DRAINAGE CALCULATIONS, HYDRAULICS & HYDROLOGY REPORT

STONE RIDGE BUSINESS PARK
21 GURLEY ROAD

JULY 2022
APRIL 2022
MARCH 2022
JUNE 2021

CLA Engineers, Inc

DRAINAGE HYDRAULICS AND HYDROLOGY REPORT
STONE RIDGE BUSINESS PARK

EXISTING CONDITIONS

The site is approximately 22.19 acres in area and is shown on the Existing Conditions Survey (Sheet 1 of the site plans). The site has frontage on Oil Mill Road and Gurley Road. There are approximately 3.75 acres of wetlands on the site.

PROPOSED DEVELOPMENT

The project proposes six new free standing buildings that will each be divided into multiple units. Half of the units will be used as office space, while the other half will be used as warehouse space. All buildings will have metal roofs treated with an elastomeric coating to prevent metals from leaching into stormwater runoff. The proper amount of parking has been provided for each building.

Building Number	Area (SF)
1	10,800
2	12,800
3	10,400
4	6,880
5	14,400
6	10,400

The approximately 22 acre site contains wetlands as shown on sheet 1. Of the 22.19 acres only 9.58 acres of the site will be disturbed during construction, leaving 12.61 acres of totally undisturbed land. And of the 9.58 acres of disturbance, half of that will be landscaped and planted, as shown on the landscape plan, once construction is completed. The site proposes only 4.6 acres of development area on a 22.19 acre site.

EXISTING AND PROPOSED HYDRAULICS

The stormwater management system has been designed to provide for zero increase in peak stormwater discharge from the site. The project has been designed to actually result in a relatively small decrease in the peak stormwater rates leaving the project site. The proposed stormwater forebays, water quality basins, rain gardens, and infiltration galleries will provide treatment of the runoff from the proposed pavement and roof areas.

The current site is divided into three, existing, drainage areas:

Existing Drainage Area 1	13.96 Acres
Existing Drainage Area 2	3.92 Acres
Existing Drainage Area 3	4.30 Acres

The development of the proposed site will result in three, similarly sized, drainage areas:

Proposed Drainage Area 1	11.60 Acres
Proposed Drainage Area 2	5.38 Acres
Proposed Drainage Area 3	4.27 Acres

Proposed Drainage Area 1 was divided into four separate sub catchment areas:

Proposed Drainage Area 1A	0.95 Acres
Proposed Drainage Area 1B	5.93 Acres
Proposed Drainage Area 1C	3.07 Acres
Proposed Drainage Area 1D	1.83 Acres

Proposed Drainage Area 1A contains the parking lot for Building 1. The runoff from the parking lot will be treated by a stormwater management system that consist of a forebay followed by a water quality basin. To reduce the volume of stormwater flowing into the stormwater management system, the roof leaders from Building 1 will flow into underground concrete leaching galleries. There will not be any roof top units.

Proposed Drainage Area 1B contains undeveloped land and grass on the east and west side of the access drive between Buildings 2 and 3. The stormwater runoff from the east side of the access drive will flow west towards the western most wetland into a rain garden. Three 12" HDPE culverts will act as outlets from the rain garden to allow the overflow water that does not infiltrate, to flow under the access drive without being contaminated. Because there is no impervious cover and ample overland flow over grass and wooded area, a stormwater treatment system is not necessary.

Proposed Drainage Area 1C contains the parking lots for Buildings 2 and 3 and the access drive that connects them. The runoff will be treated by a stormwater management system that consists of a forebay followed by a water quality basin. Several rain gardens and landscape patches are also to be installed throughout the parking area to decrease the amount of impervious cover. To reduce the volume of stormwater flowing into the stormwater management system, roof leaders from Buildings 2 and 3 will flow into underground concrete leaching galleries. There will be no roof top units.

Proposed Drainage Area 1D contains the shared parking lot between Buildings 4 and 5, the shared parking lot between Buildings 2 and 3, and half of the roof drainage from Building 5. The stormwater runoff will be treated by a stormwater management system that consists of a forebay and a water quality basin. After leaving the basin, the water has substantial overland travel over an undisturbed area before leaving the site. Several rain gardens and landscaped patches are also to be installed throughout the parking area to decrease the amount of impervious cover. In order to reduce the basin inflow, roof leaders for Building 4 will flow into underground concrete leaching galleries. There will be no roof top units.

All water quality basins, rain gardens, and infiltration galleries will be inspected annually by the design soil scientist and a report will be provided to the Town Planning Department.

Like Drainage Area 1, Proposed Drainage Area 2 was divided into several sub catchment areas:

Proposed Drainage Area 2A	2.45 Acres
Proposed Drainage Area 2B	0.85 Acres
Proposed Drainage Area 2C	1.91 Acres

Proposed Drainage Area 2A contains the parking lot shared by Buildings 5 and 6, along with half of the roof drainage from Buildings 5, the roof drainage from Building 6, and the parking lot to the east of Building 6. The stormwater runoff will be treated by a forebay followed by a water quality basin. Several rain gardens and landscape patches are also to be installed throughout the parking area to decrease the amount of impervious cover. Underground leaching galleries could not be used due to the elevation of mottling and ledge. There will be no roof top units.

Proposed Drainage Area 2B contains the eastern-most access drive on the site, which leads to the parking lot to the east of Building 6. The stormwater runoff will be treated by a forebay followed by a water quality basin. Several rain gardens and landscape patches are also to be installed throughout the parking area to decrease the amount of impervious cover. Like Drainage Area 2A, underground leaching chambers could not be used due to the elevation of mottling and ledge. There will be no roof top units.

Proposed Drainage Area 2C contains undeveloped land. There is no development occurring in this area so no stormwater treatment measures are required. Runoff from Drainage Areas 2A and 2B will be treated by water quality basins before flowing into Drainage Area 2C.

Proposed Drainage Area 3 contains all undeveloped land. The construction of the proposed development will reduce the size of Drainage Area 3 by about 0.03 acres, which will slightly reduce the amount of stormwater leaving the site. The undeveloped land and reduction in area allow for there to be no stormwater storage or treatment systems in this area.

Both the existing and the proposed conditions for the development site have been analyzed for the 2-year, 10-year, 25-year, 50-year, and 100 year design storms using the TR-55 SCS Runoff Method. The following is the summary table for the 2-year, 10-year, 25-year, 50-year, and 100-year design storms showing first the existing conditions and proposed conditions, after passing through the existing detention basin located within the wetland:

Drainage Area 1

	2 Year	10 Year	25 Year	50 Year	100 Year
Existing	0.94 cfs	5.61 cfs	8.55 cfs	11.84 cfs	15.41 cfs
Proposed Area 1A (WQ Basin 1)	0.00 cfs	0.00 cfs	0.00 cfs	0.00 cfs	0.06 cfs
Proposed Area 1B (No Basins)	0.39 cfs	1.98 cfs	2.96 cfs	4.06 cfs	5.26 cfs
Proposed Area 1C (WQ Basin 2)	0.00 cfs	0.71 cfs	1.73 cfs	2.88 cfs	3.88 cfs
Proposed Area 1D (WQ Basin 3)	0.00 cfs	0.17 cfs	0.47 cfs	1.08 cfs	2.90 cfs
Proposed	0.39 cfs	2.17 cfs	4.40 cfs	7.78 cfs	10.51 cfs

Drainage Area 2

	2 Year	10 Year	25 Year	50 Year	100 Year
Existing	0.29 cfs	1.77 cfs	2.70 cfs	3.73 cfs	4.85 cfs
Proposed Area 2A (WQ Basin 4)	0.00 cfs	0.19 cfs	0.54 cfs	1.25 cfs	3.18 cfs
Proposed Area 2B (WQ Basin 5)	0.00 cfs	0.00 cfs	0.00 cfs	0.04 cfs	0.10 cfs
Proposed Area 2C (No Basin)	0.15 cfs	0.93 cfs	1.41 cfs	1.95 cfs	2.54 cfs
Proposed	0.15 cfs	0.93 cfs	1.41 cfs	1.95 cfs	4.26 cfs

Drainage Area 3

	2 Year	10 Year	25 Year	50 Year	100 Year
Existing	0.40 cfs	2.40 cfs	3.65 cfs	5.06 cfs	6.59 cfs
Proposed	0.39 cfs	2.39 cfs	3.63 cfs	5.03 cfs	6.54 cfs

EROSION & SEDIMENTATION CONTROL

The 2002 CT Guidelines for Soil Erosion & Sedimentation Control applies to the construction phase of the project. A detailed erosion and sediment control plan has been provided in the site development plans. The proposed stormwater forebays and water quality basins have been designed to function as sedimentation traps during stabilization. When constructed, the five forebays are to be constructed to their intended depth. However, during construction, the 5 basins are to be constructed 2 ft shallower than the intended depth of the water quality basins. This will ensure that the water quality basins will function properly after the site development is complete.

The first calculation required by the Guidelines is for the sediment storage volume (SSV). The sediment storage volume is the calculation for one year of predicted sediment load. The required SSV calculations for the temporary sediment traps in each drainage area are shown below.

Drainage Area 1A

SSV = A(134CY/Acre)

A = 0.95 ACRE

SSV = 127.3 CY = **3,440 CF**

Drainage Area 1C

SSV = A(134CY/Acre)

A = 3.07 ACRES

SSV = 411.4 CY = **11,110 CF**

Drainage Area 1D

SSV = A(134CY/Acre)

A = 1.83 ACRE

SSV = 245.2 CY = **6,620 CF**

Drainage Area 2A

SSV = A(134CY/Acre)

A = 2.45 ACRE

SSV = 328.3 CY = **8,865 CF**

Drainage Area 2B

SSV = A(134CY/Acre)

A = 0.85 ACRES

SSV = 113.9 CY = **3,075 CF**

The second calculation required by the Guidelines is for wet storage volume (WSV). The wet storage volume is the volume in the basin that is located below the bottom of the riprap for the level spreader outlet of the basin. The volume of the wet storage is required to be half of the required SSV. The required wet storage volumes for each drainage area are shown below along with the dry storage volumes (DSV).

Drainage Area 1A

WSV = DSV = SSV/2

= **1,720.0 CF**

Drainage Area 1C

WSV = DSV = SSV/2

= 5,555.0 CF

Drainage Area 1D

WSV = DSV = SSV/2

= **3,310.0 CF**

Drainage Area 2A

WSV = DSV = SSV/2

= **4,432.5 CF**

Drainage Area 2B

WSV = DSV = SSV/2

= 1,537.5 CF

The required and provided storage for each basin are as follows:

Drainage Area 1A (Bottom of Riprap Elev. = 26.5)

Sedimentation Trap 1

1,720 CF of Wet Storage Volume Required	8,860 CF Provided
1,720 CF of Dry Storage Volume Required	13,300 CF Provided
3,440 CF of Sediment Storage Volume Required	22,160 CF Total Provided

Drainage Area 1C (Outlet Elev. = 26.0)

Sedimentation Trap 2

5,555 CF of Wet Storage Volume Required	10,045 CF Provided
5,555 CF of Dry Storage Volume Required	13,930 CF Provided
11,110 CF of Sediment Storage Volume Required	23,975 CF Total Provided

Drainage Area 1D (Bottom of Riprap Elev. = 36.5)

Sedimentation Trap 3

3,310 CF of Wet Storage Volume Required	15,160 CF Provided
3,310 CF of Dry Storage Volume Required	7,620 CF Provided
6,620 CF of Sediment Storage Volume Required	22,780 CF Total Provided

Drainage Area 2A (Bottom of Riprap Elev. = 56.5)

Sedimentation Trap 5

4,432.5 CF of Wet Storage Volume Required	18,720 CF Provided
4,432.5 CF of Dry Storage Volume Required	12,240 CF Provided
8,865 CF of Sediment Storage Volume Required	30,960 CF Total Provided

Drainage Area 2B (Bottom of Riprap Elev. = 66.5)

Sedimentation Trap 6

1,537.5 CF of Wet Storage Volume Required	3,070 CF Provided
1,537.5 CF of Dry Storage Volume Required	7,685 CF Provided
3,075 CF of Sediment Storage Volume Required	10,755 CF Total Provided

CONNECTICUT STORMWATER QUALITY MANUAL

The Connecticut 2004 Stormwater Quality Manual (Manual) applies to the post construction phase, for the operation of the facility. The temporary sediment traps have been designed to function as water quality basins after the site is stabilized. They all meet the criteria of the Connecticut Stormwater Quality Manual for a Water Quality Basin.

Drainage Area 1A

(Forebay & WQ Basin 1)

WQV = (1")(R)(A)/12

A = 0.95 Acre

R = 0.05 + 0.009(I)

I = 0.31 Acres / 0.95 Acres = 0.326 (32.6%)

R = 0.344

WQV = 0.027 Ac-Ft = 1,185 CF (Required)

10,670 CF (Provided)

Drainage Area 1C

(Forebay & WQ Basin 2)

WQV = (1")(R)(A)/12

A = 3.07 Acres

R = 0.05 + 0.009(I)

I = 1.06 Acres / 3.07 Acres = 0.345 (34.5%)

R = 0.361

WQV = 0.092 Ac-Ft = 4,020 CF (Required)

13,435 CF (Provided)

Drainage Area 1D

(Forebay & WQ Basin 3)

WQV = (1")(R)(A)/12

A = 1.83 Acres

R = 0.05 + 0.009(I)

I = 1.01 Acres / 1.83 Acres = 0.552 (55.2%)

R = 0.547

WQV = 0.083 Ac-Ft = 3,630 CF (Required)

17,890 CF (Provided)

Drainage Area 2A

(Forebay & WQ Basin 4)

WQV = (1")(R)(A)/12

A = 2.45 Acres

R = 0.05 + 0.009(I)

I = 1.09 Acres / 2.45 Acres = 0.445 (44.5%)

R = 0.450

WQV = 0.092 Ac-Ft = 4,005 CF (Required)

24,860 CF (Provided)

Drainage Area 2B

(Forebay & WQ Basin 5)

WQV = (1")(R)(A)/12

A = 0.85 Acres

R = 0.05 + 0.009(I)

I = 0.15 Acres / 0.85 Acres = 0.176 (17.6%)

R = 0.209

WQV = 0.015 Ac-Ft = 644.3 CF (Required)

8,180 CF (Provided)

Once development of the site is completed, there will be a relatively small decrease in runoff from the site. All of the temporary sedimentation basins provide ample wet and dry volume storage to meet and exceed the requirements of the 2002 CT Guidelines for Soil & Sedimentation Control. Likewise, the five permanent Water Quality Basins meet and exceed the post construction requirements of the Connecticut 2004 Stormwater Quality Manual.

The CTDEEP 2004 Stormwater Manual prescribes means by which stormwater runoff from developed sites can be adequately treated. The method outlined in section 7.4.1 of the 2004 Manual, treating the WQV is employed on this site. As indicated in the calculations of WQV within this report, the stormwater treatment design exceeds treatment of the WQV required by the 2004 Manual for each stormwater treatment basin,. The range of over-treatment runs from three times that required for Basin 2 to nine times that required for Basin 1. Thus it is anticipated that the stormwater basins will provide a higher level of water quality renovation than required by CTDEEP. All of the basins are designed as wet bottom basins that will function as stormwater wetlands.

Also note that per the calculations in this report none of the stormwater basins will discharge in the 2 year storm event. Appendix D of wetland report includes data from the

University of New Hampshire Stormwater Center that indicate that retaining the two year storm provides extremely high levels of removal of pollutants of concern for commercial and industrial sites. Based on the UNH data, CLA anticipates levels of renovation that will be protective of water quality within local water bodies as well as the Niantic River,

CLA has reviewed the Niantic River watershed management plans to ensure that the site plans are consistent with those documents. Based on that review, additional measures beyond the water quality basins described above have been incorporated into the site plans.

1. There will be a 50 foot undisturbed vegetative buffer left in place around all wetlands and watercourses on the site. This will provide shade over streams, wildlife habitat and further treat discharge from the treatment basins.
2. Low Impact Development (LID) measures such as rain gardens have been incorporated. In total, nine rain gardens are proposed and each will provide bio-filtration to stormwater runoff before is enters the ground. This will provide treatment not accounted for in the WQV calculations and is described further in the wetland report.
3. Infiltration of stormwater is used whenever practical, in both the rain gardens and Basin 1, 2, and 3.
4. The plans are consistent with the CTDEEP 2002 and 2004 Manuals.

Based on the stormwater treatment design and the measures incorporated to be consistent with the watershed management plans, CLA believes that the design is protective of both onsite resources and the Niantic River.

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

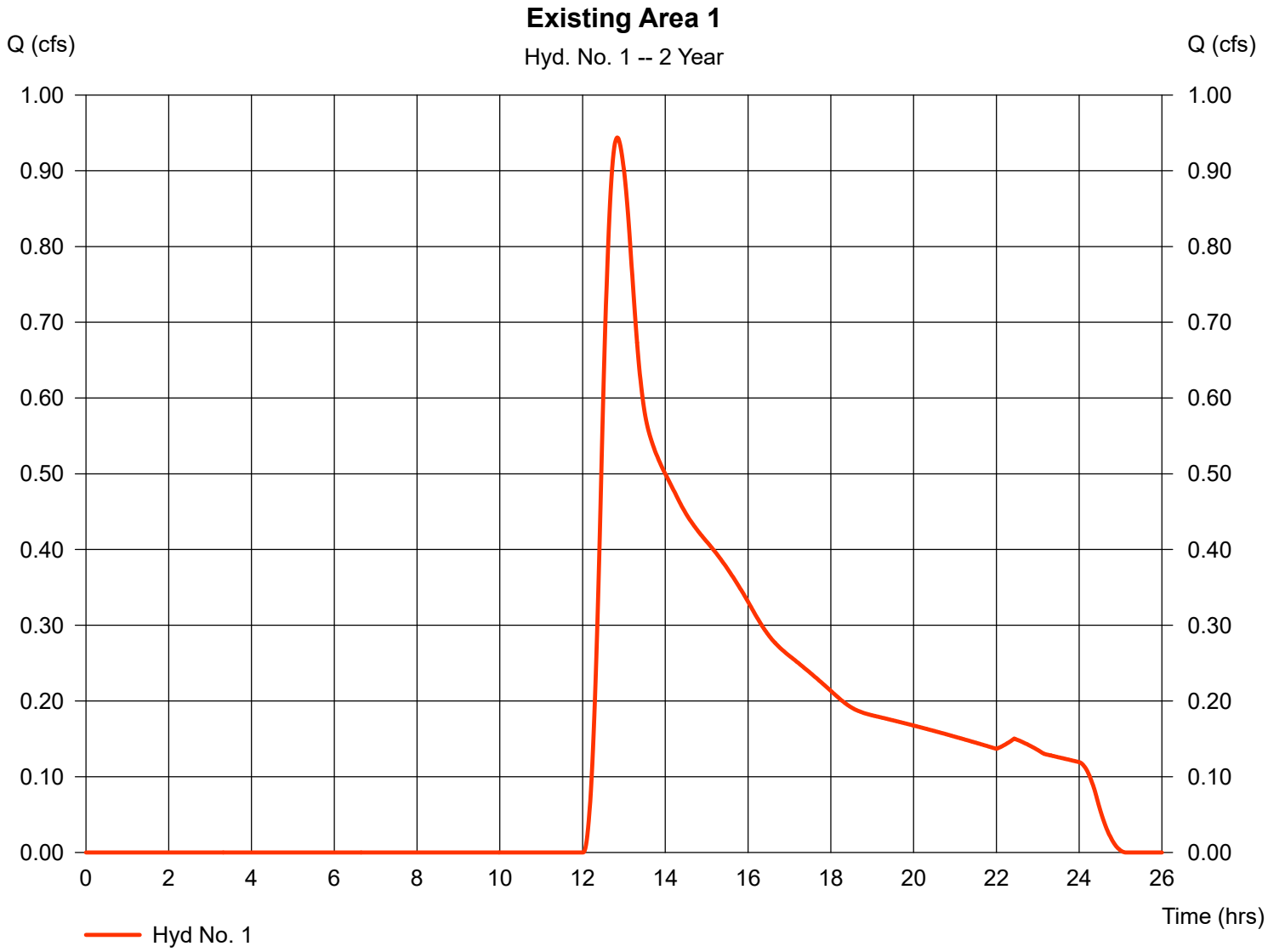
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.944	1	770	12,649	------	------	------	Existing Area 1
2	Rational	1.086	1	5	326	------	------	------	Building 1
3	Reservoir	0.000	1	n/a	0	2	27.71	326	Leaching Gallery 1
4	SCS Runoff	0.598	1	741	3,231	------	------	------	Proposed Area 1A
5	Reservoir	0.000	1	n/a	0	4	25.98	3,231	Basin 1 Forebay
6	Reservoir	0.000	1	n/a	0	5	22.00	0.000	Basin 1
7	SCS Runoff	0.385	1	792	5,998	------	------	------	Proposed Area 1B
8	Rational	1.260	1	5	378	------	------	------	Building 2
9	Reservoir	0.000	1	n/a	0	8	29.13	378	Leaching Gallery 2
10	Rational	1.043	1	5	313	------	------	------	Building 3
11	Reservoir	0.000	1	n/a	0	10	34.02	313	Leaching Gallery 3
12	SCS Runoff	1.428	1	757	10,316	------	------	------	Proposed Area 1C
13	Reservoir	1.428	1	758	9,943	12	23.14	465	Basin 2 Forebay
14	Reservoir	0.000	1	n/a	0	13	25.96	9,943	Basin 2
15	Rational	0.695	1	5	209	------	------	------	Building 4
16	Reservoir	0.000	1	n/a	0	15	40.04	209	Leaching Gallery 4
17	SCS Runoff	2.135	1	735	9,852	------	------	------	Proposed Area 1D
18	Reservoir	2.134	1	736	9,673	17	33.19	242	Basin 3 Forebay
19	Reservoir	0.000	1	n/a	0	18	34.76	9,673	Basin 3
20	Combine	0.385	1	792	5,998	6, 7, 14, 19	------	------	Proposed Area 1
21	SCS Runoff	0.294	1	763	3,569	------	------	------	Existing Area 2
22	SCS Runoff	1.755	1	746	10,245	------	------	------	Proposed Area 2A
23	Reservoir	1.749	1	748	9,372	22	53.16	1,097	Basin 4 Forebay
24	Reservoir	0.000	1	n/a	0	23	54.83	9,372	Basin 4
25	SCS Runoff	0.414	1	735	2,096	------	------	------	Proposed Area 2B
26	Reservoir	0.047	1	910	924	25	66.30	1,263	Basin 5 Forebay
27	Reservoir	0.000	1	n/a	0	26	64.40	924	Basin 5
28	SCS Runoff	0.154	1	758	1,739	------	------	------	Proposed Area 2C
29	Combine	0.154	1	758	1,739	24, 27, 28	------	------	Proposed Area 2
30	SCS Runoff	0.396	1	751	3,952	------	------	------	Existing Area 3
31	SCS Runoff	0.393	1	751	3,925	------	------	------	Proposed Area 3

Hydrograph Report

Hyd. No. 1

Existing Area 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.944 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.83 hrs
Time interval	=	1 min	Hyd. volume	=	12,649 cuft
Drainage area	=	13.960 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.30 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



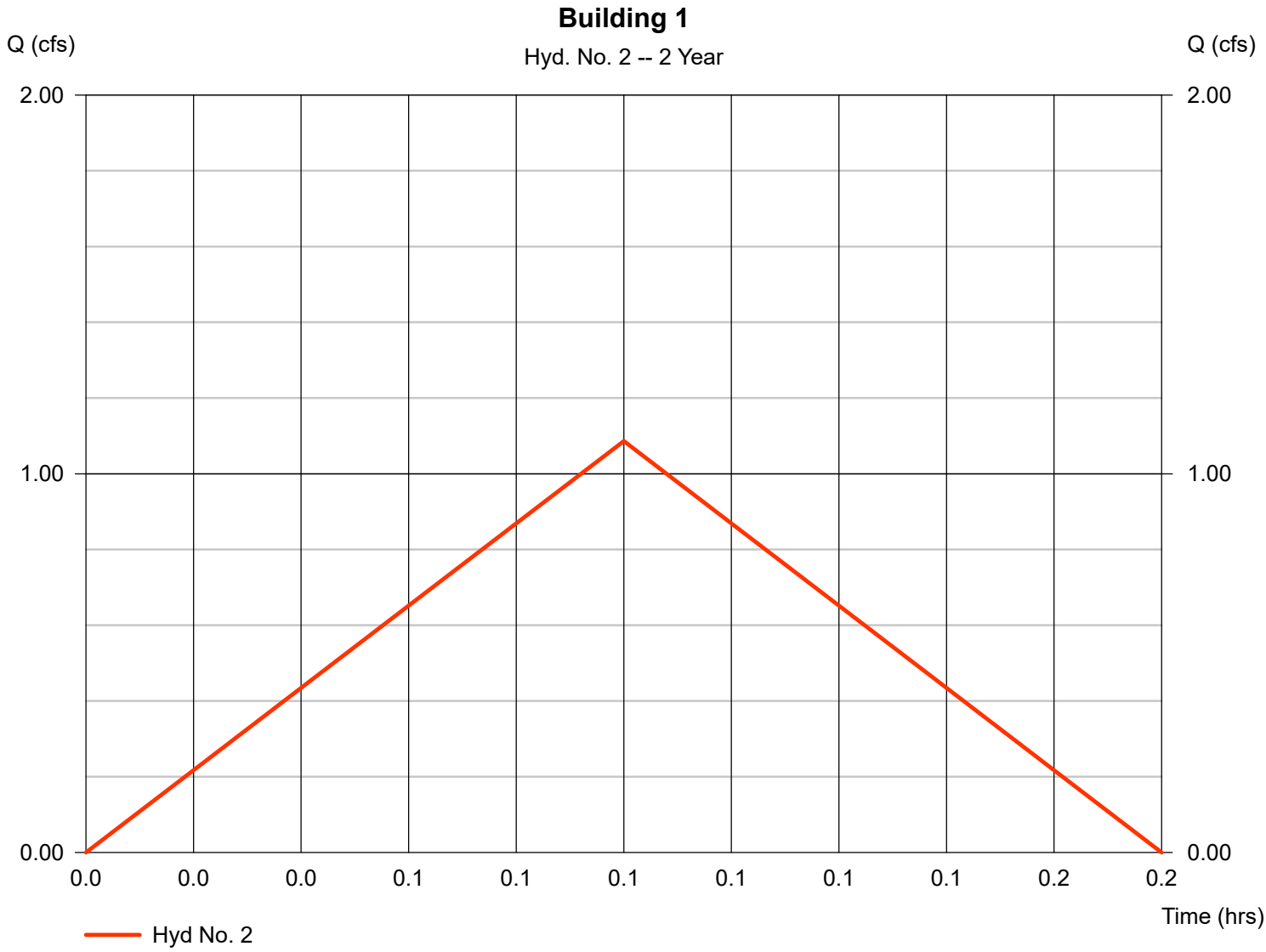
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 2

Building 1

Hydrograph type	=	Rational	Peak discharge	=	1.086 cfs
Storm frequency	=	2 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	326 cuft
Drainage area	=	0.250 ac	Runoff coeff.	=	0.9
Intensity	=	4.828 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



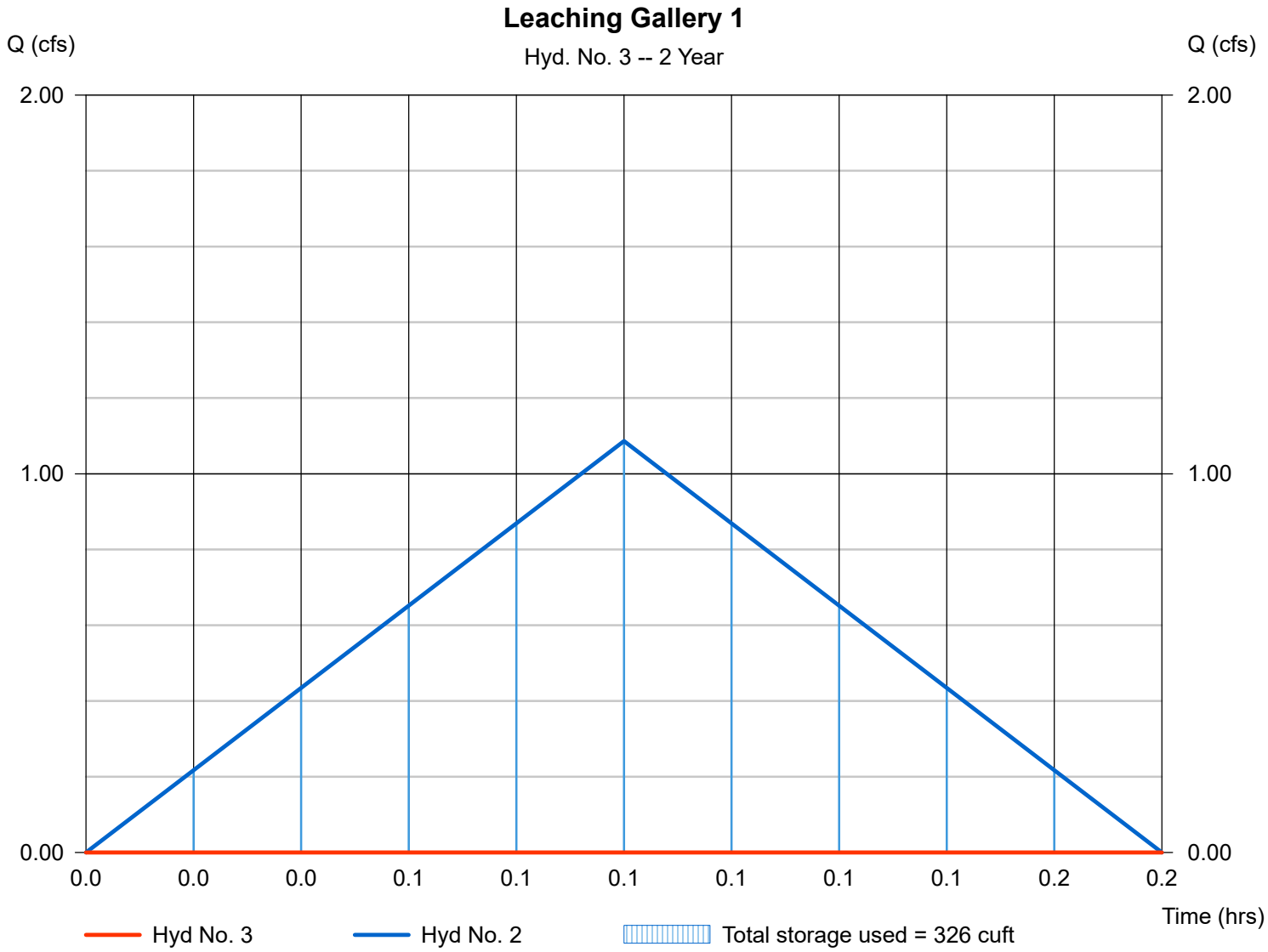
Hydrograph Report

Hyd. No. 3

Leaching Gallery 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	2 - Building 1	Max. Elevation	=	27.71 ft
Reservoir name	=	Leaching Gallery 1	Max. Storage	=	326 cuft

Storage Indication method used.



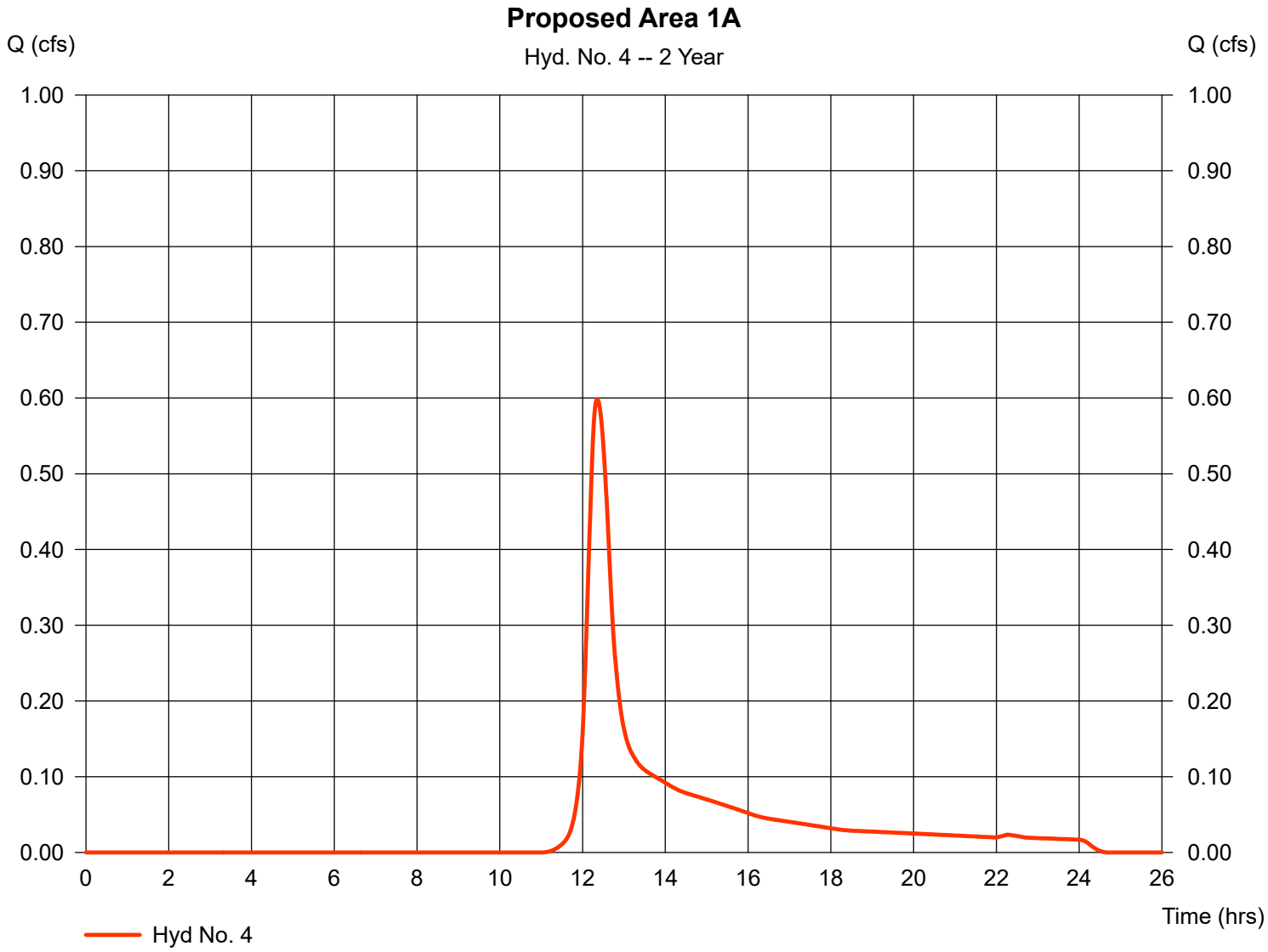
Hydrograph Report

Hyd. No. 4

Proposed Area 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.598 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.35 hrs
Time interval	=	1 min	Hyd. volume	=	3,231 cuft
Drainage area	=	0.950 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.10 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.190 x 55) + (0.450 x 61) + (0.310 x 98)] / 0.950



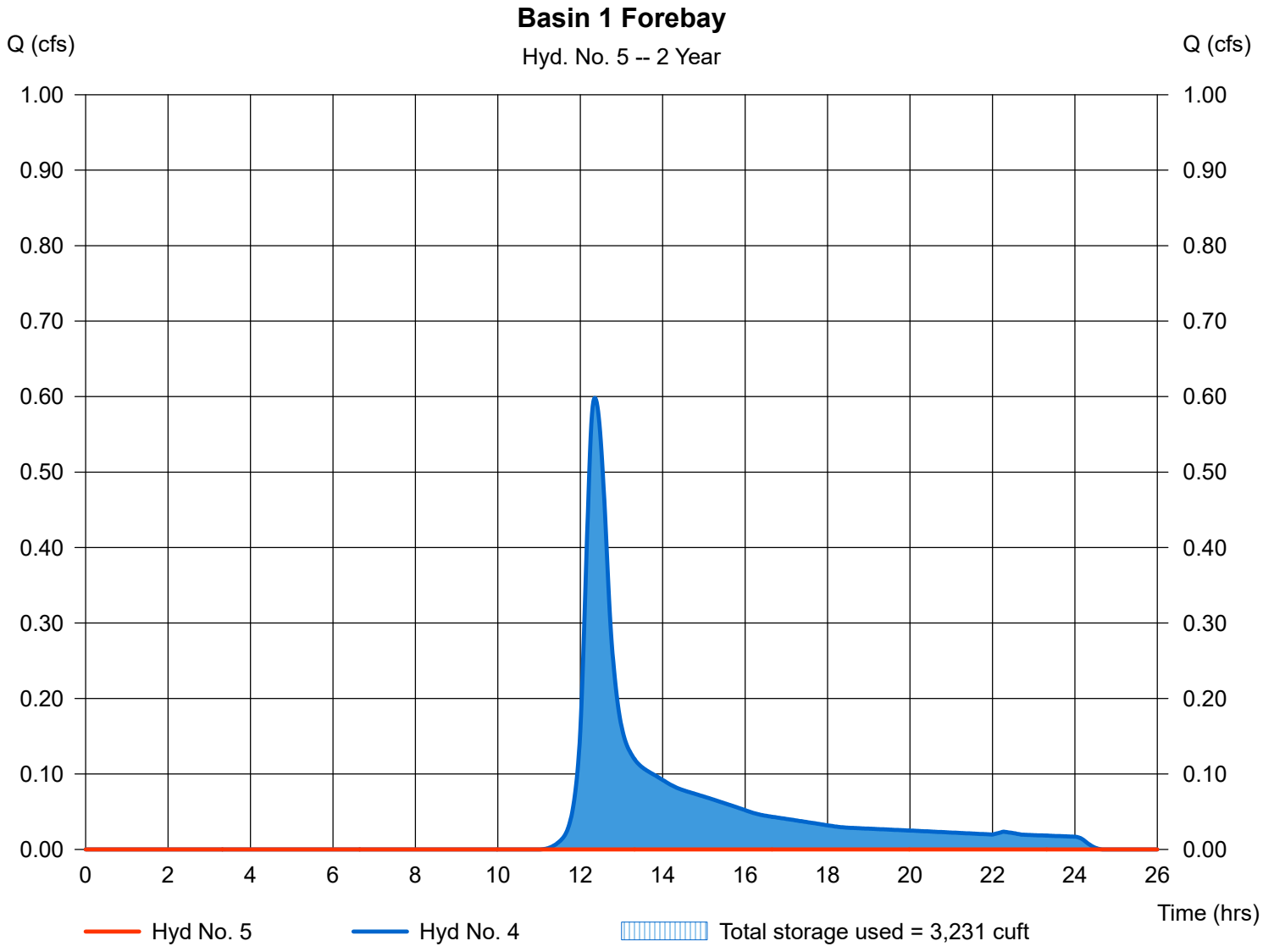
Hydrograph Report

Hyd. No. 5

Basin 1 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	4 - Proposed Area 1A	Max. Elevation	=	25.98 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	3,231 cuft

Storage Indication method used.



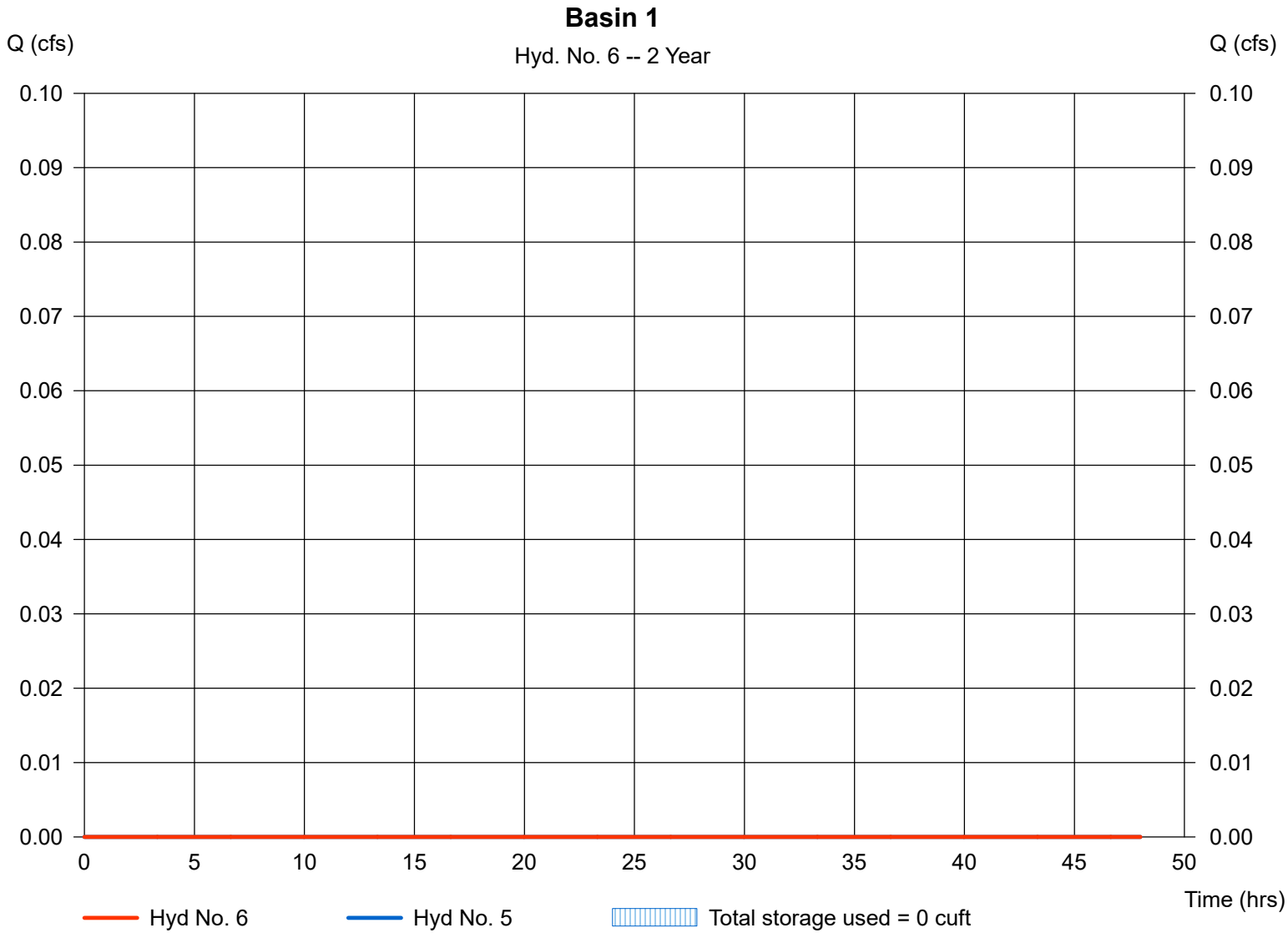
Hydrograph Report

Hyd. No. 6

Basin 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	5 - Basin 1 Forebay	Max. Elevation	=	22.00 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	0 cuft

Storage Indication method used.



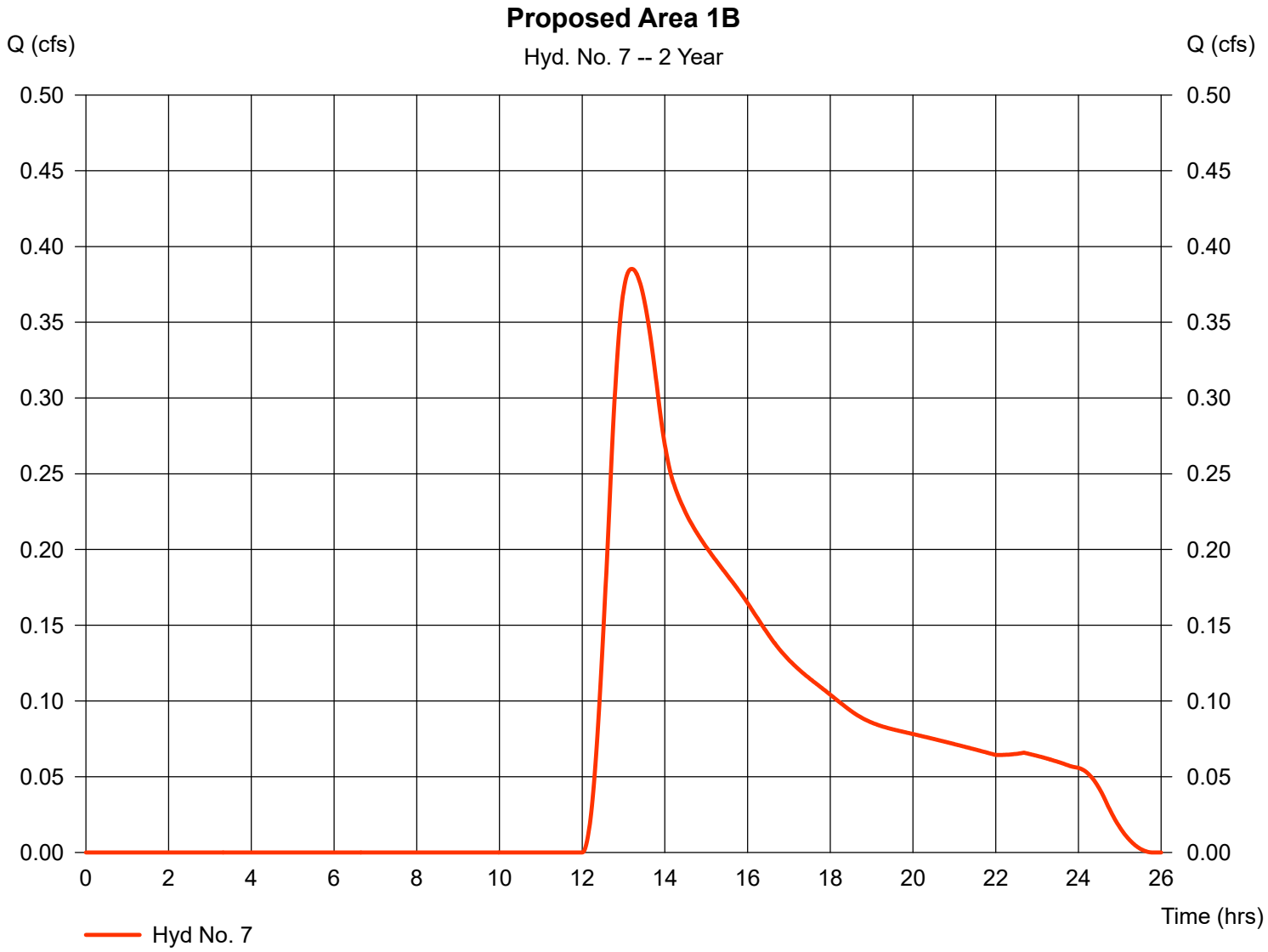
Hydrograph Report

Hyd. No. 7

Proposed Area 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.385 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.20 hrs
Time interval	=	1 min	Hyd. volume	=	5,998 cuft
Drainage area	=	5.930 ac	Curve number	=	56*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	69.10 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.120 x 55) + (0.810 x 61)] / 5.930

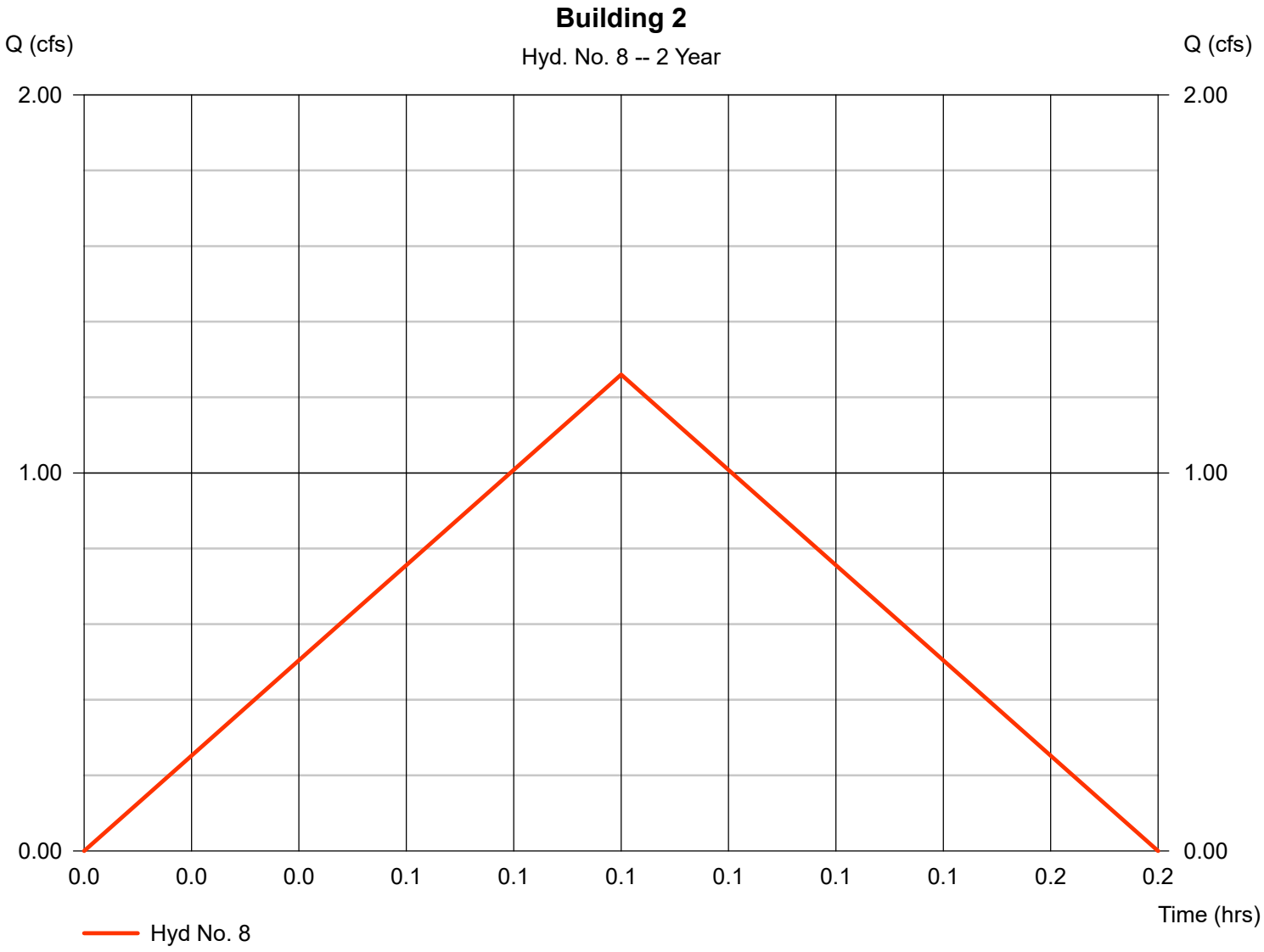


Hydrograph Report

Hyd. No. 8

Building 2

Hydrograph type	=	Rational	Peak discharge	=	1.260 cfs
Storm frequency	=	2 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	378 cuft
Drainage area	=	0.290 ac	Runoff coeff.	=	0.9
Intensity	=	4.828 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



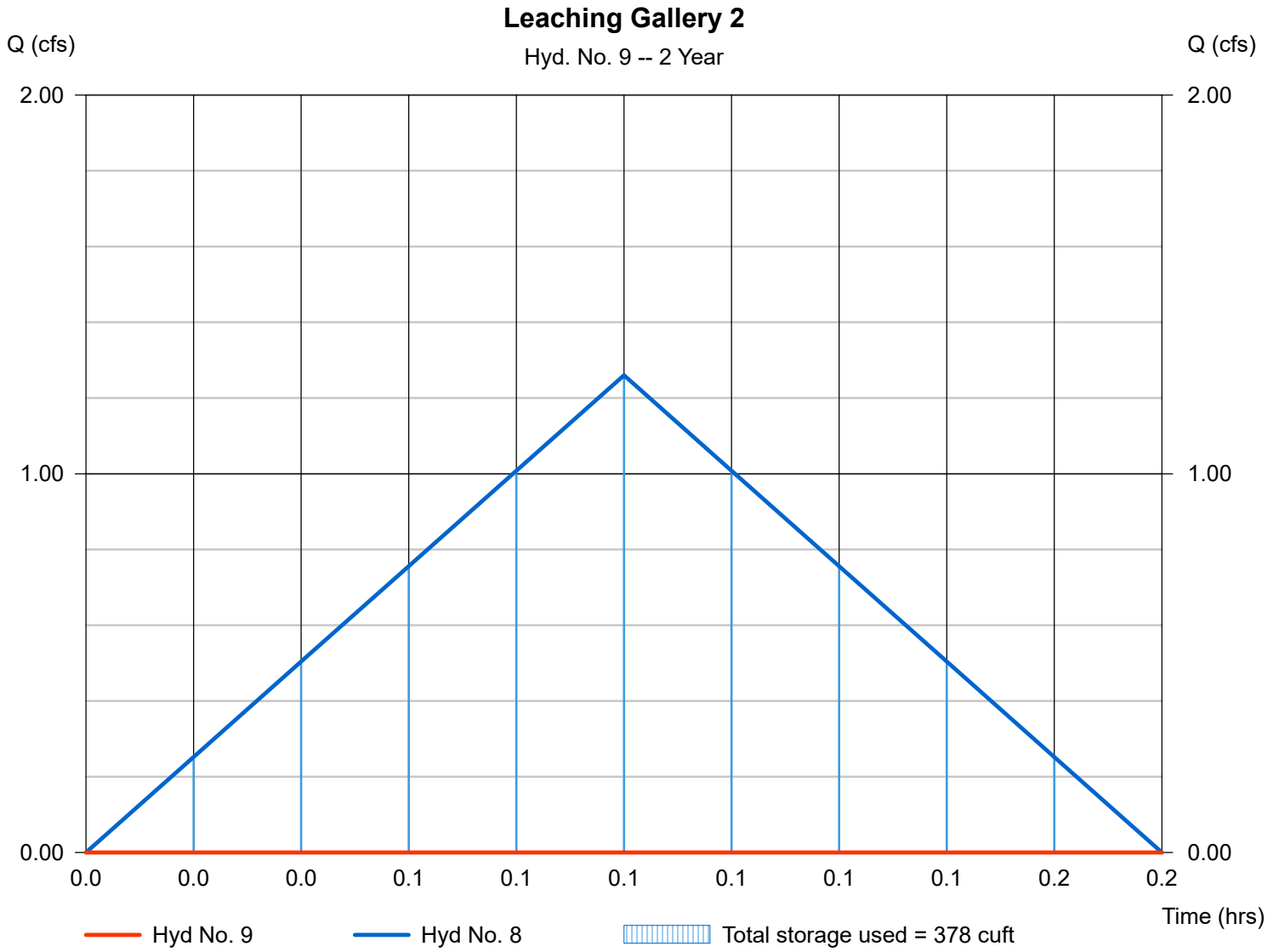
Hydrograph Report

Hyd. No. 9

Leaching Gallery 2

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	8 - Building 2	Max. Elevation	=	29.13 ft
Reservoir name	=	Leaching Gallery 2	Max. Storage	=	378 cuft

Storage Indication method used.

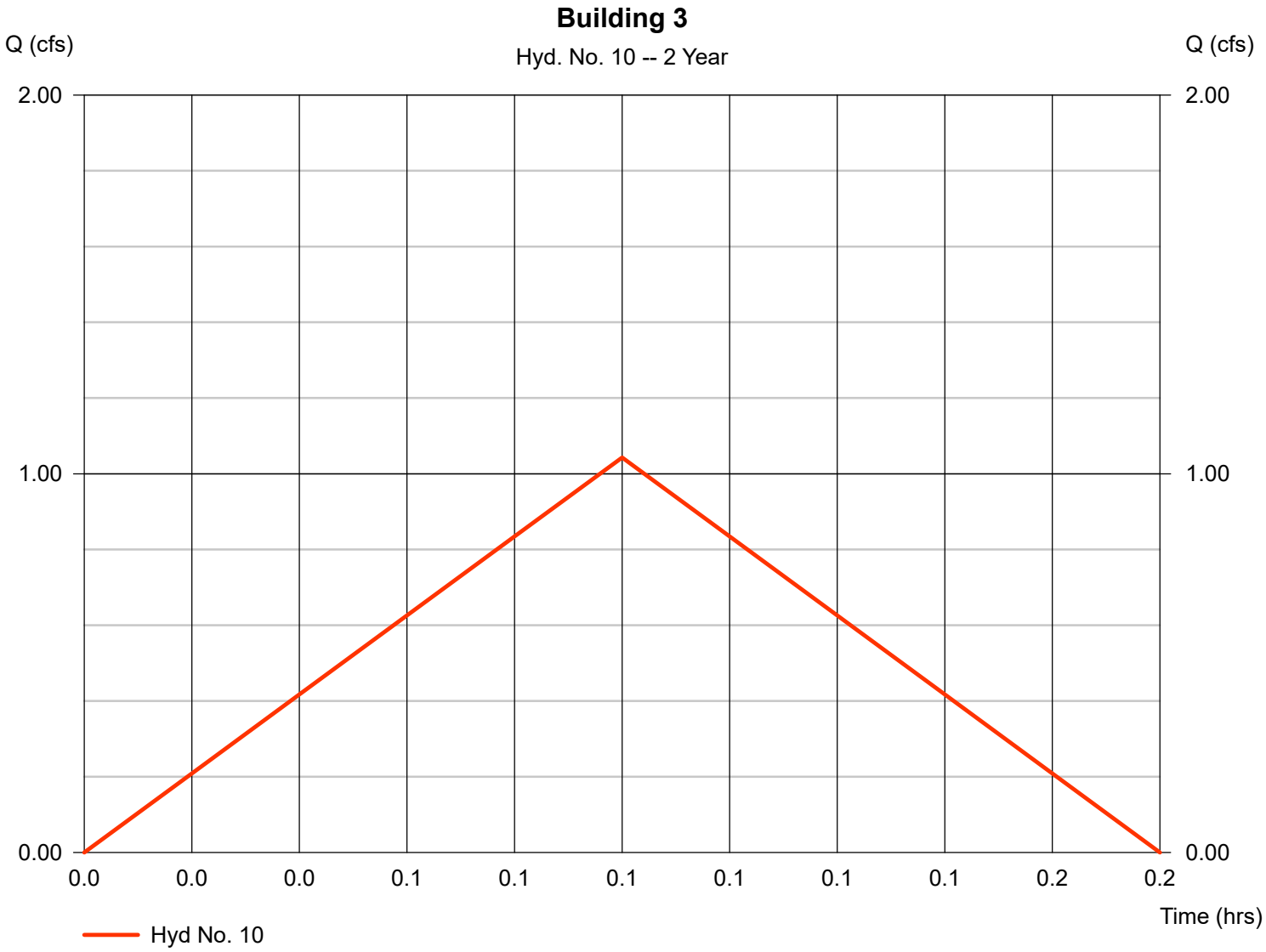


Hydrograph Report

Hyd. No. 10

Building 3

Hydrograph type	=	Rational	Peak discharge	=	1.043 cfs
Storm frequency	=	2 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	313 cuft
Drainage area	=	0.240 ac	Runoff coeff.	=	0.9
Intensity	=	4.828 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



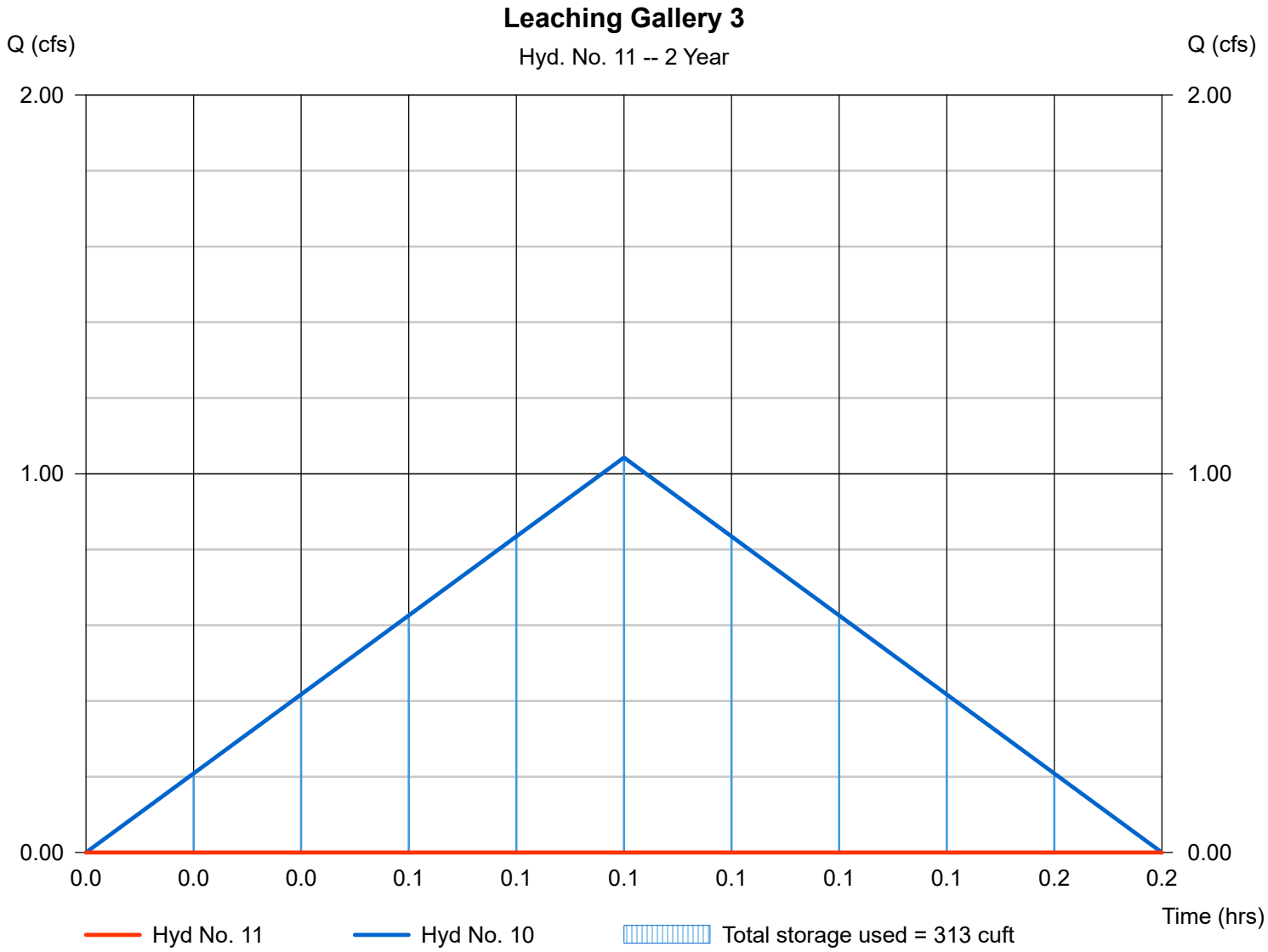
Hydrograph Report

Hyd. No. 11

Leaching Gallery 3

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	10 - Building 3	Max. Elevation	=	34.02 ft
Reservoir name	=	Leaching Gallery 3	Max. Storage	=	313 cuft

Storage Indication method used.



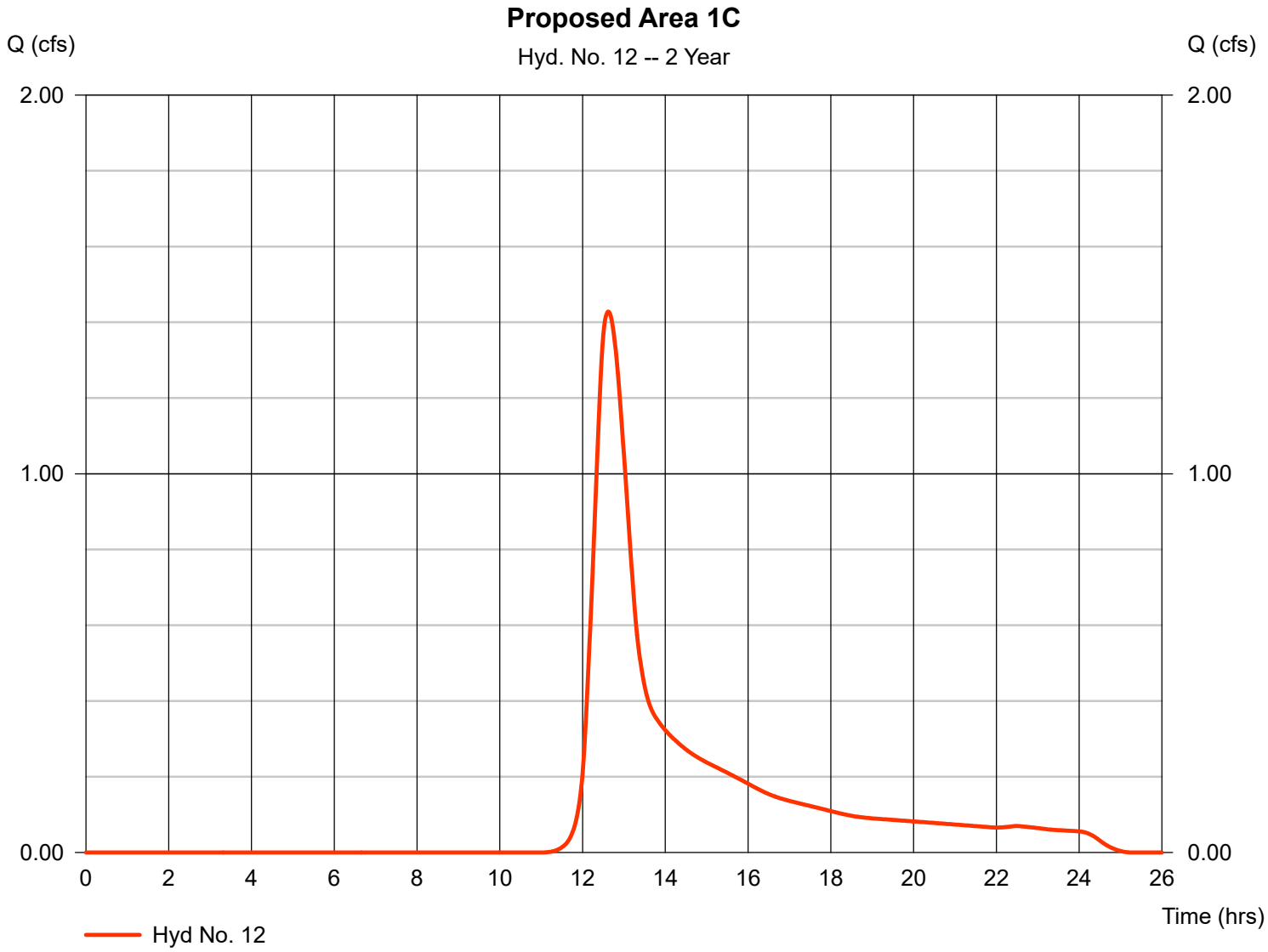
Hydrograph Report

Hyd. No. 12

Proposed Area 1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.428 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.62 hrs
Time interval	=	1 min	Hyd. volume	=	10,316 cuft
Drainage area	=	3.070 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	48.50 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 55) + (1.060 x 98) + (1.270 x 61)] / 3.070



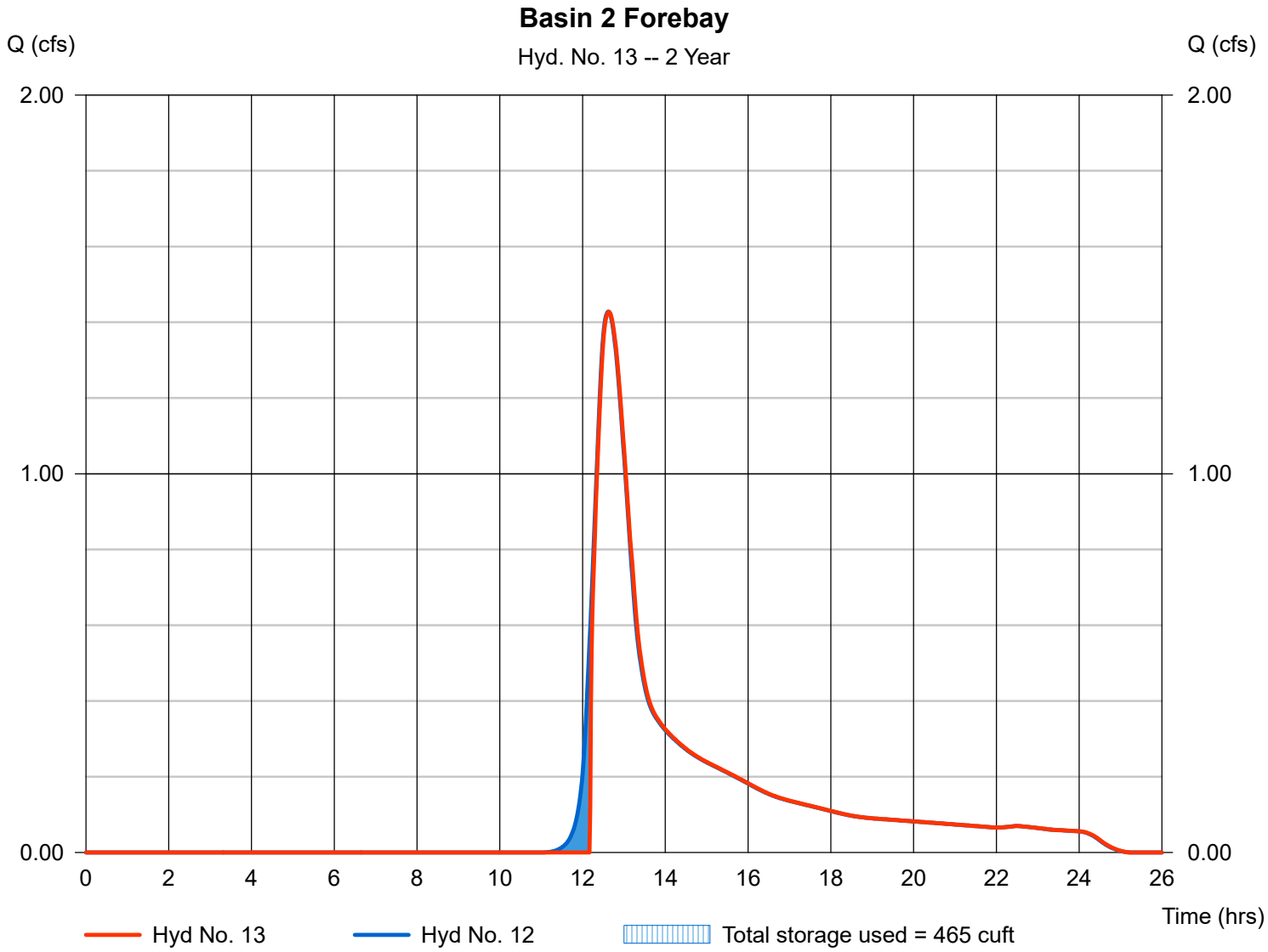
Hydrograph Report

Hyd. No. 13

Basin 2 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	1.428 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.63 hrs
Time interval	=	1 min	Hyd. volume	=	9,943 cuft
Inflow hyd. No.	=	12 - Proposed Area 1C	Max. Elevation	=	23.14 ft
Reservoir name	=	Basin 2 Forebay	Max. Storage	=	465 cuft

Storage Indication method used.



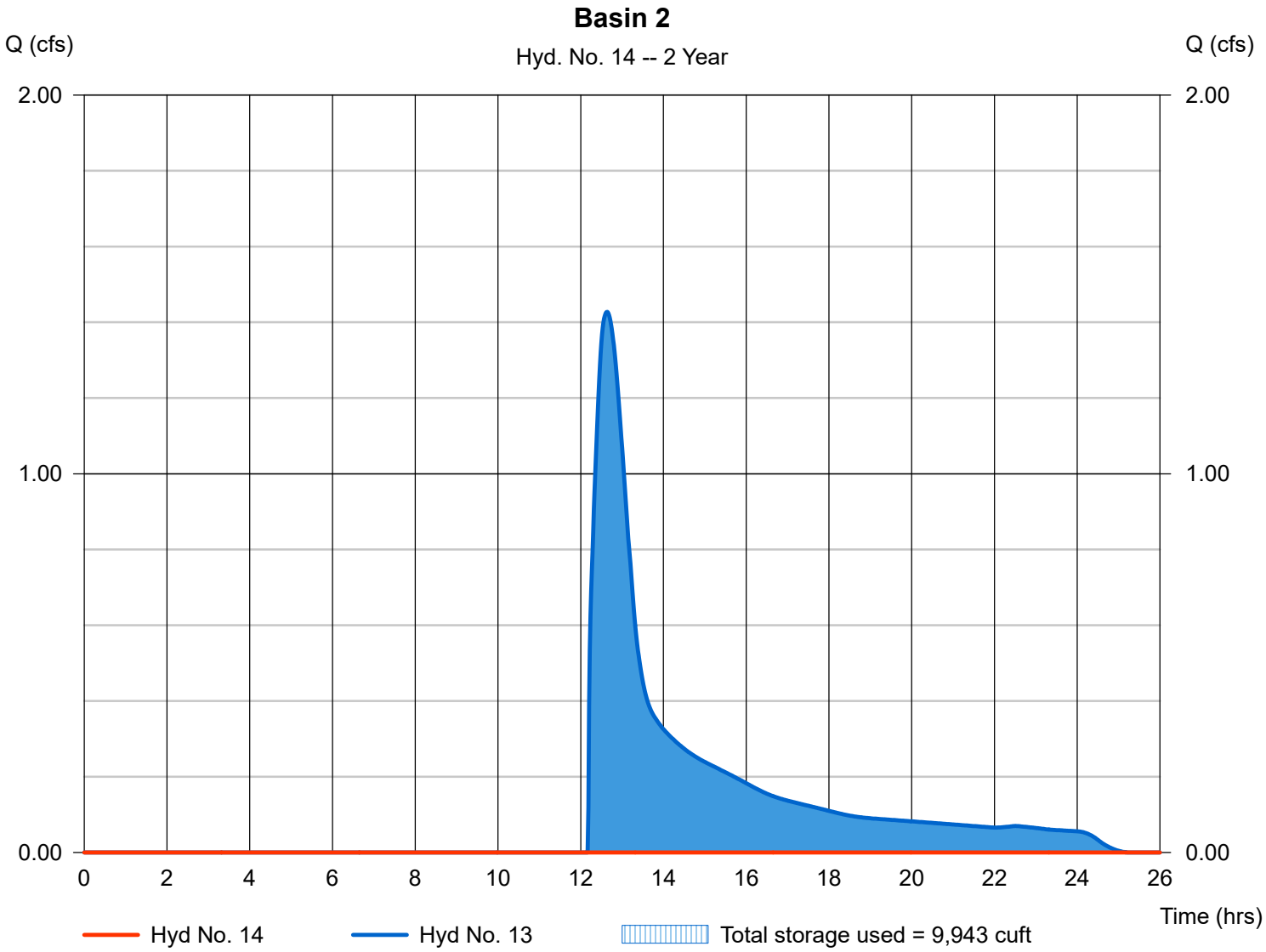
Hydrograph Report

Hyd. No. 14

Basin 2

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	13 - Basin 2 Forebay	Max. Elevation	=	25.96 ft
Reservoir name	=	Basin 2	Max. Storage	=	9,943 cuft

Storage Indication method used.

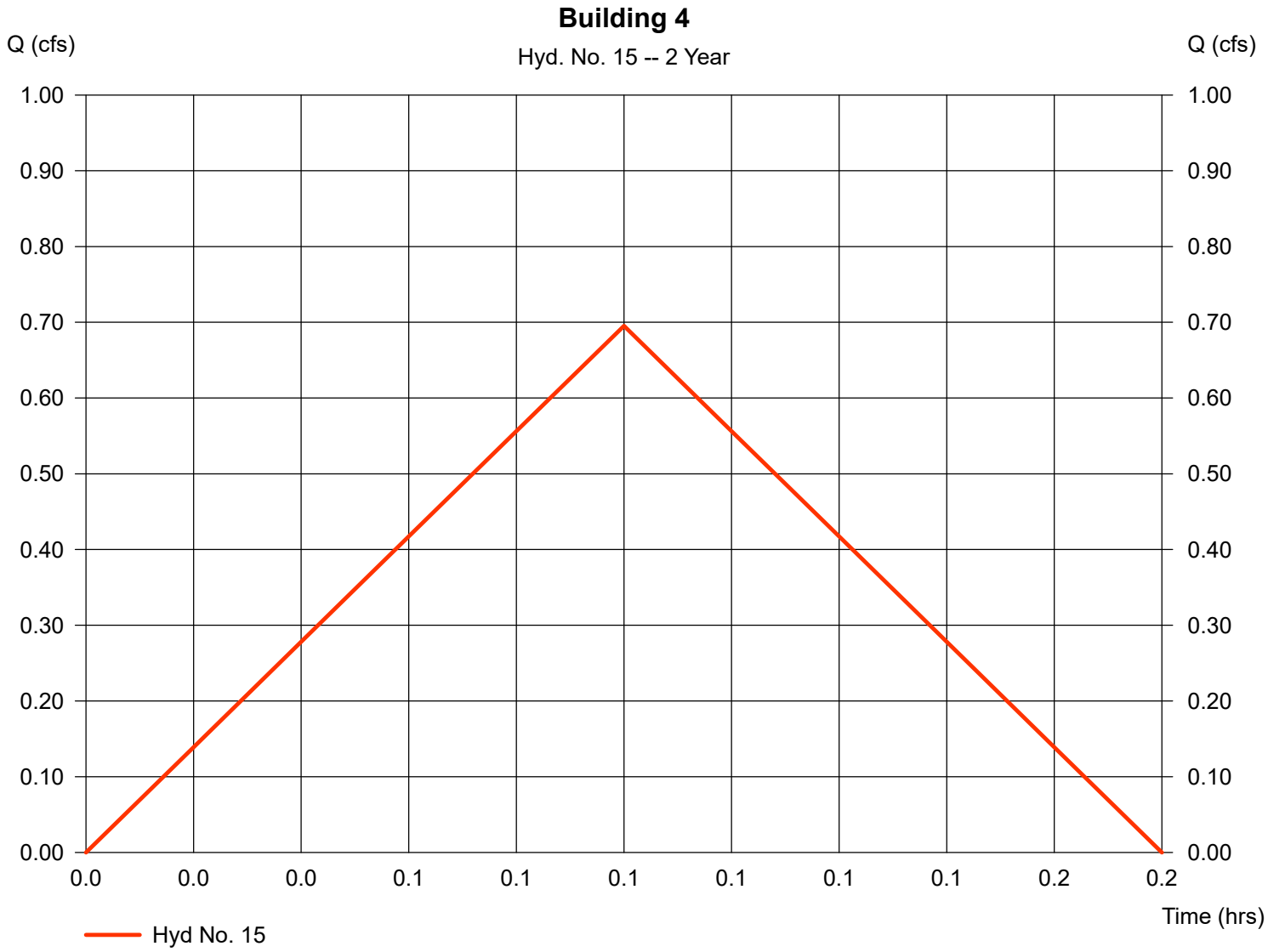


Hydrograph Report

Hyd. No. 15

Building 4

Hydrograph type	=	Rational	Peak discharge	=	0.695 cfs
Storm frequency	=	2 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	209 cuft
Drainage area	=	0.160 ac	Runoff coeff.	=	0.9
Intensity	=	4.828 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



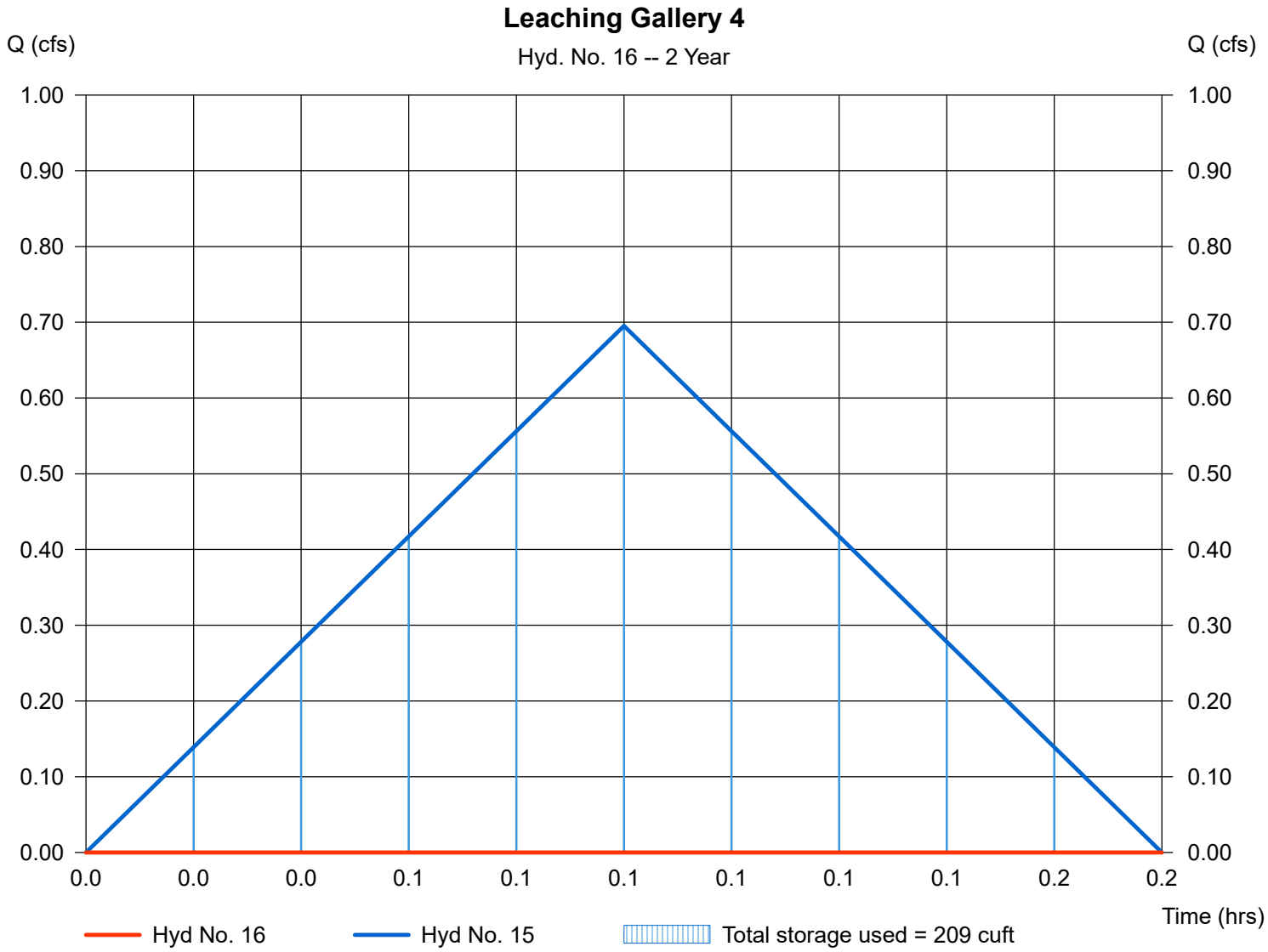
Hydrograph Report

Hyd. No. 16

Leaching Gallery 4

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	15 - Building 4	Max. Elevation	=	40.04 ft
Reservoir name	=	Leaching Gallery 4	Max. Storage	=	209 cuft

Storage Indication method used.



