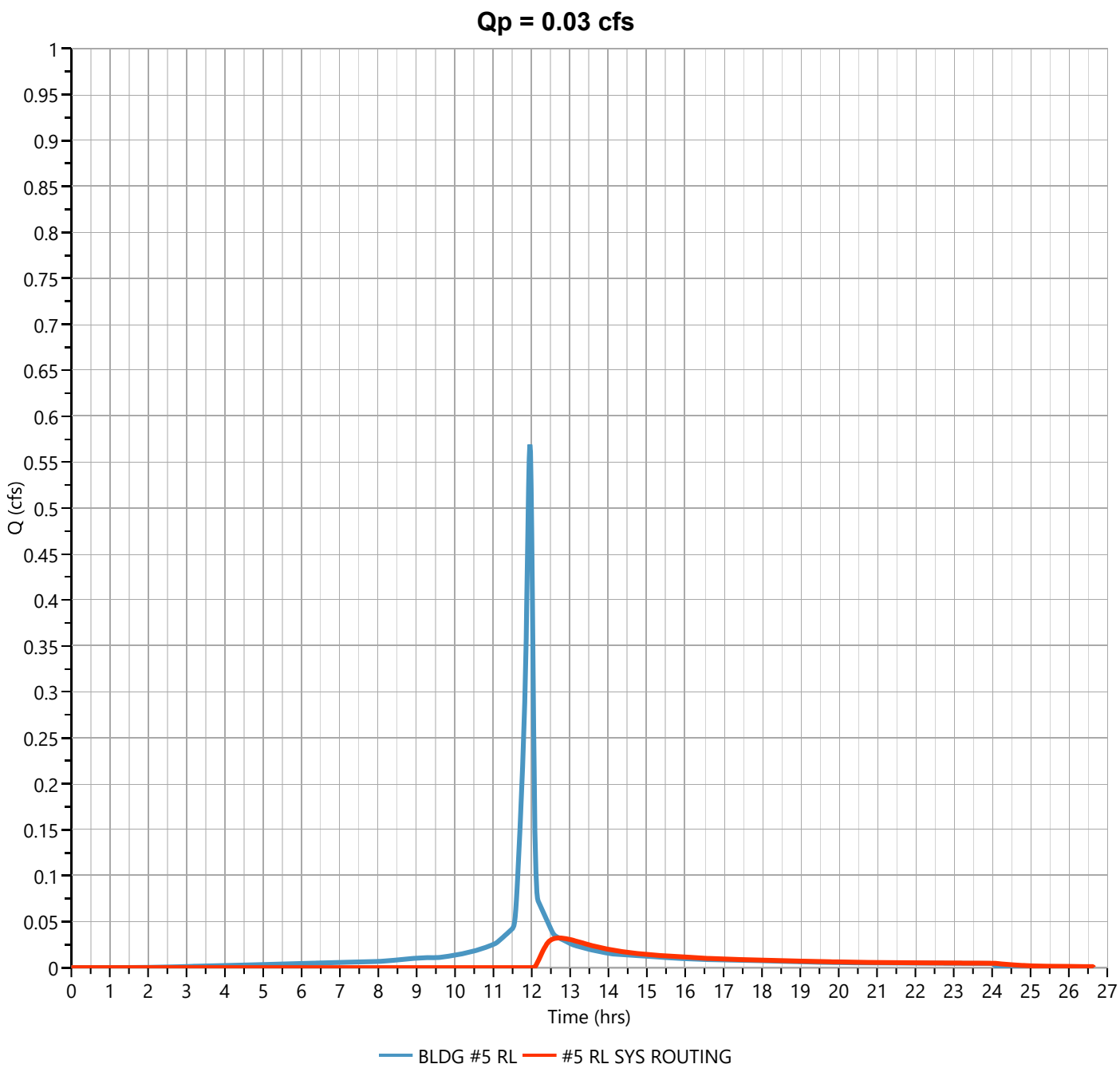
Post #5 RL SYS ROUTING

Hyd. No. 10

Hydrograph Type	= Pond Route	Peak Flow	= 0.032 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.72 hrs
Time Interval	= 1 min	Hydrograph Volume	= 492 cuft
Inflow Hydrograph	= 9 - BLDG #5 RL	Max. Elevation	= 84.13 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 892 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 4.32 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

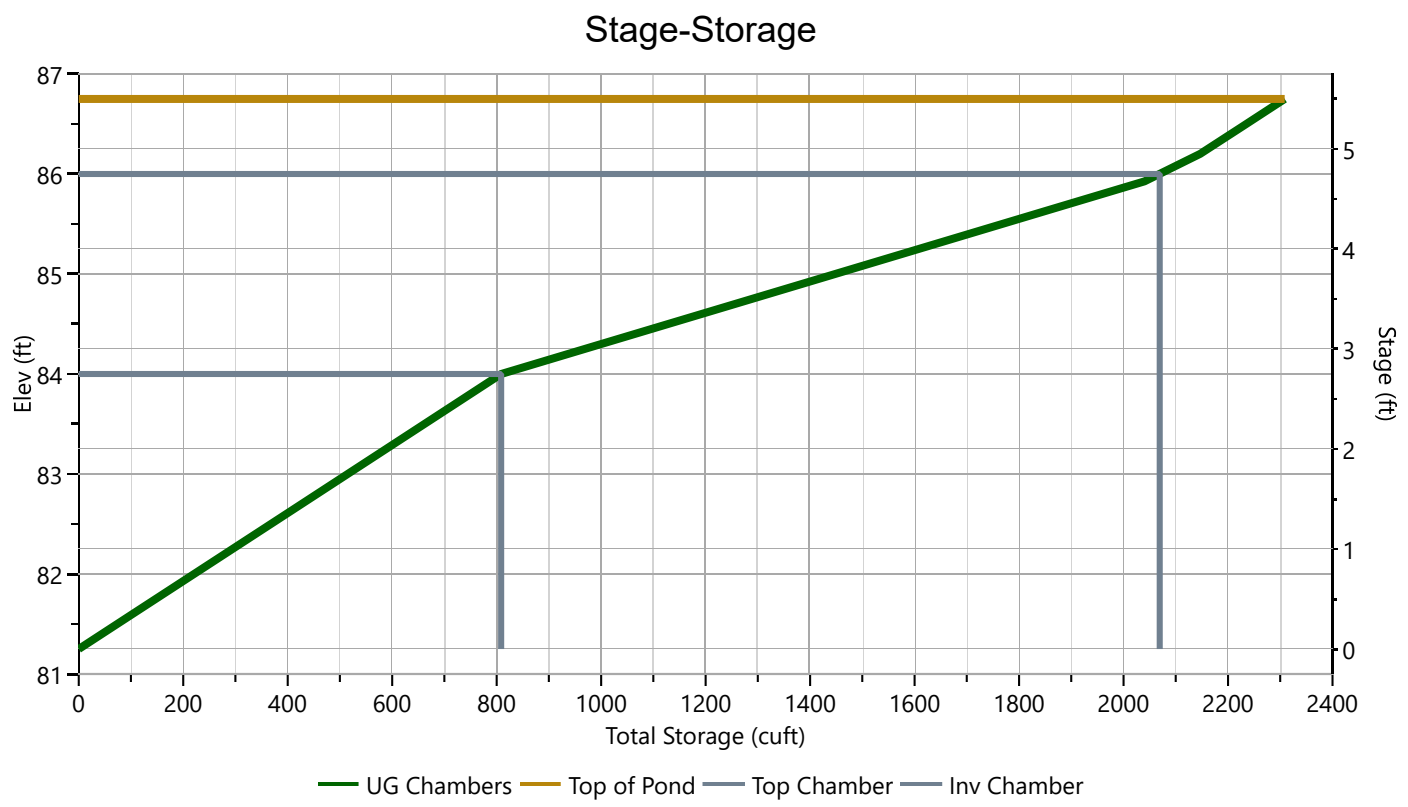
TYP. BLDG RL SYS

Stage-Storage

Underground Chambers	
Description	**Input**
Invert Elev Down, ft	84.00
Chamber Rise, ft	2.00
Chamber Shape	Box
Chamber Span, ft	4.00
Barrel Length, ft	48.00
No. Barrels	3
Barrel Slope, %	0.00
Headers, y/n	No
Stone Encasement, y/n	Yes
Encasement Bottom Elevation, ft	81.25
Encasement Width per Chamber, ft	5.00
Encasement Depth, ft	5.50
Encasement Voids, %	40.00

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	81.25	735	0.000	0.000
0.28	81.53	735	80.9	80.9
0.55	81.80	735	80.9	162
0.83	82.08	735	80.9	243
1.10	82.35	735	80.9	323
1.38	82.63	735	80.9	404
1.65	82.90	735	80.9	485
1.93	83.18	735	80.9	566
2.20	83.45	735	80.9	647
2.48	83.73	735	80.9	728
2.75	84.00	735	80.9	809
3.03	84.28	735	176	985
3.30	84.55	735	176	1,161
3.58	84.83	735	176	1,336
3.85	85.10	735	176	1,512
4.13	85.38	735	176	1,688
4.40	85.65	735	176	1,864
4.68	85.93	735	176	2,040
4.95	86.20	735	107	2,147
5.23	86.48	735	80.9	2,228
5.50	86.75	735	80.9	2,309



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

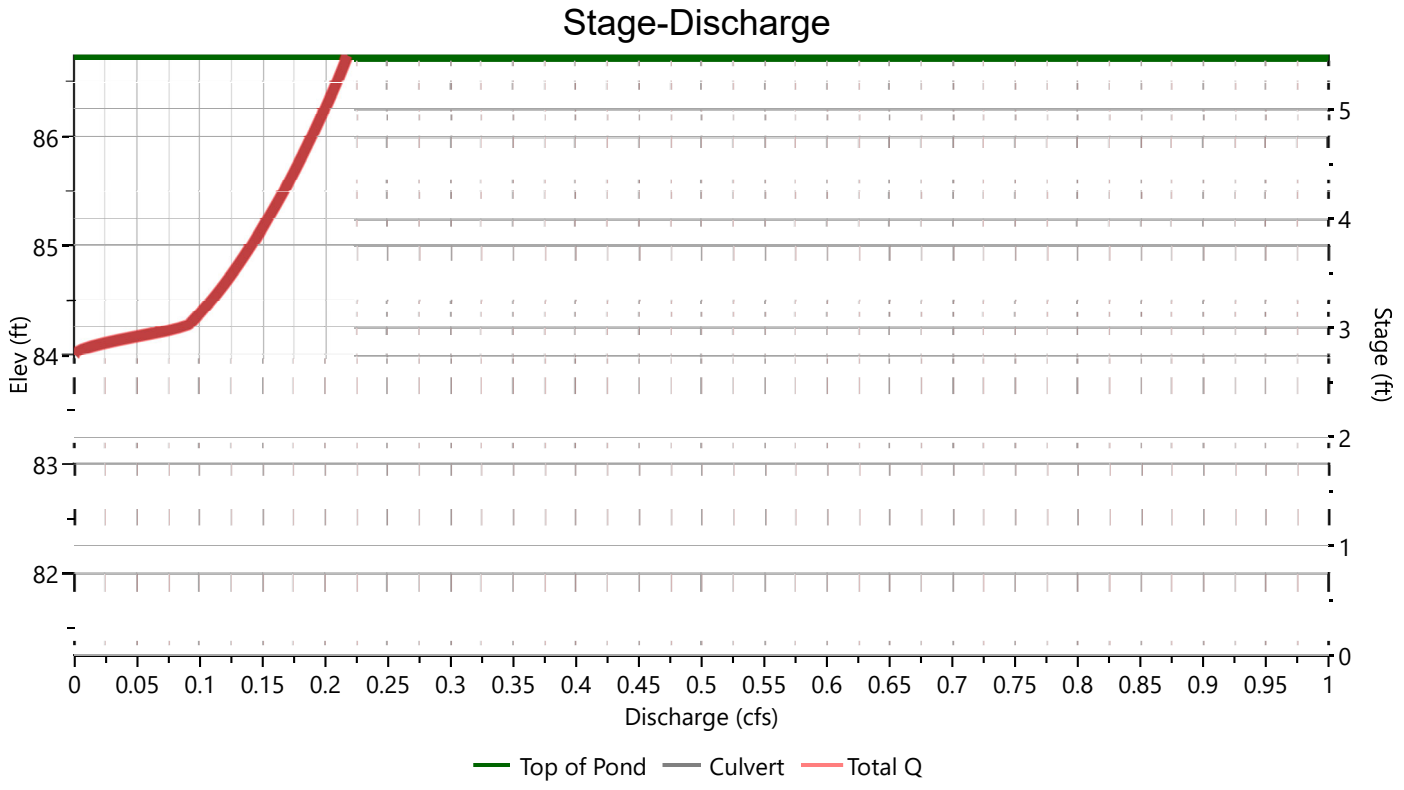
TYP. BLDG RL SYS

Stage-Discharge

Culvert / Orifices	Culvert	Orifices 1	Orifices 2	Orifices 3	Perforated Riser	
Rise, in	3				Hole Diameter, in	
Span, in	3				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	84.00				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	50					
Barrel Slope, %	1					
N-Value, n	0.012					

Weirs	Riser*	Weirs 1	Weirs 2	Weirs 3	Ancillary	
Shape / Type					Exfiltration, in/hr	
Crest Elevation, ft						
Crest Length, ft						
Angle, deg						
Weir Coefficient, Cw						

*Routes through Culvert.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

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	81.25	0.000	0.000											0.000
0.28	81.53	80.9	0.000											0.000
0.55	81.80	162	0.000											0.000
0.83	82.08	243	0.000											0.000
1.10	82.35	323	0.000											0.000
1.38	82.63	404	0.000											0.000
1.65	82.90	485	0.000											0.000
1.93	83.18	566	0.000											0.000
2.20	83.45	647	0.000											0.000
2.48	83.73	728	0.000											0.000
2.75	84.00	809	0.000											0.000
3.03	84.28	985	0.091 oc											0.091
3.30	84.55	1,161	0.112 oc											0.112
3.58	84.83	1,336	0.130 oc											0.130
3.85	85.10	1,512	0.146 oc											0.146
4.13	85.38	1,688	0.160 oc											0.160
4.40	85.65	1,864	0.173 oc											0.173
4.68	85.93	2,040	0.185 oc											0.185
4.95	86.20	2,147	0.197 oc											0.197
5.23	86.48	2,228	0.207 oc											0.207
5.50	86.75	2,309	0.217 oc											0.217

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

Pond Report

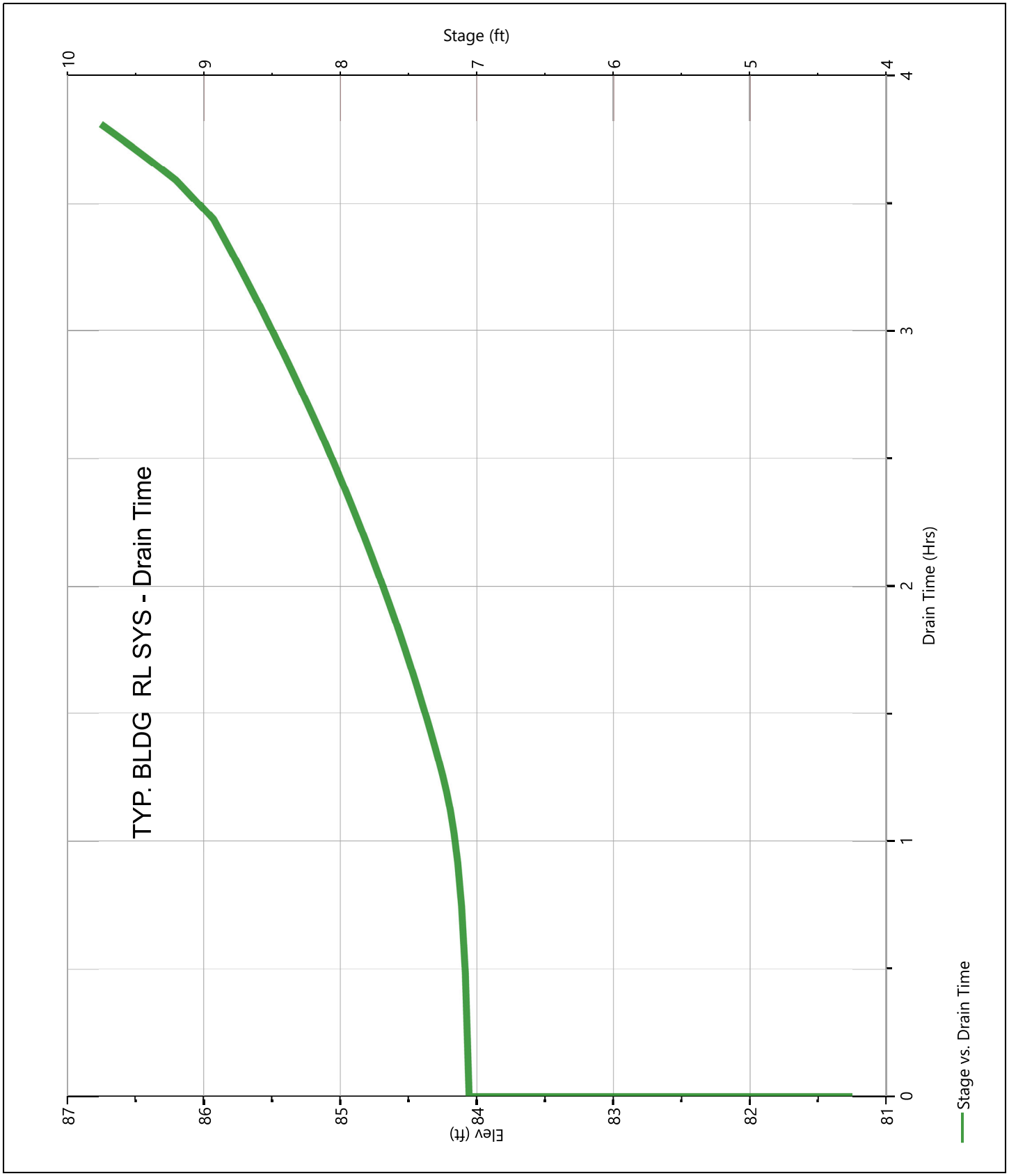
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

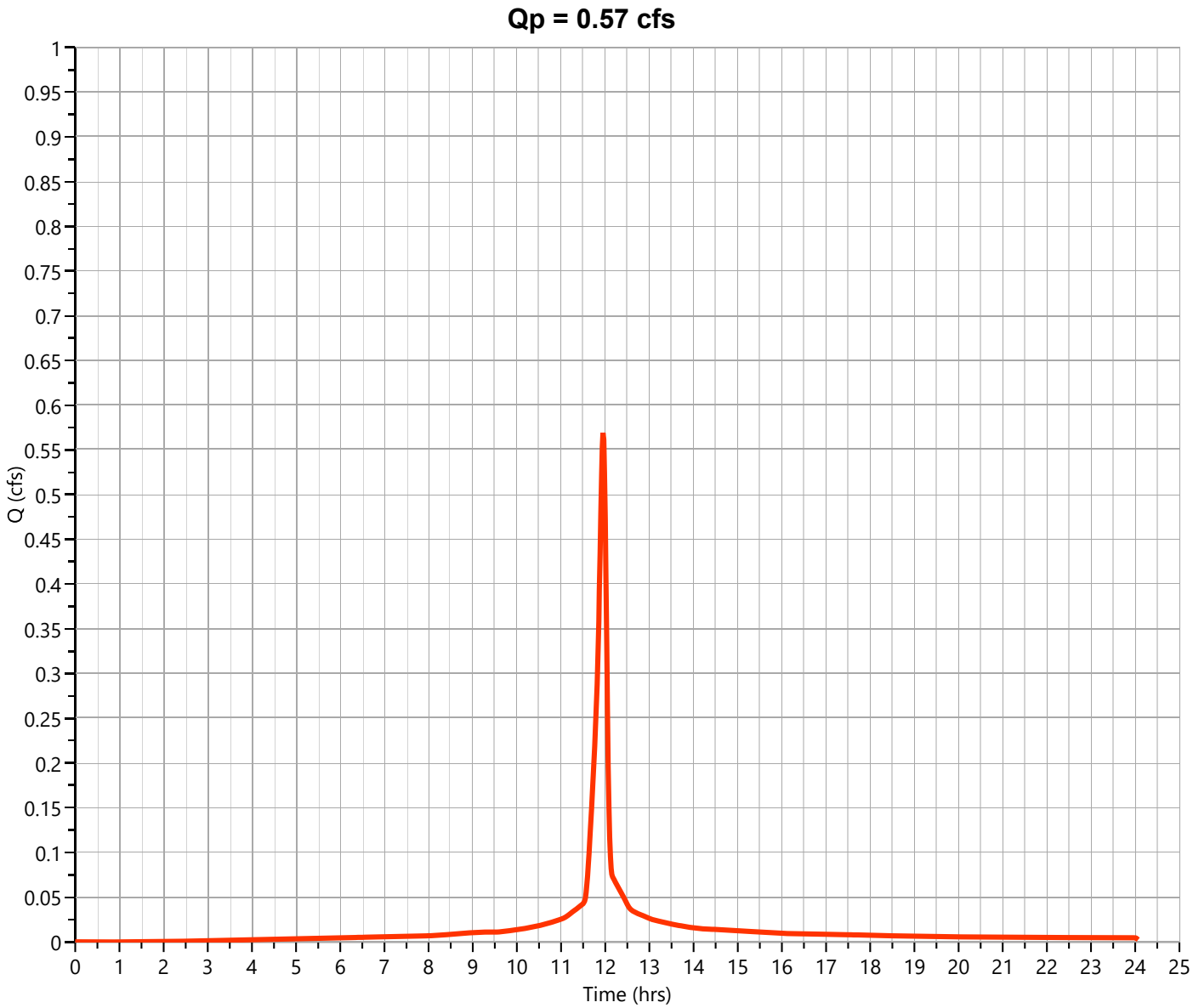
Post BLDG #6 RL

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.569 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,311 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

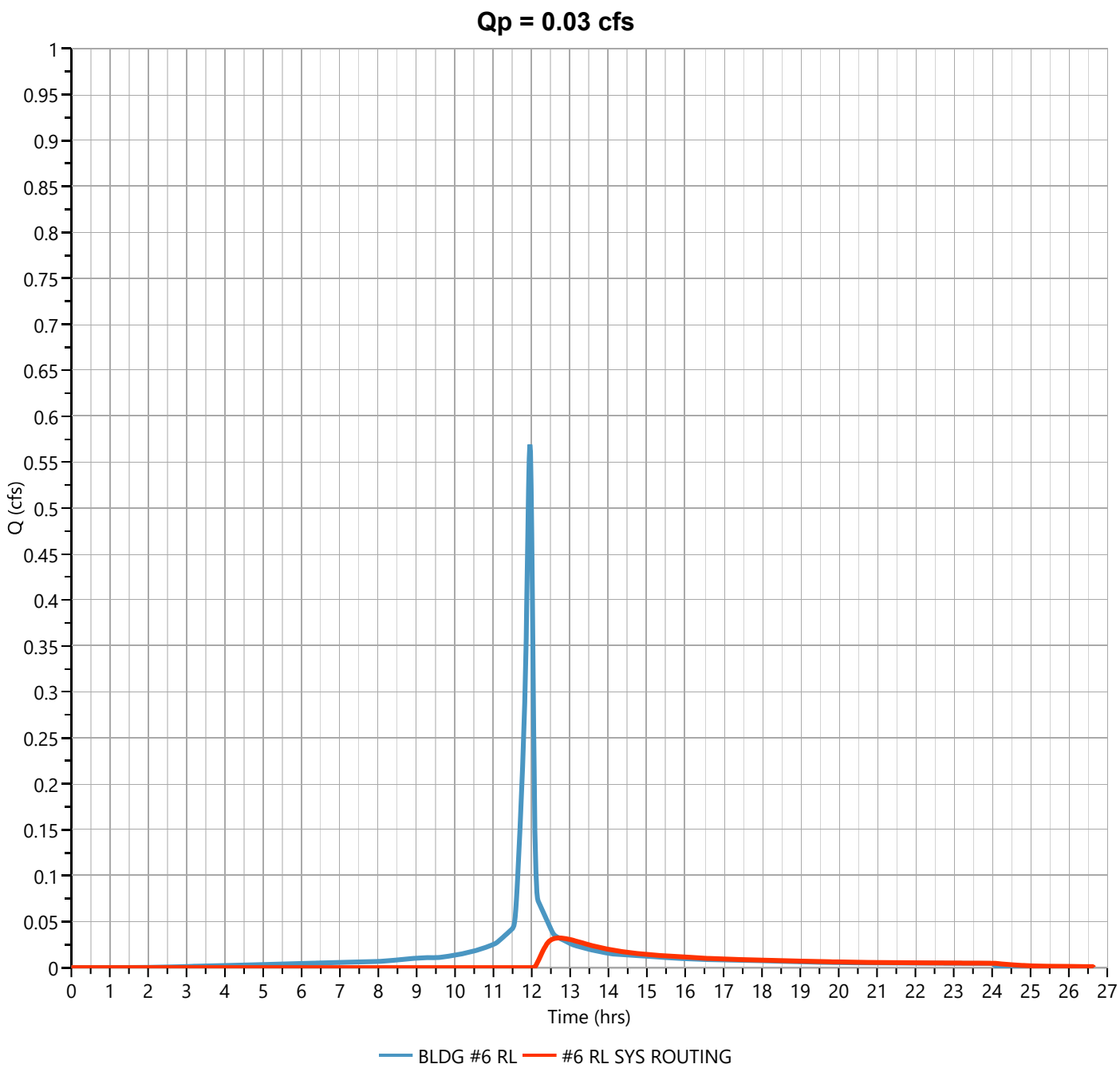
Post #6 RL SYS ROUTING

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 0.032 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.72 hrs
Time Interval	= 1 min	Hydrograph Volume	= 492 cuft
Inflow Hydrograph	= 11 - BLDG #6 RL	Max. Elevation	= 84.13 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 892 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 4.32 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

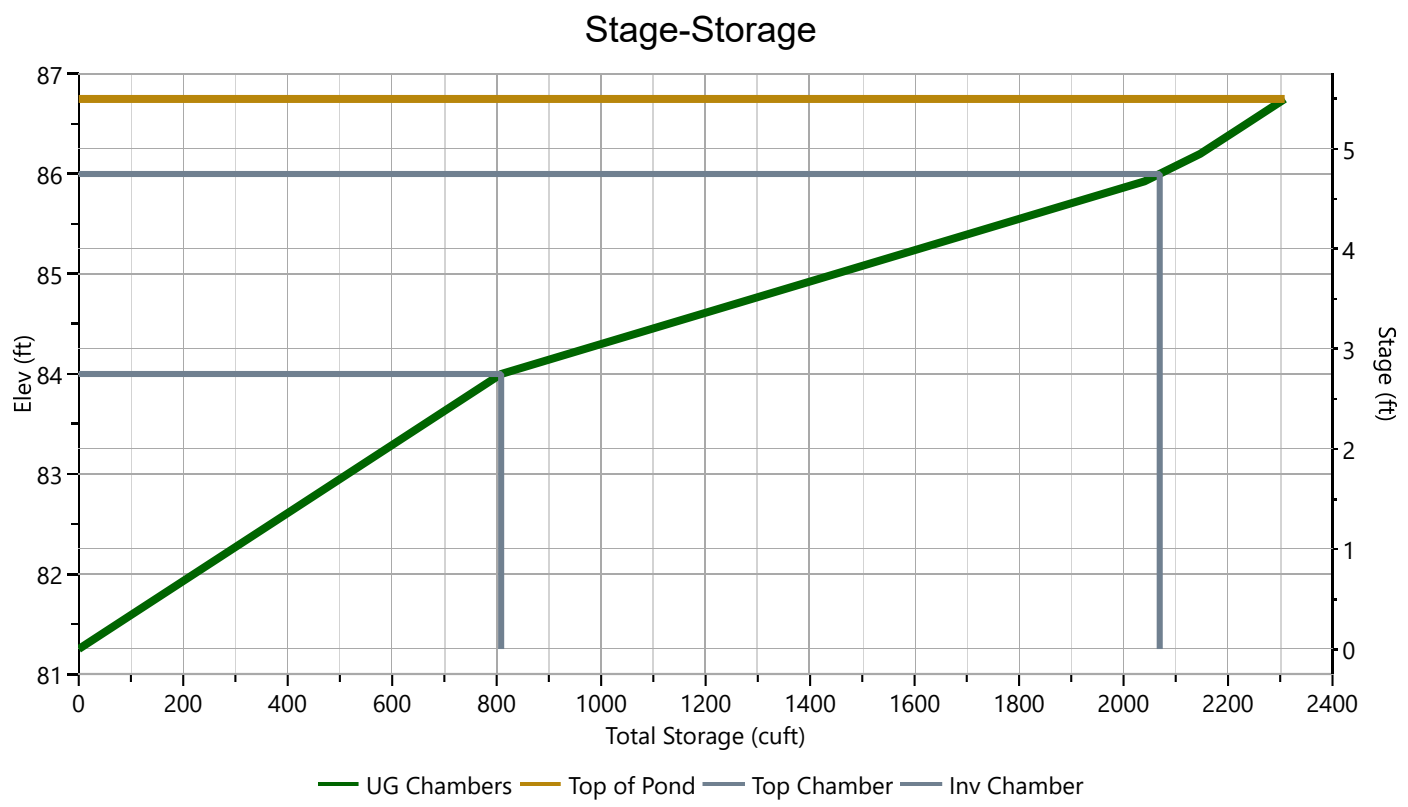
TYP. BLDG RL SYS

Stage-Storage

Underground Chambers	
Description	**Input**
Invert Elev Down, ft	84.00
Chamber Rise, ft	2.00
Chamber Shape	Box
Chamber Span, ft	4.00
Barrel Length, ft	48.00
No. Barrels	3
Barrel Slope, %	0.00
Headers, y/n	No
Stone Encasement, y/n	Yes
Encasement Bottom Elevation, ft	81.25
Encasement Width per Chamber, ft	5.00
Encasement Depth, ft	5.50
Encasement Voids, %	40.00

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	81.25	735	0.000	0.000
0.28	81.53	735	80.9	80.9
0.55	81.80	735	80.9	162
0.83	82.08	735	80.9	243
1.10	82.35	735	80.9	323
1.38	82.63	735	80.9	404
1.65	82.90	735	80.9	485
1.93	83.18	735	80.9	566
2.20	83.45	735	80.9	647
2.48	83.73	735	80.9	728
2.75	84.00	735	80.9	809
3.03	84.28	735	176	985
3.30	84.55	735	176	1,161
3.58	84.83	735	176	1,336
3.85	85.10	735	176	1,512
4.13	85.38	735	176	1,688
4.40	85.65	735	176	1,864
4.68	85.93	735	176	2,040
4.95	86.20	735	107	2,147
5.23	86.48	735	80.9	2,228
5.50	86.75	735	80.9	2,309



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

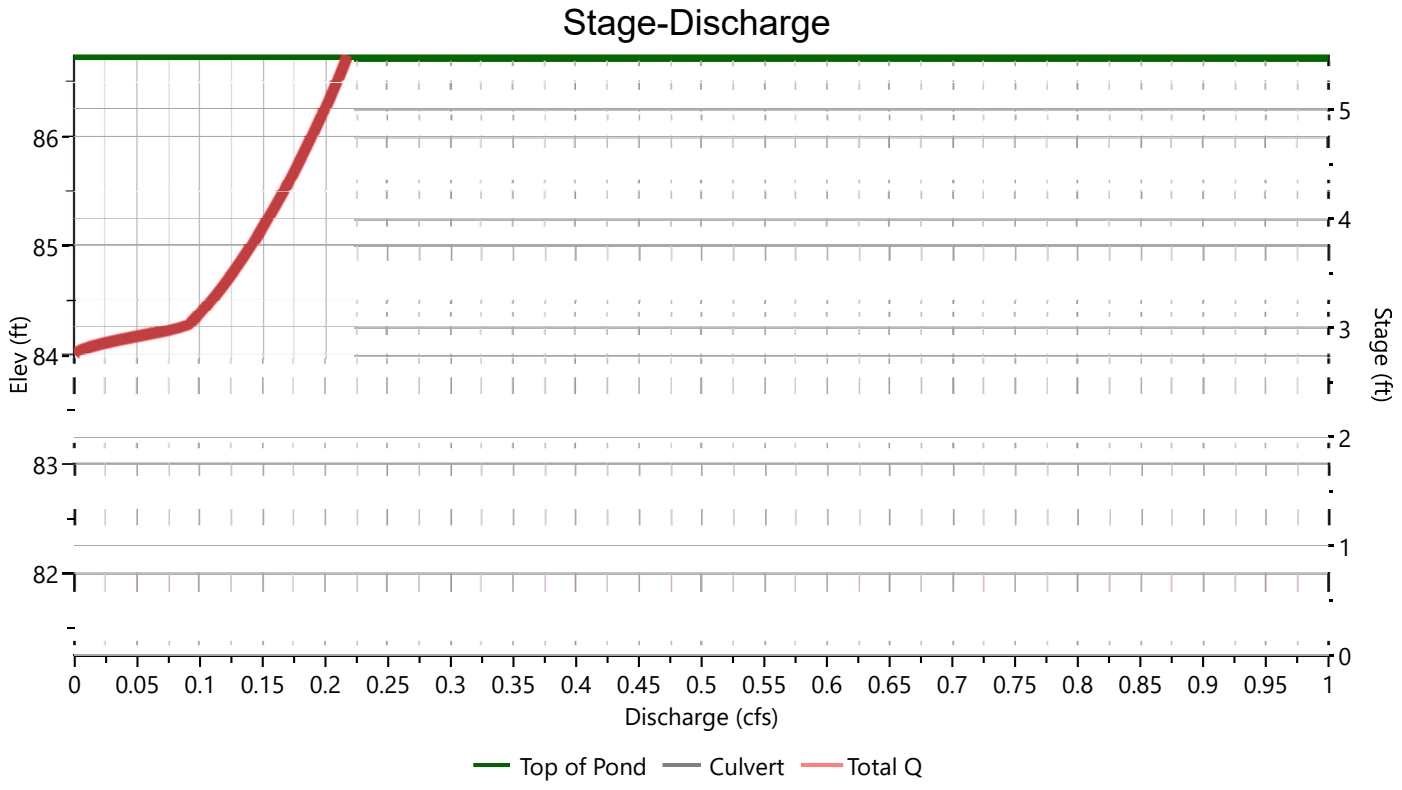
TYP. BLDG RL SYS

Stage-Discharge

Culvert / Orifices	Culvert	Orifices 1	Orifices 2	Orifices 3	Perforated Riser	
Rise, in	3				Hole Diameter, in	
Span, in	3				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	84.00				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	50					
Barrel Slope, %	1					
N-Value, n	0.012					

Weirs	Riser*	Weirs 1	Weirs 2	Weirs 3	Ancillary	
Shape / Type					Exfiltration, in/hr	
Crest Elevation, ft						
Crest Length, ft						
Angle, deg						
Weir Coefficient, Cw						

*Routes through Culvert.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

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	81.25	0.000	0.000											0.000
0.28	81.53	80.9	0.000											0.000
0.55	81.80	162	0.000											0.000
0.83	82.08	243	0.000											0.000
1.10	82.35	323	0.000											0.000
1.38	82.63	404	0.000											0.000
1.65	82.90	485	0.000											0.000
1.93	83.18	566	0.000											0.000
2.20	83.45	647	0.000											0.000
2.48	83.73	728	0.000											0.000
2.75	84.00	809	0.000											0.000
3.03	84.28	985	0.091 oc											0.091
3.30	84.55	1,161	0.112 oc											0.112
3.58	84.83	1,336	0.130 oc											0.130
3.85	85.10	1,512	0.146 oc											0.146
4.13	85.38	1,688	0.160 oc											0.160
4.40	85.65	1,864	0.173 oc											0.173
4.68	85.93	2,040	0.185 oc											0.185
4.95	86.20	2,147	0.197 oc											0.197
5.23	86.48	2,228	0.207 oc											0.207
5.50	86.75	2,309	0.217 oc											0.217

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

Pond Report

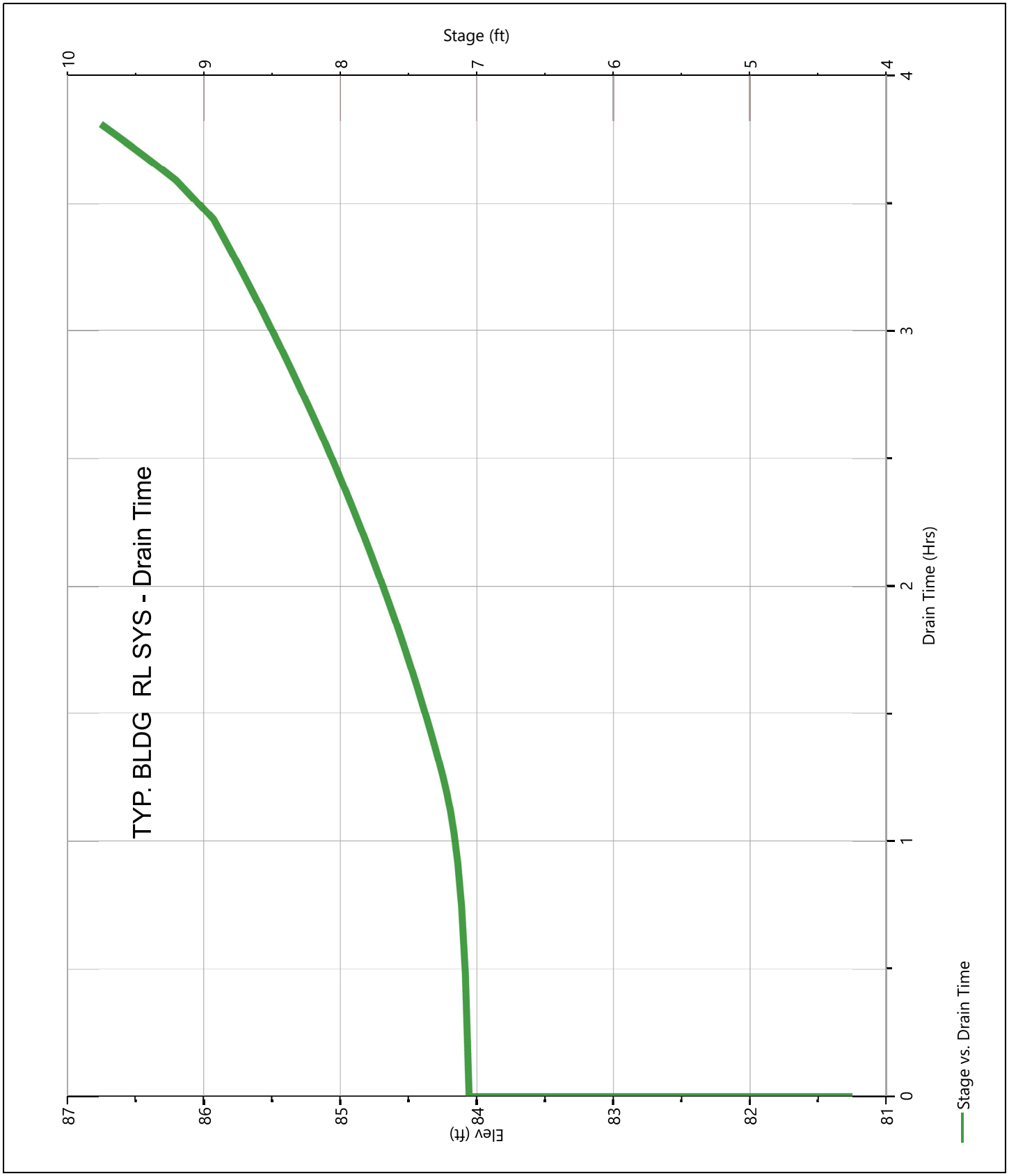
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

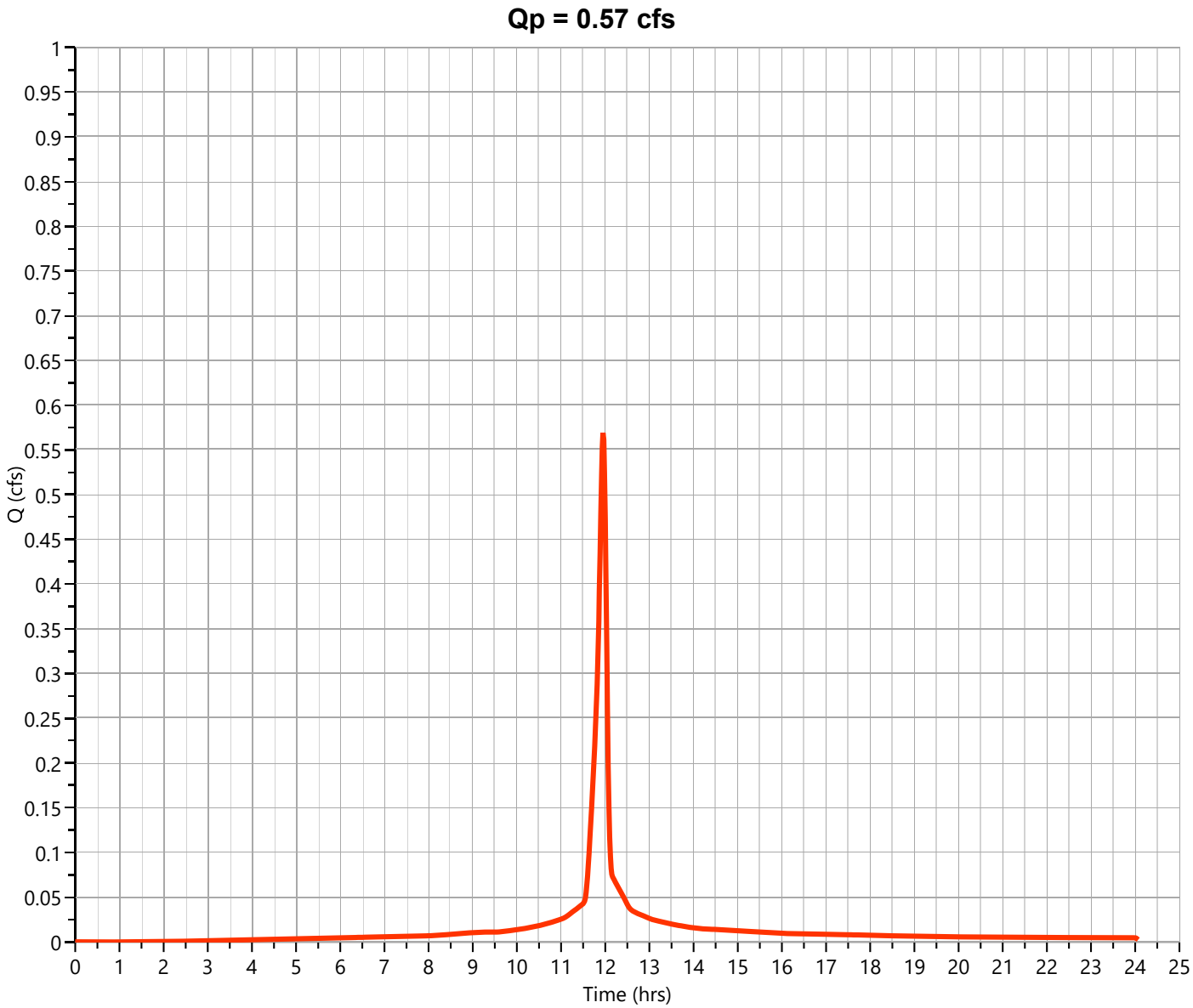
Post BLDG #7 RL

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.569 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,311 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

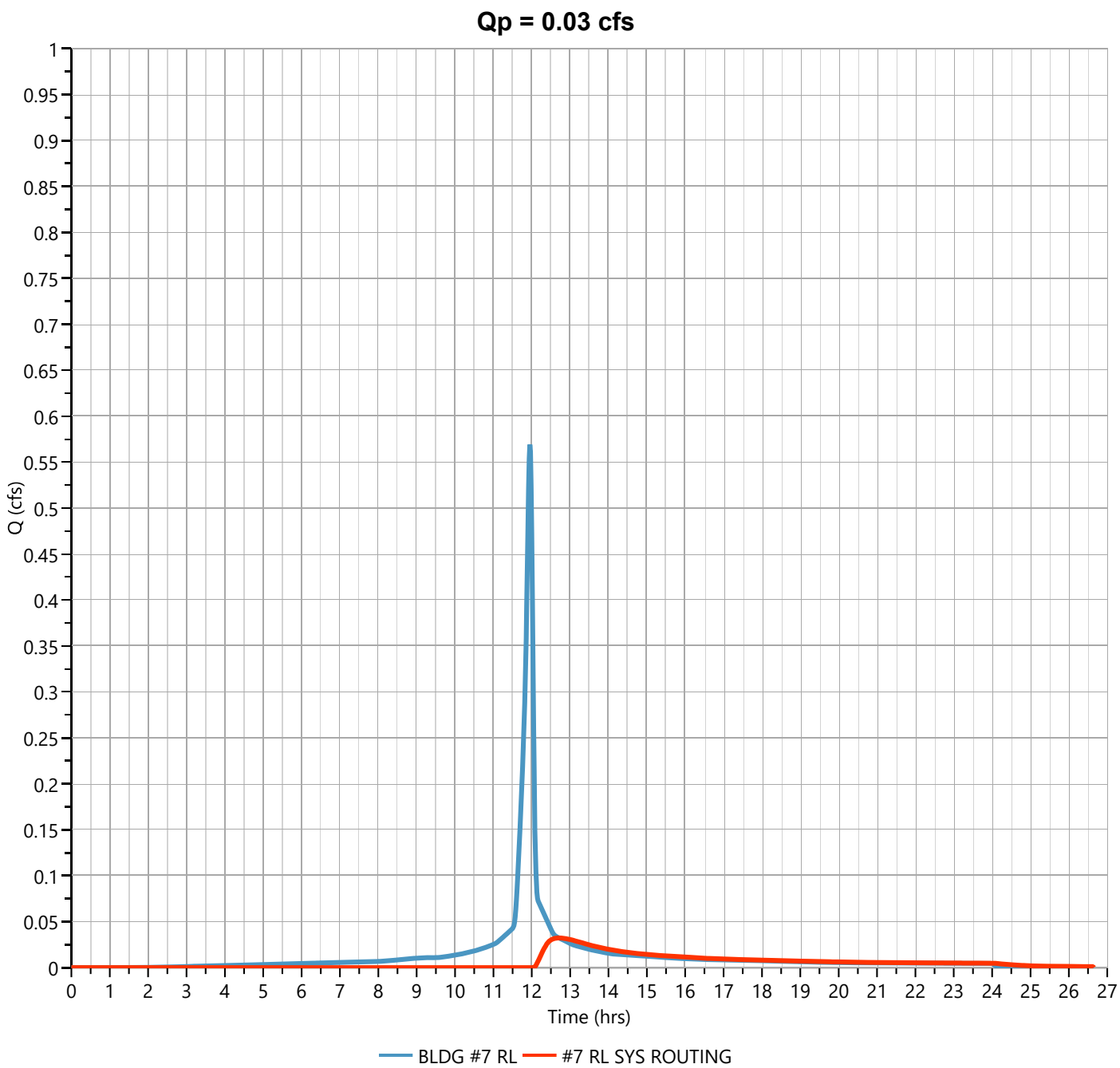
Post #7 RL SYS ROUTING

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.032 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.72 hrs
Time Interval	= 1 min	Hydrograph Volume	= 492 cuft
Inflow Hydrograph	= 13 - BLDG #7 RL	Max. Elevation	= 84.13 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 892 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 4.32 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

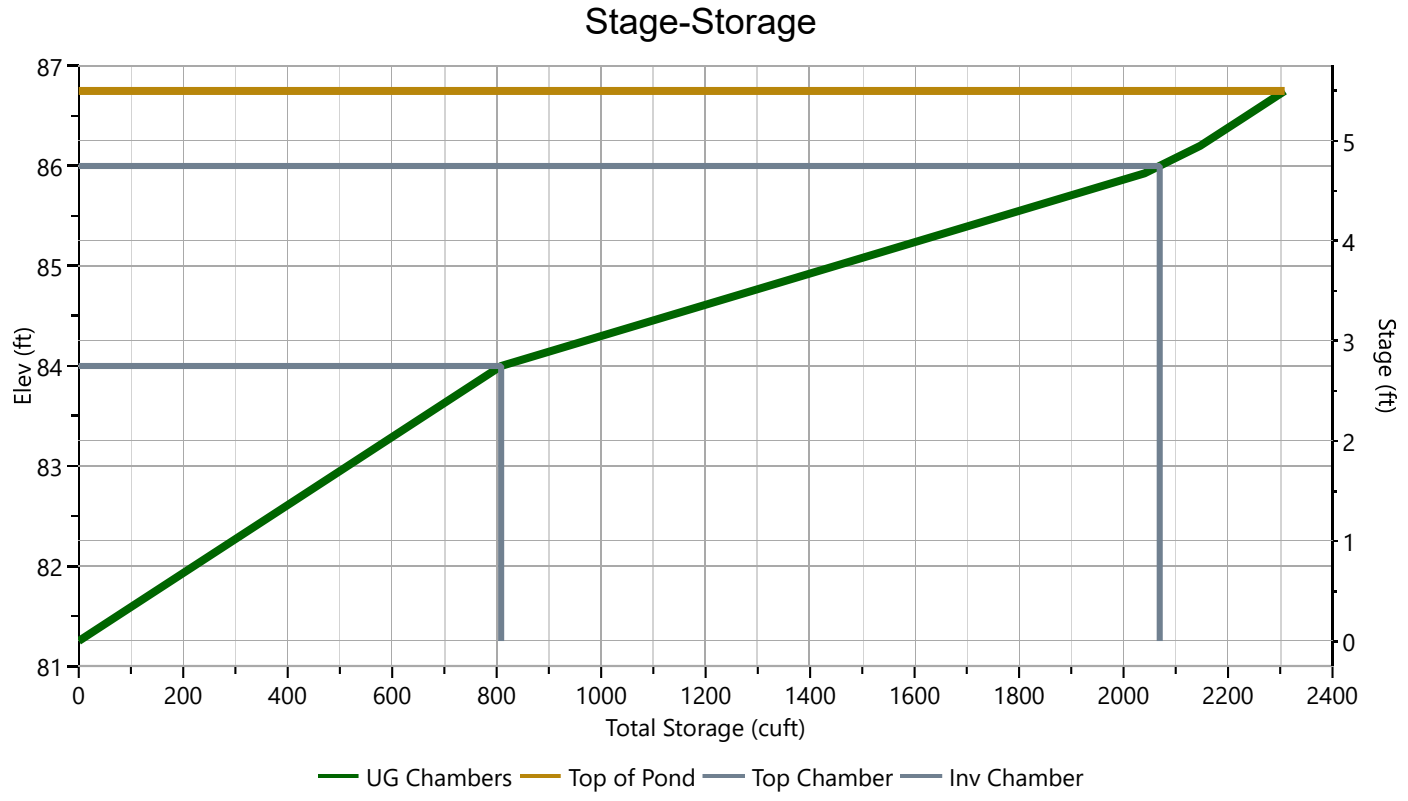
TYP. BLDG RL SYS

Stage-Storage

Underground Chambers	
Description	**Input**
Invert Elev Down, ft	84.00
Chamber Rise, ft	2.00
Chamber Shape	Box
Chamber Span, ft	4.00
Barrel Length, ft	48.00
No. Barrels	3
Barrel Slope, %	0.00
Headers, y/n	No
Stone Encasement, y/n	Yes
Encasement Bottom Elevation, ft	81.25
Encasement Width per Chamber, ft	5.00
Encasement Depth, ft	5.50
Encasement Voids, %	40.00

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	81.25	735	0.000	0.000
0.28	81.53	735	80.9	80.9
0.55	81.80	735	80.9	162
0.83	82.08	735	80.9	243
1.10	82.35	735	80.9	323
1.38	82.63	735	80.9	404
1.65	82.90	735	80.9	485
1.93	83.18	735	80.9	566
2.20	83.45	735	80.9	647
2.48	83.73	735	80.9	728
2.75	84.00	735	80.9	809
3.03	84.28	735	176	985
3.30	84.55	735	176	1,161
3.58	84.83	735	176	1,336
3.85	85.10	735	176	1,512
4.13	85.38	735	176	1,688
4.40	85.65	735	176	1,864
4.68	85.93	735	176	2,040
4.95	86.20	735	107	2,147
5.23	86.48	735	80.9	2,228
5.50	86.75	735	80.9	2,309



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

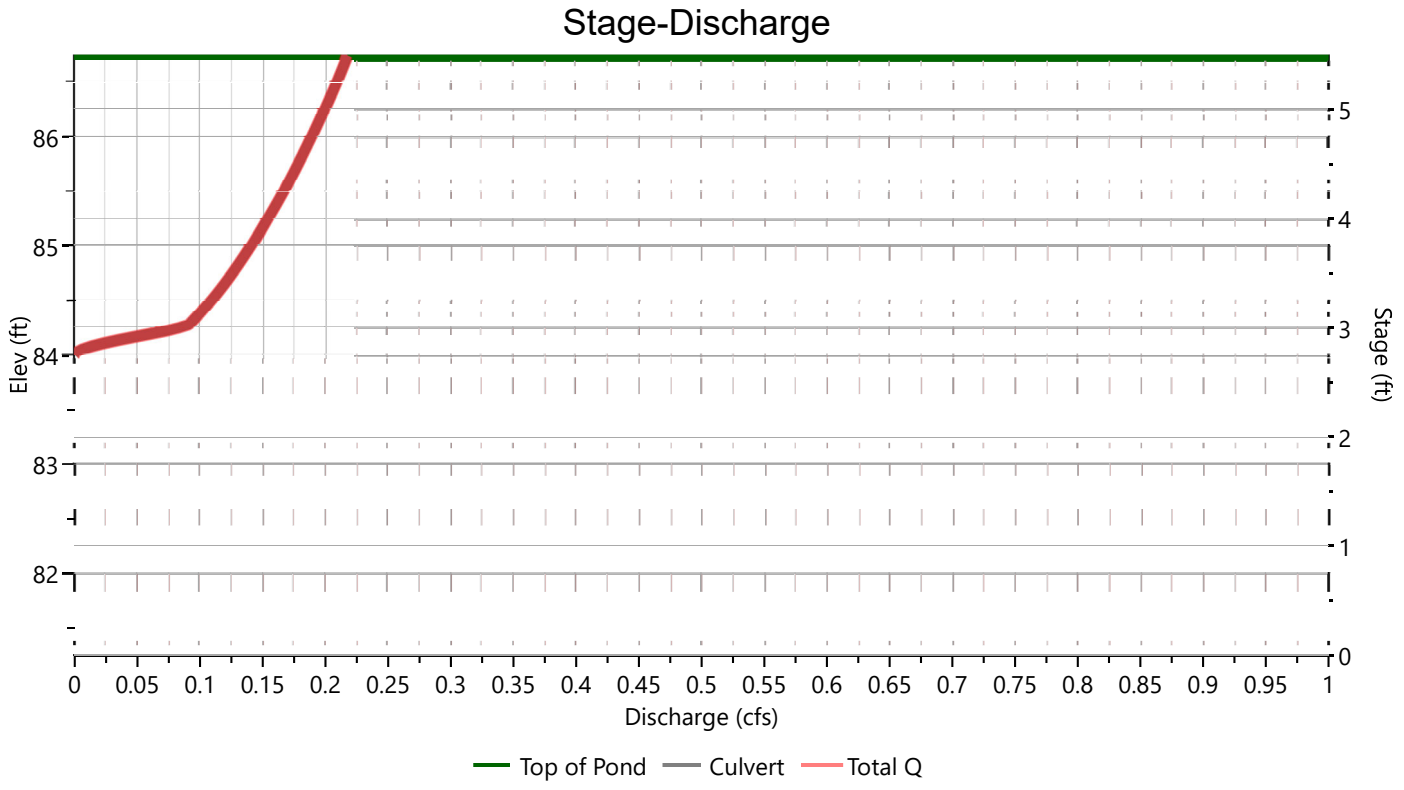
06-25-2023

TYP. BLDG RL SYS

Stage-Discharge

Culvert / Orifices	Culvert	Orifices 1	Orifices 2	Orifices 3	Perforated Riser	
Rise, in	3				Hole Diameter, in	
Span, in	3				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	84.00				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	50					
Barrel Slope, %	1					
N-Value, n	0.012					
Weirs	**Riser***	**Weirs 1**	**Weirs 2**	**Weirs 3**	**Ancillary**	
Shape / Type					Exfiltration, in/hr	
Crest Elevation, ft						
Crest Length, ft						
Angle, deg						
Weir Coefficient, Cw						

**Routes through Culvert.*



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

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	81.25	0.000	0.000											0.000
0.28	81.53	80.9	0.000											0.000
0.55	81.80	162	0.000											0.000
0.83	82.08	243	0.000											0.000
1.10	82.35	323	0.000											0.000
1.38	82.63	404	0.000											0.000
1.65	82.90	485	0.000											0.000
1.93	83.18	566	0.000											0.000
2.20	83.45	647	0.000											0.000
2.48	83.73	728	0.000											0.000
2.75	84.00	809	0.000											0.000
3.03	84.28	985	0.091 oc											0.091
3.30	84.55	1,161	0.112 oc											0.112
3.58	84.83	1,336	0.130 oc											0.130
3.85	85.10	1,512	0.146 oc											0.146
4.13	85.38	1,688	0.160 oc											0.160
4.40	85.65	1,864	0.173 oc											0.173
4.68	85.93	2,040	0.185 oc											0.185
4.95	86.20	2,147	0.197 oc											0.197
5.23	86.48	2,228	0.207 oc											0.207
5.50	86.75	2,309	0.217 oc											0.217

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

Pond Report

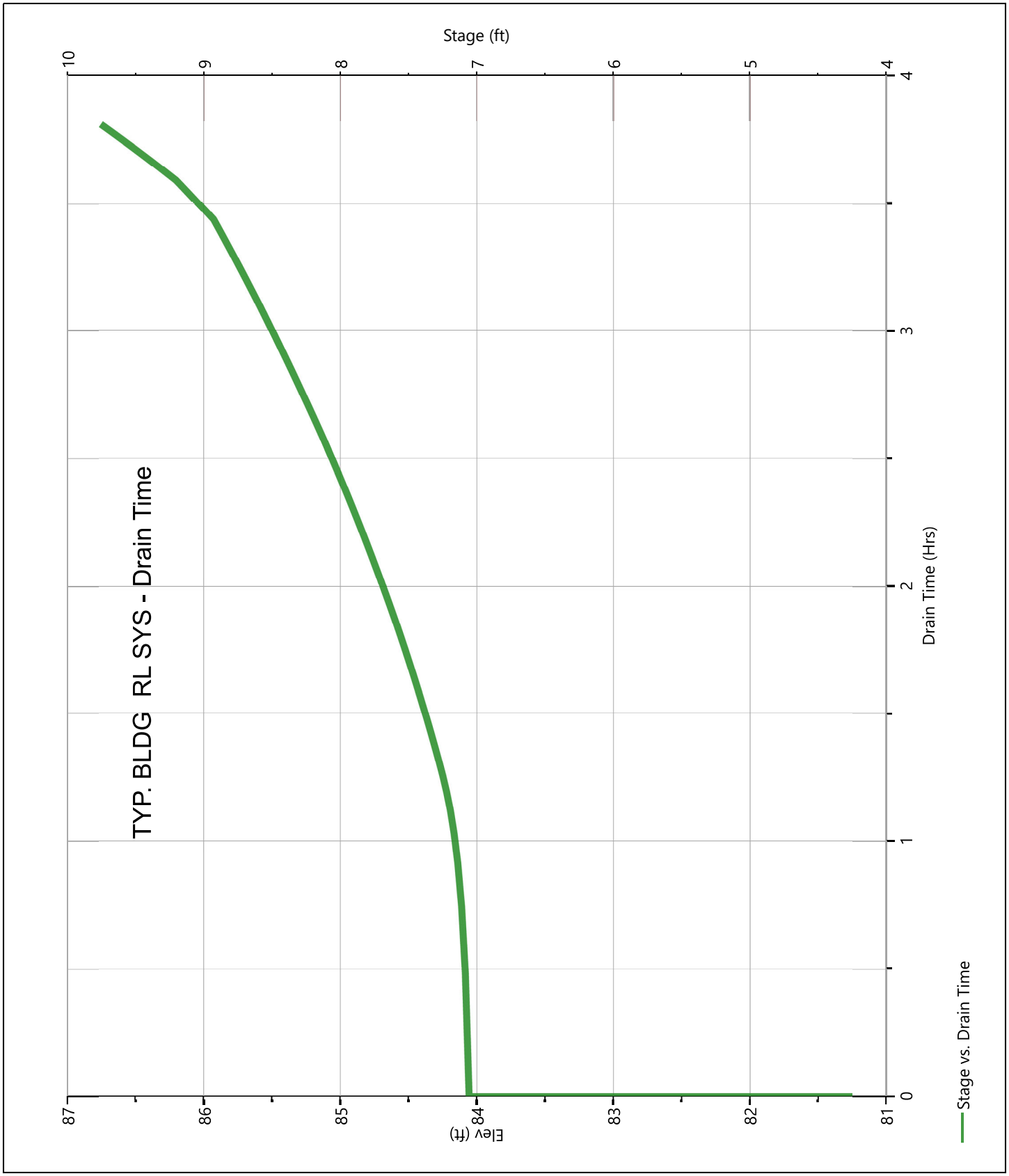
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

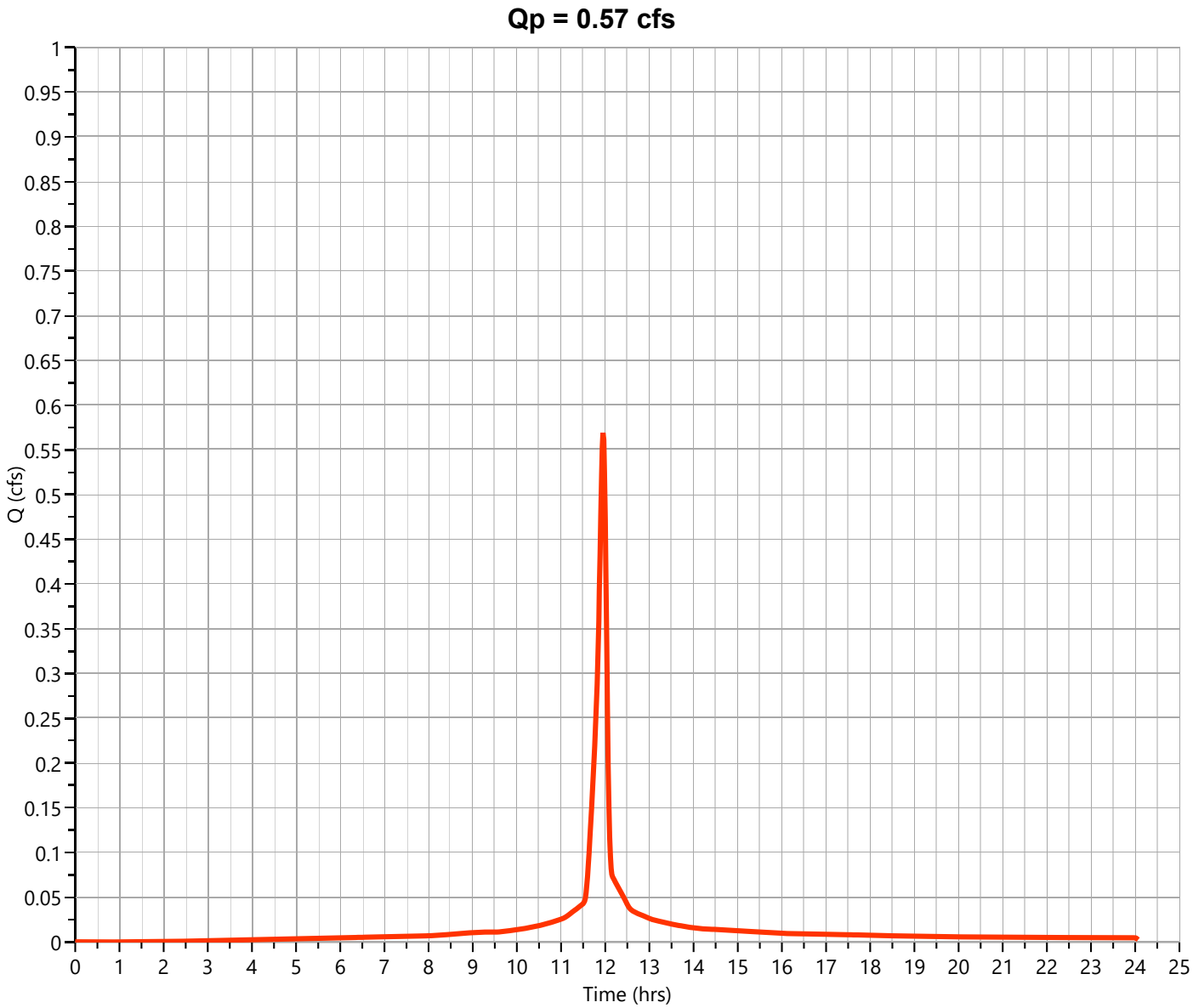
Post BLDG #8 RL

Hyd. No. 15

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.569 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,311 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

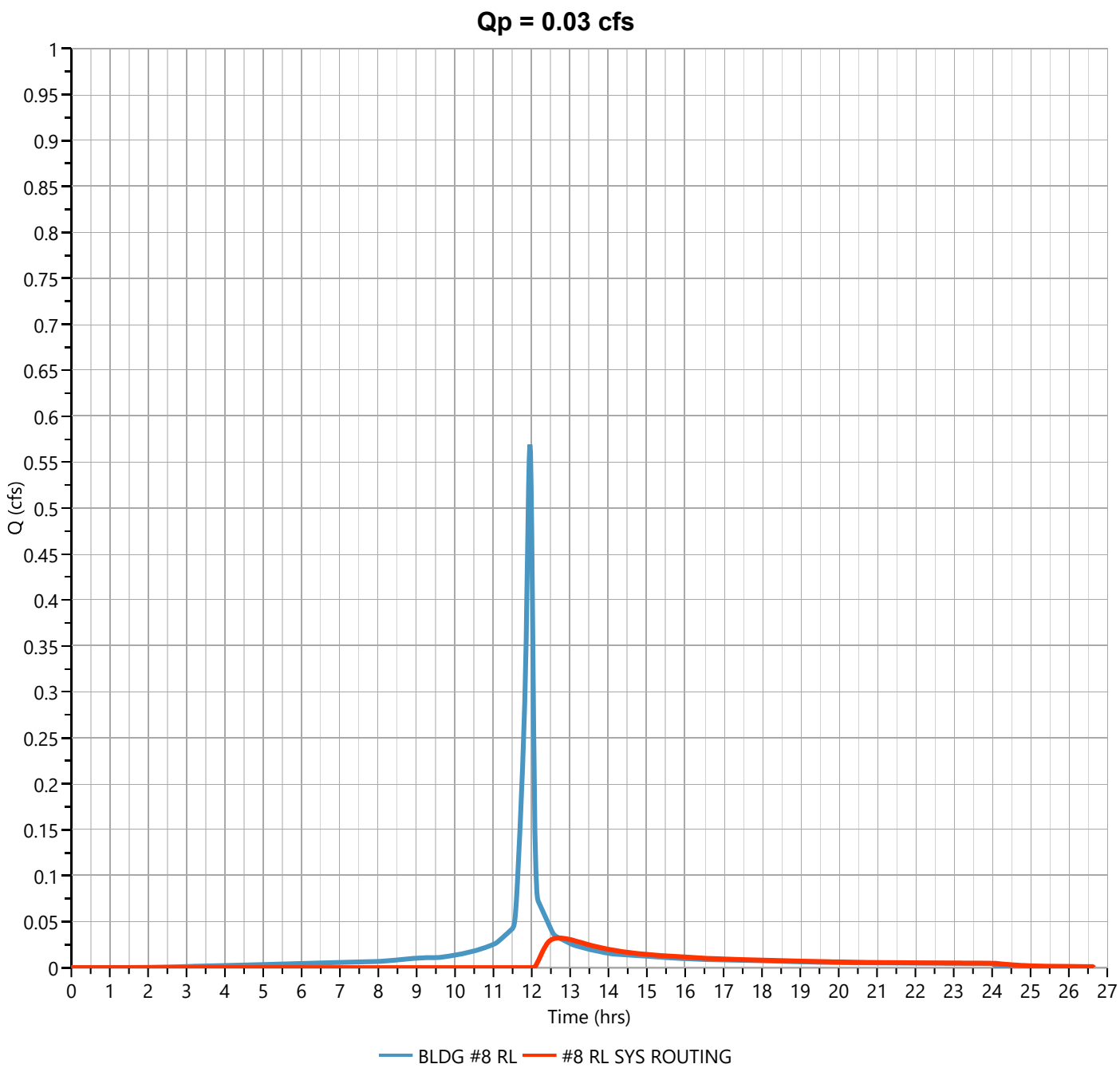
#8 RL SYS ROUTING

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.032 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.72 hrs
Time Interval	= 1 min	Hydrograph Volume	= 492 cuft
Inflow Hydrograph	= 15 - BLDG #8 RL	Max. Elevation	= 84.13 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 892 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 4.32 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

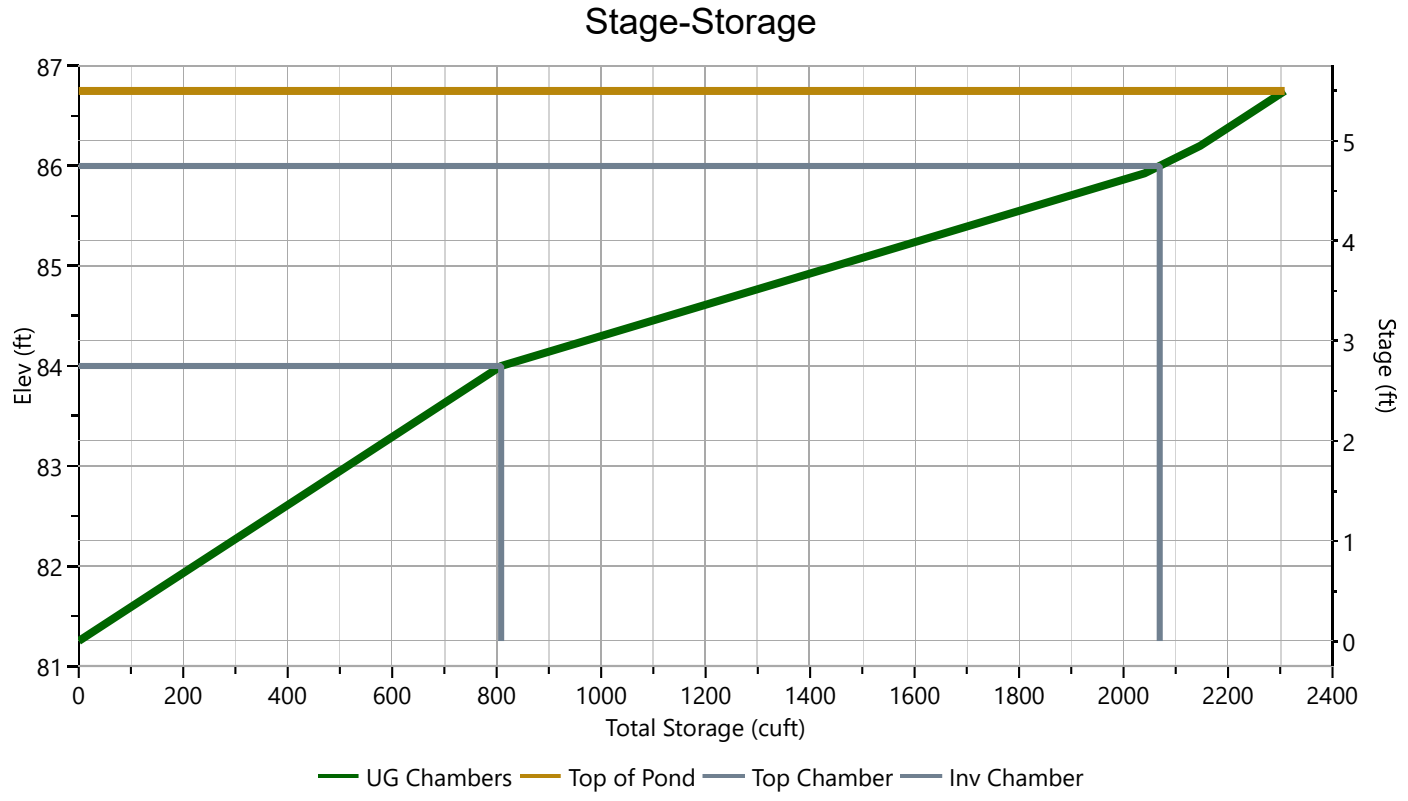
TYP. BLDG RL SYS

Stage-Storage

Underground Chambers	
Description	**Input**
Invert Elev Down, ft	84.00
Chamber Rise, ft	2.00
Chamber Shape	Box
Chamber Span, ft	4.00
Barrel Length, ft	48.00
No. Barrels	3
Barrel Slope, %	0.00
Headers, y/n	No
Stone Encasement, y/n	Yes
Encasement Bottom Elevation, ft	81.25
Encasement Width per Chamber, ft	5.00
Encasement Depth, ft	5.50
Encasement Voids, %	40.00

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	81.25	735	0.000	0.000
0.28	81.53	735	80.9	80.9
0.55	81.80	735	80.9	162
0.83	82.08	735	80.9	243
1.10	82.35	735	80.9	323
1.38	82.63	735	80.9	404
1.65	82.90	735	80.9	485
1.93	83.18	735	80.9	566
2.20	83.45	735	80.9	647
2.48	83.73	735	80.9	728
2.75	84.00	735	80.9	809
3.03	84.28	735	176	985
3.30	84.55	735	176	1,161
3.58	84.83	735	176	1,336
3.85	85.10	735	176	1,512
4.13	85.38	735	176	1,688
4.40	85.65	735	176	1,864
4.68	85.93	735	176	2,040
4.95	86.20	735	107	2,147
5.23	86.48	735	80.9	2,228
5.50	86.75	735	80.9	2,309



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

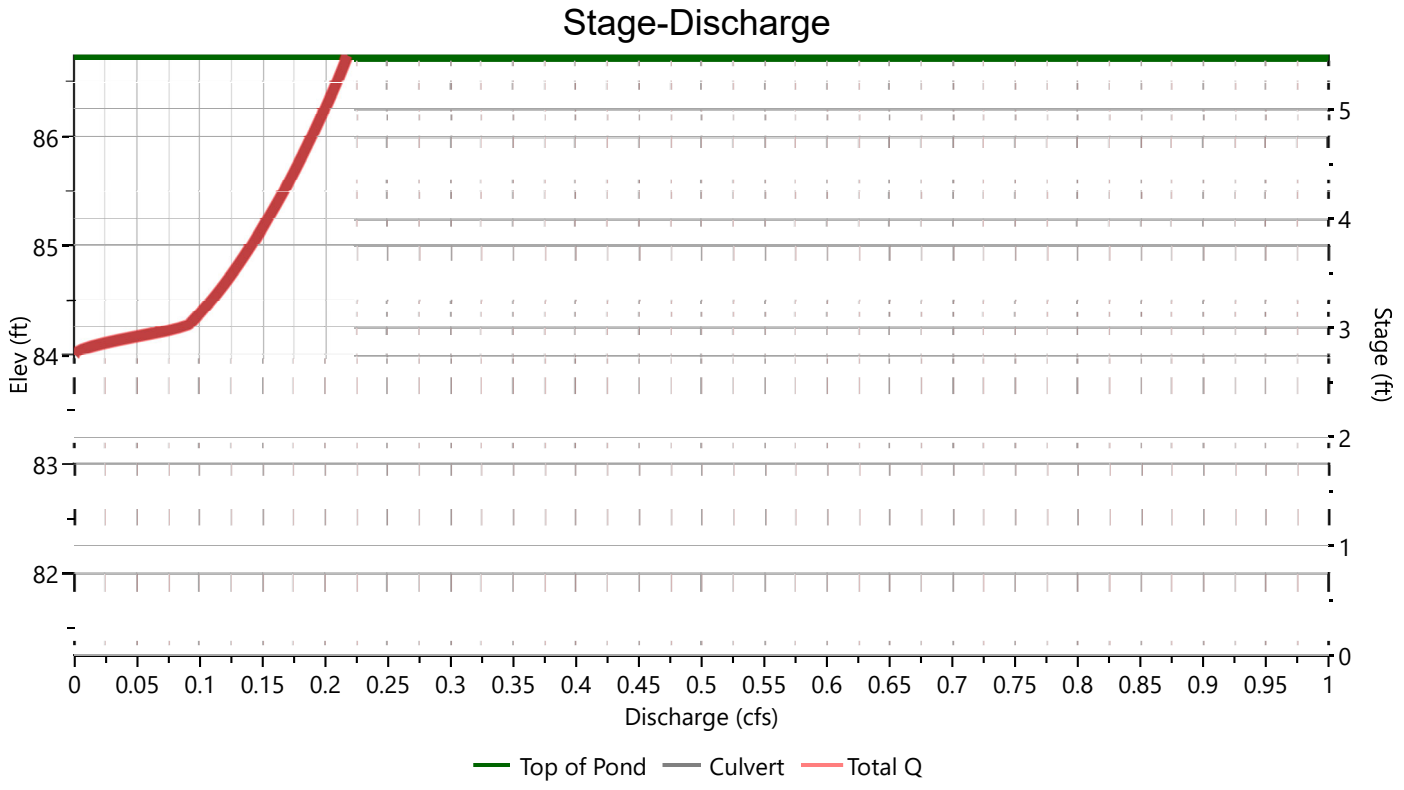
06-25-2023

TYP. BLDG RL SYS

Stage-Discharge

Culvert / Orifices	Culvert	Orifices 1	Orifices 2	Orifices 3	Perforated Riser	
Rise, in	3				Hole Diameter, in	
Span, in	3				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	84.00				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	50					
Barrel Slope, %	1					
N-Value, n	0.012					
Weirs	**Riser***	**Weirs 1**	**Weirs 2**	**Weirs 3**	**Ancillary**	
Shape / Type					Exfiltration, in/hr	
Crest Elevation, ft						
Crest Length, ft						
Angle, deg						
Weir Coefficient, Cw						

**Routes through Culvert.*



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

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	81.25	0.000	0.000											0.000
0.28	81.53	80.9	0.000											0.000
0.55	81.80	162	0.000											0.000
0.83	82.08	243	0.000											0.000
1.10	82.35	323	0.000											0.000
1.38	82.63	404	0.000											0.000
1.65	82.90	485	0.000											0.000
1.93	83.18	566	0.000											0.000
2.20	83.45	647	0.000											0.000
2.48	83.73	728	0.000											0.000
2.75	84.00	809	0.000											0.000
3.03	84.28	985	0.091 oc											0.091
3.30	84.55	1,161	0.112 oc											0.112
3.58	84.83	1,336	0.130 oc											0.130
3.85	85.10	1,512	0.146 oc											0.146
4.13	85.38	1,688	0.160 oc											0.160
4.40	85.65	1,864	0.173 oc											0.173
4.68	85.93	2,040	0.185 oc											0.185
4.95	86.20	2,147	0.197 oc											0.197
5.23	86.48	2,228	0.207 oc											0.207
5.50	86.75	2,309	0.217 oc											0.217

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

Pond Report

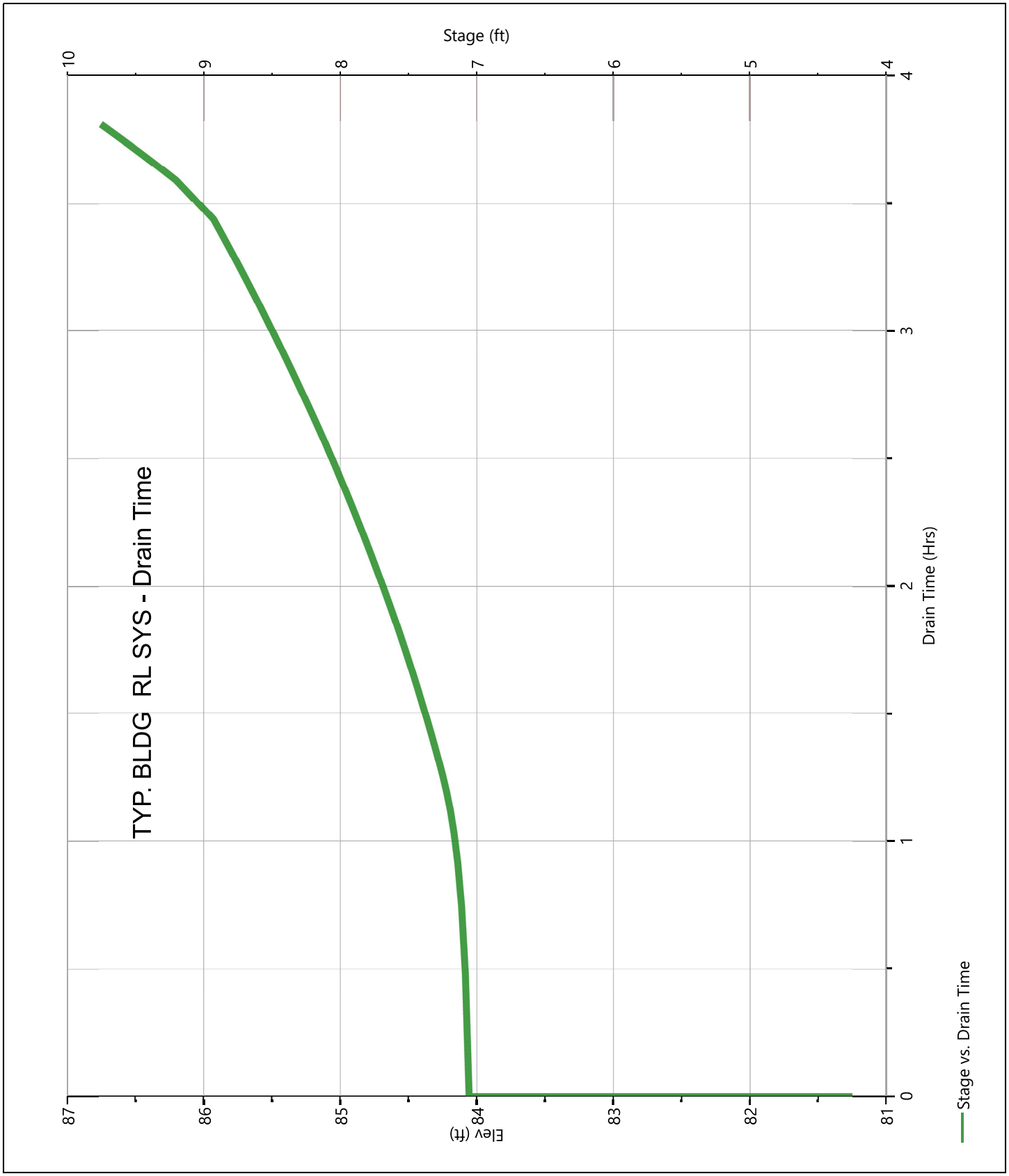
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

TYP. BLDG RL SYS

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

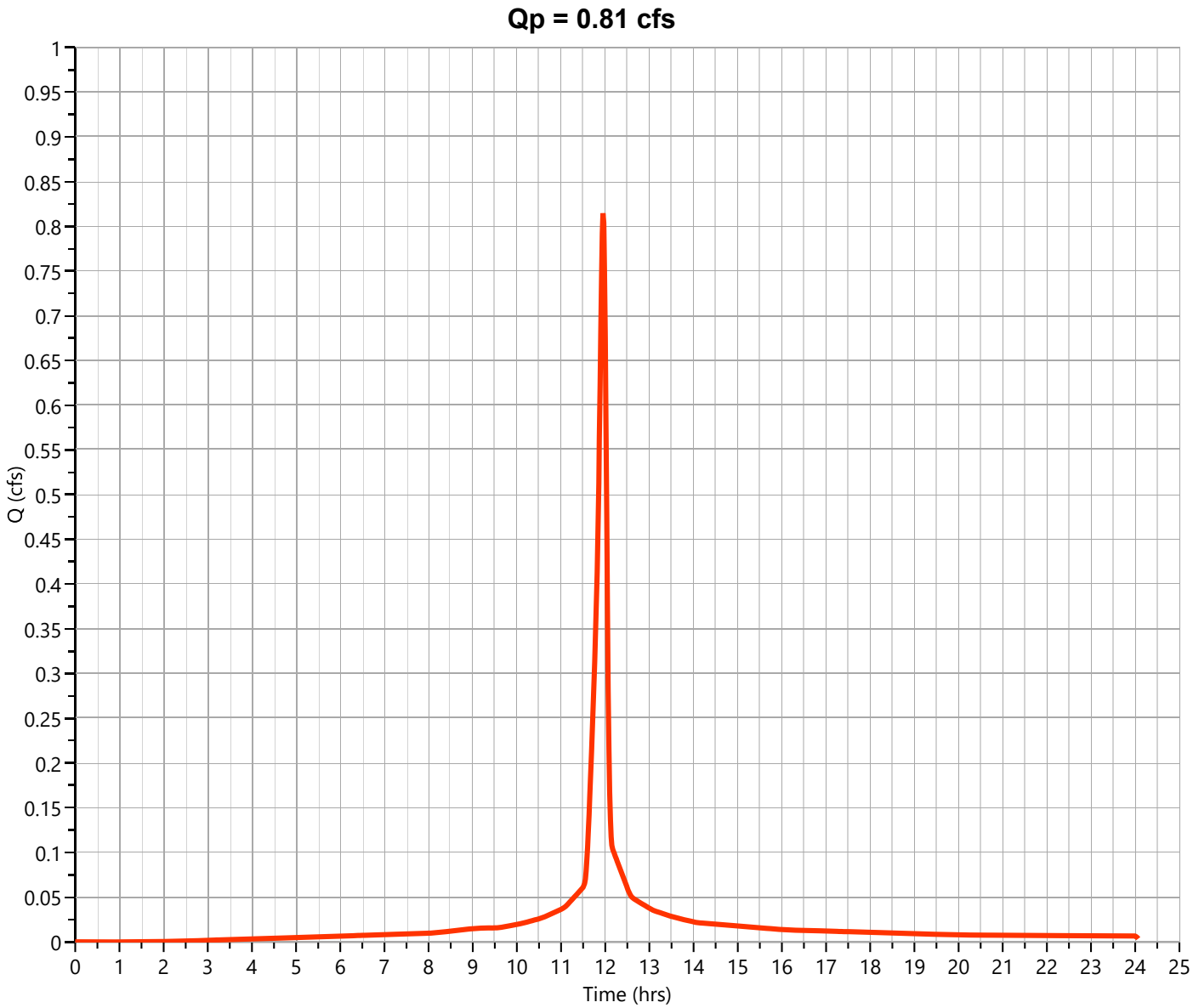
Post BLDG #11 RL

Hyd. No. 17

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.815 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,877 cuft
Drainage Area	= 0.272 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.272	98	C-ROOF
0.272	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

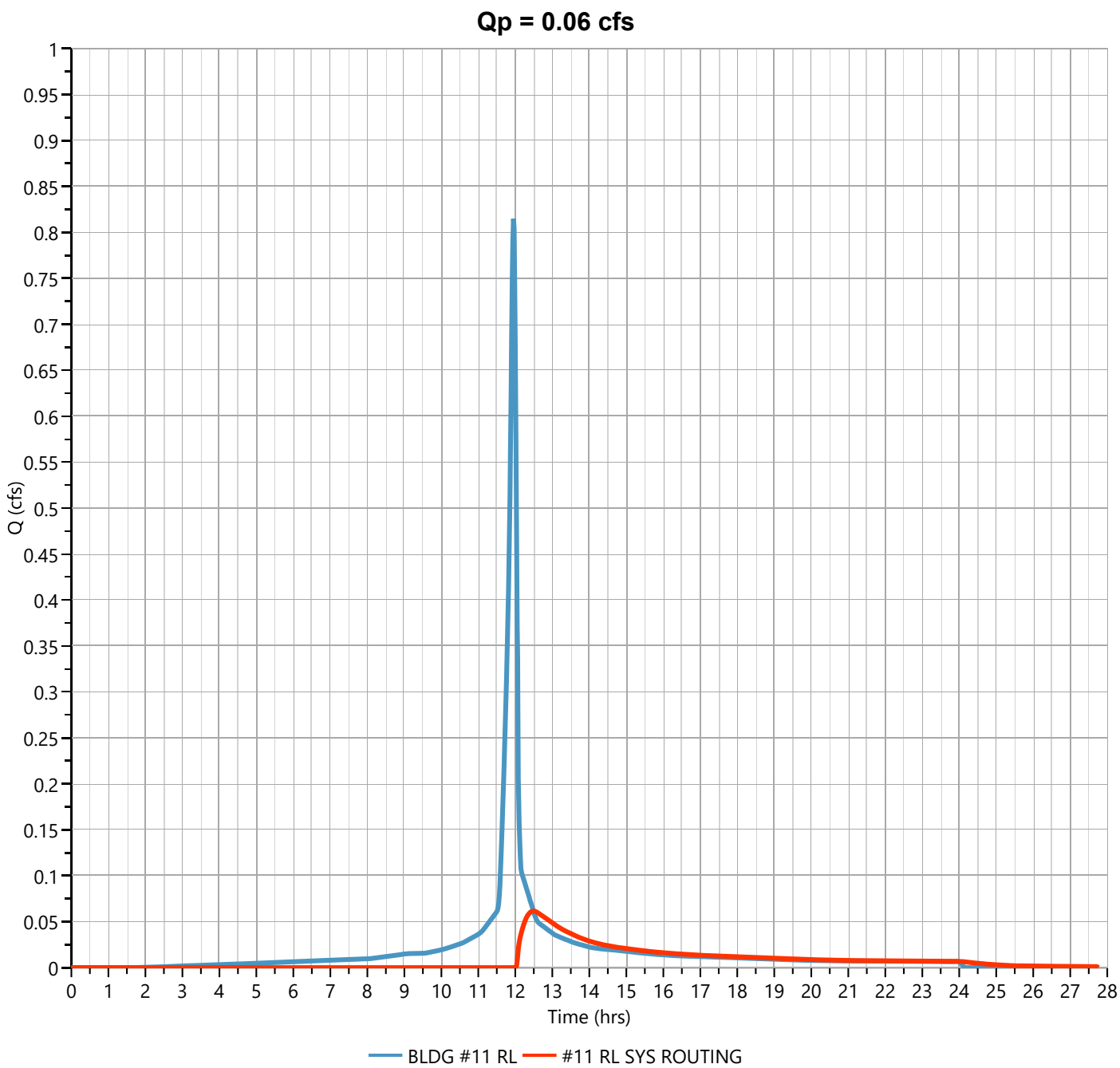
Post #11 RL SYS ROUTING

Hyd. No. 18

Hydrograph Type	= Pond Route	Peak Flow	= 0.062 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.48 hrs
Time Interval	= 1 min	Hydrograph Volume	= 776 cuft
Inflow Hydrograph	= 17 - BLDG #11 RL	Max. Elevation	= 84.17 ft
Pond Name	= BLDG #11 RL SYS	Max. Storage	= 1,233 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 4.05 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

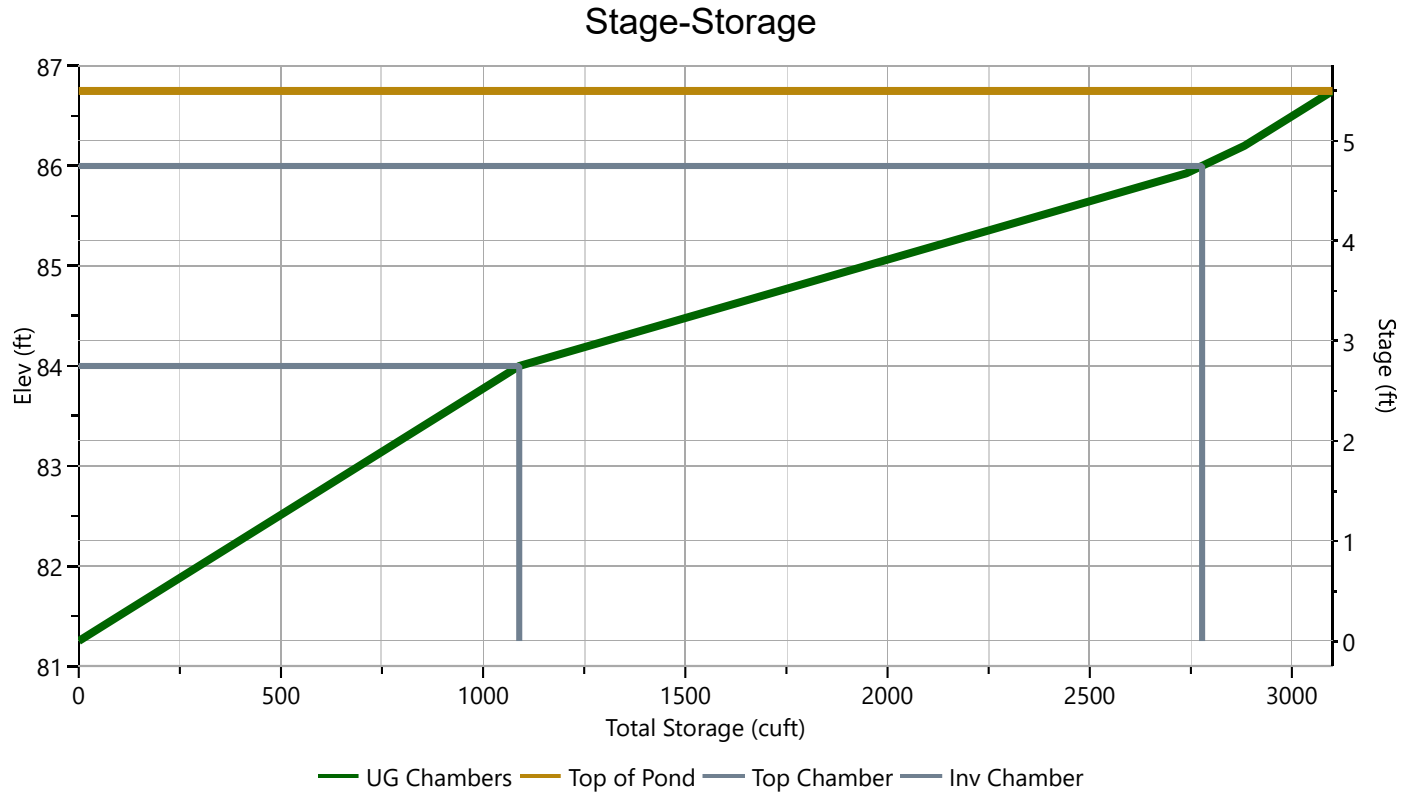
BLDG #11 RL SYS

Stage-Storage

Underground Chambers	
Description	**Input**
Invert Elev Down, ft	84.00
Chamber Rise, ft	2.00
Chamber Shape	Box
Chamber Span, ft	4.00
Barrel Length, ft	32.00
No. Barrels	6
Barrel Slope, %	0.00
Headers, y/n	No
Stone Encasement, y/n	Yes
Encasement Bottom Elevation, ft	81.25
Encasement Width per Chamber, ft	5.00
Encasement Depth, ft	5.50
Encasement Voids, %	40.00

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	81.25	990	0.000	0.000
0.28	81.53	990	109	109
0.55	81.80	990	109	218
0.83	82.08	990	109	327
1.10	82.35	990	109	436
1.38	82.63	990	109	545
1.65	82.90	990	109	654
1.93	83.18	990	109	762
2.20	83.45	990	109	871
2.48	83.73	990	109	980
2.75	84.00	990	109	1,089
3.03	84.28	990	236	1,325
3.30	84.55	990	236	1,561
3.58	84.83	990	236	1,796
3.85	85.10	990	236	2,032
4.13	85.38	990	236	2,268
4.40	85.65	990	236	2,503
4.68	85.93	990	236	2,739
4.95	86.20	990	143	2,882
5.23	86.48	990	109	2,991
5.50	86.75	990	109	3,100



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

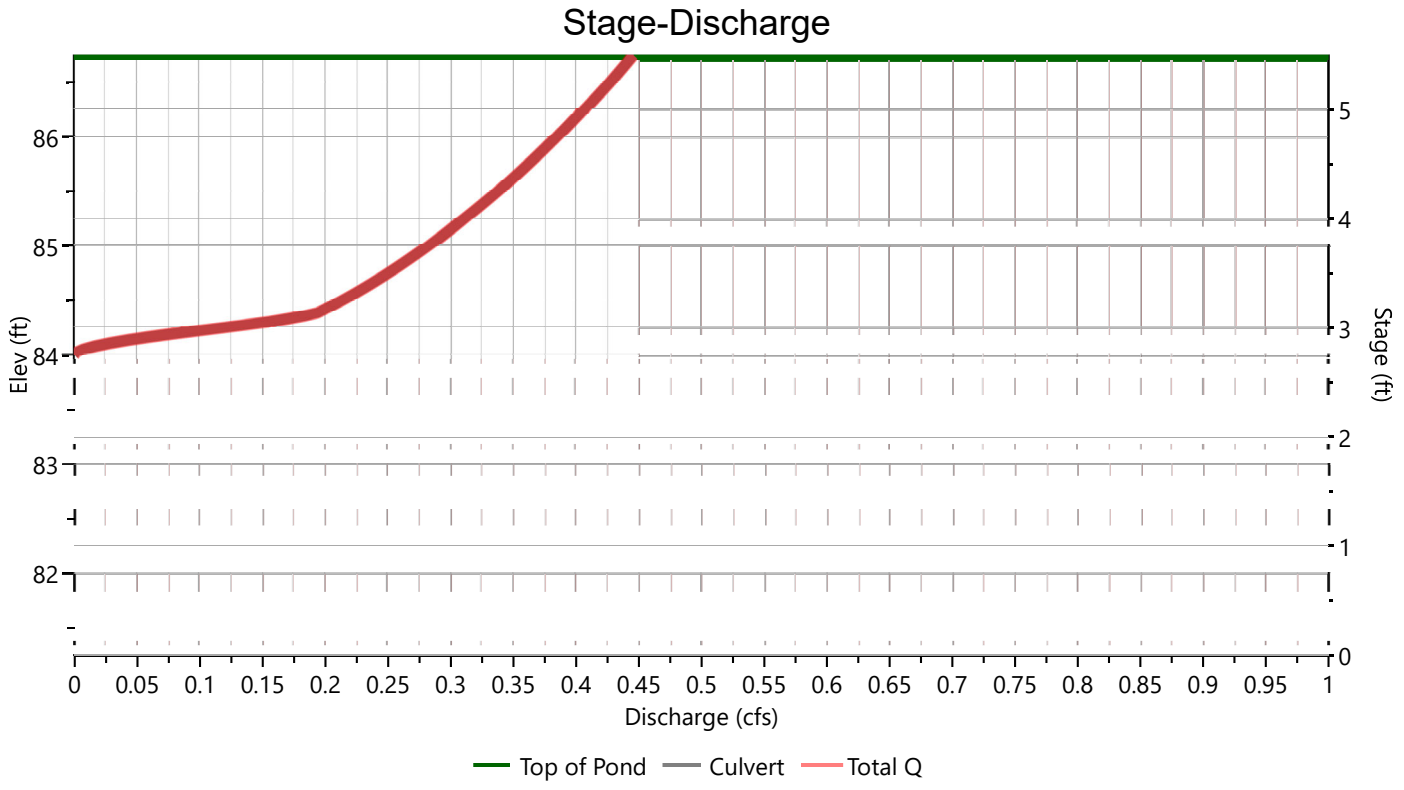
06-25-2023

BLDG #11 RL SYS

Stage-Discharge

Culvert / Orifices	Culvert	Orifices 1	Orifices 2	Orifices 3	Perforated Riser	
Rise, in	4				Hole Diameter, in	
Span, in	4				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	84.00				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	50					
Barrel Slope, %	1					
N-Value, n	0.012					
Weirs	**Riser***	**Weirs 1**	**Weirs 2**	**Weirs 3**	**Ancillary**	
Shape / Type					Exfiltration, in/hr	
Crest Elevation, ft						
Crest Length, ft						
Angle, deg						
Weir Coefficient, Cw						

**Routes through Culvert.*



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

BLDG #11 RL SYS

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	81.25	0.000	0.000											0.000
0.28	81.53	109	0.000											0.000
0.55	81.80	218	0.000											0.000
0.83	82.08	327	0.000											0.000
1.10	82.35	436	0.000											0.000
1.38	82.63	545	0.000											0.000
1.65	82.90	654	0.000											0.000
1.93	83.18	762	0.000											0.000
2.20	83.45	871	0.000											0.000
2.48	83.73	980	0.000											0.000
2.75	84.00	1,089	0.000											0.000
3.03	84.28	1,325	0.138 ic											0.138
3.30	84.55	1,561	0.221 oc											0.221
3.58	84.83	1,796	0.260 oc											0.260
3.85	85.10	2,032	0.294 oc											0.294
4.13	85.38	2,268	0.324 oc											0.324
4.40	85.65	2,503	0.352 oc											0.352
4.68	85.93	2,739	0.378 oc											0.378
4.95	86.20	2,882	0.402 oc											0.402
5.23	86.48	2,991	0.424 oc											0.424
5.50	86.75	3,100	0.446 oc											0.446

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

Pond Report

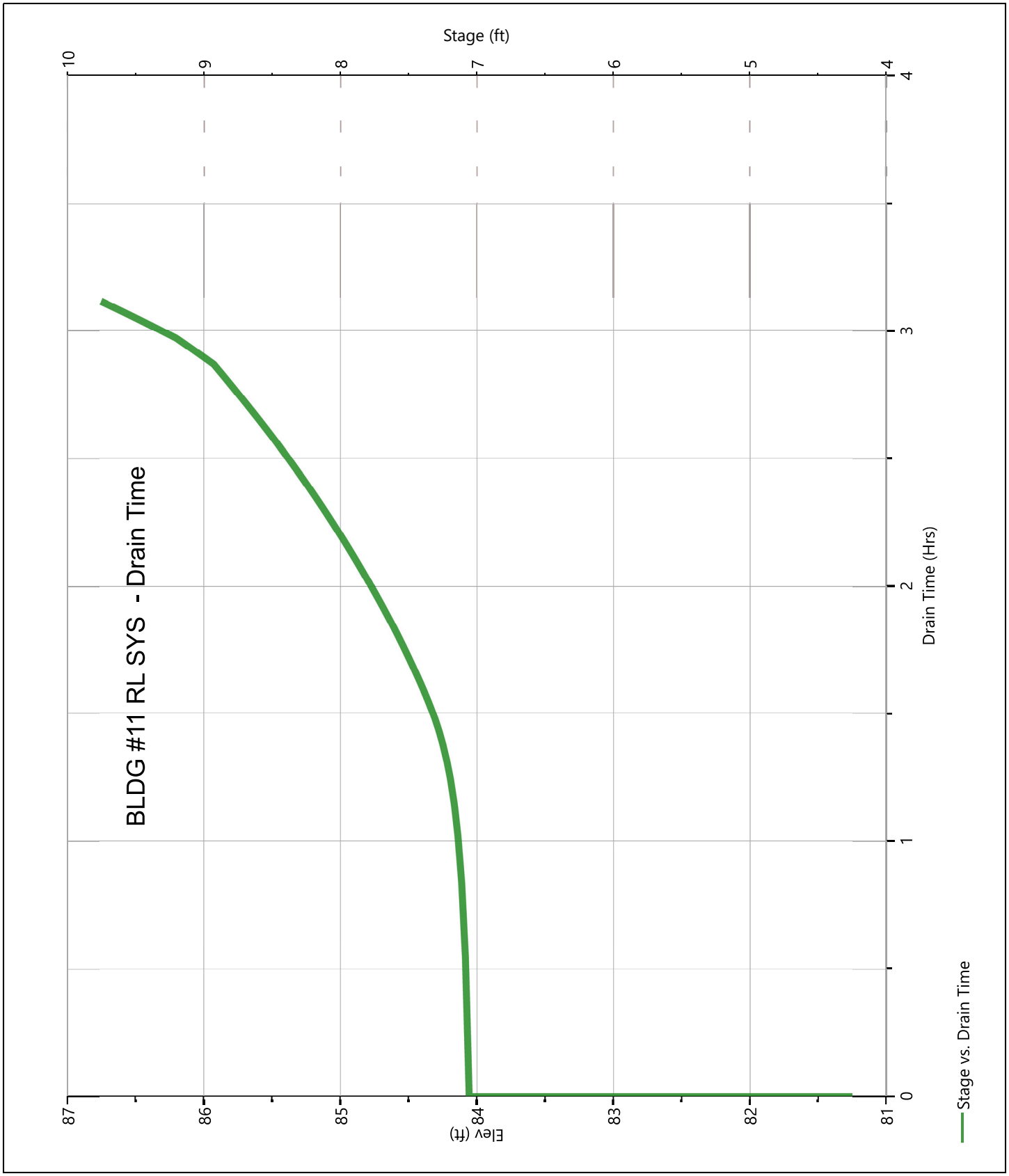
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

BLDG #11 RL SYS

Pond Drawdown



Hydrograph Report

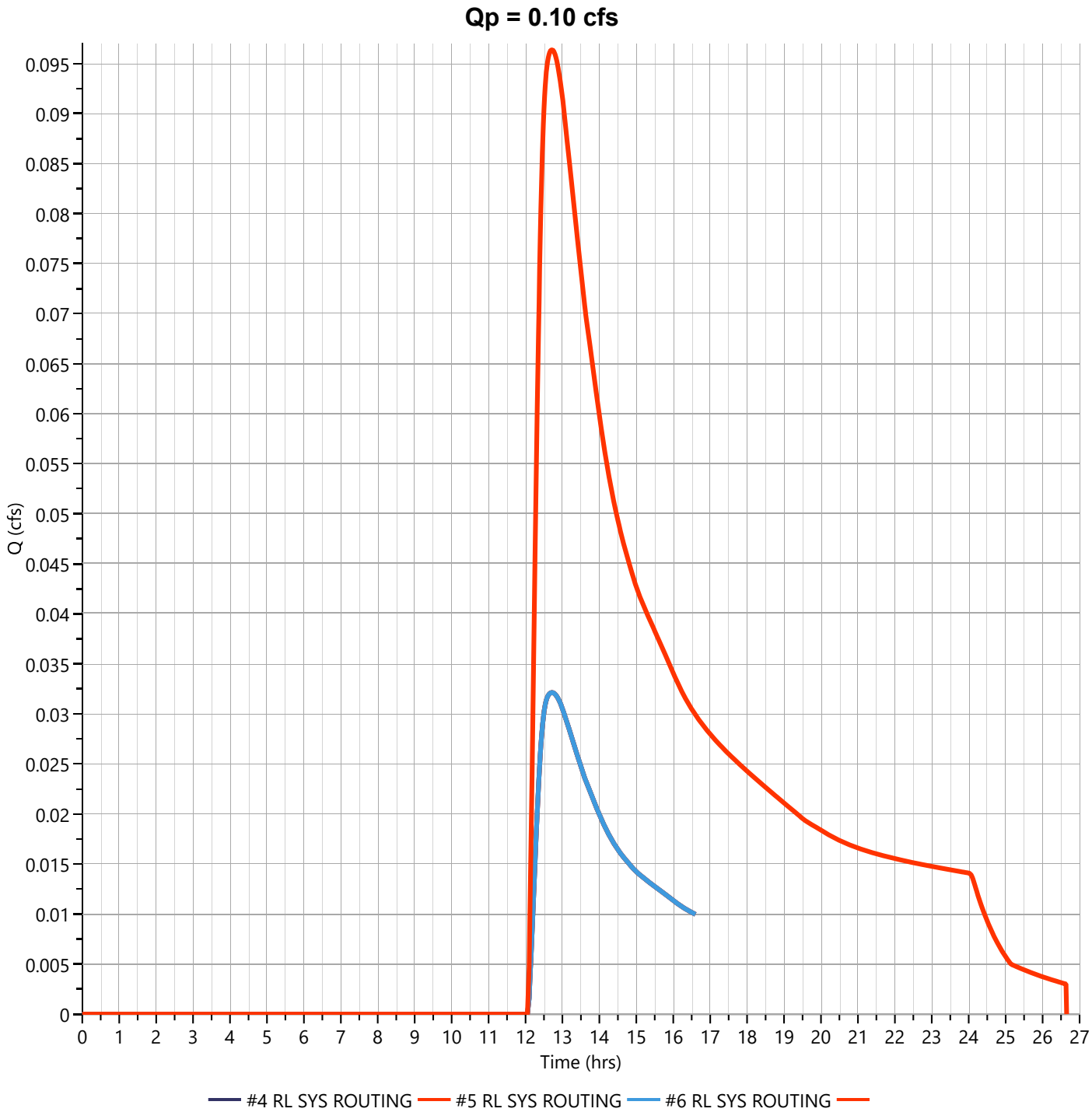
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 19

Hydrograph Type	= Junction	Peak Flow	= 0.096 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.72 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,476 cuft
Inflow Hydrographs	= 8, 10, 12	Total Contrib. Area	= 0.0 ac



Hydrograph Report

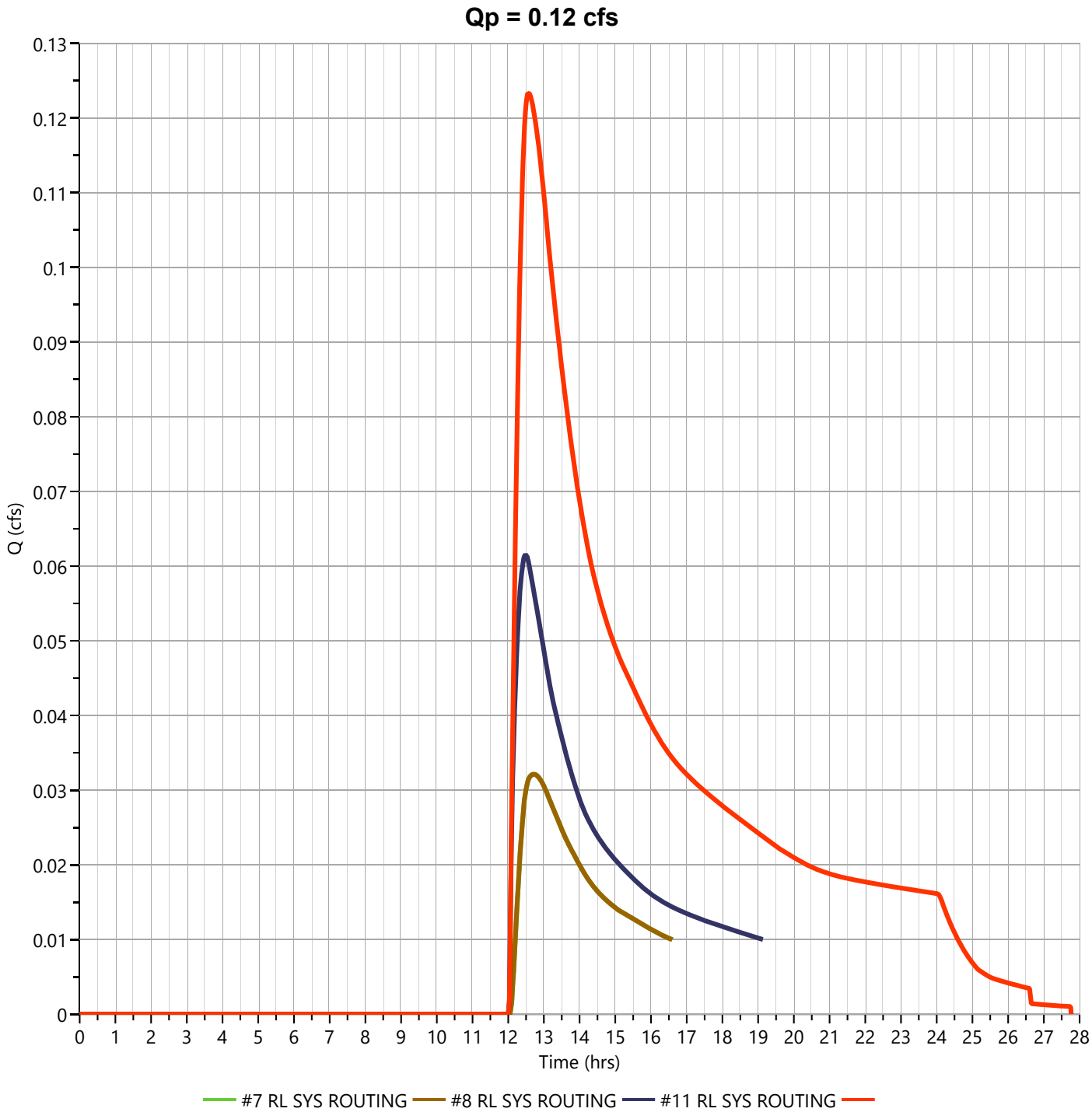
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 20

Hydrograph Type	= Junction	Peak Flow	= 0.123 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.57 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,760 cuft
Inflow Hydrographs	= 14, 16, 18	Total Contrib. Area	= 0.0 ac



Hydrograph Report

Project Name:

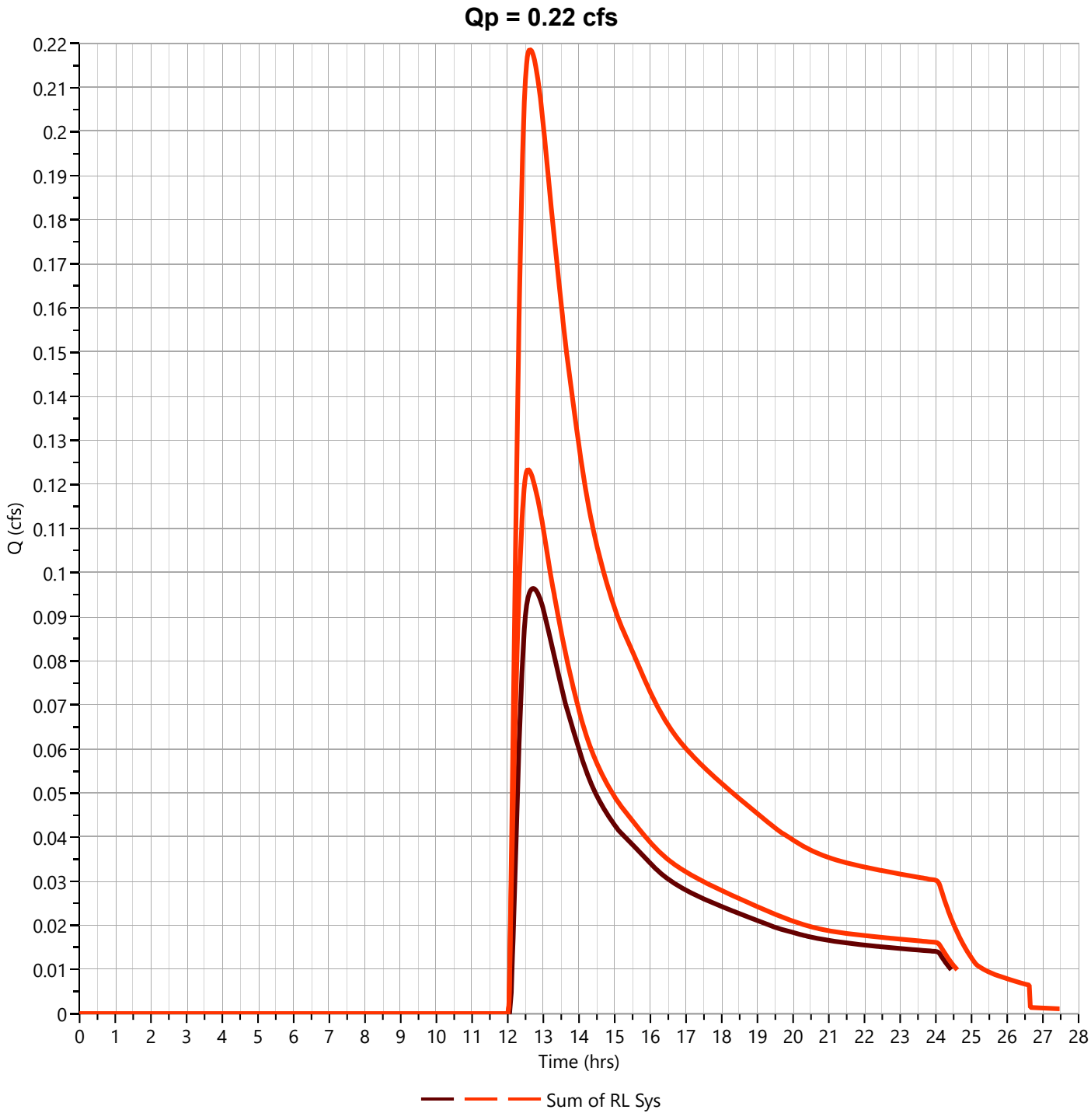
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum of RL Sys

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 0.219 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.63 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,237 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 0.0 ac



Hydrograph Report

Project Name:

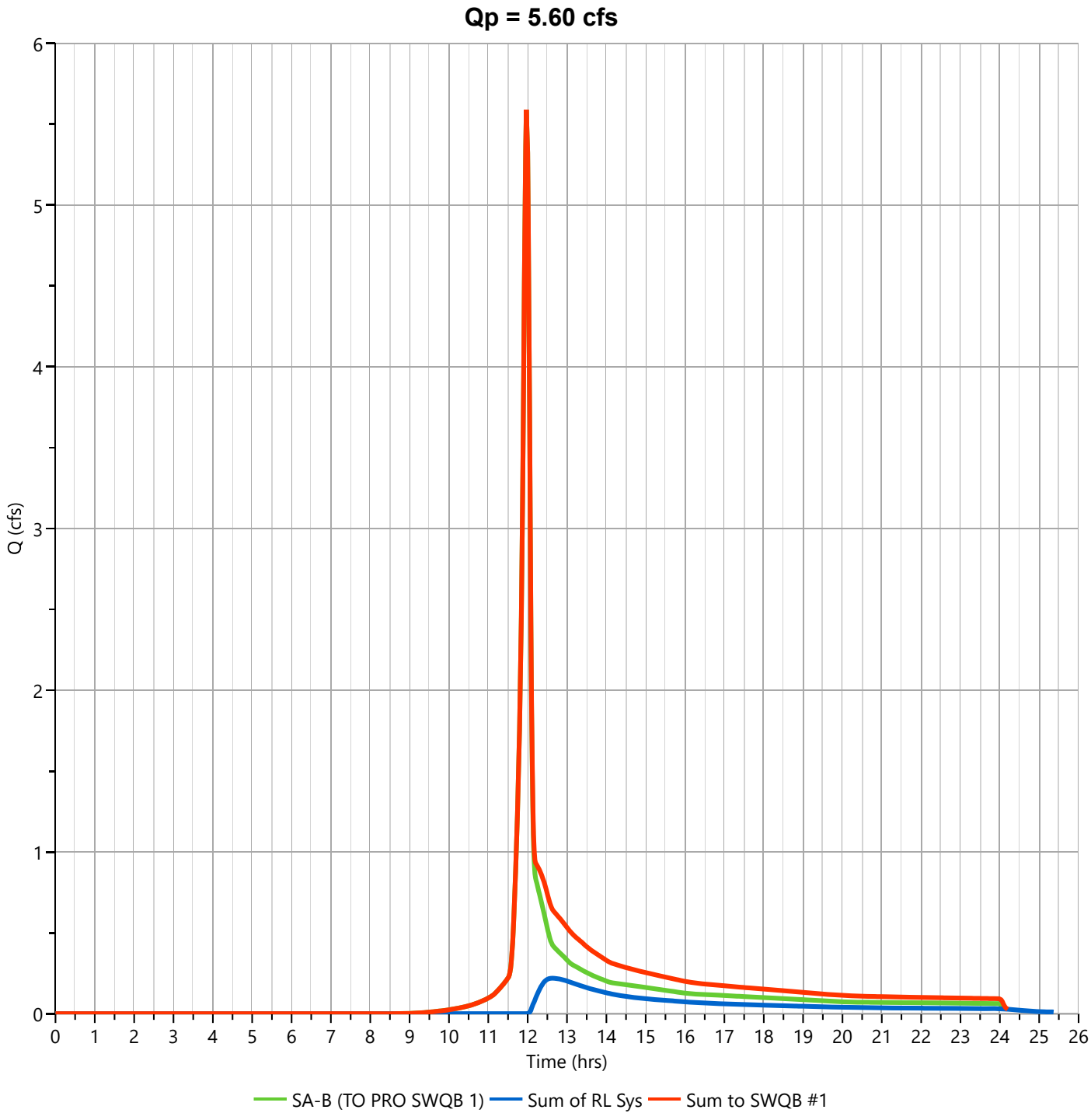
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to SWQB #1

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 5.596 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.98 hrs
Time Interval	= 1 min	Hydrograph Volume	= 15,059 cuft
Inflow Hydrographs	= 4, 21	Total Contrib. Area	= 3.477 ac



post52

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

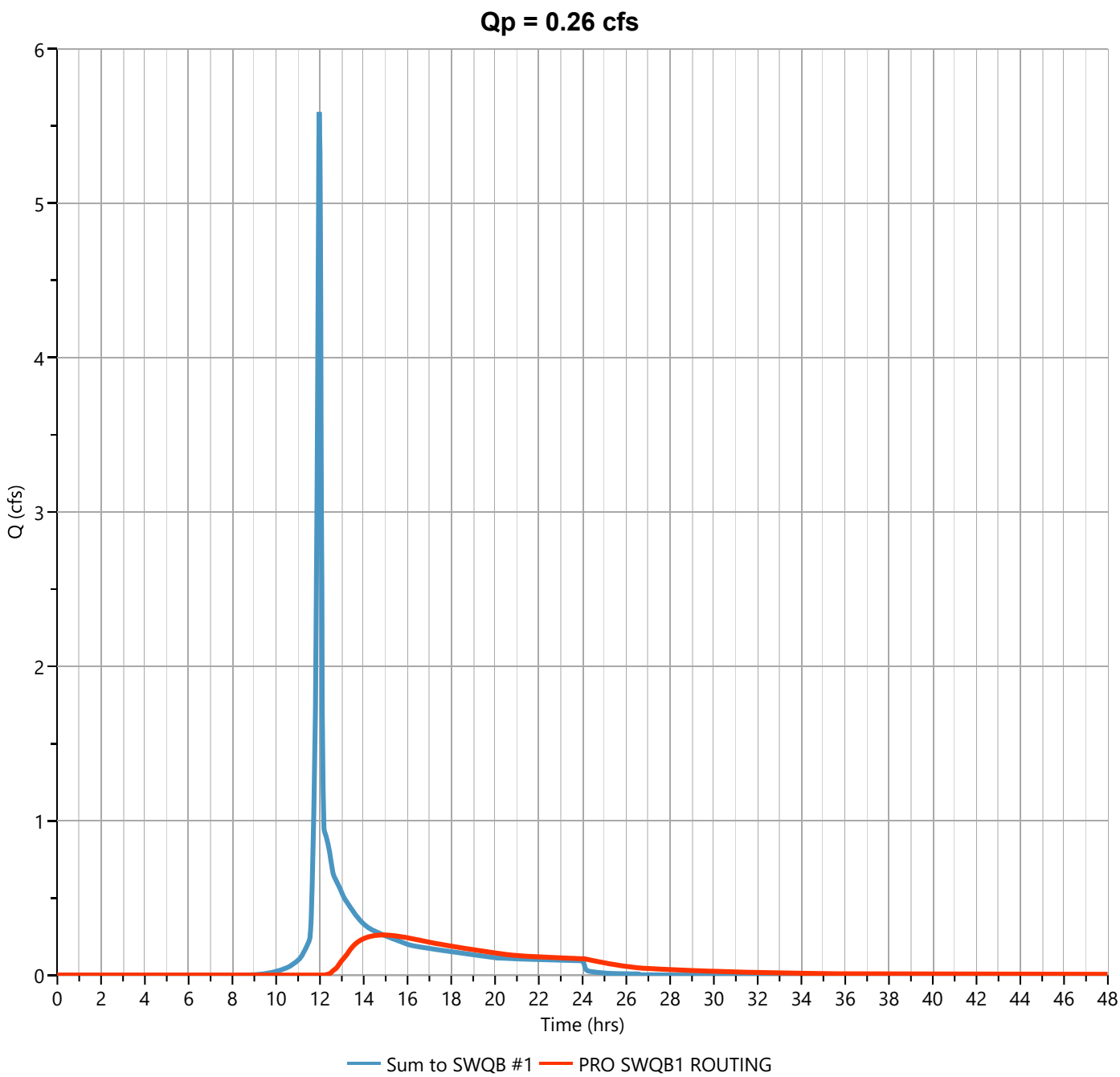
PRO SWQB1 ROUTING

Hyd. No. 23

Hydrograph Type	= Pond Route	Peak Flow	= 0.260 cfs
Storm Frequency	= 1-yr	Time to Peak	= 14.90 hrs
Time Interval	= 1 min	Hydrograph Volume	= 8,657 cuft
Inflow Hydrograph	= 22 - Sum to SWQB #1	Max. Elevation	= 81.40 ft
Pond Name	= PRO SWQB #1	Max. Storage	= 8,820 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 5.64 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

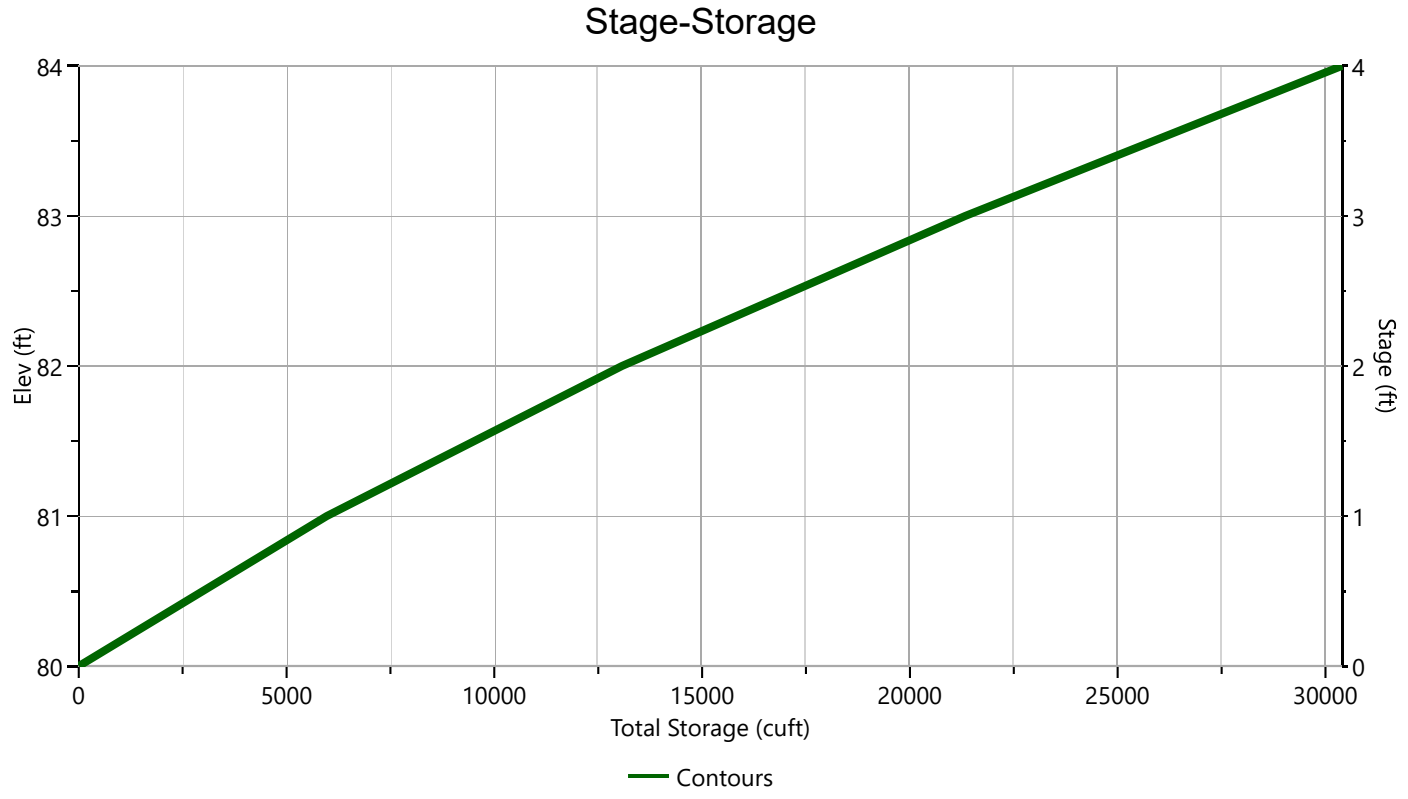
PRO SWQB #1

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	80.00
Voids (%)	100.00
Volume Calc	Conic

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	80.00	5,398	0.000	0.000
1.00	81.00	6,562	5,970	5,970
2.00	82.00	7,656	7,101	13,071
3.00	83.00	8,883	8,261	21,332
4.00	84.00	9,254	9,067	30,399



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

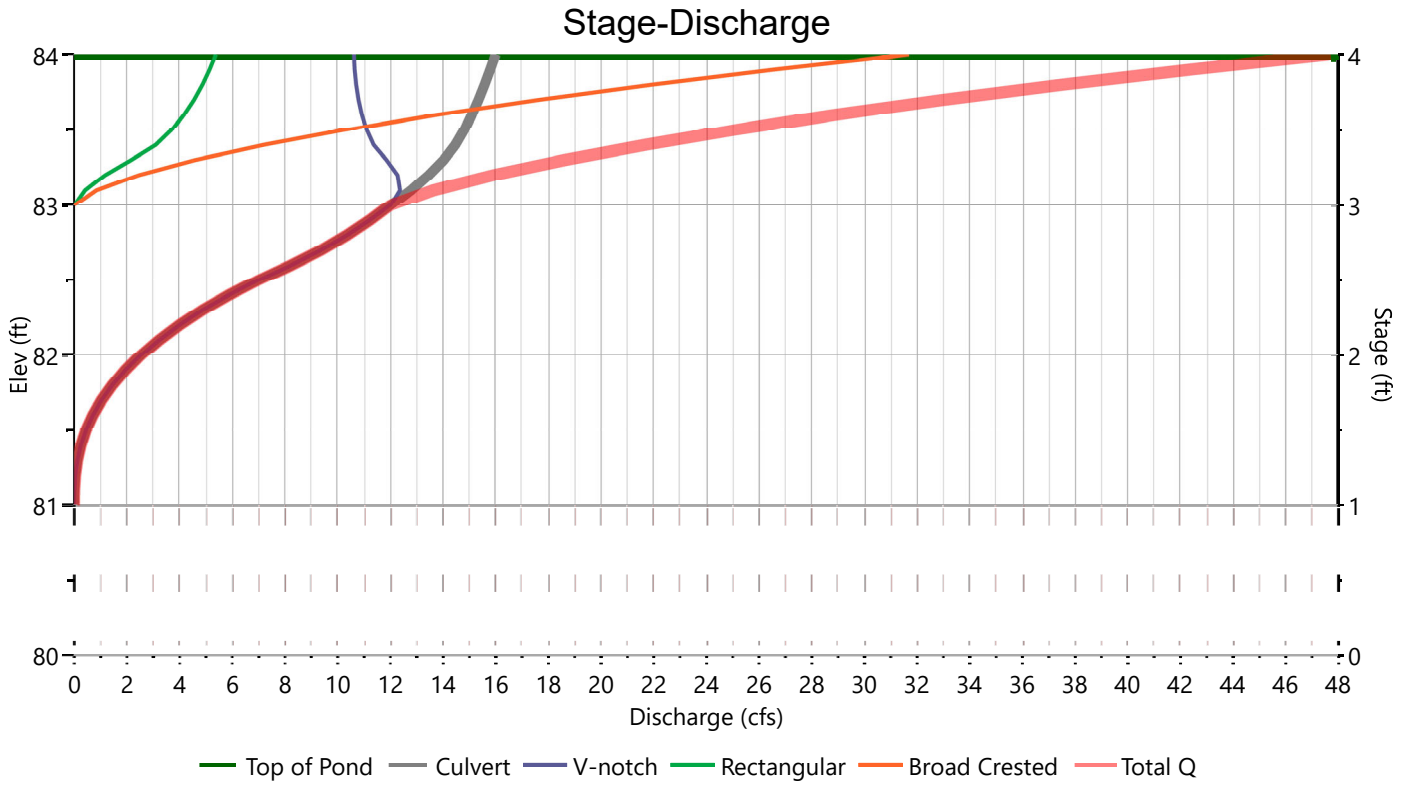
06-25-2023

PRO SWQB #1

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser	
		1	2	3		
Rise, in	18				Hole Diameter, in	
Span, in	18				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	79.29				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	128					
Barrel Slope, %	1					
N-Value, n	0.012					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1*	2*	3		
Shape / Type		V-notch	Rectangular	Broad Crested	Exfiltration, in/hr	
Crest Elevation, ft		81	83	83		
Crest Length, ft			4	8		
Angle, deg		90		26.6 (2:1)		
Weir Coefficient, Cw		2.54	3.3	3.3		

Routes through Culvert.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

PRO SWQB #1

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	80.00	0.000	0.000					0.000	0.000	0.000				0.000
1.00	81.00	5,970	0.000 ic					0.000	0.000	0.000				0.000
2.00	82.00	13,071	2.540 ic					2.540	0.000	0.000				2.540
3.00	83.00	21,332	12.01 ic					12.01 s	0.000	0.000				12.01
4.00	84.00	30,399	16.00 oc					10.62 s	5.381 s	31.68				47.68

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

Pond Report

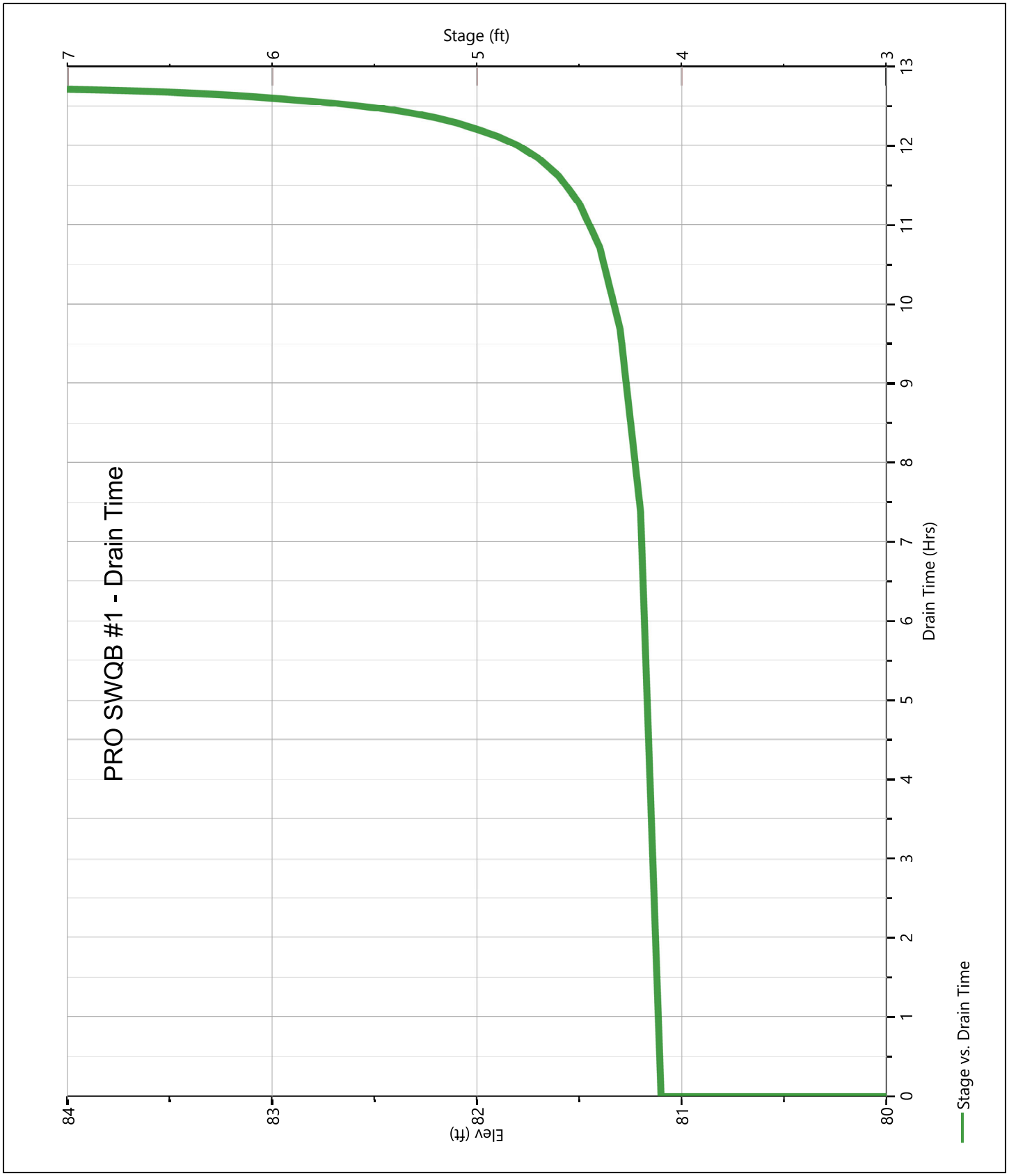
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

PRO SWQB #1

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

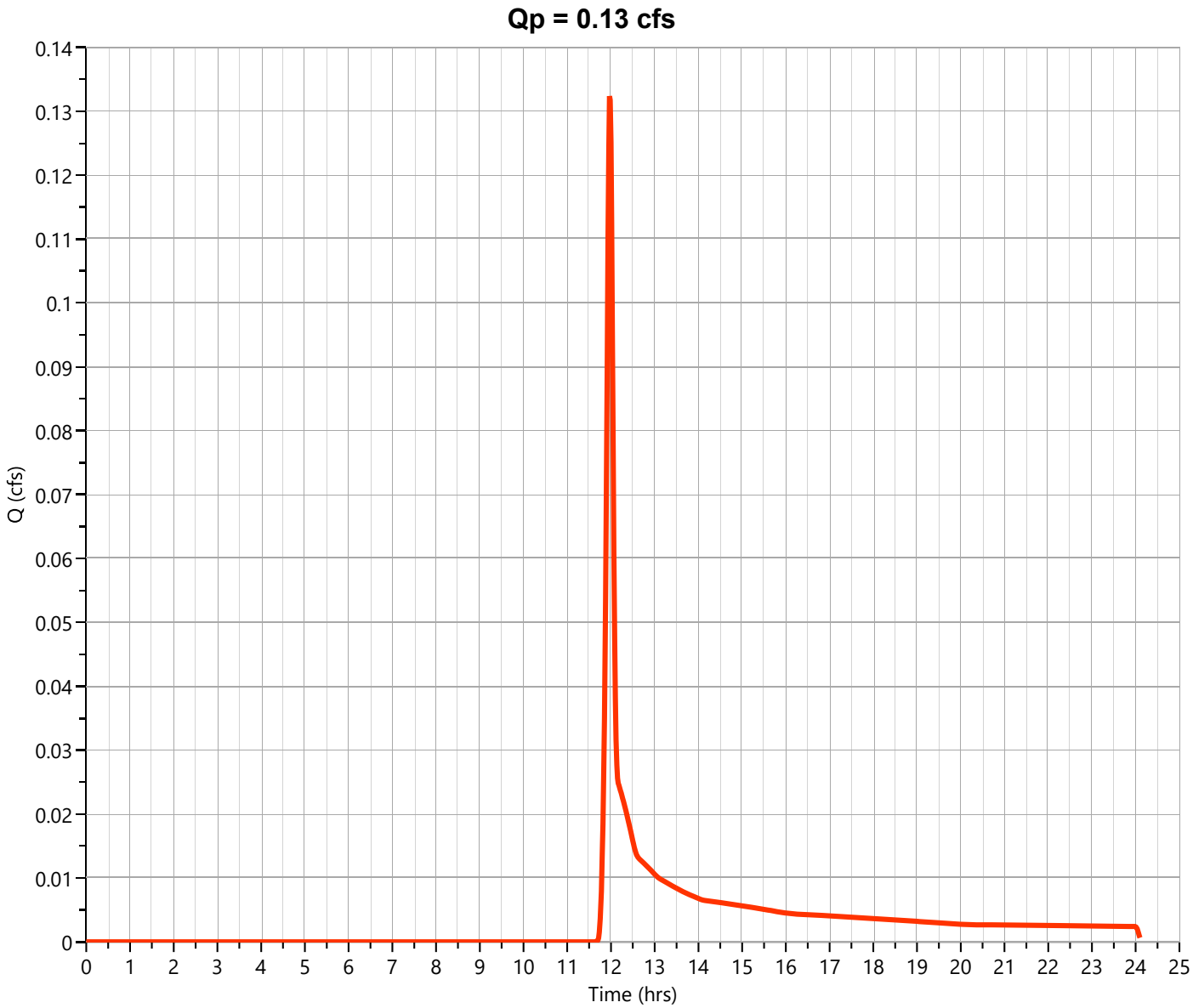
Post SA-B.32 (OVERLAND)'

Hyd. No. 24

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.132 cfs
Storm Frequency	= 1-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 300 cuft
Drainage Area	= 0.209 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.55 min
Total Rainfall	= 2.07 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.209	74	C-LAWN
0.209	**74**	Weighted CN Method Employed



Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

SA-B.32 (OVERLAND)'

Hyd. No. 24

NRCS Runoff

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description	AVG GRASS			
Manning's n	0.240	0.013	0.013	
Flow Length (ft)	75			
2-yr, 24-hr Precip. (in)	3.10	3.10	3.10	
Land Slope (%)	8.2			
Travel Time (min)	**6.55**	**0.00**	**0.00**	**6.55**
Shallow Concentrated Flow				
Flow Length (ft)				
Watercourse Slope (%)	0.00	0.00	0.00	
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
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				**6.55 min**

Hydrograph Report

Project Name:

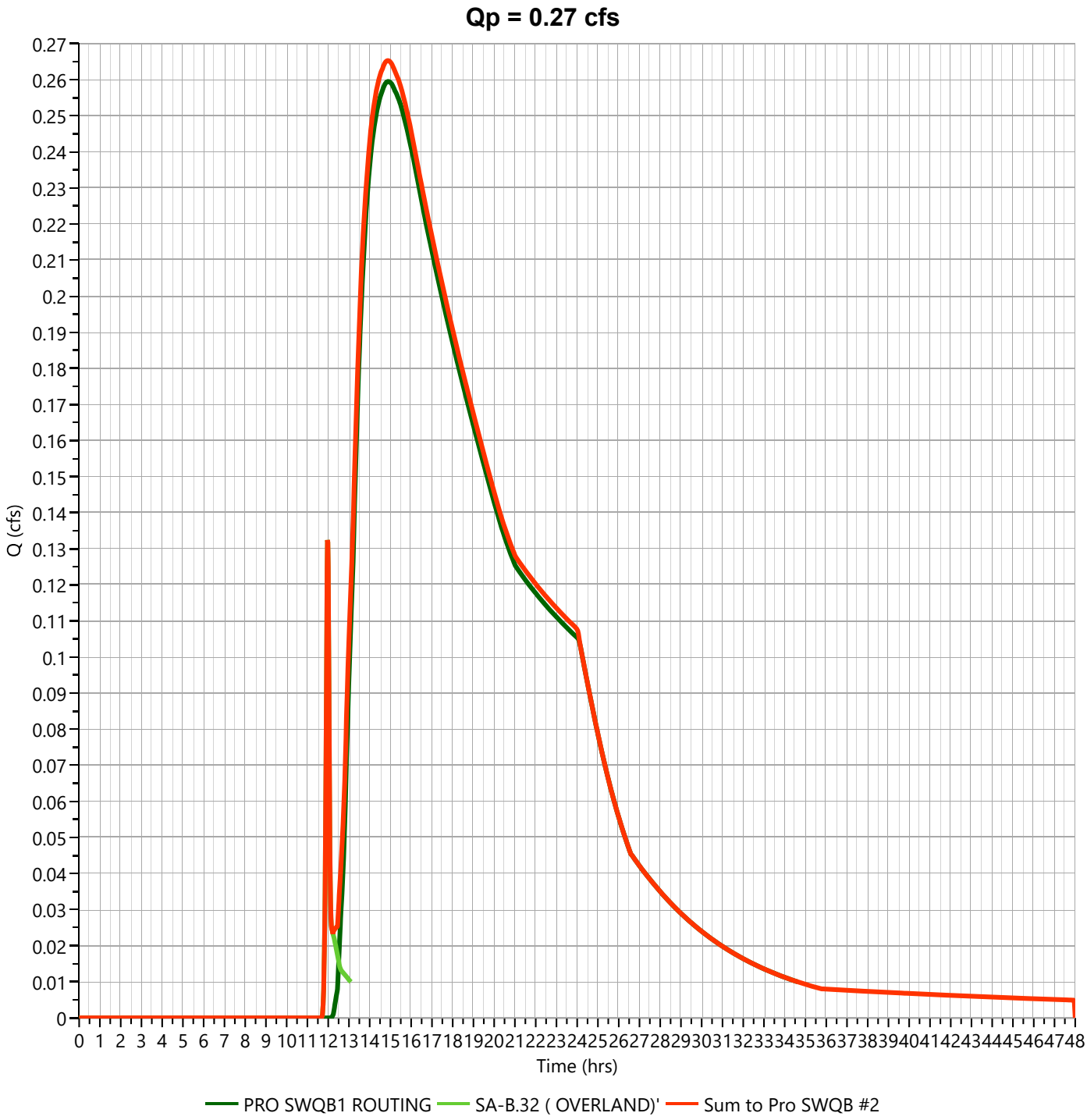
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Pro SWQB #2

Hyd. No. 25

Hydrograph Type	= Junction	Peak Flow	= 0.265 cfs
Storm Frequency	= 1-yr	Time to Peak	= 14.88 hrs
Time Interval	= 1 min	Hydrograph Volume	= 8,957 cuft
Inflow Hydrographs	= 23, 24	Total Contrib. Area	= 0.209 ac



post60

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

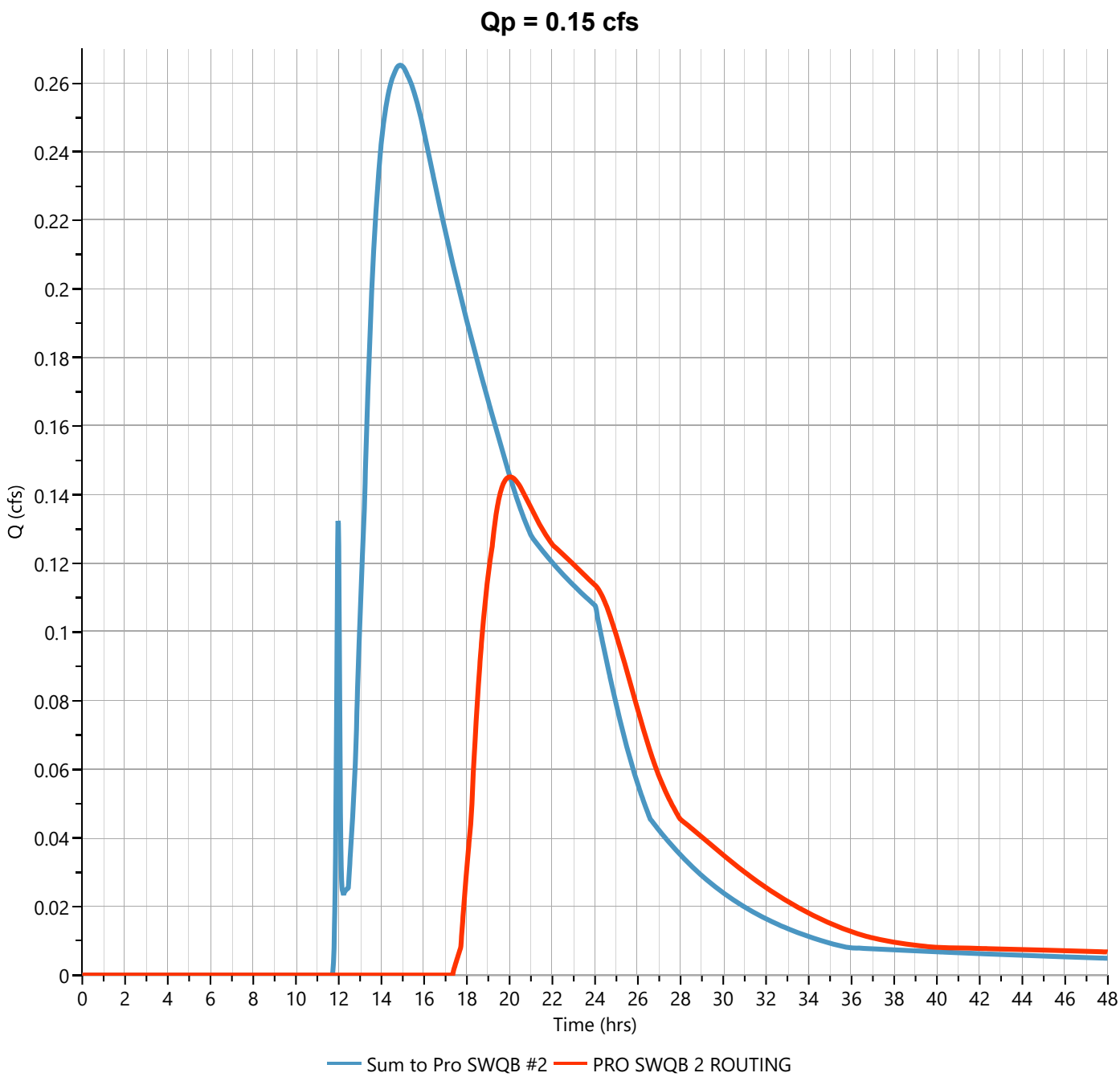
Post PRO SWQB 2 ROUTING

Hyd. No. 26

Hydrograph Type	= Pond Route	Peak Flow	= 0.145 cfs
Storm Frequency	= 1-yr	Time to Peak	= 20.02 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,890 cuft
Inflow Hydrograph	= 25 - Sum to Pro SWQB #2	Max. Elevation	= 79.82 ft
Pond Name	= PRO SWQB #2	Max. Storage	= 4,733 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 5.38 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

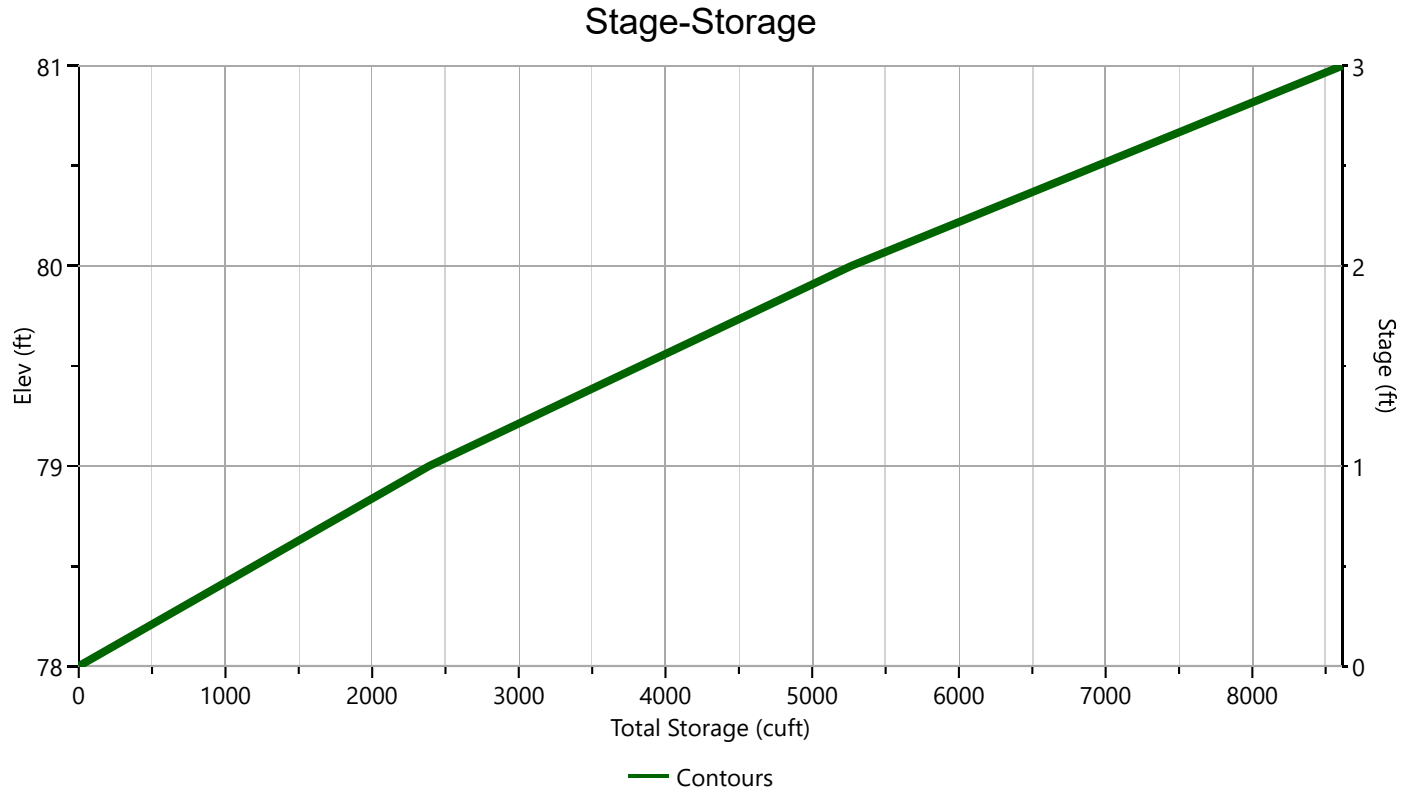
PRO SWQB #2

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	78.00
Voids (%)	100.00
Volume Calc	Conic

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	78.00	2,150	0.000	0.000
1.00	79.00	2,635	2,388	2,388
2.00	80.00	3,125	2,876	5,264
3.00	81.00	3,575	3,347	8,612



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

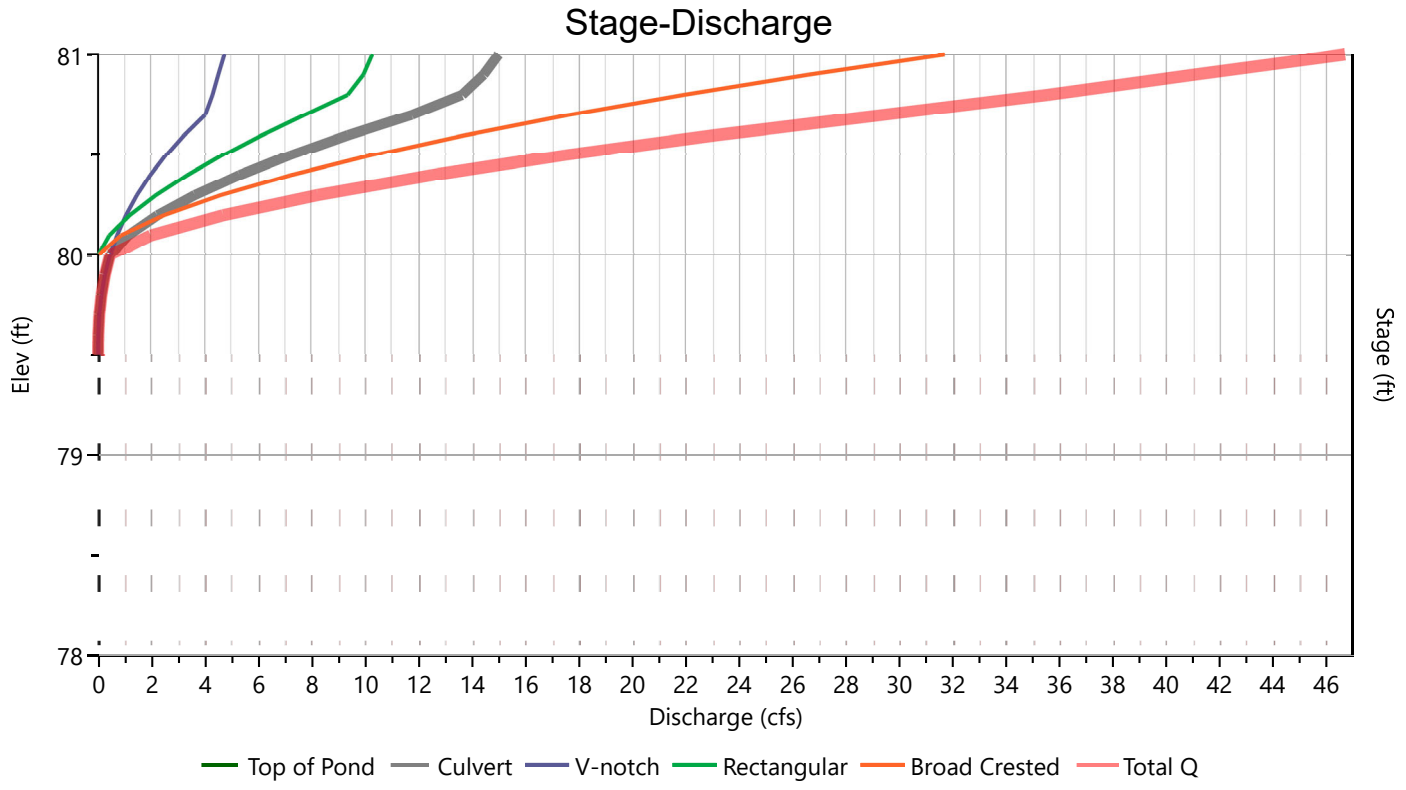
06-25-2023

PRO SWQB #2

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser	
		1	2	3		
Rise, in	18				Hole Diameter, in	
Span, in	18				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	76.76				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	20					
Barrel Slope, %	1					
N-Value, n	0.012					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1*	2*	3		
Shape / Type		V-notch	Rectangular	Broad Crested	Exfiltration, in/hr	
Crest Elevation, ft		79.5	80	80		
Crest Length, ft			4	8		
Angle, deg		90		26.6 (2:1)		
Weir Coefficient, Cw		2.54	3.3	3.3		

*Routes through Culvert.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

PRO SWQB #2

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	78.00	0.000	0.000					0.000	0.000	0.000				0.000
1.00	79.00	2,388	0.000 oc					0.000	0.000	0.000				0.000
2.00	80.00	5,264	0.449 oc					0.449	0.000	0.000				0.449
3.00	81.00	8,612	14.99 ic					4.726 s	10.26 s	31.68				46.67

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

Pond Report

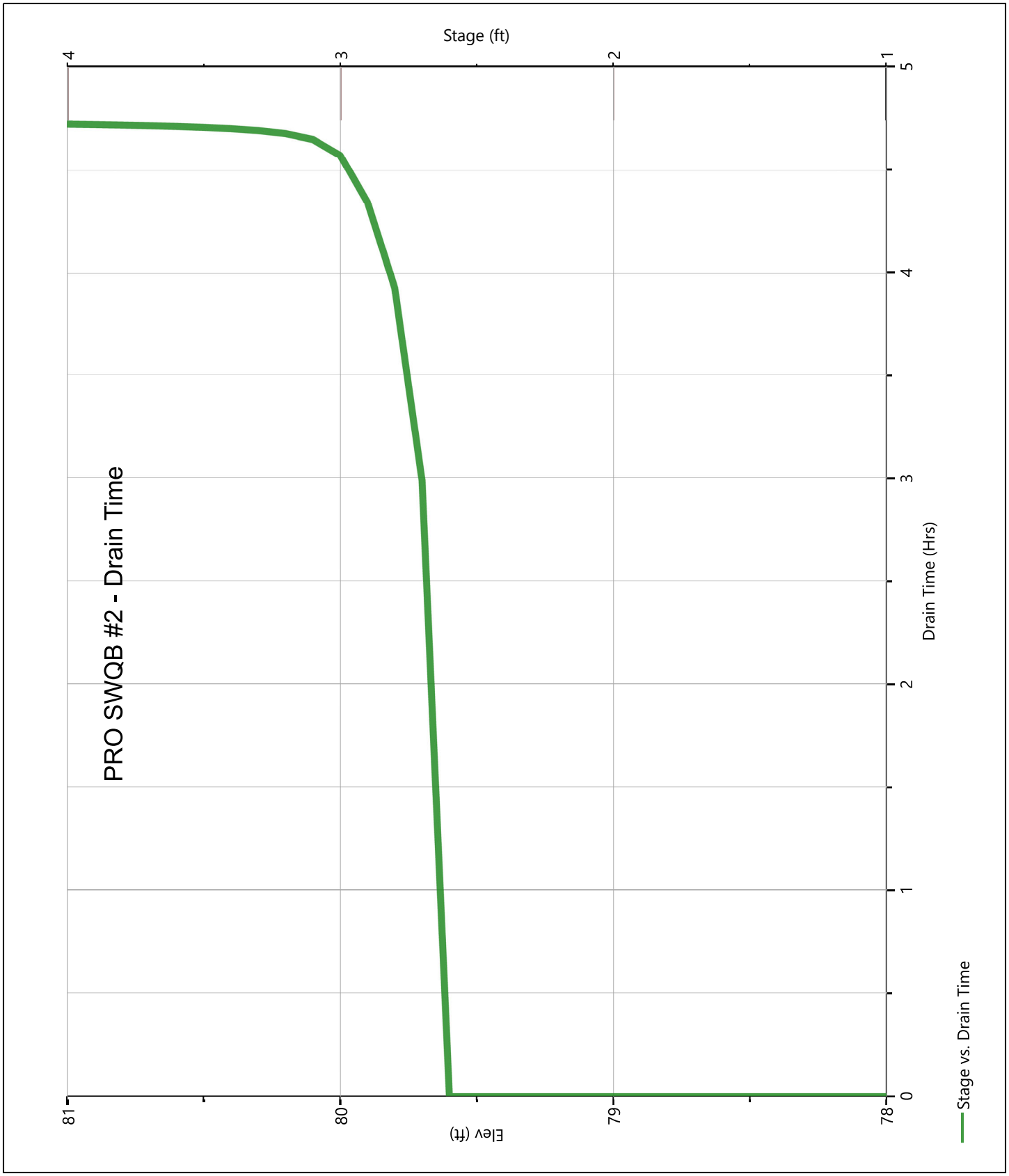
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

PRO SWQB #2

Pond Drawdown



Hydrograph Report

Project Name:

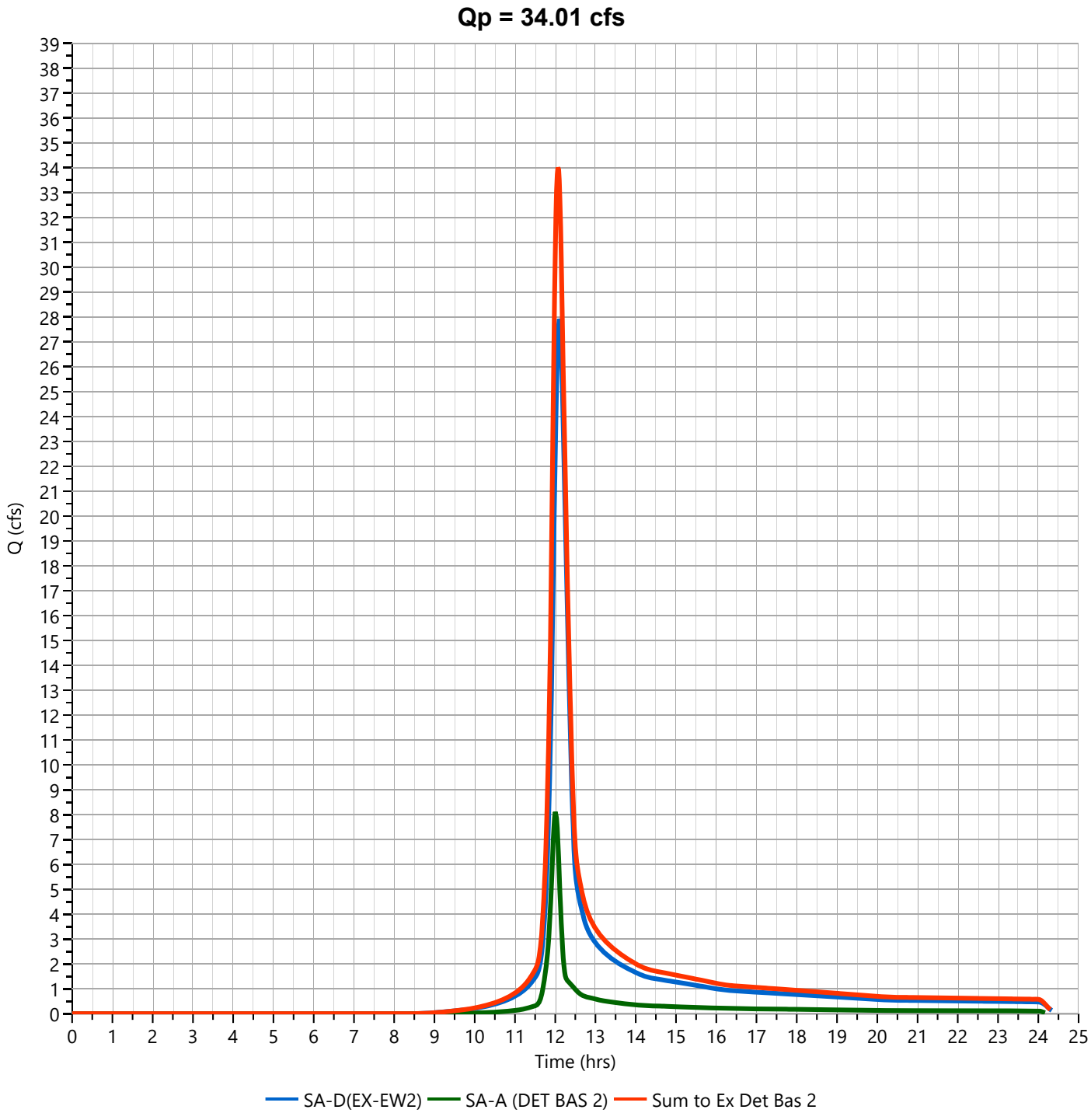
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 2

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 34.01 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 111,745 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.485 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

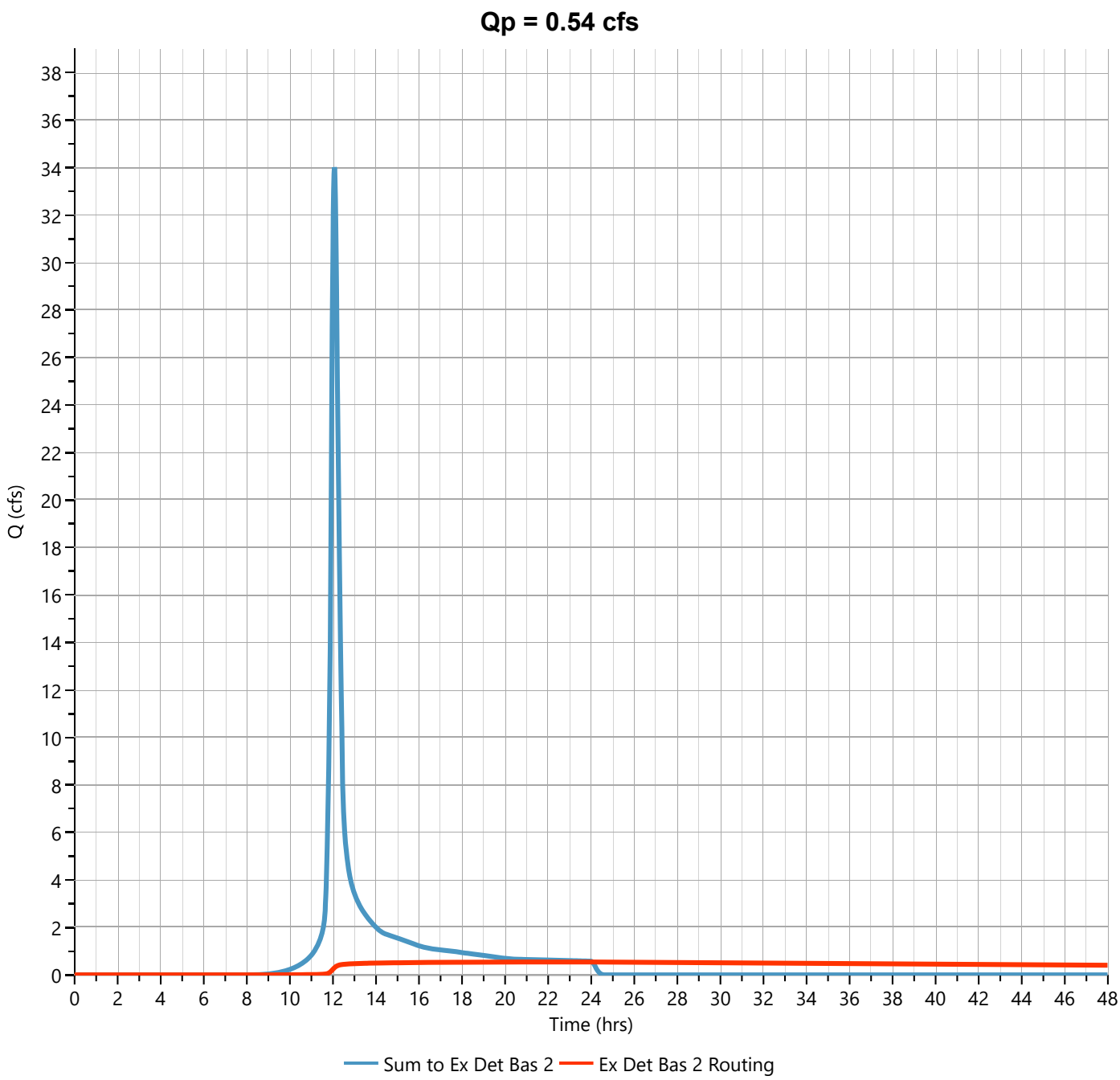
Post Ex Det Bas 2 Routing

Hyd. No. 28

Hydrograph Type	= Pond Route	Peak Flow	= 0.540 cfs
Storm Frequency	= 1-yr	Time to Peak	= 24.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 63,213 cuft
Inflow Hydrograph	= 27 - Sum to Ex Det Bas 2	Max. Elevation	= 78.83 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 88,808 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.27 hrs



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

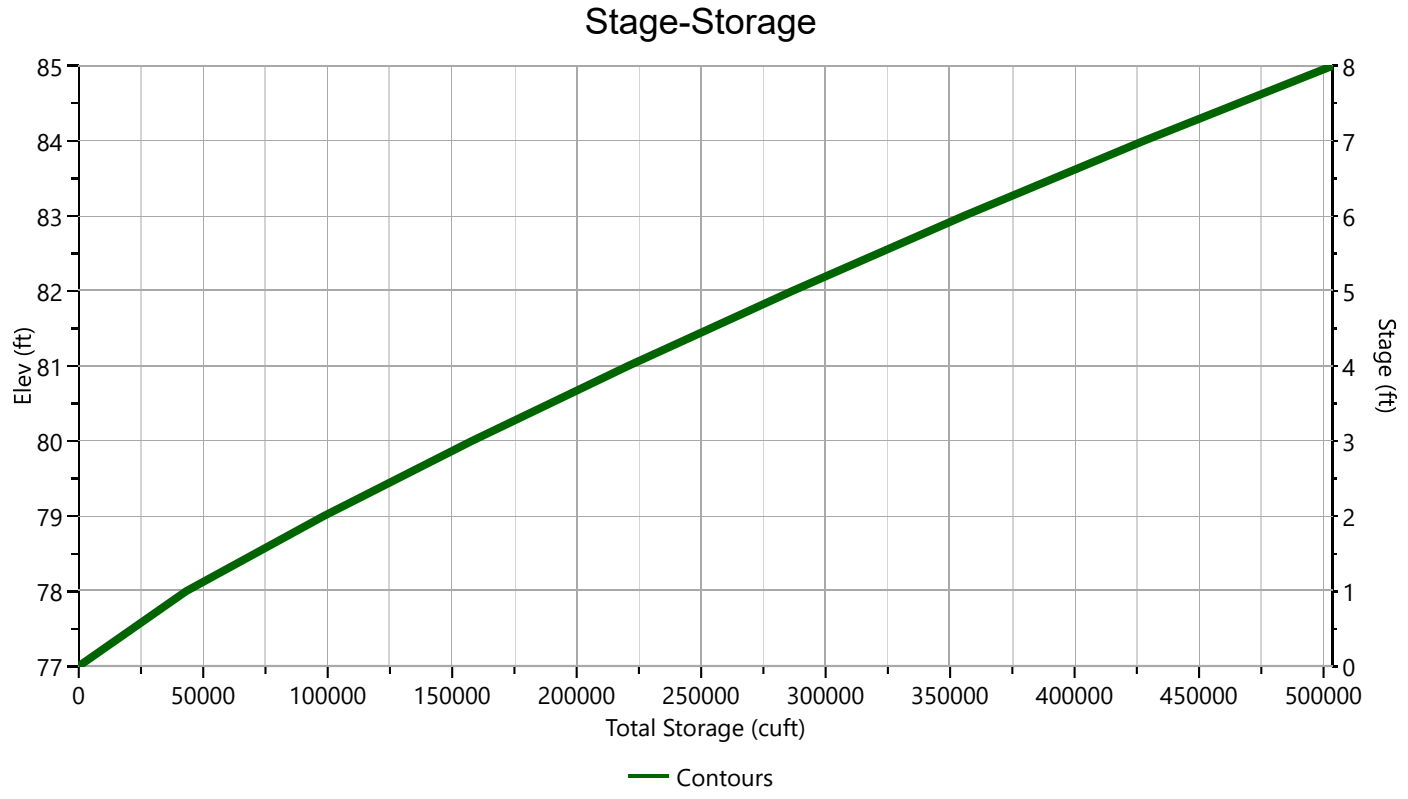
EX-DET BAS #2

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	77.00
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	77.00	33,990	0.000	0.000
1.00	78.00	52,443	43,217	43,217
2.00	79.00	57,929	55,186	98,403
3.00	80.00	60,932	59,431	157,833
4.00	81.00	64,680	62,806	220,639
5.00	82.00	67,341	66,011	286,650
6.00	83.00	70,474	68,908	355,557
7.00	84.00	73,893	72,184	427,741
8.00	85.00	77,798	75,846	503,586



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

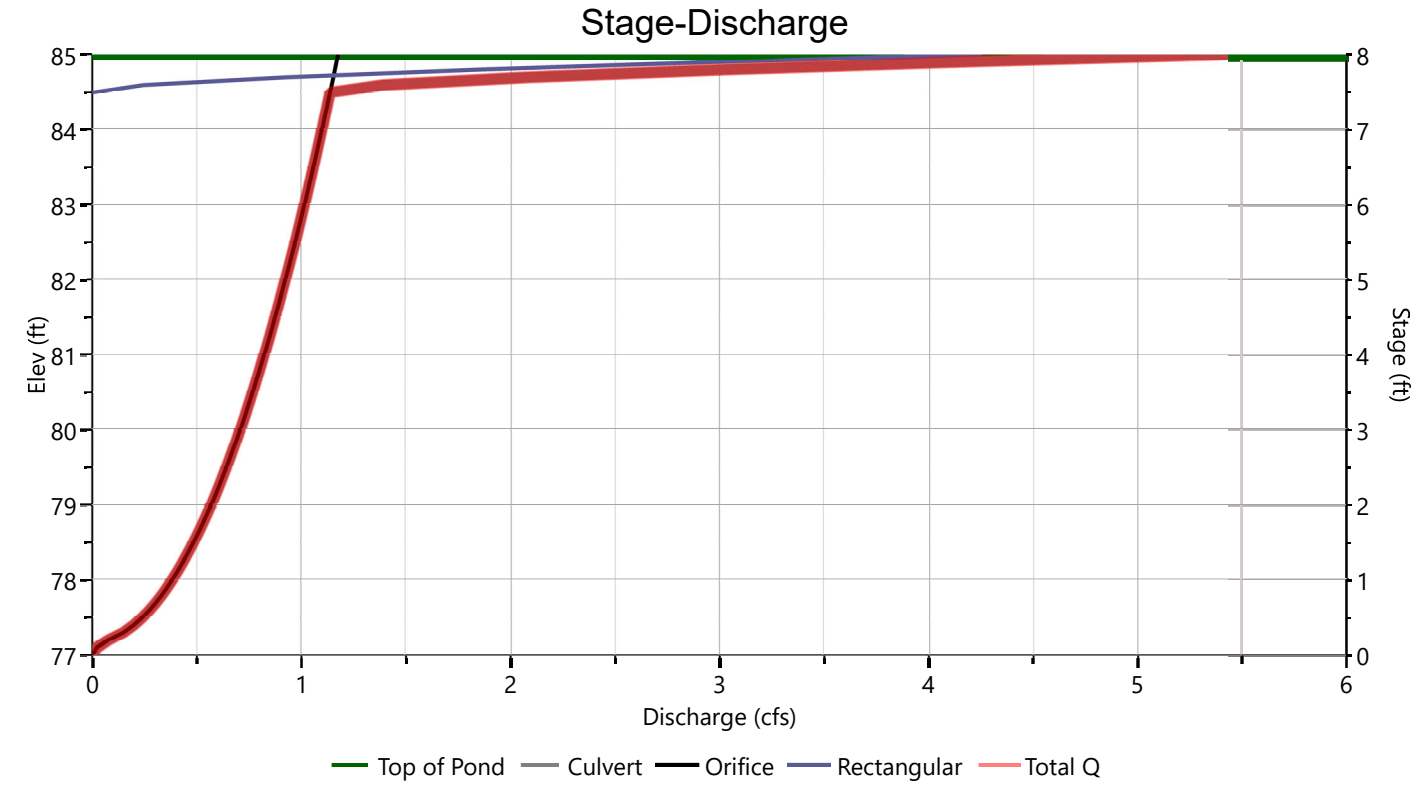
06-25-2023

EX-DET BAS #2

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser	
		1*	2	3		
Rise, in	12	4			Hole Diameter, in	
Span, in	12	4			No. holes	
No. Barrels	1	1			Invert Elevation, ft	
Invert Elevation, ft	12.00	77.01			Height, ft	
Orifice Coefficient, Co	0.60	0.60			Orifice Coefficient, Co	
Length, ft	121					
Barrel Slope, %	.67					
N-Value, n	0.012					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1*	2	3		
Shape / Type	Box	Rectangular			Exfiltration, in/hr	
Crest Elevation, ft		84.53				
Crest Length, ft		4				
Angle, deg						
Weir Coefficient, Cw		3.3				

**Routes through Culvert.*



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

EX-DET BAS #2

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	77.00	0.000	0.000	0.000				0.000						0.000
1.00	78.00	43,217	0.381 oc	0.381				0.000						0.381
2.00	79.00	98,403	0.567 oc	0.567				0.000						0.567
3.00	80.00	157,833	0.706 oc	0.706				0.000						0.706
4.00	81.00	220,639	0.822 oc	0.822				0.000						0.822
5.00	82.00	286,650	0.923 oc	0.923				0.000						0.923
6.00	83.00	355,557	1.014 oc	1.014				0.000						1.014
7.00	84.00	427,741	1.097 oc	1.097				0.000						1.097
8.00	85.00	503,586	5.428 oc	1.175				4.253						5.428

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

Pond Report

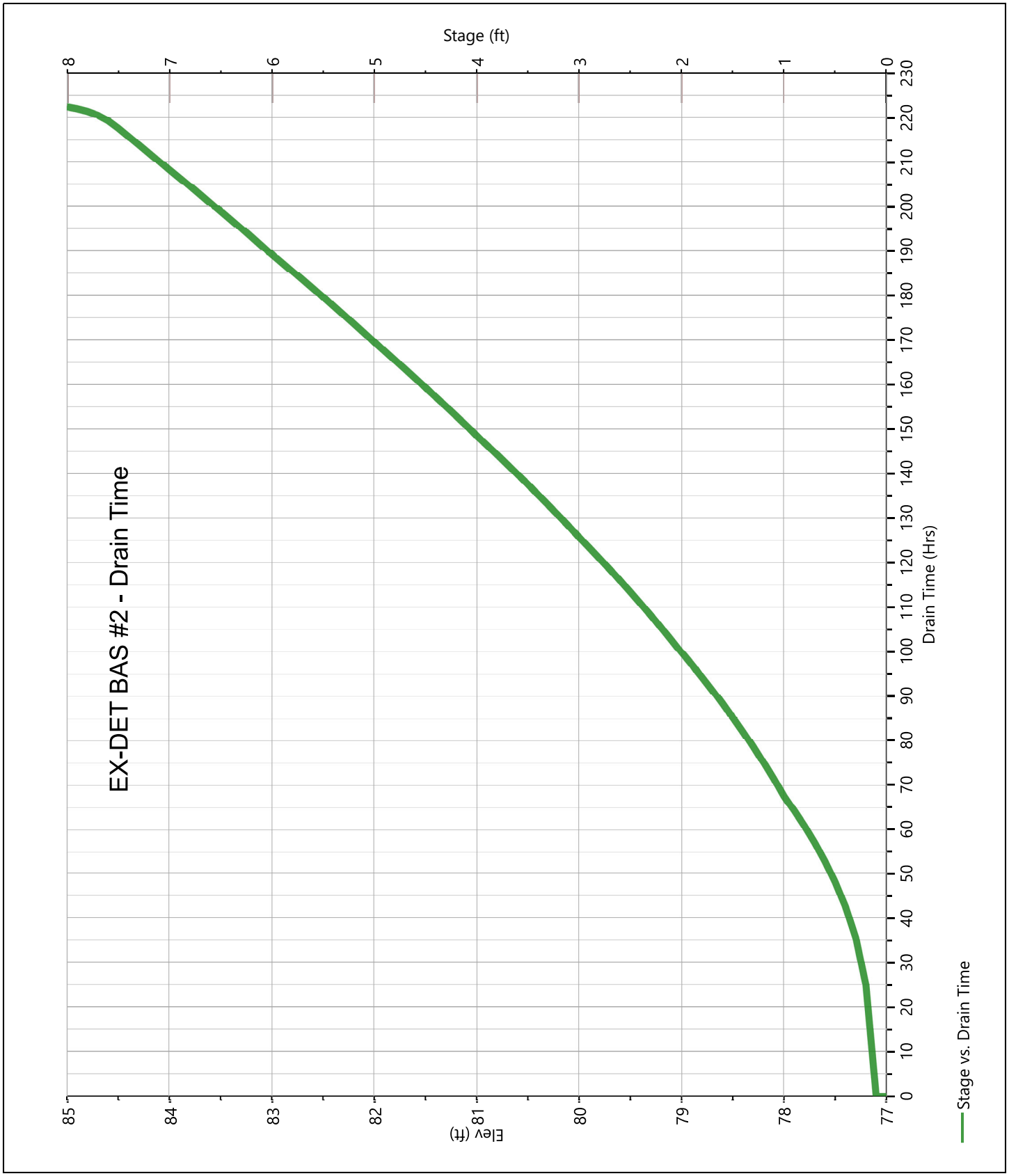
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

EX-DET BAS #2

Pond Drawdown



Hydrograph Report

Project Name:

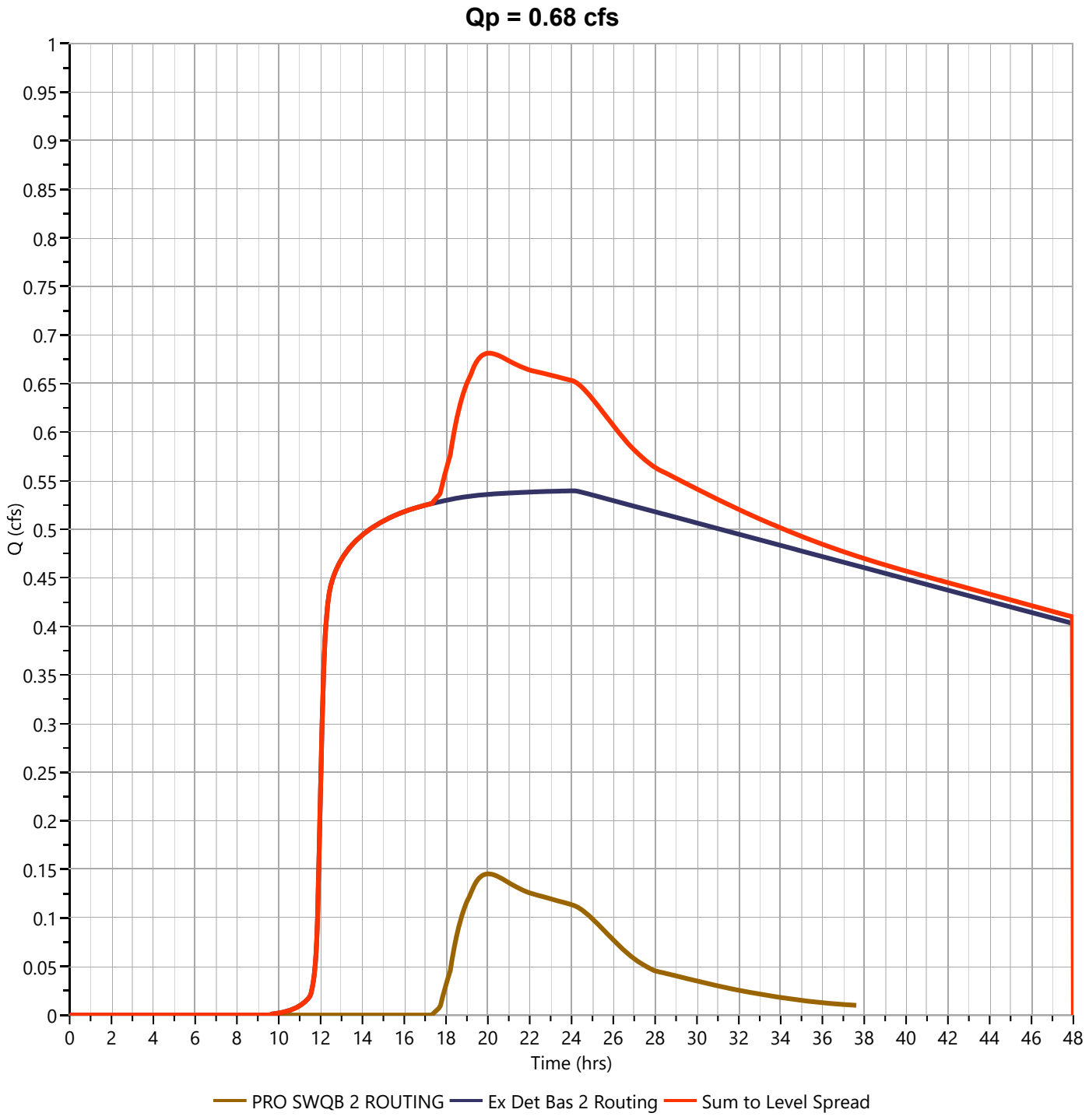
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Level Spread

Hyd. No. 29

Hydrograph Type	= Junction	Peak Flow	= 0.681 cfs
Storm Frequency	= 1-yr	Time to Peak	= 20.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 68,103 cuft
Inflow Hydrographs	= 26, 28	Total Contrib. Area	= 0.0 ac



Hydrograph Report

Project Name:

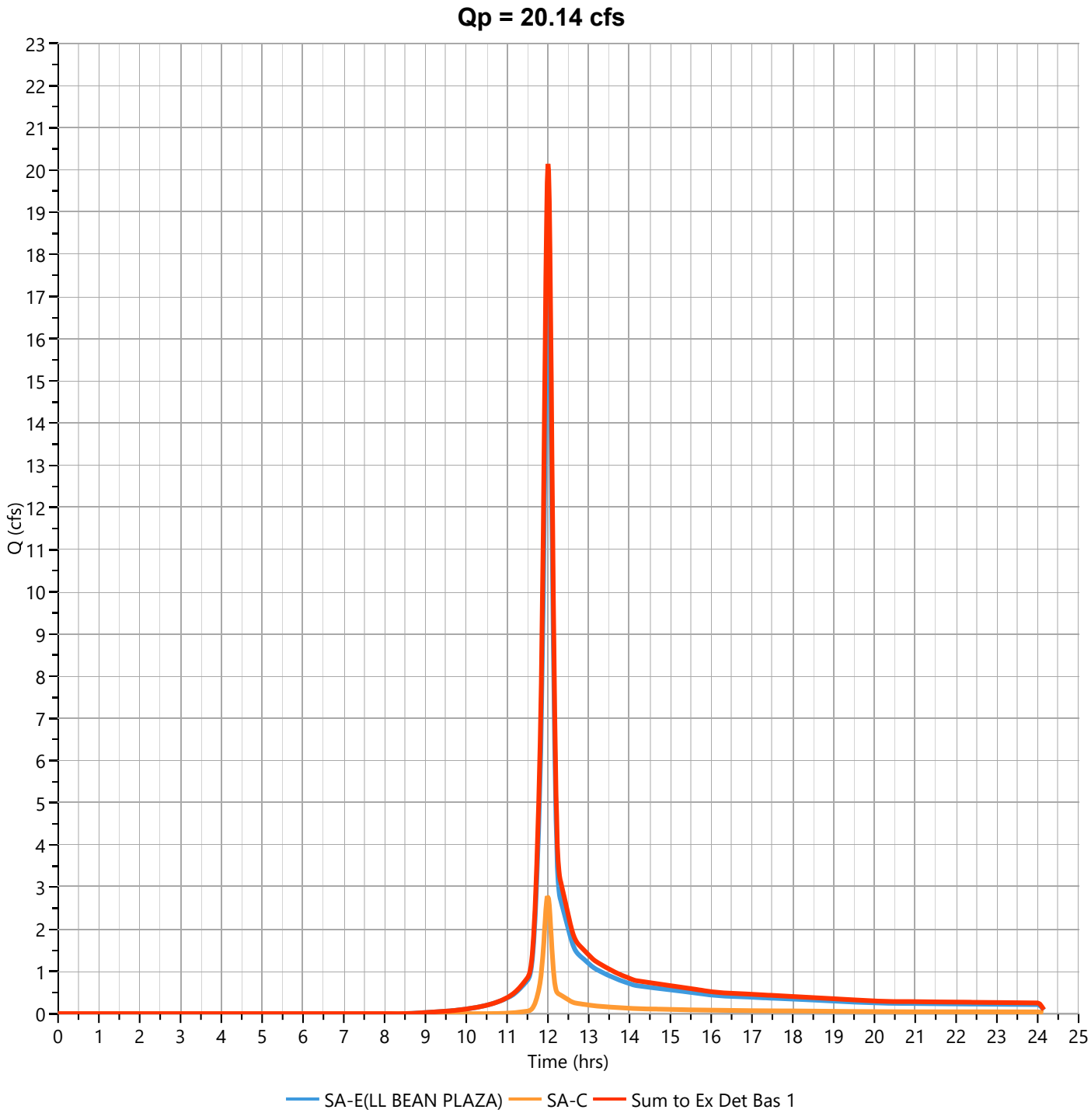
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 1

Hyd. No. 30

Hydrograph Type	= Junction	Peak Flow	= 20.14 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 48,357 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 13.654 ac



Design Storm Report

Custom Storm filename: 3170.cds

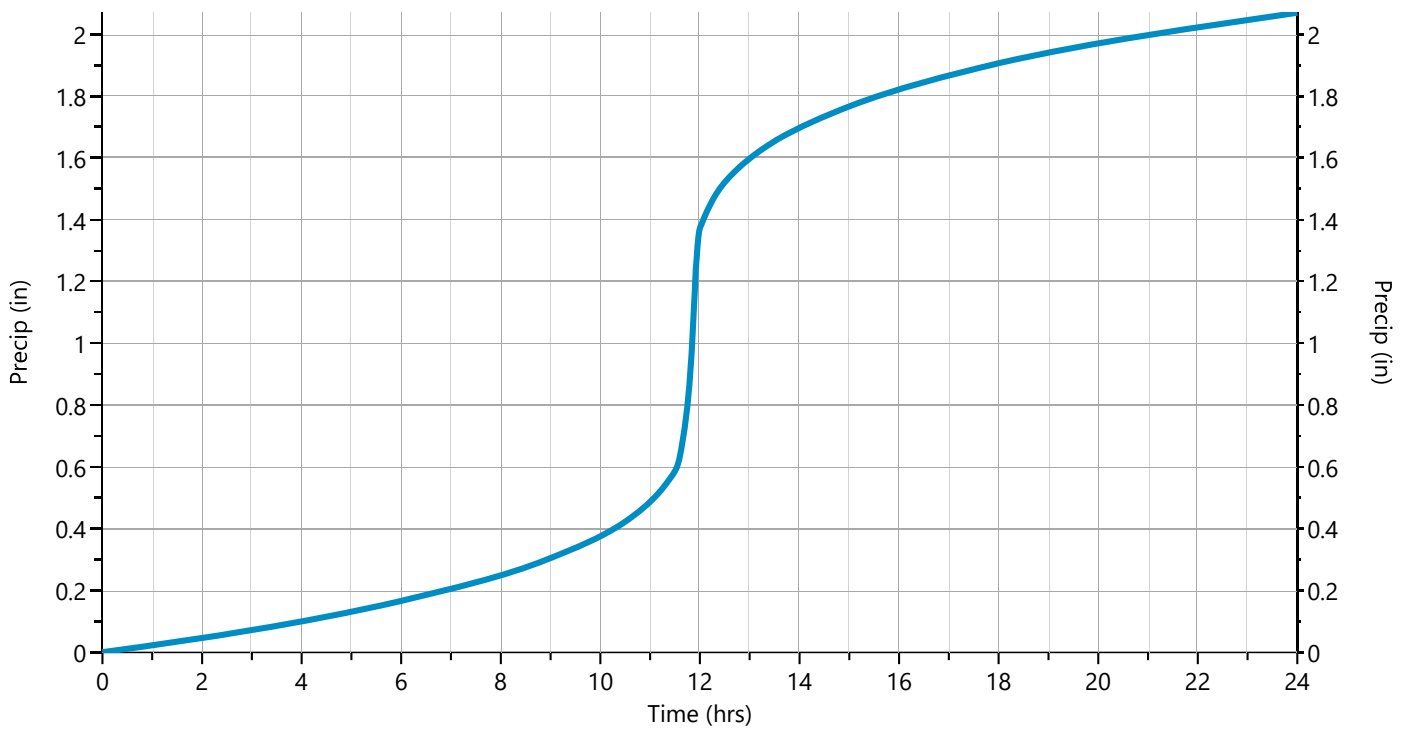
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	✔ 1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 1-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.003836	11.60	0.011629	11.78	0.030243	11.97	0.028482	12.15	0.005820
11.43	0.003892	11.62	0.012990	11.80	0.034031	11.98	0.019863	12.17	0.005689
11.45	0.003947	11.63	0.014352	11.82	0.037818	12.00	0.011244	12.18	0.005558
11.47	0.004002	11.65	0.015714	11.83	0.041605	12.02	0.007101	12.20	0.005427
11.48	0.004057	11.67	0.017075	11.85	0.045393	12.03	0.006738	12.22	0.005296
11.50	0.004112	11.68	0.018437	11.87	0.049180	12.05	0.006607	12.23	0.005165
11.52	0.004836	11.70	0.019798	11.88	0.052968	12.07	0.006476	12.25	0.005033
11.53	0.006182	11.72	0.021160	11.90	0.056755	12.08	0.006345	12.27	0.004902
11.55	0.007544	11.73	0.022522	**11.92**	**0.060542**	12.10	0.006213	12.28	0.004771
11.57	0.008906	11.75	0.023883	11.93	0.039589	12.12	0.006082	12.30	0.004640
11.58	0.010267	11.77	0.026256	11.95	0.037102	12.13	0.005951	12.32	0.004509



Hydrograph 2-yr Summary

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	37.41	12.10	122,907	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	23.10	12.00	55,956	----		
3	NRCS Runoff	Post SA-A (DET BAS 2)	11.07	12.00	26,774	----		
4	NRCS Runoff	Pre SA-B (TO PRO SWQB 1)	7.515	11.97	15,929	----		
5	NRCS Runoff	Post SA-C	4.021	12.00	9,117	----		
6	NRCS Runoff	Post SA-B.32 (OVERLAND)	0.223	11.97	469	----		
7	NRCS Runoff	Post BLDG #4 RL	0.687	11.95	1,601	----		
8	Pond Route	Post #4 RL SYS ROUTING	0.092	12.15	782	7	84.28	991
9	NRCS Runoff	Post BLDG #5 RL	0.687	11.95	1,601	----		
10	Pond Route	Post #5 RL SYS ROUTING	0.092	12.15	782	9	84.28	991
11	NRCS Runoff	Post BLDG #6 RL	0.687	11.95	1,601	----		
12	Pond Route	Post #6 RL SYS ROUTING	0.092	12.15	782	11	84.28	991
13	NRCS Runoff	Post BLDG #7 RL	0.687	11.95	1,601	----		
14	Pond Route	Post #7 RL SYS ROUTING	0.092	12.15	782	13	84.28	991
15	NRCS Runoff	Post BLDG #8 RL	0.687	11.95	1,601	----		
16	Pond Route	#8 RL SYS ROUTING	0.092	12.15	782	15	84.28	991
17	NRCS Runoff	Post BLDG #11 RL	0.983	11.95	2,292	----		
18	Pond Route	Post #11 RL SYS ROUTING	0.181	12.12	1,190	17	84.35	1,391
19	Junction		0.275	12.15	2,345	8, 10, 12		
20	Junction		0.364	12.12	2,754	14, 16, 18		
21	Junction	Post Sum of RL Sys	0.639	12.12	5,099	19, 20		
22	Junction	Post Sum to SWQB #1	7.623	11.98	21,028	4, 21		
23	Pond Route	PRO SWQB1 ROUTING	0.740	13.02	14,619	22	81.61	10,297
24	NRCS Runoff	Post SA-B.32 (OVERLAND)'	0.222	11.97	467	----		
25	Junction	Post Sum to Pro SWQB #2	0.755	13.00	15,086	23, 24		
26	Pond Route	Post PRO SWQB 2 ROUTING	0.411	15.17	11,016	25	79.98	5,208
27	Junction	Post Sum to Ex Det Bas 2	45.79	12.07	149,681	1, 3		
28	Pond Route	Post Ex Det Bas 2 Routing	0.628	24.10	75,028	27	79.41	122,753
29	Junction	Post Sum to Level Spread	1.005	15.22	86,044	26, 28		
30	Junction	Post Sum to Ex Det Bas 1	27.12	12.00	65,073	2, 5		

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

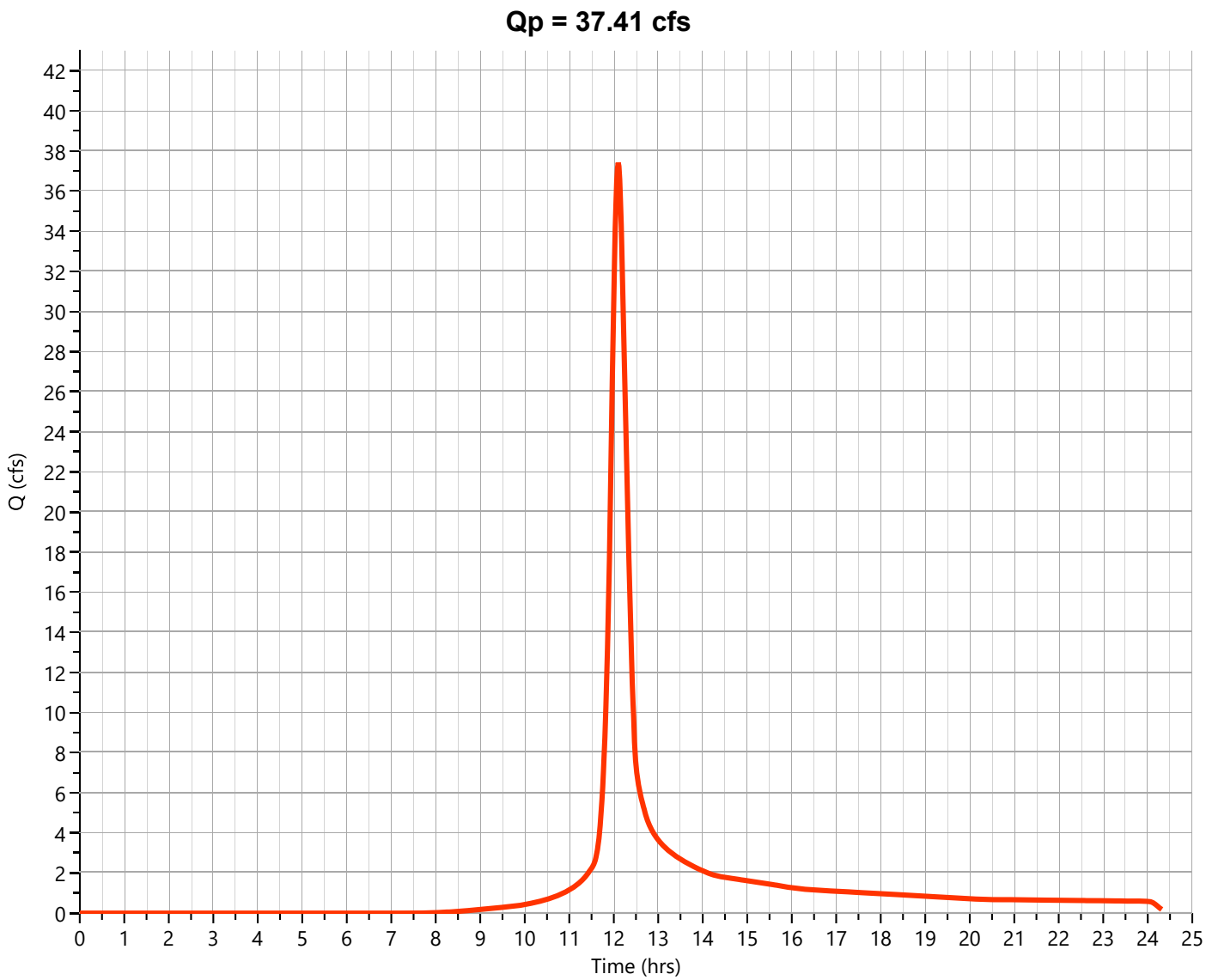
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 37.41 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 122,907 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

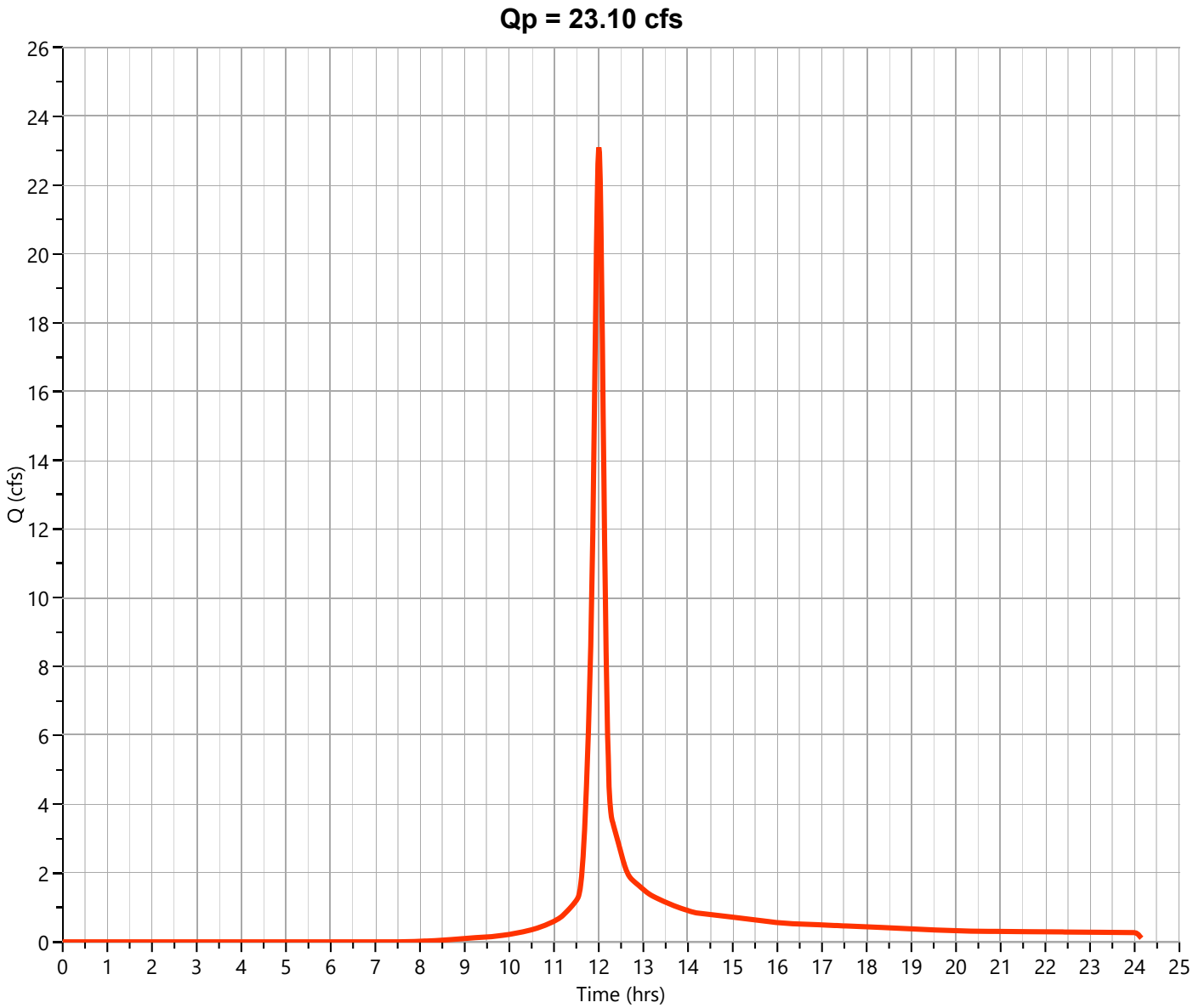
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 23.10 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 55,956 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

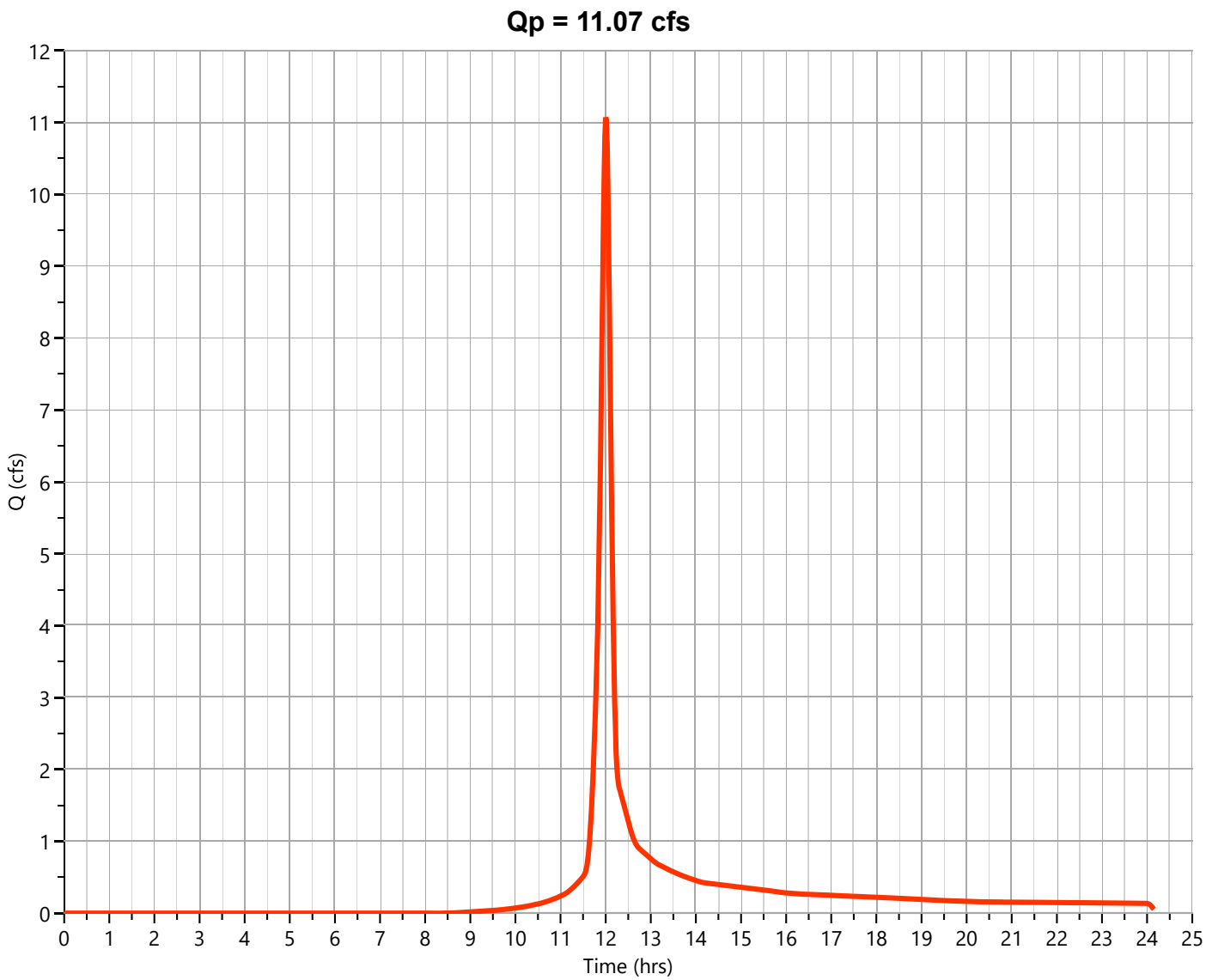
Post SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 11.07 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 26,774 cuft
Drainage Area	= 5.905 ac	Curve Number	= 86*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.893	98	C-PAVED/ROOF
1.394	74	C-LAWN/LANDSCAPED
1.618	74	C- GRASS /DET BAS
5.905	**86**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

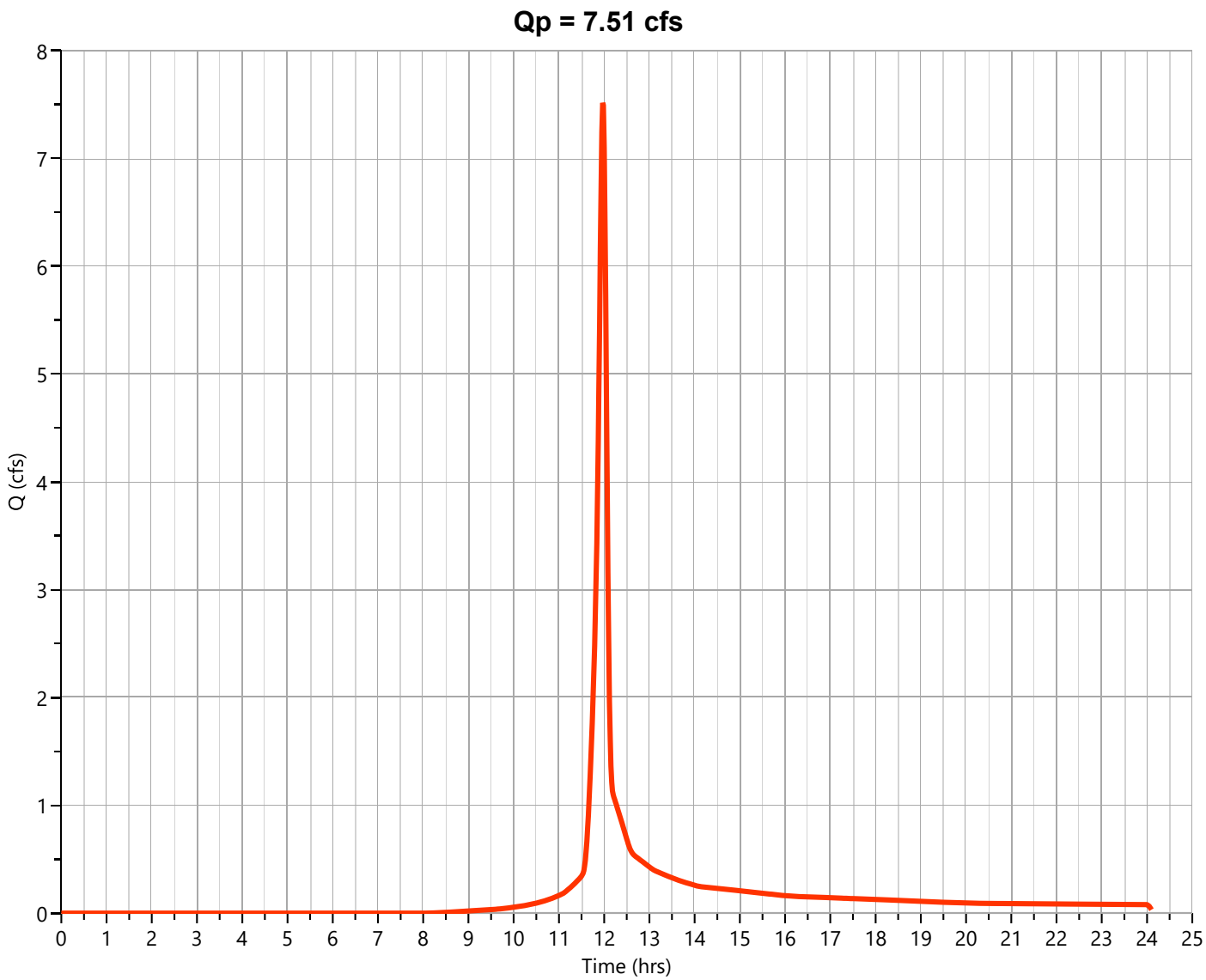
Pre SA-B (TO PRO SWQB 1)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.515 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 15,929 cuft
Drainage Area	= 3.477 ac	Curve Number	= 87*
Tc Method	= User	Time of Conc. (Tc)	= 7.5 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.66	74	C-GRASS (GOOD)
1.817	98	C-PAVED/ROOF
3.477	**87**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

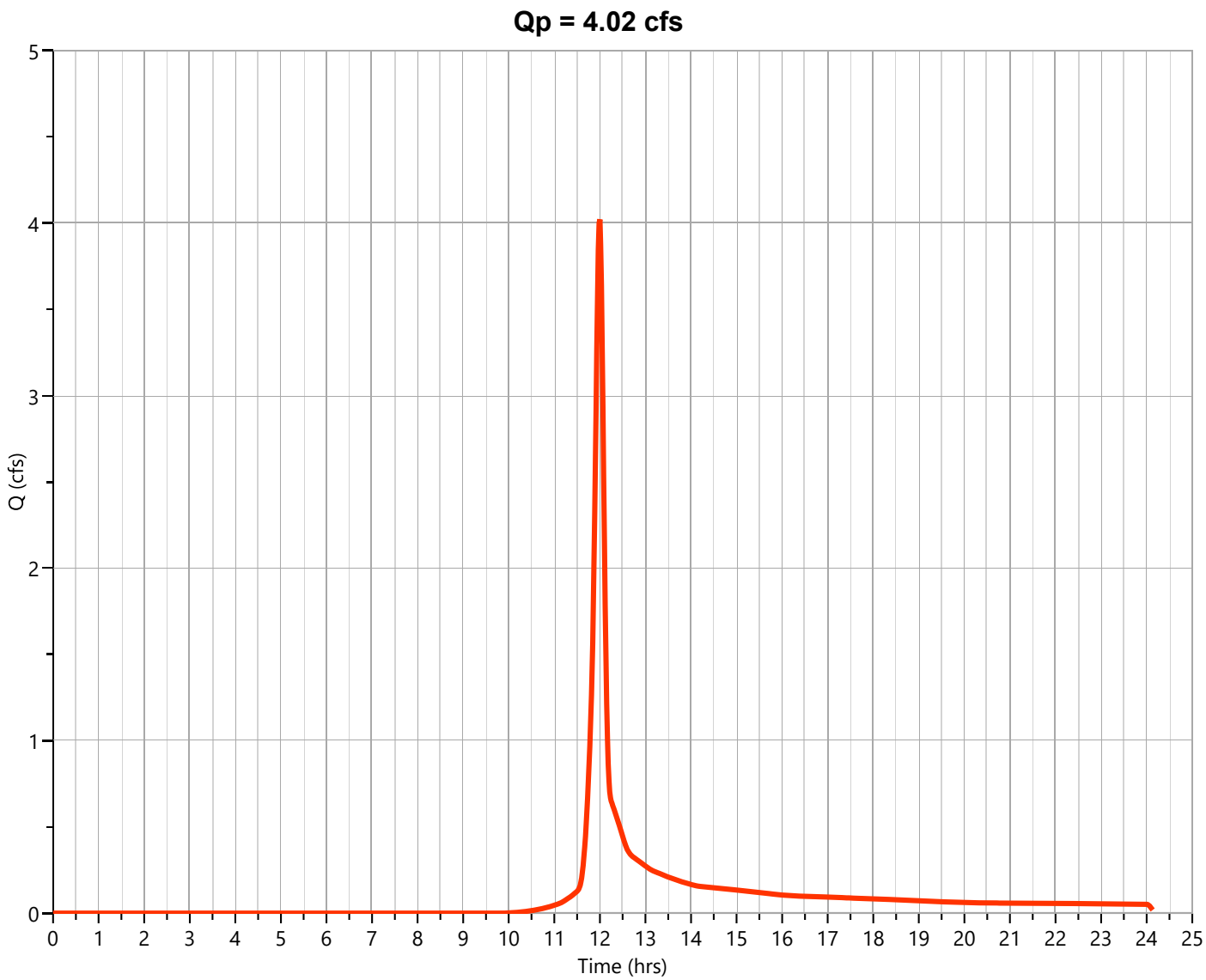
Post SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.021 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 9,117 cuft
Drainage Area	= 2.554 ac	Curve Number	= 82*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.178	79	C-GRASS (FAIR)
0.376	98	C-ROOF & PAVED
2.554	**82**	Weighted CN Method Employed



post80

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

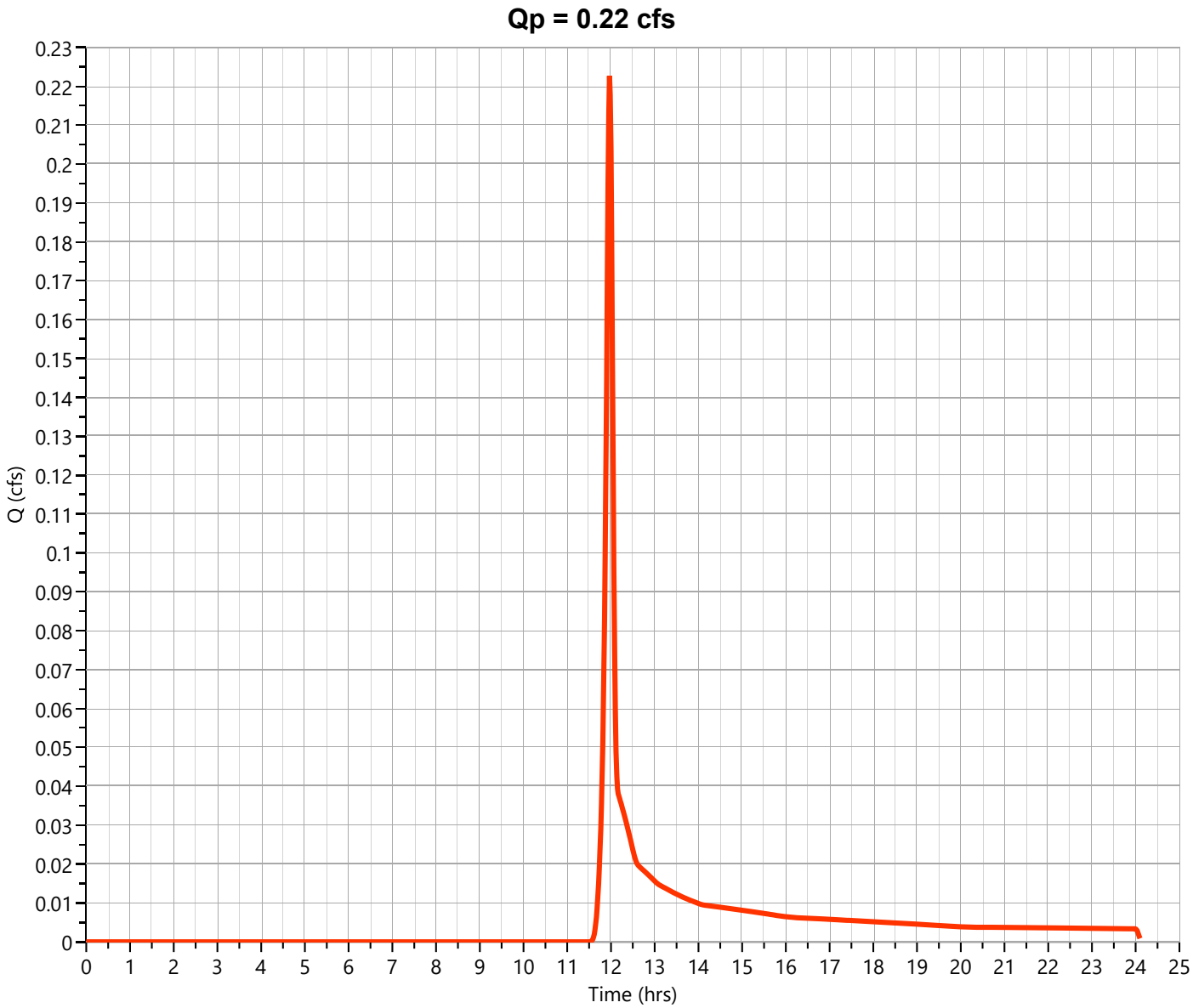
Post SA-B.32 (OVERLAND)

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.223 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 469 cuft
Drainage Area	= 0.21 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.47 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.21	74	C-GRASS
0.21	**74**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

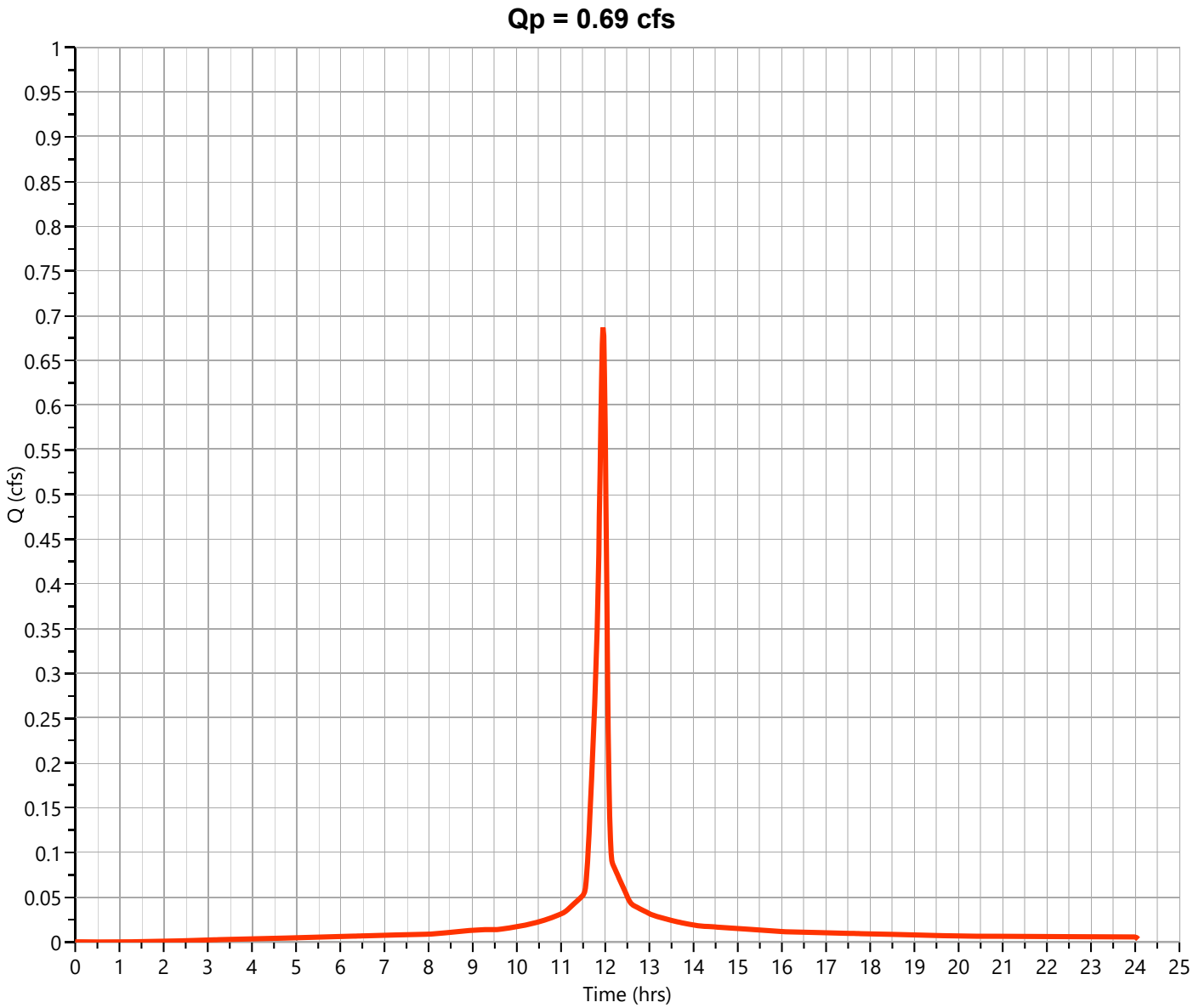
Post BLDG #4 RL

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.687 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,601 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post82

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

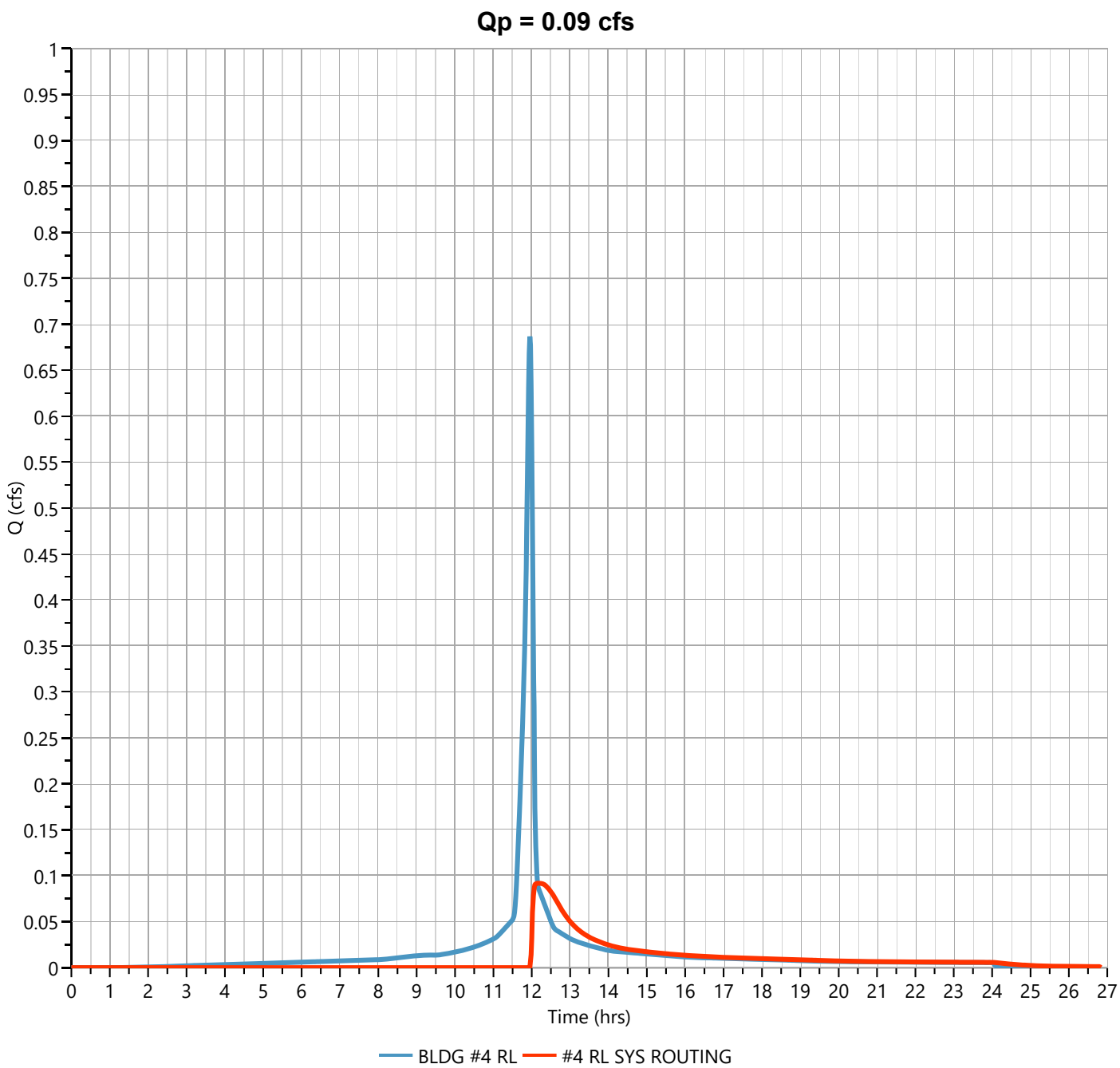
Post #4 RL SYS ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.092 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 782 cuft
Inflow Hydrograph	= 7 - BLDG #4 RL	Max. Elevation	= 84.28 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 991 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3.39 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

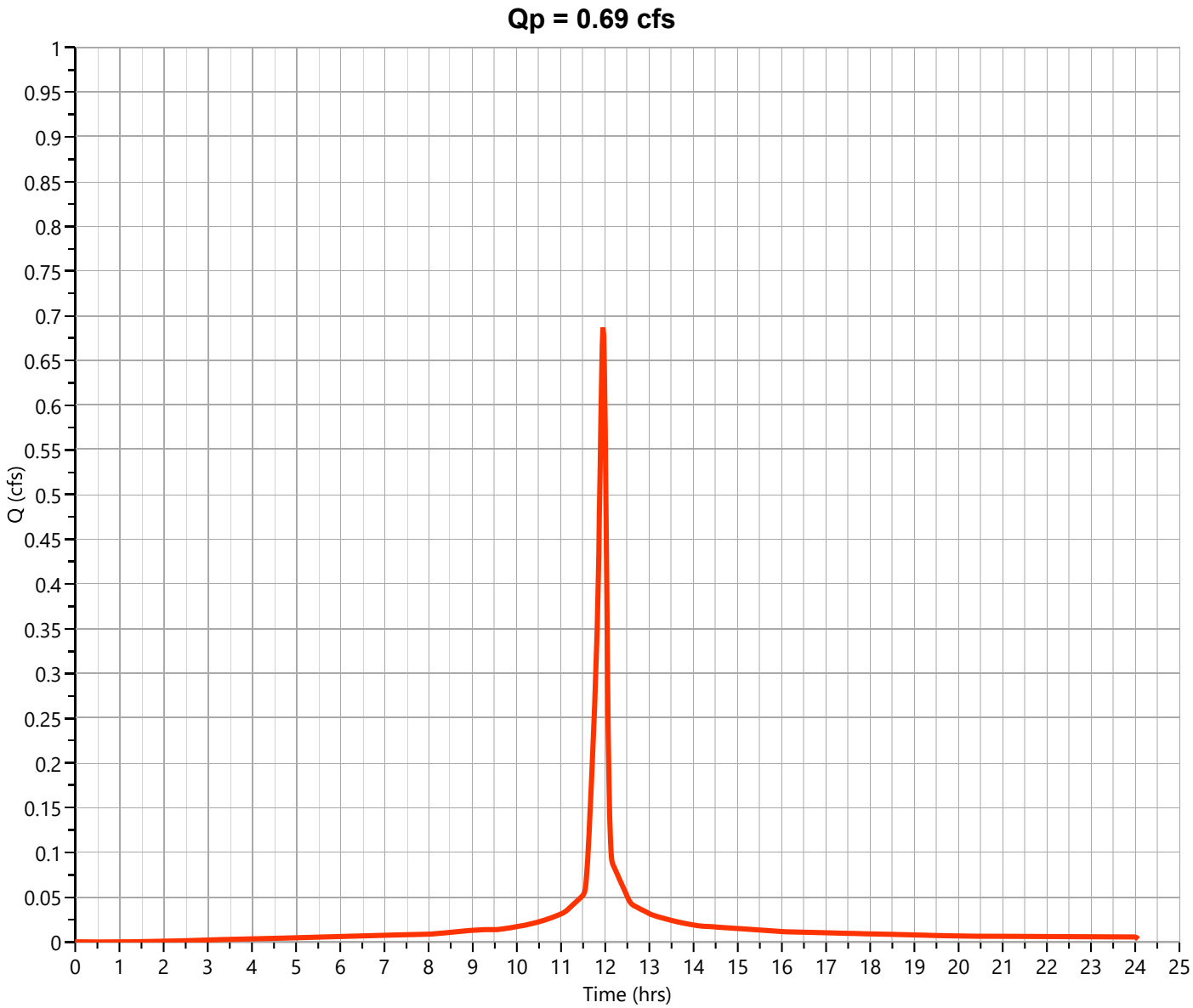
Post BLDG #5 RL

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.687 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,601 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post84

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

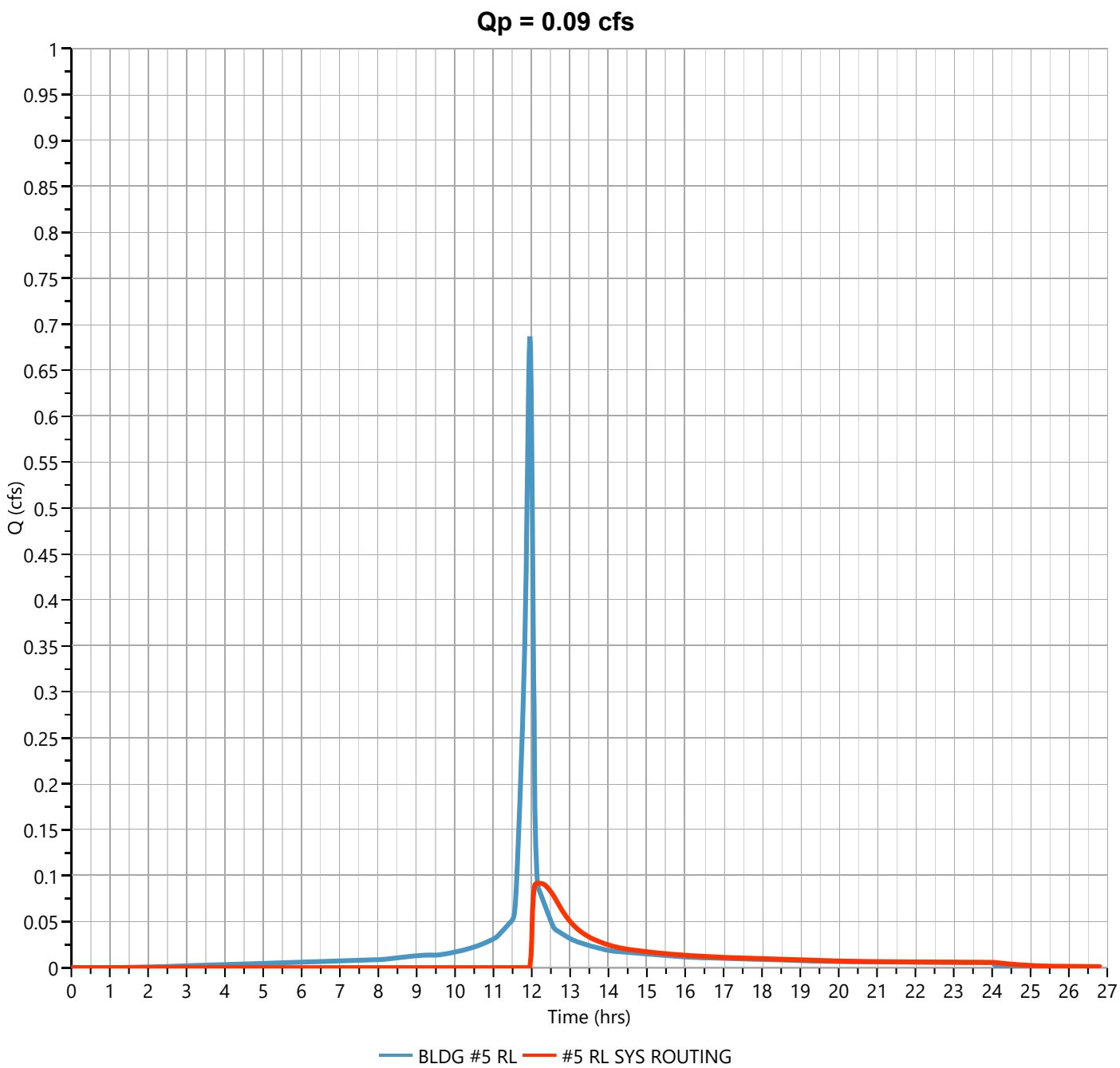
Post #5 RL SYS ROUTING

Hyd. No. 10

Hydrograph Type	= Pond Route	Peak Flow	= 0.092 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 782 cuft
Inflow Hydrograph	= 9 - BLDG #5 RL	Max. Elevation	= 84.28 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 991 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3.39 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

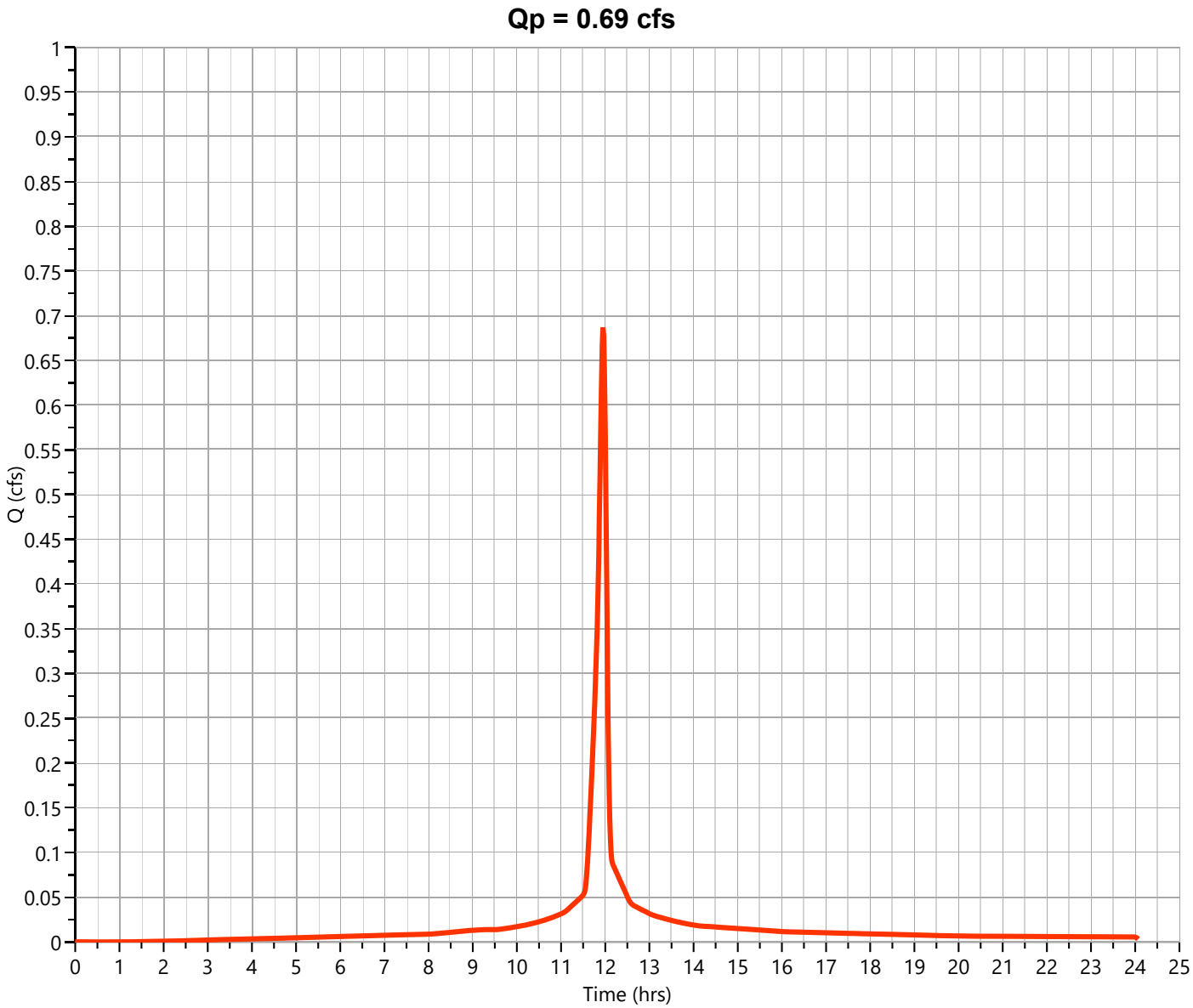
Post BLDG #6 RL

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.687 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,601 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