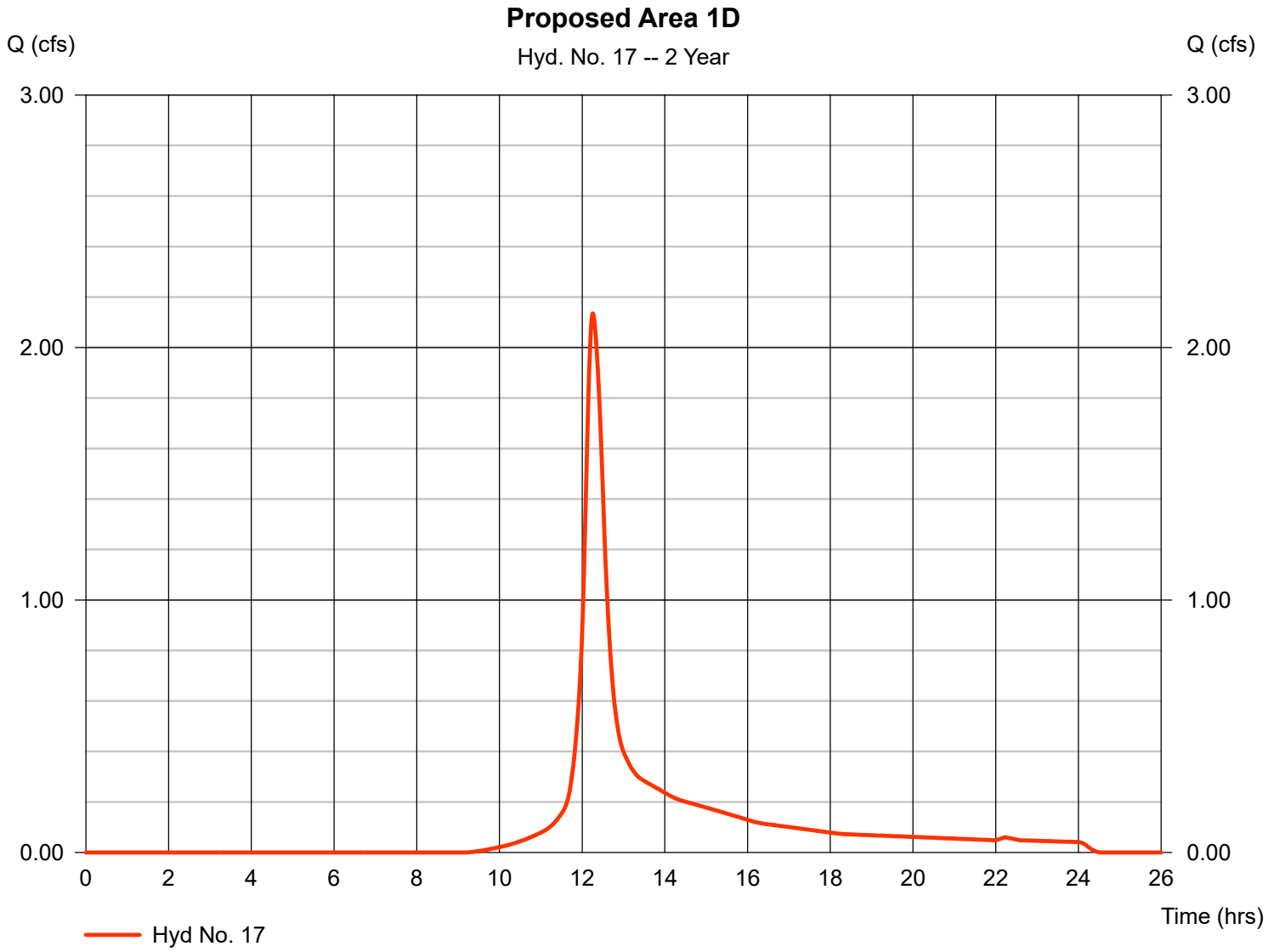
Hydrograph Report

Hyd. No. 17

Proposed Area 1D

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.135 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	9,852 cuft
Drainage area	=	1.830 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.50 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.010 x 98) + (0.820 x 61)] / 1.830



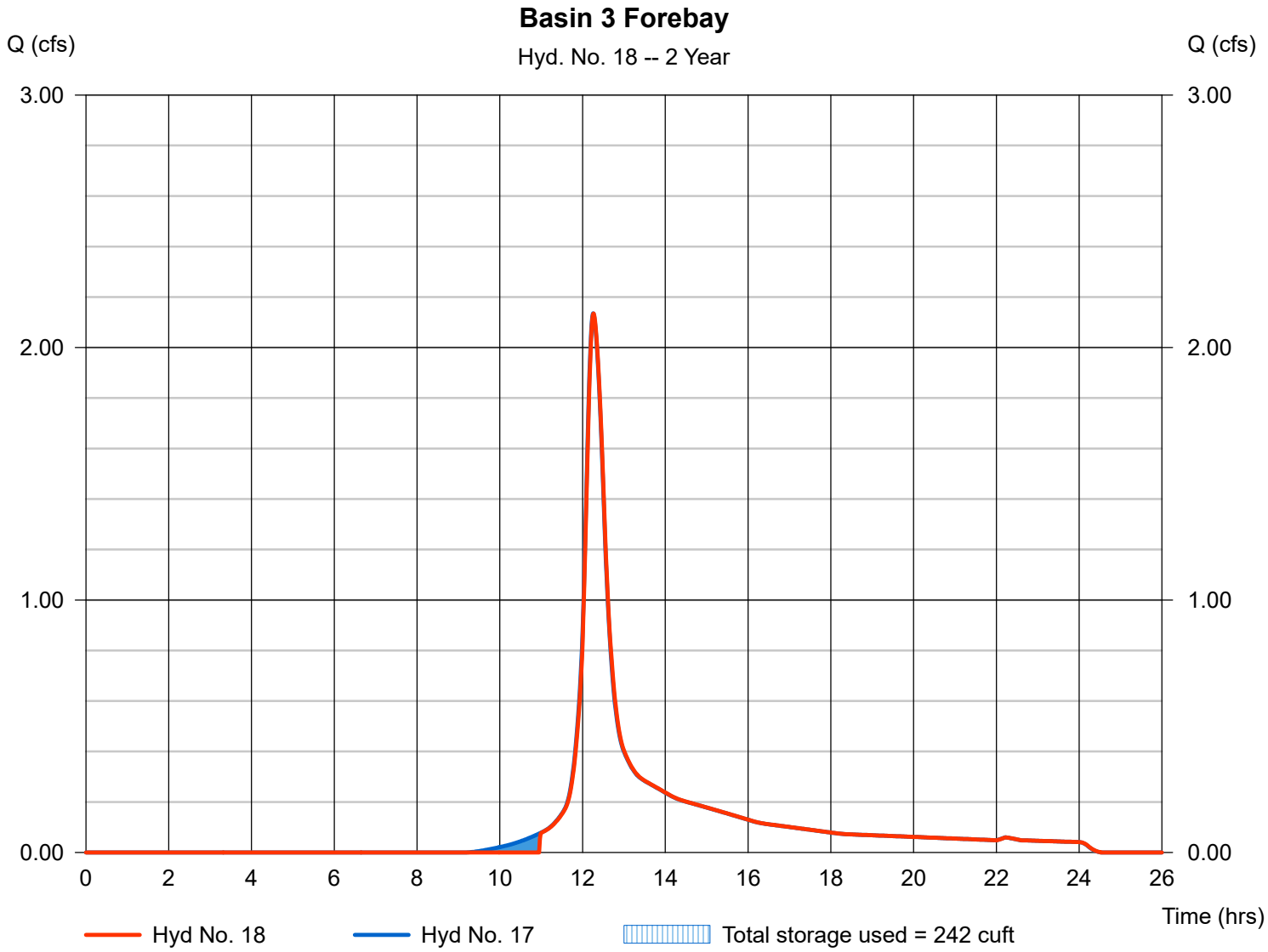
Hydrograph Report

Hyd. No. 18

Basin 3 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	2.134 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.27 hrs
Time interval	=	1 min	Hyd. volume	=	9,673 cuft
Inflow hyd. No.	=	17 - Proposed Area 1D	Max. Elevation	=	33.19 ft
Reservoir name	=	Basin 3 Forebay	Max. Storage	=	242 cuft

Storage Indication method used.



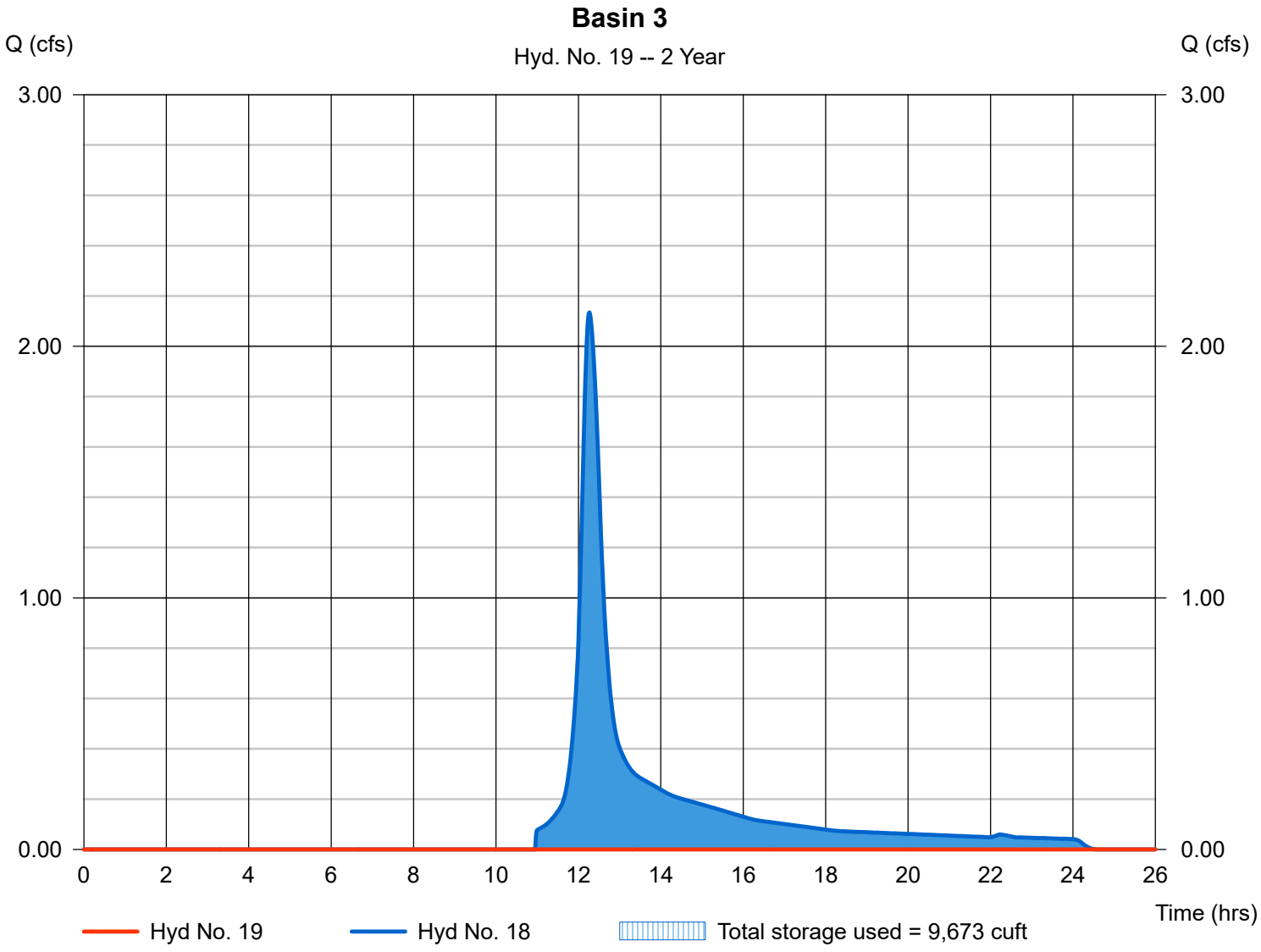
Hydrograph Report

Hyd. No. 19

Basin 3

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	18 - Basin 3 Forebay	Max. Elevation	=	34.76 ft
Reservoir name	=	Basin 3	Max. Storage	=	9,673 cuft

Storage Indication method used.

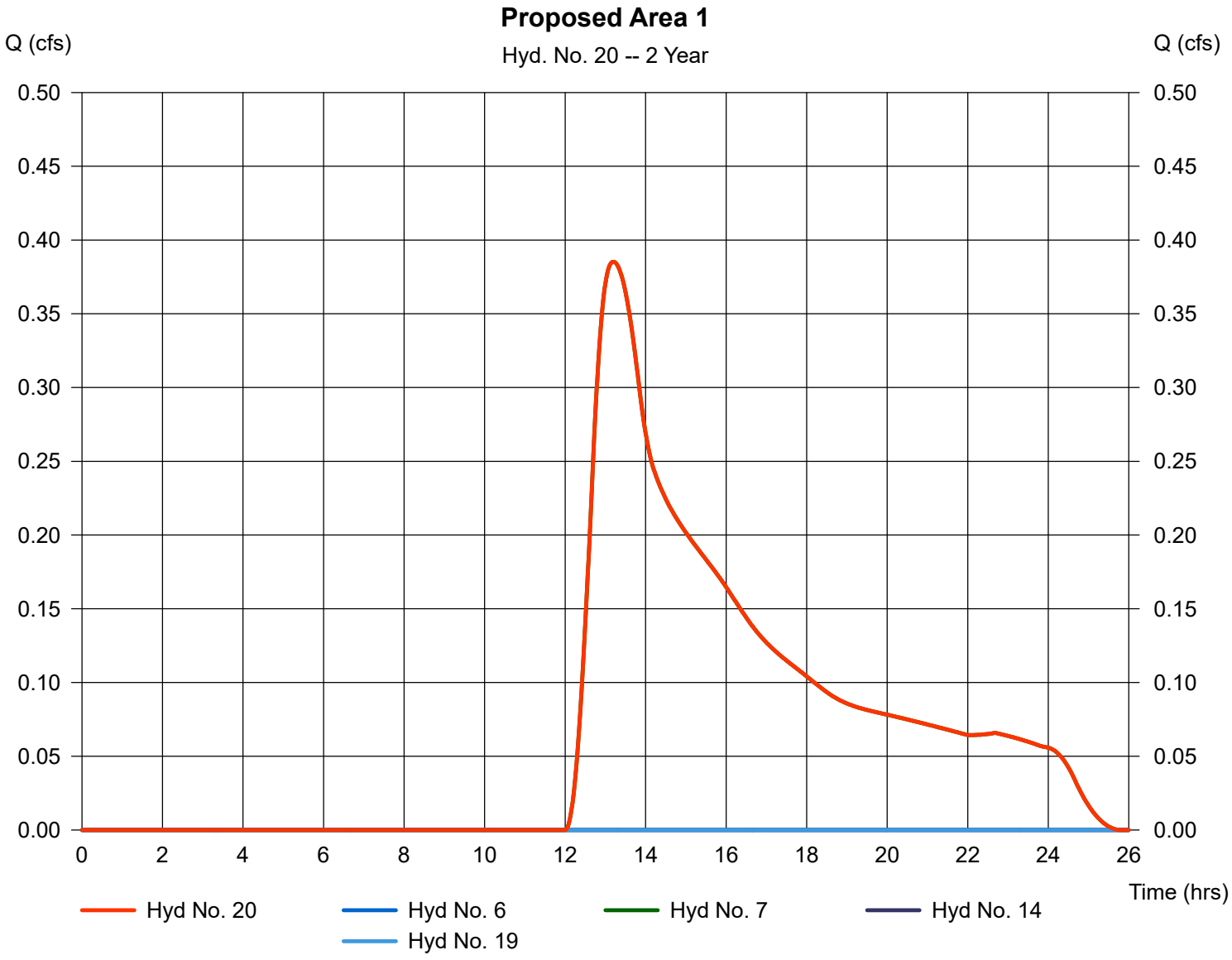


Hydrograph Report

Hyd. No. 20

Proposed Area 1

Hydrograph type	= Combine	Peak discharge	= 0.385 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.20 hrs
Time interval	= 1 min	Hyd. volume	= 5,998 cuft
Inflow hyds.	= 6, 7, 14, 19	Contrib. drain. area	= 5.930 ac

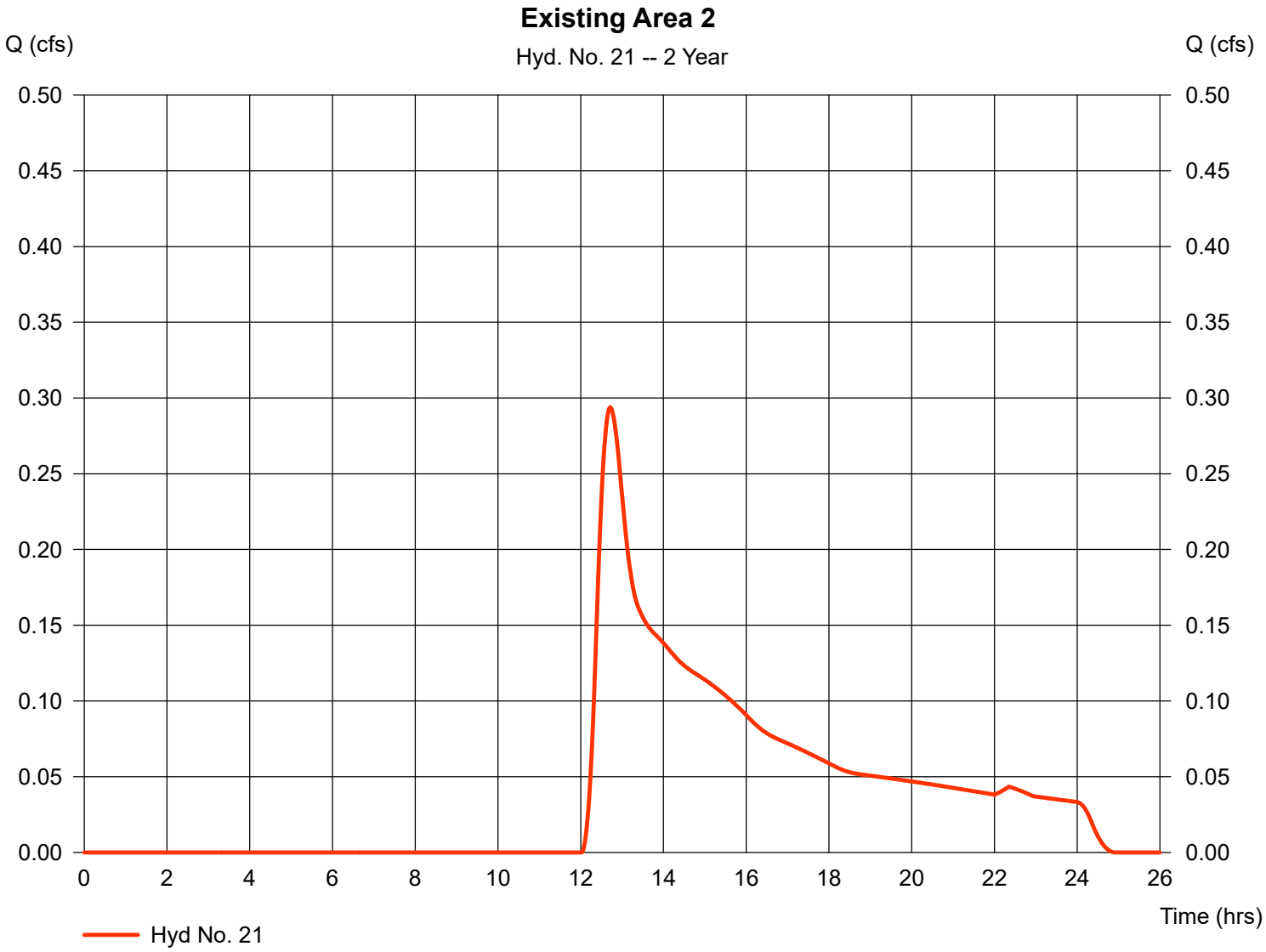


Hydrograph Report

Hyd. No. 21

Existing Area 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.294 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.72 hrs
Time interval	=	1 min	Hyd. volume	=	3,569 cuft
Drainage area	=	3.920 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	35.00 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



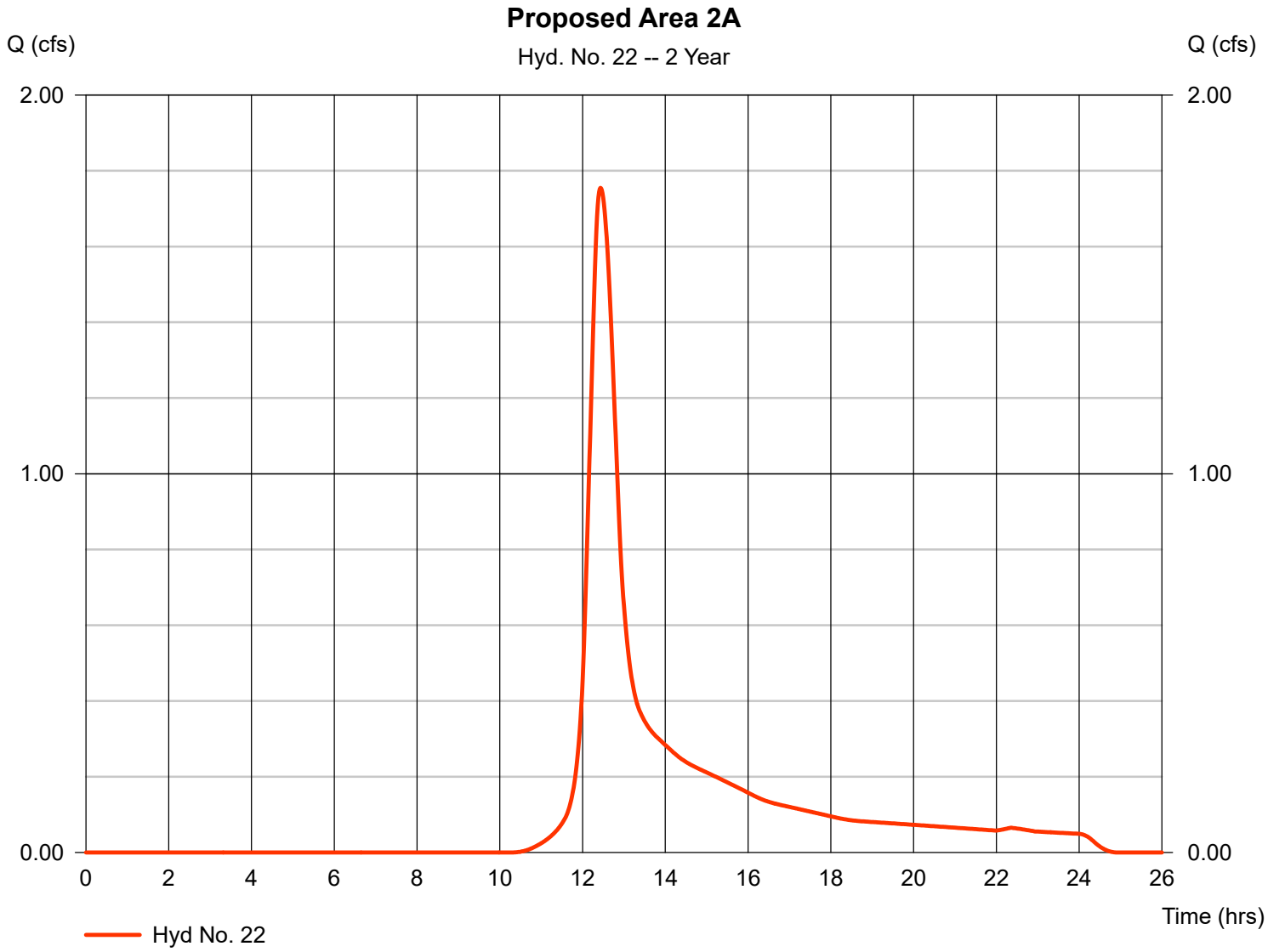
Hydrograph Report

Hyd. No. 22

Proposed Area 2A

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.755 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.43 hrs
Time interval	=	1 min	Hyd. volume	=	10,245 cuft
Drainage area	=	2.450 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	34.80 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.090 x 98) + (0.870 x 61) + (0.490 x 55)] / 2.450



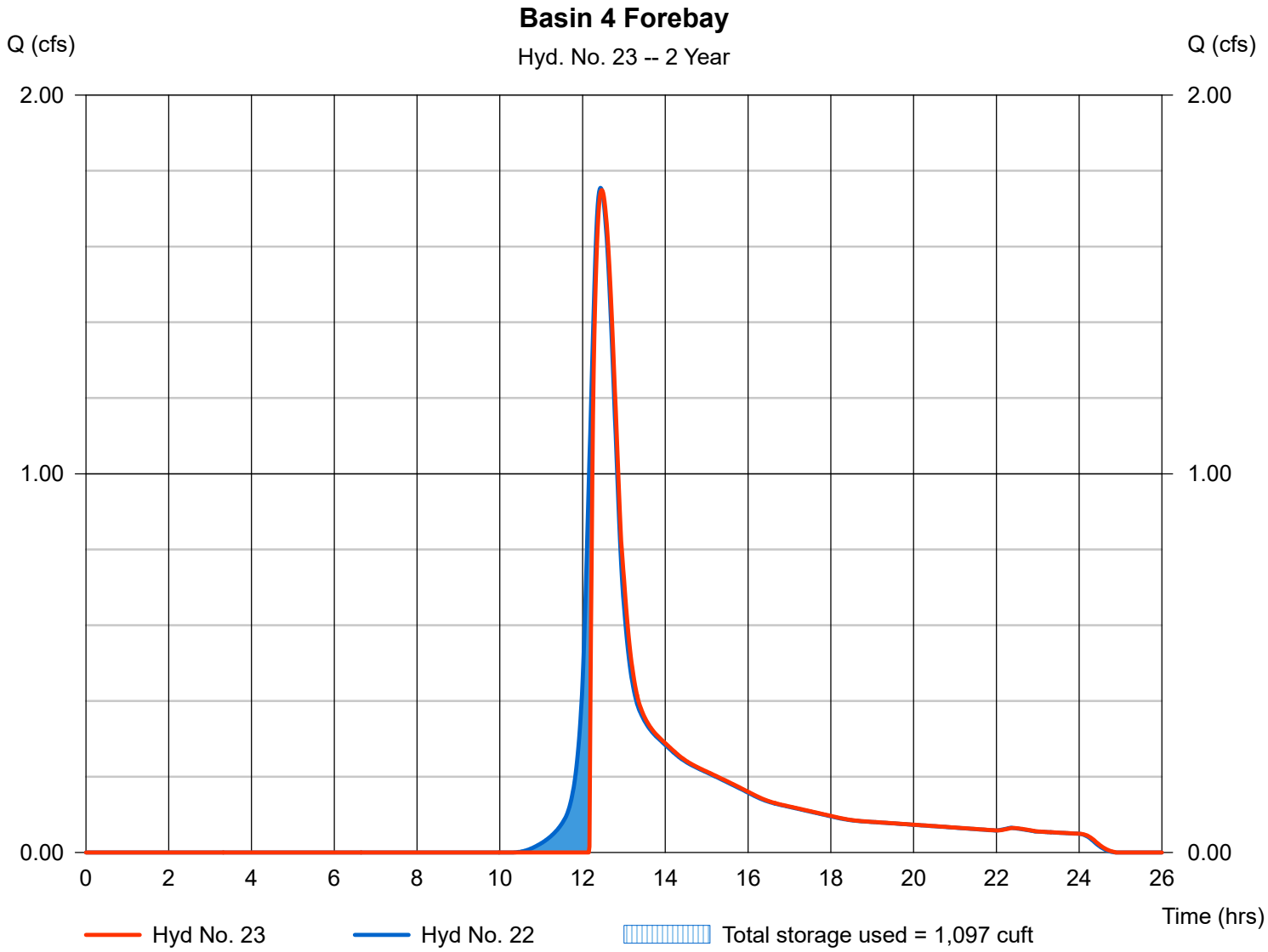
Hydrograph Report

Hyd. No. 23

Basin 4 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	1.749 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.47 hrs
Time interval	=	1 min	Hyd. volume	=	9,372 cuft
Inflow hyd. No.	=	22 - Proposed Area 2A	Max. Elevation	=	53.16 ft
Reservoir name	=	Basin 4 Forebay	Max. Storage	=	1,097 cuft

Storage Indication method used.



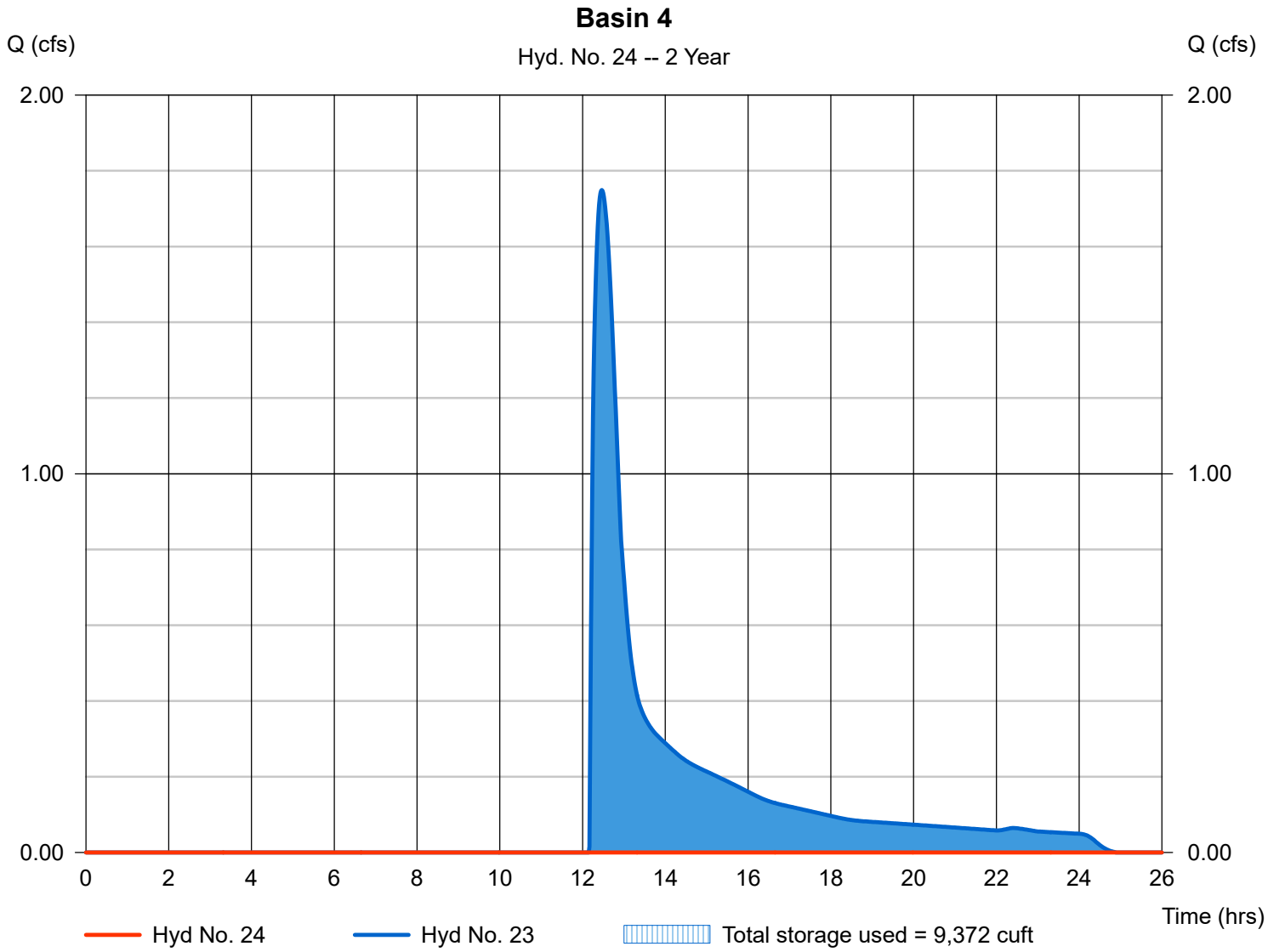
Hydrograph Report

Hyd. No. 24

Basin 4

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	23 - Basin 4 Forebay	Max. Elevation	=	54.83 ft
Reservoir name	=	Basin 4	Max. Storage	=	9,372 cuft

Storage Indication method used.



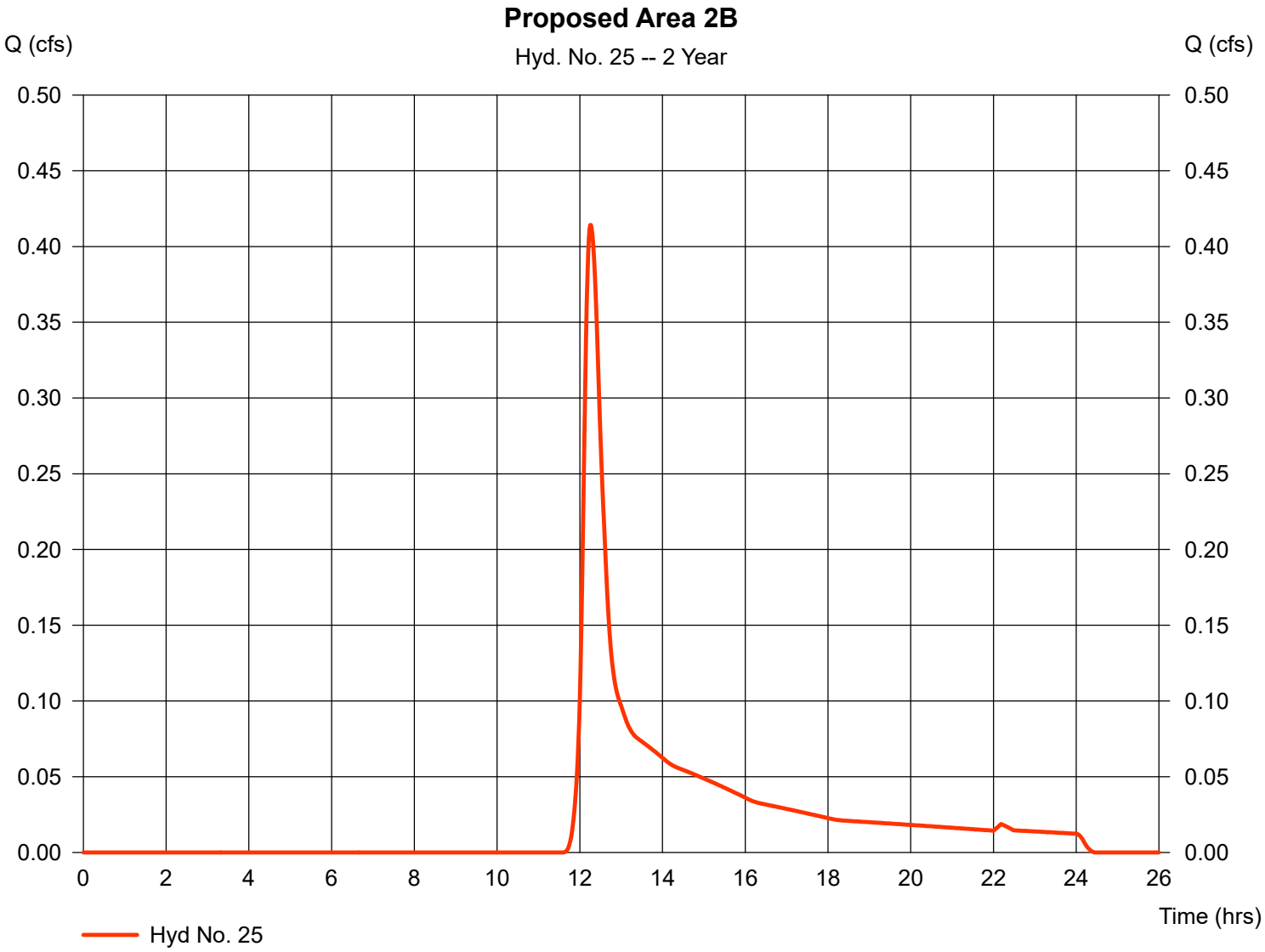
Hydrograph Report

Hyd. No. 25

Proposed Area 2B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.414 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	2,096 cuft
Drainage area	=	0.850 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.10 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 98) + (0.640 x 61) + (0.060 x 55)] / 0.850



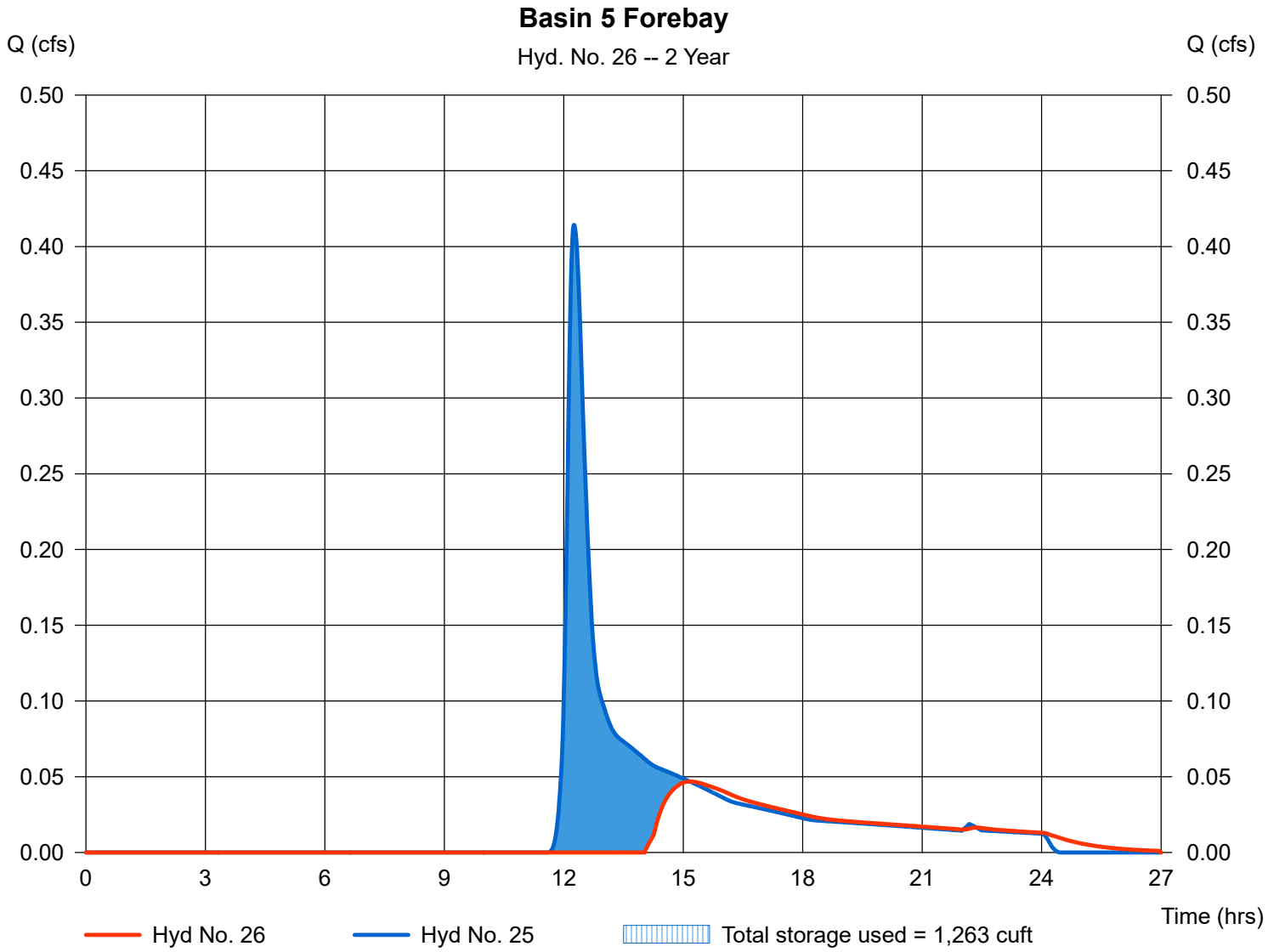
Hydrograph Report

Hyd. No. 26

Basin 5 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	0.047 cfs
Storm frequency	=	2 yrs	Time to peak	=	15.17 hrs
Time interval	=	1 min	Hyd. volume	=	924 cuft
Inflow hyd. No.	=	25 - Proposed Area 2B	Max. Elevation	=	66.30 ft
Reservoir name	=	Basin 5 Forebay	Max. Storage	=	1,263 cuft

Storage Indication method used.



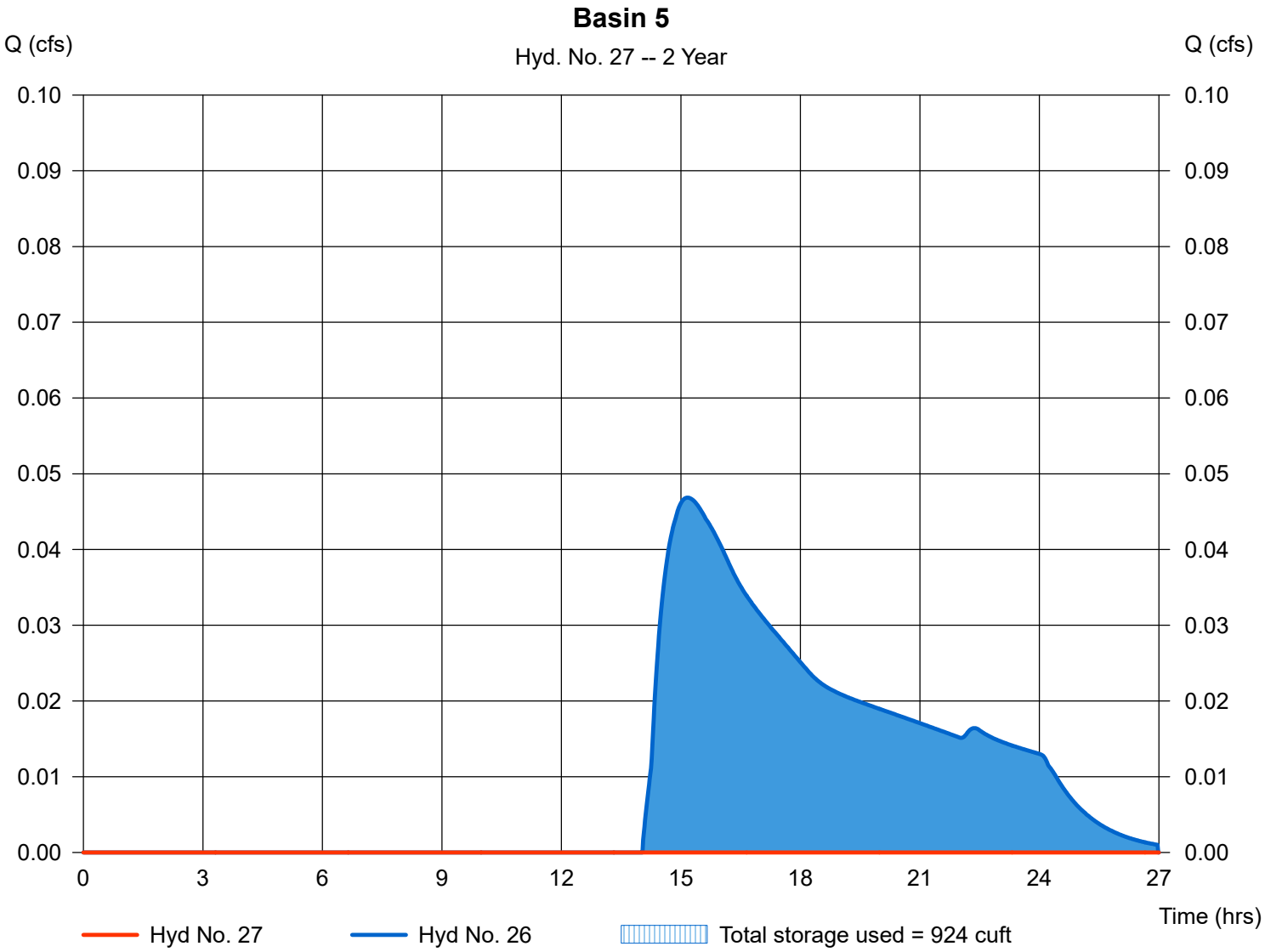
Hydrograph Report

Hyd. No. 27

Basin 5

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	26 - Basin 5 Forebay	Max. Elevation	=	64.40 ft
Reservoir name	=	Basin 5	Max. Storage	=	924 cuft

Storage Indication method used.



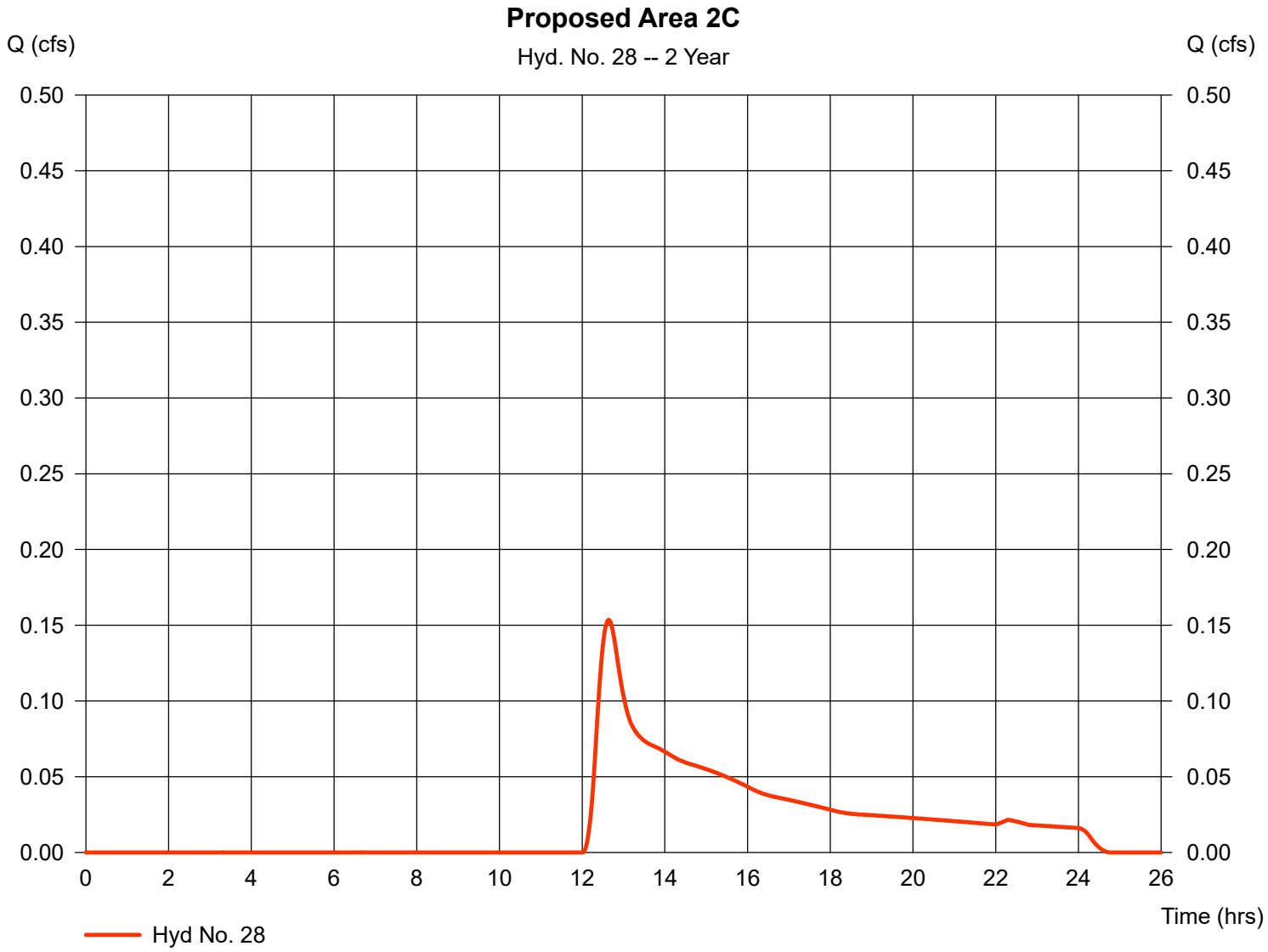
Hydrograph Report

Hyd. No. 28

Proposed Area 2C

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.154 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.63 hrs
Time interval	=	1 min	Hyd. volume	=	1,739 cuft
Drainage area	=	1.910 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	29.00 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.850 x 55) + (0.060 x 61)] / 1.910

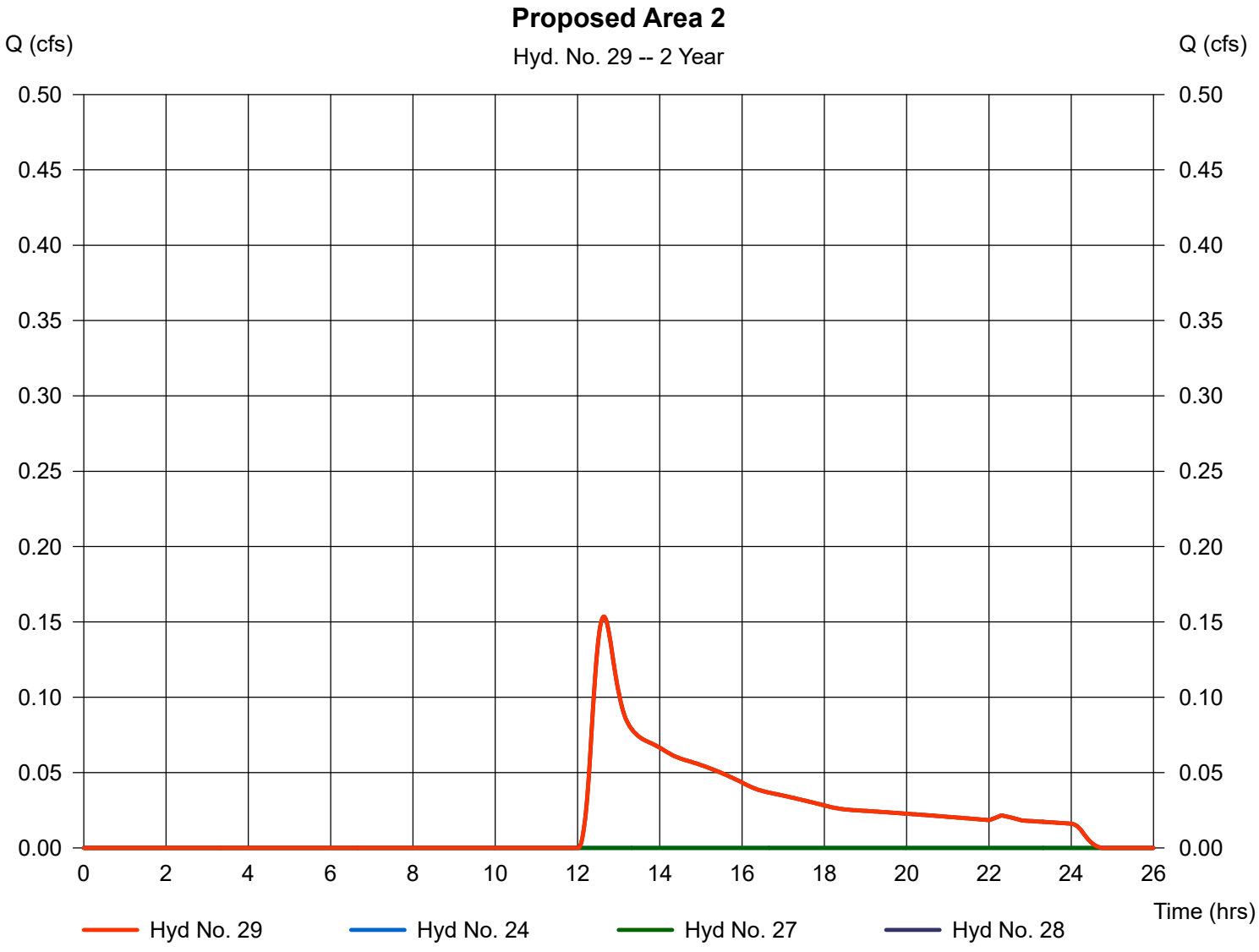


Hydrograph Report

Hyd. No. 29

Proposed Area 2

Hydrograph type	= Combine	Peak discharge	= 0.154 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.63 hrs
Time interval	= 1 min	Hyd. volume	= 1,739 cuft
Inflow hyds.	= 24, 27, 28	Contrib. drain. area	= 1.910 ac

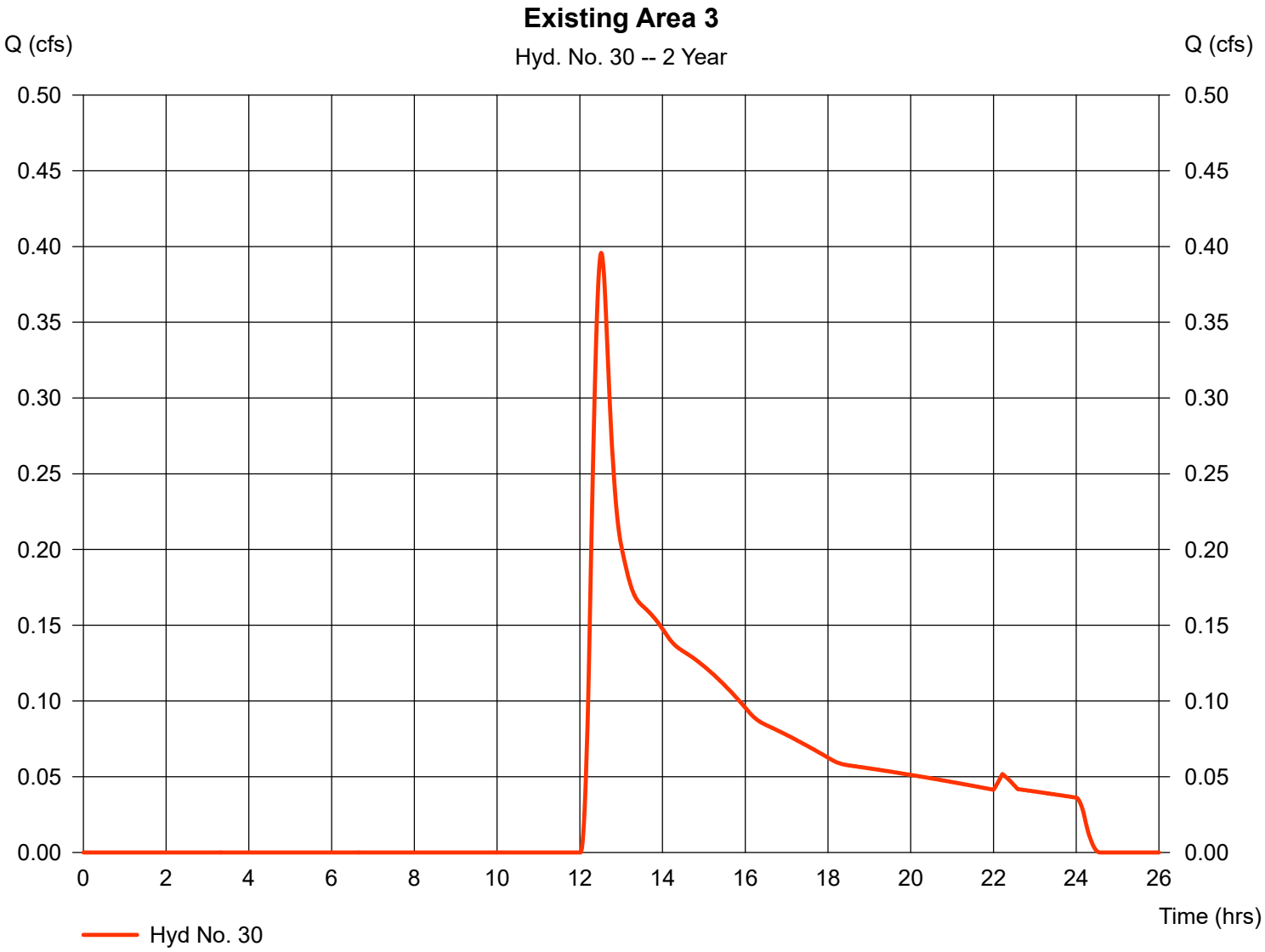


Hydrograph Report

Hyd. No. 30

Existing Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.396 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.52 hrs
Time interval	=	1 min	Hyd. volume	=	3,952 cuft
Drainage area	=	4.300 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

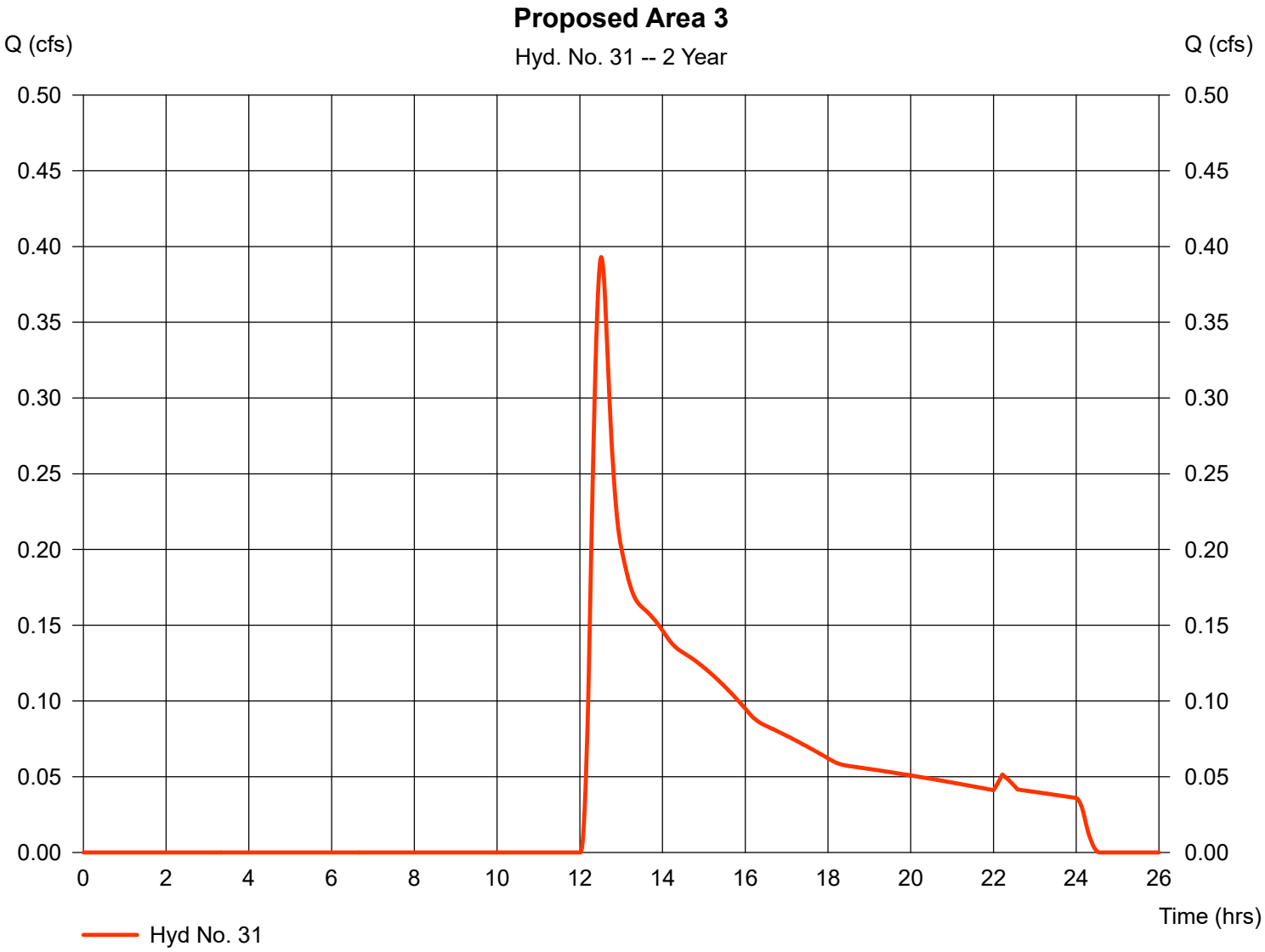


Hydrograph Report

Hyd. No. 31

Proposed Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.393 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.52 hrs
Time interval	=	1 min	Hyd. volume	=	3,925 cuft
Drainage area	=	4.270 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	3.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

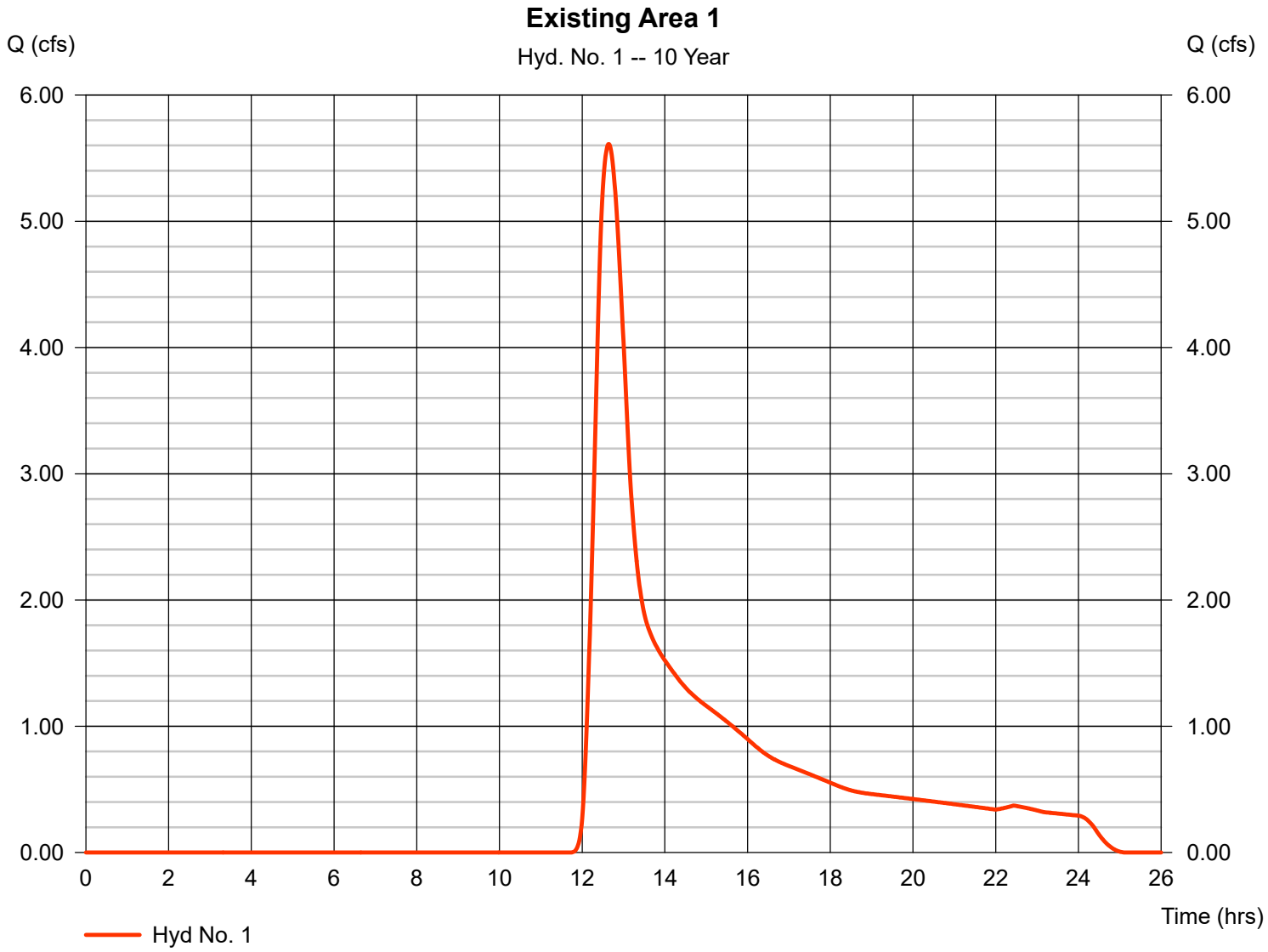
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	5.613	1	759	44,488	------	------	------	Existing Area 1
2	Rational	1.622	1	5	487	------	------	------	Building 1
3	Reservoir	0.000	1	n/a	0	2	28.22	487	Leaching Gallery 1
4	SCS Runoff	1.404	1	739	7,107	------	------	------	Proposed Area 1A
5	Reservoir	0.047	1	1195	1,094	4	27.58	6,181	Basin 1 Forebay
6	Reservoir	0.000	1	n/a	0	5	24.07	1,094	Basin 1
7	SCS Runoff	1.978	1	777	20,178	------	------	------	Proposed Area 1B
8	Rational	1.881	1	5	564	------	------	------	Building 2
9	Reservoir	0.000	1	n/a	0	8	29.63	564	Leaching Gallery 2
10	Rational	1.557	1	5	467	------	------	------	Building 3
11	Reservoir	0.000	1	n/a	0	10	34.45	467	Leaching Gallery 3
12	SCS Runoff	3.358	1	754	22,692	------	------	------	Proposed Area 1C
13	Reservoir	3.357	1	755	22,319	12	23.25	539	Basin 2 Forebay
14	Reservoir	0.708	1	827	12,203	13	26.39	11,932	Basin 2
15	Rational	1.038	1	5	311	------	------	------	Building 4
16	Reservoir	0.000	1	n/a	0	15	40.32	311	Leaching Gallery 4
17	SCS Runoff	4.120	1	735	18,841	------	------	------	Proposed Area 1D
18	Reservoir	4.119	1	735	18,661	17	33.29	277	Basin 3 Forebay
19	Reservoir	0.166	1	1028	3,008	18	36.53	15,764	Basin 3
20	Combine	2.167	1	802	35,390	6, 7, 14, 19	------	------	Proposed Area 1
21	SCS Runoff	1.774	1	752	12,553	------	------	------	Existing Area 2
22	SCS Runoff	3.740	1	745	21,093	------	------	------	Proposed Area 2A
23	Reservoir	3.732	1	746	20,219	22	53.27	1,250	Basin 4 Forebay
24	Reservoir	0.186	1	1062	3,462	23	56.53	16,911	Basin 4
25	SCS Runoff	1.146	1	734	5,079	------	------	------	Proposed Area 2B
26	Reservoir	0.640	1	750	3,907	25	66.68	1,635	Basin 5 Forebay
27	Reservoir	0.000	1	n/a	0	26	65.57	3,907	Basin 5
28	SCS Runoff	0.932	1	748	6,116	------	------	------	Proposed Area 2C
29	Combine	0.932	1	748	9,579	24, 27, 28	------	------	Proposed Area 2
30	SCS Runoff	2.402	1	741	13,902	------	------	------	Existing Area 3
31	SCS Runoff	2.385	1	741	13,805	------	------	------	Proposed Area 3

Hydrograph Report

Hyd. No. 1

Existing Area 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.613 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.65 hrs
Time interval	=	1 min	Hyd. volume	=	44,488 cuft
Drainage area	=	13.960 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.30 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

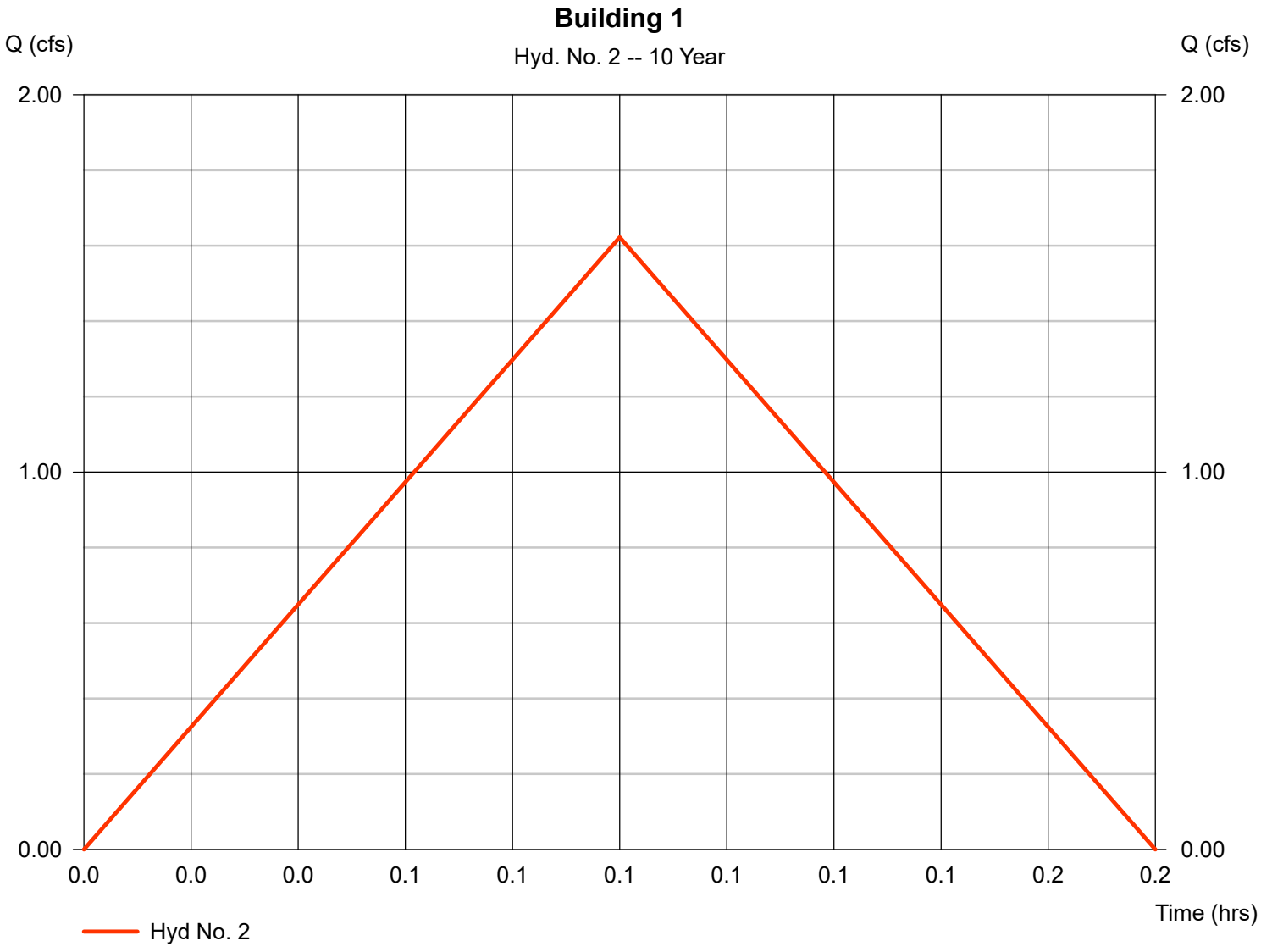


Hydrograph Report

Hyd. No. 2

Building 1

Hydrograph type	=	Rational	Peak discharge	=	1.622 cfs
Storm frequency	=	10 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	487 cuft
Drainage area	=	0.250 ac	Runoff coeff.	=	0.9
Intensity	=	7.208 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



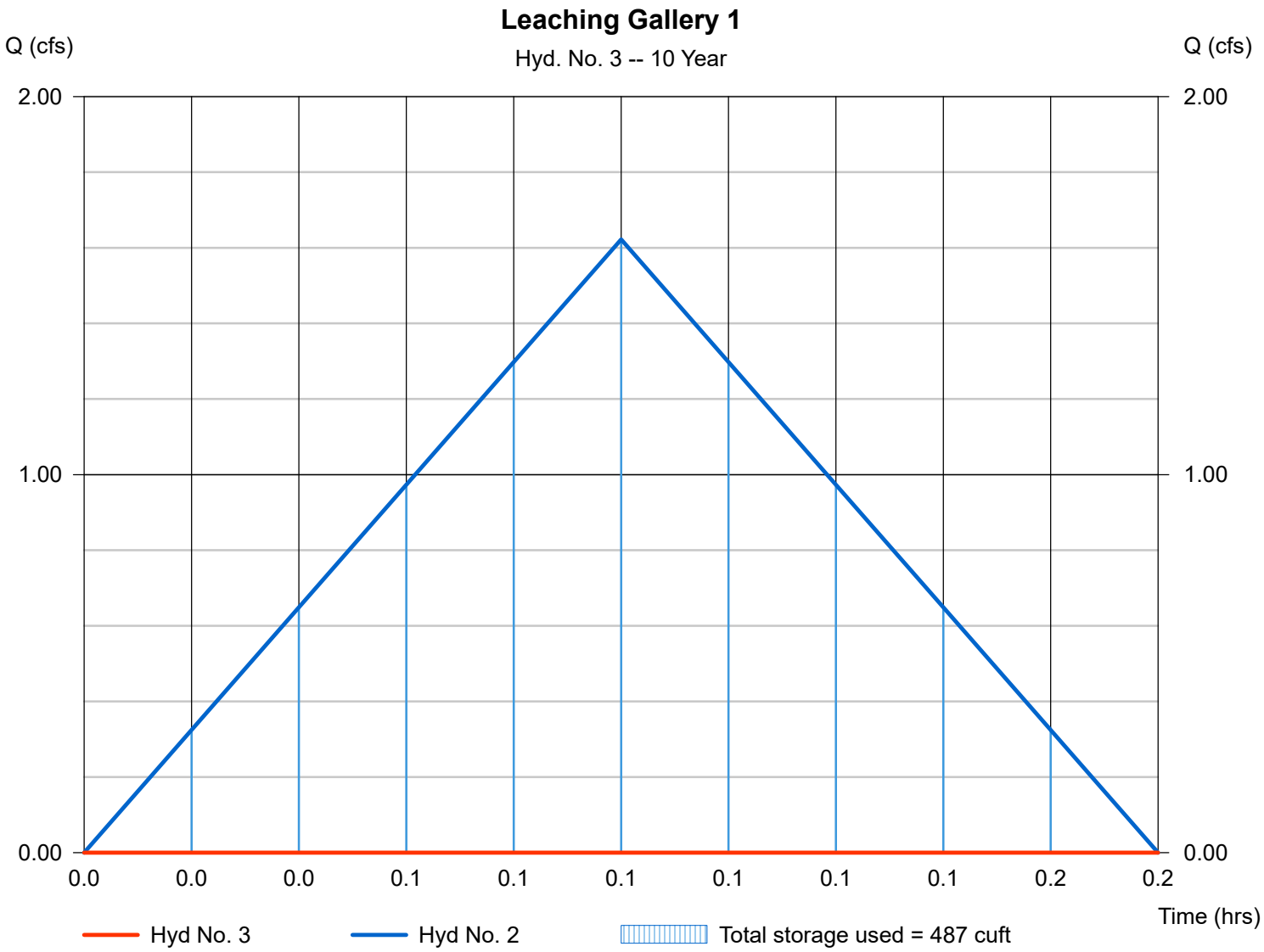
Hydrograph Report

Hyd. No. 3

Leaching Gallery 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	2 - Building 1	Max. Elevation	=	28.22 ft
Reservoir name	=	Leaching Gallery 1	Max. Storage	=	487 cuft

Storage Indication method used.



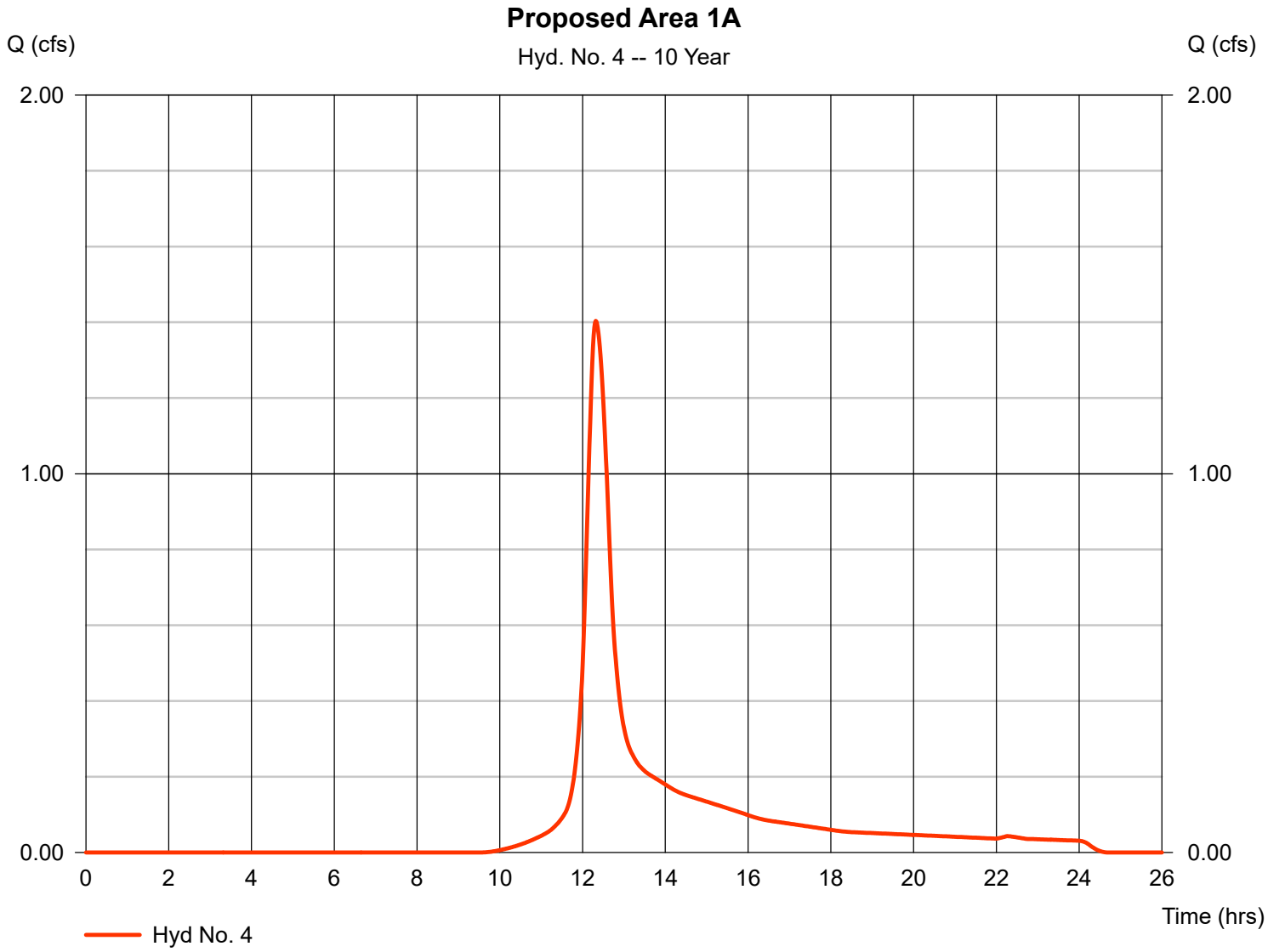
Hydrograph Report

Hyd. No. 4

Proposed Area 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.404 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.32 hrs
Time interval	=	1 min	Hyd. volume	=	7,107 cuft
Drainage area	=	0.950 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.10 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.190 x 55) + (0.450 x 61) + (0.310 x 98)] / 0.950



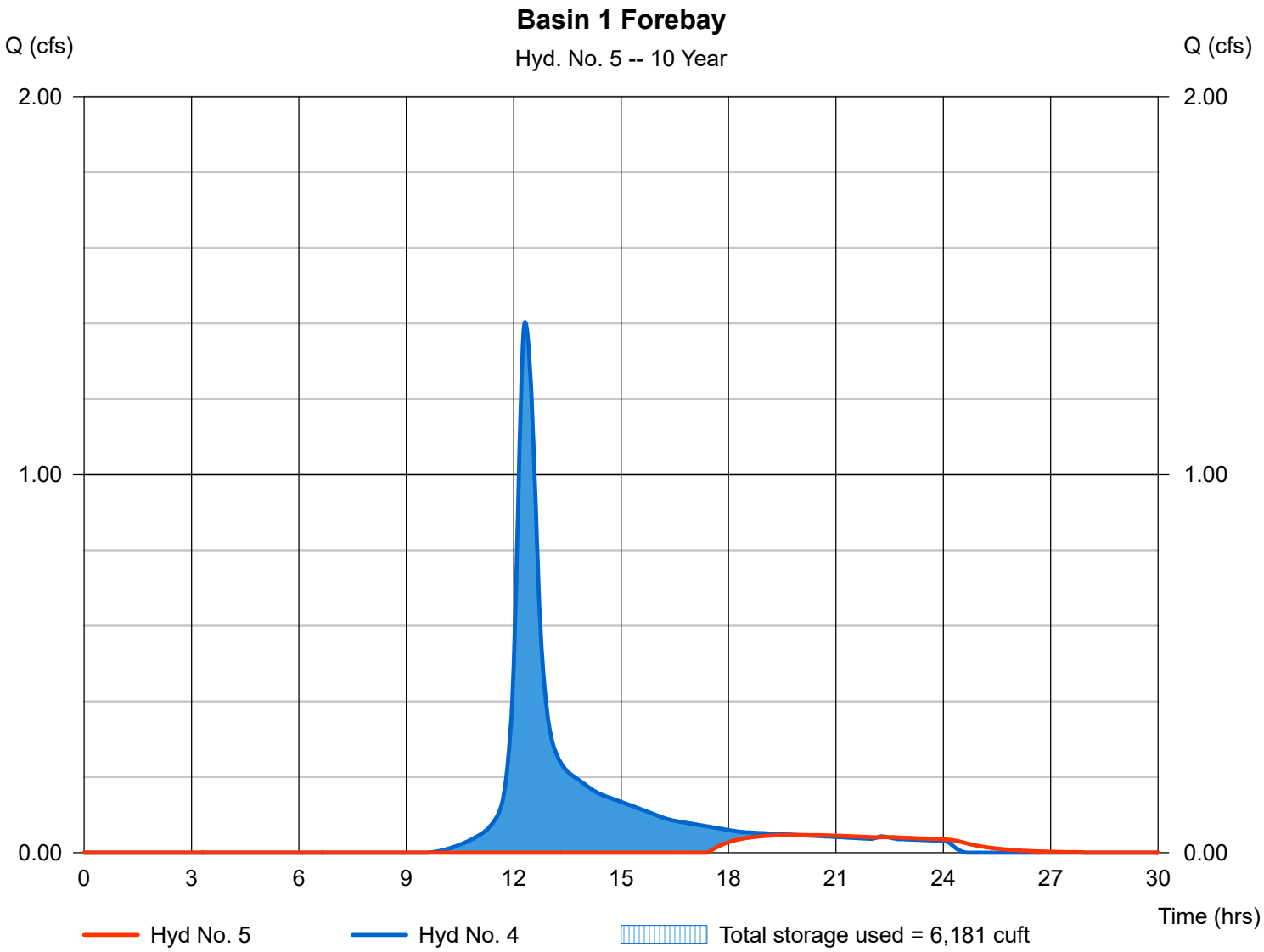
Hydrograph Report

Hyd. No. 5

Basin 1 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	0.047 cfs
Storm frequency	=	10 yrs	Time to peak	=	19.92 hrs
Time interval	=	1 min	Hyd. volume	=	1,094 cuft
Inflow hyd. No.	=	4 - Proposed Area 1A	Max. Elevation	=	27.58 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	6,181 cuft

Storage Indication method used.



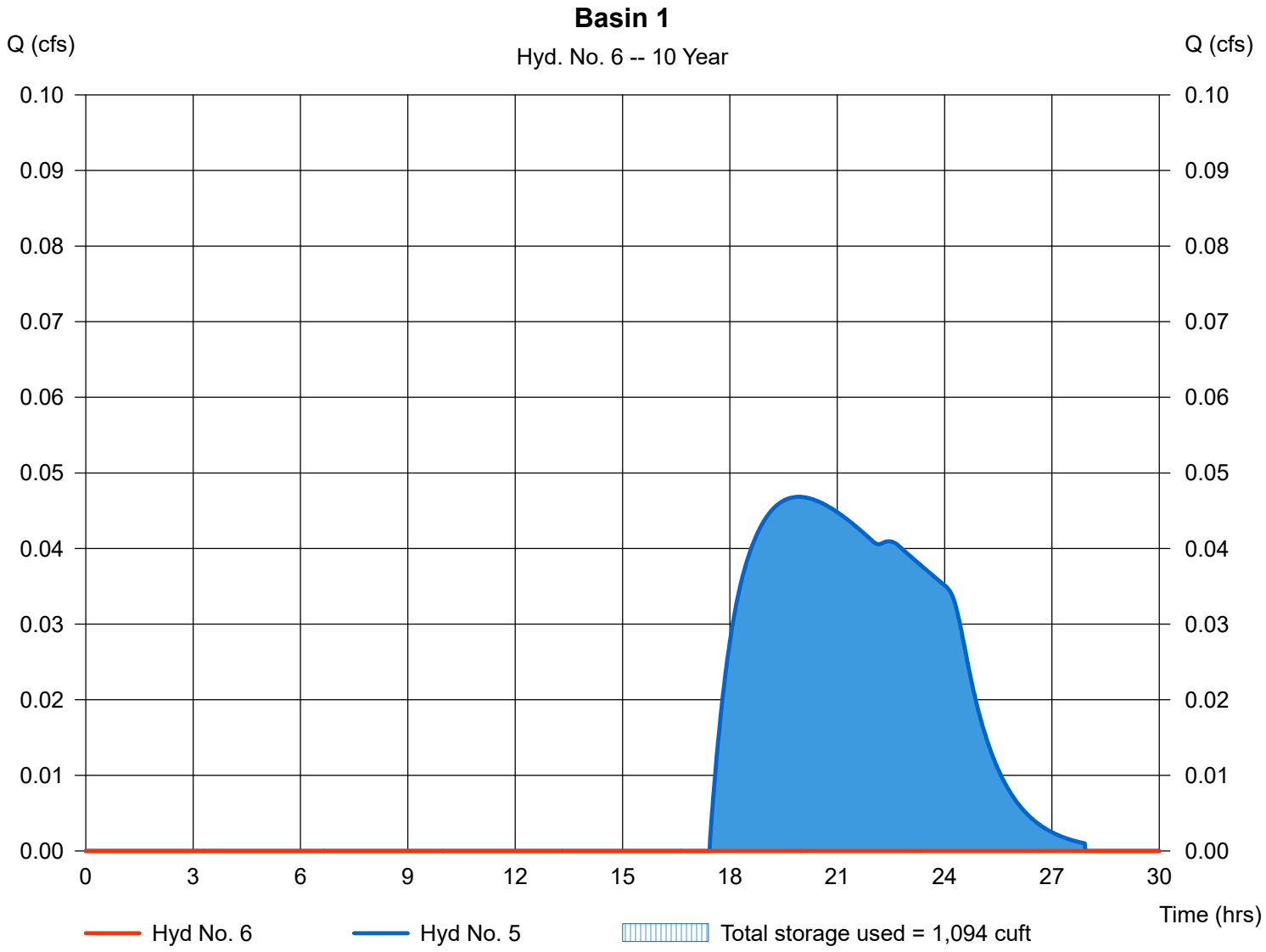
Hydrograph Report

Hyd. No. 6

Basin 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	5 - Basin 1 Forebay	Max. Elevation	=	24.07 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	1,094 cuft

Storage Indication method used.