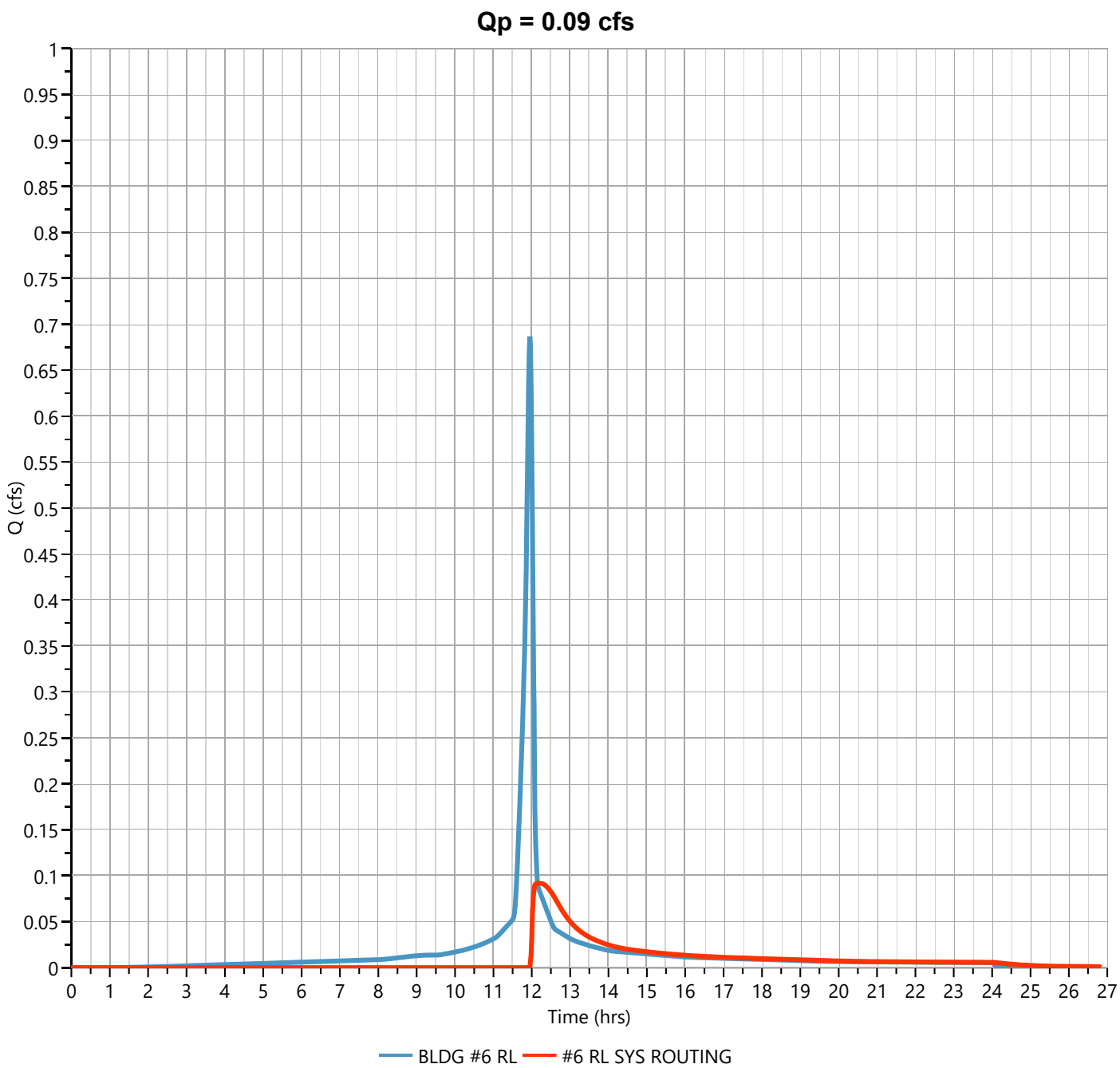
Post #6 RL SYS ROUTING

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 0.092 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 782 cuft
Inflow Hydrograph	= 11 - BLDG #6 RL	Max. Elevation	= 84.28 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 991 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3.39 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

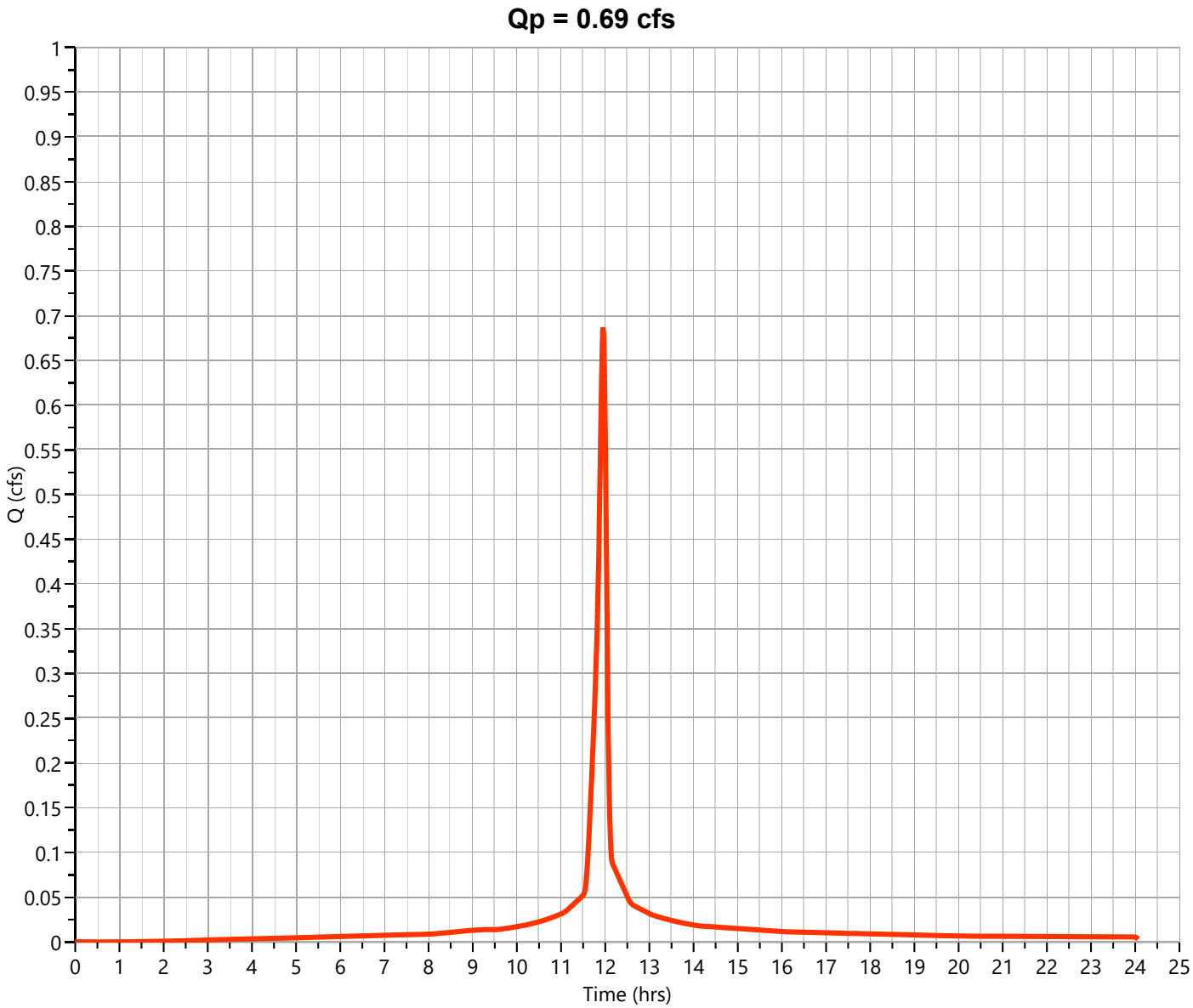
Post BLDG #7 RL

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.687 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,601 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post88

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

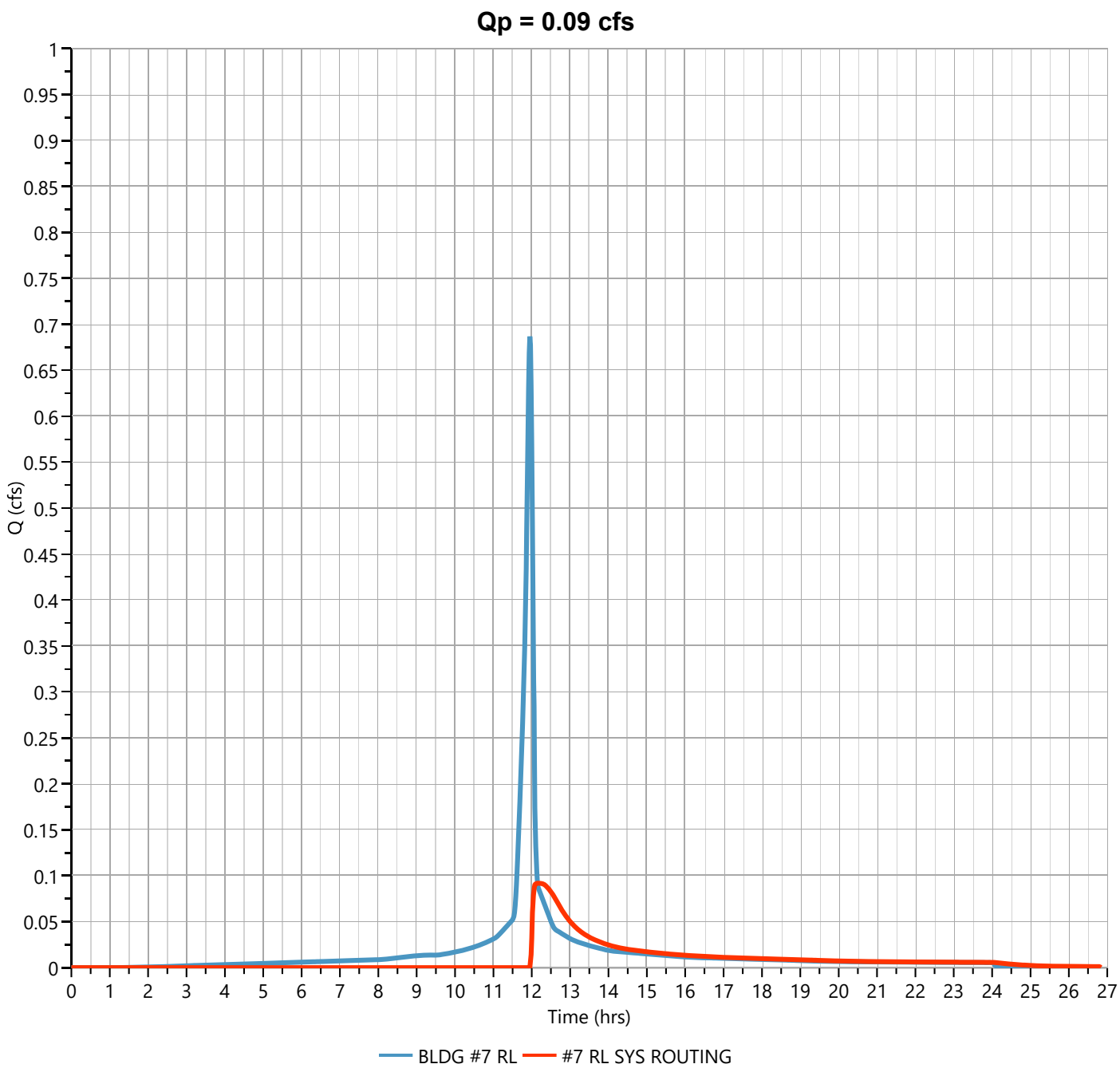
Post #7 RL SYS ROUTING

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.092 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 782 cuft
Inflow Hydrograph	= 13 - BLDG #7 RL	Max. Elevation	= 84.28 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 991 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3.39 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

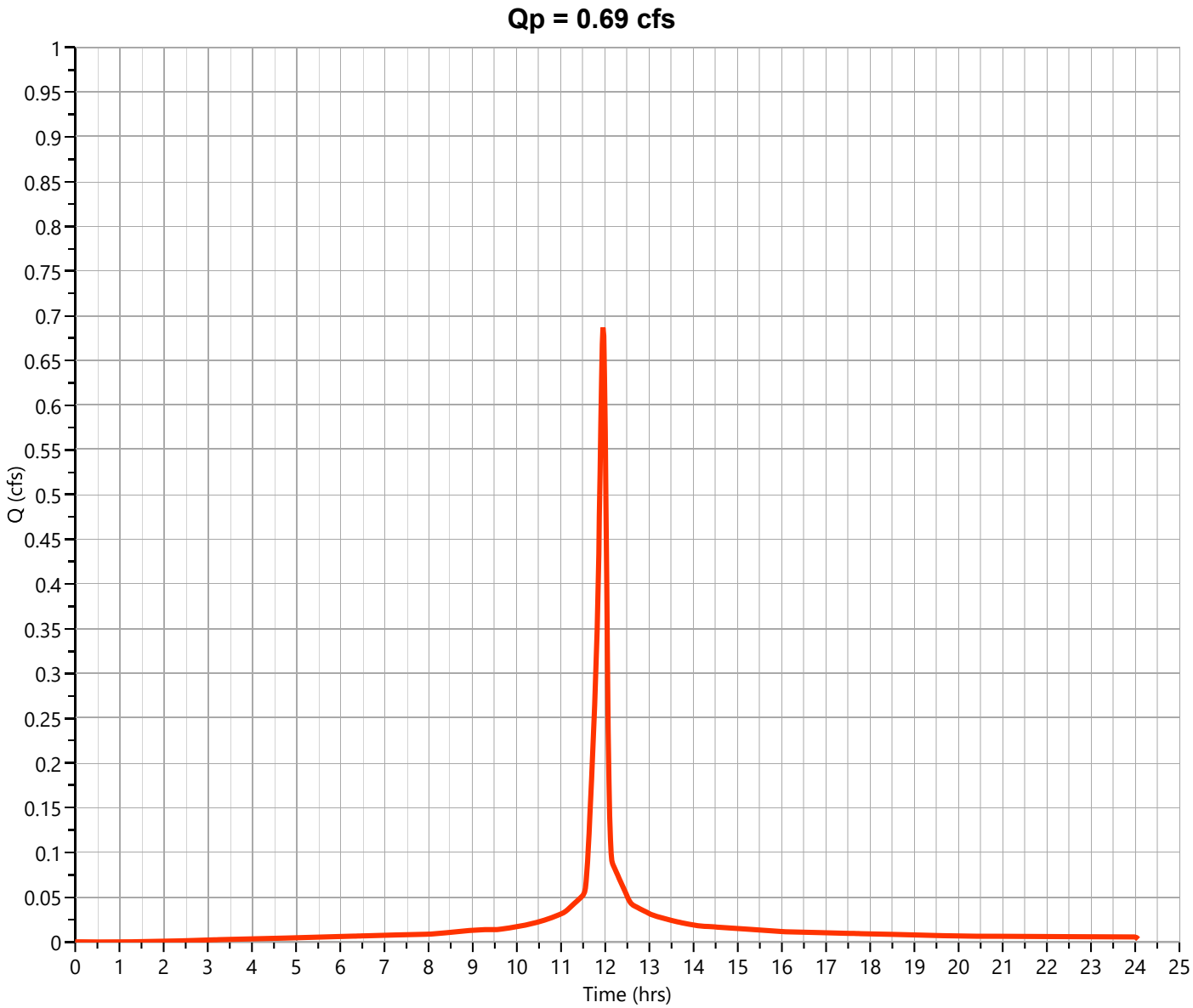
Post BLDG #8 RL

Hyd. No. 15

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.687 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 1,601 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post90

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

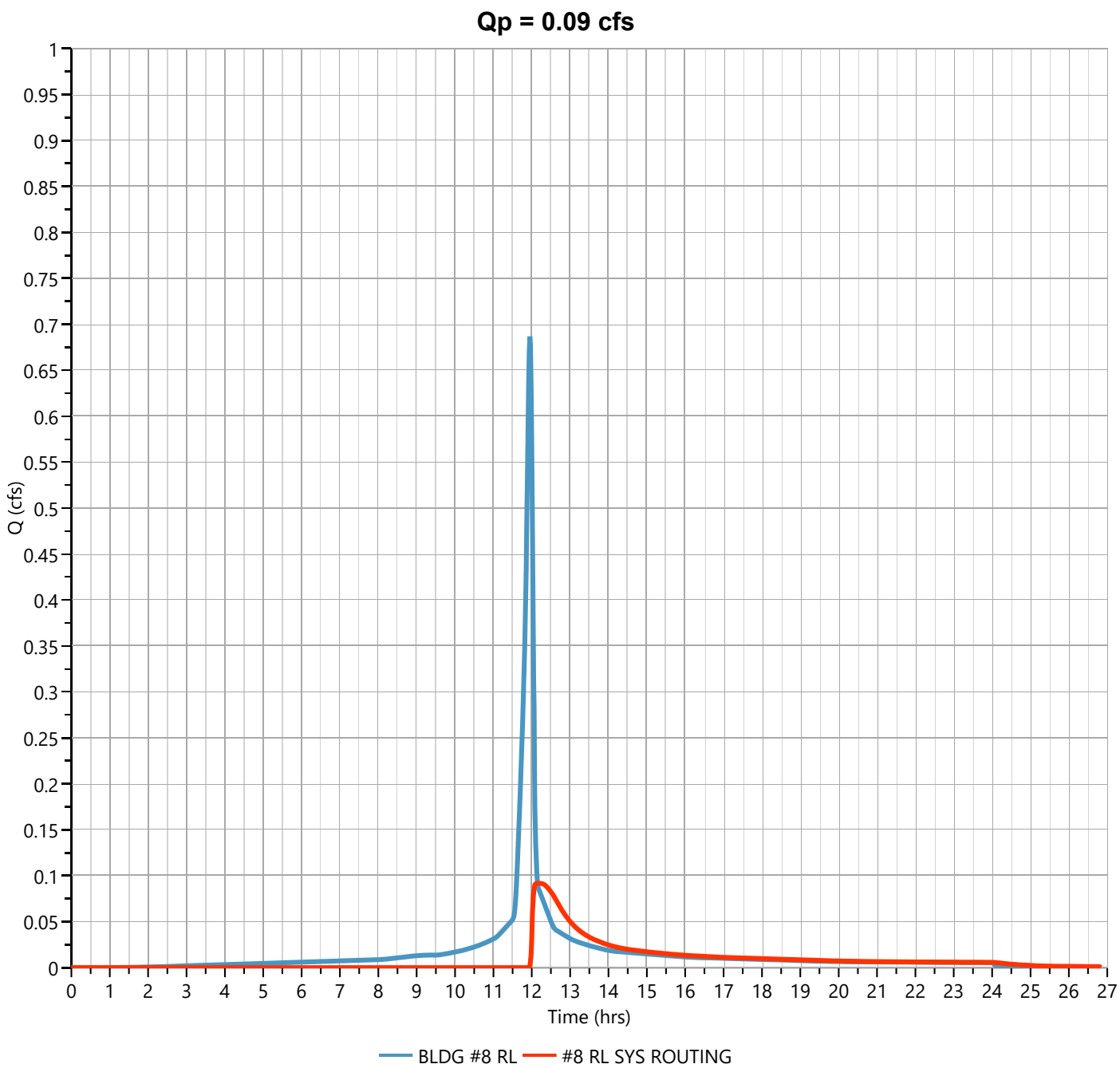
#8 RL SYS ROUTING

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.092 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 782 cuft
Inflow Hydrograph	= 15 - BLDG #8 RL	Max. Elevation	= 84.28 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 991 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3.39 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

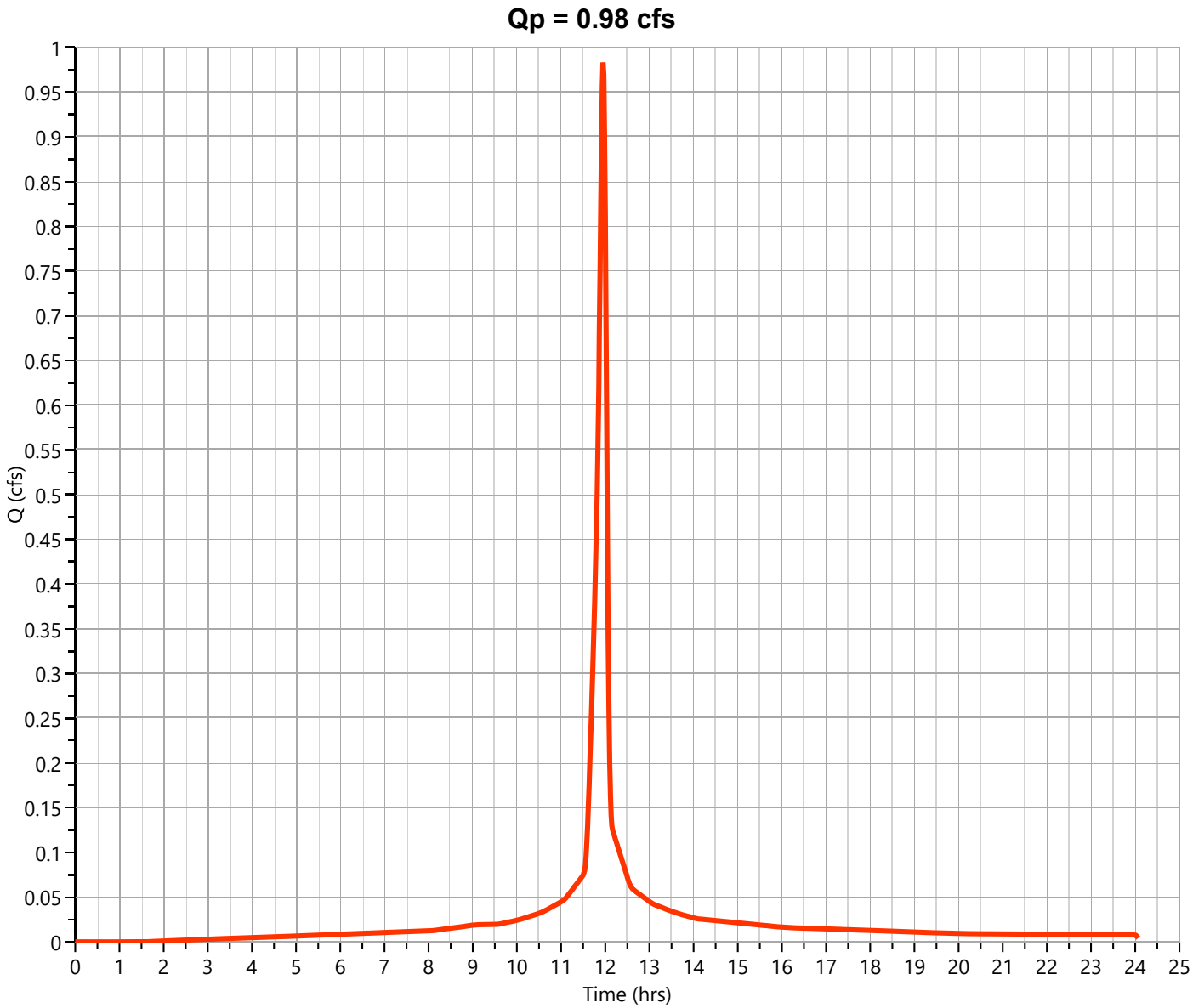
Post BLDG #11 RL

Hyd. No. 17

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.983 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,292 cuft
Drainage Area	= 0.272 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.272	98	C-ROOF
0.272	**98**	Weighted CN Method Employed



post92

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

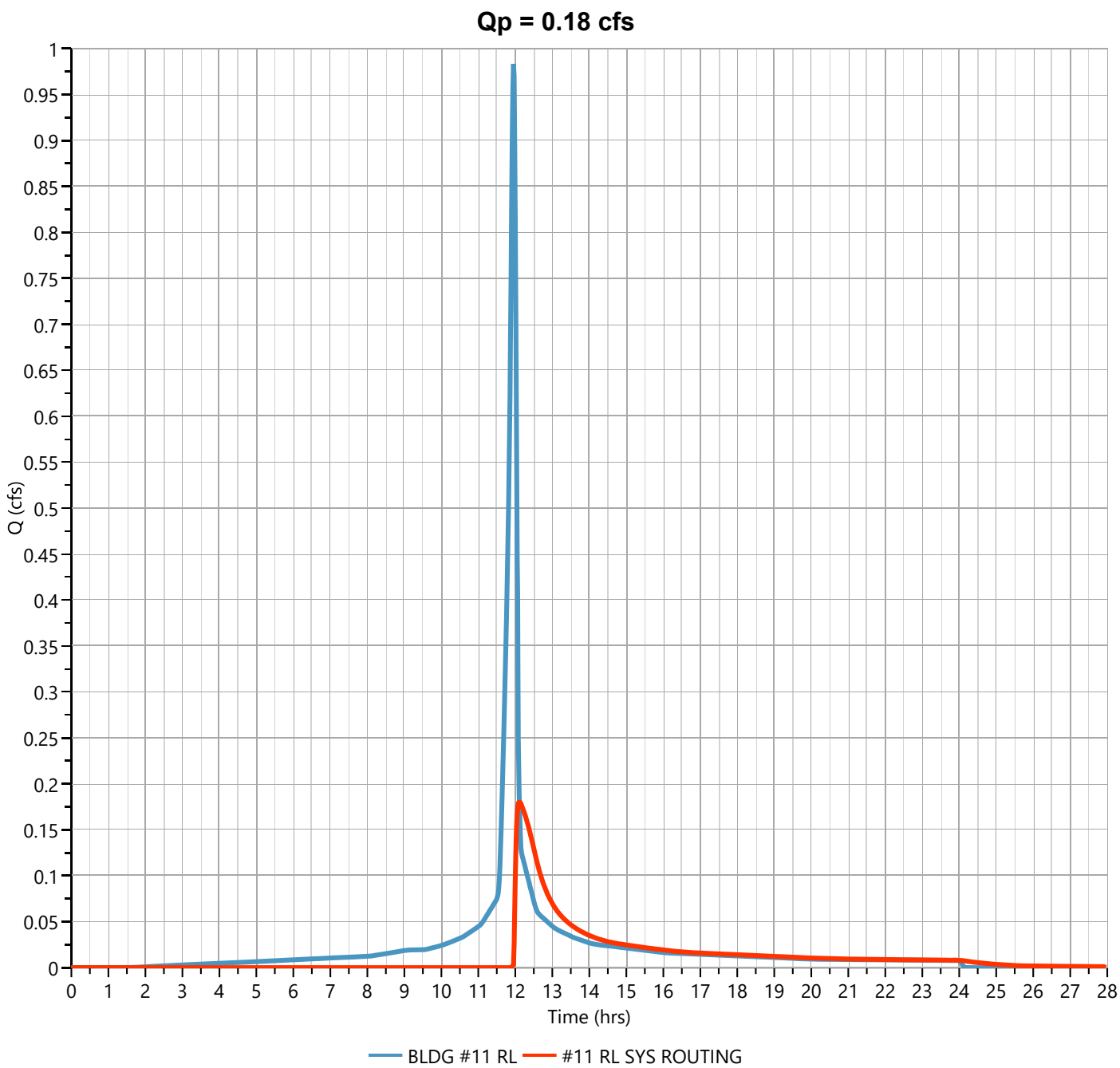
Post #11 RL SYS ROUTING

Hyd. No. 18

Hydrograph Type	= Pond Route	Peak Flow	= 0.181 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,190 cuft
Inflow Hydrograph	= 17 - BLDG #11 RL	Max. Elevation	= 84.35 ft
Pond Name	= BLDG #11 RL SYS	Max. Storage	= 1,391 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3.16 hrs



Hydrograph Report

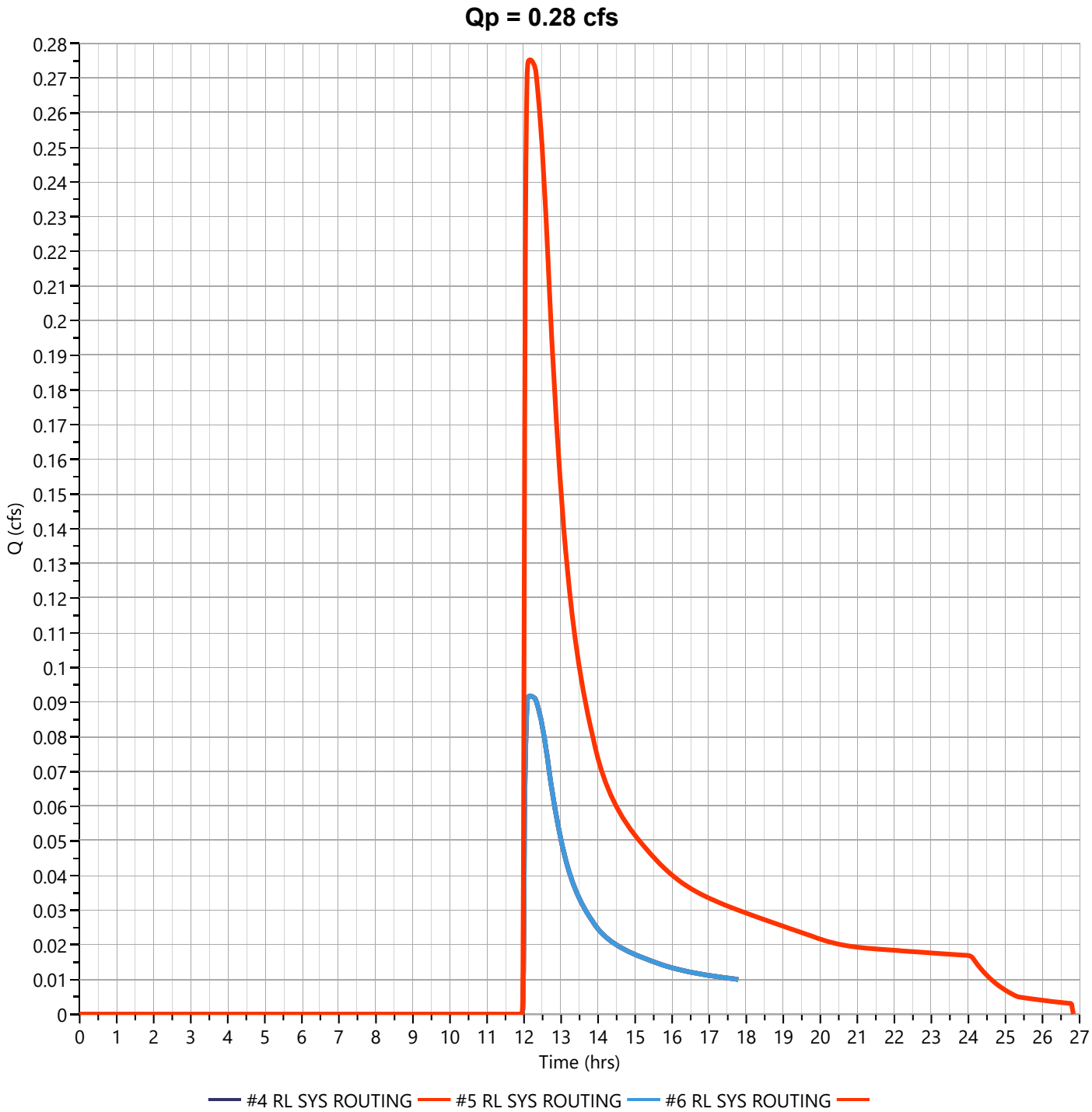
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 19

Hydrograph Type	= Junction	Peak Flow	= 0.275 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,345 cuft
Inflow Hydrographs	= 8, 10, 12	Total Contrib. Area	= 0.0 ac



post94

Hydrograph Report

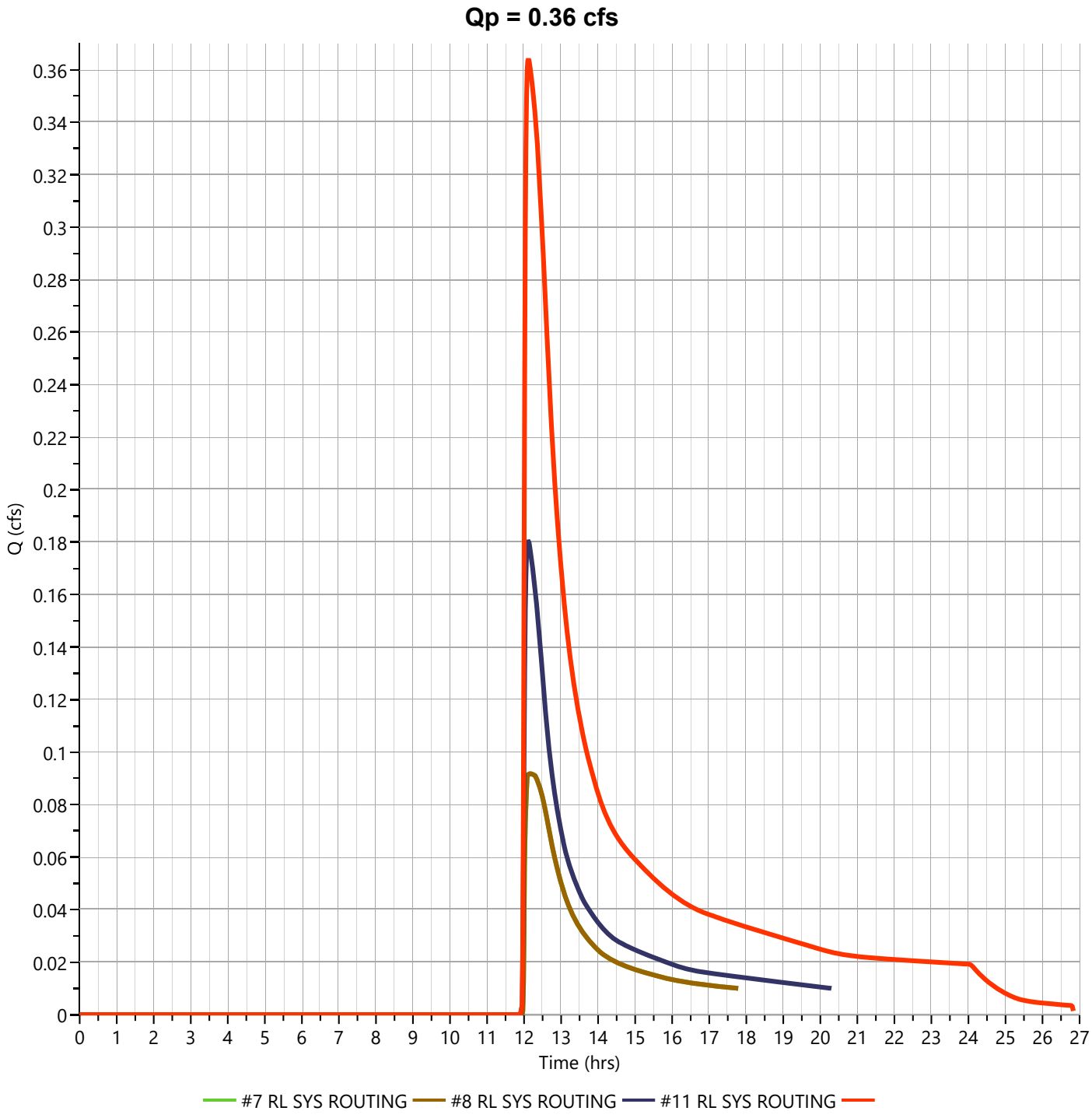
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 20

Hydrograph Type	= Junction	Peak Flow	= 0.364 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,754 cuft
Inflow Hydrographs	= 14, 16, 18	Total Contrib. Area	= 0.0 ac



post95

Hydrograph Report

Project Name:

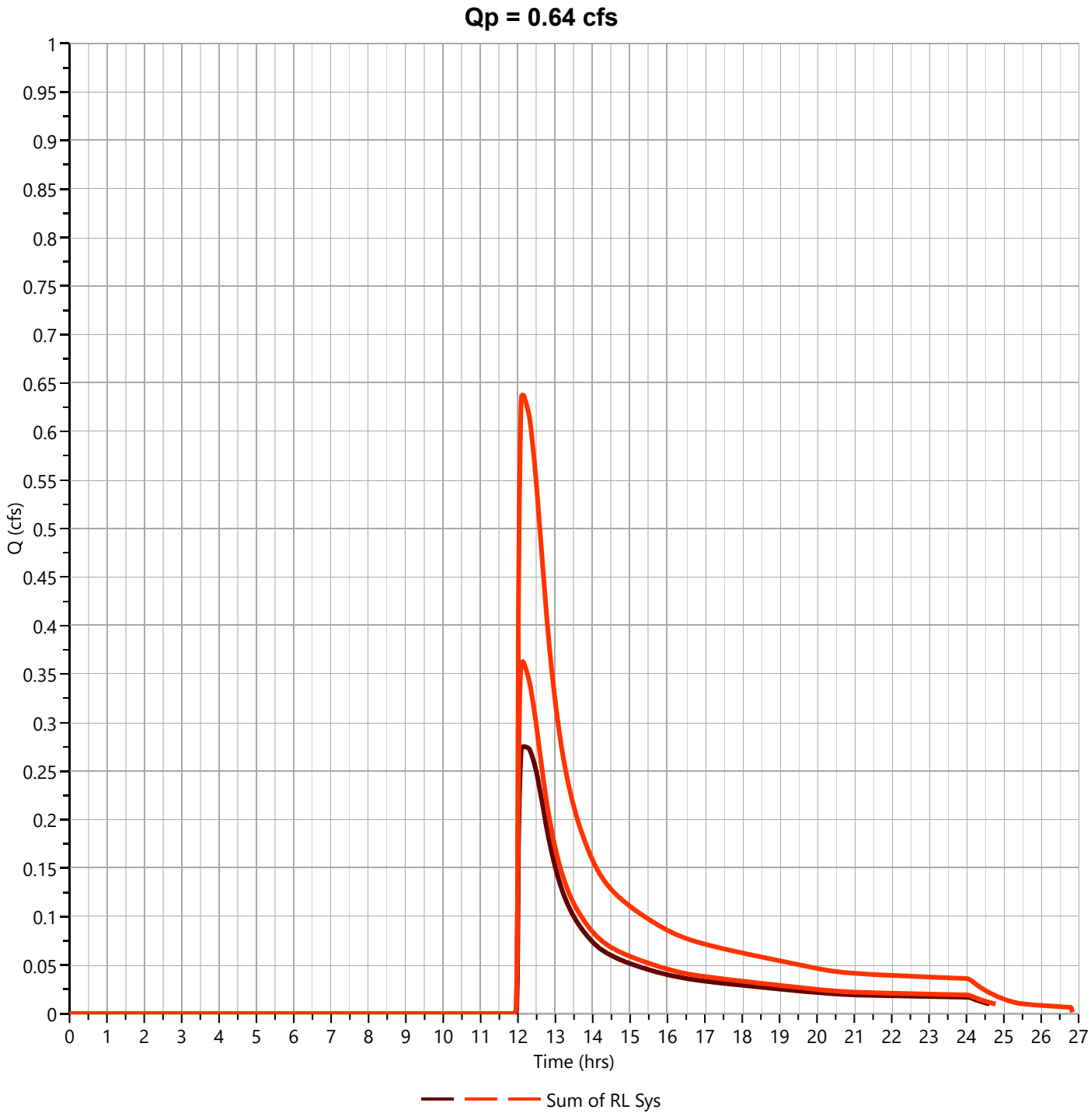
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum of RL Sys

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 0.639 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,099 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 0.0 ac



post96

Hydrograph Report

Project Name:

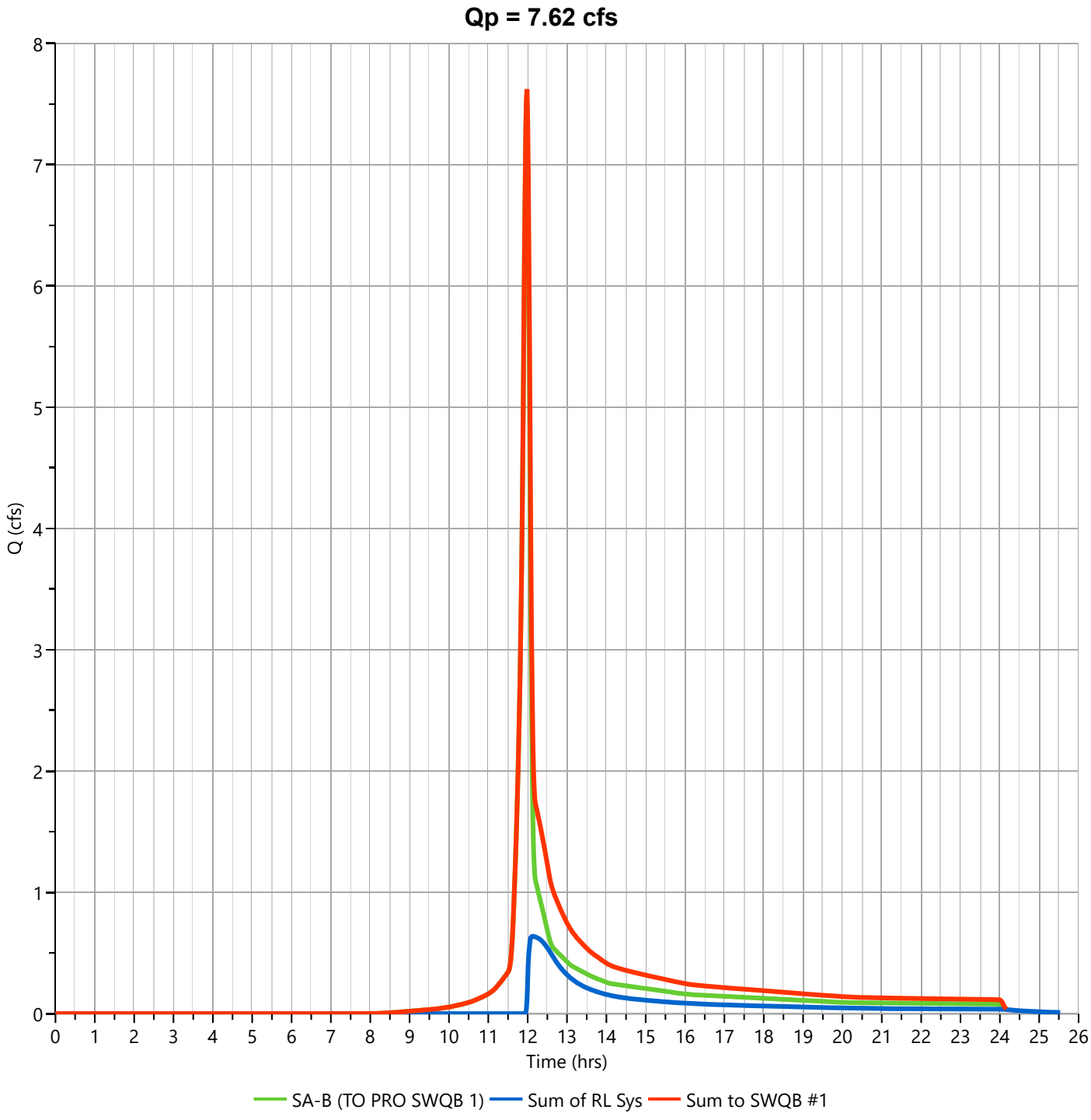
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to SWQB #1

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 7.623 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.98 hrs
Time Interval	= 1 min	Hydrograph Volume	= 21,028 cuft
Inflow Hydrographs	= 4, 21	Total Contrib. Area	= 3.477 ac



post97

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

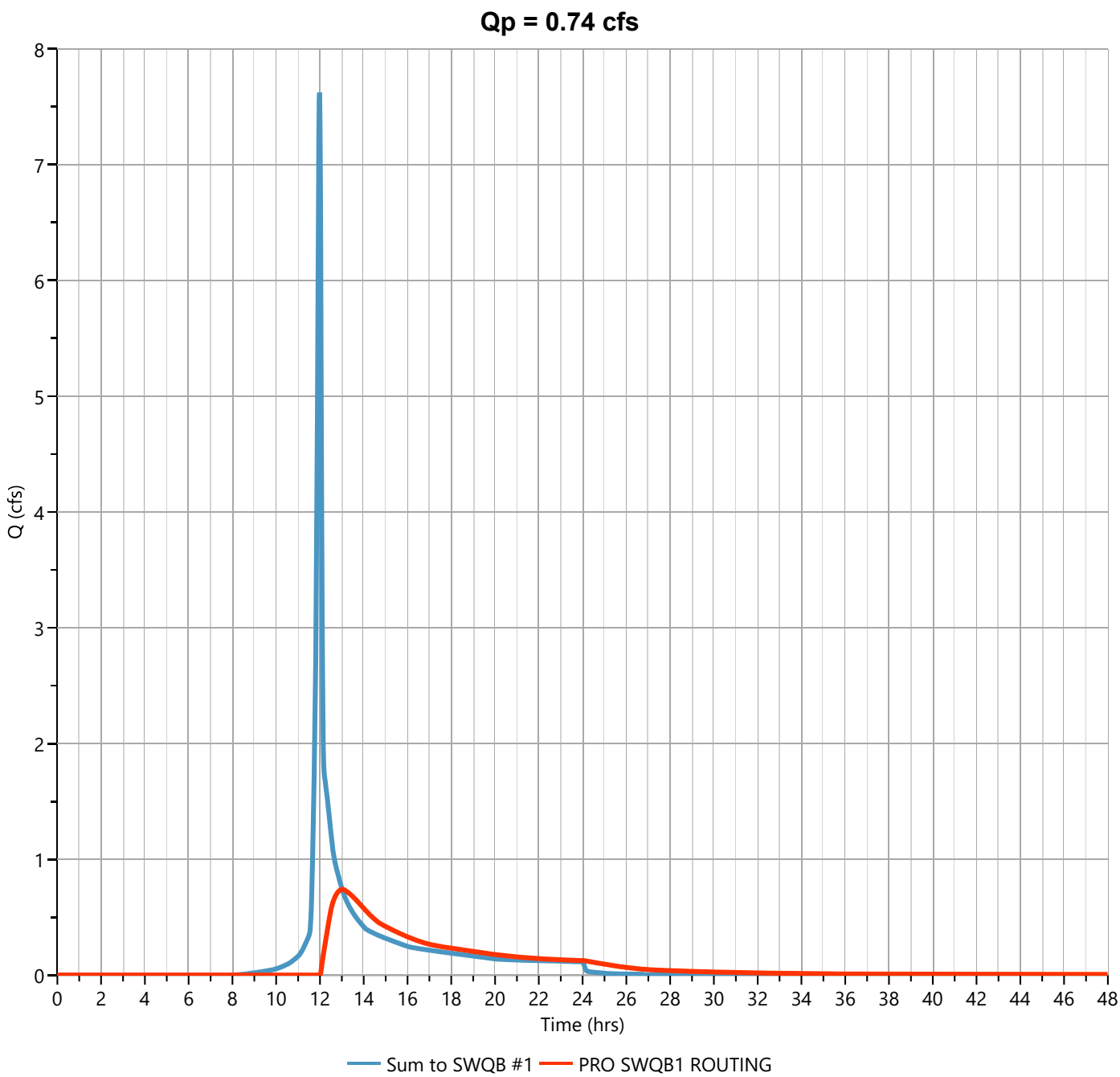
PRO SWQB1 ROUTING

Hyd. No. 23

Hydrograph Type	= Pond Route	Peak Flow	= 0.740 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.02 hrs
Time Interval	= 1 min	Hydrograph Volume	= 14,619 cuft
Inflow Hydrograph	= 22 - Sum to SWQB #1	Max. Elevation	= 81.61 ft
Pond Name	= PRO SWQB #1	Max. Storage	= 10,297 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3.48 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

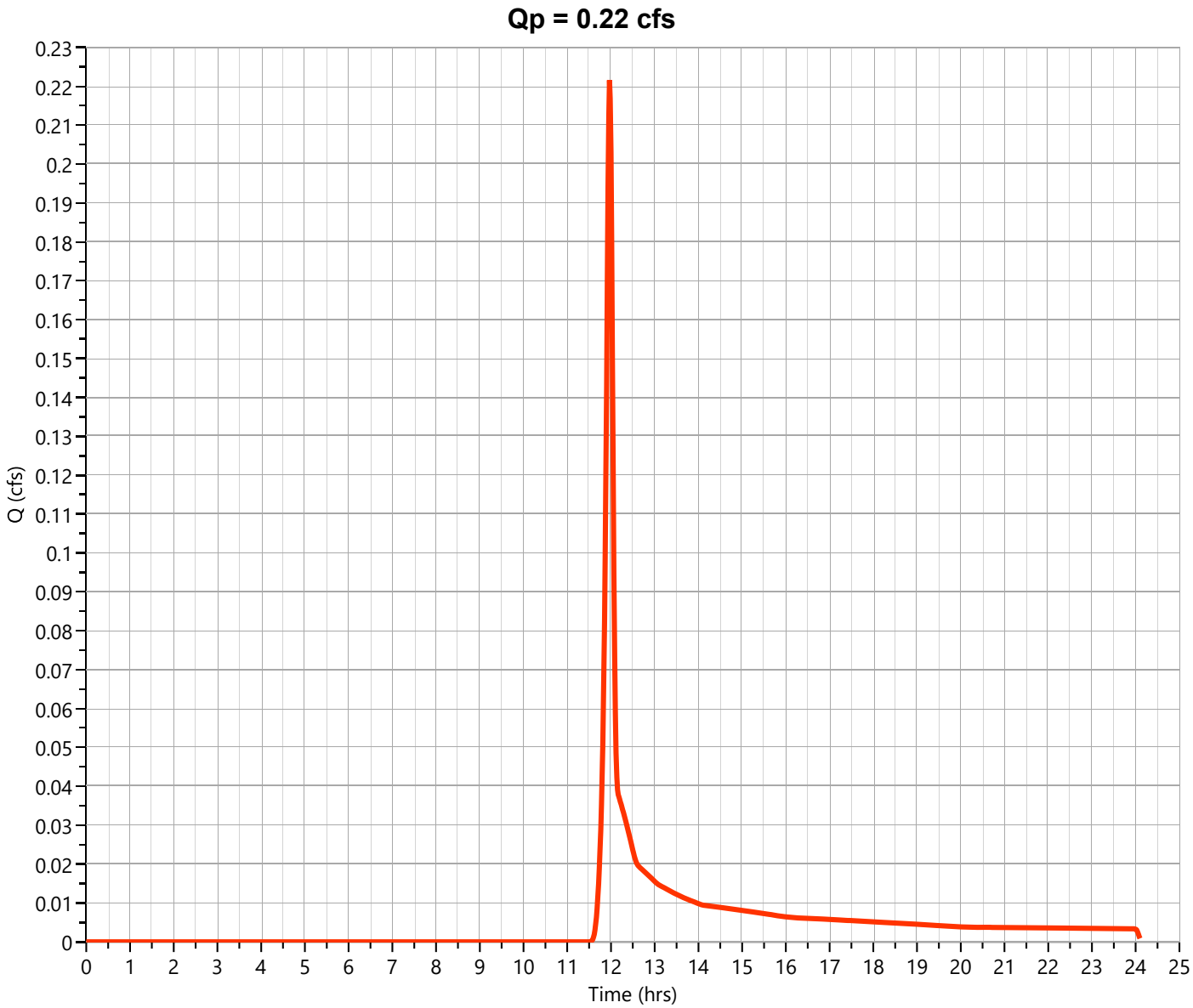
Post SA-B.32 (OVERLAND)'

Hyd. No. 24

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.222 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 467 cuft
Drainage Area	= 0.209 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.55 min
Total Rainfall	= 2.48 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.209	74	C-LAWN
0.209	**74**	Weighted CN Method Employed



Hydrograph Report

Project Name:

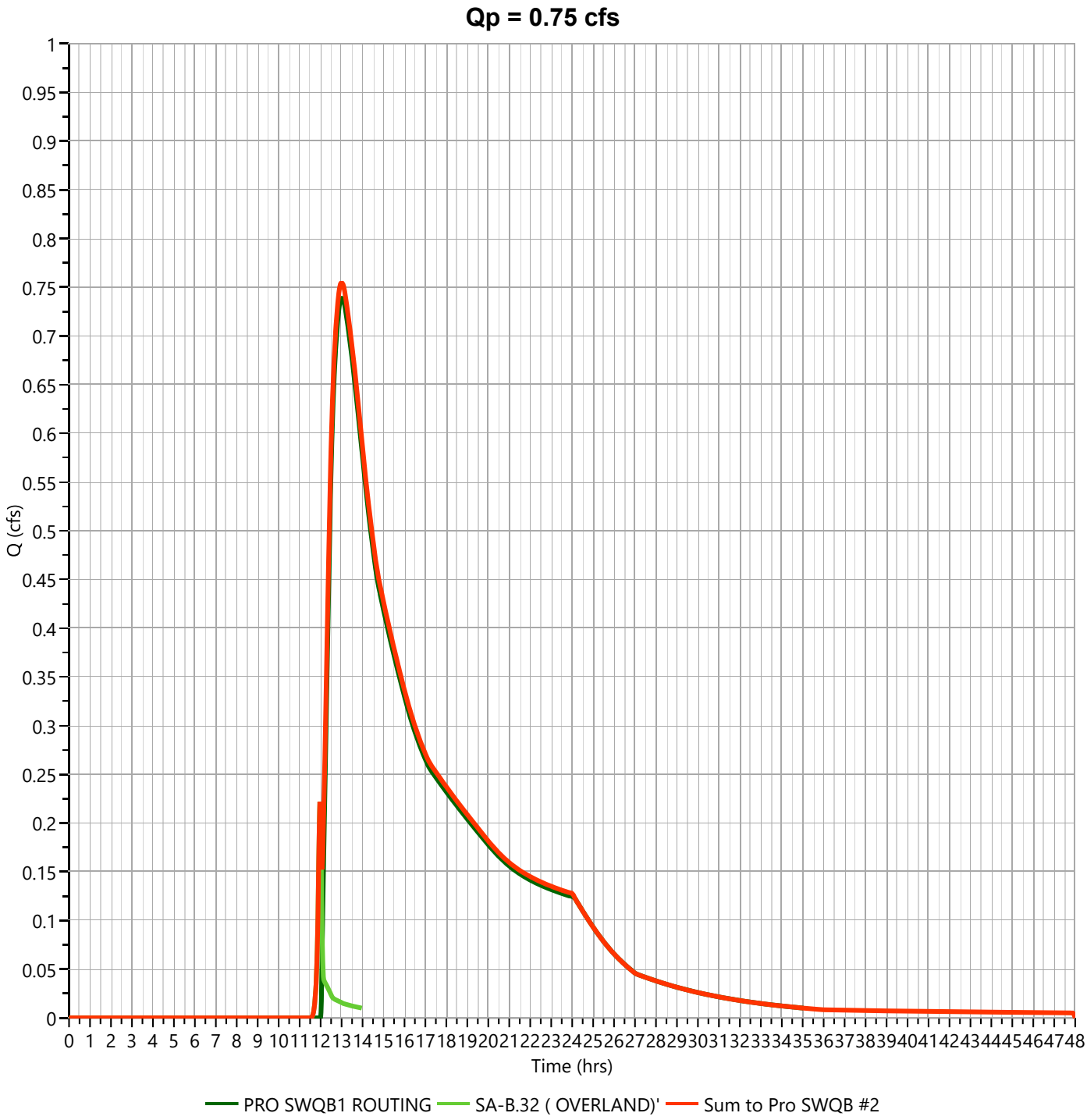
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Pro SWQB #2

Hyd. No. 25

Hydrograph Type	= Junction	Peak Flow	= 0.755 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 15,086 cuft
Inflow Hydrographs	= 23, 24	Total Contrib. Area	= 0.209 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

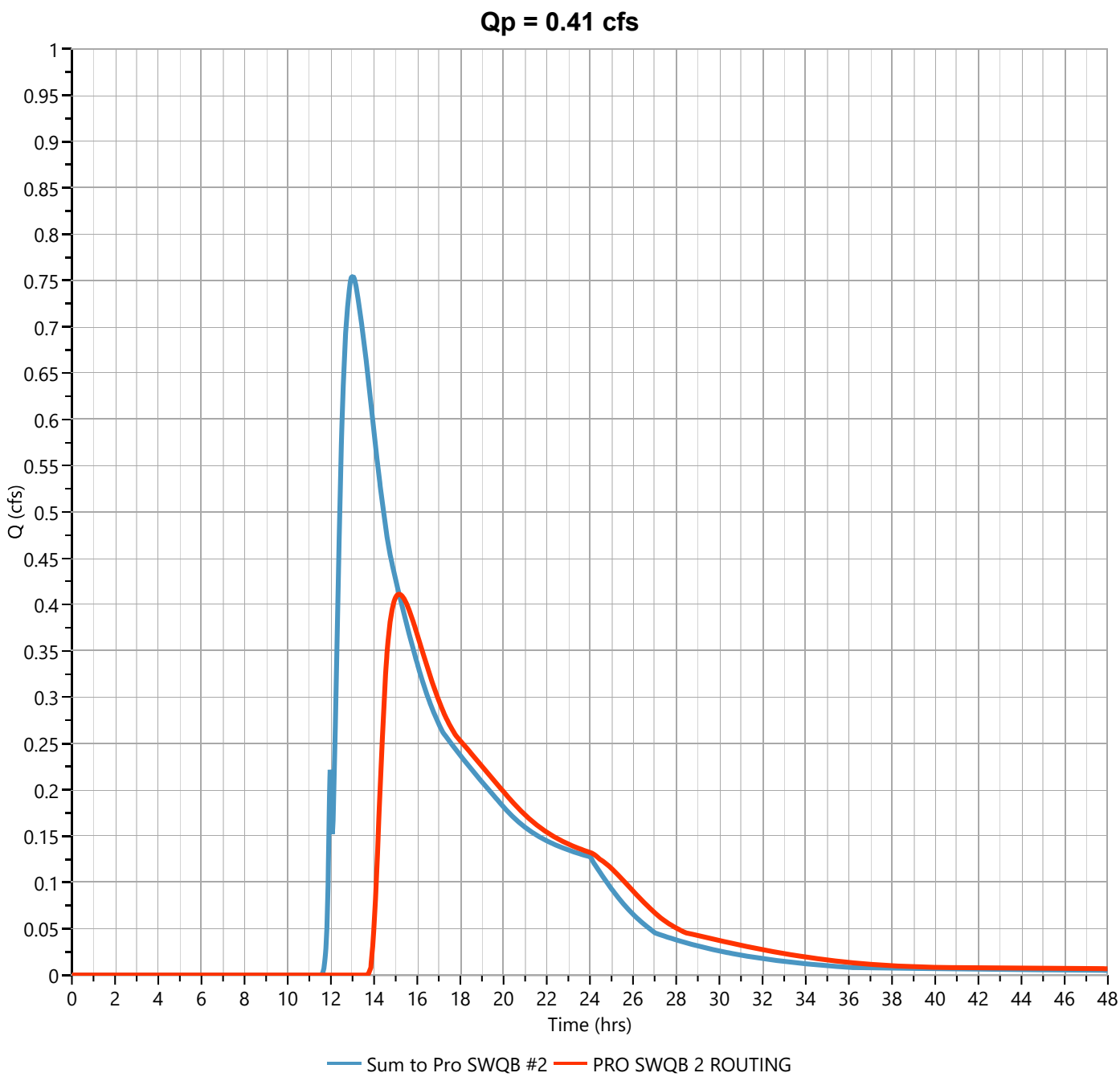
Post PRO SWQB 2 ROUTING

Hyd. No. 26

Hydrograph Type	= Pond Route	Peak Flow	= 0.411 cfs
Storm Frequency	= 2-yr	Time to Peak	= 15.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 11,016 cuft
Inflow Hydrograph	= 25 - Sum to Pro SWQB #2	Max. Elevation	= 79.98 ft
Pond Name	= PRO SWQB #2	Max. Storage	= 5,208 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3.30 hrs



post101

Hydrograph Report

Project Name:

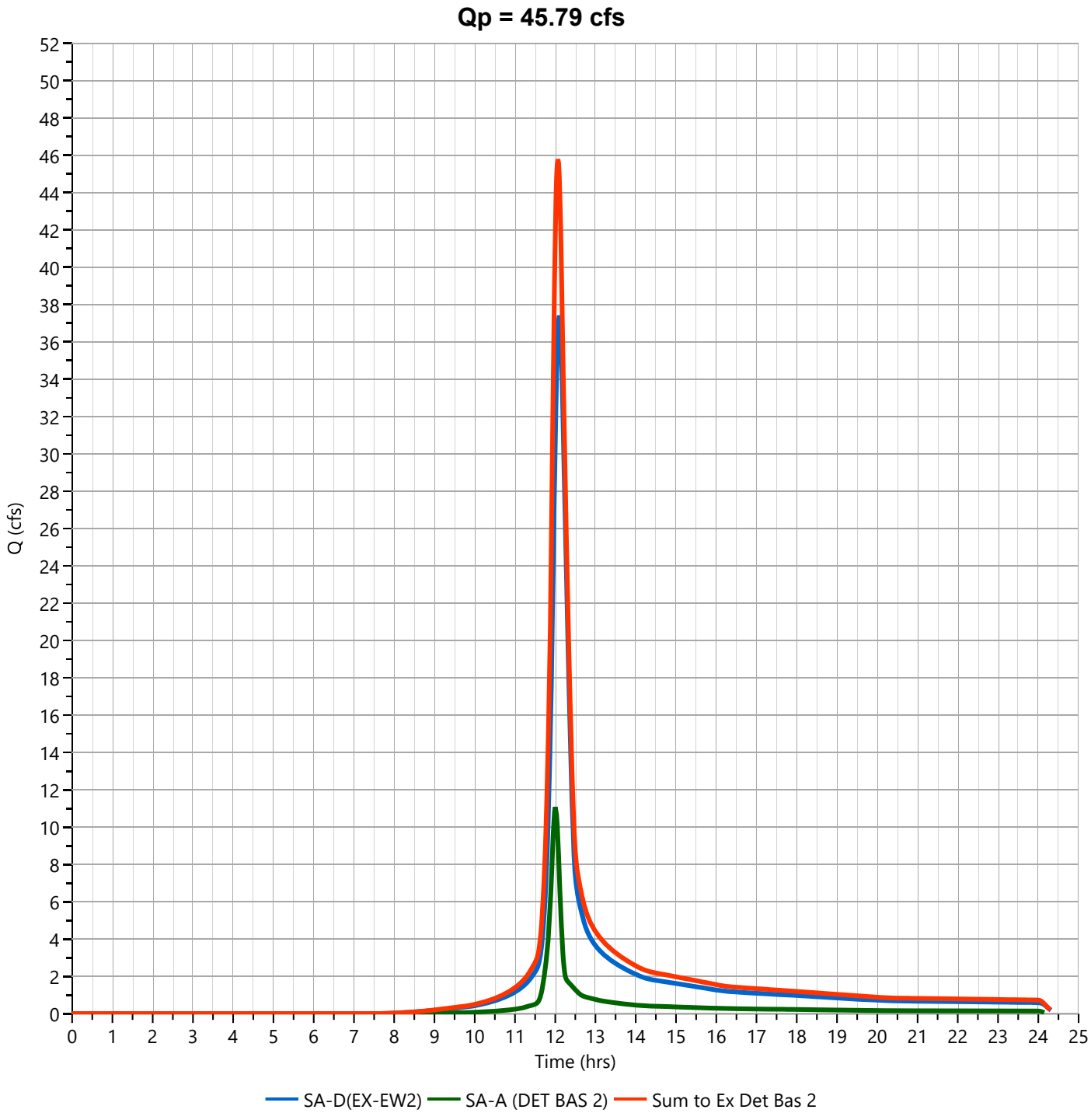
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 2

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 45.79 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 149,681 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.485 ac



post102

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

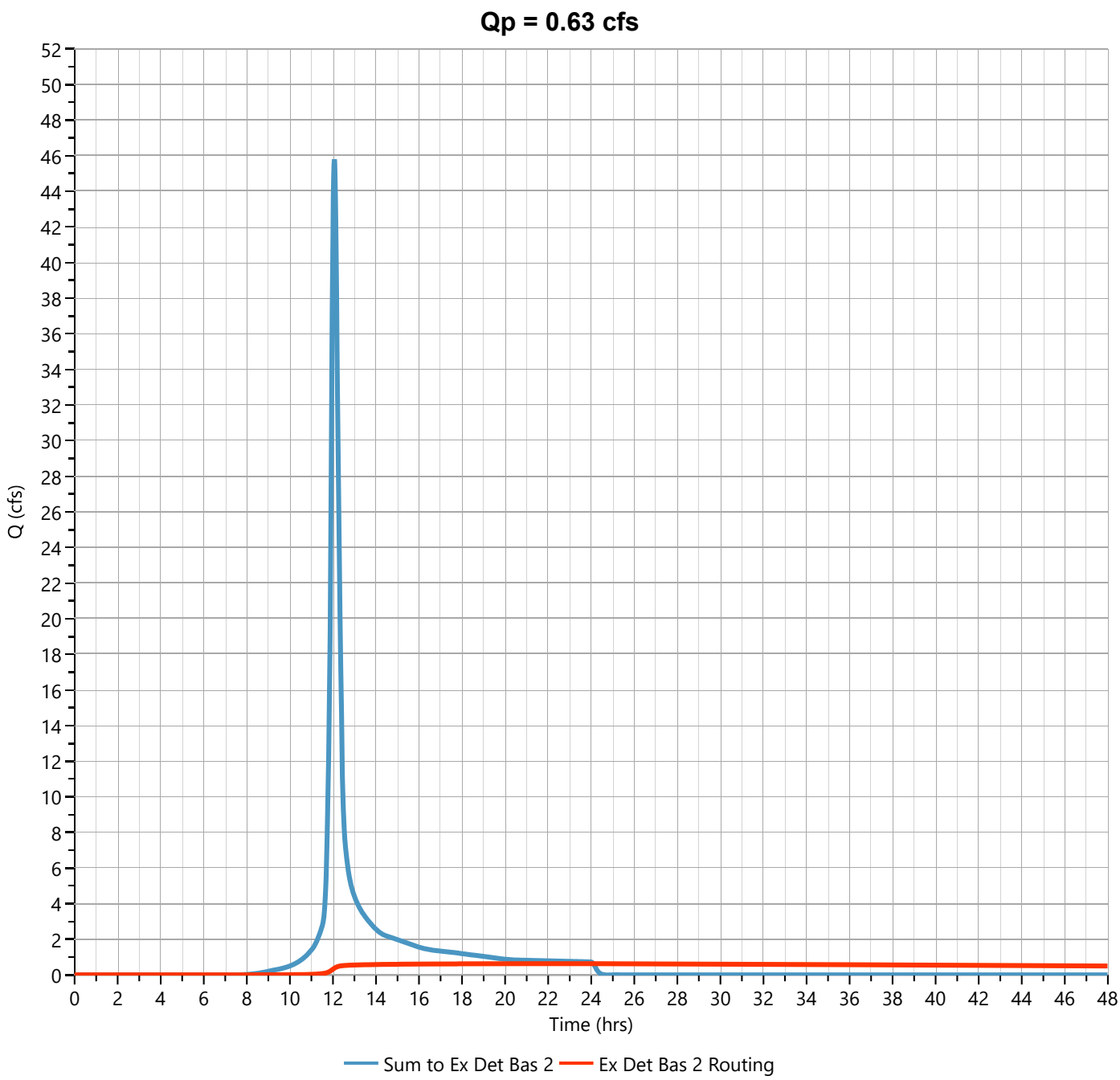
Post Ex Det Bas 2 Routing

Hyd. No. 28

Hydrograph Type	= Pond Route	Peak Flow	= 0.628 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 75,028 cuft
Inflow Hydrograph	= 27 - Sum to Ex Det Bas 2	Max. Elevation	= 79.41 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 122,753 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.54 hrs



Hydrograph Report

Project Name:

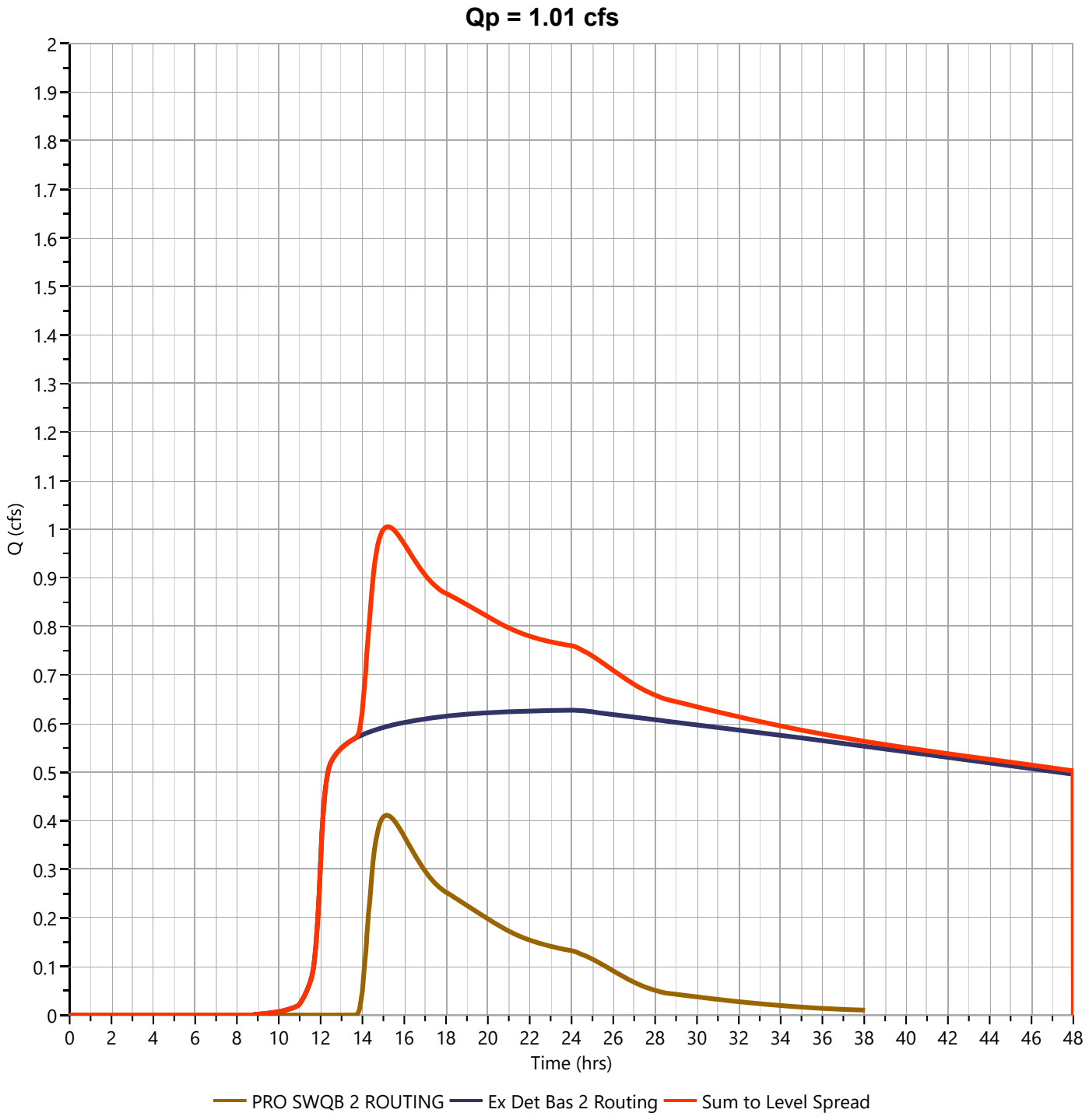
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Level Spread

Hyd. No. 29

Hydrograph Type	= Junction	Peak Flow	= 1.005 cfs
Storm Frequency	= 2-yr	Time to Peak	= 15.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 86,044 cuft
Inflow Hydrographs	= 26, 28	Total Contrib. Area	= 0.0 ac



Hydrograph Report

Project Name:

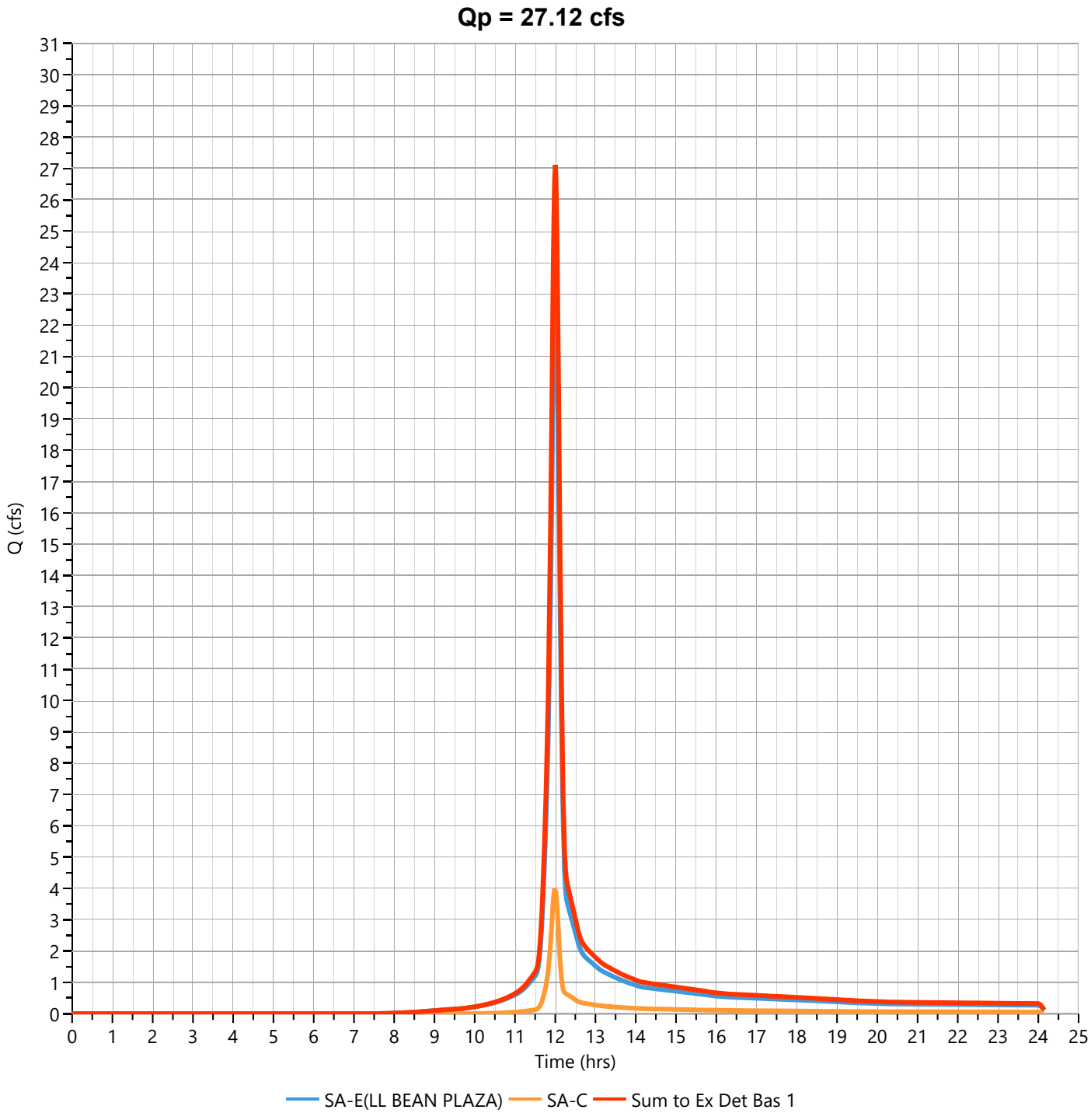
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 1

Hyd. No. 30

Hydrograph Type	= Junction	Peak Flow	= 27.12 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 65,073 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 13.654 ac



post105

Design Storm Report

Custom Storm filename: 3170.cds

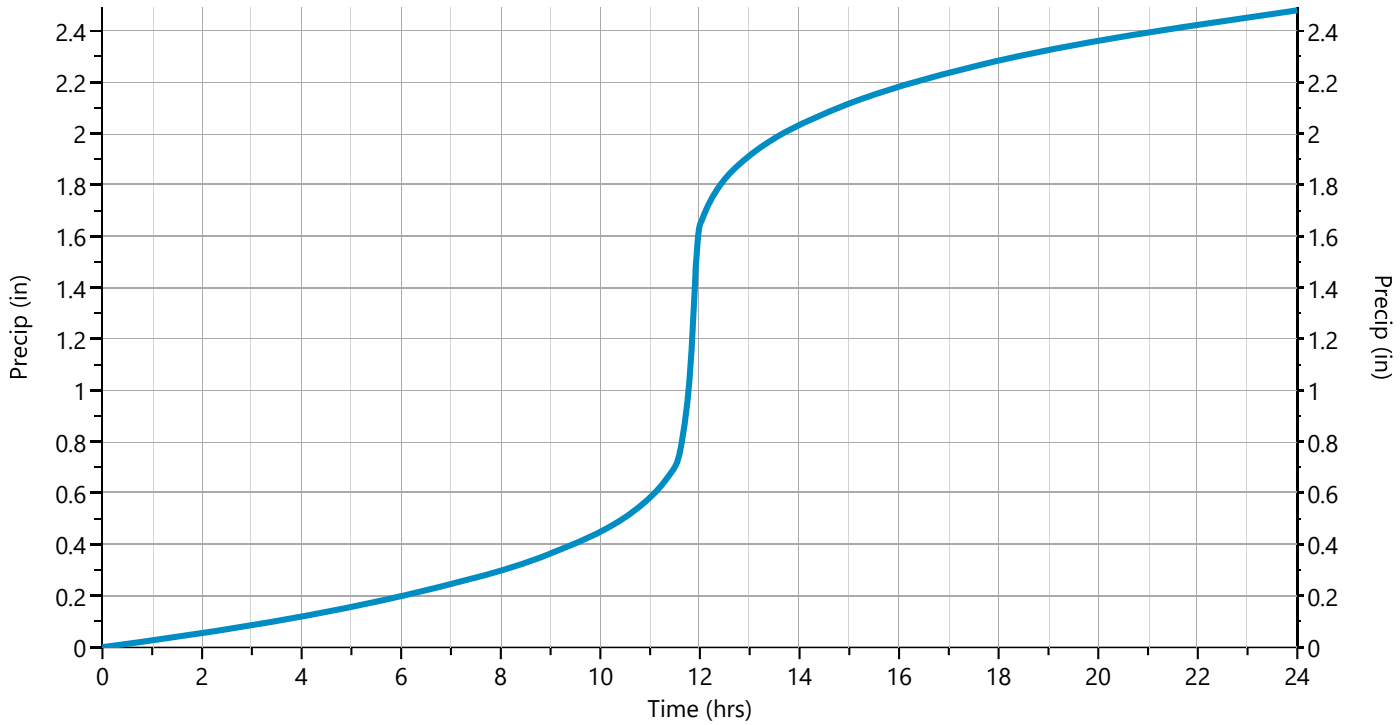
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	✔ 2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 2-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.004596	11.60	0.013932	11.78	0.036234	11.97	0.034124	12.15	0.006973
11.43	0.004662	11.62	0.015563	11.80	0.040771	11.98	0.023798	12.17	0.006816
11.45	0.004729	11.63	0.017195	11.82	0.045309	12.00	0.013471	12.18	0.006659
11.47	0.004795	11.65	0.018826	11.83	0.049846	12.02	0.008507	12.20	0.006502
11.48	0.004861	11.67	0.020457	11.85	0.054384	12.03	0.008072	12.22	0.006345
11.50	0.004927	11.68	0.022089	11.87	0.058921	12.05	0.007915	12.23	0.006188
11.52	0.005794	11.70	0.023720	11.88	0.063459	12.07	0.007758	12.25	0.006031
11.53	0.007407	11.72	0.025351	11.90	0.067996	12.08	0.007601	12.27	0.005873
11.55	0.009038	11.73	0.026982	**11.92**	**0.072533**	12.10	0.007444	12.28	0.005716
11.57	0.010670	11.75	0.028614	11.93	0.047431	12.12	0.007287	12.30	0.005559
11.58	0.012301	11.77	0.031456	11.95	0.044450	12.13	0.007130	12.32	0.005402



post106

Hydrograph 5-yr Summary

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	53.65	12.10	176,660	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	32.93	12.00	80,428	----		
3	NRCS Runoff	Post SA-A (DET BAS 2)	16.19	12.00	39,281	----		
4	NRCS Runoff	Pre SA-B (TO PRO SWQB 1)	10.81	11.97	23,130	----		
5	NRCS Runoff	Post SA-C	6.171	11.98	13,962	----		
6	NRCS Runoff	Post SA-B.32 (OVERLAND)	0.392	11.97	795	----		
7	NRCS Runoff	Post BLDG #4 RL	0.881	11.95	2,082	----		
8	Pond Route	Post #4 RL SYS ROUTING	0.123	12.13	1,263	7	84.71	1,264
9	NRCS Runoff	Post BLDG #5 RL	0.881	11.95	2,082	----		
10	Pond Route	Post #5 RL SYS ROUTING	0.123	12.13	1,263	9	84.71	1,264
11	NRCS Runoff	Post BLDG #6 RL	0.881	11.95	2,082	----		
12	Pond Route	Post #6 RL SYS ROUTING	0.123	12.13	1,263	11	84.71	1,264
13	NRCS Runoff	Post BLDG #7 RL	0.881	11.95	2,082	----		
14	Pond Route	Post #7 RL SYS ROUTING	0.123	12.13	1,263	13	84.71	1,264
15	NRCS Runoff	Post BLDG #8 RL	0.881	11.95	2,082	----		
16	Pond Route	#8 RL SYS ROUTING	0.123	12.13	1,263	15	84.71	1,264
17	NRCS Runoff	Post BLDG #11 RL	1.261	11.95	2,981	----		
18	Pond Route	Post #11 RL SYS ROUTING	0.253	12.10	1,880	17	84.77	1,751
19	Junction		0.369	12.13	3,789	8, 10, 12		
20	Junction		0.499	12.12	4,406	14, 16, 18		
21	Junction	Post Sum of RL Sys	0.868	12.12	8,195	19, 20		
22	Junction	Post Sum to SWQB #1	11.53	11.97	31,325	4, 21		
23	Pond Route	PRO SWQB1 ROUTING	2.072	12.37	24,908	22	81.92	12,507
24	NRCS Runoff	Post SA-B.32 (OVERLAND)'	0.390	11.97	791	----		
25	Junction	Post Sum to Pro SWQB #2	2.121	12.35	25,699	23, 24		
26	Pond Route	Post PRO SWQB 2 ROUTING	1.677	12.93	21,627	25	80.08	5,533
27	Junction	Post Sum to Ex Det Bas 2	66.01	12.07	215,941	1, 3		
28	Pond Route	Post Ex Det Bas 2 Routing	0.754	24.13	92,078	27	80.40	183,045
29	Junction	Post Sum to Level Spread	2.337	12.93	113,705	26, 28		
30	Junction	Post Sum to Ex Det Bas 1	39.09	12.00	94,391	2, 5		

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

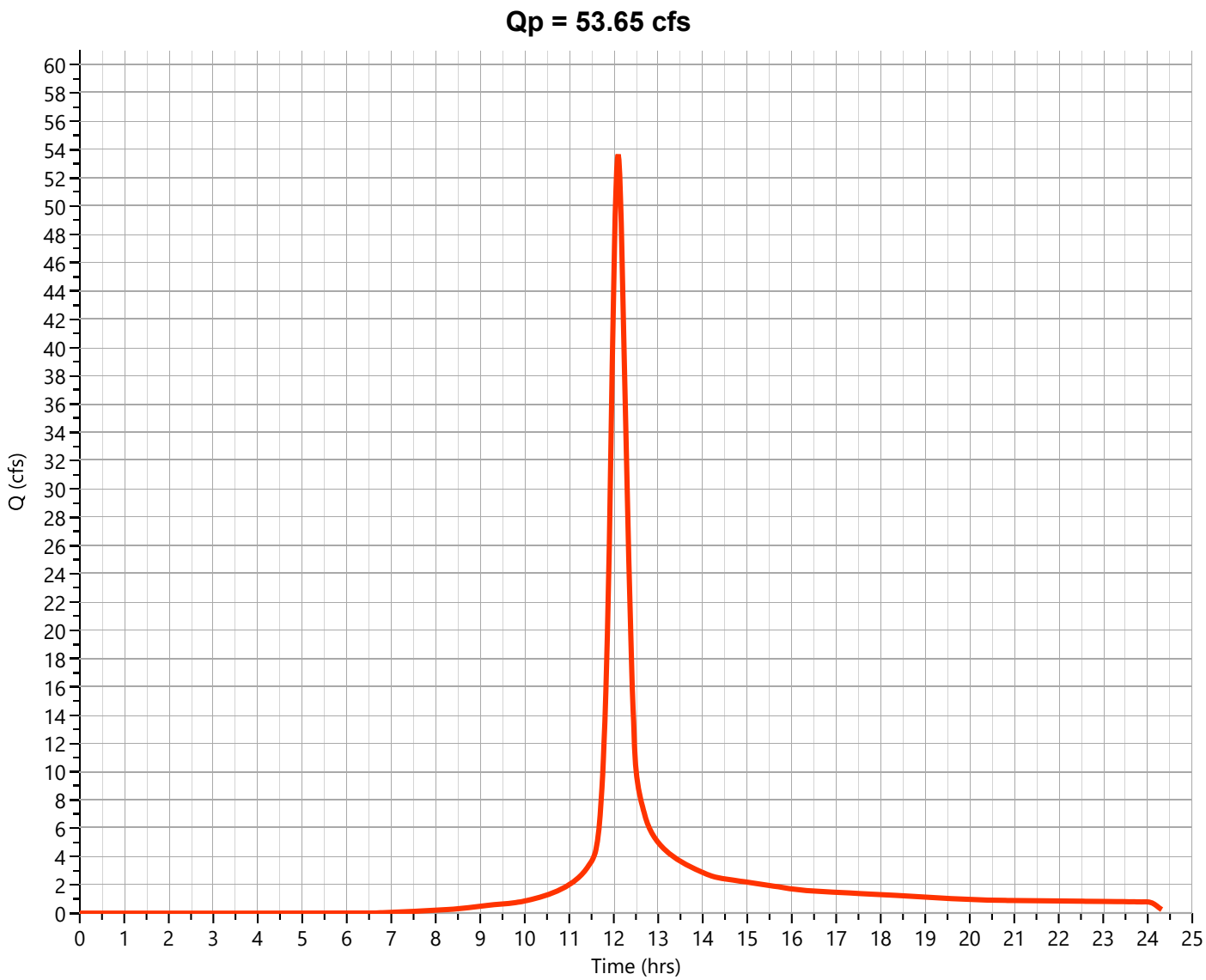
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 53.65 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 176,660 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Pre SA-E(LL BEAN PLAZA)

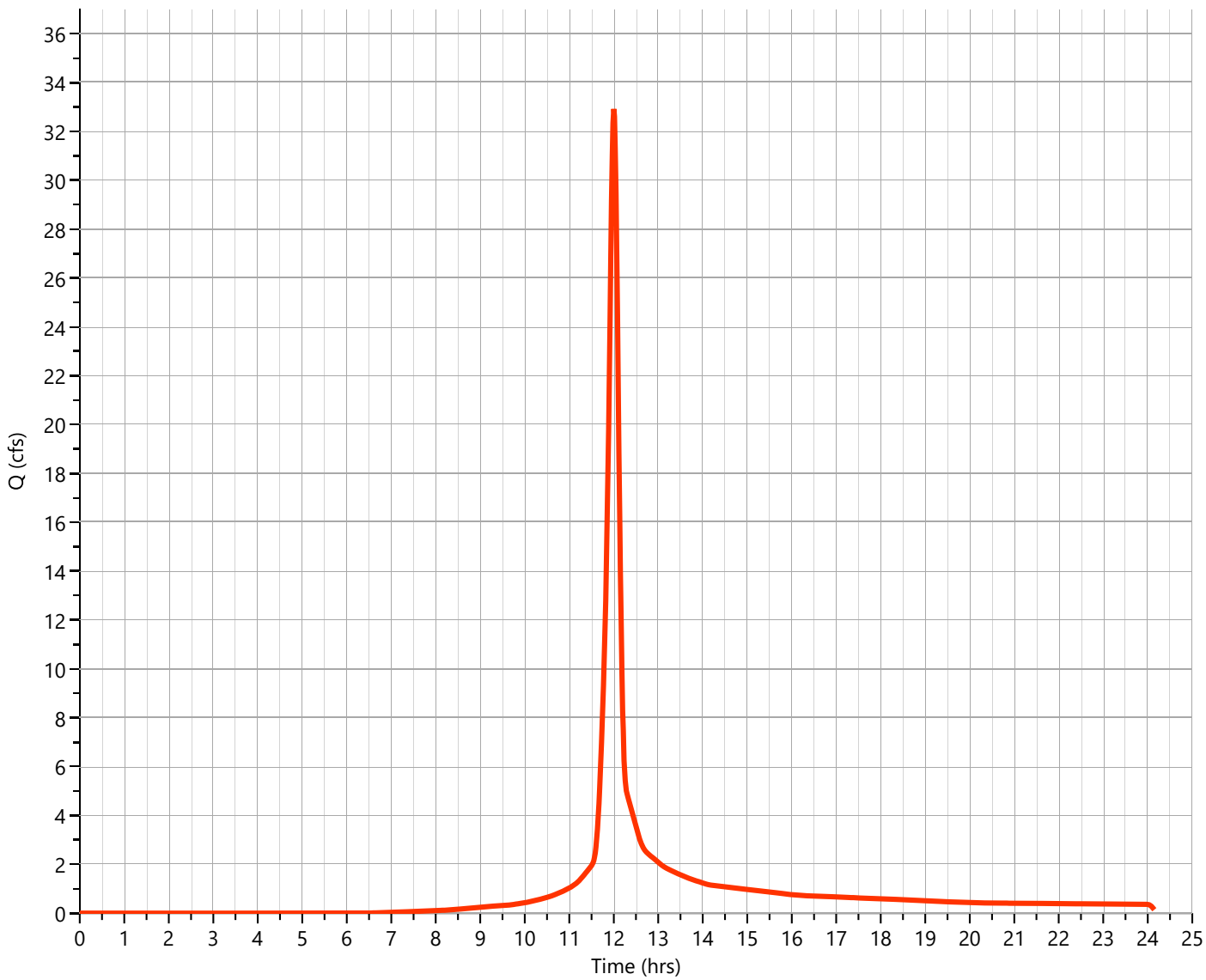
Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 32.93 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 80,428 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed

Qp = 32.93 cfs



post109

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

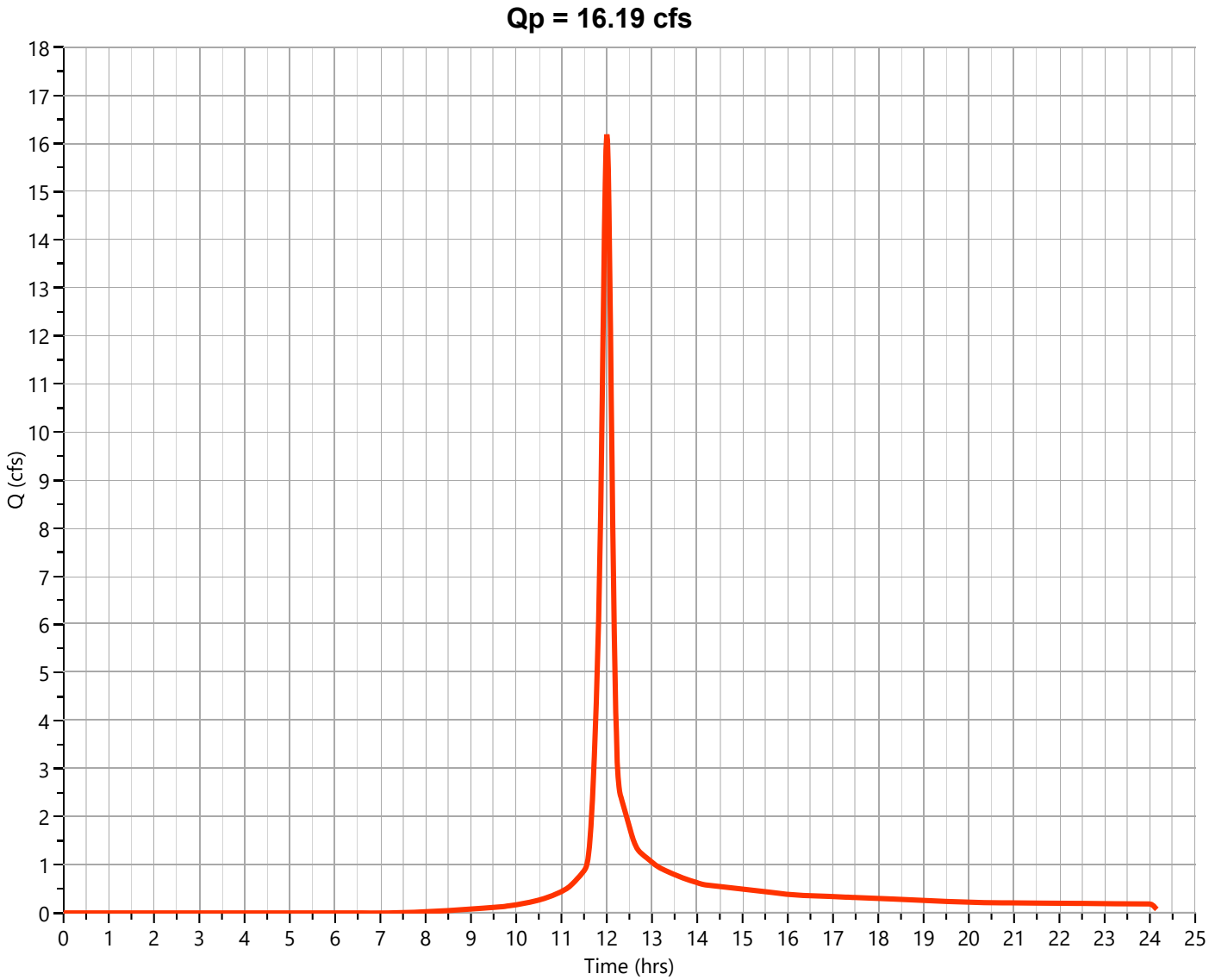
Post SA-A (DET BAS 2)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 16.19 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 39,281 cuft
Drainage Area	= 5.905 ac	Curve Number	= 86*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.893	98	C-PAVED/ROOF
1.394	74	C-LAWN/LANDSCAPED
1.618	74	C- GRASS /DET BAS
5.905	**86**	Weighted CN Method Employed



post110

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

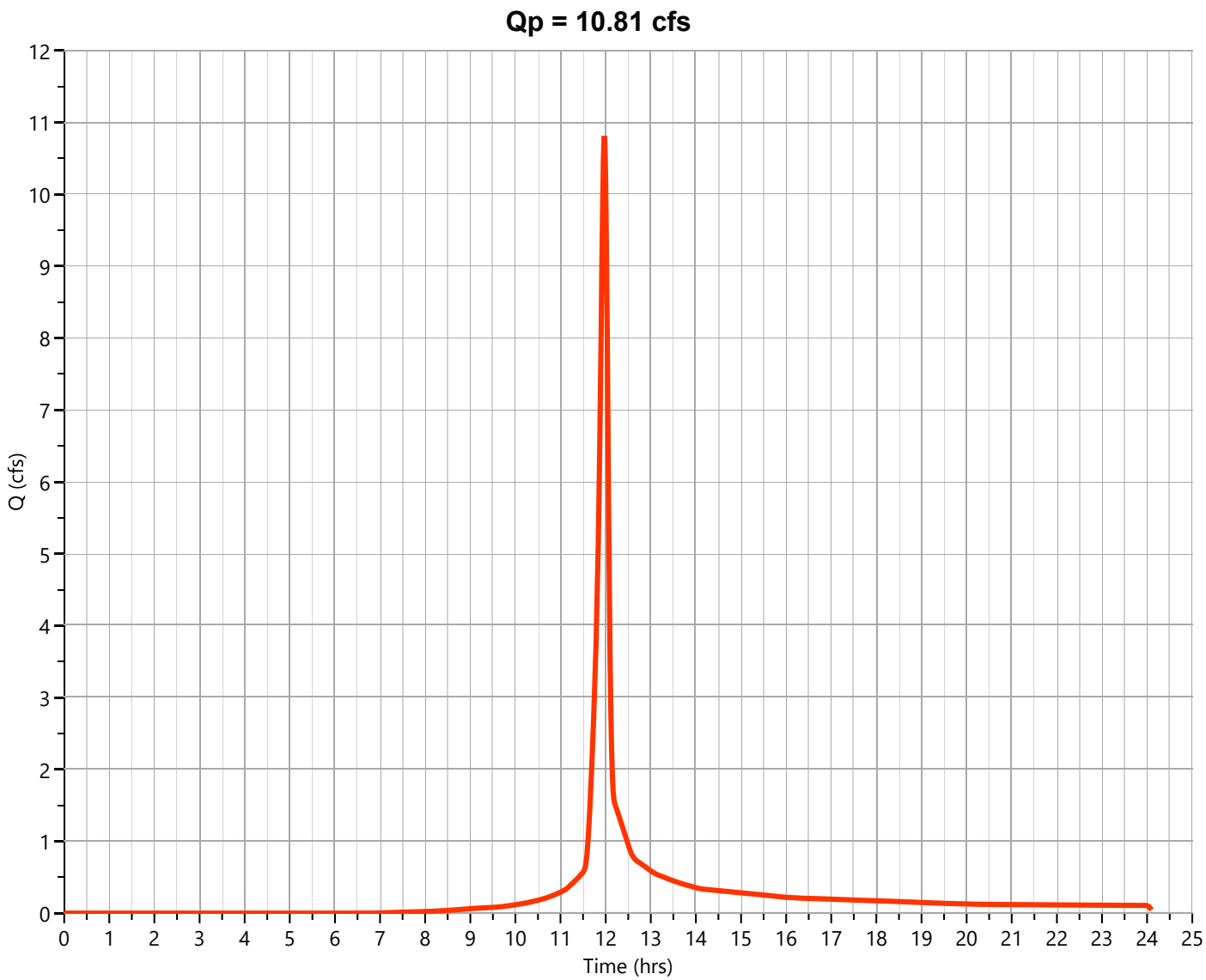
Pre SA-B (TO PRO SWQB 1)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 10.81 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 23,130 cuft
Drainage Area	= 3.477 ac	Curve Number	= 87*
Tc Method	= User	Time of Conc. (Tc)	= 7.5 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.66	74	C-GRASS (GOOD)
1.817	98	C-PAVED/ROOF
3.477	**87**	Weighted CN Method Employed



post111

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

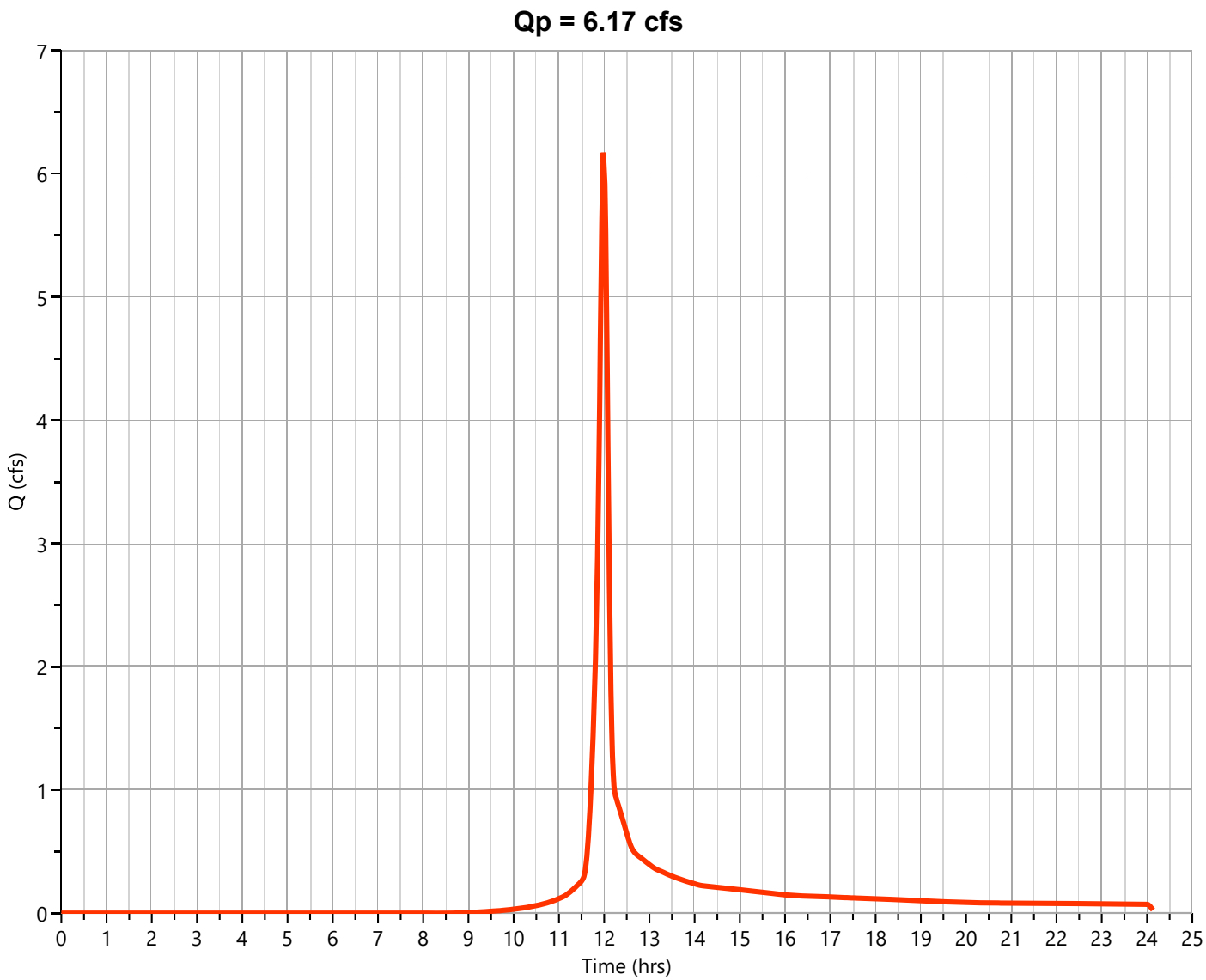
Post SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.171 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.98 hrs
Time Interval	= 1 min	Runoff Volume	= 13,962 cuft
Drainage Area	= 2.554 ac	Curve Number	= 82*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.178	79	C-GRASS (FAIR)
0.376	98	C-ROOF & PAVED
2.554	**82**	Weighted CN Method Employed



post112

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

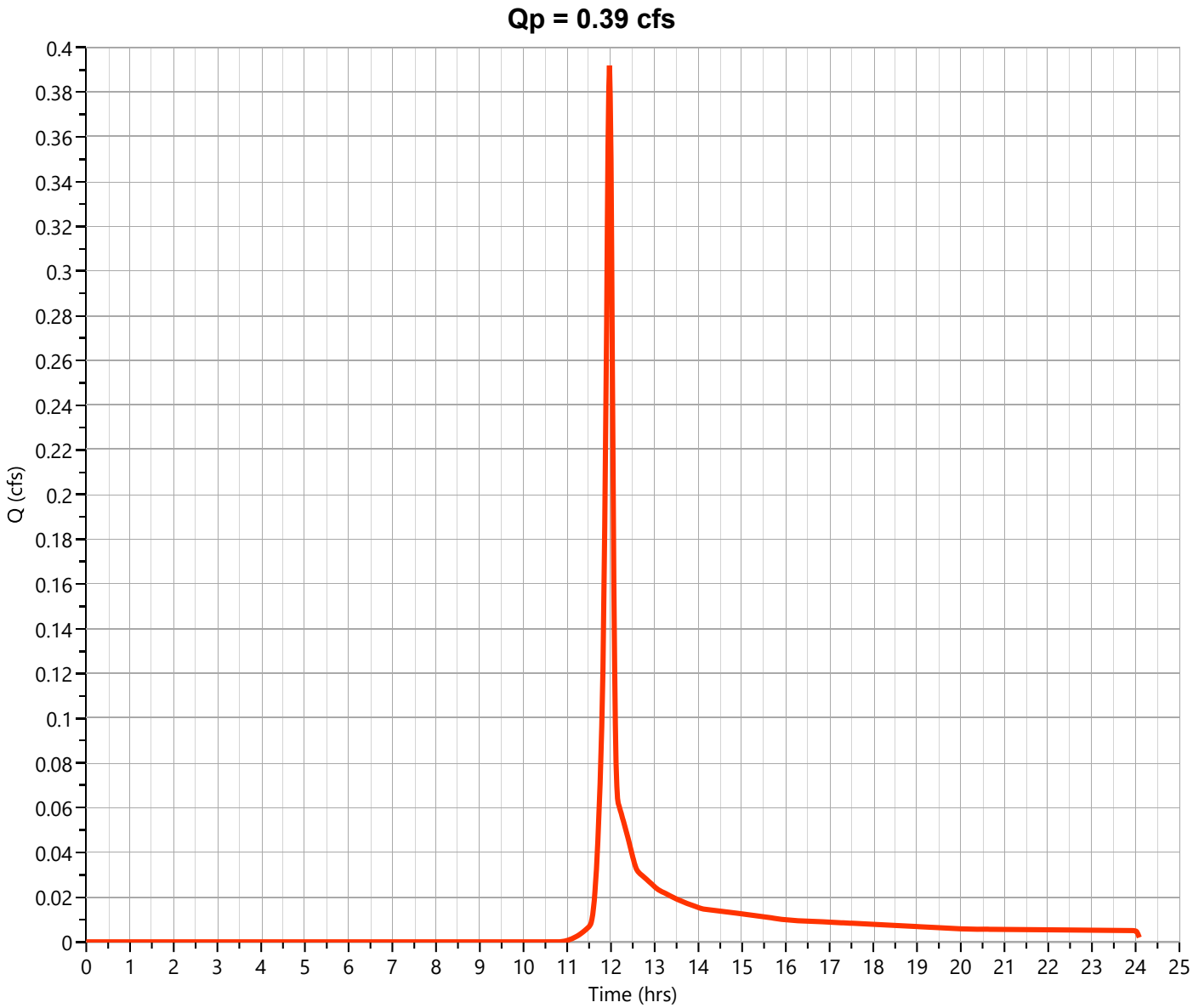
Post SA-B.32 (OVERLAND)

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.392 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 795 cuft
Drainage Area	= 0.21 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.47 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.21	74	C-GRASS
0.21	**74**	Weighted CN Method Employed



post113

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

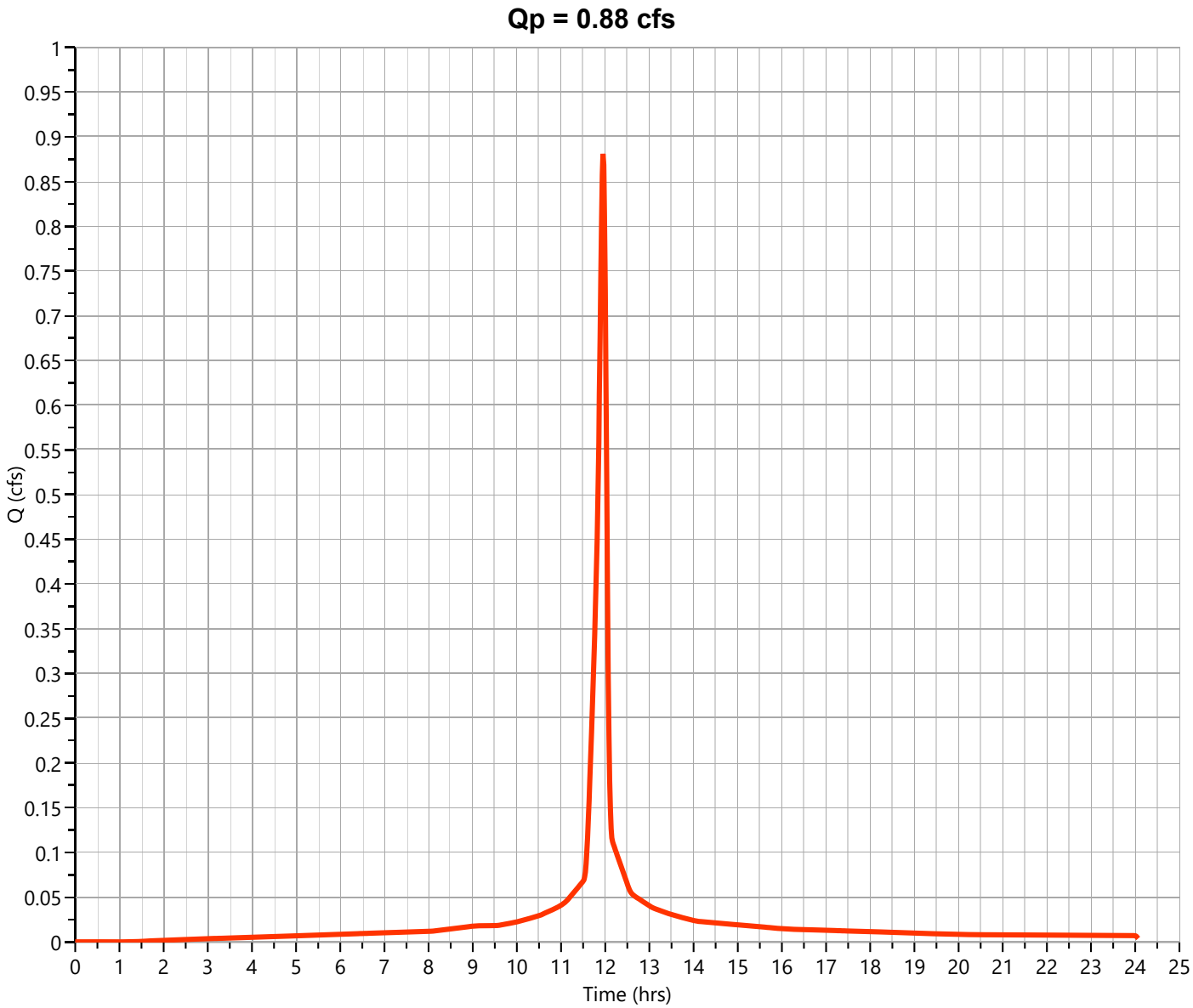
Post BLDG #4 RL

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.881 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,082 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

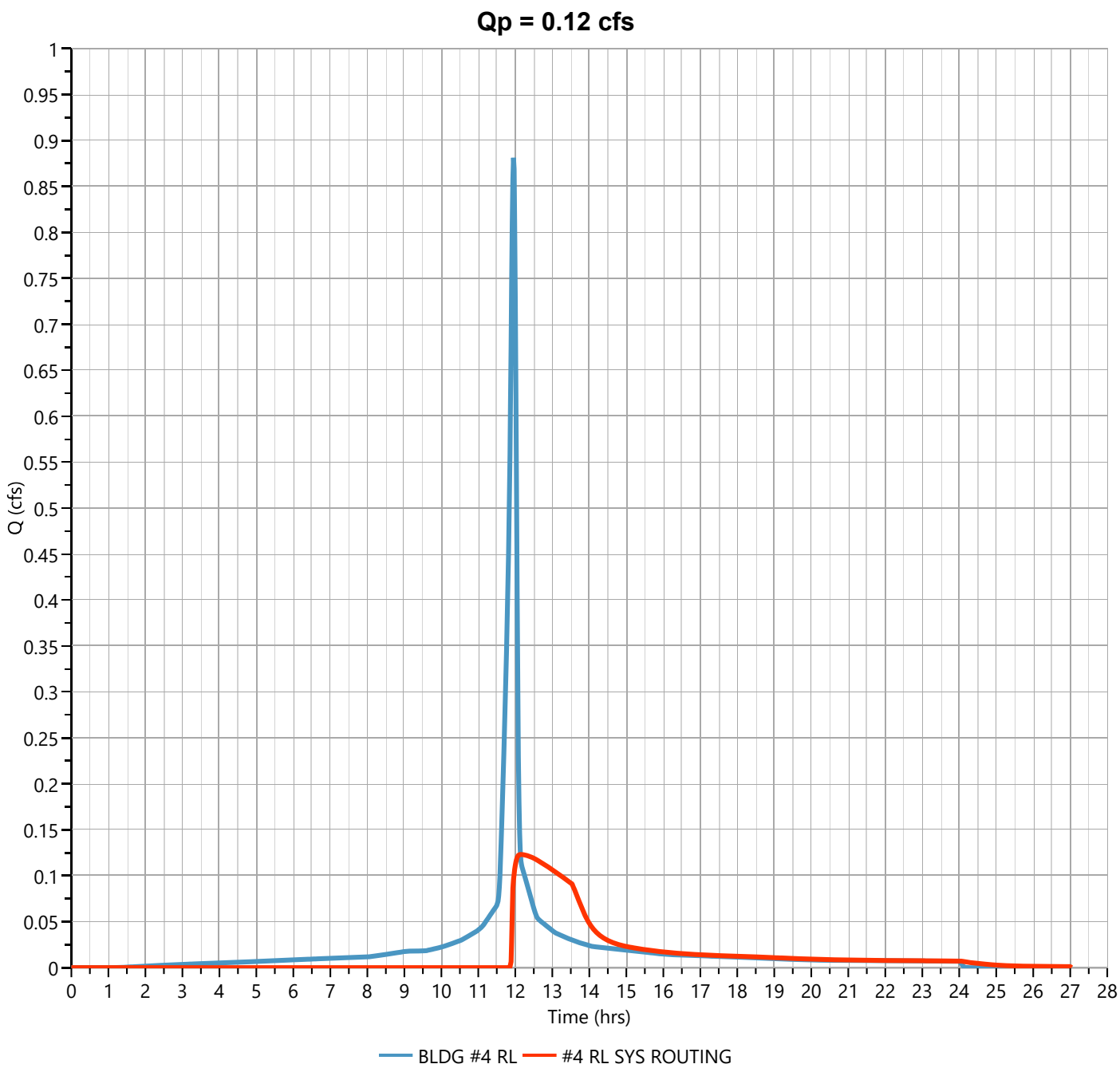
Post #4 RL SYS ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.123 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,263 cuft
Inflow Hydrograph	= 7 - BLDG #4 RL	Max. Elevation	= 84.71 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,264 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.95 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

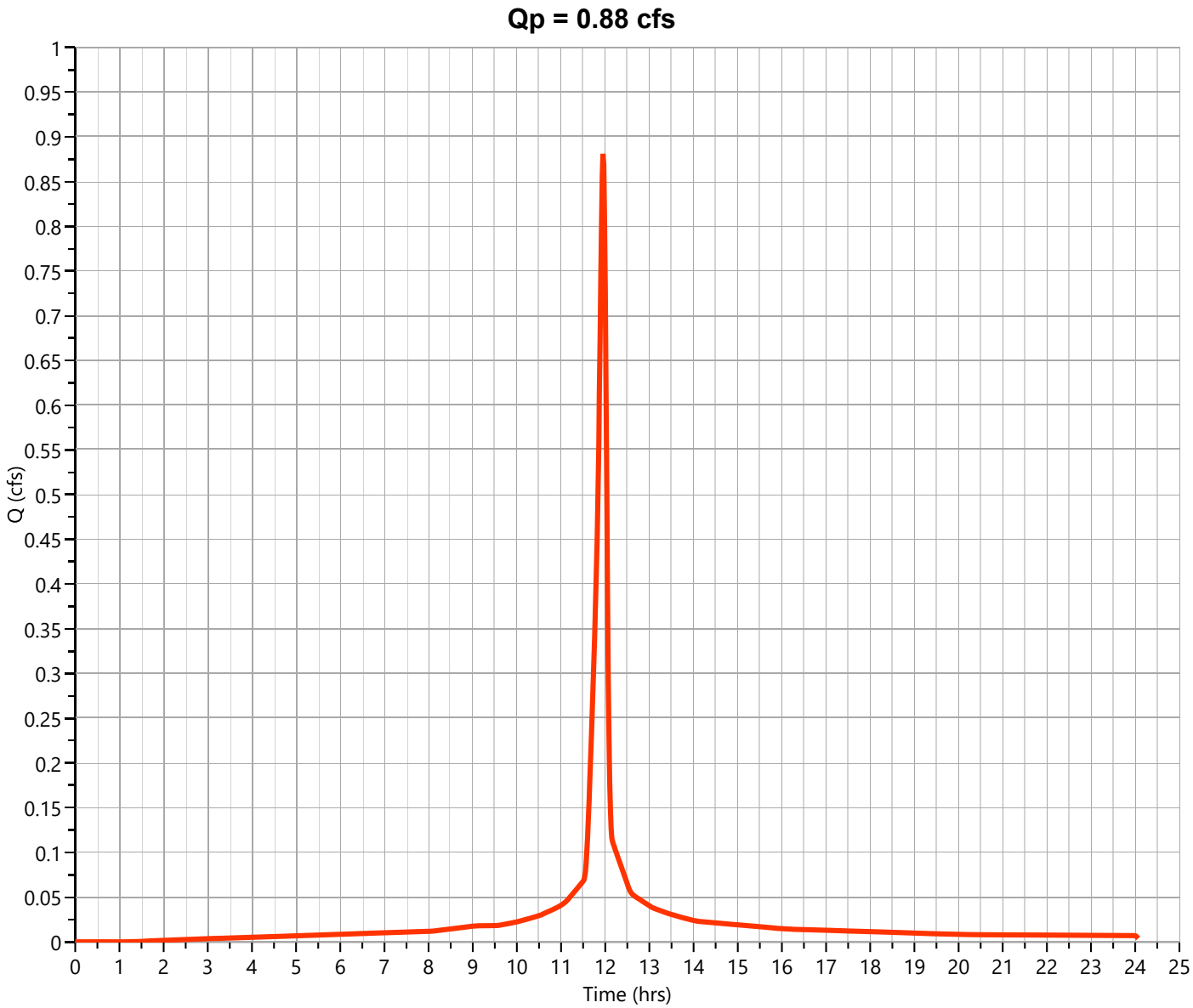
Post BLDG #5 RL

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.881 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,082 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