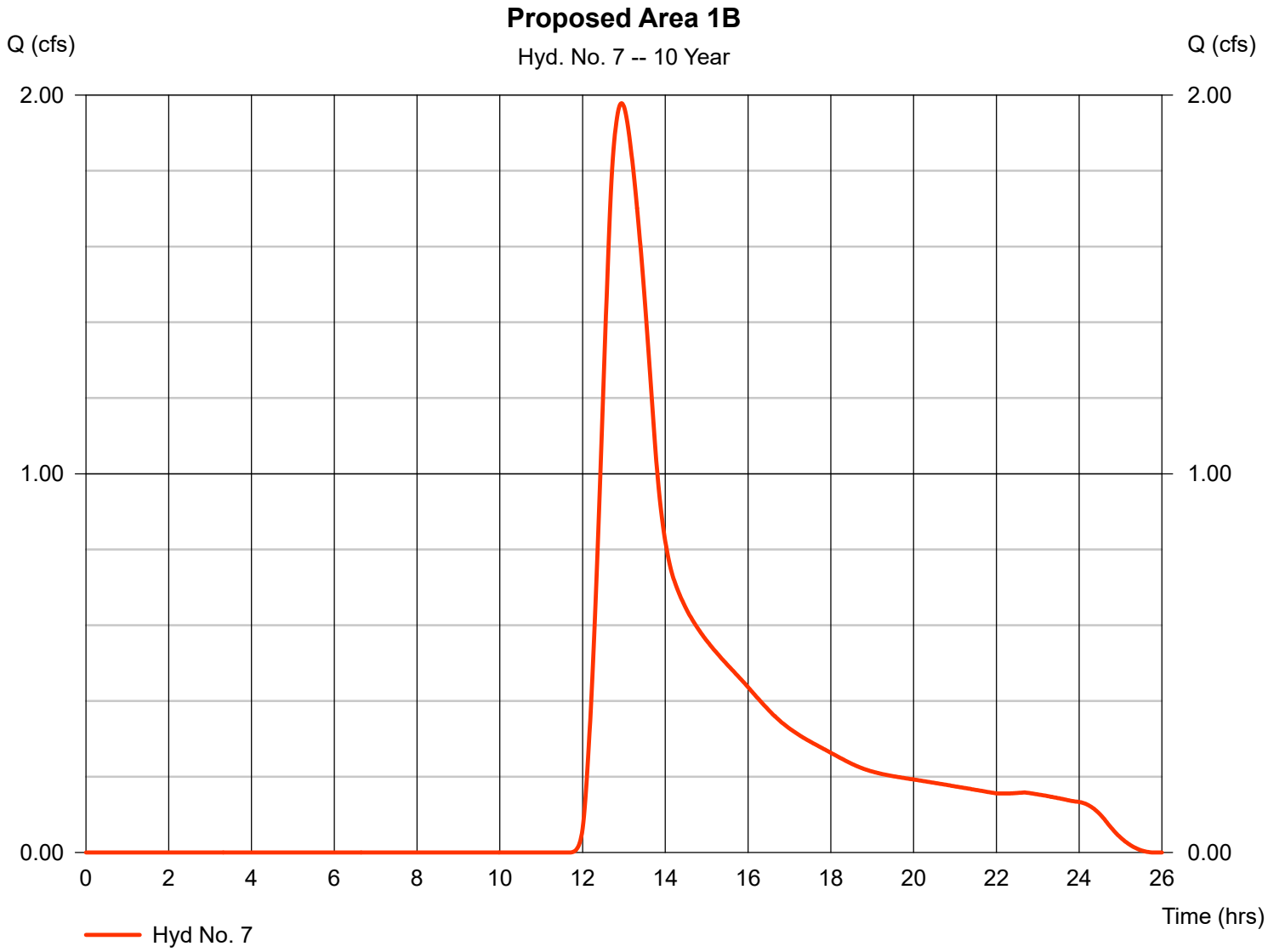
Hydrograph Report

Hyd. No. 7

Proposed Area 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.978 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.95 hrs
Time interval	=	1 min	Hyd. volume	=	20,178 cuft
Drainage area	=	5.930 ac	Curve number	=	56*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	69.10 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.120 x 55) + (0.810 x 61)] / 5.930



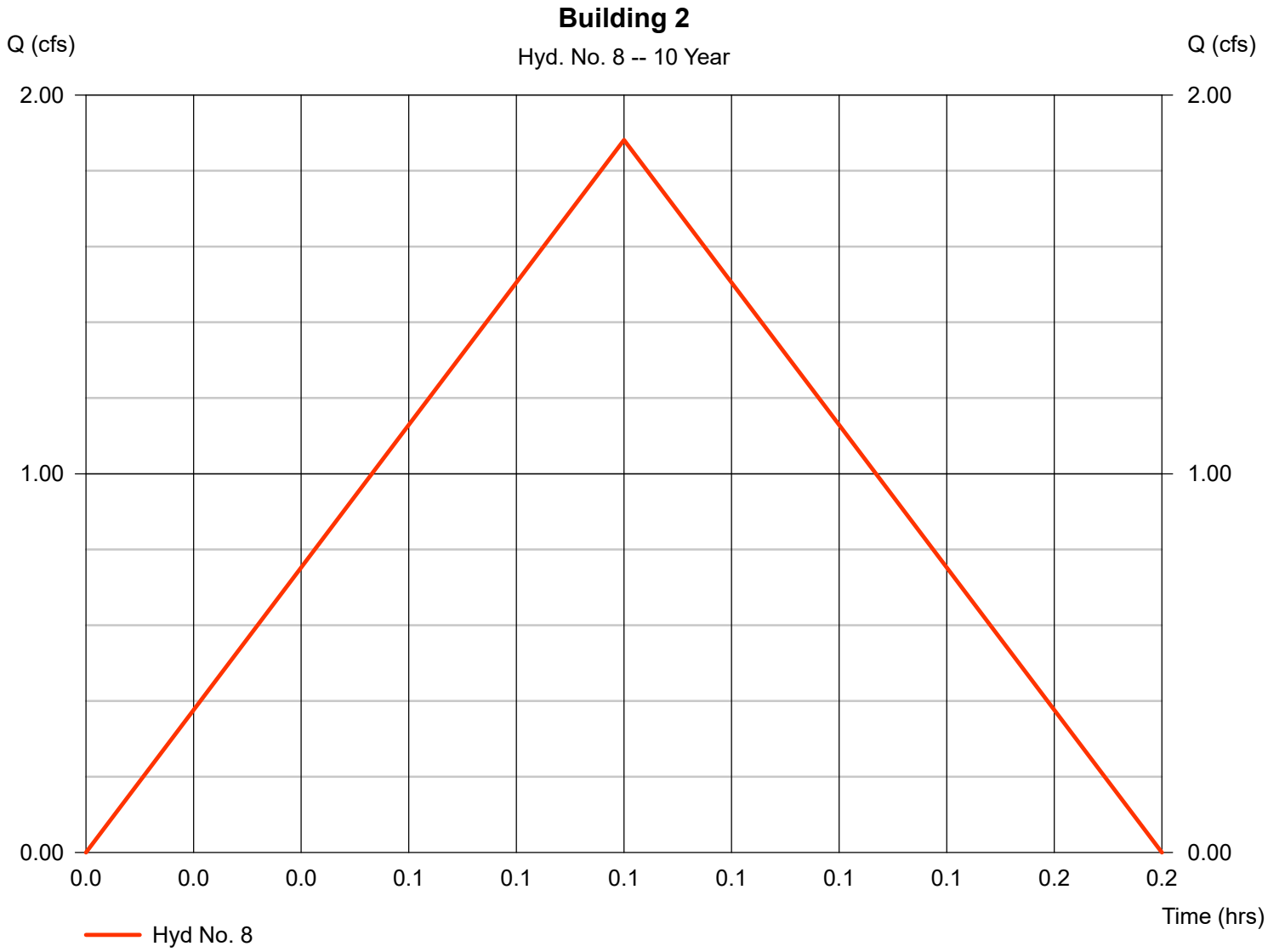
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 8

Building 2

Hydrograph type	=	Rational	Peak discharge	=	1.881 cfs
Storm frequency	=	10 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	564 cuft
Drainage area	=	0.290 ac	Runoff coeff.	=	0.9
Intensity	=	7.208 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



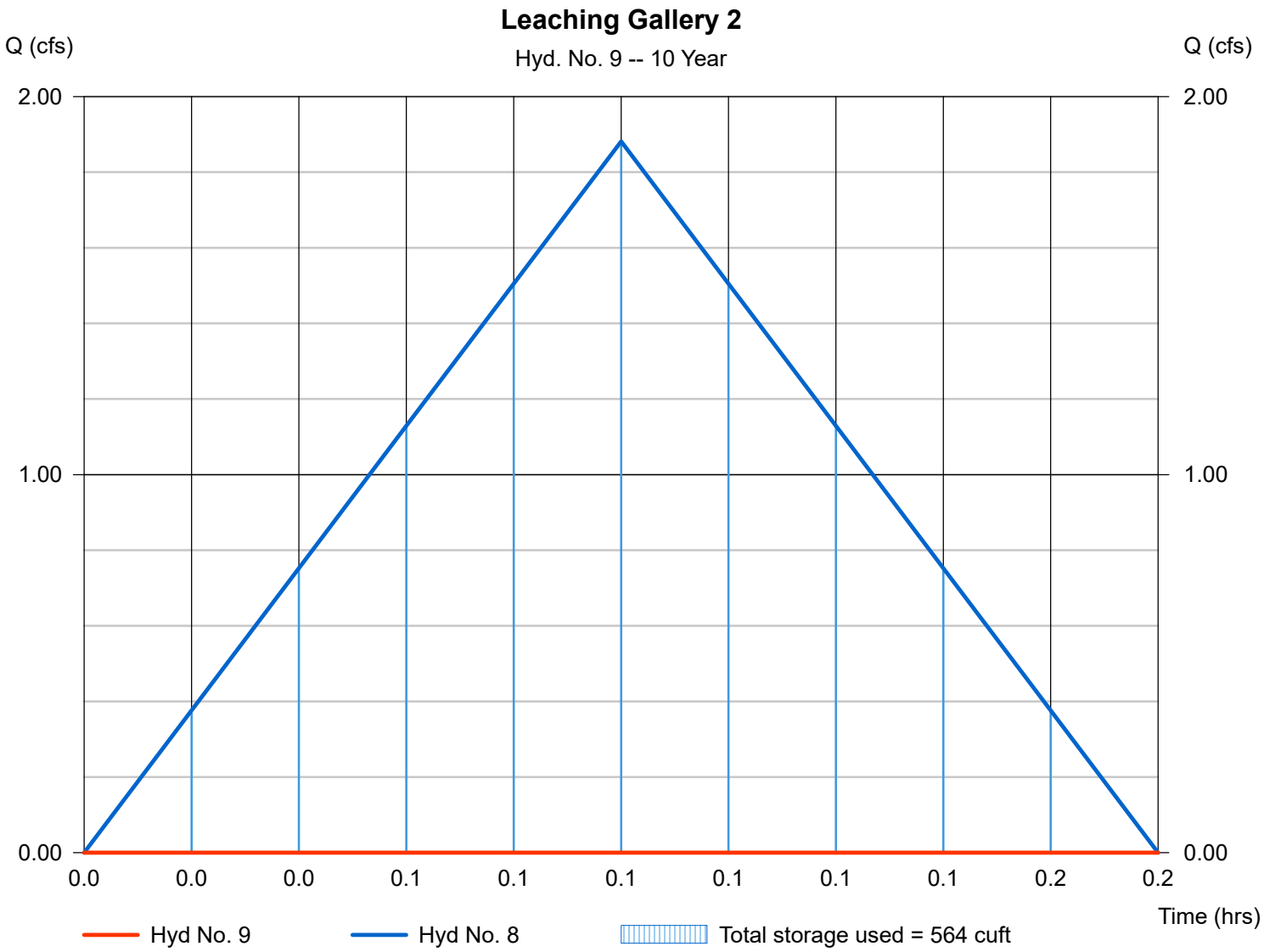
Hydrograph Report

Hyd. No. 9

Leaching Gallery 2

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	8 - Building 2	Max. Elevation	=	29.63 ft
Reservoir name	=	Leaching Gallery 2	Max. Storage	=	564 cuft

Storage Indication method used.

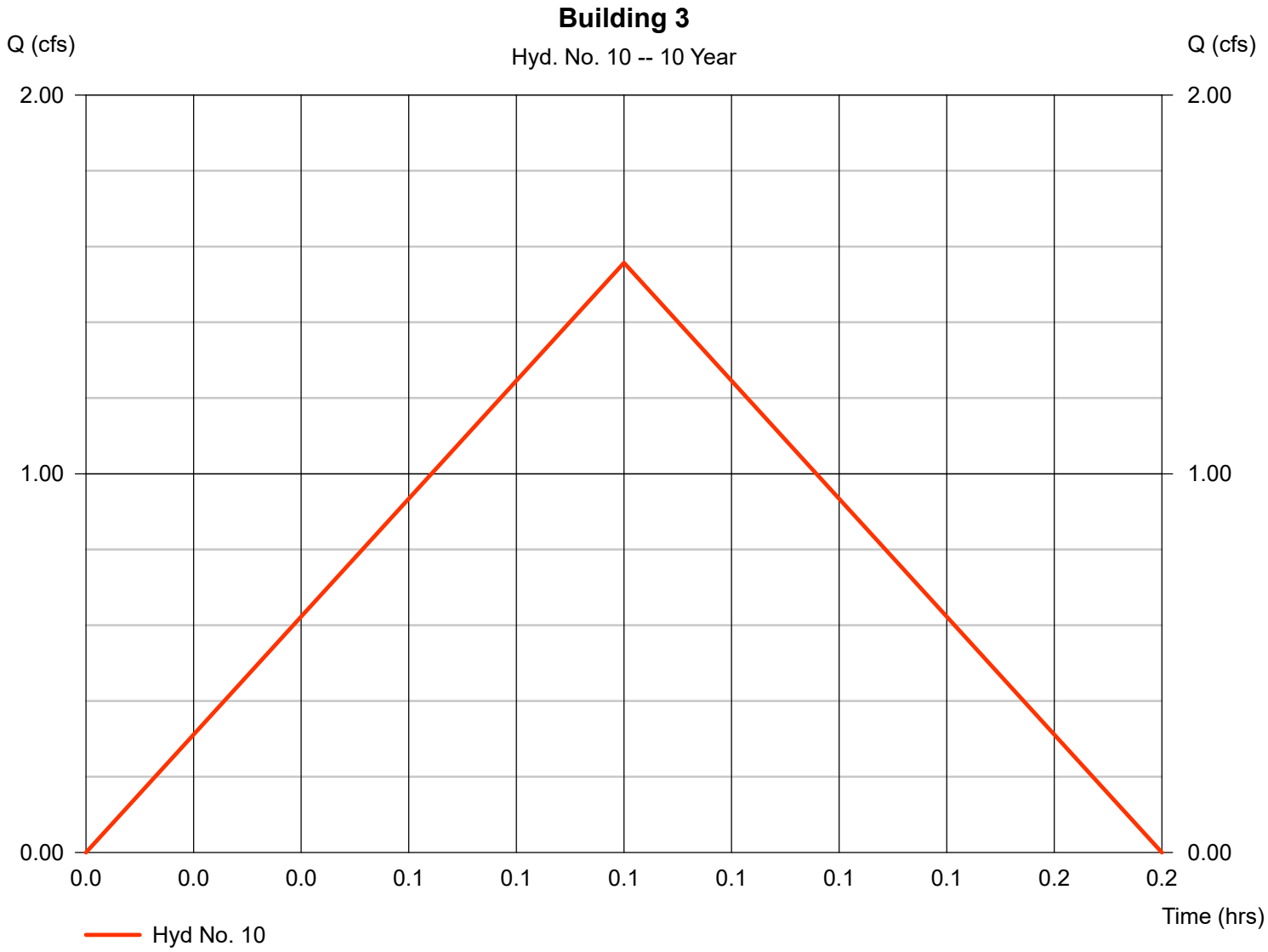


Hydrograph Report

Hyd. No. 10

Building 3

Hydrograph type	=	Rational	Peak discharge	=	1.557 cfs
Storm frequency	=	10 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	467 cuft
Drainage area	=	0.240 ac	Runoff coeff.	=	0.9
Intensity	=	7.208 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



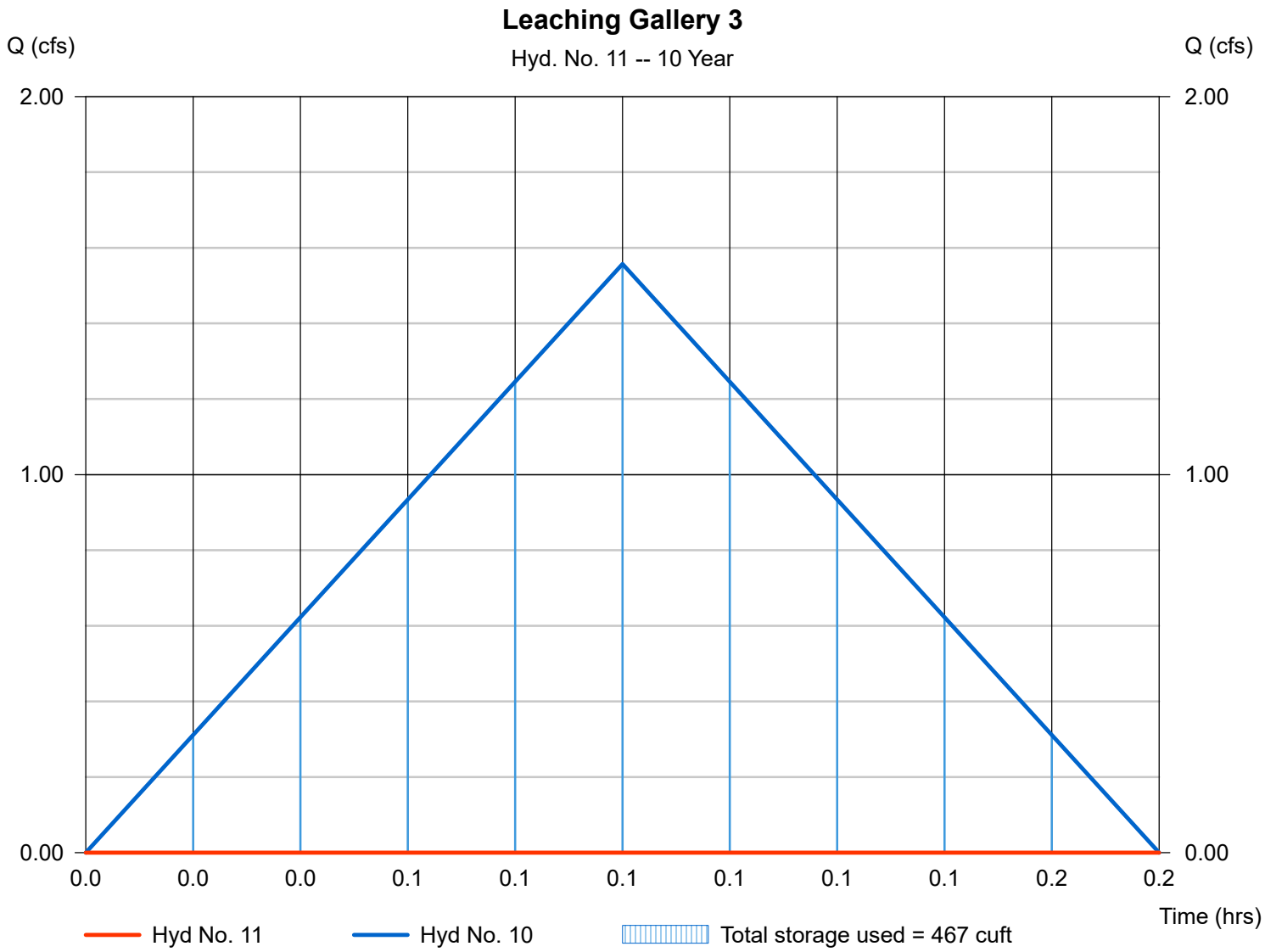
Hydrograph Report

Hyd. No. 11

Leaching Gallery 3

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	10 - Building 3	Max. Elevation	=	34.45 ft
Reservoir name	=	Leaching Gallery 3	Max. Storage	=	467 cuft

Storage Indication method used.



Hydrograph Report

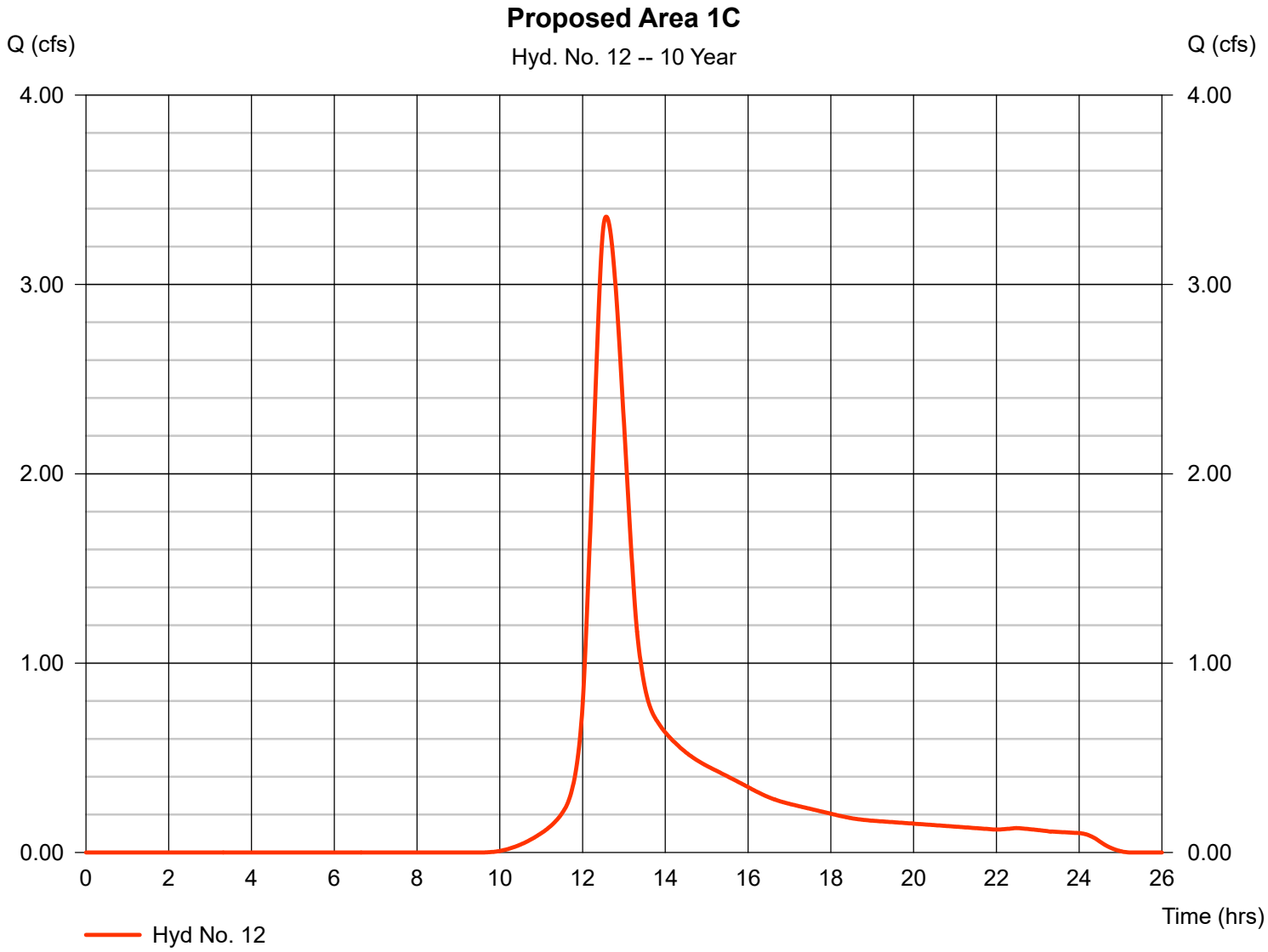
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 12

Proposed Area 1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.358 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.57 hrs
Time interval	=	1 min	Hyd. volume	=	22,692 cuft
Drainage area	=	3.070 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	48.50 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 55) + (1.060 x 98) + (1.270 x 61)] / 3.070



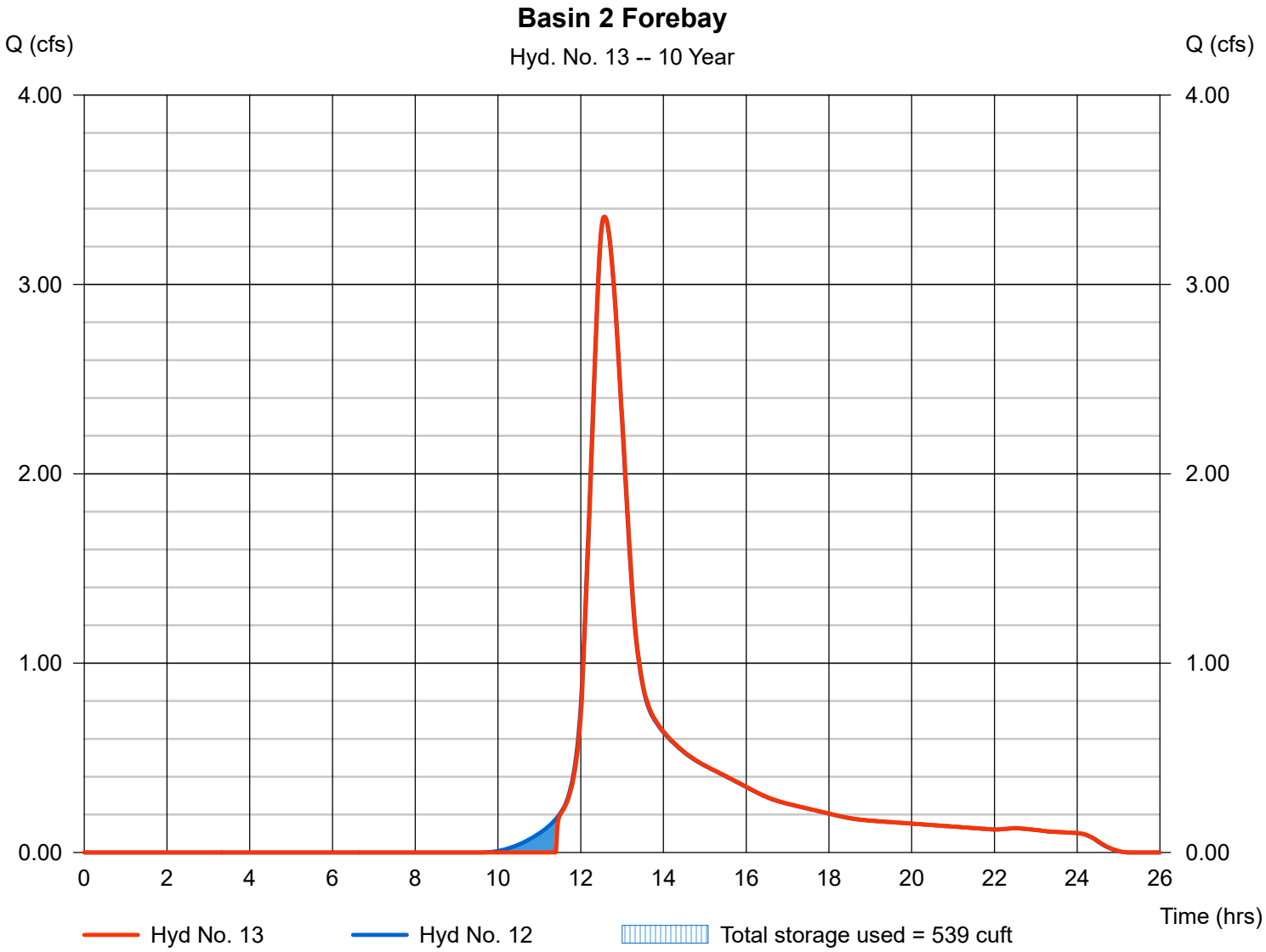
Hydrograph Report

Hyd. No. 13

Basin 2 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	3.357 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.58 hrs
Time interval	=	1 min	Hyd. volume	=	22,319 cuft
Inflow hyd. No.	=	12 - Proposed Area 1C	Max. Elevation	=	23.25 ft
Reservoir name	=	Basin 2 Forebay	Max. Storage	=	539 cuft

Storage Indication method used.



Hydrograph Report

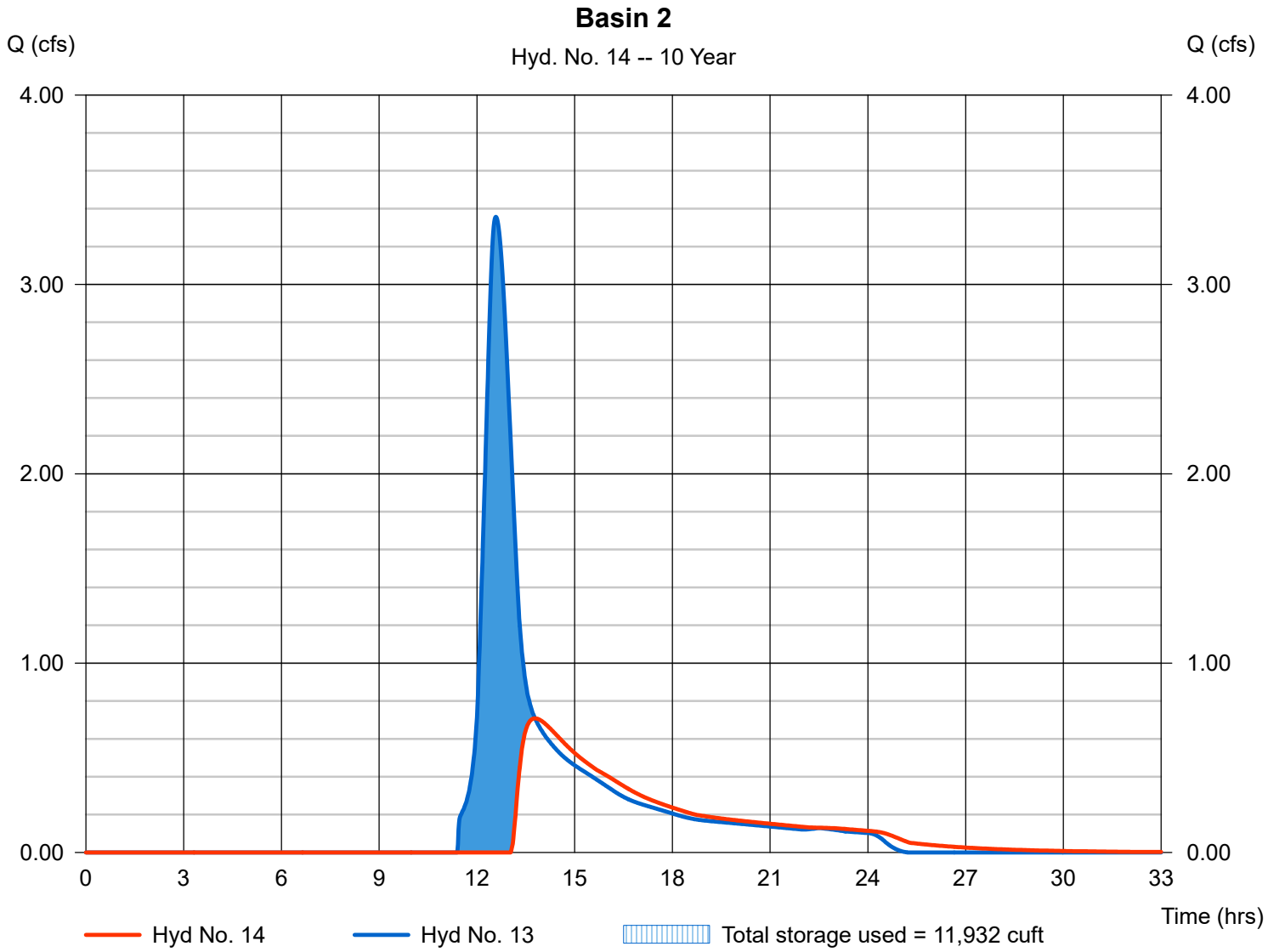
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 14

Basin 2

Hydrograph type	=	Reservoir	Peak discharge	=	0.708 cfs
Storm frequency	=	10 yrs	Time to peak	=	13.78 hrs
Time interval	=	1 min	Hyd. volume	=	12,203 cuft
Inflow hyd. No.	=	13 - Basin 2 Forebay	Max. Elevation	=	26.39 ft
Reservoir name	=	Basin 2	Max. Storage	=	11,932 cuft

Storage Indication method used.

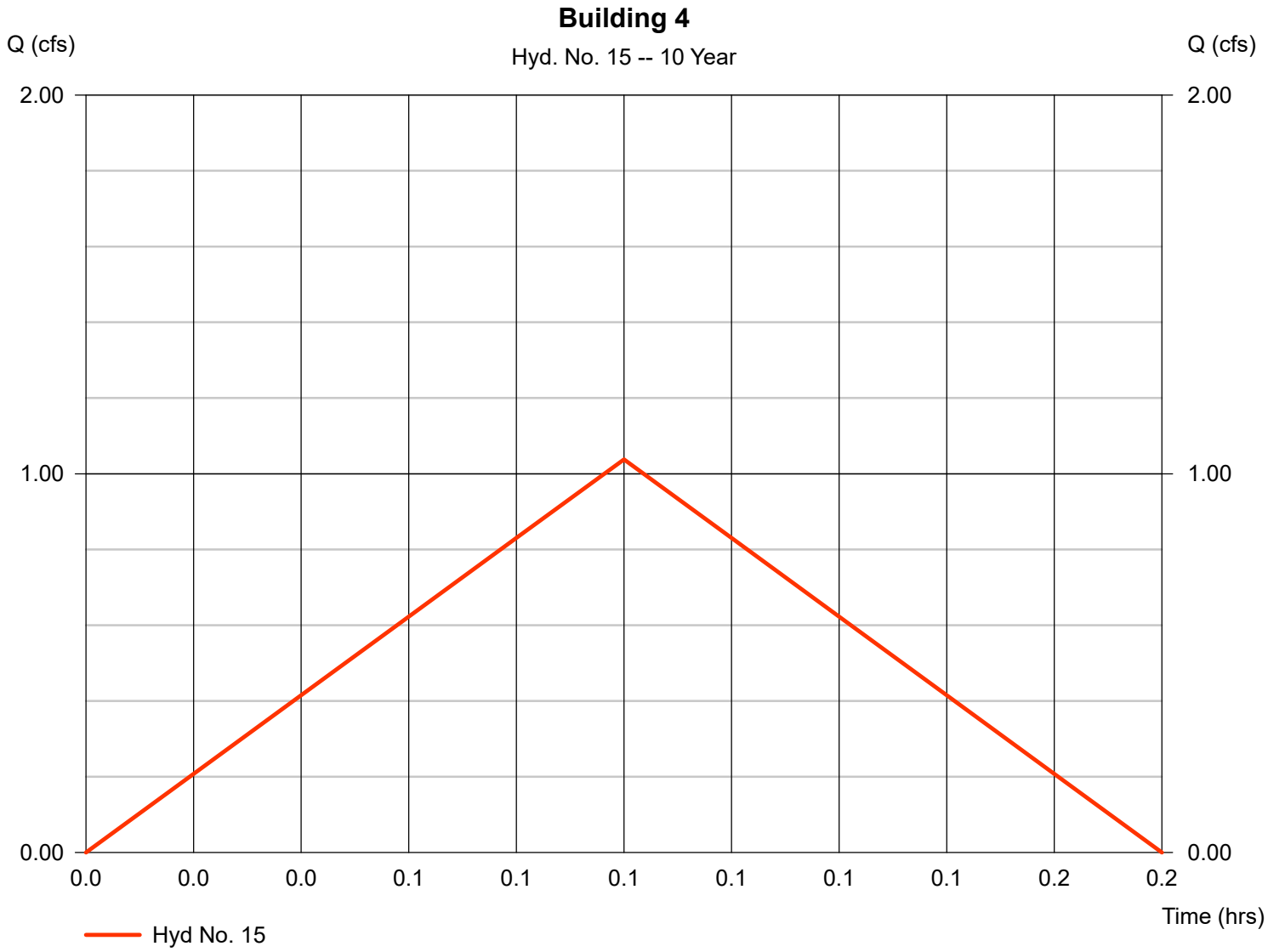


Hydrograph Report

Hyd. No. 15

Building 4

Hydrograph type	=	Rational	Peak discharge	=	1.038 cfs
Storm frequency	=	10 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	311 cuft
Drainage area	=	0.160 ac	Runoff coeff.	=	0.9
Intensity	=	7.208 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



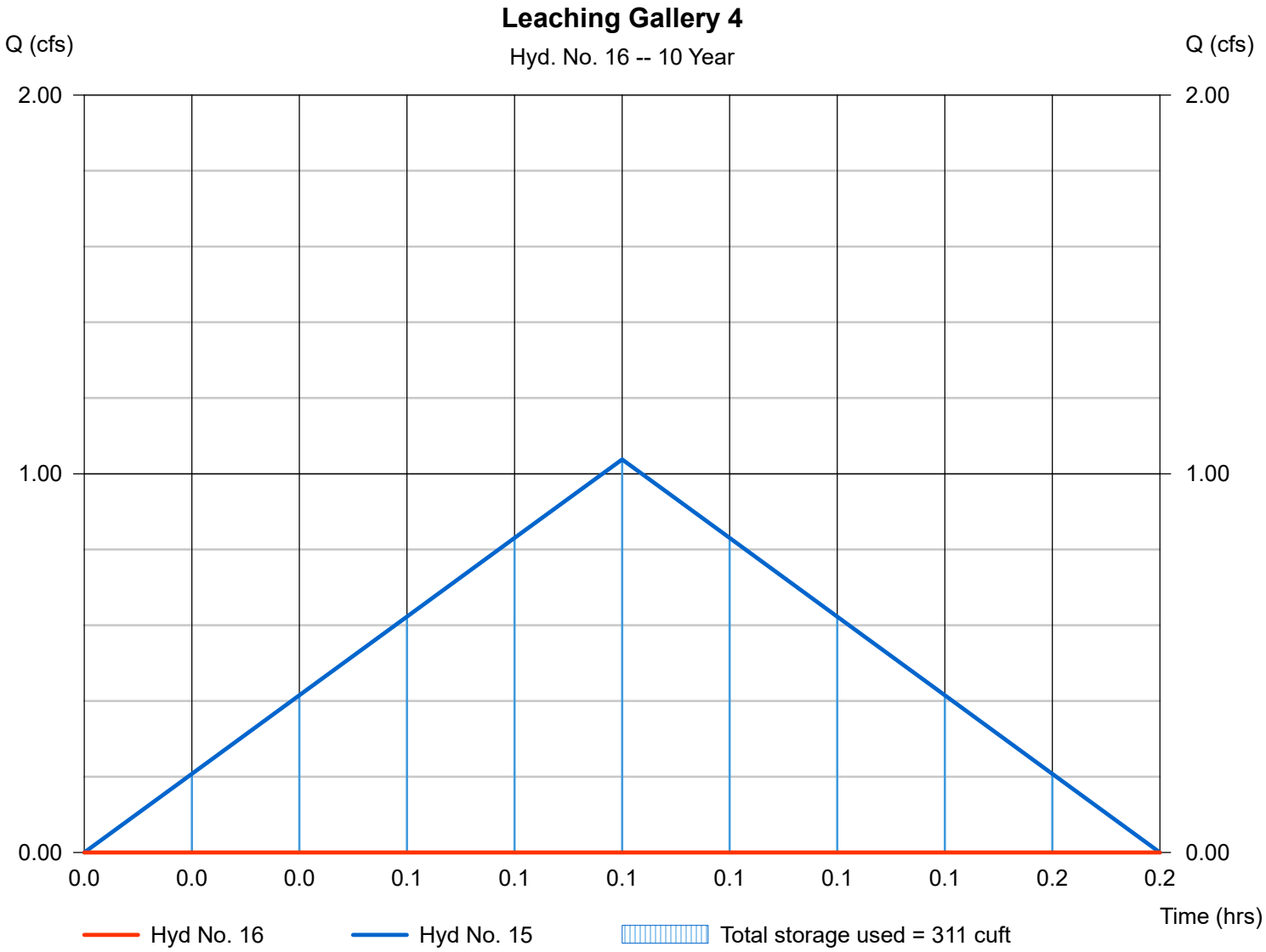
Hydrograph Report

Hyd. No. 16

Leaching Gallery 4

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	15 - Building 4	Max. Elevation	=	40.32 ft
Reservoir name	=	Leaching Gallery 4	Max. Storage	=	311 cuft

Storage Indication method used.



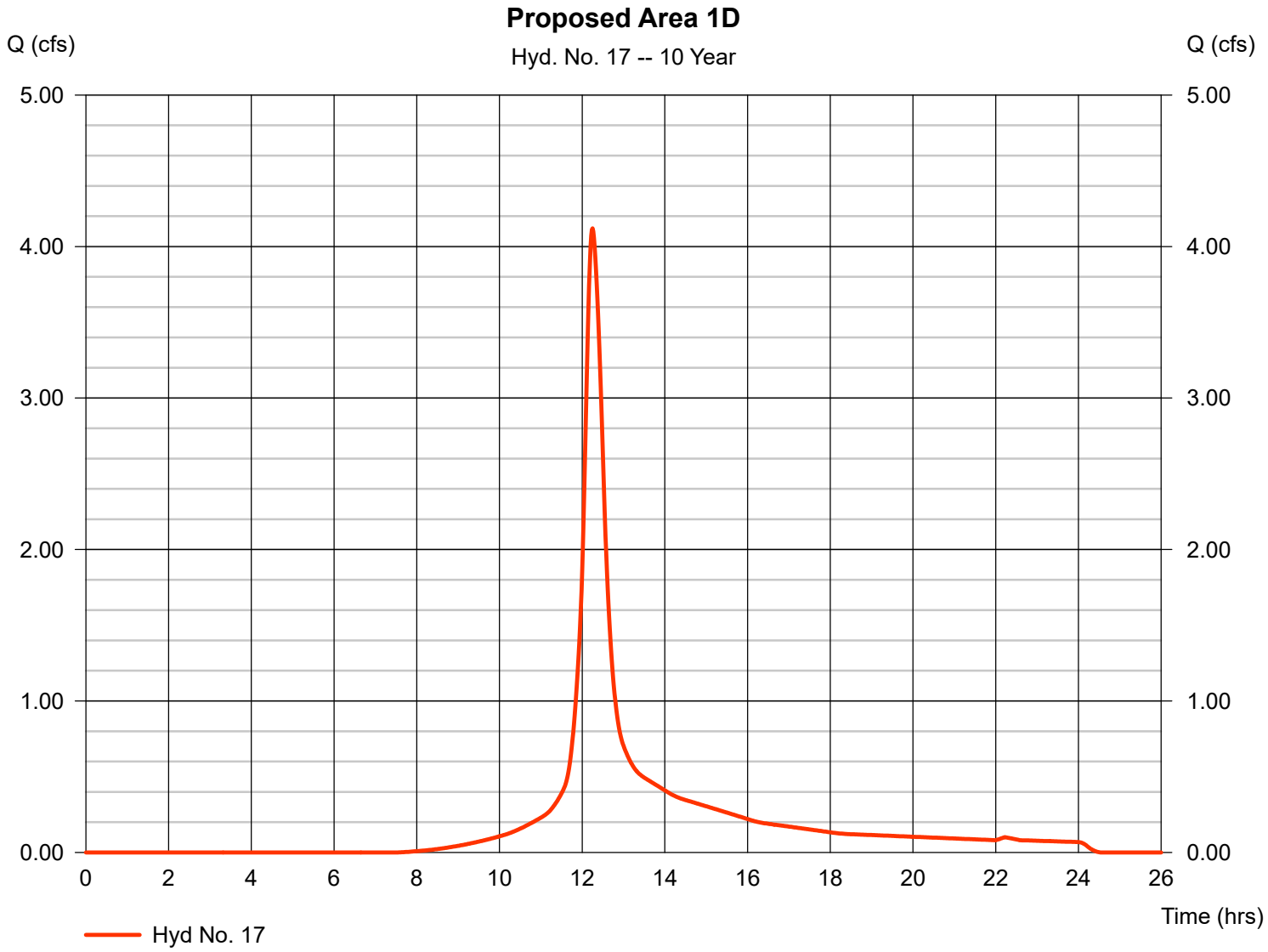
Hydrograph Report

Hyd. No. 17

Proposed Area 1D

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.120 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	18,841 cuft
Drainage area	=	1.830 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.50 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.010 x 98) + (0.820 x 61)] / 1.830



Hydrograph Report

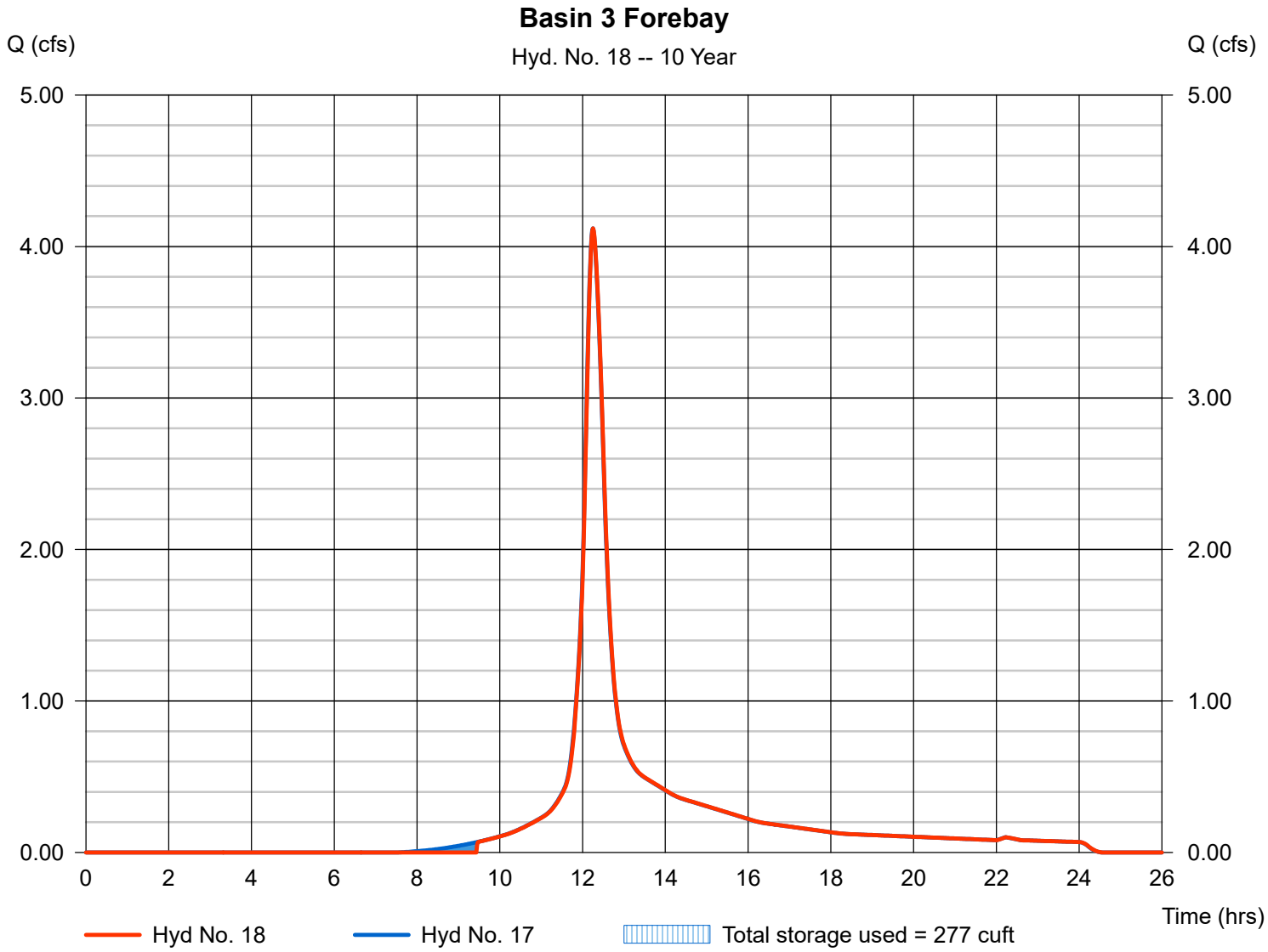
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 18

Basin 3 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	4.119 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	18,661 cuft
Inflow hyd. No.	=	17 - Proposed Area 1D	Max. Elevation	=	33.29 ft
Reservoir name	=	Basin 3 Forebay	Max. Storage	=	277 cuft

Storage Indication method used.



Hydrograph Report

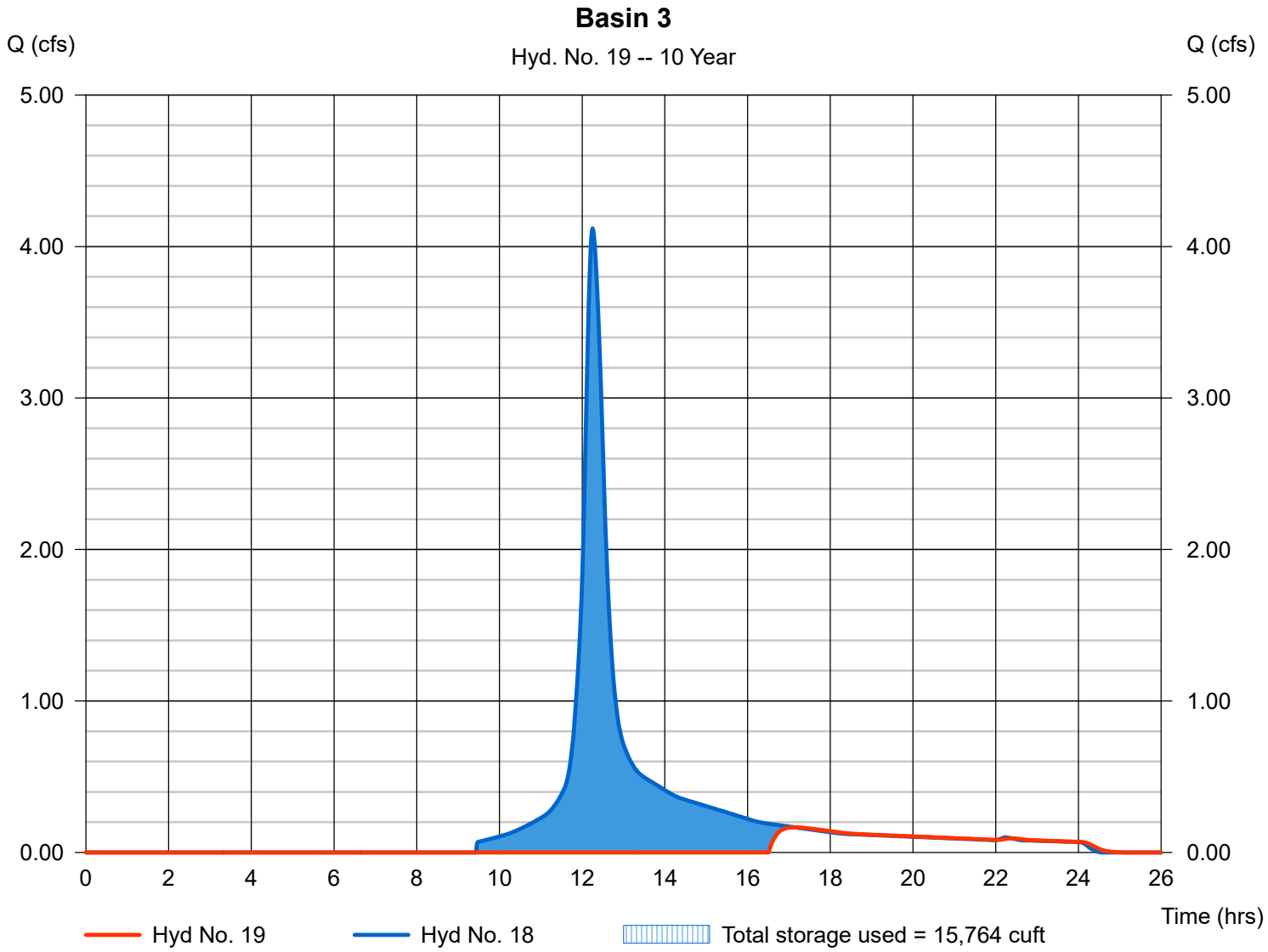
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 19

Basin 3

Hydrograph type	=	Reservoir	Peak discharge	=	0.166 cfs
Storm frequency	=	10 yrs	Time to peak	=	17.13 hrs
Time interval	=	1 min	Hyd. volume	=	3,008 cuft
Inflow hyd. No.	=	18 - Basin 3 Forebay	Max. Elevation	=	36.53 ft
Reservoir name	=	Basin 3	Max. Storage	=	15,764 cuft

Storage Indication method used.

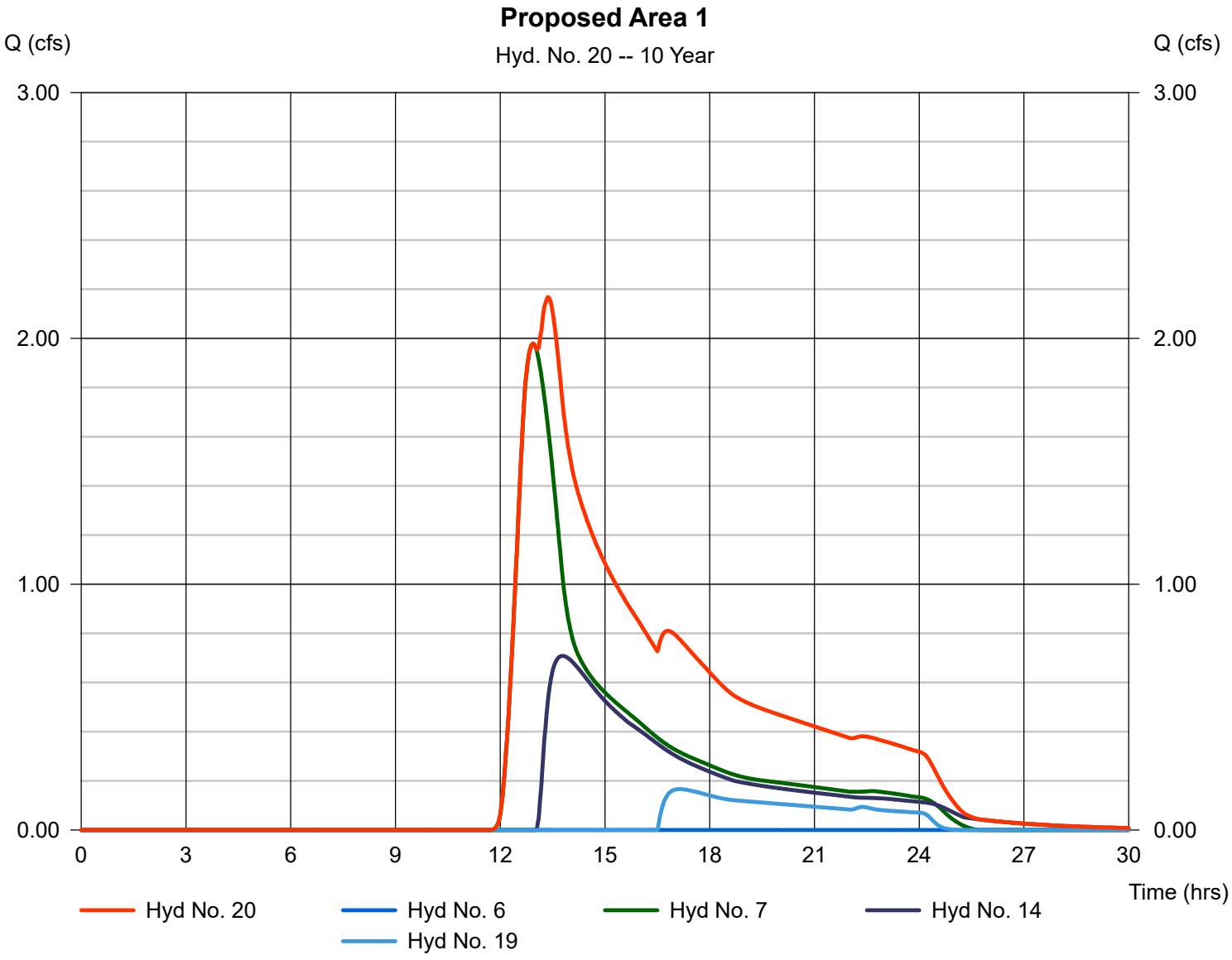


Hydrograph Report

Hyd. No. 20

Proposed Area 1

Hydrograph type	= Combine	Peak discharge	= 2.167 cfs
Storm frequency	= 10 yrs	Time to peak	= 13.37 hrs
Time interval	= 1 min	Hyd. volume	= 35,390 cuft
Inflow hyds.	= 6, 7, 14, 19	Contrib. drain. area	= 5.930 ac

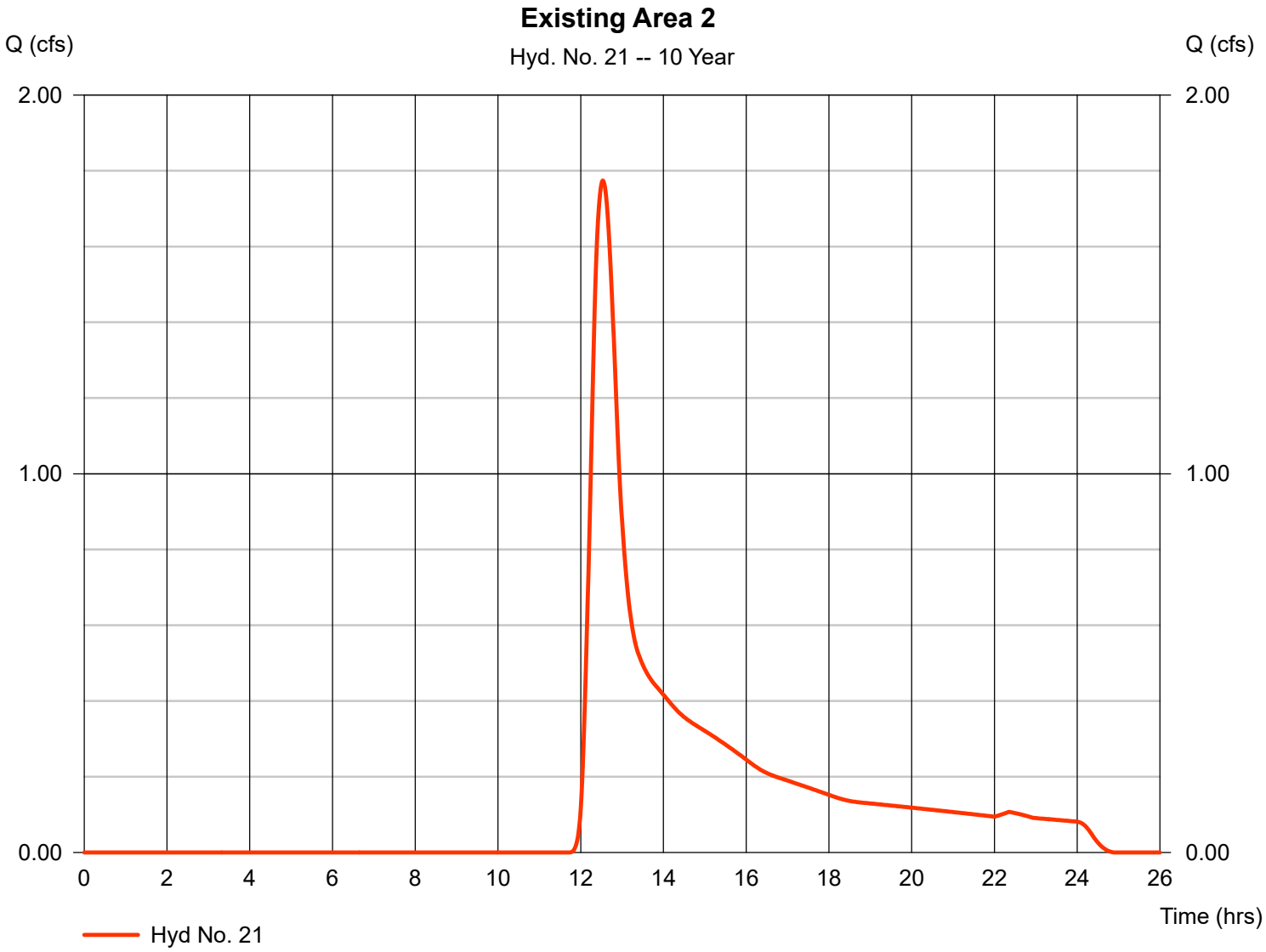


Hydrograph Report

Hyd. No. 21

Existing Area 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.774 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.53 hrs
Time interval	=	1 min	Hyd. volume	=	12,553 cuft
Drainage area	=	3.920 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	35.00 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



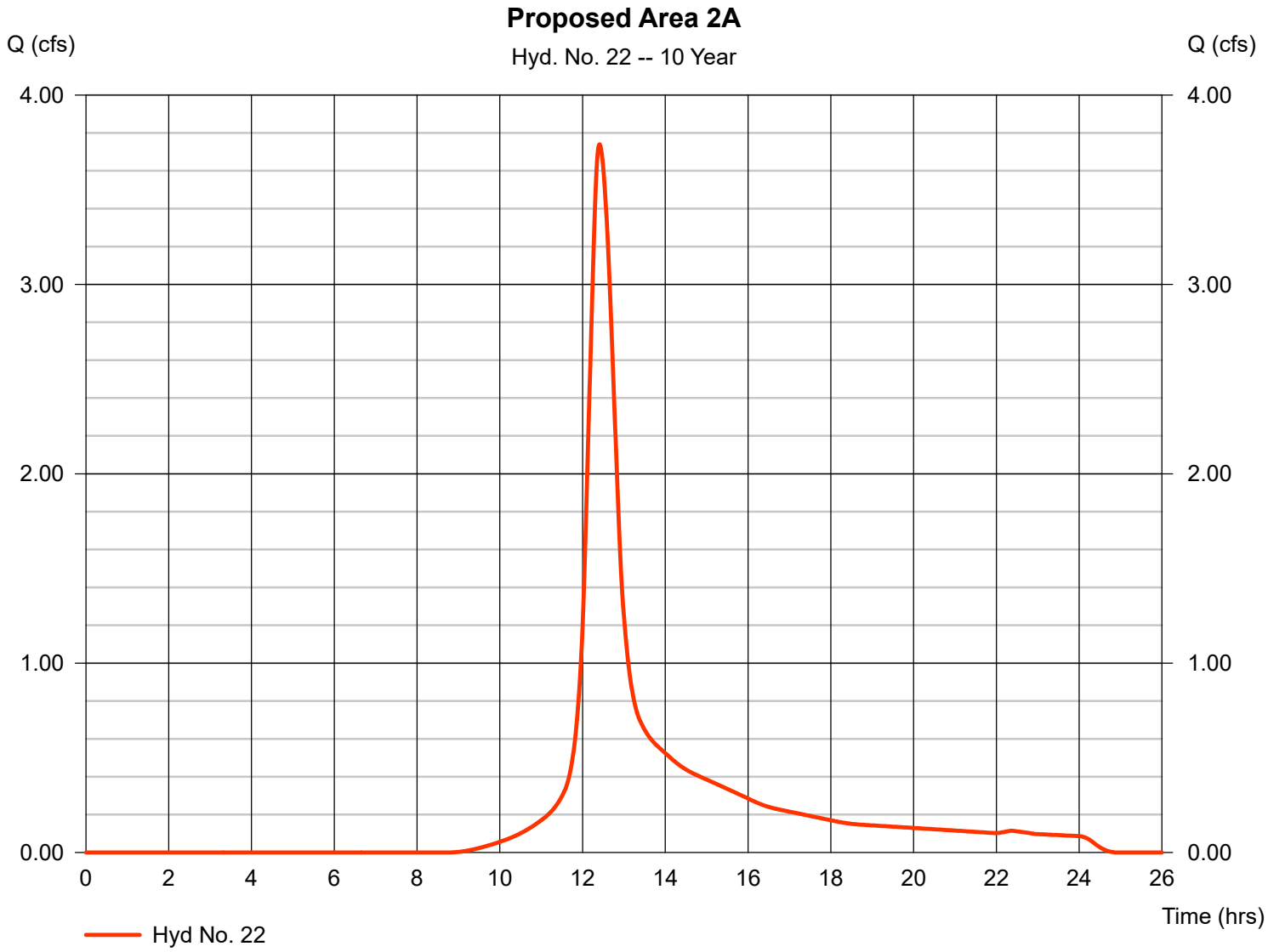
Hydrograph Report

Hyd. No. 22

Proposed Area 2A

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.740 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.42 hrs
Time interval	=	1 min	Hyd. volume	=	21,093 cuft
Drainage area	=	2.450 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	34.80 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.090 x 98) + (0.870 x 61) + (0.490 x 55)] / 2.450



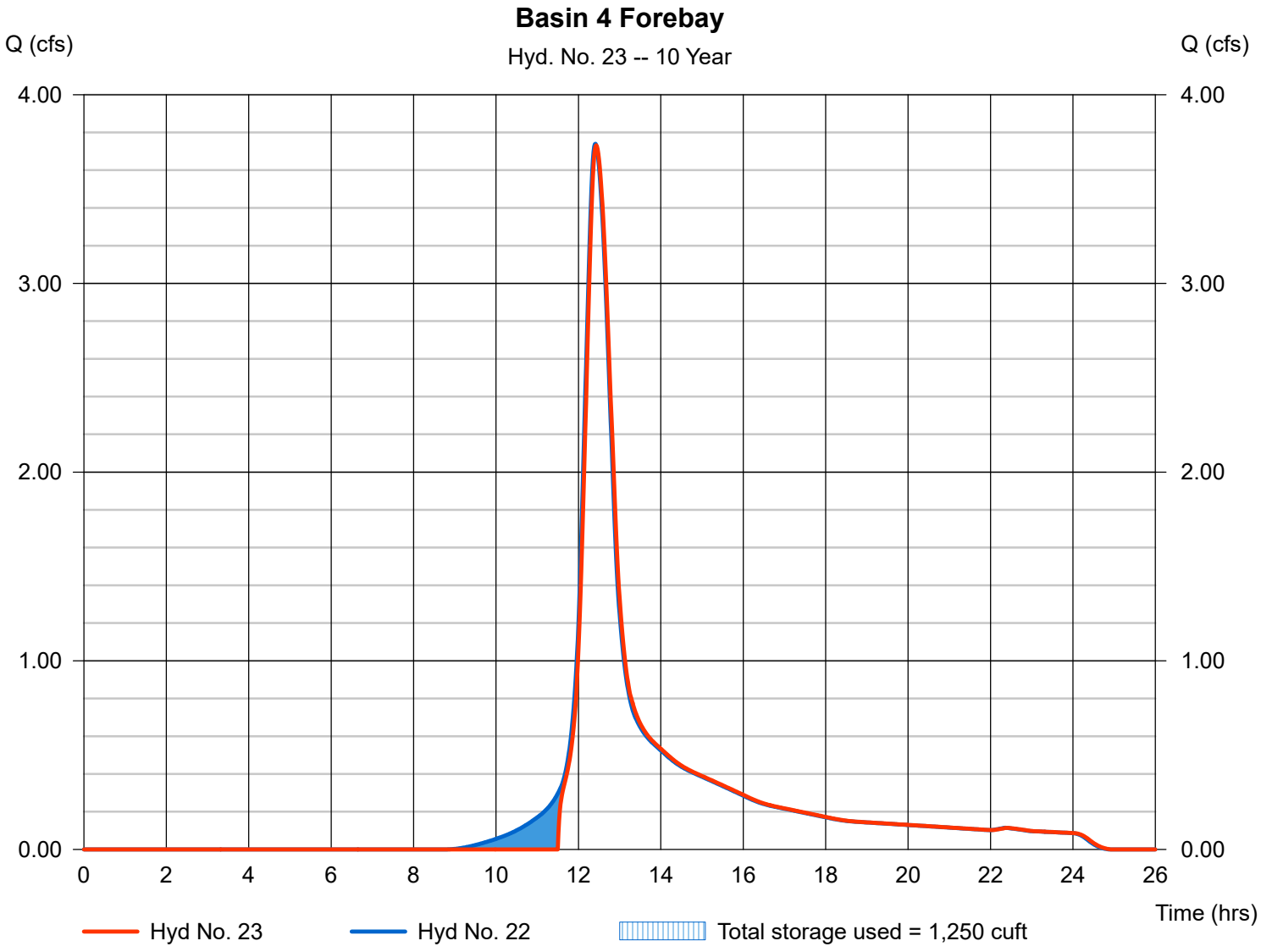
Hydrograph Report

Hyd. No. 23

Basin 4 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	3.732 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.43 hrs
Time interval	=	1 min	Hyd. volume	=	20,219 cuft
Inflow hyd. No.	=	22 - Proposed Area 2A	Max. Elevation	=	53.27 ft
Reservoir name	=	Basin 4 Forebay	Max. Storage	=	1,250 cuft

Storage Indication method used.



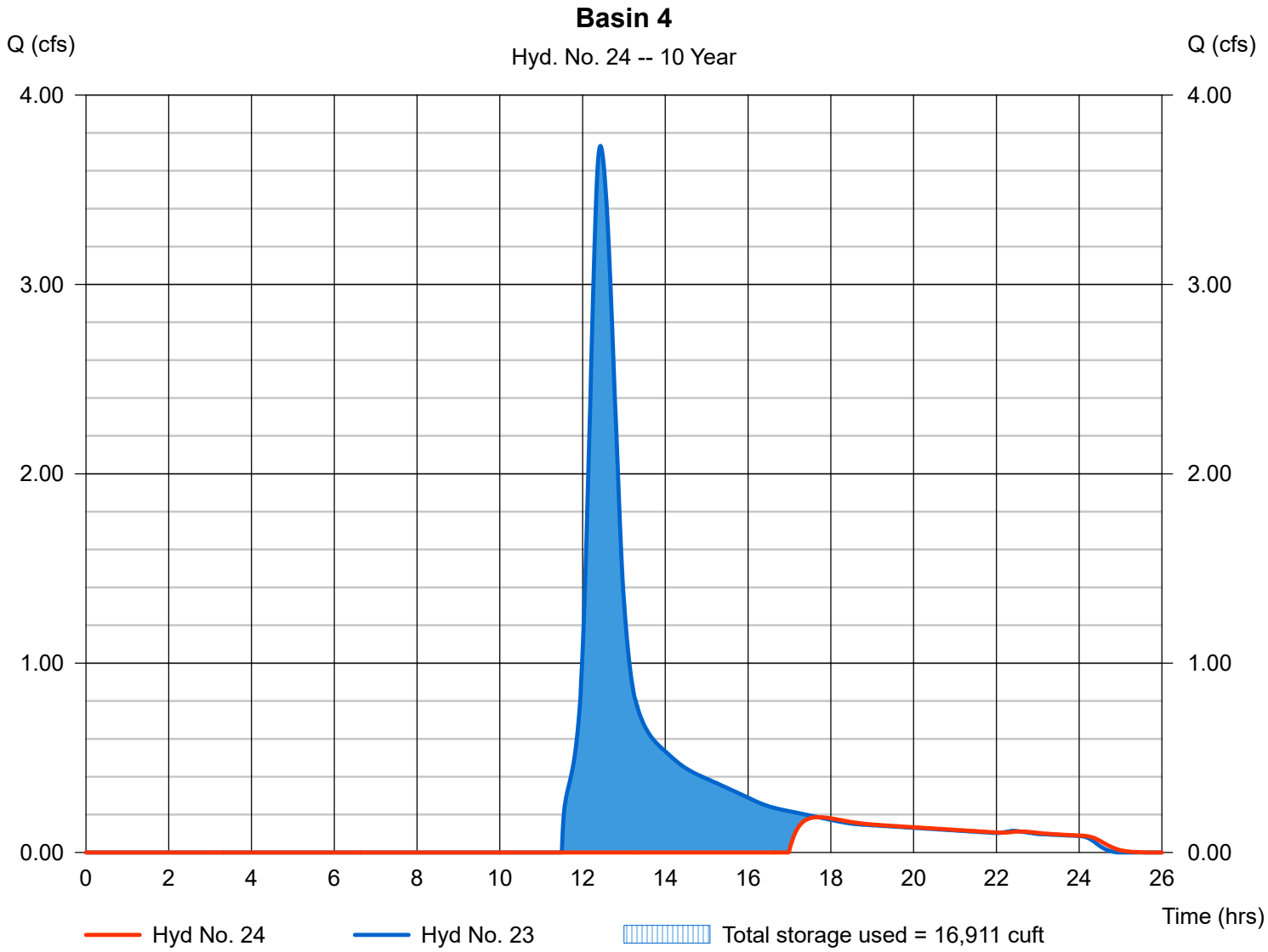
Hydrograph Report

Hyd. No. 24

Basin 4

Hydrograph type	=	Reservoir	Peak discharge	=	0.186 cfs
Storm frequency	=	10 yrs	Time to peak	=	17.70 hrs
Time interval	=	1 min	Hyd. volume	=	3,462 cuft
Inflow hyd. No.	=	23 - Basin 4 Forebay	Max. Elevation	=	56.53 ft
Reservoir name	=	Basin 4	Max. Storage	=	16,911 cuft

Storage Indication method used.



Hydrograph Report

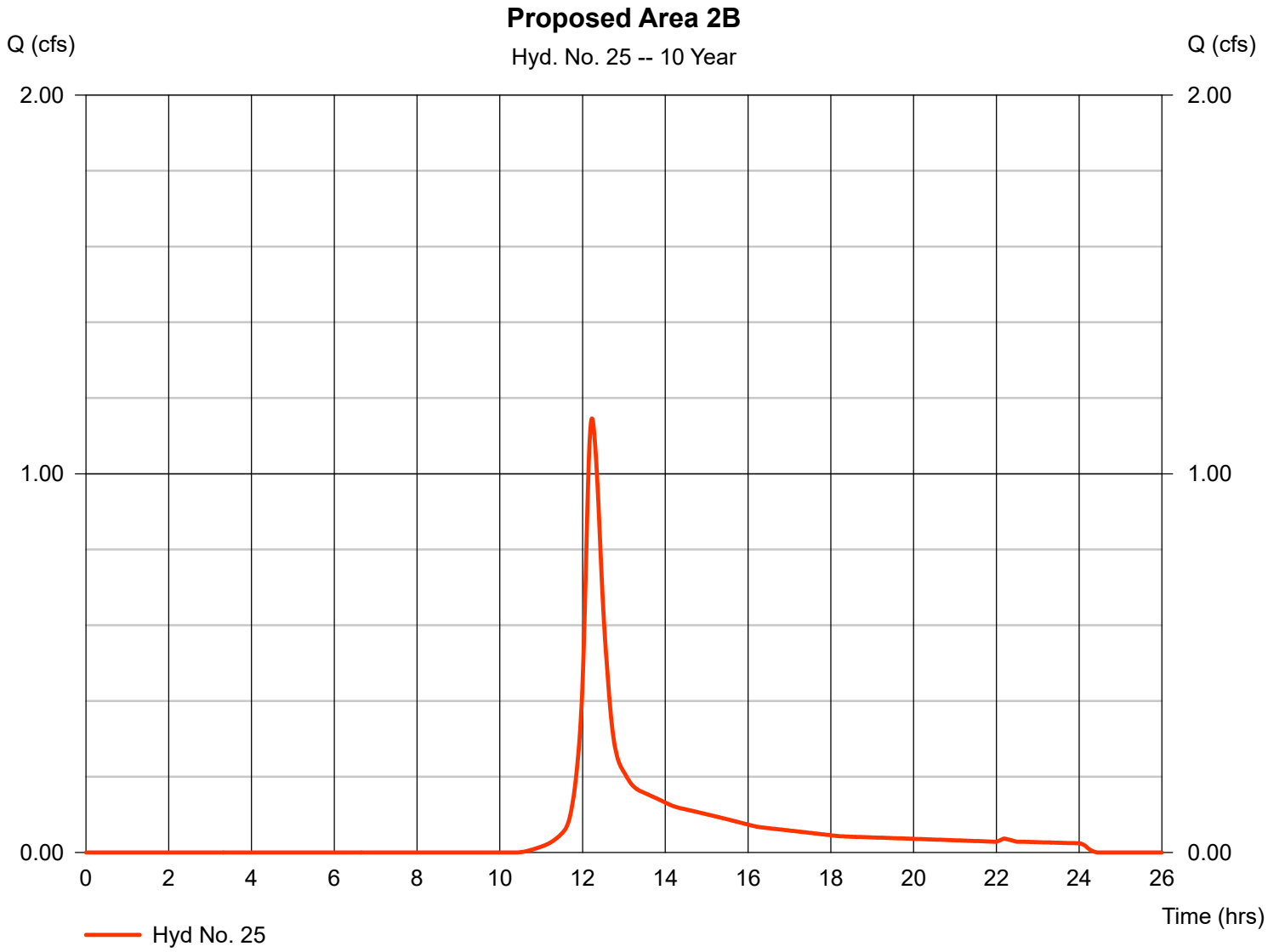
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 25

Proposed Area 2B

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.146 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.23 hrs
Time interval	=	1 min	Hyd. volume	=	5,079 cuft
Drainage area	=	0.850 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.10 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 98) + (0.640 x 61) + (0.060 x 55)] / 0.850



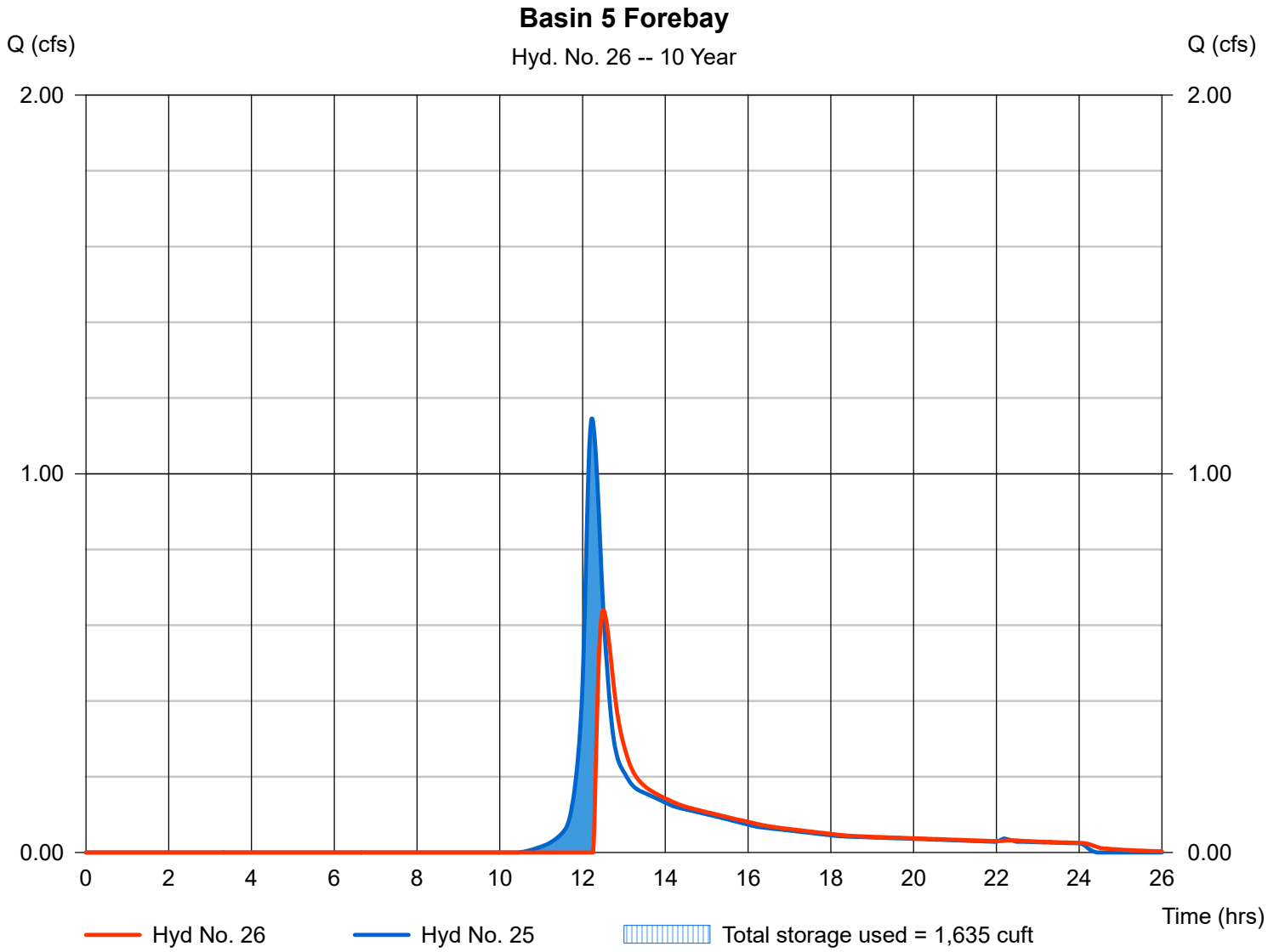
Hydrograph Report

Hyd. No. 26

Basin 5 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	0.640 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.50 hrs
Time interval	=	1 min	Hyd. volume	=	3,907 cuft
Inflow hyd. No.	=	25 - Proposed Area 2B	Max. Elevation	=	66.68 ft
Reservoir name	=	Basin 5 Forebay	Max. Storage	=	1,635 cuft

Storage Indication method used.



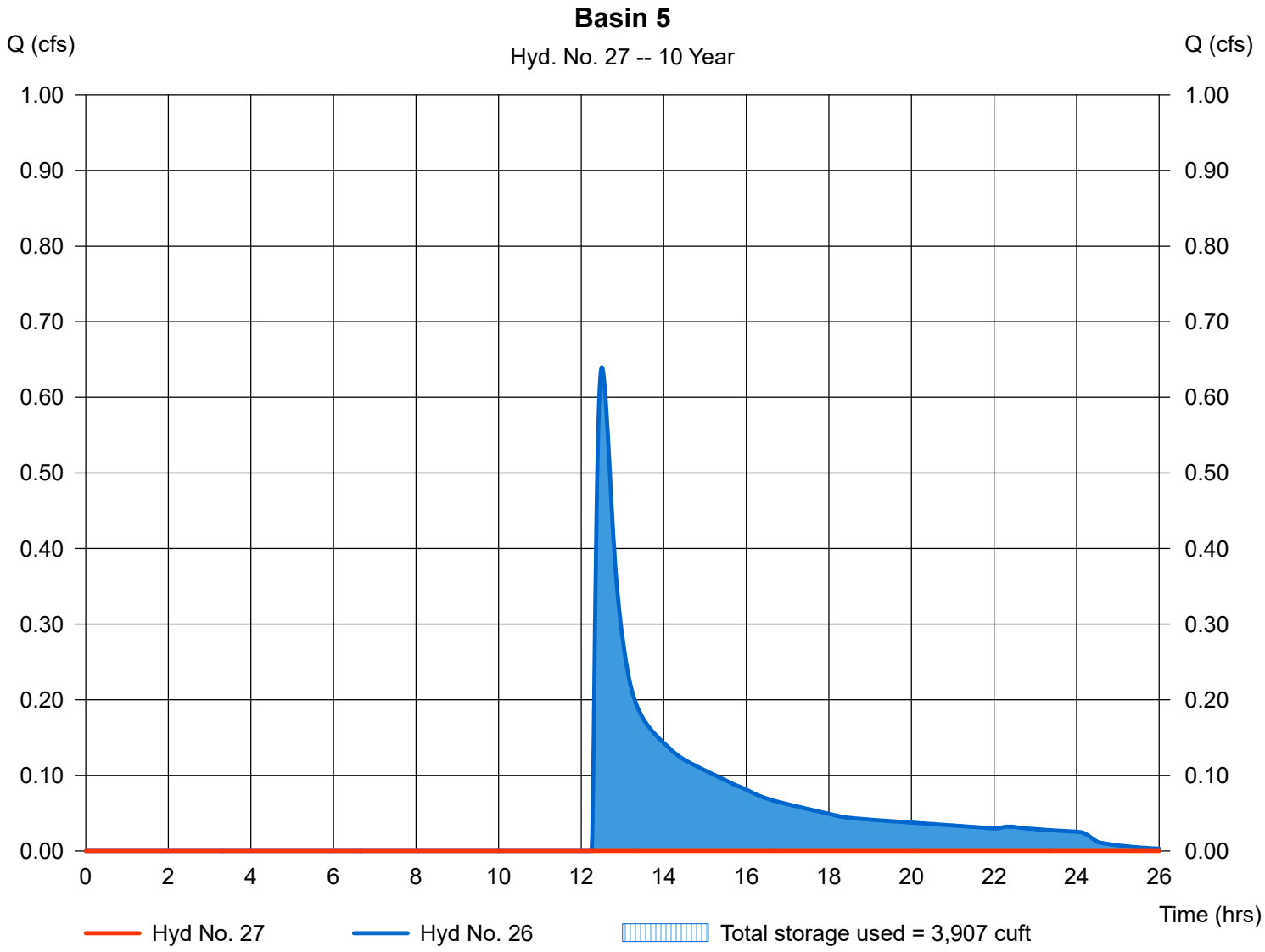
Hydrograph Report

Hyd. No. 27

Basin 5

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	26 - Basin 5 Forebay	Max. Elevation	=	65.57 ft
Reservoir name	=	Basin 5	Max. Storage	=	3,907 cuft

Storage Indication method used.



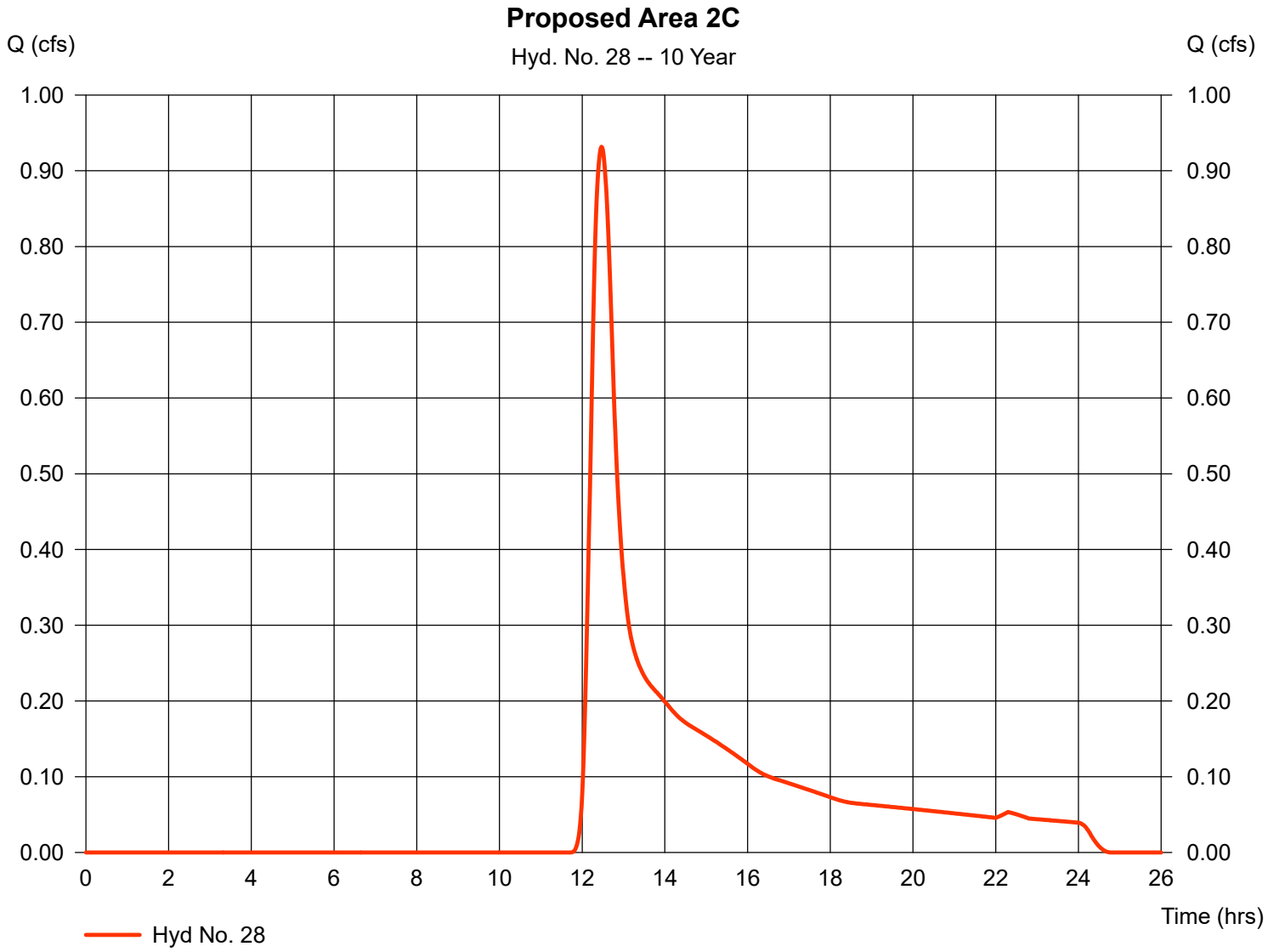
Hydrograph Report

Hyd. No. 28

Proposed Area 2C

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.932 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.47 hrs
Time interval	=	1 min	Hyd. volume	=	6,116 cuft
Drainage area	=	1.910 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	29.00 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.850 x 55) + (0.060 x 61)] / 1.910

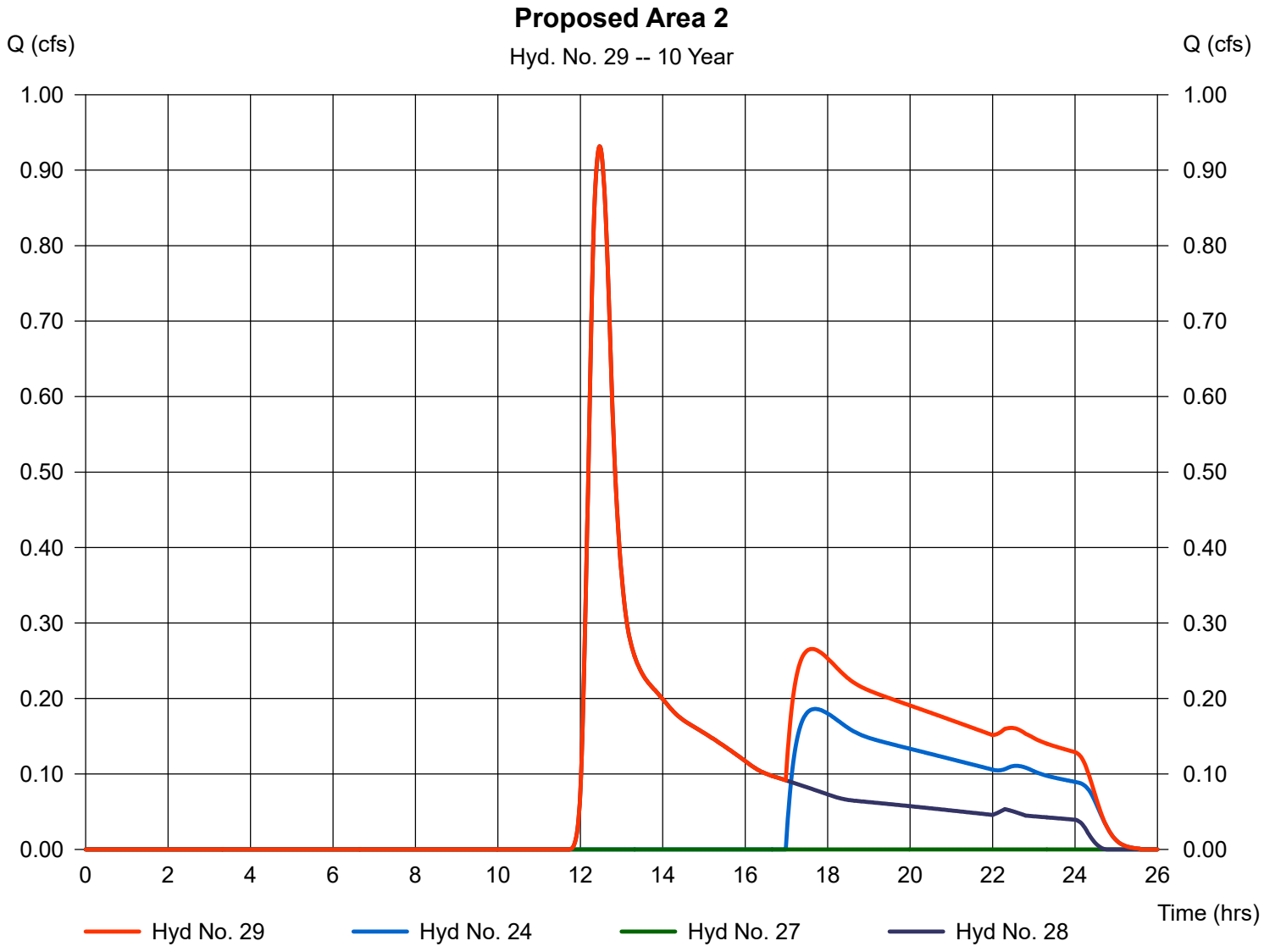


Hydrograph Report

Hyd. No. 29

Proposed Area 2

Hydrograph type	= Combine	Peak discharge	= 0.932 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.47 hrs
Time interval	= 1 min	Hyd. volume	= 9,579 cuft
Inflow hyds.	= 24, 27, 28	Contrib. drain. area	= 1.910 ac

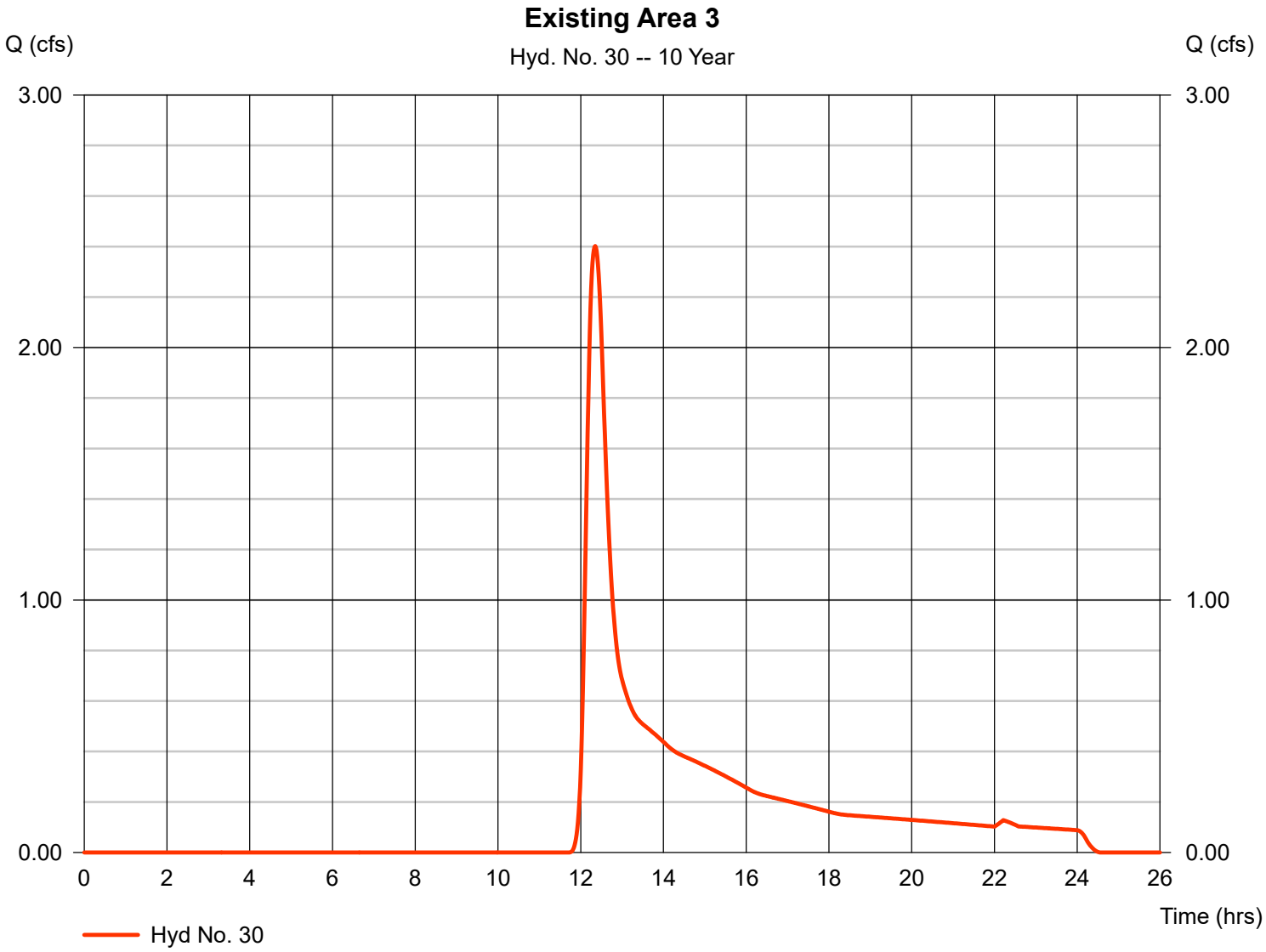


Hydrograph Report

Hyd. No. 30

Existing Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.402 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.35 hrs
Time interval	=	1 min	Hyd. volume	=	13,902 cuft
Drainage area	=	4.300 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



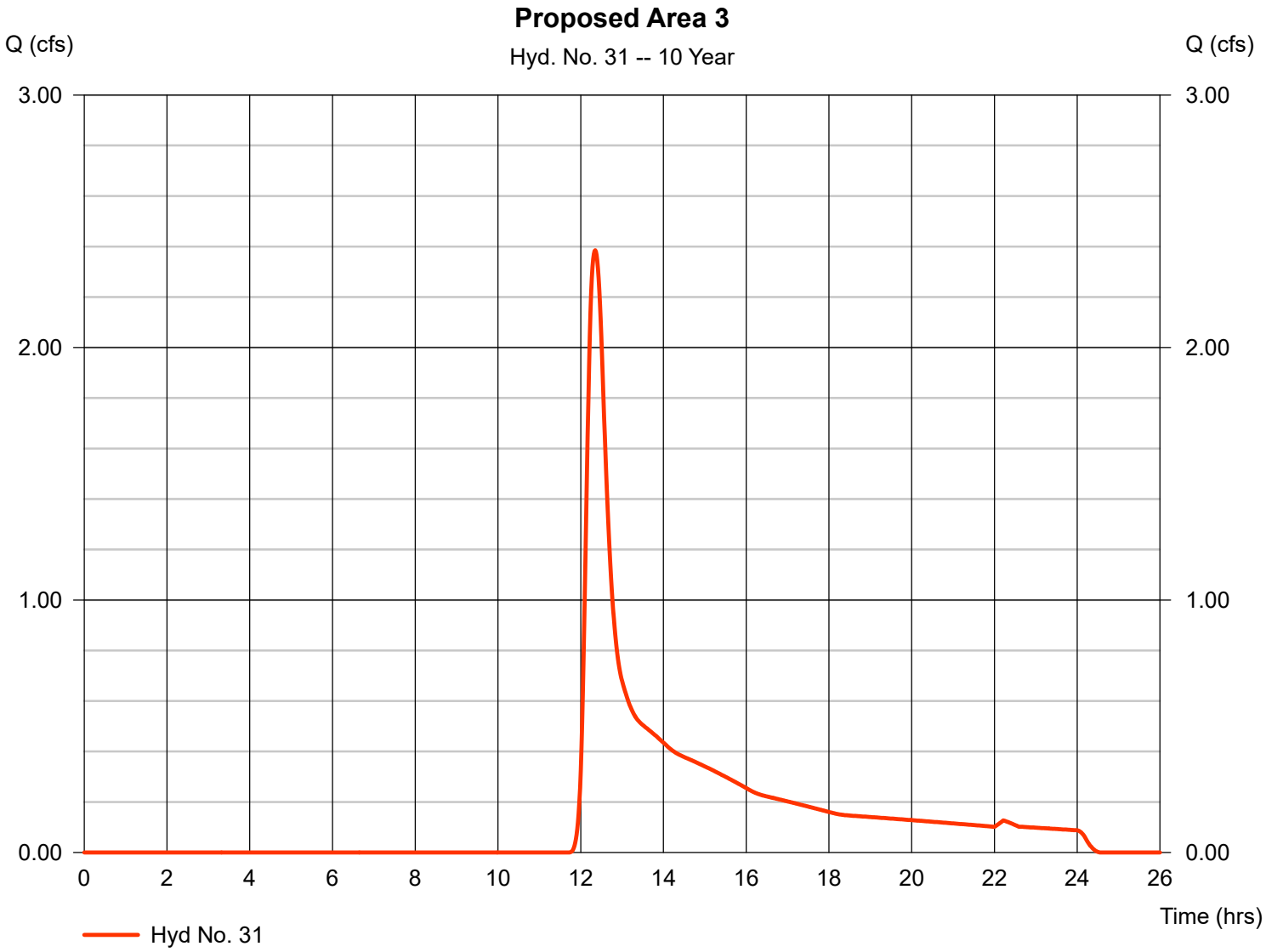
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 31

Proposed Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.385 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.35 hrs
Time interval	=	1 min	Hyd. volume	=	13,805 cuft
Drainage area	=	4.270 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	4.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	8.550	1	756	62,498	------	------	------	Existing Area 1
2	Rational	1.949	1	5	585	------	------	------	Building 1
3	Reservoir	0.000	1	n/a	0	2	28.53	585	Leaching Gallery 1
4	SCS Runoff	1.794	1	739	9,000	------	------	------	Proposed Area 1A
5	Reservoir	0.155	1	912	2,987	4	27.66	6,351	Basin 1 Forebay
6	Reservoir	0.000	1	n/a	0	5	25.79	2,987	Basin 1
7	SCS Runoff	2.961	1	774	28,103	------	------	------	Proposed Area 1B
8	Rational	2.261	1	5	678	------	------	------	Building 2
9	Reservoir	0.000	1	n/a	0	8	29.93	678	Leaching Gallery 2
10	Rational	1.871	1	5	561	------	------	------	Building 3
11	Reservoir	0.000	1	n/a	0	10	34.71	561	Leaching Gallery 3
12	SCS Runoff	4.293	1	754	28,734	------	------	------	Proposed Area 1C
13	Reservoir	4.293	1	754	28,362	12	23.30	571	Basin 2 Forebay
14	Reservoir	1.730	1	795	18,246	13	26.67	13,255	Basin 2
15	Rational	1.247	1	5	374	------	------	------	Building 4
16	Reservoir	0.000	1	n/a	0	15	40.47	374	Leaching Gallery 4
17	SCS Runoff	5.020	1	735	23,012	------	------	------	Proposed Area 1D
18	Reservoir	5.021	1	735	22,832	17	33.33	290	Basin 3 Forebay
19	Reservoir	0.469	1	846	7,179	18	36.57	15,913	Basin 3
20	Combine	4.397	1	789	53,528	6, 7, 14, 19	------	------	Proposed Area 1
21	SCS Runoff	2.698	1	750	17,634	------	------	------	Existing Area 2
22	SCS Runoff	4.674	1	744	26,262	------	------	------	Proposed Area 2A
23	Reservoir	4.666	1	745	25,388	22	53.32	1,312	Basin 4 Forebay
24	Reservoir	0.541	1	868	8,632	23	56.57	17,112	Basin 4
25	SCS Runoff	1.515	1	733	6,587	------	------	------	Proposed Area 2B
26	Reservoir	1.057	1	745	5,415	25	66.87	1,846	Basin 5 Forebay
27	Reservoir	0.000	1	n/a	0	26	66.09	5,415	Basin 5
28	SCS Runoff	1.414	1	746	8,592	------	------	------	Proposed Area 2C
29	Combine	1.414	1	746	17,224	24, 27, 28	------	------	Proposed Area 2
30	SCS Runoff	3.654	1	739	19,530	------	------	------	Existing Area 3
31	SCS Runoff	3.628	1	739	19,394	------	------	------	Proposed Area 3

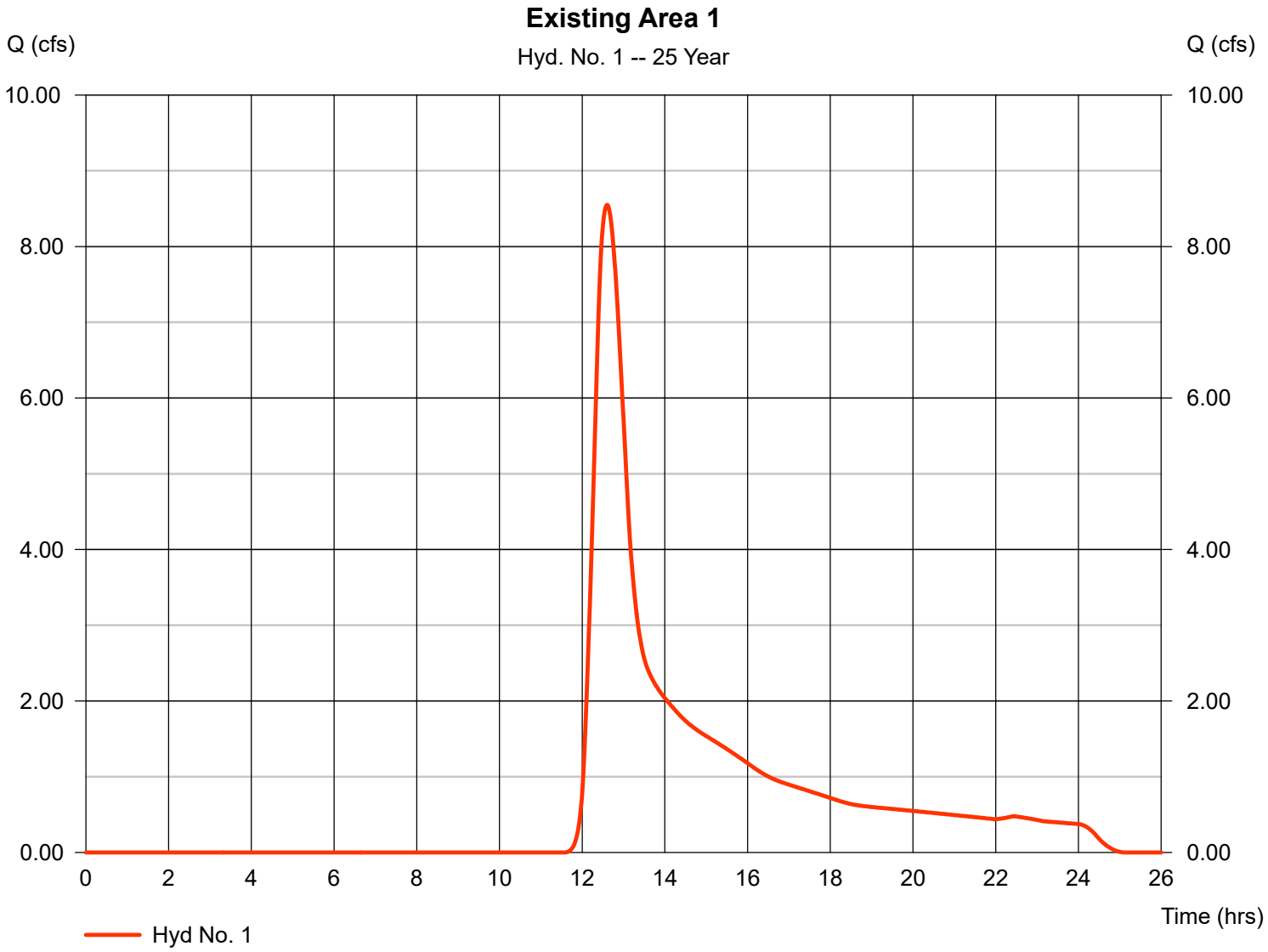
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 1

Existing Area 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.550 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.60 hrs
Time interval	=	1 min	Hyd. volume	=	62,498 cuft
Drainage area	=	13.960 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.30 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



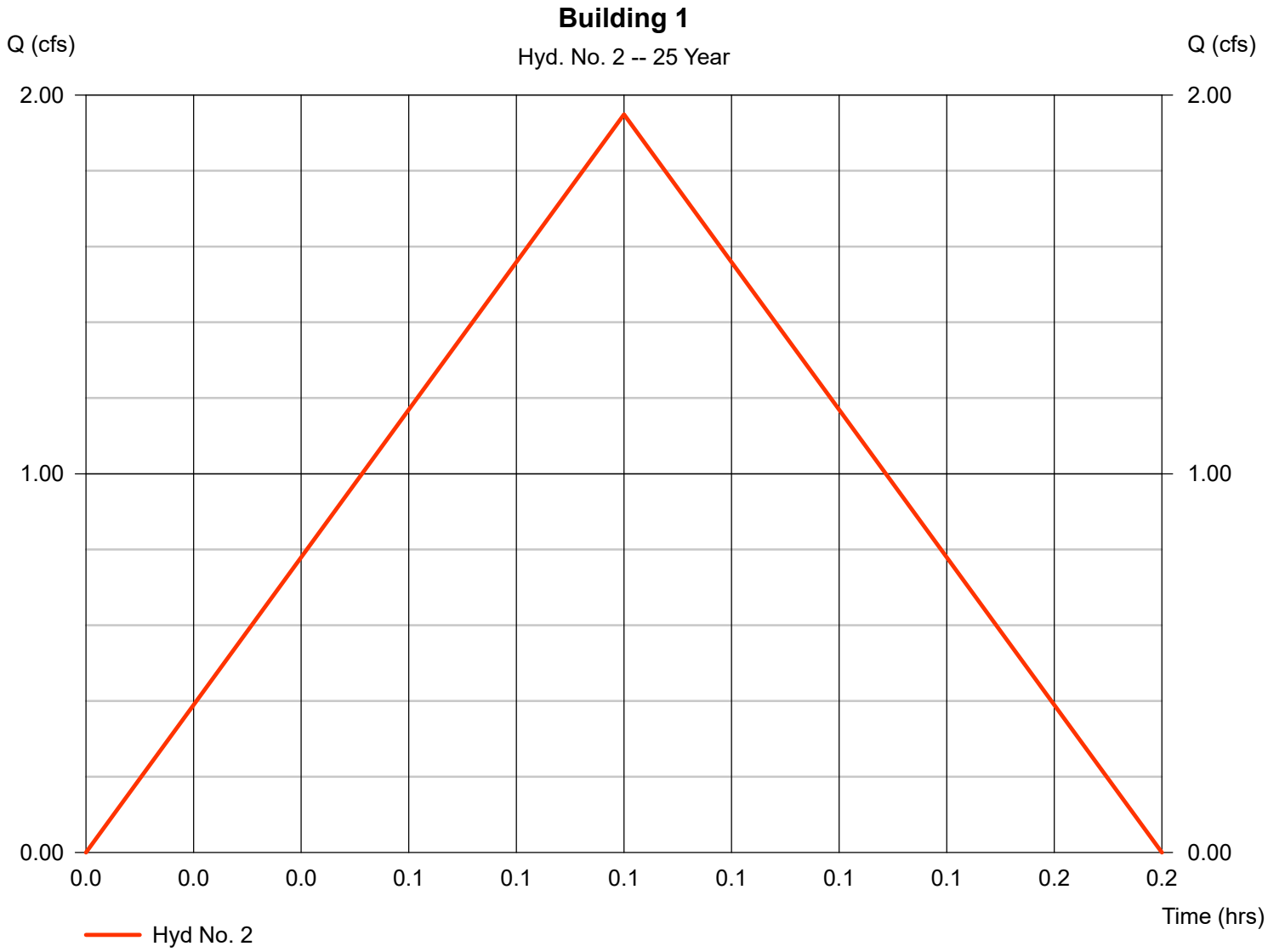
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 2

Building 1

Hydrograph type	=	Rational	Peak discharge	=	1.949 cfs
Storm frequency	=	25 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	585 cuft
Drainage area	=	0.250 ac	Runoff coeff.	=	0.9
Intensity	=	8.661 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



Hydrograph Report

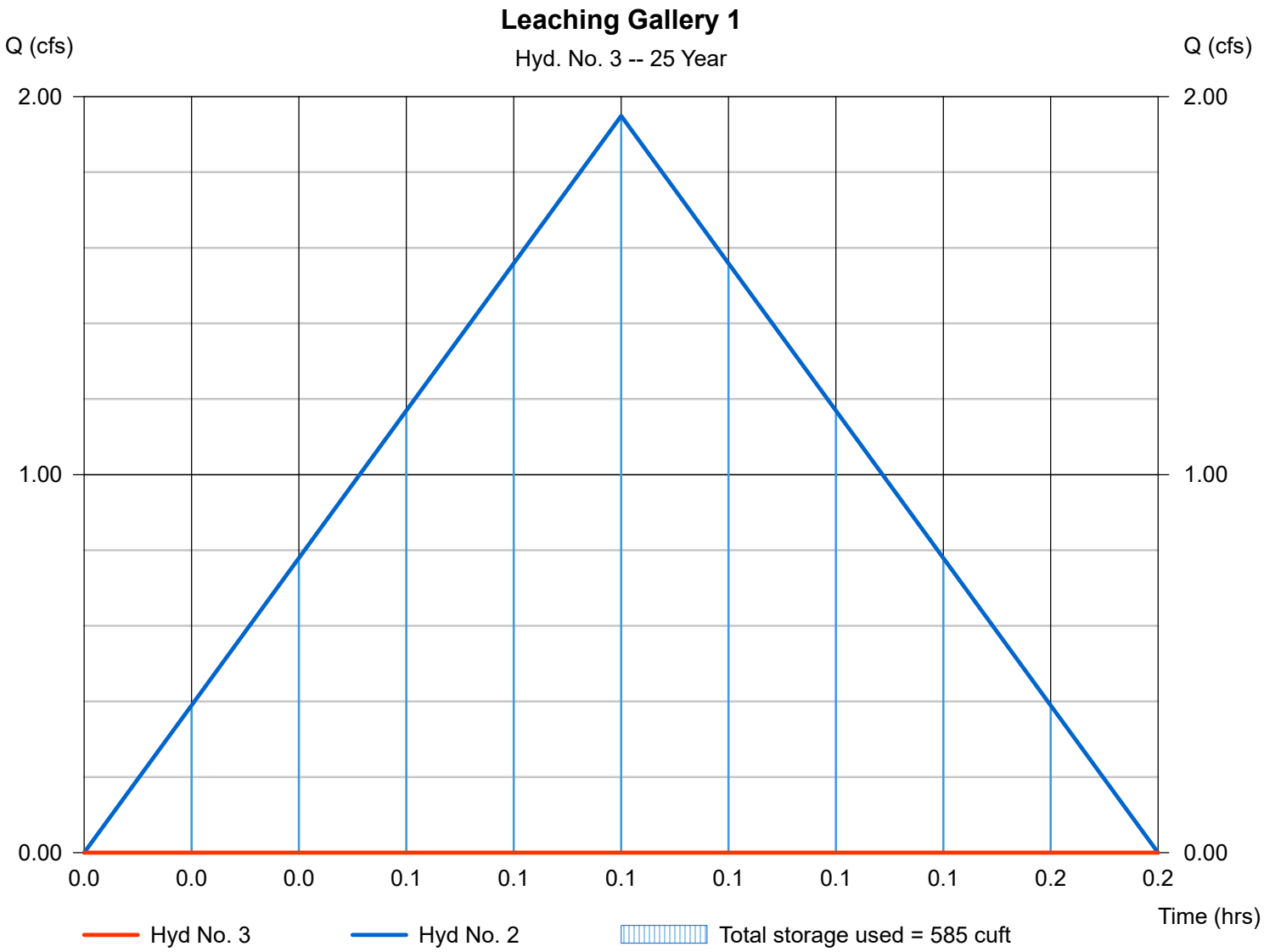
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 3

Leaching Gallery 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	25 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	2 - Building 1	Max. Elevation	=	28.53 ft
Reservoir name	=	Leaching Gallery 1	Max. Storage	=	585 cuft

Storage Indication method used.



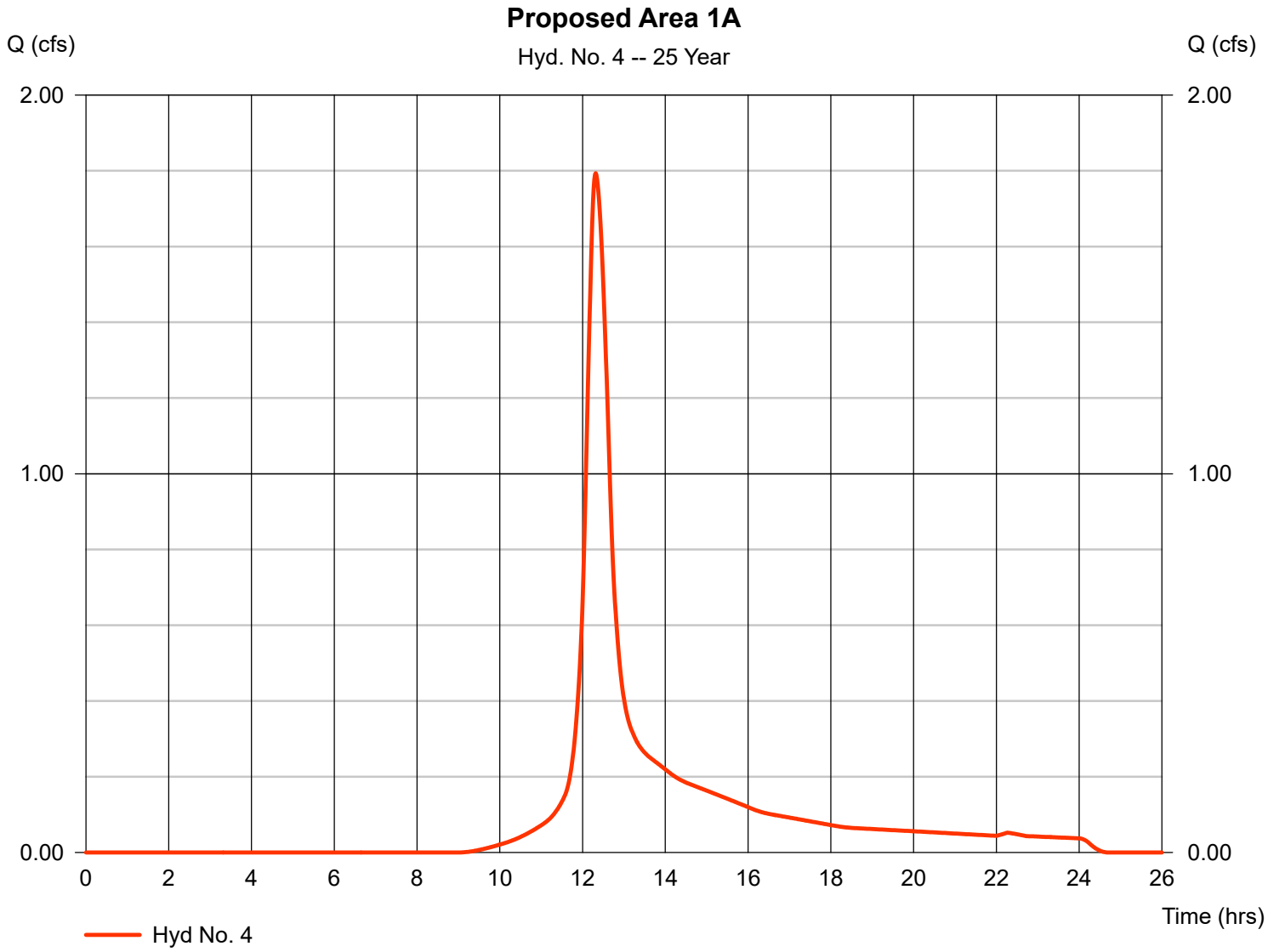
Hydrograph Report

Hyd. No. 4

Proposed Area 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.794 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.32 hrs
Time interval	=	1 min	Hyd. volume	=	9,000 cuft
Drainage area	=	0.950 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.10 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.190 x 55) + (0.450 x 61) + (0.310 x 98)] / 0.950



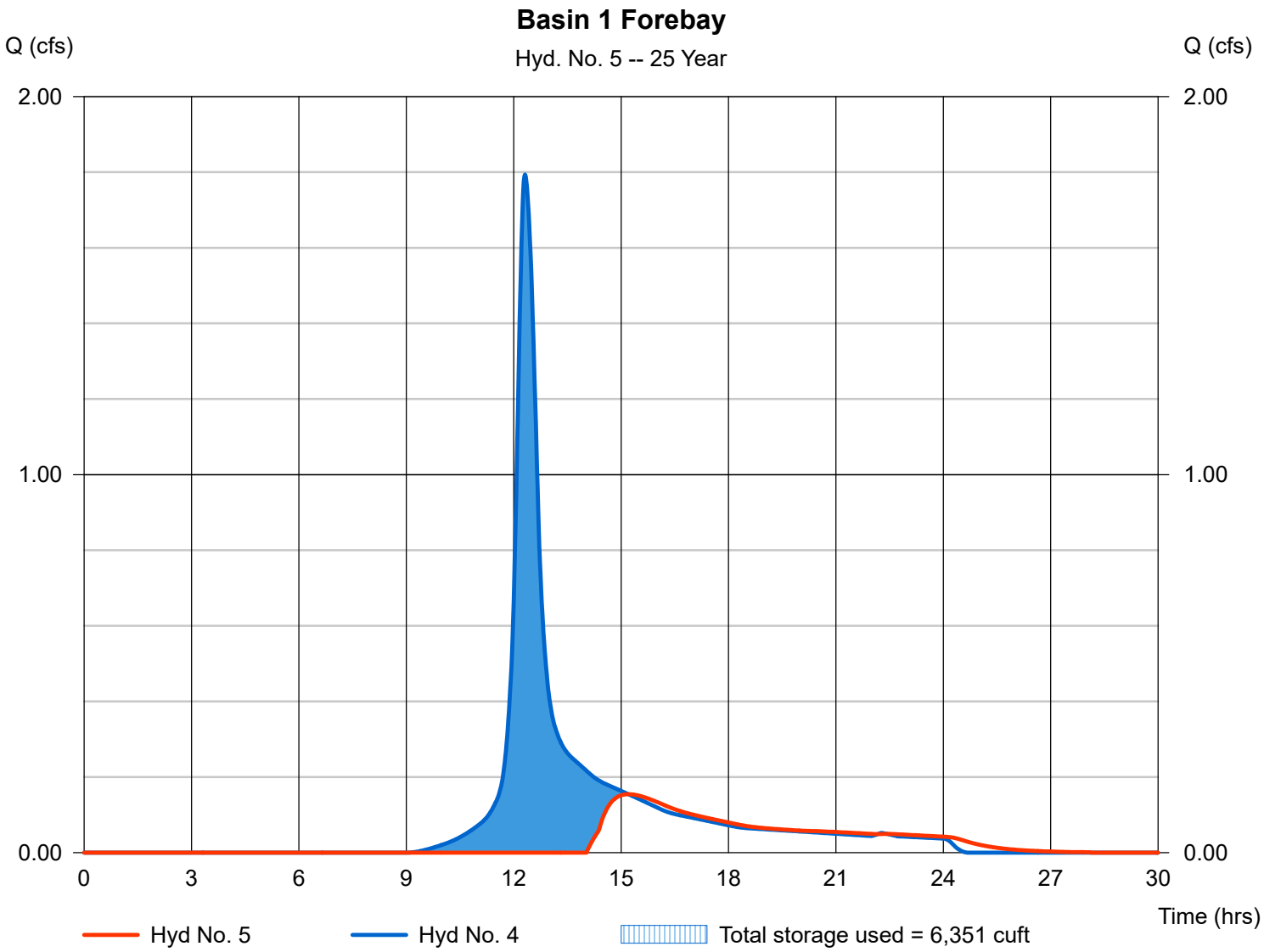
Hydrograph Report

Hyd. No. 5

Basin 1 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	0.155 cfs
Storm frequency	=	25 yrs	Time to peak	=	15.20 hrs
Time interval	=	1 min	Hyd. volume	=	2,987 cuft
Inflow hyd. No.	=	4 - Proposed Area 1A	Max. Elevation	=	27.66 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	6,351 cuft

Storage Indication method used.



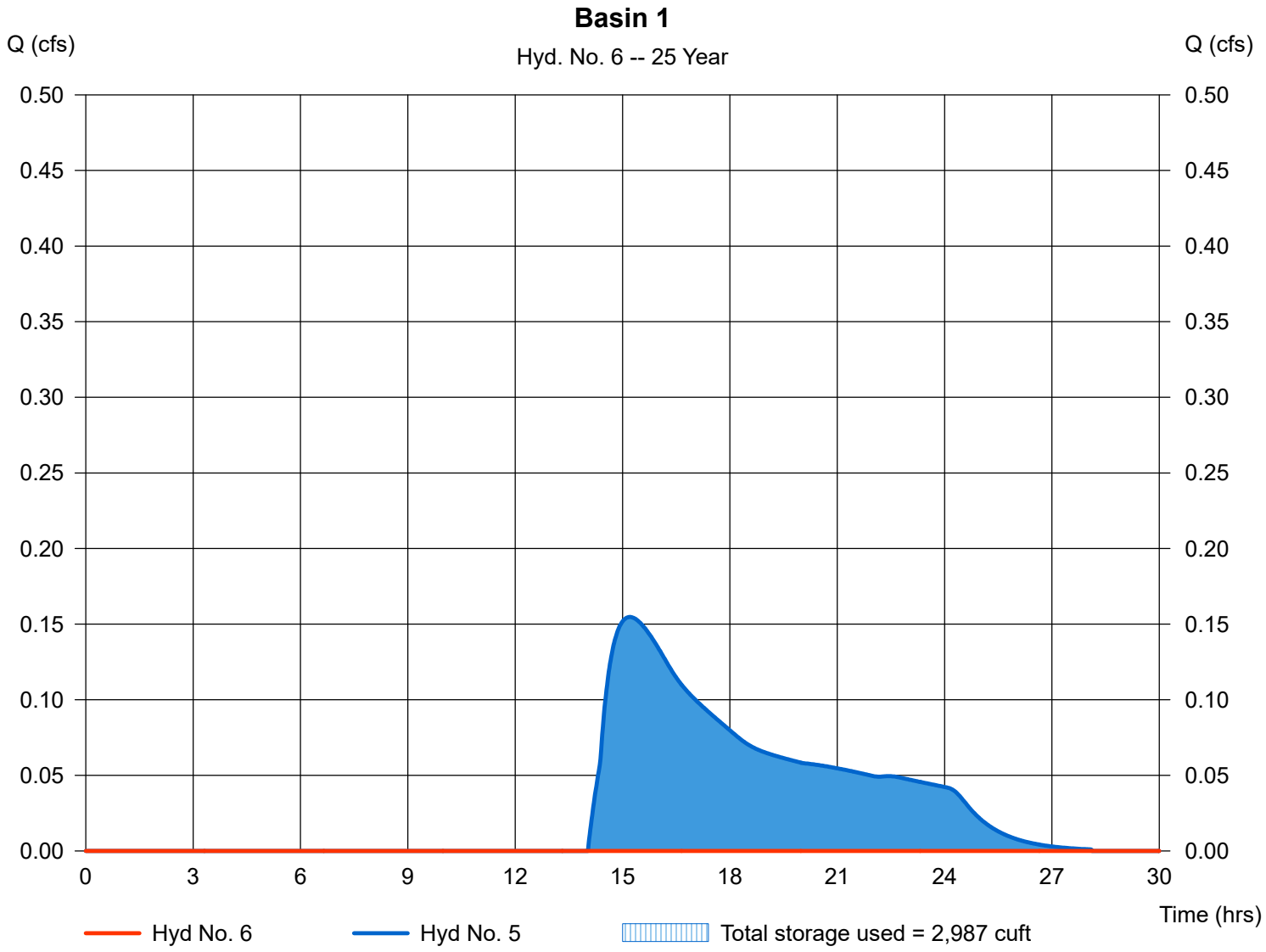
Hydrograph Report

Hyd. No. 6

Basin 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	25 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	5 - Basin 1 Forebay	Max. Elevation	=	25.79 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	2,987 cuft

Storage Indication method used.



Hydrograph Report

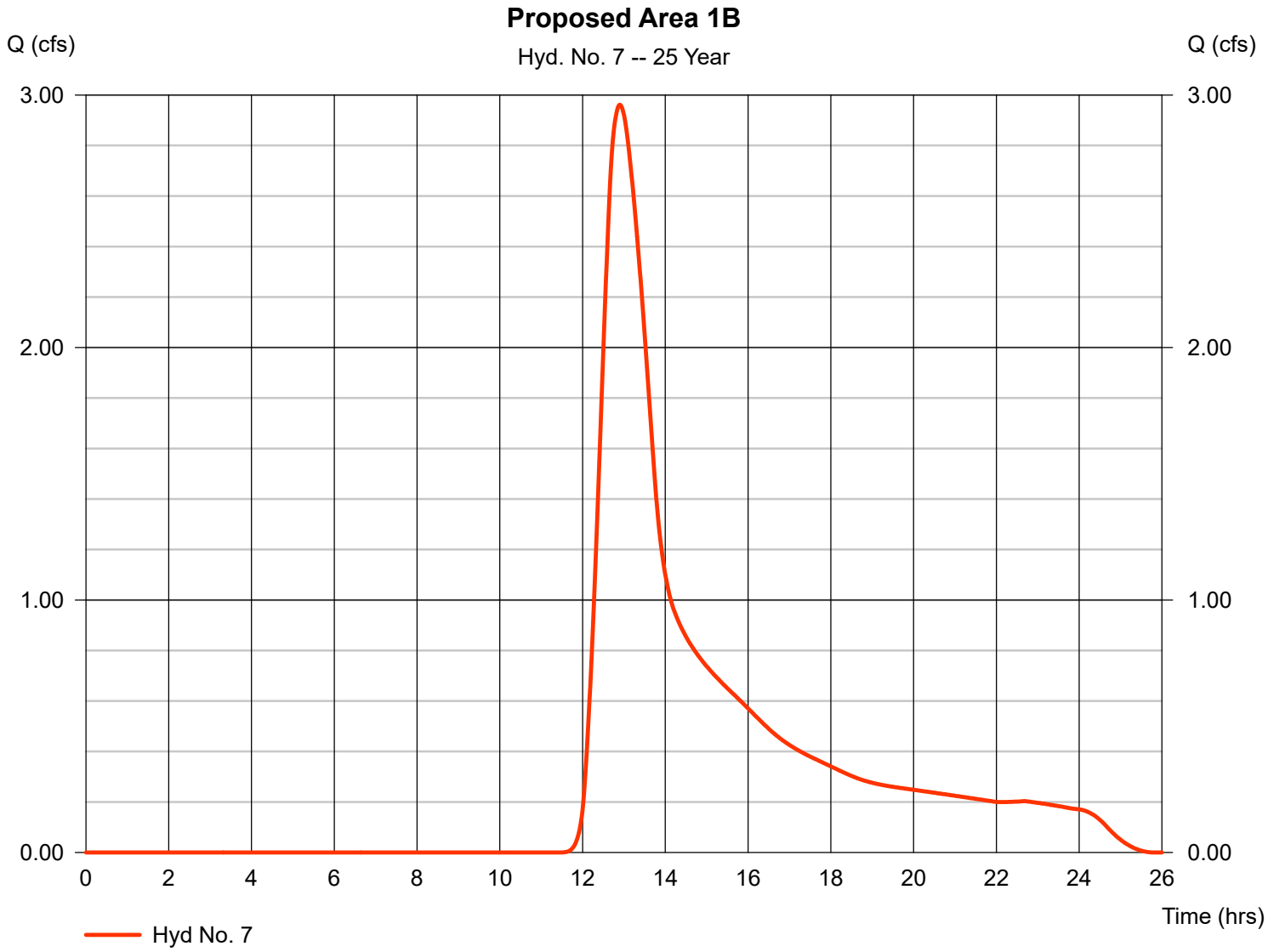
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 7

Proposed Area 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.961 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.90 hrs
Time interval	=	1 min	Hyd. volume	=	28,103 cuft
Drainage area	=	5.930 ac	Curve number	=	56*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	69.10 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.120 x 55) + (0.810 x 61)] / 5.930

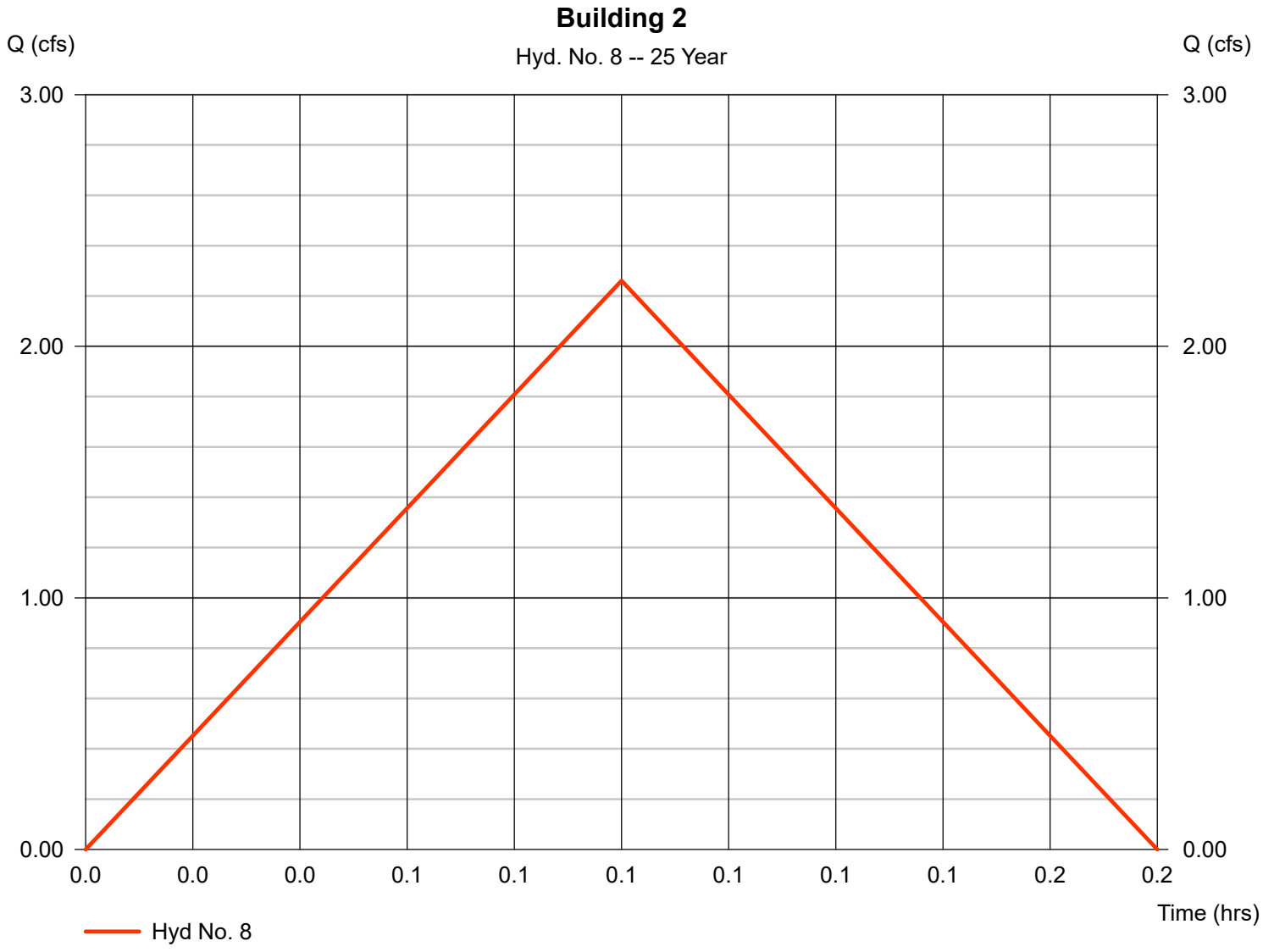


Hydrograph Report

Hyd. No. 8

Building 2

Hydrograph type	=	Rational	Peak discharge	=	2.261 cfs
Storm frequency	=	25 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	678 cuft
Drainage area	=	0.290 ac	Runoff coeff.	=	0.9
Intensity	=	8.661 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



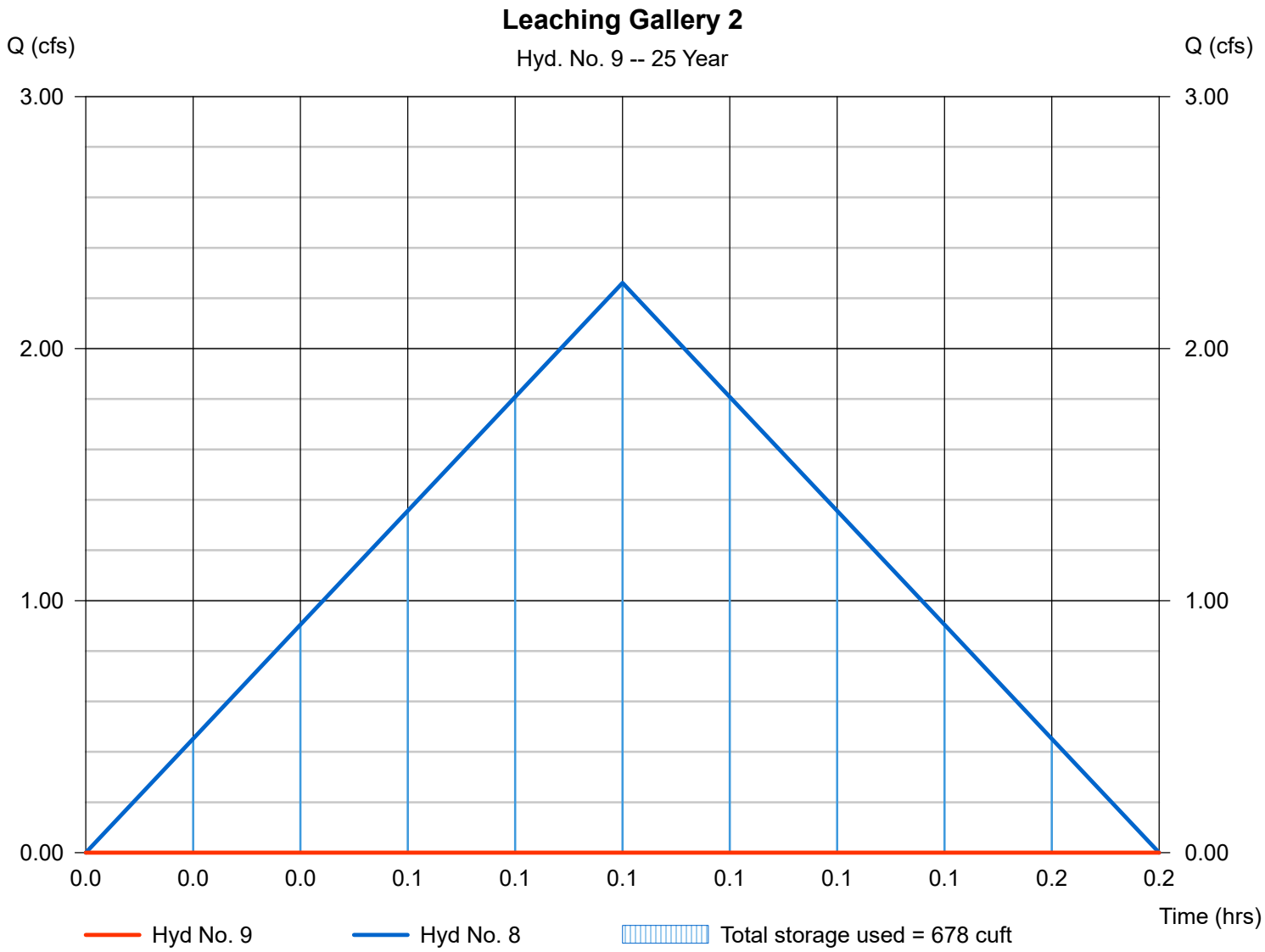
Hydrograph Report

Hyd. No. 9

Leaching Gallery 2

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	25 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	8 - Building 2	Max. Elevation	=	29.93 ft
Reservoir name	=	Leaching Gallery 2	Max. Storage	=	678 cuft

Storage Indication method used.



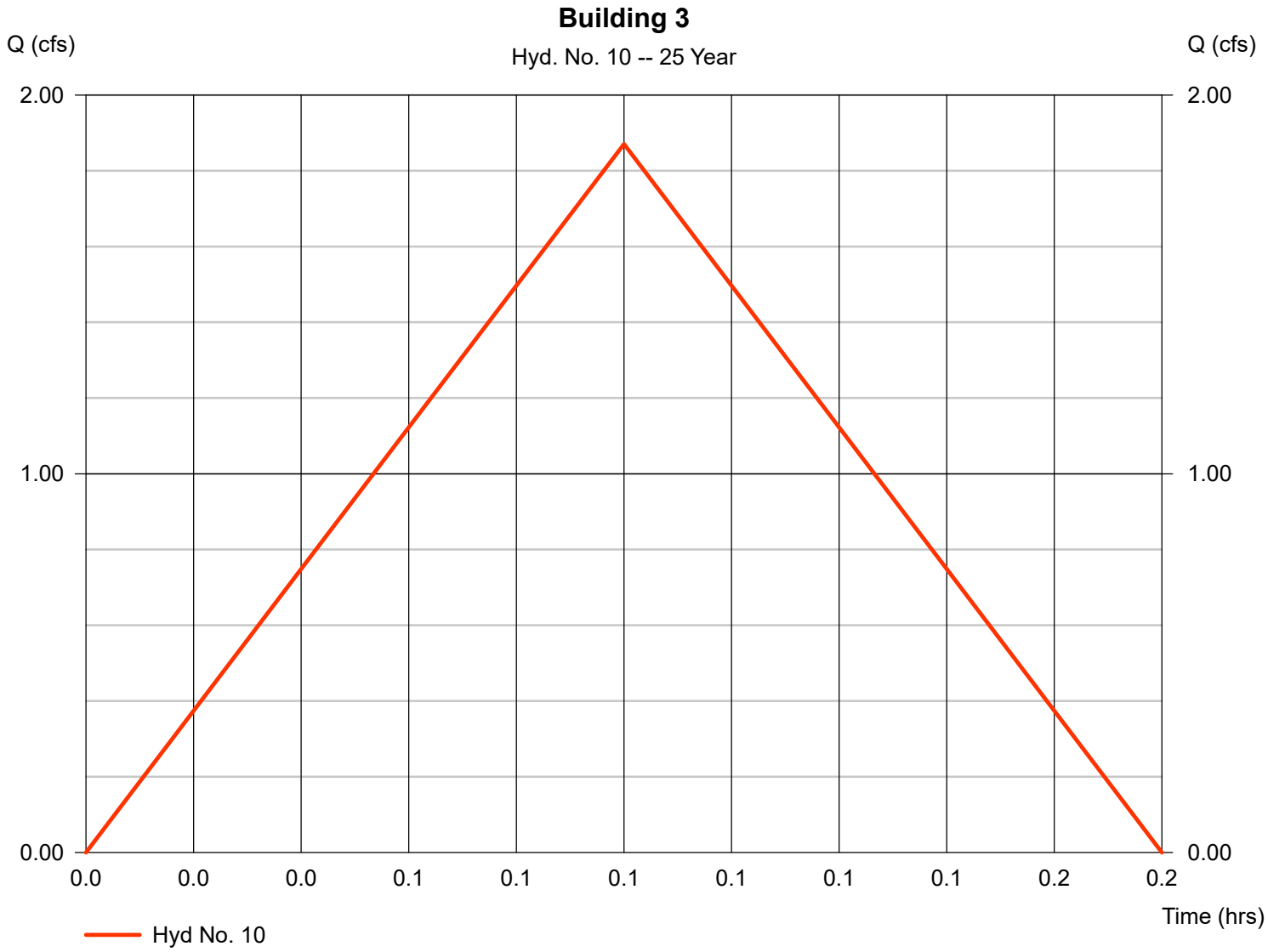
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 10

Building 3

Hydrograph type	=	Rational	Peak discharge	=	1.871 cfs
Storm frequency	=	25 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	561 cuft
Drainage area	=	0.240 ac	Runoff coeff.	=	0.9
Intensity	=	8.661 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



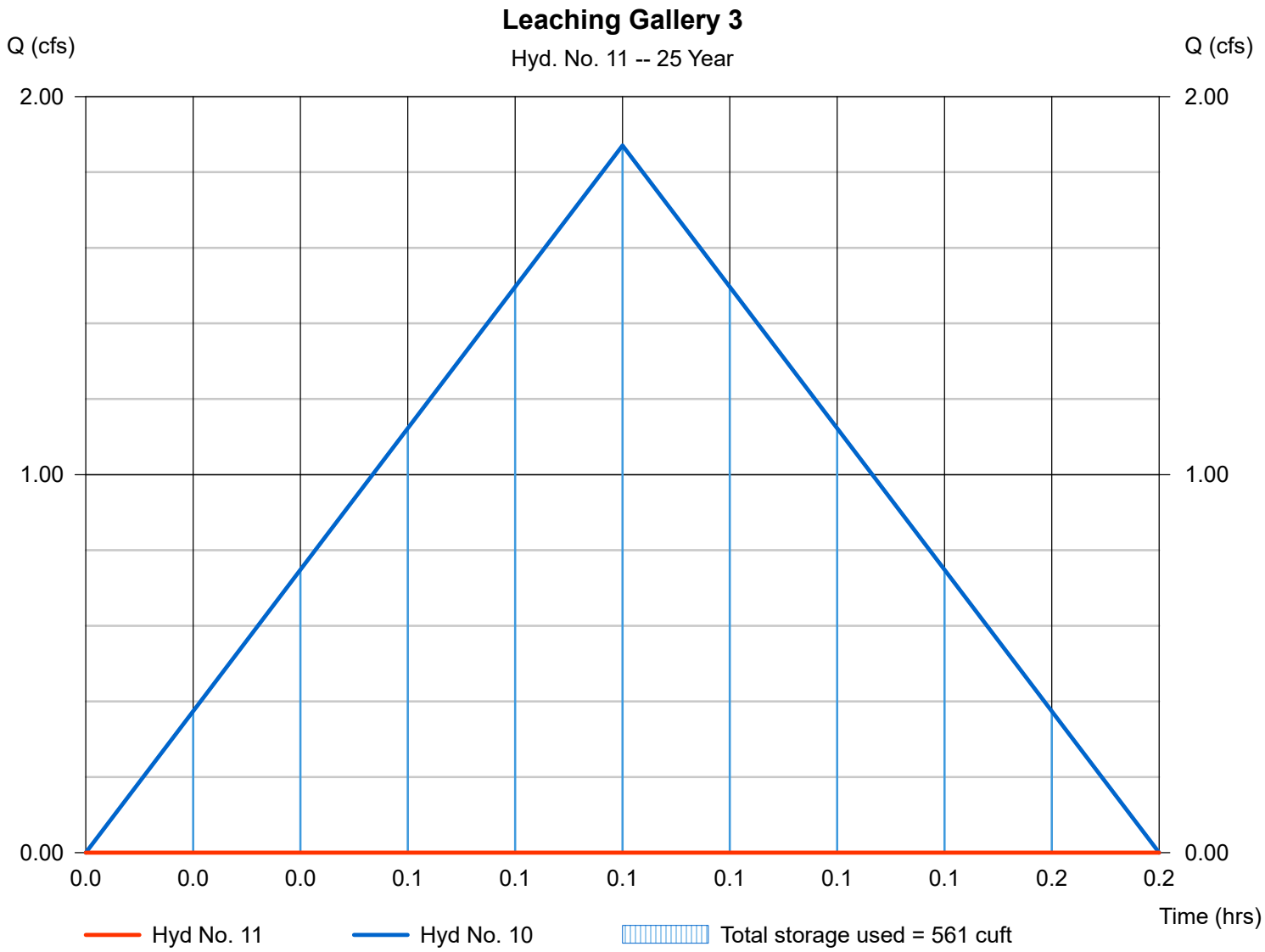
Hydrograph Report

Hyd. No. 11

Leaching Gallery 3

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	25 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	10 - Building 3	Max. Elevation	=	34.71 ft
Reservoir name	=	Leaching Gallery 3	Max. Storage	=	561 cuft

Storage Indication method used.



Hydrograph Report

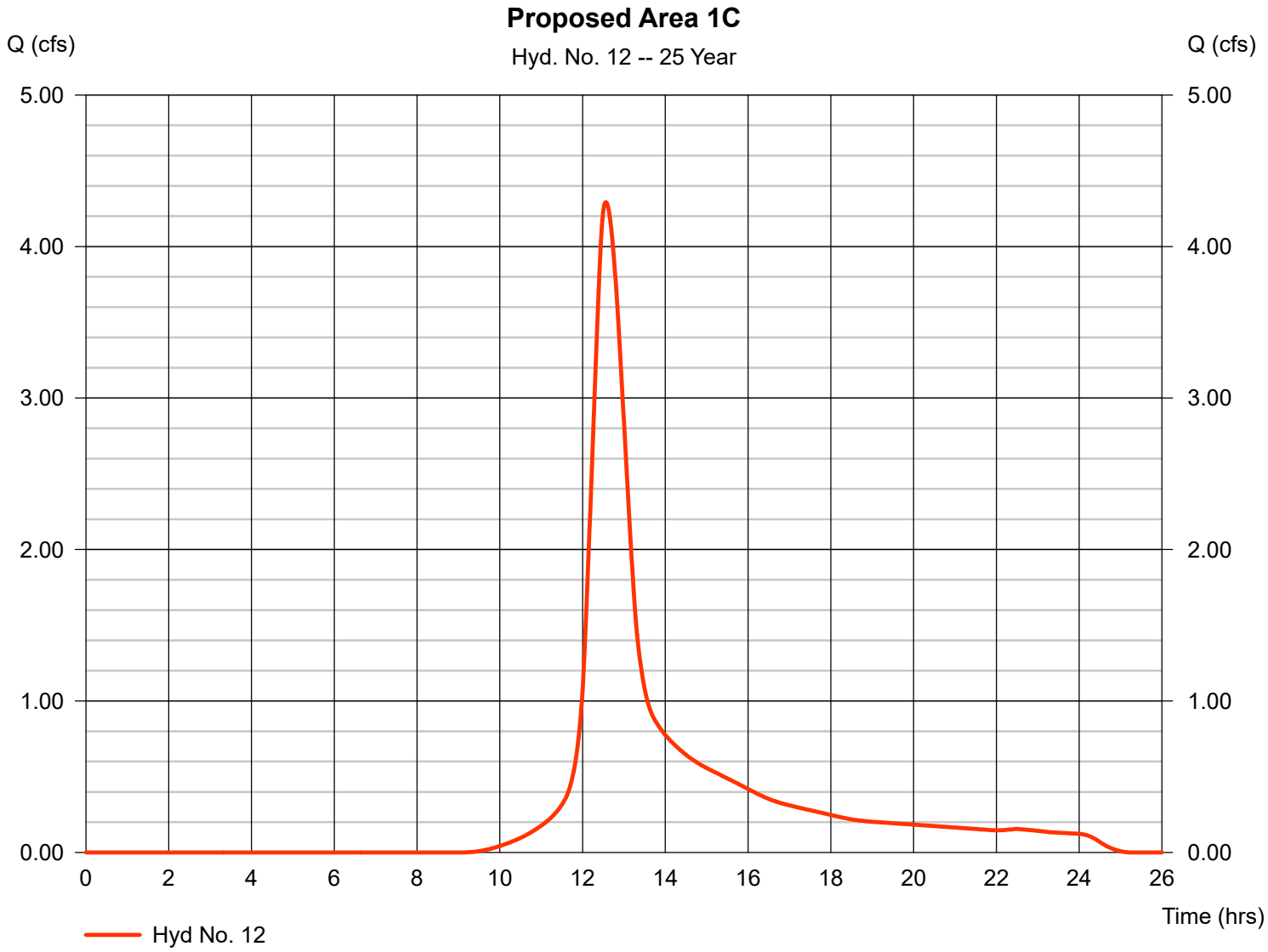
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 12

Proposed Area 1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.293 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.57 hrs
Time interval	=	1 min	Hyd. volume	=	28,734 cuft
Drainage area	=	3.070 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	48.50 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 55) + (1.060 x 98) + (1.270 x 61)] / 3.070



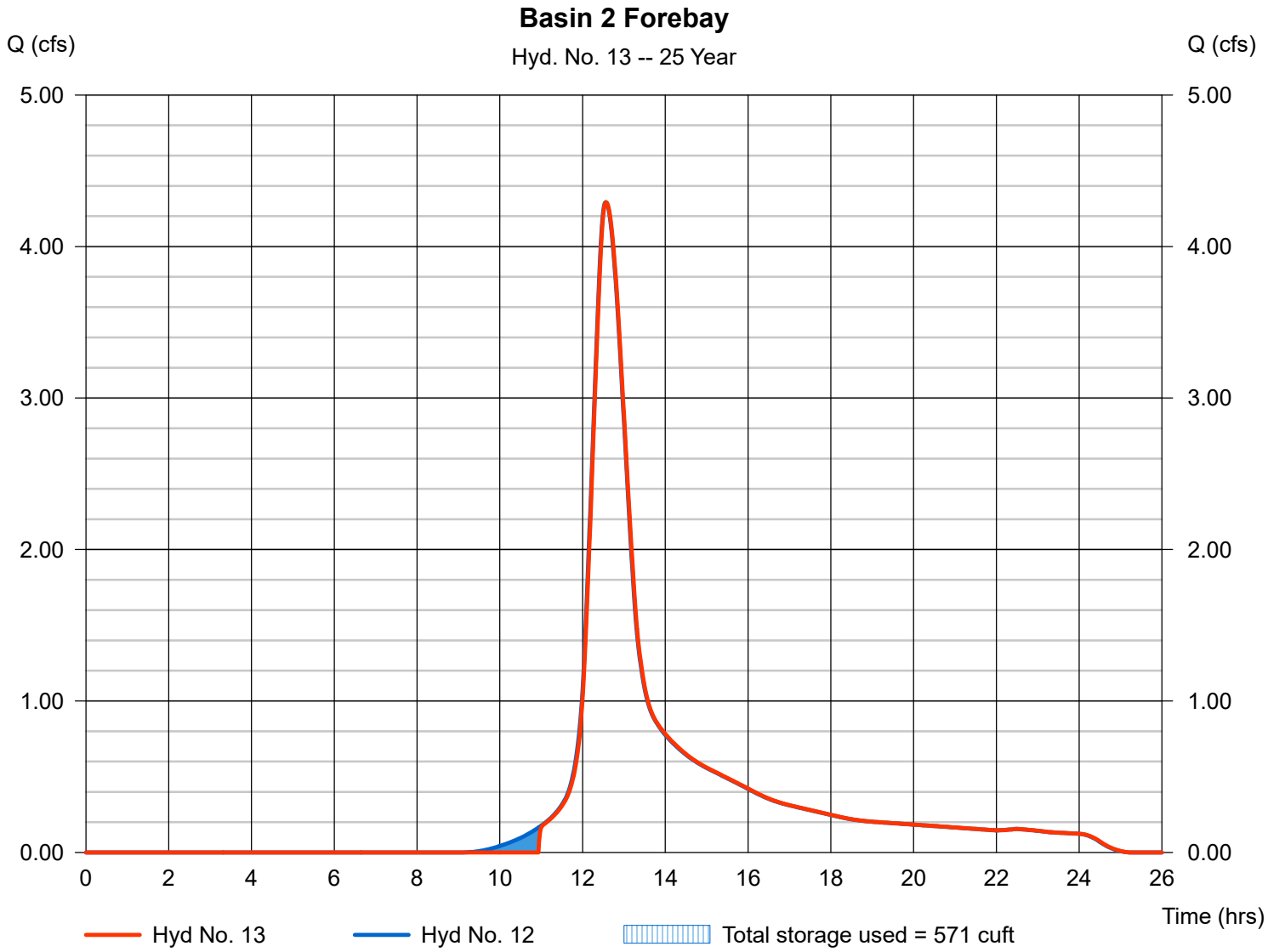
Hydrograph Report

Hyd. No. 13

Basin 2 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	4.293 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.57 hrs
Time interval	=	1 min	Hyd. volume	=	28,362 cuft
Inflow hyd. No.	=	12 - Proposed Area 1C	Max. Elevation	=	23.30 ft
Reservoir name	=	Basin 2 Forebay	Max. Storage	=	571 cuft

Storage Indication method used.



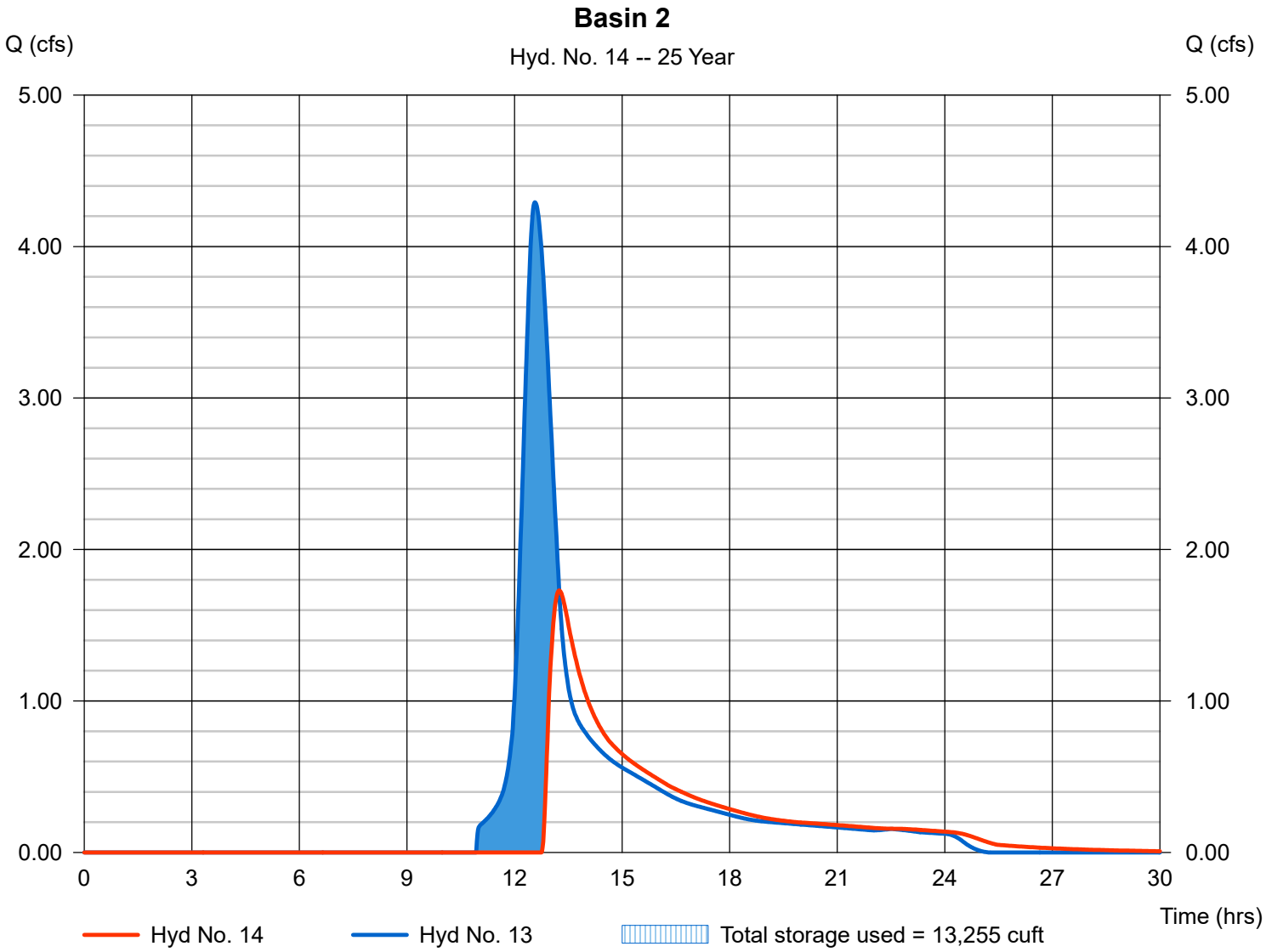
Hydrograph Report

Hyd. No. 14

Basin 2

Hydrograph type	=	Reservoir	Peak discharge	=	1.730 cfs
Storm frequency	=	25 yrs	Time to peak	=	13.25 hrs
Time interval	=	1 min	Hyd. volume	=	18,246 cuft
Inflow hyd. No.	=	13 - Basin 2 Forebay	Max. Elevation	=	26.67 ft
Reservoir name	=	Basin 2	Max. Storage	=	13,255 cuft

Storage Indication method used.

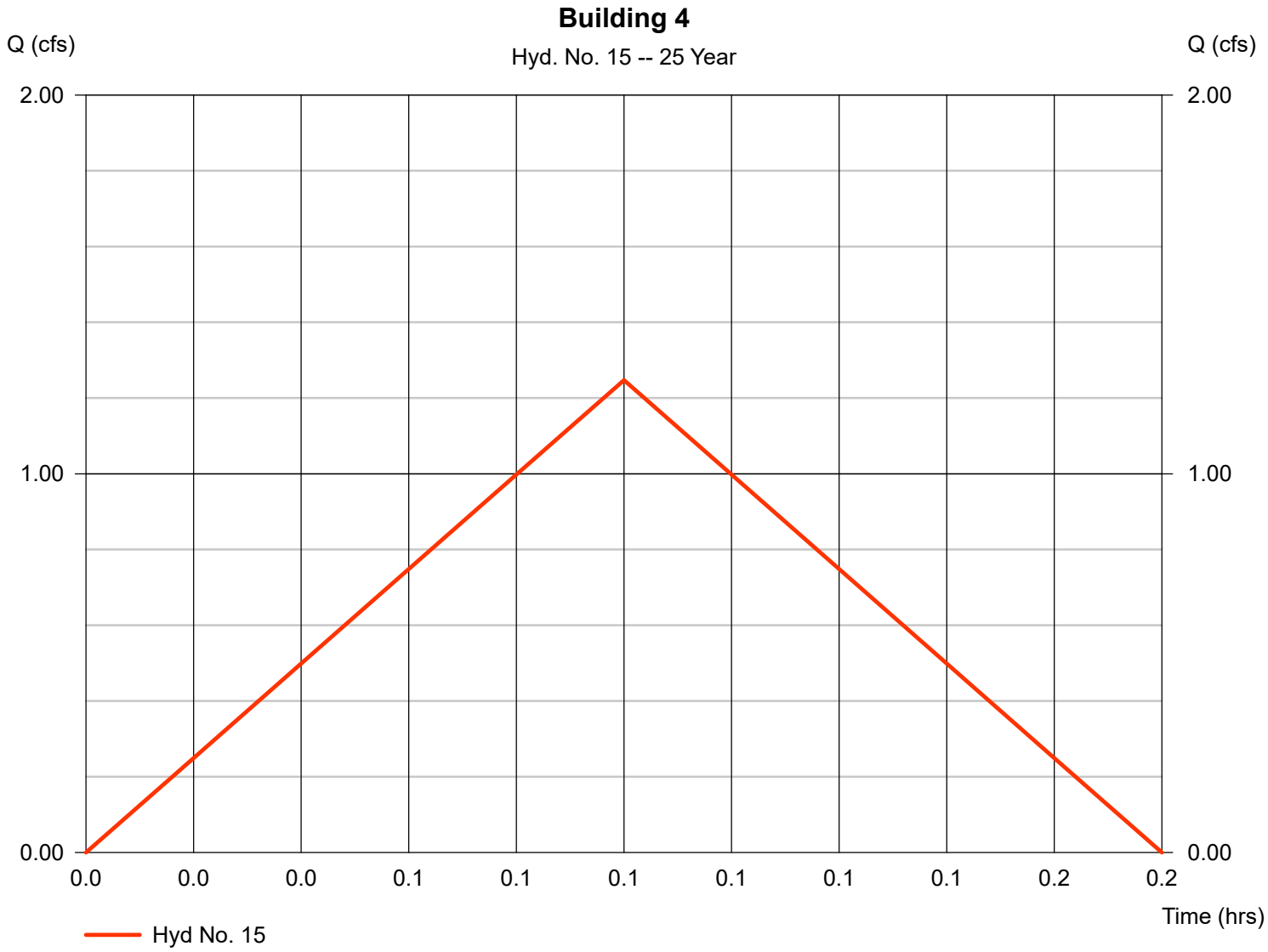


Hydrograph Report

Hyd. No. 15

Building 4

Hydrograph type	=	Rational	Peak discharge	=	1.247 cfs
Storm frequency	=	25 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	374 cuft
Drainage area	=	0.160 ac	Runoff coeff.	=	0.9
Intensity	=	8.661 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



Hydrograph Report

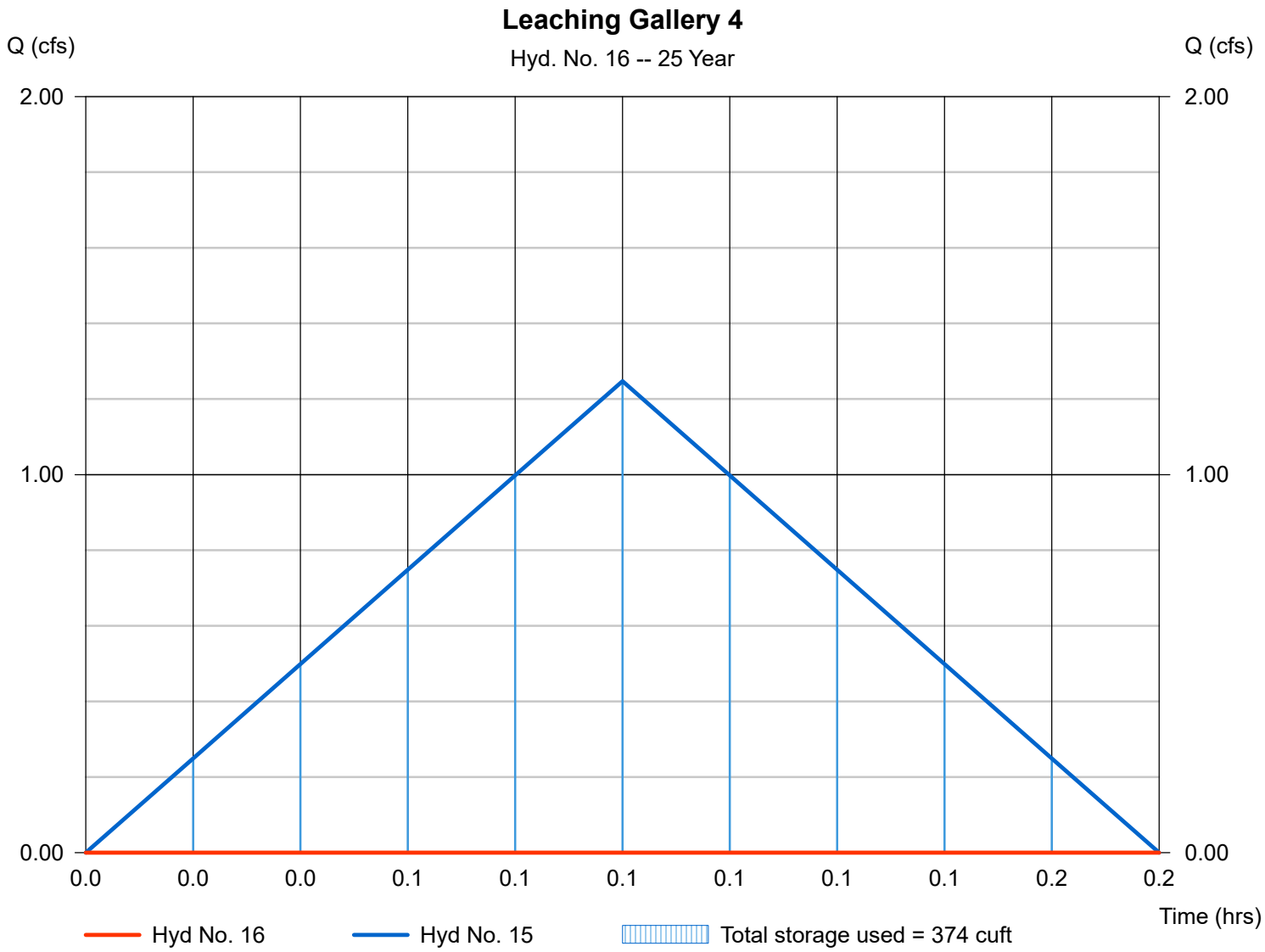
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 16

Leaching Gallery 4

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	25 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	15 - Building 4	Max. Elevation	=	40.47 ft
Reservoir name	=	Leaching Gallery 4	Max. Storage	=	374 cuft

Storage Indication method used.