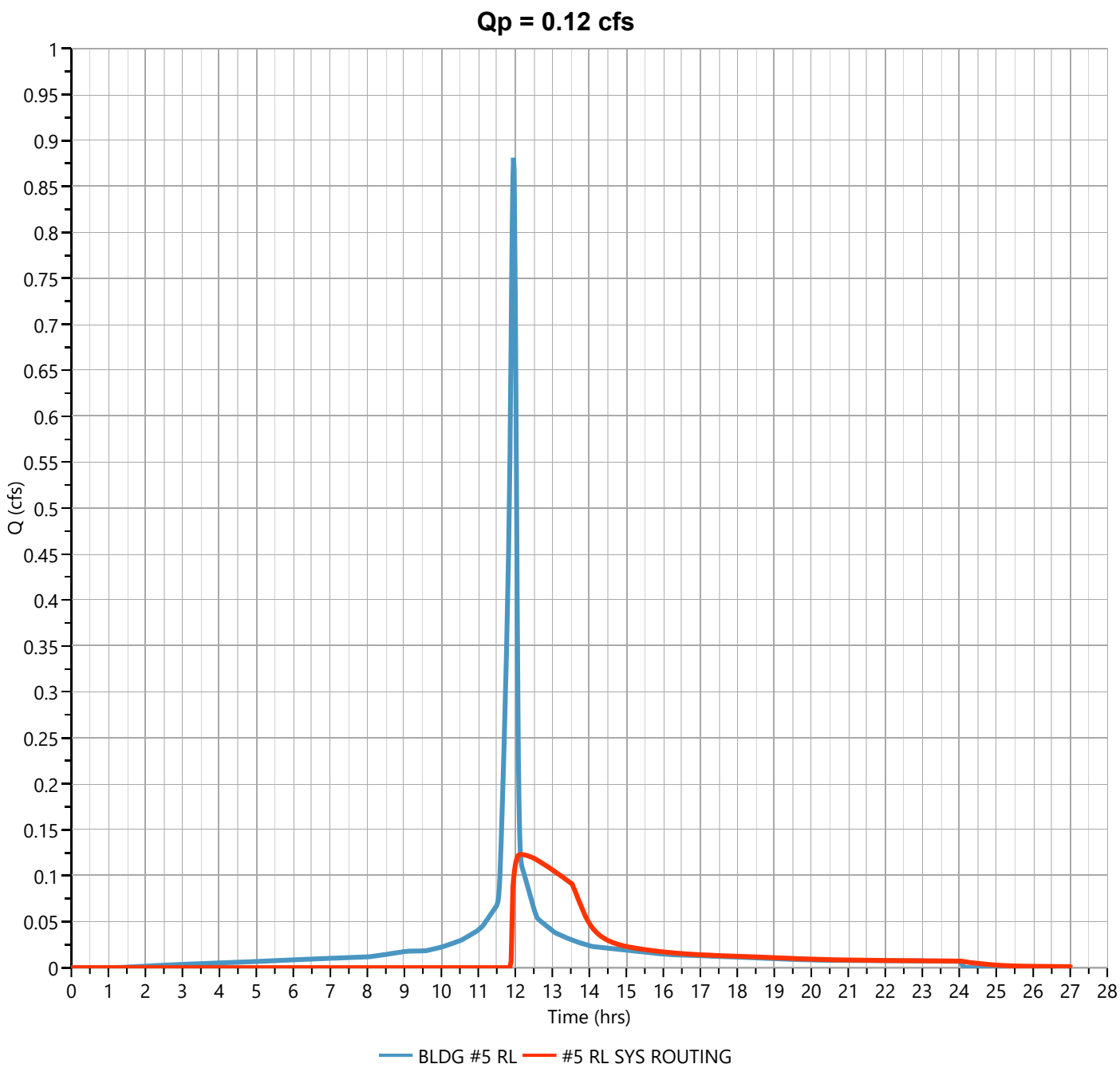
Post #5 RL SYS ROUTING

Hyd. No. 10

Hydrograph Type	= Pond Route	Peak Flow	= 0.123 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,263 cuft
Inflow Hydrograph	= 9 - BLDG #5 RL	Max. Elevation	= 84.71 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,264 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.95 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

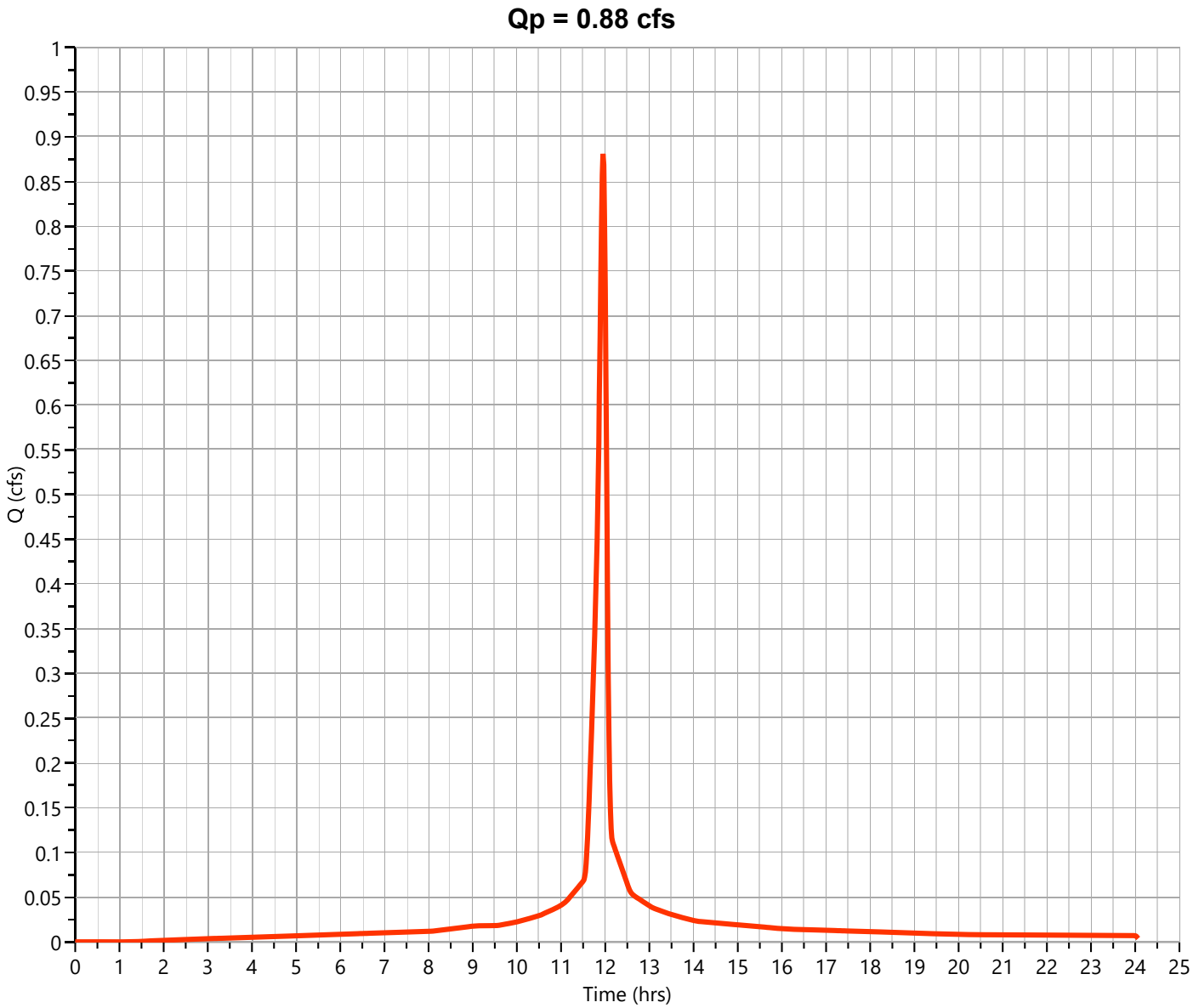
Post BLDG #6 RL

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.881 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,082 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post118

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

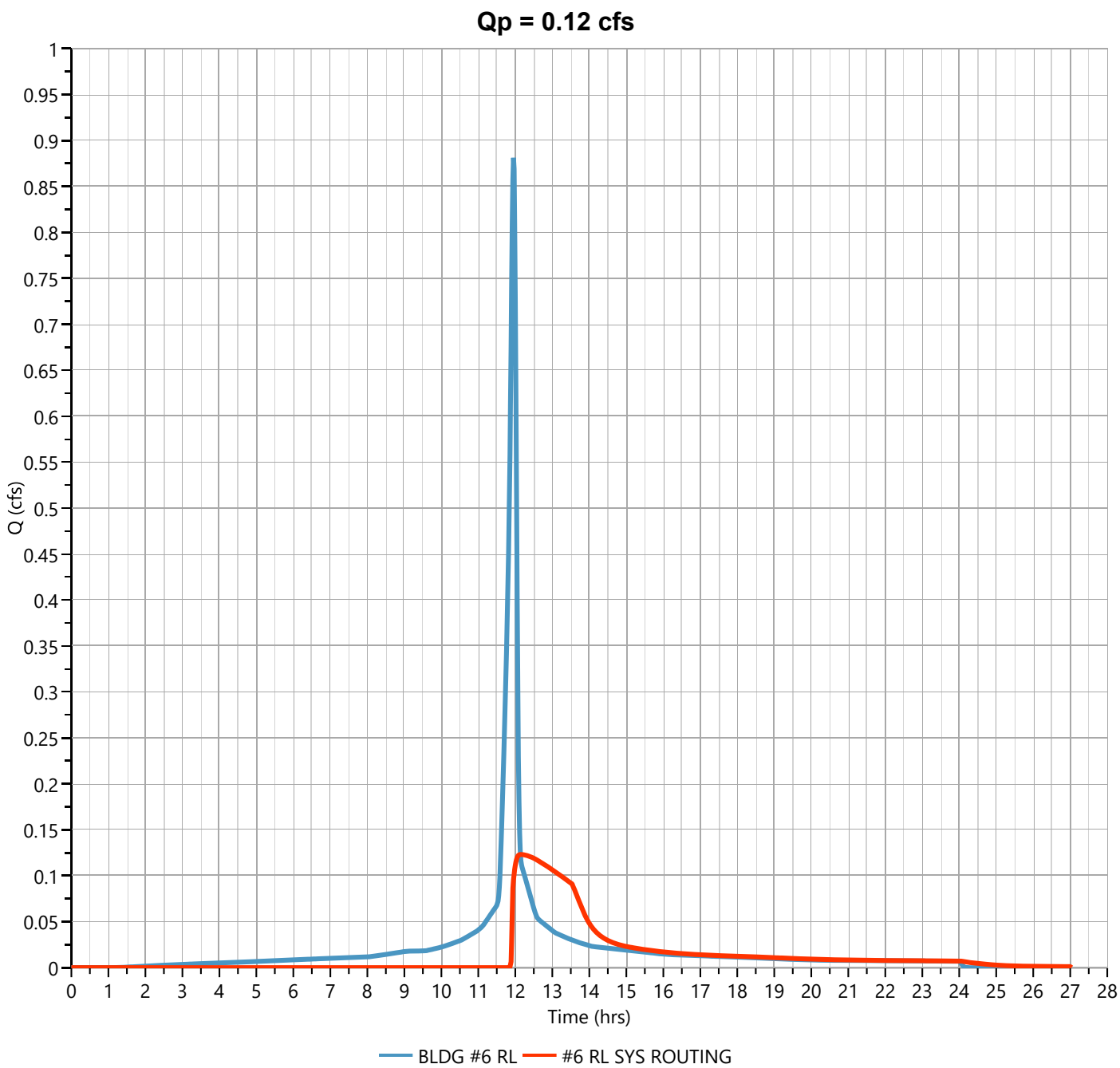
Post #6 RL SYS ROUTING

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 0.123 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,263 cuft
Inflow Hydrograph	= 11 - BLDG #6 RL	Max. Elevation	= 84.71 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,264 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.95 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

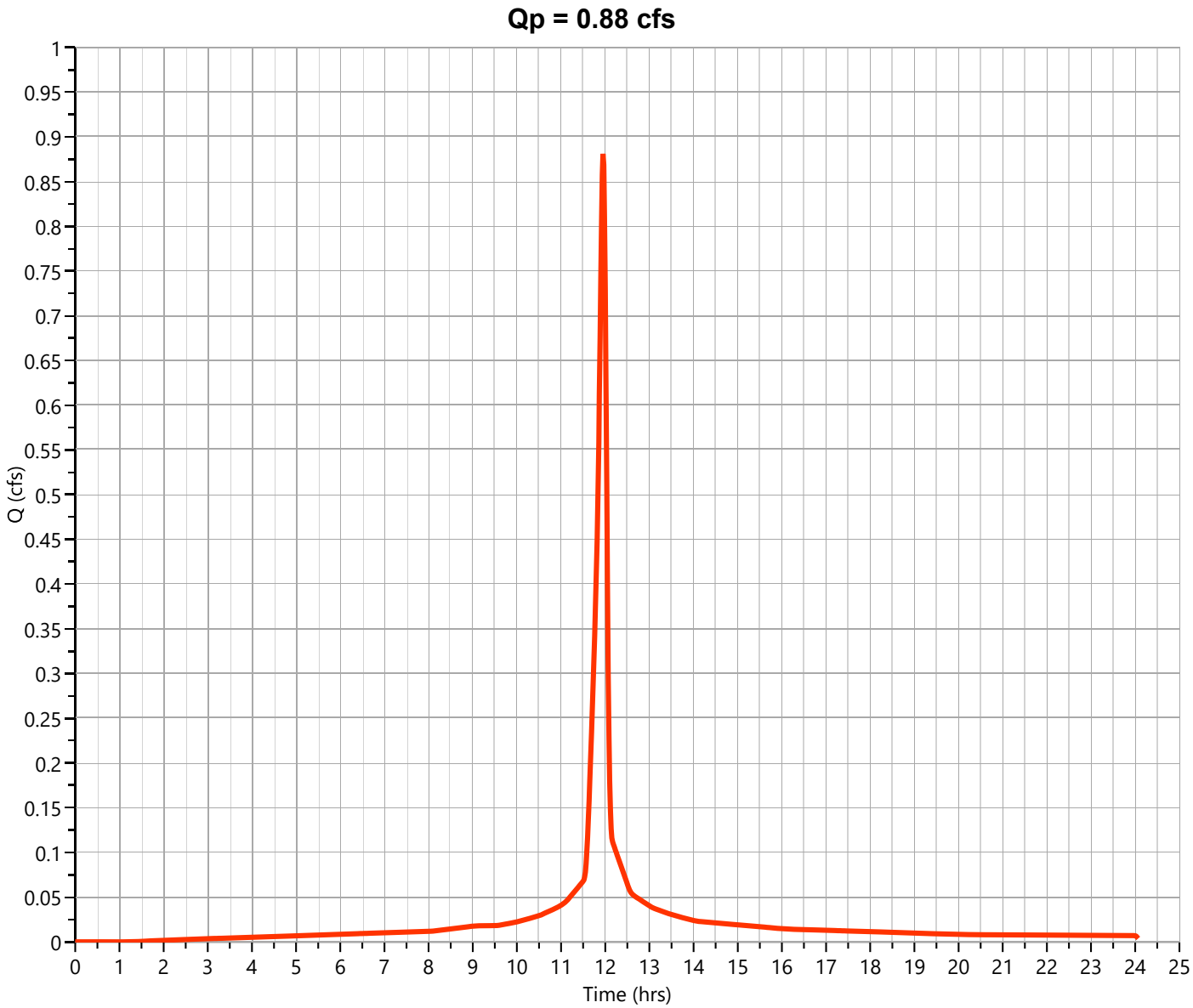
Post BLDG #7 RL

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.881 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,082 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

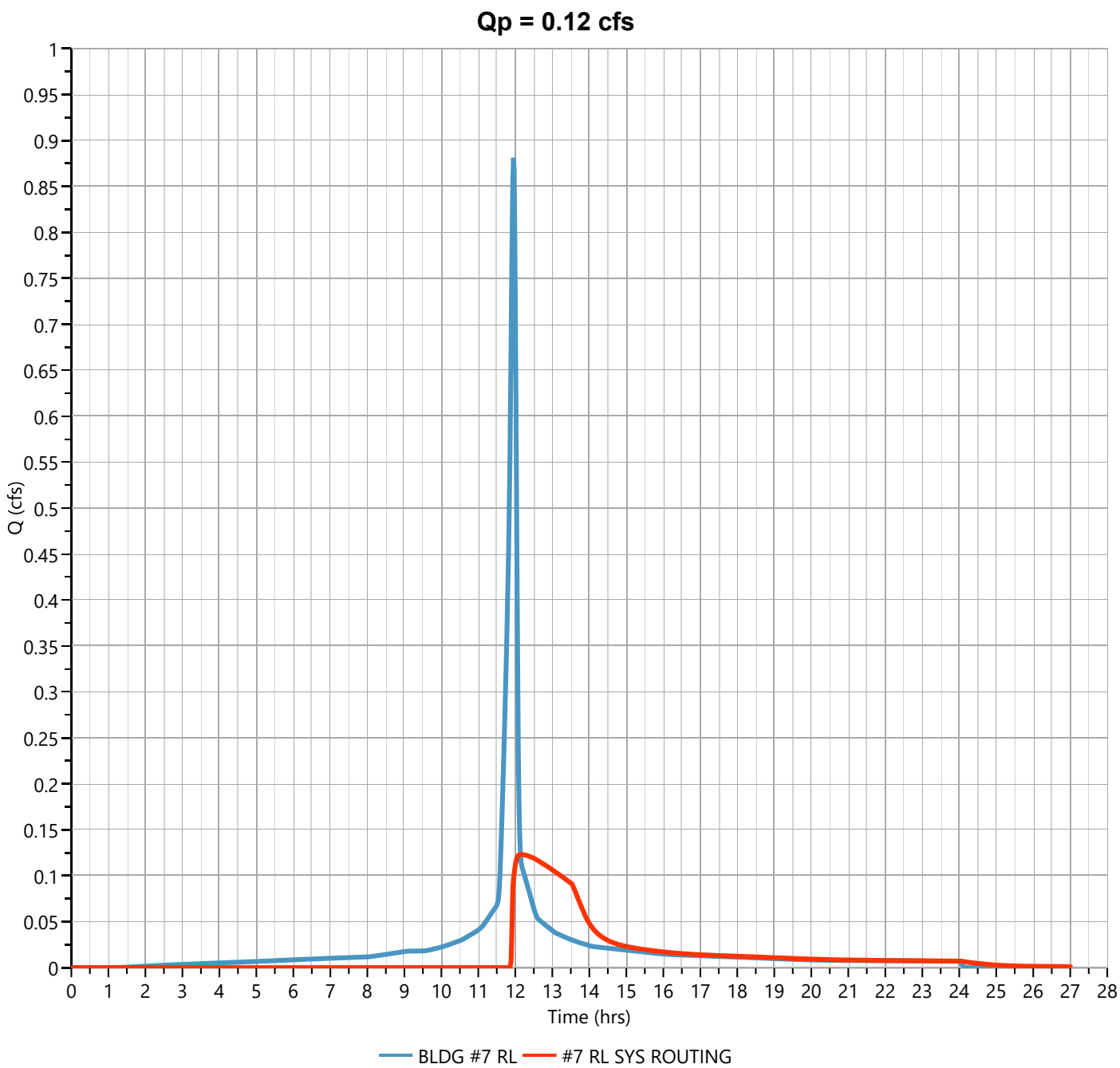
Post #7 RL SYS ROUTING

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.123 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,263 cuft
Inflow Hydrograph	= 13 - BLDG #7 RL	Max. Elevation	= 84.71 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,264 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.95 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

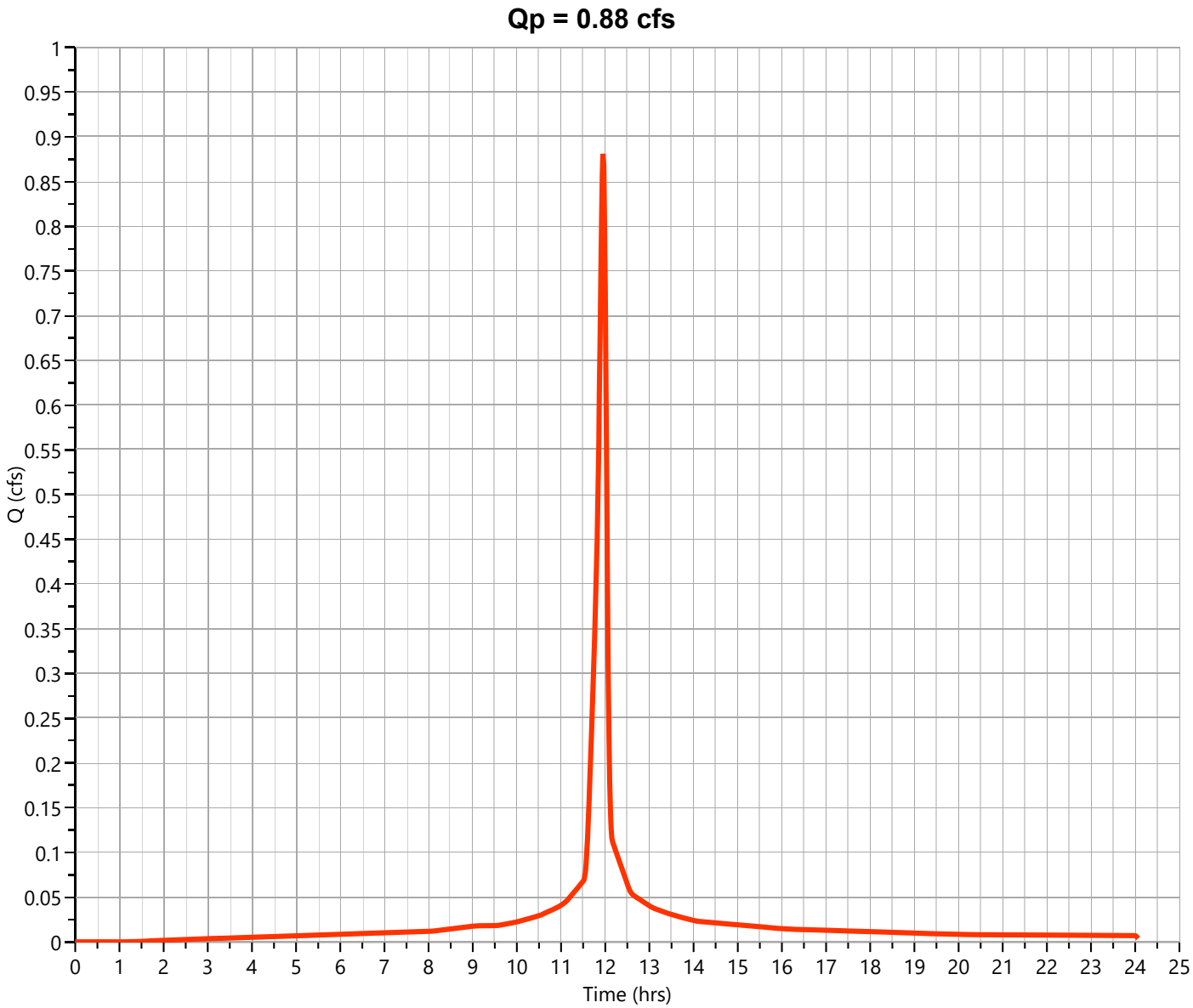
Post BLDG #8 RL

Hyd. No. 15

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.881 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,082 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

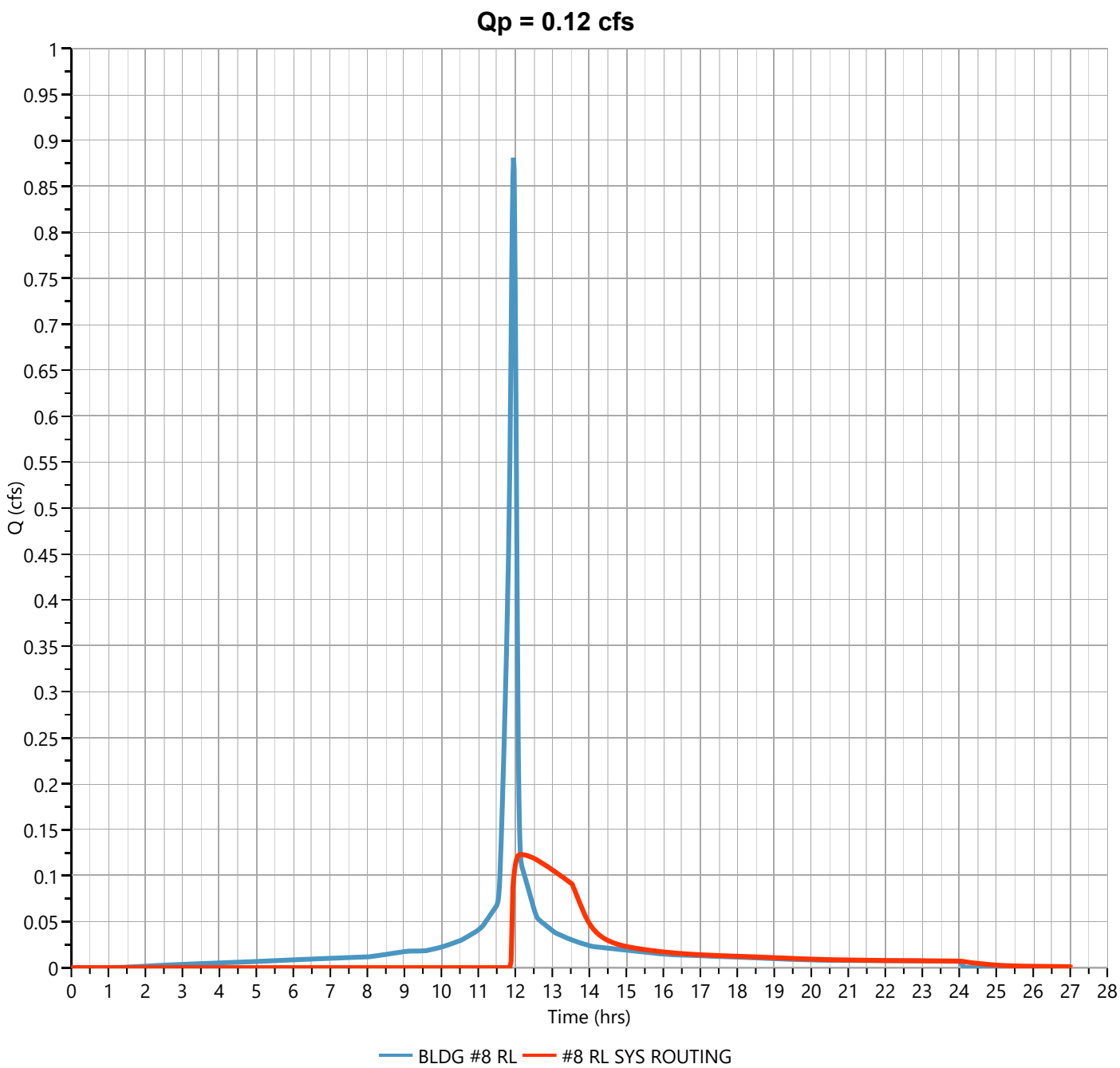
#8 RL SYS ROUTING

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.123 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,263 cuft
Inflow Hydrograph	= 15 - BLDG #8 RL	Max. Elevation	= 84.71 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,264 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.95 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

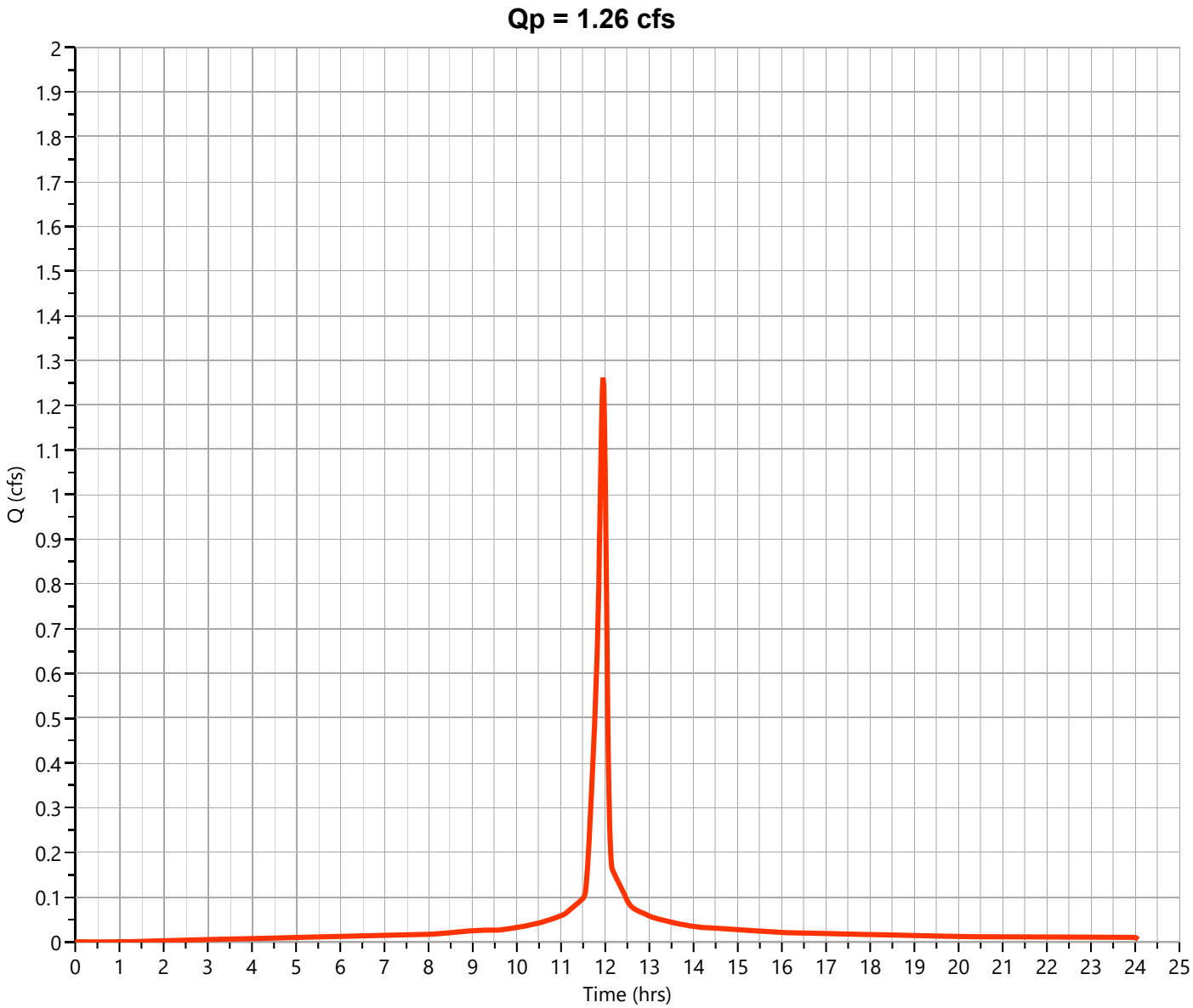
Post BLDG #11 RL

Hyd. No. 17

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.261 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,981 cuft
Drainage Area	= 0.272 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.272	98	C-ROOF
0.272	**98**	Weighted CN Method Employed



post124

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

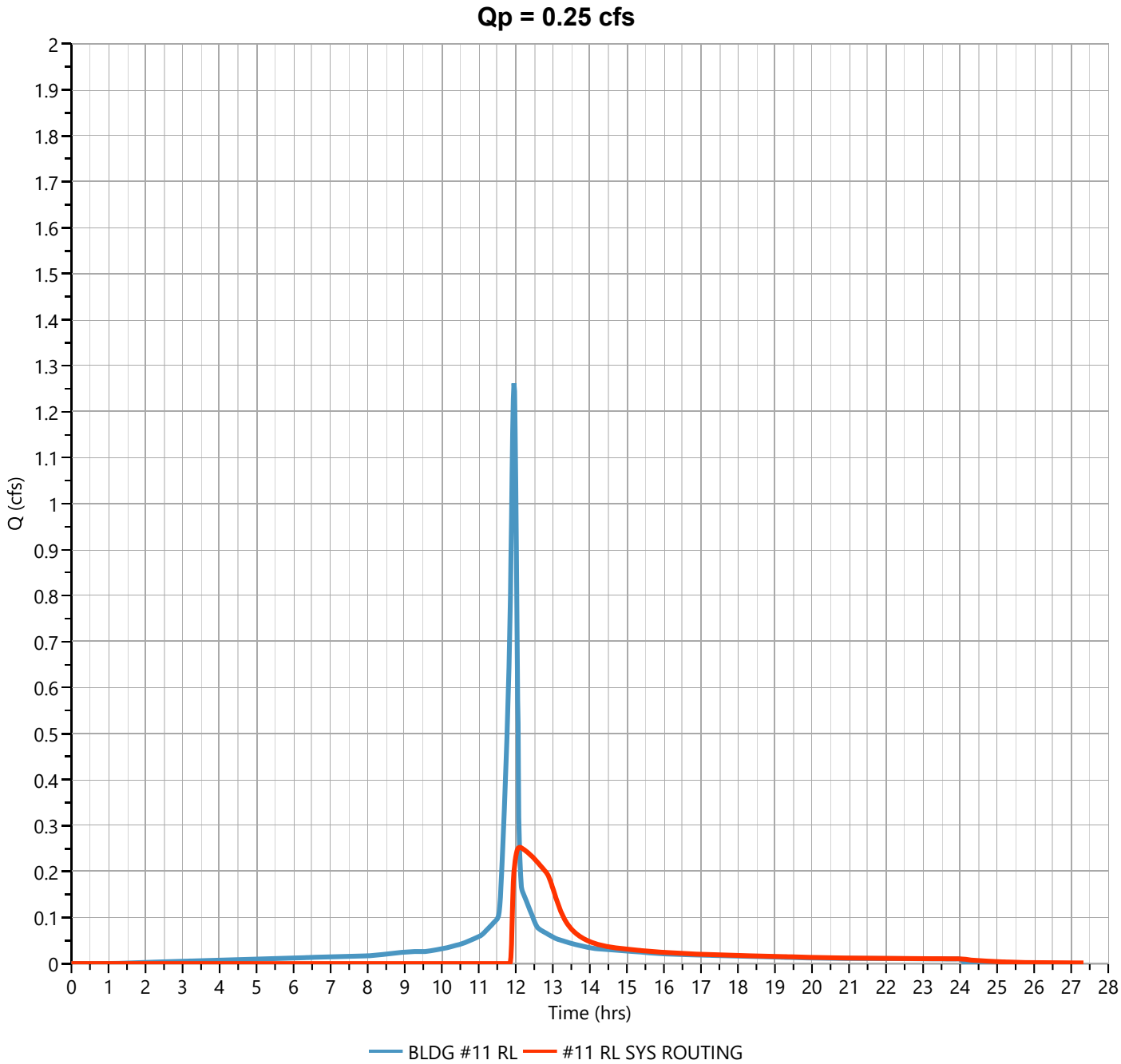
Post #11 RL SYS ROUTING

Hyd. No. 18

Hydrograph Type	= Pond Route	Peak Flow	= 0.253 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,880 cuft
Inflow Hydrograph	= 17 - BLDG #11 RL	Max. Elevation	= 84.77 ft
Pond Name	= BLDG #11 RL SYS	Max. Storage	= 1,751 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.71 hrs



Hydrograph Report

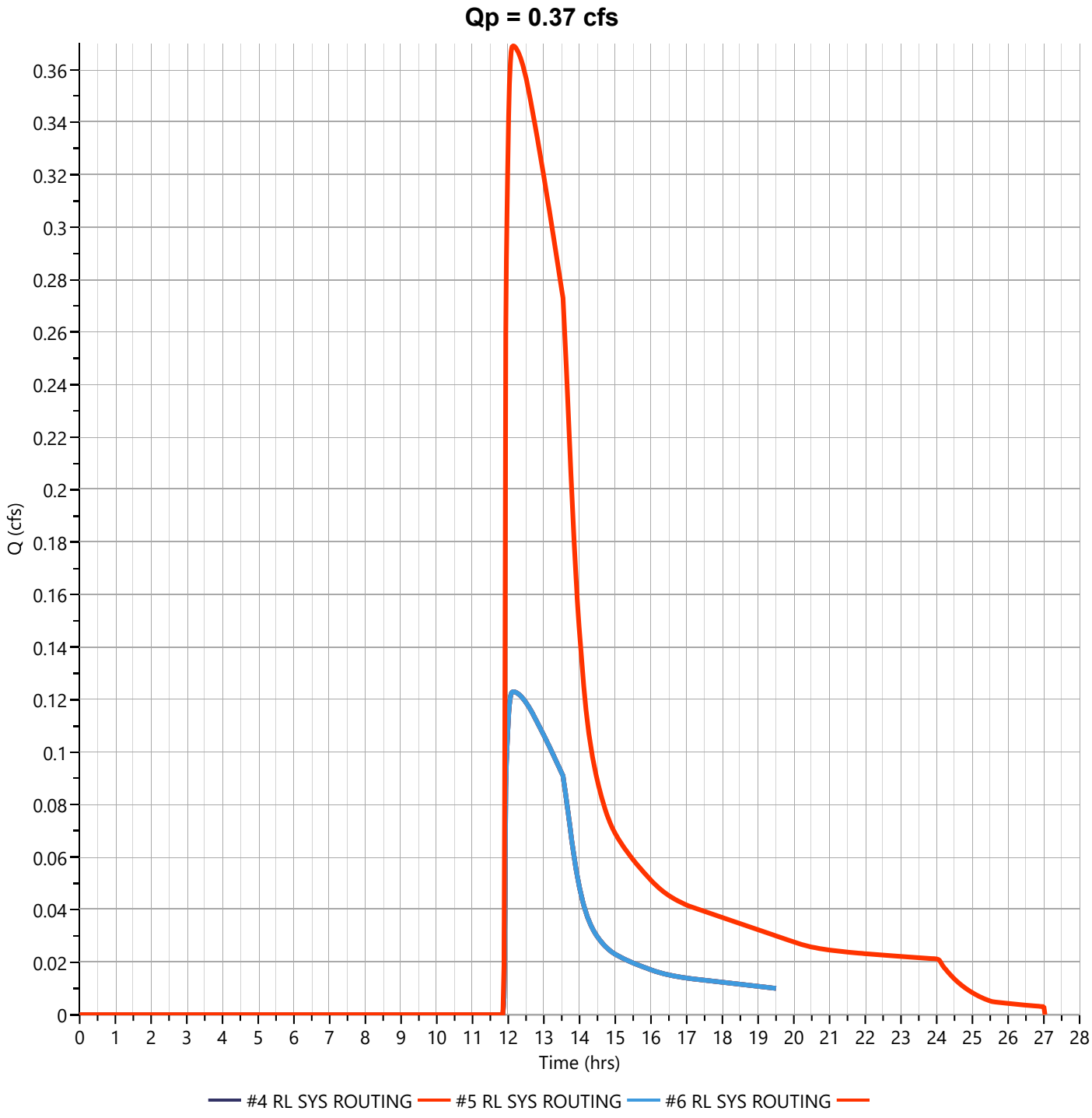
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 19

Hydrograph Type	= Junction	Peak Flow	= 0.369 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,789 cuft
Inflow Hydrographs	= 8, 10, 12	Total Contrib. Area	= 0.0 ac



post126

Hydrograph Report

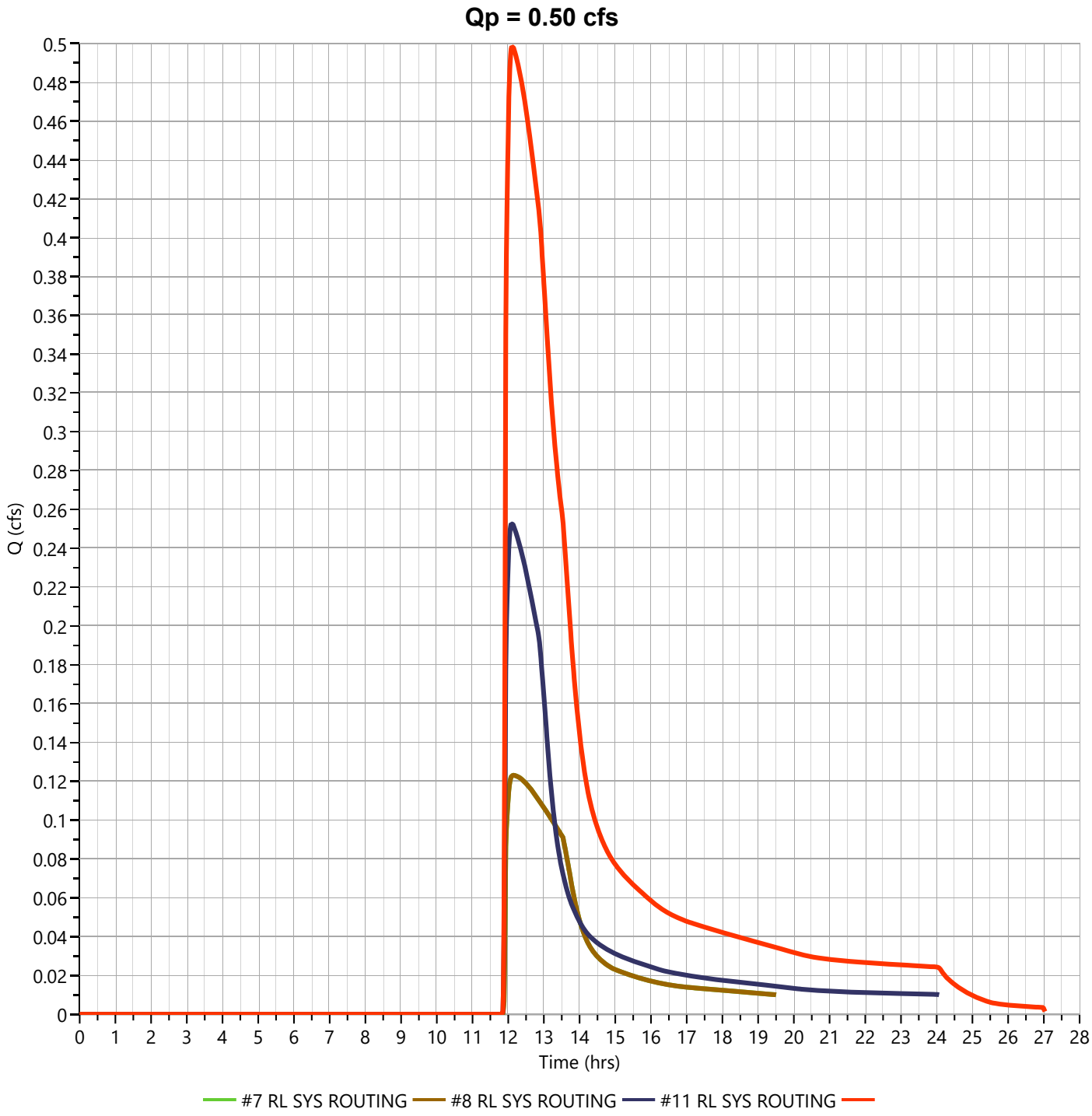
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 20

Hydrograph Type	= Junction	Peak Flow	= 0.499 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,406 cuft
Inflow Hydrographs	= 14, 16, 18	Total Contrib. Area	= 0.0 ac



post127

Hydrograph Report

Project Name:

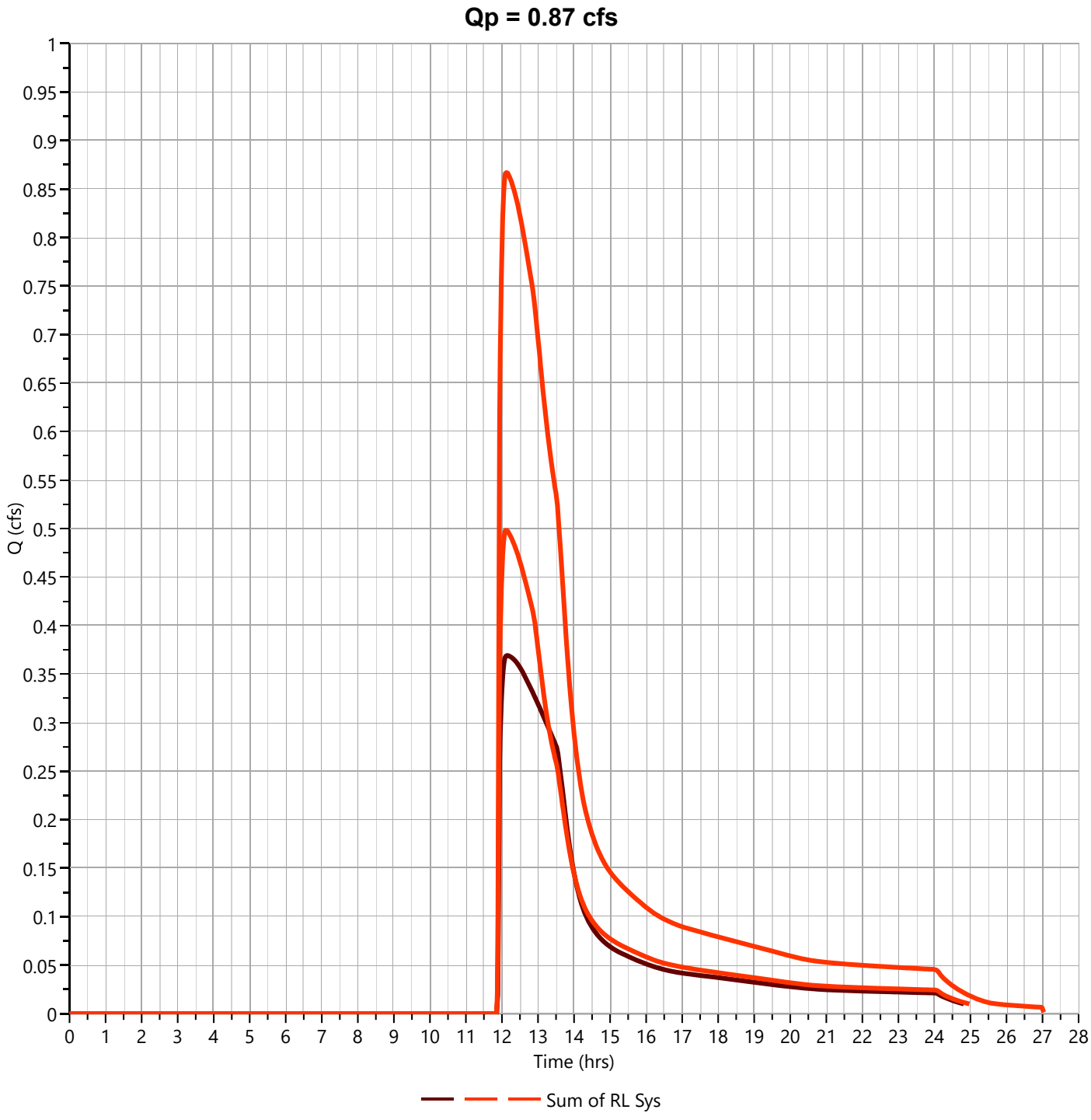
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum of RL Sys

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 0.868 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 8,195 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 0.0 ac



post128

Hydrograph Report

Project Name:

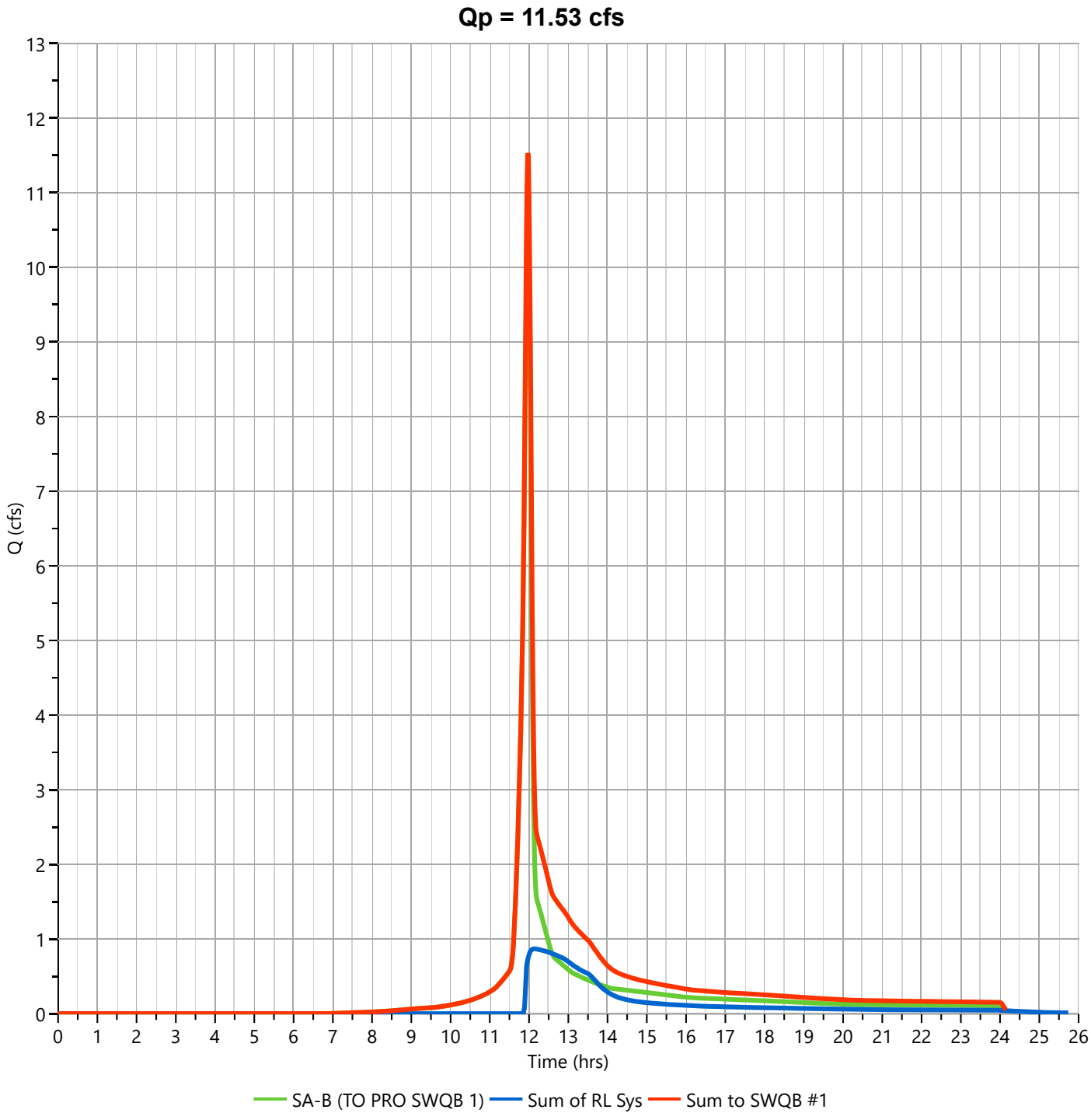
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to SWQB #1

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 11.53 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Hydrograph Volume	= 31,325 cuft
Inflow Hydrographs	= 4, 21	Total Contrib. Area	= 3.477 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

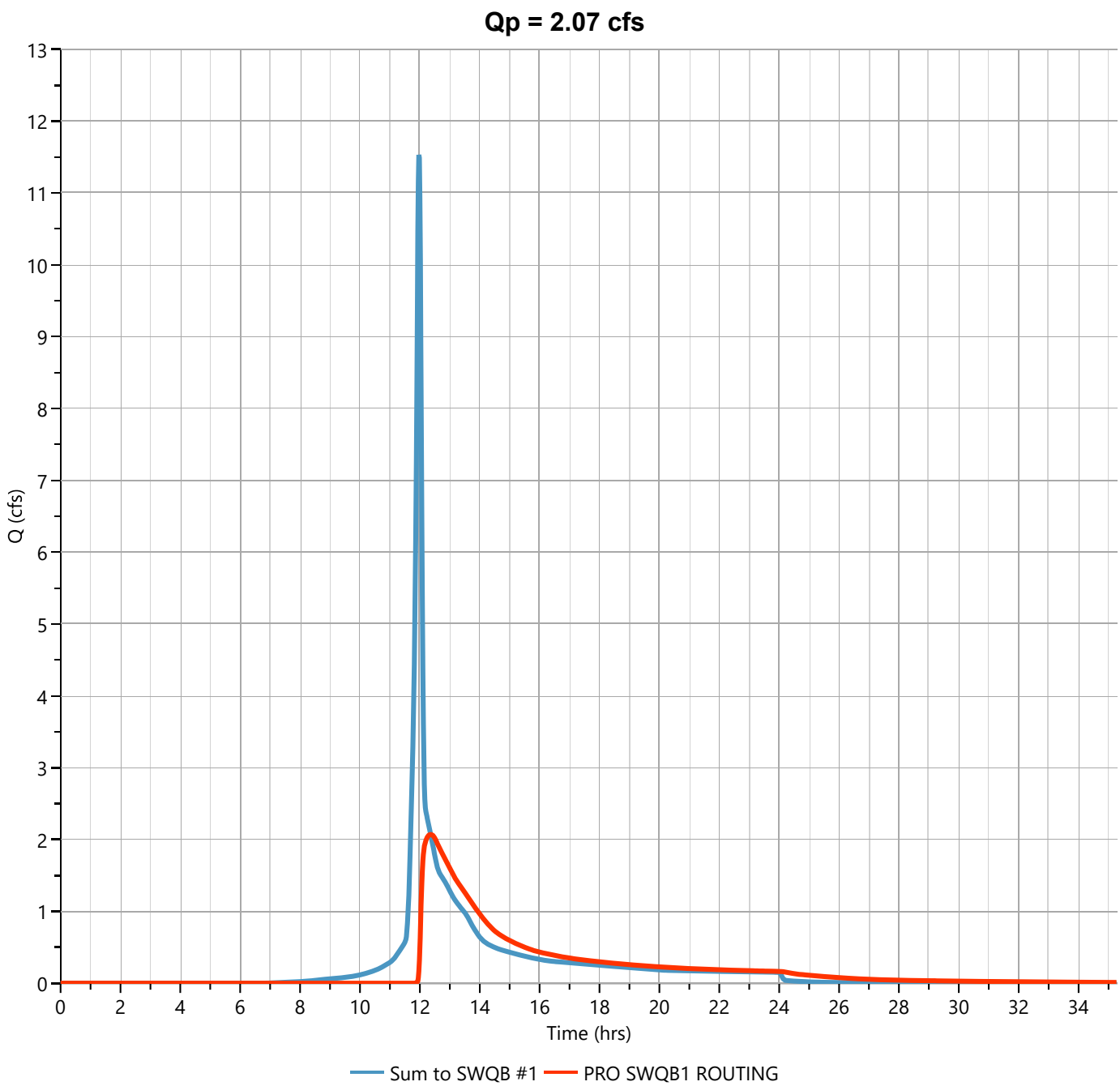
PRO SWQB1 ROUTING

Hyd. No. 23

Hydrograph Type	= Pond Route	Peak Flow	= 2.072 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.37 hrs
Time Interval	= 1 min	Hydrograph Volume	= 24,908 cuft
Inflow Hydrograph	= 22 - Sum to SWQB #1	Max. Elevation	= 81.92 ft
Pond Name	= PRO SWQB #1	Max. Storage	= 12,507 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.17 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

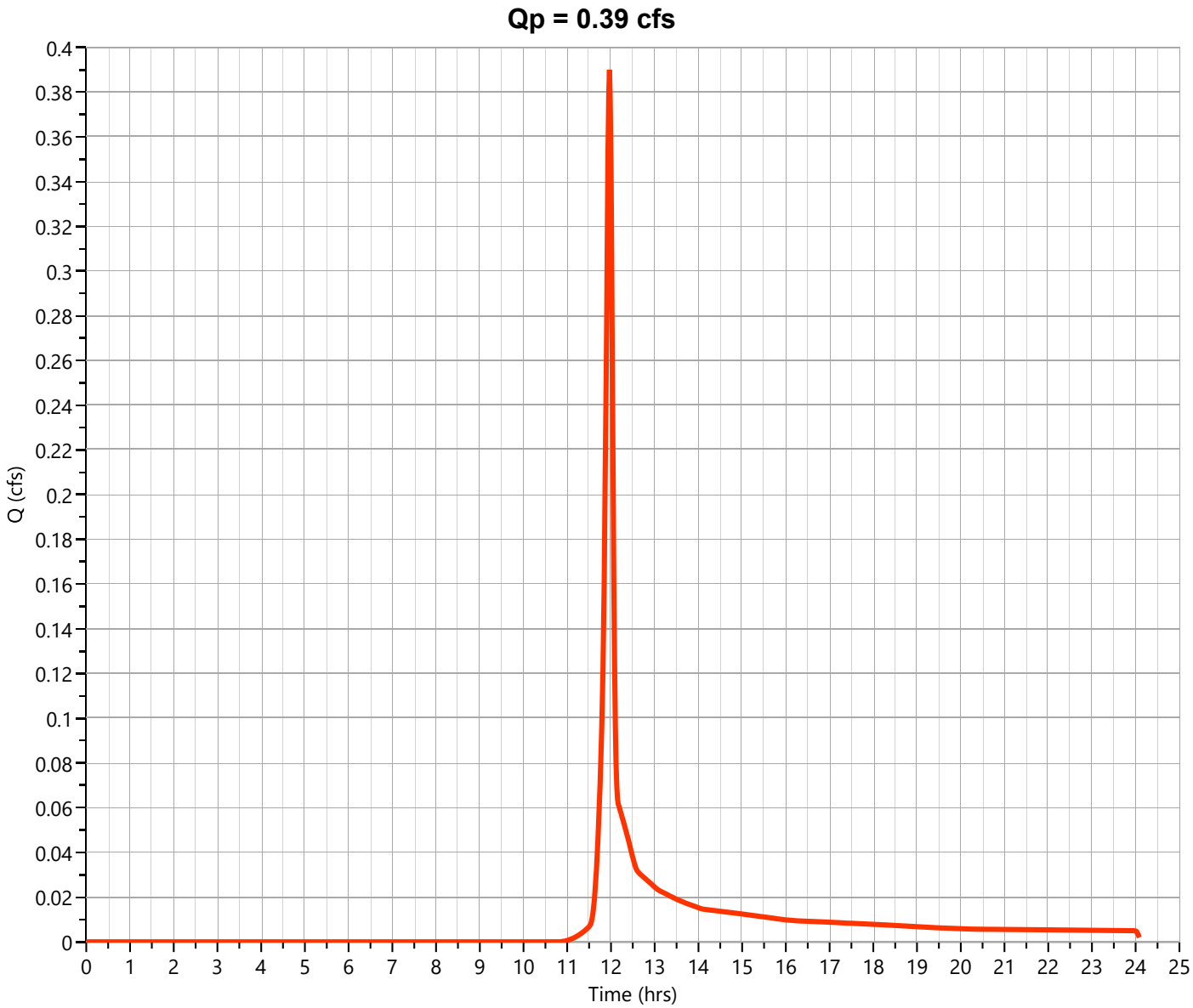
Post SA-B.32 (OVERLAND)'

Hyd. No. 24

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.390 cfs
Storm Frequency	= 5-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 791 cuft
Drainage Area	= 0.209 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.55 min
Total Rainfall	= 3.16 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.209	74	C-LAWN
0.209	**74**	Weighted CN Method Employed



Hydrograph Report

Project Name:

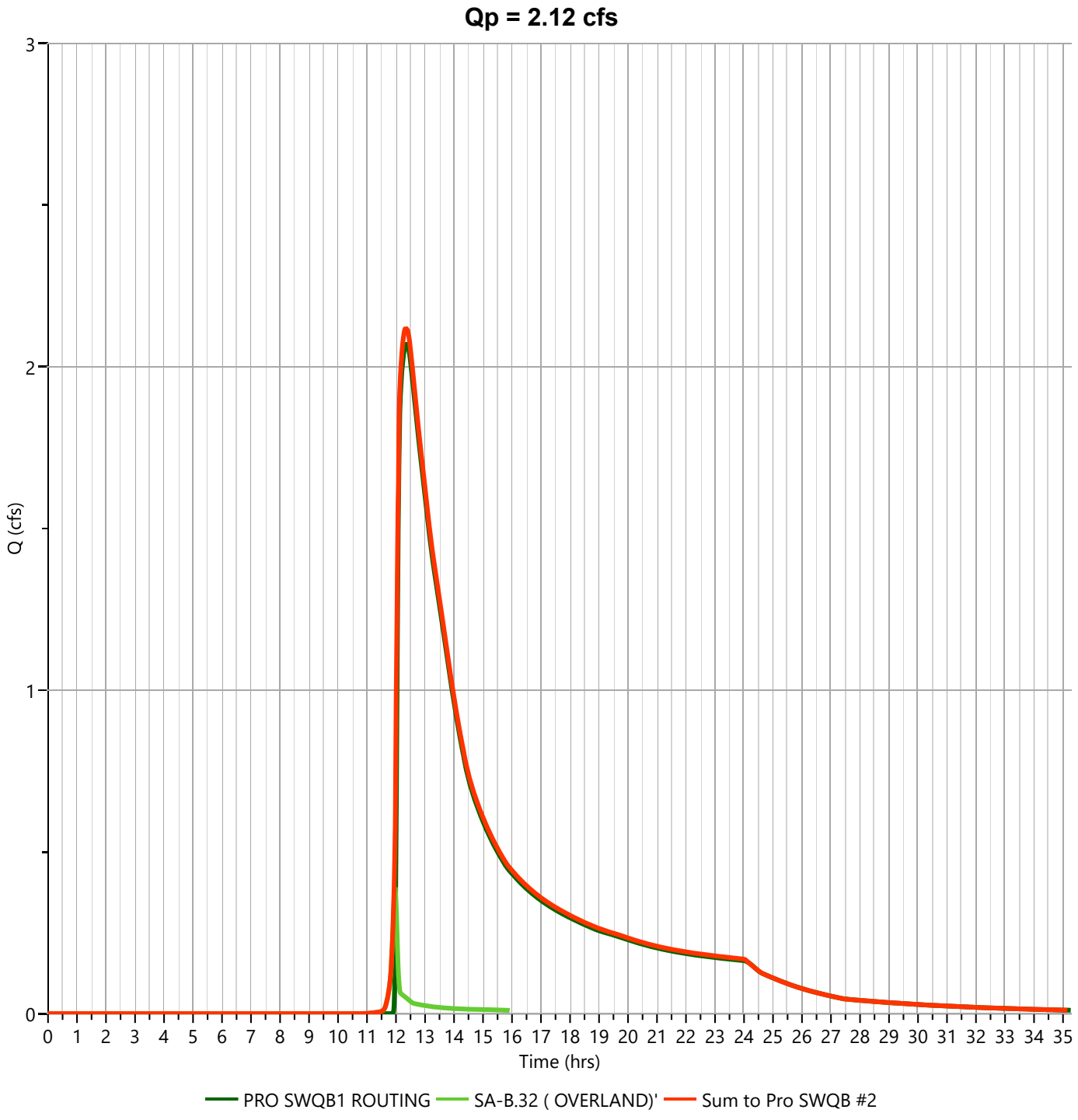
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Pro SWQB #2

Hyd. No. 25

Hydrograph Type	= Junction	Peak Flow	= 2.121 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.35 hrs
Time Interval	= 1 min	Hydrograph Volume	= 25,699 cuft
Inflow Hydrographs	= 23, 24	Total Contrib. Area	= 0.209 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

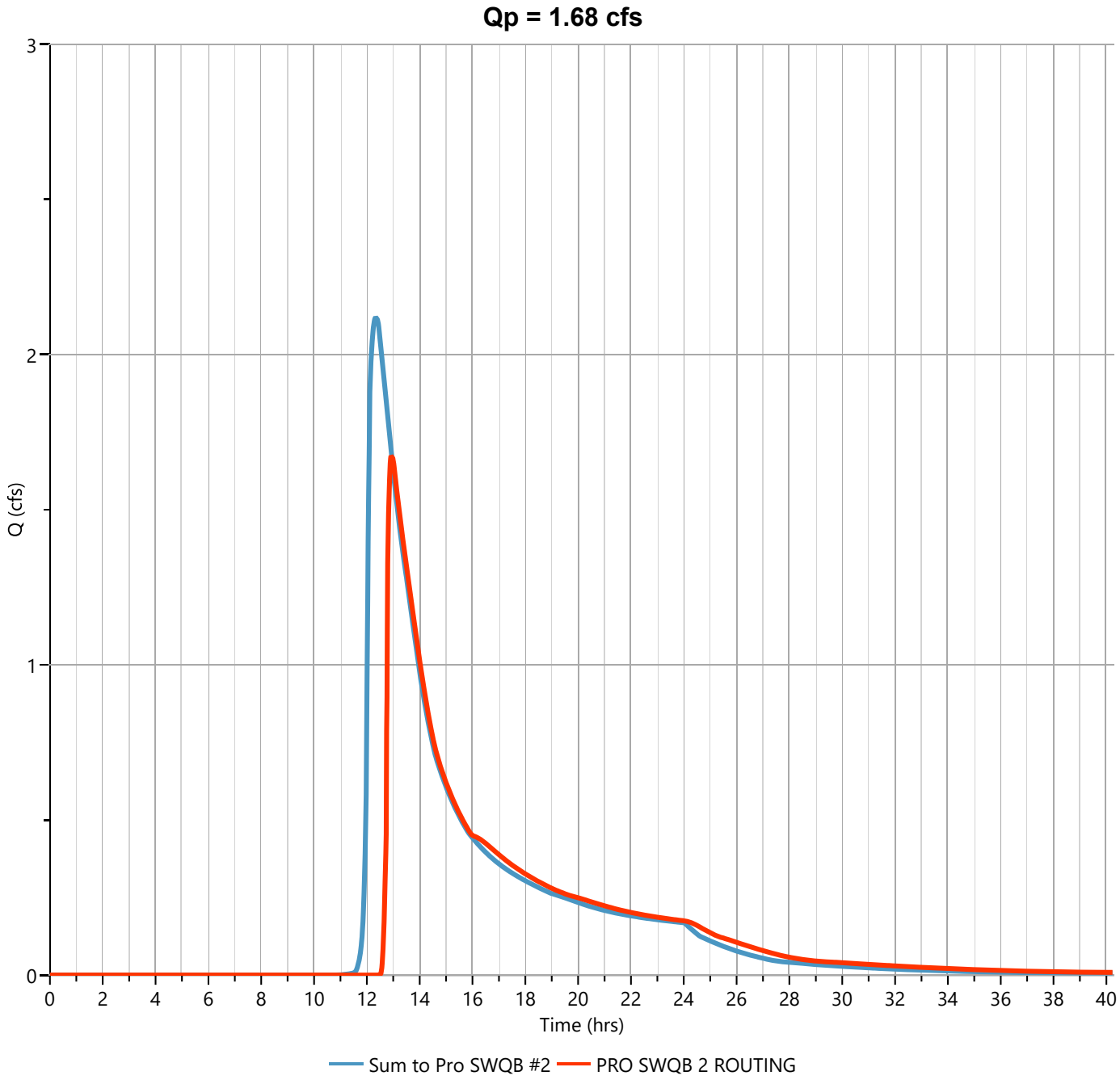
Post PRO SWQB 2 ROUTING

Hyd. No. 26

Hydrograph Type	= Pond Route	Peak Flow	= 1.677 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.93 hrs
Time Interval	= 1 min	Hydrograph Volume	= 21,627 cuft
Inflow Hydrograph	= 25 - Sum to Pro SWQB #2	Max. Elevation	= 80.08 ft
Pond Name	= PRO SWQB #2	Max. Storage	= 5,533 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.51 hrs



Hydrograph Report

Project Name:

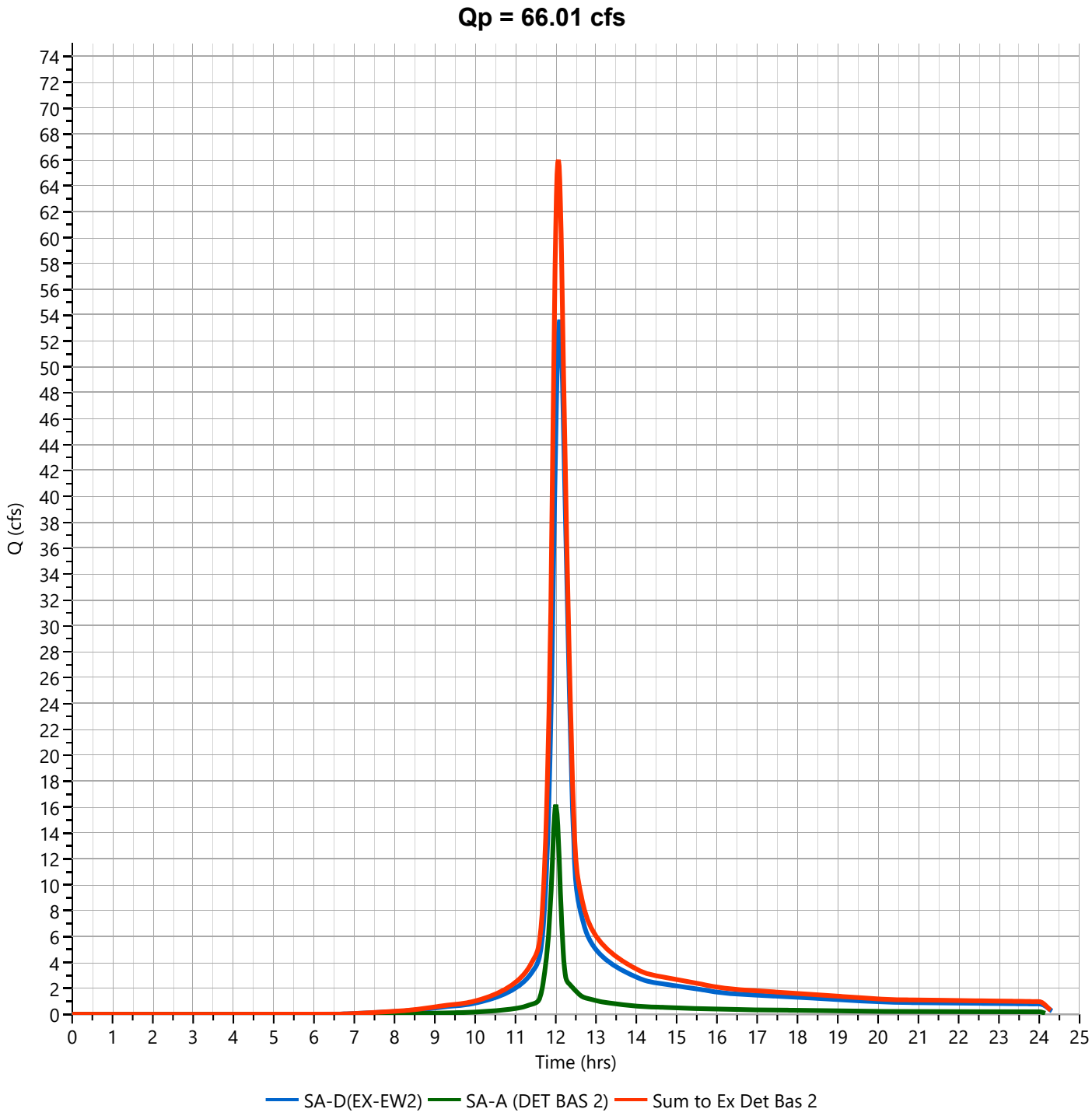
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 2

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 66.01 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 215,941 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.485 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

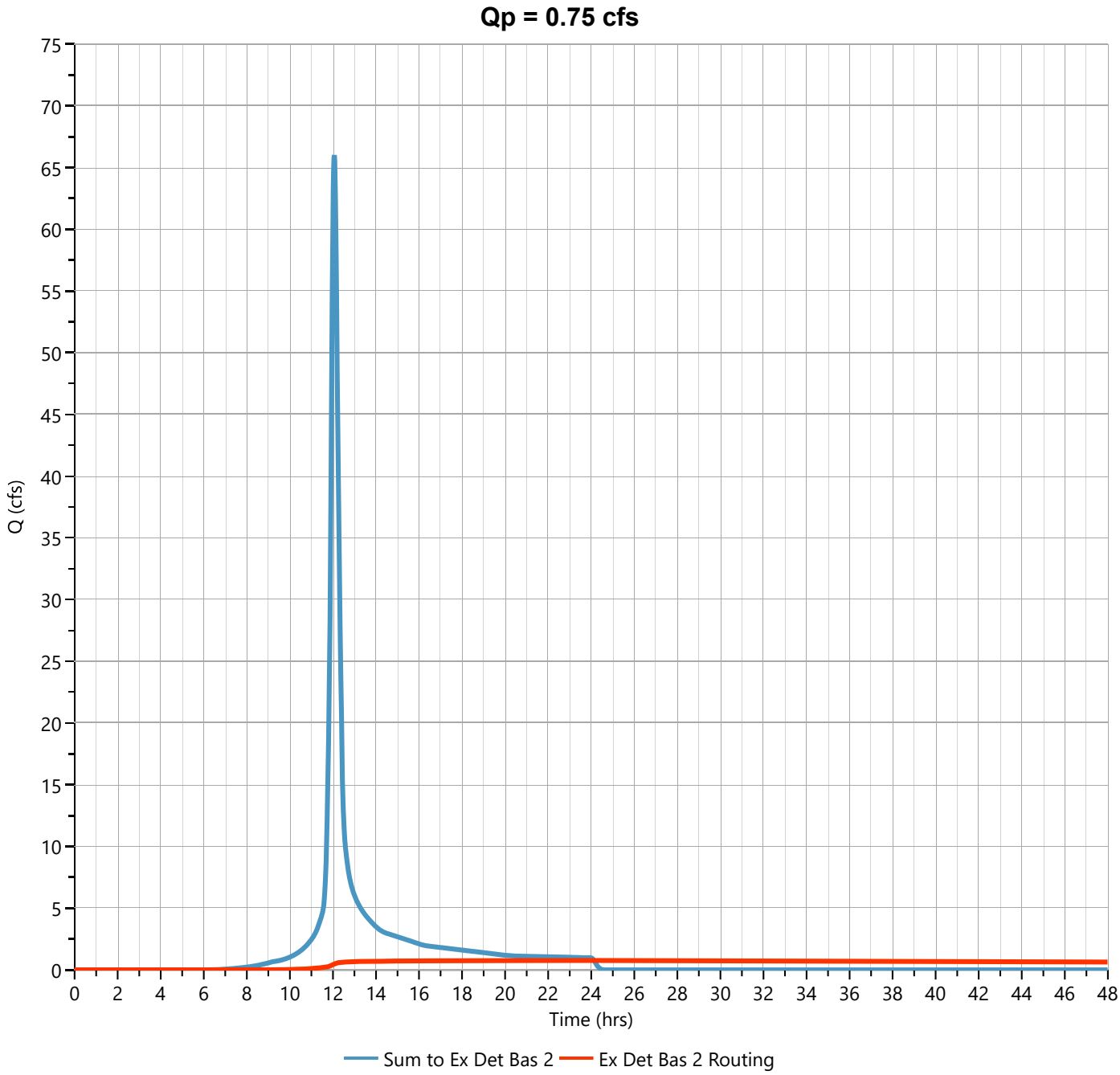
Post Ex Det Bas 2 Routing

Hyd. No. 28

Hydrograph Type	= Pond Route	Peak Flow	= 0.754 cfs
Storm Frequency	= 5-yr	Time to Peak	= 24.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 92,078 cuft
Inflow Hydrograph	= 27 - Sum to Ex Det Bas 2	Max. Elevation	= 80.40 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 183,045 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.78 hrs



Hydrograph Report

Project Name:

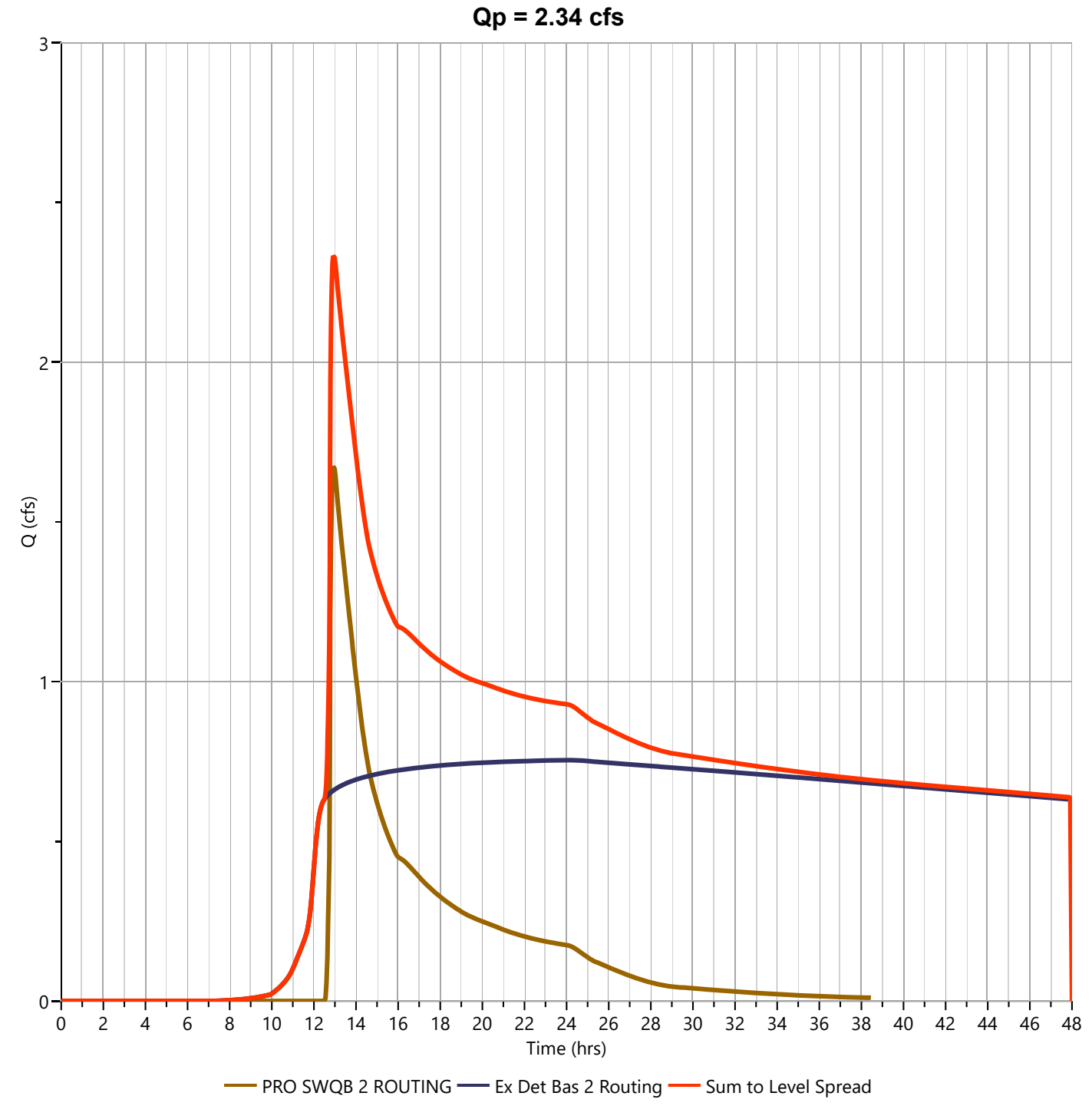
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Level Spread

Hyd. No. 29

Hydrograph Type	= Junction	Peak Flow	= 2.337 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.93 hrs
Time Interval	= 1 min	Hydrograph Volume	= 113,705 cuft
Inflow Hydrographs	= 26, 28	Total Contrib. Area	= 0.0 ac



post136

Hydrograph Report

Project Name:

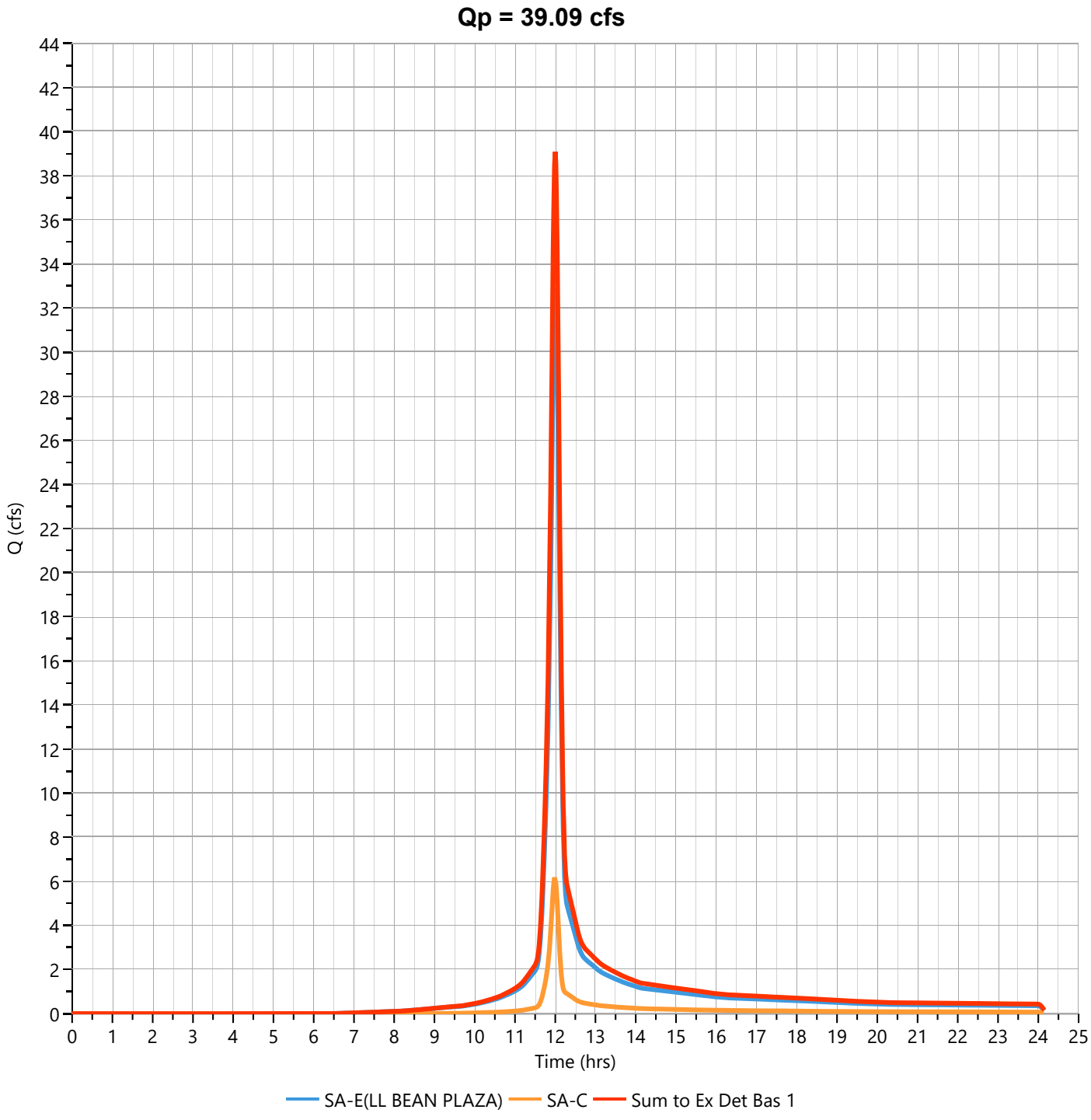
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 1

Hyd. No. 30

Hydrograph Type	= Junction	Peak Flow	= 39.09 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 94,391 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 13.654 ac



Design Storm Report

Custom Storm filename: 3170.cds

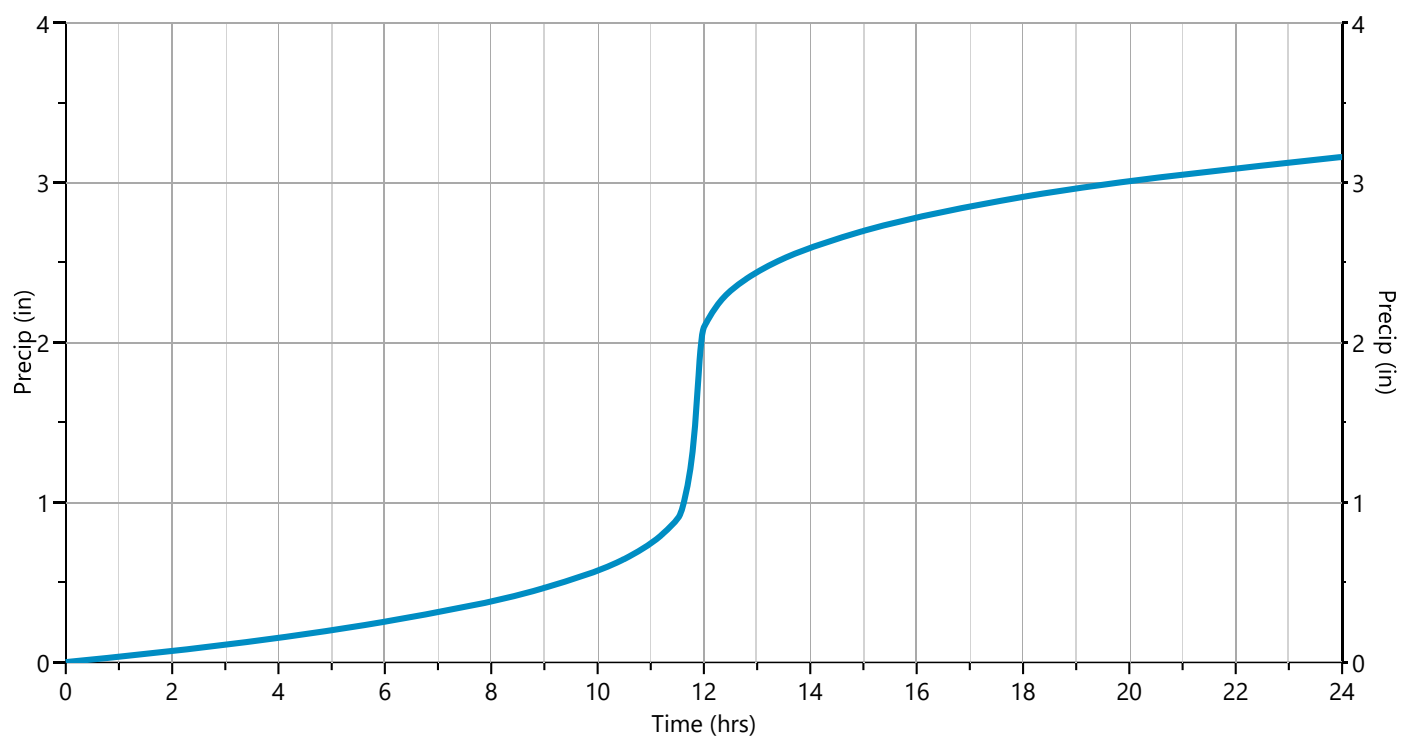
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	✔ 5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 5-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.005857	11.60	0.017752	11.78	0.046169	11.97	0.043481	12.15	0.008885
11.43	0.005941	11.62	0.019831	11.80	0.051950	11.98	0.030323	12.17	0.008685
11.45	0.006025	11.63	0.021909	11.82	0.057732	12.00	0.017165	12.18	0.008485
11.47	0.006109	11.65	0.023988	11.83	0.063514	12.02	0.010839	12.20	0.008285
11.48	0.006194	11.67	0.026066	11.85	0.069295	12.03	0.010286	12.22	0.008084
11.50	0.006278	11.68	0.028145	11.87	0.075077	12.05	0.010086	12.23	0.007884
11.52	0.007383	11.70	0.030224	11.88	0.080859	12.07	0.009885	12.25	0.007684
11.53	0.009438	11.72	0.032302	11.90	0.086640	12.08	0.009686	12.27	0.007484
11.55	0.011517	11.73	0.034381	**11.92**	**0.092422**	12.10	0.009485	12.28	0.007284
11.57	0.013595	11.75	0.036459	11.93	0.060436	12.12	0.009285	12.30	0.007084
11.58	0.015674	11.77	0.040081	11.95	0.056638	12.13	0.009085	12.32	0.006883



Hydrograph 10-yr Summary

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	67.49	12.10	223,349	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	41.28	12.00	101,684	----		
3	NRCS Runoff	Post SA-A (DET BAS 2)	20.58	12.00	50,249	----		
4	NRCS Runoff	Pre SA-B (TO PRO SWQB 1)	13.62	11.97	29,414	----		
5	NRCS Runoff	Post SA-C	8.078	11.98	18,303	----		
6	NRCS Runoff	Post SA-B.32 (OVERLAND)	0.548	11.97	1,101	----		
7	NRCS Runoff	Post BLDG #4 RL	1.044	11.95	2,486	----		
8	Pond Route	Post #4 RL SYS ROUTING	0.144	12.13	1,667	7	85.07	1,495
9	NRCS Runoff	Post BLDG #5 RL	1.044	11.95	2,486	----		
10	Pond Route	Post #5 RL SYS ROUTING	0.144	12.13	1,667	9	85.07	1,495
11	NRCS Runoff	Post BLDG #6 RL	1.044	11.95	2,486	----		
12	Pond Route	Post #6 RL SYS ROUTING	0.144	12.13	1,667	11	85.07	1,495
13	NRCS Runoff	Post BLDG #7 RL	1.044	11.95	2,486	----		
14	Pond Route	Post #7 RL SYS ROUTING	0.144	12.13	1,667	13	85.07	1,495
15	NRCS Runoff	Post BLDG #8 RL	1.044	11.95	2,486	----		
16	Pond Route	#8 RL SYS ROUTING	0.144	12.13	1,667	15	85.07	1,495
17	NRCS Runoff	Post BLDG #11 RL	1.494	11.95	3,559	----		
18	Pond Route	Post #11 RL SYS ROUTING	0.297	12.10	2,458	17	85.13	2,055
19	Junction		0.433	12.13	5,002	8, 10, 12		
20	Junction		0.585	12.12	5,792	14, 16, 18		
21	Junction	Post Sum of RL Sys	1.018	12.12	10,794	19, 20		
22	Junction	Post Sum to SWQB #1	14.49	11.97	40,208	4, 21		
23	Pond Route	PRO SWQB1 ROUTING	4.240	12.12	33,787	22	82.23	14,941
24	NRCS Runoff	Post SA-B.32 (OVERLAND)'	0.545	11.97	1,096	----		
25	Junction	Post Sum to Pro SWQB #2	4.348	12.12	34,883	23, 24		
26	Pond Route	Post PRO SWQB 2 ROUTING	3.201	12.47	30,809	25	80.15	5,751
27	Junction	Post Sum to Ex Det Bas 2	83.27	12.07	273,598	1, 3		
28	Pond Route	Post Ex Det Bas 2 Routing	0.846	24.15	104,648	27	81.23	236,150
29	Junction	Post Sum to Level Spread	3.911	12.47	135,457	26, 28		
30	Junction	Post Sum to Ex Det Bas 1	49.32	12.00	119,987	2, 5		

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

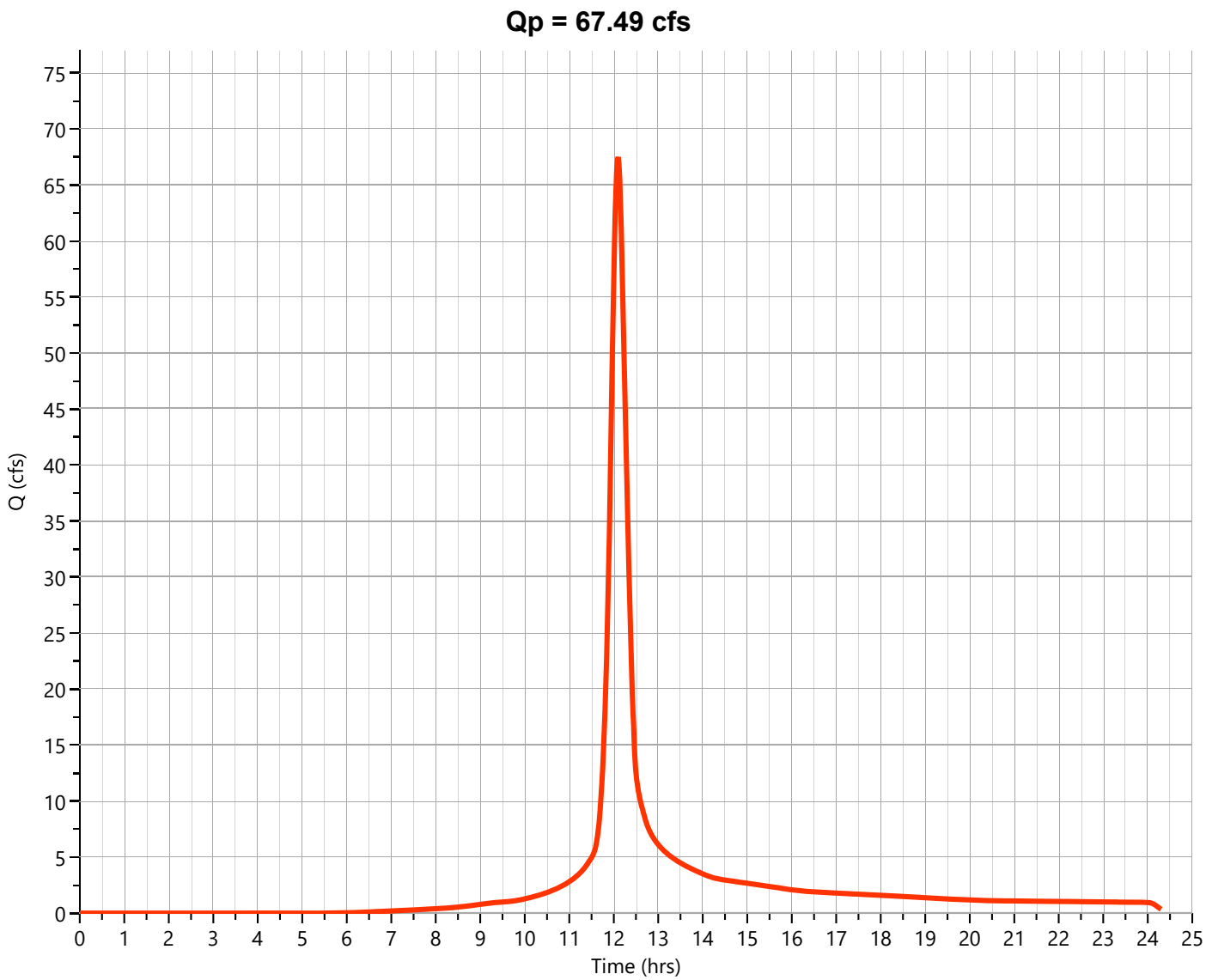
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 67.49 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 223,349 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



post140

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Pre SA-E(LL BEAN PLAZA)

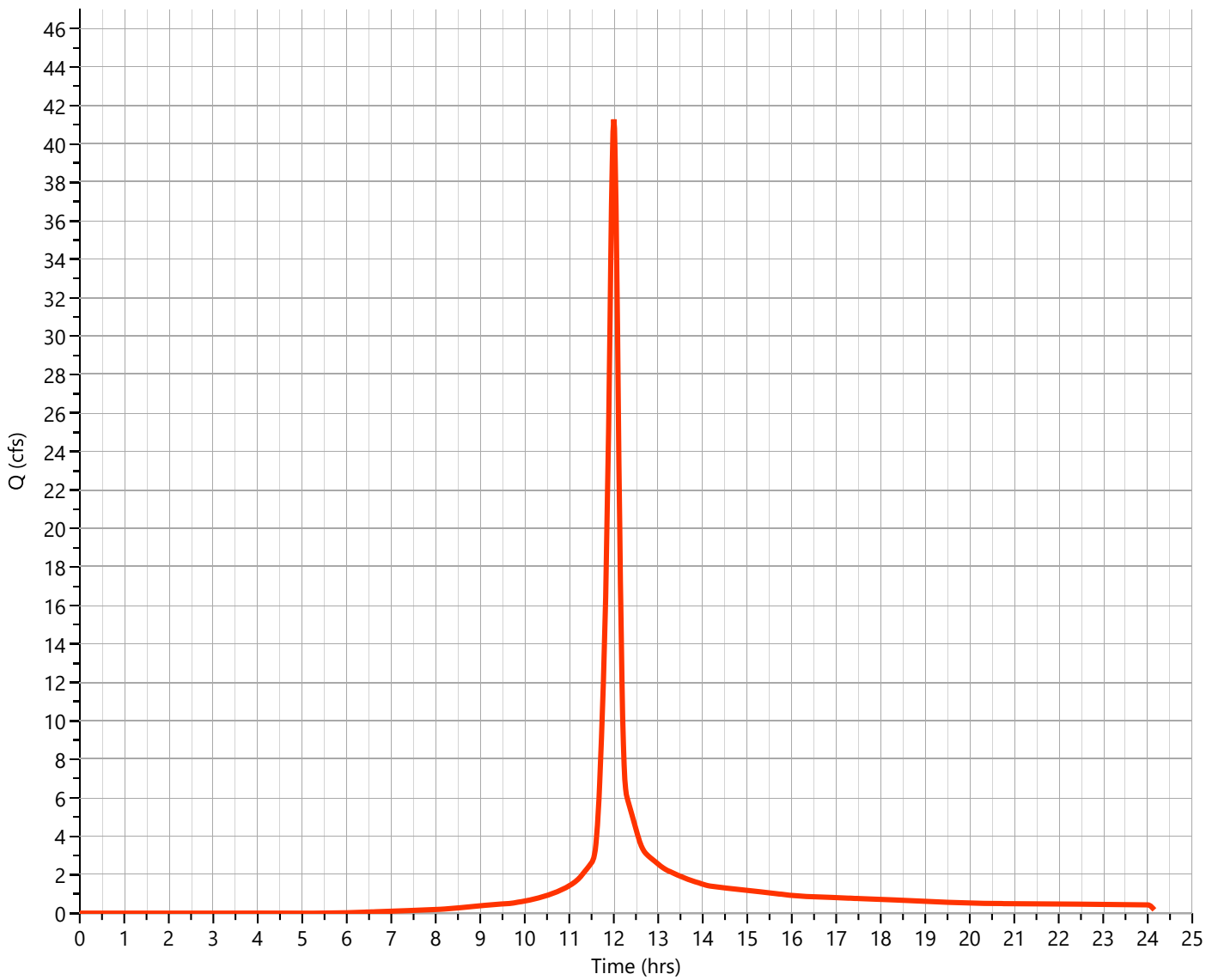
Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 41.28 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 101,684 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed

Qp = 41.28 cfs



post141

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Post SA-A (DET BAS 2)

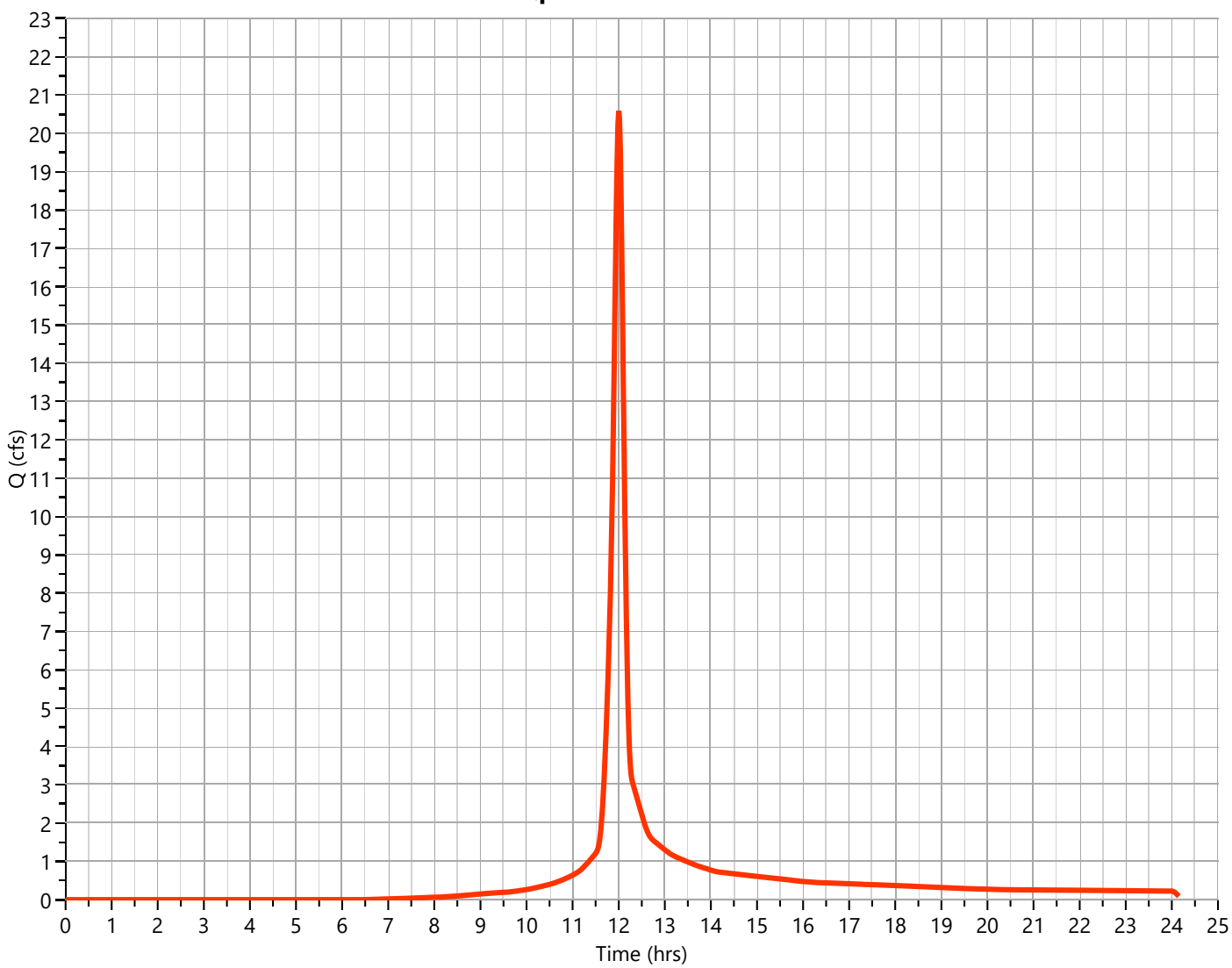
Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 20.58 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 50,249 cuft
Drainage Area	= 5.905 ac	Curve Number	= 86*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.893	98	C-PAVED/ROOF
1.394	74	C-LAWN/LANDSCAPED
1.618	74	C- GRASS /DET BAS
5.905	**86**	Weighted CN Method Employed

Qp = 20.58 cfs



post142

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

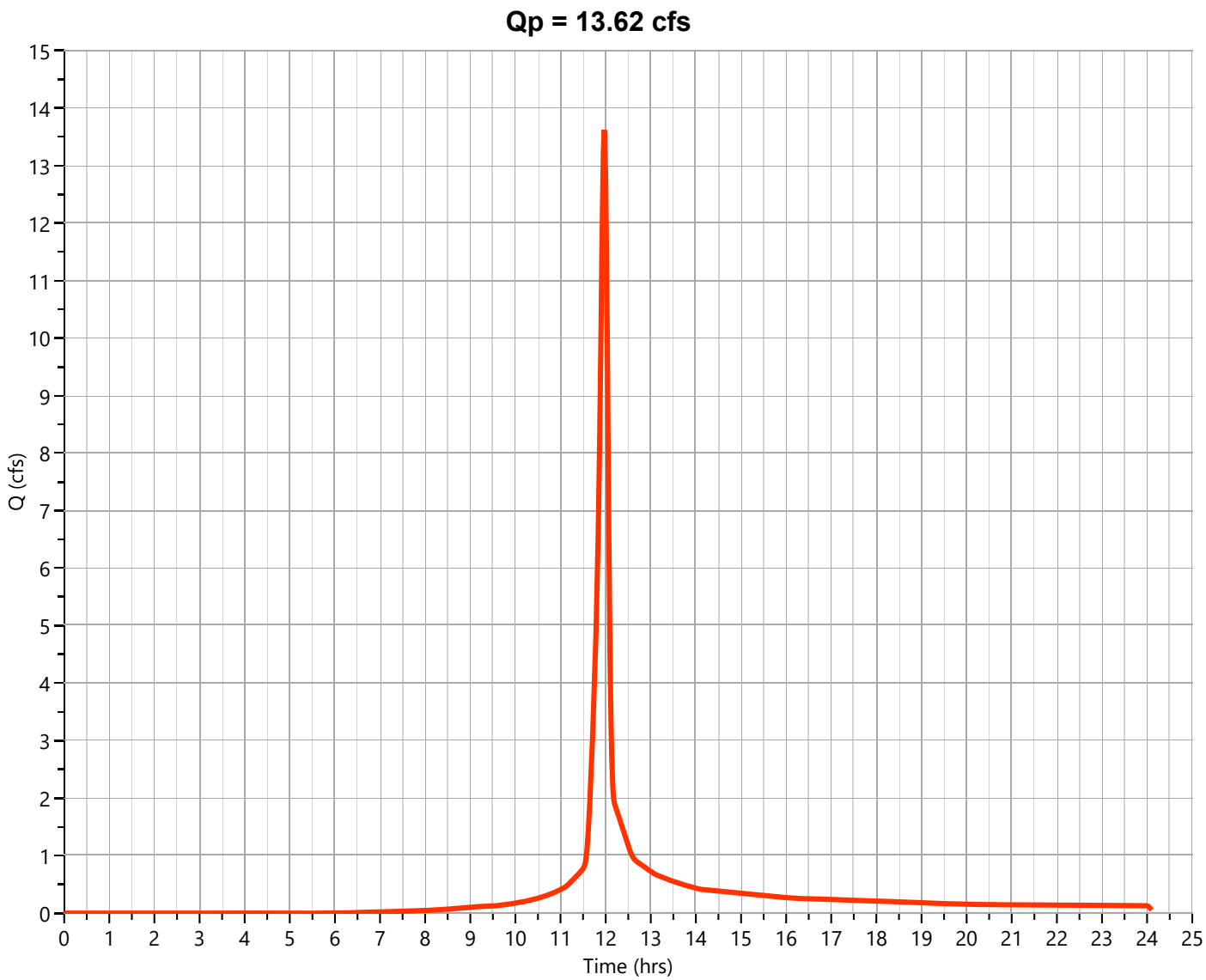
Pre SA-B (TO PRO SWQB 1)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 13.62 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 29,414 cuft
Drainage Area	= 3.477 ac	Curve Number	= 87*
Tc Method	= User	Time of Conc. (Tc)	= 7.5 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.66	74	C-GRASS (GOOD)
1.817	98	C-PAVED/ROOF
3.477	**87**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

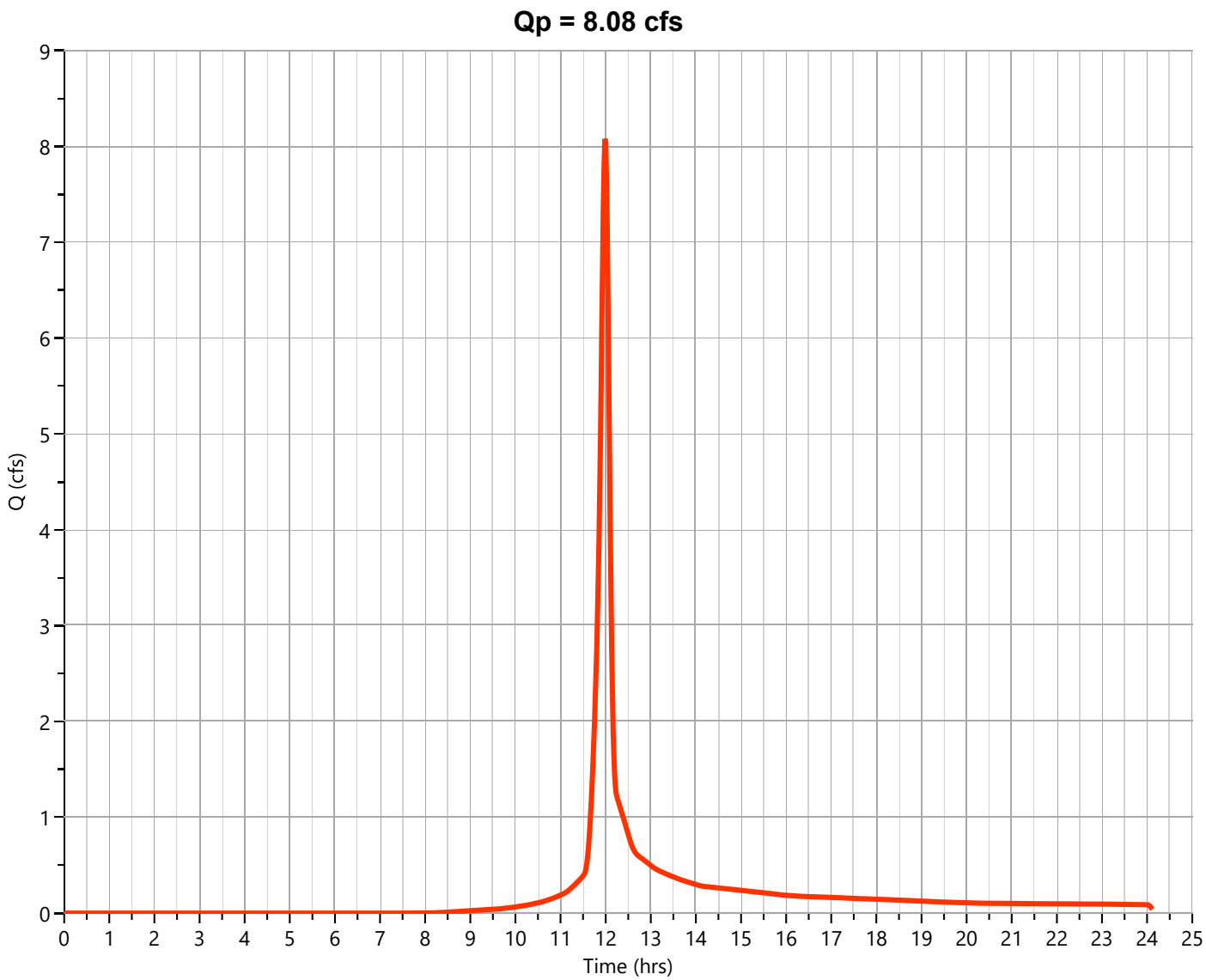
Post SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.078 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.98 hrs
Time Interval	= 1 min	Runoff Volume	= 18,303 cuft
Drainage Area	= 2.554 ac	Curve Number	= 82*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.178	79	C-GRASS (FAIR)
0.376	98	C-ROOF & PAVED
2.554	**82**	Weighted CN Method Employed



post144

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

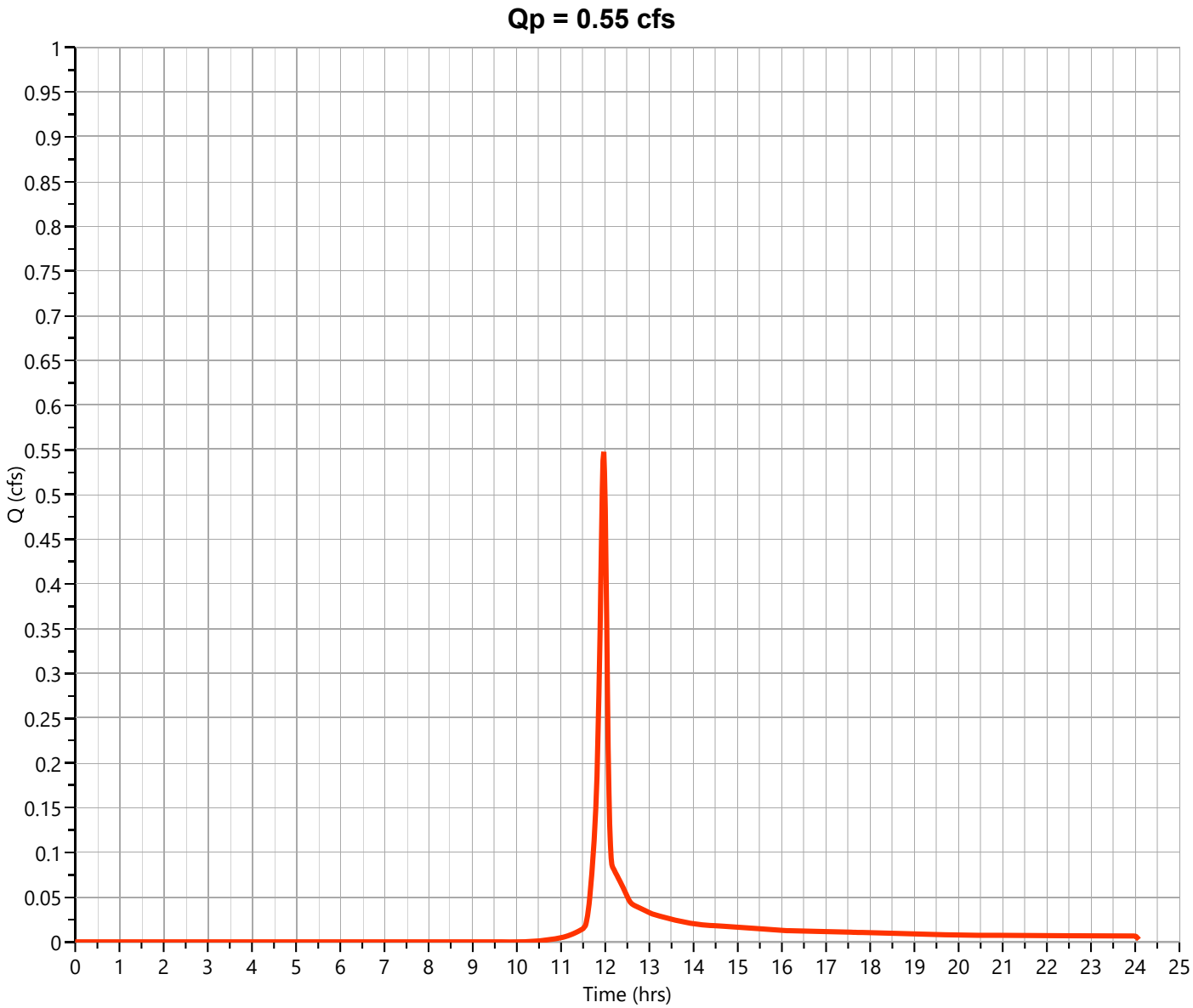
Post SA-B.32 (OVERLAND)

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.548 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 1,101 cuft
Drainage Area	= 0.21 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.47 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.21	74	C-GRASS
0.21	**74**	Weighted CN Method Employed



post145

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

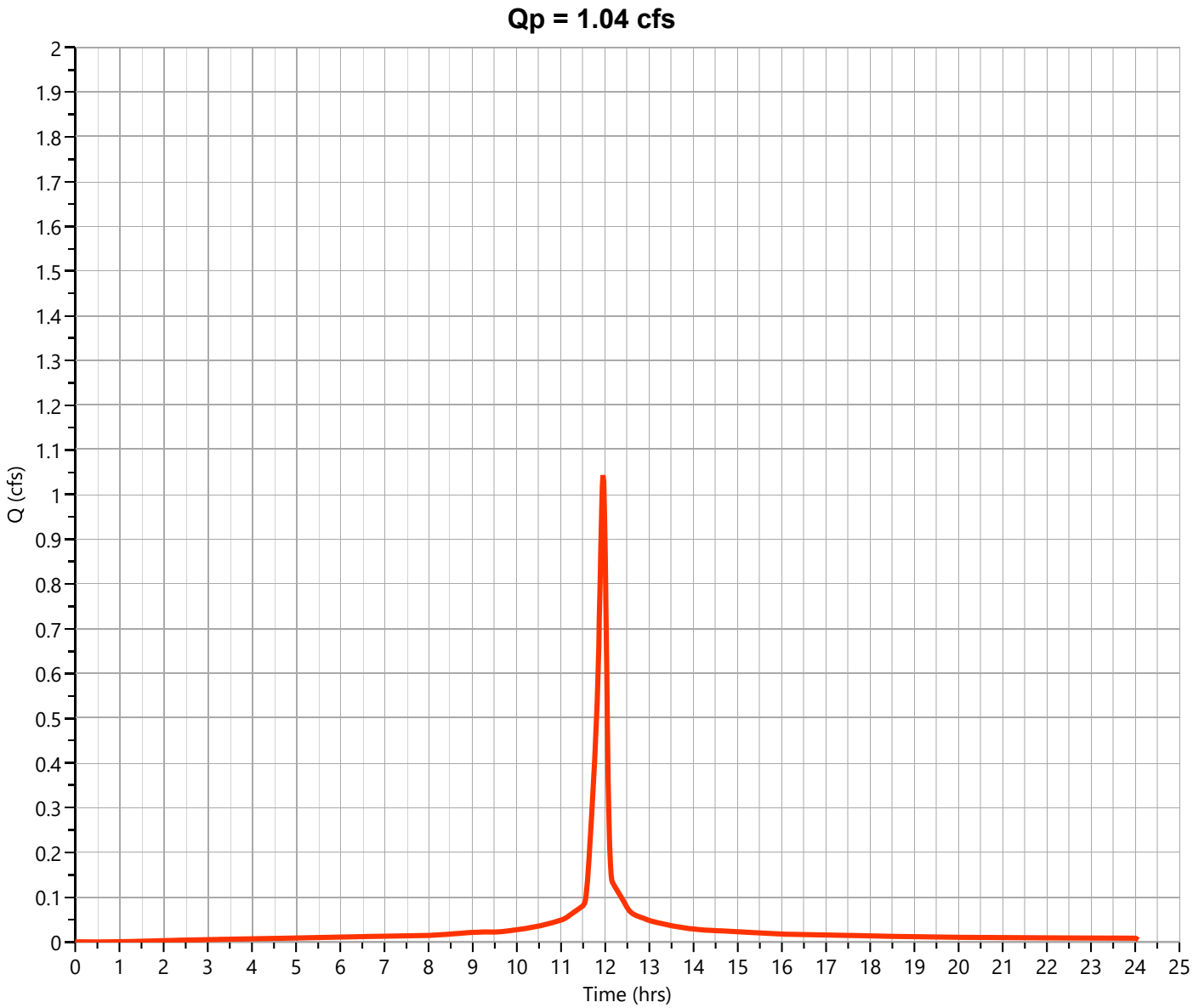
Post BLDG #4 RL

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.044 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,486 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

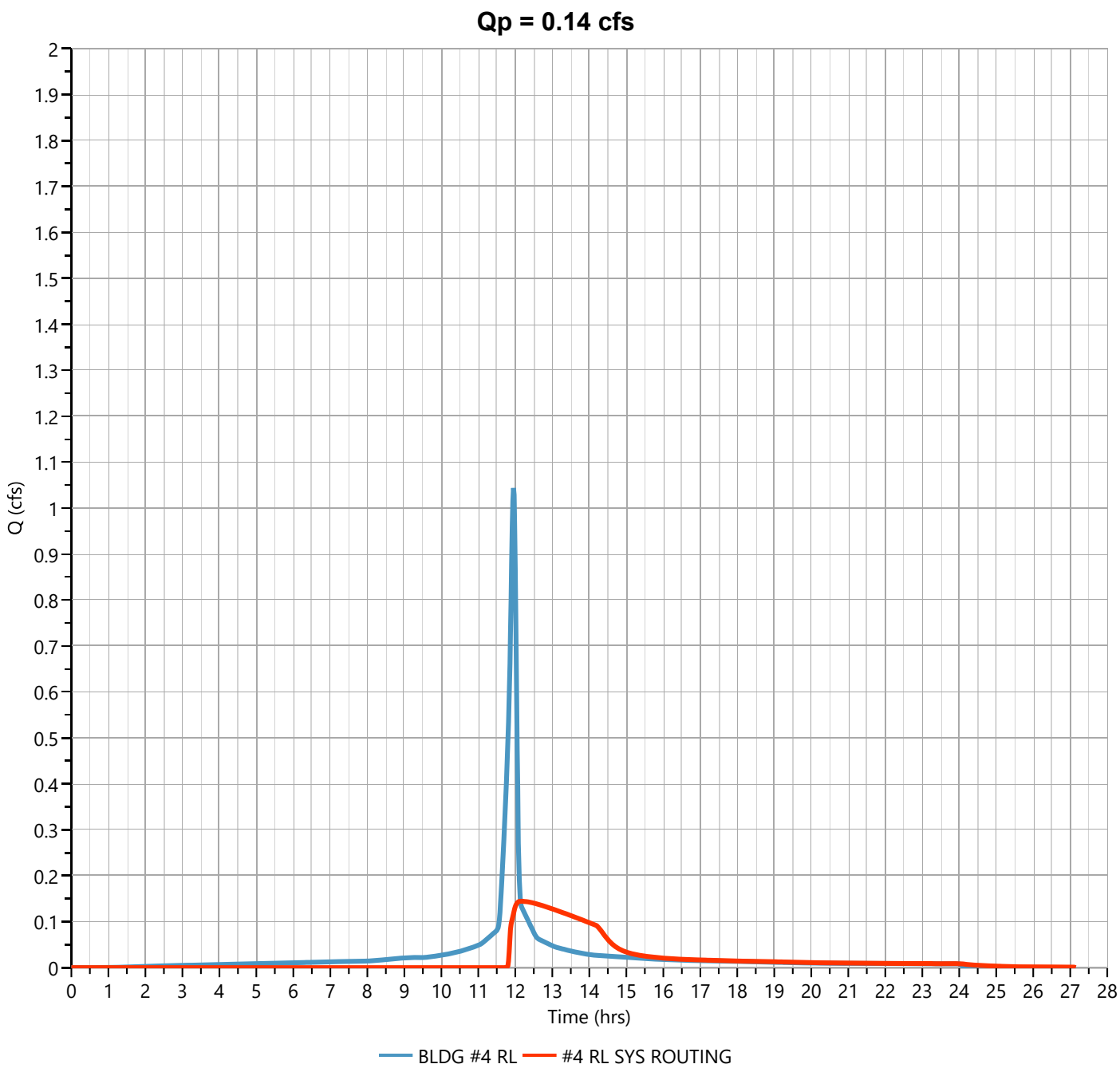
Post #4 RL SYS ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.144 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,667 cuft
Inflow Hydrograph	= 7 - BLDG #4 RL	Max. Elevation	= 85.07 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,495 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.87 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