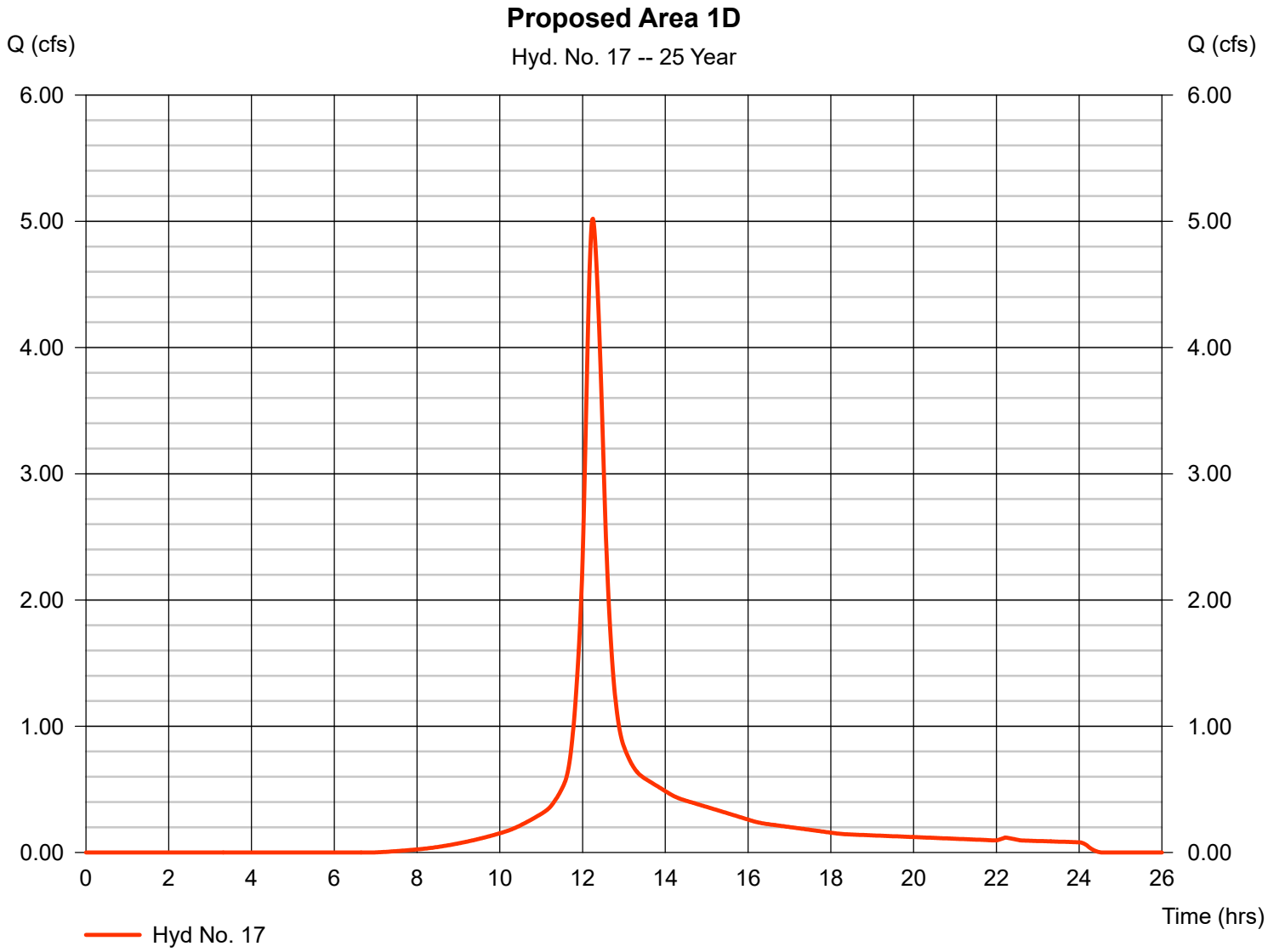
Hydrograph Report

Hyd. No. 17

Proposed Area 1D

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.020 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	23,012 cuft
Drainage area	=	1.830 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.50 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.010 x 98) + (0.820 x 61)] / 1.830



Hydrograph Report

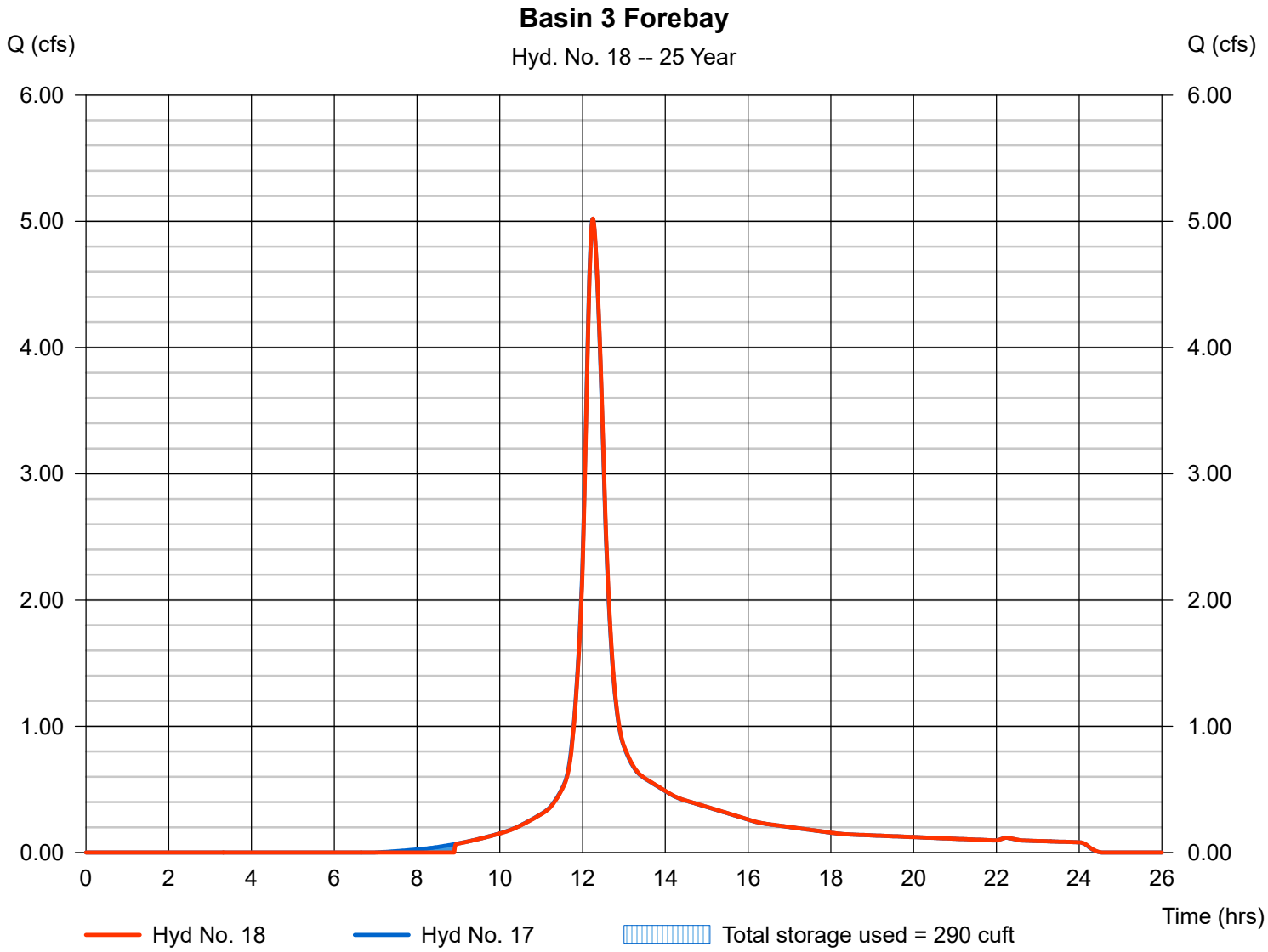
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 18

Basin 3 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	5.021 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	22,832 cuft
Inflow hyd. No.	=	17 - Proposed Area 1D	Max. Elevation	=	33.33 ft
Reservoir name	=	Basin 3 Forebay	Max. Storage	=	290 cuft

Storage Indication method used.



Hydrograph Report

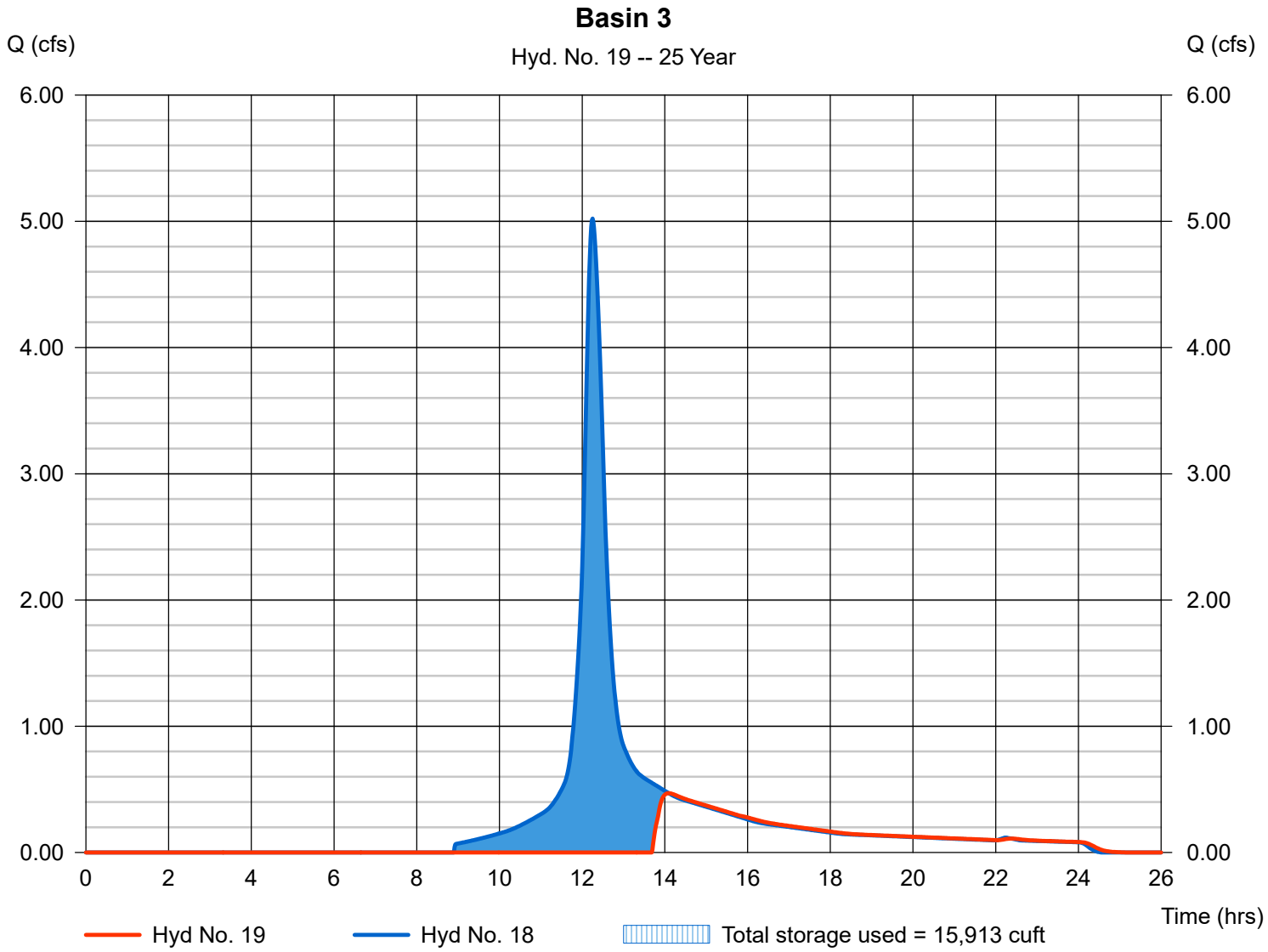
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 19

Basin 3

Hydrograph type	=	Reservoir	Peak discharge	=	0.469 cfs
Storm frequency	=	25 yrs	Time to peak	=	14.10 hrs
Time interval	=	1 min	Hyd. volume	=	7,179 cuft
Inflow hyd. No.	=	18 - Basin 3 Forebay	Max. Elevation	=	36.57 ft
Reservoir name	=	Basin 3	Max. Storage	=	15,913 cuft

Storage Indication method used.

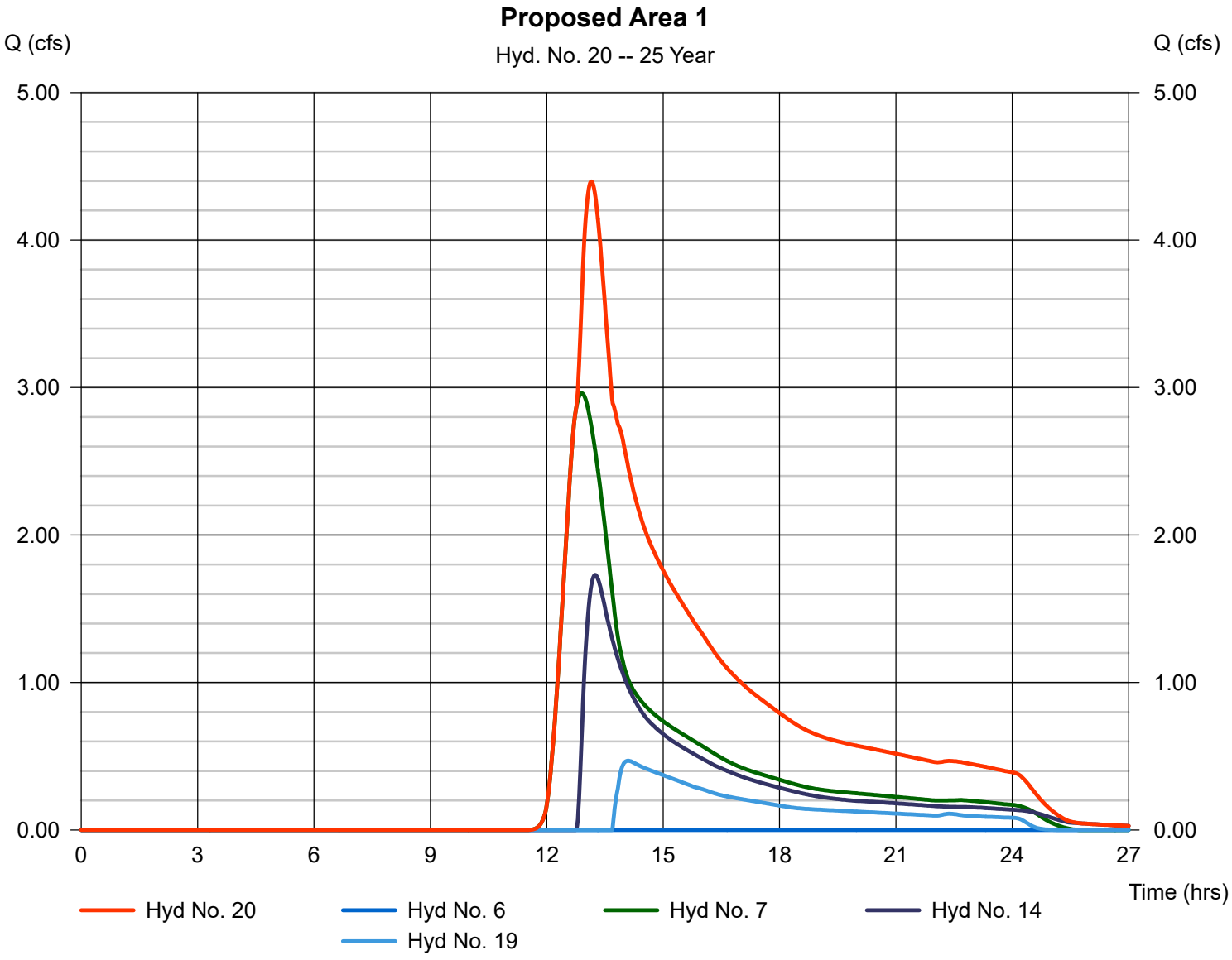


Hydrograph Report

Hyd. No. 20

Proposed Area 1

Hydrograph type	= Combine	Peak discharge	= 4.397 cfs
Storm frequency	= 25 yrs	Time to peak	= 13.15 hrs
Time interval	= 1 min	Hyd. volume	= 53,528 cuft
Inflow hyds.	= 6, 7, 14, 19	Contrib. drain. area	= 5.930 ac



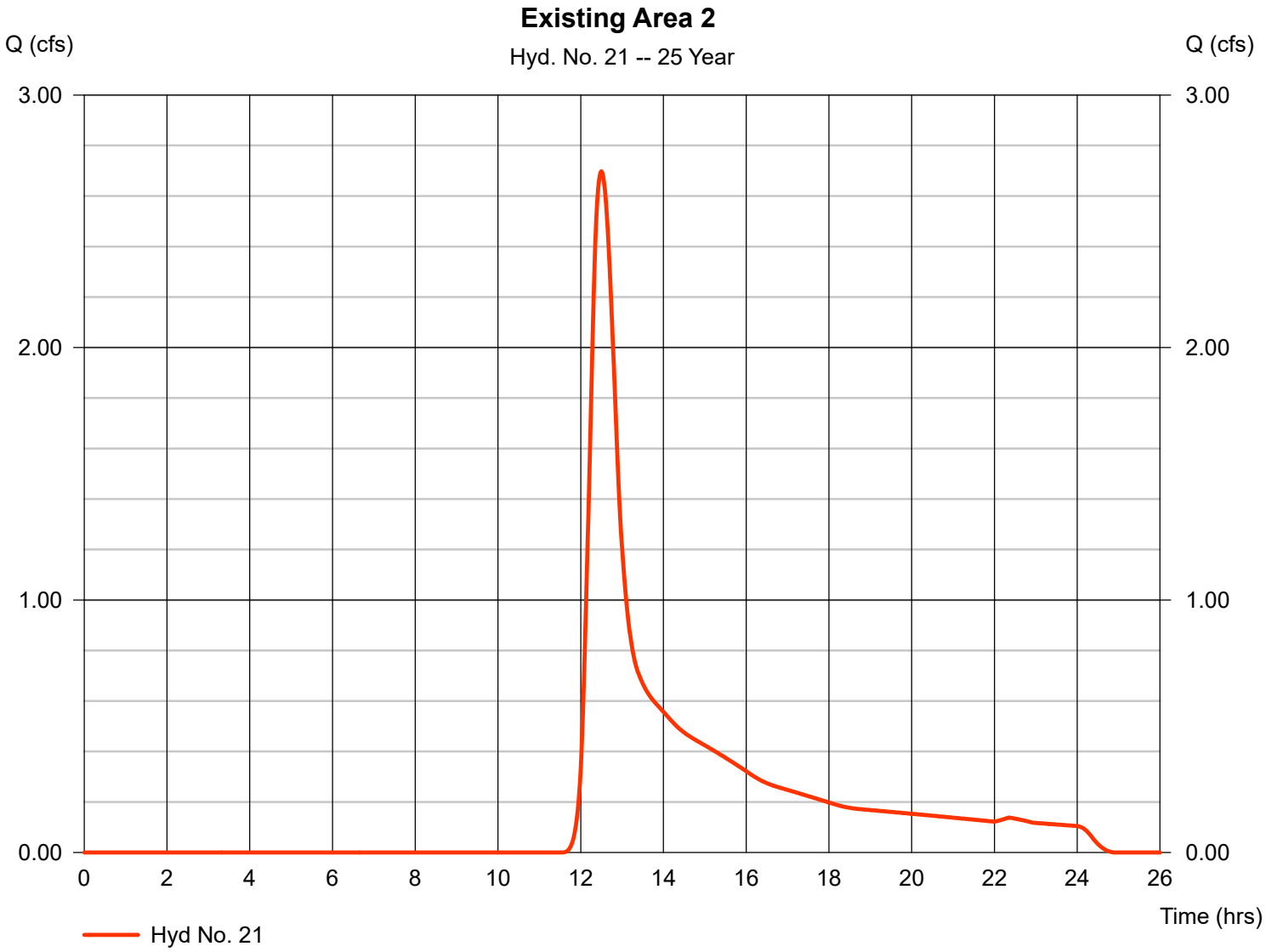
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 21

Existing Area 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.698 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.50 hrs
Time interval	=	1 min	Hyd. volume	=	17,634 cuft
Drainage area	=	3.920 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	35.00 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



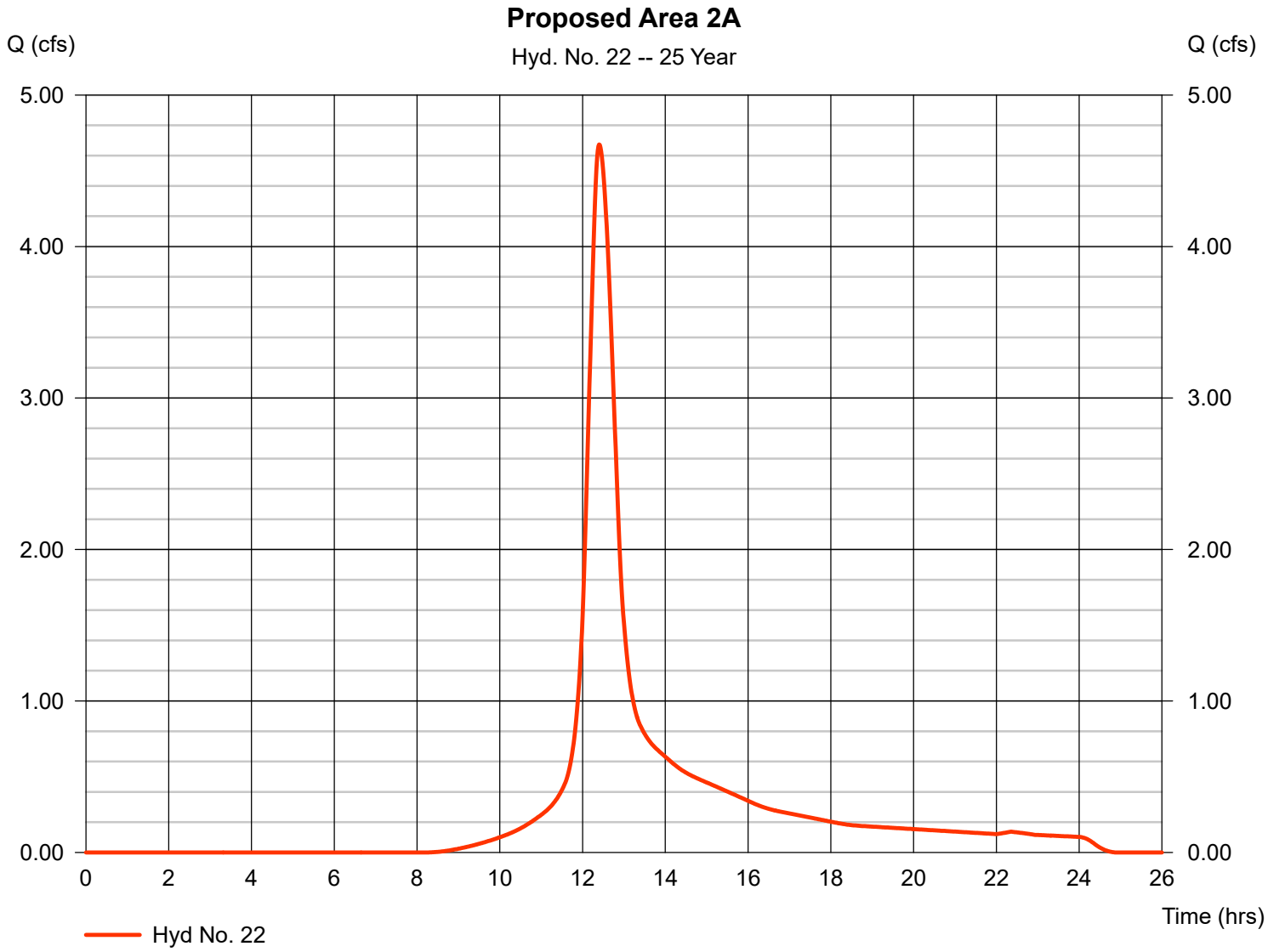
Hydrograph Report

Hyd. No. 22

Proposed Area 2A

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.674 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.40 hrs
Time interval	=	1 min	Hyd. volume	=	26,262 cuft
Drainage area	=	2.450 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	34.80 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.090 x 98) + (0.870 x 61) + (0.490 x 55)] / 2.450



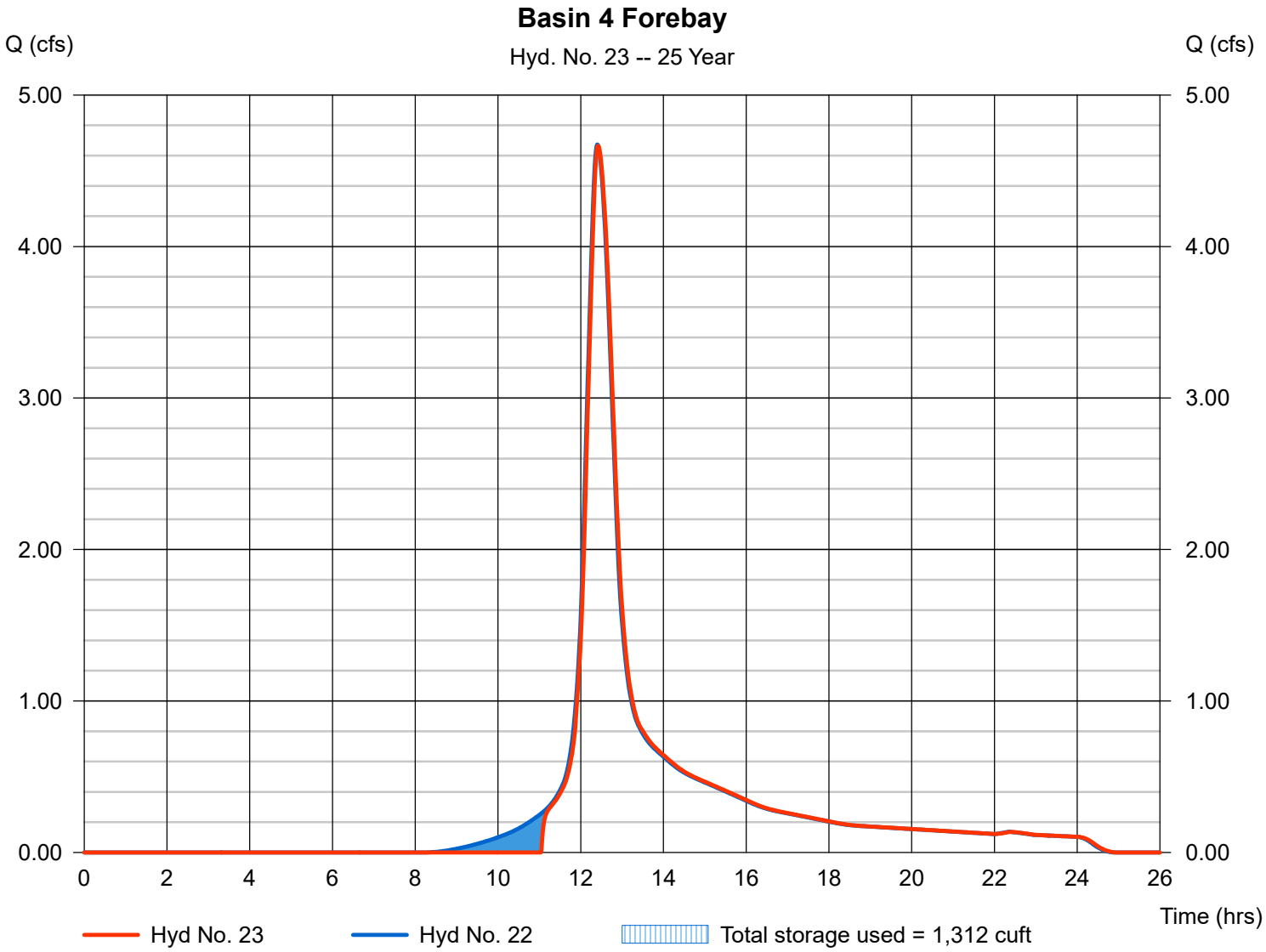
Hydrograph Report

Hyd. No. 23

Basin 4 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	4.666 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.42 hrs
Time interval	=	1 min	Hyd. volume	=	25,388 cuft
Inflow hyd. No.	=	22 - Proposed Area 2A	Max. Elevation	=	53.32 ft
Reservoir name	=	Basin 4 Forebay	Max. Storage	=	1,312 cuft

Storage Indication method used.



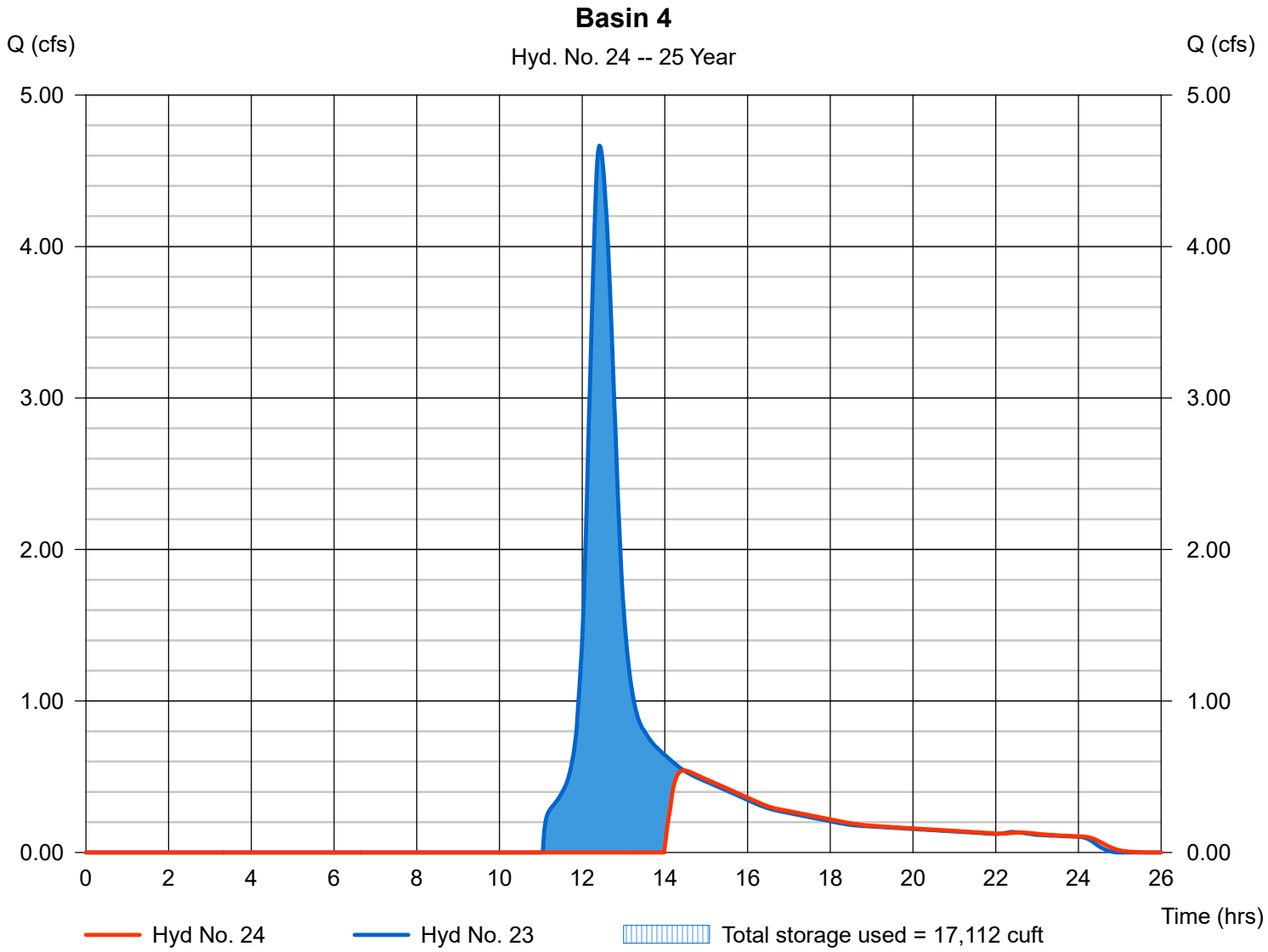
Hydrograph Report

Hyd. No. 24

Basin 4

Hydrograph type	=	Reservoir	Peak discharge	=	0.541 cfs
Storm frequency	=	25 yrs	Time to peak	=	14.47 hrs
Time interval	=	1 min	Hyd. volume	=	8,632 cuft
Inflow hyd. No.	=	23 - Basin 4 Forebay	Max. Elevation	=	56.57 ft
Reservoir name	=	Basin 4	Max. Storage	=	17,112 cuft

Storage Indication method used.



Hydrograph Report

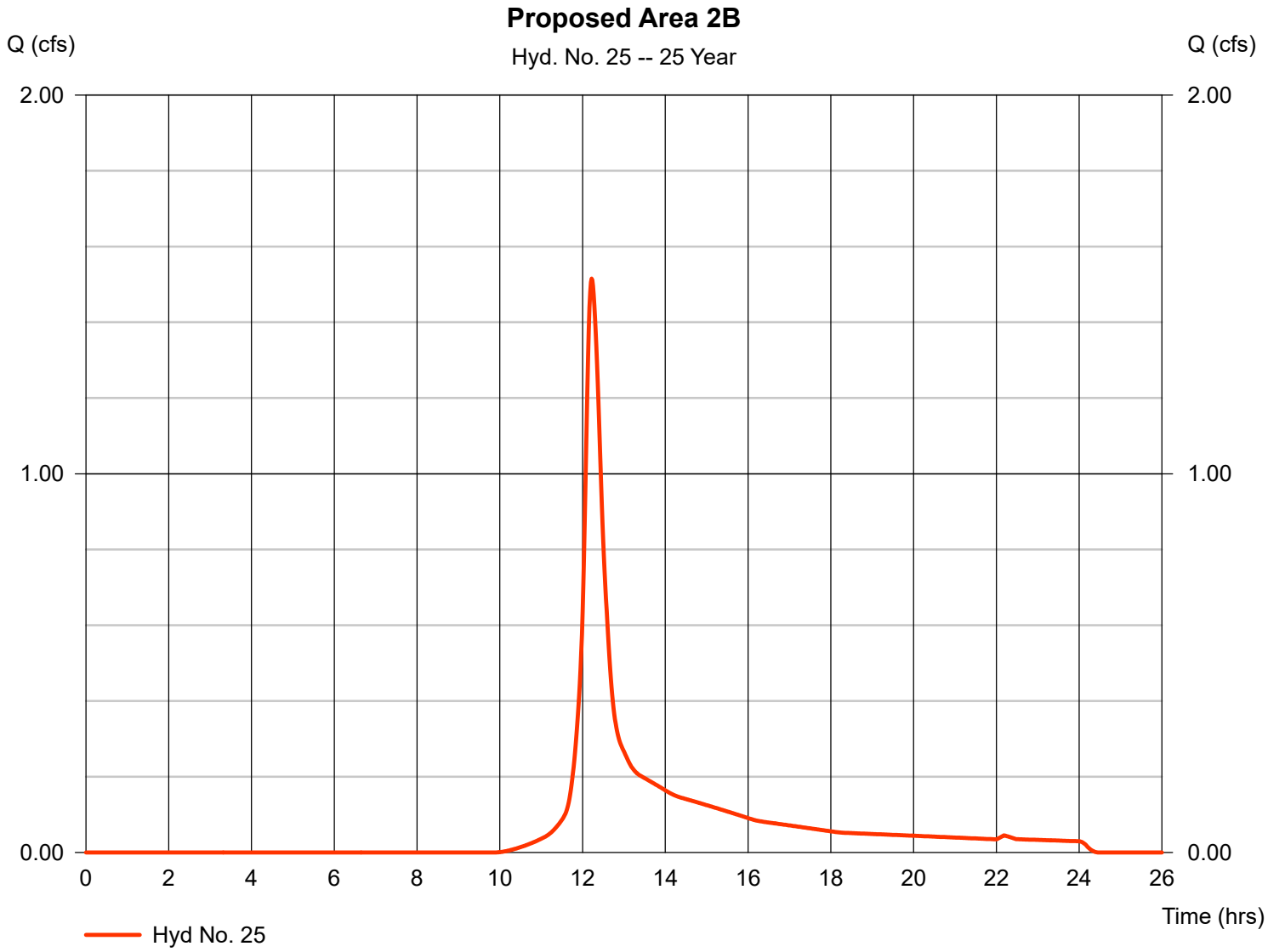
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 25

Proposed Area 2B

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.515 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.22 hrs
Time interval	=	1 min	Hyd. volume	=	6,587 cuft
Drainage area	=	0.850 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.10 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 98) + (0.640 x 61) + (0.060 x 55)] / 0.850



Hydrograph Report

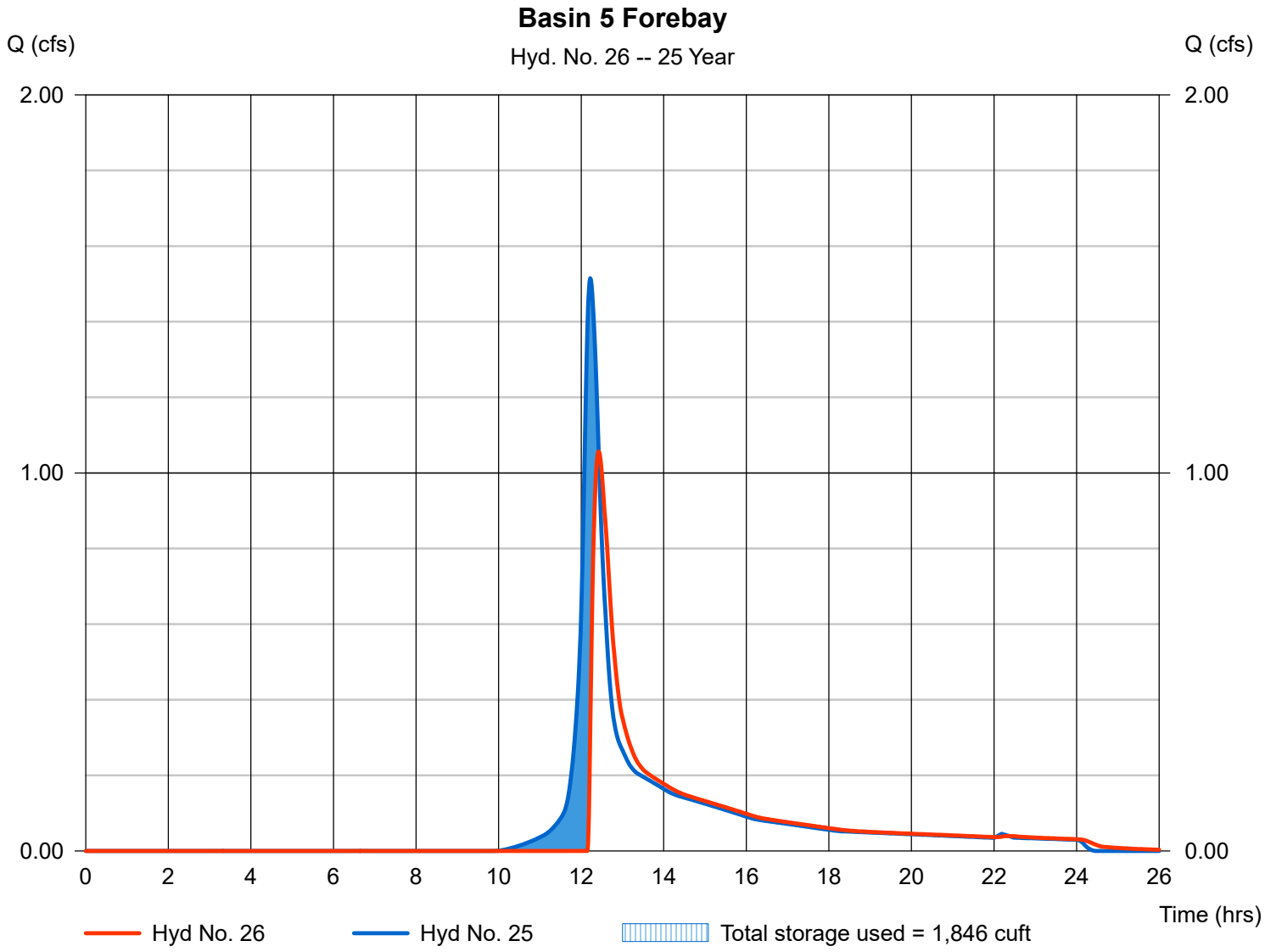
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 26

Basin 5 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	1.057 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.42 hrs
Time interval	=	1 min	Hyd. volume	=	5,415 cuft
Inflow hyd. No.	=	25 - Proposed Area 2B	Max. Elevation	=	66.87 ft
Reservoir name	=	Basin 5 Forebay	Max. Storage	=	1,846 cuft

Storage Indication method used.



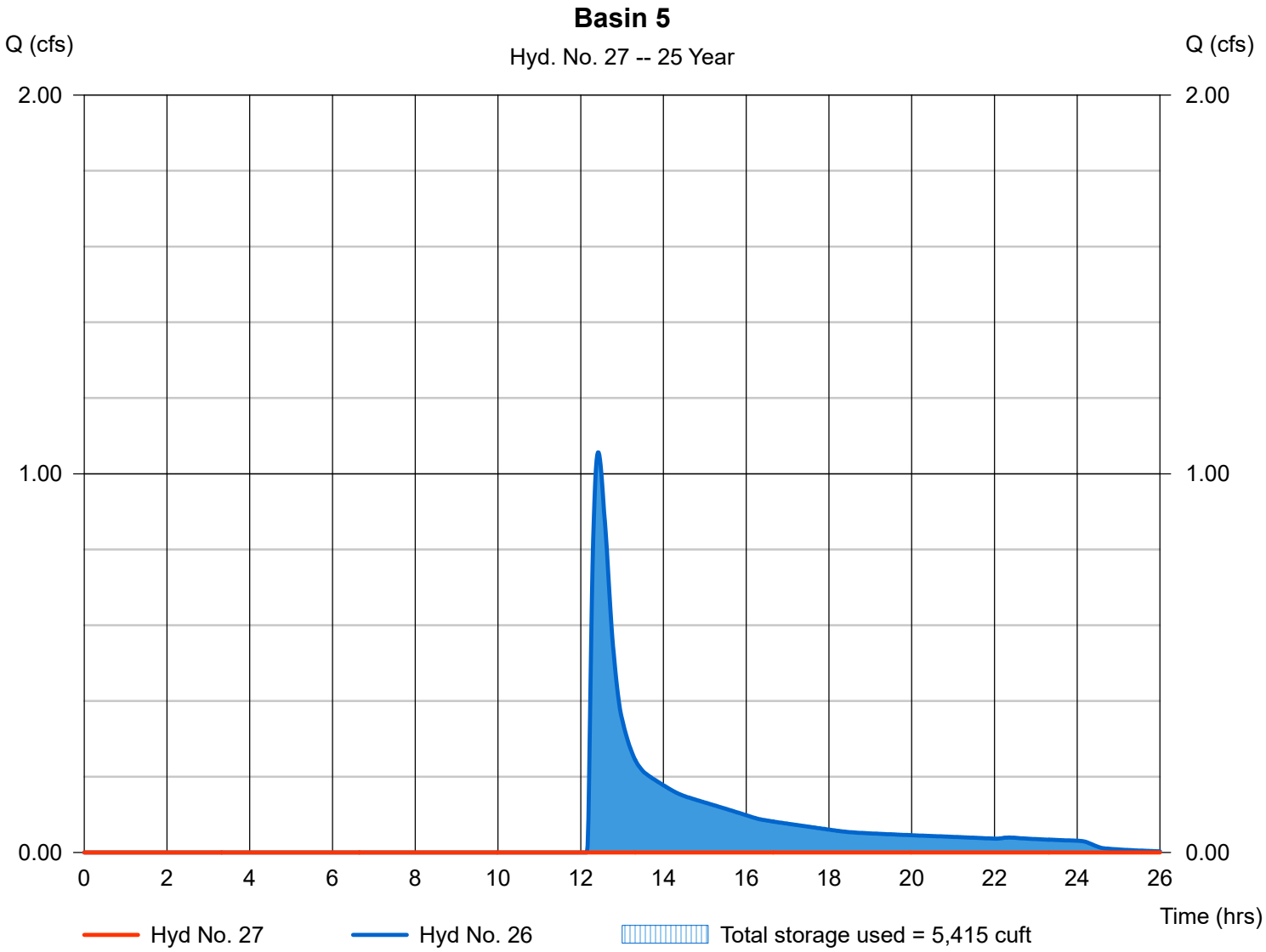
Hydrograph Report

Hyd. No. 27

Basin 5

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	25 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	26 - Basin 5 Forebay	Max. Elevation	=	66.09 ft
Reservoir name	=	Basin 5	Max. Storage	=	5,415 cuft

Storage Indication method used.



Hydrograph Report

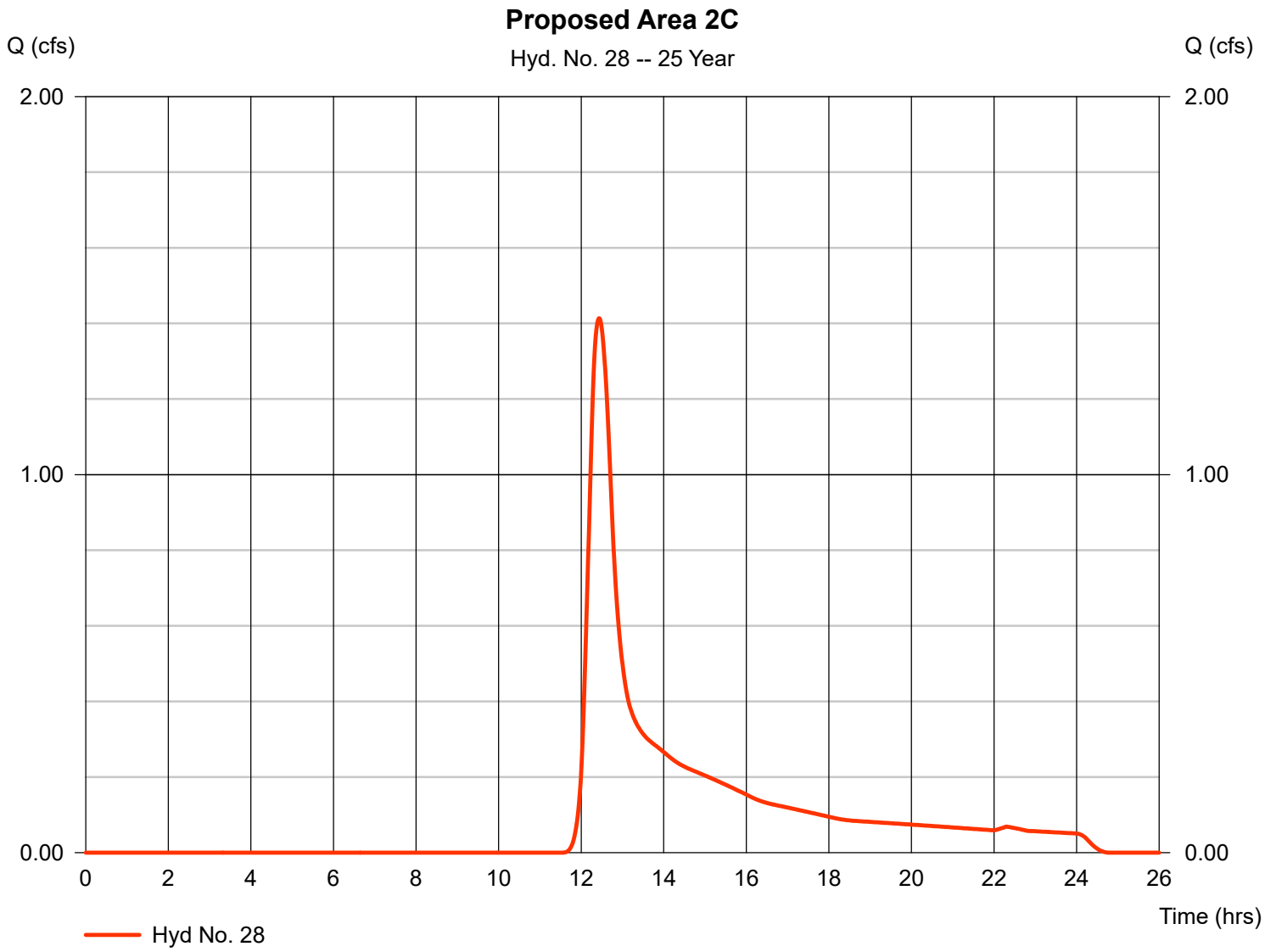
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 28

Proposed Area 2C

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.414 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.43 hrs
Time interval	=	1 min	Hyd. volume	=	8,592 cuft
Drainage area	=	1.910 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	29.00 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.850 x 55) + (0.060 x 61)] / 1.910

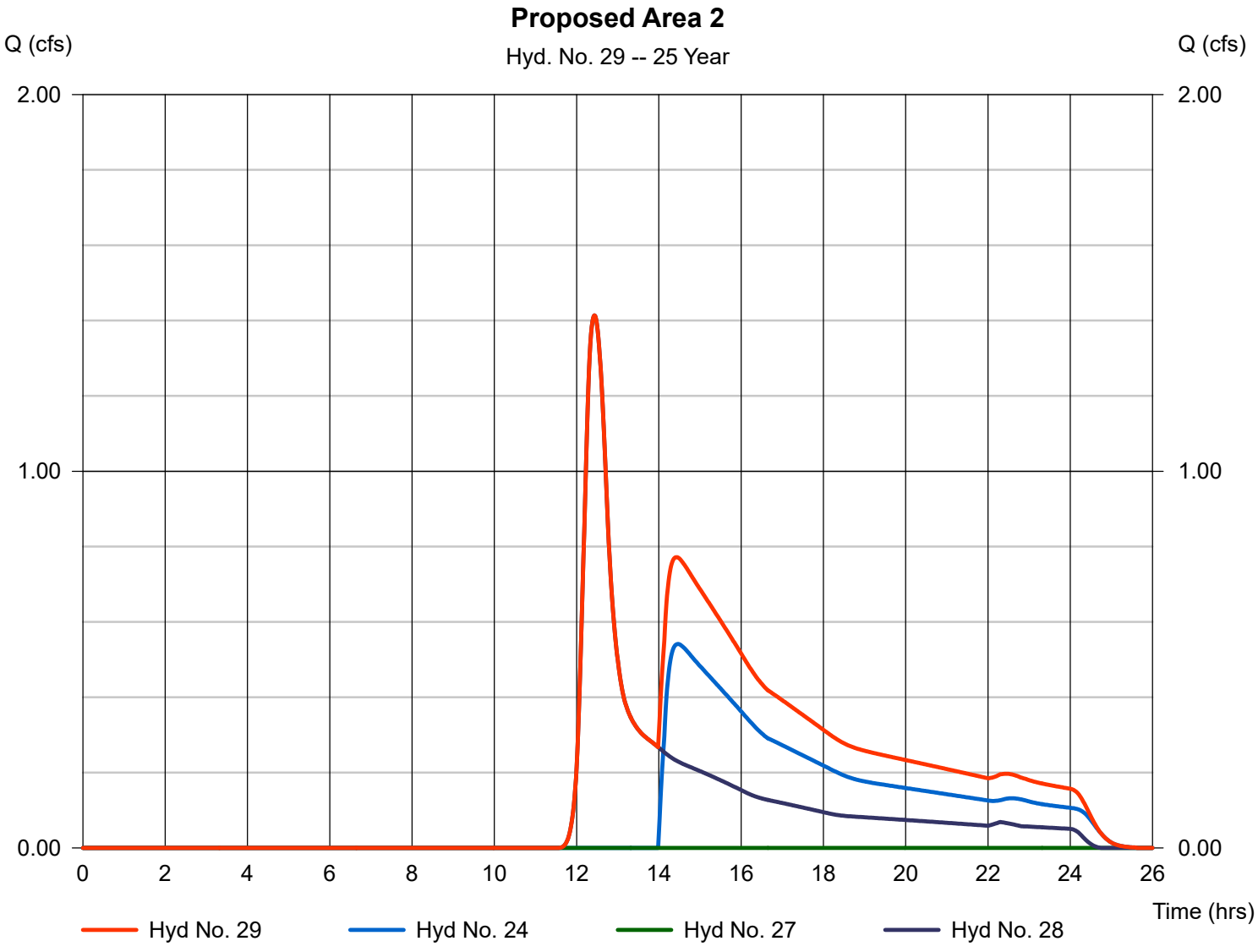


Hydrograph Report

Hyd. No. 29

Proposed Area 2

Hydrograph type	= Combine	Peak discharge	= 1.414 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.43 hrs
Time interval	= 1 min	Hyd. volume	= 17,224 cuft
Inflow hyds.	= 24, 27, 28	Contrib. drain. area	= 1.910 ac

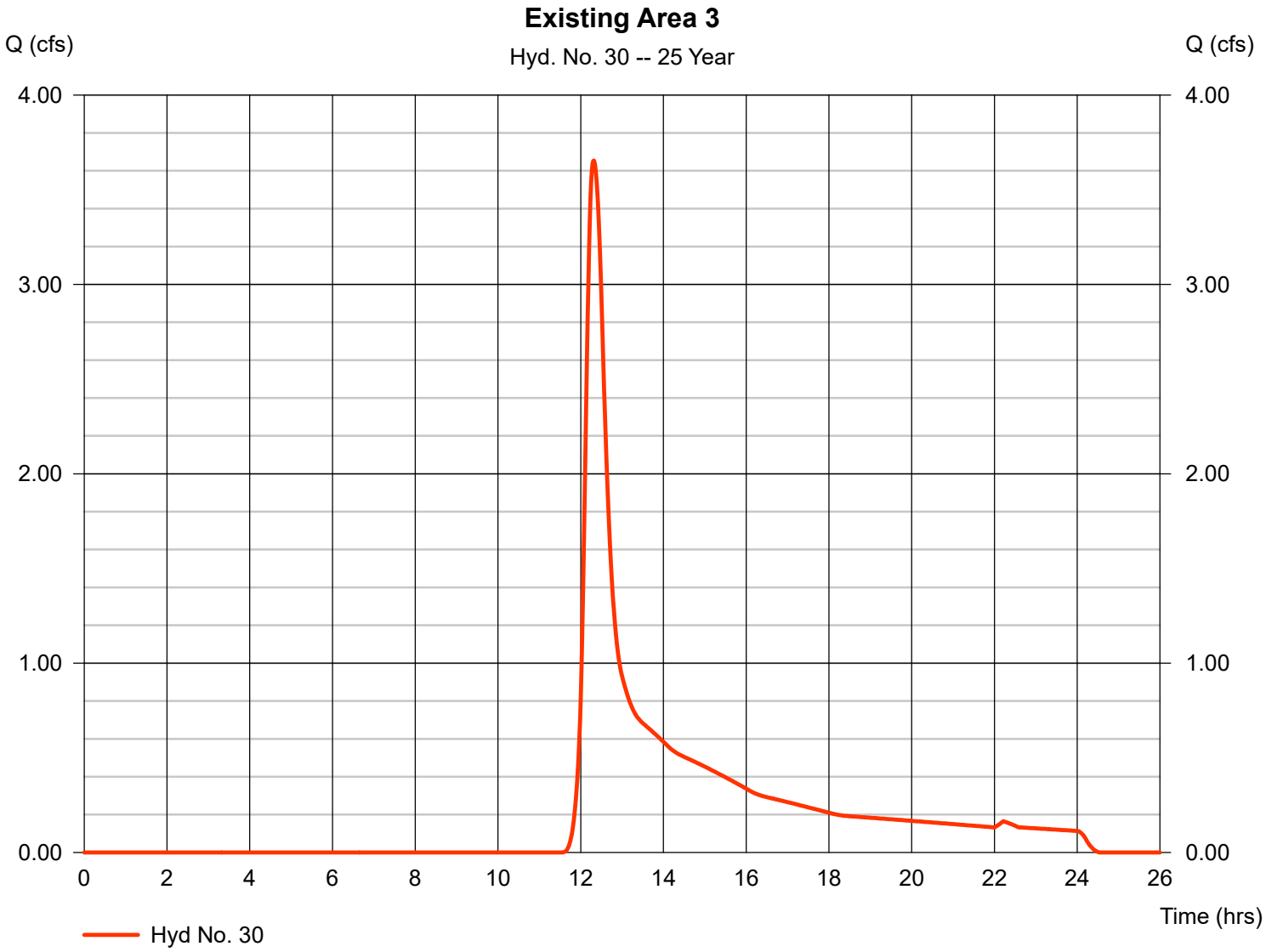


Hydrograph Report

Hyd. No. 30

Existing Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.654 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.32 hrs
Time interval	=	1 min	Hyd. volume	=	19,530 cuft
Drainage area	=	4.300 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

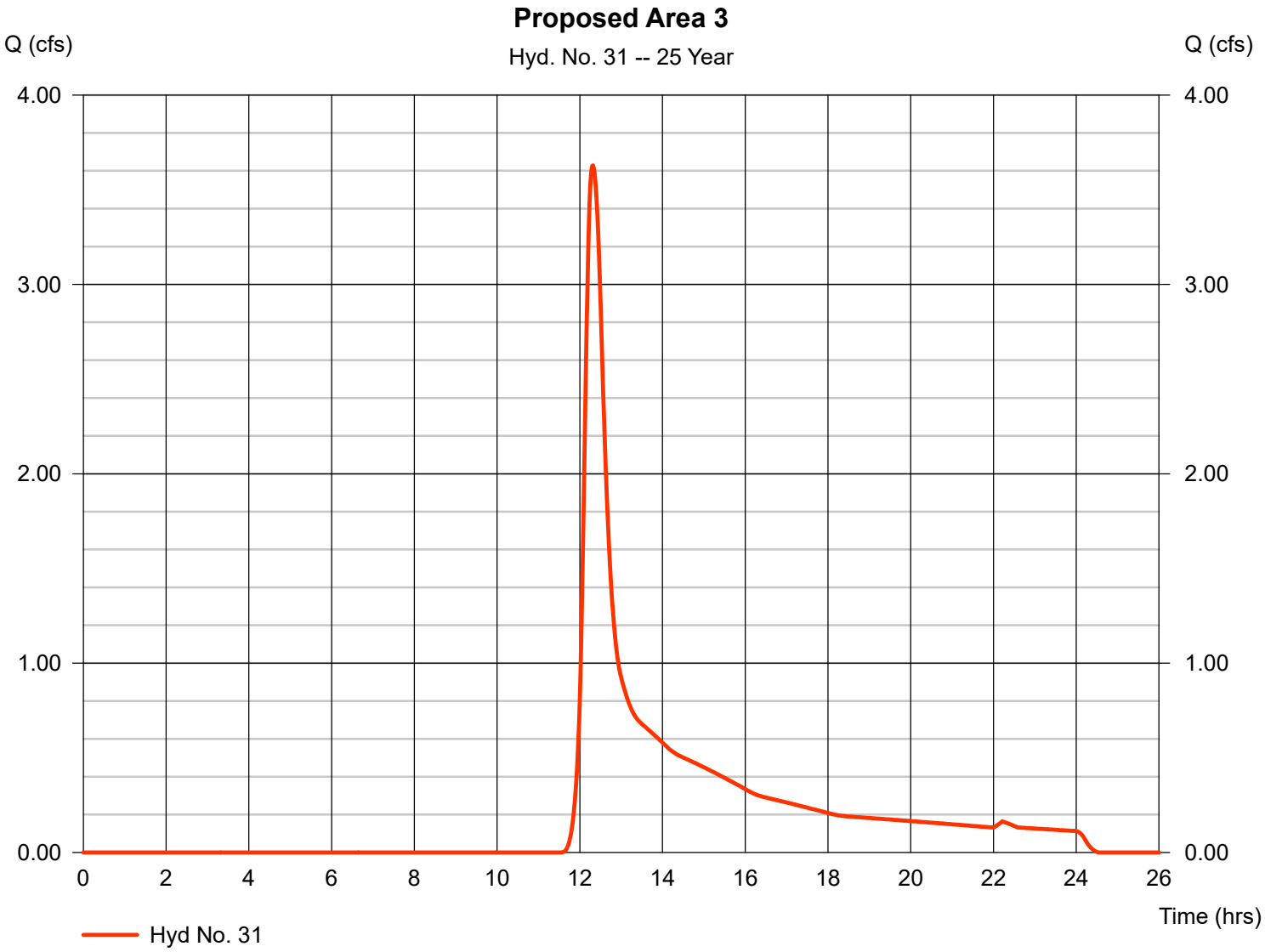


Hydrograph Report

Hyd. No. 31

Proposed Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.628 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.32 hrs
Time interval	=	1 min	Hyd. volume	=	19,394 cuft
Drainage area	=	4.270 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	5.50 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	11.84	1	755	82,407	------	------	------	Existing Area 1
2	Rational	2.197	1	5	659	------	------	------	Building 1
3	Reservoir	0.000	1	n/a	0	2	28.77	659	Leaching Gallery 1
4	SCS Runoff	2.197	1	739	10,974	------	------	------	Proposed Area 1A
5	Reservoir	0.303	1	814	4,961	4	27.73	6,503	Basin 1 Forebay
6	Reservoir	0.000	1	n/a	0	5	27.01	4,961	Basin 1
7	SCS Runoff	4.064	1	772	36,823	------	------	------	Proposed Area 1B
8	Rational	2.549	1	5	765	------	------	------	Building 2
9	Reservoir	0.000	1	n/a	0	8	30.16	765	Leaching Gallery 2
10	Rational	2.109	1	5	633	------	------	------	Building 3
11	Reservoir	0.000	1	n/a	0	10	34.91	633	Leaching Gallery 3
12	SCS Runoff	5.263	1	753	35,037	------	------	------	Proposed Area 1C
13	Reservoir	5.262	1	754	34,664	12	23.34	598	Basin 2 Forebay
14	Reservoir	2.883	1	786	24,548	13	26.95	14,544	Basin 2
15	Rational	1.406	1	5	422	------	------	------	Building 4
16	Reservoir	0.000	1	n/a	0	15	40.58	422	Leaching Gallery 4
17	SCS Runoff	5.929	1	735	27,273	------	------	------	Proposed Area 1D
18	Reservoir	5.931	1	735	27,093	17	33.37	304	Basin 3 Forebay
19	Reservoir	1.082	1	776	11,440	18	36.62	16,117	Basin 3
20	Combine	7.784	1	780	72,811	6, 7, 14, 19	------	------	Proposed Area 1
21	SCS Runoff	3.729	1	749	23,252	------	------	------	Existing Area 2
22	SCS Runoff	5.630	1	744	31,601	------	------	------	Proposed Area 2A
23	Reservoir	5.620	1	745	30,728	22	53.36	1,370	Basin 4 Forebay
24	Reservoir	1.247	1	793	13,971	23	56.63	17,389	Basin 4
25	SCS Runoff	1.903	1	733	8,181	------	------	------	Proposed Area 2B
26	Reservoir	1.439	1	743	7,009	25	67.07	2,066	Basin 5 Forebay
27	Reservoir	0.039	1	1410	272	26	66.51	6,761	Basin 5
28	SCS Runoff	1.953	1	745	11,329	------	------	------	Proposed Area 2C
29	Combine	1.953	1	745	25,572	24, 27, 28	------	------	Proposed Area 2
30	SCS Runoff	5.060	1	737	25,751	------	------	------	Existing Area 3
31	SCS Runoff	5.025	1	737	25,572	------	------	------	Proposed Area 3

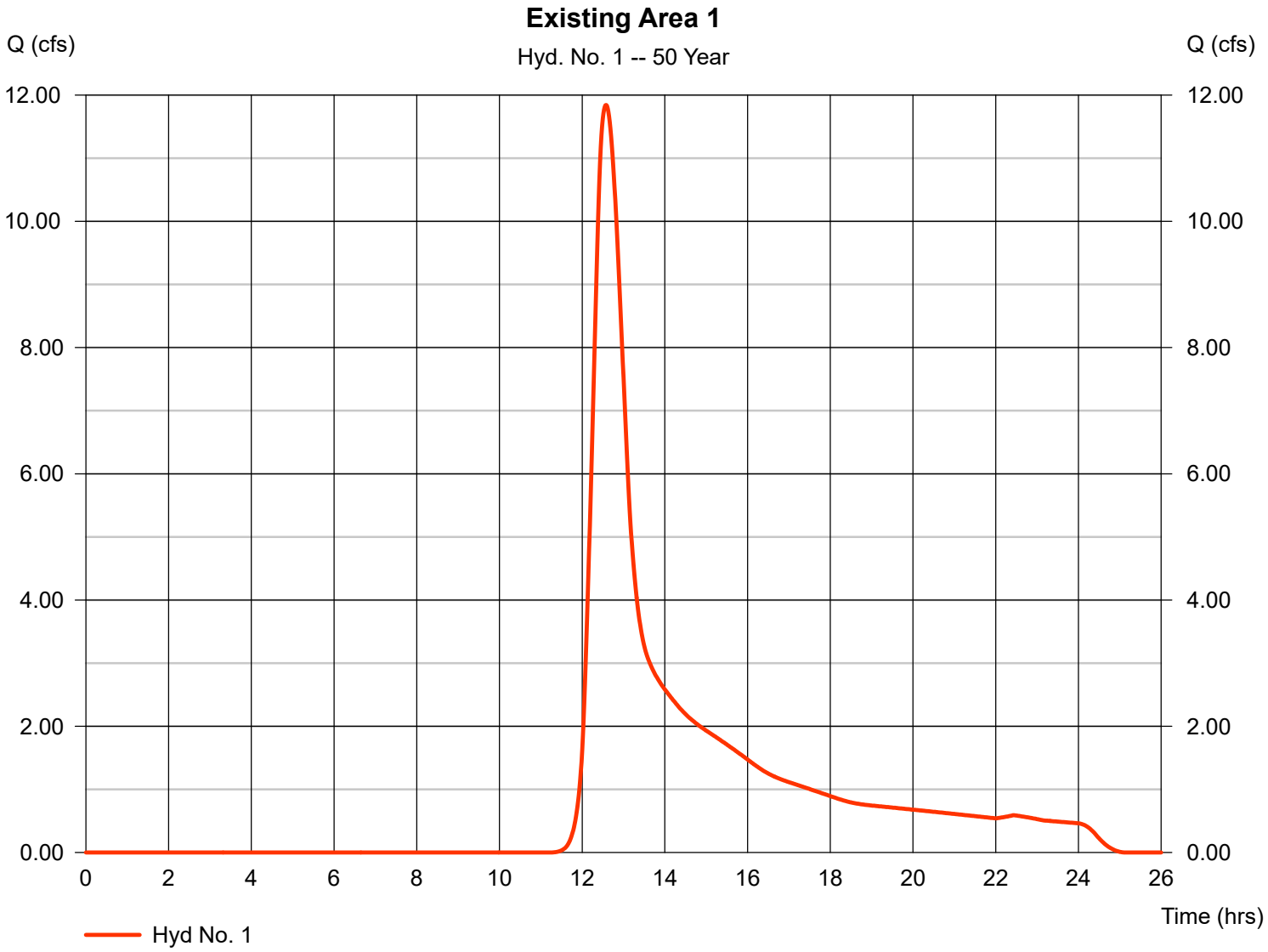
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 1

Existing Area 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.84 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.58 hrs
Time interval	=	1 min	Hyd. volume	=	82,407 cuft
Drainage area	=	13.960 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.30 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



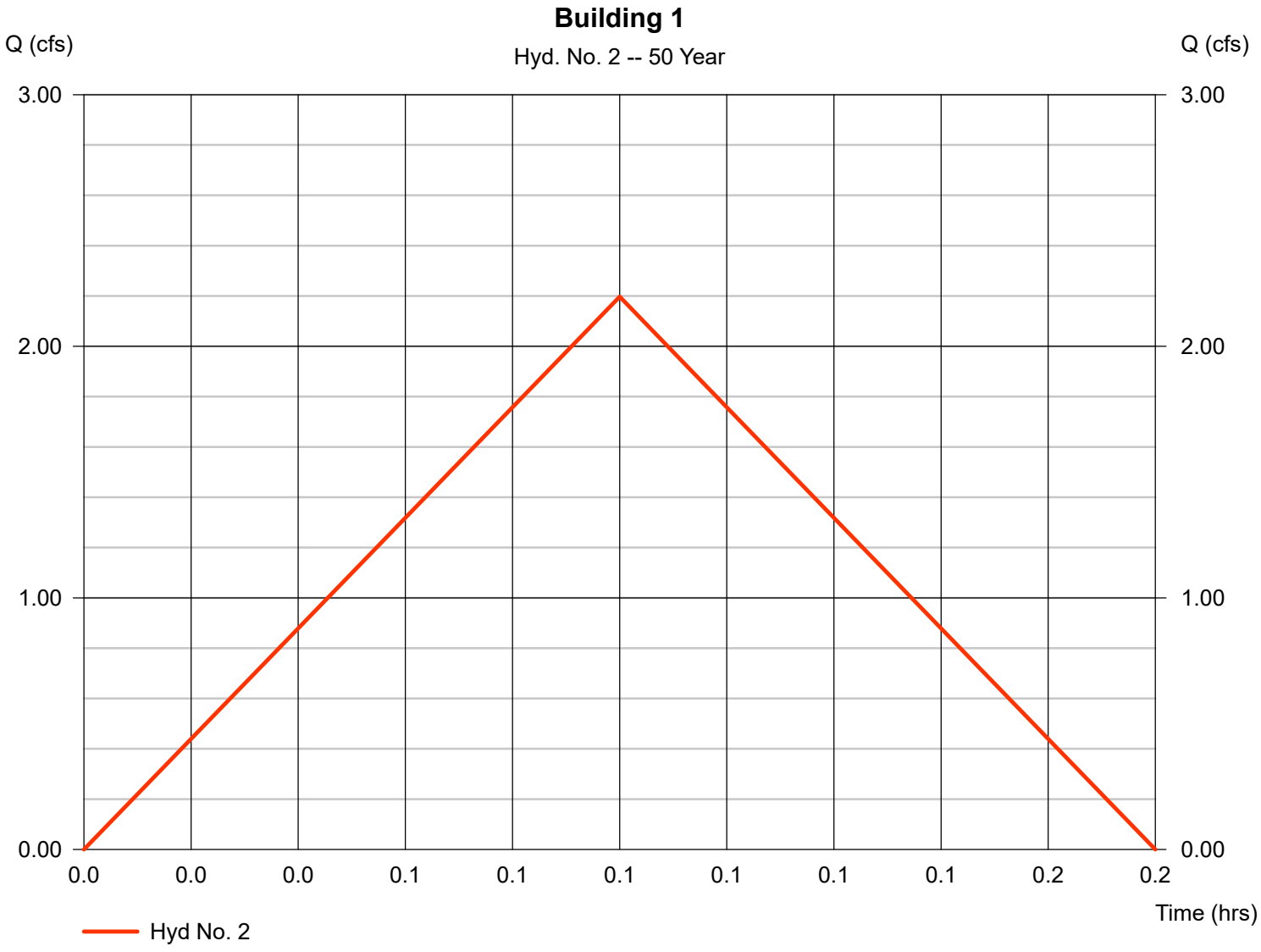
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 2

Building 1

Hydrograph type	=	Rational	Peak discharge	=	2.197 cfs
Storm frequency	=	50 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	659 cuft
Drainage area	=	0.250 ac	Runoff coeff.	=	0.9
Intensity	=	9.765 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



Hydrograph Report

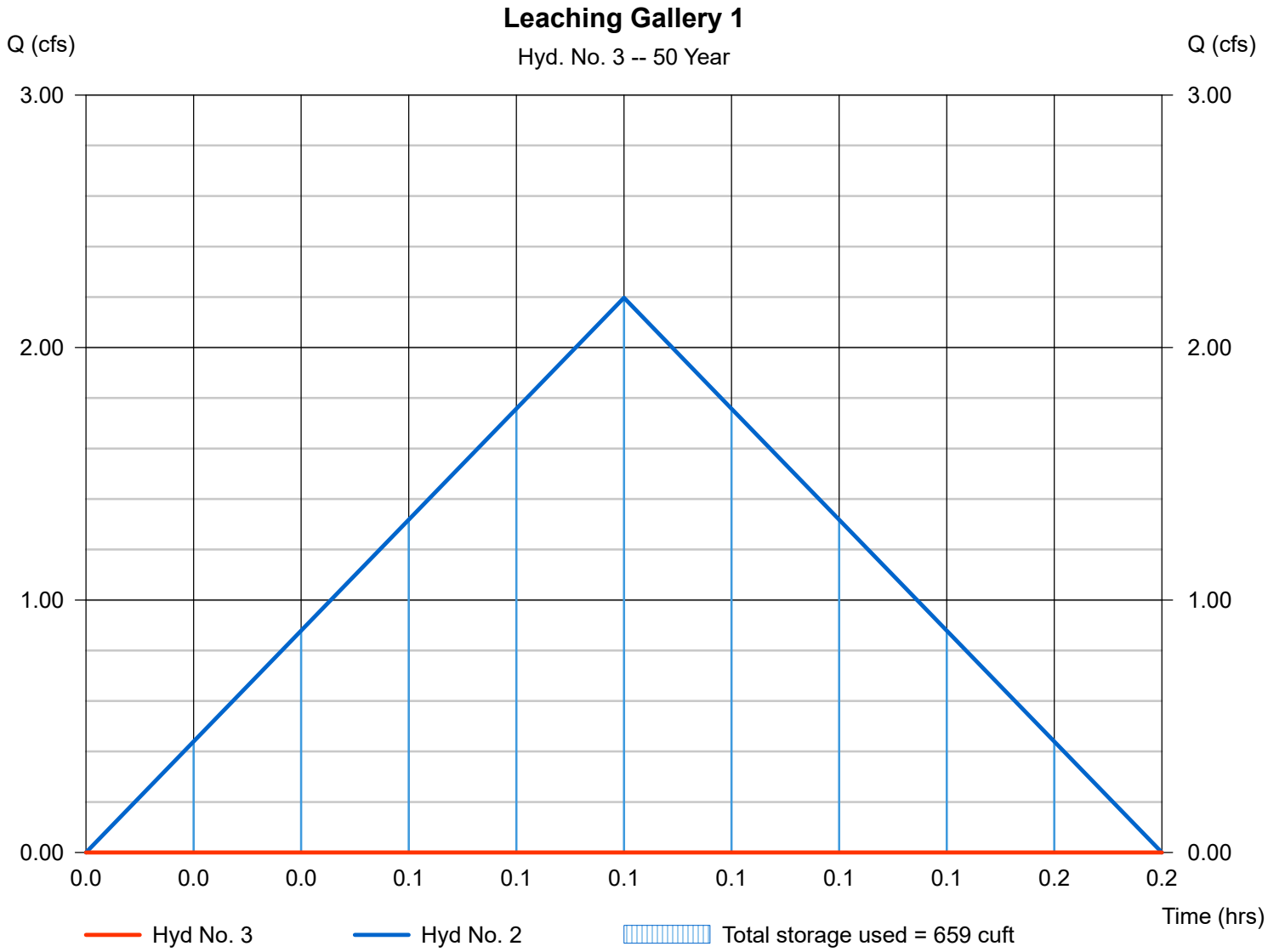
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 3

Leaching Gallery 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	50 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	2 - Building 1	Max. Elevation	=	28.77 ft
Reservoir name	=	Leaching Gallery 1	Max. Storage	=	659 cuft

Storage Indication method used.



Hydrograph Report

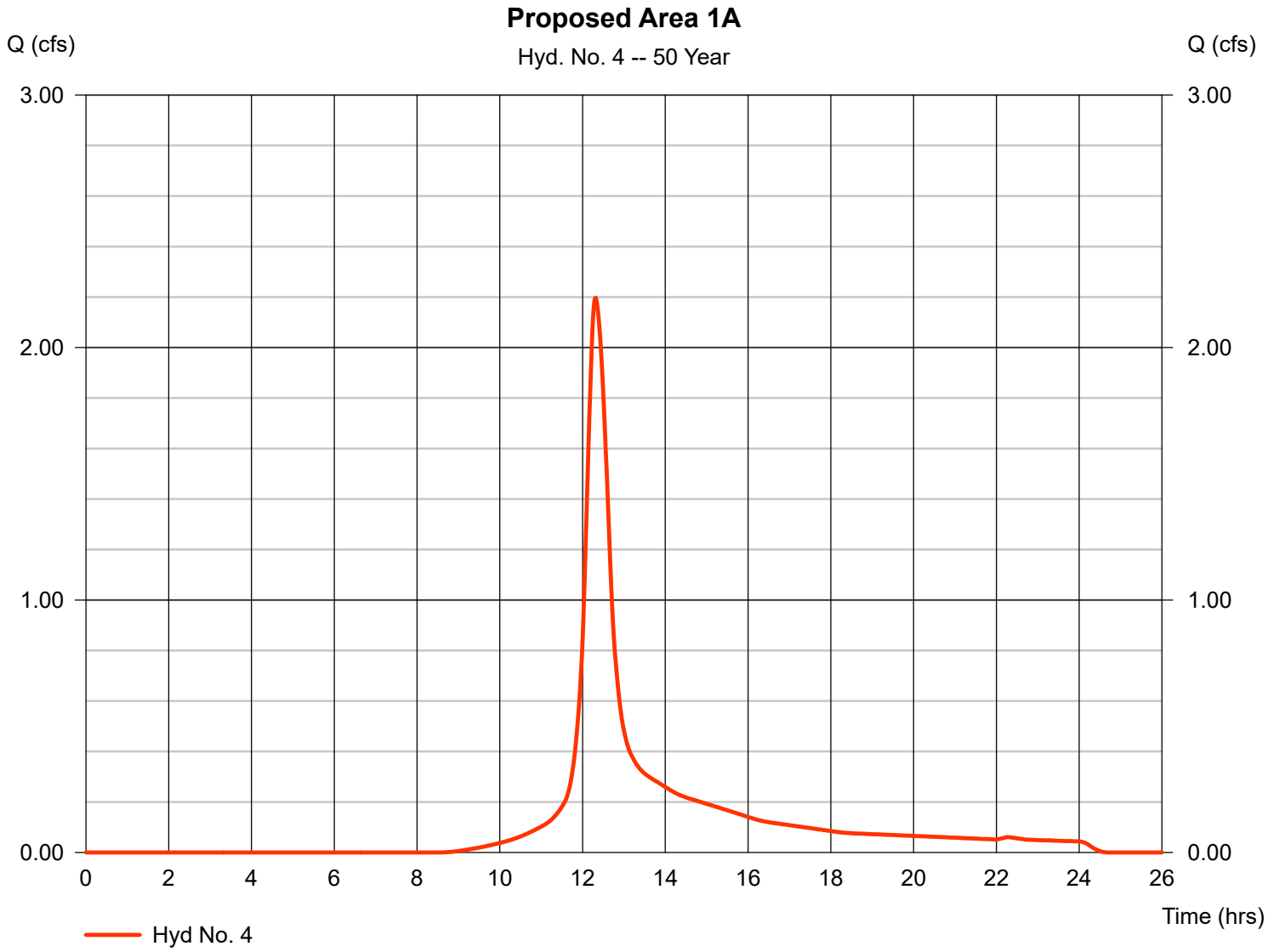
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 4

Proposed Area 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.197 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.32 hrs
Time interval	=	1 min	Hyd. volume	=	10,974 cuft
Drainage area	=	0.950 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.10 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.190 x 55) + (0.450 x 61) + (0.310 x 98)] / 0.950



Hydrograph Report

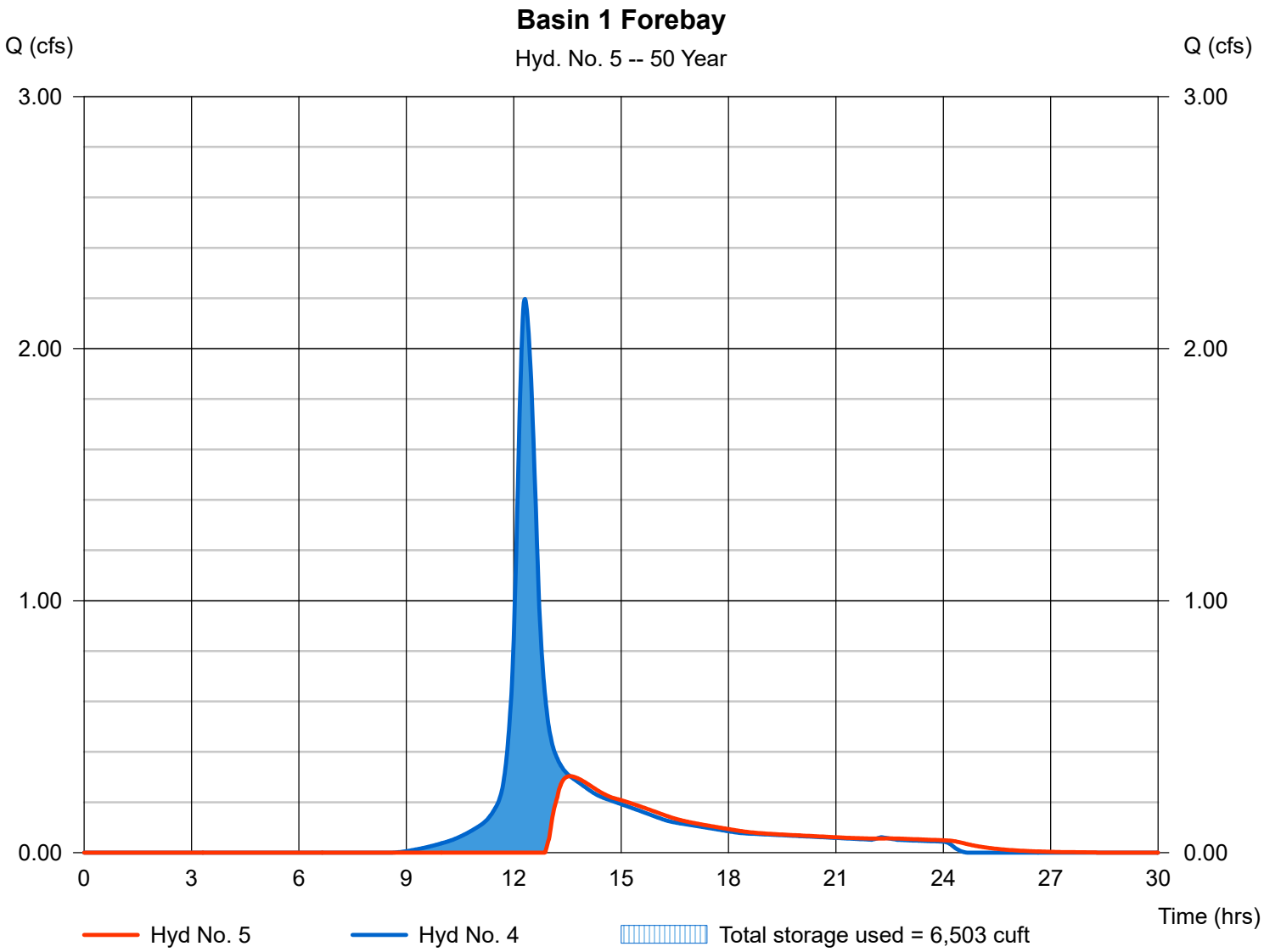
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 5

Basin 1 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	0.303 cfs
Storm frequency	=	50 yrs	Time to peak	=	13.57 hrs
Time interval	=	1 min	Hyd. volume	=	4,961 cuft
Inflow hyd. No.	=	4 - Proposed Area 1A	Max. Elevation	=	27.73 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	6,503 cuft

Storage Indication method used.