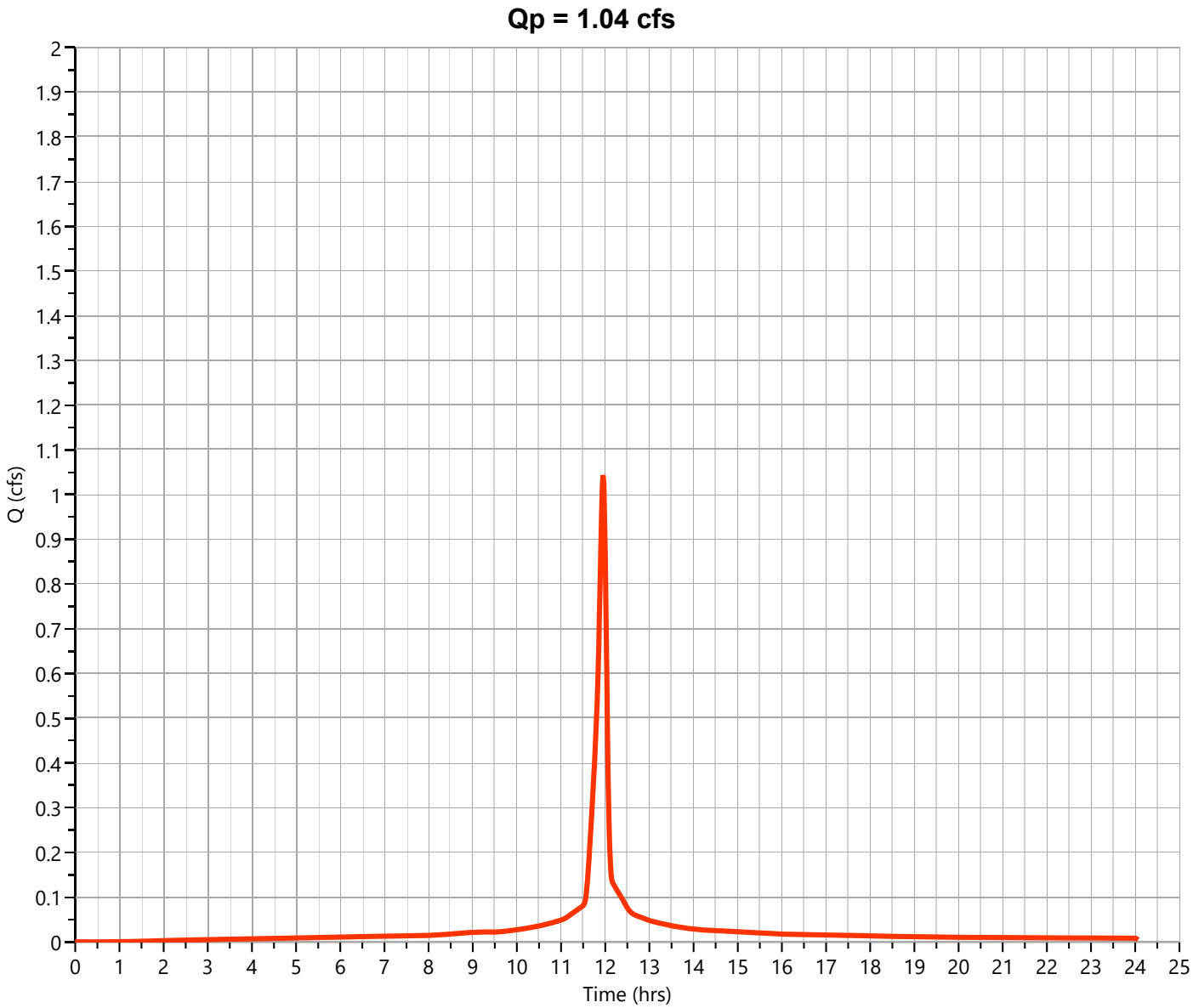
Post BLDG #5 RL

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.044 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,486 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

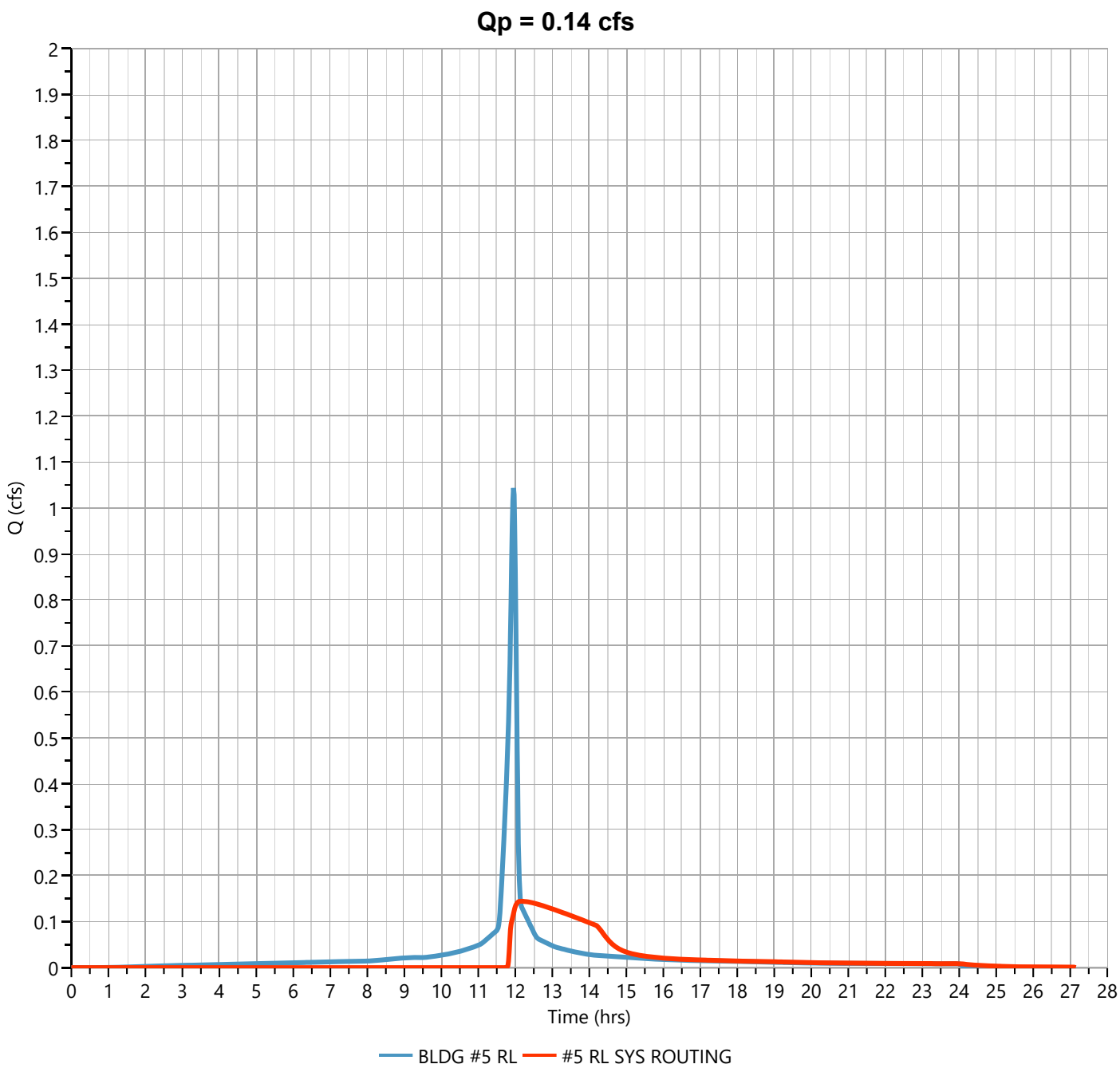
Post #5 RL SYS ROUTING

Hyd. No. 10

Hydrograph Type	= Pond Route	Peak Flow	= 0.144 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,667 cuft
Inflow Hydrograph	= 9 - BLDG #5 RL	Max. Elevation	= 85.07 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,495 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.87 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

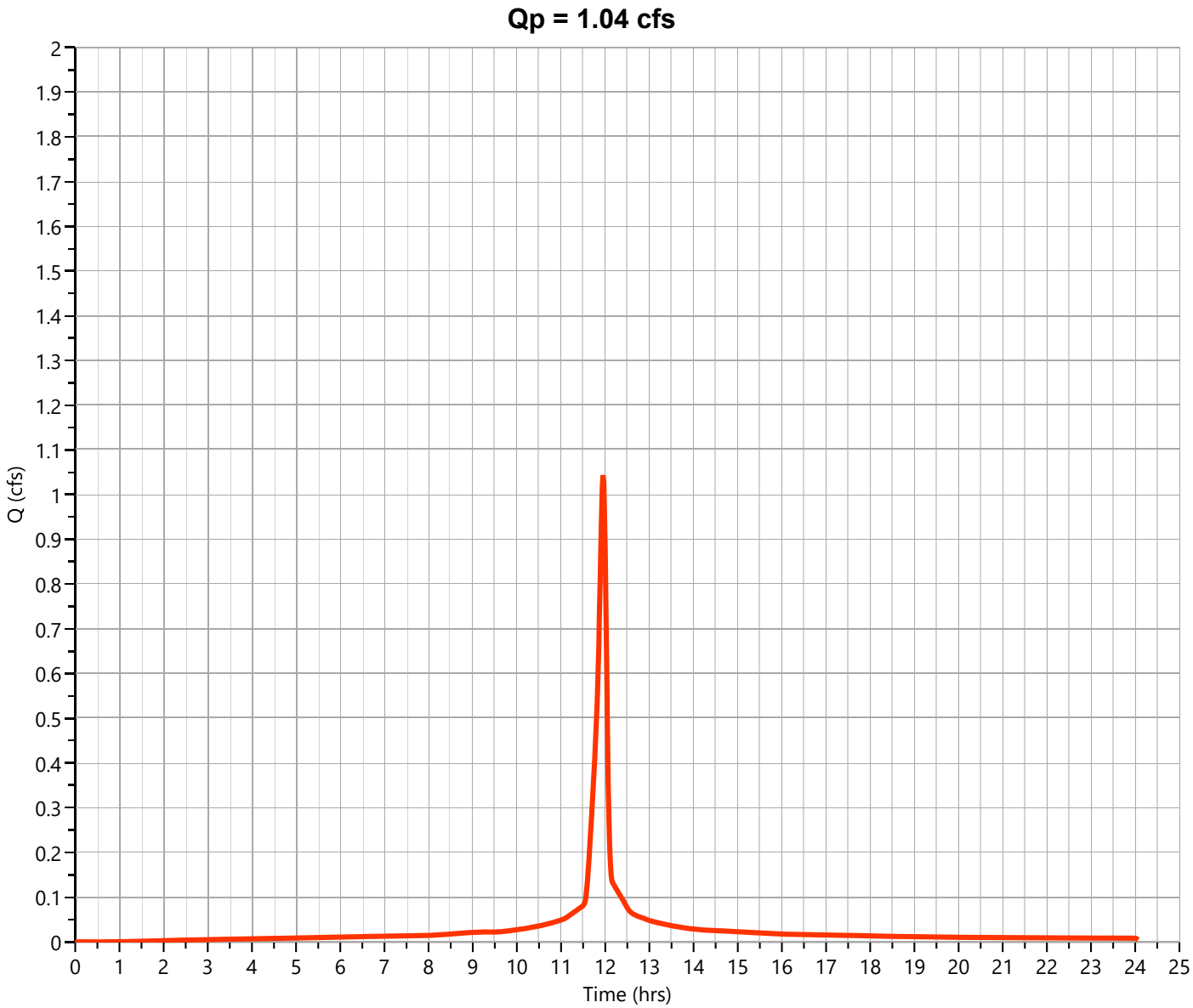
Post BLDG #6 RL

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.044 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,486 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post150

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

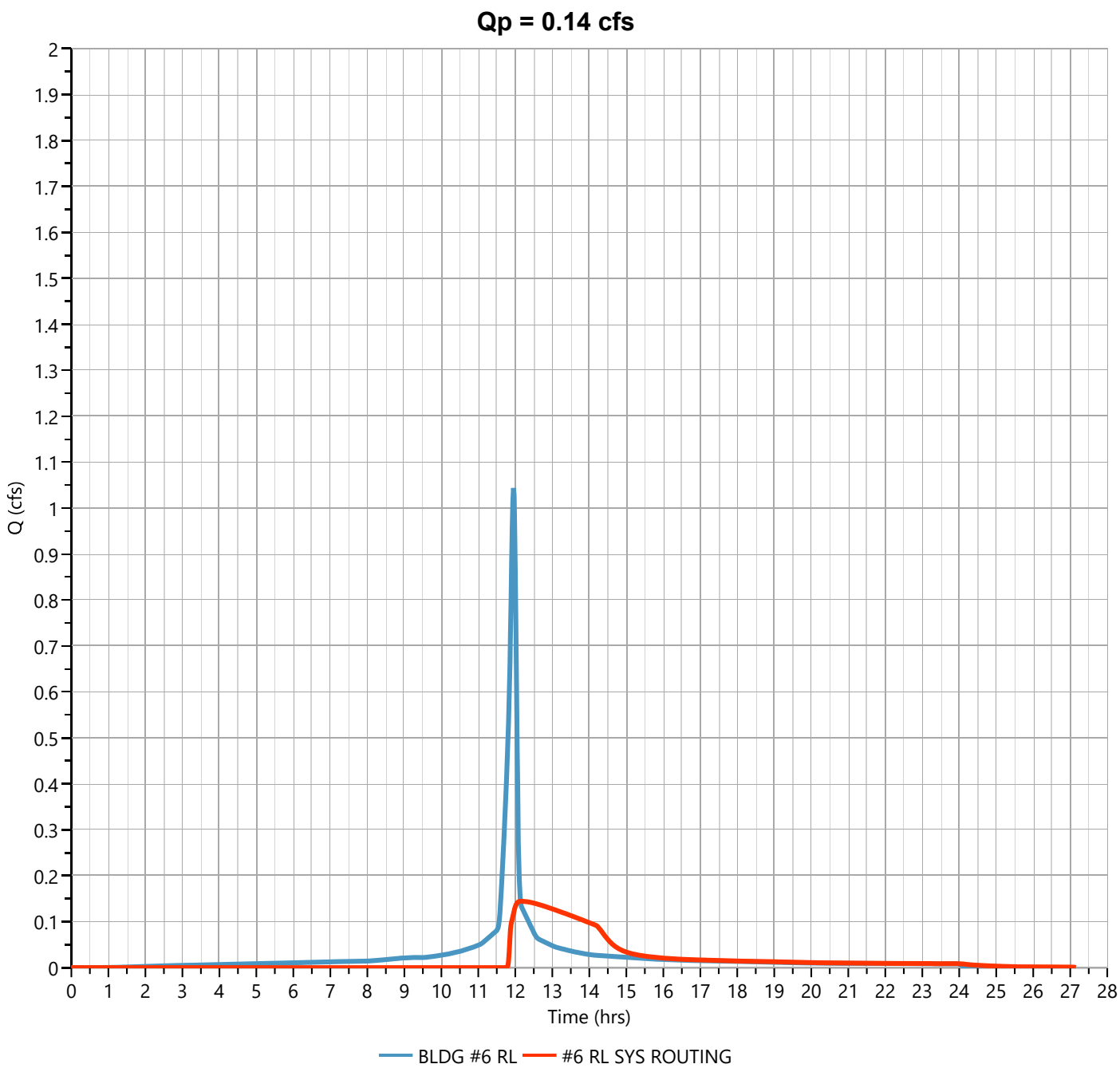
Post #6 RL SYS ROUTING

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 0.144 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,667 cuft
Inflow Hydrograph	= 11 - BLDG #6 RL	Max. Elevation	= 85.07 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,495 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.87 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

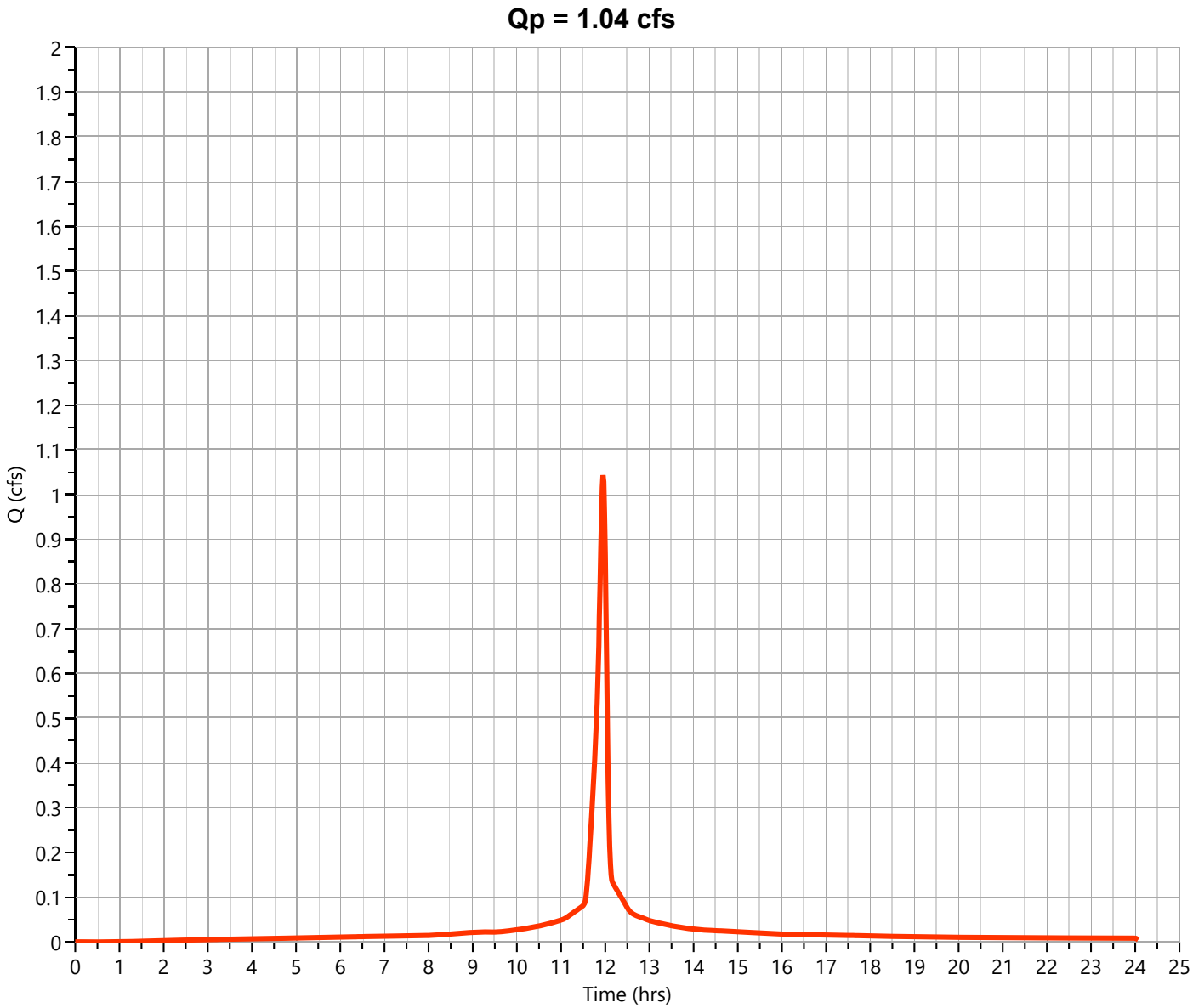
Post BLDG #7 RL

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.044 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,486 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

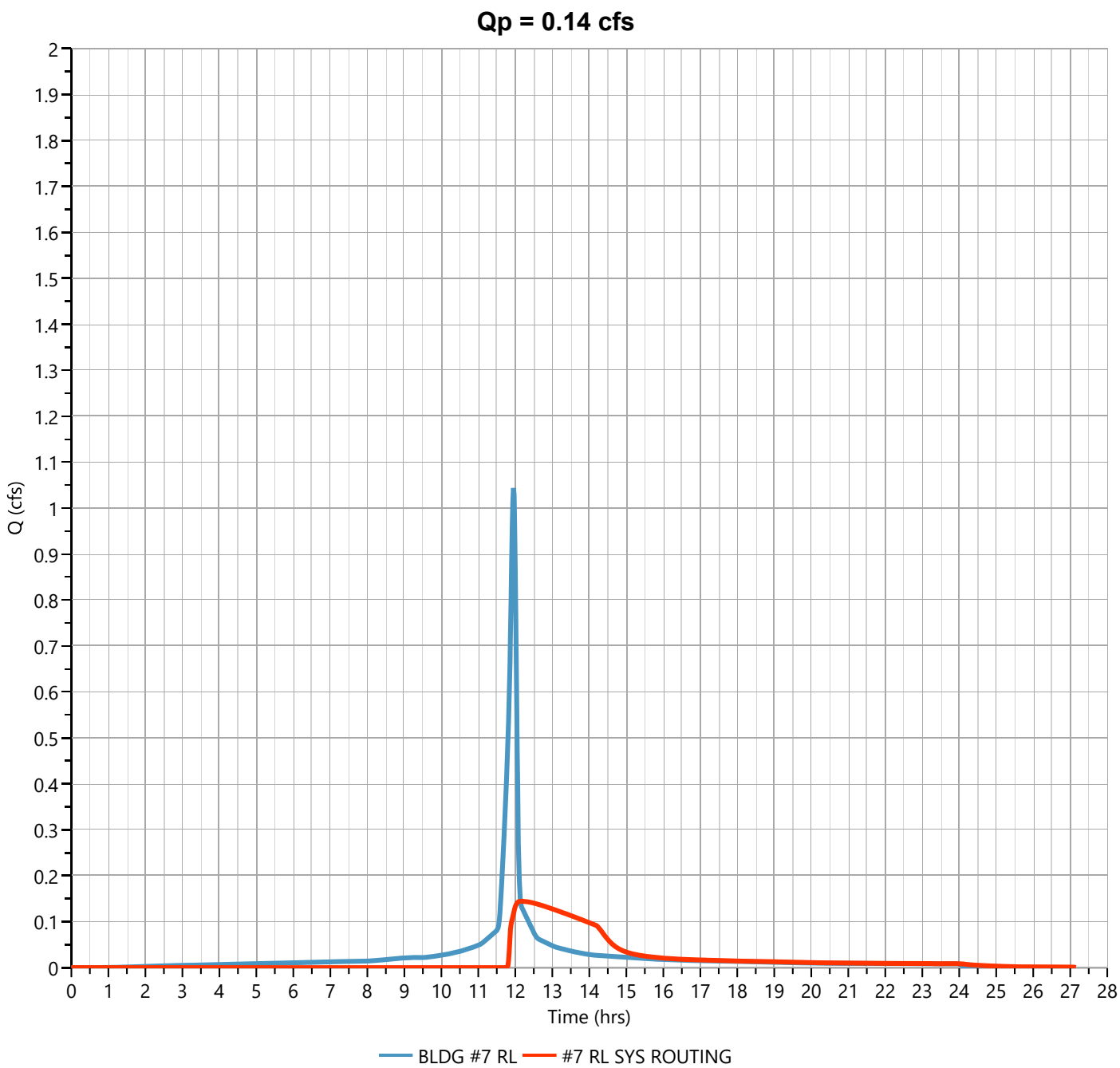
Post #7 RL SYS ROUTING

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.144 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,667 cuft
Inflow Hydrograph	= 13 - BLDG #7 RL	Max. Elevation	= 85.07 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,495 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.87 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

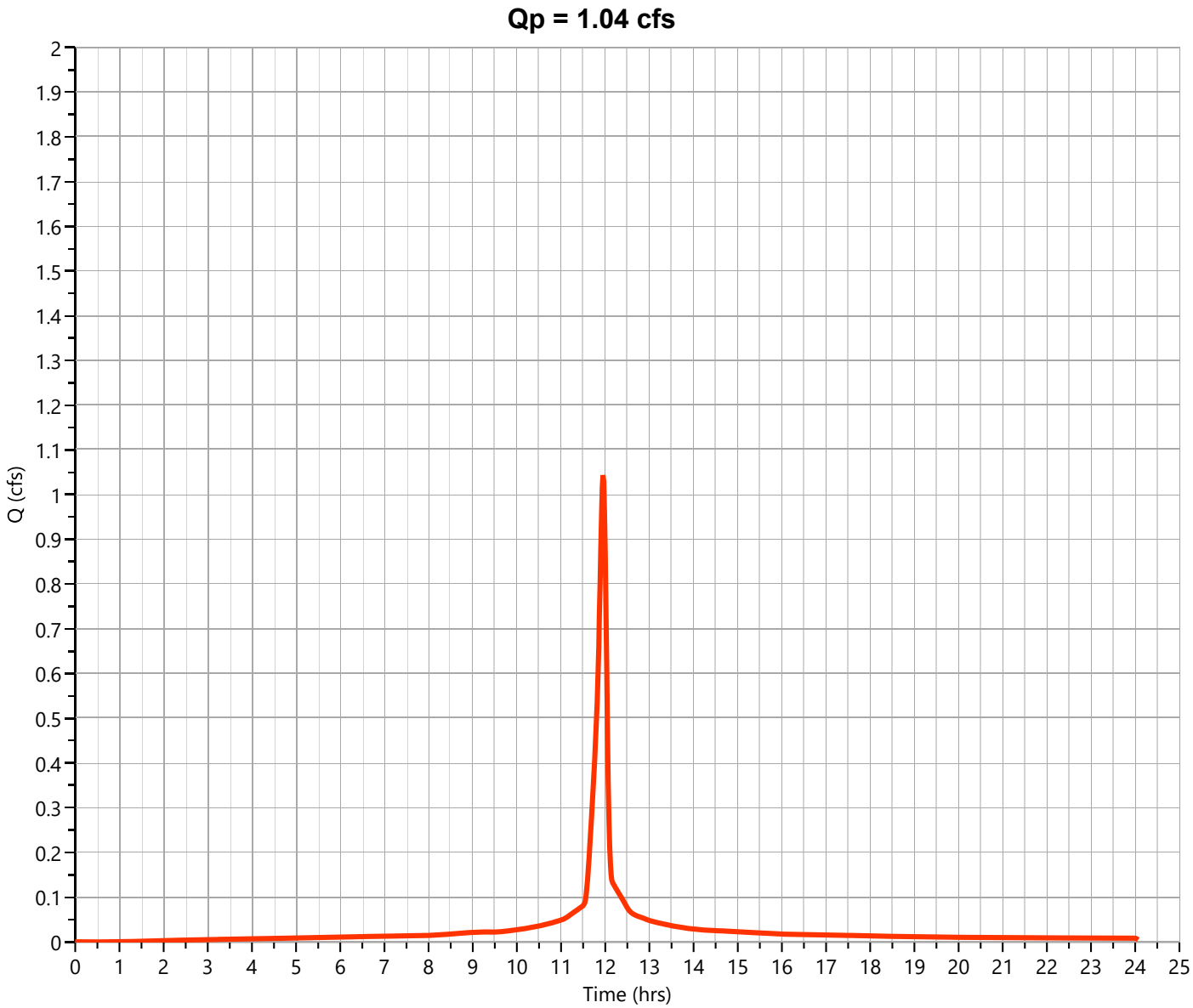
Post BLDG #8 RL

Hyd. No. 15

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.044 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 2,486 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post154

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

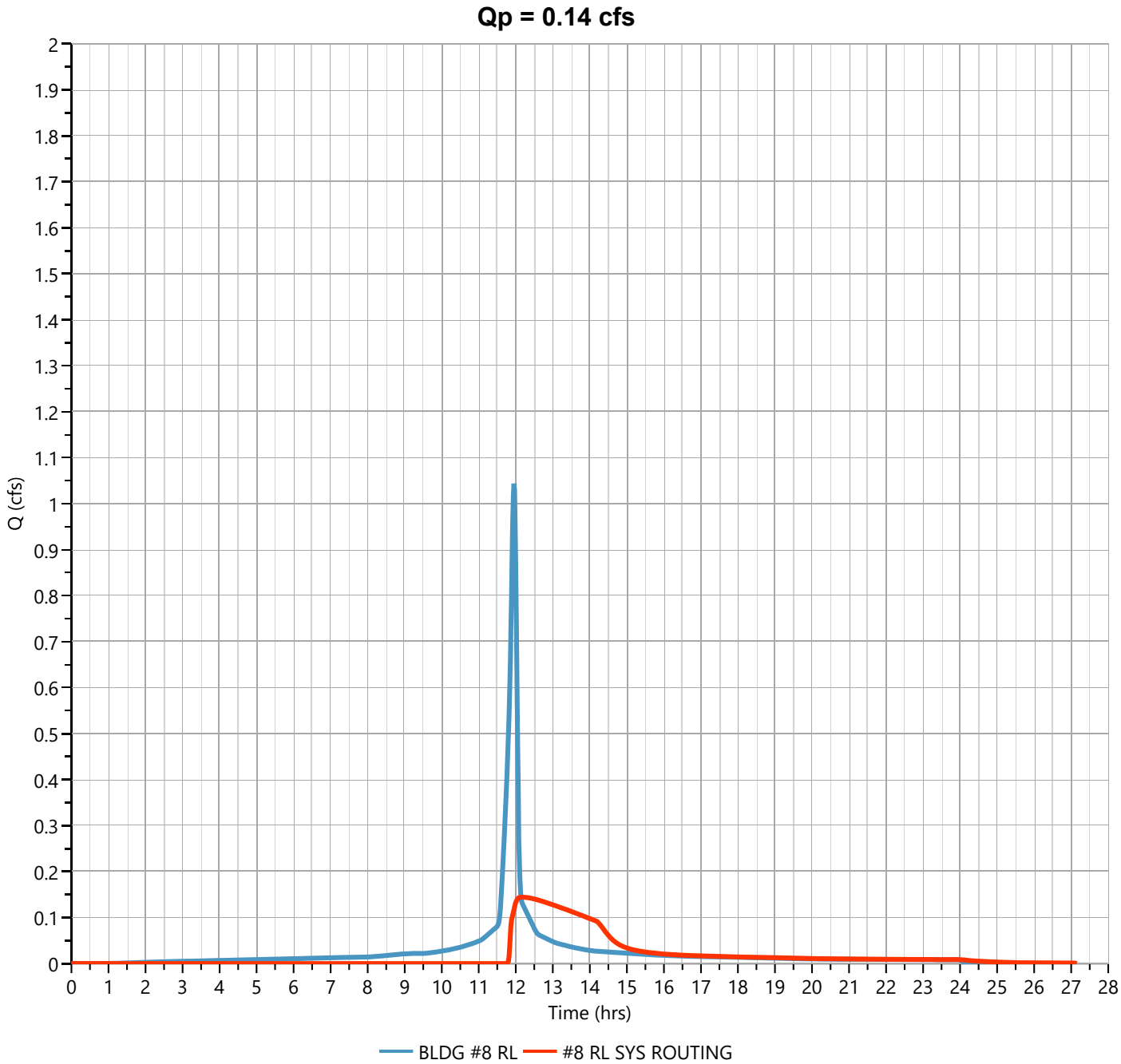
#8 RL SYS ROUTING

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.144 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,667 cuft
Inflow Hydrograph	= 15 - BLDG #8 RL	Max. Elevation	= 85.07 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,495 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.87 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

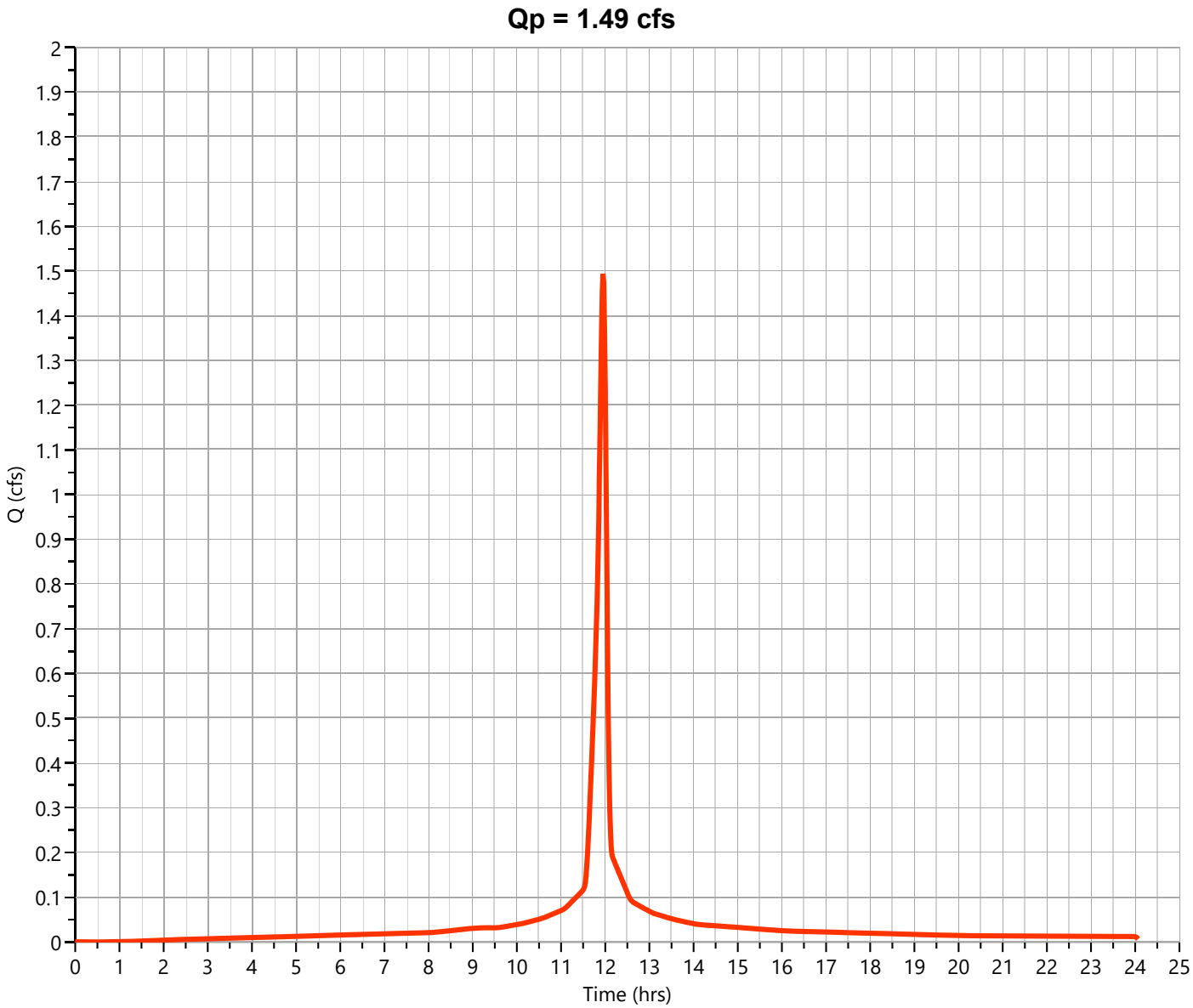
Post BLDG #11 RL

Hyd. No. 17

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.494 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,559 cuft
Drainage Area	= 0.272 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.272	98	C-ROOF
0.272	**98**	Weighted CN Method Employed



post156

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

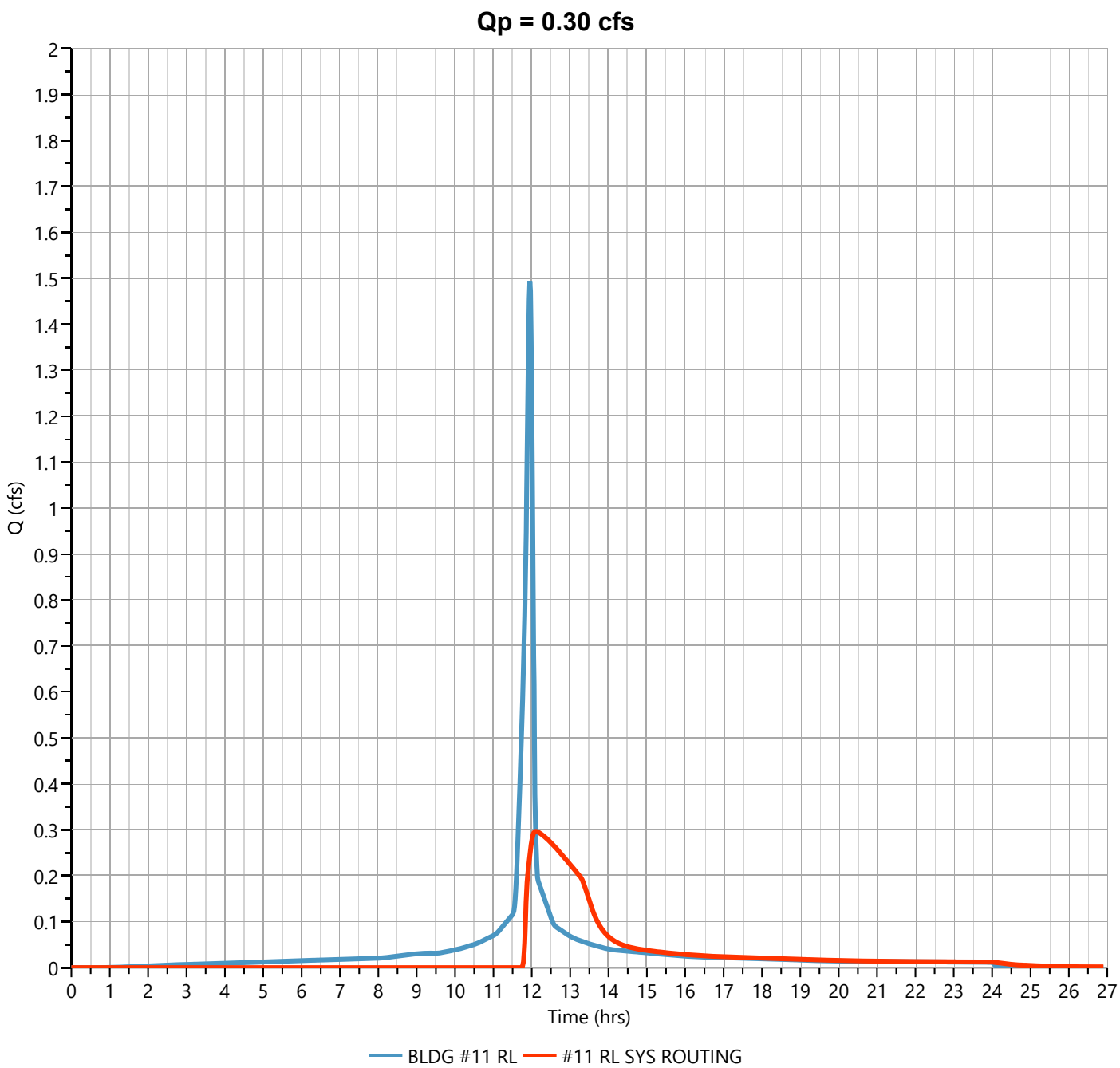
Post #11 RL SYS ROUTING

Hyd. No. 18

Hydrograph Type	= Pond Route	Peak Flow	= 0.297 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,458 cuft
Inflow Hydrograph	= 17 - BLDG #11 RL	Max. Elevation	= 85.13 ft
Pond Name	= BLDG #11 RL SYS	Max. Storage	= 2,055 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.60 hrs



Hydrograph Report

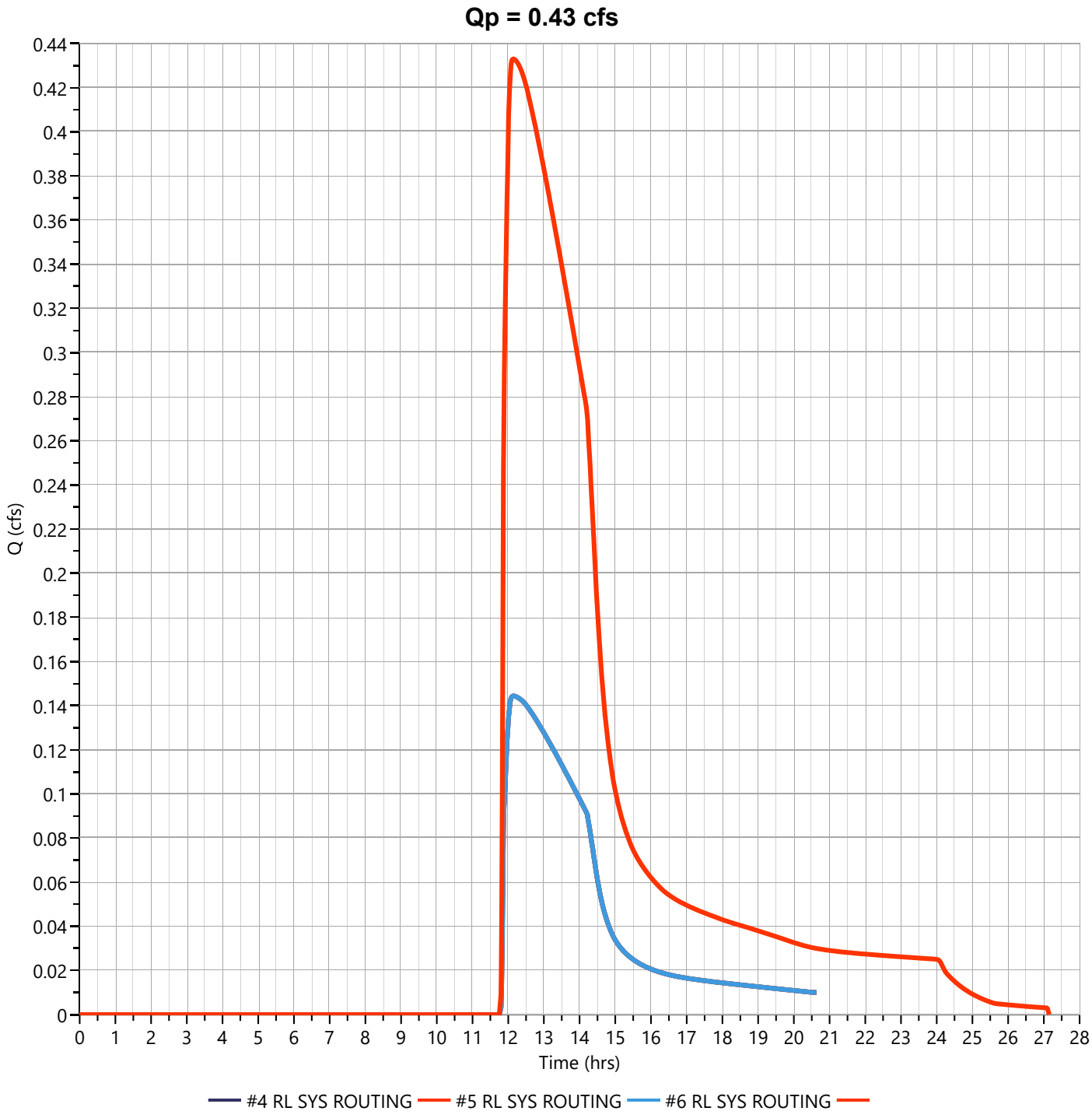
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 19

Hydrograph Type	= Junction	Peak Flow	= 0.433 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,002 cuft
Inflow Hydrographs	= 8, 10, 12	Total Contrib. Area	= 0.0 ac



Hydrograph Report

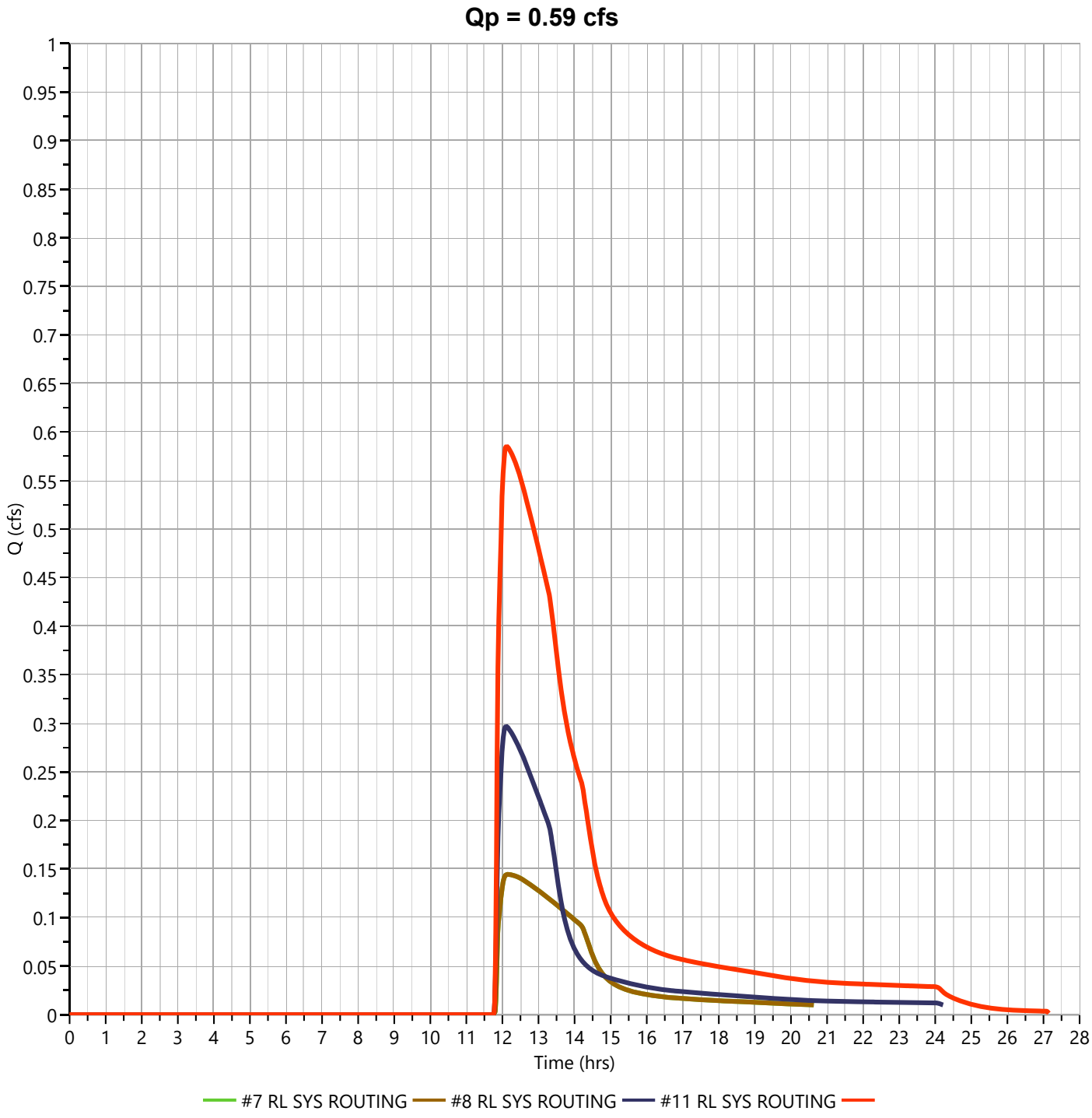
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 20

Hydrograph Type	= Junction	Peak Flow	= 0.585 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,792 cuft
Inflow Hydrographs	= 14, 16, 18	Total Contrib. Area	= 0.0 ac



post159

Hydrograph Report

Project Name:

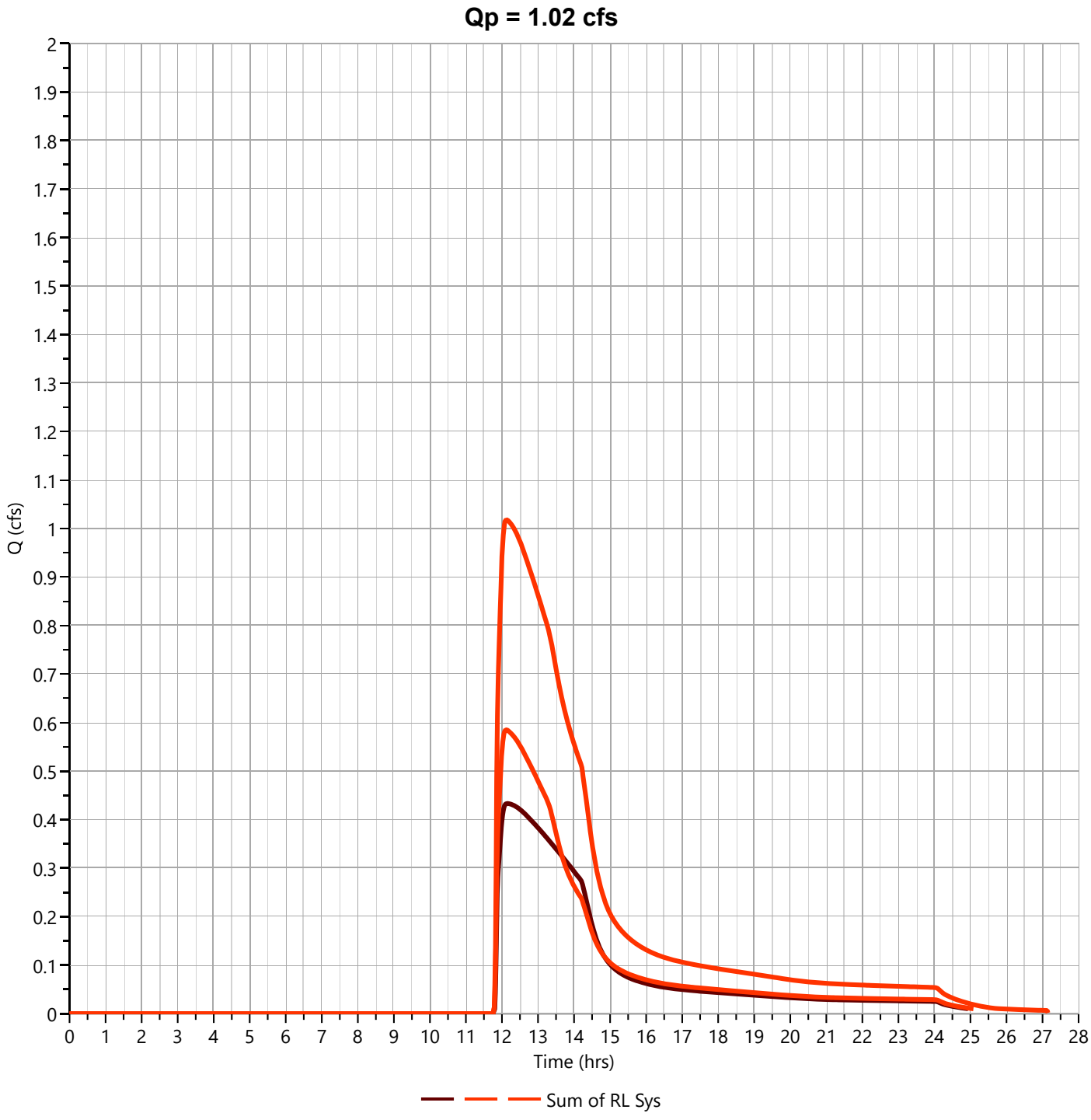
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum of RL Sys

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 1.018 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 10,794 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 0.0 ac



post160

Hydrograph Report

Project Name:

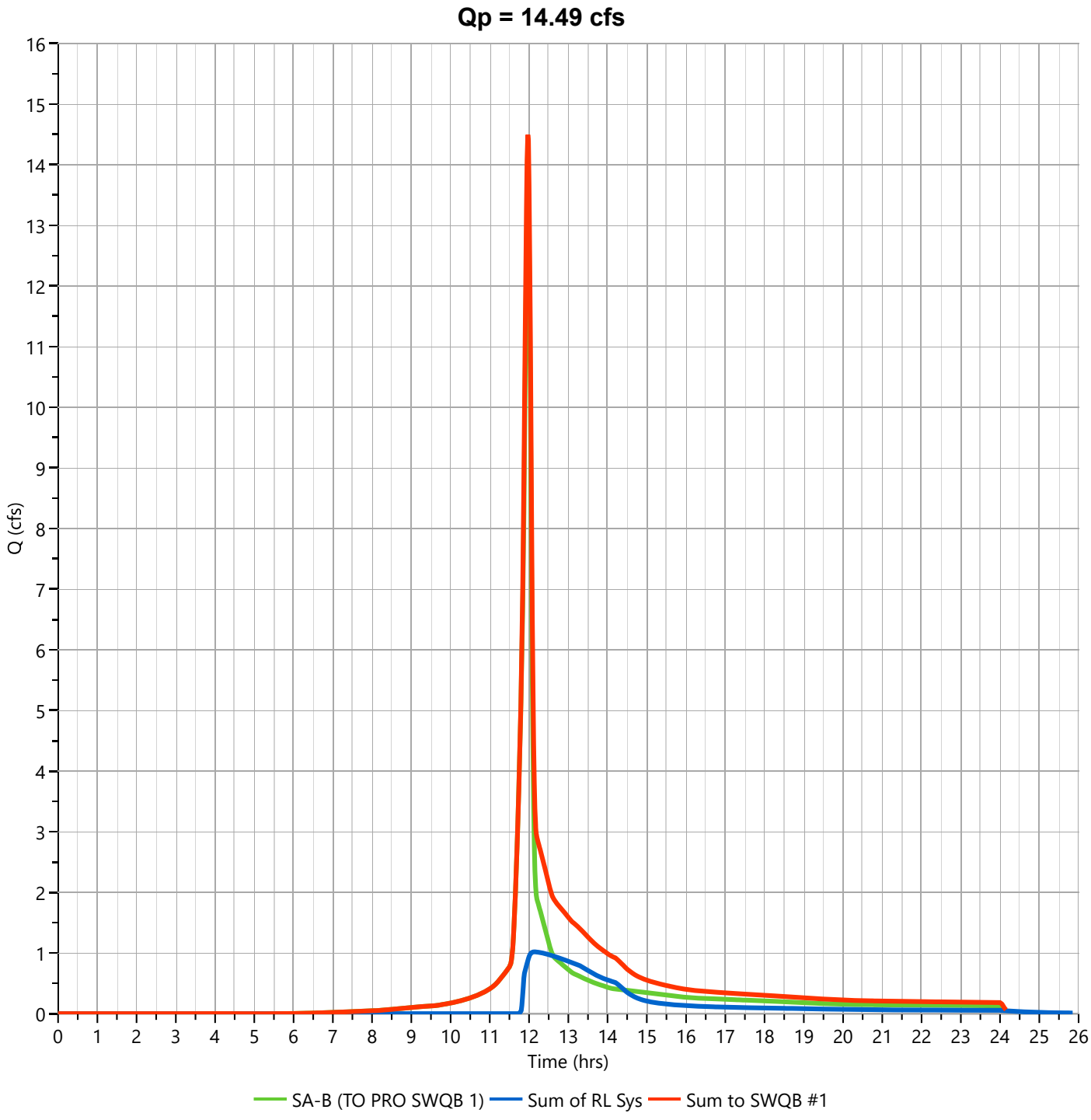
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to SWQB #1

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 14.49 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Hydrograph Volume	= 40,208 cuft
Inflow Hydrographs	= 4, 21	Total Contrib. Area	= 3.477 ac



post161

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

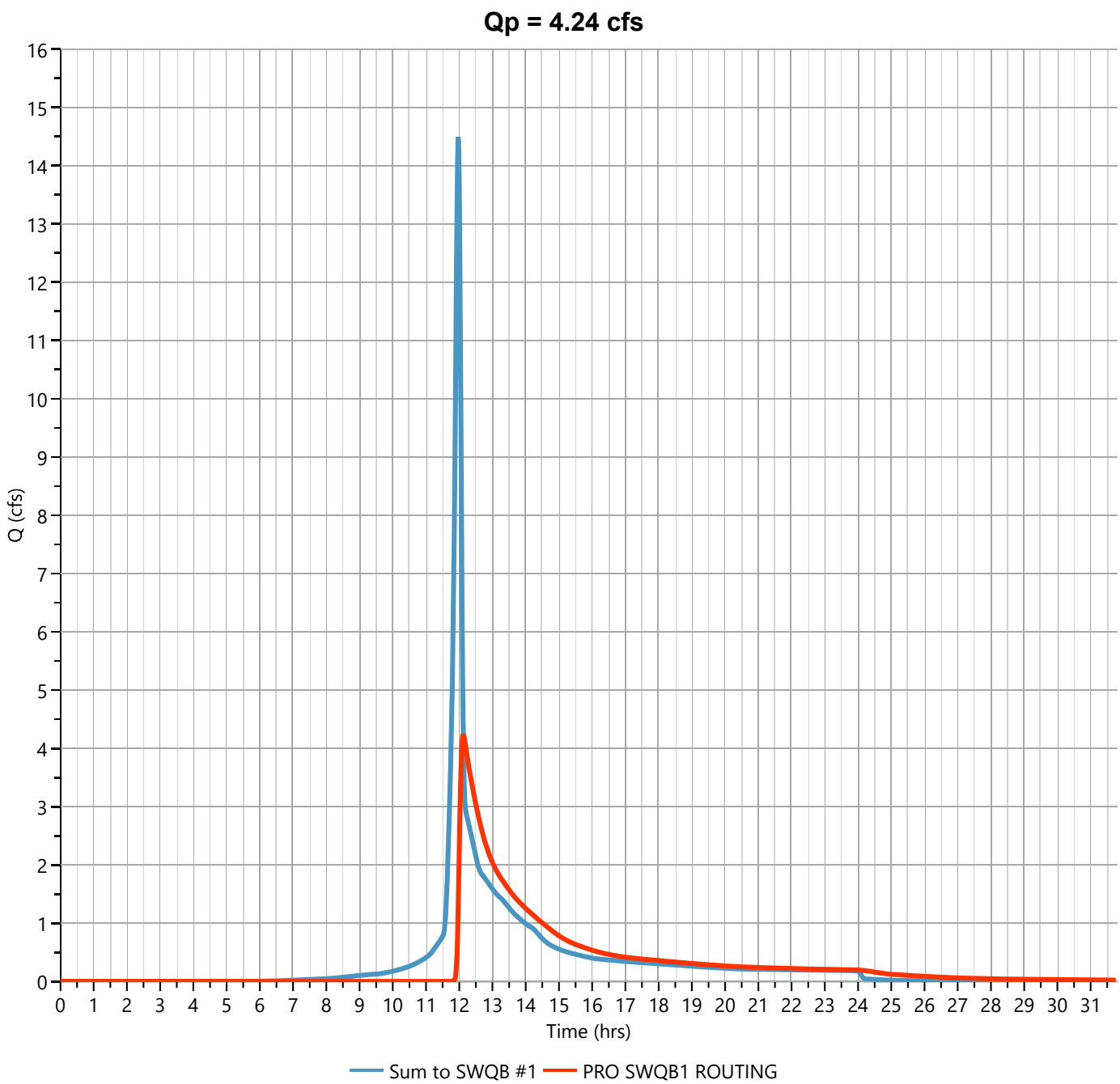
PRO SWQB1 ROUTING

Hyd. No. 23

Hydrograph Type	= Pond Route	Peak Flow	= 4.240 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 33,787 cuft
Inflow Hydrograph	= 22 - Sum to SWQB #1	Max. Elevation	= 82.23 ft
Pond Name	= PRO SWQB #1	Max. Storage	= 14,941 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.62 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

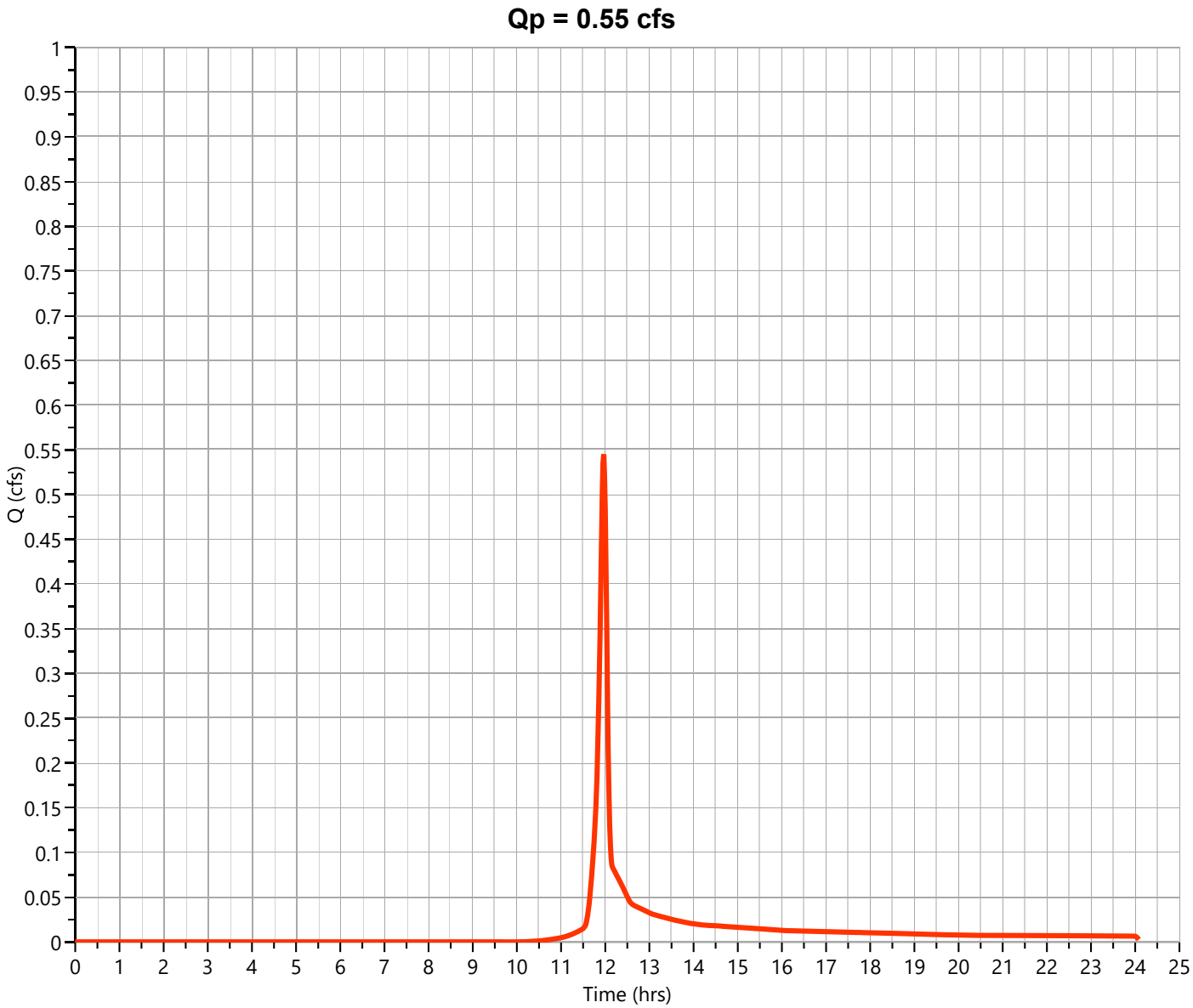
Post SA-B.32 (OVERLAND)'

Hyd. No. 24

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.545 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 1,096 cuft
Drainage Area	= 0.209 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.55 min
Total Rainfall	= 3.73 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.209	74	C-LAWN
0.209	**74**	Weighted CN Method Employed



Hydrograph Report

Project Name:

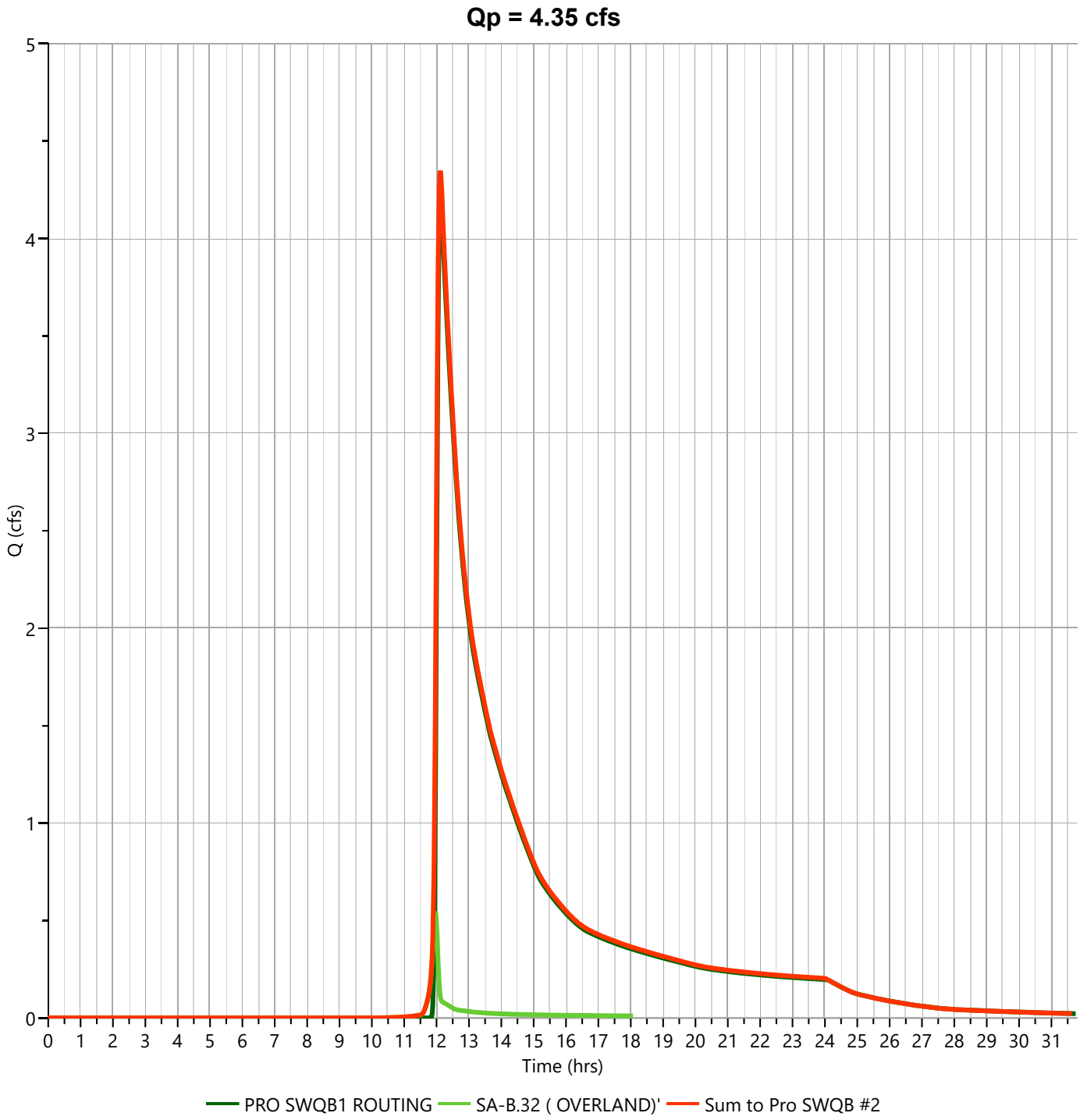
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Pro SWQB #2

Hyd. No. 25

Hydrograph Type	= Junction	Peak Flow	= 4.348 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 34,883 cuft
Inflow Hydrographs	= 23, 24	Total Contrib. Area	= 0.209 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

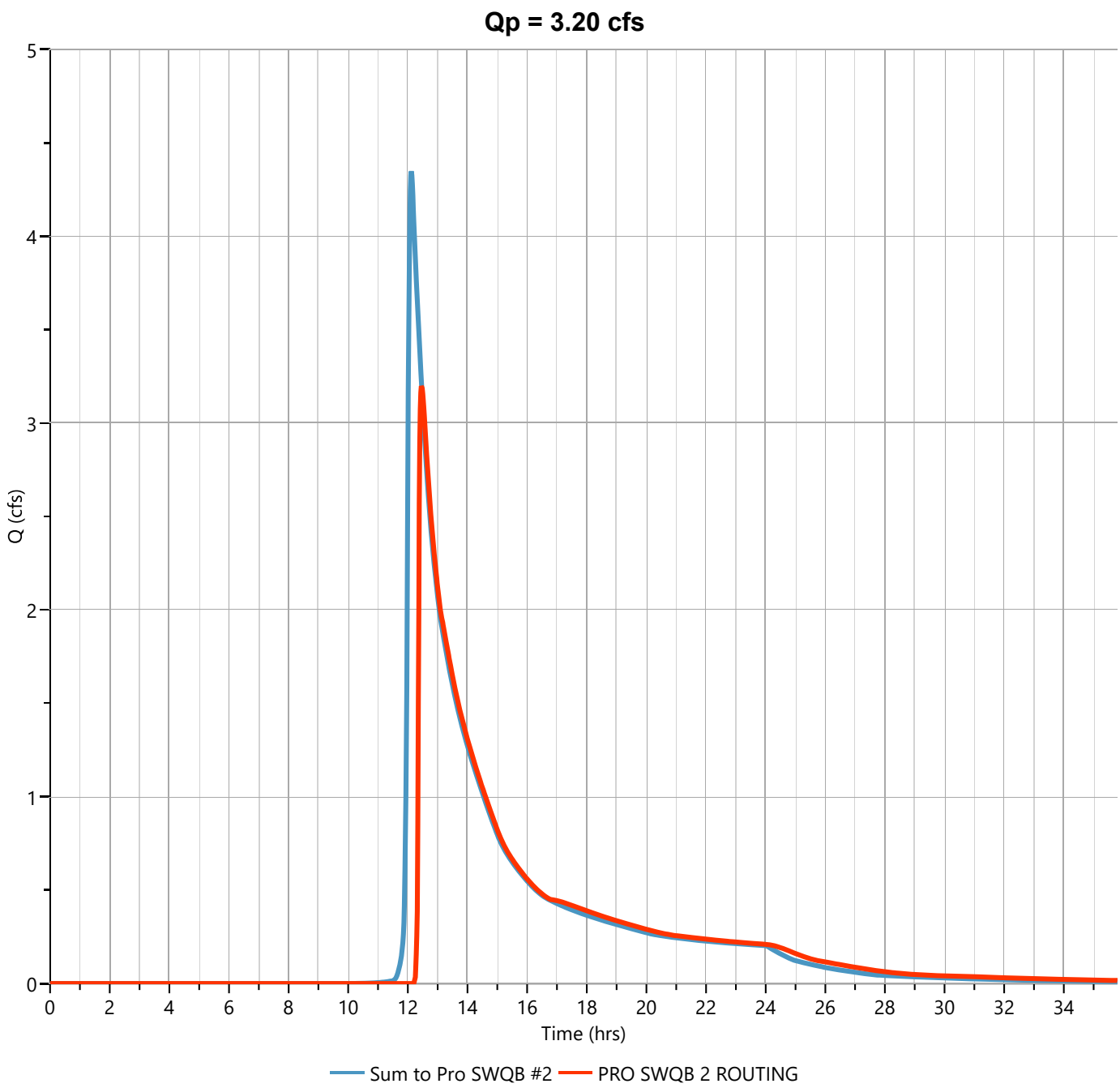
Post PRO SWQB 2 ROUTING

Hyd. No. 26

Hydrograph Type	= Pond Route	Peak Flow	= 3.201 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.47 hrs
Time Interval	= 1 min	Hydrograph Volume	= 30,809 cuft
Inflow Hydrograph	= 25 - Sum to Pro SWQB #2	Max. Elevation	= 80.15 ft
Pond Name	= PRO SWQB #2	Max. Storage	= 5,751 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.07 hrs



Hydrograph Report

Project Name:

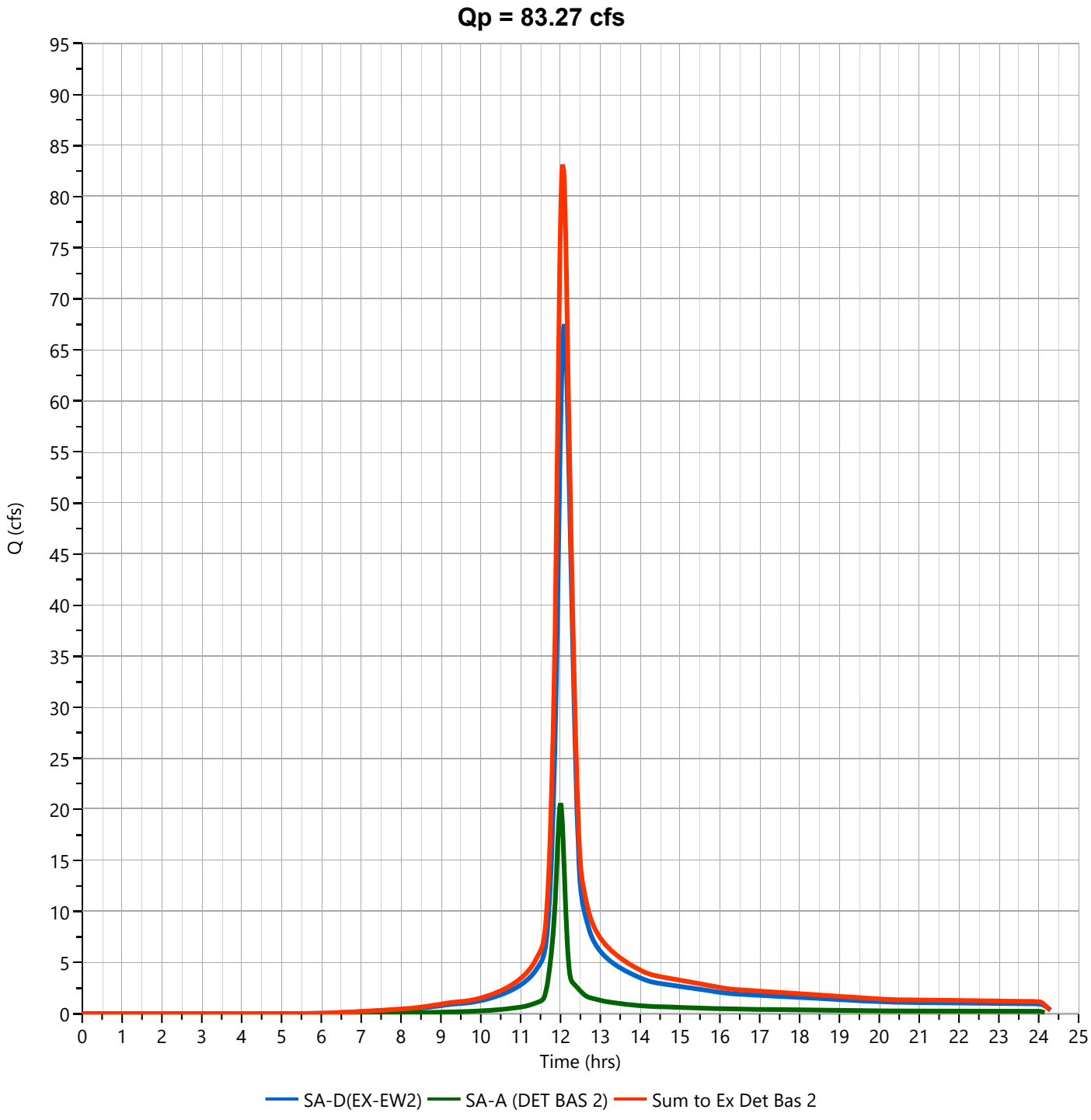
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 2

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 83.27 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 273,598 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.485 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

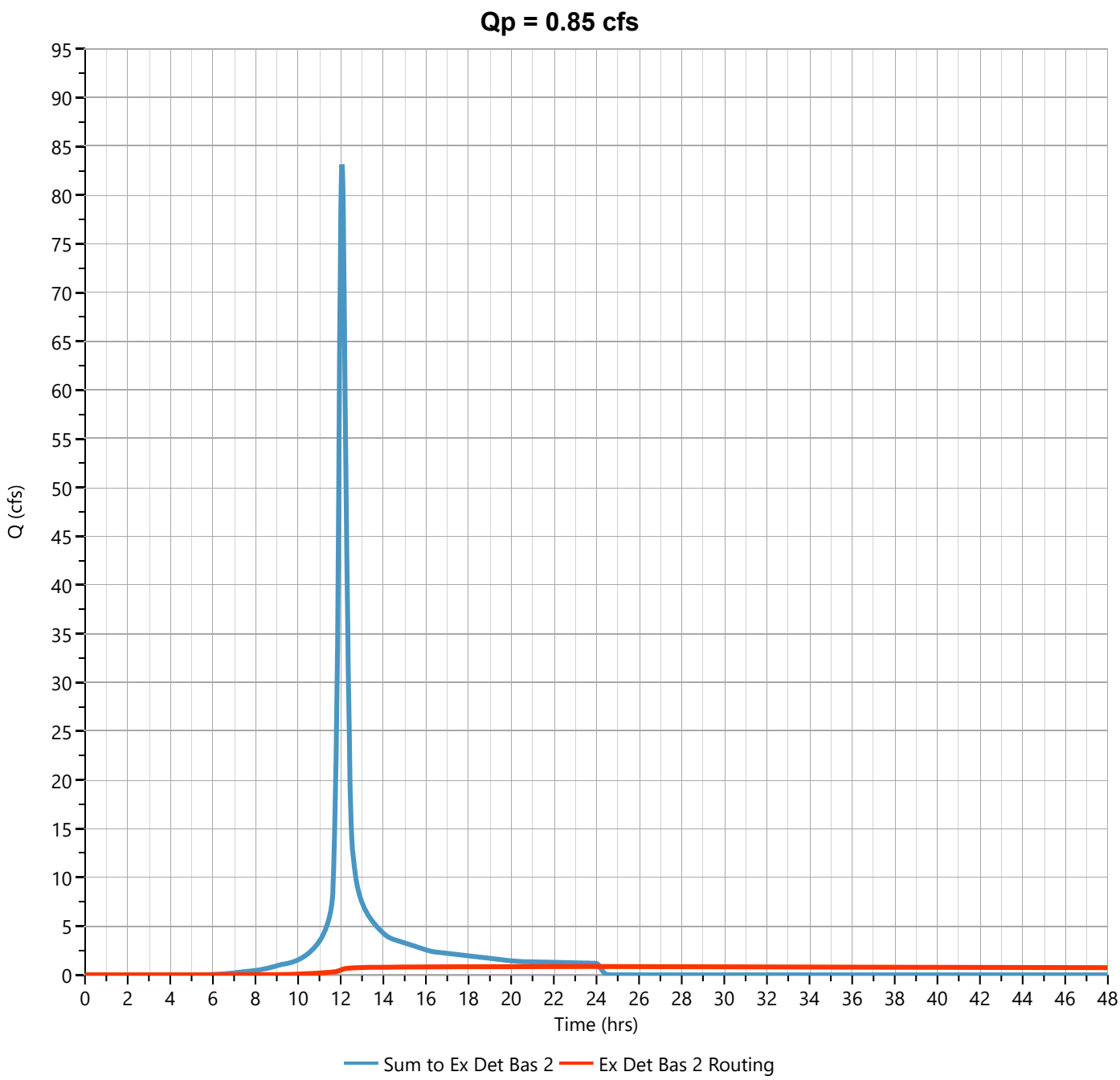
Post Ex Det Bas 2 Routing

Hyd. No. 28

Hydrograph Type	= Pond Route	Peak Flow	= 0.846 cfs
Storm Frequency	= 10-yr	Time to Peak	= 24.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 104,648 cuft
Inflow Hydrograph	= 27 - Sum to Ex Det Bas 2	Max. Elevation	= 81.23 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 236,150 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.88 hrs



Hydrograph Report

Project Name:

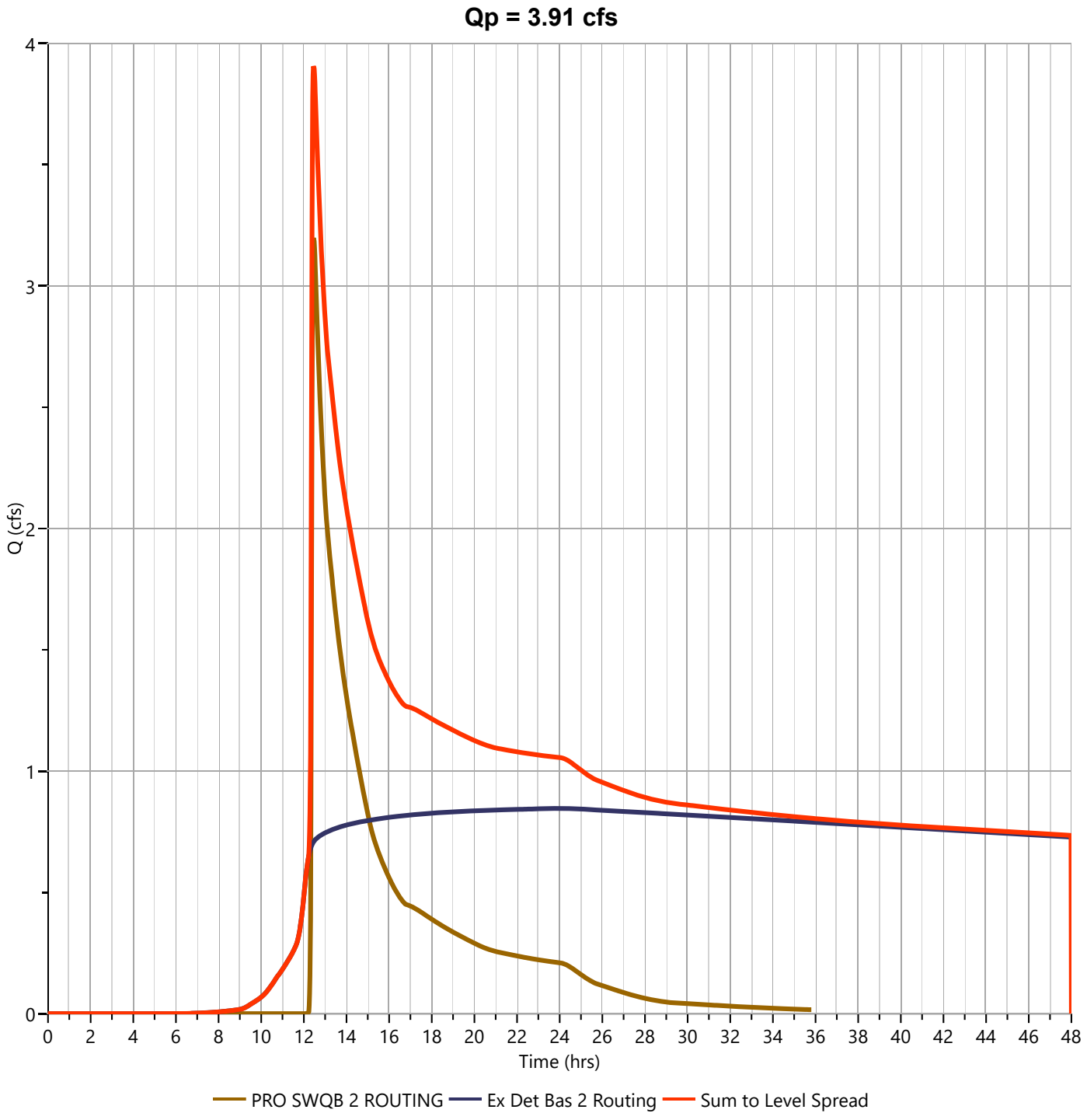
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Level Spread

Hyd. No. 29

Hydrograph Type	= Junction	Peak Flow	= 3.911 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.47 hrs
Time Interval	= 1 min	Hydrograph Volume	= 135,457 cuft
Inflow Hydrographs	= 26, 28	Total Contrib. Area	= 0.0 ac



Hydrograph Report

Project Name:

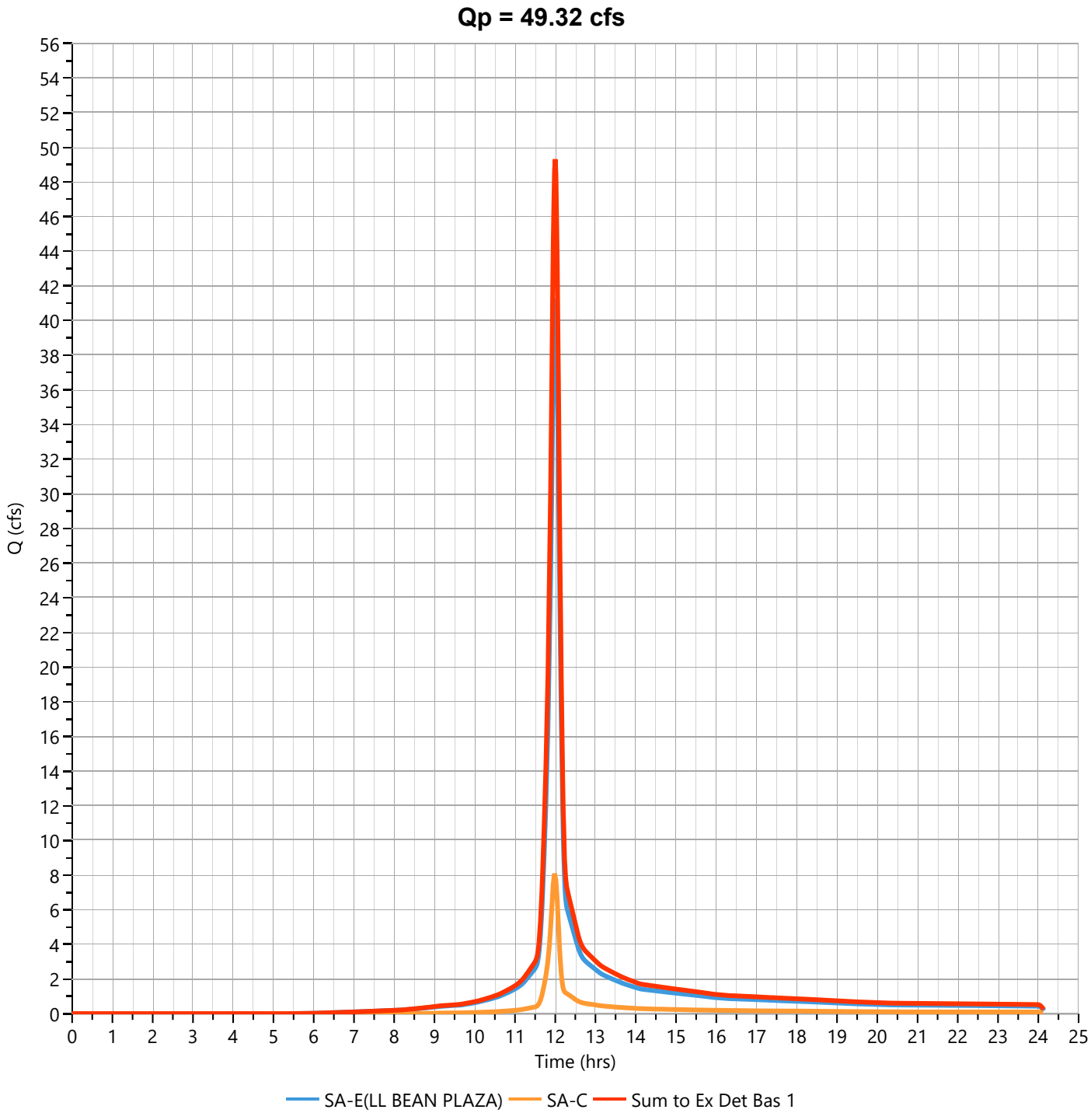
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 1

Hyd. No. 30

Hydrograph Type	= Junction	Peak Flow	= 49.32 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 119,987 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 13.654 ac



Design Storm Report

Custom Storm filename: 3170.cds

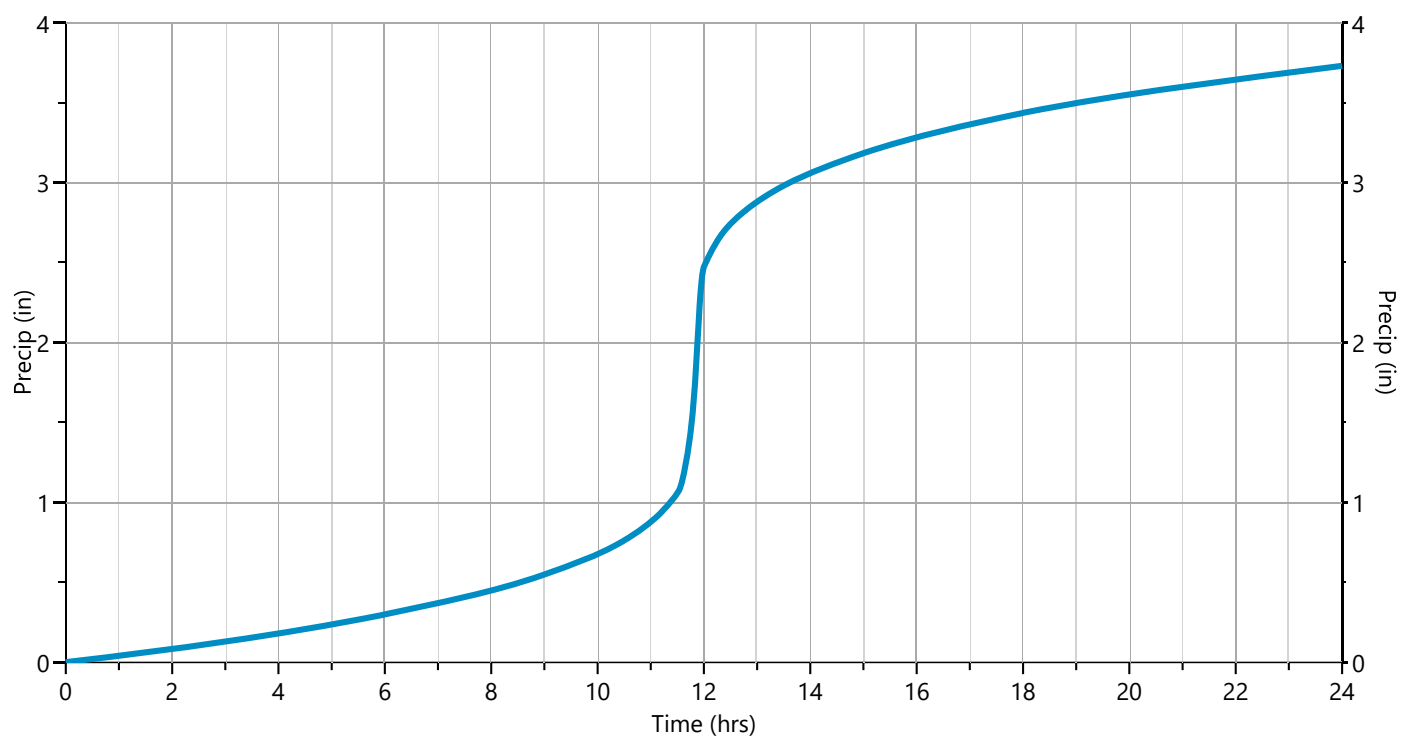
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	✔ 10-yr	25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 10-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.006913	11.60	0.020954	11.78	0.054497	11.97	0.051324	12.15	0.010488
11.43	0.007012	11.62	0.023408	11.80	0.061321	11.98	0.035792	12.17	0.010251
11.45	0.007112	11.63	0.025861	11.82	0.068146	12.00	0.020261	12.18	0.010015
11.47	0.007211	11.65	0.028315	11.83	0.074970	12.02	0.012795	12.20	0.009779
11.48	0.007311	11.67	0.030768	11.85	0.081795	12.03	0.012141	12.22	0.009543
11.50	0.007410	11.68	0.033222	11.87	0.088619	12.05	0.011905	12.23	0.009306
11.52	0.008715	11.70	0.035675	11.88	0.095444	12.07	0.011669	12.25	0.009070
11.53	0.011140	11.72	0.038129	11.90	0.102268	12.08	0.011432	12.27	0.008834
11.55	0.013594	11.73	0.040582	**11.92**	**0.109093**	12.10	0.011196	12.28	0.008598
11.57	0.016047	11.75	0.043036	11.93	0.071337	12.12	0.010960	12.30	0.008361
11.58	0.018501	11.77	0.047311	11.95	0.066855	12.13	0.010724	12.32	0.008125



post170

Hydrograph 25-yr Summary

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	86.30	12.10	287,927	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	52.60	12.00	131,086	----		
3	NRCS Runoff	Post SA-A (DET BAS 2)	26.58	12.00	65,524	----		
4	NRCS Runoff	Pre SA-B (TO PRO SWQB 1)	17.44	11.97	38,135	----		
5	NRCS Runoff	Post SA-C	10.72	11.98	24,439	----		
6	NRCS Runoff	Post SA-B.32 (OVERLAND)	0.772	11.97	1,551	----		
7	NRCS Runoff	Post BLDG #4 RL	1.262	11.95	3,033	----		
8	Pond Route	Post #4 RL SYS ROUTING	0.169	12.15	2,214	7	85.55	1,802
9	NRCS Runoff	Post BLDG #5 RL	1.262	11.95	3,033	----		
10	Pond Route	Post #5 RL SYS ROUTING	0.169	12.15	2,214	9	85.55	1,802
11	NRCS Runoff	Post BLDG #6 RL	1.262	11.95	3,033	----		
12	Pond Route	Post #6 RL SYS ROUTING	0.169	12.15	2,214	11	85.55	1,802
13	NRCS Runoff	Post BLDG #7 RL	1.262	11.95	3,033	----		
14	Pond Route	Post #7 RL SYS ROUTING	0.169	12.15	2,214	13	85.55	1,802
15	NRCS Runoff	Post BLDG #8 RL	1.262	11.95	3,033	----		
16	Pond Route	#8 RL SYS ROUTING	0.169	12.15	2,214	15	85.55	1,802
17	NRCS Runoff	Post BLDG #11 RL	1.807	11.95	4,342	----		
18	Pond Route	Post #11 RL SYS ROUTING	0.346	12.10	3,240	17	85.59	2,454
19	Junction		0.506	12.15	6,641	8, 10, 12		
20	Junction		0.683	12.12	7,667	14, 16, 18		
21	Junction	Post Sum of RL Sys	1.189	12.13	14,308	19, 20		
22	Junction	Post Sum to SWQB #1	18.48	11.97	52,444	4, 21		
23	Pond Route	PRO SWQB1 ROUTING	8.288	12.08	46,017	22	82.61	18,074
24	NRCS Runoff	Post SA-B.32 (OVERLAND)'	0.768	11.97	1,543	----		
25	Junction	Post Sum to Pro SWQB #2	8.515	12.08	47,560	23, 24		
26	Pond Route	Post PRO SWQB 2 ROUTING	6.766	12.20	43,484	25	80.26	6,131
27	Junction	Post Sum to Ex Det Bas 2	106.8	12.07	353,452	1, 3		
28	Pond Route	Post Ex Det Bas 2 Routing	0.955	24.17	119,766	27	82.34	310,381
29	Junction	Post Sum to Level Spread	7.493	12.20	163,251	26, 28		
30	Junction	Post Sum to Ex Det Bas 1	63.25	12.00	155,525	2, 5		

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

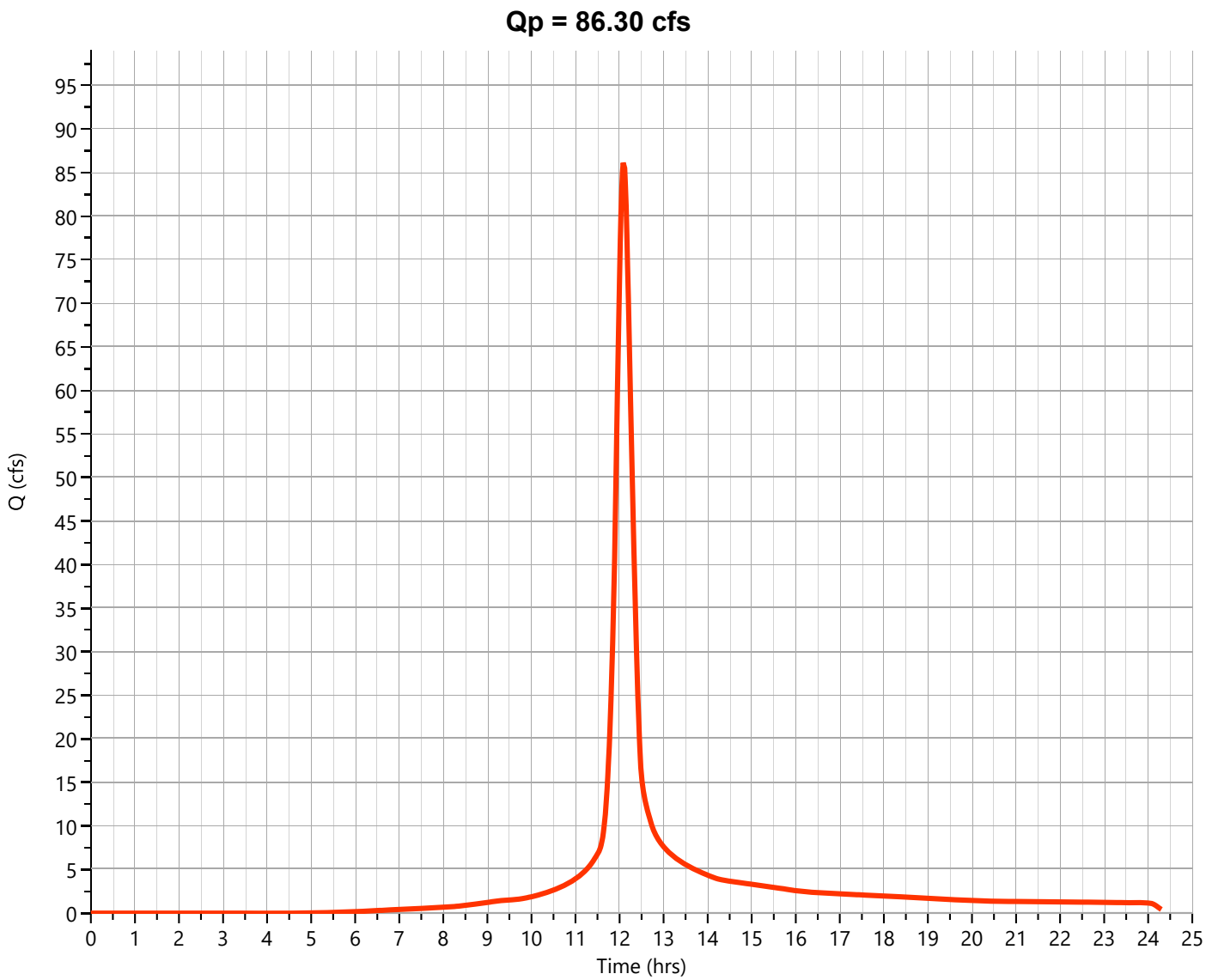
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 86.30 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 287,927 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



post172

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

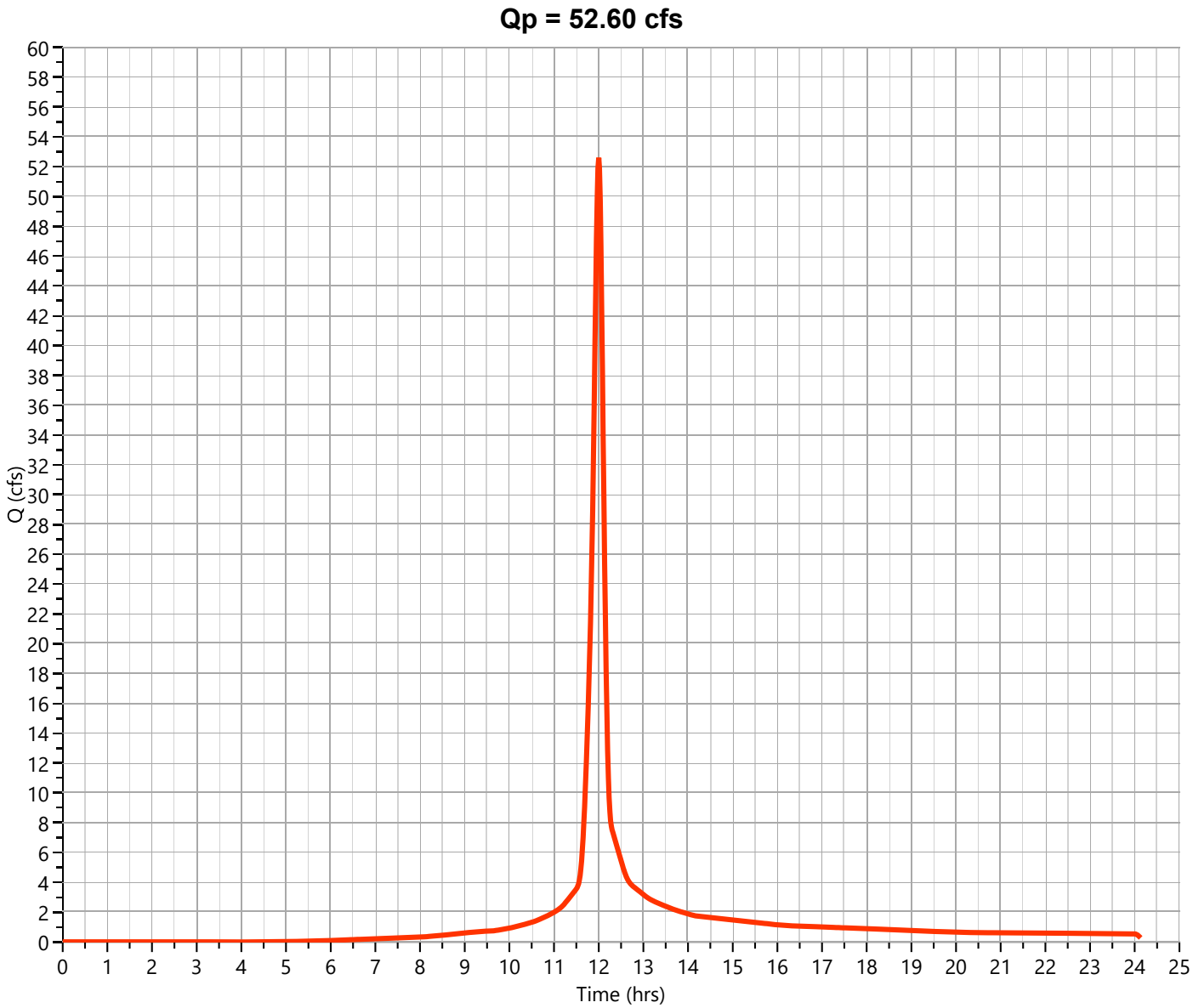
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 52.60 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 131,086 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Post SA-A (DET BAS 2)

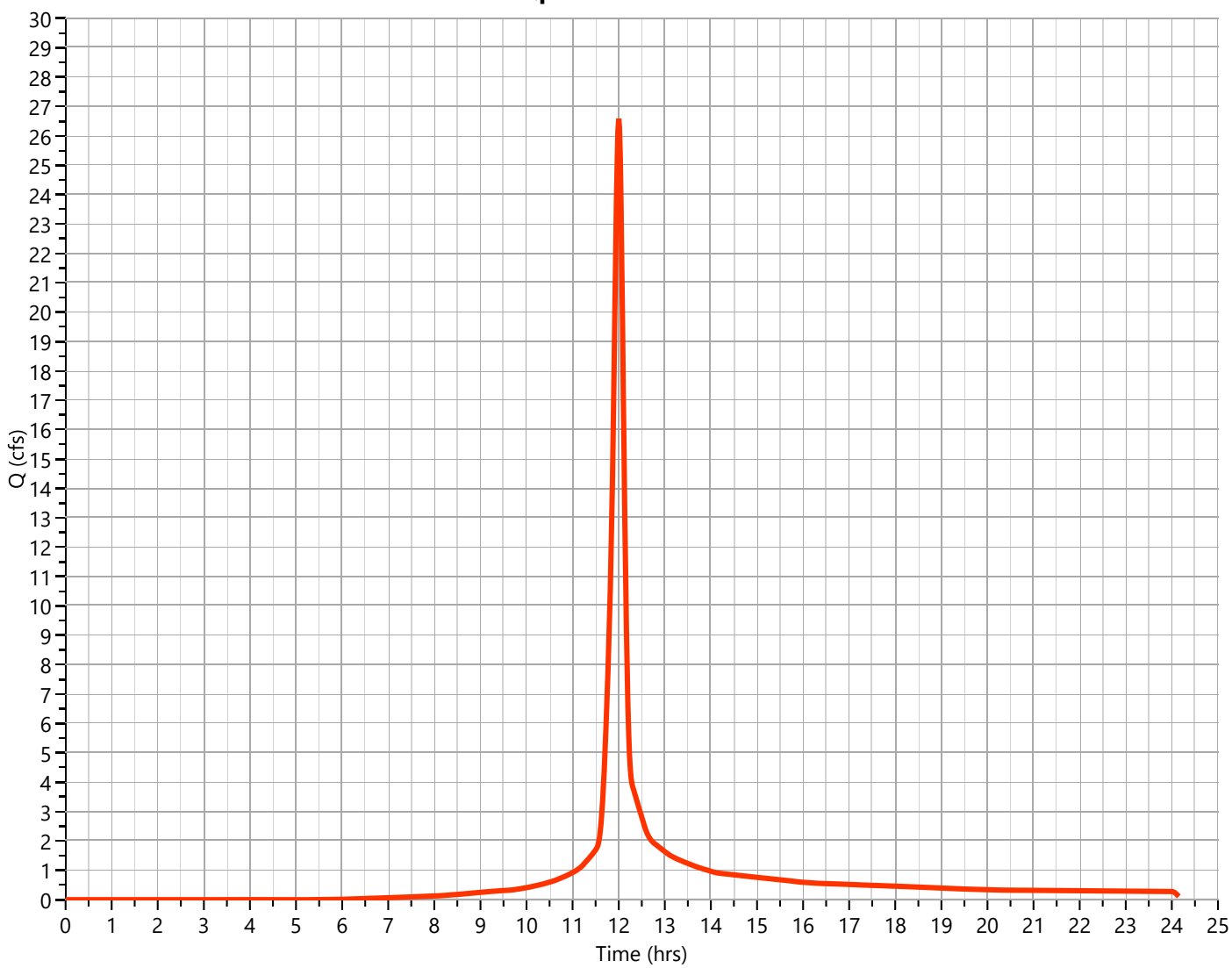
Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 26.58 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 65,524 cuft
Drainage Area	= 5.905 ac	Curve Number	= 86*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.893	98	C-PAVED/ROOF
1.394	74	C-LAWN/LANDSCAPED
1.618	74	C- GRASS /DET BAS
5.905	**86**	Weighted CN Method Employed

Qp = 26.58 cfs



post174

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

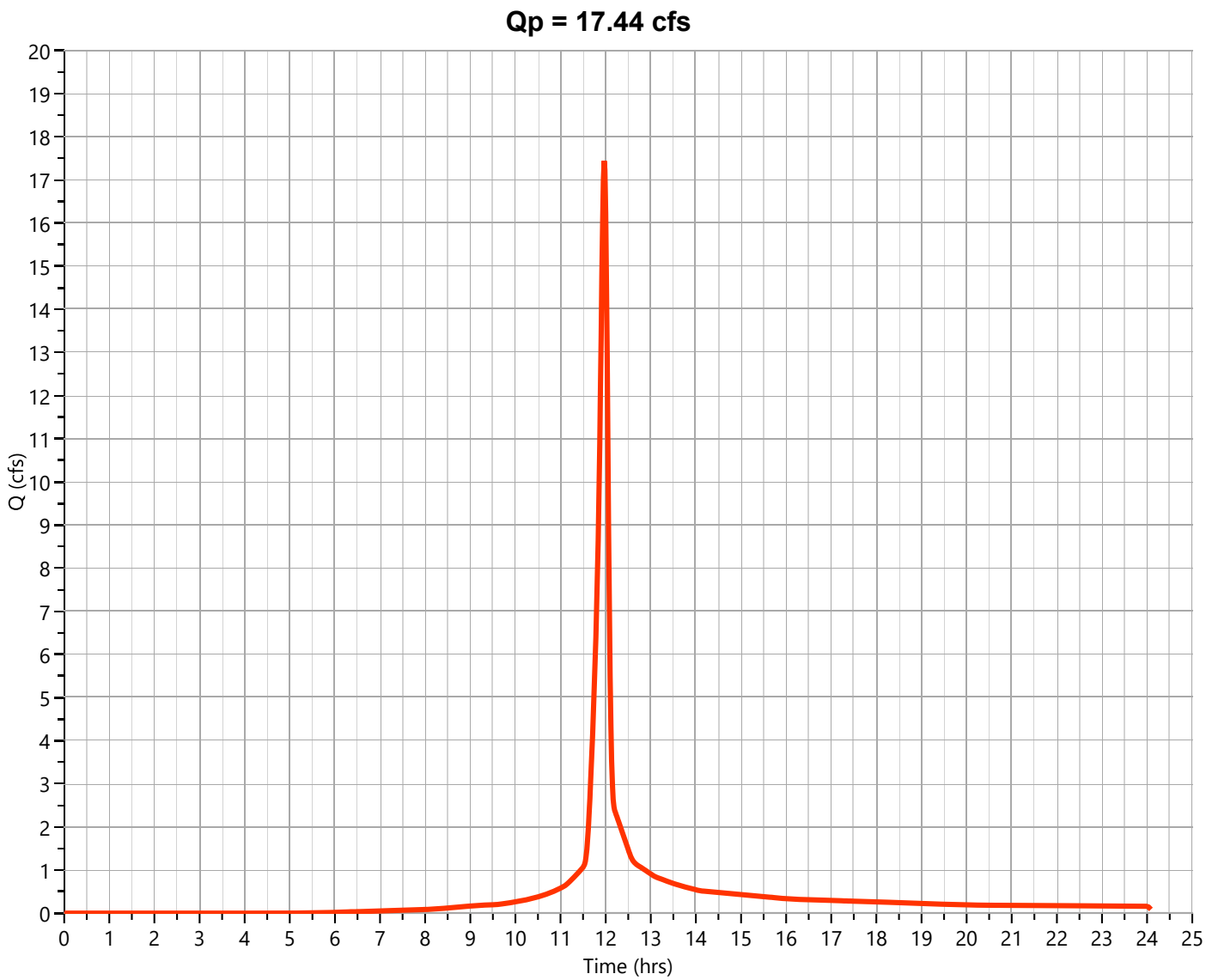
Pre SA-B (TO PRO SWQB 1)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 17.44 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 38,135 cuft
Drainage Area	= 3.477 ac	Curve Number	= 87*
Tc Method	= User	Time of Conc. (Tc)	= 7.5 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.66	74	C-GRASS (GOOD)
1.817	98	C-PAVED/ROOF
3.477	**87**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

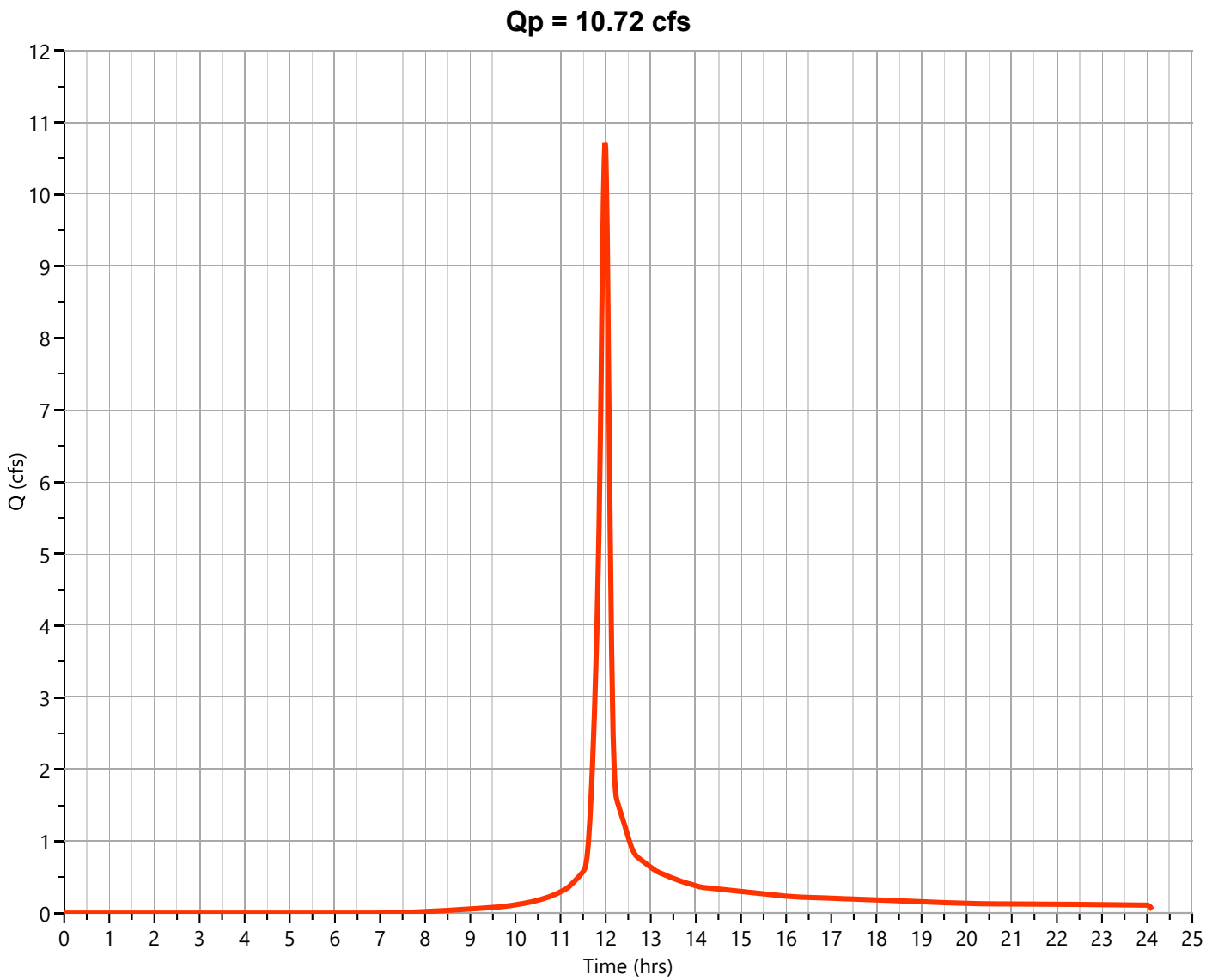
Post SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 10.72 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.98 hrs
Time Interval	= 1 min	Runoff Volume	= 24,439 cuft
Drainage Area	= 2.554 ac	Curve Number	= 82*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.178	79	C-GRASS (FAIR)
0.376	98	C-ROOF & PAVED
2.554	**82**	Weighted CN Method Employed



post176

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

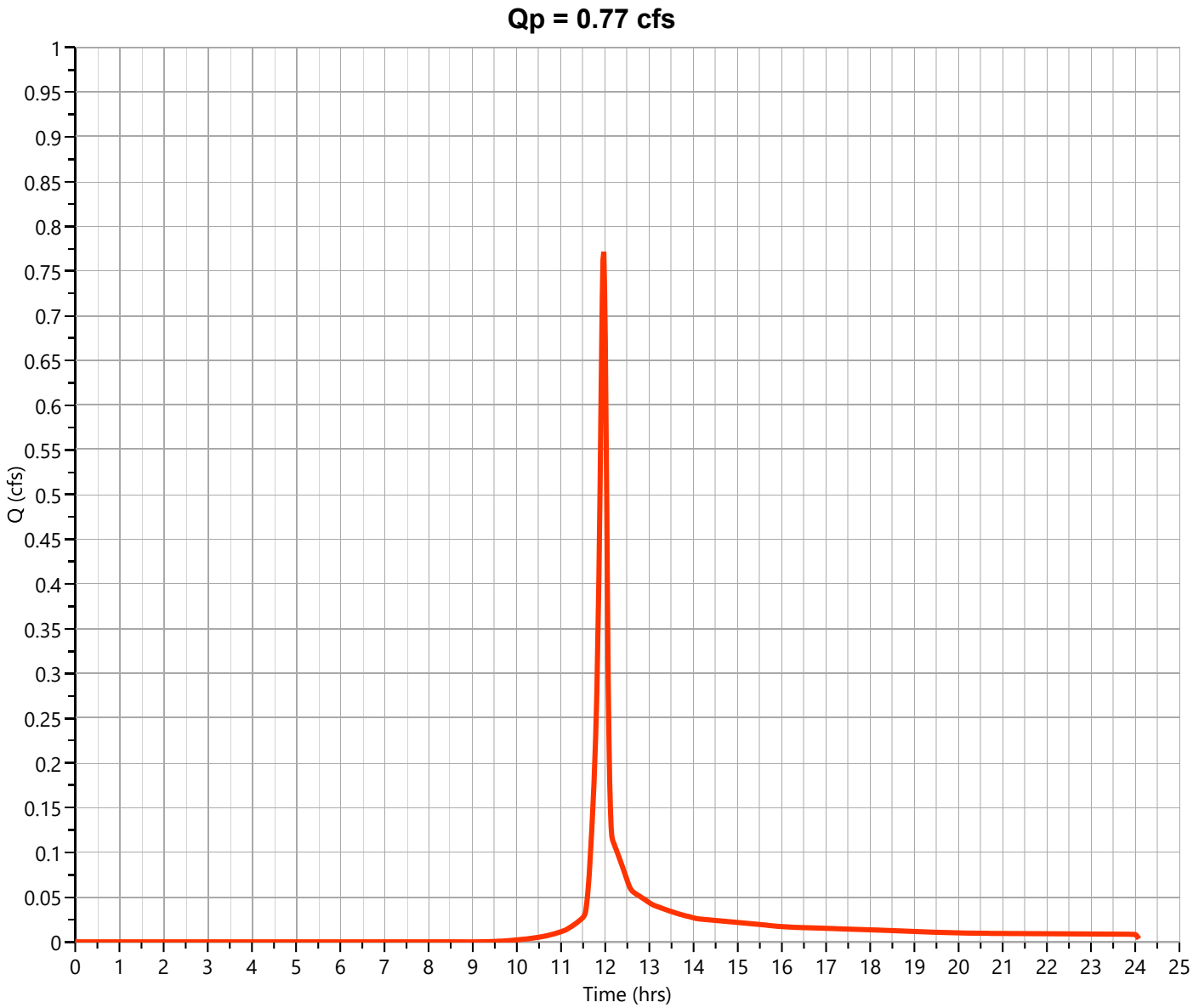
Post SA-B.32 (OVERLAND)