Hydrograph Report

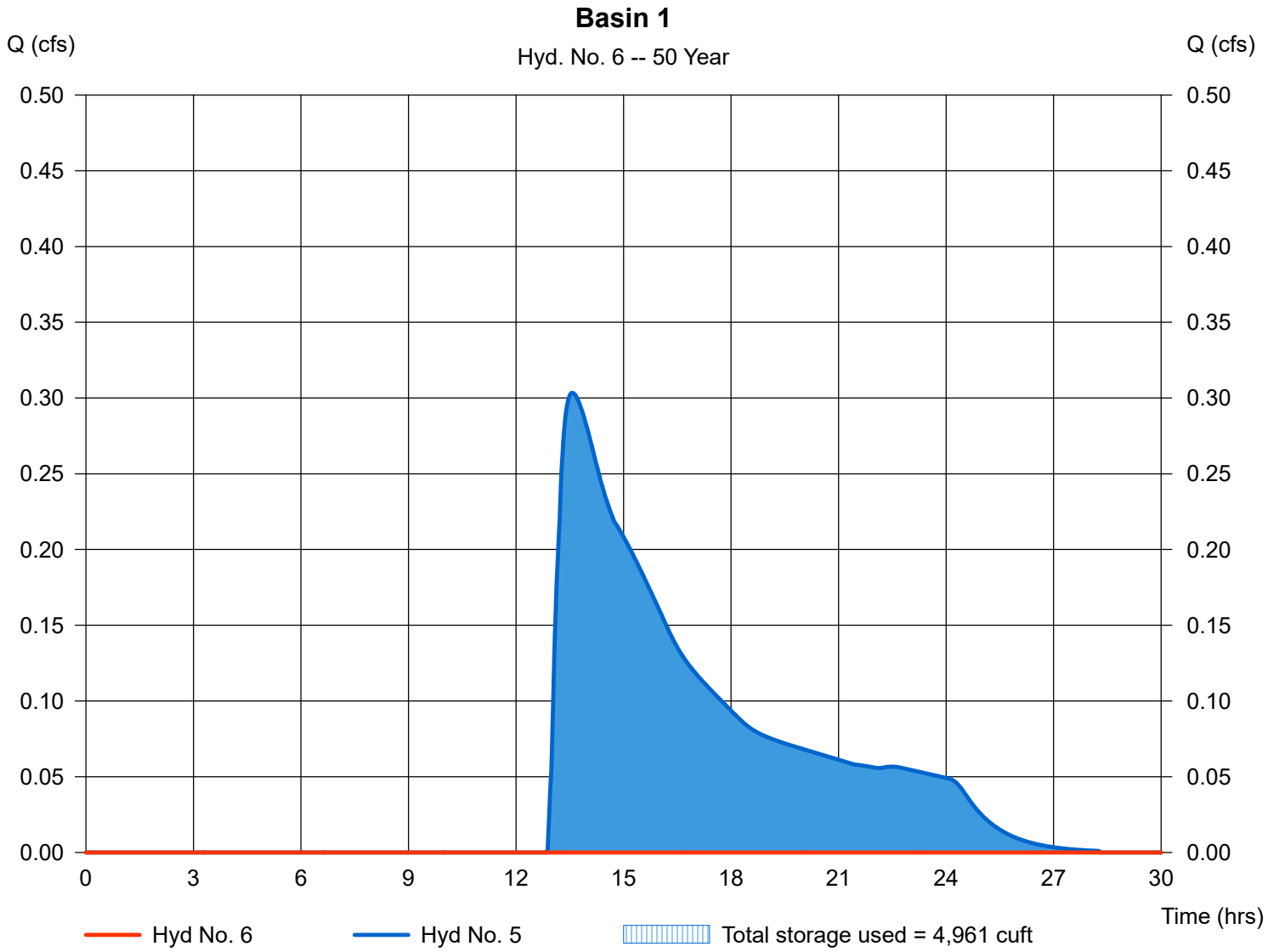
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 6

Basin 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	50 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	5 - Basin 1 Forebay	Max. Elevation	=	27.01 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	4,961 cuft

Storage Indication method used.



Hydrograph Report

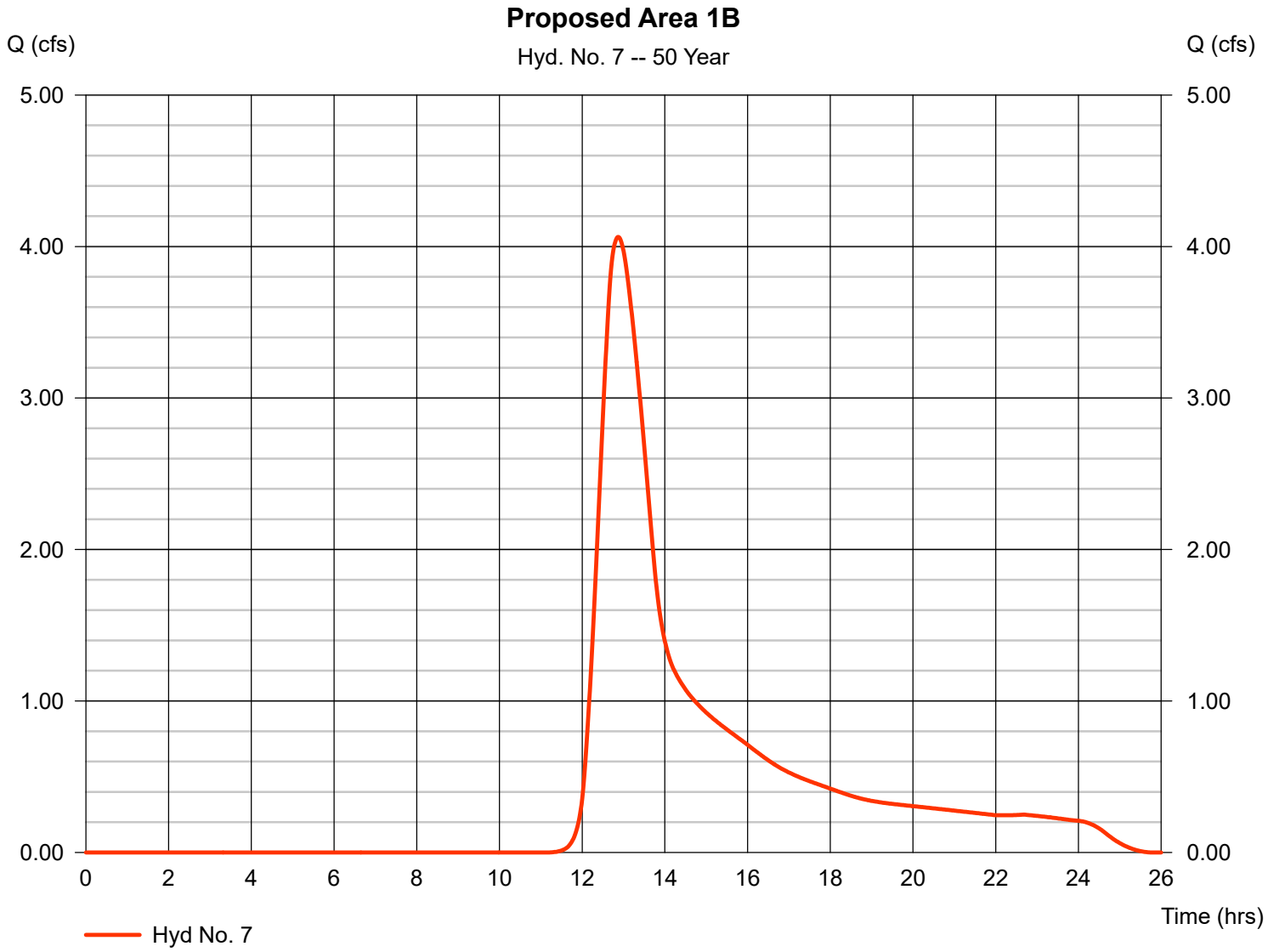
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 7

Proposed Area 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.064 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.87 hrs
Time interval	=	1 min	Hyd. volume	=	36,823 cuft
Drainage area	=	5.930 ac	Curve number	=	56*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	69.10 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.120 x 55) + (0.810 x 61)] / 5.930

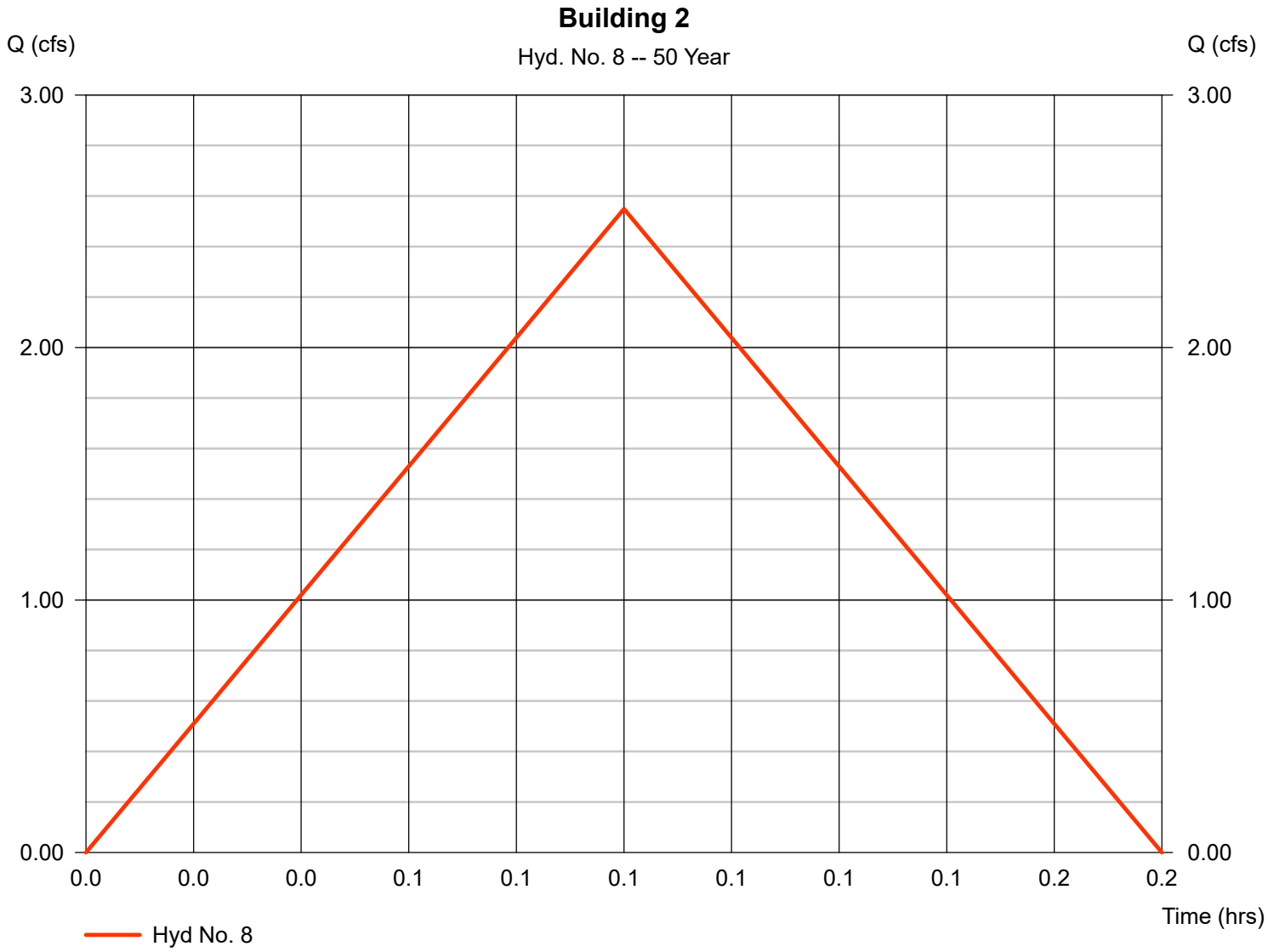


Hydrograph Report

Hyd. No. 8

Building 2

Hydrograph type	=	Rational	Peak discharge	=	2.549 cfs
Storm frequency	=	50 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	765 cuft
Drainage area	=	0.290 ac	Runoff coeff.	=	0.9
Intensity	=	9.765 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



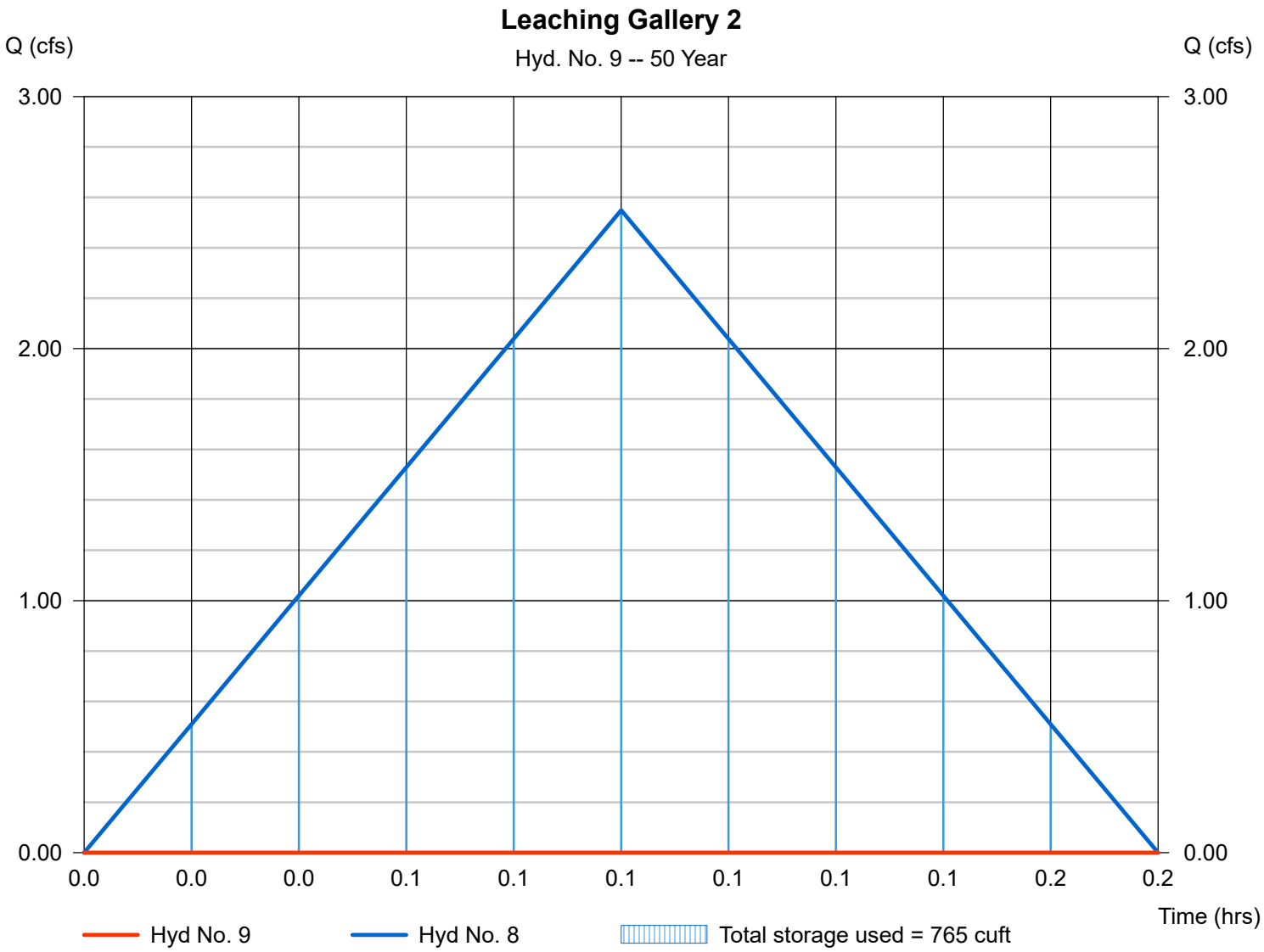
Hydrograph Report

Hyd. No. 9

Leaching Gallery 2

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	50 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	8 - Building 2	Max. Elevation	=	30.16 ft
Reservoir name	=	Leaching Gallery 2	Max. Storage	=	765 cuft

Storage Indication method used.

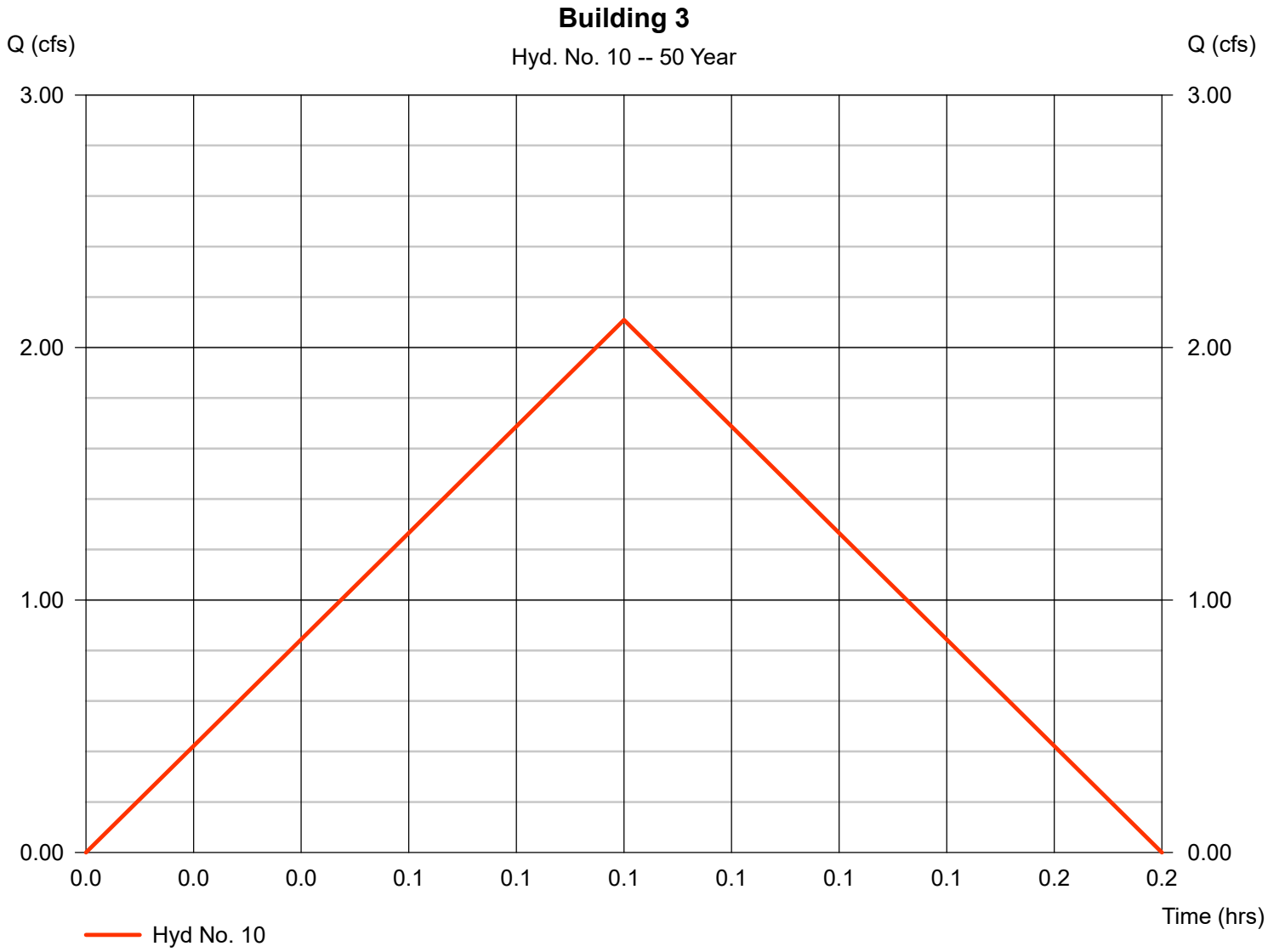


Hydrograph Report

Hyd. No. 10

Building 3

Hydrograph type	=	Rational	Peak discharge	=	2.109 cfs
Storm frequency	=	50 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	633 cuft
Drainage area	=	0.240 ac	Runoff coeff.	=	0.9
Intensity	=	9.765 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



Hydrograph Report

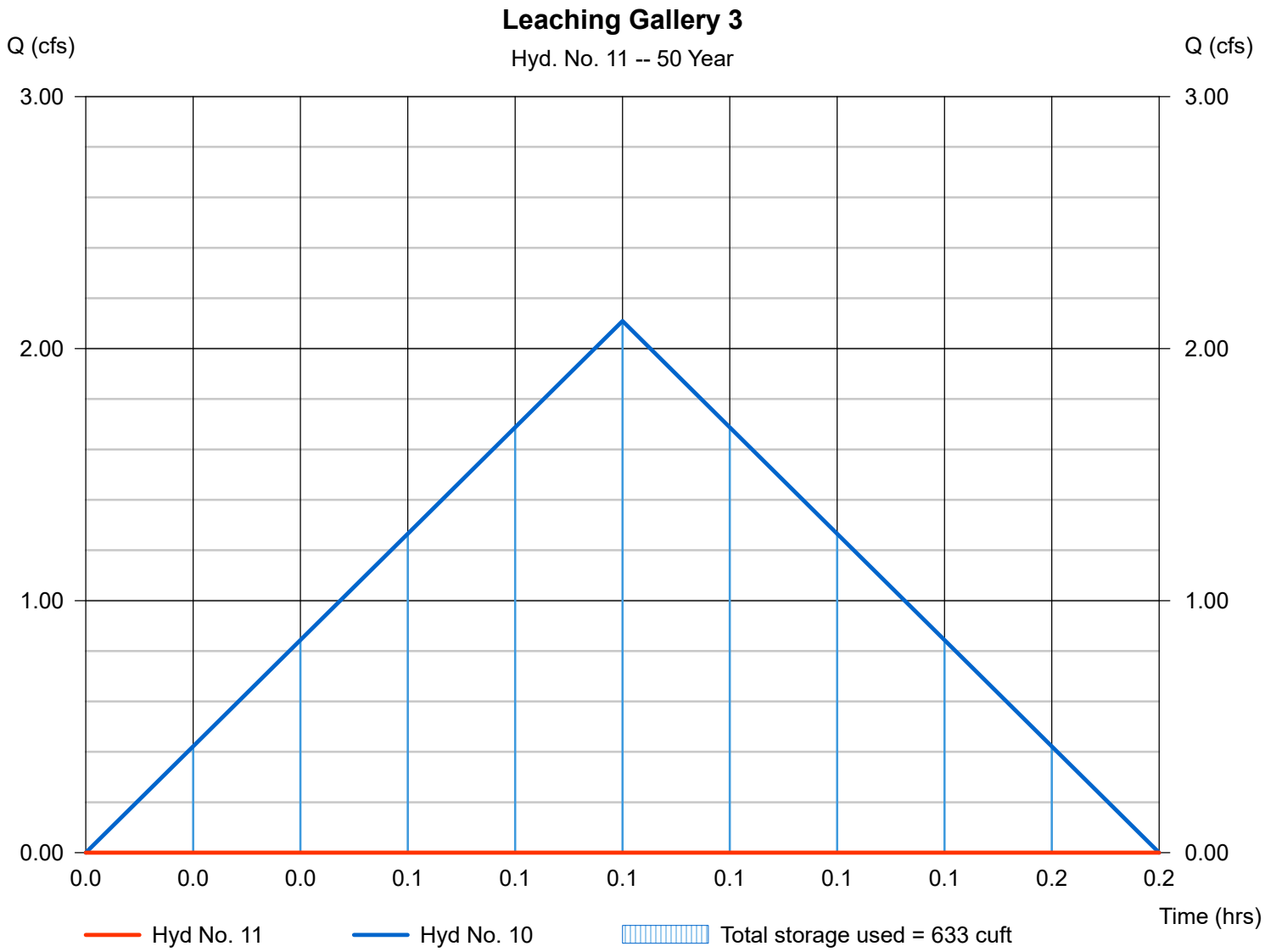
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 11

Leaching Gallery 3

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	50 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	10 - Building 3	Max. Elevation	=	34.91 ft
Reservoir name	=	Leaching Gallery 3	Max. Storage	=	633 cuft

Storage Indication method used.



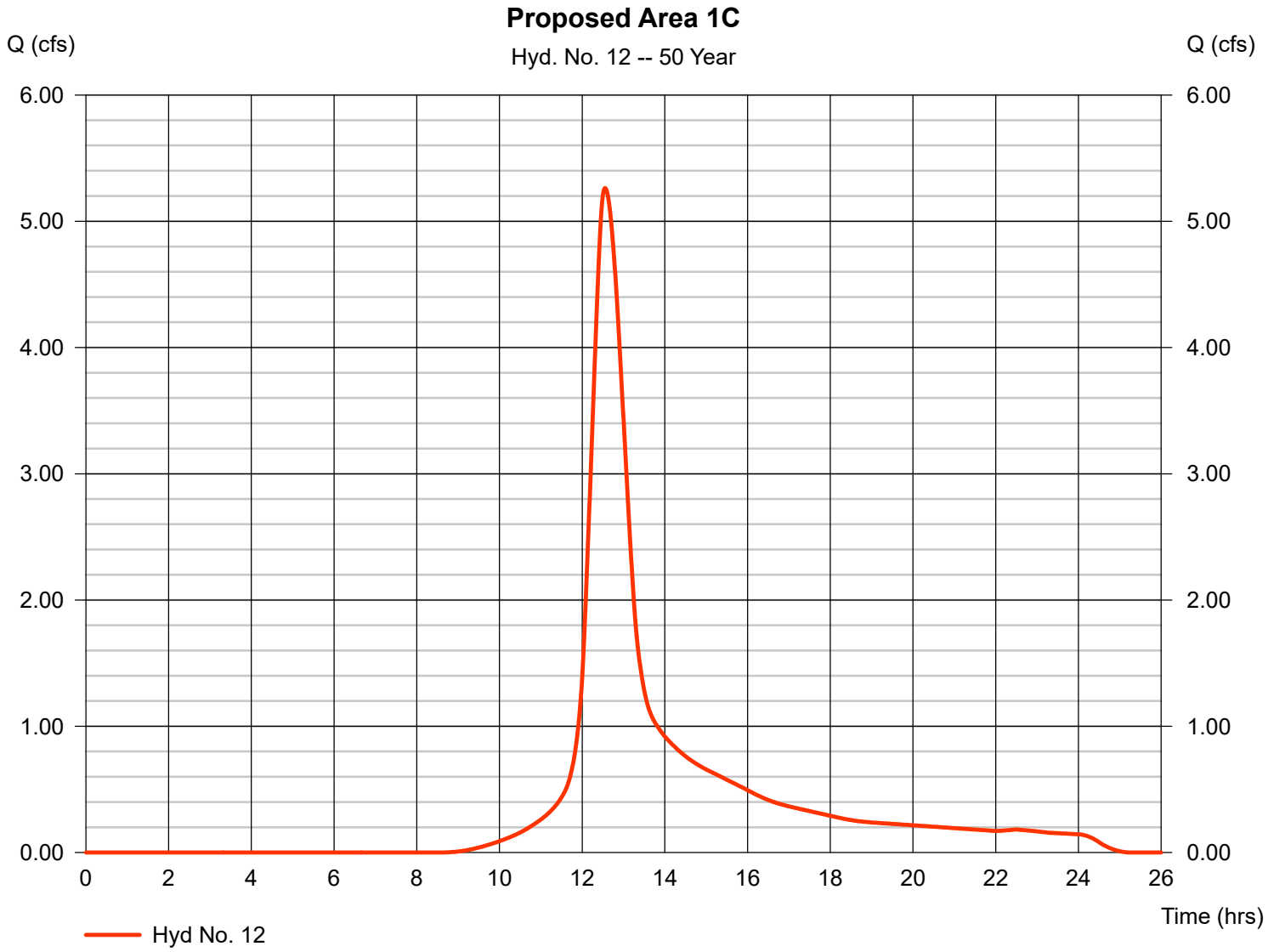
Hydrograph Report

Hyd. No. 12

Proposed Area 1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.263 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.55 hrs
Time interval	=	1 min	Hyd. volume	=	35,037 cuft
Drainage area	=	3.070 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	48.50 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 55) + (1.060 x 98) + (1.270 x 61)] / 3.070



Hydrograph Report

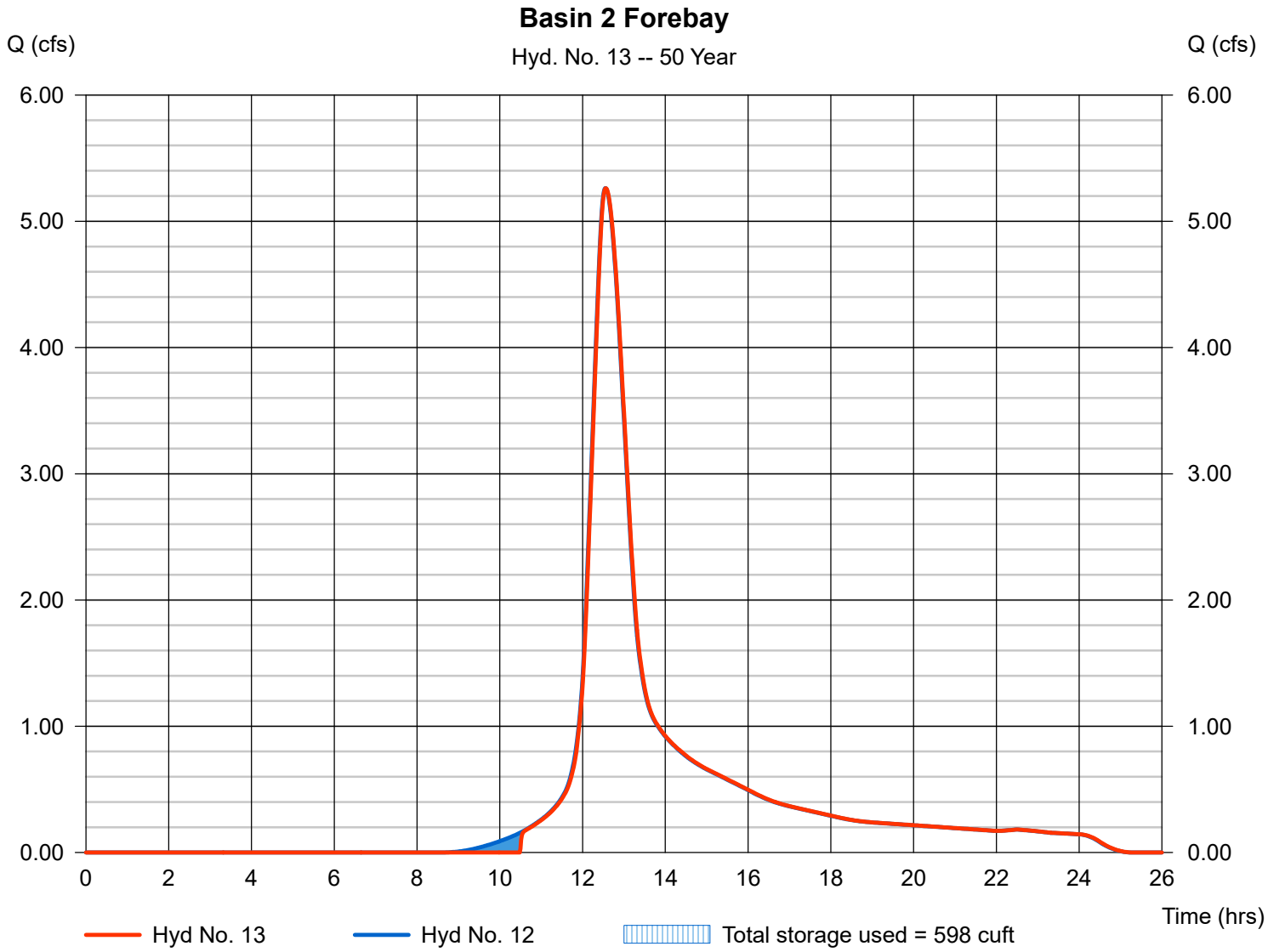
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 13

Basin 2 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	5.262 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.57 hrs
Time interval	=	1 min	Hyd. volume	=	34,664 cuft
Inflow hyd. No.	=	12 - Proposed Area 1C	Max. Elevation	=	23.34 ft
Reservoir name	=	Basin 2 Forebay	Max. Storage	=	598 cuft

Storage Indication method used.



Hydrograph Report

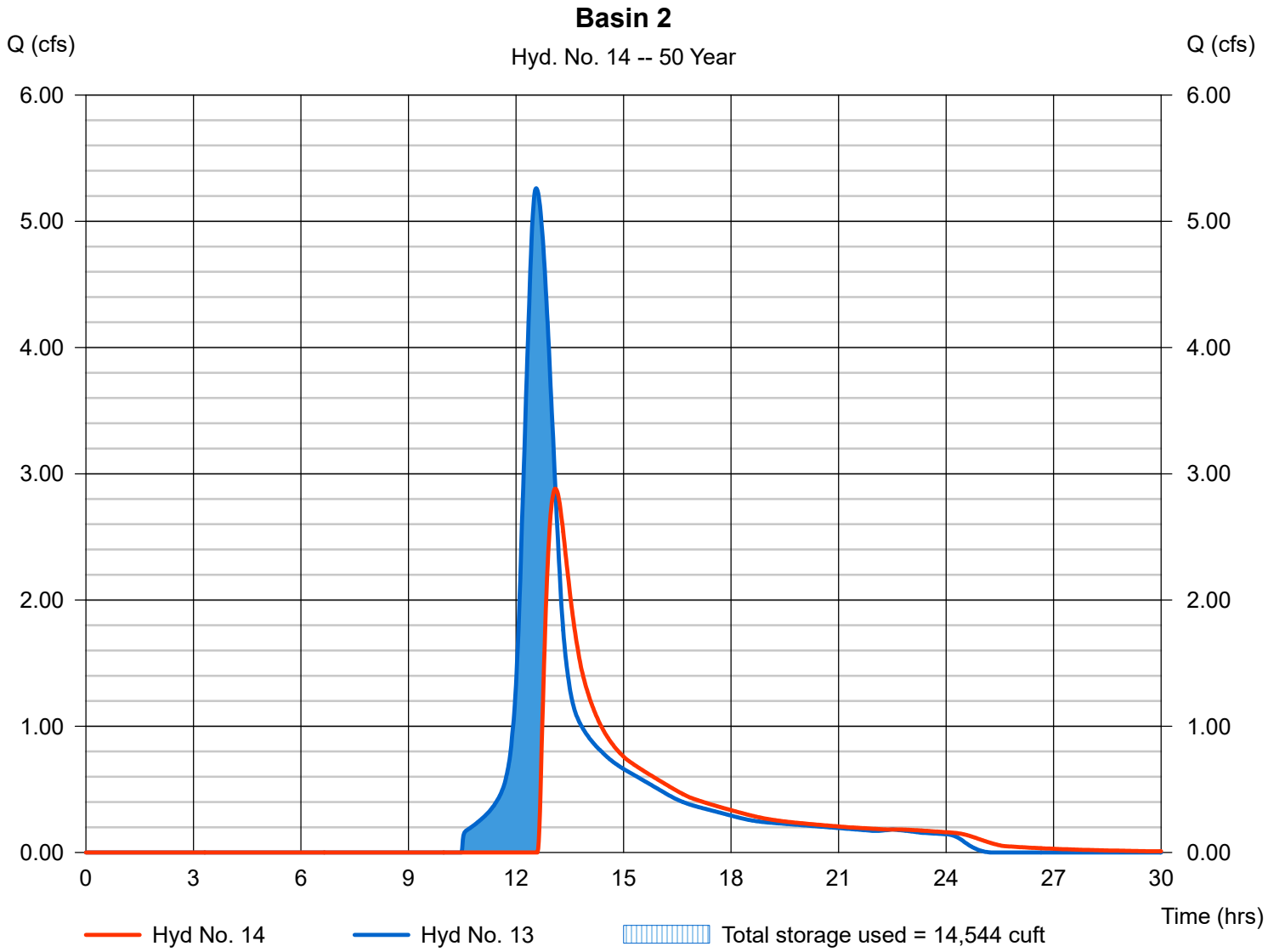
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 14

Basin 2

Hydrograph type	=	Reservoir	Peak discharge	=	2.883 cfs
Storm frequency	=	50 yrs	Time to peak	=	13.10 hrs
Time interval	=	1 min	Hyd. volume	=	24,548 cuft
Inflow hyd. No.	=	13 - Basin 2 Forebay	Max. Elevation	=	26.95 ft
Reservoir name	=	Basin 2	Max. Storage	=	14,544 cuft

Storage Indication method used.

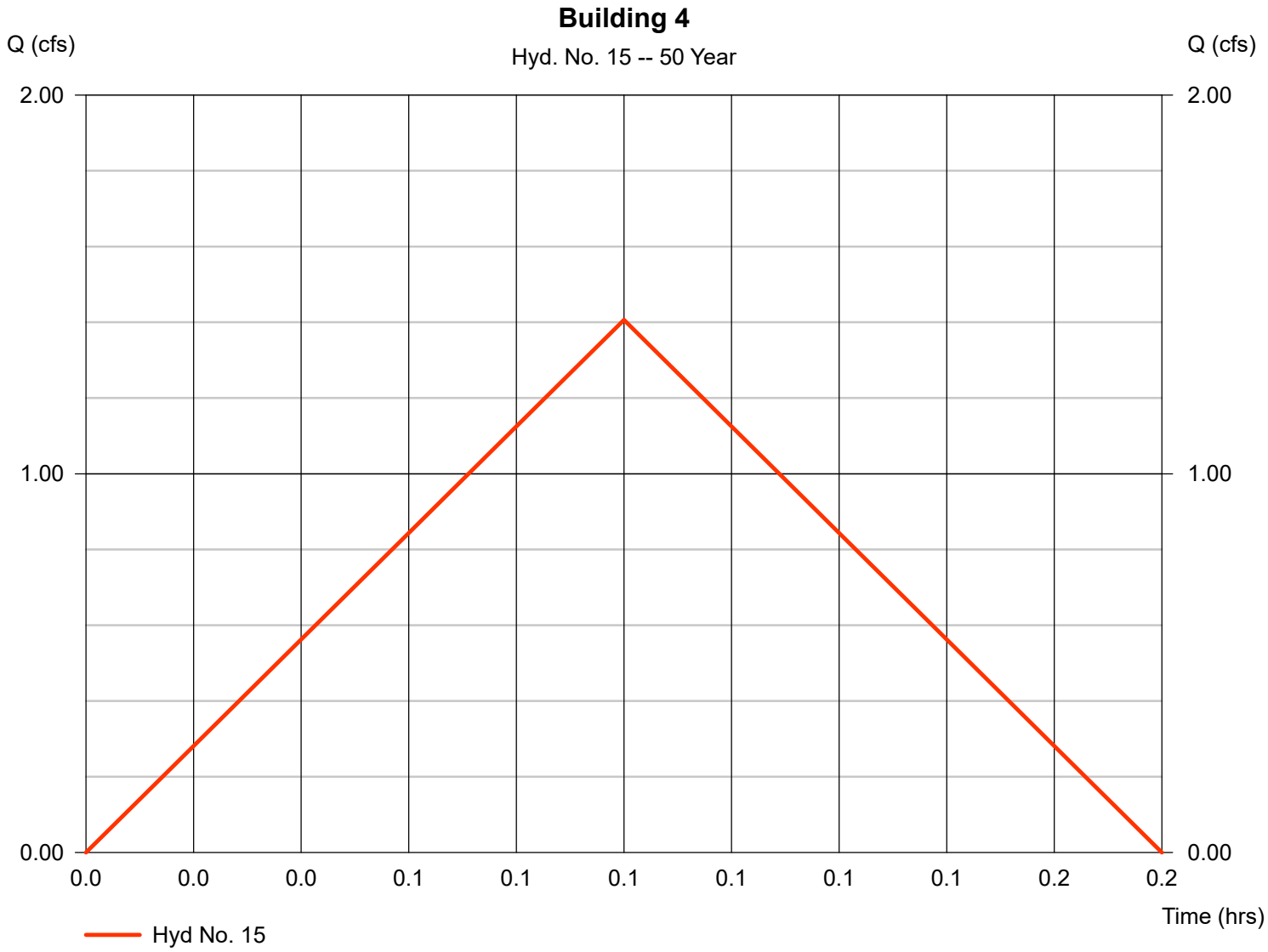


Hydrograph Report

Hyd. No. 15

Building 4

Hydrograph type	=	Rational	Peak discharge	=	1.406 cfs
Storm frequency	=	50 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	422 cuft
Drainage area	=	0.160 ac	Runoff coeff.	=	0.9
Intensity	=	9.765 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



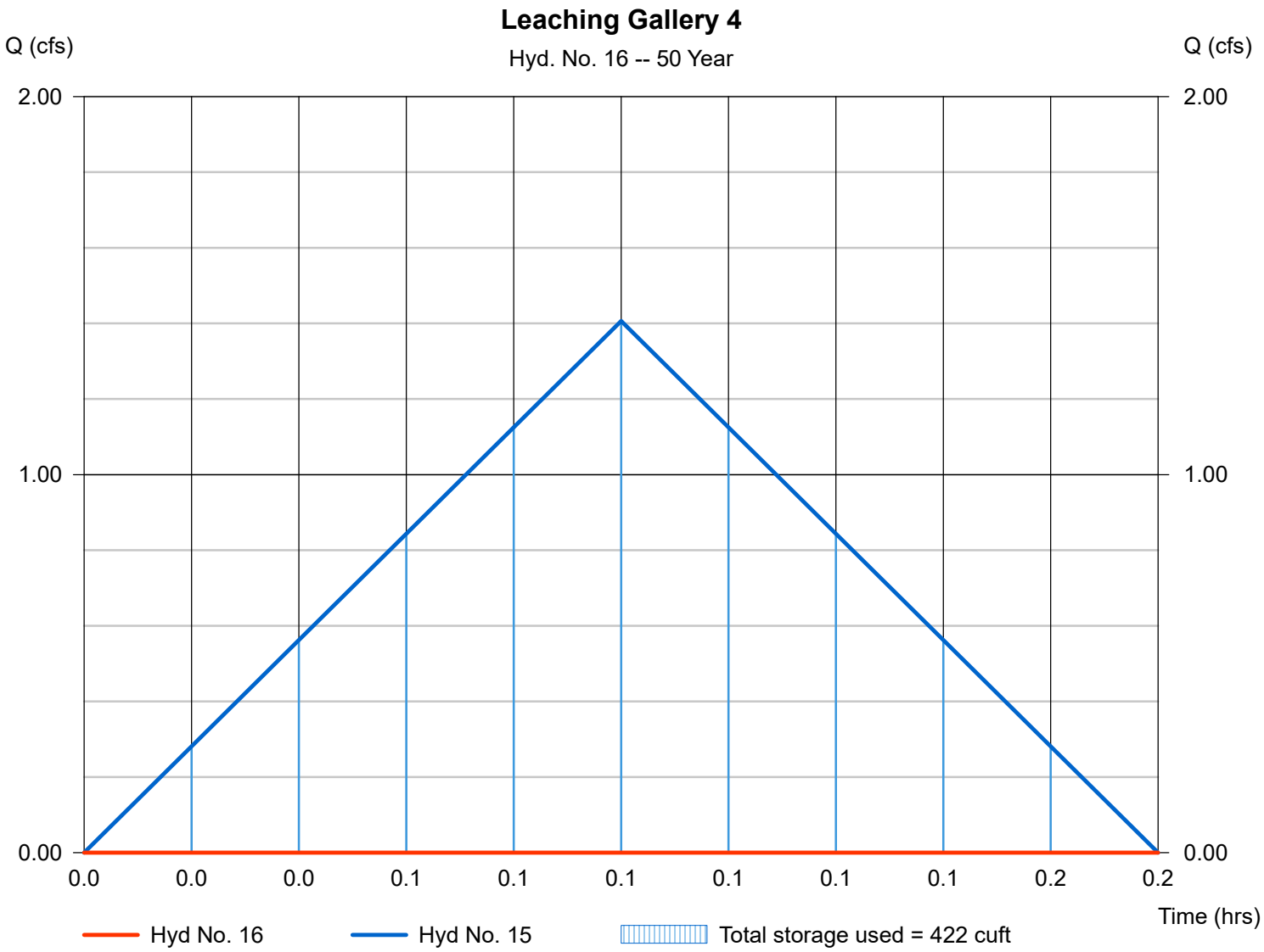
Hydrograph Report

Hyd. No. 16

Leaching Gallery 4

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	50 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	15 - Building 4	Max. Elevation	=	40.58 ft
Reservoir name	=	Leaching Gallery 4	Max. Storage	=	422 cuft

Storage Indication method used.



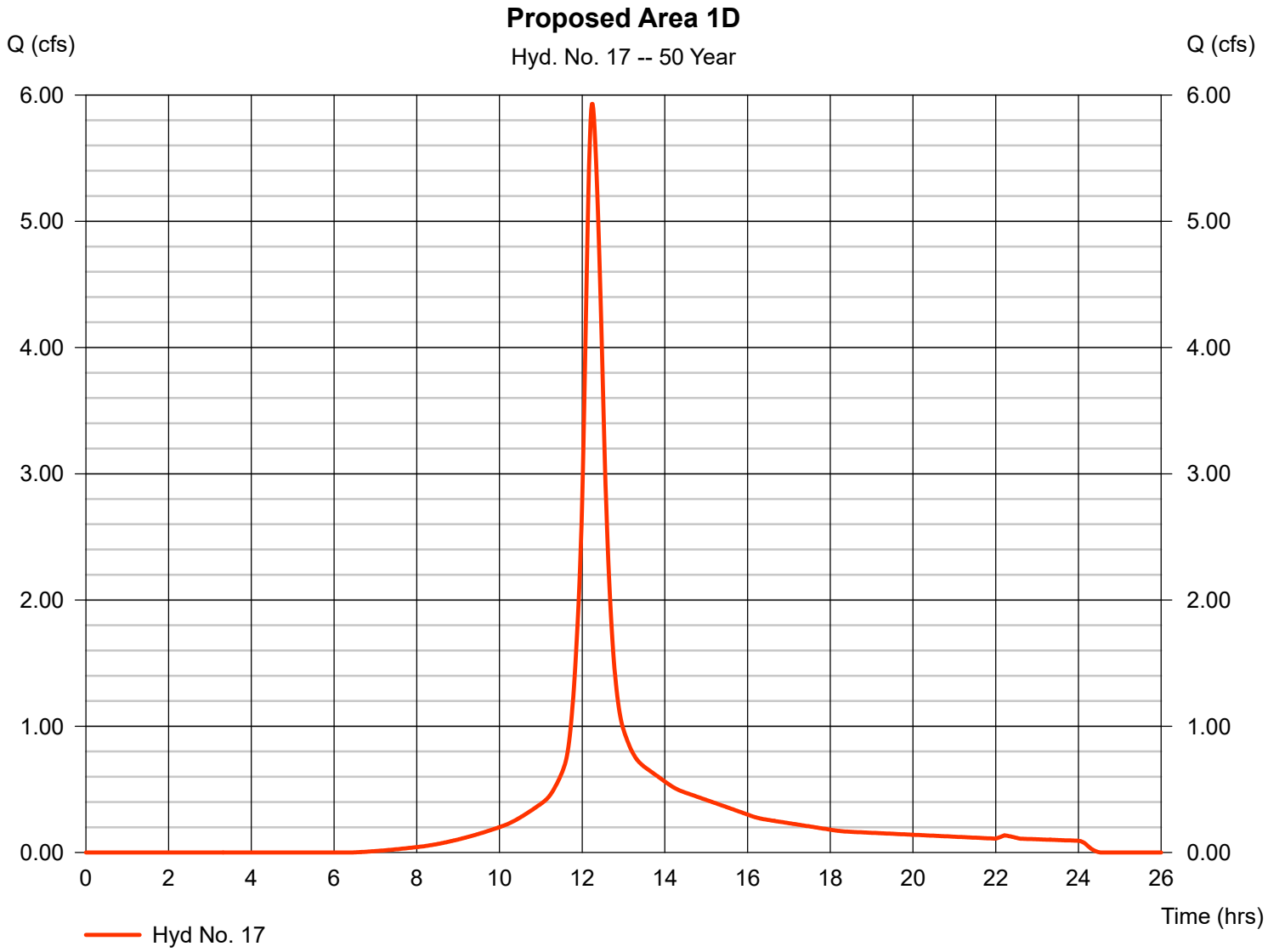
Hydrograph Report

Hyd. No. 17

Proposed Area 1D

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.929 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	27,273 cuft
Drainage area	=	1.830 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.50 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.010 x 98) + (0.820 x 61)] / 1.830



Hydrograph Report

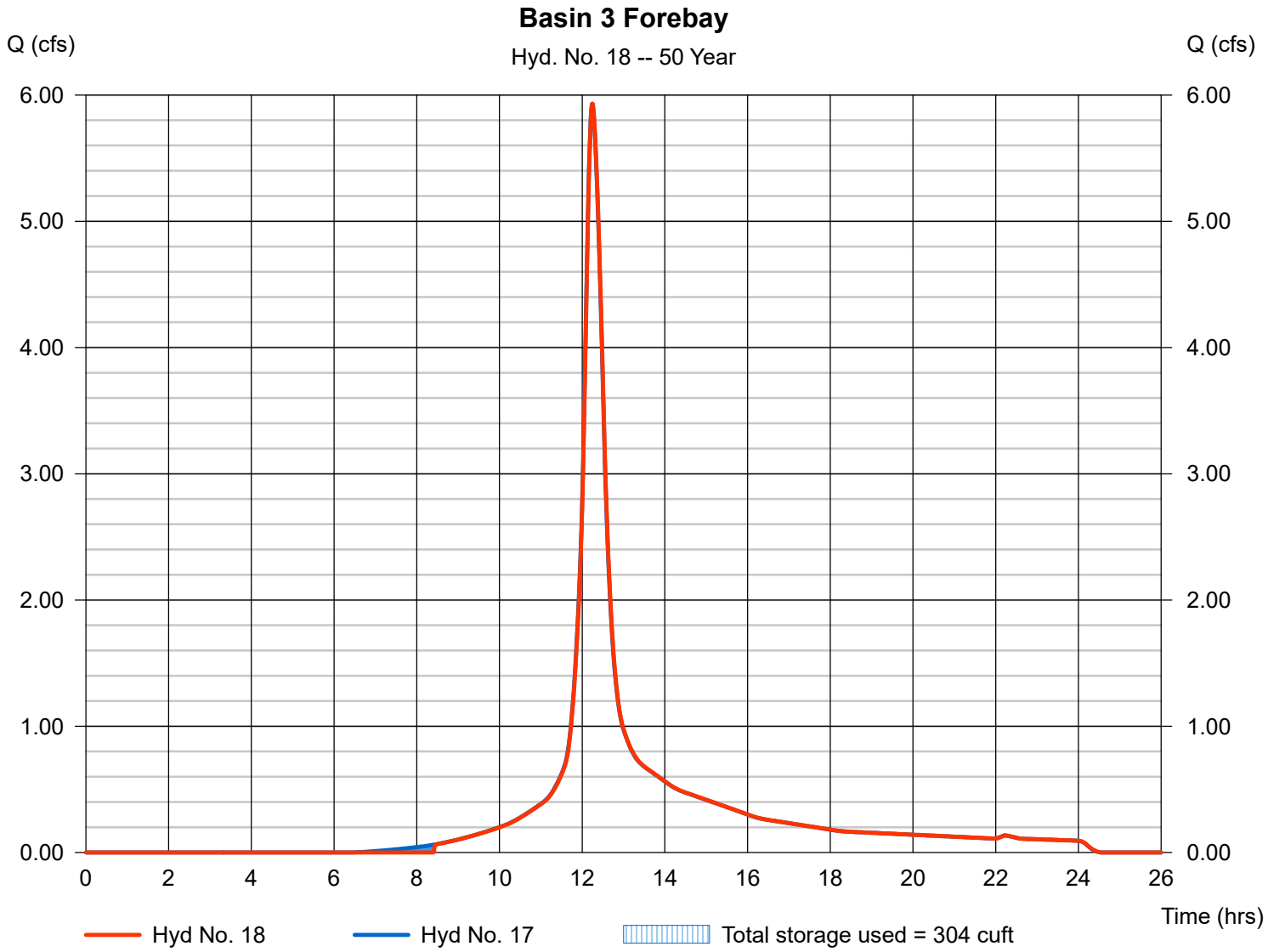
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 18

Basin 3 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	5.931 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	27,093 cuft
Inflow hyd. No.	=	17 - Proposed Area 1D	Max. Elevation	=	33.37 ft
Reservoir name	=	Basin 3 Forebay	Max. Storage	=	304 cuft

Storage Indication method used.



Hydrograph Report

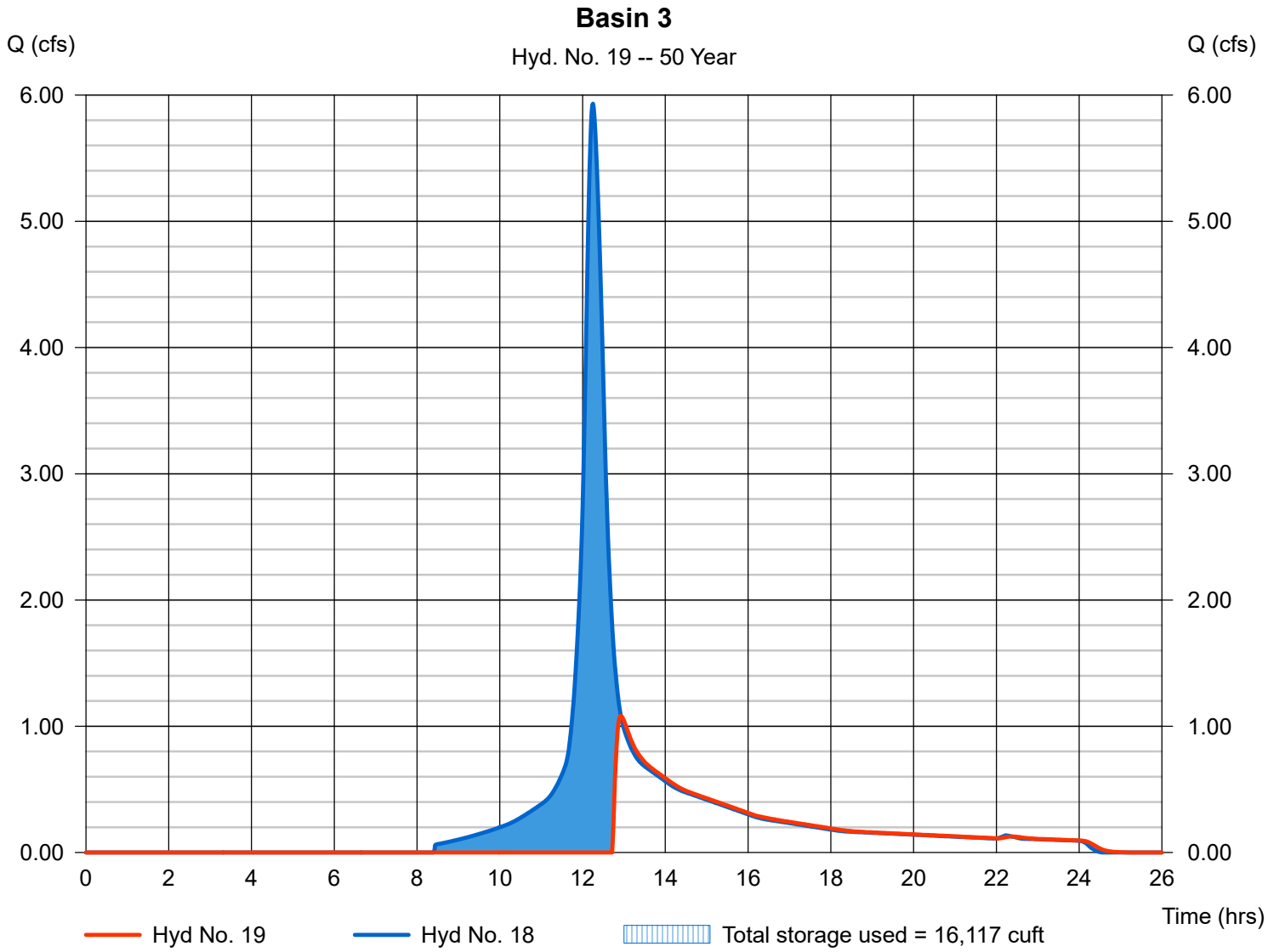
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 19

Basin 3

Hydrograph type	=	Reservoir	Peak discharge	=	1.082 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.93 hrs
Time interval	=	1 min	Hyd. volume	=	11,440 cuft
Inflow hyd. No.	=	18 - Basin 3 Forebay	Max. Elevation	=	36.62 ft
Reservoir name	=	Basin 3	Max. Storage	=	16,117 cuft

Storage Indication method used.

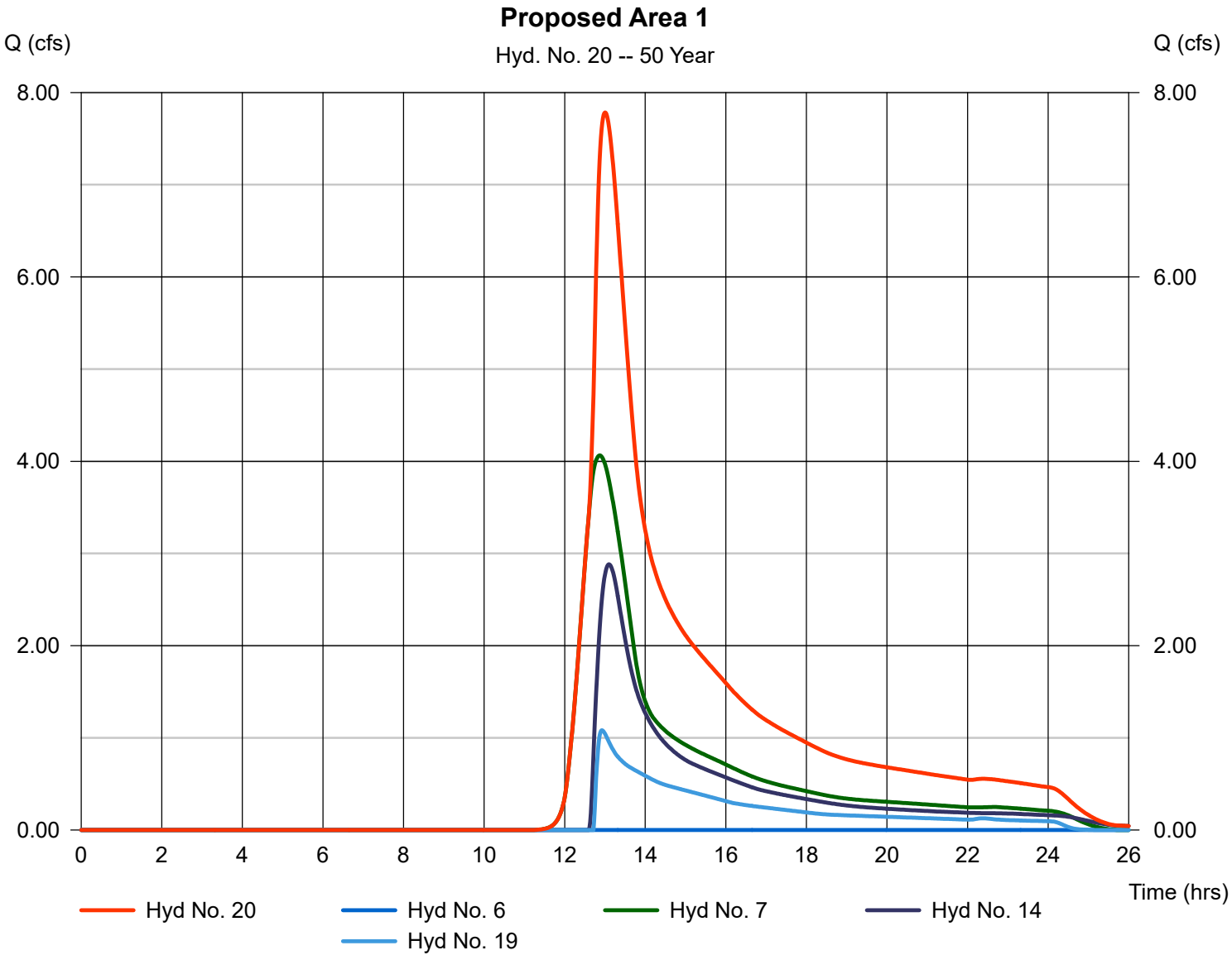


Hydrograph Report

Hyd. No. 20

Proposed Area 1

Hydrograph type	= Combine	Peak discharge	= 7.784 cfs
Storm frequency	= 50 yrs	Time to peak	= 13.00 hrs
Time interval	= 1 min	Hyd. volume	= 72,811 cuft
Inflow hyds.	= 6, 7, 14, 19	Contrib. drain. area	= 5.930 ac



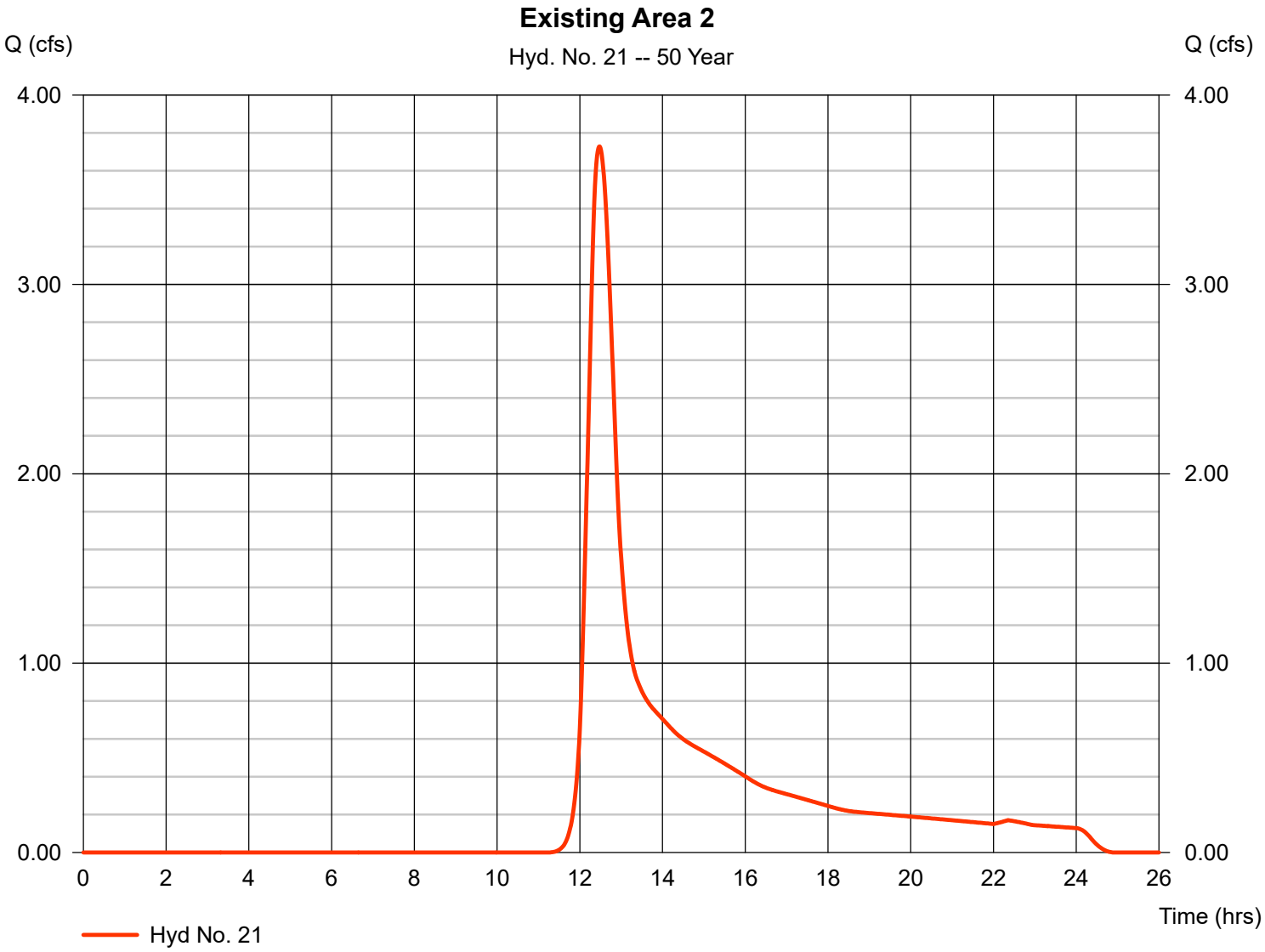
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 21

Existing Area 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.729 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.48 hrs
Time interval	=	1 min	Hyd. volume	=	23,252 cuft
Drainage area	=	3.920 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	35.00 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



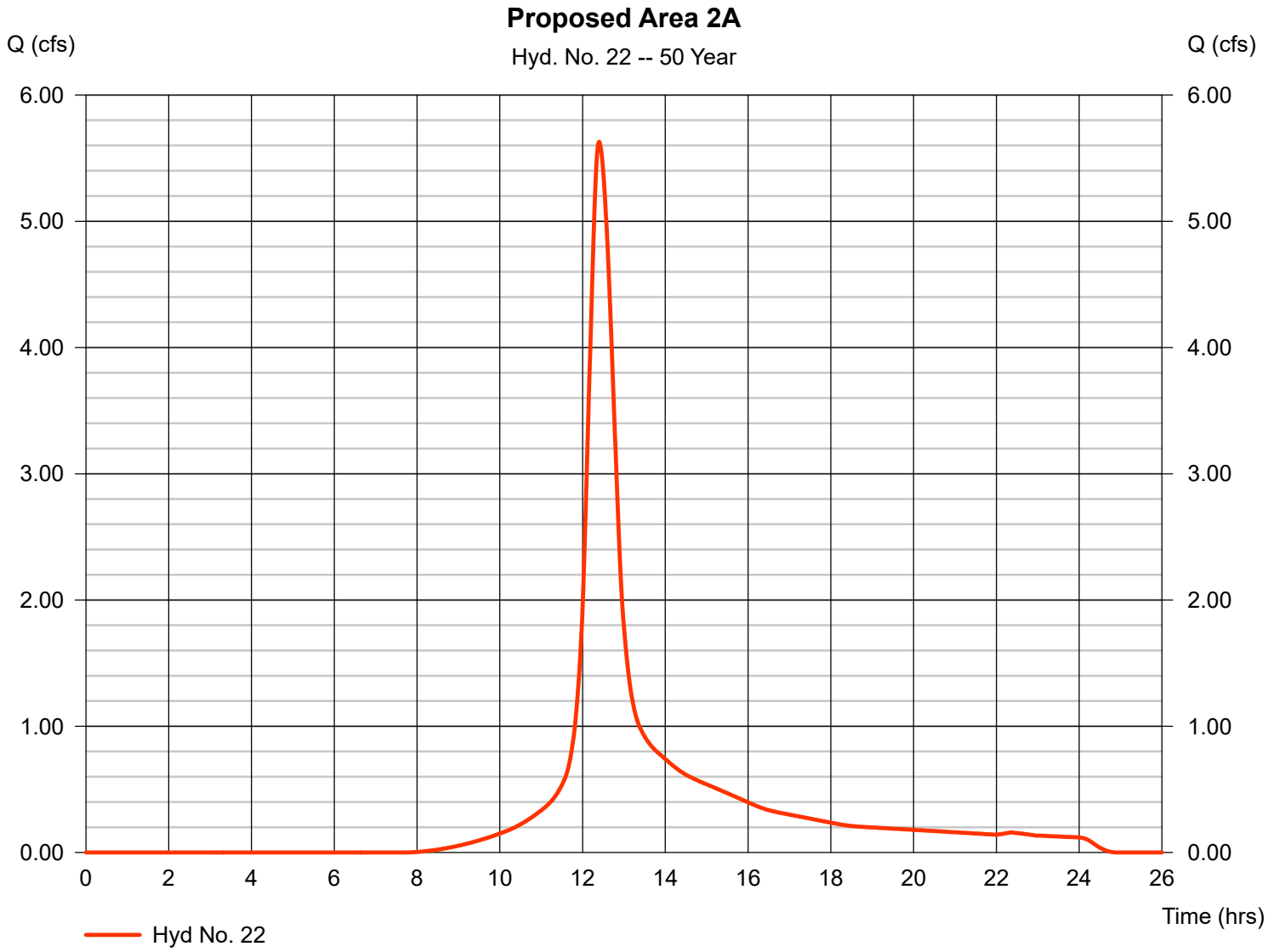
Hydrograph Report

Hyd. No. 22

Proposed Area 2A

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.630 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.40 hrs
Time interval	=	1 min	Hyd. volume	=	31,601 cuft
Drainage area	=	2.450 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	34.80 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.090 x 98) + (0.870 x 61) + (0.490 x 55)] / 2.450



Hydrograph Report

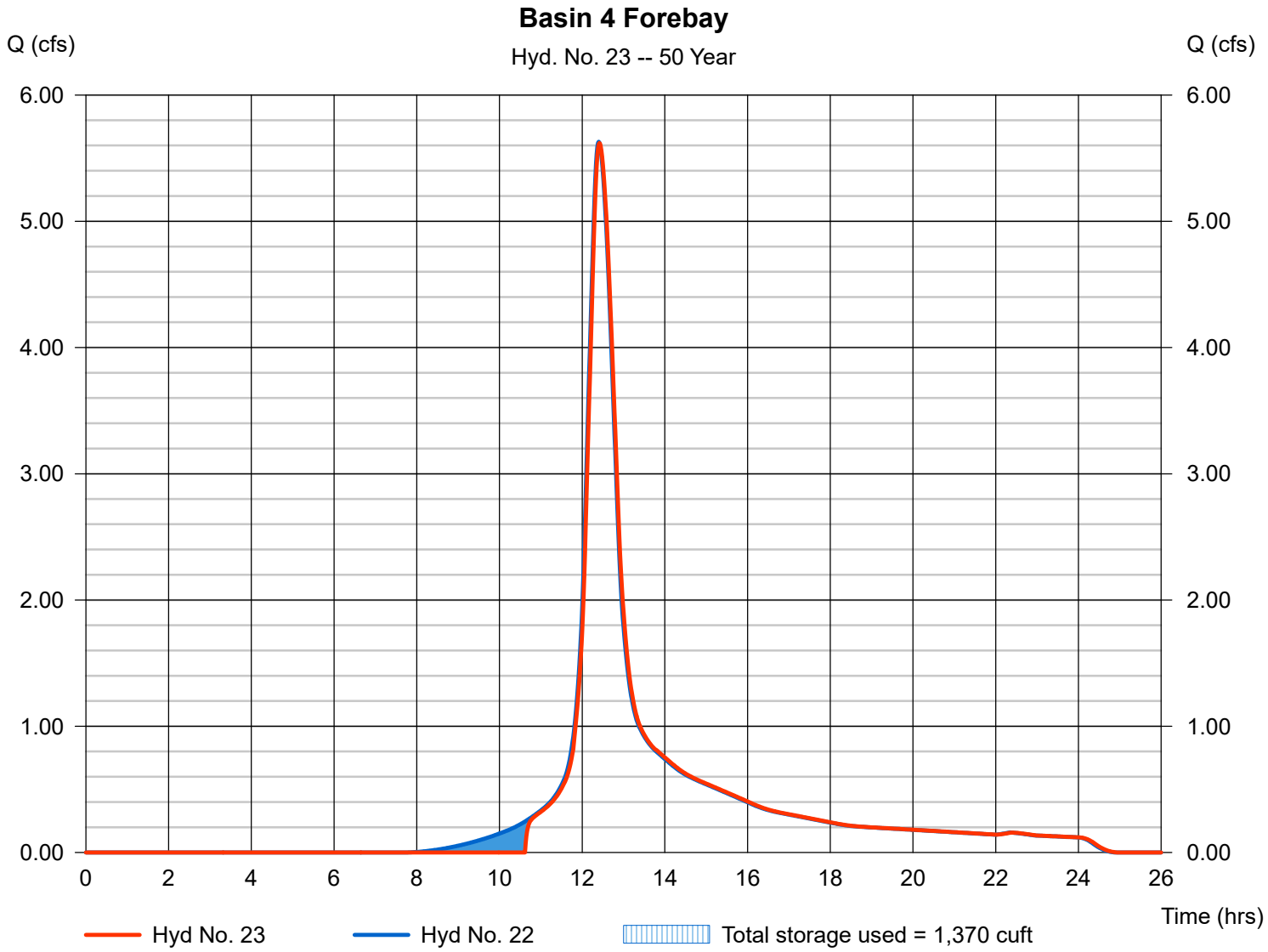
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 23

Basin 4 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	5.620 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.42 hrs
Time interval	=	1 min	Hyd. volume	=	30,728 cuft
Inflow hyd. No.	=	22 - Proposed Area 2A	Max. Elevation	=	53.36 ft
Reservoir name	=	Basin 4 Forebay	Max. Storage	=	1,370 cuft

Storage Indication method used.



Hydrograph Report

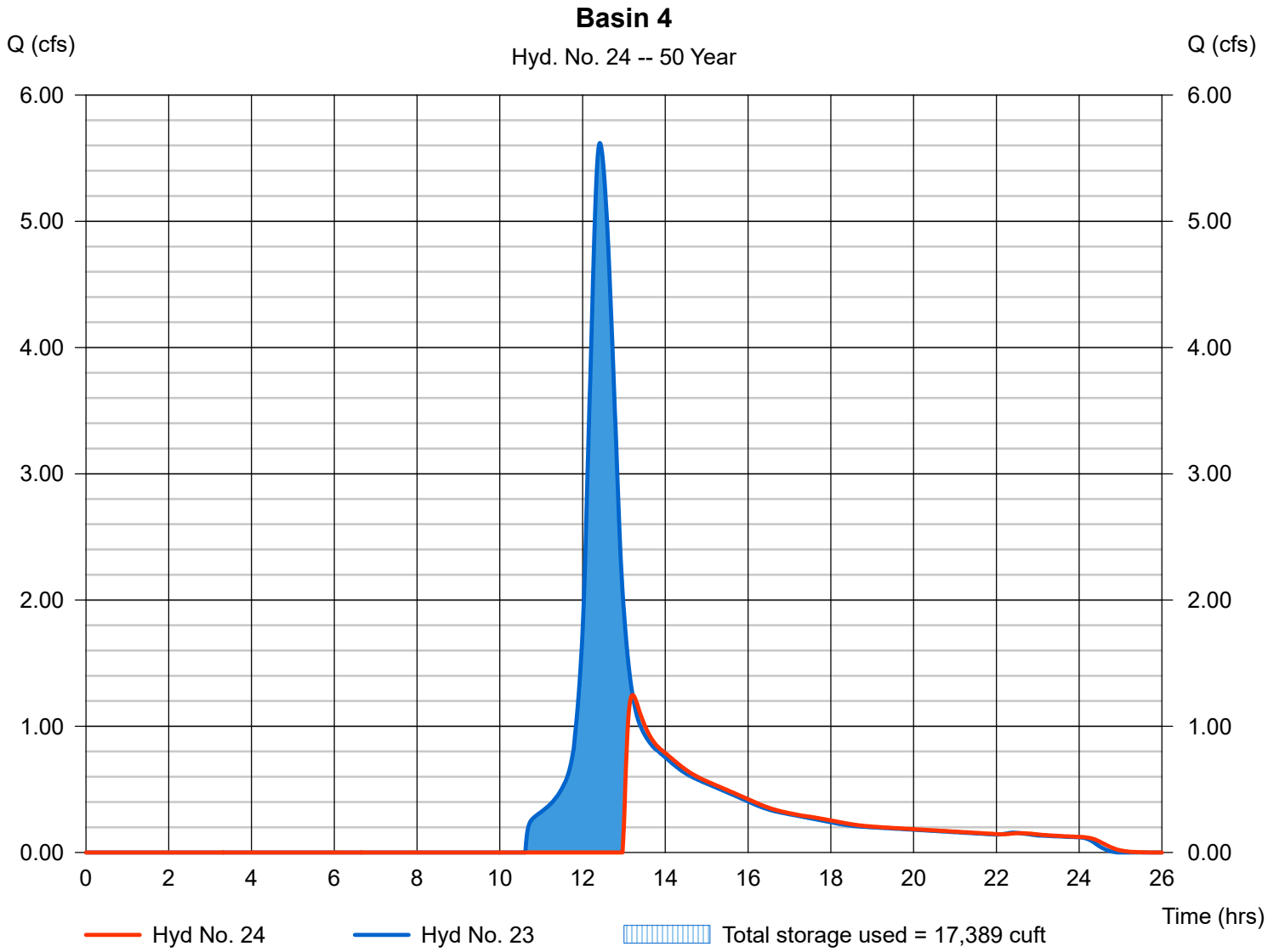
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 24

Basin 4

Hydrograph type	=	Reservoir	Peak discharge	=	1.247 cfs
Storm frequency	=	50 yrs	Time to peak	=	13.22 hrs
Time interval	=	1 min	Hyd. volume	=	13,971 cuft
Inflow hyd. No.	=	23 - Basin 4 Forebay	Max. Elevation	=	56.63 ft
Reservoir name	=	Basin 4	Max. Storage	=	17,389 cuft

Storage Indication method used.



Hydrograph Report

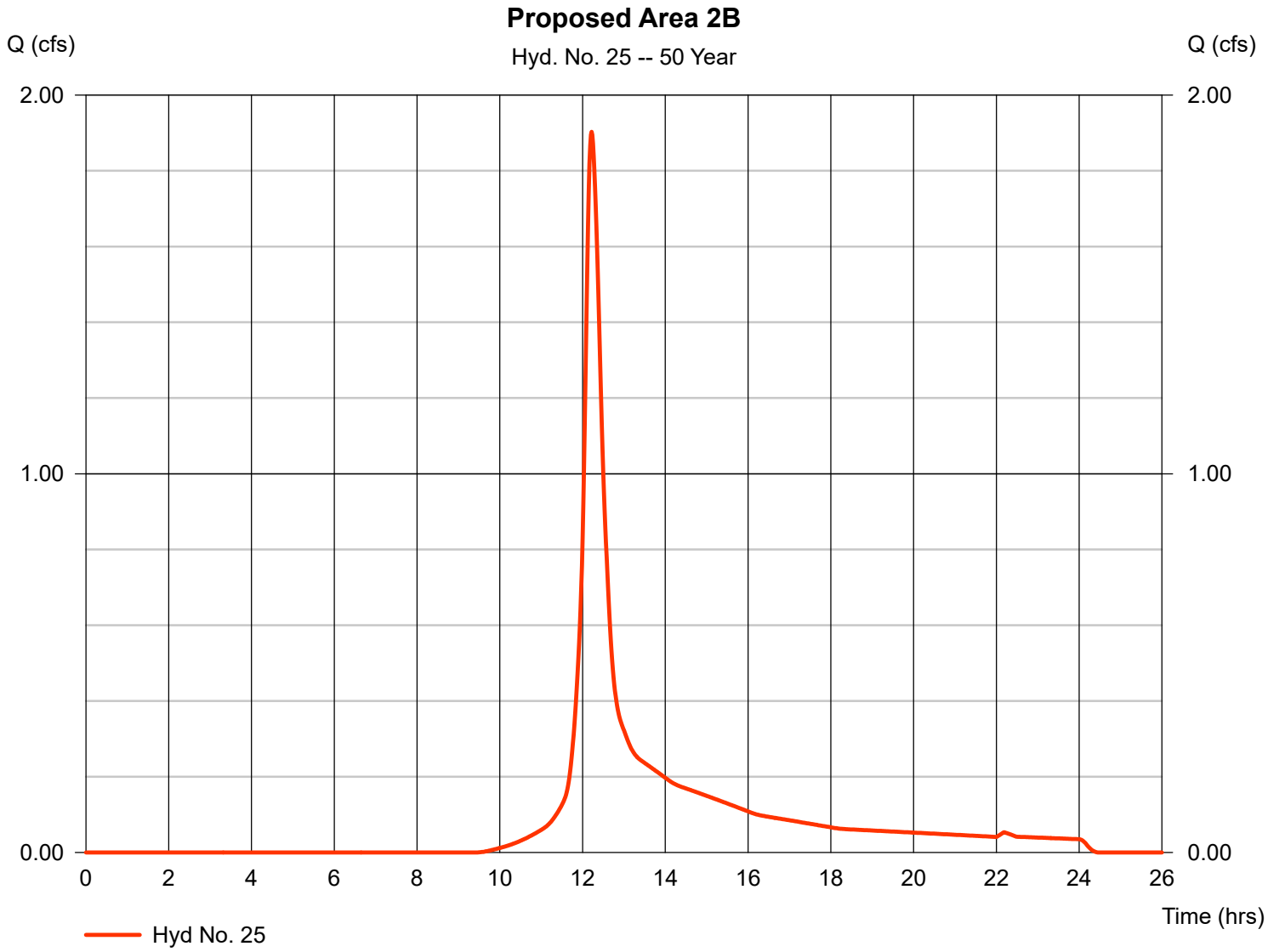
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 25

Proposed Area 2B

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.903 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.22 hrs
Time interval	=	1 min	Hyd. volume	=	8,181 cuft
Drainage area	=	0.850 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.10 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 98) + (0.640 x 61) + (0.060 x 55)] / 0.850



Hydrograph Report

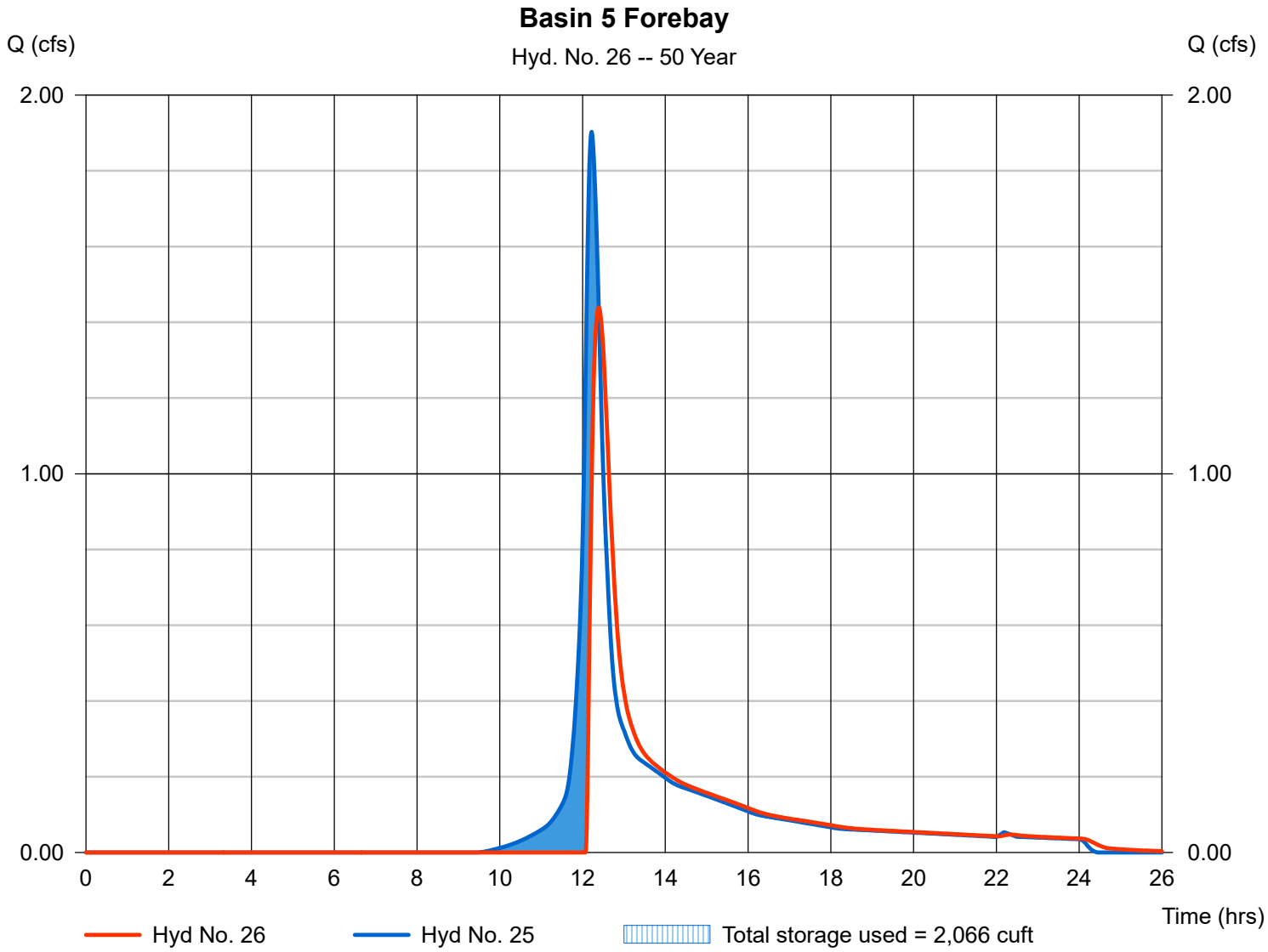
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 26

Basin 5 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	1.439 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.38 hrs
Time interval	=	1 min	Hyd. volume	=	7,009 cuft
Inflow hyd. No.	=	25 - Proposed Area 2B	Max. Elevation	=	67.07 ft
Reservoir name	=	Basin 5 Forebay	Max. Storage	=	2,066 cuft

Storage Indication method used.