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.772 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 1,551 cuft
Drainage Area	= 0.21 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.47 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.21	74	C-GRASS
0.21	**74**	Weighted CN Method Employed



post177

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

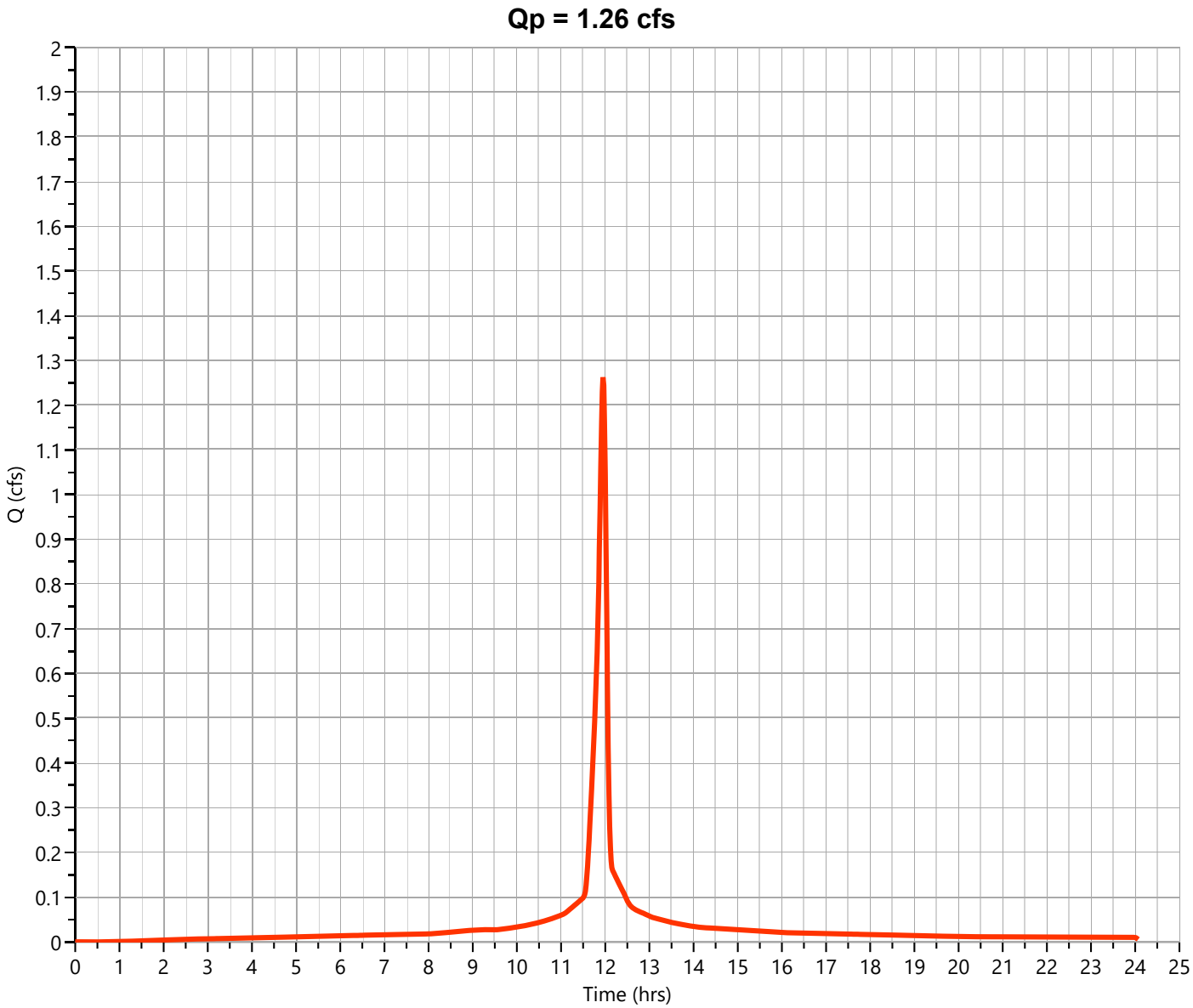
Post BLDG #4 RL

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.262 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,033 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post178

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

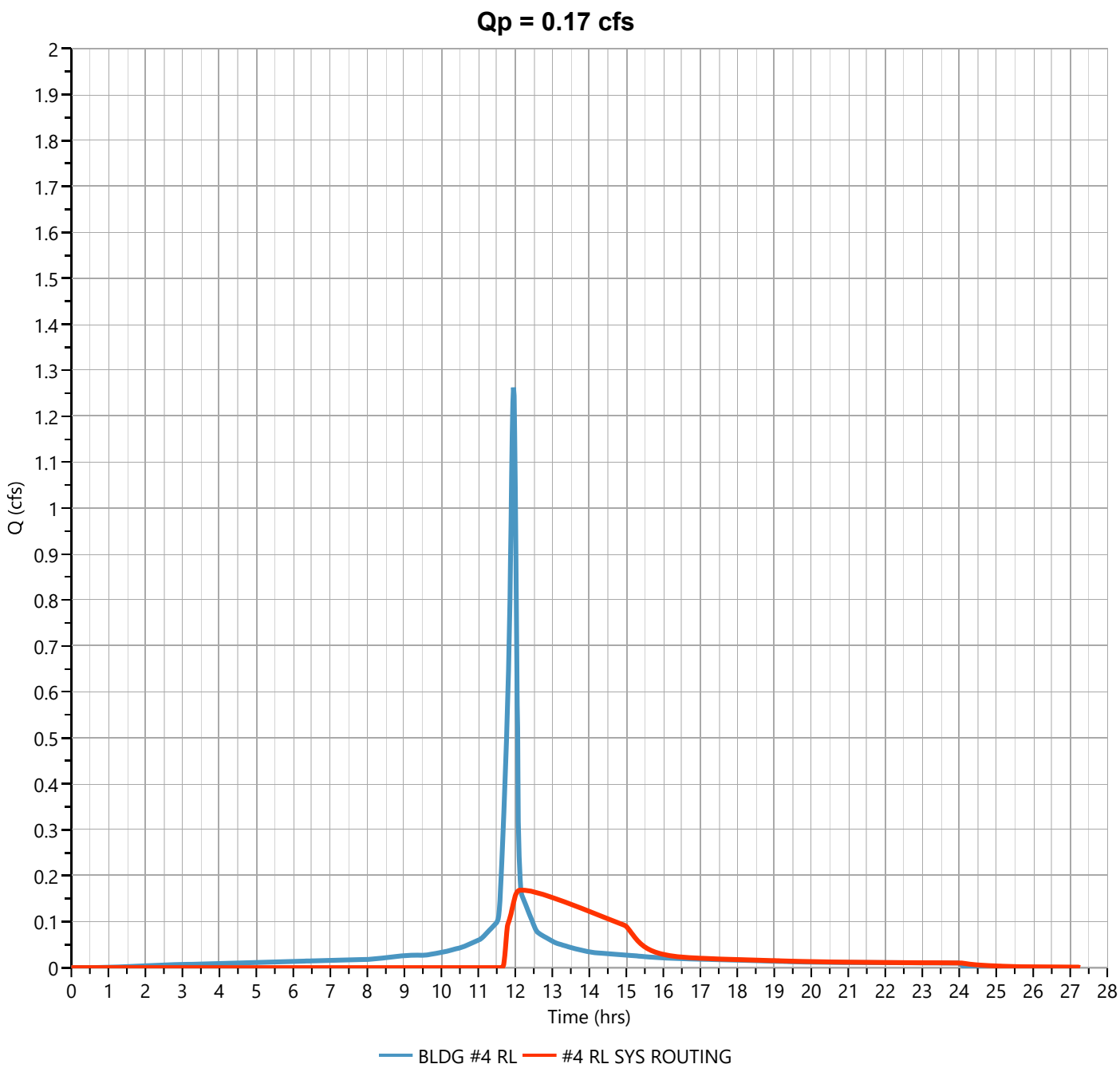
Post #4 RL SYS ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.169 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,214 cuft
Inflow Hydrograph	= 7 - BLDG #4 RL	Max. Elevation	= 85.55 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,802 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.89 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

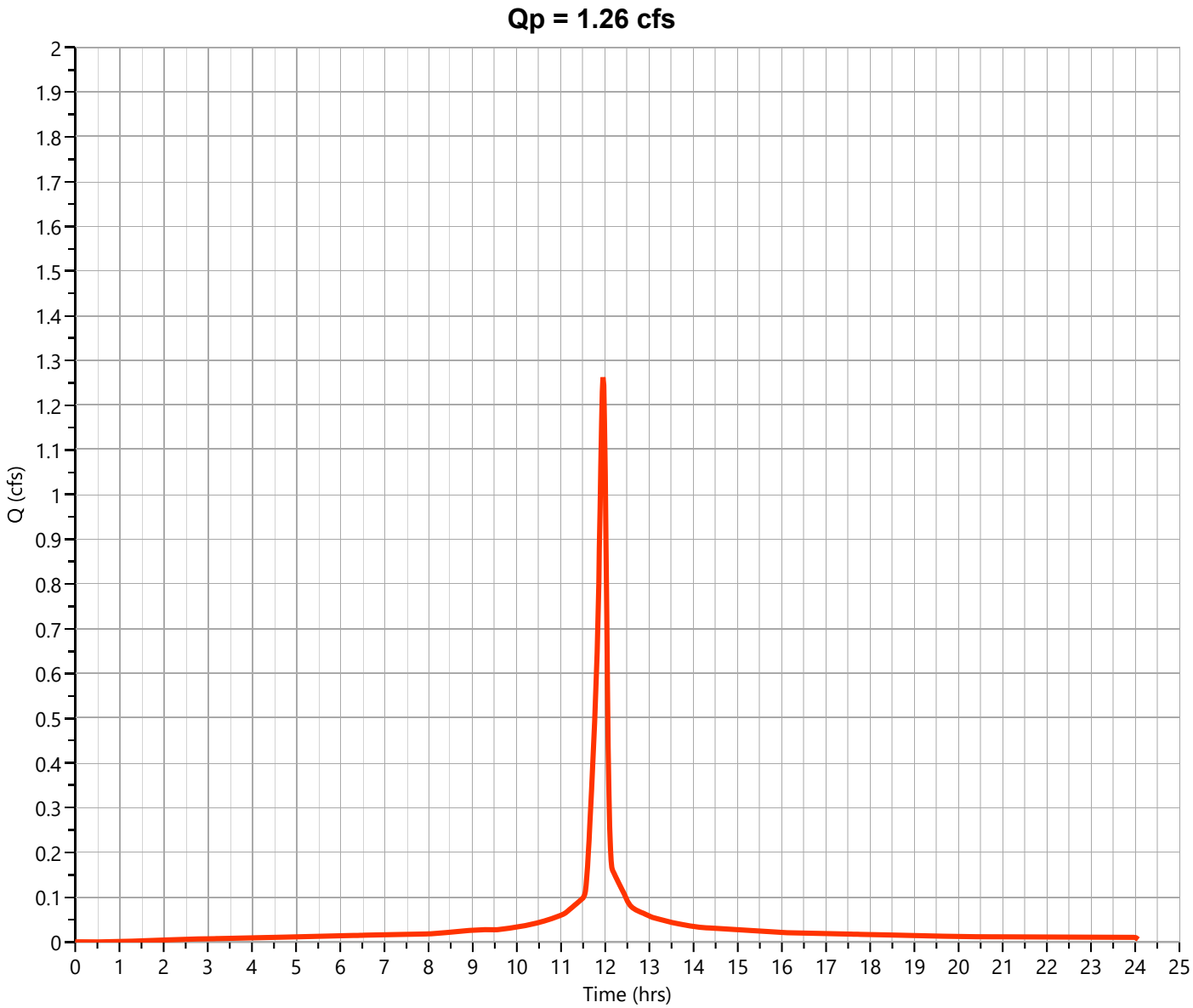
Post BLDG #5 RL

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.262 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,033 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

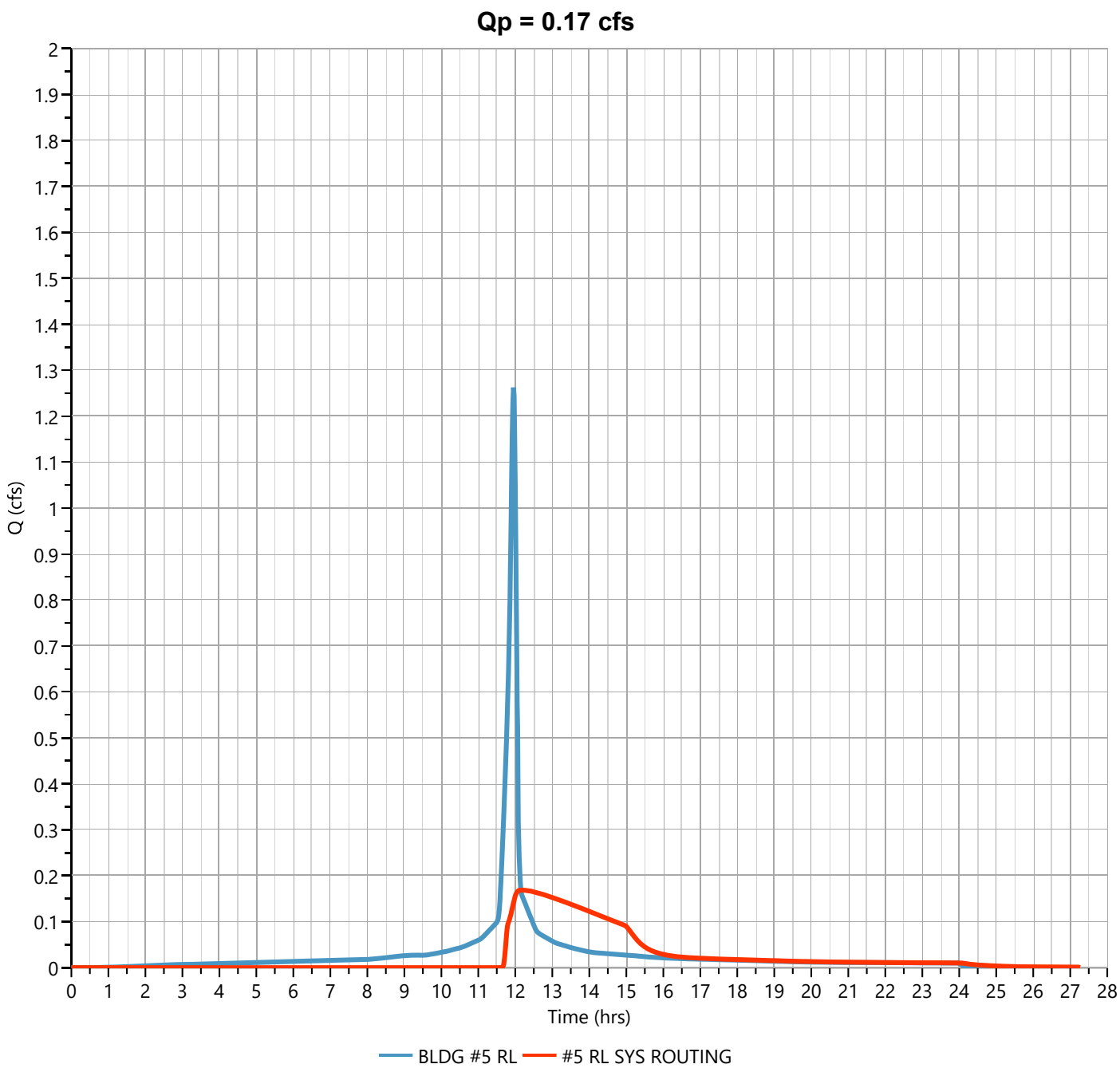
Post #5 RL SYS ROUTING

Hyd. No. 10

Hydrograph Type	= Pond Route	Peak Flow	= 0.169 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,214 cuft
Inflow Hydrograph	= 9 - BLDG #5 RL	Max. Elevation	= 85.55 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,802 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.89 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

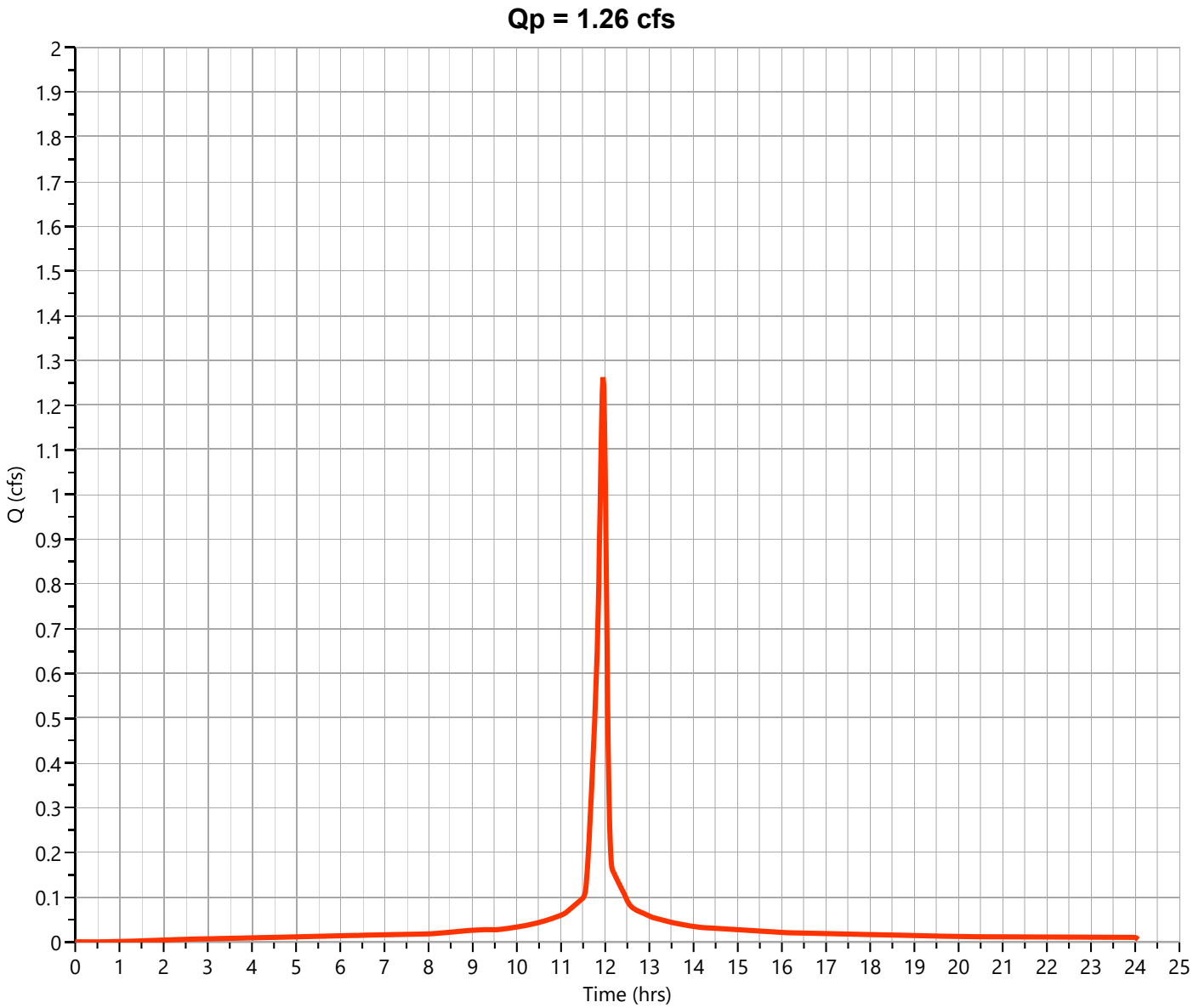
Post BLDG #6 RL

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.262 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,033 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

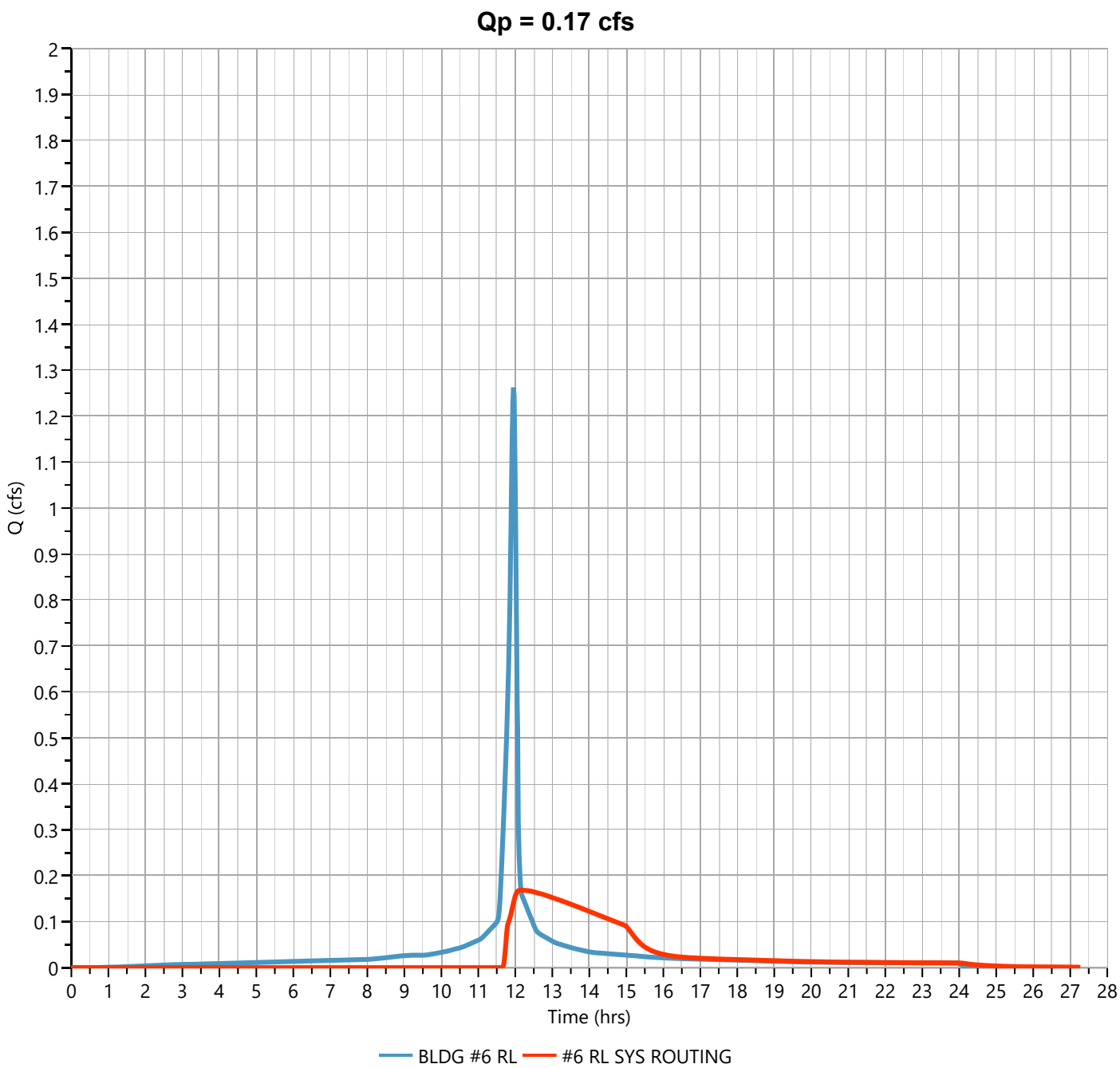
Post #6 RL SYS ROUTING

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 0.169 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,214 cuft
Inflow Hydrograph	= 11 - BLDG #6 RL	Max. Elevation	= 85.55 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,802 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.89 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

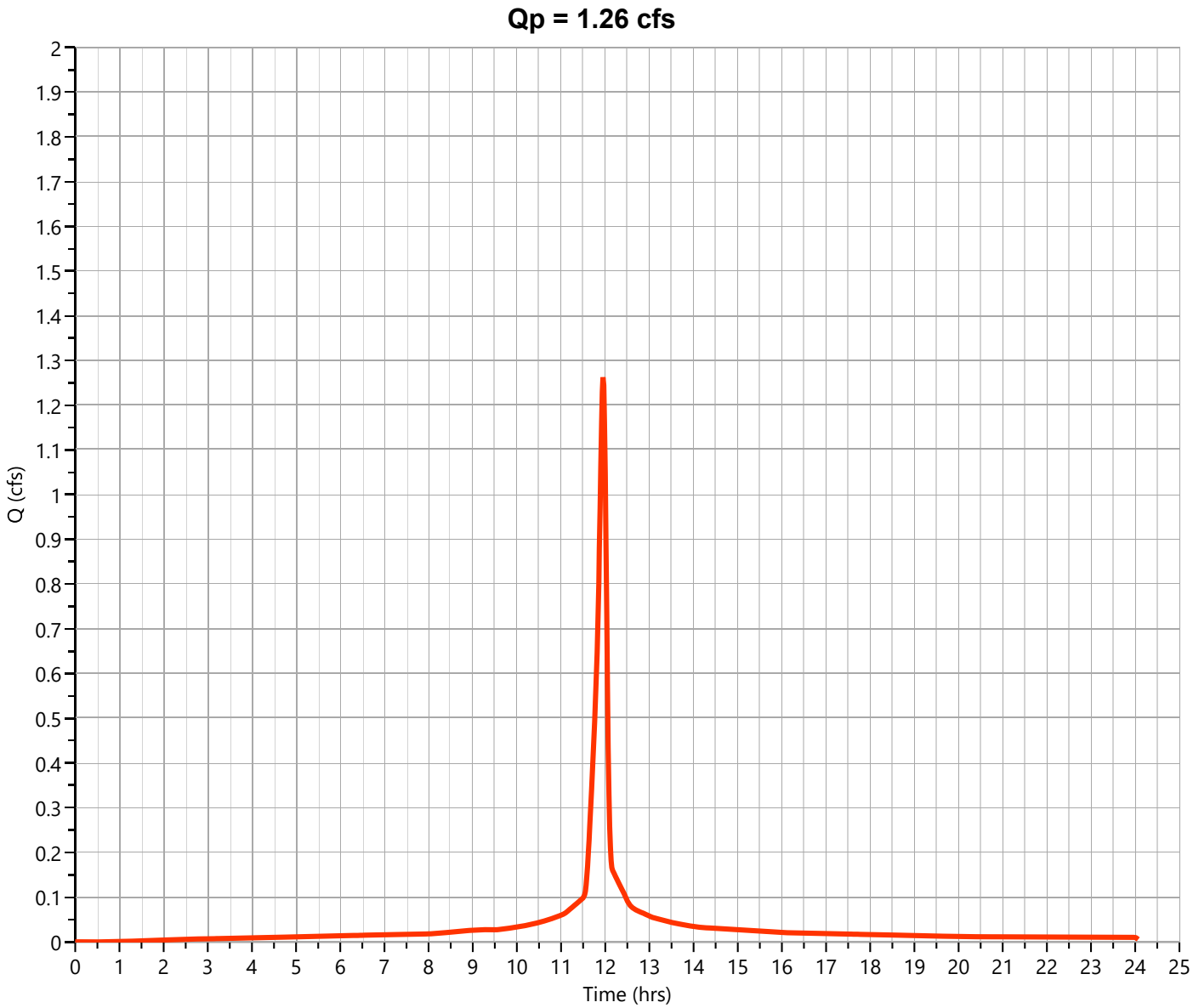
Post BLDG #7 RL

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.262 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,033 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

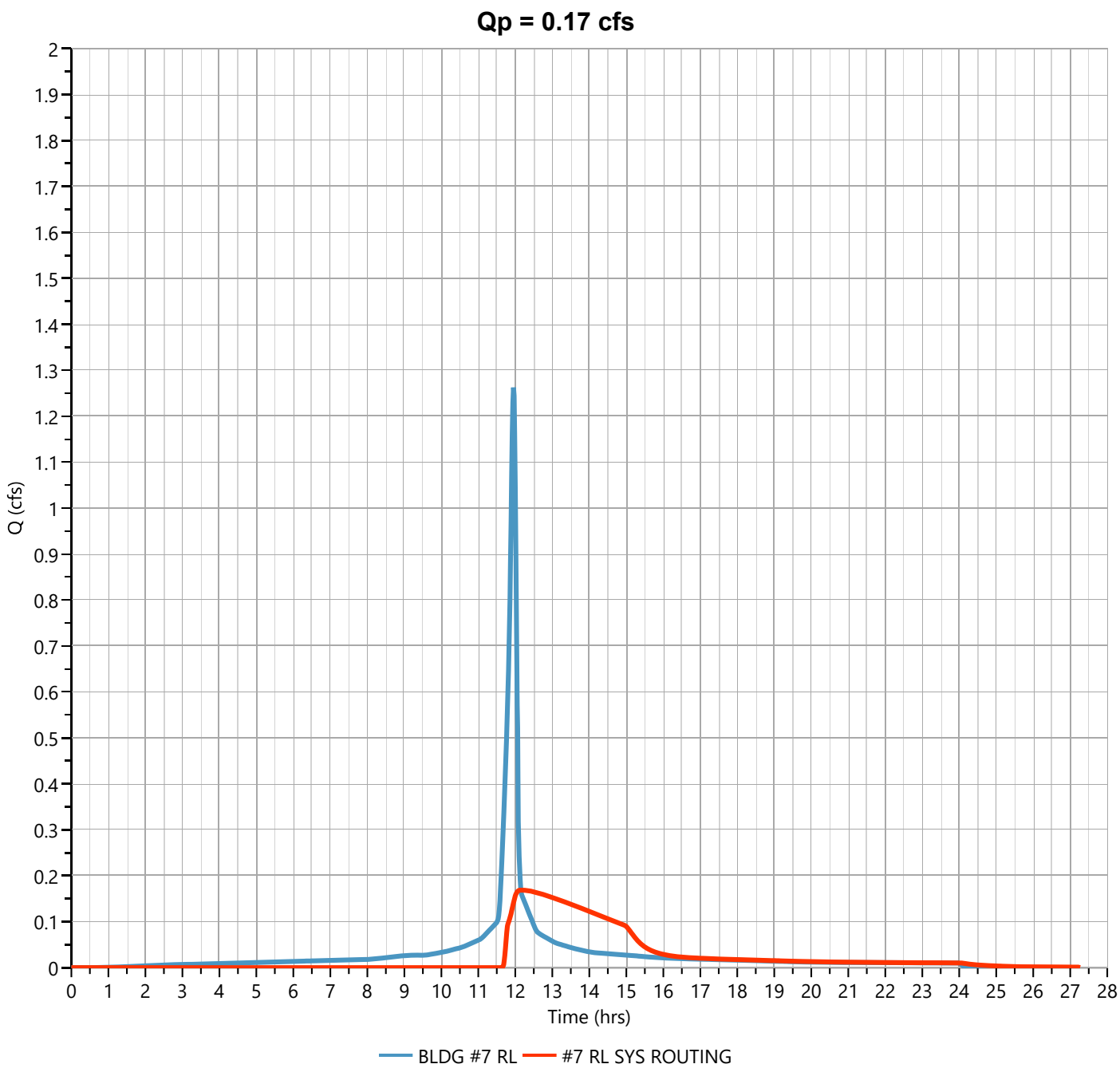
Post #7 RL SYS ROUTING

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.169 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,214 cuft
Inflow Hydrograph	= 13 - BLDG #7 RL	Max. Elevation	= 85.55 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,802 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.89 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

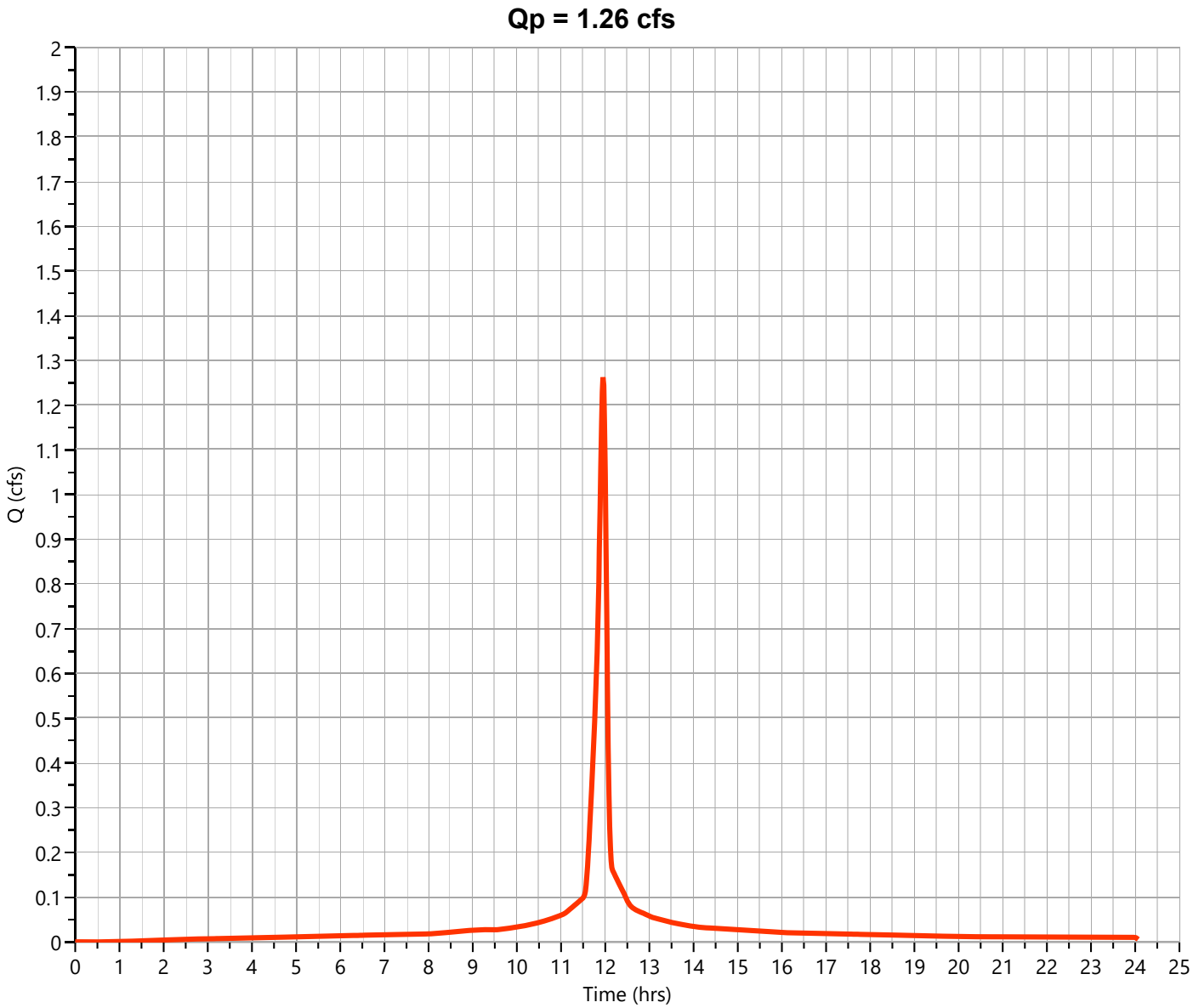
Post BLDG #8 RL

Hyd. No. 15

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.262 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,033 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

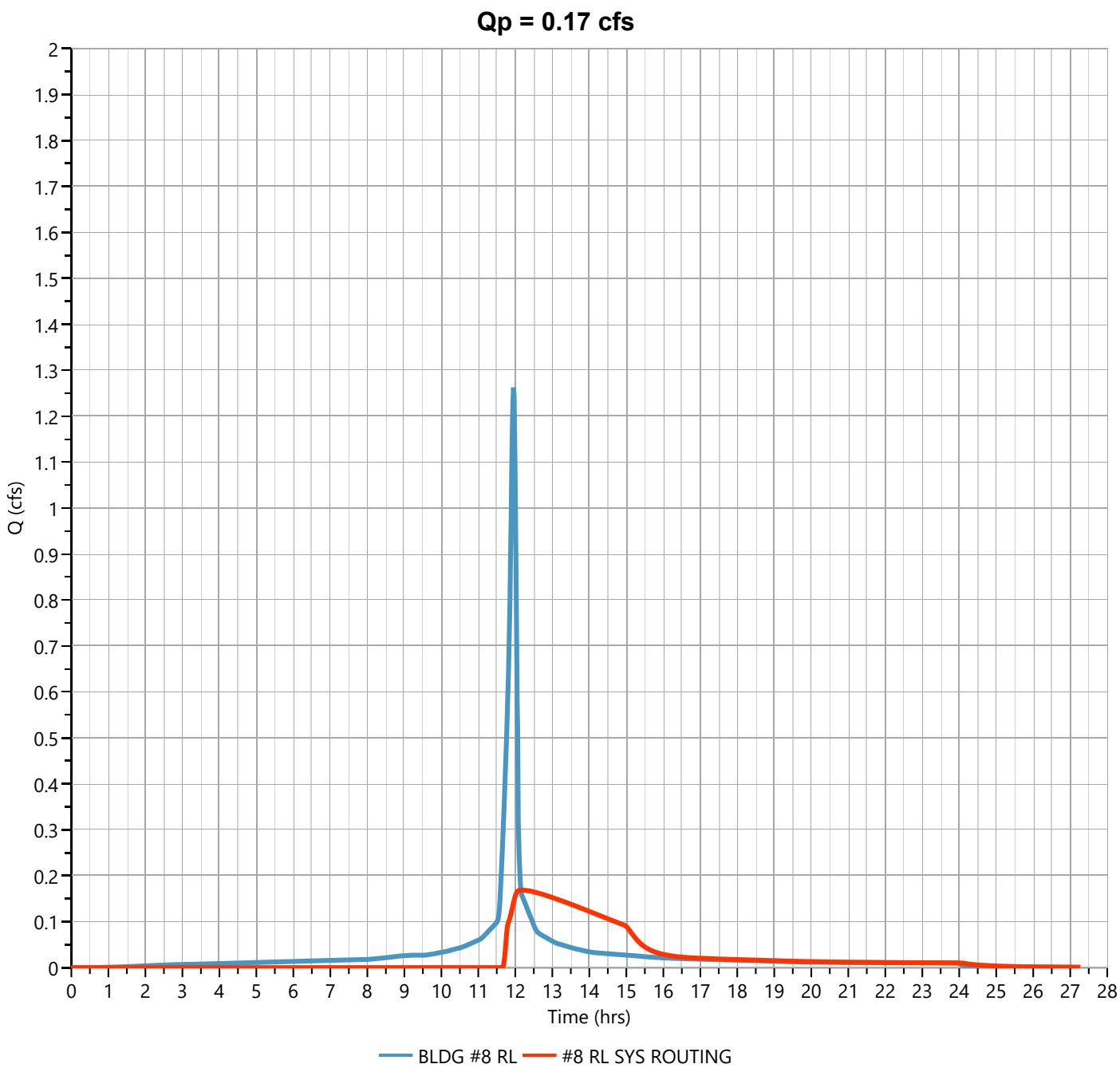
#8 RL SYS ROUTING

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.169 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,214 cuft
Inflow Hydrograph	= 15 - BLDG #8 RL	Max. Elevation	= 85.55 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 1,802 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.89 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

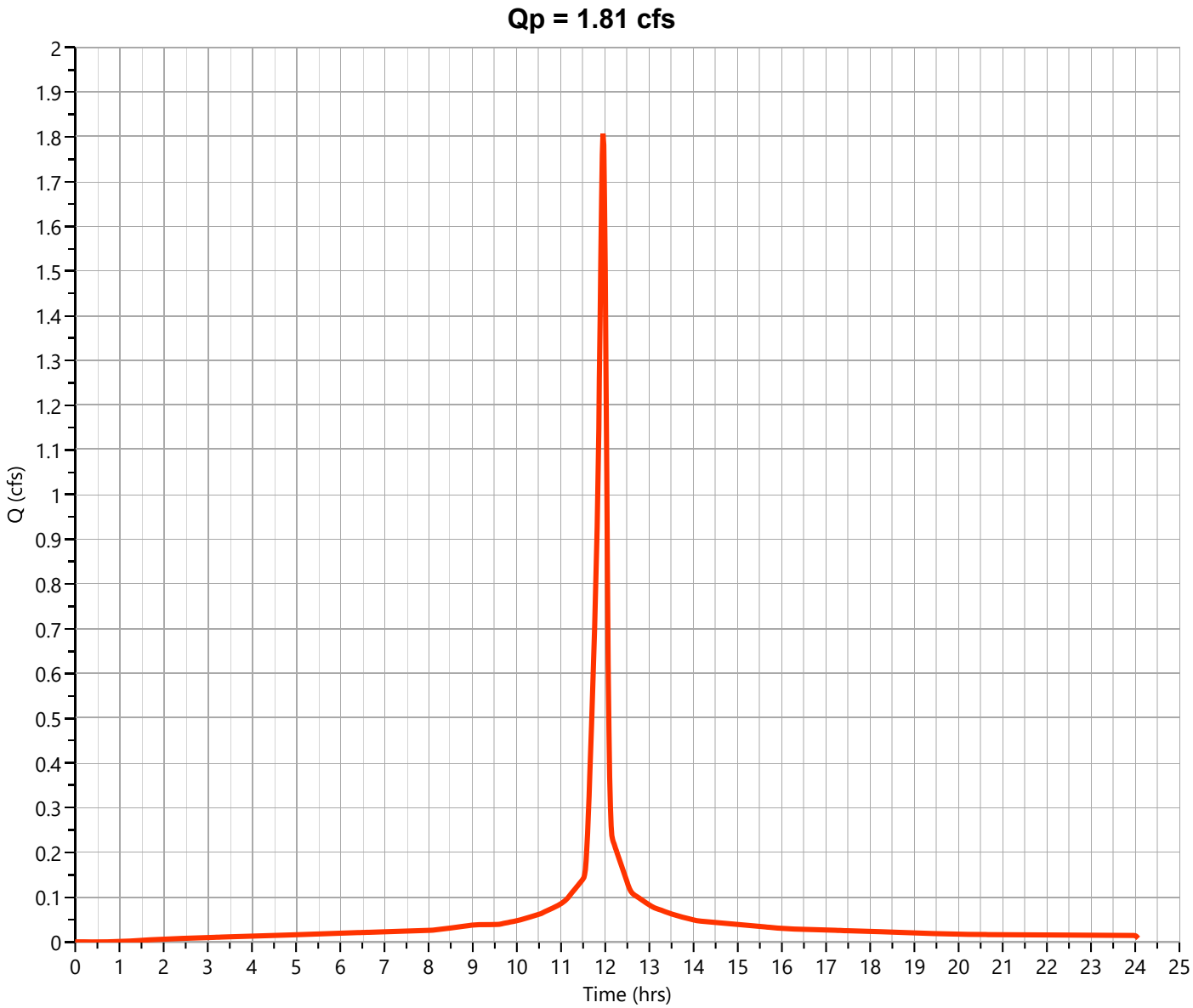
Post BLDG #11 RL

Hyd. No. 17

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.807 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 4,342 cuft
Drainage Area	= 0.272 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.272	98	C-ROOF
0.272	**98**	Weighted CN Method Employed



post188

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

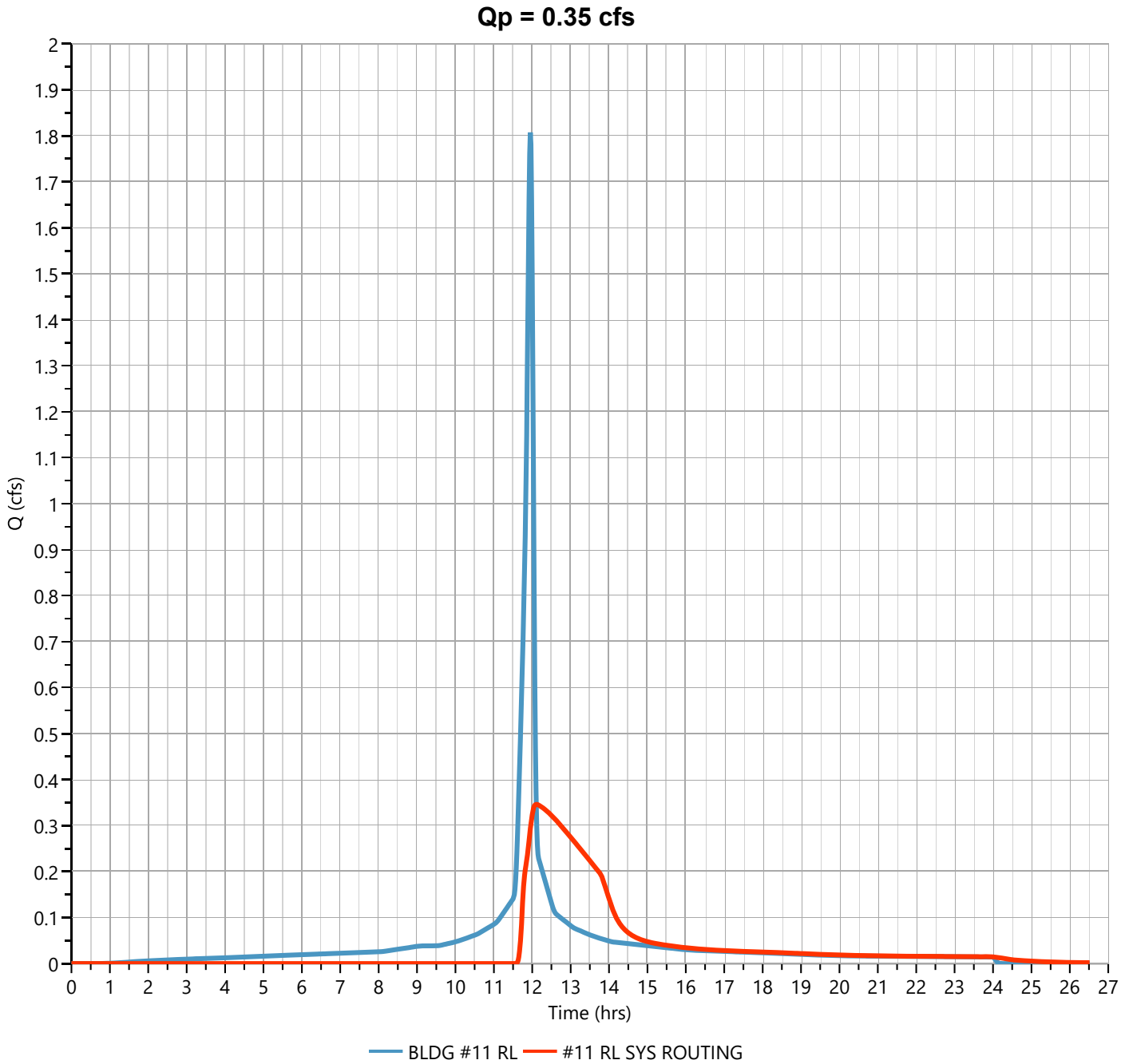
Post #11 RL SYS ROUTING

Hyd. No. 18

Hydrograph Type	= Pond Route	Peak Flow	= 0.346 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,240 cuft
Inflow Hydrograph	= 17 - BLDG #11 RL	Max. Elevation	= 85.59 ft
Pond Name	= BLDG #11 RL SYS	Max. Storage	= 2,454 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.55 hrs



Hydrograph Report

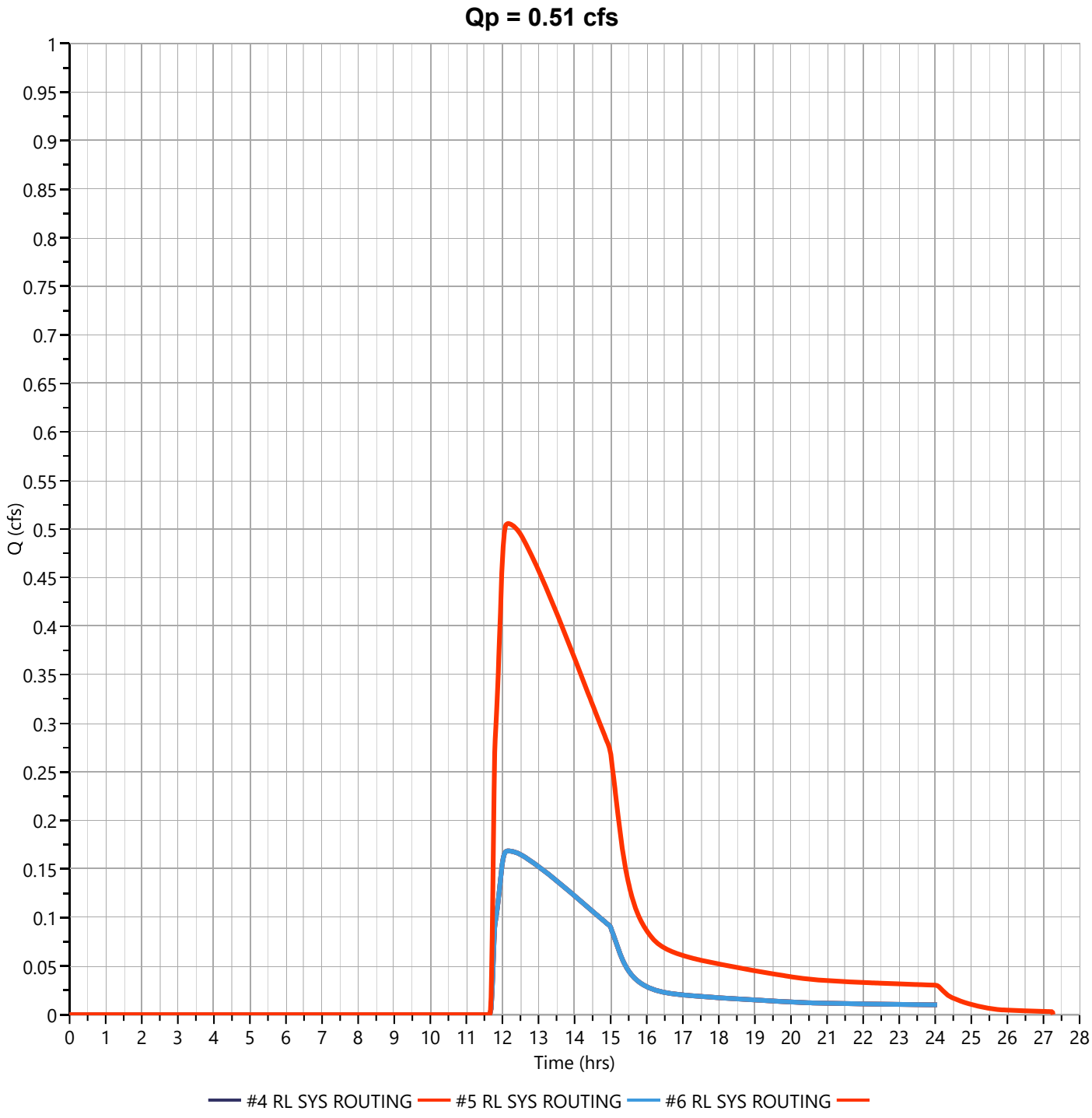
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 19

Hydrograph Type	= Junction	Peak Flow	= 0.506 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 6,641 cuft
Inflow Hydrographs	= 8, 10, 12	Total Contrib. Area	= 0.0 ac



post190

Hydrograph Report

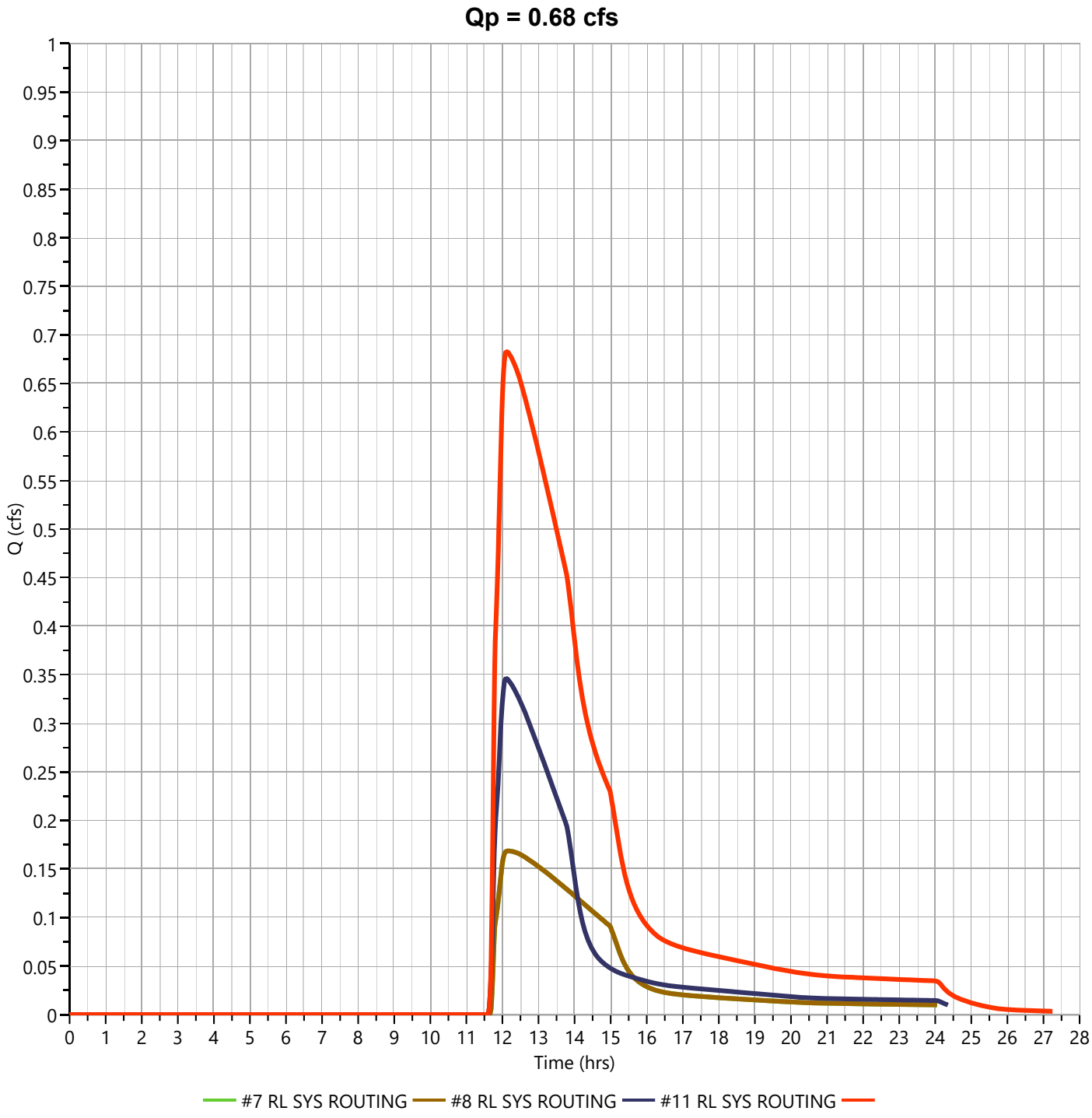
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 20

Hydrograph Type	= Junction	Peak Flow	= 0.683 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 7,667 cuft
Inflow Hydrographs	= 14, 16, 18	Total Contrib. Area	= 0.0 ac



post191

Hydrograph Report

Project Name:

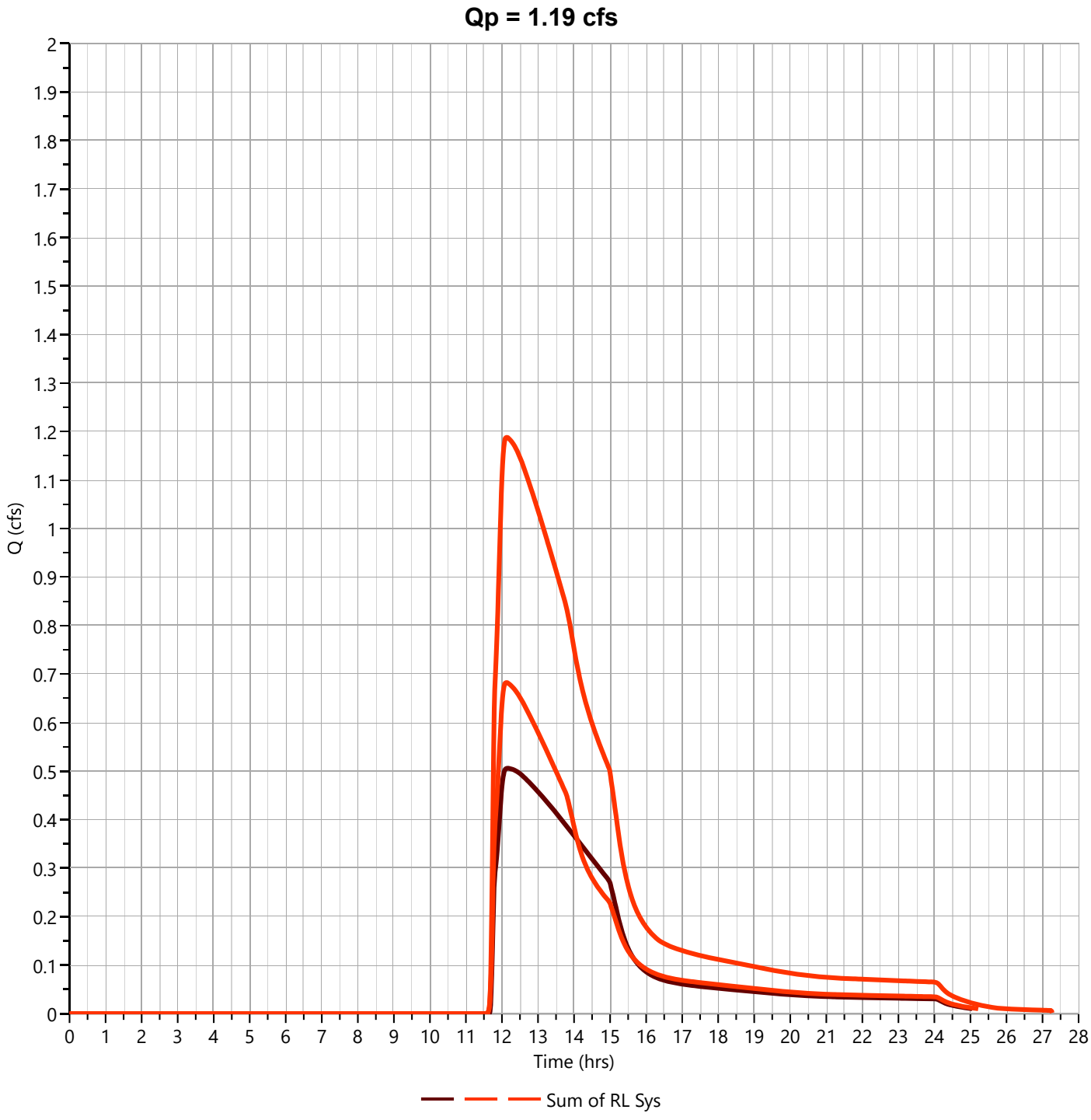
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum of RL Sys

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 1.189 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 14,308 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 0.0 ac



post192

Hydrograph Report

Project Name:

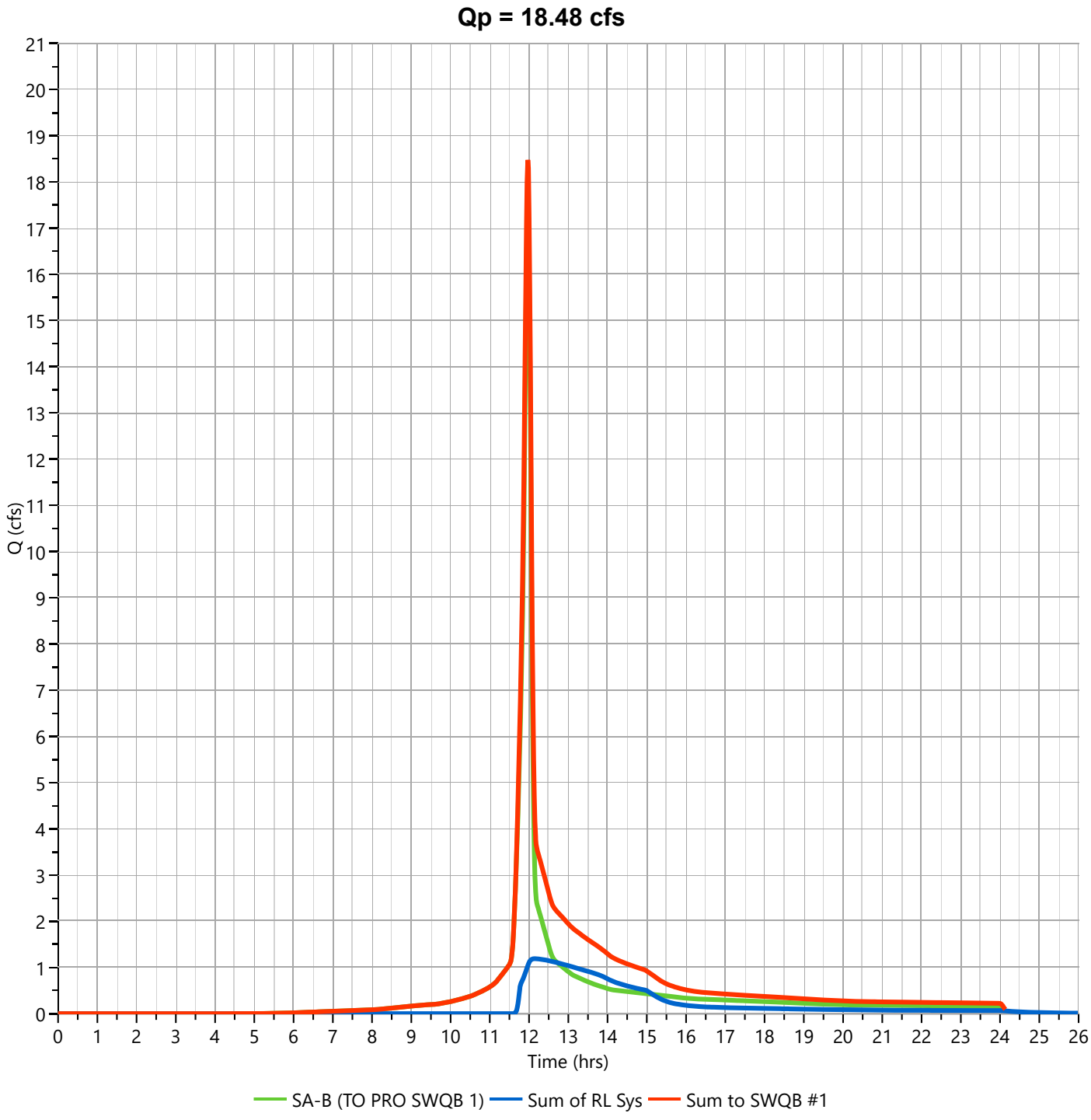
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to SWQB #1

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 18.48 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Hydrograph Volume	= 52,444 cuft
Inflow Hydrographs	= 4, 21	Total Contrib. Area	= 3.477 ac



post193

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

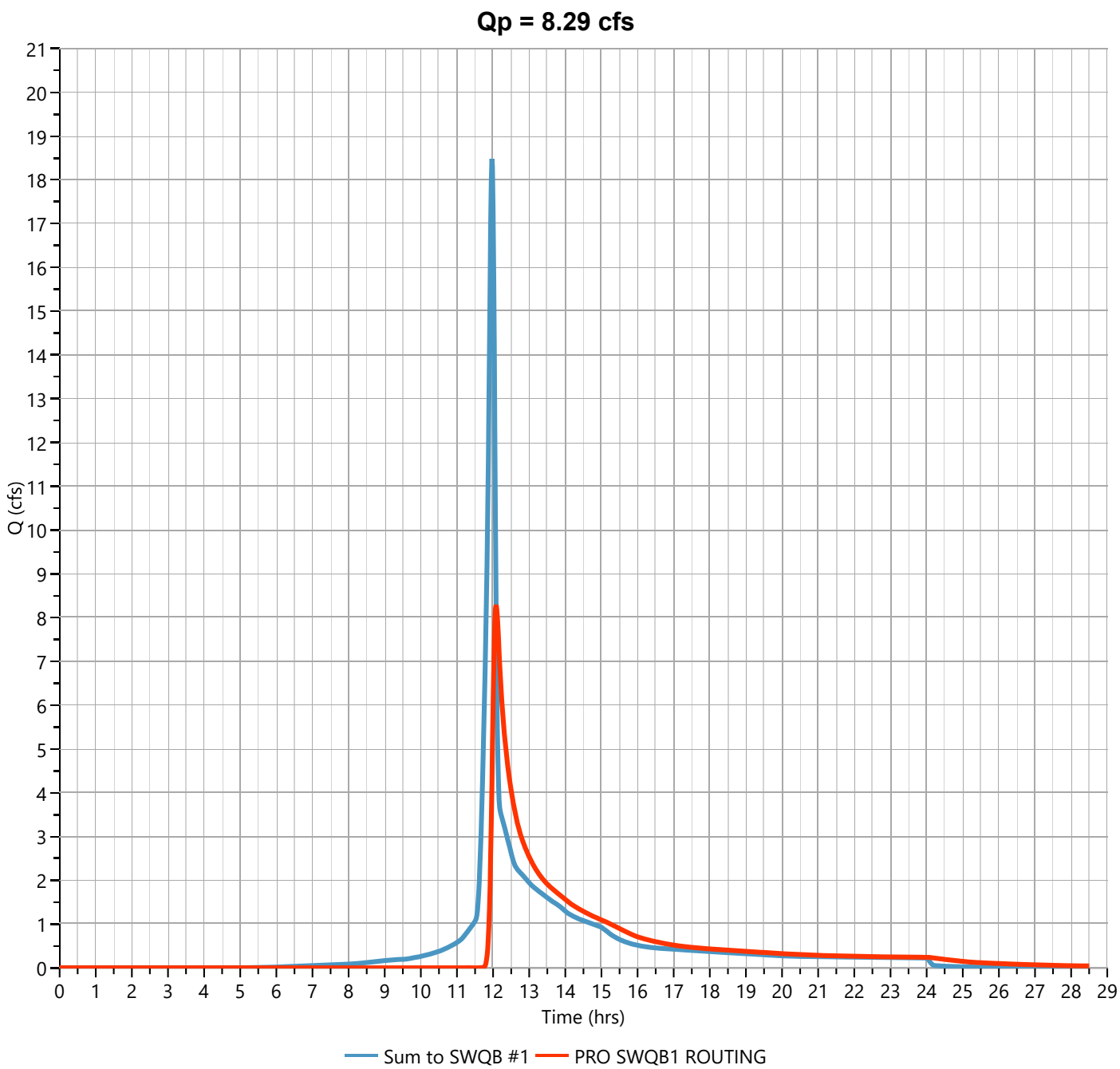
PRO SWQB1 ROUTING

Hyd. No. 23

Hydrograph Type	= Pond Route	Peak Flow	= 8.288 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 46,017 cuft
Inflow Hydrograph	= 22 - Sum to SWQB #1	Max. Elevation	= 82.61 ft
Pond Name	= PRO SWQB #1	Max. Storage	= 18,074 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.27 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

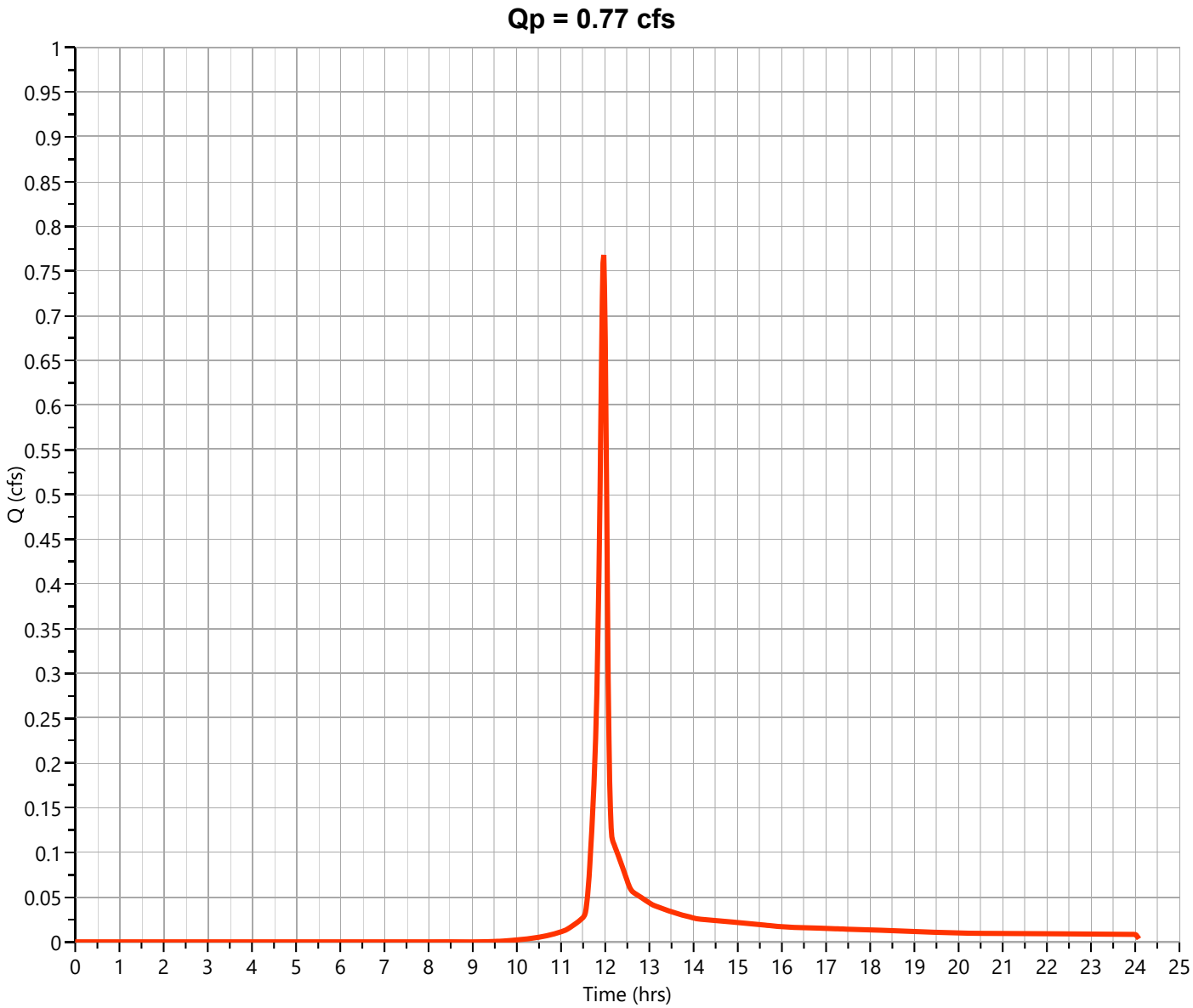
Post SA-B.32 (OVERLAND)'

Hyd. No. 24

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.768 cfs
Storm Frequency	= 25-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 1,543 cuft
Drainage Area	= 0.209 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.55 min
Total Rainfall	= 4.50 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.209	74	C-LAWN
0.209	**74**	Weighted CN Method Employed



Hydrograph Report

Project Name:

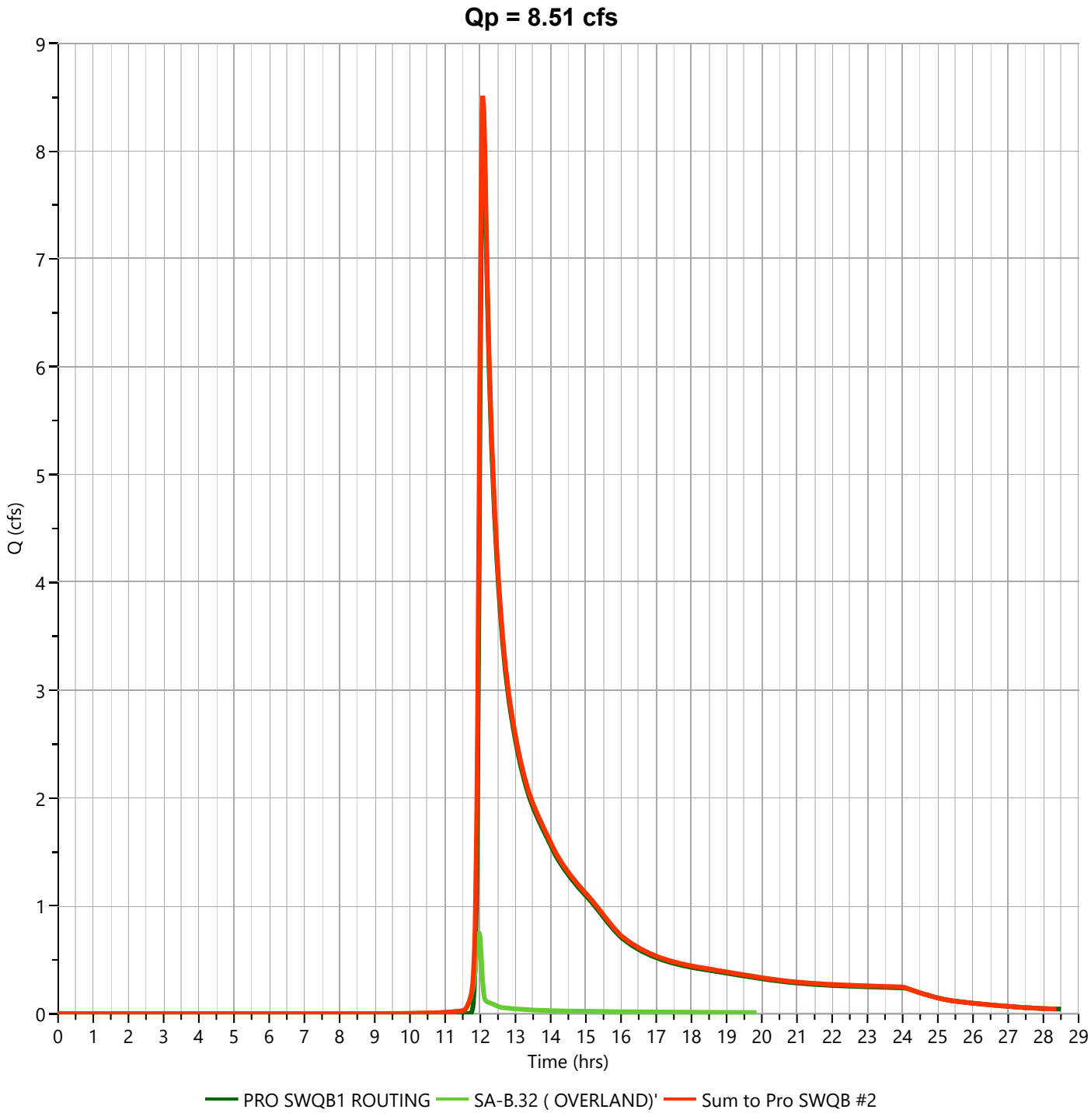
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Pro SWQB #2

Hyd. No. 25

Hydrograph Type	= Junction	Peak Flow	= 8.515 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 47,560 cuft
Inflow Hydrographs	= 23, 24	Total Contrib. Area	= 0.209 ac



post196

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

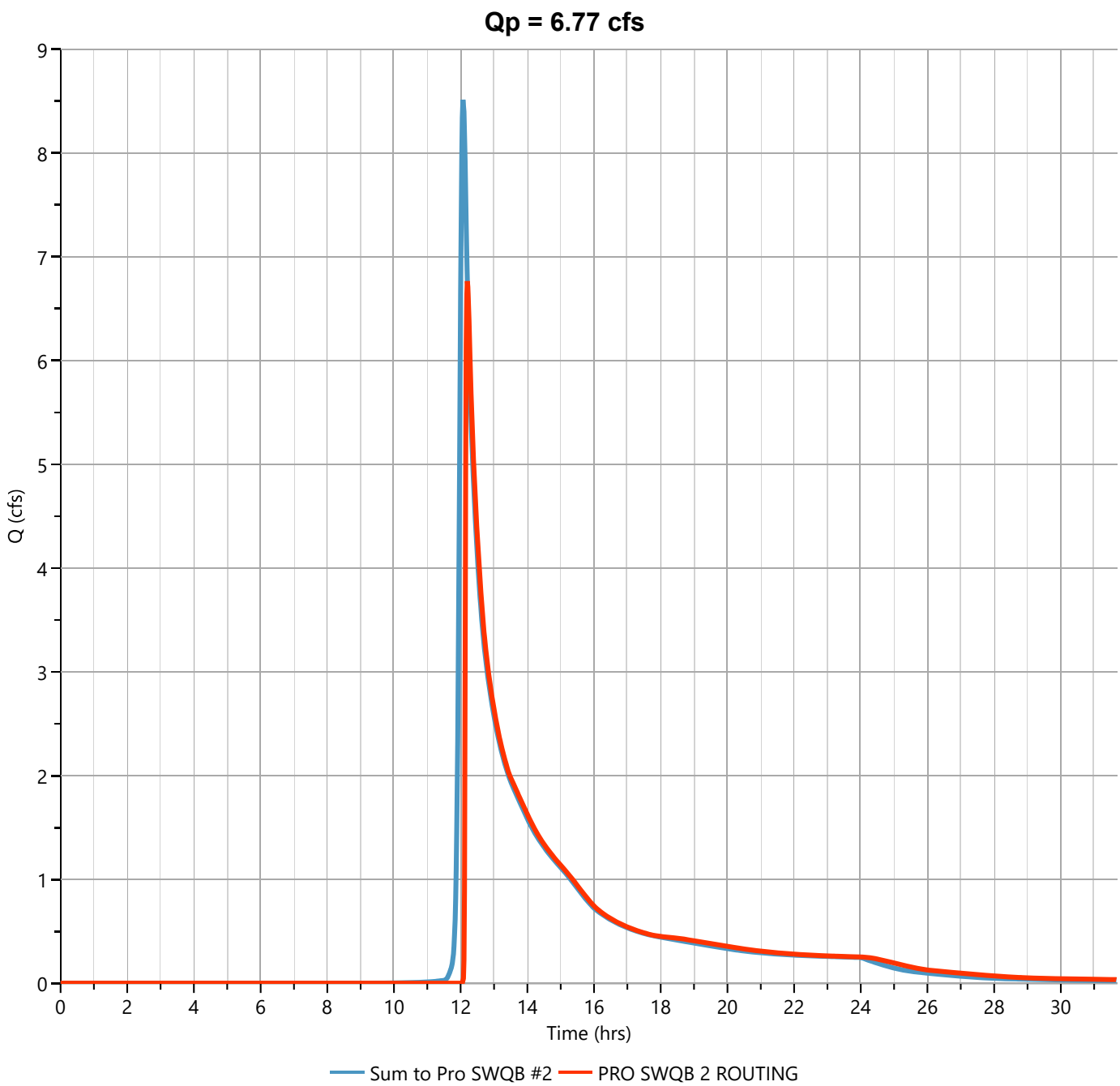
Post PRO SWQB 2 ROUTING

Hyd. No. 26

Hydrograph Type	= Pond Route	Peak Flow	= 6.766 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 43,484 cuft
Inflow Hydrograph	= 25 - Sum to Pro SWQB #2	Max. Elevation	= 80.26 ft
Pond Name	= PRO SWQB #2	Max. Storage	= 6,131 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 40 min



Hydrograph Report

Project Name:

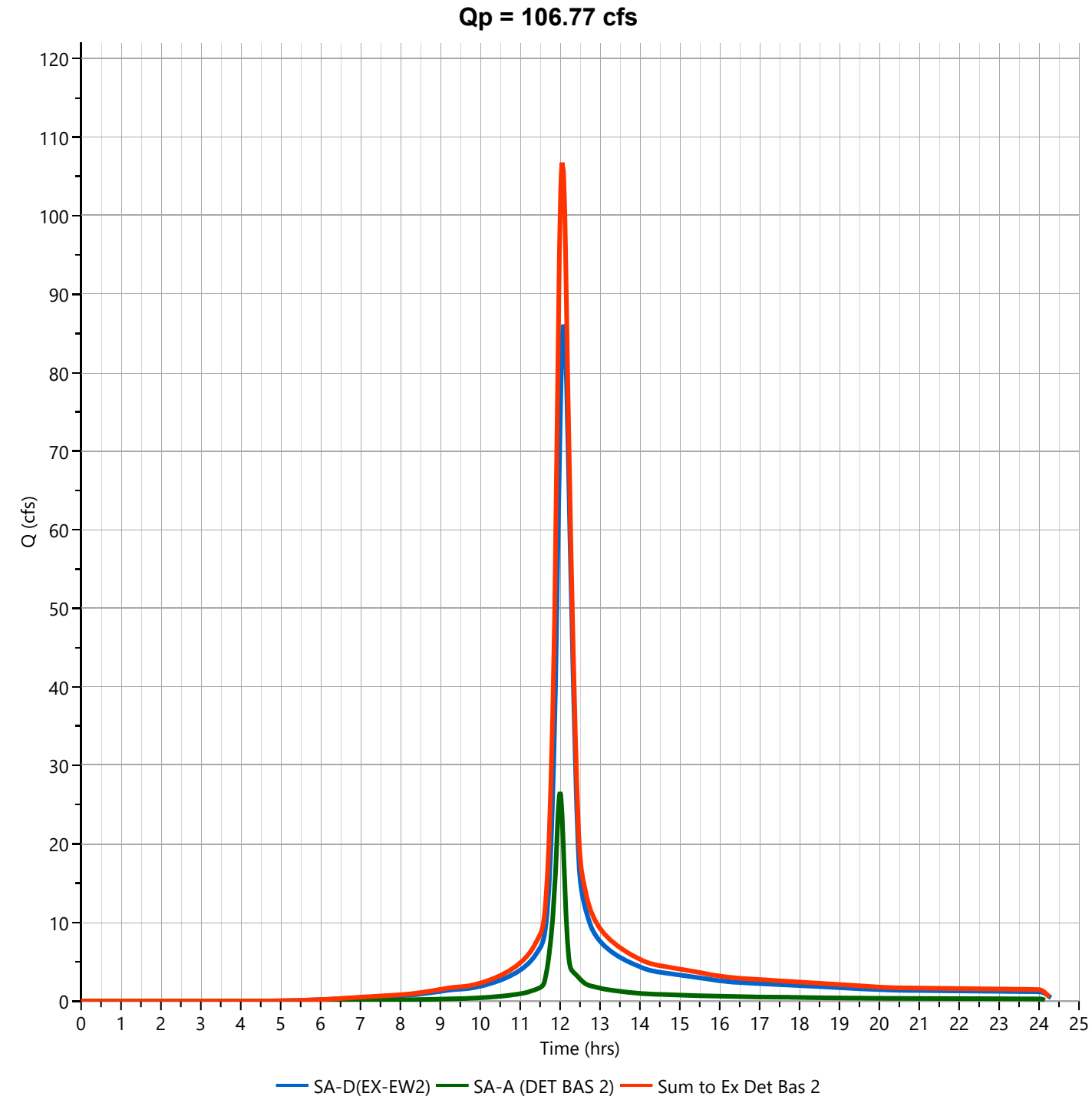
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 2

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 106.8 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 353,452 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.485 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

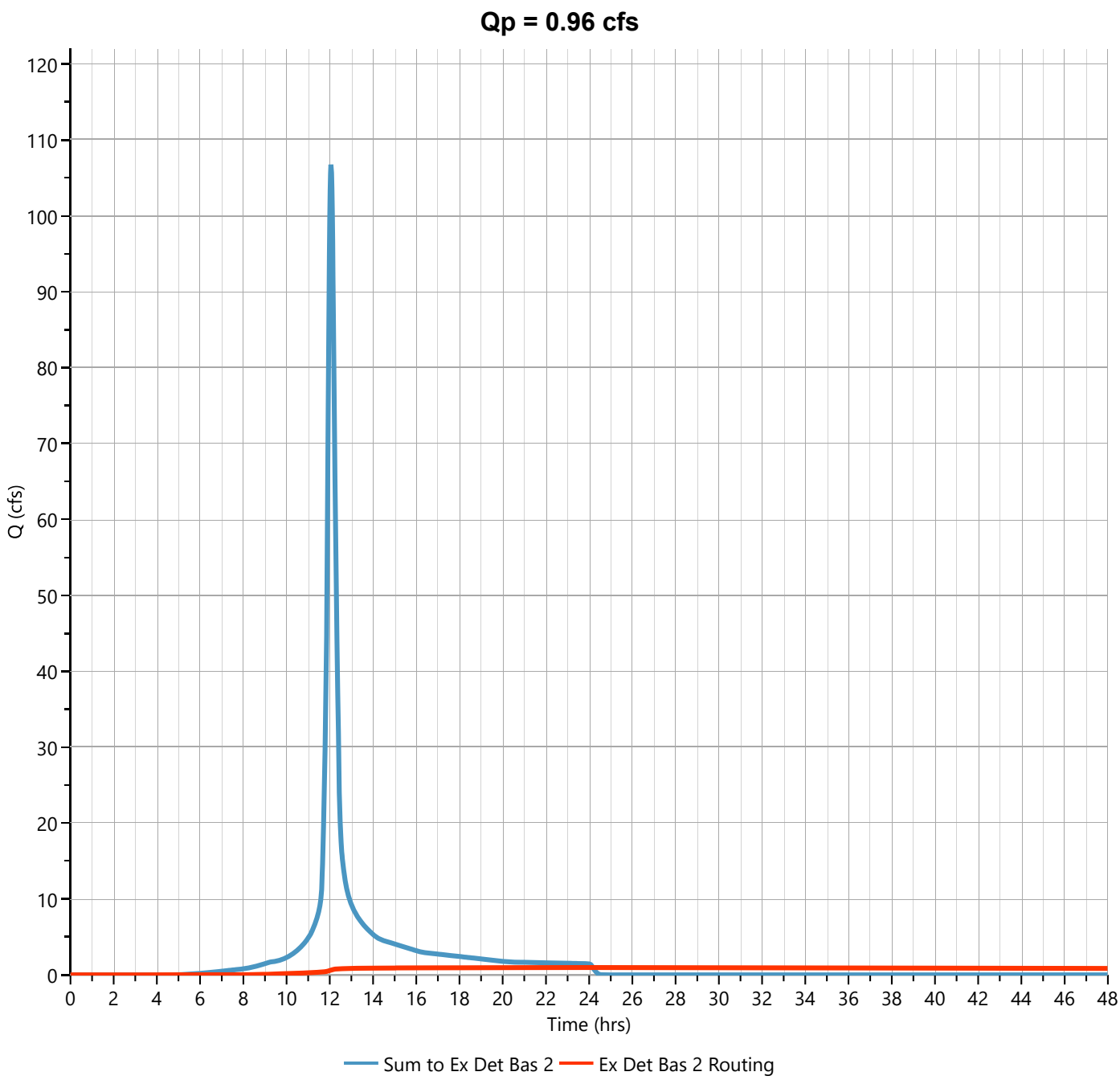
Post Ex Det Bas 2 Routing

Hyd. No. 28

Hydrograph Type	= Pond Route	Peak Flow	= 0.955 cfs
Storm Frequency	= 25-yr	Time to Peak	= 24.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 119,766 cuft
Inflow Hydrograph	= 27 - Sum to Ex Det Bas 2	Max. Elevation	= 82.34 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 310,381 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.96 hrs



Hydrograph Report

Project Name:

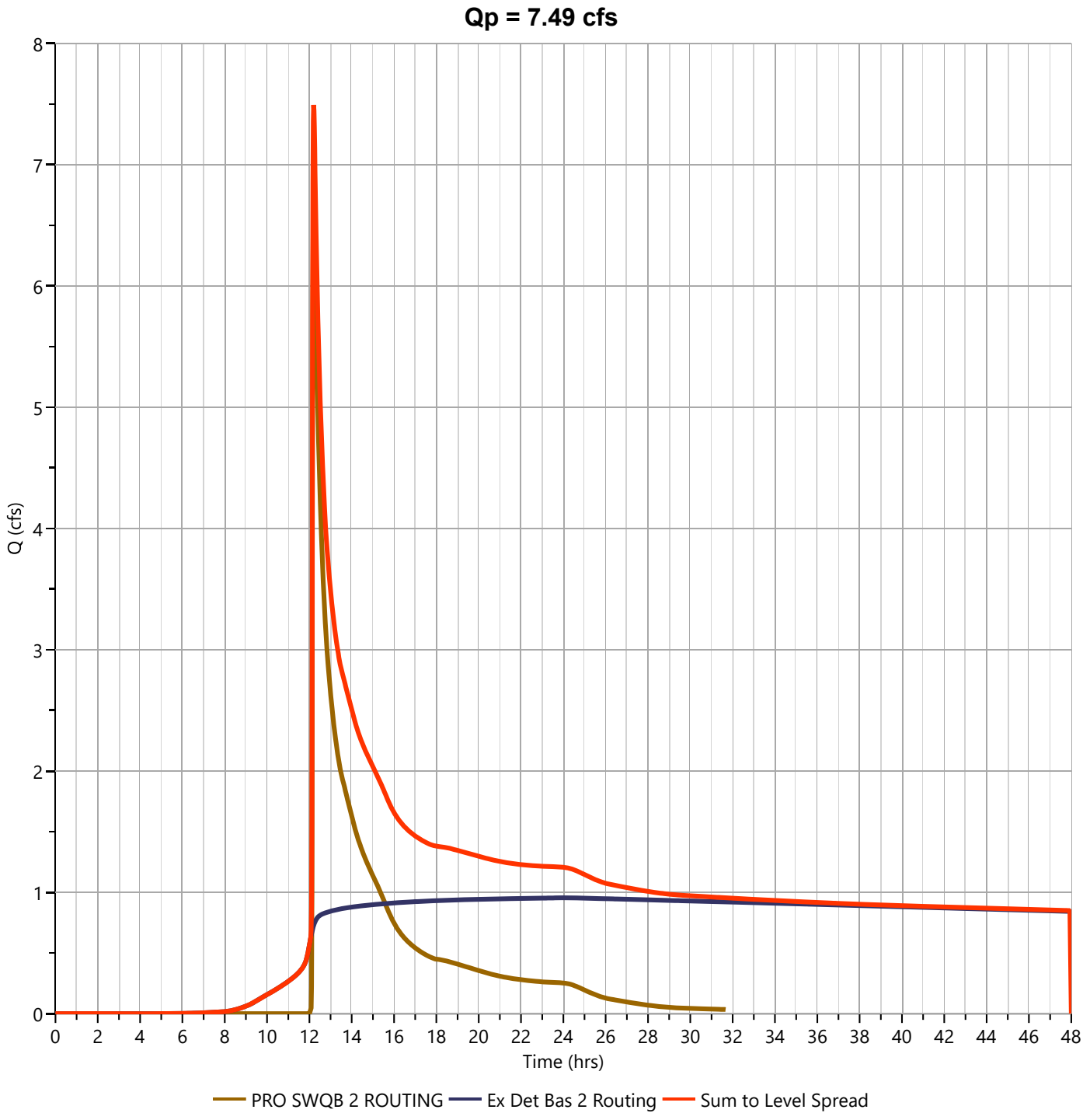
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Level Spread

Hyd. No. 29

Hydrograph Type	= Junction	Peak Flow	= 7.493 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 163,251 cuft
Inflow Hydrographs	= 26, 28	Total Contrib. Area	= 0.0 ac



post200

Hydrograph Report

Project Name:

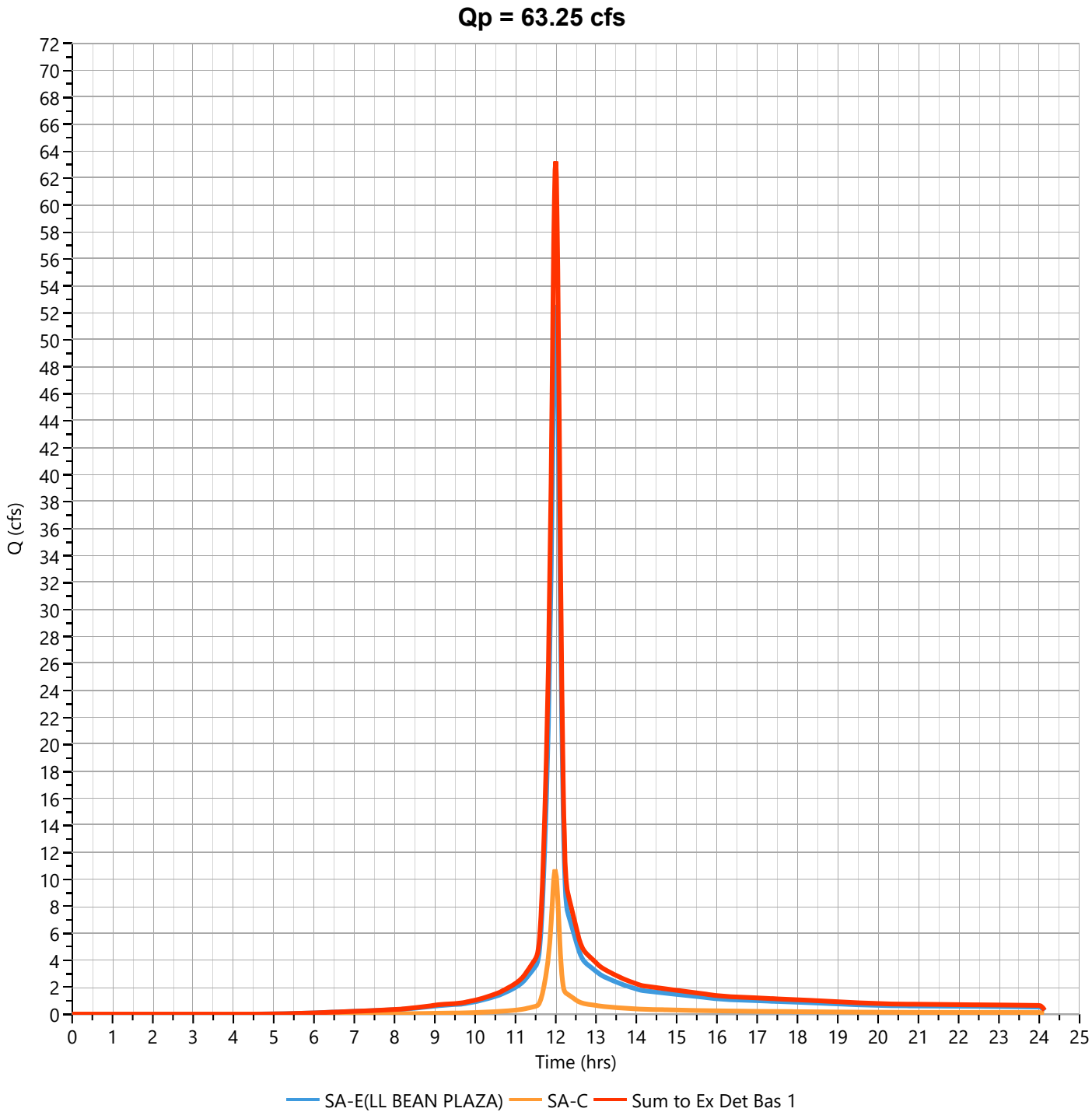
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 1

Hyd. No. 30

Hydrograph Type	= Junction	Peak Flow	= 63.25 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 155,525 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 13.654 ac



Design Storm Report

Custom Storm filename: 3170.cds

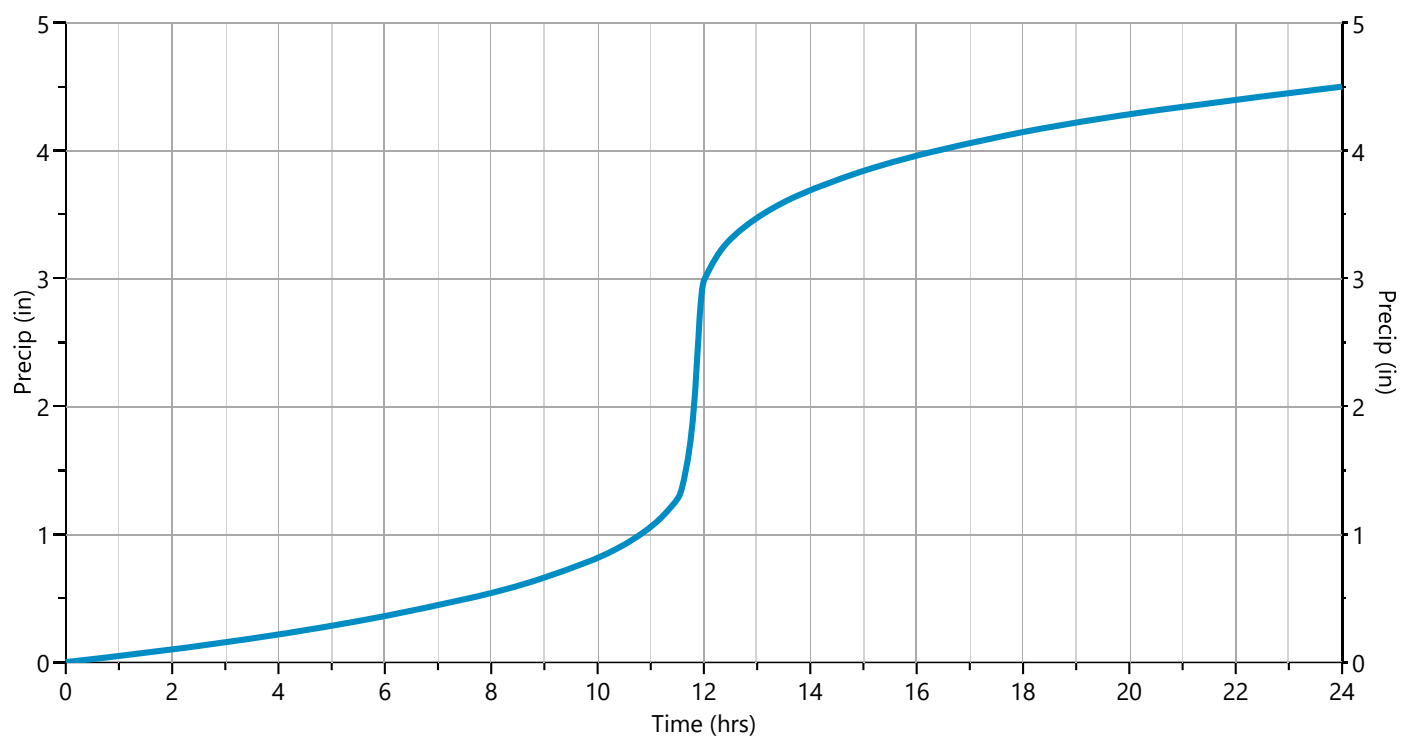
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	✔ 25-yr	50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 25-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.008340	11.60	0.025280	11.78	0.065747	11.97	0.061918	12.15	0.012652
11.43	0.008460	11.62	0.028240	11.80	0.073980	11.98	0.043181	12.17	0.012367
11.45	0.008580	11.63	0.031200	11.82	0.082213	12.00	0.024443	12.18	0.012083
11.47	0.008700	11.65	0.034160	11.83	0.090447	12.02	0.015436	12.20	0.011797
11.48	0.008820	11.67	0.037120	11.85	0.098680	12.03	0.014647	12.22	0.011513
11.50	0.008940	11.68	0.040080	11.87	0.106914	12.05	0.014363	12.23	0.011228
11.52	0.010514	11.70	0.043040	11.88	0.115147	12.07	0.014077	12.25	0.010942
11.53	0.013440	11.72	0.046000	11.90	0.123380	12.08	0.013793	12.27	0.010658
11.55	0.016400	11.73	0.048960	**11.92**	**0.131613**	12.10	0.013508	12.28	0.010372
11.57	0.019360	11.75	0.051920	11.93	0.086064	12.12	0.013222	12.30	0.010087
11.58	0.022320	11.77	0.057078	11.95	0.080656	12.13	0.012938	12.32	0.009803



post202

Hydrograph 50-yr Summary

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	100.5	12.10	337,359	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	61.13	12.00	153,591	----		
3	NRCS Runoff	Post SA-A (DET BAS 2)	31.12	12.00	77,273	----		
4	NRCS Runoff	Pre SA-B (TO PRO SWQB 1)	20.32	11.97	44,827	----		
5	NRCS Runoff	Post SA-C	12.75	11.98	29,210	----		
6	NRCS Runoff	Post SA-B.32 (OVERLAND)	0.947	11.97	1,909	----		
7	NRCS Runoff	Post BLDG #4 RL	1.427	11.95	3,445	----		
8	Pond Route	Post #4 RL SYS ROUTING	0.184	12.15	2,625	7	85.90	2,025
9	NRCS Runoff	Post BLDG #5 RL	1.427	11.95	3,445	----		
10	Pond Route	Post #5 RL SYS ROUTING	0.184	12.15	2,625	9	85.90	2,025
11	NRCS Runoff	Post BLDG #6 RL	1.427	11.95	3,445	----		
12	Pond Route	Post #6 RL SYS ROUTING	0.184	12.15	2,625	11	85.90	2,025
13	NRCS Runoff	Post BLDG #7 RL	1.427	11.95	3,445	----		
14	Pond Route	Post #7 RL SYS ROUTING	0.184	12.15	2,625	13	85.90	2,025
15	NRCS Runoff	Post BLDG #8 RL	1.427	11.95	3,445	----		
16	Pond Route	#8 RL SYS ROUTING	0.184	12.15	2,625	15	85.90	2,025
17	NRCS Runoff	Post BLDG #11 RL	2.043	11.95	4,931	----		
18	Pond Route	Post #11 RL SYS ROUTING	0.377	12.12	3,830	17	85.92	2,734
19	Junction		0.552	12.15	7,876	8, 10, 12		
20	Junction		0.745	12.12	9,081	14, 16, 18		
21	Junction	Post Sum of RL Sys	1.297	12.13	16,957	19, 20		
22	Junction	Post Sum to SWQB #1	21.46	11.97	61,784	4, 21		
23	Pond Route	PRO SWQB1 ROUTING	10.92	12.07	55,354	22	82.87	20,219
24	NRCS Runoff	Post SA-B.32 (OVERLAND)'	0.943	11.97	1,900	----		
25	Junction	Post Sum to Pro SWQB #2	11.28	12.07	57,254	23, 24		
26	Pond Route	Post PRO SWQB 2 ROUTING	10.45	12.13	53,177	25	80.35	6,442
27	Junction	Post Sum to Ex Det Bas 2	124.6	12.05	414,633	1, 3		
28	Pond Route	Post Ex Det Bas 2 Routing	1.028	24.18	130,057	27	83.17	367,651
29	Junction	Post Sum to Level Spread	11.19	12.13	183,234	26, 28		
30	Junction	Post Sum to Ex Det Bas 1	73.77	12.00	182,801	2, 5		

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

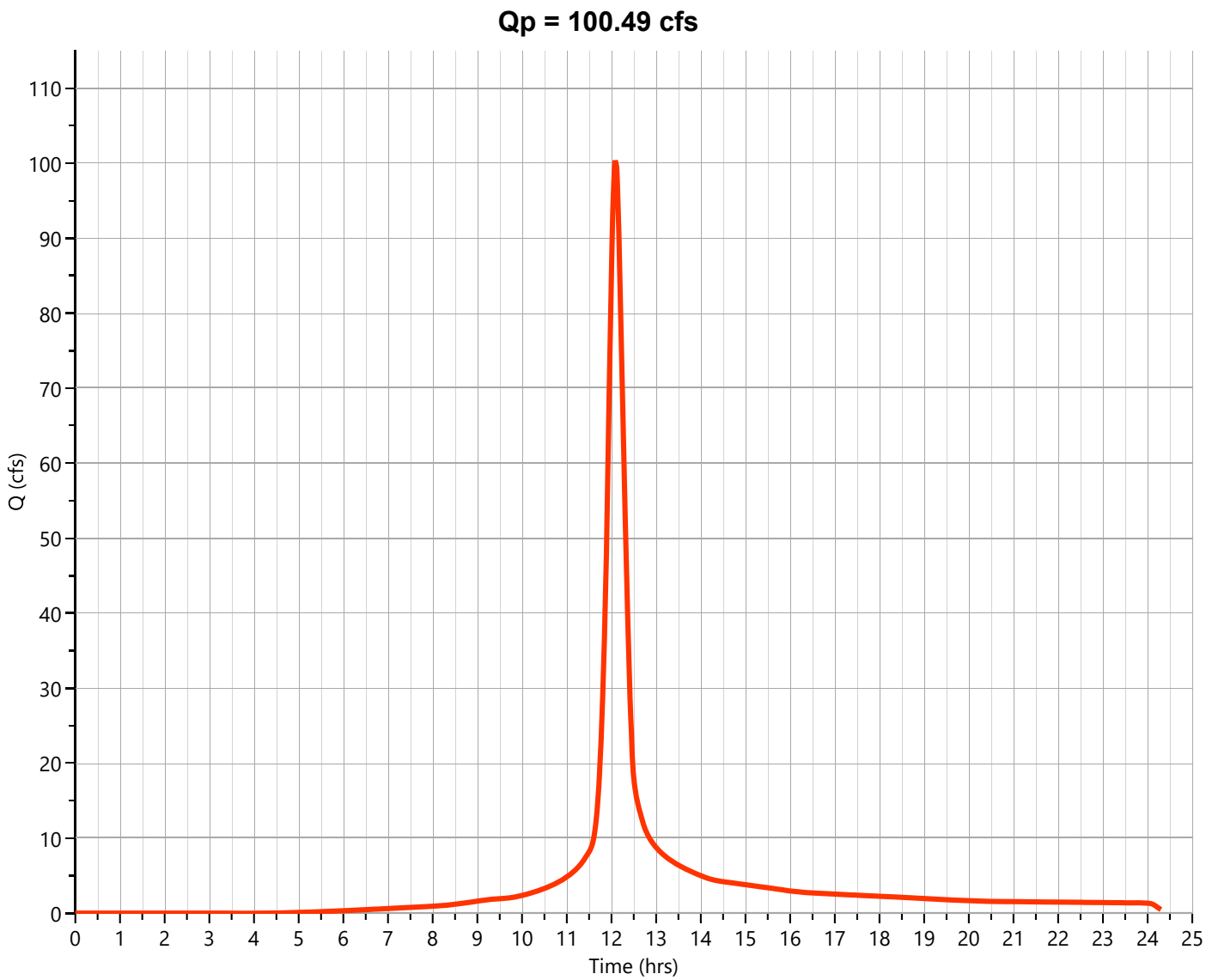
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 100.5 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 337,359 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



post204

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

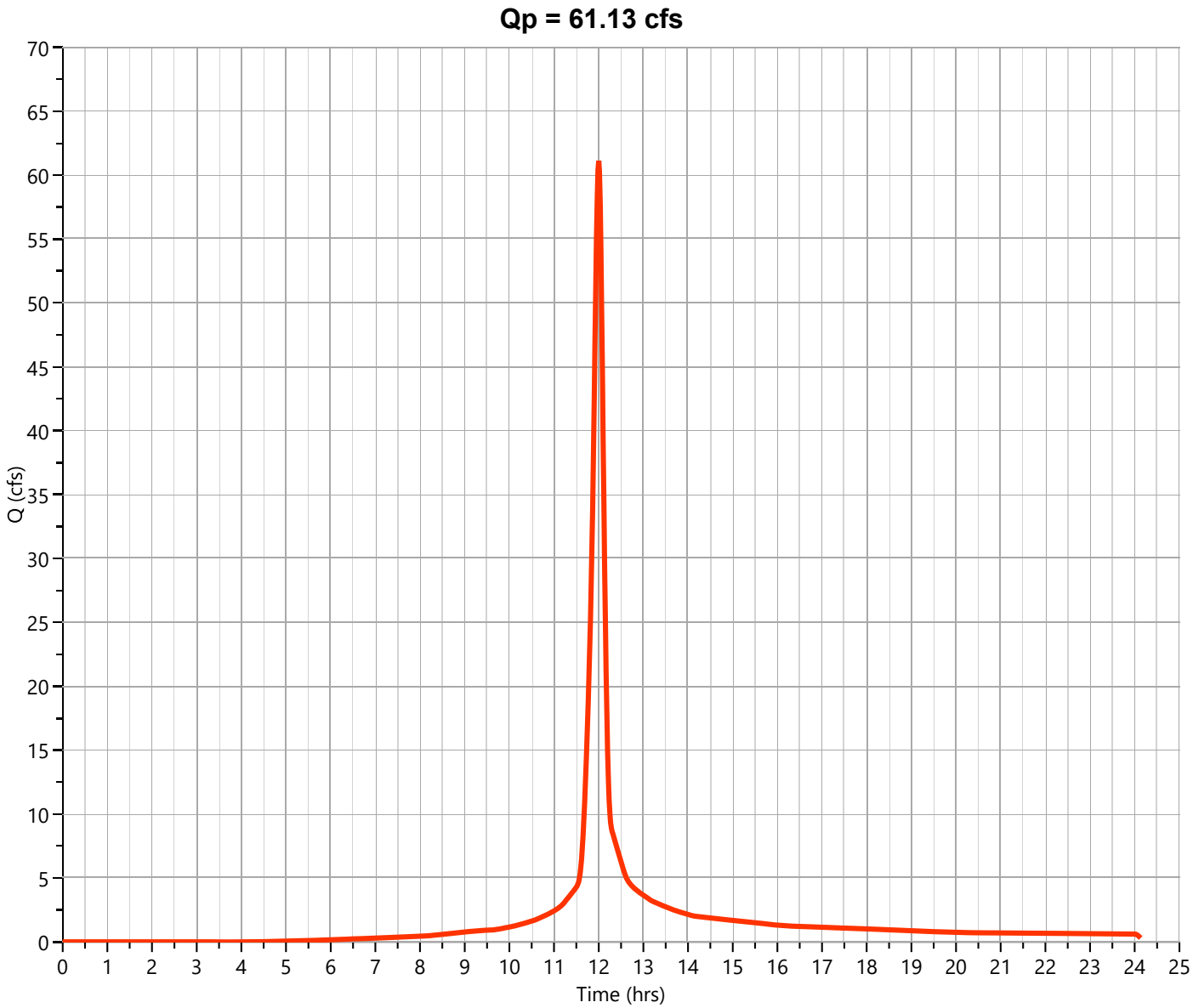
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 61.13 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 153,591 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



post205

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Post SA-A (DET BAS 2)

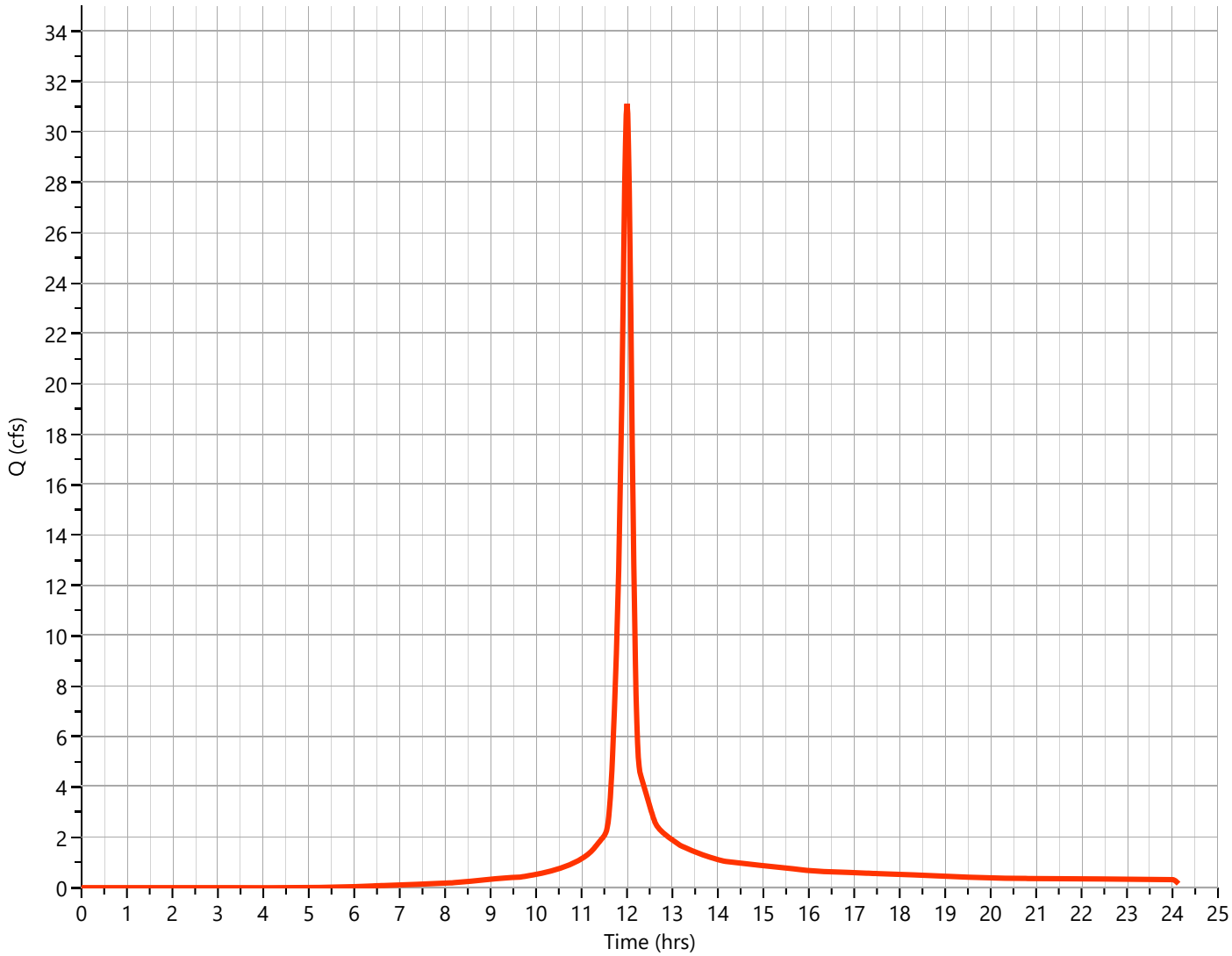
Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 31.12 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 77,273 cuft
Drainage Area	= 5.905 ac	Curve Number	= 86*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.893	98	C-PAVED/ROOF
1.394	74	C-LAWN/LANDSCAPED
1.618	74	C- GRASS /DET BAS
5.905	**86**	Weighted CN Method Employed

Qp = 31.12 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

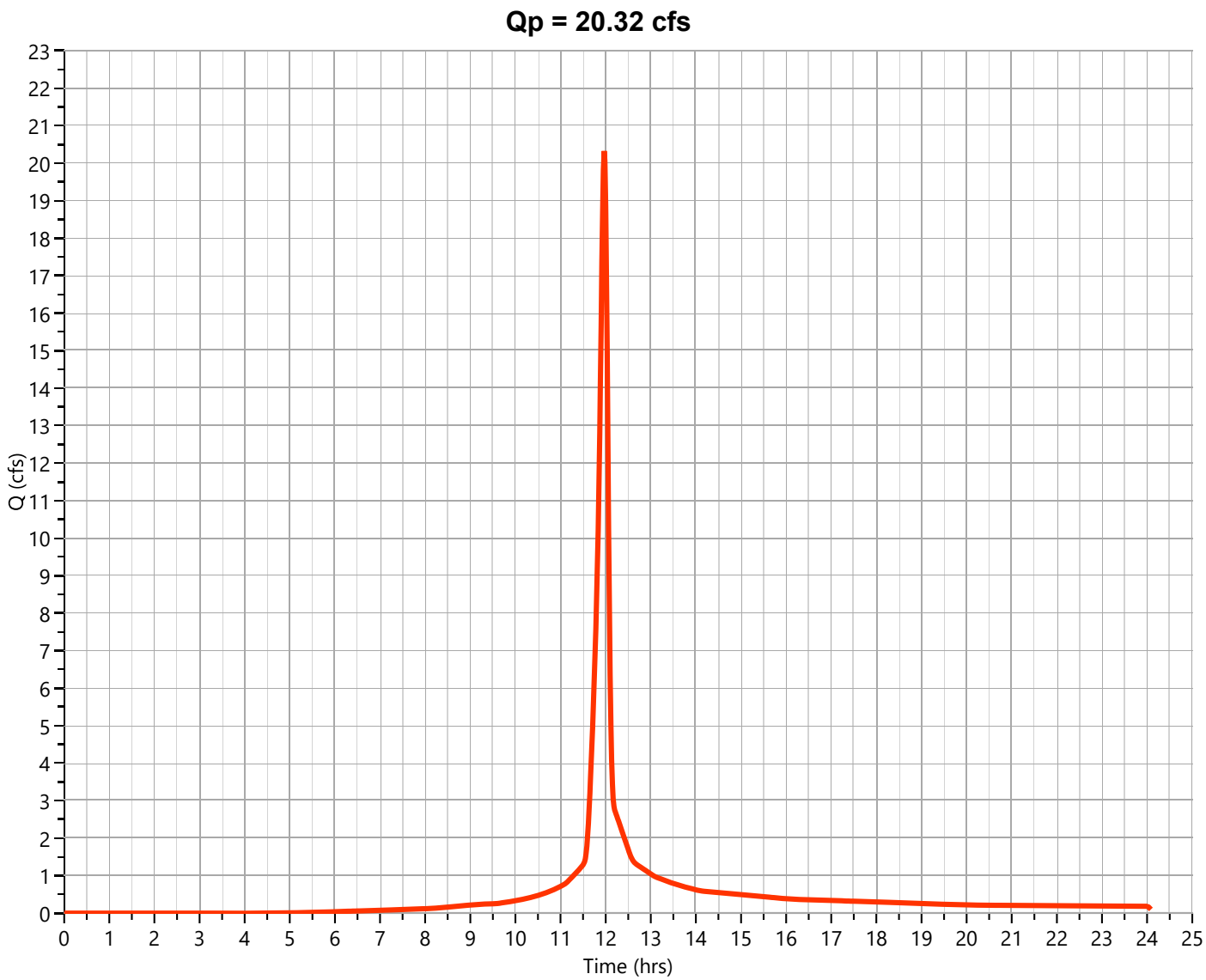
Pre SA-B (TO PRO SWQB 1)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 20.32 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 44,827 cuft
Drainage Area	= 3.477 ac	Curve Number	= 87*
Tc Method	= User	Time of Conc. (Tc)	= 7.5 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.66	74	C-GRASS (GOOD)
1.817	98	C-PAVED/ROOF
3.477	**87**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

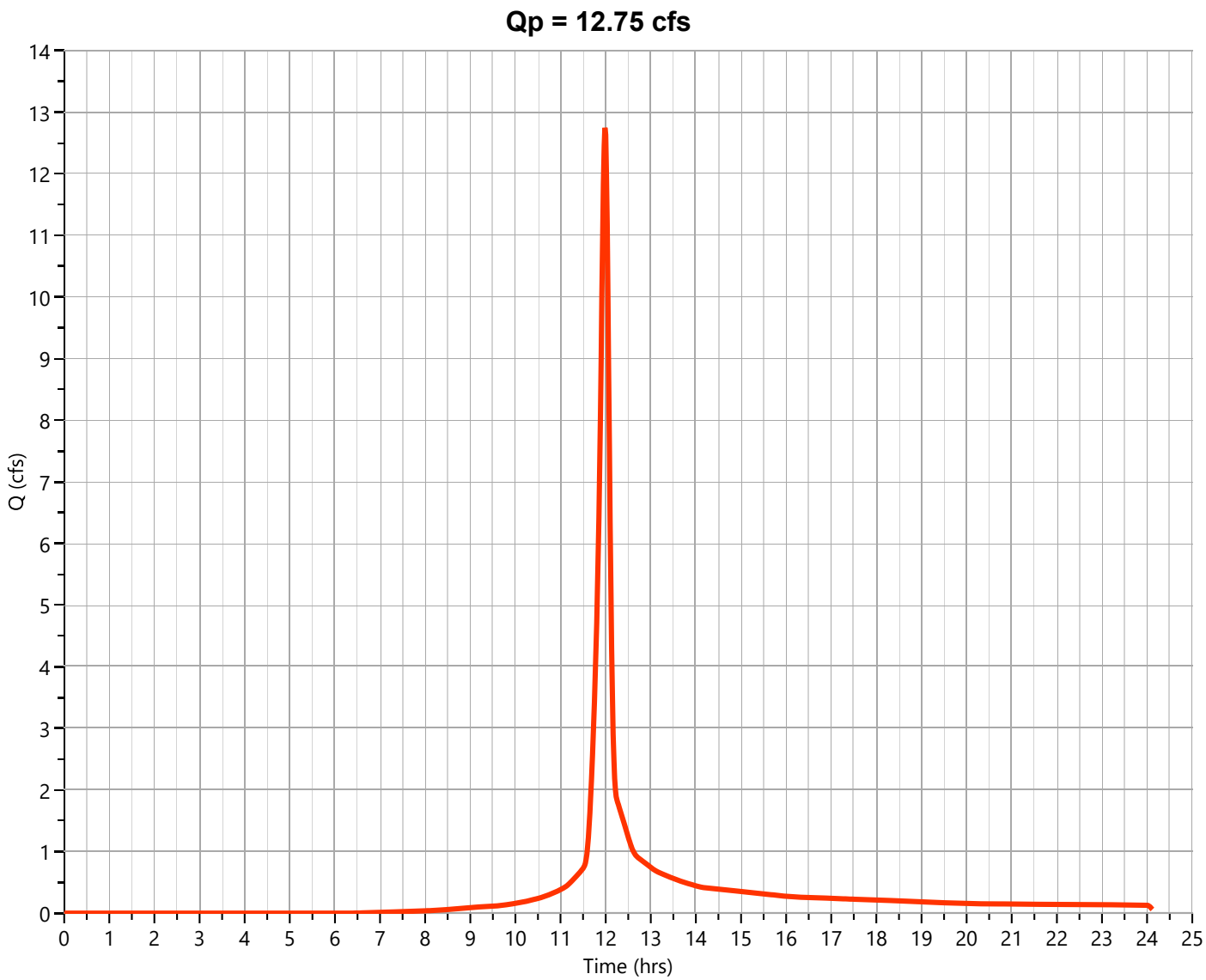
Post SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.75 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.98 hrs
Time Interval	= 1 min	Runoff Volume	= 29,210 cuft
Drainage Area	= 2.554 ac	Curve Number	= 82*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.178	79	C-GRASS (FAIR)
0.376	98	C-ROOF & PAVED
2.554	**82**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