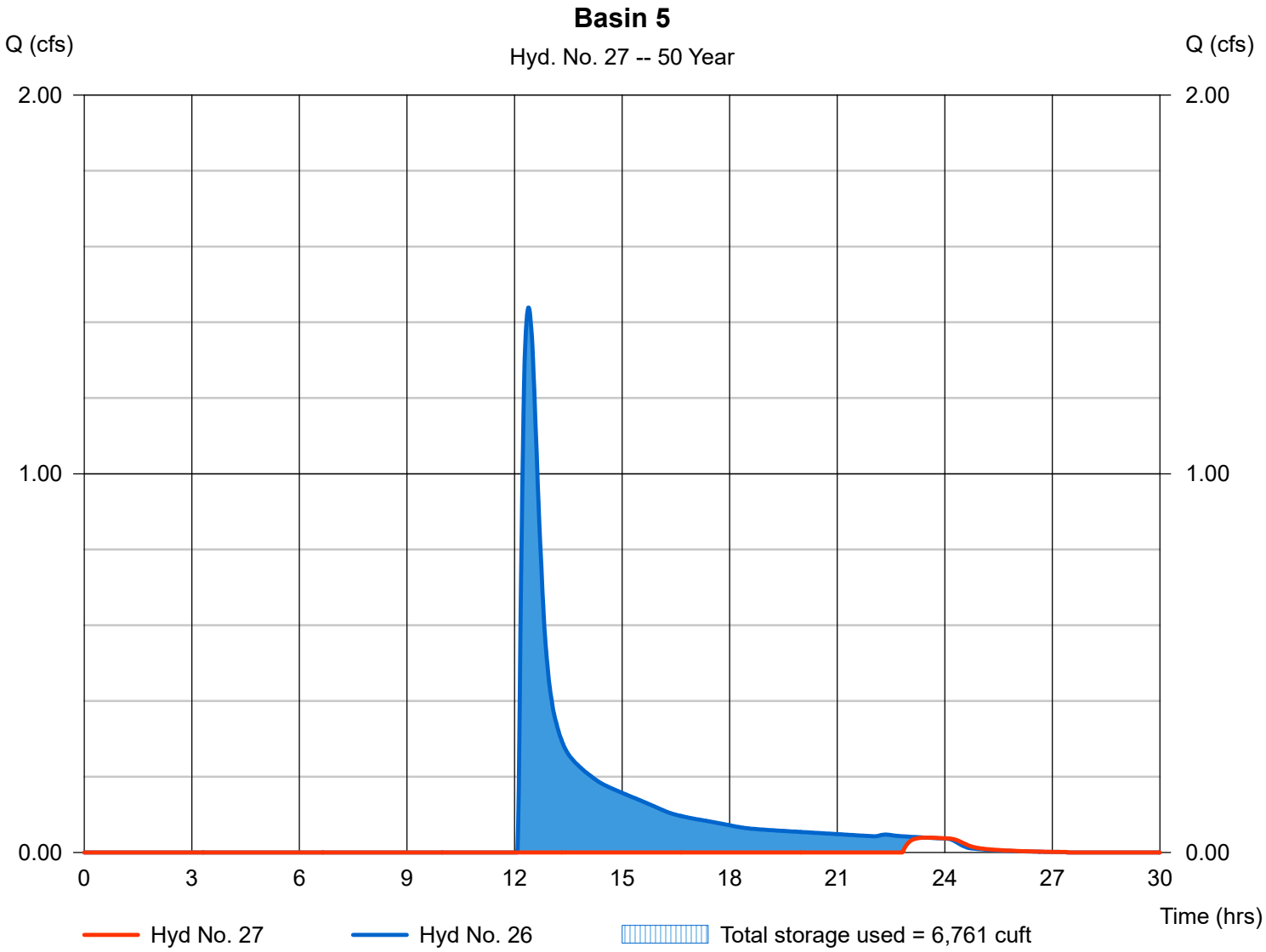
Hydrograph Report

Hyd. No. 27

Basin 5

Hydrograph type	=	Reservoir	Peak discharge	=	0.039 cfs
Storm frequency	=	50 yrs	Time to peak	=	23.50 hrs
Time interval	=	1 min	Hyd. volume	=	272 cuft
Inflow hyd. No.	=	26 - Basin 5 Forebay	Max. Elevation	=	66.51 ft
Reservoir name	=	Basin 5	Max. Storage	=	6,761 cuft

Storage Indication method used.



Hydrograph Report

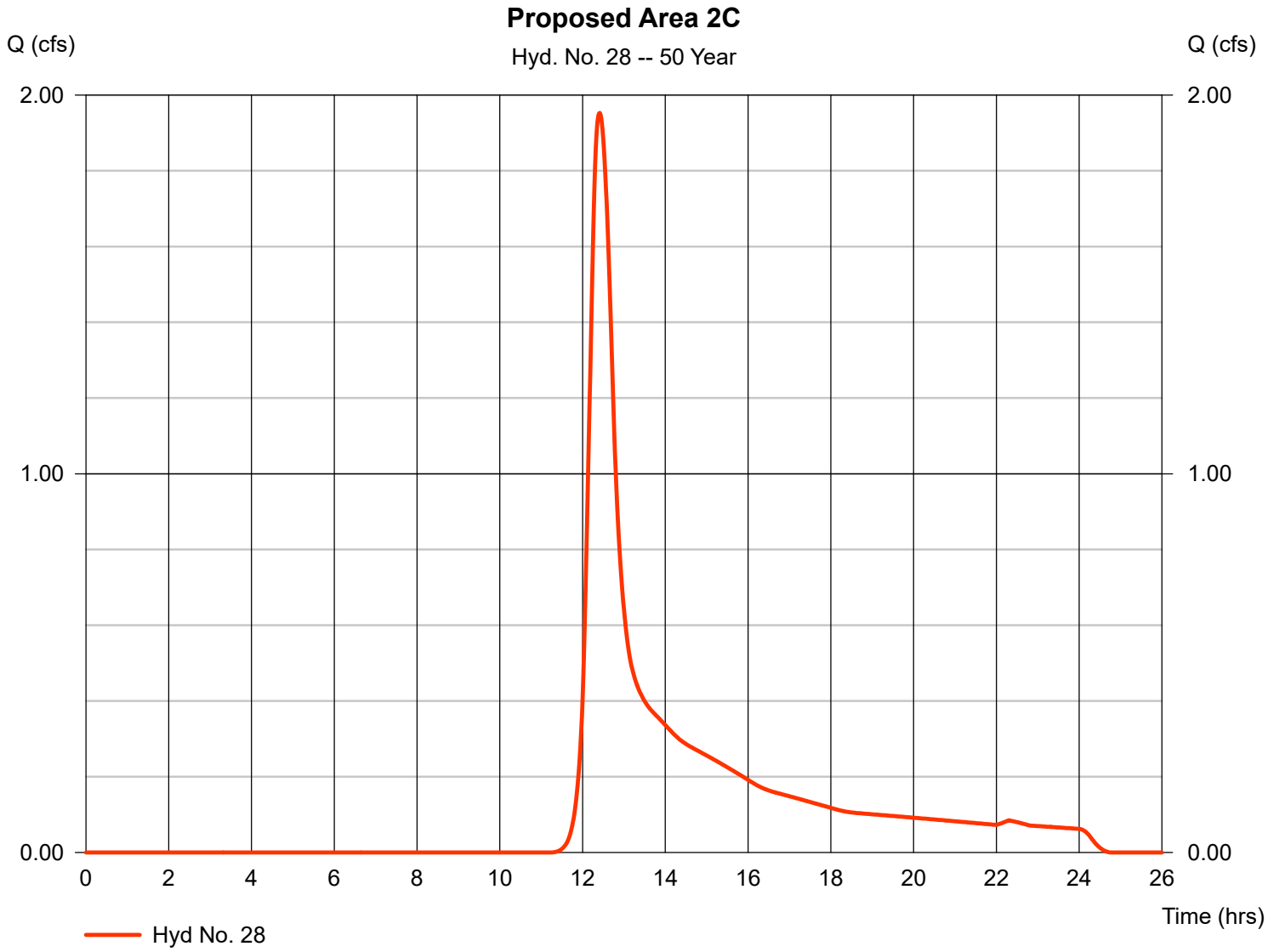
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 28

Proposed Area 2C

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.953 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.42 hrs
Time interval	=	1 min	Hyd. volume	=	11,329 cuft
Drainage area	=	1.910 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	29.00 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.850 x 55) + (0.060 x 61)] / 1.910

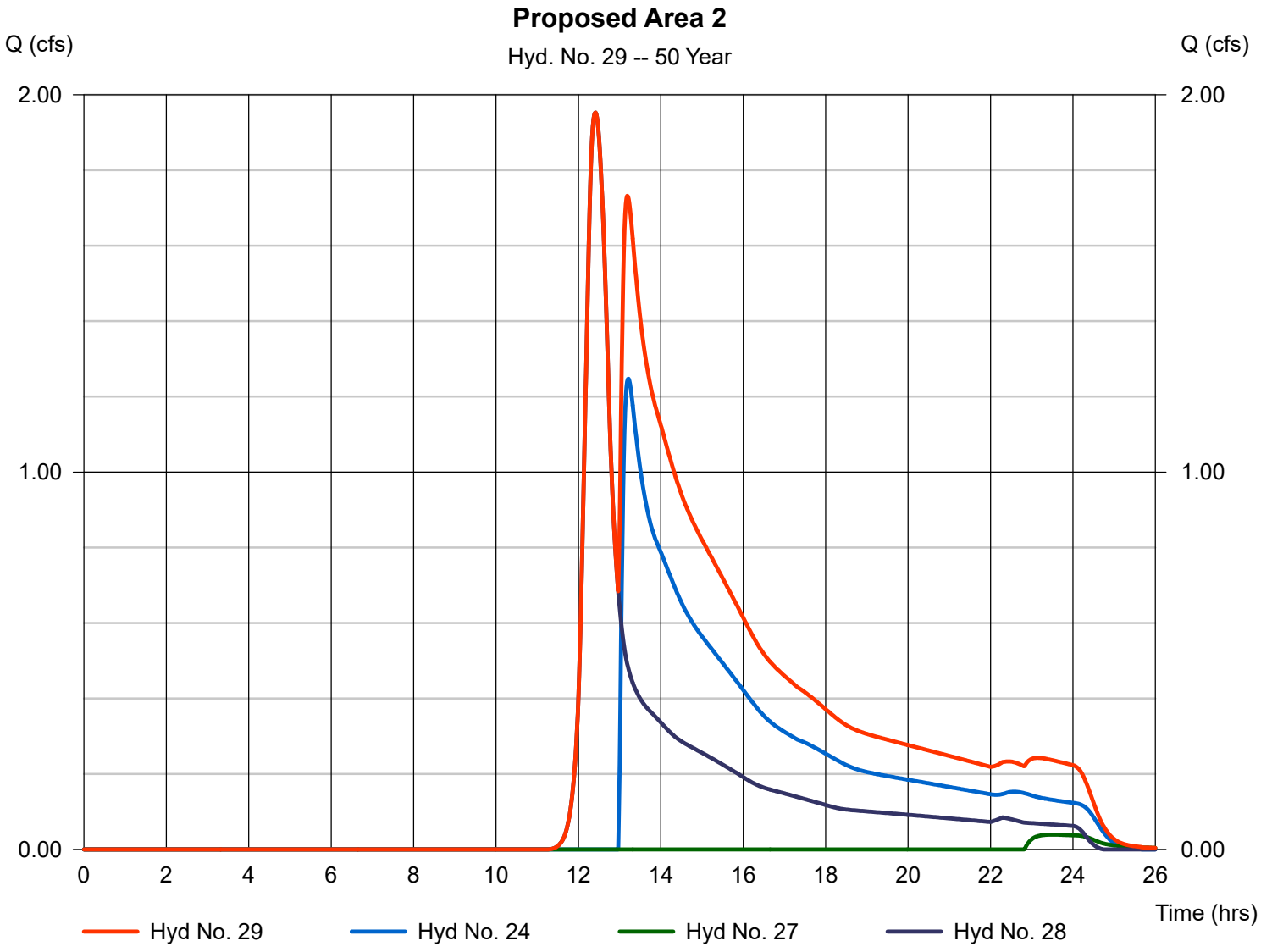


Hydrograph Report

Hyd. No. 29

Proposed Area 2

Hydrograph type	= Combine	Peak discharge	= 1.953 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.42 hrs
Time interval	= 1 min	Hyd. volume	= 25,572 cuft
Inflow hyds.	= 24, 27, 28	Contrib. drain. area	= 1.910 ac

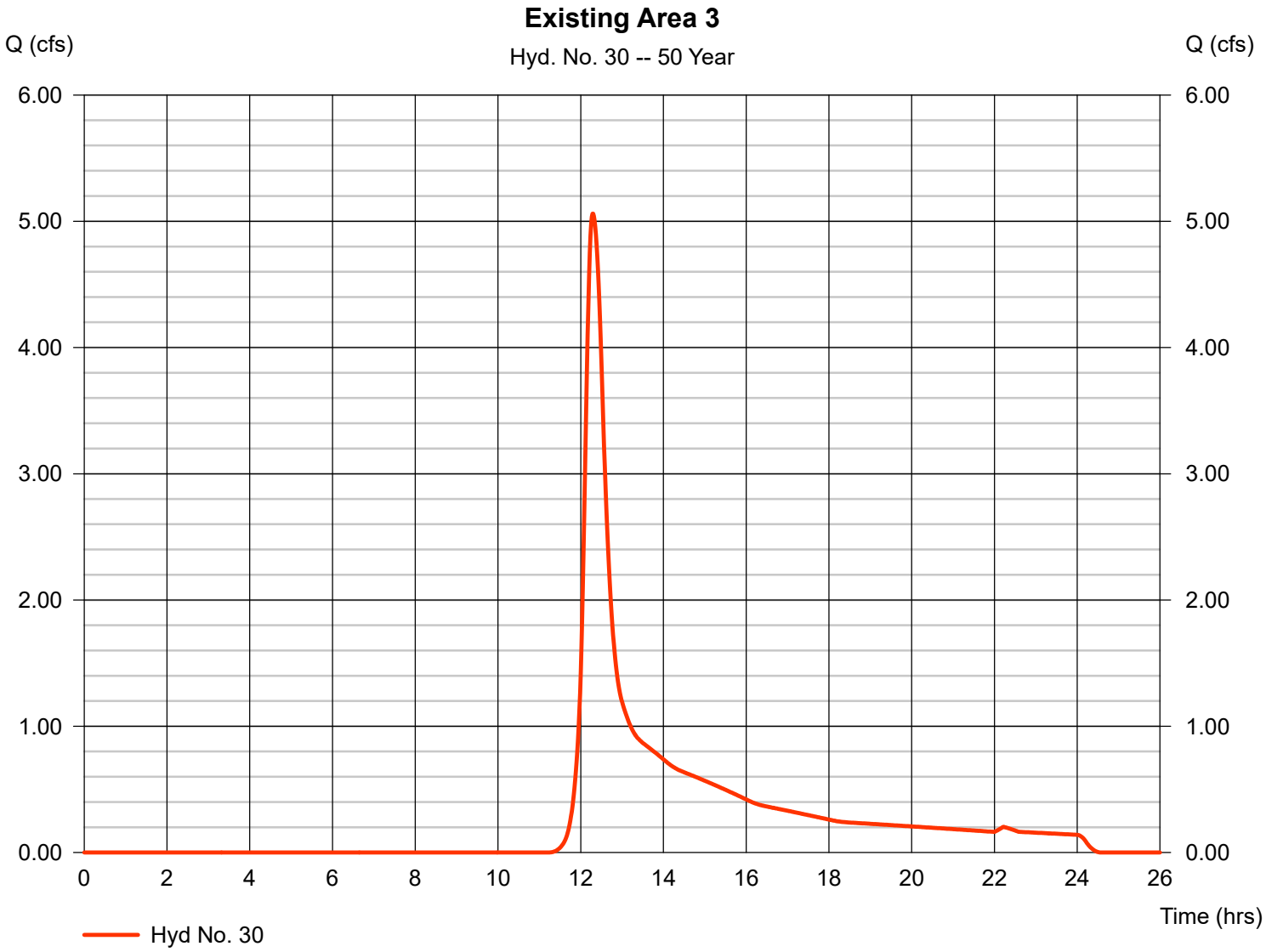


Hydrograph Report

Hyd. No. 30

Existing Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.060 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.28 hrs
Time interval	=	1 min	Hyd. volume	=	25,751 cuft
Drainage area	=	4.300 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

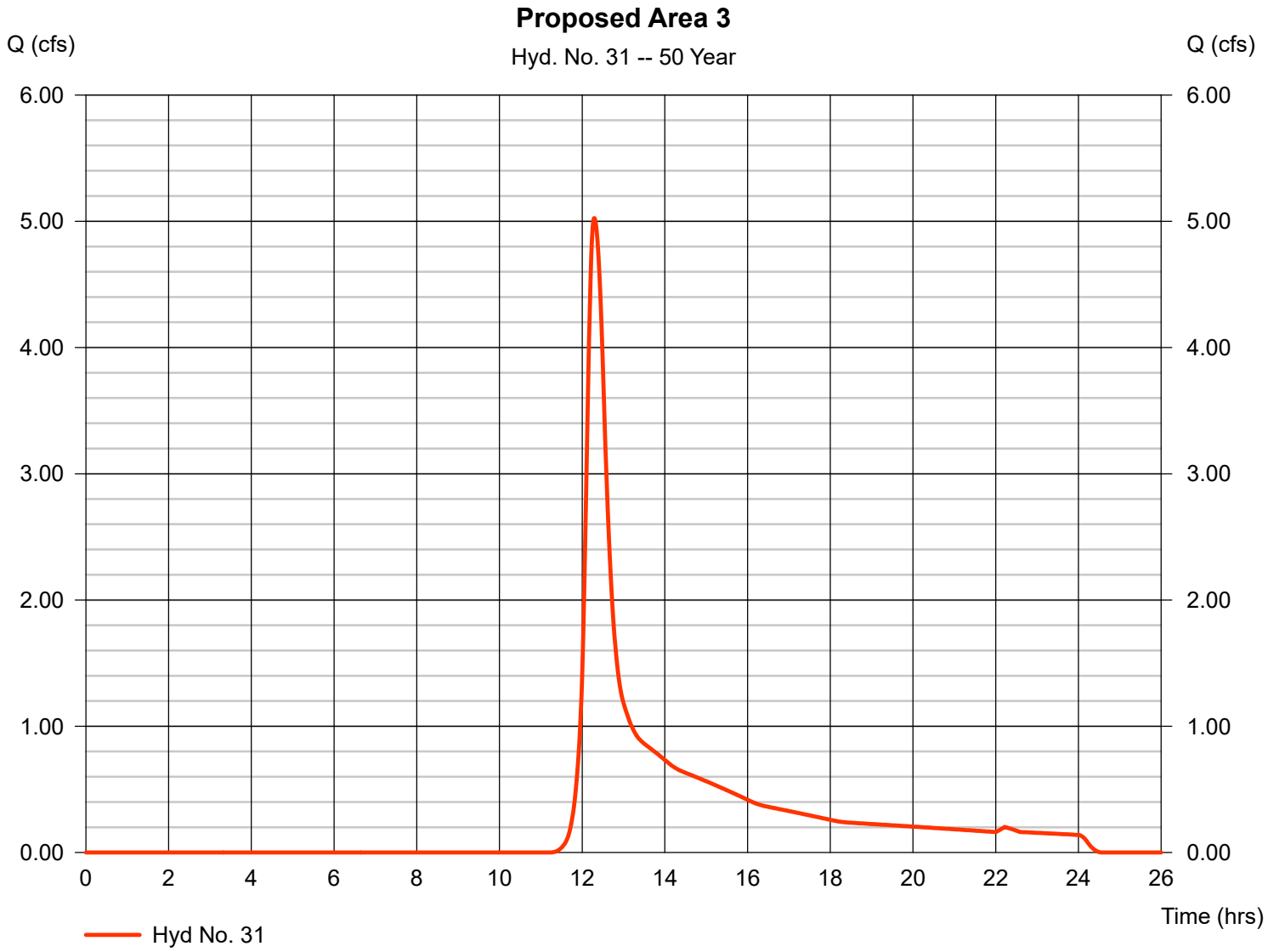


Hydrograph Report

Hyd. No. 31

Proposed Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.025 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.28 hrs
Time interval	=	1 min	Hyd. volume	=	25,572 cuft
Drainage area	=	4.270 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	6.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	15.41	1	754	103,919	------	------	------	Existing Area 1
2	Rational	2.474	1	5	742	------	------	------	Building 1
3	Reservoir	0.000	1	n/a	0	2	29.03	742	Leaching Gallery 1
4	SCS Runoff	2.610	1	738	13,012	------	------	------	Proposed Area 1A
5	Reservoir	0.725	1	773	6,999	4	27.87	6,792	Basin 1 Forebay
6	Reservoir	0.057	1	1406	986	5	27.60	6,220	Basin 1
7	SCS Runoff	5.255	1	771	46,212	------	------	------	Proposed Area 1B
8	Rational	2.870	1	5	861	------	------	------	Building 2
9	Reservoir	0.000	1	n/a	0	8	30.42	861	Leaching Gallery 2
10	Rational	2.375	1	5	712	------	------	------	Building 3
11	Reservoir	0.000	1	n/a	0	10	35.13	712	Leaching Gallery 3
12	SCS Runoff	6.258	1	753	41,544	------	------	------	Proposed Area 1C
13	Reservoir	6.255	1	753	41,171	12	23.39	627	Basin 2 Forebay
14	Reservoir	3.880	1	782	31,056	13	27.19	15,853	Basin 2
15	Rational	1.583	1	5	475	------	------	------	Building 4
16	Reservoir	0.000	1	n/a	0	15	40.71	475	Leaching Gallery 4
17	SCS Runoff	6.846	1	734	31,603	------	------	------	Proposed Area 1D
18	Reservoir	6.846	1	735	31,423	17	33.41	316	Basin 3 Forebay
19	Reservoir	2.895	1	757	15,770	18	36.73	16,555	Basin 3
20	Combine	10.51	1	771	94,024	6, 7, 14, 19	------	------	Proposed Area 1
21	SCS Runoff	4.847	1	748	29,322	------	------	------	Existing Area 2
22	SCS Runoff	6.601	1	744	37,072	------	------	------	Proposed Area 2A
23	Reservoir	6.590	1	745	36,198	22	53.40	1,428	Basin 4 Forebay
24	Reservoir	3.184	1	772	19,442	23	56.75	17,949	Basin 4
25	SCS Runoff	2.305	1	733	9,845	------	------	------	Proposed Area 2B
26	Reservoir	1.723	1	743	8,673	25	67.28	2,333	Basin 5 Forebay
27	Reservoir	0.103	1	1021	1,936	26	66.52	6,800	Basin 5
28	SCS Runoff	2.538	1	744	14,287	------	------	------	Proposed Area 2C
29	Combine	4.256	1	771	35,664	24, 27, 28	------	------	Proposed Area 2
30	SCS Runoff	6.590	1	737	32,473	------	------	------	Existing Area 3
31	SCS Runoff	6.544	1	737	32,247	------	------	------	Proposed Area 3

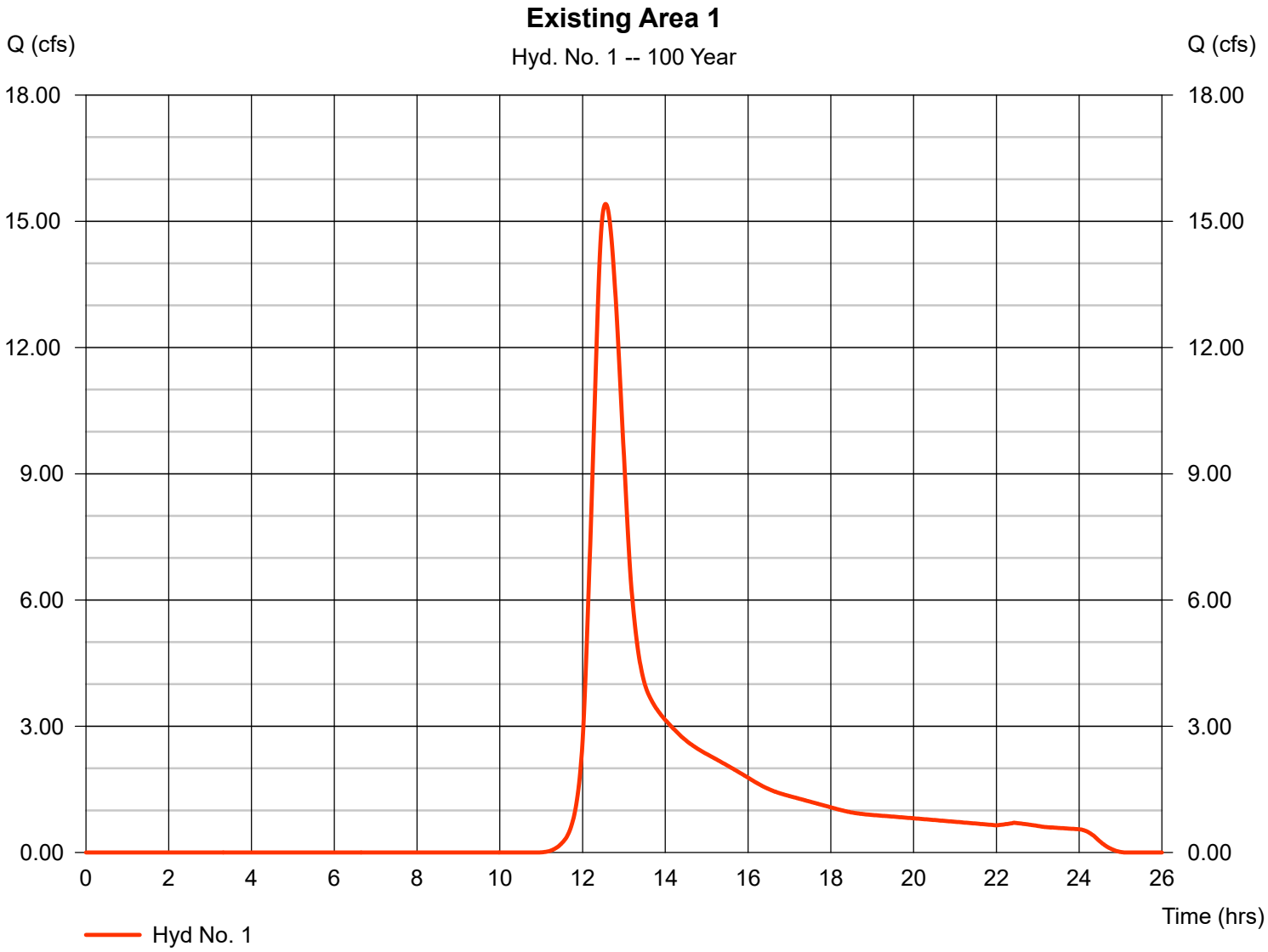
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 1

Existing Area 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.41 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.57 hrs
Time interval	=	1 min	Hyd. volume	=	103,919 cuft
Drainage area	=	13.960 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.30 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



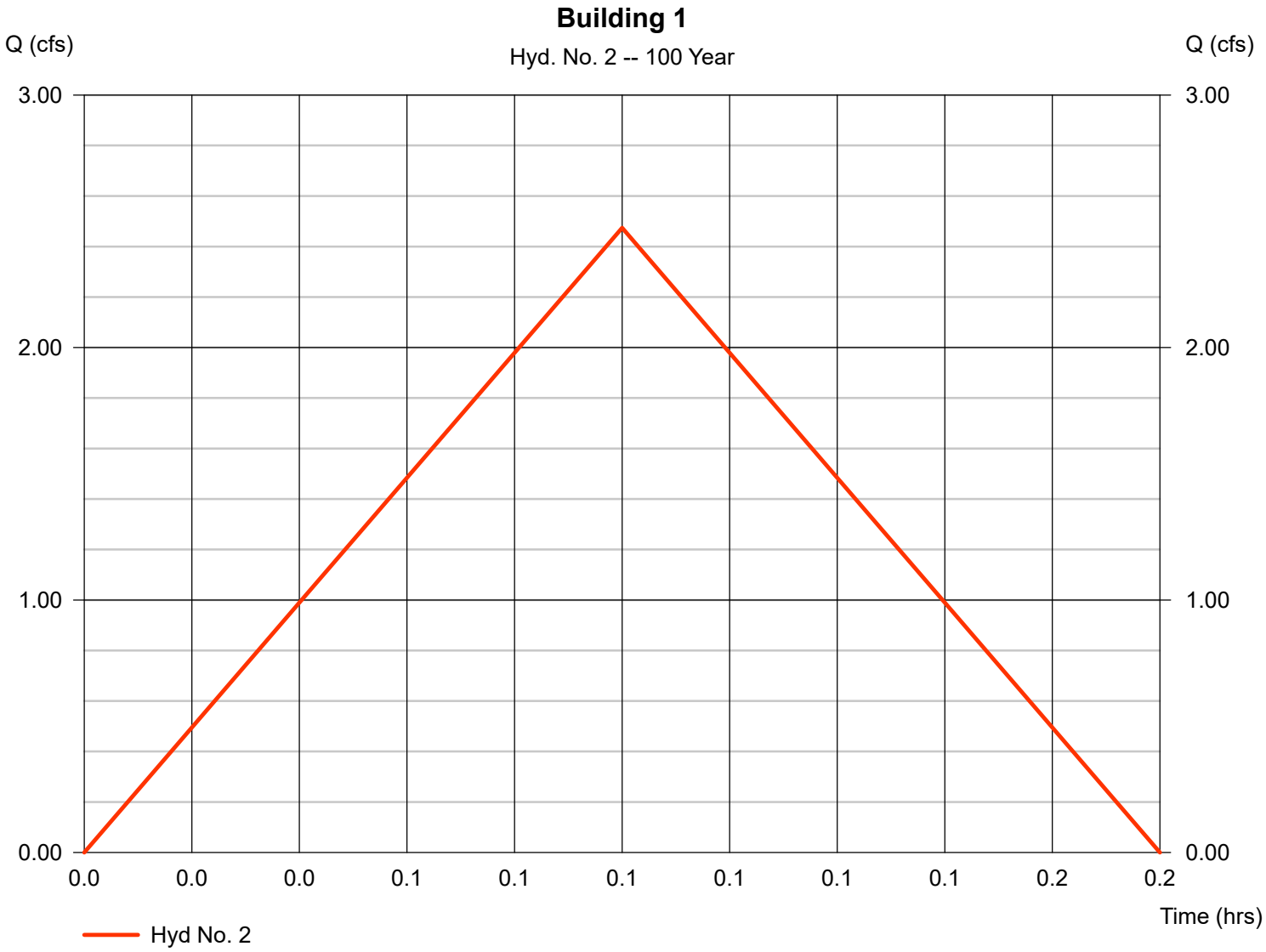
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 2

Building 1

Hydrograph type	=	Rational	Peak discharge	=	2.474 cfs
Storm frequency	=	100 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	742 cuft
Drainage area	=	0.250 ac	Runoff coeff.	=	0.9
Intensity	=	10.995 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



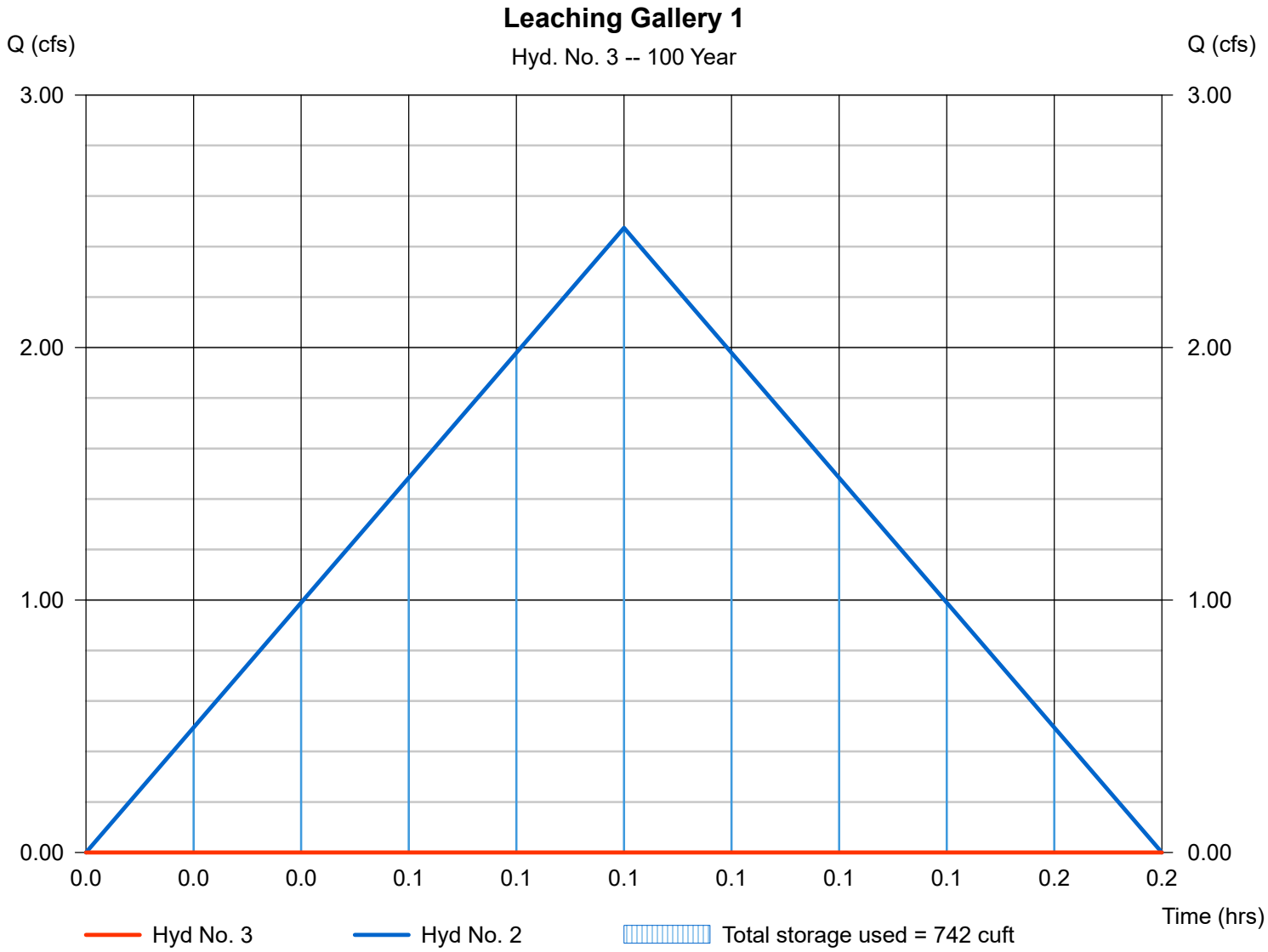
Hydrograph Report

Hyd. No. 3

Leaching Gallery 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	100 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	2 - Building 1	Max. Elevation	=	29.03 ft
Reservoir name	=	Leaching Gallery 1	Max. Storage	=	742 cuft

Storage Indication method used.



Hydrograph Report

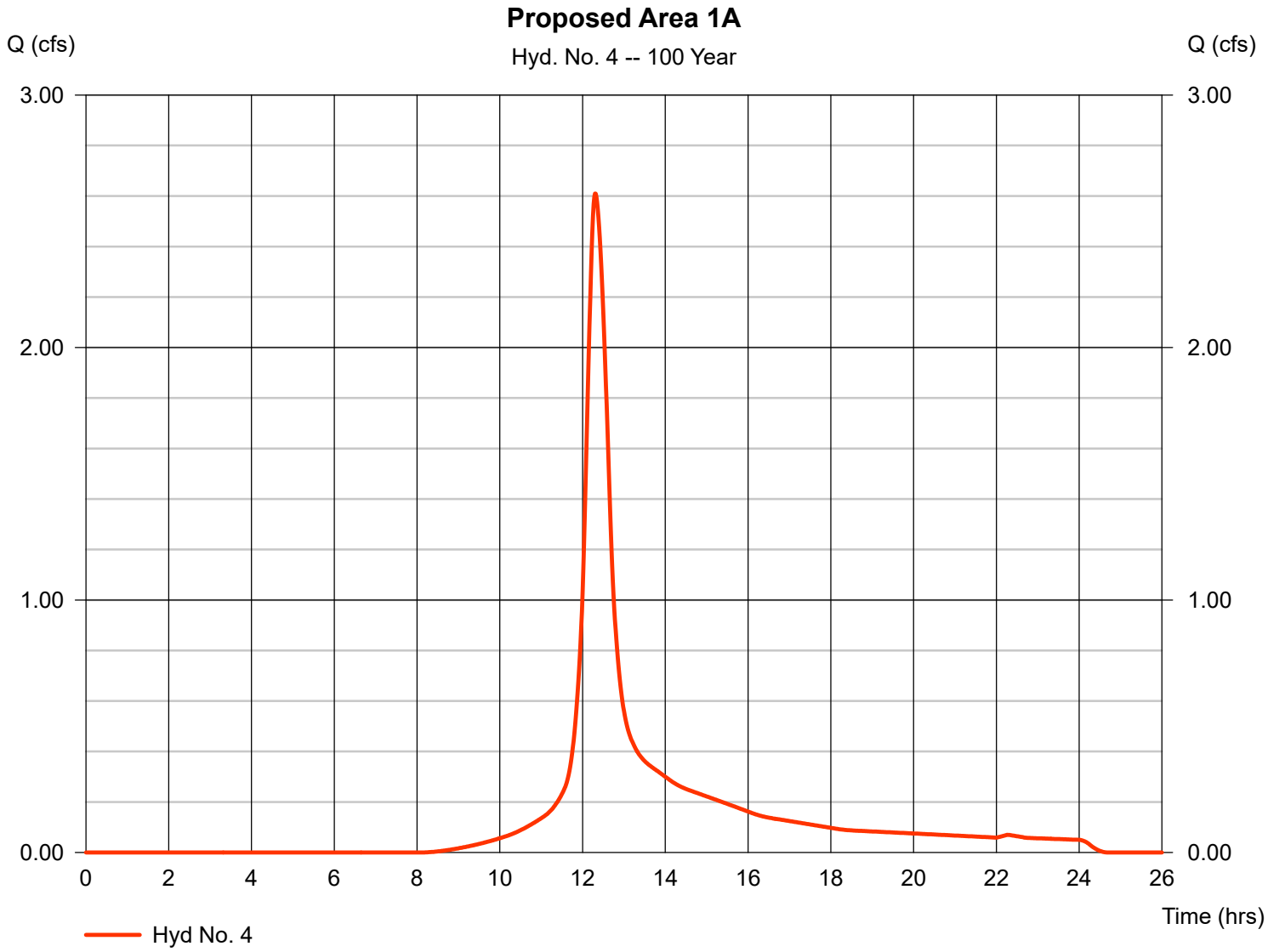
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 4

Proposed Area 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.610 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.30 hrs
Time interval	=	1 min	Hyd. volume	=	13,012 cuft
Drainage area	=	0.950 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.10 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.190 x 55) + (0.450 x 61) + (0.310 x 98)] / 0.950



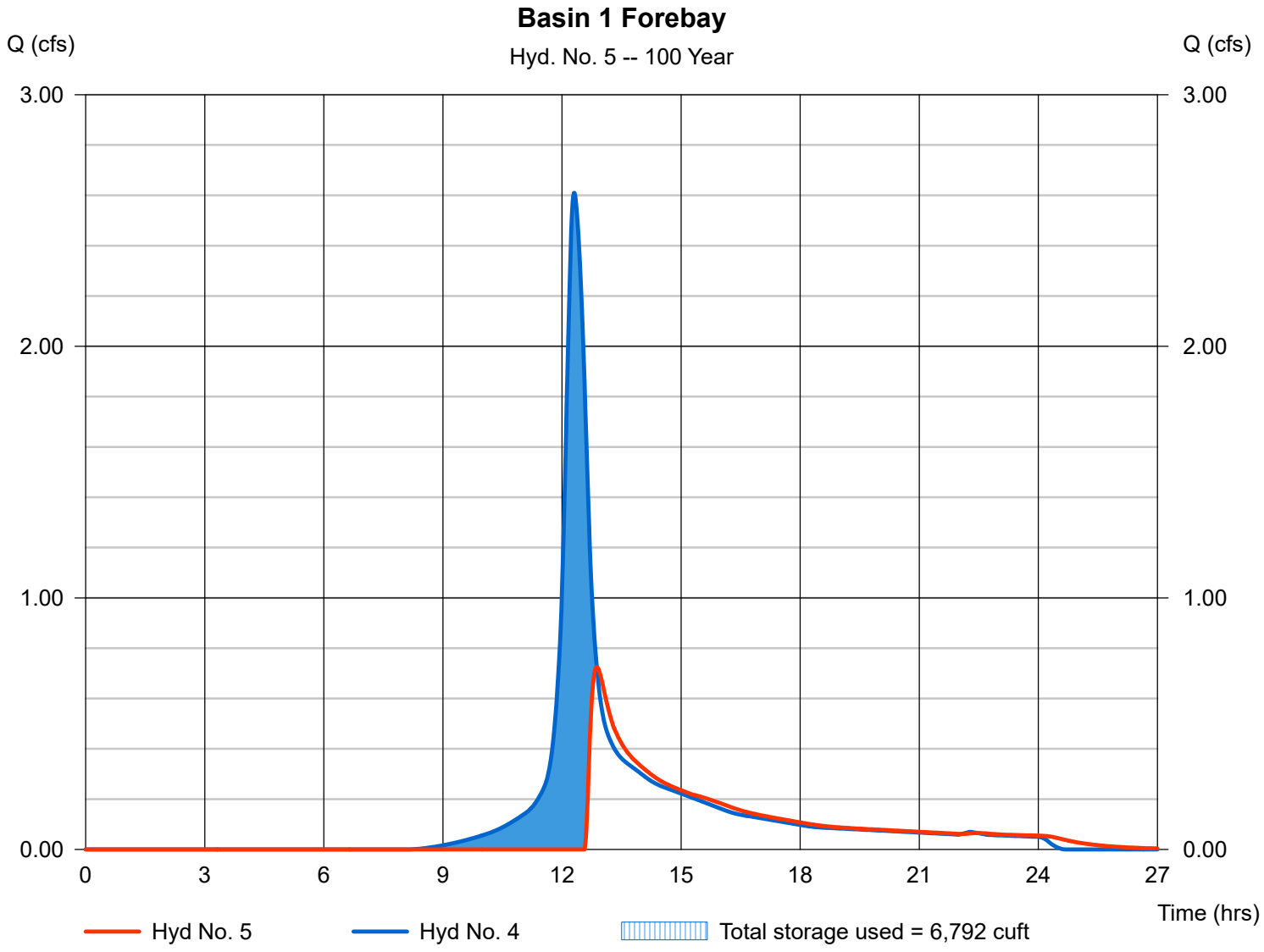
Hydrograph Report

Hyd. No. 5

Basin 1 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	0.725 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.88 hrs
Time interval	=	1 min	Hyd. volume	=	6,999 cuft
Inflow hyd. No.	=	4 - Proposed Area 1A	Max. Elevation	=	27.87 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	6,792 cuft

Storage Indication method used.



Hydrograph Report

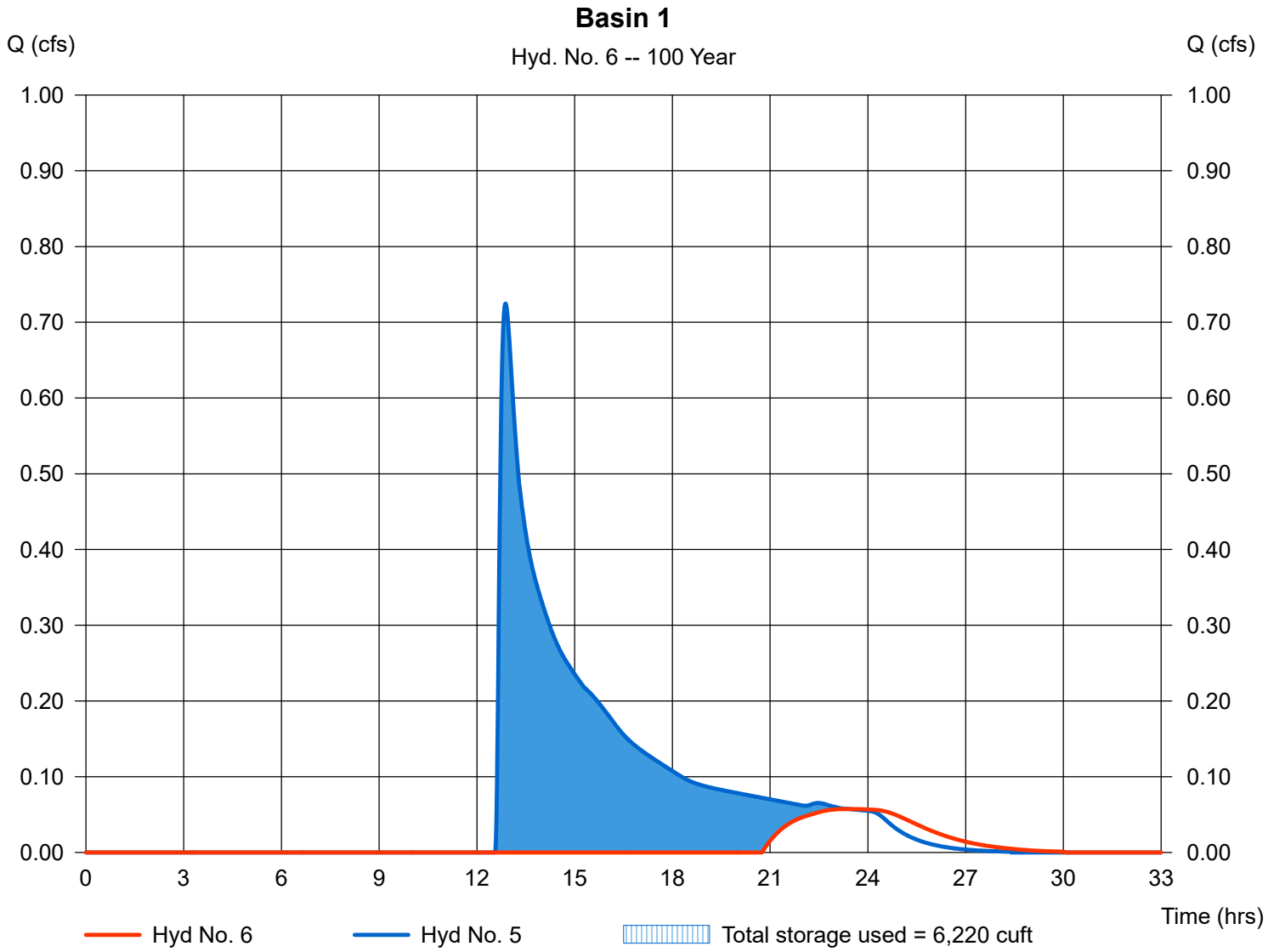
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 6

Basin 1

Hydrograph type	=	Reservoir	Peak discharge	=	0.057 cfs
Storm frequency	=	100 yrs	Time to peak	=	23.43 hrs
Time interval	=	1 min	Hyd. volume	=	986 cuft
Inflow hyd. No.	=	5 - Basin 1 Forebay	Max. Elevation	=	27.60 ft
Reservoir name	=	Basin 1 Forebay	Max. Storage	=	6,220 cuft

Storage Indication method used.



Hydrograph Report

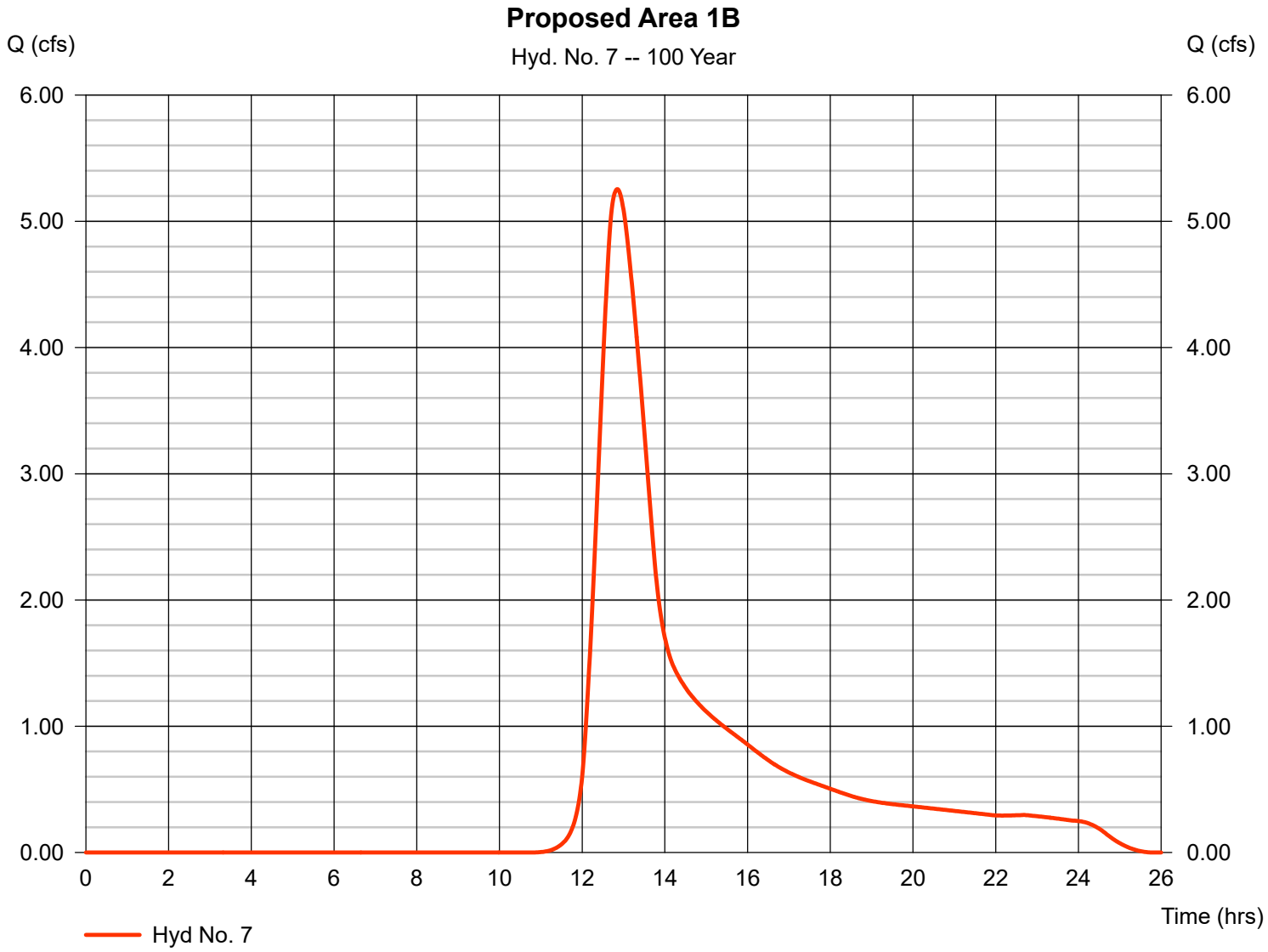
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 7

Proposed Area 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.255 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.85 hrs
Time interval	=	1 min	Hyd. volume	=	46,212 cuft
Drainage area	=	5.930 ac	Curve number	=	56*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	69.10 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.120 x 55) + (0.810 x 61)] / 5.930



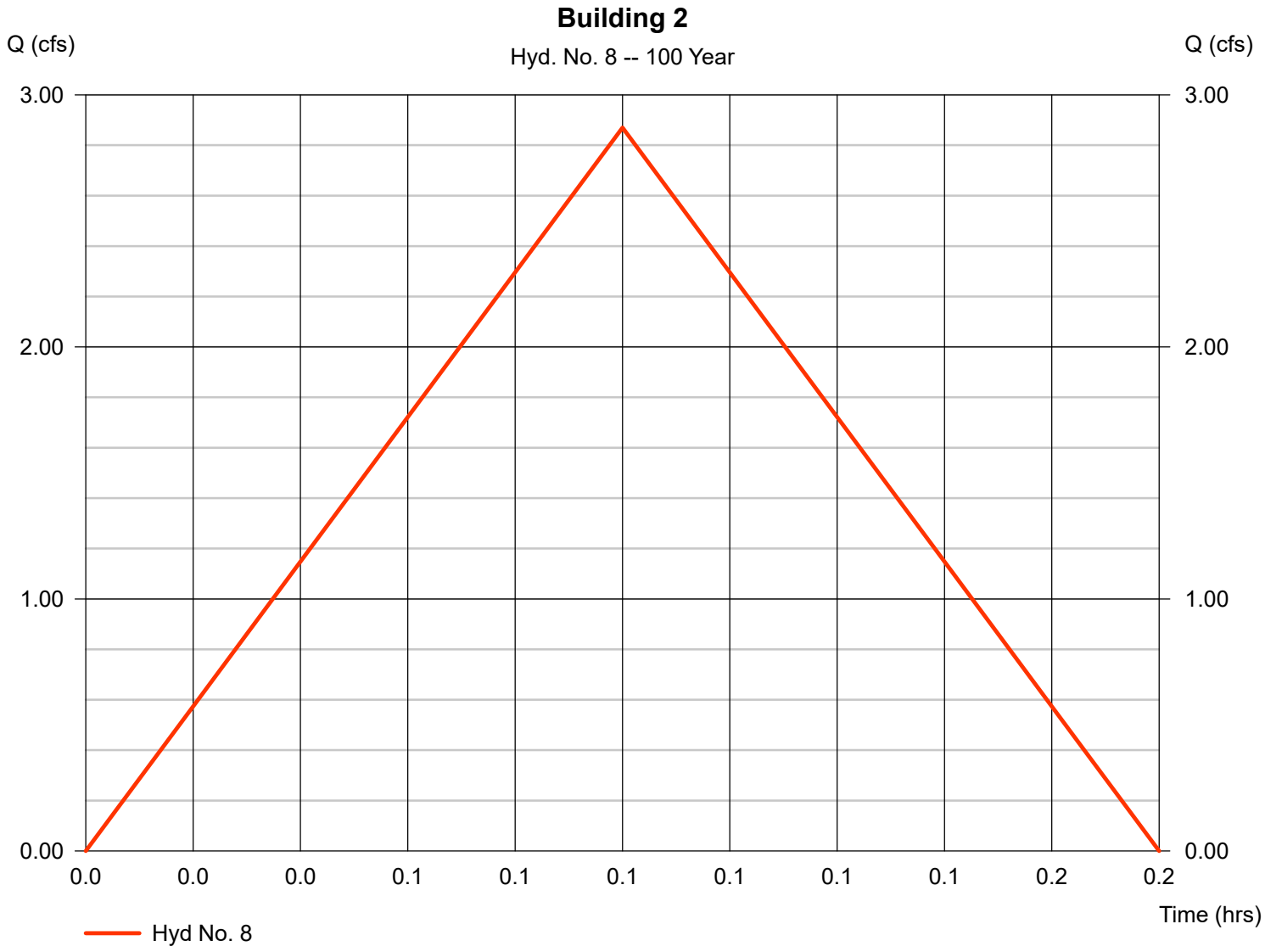
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 8

Building 2

Hydrograph type	=	Rational	Peak discharge	=	2.870 cfs
Storm frequency	=	100 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	861 cuft
Drainage area	=	0.290 ac	Runoff coeff.	=	0.9
Intensity	=	10.995 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



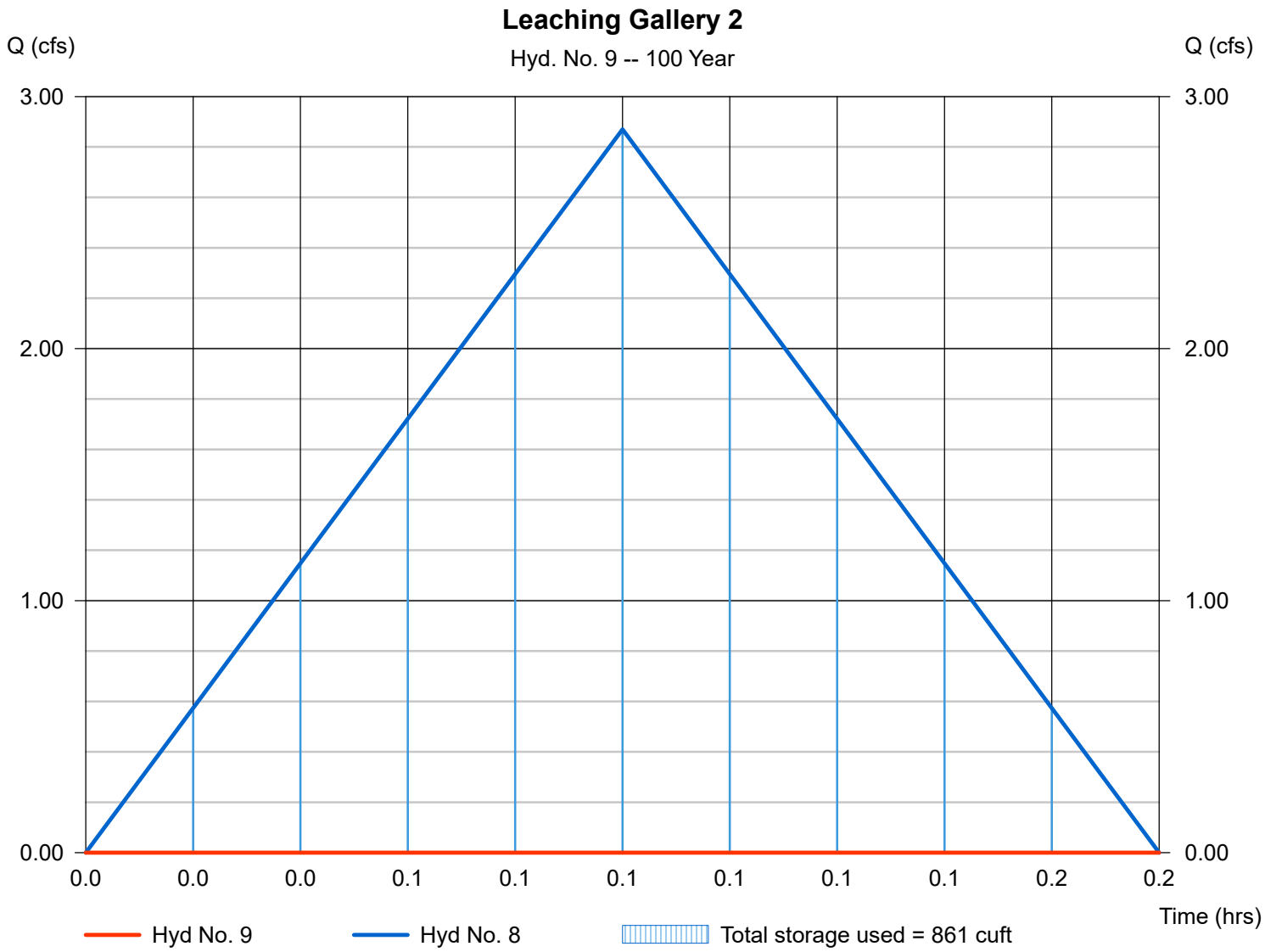
Hydrograph Report

Hyd. No. 9

Leaching Gallery 2

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	100 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	8 - Building 2	Max. Elevation	=	30.42 ft
Reservoir name	=	Leaching Gallery 2	Max. Storage	=	861 cuft

Storage Indication method used.

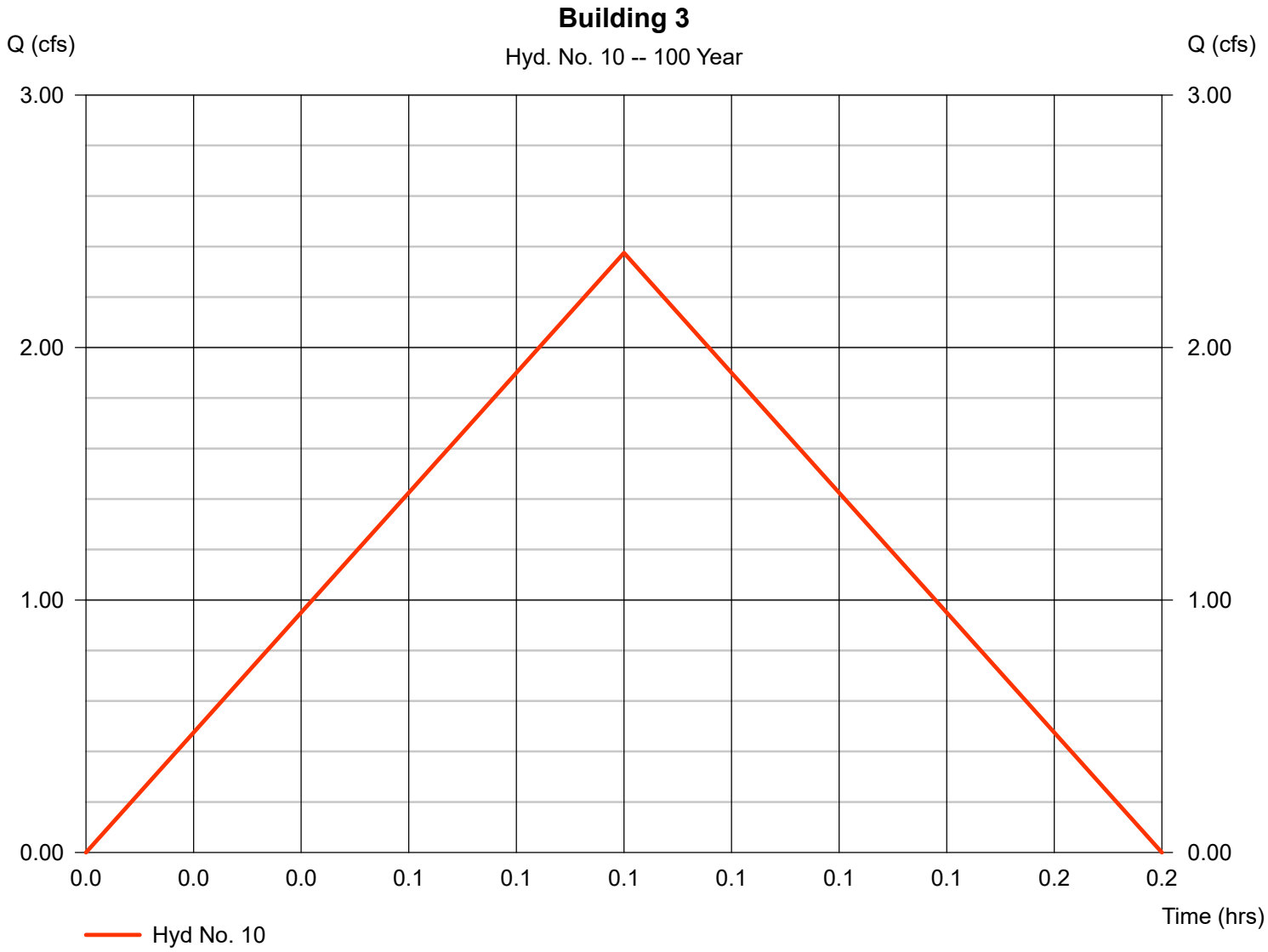


Hydrograph Report

Hyd. No. 10

Building 3

Hydrograph type	=	Rational	Peak discharge	=	2.375 cfs
Storm frequency	=	100 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	712 cuft
Drainage area	=	0.240 ac	Runoff coeff.	=	0.9
Intensity	=	10.995 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



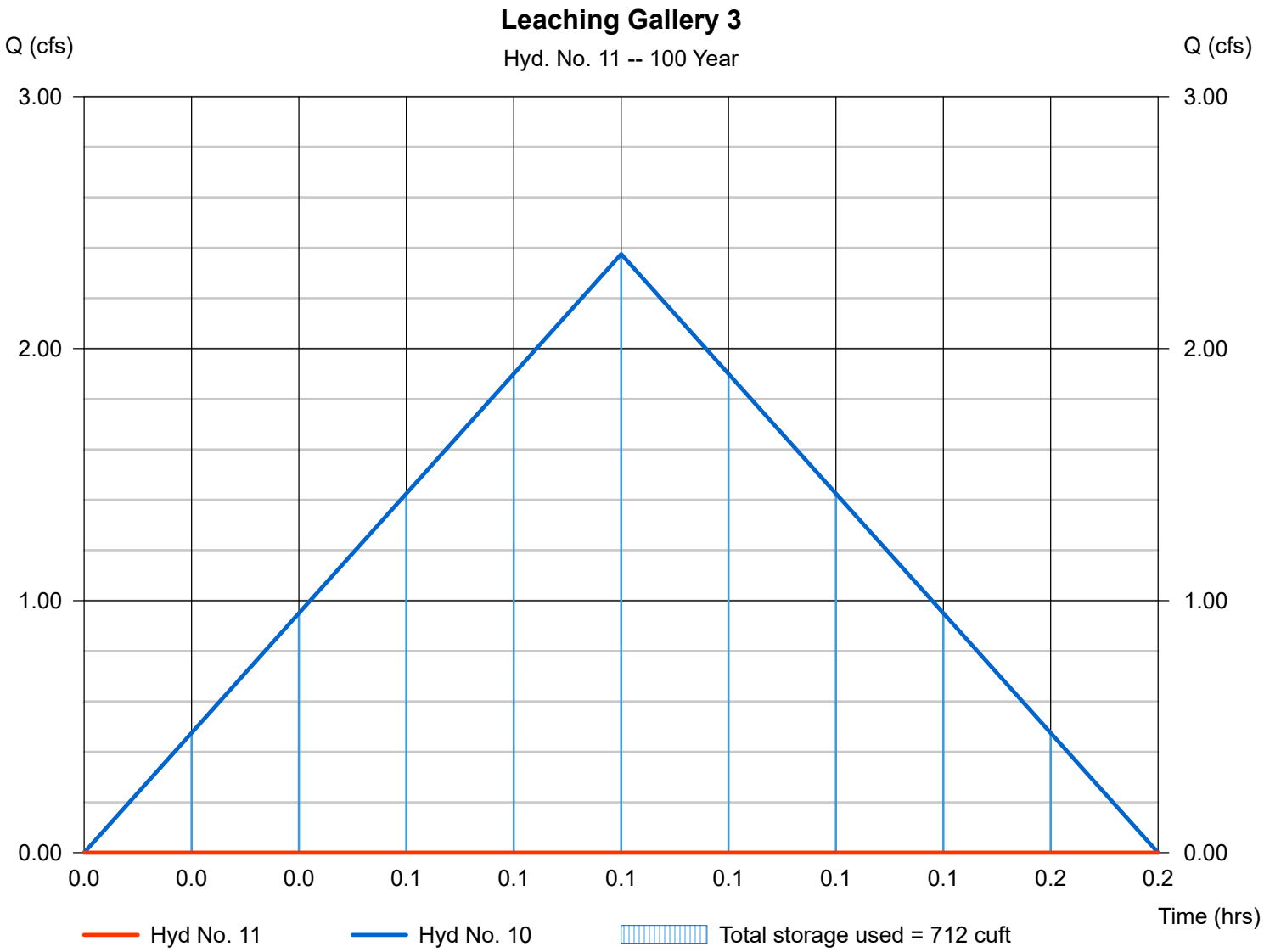
Hydrograph Report

Hyd. No. 11

Leaching Gallery 3

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	100 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	10 - Building 3	Max. Elevation	=	35.13 ft
Reservoir name	=	Leaching Gallery 3	Max. Storage	=	712 cuft

Storage Indication method used.



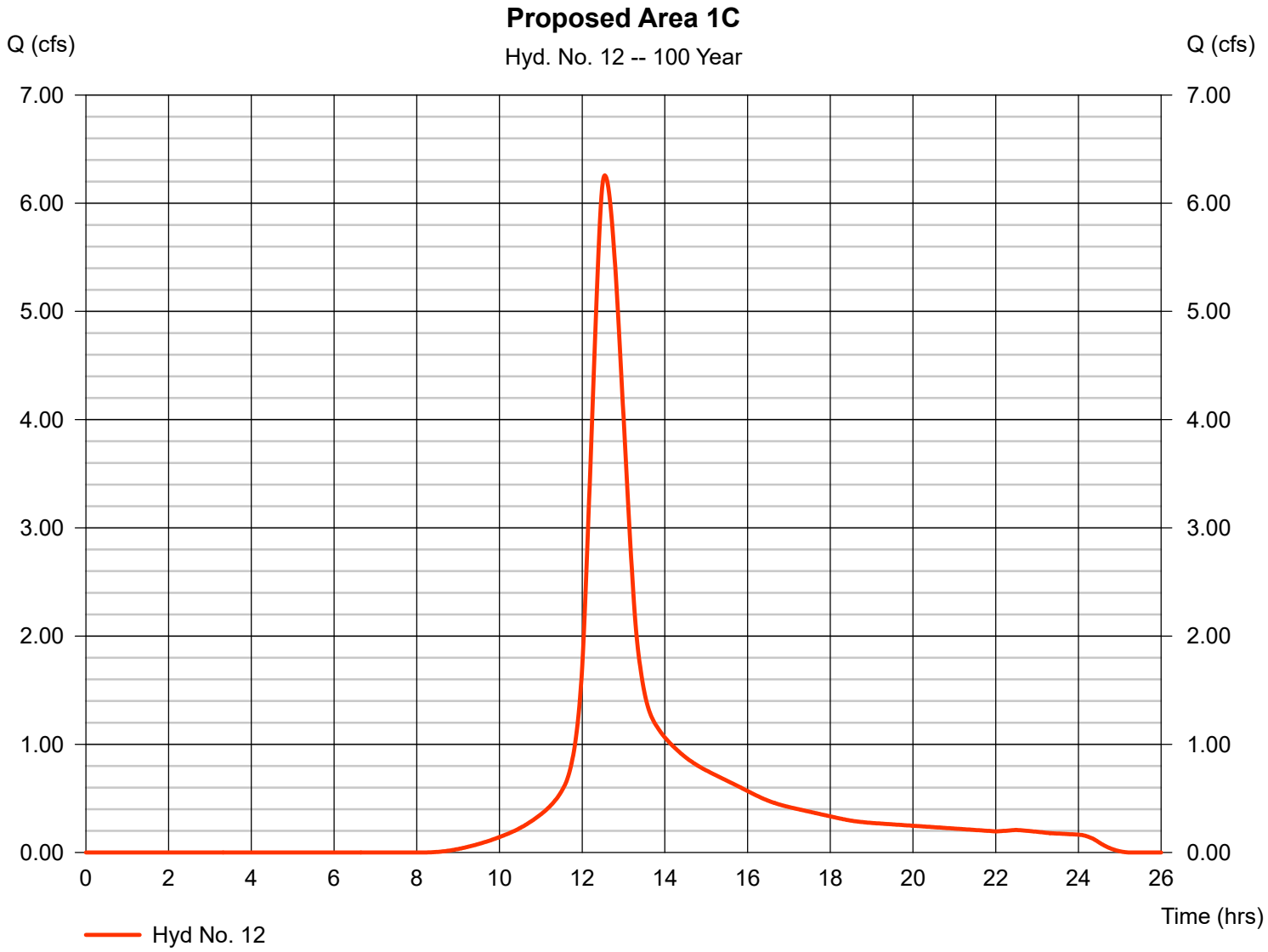
Hydrograph Report

Hyd. No. 12

Proposed Area 1C

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.258 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.55 hrs
Time interval	=	1 min	Hyd. volume	=	41,544 cuft
Drainage area	=	3.070 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	48.50 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 55) + (1.060 x 98) + (1.270 x 61)] / 3.070



Hydrograph Report

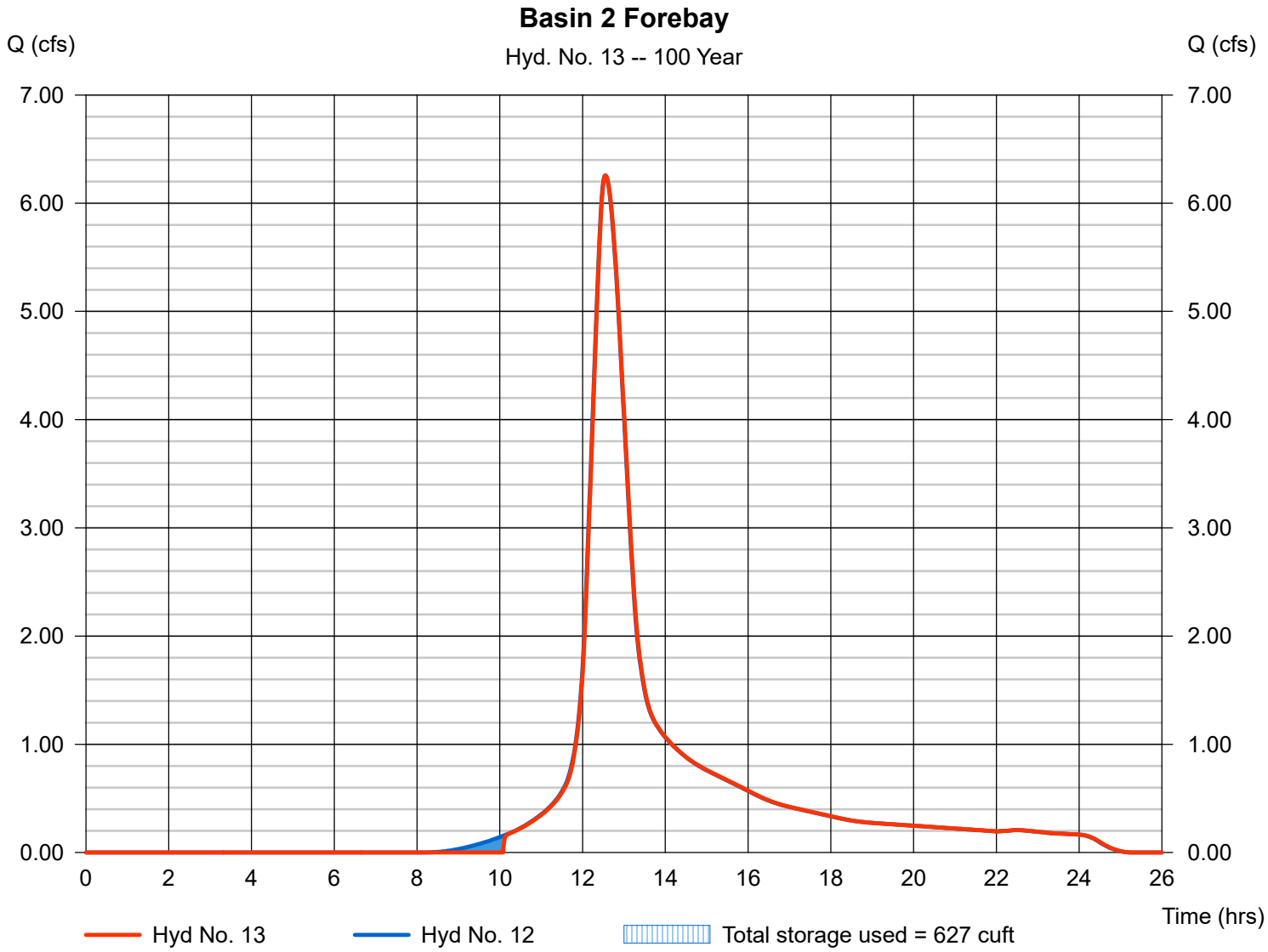
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 13

Basin 2 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	6.255 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.55 hrs
Time interval	=	1 min	Hyd. volume	=	41,171 cuft
Inflow hyd. No.	=	12 - Proposed Area 1C	Max. Elevation	=	23.39 ft
Reservoir name	=	Basin 2 Forebay	Max. Storage	=	627 cuft

Storage Indication method used.



Hydrograph Report

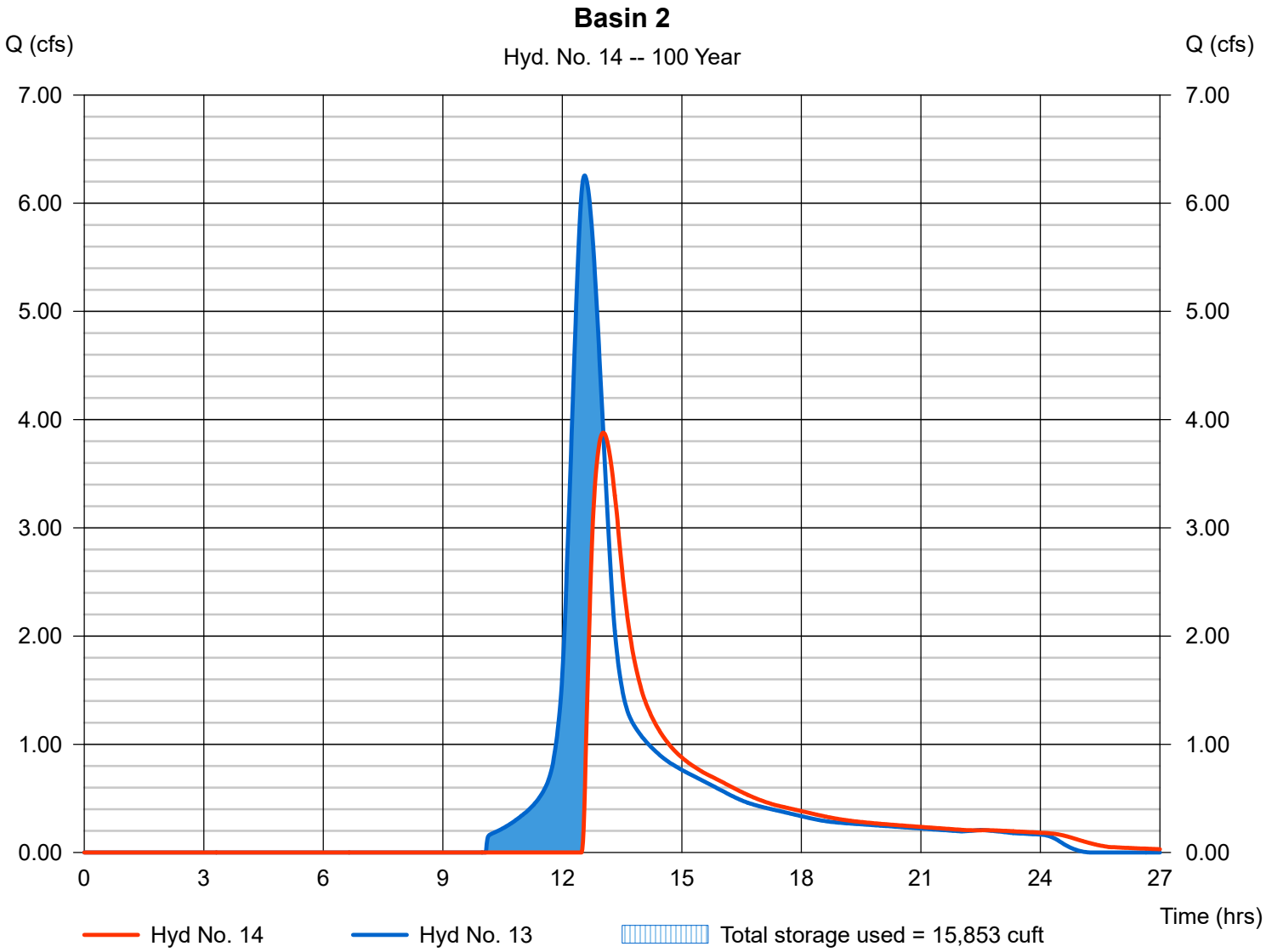
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 14

Basin 2

Hydrograph type	=	Reservoir	Peak discharge	=	3.880 cfs
Storm frequency	=	100 yrs	Time to peak	=	13.03 hrs
Time interval	=	1 min	Hyd. volume	=	31,056 cuft
Inflow hyd. No.	=	13 - Basin 2 Forebay	Max. Elevation	=	27.19 ft
Reservoir name	=	Basin 2	Max. Storage	=	15,853 cuft

Storage Indication method used.