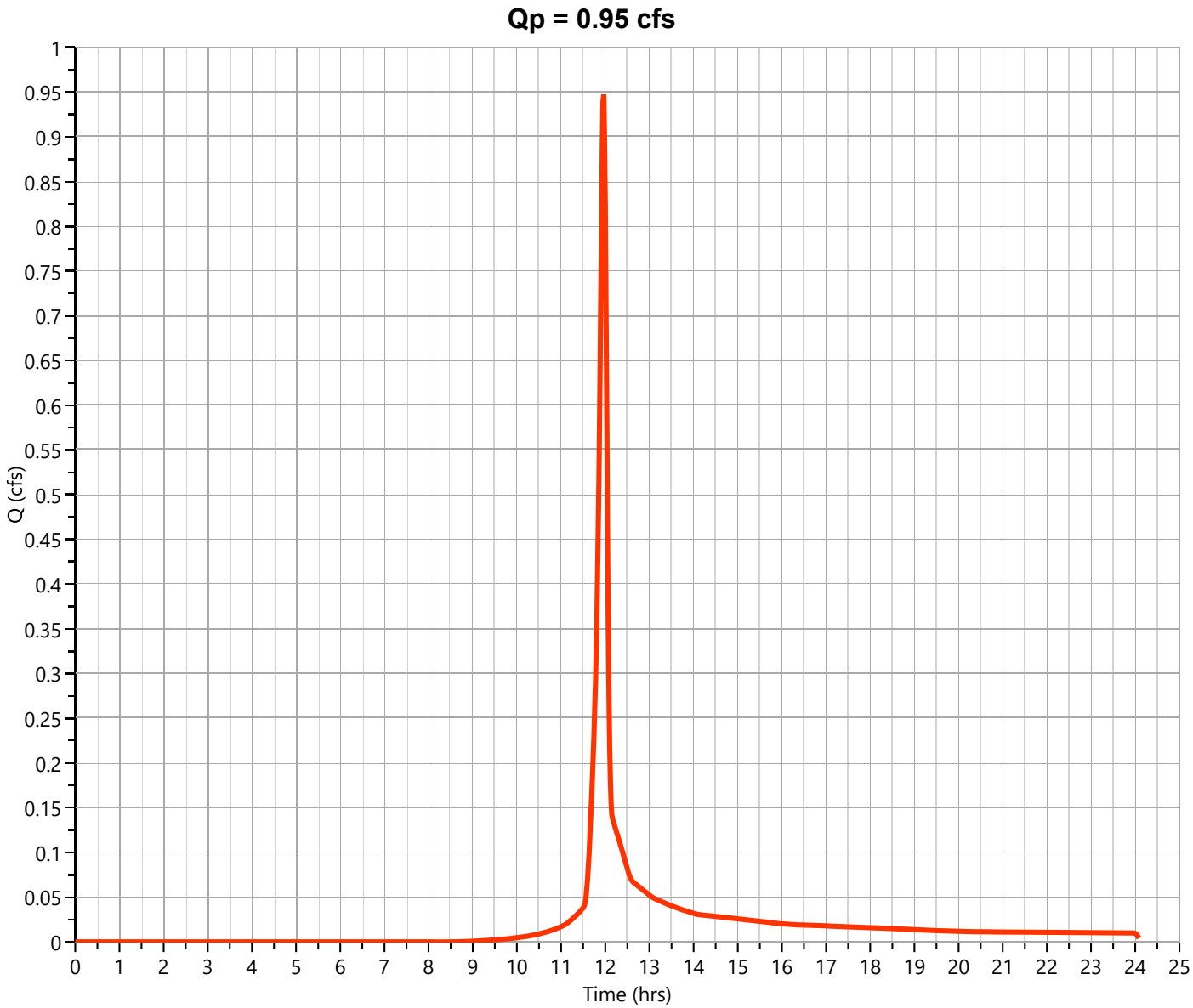
Post SA-B.32 (OVERLAND)

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.947 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 1,909 cuft
Drainage Area	= 0.21 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.47 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.21	74	C-GRASS
0.21	**74**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

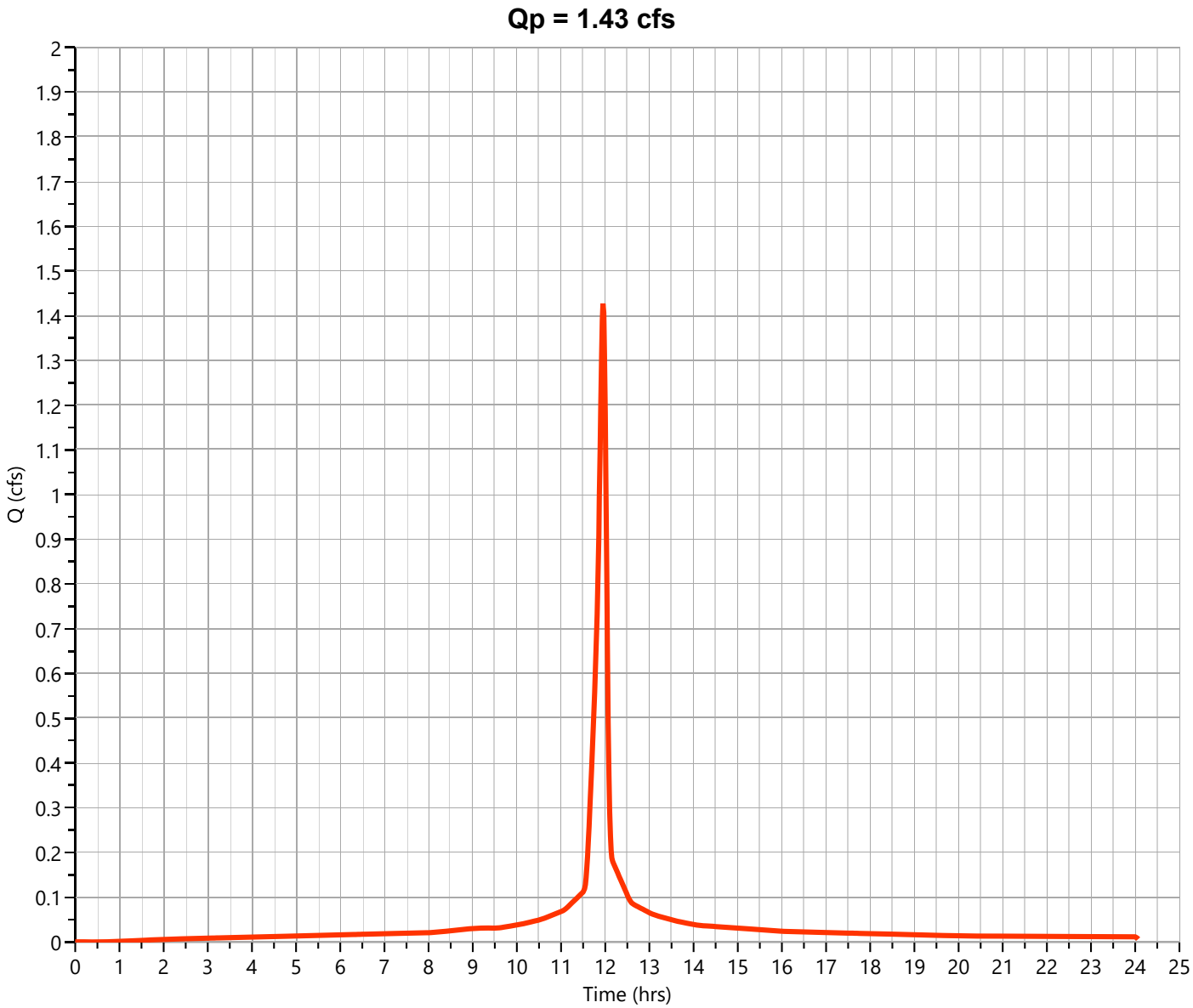
Post BLDG #4 RL

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.427 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,445 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

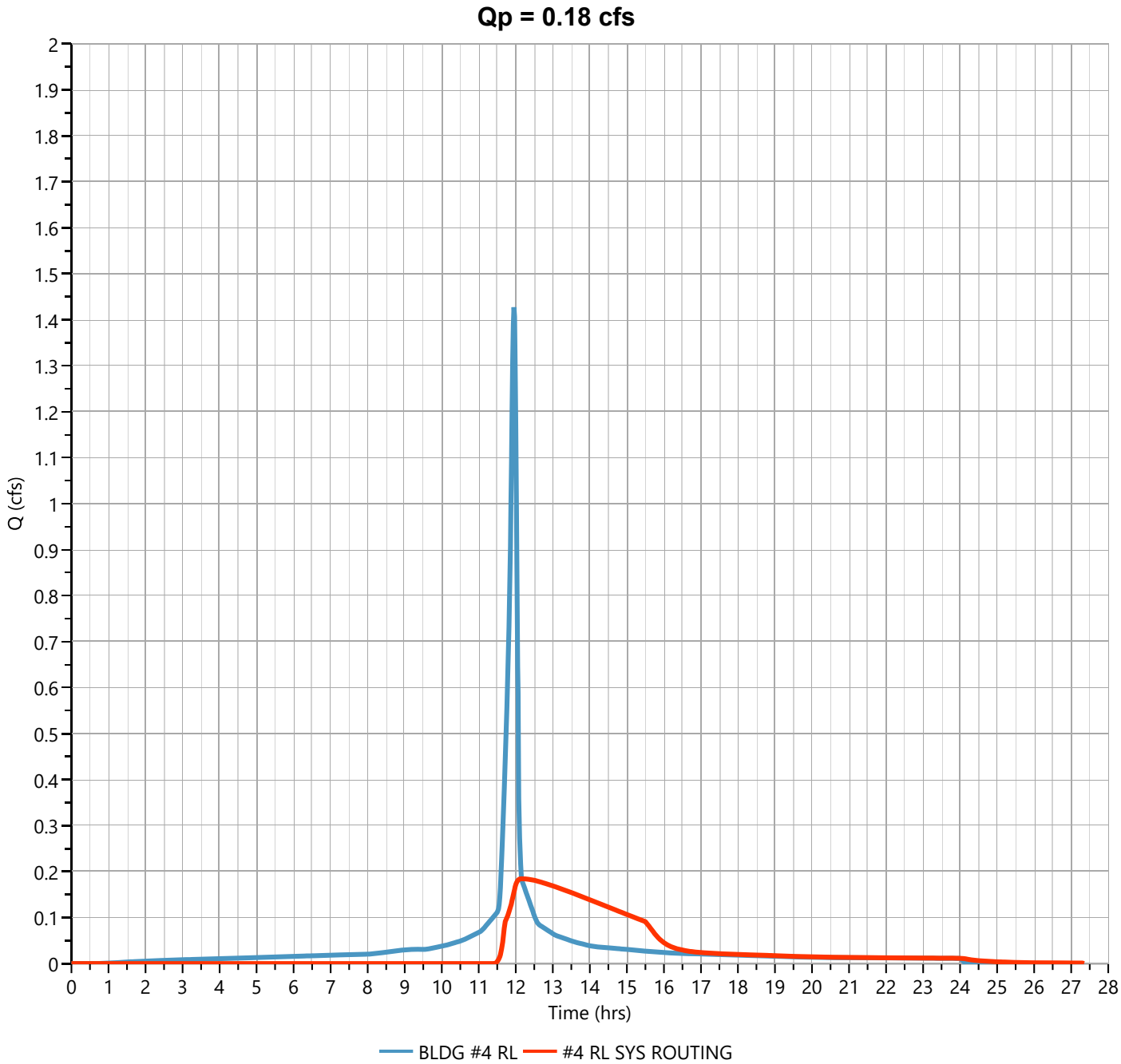
Post #4 RL SYS ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.184 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,625 cuft
Inflow Hydrograph	= 7 - BLDG #4 RL	Max. Elevation	= 85.90 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,025 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.94 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

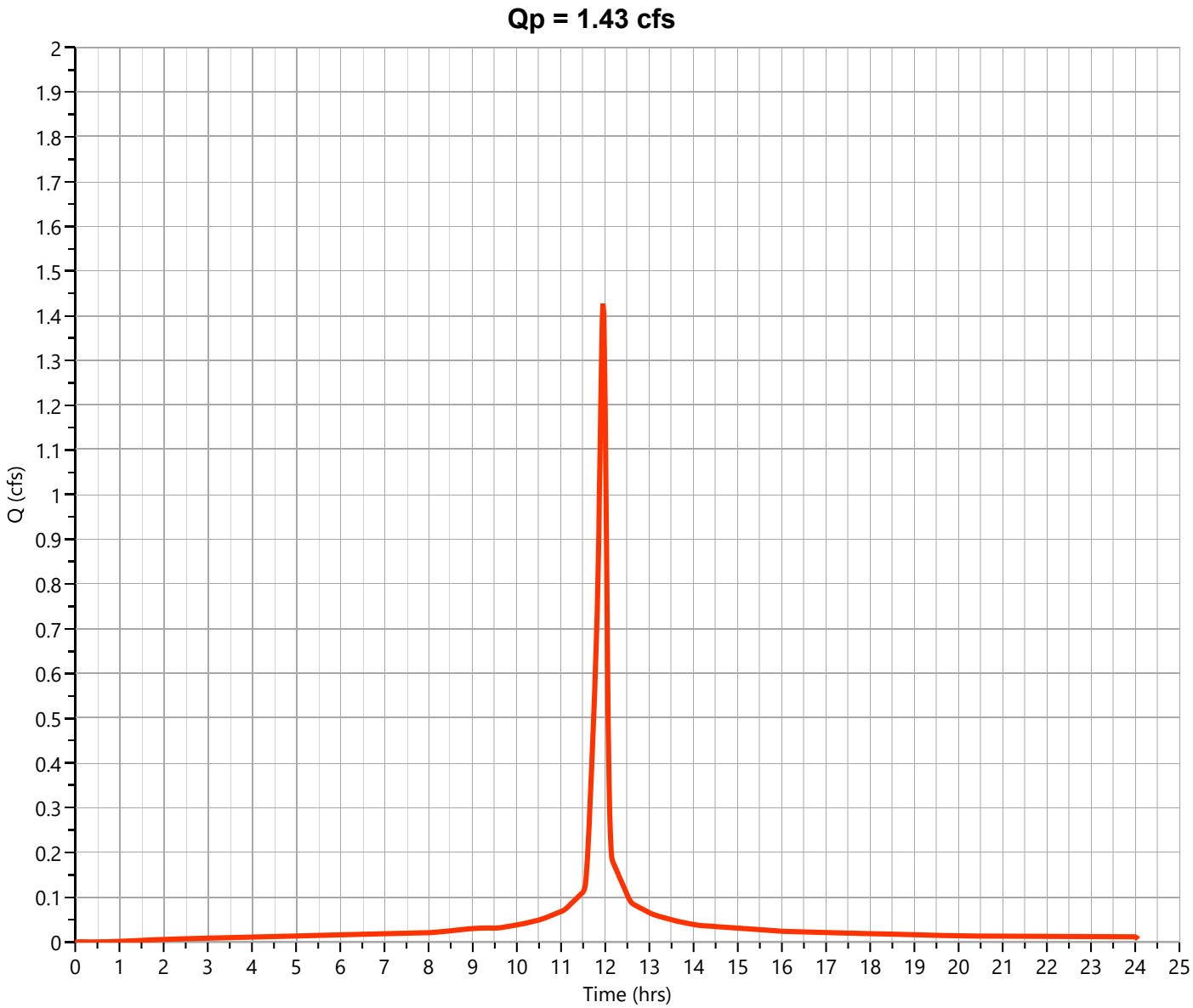
Post BLDG #5 RL

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.427 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,445 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

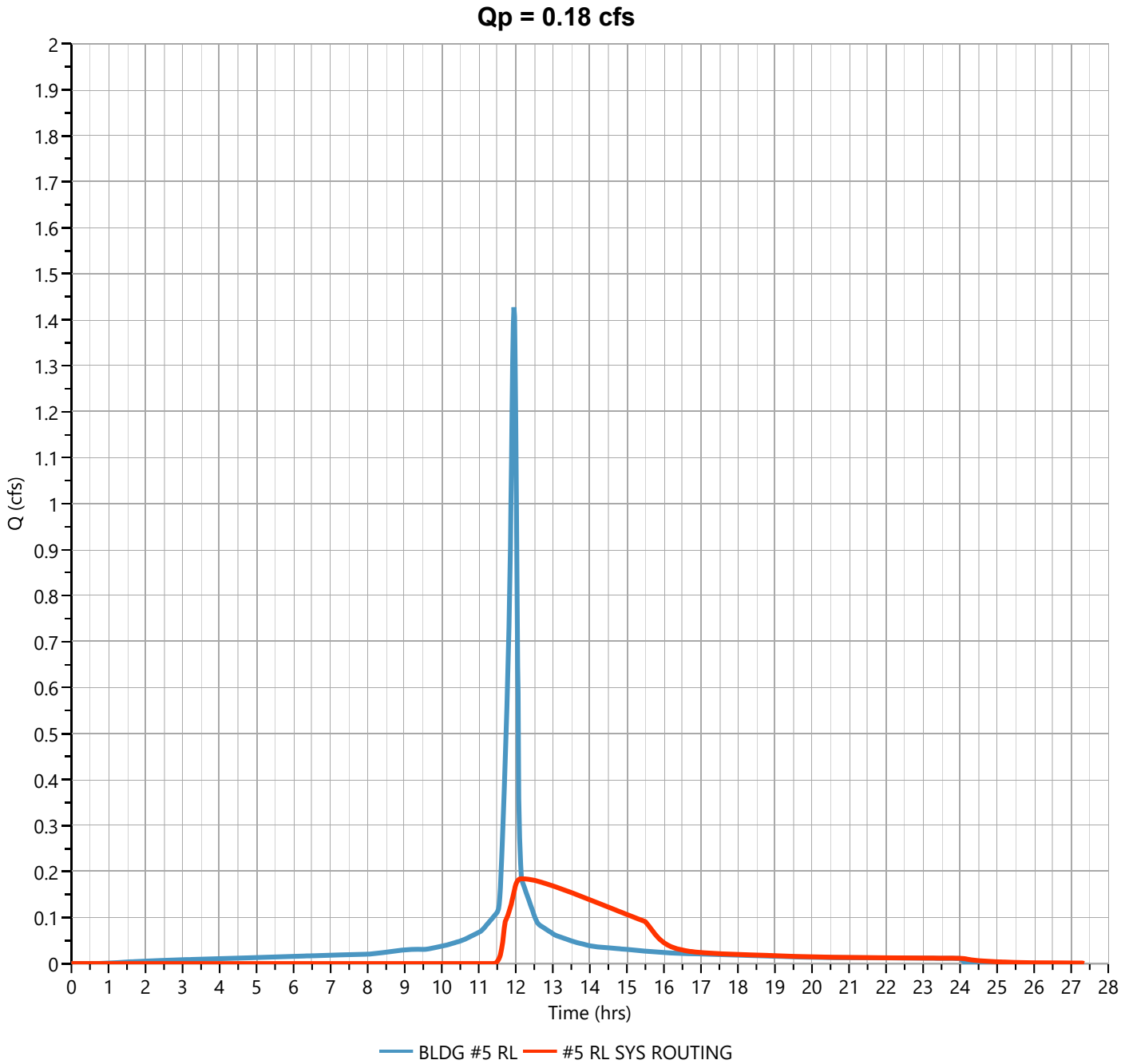
Post #5 RL SYS ROUTING

Hyd. No. 10

Hydrograph Type	= Pond Route	Peak Flow	= 0.184 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,625 cuft
Inflow Hydrograph	= 9 - BLDG #5 RL	Max. Elevation	= 85.90 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,025 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.94 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

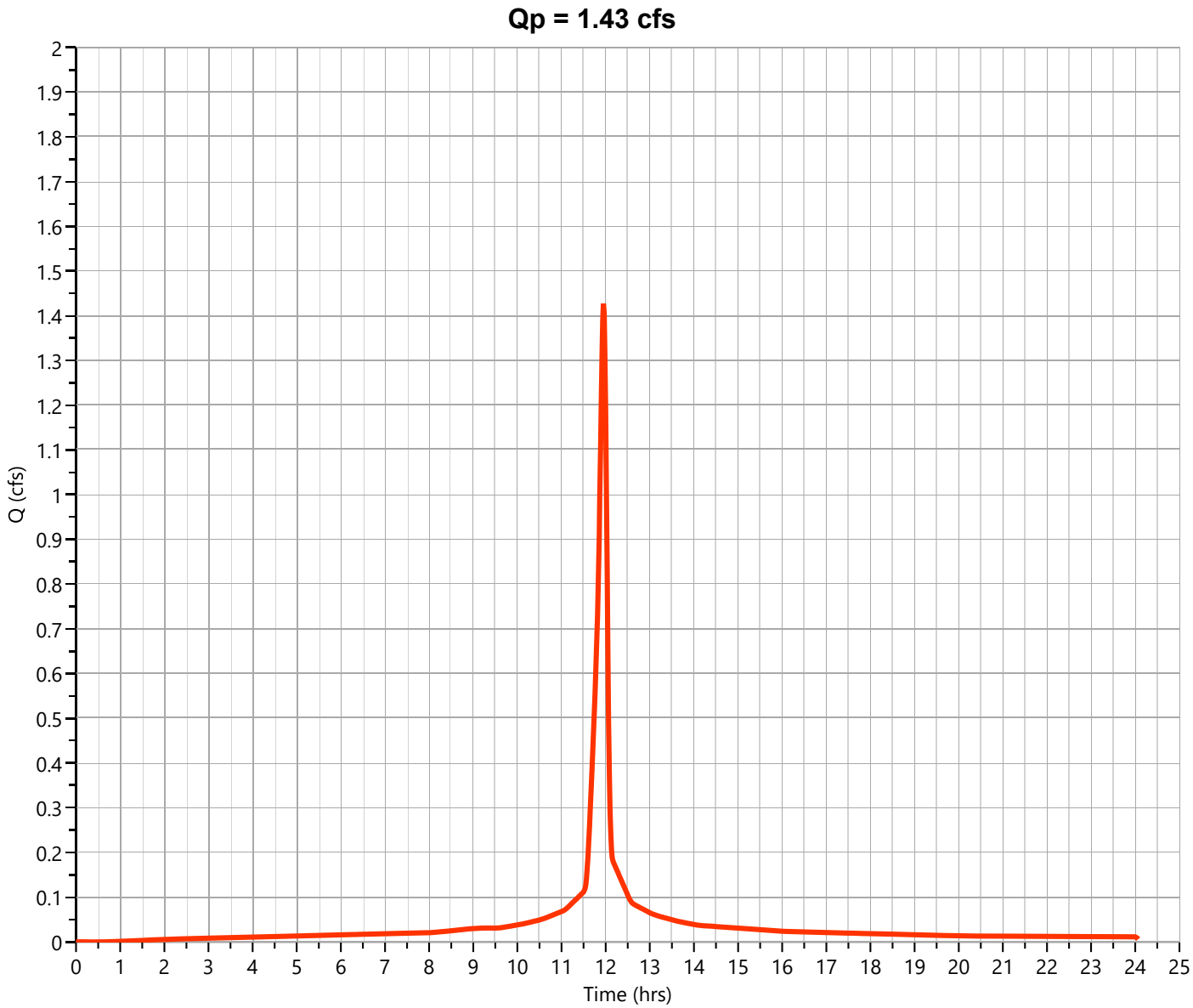
Post BLDG #6 RL

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.427 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,445 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

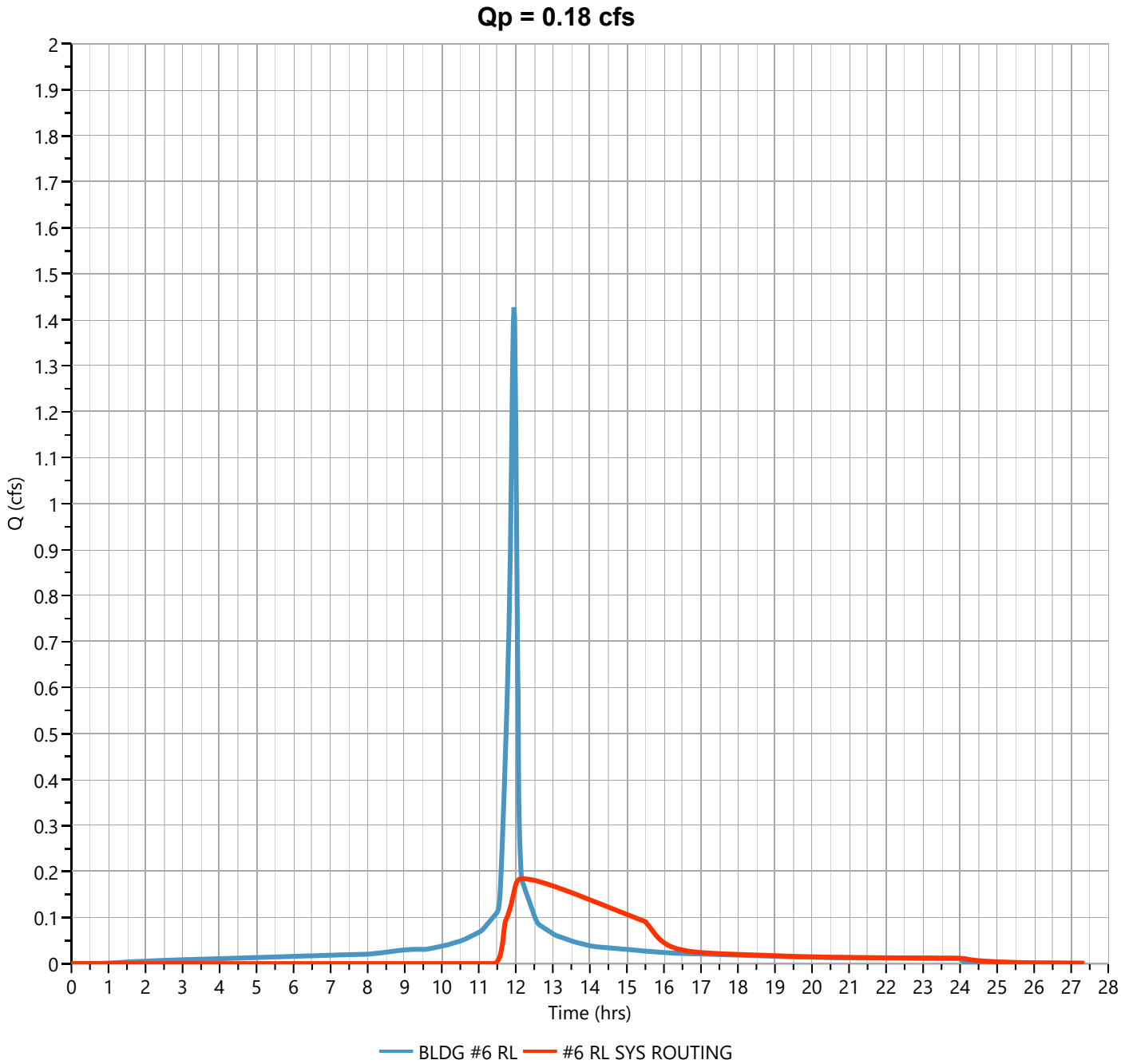
Post #6 RL SYS ROUTING

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 0.184 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,625 cuft
Inflow Hydrograph	= 11 - BLDG #6 RL	Max. Elevation	= 85.90 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,025 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.94 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

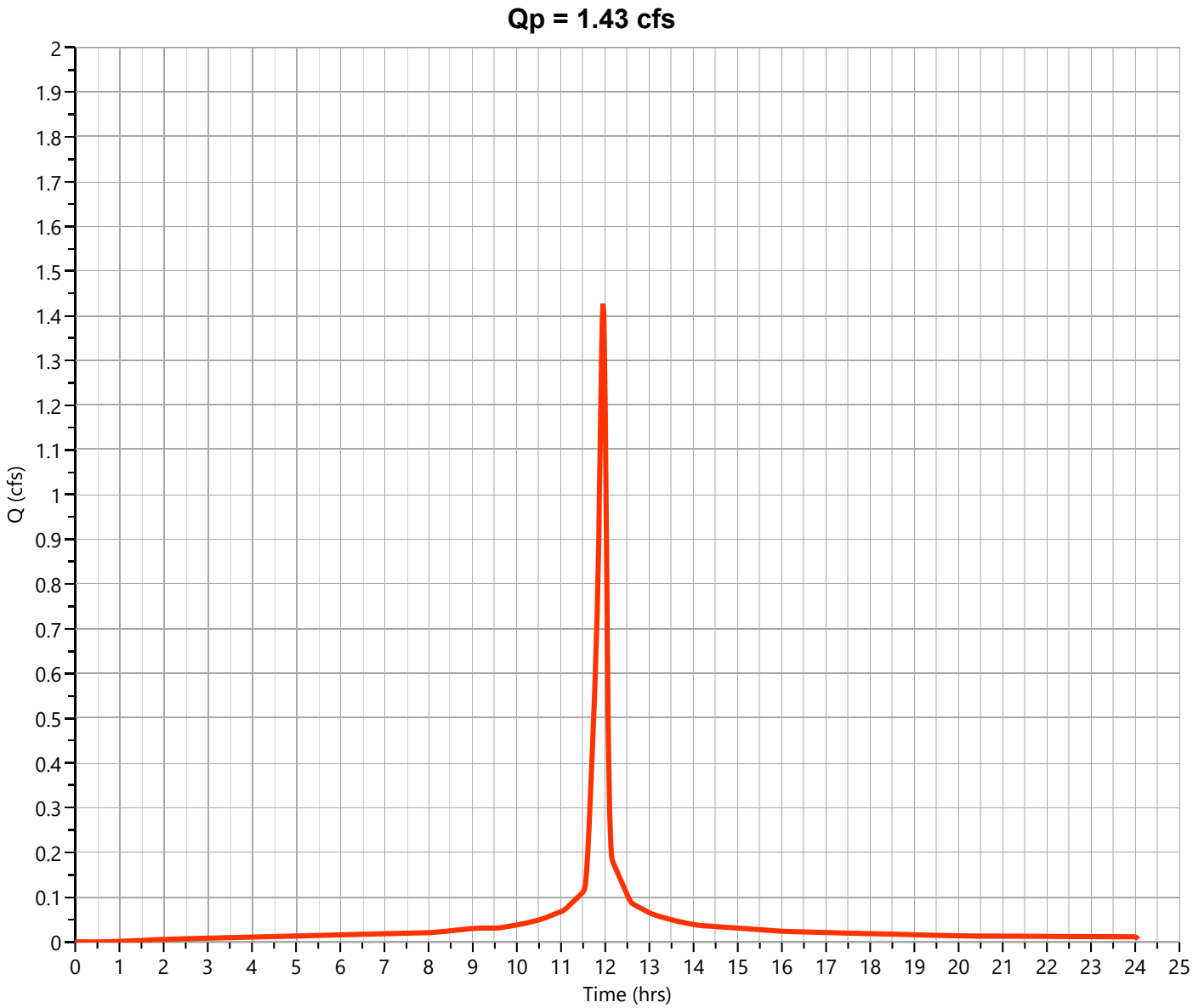
Post BLDG #7 RL

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.427 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,445 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

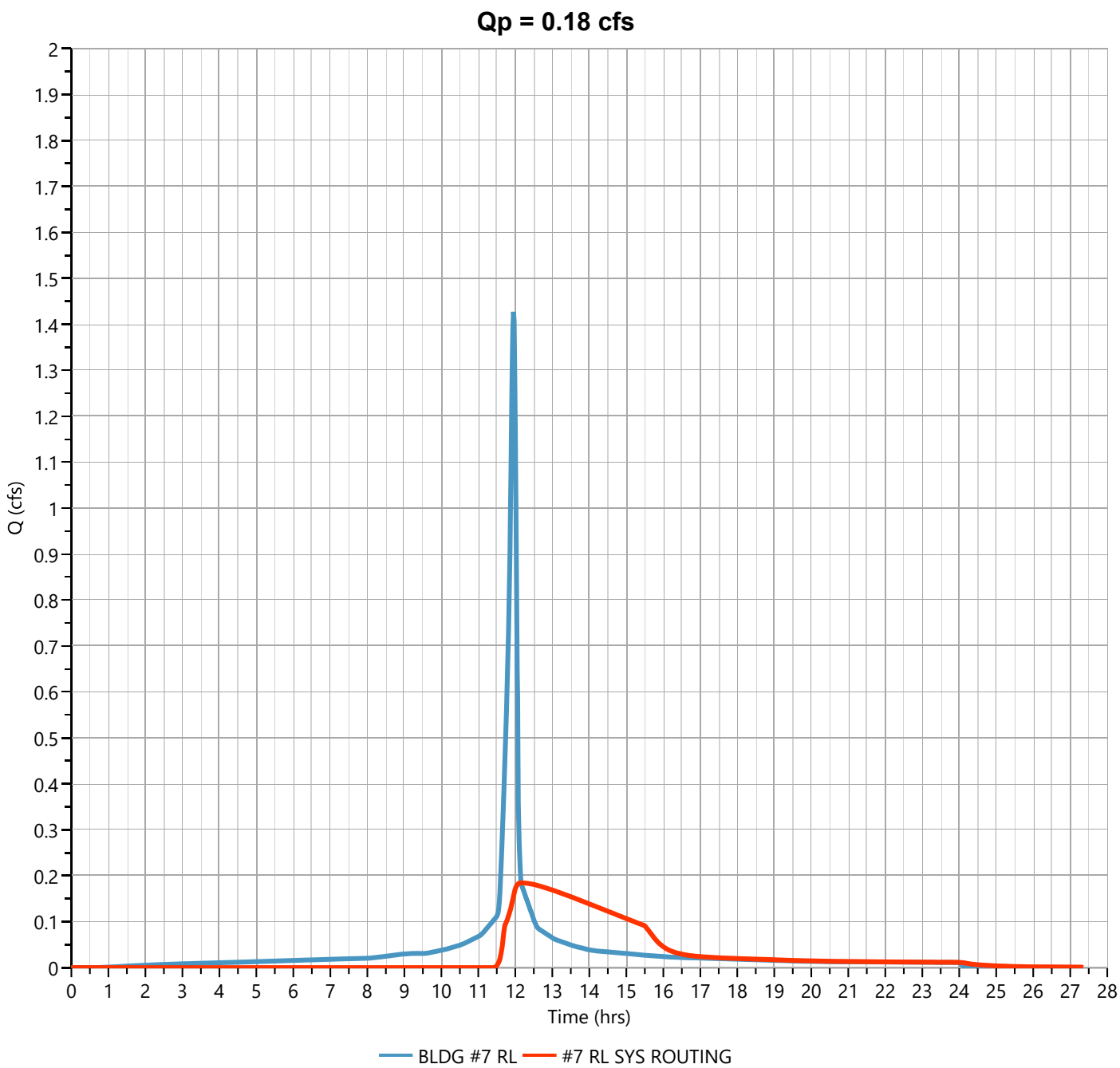
Post #7 RL SYS ROUTING

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.184 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,625 cuft
Inflow Hydrograph	= 13 - BLDG #7 RL	Max. Elevation	= 85.90 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,025 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.94 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

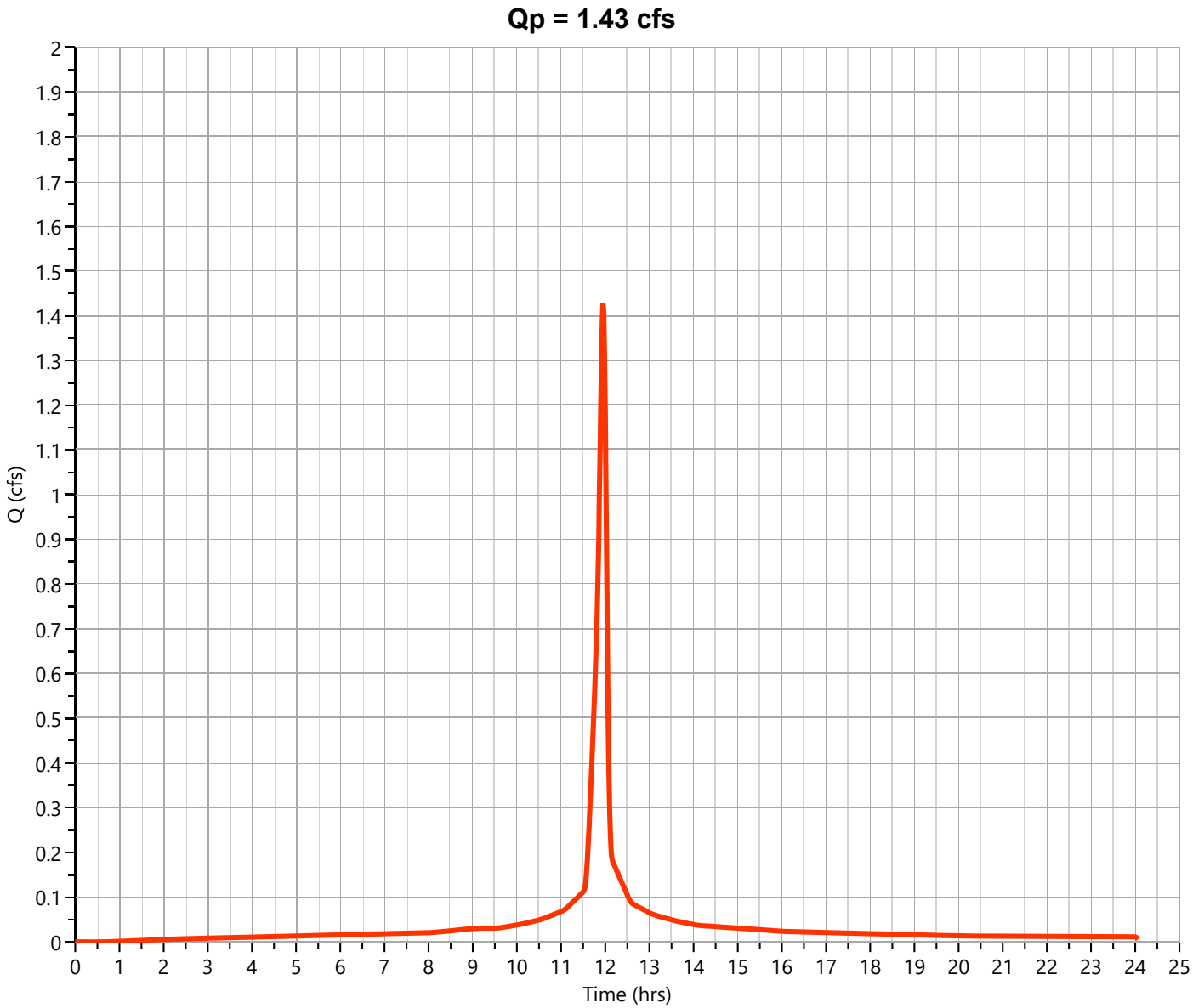
Post BLDG #8 RL

Hyd. No. 15

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.427 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,445 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

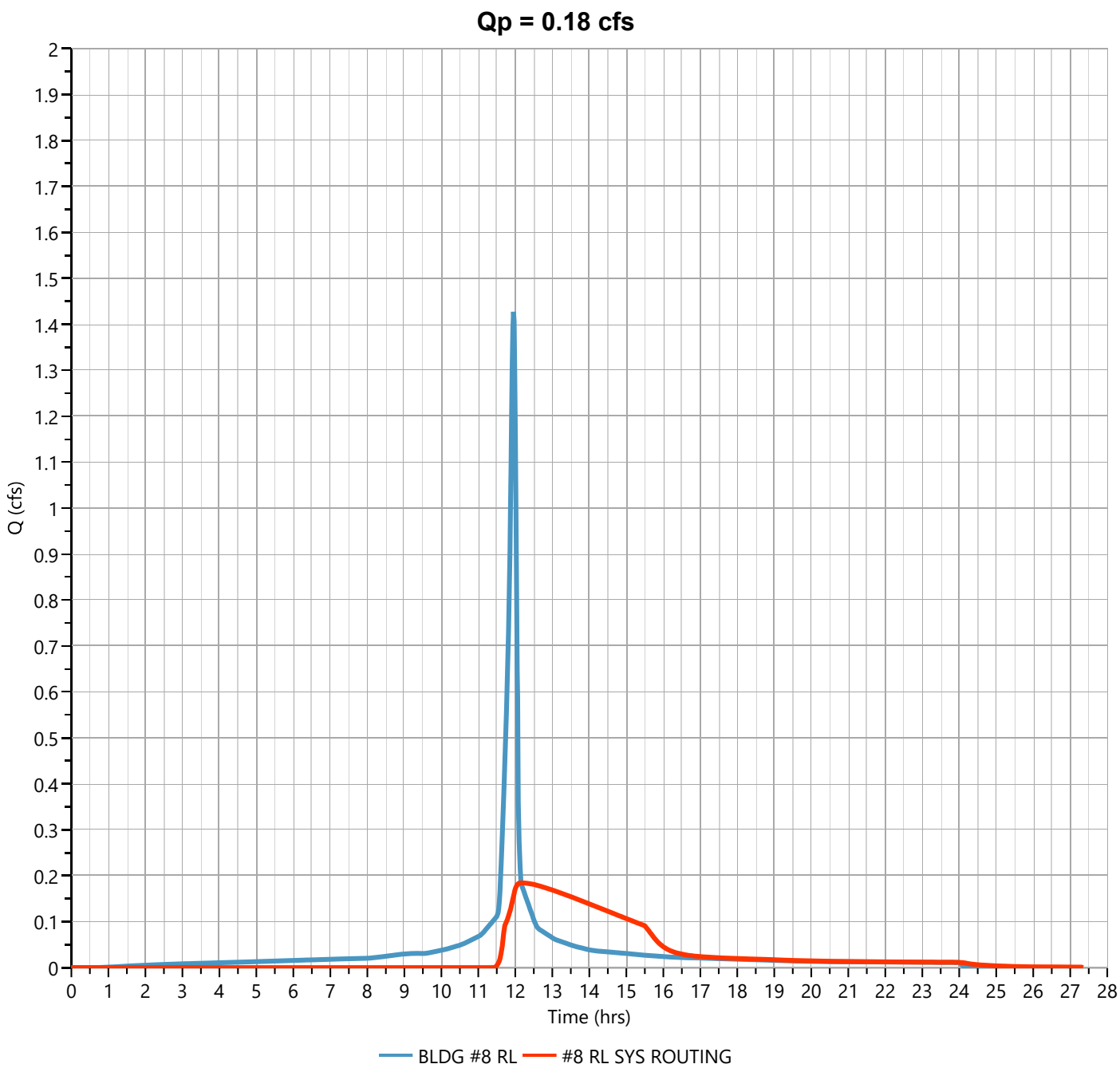
#8 RL SYS ROUTING

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.184 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,625 cuft
Inflow Hydrograph	= 15 - BLDG #8 RL	Max. Elevation	= 85.90 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,025 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.94 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

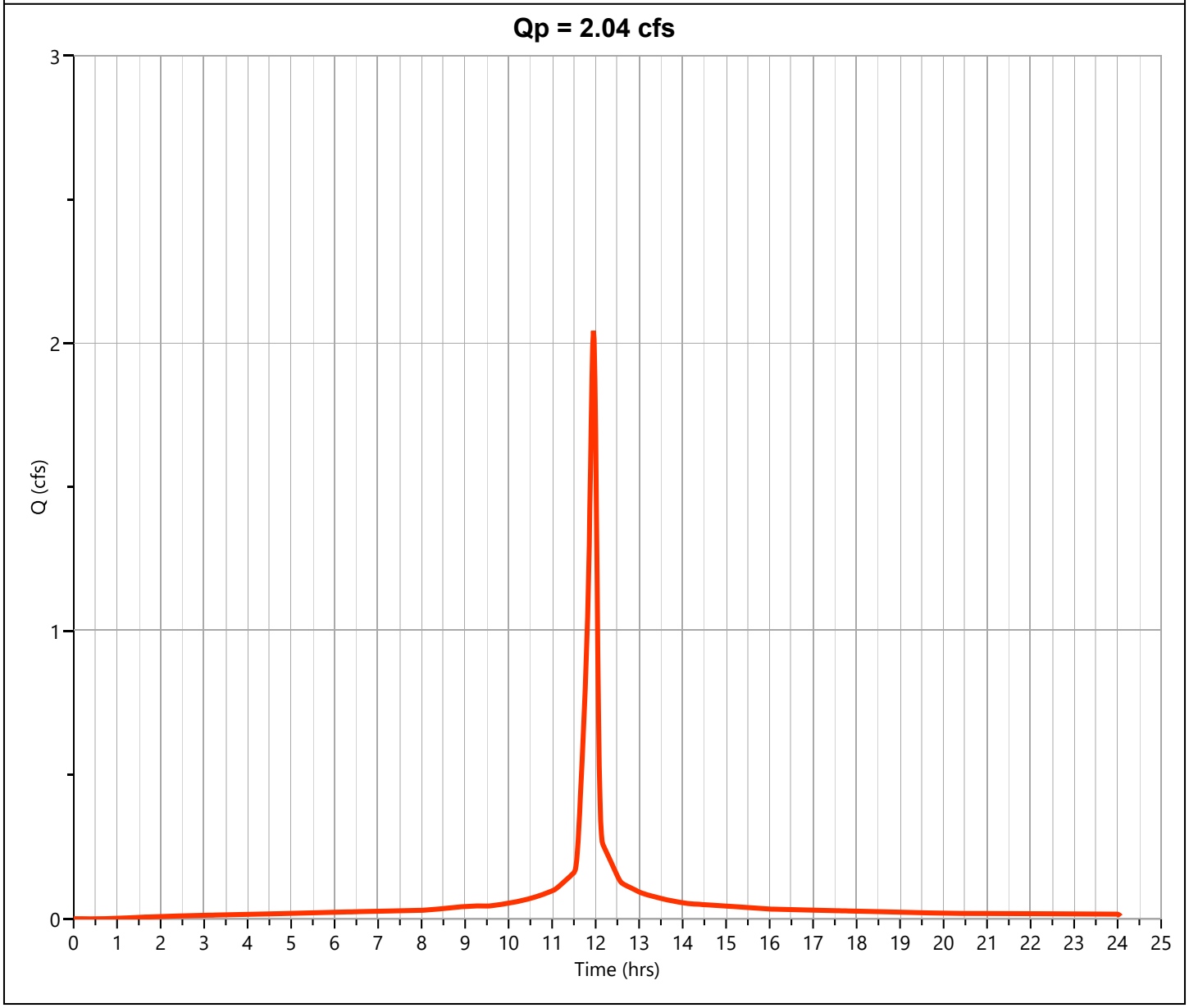
Post BLDG #11 RL

Hyd. No. 17

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.043 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 4,931 cuft
Drainage Area	= 0.272 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.272	98	C-ROOF
0.272	**98**	Weighted CN Method Employed



post220

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

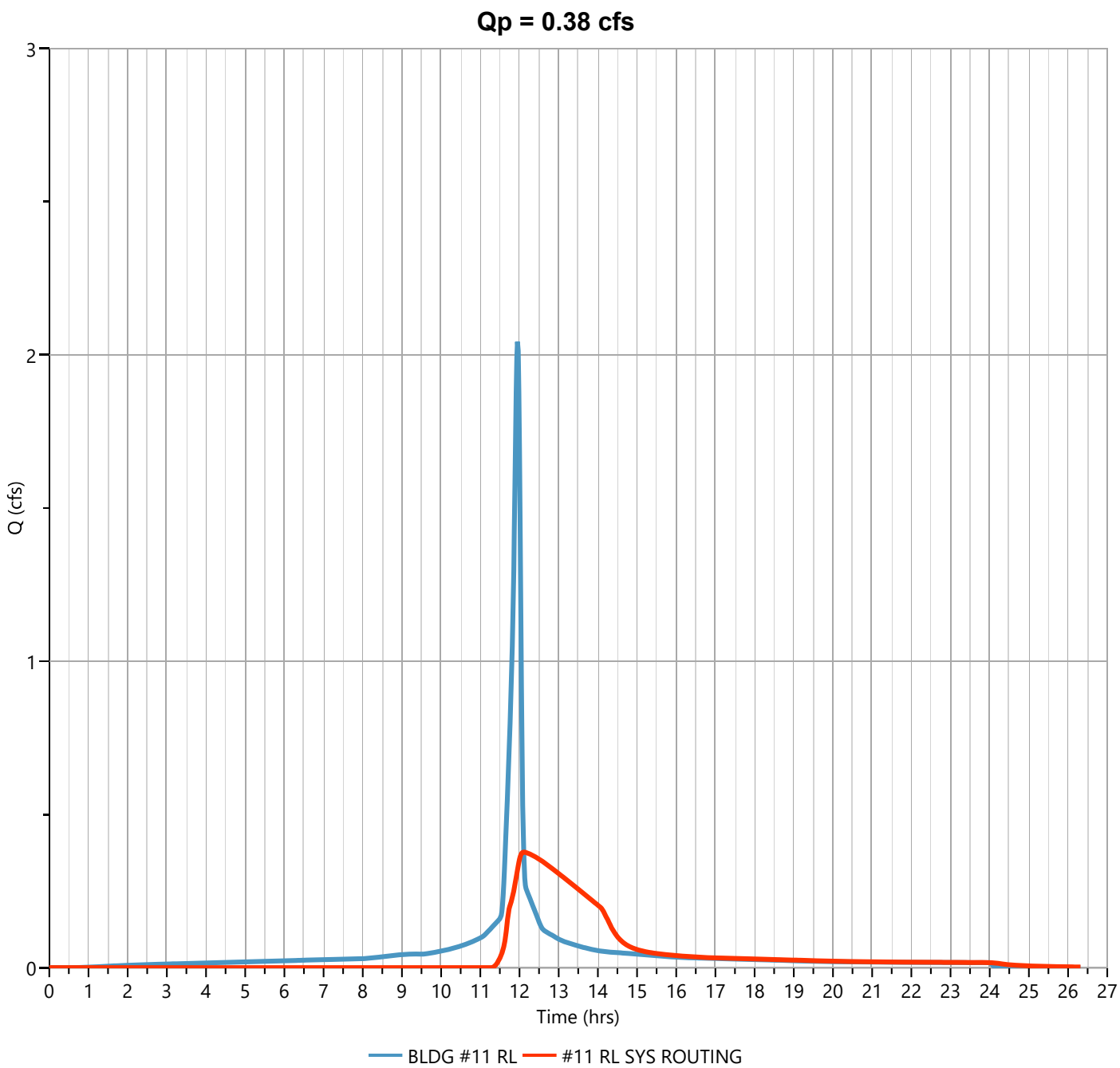
Post #11 RL SYS ROUTING

Hyd. No. 18

Hydrograph Type	= Pond Route	Peak Flow	= 0.377 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,830 cuft
Inflow Hydrograph	= 17 - BLDG #11 RL	Max. Elevation	= 85.92 ft
Pond Name	= BLDG #11 RL SYS	Max. Storage	= 2,734 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.54 hrs



Hydrograph Report

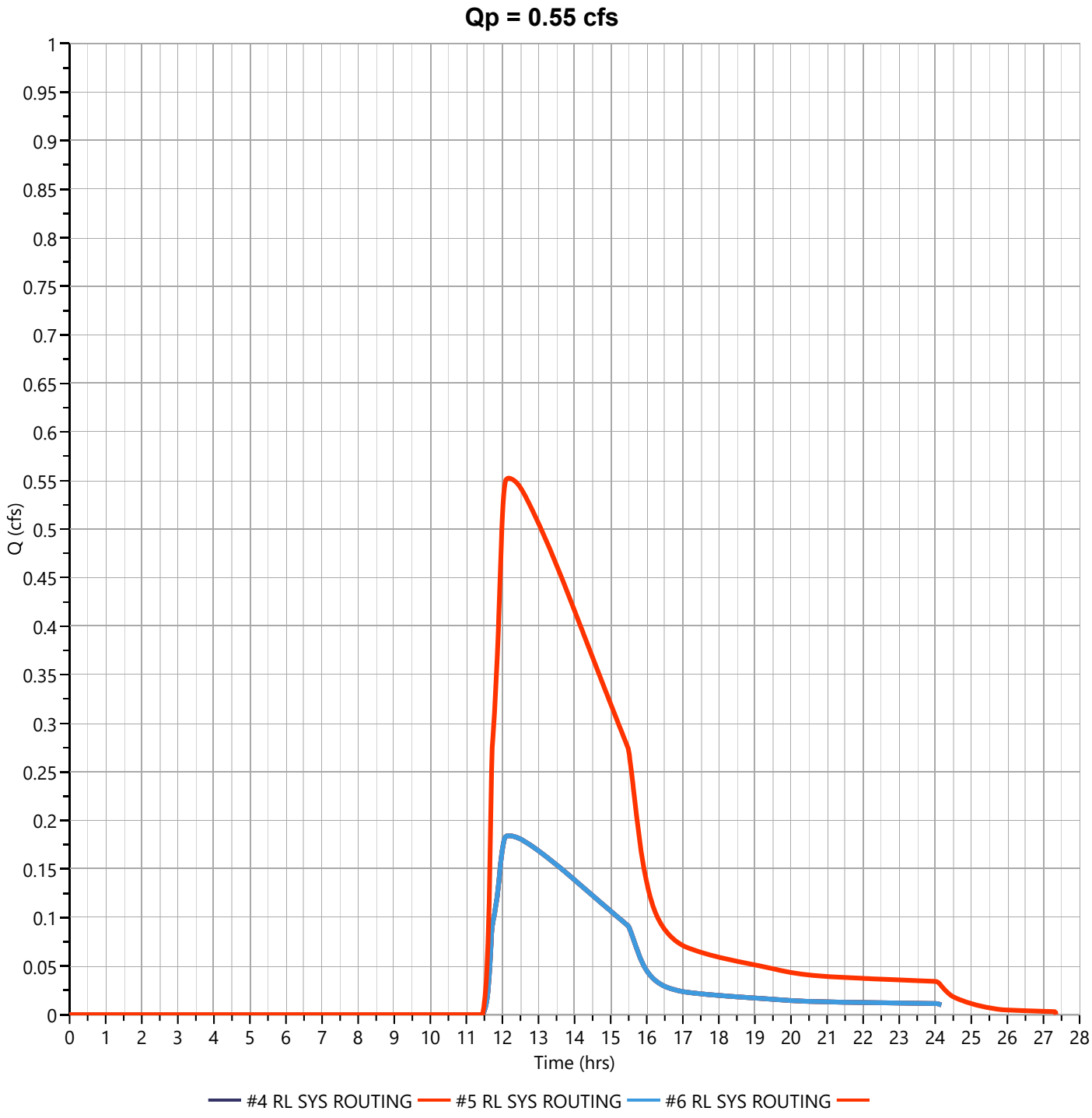
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 19

Hydrograph Type	= Junction	Peak Flow	= 0.552 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 7,876 cuft
Inflow Hydrographs	= 8, 10, 12	Total Contrib. Area	= 0.0 ac



post222

Hydrograph Report

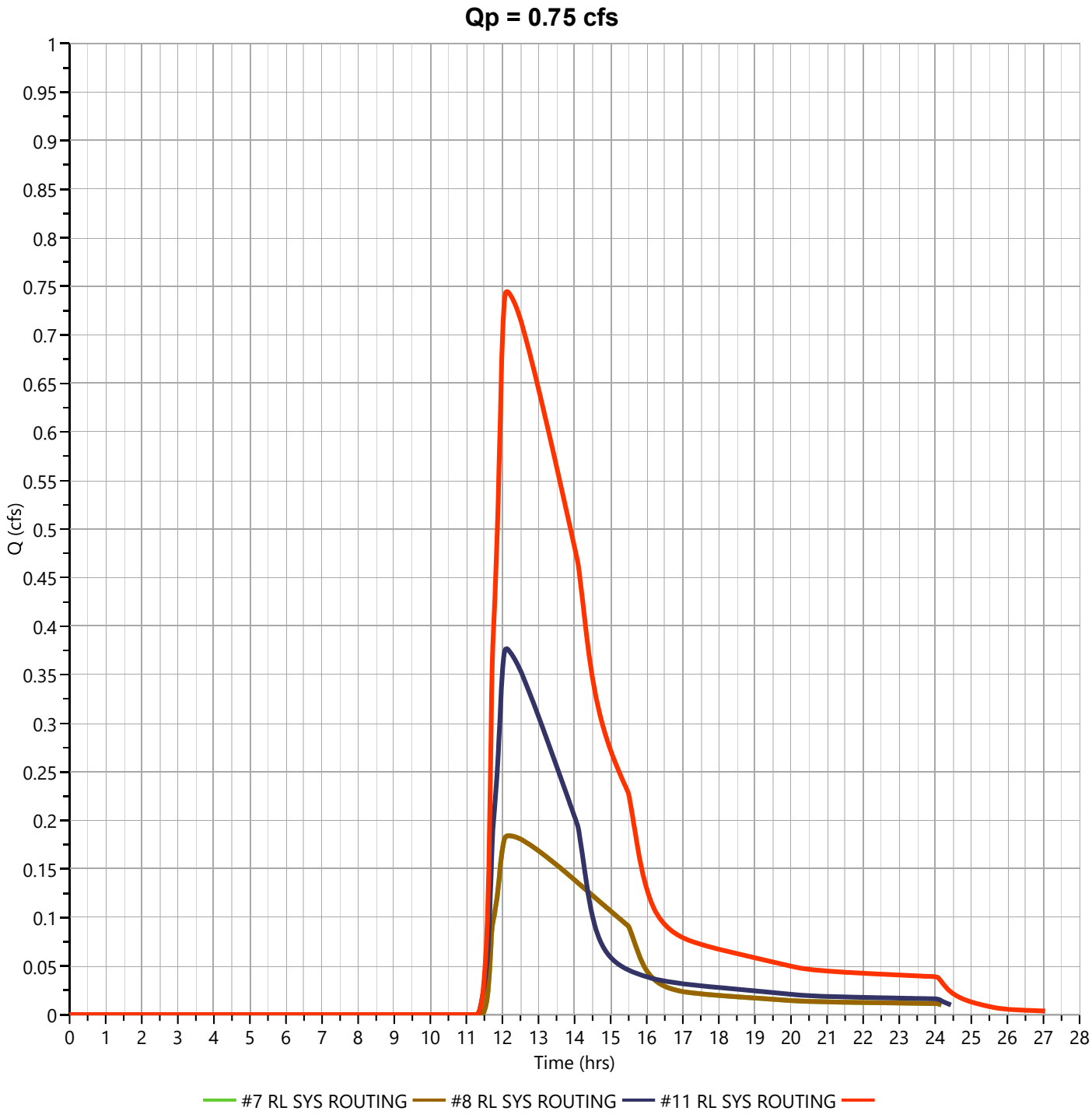
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 20

Hydrograph Type	= Junction	Peak Flow	= 0.745 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,081 cuft
Inflow Hydrographs	= 14, 16, 18	Total Contrib. Area	= 0.0 ac



post223

Hydrograph Report

Project Name:

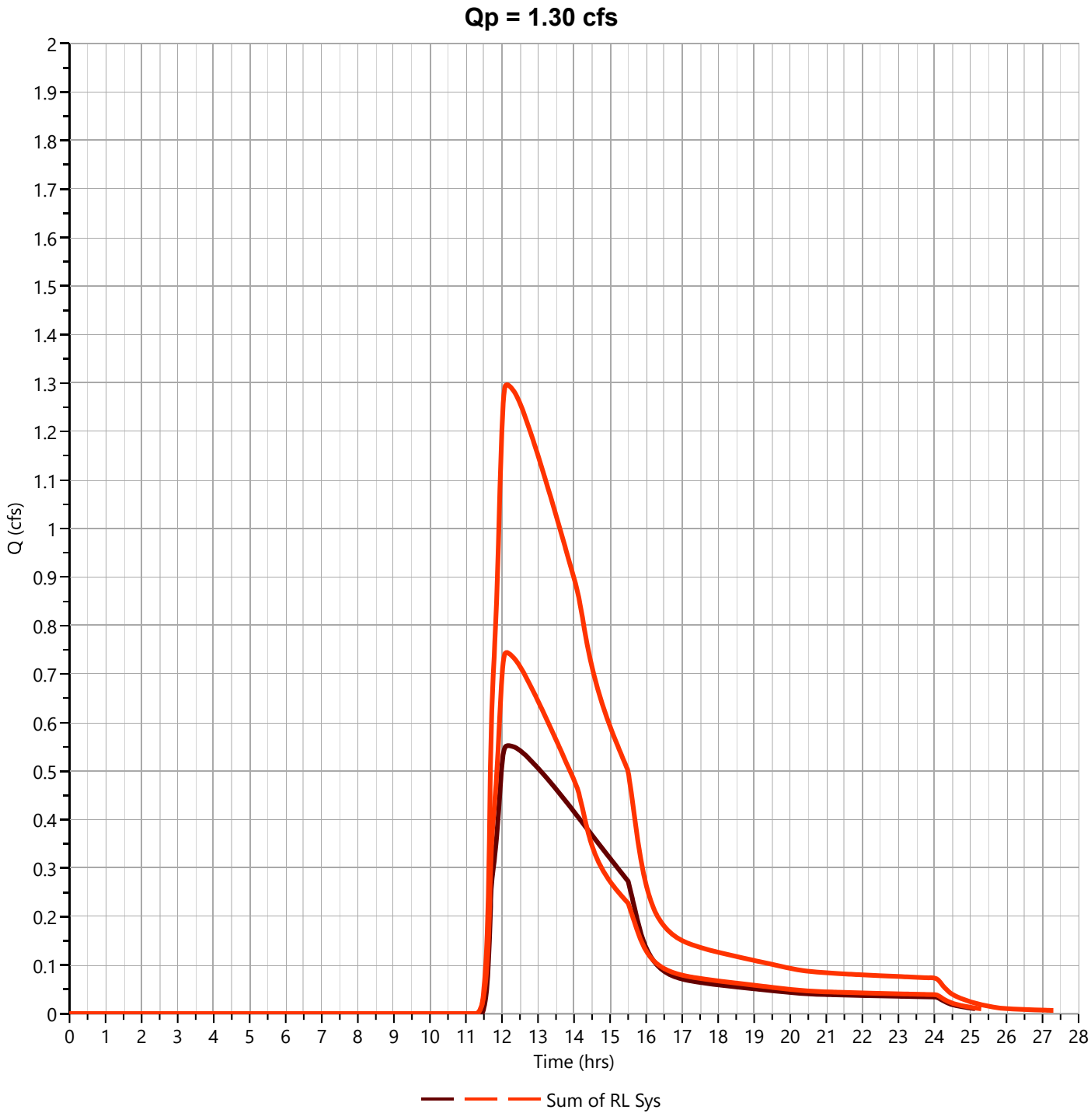
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum of RL Sys

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 1.297 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 16,957 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 0.0 ac



post224

Hydrograph Report

Project Name:

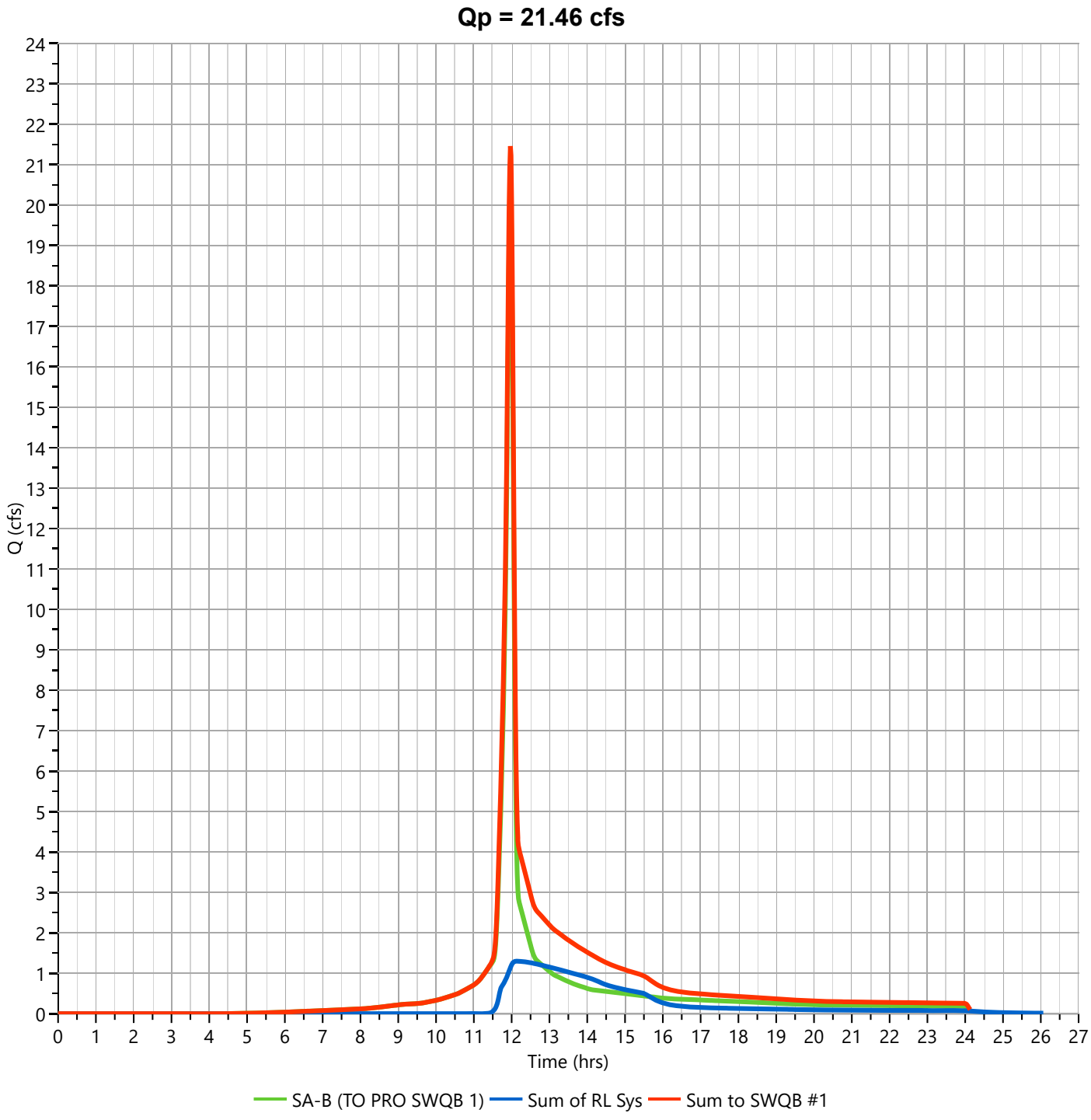
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to SWQB #1

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 21.46 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Hydrograph Volume	= 61,784 cuft
Inflow Hydrographs	= 4, 21	Total Contrib. Area	= 3.477 ac



post225

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

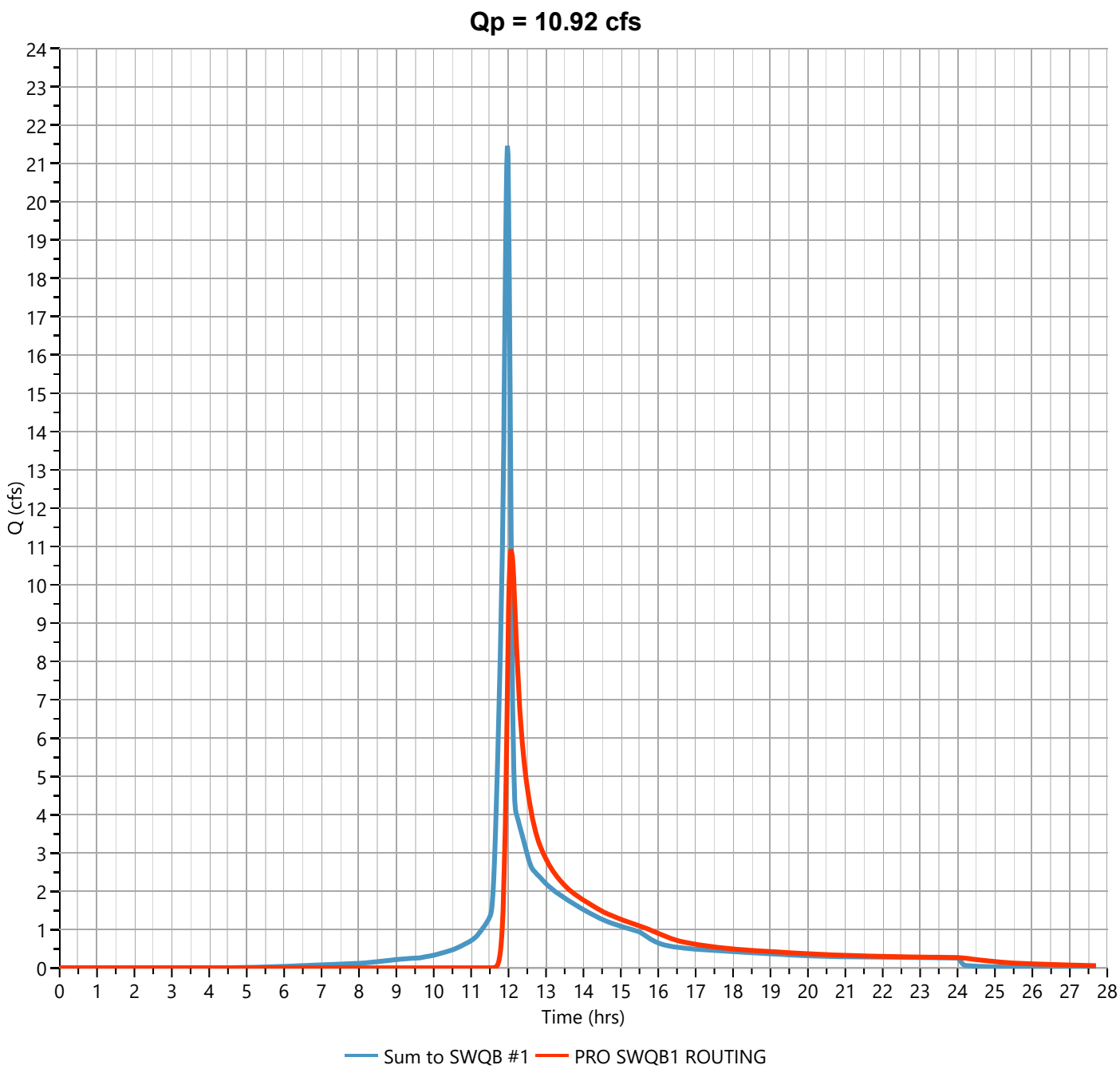
PRO SWQB1 ROUTING

Hyd. No. 23

Hydrograph Type	= Pond Route	Peak Flow	= 10.92 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 55,354 cuft
Inflow Hydrograph	= 22 - Sum to SWQB #1	Max. Elevation	= 82.87 ft
Pond Name	= PRO SWQB #1	Max. Storage	= 20,219 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.12 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

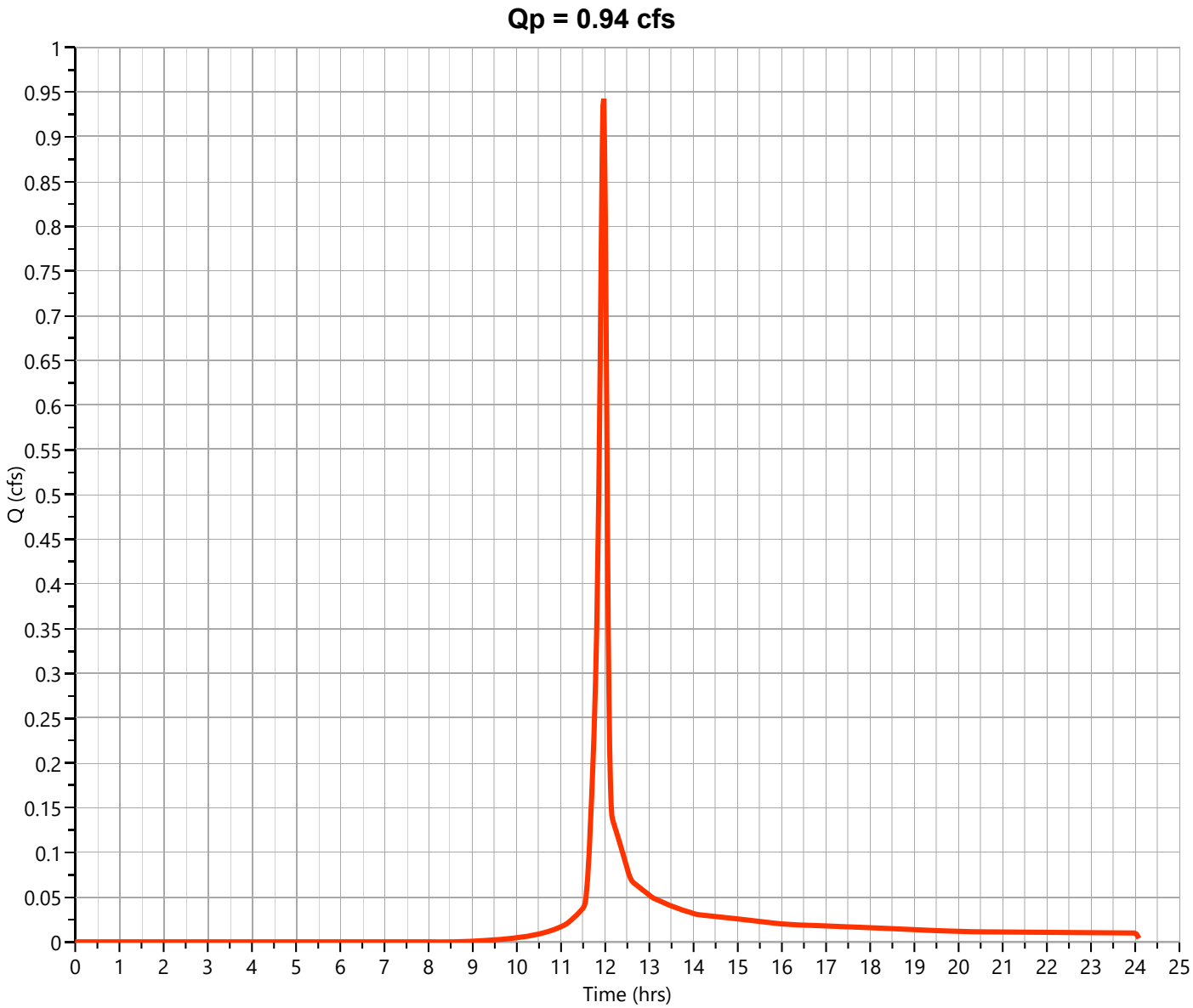
Post SA-B.32 (OVERLAND)'

Hyd. No. 24

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.943 cfs
Storm Frequency	= 50-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 1,900 cuft
Drainage Area	= 0.209 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.55 min
Total Rainfall	= 5.08 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.209	74	C-LAWN
0.209	**74**	Weighted CN Method Employed



Hydrograph Report

Project Name:

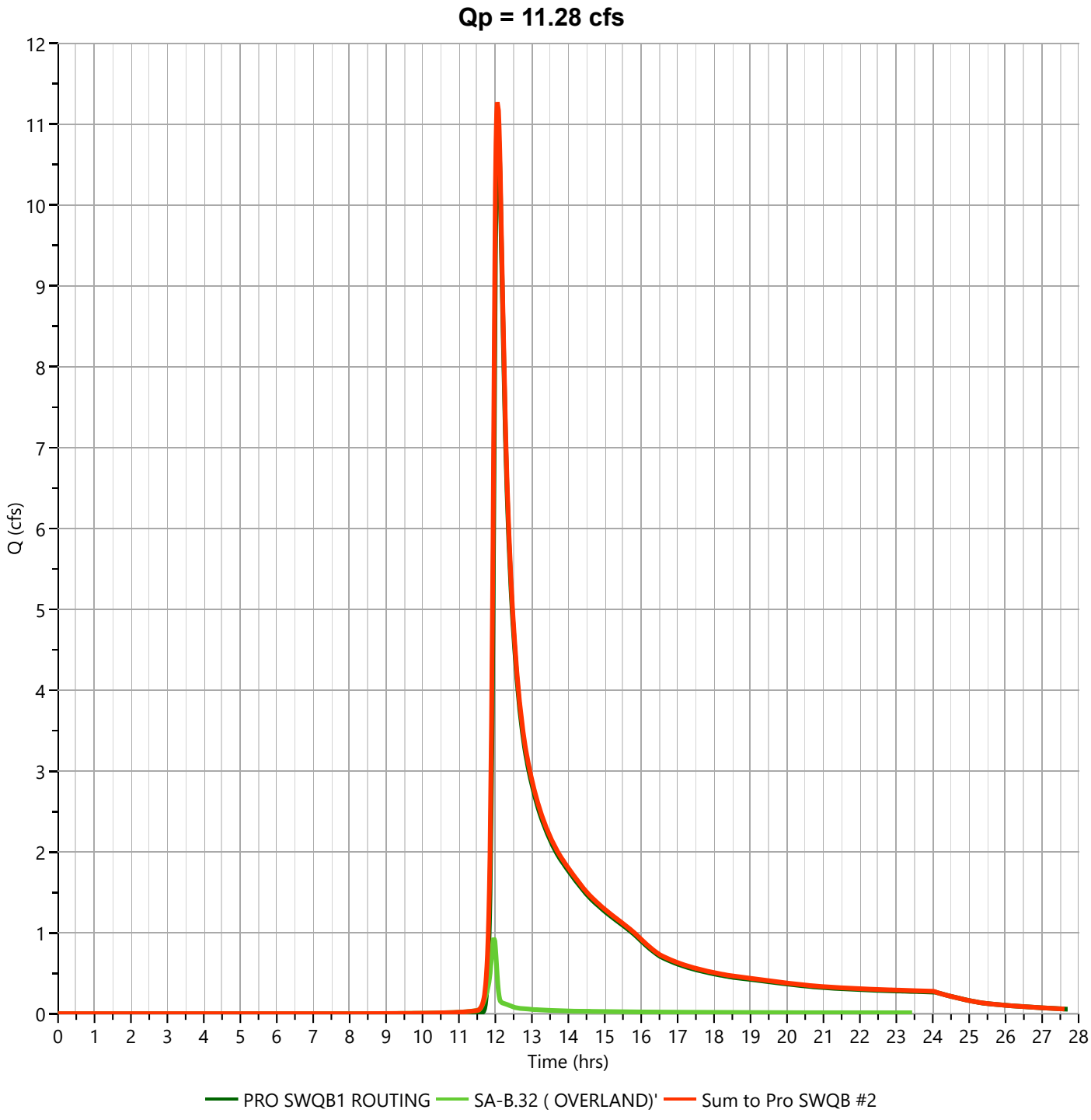
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Pro SWQB #2

Hyd. No. 25

Hydrograph Type	= Junction	Peak Flow	= 11.28 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 57,254 cuft
Inflow Hydrographs	= 23, 24	Total Contrib. Area	= 0.209 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

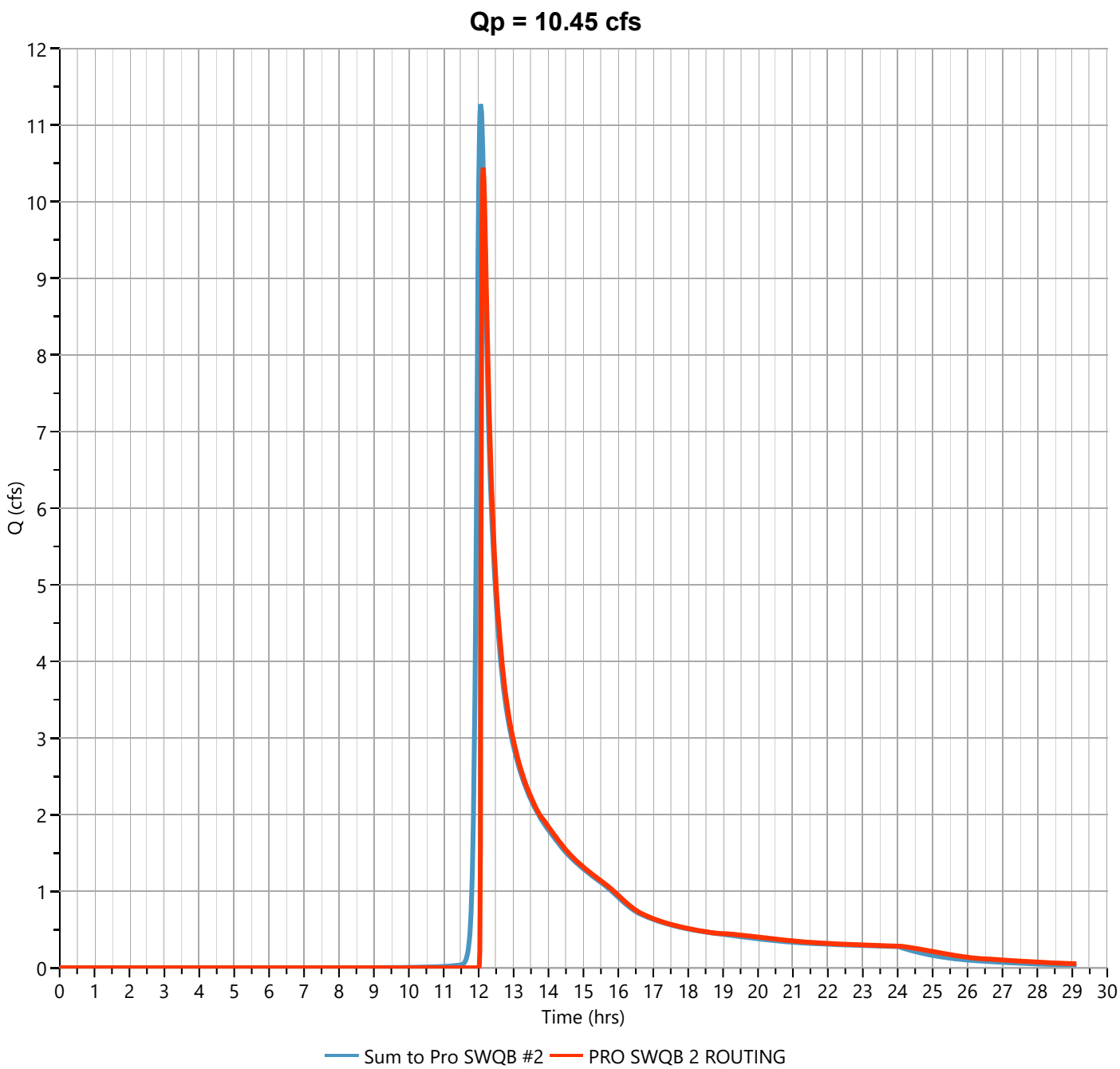
Post PRO SWQB 2 ROUTING

Hyd. No. 26

Hydrograph Type	= Pond Route	Peak Flow	= 10.45 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 53,177 cuft
Inflow Hydrograph	= 25 - Sum to Pro SWQB #2	Max. Elevation	= 80.35 ft
Pond Name	= PRO SWQB #2	Max. Storage	= 6,442 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 31 min



Hydrograph Report

Project Name:

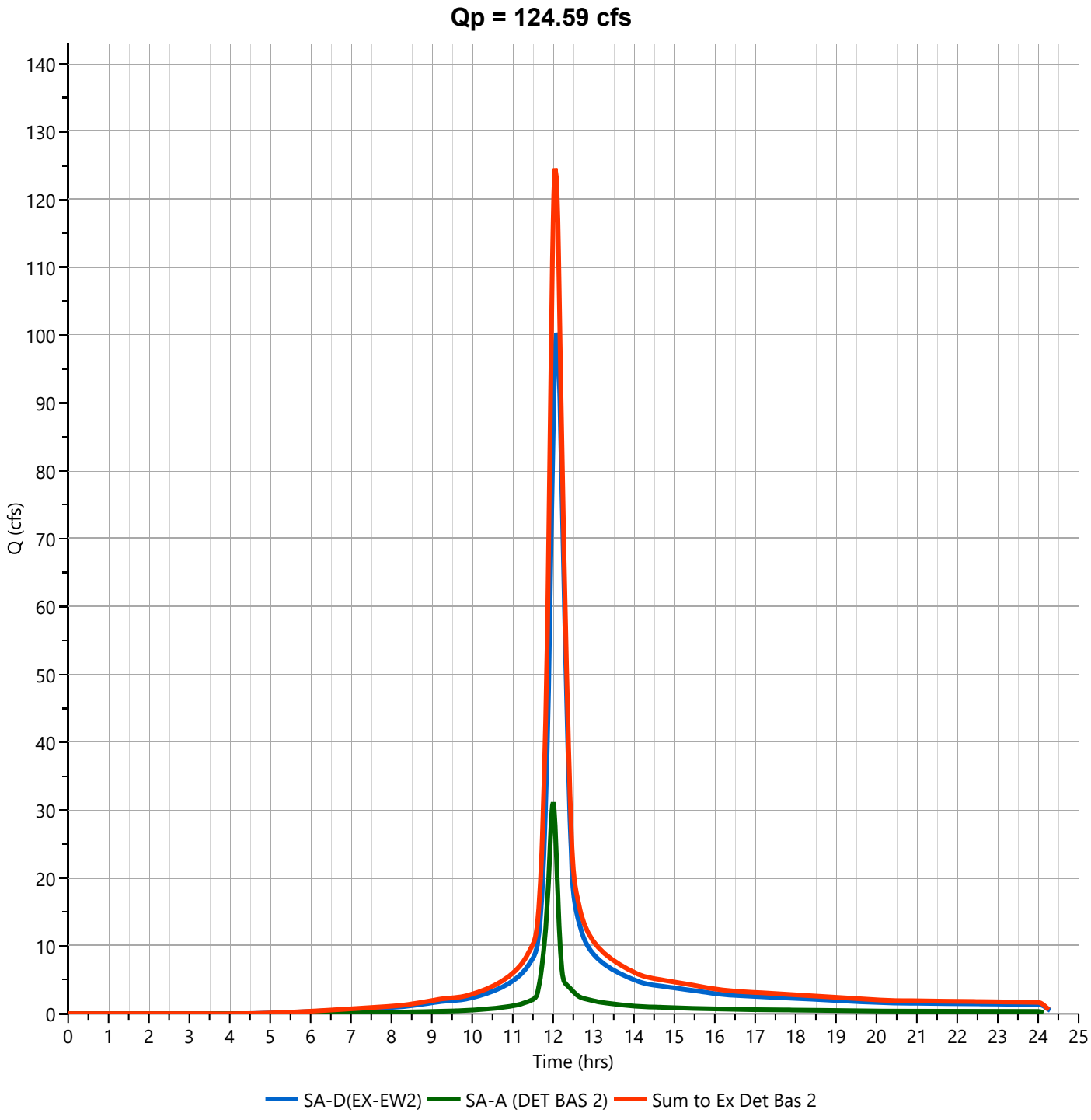
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 2

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 124.6 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.05 hrs
Time Interval	= 1 min	Hydrograph Volume	= 414,633 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.485 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

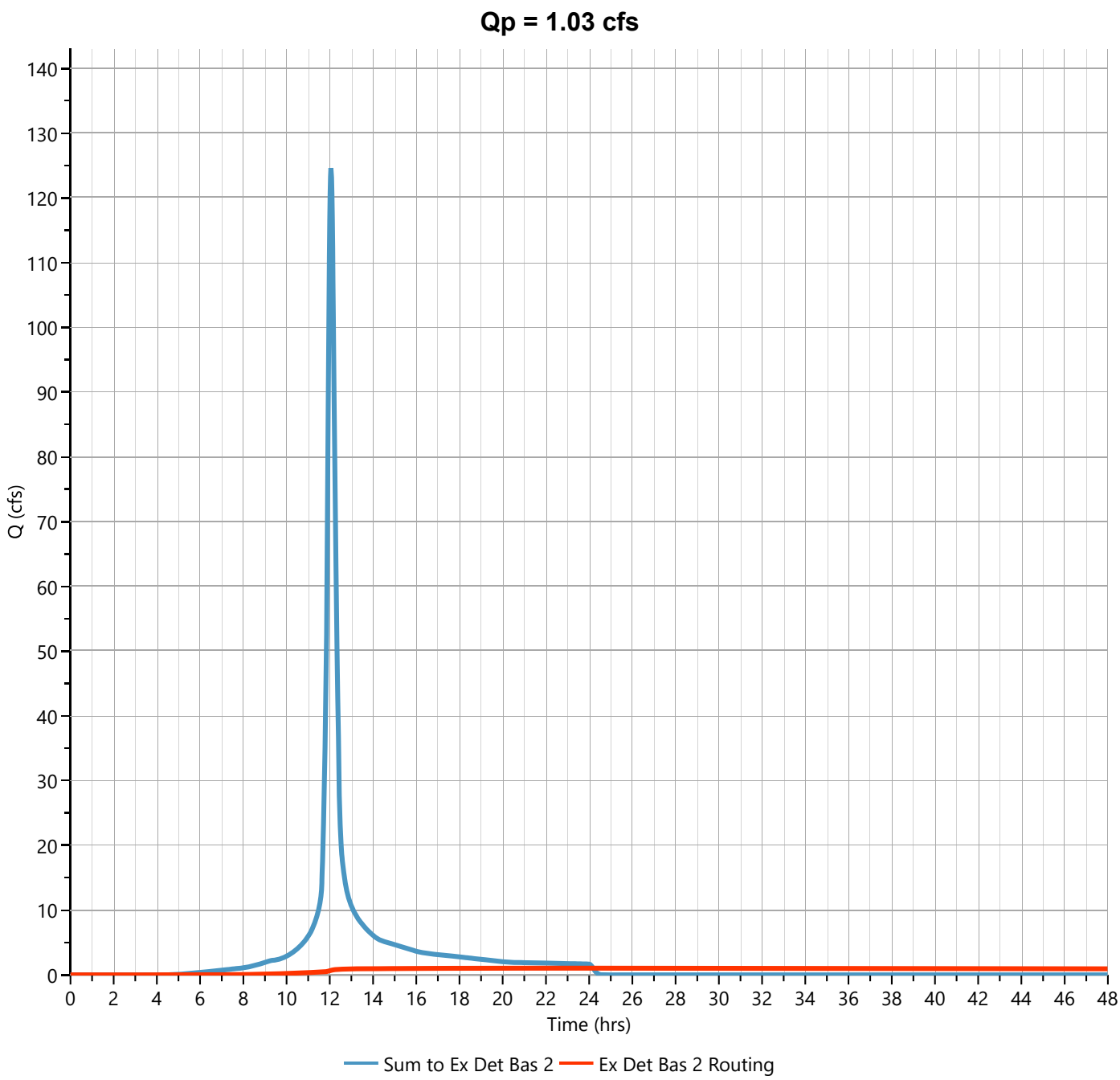
Post Ex Det Bas 2 Routing

Hyd. No. 28

Hydrograph Type	= Pond Route	Peak Flow	= 1.028 cfs
Storm Frequency	= 50-yr	Time to Peak	= 24.18 hrs
Time Interval	= 1 min	Hydrograph Volume	= 130,057 cuft
Inflow Hydrograph	= 27 - Sum to Ex Det Bas 2	Max. Elevation	= 83.17 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 367,651 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 15.99 hrs



Hydrograph Report

Project Name:

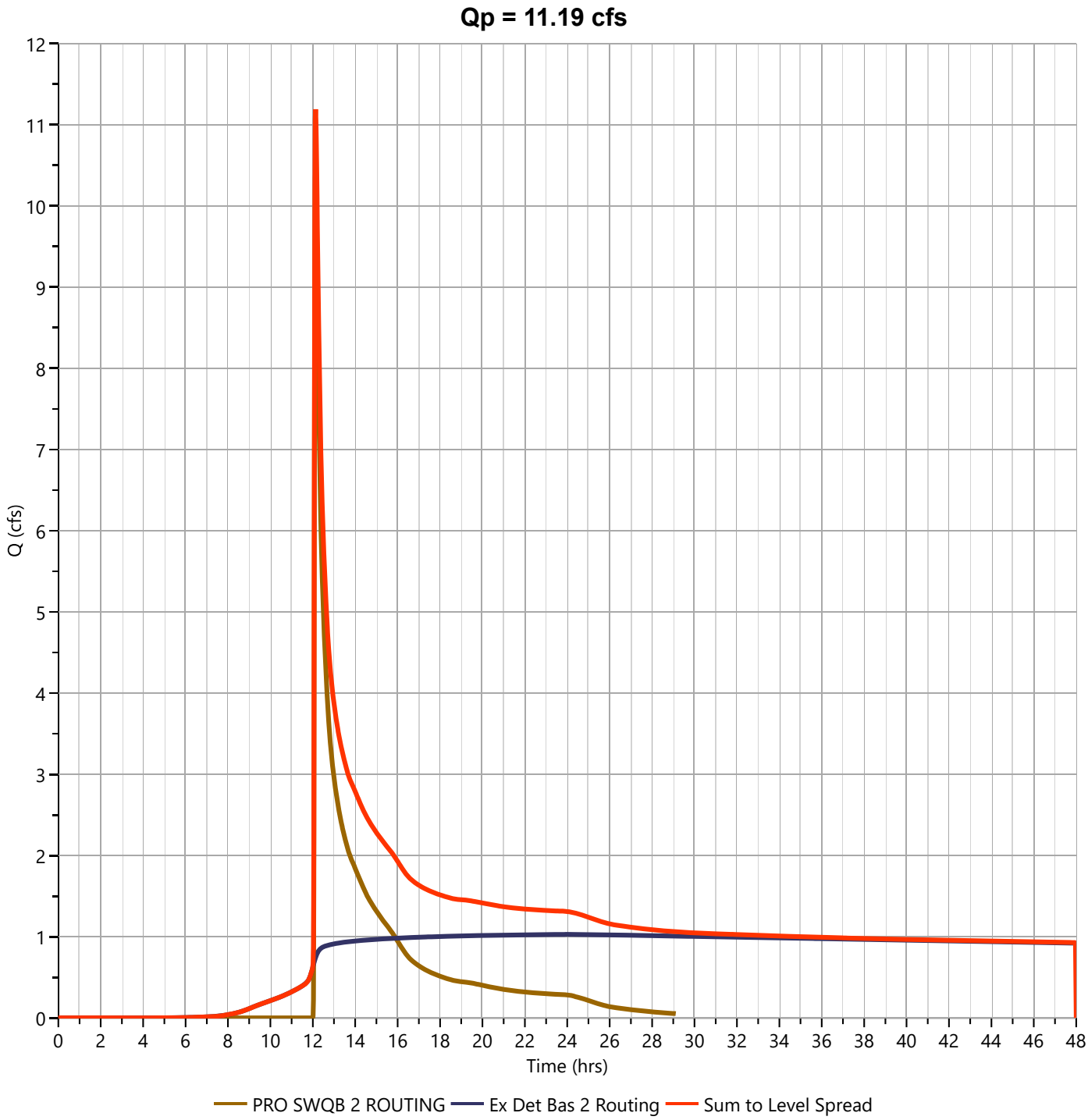
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Level Spread

Hyd. No. 29

Hydrograph Type	= Junction	Peak Flow	= 11.19 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 183,234 cuft
Inflow Hydrographs	= 26, 28	Total Contrib. Area	= 0.0 ac



Hydrograph Report

Project Name:

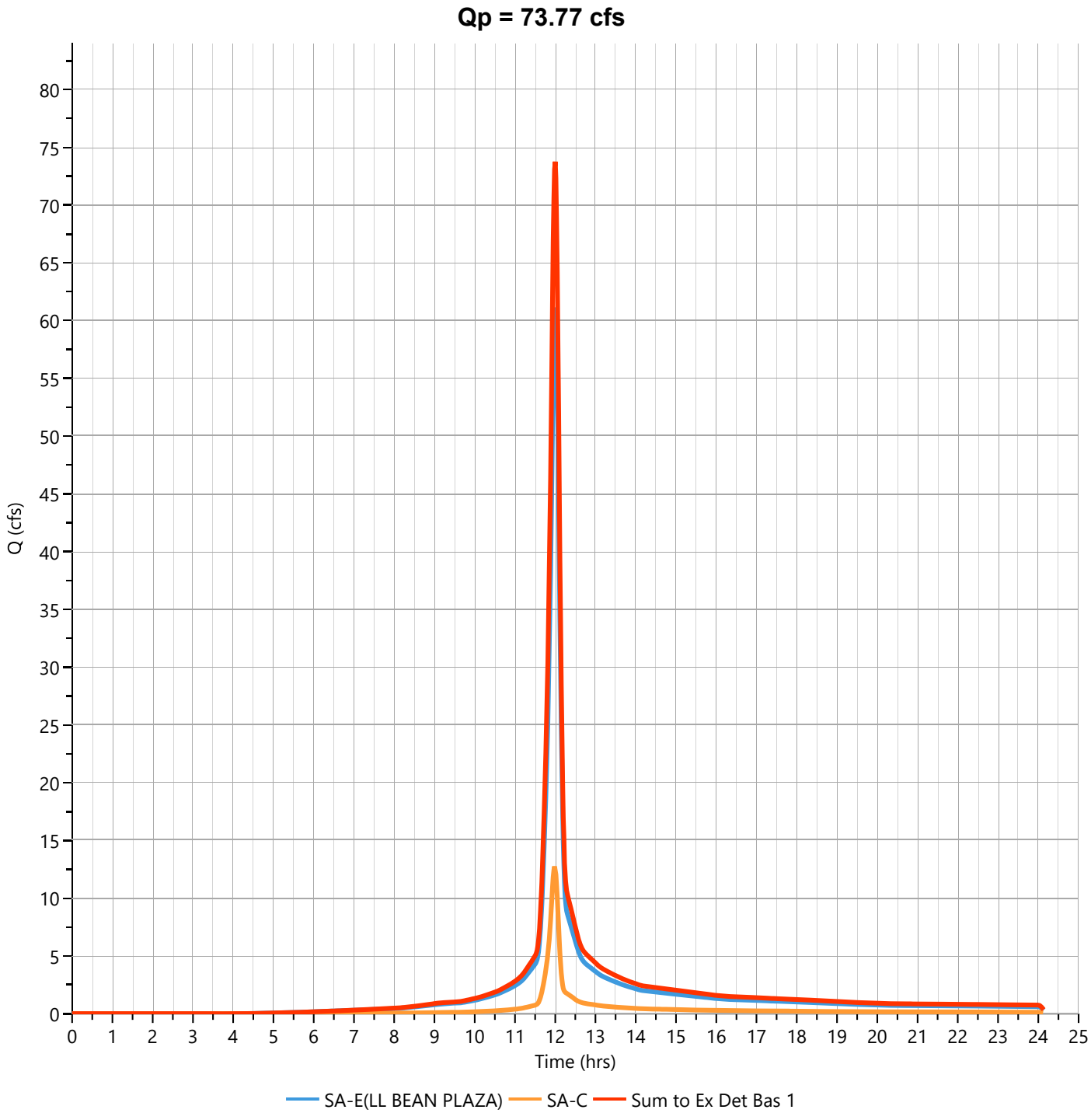
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 1

Hyd. No. 30

Hydrograph Type	= Junction	Peak Flow	= 73.77 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 182,801 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 13.654 ac



Design Storm Report

Custom Storm filename: 3170.cds

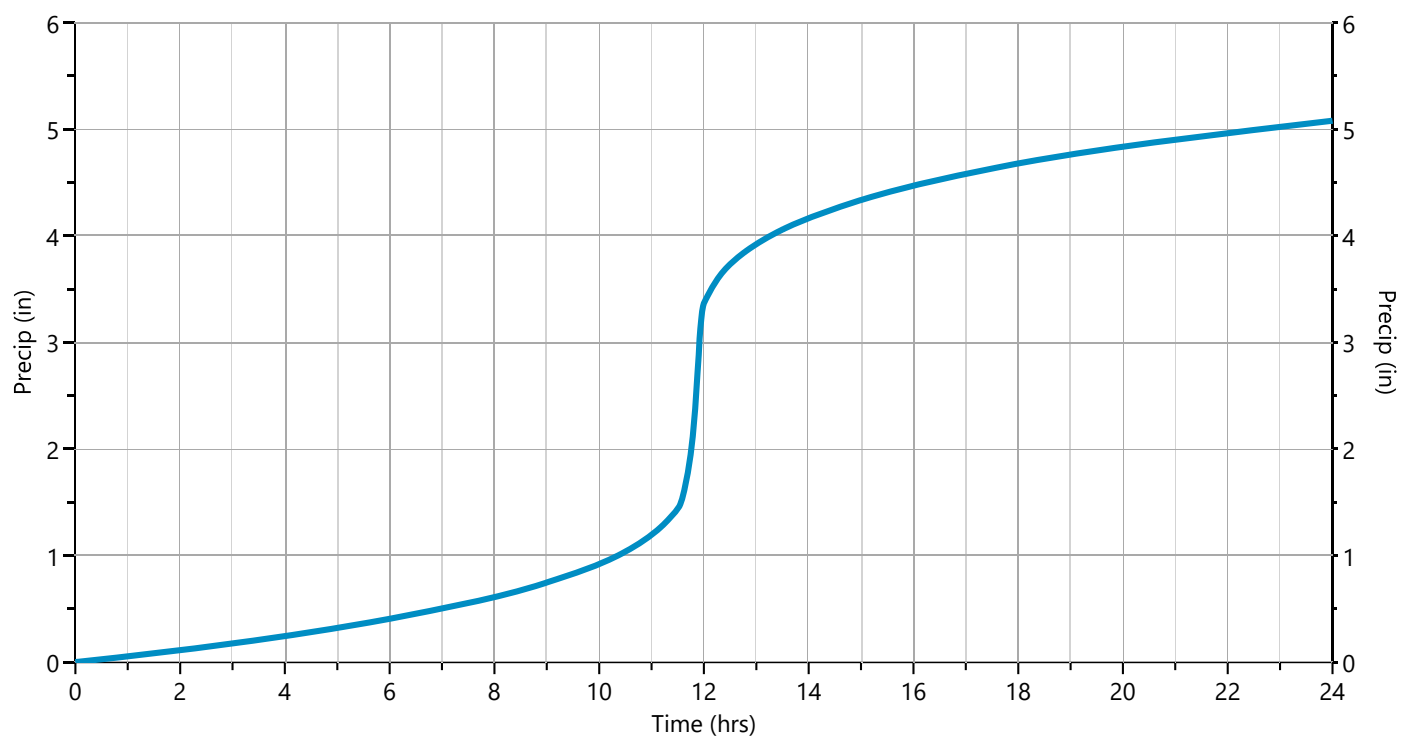
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	✔ 50-yr	100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 50-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.009415	11.60	0.028538	11.78	0.074221	11.97	0.069899	12.15	0.014283
11.43	0.009550	11.62	0.031880	11.80	0.083515	11.98	0.048746	12.17	0.013962
11.45	0.009686	11.63	0.035221	11.82	0.092810	12.00	0.027594	12.18	0.013640
11.47	0.009821	11.65	0.038563	11.83	0.102104	12.02	0.017426	12.20	0.013318
11.48	0.009957	11.67	0.041904	11.85	0.111399	12.03	0.016535	12.22	0.012996
11.50	0.010092	11.68	0.045246	11.87	0.120693	12.05	0.016214	12.23	0.012675
11.52	0.011869	11.70	0.048587	11.88	0.129988	12.07	0.015892	12.25	0.012353
11.53	0.015172	11.72	0.051929	11.90	0.139283	12.08	0.015570	12.27	0.012031
11.55	0.018514	11.73	0.055270	**11.92**	**0.148577**	12.10	0.015249	12.28	0.011709
11.57	0.021855	11.75	0.058612	11.93	0.097156	12.12	0.014927	12.30	0.011388
11.58	0.025197	11.77	0.064435	11.95	0.091052	12.13	0.014605	12.32	0.011066



post234

Hydrograph 100-yr Summary

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

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	NRCS Runoff	Pre SA-D(EX-EW2)	115.6	12.10	390,733	----		
2	NRCS Runoff	Pre SA-E(LL BEAN PLAZA)	70.23	12.00	177,890	----		
3	NRCS Runoff	Post SA-A (DET BAS 2)	35.97	12.00	89,998	----		
4	NRCS Runoff	Pre SA-B (TO PRO SWQB 1)	23.40	11.97	52,063	----		
5	NRCS Runoff	Post SA-C	14.92	11.98	34,415	----		
6	NRCS Runoff	Post SA-B.32 (OVERLAND)	1.139	11.97	2,307	----		
7	NRCS Runoff	Post BLDG #4 RL	1.603	11.95	3,885	----		
8	Pond Route	Post #4 RL SYS ROUTING	0.208	12.15	3,066	7	86.51	2,237
9	NRCS Runoff	Post BLDG #5 RL	1.603	11.95	3,885	----		
10	Pond Route	Post #5 RL SYS ROUTING	0.208	12.15	3,066	9	86.51	2,237
11	NRCS Runoff	Post BLDG #6 RL	1.603	11.95	3,885	----		
12	Pond Route	Post #6 RL SYS ROUTING	0.208	12.15	3,066	11	86.51	2,237
13	NRCS Runoff	Post BLDG #7 RL	1.603	11.95	3,885	----		
14	Pond Route	Post #7 RL SYS ROUTING	0.208	12.15	3,066	13	86.51	2,237
15	NRCS Runoff	Post BLDG #8 RL	1.603	11.95	3,885	----		
16	Pond Route	#8 RL SYS ROUTING	0.208	12.15	3,066	15	86.51	2,237
17	NRCS Runoff	Post BLDG #11 RL	2.295	11.95	5,562	----		
18	Pond Route	Post #11 RL SYS ROUTING	0.425	12.10	4,460	17	86.49	2,996
19	Junction		0.625	12.15	9,197	8, 10, 12		
20	Junction		0.841	12.12	10,592	14, 16, 18		
21	Junction	Post Sum of RL Sys	1.466	12.13	19,789	19, 20		
22	Junction	Post Sum to SWQB #1	24.62	11.97	71,852	4, 21		
23	Pond Route	PRO SWQB1 ROUTING	14.02	12.07	65,420	22	83.12	22,388
24	NRCS Runoff	Post SA-B.32 (OVERLAND)'	1.134	11.97	2,296	----		
25	Junction	Post Sum to Pro SWQB #2	14.49	12.05	67,716	23, 24		
26	Pond Route	Post PRO SWQB 2 ROUTING	14.11	12.08	63,638	25	80.43	6,711
27	Junction	Post Sum to Ex Det Bas 2	143.6	12.05	480,731	1, 3		
28	Pond Route	Post Ex Det Bas 2 Routing	1.100	24.20	140,178	27	84.03	429,846
29	Junction	Post Sum to Level Spread	14.87	12.08	203,816	26, 28		
30	Junction	Post Sum to Ex Det Bas 1	85.00	12.00	212,305	2, 5		

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

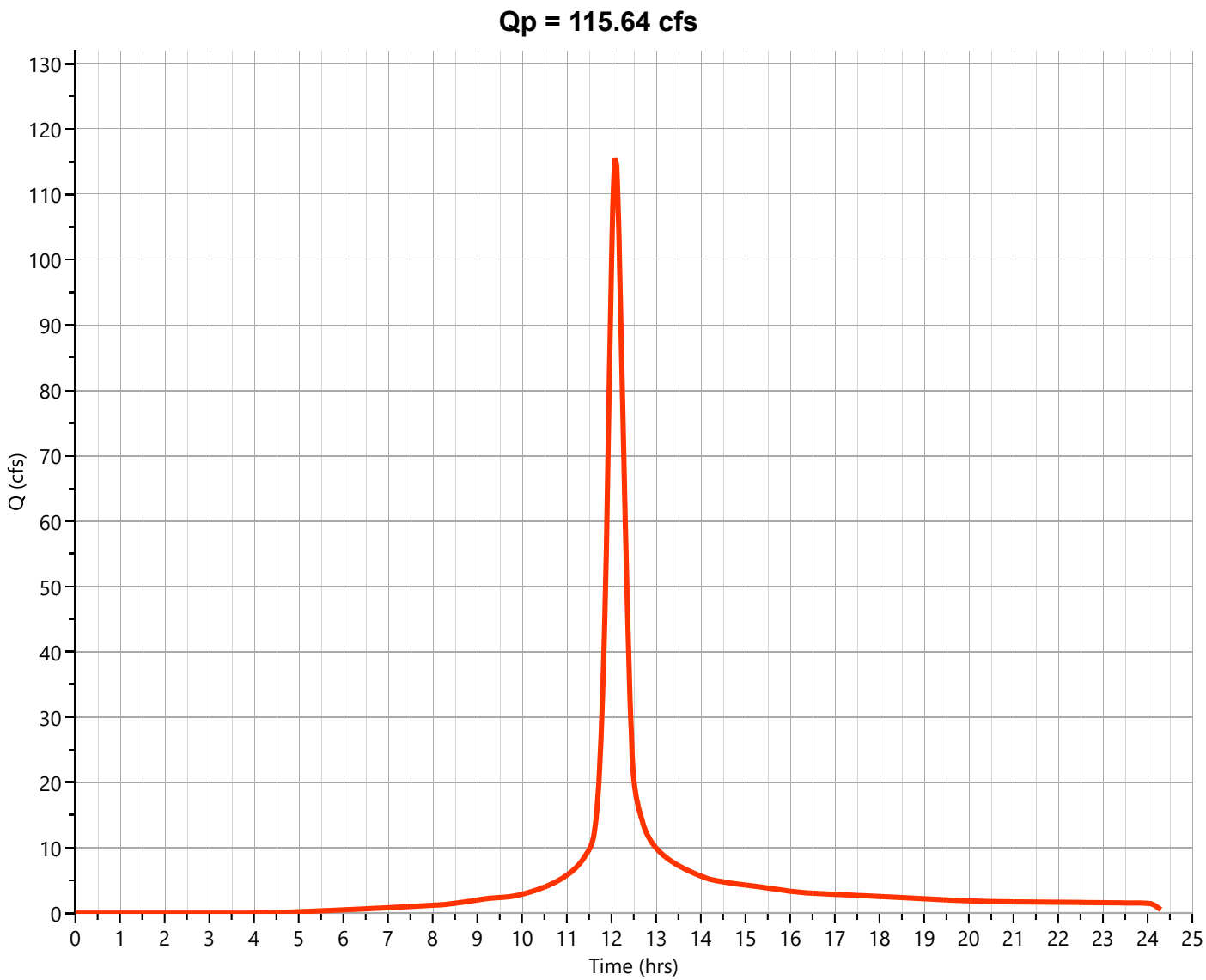
Pre SA-D(EX-EW2)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 115.6 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 390,733 cuft
Drainage Area	= 24.58 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 20.59 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
16.371	88	B-Commercial (75% imper.)
8.209	88	B-Muilt (75% imperv.)
24.58	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

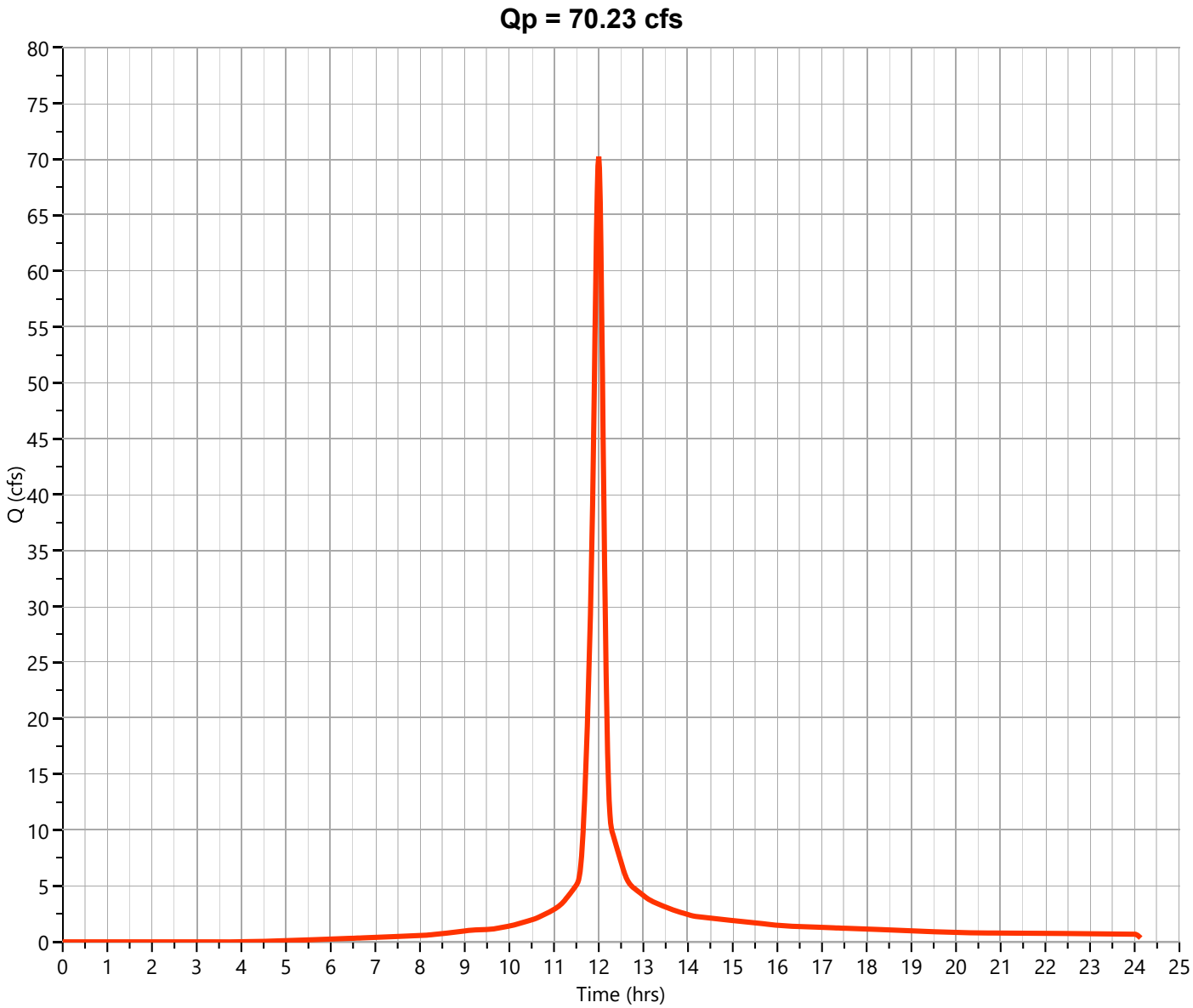
Pre SA-E(LL BEAN PLAZA)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 70.23 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 177,890 cuft
Drainage Area	= 11.1 ac	Curve Number	= 88*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 10.78 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
11.1	88	B-Commercail
11.1	**88**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Post SA-A (DET BAS 2)

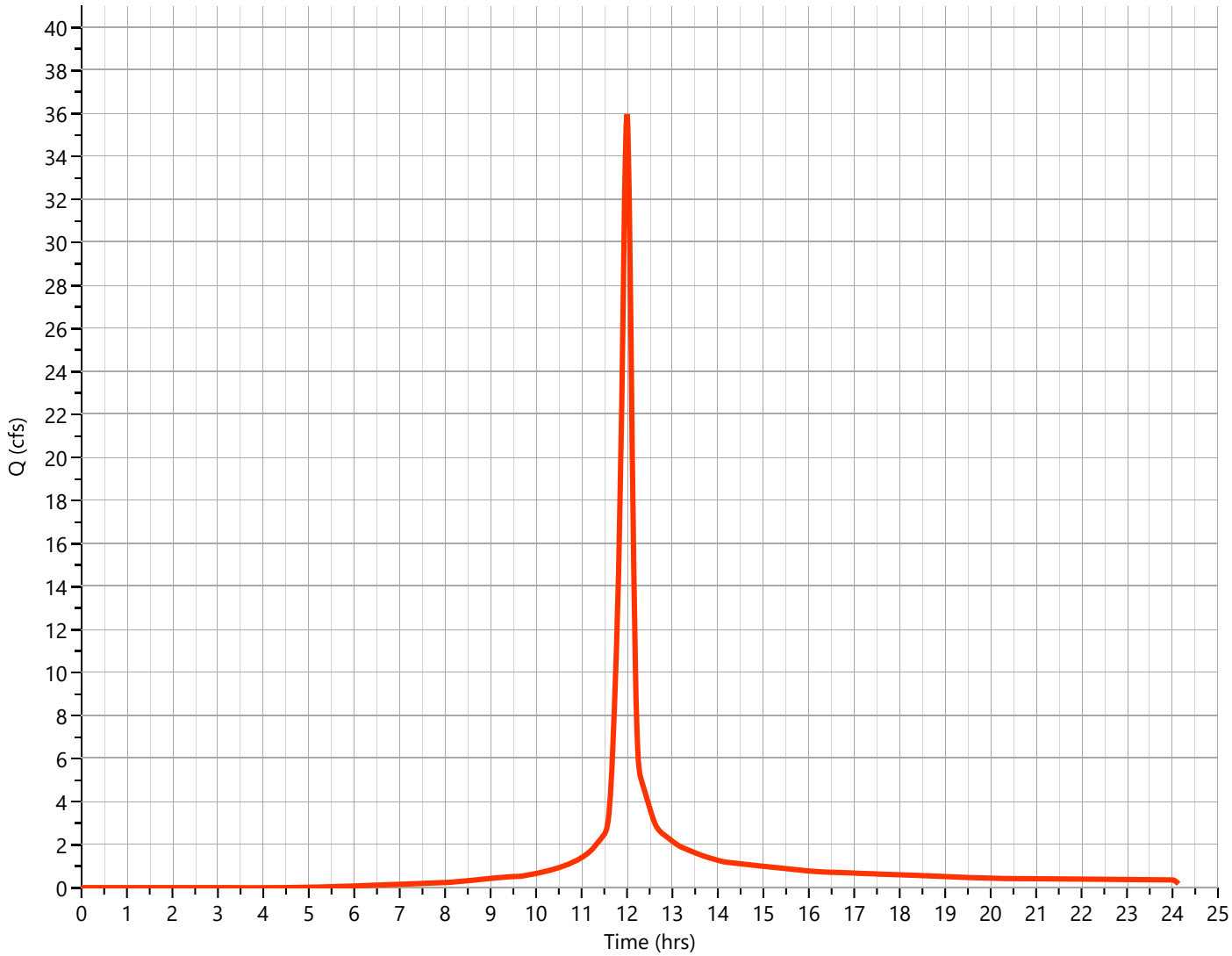
Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 35.97 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Runoff Volume	= 89,998 cuft
Drainage Area	= 5.905 ac	Curve Number	= 86*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.893	98	C-PAVED/ROOF
1.394	74	C-LAWN/LANDSCAPED
1.618	74	C- GRASS /DET BAS
5.905	**86**	Weighted CN Method Employed