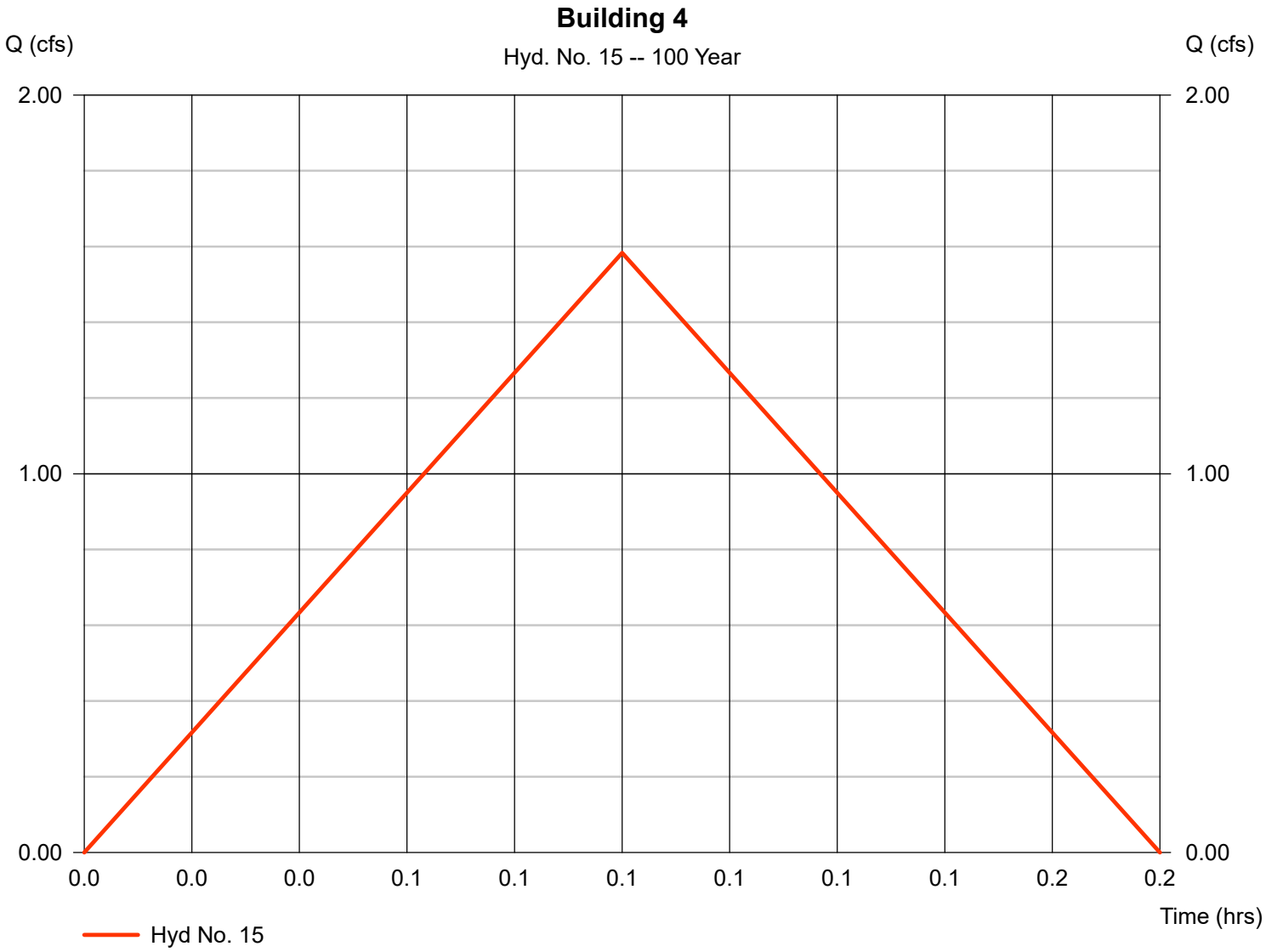


Hydrograph Report

Hyd. No. 15

Building 4

Hydrograph type	=	Rational	Peak discharge	=	1.583 cfs
Storm frequency	=	100 yrs	Time to peak	=	0.08 hrs
Time interval	=	1 min	Hyd. volume	=	475 cuft
Drainage area	=	0.160 ac	Runoff coeff.	=	0.9
Intensity	=	10.995 in/hr	Tc by User	=	5.00 min
IDF Curve	=	NOAA.IDF	Asc/Rec limb fact	=	1/1



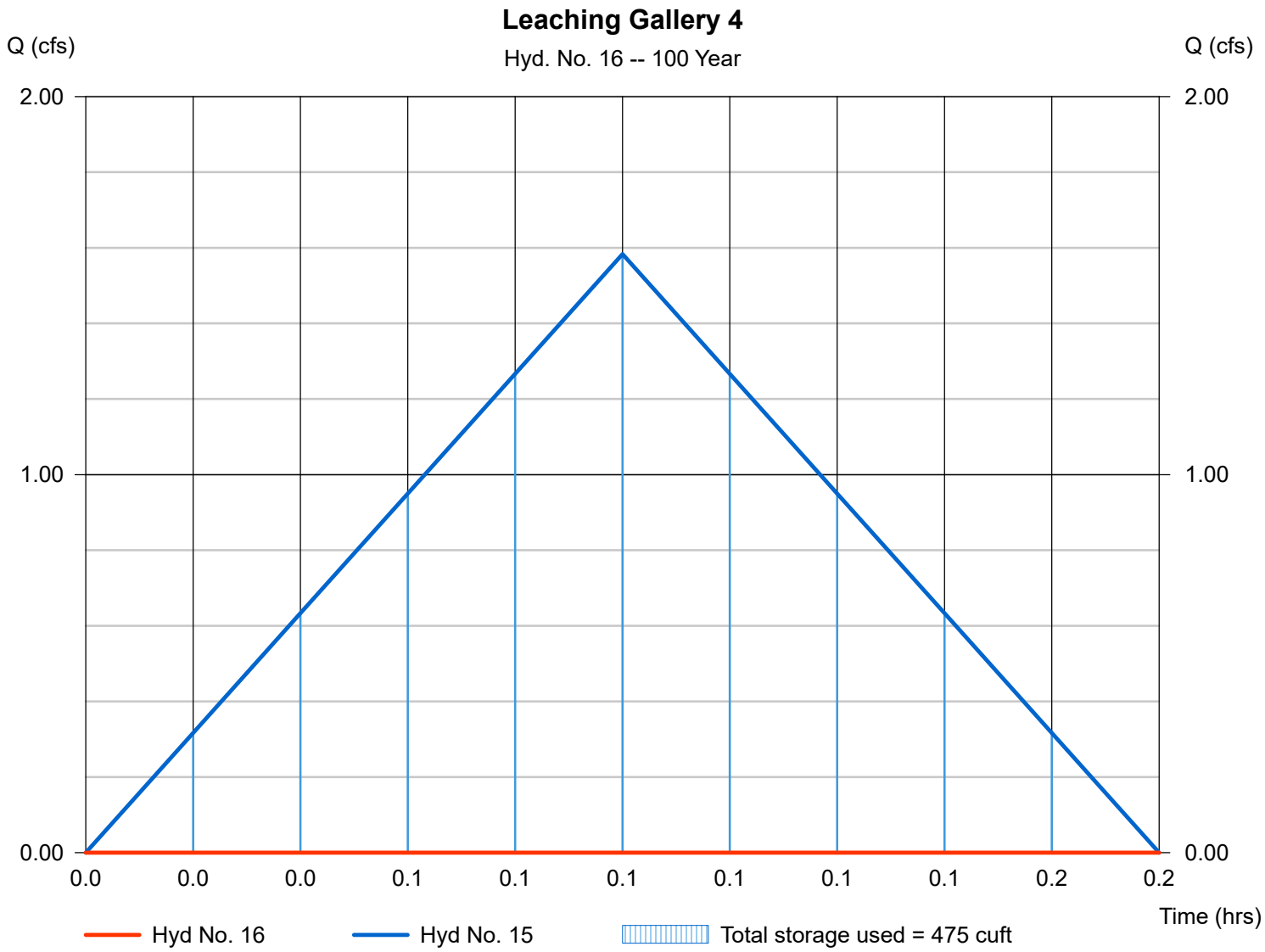
Hydrograph Report

Hyd. No. 16

Leaching Gallery 4

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	100 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	15 - Building 4	Max. Elevation	=	40.71 ft
Reservoir name	=	Leaching Gallery 4	Max. Storage	=	475 cuft

Storage Indication method used.



Hydrograph Report

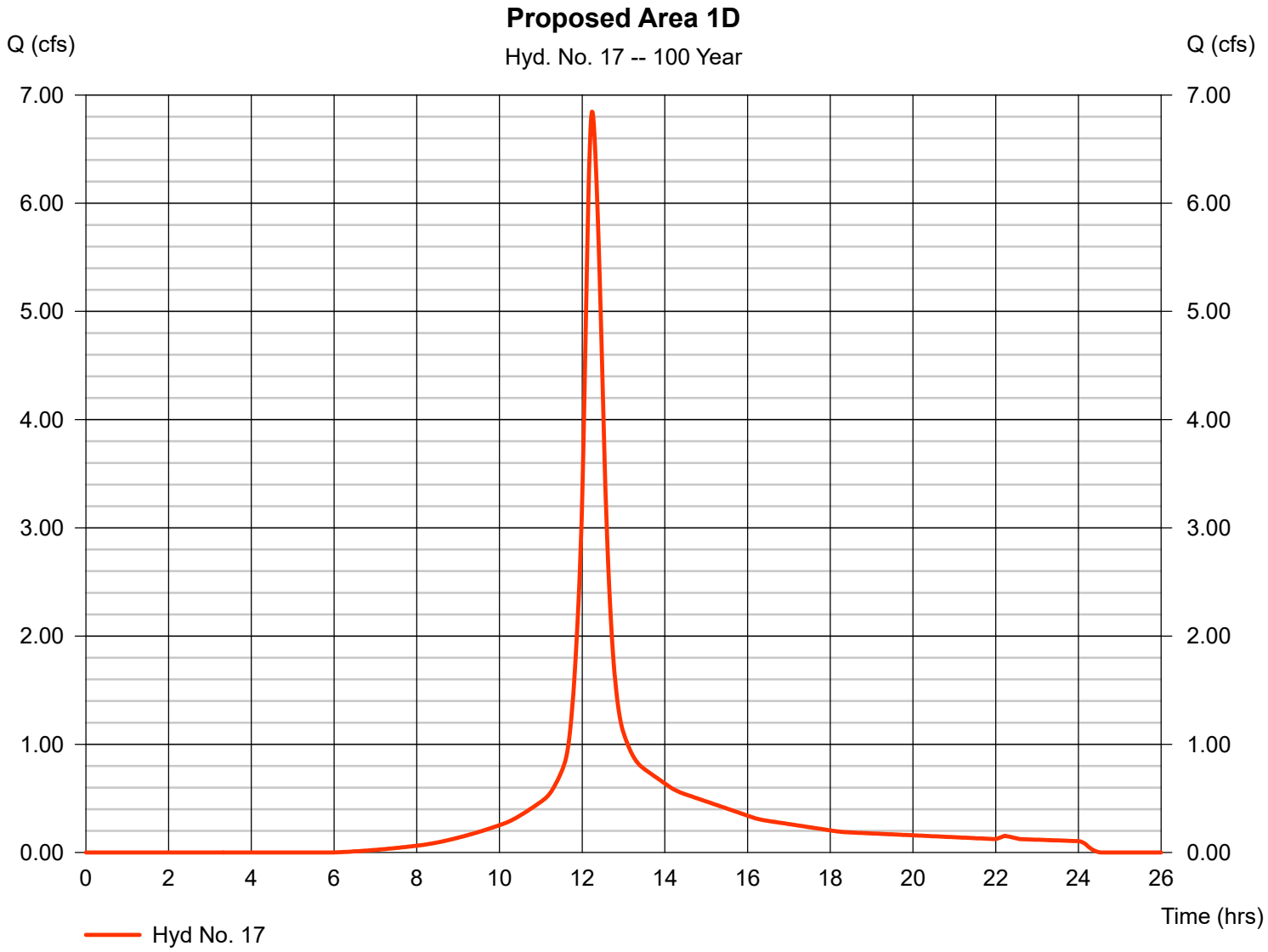
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 17

Proposed Area 1D

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.846 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.23 hrs
Time interval	=	1 min	Hyd. volume	=	31,603 cuft
Drainage area	=	1.830 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.50 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.010 x 98) + (0.820 x 61)] / 1.830



Hydrograph Report

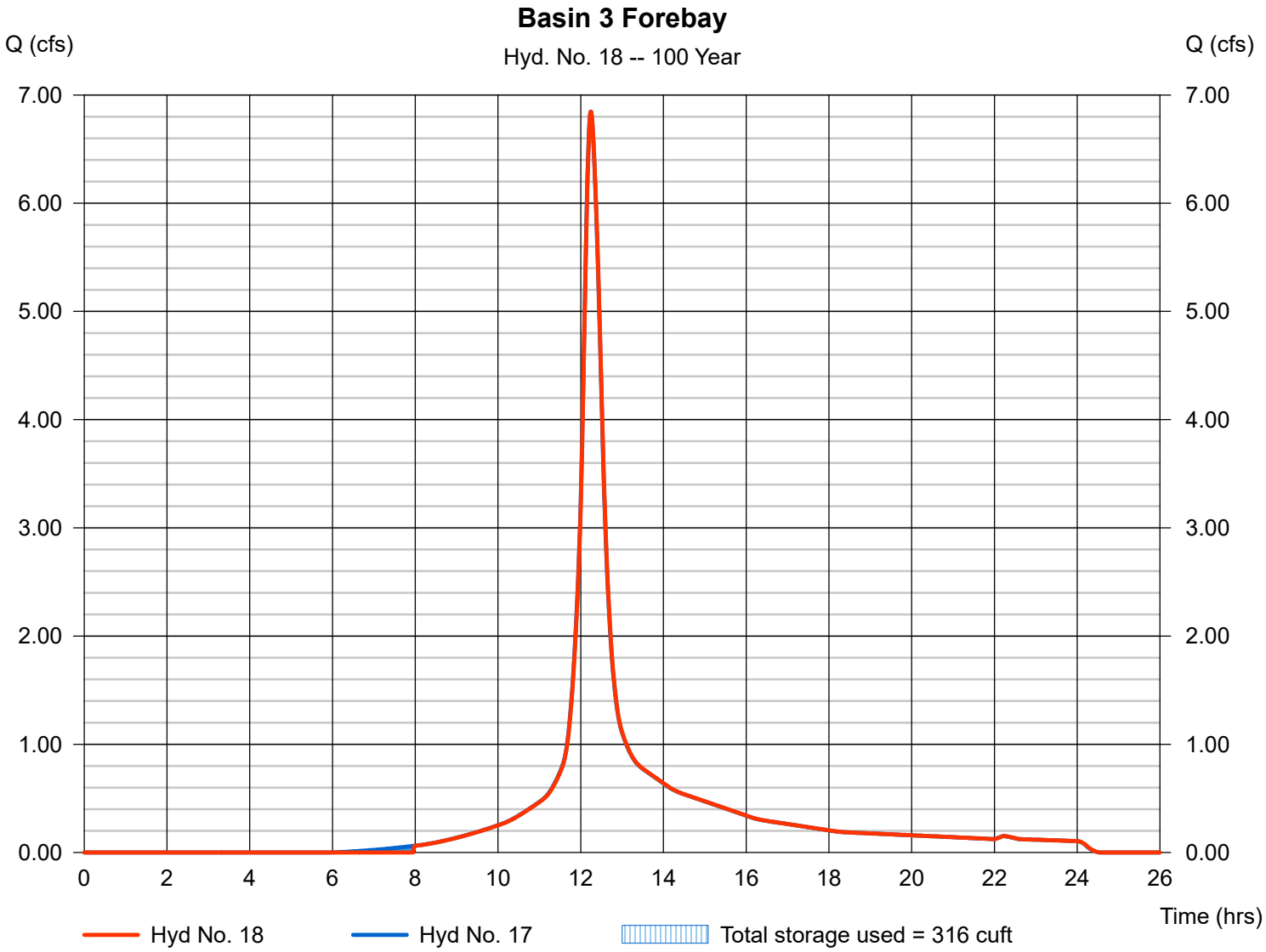
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 18

Basin 3 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	6.846 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.25 hrs
Time interval	=	1 min	Hyd. volume	=	31,423 cuft
Inflow hyd. No.	=	17 - Proposed Area 1D	Max. Elevation	=	33.41 ft
Reservoir name	=	Basin 3 Forebay	Max. Storage	=	316 cuft

Storage Indication method used.



Hydrograph Report

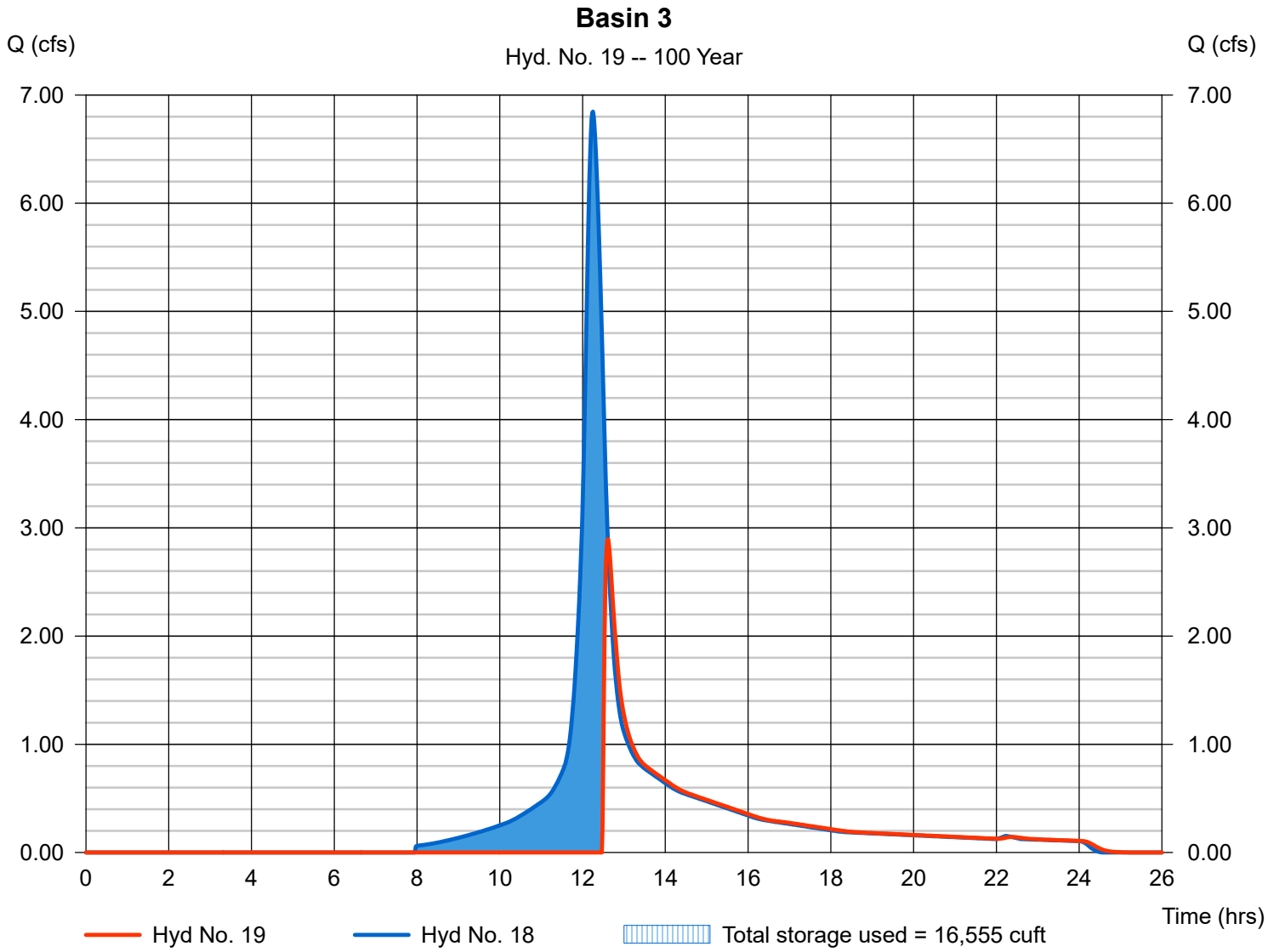
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 19

Basin 3

Hydrograph type	=	Reservoir	Peak discharge	=	2.895 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.62 hrs
Time interval	=	1 min	Hyd. volume	=	15,770 cuft
Inflow hyd. No.	=	18 - Basin 3 Forebay	Max. Elevation	=	36.73 ft
Reservoir name	=	Basin 3	Max. Storage	=	16,555 cuft

Storage Indication method used.

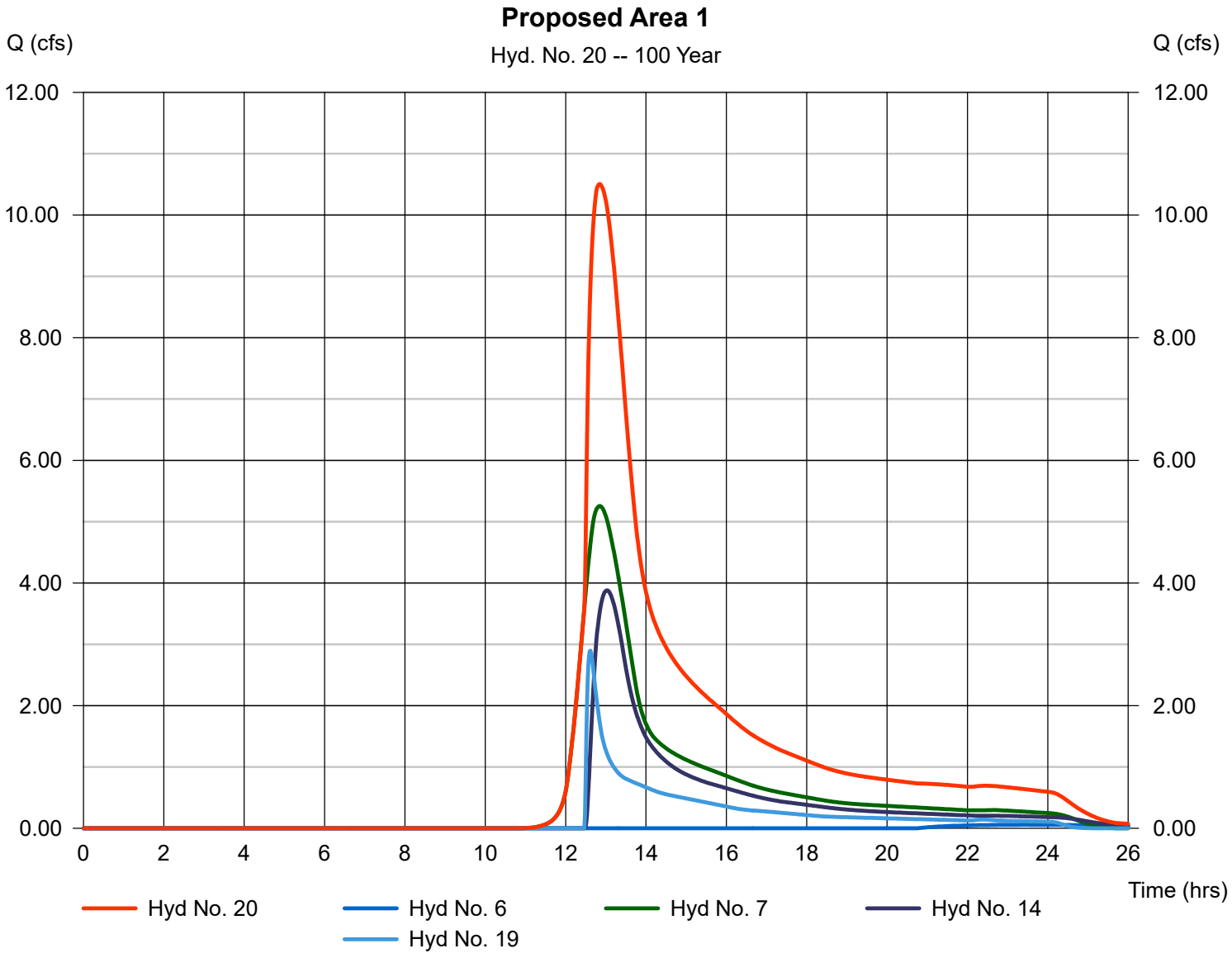


Hydrograph Report

Hyd. No. 20

Proposed Area 1

Hydrograph type	= Combine	Peak discharge	= 10.51 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.85 hrs
Time interval	= 1 min	Hyd. volume	= 94,024 cuft
Inflow hyds.	= 6, 7, 14, 19	Contrib. drain. area	= 5.930 ac



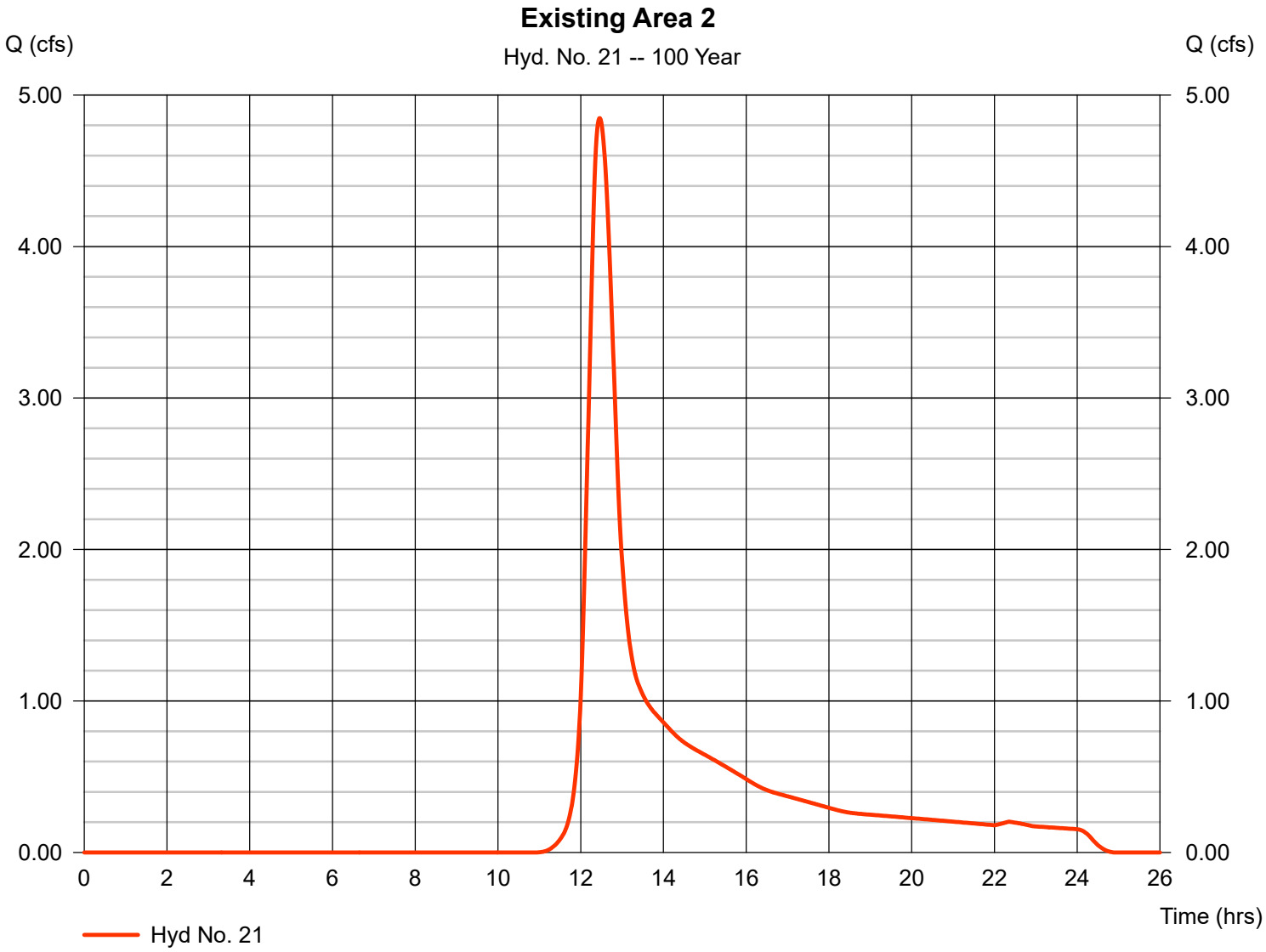
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 21

Existing Area 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.847 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.47 hrs
Time interval	=	1 min	Hyd. volume	=	29,322 cuft
Drainage area	=	3.920 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	35.00 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

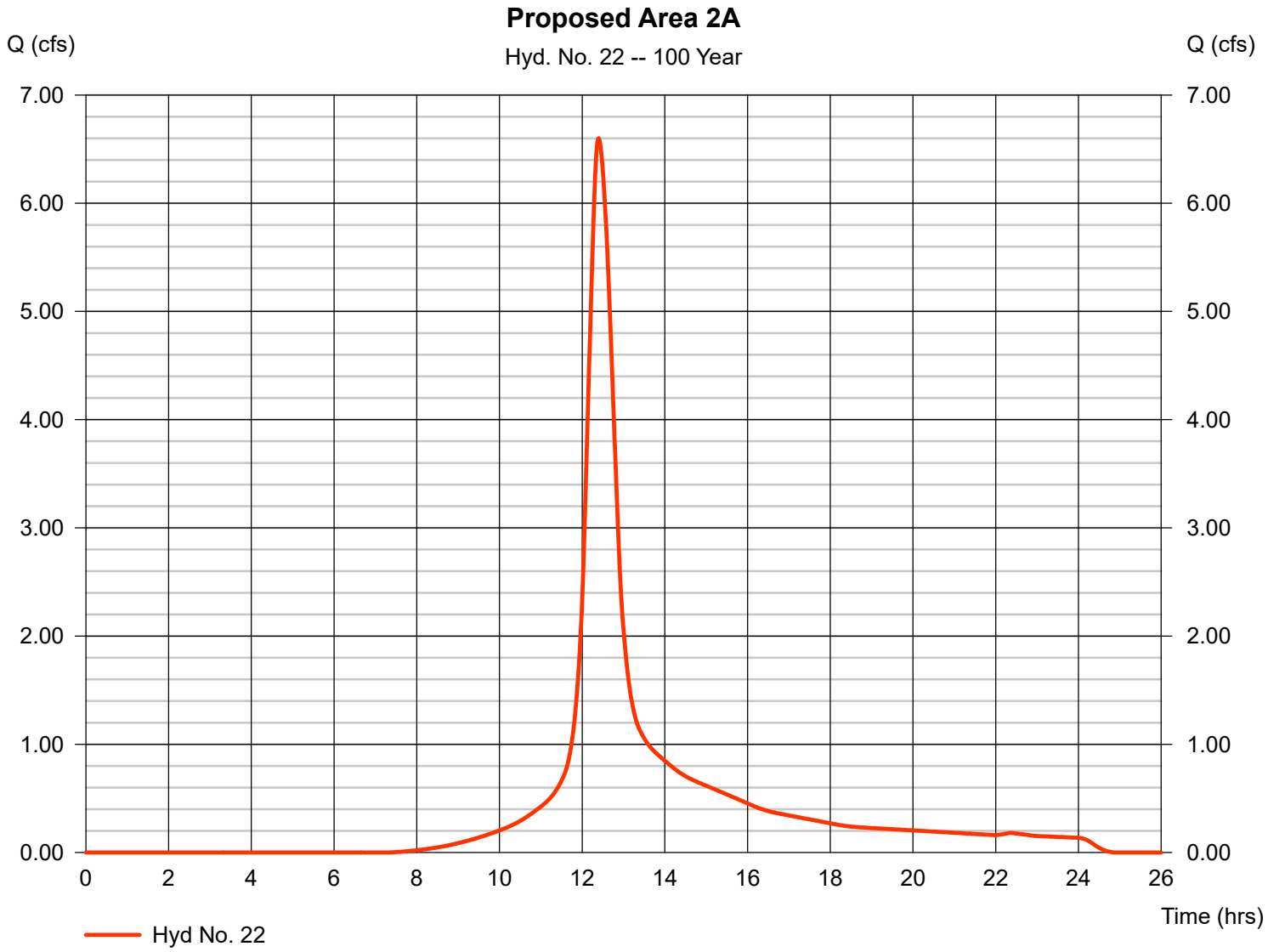
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 22

Proposed Area 2A

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.601 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.40 hrs
Time interval	=	1 min	Hyd. volume	=	37,072 cuft
Drainage area	=	2.450 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	34.80 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.090 x 98) + (0.870 x 61) + (0.490 x 55)] / 2.450



Hydrograph Report

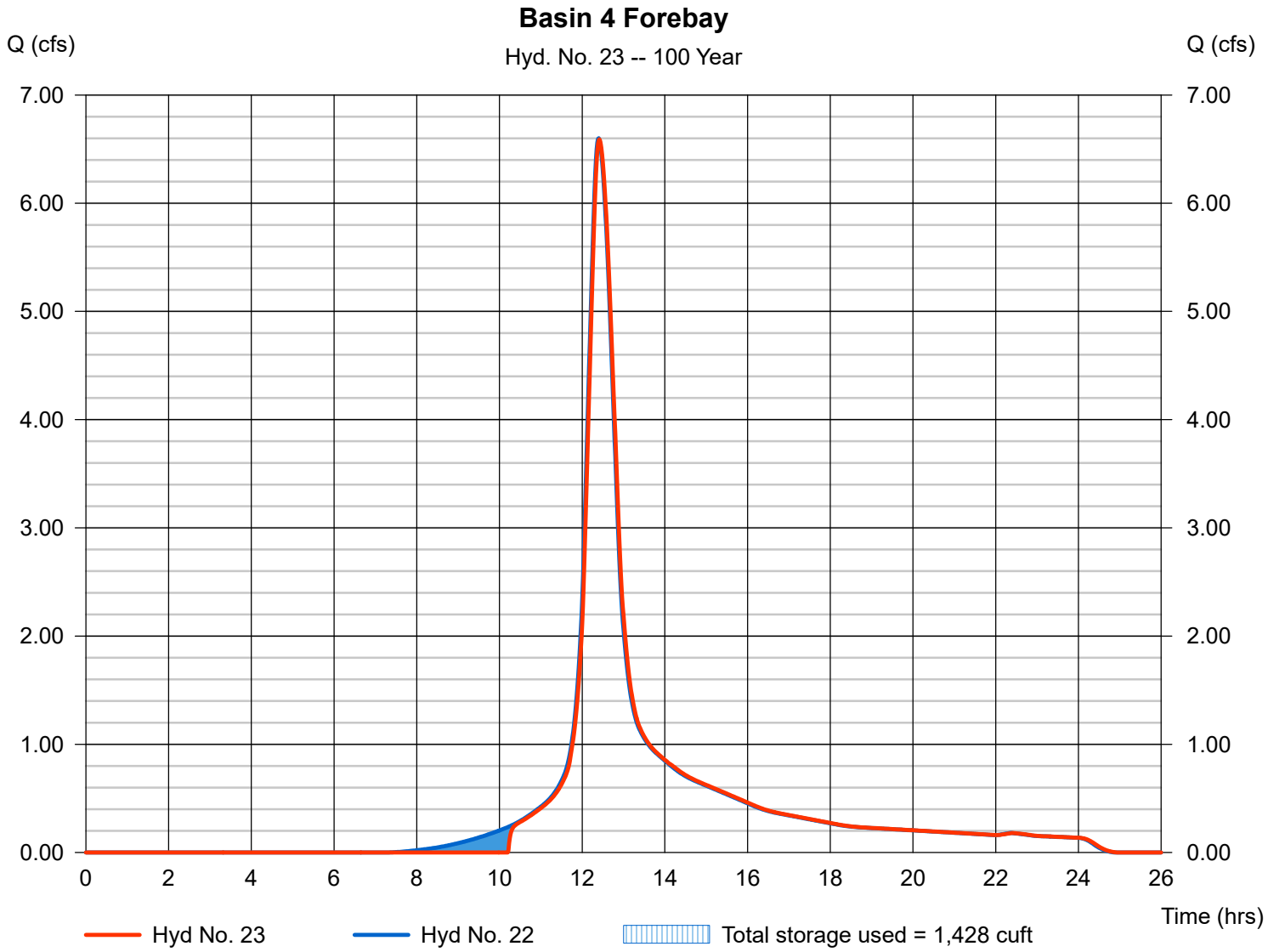
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 23

Basin 4 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	6.590 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.42 hrs
Time interval	=	1 min	Hyd. volume	=	36,198 cuft
Inflow hyd. No.	=	22 - Proposed Area 2A	Max. Elevation	=	53.40 ft
Reservoir name	=	Basin 4 Forebay	Max. Storage	=	1,428 cuft

Storage Indication method used.



Hydrograph Report

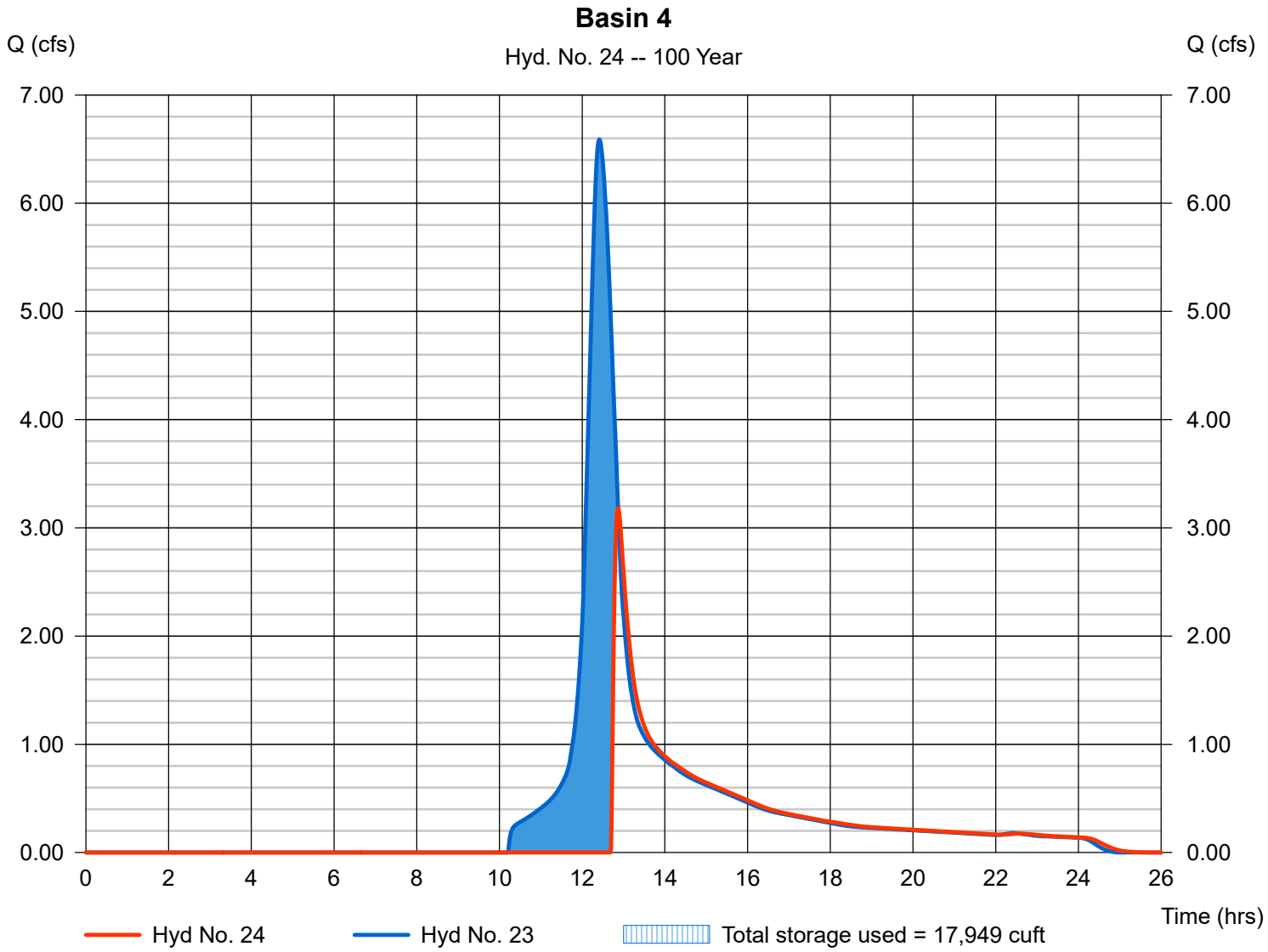
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 24

Basin 4

Hydrograph type	=	Reservoir	Peak discharge	=	3.184 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.87 hrs
Time interval	=	1 min	Hyd. volume	=	19,442 cuft
Inflow hyd. No.	=	23 - Basin 4 Forebay	Max. Elevation	=	56.75 ft
Reservoir name	=	Basin 4	Max. Storage	=	17,949 cuft

Storage Indication method used.



Hydrograph Report

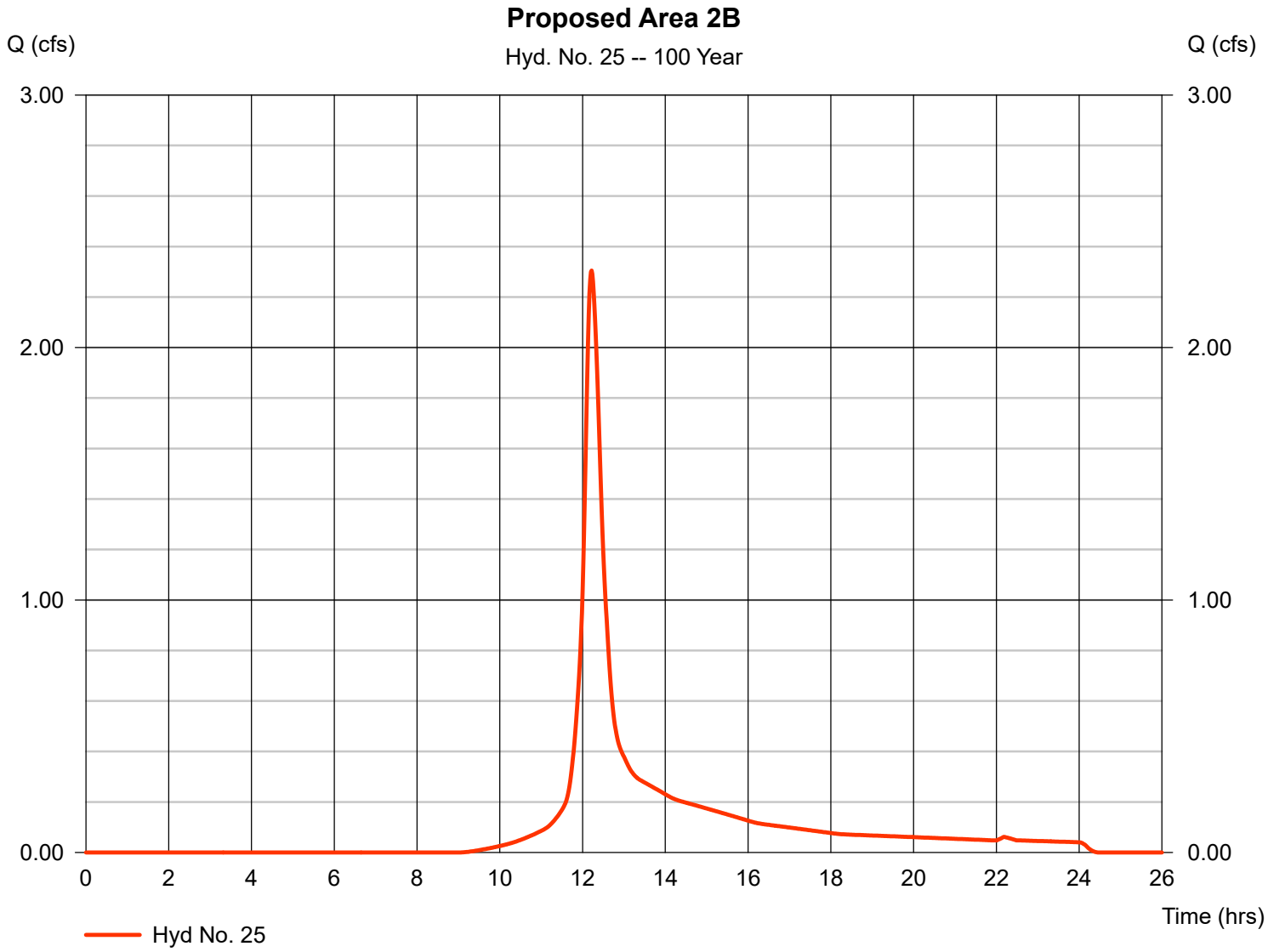
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 25

Proposed Area 2B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.305 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.22 hrs
Time interval	=	1 min	Hyd. volume	=	9,845 cuft
Drainage area	=	0.850 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.10 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 98) + (0.640 x 61) + (0.060 x 55)] / 0.850



Hydrograph Report

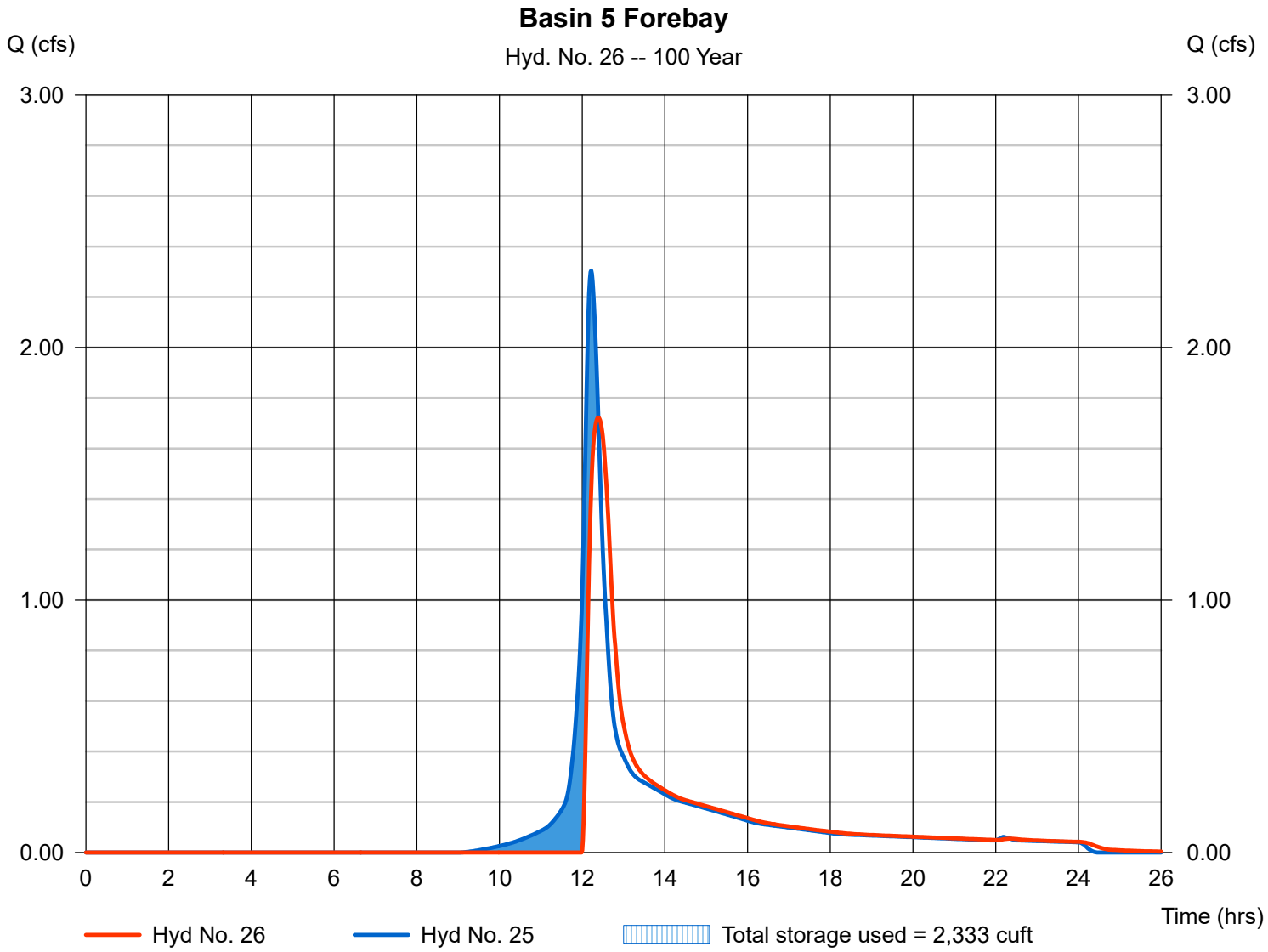
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 26

Basin 5 Forebay

Hydrograph type	=	Reservoir	Peak discharge	=	1.723 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.38 hrs
Time interval	=	1 min	Hyd. volume	=	8,673 cuft
Inflow hyd. No.	=	25 - Proposed Area 2B	Max. Elevation	=	67.28 ft
Reservoir name	=	Basin 5 Forebay	Max. Storage	=	2,333 cuft

Storage Indication method used.



Hydrograph Report

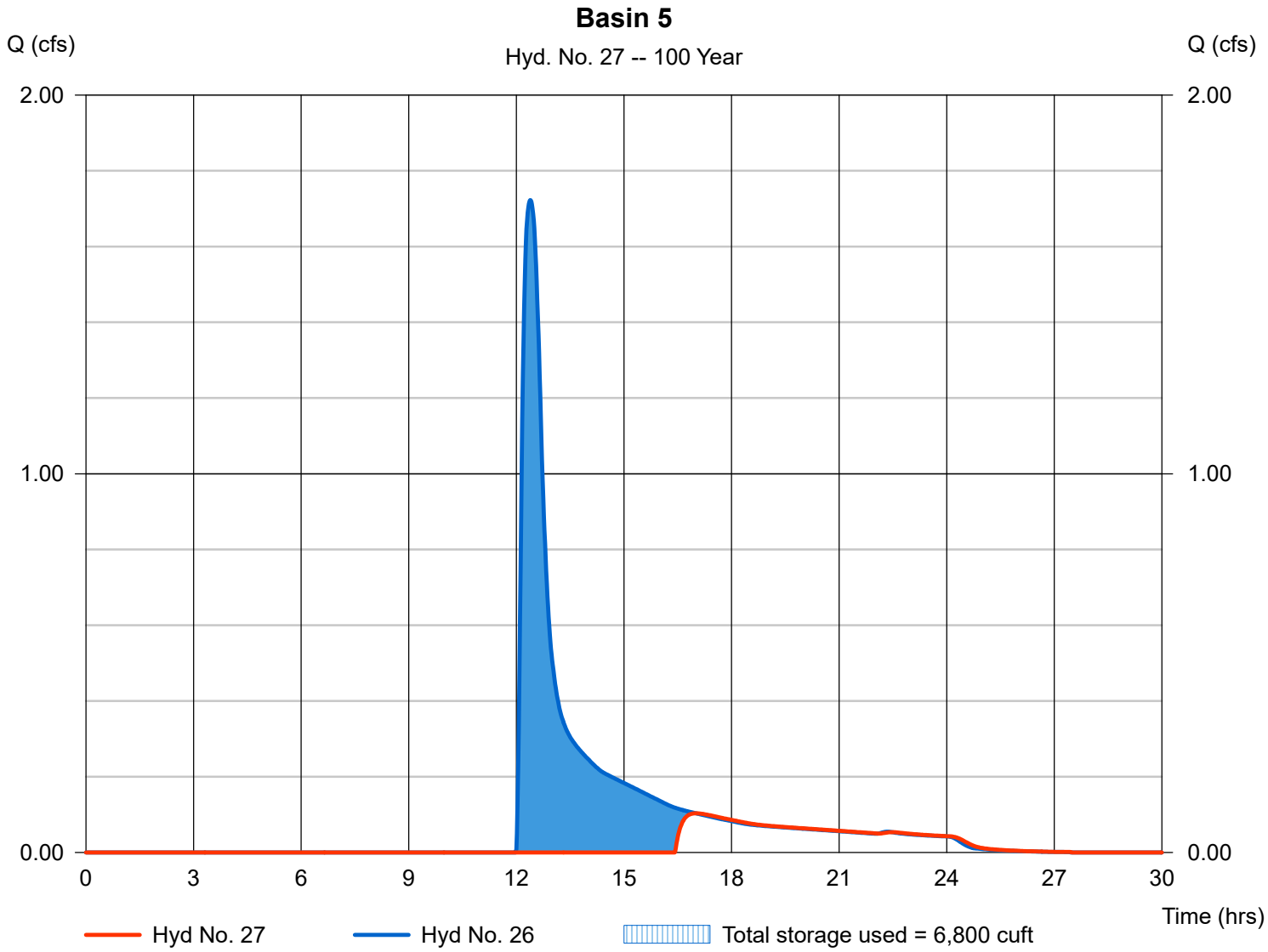
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 27

Basin 5

Hydrograph type	=	Reservoir	Peak discharge	=	0.103 cfs
Storm frequency	=	100 yrs	Time to peak	=	17.02 hrs
Time interval	=	1 min	Hyd. volume	=	1,936 cuft
Inflow hyd. No.	=	26 - Basin 5 Forebay	Max. Elevation	=	66.52 ft
Reservoir name	=	Basin 5	Max. Storage	=	6,800 cuft

Storage Indication method used.



Hydrograph Report

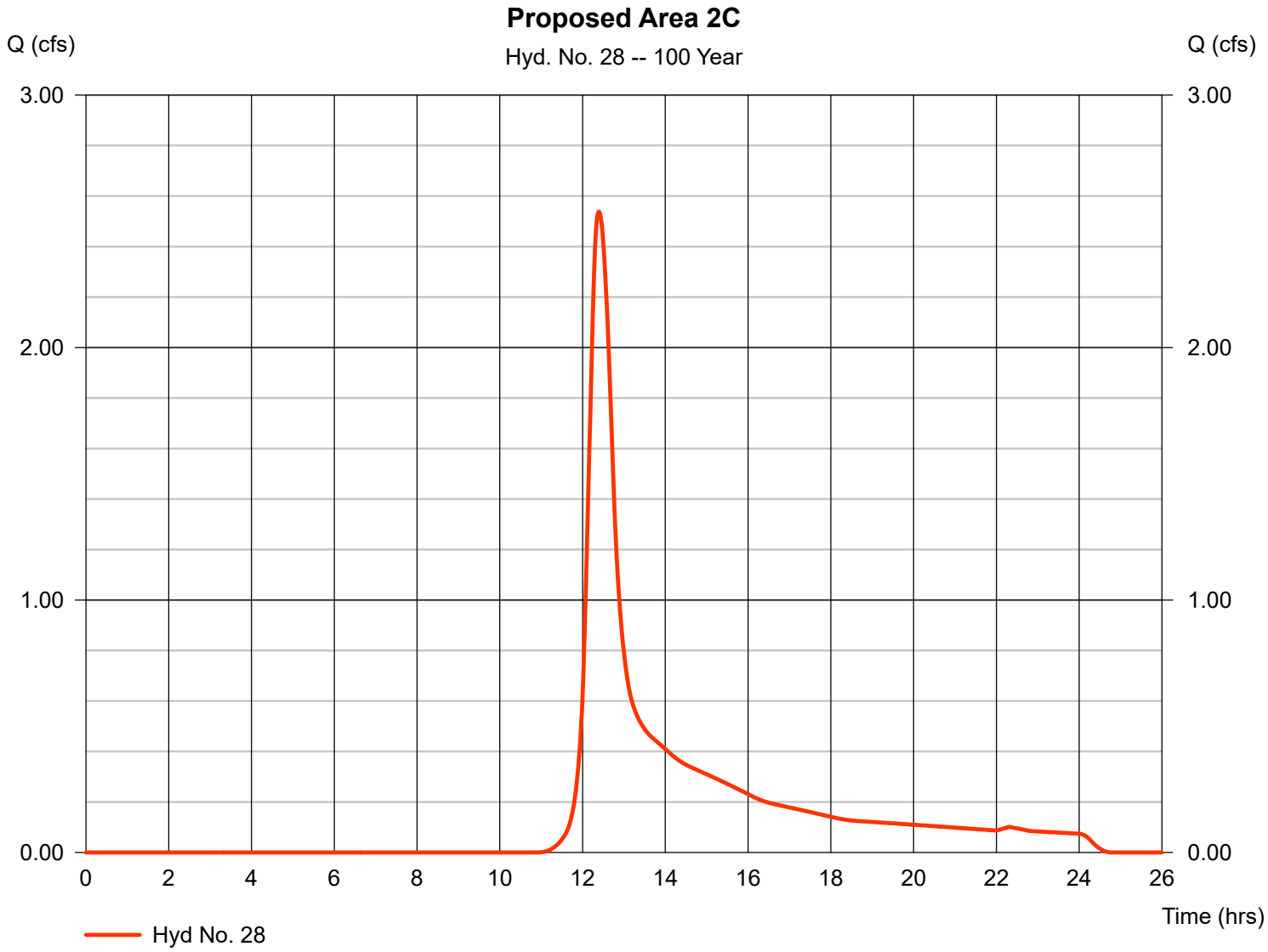
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 28

Proposed Area 2C

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.538 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.40 hrs
Time interval	=	1 min	Hyd. volume	=	14,287 cuft
Drainage area	=	1.910 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	29.00 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.850 x 55) + (0.060 x 61)] / 1.910

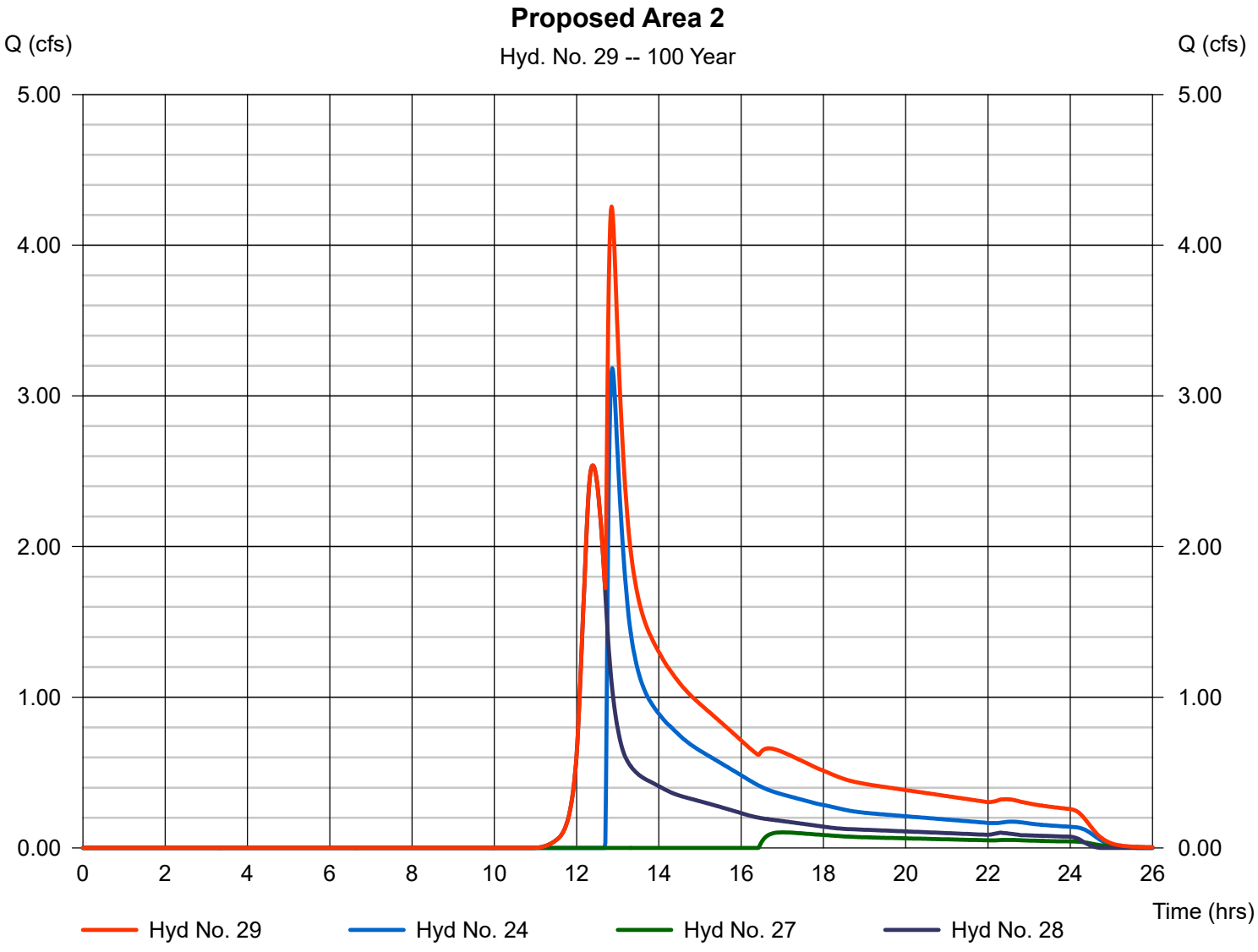


Hydrograph Report

Hyd. No. 29

Proposed Area 2

Hydrograph type	= Combine	Peak discharge	= 4.256 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.85 hrs
Time interval	= 1 min	Hyd. volume	= 35,664 cuft
Inflow hyds.	= 24, 27, 28	Contrib. drain. area	= 1.910 ac

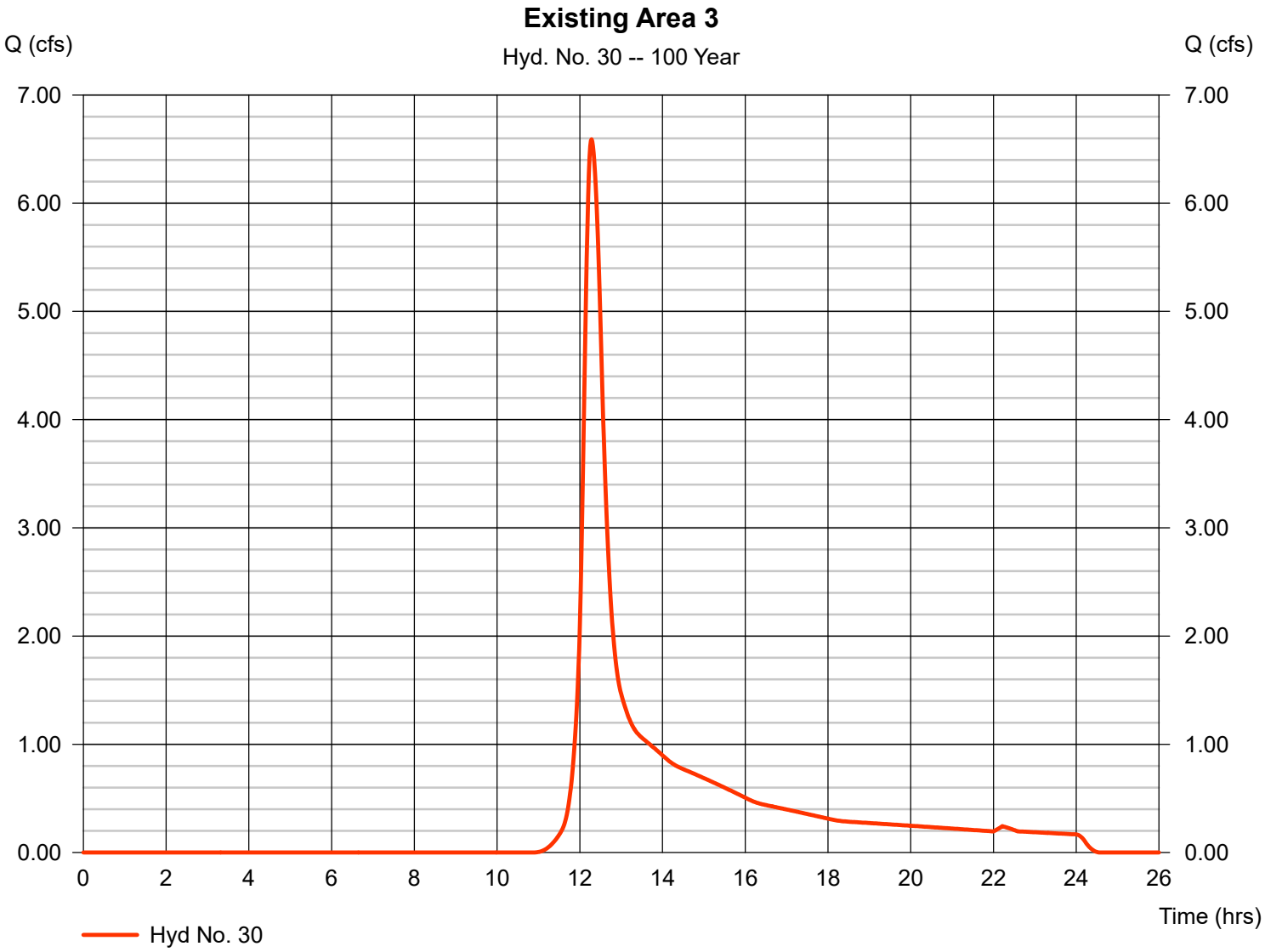


Hydrograph Report

Hyd. No. 30

Existing Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.590 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.28 hrs
Time interval	=	1 min	Hyd. volume	=	32,473 cuft
Drainage area	=	4.300 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



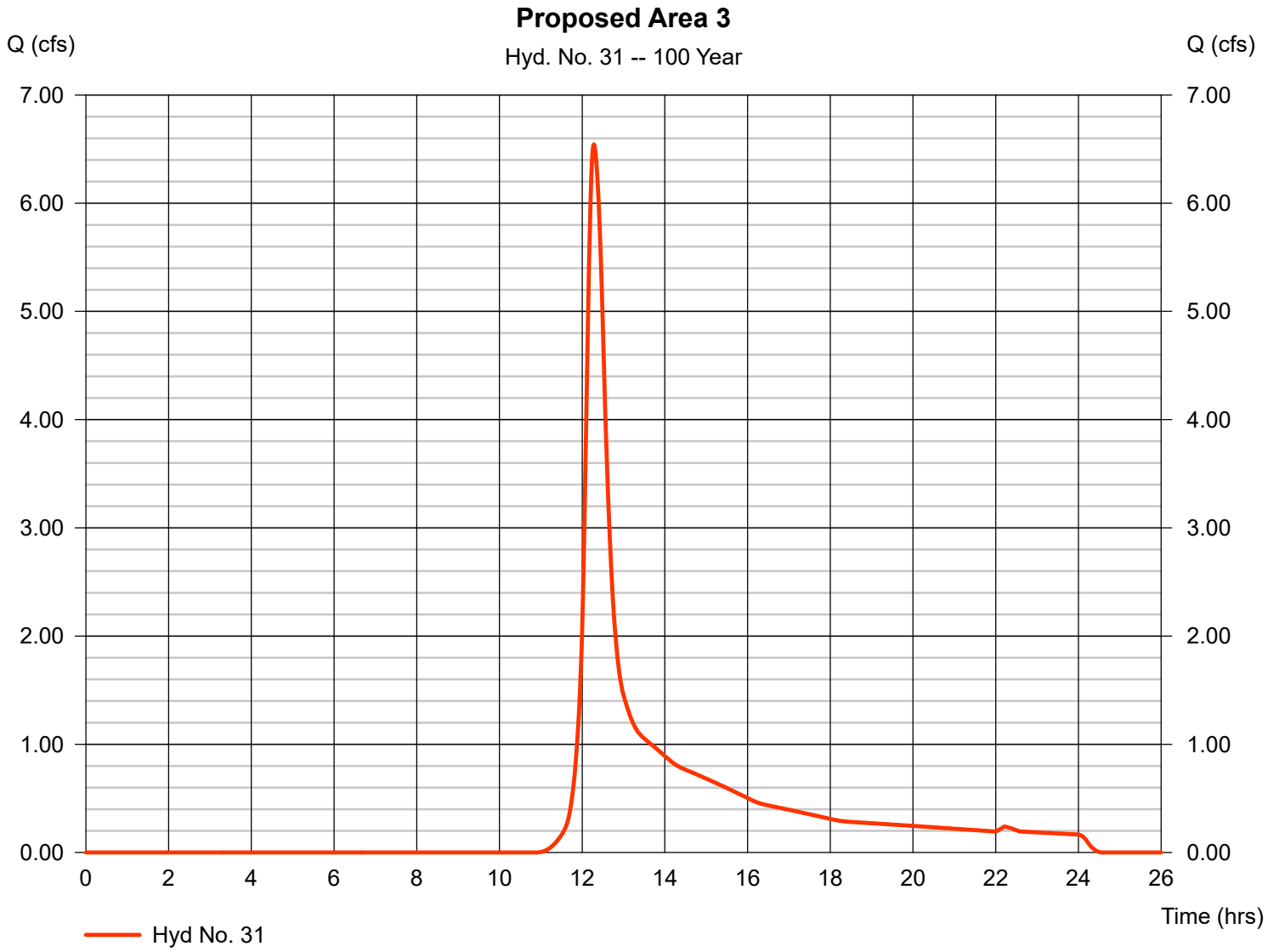
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066 Wednesday, Jul 27, 2022

Hyd. No. 31

Proposed Area 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.544 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.28 hrs
Time interval	=	1 min	Hyd. volume	=	32,247 cuft
Drainage area	=	4.270 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	21.00 min
Total precip.	=	6.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev. (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	CB Type CL #3	Grate	31.30	Cir	4.00	3.00	12	Cir	22.65	12	Cir	22.65
2	CB Type CL #2	Grate	31.55	Rect	4.00	3.00	12	Cir	23.45	12	Cir	23.45
3	CB Type CL #1	Grate	31.20	Rect	4.00	3.00	12	Cir	24.15			

Project File: CB 1-3.stm | Number of Structures: 3 | Run Date: 04-22-2022

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	12 HDPE	1.75	12	Cir	62.500	22.00	22.65	1.040	22.56	23.21	n/a	23.21	End	Grate
2	12 HDPE	0.70	12	Cir	76.000	22.65	23.45	1.053	23.21	23.81	n/a	23.81 j	1	Grate
3	12 HDPE	0.32	12	Cir	67.000	23.45	24.15	1.045	23.81	24.39	n/a	24.39 j	2	Grate

Project File: CB 1-3.stm | Number of lines: 3 | Run Date: 04-22-2022

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	62.500	0.26	0.48	0.63	0.16	0.26	5.0	8.9	6.7	1.75	3.63	3.86	12	1.04	22.00	22.65	22.56	23.21	23.00	31.30	12 HDPE
2	1	76.000	0.07	0.22	0.86	0.06	0.10	5.0	7.7	7.2	0.70	3.65	2.18	12	1.05	22.65	23.45	23.21	23.81	31.30	31.55	12 HDPE
3	2	67.000	0.15	0.15	0.25	0.04	0.04	5.0	5.0	8.7	0.32	3.64	1.76	12	1.04	23.45	24.15	23.81	24.39	31.55	31.20	12 HDPE

Project File: CB 1-3.stm | Number of lines: 3 | Run Date: 04-22-2022

NOTES: Intensity = 38.40 / (Inlet time + 3.70) ^ 0.69; Return period = 25 Yrs. ; c = cir e = ellip b = box

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev. (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	CB Typce C #10	Combination	31.30	Rect	6.54	3.00	18	Cir	24.40	15 15 15	Cir Cir Cir	24.40 24.40 24.40
2	CB Type C #7	Combination	33.00	Rect	4.00	3.00	15	Cir	26.05	15	Cir	26.05
3	CB Type CL #6	Grate	32.75	Rect	4.00	3.00	15	Cir	26.75	12	Cir	26.75
4	CB Type CL #5	Grate	32.70	Rect	4.00	3.00	12	Cir	27.50	12	Cir	27.50
5	CB Type CL #4	Grate	32.75	Rect	4.00	3.00	12	Cir	28.25			
6	CB Type CL #9	Grate	31.10	Rect	4.00	3.00	15	Cir	25.15	12	Cir	25.15
7	CB Type CL #8	Grate	32.00	Rect	4.00	3.00	12	Cir	25.60			
8	SMH #2	Manhole	33.75	Cir	4.00	4.00	15	Cir	25.50	15	Cir	25.50
9	CB Type C #11	Combination	33.00	Rect	4.00	3.00	15	Cir	26.15	12	Cir	26.15
10	CB Type C #12	Combination	36.05	Rect	4.00	3.00	12	Cir	27.65	12	Cir	27.65
11	CB Type C #13	Combination	39.20	Rect	4.00	3.00	12	Cir	34.35			

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	18 HDPE	10.46	18	Cir	24.000	22.00	24.40	10.000	23.23	25.63	1.03	25.63	End	Combination
2	15 HDPE	4.25	15	Cir	163.500	24.40	26.05	1.009	25.63	26.87	n/a	26.87 j	1	Combination
3	15 HDPE	3.85	15	Cir	64.500	26.05	26.75	1.085	26.87	27.54	n/a	27.54 j	2	Grate
4	12 HDPE	3.02	12	Cir	74.000	26.75	27.50	1.014	27.54	28.24	n/a	28.24 j	3	Grate
5	12 HDPE	2.08	12	Cir	71.500	27.50	28.25	1.049	28.24	28.86	n/a	28.86 j	4	Grate
6	15 HDPE	1.53	15	Cir	72.000	24.40	25.15	1.042	25.63	25.68	0.08	25.75	1	Grate
7	12 HDPE	0.81	12	Cir	43.000	25.15	25.60	1.047	25.75	25.98	n/a	25.98 j	6	Grate
8	15 HDPE	3.63	15	Cir	107.000	24.40	25.50	1.028	25.63	26.26	n/a	26.26 j	1	Manhole
9	15 HDPE	3.70	15	Cir	64.000	25.50	26.15	1.016	26.26	26.92	n/a	26.92	8	Combination
10	12 HDPE	2.69	12	Cir	120.000	26.15	27.65	1.250	26.92	28.35	n/a	28.35 j	9	Combination
11	12 HDPE	1.49	12	Cir	195.000	27.65	34.35	3.436	28.35	34.87	n/a	34.87 j	10	Combination

CB 4-13

Number of lines: 11

Run Date: 04-22-2022

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	24.000	0.65	3.25	0.42	0.27	1.49	5.0	8.1	7.0	10.46	33.21	6.72	18	10.00	22.00	24.40	23.23	25.63	23.50	31.30	18 HDPE
2	1	163.500	0.13	1.38	0.47	0.06	0.53	5.0	6.1	8.0	4.25	6.49	4.21	15	1.01	24.40	26.05	25.63	26.87	31.30	33.00	15 HDPE
3	2	64.500	0.21	1.25	0.53	0.11	0.47	5.0	5.8	8.2	3.85	6.73	4.62	15	1.09	26.05	26.75	26.87	27.54	33.00	32.75	15 HDPE
4	3	74.000	0.21	1.04	0.57	0.12	0.36	5.0	5.4	8.4	3.02	3.59	4.71	12	1.01	26.75	27.50	27.54	28.24	32.75	32.70	12 HDPE
5	4	71.500	0.83	0.83	0.29	0.24	0.24	5.0	5.0	8.7	2.08	3.65	3.75	12	1.05	27.50	28.25	28.24	28.86	32.70	32.75	12 HDPE
6	1	72.000	0.11	0.37	0.84	0.09	0.19	5.0	5.7	8.2	1.53	6.59	2.18	15	1.04	24.40	25.15	25.63	25.68	31.30	31.10	15 HDPE
7	6	43.000	0.26	0.26	0.36	0.09	0.09	5.0	5.0	8.7	0.81	3.64	2.29	12	1.05	25.15	25.60	25.75	25.98	31.10	32.00	12 HDPE
8	1	107.000	0.00	0.85	0.00	0.00	0.50	0.0	7.5	7.3	3.63	6.55	3.80	15	1.03	24.40	25.50	25.63	26.26	31.30	33.75	15 HDPE
9	8	64.000	0.45	0.85	0.33	0.15	0.50	5.0	7.3	7.4	3.70	6.51	4.69	15	1.02	25.50	26.15	26.26	26.92	33.75	33.00	15 HDPE
10	9	120.000	0.20	0.40	0.90	0.18	0.35	5.0	6.7	7.7	2.69	3.98	4.39	12	1.25	26.15	27.65	26.92	28.35	33.00	36.05	12 HDPE
11	10	195.000	0.20	0.20	0.86	0.17	0.17	5.0	5.0	8.7	1.49	6.60	3.09	12	3.44	27.65	34.35	28.35	34.87	36.05	39.20	12 HDPE

CB 4-13

Number of lines: 11

Run Date: 04-22-2022

NOTES: Intensity = 38.40 / (Inlet time + 3.70) ^ 0.69; Return period = 25 Yrs. ; c = cir e = ellip b = box

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev. (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	CB Type C #16	Grate	44.25	Rect	4.00	3.00	15	Cir	34.90	15 12	Cir Cir	34.90 34.90
2	SMH #3	Manhole	43.00	Cir	4.00	4.00	15	Cir	40.55	15	Cir	40.55
3	CB Type C #18	Combination	51.75	Rect	4.00	3.00	15	Cir	45.00	12	Cir	45.00
4	CB Type CL #17	Grate	53.45	Rect	4.00	3.00	12	Cir	48.00			
5	CB Type C #15	Grate	43.90	Rect	4.00	3.00	12	Cir	36.60	12	Cir	36.60
6	CB Typce C #14	Grate	45.55	Rect	4.00	3.00	12	Cir	40.50			

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	15 HDPE	7.37	15	Cir	37.500	32.00	34.90	7.733	33.08	35.98	0.88	35.98	End	Grate
2	15 HDPE	4.80	15	Cir	64.500	34.90	40.55	8.760	35.98	41.43	n/a	41.43 j	1	Manhole
3	15 HDPE	4.94	15	Cir	109.000	40.55	45.00	4.083	41.43	45.89	n/a	45.89	2	Combination
4	12 HDPE	1.40	12	Cir	126.500	45.00	48.00	2.372	45.89	48.50	n/a	48.50 j	3	Grate
5	12 HDPE	2.70	12	Cir	34.000	34.90	36.60	5.000	35.98	37.30	n/a	37.30 j	1	Grate
6	12 HDPE	1.52	12	Cir	101.500	36.60	40.50	3.842	37.30	41.02	n/a	41.02 j	5	Grate

CB 14-18

Number of lines: 6

Run Date: 06-21-2022

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	37.500	0.02	1.32	0.90	0.02	0.97	5.0	6.9	7.6	7.37	17.96	6.52	15	7.73	32.00	34.90	33.08	35.98	33.25	44.25	15 HDPE
2	1	64.500	0.00	0.86	0.00	0.00	0.62	0.0	6.6	7.7	4.80	19.11	4.73	15	8.76	34.90	40.55	35.98	41.43	44.25	43.00	15 HDPE
3	2	109.000	0.55	0.86	0.84	0.46	0.62	5.0	6.2	7.9	4.94	13.05	5.33	15	4.08	40.55	45.00	41.43	45.89	43.00	51.75	15 HDPE
4	3	126.500	0.31	0.31	0.52	0.16	0.16	5.0	5.0	8.7	1.40	5.48	2.72	12	2.37	45.00	48.00	45.89	48.50	51.75	53.45	12 HDPE
5	1	34.000	0.19	0.44	0.83	0.16	0.33	5.0	5.9	8.1	2.70	7.96	4.03	12	5.00	34.90	36.60	35.98	37.30	44.25	43.90	12 HDPE
6	5	101.500	0.25	0.25	0.70	0.18	0.18	5.0	5.0	8.7	1.52	6.98	3.12	12	3.84	36.60	40.50	37.30	41.02	43.90	45.55	12 HDPE

CB 14-18

Number of lines: 6

Run Date: 06-21-2022

NOTES: Intensity = 38.40 / (Inlet time + 3.70) ^ 0.69; Return period = 25 Yrs. ; c = cir e = ellip b = box

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev. (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	Double CB Type C #20	Combination	59.05	Rect	4.00	3.00	18	Cir	54.25	15 15	Cir Cir	54.25 54.25
2	CB Type C #19	Combination	62.30	Rect	4.00	3.00	15	Cir	56.60			
3	Drainage Manhole #4	Manhole	68.00	Cir	4.00	4.00	15	Cir	60.80	15	Cir	60.80
4	Double CB Type C #20	Grate	67.20	Rect	4.00	3.00	15	Cir	63.20			

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	18 HDPE	9.03	18	Cir	40.000	52.00	54.25	5.625	53.15	55.40	n/a	55.40	End	Combination
2	15 HDPE	2.03	15	Cir	195.000	54.25	56.60	1.205	55.40	57.17	n/a	57.17 j	1	Combination
3	15 HDPE	2.54	15	Cir	125.000	54.25	60.80	5.240	55.40	61.44	n/a	61.44 j	1	Manhole
4	15 HDPE	2.61	15	Cir	44.000	60.80	63.20	5.455	61.44	63.85	n/a	63.85	3	Grate

CB 19-20

Number of lines: 4

Run Date: 06-21-2022

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	40.000	0.82	2.17	0.81	0.66	1.20	5.0	7.0	7.5	9.03	24.91	6.23	18	5.63	52.00	54.25	53.15	55.40	53.25	59.05	18 HDPE
2	1	195.000	0.90	0.90	0.26	0.23	0.23	5.0	5.0	8.7	2.03	7.09	2.72	15	1.21	54.25	56.60	55.40	57.17	59.05	62.30	15 HDPE
3	1	125.000	0.00	0.45	0.00	0.00	0.30	5.0	5.3	8.4	2.54	14.78	3.10	15	5.24	54.25	60.80	55.40	61.44	59.05	68.00	15 HDPE
4	3	44.000	0.45	0.45	0.67	0.30	0.30	5.0	5.0	8.7	2.61	15.08	4.11	15	5.45	60.80	63.20	61.44	63.85	68.00	67.20	15 HDPE

CB 19-20 | Number of lines: 4 | Run Date: 06-21-2022

NOTES: Intensity = 38.40 / (Inlet time + 3.70) ^ 0.69; Return period = 25 Yrs. ; c = cir e = ellip b = box

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev. (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	Double CB Type C #22	Combination	68.80	Rect	6.54	3.00	18	Cir	64.80			

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	18 HDPE	1.71	18	Cir	26.700	64.50	64.80	1.124	65.00	65.30	n/a	65.30	End	Combination

CB 24

Number of lines: 1

Run Date: 04-22-2022

NOTES: Return period = 25 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	26.700	0.47	0.47	0.42	0.20	0.20	5.0	5.0	8.7	1.71	11.13	3.32	18	1.12	64.50	64.80	65.00	65.30	66.00	68.80	18 HDPE

CB 24

Number of lines: 1

Run Date: 04-22-2022

NOTES: Intensity = 38.40 / (Inlet time + 3.70) ^ 0.69; Return period = 25 Yrs. ; c = cir e = ellip b = box

Splash Pad Calculations

Basin 1 Forebay Inlet

Sedimentation Basin Sizing	
Splash Pad Length = (1.7*Q)/(D^(3/2)) + (8*D) Splash Pad Width = (3*D) + (0.4*L) D50 = (0.02/(0.5*D))*(Q/D)^(4/3)	
Flow (cfs)	1.75
Pipe Diameter (ft)	1
Splash Pad Length (ft)	**11.0**
Splash Pad Width (ft)	**7.4**
D50 (ft)	0.084
D50 (in)	**1**

Basin 1 Inlet

Sedimentation Basin Sizing	
Splash Pad Length = (1.7*Q)/(D^(3/2)) + (8*D) Splash Pad Width = (3*D) + (0.4*L) D50 = (0.02/(0.5*D))*(Q/D)^(4/3)	
Flow (cfs)	0.16
Pipe Diameter (ft)	1.5
Splash Pad Length (ft)	**12.1**
Splash Pad Width (ft)	**9.4**
D50 (ft)	0.001
D50 (in)	**0**

Basin 2 Forebay Inlet

Sedimentation Basin Sizing	
Splash Pad Length = (1.7*Q)/(D^(3/2)) + (8*D) Splash Pad Width = (3*D) + (0.4*L) D50 = (0.02/(0.5*D))*(Q/D)^(4/3)	
Flow (cfs)	10.46
Pipe Diameter (ft)	1.5
Splash Pad Length (ft)	**21.7**
Splash Pad Width (ft)	**13.2**
D50 (ft)	0.355
D50 (in)	**4**

Basin 2 Outlet

Sedimentation Basin Sizing	
Splash Pad Length = (1.7*Q)/(D^(3/2)) + (8*D) Splash Pad Width = (3*D) + (0.4*L) D50 = (0.02/(0.5*D))*(Q/D)^(4/3)	
Flow (cfs)	2
Pipe Diameter (ft)	1.5
Splash Pad Length (ft)	**13.9**
Splash Pad Width (ft)	**10.0**
D50 (ft)	0.039
D50 (in)	**0**

Basin 3 Forebay Inlet

Sedimentation Basin Sizing	
Splash Pad Length = (1.7*Q)/(D^(3/2)) + (8*D) Splash Pad Width = (3*D) + (0.4*L) D50 = (0.02/(0.5*D))*(Q/D)^(4/3)	
Flow (cfs)	7.37
Pipe Diameter (ft)	1.25
Splash Pad Length (ft)	**19.0**
Splash Pad Width (ft)	**11.3**
D50 (ft)	0.341
D50 (in)	**4**

Basin 4 Forebay Inlet

Sedimentation Basin Sizing	
Splash Pad Length = (1.7*Q)/(D^(3/2)) + (8*D) Splash Pad Width = (3*D) + (0.4*L) D50 = (0.02/(0.5*D))*(Q/D)^(4/3)	
Flow (cfs)	9.03
Pipe Diameter (ft)	1.5
Splash Pad Length (ft)	**20.4**
Splash Pad Width (ft)	**12.6**
D50 (ft)	0.292
D50 (in)	**4**

Basin 5 Forebay Inlet

Sedimentation Basin Sizing	
Splash Pad Length = (1.7*Q)/(D^(3/2)) + (8*D) Splash Pad Width = (3*D) + (0.4*L) D50 = (0.02/(0.5*D))*(Q/D)^(4/3)	
Flow (cfs)	1.71
Pipe Diameter (ft)	1.5
Splash Pad Length (ft)	**13.6**
Splash Pad Width (ft)	**9.9**
D50 (ft)	0.032
D50 (in)	**0**

Basin 5 Inlet

Sedimentation Basin Sizing	
Splash Pad Length = (1.7*Q)/(D^(3/2)) + (8*D) Splash Pad Width = (3*D) + (0.4*L) D50 = (0.02/(0.5*D))*(Q/D)^(4/3)	
Flow (cfs)	1.05
Pipe Diameter (ft)	1.5
Splash Pad Length (ft)	**13.0**
Splash Pad Width (ft)	**9.7**
D50 (ft)	0.017
D50 (in)	**0**