Qp = 35.97 cfs



post238

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

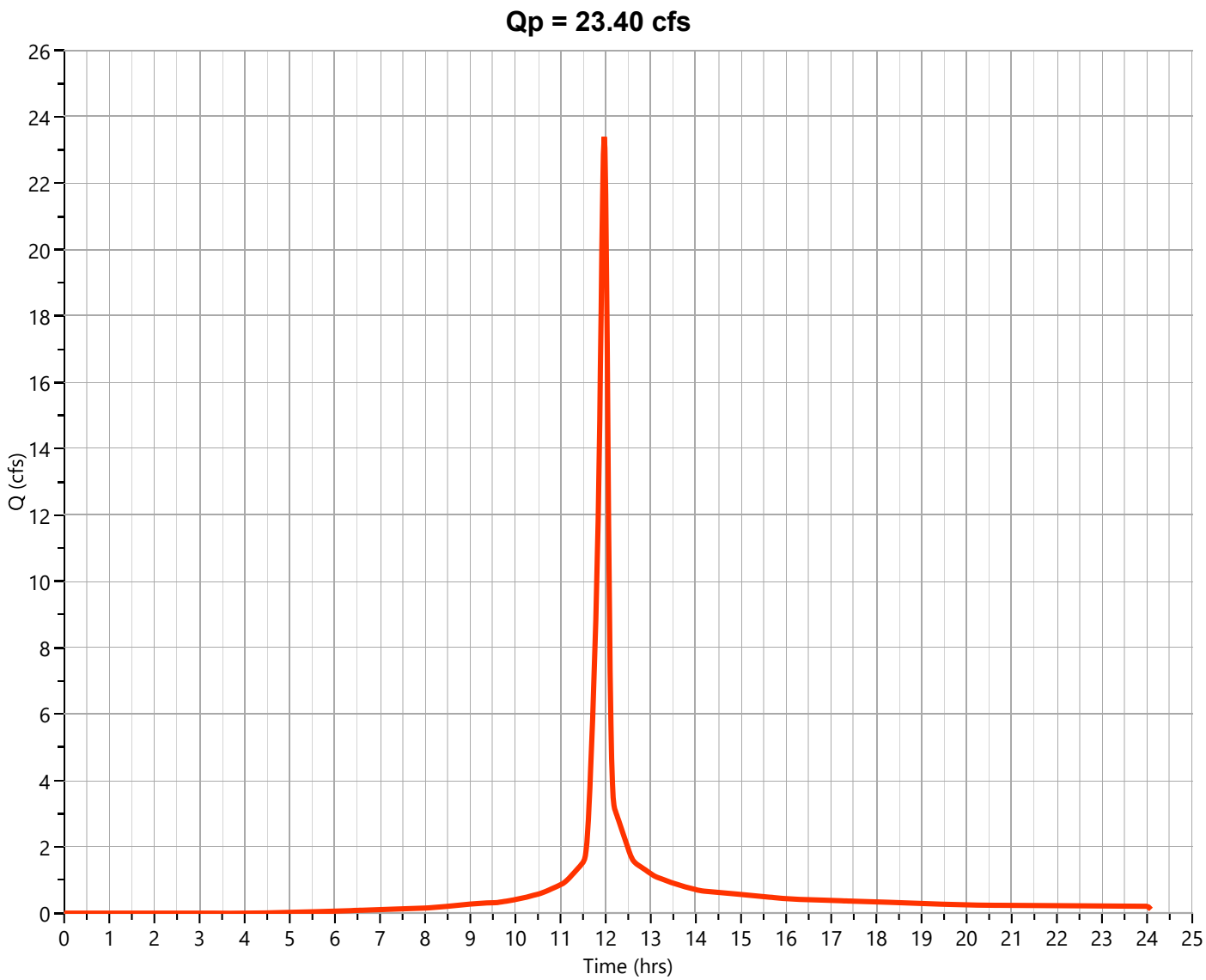
Pre SA-B (TO PRO SWQB 1)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 23.40 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 52,063 cuft
Drainage Area	= 3.477 ac	Curve Number	= 87*
Tc Method	= User	Time of Conc. (Tc)	= 7.5 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.66	74	C-GRASS (GOOD)
1.817	98	C-PAVED/ROOF
3.477	**87**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

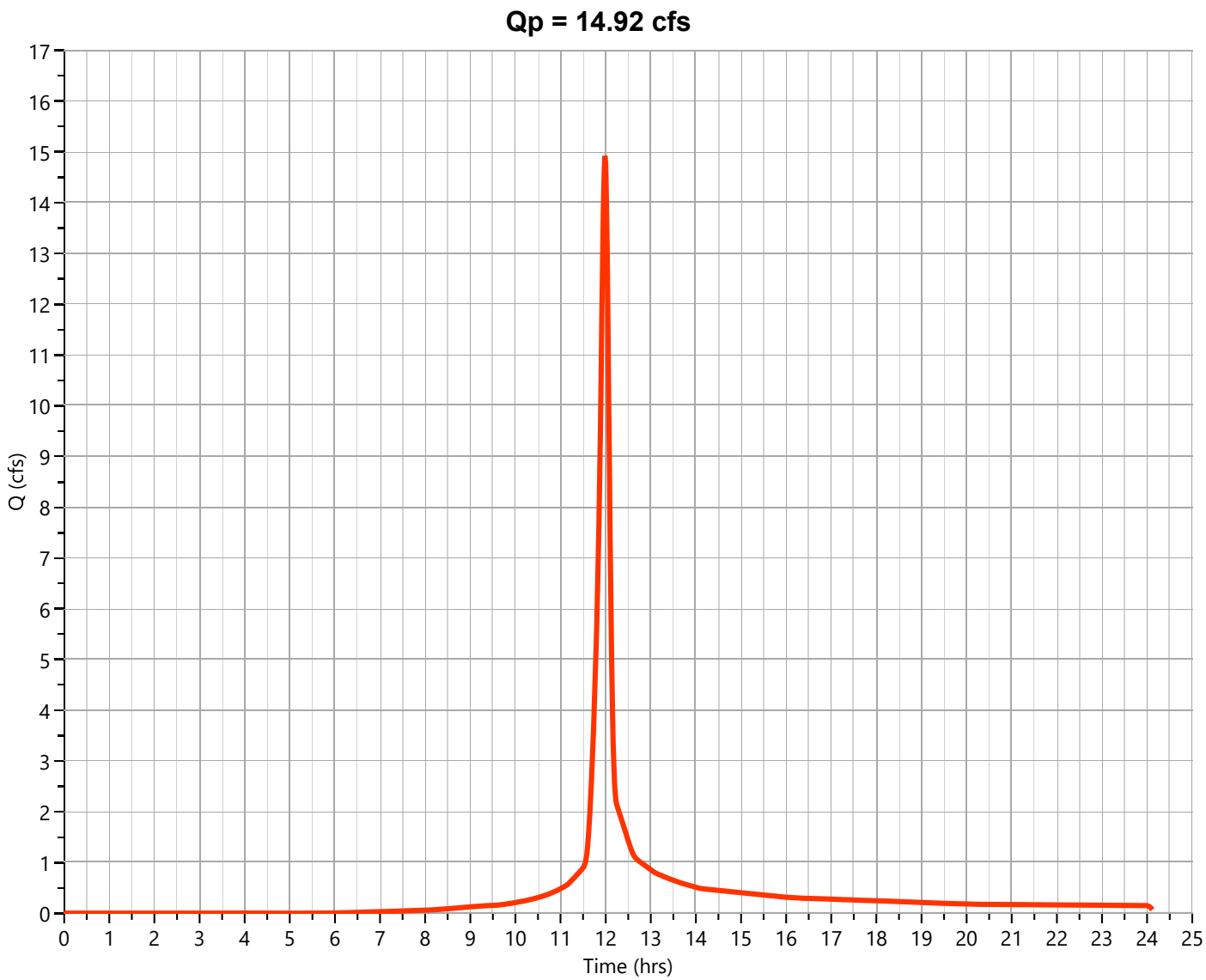
Post SA-C

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 14.92 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.98 hrs
Time Interval	= 1 min	Runoff Volume	= 34,415 cuft
Drainage Area	= 2.554 ac	Curve Number	= 82*
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
2.178	79	C-GRASS (FAIR)
0.376	98	C-ROOF & PAVED
2.554	**82**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

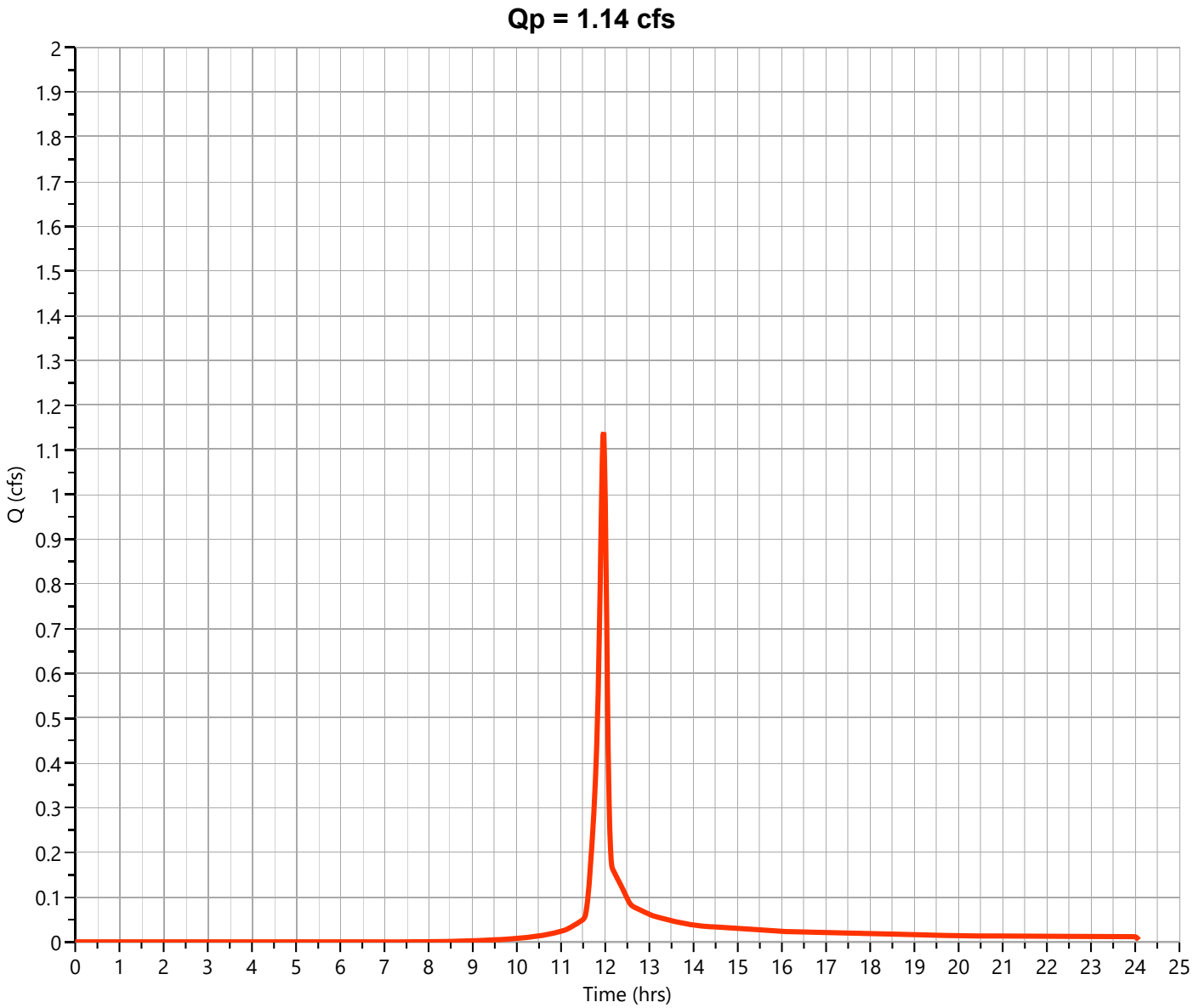
Post SA-B.32 (OVERLAND)

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.139 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 2,307 cuft
Drainage Area	= 0.21 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.47 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.21	74	C-GRASS
0.21	**74**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

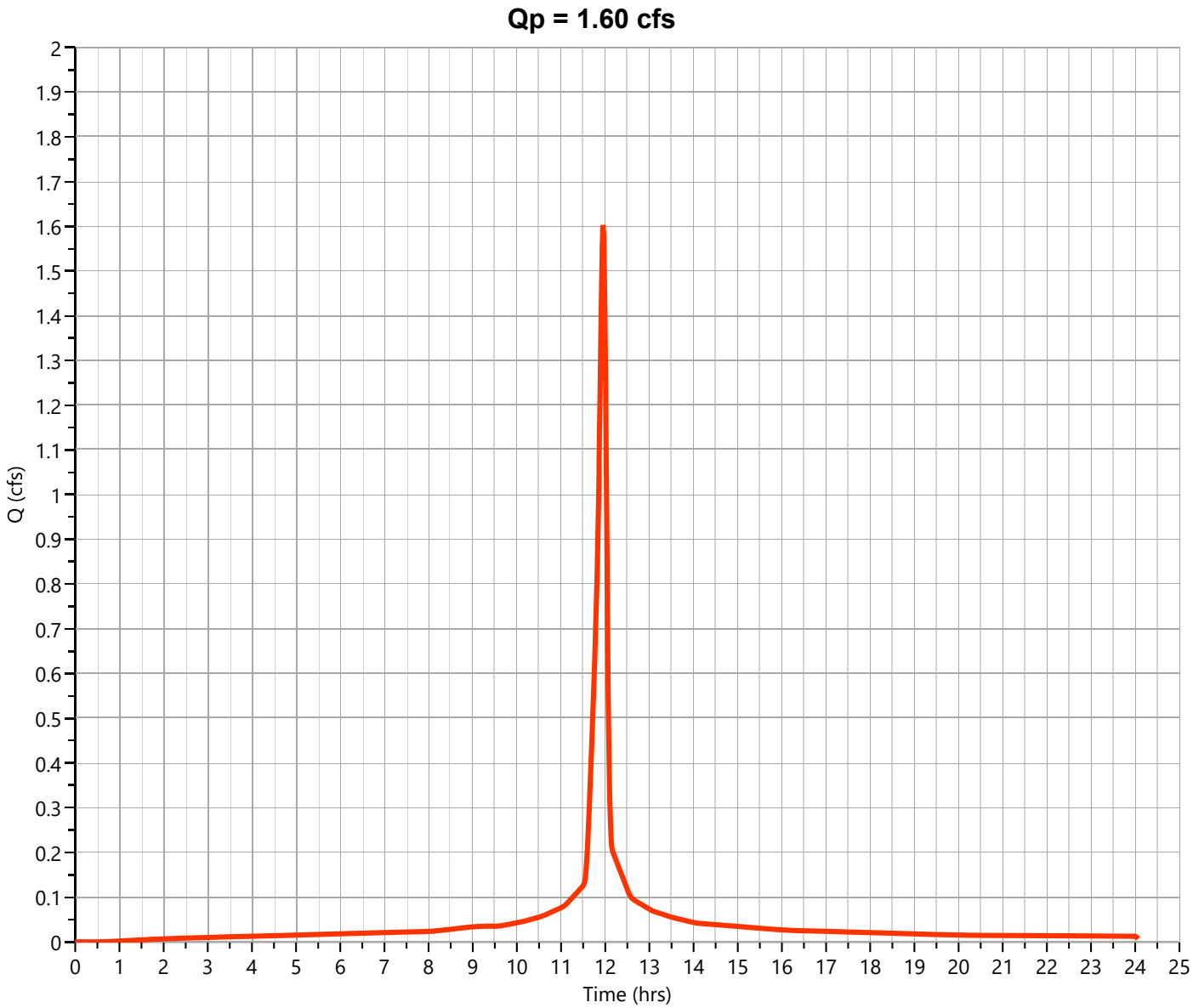
Post BLDG #4 RL

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.603 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,885 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post242

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

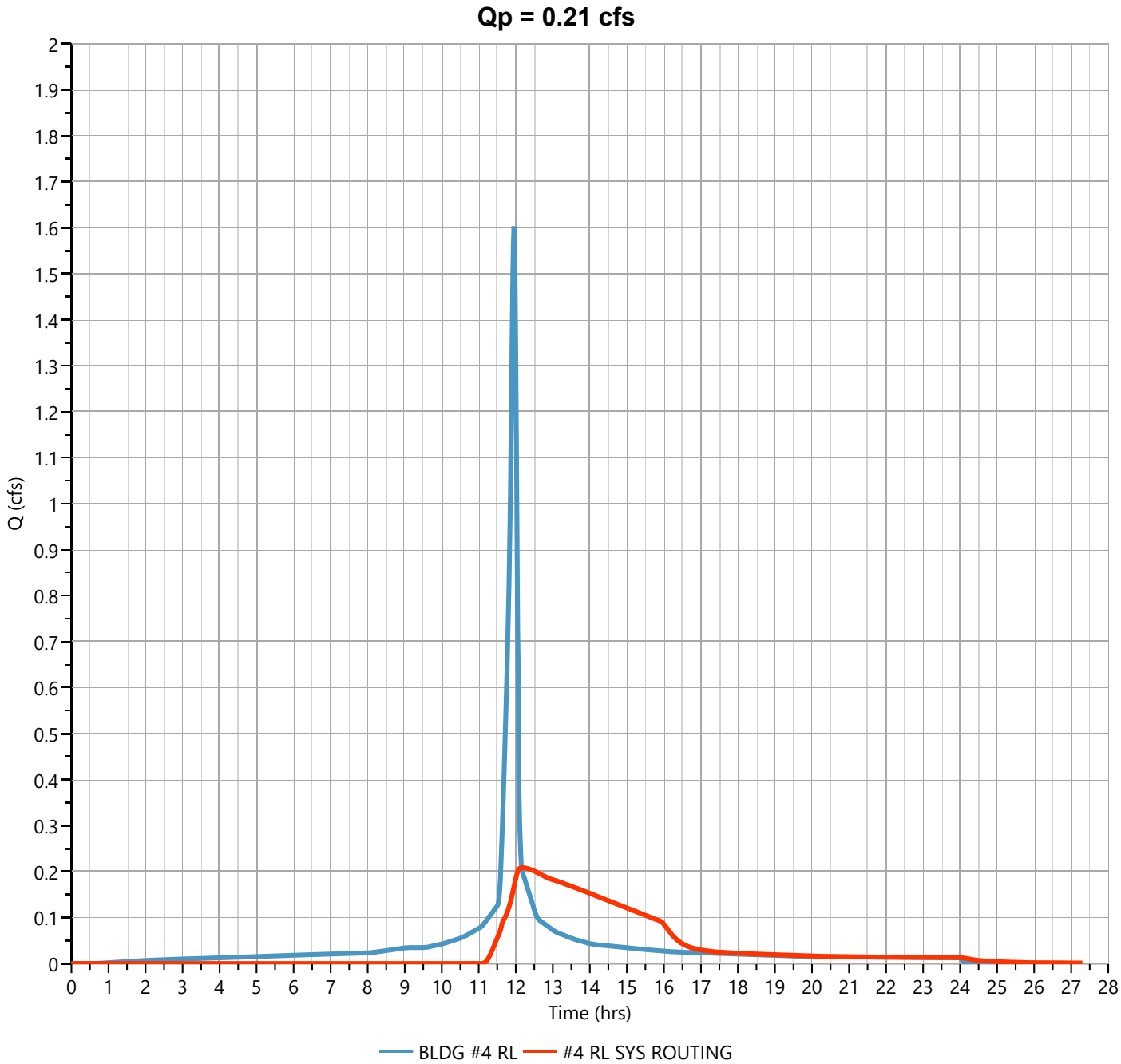
Post #4 RL SYS ROUTING

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.208 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,066 cuft
Inflow Hydrograph	= 7 - BLDG #4 RL	Max. Elevation	= 86.51 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,237 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.96 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

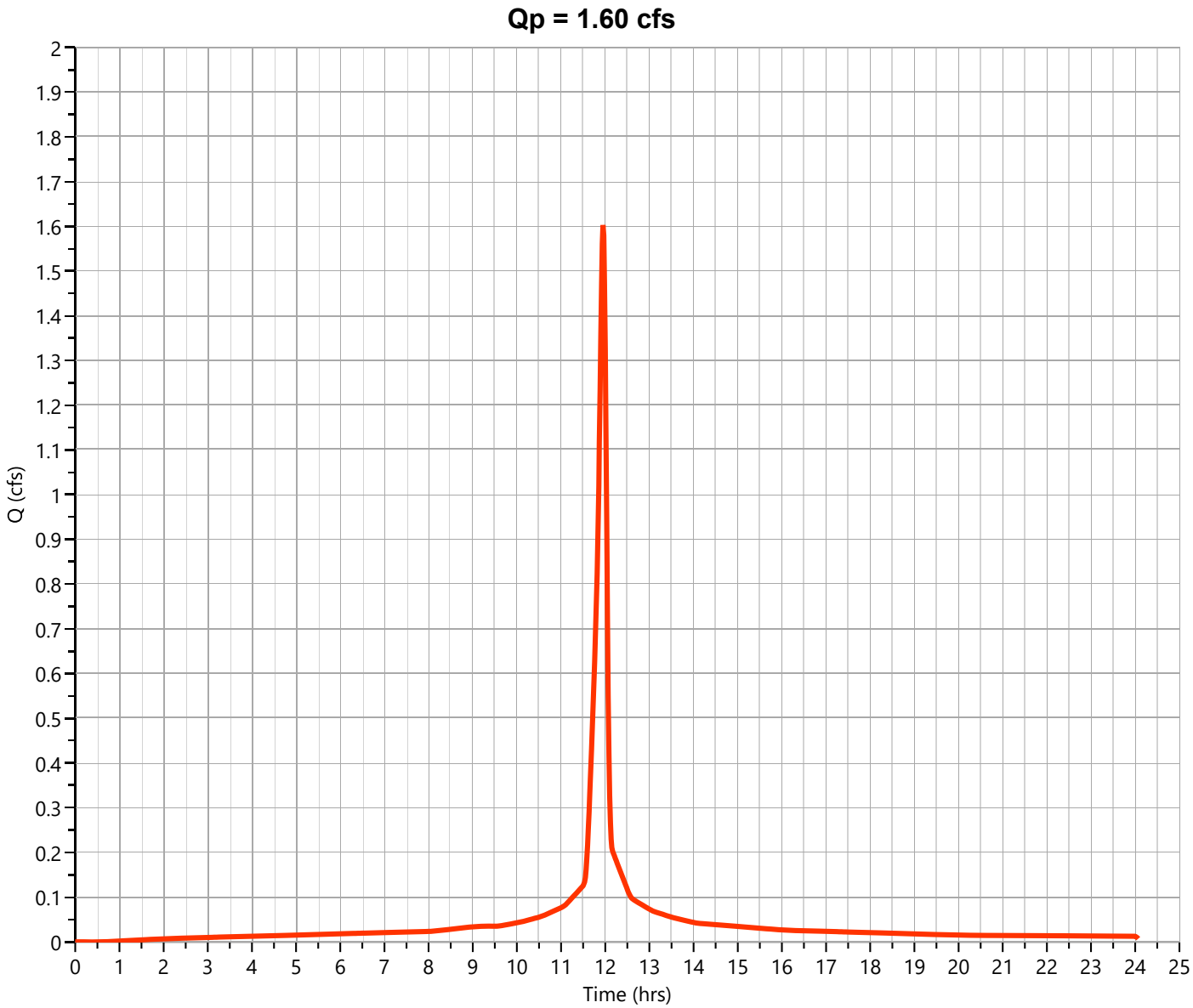
Post BLDG #5 RL

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.603 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,885 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post244

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

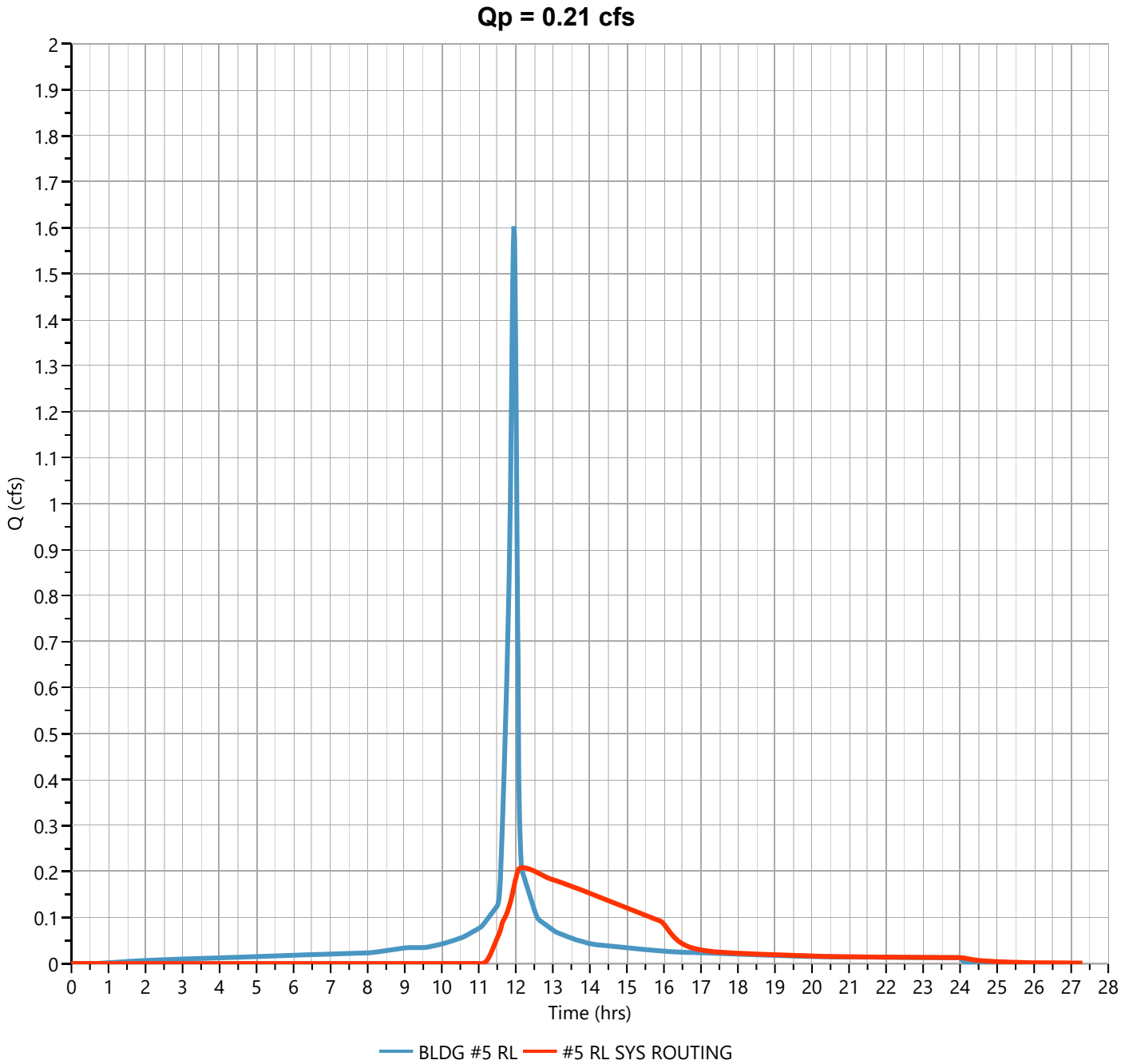
Post #5 RL SYS ROUTING

Hyd. No. 10

Hydrograph Type	= Pond Route	Peak Flow	= 0.208 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,066 cuft
Inflow Hydrograph	= 9 - BLDG #5 RL	Max. Elevation	= 86.51 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,237 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.96 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

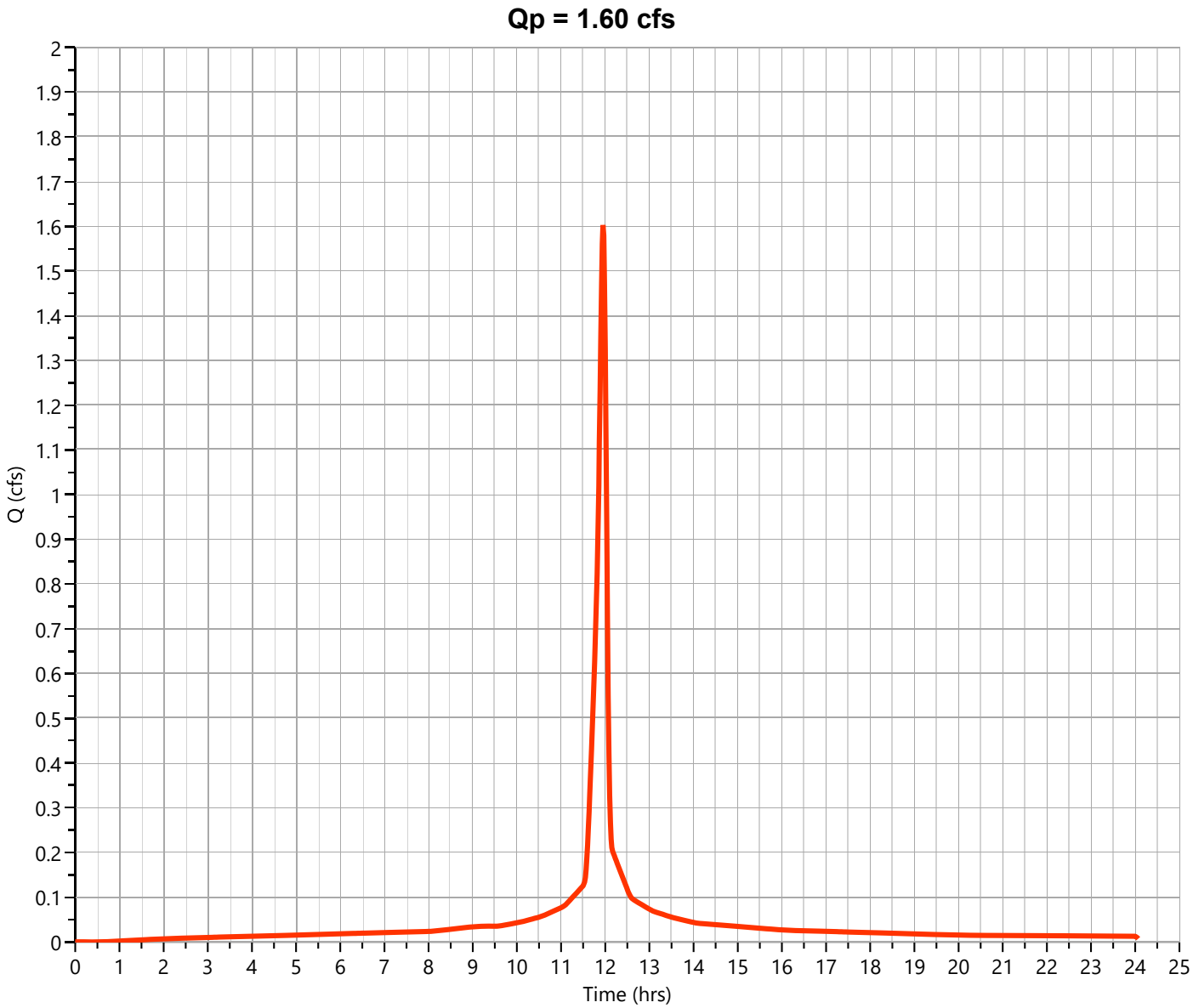
Post BLDG #6 RL

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.603 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,885 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post246

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

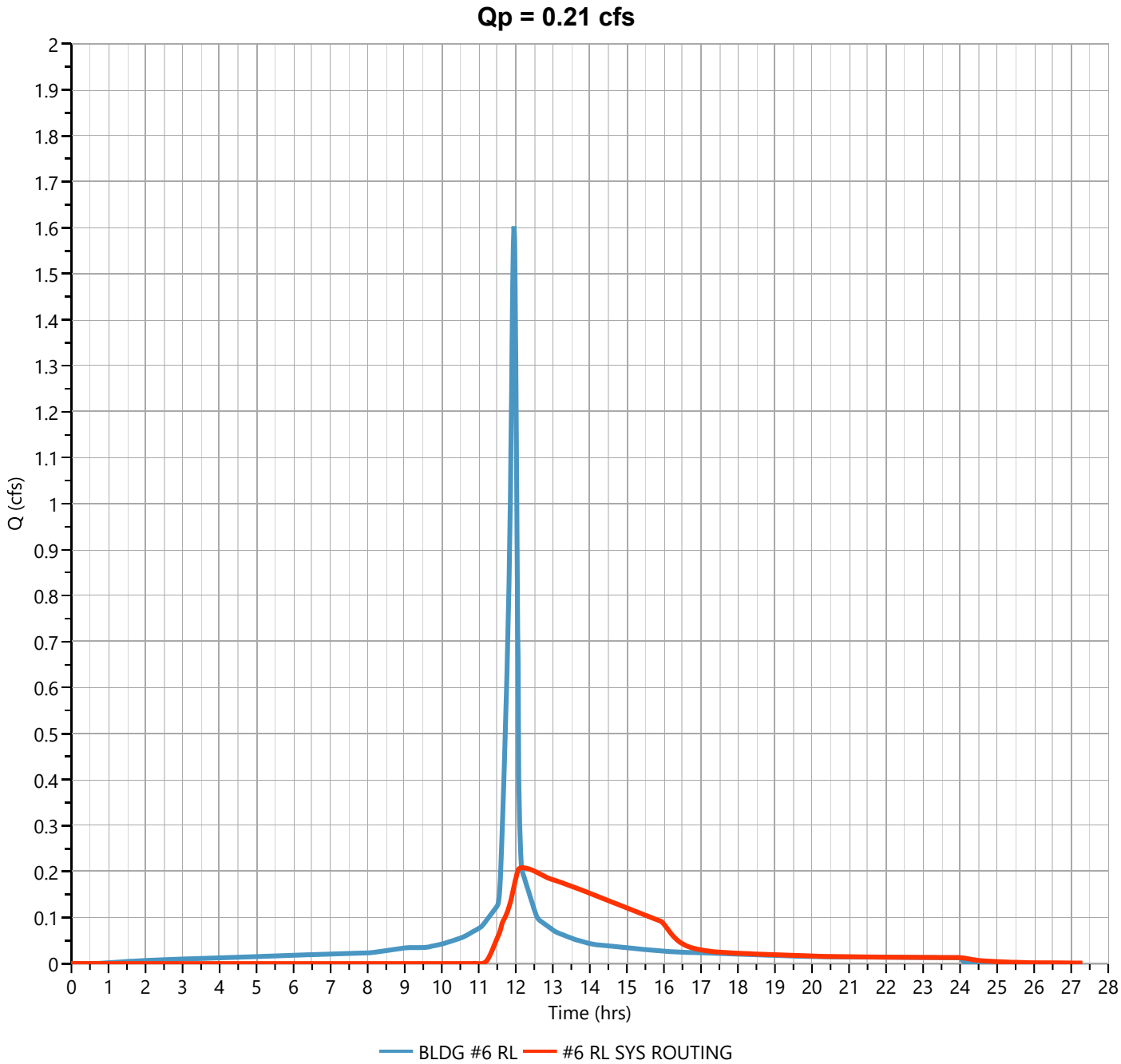
Post #6 RL SYS ROUTING

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 0.208 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,066 cuft
Inflow Hydrograph	= 11 - BLDG #6 RL	Max. Elevation	= 86.51 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,237 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.96 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

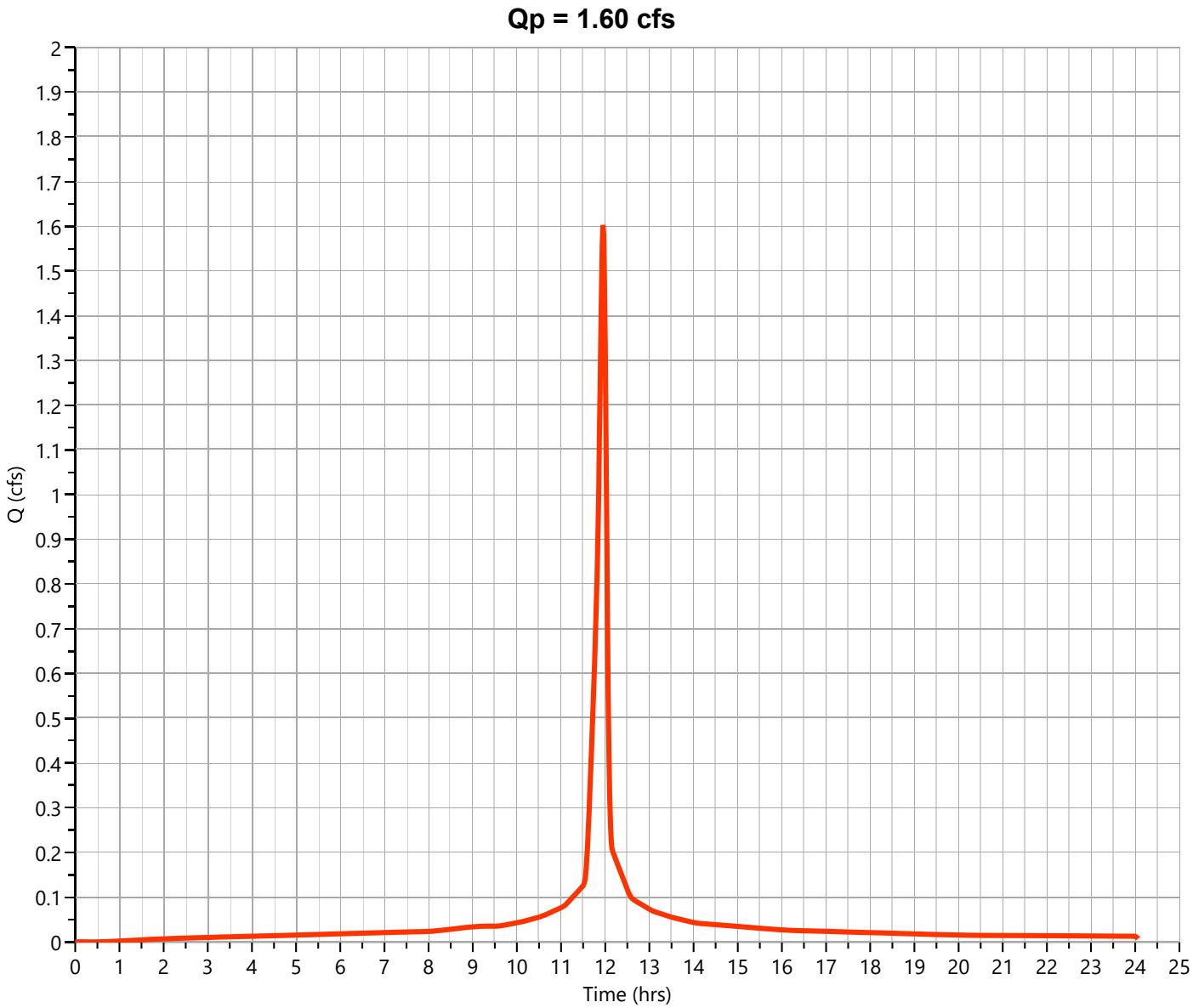
Post BLDG #7 RL

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.603 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,885 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post248

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

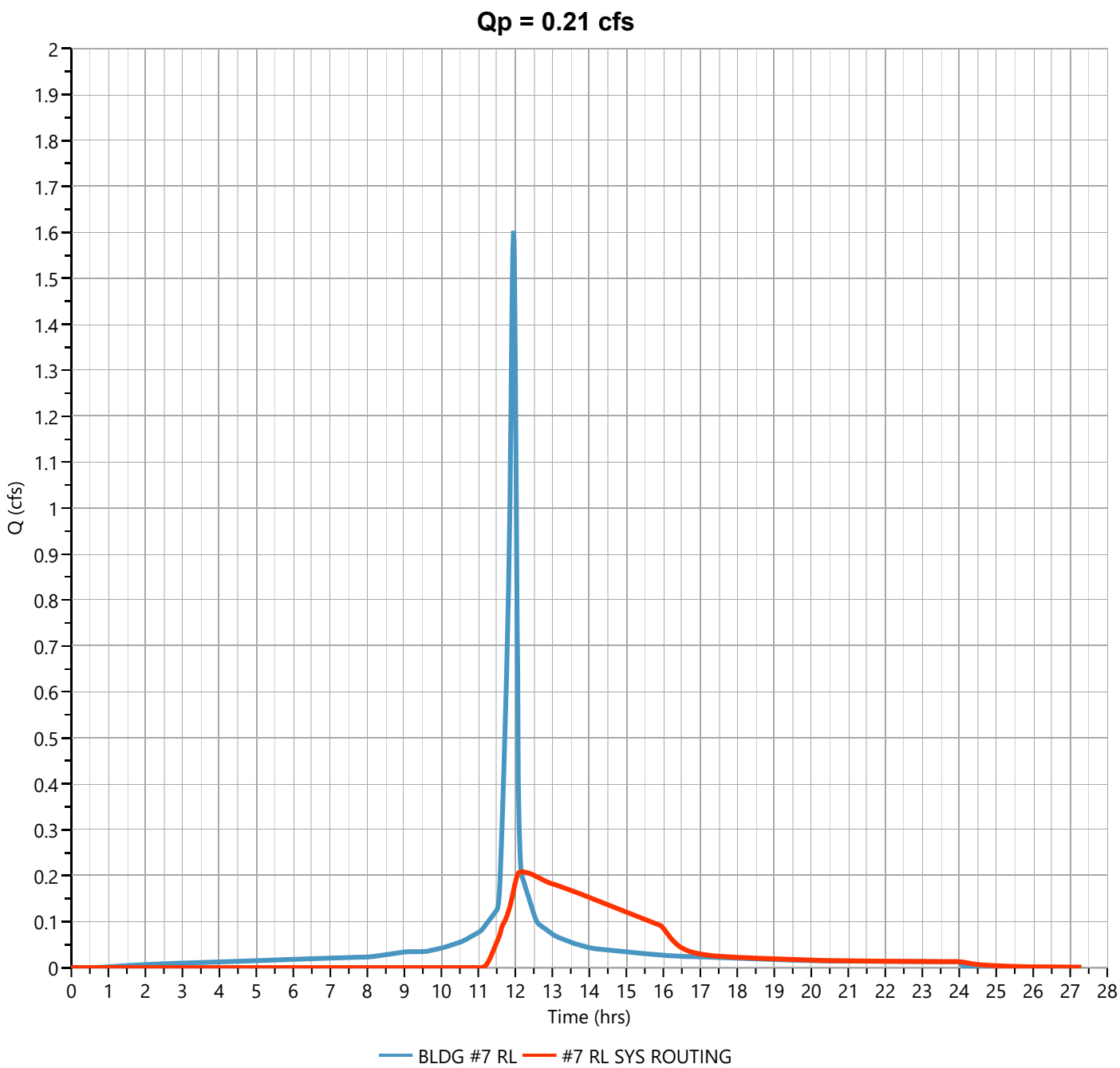
Post #7 RL SYS ROUTING

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.208 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,066 cuft
Inflow Hydrograph	= 13 - BLDG #7 RL	Max. Elevation	= 86.51 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,237 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.96 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

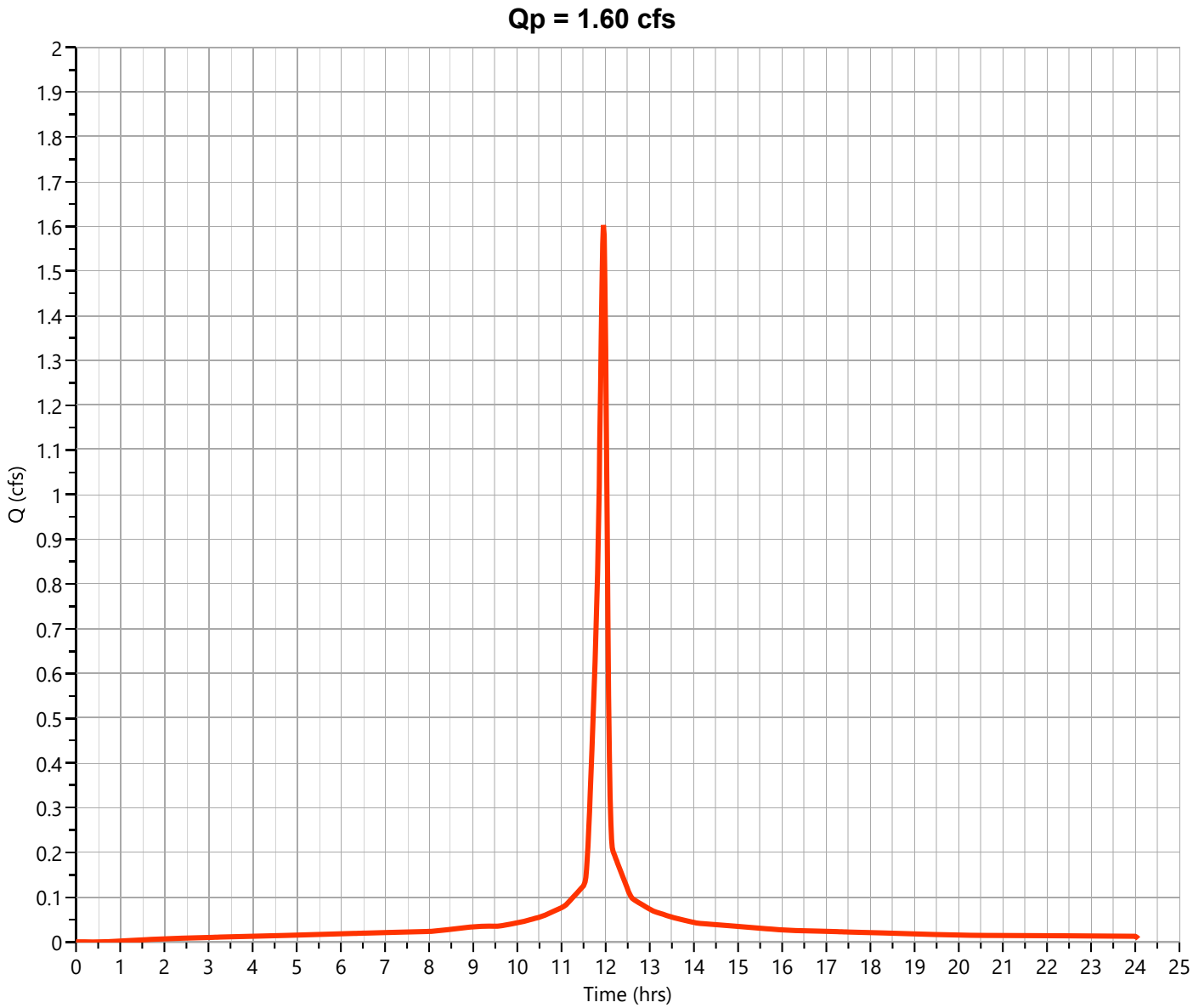
Post BLDG #8 RL

Hyd. No. 15

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.603 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 3,885 cuft
Drainage Area	= 0.19 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.19	98	C-ROOF
0.19	**98**	Weighted CN Method Employed



post250

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

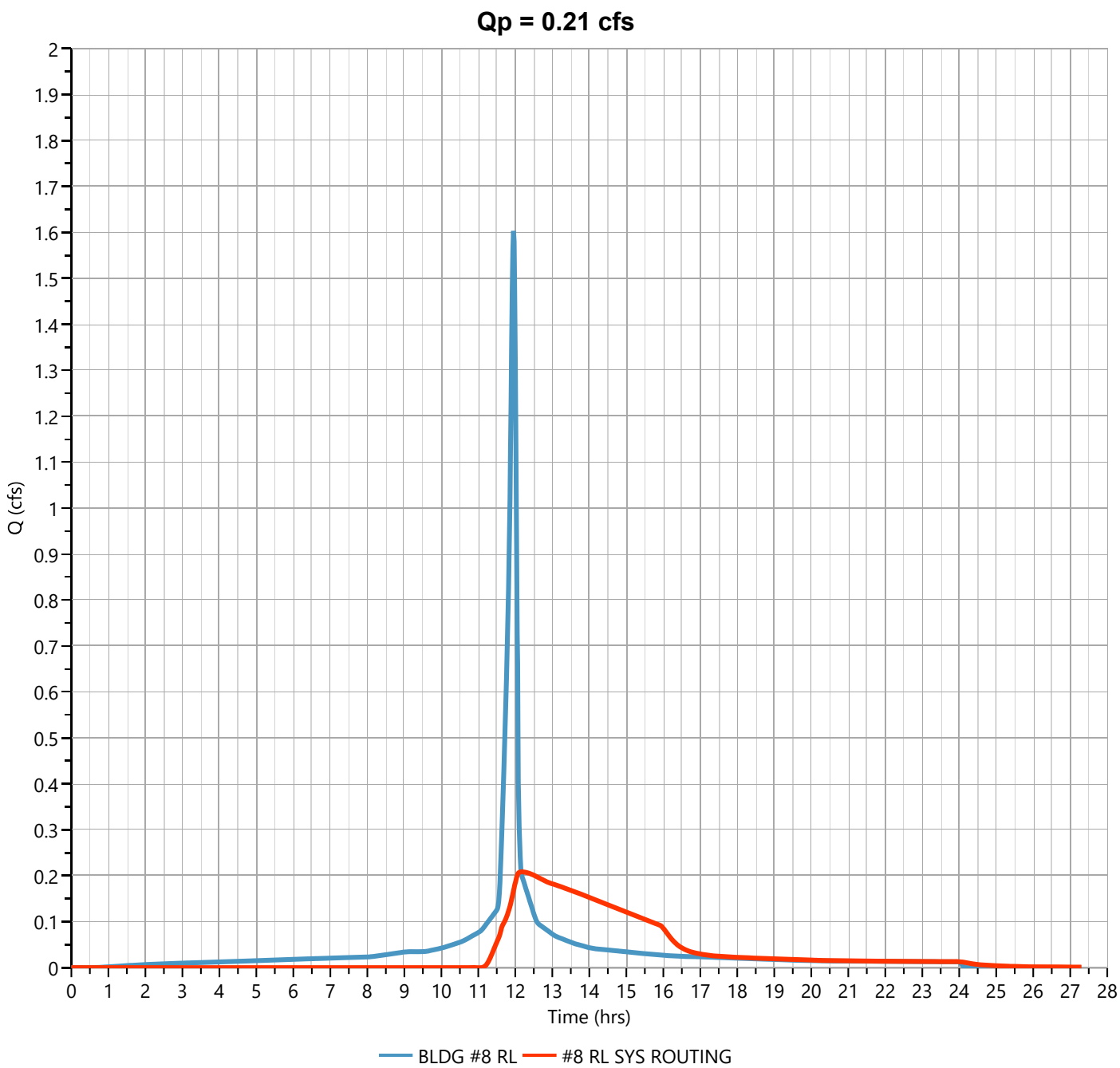
#8 RL SYS ROUTING

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.208 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,066 cuft
Inflow Hydrograph	= 15 - BLDG #8 RL	Max. Elevation	= 86.51 ft
Pond Name	= TYP. BLDG RL SYS	Max. Storage	= 2,237 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.96 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

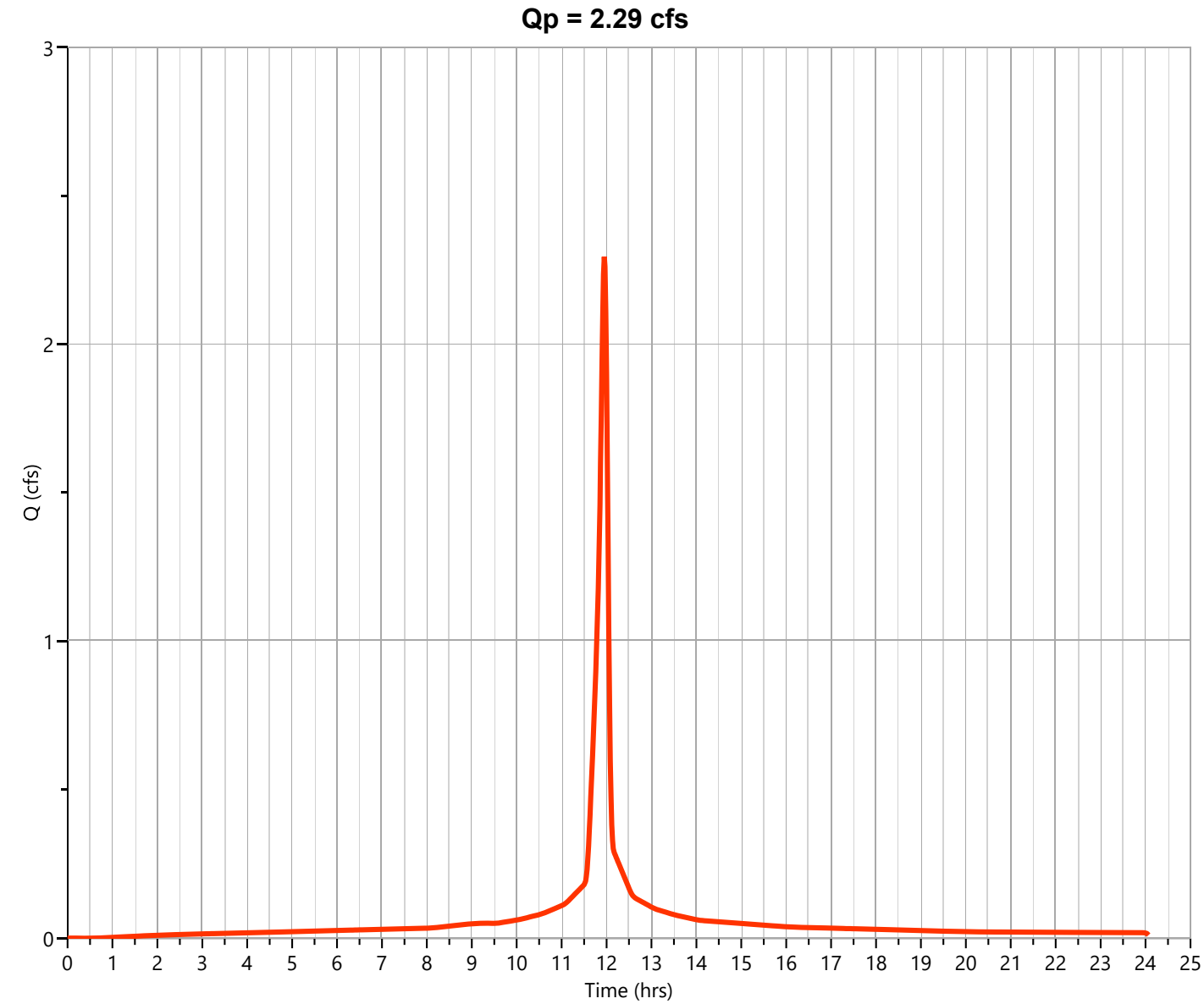
Post BLDG #11 RL

Hyd. No. 17

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.295 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.95 hrs
Time Interval	= 1 min	Runoff Volume	= 5,562 cuft
Drainage Area	= 0.272 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.272	98	C-ROOF
0.272	**98**	Weighted CN Method Employed



post252

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

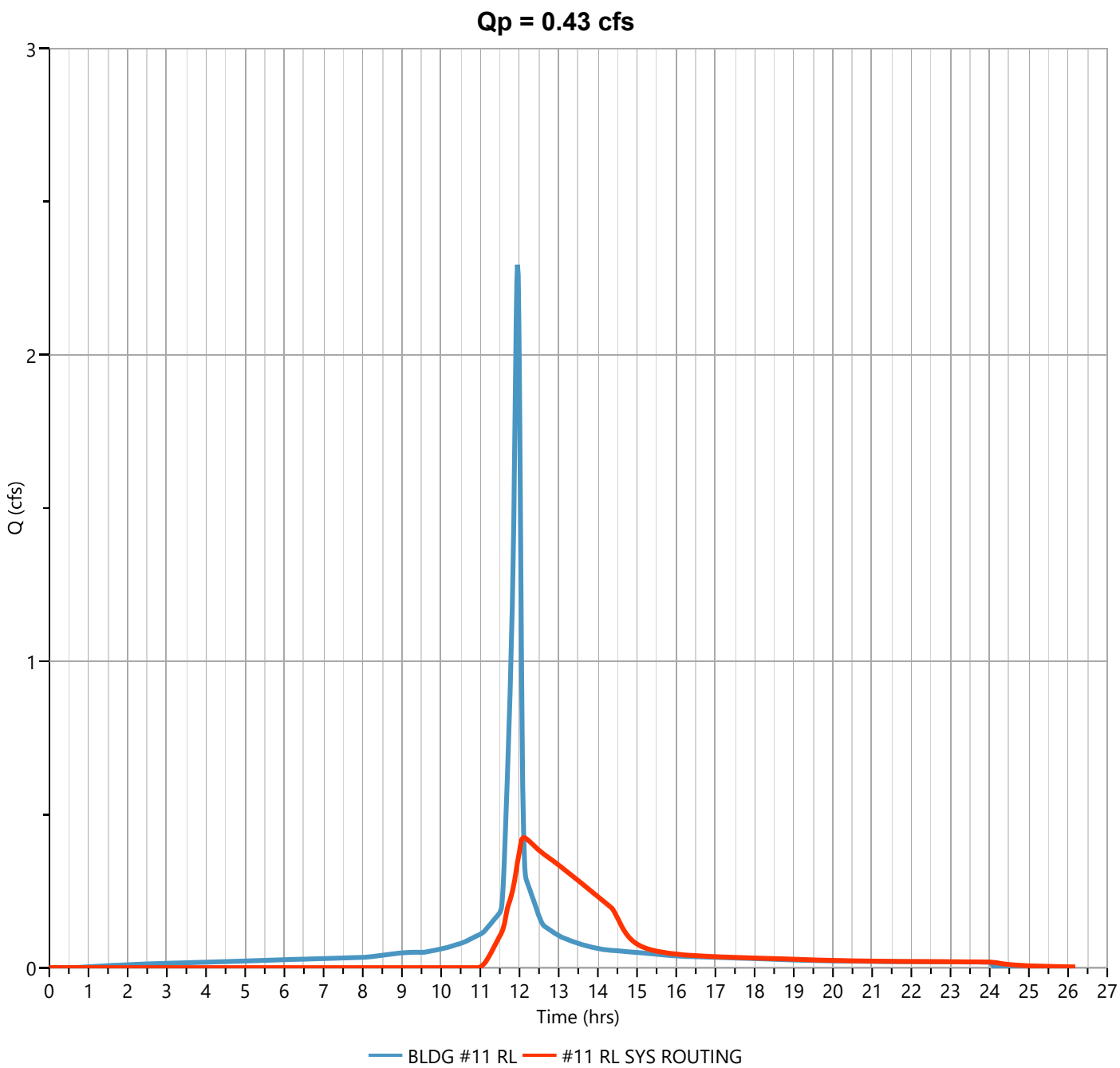
Post #11 RL SYS ROUTING

Hyd. No. 18

Hydrograph Type	= Pond Route	Peak Flow	= 0.425 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,460 cuft
Inflow Hydrograph	= 17 - BLDG #11 RL	Max. Elevation	= 86.49 ft
Pond Name	= BLDG #11 RL SYS	Max. Storage	= 2,996 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.52 hrs



Hydrograph Report

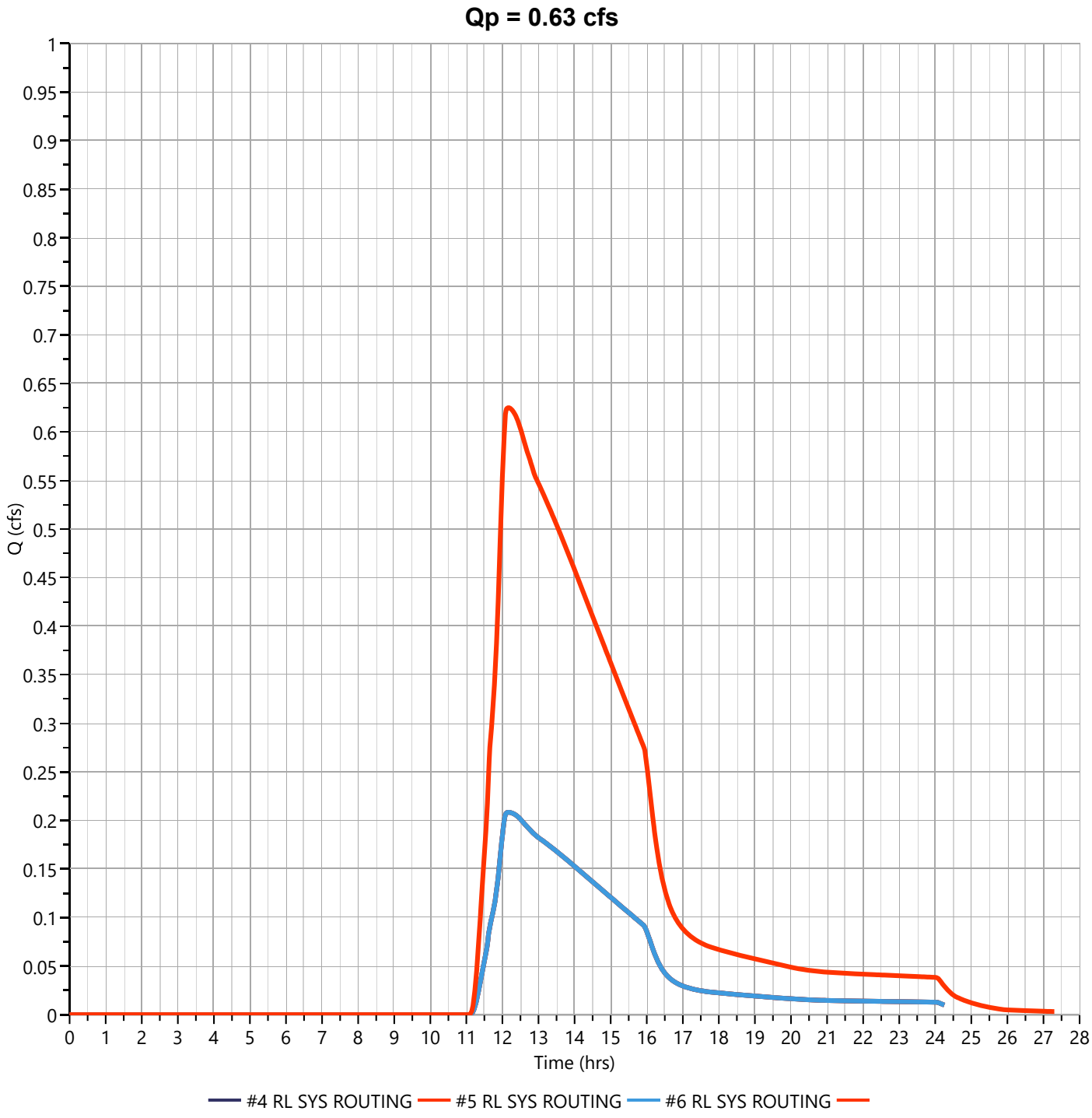
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 19

Hydrograph Type	= Junction	Peak Flow	= 0.625 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,197 cuft
Inflow Hydrographs	= 8, 10, 12	Total Contrib. Area	= 0.0 ac



Hydrograph Report

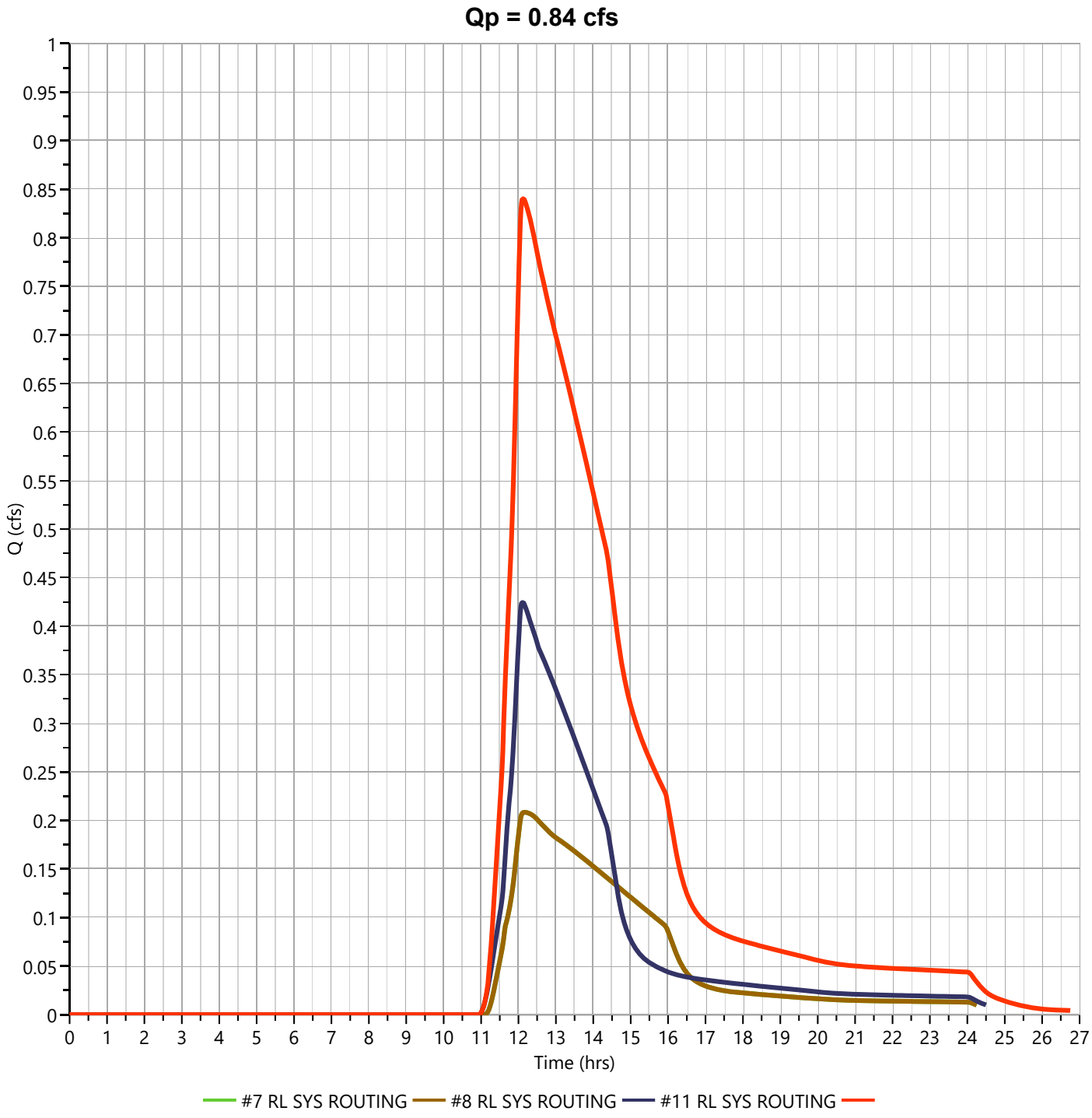
Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

Hyd. No. 20

Hydrograph Type	= Junction	Peak Flow	= 0.841 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 10,592 cuft
Inflow Hydrographs	= 14, 16, 18	Total Contrib. Area	= 0.0 ac



post255

Hydrograph Report

Project Name:

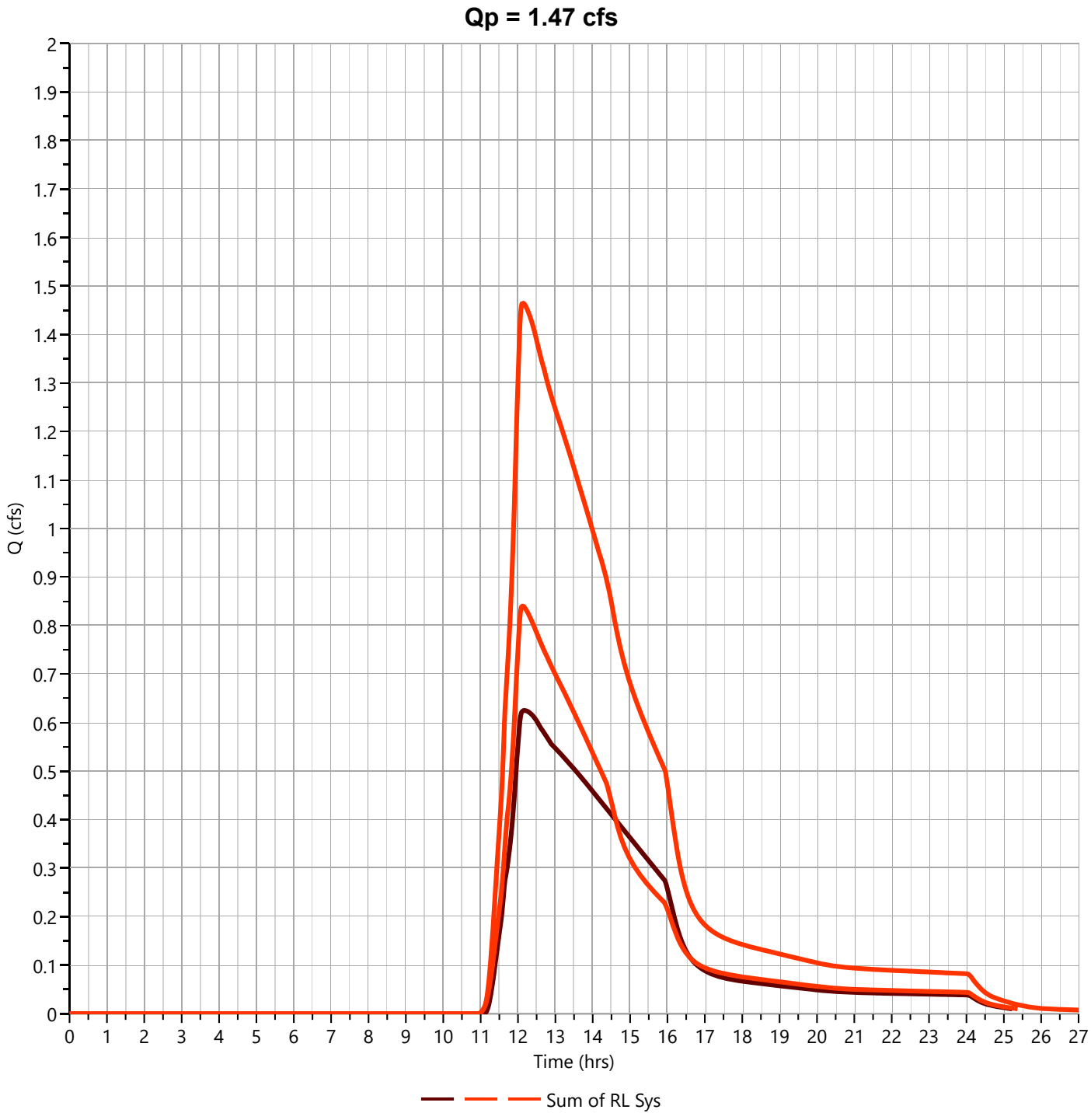
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum of RL Sys

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 1.466 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 19,789 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 0.0 ac



post256

Hydrograph Report

Project Name:

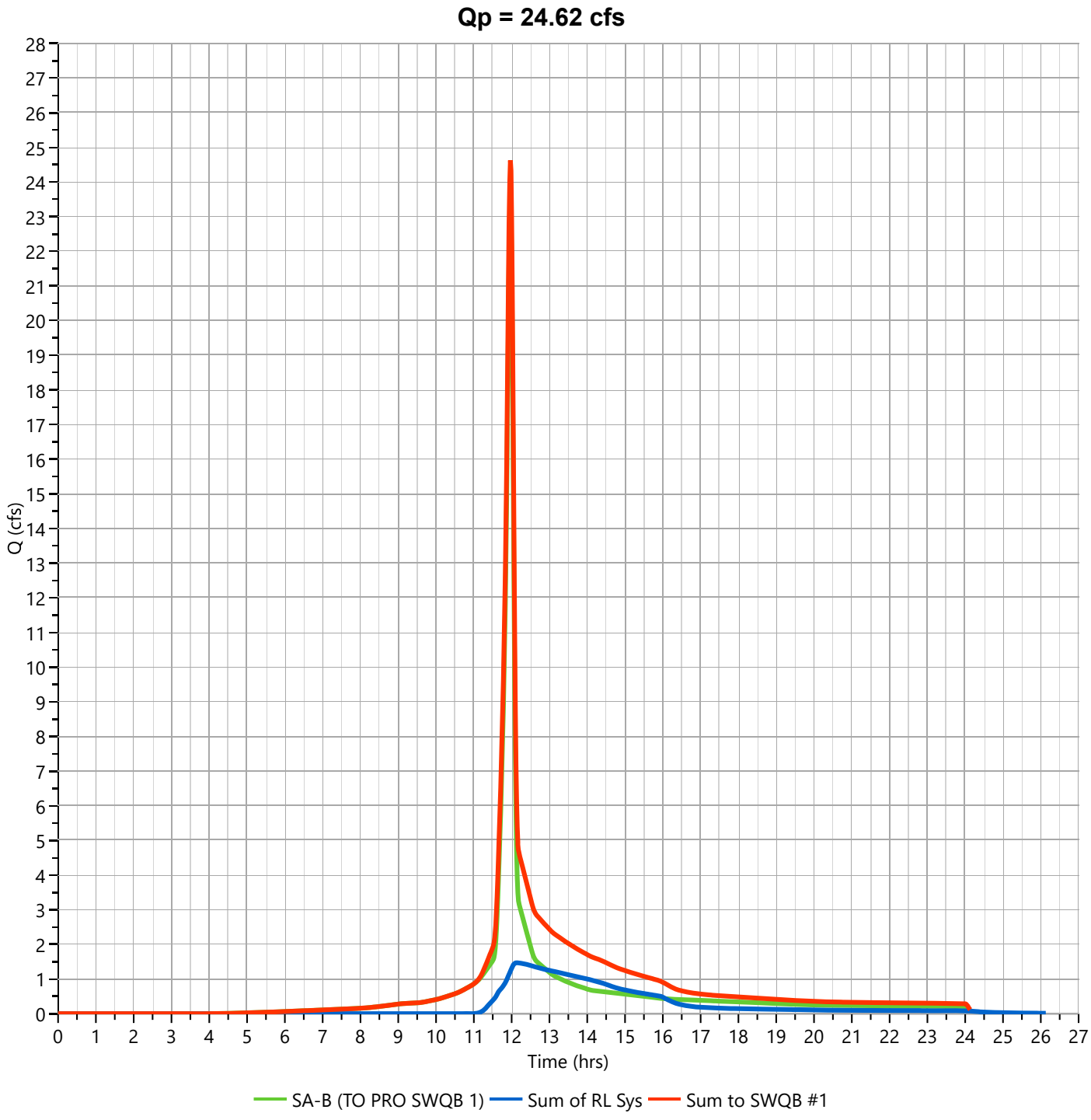
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to SWQB #1

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 24.62 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Hydrograph Volume	= 71,852 cuft
Inflow Hydrographs	= 4, 21	Total Contrib. Area	= 3.477 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

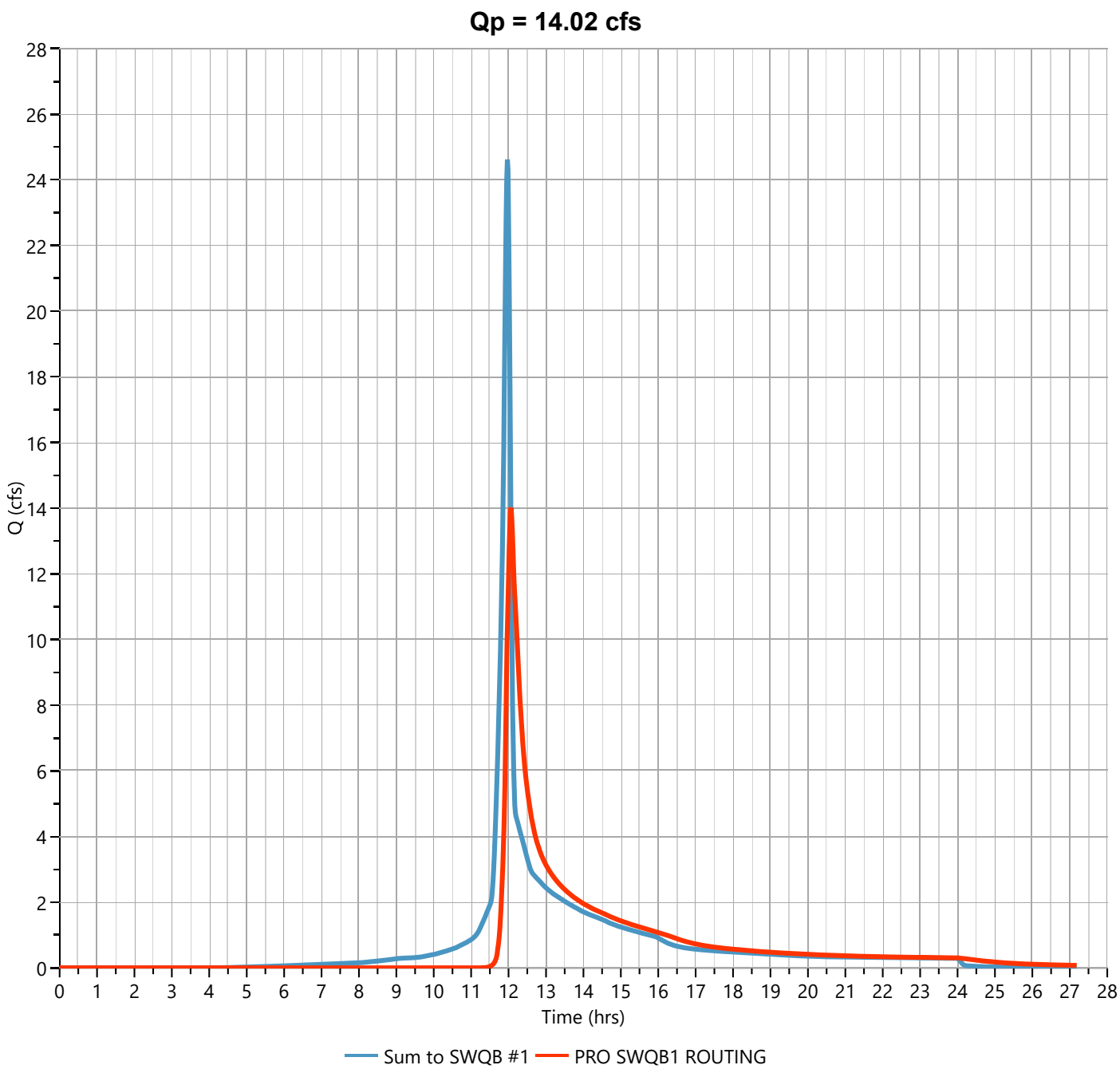
PRO SWQB1 ROUTING

Hyd. No. 23

Hydrograph Type	= Pond Route	Peak Flow	= 14.02 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 65,420 cuft
Inflow Hydrograph	= 22 - Sum to SWQB #1	Max. Elevation	= 83.12 ft
Pond Name	= PRO SWQB #1	Max. Storage	= 22,388 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.01 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

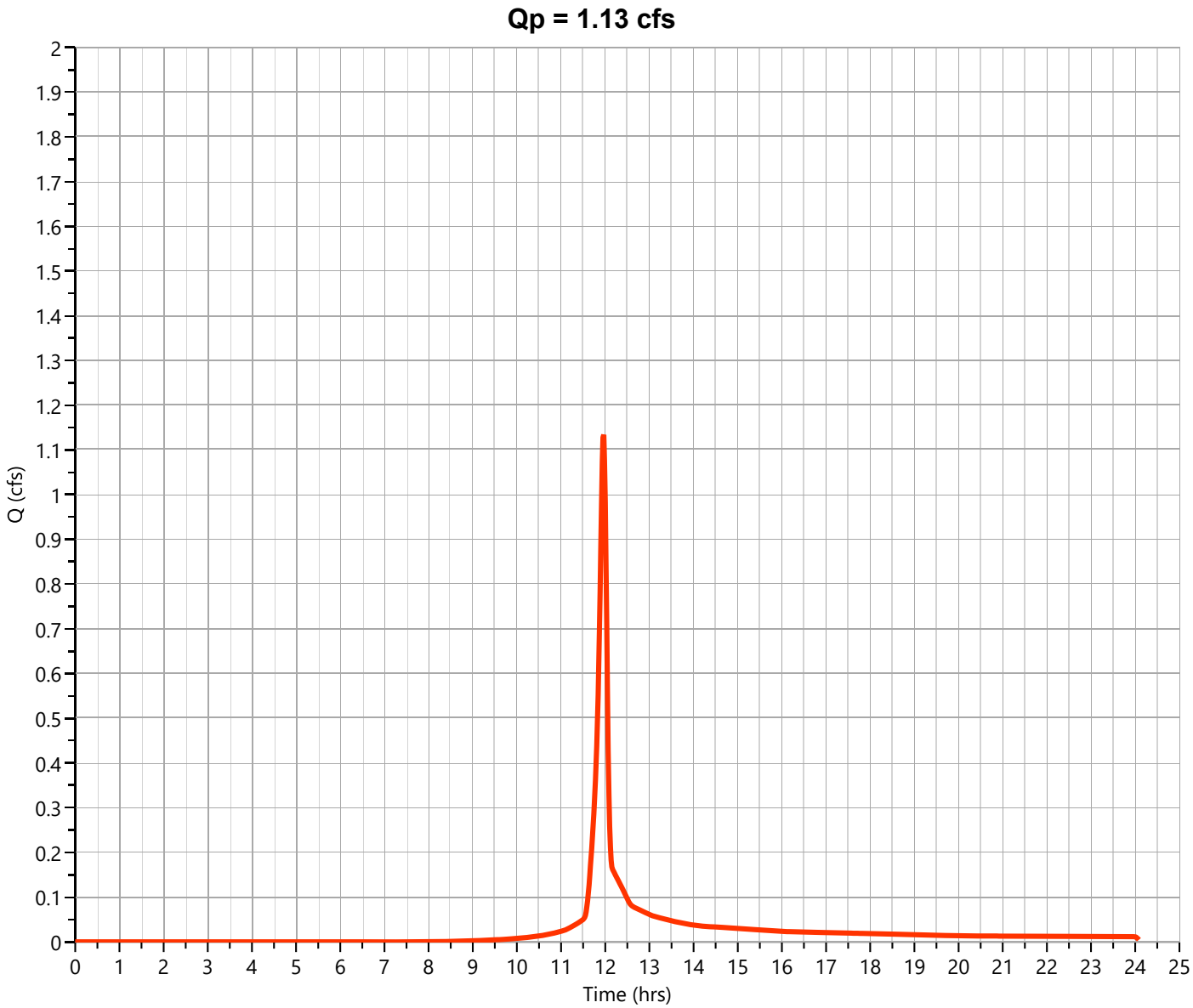
Post SA-B.32 (OVERLAND)'

Hyd. No. 24

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.134 cfs
Storm Frequency	= 100-yr	Time to Peak	= 11.97 hrs
Time Interval	= 1 min	Runoff Volume	= 2,296 cuft
Drainage Area	= 0.209 ac	Curve Number	= 74*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 6.55 min
Total Rainfall	= 5.70 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.209	74	C-LAWN
0.209	**74**	Weighted CN Method Employed



post259

Hydrograph Report

Project Name:

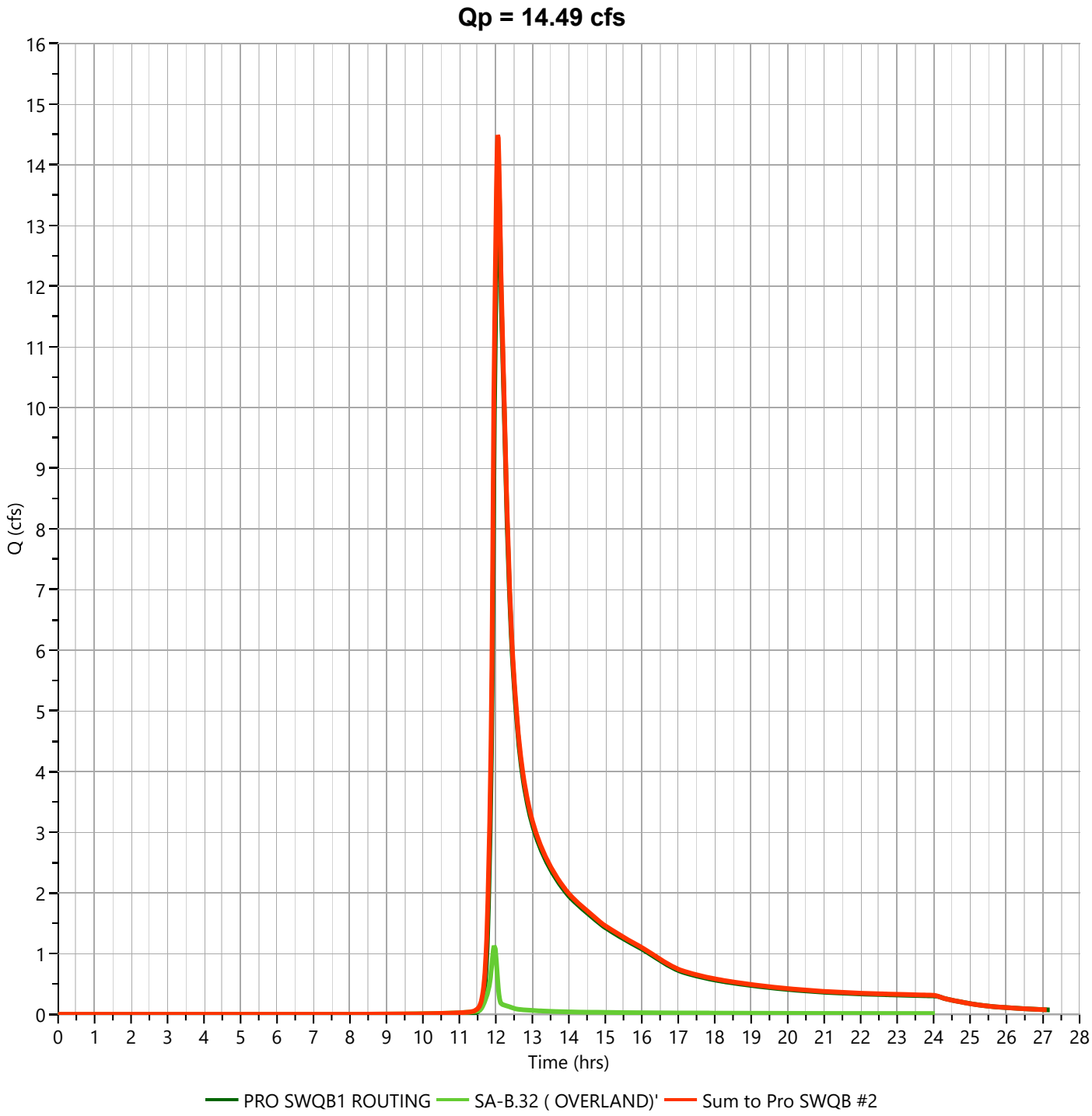
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Pro SWQB #2

Hyd. No. 25

Hydrograph Type	= Junction	Peak Flow	= 14.49 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.05 hrs
Time Interval	= 1 min	Hydrograph Volume	= 67,716 cuft
Inflow Hydrographs	= 23, 24	Total Contrib. Area	= 0.209 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

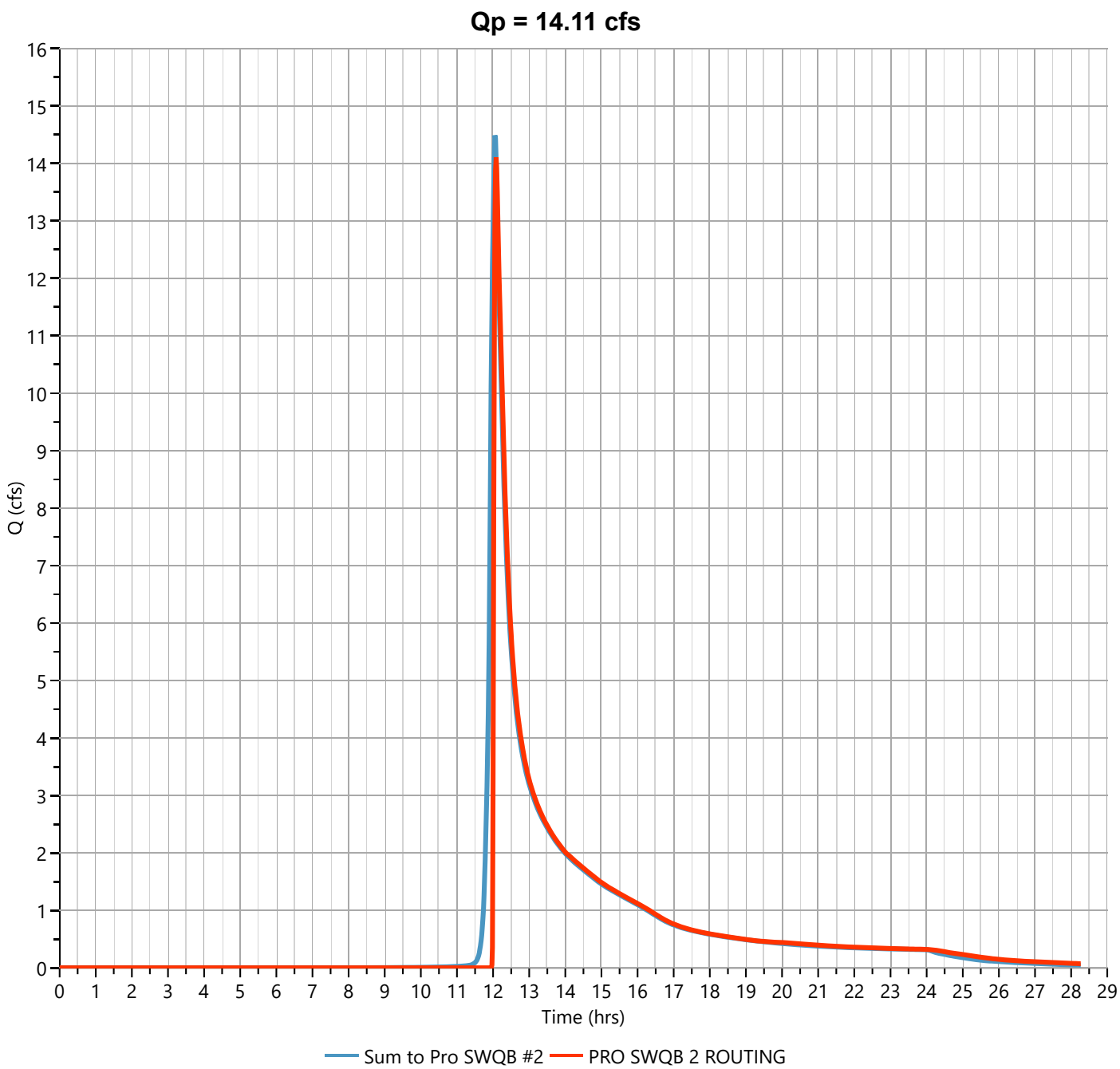
Post PRO SWQB 2 ROUTING

Hyd. No. 26

Hydrograph Type	= Pond Route	Peak Flow	= 14.11 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 63,638 cuft
Inflow Hydrograph	= 25 - Sum to Pro SWQB #2	Max. Elevation	= 80.43 ft
Pond Name	= PRO SWQB #2	Max. Storage	= 6,711 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 24 min



Hydrograph Report

Project Name:

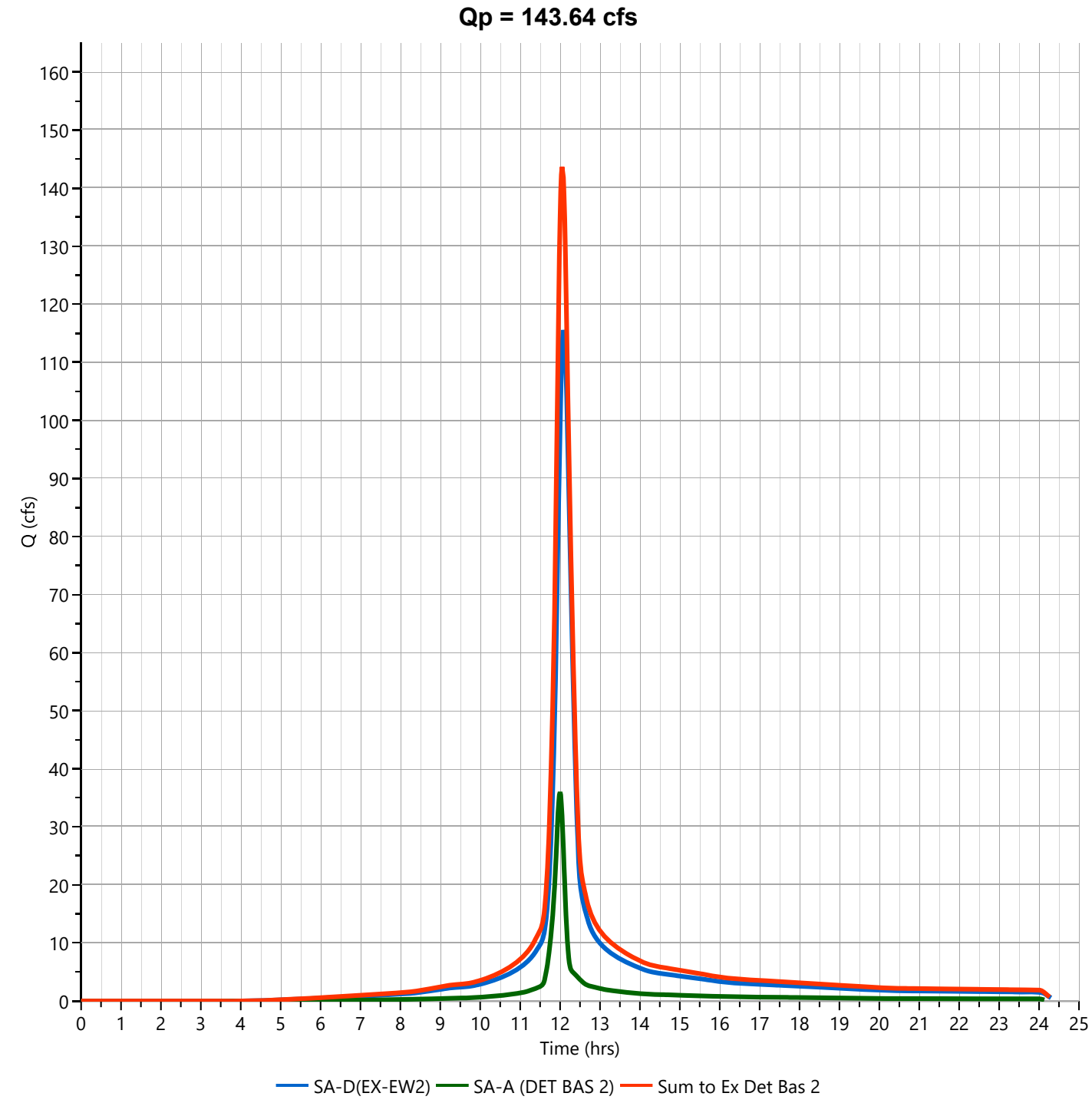
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 2

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 143.6 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.05 hrs
Time Interval	= 1 min	Hydrograph Volume	= 480,731 cuft
Inflow Hydrographs	= 1, 3	Total Contrib. Area	= 30.485 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

06-25-2023

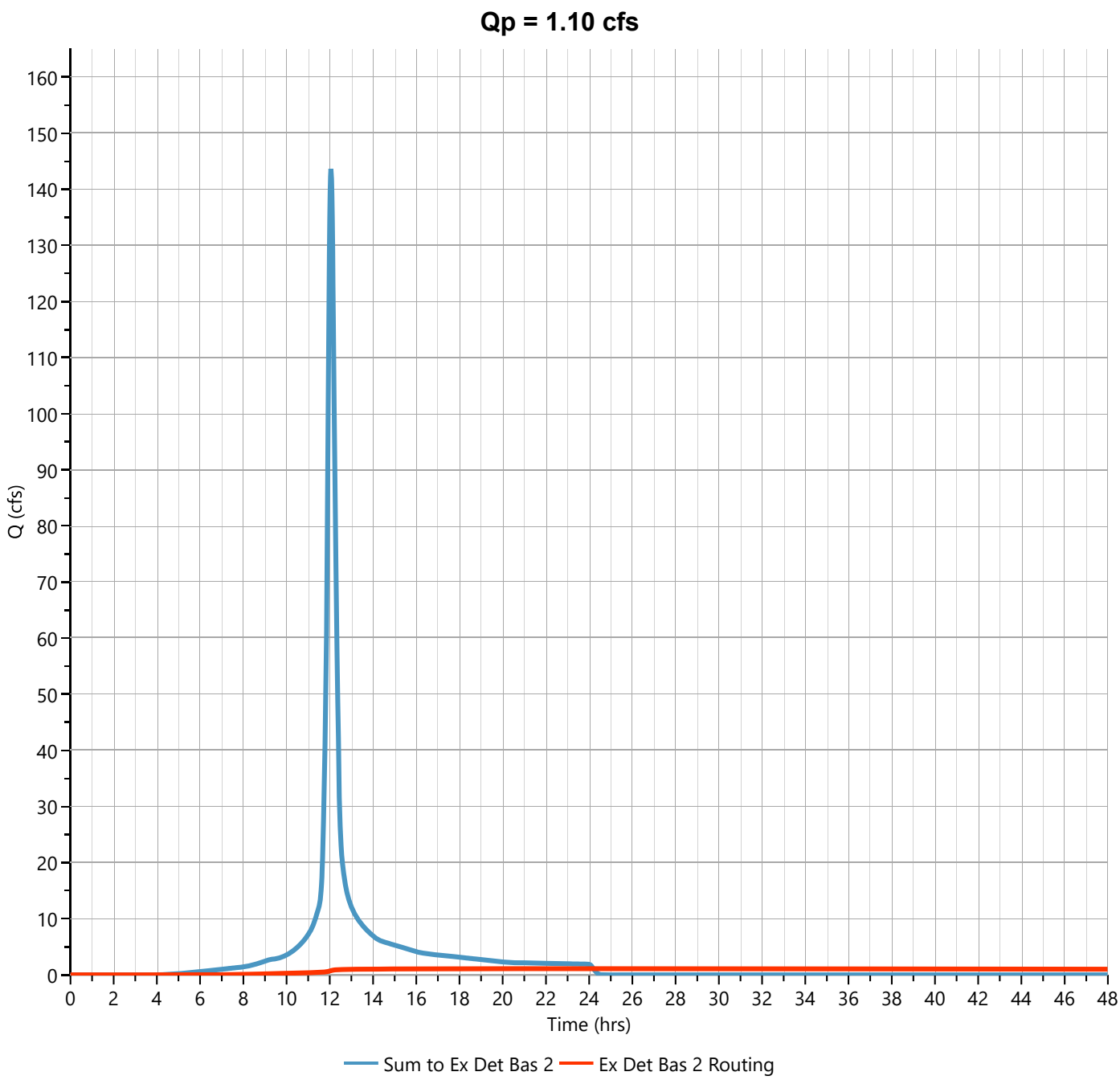
Post Ex Det Bas 2 Routing

Hyd. No. 28

Hydrograph Type	= Pond Route	Peak Flow	= 1.100 cfs
Storm Frequency	= 100-yr	Time to Peak	= 24.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 140,178 cuft
Inflow Hydrograph	= 27 - Sum to Ex Det Bas 2	Max. Elevation	= 84.03 ft
Pond Name	= EX-DET BAS #2	Max. Storage	= 429,846 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 16.01 hrs



Hydrograph Report

Project Name:

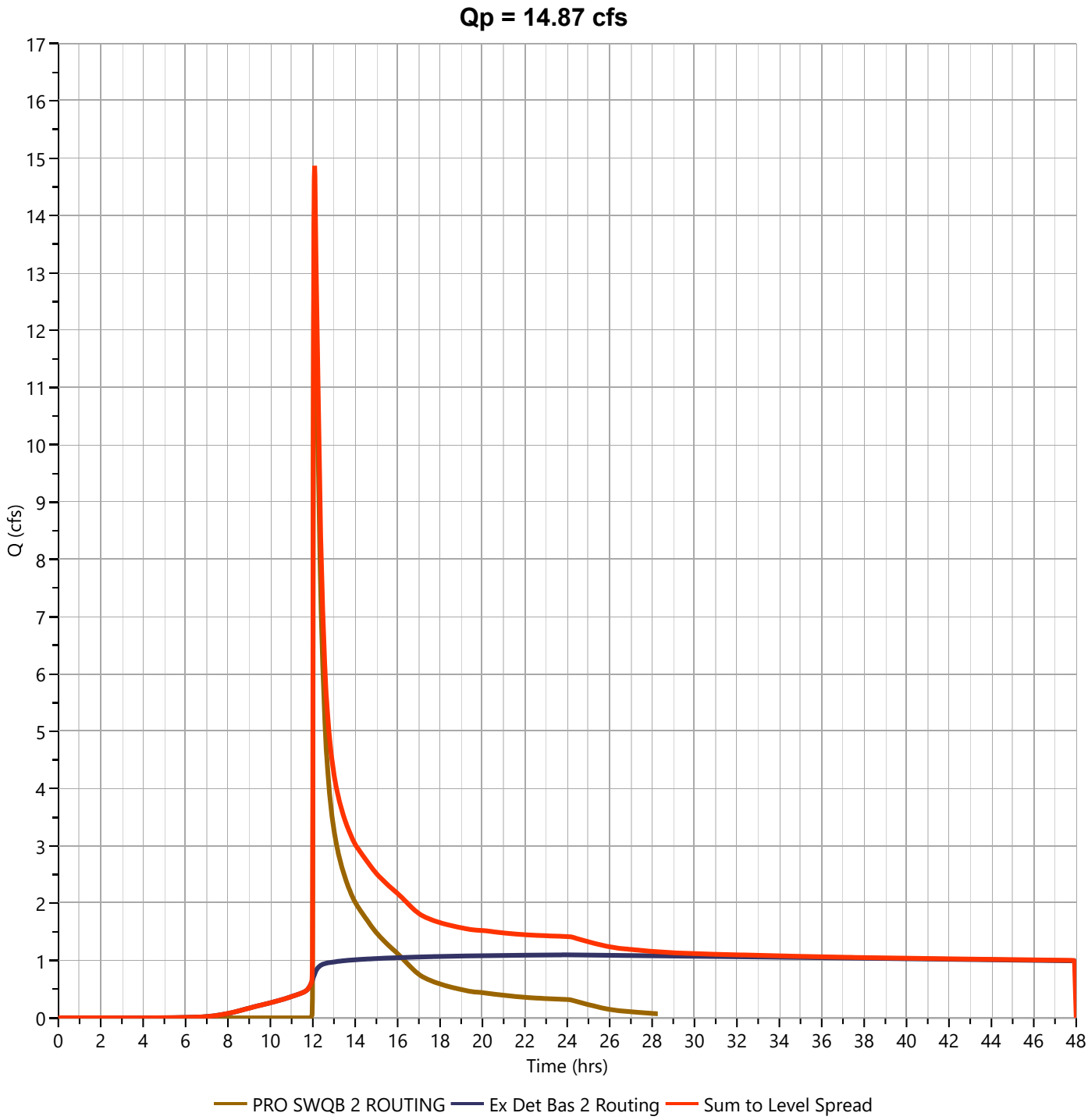
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Level Spread

Hyd. No. 29

Hydrograph Type	= Junction	Peak Flow	= 14.87 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 203,816 cuft
Inflow Hydrographs	= 26, 28	Total Contrib. Area	= 0.0 ac



Hydrograph Report

Project Name:

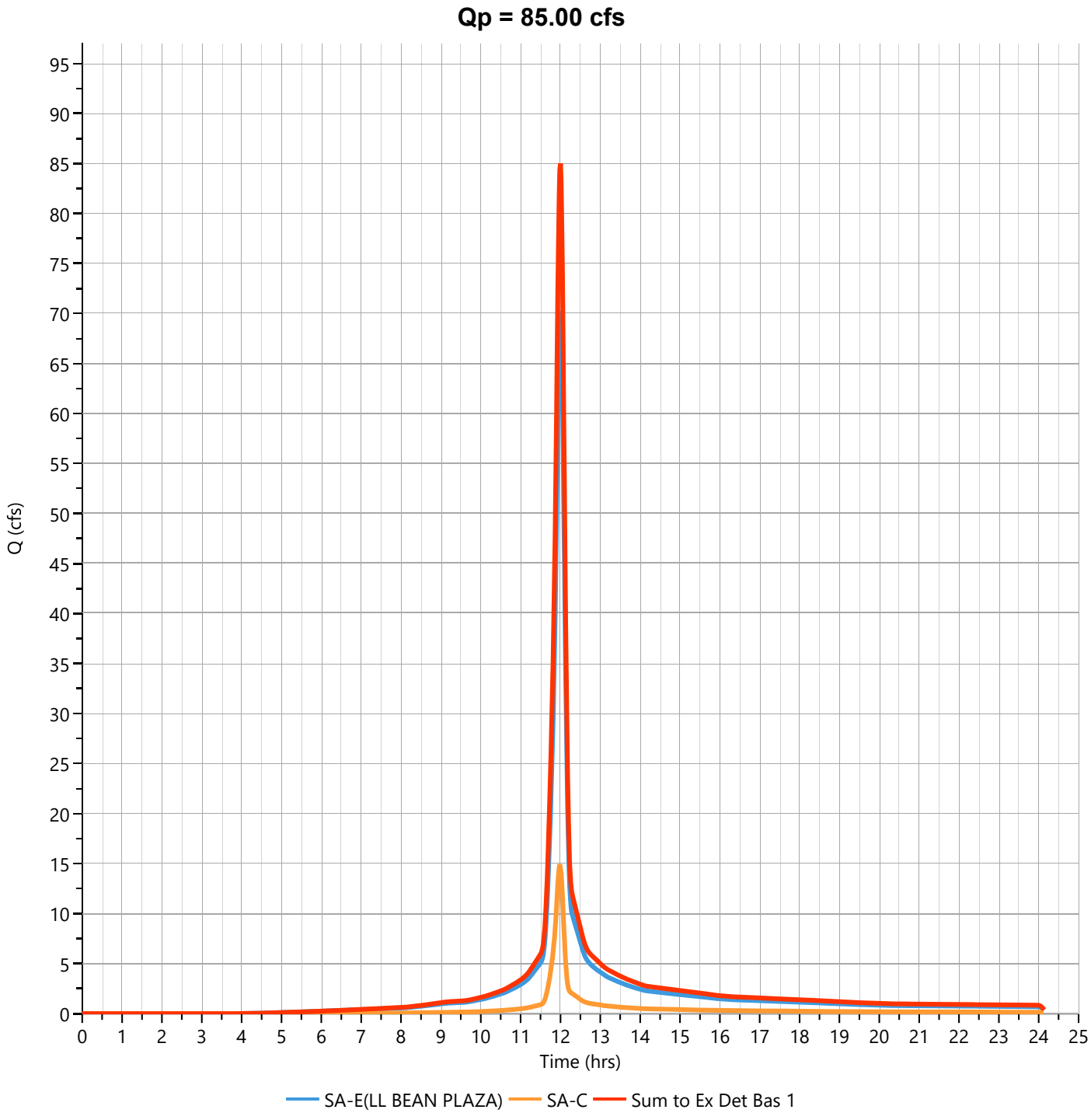
Hydrology Studio v 3.0.0.27

06-25-2023

Post Sum to Ex Det Bas 1

Hyd. No. 30

Hydrograph Type	= Junction	Peak Flow	= 85.00 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 212,305 cuft
Inflow Hydrographs	= 2, 5	Total Contrib. Area	= 13.654 ac



post265

Design Storm Report

Custom Storm filename: 3170.cds

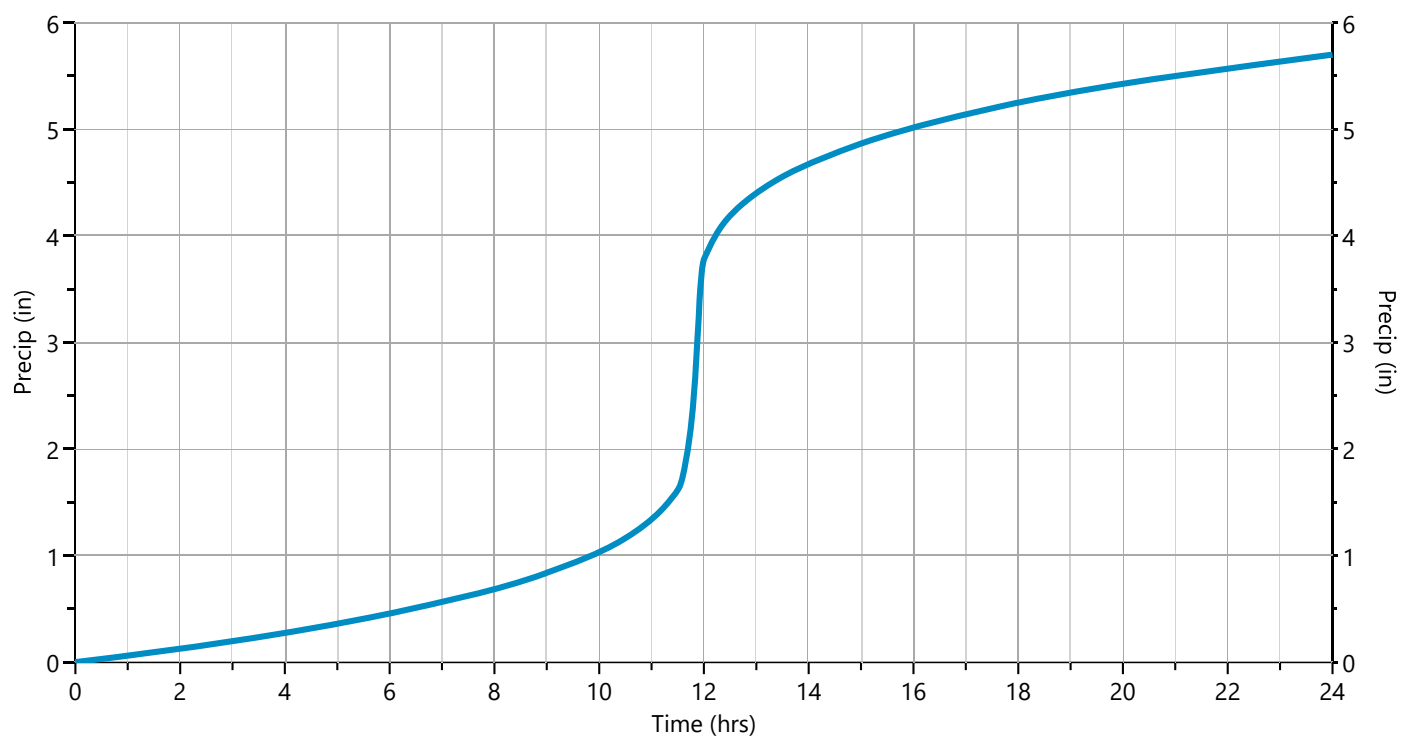
Hydrology Studio v 3.0.0.27

06-25-2023

Storm Distribution: NRCS/SCS - Type II, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	✔ 100-yr	
24 hrs	2.07	2.48	0.00	3.16	3.73	4.50	5.08	5.70	

Incremental Rainfall Distribution, 100-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.42	0.010564	11.60	0.032021	11.78	0.083279	11.97	0.078430	12.15	0.016027
11.43	0.010716	11.62	0.035771	11.80	0.093708	11.98	0.054696	12.17	0.015666
11.45	0.010868	11.63	0.039520	11.82	0.104137	12.00	0.030962	12.18	0.015305
11.47	0.011020	11.65	0.043269	11.83	0.114566	12.02	0.019552	12.20	0.014944
11.48	0.011172	11.67	0.047019	11.85	0.124995	12.03	0.018554	12.22	0.014582
11.50	0.011324	11.68	0.050768	11.87	0.135424	12.05	0.018193	12.23	0.014222
11.52	0.013317	11.70	0.054517	11.88	0.145852	12.07	0.017832	12.25	0.013860
11.53	0.017024	11.72	0.058267	11.90	0.156282	12.08	0.017470	12.27	0.013500
11.55	0.020773	11.73	0.062016	**11.92**	**0.166710**	12.10	0.017110	12.28	0.013138
11.57	0.024523	11.75	0.065765	11.93	0.109014	12.12	0.016748	12.30	0.012778
11.58	0.028272	11.77	0.072299	11.95	0.102164	12.13	0.016387	12.32	0.012416



post266

IDF Report

IDF filename: NOAA Atlas 14 idf 10 Version 3 - Tamarack Ave South Windsor.idf

Hydrology Studio v 3.0.0.27

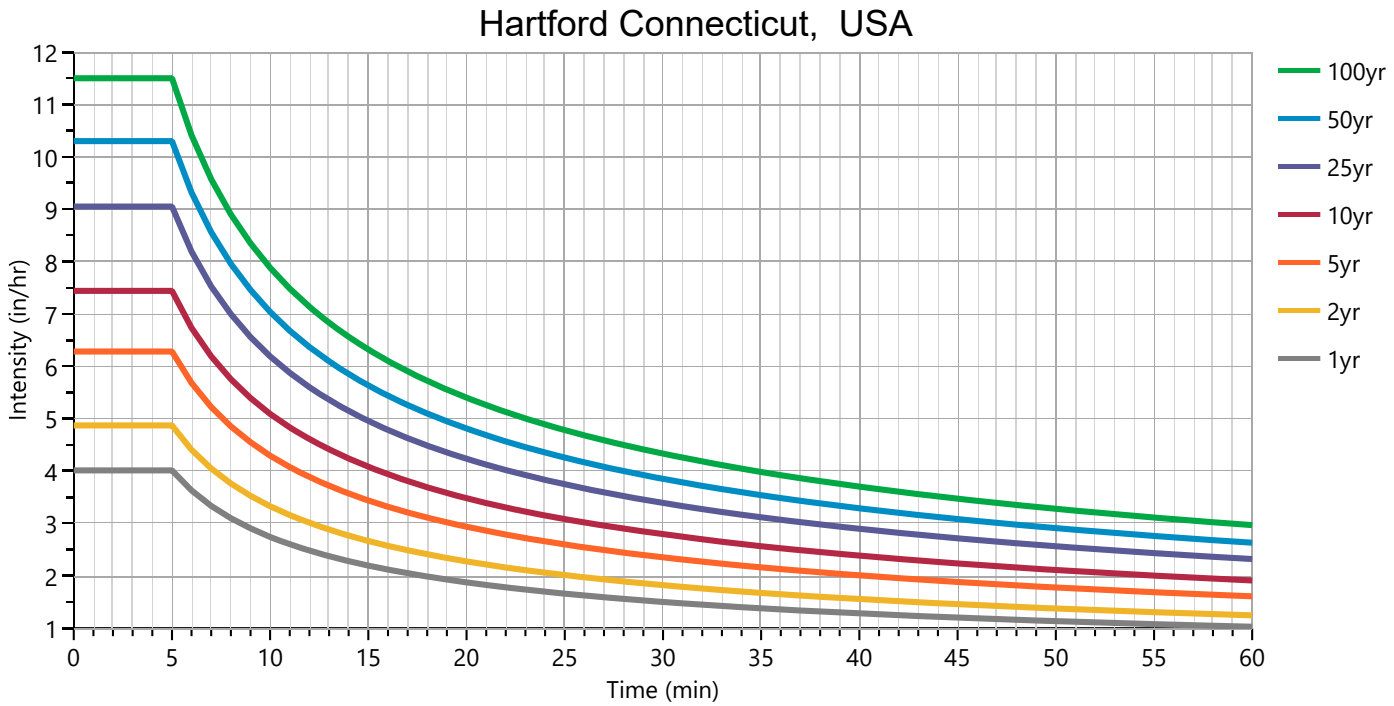
06-25-2023

Equation Coefficients	Intensity = B / (Tc + D)^E (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
B	9.6993	11.7894	0.0000	15.1849	17.9555	21.8627	24.9302	27.6530	
D	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
E	0.5488	0.5493	0.0000	0.5486	0.5474	0.5480	0.5492	0.5452	

Minimum Tc = 5 minutes

Tc (min)	Intensity Values (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
Cf	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
5	4.01	4.87	0	6.28	7.44	9.05	10.30	11.50	
10	2.74	3.33	0	4.29	5.09	6.19	7.04	7.88	
15	2.19	2.66	0	3.44	4.08	4.96	5.63	6.32	
20	1.87	2.27	0	2.94	3.48	4.23	4.81	5.40	
25	1.66	2.01	0	2.60	3.08	3.75	4.26	4.78	
30	1.50	1.82	0	2.35	2.79	3.39	3.85	4.33	
35	1.38	1.67	0	2.16	2.56	3.12	3.54	3.98	
40	1.28	1.55	0	2.01	2.38	2.90	3.29	3.70	
45	1.20	1.46	0	1.88	2.23	2.71	3.08	3.47	
50	1.13	1.37	0	1.78	2.11	2.56	2.91	3.28	
55	1.08	1.30	0	1.69	2.00	2.43	2.76	3.11	
60	1.03	1.24	0	1.61	1.91	2.32	2.63	2.97	

Cf = Correction Factor applied to Rational Method runoff coefficient.



Precipitation Report

Precipitation filename: NOAA Atlas 14, Volume 10, Version 3-PFDepth_English_PDS (151 Buckland Road South Windsor CT).pcp

Hydrology Studio v 3.0.0.27 (Rainfall totals in Inches) 06-25-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active		✔	✔		✔	✔	✔	✔	✔
SCS Storms	**> SCS Dimensionless Storms**								
SCS 6hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
Type I, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Type IA, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Type II, 24-hr	✔	2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Type II FL, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Type III, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Synthetic Storms	**> IDF-Based Synthetic Storms**								
1-hr		1.03	1.24	0	1.61	1.91	2.32	2.63	2.97
2-hr		1.40	1.70	0	2.20	2.61	3.17	3.60	4.07
3-hr		1.68	2.04	0	2.64	3.14	3.81	4.32	4.89
6-hr		2.30	2.79	0	3.61	4.30	5.21	5.90	6.70
12-hr		3.15	3.81	0	4.93	5.88	7.13	8.06	9.19
24-hr		4.30	5.21	0	6.74	8.04	9.75	11.02	12.59
Huff Distribution	**> 1st Quartile (0 to 6 hrs)**								
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
Huff Distribution	**> 2nd Quartile (>6 to 12 hrs)**								
8-hr		0	0	0	0	0	0	0	0
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
Huff Distribution	**> 3rd Quartile (>12 to 24 hrs)**								
18-hr		0	0	0	0	0	0	0	0
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Custom Storms	**> Custom Storm Distributions**								
My Custom Storm 1		0	0	0	0	0	0	0	0
My Custom Storm 2		0	0	0	0	0	0	0	0
My Custom Storm 3		0	0	0	0	0	0	0	0
My Custom Storm 4		0	0	0	0	0	0	0	0
My Custom Storm 5		0	0	0	0	0	0	0	0
My Custom Storm 6		0	0	0	0	0	0	0	0
My Custom Storm 7		0	0	0	0	0	0	0	0
My Custom Storm 8		0	0	0	0	0	0	0	0
My Custom Storm 9		0	0	0	0	0	0	0	0
My Custom Storm 10		0	0	0	0	0	0	0	0

Precipitation Report Cont'd

Precipitation filename: NOAA Atlas 14, Volume 10, Version 3-PFDepth_English_PDS (151 Buckland Road South Windsor CT).pcp

Rainfall totals in Inches

06-25-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active		✔	✔		✔	✔	✔	✔	✔
Huff Indiana	**> Indianapolis**								
30-min		0.64	0.78	0	1.00	1.18	1.43	1.62	1.82
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Huff Indiana	**> Evansville**								
30-min		0.64	0.78	0	1.00	1.18	1.43	1.62	1.82
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Huff Indiana	**> Fort Wayne**								
30-min		0.64	0.78	0	1.00	1.18	1.43	1.62	1.82
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
Huff Indiana	**> South Bend**								
30-min		0.64	0.78	0	1.00	1.18	1.43	1.62	1.82
1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
3-hr		1.18	1.38	0	1.71	1.98	2.36	2.64	2.94
6-hr		1.45	1.70	0	2.11	2.45	2.92	3.26	3.64
12-hr		1.75	2.08	0	2.62	3.07	3.70	4.16	4.65
24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70

Precipitation Report Cont'd

Precipitation filename: NOAA Atlas 14, Volume 10, Version 3-PFDepth_English_PDS (151 Buckland Road South Windsor CT).pcp

Rainfall totals in Inches

06-25-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active		✔	✔		✔	✔	✔	✔	✔
NRCS Storms	**> NRCS Dimensionless Storms**								
NRCS MSE1, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE2, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE3, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE4, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE5, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCS MSE6, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NOAA-A, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NOAA-B, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NOAA-C, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NOAA-D, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCC-A, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCC-B, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCC-C, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
NRCC-D, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-1, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-2, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-3, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-4, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-5, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
CA-6, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
FDOT Storms	**> Florida DOT Storms**								
FDOT, 1-hr		0.80	0.97	0	1.25	1.47	1.79	2.02	2.28
FDOT, 2-hr		1.03	1.21	0	1.52	1.77	2.12	2.38	2.65
FDOT, 4-hr		0	0	0	0	0	0	0	0
FDOT, 8-hr		0	0	0	0	0	0	0	0
FDOT, 24-hr		2.07	2.48	0	3.16	3.73	4.50	5.08	5.70
FDOT, 72-hr		0	0	0	0	0	0	0	0
SFWMD, 72-hr		0	0	0	0	0	0	0	0
Austin Storms	**> Austin Frequency Storms**								
Austin Zone 1, 24-hr		0	0	0	0	0	0	0	0
Austin Zone 2, 24-hr		0	0	0	0	0	0	0	0

Appendix G

Onsite Drainage Subarea Map

Overall Drainage Subarea Map – Pre Drainage Area

Overall Drainage Subarea Map – Post Drainage Area